CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**						R-1 ITEM NOMENCLATURE 0303109N Satellite Communications (Space)					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Total Program
Total PE Cost	**280.800**	**110.463**	**267.665**	**573.092**	**765.126**	**834.840**	**667.679**	**295.224**		**Continuing**	**Continuing**
0728 EHF SATCOM Terminals	**114.515**	**37.177**	**57.774**	**50.345**	**79.663**	**67.244**	**26.912**	**10.600**		**Continuing**	**Continuing**
0731 Fleet Satellite Comm	**98.076**	**0.633**	**0.578**	**0.644**	**1.493**	**1.775**	**1.812**	**1.848**		**Continuing**	**Continuing**
2472 Mobile User Segment	**68.209**	**66.979**	**195.019**	**503.651**	**621.268**	**661.558**	**561.584**	**209.618**		**161.114**	**3,049.000**
9122 Transformational Communications	**0.000**	**5.674**	**12.564**	**18.452**	**62.702**	**104.263**	**77.371**	**73.158**		**Continuing**	**Continuing**
(NOTE: Advanced Wideband name changed to Transformational Communications (TC))											**0.000**
9429 Covert Communications	**0.000**	**0.000**	**1.730**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**			**1.730**
Quantity of RDT&E Articles			**8**		**25**	**13**					**46**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program (NESP) provides for the development and production of terminals to provide anti-jam, low probability of intercept/detection communications capability for Command and Control of the Fleet. NESP operates with Fleet Satellite (FLTSAT) EHF Packages (FEP), Ultra High Frequency (UHF) Follow On (UFO), and Milstar I/II Satellite Packages. The Milstar program is comprised of satellites, control stations, and aircraft, ship, and ground terminals to provide assured worldwide, secure, anti-jam, survivable communications for the National Command Authority, CINCs, and operational commanders.

(U) The Advanced EHF (AEHF) Operational Requirements Document (ORD) was validated by the Joint Requirements Oversight Council (JROC) on 22 Mar 1999. The Navy AEHF Multiband Terminal (NMT) is the follow-on satellite communications system that will provide worldwide, secure, survivable satellite communications to U.S. and International Partners strategic and tactical forces during all levels of conflict. The NMT Program is the required Navy component to the Advanced EHF Program for enhancing protected and survivable satellite communications to Naval forces. The NMT system provides an increase in single service capability from 1.5 Mbps to 8 Mbps, increases the number of coverage areas and retains A/J, LPI protection characteristics. It is compatible with today's Navy LDR/MDR terminals and will sustain the MILSATCOM architecture by providing connectivity across the spectrum of mission areas, to include land, air and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence. The NMT system will replenish and improve on the capabilities of the Milstar system. The new system will equip the warfighters with the assured, jam resistant, secure communications as described in the ORD for the joint NMT Satellite Communications System. The NMT system will provide crosslinks within the NMT constellation as well as between NMT satellites and Milstar satellites in the backwards compatible mode. Mission requirements specific to Navy operations, including threat levels and scenarios, are contained in the NMT ORD.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**	R-1 ITEM NOMENCLATURE 0303109N Satellite Communications (Space)

(U) The Sensitive Compartmented Information (SCI) Networks implements the Integrated Special Intelligence Communications portion of the Automated Digital Network System (ADNS) architecture to provide services for transfer of Special Intelligence (SI) information between ships and shore activities in support of joint and combined operations. SCI Networks has been combined into the SI communications architecture and will provide real time indications and warning support to joint and component commanders through reliable high-speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of SI operations not achievable with current systems.

(U) The Joint Ultra High Frequency (UHF) Military Satellite Communications Network Integrated Control System (JMINI) will provide dynamic centralized control of joint 5kHz and 25kHz UHF military satellite communications (MILSATCOM) voice and data resource (channels and Time Division Multiple Access (TDMA)) time slots via a globally integrated system of four control stations to be located at each of the three Naval Computer and Telecommunications Area Master Station (NCTAMS) sites plus Naval Computer and Telecommunications Station (NCTS) Guam.

(U) Joint Tactical Radio System-Maritime (JTRS-M) - In FY 2003 JTRS-M was transfered to Program Element 0604280N, Project Number X3073.

(U) The Mobile User Objective System (MUOS) program provides for the development of the next generation DoD advanced narrowband communications satellite constellation. The current UHF Follow-On (UFO) constellation is expected to degrade below acceptable availability parameters in 2010. The MUOS program builds on state-of-the-art technologies and best commercial practices to develop a totally responsive joint warfighter system. In addition, new user requirements have been identified and advanced concepts developed to incorporate new programs and technologies which address the significant growth in requirements for military narrowband communications, as required per the approved joint interest MUOS Operational Requirements Document (ORD).

(U) The Navy Transformational Communications (TC) program (formerly named Advanced Wideband System) provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), Anti-Jam (AJ), communications capability to the fleet. Terminals will support multiple data streams over Q/Ka-band, Ka-band, and X-band. The terminals will also support mesh networking without the need for gateway terminals.

(U) Covert communications is a FY04 Congressional add.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for the upgrade of an existing, operational system.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0303109N - Satellite Communications (Space)					PROJECT NUMBER AND NAME 0728 EHF SATCOM Terminals					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Total Program
Project Cost	**114.515**	**37.177**	**57.774**	**50.345**	**79.663**	**67.244**	**26.912**	**10.600**		**Continuing**	**Continuing**
RDT&E Articles Qty			**8**		**20**						**28**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program provides for the development and production of terminals to provide anti-jam (A/J), low probability of intercept (LPI)/detection communications capability for Command and Control of the fleet. The terminals will provide physical and electromagnetically survivable, worldwide communications in the current and projected electromagnetic and nuclear threat environments. Navy EHF terminals are interoperable with Army and Air Force terminals and will operate with Milstar as well as EHF packages on-board Ultra High Frequency (UHF) Follow-On (UFO) Satellites 4 through 11 and FLTSATCOM Satellites 7 and 8. The increased capability provided by EHF terminals is accomplished by use of the wider bandwidths available at extremely high frequencies, narrow antenna bandwidths, spread spectrum techniques, on-board satellite processing, and advanced signal processing technology. The EHF Medium Data Rate (MDR) upgrade program is complete and provides increased bandwidth by providing higher data rates [4.8 kilobits per second (Kbps) – 1.544 megabits per second (Mbps)] when communicating with Milstar II satellites.

(U) The Navy EHF Communications Controller (NECC) provides automated, netted tactical data information exchange over jam resistant EHF Low Data Rate (LDR) satellite links. The NECC will provide for load and channel sharing, resource management, communications management and planning, network control and monitoring, and packet switching.

(U) The EHF Time Division Multiple Access (TDMA) Interface Processor (TIP) will support wide area network (WAN) implementation through reliable, efficient, netted data exchange using MDR services. The MDR TIP combines support for general-purpose internet protocol (IP) data delivery and high speed, rapid delivery of tactical data within a single system architecture. TIP supports single-beam, multi-beam, and multi-satellite networks.

(U) The Navy Super High Frequency (SHF) Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity, reliable, low probability of intercept (LPI), secure, and jam resistant communications to Joint and Allied Forces. SHF SATCOM operates with the Defense Satellite Communication System (DSCS), DSCS Service Life Extension Program (SLEP), Wideband Gapfiller Satellite (WGS) System, and the Advanced Wideband System (AWS) satellites. The SHF SATCOM system is comprised of satellites, ground stations, and aircraft, ship and ground terminals to provide assured worldwide access to services such as Defense Information Systems Network (DISN), Global Command and Control System (GCCS), Plain Old Telephone Service (POTS), Secure Telephone Unit III (STU III) Secure Communications Service, Internet Protocol Routed Networks, and other digital services. The satellite systems SHF SATCOM operate over are transitioning from old technology DSCS III satellites to the more advanced DSCS SLEP and WGS satellites beginning in FY 1999 and continuing through FY 2005. The population of Navy SHF SATCOM terminals is also growing at a rapid pace. In order to meet the communication requirements of Navy users, advanced communication technologies for SHF SATCOM terminals must be developed to take full advantage of the capabilities of the new satellites in an efficient manner.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	0728 EHF SATCOM Terminals

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION (continued):

(U) The Navy AEHF Multiband Terminal (NMT) is the follow-on satellite communications system that will provide worldwide, secure, survivable satellite communications to U.S. and International Partners strategic and tactical forces during all levels of conflict. The NMT Program is the required Navy component to the Advanced EHF Program for enhancing protected and survivable satellite communications to Naval forces. The NMT system provides an increase in single service capability from 1.5 Mbps to 8 Mbps, increases the number of coverage areas and retains A/J, LPI protection characteristics. It is compatible with today's Navy LDR/MDR terminals and will sustain the MILSATCOM architecture by providing connectivity across the spectrum of mission areas, to include land, air and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence. The NMT system will replenish and improve on the capabilities of the Milstar system. The new system will equip the warfighters with the assured, jam resistant, secure communications as described in the ORD for the joint NMT Satellite Communications System. The NMT system will provide crosslinks within the NMT constellation as well as between NMT satellites and Milstar satellites in the backwards compatible mode. Mission requirements specific to Navy operations, including threat levels and scenarios, are contained in the NMT ORD.

(U) The Challenge Athena Program required the following enhancements: (a) Satellite Doppler Buffer Fill Meter, which is a "gauge" on the GUI that indicates the current level of fill of the satellite Doppler buffer. The terminal operator was able to determine if the buffer is close to an overflow/underflow condition. With this indicator, he can then better plan when to re-center it without losing critical communications; (b) Channel Interleave Option for MIL-STD-188-165 Modes, that allowed the channel interleaver to be enabled without the additional bandspreading required for framing and Reed-Solomon FEC that provides handover and EMI protection; (c) Higher Data Rates increased the maximum provided data rate of the MD-1030B(V) 9 Modem to 4.096 Mbps with QPSK (Quadrature Phase Shift Keying) modulation. Higher available data rates in the MD-1030B(V)9 modem allowed the customer to achieve its near term throughput needs without putting up additional carriers; and (d) Shore Handover Error Burst. The MD-1030B(V)9 modem maintained its Bit Count Integrity (BCI) both at ship and shore based installations through shipboard antenna handover events. In addition, the MD-1030B(V)9 achieved virtual error free performance for ship's received data.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	0728 EHF SATCOM Terminals

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Milstar on Orbit test and checkout	0.936		
RDT&E Articles Quantity			

(U) FY03: Participated in Milstar on Orbit test and checkout of Milstar flight 5 and 6 (MST 8000). Continued to participate in joint interoperability communications with Army MDR Secure Mobile Antijam Reliable Tactical Terminal (SMART-T). Conducted NESP DT/OT testing.

	FY 03	FY 04	FY 05
AN/WSC-6 WGS Terminal Upgrades	6.589	0.112	0.650
RDT&E Articles Quantity			

(U) FY03: Continued development of an advanced modem system and AN/WSC-6 Wideband Gapfiller system terminal upgrades and conduct follow on test and evaluation.
(U) FY04: Developmental testing of advanced modem system and terminal upgrades.
(U) FY05: Operational testing of advanced modem system and terminal upgrades.

	FY 03	FY 04	FY 05
TIP/NECC modifications	0.960		
RDT&E Articles Quantity			

(U) FY03: Conducted TIP/NECC Increment 3 development modifications.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	0728 EHF SATCOM Terminals

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
NMT Development, First Phase	26.832	56.732	48.945
RDT&E Articles Quantity		8	

(U) First phase of NMT development for System Design and Development (SDD) for ship, shore and submarine platforms.

(U) **FY03:** Continued engineering analysis and development of terminal and satellite simulators. Began development of a high-level test plan to ensure requirements are decomposed and the key modeling and analysis demonstrates acquisition, tracking, communications antenna checkout, antenna handover, motion, anti-jam, low probability of intercept, low probability of detection, link budgets, multiband/multimode feed/modem development, etc. Conducted source selection for development of NMT terminal hardware and software.
(U) **FY04**: Complete development of satellite simulators. Award contract for development of NMT prototype terminal hardware and software. Hardware includes operator interface, Terminal Control Processor, Modem Control Processor, Antenna Pointing Unit and associated firmware. Software includes access control protocols, terminal Built In Testing (BIT)/BITE Adaptation Data Recorder, and LPI software. Continue development of high-level test plan. Begin design and development of 8 NMT prototypes (four ship, two sub, two shore).
(U) **FY05**: Continue NMT prototype terminal hardware and software development and development of high-level test plan. Continue design and development of 8 NMT prototypes started in FY04.

	FY 03	FY 04	FY 05
EHF Polar	1.860	0.930	0.750
RDT&E Articles Quantity			

(U) EHF POLAR / UFO-11 software development and systems engineering.

(U) **FY03** - Conducted ground segment end-to-end testing, security interface system testing, development of terminal software modifications.
(U) **FY04 - FY05** Continue development of Tracking, Telemetry and Control subsystems and end-to-end system testing for Polar 2/3 system.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	0728 EHF SATCOM Terminals

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY 04 Presidents Budget	47.445	50.449	56.509
FY 05 Presidents Budget	37.177	57.774	50.345
Total Adjustments	-10.268	7.325	-6.164

Summary of Adjustments

Miscellaneous Navy Adjustments			
Issue 68849 FY 2003 Update	-1.274		
Issue 66556 FY03 SBIR	-0.974		
Issue 65934 FY03 Fed Tech Transfer	-0.020		
Issue 66561 BTR MUOS / AEHF Transfer	-8.000		
Issue 66778 BTR MUOS / AEHF Transfer		8.000	
Issue 68041 Section 8094 Management Improvements		-0.154	
Issue 68060 Sec. 8029: FFRDC Reduction		-0.024	
Issue 68066 Sec. 8126: Efficiencies/Revised Econ Assumption		-0.497	
Issue 69492 PBD 604 Inflation			-0.134
Issue 69512 PBD 604 non purchase inflation			-0.029
Issue 19013 Spares Special Initiatives FY-05			-0.506
Issue 67689 Manpower			-0.094
Issue 67652 AEHF Re-Phasing			-5.400
Issue 67769 NWCF Rates - NSWC Rates			-0.001
Subtotal	-10.268	7.325	-6.164

(U) Schedule:

SDD contract awarded 10/03. Required Acquisition Strategy Report (ASR) was approved June 2002, and the ASR Update was approved July 2003.

(U) Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	0728 EHF SATCOM Terminals

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
321500 - OPN Ship and Shore*	50.870	74.921	38.896	23.700	22.483	85.112	111.095	Continuing	Continuing

*Includes EHF terminal installation costs.

(U) Related RDT&E:

(U) PE 0303603F, Milstar

(U) PE 0303601F, Air Force Satellite Communications

(U) PE 0303142A, Army Extremely High Frequency Communications Terminal

(U) E. ACQUISITION STRATEGY:

(U) Navy Multiband Terminal (NMT) Concept Exploration contracts were awarded in FY01. Two System Development and Demonstration (SDD) contracts were competively awarded in the first quarter of FY 2004 for the development and demonstration of four prototype terminals per vendor (eight total). In FY 2006, a downselect to one vendor will occur for the development, demonstration and procurement of twenty Engineering Developmental Models (EDMs).

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0303109N - Satellite Communications (Space)				PROJECT NUMBER AND NAME 0728 EHF SATCOM Terminals						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	Various	Various		11.809	10/03	47.915	12/03	41.595	10/04	Continuing	Continuing	
Hardware Development	C/FFP	Harris		5.797	12/02	0.112	02/04	0.650	10/04	Continuing	Continuing	
Hardware Development	WR	SSC SD (San Diego)		0.456	10/02	0.621	10/03	0.442	10/04	Continuing	Continuing	
Ancillary Hardware Development	CPAF	Raytheon (Marlborogh, MA)	55.396	2.144	06/03					Continuing	Continuing	
Software Development	WR	NUWC (Newport, RI)	5.438	1.650	10/02	0.930	11/03	0.750	10/04	Continuing	Continuing	
Systems Engineering	WR	SSC SD (San Diego)	13.241	0.693	11/02	0.235	10/03	0.221	10/04	Continuing	Continuing	
Systems Engineering	WR	NUWC (Newport, RI)		2.522	10/02	1.964	11/03	1.555	10/04	Continuing	Continuing	
Systems Engineering	Various	Various	8.161	0.997	10/02	1.201	10/03	0.840	10/04	Continuing	Continuing	
GFE	Various	Various		6.458	12/02	1.700	11/03	1.000	11/04	Continuing	Continuing	
Subtotal Product Development			82.236	32.526		54.678		47.053		Continuing	Continuing	
Remarks:												
Development Support	WR	SSC SD (San Diego, CA)	7.015	0.245	10/02	0.244	10/03	0.238	10/04	Continuing	Continuing	
Integrated Logistics Support	T&M	PMTO		0.238	10/02	0.348	10/03	0.321	10/04	Continuing	Continuing	
Studies & Analysis	WR	NAVSEA	5.116	0.210	04/03	0.210	10/03			Continuing	Continuing	
Subtotal Support			12.131	0.693		0.802		0.559		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0303109N - Satellite Communications (Space)			PROJECT NUMBER AND NAME 0728 EHF SATCOM Terminals						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Various	9.302	0.820	10/02	0.008	10/03	0.689	10/04	Continuing	Continuing	
Operational Test & Evaluation	WR	Various		0.556	10/02					Continuing	Continuing	
Subtotal T&E			9.302	1.376		0.008		0.689		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	CPAF	PMTO		1.549	10/02	0.931	10/03	0.993	10/04	Continuing	Continuing	
Program Management Support	Various	Various		0.981	10/02	1.240	10/03	0.951	10/04	Continuing	Continuing	
Travel		Gov't Travel		0.052	10/02	0.115	10/03	0.100	10/04	Continuing	Continuing	
Subtotal Management			0.000	2.582		2.286		2.044		Continuing	Continuing	
Remarks:												
Total Cost			103.669	37.177		57.774		50.345		Continuing	Continuing	
Remarks:												

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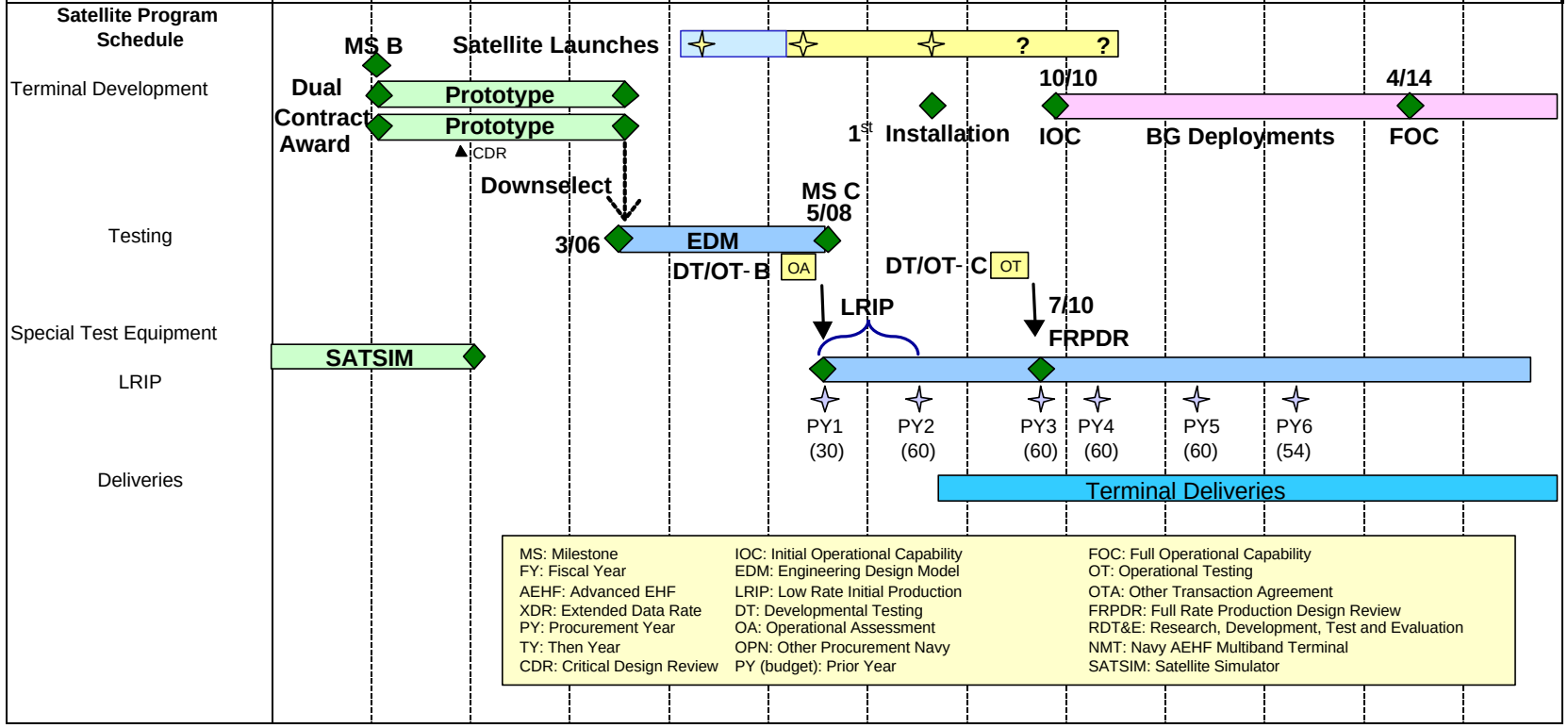
CLASSIFICATION:

EXHIBIT R4, Schedule Profile	DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0303109N - Satellite Communications (Space)	PROJECT NUMBER AND NAME 0728 EHF SATCOM Terminals



Note:
Refects development of 20 EDMs

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT 0303109N - Satellite Communications (Space)			PROJECT NUMBER AND NAME 0728 EHF SATCOM Terminals			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone B (MSB)		1Q					
Contract Award		1Q					
Prototype Complete				2Q			
Engineering Development Model (EDM) Begins (Quantity = 20)				3Q			
Developmental Testing (MS B)					4Q		
Operational Testing (Platform Operational Assessment) (MS B)						1Q	
Milestone C (MS C)						3Q	
Start Low-Rate Initial Production I (LRIP I)						3Q	
Start Low-Rate Initial Production II							1Q
Low-Rate Initial Production I Delivery							3Q
Developmental Testing (MS C)							4Q

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME PE: 0303109N Satellite Communications (Space)					PROJECT NUMBER AND NAME 0731 Fleet Satellite Comm					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Total Program
Project Cost	**98.076**	**0.633**	**0.578**	**0.644**	**1.493**	**1.775**	**1.812**	**1.848**		**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Sensitive Compartmented Information (SCI) Networks implements the Integrated Special Intelligence Communications portion of the Automated Digital Network System (ADNS) architecture to provide services for transfer of Special Intelligence (SI) information between ships and shore activities in support of joint and combined operations. SCI Networks has been combined into the SI communications architecture and will provide real time indications and warning support to joint and component commanders through reliable high-speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of SI operations not achievable with current systems.

(U) The Joint Ultra High Frequency (UHF) Military Satellite Communications Network Integrated Control System (JMINI) will provide dynamic centralized control of joint 5kHz and 25kHz UHF military satellite communications (MILSATCOM) voice and data resource (channels and Time Division Multiple Access (TDMA)) time slots via a globally integrated system of four control stations to be located at each of the three Naval Computer and Telecommunications Area Master Station (NCTAMS) sites plus Naval Computer and Telecommunications Station (NCTS) Guam.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7	PE: 0303109N Satellite Communications (Space)	0731 Fleet Satellite Comm

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
SCI Networks	0.633	0.578	0.644

Continued integration and implementation of SCI Networks and associated Special Intelligence Communication capabilities. Development and testing of submarine upgrades, developmental testing of surface upgrades (DTIIIA), Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) of SCI Networks were accomplished during FY03. Continue DT&E and OT&E of submarine upgrade (DTIID and OTIIB), design, integration and testing (DTIIIB, DTIIIC, OTIIIA) of software and hardware for sub, surface, and shore. DTIID and OTIIB will support MSIIIB. DTIIIB, DTIIIC, and OTIIIA will support MS-IIIC.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	PE: 0303109N Satellite Communications (Space)	0731 Fleet Satellite Comm

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget:	0.653	0.585	1.468
FY05 President's Budget:	0.633	0.578	0.644
Total Adjustments	-0.020	-0.007	-0.824
Summary of Adjustments			
Issue 68849 FY2003 Update	-0.020		
Issue 68041 Sec 8094 Mgmt Improvements		-0.002	
Issue 68066 Sec 8126 Efficiencies/Revised Econ Assumption		-0.005	
Issue 69492 PBD 604 Inflation			-0.002
Issue 19012 Technical Issue: JMINI			-0.822
Subtotal	-0.020	-0.007	-0.824

(U) Schedule:

OT-IIIA for surface ships in 4Q/04 and OT-IIB for submarines in 1Q/04.

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	PE: 0303109N Satellite Communications (Space)	0731 Fleet Satellite Comm

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
3050 – Comm Auto - SCI NETWORKS*	15.536	5,346	814	4,496	4,584	4,530	4,607	Continuing	Continuing
3215 – SATCOM - JMINI-NMS	5.416	9.358	7.070	0.000	0.000	0.000	0.000	Continuing	21.844

*Includes terminal installation costs.

(U) E. ACQUISITION STRATEGY:

SCI-NETWORKS: Program is utilizing Cost Plus Fixed Fee contract vehicle.
JMINI-NMS: Program is utilizing Cost Plus Fixed Fee contract vehicle.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT PE: 0303109N Satellite Communications (Space)			PROJECT NUMBER AND NAME 0731 Fleet Satellite Comm							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Con	FPI	Titan	6.309								6.309	
Primary Hardware Development	FFP	SRC	18.505								18.505	
Primary Hardware Development	PO	NAVSUP/SRC	5.223								5.223	
Primary Hardware Development	Var	Various	16.491	0.633	12/02	0.578	12/03	0.644	12/04	Continuing	Continuing	
Primary Hardware Development	CPFF	CSC	3.588								3.588	
Primary Hardware Development	PO	NAVAIR/ISC	1.176								1.176	
Primary Hardware Development	Var	Various	9.344								9.344	
Primary Hardware Development	FFP	Motorola	8.045								8.045	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			68.681	0.633		0.578		0.644		0.000	70.536	

Remarks:

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT PE: 0303109N Satellite Communications (Space)			PROJECT NUMBER AND NAME 0731 Fleet Satellite Comm							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
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											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks:

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT PE: 0303109N Satellite Communications (Space)				PROJECT NUMBER AND NAME 0731 Fleet Satellite Comm						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation	PO	SSC SD	1.905								1.905	
Operational Test & Evaluation	MIPR	OPTEVFOR	0.238								0.238	
Operational Test & Evaluation	Var	Various	9.296								9.296	
Operational Test & Evaluation	PO	SSC CH	1.731								1.731	
Operational Test & Evaluation	CPAF	BAH	0.591								0.591	
Award Fees											0.000	
Subtotal T&E			13.761	0.000		0.000		0.000		0.000	13.761	
Remarks:												
Contractor Engineering Support	CPFF	CSC	3.588								3.588	
Contractor Engineering Support	CPFF	ACS	0.674								0.674	
Government Engineering Support	PO	NAVAIR	1.176								1.176	
Government Engineering Support	Var	Various	9.896								9.896	
Government Engineering Support	PO	SSC CH	0.300								0.300	
											0.000	
Subtotal Management			15.634	0.000		0.000		0.000		0.000	15.634	
Remarks:												
Total Cost			98.076	0.633		0.578		0.644		0.000	99.931	
Remarks:												

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																													
																				DATE: **February 2004**									
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**					PROGRAM ELEMENT NUMBER AND NAME 0303109N, Satellite Communications (Space)												PROJECT NUMBER AND NAME 0731 FLT SATCOM / SCI NETWORKS													
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	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
Acquisition Milestones					MS IIIB Submarine					MS IIIC Surface/ Submarine																		
						DT IIIB Lab																							
Test & Evaluation Milestones			DT IID Techeval Sub				DT IIIC																					
Development Test																												
Operational Test						OT IIB Submarine		OT IIIA																				
Production Milestones																												
Deliveries																												

R-1 SHOPPING LIST - Item No. 190

Exhibit R-4a, Schedule Detail						DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT 0303109N, Satellite Communications (Space)				PROJECT NUMBER AND NAME 0731, FLT SATCOM - / SCI NETWORKS		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone Decision (MS-IIIA)							
Milestone Decision (MS-IIIB)		1Q					
Milestone Decision (MS-IIIC)			2Q				
Developmental Testing (DT-IIIA)							
Developmental Testing (DT-IIIB)		1Q					
Developmental Testing (DT-IIIC)		3Q					
Operational Testing (OT-IIIA)		4Q					
Operational Testing (OT-IIB)		1Q					
Developmental Testing (DT-IID)	4Q						

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N /**

PROGRAM ELEMENT NUMBER AND NAME: PE: 0303109N Satellite Communications (Space)

PROJECT NUMBER AND NAME: 0731 Fleet Satellite Comm - JMINI

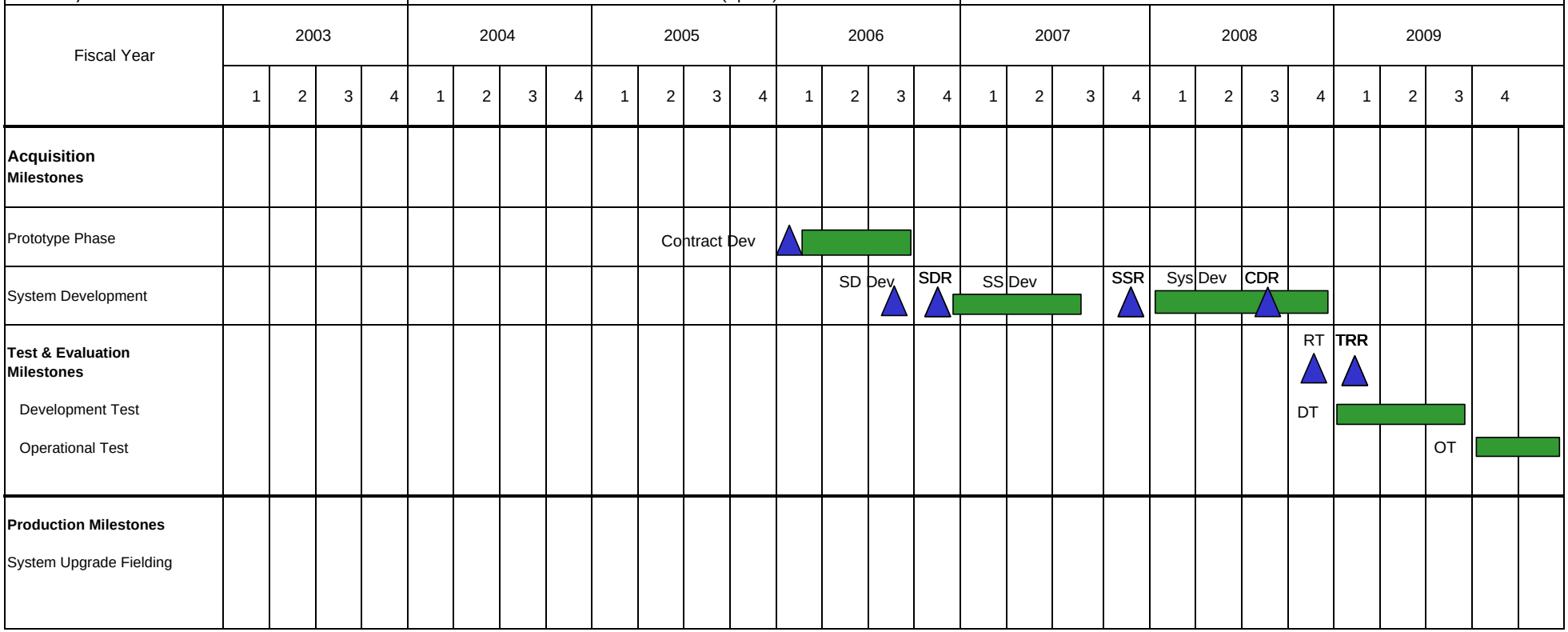


Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT PE: 0303109N Satellite Communications (Space)				PROJECT NUMBER AND NAME 0731 Fleet Satellite Comm - JMINI		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase				1Q - 3Q			
Contract Development				1Q			
Software Design Development				3Q			
Software Design Review (SDR)				4Q			
Software Specification Development				4Q	1Q - 3Q		
Software Specification Review (SSR)					4Q		
System Development						1Q - 4Q	
Critical Design Review (CDR)						3Q	
Regression Testing						4Q	1Q
Test Readiness Review (TRR)							1Q
Developmental Testing							1Q - 3Q
Operational Evaluation							4Q

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0303109N Satellite Communications (Space)					PROJECT NUMBER AND NAME 2472 Mobile User Segment					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Total Program
Project Cost	**68.209**	**66.979**	**195.019**	**503.651**	**621.268**	**661.558**	**561.584**	**209.618**		**161.114**	**3,049.000**
RDT&E Articles Qty					**1**	**1**					**2**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This program provides for the development of the next generation DoD narrowband communications satellite constellation, the Mobile User Objective System (MUOS).

(U) The Mobile User Objective System (MUOS) program provides for the development of the next generation DoD advanced narrowband communications satellite constellation. The current UHF Follow-On (UFO) constellation is expected to degrade below acceptable availability parameters in 2010. The MUOS program builds on state-of-the-art technologies and best commercial practices to develop a totally responsive joint warfighter system. In addition, new user requirements have been identified and advanced concepts developed to incorporate new programs and technologies which address the significant growth in requirements for military narrowband communications, as required per the approved joint interest MUOS Operational Requirements Document (ORD).

(U) This RDT&E effort supports the program objectives by assisting in identifying the most effective way to field a new system by FY 2009. Two Component Advanced Development (CAD) contracts were awarded in Q4 FY 2002. The CAD contracts continue into FY 2004. In FY 2004, a single Risk Reduction & Design Development (RRDD) contract will be awarded after Key Decision Point (KDP) B in Q2 FY 2004.

Note: Prior Years Cost reflects MUOS costs only.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA7	0303109N Satellite Communications (Space)	2472 Mobile User Segment

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	66.979	195.019	503.651
RDT&E Articles Quantity			

(U) FY03: Fully fund MUOS CAD contracts and associated system engineering tasks.

(U) FY04: Award MUOS Risk Reduction and Design Development (RRDD) contract and fund associated system engineering tasks. Complete MUOS CAD contracts and associated system engineering tasks.

(U) FY05: Continue funding for MUOS RRDD contract and associated system engineering tasks.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N Satellite Communications (Space)	2472 Mobile User Segment

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	59.018	315.801	428.177
FY05 President's Budget	66.979	195.019	503.651
Total Adjustments	7.961	-120.782	75.474
Summary of Adjustments			
Issue 65943 Federal Technolgy Transfer	-0.025		
Issue 66561 MUOS/AEHF BTR	8.000		
Issue 68849 FY2003 Update	-0.385		
Issue 66544 FY03 Midyear Review Adjustments	1.900		
Issue 66556 FY03 SBIR 5-May-03	-1.529		
Issue 66778 MUOS AEHF FY04 BTR		-8.000	
Issue 68041 Management Improvements		-0.522	
Issue 68060 FFRDC Reduction		-0.112	
Issue 68066 Efficiencies/Reivised Econ. Assumption		-2.146	
Issue 68580 MUOS insufficient justification/burn rate		-110.000	
Issue 66961 SPAWAR Service Cost Center Adj		-0.002	-0.003
Issue 19000 HQ support			-0.344
Issue 19022 Realign O&MN to RDT&E			5.364
Issue 67767 NWCF Rates SPAWAR SSC			-0.003
Issue 67689 Manpower			-0.008
Issue 66923 Restructure of 2 MUOS Satellites			70.458
Issue 69025 WCF - R&D - SPAWAR - PBD 430			-0.001
Issue 69045 PBD 426 Rates -SSC			0.004
Issue 69459 spread 728 rounding			0.042
Issue 69492 PBD-604 inflation			-1.626
Issue 69512 PBD 604 non purchase inflation			-0.289
Issue 69650 P07 Technical Adjustments			-0.206
Issue 69928 Technical Adjustment to match CIS			2.086
Subtotal	7.961	-120.782	75.474

(U) Schedule:

Award of two MUOS RRDD contract moved from 2nd Qtr 04 to 3rd Qtr 04.

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N Satellite Comminications (Space)	2472 Mobile User Segment

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
2433 - Fleet Satellite Communications Follow-on					229.427	615.872	625.939	1,571.762	3,043.000

(U) E. ACQUISITION STRATEGY: *

Concept Exploration contracts were awarded in early FY 2000 and completed in late FY 2001. Two Component Advancement Development (CAD) contracts were awarded in Q4 FY 2002. A RRDD contract will be awarded in 3Q FY04 with production options starting in 1Q FY07 with first launch (IOC) in 2009.

(U) F. MAJOR PERFORMERS: **

Lockheed Martin CAD
Raytheon CAD

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0303109N Satellite Communications (Space)			PROJECT NUMBER AND NAME 2472 Mobile User Segment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
MUOS Contracts and Demos	COM/FFP		57.139	58.462	1Q	168.100	2Q	479.151	1Q	2,083.142	2,845.994	1,336.239
											0.000	
AoA for MUOS	MIPR		2.782								2.782	
Government Studies	VAR		0.711								0.711	
Crypto Procurement						1.200					1.200	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			60.632	58.462		169.300		479.151		2,083.142	2,850.687	

Remarks:

Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support			0.301							0.000	0.301	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.301	0.000		0.000		0.000		0.000	0.301	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0303109N Satellite Communications (Space)				PROJECT NUMBER AND NAME 2472 Mobile User Segment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation				0.070						2.000	2.070	
Operational Test & Evaluation										2.000	2.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.070		0.000		0.000		4.000	4.070	
Contractor Engineering Support	VAR		4.876	6.555		10.019		10.035		55.900	87.385	
Government Engineering Support	VAR		1.400	0.346		3.200		3.200		10.000	18.146	
Program Management Support	VAR		1.000	1.251		12.000		10.765		59.600	84.616	
Travel				0.295		0.500		0.500		2.500	3.795	
Transportation											0.000	
											0.000	
Subtotal Management			7.276	8.447		25.719		24.500		128.000	193.942	
Remarks:												
Total Cost			68.209	66.979		195.019		503.651		2,215.142	3,049.000	
Remarks:												

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

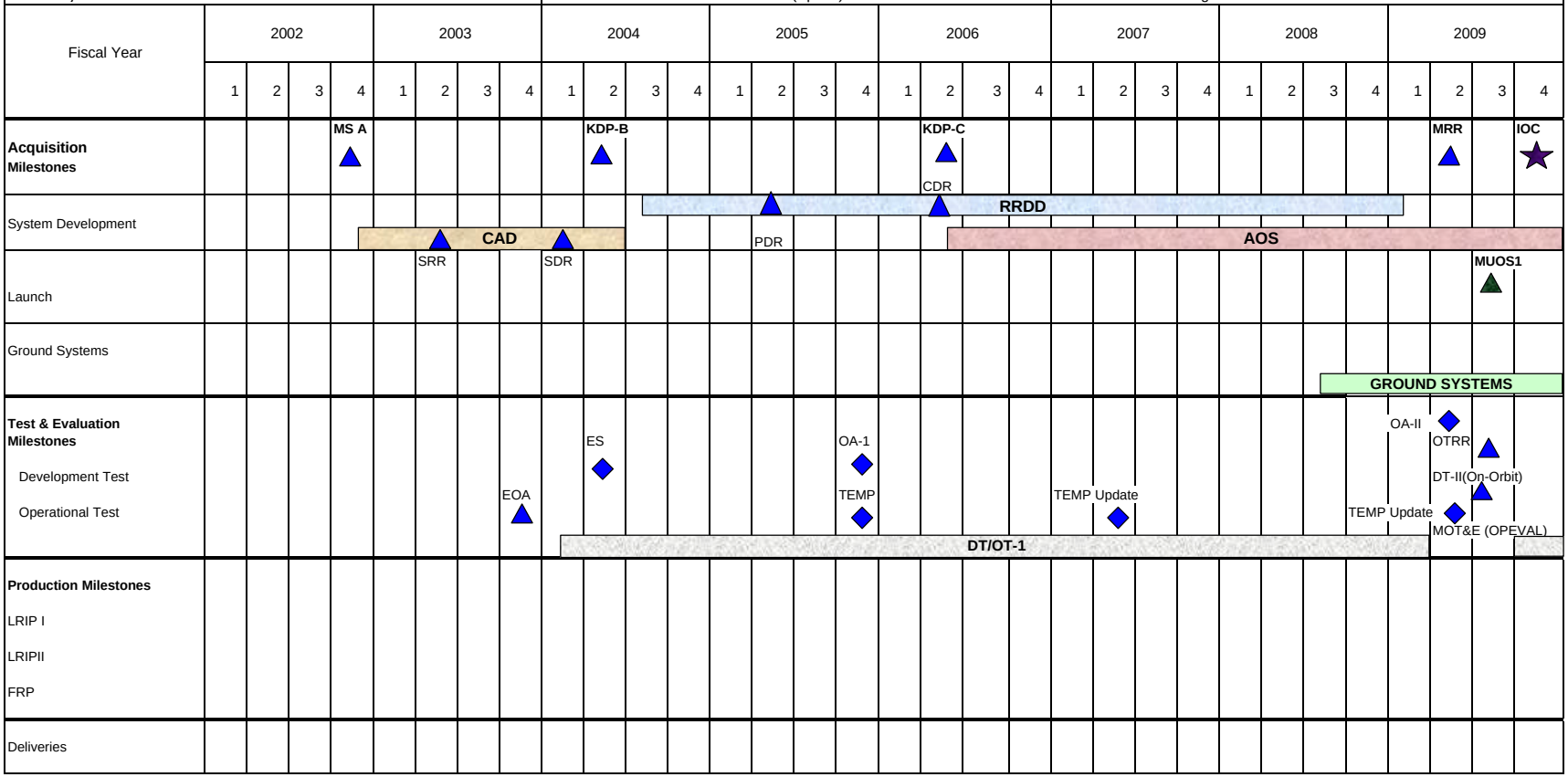
EXHIBIT R4, Schedule Profile

DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-7**

PROGRAM ELEMENT NUMBER AND NAME: 0303109N Satellite Communications (Space)

PROJECT NUMBER AND NAME: 2472 - Mobile User Segment



R-1 SHOPPING LIST - Item No. 190

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-7**	PROGRAM ELEMENT 0303109N Satellite Communications (Space)				PROJECT NUMBER AND NAME 2472 Mobile User Segment			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone A								
Component Advanced Development (CAD)		1Q-4Q	IQ-2Q					
Early Operational Assessment (EOA)			1Q					
System Requirements Review		2Q						
Evaluation Strategy (ES)			2Q					
System Design Review (SDR)			1Q					
Key Decision Point B			2Q					
Preliminary Design Review (PDR)				2Q				
Test and Evaluation Master Plan (TEMP)				4Q				
Deveolpmental Testing (DT)/Operational Testing(OT-1)			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q	
Key Decision Point C					2Q			
Critical Design Review (CDR)					2Q			
Operational Assessment (OA-I)				2Q				
Test and Evaluation Master Plan (TEMP) Update						2Q		
Risk Reduction and Design Development (RRDD)			3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Acquisition & Operations Support (AOS)						1Q-4Q	1Q-4Q	1Q-4Q
Launch 1 (M1)								3Q
Ground System (1)							3Q	
Mission Readiness Review (MRR)							2Q	
IOC								4Q
Operational Assessment (OA-II)							1Q	
Test and Evaluation Master Plan (TEMP) Update								3Q
Opertional Test Readiness Review (OTRR) for MOT&E								3Q
Developmental Testing (DT-IIA) (On-Orbit)								3Q
Multi-Service Opertional Testing & Evaluation ((OPEVAL) (MOT&E)								4Q
Follow-On Test Evaluation (FOT&E)								

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0303109N - Satellite Communications (Space)					PROJECT NUMBER AND NAME 9122 Transformational Communications (previously named Advanced Wideband)					
COST ($ in Millions)	Prior Years Cost	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009		Cost to Complete	Total Program
Project Cost	**0.000**	**5.674**	**12.564**	**18.452**	**62.702**	**104.263**	**77.371**	**73.158**		**Continuing**	**Continuing**
RDT&E Articles Qty					**4**	**12**					**16**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy Transformational Communications program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), Anti-Jam (AJ), communications capability to the fleet. Terminals will support multiple data streams over Q/Ka-band, Ka-band, and X-band. The terminals will also support mesh networking without the need for gateway terminals.

R-1 SHOPPING LIST - Item No. 190

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	9122 Transformational Communications

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
TC Concept Development	5.674	12.564	18.452
RDT&E Articles Quantity			

(U) **FY03**: Began development of wideband tactical, protected tactical, and broadcast terminals to operate with Transformational Communications (TC) Architecture. Began development of strategic terminals that will operate with the protected satellites in mid-latitude and polar regions. Development included concept exploration and systems engineering analysis. Investigated optimum methods to implement software programmable, modular, reconfigurable, and upgradeable SATCOM terminals. Investigated multi-band feed and phased array options. Terminal modem concepts were explored. Began process of exploring and documenting risk areas. Terminal designs were explored to mitigate these risk areas.

(U) **FY04**: Continue concept exploration systems engineering and analysis. Build and test prototype systems components including the multiband feed assemblies, multiband Radio Frequency (RF) equipment, multiband antenna radome for Radar Cross Section reduction and RF transmissibility, and fast acting multi-antenna switching systems. FY 2004 goals are to validate component designs for migration to system level inclusion.

(U) **FY05**: Migrate component prototypes tested in FY 2004 into a system level design. Begin system level engineering process to determine optimal tradeoffs between cost and performance. Build prototypes of system level components (multi band antenna system, multi-band IF and RF generation systems) and test.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	9122 Transformational Communications

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY 04 Presidents Budget	5.854	12.706	18.599
FY 05 Presidents Budget	5.674	12.564	18.452
Total Adjustments	-0.180	-0.142	-0.147
Summary of Adjustments			
Issue 66556 FY03_SBIR_	-0.120		
Issue 68849 FY 2003 Update	-0.060		
Issue 68041 Section 8094: Management Improvements		-0.034	
Issue 68066 Sec. 8126: Efficiencies/Revised Econ. Assumption		-0.108	
Issue 69492 PBD-604 Inflation			-0.049
Issue 69512 PBD-604 non purchase inflation			-0.011
Issue 69650 P07 Technical Adjustments			-0.008
Issue 67689 Manpower			-0.079
Subtotal	-0.180	-0.142	-0.147

(U) Schedule:

Program Office will begin Acquisition Strategy development and refinement in FY04. Currently Milestone B is projected in FY06. A draft schedule is provided in R4 exhibit.

(U) Technical:

Not Applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N - Satellite Communications (Space)	9122 Transformational Communications

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
321500 - OPN Ship and Shore*	NA	NA	NA	NA	NA	24.193	90.345	1309.87	1424.466

(U) E. ACQUISITION STRATEGY: *

TBD until the system architecture is defined by the ongoing Transformational Communication Study.

(U) F. MAJOR PERFORMERS: **

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0303109N - Satellite Communications (Space)			PROJECT NUMBER AND NAME 9122 Transformational Communications						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	Various	Various	NA	3.053	10/03	9.303	12/03	14.263	10/04	Continuing	Continuing	
Ancillary Hardware Development											0.000	
Systems Engineering	Various	Various		1.070	10/02	0.289	10/03	0.811	10/04	Continuing	Continuing	
Systems Engineering	WR	NUWC		0.350	10/02	0.545	10/03			Continuing	Continuing	
											0.000	
										Continuing	Continuing	
										Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	4.473		10.137		15.074		Continuing	Continuing	
Remarks:												
Development Support	WR	SSC SD		0.086	03/03	0.774	10/03	1.043	10/04	Continuing	Continuing	
Integrated Logistics Support											0.000	
Studies & Analyses	Various	Various		1.115	03/03	1.162	10/03	1.378	10/04	Continuing	Continuing	
											0.000	
											0.000	
										Continuing	Continuing	
										Continuing	Continuing	
											0.000	
Subtotal Support			0.000	1.201		1.936		2.421		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0303109N - Satellite Communications (Space)			PROJECT NUMBER AND NAME 9122 Transformational Communications						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Development Support											0.000	
Program Management Support	Various	Various				0.451	10/03	0.957	10/04	Continuing	Continuing	
Studies & Analyses											0.000	
Travel						0.040	10/03				0.040	
											0.000	
Subtotal Management			0.000	0.000		0.491		0.957		Continuing	Continuing	
Remarks:												
Total Cost			0.000	5.674		12.564		18.452		Continuing	Continuing	
Remarks:												

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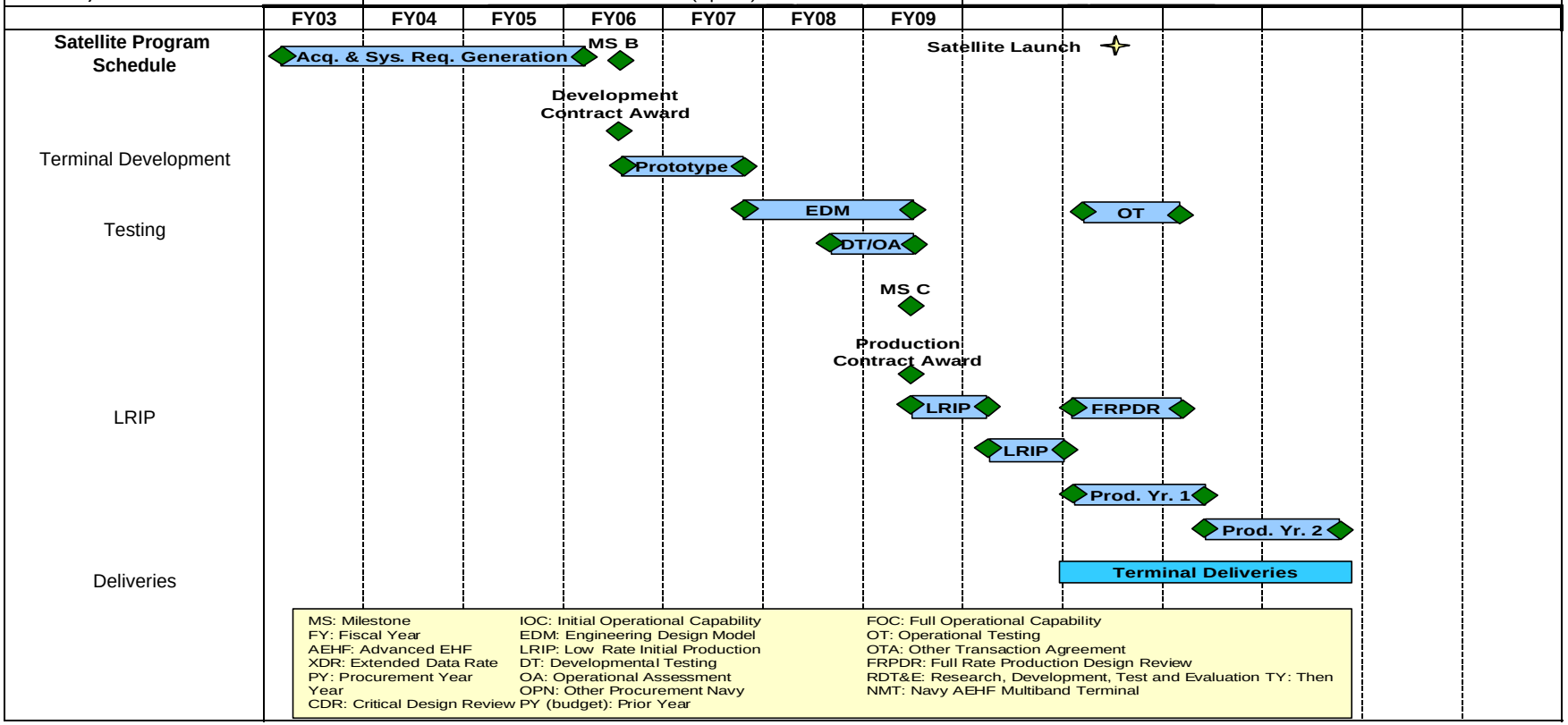
CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0303109N - Satellite Communications (Space)	PROJECT NUMBER AND NAME 9122 Transformational Communications



CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-7**		PROGRAM ELEMENT 0303109N - Satellite Communications (Space)				PROJECT NUMBER AND NAME 9122 Transformational Communications		
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
	Milestone B (MSB)				2Q			
	Contract Award				2Q			
	Prototype Complete					4Q		
	Engineering Development Model (EDM) Begins					4Q		
	Developmental Testing / Operational Assessment						3Q	
	Milestone C (MS C)							1Q
	Start Low-Rate Initial Production I (LRIP I)							1Q

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0303109N Satellite Communications (Space)					PROJECT NUMBER AND NAME X9429 SPAWAR Covert Communication and Information Transfer					
COST ($ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost				**1.730**							**1.730**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

FY 2004 Congressional add for Covert Communications required for operational utilization.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7	0303109N Satellite Communications (Space)	X9429 SPAWAR Covert Communication and Information Transfer

(U) B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05
CCIT		1.730	
RDT&E Articles Quantity			

FY04: SPAWAR Covert Communication and Information Transfer

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N Satellite Communications (Space)	X9429 SPAWAR Covert Communication and Information Transfer

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget:		0.000	
FY05 President's Budget:		1.730	
Total Adjustments	0.000	1.730	0.000
Summary of Adjustments			
Issue 68581 Covert Communications and Information Transfer		1.750	
Issue 68041 Section 8094: Management Improvements		-0.005	
Issue 68066: Section 8126 Efficiencies/Revised Econ. Assumptions		-0.015	
Subtotal	0.000	1.730	0.000

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0303109N Satellite Communications (Space)	X9429 SPAWAR Covert Communication and Information Transfer

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

(U) E. ACQUISITION STRATEGY:

Not Applicable

(U) F. MAJOR PERFORMERS:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0303109N Satellite Communications (Space)			PROJECT NUMBER AND NAME X9429 SPAWAR Covert Communication and Information Transfer							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	PO	SSC				1.730					1.730	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		1.730		0.000		0.000	1.730	

Remarks:

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