

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	85302	51829	58659	55882	54900	56579	30632	25037	Continuing	Continuing
253 DSCS-DCS (PHASE II)	13051	8969	11549	11784	8609	8682	7989	7413	0	89671
384 SMART-T	25649	15508	5261	0	0	0	0	0	0	62725
456 MILSATCOM SYSTEM ENGINEERING	46602	14081	8933	8812	10226	10038	7704	7767	0	154156
562 MBAND INT SAT TERM MIST	0	13271	32916	35286	35255	37859	14939	9857	Continuing	Continuing

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) MILSTAR system; the MILSTAR Communication Planning Tool-integrated (MCPT-I); 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.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	51959	58566	95101
Current Budget (FY 2006/2007 PB)	51829	58659	55882
Total Adjustments	-130	93	-39219
Net of Program/Database Changes			
Congressional Program Reductions			
Congressional Rescissions	-130		
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		93	-39219

FY 2007 funds realigned \$39.219M to higher priority Army requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
253

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
253 DSCS-DCS (PHASE II)	13051	8969	11549	11784	8609	8682	7989	7413	0	89671

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 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program	4597	3190	3600	4348
Continue the development of the Common Network Planning Software (CNPS) program	5167	3135	5067	4143
Multiband Enterprise Terminal (MET)	700	369	683	1044
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts	2587	2275	2199	2249
Totals	13051	8969	11549	11784

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
253

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
DSCS Other Procurement Army	94707	101503	55023	52494	85814	95978	93812	85439	Continuing	Continuing

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 DSCS 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 DSCS Operations Centers and DISA Management Sites at worldwide locations. The Multiband Enterprise Terminal (MET) will be the replacement terminal for the Wideband Ground Segment starting in FY09. PM DCATS must develop the technology for the new ground segment which will include paper studies, Simple Management Network Protocol (SMNP), system integration and demonstration to accommodate a multi-cast environment, integration of commercial technology into new terminals, and use of commercial technology to conform to Department of Defense (DoD) requirements.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 253**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DIMS Software	C / CPFF	JHU/APL, Laurel, MD	23553	2864	1-2Q	3000	1-2Q	3723	1-2Q	Continue	33140	Continue
b . CNPS	C / FFP	Logicon, Winter Park, FL	22710	2085	1-2Q	3991	1-2Q	3183	1-2Q	Continue	Continue	Continue
c . MET	S/CPFF	Hypres, Elmsford, NY	700	369	1-2Q	683	1-2Q	1044	1-2Q	Continue	Continue	Continue
Subtotal:			46963	5318		7674		7950		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	Fort Monmouth, NJ	4217	1049	1-2Q	1160	1-2Q	1190	1-2Q	Continue	Continue	Continue
b . SETA Support	C / CPFF	Fort Monmouth, NJ	1923	511	1-2Q	700	1-2Q	700	1-2Q	Continue	Continue	Continue
c . Engineering Support	C / CPFF	Femme Comp, Chantilly, VA	350	150	1-2Q	176	1-2Q	60	1-2Q	Continue	Continue	Continue
d . Core Support	Various	Fort Monmouth, NJ	2509	223	1-4Q	224	1-4Q	249	1-4Q	Continue	Continue	Continue
Subtotal:			8999	1933		2260		2199		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) PROJECT
253

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SEL	MIPR	Fort Monmouth, NJ	5359	1118	2Q	1015	2Q	1035	2Q	Continue	Continue	Continue
Subtotal:			5359	1118		1015		1035		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Admin	Various	Fort Monmouth, NJ	3584	600	1-4Q	600	1-4Q	600	1-4Q	Continue	Continue	Continue
Subtotal:			3584	600		600		600		Continue	Continue	Continue

Project Total Cost:			64905	8969		11549		11784		Continue	Continue	Continue
---------------------	--	--	-------	------	--	-------	--	-------	--	----------	----------	----------

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) PROJECT 253

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11							
	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 (1) CNPS Materiel Release V 1.0, (2) CNPS Materiel Release V 2.0, (3) CNPS Materiel Release V 3.0	V1.0								▲1				▲2				▲3																			
DIMS Testing V5.1, DIMS Testing V 5.2 (4) DIMS Materiel Release V 5.1, (5) DIMS Materiel Release V 5.2					V 5.1				V 5.2																											
MET Studies (6) Complete MET Risk Mitigation					[Redacted]																				▲6											
DIMS Testing V6.0 (□) DIMS Materiel Release V 6.0																					V 6.0								▲7							
Wideband Transformation System Engineering, Conduct System Engineering Studies/Analysis, Advanced Component Experimentation / Joint Interoperability Tests																					[Redacted]															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 253**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
DIMS Version 5.1 Software Testing - Beginning		1Q						
DIMS Version 5.1 Software Testing - Ending		3Q						
DIMS Version 5.1 Materiel Release		4Q						
DIMS Version 5.2 Software Testing - Beginning			1Q					
DIMS Version 5.2 Software Testing - Ending			3Q					
DIMS Version 5.2 Materiel Release			4Q					
DIMS Version 6.0 Testing						2-3Q		
DIMS Version 6.0 Materiel Release						4Q		
CNPS V1.0 Testing - Beginning	2Q							
CNPS V1.0 Testing - Ending		2Q						
CNPS V1.0 Materiel Release			1Q					
CNPS V2.0 Materiel Release				1Q				
CNPS V3.0 Materiel Release					2Q			
Start MET Risk Component Studies	3Q							
Complete MET Risk Mitigation					4Q			
Conduct Systems Engineering Studies / Analysis						1-4Q	1-4Q	1-4Q
Advanced Component Experimentation							1-4Q	1-4Q
Joint Interoperability Tests							2-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)					PROJECT 384		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
384 SMART-T	25649	15508	5261	0	0	0	0	0	0	62725

A. Mission Description and Budget Item Justification: The Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T) provides a range extension capability to the Army's current and future tactical communications networks. Specifically, the SMART-T provides a satellite interface to permit uninterrupted communications as our advancing forces move beyond the line-of-sight of terrestrial systems. The SMART-T communicates at both low and medium data rates (LDR/MDR) over the MILSTAR satellite constellation. It is compatible with the UHF Follow-On (UFO), the Navy Fleet SATCOM EHF satellite packages, and MIL-STD-1582D compatible payloads. SMART-T provides the security, mobility, and anti-jam capability required to defeat the threat to assured communications and satisfy the critical need for robust, secure, beyond line of sight communications. The SMART-T provides Low Probability of Interception and Low Probability of Detection (LPI/LPD), avoiding being targeted for destruction, jamming, or intercept. The prime mover is a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) configured with all the electronics and the self-erectable antenna.

This program is the developmental effort to allow SMART-T to operate over the Advanced Extremely High Frequency (AEHF) satellite constellation. The AEHF upgrade modification is under development. The upgrade provides a four-fold increase in communication capacity over the current SMART-T. Three satellite payload simulators were developed to support the AEHF RDT&E activities.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Payload specification change development	1073	2078	941	0
Development of AEHF satellite payload simulators	2082	0	0	0
AEHF development efforts	22494	13430	4320	0
Totals	25649	15508	5261	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
384

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BC4002 - SMART-T	50017	70220	14607	71933	90461	143712	2544	2444	Continuing	Continuing
BS9720 - Spares	991	2928	4618	5796	10550	7286	0	0	0	32169

C. Acquisition Strategy: The SMART-T terminal is currently being upgraded with RDT&E dollars to be compatible with the emerging Advanced EHF (AEHF) satellites being developed by the Air Force. The SMART-T AEHF terminal development effort is synchronized with the Air Force satellite development effort to insure that AEHF terminals are available when the AEHF satellites are operationally available. As part of the AEHF upgrade effort, satellite simulators are being developed for testing of the AEHF waveform and terminal integration efforts. A total of 263 SMART-T terminals (176 Army, 29 Air Force, 4 Marines, 4 JCSE and 14 other DoD) have been procured to date. A Follow-on Production contract is currently in place to procure the remaining Army and other Service requirements. Contract options can be exercised through FY06. All SMART-T terminals currently being procured will be upgraded to provide the AEHF capability, beginning in FY07, following completion of the development effort.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Dual Development Contracts	C / CPIF	Rockwell - Richardson, TX / Raytheon - Marlborough, MA	117173	0		0		0		0	117173	0
b . Baseline Mods	SS / CPFF	Raytheon - Marlborough, MA	120113	12628	1-3Q	4148	1-2Q	0		0	136889	0
c . Transmitter Development	SS / CPFF	Raytheon - Marlborough, MA	2044	2196	1-2Q	0		0		0	4240	0
d . Govt Support	MIPR	Various	14646	181	1Q	189	1Q	0		0	15016	0
e . GFE	MIPR	Various	149	0		0		0		0	149	0
Subtotal:			254125	15005		4337		0		0	273467	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Contracts	MIPR	Various	11290	0		0		0		0	11290	0
b . Engineering Services	N/A	Fort Monmouth, NJ	5565	109	1Q	129	1Q	0		0	5803	0
c . Lab Activities	MIPR	Various	7767	256	1Q	269	1Q	0		0	8292	0
Subtotal:			24622	365		398		0		0	25385	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Simulator Development	MIPR	MIT Lincoln Labs - Lexington, MA	24859	0	1Q	0		0		0	24859	0
b . DT & OT Test Support	MIPR	Various	6700	138	3-4Q	526	1-4Q	0		0	7364	0
c . Test Bed Development	MIPR	MIT Lincoln Labs Lexington, MA	2980	0		0		0		0	2980	0
Subtotal:			34539	138		526		0		0	35203	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Tech Support of SMART-T Development	MIPR	MIT Lincoln Labs Lexington, MA	7900	0		0		0		0	7900	0
Subtotal:			7900	0		0		0		0	7900	0
Project Total Cost:			321186	15508		5261		0		0	341955	0

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 384**

<u>Schedule Detail</u>	<u>FY 2004</u>	<u>FY 2005</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>
Continue AEHF Simulator Development	1-3Q							
AEHF Simulator Development Completed	4Q							
Continue AEHF Development	1-4Q	1-4Q	1-4Q	1Q				
AEHF Development Completed				1Q				
Developmental Testing Completed				1Q				
Award Production AEHF Mod Contract				1Q				
Interoperability Testing Events			3-4Q	1-4Q	1-4Q	1-4Q		
Fielding of AEHF Retrofit Kits						1-4Q	1-4Q	1-4Q
Multi Service Operational Test & Evaluation (MOT&E)							1Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)				PROJECT 456		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
456 MILSATCOM SYSTEM ENGINEERING	46602	14081	8933	8812	10226	10038	7704	7767	0	154156

A. Mission Description and Budget Item Justification: 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.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
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	4614	3134	2889	2783
System Engineering in support of technology assessment and transition for WIN-T network / communication systems	1764	1481	1283	1236
Experimentation and prototyping of critical communication and network technologies	3441	3131	2567	2678
AEHF, WGS, TC, MUOS System Engineering in support of network system / terminal acquisition and joint interoperability	3183	2532	2194	2115
Continued Development of SHF Ka band augmentation (KaSAT) on the quick halt	9600	3803	0	0
Continued Army technology development IAW DoD Transformation Communication (TC) effort - funds moved to 0303142A <small>Proj 562 (MIST)</small>	13000	0	0	0
Continued Development of an integrated Ka band capability for upgrade of Phoenix terminals	11000	0	0	0
Totals	46602	14081	8933	8812

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
456

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
BB8417 - MOD OF IN-SVC (TAC SAT)	36064	194	7699	7982	205	0	0	0	0	52144
BA9350 - SHF TERM	16592	26088	23359	23799	0	0	0	0	0	89838
BC4002 - SMART-T	50017	70220	14607	71933	90461	143712	2544	2444	Continuing	Continuing

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 will transition to cognizant SATCOM programs managed by PMO WIN-T.

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 456**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Terminal Upgrades	Various	Various	1524	0		0		0		0	1524	0
b . Ka Band Integration	C/CPFF	L-3 Communications - West - Salt Lake City, UT	20000	0		0		0		0	20000	0
c . Ka Band Augmentation	C/CPAF/T&M	Titan Corporation - San Diego, CA	29700	3803	2Q	0		0		0	33503	0
d . Advanced Wideband/TCS	Various	Various	19351	0		0		0		0	19351	0
e . ABCS SE&I	MIPR	Various	1288	0		0		0		0	1288	0
Subtotal:			71863	3803		0		0		0	75666	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 456**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering (In-House)	MIPR	Various	10819	1400	2Q	1226	2Q	1181	2Q	Continue	14626	0
b . Engineering (Contract)	Various	Various	11341	2807	2Q	4354	2Q	4420	2Q	Continue	22922	0
c . System Architecture & Analysis	Various	MIT Lincoln Labs, Lexington, MA; MITRE	6382	2121	2Q	530	2Q	500	2Q	Continue	9533	0
Subtotal:			28542	6328		6110		6101		Continue	47081	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	MIPR	MIT Lincoln Labs, Lexington, MA	3169	700	2Q	600	2Q	578	2Q	Continue	Continue	Continue
b . Test Support	Various	Various	7486	1400	1Q	1213	1Q	1189	1Q	Continue	11288	Continue
Subtotal:			10655	2100		1813		1767		Continue	Continue	Continue

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) PROJECT
456

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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 MILSATCOM (TCM)	[Red bar]																															
AEHF, AMPE, WGS, Ka band Sys Eng and Analysis	[Red bar]																															
Advanced Component Experimentation/Prototyping	[Red bar]																															
Technology Assessment	[Red bar]																															
Joint Interoperability Test	[Red bar]																															
Upgrade of Phoenix to quadband	[Red bar]																															
KaSAT Development / Prototypes	[Red bar]																															

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE **PROJECT**
0303142A - SATCOM Ground Environment (SPACE) **456**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Transformational Communication MILSATCOM (TCM)	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
AEHF System Engineering and Analysis	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
AEHF Mission Planning Element (AMPE)	1-4Q	1-4Q	1-3Q	1-4Q	1-4Q	1-2Q		
Wideband Gapfiller and Ka Band System Engineering	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Advanced Component Experimentation / prototyping	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Technology Assessment /MUOS	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Joint Interoperability Tests	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Support MPE Upgrade for AEHF				2-4Q				
Support AEHF AEST 8000 (System Test)				1Q				
Conduct Transformation Communication (TC) System Engineering Studies/Analysis	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
TC Technical Requirement Document / Interface Control Document Development	1-4Q	1-4Q	1-4Q					
TC Design Review SDR / PDR / CDR	1-4Q	3Q	2Q	4Q				
Upgrade of Phoenix terminals to Quadband (integrated Ka band capability)	1-4Q	1-3Q						
KaSAT development / prototypes	1-4Q	1-2Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)				PROJECT 562		
COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
562 MBAND INT SAT TERM MIST	0	13271	32916	35286	35255	37859	14939	9857	Continuing	Continuing

A. Mission Description and Budget Item Justification: Multi-band Integrated Satellite Terminal (MIST) high capacity communications capability (HC3) efforts were initiated and funded in FY03/04 under the PE/Proj 0303142A/D456 MILSATCOM System Engineering line, using funds identified for DoD Transformational Communication MILSATCOM (TCM). The vision for TCM is to build and operate a network of networks which inter-connect at selected points in space and on the ground to improve interoperability and redundancy while still protecting sensitive classified information that flows in portions of the system.

HC3 will develop the high data rate communications capability for the Future Force and will be pervasively integrated into the Army's Future Force communication architecture, as well as other service and joint communication architectures. The Warfighter Information Network-Tactical (WIN-T) and Transformational Communications MILSATCOM/Architecture (TCM/TCA) will leverage the high capacity communications capability. The high capacity communications capability is envisioned to be integrated into a family of tactical Multi-band, modular in design, communications terminals that will provide inter-network and reach back communications services across the Army's Future Force tactical networks while on the move and on the quick halt. It will also provide low, near zero, probability of detection, interception (LPD/LPI) and exploitation. The high capacity communications capability family consists of a Mobile embedded terminal that will provide Communications-on-the-Move (COTM), as well as Communications-on-the-Quick-Halt (COTQH) and Transportable configurations. The terminals will be multi-band and network (IP) capable and will be compliant with JTRS Software Communication Architectures (SCA) requirements.

The high capacity communications capability System Development and Demonstration (SDD) phase will commence in FY06. Prior to the start of SDD, various studies have been initiated which will incorporate tri-service participation towards building a joint specification. The program will be structured to allow for block enhancements, and to introduce enhanced capabilities and configurations that will support these evolving architectures.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Competitive high capacity communications capability studies that include Waveform integration and porting issues for Multi-band SCA compliant terminals and Modeling and Simulation	0	6250	0	0
Antenna and Architecture design efforts and risk mitigation efforts	0	6353	7931	3900
Milestone B preparation and PRE-SDD contract efforts to include RFP and SSEB	0	668	2630	0
HC3 Development	0	0	22355	31386
Totals	0	13271	32916	35286

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
562

B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
0303142A D456 - MILSATCOM SYSTEM ENG	46602	14081	8933	8812	10226	10038	7704	7767	Continuing	Continuing
BC4150 - HC3	0	0	0	0	0	2628	192027	155015	Continuing	Continuing

Multi-band Integrated Satellite Terminal (MIST) high capacity communications capability (HC3) efforts were initiated and funded in FY 03/04 under the PE/Proj 0303142A/D456 MILSATCOM System Engineering line, using funds identified for DoD Transformational Communication MILSATCOM (TCM).

C. Acquisition Strategy: A competitive high capacity communications capability SDD contract will be awarded in FY 06, following competitive studies that are being performed by 2 contractors in FY 04/05. The SDD phase will be structured to maximize competitive opportunities throughout Low Rate Initial Production and Full Rate Production. The SDD phase will also ensure synchronization with the Transformational Communications MILSATCOM (TCM) and the Warfighter Information Network-Tactical (WIN-T).

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 562**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Development	MIPR	MIT Lincoln Labs, Lexington MA	0	2623	1-2Q	2875	1Q	1725	1Q	Continue	Continue	0
b . Pre-SDD Study Contracts	T&M	Raytheon, Marlborough, Mass and Boeing, Anaheim, Ca.	0	6250	1-2Q	0		0		0	6250	0
c . Government Engineering Support	Various	PM WIN-T, Fort Monmouth, NJ	0	560	1-2Q	1140	1-2Q	1175	1-2Q	Continue	Continue	0
d . SDD Contracts	C/CP	TBD	0	0		19125	2Q	23801		Continue	42926	0
e . Other Contracts	T&M		0	1270	1Q	1000	1Q	1000	1Q	Continue	Continue	0
Subtotal:			0	10703		24140		27701		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 562**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Services	N/A	Fort Monmouth, NJ	0	498	1-2Q	1510	1-2Q	1270	1-2Q	Continue	Continue	0
b . Other Contracts	Various	Various	0	600	1-2Q	2910	1-2Q	2650	1-2Q	Continue	Continue	0
Subtotal:			0	1098		4420		3920		Continue	Continue	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering (In-House)	N/A	PM WIN-T, Fort Monmouth, NJ	0	270	1-2Q	285	1-2Q	295	1-2Q	Continue	Continue	0
Subtotal:			0	270		285		295		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 562**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Core Support	N/A	PM WIN-T, Fort Monmouth, NJ	0	1200	1-2Q	4071	1-2Q	3370	1-2Q	Continue	8641	0
Subtotal:			0	1200		4071		3370		Continue	8641	0
Project Total Cost:			0	13271		32916		35286		Continue	Continue	0

Schedule Profile (R4 Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) PROJECT 562

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
	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
Pre-Milestone B Activities																																
High Capacity Communications Capability Studies																																
(1) RFP																																
SSEB																																
(2) MS B																																
(3) SDD Contract Award																																
System Design/Demonstration																																
EUTE																																
(4) MS C: COTM/COTQH																																
LRIP																																
IOT&E																																

Note: Pre-Milestone B activities through FY04 funded under another PE/Proj 0303142A/D456.

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT 562**

<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
High capacity communications capability studies	3-4Q	1-4Q						
Pre-Milestone B Activities	1-4Q	1-4Q	1-2Q					
SDD RFP Release		4Q						
Milestone B			2Q					
SDD Contract Award			2Q					
SDD Phase			2-4Q	1-4Q	1-4Q	1-4Q		
SDD EUTE						3-4Q		
Milestone C							1Q	
LRIP Phase							1-4Q	1-4Q
IOTE								4Q

Pre Milestone B activities thru FY04, and FY04 study efforts are funded under PE/Proj 0303142A/D456.