Potential Flow Forces and Moments from Selected Ship Flow Codes in a Set of Numerical Experiments

Appendix M — Minimum and Maximum Plots for Prescribed Roll Motion of Model 5613

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Introduction

This appendix contains plots and tables related to the minimum and maximum value of each variable versus the roll amplitude ϕ_a for the prescribed roll motion of Model 5613 in task 1. The plots are found in Figures M–1 through M–114. For each variable, speed, and frequency there is one plot that depicts the results from all the codes. If f stands for a time-dependent variable, then the quantities plotted are the minimum and maximum of

$$f^* \equiv \frac{f - \langle f \rangle}{\phi_a}$$

where $\langle f \rangle$ is the mean. Only filtered values f are used since filtered values lessen the impact of spikes that probably originate in numerical filtering schemes in the codes. Linear variation as a function of the amplitude appears as a horizontal line. Quadratic variation appears as a straight line with a nonzero slope.

Tables M–1 through M–912 in this appendix correspond to the plots. Following each plot is one table for each of the eight codes for which data were received. The tables give information about the mean, the minimum and maximum of the unfiltered variable, the minimum and maximum of the filtered variable, and the starred function depicted in the figure.

For the corresponding time history plots, the reader is referred to Appendix C.

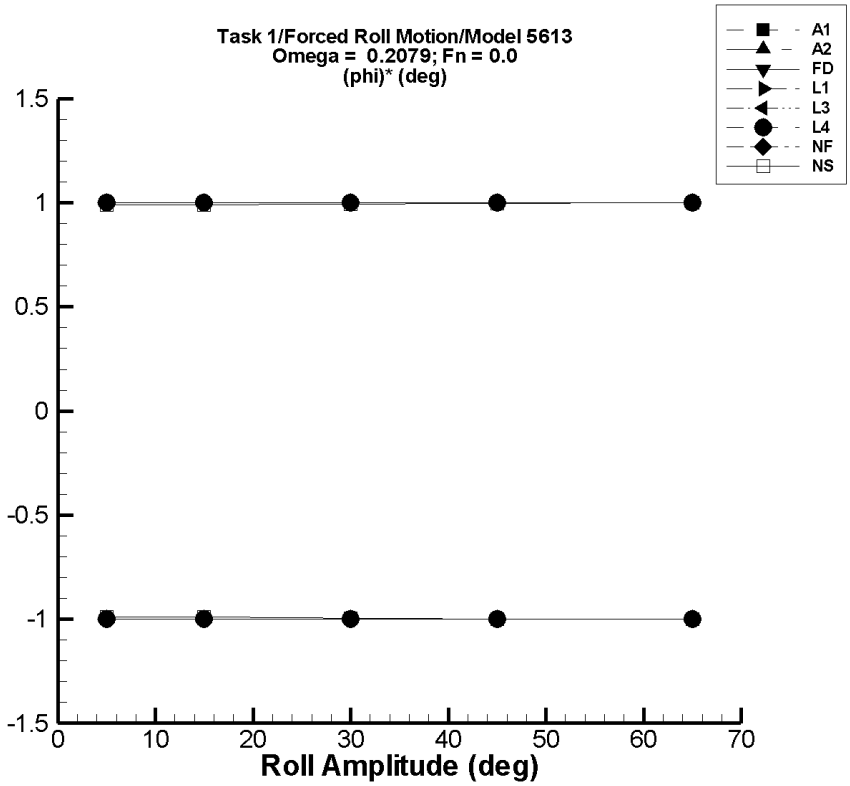

Figure M–1. Minimum and Maximum of $(\phi)^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–1. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–2. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–3. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.60E-07	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	-3.88E-07	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	-2.43E-06	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	-4.26E-09	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	-8.71E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–4. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–5. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–6. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–7. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–8. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	4.90E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	1.98E-06	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	4.50E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-4.90E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	6.33E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

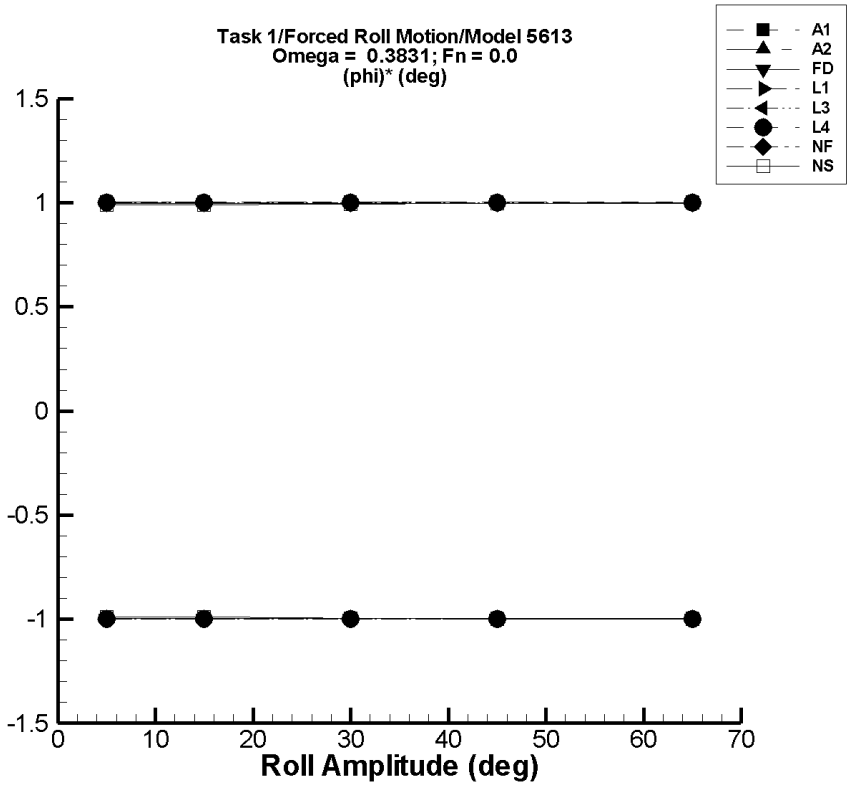

Figure M–2. Minimum and Maximum of $(\phi)^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–9. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	9.03E-06	-65.0	65.0	-64.8	65.2	-0.996	1.00

Table M–10. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	-4.27E-05	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–11. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.50E-07	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.43E-06	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.46E-06	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	3.83E-06	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	9.18E-06	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–12. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–13. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–14. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–15. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–16. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	3.61E-08	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	5.14E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	7.65E-08	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	1.61E-07	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	5.38E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

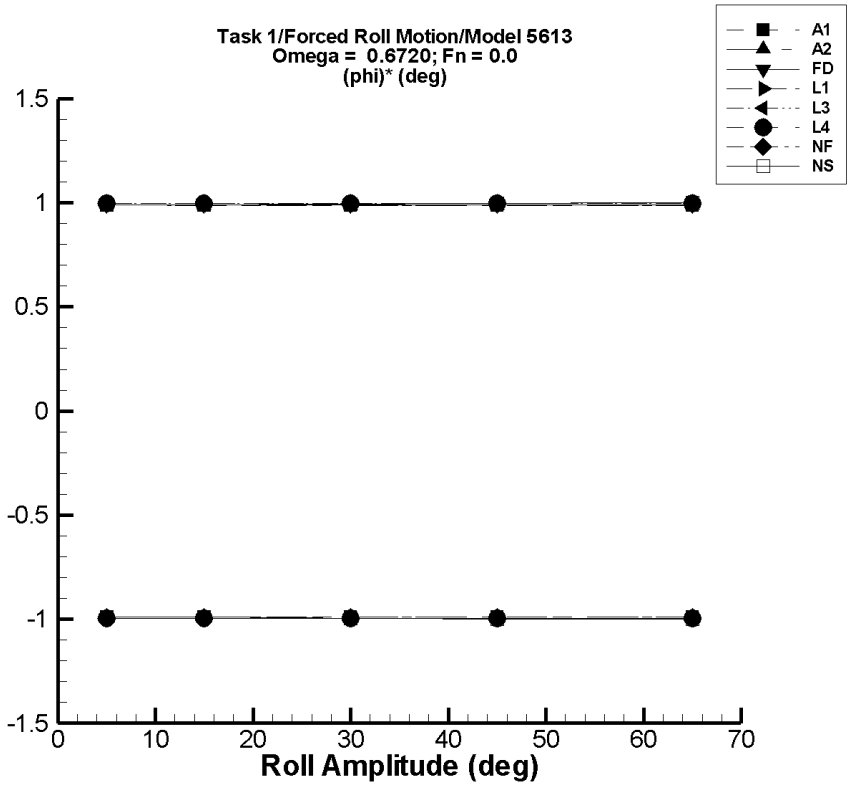

Figure M–3. Minimum and Maximum of $(\phi)^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–17. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988

Table M–18. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988

Table M–19. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-6.65E-06	-5.00	5.00	-4.97	4.94	-0.995	0.988
15.	-1.95E-05	-15.0	15.0	-14.9	14.8	-0.995	0.988
30.	-3.96E-05	-30.0	30.0	-29.8	29.7	-0.995	0.988
45.	-5.69E-05	-45.0	45.0	-44.8	44.5	-0.995	0.988
65.	-8.29E-05	-65.0	65.0	-64.7	64.3	-0.995	0.988

Table M–20. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–21. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–22. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–23. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–24. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	-2.79E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	-8.78E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	-1.39E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-1.04E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	4.61E-07	-65.0	65.0	-64.9	64.9	-0.999	0.999

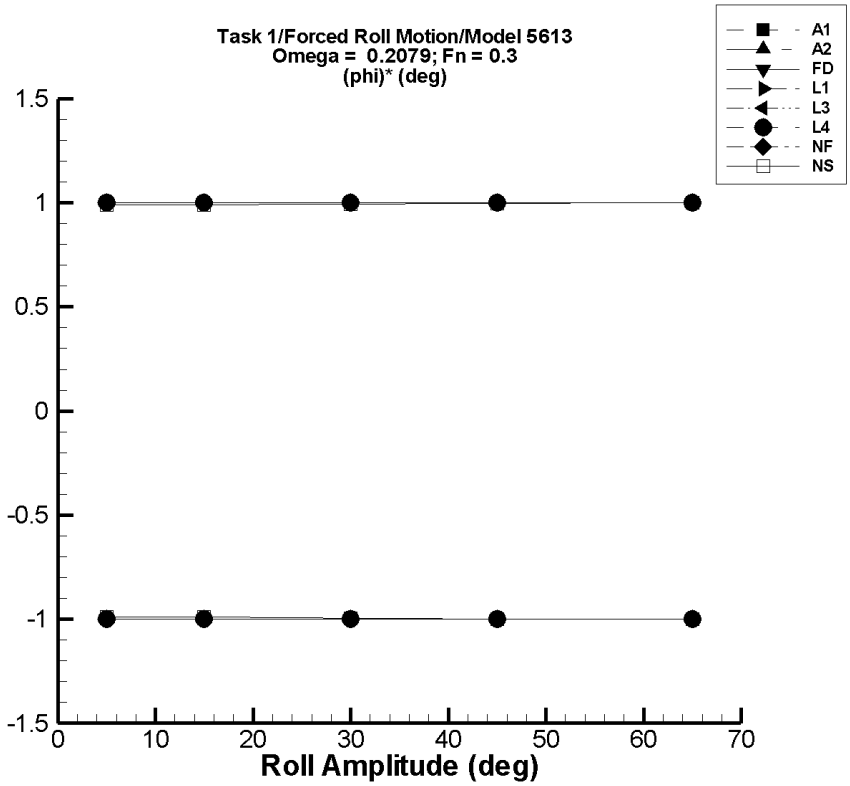

Figure M–4. Minimum and Maximum of $(\phi)^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–25. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–26. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-3.69E-06	-5.00	5.00	-5.00	5.00	-0.999	1.00
15.	-1.17E-05	-15.0	15.0	-15.0	15.0	-0.999	1.00
30.	-2.30E-05	-30.0	30.0	-30.0	30.0	-0.999	1.00
45.	-3.89E-05	-45.0	45.0	-45.0	45.0	-0.999	1.00
65.	-4.87E-05	-65.0	65.0	-64.9	65.0	-0.999	1.00

Table M–27. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.60E-07	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	-3.88E-07	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	-2.43E-06	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	-4.26E-09	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	-8.71E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–28. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–29. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–30. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.71E-06	-5.00	5.00	-5.00	5.00	-1.00	1.00
15.	2.64E-05	-15.0	15.0	-15.0	15.0	-1.00	1.00
30.	5.44E-05	-30.0	30.0	-30.0	30.0	-1.00	1.00
45.	6.02E-06	-45.0	45.0	-45.0	45.0	-1.00	1.00
65.	7.76E-05	-65.0	65.0	-65.0	65.0	-1.00	1.00

Table M–31. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–32. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	4.90E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	1.98E-06	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	4.50E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-4.90E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	-3.48E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

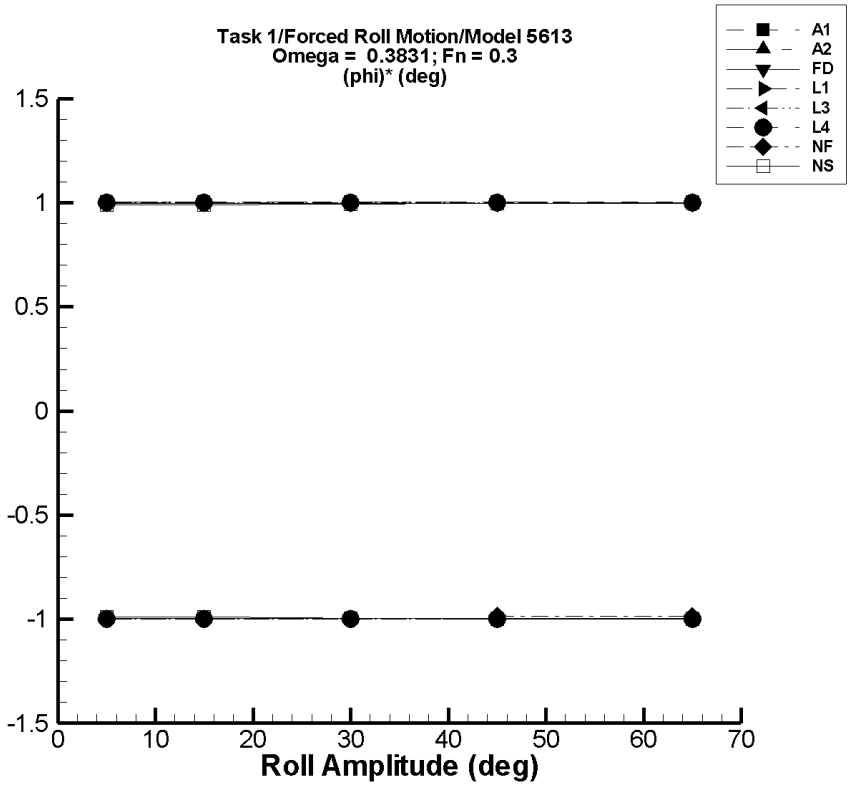

Figure M–5. Minimum and Maximum of $(\phi)^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–33. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	9.03E-06	-65.0	65.0	-64.8	65.2	-0.996	1.00

Table M–34. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-6.11E-08	-5.00	5.00	-4.98	5.02	-0.997	1.00
15.	1.18E-06	-15.0	15.0	-14.9	15.0	-0.996	1.00
30.	1.43E-06	-30.0	30.0	-29.9	30.1	-0.996	1.00
45.	-3.38E-06	-45.0	45.0	-44.8	45.1	-0.996	1.00
65.	-4.27E-05	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–35. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	1.50E-07	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.43E-06	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.46E-06	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	3.83E-06	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	9.18E-06	-65.0	65.0	-64.8	64.8	-0.996	0.996

Table M–36. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–37. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–38. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	2.05E-05	-5.00	5.00	-4.99	4.99	-0.999	0.999
15.	4.79E-05	-15.0	15.0	-15.0	15.0	-0.999	0.999
30.	9.32E-05	-30.0	30.0	-30.0	30.0	-0.999	0.999
45.	1.61E-04	-45.0	45.0	-44.9	44.9	-0.999	0.999
65.	1.94E-04	-65.0	65.0	-64.9	64.9	-0.999	0.999

Table M–39. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-0.218	-30.0	30.0	-29.8	29.8	-0.986	1.00
45.	-0.327	-45.0	45.0	-44.7	44.7	-0.986	1.00
65.	-0.473	-65.0	65.0	-64.6	64.6	-0.986	1.00

Table M–40. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	3.61E-08	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	5.14E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	7.65E-08	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	1.61E-07	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	5.38E-06	-65.0	65.0	-64.9	64.9	-0.999	0.999

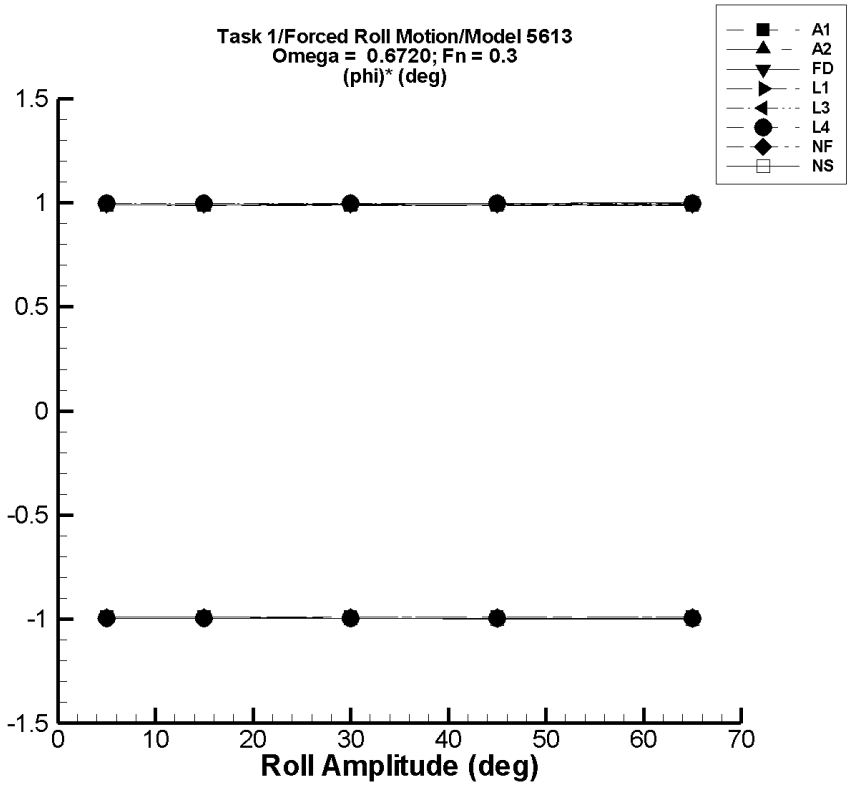

Figure M–6. Minimum and Maximum of $(\phi)^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–41. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988

Table M–42. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-4.92E-06	-5.00	5.00	-4.94	4.94	-0.989	0.989
15.	-1.51E-05	-15.0	15.0	-14.8	14.8	-0.988	0.988
30.	-2.94E-05	-30.0	30.0	-29.7	29.6	-0.988	0.988
45.	-4.72E-05	-45.0	45.0	-44.5	44.5	-0.988	0.988
65.	-6.81E-05	-65.0	65.0	-64.2	64.2	-0.988	0.988

Table M–43. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	-6.65E-06	-5.00	5.00	-4.97	4.94	-0.995	0.988
15.	-1.95E-05	-15.0	15.0	-14.9	14.8	-0.995	0.988
30.	-3.96E-05	-30.0	30.0	-29.8	29.7	-0.995	0.988
45.	-5.69E-05	-45.0	45.0	-44.8	44.5	-0.995	0.988
65.	-8.29E-05	-65.0	65.0	-64.7	64.3	-0.995	0.988

Table M–44. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–45. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–46. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(deg)**	**(deg)**	**(deg)**	**(deg)**	**(deg)**	(1)	(1)
5.	7.30E-05	-5.00	5.00	-4.98	4.98	-0.996	0.996
15.	2.31E-04	-15.0	15.0	-14.9	14.9	-0.996	0.996
30.	4.66E-04	-30.0	30.0	-29.9	29.9	-0.996	0.996
45.	6.94E-04	-45.0	45.0	-44.8	44.8	-0.996	0.996
65.	1.03E-03	-65.0	65.0	-64.7	64.7	-0.996	0.996

Table M–47. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	6.83E-02	-30.0	30.0	-29.9	29.8	-0.998	0.992
45.	0.102	-45.0	45.0	-44.8	44.8	-0.998	0.992
65.	0.146	-65.0	65.0	-64.7	64.7	-0.998	0.992

Table M–48. Minimum and Maximum of ϕ for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle\phi\rangle$	**Unfiltered ϕ**		**Filtered ϕ**		**Filtered $(\phi)^*$**	
ϕ_a **(°)**	**Mean (deg)**	**Min. (deg)**	**Max. (deg)**	**Min. (deg)**	**Max. (deg)**	**Min.** (1)	**Max.** (1)
5.	-2.79E-07	-5.00	5.00	-4.95	4.95	-0.990	0.990
15.	-8.78E-07	-15.0	15.0	-14.9	14.9	-0.990	0.990
30.	-1.39E-06	-30.0	30.0	-29.9	29.9	-0.995	0.995
45.	-1.04E-06	-45.0	45.0	-44.9	44.9	-0.998	0.998
65.	4.61E-07	-65.0	65.0	-64.9	64.9	-0.999	0.999

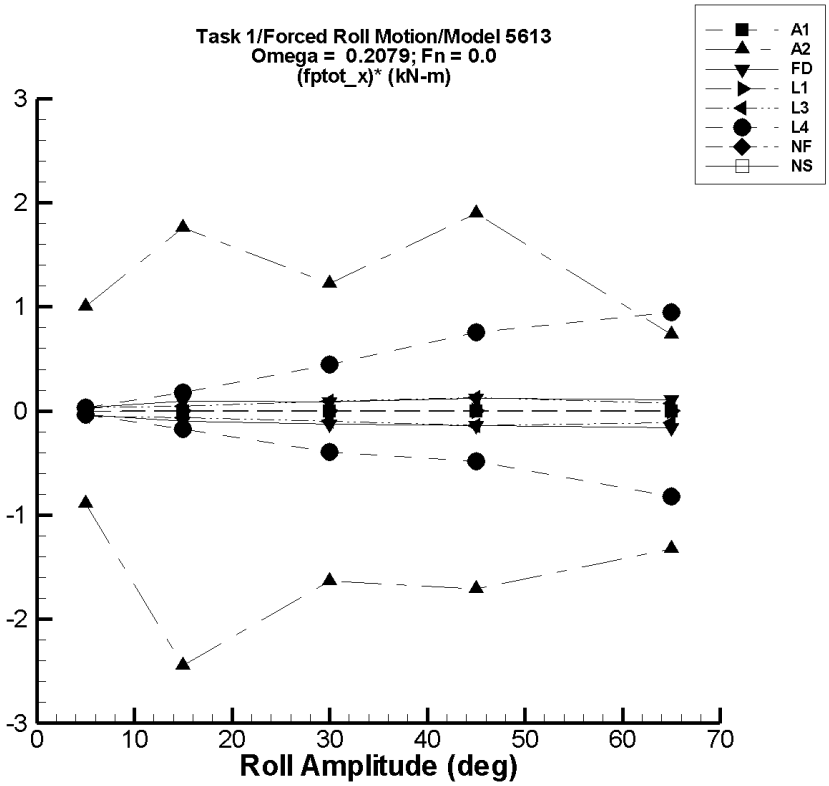

Figure M–7. Minimum and Maximum of $(F_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–49. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-2.99E-07	-1.94E-05	1.98E-05	-1.13E-05	1.14E-05	-2.20E-06	2.34E-06
15.	-8.97E-07	-5.81E-05	5.92E-05	-3.38E-05	3.42E-05	-2.20E-06	2.34E-06
30.	-1.79E-06	-1.16E-04	1.18E-04	-6.77E-05	6.83E-05	-2.20E-06	2.34E-06
45.	-2.69E-06	-1.74E-04	1.78E-04	-1.02E-04	1.03E-04	-2.20E-06	2.34E-06
65.	-3.89E-06	-2.52E-04	2.57E-04	-1.47E-04	1.48E-04	-2.20E-06	2.34E-06

Table M–50. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.28E-02	9.66	0.127	9.58	-0.890	1.00
15.	39.4	-4.03E-02	67.0	2.72	65.8	-2.45	1.76
30.	52.1	-5.33E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-4.15E-02	177.	2.71	165.	-1.71	1.90
65.	88.7	-317.	177.	2.64	136.	-1.32	0.735

Table M–51. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M–52. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.29E-04	-2.61E-03	1.51E-03	-2.53E-03	1.46E-03	-4.01E-04	3.98E-04
15.	-4.76E-03	-2.29E-02	1.33E-02	-2.27E-02	1.31E-02	-1.20E-03	1.19E-03
30.	-1.91E-02	-9.11E-02	5.28E-02	-9.07E-02	5.26E-02	-2.39E-03	2.39E-03
45.	-4.29E-02	-0.204	0.119	-0.204	0.118	-3.58E-03	3.58E-03
65.	-8.94E-02	-0.427	0.247	-0.426	0.247	-5.18E-03	5.17E-03

Table M–53. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.07E-02	3.01E-02
15.	-38.2	-39.2	-37.5	-39.2	-37.5	-6.59E-02	4.75E-02
30.	-36.2	-39.2	-33.4	-39.2	-33.4	-9.92E-02	9.40E-02
45.	-32.9	-39.2	-27.3	-39.2	-27.3	-0.139	0.126
65.	-31.7	-39.3	-27.1	-39.2	-27.1	-0.115	7.09E-02

Table M–54. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-39.8	-38.5	-39.1	-38.7	-3.34E-02	2.90E-02
15.	-38.1	-40.8	-35.1	-40.7	-35.4	-0.172	0.177
30.	-35.7	-48.5	-21.4	-47.5	-22.3	-0.393	0.446
45.	-31.1	-55.5	5.70	-52.9	2.89	-0.485	0.754
65.	-23.3	-81.4	42.9	-76.5	38.3	-0.818	0.948

Table M–55. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–56. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

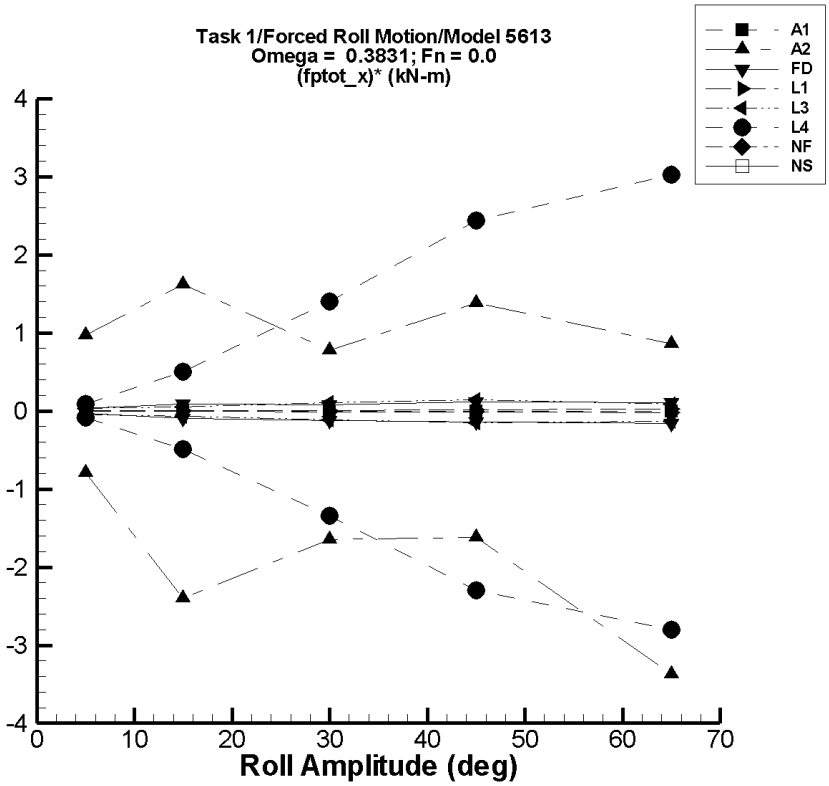

Figure M–8. Minimum and Maximum of $(F_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–57. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-9.17E-07	-5.55E-05	6.35E-05	-2.69E-05	4.36E-05	-5.20E-06	8.91E-06
15.	-2.75E-06	-1.66E-04	1.90E-04	-8.07E-05	1.31E-04	-5.20E-06	8.91E-06
30.	-5.50E-06	-3.33E-04	3.81E-04	-1.61E-04	2.62E-04	-5.20E-06	8.91E-06
45.	-8.25E-06	-4.99E-04	5.71E-04	-2.42E-04	3.93E-04	-5.20E-06	8.91E-06
65.	-1.19E-05	-7.21E-04	8.25E-04	-3.50E-04	5.67E-04	-5.20E-06	8.91E-06

Table M–58. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.31E-02	9.66	0.611	9.43	-0.794	0.969
15.	39.4	-5.35E-02	67.0	3.38	63.6	-2.40	1.62
30.	52.1	-1.22E-02	101.	2.62	75.4	-1.65	0.777
45.	79.5	6.17E-02	177.	6.86	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

Table M–59. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M–60. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-9.09E-03	-1.77E-02	-7.24E-04	-1.75E-02	-8.01E-04	-1.68E-03	1.66E-03
15.	-8.18E-02	-0.158	-6.85E-03	-0.157	-7.29E-03	-5.04E-03	4.97E-03
30.	-0.327	-0.632	-2.76E-02	-0.630	-2.92E-02	-1.01E-02	9.93E-03
45.	-0.736	-1.42	-6.16E-02	-1.42	-6.58E-02	-1.51E-02	1.49E-02
65.	-1.54	-2.97	-0.129	-2.96	-0.137	-2.18E-02	2.15E-02

Table M–61. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.15E-02	3.23E-02
15.	-38.2	-39.3	-37.4	-39.3	-37.5	-7.03E-02	5.26E-02
30.	-36.5	-39.8	-33.3	-39.8	-33.4	-0.109	0.105
45.	-33.6	-40.6	-27.1	-40.5	-27.1	-0.154	0.144
65.	-33.4	-42.2	-26.9	-42.0	-27.5	-0.133	9.03E-02

Table M–62. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-40.5	-37.8	-39.3	-38.4	-8.55E-02	9.16E-02
15.	-37.8	-45.9	-29.5	-45.1	-30.4	-0.485	0.498
30.	-35.0	-78.5	12.2	-75.3	7.20	-1.34	1.41
45.	-30.3	-144.	97.2	-134.	79.4	-2.30	2.44
65.	-20.1	-228.	227.	-202.	177.	-2.80	3.03

Table M–63. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–64. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

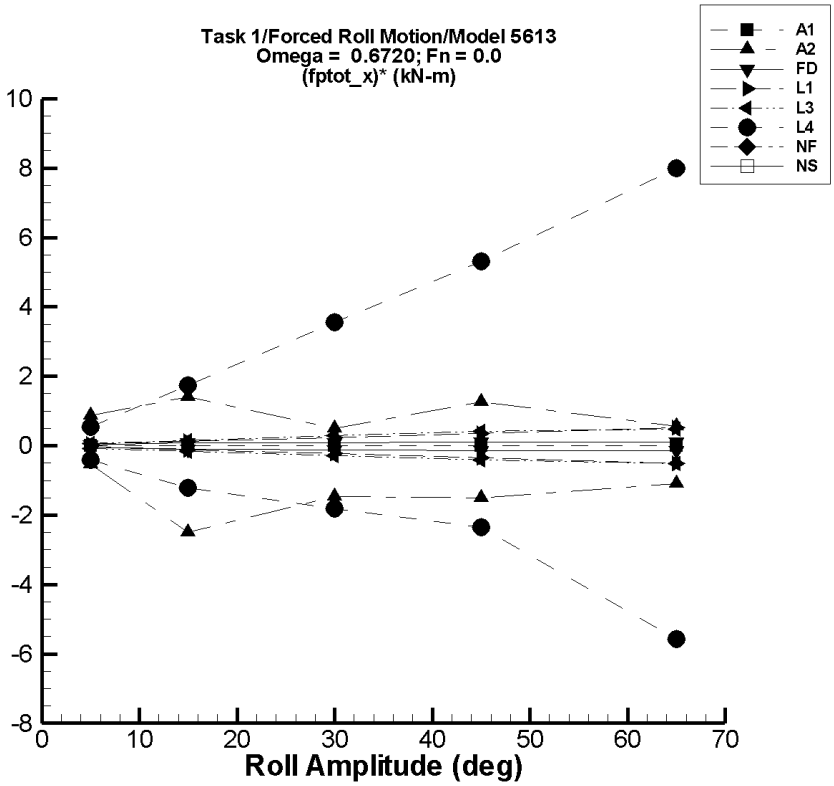

Figure M–9. Minimum and Maximum of $(F_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–65. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.15E-06	-1.41E-04	1.73E-04	-1.35E-04	1.47E-04	-2.73E-05	2.91E-05
15.	3.44E-06	-4.22E-04	5.18E-04	-4.06E-04	4.39E-04	-2.73E-05	2.91E-05
30.	6.88E-06	-8.44E-04	1.04E-03	-8.12E-04	8.79E-04	-2.73E-05	2.91E-05
45.	1.03E-05	-1.27E-03	1.55E-03	-1.22E-03	1.32E-03	-2.73E-05	2.91E-05
65.	1.49E-05	-1.83E-03	2.24E-03	-1.76E-03	1.90E-03	-2.73E-05	2.91E-05

Table M–66. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.48	-5.33E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	1.46E-02	67.0	2.54	61.1	-2.49	1.41
30.	52.5	0.249	101.	8.35	67.4	-1.47	0.497
45.	80.1	-1.97E-02	177.	12.7	136.	-1.50	1.25
65.	87.4	-152.	177.	15.8	124.	-1.10	0.559

Table M–67. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M–68. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.179	-0.377	1.89E-02	-0.374	1.66E-02	-3.89E-02	3.91E-02
15.	-1.61	-3.39	0.171	-3.36	0.151	-0.117	0.117
30.	-6.44	-13.6	0.683	-13.4	0.603	-0.234	0.235
45.	-14.5	-30.5	1.54	-30.3	1.35	-0.350	0.352
65.	-30.2	-63.7	3.20	-63.1	2.83	-0.506	0.509

Table M–69. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-39.1	-39.5	-38.8	-39.5	-38.8	-7.98E-02	6.21E-02
15.	-39.8	-42.1	-37.6	-42.1	-37.6	-0.156	0.144
30.	-42.6	-51.2	-33.9	-51.1	-34.2	-0.284	0.281
45.	-47.4	-66.6	-28.1	-66.3	-28.5	-0.420	0.419
65.	-62.1	-96.6	-31.0	-96.0	-31.5	-0.522	0.471

Table M–70. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-38.5	-41.9	-34.8	-40.6	-35.8	-0.410	0.537
15.	-34.5	-55.9	-7.20	-52.9	-8.35	-1.22	1.75
30.	-25.2	-96.7	100.	-79.3	81.1	-1.81	3.54
45.	-10.7	-140.	288.	-117.	228.	-2.35	5.30
65.	31.5	-468.	740.	-330.	551.	-5.57	7.99

Table M–71. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–72. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

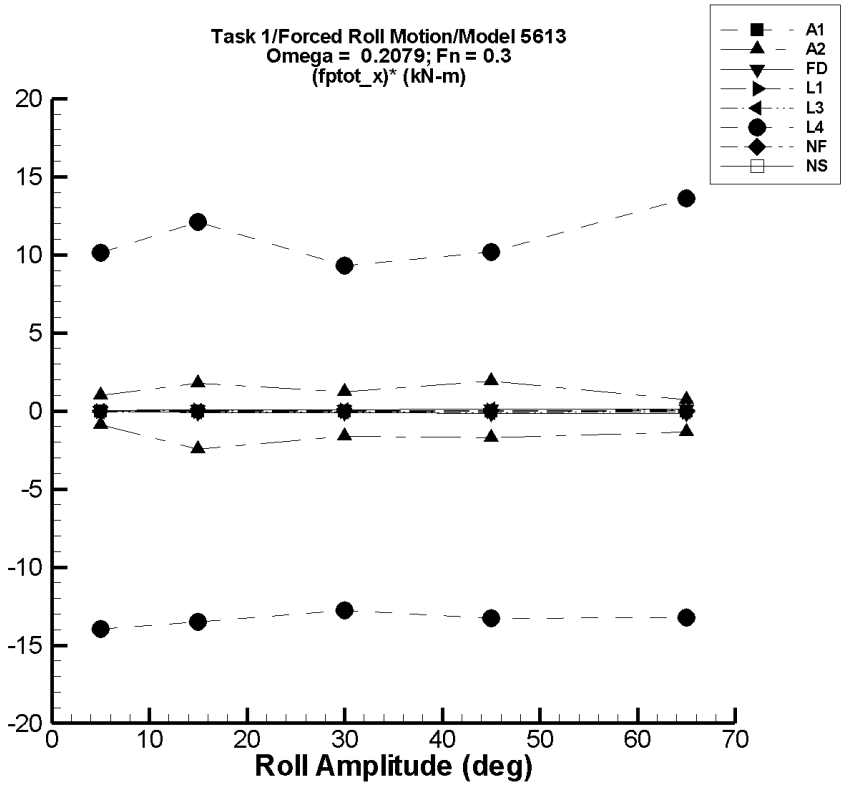

Figure M–10. Minimum and Maximum of $(F_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–73. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.54E-07	-7.38E-04	7.40E-04	-7.37E-04	7.39E-04	-1.47E-04	1.48E-04
15.	-4.63E-07	-2.21E-03	2.22E-03	-2.21E-03	2.22E-03	-1.47E-04	1.48E-04
30.	-9.26E-07	-4.42E-03	4.44E-03	-4.42E-03	4.43E-03	-1.47E-04	1.48E-04
45.	-1.39E-06	-6.64E-03	6.66E-03	-6.63E-03	6.65E-03	-1.47E-04	1.48E-04
65.	-2.01E-06	-9.59E-03	9.62E-03	-9.58E-03	9.61E-03	-1.47E-04	1.48E-04

Table M–74. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.57	-5.22E-02	9.66	0.128	9.58	-0.888	1.00
15.	39.4	-3.83E-02	67.0	2.73	65.9	-2.45	1.76
30.	52.1	-5.75E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-3.50E-02	177.	2.72	165.	-1.71	1.90
65.	88.7	-317.	177.	2.65	136.	-1.32	0.735

Table M–75. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M–76. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-41.6	-41.7	-41.6	-41.6	-41.6	-3.65E-03	3.88E-03
15.	-41.5	-41.7	-41.3	-41.7	-41.4	-9.19E-03	9.13E-03
30.	-41.1	-41.7	-40.5	-41.7	-40.6	-1.82E-02	1.83E-02
45.	-40.4	-41.7	-39.2	-41.7	-39.2	-2.73E-02	2.74E-02
65.	-39.1	-41.7	-36.5	-41.7	-36.6	-3.95E-02	3.96E-02

Table M–77. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-80.6	-80.9	-80.4	-80.9	-80.4	-6.13E-02	3.82E-02
15.	-79.7	-80.6	-79.1	-80.6	-79.1	-6.13E-02	4.23E-02
30.	-77.3	-79.8	-75.0	-79.8	-75.0	-8.32E-02	7.80E-02
45.	-73.3	-78.5	-68.7	-78.4	-68.7	-0.113	0.103
65.	-70.8	-75.9	-65.5	-75.8	-65.7	-7.68E-02	7.93E-02

Table M–78. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-36.0	-304.	76.4	-106.	14.7	-14.0	10.1
15.	107.	-263.	379.	-95.3	289.	-13.5	12.1
30.	298.	-310.	730.	-85.8	577.	-12.8	9.31
45.	498.	-395.	1.06E+03	-101.	954.	-13.3	10.2
65.	828.	-413.	1.79E+03	-32.3	1.71E+03	-13.2	13.6

Table M–79. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–80. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

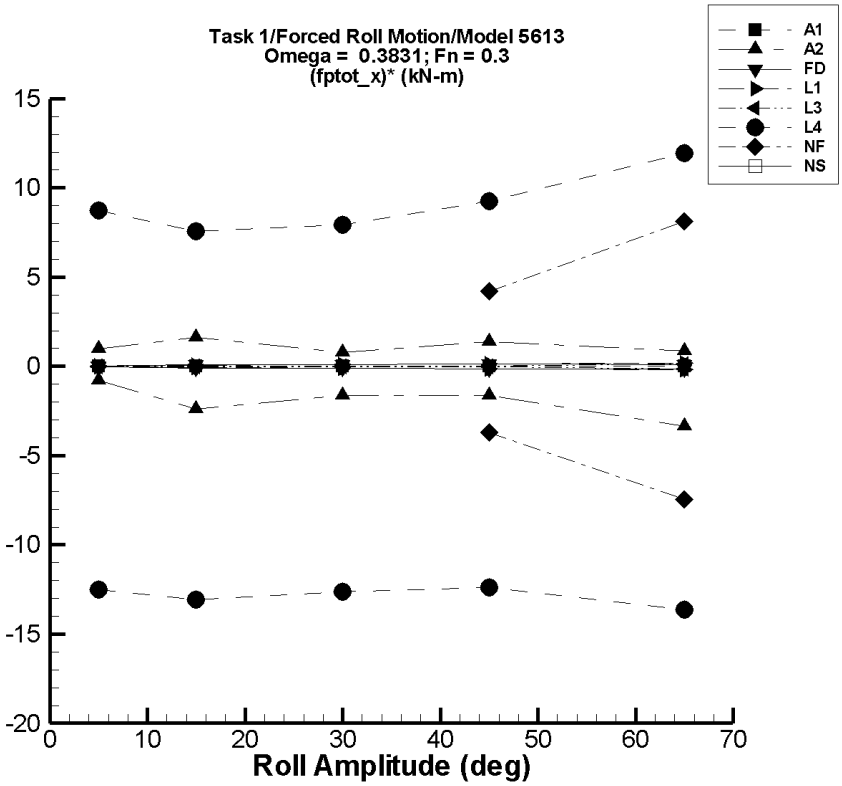

Figure M–11. Minimum and Maximum of $(F_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–81. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.96E-07	-1.46E-03	1.47E-03	-1.45E-03	1.47E-03	-2.91E-04	2.95E-04
15.	2.09E-06	-4.38E-03	4.41E-03	-4.36E-03	4.42E-03	-2.91E-04	2.95E-04
30.	4.18E-06	-8.75E-03	8.83E-03	-8.72E-03	8.84E-03	-2.91E-04	2.95E-04
45.	6.26E-06	-1.31E-02	1.32E-02	-1.31E-02	1.33E-02	-2.91E-04	2.95E-04
65.	9.05E-06	-1.90E-02	1.91E-02	-1.89E-02	1.92E-02	-2.91E-04	2.95E-04

Table M–82. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.42E-02	9.66	0.610	9.43	-0.794	0.969
15.	39.4	-5.77E-02	67.0	3.39	63.6	-2.40	1.62
30.	52.1	-2.08E-02	101.	2.63	75.4	-1.65	0.777
45.	79.5	4.88E-02	177.	6.87	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

Table M–83. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M–84. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-41.6	-41.7	-41.5	-41.7	-41.5	-1.53E-02	1.53E-02
15.	-41.0	-41.7	-40.3	-41.7	-40.3	-4.44E-02	4.45E-02
30.	-39.1	-41.8	-36.4	-41.8	-36.5	-8.85E-02	8.87E-02
45.	-36.0	-42.0	-29.9	-41.9	-30.0	-0.133	0.133
65.	-29.8	-42.3	-17.2	-42.2	-17.3	-0.192	0.192

Table M–85. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-80.5	-80.7	-80.4	-80.7	-80.4	-3.90E-02	2.77E-02
15.	-79.2	-79.6	-78.9	-79.6	-78.9	-2.52E-02	1.80E-02
30.	-75.3	-75.9	-74.6	-75.9	-74.6	-1.92E-02	2.17E-02
45.	-68.9	-70.3	-67.3	-70.2	-67.4	-3.02E-02	3.25E-02
65.	-61.6	-71.2	-53.3	-71.1	-53.7	-0.145	0.122

Table M–86. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-43.8	-135.	2.26	-106.	-0.169	-12.5	8.73
15.	91.3	-143.	214.	-105.	205.	-13.1	7.57
30.	297.	-97.7	540.	-82.7	534.	-12.6	7.91
45.	536.	-41.1	961.	-20.7	953.	-12.4	9.26
65.	965.	39.1	1.76E+03	78.5	1.74E+03	-13.6	11.9

Table M–87. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-507.	-642.	-381.	-609.	-408.	-3.39	3.30
45.	-596.	-784.	-347.	-764.	-407.	-3.73	4.20
65.	-773.	-1.29E+03	-148.	-1.26E+03	-245.	-7.44	8.12

Table M–88. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

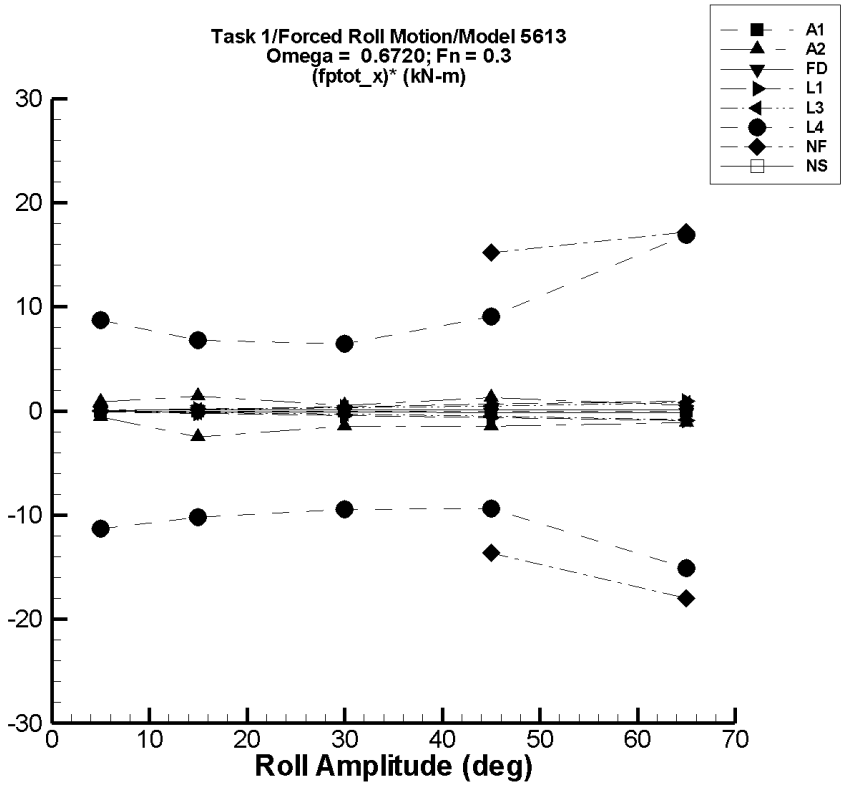

Figure M–12. Minimum and Maximum of $(F_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–89. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-2.14E-07	-2.56E-03	2.50E-03	-2.38E-03	2.39E-03	-4.76E-04	4.78E-04
15.	-6.42E-07	-7.68E-03	7.49E-03	-7.13E-03	7.17E-03	-4.76E-04	4.78E-04
30.	-1.28E-06	-1.54E-02	1.50E-02	-1.43E-02	1.43E-02	-4.76E-04	4.78E-04
45.	-1.93E-06	-2.30E-02	2.25E-02	-2.14E-02	2.15E-02	-4.76E-04	4.78E-04
65.	-2.78E-06	-3.33E-02	3.25E-02	-3.09E-02	3.11E-02	-4.76E-04	4.78E-04

Table M–90. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.48	-5.14E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	2.17E-02	67.0	2.55	61.1	-2.49	1.41
30.	52.5	0.263	101.	8.37	67.4	-1.47	0.498
45.	80.1	-4.10E-02	177.	12.7	137.	-1.50	1.25
65.	87.4	-152.	177.	15.9	124.	-1.10	0.559

Table M–91. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M–92. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{ptot}} \rangle$	**Unfiltered** F_x^{ptot}		**Filtered** F_x^{ptot}		**Filtered** $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-41.4	-41.8	-41.0	-41.8	-41.0	-7.05E-02	7.12E-02
15.	-39.4	-42.7	-36.2	-42.6	-36.3	-0.211	0.212
30.	-32.8	-45.7	-19.9	-45.5	-20.1	-0.423	0.423
45.	-21.7	-50.8	7.28	-50.2	6.84	-0.634	0.634
65.	-5.18E-02	-60.6	60.5	-59.6	59.5	-0.916	0.916

Table M–93. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-80.3	-80.5	-80.1	-80.5	-80.1	-4.41E-02	3.55E-02
15.	-77.6	-80.0	-75.4	-80.0	-75.4	-0.159	0.145
30.	-68.9	-78.5	-59.4	-78.4	-59.5	-0.316	0.315
45.	-54.6	-77.0	-32.8	-76.4	-32.9	-0.486	0.482
65.	-31.9	-87.6	19.1	-86.7	19.2	-0.843	0.785

Table M–94. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-44.2	-134.	3.71	-101.	-0.446	-11.3	8.75
15.	83.3	-92.4	194.	-70.3	185.	-10.2	6.76
30.	274.	-32.4	491.	-9.40	468.	-9.46	6.47
45.	497.	55.7	974.	76.2	905.	-9.35	9.06
65.	921.	-121.	2.07E+03	-62.5	2.02E+03	-15.1	16.9

Table M–95. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-532.	-985.	-137.	-922.	-199.	-13.0	11.1
45.	-695.	-1.37E+03	156.	-1.31E+03	-10.3	-13.7	15.2
65.	-928.	-2.25E+03	436.	-2.10E+03	189.	-18.0	17.2

Table M–96. Minimum and Maximum of F_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{ptot}} \rangle$	Unfiltered F_x^{ptot}		Filtered F_x^{ptot}		Filtered $\left(F_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

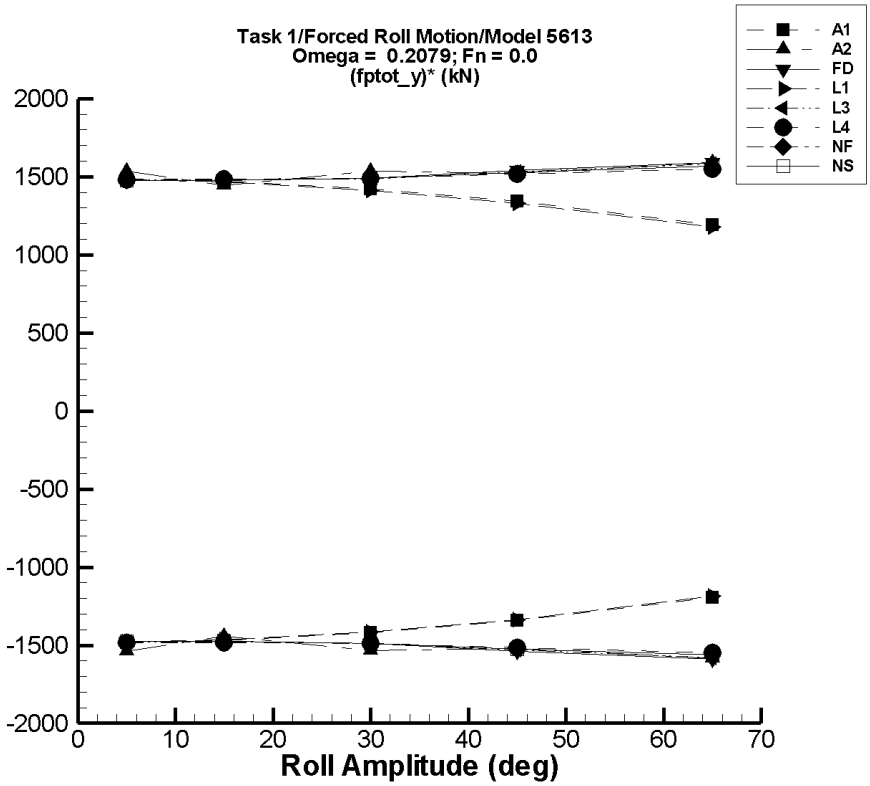

Figure M–13. Minimum and Maximum of $(F_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–97. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.110	-7.44E+03	7.44E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	1.74	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	12.9	-4.27E+04	4.27E+04	-4.26E+04	4.27E+04	-1.42E+03	1.42E+03
45.	42.2	-6.04E+04	6.04E+04	-6.03E+04	6.04E+04	-1.34E+03	1.34E+03
65.	122.	-7.76E+04	7.76E+04	-7.75E+04	7.77E+04	-1.19E+03	1.19E+03

Table M–98. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.65	-7.68E+03	7.68E+03	-7.68E+03	7.69E+03	-1.54E+03	1.54E+03
15.	12.5	-2.17E+04	2.17E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-17.5	-4.61E+04	4.61E+04	-4.60E+04	4.61E+04	-1.53E+03	1.54E+03
45.	-18.7	-6.86E+04	6.86E+04	-6.85E+04	6.85E+04	-1.52E+03	1.52E+03
65.	-56.6	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–99. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.245	-7.39E+03	7.39E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-0.221	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.11	-4.47E+04	4.47E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-23.8	-6.93E+04	6.93E+04	-6.93E+04	6.93E+04	-1.54E+03	1.54E+03
65.	-62.7	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–100. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.145	-7.40E+03	7.40E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.91	-2.20E+04	2.20E+04	-2.20E+04	2.20E+04	-1.47E+03	1.46E+03
30.	30.6	-4.25E+04	4.25E+04	-4.24E+04	4.24E+04	-1.42E+03	1.41E+03
45.	101.	-6.00E+04	6.00E+04	-6.00E+04	6.00E+04	-1.34E+03	1.33E+03
65.	293.	-7.68E+04	7.68E+04	-7.68E+04	7.68E+04	-1.19E+03	1.18E+03

Table M–101. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.62E-02	-7.41E+03	7.41E+03	-7.41E+03	7.41E+03	-1.48E+03	1.48E+03
15.	0.197	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.55	-4.46E+04	4.46E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-43.0	-6.90E+04	6.90E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.58E+03	1.58E+03

Table M–102. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.04E-02	-7.42E+03	7.42E+03	-7.41E+03	7.41E+03	-1.48E+03	1.48E+03
15.	-9.74E-02	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-0.862	-4.46E+04	4.46E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-21.8	-6.84E+04	6.84E+04	-6.83E+04	6.83E+04	-1.52E+03	1.52E+03
65.	-67.6	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

Table M–103. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–104. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.21E-03	-7.45E+03	7.45E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	2.64E-02	-2.24E+04	2.24E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	0.248	-4.49E+04	4.49E+04	-4.47E+04	4.47E+04	-1.49E+03	1.49E+03
45.	0.776	-6.89E+04	6.89E+04	-6.87E+04	6.87E+04	-1.53E+03	1.53E+03
65.	46.3	-1.02E+05	1.02E+05	-1.02E+05	1.02E+05	-1.56E+03	1.57E+03

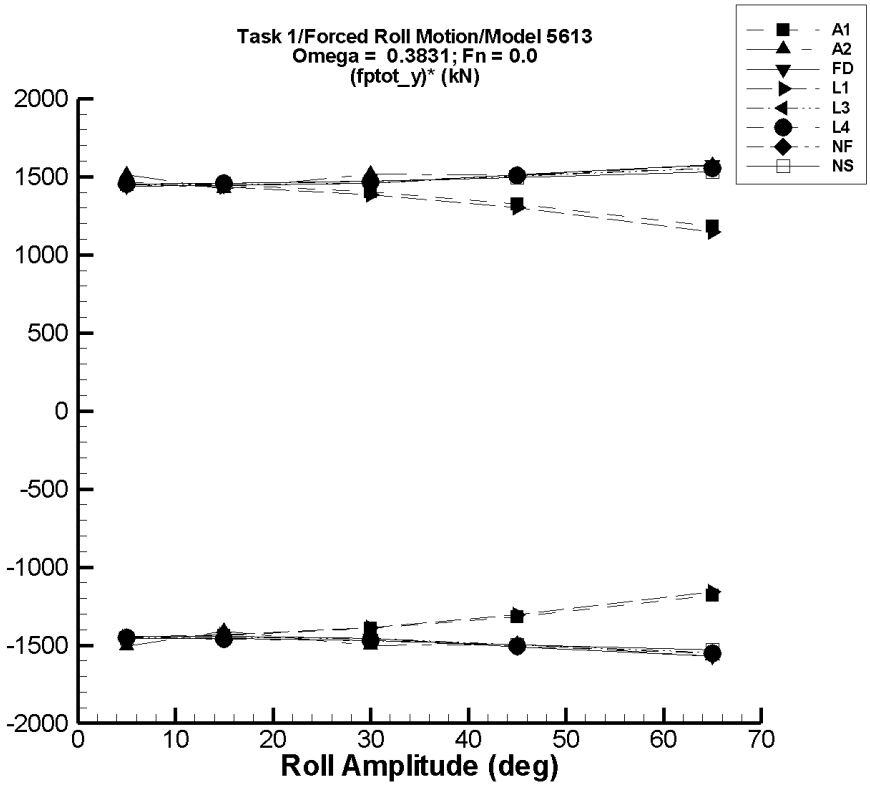

Figure M–14. Minimum and Maximum of $(F_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–105. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.268	-7.29E+03	7.30E+03	-7.26E+03	7.32E+03	-1.45E+03	1.46E+03
15.	1.88	-2.16E+04	2.17E+04	-2.16E+04	2.17E+04	-1.44E+03	1.45E+03
30.	11.0	-4.19E+04	4.20E+04	-4.18E+04	4.21E+04	-1.39E+03	1.40E+03
45.	34.1	-5.95E+04	5.95E+04	-5.93E+04	5.97E+04	-1.32E+03	1.33E+03
65.	97.0	-7.67E+04	7.68E+04	-7.66E+04	7.71E+04	-1.18E+03	1.18E+03

Table M–106. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	9.16	-7.54E+03	7.55E+03	-7.52E+03	7.57E+03	-1.51E+03	1.51E+03
15.	13.6	-2.12E+04	2.13E+04	-2.11E+04	2.13E+04	-1.41E+03	1.42E+03
30.	-14.5	-4.53E+04	4.53E+04	-4.51E+04	4.54E+04	-1.50E+03	1.52E+03
45.	-18.1	-6.76E+04	6.77E+04	-6.73E+04	6.78E+04	-1.49E+03	1.51E+03
65.	-104.	-1.02E+05	1.02E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

Table M–107. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-0.222	-7.23E+03	7.23E+03	-7.21E+03	7.21E+03	-1.44E+03	1.44E+03
15.	-0.346	-2.17E+04	2.17E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-4.36	-4.39E+04	4.39E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-29.5	-6.83E+04	6.83E+04	-6.80E+04	6.80E+04	-1.51E+03	1.51E+03
65.	-61.4	-1.03E+05	1.03E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

Table M–108. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	0.220	-7.26E+03	7.26E+03	-7.25E+03	7.25E+03	-1.45E+03	1.45E+03
15.	5.36	-2.15E+04	2.15E+04	-2.15E+04	2.15E+04	-1.43E+03	1.43E+03
30.	42.0	-4.16E+04	4.16E+04	-4.15E+04	4.15E+04	-1.39E+03	1.38E+03
45.	139.	-5.87E+04	5.87E+04	-5.86E+04	5.86E+04	-1.31E+03	1.30E+03
65.	401.	-7.49E+04	7.49E+04	-7.49E+04	7.49E+04	-1.16E+03	1.15E+03

Table M–109. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.47E-02	-7.26E+03	7.26E+03	-7.25E+03	7.25E+03	-1.45E+03	1.45E+03
15.	0.261	-2.18E+04	2.18E+04	-2.17E+04	2.17E+04	-1.45E+03	1.45E+03
30.	-5.50	-4.38E+04	4.38E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-62.7	-6.76E+04	6.76E+04	-6.75E+04	6.75E+04	-1.50E+03	1.50E+03
65.	-147.	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

Table M–110. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.697	-7.28E+03	7.28E+03	-7.27E+03	7.27E+03	-1.45E+03	1.45E+03
15.	4.51	-2.19E+04	2.19E+04	-2.19E+04	2.19E+04	-1.46E+03	1.46E+03
30.	5.12	-4.41E+04	4.41E+04	-4.41E+04	4.41E+04	-1.47E+03	1.47E+03
45.	-37.1	-6.80E+04	6.80E+04	-6.79E+04	6.79E+04	-1.51E+03	1.51E+03
65.	-80.8	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

Table M–111. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–112. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-4.18E-03	-7.35E+03	7.35E+03	-7.27E+03	7.27E+03	-1.45E+03	1.45E+03
15.	-4.55E-02	-2.21E+04	2.21E+04	-2.19E+04	2.19E+04	-1.46E+03	1.46E+03
30.	-0.344	-4.43E+04	4.43E+04	-4.41E+04	4.41E+04	-1.47E+03	1.47E+03
45.	-1.92	-6.74E+04	6.74E+04	-6.73E+04	6.73E+04	-1.50E+03	1.50E+03
65.	-28.1	-9.96E+04	9.95E+04	-9.95E+04	9.94E+04	-1.53E+03	1.53E+03

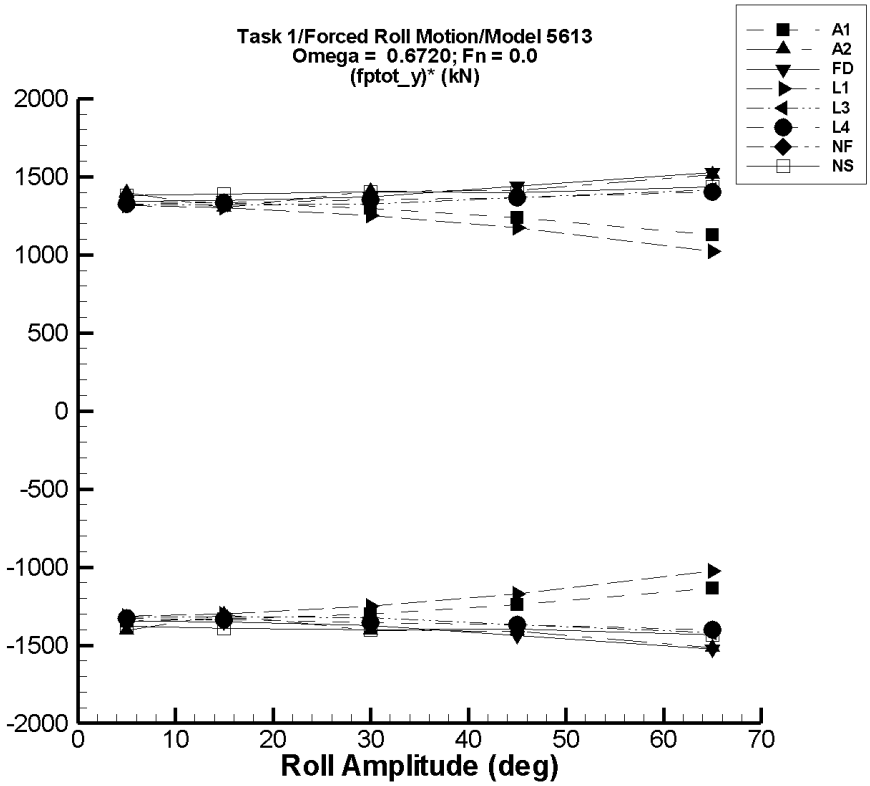

Figure M–15. Minimum and Maximum of $(F_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–113. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.19E-02	-6.80E+03	6.80E+03	-6.73E+03	6.73E+03	-1.35E+03	1.35E+03
15.	1.95	-2.02E+04	2.02E+04	-2.00E+04	2.00E+04	-1.33E+03	1.33E+03
30.	17.1	-3.94E+04	3.94E+04	-3.90E+04	3.90E+04	-1.30E+03	1.30E+03
45.	57.9	-5.64E+04	5.64E+04	-5.58E+04	5.58E+04	-1.24E+03	1.24E+03
65.	170.	-7.41E+04	7.41E+04	-7.35E+04	7.35E+04	-1.13E+03	1.13E+03

Table M–114. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	17.9	-7.07E+03	7.06E+03	-7.01E+03	7.01E+03	-1.41E+03	1.40E+03
15.	4.87	-1.98E+04	1.98E+04	-1.96E+04	1.96E+04	-1.30E+03	1.30E+03
30.	-52.1	-4.27E+04	4.27E+04	-4.22E+04	4.22E+04	-1.40E+03	1.41E+03
45.	-65.0	-6.45E+04	6.44E+04	-6.35E+04	6.34E+04	-1.41E+03	1.41E+03
65.	-0.850	-9.97E+04	9.97E+04	-9.86E+04	9.85E+04	-1.52E+03	1.52E+03

Table M–115. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.574	-6.80E+03	6.79E+03	-6.72E+03	6.72E+03	-1.34E+03	1.34E+03
15.	-1.31	-2.04E+04	2.04E+04	-2.02E+04	2.02E+04	-1.35E+03	1.35E+03
30.	-16.1	-4.16E+04	4.16E+04	-4.12E+04	4.11E+04	-1.37E+03	1.37E+03
45.	-91.3	-6.55E+04	6.55E+04	-6.48E+04	6.46E+04	-1.44E+03	1.44E+03
65.	-209.	-1.00E+05	1.00E+05	-9.95E+04	9.91E+04	-1.53E+03	1.53E+03

Table M–116. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.68E-02	-6.61E+03	6.61E+03	-6.58E+03	6.58E+03	-1.32E+03	1.32E+03
15.	0.193	-1.96E+04	1.96E+04	-1.95E+04	1.95E+04	-1.30E+03	1.30E+03
30.	-9.84E-02	-3.77E+04	3.77E+04	-3.75E+04	3.75E+04	-1.25E+03	1.25E+03
45.	-1.11	-5.29E+04	5.29E+04	-5.27E+04	5.27E+04	-1.17E+03	1.17E+03
65.	-2.97	-6.66E+04	6.66E+04	-6.65E+04	6.65E+04	-1.02E+03	1.02E+03

Table M–117. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.07E-02	-6.62E+03	6.62E+03	-6.59E+03	6.59E+03	-1.32E+03	1.32E+03
15.	0.300	-1.98E+04	1.98E+04	-1.98E+04	1.98E+04	-1.32E+03	1.32E+03
30.	1.53	-3.99E+04	3.99E+04	-3.97E+04	3.97E+04	-1.32E+03	1.32E+03
45.	8.35	-6.18E+04	6.19E+04	-6.16E+04	6.16E+04	-1.37E+03	1.37E+03
65.	-5.67	-9.25E+04	9.25E+04	-9.21E+04	9.22E+04	-1.42E+03	1.42E+03

Table M–118. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.72	-6.66E+03	6.67E+03	-6.63E+03	6.63E+03	-1.33E+03	1.33E+03
15.	26.5	-2.01E+04	2.01E+04	-2.01E+04	2.01E+04	-1.34E+03	1.34E+03
30.	67.6	-4.07E+04	4.07E+04	-4.06E+04	4.06E+04	-1.35E+03	1.35E+03
45.	136.	-6.16E+04	6.19E+04	-6.14E+04	6.15E+04	-1.37E+03	1.36E+03
65.	211.	-9.13E+04	9.23E+04	-9.10E+04	9.13E+04	-1.40E+03	1.40E+03

Table M–119. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–120. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.255	-6.96E+03	6.96E+03	-6.89E+03	6.89E+03	-1.38E+03	1.38E+03
15.	0.593	-2.10E+04	2.10E+04	-2.08E+04	2.08E+04	-1.39E+03	1.39E+03
30.	2.82E-02	-4.22E+04	4.22E+04	-4.21E+04	4.21E+04	-1.40E+03	1.40E+03
45.	-4.60	-6.29E+04	6.29E+04	-6.28E+04	6.28E+04	-1.40E+03	1.40E+03
65.	-33.4	-9.34E+04	9.35E+04	-9.31E+04	9.31E+04	-1.43E+03	1.43E+03

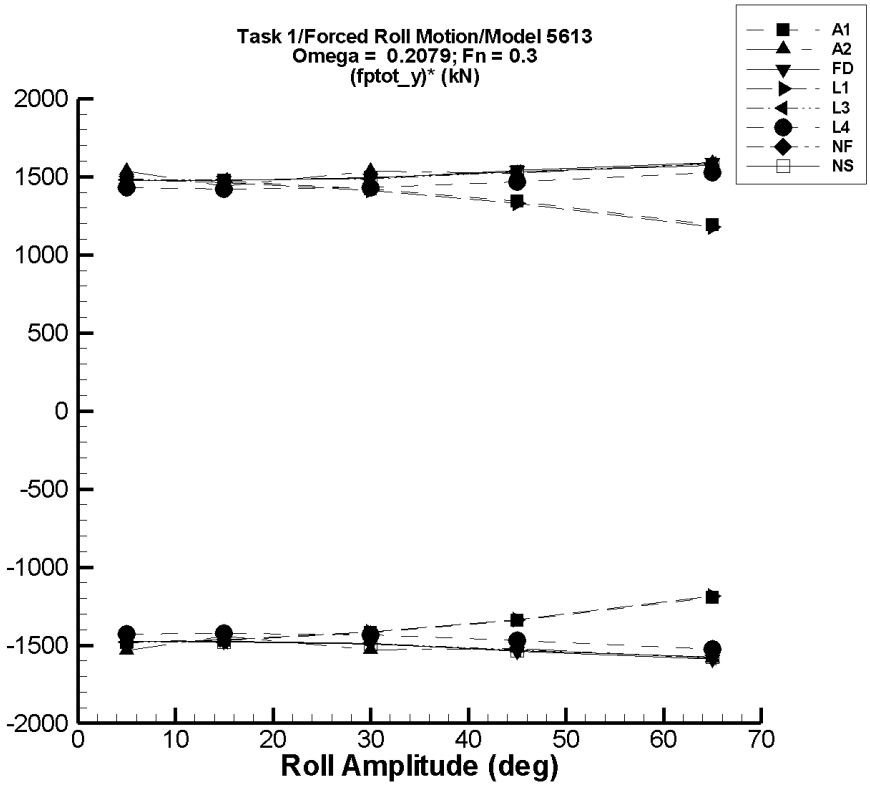

Figure M–16. Minimum and Maximum of $(F_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–121. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.82E-02	-7.42E+03	7.42E+03	-7.42E+03	7.43E+03	-1.48E+03	1.49E+03
15.	1.68	-2.20E+04	2.20E+04	-2.20E+04	2.21E+04	-1.47E+03	1.47E+03
30.	12.6	-4.26E+04	4.26E+04	-4.26E+04	4.26E+04	-1.42E+03	1.42E+03
45.	41.2	-6.03E+04	6.03E+04	-6.03E+04	6.04E+04	-1.34E+03	1.34E+03
65.	119.	-7.75E+04	7.75E+04	-7.74E+04	7.76E+04	-1.19E+03	1.19E+03

Table M–122. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	10.0	-7.67E+03	7.67E+03	-7.67E+03	7.68E+03	-1.54E+03	1.53E+03
15.	12.4	-2.16E+04	2.16E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-17.8	-4.60E+04	4.60E+04	-4.59E+04	4.60E+04	-1.53E+03	1.53E+03
45.	-19.7	-6.85E+04	6.85E+04	-6.84E+04	6.85E+04	-1.52E+03	1.52E+03
65.	-59.2	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–123. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-0.245	-7.39E+03	7.39E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-0.222	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.11	-4.47E+04	4.47E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-23.8	-6.93E+04	6.93E+04	-6.93E+04	6.93E+04	-1.54E+03	1.54E+03
65.	-62.7	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–124. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	0.220	-7.40E+03	7.40E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.98	-2.20E+04	2.20E+04	-2.20E+04	2.20E+04	-1.46E+03	1.46E+03
30.	30.7	-4.24E+04	4.24E+04	-4.24E+04	4.24E+04	-1.42E+03	1.41E+03
45.	101.	-6.00E+04	6.00E+04	-6.00E+04	6.00E+04	-1.33E+03	1.33E+03
65.	293.	-7.68E+04	7.68E+04	-7.68E+04	7.68E+04	-1.19E+03	1.18E+03

Table M–125. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.06E-02	-7.41E+03	7.41E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	0.274	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-3.45	-4.46E+04	4.46E+04	-4.46E+04	4.46E+04	-1.49E+03	1.49E+03
45.	-42.9	-6.89E+04	6.89E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.58E+03	1.58E+03

Table M–126. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.42	-7.14E+03	7.21E+03	-7.14E+03	7.14E+03	-1.43E+03	1.43E+03
15.	13.1	-2.14E+04	2.14E+04	-2.14E+04	2.14E+04	-1.42E+03	1.42E+03
30.	23.4	-4.35E+04	4.30E+04	-4.30E+04	4.30E+04	-1.43E+03	1.43E+03
45.	-5.28	-6.61E+04	6.62E+04	-6.61E+04	6.61E+04	-1.47E+03	1.47E+03
65.	-105.	-9.92E+04	9.92E+04	-9.91E+04	9.92E+04	-1.52E+03	1.53E+03

Table M–127. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–128. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.13E-03	-7.45E+03	7.45E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-4.11E-02	-2.24E+04	2.24E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	-5.25E-02	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	-0.147	-6.91E+04	6.91E+04	-6.90E+04	6.90E+04	-1.53E+03	1.53E+03
65.	-15.7	-1.02E+05	1.02E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

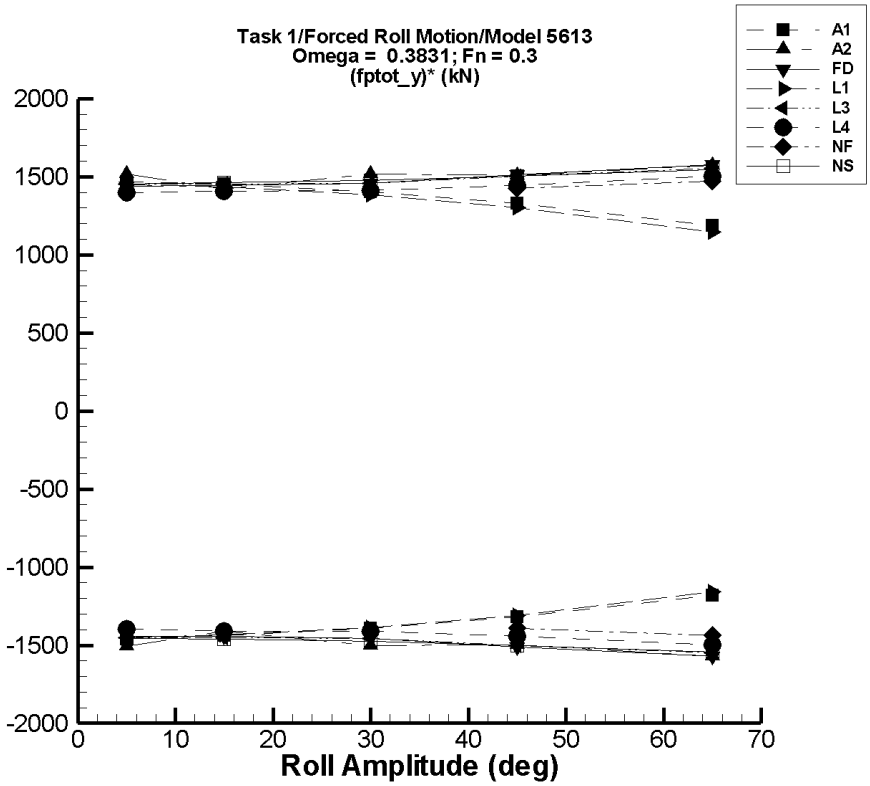

Figure M–17. Minimum and Maximum of $(F_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–129. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.280	-7.30E+03	7.31E+03	-7.27E+03	7.33E+03	-1.45E+03	1.47E+03
15.	1.86	-2.17E+04	2.17E+04	-2.16E+04	2.18E+04	-1.44E+03	1.45E+03
30.	10.6	-4.19E+04	4.20E+04	-4.18E+04	4.21E+04	-1.39E+03	1.40E+03
45.	32.6	-5.95E+04	5.96E+04	-5.93E+04	5.98E+04	-1.32E+03	1.33E+03
65.	92.4	-7.68E+04	7.68E+04	-7.66E+04	7.71E+04	-1.18E+03	1.19E+03

Table M–130. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	9.17	-7.55E+03	7.56E+03	-7.53E+03	7.59E+03	-1.51E+03	1.52E+03
15.	13.6	-2.12E+04	2.13E+04	-2.12E+04	2.13E+04	-1.41E+03	1.42E+03
30.	-14.9	-4.53E+04	4.54E+04	-4.51E+04	4.55E+04	-1.50E+03	1.52E+03
45.	-19.6	-6.77E+04	6.77E+04	-6.73E+04	6.78E+04	-1.50E+03	1.51E+03
65.	-107.	-1.03E+05	1.03E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

Table M–131. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-0.222	-7.23E+03	7.23E+03	-7.21E+03	7.21E+03	-1.44E+03	1.44E+03
15.	-0.345	-2.17E+04	2.17E+04	-2.16E+04	2.16E+04	-1.44E+03	1.44E+03
30.	-4.36	-4.39E+04	4.39E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-29.5	-6.83E+04	6.83E+04	-6.80E+04	6.80E+04	-1.51E+03	1.51E+03
65.	-61.4	-1.03E+05	1.03E+05	-1.02E+05	1.02E+05	-1.57E+03	1.57E+03

Table M–132. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{ptot}} \rangle$	**Unfiltered** F_y^{ptot}		**Filtered** F_y^{ptot}		**Filtered** $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.294	-7.26E+03	7.26E+03	-7.25E+03	7.25E+03	-1.45E+03	1.45E+03
15.	5.45	-2.16E+04	2.16E+04	-2.15E+04	2.15E+04	-1.44E+03	1.43E+03
30.	42.1	-4.16E+04	4.16E+04	-4.16E+04	4.16E+04	-1.39E+03	1.38E+03
45.	139.	-5.87E+04	5.87E+04	-5.87E+04	5.87E+04	-1.31E+03	1.30E+03
65.	401.	-7.50E+04	7.50E+04	-7.50E+04	7.50E+04	-1.16E+03	1.15E+03

Table M–133. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.120	-7.27E+03	7.27E+03	-7.26E+03	7.26E+03	-1.45E+03	1.45E+03
15.	0.352	-2.18E+04	2.18E+04	-2.18E+04	2.18E+04	-1.45E+03	1.45E+03
30.	-5.38	-4.38E+04	4.38E+04	-4.37E+04	4.37E+04	-1.46E+03	1.46E+03
45.	-62.6	-6.77E+04	6.77E+04	-6.76E+04	6.76E+04	-1.50E+03	1.50E+03
65.	-147.	-1.01E+05	1.01E+05	-1.01E+05	1.01E+05	-1.55E+03	1.55E+03

Table M–134. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.04	-7.00E+03	7.00E+03	-6.99E+03	6.99E+03	-1.40E+03	1.40E+03
15.	-5.83	-2.12E+04	2.12E+04	-2.11E+04	2.11E+04	-1.41E+03	1.41E+03
30.	-14.2	-4.25E+04	4.24E+04	-4.24E+04	4.24E+04	-1.41E+03	1.41E+03
45.	-58.5	-6.50E+04	6.50E+04	-6.49E+04	6.49E+04	-1.44E+03	1.44E+03
65.	-156.	-9.77E+04	9.77E+04	-9.75E+04	9.75E+04	-1.50E+03	1.50E+03

Table M–135. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-179.	-4.12E+04	4.18E+04	-4.09E+04	4.15E+04	-1.36E+03	1.39E+03
45.	-286.	-6.34E+04	6.44E+04	-6.30E+04	6.39E+04	-1.39E+03	1.43E+03
65.	-438.	-9.44E+04	9.58E+04	-9.38E+04	9.51E+04	-1.44E+03	1.47E+03

Table M–136. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.43E-02	-7.35E+03	7.35E+03	-7.28E+03	7.28E+03	-1.46E+03	1.46E+03
15.	-0.466	-2.21E+04	2.21E+04	-2.19E+04	2.19E+04	-1.46E+03	1.46E+03
30.	-2.29	-4.45E+04	4.44E+04	-4.43E+04	4.43E+04	-1.48E+03	1.48E+03
45.	-6.85	-6.78E+04	6.78E+04	-6.77E+04	6.77E+04	-1.50E+03	1.50E+03
65.	-34.9	-1.01E+05	1.00E+05	-1.00E+05	1.00E+05	-1.54E+03	1.54E+03

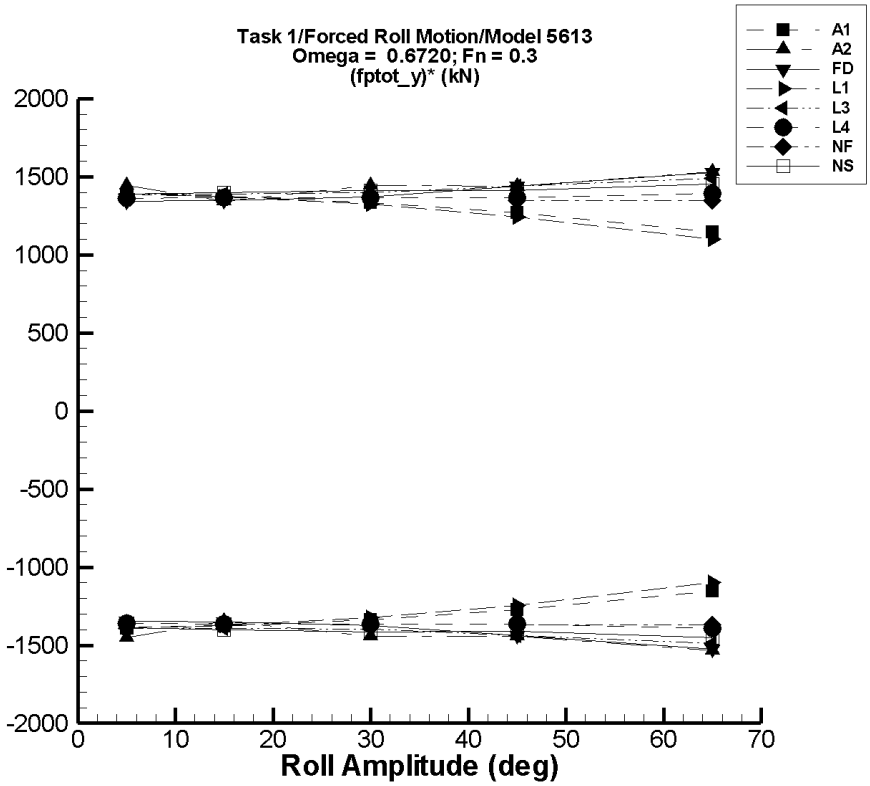

Figure M–18. Minimum and Maximum of $(F_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–137. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.899	-7.03E+03	7.02E+03	-6.95E+03	6.94E+03	-1.39E+03	1.39E+03
15.	4.88	-2.09E+04	2.09E+04	-2.07E+04	2.06E+04	-1.38E+03	1.38E+03
30.	24.3	-4.05E+04	4.05E+04	-4.01E+04	4.01E+04	-1.34E+03	1.34E+03
45.	71.9	-5.78E+04	5.77E+04	-5.72E+04	5.72E+04	-1.27E+03	1.27E+03
65.	198.	-7.53E+04	7.53E+04	-7.48E+04	7.48E+04	-1.15E+03	1.15E+03

Table M–138. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	18.8	-7.30E+03	7.29E+03	-7.23E+03	7.23E+03	-1.45E+03	1.44E+03
15.	7.80	-2.04E+04	2.04E+04	-2.02E+04	2.02E+04	-1.35E+03	1.35E+03
30.	-44.8	-4.39E+04	4.39E+04	-4.33E+04	4.33E+04	-1.44E+03	1.44E+03
45.	-51.0	-6.59E+04	6.58E+04	-6.49E+04	6.48E+04	-1.44E+03	1.44E+03
65.	27.1	-1.01E+05	1.01E+05	-9.98E+04	9.97E+04	-1.54E+03	1.53E+03

Table M–139. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.575	-6.80E+03	6.79E+03	-6.72E+03	6.72E+03	-1.34E+03	1.34E+03
15.	-1.31	-2.04E+04	2.04E+04	-2.02E+04	2.02E+04	-1.35E+03	1.35E+03
30.	-16.1	-4.16E+04	4.16E+04	-4.12E+04	4.11E+04	-1.37E+03	1.37E+03
45.	-91.3	-6.55E+04	6.55E+04	-6.48E+04	6.46E+04	-1.44E+03	1.44E+03
65.	-209.	-1.00E+05	1.00E+05	-9.95E+04	9.91E+04	-1.53E+03	1.53E+03

Table M–140. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.172	-6.96E+03	6.96E+03	-6.94E+03	6.94E+03	-1.39E+03	1.39E+03
15.	0.322	-2.07E+04	2.07E+04	-2.06E+04	2.06E+04	-1.37E+03	1.37E+03
30.	8.47E-02	-3.98E+04	3.98E+04	-3.97E+04	3.97E+04	-1.32E+03	1.32E+03
45.	-0.859	-5.62E+04	5.62E+04	-5.60E+04	5.60E+04	-1.24E+03	1.24E+03
65.	-2.63	-7.16E+04	7.16E+04	-7.14E+04	7.14E+04	-1.10E+03	1.10E+03

Table M–141. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.174	-6.98E+03	6.98E+03	-6.95E+03	6.95E+03	-1.39E+03	1.39E+03
15.	0.422	-2.09E+04	2.09E+04	-2.09E+04	2.09E+04	-1.39E+03	1.39E+03
30.	1.70	-4.21E+04	4.21E+04	-4.19E+04	4.19E+04	-1.40E+03	1.40E+03
45.	8.57	-6.51E+04	6.51E+04	-6.48E+04	6.48E+04	-1.44E+03	1.44E+03
65.	-5.37	-9.72E+04	9.72E+04	-9.69E+04	9.69E+04	-1.49E+03	1.49E+03

Table M–142. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.77	-6.84E+03	6.84E+03	-6.80E+03	6.80E+03	-1.36E+03	1.36E+03
15.	-1.23	-2.06E+04	2.06E+04	-2.05E+04	2.05E+04	-1.37E+03	1.37E+03
30.	-4.86	-4.10E+04	4.10E+04	-4.09E+04	4.09E+04	-1.36E+03	1.36E+03
45.	-34.7	-6.16E+04	6.16E+04	-6.14E+04	6.14E+04	-1.36E+03	1.37E+03
65.	-135.	-9.07E+04	9.07E+04	-9.06E+04	9.06E+04	-1.39E+03	1.40E+03

Table M–143. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	57.5	-4.07E+04	4.01E+04	-4.05E+04	4.00E+04	-1.35E+03	1.33E+03
45.	196.	-6.17E+04	6.11E+04	-6.13E+04	6.07E+04	-1.37E+03	1.35E+03
65.	412.	-8.91E+04	8.82E+04	-8.86E+04	8.79E+04	-1.37E+03	1.35E+03

Table M–144. Minimum and Maximum of F_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{ptot}} \rangle$	Unfiltered F_y^{ptot}		Filtered F_y^{ptot}		Filtered $\left(F_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.228	-7.01E+03	7.02E+03	-6.94E+03	6.94E+03	-1.39E+03	1.39E+03
15.	0.240	-2.12E+04	2.12E+04	-2.10E+04	2.10E+04	-1.40E+03	1.40E+03
30.	-1.59	-4.26E+04	4.26E+04	-4.24E+04	4.24E+04	-1.41E+03	1.41E+03
45.	-8.25	-6.36E+04	6.36E+04	-6.35E+04	6.35E+04	-1.41E+03	1.41E+03
65.	-35.9	-9.48E+04	9.48E+04	-9.45E+04	9.44E+04	-1.45E+03	1.45E+03

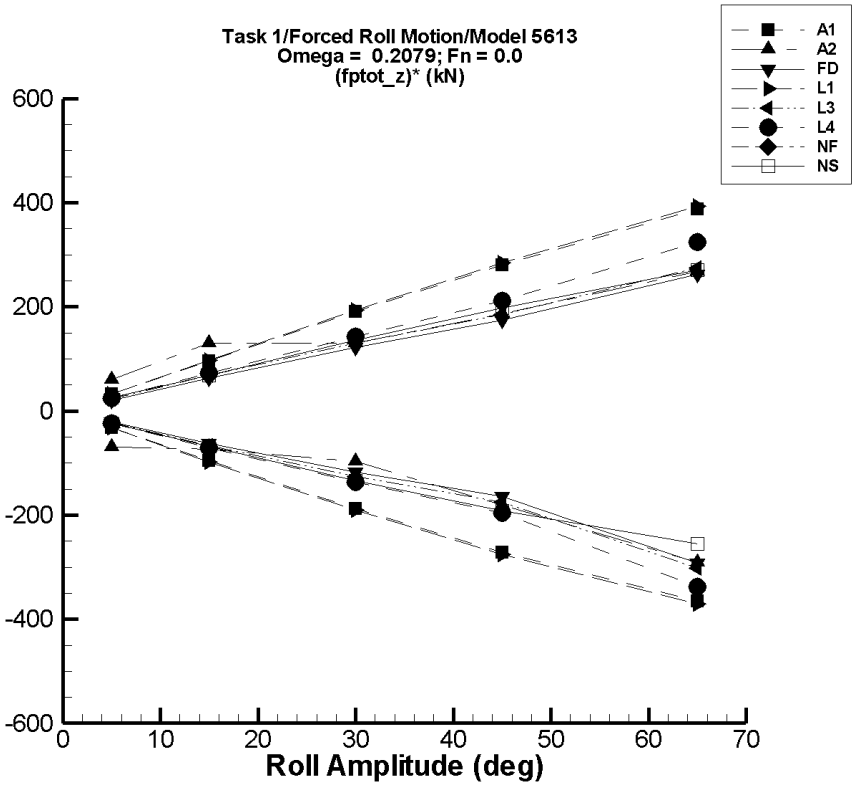

Figure M–19. Minimum and Maximum of $(F_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–145. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.1	32.3
15.	8.45E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-95.6	96.5
30.	8.02E+04	7.46E+04	8.59E+04	7.46E+04	8.59E+04	-187.	191.
45.	7.33E+04	6.11E+04	8.59E+04	6.11E+04	8.59E+04	-271.	280.
65.	6.07E+04	3.69E+04	8.59E+04	3.70E+04	8.59E+04	-365.	388.

Table M–146. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-69.7	60.1
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-73.7	131.
30.	8.20E+04	7.91E+04	8.59E+04	7.91E+04	8.59E+04	-96.2	130.
45.	7.75E+04	6.94E+04	8.59E+04	6.94E+04	8.59E+04	-181.	187.
65.	6.84E+04	4.94E+04	8.59E+04	4.95E+04	8.59E+04	-291.	268.

Table M–147. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.7	20.1
15.	8.43E+04	8.34E+04	8.53E+04	8.34E+04	8.53E+04	-62.1	62.5
30.	8.16E+04	7.81E+04	8.53E+04	7.81E+04	8.53E+04	-117.	122.
45.	7.75E+04	7.00E+04	8.53E+04	7.01E+04	8.53E+04	-164.	174.
65.	6.82E+04	4.91E+04	8.53E+04	4.92E+04	8.53E+04	-293.	263.

Table M–148. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.7	32.8
15.	8.41E+04	8.26E+04	8.56E+04	8.26E+04	8.56E+04	-97.6	97.9
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-191.	193.
45.	7.29E+04	6.05E+04	8.57E+04	6.05E+04	8.57E+04	-276.	284.
65.	6.03E+04	3.61E+04	8.59E+04	3.62E+04	8.59E+04	-371.	393.

Table M–149. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-23.0	23.1
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-67.2	67.7
30.	8.17E+04	7.79E+04	8.56E+04	7.79E+04	8.56E+04	-126.	131.
45.	7.73E+04	6.94E+04	8.57E+04	6.94E+04	8.57E+04	-175.	186.
65.	6.80E+04	4.83E+04	8.59E+04	4.83E+04	8.58E+04	-302.	275.

Table M–150. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-23.8	24.8
15.	8.45E+04	8.35E+04	8.56E+04	8.35E+04	8.56E+04	-71.0	72.2
30.	8.17E+04	7.76E+04	8.61E+04	7.76E+04	8.60E+04	-137.	143.
45.	7.74E+04	6.85E+04	8.70E+04	6.86E+04	8.69E+04	-196.	212.
65.	6.83E+04	4.63E+04	8.96E+04	4.63E+04	8.94E+04	-338.	325.

Table M–151. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–152. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-24.3	25.1
15.	8.49E+04	8.38E+04	8.60E+04	8.39E+04	8.59E+04	-67.6	68.6
30.	8.21E+04	7.80E+04	8.63E+04	7.81E+04	8.62E+04	-134.	136.
45.	7.79E+04	6.92E+04	8.74E+04	6.92E+04	8.67E+04	-192.	197.
65.	7.03E+04	5.36E+04	8.93E+04	5.37E+04	8.79E+04	-255.	270.

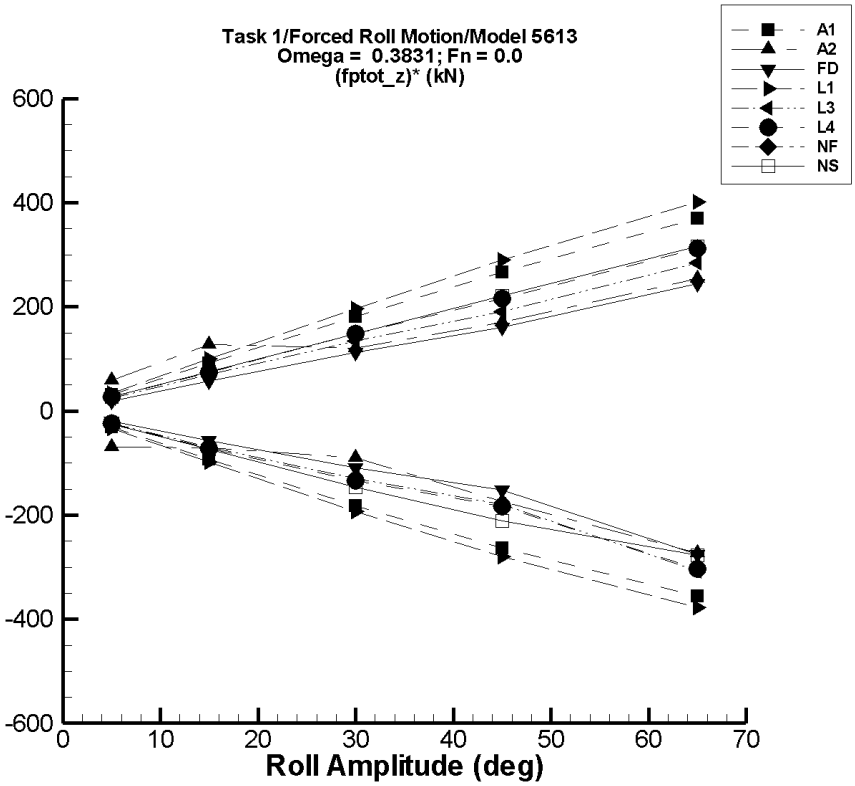

Figure M–20. Minimum and Maximum of $(F_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–153. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.1	30.8
15.	8.45E+04	8.31E+04	8.59E+04	8.31E+04	8.59E+04	-92.7	92.0
30.	8.04E+04	7.50E+04	8.59E+04	7.50E+04	8.59E+04	-182.	182.
45.	7.38E+04	6.20E+04	8.59E+04	6.19E+04	8.58E+04	-263.	267.
65.	6.16E+04	3.86E+04	8.59E+04	3.85E+04	8.57E+04	-356.	370.

Table M–154. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-68.8	58.3
15.	8.40E+04	8.29E+04	8.59E+04	8.29E+04	8.59E+04	-70.8	127.
30.	8.22E+04	7.95E+04	8.59E+04	7.95E+04	8.58E+04	-90.2	120.
45.	7.80E+04	7.02E+04	8.59E+04	7.02E+04	8.57E+04	-174.	171.
65.	6.91E+04	4.33E+04	8.59E+04	5.14E+04	8.56E+04	-273.	254.

Table M–155. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-19.2	18.6
15.	8.44E+04	8.35E+04	8.53E+04	8.35E+04	8.53E+04	-57.4	57.7
30.	8.18E+04	7.85E+04	8.53E+04	7.86E+04	8.52E+04	-109.	113.
45.	7.80E+04	7.10E+04	8.53E+04	7.11E+04	8.52E+04	-152.	160.
65.	6.92E+04	5.09E+04	8.53E+04	5.13E+04	8.51E+04	-276.	244.

Table M–156. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-33.2	33.4
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-98.8	99.8
30.	7.99E+04	7.41E+04	8.58E+04	7.41E+04	8.58E+04	-194.	197.
45.	7.32E+04	6.05E+04	8.62E+04	6.06E+04	8.62E+04	-280.	289.
65.	6.08E+04	3.61E+04	8.69E+04	3.63E+04	8.69E+04	-378.	401.

Table M–157. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-23.5	23.8
15.	8.45E+04	8.35E+04	8.56E+04	8.35E+04	8.56E+04	-68.6	69.6
30.	8.18E+04	7.79E+04	8.58E+04	7.79E+04	8.58E+04	-129.	135.
45.	7.76E+04	6.94E+04	8.61E+04	6.95E+04	8.61E+04	-179.	191.
65.	6.84E+04	4.83E+04	8.68E+04	4.84E+04	8.68E+04	-307.	284.

Table M–158. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-24.5	27.5
15.	8.46E+04	8.35E+04	8.58E+04	8.35E+04	8.57E+04	-72.3	73.6
30.	8.18E+04	7.77E+04	8.64E+04	7.77E+04	8.62E+04	-135.	148.
45.	7.75E+04	6.92E+04	8.75E+04	6.92E+04	8.72E+04	-184.	216.
65.	6.81E+04	4.82E+04	8.89E+04	4.84E+04	8.83E+04	-303.	311.

Table M–159. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–160. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-25.8	27.5
15.	8.49E+04	8.38E+04	8.61E+04	8.38E+04	8.61E+04	-73.1	74.7
30.	8.22E+04	7.77E+04	8.69E+04	7.78E+04	8.67E+04	-146.	149.
45.	7.81E+04	6.85E+04	8.95E+04	6.86E+04	8.80E+04	-211.	221.
65.	7.07E+04	5.27E+04	9.41E+04	5.28E+04	9.13E+04	-277.	316.

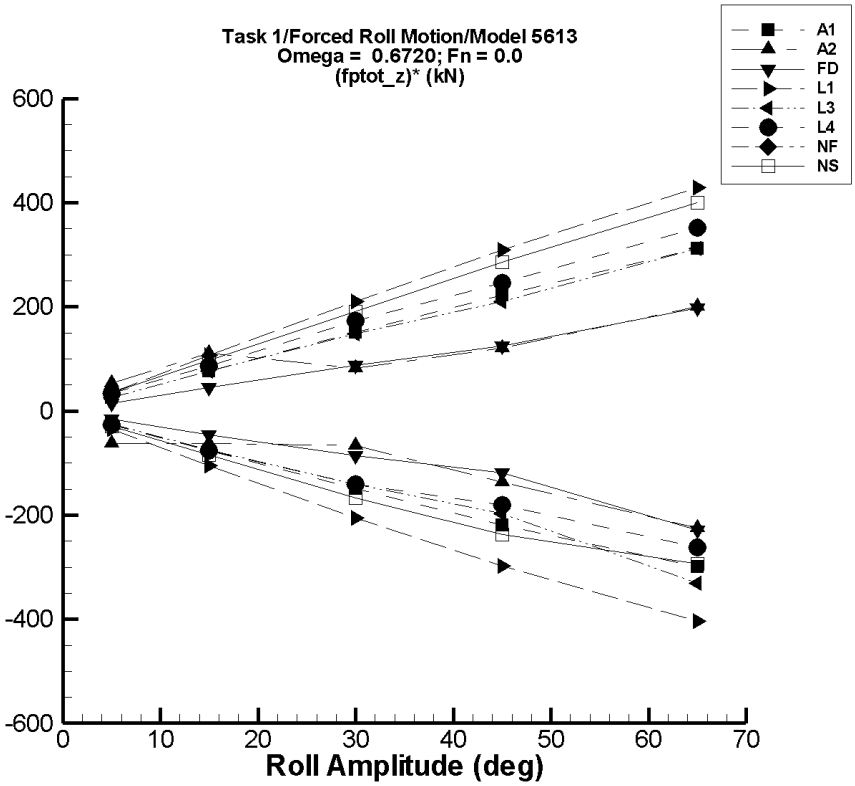

Figure M–21. Minimum and Maximum of $(F_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–161. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{ptot}} \rangle$	**Unfiltered** F_z^{ptot}		**Filtered** F_z^{ptot}		**Filtered** $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-25.5	25.6
15.	8.47E+04	8.35E+04	8.59E+04	8.36E+04	8.59E+04	-76.1	76.4
30.	8.12E+04	7.65E+04	8.59E+04	7.67E+04	8.57E+04	-150.	151.
45.	7.54E+04	6.51E+04	8.59E+04	6.56E+04	8.54E+04	-219.	223.
65.	6.47E+04	4.44E+04	8.60E+04	4.53E+04	8.50E+04	-299.	311.

Table M–162. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{ptot}} \rangle$	**Unfiltered** F_z^{ptot}		**Filtered** F_z^{ptot}		**Filtered** $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-62.2	53.7
15.	8.42E+04	8.31E+04	8.59E+04	8.32E+04	8.58E+04	-62.8	111.
30.	8.30E+04	8.09E+04	8.59E+04	8.10E+04	8.55E+04	-65.9	82.6
45.	7.96E+04	7.28E+04	8.59E+04	7.34E+04	8.51E+04	-137.	121.
65.	7.24E+04	5.68E+04	8.61E+04	5.77E+04	8.54E+04	-225.	200.

Table M–163. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{ptot}} \rangle$	**Unfiltered** F_z^{ptot}		**Filtered** F_z^{ptot}		**Filtered** $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-15.0	14.7
15.	8.46E+04	8.38E+04	8.53E+04	8.39E+04	8.52E+04	-45.3	45.4
30.	8.25E+04	7.98E+04	8.53E+04	8.00E+04	8.52E+04	-85.7	88.2
45.	7.94E+04	7.38E+04	8.53E+04	7.41E+04	8.50E+04	-119.	125.
65.	7.19E+04	5.61E+04	8.54E+04	5.71E+04	8.48E+04	-229.	198.

Table M–164. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{ptot}} \rangle$	**Unfiltered** F_z^{ptot}		**Filtered** F_z^{ptot}		**Filtered** $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-35.0	35.6
15.	8.42E+04	8.26E+04	8.58E+04	8.26E+04	8.58E+04	-104.	106.
30.	8.03E+04	7.40E+04	8.66E+04	7.41E+04	8.66E+04	-205.	210.
45.	7.39E+04	6.03E+04	8.78E+04	6.05E+04	8.78E+04	-298.	309.
65.	6.24E+04	3.58E+04	9.03E+04	3.61E+04	9.03E+04	-403.	430.

Table M–165. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-25.4	25.9
15.	8.46E+04	8.35E+04	8.58E+04	8.35E+04	8.58E+04	-74.4	76.1
30.	8.21E+04	7.78E+04	8.65E+04	7.78E+04	8.65E+04	-141.	148.
45.	7.83E+04	6.93E+04	8.77E+04	6.94E+04	8.78E+04	-197.	211.
65.	6.99E+04	4.79E+04	9.02E+04	4.84E+04	9.02E+04	-331.	312.

Table M–166. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.56E+04	8.53E+04	8.56E+04	-26.5	34.0
15.	8.47E+04	8.36E+04	8.61E+04	8.36E+04	8.60E+04	-76.1	86.4
30.	8.23E+04	7.79E+04	8.79E+04	7.81E+04	8.75E+04	-141.	173.
45.	7.83E+04	6.99E+04	9.01E+04	7.01E+04	8.94E+04	-181.	245.
65.	6.94E+04	5.15E+04	9.49E+04	5.24E+04	9.23E+04	-261.	352.

Table M–167. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–168. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.61E+04	8.56E+04	8.60E+04	-29.4	35.4
15.	8.50E+04	8.37E+04	8.66E+04	8.38E+04	8.65E+04	-84.1	97.5
30.	8.25E+04	7.74E+04	8.85E+04	7.75E+04	8.82E+04	-167.	191.
45.	7.87E+04	6.79E+04	9.51E+04	6.80E+04	9.15E+04	-237.	286.
65.	7.17E+04	5.26E+04	1.07E+05	5.26E+04	9.77E+04	-293.	401.

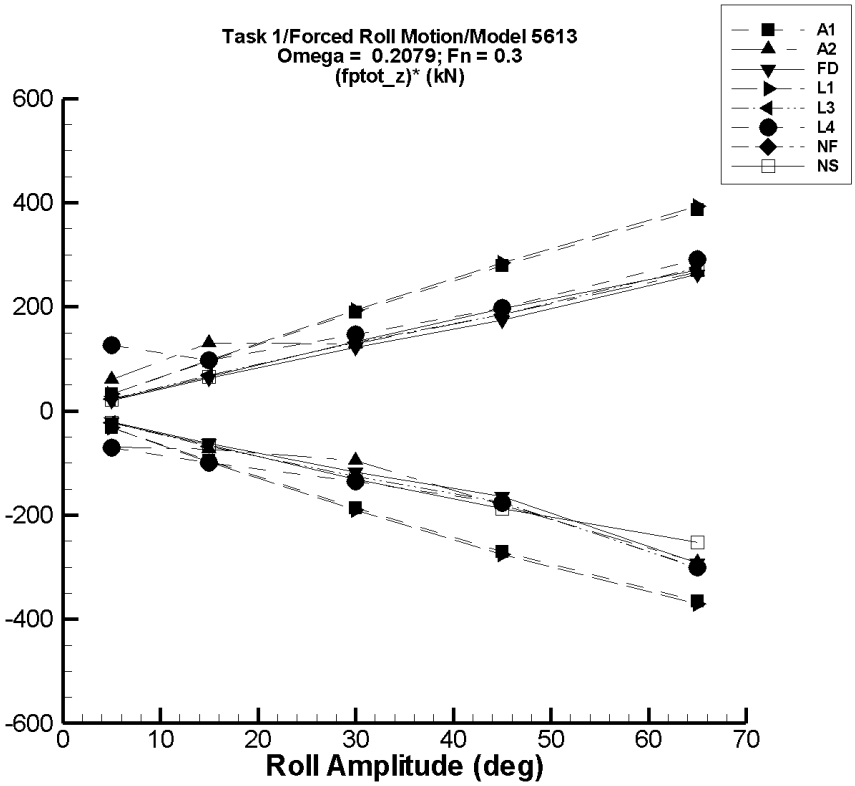

Figure M–22. Minimum and Maximum of $(F_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–169. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.0	32.2
15.	8.45E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-95.5	96.1
30.	8.02E+04	7.46E+04	8.59E+04	7.46E+04	8.59E+04	-187.	190.
45.	7.34E+04	6.12E+04	8.59E+04	6.12E+04	8.59E+04	-271.	279.
65.	6.08E+04	3.71E+04	8.59E+04	3.71E+04	8.59E+04	-365.	386.

Table M–170. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-69.6	60.1
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-73.6	131.
30.	8.20E+04	7.91E+04	8.59E+04	7.91E+04	8.59E+04	-96.0	129.
45.	7.76E+04	6.95E+04	8.59E+04	6.94E+04	8.59E+04	-180.	186.
65.	6.85E+04	4.95E+04	8.59E+04	4.96E+04	8.58E+04	-291.	267.

Table M–171. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.7	20.1
15.	8.43E+04	8.34E+04	8.53E+04	8.34E+04	8.53E+04	-62.1	62.5
30.	8.16E+04	7.81E+04	8.53E+04	7.81E+04	8.53E+04	-117.	122.
45.	7.75E+04	7.00E+04	8.53E+04	7.01E+04	8.53E+04	-164.	174.
65.	6.82E+04	4.91E+04	8.53E+04	4.92E+04	8.53E+04	-293.	263.

Table M–172. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-32.7	32.7
15.	8.04E+04	7.89E+04	8.18E+04	7.89E+04	8.18E+04	-97.6	97.9
30.	7.61E+04	7.04E+04	8.19E+04	7.04E+04	8.19E+04	-191.	193.
45.	6.92E+04	5.68E+04	8.20E+04	5.68E+04	8.20E+04	-276.	284.
65.	5.66E+04	3.24E+04	8.22E+04	3.24E+04	8.22E+04	-371.	393.

Table M–173. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-23.1	23.2
15.	8.08E+04	7.98E+04	8.18E+04	7.98E+04	8.18E+04	-67.3	67.8
30.	7.79E+04	7.41E+04	8.19E+04	7.41E+04	8.18E+04	-126.	131.
45.	7.36E+04	6.57E+04	8.20E+04	6.57E+04	8.19E+04	-175.	186.
65.	6.42E+04	4.45E+04	8.21E+04	4.46E+04	8.21E+04	-302.	275.

Table M–174. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.16E+04	8.12E+04	8.29E+04	8.12E+04	8.22E+04	-70.9	127.
15.	8.07E+04	7.92E+04	8.26E+04	7.92E+04	8.22E+04	-99.5	97.0
30.	7.80E+04	7.38E+04	8.27E+04	7.40E+04	8.24E+04	-135.	147.
45.	7.39E+04	6.60E+04	8.33E+04	6.60E+04	8.28E+04	-176.	198.
65.	6.52E+04	4.56E+04	8.47E+04	4.57E+04	8.41E+04	-300.	292.

Table M–175. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–176. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.57E+04	8.59E+04	-22.5	22.0
15.	8.49E+04	8.39E+04	8.60E+04	8.39E+04	8.59E+04	-64.8	65.7
30.	8.21E+04	7.81E+04	8.63E+04	7.82E+04	8.61E+04	-131.	134.
45.	7.79E+04	6.93E+04	8.75E+04	6.94E+04	8.67E+04	-188.	196.
65.	7.03E+04	5.39E+04	8.94E+04	5.39E+04	8.79E+04	-252.	271.

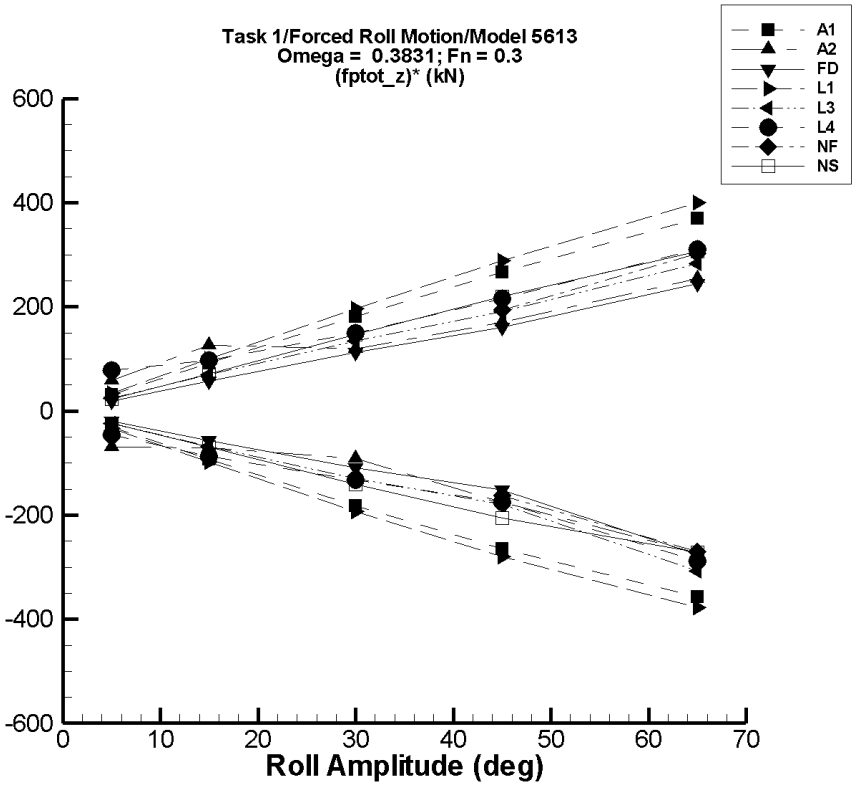

Figure M–23. Minimum and Maximum of $(F_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–177. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.2	30.7
15.	8.45E+04	8.31E+04	8.59E+04	8.31E+04	8.59E+04	-93.1	91.8
30.	8.04E+04	7.49E+04	8.59E+04	7.49E+04	8.58E+04	-182.	181.
45.	7.38E+04	6.19E+04	8.59E+04	6.19E+04	8.58E+04	-265.	266.
65.	6.16E+04	3.85E+04	8.59E+04	3.84E+04	8.56E+04	-357.	369.

Table M–178. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-68.9	58.2
15.	8.40E+04	8.29E+04	8.59E+04	8.29E+04	8.59E+04	-71.2	127.
30.	8.22E+04	7.95E+04	8.59E+04	7.95E+04	8.58E+04	-91.0	120.
45.	7.80E+04	7.00E+04	8.59E+04	7.01E+04	8.56E+04	-175.	170.
65.	6.91E+04	4.40E+04	8.59E+04	5.13E+04	8.56E+04	-273.	254.

Table M–179. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-19.2	18.6
15.	8.44E+04	8.35E+04	8.53E+04	8.35E+04	8.53E+04	-57.4	57.7
30.	8.18E+04	7.85E+04	8.53E+04	7.86E+04	8.52E+04	-109.	113.
45.	7.80E+04	7.10E+04	8.53E+04	7.11E+04	8.52E+04	-152.	160.
65.	6.92E+04	5.09E+04	8.53E+04	5.13E+04	8.51E+04	-276.	244.

Table M–180. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-33.2	33.4
15.	8.04E+04	7.89E+04	8.19E+04	7.89E+04	8.19E+04	-98.8	99.8
30.	7.62E+04	7.04E+04	8.21E+04	7.04E+04	8.21E+04	-194.	197.
45.	6.94E+04	5.67E+04	8.24E+04	5.68E+04	8.25E+04	-280.	289.
65.	5.71E+04	3.24E+04	8.31E+04	3.25E+04	8.31E+04	-378.	401.

Table M–181. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-23.5	23.7
15.	8.08E+04	7.98E+04	8.18E+04	7.98E+04	8.18E+04	-68.6	69.5
30.	7.80E+04	7.41E+04	8.20E+04	7.41E+04	8.21E+04	-129.	134.
45.	7.38E+04	6.57E+04	8.24E+04	6.57E+04	8.24E+04	-179.	191.
65.	6.46E+04	4.45E+04	8.30E+04	4.46E+04	8.31E+04	-307.	284.

Table M–182. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.16E+04	8.13E+04	8.23E+04	8.14E+04	8.20E+04	-46.1	78.6
15.	8.07E+04	7.93E+04	8.23E+04	7.94E+04	8.22E+04	-87.1	97.0
30.	7.80E+04	7.40E+04	8.29E+04	7.40E+04	8.25E+04	-133.	150.
45.	7.40E+04	6.61E+04	8.41E+04	6.61E+04	8.37E+04	-176.	215.
65.	6.53E+04	4.64E+04	8.61E+04	4.65E+04	8.54E+04	-288.	310.

Table M–183. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	7.60E+04	7.24E+04	8.04E+04	7.24E+04	8.02E+04	-117.	141.
45.	7.21E+04	6.46E+04	8.13E+04	6.48E+04	8.09E+04	-162.	194.
65.	6.39E+04	4.58E+04	8.41E+04	4.63E+04	8.36E+04	-271.	303.

Table M–184. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.57E+04	8.59E+04	-23.5	22.7
15.	8.49E+04	8.39E+04	8.61E+04	8.39E+04	8.60E+04	-69.2	71.1
30.	8.22E+04	7.79E+04	8.70E+04	7.80E+04	8.67E+04	-141.	147.
45.	7.81E+04	6.88E+04	8.97E+04	6.89E+04	8.80E+04	-205.	220.
65.	7.08E+04	5.31E+04	9.41E+04	5.31E+04	9.06E+04	-271.	306.

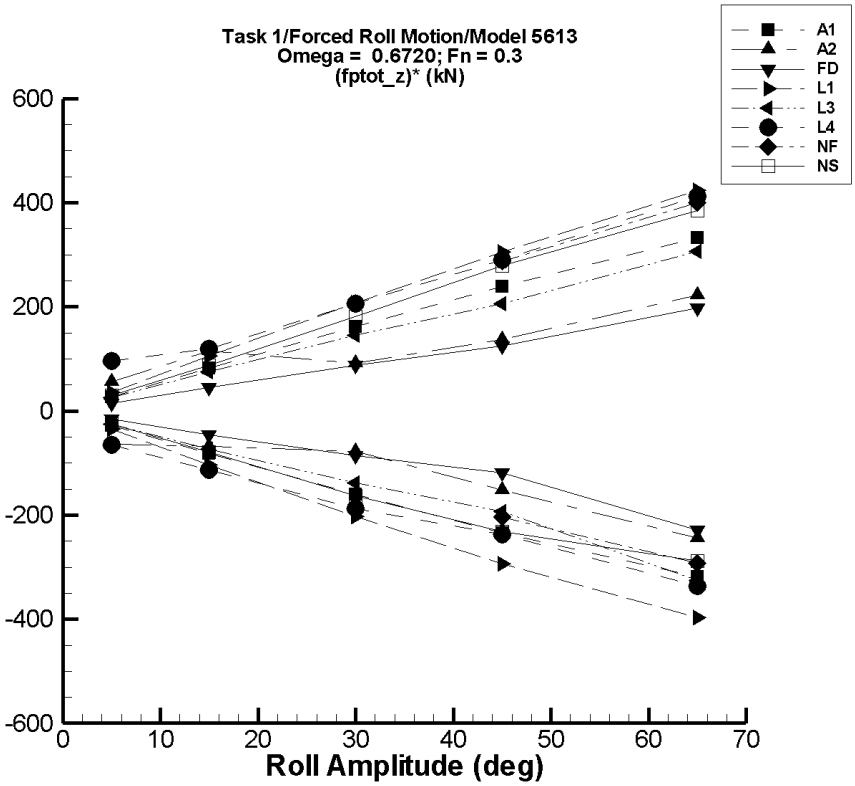

Figure M–24. Minimum and Maximum of $(F_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–185. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-27.4	27.5
15.	8.46E+04	8.33E+04	8.59E+04	8.34E+04	8.59E+04	-81.8	82.0
30.	8.08E+04	7.58E+04	8.59E+04	7.60E+04	8.57E+04	-161.	162.
45.	7.47E+04	6.37E+04	8.60E+04	6.42E+04	8.54E+04	-234.	239.
65.	6.33E+04	4.18E+04	8.60E+04	4.27E+04	8.49E+04	-318.	332.

Table M–186. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.53E+04	8.59E+04	8.53E+04	8.59E+04	-64.1	55.7
15.	8.41E+04	8.30E+04	8.59E+04	8.31E+04	8.58E+04	-68.2	116.
30.	8.26E+04	8.02E+04	8.59E+04	8.03E+04	8.54E+04	-77.4	92.1
45.	7.89E+04	7.14E+04	8.59E+04	7.20E+04	8.51E+04	-153.	137.
65.	7.10E+04	5.41E+04	8.62E+04	5.51E+04	8.54E+04	-245.	222.

Table M–187. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-15.0	14.7
15.	8.46E+04	8.38E+04	8.53E+04	8.39E+04	8.52E+04	-45.3	45.4
30.	8.25E+04	7.98E+04	8.53E+04	8.00E+04	8.52E+04	-85.7	88.2
45.	7.94E+04	7.38E+04	8.53E+04	7.41E+04	8.50E+04	-119.	125.
65.	7.19E+04	5.61E+04	8.54E+04	5.71E+04	8.48E+04	-229.	198.

Table M–188. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.19E+04	8.15E+04	8.19E+04	-34.6	35.2
15.	8.05E+04	7.89E+04	8.20E+04	7.89E+04	8.20E+04	-103.	105.
30.	7.64E+04	7.03E+04	8.27E+04	7.04E+04	8.27E+04	-202.	208.
45.	7.00E+04	5.66E+04	8.37E+04	5.68E+04	8.37E+04	-294.	305.
65.	5.82E+04	3.20E+04	8.58E+04	3.24E+04	8.58E+04	-397.	424.

Table M–189. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.17E+04	8.15E+04	8.18E+04	8.15E+04	8.18E+04	-25.0	25.5
15.	8.09E+04	7.97E+04	8.20E+04	7.98E+04	8.20E+04	-73.1	74.8
30.	7.83E+04	7.40E+04	8.26E+04	7.41E+04	8.26E+04	-138.	145.
45.	7.43E+04	6.55E+04	8.36E+04	6.57E+04	8.36E+04	-193.	207.
65.	6.58E+04	4.42E+04	8.57E+04	4.46E+04	8.57E+04	-326.	307.

Table M–190. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.16E+04	8.12E+04	8.23E+04	8.13E+04	8.21E+04	-65.5	96.1
15.	8.07E+04	7.90E+04	8.27E+04	7.90E+04	8.25E+04	-113.	119.
30.	7.81E+04	7.23E+04	8.45E+04	7.24E+04	8.42E+04	-188.	206.
45.	7.41E+04	6.33E+04	8.77E+04	6.35E+04	8.72E+04	-237.	289.
65.	6.51E+04	4.27E+04	9.30E+04	4.33E+04	9.19E+04	-336.	412.

Table M–191. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	7.66E+04	7.14E+04	8.33E+04	7.14E+04	8.26E+04	-171.	200.
45.	7.25E+04	6.32E+04	8.76E+04	6.33E+04	8.54E+04	-204.	288.
65.	6.45E+04	4.52E+04	9.38E+04	4.56E+04	9.06E+04	-292.	400.

Table M–192. Minimum and Maximum of F_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{ptot}} \rangle$	Unfiltered F_z^{ptot}		Filtered F_z^{ptot}		Filtered $\left(F_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.60E+04	8.57E+04	8.59E+04	-25.9	29.6
15.	8.50E+04	8.38E+04	8.65E+04	8.38E+04	8.64E+04	-79.4	87.8
30.	8.25E+04	7.76E+04	8.84E+04	7.77E+04	8.80E+04	-162.	181.
45.	7.86E+04	6.81E+04	9.51E+04	6.82E+04	9.12E+04	-232.	279.
65.	7.16E+04	5.29E+04	1.07E+05	5.29E+04	9.67E+04	-288.	386.

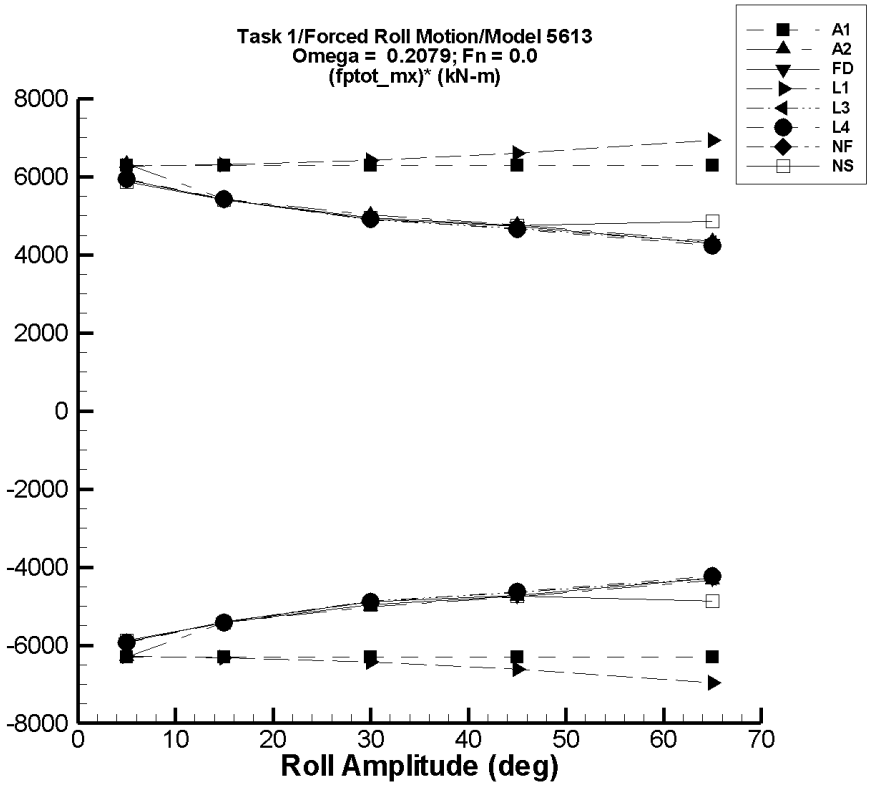

Figure M–25. Minimum and Maximum of $(M_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–193. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.323	-3.15E+04	3.15E+04	-3.15E+04	3.14E+04	-6.30E+03	6.29E+03
15.	-0.961	-9.44E+04	9.44E+04	-9.44E+04	9.43E+04	-6.29E+03	6.29E+03
30.	-1.92	-1.89E+05	1.89E+05	-1.89E+05	1.89E+05	-6.29E+03	6.29E+03
45.	-2.92	-2.83E+05	2.83E+05	-2.83E+05	2.83E+05	-6.29E+03	6.29E+03
65.	-4.24	-4.09E+05	4.09E+05	-4.09E+05	4.09E+05	-6.29E+03	6.29E+03

Table M–194. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-58.7	-3.16E+04	3.16E+04	-3.16E+04	3.15E+04	-6.31E+03	6.32E+03
15.	-119.	-8.13E+04	8.14E+04	-8.14E+04	8.13E+04	-5.42E+03	5.43E+03
30.	-179.	-1.51E+05	1.51E+05	-1.50E+05	1.50E+05	-5.01E+03	5.02E+03
45.	-282.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.75E+03	4.76E+03
65.	-581.	-2.82E+05	2.82E+05	-2.82E+05	2.82E+05	-4.33E+03	4.34E+03

Table M–195. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.78	-2.97E+04	2.97E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-65.6	-8.13E+04	8.13E+04	-8.12E+04	8.12E+04	-5.41E+03	5.42E+03
30.	-194.	-1.47E+05	1.47E+05	-1.47E+05	1.47E+05	-4.90E+03	4.91E+03
45.	-277.	-2.13E+05	2.13E+05	-2.12E+05	2.12E+05	-4.72E+03	4.73E+03
65.	-498.	-2.78E+05	2.78E+05	-2.78E+05	2.78E+05	-4.28E+03	4.28E+03

Table M–196. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.310	-3.14E+04	3.14E+04	-3.14E+04	3.14E+04	-6.28E+03	6.28E+03
15.	8.47	-9.47E+04	9.47E+04	-9.47E+04	9.47E+04	-6.31E+03	6.31E+03
30.	68.1	-1.93E+05	1.93E+05	-1.93E+05	1.93E+05	-6.43E+03	6.42E+03
45.	226.	-2.97E+05	2.97E+05	-2.97E+05	2.97E+05	-6.61E+03	6.60E+03
65.	655.	-4.52E+05	4.52E+05	-4.52E+05	4.52E+05	-6.96E+03	6.94E+03

Table M–197. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-18.4	-2.96E+04	2.96E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-125.	-8.11E+04	8.11E+04	-8.11E+04	8.11E+04	-5.40E+03	5.41E+03
30.	-358.	-1.47E+05	1.47E+05	-1.46E+05	1.46E+05	-4.87E+03	4.89E+03
45.	-501.	-2.10E+05	2.10E+05	-2.10E+05	2.10E+05	-4.66E+03	4.68E+03
65.	-774.	-2.79E+05	2.79E+05	-2.79E+05	2.79E+05	-4.28E+03	4.31E+03

Table M–198. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-17.5	-2.97E+04	2.97E+04	-2.97E+04	2.97E+04	-5.93E+03	5.94E+03
15.	-121.	-8.14E+04	8.14E+04	-8.14E+04	8.14E+04	-5.42E+03	5.43E+03
30.	-349.	-1.47E+05	1.47E+05	-1.47E+05	1.47E+05	-4.89E+03	4.92E+03
45.	-519.	-2.09E+05	2.09E+05	-2.09E+05	2.09E+05	-4.64E+03	4.66E+03
65.	-834.	-2.76E+05	2.75E+05	-2.75E+05	2.75E+05	-4.22E+03	4.24E+03

Table M–199. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
ϕ_a (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_x^{ptot} Min. (kN-m)	Unfiltered M_x^{ptot} Max. (kN-m)	Filtered M_x^{ptot} Min. (kN-m)	Filtered M_x^{ptot} Max. (kN-m)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–200. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
ϕ_a (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_x^{ptot} Min. (kN-m)	Unfiltered M_x^{ptot} Max. (kN-m)	Filtered M_x^{ptot} Min. (kN-m)	Filtered M_x^{ptot} Max. (kN-m)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Max. (kN-m/°)
5.	-1.54E-02	-2.97E+04	2.97E+04	-2.94E+04	2.94E+04	-5.87E+03	5.87E+03
15.	-0.144	-8.19E+04	8.19E+04	-8.12E+04	8.12E+04	-5.41E+03	5.41E+03
30.	-0.838	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.96E+03
45.	-2.88	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.75E+03	4.75E+03
65.	-314.	-3.18E+05	3.16E+05	-3.17E+05	3.15E+05	-4.88E+03	4.86E+03

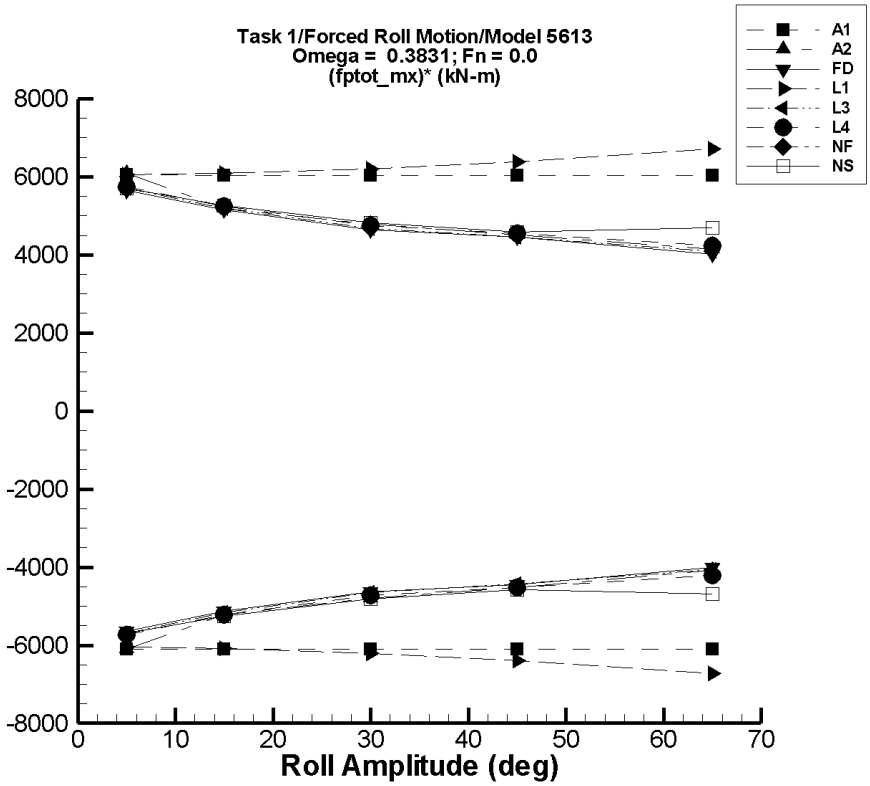

Figure M–26. Minimum and Maximum of $(M_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–201. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.60	-3.04E+04	3.03E+04	-3.05E+04	3.02E+04	-6.09E+03	6.04E+03
15.	-4.81	-9.12E+04	9.10E+04	-9.14E+04	9.06E+04	-6.09E+03	6.04E+03
30.	-9.63	-1.82E+05	1.82E+05	-1.83E+05	1.81E+05	-6.09E+03	6.04E+03
45.	-14.4	-2.73E+05	2.73E+05	-2.74E+05	2.72E+05	-6.09E+03	6.04E+03
65.	-20.8	-3.95E+05	3.94E+05	-3.96E+05	3.93E+05	-6.09E+03	6.04E+03

Table M–202. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-56.2	-3.05E+04	3.04E+04	-3.05E+04	3.03E+04	-6.10E+03	6.08E+03
15.	-116.	-7.81E+04	7.79E+04	-7.83E+04	7.78E+04	-5.21E+03	5.19E+03
30.	-167.	-1.44E+05	1.44E+05	-1.44E+05	1.43E+05	-4.80E+03	4.78E+03
45.	-264.	-2.05E+05	2.04E+05	-2.04E+05	2.03E+05	-4.53E+03	4.51E+03
65.	-1.43E+03	-2.67E+05	2.68E+05	-2.67E+05	2.68E+05	-4.09E+03	4.14E+03

Table M–203. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.40	-2.83E+04	2.83E+04	-2.82E+04	2.82E+04	-5.65E+03	5.65E+03
15.	-60.4	-7.73E+04	7.73E+04	-7.71E+04	7.71E+04	-5.14E+03	5.14E+03
30.	-176.	-1.39E+05	1.39E+05	-1.39E+05	1.39E+05	-4.63E+03	4.64E+03
45.	-227.	-2.01E+05	2.01E+05	-2.00E+05	2.00E+05	-4.44E+03	4.45E+03
65.	-536.	-2.61E+05	2.61E+05	-2.61E+05	2.61E+05	-4.01E+03	4.02E+03

Table M–204. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.332	-3.03E+04	3.03E+04	-3.03E+04	3.03E+04	-6.05E+03	6.05E+03
15.	11.6	-9.14E+04	9.14E+04	-9.13E+04	9.13E+04	-6.09E+03	6.09E+03
30.	93.5	-1.86E+05	1.86E+05	-1.86E+05	1.86E+05	-6.20E+03	6.20E+03
45.	310.	-2.88E+05	2.88E+05	-2.87E+05	2.87E+05	-6.39E+03	6.37E+03
65.	896.	-4.37E+05	4.37E+05	-4.37E+05	4.37E+05	-6.73E+03	6.70E+03

Table M–205. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-24.7	-2.86E+04	2.86E+04	-2.85E+04	2.85E+04	-5.70E+03	5.71E+03
15.	-166.	-7.78E+04	7.78E+04	-7.77E+04	7.77E+04	-5.17E+03	5.19E+03
30.	-474.	-1.40E+05	1.40E+05	-1.40E+05	1.40E+05	-4.64E+03	4.67E+03
45.	-633.	-2.00E+05	2.00E+05	-2.00E+05	2.00E+05	-4.43E+03	4.46E+03
65.	-1.19E+03	-2.65E+05	2.65E+05	-2.65E+05	2.65E+05	-4.06E+03	4.09E+03

Table M–206. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-24.6	-2.87E+04	2.87E+04	-2.87E+04	2.87E+04	-5.73E+03	5.74E+03
15.	-169.	-7.87E+04	7.87E+04	-7.86E+04	7.86E+04	-5.23E+03	5.25E+03
30.	-481.	-1.42E+05	1.42E+05	-1.42E+05	1.42E+05	-4.73E+03	4.76E+03
45.	-667.	-2.04E+05	2.05E+05	-2.04E+05	2.04E+05	-4.52E+03	4.55E+03
65.	-1.29E+03	-2.76E+05	2.74E+05	-2.75E+05	2.74E+05	-4.21E+03	4.23E+03

Table M–207. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–208. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.63E-02	-2.88E+04	2.88E+04	-2.85E+04	2.85E+04	-5.70E+03	5.70E+03
15.	0.257	-7.95E+04	7.95E+04	-7.89E+04	7.89E+04	-5.26E+03	5.26E+03
30.	1.25	-1.45E+05	1.45E+05	-1.44E+05	1.44E+05	-4.81E+03	4.81E+03
45.	4.86	-2.07E+05	2.07E+05	-2.06E+05	2.06E+05	-4.58E+03	4.58E+03
65.	206.	-3.05E+05	3.06E+05	-3.05E+05	3.06E+05	-4.69E+03	4.70E+03

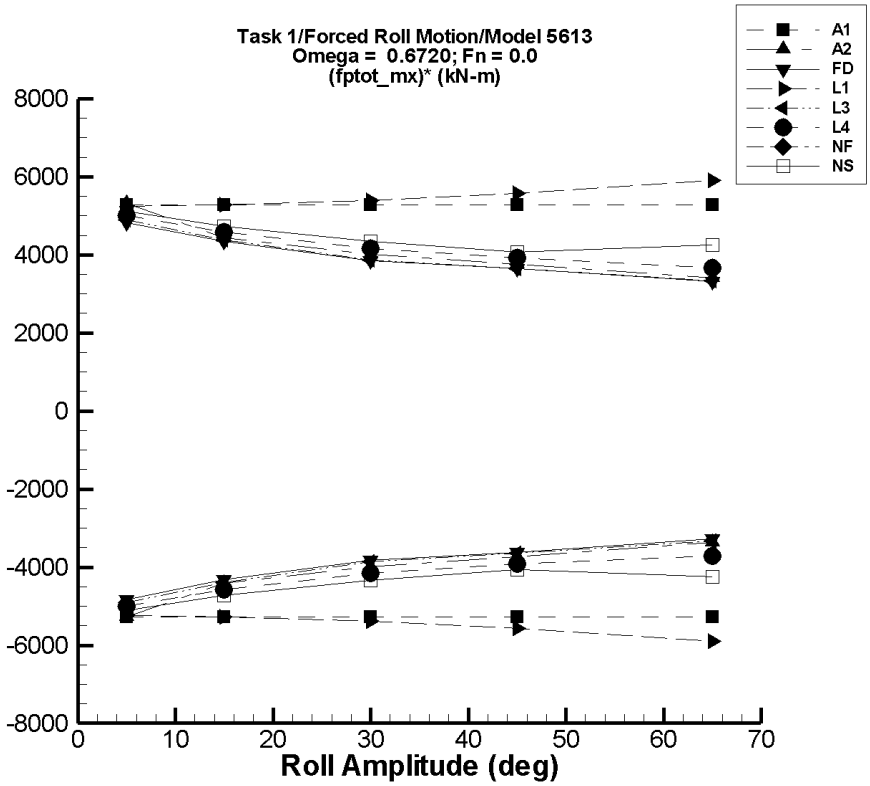

Figure M–27. Minimum and Maximum of $(M_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–209. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.47	-2.67E+04	2.67E+04	-2.64E+04	2.64E+04	-5.27E+03	5.28E+03
15.	-4.41	-8.00E+04	8.00E+04	-7.91E+04	7.91E+04	-5.27E+03	5.27E+03
30.	-8.81	-1.60E+05	1.60E+05	-1.58E+05	1.58E+05	-5.27E+03	5.27E+03
45.	-13.2	-2.40E+05	2.40E+05	-2.37E+05	2.37E+05	-5.27E+03	5.27E+03
65.	-19.1	-3.46E+05	3.47E+05	-3.43E+05	3.43E+05	-5.27E+03	5.27E+03

Table M–210. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-111.	-2.67E+04	2.67E+04	-2.65E+04	2.65E+04	-5.27E+03	5.32E+03
15.	-157.	-6.67E+04	6.68E+04	-6.64E+04	6.65E+04	-4.42E+03	4.44E+03
30.	-330.	-1.21E+05	1.21E+05	-1.20E+05	1.20E+05	-4.00E+03	4.02E+03
45.	-559.	-1.70E+05	1.71E+05	-1.68E+05	1.68E+05	-3.73E+03	3.76E+03
65.	-1.79E+03	-2.21E+05	2.21E+05	-2.20E+05	2.20E+05	-3.36E+03	3.41E+03

Table M–211. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-18.4	-2.44E+04	2.44E+04	-2.41E+04	2.41E+04	-4.83E+03	4.83E+03
15.	-150.	-6.55E+04	6.55E+04	-6.49E+04	6.49E+04	-4.32E+03	4.34E+03
30.	-427.	-1.16E+05	1.16E+05	-1.15E+05	1.15E+05	-3.82E+03	3.84E+03
45.	-537.	-1.66E+05	1.66E+05	-1.64E+05	1.64E+05	-3.62E+03	3.65E+03
65.	-1.22E+03	-2.16E+05	2.16E+05	-2.14E+05	2.14E+05	-3.28E+03	3.31E+03

Table M–212. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.423	-2.63E+04	2.63E+04	-2.62E+04	2.62E+04	-5.24E+03	5.24E+03
15.	-1.52	-7.95E+04	7.95E+04	-7.91E+04	7.91E+04	-5.28E+03	5.28E+03
30.	-4.10	-1.62E+05	1.62E+05	-1.62E+05	1.62E+05	-5.39E+03	5.39E+03
45.	-8.26	-2.52E+05	2.52E+05	-2.51E+05	2.51E+05	-5.57E+03	5.57E+03
65.	-15.1	-3.86E+05	3.86E+05	-3.84E+05	3.84E+05	-5.90E+03	5.90E+03

Table M–213. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.24	-2.46E+04	2.46E+04	-2.45E+04	2.45E+04	-4.90E+03	4.90E+03
15.	-16.5	-6.60E+04	6.60E+04	-6.58E+04	6.58E+04	-4.38E+03	4.39E+03
30.	-56.3	-1.16E+05	1.16E+05	-1.16E+05	1.16E+05	-3.87E+03	3.87E+03
45.	-140.	-1.65E+05	1.65E+05	-1.64E+05	1.64E+05	-3.65E+03	3.65E+03
65.	-75.5	-2.17E+05	2.17E+05	-2.17E+05	2.17E+05	-3.33E+03	3.33E+03

Table M–214. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-5.26	-2.53E+04	2.51E+04	-2.50E+04	2.50E+04	-5.00E+03	5.00E+03
15.	11.1	-6.90E+04	6.90E+04	-6.87E+04	6.87E+04	-4.58E+03	4.58E+03
30.	-107.	-1.26E+05	1.25E+05	-1.25E+05	1.25E+05	-4.16E+03	4.16E+03
45.	-235.	-1.80E+05	1.77E+05	-1.77E+05	1.76E+05	-3.92E+03	3.92E+03
65.	-324.	-2.45E+05	2.38E+05	-2.41E+05	2.38E+05	-3.71E+03	3.67E+03

Table M–215. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
ϕ_a (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_x^{ptot} Min. (kN-m)	Unfiltered M_x^{ptot} Max. (kN-m)	Filtered M_x^{ptot} Min. (kN-m)	Filtered M_x^{ptot} Max. (kN-m)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–216. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
ϕ_a (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_x^{ptot} Min. (kN-m)	Unfiltered M_x^{ptot} Max. (kN-m)	Filtered M_x^{ptot} Min. (kN-m)	Filtered M_x^{ptot} Max. (kN-m)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Max. (kN-m/°)
5.	-0.927	-2.58E+04	2.58E+04	-2.55E+04	2.55E+04	-5.11E+03	5.11E+03
15.	-1.73	-7.16E+04	7.16E+04	-7.10E+04	7.10E+04	-4.73E+03	4.73E+03
30.	0.501	-1.31E+05	1.31E+05	-1.30E+05	1.30E+05	-4.34E+03	4.34E+03
45.	7.09	-1.83E+05	1.83E+05	-1.83E+05	1.83E+05	-4.06E+03	4.06E+03
65.	194.	-2.77E+05	2.78E+05	-2.76E+05	2.77E+05	-4.25E+03	4.26E+03

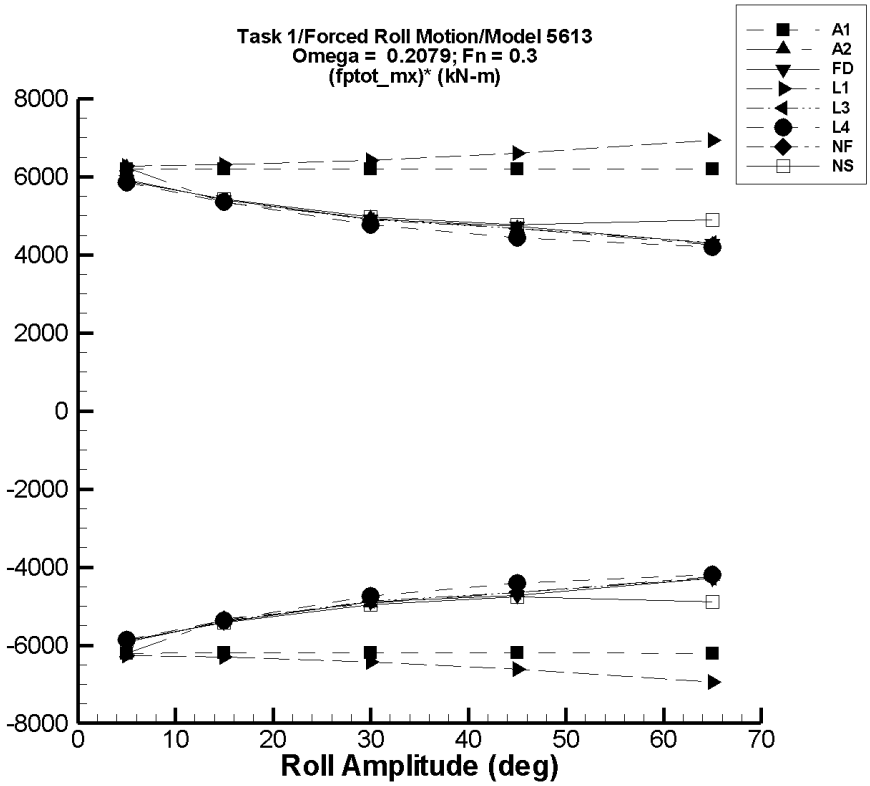

Figure M–28. Minimum and Maximum of $(M_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–217. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.381	-3.10E+04	3.10E+04	-3.10E+04	3.10E+04	-6.20E+03	6.20E+03
15.	-1.15	-9.30E+04	9.30E+04	-9.30E+04	9.29E+04	-6.20E+03	6.19E+03
30.	-2.30	-1.86E+05	1.86E+05	-1.86E+05	1.86E+05	-6.20E+03	6.19E+03
45.	-3.48	-2.79E+05	2.79E+05	-2.79E+05	2.79E+05	-6.20E+03	6.19E+03
65.	-5.02	-4.03E+05	4.03E+05	-4.03E+05	4.03E+05	-6.20E+03	6.19E+03

Table M–218. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-60.8	-3.11E+04	3.11E+04	-3.11E+04	3.11E+04	-6.21E+03	6.23E+03
15.	-120.	-7.99E+04	8.00E+04	-8.00E+04	7.99E+04	-5.33E+03	5.34E+03
30.	-179.	-1.48E+05	1.48E+05	-1.48E+05	1.48E+05	-4.92E+03	4.93E+03
45.	-282.	-2.10E+05	2.10E+05	-2.10E+05	2.10E+05	-4.66E+03	4.67E+03
65.	-581.	-2.76E+05	2.76E+05	-2.76E+05	2.76E+05	-4.24E+03	4.25E+03

Table M–219. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.78	-2.97E+04	2.97E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-65.6	-8.13E+04	8.13E+04	-8.12E+04	8.12E+04	-5.41E+03	5.42E+03
30.	-194.	-1.47E+05	1.47E+05	-1.47E+05	1.47E+05	-4.90E+03	4.91E+03
45.	-277.	-2.13E+05	2.13E+05	-2.12E+05	2.12E+05	-4.72E+03	4.73E+03
65.	-498.	-2.78E+05	2.78E+05	-2.78E+05	2.78E+05	-4.28E+03	4.28E+03

Table M–220. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.296	-3.14E+04	3.14E+04	-3.14E+04	3.14E+04	-6.27E+03	6.27E+03
15.	8.46	-9.47E+04	9.47E+04	-9.46E+04	9.46E+04	-6.31E+03	6.31E+03
30.	68.0	-1.93E+05	1.93E+05	-1.93E+05	1.93E+05	-6.42E+03	6.42E+03
45.	226.	-2.97E+05	2.97E+05	-2.97E+05	2.97E+05	-6.61E+03	6.60E+03
65.	655.	-4.51E+05	4.51E+05	-4.51E+05	4.51E+05	-6.95E+03	6.93E+03

Table M–221. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-18.4	-2.96E+04	2.96E+04	-2.96E+04	2.96E+04	-5.92E+03	5.93E+03
15.	-125.	-8.10E+04	8.10E+04	-8.10E+04	8.10E+04	-5.39E+03	5.41E+03
30.	-358.	-1.46E+05	1.46E+05	-1.46E+05	1.46E+05	-4.87E+03	4.89E+03
45.	-501.	-2.10E+05	2.10E+05	-2.10E+05	2.10E+05	-4.65E+03	4.68E+03
65.	-774.	-2.79E+05	2.79E+05	-2.79E+05	2.79E+05	-4.28E+03	4.30E+03

Table M–222. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.6	-2.93E+04	2.93E+04	-2.93E+04	2.93E+04	-5.87E+03	5.86E+03
15.	-18.5	-8.05E+04	8.05E+04	-8.04E+04	8.04E+04	-5.36E+03	5.36E+03
30.	-234.	-1.43E+05	1.44E+05	-1.43E+05	1.43E+05	-4.75E+03	4.76E+03
45.	-426.	-1.99E+05	1.99E+05	-1.99E+05	1.99E+05	-4.41E+03	4.43E+03
65.	-477.	-2.73E+05	2.72E+05	-2.72E+05	2.72E+05	-4.18E+03	4.19E+03

Table M–223. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
ϕ_a (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_x^{ptot} Min. (kN-m)	Max. (kN-m)	Filtered M_x^{ptot} Min. (kN-m)	Max. (kN-m)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–224. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
ϕ_a (°)	$\langle M_x^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_x^{ptot} Min. (kN-m)	Max. (kN-m)	Filtered M_x^{ptot} Min. (kN-m)	Max. (kN-m)	Filtered $\left(M_x^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Max. (kN-m/°)
5.	5.96E-02	-2.97E+04	2.97E+04	-2.94E+04	2.94E+04	-5.88E+03	5.88E+03
15.	0.356	-8.20E+04	8.20E+04	-8.13E+04	8.13E+04	-5.42E+03	5.42E+03
30.	0.471	-1.50E+05	1.50E+05	-1.49E+05	1.49E+05	-4.97E+03	4.97E+03
45.	1.79E-02	-2.15E+05	2.15E+05	-2.15E+05	2.14E+05	-4.77E+03	4.77E+03
65.	165.	-3.17E+05	3.19E+05	-3.17E+05	3.19E+05	-4.88E+03	4.90E+03

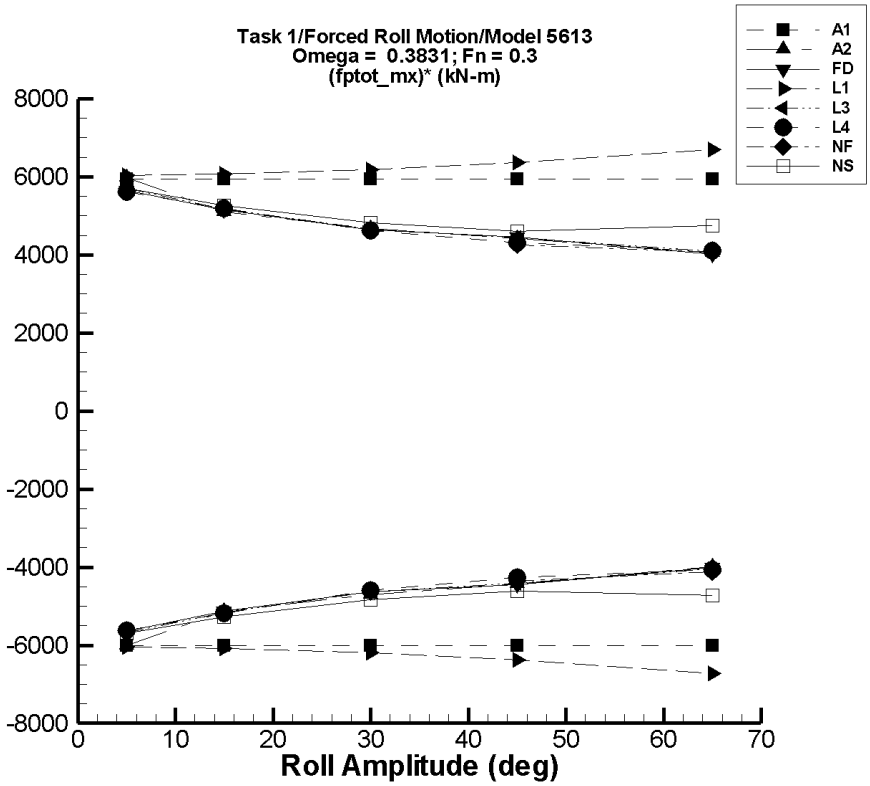

Figure M–29. Minimum and Maximum of $(M_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–225. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.28	-2.99E+04	2.98E+04	-3.00E+04	2.97E+04	-6.00E+03	5.95E+03
15.	-3.84	-8.97E+04	8.95E+04	-9.00E+04	8.92E+04	-6.00E+03	5.95E+03
30.	-7.67	-1.79E+05	1.79E+05	-1.80E+05	1.78E+05	-6.00E+03	5.95E+03
45.	-11.5	-2.69E+05	2.68E+05	-2.70E+05	2.68E+05	-6.00E+03	5.95E+03
65.	-16.6	-3.89E+05	3.88E+05	-3.90E+05	3.86E+05	-6.00E+03	5.95E+03

Table M–226. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-55.8	-3.00E+04	2.99E+04	-3.01E+04	2.99E+04	-6.00E+03	5.98E+03
15.	-115.	-7.67E+04	7.64E+04	-7.69E+04	7.63E+04	-5.12E+03	5.10E+03
30.	-165.	-1.41E+05	1.41E+05	-1.42E+05	1.40E+05	-4.71E+03	4.68E+03
45.	-261.	-2.00E+05	2.00E+05	-2.00E+05	1.98E+05	-4.44E+03	4.41E+03
65.	-1.44E+03	-2.61E+05	2.62E+05	-2.61E+05	2.62E+05	-4.00E+03	4.05E+03

Table M–227. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.40	-2.83E+04	2.83E+04	-2.82E+04	2.82E+04	-5.65E+03	5.65E+03
15.	-60.4	-7.73E+04	7.73E+04	-7.71E+04	7.71E+04	-5.14E+03	5.14E+03
30.	-176.	-1.39E+05	1.39E+05	-1.39E+05	1.39E+05	-4.63E+03	4.64E+03
45.	-227.	-2.01E+05	2.01E+05	-2.00E+05	2.00E+05	-4.44E+03	4.45E+03
65.	-536.	-2.61E+05	2.61E+05	-2.61E+05	2.61E+05	-4.01E+03	4.02E+03

Table M–228. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.356	-3.02E+04	3.02E+04	-3.02E+04	3.02E+04	-6.04E+03	6.04E+03
15.	11.6	-9.12E+04	9.12E+04	-9.11E+04	9.11E+04	-6.07E+03	6.07E+03
30.	93.4	-1.86E+05	1.86E+05	-1.86E+05	1.86E+05	-6.19E+03	6.18E+03
45.	309.	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-6.37E+03	6.36E+03
65.	896.	-4.37E+05	4.37E+05	-4.36E+05	4.36E+05	-6.72E+03	6.69E+03

Table M–229. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-24.6	-2.85E+04	2.85E+04	-2.84E+04	2.84E+04	-5.68E+03	5.69E+03
15.	-166.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-5.16E+03	5.18E+03
30.	-474.	-1.40E+05	1.40E+05	-1.39E+05	1.39E+05	-4.63E+03	4.66E+03
45.	-633.	-2.00E+05	2.00E+05	-1.99E+05	1.99E+05	-4.42E+03	4.45E+03
65.	-1.19E+03	-2.64E+05	2.64E+05	-2.64E+05	2.64E+05	-4.04E+03	4.08E+03

Table M–230. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.84	-2.81E+04	2.81E+04	-2.81E+04	2.81E+04	-5.62E+03	5.62E+03
15.	-128.	-7.79E+04	7.78E+04	-7.77E+04	7.77E+04	-5.17E+03	5.19E+03
30.	-484.	-1.38E+05	1.38E+05	-1.38E+05	1.38E+05	-4.59E+03	4.62E+03
45.	-750.	-1.93E+05	1.93E+05	-1.93E+05	1.93E+05	-4.27E+03	4.30E+03
65.	-930.	-2.66E+05	2.66E+05	-2.65E+05	2.65E+05	-4.07E+03	4.10E+03

Table M–231. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	600.	-1.38E+05	1.37E+05	-1.37E+05	1.36E+05	-4.60E+03	4.52E+03
45.	578.	-1.97E+05	1.93E+05	-1.95E+05	1.92E+05	-4.35E+03	4.26E+03
65.	585.	-2.68E+05	2.66E+05	-2.67E+05	2.65E+05	-4.12E+03	4.07E+03

Table M–232. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.367	-2.88E+04	2.88E+04	-2.85E+04	2.85E+04	-5.70E+03	5.70E+03
15.	3.03	-7.97E+04	7.97E+04	-7.90E+04	7.90E+04	-5.27E+03	5.27E+03
30.	8.97	-1.45E+05	1.45E+05	-1.45E+05	1.45E+05	-4.83E+03	4.83E+03
45.	20.4	-2.08E+05	2.08E+05	-2.07E+05	2.07E+05	-4.61E+03	4.61E+03
65.	222.	-3.08E+05	3.09E+05	-3.07E+05	3.08E+05	-4.73E+03	4.74E+03

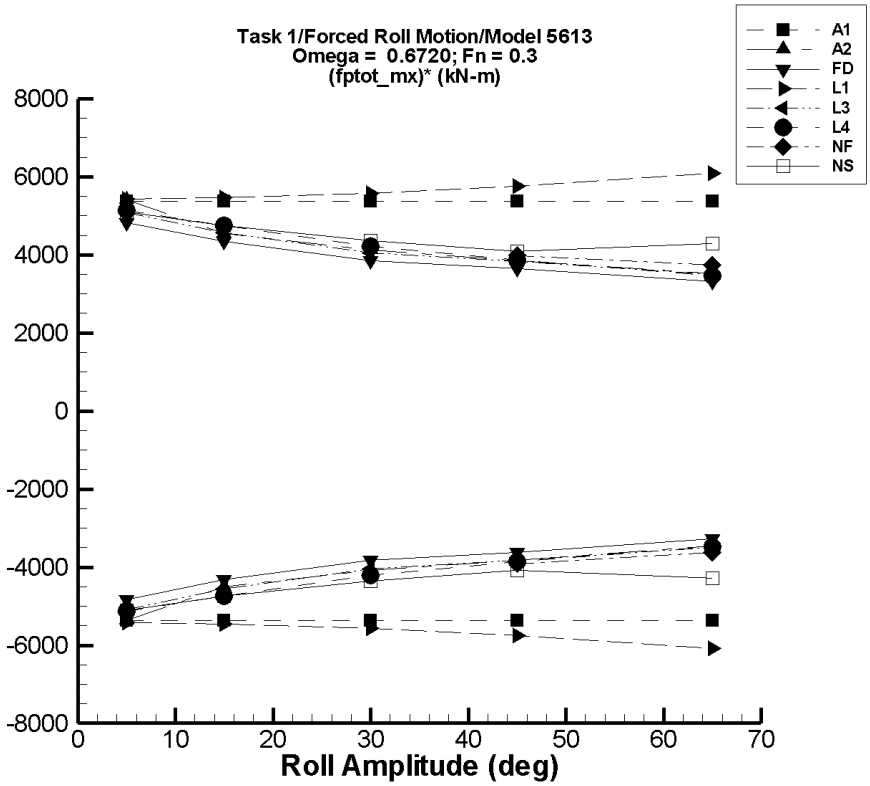

Figure M–30. Minimum and Maximum of $(M_x^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–233. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.72	-2.71E+04	2.72E+04	-2.68E+04	2.69E+04	-5.36E+03	5.37E+03
15.	-11.2	-8.14E+04	8.15E+04	-8.04E+04	8.06E+04	-5.36E+03	5.37E+03
30.	-22.3	-1.63E+05	1.63E+05	-1.61E+05	1.61E+05	-5.36E+03	5.37E+03
45.	-33.5	-2.44E+05	2.45E+05	-2.41E+05	2.42E+05	-5.36E+03	5.37E+03
65.	-48.3	-3.53E+05	3.53E+05	-3.49E+05	3.49E+05	-5.36E+03	5.37E+03

Table M–234. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-113.	-2.71E+04	2.72E+04	-2.69E+04	2.70E+04	-5.36E+03	5.42E+03
15.	-164.	-6.81E+04	6.83E+04	-6.78E+04	6.79E+04	-4.51E+03	4.54E+03
30.	-344.	-1.24E+05	1.24E+05	-1.23E+05	1.23E+05	-4.09E+03	4.12E+03
45.	-579.	-1.74E+05	1.75E+05	-1.73E+05	1.73E+05	-3.82E+03	3.86E+03
65.	-1.82E+03	-2.28E+05	2.28E+05	-2.27E+05	2.27E+05	-3.46E+03	3.51E+03

Table M–235. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-18.4	-2.44E+04	2.44E+04	-2.41E+04	2.41E+04	-4.83E+03	4.83E+03
15.	-150.	-6.55E+04	6.55E+04	-6.49E+04	6.49E+04	-4.32E+03	4.34E+03
30.	-427.	-1.16E+05	1.16E+05	-1.15E+05	1.15E+05	-3.82E+03	3.84E+03
45.	-537.	-1.66E+05	1.66E+05	-1.64E+05	1.64E+05	-3.62E+03	3.65E+03
65.	-1.22E+03	-2.16E+05	2.16E+05	-2.14E+05	2.14E+05	-3.28E+03	3.31E+03

Table M–236. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.440	-2.73E+04	2.72E+04	-2.71E+04	2.71E+04	-5.43E+03	5.43E+03
15.	-1.65	-8.23E+04	8.23E+04	-8.19E+04	8.19E+04	-5.46E+03	5.46E+03
30.	-4.37	-1.68E+05	1.68E+05	-1.67E+05	1.67E+05	-5.57E+03	5.57E+03
45.	-8.67	-2.60E+05	2.60E+05	-2.59E+05	2.59E+05	-5.75E+03	5.75E+03
65.	-15.7	-3.98E+05	3.98E+05	-3.96E+05	3.96E+05	-6.09E+03	6.09E+03

Table M–237. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.24	-2.55E+04	2.55E+04	-2.54E+04	2.54E+04	-5.08E+03	5.08E+03
15.	-16.6	-6.87E+04	6.87E+04	-6.85E+04	6.85E+04	-4.57E+03	4.57E+03
30.	-56.5	-1.22E+05	1.22E+05	-1.21E+05	1.21E+05	-4.05E+03	4.05E+03
45.	-140.	-1.73E+05	1.73E+05	-1.72E+05	1.72E+05	-3.83E+03	3.83E+03
65.	-76.2	-2.28E+05	2.28E+05	-2.28E+05	2.27E+05	-3.50E+03	3.50E+03

Table M–238. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{ptot}} \rangle$	Unfiltered M_x^{ptot}		Filtered M_x^{ptot}		Filtered $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	10.3	-2.57E+04	2.57E+04	-2.56E+04	2.56E+04	-5.13E+03	5.12E+03
15.	6.18	-7.15E+04	7.15E+04	-7.12E+04	7.11E+04	-4.74E+03	4.74E+03
30.	-12.5	-1.27E+05	1.27E+05	-1.26E+05	1.26E+05	-4.22E+03	4.22E+03
45.	-13.2	-1.74E+05	1.74E+05	-1.74E+05	1.74E+05	-3.86E+03	3.86E+03
65.	159.	-2.39E+05	2.39E+05	-2.26E+05	2.26E+05	-3.47E+03	3.47E+03

Table M–239. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_x^{\text{ptot}} \rangle$	**Unfiltered** M_x^{ptot}		**Filtered** M_x^{ptot}		**Filtered** $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-361.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-4.20E+03	4.25E+03
45.	-428.	-1.77E+05	1.79E+05	-1.77E+05	1.79E+05	-3.92E+03	3.98E+03
65.	-1.31E+03	-2.39E+05	2.45E+05	-2.37E+05	2.42E+05	-3.62E+03	3.74E+03

Table M–240. Minimum and Maximum of M_x^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_x^{\text{ptot}} \rangle$	**Unfiltered** M_x^{ptot}		**Filtered** M_x^{ptot}		**Filtered** $\left(M_x^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-0.660	-2.58E+04	2.58E+04	-2.55E+04	2.55E+04	-5.11E+03	5.11E+03
15.	0.574	-7.17E+04	7.17E+04	-7.11E+04	7.11E+04	-4.74E+03	4.74E+03
30.	7.26	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-4.35E+03	4.36E+03
45.	18.6	-1.84E+05	1.84E+05	-1.84E+05	1.84E+05	-4.08E+03	4.08E+03
65.	200.	-2.80E+05	2.81E+05	-2.79E+05	2.80E+05	-4.29E+03	4.30E+03

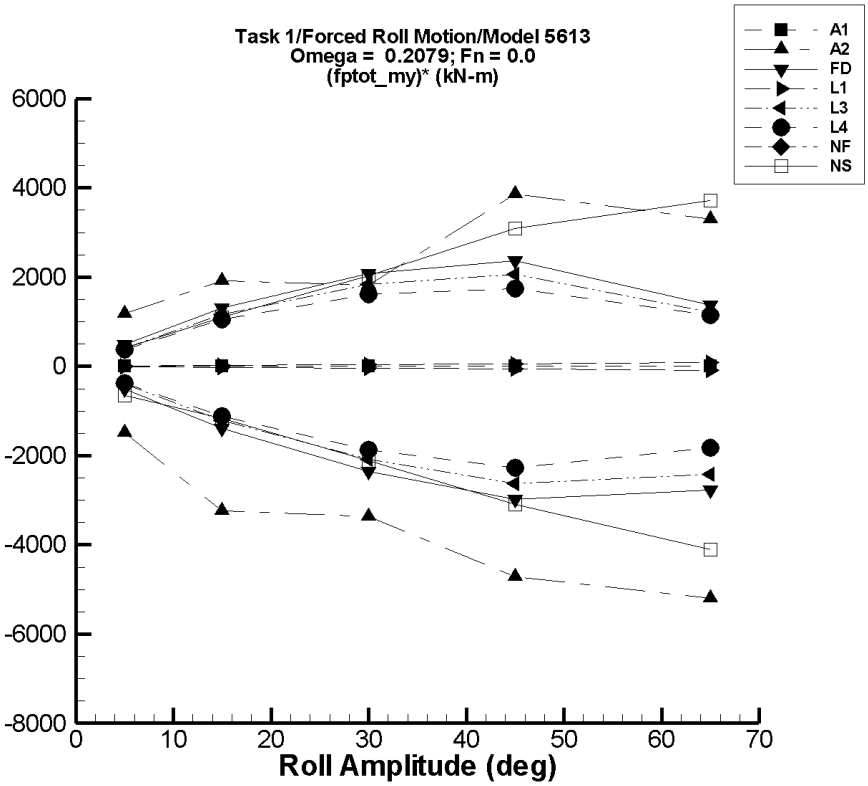

Figure M–31. Minimum and Maximum of $(M_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–241. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.26E-05	-7.51E-03	7.47E-03	-7.43E-03	7.39E-03	-1.48E-03	1.48E-03
15.	-3.77E-05	-2.25E-02	2.24E-02	-2.23E-02	2.21E-02	-1.48E-03	1.48E-03
30.	-7.54E-05	-4.50E-02	4.48E-02	-4.45E-02	4.43E-02	-1.48E-03	1.48E-03
45.	-1.13E-04	-6.75E-02	6.72E-02	-6.68E-02	6.64E-02	-1.48E-03	1.48E-03
65.	-1.63E-04	-9.75E-02	9.71E-02	-9.65E-02	9.60E-02	-1.48E-03	1.48E-03

Table M–242. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	7.33E+03	-38.2	1.33E+04	-66.2	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-38.0	7.75E+04	-133.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-38.0	1.56E+05	428.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-32.1	3.87E+05	448.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	8.58	5.53E+05	340.	5.53E+05	-5.20E+03	3.30E+03

Table M–243. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.70E+03	4.16E+03	9.15E+03	4.17E+03	9.14E+03	-507.	488.
15.	2.50E+04	4.16E+03	4.47E+04	4.15E+03	4.46E+04	-1.39E+03	1.31E+03
30.	7.49E+04	4.17E+03	1.37E+05	4.11E+03	1.37E+05	-2.36E+03	2.08E+03
45.	1.38E+05	4.18E+03	2.45E+05	4.15E+03	2.45E+05	-2.98E+03	2.37E+03
65.	1.85E+05	4.18E+03	2.75E+05	4.80E+03	2.74E+05	-2.76E+03	1.38E+03

Table M–244. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.1	-6.48E-02	64.4	-9.82E-03	64.3	-6.43	6.44
15.	289.	-0.534	579.	-7.27E-02	579.	-19.3	19.3
30.	1.16E+03	-2.11	2.32E+03	-0.279	2.32E+03	-38.6	38.6
45.	2.60E+03	-4.73	5.21E+03	-0.616	5.21E+03	-57.9	57.9
65.	5.43E+03	-9.86	1.09E+04	-1.29	1.09E+04	-83.6	83.7

Table M–245. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	706.	-1.27E+03	2.75E+03	-1.27E+03	2.75E+03	-396.	408.
15.	1.75E+04	-759.	3.49E+04	-740.	3.49E+04	-1.21E+03	1.16E+03
30.	6.35E+04	978.	1.19E+05	1.06E+03	1.19E+05	-2.08E+03	1.84E+03
45.	1.22E+05	3.87E+03	2.15E+05	4.07E+03	2.15E+05	-2.62E+03	2.06E+03
65.	1.67E+05	9.53E+03	2.46E+05	9.96E+03	2.46E+05	-2.42E+03	1.21E+03

Table M–246. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	694.	-1.54E+03	2.56E+03	-1.18E+03	2.56E+03	-375.	372.
15.	1.74E+04	-469.	3.31E+04	617.	3.31E+04	-1.12E+03	1.05E+03
30.	6.34E+04	5.24E+03	1.12E+05	7.24E+03	1.12E+05	-1.87E+03	1.61E+03
45.	1.22E+05	1.75E+04	2.01E+05	1.98E+04	2.01E+05	-2.28E+03	1.74E+03
65.	1.69E+05	4.58E+04	2.45E+05	5.09E+04	2.44E+05	-1.82E+03	1.15E+03

Table M–247. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–248. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-1.35E+03	4.77E+03	-725.	4.59E+03	-658.	406.
15.	2.09E+04	2.26E+03	3.84E+04	3.55E+03	3.74E+04	-1.16E+03	1.10E+03
30.	7.68E+04	6.49E+03	1.39E+05	1.32E+04	1.38E+05	-2.12E+03	2.04E+03
45.	1.69E+05	-2.97E+04	3.10E+05	3.00E+04	3.08E+05	-3.09E+03	3.10E+03
65.	3.27E+05	-6.49E+04	5.70E+05	6.06E+04	5.69E+05	-4.10E+03	3.71E+03

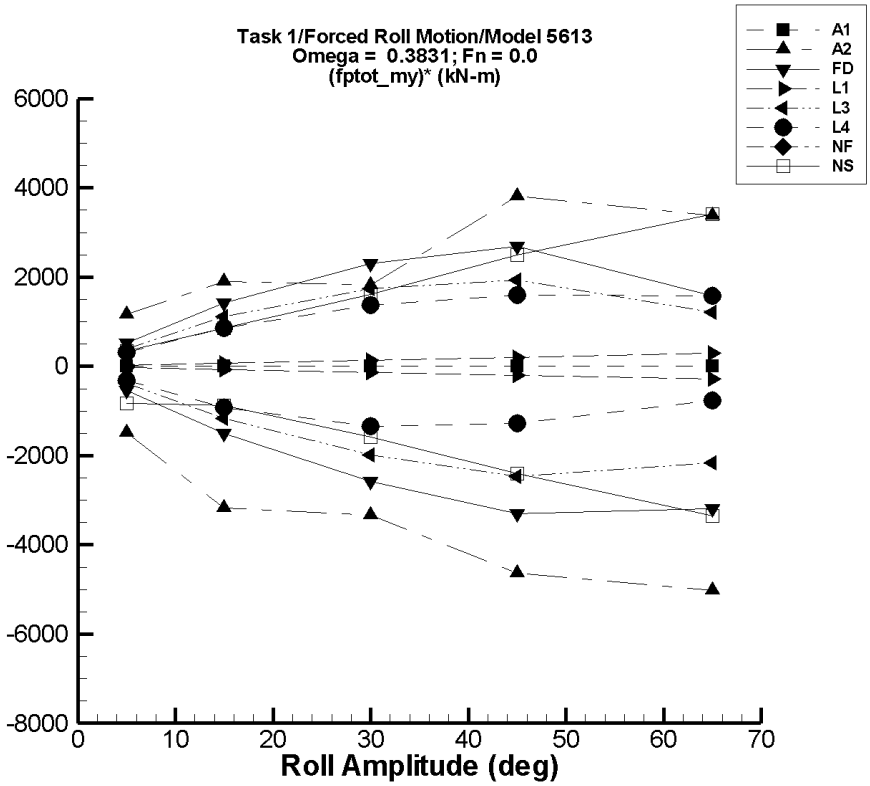

Figure M–32. Minimum and Maximum of $(M_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–249. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.14E-05	-2.36E-02	2.52E-02	-2.29E-02	2.49E-02	-4.57E-03	4.99E-03
15.	-1.24E-04	-7.09E-02	7.55E-02	-6.86E-02	7.48E-02	-4.57E-03	4.99E-03
30.	-2.48E-04	-0.142	0.151	-0.137	0.150	-4.57E-03	4.99E-03
45.	-3.73E-04	-0.213	0.227	-0.206	0.224	-4.57E-03	4.99E-03
65.	-5.38E-04	-0.307	0.327	-0.297	0.324	-4.57E-03	4.99E-03

Table M–250. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.3	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-38.2	7.75E+04	642.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-38.0	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-38.0	3.86E+05	4.08E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.83E+03	5.54E+05	-5.02E+03	3.38E+03

Table M–251. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.92E+03	4.16E+03	9.59E+03	4.22E+03	9.55E+03	-540.	526.
15.	2.69E+04	4.18E+03	4.85E+04	4.46E+03	4.82E+04	-1.50E+03	1.42E+03
30.	8.25E+04	4.21E+03	1.52E+05	5.22E+03	1.51E+05	-2.58E+03	2.30E+03
45.	1.55E+05	4.25E+03	2.77E+05	6.53E+03	2.76E+05	-3.30E+03	2.69E+03
65.	2.17E+05	4.31E+03	3.22E+05	9.11E+03	3.20E+05	-3.20E+03	1.59E+03

Table M–252. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	110.	-0.736	221.	-0.156	221.	-22.1	22.2
15.	991.	-6.68	1.99E+03	-1.33	1.99E+03	-66.2	66.6
30.	3.96E+03	-26.7	7.96E+03	-5.26	7.96E+03	-132.	133.
45.	8.92E+03	-59.9	1.79E+04	-11.8	1.79E+04	-198.	200.
65.	1.86E+04	-125.	3.73E+04	-24.5	3.74E+04	-287.	289.

Table M–253. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	786.	-1.12E+03	2.75E+03	-1.12E+03	2.74E+03	-381.	390.
15.	1.81E+04	645.	3.49E+04	622.	3.48E+04	-1.17E+03	1.11E+03
30.	6.61E+04	6.60E+03	1.19E+05	6.54E+03	1.18E+05	-1.99E+03	1.74E+03
45.	1.28E+05	1.65E+04	2.15E+05	1.65E+04	2.14E+05	-2.47E+03	1.93E+03
65.	1.77E+05	3.59E+04	2.57E+05	3.62E+04	2.55E+05	-2.16E+03	1.20E+03

Table M–254. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	740.	-1.62E+03	2.35E+03	-873.	2.29E+03	-323.	310.
15.	1.77E+04	2.19E+03	3.06E+04	3.71E+03	3.06E+04	-933.	859.
30.	6.48E+04	1.98E+04	1.09E+05	2.44E+04	1.06E+05	-1.35E+03	1.38E+03
45.	1.26E+05	5.85E+04	2.00E+05	6.87E+04	1.98E+05	-1.27E+03	1.59E+03
65.	1.75E+05	1.09E+05	2.82E+05	1.25E+05	2.78E+05	-766.	1.58E+03

Table M–255. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–256. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.52E+03	-3.19E+03	5.04E+03	-1.65E+03	4.24E+03	-835.	344.
15.	2.07E+04	-1.02E+04	3.56E+04	7.62E+03	3.35E+04	-871.	855.
30.	7.62E+04	-1.44E+04	1.34E+05	2.86E+04	1.25E+05	-1.59E+03	1.61E+03
45.	1.68E+05	-7.52E+04	3.00E+05	6.02E+04	2.80E+05	-2.40E+03	2.50E+03
65.	3.28E+05	-2.29E+05	5.57E+05	1.10E+05	5.50E+05	-3.35E+03	3.41E+03

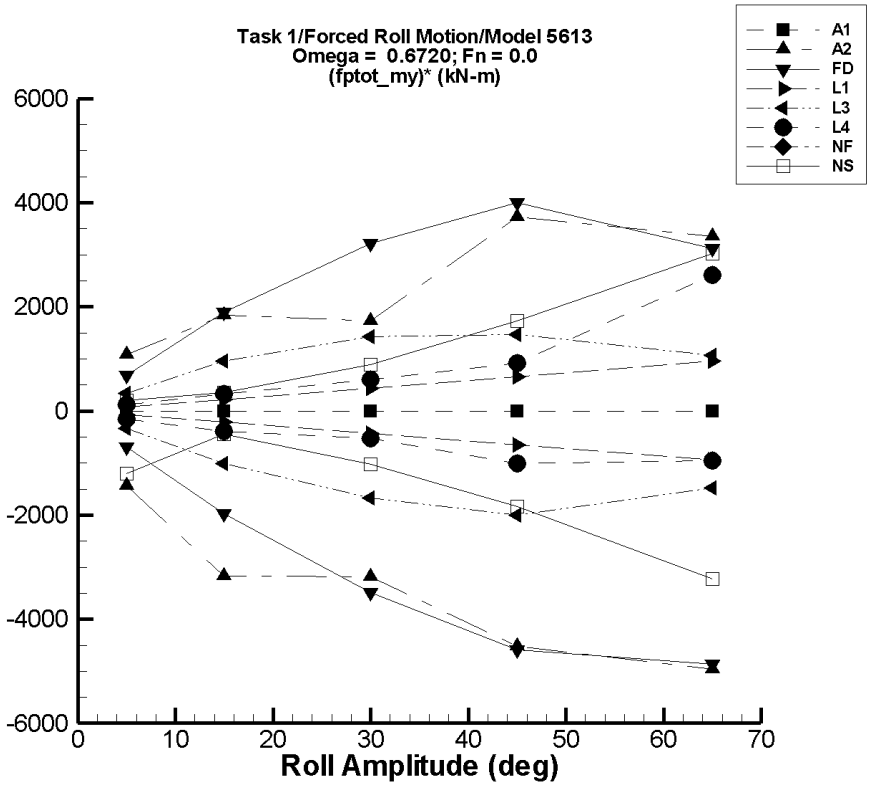

Figure M–33. Minimum and Maximum of $(M_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–257. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.72E-04	-4.77E-02	4.61E-02	-4.63E-02	4.55E-02	-9.19E-03	9.18E-03
15.	-1.12E-03	-0.143	0.138	-0.139	0.136	-9.19E-03	9.17E-03
30.	-2.23E-03	-0.286	0.277	-0.278	0.273	-9.19E-03	9.17E-03
45.	-3.35E-03	-0.429	0.415	-0.417	0.409	-9.19E-03	9.17E-03
65.	-4.83E-03	-0.620	0.600	-0.602	0.591	-9.19E-03	9.17E-03

Table M–258. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.2	1.33E+04	120.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-37.9	7.75E+04	1.03E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-36.9	1.56E+05	6.12E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-20.3	3.86E+05	9.39E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	75.4	5.53E+05	1.35E+04	5.54E+05	-4.96E+03	3.35E+03

Table M–259. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.70E+03	4.16E+03	1.12E+04	4.21E+03	1.11E+04	-697.	683.
15.	3.39E+04	4.08E+03	6.26E+04	4.37E+03	6.23E+04	-1.97E+03	1.89E+03
30.	1.09E+05	3.71E+03	2.07E+05	5.01E+03	2.06E+05	-3.48E+03	3.22E+03
45.	2.13E+05	3.05E+03	3.93E+05	6.20E+03	3.93E+05	-4.59E+03	4.00E+03
65.	3.26E+05	1.73E+03	5.34E+05	9.31E+03	5.29E+05	-4.86E+03	3.12E+03

Table M–260. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	341.	-26.9	708.	-21.0	709.	-72.3	73.6
15.	3.07E+03	-241.	6.37E+03	-189.	6.38E+03	-217.	221.
30.	1.23E+04	-966.	2.55E+04	-757.	2.55E+04	-434.	442.
45.	2.76E+04	-2.17E+03	5.74E+04	-1.70E+03	5.74E+04	-651.	662.
65.	5.76E+04	-4.54E+03	1.20E+05	-3.56E+03	1.20E+05	-941.	957.

Table M–261. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	1.02E+03	-638.	2.73E+03	-629.	2.70E+03	-329.	336.
15.	2.02E+04	5.00E+03	3.47E+04	5.03E+03	3.45E+04	-1.01E+03	953.
30.	7.44E+04	2.40E+04	1.18E+05	2.42E+04	1.17E+05	-1.67E+03	1.43E+03
45.	1.46E+05	5.56E+04	2.13E+05	5.64E+04	2.12E+05	-2.00E+03	1.47E+03
65.	2.16E+05	1.18E+05	2.91E+05	1.20E+05	2.86E+05	-1.48E+03	1.07E+03

Table M–262. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	904.	-1.66E+03	1.72E+03	124.	1.49E+03	-156.	117.
15.	1.87E+04	9.65E+03	2.39E+04	1.29E+04	2.36E+04	-384.	328.
30.	6.80E+04	4.15E+04	9.50E+04	5.23E+04	8.60E+04	-525.	600.
45.	1.32E+05	6.42E+04	2.16E+05	8.61E+04	1.73E+05	-1.01E+03	918.
65.	1.87E+05	1.05E+05	4.44E+05	1.26E+05	3.57E+05	-950.	2.61E+03

Table M–263. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–264. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.29E+03	-7.20E+03	8.77E+03	-3.74E+03	3.27E+03	-1.21E+03	196.
15.	1.91E+04	-3.70E+04	5.23E+04	1.25E+04	2.44E+04	-441.	351.
30.	7.16E+04	-4.84E+04	1.45E+05	4.08E+04	9.81E+04	-1.02E+03	886.
45.	1.59E+05	-1.55E+05	4.39E+05	7.60E+04	2.36E+05	-1.84E+03	1.72E+03
65.	3.16E+05	-5.04E+05	1.10E+06	1.06E+05	5.13E+05	-3.23E+03	3.03E+03

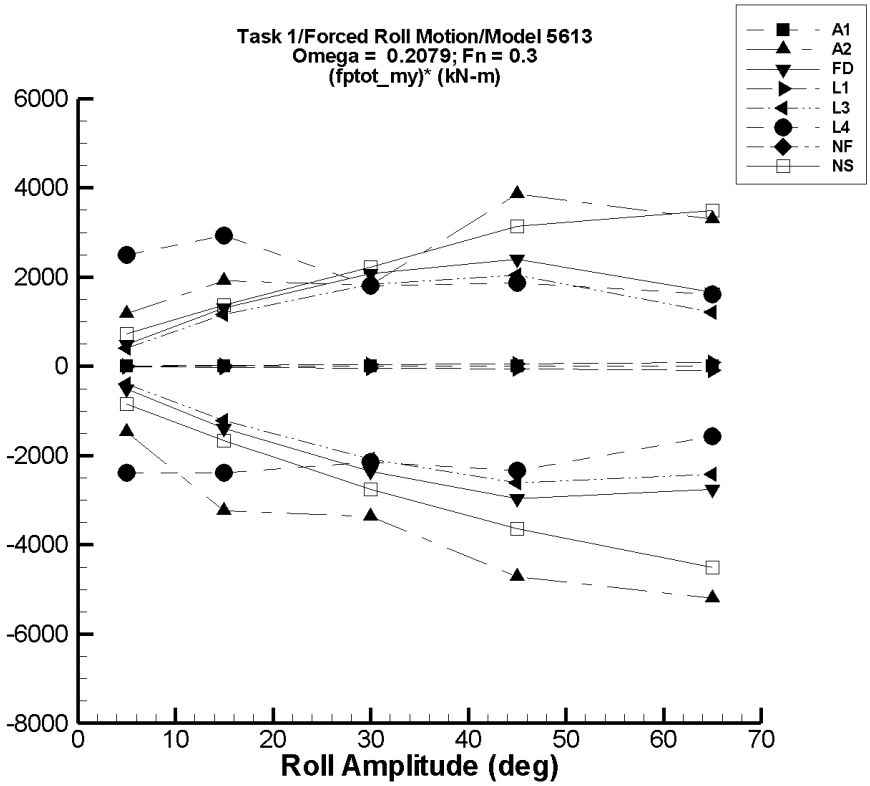

Figure M–34. Minimum and Maximum of $(M_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–265. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-6.30E-05	-0.358	0.360	-0.358	0.359	-7.16E-02	7.18E-02
15.	-1.89E-04	-1.07	1.08	-1.07	1.08	-7.16E-02	7.18E-02
30.	-3.78E-04	-2.15	2.16	-2.15	2.15	-7.16E-02	7.18E-02
45.	-5.67E-04	-3.22	3.23	-3.22	3.23	-7.16E-02	7.18E-02
65.	-8.19E-04	-4.66	4.67	-4.65	4.67	-7.16E-02	7.18E-02

Table M–266. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.5	1.33E+04	-69.4	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-39.1	7.75E+04	-132.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-37.5	1.56E+05	430.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-28.9	3.87E+05	452.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	13.1	5.53E+05	344.	5.53E+05	-5.20E+03	3.30E+03

Table M–267. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.70E+03	4.16E+03	9.16E+03	4.18E+03	9.15E+03	-505.	489.
15.	2.50E+04	4.16E+03	4.47E+04	4.22E+03	4.46E+04	-1.39E+03	1.31E+03
30.	7.49E+04	4.09E+03	1.38E+05	4.39E+03	1.37E+05	-2.35E+03	2.08E+03
45.	1.38E+05	3.94E+03	2.46E+05	4.78E+03	2.46E+05	-2.97E+03	2.40E+03
65.	1.85E+05	3.65E+03	2.94E+05	5.46E+03	2.93E+05	-2.76E+03	1.67E+03

Table M–268. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.07E+04	-1.07E+04	-1.06E+04	-1.07E+04	-1.06E+04	-6.78	6.82
15.	-1.04E+04	-1.07E+04	-1.01E+04	-1.07E+04	-1.01E+04	-20.1	20.1
30.	-9.49E+03	-1.07E+04	-8.28E+03	-1.07E+04	-8.28E+03	-40.2	40.2
45.	-7.98E+03	-1.07E+04	-5.26E+03	-1.07E+04	-5.26E+03	-60.3	60.3
65.	-5.02E+03	-1.07E+04	648.	-1.07E+04	641.	-87.0	87.1

Table M–269. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.00E+04	-1.20E+04	-7.94E+03	-1.20E+04	-7.95E+03	-399.	410.
15.	6.76E+03	-1.15E+04	2.42E+04	-1.14E+04	2.42E+04	-1.21E+03	1.16E+03
30.	5.29E+04	-9.64E+03	1.08E+05	-9.53E+03	1.08E+05	-2.08E+03	1.83E+03
45.	1.11E+05	-6.62E+03	2.04E+05	-6.40E+03	2.04E+05	-2.62E+03	2.05E+03
65.	1.57E+05	-713.	2.36E+05	-268.	2.35E+05	-2.42E+03	1.21E+03

Table M–270. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.65E+04	-3.29E+04	9.11E+03	-2.84E+04	-3.96E+03	-2.38E+03	2.50E+03
15.	-6.79E+03	-4.93E+04	5.19E+04	-4.27E+04	3.72E+04	-2.39E+03	2.93E+03
30.	3.51E+04	-5.55E+04	1.03E+05	-2.92E+04	8.94E+04	-2.14E+03	1.81E+03
45.	9.37E+04	-2.98E+04	2.03E+05	-1.13E+04	1.78E+05	-2.33E+03	1.87E+03
65.	1.43E+05	1.93E+04	2.90E+05	4.14E+04	2.48E+05	-1.56E+03	1.62E+03

Table M–271. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–272. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.72E+03	-2.35E+03	6.81E+03	-1.49E+03	6.38E+03	-842.	731.
15.	2.15E+04	-7.56E+03	4.37E+04	-3.53E+03	4.22E+04	-1.67E+03	1.38E+03
30.	7.79E+04	-1.08E+04	1.46E+05	-4.66E+03	1.45E+05	-2.75E+03	2.23E+03
45.	1.70E+05	-4.73E+04	3.12E+05	6.55E+03	3.11E+05	-3.64E+03	3.13E+03
65.	3.26E+05	-1.08E+05	5.53E+05	3.32E+04	5.53E+05	-4.50E+03	3.49E+03

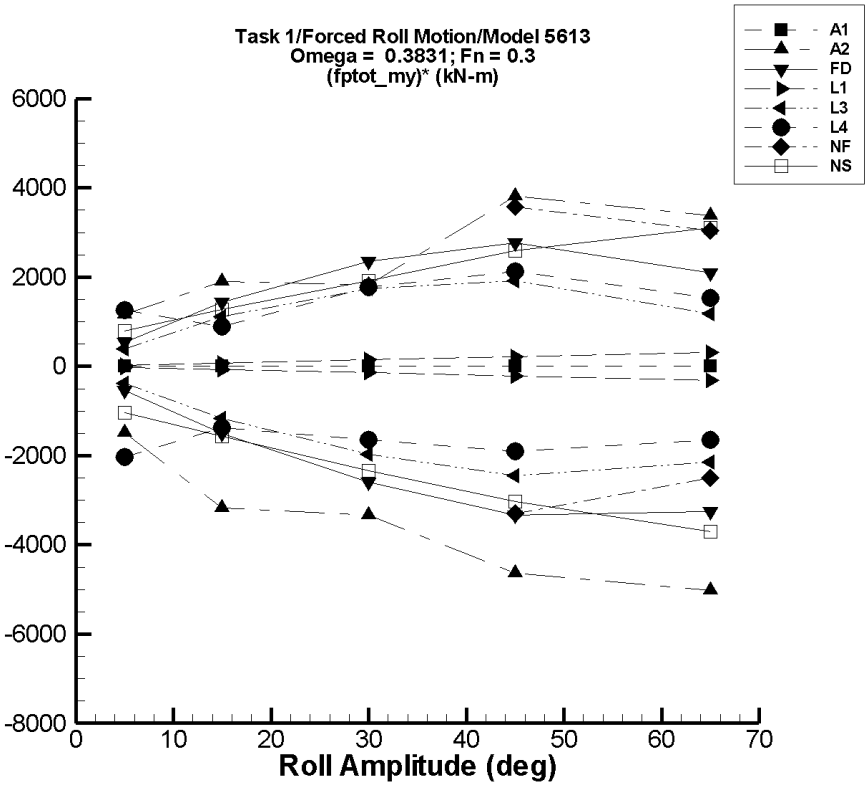

Figure M–35. Minimum and Maximum of $(M_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–273. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.12E-04	-0.725	0.730	-0.722	0.730	-0.144	0.146
15.	9.37E-04	-2.17	2.19	-2.16	2.19	-0.144	0.146
30.	1.87E-03	-4.35	4.38	-4.33	4.38	-0.144	0.146
45.	2.81E-03	-6.52	6.57	-6.49	6.57	-0.144	0.146
65.	4.06E-03	-9.42	9.49	-9.38	9.49	-0.144	0.146

Table M–274. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-39.0	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-40.3	7.75E+04	644.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-42.3	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-44.4	3.86E+05	4.09E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.84E+03	5.54E+05	-5.02E+03	3.38E+03

Table M–275. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.94E+03	4.16E+03	9.65E+03	4.23E+03	9.61E+03	-543.	533.
15.	2.71E+04	4.10E+03	4.90E+04	4.47E+03	4.87E+04	-1.51E+03	1.44E+03
30.	8.33E+04	3.76E+03	1.54E+05	5.21E+03	1.54E+05	-2.60E+03	2.34E+03
45.	1.56E+05	3.17E+03	2.82E+05	6.44E+03	2.81E+05	-3.33E+03	2.76E+03
65.	2.20E+05	2.00E+03	3.59E+05	8.73E+03	3.56E+05	-3.25E+03	2.09E+03

Table M–276. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.06E+04	-1.07E+04	-1.05E+04	-1.07E+04	-1.05E+04	-23.8	23.8
15.	-9.63E+03	-1.07E+04	-8.55E+03	-1.07E+04	-8.56E+03	-71.2	71.5
30.	-6.42E+03	-1.07E+04	-2.12E+03	-1.07E+04	-2.13E+03	-142.	143.
45.	-1.07E+03	-1.07E+04	8.59E+03	-1.07E+04	8.59E+03	-214.	215.
65.	9.39E+03	-1.08E+04	2.95E+04	-1.07E+04	2.95E+04	-308.	310.

Table M–277. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-9.90E+03	-1.18E+04	-7.94E+03	-1.18E+04	-7.95E+03	-380.	391.
15.	7.51E+03	-9.90E+03	2.42E+04	-9.93E+03	2.41E+04	-1.16E+03	1.11E+03
30.	5.57E+04	-3.48E+03	1.08E+05	-3.55E+03	1.08E+05	-1.98E+03	1.73E+03
45.	1.18E+05	7.21E+03	2.04E+05	7.15E+03	2.04E+05	-2.45E+03	1.91E+03
65.	1.68E+05	2.81E+04	2.46E+05	2.84E+04	2.45E+05	-2.14E+03	1.18E+03

Table M–278. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{ptot}} \rangle$	Unfiltered M_y^{ptot}		Filtered M_y^{ptot}		Filtered $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.65E+04	-3.36E+04	-7.64E+03	-2.66E+04	-1.02E+04	-2.03E+03	1.26E+03
15.	-5.71E+03	-3.63E+04	1.17E+04	-2.64E+04	7.61E+03	-1.38E+03	888.
30.	3.88E+04	-1.60E+04	9.31E+04	-1.08E+04	9.19E+04	-1.65E+03	1.77E+03
45.	1.01E+05	8.28E+03	1.98E+05	1.46E+04	1.96E+05	-1.91E+03	2.13E+03
65.	1.58E+05	4.26E+04	2.75E+05	5.09E+04	2.57E+05	-1.65E+03	1.53E+03

Table M–279. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	4.28E+03	-1.01E+05	1.05E+05	-9.20E+04	1.01E+05	-3.21E+03	3.22E+03
45.	7.66E+04	-9.13E+04	2.41E+05	-7.22E+04	2.37E+05	-3.31E+03	3.57E+03
65.	1.48E+05	-5.89E+04	3.59E+05	-1.37E+04	3.46E+05	-2.49E+03	3.04E+03

Table M–280. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	2.78E+03	-4.43E+03	7.65E+03	-2.43E+03	6.72E+03	-1.04E+03	789.
15.	2.18E+04	-1.81E+04	4.35E+04	-1.82E+03	4.09E+04	-1.57E+03	1.28E+03
30.	7.79E+04	-3.16E+04	1.42E+05	7.57E+03	1.36E+05	-2.34E+03	1.92E+03
45.	1.69E+05	-9.41E+04	2.93E+05	3.27E+04	2.85E+05	-3.02E+03	2.59E+03
65.	3.22E+05	-2.51E+05	5.29E+05	8.12E+04	5.24E+05	-3.71E+03	3.11E+03

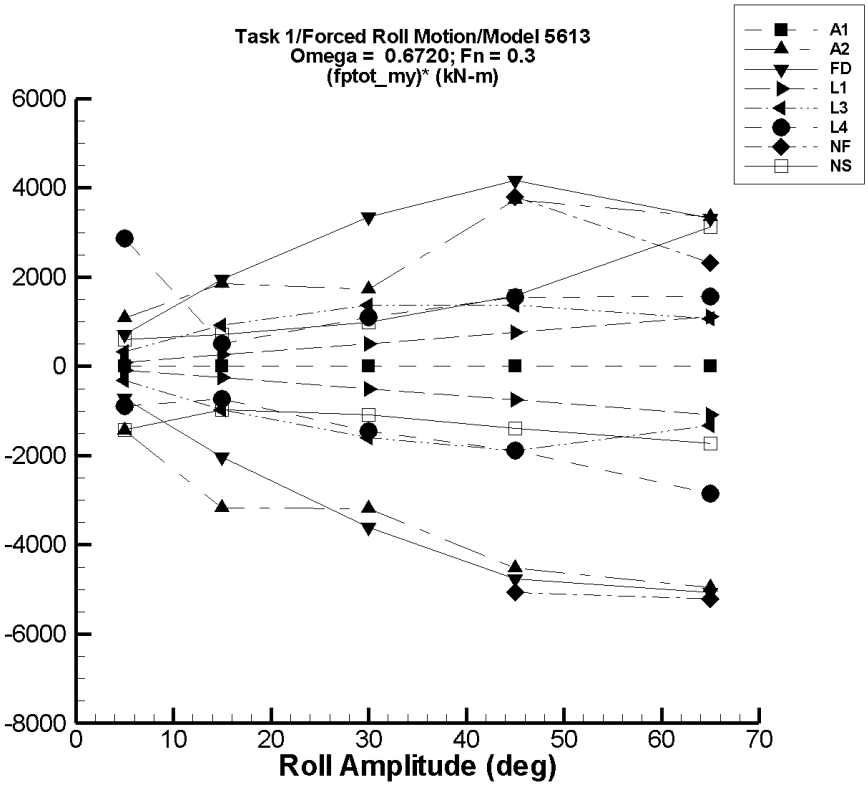

Figure M–36. Minimum and Maximum of $(M_y^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–281. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.71E-04	-1.27	1.26	-1.22	1.22	-0.244	0.243
15.	-5.12E-04	-3.80	3.77	-3.65	3.65	-0.243	0.243
30.	-1.02E-03	-7.60	7.54	-7.31	7.30	-0.243	0.243
45.	-1.54E-03	-11.4	11.3	-11.0	11.0	-0.243	0.243
65.	-2.22E-03	-16.5	16.3	-15.8	15.8	-0.243	0.243

Table M–282. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	7.33E+03	-39.4	1.33E+04	121.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-41.4	7.75E+04	1.04E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-44.0	1.56E+05	6.13E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-30.9	3.86E+05	9.40E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	60.1	5.53E+05	1.36E+04	5.54E+05	-4.96E+03	3.35E+03

Table M–283. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	7.92E+03	4.16E+03	1.16E+04	4.32E+03	1.14E+04	-719.	705.
15.	3.58E+04	4.15E+03	6.63E+04	5.32E+03	6.52E+04	-2.03E+03	1.96E+03
30.	1.17E+05	4.07E+03	2.21E+05	8.80E+03	2.17E+05	-3.61E+03	3.34E+03
45.	2.29E+05	3.92E+03	4.23E+05	1.47E+04	4.16E+05	-4.76E+03	4.16E+03
65.	3.57E+05	3.60E+03	5.75E+05	2.71E+04	5.72E+05	-5.07E+03	3.32E+03

Table M–284. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.03E+04	-1.08E+04	-9.91E+03	-1.08E+04	-9.91E+03	-83.9	85.2
15.	-7.47E+03	-1.13E+04	-3.63E+03	-1.12E+04	-3.63E+03	-252.	256.
30.	2.20E+03	-1.31E+04	1.76E+04	-1.29E+04	1.76E+04	-504.	512.
45.	1.83E+04	-1.62E+04	5.29E+04	-1.57E+04	5.29E+04	-755.	768.
65.	4.99E+04	-2.22E+04	1.22E+05	-2.10E+04	1.22E+05	-1.09E+03	1.11E+03

Table M–285. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-9.66E+03	-1.13E+04	-8.00E+03	-1.13E+04	-8.03E+03	-319.	327.
15.	9.67E+03	-5.04E+03	2.37E+04	-5.01E+03	2.35E+04	-978.	921.
30.	6.44E+04	1.59E+04	1.06E+05	1.62E+04	1.05E+05	-1.61E+03	1.36E+03
45.	1.37E+05	5.09E+04	1.99E+05	5.17E+04	1.99E+05	-1.90E+03	1.37E+03
65.	2.08E+05	1.19E+05	2.83E+05	1.22E+05	2.77E+05	-1.33E+03	1.06E+03

Table M–286. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.62E+04	-3.21E+04	2.15E+04	-2.07E+04	-1.90E+03	-897.	2.86E+03
15.	-4.92E+03	-1.92E+04	2.52E+04	-1.59E+04	2.53E+03	-730.	497.
30.	4.41E+04	-2.55E+03	7.77E+04	413.	7.73E+04	-1.46E+03	1.11E+03
45.	1.14E+05	2.12E+04	1.86E+05	2.87E+04	1.84E+05	-1.89E+03	1.55E+03
65.	1.79E+05	-2.83E+04	2.92E+05	-6.37E+03	2.80E+05	-2.85E+03	1.56E+03

Table M–287. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	3.30E+04	-1.08E+05	1.41E+05	-9.26E+04	1.37E+05	-4.18E+03	3.45E+03
45.	9.92E+04	-1.52E+05	2.77E+05	-1.29E+05	2.70E+05	-5.08E+03	3.80E+03
65.	1.87E+05	-2.85E+05	3.48E+05	-1.52E+05	3.38E+05	-5.21E+03	2.33E+03

Table M–288. Minimum and Maximum of M_y^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{ptot}} \rangle$	**Unfiltered** M_y^{ptot}		**Filtered** M_y^{ptot}		**Filtered** $\left(M_y^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	2.62E+03	-8.46E+03	8.59E+03	-4.49E+03	5.65E+03	-1.42E+03	606.
15.	2.05E+04	-4.25E+04	5.49E+04	5.89E+03	3.13E+04	-975.	718.
30.	7.32E+04	-6.15E+04	1.43E+05	4.04E+04	1.03E+05	-1.09E+03	980.
45.	1.56E+05	-1.81E+05	4.07E+05	9.31E+04	2.27E+05	-1.40E+03	1.58E+03
65.	3.02E+05	-5.46E+05	1.06E+06	1.90E+05	5.06E+05	-1.72E+03	3.13E+03

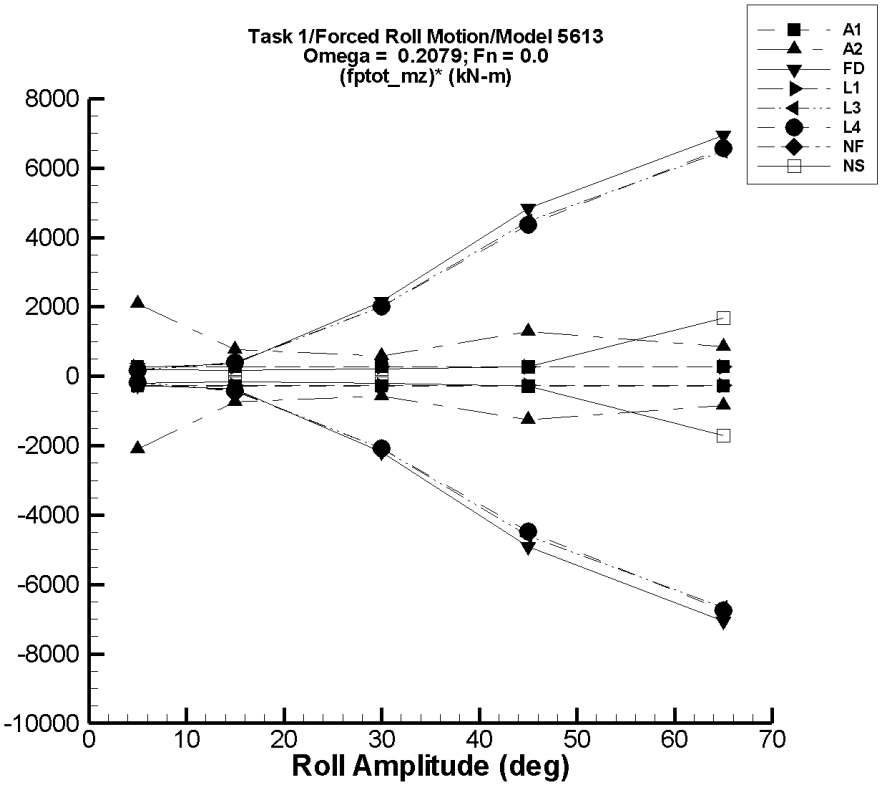

Figure M–37. Minimum and Maximum of $(M_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–289. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.29	-1.49E+03	1.49E+03	-1.38E+03	1.39E+03	-276.	278.
15.	-6.86	-4.46E+03	4.46E+03	-4.14E+03	4.15E+03	-276.	277.
30.	-13.7	-8.91E+03	8.92E+03	-8.28E+03	8.31E+03	-276.	277.
45.	-20.6	-1.34E+04	1.34E+04	-1.24E+04	1.25E+04	-276.	277.
65.	-29.8	-1.93E+04	1.93E+04	-1.79E+04	1.80E+04	-276.	277.

Table M–290. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.9	-1.05E+04	1.05E+04	-1.05E+04	1.05E+04	-2.11E+03	2.08E+03
15.	-256.	-1.18E+04	1.19E+04	-1.13E+04	1.12E+04	-737.	766.
30.	-161.	-1.97E+04	2.00E+04	-1.72E+04	1.74E+04	-568.	587.
45.	-510.	-6.12E+04	6.35E+04	-5.72E+04	5.73E+04	-1.26E+03	1.28E+03
65.	-186.	-6.24E+04	6.31E+04	-5.49E+04	5.56E+04	-842.	858.

Table M–291. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.53	-1.31E+03	1.31E+03	-1.31E+03	1.31E+03	-263.	262.
15.	80.4	-5.48E+03	5.48E+03	-5.45E+03	5.45E+03	-369.	358.
30.	552.	-6.53E+04	6.53E+04	-6.51E+04	6.51E+04	-2.19E+03	2.15E+03
45.	1.70E+03	-2.20E+05	2.20E+05	-2.19E+05	2.19E+05	-4.90E+03	4.83E+03
65.	3.25E+03	-4.56E+05	4.56E+05	-4.55E+05	4.55E+05	-7.05E+03	6.95E+03

Table M–292. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.08E-03	-1.32E+03	1.32E+03	-1.32E+03	1.32E+03	-263.	263.
15.	-6.38E-03	-3.95E+03	3.95E+03	-3.95E+03	3.95E+03	-263.	263.
30.	-2.15E-02	-7.91E+03	7.91E+03	-7.90E+03	7.90E+03	-263.	263.
45.	-3.66E-02	-1.19E+04	1.19E+04	-1.19E+04	1.19E+04	-263.	263.
65.	-8.45E-02	-1.71E+04	1.71E+04	-1.71E+04	1.71E+04	-263.	263.

Table M–293. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.54	-921.	921.	-921.	921.	-185.	183.
15.	146.	-5.88E+03	5.88E+03	-5.87E+03	5.87E+03	-401.	382.
30.	1.02E+03	-6.16E+04	6.16E+04	-6.15E+04	6.15E+04	-2.08E+03	2.02E+03
45.	3.15E+03	-2.04E+05	2.04E+05	-2.04E+05	2.04E+05	-4.60E+03	4.46E+03
65.	5.87E+03	-4.27E+05	4.27E+05	-4.27E+05	4.27E+05	-6.66E+03	6.48E+03

Table M–294. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.19	-874.	879.	-871.	871.	-175.	173.
15.	144.	-6.20E+03	6.20E+03	-6.19E+03	6.19E+03	-422.	403.
30.	980.	-6.15E+04	6.15E+04	-6.14E+04	6.14E+04	-2.08E+03	2.01E+03
45.	2.98E+03	-1.99E+05	1.99E+05	-1.99E+05	1.99E+05	-4.48E+03	4.35E+03
65.	5.83E+03	-4.34E+05	4.34E+05	-4.33E+05	4.34E+05	-6.76E+03	6.58E+03

Table M–295. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–296. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.94E-03	-993.	993.	-986.	986.	-197.	197.
15.	-2.99E-02	-3.28E+03	3.28E+03	-2.45E+03	2.44E+03	-163.	163.
30.	-3.03E-02	-1.07E+04	1.07E+04	-6.13E+03	6.17E+03	-204.	206.
45.	10.9	-2.73E+04	2.88E+04	-1.25E+04	1.27E+04	-277.	281.
65.	-561.	-1.13E+05	1.09E+05	-1.12E+05	1.09E+05	-1.71E+03	1.68E+03

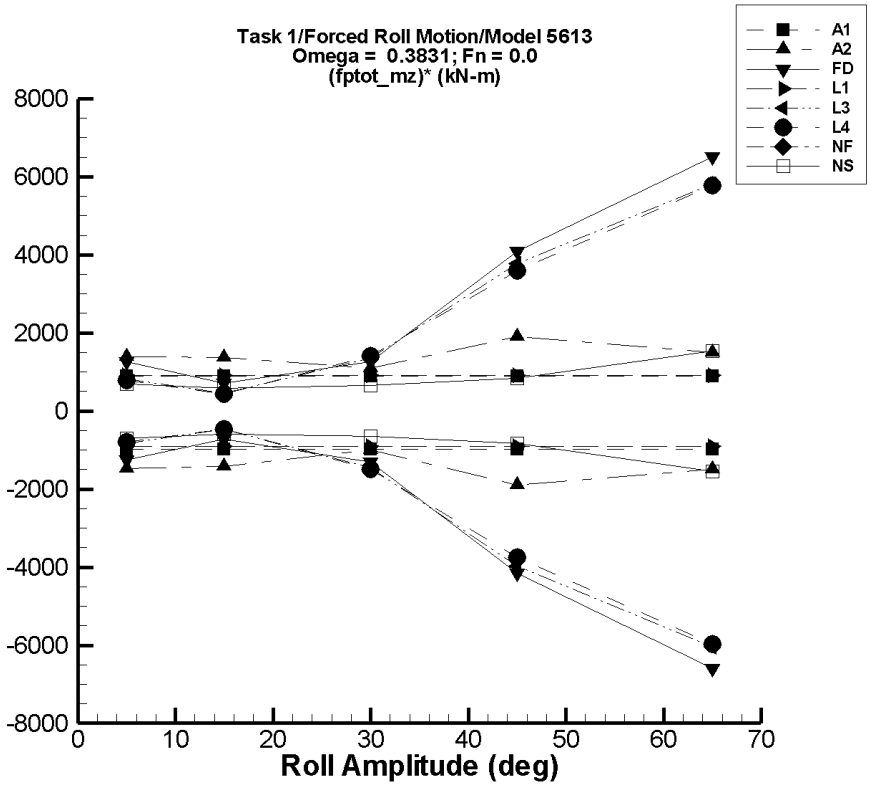

Figure M–38. Minimum and Maximum of $(M_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–297. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-11.0	-4.93E+03	4.74E+03	-4.89E+03	4.49E+03	-976.	901.
15.	-33.1	-1.48E+04	1.42E+04	-1.47E+04	1.35E+04	-975.	901.
30.	-66.2	-2.96E+04	2.85E+04	-2.93E+04	2.70E+04	-975.	901.
45.	-99.2	-4.43E+04	4.27E+04	-4.40E+04	4.04E+04	-975.	901.
65.	-143.	-6.40E+04	6.17E+04	-6.35E+04	5.84E+04	-975.	901.

Table M–298. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	21.2	-7.37E+03	6.95E+03	-7.34E+03	6.92E+03	-1.47E+03	1.38E+03
15.	-253.	-2.17E+04	2.17E+04	-2.15E+04	2.04E+04	-1.42E+03	1.37E+03
30.	-247.	-3.62E+04	3.86E+04	-3.02E+04	3.26E+04	-997.	1.09E+03
45.	-576.	-8.94E+04	9.01E+04	-8.57E+04	8.48E+04	-1.89E+03	1.90E+03
65.	752.	-9.75E+04	2.11E+05	-9.61E+04	9.77E+04	-1.49E+03	1.49E+03

Table M–299. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.37	-6.31E+03	6.31E+03	-6.29E+03	6.29E+03	-1.26E+03	1.26E+03
15.	82.7	-1.09E+04	1.09E+04	-1.08E+04	1.08E+04	-728.	717.
30.	576.	-3.93E+04	3.93E+04	-3.86E+04	3.86E+04	-1.31E+03	1.27E+03
45.	1.79E+03	-1.88E+05	1.88E+05	-1.85E+05	1.85E+05	-4.16E+03	4.08E+03
65.	2.99E+03	-4.28E+05	4.28E+05	-4.26E+05	4.26E+05	-6.60E+03	6.51E+03

Table M–300. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-5.77E-02	-4.54E+03	4.54E+03	-4.53E+03	4.54E+03	-907.	907.
15.	-0.184	-1.36E+04	1.36E+04	-1.36E+04	1.36E+04	-907.	907.
30.	-0.402	-2.72E+04	2.72E+04	-2.72E+04	2.72E+04	-907.	907.
45.	-0.645	-4.09E+04	4.09E+04	-4.08E+04	4.08E+04	-907.	907.
65.	-1.04	-5.90E+04	5.90E+04	-5.90E+04	5.90E+04	-907.	907.

Table M–301. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.57	-4.14E+03	4.14E+03	-4.14E+03	4.14E+03	-829.	826.
15.	199.	-6.91E+03	6.90E+03	-6.88E+03	6.87E+03	-472.	445.
30.	1.39E+03	-4.24E+04	4.23E+04	-4.21E+04	4.21E+04	-1.45E+03	1.36E+03
45.	4.30E+03	-1.75E+05	1.75E+05	-1.74E+05	1.74E+05	-3.97E+03	3.78E+03
65.	7.36E+03	-3.86E+05	3.86E+05	-3.85E+05	3.85E+05	-6.04E+03	5.81E+03

Table M–302. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.61	-3.96E+03	3.99E+03	-3.94E+03	3.94E+03	-789.	787.
15.	161.	-7.02E+03	7.05E+03	-6.85E+03	6.66E+03	-467.	433.
30.	1.17E+03	-4.40E+04	4.39E+04	-4.37E+04	4.36E+04	-1.50E+03	1.41E+03
45.	3.38E+03	-1.68E+05	1.66E+05	-1.66E+05	1.65E+05	-3.76E+03	3.60E+03
65.	5.76E+03	-3.85E+05	3.82E+05	-3.82E+05	3.81E+05	-5.97E+03	5.78E+03

Table M–303. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
ϕ_a (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_z^{ptot} Min. (kN-m)	Unfiltered M_z^{ptot} Max. (kN-m)	Filtered M_z^{ptot} Min. (kN-m)	Filtered M_z^{ptot} Max. (kN-m)	Filtered $\left(M_z^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Filtered $\left(M_z^{\text{ptot}}\right)^*$ Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–304. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
ϕ_a (°)	$\langle M_z^{\text{ptot}} \rangle$ Mean (kN-m)	Unfiltered M_z^{ptot} Min. (kN-m)	Unfiltered M_z^{ptot} Max. (kN-m)	Filtered M_z^{ptot} Min. (kN-m)	Filtered M_z^{ptot} Max. (kN-m)	Filtered $\left(M_z^{\text{ptot}}\right)^*$ Min. (kN-m/°)	Filtered $\left(M_z^{\text{ptot}}\right)^*$ Max. (kN-m/°)
5.	5.52E-02	-3.52E+03	3.53E+03	-3.49E+03	3.50E+03	-698.	700.
15.	0.199	-1.13E+04	1.13E+04	-8.78E+03	8.80E+03	-585.	586.
30.	0.697	-3.42E+04	3.41E+04	-1.95E+04	1.94E+04	-648.	647.
45.	18.6	-9.24E+04	9.16E+04	-3.71E+04	3.76E+04	-824.	836.
65.	227.	-2.10E+05	2.23E+05	-9.98E+04	1.01E+05	-1.54E+03	1.54E+03

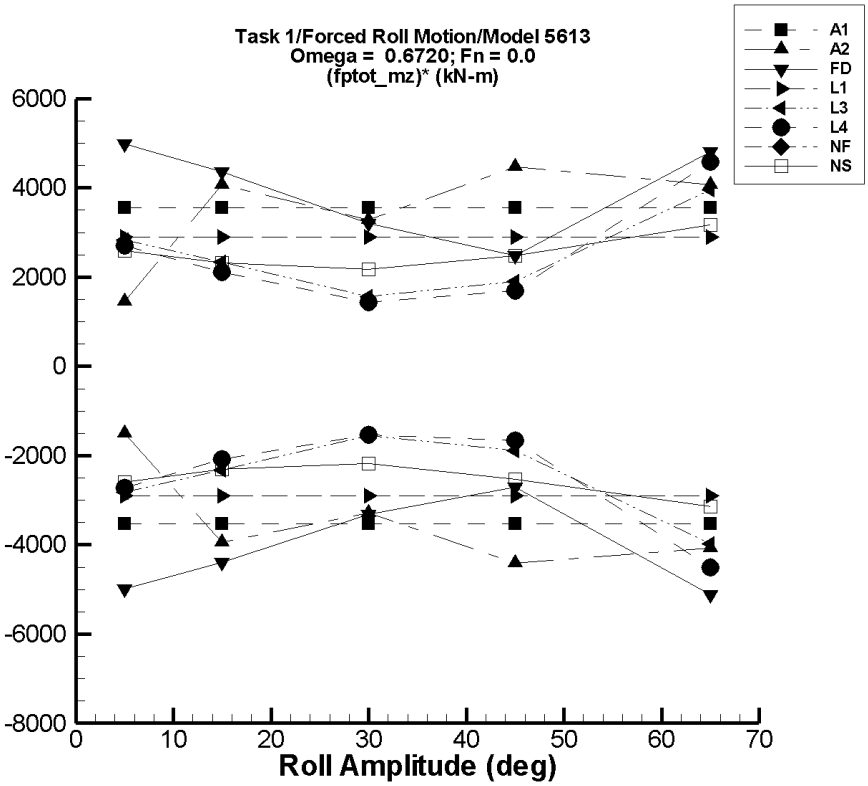

Figure M–39. Minimum and Maximum of $(M_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–305. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-22.8	-1.79E+04	1.80E+04	-1.76E+04	1.78E+04	-3.52E+03	3.56E+03
15.	-68.4	-5.35E+04	5.39E+04	-5.29E+04	5.32E+04	-3.52E+03	3.55E+03
30.	-137.	-1.07E+05	1.08E+05	-1.06E+05	1.06E+05	-3.52E+03	3.55E+03
45.	-205.	-1.61E+05	1.62E+05	-1.59E+05	1.60E+05	-3.52E+03	3.55E+03
65.	-297.	-2.32E+05	2.34E+05	-2.29E+05	2.31E+05	-3.52E+03	3.55E+03

Table M–306. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	62.0	-8.78E+03	8.62E+03	-7.47E+03	7.36E+03	-1.51E+03	1.46E+03
15.	-639.	-6.03E+04	6.06E+04	-5.99E+04	6.03E+04	-3.95E+03	4.06E+03
30.	35.7	-1.06E+05	1.07E+05	-9.83E+04	9.84E+04	-3.28E+03	3.28E+03
45.	-909.	-2.05E+05	2.04E+05	-1.99E+05	2.00E+05	-4.41E+03	4.47E+03
65.	490.	-2.67E+05	2.68E+05	-2.64E+05	2.65E+05	-4.08E+03	4.07E+03

Table M–307. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	11.7	-2.53E+04	2.53E+04	-2.50E+04	2.50E+04	-5.00E+03	4.99E+03
15.	242.	-6.62E+04	6.63E+04	-6.56E+04	6.56E+04	-4.39E+03	4.36E+03
30.	1.69E+03	-1.01E+05	1.01E+05	-9.77E+04	9.76E+04	-3.31E+03	3.20E+03
45.	5.27E+03	-1.25E+05	1.25E+05	-1.17E+05	1.17E+05	-2.71E+03	2.48E+03
65.	9.84E+03	-3.31E+05	3.31E+05	-3.23E+05	3.23E+05	-5.12E+03	4.81E+03

Table M–308. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.223	-1.46E+04	1.46E+04	-1.45E+04	1.45E+04	-2.90E+03	2.90E+03
15.	-0.704	-4.37E+04	4.37E+04	-4.36E+04	4.36E+04	-2.90E+03	2.90E+03
30.	-1.55	-8.75E+04	8.75E+04	-8.71E+04	8.71E+04	-2.90E+03	2.90E+03
45.	-2.49	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-2.90E+03	2.90E+03
65.	-3.95	-1.90E+05	1.90E+05	-1.89E+05	1.89E+05	-2.90E+03	2.90E+03

Table M–309. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.439	-1.42E+04	1.42E+04	-1.41E+04	1.41E+04	-2.83E+03	2.83E+03
15.	-2.57	-3.49E+04	3.49E+04	-3.47E+04	3.50E+04	-2.32E+03	2.33E+03
30.	-8.65	-4.75E+04	4.74E+04	-4.68E+04	4.68E+04	-1.56E+03	1.56E+03
45.	-18.7	-8.71E+04	8.71E+04	-8.53E+04	8.52E+04	-1.89E+03	1.89E+03
65.	788.	-2.59E+05	2.59E+05	-2.58E+05	2.58E+05	-3.98E+03	3.96E+03

Table M–310. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-55.5	-1.38E+04	1.38E+04	-1.36E+04	1.35E+04	-2.72E+03	2.70E+03
15.	-349.	-3.23E+04	3.25E+04	-3.17E+04	3.13E+04	-2.09E+03	2.11E+03
30.	-1.13E+03	-4.90E+04	4.84E+04	-4.73E+04	4.18E+04	-1.54E+03	1.43E+03
45.	-2.26E+03	-8.48E+04	7.50E+04	-7.70E+04	7.37E+04	-1.66E+03	1.69E+03
65.	-4.63E+03	-3.22E+05	2.99E+05	-2.98E+05	2.93E+05	-4.51E+03	4.58E+03

Table M–311. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–312. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.853	-1.31E+04	1.32E+04	-1.30E+04	1.30E+04	-2.59E+03	2.60E+03
15.	-3.39	-4.26E+04	4.26E+04	-3.47E+04	3.49E+04	-2.31E+03	2.33E+03
30.	-10.5	-1.12E+05	1.12E+05	-6.55E+04	6.50E+04	-2.18E+03	2.17E+03
45.	25.1	-2.93E+05	2.55E+05	-1.14E+05	1.12E+05	-2.53E+03	2.48E+03
65.	83.5	-6.22E+05	6.40E+05	-2.04E+05	2.06E+05	-3.14E+03	3.17E+03

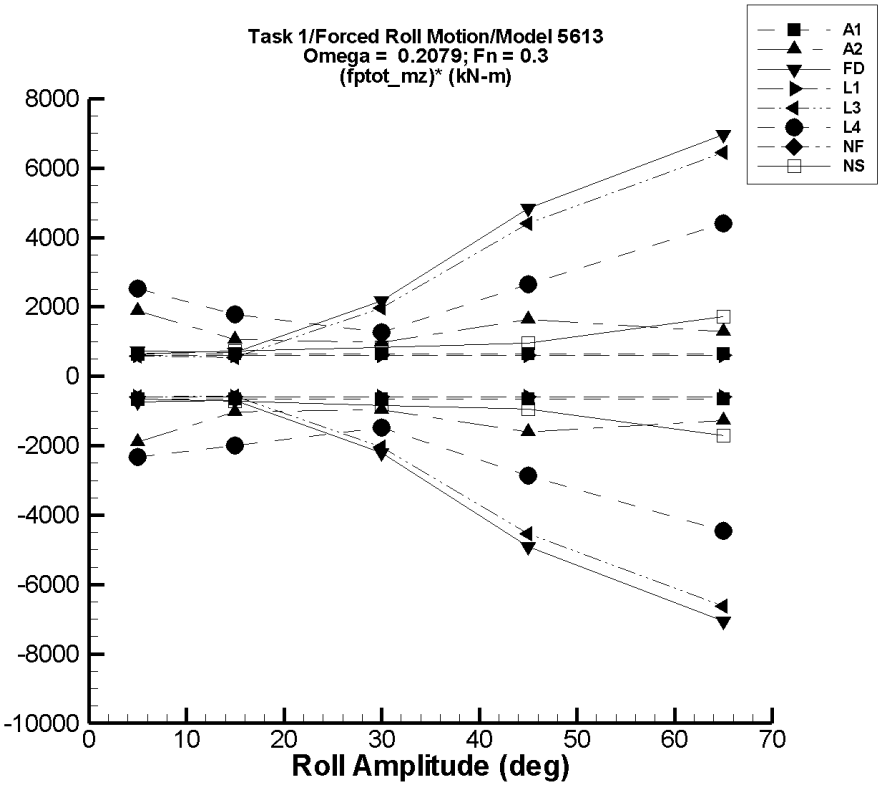

Figure M–40. Minimum and Maximum of $(M_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–313. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.19	-3.30E+03	3.36E+03	-3.24E+03	3.25E+03	-647.	649.
15.	-3.56	-9.89E+03	1.01E+04	-9.70E+03	9.73E+03	-647.	649.
30.	-7.12	-1.98E+04	2.01E+04	-1.94E+04	1.95E+04	-647.	649.
45.	-10.7	-2.97E+04	3.02E+04	-2.91E+04	2.92E+04	-647.	649.
65.	-15.4	-4.28E+04	4.36E+04	-4.21E+04	4.22E+04	-647.	649.

Table M–314. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	36.0	-9.50E+03	9.50E+03	-9.48E+03	9.50E+03	-1.90E+03	1.89E+03
15.	-252.	-1.65E+04	1.64E+04	-1.57E+04	1.57E+04	-1.03E+03	1.06E+03
30.	-154.	-3.17E+04	3.20E+04	-2.91E+04	2.94E+04	-966.	985.
45.	-500.	-7.71E+04	7.81E+04	-7.28E+04	7.28E+04	-1.61E+03	1.63E+03
65.	-172.	-9.07E+04	9.09E+04	-8.30E+04	8.32E+04	-1.27E+03	1.28E+03

Table M–315. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.46	-3.65E+03	3.65E+03	-3.65E+03	3.65E+03	-730.	729.
15.	78.5	-1.04E+04	1.04E+04	-1.04E+04	1.04E+04	-699.	689.
30.	537.	-6.58E+04	6.58E+04	-6.56E+04	6.56E+04	-2.21E+03	2.17E+03
45.	1.66E+03	-2.20E+05	2.20E+05	-2.19E+05	2.19E+05	-4.91E+03	4.83E+03
65.	3.11E+03	-4.56E+05	4.56E+05	-4.55E+05	4.55E+05	-7.05E+03	6.96E+03

Table M–316. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.78	-3.00E+03	3.00E+03	-3.00E+03	3.00E+03	-600.	600.
15.	-1.78	-9.00E+03	9.00E+03	-9.00E+03	9.00E+03	-600.	600.
30.	-1.79	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-600.	600.
45.	-1.79	-2.70E+04	2.70E+04	-2.70E+04	2.70E+04	-600.	600.
65.	-1.87	-3.90E+04	3.90E+04	-3.90E+04	3.90E+04	-600.	600.

Table M–317. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.76	-2.94E+03	2.94E+03	-2.94E+03	2.93E+03	-588.	586.
15.	144.	-8.39E+03	8.39E+03	-8.38E+03	8.38E+03	-569.	549.
30.	1.01E+03	-6.04E+04	6.04E+04	-6.03E+04	6.03E+04	-2.04E+03	1.98E+03
45.	3.15E+03	-2.02E+05	2.02E+05	-2.01E+05	2.01E+05	-4.55E+03	4.41E+03
65.	5.87E+03	-4.25E+05	4.25E+05	-4.24E+05	4.24E+05	-6.62E+03	6.44E+03

Table M–318. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-559.	-2.25E+04	1.35E+04	-1.22E+04	1.21E+04	-2.32E+03	2.52E+03
15.	-1.97E+03	-5.95E+04	4.45E+04	-3.21E+04	2.47E+04	-2.01E+03	1.78E+03
30.	-2.17E+03	-1.15E+05	1.33E+05	-4.64E+04	3.61E+04	-1.47E+03	1.27E+03
45.	-1.25E+03	-1.83E+05	2.12E+05	-1.30E+05	1.18E+05	-2.86E+03	2.65E+03
65.	21.0	-3.01E+05	3.16E+05	-2.89E+05	2.87E+05	-4.45E+03	4.41E+03

Table M–319. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–320. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.15E-02	-3.38E+03	3.38E+03	-3.25E+03	3.25E+03	-651.	651.
15.	-4.51E-02	-1.24E+04	1.24E+04	-1.08E+04	1.08E+04	-721.	720.
30.	0.119	-3.05E+04	3.05E+04	-2.52E+04	2.52E+04	-839.	839.
45.	21.1	-5.60E+04	5.97E+04	-4.24E+04	4.26E+04	-942.	946.
65.	212.	-1.11E+05	1.13E+05	-1.11E+05	1.12E+05	-1.71E+03	1.72E+03

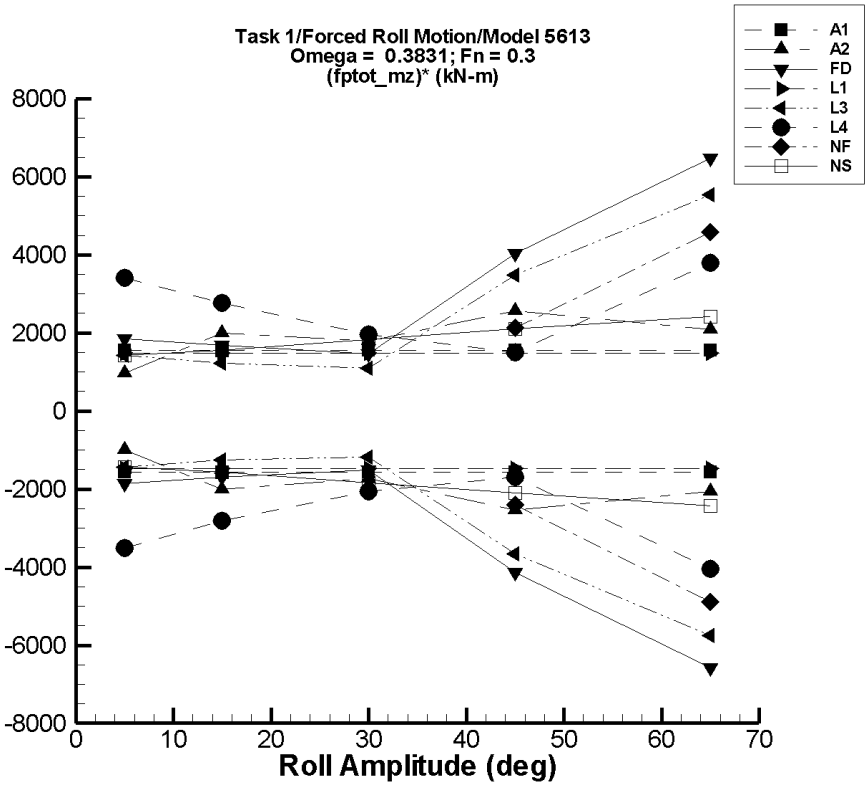

Figure M–41. Minimum and Maximum of $(M_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–321. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.25	-7.85E+03	8.37E+03	-7.81E+03	7.79E+03	-1.56E+03	1.56E+03
15.	-12.8	-2.35E+04	2.51E+04	-2.34E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-25.5	-4.71E+04	5.02E+04	-4.69E+04	4.67E+04	-1.56E+03	1.56E+03
45.	-38.2	-7.06E+04	7.53E+04	-7.03E+04	7.01E+04	-1.56E+03	1.56E+03
65.	-55.2	-1.02E+05	1.09E+05	-1.02E+05	1.01E+05	-1.56E+03	1.56E+03

Table M–322. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	28.0	-5.42E+03	4.92E+03	-4.92E+03	4.88E+03	-989.	971.
15.	-233.	-3.11E+04	3.26E+04	-3.03E+04	2.98E+04	-2.00E+03	2.00E+03
30.	-206.	-5.84E+04	5.96E+04	-5.24E+04	5.36E+04	-1.74E+03	1.79E+03
45.	-515.	-1.18E+05	1.20E+05	-1.15E+05	1.15E+05	-2.55E+03	2.57E+03
65.	754.	-1.41E+05	2.18E+05	-1.33E+05	1.36E+05	-2.06E+03	2.08E+03

Table M–323. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.67	-9.31E+03	9.31E+03	-9.28E+03	9.28E+03	-1.86E+03	1.85E+03
15.	90.9	-2.55E+04	2.55E+04	-2.52E+04	2.52E+04	-1.69E+03	1.68E+03
30.	641.	-4.56E+04	4.56E+04	-4.48E+04	4.48E+04	-1.51E+03	1.47E+03
45.	2.00E+03	-1.86E+05	1.86E+05	-1.84E+05	1.84E+05	-4.13E+03	4.04E+03
65.	3.60E+03	-4.27E+05	4.27E+05	-4.25E+05	4.24E+05	-6.59E+03	6.47E+03

Table M–324. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.85	-7.38E+03	7.37E+03	-7.37E+03	7.36E+03	-1.47E+03	1.47E+03
15.	-1.89	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	-1.92	-4.43E+04	4.43E+04	-4.42E+04	4.42E+04	-1.47E+03	1.47E+03
45.	-1.96	-6.64E+04	6.64E+04	-6.63E+04	6.63E+04	-1.47E+03	1.47E+03
65.	-2.12	-9.59E+04	9.59E+04	-9.58E+04	9.58E+04	-1.47E+03	1.47E+03

Table M–325. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.84	-7.16E+03	7.16E+03	-7.15E+03	7.15E+03	-1.43E+03	1.43E+03
15.	198.	-1.86E+04	1.86E+04	-1.86E+04	1.86E+04	-1.25E+03	1.22E+03
30.	1.39E+03	-3.43E+04	3.43E+04	-3.41E+04	3.41E+04	-1.18E+03	1.09E+03
45.	4.30E+03	-1.61E+05	1.61E+05	-1.61E+05	1.61E+05	-3.67E+03	3.48E+03
65.	7.36E+03	-3.67E+05	3.67E+05	-3.67E+05	3.67E+05	-5.75E+03	5.53E+03

Table M–326. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	149.	-1.91E+04	1.90E+04	-1.74E+04	1.72E+04	-3.51E+03	3.42E+03
15.	280.	-4.38E+04	4.38E+04	-4.20E+04	4.19E+04	-2.82E+03	2.77E+03
30.	1.50E+03	-6.13E+04	6.15E+04	-6.02E+04	6.03E+04	-2.06E+03	1.96E+03
45.	4.21E+03	-7.47E+04	7.44E+04	-7.19E+04	7.17E+04	-1.69E+03	1.50E+03
65.	7.84E+03	-2.64E+05	2.61E+05	-2.55E+05	2.55E+05	-4.04E+03	3.80E+03

Table M–327. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-1.68E+03	-4.94E+04	4.59E+04	-4.50E+04	4.31E+04	-1.44E+03	1.49E+03
45.	-414.	-1.14E+05	1.01E+05	-1.09E+05	9.55E+04	-2.41E+03	2.13E+03
65.	541.	-3.24E+05	3.04E+05	-3.17E+05	2.98E+05	-4.89E+03	4.58E+03

Table M–328. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.86E-02	-7.52E+03	7.52E+03	-7.15E+03	7.14E+03	-1.43E+03	1.43E+03
15.	-0.140	-2.82E+04	2.81E+04	-2.35E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-1.56E-02	-7.14E+04	7.14E+04	-5.52E+04	5.51E+04	-1.84E+03	1.84E+03
45.	36.4	-1.39E+05	1.50E+05	-9.40E+04	9.46E+04	-2.09E+03	2.10E+03
65.	229.	-2.92E+05	2.85E+05	-1.58E+05	1.57E+05	-2.43E+03	2.42E+03

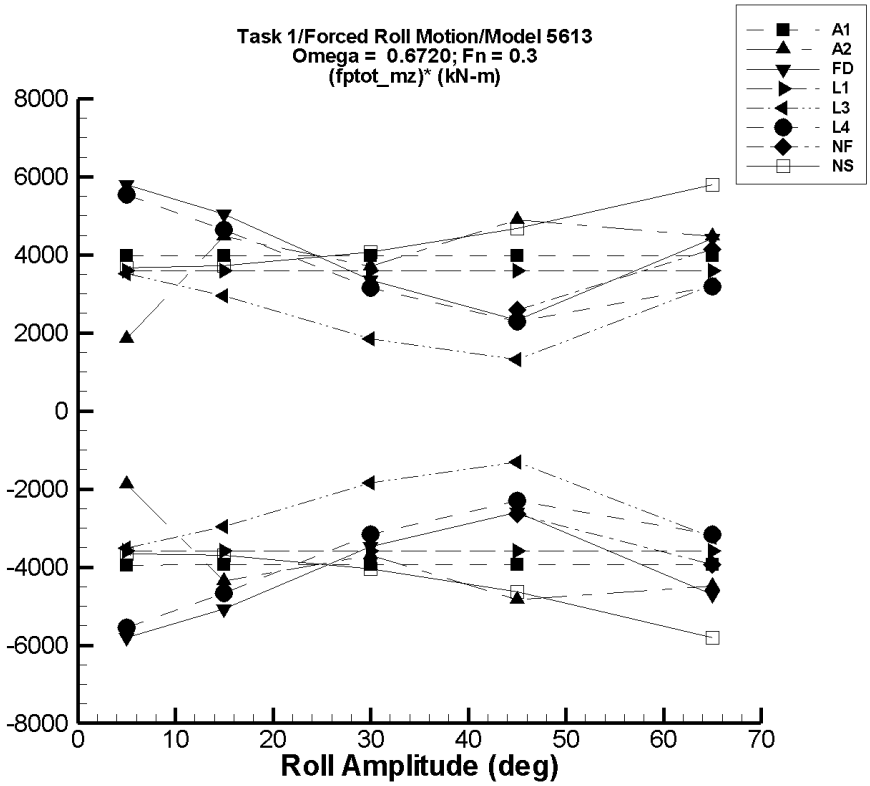

Figure M–42. Minimum and Maximum of $(M_z^{\text{ptot}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–329. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-21.2	-2.00E+04	2.01E+04	-1.97E+04	1.98E+04	-3.94E+03	3.97E+03
15.	-63.5	-5.99E+04	6.03E+04	-5.92E+04	5.95E+04	-3.94E+03	3.97E+03
30.	-127.	-1.20E+05	1.21E+05	-1.18E+05	1.19E+05	-3.94E+03	3.97E+03
45.	-191.	-1.80E+05	1.81E+05	-1.78E+05	1.78E+05	-3.94E+03	3.97E+03
65.	-275.	-2.60E+05	2.61E+05	-2.57E+05	2.58E+05	-3.94E+03	3.97E+03

Table M–330. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	63.6	-1.06E+04	1.05E+04	-9.37E+03	9.28E+03	-1.89E+03	1.84E+03
15.	-634.	-6.68E+04	6.70E+04	-6.61E+04	6.65E+04	-4.37E+03	4.47E+03
30.	45.5	-1.19E+05	1.19E+05	-1.11E+05	1.11E+05	-3.70E+03	3.70E+03
45.	-894.	-2.24E+05	2.23E+05	-2.18E+05	2.19E+05	-4.83E+03	4.89E+03
65.	511.	-2.94E+05	2.96E+05	-2.91E+05	2.92E+05	-4.49E+03	4.48E+03

Table M–331. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	12.5	-2.93E+04	2.93E+04	-2.90E+04	2.90E+04	-5.80E+03	5.80E+03
15.	262.	-7.65E+04	7.65E+04	-7.58E+04	7.59E+04	-5.07E+03	5.04E+03
30.	1.85E+03	-1.05E+05	1.05E+05	-1.02E+05	1.03E+05	-3.48E+03	3.36E+03
45.	5.79E+03	-1.19E+05	1.19E+05	-1.11E+05	1.10E+05	-2.59E+03	2.33E+03
65.	1.13E+04	-3.03E+05	3.03E+05	-2.94E+05	2.98E+05	-4.70E+03	4.41E+03

Table M–332. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.90	-1.80E+04	1.80E+04	-1.79E+04	1.79E+04	-3.58E+03	3.58E+03
15.	-1.96	-5.40E+04	5.40E+04	-5.37E+04	5.37E+04	-3.58E+03	3.58E+03
30.	-2.14	-1.08E+05	1.08E+05	-1.07E+05	1.07E+05	-3.58E+03	3.58E+03
45.	-2.38	-1.62E+05	1.62E+05	-1.61E+05	1.61E+05	-3.58E+03	3.58E+03
65.	-2.83	-2.34E+05	2.34E+05	-2.33E+05	2.33E+05	-3.58E+03	3.58E+03

Table M–333. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.20	-1.76E+04	1.76E+04	-1.76E+04	1.76E+04	-3.51E+03	3.51E+03
15.	-3.95	-4.44E+04	4.44E+04	-4.43E+04	4.43E+04	-2.95E+03	2.95E+03
30.	-9.35	-5.59E+04	5.59E+04	-5.53E+04	5.53E+04	-1.84E+03	1.85E+03
45.	-18.8	-6.09E+04	6.09E+04	-5.90E+04	5.90E+04	-1.31E+03	1.31E+03
65.	788.	-2.11E+05	2.11E+05	-2.10E+05	2.10E+05	-3.25E+03	3.22E+03

Table M–334. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{ptot}} \rangle$	Unfiltered M_z^{ptot}		Filtered M_z^{ptot}		Filtered $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	98.2	-2.85E+04	2.85E+04	-2.77E+04	2.78E+04	-5.56E+03	5.53E+03
15.	148.	-7.11E+04	7.12E+04	-6.98E+04	6.98E+04	-4.66E+03	4.65E+03
30.	180.	-9.60E+04	9.63E+04	-9.49E+04	9.49E+04	-3.17E+03	3.16E+03
45.	196.	-1.06E+05	1.06E+05	-1.03E+05	1.03E+05	-2.29E+03	2.29E+03
65.	-591.	-2.20E+05	2.19E+05	-2.06E+05	2.06E+05	-3.16E+03	3.18E+03

Table M–335. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{ptot}} \rangle$	**Unfiltered** M_z^{ptot}		**Filtered** M_z^{ptot}		**Filtered** $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	-1.15E+03	-1.12E+05	1.02E+05	-1.07E+05	9.32E+04	-3.52E+03	3.14E+03
45.	-3.92E+03	-1.40E+05	1.35E+05	-1.23E+05	1.12E+05	-2.64E+03	2.58E+03
65.	-658.	-2.62E+05	2.83E+05	-2.56E+05	2.69E+05	-3.93E+03	4.15E+03

Table M–336. Minimum and Maximum of M_z^{ptot} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{ptot}} \rangle$	**Unfiltered** M_z^{ptot}		**Filtered** M_z^{ptot}		**Filtered** $\left(M_z^{\text{ptot}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-2.32	-1.90E+04	1.91E+04	-1.83E+04	1.83E+04	-3.66E+03	3.66E+03
15.	-8.16	-6.67E+04	6.69E+04	-5.56E+04	5.57E+04	-3.70E+03	3.71E+03
30.	-19.3	-1.71E+05	1.72E+05	-1.21E+05	1.22E+05	-4.04E+03	4.07E+03
45.	40.2	-3.52E+05	3.77E+05	-2.08E+05	2.11E+05	-4.63E+03	4.68E+03
65.	33.4	-7.19E+05	7.50E+05	-3.77E+05	3.77E+05	-5.80E+03	5.80E+03

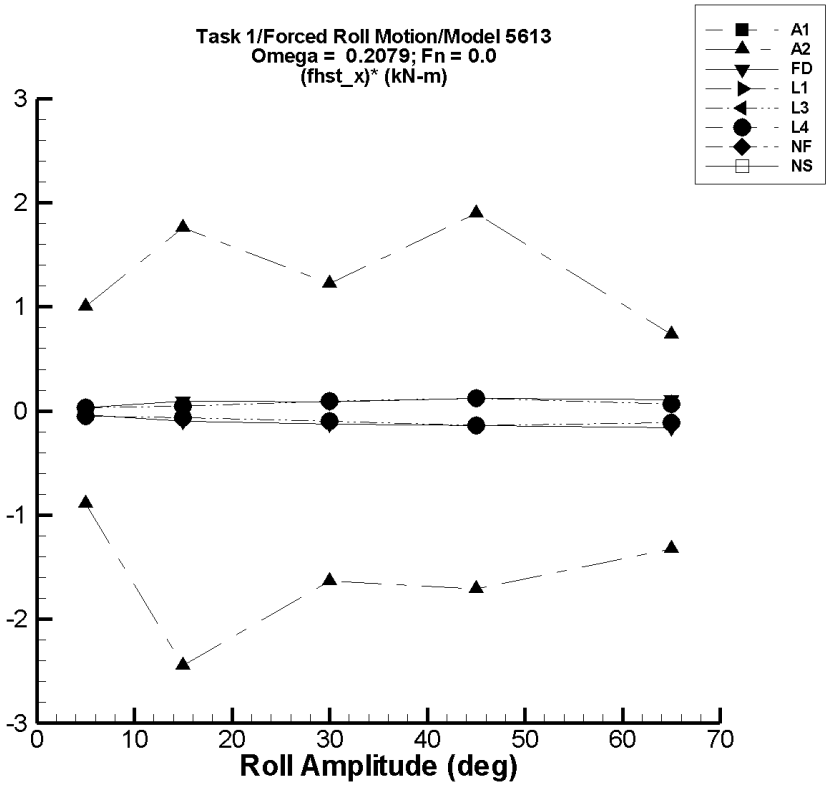

Figure M–43. Minimum and Maximum of $(F_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–337. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–338. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.28E-02	9.66	0.127	9.58	-0.890	1.00
15.	39.4	-4.04E-02	67.0	2.72	65.8	-2.45	1.76
30.	52.1	-5.33E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-4.16E-02	177.	2.71	165.	-1.71	1.90
65.	88.7	-317.	177.	2.64	136.	-1.32	0.735

Table M–339. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle \boldsymbol{F_x^{\text{hst}}} \rangle$	**Unfiltered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\left(\boldsymbol{F_x^{\text{hst}}}\right)^*$	
$\boldsymbol{\phi_a}$ **(°)**	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M–340. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle \boldsymbol{F_x^{\text{hst}}} \rangle$	**Unfiltered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\left(\boldsymbol{F_x^{\text{hst}}}\right)^*$	
$\boldsymbol{\phi_a}$ **(°)**	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–341. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

Table M–342. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

Table M–343. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–344. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

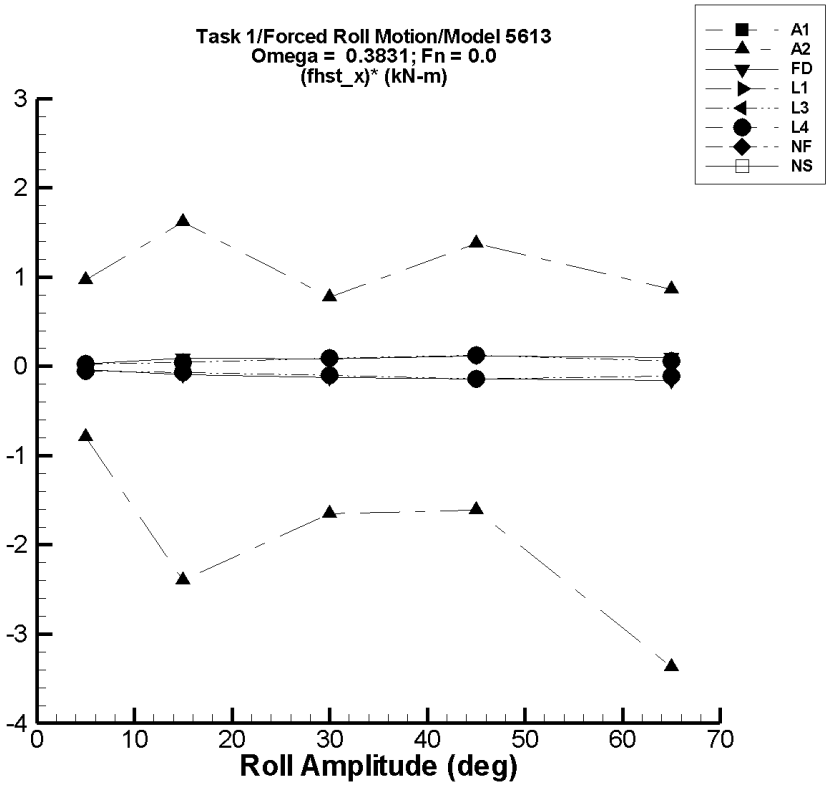

Figure M–44. Minimum and Maximum of $(F_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–345. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–346. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.32E-02	9.66	0.611	9.43	-0.794	0.969
15.	39.4	-5.34E-02	67.0	3.38	63.6	-2.40	1.62
30.	52.1	-1.21E-02	101.	2.62	75.4	-1.65	0.777
45.	79.5	6.19E-02	177.	6.86	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

Table M–347. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M–348. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–349. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02

Table M–350. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02

Table M–351. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–352. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

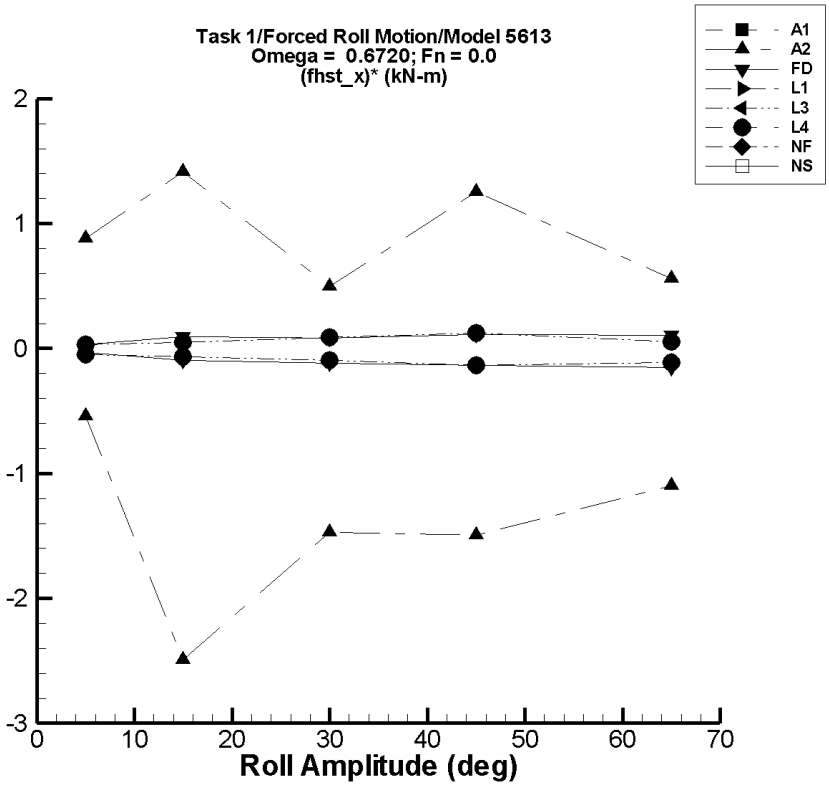

Figure M–45. Minimum and Maximum of $(F_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–353. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–354. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	4.48	-5.34E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	1.45E-02	67.0	2.54	61.1	-2.49	1.41
30.	52.5	0.249	101.	8.35	67.4	-1.47	0.497
45.	80.1	-1.93E-02	177.	12.7	136.	-1.50	1.25
65.	87.4	-152.	177.	15.8	124.	-1.10	0.559

Table M–355. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M–356. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–357. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.03E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

Table M–358. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.03E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

Table M–359. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–360. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

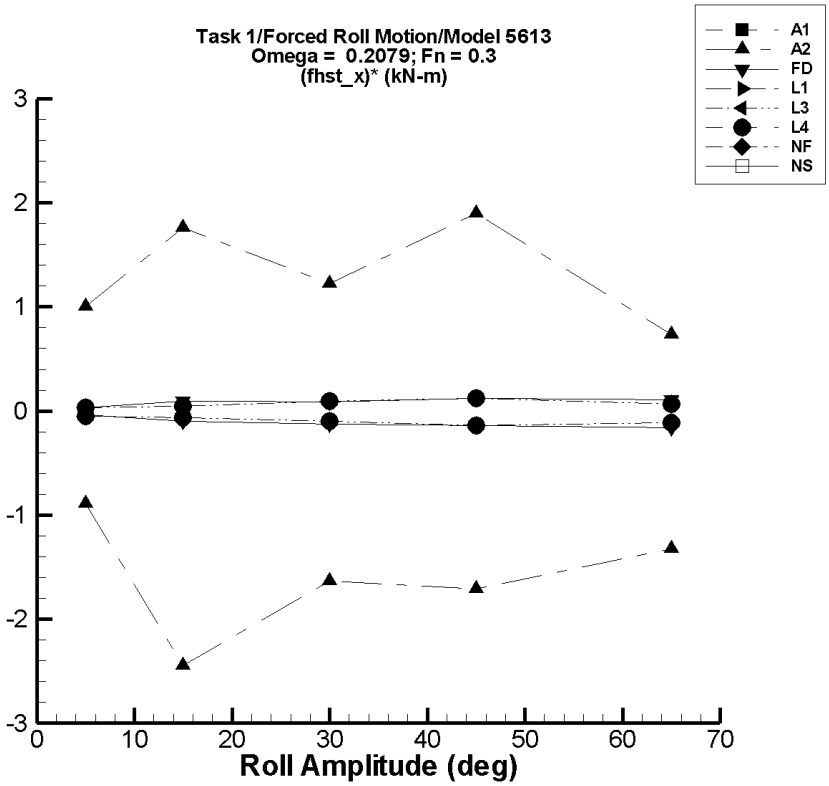

Figure M–46. Minimum and Maximum of $(F_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–361. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–362. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.57	-5.28E-02	9.66	0.127	9.58	-0.888	1.00
15.	39.4	-4.04E-02	67.0	2.72	65.8	-2.45	1.76
30.	52.1	-5.33E-02	101.	3.14	88.9	-1.63	1.23
45.	79.5	-4.16E-02	177.	2.71	165.	-1.71	1.90
65.	88.7	-317.	177.	2.64	136.	-1.32	0.735

Table M–363. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-8.65	-8.84	-8.50	-8.84	-8.50	-3.67E-02	3.08E-02
15.	-7.39	-8.84	-5.98	-8.82	-5.98	-9.54E-02	9.35E-02
30.	-5.10	-8.84	-2.55	-8.80	-2.56	-0.123	8.46E-02
45.	-2.40	-8.84	3.06	-8.80	3.02	-0.142	0.120
65.	1.74	-8.84	8.60	-8.82	8.56	-0.162	0.105

Table M–364. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–365. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

Table M–366. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-5.06E-02	3.00E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.56E-02	4.72E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.33E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.124
65.	-31.7	-39.2	-27.3	-39.1	-27.4	-0.114	6.59E-02

Table M–367. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–368. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

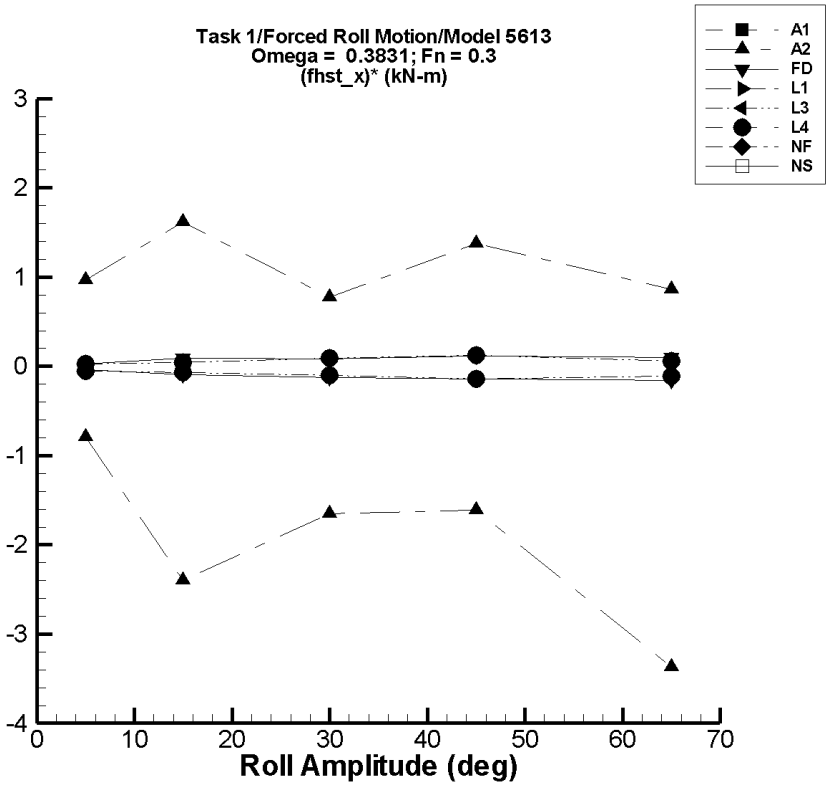

Figure M–47. Minimum and Maximum of $(F_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–369. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–370. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.58	-5.32E-02	9.66	0.611	9.43	-0.794	0.969
15.	39.4	-5.34E-02	67.0	3.38	63.6	-2.40	1.62
30.	52.1	-1.21E-02	101.	2.62	75.4	-1.65	0.777
45.	79.5	6.19E-02	177.	6.86	142.	-1.61	1.38
65.	80.3	-1.26E+03	177.	-139.	136.	-3.37	0.862

Table M–371. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.65	-8.84	-8.50	-8.83	-8.50	-3.41E-02	3.07E-02
15.	-7.38	-8.84	-5.98	-8.81	-6.00	-9.55E-02	9.24E-02
30.	-5.09	-8.84	-2.55	-8.80	-2.58	-0.123	8.38E-02
45.	-2.39	-8.83	3.05	-8.72	2.91	-0.141	0.118
65.	1.77	-8.82	8.60	-8.50	8.50	-0.158	0.104

Table M–372. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–373. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02

Table M–374. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{hst}} \rangle$	**Unfiltered** F_x^{hst}		**Filtered** F_x^{hst}		**Filtered** $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.2	-38.8	-4.97E-02	3.05E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.51E-02	4.71E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.87E-02	9.36E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.138	0.123
65.	-31.8	-39.2	-27.3	-39.1	-27.9	-0.111	6.14E-02

Table M–375. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–376. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

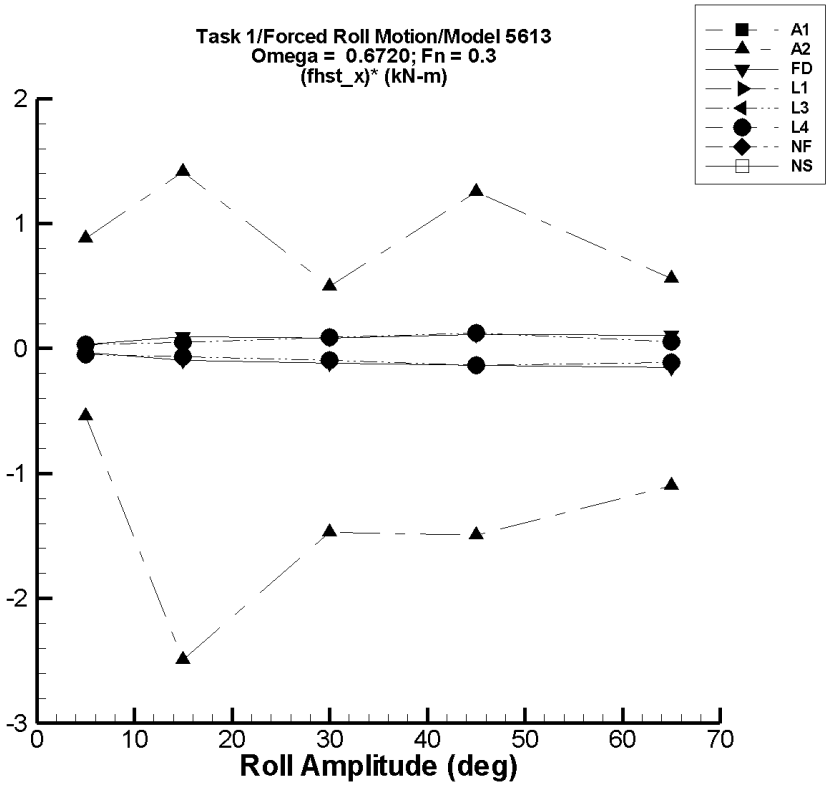

Figure M–48. Minimum and Maximum of $(F_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–377. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–378. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.48	-5.34E-02	9.65	1.77	8.87	-0.542	0.879
15.	39.9	1.45E-02	67.0	2.54	61.1	-2.49	1.41
30.	52.5	0.249	101.	8.35	67.4	-1.47	0.497
45.	80.1	-1.93E-02	177.	12.7	136.	-1.50	1.25
65.	87.4	-152.	177.	15.8	124.	-1.10	0.559

Table M–379. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-8.66	-8.84	-8.50	-8.82	-8.50	-3.23E-02	3.07E-02
15.	-7.39	-8.84	-5.98	-8.79	-6.00	-9.32E-02	9.24E-02
30.	-5.11	-8.84	-2.55	-8.71	-2.58	-0.120	8.44E-02
45.	-2.39	-8.83	3.05	-8.45	2.72	-0.135	0.114
65.	1.70	-8.85	8.60	-8.04	8.51	-0.150	0.105

Table M–380. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–381. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle \boldsymbol{F_x^{\text{hst}}} \rangle$	**Unfiltered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\left(\boldsymbol{F_x^{\text{hst}}}\right)^*$	
$\boldsymbol{\phi_a}$ **(°)**	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.04E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

Table M–382. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle \boldsymbol{F_x^{\text{hst}}} \rangle$	**Unfiltered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\boldsymbol{F_x^{\text{hst}}}$		**Filtered** $\left(\boldsymbol{F_x^{\text{hst}}}\right)^*$	
$\boldsymbol{\phi_a}$ **(°)**	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-38.9	-39.2	-38.8	-39.1	-38.8	-4.89E-02	3.04E-02
15.	-38.2	-39.2	-37.5	-39.1	-37.5	-6.36E-02	4.63E-02
30.	-36.2	-39.2	-33.4	-39.1	-33.4	-9.74E-02	9.15E-02
45.	-32.9	-39.2	-27.3	-39.1	-27.3	-0.137	0.124
65.	-31.8	-39.2	-27.3	-39.0	-28.3	-0.110	5.50E-02

Table M–383. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–384. Minimum and Maximum of F_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{hst}} \rangle$	Unfiltered F_x^{hst}		Filtered F_x^{hst}		Filtered $\left(F_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

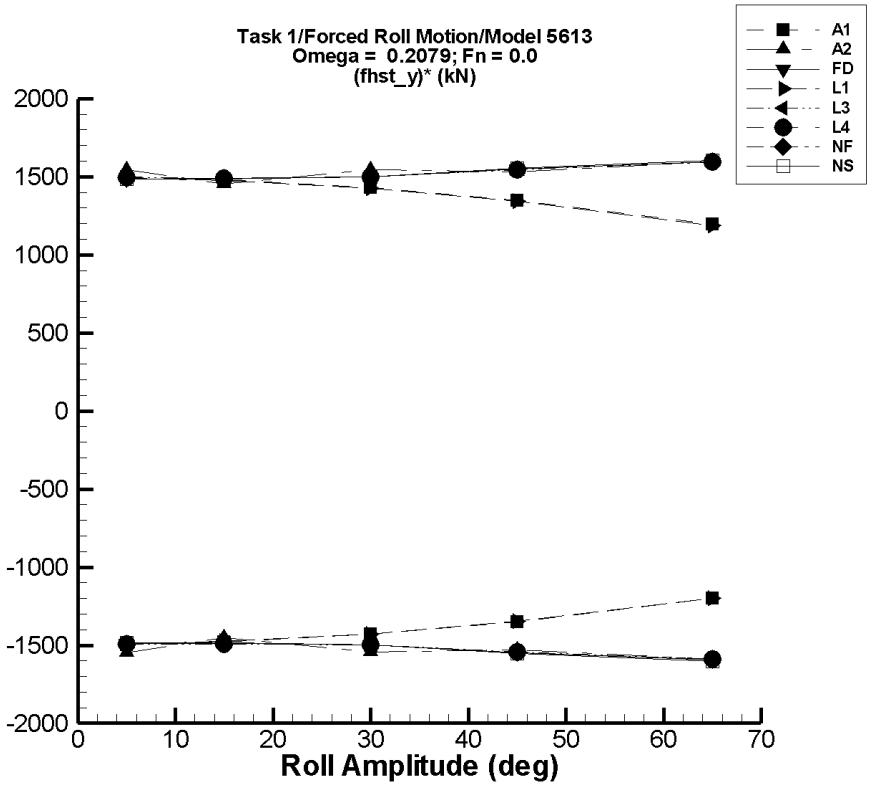

Figure M–49. Minimum and Maximum of $(F_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–385. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.49E-02	-7.49E+03	7.49E+03	-7.48E+03	7.49E+03	-1.50E+03	1.50E+03
15.	1.61	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	12.8	-4.30E+04	4.30E+04	-4.29E+04	4.30E+04	-1.43E+03	1.43E+03
45.	42.6	-6.07E+04	6.07E+04	-6.07E+04	6.08E+04	-1.35E+03	1.35E+03
65.	124.	-7.79E+04	7.79E+04	-7.78E+04	7.80E+04	-1.20E+03	1.20E+03

Table M–386. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.59	-7.74E+03	7.74E+03	-7.73E+03	7.74E+03	-1.55E+03	1.55E+03
15.	12.4	-2.18E+04	2.18E+04	-2.18E+04	2.18E+04	-1.45E+03	1.45E+03
30.	-17.5	-4.63E+04	4.63E+04	-4.63E+04	4.63E+04	-1.54E+03	1.54E+03
45.	-18.3	-6.89E+04	6.89E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-54.6	-1.04E+05	1.04E+05	-1.03E+05	1.04E+05	-1.59E+03	1.59E+03

Table M–387. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.244	-7.45E+03	7.45E+03	-7.44E+03	7.44E+03	-1.49E+03	1.49E+03
15.	-0.183	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	-2.76	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-22.7	-6.97E+04	6.97E+04	-6.96E+04	6.96E+04	-1.55E+03	1.55E+03
65.	-59.5	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

Table M–388. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.147	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	3.91	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	30.6	-4.28E+04	4.28E+04	-4.28E+04	4.28E+04	-1.43E+03	1.42E+03
45.	101.	-6.05E+04	6.05E+04	-6.05E+04	6.05E+04	-1.35E+03	1.34E+03
65.	293.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03

Table M–389. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.75E-02	-7.46E+03	7.47E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.199	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.55	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–390. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.75E-02	-7.46E+03	7.47E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.199	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.55	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–391. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–392. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.19E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	3.39E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	2.26E-03	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.276	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	45.3	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

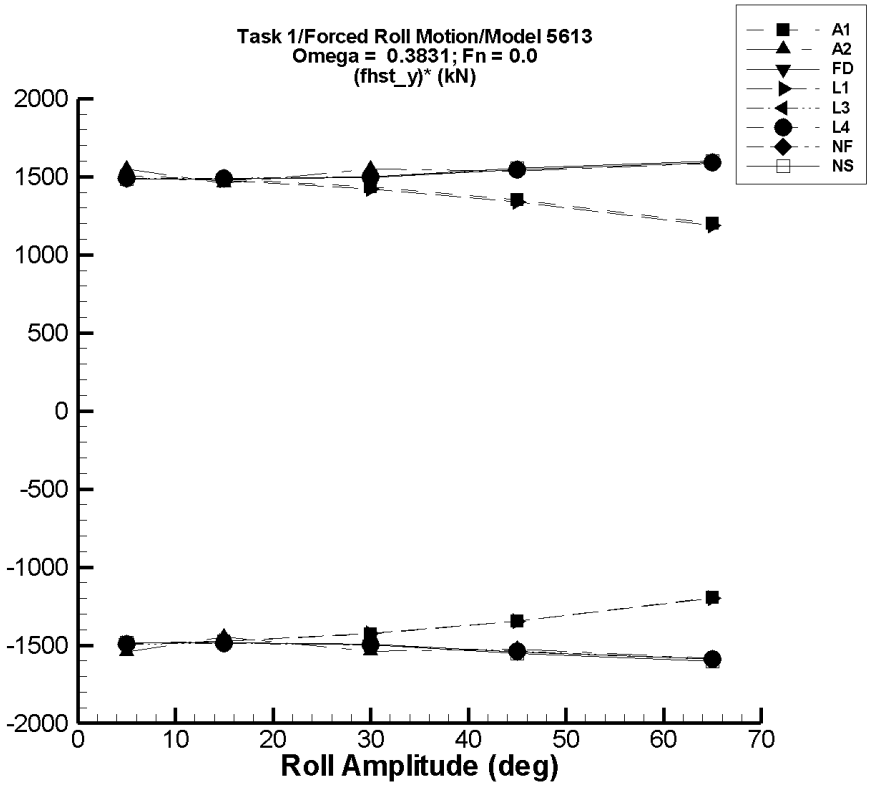

Figure M–50. Minimum and Maximum of $(F_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–393. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.93E-02	-7.49E+03	7.49E+03	-7.46E+03	7.51E+03	-1.49E+03	1.50E+03
15.	1.34	-2.22E+04	2.22E+04	-2.22E+04	2.23E+04	-1.48E+03	1.49E+03
30.	10.6	-4.30E+04	4.30E+04	-4.28E+04	4.31E+04	-1.43E+03	1.44E+03
45.	35.2	-6.07E+04	6.07E+04	-6.06E+04	6.09E+04	-1.35E+03	1.35E+03
65.	103.	-7.79E+04	7.79E+04	-7.77E+04	7.81E+04	-1.20E+03	1.20E+03

Table M–394. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.95	-7.74E+03	7.74E+03	-7.72E+03	7.77E+03	-1.55E+03	1.55E+03
15.	13.1	-2.18E+04	2.18E+04	-2.17E+04	2.19E+04	-1.45E+03	1.46E+03
30.	-14.9	-4.63E+04	4.63E+04	-4.61E+04	4.64E+04	-1.54E+03	1.55E+03
45.	-17.0	-6.89E+04	6.89E+04	-6.86E+04	6.90E+04	-1.52E+03	1.53E+03
65.	-80.2	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–395. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.216	-7.45E+03	7.45E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-0.198	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.22	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	-25.8	-6.97E+04	6.97E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-51.0	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–396. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.227	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	5.38	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	42.1	-4.28E+04	4.28E+04	-4.27E+04	4.27E+04	-1.43E+03	1.42E+03
45.	139.	-6.05E+04	6.05E+04	-6.04E+04	6.04E+04	-1.35E+03	1.34E+03
65.	401.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03

Table M–397. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.20E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.280	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–398. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.20E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.280	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–399. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–400. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.55E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-6.79E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	8.82E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.272	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.9	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

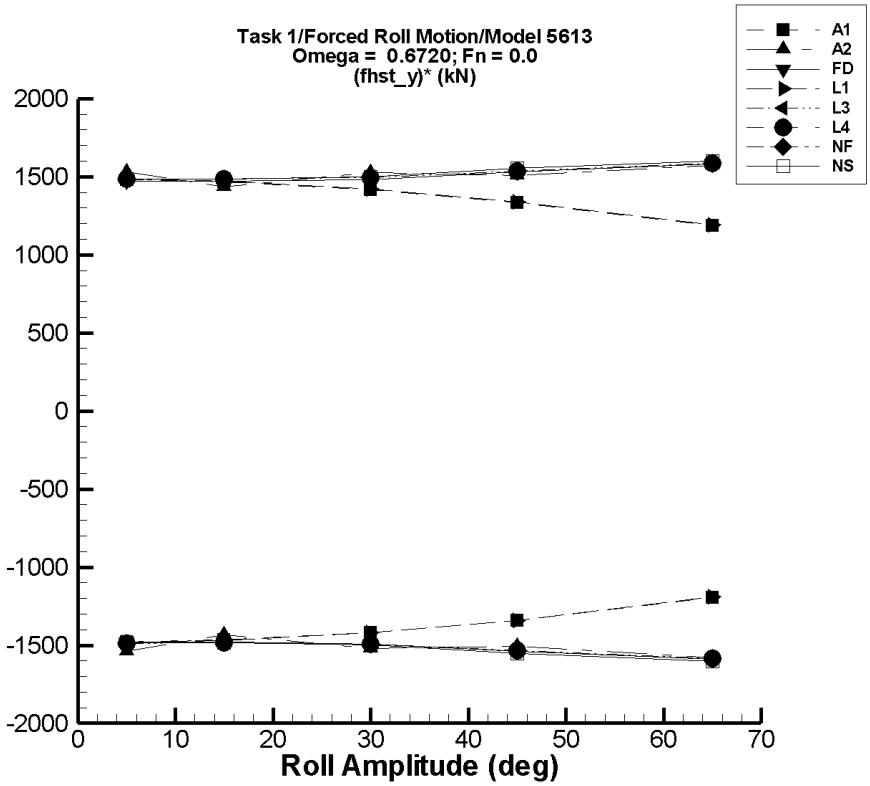

Figure M–51. Minimum and Maximum of $(F_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–401. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.112	-7.49E+03	7.49E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.19	-2.22E+04	2.22E+04	-2.20E+04	2.20E+04	-1.47E+03	1.46E+03
30.	25.3	-4.29E+04	4.29E+04	-4.25E+04	4.25E+04	-1.42E+03	1.42E+03
45.	83.8	-6.07E+04	6.07E+04	-6.02E+04	6.02E+04	-1.34E+03	1.34E+03
65.	242.	-7.78E+04	7.78E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M–402. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	18.0	-7.74E+03	7.74E+03	-7.68E+03	7.68E+03	-1.54E+03	1.53E+03
15.	6.11	-2.18E+04	2.18E+04	-2.15E+04	2.15E+04	-1.43E+03	1.43E+03
30.	-43.8	-4.63E+04	4.63E+04	-4.57E+04	4.57E+04	-1.52E+03	1.53E+03
45.	-39.1	-6.89E+04	6.89E+04	-6.79E+04	6.79E+04	-1.51E+03	1.51E+03
65.	70.8	-1.04E+05	1.04E+05	-1.02E+05	1.02E+05	-1.58E+03	1.57E+03

Table M–403. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.538	-7.45E+03	7.45E+03	-7.41E+03	7.36E+03	-1.48E+03	1.47E+03
15.	-0.299	-2.23E+04	2.23E+04	-2.22E+04	2.21E+04	-1.48E+03	1.47E+03
30.	-8.15	-4.50E+04	4.50E+04	-4.47E+04	4.45E+04	-1.49E+03	1.48E+03
45.	-65.6	-6.97E+04	6.97E+04	-6.92E+04	6.88E+04	-1.54E+03	1.53E+03
65.	-137.	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.58E+03

Table M–404. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.106	-7.46E+03	7.46E+03	-7.43E+03	7.43E+03	-1.49E+03	1.49E+03
15.	0.255	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	3.54E-02	-4.28E+04	4.28E+04	-4.26E+04	4.26E+04	-1.42E+03	1.42E+03
45.	-0.904	-6.05E+04	6.05E+04	-6.03E+04	6.03E+04	-1.34E+03	1.34E+03
65.	-2.65	-7.75E+04	7.75E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M–405. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.108	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.360	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.53	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.35	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–406. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.108	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.360	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.53	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.35	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–407. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–408. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-5.01E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-2.84E-03	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.62E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.264	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.7	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

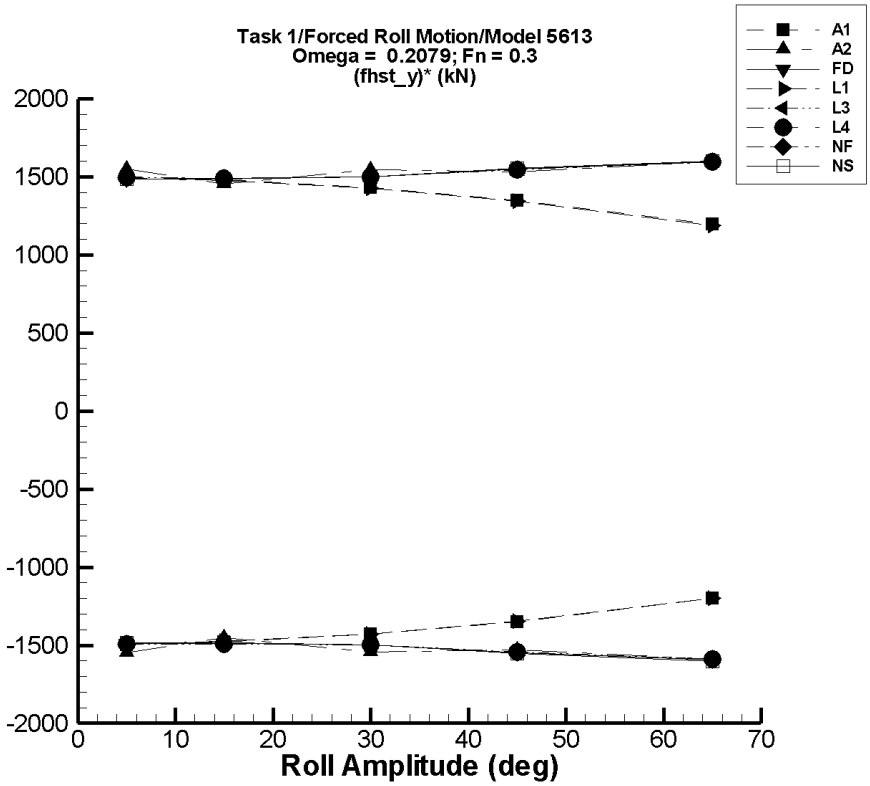

Figure M–52. Minimum and Maximum of $(F_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–409. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.49E-02	-7.49E+03	7.49E+03	-7.48E+03	7.49E+03	-1.50E+03	1.50E+03
15.	1.61	-2.22E+04	2.22E+04	-2.22E+04	2.22E+04	-1.48E+03	1.48E+03
30.	12.8	-4.30E+04	4.30E+04	-4.29E+04	4.30E+04	-1.43E+03	1.43E+03
45.	42.6	-6.07E+04	6.07E+04	-6.07E+04	6.08E+04	-1.35E+03	1.35E+03
65.	124.	-7.79E+04	7.79E+04	-7.78E+04	7.80E+04	-1.20E+03	1.20E+03

Table M–410. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.95	-7.74E+03	7.74E+03	-7.73E+03	7.75E+03	-1.55E+03	1.55E+03
15.	12.4	-2.18E+04	2.18E+04	-2.18E+04	2.18E+04	-1.45E+03	1.45E+03
30.	-17.5	-4.63E+04	4.63E+04	-4.63E+04	4.63E+04	-1.54E+03	1.54E+03
45.	-18.3	-6.89E+04	6.89E+04	-6.89E+04	6.89E+04	-1.53E+03	1.53E+03
65.	-54.6	-1.04E+05	1.04E+05	-1.03E+05	1.04E+05	-1.59E+03	1.59E+03

Table M–411. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.245	-7.45E+03	7.45E+03	-7.44E+03	7.44E+03	-1.49E+03	1.49E+03
15.	-0.183	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	-2.76	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-22.7	-6.97E+04	6.97E+04	-6.96E+04	6.96E+04	-1.55E+03	1.55E+03
65.	-59.5	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

Table M–412. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.147	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	3.91	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	30.6	-4.28E+04	4.28E+04	-4.28E+04	4.28E+04	-1.43E+03	1.42E+03
45.	101.	-6.05E+04	6.05E+04	-6.05E+04	6.05E+04	-1.35E+03	1.34E+03
65.	293.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03

Table M–413. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.93E-02	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.203	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.54	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–414. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.93E-02	-7.46E+03	7.46E+03	-7.46E+03	7.46E+03	-1.49E+03	1.49E+03
15.	0.203	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-3.54	-4.50E+04	4.50E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-43.0	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-122.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–415. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–416. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.19E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	3.39E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	2.26E-03	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.276	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.9	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

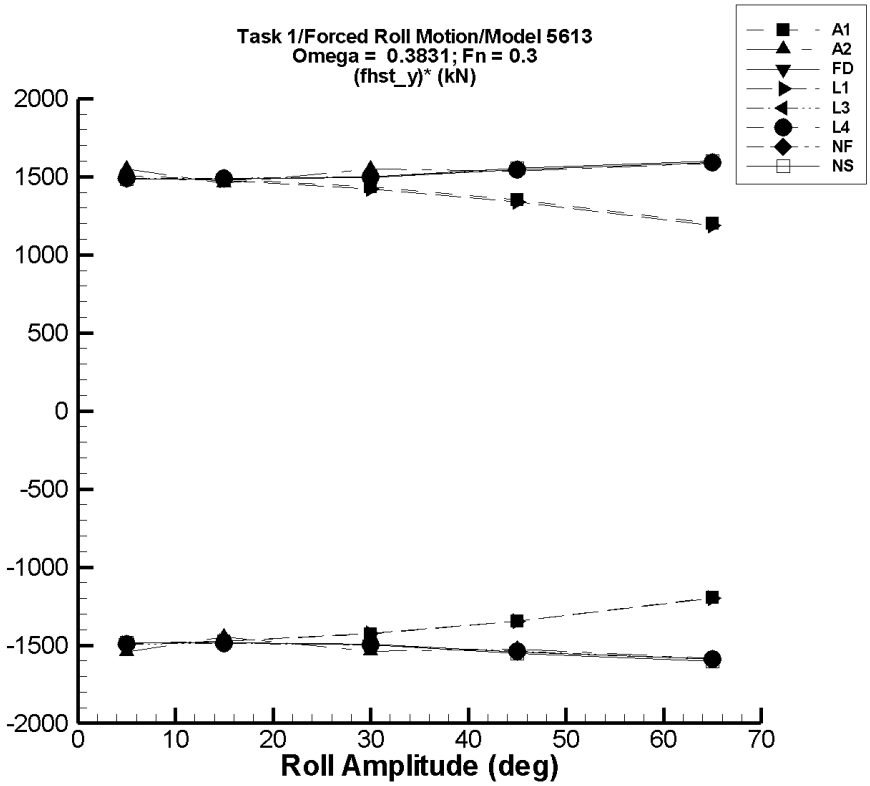

Figure M–53. Minimum and Maximum of $(F_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–417. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	4.93E-02	-7.49E+03	7.49E+03	-7.46E+03	7.51E+03	-1.49E+03	1.50E+03
15.	1.34	-2.22E+04	2.22E+04	-2.22E+04	2.23E+04	-1.48E+03	1.49E+03
30.	10.6	-4.30E+04	4.30E+04	-4.28E+04	4.31E+04	-1.43E+03	1.44E+03
45.	35.2	-6.07E+04	6.07E+04	-6.06E+04	6.09E+04	-1.35E+03	1.35E+03
65.	103.	-7.79E+04	7.79E+04	-7.77E+04	7.81E+04	-1.20E+03	1.20E+03

Table M–418. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.95	-7.74E+03	7.74E+03	-7.72E+03	7.77E+03	-1.55E+03	1.55E+03
15.	13.1	-2.18E+04	2.18E+04	-2.17E+04	2.19E+04	-1.45E+03	1.46E+03
30.	-14.9	-4.63E+04	4.63E+04	-4.61E+04	4.64E+04	-1.54E+03	1.55E+03
45.	-17.0	-6.89E+04	6.89E+04	-6.86E+04	6.90E+04	-1.52E+03	1.53E+03
65.	-80.2	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–419. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-0.216	-7.45E+03	7.45E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-0.198	-2.23E+04	2.23E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.22	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	-25.8	-6.97E+04	6.97E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-51.0	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–420. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.227	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	5.38	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	42.1	-4.28E+04	4.28E+04	-4.27E+04	4.27E+04	-1.43E+03	1.42E+03
45.	139.	-6.05E+04	6.05E+04	-6.04E+04	6.04E+04	-1.35E+03	1.34E+03
65.	401.	-7.76E+04	7.76E+04	-7.75E+04	7.75E+04	-1.20E+03	1.19E+03

Table M–421. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	5.19E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.279	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–422. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	5.19E-02	-7.46E+03	7.46E+03	-7.45E+03	7.45E+03	-1.49E+03	1.49E+03
15.	0.279	-2.24E+04	2.24E+04	-2.24E+04	2.24E+04	-1.49E+03	1.49E+03
30.	-5.46	-4.50E+04	4.50E+04	-4.49E+04	4.49E+04	-1.50E+03	1.50E+03
45.	-62.6	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-1.54E+03	1.54E+03
65.	-147.	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–423. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–424. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.55E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-6.79E-04	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	8.82E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.272	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.9	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

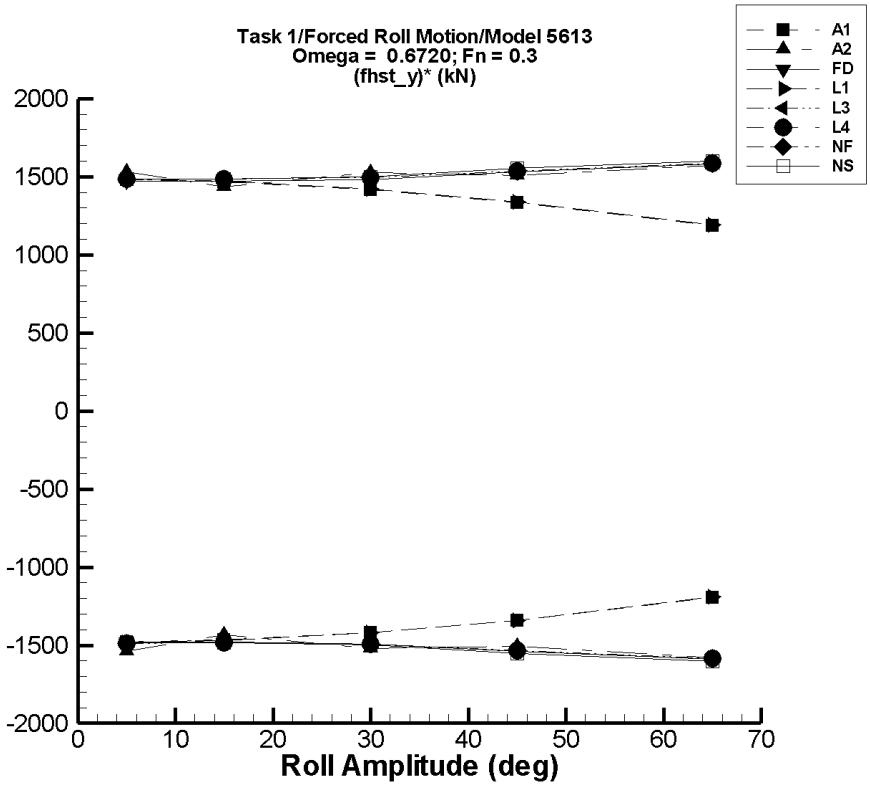

Figure M–54. Minimum and Maximum of $(F_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–425. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.112	-7.49E+03	7.49E+03	-7.40E+03	7.40E+03	-1.48E+03	1.48E+03
15.	3.19	-2.22E+04	2.22E+04	-2.20E+04	2.20E+04	-1.47E+03	1.46E+03
30.	25.3	-4.29E+04	4.29E+04	-4.25E+04	4.25E+04	-1.42E+03	1.42E+03
45.	83.8	-6.07E+04	6.07E+04	-6.02E+04	6.02E+04	-1.34E+03	1.34E+03
65.	242.	-7.78E+04	7.78E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M–426. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	18.0	-7.74E+03	7.74E+03	-7.68E+03	7.68E+03	-1.54E+03	1.53E+03
15.	6.11	-2.18E+04	2.18E+04	-2.15E+04	2.15E+04	-1.43E+03	1.43E+03
30.	-43.8	-4.63E+04	4.63E+04	-4.57E+04	4.57E+04	-1.52E+03	1.53E+03
45.	-39.1	-6.89E+04	6.89E+04	-6.79E+04	6.79E+04	-1.51E+03	1.51E+03
65.	70.8	-1.04E+05	1.04E+05	-1.02E+05	1.02E+05	-1.58E+03	1.57E+03

Table M–427. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.538	-7.45E+03	7.45E+03	-7.41E+03	7.36E+03	-1.48E+03	1.47E+03
15.	-0.299	-2.23E+04	2.23E+04	-2.22E+04	2.21E+04	-1.48E+03	1.47E+03
30.	-8.14	-4.50E+04	4.50E+04	-4.47E+04	4.45E+04	-1.49E+03	1.48E+03
45.	-65.6	-6.97E+04	6.97E+04	-6.92E+04	6.88E+04	-1.54E+03	1.53E+03
65.	-137.	-1.04E+05	1.04E+05	-1.03E+05	1.03E+05	-1.59E+03	1.58E+03

Table M–428. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.106	-7.46E+03	7.46E+03	-7.43E+03	7.43E+03	-1.49E+03	1.49E+03
15.	0.255	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	3.54E-02	-4.28E+04	4.28E+04	-4.26E+04	4.26E+04	-1.42E+03	1.42E+03
45.	-0.904	-6.05E+04	6.05E+04	-6.03E+04	6.03E+04	-1.34E+03	1.34E+03
65.	-2.65	-7.75E+04	7.75E+04	-7.74E+04	7.74E+04	-1.19E+03	1.19E+03

Table M–429. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.110	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.356	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.54	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.36	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–430. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{hst}} \rangle$	Unfiltered F_y^{hst}		Filtered F_y^{hst}		Filtered $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.110	-7.46E+03	7.46E+03	-7.43E+03	7.44E+03	-1.49E+03	1.49E+03
15.	0.356	-2.24E+04	2.24E+04	-2.23E+04	2.23E+04	-1.49E+03	1.49E+03
30.	1.65	-4.50E+04	4.50E+04	-4.48E+04	4.48E+04	-1.49E+03	1.49E+03
45.	8.54	-6.95E+04	6.95E+04	-6.91E+04	6.92E+04	-1.54E+03	1.54E+03
65.	-5.36	-1.03E+05	1.03E+05	-1.03E+05	1.03E+05	-1.59E+03	1.59E+03

Table M–431. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–432. Minimum and Maximum of F_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{hst}} \rangle$	**Unfiltered** F_y^{hst}		**Filtered** F_y^{hst}		**Filtered** $\left(F_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-5.01E-04	-7.49E+03	7.49E+03	-7.42E+03	7.42E+03	-1.48E+03	1.48E+03
15.	-2.84E-03	-2.25E+04	2.25E+04	-2.23E+04	2.23E+04	-1.48E+03	1.48E+03
30.	-3.62E-04	-4.52E+04	4.52E+04	-4.50E+04	4.50E+04	-1.50E+03	1.50E+03
45.	-0.264	-7.00E+04	7.00E+04	-6.99E+04	6.99E+04	-1.55E+03	1.55E+03
65.	-27.7	-1.04E+05	1.04E+05	-1.04E+05	1.04E+05	-1.60E+03	1.60E+03

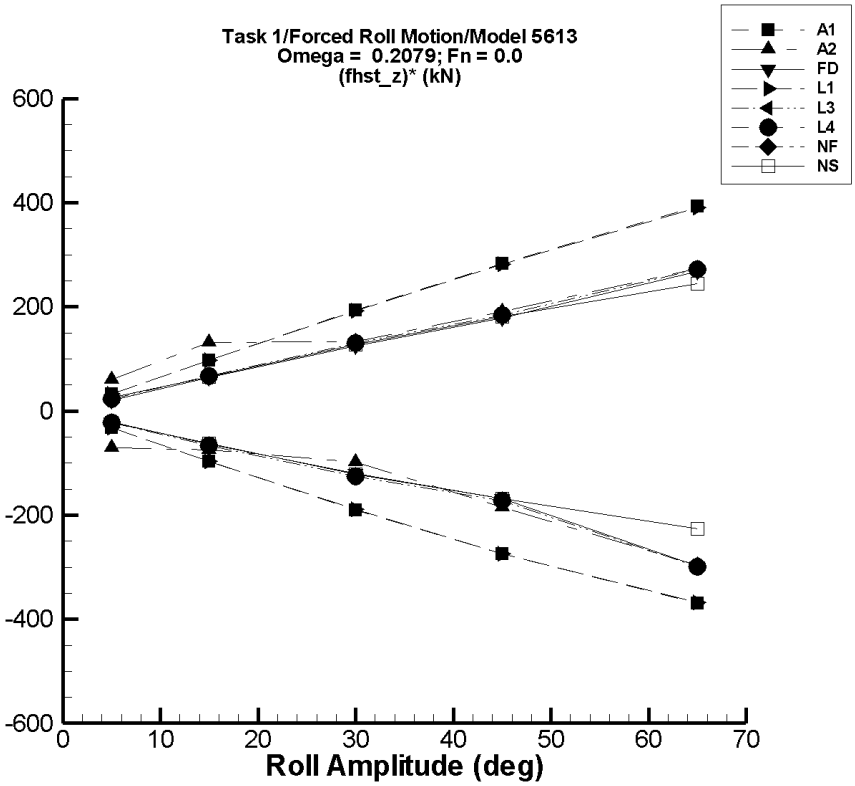

Figure M–55. Minimum and Maximum of $(F_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–433. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.6	32.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.0	97.9
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-190.	193.
45.	7.32E+04	6.07E+04	8.59E+04	6.08E+04	8.59E+04	-275.	284.
65.	6.04E+04	3.63E+04	8.59E+04	3.64E+04	8.59E+04	-369.	393.

Table M–434. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.2	60.5
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.1	132.
30.	8.19E+04	7.90E+04	8.59E+04	7.90E+04	8.59E+04	-98.8	133.
45.	7.73E+04	6.91E+04	8.59E+04	6.90E+04	8.59E+04	-184.	191.
65.	6.81E+04	4.88E+04	8.59E+04	4.89E+04	8.59E+04	-296.	273.

Table M–435. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.2	20.6
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-63.6	64.0
30.	8.15E+04	7.79E+04	8.53E+04	7.79E+04	8.53E+04	-120.	125.
45.	7.73E+04	6.97E+04	8.53E+04	6.97E+04	8.53E+04	-168.	178.
65.	6.79E+04	4.84E+04	8.53E+04	4.85E+04	8.53E+04	-297.	269.

Table M–436. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.5	32.5
15.	8.41E+04	8.26E+04	8.56E+04	8.26E+04	8.56E+04	-96.9	97.2
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-190.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.05E+04	8.55E+04	-274.	282.
65.	6.01E+04	3.61E+04	8.56E+04	3.62E+04	8.55E+04	-369.	391.

Table M–437. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

Table M–438. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

Table M–439. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–440. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

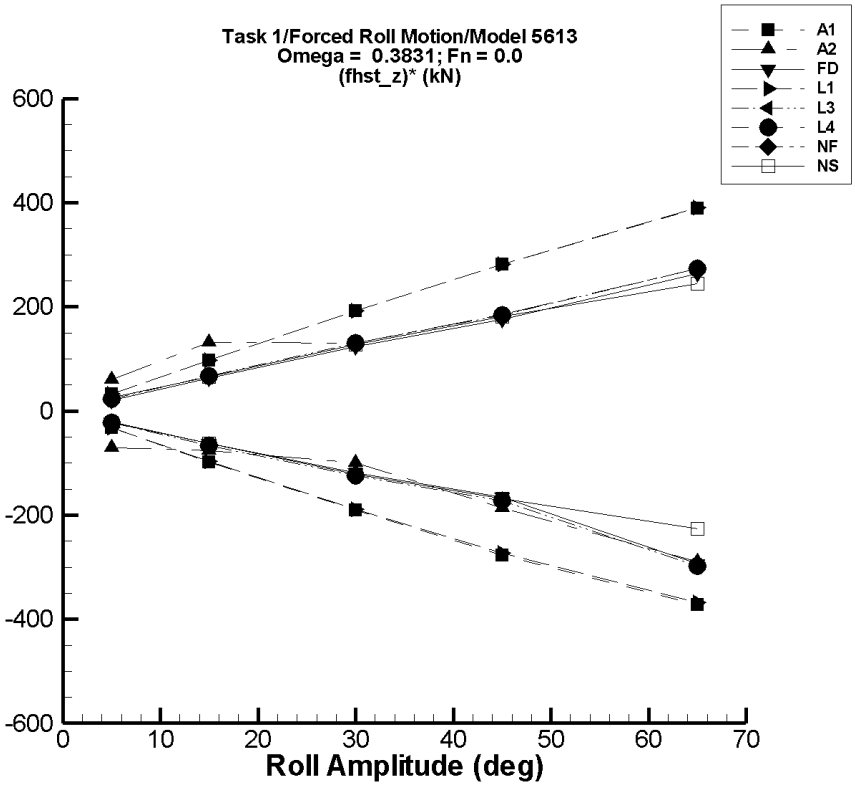

Figure M–56. Minimum and Maximum of $(F_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–441. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{hst}} \rangle$	**Unfiltered** F_z^{hst}		**Filtered** F_z^{hst}		**Filtered** $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.8	32.5
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.6	97.2
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-191.	192.
45.	7.32E+04	6.07E+04	8.59E+04	6.07E+04	8.58E+04	-277.	281.
65.	6.04E+04	3.63E+04	8.59E+04	3.62E+04	8.57E+04	-372.	389.

Table M–442. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{hst}} \rangle$	**Unfiltered** F_z^{hst}		**Filtered** F_z^{hst}		**Filtered** $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.5	60.0
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.7	132.
30.	8.19E+04	7.89E+04	8.59E+04	7.89E+04	8.58E+04	-99.6	130.
45.	7.73E+04	6.90E+04	8.59E+04	6.89E+04	8.57E+04	-187.	185.
65.	6.79E+04	4.19E+04	8.59E+04	4.91E+04	8.56E+04	-289.	273.

Table M–443. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.0	20.5
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-62.9	63.3
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-119.	123.
45.	7.73E+04	6.97E+04	8.53E+04	6.98E+04	8.52E+04	-166.	176.
65.	6.79E+04	4.84E+04	8.53E+04	4.88E+04	8.51E+04	-294.	264.

Table M–444. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.4	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-96.6	97.5
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-189.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.06E+04	8.56E+04	-274.	282.
65.	6.02E+04	3.61E+04	8.56E+04	3.63E+04	8.56E+04	-368.	391.

Table M–445. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

Table M–446. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

Table M–447. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–448. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

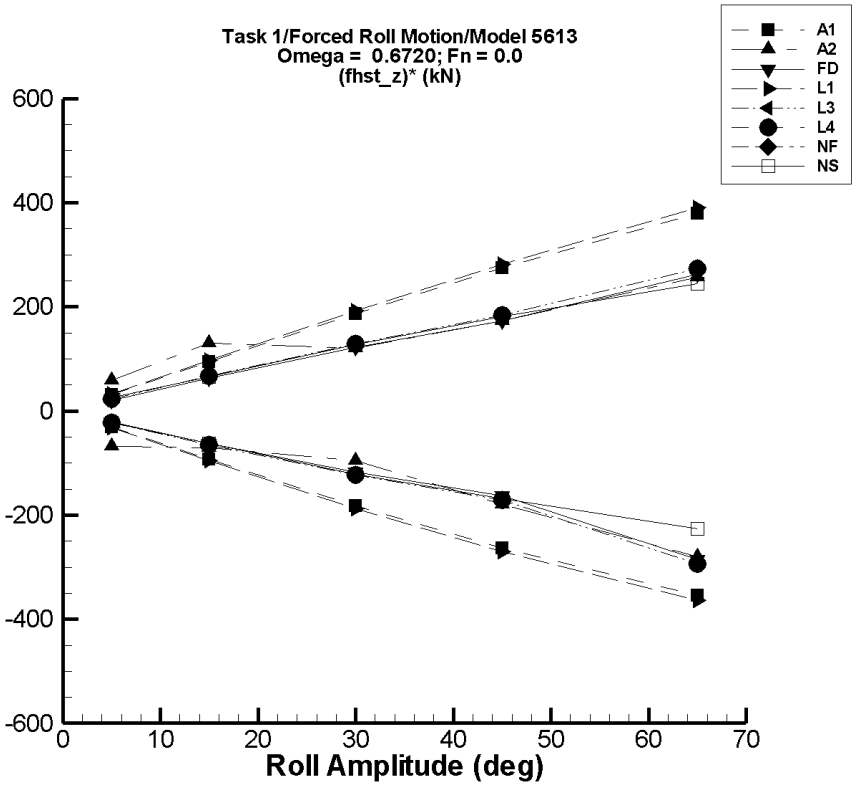

Figure M–57. Minimum and Maximum of $(F_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–449. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.2	31.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-92.9	94.8
30.	8.01E+04	7.44E+04	8.59E+04	7.47E+04	8.57E+04	-182.	187.
45.	7.32E+04	6.07E+04	8.59E+04	6.13E+04	8.55E+04	-264.	275.
65.	6.04E+04	3.63E+04	8.59E+04	3.73E+04	8.51E+04	-355.	379.

Table M–450. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.53E+04	8.59E+04	-68.0	59.4
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-71.3	130.
30.	8.19E+04	7.89E+04	8.59E+04	7.91E+04	8.55E+04	-95.2	120.
45.	7.74E+04	6.88E+04	8.59E+04	6.93E+04	8.52E+04	-180.	173.
65.	6.80E+04	4.87E+04	8.59E+04	4.98E+04	8.48E+04	-280.	258.

Table M–451. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.6	20.3
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.52E+04	-61.8	62.5
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-117.	122.
45.	7.73E+04	6.97E+04	8.53E+04	6.99E+04	8.51E+04	-163.	173.
65.	6.78E+04	4.84E+04	8.53E+04	4.93E+04	8.48E+04	-286.	262.

Table M–452. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.0	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-95.5	97.3
30.	7.98E+04	7.41E+04	8.56E+04	7.42E+04	8.56E+04	-187.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.07E+04	8.56E+04	-271.	282.
65.	6.02E+04	3.62E+04	8.56E+04	3.65E+04	8.55E+04	-364.	390.

Table M–453. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.

Table M–454. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.

Table M–455. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–456. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

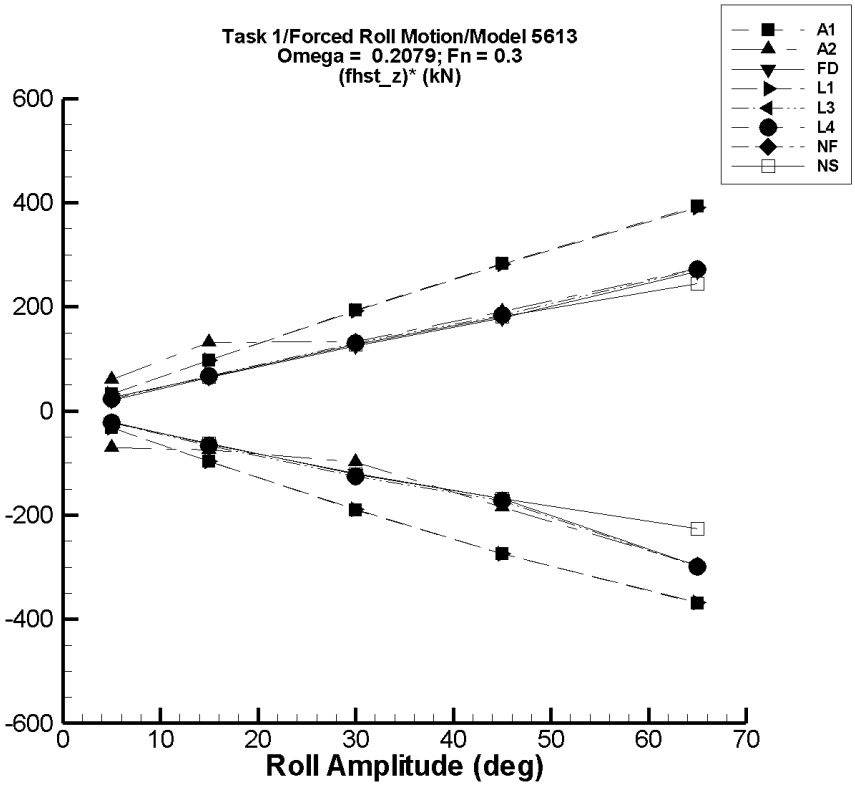

Figure M–58. Minimum and Maximum of $(F_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–457. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.6	32.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.0	97.9
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-190.	193.
45.	7.32E+04	6.07E+04	8.59E+04	6.08E+04	8.59E+04	-275.	284.
65.	6.04E+04	3.63E+04	8.59E+04	3.64E+04	8.59E+04	-369.	393.

Table M–458. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.1	60.7
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.1	132.
30.	8.19E+04	7.90E+04	8.59E+04	7.90E+04	8.59E+04	-98.8	133.
45.	7.73E+04	6.91E+04	8.59E+04	6.90E+04	8.59E+04	-184.	191.
65.	6.81E+04	4.88E+04	8.59E+04	4.89E+04	8.59E+04	-296.	273.

Table M–459. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.2	20.6
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-63.6	64.0
30.	8.15E+04	7.79E+04	8.53E+04	7.79E+04	8.53E+04	-120.	125.
45.	7.73E+04	6.97E+04	8.53E+04	6.97E+04	8.53E+04	-168.	178.
65.	6.79E+04	4.84E+04	8.53E+04	4.85E+04	8.53E+04	-297.	269.

Table M–460. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.5	32.5
15.	8.41E+04	8.26E+04	8.56E+04	8.26E+04	8.56E+04	-96.9	97.2
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-190.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.05E+04	8.55E+04	-274.	282.
65.	6.01E+04	3.61E+04	8.56E+04	3.62E+04	8.55E+04	-369.	391.

Table M–461. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

Table M–462. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.8	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.94E+04	8.55E+04	-173.	184.
65.	6.78E+04	4.83E+04	8.55E+04	4.83E+04	8.55E+04	-300.	272.

Table M–463. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–464. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

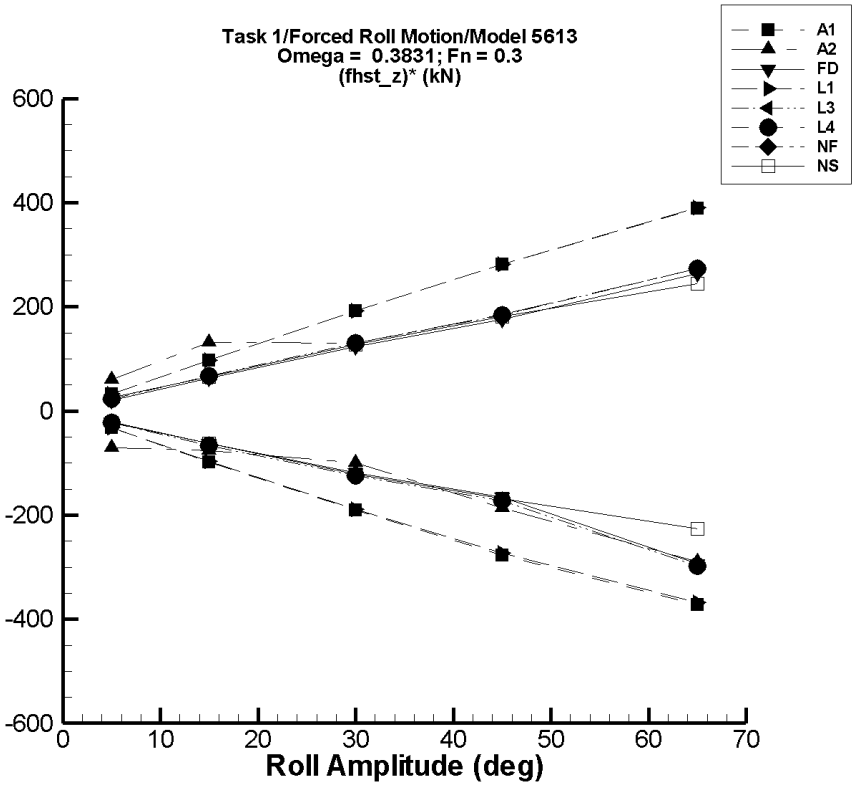

Figure M–59. Minimum and Maximum of $(F_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–465. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-32.8	32.5
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-97.6	97.2
30.	8.01E+04	7.44E+04	8.59E+04	7.44E+04	8.59E+04	-191.	192.
45.	7.32E+04	6.07E+04	8.59E+04	6.07E+04	8.58E+04	-277.	281.
65.	6.04E+04	3.63E+04	8.59E+04	3.62E+04	8.57E+04	-372.	389.

Table M–466. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.52E+04	8.59E+04	-70.5	60.0
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-75.7	132.
30.	8.19E+04	7.89E+04	8.59E+04	7.89E+04	8.58E+04	-99.6	130.
45.	7.73E+04	6.90E+04	8.59E+04	6.89E+04	8.57E+04	-187.	185.
65.	6.79E+04	4.19E+04	8.59E+04	4.91E+04	8.56E+04	-289.	273.

Table M–467. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-21.0	20.5
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.53E+04	-62.9	63.3
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-119.	123.
45.	7.73E+04	6.97E+04	8.53E+04	6.98E+04	8.52E+04	-166.	176.
65.	6.79E+04	4.84E+04	8.53E+04	4.88E+04	8.51E+04	-294.	264.

Table M–468. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.4	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-96.6	97.5
30.	7.98E+04	7.41E+04	8.56E+04	7.41E+04	8.56E+04	-189.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.06E+04	8.56E+04	-274.	282.
65.	6.02E+04	3.61E+04	8.56E+04	3.63E+04	8.56E+04	-368.	391.

Table M–469. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

Table M–470. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.7	23.0
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-66.3	67.3
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-125.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.95E+04	8.55E+04	-173.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.84E+04	8.55E+04	-297.	274.

Table M–471. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–472. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

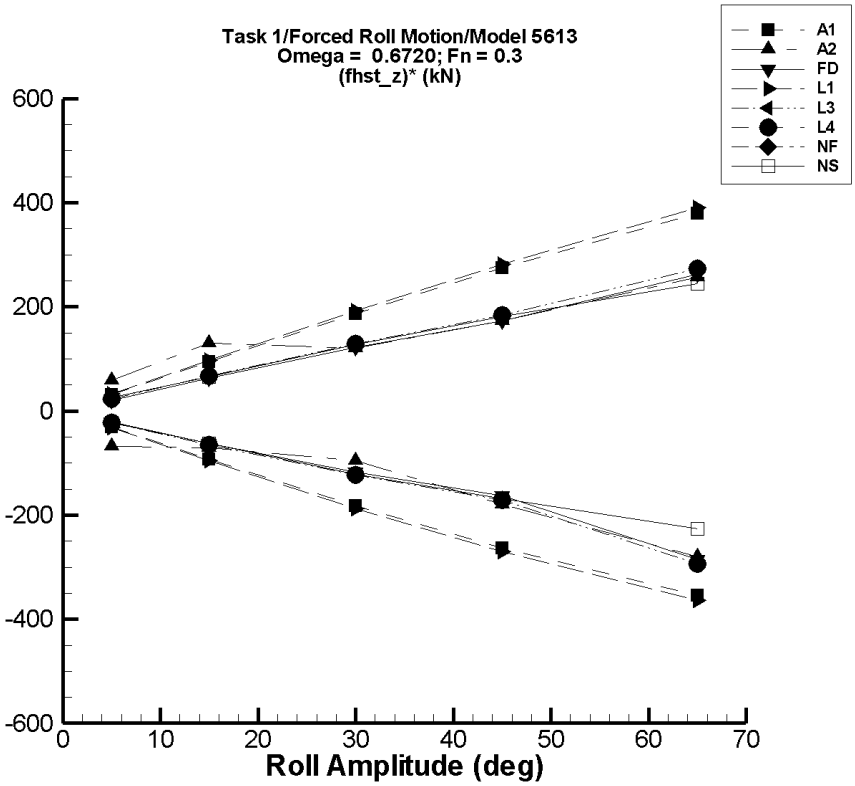

Figure M–60. Minimum and Maximum of $(F_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–473. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-31.2	31.8
15.	8.44E+04	8.30E+04	8.59E+04	8.30E+04	8.59E+04	-92.9	94.8
30.	8.01E+04	7.44E+04	8.59E+04	7.47E+04	8.57E+04	-182.	187.
45.	7.32E+04	6.07E+04	8.59E+04	6.13E+04	8.55E+04	-264.	275.
65.	6.04E+04	3.63E+04	8.59E+04	3.73E+04	8.51E+04	-355.	379.

Table M–474. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.56E+04	8.52E+04	8.59E+04	8.53E+04	8.59E+04	-68.0	59.4
15.	8.39E+04	8.28E+04	8.59E+04	8.28E+04	8.59E+04	-71.3	130.
30.	8.19E+04	7.89E+04	8.59E+04	7.91E+04	8.55E+04	-95.2	120.
45.	7.74E+04	6.88E+04	8.59E+04	6.93E+04	8.52E+04	-180.	173.
65.	6.80E+04	4.87E+04	8.59E+04	4.98E+04	8.48E+04	-280.	258.

Table M–475. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{hst}} \rangle$	**Unfiltered** F_z^{hst}		**Filtered** F_z^{hst}		**Filtered** $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.52E+04	8.51E+04	8.53E+04	8.51E+04	8.53E+04	-20.6	20.3
15.	8.43E+04	8.33E+04	8.53E+04	8.34E+04	8.52E+04	-61.8	62.5
30.	8.15E+04	7.79E+04	8.53E+04	7.80E+04	8.52E+04	-117.	122.
45.	7.73E+04	6.97E+04	8.53E+04	6.99E+04	8.51E+04	-163.	173.
65.	6.78E+04	4.84E+04	8.53E+04	4.93E+04	8.48E+04	-286.	262.

Table M–476. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{hst}} \rangle$	**Unfiltered** F_z^{hst}		**Filtered** F_z^{hst}		**Filtered** $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.54E+04	8.52E+04	8.56E+04	8.52E+04	8.56E+04	-32.0	32.6
15.	8.41E+04	8.26E+04	8.56E+04	8.27E+04	8.56E+04	-95.5	97.3
30.	7.98E+04	7.41E+04	8.56E+04	7.42E+04	8.56E+04	-187.	192.
45.	7.29E+04	6.05E+04	8.56E+04	6.07E+04	8.56E+04	-271.	282.
65.	6.02E+04	3.62E+04	8.56E+04	3.65E+04	8.55E+04	-364.	390.

Table M–477. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.

Table M–478. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.54E+04	8.53E+04	8.55E+04	8.53E+04	8.55E+04	-22.5	22.9
15.	8.45E+04	8.35E+04	8.55E+04	8.35E+04	8.55E+04	-65.6	67.1
30.	8.16E+04	7.79E+04	8.55E+04	7.79E+04	8.55E+04	-124.	130.
45.	7.72E+04	6.94E+04	8.55E+04	6.96E+04	8.55E+04	-171.	184.
65.	6.77E+04	4.83E+04	8.55E+04	4.87E+04	8.55E+04	-293.	273.

Table M–479. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–480. Minimum and Maximum of F_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{hst}} \rangle$	Unfiltered F_z^{hst}		Filtered F_z^{hst}		Filtered $\left(F_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.58E+04	8.56E+04	8.59E+04	8.56E+04	8.59E+04	-23.0	25.6
15.	8.49E+04	8.39E+04	8.59E+04	8.39E+04	8.59E+04	-62.7	65.7
30.	8.20E+04	7.83E+04	8.59E+04	7.84E+04	8.59E+04	-122.	127.
45.	7.77E+04	7.01E+04	8.59E+04	7.01E+04	8.59E+04	-169.	181.
65.	6.99E+04	5.52E+04	8.59E+04	5.53E+04	8.59E+04	-226.	245.

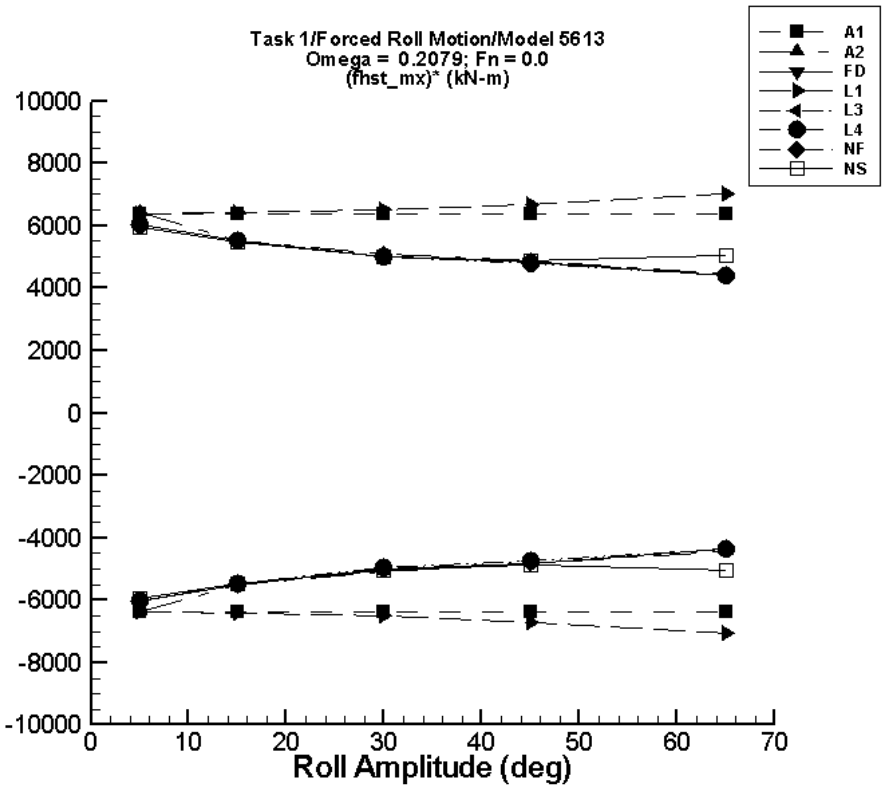

Figure M–61. Minimum and Maximum of $(M_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–481. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.05E-02	-3.19E+04	3.19E+04	-3.19E+04	3.19E+04	-6.38E+03	6.38E+03
15.	6.81E-02	-9.57E+04	9.57E+04	-9.57E+04	9.56E+04	-6.38E+03	6.37E+03
30.	0.125	-1.91E+05	1.91E+05	-1.91E+05	1.91E+05	-6.38E+03	6.37E+03
45.	0.216	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-6.38E+03	6.37E+03
65.	0.325	-4.15E+05	4.15E+05	-4.15E+05	4.14E+05	-6.38E+03	6.37E+03

Table M–482. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-58.3	-3.20E+04	3.20E+04	-3.20E+04	3.20E+04	-6.39E+03	6.41E+03
15.	-118.	-8.27E+04	8.27E+04	-8.27E+04	8.26E+04	-5.51E+03	5.52E+03
30.	-177.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.10E+03	5.11E+03
45.	-278.	-2.18E+05	2.18E+05	-2.18E+05	2.18E+05	-4.84E+03	4.85E+03
65.	-576.	-2.87E+05	2.87E+05	-2.88E+05	2.87E+05	-4.42E+03	4.43E+03

Table M–483. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.78	-3.02E+04	3.02E+04	-3.01E+04	3.01E+04	-6.02E+03	6.03E+03
15.	-65.6	-8.27E+04	8.27E+04	-8.27E+04	8.27E+04	-5.51E+03	5.52E+03
30.	-194.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-5.00E+03	5.01E+03
45.	-277.	-2.17E+05	2.17E+05	-2.17E+05	2.17E+05	-4.81E+03	4.83E+03
65.	-498.	-2.84E+05	2.84E+05	-2.85E+05	2.84E+05	-4.37E+03	4.38E+03

Table M–484. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.315	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.37E+03	6.37E+03
15.	8.48	-9.60E+04	9.60E+04	-9.60E+04	9.60E+04	-6.40E+03	6.40E+03
30.	68.1	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.51E+03
45.	226.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.70E+03	6.69E+03
65.	655.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.02E+03

Table M–485. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

Table M–486. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

Table M–487. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–488. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.94E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-4.71E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	-5.91E-03	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.42	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	-326.	-3.29E+05	3.27E+05	-3.28E+05	3.26E+05	-5.05E+03	5.03E+03

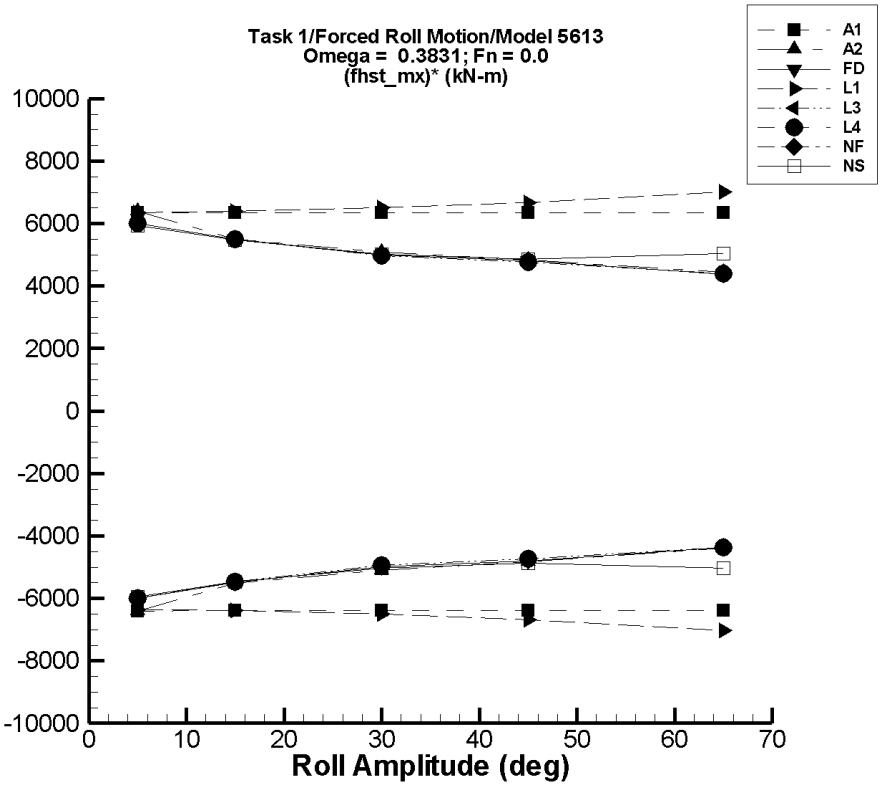

Figure M–62. Minimum and Maximum of $(M_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–489. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-3.92E-03	-3.19E+04	3.19E+04	-3.20E+04	3.18E+04	-6.40E+03	6.36E+03
15.	-1.96E-04	-9.57E+04	9.57E+04	-9.60E+04	9.53E+04	-6.40E+03	6.36E+03
30.	-1.06E-03	-1.91E+05	1.91E+05	-1.92E+05	1.91E+05	-6.40E+03	6.36E+03
45.	-2.55E-02	-2.87E+05	2.87E+05	-2.88E+05	2.86E+05	-6.40E+03	6.36E+03
65.	-8.65E-03	-4.15E+05	4.15E+05	-4.16E+05	4.13E+05	-6.40E+03	6.36E+03

Table M–490. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-54.6	-3.20E+04	3.20E+04	-3.21E+04	3.19E+04	-6.40E+03	6.39E+03
15.	-112.	-8.27E+04	8.27E+04	-8.29E+04	8.25E+04	-5.52E+03	5.51E+03
30.	-158.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.11E+03	5.09E+03
45.	-249.	-2.18E+05	2.18E+05	-2.18E+05	2.17E+05	-4.83E+03	4.82E+03
65.	-1.42E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.40E+03	4.44E+03

Table M–491. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-7.40	-3.02E+04	3.02E+04	-3.00E+04	3.00E+04	-6.01E+03	6.01E+03
15.	-60.4	-8.27E+04	8.27E+04	-8.25E+04	8.25E+04	-5.49E+03	5.50E+03
30.	-176.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-4.99E+03	5.00E+03
45.	-227.	-2.17E+05	2.17E+05	-2.16E+05	2.16E+05	-4.80E+03	4.81E+03
65.	-536.	-2.84E+05	2.84E+05	-2.84E+05	2.84E+05	-4.37E+03	4.38E+03

Table M–492. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	0.317	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.36E+03	6.36E+03
15.	11.6	-9.60E+04	9.60E+04	-9.59E+04	9.59E+04	-6.39E+03	6.39E+03
30.	93.4	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.50E+03
45.	309.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.69E+03	6.68E+03
65.	896.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.01E+03

Table M–493. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

Table M–494. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

Table M–495. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–496. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	1.43E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-2.51E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	6.98E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	216.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

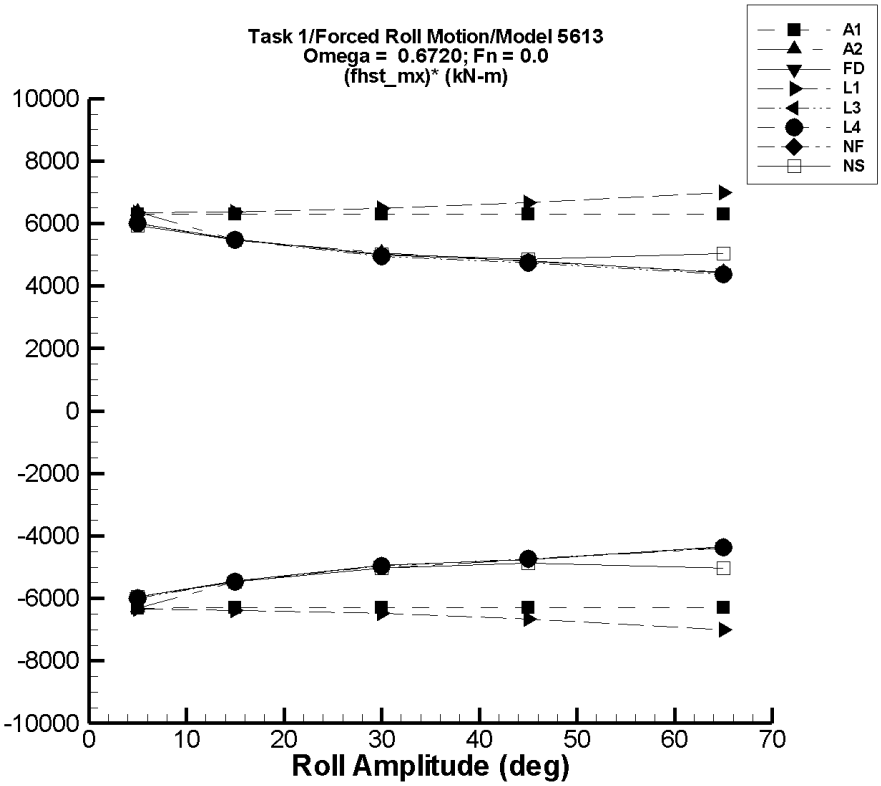

Figure M–63. Minimum and Maximum of $(M_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–497. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.88E-02	-3.19E+04	3.19E+04	-3.15E+04	3.15E+04	-6.31E+03	6.31E+03
15.	9.24E-02	-9.56E+04	9.57E+04	-9.46E+04	9.46E+04	-6.30E+03	6.31E+03
30.	0.194	-1.91E+05	1.91E+05	-1.89E+05	1.89E+05	-6.30E+03	6.31E+03
45.	0.299	-2.87E+05	2.87E+05	-2.84E+05	2.84E+05	-6.30E+03	6.31E+03
65.	0.420	-4.14E+05	4.15E+05	-4.10E+05	4.10E+05	-6.30E+03	6.31E+03

Table M–498. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-110.	-3.20E+04	3.20E+04	-3.17E+04	3.17E+04	-6.32E+03	6.37E+03
15.	-153.	-8.26E+04	8.27E+04	-8.21E+04	8.21E+04	-5.46E+03	5.48E+03
30.	-321.	-1.53E+05	1.53E+05	-1.52E+05	1.52E+05	-5.04E+03	5.06E+03
45.	-545.	-2.18E+05	2.18E+05	-2.15E+05	2.15E+05	-4.77E+03	4.79E+03
65.	-1.77E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.38E+03	4.45E+03

Table M–499. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-18.4	-3.02E+04	3.02E+04	-2.98E+04	3.00E+04	-5.96E+03	6.01E+03
15.	-150.	-8.27E+04	8.27E+04	-8.19E+04	8.24E+04	-5.45E+03	5.50E+03
30.	-426.	-1.50E+05	1.50E+05	-1.49E+05	1.50E+05	-4.94E+03	5.01E+03
45.	-537.	-2.17E+05	2.17E+05	-2.15E+05	2.16E+05	-4.76E+03	4.81E+03
65.	-1.22E+03	-2.84E+05	2.84E+05	-2.84E+05	2.85E+05	-4.35E+03	4.41E+03

Table M–500. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.471	-3.18E+04	3.18E+04	-3.17E+04	3.17E+04	-6.34E+03	6.34E+03
15.	-1.67	-9.60E+04	9.60E+04	-9.56E+04	9.56E+04	-6.38E+03	6.37E+03
30.	-4.43	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.49E+03	6.49E+03
45.	-8.80	-3.01E+05	3.01E+05	-3.00E+05	3.00E+05	-6.67E+03	6.67E+03
65.	-16.0	-4.57E+05	4.57E+05	-4.55E+05	4.55E+05	-7.00E+03	7.00E+03

Table M–501. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

Table M–502. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

Table M–503. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–504. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.82E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	6.76E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	8.06E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	218.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

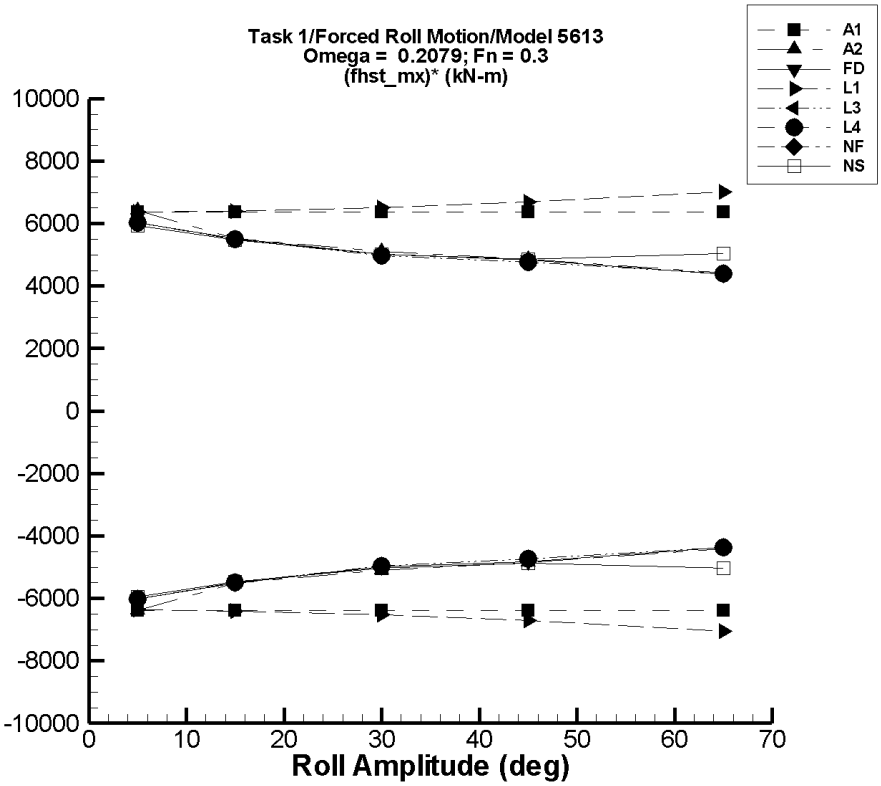

Figure M–64. Minimum and Maximum of $(M_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–505. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.05E-02	-3.19E+04	3.19E+04	-3.19E+04	3.19E+04	-6.38E+03	6.38E+03
15.	6.81E-02	-9.57E+04	9.57E+04	-9.57E+04	9.56E+04	-6.38E+03	6.37E+03
30.	0.125	-1.91E+05	1.91E+05	-1.91E+05	1.91E+05	-6.38E+03	6.37E+03
45.	0.216	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-6.38E+03	6.37E+03
65.	0.325	-4.15E+05	4.15E+05	-4.15E+05	4.14E+05	-6.38E+03	6.37E+03

Table M–506. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-60.4	-3.20E+04	3.20E+04	-3.20E+04	3.20E+04	-6.39E+03	6.41E+03
15.	-118.	-8.27E+04	8.27E+04	-8.27E+04	8.26E+04	-5.51E+03	5.52E+03
30.	-177.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.10E+03	5.11E+03
45.	-278.	-2.18E+05	2.18E+05	-2.18E+05	2.18E+05	-4.84E+03	4.85E+03
65.	-576.	-2.87E+05	2.87E+05	-2.88E+05	2.87E+05	-4.42E+03	4.43E+03

Table M–507. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.78	-3.02E+04	3.02E+04	-3.01E+04	3.01E+04	-6.02E+03	6.03E+03
15.	-65.6	-8.27E+04	8.27E+04	-8.27E+04	8.27E+04	-5.51E+03	5.52E+03
30.	-194.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-5.00E+03	5.01E+03
45.	-277.	-2.17E+05	2.17E+05	-2.17E+05	2.17E+05	-4.81E+03	4.83E+03
65.	-498.	-2.84E+05	2.84E+05	-2.85E+05	2.84E+05	-4.37E+03	4.38E+03

Table M–508. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.315	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.37E+03	6.37E+03
15.	8.48	-9.60E+04	9.60E+04	-9.60E+04	9.60E+04	-6.40E+03	6.40E+03
30.	68.1	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.51E+03
45.	226.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.70E+03	6.69E+03
65.	655.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.02E+03

Table M–509. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

Table M–510. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-18.4	-3.01E+04	3.01E+04	-3.01E+04	3.01E+04	-6.01E+03	6.02E+03
15.	-125.	-8.24E+04	8.24E+04	-8.24E+04	8.24E+04	-5.48E+03	5.50E+03
30.	-358.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.96E+03	4.98E+03
45.	-501.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-774.	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.37E+03	4.39E+03

Table M–511. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–512. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $M_{\boldsymbol{x}}^{\text{hst}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.94E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-4.71E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	-5.91E-03	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.42	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	219.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

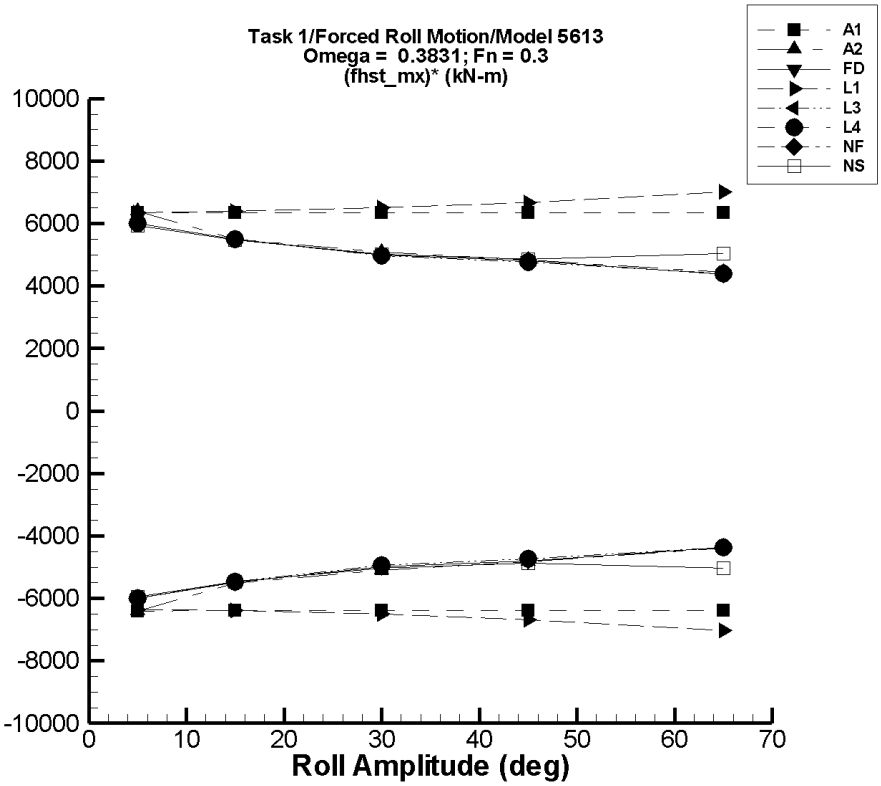

Figure M–65. Minimum and Maximum of $(M_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–513. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-3.92E-03	-3.19E+04	3.19E+04	-3.20E+04	3.18E+04	-6.40E+03	6.36E+03
15.	-1.96E-04	-9.57E+04	9.57E+04	-9.60E+04	9.53E+04	-6.40E+03	6.36E+03
30.	-1.06E-03	-1.91E+05	1.91E+05	-1.92E+05	1.91E+05	-6.40E+03	6.36E+03
45.	-2.55E-02	-2.87E+05	2.87E+05	-2.88E+05	2.86E+05	-6.40E+03	6.36E+03
65.	-8.65E-03	-4.15E+05	4.15E+05	-4.16E+05	4.13E+05	-6.40E+03	6.36E+03

Table M–514. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-54.6	-3.20E+04	3.20E+04	-3.21E+04	3.19E+04	-6.40E+03	6.39E+03
15.	-112.	-8.27E+04	8.27E+04	-8.29E+04	8.25E+04	-5.52E+03	5.51E+03
30.	-158.	-1.53E+05	1.53E+05	-1.53E+05	1.53E+05	-5.11E+03	5.09E+03
45.	-249.	-2.18E+05	2.18E+05	-2.18E+05	2.17E+05	-4.83E+03	4.82E+03
65.	-1.42E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.40E+03	4.44E+03

Table M–515. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-7.40	-3.02E+04	3.02E+04	-3.00E+04	3.00E+04	-6.01E+03	6.01E+03
15.	-60.4	-8.27E+04	8.27E+04	-8.25E+04	8.25E+04	-5.49E+03	5.50E+03
30.	-176.	-1.50E+05	1.50E+05	-1.50E+05	1.50E+05	-4.99E+03	5.00E+03
45.	-227.	-2.17E+05	2.17E+05	-2.16E+05	2.16E+05	-4.80E+03	4.81E+03
65.	-536.	-2.84E+05	2.84E+05	-2.84E+05	2.84E+05	-4.37E+03	4.38E+03

Table M–516. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.317	-3.18E+04	3.18E+04	-3.18E+04	3.18E+04	-6.36E+03	6.36E+03
15.	11.6	-9.60E+04	9.60E+04	-9.59E+04	9.59E+04	-6.39E+03	6.39E+03
30.	93.4	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.51E+03	6.50E+03
45.	309.	-3.01E+05	3.01E+05	-3.01E+05	3.01E+05	-6.69E+03	6.68E+03
65.	896.	-4.57E+05	4.57E+05	-4.57E+05	4.57E+05	-7.04E+03	7.01E+03

Table M–517. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

Table M–518. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-24.7	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-6.00E+03	6.01E+03
15.	-166.	-8.24E+04	8.24E+04	-8.23E+04	8.23E+04	-5.48E+03	5.50E+03
30.	-475.	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.98E+03
45.	-633.	-2.14E+05	2.14E+05	-2.14E+05	2.14E+05	-4.74E+03	4.77E+03
65.	-1.19E+03	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.36E+03	4.40E+03

Table M–519. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–520. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{hst}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{hst}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	1.43E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	-2.51E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	6.98E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	216.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

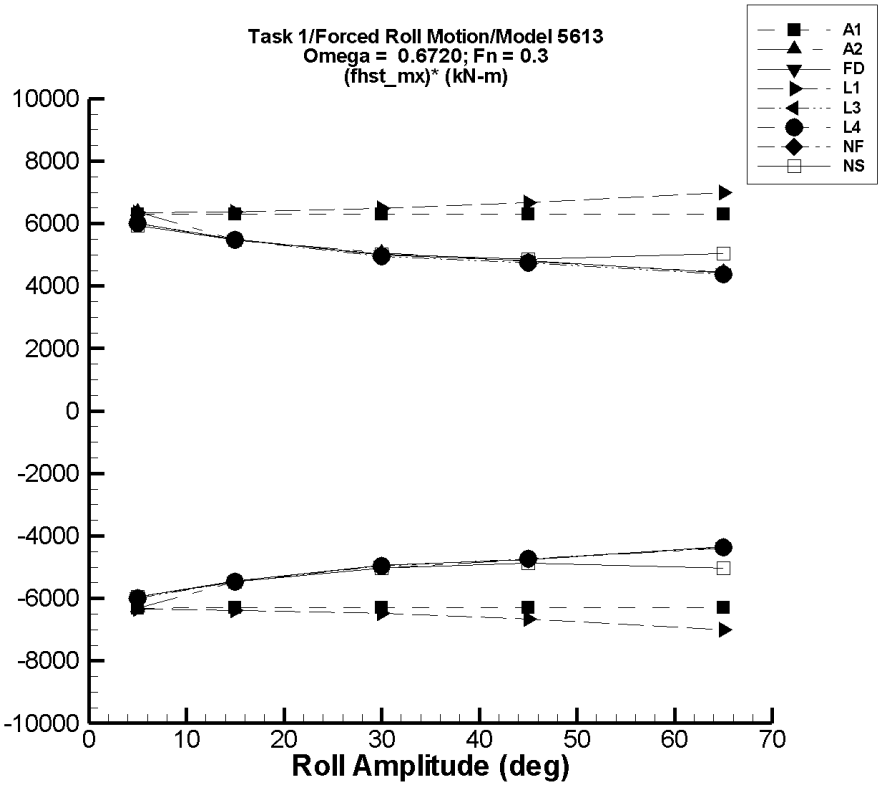

Figure M–66. Minimum and Maximum of $(M_x^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–521. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.88E-02	-3.19E+04	3.19E+04	-3.15E+04	3.15E+04	-6.31E+03	6.31E+03
15.	9.24E-02	-9.56E+04	9.57E+04	-9.46E+04	9.46E+04	-6.30E+03	6.31E+03
30.	0.194	-1.91E+05	1.91E+05	-1.89E+05	1.89E+05	-6.30E+03	6.31E+03
45.	0.299	-2.87E+05	2.87E+05	-2.84E+05	2.84E+05	-6.30E+03	6.31E+03
65.	0.420	-4.14E+05	4.15E+05	-4.10E+05	4.10E+05	-6.30E+03	6.31E+03

Table M–522. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-110.	-3.20E+04	3.20E+04	-3.17E+04	3.17E+04	-6.32E+03	6.37E+03
15.	-153.	-8.26E+04	8.27E+04	-8.21E+04	8.21E+04	-5.46E+03	5.48E+03
30.	-321.	-1.53E+05	1.53E+05	-1.52E+05	1.52E+05	-5.04E+03	5.06E+03
45.	-545.	-2.18E+05	2.18E+05	-2.15E+05	2.15E+05	-4.77E+03	4.79E+03
65.	-1.77E+03	-2.87E+05	2.87E+05	-2.87E+05	2.87E+05	-4.38E+03	4.45E+03

Table M–523. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-18.4	-3.02E+04	3.02E+04	-2.98E+04	3.00E+04	-5.96E+03	6.01E+03
15.	-150.	-8.27E+04	8.27E+04	-8.19E+04	8.24E+04	-5.45E+03	5.50E+03
30.	-426.	-1.50E+05	1.50E+05	-1.49E+05	1.50E+05	-4.94E+03	5.01E+03
45.	-537.	-2.17E+05	2.17E+05	-2.15E+05	2.16E+05	-4.76E+03	4.81E+03
65.	-1.22E+03	-2.84E+05	2.84E+05	-2.84E+05	2.85E+05	-4.35E+03	4.41E+03

Table M–524. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.471	-3.18E+04	3.18E+04	-3.17E+04	3.17E+04	-6.34E+03	6.34E+03
15.	-1.67	-9.60E+04	9.60E+04	-9.56E+04	9.56E+04	-6.38E+03	6.37E+03
30.	-4.43	-1.95E+05	1.95E+05	-1.95E+05	1.95E+05	-6.49E+03	6.49E+03
45.	-8.80	-3.01E+05	3.01E+05	-3.00E+05	3.00E+05	-6.67E+03	6.67E+03
65.	-16.0	-4.57E+05	4.57E+05	-4.55E+05	4.55E+05	-7.00E+03	7.00E+03

Table M–525. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

Table M–526. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-2.28	-3.01E+04	3.01E+04	-3.00E+04	3.00E+04	-5.99E+03	5.99E+03
15.	-16.7	-8.24E+04	8.24E+04	-8.21E+04	8.21E+04	-5.47E+03	5.48E+03
30.	-56.6	-1.49E+05	1.49E+05	-1.49E+05	1.49E+05	-4.95E+03	4.96E+03
45.	-140.	-2.14E+05	2.14E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	-76.4	-2.85E+05	2.85E+05	-2.85E+05	2.85E+05	-4.38E+03	4.38E+03

Table M–527. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–528. Minimum and Maximum of M_x^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_x^{\text{hst}} \rangle$	Unfiltered M_x^{hst}		Filtered M_x^{hst}		Filtered $\left(M_x^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	6.82E-03	-3.00E+04	3.00E+04	-2.97E+04	2.97E+04	-5.95E+03	5.95E+03
15.	6.76E-03	-8.29E+04	8.29E+04	-8.22E+04	8.22E+04	-5.48E+03	5.48E+03
30.	8.06E-04	-1.51E+05	1.51E+05	-1.51E+05	1.51E+05	-5.02E+03	5.02E+03
45.	1.39	-2.19E+05	2.19E+05	-2.19E+05	2.19E+05	-4.86E+03	4.86E+03
65.	218.	-3.27E+05	3.28E+05	-3.26E+05	3.28E+05	-5.02E+03	5.04E+03

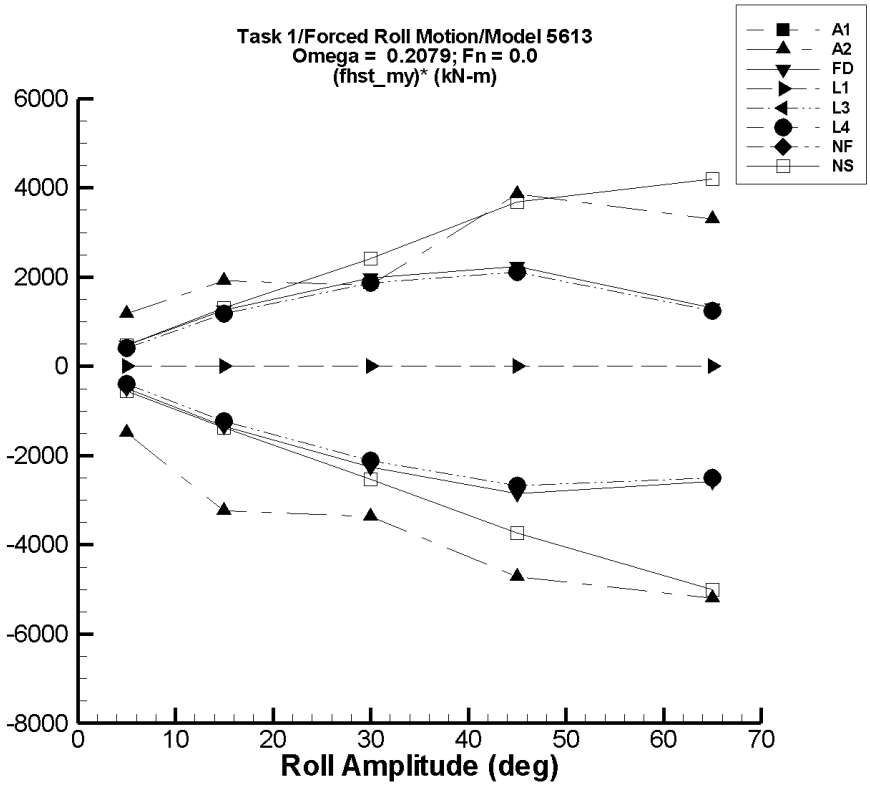

Figure M–67. Minimum and Maximum of $(M_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–529. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–530. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	7.33E+03	-38.2	1.33E+04	-66.2	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-38.0	7.75E+04	-133.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-38.0	1.56E+05	428.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-32.1	3.87E+05	448.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	8.57	5.53E+05	340.	5.53E+05	-5.20E+03	3.30E+03

Table M–531. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.62E+03	4.16E+03	8.99E+03	4.17E+03	8.98E+03	-490.	472.
15.	2.43E+04	4.16E+03	4.32E+04	4.15E+03	4.31E+04	-1.34E+03	1.26E+03
30.	7.20E+04	4.17E+03	1.32E+05	4.12E+03	1.32E+05	-2.26E+03	1.98E+03
45.	1.32E+05	4.18E+03	2.33E+05	4.16E+03	2.33E+05	-2.85E+03	2.24E+03
65.	1.73E+05	4.18E+03	2.59E+05	4.81E+03	2.58E+05	-2.58E+03	1.31E+03

Table M–532. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.12E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-3.00E-06	-5.60E-03	5.60E-03	-5.60E-03	5.60E-03	-3.73E-04	3.73E-04
30.	-2.35E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.35E-04
45.	-7.65E-05	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.72E-04	2.75E-04
65.	-2.16E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.88E-04	1.94E-04

Table M–533. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	414.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.25E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

Table M–534. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	414.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.25E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

Table M–535. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–536. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	830.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-220.	5.99E+05	826.	5.98E+05	-5.00E+03	4.20E+03

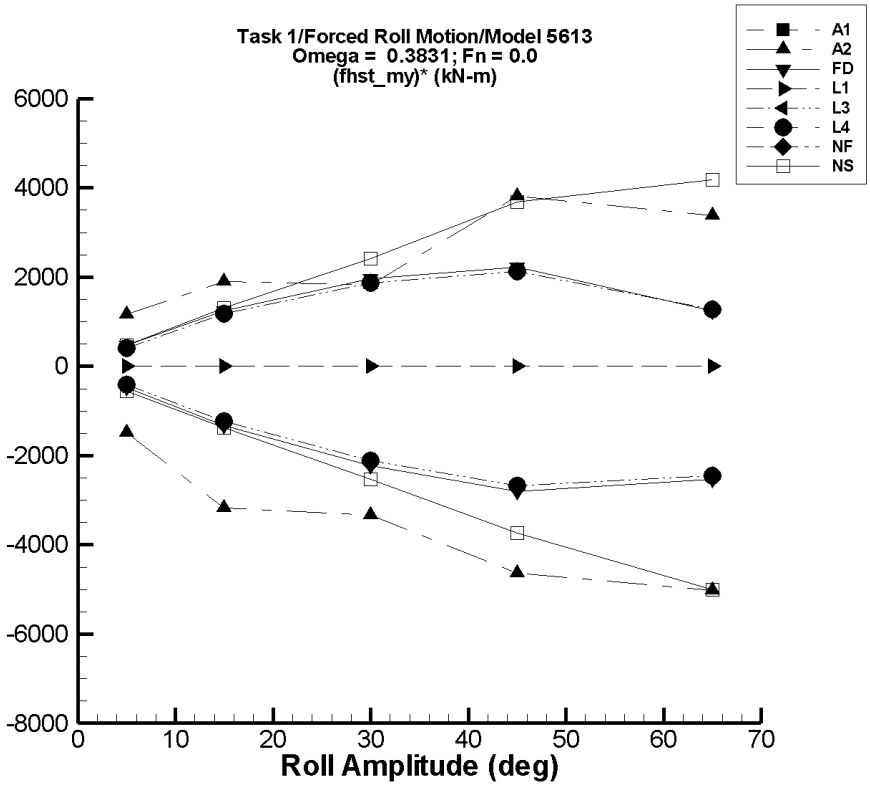

Figure M–68. Minimum and Maximum of $(M_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–537. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–538. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.3	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-38.1	7.75E+04	642.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-38.0	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-37.9	3.86E+05	4.08E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.83E+03	5.54E+05	-5.02E+03	3.38E+03

Table M–539. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.62E+03	4.16E+03	8.99E+03	4.22E+03	8.96E+03	-481.	467.
15.	2.43E+04	4.18E+03	4.32E+04	4.45E+03	4.29E+04	-1.32E+03	1.24E+03
30.	7.21E+04	4.20E+03	1.32E+05	5.18E+03	1.31E+05	-2.23E+03	1.96E+03
45.	1.32E+05	4.22E+03	2.33E+05	6.44E+03	2.32E+05	-2.80E+03	2.22E+03
65.	1.74E+05	4.26E+03	2.59E+05	8.90E+03	2.55E+05	-2.54E+03	1.25E+03

Table M–540. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.61E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-4.13E-06	-5.60E-03	5.60E-03	-5.59E-03	5.59E-03	-3.73E-04	3.73E-04
30.	-3.22E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.33E-04	3.35E-04
45.	-1.05E-04	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.71E-04	2.76E-04
65.	-2.94E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.86E-04	1.95E-04

Table M–541. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03

Table M–542. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03

Table M–543. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–544. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	658.	5.97E+05	-5.00E+03	4.17E+03

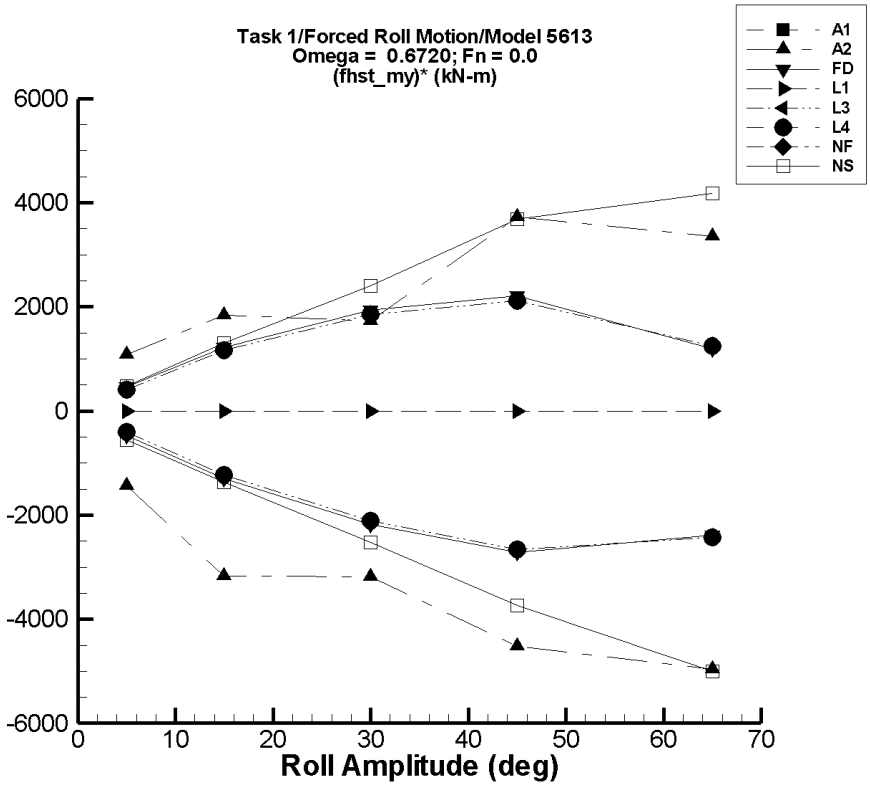

Figure M–69. Minimum and Maximum of $(M_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–545. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–546. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	7.33E+03	-38.2	1.33E+04	120.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-37.9	7.75E+04	1.03E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-36.9	1.56E+05	6.12E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-20.2	3.86E+05	9.39E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	75.6	5.53E+05	1.35E+04	5.54E+05	-4.96E+03	3.35E+03

Table M–547. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.62E+03	4.16E+03	8.99E+03	4.25E+03	8.92E+03	-473.	459.
15.	2.42E+04	4.16E+03	4.32E+04	4.74E+03	4.26E+04	-1.30E+03	1.23E+03
30.	7.19E+04	4.16E+03	1.32E+05	6.45E+03	1.30E+05	-2.18E+03	1.94E+03
45.	1.32E+05	4.16E+03	2.33E+05	9.39E+03	2.32E+05	-2.72E+03	2.22E+03
65.	1.71E+05	4.16E+03	2.59E+05	1.57E+04	2.49E+05	-2.39E+03	1.19E+03

Table M–548. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-2.60E-08	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.84E-04	3.83E-04
15.	-2.11E-08	-5.60E-03	5.60E-03	-5.58E-03	5.58E-03	-3.72E-04	3.72E-04
30.	2.99E-07	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.34E-04
45.	9.67E-07	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.73E-04	2.73E-04
65.	1.23E-06	-1.24E-02	1.24E-02	-1.23E-02	1.23E-02	-1.90E-04	1.90E-04

Table M–549. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

Table M–550. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

Table M–551. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–552. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	659.	5.97E+05	-5.00E+03	4.18E+03

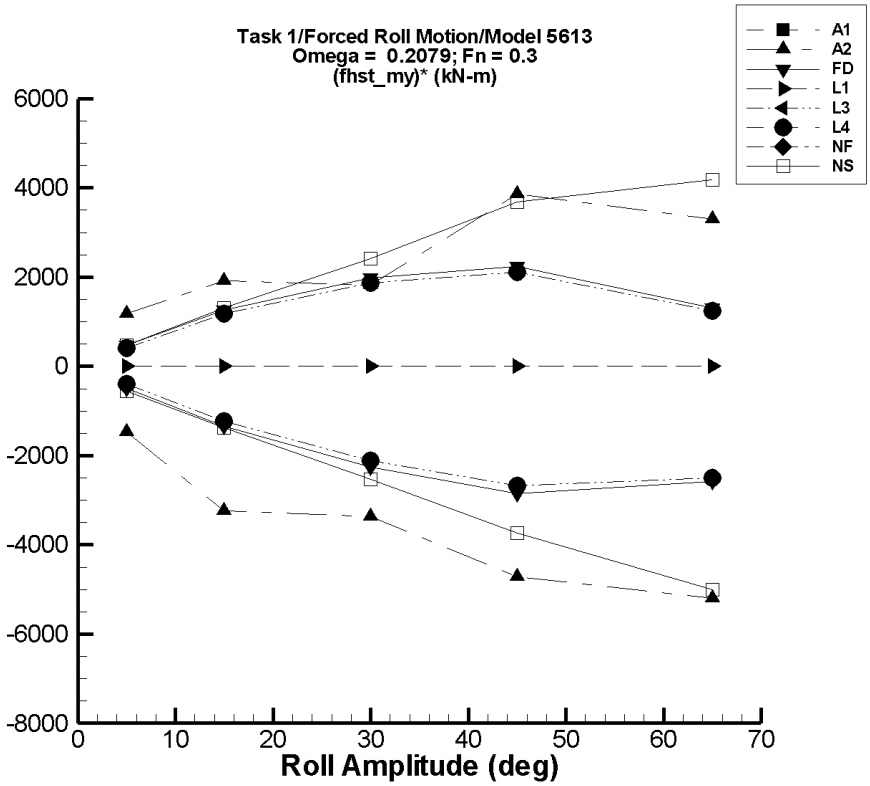

Figure M–70. Minimum and Maximum of $(M_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–553. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–554. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	7.33E+03	-38.2	1.33E+04	-69.8	1.32E+04	-1.48E+03	1.18E+03
15.	4.84E+04	-38.0	7.75E+04	-133.	7.71E+04	-3.24E+03	1.91E+03
30.	1.01E+05	-38.0	1.56E+05	428.	1.56E+05	-3.36E+03	1.81E+03
45.	2.13E+05	-32.1	3.87E+05	448.	3.86E+05	-4.71E+03	3.86E+03
65.	3.39E+05	8.57	5.53E+05	340.	5.53E+05	-5.20E+03	3.30E+03

Table M–555. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.62E+03	4.16E+03	8.99E+03	4.17E+03	8.98E+03	-490.	472.
15.	2.43E+04	4.16E+03	4.32E+04	4.15E+03	4.31E+04	-1.34E+03	1.26E+03
30.	7.20E+04	4.17E+03	1.32E+05	4.12E+03	1.32E+05	-2.26E+03	1.98E+03
45.	1.32E+05	4.18E+03	2.33E+05	4.16E+03	2.33E+05	-2.85E+03	2.24E+03
65.	1.73E+05	4.18E+03	2.59E+05	4.81E+03	2.58E+05	-2.58E+03	1.31E+03

Table M–556. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.12E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-3.00E-06	-5.60E-03	5.60E-03	-5.60E-03	5.60E-03	-3.73E-04	3.73E-04
30.	-2.35E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.35E-04
45.	-7.65E-05	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.72E-04	2.75E-04
65.	-2.16E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.88E-04	1.94E-04

Table M–557. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	415.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.26E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

Table M–558. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	674.	-1.34E+03	2.75E+03	-1.34E+03	2.75E+03	-402.	415.
15.	1.72E+04	-1.34E+03	3.49E+04	-1.32E+03	3.49E+04	-1.23E+03	1.18E+03
30.	6.24E+04	-1.34E+03	1.19E+05	-1.26E+03	1.19E+05	-2.12E+03	1.87E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.14E+03	2.15E+05	-2.68E+03	2.11E+03
65.	1.62E+05	-1.34E+03	2.43E+05	-912.	2.42E+05	-2.50E+03	1.24E+03

Table M–559. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–560. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	830.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	660.	5.97E+05	-5.00E+03	4.18E+03

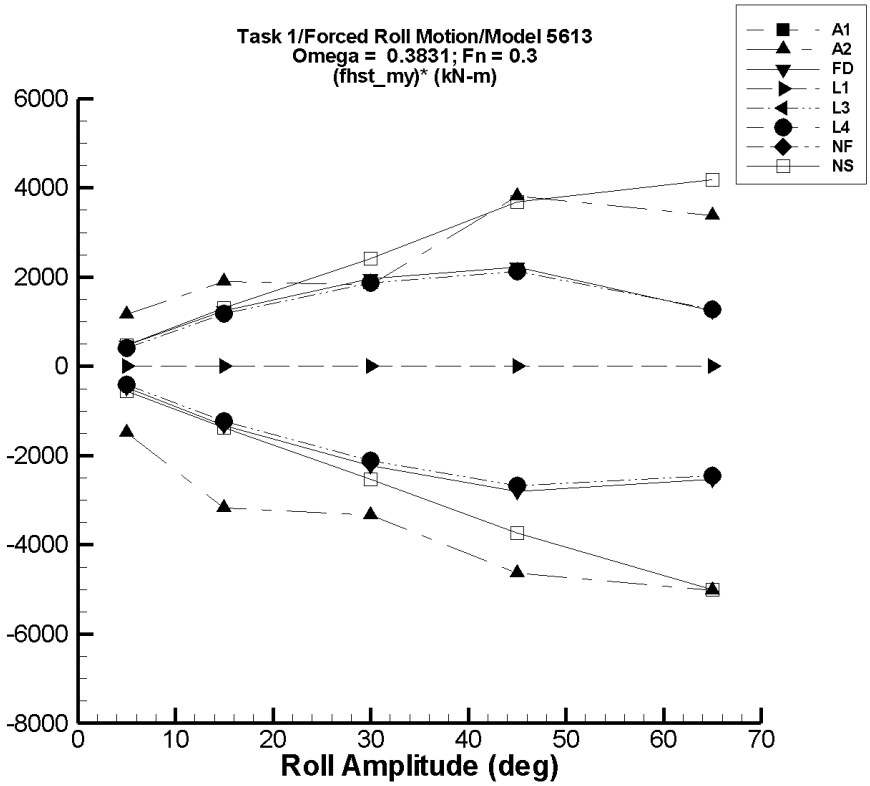

Figure M–71. Minimum and Maximum of $(M_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–561. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–562. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.33E+03	-38.3	1.33E+04	-110.	1.32E+04	-1.49E+03	1.17E+03
15.	4.84E+04	-38.1	7.75E+04	642.	7.68E+04	-3.18E+03	1.90E+03
30.	1.01E+05	-38.0	1.56E+05	1.19E+03	1.56E+05	-3.33E+03	1.83E+03
45.	2.13E+05	-37.9	3.86E+05	4.08E+03	3.84E+05	-4.63E+03	3.81E+03
65.	3.34E+05	-2.11E+05	5.53E+05	7.83E+03	5.54E+05	-5.02E+03	3.38E+03

Table M–563. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.62E+03	4.16E+03	8.99E+03	4.22E+03	8.96E+03	-481.	467.
15.	2.43E+04	4.18E+03	4.32E+04	4.45E+03	4.29E+04	-1.32E+03	1.24E+03
30.	7.21E+04	4.20E+03	1.32E+05	5.18E+03	1.31E+05	-2.23E+03	1.96E+03
45.	1.32E+05	4.22E+03	2.33E+05	6.44E+03	2.32E+05	-2.80E+03	2.22E+03
65.	1.74E+05	4.26E+03	2.59E+05	8.90E+03	2.55E+05	-2.54E+03	1.25E+03

Table M–564. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.61E-07	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.85E-04	3.85E-04
15.	-4.13E-06	-5.60E-03	5.60E-03	-5.59E-03	5.59E-03	-3.73E-04	3.73E-04
30.	-3.22E-05	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.33E-04	3.35E-04
45.	-1.05E-04	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.71E-04	2.76E-04
65.	-2.94E-04	-1.24E-02	1.24E-02	-1.24E-02	1.24E-02	-1.86E-04	1.95E-04

Table M–565. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03

Table M–566. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	676.	-1.34E+03	2.75E+03	-1.34E+03	2.74E+03	-403.	412.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.37E+03	3.48E+04	-1.23E+03	1.18E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.42E+03	1.18E+05	-2.12E+03	1.88E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-1.43E+03	2.14E+05	-2.67E+03	2.13E+03
65.	1.58E+05	-1.34E+03	2.43E+05	-1.14E+03	2.42E+05	-2.45E+03	1.28E+03

Table M–567. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–568. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	658.	5.97E+05	-5.00E+03	4.17E+03

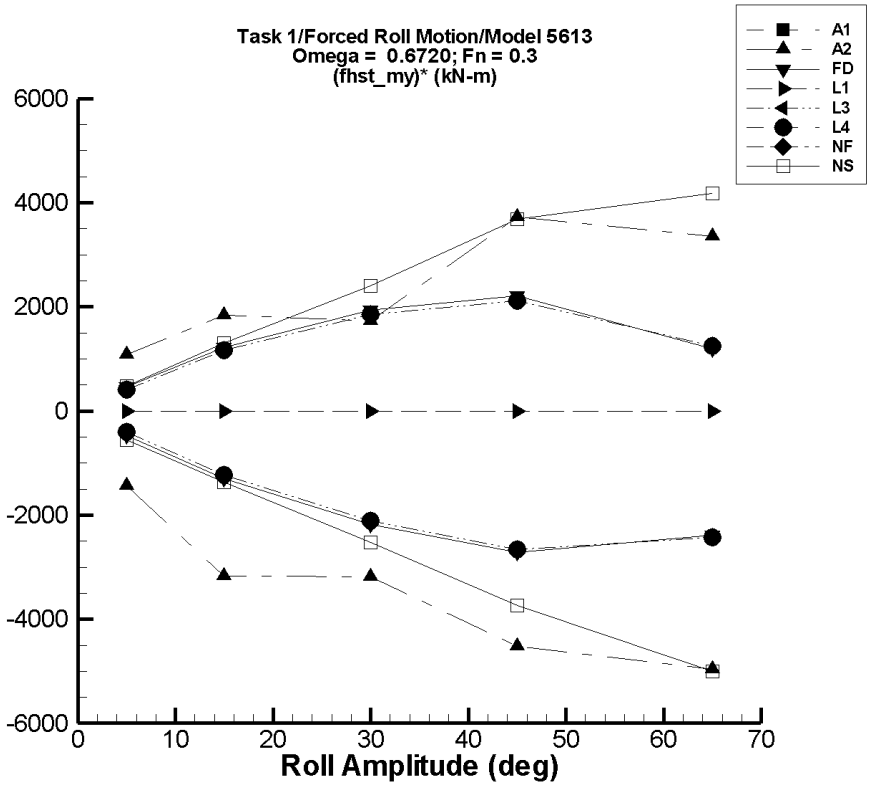

Figure M–72. Minimum and Maximum of $(M_y^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–569. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–570. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	7.33E+03	-38.2	1.33E+04	120.	1.28E+04	-1.44E+03	1.09E+03
15.	4.87E+04	-37.9	7.75E+04	1.03E+03	7.64E+04	-3.18E+03	1.85E+03
30.	1.02E+05	-36.9	1.56E+05	6.12E+03	1.54E+05	-3.19E+03	1.73E+03
45.	2.13E+05	-20.2	3.86E+05	9.39E+03	3.81E+05	-4.53E+03	3.73E+03
65.	3.36E+05	75.6	5.53E+05	1.35E+04	5.54E+05	-4.96E+03	3.35E+03

Table M–571. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.62E+03	4.16E+03	8.99E+03	4.25E+03	8.92E+03	-473.	459.
15.	2.42E+04	4.16E+03	4.32E+04	4.74E+03	4.26E+04	-1.30E+03	1.23E+03
30.	7.19E+04	4.16E+03	1.32E+05	6.45E+03	1.30E+05	-2.18E+03	1.94E+03
45.	1.32E+05	4.16E+03	2.33E+05	9.39E+03	2.32E+05	-2.72E+03	2.22E+03
65.	1.71E+05	4.16E+03	2.59E+05	1.57E+04	2.49E+05	-2.39E+03	1.19E+03

Table M–572. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{hst}} \rangle$	**Unfiltered** M_y^{hst}		**Filtered** M_y^{hst}		**Filtered** $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-2.60E-08	-1.93E-03	1.93E-03	-1.92E-03	1.92E-03	-3.84E-04	3.83E-04
15.	-2.11E-08	-5.60E-03	5.60E-03	-5.58E-03	5.58E-03	-3.72E-04	3.72E-04
30.	2.99E-07	-1.00E-02	1.00E-02	-1.00E-02	1.00E-02	-3.34E-04	3.34E-04
45.	9.67E-07	-1.23E-02	1.23E-02	-1.23E-02	1.23E-02	-2.73E-04	2.73E-04
65.	1.23E-06	-1.24E-02	1.24E-02	-1.23E-02	1.23E-02	-1.90E-04	1.90E-04

Table M–573. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

Table M–574. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	675.	-1.34E+03	2.75E+03	-1.34E+03	2.71E+03	-402.	408.
15.	1.71E+04	-1.34E+03	3.49E+04	-1.34E+03	3.47E+04	-1.23E+03	1.17E+03
30.	6.22E+04	-1.34E+03	1.19E+05	-1.26E+03	1.18E+05	-2.11E+03	1.86E+03
45.	1.19E+05	-1.34E+03	2.15E+05	-908.	2.14E+05	-2.66E+03	2.11E+03
65.	1.58E+05	-1.34E+03	2.43E+05	336.	2.39E+05	-2.43E+03	1.24E+03

Table M–575. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–576. Minimum and Maximum of M_y^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{hst}} \rangle$	Unfiltered M_y^{hst}		Filtered M_y^{hst}		Filtered $\left(M_y^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.57E+03	-230.	5.00E+03	-179.	4.93E+03	-550.	472.
15.	2.09E+04	-231.	4.12E+04	398.	4.04E+04	-1.37E+03	1.30E+03
30.	7.66E+04	-219.	1.50E+05	827.	1.49E+05	-2.53E+03	2.41E+03
45.	1.69E+05	-219.	3.36E+05	831.	3.35E+05	-3.73E+03	3.69E+03
65.	3.26E+05	-238.	5.97E+05	659.	5.97E+05	-5.00E+03	4.18E+03

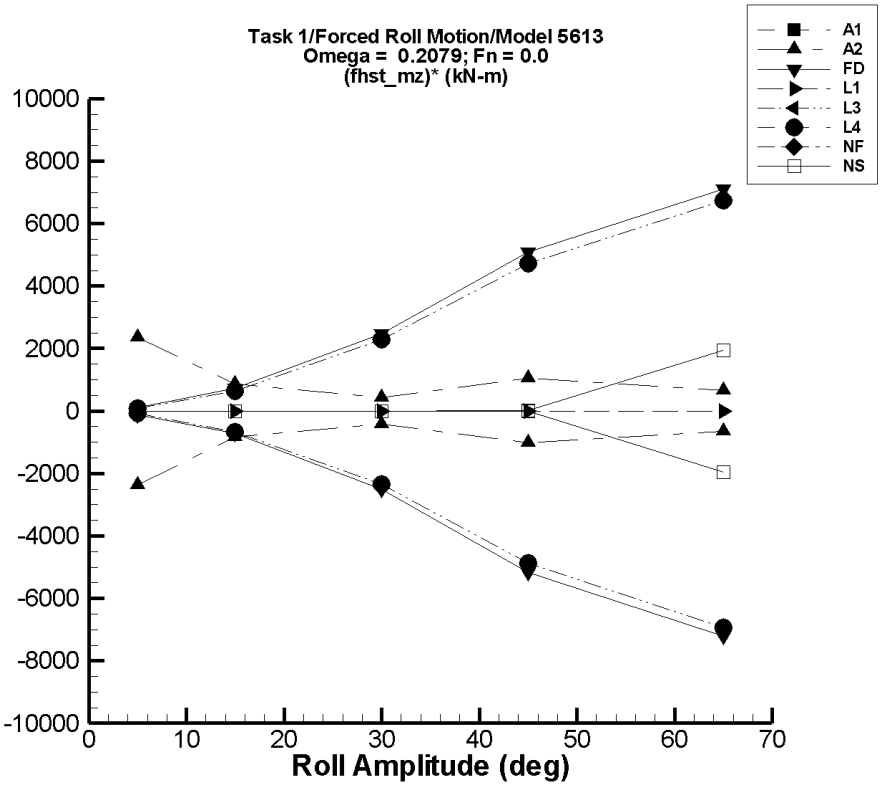

Figure M–73. Minimum and Maximum of $(M_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–577. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–578. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	35.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-249.	-1.28E+04	1.28E+04	-1.26E+04	1.26E+04	-824.	856.
30.	-147.	-1.35E+04	1.35E+04	-1.26E+04	1.25E+04	-415.	423.
45.	-489.	-5.03E+04	5.04E+04	-4.63E+04	4.62E+04	-1.02E+03	1.04E+03
65.	-156.	-4.93E+04	4.99E+04	-4.27E+04	4.28E+04	-654.	662.

Table M–579. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.48	-555.	555.	-554.	554.	-112.	110.
15.	79.0	-1.09E+04	1.09E+04	-1.09E+04	1.09E+04	-731.	720.
30.	540.	-7.50E+04	7.50E+04	-7.48E+04	7.48E+04	-2.51E+03	2.47E+03
45.	1.67E+03	-2.32E+05	2.32E+05	-2.31E+05	2.31E+05	-5.17E+03	5.09E+03
65.	3.15E+03	-4.66E+05	4.66E+05	-4.65E+05	4.65E+05	-7.21E+03	7.11E+03

Table M–580. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	1.77E-10	1.68E-04	1.06E-07	1.68E-04	-1.68E-05	1.68E-05
15.	7.53E-04	1.59E-09	1.50E-03	9.55E-07	1.50E-03	-5.01E-05	4.98E-05
30.	2.93E-03	6.36E-09	5.80E-03	3.83E-06	5.79E-03	-9.77E-05	9.53E-05
45.	6.32E-03	1.44E-08	1.23E-02	8.62E-06	1.23E-02	-1.40E-04	1.33E-04
65.	1.21E-02	2.99E-08	2.28E-02	1.81E-05	2.28E-02	-1.86E-04	1.64E-04

Table M–581. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-404.	404.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03

Table M–582. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-404.	404.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03

Table M–583. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–584. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.90E-03	-0.905	0.900	-0.796	0.801	-0.160	0.160
15.	-1.67E-03	-0.900	0.873	-0.411	0.401	-2.73E-02	2.69E-02
30.	-1.98E-03	-0.921	0.902	-0.294	0.302	-9.72E-03	1.01E-02
45.	8.61	-682.	795.	-633.	743.	-14.3	16.3
65.	-612.	-1.29E+05	1.26E+05	-1.28E+05	1.25E+05	-1.96E+03	1.93E+03

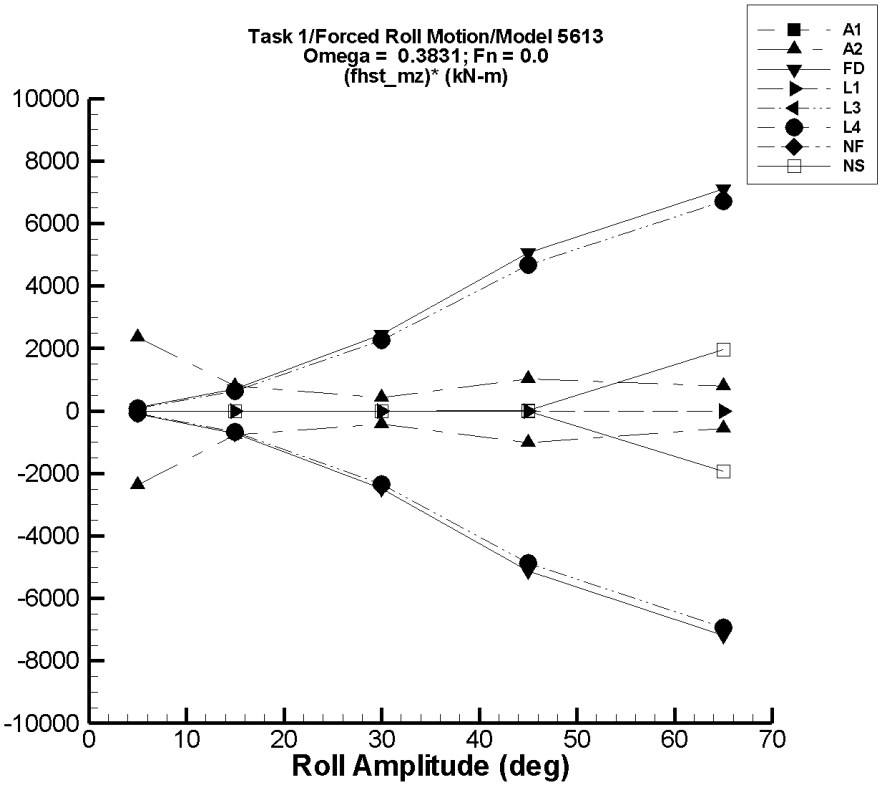

Figure M–74. Minimum and Maximum of $(M_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–585. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–586. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-220.	-1.28E+04	1.28E+04	-1.17E+04	1.17E+04	-767.	796.
30.	-181.	-1.33E+04	1.33E+04	-1.25E+04	1.24E+04	-411.	420.
45.	-477.	-5.04E+04	5.04E+04	-4.59E+04	4.59E+04	-1.01E+03	1.03E+03
65.	803.	-5.41E+04	1.70E+05	-3.48E+04	5.32E+04	-547.	805.

Table M–587. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.18	-555.	555.	-550.	551.	-111.	109.
15.	77.8	-1.09E+04	1.09E+04	-1.08E+04	1.08E+04	-725.	715.
30.	538.	-7.50E+04	7.50E+04	-7.42E+04	7.42E+04	-2.49E+03	2.46E+03
45.	1.66E+03	-2.32E+05	2.32E+05	-2.29E+05	2.29E+05	-5.13E+03	5.06E+03
65.	2.64E+03	-4.66E+05	4.66E+05	-4.64E+05	4.64E+05	-7.18E+03	7.10E+03

Table M–588. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	7.28E-10	1.68E-04	-1.23E-07	1.68E-04	-1.69E-05	1.68E-05
15.	7.53E-04	6.55E-09	1.50E-03	-1.08E-06	1.50E-03	-5.02E-05	4.96E-05
30.	2.93E-03	2.62E-08	5.80E-03	-4.03E-06	5.78E-03	-9.79E-05	9.51E-05
45.	6.31E-03	5.90E-08	1.23E-02	-7.97E-06	1.23E-02	-1.40E-04	1.32E-04
65.	1.21E-02	1.23E-07	2.28E-02	-1.23E-05	2.27E-02	-1.86E-04	1.64E-04

Table M–589. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.63	-404.	404.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

Table M–590. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.63	-404.	404.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

Table M–591. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–592. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-8.70E-04	-0.893	0.876	-0.798	0.796	-0.159	0.159
15.	-2.41E-04	-0.868	0.851	-0.393	0.404	-2.62E-02	2.69E-02
30.	-1.96E-03	-0.887	0.914	-0.298	0.297	-9.86E-03	9.98E-03
45.	8.62	-681.	795.	-633.	742.	-14.3	16.3
65.	191.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

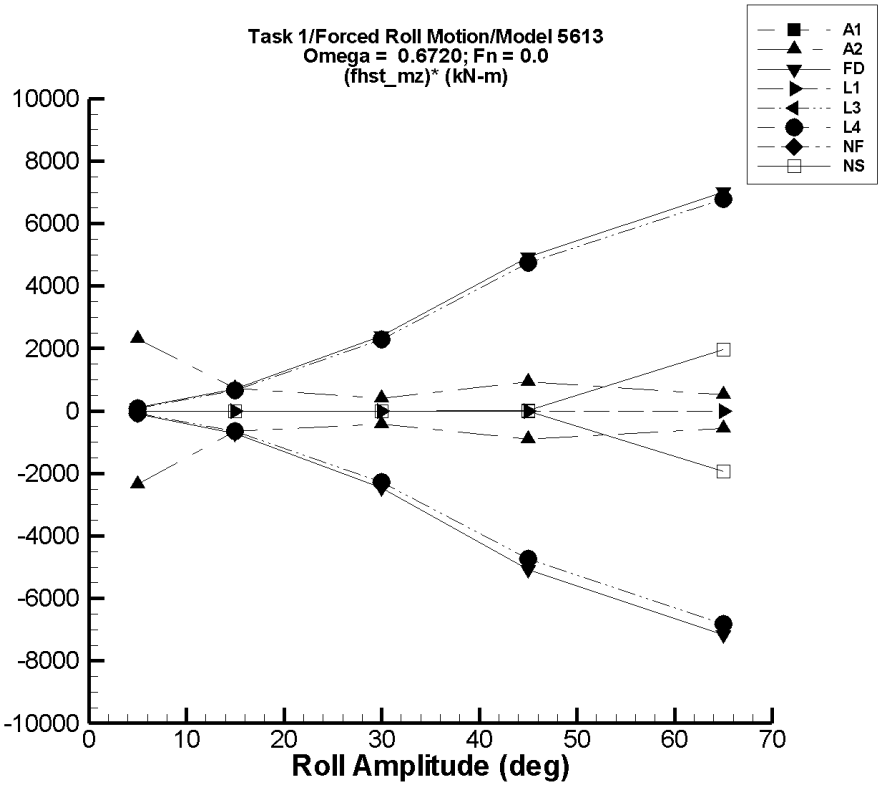

Figure M–75. Minimum and Maximum of $(M_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–593. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–594. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	84.8	-1.18E+04	1.18E+04	-1.17E+04	1.17E+04	-2.35E+03	2.32E+03
15.	-570.	-1.28E+04	1.28E+04	-1.04E+04	1.03E+04	-652.	726.
30.	173.	-1.35E+04	1.33E+04	-1.23E+04	1.24E+04	-417.	407.
45.	-704.	-4.87E+04	4.93E+04	-4.18E+04	4.18E+04	-914.	944.
65.	786.	-4.98E+04	6.84E+04	-3.52E+04	3.44E+04	-554.	518.

Table M–595. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	10.2	-555.	555.	-541.	544.	-110.	107.
15.	200.	-1.09E+04	1.09E+04	-1.06E+04	1.07E+04	-718.	697.
30.	1.37E+03	-7.50E+04	7.50E+04	-7.26E+04	7.32E+04	-2.47E+03	2.40E+03
45.	4.22E+03	-2.32E+05	2.32E+05	-2.24E+05	2.26E+05	-5.08E+03	4.93E+03
65.	6.90E+03	-4.66E+05	4.66E+05	-4.60E+05	4.62E+05	-7.18E+03	7.01E+03

Table M–596. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.42E-05	3.84E-12	1.68E-04	2.20E-08	1.67E-04	-1.68E-05	1.66E-05
15.	7.52E-04	3.41E-11	1.50E-03	2.43E-07	1.49E-03	-5.01E-05	4.91E-05
30.	2.93E-03	1.37E-10	5.80E-03	1.57E-06	5.75E-03	-9.77E-05	9.41E-05
45.	6.31E-03	3.07E-10	1.23E-02	5.71E-06	1.22E-02	-1.40E-04	1.31E-04
65.	1.21E-02	6.36E-10	2.28E-02	2.05E-05	2.26E-02	-1.85E-04	1.63E-04

Table M–597. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.214	-404.	405.	-400.	400.	-79.9	80.0
15.	-1.85	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.07	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

Table M–598. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.214	-404.	405.	-400.	400.	-79.9	80.0
15.	-1.85	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.07	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

Table M–599. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–600. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.09E-03	-0.874	0.923	-0.792	0.803	-0.159	0.160
15.	-1.94E-03	-0.865	0.858	-0.400	0.407	-2.65E-02	2.72E-02
30.	1.04E-04	-0.904	0.905	-0.305	0.303	-1.02E-02	1.01E-02
45.	8.61	-681.	795.	-633.	742.	-14.3	16.3
65.	192.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

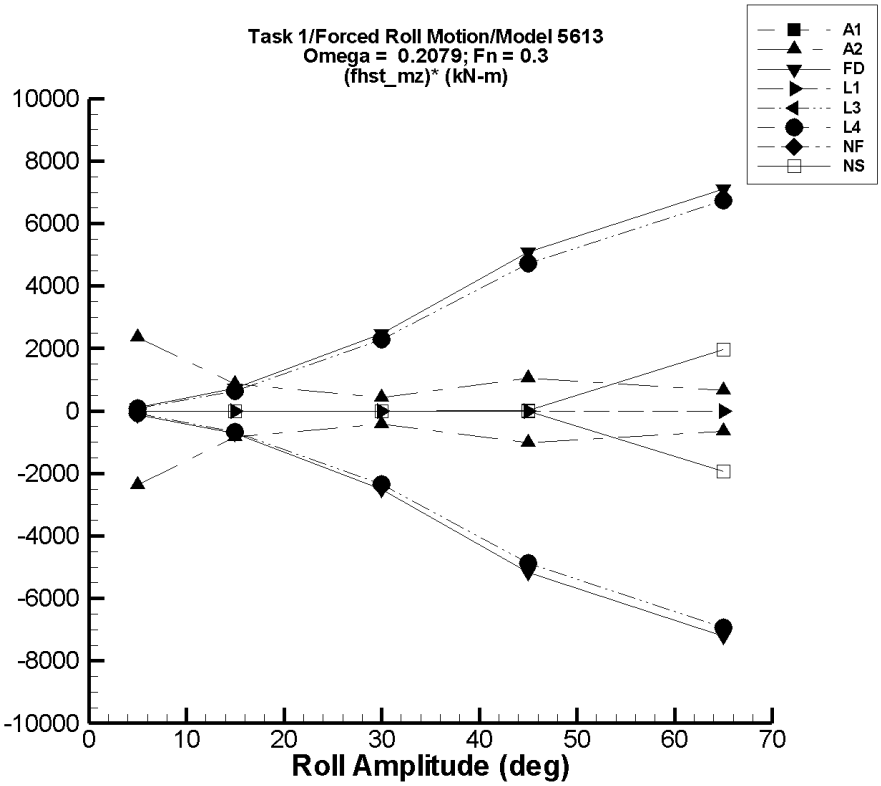

Figure M–76. Minimum and Maximum of $(M_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–601. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–602. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	37.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-249.	-1.28E+04	1.28E+04	-1.26E+04	1.26E+04	-824.	856.
30.	-147.	-1.35E+04	1.35E+04	-1.26E+04	1.25E+04	-415.	423.
45.	-489.	-5.03E+04	5.04E+04	-4.63E+04	4.62E+04	-1.02E+03	1.04E+03
65.	-156.	-4.93E+04	4.99E+04	-4.27E+04	4.28E+04	-654.	662.

Table M–603. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.48	-555.	555.	-554.	554.	-112.	110.
15.	79.0	-1.09E+04	1.09E+04	-1.09E+04	1.09E+04	-731.	720.
30.	540.	-7.50E+04	7.50E+04	-7.48E+04	7.48E+04	-2.51E+03	2.47E+03
45.	1.67E+03	-2.32E+05	2.32E+05	-2.31E+05	2.31E+05	-5.17E+03	5.09E+03
65.	3.15E+03	-4.66E+05	4.66E+05	-4.65E+05	4.65E+05	-7.21E+03	7.11E+03

Table M–604. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	1.77E-10	1.68E-04	1.06E-07	1.68E-04	-1.68E-05	1.68E-05
15.	7.53E-04	1.59E-09	1.50E-03	9.55E-07	1.50E-03	-5.01E-05	4.98E-05
30.	2.93E-03	6.36E-09	5.80E-03	3.83E-06	5.79E-03	-9.77E-05	9.53E-05
45.	6.32E-03	1.44E-08	1.23E-02	8.62E-06	1.23E-02	-1.40E-04	1.33E-04
65.	1.21E-02	2.99E-08	2.28E-02	1.81E-05	2.28E-02	-1.86E-04	1.64E-04

Table M–605. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-405.	405.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03

Table M–606. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.55	-405.	405.	-404.	404.	-81.9	79.7
15.	146.	-9.83E+03	9.83E+03	-9.82E+03	9.82E+03	-664.	645.
30.	1.02E+03	-6.95E+04	6.95E+04	-6.94E+04	6.94E+04	-2.35E+03	2.28E+03
45.	3.15E+03	-2.16E+05	2.16E+05	-2.16E+05	2.16E+05	-4.86E+03	4.72E+03
65.	5.87E+03	-4.45E+05	4.45E+05	-4.44E+05	4.44E+05	-6.93E+03	6.75E+03

Table M–607. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–608. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.90E-03	-0.905	0.900	-0.796	0.801	-0.160	0.160
15.	-1.67E-03	-0.900	0.873	-0.411	0.401	-2.73E-02	2.69E-02
30.	-1.98E-03	-0.921	0.902	-0.294	0.302	-9.72E-03	1.01E-02
45.	8.61	-682.	795.	-633.	743.	-14.3	16.3
65.	194.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.96E+03

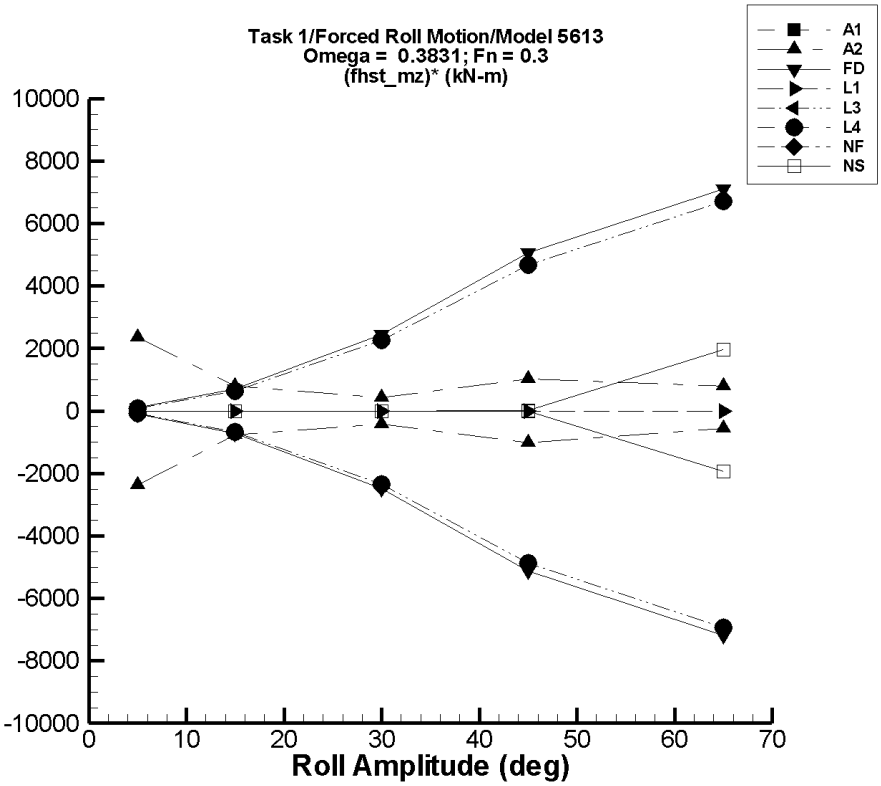

Figure M–77. Minimum and Maximum of $(M_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–609. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–610. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.2	-1.18E+04	1.18E+04	-1.18E+04	1.18E+04	-2.37E+03	2.35E+03
15.	-220.	-1.28E+04	1.28E+04	-1.17E+04	1.17E+04	-767.	796.
30.	-181.	-1.33E+04	1.33E+04	-1.25E+04	1.24E+04	-411.	420.
45.	-477.	-5.04E+04	5.04E+04	-4.59E+04	4.59E+04	-1.01E+03	1.03E+03
65.	803.	-5.41E+04	1.70E+05	-3.48E+04	5.32E+04	-547.	805.

Table M–611. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.18	-555.	555.	-551.	551.	-111.	109.
15.	77.8	-1.09E+04	1.09E+04	-1.08E+04	1.08E+04	-725.	715.
30.	538.	-7.50E+04	7.50E+04	-7.42E+04	7.42E+04	-2.49E+03	2.46E+03
45.	1.66E+03	-2.32E+05	2.32E+05	-2.29E+05	2.29E+05	-5.13E+03	5.06E+03
65.	2.64E+03	-4.66E+05	4.66E+05	-4.64E+05	4.64E+05	-7.18E+03	7.10E+03

Table M–612. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.43E-05	7.28E-10	1.68E-04	-1.23E-07	1.68E-04	-1.69E-05	1.68E-05
15.	7.53E-04	6.55E-09	1.50E-03	-1.08E-06	1.50E-03	-5.02E-05	4.96E-05
30.	2.93E-03	2.62E-08	5.80E-03	-4.03E-06	5.78E-03	-9.79E-05	9.51E-05
45.	6.31E-03	5.90E-08	1.23E-02	-7.97E-06	1.23E-02	-1.40E-04	1.32E-04
65.	1.21E-02	1.23E-07	2.28E-02	-1.23E-05	2.27E-02	-1.86E-04	1.64E-04

Table M–613. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.62	-405.	405.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

Table M–614. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	7.62	-405.	405.	-403.	403.	-82.1	79.0
15.	200.	-9.83E+03	9.83E+03	-9.79E+03	9.79E+03	-666.	640.
30.	1.39E+03	-6.95E+04	6.95E+04	-6.92E+04	6.92E+04	-2.35E+03	2.26E+03
45.	4.30E+03	-2.16E+05	2.16E+05	-2.15E+05	2.15E+05	-4.87E+03	4.68E+03
65.	7.36E+03	-4.44E+05	4.44E+05	-4.44E+05	4.44E+05	-6.94E+03	6.71E+03

Table M–615. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–616. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-8.70E-04	-0.893	0.876	-0.798	0.796	-0.159	0.159
15.	-2.41E-04	-0.868	0.851	-0.393	0.404	-2.62E-02	2.69E-02
30.	-1.96E-03	-0.887	0.914	-0.298	0.297	-9.86E-03	9.98E-03
45.	8.62	-681.	795.	-633.	742.	-14.3	16.3
65.	191.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

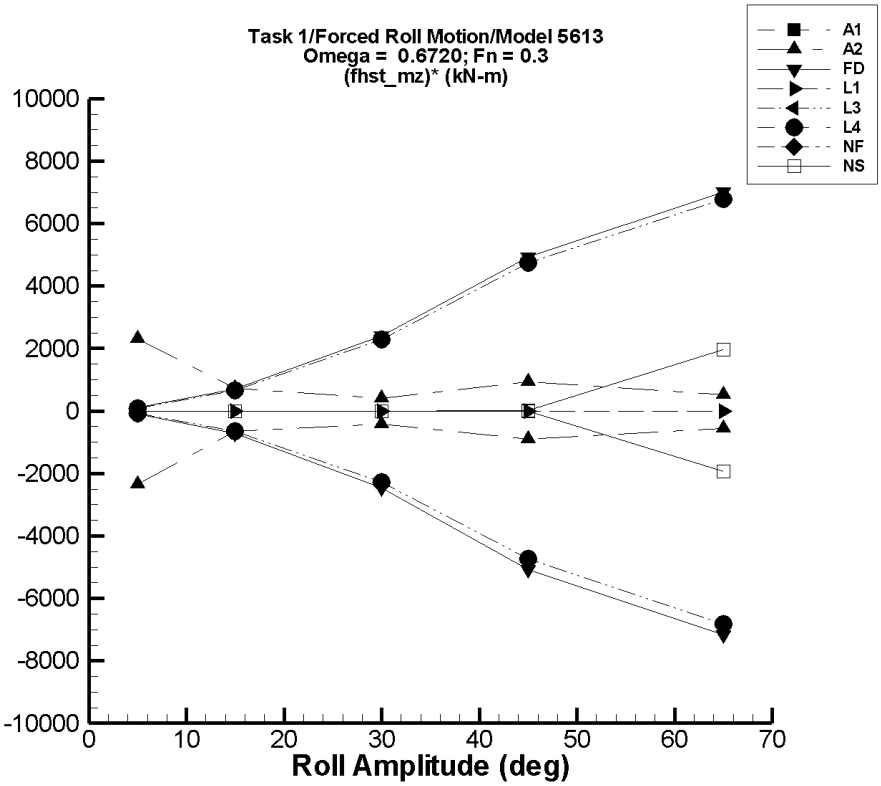

Figure M–78. Minimum and Maximum of $(M_z^{\text{hst}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–617. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–618. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	84.8	-1.18E+04	1.18E+04	-1.17E+04	1.17E+04	-2.35E+03	2.32E+03
15.	-570.	-1.28E+04	1.28E+04	-1.04E+04	1.03E+04	-652.	726.
30.	173.	-1.35E+04	1.33E+04	-1.23E+04	1.24E+04	-417.	407.
45.	-704.	-4.87E+04	4.93E+04	-4.18E+04	4.18E+04	-914.	944.
65.	786.	-4.98E+04	6.84E+04	-3.52E+04	3.44E+04	-554.	518.

Table M–619. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	10.2	-555.	555.	-541.	544.	-110.	107.
15.	200.	-1.09E+04	1.09E+04	-1.06E+04	1.07E+04	-718.	697.
30.	1.37E+03	-7.50E+04	7.50E+04	-7.26E+04	7.32E+04	-2.47E+03	2.40E+03
45.	4.22E+03	-2.32E+05	2.32E+05	-2.24E+05	2.26E+05	-5.08E+03	4.93E+03
65.	6.90E+03	-4.66E+05	4.66E+05	-4.60E+05	4.62E+05	-7.18E+03	7.01E+03

Table M–620. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	8.42E-05	3.84E-12	1.68E-04	2.20E-08	1.67E-04	-1.68E-05	1.66E-05
15.	7.52E-04	3.41E-11	1.50E-03	2.43E-07	1.49E-03	-5.01E-05	4.91E-05
30.	2.93E-03	1.37E-10	5.80E-03	1.57E-06	5.75E-03	-9.77E-05	9.41E-05
45.	6.31E-03	3.07E-10	1.23E-02	5.71E-06	1.22E-02	-1.40E-04	1.31E-04
65.	1.21E-02	6.36E-10	2.28E-02	2.05E-05	2.26E-02	-1.85E-04	1.63E-04

Table M–621. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{hst}} \rangle$	**Unfiltered** M_z^{hst}		**Filtered** M_z^{hst}		**Filtered** $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-0.278	-404.	404.	-400.	399.	-79.9	79.9
15.	-1.93	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.09	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

Table M–622. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{hst}} \rangle$	**Unfiltered** M_z^{hst}		**Filtered** M_z^{hst}		**Filtered** $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-0.278	-404.	404.	-400.	399.	-79.9	79.9
15.	-1.93	-9.83E+03	9.83E+03	-9.72E+03	9.71E+03	-648.	648.
30.	-7.09	-6.94E+04	6.94E+04	-6.87E+04	6.86E+04	-2.29E+03	2.29E+03
45.	-16.2	-2.16E+05	2.16E+05	-2.13E+05	2.13E+05	-4.74E+03	4.74E+03
65.	792.	-4.44E+05	4.44E+05	-4.42E+05	4.42E+05	-6.82E+03	6.79E+03

Table M–623. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–624. Minimum and Maximum of M_z^{hst} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{hst}} \rangle$	Unfiltered M_z^{hst}		Filtered M_z^{hst}		Filtered $\left(M_z^{\text{hst}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.09E-03	-0.874	0.923	-0.792	0.803	-0.159	0.160
15.	-1.94E-03	-0.865	0.858	-0.400	0.407	-2.65E-02	2.72E-02
30.	1.04E-04	-0.904	0.905	-0.305	0.303	-1.02E-02	1.01E-02
45.	8.61	-681.	795.	-633.	742.	-14.3	16.3
65.	192.	-1.27E+05	1.28E+05	-1.26E+05	1.27E+05	-1.94E+03	1.95E+03

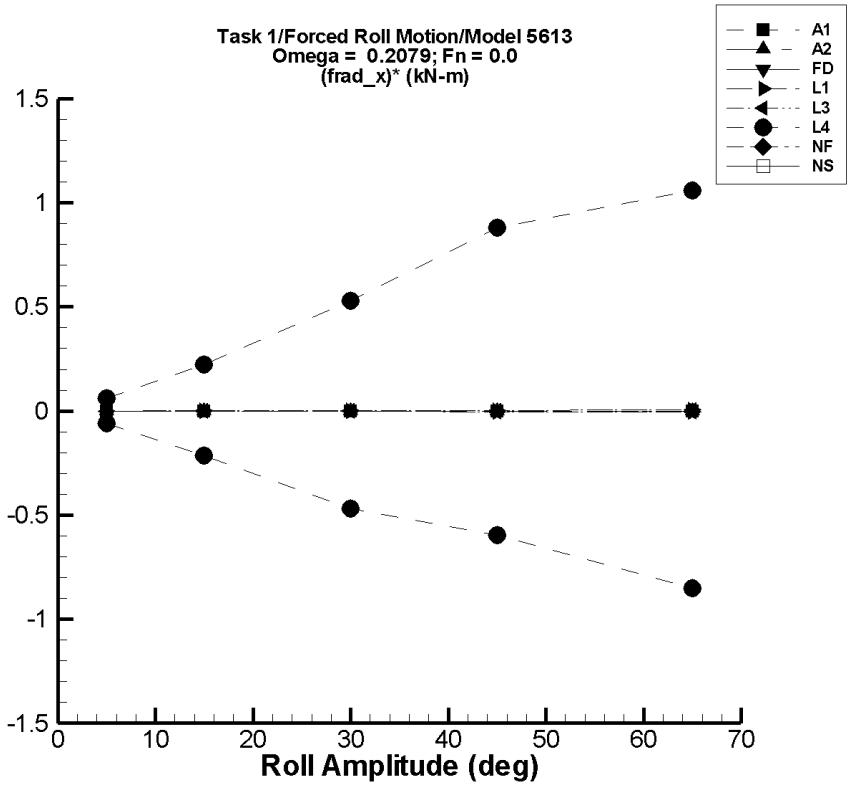

Figure M–79. Minimum and Maximum of $(F_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–625. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle \boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-2.99E-07	-1.94E-05	1.98E-05	-1.13E-05	1.14E-05	-2.20E-06	2.34E-06
15.	-8.97E-07	-5.81E-05	5.92E-05	-3.38E-05	3.42E-05	-2.20E-06	2.34E-06
30.	-1.79E-06	-1.16E-04	1.18E-04	-6.77E-05	6.83E-05	-2.20E-06	2.34E-06
45.	-2.69E-06	-1.74E-04	1.78E-04	-1.02E-04	1.03E-04	-2.20E-06	2.34E-06
65.	-3.89E-06	-2.52E-04	2.57E-04	-1.47E-04	1.48E-04	-2.20E-06	2.34E-06

Table M–626. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle \boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-2.99E-07	-1.94E-05	1.98E-05	-1.13E-05	1.14E-05	-2.20E-06	2.34E-06
15.	-8.97E-07	-5.81E-05	5.92E-05	-3.38E-05	3.42E-05	-2.20E-06	2.34E-06
30.	-1.79E-06	-1.16E-04	1.18E-04	-6.77E-05	6.83E-05	-2.20E-06	2.34E-06
45.	-2.69E-06	-1.74E-04	1.78E-04	-1.02E-04	1.03E-04	-2.20E-06	2.34E-06
65.	-3.89E-06	-2.52E-04	2.57E-04	-1.47E-04	1.48E-04	-2.20E-06	2.34E-06

Table M–627. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–628. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.29E-04	-2.61E-03	1.51E-03	-2.53E-03	1.46E-03	-4.01E-04	3.98E-04
15.	-4.76E-03	-2.29E-02	1.33E-02	-2.27E-02	1.31E-02	-1.20E-03	1.19E-03
30.	-1.91E-02	-9.11E-02	5.28E-02	-9.07E-02	5.26E-02	-2.39E-03	2.39E-03
45.	-4.29E-02	-0.204	0.119	-0.204	0.118	-3.58E-03	3.58E-03
65.	-8.94E-02	-0.427	0.247	-0.426	0.247	-5.18E-03	5.17E-03

Table M–629. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-5.29E-04	-2.61E-03	1.51E-03	-2.53E-03	1.46E-03	-4.01E-04	3.98E-04
15.	-4.76E-03	-2.29E-02	1.33E-02	-2.27E-02	1.31E-02	-1.20E-03	1.19E-03
30.	-1.91E-02	-9.11E-02	5.28E-02	-9.07E-02	5.26E-02	-2.39E-03	2.39E-03
45.	-4.29E-02	-0.204	0.119	-0.204	0.118	-3.58E-03	3.58E-03
65.	-8.94E-02	-0.427	0.247	-0.426	0.247	-5.18E-03	5.17E-03

Table M–630. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	7.36E-03	-0.615	0.642	-0.288	0.304	-5.91E-02	5.93E-02
15.	8.81E-02	-3.33	3.96	-3.15	3.44	-0.216	0.223
30.	0.472	-14.6	17.3	-13.6	16.4	-0.469	0.529
45.	1.82	-26.6	44.1	-25.1	41.4	-0.598	0.880
65.	8.35	-52.5	81.7	-46.9	77.1	-0.850	1.06

Table M–631. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–632. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

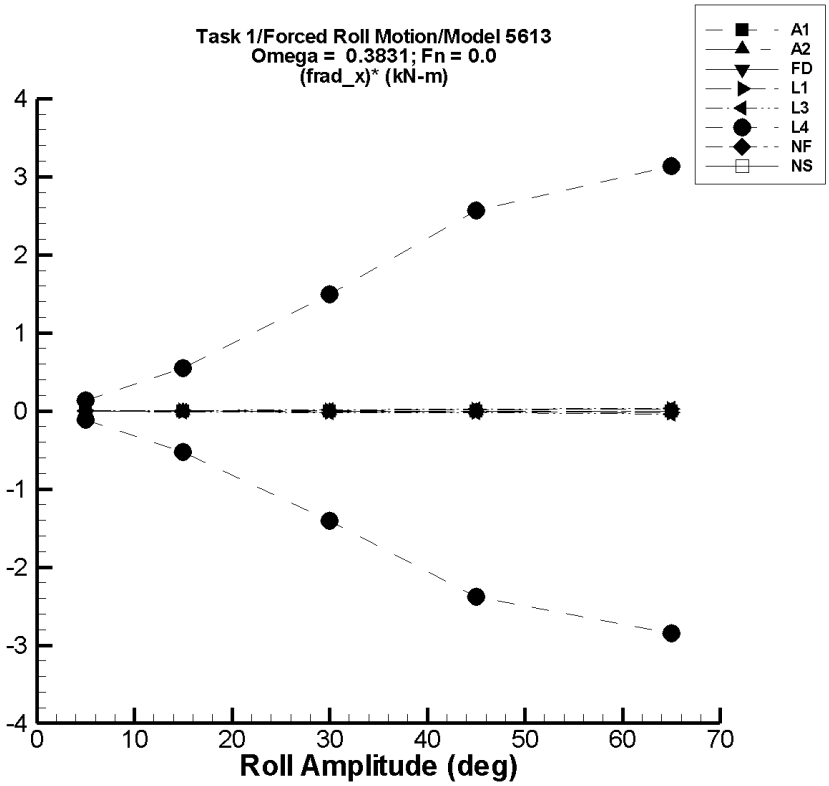

Figure M–80. Minimum and Maximum of $(F_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–633. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle \boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-9.17E-07	-5.55E-05	6.35E-05	-2.69E-05	4.36E-05	-5.20E-06	8.91E-06
15.	-2.75E-06	-1.66E-04	1.90E-04	-8.07E-05	1.31E-04	-5.20E-06	8.91E-06
30.	-5.50E-06	-3.33E-04	3.81E-04	-1.61E-04	2.62E-04	-5.20E-06	8.91E-06
45.	-8.25E-06	-4.99E-04	5.71E-04	-2.42E-04	3.93E-04	-5.20E-06	8.91E-06
65.	-1.19E-05	-7.21E-04	8.25E-04	-3.50E-04	5.67E-04	-5.20E-06	8.91E-06

Table M–634. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle \boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(\boldsymbol{F}_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-9.17E-07	-5.55E-05	6.35E-05	-2.69E-05	4.36E-05	-5.20E-06	8.91E-06
15.	-2.75E-06	-1.66E-04	1.90E-04	-8.07E-05	1.31E-04	-5.20E-06	8.91E-06
30.	-5.50E-06	-3.33E-04	3.81E-04	-1.61E-04	2.62E-04	-5.20E-06	8.91E-06
45.	-8.25E-06	-4.99E-04	5.71E-04	-2.42E-04	3.93E-04	-5.20E-06	8.91E-06
65.	-4.92E-06	-8.24E-04	8.70E-04	-5.37E-04	4.49E-04	-8.18E-06	6.98E-06

Table M–635. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–636. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-9.09E-03	-1.77E-02	-7.24E-04	-1.75E-02	-8.01E-04	-1.68E-03	1.66E-03
15.	-8.18E-02	-0.158	-6.85E-03	-0.157	-7.29E-03	-5.04E-03	4.97E-03
30.	-0.327	-0.632	-2.76E-02	-0.630	-2.92E-02	-1.01E-02	9.93E-03
45.	-0.736	-1.42	-6.16E-02	-1.42	-6.58E-02	-1.51E-02	1.49E-02
65.	-1.54	-2.97	-0.129	-2.96	-0.137	-2.18E-02	2.15E-02

Table M–637. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-9.09E-03	-2.36E-02	5.35E-03	-2.35E-02	5.23E-03	-2.89E-03	2.86E-03
15.	-8.18E-02	-0.213	4.78E-02	-0.212	4.71E-02	-8.67E-03	8.59E-03
30.	-0.327	-0.851	0.191	-0.847	0.188	-1.73E-02	1.72E-02
45.	-0.736	-1.91	0.431	-1.91	0.424	-2.60E-02	2.58E-02
65.	-1.54	-3.99	0.899	-3.98	0.885	-3.76E-02	3.72E-02

Table M–638. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	3.11E-02	-1.35	1.35	-0.546	0.713	-0.115	0.136
15.	0.334	-8.38	9.62	-7.58	8.56	-0.528	0.548
30.	1.19	-44.4	51.3	-41.1	46.1	-1.41	1.50
45.	2.53	-115.	136.	-105.	118.	-2.38	2.57
65.	11.8	-201.	256.	-174.	216.	-2.85	3.13

Table M–639. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–640. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

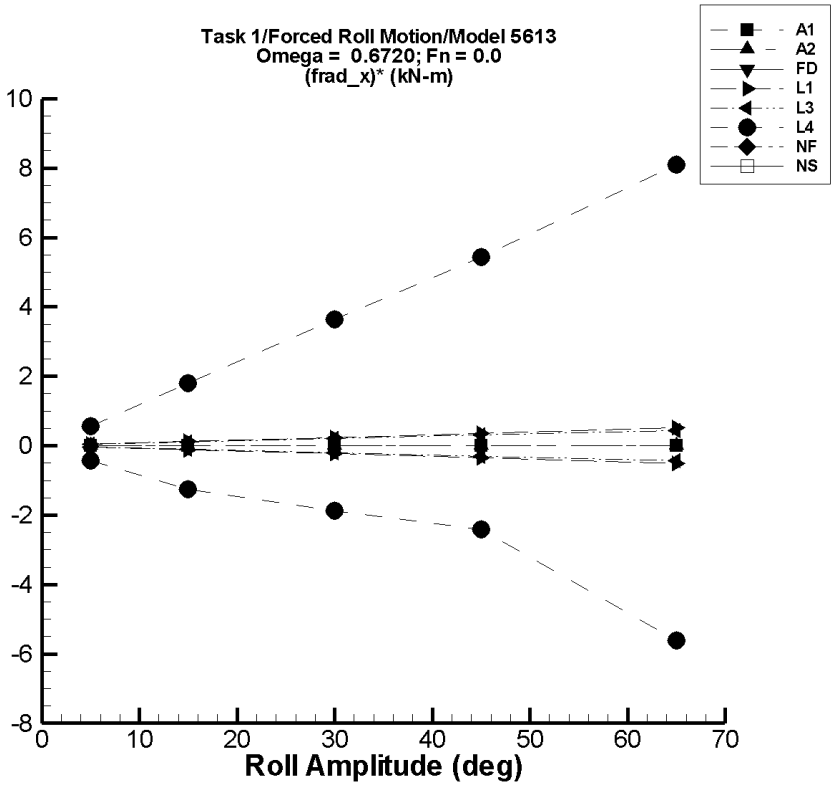

Figure M–81. Minimum and Maximum of $(F_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–641. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.15E-06	-1.41E-04	1.73E-04	-1.35E-04	1.47E-04	-2.73E-05	2.91E-05
15.	3.44E-06	-4.22E-04	5.18E-04	-4.06E-04	4.39E-04	-2.73E-05	2.91E-05
30.	6.88E-06	-8.44E-04	1.04E-03	-8.12E-04	8.79E-04	-2.73E-05	2.91E-05
45.	1.03E-05	-1.27E-03	1.55E-03	-1.22E-03	1.32E-03	-2.73E-05	2.91E-05
65.	1.49E-05	-1.83E-03	2.24E-03	-1.76E-03	1.90E-03	-2.73E-05	2.91E-05

Table M–642. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.15E-06	-1.41E-04	1.73E-04	-1.35E-04	1.47E-04	-2.73E-05	2.91E-05
15.	3.44E-06	-4.22E-04	5.18E-04	-4.06E-04	4.39E-04	-2.73E-05	2.91E-05
30.	6.88E-06	-8.44E-04	1.04E-03	-8.12E-04	8.79E-04	-2.73E-05	2.91E-05
45.	1.03E-05	-1.27E-03	1.55E-03	-1.22E-03	1.32E-03	-2.73E-05	2.91E-05
65.	1.49E-05	-1.83E-03	2.24E-03	-1.76E-03	1.90E-03	-2.73E-05	2.91E-05

Table M–643. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–644. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-0.179	-0.377	1.89E-02	-0.374	1.66E-02	-3.89E-02	3.91E-02
15.	-1.61	-3.39	0.171	-3.36	0.151	-0.117	0.117
30.	-6.44	-13.6	0.683	-13.4	0.603	-0.234	0.235
45.	-14.5	-30.5	1.54	-30.3	1.35	-0.350	0.352
65.	-30.2	-63.7	3.20	-63.1	2.83	-0.506	0.509

Table M–645. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-0.179	-0.349	-8.54E-03	-0.346	-1.13E-02	-3.35E-02	3.35E-02
15.	-1.61	-3.14	-7.69E-02	-3.12	-0.102	-0.100	0.101
30.	-6.44	-12.6	-0.308	-12.5	-0.409	-0.201	0.201
45.	-14.5	-28.3	-0.693	-28.0	-0.921	-0.301	0.302
65.	-30.2	-59.0	-1.45	-58.5	-1.92	-0.435	0.436

Table M–646. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	0.384	-2.75	4.30	-1.81	3.19	-0.438	0.561
15.	3.63	-18.2	31.7	-15.3	30.5	-1.26	1.79
30.	11.0	-62.7	139.	-45.0	120.	-1.87	3.63
45.	22.1	-109.	327.	-86.7	266.	-2.42	5.43
65.	63.3	-439.	779.	-302.	589.	-5.62	8.09

Table M–647. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–648. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

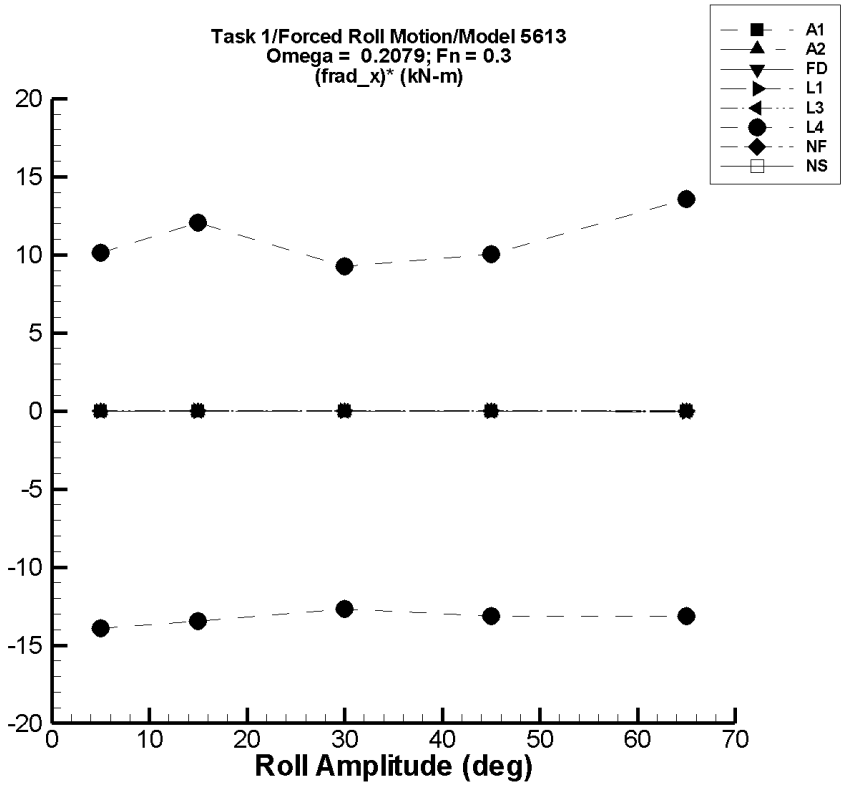

Figure M–82. Minimum and Maximum of $(F_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–649. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-1.54E-07	-7.38E-04	7.40E-04	-7.37E-04	7.39E-04	-1.47E-04	1.48E-04
15.	-4.63E-07	-2.21E-03	2.22E-03	-2.21E-03	2.22E-03	-1.47E-04	1.48E-04
30.	-9.26E-07	-4.42E-03	4.44E-03	-4.42E-03	4.43E-03	-1.47E-04	1.48E-04
45.	-1.39E-06	-6.64E-03	6.66E-03	-6.63E-03	6.65E-03	-1.47E-04	1.48E-04
65.	-2.01E-06	-9.59E-03	9.62E-03	-9.58E-03	9.61E-03	-1.47E-04	1.48E-04

Table M–650. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-1.54E-07	-7.38E-04	7.40E-04	-7.37E-04	7.39E-04	-1.47E-04	1.48E-04
15.	-4.63E-07	-2.21E-03	2.22E-03	-2.21E-03	2.22E-03	-1.47E-04	1.48E-04
30.	-9.26E-07	-4.42E-03	4.44E-03	-4.42E-03	4.43E-03	-1.47E-04	1.48E-04
45.	-1.39E-06	-6.64E-03	6.66E-03	-6.63E-03	6.65E-03	-1.47E-04	1.48E-04
65.	-2.01E-06	-9.59E-03	9.62E-03	-9.58E-03	9.61E-03	-1.47E-04	1.48E-04

Table M–651. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–652. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.6	-41.7	-41.6	-41.6	-41.6	-3.62E-03	3.88E-03
15.	-41.5	-41.7	-41.3	-41.7	-41.4	-9.20E-03	9.14E-03
30.	-41.1	-41.7	-40.5	-41.7	-40.6	-1.82E-02	1.83E-02
45.	-40.4	-41.7	-39.2	-41.7	-39.2	-2.73E-02	2.74E-02
65.	-39.1	-41.7	-36.5	-41.7	-36.6	-3.95E-02	3.96E-02

Table M–653. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	-41.7	-41.7	-41.6	-41.7	-41.6	-1.57E-02	1.43E-02
15.	-41.5	-41.7	-41.3	-41.7	-41.3	-1.22E-02	1.28E-02
30.	-41.1	-41.7	-40.5	-41.7	-40.5	-1.98E-02	2.00E-02
45.	-40.5	-41.8	-39.2	-41.8	-39.2	-2.84E-02	2.85E-02
65.	-39.2	-41.8	-36.5	-41.8	-36.6	-4.02E-02	4.03E-02

Table M–654. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	2.88	-265.	116.	-66.7	53.5	-13.9	10.1
15.	146.	-224.	417.	-56.2	327.	-13.5	12.1
30.	334.	-273.	764.	-46.7	611.	-12.7	9.23
45.	530.	-359.	1.08E+03	-61.9	982.	-13.2	10.0
65.	860.	-384.	1.81E+03	5.73	1.74E+03	-13.1	13.6

Table M–655. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–656. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

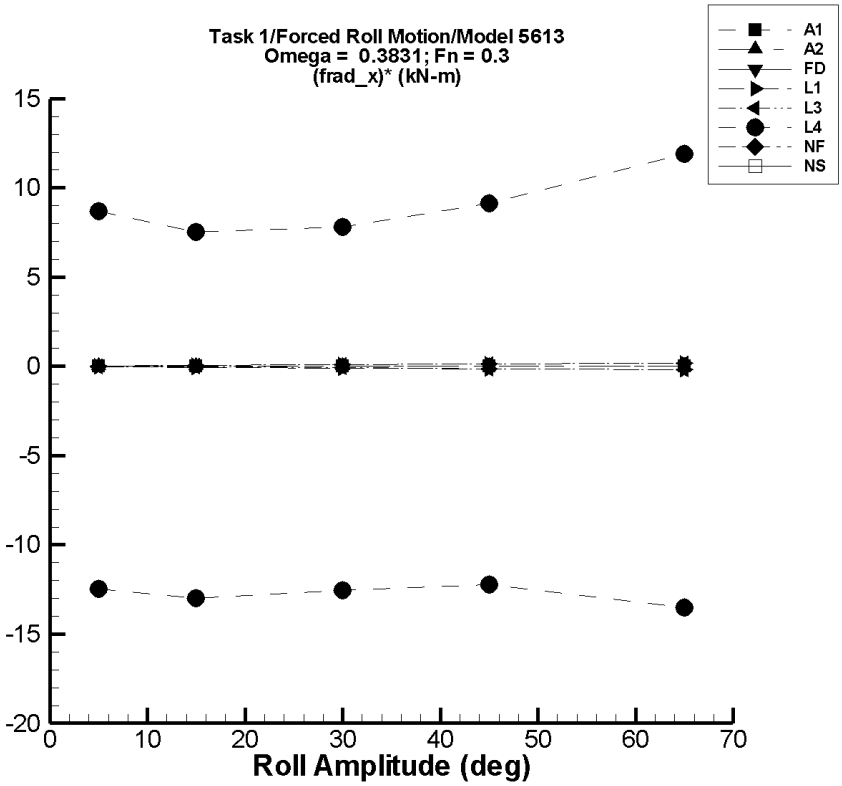

Figure M–83. Minimum and Maximum of $(F_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–657. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.96E-07	-1.46E-03	1.47E-03	-1.45E-03	1.47E-03	-2.91E-04	2.95E-04
15.	2.09E-06	-4.38E-03	4.41E-03	-4.36E-03	4.42E-03	-2.91E-04	2.95E-04
30.	4.18E-06	-8.75E-03	8.83E-03	-8.72E-03	8.84E-03	-2.91E-04	2.95E-04
45.	6.26E-06	-1.31E-02	1.32E-02	-1.31E-02	1.33E-02	-2.91E-04	2.95E-04
65.	9.05E-06	-1.90E-02	1.91E-02	-1.89E-02	1.92E-02	-2.91E-04	2.95E-04

Table M–658. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.96E-07	-1.46E-03	1.47E-03	-1.45E-03	1.47E-03	-2.91E-04	2.95E-04
15.	2.09E-06	-4.38E-03	4.41E-03	-4.36E-03	4.42E-03	-2.91E-04	2.95E-04
30.	4.18E-06	-8.75E-03	8.83E-03	-8.72E-03	8.84E-03	-2.91E-04	2.95E-04
45.	6.26E-06	-1.31E-02	1.32E-02	-1.31E-02	1.33E-02	-2.91E-04	2.95E-04
65.	-6.58E-06	-1.91E-02	1.95E-02	-1.91E-02	1.90E-02	-2.93E-04	2.92E-04

Table M–659. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–660. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.6	-41.7	-41.5	-41.7	-41.5	-1.53E-02	1.53E-02
15.	-41.0	-41.7	-40.3	-41.7	-40.3	-4.44E-02	4.45E-02
30.	-39.1	-41.8	-36.4	-41.8	-36.5	-8.85E-02	8.87E-02
45.	-36.0	-42.0	-29.9	-41.9	-30.0	-0.133	0.133
65.	-29.8	-42.3	-17.2	-42.2	-17.3	-0.192	0.192

Table M–661. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
5.	-41.6	-41.7	-41.5	-41.7	-41.5	-1.70E-02	2.23E-02
15.	-41.0	-41.7	-40.4	-41.7	-40.4	-4.29E-02	4.45E-02
30.	-39.1	-41.7	-36.6	-41.7	-36.6	-8.42E-02	8.49E-02
45.	-36.0	-41.7	-30.3	-41.6	-30.3	-0.126	0.126
65.	-29.8	-41.7	-17.9	-41.6	-18.0	-0.182	0.182

Table M–662. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN/°)	(kN/°)
5.	-4.91	-96.1	41.0	-67.2	38.6	-12.5	8.70
15.	129.	-104.	251.	-65.7	242.	-13.0	7.53
30.	333.	-58.6	574.	-43.6	567.	-12.6	7.82
45.	569.	-1.94	988.	18.5	980.	-12.2	9.14
65.	997.	78.0	1.79E+03	118.	1.77E+03	-13.5	11.9

Table M–663. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–664. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

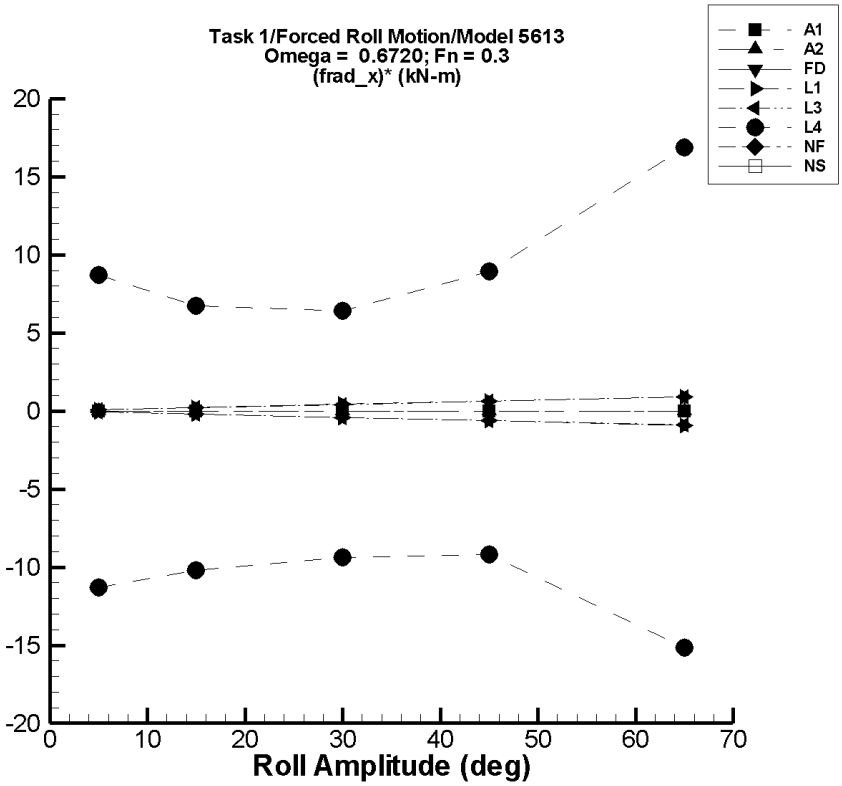

Figure M–84. Minimum and Maximum of $(F_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–665. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-2.14E-07	-2.56E-03	2.50E-03	-2.38E-03	2.39E-03	-4.76E-04	4.78E-04
15.	-6.42E-07	-7.68E-03	7.49E-03	-7.13E-03	7.17E-03	-4.76E-04	4.78E-04
30.	-1.28E-06	-1.54E-02	1.50E-02	-1.43E-02	1.43E-02	-4.76E-04	4.78E-04
45.	-1.93E-06	-2.30E-02	2.25E-02	-2.14E-02	2.15E-02	-4.76E-04	4.78E-04
65.	-2.78E-06	-3.33E-02	3.25E-02	-3.09E-02	3.11E-02	-4.76E-04	4.78E-04

Table M–666. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-2.14E-07	-2.56E-03	2.50E-03	-2.38E-03	2.39E-03	-4.76E-04	4.78E-04
15.	-6.42E-07	-7.68E-03	7.49E-03	-7.13E-03	7.17E-03	-4.76E-04	4.78E-04
30.	-1.28E-06	-1.54E-02	1.50E-02	-1.43E-02	1.43E-02	-4.76E-04	4.78E-04
45.	-1.93E-06	-2.30E-02	2.25E-02	-2.14E-02	2.15E-02	-4.76E-04	4.78E-04
65.	-2.78E-06	-3.33E-02	3.25E-02	-3.09E-02	3.11E-02	-4.76E-04	4.78E-04

Table M–667. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–668. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.4	-41.8	-41.0	-41.8	-41.0	-7.05E-02	7.13E-02
15.	-39.4	-42.7	-36.2	-42.6	-36.3	-0.211	0.212
30.	-32.8	-45.7	-19.9	-45.5	-20.1	-0.423	0.423
45.	-21.7	-50.8	7.28	-50.2	6.84	-0.634	0.634
65.	-5.19E-02	-60.6	60.5	-59.6	59.5	-0.916	0.916

Table M–669. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-41.4	-41.8	-41.0	-41.8	-41.0	-7.44E-02	7.40E-02
15.	-39.4	-42.5	-36.3	-42.5	-36.3	-0.205	0.205
30.	-32.8	-45.2	-20.4	-45.0	-20.4	-0.407	0.413
45.	-21.7	-49.6	6.17	-49.1	6.19	-0.609	0.620
65.	-4.08E-02	-58.1	58.1	-57.2	58.2	-0.879	0.896

Table M–670. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_x^{\text{rad}} \rangle$	Unfiltered F_x^{rad}		Filtered F_x^{rad}		Filtered $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.27	-94.7	42.5	-61.8	38.3	-11.3	8.72
15.	121.	-53.4	231.	-31.3	222.	-10.2	6.72
30.	311.	6.61	525.	29.7	503.	-9.36	6.41
45.	530.	94.8	1.00E+03	115.	932.	-9.21	8.94
65.	952.	-94.0	2.10E+03	-32.5	2.05E+03	-15.2	16.9

Table M–671. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–672. Minimum and Maximum of F_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_x^{\text{rad}} \rangle$	**Unfiltered** F_x^{rad}		**Filtered** F_x^{rad}		**Filtered** $\left(F_x^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

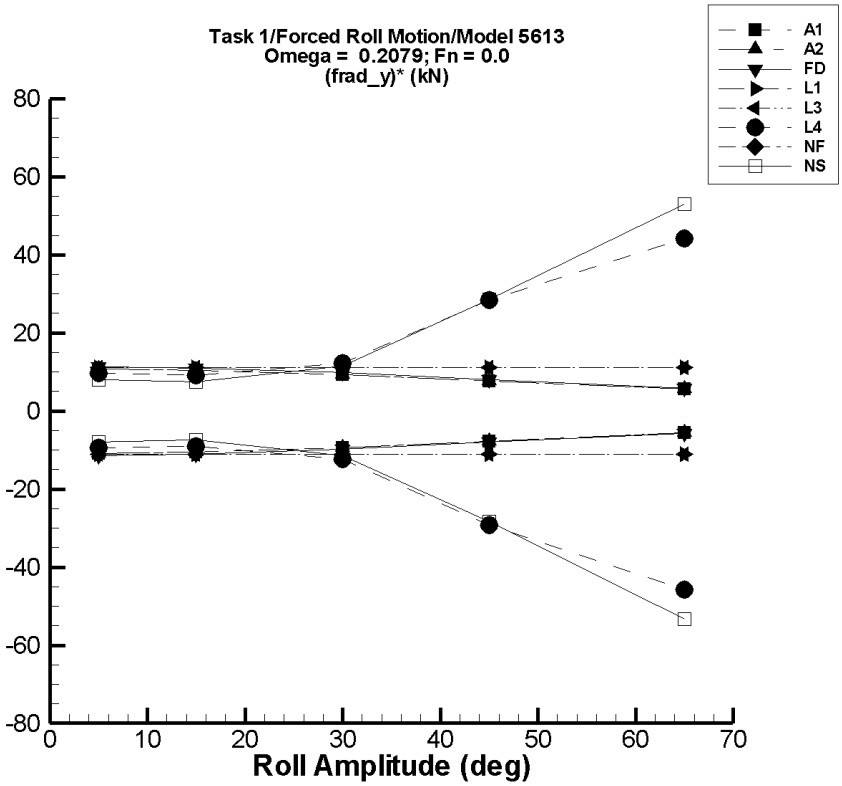

Figure M–85. Minimum and Maximum of $(F_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–673. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	5.45E-02	-62.4	62.2	-54.1	54.0	-10.8	10.8
15.	0.130	-182.	181.	-157.	157.	-10.5	10.5
30.	4.32E-02	-330.	328.	-282.	282.	-9.41	9.39
45.	-0.452	-413.	408.	-346.	346.	-7.68	7.69
65.	-1.98	-477.	459.	-364.	363.	-5.57	5.62

Table M–674. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	5.45E-02	-62.4	62.2	-54.1	54.0	-10.8	10.8
15.	0.130	-182.	181.	-157.	157.	-10.5	10.5
30.	4.32E-02	-330.	328.	-282.	282.	-9.41	9.39
45.	-0.452	-413.	408.	-346.	346.	-7.68	7.69
65.	-1.98	-477.	459.	-364.	363.	-5.57	5.62

Table M–675. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.63E-03	-56.8	56.8	-56.8	56.8	-11.4	11.4
15.	-4.39E-02	-165.	165.	-165.	165.	-11.0	11.0
30.	-0.345	-296.	296.	-296.	296.	-9.86	9.88
45.	-1.13	-363.	363.	-363.	363.	-8.04	8.09
65.	-3.18	-372.	372.	-371.	371.	-5.66	5.76

Table M–676. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.89E-05	-55.5	55.5	-55.5	55.5	-11.1	11.1
15.	-8.81E-05	-166.	166.	-166.	166.	-11.1	11.1
30.	-9.26E-04	-333.	333.	-333.	333.	-11.1	11.1
45.	-2.35E-03	-499.	499.	-499.	499.	-11.1	11.1
65.	-5.37E-03	-721.	721.	-721.	721.	-11.1	11.1

Table M–677. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.01E-05	-55.5	55.5	-55.5	55.5	-11.1	11.1
15.	-6.63E-05	-166.	166.	-166.	166.	-11.1	11.1
30.	-9.40E-04	-333.	333.	-333.	333.	-11.1	11.1
45.	-2.34E-03	-499.	499.	-499.	499.	-11.1	11.1
65.	-5.45E-03	-721.	721.	-721.	721.	-11.1	11.1

Table M–678. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-9.95E-02	-48.1	47.9	-47.6	47.8	-9.51	9.58
15.	-0.299	-140.	138.	-137.	135.	-9.13	9.05
30.	2.69	-371.	370.	-368.	367.	-12.4	12.2
45.	21.1	-1.31E+03	1.31E+03	-1.29E+03	1.30E+03	-29.2	28.3
65.	54.7	-2.93E+03	2.93E+03	-2.92E+03	2.92E+03	-45.8	44.1

Table M–679. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–680. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.05E-03	-40.2	40.2	-39.9	39.9	-7.97	7.97
15.	2.40E-02	-118.	118.	-111.	111.	-7.40	7.42
30.	0.244	-360.	362.	-341.	344.	-11.4	11.4
45.	1.05	-1.30E+03	1.31E+03	-1.28E+03	1.29E+03	-28.4	28.6
65.	0.950	-3.58E+03	3.54E+03	-3.46E+03	3.44E+03	-53.3	52.9

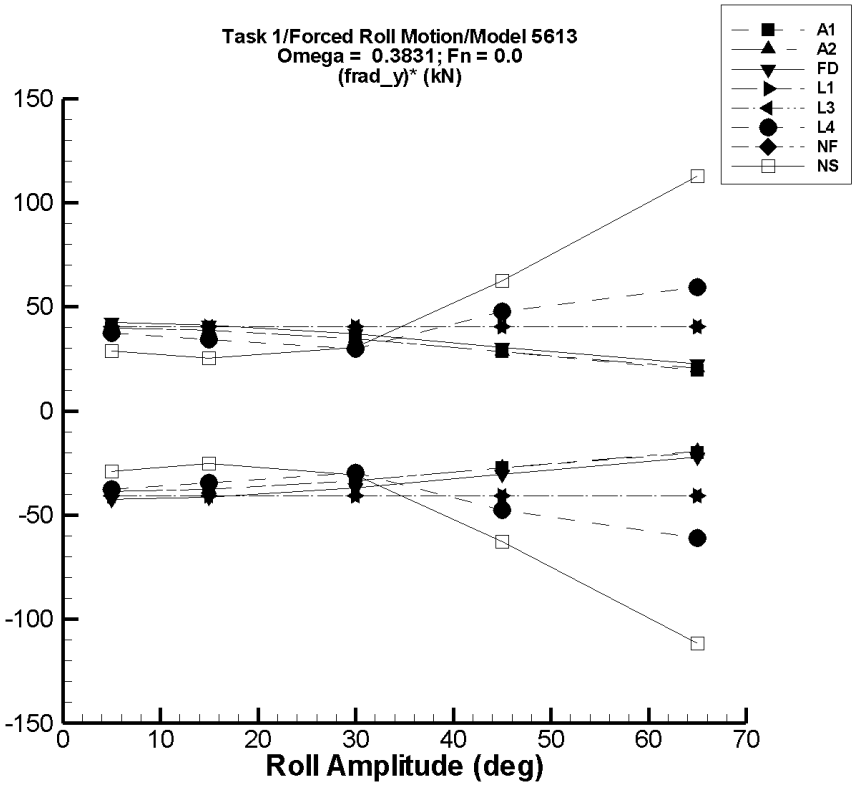

Figure M–86. Minimum and Maximum of $(F_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–681. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.218	-203.	201.	-193.	200.	-38.7	39.9
15.	0.544	-592.	585.	-562.	582.	-37.5	38.7
30.	0.373	-1.07E+03	1.05E+03	-1.01E+03	1.04E+03	-33.6	34.8
45.	-1.14	-1.32E+03	1.28E+03	-1.24E+03	1.28E+03	-27.5	28.5
65.	-5.97	-1.33E+03	1.39E+03	-1.31E+03	1.25E+03	-20.1	19.3

Table M–682. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.218	-203.	201.	-193.	200.	-38.7	39.9
15.	0.544	-592.	585.	-562.	582.	-37.5	38.7
30.	0.373	-1.07E+03	1.05E+03	-1.01E+03	1.04E+03	-33.6	34.8
45.	-1.14	-1.32E+03	1.28E+03	-1.24E+03	1.28E+03	-27.5	28.5
65.	-23.9	-1.43E+03	1.39E+03	-1.29E+03	1.31E+03	-19.4	20.5

Table M–683. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.50E-03	-214.	214.	-213.	213.	-42.6	42.6
15.	-0.146	-622.	622.	-620.	620.	-41.3	41.3
30.	-1.14	-1.12E+03	1.12E+03	-1.11E+03	1.11E+03	-37.1	37.1
45.	-3.72	-1.38E+03	1.38E+03	-1.37E+03	1.37E+03	-30.4	30.6
65.	-10.4	-1.46E+03	1.46E+03	-1.46E+03	1.45E+03	-22.3	22.5

Table M–684. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-6.48E-03	-203.	203.	-203.	203.	-40.6	40.6
15.	-2.03E-02	-610.	609.	-609.	608.	-40.6	40.6
30.	-4.29E-02	-1.22E+03	1.22E+03	-1.22E+03	1.22E+03	-40.6	40.6
45.	-6.74E-02	-1.83E+03	1.83E+03	-1.83E+03	1.83E+03	-40.6	40.6
65.	-0.105	-2.64E+03	2.64E+03	-2.64E+03	2.64E+03	-40.6	40.6

Table M–685. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-6.21E-03	-203.	203.	-203.	203.	-40.6	40.6
15.	-1.93E-02	-610.	609.	-609.	608.	-40.6	40.6
30.	-4.10E-02	-1.22E+03	1.22E+03	-1.22E+03	1.22E+03	-40.6	40.6
45.	-6.47E-02	-1.83E+03	1.83E+03	-1.83E+03	1.83E+03	-40.6	40.6
65.	-0.101	-2.64E+03	2.64E+03	-2.64E+03	2.64E+03	-40.6	40.6

Table M–686. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.644	-188.	187.	-187.	187.	-37.6	37.2
15.	4.24	-525.	526.	-514.	520.	-34.6	34.4
30.	10.6	-909.	907.	-882.	904.	-29.7	29.8
45.	25.6	-2.16E+03	2.17E+03	-2.12E+03	2.17E+03	-47.6	47.6
65.	66.6	-5.35E+03	5.07E+03	-3.89E+03	3.92E+03	-60.9	59.3

Table M–687. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–688. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-4.22E-03	-146.	146.	-145.	144.	-29.0	28.9
15.	-4.62E-02	-403.	403.	-381.	381.	-25.4	25.4
30.	-0.346	-1.06E+03	1.07E+03	-920.	918.	-30.7	30.6
45.	-1.66	-2.85E+03	2.84E+03	-2.82E+03	2.81E+03	-62.7	62.4
65.	-0.196	-8.35E+03	7.91E+03	-7.25E+03	7.33E+03	-112.	113.

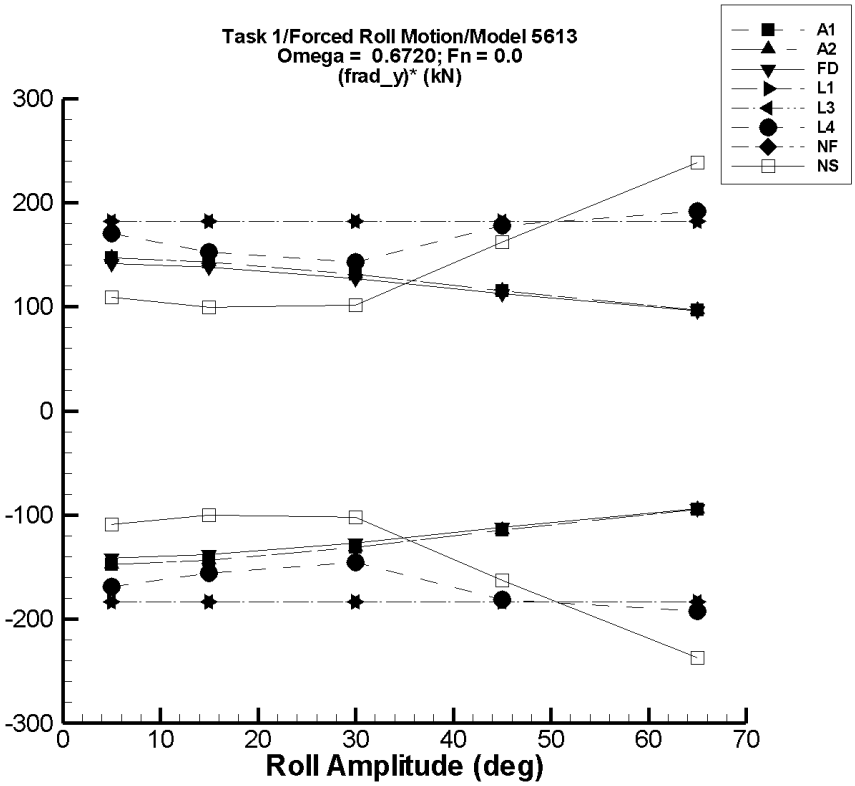

Figure M–87. Minimum and Maximum of $(F_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–689. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-0.124	-746.	743.	-737.	734.	-147.	147.
15.	-1.24	-2.18E+03	2.17E+03	-2.15E+03	2.14E+03	-143.	143.
30.	-8.22	-3.99E+03	3.97E+03	-3.95E+03	3.93E+03	-131.	131.
45.	-25.9	-5.24E+03	5.24E+03	-5.18E+03	5.17E+03	-114.	116.
65.	-71.7	-6.40E+03	6.40E+03	-6.22E+03	6.23E+03	-94.7	96.9

Table M–690. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	-0.124	-746.	743.	-737.	734.	-147.	147.
15.	-1.24	-2.18E+03	2.17E+03	-2.15E+03	2.14E+03	-143.	143.
30.	-8.22	-3.99E+03	3.97E+03	-3.95E+03	3.93E+03	-131.	131.
45.	-25.9	-5.24E+03	5.24E+03	-5.18E+03	5.17E+03	-114.	116.
65.	-71.7	-6.40E+03	6.40E+03	-6.22E+03	6.23E+03	-94.7	96.9

Table M–691. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.66E-02	-717.	716.	-708.	708.	-142.	142.
15.	-1.01	-2.10E+03	2.10E+03	-2.07E+03	2.07E+03	-138.	138.
30.	-7.95	-3.85E+03	3.85E+03	-3.82E+03	3.81E+03	-127.	127.
45.	-25.8	-5.12E+03	5.12E+03	-5.06E+03	5.06E+03	-112.	113.
65.	-71.8	-6.36E+03	6.36E+03	-6.19E+03	6.19E+03	-94.1	96.3

Table M–692. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.94E-02	-915.	915.	-915.	911.	-183.	182.
15.	-6.12E-02	-2.74E+03	2.74E+03	-2.75E+03	2.73E+03	-183.	182.
30.	-0.130	-5.49E+03	5.49E+03	-5.49E+03	5.47E+03	-183.	182.
45.	-0.208	-8.23E+03	8.23E+03	-8.24E+03	8.20E+03	-183.	182.
65.	-0.323	-1.19E+04	1.19E+04	-1.19E+04	1.18E+04	-183.	182.

Table M–693. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.84E-02	-915.	915.	-917.	911.	-183.	182.
15.	-5.74E-02	-2.74E+03	2.74E+03	-2.75E+03	2.73E+03	-183.	182.
30.	-0.123	-5.49E+03	5.49E+03	-5.50E+03	5.47E+03	-183.	182.
45.	-0.198	-8.23E+03	8.23E+03	-8.25E+03	8.20E+03	-183.	182.
65.	-0.306	-1.19E+04	1.19E+04	-1.19E+04	1.18E+04	-183.	182.

Table M–694. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.61	-861.	861.	-838.	857.	-169.	170.
15.	26.2	-2.35E+03	2.35E+03	-2.31E+03	2.32E+03	-156.	153.
30.	65.9	-4.40E+03	4.41E+03	-4.31E+03	4.35E+03	-146.	143.
45.	127.	-8.22E+03	8.23E+03	-8.02E+03	8.14E+03	-181.	178.
65.	217.	-1.27E+04	1.28E+04	-1.23E+04	1.27E+04	-192.	192.

Table M–695. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–696. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.256	-552.	552.	-546.	545.	-109.	109.
15.	0.595	-1.62E+03	1.62E+03	-1.50E+03	1.50E+03	-100.	99.6
30.	2.79E-02	-3.72E+03	3.71E+03	-3.06E+03	3.05E+03	-102.	102.
45.	-4.33	-7.38E+03	7.37E+03	-7.31E+03	7.30E+03	-162.	162.
65.	-5.72	-1.63E+04	1.57E+04	-1.54E+04	1.55E+04	-237.	239.

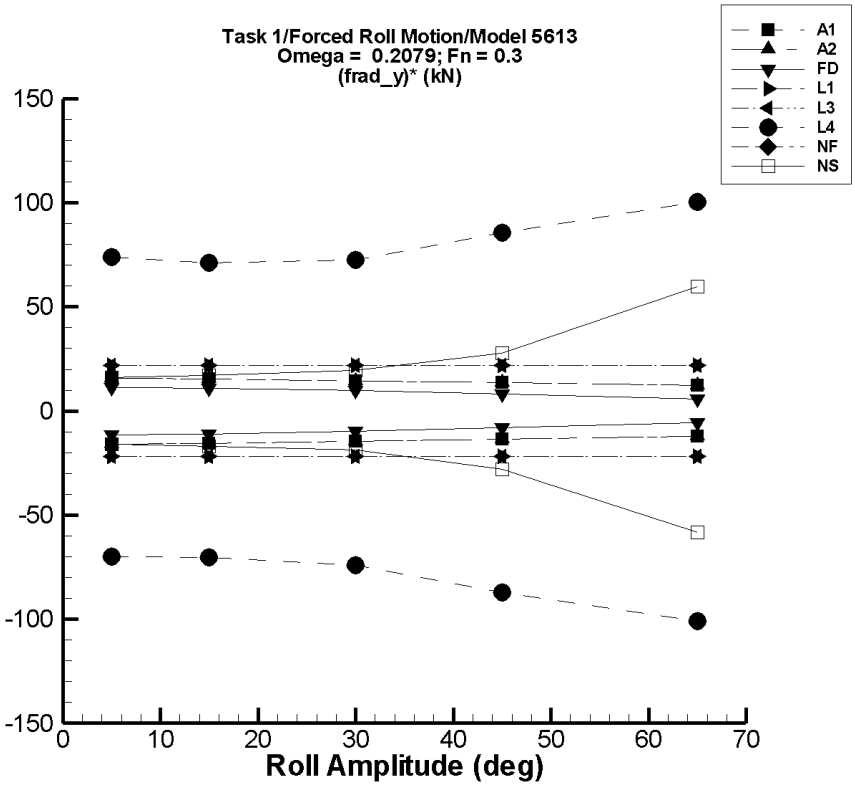

Figure M–88. Minimum and Maximum of $(F_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–697. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	4.35E-02	-82.8	82.4	-79.0	79.1	-15.8	15.8
15.	6.73E-02	-244.	244.	-232.	232.	-15.5	15.5
30.	-0.282	-463.	463.	-434.	433.	-14.5	14.5
45.	-1.41	-630.	636.	-611.	609.	-13.5	13.6
65.	-4.59	-802.	805.	-796.	799.	-12.2	12.4

Table M–698. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	4.35E-02	-82.8	82.4	-79.0	79.1	-15.8	15.8
15.	6.73E-02	-244.	244.	-232.	232.	-15.5	15.5
30.	-0.282	-463.	463.	-434.	433.	-14.5	14.5
45.	-1.41	-630.	636.	-611.	609.	-13.5	13.6
65.	-4.59	-802.	805.	-796.	799.	-12.2	12.4

Table M–699. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.63E-03	-56.8	56.8	-56.8	56.8	-11.4	11.4
15.	-4.39E-02	-165.	165.	-165.	165.	-11.0	11.0
30.	-0.345	-296.	296.	-296.	296.	-9.86	9.88
45.	-1.13	-363.	363.	-363.	363.	-8.04	8.09
65.	-3.18	-372.	372.	-371.	371.	-5.66	5.76

Table M–700. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	7.32E-02	-109.	109.	-109.	109.	-21.8	21.8
15.	7.33E-02	-327.	327.	-327.	327.	-21.8	21.8
30.	7.24E-02	-653.	654.	-653.	653.	-21.8	21.8
45.	7.01E-02	-980.	980.	-980.	980.	-21.8	21.8
65.	6.70E-02	-1.42E+03	1.42E+03	-1.42E+03	1.42E+03	-21.8	21.8

Table M–701. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	7.26E-02	-109.	109.	-109.	109.	-21.8	21.8
15.	7.75E-02	-327.	327.	-327.	327.	-21.8	21.8
30.	8.40E-02	-653.	654.	-653.	653.	-21.8	21.8
45.	8.91E-02	-980.	980.	-980.	980.	-21.8	21.8
65.	9.58E-02	-1.42E+03	1.42E+03	-1.42E+03	1.42E+03	-21.8	21.8

Table M–702. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.44	-392.	418.	-353.	365.	-69.9	73.7
15.	12.9	-1.18E+03	1.27E+03	-1.04E+03	1.08E+03	-70.4	71.2
30.	27.0	-2.27E+03	2.49E+03	-2.19E+03	2.21E+03	-74.1	72.6
45.	37.7	-4.05E+03	4.00E+03	-3.88E+03	3.89E+03	-87.1	85.6
65.	17.7	-7.29E+03	7.17E+03	-6.55E+03	6.54E+03	-101.	100.

Table M–703. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–704. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.91E-03	-81.7	81.7	-80.3	80.3	-16.1	16.1
15.	-4.29E-02	-272.	272.	-254.	258.	-16.9	17.2
30.	-5.63E-02	-650.	651.	-559.	588.	-18.6	19.6
45.	0.123	-1.30E+03	1.28E+03	-1.27E+03	1.25E+03	-28.1	27.9
65.	12.2	-4.53E+03	4.26E+03	-3.77E+03	3.90E+03	-58.2	59.8

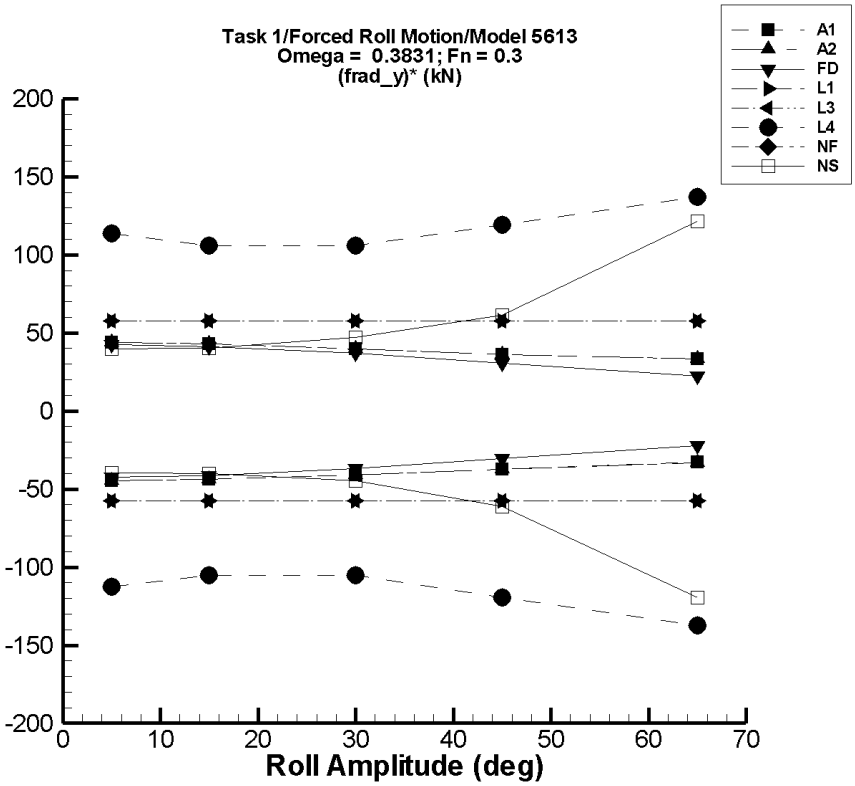

Figure M–89. Minimum and Maximum of $(F_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–705. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.229	-225.	219.	-224.	219.	-44.8	43.8
15.	0.522	-661.	643.	-658.	643.	-43.9	42.8
30.	-5.10E-02	-1.24E+03	1.21E+03	-1.23E+03	1.20E+03	-41.1	39.9
45.	-2.68	-1.69E+03	1.72E+03	-1.68E+03	1.62E+03	-37.4	36.1
65.	-10.6	-2.17E+03	2.23E+03	-2.15E+03	2.16E+03	-32.9	33.4

Table M–706. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.229	-225.	219.	-224.	219.	-44.8	43.8
15.	0.522	-661.	643.	-658.	643.	-43.9	42.8
30.	-5.10E-02	-1.24E+03	1.21E+03	-1.23E+03	1.20E+03	-41.1	39.9
45.	-2.68	-1.69E+03	1.72E+03	-1.68E+03	1.62E+03	-37.4	36.1
65.	-26.9	-2.26E+03	2.15E+03	-2.19E+03	2.13E+03	-33.3	33.2

Table M–707. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.50E-03	-214.	214.	-213.	213.	-42.6	42.6
15.	-0.146	-622.	622.	-620.	620.	-41.3	41.3
30.	-1.14	-1.12E+03	1.12E+03	-1.11E+03	1.11E+03	-37.1	37.1
45.	-3.72	-1.38E+03	1.38E+03	-1.37E+03	1.37E+03	-30.4	30.6
65.	-10.4	-1.46E+03	1.46E+03	-1.46E+03	1.45E+03	-22.3	22.5

Table M–708. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.73E-02	-288.	288.	-287.	288.	-57.5	57.5
15.	6.73E-02	-864.	864.	-863.	863.	-57.5	57.5
30.	6.36E-02	-1.73E+03	1.73E+03	-1.73E+03	1.73E+03	-57.5	57.5
45.	5.70E-02	-2.59E+03	2.59E+03	-2.59E+03	2.59E+03	-57.5	57.5
65.	4.56E-02	-3.74E+03	3.74E+03	-3.74E+03	3.74E+03	-57.5	57.5

Table M–709. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.83E-02	-288.	288.	-288.	288.	-57.5	57.5
15.	7.25E-02	-864.	864.	-863.	863.	-57.5	57.5
30.	7.55E-02	-1.73E+03	1.73E+03	-1.73E+03	1.73E+03	-57.5	57.5
45.	7.58E-02	-2.59E+03	2.59E+03	-2.59E+03	2.59E+03	-57.5	57.5
65.	7.41E-02	-3.74E+03	3.74E+03	-3.74E+03	3.74E+03	-57.5	57.5

Table M–710. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-5.09	-608.	599.	-568.	562.	-113.	113.
15.	-6.10	-1.62E+03	1.64E+03	-1.58E+03	1.58E+03	-105.	106.
30.	-8.73	-3.20E+03	3.19E+03	-3.17E+03	3.17E+03	-105.	106.
45.	4.14	-5.42E+03	5.43E+03	-5.37E+03	5.36E+03	-119.	119.
65.	-8.21	-1.15E+04	1.02E+04	-8.94E+03	8.90E+03	-137.	137.

Table M–711. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–712. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.40E-02	-203.	203.	-198.	198.	-39.5	39.6
15.	-0.466	-666.	665.	-605.	603.	-40.3	40.3
30.	-2.29	-1.63E+03	1.63E+03	-1.34E+03	1.41E+03	-44.6	47.0
45.	-6.58	-2.88E+03	2.95E+03	-2.77E+03	2.75E+03	-61.4	61.3
65.	-7.07	-9.62E+03	9.12E+03	-7.76E+03	7.88E+03	-119.	121.

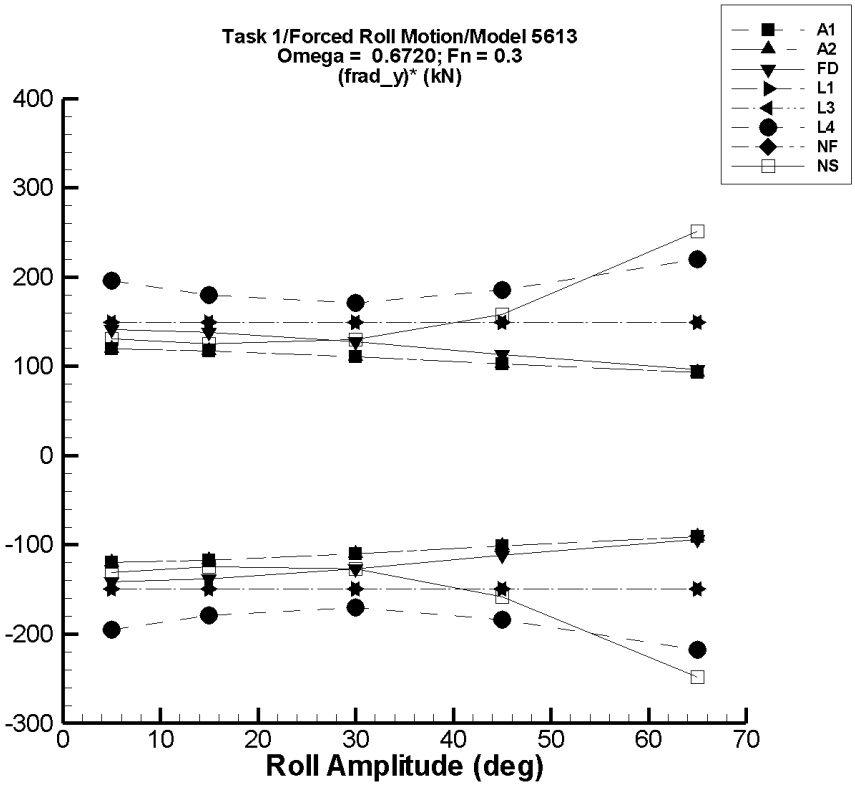

Figure M–90. Minimum and Maximum of $(F_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–713. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.786	-604.	607.	-597.	600.	-120.	120.
15.	1.69	-1.78E+03	1.79E+03	-1.76E+03	1.76E+03	-117.	117.
30.	-1.01	-3.34E+03	3.37E+03	-3.30E+03	3.33E+03	-110.	111.
45.	-11.9	-4.63E+03	4.67E+03	-4.56E+03	4.60E+03	-101.	102.
65.	-43.8	-6.09E+03	6.15E+03	-5.94E+03	5.98E+03	-90.7	92.7

Table M–714. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_y^{\text{rad}} \rangle$	**Unfiltered** F_y^{rad}		**Filtered** F_y^{rad}		**Filtered** $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	0.786	-604.	607.	-597.	600.	-120.	120.
15.	1.69	-1.78E+03	1.79E+03	-1.76E+03	1.76E+03	-117.	117.
30.	-1.01	-3.34E+03	3.37E+03	-3.30E+03	3.33E+03	-110.	111.
45.	-11.9	-4.63E+03	4.67E+03	-4.56E+03	4.60E+03	-101.	102.
65.	-43.8	-6.09E+03	6.15E+03	-5.94E+03	5.98E+03	-90.7	92.7

Table M–715. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.66E-02	-717.	716.	-708.	708.	-142.	142.
15.	-1.01	-2.10E+03	2.10E+03	-2.07E+03	2.07E+03	-138.	138.
30.	-7.95	-3.85E+03	3.85E+03	-3.82E+03	3.81E+03	-127.	127.
45.	-25.8	-5.12E+03	5.12E+03	-5.06E+03	5.06E+03	-112.	113.
65.	-71.8	-6.36E+03	6.36E+03	-6.19E+03	6.19E+03	-94.1	96.3

Table M–716. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.69E-02	-751.	751.	-747.	748.	-150.	150.
15.	6.51E-02	-2.25E+03	2.25E+03	-2.24E+03	2.24E+03	-150.	150.
30.	5.54E-02	-4.50E+03	4.50E+03	-4.49E+03	4.49E+03	-150.	150.
45.	3.89E-02	-6.76E+03	6.76E+03	-6.73E+03	6.73E+03	-150.	150.
65.	7.72E-03	-9.76E+03	9.76E+03	-9.72E+03	9.72E+03	-150.	150.

Table M–717. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.42E-02	-751.	751.	-748.	748.	-150.	150.
15.	6.20E-02	-2.25E+03	2.25E+03	-2.24E+03	2.24E+03	-150.	150.
30.	5.18E-02	-4.50E+03	4.50E+03	-4.49E+03	4.49E+03	-150.	150.
45.	3.51E-02	-6.76E+03	6.76E+03	-6.73E+03	6.73E+03	-150.	150.
65.	2.03E-03	-9.76E+03	9.76E+03	-9.72E+03	9.72E+03	-150.	150.

Table M–718. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-1.88	-993.	995.	-978.	980.	-195.	196.
15.	-1.58	-2.75E+03	2.74E+03	-2.69E+03	2.69E+03	-179.	180.
30.	-6.50	-5.33E+03	5.32E+03	-5.13E+03	5.12E+03	-171.	171.
45.	-43.2	-8.54E+03	8.50E+03	-8.32E+03	8.32E+03	-184.	186.
65.	-129.	-1.46E+04	1.46E+04	-1.43E+04	1.42E+04	-218.	220.

Table M–719. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–720. Minimum and Maximum of F_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_y^{\text{rad}} \rangle$	Unfiltered F_y^{rad}		Filtered F_y^{rad}		Filtered $\left(F_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	0.229	-670.	670.	-653.	654.	-131.	131.
15.	0.243	-2.08E+03	2.09E+03	-1.87E+03	1.88E+03	-125.	125.
30.	-1.59	-4.75E+03	4.76E+03	-3.81E+03	3.90E+03	-127.	130.
45.	-7.99	-8.32E+03	8.59E+03	-7.14E+03	7.13E+03	-158.	159.
65.	-8.26	-1.85E+04	1.77E+04	-1.61E+04	1.63E+04	-248.	251.

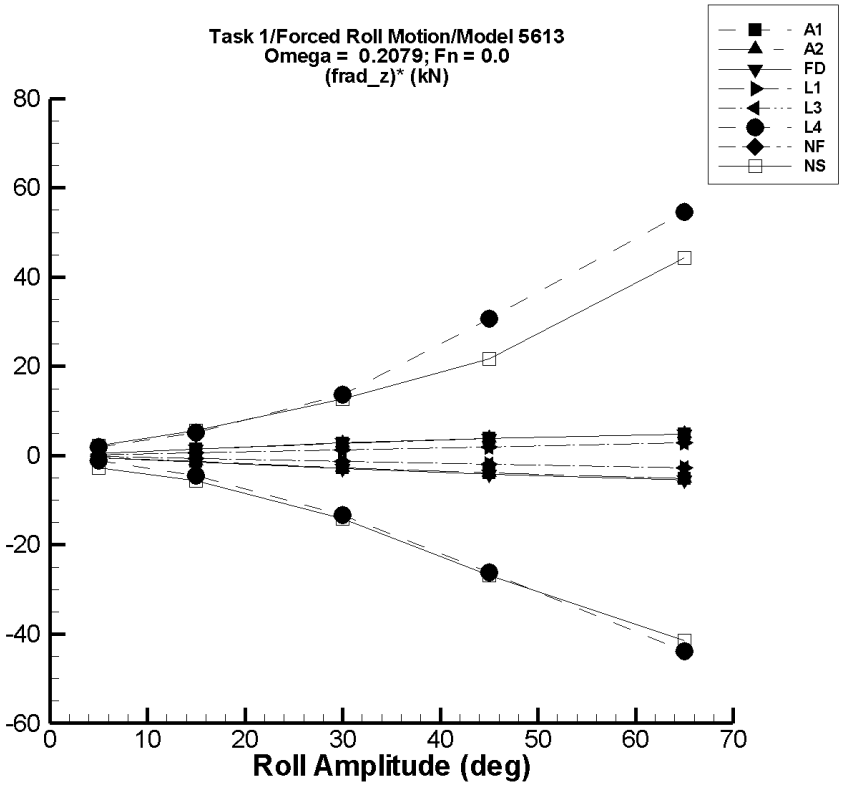

Figure M–91. Minimum and Maximum of $(F_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–721. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
ϕ_a (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered F_z^{rad} Min. (kN)	Unfiltered F_z^{rad} Max. (kN)	Filtered F_z^{rad} Min. (kN)	Filtered F_z^{rad} Max. (kN)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Min. (kN/°)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Max. (kN/°)
5.	2.30	-4.77E-04	5.27	-1.25E-02	4.73	-0.463	0.485
15.	20.5	-4.76E-03	46.9	-0.112	42.1	-1.38	1.44
30.	80.1	-1.95E-02	182.	-0.432	163.	-2.68	2.75
45.	172.	-4.42E-02	386.	-0.916	345.	-3.85	3.83
65.	330.	-9.27E-02	720.	-1.70	639.	-5.10	4.76

Table M–722. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
ϕ_a (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered F_z^{rad} Min. (kN)	Unfiltered F_z^{rad} Max. (kN)	Filtered F_z^{rad} Min. (kN)	Filtered F_z^{rad} Max. (kN)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Min. (kN/°)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Max. (kN/°)
5.	2.30	-4.77E-04	5.27	-1.25E-02	4.73	-0.463	0.485
15.	20.5	-4.76E-03	46.9	-0.112	42.1	-1.38	1.44
30.	80.1	-1.95E-02	182.	-0.432	163.	-2.68	2.75
45.	172.	-4.42E-02	386.	-0.916	345.	-3.85	3.83
65.	330.	-9.27E-02	720.	-1.70	639.	-5.10	4.76

Table M–723. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
ϕ_a (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered F_z^{rad} Min. (kN)	Unfiltered F_z^{rad} Max. (kN)	Filtered F_z^{rad} Min. (kN)	Filtered F_z^{rad} Max. (kN)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Min. (kN/°)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Max. (kN/°)
5.	2.49	-3.42E-04	4.97	-8.38E-03	4.96	-0.499	0.495
15.	22.2	-3.08E-03	44.3	-7.42E-02	44.2	-1.49	1.47
30.	86.6	-1.23E-02	171.	-0.281	171.	-2.89	2.81
45.	186.	-2.77E-02	363.	-0.574	362.	-4.16	3.91
65.	356.	-5.78E-02	672.	-0.973	671.	-5.50	4.84

Table M–724. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
ϕ_a (°)	$\langle F_z^{\text{rad}} \rangle$ Mean (kN)	Unfiltered F_z^{rad} Min. (kN)	Unfiltered F_z^{rad} Max. (kN)	Filtered F_z^{rad} Min. (kN)	Filtered F_z^{rad} Max. (kN)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Min. (kN/°)	Filtered $\left(F_z^{\text{rad}}\right)^*$ Max. (kN/°)
5.	1.08	-1.78E-03	2.15	-8.35E-05	2.15	-0.215	0.215
15.	9.68	-1.36E-02	19.4	1.73E-03	19.4	-0.645	0.646
30.	38.7	-5.19E-02	77.5	9.34E-03	77.5	-1.29	1.29
45.	87.1	-0.115	174.	2.25E-02	174.	-1.94	1.94
65.	182.	-0.238	364.	4.93E-02	364.	-2.80	2.80

Table M–725. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.08	-1.76E-03	2.15	-6.39E-05	2.15	-0.215	0.215
15.	9.68	-1.35E-02	19.4	1.76E-03	19.4	-0.645	0.646
30.	38.7	-5.19E-02	77.5	9.22E-03	77.5	-1.29	1.29
45.	87.1	-0.115	174.	2.26E-02	174.	-1.94	1.94
65.	182.	-0.237	364.	4.96E-02	364.	-2.80	2.80

Table M–726. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.91	-5.96	11.2	-3.48	11.1	-1.08	1.85
15.	15.6	-57.1	112.	-53.1	91.7	-4.58	5.07
30.	60.1	-353.	563.	-340.	470.	-13.4	13.6
45.	164.	-1.03E+03	1.58E+03	-1.02E+03	1.54E+03	-26.3	30.6
65.	531.	-2.33E+03	4.18E+03	-2.32E+03	4.08E+03	-43.9	54.5

Table M–727. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–728. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	1.67	-24.1	29.2	-11.8	13.2	-2.70	2.30
15.	14.7	-134.	181.	-69.5	98.2	-5.62	5.57
30.	57.8	-415.	633.	-366.	436.	-14.1	12.6
45.	146.	-1.08E+03	1.75E+03	-1.06E+03	1.12E+03	-26.8	21.7
65.	363.	-2.40E+03	4.56E+03	-2.33E+03	3.24E+03	-41.5	44.3

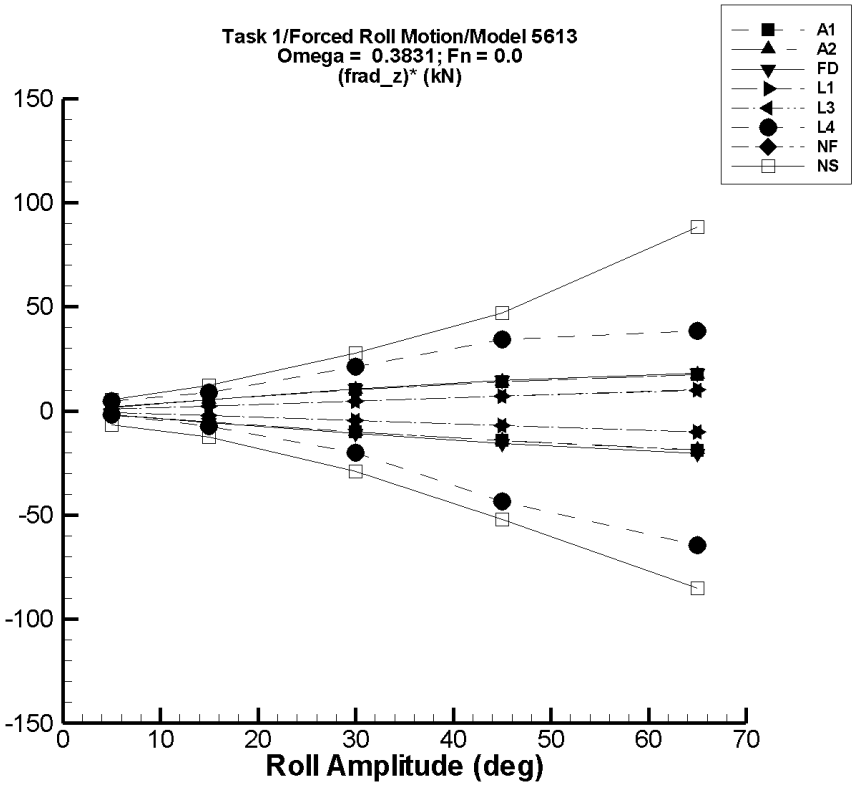

Figure M–92. Minimum and Maximum of $(F_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–729. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57	-1.09E-02	17.6	-2.39E-02	17.4	-1.72	1.77
15.	76.5	-0.102	157.	-0.211	155.	-5.11	5.25
30.	298.	-0.413	605.	-0.748	600.	-9.96	10.1
45.	642.	-0.932	1.28E+03	-1.32	1.27E+03	-14.3	14.0
65.	1.23E+03	-1.95	2.38E+03	-1.35	2.36E+03	-18.9	17.4

Table M–730. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	8.57	-1.09E-02	17.6	-2.39E-02	17.4	-1.72	1.77
15.	76.5	-0.102	157.	-0.211	155.	-5.11	5.25
30.	298.	-0.413	605.	-0.748	600.	-9.96	10.1
45.	642.	-0.932	1.28E+03	-1.32	1.27E+03	-14.3	14.0
65.	1.23E+03	-1.49	2.39E+03	3.99	2.35E+03	-18.8	17.3

Table M–731. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.33	-2.20E-02	18.7	6.39E-03	18.5	-1.87	1.84
15.	83.4	-0.198	166.	5.87E-02	165.	-5.55	5.46
30.	325.	-0.791	643.	0.252	639.	-10.8	10.5
45.	700.	-1.78	1.36E+03	0.627	1.36E+03	-15.5	14.6
65.	1.34E+03	-3.71	2.53E+03	1.55	2.51E+03	-20.6	18.0

Table M–732. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	3.84	-1.66E-02	7.69	4.24E-03	7.70	-0.766	0.772
15.	34.5	-0.138	69.2	4.78E-02	69.3	-2.30	2.32
30.	138.	-0.543	277.	0.200	277.	-4.60	4.63
45.	311.	-1.21	623.	0.456	623.	-6.89	6.95
65.	648.	-2.53	1.30E+03	0.959	1.30E+03	-9.96	10.0

Table M–733. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	3.84	-2.10E-02	7.69	-4.71E-04	7.69	-0.767	0.772
15.	34.5	-0.182	69.2	4.66E-03	69.2	-2.30	2.31
30.	138.	-0.718	277.	2.69E-02	277.	-4.60	4.63
45.	311.	-1.61	623.	6.69E-02	623.	-6.90	6.94
65.	648.	-3.35	1.30E+03	0.147	1.30E+03	-9.97	10.0

Table M–734. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	6.91	-19.2	32.0	-2.35	29.7	-1.85	4.56
15.	52.7	-72.0	289.	-55.7	184.	-7.23	8.73
30.	163.	-471.	869.	-442.	800.	-20.1	21.3
45.	268.	-1.77E+03	2.03E+03	-1.68E+03	1.81E+03	-43.3	34.4
65.	350.	-4.01E+03	3.37E+03	-3.84E+03	2.86E+03	-64.4	38.6

Table M–735. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–736. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	5.57	-56.3	70.6	-27.1	32.4	-6.54	5.36
15.	47.8	-330.	434.	-138.	235.	-12.4	12.4
30.	174.	-920.	1.47E+03	-699.	1.00E+03	-29.1	27.7
45.	379.	-2.29E+03	3.95E+03	-1.96E+03	2.50E+03	-52.1	47.0
65.	809.	-5.01E+03	9.50E+03	-4.72E+03	6.56E+03	-85.1	88.5

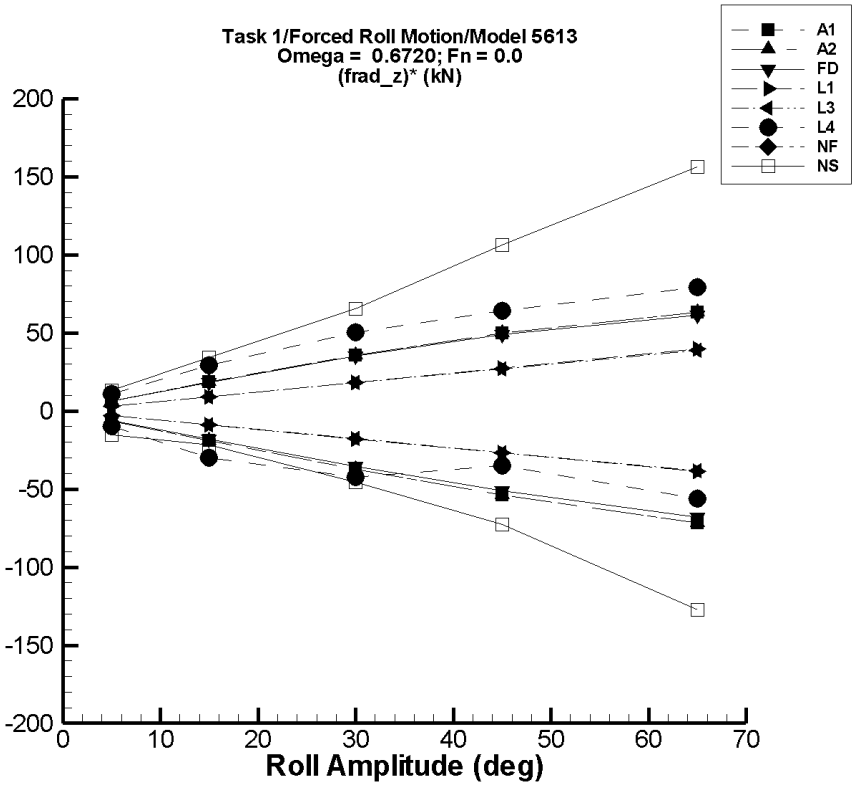

Figure M–93. Minimum and Maximum of $(F_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–737. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{rad}} \rangle$	**Unfiltered** F_z^{rad}		**Filtered** F_z^{rad}		**Filtered** $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	30.1	-2.35	62.9	-2.04	61.4	-6.44	6.26
15.	269.	-21.2	560.	-18.4	547.	-19.2	18.5
30.	1.05E+03	-84.5	2.17E+03	-72.9	2.12E+03	-37.4	35.6
45.	2.26E+03	-190.	4.61E+03	-162.	4.51E+03	-53.8	50.0
65.	4.32E+03	-394.	8.59E+03	-331.	8.43E+03	-71.6	63.2

Table M–738. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{rad}} \rangle$	**Unfiltered** F_z^{rad}		**Filtered** F_z^{rad}		**Filtered** $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	30.1	-2.35	62.9	-2.04	61.4	-6.44	6.26
15.	269.	-21.2	560.	-18.4	547.	-19.2	18.5
30.	1.05E+03	-84.5	2.17E+03	-72.9	2.12E+03	-37.4	35.6
45.	2.26E+03	-190.	4.61E+03	-162.	4.51E+03	-53.8	50.0
65.	4.32E+03	-394.	8.59E+03	-331.	8.43E+03	-71.6	63.2

Table M–739. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	28.7	-2.63	60.0	-1.89	59.6	-6.12	6.17
15.	256.	-23.7	535.	-16.9	531.	-18.2	18.3
30.	999.	-94.6	2.07E+03	-67.3	2.05E+03	-35.5	35.1
45.	2.15E+03	-212.	4.40E+03	-150.	4.36E+03	-51.1	49.1
65.	4.11E+03	-441.	8.21E+03	-305.	8.10E+03	-67.9	61.4

Table M–740. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	12.8	-2.38	28.0	-2.14	28.0	-2.99	3.04
15.	115.	-21.4	252.	-19.3	252.	-8.97	9.13
30.	461.	-85.7	1.01E+03	-77.1	1.01E+03	-17.9	18.3
45.	1.04E+03	-193.	2.27E+03	-173.	2.27E+03	-26.9	27.4
65.	2.16E+03	-402.	4.73E+03	-362.	4.73E+03	-38.9	39.5

Table M–741. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	12.8	-2.22	27.8	-1.99	27.8	-2.96	3.00
15.	115.	-19.9	250.	-17.9	250.	-8.87	9.01
30.	461.	-79.7	1.00E+03	-71.6	1.00E+03	-17.7	18.0
45.	1.04E+03	-179.	2.25E+03	-161.	2.25E+03	-26.6	27.0
65.	2.16E+03	-374.	4.70E+03	-336.	4.70E+03	-38.5	39.0

Table M–742. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	29.8	-67.9	107.	-20.0	85.1	-9.97	11.1
15.	227.	-298.	695.	-222.	666.	-29.9	29.3
30.	680.	-713.	2.47E+03	-591.	2.19E+03	-42.4	50.3
45.	1.06E+03	-769.	4.75E+03	-516.	3.96E+03	-35.1	64.3
65.	1.63E+03	-2.82E+03	9.41E+03	-2.01E+03	6.79E+03	-56.0	79.4

Table M–743. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–744. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	17.5	-123.	171.	-60.1	83.6	-15.5	13.2
15.	147.	-596.	911.	-176.	664.	-21.6	34.4
30.	506.	-1.01E+03	3.03E+03	-864.	2.46E+03	-45.7	65.2
45.	961.	-2.77E+03	9.24E+03	-2.31E+03	5.75E+03	-72.7	107.
65.	1.76E+03	-8.99E+03	2.15E+04	-6.50E+03	1.19E+04	-127.	156.

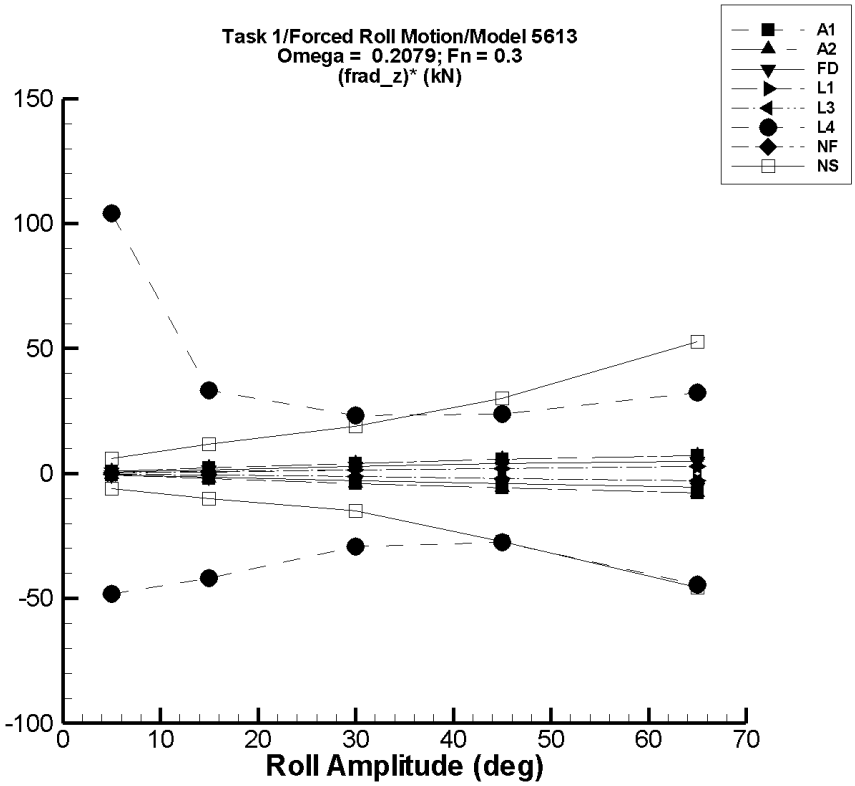

Figure M–94. Minimum and Maximum of $(F_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–745. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{rad}} \rangle$	**Unfiltered** F_z^{rad}		**Filtered** F_z^{rad}		**Filtered** $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	2.88	-0.776	6.47	-0.600	6.44	-0.695	0.713
15.	25.7	-7.05	57.6	-5.45	57.3	-2.08	2.11
30.	100.	-28.2	223.	-21.8	222.	-4.06	4.06
45.	216.	-63.2	475.	-48.8	473.	-5.87	5.71
65.	412.	-131.	886.	-101.	883.	-7.89	7.25

Table M–746. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{rad}} \rangle$	**Unfiltered** F_z^{rad}		**Filtered** F_z^{rad}		**Filtered** $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN)**	**Max. (kN)**	**Min. (kN/°)**	**Max. (kN/°)**
5.	2.88	-0.776	6.47	-0.600	6.44	-0.695	0.713
15.	25.7	-7.05	57.6	-5.45	57.3	-2.08	2.11
30.	100.	-28.2	223.	-21.8	222.	-4.06	4.06
45.	216.	-63.2	475.	-48.8	473.	-5.87	5.71
65.	412.	-131.	886.	-101.	883.	-7.89	7.25

Table M–747. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	2.49	-3.42E-04	4.97	-8.38E-03	4.96	-0.499	0.495
15.	22.2	-3.08E-03	44.3	-7.42E-02	44.2	-1.49	1.47
30.	86.6	-1.23E-02	171.	-0.281	171.	-2.89	2.81
45.	186.	-2.77E-02	363.	-0.574	362.	-4.16	3.91
65.	356.	-5.78E-02	672.	-0.973	671.	-5.50	4.84

Table M–748. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.225	0.230
15.	-3.72E+03	-3.73E+03	-3.71E+03	-3.73E+03	-3.71E+03	-0.649	0.652
30.	-3.70E+03	-3.73E+03	-3.66E+03	-3.73E+03	-3.66E+03	-1.30	1.30
45.	-3.65E+03	-3.74E+03	-3.56E+03	-3.73E+03	-3.56E+03	-1.94	1.94
65.	-3.55E+03	-3.74E+03	-3.37E+03	-3.74E+03	-3.37E+03	-2.80	2.81

Table M–749. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.306	0.296
15.	-3.72E+03	-3.73E+03	-3.71E+03	-3.73E+03	-3.71E+03	-0.678	0.673
30.	-3.70E+03	-3.73E+03	-3.66E+03	-3.73E+03	-3.66E+03	-1.31	1.31
45.	-3.65E+03	-3.74E+03	-3.56E+03	-3.74E+03	-3.56E+03	-1.95	1.95
65.	-3.55E+03	-3.74E+03	-3.37E+03	-3.74E+03	-3.37E+03	-2.81	2.81

Table M–750. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.80E+03	-4.10E+03	-2.58E+03	-4.04E+03	-3.28E+03	-48.2	104.
15.	-3.79E+03	-4.53E+03	-2.94E+03	-4.42E+03	-3.29E+03	-42.1	33.2
30.	-3.59E+03	-4.62E+03	-2.47E+03	-4.47E+03	-2.90E+03	-29.3	23.2
45.	-3.28E+03	-4.62E+03	-1.46E+03	-4.52E+03	-2.21E+03	-27.5	23.9
65.	-2.61E+03	-6.81E+03	491.	-5.50E+03	-513.	-44.4	32.3

Table M–751. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–752. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	3.81	-38.7	47.0	-27.1	33.2	-6.18	5.87
15.	23.6	-276.	310.	-127.	200.	-10.1	11.7
30.	75.7	-541.	860.	-375.	645.	-15.0	19.0
45.	170.	-1.20E+03	2.01E+03	-1.06E+03	1.52E+03	-27.3	29.9
65.	347.	-2.76E+03	5.19E+03	-2.63E+03	3.78E+03	-45.7	52.8

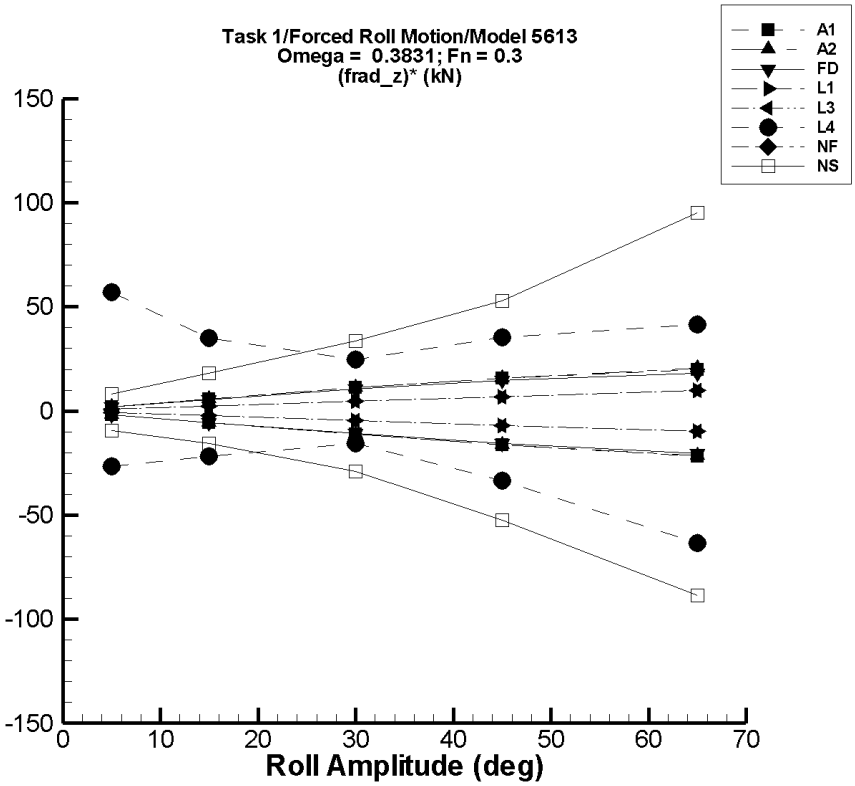

Figure M–95. Minimum and Maximum of $(F_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–753. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{rad}} \rangle$	**Unfiltered** F_z^{rad}		**Filtered** F_z^{rad}		**Filtered** $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.23	-1.59	18.1	-1.41	18.0	-1.93	1.95
15.	73.5	-14.4	162.	-12.8	160.	-5.75	5.78
30.	286.	-57.7	625.	-51.2	620.	-11.3	11.1
45.	617.	-129.	1.33E+03	-115.	1.32E+03	-16.3	15.7
65.	1.18E+03	-268.	2.49E+03	-237.	2.47E+03	-21.8	19.9

Table M–754. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{rad}} \rangle$	**Unfiltered** F_z^{rad}		**Filtered** F_z^{rad}		**Filtered** $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN)**	**(kN/°)**	**(kN/°)**
5.	8.23	-1.59	18.1	-1.41	18.0	-1.93	1.95
15.	73.5	-14.4	162.	-12.8	160.	-5.75	5.78
30.	286.	-57.7	625.	-51.2	620.	-11.3	11.1
45.	617.	-129.	1.33E+03	-115.	1.32E+03	-16.3	15.7
65.	1.18E+03	-298.	2.53E+03	-225.	2.51E+03	-21.6	20.4

Table M–755. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.33	-2.20E-02	18.7	6.39E-03	18.5	-1.87	1.84
15.	83.4	-0.198	166.	5.87E-02	165.	-5.55	5.46
30.	325.	-0.791	643.	0.252	639.	-10.8	10.5
45.	700.	-1.78	1.36E+03	0.627	1.36E+03	-15.5	14.6
65.	1.34E+03	-3.71	2.53E+03	1.55	2.51E+03	-20.6	18.0

Table M–756. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.765	0.774
15.	-3.70E+03	-3.74E+03	-3.67E+03	-3.74E+03	-3.67E+03	-2.29	2.30
30.	-3.60E+03	-3.74E+03	-3.46E+03	-3.74E+03	-3.46E+03	-4.57	4.60
45.	-3.44E+03	-3.75E+03	-3.13E+03	-3.75E+03	-3.13E+03	-6.85	6.90
65.	-3.11E+03	-3.76E+03	-2.47E+03	-3.76E+03	-2.47E+03	-9.90	9.96

Table M–757. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-3.73E+03	-0.779	0.808
15.	-3.70E+03	-3.74E+03	-3.67E+03	-3.74E+03	-3.67E+03	-2.30	2.30
30.	-3.60E+03	-3.74E+03	-3.46E+03	-3.74E+03	-3.46E+03	-4.58	4.59
45.	-3.44E+03	-3.75E+03	-3.13E+03	-3.75E+03	-3.13E+03	-6.87	6.87
65.	-3.12E+03	-3.76E+03	-2.47E+03	-3.76E+03	-2.47E+03	-9.92	9.93

Table M–758. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.81E+03	-4.19E+03	-3.21E+03	-3.94E+03	-3.53E+03	-26.7	57.1
15.	-3.79E+03	-4.18E+03	-3.17E+03	-4.12E+03	-3.27E+03	-21.7	34.9
30.	-3.58E+03	-4.11E+03	-2.59E+03	-4.06E+03	-2.84E+03	-15.7	24.8
45.	-3.22E+03	-4.82E+03	-1.30E+03	-4.73E+03	-1.63E+03	-33.5	35.3
65.	-2.46E+03	-7.50E+03	791.	-6.59E+03	237.	-63.5	41.5

Table M–759. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–760. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	9.20	-74.3	80.0	-38.1	50.3	-9.46	8.22
15.	64.5	-491.	581.	-170.	339.	-15.6	18.3
30.	206.	-1.05E+03	1.70E+03	-669.	1.22E+03	-29.2	33.7
45.	412.	-2.36E+03	4.12E+03	-1.94E+03	2.80E+03	-52.4	53.0
65.	820.	-5.30E+03	1.01E+04	-4.95E+03	7.01E+03	-88.7	95.2

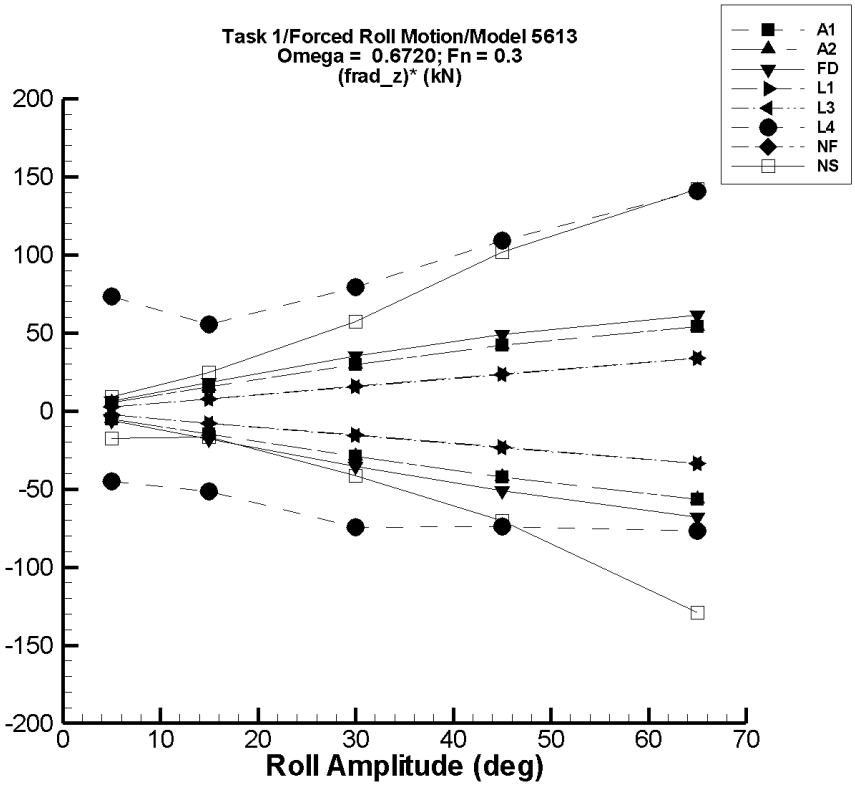

Figure M–96. Minimum and Maximum of $(F_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–761. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	20.6	-6.12	47.6	-4.48	46.3	-5.02	5.14
15.	184.	-54.7	424.	-40.4	413.	-15.0	15.3
30.	717.	-218.	1.64E+03	-161.	1.60E+03	-29.3	29.5
45.	1.54E+03	-487.	3.52E+03	-360.	3.43E+03	-42.3	41.9
65.	2.95E+03	-1.00E+03	6.62E+03	-741.	6.47E+03	-56.8	54.0

Table M–762. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	20.6	-6.12	47.6	-4.48	46.3	-5.02	5.14
15.	184.	-54.7	424.	-40.4	413.	-15.0	15.3
30.	717.	-218.	1.64E+03	-161.	1.60E+03	-29.3	29.5
45.	1.54E+03	-487.	3.52E+03	-360.	3.43E+03	-42.3	41.9
65.	2.95E+03	-1.00E+03	6.62E+03	-741.	6.47E+03	-56.8	54.0

Table M–763. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	28.7	-2.63	60.0	-1.89	59.6	-6.12	6.17
15.	256.	-23.7	535.	-16.9	531.	-18.2	18.3
30.	999.	-94.6	2.07E+03	-67.3	2.05E+03	-35.5	35.1
45.	2.15E+03	-212.	4.40E+03	-150.	4.36E+03	-51.1	49.1
65.	4.11E+03	-441.	8.21E+03	-305.	8.10E+03	-67.9	61.4

Table M–764. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.72E+03	-3.74E+03	-3.71E+03	-3.74E+03	-3.71E+03	-2.58	2.63
15.	-3.64E+03	-3.76E+03	-3.52E+03	-3.76E+03	-3.52E+03	-7.76	7.85
30.	-3.36E+03	-3.83E+03	-2.89E+03	-3.83E+03	-2.89E+03	-15.5	15.7
45.	-2.89E+03	-3.96E+03	-1.83E+03	-3.94E+03	-1.84E+03	-23.3	23.5
65.	-1.98E+03	-4.20E+03	236.	-4.17E+03	228.	-33.6	34.0

Table M–765. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.72E+03	-3.74E+03	-3.71E+03	-3.74E+03	-3.71E+03	-2.64	2.64
15.	-3.64E+03	-3.76E+03	-3.52E+03	-3.76E+03	-3.52E+03	-7.83	7.82
30.	-3.36E+03	-3.84E+03	-2.88E+03	-3.83E+03	-2.89E+03	-15.6	15.6
45.	-2.89E+03	-3.97E+03	-1.82E+03	-3.95E+03	-1.84E+03	-23.4	23.4
65.	-1.98E+03	-4.22E+03	256.	-4.18E+03	219.	-33.9	33.9

Table M–766. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	-3.81E+03	-4.05E+03	-3.25E+03	-4.03E+03	-3.44E+03	-44.9	73.3
15.	-3.79E+03	-4.59E+03	-2.84E+03	-4.56E+03	-2.96E+03	-51.5	55.3
30.	-3.55E+03	-5.86E+03	-894.	-5.79E+03	-1.18E+03	-74.6	79.0
45.	-3.11E+03	-6.53E+03	2.41E+03	-6.45E+03	1.79E+03	-74.1	109.
65.	-2.65E+03	-8.19E+03	7.57E+03	-7.65E+03	6.50E+03	-76.9	141.

Table M–767. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–768. Minimum and Maximum of F_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle F_z^{\text{rad}} \rangle$	Unfiltered F_z^{rad}		Filtered F_z^{rad}		Filtered $\left(F_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN)	Min. (kN)	Max. (kN)	Min. (kN)	Max. (kN)	Min. (kN/°)	Max. (kN/°)
5.	19.5	-138.	159.	-68.2	63.6	-17.5	8.81
15.	152.	-695.	763.	-100.	524.	-16.9	24.8
30.	499.	-1.13E+03	2.75E+03	-746.	2.21E+03	-41.5	57.0
45.	928.	-2.85E+03	9.29E+03	-2.24E+03	5.50E+03	-70.4	102.
65.	1.68E+03	-9.28E+03	2.07E+04	-6.70E+03	1.09E+04	-129.	142.

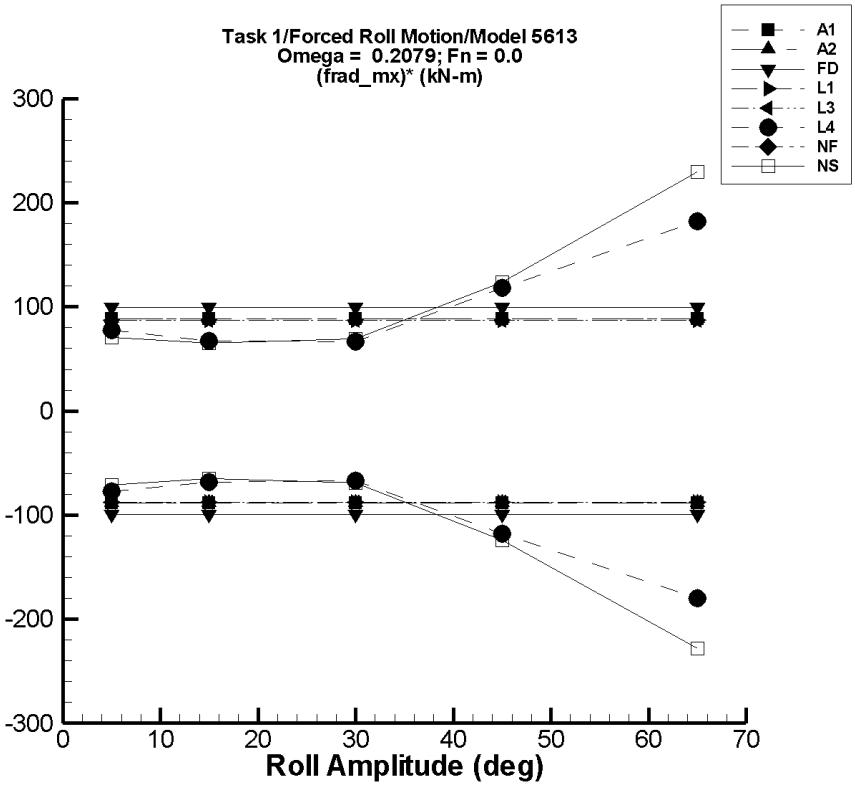

Figure M–97. Minimum and Maximum of $(M_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–769. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.348	-466.	467.	-442.	443.	-88.3	88.6
15.	-1.04	-1.40E+03	1.40E+03	-1.33E+03	1.33E+03	-88.3	88.6
30.	-2.09	-2.80E+03	2.80E+03	-2.65E+03	2.66E+03	-88.3	88.6
45.	-3.13	-4.20E+03	4.20E+03	-3.98E+03	3.98E+03	-88.3	88.6
65.	-4.53	-6.06E+03	6.07E+03	-5.74E+03	5.75E+03	-88.3	88.6

Table M–770. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.348	-466.	467.	-442.	443.	-88.3	88.6
15.	-1.04	-1.40E+03	1.40E+03	-1.33E+03	1.33E+03	-88.3	88.6
30.	-2.09	-2.80E+03	2.80E+03	-2.65E+03	2.66E+03	-88.3	88.6
45.	-3.13	-4.20E+03	4.20E+03	-3.98E+03	3.98E+03	-88.3	88.6
65.	-4.53	-6.06E+03	6.07E+03	-5.74E+03	5.75E+03	-88.3	88.6

Table M–771. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	2.35E-05	-497.	497.	-497.	497.	-99.4	99.4
15.	3.17E-05	-1.49E+03	1.49E+03	-1.49E+03	1.49E+03	-99.4	99.4
30.	-3.17E-05	-2.98E+03	2.98E+03	-2.98E+03	2.98E+03	-99.4	99.4
45.	1.75E-04	-4.48E+03	4.48E+03	-4.47E+03	4.47E+03	-99.4	99.4
65.	-1.16E-04	-6.47E+03	6.47E+03	-6.46E+03	6.46E+03	-99.4	99.4

Table M–772. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-1.88E-05	-437.	437.	-437.	437.	-87.3	87.3
15.	1.16E-03	-1.31E+03	1.31E+03	-1.31E+03	1.31E+03	-87.3	87.3
30.	4.22E-03	-2.62E+03	2.62E+03	-2.62E+03	2.62E+03	-87.3	87.3
45.	8.69E-03	-3.93E+03	3.93E+03	-3.93E+03	3.93E+03	-87.3	87.3
65.	2.12E-02	-5.68E+03	5.68E+03	-5.68E+03	5.68E+03	-87.3	87.3

Table M–773. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-2.34E-05	-437.	437.	-437.	437.	-87.3	87.3
15.	1.16E-03	-1.31E+03	1.31E+03	-1.31E+03	1.31E+03	-87.3	87.3
30.	4.17E-03	-2.62E+03	2.62E+03	-2.62E+03	2.62E+03	-87.3	87.3
45.	8.53E-03	-3.93E+03	3.93E+03	-3.93E+03	3.93E+03	-87.3	87.3
65.	2.15E-02	-5.68E+03	5.68E+03	-5.68E+03	5.68E+03	-87.3	87.3

Table M–774. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	0.901	-387.	387.	-387.	387.	-77.6	77.2
15.	4.09	-1.02E+03	1.02E+03	-1.02E+03	1.02E+03	-68.1	67.5
30.	9.29	-2.02E+03	2.02E+03	-2.01E+03	2.00E+03	-67.2	66.5
45.	-17.8	-5.37E+03	5.38E+03	-5.32E+03	5.30E+03	-118.	118.
65.	-59.5	-1.18E+04	1.19E+04	-1.18E+04	1.18E+04	-180.	182.

Table M–775. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–776. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.32E-02	-358.	358.	-354.	354.	-70.9	70.8
15.	-0.139	-988.	987.	-975.	972.	-65.0	64.8
30.	-0.834	-2.17E+03	2.16E+03	-2.08E+03	2.07E+03	-69.2	69.0
45.	-4.28	-5.63E+03	5.61E+03	-5.59E+03	5.55E+03	-124.	123.
65.	11.9	-1.49E+04	1.51E+04	-1.48E+04	1.50E+04	-228.	230.

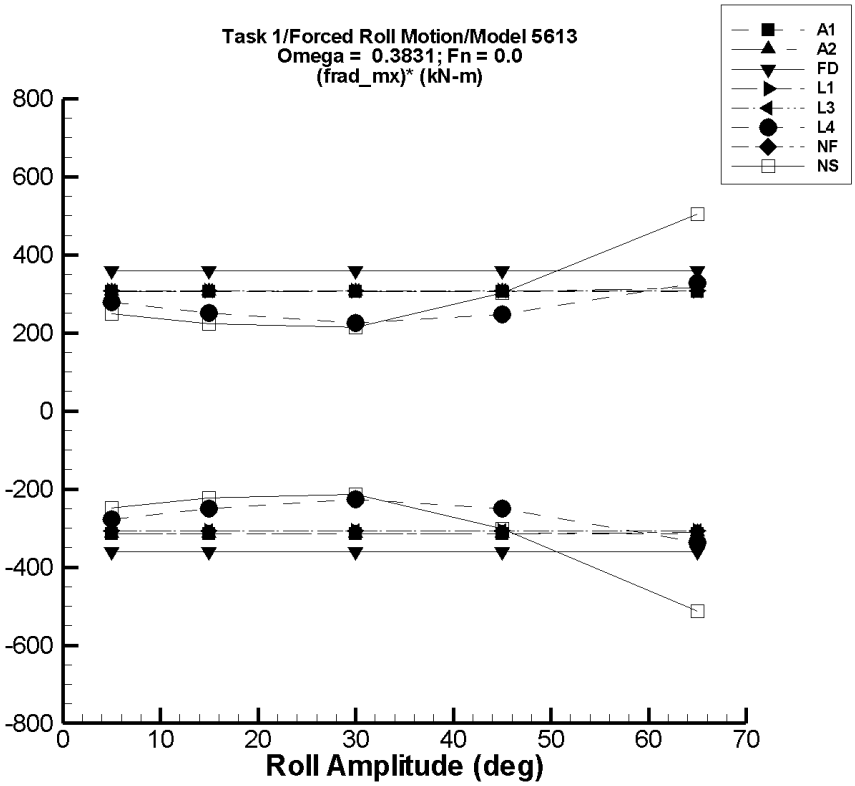

Figure M–98. Minimum and Maximum of $(M_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–777. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.60	-1.58E+03	1.56E+03	-1.58E+03	1.53E+03	-315.	305.
15.	-4.81	-4.75E+03	4.67E+03	-4.72E+03	4.57E+03	-315.	305.
30.	-9.62	-9.50E+03	9.34E+03	-9.45E+03	9.15E+03	-315.	305.
45.	-14.4	-1.42E+04	1.40E+04	-1.42E+04	1.37E+04	-315.	305.
65.	-20.8	-2.06E+04	2.02E+04	-2.05E+04	1.98E+04	-315.	305.

Table M–778. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.60	-1.58E+03	1.56E+03	-1.58E+03	1.53E+03	-315.	305.
15.	-4.81	-4.75E+03	4.67E+03	-4.72E+03	4.57E+03	-315.	305.
30.	-9.62	-9.50E+03	9.34E+03	-9.45E+03	9.15E+03	-315.	305.
45.	-14.4	-1.42E+04	1.40E+04	-1.42E+04	1.37E+04	-315.	305.
65.	-9.80	-2.04E+04	2.05E+04	-2.02E+04	2.04E+04	-310.	315.

Table M–779. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.24E-04	-1.80E+03	1.80E+03	-1.80E+03	1.80E+03	-360.	360.
15.	1.26E-03	-5.41E+03	5.41E+03	-5.39E+03	5.39E+03	-360.	360.
30.	3.03E-03	-1.08E+04	1.08E+04	-1.08E+04	1.08E+04	-360.	360.
45.	2.27E-03	-1.62E+04	1.62E+04	-1.62E+04	1.62E+04	-360.	360.
65.	8.81E-03	-2.35E+04	2.35E+04	-2.34E+04	2.34E+04	-360.	360.

Table M–780. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.74E-02	-1.54E+03	1.54E+03	-1.53E+03	1.54E+03	-307.	307.
15.	5.54E-02	-4.61E+03	4.61E+03	-4.60E+03	4.61E+03	-307.	307.
30.	0.120	-9.22E+03	9.22E+03	-9.21E+03	9.21E+03	-307.	307.
45.	0.190	-1.38E+04	1.38E+04	-1.38E+04	1.38E+04	-307.	307.
65.	0.296	-2.00E+04	2.00E+04	-1.99E+04	2.00E+04	-307.	307.

Table M–781. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	1.66E-02	-1.54E+03	1.54E+03	-1.53E+03	1.53E+03	-307.	307.
15.	5.30E-02	-4.61E+03	4.61E+03	-4.60E+03	4.60E+03	-307.	307.
30.	0.115	-9.22E+03	9.22E+03	-9.21E+03	9.21E+03	-307.	307.
45.	0.185	-1.38E+04	1.38E+04	-1.38E+04	1.38E+04	-307.	307.
65.	0.284	-2.00E+04	2.00E+04	-1.99E+04	2.00E+04	-307.	307.

Table M–782. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	6.79E-02	-1.39E+03	1.39E+03	-1.39E+03	1.39E+03	-279.	278.
15.	-2.67	-3.77E+03	3.77E+03	-3.76E+03	3.76E+03	-251.	251.
30.	-6.77	-6.78E+03	6.78E+03	-6.78E+03	6.73E+03	-226.	225.
45.	-34.0	-1.14E+04	1.15E+04	-1.13E+04	1.11E+04	-250.	247.
65.	-103.	-2.28E+04	2.35E+04	-2.20E+04	2.13E+04	-336.	329.

Table M–783. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–784. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	3.53E-02	-1.25E+03	1.26E+03	-1.24E+03	1.24E+03	-248.	248.
15.	0.254	-3.38E+03	3.39E+03	-3.33E+03	3.34E+03	-222.	222.
30.	1.26	-6.79E+03	6.78E+03	-6.40E+03	6.40E+03	-213.	213.
45.	3.47	-1.37E+04	1.37E+04	-1.36E+04	1.36E+04	-302.	303.
65.	-10.7	-3.35E+04	3.37E+04	-3.33E+04	3.28E+04	-512.	504.

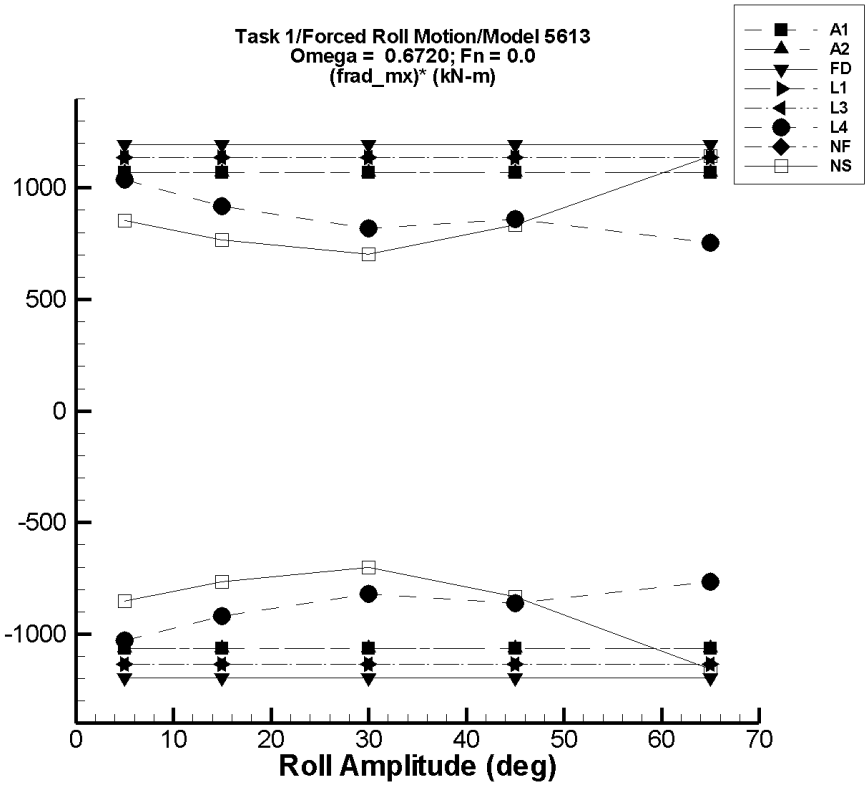

Figure M–99. Minimum and Maximum of $(M_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–785. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-1.50	-5.38E+03	5.40E+03	-5.32E+03	5.34E+03	-1.06E+03	1.07E+03
15.	-4.51	-1.61E+04	1.62E+04	-1.59E+04	1.60E+04	-1.06E+03	1.07E+03
30.	-9.01	-3.23E+04	3.24E+04	-3.19E+04	3.20E+04	-1.06E+03	1.07E+03
45.	-13.5	-4.84E+04	4.86E+04	-4.78E+04	4.80E+04	-1.06E+03	1.07E+03
65.	-19.5	-6.99E+04	7.02E+04	-6.91E+04	6.94E+04	-1.06E+03	1.07E+03

Table M–786. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-1.50	-5.38E+03	5.40E+03	-5.32E+03	5.34E+03	-1.06E+03	1.07E+03
15.	-4.51	-1.61E+04	1.62E+04	-1.59E+04	1.60E+04	-1.06E+03	1.07E+03
30.	-9.01	-3.23E+04	3.24E+04	-3.19E+04	3.20E+04	-1.06E+03	1.07E+03
45.	-13.5	-4.84E+04	4.86E+04	-4.78E+04	4.80E+04	-1.06E+03	1.07E+03
65.	-19.5	-6.99E+04	7.02E+04	-6.91E+04	6.94E+04	-1.06E+03	1.07E+03

Table M–787. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E-02	-6.03E+03	6.03E+03	-5.97E+03	5.96E+03	-1.19E+03	1.19E+03
15.	-3.13E-02	-1.81E+04	1.81E+04	-1.79E+04	1.79E+04	-1.19E+03	1.19E+03
30.	-6.20E-02	-3.62E+04	3.62E+04	-3.58E+04	3.58E+04	-1.19E+03	1.19E+03
45.	-8.94E-02	-5.43E+04	5.43E+04	-5.38E+04	5.37E+04	-1.19E+03	1.19E+03
65.	-0.131	-7.84E+04	7.84E+04	-7.76E+04	7.75E+04	-1.19E+03	1.19E+03

Table M–788. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.80E-02	-5.70E+03	5.70E+03	-5.68E+03	5.68E+03	-1.14E+03	1.14E+03
15.	0.150	-1.71E+04	1.71E+04	-1.70E+04	1.70E+04	-1.14E+03	1.14E+03
30.	0.330	-3.42E+04	3.42E+04	-3.41E+04	3.41E+04	-1.14E+03	1.14E+03
45.	0.543	-5.13E+04	5.13E+04	-5.11E+04	5.11E+04	-1.14E+03	1.14E+03
65.	0.845	-7.41E+04	7.41E+04	-7.38E+04	7.38E+04	-1.14E+03	1.14E+03

Table M–789. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.50E-02	-5.70E+03	5.70E+03	-5.68E+03	5.67E+03	-1.14E+03	1.13E+03
15.	0.144	-1.71E+04	1.71E+04	-1.70E+04	1.70E+04	-1.14E+03	1.13E+03
30.	0.317	-3.42E+04	3.42E+04	-3.41E+04	3.40E+04	-1.14E+03	1.13E+03
45.	0.511	-5.13E+04	5.13E+04	-5.11E+04	5.11E+04	-1.14E+03	1.13E+03
65.	0.809	-7.41E+04	7.41E+04	-7.38E+04	7.38E+04	-1.14E+03	1.13E+03

Table M–790. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.98	-5.18E+03	5.21E+03	-5.15E+03	5.17E+03	-1.03E+03	1.03E+03
15.	27.8	-1.39E+04	1.39E+04	-1.38E+04	1.38E+04	-921.	917.
30.	-50.0	-2.50E+04	2.50E+04	-2.46E+04	2.45E+04	-819.	817.
45.	-95.2	-3.97E+04	3.97E+04	-3.89E+04	3.86E+04	-863.	860.
65.	-247.	-5.50E+04	5.18E+04	-5.00E+04	4.87E+04	-765.	753.

Table M–791. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–792. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-0.929	-4.32E+03	4.32E+03	-4.26E+03	4.27E+03	-853.	853.
15.	-1.74	-1.18E+04	1.18E+04	-1.15E+04	1.15E+04	-765.	765.
30.	0.491	-2.26E+04	2.27E+04	-2.10E+04	2.11E+04	-702.	703.
45.	5.68	-4.49E+04	3.99E+04	-3.74E+04	3.75E+04	-832.	833.
65.	-24.2	-7.92E+04	8.61E+04	-7.53E+04	7.43E+04	-1.16E+03	1.14E+03

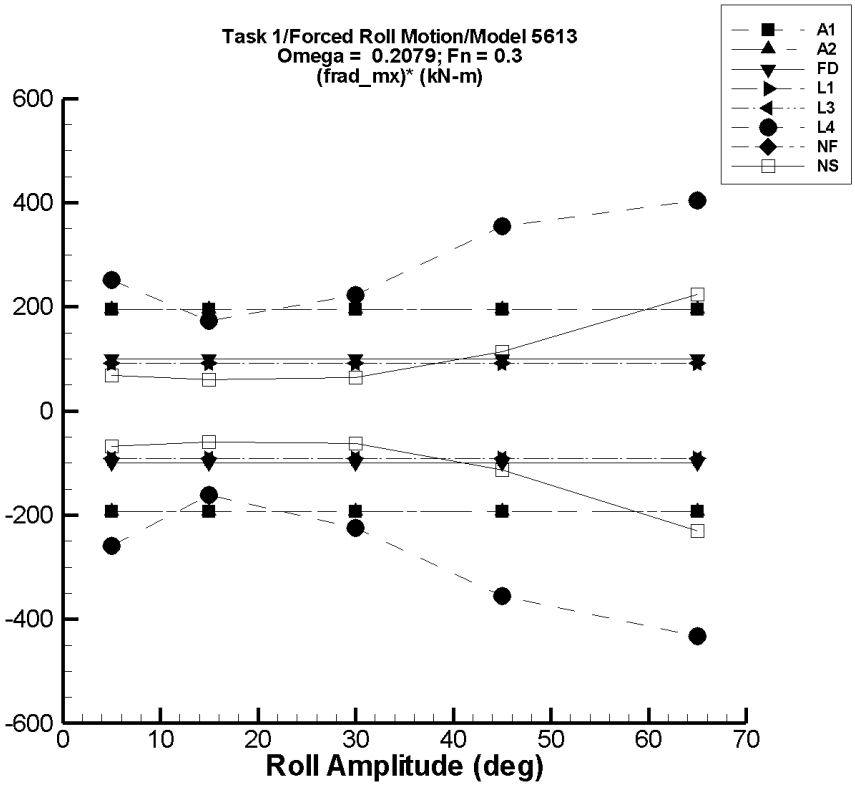

Figure M–100. Minimum and Maximum of $(M_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–793. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-0.405	-975.	983.	-967.	973.	-193.	195.
15.	-1.21	-2.92E+03	2.95E+03	-2.90E+03	2.92E+03	-193.	195.
30.	-2.43	-5.85E+03	5.89E+03	-5.80E+03	5.84E+03	-193.	195.
45.	-3.64	-8.77E+03	8.84E+03	-8.70E+03	8.76E+03	-193.	195.
65.	-5.26	-1.27E+04	1.28E+04	-1.26E+04	1.26E+04	-193.	195.

Table M–794. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-0.405	-975.	983.	-967.	973.	-193.	195.
15.	-1.21	-2.92E+03	2.95E+03	-2.90E+03	2.92E+03	-193.	195.
30.	-2.43	-5.85E+03	5.89E+03	-5.80E+03	5.84E+03	-193.	195.
45.	-3.64	-8.77E+03	8.84E+03	-8.70E+03	8.76E+03	-193.	195.
65.	-5.26	-1.27E+04	1.28E+04	-1.26E+04	1.26E+04	-193.	195.

Table M–795. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-8.74E-06	-497.	497.	-497.	497.	-99.4	99.4
15.	3.17E-05	-1.49E+03	1.49E+03	-1.49E+03	1.49E+03	-99.4	99.4
30.	-3.17E-05	-2.98E+03	2.98E+03	-2.98E+03	2.98E+03	-99.4	99.4
45.	1.75E-04	-4.48E+03	4.48E+03	-4.47E+03	4.47E+03	-99.4	99.4
65.	-1.16E-04	-6.47E+03	6.47E+03	-6.46E+03	6.46E+03	-99.4	99.4

Table M–796. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.70E-02	-458.	458.	-458.	458.	-91.6	91.6
15.	-1.71E-02	-1.37E+03	1.37E+03	-1.37E+03	1.37E+03	-91.5	91.6
30.	-1.40E-02	-2.75E+03	2.75E+03	-2.75E+03	2.75E+03	-91.5	91.5
45.	-1.13E-02	-4.12E+03	4.12E+03	-4.12E+03	4.12E+03	-91.5	91.5
65.	2.80E-04	-5.95E+03	5.95E+03	-5.95E+03	5.95E+03	-91.5	91.5

Table M–797. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	1.54E-02	-458.	458.	-458.	458.	-91.6	91.6
15.	1.71E-02	-1.37E+03	1.37E+03	-1.37E+03	1.37E+03	-91.6	91.6
30.	2.13E-02	-2.75E+03	2.75E+03	-2.75E+03	2.75E+03	-91.5	91.5
45.	2.60E-02	-4.12E+03	4.12E+03	-4.12E+03	4.12E+03	-91.5	91.6
65.	3.88E-02	-5.95E+03	5.95E+03	-5.95E+03	5.95E+03	-91.5	91.5

Table M–798. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	51.0	-2.10E+03	1.69E+03	-1.25E+03	1.31E+03	-260.	252.
15.	107.	-3.75E+03	7.45E+03	-2.31E+03	2.70E+03	-161.	173.
30.	124.	-6.80E+03	7.23E+03	-6.64E+03	6.80E+03	-225.	223.
45.	74.9	-1.62E+04	1.66E+04	-1.59E+04	1.61E+04	-356.	355.
65.	297.	-3.76E+04	3.26E+04	-2.78E+04	2.65E+04	-432.	404.

Table M–799. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–800. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	6.15E-02	-347.	348.	-343.	344.	-68.6	68.8
15.	0.355	-930.	938.	-895.	903.	-59.7	60.2
30.	0.483	-2.12E+03	2.13E+03	-1.89E+03	1.92E+03	-63.0	63.8
45.	-1.39	-5.17E+03	5.20E+03	-5.09E+03	5.13E+03	-113.	114.
65.	-53.7	-1.52E+04	1.49E+04	-1.51E+04	1.45E+04	-231.	224.

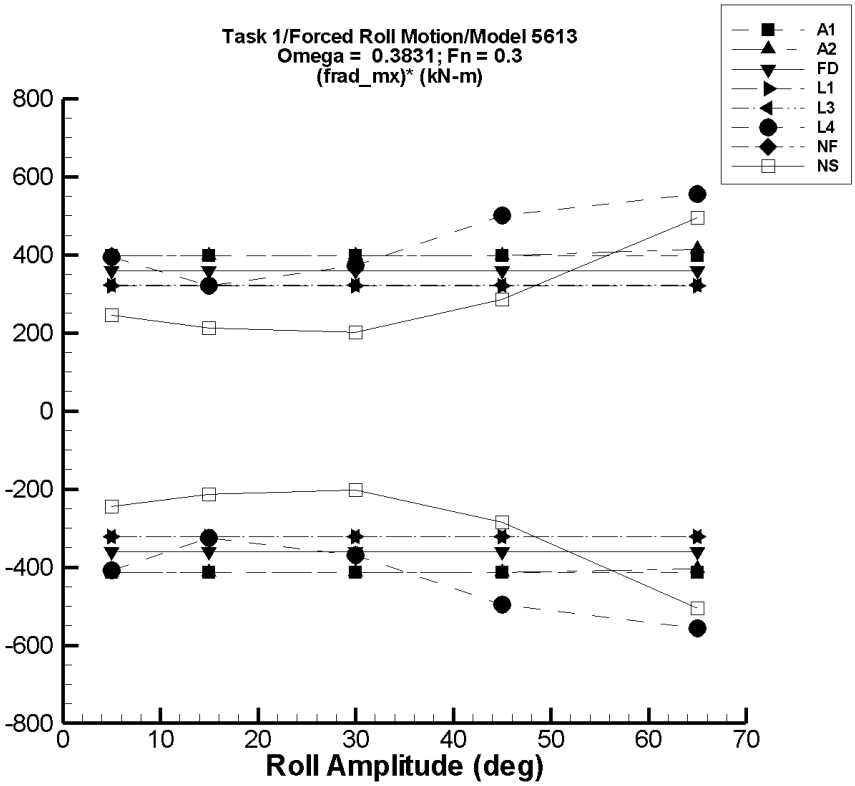

Figure M–101. Minimum and Maximum of $(M_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–801. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.28	-2.08E+03	2.02E+03	-2.07E+03	1.99E+03	-414.	398.
15.	-3.83	-6.25E+03	6.06E+03	-6.21E+03	5.96E+03	-413.	398.
30.	-7.67	-1.25E+04	1.21E+04	-1.24E+04	1.19E+04	-413.	398.
45.	-11.5	-1.88E+04	1.82E+04	-1.86E+04	1.79E+04	-413.	398.
65.	-16.6	-2.71E+04	2.63E+04	-2.69E+04	2.58E+04	-414.	398.

Table M–802. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.28	-2.08E+03	2.02E+03	-2.07E+03	1.99E+03	-414.	398.
15.	-3.83	-6.25E+03	6.06E+03	-6.21E+03	5.96E+03	-413.	398.
30.	-7.67	-1.25E+04	1.21E+04	-1.24E+04	1.19E+04	-413.	398.
45.	-11.5	-1.88E+04	1.82E+04	-1.86E+04	1.79E+04	-413.	398.
65.	-18.5	-2.64E+04	2.71E+04	-2.63E+04	2.69E+04	-404.	414.

Table M–803. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	4.24E-04	-1.80E+03	1.80E+03	-1.80E+03	1.80E+03	-360.	360.
15.	1.26E-03	-5.41E+03	5.41E+03	-5.39E+03	5.39E+03	-360.	360.
30.	3.03E-03	-1.08E+04	1.08E+04	-1.08E+04	1.08E+04	-360.	360.
45.	2.27E-03	-1.62E+04	1.62E+04	-1.62E+04	1.62E+04	-360.	360.
65.	8.81E-03	-2.35E+04	2.35E+04	-2.34E+04	2.34E+04	-360.	360.

Table M–804. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.51E-02	-1.61E+03	1.61E+03	-1.61E+03	1.61E+03	-321.	321.
15.	4.48E-02	-4.82E+03	4.82E+03	-4.82E+03	4.82E+03	-321.	321.
30.	6.17E-02	-9.65E+03	9.65E+03	-9.63E+03	9.63E+03	-321.	321.
45.	8.96E-02	-1.45E+04	1.45E+04	-1.44E+04	1.44E+04	-321.	321.
65.	0.132	-2.09E+04	2.09E+04	-2.09E+04	2.09E+04	-321.	321.

Table M–805. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	4.31E-02	-1.61E+03	1.61E+03	-1.61E+03	1.61E+03	-322.	322.
15.	5.02E-02	-4.83E+03	4.83E+03	-4.83E+03	4.83E+03	-322.	322.
30.	6.20E-02	-9.66E+03	9.66E+03	-9.65E+03	9.65E+03	-322.	322.
45.	8.44E-02	-1.45E+04	1.45E+04	-1.45E+04	1.45E+04	-322.	322.
65.	0.118	-2.09E+04	2.09E+04	-2.09E+04	2.09E+04	-322.	322.

Table M–806. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	30.5	-2.47E+03	2.46E+03	-2.01E+03	2.00E+03	-407.	395.
15.	38.6	-5.02E+03	4.96E+03	-4.86E+03	4.86E+03	-326.	321.
30.	-9.69	-1.12E+04	1.12E+04	-1.11E+04	1.11E+04	-370.	371.
45.	-117.	-2.28E+04	2.29E+04	-2.24E+04	2.24E+04	-496.	501.
65.	256.	-4.59E+04	5.38E+04	-3.60E+04	3.63E+04	-557.	555.

Table M–807. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–808. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	0.368	-1.24E+03	1.24E+03	-1.22E+03	1.23E+03	-245.	245.
15.	3.02	-3.24E+03	3.25E+03	-3.19E+03	3.20E+03	-213.	213.
30.	8.98	-6.64E+03	6.64E+03	-6.06E+03	6.07E+03	-202.	202.
45.	19.0	-1.37E+04	1.30E+04	-1.28E+04	1.28E+04	-285.	285.
65.	5.22	-3.30E+04	3.37E+04	-3.28E+04	3.22E+04	-505.	496.

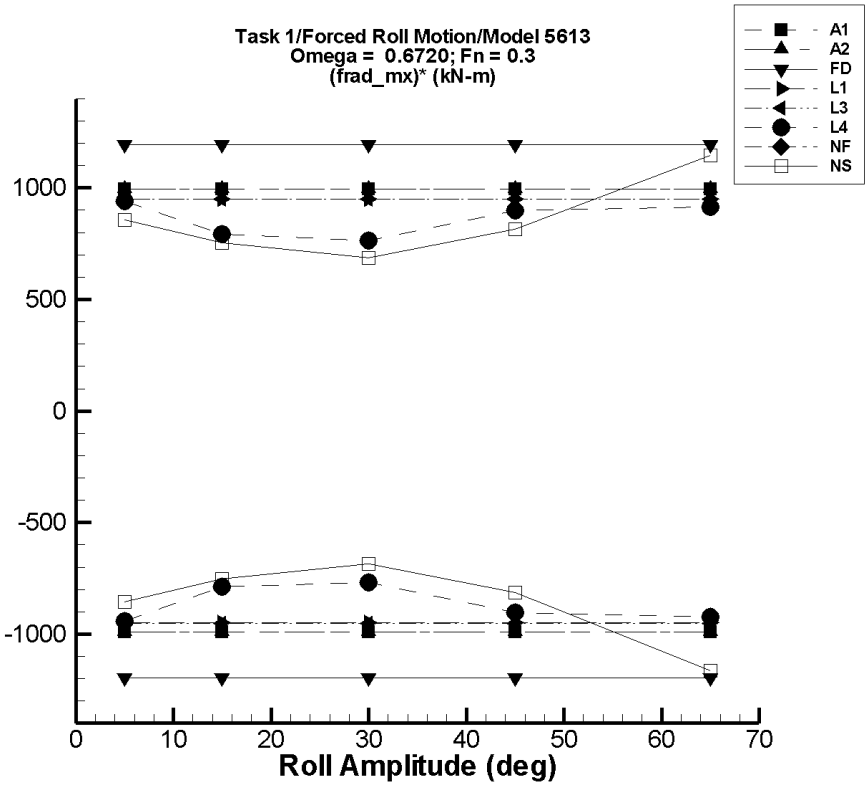

Figure M–102. Minimum and Maximum of $(M_x^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–809. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-3.75	-5.01E+03	5.03E+03	-4.95E+03	4.97E+03	-990.	995.
15.	-11.3	-1.50E+04	1.51E+04	-1.49E+04	1.49E+04	-989.	994.
30.	-22.5	-3.01E+04	3.02E+04	-2.97E+04	2.98E+04	-989.	994.
45.	-33.8	-4.51E+04	4.53E+04	-4.46E+04	4.47E+04	-989.	994.
65.	-48.8	-6.52E+04	6.54E+04	-6.44E+04	6.46E+04	-989.	994.

Table M–810. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-3.75	-5.01E+03	5.03E+03	-4.95E+03	4.97E+03	-990.	995.
15.	-11.3	-1.50E+04	1.51E+04	-1.49E+04	1.49E+04	-989.	994.
30.	-22.5	-3.01E+04	3.02E+04	-2.97E+04	2.98E+04	-989.	994.
45.	-33.8	-4.51E+04	4.53E+04	-4.46E+04	4.47E+04	-989.	994.
65.	-48.8	-6.52E+04	6.54E+04	-6.44E+04	6.46E+04	-989.	994.

Table M–811. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E-02	-6.03E+03	6.03E+03	-5.97E+03	5.96E+03	-1.19E+03	1.19E+03
15.	-3.13E-02	-1.81E+04	1.81E+04	-1.79E+04	1.79E+04	-1.19E+03	1.19E+03
30.	-6.20E-02	-3.62E+04	3.62E+04	-3.58E+04	3.58E+04	-1.19E+03	1.19E+03
45.	-8.94E-02	-5.43E+04	5.43E+04	-5.38E+04	5.37E+04	-1.19E+03	1.19E+03
65.	-0.131	-7.84E+04	7.84E+04	-7.76E+04	7.75E+04	-1.19E+03	1.19E+03

Table M–812. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_x^{\text{rad}} \rangle$	Unfiltered M_x^{rad}		Filtered M_x^{rad}		Filtered $\left(M_x^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	3.00E-02	-4.77E+03	4.77E+03	-4.75E+03	4.75E+03	-949.	949.
15.	3.50E-02	-1.43E+04	1.43E+04	-1.42E+04	1.42E+04	-949.	949.
30.	6.44E-02	-2.86E+04	2.86E+04	-2.85E+04	2.85E+04	-949.	949.
45.	0.115	-4.29E+04	4.29E+04	-4.27E+04	4.27E+04	-949.	949.
65.	0.224	-6.19E+04	6.20E+04	-6.17E+04	6.17E+04	-949.	949.

Table M–813. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	4.02E-02	-4.77E+03	4.77E+03	-4.75E+03	4.75E+03	-951.	951.
15.	3.49E-02	-1.43E+04	1.43E+04	-1.43E+04	1.43E+04	-951.	951.
30.	4.78E-02	-2.86E+04	2.86E+04	-2.85E+04	2.85E+04	-951.	951.
45.	8.05E-02	-4.30E+04	4.30E+04	-4.28E+04	4.28E+04	-951.	951.
65.	0.151	-6.21E+04	6.21E+04	-6.18E+04	6.18E+04	-951.	951.

Table M–814. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	**Unfiltered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $M_{\boldsymbol{x}}^{\text{rad}}$		**Filtered** $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	12.6	-5.15E+03	5.15E+03	-4.70E+03	4.71E+03	-943.	939.
15.	22.8	-1.19E+04	1.19E+04	-1.18E+04	1.19E+04	-788.	793.
30.	44.1	-2.32E+04	2.33E+04	-2.30E+04	2.30E+04	-768.	765.
45.	127.	-4.09E+04	4.10E+04	-4.06E+04	4.06E+04	-905.	900.
65.	236.	-6.14E+04	6.49E+04	-5.98E+04	5.98E+04	-924.	916.

Table M–815. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–816. Minimum and Maximum of M_x^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_{\boldsymbol{x}}^{\text{rad}} \rangle$	Unfiltered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $M_{\boldsymbol{x}}^{\text{rad}}$		Filtered $\left(M_{\boldsymbol{x}}^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.664	-4.33E+03	4.34E+03	-4.28E+03	4.28E+03	-855.	856.
15.	0.566	-1.16E+04	1.16E+04	-1.13E+04	1.13E+04	-753.	753.
30.	7.26	-2.21E+04	2.21E+04	-2.06E+04	2.06E+04	-687.	688.
45.	17.2	-4.42E+04	3.86E+04	-3.66E+04	3.67E+04	-815.	814.
65.	-18.1	-7.75E+04	8.41E+04	-7.57E+04	7.45E+04	-1.16E+03	1.15E+03

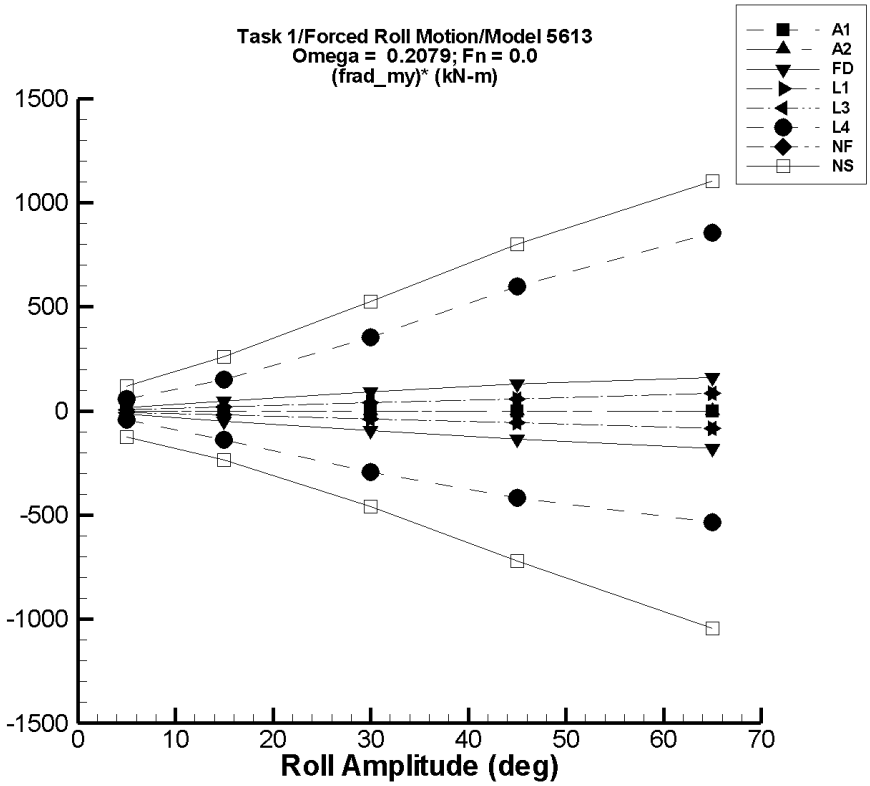

Figure M–103. Minimum and Maximum of $(M_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–817. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.26E-05	-7.51E-03	7.47E-03	-7.43E-03	7.39E-03	-1.48E-03	1.48E-03
15.	-3.77E-05	-2.25E-02	2.24E-02	-2.23E-02	2.21E-02	-1.48E-03	1.48E-03
30.	-7.54E-05	-4.50E-02	4.48E-02	-4.45E-02	4.43E-02	-1.48E-03	1.48E-03
45.	-1.13E-04	-6.75E-02	6.72E-02	-6.68E-02	6.64E-02	-1.48E-03	1.48E-03
65.	-1.63E-04	-9.75E-02	9.71E-02	-9.65E-02	9.60E-02	-1.48E-03	1.48E-03

Table M–818. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.26E-05	-7.51E-03	7.47E-03	-7.43E-03	7.39E-03	-1.48E-03	1.48E-03
15.	-3.77E-05	-2.25E-02	2.24E-02	-2.23E-02	2.21E-02	-1.48E-03	1.48E-03
30.	-7.54E-05	-4.50E-02	4.48E-02	-4.45E-02	4.43E-02	-1.48E-03	1.48E-03
45.	-1.13E-04	-6.75E-02	6.72E-02	-6.68E-02	6.64E-02	-1.48E-03	1.48E-03
65.	-1.63E-04	-9.75E-02	9.71E-02	-9.65E-02	9.60E-02	-1.48E-03	1.48E-03

Table M–819. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	81.7	4.84E-03	163.	-0.157	163.	-16.4	16.3
15.	730.	4.35E-02	1.46E+03	-1.38	1.45E+03	-48.8	48.2
30.	2.85E+03	0.174	5.62E+03	-4.98	5.61E+03	-95.0	92.3
45.	6.13E+03	0.392	1.19E+04	-9.30	1.19E+04	-136.	128.
65.	1.17E+04	0.818	2.21E+04	-12.0	2.21E+04	-180.	159.

Table M–820. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.1	-6.67E-02	64.4	-1.17E-02	64.3	-6.43	6.44
15.	289.	-0.539	579.	-7.83E-02	579.	-19.3	19.3
30.	1.16E+03	-2.12	2.32E+03	-0.289	2.32E+03	-38.6	38.6
45.	2.60E+03	-4.73	5.21E+03	-0.628	5.21E+03	-57.9	57.9
65.	5.43E+03	-9.87	1.09E+04	-1.30	1.09E+04	-83.6	83.7

Table M–821. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	32.1	-6.58E-02	64.4	-1.15E-02	64.3	-6.43	6.44
15.	289.	-0.540	579.	-7.71E-02	579.	-19.3	19.3
30.	1.16E+03	-2.11	2.32E+03	-0.288	2.32E+03	-38.6	38.6
45.	2.60E+03	-4.74	5.21E+03	-0.629	5.21E+03	-57.9	57.9
65.	5.43E+03	-9.87	1.09E+04	-1.30	1.09E+04	-83.6	83.7

Table M–822. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	19.9	-232.	311.	-199.	299.	-43.8	55.8
15.	192.	-1.95E+03	2.92E+03	-1.91E+03	2.46E+03	-140.	151.
30.	1.00E+03	-8.30E+03	1.23E+04	-7.84E+03	1.16E+04	-295.	354.
45.	2.90E+03	-1.60E+04	3.13E+04	-1.58E+04	2.98E+04	-416.	598.
65.	7.21E+03	-2.77E+04	6.64E+04	-2.75E+04	6.29E+04	-534.	857.

Table M–823. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–824. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-6.89	-1.32E+03	1.69E+03	-636.	591.	-126.	120.
15.	15.1	-8.36E+03	8.72E+03	-3.52E+03	3.91E+03	-235.	260.
30.	183.	-2.11E+04	2.76E+04	-1.35E+04	1.59E+04	-457.	525.
45.	283.	-4.48E+04	7.18E+04	-3.22E+04	3.64E+04	-721.	802.
65.	1.82E+03	-7.82E+04	1.51E+05	-6.61E+04	7.35E+04	-1.05E+03	1.10E+03

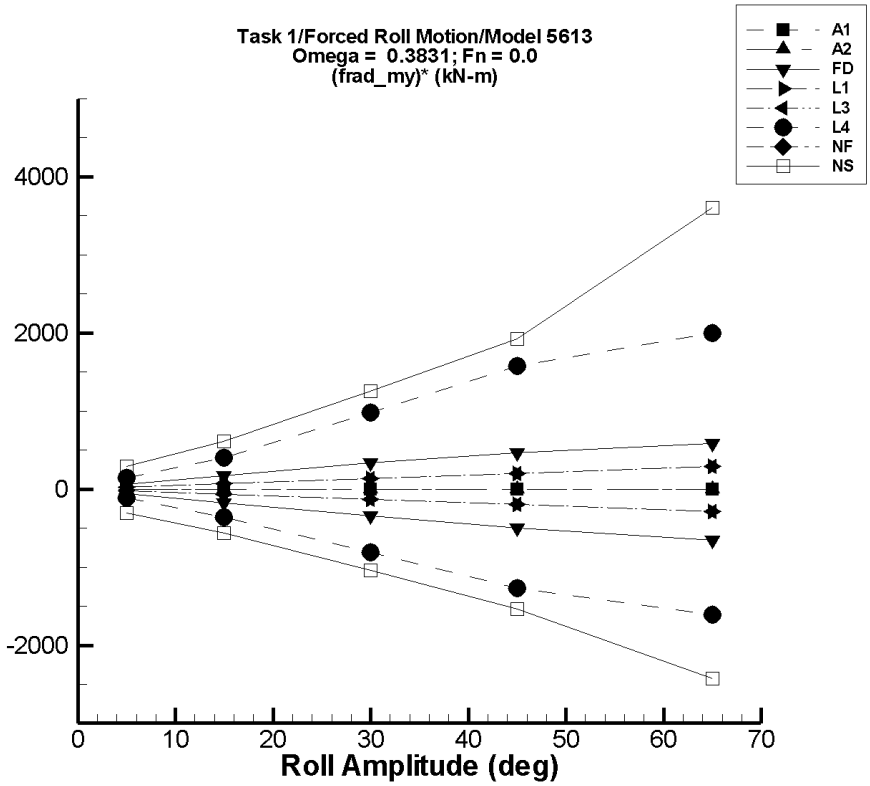

Figure M–104. Minimum and Maximum of $(M_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–825. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-4.14E-05	-2.36E-02	2.52E-02	-2.29E-02	2.49E-02	-4.57E-03	4.99E-03
15.	-1.24E-04	-7.09E-02	7.55E-02	-6.86E-02	7.48E-02	-4.57E-03	4.99E-03
30.	-2.48E-04	-0.142	0.151	-0.137	0.150	-4.57E-03	4.99E-03
45.	-3.73E-04	-0.213	0.227	-0.206	0.224	-4.57E-03	4.99E-03
65.	-5.38E-04	-0.307	0.327	-0.297	0.324	-4.57E-03	4.99E-03

Table M–826. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-4.14E-05	-2.36E-02	2.52E-02	-2.29E-02	2.49E-02	-4.57E-03	4.99E-03
15.	-1.24E-04	-7.09E-02	7.55E-02	-6.86E-02	7.48E-02	-4.57E-03	4.99E-03
30.	-2.48E-04	-0.142	0.151	-0.137	0.150	-4.57E-03	4.99E-03
45.	-3.73E-04	-0.213	0.227	-0.206	0.224	-4.57E-03	4.99E-03
65.	-1.28E-04	-0.331	0.300	-0.325	0.299	-5.00E-03	4.59E-03

Table M–827. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	300.	-0.304	600.	1.15	596.	-59.8	59.2
15.	2.68E+03	-2.73	5.35E+03	10.4	5.31E+03	-178.	175.
30.	1.04E+04	-10.9	2.07E+04	42.0	2.05E+04	-347.	336.
45.	2.25E+04	-24.6	4.38E+04	96.4	4.35E+04	-498.	468.
65.	4.30E+04	-51.3	8.12E+04	209.	8.07E+04	-659.	579.

Table M–828. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	110.	-0.738	221.	-0.157	221.	-22.1	22.2
15.	991.	-6.69	1.99E+03	-1.34	1.99E+03	-66.2	66.6
30.	3.96E+03	-26.7	7.96E+03	-5.27	7.96E+03	-132.	133.
45.	8.92E+03	-59.9	1.79E+04	-11.8	1.79E+04	-198.	200.
65.	1.86E+04	-125.	3.73E+04	-24.5	3.74E+04	-287.	289.

Table M–829. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	110.	-0.852	221.	-0.243	221.	-22.1	22.2
15.	991.	-7.62	1.99E+03	-2.23	1.99E+03	-66.2	66.5
30.	3.96E+03	-30.4	7.96E+03	-8.99	7.96E+03	-132.	133.
45.	8.92E+03	-68.4	1.79E+04	-20.3	1.79E+04	-199.	200.
65.	1.86E+04	-143.	3.74E+04	-42.5	3.74E+04	-287.	288.

Table M–830. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	63.8	-536.	888.	-482.	793.	-109.	146.
15.	571.	-5.14E+03	8.57E+03	-4.90E+03	6.53E+03	-365.	398.
30.	2.67E+03	-2.46E+04	3.42E+04	-2.17E+04	3.21E+04	-811.	981.
45.	7.26E+03	-5.21E+04	8.71E+04	-5.01E+04	7.80E+04	-1.27E+03	1.57E+03
65.	1.70E+04	-8.92E+04	1.73E+05	-8.78E+04	1.47E+05	-1.61E+03	1.99E+03

Table M–831. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–832. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-51.2	-3.18E+03	3.97E+03	-1.57E+03	1.38E+03	-303.	286.
15.	-222.	-2.08E+04	2.05E+04	-8.64E+03	8.91E+03	-561.	609.
30.	-372.	-5.13E+04	6.33E+04	-3.17E+04	3.71E+04	-1.04E+03	1.25E+03
45.	-698.	-1.12E+05	1.63E+05	-7.00E+04	8.59E+04	-1.54E+03	1.92E+03
65.	2.34E+03	-2.40E+05	4.01E+05	-1.55E+05	2.37E+05	-2.42E+03	3.60E+03

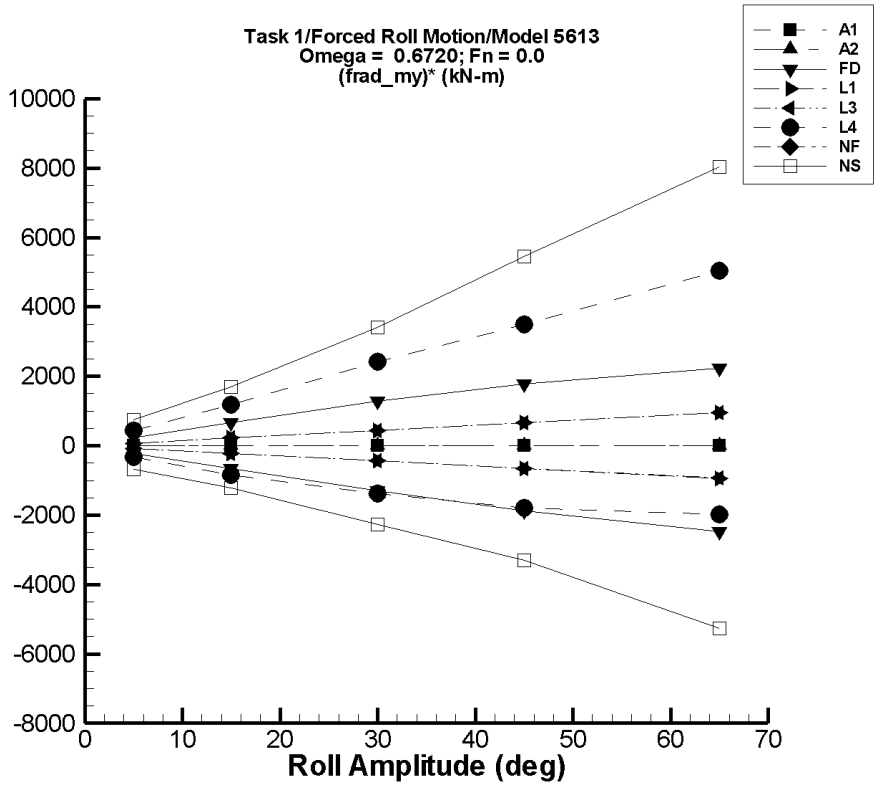

Figure M–105. Minimum and Maximum of $(M_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–833. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-3.72E-04	-4.77E-02	4.61E-02	-4.63E-02	4.55E-02	-9.19E-03	9.18E-03
15.	-1.12E-03	-0.143	0.138	-0.139	0.136	-9.19E-03	9.17E-03
30.	-2.23E-03	-0.286	0.277	-0.278	0.273	-9.19E-03	9.17E-03
45.	-3.35E-03	-0.429	0.415	-0.417	0.409	-9.19E-03	9.17E-03
65.	-4.83E-03	-0.620	0.600	-0.602	0.591	-9.19E-03	9.17E-03

Table M–834. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-3.72E-04	-4.77E-02	4.61E-02	-4.63E-02	4.55E-02	-9.19E-03	9.18E-03
15.	-1.12E-03	-0.143	0.138	-0.139	0.136	-9.19E-03	9.17E-03
30.	-2.23E-03	-0.286	0.277	-0.278	0.273	-9.19E-03	9.17E-03
45.	-3.35E-03	-0.429	0.415	-0.417	0.409	-9.19E-03	9.17E-03
65.	-4.83E-03	-0.620	0.600	-0.602	0.591	-9.19E-03	9.17E-03

Table M–835. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.08E+03	-47.4	2.21E+03	-40.8	2.20E+03	-224.	225.
15.	9.64E+03	-426.	1.96E+04	-366.	1.96E+04	-667.	666.
30.	3.76E+04	-1.70E+03	7.60E+04	-1.45E+03	7.59E+04	-1.30E+03	1.28E+03
45.	8.08E+04	-3.83E+03	1.61E+05	-3.20E+03	1.61E+05	-1.87E+03	1.79E+03
65.	1.54E+05	-7.96E+03	3.00E+05	-6.42E+03	2.99E+05	-2.47E+03	2.23E+03

Table M–836. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	341.	-26.9	708.	-21.0	709.	-72.3	73.6
15.	3.07E+03	-241.	6.37E+03	-189.	6.38E+03	-217.	221.
30.	1.23E+04	-966.	2.55E+04	-757.	2.55E+04	-434.	442.
45.	2.76E+04	-2.17E+03	5.74E+04	-1.70E+03	5.74E+04	-651.	662.
65.	5.76E+04	-4.54E+03	1.20E+05	-3.56E+03	1.20E+05	-941.	957.

Table M–837. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	341.	-25.5	707.	-19.8	708.	-72.1	73.4
15.	3.07E+03	-229.	6.36E+03	-179.	6.37E+03	-216.	220.
30.	1.23E+04	-918.	2.54E+04	-716.	2.55E+04	-433.	440.
45.	2.76E+04	-2.07E+03	5.73E+04	-1.61E+03	5.73E+04	-649.	660.
65.	5.76E+04	-4.31E+03	1.19E+05	-3.36E+03	1.20E+05	-938.	954.

Table M–838. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	229.	-1.52E+03	2.82E+03	-1.45E+03	2.39E+03	-335.	433.
15.	1.54E+03	-1.14E+04	2.14E+04	-1.11E+04	1.94E+04	-843.	1.19E+03
30.	5.86E+03	-4.77E+04	9.44E+04	-3.55E+04	7.84E+04	-1.38E+03	2.42E+03
45.	1.29E+04	-8.76E+04	2.17E+05	-6.81E+04	1.70E+05	-1.80E+03	3.50E+03
65.	2.90E+04	-1.17E+05	4.45E+05	-9.93E+04	3.57E+05	-1.97E+03	5.04E+03

Table M–839. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–840. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-279.	-7.20E+03	8.93E+03	-3.65E+03	3.40E+03	-674.	737.
15.	-1.78E+03	-4.76E+04	3.74E+04	-2.02E+04	2.36E+04	-1.23E+03	1.69E+03
30.	-5.03E+03	-1.15E+05	1.32E+05	-7.32E+04	9.73E+04	-2.27E+03	3.41E+03
45.	-1.02E+04	-2.50E+05	4.39E+05	-1.58E+05	2.35E+05	-3.30E+03	5.46E+03
65.	-9.75E+03	-5.74E+05	1.10E+06	-3.52E+05	5.12E+05	-5.27E+03	8.02E+03

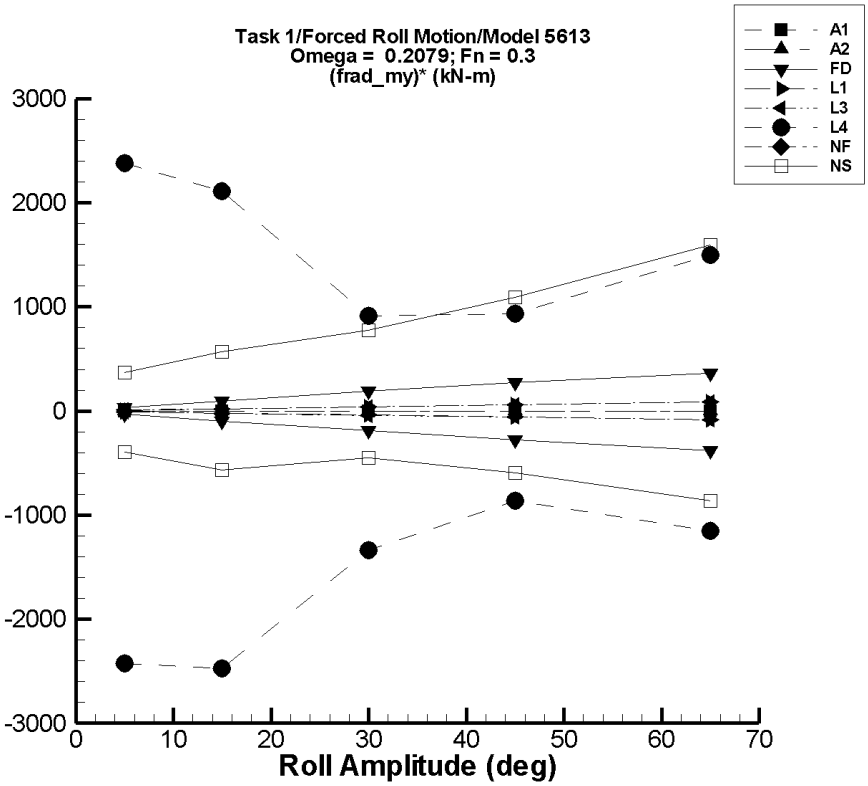

Figure M–106. Minimum and Maximum of $(M_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–841. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-6.30E-05	-0.358	0.360	-0.358	0.359	-7.16E-02	7.18E-02
15.	-1.89E-04	-1.07	1.08	-1.07	1.08	-7.16E-02	7.18E-02
30.	-3.78E-04	-2.15	2.16	-2.15	2.15	-7.16E-02	7.18E-02
45.	-5.67E-04	-3.22	3.23	-3.22	3.23	-7.16E-02	7.18E-02
65.	-8.19E-04	-4.66	4.67	-4.65	4.67	-7.16E-02	7.18E-02

Table M–842. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-6.30E-05	-0.358	0.360	-0.358	0.359	-7.16E-02	7.18E-02
15.	-1.89E-04	-1.07	1.08	-1.07	1.08	-7.16E-02	7.18E-02
30.	-3.78E-04	-2.15	2.16	-2.15	2.15	-7.16E-02	7.18E-02
45.	-5.67E-04	-3.22	3.23	-3.22	3.23	-7.16E-02	7.18E-02
65.	-8.19E-04	-4.66	4.67	-4.65	4.67	-7.16E-02	7.18E-02

Table M–843. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	82.8	-79.8	245.	-79.1	245.	-32.4	32.4
15.	739.	-716.	2.19E+03	-710.	2.18E+03	-96.6	96.4
30.	2.88E+03	-2.84E+03	8.54E+03	-2.82E+03	8.52E+03	-190.	188.
45.	6.21E+03	-6.30E+03	1.84E+04	-6.25E+03	1.84E+04	-277.	270.
65.	1.19E+04	-1.28E+04	3.54E+04	-1.27E+04	3.53E+04	-378.	360.

Table M–844. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.07E+04	-1.07E+04	-1.06E+04	-1.07E+04	-1.06E+04	-6.78	6.83
15.	-1.04E+04	-1.07E+04	-1.01E+04	-1.07E+04	-1.01E+04	-20.1	20.1
30.	-9.49E+03	-1.07E+04	-8.28E+03	-1.07E+04	-8.28E+03	-40.2	40.2
45.	-7.98E+03	-1.07E+04	-5.26E+03	-1.07E+04	-5.26E+03	-60.3	60.3
65.	-5.02E+03	-1.07E+04	648.	-1.07E+04	641.	-87.0	87.1

Table M–845. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.07E+04	-1.07E+04	-1.06E+04	-1.07E+04	-1.06E+04	-8.46	8.70
15.	-1.04E+04	-1.07E+04	-1.01E+04	-1.07E+04	-1.01E+04	-20.4	20.7
30.	-9.49E+03	-1.07E+04	-8.28E+03	-1.07E+04	-8.28E+03	-40.3	40.5
45.	-7.98E+03	-1.07E+04	-5.26E+03	-1.07E+04	-5.26E+03	-60.4	60.5
65.	-5.03E+03	-1.07E+04	649.	-1.07E+04	643.	-87.1	87.3

Table M–846. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.72E+04	-3.22E+04	1.04E+04	-2.93E+04	-5.26E+03	-2.42E+03	2.38E+03
15.	-2.40E+04	-6.69E+04	3.23E+04	-6.11E+04	7.74E+03	-2.48E+03	2.11E+03
30.	-2.72E+04	-8.79E+04	3.23E+04	-6.73E+04	228.	-1.33E+03	916.
45.	-2.57E+04	-7.74E+04	4.80E+04	-6.45E+04	1.64E+04	-862.	935.
65.	-1.88E+04	-1.41E+05	1.11E+05	-9.35E+04	7.84E+04	-1.15E+03	1.49E+03

Table M–847. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–848. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a **(°)**	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	149.	-2.36E+03	2.73E+03	-1.83E+03	2.01E+03	-395.	373.
15.	622.	-1.60E+04	1.57E+04	-7.91E+03	9.14E+03	-569.	568.
30.	1.33E+03	-2.91E+04	3.82E+04	-1.22E+04	2.45E+04	-451.	772.
45.	1.36E+03	-4.98E+04	8.80E+04	-2.55E+04	5.06E+04	-596.	1.09E+03
65.	213.	-1.18E+05	1.94E+05	-5.58E+04	1.04E+05	-861.	1.59E+03

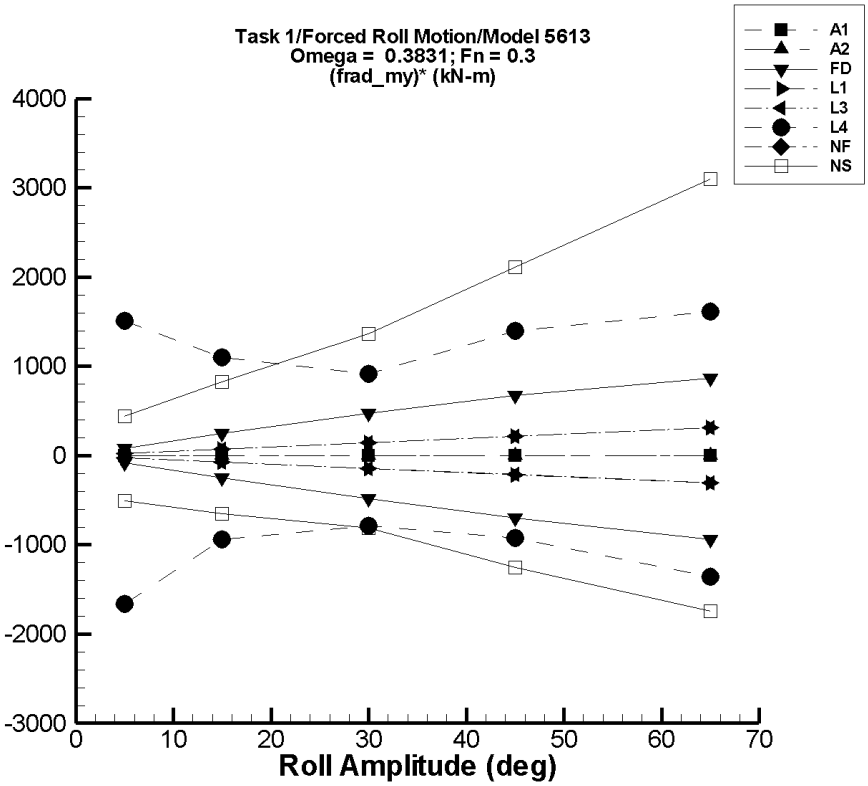

Figure M–107. Minimum and Maximum of $(M_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–849. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	3.12E-04	-0.725	0.730	-0.722	0.730	-0.144	0.146
15.	9.37E-04	-2.17	2.19	-2.16	2.19	-0.144	0.146
30.	1.87E-03	-4.35	4.38	-4.33	4.38	-0.144	0.146
45.	2.81E-03	-6.52	6.57	-6.49	6.57	-0.144	0.146
65.	4.06E-03	-9.42	9.49	-9.38	9.49	-0.144	0.146

Table M–850. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	3.12E-04	-0.725	0.730	-0.722	0.730	-0.144	0.146
15.	9.37E-04	-2.17	2.19	-2.16	2.19	-0.144	0.146
30.	1.87E-03	-4.35	4.38	-4.33	4.38	-0.144	0.146
45.	2.81E-03	-6.52	6.57	-6.49	6.57	-0.144	0.146
65.	-2.13E-03	-9.50	9.77	-9.46	9.42	-0.146	0.145

Table M–851. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	320.	-98.7	739.	-92.5	733.	-82.5	82.5
15.	2.86E+03	-887.	6.59E+03	-831.	6.54E+03	-246.	245.
30.	1.12E+04	-3.53E+03	2.56E+04	-3.31E+03	2.54E+04	-482.	474.
45.	2.41E+04	-7.90E+03	5.47E+04	-7.40E+03	5.43E+04	-699.	671.
65.	4.61E+04	-1.63E+04	1.03E+05	-1.52E+04	1.03E+05	-943.	868.

Table M–852. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.06E+04	-1.07E+04	-1.05E+04	-1.07E+04	-1.05E+04	-23.8	23.8
15.	-9.63E+03	-1.07E+04	-8.55E+03	-1.07E+04	-8.56E+03	-71.2	71.5
30.	-6.42E+03	-1.07E+04	-2.12E+03	-1.07E+04	-2.13E+03	-142.	143.
45.	-1.07E+03	-1.07E+04	8.59E+03	-1.07E+04	8.59E+03	-214.	215.
65.	9.39E+03	-1.08E+04	2.95E+04	-1.07E+04	2.95E+04	-308.	310.

Table M–853. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.06E+04	-1.07E+04	-1.05E+04	-1.07E+04	-1.05E+04	-24.3	25.5
15.	-9.63E+03	-1.07E+04	-8.55E+03	-1.07E+04	-8.56E+03	-71.2	71.6
30.	-6.42E+03	-1.07E+04	-2.13E+03	-1.07E+04	-2.13E+03	-142.	143.
45.	-1.07E+03	-1.07E+04	8.57E+03	-1.07E+04	8.58E+03	-213.	215.
65.	9.39E+03	-1.07E+04	2.95E+04	-1.06E+04	2.95E+04	-308.	310.

Table M–854. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.72E+04	-3.23E+04	-6.52E+03	-2.55E+04	-9.63E+03	-1.66E+03	1.51E+03
15.	-2.28E+04	-3.90E+04	1.31E+04	-3.70E+04	-6.36E+03	-943.	1.10E+03
30.	-2.33E+04	-4.79E+04	1.74E+04	-4.70E+04	4.18E+03	-788.	917.
45.	-1.82E+04	-6.23E+04	6.17E+04	-5.97E+04	4.47E+04	-923.	1.40E+03
65.	-16.0	-1.24E+05	1.28E+05	-8.81E+04	1.05E+05	-1.36E+03	1.62E+03

Table M–855. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–856. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	208.	-4.43E+03	4.22E+03	-2.34E+03	2.42E+03	-509.	442.
15.	845.	-2.87E+04	2.75E+04	-8.96E+03	1.33E+04	-653.	830.
30.	1.31E+03	-5.10E+04	7.29E+04	-2.30E+04	4.22E+04	-809.	1.36E+03
45.	-76.6	-1.01E+05	1.80E+05	-5.65E+04	9.49E+04	-1.25E+03	2.11E+03
65.	-3.41E+03	-2.61E+05	4.06E+05	-1.17E+05	1.98E+05	-1.75E+03	3.10E+03

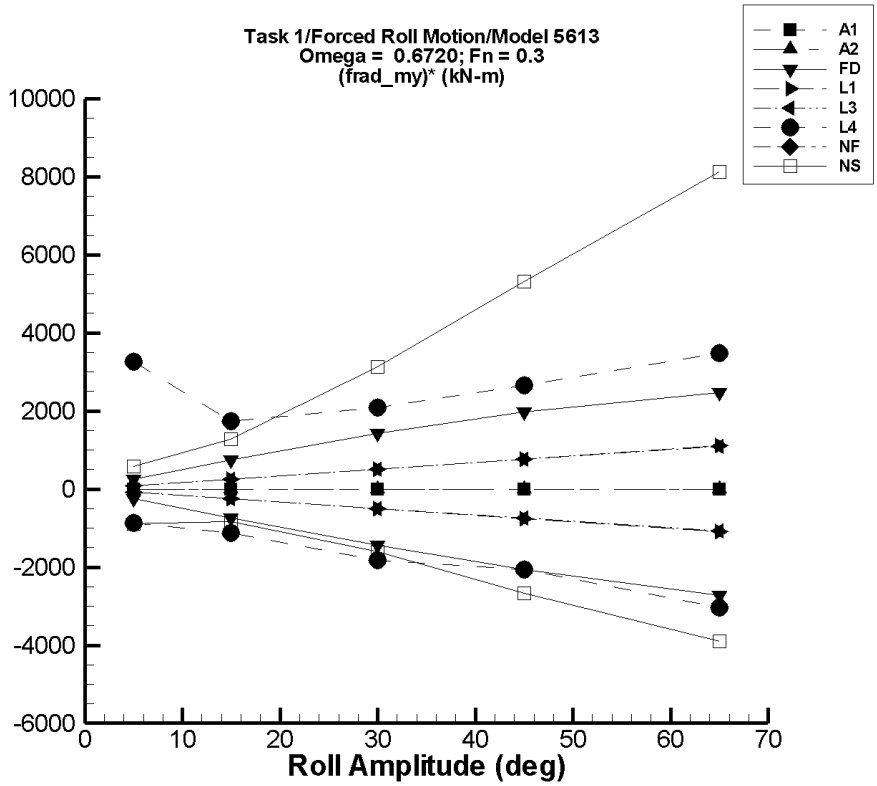

Figure M–108. Minimum and Maximum of $(M_y^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–857. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.71E-04	-1.27	1.26	-1.22	1.22	-0.244	0.243
15.	-5.12E-04	-3.80	3.77	-3.65	3.65	-0.243	0.243
30.	-1.02E-03	-7.60	7.54	-7.31	7.30	-0.243	0.243
45.	-1.54E-03	-11.4	11.3	-11.0	11.0	-0.243	0.243
65.	-2.22E-03	-16.5	16.3	-15.8	15.8	-0.243	0.243

Table M–858. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_y^{\text{rad}} \rangle$	**Unfiltered** M_y^{rad}		**Filtered** M_y^{rad}		**Filtered** $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	**Mean (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m)**	**Max. (kN-m)**	**Min. (kN-m/°)**	**Max. (kN-m/°)**
5.	-1.71E-04	-1.27	1.26	-1.22	1.22	-0.244	0.243
15.	-5.12E-04	-3.80	3.77	-3.65	3.65	-0.243	0.243
30.	-1.02E-03	-7.60	7.54	-7.31	7.30	-0.243	0.243
45.	-1.54E-03	-11.4	11.3	-11.0	11.0	-0.243	0.243
65.	-2.22E-03	-16.5	16.3	-15.8	15.8	-0.243	0.243

Table M–859. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.30E+03	-11.8	2.60E+03	48.0	2.54E+03	-249.	249.
15.	1.16E+04	-106.	2.32E+04	432.	2.27E+04	-742.	739.
30.	4.51E+04	-425.	8.96E+04	1.73E+03	8.76E+04	-1.45E+03	1.42E+03
45.	9.71E+04	-955.	1.90E+05	3.89E+03	1.86E+05	-2.07E+03	1.98E+03
65.	1.85E+05	-1.99E+03	3.52E+05	8.12E+03	3.46E+05	-2.73E+03	2.47E+03

Table M–860. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E+04	-1.08E+04	-9.91E+03	-1.08E+04	-9.91E+03	-83.9	85.2
15.	-7.47E+03	-1.13E+04	-3.63E+03	-1.12E+04	-3.63E+03	-252.	256.
30.	2.20E+03	-1.31E+04	1.76E+04	-1.29E+04	1.76E+04	-504.	512.
45.	1.83E+04	-1.62E+04	5.29E+04	-1.57E+04	5.29E+04	-755.	768.
65.	4.99E+04	-2.22E+04	1.22E+05	-2.10E+04	1.22E+05	-1.09E+03	1.11E+03

Table M–861. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.03E+04	-1.08E+04	-9.90E+03	-1.08E+04	-9.91E+03	-84.4	84.7
15.	-7.47E+03	-1.13E+04	-3.66E+03	-1.12E+04	-3.67E+03	-250.	254.
30.	2.21E+03	-1.30E+04	1.74E+04	-1.28E+04	1.74E+04	-499.	508.
45.	1.83E+04	-1.59E+04	5.25E+04	-1.53E+04	5.26E+04	-748.	762.
65.	4.99E+04	-2.15E+04	1.21E+05	-2.04E+04	1.21E+05	-1.08E+03	1.10E+03

Table M–862. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.69E+04	-3.07E+04	2.28E+04	-2.12E+04	-565.	-864.	3.26E+03
15.	-2.21E+04	-4.09E+04	2.65E+04	-3.89E+04	3.87E+03	-1.12E+03	1.73E+03
30.	-1.81E+04	-7.61E+04	6.26E+04	-7.27E+04	4.47E+04	-1.82E+03	2.09E+03
45.	-4.81E+03	-1.04E+05	1.42E+05	-9.73E+04	1.14E+05	-2.06E+03	2.65E+03
65.	2.02E+04	-1.98E+05	2.92E+05	-1.77E+05	2.47E+05	-3.04E+03	3.49E+03

Table M–863. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–864. Minimum and Maximum of M_y^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_y^{\text{rad}} \rangle$	Unfiltered M_y^{rad}		Filtered M_y^{rad}		Filtered $\left(M_y^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	51.7	-8.46E+03	8.82E+03	-4.40E+03	2.97E+03	-890.	584.
15.	-396.	-5.31E+04	4.00E+04	-1.29E+04	1.87E+04	-834.	1.27E+03
30.	-3.37E+03	-9.38E+04	1.28E+05	-5.17E+04	9.05E+04	-1.61E+03	3.13E+03
45.	-1.29E+04	-2.16E+05	4.07E+05	-1.33E+05	2.26E+05	-2.68E+03	5.31E+03
65.	-2.32E+04	-5.56E+05	1.06E+06	-2.77E+05	5.05E+05	-3.90E+03	8.13E+03

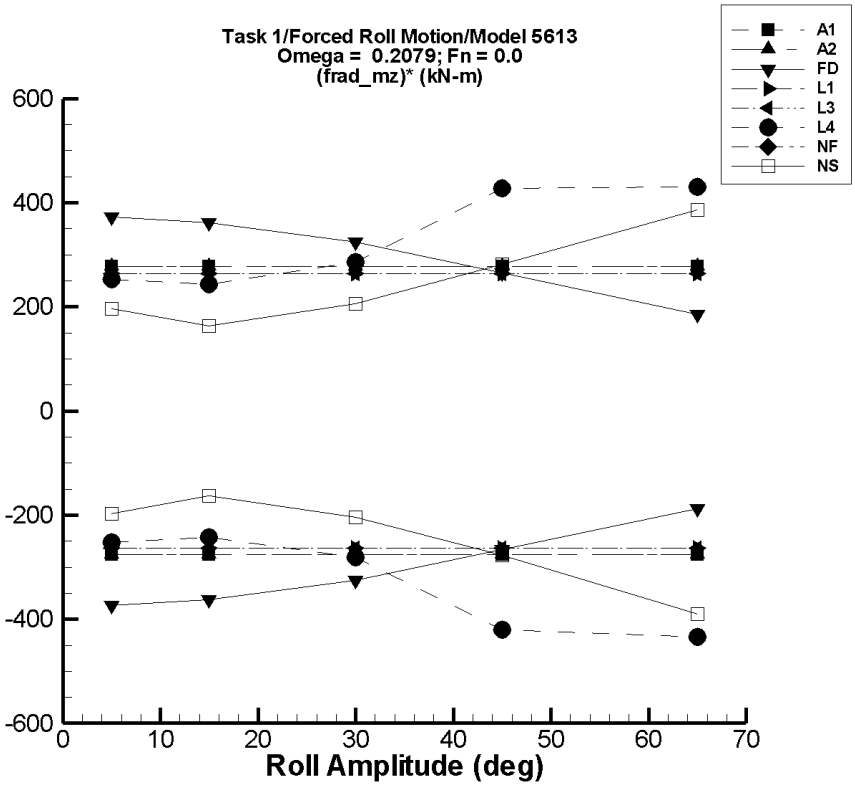

Figure M–109. Minimum and Maximum of $(M_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0.

Table M–865. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.29	-1.49E+03	1.49E+03	-1.38E+03	1.39E+03	-276.	278.
15.	-6.86	-4.46E+03	4.46E+03	-4.14E+03	4.15E+03	-276.	277.
30.	-13.7	-8.91E+03	8.92E+03	-8.28E+03	8.31E+03	-276.	277.
45.	-20.6	-1.34E+04	1.34E+04	-1.24E+04	1.25E+04	-276.	277.
65.	-29.8	-1.93E+04	1.93E+04	-1.79E+04	1.80E+04	-276.	277.

Table M–866. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.29	-1.49E+03	1.49E+03	-1.38E+03	1.39E+03	-276.	278.
15.	-6.86	-4.46E+03	4.46E+03	-4.14E+03	4.15E+03	-276.	277.
30.	-13.7	-8.91E+03	8.92E+03	-8.28E+03	8.31E+03	-276.	277.
45.	-20.6	-1.34E+04	1.34E+04	-1.24E+04	1.25E+04	-276.	277.
65.	-29.8	-1.93E+04	1.93E+04	-1.79E+04	1.80E+04	-276.	277.

Table M–867. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.27E-02	-1.87E+03	1.87E+03	-1.87E+03	1.87E+03	-373.	373.
15.	1.41	-5.43E+03	5.43E+03	-5.43E+03	5.43E+03	-362.	362.
30.	11.1	-9.74E+03	9.74E+03	-9.73E+03	9.73E+03	-325.	324.
45.	36.3	-1.19E+04	1.19E+04	-1.19E+04	1.20E+04	-266.	265.
65.	103.	-1.22E+04	1.22E+04	-1.21E+04	1.21E+04	-188.	185.

Table M–868. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.18E-03	-1.32E+03	1.32E+03	-1.32E+03	1.32E+03	-263.	263.
15.	-7.37E-03	-3.95E+03	3.95E+03	-3.95E+03	3.95E+03	-263.	263.
30.	-2.38E-02	-7.91E+03	7.91E+03	-7.90E+03	7.90E+03	-263.	263.
45.	-4.35E-02	-1.19E+04	1.19E+04	-1.19E+04	1.19E+04	-263.	263.
65.	-9.63E-02	-1.71E+04	1.71E+04	-1.71E+04	1.71E+04	-263.	263.

Table M–869. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.26E-03	-1.32E+03	1.32E+03	-1.32E+03	1.32E+03	-263.	263.
15.	-6.86E-03	-3.95E+03	3.95E+03	-3.95E+03	3.95E+03	-263.	263.
30.	-2.46E-02	-7.91E+03	7.91E+03	-7.90E+03	7.90E+03	-263.	263.
45.	-4.37E-02	-1.19E+04	1.19E+04	-1.19E+04	1.19E+04	-263.	263.
65.	-9.56E-02	-1.71E+04	1.71E+04	-1.71E+04	1.71E+04	-263.	263.

Table M–870. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.359	-1.27E+03	1.28E+03	-1.26E+03	1.26E+03	-253.	253.
15.	-2.24	-3.65E+03	3.65E+03	-3.65E+03	3.65E+03	-243.	244.
30.	-36.2	-8.52E+03	8.72E+03	-8.47E+03	8.55E+03	-281.	286.
45.	-174.	-1.95E+04	1.97E+04	-1.91E+04	1.91E+04	-421.	428.
65.	-41.2	-3.21E+04	3.57E+04	-2.82E+04	2.80E+04	-434.	431.

Table M–871. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–872. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-9.83E-03	-992.	992.	-985.	985.	-197.	197.
15.	-2.81E-02	-3.28E+03	3.28E+03	-2.45E+03	2.44E+03	-163.	163.
30.	-2.81E-02	-1.07E+04	1.07E+04	-6.13E+03	6.17E+03	-204.	206.
45.	2.33	-2.73E+04	2.88E+04	-1.25E+04	1.27E+04	-277.	281.
65.	50.8	-6.64E+04	6.28E+04	-2.53E+04	2.52E+04	-390.	387.

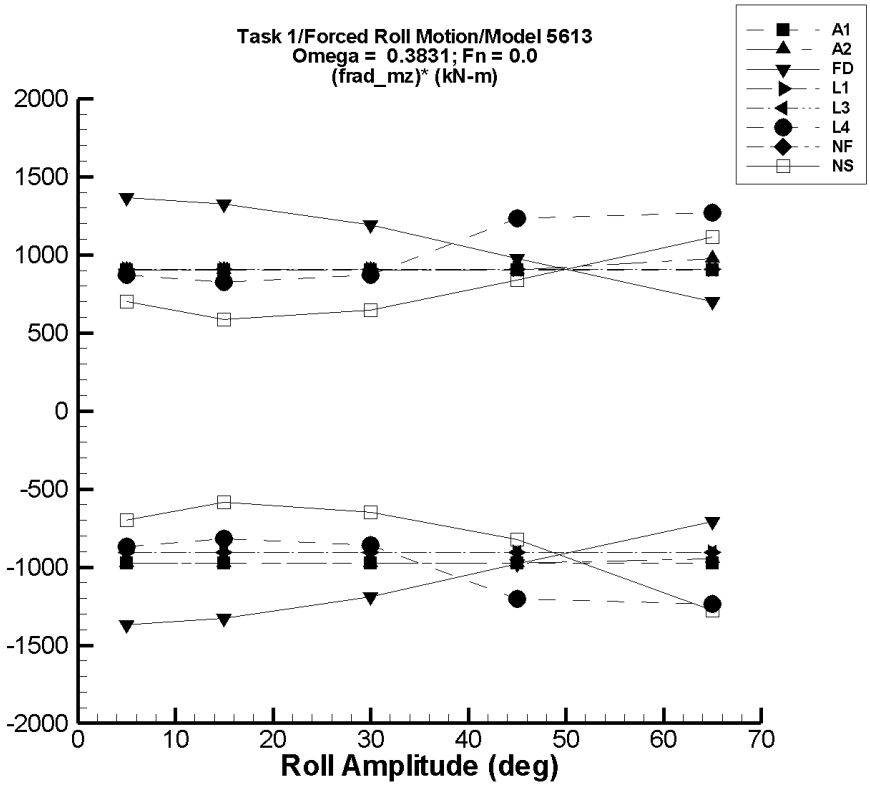

Figure M–110. Minimum and Maximum of $(M_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.0.

Table M–873. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-11.0	-4.93E+03	4.74E+03	-4.89E+03	4.49E+03	-976.	901.
15.	-33.1	-1.48E+04	1.42E+04	-1.47E+04	1.35E+04	-975.	901.
30.	-66.2	-2.96E+04	2.85E+04	-2.93E+04	2.70E+04	-975.	901.
45.	-99.2	-4.43E+04	4.27E+04	-4.40E+04	4.04E+04	-975.	901.
65.	-143.	-6.40E+04	6.17E+04	-6.35E+04	5.84E+04	-975.	901.

Table M–874. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-11.0	-4.93E+03	4.74E+03	-4.89E+03	4.49E+03	-976.	901.
15.	-33.1	-1.48E+04	1.42E+04	-1.47E+04	1.35E+04	-975.	901.
30.	-66.2	-2.96E+04	2.85E+04	-2.93E+04	2.70E+04	-975.	901.
45.	-99.2	-4.43E+04	4.27E+04	-4.40E+04	4.04E+04	-975.	901.
65.	-51.1	-6.19E+04	6.39E+04	-6.15E+04	6.34E+04	-945.	977.

Table M–875. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	0.183	-6.86E+03	6.86E+03	-6.84E+03	6.84E+03	-1.37E+03	1.37E+03
15.	4.89	-2.00E+04	2.00E+04	-1.99E+04	1.99E+04	-1.33E+03	1.33E+03
30.	38.3	-3.58E+04	3.58E+04	-3.57E+04	3.57E+04	-1.19E+03	1.19E+03
45.	124.	-4.40E+04	4.40E+04	-4.40E+04	4.40E+04	-980.	974.
65.	348.	-4.61E+04	4.61E+04	-4.57E+04	4.58E+04	-709.	699.

Table M–876. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-5.79E-02	-4.54E+03	4.54E+03	-4.53E+03	4.54E+03	-907.	907.
15.	-0.187	-1.36E+04	1.36E+04	-1.36E+04	1.36E+04	-907.	907.
30.	-0.406	-2.72E+04	2.72E+04	-2.72E+04	2.72E+04	-907.	907.
45.	-0.652	-4.09E+04	4.09E+04	-4.08E+04	4.08E+04	-907.	907.
65.	-1.06	-5.90E+04	5.90E+04	-5.90E+04	5.90E+04	-907.	907.

Table M–877. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-6.08E-02	-4.54E+03	4.54E+03	-4.53E+03	4.54E+03	-907.	907.
15.	-0.193	-1.36E+04	1.36E+04	-1.36E+04	1.36E+04	-907.	907.
30.	-0.418	-2.72E+04	2.72E+04	-2.72E+04	2.72E+04	-907.	907.
45.	-0.673	-4.09E+04	4.09E+04	-4.08E+04	4.08E+04	-907.	907.
65.	-1.08	-5.90E+04	5.90E+04	-5.90E+04	5.90E+04	-907.	907.

Table M–878. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.02	-4.36E+03	4.40E+03	-4.34E+03	4.34E+03	-868.	869.
15.	-38.9	-1.23E+04	1.23E+04	-1.23E+04	1.23E+04	-818.	823.
30.	-216.	-2.62E+04	2.67E+04	-2.60E+04	2.59E+04	-859.	871.
45.	-922.	-5.58E+04	5.63E+04	-5.51E+04	5.46E+04	-1.20E+03	1.23E+03
65.	-1.60E+03	-9.53E+04	9.94E+04	-8.19E+04	8.10E+04	-1.24E+03	1.27E+03

Table M–879. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–880. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	5.62E-02	-3.52E+03	3.53E+03	-3.49E+03	3.50E+03	-698.	700.
15.	0.200	-1.13E+04	1.13E+04	-8.78E+03	8.80E+03	-585.	586.
30.	0.700	-3.42E+04	3.41E+04	-1.95E+04	1.94E+04	-648.	647.
45.	10.0	-9.24E+04	9.16E+04	-3.71E+04	3.76E+04	-824.	836.
65.	35.9	-2.10E+05	2.23E+05	-8.29E+04	7.23E+04	-1.28E+03	1.11E+03

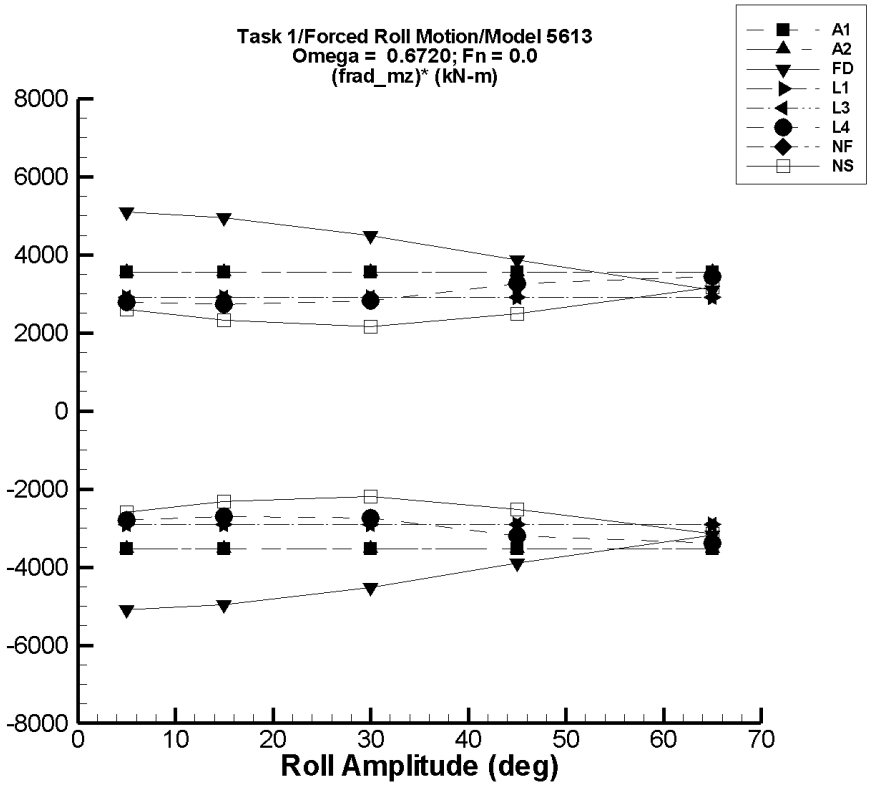

Figure M–111. Minimum and Maximum of $(M_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.0.

Table M–881. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-22.8	-1.79E+04	1.80E+04	-1.76E+04	1.78E+04	-3.52E+03	3.56E+03
15.	-68.4	-5.35E+04	5.39E+04	-5.29E+04	5.32E+04	-3.52E+03	3.55E+03
30.	-137.	-1.07E+05	1.08E+05	-1.06E+05	1.06E+05	-3.52E+03	3.55E+03
45.	-205.	-1.61E+05	1.62E+05	-1.59E+05	1.60E+05	-3.52E+03	3.55E+03
65.	-297.	-2.32E+05	2.34E+05	-2.29E+05	2.31E+05	-3.52E+03	3.55E+03

Table M–882. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-22.8	-1.79E+04	1.80E+04	-1.76E+04	1.78E+04	-3.52E+03	3.56E+03
15.	-68.4	-5.35E+04	5.39E+04	-5.29E+04	5.32E+04	-3.52E+03	3.55E+03
30.	-137.	-1.07E+05	1.08E+05	-1.06E+05	1.06E+05	-3.52E+03	3.55E+03
45.	-205.	-1.61E+05	1.62E+05	-1.59E+05	1.60E+05	-3.52E+03	3.55E+03
65.	-297.	-2.32E+05	2.34E+05	-2.29E+05	2.31E+05	-3.52E+03	3.55E+03

Table M–883. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	1.50	-2.58E+04	2.58E+04	-2.55E+04	2.55E+04	-5.09E+03	5.09E+03
15.	41.3	-7.51E+04	7.51E+04	-7.43E+04	7.43E+04	-4.96E+03	4.95E+03
30.	324.	-1.37E+05	1.37E+05	-1.35E+05	1.35E+05	-4.52E+03	4.50E+03
45.	1.05E+03	-1.77E+05	1.77E+05	-1.75E+05	1.75E+05	-3.91E+03	3.86E+03
65.	2.94E+03	-2.10E+05	2.10E+05	-2.04E+05	2.04E+05	-3.19E+03	3.10E+03

Table M–884. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.223	-1.46E+04	1.46E+04	-1.45E+04	1.45E+04	-2.90E+03	2.90E+03
15.	-0.711	-4.37E+04	4.37E+04	-4.36E+04	4.36E+04	-2.90E+03	2.90E+03
30.	-1.55	-8.75E+04	8.75E+04	-8.71E+04	8.71E+04	-2.90E+03	2.90E+03
45.	-2.54	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-2.90E+03	2.90E+03
65.	-4.03	-1.90E+05	1.90E+05	-1.89E+05	1.89E+05	-2.90E+03	2.90E+03

Table M–885. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.225	-1.46E+04	1.46E+04	-1.45E+04	1.45E+04	-2.90E+03	2.90E+03
15.	-0.728	-4.37E+04	4.37E+04	-4.35E+04	4.35E+04	-2.90E+03	2.90E+03
30.	-1.58	-8.75E+04	8.75E+04	-8.71E+04	8.71E+04	-2.90E+03	2.90E+03
45.	-2.58	-1.31E+05	1.31E+05	-1.31E+05	1.31E+05	-2.90E+03	2.90E+03
65.	-4.04	-1.89E+05	1.89E+05	-1.89E+05	1.89E+05	-2.90E+03	2.90E+03

Table M–886. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-55.3	-1.42E+04	1.42E+04	-1.40E+04	1.39E+04	-2.79E+03	2.78E+03
15.	-348.	-4.10E+04	4.10E+04	-4.08E+04	4.07E+04	-2.70E+03	2.74E+03
30.	-1.12E+03	-8.48E+04	8.60E+04	-8.34E+04	8.35E+04	-2.74E+03	2.82E+03
45.	-2.25E+03	-1.49E+05	1.51E+05	-1.47E+05	1.45E+05	-3.21E+03	3.27E+03
65.	-5.42E+03	-2.69E+05	2.59E+05	-2.25E+05	2.18E+05	-3.38E+03	3.44E+03

Table M–887. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–888. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-0.853	-1.31E+04	1.32E+04	-1.30E+04	1.30E+04	-2.59E+03	2.60E+03
15.	-3.39	-4.26E+04	4.26E+04	-3.47E+04	3.49E+04	-2.31E+03	2.33E+03
30.	-10.5	-1.12E+05	1.12E+05	-6.55E+04	6.50E+04	-2.18E+03	2.17E+03
45.	16.5	-2.93E+05	2.55E+05	-1.14E+05	1.12E+05	-2.53E+03	2.48E+03
65.	-109.	-6.22E+05	6.40E+05	-2.04E+05	2.06E+05	-3.14E+03	3.18E+03

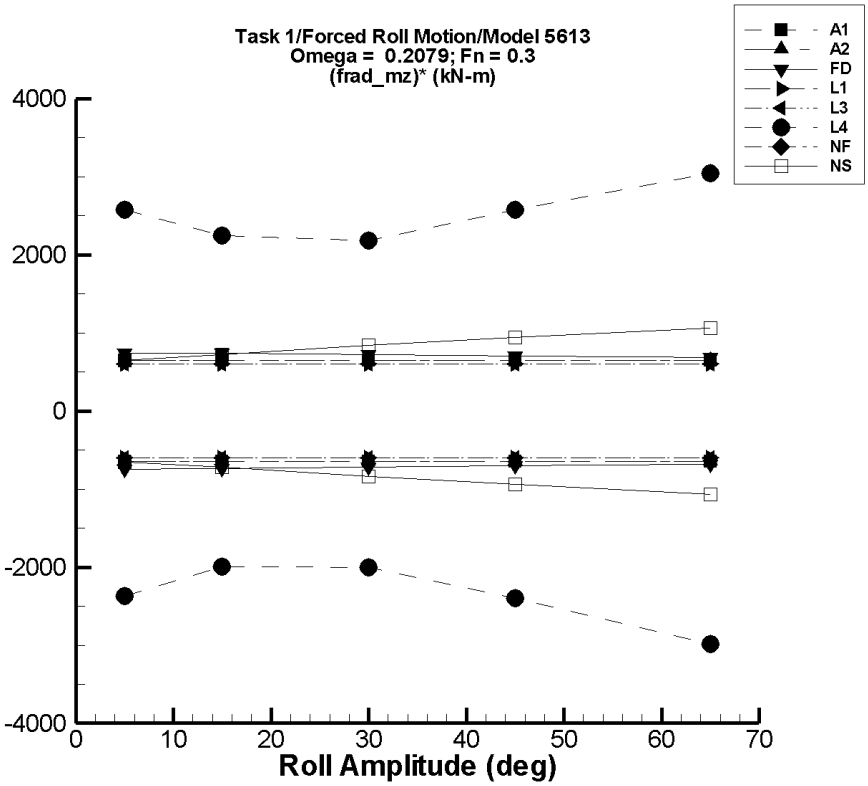

Figure M–112. Minimum and Maximum of $(M_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.3.

Table M–889. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.19	-3.30E+03	3.36E+03	-3.24E+03	3.25E+03	-647.	649.
15.	-3.56	-9.89E+03	1.01E+04	-9.70E+03	9.73E+03	-647.	649.
30.	-7.12	-1.98E+04	2.01E+04	-1.94E+04	1.95E+04	-647.	649.
45.	-10.7	-2.97E+04	3.02E+04	-2.91E+04	2.92E+04	-647.	649.
65.	-15.4	-4.28E+04	4.36E+04	-4.21E+04	4.22E+04	-647.	649.

Table M–890. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.19	-3.30E+03	3.36E+03	-3.24E+03	3.25E+03	-647.	649.
15.	-3.56	-9.89E+03	1.01E+04	-9.70E+03	9.73E+03	-647.	649.
30.	-7.12	-1.98E+04	2.01E+04	-1.94E+04	1.95E+04	-647.	649.
45.	-10.7	-2.97E+04	3.02E+04	-2.91E+04	2.92E+04	-647.	649.
65.	-15.4	-4.28E+04	4.36E+04	-4.21E+04	4.22E+04	-647.	649.

Table M–891. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.66E-02	-3.72E+03	3.72E+03	-3.72E+03	3.72E+03	-744.	744.
15.	-0.443	-1.11E+04	1.11E+04	-1.11E+04	1.11E+04	-739.	739.
30.	-3.49	-2.17E+04	2.17E+04	-2.17E+04	2.17E+04	-723.	723.
45.	-11.5	-3.18E+04	3.18E+04	-3.17E+04	3.17E+04	-705.	706.
65.	-33.3	-4.47E+04	4.47E+04	-4.46E+04	4.46E+04	-685.	687.

Table M–892. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.78	-3.00E+03	3.00E+03	-3.00E+03	3.00E+03	-600.	600.
15.	-1.78	-9.00E+03	9.00E+03	-9.00E+03	9.00E+03	-600.	600.
30.	-1.79	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-600.	600.
45.	-1.79	-2.70E+04	2.70E+04	-2.70E+04	2.70E+04	-600.	600.
65.	-1.88	-3.90E+04	3.90E+04	-3.90E+04	3.90E+04	-600.	600.

Table M–893. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.79	-3.00E+03	3.00E+03	-3.00E+03	3.00E+03	-600.	600.
15.	-1.63	-9.00E+03	9.00E+03	-9.00E+03	9.00E+03	-600.	600.
30.	-1.39	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-600.	600.
45.	-1.17	-2.70E+04	2.70E+04	-2.70E+04	2.70E+04	-600.	600.
65.	-0.925	-3.90E+04	3.90E+04	-3.90E+04	3.90E+04	-600.	600.

Table M–894. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-565.	-2.26E+04	1.35E+04	-1.24E+04	1.23E+04	-2.37E+03	2.58E+03
15.	-2.12E+03	-5.90E+04	4.25E+04	-3.20E+04	3.15E+04	-1.99E+03	2.24E+03
30.	-3.19E+03	-9.23E+04	7.47E+04	-6.33E+04	6.23E+04	-2.00E+03	2.18E+03
45.	-4.40E+03	-1.15E+05	1.13E+05	-1.12E+05	1.12E+05	-2.40E+03	2.58E+03
65.	-5.85E+03	-2.30E+05	1.99E+05	-2.00E+05	1.92E+05	-2.99E+03	3.05E+03

Table M–895. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–896. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	9.78E-03	-3.38E+03	3.38E+03	-3.25E+03	3.25E+03	-651.	650.
15.	-4.33E-02	-1.24E+04	1.24E+04	-1.08E+04	1.08E+04	-721.	720.
30.	0.123	-3.05E+04	3.05E+04	-2.52E+04	2.52E+04	-839.	839.
45.	12.5	-5.60E+04	5.97E+04	-4.24E+04	4.26E+04	-942.	946.
65.	17.7	-1.11E+05	1.09E+05	-6.96E+04	6.93E+04	-1.07E+03	1.07E+03

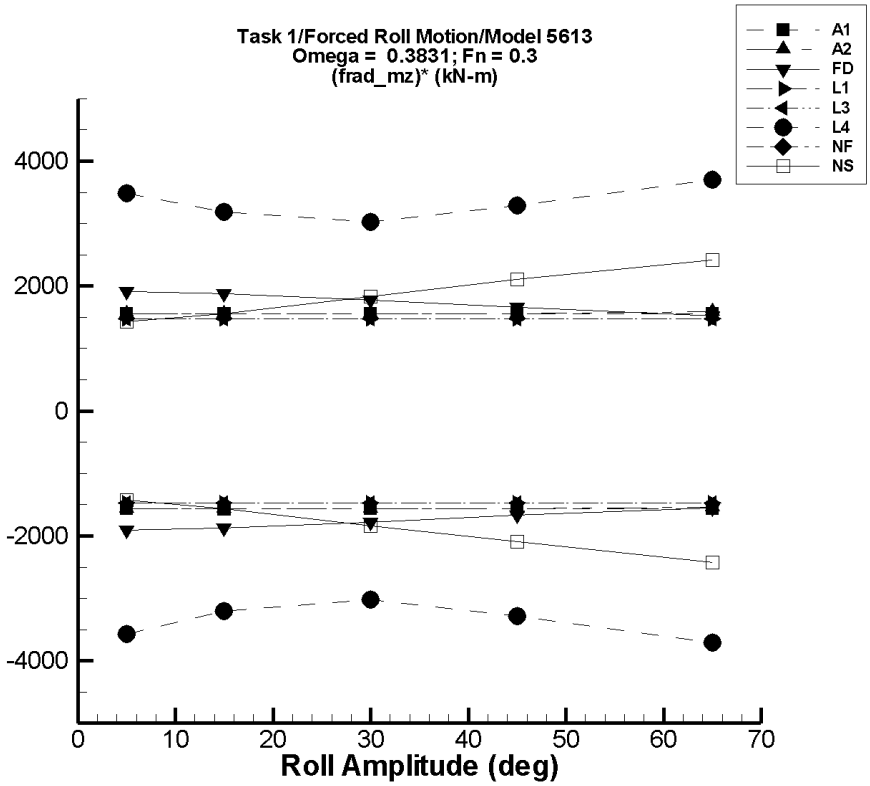

Figure M–113. Minimum and Maximum of $(M_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.3831 rad/sec and Froude number 0.3.

Table M–897. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.25	-7.85E+03	8.37E+03	-7.81E+03	7.79E+03	-1.56E+03	1.56E+03
15.	-12.8	-2.35E+04	2.51E+04	-2.34E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-25.5	-4.71E+04	5.02E+04	-4.69E+04	4.67E+04	-1.56E+03	1.56E+03
45.	-38.2	-7.06E+04	7.53E+04	-7.03E+04	7.01E+04	-1.56E+03	1.56E+03
65.	-55.2	-1.02E+05	1.09E+05	-1.02E+05	1.01E+05	-1.56E+03	1.56E+03

Table M–898. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-4.25	-7.85E+03	8.37E+03	-7.81E+03	7.79E+03	-1.56E+03	1.56E+03
15.	-12.8	-2.35E+04	2.51E+04	-2.34E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-25.5	-4.71E+04	5.02E+04	-4.69E+04	4.67E+04	-1.56E+03	1.56E+03
45.	-38.2	-7.06E+04	7.53E+04	-7.03E+04	7.01E+04	-1.56E+03	1.56E+03
65.	-49.0	-1.10E+05	1.04E+05	-1.00E+05	1.03E+05	-1.54E+03	1.59E+03

Table M–899. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	0.488	-9.59E+03	9.59E+03	-9.55E+03	9.55E+03	-1.91E+03	1.91E+03
15.	13.1	-2.83E+04	2.83E+04	-2.82E+04	2.82E+04	-1.88E+03	1.88E+03
30.	103.	-5.36E+04	5.36E+04	-5.34E+04	5.34E+04	-1.78E+03	1.78E+03
45.	338.	-7.53E+04	7.53E+04	-7.49E+04	7.49E+04	-1.67E+03	1.66E+03
65.	963.	-1.01E+05	1.01E+05	-9.98E+04	9.99E+04	-1.55E+03	1.52E+03

Table M–900. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a	Mean	Min.	Max.	Min.	Max.	Min.	Max.
(°)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m)	(kN-m/°)	(kN-m/°)
5.	-1.85	-7.38E+03	7.37E+03	-7.37E+03	7.36E+03	-1.47E+03	1.47E+03
15.	-1.89	-2.21E+04	2.21E+04	-2.21E+04	2.21E+04	-1.47E+03	1.47E+03
30.	-1.92	-4.43E+04	4.43E+04	-4.42E+04	4.42E+04	-1.47E+03	1.47E+03
45.	-1.97	-6.64E+04	6.64E+04	-6.63E+04	6.63E+04	-1.47E+03	1.47E+03
65.	-2.15	-9.59E+04	9.59E+04	-9.58E+04	9.58E+04	-1.47E+03	1.47E+03

Table M–901. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{rad}} \rangle$	**Unfiltered** M_z^{rad}		**Filtered** M_z^{rad}		**Filtered** $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-1.78	-7.39E+03	7.39E+03	-7.38E+03	7.38E+03	-1.48E+03	1.48E+03
15.	-1.76	-2.22E+04	2.22E+04	-2.21E+04	2.21E+04	-1.48E+03	1.48E+03
30.	-1.68	-4.43E+04	4.43E+04	-4.43E+04	4.43E+04	-1.48E+03	1.48E+03
45.	-1.65	-6.65E+04	6.65E+04	-6.64E+04	6.64E+04	-1.48E+03	1.48E+03
65.	-1.70	-9.61E+04	9.60E+04	-9.59E+04	9.59E+04	-1.48E+03	1.48E+03

Table M–902. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{rad}} \rangle$	**Unfiltered** M_z^{rad}		**Filtered** M_z^{rad}		**Filtered** $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	142.	-1.92E+04	1.90E+04	-1.77E+04	1.76E+04	-3.57E+03	3.49E+03
15.	80.2	-4.96E+04	4.95E+04	-4.80E+04	4.78E+04	-3.20E+03	3.18E+03
30.	114.	-9.14E+04	9.15E+04	-9.07E+04	9.08E+04	-3.03E+03	3.02E+03
45.	-87.9	-1.50E+05	1.50E+05	-1.48E+05	1.48E+05	-3.28E+03	3.28E+03
65.	474.	-2.63E+05	2.65E+05	-2.41E+05	2.41E+05	-3.71E+03	3.71E+03

Table M–903. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–904. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.82E-02	-7.52E+03	7.52E+03	-7.15E+03	7.14E+03	-1.43E+03	1.43E+03
15.	-0.140	-2.82E+04	2.81E+04	-2.35E+04	2.34E+04	-1.56E+03	1.56E+03
30.	-1.17E-02	-7.14E+04	7.14E+04	-5.52E+04	5.51E+04	-1.84E+03	1.84E+03
45.	27.8	-1.39E+05	1.50E+05	-9.40E+04	9.46E+04	-2.09E+03	2.10E+03
65.	37.8	-2.92E+05	2.85E+05	-1.58E+05	1.57E+05	-2.43E+03	2.42E+03

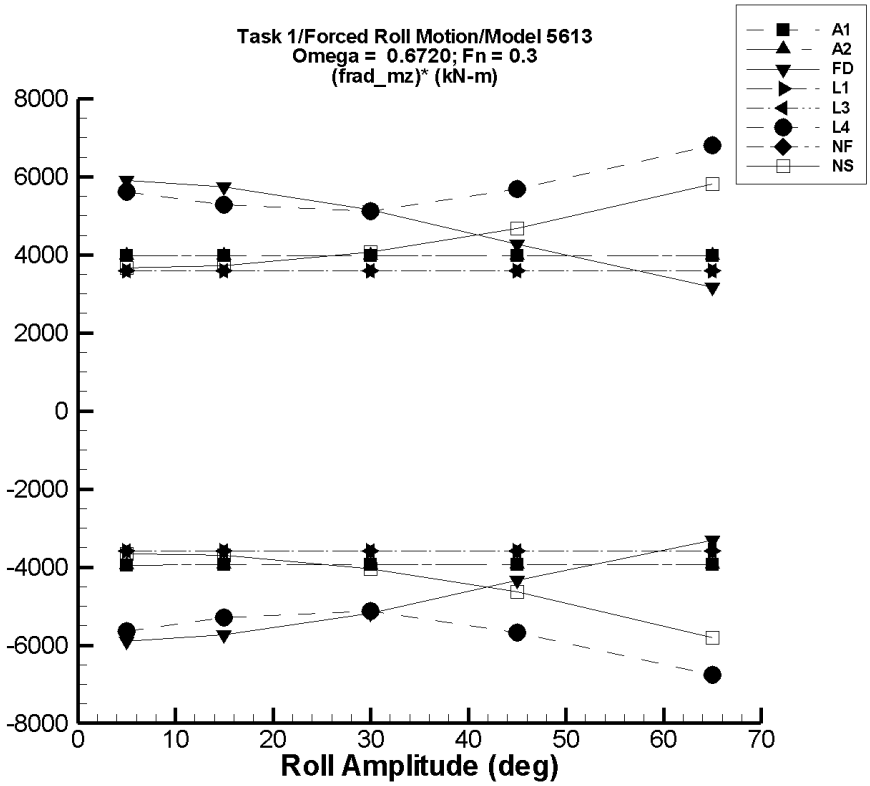

Figure M–114. Minimum and Maximum of $(M_z^{\text{rad}})^*$ Versus ϕ_a for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.6720 rad/sec and Froude number 0.3.

Table M–905. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-1.

AEGIR-1							
	$\langle M_z^{\text{rad}} \rangle$	**Unfiltered** M_z^{rad}		**Filtered** M_z^{rad}		**Filtered** $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-21.2	-2.00E+04	2.01E+04	-1.97E+04	1.98E+04	-3.94E+03	3.97E+03
15.	-63.5	-5.99E+04	6.03E+04	-5.92E+04	5.95E+04	-3.94E+03	3.97E+03
30.	-127.	-1.20E+05	1.21E+05	-1.18E+05	1.19E+05	-3.94E+03	3.97E+03
45.	-191.	-1.80E+05	1.81E+05	-1.78E+05	1.78E+05	-3.94E+03	3.97E+03
65.	-275.	-2.60E+05	2.61E+05	-2.57E+05	2.58E+05	-3.94E+03	3.97E+03

Table M–906. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from AEGIR-2.

AEGIR-2							
	$\langle M_z^{\text{rad}} \rangle$	**Unfiltered** M_z^{rad}		**Filtered** M_z^{rad}		**Filtered** $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a	**Mean**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
(°)	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m)**	**(kN-m/°)**	**(kN-m/°)**
5.	-21.2	-2.00E+04	2.01E+04	-1.97E+04	1.98E+04	-3.94E+03	3.97E+03
15.	-63.5	-5.99E+04	6.03E+04	-5.92E+04	5.95E+04	-3.94E+03	3.97E+03
30.	-127.	-1.20E+05	1.21E+05	-1.18E+05	1.19E+05	-3.94E+03	3.97E+03
45.	-191.	-1.80E+05	1.81E+05	-1.78E+05	1.78E+05	-3.94E+03	3.97E+03
65.	-275.	-2.60E+05	2.61E+05	-2.57E+05	2.58E+05	-3.94E+03	3.97E+03

Table M–907. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from FREDYN.

FREDYN							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	2.27	-2.99E+04	2.99E+04	-2.95E+04	2.95E+04	-5.91E+03	5.91E+03
15.	61.7	-8.69E+04	8.69E+04	-8.60E+04	8.60E+04	-5.74E+03	5.73E+03
30.	484.	-1.56E+05	1.56E+05	-1.55E+05	1.55E+05	-5.19E+03	5.16E+03
45.	1.58E+03	-1.95E+05	1.95E+05	-1.94E+05	1.94E+05	-4.34E+03	4.27E+03
65.	4.43E+03	-2.16E+05	2.16E+05	-2.10E+05	2.11E+05	-3.31E+03	3.18E+03

Table M–908. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-1.

LAMP-1							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.90	-1.80E+04	1.80E+04	-1.79E+04	1.79E+04	-3.58E+03	3.58E+03
15.	-1.96	-5.40E+04	5.40E+04	-5.37E+04	5.37E+04	-3.58E+03	3.58E+03
30.	-2.13	-1.08E+05	1.08E+05	-1.07E+05	1.07E+05	-3.58E+03	3.58E+03
45.	-2.40	-1.62E+05	1.62E+05	-1.61E+05	1.61E+05	-3.58E+03	3.58E+03
65.	-2.84	-2.34E+05	2.34E+05	-2.33E+05	2.33E+05	-3.58E+03	3.58E+03

Table M–909. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-3.

LAMP-3							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-1.92	-1.80E+04	1.80E+04	-1.80E+04	1.80E+04	-3.59E+03	3.59E+03
15.	-2.01	-5.41E+04	5.41E+04	-5.39E+04	5.39E+04	-3.59E+03	3.59E+03
30.	-2.25	-1.08E+05	1.08E+05	-1.08E+05	1.08E+05	-3.59E+03	3.59E+03
45.	-2.59	-1.62E+05	1.62E+05	-1.62E+05	1.62E+05	-3.59E+03	3.59E+03
65.	-3.12	-2.34E+05	2.34E+05	-2.33E+05	2.33E+05	-3.59E+03	3.59E+03

Table M–910. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from LAMP-4.

LAMP-4							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	98.5	-2.88E+04	2.89E+04	-2.81E+04	2.81E+04	-5.63E+03	5.61E+03
15.	150.	-8.09E+04	8.09E+04	-7.92E+04	7.93E+04	-5.29E+03	5.28E+03
30.	187.	-1.56E+05	1.56E+05	-1.54E+05	1.54E+05	-5.13E+03	5.12E+03
45.	212.	-2.60E+05	2.60E+05	-2.55E+05	2.56E+05	-5.68E+03	5.68E+03
65.	-1.38E+03	-4.75E+05	4.80E+05	-4.41E+05	4.41E+05	-6.76E+03	6.81E+03

Table M–911. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NFA.

NFA							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	—	—	—	—	—	—	—
15.	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—
45.	—	—	—	—	—	—	—
65.	—	—	—	—	—	—	—

Table M–912. Minimum and Maximum of M_z^{rad} for Prescribed 1-DOF Roll Motion of Model 5613 (L = 154 m) at Frequency 0.2079 rad/sec and Froude number 0.0 from NSHIPMO.

NSHIPMO							
	$\langle M_z^{\text{rad}} \rangle$	Unfiltered M_z^{rad}		Filtered M_z^{rad}		Filtered $\left(M_z^{\text{rad}}\right)^*$	
ϕ_a (°)	Mean (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m)	Max. (kN-m)	Min. (kN-m/°)	Max. (kN-m/°)
5.	-2.32	-1.90E+04	1.90E+04	-1.83E+04	1.83E+04	-3.66E+03	3.66E+03
15.	-8.16	-6.67E+04	6.69E+04	-5.56E+04	5.57E+04	-3.70E+03	3.71E+03
30.	-19.3	-1.71E+05	1.72E+05	-1.21E+05	1.22E+05	-4.04E+03	4.07E+03
45.	31.6	-3.52E+05	3.77E+05	-2.08E+05	2.11E+05	-4.63E+03	4.68E+03
65.	-159.	-7.19E+05	7.50E+05	-3.77E+05	3.77E+05	-5.80E+03	5.81E+03