



MICROCOPY RESOLUTION TEST CHART

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FIELD	GROUP	SUB-GROUP		,	, , , , , , , , , , , , , , , , , , , ,		
			electromagnetic environment			$\infty$	
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tion Distrib tification sy the emitted tribution is statistical n the measur ing at a 3 l vertical dip also does n ThinkJet pr dB can be hard-wired the measur tively identi	rements are being ution System, sch vistems. The descri- signals because the further complicate lature of the JTID ements presented MHz bandwidth, wo oles which can be eal-time processin rinter with both al- made through harr- individual emitter ed signal levels for ified. This statistica	eduled for introducti ption of the electron hey are pulsed, some ed by reflections off S system suggested t in this paper is confi which is comparable wrapped around a s g and transfers data phanumeric and grag d-wired connections and shipboard elect r each of the 86 3 M cal approach to the il fashion.	to ensure Electroma ion into the U.S. Na nagnetic environmen e at irregular pulse j other rotating anten that the signal level igured around a Hev to the RF bandwidt ship's mast. The ins to an HP9133H ha phical data displaye to individual emitte tromagnetic environ dHz channels betwee measurement of EM	gnetic Compatibility betv avy in the 1990's, and e nt in time and frequency periods, and radiated fro measurements should be wlett-Packard 8566B spe h of the JTIDS signal. T struments are HP-IB con rd/floppy disc drive. A 1 d. Statistical measureme ers with a notch filter cer ment results are presente en 960 and 1215 MHz. II is applicable to other 1	ween the shipboa existing shipboa is complicated or rotating ante (frequency struc e statistical. The ectrum analyzer The transducer in throlled with an logging record is ents with a dyna netered at the en- ed as cumulative EMC problems EM environmer	ard Joint lac rd radar, bea by the inhere ennas. The si ture of the si e shipboard s /85685A pres is a circular a HP9816 com s maintained umic range in nitter frequence e distribution are clearly a the intermet	income and iden- con and iden- ent structure of gnal level dis- gnals and the ystem used for elector operat- tray of eight on an HP excess of 160 cy. Both the functions of nd quantita- ters of the
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"A Statistical Description of Shipboard Environment and concern a specific Within a 250 MHz Band at 1 GHz"

## Abstract for:

Laternational Conference and Workshop on Electromagnetic Interference and Compatibility Basgaloco, India 10-11 September 1987

Submitted by: Dr. W. Cronyn 04 February 1987 Whetheomographic Compatibility Engineering, Code 825

> Naval Ocean Systems Center San Diego, CA 92152-5000 USA

Herage marks are being taken to achieve and ensure Electromagnetic Compatibility between the shipboard Joint Tactical Information Distribution System, scheduled for introduction into the U.S. Navy in the 1990's, and existing shipboard radar, beacon and identification systems. The description of the electromagnetic environment in time and frequency is complicated by the inhorant standards at the emitted signals because they are pulsed, some at recognitive only periods, and radiated from rotating antennas. The signal level distribution to curther complicated by reflections off other rotating adjourney. The complex time/frequency structure of the signals and the statistical nature of the JTIDS system suggested that the signal level measurements should be statistical. The shipboard system used for the measuremention proceeding in this paper is configured around a Hewlett-Packard Boom conducts, and types/856854 preselector operating at a 3 MHz bandwidth, which is comprished to the RF bandwidth of the JTIDS signal. The transducer is a succelly agreat of might vertical dipoles which can be wrapped around a shipta wish. The instruments are HP-IB controlled with an HP9816 computer where also declare align processing and transfers data to an HP9133H hard/Hoppy disc drive. A logging record is maintained on an HP ThinkJet production which appeared and graphical data displayed. Statistical

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measurements with a dynamic range in excess of 160 db can be made through mard-wired connections to individual emitters with a notch filter centered at the emitter frequency. Both the hard-wired individual emitter and shipboard slectromagnetic environment results are presented as cumulative distribution runctions of the measured signal levels for each of the 86 3 MHz channels between 960 and 1215 MHz. EMC problems are clearly and quantitatively identified. This statistical approach to the measurement of EMI is applicable to other EM environments if the emitters of the victims operate in a statistical fashion.

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