

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

**February 2007**

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>								
COST (In Thousands)	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 Cost
Total Program Element (PE) Cost	48015	32420	107849	106999	132692	108916	104855	122187	Continuing	Continuing
253 DSCS-DCS (PHASE II)	11014	11963	7849	7928	7236	6649	8588	8780	Continuing	Continuing
384 SMART-T	5015	5512								25981
456 MILSATCOM SYSTEM ENGINEERING	8535	7460	26821	16313	8531	8855	8076	8103	Continuing	Continuing
562 MBAND INT SAT TERM MIST	23451	7485	73179	82758	91949	67912	23236	24674	Continuing	Continuing
563 HC3 BLOCK 2 TSAT DEVELOPMENT					24976	25500	64955	80630		196061

**A. Mission Description and Budget Item Justification:** Military Satellite Communication (MILSATCOM) systems are joint program/project efforts to satisfy ground mobile requirements for each Service, the Joint Chiefs of Staff (JCS), the National Command Authority, the combatant commanders, the National Security Agency, the Office of the Secretary of Defense, and other governmental, non-DoD users. The worldwide MILSATCOM systems are: Ultra High Frequency (UHF) Follow-On Satellite System; Air Force Satellite (FLTSAT/AFSAT) system; the Mobile User Objective System (MUOS); the Super High Frequency (SHF) Defense Satellite Communications System (DSCS); the Wideband Gapfiller System (WGS), the Extremely High Frequency (EHF) and Advanced Extremely High Frequency (AEHF) Mission Planning Element (AMPE); the Joint SATCOM Planning and Tools; and the Transformation Communication System (TCS), all of these systems are required to support legacy, interim and emerging communication space architectures and Objective Force requirements. The Army is responsible for developing and procuring satellite terminals, satellite control subsystems, communication subsystems, and all related equipment. This responsibility also includes maintaining the life cycle logistics support required to achieve end-to-end connectivity and interoperability, satisfying JCS Command, Control, Communications and Intelligence (C3I) in support of the President, JCS, combatant commanders, Military Departments, Department of State, and other government Departments and Agencies.

This program is designated as a DoD Space Program.

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February 2007

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303142A - SATCOM Ground Environment (SPACE)**

**B. Program Change Summary**

	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	57822	41336	73380	97740
Current BES/President's Budget (FY 2008/2009)	48015	32420	107849	106999
Total Adjustments	-9807	-8916	34469	9259
Congressional Program Reductions		-8691		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-9807	-225		
SBIR/STTR Transfer				
Adjustments to Budget Years			34469	9259

Change Summary Explanation:

FY06: D562 \$7.920M reduction due to Higher DA priorities.

FY07: D562 \$8.0M Congressional reduction

FY08:

Adjustments to projects in budget year as follows:

D456: +\$17.247M to fund Low Cost Point of Presence (LCP)SATCOM terminal development

D562: +\$18.031M to comply with MIST(HC3) Capability Development Document (CDD) requirements

D253: -\$ .809M adjustment in accordance with program requirements

FY09:

Adjustments to projects in budget year as follows:

D456: +\$6.924M to fund Low Cost Point of Presence (LCP)SATCOM terminal development

D562: +\$3.112M to comply with MIST(HC3) Capability Development Document (CDD) requirements

D253: -\$0.777M adjustment in accordance with program requirements

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2007**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment (SPACE)</b>					<b>PROJECT</b> <b>253</b>	
COST (In Thousands)	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 Cost
253 DSCS-DCS (PHASE II)	11014	11963	7849	7928	7236	6649	8588	8780	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project provides funds to develop strategic and tactical Ground Subsystem equipment in support of Joint Chiefs of Staff (JCS) validated Command, Control, Communications and Intelligence (C3I) requirements for the worldwide Defense Enterprise Wideband SATCOM Systems. It is composed of the Super High Frequency (SHF) Defense Satellite Communications System (DSCS) and Wideband Gapfiller System (WGS) SATCOM programs. Continuing upgrades for the DSCS and WGS are vital to support the emerging power projection and rapid deployment role of the Armed Forces. DSCS and WGS provide warfighters multiple channels of tactical connectivity as well as interfaces with strategic networks and national decision-makers.

<b>Accomplishments/Planned Program:</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program	3760	4307	3875	3995
Continue the development of the Common Network Planning Software (CNPS) program	4062	3760	500	
Netcentric Systems Engineering	1202	1277	1214	1648
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts	1990	2324	2260	2285
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)		295		
<b>Total</b>	<b>11014</b>	<b>11963</b>	<b>7849</b>	<b>7928</b>

<b>B. Other Program Funding Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
DSCS Other Procurement Army	62321	53400	87772	96469	166159	131168	128207	130673	Continuing	Continuing

Comment:

**C. Acquisition Strategy** The DSCS Integrated Management System (DIMS) and Common Network Planning Software (CNPS) are software programs. DIMS provides the capability to electronically disseminate network plans to the monitoring and controlling DSCS Operations Control System (DOCS) subsystems, and retrieve and display subsystem monitoring data. It also provides a comprehensive view of network operations at Wideband Operations Centers and DISA management sites. CNPS will plan strategic and Ground Mobile Forces (GMF) satellite communication networks for DSCS, Wideband Gapfiller, and commercial satellites. DIMS and CNPS will be installed at Wideband Operations Centers and DISA Management Sites at worldwide locations. PM DCATS will employ Netcentric Systems Engineering to develop the technology for new ground segment equipments which will include paper studies, Simple Management Network Protocol (SMNP), risk mitigation, system integration and demonstration to accommodate a multi-cast environment, technology insertion, and use of commercial technology to conform to Department of Defense (DoD) requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0303142A - SATCOM Ground Environment (SPACE)**

**253**

# ARMY RDT&E COST ANALYSIS (R3)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
<b>7 - Operational system development</b>			<b>0303142A - SATCOM Ground Environment (SPACE)</b>									<b>253</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DIMS Software	C / CPFF	JHU/APL, Laurel, MD	26194	3346	1-2Q	3840	1Q	3350	1-2Q	3465	1-2Q	Cont.	Cont.	Cont.
CNPS	C / FFP	Logicon, Winter Park, FL	24960	3261	1-2Q	2906	2Q					Cont.	Cont.	Cont.
MET	S/CPFF	Hypres, Elmsford, NY	1069										1069	
Subtotal:			52223	6607		6746		3350		3465		Cont.	Cont.	Cont.
Remarks: JHU/APL - John Hopkins University/Applied Physics Laboratory														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	Fort Monmouth, NJ	5266	805	1-2Q	1074	1-2Q	1010	1-2Q	665	1-2Q	Cont.	Cont.	Cont.
SETA Support	C / CPFF	Fort Monmouth, NJ	2434	410	1-2Q	499	1-2Q	300	1-2Q	150	1-2Q	Cont.	Cont.	Cont.
Engineering Support	C / CPFF	Fort Monmouth, NJ	558	1202	1-2Q	1277	1-2Q	1214	1-2Q	1648	1-2Q	Cont.	Cont.	Cont.
Core Support	Various	Fort Monmouth, NJ	2728	630	1-4Q	666	1-4Q	650	1-4Q	675	1-4Q	Cont.	Cont.	Cont.
Subtotal:			10986	3047		3516		3174		3138		Cont.	Cont.	Cont.
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JSEC	MIPR	Fort Monmouth, NJ	6477	760	2Q	718	2Q	700	2Q	700	2Q	Cont.	Cont.	Cont.
Subtotal:			6477	760		718		700		700		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract

# ARMY RDT&E COST ANALYSIS (R3)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT			
<b>7 - Operational system development</b>			<b>0303142A - SATCOM Ground Environment (SPACE)</b>								<b>253</b>			
	Type		Cost		Date		Date		Date		Date	e		Contract
PM Admin	Various	Fort Monmouth, NJ	4184	600	1-4Q	688	1-4Q	625	1-4Q	625	1-4Q	Cont.	Cont.	Cont.
SBIR/STTR						295	1-4Q						295	
Subtotal:			4184	600		983		625		625		Cont.	Cont.	Cont.
<b>Project Total Cost:</b>			<b>73870</b>	<b>11014</b>		<b>11963</b>		<b>7849</b>		<b>7928</b>		<b>Cont.</b>	<b>Cont.</b>	<b>Cont.</b>

# Schedule Profile (R4 Exhibit)

February 2007

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0303142A - SATCOM Ground Environment (SPACE)

PROJECT  
253

Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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	1	2	3	4
CNPS Testing V1.0	V1.0																															
(1) CNPS Training Release V 1.0																																
CNPS Testing V2.0					V2.0																											
(2) CNPS Materiel Release V 2.0																																
DIMS System Testing V 5.1	V 5.1																															
(3) DIMS Materiel Release V 5.1																																
DIMS Testing V5.2					V5.2																											
(4) DIMS Materiel Release V5.2																																
DIMS Testing V6.0													V 6.0																			
(5) DIMS Materiel Release V 6.0																																
Netcentric System Engineering, Conduct System Engineering Studies/Analysis	[Redacted]																															



**Schedule Detail (R4a Exhibit)**

**February 2007**

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>					PROJECT <b>253</b>		
<u>Schedule Detail</u>	<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>	
CNPS Testing V1.0	1Q - 2Q								
CNPS Training Release V 1.0	2Q - 3Q								
CNPS Testing V2.0		1Q - 4Q	1Q						
CNPS Materiel Release V 2.0			2Q						
DIMS System Testing V 5.1	2Q - 4Q								
DIMS Materiel Release V 5.1		1Q							
DIMS Testing V5.2		1Q - 2Q							
DIMS Materiel Release V5.2			1Q						
DIMS Testing V6.0				2Q - 3Q					
DIMS Materiel Release V 6.0				4Q					
Netcentric System Engineering	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Conduct System Engineering Studies/Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2007**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>			<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment (SPACE)</b>						<b>PROJECT</b> <b>456</b>	
COST (In Thousands)	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 Cost
456 MILSATCOM SYSTEM ENGINEERING	8535	7460	26821	16313	8531	8855	8076	8103	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** FY08 - FY13, MILSATCOM System Engineering provides centralized funding for advanced systems engineering, product support and analysis, and experimentation of new and emerging communication / network architectures and technologies. It also supports the end to end system engineering and technology assessment efforts associated with the integration of network systems (WIN-T) with the SATCOM Roadmap in support of Transformational Communications for Army Land WarNet and the Joint Warfighter. Supporting documentation and requirements are SATCOM CRD, GIG CRD, TSAT CDD/ICDs/TRDs, WIN-T, AEHF, MUOS and WGS ORDs/CDDs. In addition FY08 and FY09 funds the development of Low Cost Point of Presence (LCP) which reduces both projected SATCOM On The Move (SOTM) antenna and Inertial Navigation Unit (INU) costs.

<b>Accomplishments/Planned Program:</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct various developmental efforts or analysis and trades to protect Army interests and enhanced system/network capability and joint interoperability in support of Transformational Communications and Joint Interoperability	2800	2316	3126	3065
System Engineering in support of technology assessment and transision for WIN-T network / communication systems	1244	1075	1389	1361
Experimentation and prototyping of critical communication and network technologies	2364	2004	2640	2559
AEHF, WGS, TC, MUOS System Engineering in support of network system / terminal acquisition and joint interoperability	2127	1872	2375	2328
Low Cost Point of Presence (LCP) SATCOM Terminal development in support of Mounted Battle Command On The Move (MBCOTM)/Triton/Prophet Programs of record (POR's) and hybrid Communications Arcecture initiatives.			17291	7000
Small Business Innovative Research/Small Business Technology Transfer Programs		193		
<b>Total</b>	<b>8535</b>	<b>7460</b>	<b>26821</b>	<b>16313</b>

<b>B. Other Program Funding Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
373142/562 MIST/HC3 (RDTE)	23451	7485	73179	82758	91949	67912	23236	24674	Continuing	Continuing

Comment:

**C. Acquisition Strategy** This project funds advanced systems engineering, research, development, test and evaluation of new and emerging technologies to optimize terminal performance and communications control. Once the technologies are mature and deemed feasible, funding and management responsibility for implementation of the technology

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0303142A - SATCOM Ground Environment (SPACE)**

**456**

will transition to Army.

# ARMY RDT&E COST ANALYSIS (R3)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)									456		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Terminal Upgrades	TBD	TBS	1524					17300	2Q	7000	2Q		25824	
Advanced Wideband/TCS	Various	Various	19351										19351	
Subtotal:			20875					17300		7000			45175	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering (In-House)	MIPR	Various	12219	1226	2Q	1181	2Q	1238	2Q	1300	2Q	Cont.	Cont.	
Engineering (Contract)	Various	Various	14143	2956	2Q	2218	2Q	3898	2Q	3381	2Q	Cont.	Cont.	
System Architecture & Analysis	Various	MIT Lincoln Labs, Lexington, MA; MITRE	8503	1530	2Q	1500	2Q					Cont.		
Subtotal:			34865	5712		4899		5136		4681		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support	MIPR	MIT Lincoln Labs, Lexington, MA	3869	600	2Q	578	2Q	763		942		Cont.	Cont.	Cont.
Test Support	Various	Various	8886	1213	1Q	1039	1Q	1334		1240		Cont.	Cont.	Cont.
Subtotal:			12755	1813		1617		2097		2182		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract

# ARMY RDT&E COST ANALYSIS (R3)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)								456		
Advanced Architecture	MIPR	MIT Lincoln Labs Lexington, MA	6690	450	2Q	434	2Q	667		750		Cont.	Cont.
Advanced Wideband System Architecture	MIPR	Various	3000	560	2Q	510	2Q	1621		1700		Cont.	Cont.
Subtotal:			9690	1010		944		2288		2450		Cont.	Cont.
<b>Project Total Cost:</b>			<b>78185</b>	<b>8535</b>		<b>7460</b>		<b>26821</b>		<b>16313</b>		<b>Cont.</b>	<b>Cont.</b>

# Schedule Profile (R4 Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE																PROJECT														
<b>7 - Operational system development</b>		<b>0303142A - SATCOM Ground Environment (SPACE)</b>																<b>456</b>														
Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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	1	2	3	4
Transformational Communication Architecture (TCA)	[Redacted]																															
AEHF, AMPE, WGS, Ka band Sys Eng and Analysis	[Redacted]																															
Advanced Component Experimentation/Prototyping	[Redacted]																															
Joint Interoperability Test	[Redacted]																															
Technology Assessment	[Redacted]																															
Low Cost Point of Presence SATCOM Terminal development	[Redacted]								[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							



# Schedule Detail (R4a Exhibit)

February 2007

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>						PROJECT <b>456</b>	
<u>Schedule Detail</u>	<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>	
Transformational Communication Architecture (TCA)	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
AEHF, AMPE, WGS, Ka band Sys Eng and Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Advanced Component Experimentation/Prototyping	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Joint Interoperability Test	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Technology Assessment	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Low Cost Point of Presence SATCOM Terminal development			1Q - 4Q	1Q - 4Q					
AEHF System Engineering and Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Wideband Gapfiller and Ka Band System Engineering	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Advanced Component Experimentation / prototyping	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Technology Assessment /MUOS	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Joint Interoperability Tests	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Support AEHF AEST 8000 (System Test)				1Q - 4Q					
Transformational Communication Architecture (TCA)	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
Conduct Transformational Communication (TC) System Engineering Studies/Analysis	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	
TC Technical Requirement Document / Interface Control Document Development	1Q - 4Q	1Q - 4Q	1Q - 4Q						
TC Design Review SDR / PDR / CDR		1Q - 4Q	1Q - 4Q	1Q					

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**February 2007**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>			<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment (SPACE)</b>						<b>PROJECT</b> <b>562</b>	
COST (In Thousands)	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 Cost
562 MBAND INT SAT TERM MIST	23451	7485	73179	82758	91949	67912	23236	24674	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Multi-band Integrated Satellite Terminal (MIST) funds will develop the high capacity communications capability (HC3).

The HC3 will provide high data rate communications capabilities that will be pervasively integrated into the Army's Larger Operational Force communication architecture, as well as other Service and Joint communication architectures. HC3 will break traditional terminal architecture paradigms by developing a modular, open systems architecture that supports hardware and software module reuse across HC3 platforms, as well as other Joint Service applications. HC3 will leverage the HC3 Government Reference Architecture (GRA) principles in the hardware and software architecture design. HC3 will be a family of tactical Multi-band, modular, communications terminals that will provide inter-network and reach back communications services across the Army's Larger Operational Force tactical networks.

HC3, Increment 1 will develop high capacity, multi-band, protected Communications-At-The-Halt (CATH) satellite solutions to replace end-of-life AN/TSC-85/93 terminals in the 2014 timeframe. These initial HC3 capabilities satisfy Army high capacity communication requirements that are separable from the Transformational Communications Architecture (TCA). Increment 2 will develop the greatly enhanced Transformational Satellite (TSAT) capability that will be an upgrade to the Increment 1 CATH terminals. The increment 1 CATH terminals will be built to accept the Increment 2 software upgrade for the Transformational Satellite (TSAT) waveform. In addition, during Increment 2, the Warfighter Information Network-Tactical (WIN-T) will leverage Transformational Communications Architecture (TCA) as a technology insertion program. HC3 will be developing the TCA technology insertion into the JC4ISR radio for WIN-T. This upgrade will provide higher capacity, as well as low, near zero, probability of detection, interception (LPD/LPI), anti-jam (AJ), and exploitation capabilities.

The Increment 1 HC3 System Development and Demonstration (SDD) phase will commence in FY08. Various risk mitigation studies will be executed with tri-service participation in order to mature critical technologies prior to SDD. The program has been structured to allow for incremental enhancements, and to introduce enhanced capabilities and configurations that will support these evolving architectures.

FY08 and FY09 funds will initiate the Increment 1 SDD contract for the HC3 Communications-At-The-Halt terminal.

<b>Accomplishments/Planned Program:</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
High capacity communications capability studies/efforts that include Waveform integration/porting issues for Multi-band Government Reference Architecture (GRA) compatible terminals and Modular, open systems investigations.	7468	2287	4072	3931
Antenna/RF and Architecture design efforts and risk mitigation efforts	13735	3045	4416	3821
Milestone B preparation and PRE-SDD contract efforts to include RFP and SSEB	2248	1942	1883	
HC3 Increment 1 (CATH) Development Contract (SDD)			62808	75006

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2007**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment (SPACE)</b>				<b>PROJECT</b> <b>562</b>				
Small Business Innovative Research / Small Business Technology Transfer Program					211				
Total					23451	7485	73179	82758	

<b><u>B. Other Program Funding Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
0303142A D456 - MILSATCOM SYSTEM ENG	8535	7460	26821	16313	8531	8855	8076	8103	Continuing	Continuing

Comment:

**C. Acquisition Strategy** A competitive Increment 1 (Communications-At-The-Halt) high capacity communications capability SDD contract will be awarded in FY08, following comprehensive studies currently being performed. These studies are further supported by extensive risk mitigation efforts to enhance Technology Readiness Levels of critical higher risk technologies. The SDD phase will be Limited competition, (subject to No Foreign Nationals (NOFORN) restrictions) and will be structured to maximize competitive sub-contract opportunities throughout Low Rate Initial Production and Full Rate Production. The SDD phase will also set the framework to address the Increment 1 Transformational Communications (TC) upgrade for TSAT (Communications at the Halt) and the Communications on the Move (COTM) upgrade for the Warfighter Information Network-Tactical (WIN-T).

# ARMY RDT&E COST ANALYSIS (R3)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
7 - Operational system development			0303142A - SATCOM Ground Environment (SPACE)									562		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Development	MIPR	MIT Lincoln Labs, Lexington MA	2843	3745	1Q	112	1Q	1111	1Q	1152	1Q	Cont.	Cont.	
Pre-SDD Study Contracts	T&M	Raytheon, Marlborough, Mass and Boeing, Anaheim, Ca.	5079	2996	1-2Q								8075	
Government Engineering Support	Various	PM WIN-T, Fort Monmouth, NJ	2105	2394	1-2Q	1722	1-2Q	2610	1-2Q	2558	1-2Q	Cont.	Cont.	
SDD Development Contract	C/CP	TBS						61022	2Q	72251	1Q	Cont.	Cont.	
Risk Mitigation Efforts/Other Contracts	Various	Various	1194	10180	1-2Q	1789	1-2Q	1653	1-2Q			Cont.	Cont.	
Engineering Services	Various	Various				343	1-2Q	213	1-2Q	224	1-2Q		780	
Subtotal:			11221	19315		3966		66609		76185		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	N/A	Fort Monmouth, NJ	1309	2292	1-2Q	1550	1-2Q	3193	1-2Q	3192	1-2Q	Cont.	Cont.	
Other Contracts	Various	Various				406	1-2Q	48	1Q			Cont.	Cont.	
Subtotal:			1309	2292		1956		3241		3192		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering (In-House)	N/A	PM WIN-T, Fort Monmouth, NJ		230	1-2Q	34	1-2Q	514	1-2Q	541	1-2Q	Cont.	Cont.	
Subtotal:				230		34		514		541		Cont.	Cont.	

# ARMY RDT&E COST ANALYSIS (R3)

February 2007

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>	PROJECT <b>562</b>
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Government Support	N/A	PM WIN-T, Fort Monmouth, NJ	735	1614	1-2Q	1318	1-2Q	2815	1-2Q	2840	1-2Q	Cont.	Cont.	
SBIR/STTR						211	1Q						211	
Subtotal:			735	1614		1529		2815		2840		Cont.	Cont.	

<b>Project Total Cost:</b>			<b>13265</b>	<b>23451</b>		<b>7485</b>		<b>73179</b>		<b>82758</b>		<b>Cont.</b>	<b>Cont.</b>	
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# Schedule Detail (R4a Exhibit)

February 2007

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>					PROJECT <b>562</b>		
<u>Schedule Detail</u>	<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>	
Pre-Milestone B Activities/Risk Mitigation	1Q - 4Q	1Q - 4Q							
High Capacity Communications Capability Studies	1Q - 4Q	1Q							
Increment 1, CATH RFP Release			1Q						
SSEB			1Q - 2Q						
MS B			2Q						
SDD Contract Award (CATH/Joint Modular Capability)			2Q						
System Design/Demonstration			2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q		
EUTE							1Q - 2Q		
MS C: CATH							2Q		
LRIP: CATH							2Q - 4Q	1Q - 4Q	
IOTE								4Q	