

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 0305208F Distributed Common Ground Systems
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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	36.550	125.267	107.117	118.647	125.690	46.612	47.631	48.716	Continuing	TBD
4826 Common Imagery Ground / Surface Systems	36.550	125.267	107.117	118.647	125.690	46.612	47.631	48.716	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The DoD Distributed Common Ground/Surface System (DCGS) Program is a cooperative effort between the Services and National Agencies to provide world-wide ground/surface systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance sensors/platforms and commercial sources. The DCGS program is developing a family of systems capable of supporting all levels of conflict, interoperable with reconnaissance platforms and sensors, and integrated into the Joint Command, Control, Communication, Computer, and Intelligence (C4I) environment. The program integrates architectures and standards from DCGS Imagery architecture for Imagery Intelligence (IMINT), Joint Interoperable Operator Network (JION) for Signals Intelligence (SIGINT), and Joint Airborne Measurement and Signature Intelligence (MASINT) Architecture (JAMA) for MASINT, and all-source analyses to Combat Air Forces and Combatant Commanders. The Air Force has been charged with developing, upgrading and managing the DCGS Integration Backbone (DIB) for all the Services to provide common DCGS enterprise services and interoperability at the data level.

AF DCGS provides the Air Force ground systems capable of tasking intelligence sensors, and receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms and commercial sources. AF DCGS is a 'system of systems' interconnected by a robust communications structure to provide data sharing capabilities between intelligence collectors, exploiters, producers, disseminators, and users. AF DCGS has five core locations: two CONUS based and three OCONUS. Several other AF DCGS systems are distributed among Air Force operational units at numbered Air Force and Air National Guard locations, to support the Joint Task Force commander and the Air Operations Center (AOC). The CONUS-based systems are capable of reach back operations via data link relay and satellite relay connectivity to forward operationg sensors.

AF DCGS provides critical data and significant support for Time Critical Targeting (TCT) operations. This support will be enhanced with the planned integration of software tools, and, data interfaces to the AOC and the transformation of AF DCGS to a net-centric, service oriented architecture. By converting from a stovepipe system of systems to a web based integrated net centric Intelligence, Surveillance, and Reconnaissance (ISR) management capability AF DCGS will provide the Joint Forces Air Component Commander (JFACC) the capability to:

- 1) Dynamically visualize and command ISR assets and the information in the AOC
- 2) Quickly and effectively synchronize AF DCGS ISR operations, collection capabilities, and information with the AOC's combat objectives to improve the TCT process and reduce timelines.

AF DCGS is also being integrated into the Network Centric Collaborative Targeting (NCCT) network.

Using the DIB, AF DCGS modernization will transform AF DCGS from its existing proprietary system to a net centric service oriented architecture. This modernization effort, implemented in Block 10.2, will deliver a net centric DCGS capability for the Air Force. Block 10.2 will spiral the necessary technologies and

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tools into its architecture to provide increased capabilities and meet emerging and urgent user operational needs. These spirals will also integrate COTS and GOTS fact-of-life version upgrades to provide current technologies and achieve necessary application and services. Increment 2, the next phase in AF DCGS transformation will continue this net centric modernization of focusing on Sigint modernization and the integration of data fusion, and automated tools. Increment 2 will perform technology evaluations and develop the required acquisition plans and studies/analysis to begin development in support of a contract award in FY08.

The DIB was developed with the Block 10.2 upgrade and in accordance with DoD direction will be managed and upgraded by the Air Force to meet emerging DCGS architecture and standards for Joint and Coalition interoperability.

AF DCGS will also modernize its network management and interface capabilities by upgrading and migrating its current interface capabilities to a standardized interface configuration which is easy to expand and adapt to growing capacity requirements. Efforts will also focus on network management systems and ability to manage critical bandwidths to meet operational surges and distributed ops requirements.

The Common Imagery Processor (CIP) is the common sensor processing element within DCGS IMINT architecture. The function of the CIP is to accept airborne imagery data, process it into an exploitable image, and output the image to other elements within DCGS-I. Efforts continue to upgrade the CIP baseline to maintain currency with upgraded/new sensors.

The DCGS-I Testbed is a mobile test environment, which is used by Service and Agency program offices to test interoperability interfaces with new sensors, applications, and net centric operations. This testbed also supports the integration and testing of DoD DCGS components prior to introduction into the operational environment. Upgrades to the DCGS-I Testbed will ensure it maintains currency with existing interface standards.

AF DCGS participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, Allied, and coalition interoperability.

AF DCGS is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(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	34.883	120.777	110.970	122.065
(U) Current PBR/President's Budget	36.550	125.267	107.117	118.647
(U) Total Adjustments	1.667	4.490		
(U) Congressional Program Reductions		-0.036		
Congressional Rescissions	-0.904	-0.474		
Congressional Increases	2.571	5.000		
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

- Funding increases from FY 06 to FY 09 to continue AF DCGS modernization and technology insertion. These funds will upgrade AF DCGS and integrate technologies

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transforming AF DCGS from its existing architecture based on proprietary/legacy systems to an open, net centric, service oriented architecture. The increase also provides the funds necessary to manage and upgrade the DIB to meet emerging technologies and DCGS net centric and enterprise services and improve ISR interoperability.

-Congressional Increase of \$2.571M for Ohio Air National Guard in FY06.

-Congressional Increase of \$3.3M for Ohio Air National Guard activities and \$1.7M for AF DCGS Formal Training Unit in FY07.

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07 Operational System Development		0305208F Distributed Common Ground Systems						4826 Common Imagery Ground / Surface Systems		
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
4826 Common Imagery Ground / Surface Systems	36.550	125.267	107.117	118.647	125.690	46.612	47.631	48.716	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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tools into its architecture to provide increased capabilities and meet emerging and urgent user operational needs. These spirals will also integrate COTS and GOTS fact-of-life version upgrades to provide current technologies and achieve necessary application and services. Increment 2, the next phase in AF DCGS transformation will continue this net centric modernization of focusing on Sigint modernization and the integration of data fusion, and automated tools. Increment 2 will perform technology evaluations and develop the required acquisition plans and studies/analysis to begin development in support of a contract award in FY08.

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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>
(U) Continue evolving DCGS architectures and standards for commonality and interoperability across intelligence disciplines to include NATO interoperability and management of DCGS Infrastructure Integrated Process Team (IPT) for USD(I)	2.138	2.320	2.723	2.831
(U) Continue DCGS-I testbed development and upgrades.	1.478	6.550	4.550	3.550
(U) Continue evolving CIP and its associated architecture to keep pace with growing sensor baseline of new and upgraded sensors. Continue investigation and implementation of advanced processing tools.	9.247	10.528	12.458	12.565
(U) Continue commercial imagery integration.	2.600	2.700	2.700	2.700
(U) Continue AF DCGS Block 10.2 upgrades to provide required tools for AF DCGS support to the JTF Commander and below.	11.114	43.845	18.714	4.123
(U) Continued development efforts for Increment 2, integrate advance technology with the DCGS	3.617	14.000	26.285	54.830

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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>
Integration Backbone (DIB) to accelerate integration of advanced Mult-INT exploitation fussion tools.				
(U) Improve DIB interoperability.		1.000	1.000	1.000
(U) Upgrade and manage the DIB.		7.500	7.800	6.200
(U) Continue integration of MASINT and Multiple Intelligence (Multi-INT) exploitation technology capabilities into AF DCGS.		5.000		
(U) Upgrade AF DCGS communication architecture and network.	3.785	26.824	30.887	30.848
(U) Provide Ohio Air National Guard MASINT Exploitation Capability	2.571	3.300		
(U) Provides FTU support		1.700		
(U) Total Cost	36.550	125.267	107.117	118.647

(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 Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) OPAF (PE 0305208F)	251.538	199.735	197.806	308.600	150.086	169.402	173.129	176.938		TBD

(U) **D. Acquisition Strategy**
 The Air Force uses an evolutionary acquisition approach with blocks (increments) and spirals to develop, field, and upgrade the AF DCGS weapon system and structure contracts for the improved capabilities through full and open competition to the maximum extent possible.

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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</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2009</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
				<u>Cost</u>	<u>Award Date</u>									
(U) <u>Product Development</u>														
Block 10.2 Spiral Upgrades	C/Multiple	Raytheon, Garland, TX	6.562	2.275	Aug-06	24.156	Dec-06	16.571	Dec-07	2.692	Dec-08	Continuing	TBD	TBD
Block 10.2 Spiral GFE	TBD	TBD				23.657	Jan-07	8.110	Jan-08	5.656	Jan-09	Continuing	TBD	TBD
DIB Management and Migration	TBD	TBD				7.500	Dec-06	7.800	Dec-07	6.200	Dec-08	Continuing	TBD	TBD
DIB Interoperability	TBD	TBD				1.000	Feb-07	1.000	Feb-08	1.000	Feb-09	Continuing	TBD	TBD
Increment 2	TBD	TBD						10.000	Jul-08	25.000	Jan-09	Continuing	TBD	TBD
Increment 2 Tech Dev	TBD	TBD		1.100	Sep-06	11.085	Jan-07	12.378	Jan-08	25.335	Jan-09	Continuing	TBD	TBD
Communications Capability Upgrade	TBD	TBD			May-06	25.800	Jan-07	25.134	Jan-08	25.608	Jan-09	Continuing	TBD	TBD
Common Imagery Processor Software Development	C/CPFF	Northrup Grumman, Baltimore, MD	39.172	9.247	Dec-05	10.528	Dec-06	12.458	Dec-07	12.565	Dec-09	Continuing	TBD	TBD
MASINT Capabilities into DCGS	Multiple	Riverside Research Institute, Fairfax, VA	3.000		Mar-06	5.000	Jan-07					0.000	8.000	TBD
Commercial Imagery Integration	Multiple	Par Gov't Systems, Rome NY	0.074	2.600	Mar-06	2.700	Jan-07	2.700	Jan-08	2.700	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			48.809	15.222		111.426		96.151		106.756		Continuing	TBD	TBD
Remarks:														
(U) <u>Support</u>														
Other Non-Prime Gov't Contracts			7.958	17.990	Feb-06	10.283	Feb-07	7.230	Feb-08	7.969	Feb-09	Continuing	TBD	TBD
SAIC	SS/ IDIQ	McLean, VA	6.768	2.585	Mar-06	2.714	Mar-07	2.850	Mar-08	2.992	Mar-09	Continuing	TBD	TBD
Various			19.722	0.753	Jan-06	0.844	Oct-06	0.886	Jan-08	0.930	Jan-09	Continuing	TBD	TBD
Subtotal Support			34.448	21.328		13.841		10.966		11.891		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U)														
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U)														0.000

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Subtotal	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost	83.257	36.550		125.267	107.117	118.647	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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Notional AF DCGS Schedule FY07-13



	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Blk 10.2 Deliveries	E-FAT				DT-2				Distrib Ops, Innovation/Spiral/Sust I&T																							
Blk 10.2 Spirals	DGS-X				DGS-X				DGS-X				DGS-X																			
Increment 2	Technology Maturation				ASP RFP MS-B Award				1 st Incremental Cap Release				2 nd Incremental Cap Release				3 rd Incremental Cap Release				4 th Incremental Cap Release											
DIG Interop / Migration	Tech Assess/Dev/Int/Test				Tech Assess/Dev/Int/Test				Tech Assess/Dev/Int/Test				Tech Assess/Dev/Int/Test				Tech Assess/Dev/Int/Test				Tech Assess/Dev/Int/Test											
Network Comms	2006/10 Net CDP&Probe Install				CAN Mod/Upd/CEM				CAN Install IN&MA ANG Sites				WAN/CAN Continuous Upgrades																			
Testbed	2007 Upgds				2008 Upgds				2009 Upgds				2010 Upgds				2011 Upgds				2012 Upgds				2013 Upgds							
CIP	V7.0				V7.1				1/31				7/31				1/31				7/31				1/31				7/31			

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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(U) <u>Schedule Profile</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10.2 Spiral Development	1-4Q	1-3Q		
(U) Increment 2 Technology Integration		2Q		
(U) Increment 2 Milestone B			2Q	
(U) DCGS-I Testbed Upgrades	3-4Q	2-3Q		
(U) CIP Version 6.8 Release	1Q			
(U) CIP Version 6.9 Release	2Q			
(U) CIP Version 7.0 Release		1Q		
(U) CIP Version 7.1 Release		4Q		
(U) CIP Software Releases			2Q	2Q
(U) CIP Software Releases			4Q	4Q