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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment						
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	45679	52447	36230	47743	40578	42853	52542	62925	Continuing	Continuing
D2PT SMART-T Operational Test	3174	0	0	0	0	0	0	0	0	4452
D253 Defense Satellite Communications Systems-Defense Communications Systems (DSCS-DCS)(Phase II)	13846	16053	8984	7882	11406	11581	13657	13636	Continuing	Continuing
D384 SMART-T	13775	24232	13931	17434	15072	14470	7217	6910	0	300337
D386 SCAMP Block I	2138	0	0	0	0	0	0	0	0	99787
D456 MILSATCOM System Engineering	3835	4028	6298	12213	11484	11730	14739	9810	Continuing	Continuing
D559 Automated Communications Management System (ACMS)	8911	8134	6009	9191	0	0	0	0	0	32245
D561 Military Individual Communicator (MIC)	0	0	1008	1023	854	956	1208	1177	Continuing	Continuing
D562 Multiband Integrated Satellite Terminal (MIST)	0	0	0	0	0	0	9826	24525	Continuing	Continuing
D566 Transit Case MDR (TRAM)	0	0	0	0	1762	4116	5895	6867	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: Military Satellite Communications (MILSATCOM) systems are joint program/project efforts with each Service, Joint Chiefs of Staff (JCS), National Command Authority, Commanders-In-Chief (CINCs), National Security Agency and Office of the Secretary of Defense assigned specific responsibilities as specified in JCS Memorandum of Policy (MOP) 37. The worldwide MILSATCOM systems are the following: Ultra High Frequency (UHF) Fleet Satellite/Air Force Satellite (FLTSAT/AFSAT) system; the Super High Frequency (SHF) Defense Satellite Communications System (DSCS); the Extremely High Frequency (EHF) MILSTAR system; the UHF Follow-On Satellite system; and all MIL-STD-1582C compatible payloads. MOP 37 designated Army as the Executive Agent for MILSATCOM Ground Subsystems. As Executive Agent for MILSATCOM Ground Subsystems, Army is responsible for developing, procuring, and maintaining the life cycle logistics support for satellite terminals; satellite control subsystems; communications subsystems; and all related equipment required to achieve end-to-end connectivity to satisfy JCS Command, Control, Communications, and Intelligence (C3I) supporting the President; JCS; CINCs; Military Departments; Department of State; and other Departments and Agencies of the government.</p>										

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE
February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
0303142A Satellite Command (SATCOM) Ground Environment

B. Program Change Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (<u>FY 1999 PB</u>)	48939	53897	37846	34714
Appropriated Value	56227	53897		
Adjustments to Appropriated Value				
a. Congressional General Reductions	-3288	-1450		
b. SBIR / STTR	-1322			
c. Omnibus or Other Above Threshold Reductions	-437			
d. Below Threshold Reprogramming	-5501			
e. Rescissions				
Adjustments to Budget Years Since <u>FY 1999 PB</u>			-1616	+13029
Current Budget Submit (<u>FY 2000 / 2001 PB</u>)	45679	52447	36230	47743

Change Summary Explanation: FY 2001 funding increase in Projects D384 SMART-T and D456 MILSATCOM Systems Engineering in support of Advanced EHF (AEHF) modifications and related efforts IAW AEHF satellite launch schedule (+13029). These modifications are necessary for the ground terminals to benefit from the increased capability of the new satellite system.

UNCLASSIFIED

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment				PROJECT D253			
COST (In Thousands)		FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D253	Defense Satellite Communications Systems- Defense Communications Systems (DSCS- DCS)(Phase II)	13846	16053	8984	7882	11406	11581	13657	13636	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D253 - DSCS-DCS Phase II: This project provides funds required to develop strategic and tactical Ground Subsystem equipment to support JCS validated Command, Control, Communications and Intelligence (C3I) for the worldwide Super High Frequency (SHF) Defense Satellite Communications System (DSCS) program. Continuing upgrades for the DSCS are vital to support the emerging power projection and rapid deployment role of the Armed Forces. DSCS provides warfighters multiple channels of tactical connectivity as well as interface with strategic networks and national decision-makers.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 4115 Continued DIMS Interface Software • 267 Completed the NDI Adaptation Phase for the RSCCE • 4612 Continued the RBATSON program • 1767 Completed the IBWS program • 673 Completed the specification and acquisition requirements package for the Common Network Planning Software(CNPS) program • 2412 Continued IRF, PM Admin, and SETA efforts <p>Total 13846</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 492 Complete the RBATSON program • 3610 Continue the DIMS Interface Software program • 3702 Initiate the CNPS program • 5607 Develop prototype microwave link from Kaiserslautern through Donnersburg to Heidelberg Germany • 2217 Continue IRF, PM Admin, and SETA efforts • 425 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 16053</p>											
Project D253				Page 3 of 24 Pages				Exhibit R-2A (PE 0303142A)			

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D253
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FY 2000 Planned Program:

- 3267 Continue the DIMS Interface Software program
 - 4449 Continue CNPS program
 - 1268 Continue IRF, PM Admin and SETA efforts
- Total 8984

FY 2001 Planned Program:

- 2970 Continue the DIMS Interface Software program
 - 3665 Continue CNPS program
 - 1247 Continue IRF, PM Admin and SETA efforts
- Total 7882

B. Other Program Funding Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
OPA 2 - SSN: BB8500	82428	94201	68489	70799	56675	55654	78776	74029	Cont	Cont

C. Acquisition Strategy: The Replacement Satellite Configuration Control Element (RSCCE), Microwave Test Link, and Replacement BATSON (RBATSON) programs will be followed by competitive firm fixed price procurement programs that contain a basic production year followed by one or more option years of production. The RSCCE provides real-time monitoring and control of the DSCS III satellite platform and communications payload. A total of 18 RSCCE units will be procured and fielded to DSCS Operations Centers (DSCSOC) at worldwide locations. The Microwave Test Link provides a microwave link from Kaiserslautern through Donnersburg to Heidelberg, Germany. The RBATSON provides security, authenticity, and anti-jam waveform protection to satellite commands generated by the RSCCE for transmission to DSCS III satellites. A total of 21 RBATSON units will be procured and fielded to DSCS Operations Centers and contingency sites worldwide. The DSCS Integrated Management System (DIMS) and Common Network Planning Software (CNPS) programs are software development programs that are not planned to have follow-on production. DIMS provides the capability to electronically disseminate network plans to the monitoring and controlling DSCS Operations Control System (DOCS) subsystems and to retrieve and display subsystem monitoring data. It also provides a comprehensive view of network operations at DSCSOCs and DISA management sites. CNPS plans strategic and Ground Mobile Forces (GMF) satellite communications networks for DSCS and commercial satellites. DIMS and CNPS will be installed at DSCS Operations Centers and DISA Management Sites at worldwide locations.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)		DATE February 1999
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D253

D. Schedule Profile	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Complete RSCCE Testing		1Q*						
RSCCE MS III Production Decision		2Q						
RSCCE Option Award		2Q						
Complete RBATSON Testing		2Q						
Award CNPS Contract		2Q						
Complete CNPS Testing						4Q		
Award Microwave Test Link Contract		2Q						
DIMS Version 2.0 Software Testing		1Q*						
DIMS Version 3.0 Software Testing			3Q					
DIMS Version 4.0 Software Testing				3Q				

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)										DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment					PROJECT D253		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. DIMS Software	SS / CPFF	JHU/APL, Laurel, MD		3152	Jan 99	2867	Jan 00	2570	Jan 01	14944	23533	
b. CNPS	C / FFP	TBS		3000	Mar 99	3949	Jan 01	3165	Jan 01	9624	19738	
c. Microwave Prototype	C / FFP	TBS		5607	Feb 99						5607	
Subtotal Product Development:				11759		6816		5735		24568	48878	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Matrix Support	MIPR	Fort Monmouth, NJ		1074		600		600		Cont	2274	
b. SETA Support	C / CPFF	Fort Monmouth, NJ		277		200		200		Cont	677	
c. Engineering Support	SS / CPFF	JHU/APL, Laurel, MD		301		100		100		Cont	501	
d. Core Support	Various	Fort Monmouth, NJ		300		300		300		Cont	900	
Subtotal Support Costs:				1952		1200		1200			4352	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Integrated Research Facility	MIPR	Fort Monmouth, NJ		750		195		193		Cont	1138	
Subtotal Test and Evaluation:				750		195		193			1138	

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D253
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PM Admin	Various	Fort Monmouth, NJ		1167		773		754		Cont	2694	
b. SBIR/STTR				425							425	
Subtotal Management Services:				1592		773		754			3119	
Project Total Cost:				16053		8984		7882		24568	57487	

UNCLASSIFIED

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment				PROJECT D384			
COST (In Thousands)		FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D384	SMART-T	13775	24232	13931	17434	15072	14470	7217	6910	0	300337
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D384 - SMART-T: The Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) will provide a range extension capability for the Army's Mobile Subscriber Equipment (MSE) to support the Force Projection Army. Specifically, it will provide a satellite interface to permit uninterrupted communications as our advancing forces move beyond the line-of-sight capability of MSE. This equipment will communicate at both low and medium data rates (LDR/MDR) over the MILSTAR satellite constellation. It will also be compatible with the UHF Follow-On (UFO); the Navy Fleetsatcom EHF satellite package; and MIL-STD-1582C compatible payloads. It will provide the security, mobility, and anti-jam capability required to defeat the threat and satisfy the critical need as stated above. The SMART-T will also have Low Probability of Interception and Low Probability of Detection (LPI/LPD) to avoid being targeted for destruction, jamming or intercept. The prime mover will be a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) configured with all the electronics and the self-erectable antenna.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 10129 Continued development of Demand Assigned Multiple Access (DAMA) • 2545 Continued development of Network Control and Payload specification • 1101 Completed development of interactive training courseware <p>Total 13775</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 10733 Complete development of Demand Assigned Multiple Access (DAMA), and begin development of Asynchronous Transfer Mode (ATM) DAMA • 8030 Continue development of Network Control and begin development of an Advanced Extremely High Frequency (AEHF) test bed • 4822 Continue Payload Specification Change development work resulting from test with on-orbit MDR Payload satellite • 647 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 24232</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 5650 Complete development of Network control, and continue development of AEHF test bed • 5000 Continue development of ATM DAMA • 3281 Continue payload specification change development work 											
Project D384				Page 8 of 24 Pages				Exhibit R-2A (PE 0303142A)			

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D384
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Total 13931

FY 2001 Planned Program:

- 7000 Complete development of ATM DAMA, and complete development of AEHF test bed
 - 6647 Begin development of AEHF
 - 3787 Continue payload specification change development work
- Total 17434

B. Other Program Funding Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
Other Procurement Army 2 - SSN: BC 4002	20728	57370	61761	46834	19623	12685	32860	20165	12330	368897
Other Procurement Army 4 - SSN: BS 9720	1042	1403	0	2733	2555	1969	1364	1168	0	13817

C. Acquisition Strategy: The SMART-T program employed a competitive development strategy. The development phase included two contractors performing under Cost-Plus-Incentive-Fee (CPIF) contracts. The contracts were awarded on 9 November 1992 to Raytheon Company (Marlborough, MA) and Rockwell International (Richardson, TX). Twelve Engineering Development Model (EDM) terminals (6 from each contractor) were developed under the two contracts. The streamlining features of this phase included a reliability growth plan to achieve the required reliability by Follow-On Test and Evaluation (FOT&E). The Low Rate Initial Production (LRIP) and Full Rate Production (FRP) contract was competitively awarded to Raytheon Company on 7 February 1996. SMART-T Milestone III Decision was successfully completed Nov 98. Award of the first FRP Option is scheduled for 1QFY99. The FRP contract will include implementation of RDTE-funded terminal Baseline modifications for development of Demand Assigned Multiple Access (DAMA), ATM DAMA, and Advanced EHF Waveform. Development efforts for these modifications will be conducted in accordance with the schedule provided in this submission. The total Army terminal requirement is 209, of which 43 will be procured during LRIP (base year plus one option) to ensure sufficient quantities are available for the launch of the first MDR satellite in FY 1999. The Air Force will also be procuring 9 terminals during LRIP. The Full Rate Production (FRP) quantities (166 Army terminals) will be awarded as fixed price options to the LRIP/FRP contract. Additional quantities (i.e., 95) will be procured for the Air Force, Marine Corps, and JCSE.

D. Schedule Profile	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Completed IOT&E	3Q*							
MS III		1Q*						
FRP Award		2Q						
FOT&E			4Q					
Complete DAMA Development		2Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D384
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D. Schedule Profile	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Begin Development of ATM DAMA		2Q						
IOC			1Q					
Complete Development of Network Control			4Q					
Begin AEHF Development				2Q				
Complete Development of ATM DAMA				4Q				
Continue AEHF Development					1-4Q			
Complete AEHF Development						4Q		
Continue Payload Specification Change Development							1-4Q	
Complete Payload Specification Change Development								4Q

*Denotes Milestone Completion

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)										DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment						PROJECT D384		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Dual Development	C / CPIF	Rockwell Richardson, TX	117173								117173	
b. Contracts		Raytheon Marlborough, MA										
c. Baseline Mods	SS / CPAF	Raytheon Marlborough, MA	26852	18055	Jan 99	9181	Jan 00	12484	Jan 01	39769	106341	
d. Govt Support	MIPR	Various	12239	450		450		550		1500	15189	
e. GFP	MIPR	Various	149								149	
Subtotal Product Development:			156413	18505		9631		13034		41269	238852	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Other Contracts	MIPR	Various	11290								11290	
b. Core Support	N/A	PM Milsatcom, NJ	4152	300		300		400		1400	6552	
c. Lab Activities	MIPR	Various	3406	1800		1000		1000		1000	8206	
Subtotal Support Costs:			18848	2100		1300		1400		2400	26048	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Simulator Development	MIPR	Lincoln Labs Lexington, MA	12510								12510	
b. DT&OT Test Support	MIPR	Lincoln Labs Lexington, MA	6700								6700	
c. Test Bed Development	MIPR	Lincoln Labs Lexington, MA		2980	Feb 99	3000		3000			8980	
Subtotal Test and Evaluation:			19210	2980		3000		3000			28190	

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D384
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Tech Support of SMART-T Development	MIPR	Lincoln Labs Lexington, MA	6600								6600	
b. SBIR/STTR				647							647	
Subtotal Management Services:			6600	647							7247	
Project Total Cost:			201071	24232		13931		17434		43669	300337	

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment				PROJECT D456		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D456 MILSATCOM System Engineering	3835	4028	6298	12213	11484	11730	14739	9810	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: Project D456 - MILSATCOM System Engineering: . As Executive Agent for MILSATCOM Ground Subsystems, Army is responsible for developing, procuring, and maintaining the life cycle logistics support for satellite terminals; satellite control subsystems; communications subsystems; and all related equipment required to achieve end-to-end connectivity to satisfy JCS Command, Control, Communications, and Intelligence (C3I) supporting the President; JCS; CINCs; Military Departments; Department of State; and other Departments and Agencies of the government. This project provides centralized funding for advanced systems engineering, analysis, research, development, test, and evaluation of new and emerging technologies that optimize terminal performance and interoperability on the digitized battlefield.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 1549 Conducted various development efforts or analysis to provide enhanced Spitfire capability • 321 Completed SATCOM-on-the-Move analysis, acquisition, and test efforts • 750 Battlefield Digitization integration efforts • 1215 Advanced SATCOM architecture development <p>Total 3835</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1142 Conduct various development efforts or analysis to provide enhanced terminal capability • 750 Continue Battlefield Digitization architecture efforts for FDD • 1036 Advanced SATCOM architecture development (Advanced EHF (AEHF) and Advanced Wideband (AWB) Gap Filler) • 993 AEHF waveform development • 107 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 4028</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 2343 Conduct various development efforts or analysis to provide enhanced terminal capability • 1941 Continue Battlefield Digitization architecture efforts for FDD and FDC • 1050 Advanced SATCOM architecture development (AEHF and AWB) • 964 AEHF waveform development 										
Project D456			Page 13 of 24 Pages				Exhibit R-2A (PE 0303142A)			

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 1999
--	------------------------------

BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D456
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Total 6298

FY 2001 Planned Program:

- 5492 Conduct various development efforts or analysis to provide enhanced terminal capability (EHF, SHF and Commercial Bands)
 - 3900 Continue Battlefield Digitization architecture efforts for FDC
 - 1500 Advanced SATCOM architecture development (AEHF and AWB)
 - 1321 AEHF waveform development
- Total 12213

B. Other Program Funding Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To Compl	Total Cost
Other Procurement Army 2 - SSN: K77200	7038	2447	1547	0	0	0	0	28106	0	39138
Other Procurement Army 2 - SSN: BB8417	2398	1470	500	0	0	0	0	0	0	9779
Other Procurement Army 2 - SSN BA9350	15281	25259	31950	62183	70288	49157	49599	11489	Cont	Cont
Other Procurement Army 2 - SSN BC4002	20728	57370	61761	46834	19623	12685	32860	20165	Cont	Cont

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 is transitioned to cognizant MILSATCOM programs.

D. Schedule Profile	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Begin Integration of SATCOM Terminals into Digitized Architecture	1Q							
Comm-On-The-Move (COTM) Integration for FDD		2Q						
Intersegment Post Launch Verification (Flight 3)		4Q						
Intersegment Post Launch Verification (Flight 4)			4Q					
Intersegment Post Launch Verification (Flight 5)				4Q				
Intersegment Post Launch Verification (Flight 6)					4Q			
Begin UHF/EHF Terminal Integration with Tactical Internet		1Q						

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 1999
--	------------------------------

BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D456
--	--	------------------------

D. Schedule Profile	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Complete UHF/EHF Terminal Integration with Tactical Internet			4Q					
Conduct Advanced EHF and Wideband System			1Q					
Complete Advanced EHF and Wideband System								4Q

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)

DATE **February 1999**

BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D456
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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Terminal Upgrades	Various	Various	174	450	Jan 99	743	Jan 00	3667	Jan 01	Cont	5034	
Subtotal Product Development:			174	450		743		3667			5034	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Engineering (In-House)	MIPR	Various	571	845	Jan 99	1299	Jan 00	2551	Jan 01	Cont	5266	
b. Engineering (Contract)	Various	Various	747	797	Jan 99	1314	Jan 00	1825	Jan 01	Cont	4683	
Subtotal Support Costs:			1318	1642		2613		4376			9949	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Test Support	MIPR	Lincoln Labs, Lexington, MA	800	600	Jan 99	1000	Jan 00	1200	Jan 01	Cont	3600	
b. Test Support	Various	Various	343	336		642		1170		Cont	2491	
Subtotal Test and Evaluation:			1143	936		1642		2370			6091	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Advanced EHF & Architecture	MIPR	Lincoln Labs Lexington, MA	1200	893	Jan 99	1300	Jan 00	1800	Jan 01	Cont	5193	
b. SBIR/STTR				107							107	
Subtotal Management Services:			1200	1000		1300		1800			5300	

ARMY RDT&E COST ANALYSIS (R-3)

DATE February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
0303142A Satellite Command (SATCOM) Ground Environment

PROJECT
D456

	Total PYs Cost	FY 1999 Cost		FY 2000 Cost		FY 2001 Cost		Cost To Complete	Total Cost	Target Value of Contract
Project Total Cost:	3835	4028		6298		12213			26374	

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment				PROJECT D559		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D559 Automated Communications Management System (ACMS)	8911	8134	6009	9191	0	0	0	0	0	32245
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D559 - ACMS: ACMS is critical to the dynamic and efficient operation of battlefield command and control networks using Air Force developed MILSTAR satellites and Army developed MILSTAR terminals. ACMS enables Army users to take advantage of advanced features of the MILSTAR system, to include directly tasking the satellite constellation, repointing payload antennas, and rapidly changing network configurations. The ACMS must be integrated into ISYSCON to make it available to the tactical user and to coordinate MILSTAR range extension of MILSTAR networks. All Services (USAF, Army, and Navy) are funding for their unique software and hardware requirements.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 7676 Began development, integration, test and fielding of incremental control capability • 463 Participated in MILSTAR Intersegment Testing • 772 Participated in Joint Technical Reviews, System Requirement Reviews, Management Reviews, Technical Interchange Meetings, and Technical Demonstrations <p>Total 8911</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 6507 Continue development, integration, test and fielding of incremental control capability (includes Interim Control System) • 576 Participate in MILSTAR Intersegment Testing • 836 Participate in Joint Technical Reviews, System Requirement Reviews, Management Reviews, Technical Interchange Meetings, and Technical Demonstrations • 215 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 8134</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 5138 Continue development, integration, test and fielding of incremental control capability (includes Interim Control System) • 480 Support terminal test programs • 391 Participate in Joint Technical Reviews, Management Reviews, Technical Interchange Meetings, and Technical Demonstrations <p>Total 6009</p>										
Project D559			Page 18 of 24 Pages				Exhibit R-2A (PE 0303142A)			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D559
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FY 2001 Planned Program:

- 7489 Continue development, integration, test and fielding of incremental control capability
 - 825 Support terminal test programs
 - 877 Participate in Joint Technical Reviews, Management Reviews, Technical Interchange Meetings, and Technical Demonstrations
- Total 9191

B. Other Program Funding Summary: Not applicable

C. Acquisition Strategy: Development efforts for ACMS were initiated in FY 1996 under Projects D384 and D386. Project D559 ACMS Development funding line was created in FY 1998. ACMS is a Joint Service MILSTAR community initiative which is an integral part of the MILSATCOM Architecture. The MILSTAR Joint Program Office (MJPO) is managing the overall development effort. Input and interaction with the terminal offices is required to ensure a comprehensive system solution is achieved. Development work began in FY 1996 and will continue through FY 2001, as ACMS is phased in and tested incrementally.

D. Schedule Profile	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2004	FY 2005
Complete ACMS Build 2			4Q						
Initiate Interim Support of Terminal Deployments		1Q							
Participate in MST-6000	4Q								
Participate in MST-8000		3Q							
Complete FDD Testing, Training & Deployment			2Q						
Complete ISYSCON Integration / Interim Capability		3Q							
Complete ISYSCON Integration / ACMS Build 2 Capability				4Q					

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)										DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment						PROJECT D559		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Terminal Control	MIPR	JHU/APL Laurel, MD	1000	1000	Nov 98	1000	Nov 99	2300	Nov 00	0	5300	
b. ACMS Development	MIPR	NRAD San Diego, CA	2000	2000	Jan 99	2000	Jan 00	2000	Jan 01	0	8000	
c. MCPT-I Development	SS / CPAF	CSC/Lincom Eatontown, NJ	2977	2007	Jan 99	1000	Jan 00	2177	Jan 01	0	8161	
Subtotal Product Development:			5977	5007		4000		6477			21461	
Remark: ACMS Development (NRAD, San Diego): NRAD manages all contract activity associated with ACMS development. US Army provides funds for Army-unique control requirements; NRAD distributes funds provided over multiple contracts.												
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Program Management	Various	Various	374	565	Jan 99	454	Jan 00	404	Jan 01	0	1797	
Subtotal Support Costs:			374	565		454		404			1797	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Test Support	MIPR	Lincoln Labs Lexington, MA	800	600	Jan 99	300	Jan 00	600	Jan 01	0	2300	
b. Test Support	Various	Various	560	847	Jan 99	805	Jan 00	810	Jan 01	0	3022	
Subtotal Test and Evaluation:			1360	1447		1105		1410			5322	
Project D559 Page 20 of 24 Pages Exhibit R-3 (PE 0303142A)												

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D559
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Systems Engineering and Test Support	MIPR	Lincoln Labs Lexington, MA	1200	900	Jan 99	450	Jan 00	900	Jan 01	0	3450	
b. SBIR/STTR				215							215	
Subtotal Management Services:			1200	1115		450		900			3665	
Project Total Cost:			8911	8134		6009		9191			32245	

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment				PROJECT D561		
COST <i>(In Thousands)</i>	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D561 Military Individual Communicator (MIC)	0	0	1008	1023	854	956	1208	1177	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D561 – MIC: The Military Individual Communicator (MIC) will satisfy a critical joint warfighter requirement for limited, one-way communications capability in a hand-held configuration. The army anticipates initial market analysis and limited initial investments of RDTE will yield miniaturized technologies that can then be inexpensively procured on a large scale to satisfy joint service requirements.</p> <p>FY 1998 Accomplishments: Project not funded in FY 1998</p> <p>FY 1999 Planned Program: Project not funded in FY 1999</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 338 Conduct market survey to identify/assess industry interest and capability for development/production of MIC • 250 Conduct engineering analysis to determine feasibility of achieving miniaturization to hand-held configuration • 420 Conduct equipment demonstrations for industry participants with existing or emerging MIC capabilities <p>Total 1008</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 185 Conduct decision reviews. • 618 Award development contract for units to support initial test activities - RDTE Test Article Quantities: 20 • 220 Begin developmental test activities <p>Total 1023</p>										
B. <u>Other Program Funding Summary</u>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
Other Procurement Army 2 – SSN: BC4160					4906	12311	9957	14621	Cont	Cont
<p>Project D561 Page 22 of 24 Pages Exhibit R-2A (PE 0303142A)</p>										

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment	PROJECT D561
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C. Acquisition Strategy: This project funds advanced systems engineering, research, development, test and evaluation of technologies associated with the realization of one-way miniaturized communications capability in a hand-held configuration. Following initial feasibility analysis, which will include a market survey and industry equipment demonstrations, authorization to procure a limited number of end items to support test program activities will be sought. Development test activities, including interoperability demonstrations with existing SATCOM equipment, will begin in FY 2001 and continue into FY 2002. Operational Test (OT) will be conducted in FY 2003. Following a successful OT and Milestone III Decision Review, Full Rate Production will begin in FY 2003. RDTE dollars in FY 2003 and beyond will be utilized to fund engineering analysis to achieve further miniaturization and increased reliability of MIC components.

D. Schedule Profile	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Initiate Market Survey			1Q					
LRIP Decision Review				1Q				
Award LRIP Contract/Option				2Q	2Q			
Begin Development Testing				4Q				
Equipment Interoperability Demos					4Q			
Limited IOTE						4Q		
FRP Decision Review						4Q		
Award FRP Contract							4Q	
Initiate Miniaturization & Reliability Upgrade Development Efforts							4Q	

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)										DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0303142A Satellite Command (SATCOM) Ground Environment						PROJECT D561		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	Cost To Complete	Total Cost	Target Value of Contract
a. MIC	C / CPFF	TBD	0	0	N/A	772	Nov 99	823	Nov 00	Cont	1595	
Subtotal Product Development:						772		823			1595	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	Cost To Complete	Total Cost	Target Value of Contract
a. Systems Engineering	Various	Ft Monmouth, NJ	0	0	N/A	111	Nov 99	75	Nov 00	Cont	186	
Subtotal Support Costs:						111		75			186	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	Cost To Complete	Total Cost	Target Value of Contract
a. Test Support	MIPR	Ft Monmouth, NJ				50	Nov 99	50	Nov 00	Cont	100	
Subtotal Test and Evaluation:						50		50			100	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	Cost To Complete	Total Cost	Target Value of Contract
a. Core Support	MIPR	Ft Monmouth, NJ	0	0	N/A	75	Nov 99	75	Nov 00	Cont	150	
Subtotal Management Services:						75		75			150	
Project Total Cost:						1008		1023			2031	