

UNCLASSIFIED

PE NUMBER: 0207412F
 PE TITLE: Modular Control System

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207412F Modular Control System
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	26.746	8.743	16.505	23.695	21.460	23.325	23.206	23.678	Continuing	TBD
485L Theater Air Control System Imp (TACSI)	26.746	8.743	16.505	23.695	21.460	23.325	23.206	23.678	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Battle Control System (BCS) Family of Systems (FOS) is comprised of fixed sites for Homeland Defense [Region/Sector Operation Control Center, PE 0102326F, referred to herein as Battle Control System-Fixed {BCS-F}] and mobile Theater Battle Management (TBM) Command and Control (C2) nodes [Modular Control System, PE 0207412F (called the Battle Control System-Mobile {BCS-M})]. The BCS-M is the replacement of the legacy Control and Reporting Center (CRC).

Once fielded, the BCS-M tactical C2 execution node supports the Joint Forces Air Component Commander (JFACC) and provides interoperability among elements of the Theater Air Control System (TACS) to include the Tactical Air Control Party (TACP), Air Support Operations Center (ASOC), Airborne Warning and Control System (AWACS), Joint STARS, and the Air and Space Operations Center (AOC) as well as other Navy, Marine Corps, Army, and allied/coalition assets. BCS-M is the execution arm of the AOC and conducts both OCONUS and Homeland Defense missions; theater air defense, airspace surveillance, aircraft identification, airspace management, and tactical data link management are the critical tactical-level capabilities of BCS-M.

BCS-M is a low density/high demand rapidly deployable ground C2 asset. The current legacy CRC is fully employed in IRAQI FREEDOM, ENDURING FREEDOM, and NOBLE EAGLE. CENTAF is urgently advocating the need to update and replace the legacy CRC to support ongoing operations.

BCS-M uses a spiral development acquisition strategy to further advance C2 capabilities on the battlefield and also leverages other acquisitions and successful experimental models. BCS-M acquisition activities include, but are not limited to requirements analysis, modeling and simulation, risk reduction, acquisition planning, enterprise integration, and prototype development (i.e., radio/radar/data link remoting, software development, radar development, future comm requirements). The BCS-M capitalizes on technologies and lessons learned from the Area Cruise Missile Defense (ACMD) Advanced Capabilities Technology Demonstration (ACTD). The battle management software is being developed in coordination with BCS-Fixed, leverages capabilities from the AWACS 40/45 Program, and integrates evolutionary upgrades carried forward from the legacy CRC. This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability. The BCS-M program includes an incremental fielding of critical needs in order to deliver a product to the war fighter as soon as possible.

The program is in Budget Activity 7 because the CRC is a fielded, operational system that is being upgraded.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	18.892	8.798	16.248	23.160
(U) Current PBR/President's Budget	26.746	8.743	16.505	23.695
(U) Total Adjustments	7.854	-0.055		
(U) Congressional Program Reductions		-0.022		
Congressional Rescissions		-0.033		
Congressional Increases				
Reprogrammings	8.374			
SBIR/STTR Transfer	-0.520			

(U) **Significant Program Changes:**

- FY06 supplemental appropriation added \$6.0M of RDT&E funding to field a replacement to the CRC rapidly in support of the GWOT.
- Funding (\$2.374M) reduced in FY05 to support higher AF priorities; restored in FY06.
- Funding increases from FY07 to FY08 and out because of parallel common software development activities.
- Funding increases from FY08 to FY09 because both Radar Replacement and Remote Radio Spiral 4 will also be in progress.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0207412F Modular Control System			PROJECT NUMBER AND TITLE 485L Theater Air Control System Imp (TACSI)		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
485L Theater Air Control System Imp (TACSI)	26.746	8.743	16.505	23.695	21.460	23.325	23.206	23.678	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

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The program is in Budget Activity 7 because the CRC is a fielded, operational system that is being upgraded.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue concept definition & development of evolutionary upgrades to the BCS to include, but not limited to, advanced planning, Modular Control System (MCS) upgrades, enhanced radio/radar/data link remoting, transition of ACMD technology into BCS-M, leveraging capabilities from BCS-F and	19.388	5.569	13.340	20.413

Exhibit R-2a, RDT&E Project Justification

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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
AWACS 40/45, integrating evolutionary upgrades into BCS-M, and sensor replacement/upgrade.				
(U) Develop/Field CENTAF BCS-M/Battle Control Center-CENTAF with FY06 Supplemental Funding (GWOT)	6.000			
(U) Continue Program Support (i.e., travel, supplies, equipment, miscellaneous)	0.208	0.323	0.387	0.404
(U) Continue Systems Engineering/Technical Support	1.150	2.851	2.778	2.878
(U) Total Cost	26.746	8.743	16.505	23.695
Increase in Systems Engineering/Technical support FY07 and out due to realignment.				

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN										
(U) OPAF PE 0207412F (Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement)	67.222	42.371	33.552	68.984	73.828	89.941	86.652	88.380	Continuing	TBD

(U) **D. Acquisition Strategy**
The Battle Control System (BCS) Program Family of Systems is utilizing a spiral development acquisition strategy to further advance C2 concepts supporting future aerospace operations.

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Exhibit R-3, RDT&E Project Cost Analysis

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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>														
Concept Definition/Development of Evolutionary Upgrades	MIPR	Naval Air Warfare Center/Aircraft Division, Patuxent River, MD		2.817	Nov-05	1.403	Jan-07	1.600	Dec-07	2.000	Dec-08	Continuing	TBD	TBD
Concept Definition/Development of Evolutionary Upgrades - Spiral development	CPIF & CPAF/SS	Thales Raytheon Systems, Fullerton, CA		14.917	Dec-05	2.252	Mar-07	5.770	Oct-07	8.413	Nov-08	Continuing	TBD	TBD
Concept Definition/Development of Evolutionary Upgrades - Sensor Replacement/Upgrade	T&M	Technology Services Corp., Silver Spring, MD		0.253	Jan-06	0.260	Feb-07	0.255	Nov-07	0.264	Nov-08	Continuing	TBD	TBD
Concept Definition/Development of Evolutionary Upgrades - Sensor Replacement/Upgrade	T&M	Sensis Group, East Syracuse, NY		0.921	Jan-06	1.186	Nov-06	3.235	Jan-08	6.236	Jan-09	Continuing	TBD	TBD
Concept Definition/Development of Evolutionary Upgrades - RRSVS		AFRL, Rome NY		0.480	Nov-05	0.468	Dec-06	0.480	Nov-07	1.500	Nov-08	Continuing	TBD	TBD
Concept Definition/Development of Evolutionary Upgrades - Mode 5/S Develop/Field CENTAF BCS-M/Battle Control Center-CENTAF	TBD	TBD						2.000	Feb-07	2.000	Feb-08	Continuing	TBD	TBD
	MIPR	US Army Space and Missile Battle Lab-West, Colorado Springs, CO		6.000	Sep-05							0.000	6.000	TBD
Subtotal Product Development			0.000	25.388		5.569		13.340		20.413		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Program Office Support	Various	Various		0.208	Oct-05	0.323	Oct-06	0.387	Oct-07	0.404	Oct-08	Continuing	TBD	TBD
Systems Engineering	FFP	MITRE, Bedford MA		1.150	Oct-05	1.485	Oct-06	1.371	Oct-07	1.398	Oct-08	Continuing	TBD	TBD
Technical Support	T&M	Various				1.366	Dec-06	1.407	Nov-07	1.480	Nov-08	Continuing	TBD	TBD
Subtotal Support			0.000	1.358		3.174		3.165		3.282		Continuing	TBD	TBD

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Exhibit R-3 (PE 0207412F)

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PROJECT NUMBER AND TITLE

**485L Theater Air Control System Imp
(TACSI)**

Remarks:									
(U) Total Cost	0.000	26.746	8.743	16.505	23.695	Continuing	TBD	TBD	

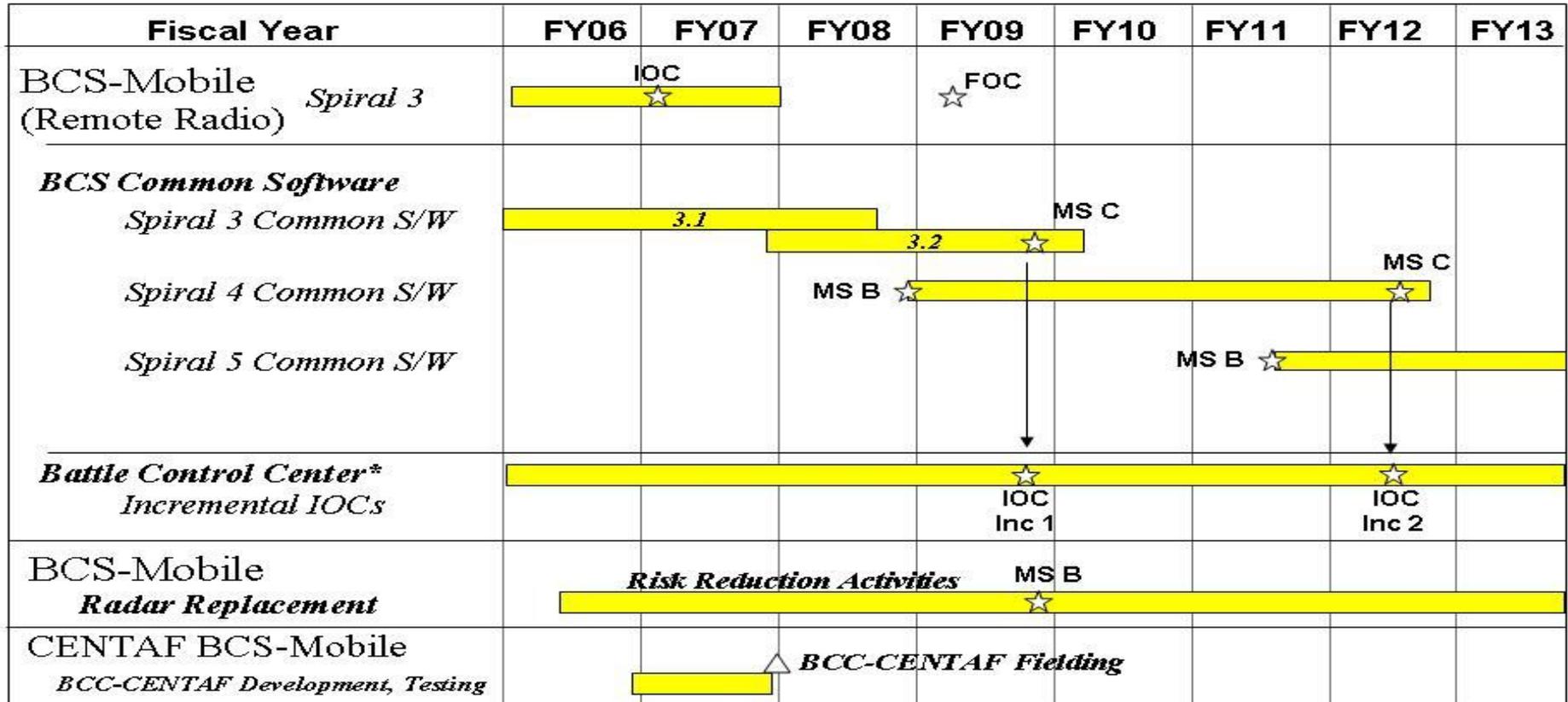
Exhibit R-4, RDT&E Schedule Profile

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*BCS-M Spiral upgrades will come from the BCS Common Software development

As of Jan 2007

- ★ Major Event or Milestone
 - █ Ongoing Activity
 - ▲ Completed Event
 - △ Planned Task(s)
- IOC: Initial Operational Capability
 - FOC: Full Operational Capability
 - MS: Milestone
 - Inc: Increment
 - S/W: Software

Exhibit R-4a, RDT&E Schedule Detail

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(U) **Schedule Profile**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) BCS-M Remote Radio Spiral 3 IOC		1Q		
(U) BCS-M Remote Radio Spiral 3 FOC				1Q
(U) BCS Common Software Spiral 3MS C				4Q
(U) BCS Common Software Spiral 4 MS B			4Q	
(U) BCS-M Battle Control Center IOC				4Q
(U) BCS-M Radar Replacement MS B				4Q
(U) Develop/Field CENTAF BCS-M/Battle Control Center-CENTAF	4Q	1-4Q		