

**UNCLASSIFIED**

PE NUMBER: 0207410F

PE TITLE: Air and Space Operations Center - Weapon System (AOC-WS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	96.593	98.566	99.405	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4372 Space C2 Operations	8.220	24.391	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.611
5117 Integration Development	69.331	60.971	82.340	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5218 Applications Development	7.366	4.244	9.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5220 Unit Level	6.345	6.759	7.424	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5242 Command and Control Air Replanning and Monitoring (C2ARM)	5.331	2.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.532

In FY10, Project 674372, Space C2 Operations efforts transferred to PE 0305614F, JSpOC Mission Systems (JMS).

In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.

**(U) A. Mission Description and Budget Item Justification**

The Air and Space Operations Center Weapon System (AOC WS) program element provides development of Command and Control (C2) capabilities across the entire spectrum of air and space operations from the strategic to the tactical level. Beginning in FY10, there are three projects within the AOC WS program element.

Space C2 provides integrated space information and command and control of space forces for the Joint Functional Component Command for Space (JFCC-Space), and Commander USSTRATCOM.

Integration Development supports the Air and Space Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS). AOC WS is the weapon system the Commander, Air Force Forces (COMAFFOR) provides the Coalition/Joint Force Air Component Commander (C/JFACC) for planning, executing and assessing theater-wide air and space operations.

Applications Development provides worldwide operational capabilities which include core air battle planning, management, execution and personnel recovery for Air Force C2 in support of DoD, Coalition Partners, and other government agencies.

Unit Level (UL) supports two primary mission areas: UL Operations software systems provide both the scheduling and mission preparation activities at the wing and squadron level and the capabilities to report and track the success of each mission and influence decisions on future Air Battle Planning to refine future missions. UL Intel capabilities ensure detailed threat, target and imagery information are made available to mission commanders and aircrews planning current flight operations.

This program is Budget Activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

## Exhibit R-2, RDT&amp;E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations Center - Weapon System (AOC-WS)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	100.173	118.834	119.414
(U) Current PBR/President's Budget	96.593	98.566	99.405
(U) Total Adjustments	-3.580	-20.268	
(U) Congressional Program Reductions		-20.000	
Congressional Rescissions		-0.268	
Congressional Increases			
Reprogrammings	-0.850		
SBIR/STTR Transfer	-2.730		

(U) **Significant Program Changes:**

In FY09, previous President's Budget was reduced by \$20M Congressional reduction due to AOC 10.2 MS B slip in Project 675117, Integration Development.

In FY10, current President's Budget was reduced due to transfer of Project 674372, Space C2 Operations.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>			PROJECT NUMBER AND TITLE <b>4372 Space C2 Operations</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4372 Space C2 Operations	8.220	24.391	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.611
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, Project 674372, Space C2 Operations efforts transferred to PE 0305614F, JSpOC Mission Systems (JMS).

**(U) A. Mission Description and Budget Item Justification**

Space Command and Control (C2) system provides integrated space information and C2 of space forces for the Joint Functional Component Command for Space (JFCC-SPACE). It will allow CDRJFCC-SPACE to plan, direct, coordinate, and control operations of assigned forces. Specifically, the system will provide CDRJFCC-SPACE with the following abilities:

- Monitor: Status, activities and environment for assigned / attached space forces
- Assess: How space forces support the battle space; provides impacts of changes to force status; impacts of enemy forces on space assets
- Plan: Space operations to support theater and national ops
- Execute: Issue Joint Space Tasking Order; track task performance; adapt tasking to changing situations

Space C2 program will provide a net-centric, service oriented architecture along with space C2 services to meet the needs shown above. Space C2 mission applications are provided in an incremental approach.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is Budget Activity 7, Operational System Development, because it consolidates and unify Air Force air and space C2 development and integration.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Space C2 Technology development and demonstration of key elements (e.g., Space User Defined Operational Picture (UDOP) and key core services). Integrates the UDOP as well as Space Situational Awareness and attack assessment services on the to-be services oriented net-centric system architecture for the development phase. Funds preliminary design Space C2 mission applications risk reduction . Demonstrates maturity of Critical Technical Elements (CTEs).	8.220	8.722	0.000
(U) Space C2 provides an integrated theater/space C2 operational environment and service oriented, net-centric architecture. The Space C2 net centric infrastructure includes COTS hardware (servers and workstations) and core services system level software (e.g. collaboration, system management, security, archive and retrieve space C2 data). Will establish interoperability across the C2 enterprise, specifically the Joint Space Operations Center (JSpOC), other AOCs, JFCCs and the Global Operations Center (GOC). Funding provides for operational pilots, evaluation of 3rd party-developed space services providing foundational core-services, and insertion of C2 capabilities for other space systems providing information to the JSpOC.	0.000	15.669	0.000
(U) Total Cost	8.220	24.391	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE

4372 Space C2 Operations

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) None

(U) D. Acquisition Strategy

Uses risk reduction technology demonstrations and operational pilots. Technology development performed by Air Force Research Laboratory.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>					<b>4372 Space C2 Operations</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Competitive Initial Mission Applications	CP/FF	TBD	0.000	0.000		3.932	Mar-09	0.000	Oct-09		3.932	3.932
AOC-WS Infrastructure	CP/IF	Lockheed Martin, Colorado Springs, Co	0.000	0.000		12.014	Mar-09	0.000	Nov-09	0.000	12.014	12.014
Space C2 Technology Risk Reduction	Mult	Air Force Research Laboratory, Albuquerque, NM	0.000	4.131	Feb-08	1.135	Dec-08	0.000		0.000	5.266	5.266
Subtotal Product Development			0.000	4.131		17.081		0.000		0.000	21.212	21.212
Remarks:												
(U) <u>Support</u>												
Systems Engineering	CP/FF	MITRE, Colorado Springs, CO		2.207	Nov-07	3.932	Nov-08	0.000	Nov-09	0.000	6.139	6.139
A&AS	CP/FF	PASS/ETAS, Colorado Springs, CO		1.882	Nov-07	3.378	Nov-08	0.000	Nov-09	0.000	5.260	5.260
Subtotal Support			0.000	4.089		7.310		0.000		0.000	11.399	11.399
Remarks:												
(U) Total Cost			0.000	8.220		24.391		0.000		0.000	32.611	32.611

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
4372 Space C2 Operations

Exhibit R-4, RDT&E Schedule Profile

O-7 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
4372 Space C2 Operations

Activity	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
CTE & JSIP Demo	Tech Risk Reduct							
Competitive Initial Mission Applications Design		MDD SRR SS Ctr1 Ctr2						
JSpOC Infrastructure								
Increment 1		SRR Integ.						
CDR: Critical Design Review    CTE: Critical Technical Element    CTR: Contractor    DT: Development Test    IOC/FOC: Initial/Full Operational Capability IOT&E: Init Ops Test & Evaluation    JSIP: Joint Functional Component Command for Space Integrated Prototype    JSpOC: Joint Space Operations Center MDD: Material Development Decision    PDR: Preliminary Design Review    SRR: System Readiness Review    SS: Source Selection Risk Reduction/Source Selection     Design/Development/Integration     Develop/Operational Test								

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4372 Space C2 Operations</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Space C2 Technology Risk Reduction Demonstrations, Pilots	2-4Q	1-2Q	
(U) Materiel Development Decision (MDD)		2Q	
(U) Increment 1 Competitive Initial Mission Applications Design		2-4Q	
(U) Increment 1 Infrastructure		2-4Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>			PROJECT NUMBER AND TITLE <b>5117 Integration Development</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5117 Integration Development	69.331	60.971	82.340	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Air and Space Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS), is the weapon system the Commander, Air Force Forces (COMAFFOR) provides the Combined/Joint Force Air Component Commander (C/JFACC) for planning, executing and assessing theater-wide air and space operations. The C/JFACC provides air, space and cyber support to the Combined/Joint Forces Commander (C/JFC) by coordinating, deconflicting and assessing the progress of various weapon systems to advance the C/JFC's campaign. The AOC WS develops operations strategy and planning documents. The weapon system also disseminates tasking orders, executes day-to-day peacetime and combat air, space and cyber operations, and provides rapid reaction to immediate situations by exercising positive control of friendly forces.

The AOC WS Integration Development program integrates system hardware and software to make the AOC WS a viable weapons system. This integration is in support of Falconer AOCs, Tailored Falconer AOCs, Functional AOCs, and Support units that are configured according to mission need. The program will integrate and support the development of Command and Control (C2) and Intelligence, Surveillance and Reconnaissance (ISR) capabilities through third party developers to the AOC WS baseline. To keep the AOC Weapon System current and interoperable with the COCOMs and fifth generation weapons systems/weapons, the AOC WS program plans to evolve the AOC through integrating progressively improving capabilities. The AOC WS uses the Weapon System Integrator (WSI) contractor to ensure system of systems perspective and systems engineering rigor, to evolve the AOC WS to a Net-Centric Environment (NCE), to build the "to be" infrastructure, and to conduct other weapon system standardization and modernization activities as defined in AOC WS requirements documents. This infrastructure will be compliant with DoD service oriented architecture (SOA) standards. The AOC WS Integration Development program provides a structure for systems integration, technical transition, and process refinement for rapidly evolving C2 programs, processes and concepts.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is in Budget Activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) 10.1 Continue AOC integration, development and test of items to include, but not limited to, visualization, Coalition and Joint interoperability, airspace management and deconfliction, strategy and assessment, information assurance/security and keeping systems current and relevant to COCOM requirements.	46.223	38.827	15.383
(U) 10.2 AOC SOA Infrastructure and Capability Integration. Development and test of a robust, open, net-centric infrastructure implemented by a services-oriented architecture. Includes initial integration of baseline capabilities and development of items to include, but not limited to, dynamic planning and execution, data management, information assurance/security, multi-level security, predictive battlespace awareness and airspace management in support of the migration towards globally-linked Air and Space Operations Centers.	8.061	9.919	53.149

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5117 Integration Development</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Training (To include, but not limited to: Type 1, Part Task Trainer, Distributed Mission Operations, Logistics Management Support and Conversion of Courseware to Computer Based Training)	1.000	1.315	2.176
(U) Systems Engineering	8.733	3.548	7.200
(U) Program Management Support	5.314	7.362	4.432
(U) Total Cost	69.331	60.971	82.340

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other Procurement, AF PEC: 0207410F; BPAC: 83453A		43.363	34.947	54.093						Continuing	TBD
(U) O&M, PEC: 0207410F		145.897	102.675	107.115							

**(U) D. Acquisition Strategy**  
 The Air and Space Operations Center Weapon System Program Executive Officer (PEO) selected a Weapon System Integrator (WSI) through full and open competition, to ensure system of systems perspective and systems engineering rigor to evolve AOC WS to a Net-Centric environment, compliant with DoD Services Oriented Architecture (SOA) standards. The acquisition strategy builds on existing capabilities using evolutionary acquisition to standardize, modernize and sustain the AOC WS.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5117 Integration Development</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
10.1 Integration & Version Upgrades	CPAF	LM WSI, Colorado Springs, CO		46.223	Jan-08	38.827	Nov-08	15.383	Nov-09	Continuing	TBD	TBD
10.2 Integration & Modernization	CPAF; CPIF; FPIF	LM WSI, Colorado Springs, CO		8.061	Jan-08	9.919	Feb-09	53.149	Nov-09	Continuing	TBD	TBD
Training	various	AFMC, ESC, Hanscom AFB, MA, Eglin AFB, FL, Various		1.000	Jan-08	1.315	Jan-09	2.176	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	55.284		50.061		70.708		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Systems Engineering	CPFF; Labor & Cost	MITRE, Bedford, MA; ETASS, ESC, Hanscom AFB, MA		8.733	Oct-07	3.548	Oct-08	7.200	Oct-09	Continuing	TBD	TBD
Program Office Support	Various	AFMC/ESC, Hanscom AFB, MA		5.314	Oct-07	7.362	Oct-08	4.432	Oct-09	Continuing	TBD	TBD
Subtotal Support			0.000	14.047		10.910		11.632		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	69.331		60.971		82.340		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
5117 Integration Development

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# AOC WS Integrated Master Schedule



U.S. AIR FORCE

FY08

FY09

FY10

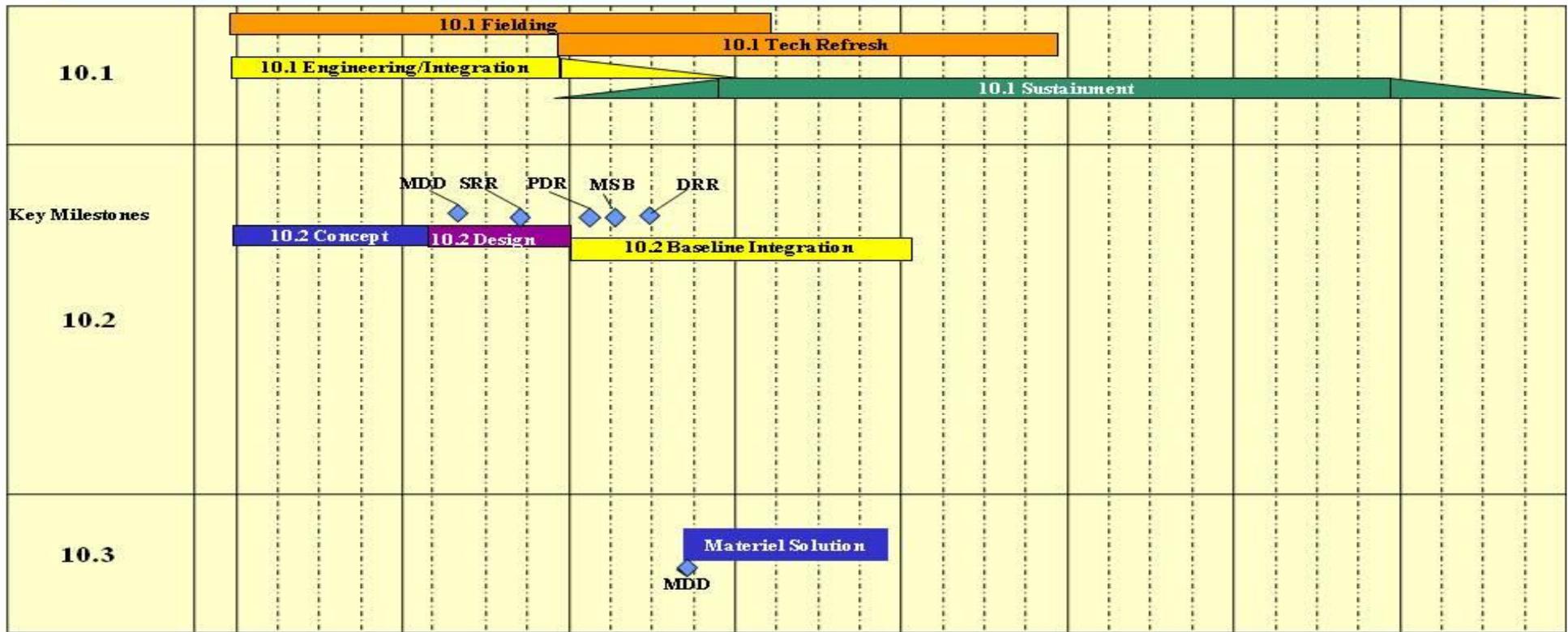
FY11

FY12

FY13

FY14

FY15



■ Concept Activities   
 ■ Design/Development   
 ■ Integration/Test   
 ■ Fielding   
 ■ Sustainment   
 ◆ Key events

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*Integrity - Service - Excellence*

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Exhibit R-4 (PE 0207410F)

Project 5117

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5117 Integration Development</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Increment 10.1 Fielding	1-4Q	1-4Q	1-4Q
(U) AOC 10.2 Concept Development/Design	1-4Q	1-4Q	
(U) AOC 10.2 Baseline/Integration			1-4Q
(U) Increment 10.2 MDD		2Q	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>			PROJECT NUMBER AND TITLE <b>5218 Applications Development</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5218 Applications Development	7.366	4.244	9.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, funding for CSAR C2 effort was transferred from Project 675117, Integration Development, to Project 675218, Applications Development, in order to better align C2 capability development projects and programs.  
 In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.

**(U) A. Mission Description and Budget Item Justification**

This budget activity funds operational development necessary to acquire, modify, and sustain segments of Air Force's Command and Control (C2) capabilities and services. Applications Development provides worldwide operational capabilities for AF C2 in support of DoD, Coalition Partners, and other government agencies. These efforts focus on, but are not limited to support of the Combined/Joint Force Air Component Commander (C/JFACC), as presented to the Air and Space Operations Center (AOC) and to other C2 systems. Applications Development activities include but are not limited to the following: 1) Theater Battle Management Core System (TBMCS) Force Level (FL) program which delivers joint air battle planning, management and execution capabilities; 2) Command and Control Air Operations Suite (C2AOS) develops, matures, fields and maintains next-generation net-centric C2 services and capabilities for air battle planning, execution and management functions; 3) Combat Search and Rescue Command and Control (CSAR C2) which delivers planning, managing, and disseminating search and rescue information and services; and 4) Command and Control Information Services (C2IS) which creates web-enabled information services to expose air operations data in TBMCS applications and systems using standardized schemas, such as those developed by the Air Operations Community of Interest (AO COI).

Core activities include but are not limited to: 1) maintaining operational viability of the current Joint System of Record (TBMCS 1.1.3); 2) developing capabilities to support planning and replanning of the Air Battle Plan; generation and dissemination of the Air Tasking Order; air and space defensive planning and execution; targeting; weaponeering; personnel recovery tasks; other applications and services supporting C2 utilized in the joint environment and 3) providing support to and participating in the AO COI to improve air operations information interoperability among all joint and coalition systems within the AO domain. The AO COI defines and develops air operations vocabulary and data models upon which net centric information services are built; 4) developing and assessing C2 technologies that will improve joint and coalition warfighter interoperability, including participation in annual NATO Coalition Warrior Interoperability Demonstration (CWID) activities, and 5) transitioning existing C2 capabilities to a net-centric environment. Applications Development efforts include evaluation and maturation of future air and space command and control concepts identified through research, risk reduction, prototyping, current operations, exercises and demonstrations.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is in Budget Activity 7 - Operation Systems Development because it provides funding for the modernization of currently existing and operating systems.

**Exhibit R-2a, RDT&E Project Justification**

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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5218 Applications Development</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>
(U) TBMCS Force Level Support (e.g. Training Development, Test & Eval, Prgm Support)	7.066	0.649	0.000
(U) NATO ICR&D (International Cooperation Research & Development) projects	0.300	0.300	0.300
(U) C2IS	0.000		2.941
(U) CSAR C2	0.000	0.000	2.025
(U) C2AOS	0.000	3.295	4.375
(U) Total Cost	7.366	4.244	9.641

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>FY 2013</u></b>	<b><u>FY 2014</u></b>	<b><u>FY 2015</u></b>	<b><u>Cost to</u></b>	<b><u>Total Cost</u></b>
	<b><u>Actual</u></b>	<b><u>Estimate</u></b>	<b><u>Complete</u></b>							
(U) Other Procurement, AF, PE 0207410F, WSC 834520, TBMCS FL	11.863	11.953	16.135						Continuing	TBD
(U) Other Procurement, AF PE 0207410F, WSC 834520, CSAR C2	0.000	0.000	1.120						Continuing	TBD
(U) O&M, PE 0207410F, BG1000 (TBMCS FL)	16.451	16.626	16.908						Continuing	TBD
(U) O&M, PE 0207410F, BLZ000 (CSAR C2)	0.000	0.000	5.563						Continuing	TBD

**(U) D. Acquisition Strategy**

Projects will be awarded following full and open competition and will use an evolutionary acquisition strategy based on incremental development.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>					<b>5218 Applications Development</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
TBMCS Force Level Support	FFP/FPIF/C PAF	Lockheed Martin, Colorado Springs, CO		1.945	Dec-07	0.000		0.000		Continuing	TBD	TBD
CSAR-C2	Labor Hour & Cost	TBD				1.727		1.860		Continuing	TBD	TBD
C2IS	TBD	TBD						1.422	Feb-10	Continuing	TBD	TBD
C2AOS	TBD	TBD						3.696		Continuing	TBD	TBD
Subtotal Support			0.000	1.945		1.727		6.978		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test and Evaluation	MIPR	46th Test Squadron, Eglin AFB, FL		0.996	Dec-07	0.000		0.000		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.996		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Program Support (MITRE, A&AS, Travel)	Various	Hanscom AFB, MA		2.540	Oct-07	2.152	Dec-08	2.363	Oct-09	Continuing	TBD	TBD
Subtotal Management			0.000	2.540		2.152		2.363		Continuing	TBD	TBD
Remarks:												
(U) <u>Training Development</u>												
Training development	CPAF	Lockheed Martin, Colorado Springs, CO		1.585	Dec-07	0.065	Jan-09	0.000		0.000	1.650	TBD
Subtotal Training Development			0.000	1.585		0.065		0.000		0.000	1.650	TBD
Remarks:												
(U) <u>NATO ICR&amp;D Projects</u>												
NATO ICR&D Projects	Various	Hanscom AFB, MA		0.300	Oct-08	0.300	Jan-09	0.300	Oct-09	Continuing	TBD	TBD
Subtotal NATO ICR&D Projects			0.000	0.300		0.300		0.300		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	7.366		4.244		9.641		Continuing	TBD	TBD

R-1 Line Item No. 145

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Exhibit R-3 (PE 0207410F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

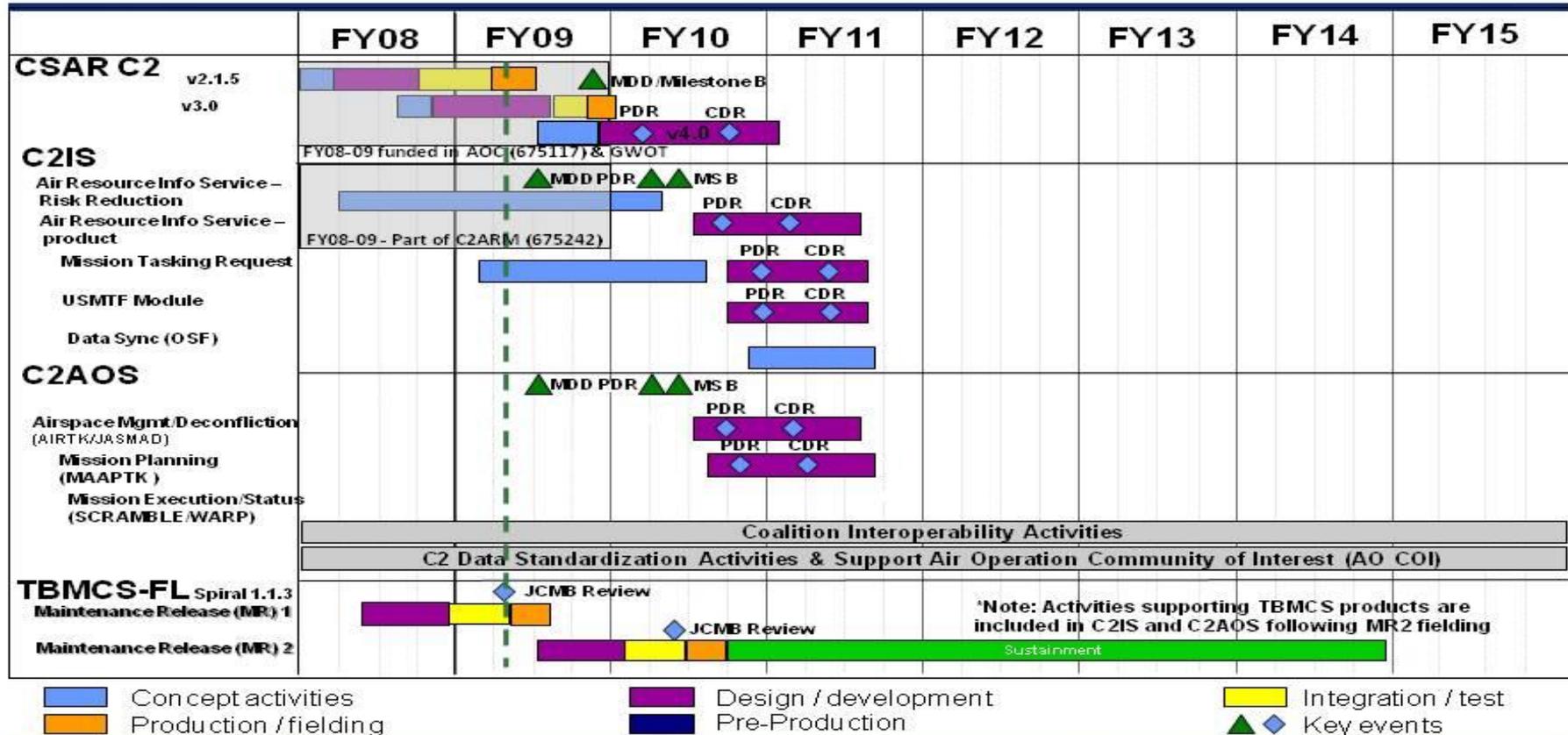
PROJECT NUMBER AND TITLE  
5218 Applications Development

FOR OFFICIAL USE ONLY



U.S. AIR FORCE

# C2 Applications Development Schedule



FOR OFFICIAL USE ONLY

*Integrity - Service - Excellence*

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE

5218 Applications Development

(U) Schedule Profile

(U) CSAR C2 v4.0

(U) C2IS (Air Resource Info Service product)

(U) C2AOS (Air Planning Service)

(U) C2AOS (Mission Task Request Service-Risk Reduction)

(U) C2AOS (Mission Task Request Service-Product)

(U) TBMCS-FL (MR 1)

(U) TBMCS-FL (MR 2)

FY 2008

FY 2009

FY 2010

1-4Q

3-4Q

1-4Q

1-4Q

1-4Q

2-4Q

1-4Q

2-4Q

1-3Q

1-4Q

3-4Q

1-3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>		PROJECT NUMBER AND TITLE <b>5220 Unit Level</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5220 Unit Level	6.345	6.759	7.424	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Unit Level (UL) program, as the follow on to Theater Battle Management Core Systems-Unit Level, develops, integrates, fields, and maintains an evolving sequence of increasing software capabilities (Unit Command & Control - UC2) that support the execution of the air battle plan and the air tasking order message received from the force level systems. Unit Level Operations software systems provide both the scheduling and mission preparation activities at the wing and squadron level and the capabilities to report and track the success of each mission and influence decisions on future Air Battle Planning to refine future missions. Unit Level Intelligence capabilities ensure detailed threat, target and imagery information are made available to mission commanders and aircrews planning current flight operations. UL is fielded to the Wing Operations Center (WOC), the Maintenance Operations Center (MOC), the Squadron Operations Center (SOC), and many other work-centers.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is in Budget Activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Unit Level Operations and Intelligence increment software development/integration (formerly known as TBMCS-Unit Level)	3.819	4.394	4.918
(U) Test Support	0.578	0.509	0.534
(U) System Engineering	0.678	0.643	0.663
(U) Program Support (including contract engineering support, tech support, etc)	1.270	1.213	1.309
(U) Total Cost	6.345	6.759	7.424

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) Other Procurement, AF, PE 0207410F, WSC 834520, PROG BG2000	10.170	10.495	12.863						Continuing	TBD
(U) O&M, PE 0207410F, PROG BG2000	3.047	2.169	1.969						Continuing	TBD

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE

5220 Unit Level

(U) D. Acquisition Strategy

Projects will be awarded following full and open competition and will use an evolutionary acquisition strategy based on increment development.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>					<b>5220 Unit Level</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Increment Development	CPIF	Lockheed Martin, Hampton, VA & Colorado Springs, CO		3.867	Feb-08	4.696	Feb-09	4.918	Feb-10	Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	3.867		4.696		4.918		Continuing	TBD	TBD
(U) <u>Support</u>											0.000	0.000
Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u> Test Support	MIPR	46TS, Eglin AFB, FL		0.774	Oct-07	0.663	Oct-08	0.534	Oct-09	Continuing	TBD	TBD
Subtotal Test & Evaluation Remarks:			0.000	0.774		0.663		0.534		Continuing	TBD	TBD
(U) <u>System Engineering</u> Systems Engineering	CPIF	MITRE, Bedford, MA		0.678	Oct-07	0.643	Oct-08	0.663	Oct-09	Continuing	TBD	TBD
Subtotal System Engineering Remarks:			0.000	0.678		0.643		0.663		Continuing	TBD	TBD
(U) <u>Program Support</u>	various	Hanscom AFB, MA		1.026	Oct-07	0.757	Oct-08	1.309	Oct-09	Continuing	TBD	TBD
Subtotal Program Support Remarks:			0.000	1.026		0.757		1.309		Continuing	TBD	TBD
(U)											0.000	0.000
Subtotal Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	6.345		6.759		7.424		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

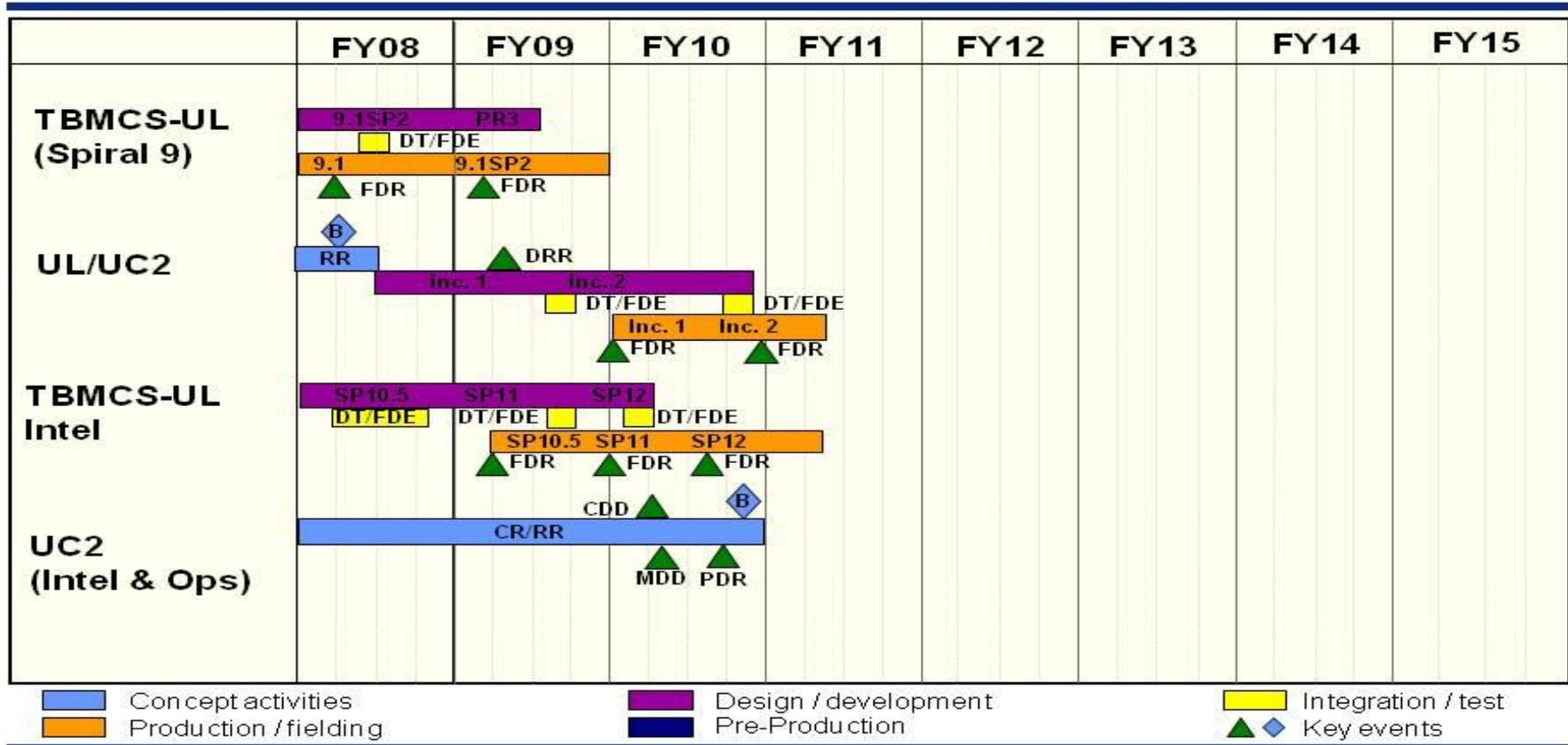
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
5220 Unit Level



# UL/UC2 Program Schedule



PB10 R-Docs

Depicted by installation/production flow

1

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)**

PROJECT NUMBER AND TITLE

**5220 Unit Level**

(U) **Schedule Profile**

- (U) Continue TBMCS-UL Ops Spiral 9
- (U) Continue TBMCS-UL Intel Spirals
- (U) UC2 (Intel & Ops) MS B

FY 2008

- 1-4Q
- 1-4Q

FY 2009

- 1-4Q
- 1-4Q

FY 2010

- 1-2Q
- 4Q

Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>			PROJECT NUMBER AND TITLE <b>5242 Command and Control Air Replanning and Monitoring (C2ARM)</b>		
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5242 Command and Control Air Replanning and Monitoring (C2ARM)	5.331	2.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.532
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.

(U) **A. Mission Description and Budget Item Justification**

C2ARM (referred to as C2IS in FY10 and beyond) is part of the transition of Theater Battle Management Core Systems (TBMCS) Force Level capabilities to a net-centric environment. Specifically, C2ARM/C2IS develops web-enabled information services to expose air operations data in legacy TBMCS systems using standardized schemas, such as those developed by the Air Operations Community of Interest (AO COI). The data services created by C2ARM/C2IS provide users with a single source for authoritative air operations data, including air resources, airspace deconfliction, missions and taskings. These capabilities will be available to C2 users including the Air and Space Operations Centers (AOC) as well as any future Net-Enabled Command Capability (NECC) environment. C2ARM/C2IS information services support air battle planning execution for service oriented architecture (SOA) applications such as those developed as NECC Capability Modules (CM).

Activities also include studies and analysis to support both current program planning and execution and future program planning.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) C2ARM Development/Test	4.160	1.636	0.000
(U) System Engineering	0.538	0.215	0.000
(U) Program Support	0.633	0.350	0.000
(U) Total Cost	5.331	2.201	0.000

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None										

(U) **D. Acquisition Strategy**

Multiple delivery orders on one or more existing ID/IQ contracts, approximately 1 data services task delivery per year, CPIF or Time and Materials.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>					<b>5242 Command and Control Air Replanning and Monitoring (C2ARM)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Product Development	TBD	TBD		4.160		1.636	Feb-09			Continuing	TBD	TBD
Subtotal Product Development			0.000	4.160		1.636		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Hanscom AFB, MA		0.633	Feb-08	0.350	Oct-08			Continuing	TBD	TBD
Subtotal Support			0.000	0.633		0.350		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Management										Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Systems Engineering</u>												
Systems Engineering	CPFF	Hanscom AFB, MA		0.538	Feb-08	0.215	Oct-08			Continuing	TBD	TBD
Subtotal Systems Engineering			0.000	0.538		0.215		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	5.331		2.201		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

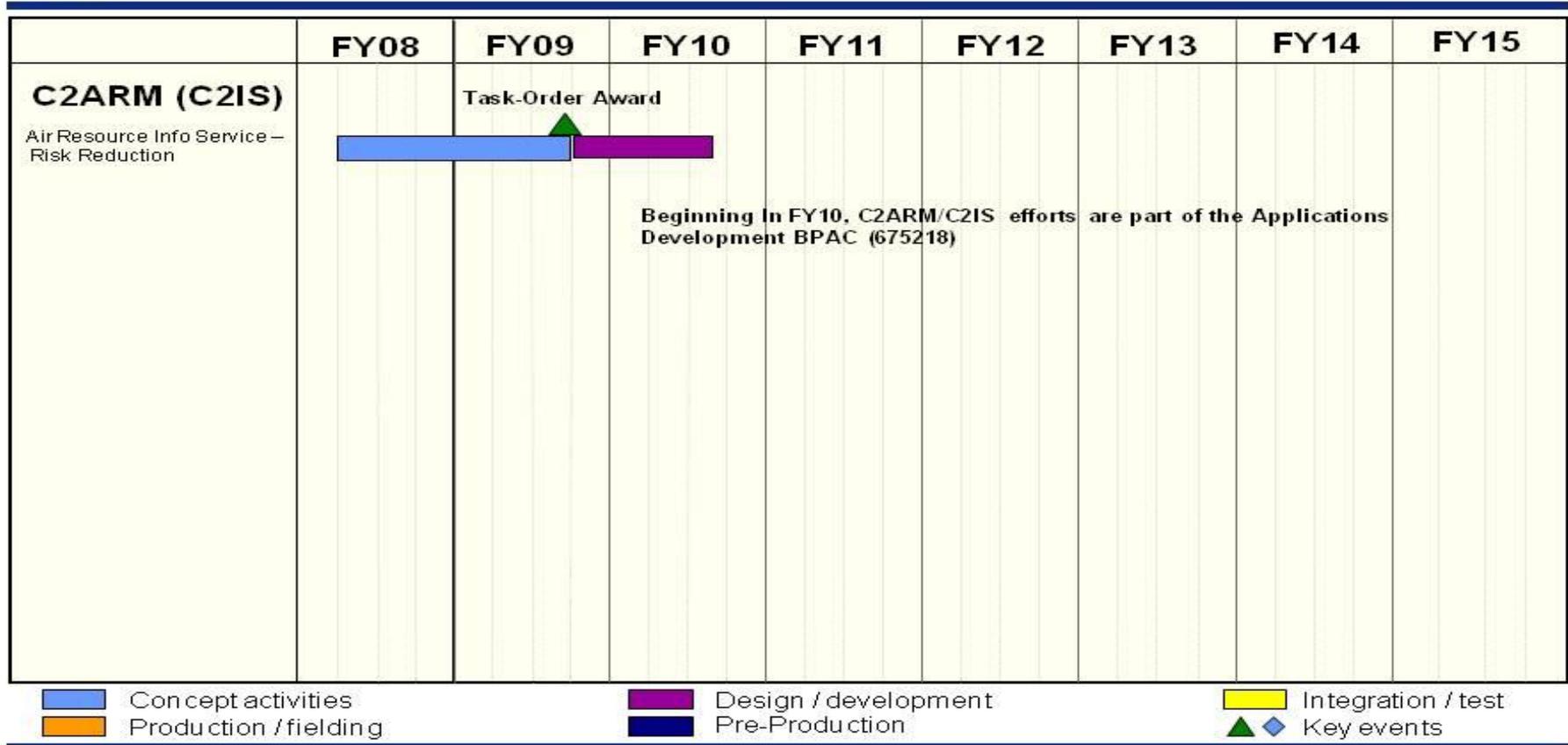
PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
5242 Command and Control Air  
Replanning and Monitoring (C2ARM)

As of: 22 Apr 09



# C2ARM Program Schedule



PB10 R-Docs

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE

5242 Command and Control Air  
Replanning and Monitoring (C2ARM)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) C2ARM (C2IS) Air Resource Info Service-Risk Reduction Development Contract Award

3Q