

UNCLASSIFIED

PE NUMBER: 0207581F
 PE TITLE: JOINT STARS

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2008
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207581F JOINT STARS
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	171.628	81.978	97.641	105.954	92.463	33.744	33.880	Continuing	TBD
0003 JSTARS	171.628	81.978	97.641	105.954	92.463	33.744	33.880	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

FY2008 funding totals do not include \$319.508M of RDT&E funds (\$266M for PME DMS, \$36M for BLOS, \$13.4M for JSuW, and \$4.1M for SINCGARS) and \$66.3M 3010 funds of FY2008 GWOT Requirements still pending Congressional consideration.

The Joint Surveillance Target Attack Radar System (Joint STARS) program produces the world's premier airborne ground surveillance platform, meeting joint combat capability requirements. The 707-based E-8C Joint STARS aircraft provides radar-derived all-weather surveillance and targeting information on moving and stationary ground targets, slowly moving rotary and fixed wing aircraft, and rotating antennas. Joint STARS provides target information for matching direct attack aircraft, standoff weapons, and ground-based attack assets against selected targets, and can be cued by other intelligence, surveillance, and reconnaissance (ISR) and target acquisition systems. This capability enables air and ground commanders to effectively make and execute battle decisions, and helps achieve predictive battlespace awareness.

This program element enhances the warfighter's ability to achieve the joint vision of combat operations. It develops advanced battle management aids and information fusion technologies to enable rapid decisions in tracking and killing time-critical targets. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/Control and ISR (C2ISR), Network Centric Operations Capabilities, and interoperability with Joint Service, allied, and coalition systems. These efforts include, but are not limited to, Re-Engining, interoperability with manned and unmanned platforms, space data links, advanced Battle-Management Command, Control and Communications (BMC3) concepts, ISR Constellation, Air Moving Target Indicator (AMTI), Ground Moving Target Indicator (GMTI), Advanced Radar Modes (ARM), Synthetic Aperture Radar (SAR)/Enhanced Synthetic Aperture Radar (ESAR), Mode 5/S, Network Centric Collaborative Targeting (NCCT), Interim Capability for Airborne Networking (ICAN), Beyond Line of Sight (BLOS) networking, Enhanced Land/Maritime Mode (ELMM), Blue Force Tracking/Force XXI Battle Command Brigade and Below (FBCB2) and other large airborne platform integration efforts including Affordable Moving Surface Target Engagement (AMSTE), weapons guidance capabilities, self defense capabilities, radar, and aircraft performance improvements. JSTARS - Network Enabled Weapons (J-NEW) which includes the following efforts: participation in the Joint Surface Warfare (JSuW) Joint Capability Technology Demonstration (JCTD) and SDD, and Joint Air to Surface Standoff Missile-Maritime Interdiction (JASSM-MI). J-NEW is a continuation of the Maritime Interdiction capabilities initiated under ELMM and AMSTE. These efforts rely on the test infrastructure provided by the Joint STARS Test Support (JETS). JETS includes a dedicated test aircraft, laboratories, and support facilities used by the Joint STARS Test Force (JTF) to conduct RDT&E activities. Training and support systems development efforts include but are not limited to Weapon Systems Trainer (WST), Navigator Training Station (NTS), and Mission Crew Trainer (MCT). Also included in this program element are programs to address Diminishing Manufacturing Sources (DMS), to include but not limited to Prime Mission Equipment (PME) DMS, formerly known as Communication Computer Netcentric Upgrade (CCNU), Radar DMS, and Avionics DMS which includes CNS/ATM (8.33 kHz VHF) which currently provides a path for growth in Single Channel Ground To Air Radio Set (SINCGARS) voice communication capability. Communications and Networking Upgrade (CNU) Phase I includes but is not limited to Joint Tactical Radio System (JTRS) and Integrated Broadcast Services (IBS). CNU Phase II includes but is not

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limited to JTRS and the Family of Advanced Beyond Line of Sight Terminals (FAB-T) integration. The Joint STARS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability such as Attack Support Upgrade (ASU) Link 16 enhancements which evolve JSTARS into a controlling unit with full battle management capabilities.

Re-Engining - Provides the JSTARS E-8 aircraft additional range and time on station, improved fuel economy, time to climb and reliability, and the potential of additional power generation for future systems. Includes non-recurring engineering, flight test, MIL-STD qualification, and flight data analysis.

The result is greater mission capability, higher mission reliability, and maximum weapon system availability in a Joint Net Centric environment.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a post-Milestone III operational weapon system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	155.615	65.924	71.128
(U) Current PBR/President's Budget	171.628	81.978	97.641
(U) Total Adjustments	16.013		
(U) Congressional Program Reductions		-0.022	
Congressional Rescissions		-0.704	
Congressional Increases		16.800	
Reprogrammings	19.857		
SBIR/STTR Transfer	-3.844		
(U) <u>Significant Program Changes:</u>			

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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
0003 JSTARS	171.628	81.978	97.641	105.954	92.463	33.744	33.880	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

FY2008 funding totals do not include \$319.508M of RDT&E funds (\$266M for PME DMS, \$36M for BLOS, \$13.4M for JSuW, and \$4.1M for SINCGARS) and \$66.3M 3010 funds of FY2008 GWOT Requirements still pending Congressional consideration.

The Joint Surveillance Target Attack Radar System (Joint STARS) program produces the world's premier airborne ground surveillance platform, meeting joint combat capability requirements. The 707-based E-8C Joint STARS aircraft provides radar-derived all-weather surveillance and targeting information on moving and stationary ground targets, slowly moving rotary and fixed wing aircraft, and rotating antennas. Joint STARS provides target information for matching direct attack aircraft, standoff weapons, and ground-based attack assets against selected targets, and can be cued by other intelligence, surveillance, and reconnaissance (ISR) and target acquisition systems. This capability enables air and ground commanders to effectively make and execute battle decisions, and helps achieve predictive battlespace awareness.

This program element enhances the warfighter's ability to achieve the joint vision of combat operations. It develops advanced battle management aids and information fusion technologies to enable rapid decisions in tracking and killing time-critical targets. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/Control and ISR (C2ISR), Network Centric Operations Capabilities, and interoperability with Joint Service, allied, and coalition systems. These efforts include, but are not limited to, Re-Engining, interoperability with manned and unmanned platforms, space data links, advanced Battle-Management Command, Control and Communications (BMC3) concepts, ISR Constellation, Air Moving Target Indicator (AMTI), Ground Moving Target Indicator (GMTI), Advanced Radar Modes (ARM), Synthetic Aperture Radar (SAR)/Enhanced Synthetic Aperture Radar (ESAR), Mode 5/S, Network Centric Collaborative Targeting (NCCT), Interim Capability for Airborne Networking (ICAN), Beyond Line of Sight (BLOS) networking, Enhanced Land/Maritime Mode (ELMM), Blue Force Tracking/Force XXI Battle Command Brigade and Below (FBCB2) and other large airborne platform integration efforts including Affordable Moving Surface Target Engagement (AMSTE), weapons guidance capabilities, self defense capabilities, radar, and aircraft performance improvements. JSTARS - Network Enabled Weapons (J-NEW) which includes the following efforts: participation in the Joint Surface Warfare (JSuW) Joint Capability Technology Demonstration (JCTD) and SDD, and Joint Air to Surface Standoff Missile-Maritime Interdiction (JASSM-MI). J-NEW is a continuation of the Maritime Interdiction capabilities initiated under ELMM and AMSTE. These efforts rely on the test infrastructure provided by the Joint STARS Test Support (JETS). JETS includes a dedicated test aircraft, laboratories, and support facilities used by the Joint STARS Test Force (JTF) to conduct RDT&E activities. Training and support systems development efforts include but are not limited to Weapon Systems Trainer (WST), Navigator Training Station (NTS), and Mission Crew Trainer (MCT). Also included in this program element are programs to address Diminishing Manufacturing Sources (DMS), to include but not limited to Prime Mission Equipment (PME) DMS, formerly known as Communication Computer Netcentric Upgrade (CCNU), Radar DMS, and Avionics DMS which includes CNS/ATM (8.33 kHz VHF) which currently provides a path for growth in Single Channel Ground To Air Radio Set (SINCGARS) voice communication capability. Communications and Networking Upgrade (CNU) Phase I includes but is not limited to Joint Tactical Radio System (JTRS) and Integrated Broadcast Services (IBS). CNU Phase II includes but is not limited to JTRS and the Family of Advanced Beyond Line of Sight Terminals (FAB-T) integration. The Joint STARS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability such as Attack Support Upgrade (ASU)

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Link 16 enhancements which evolve JSTARS into a controlling unit with full battle management capabilities.

Re-Engining - Provides the JSTARS E-8 aircraft additional range and time on station, improved fuel economy, time to climb and reliability, and the potential of additional power generation for future systems. Includes non-recurring engineering, flight test, MIL-STD qualification, and flight data analysis.

The result is greater mission capability, higher mission reliability, and maximum weapon system availability in a Joint Net Centric environment.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a post-Milestone III operational weapon system.

(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Spiral Development, Kill Chain and Integration/Analysis, Interoperability (including but not limited to Weapons Guidance, Wide Area Tracker, Aided Target Recognition, NCCT, ICAN, BLOS, FBCB2, AFMTT, CCNU, Find-Fix-Target-Track-Engage-Assess (F2T2EA), International, Inverse Synthetic Aperture ISAR), JSuW JCTD and SDD, SINGARS, etc.)	38.011	3.744	3.010
(U) PME DMS			36.119
(U) Communications & Network Upgrade (CNU)(Joint Tactical Radio System (JTRS)		6.588	8.912
(U) Enhanced Land/Maritime Mode (ELMM)/Affordable Moving Surface Target Engagement (AMSTE)	26.847	4.943	4.000
(U) Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) formerly Global Air Traffic Mgmt (GATM) (i.e.; TCAS, Mode S, 8.33kHz VHF, etc.)	20.982	8.001	
(U) Link 16 ASU support, connectivity efforts, etc.	10.924		
(U) Test and Infrastructure Effort (including but not limited to Joint Test Force, JSTARS Extended Test Support contract, Information Assurance, range support, PL-2 security, support of T-3 test aircraft, test labs, etc.)	38.610	39.932	31.162
(U) Re-Engining	36.254	1.970	14.438
(U) Senior Year Electro-optical Reconnaissance System (SYERS) Demonstration		16.800	
(U) Total Cost	171.628	81.978	97.641

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Modifications, BP11 (PE 0207581F)	100.520	79.150	30.657	229.287	210.219	140.729	30.540	Continuing	TBD
(U) Spares, BP16 (PE 0207581F)	4.616	1.231	8.934	21.281	1.479	1.510	1.540	Continuing	TBD

(U) **D. Acquisition Strategy**
The AF will continue development for various fleetwide modifications throughout the life of the Joint STARS weapon system.

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Exhibit R-3, RDT&E Project Cost Analysis

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(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
ASU	SS/CPAF	HAFB, MA		10.924	Nov-06						10.924	TBD
CNS/ATM (GATM)/8.33 k Hz VHF Radio/SINCGARS	Various	HAFB, MA		20.982	Nov-06	8.001	Mar-08				28.983	TBD
Spiral Development	Various	Various		38.011	Nov-06	3.744	Nov-07	3.010	Nov-08	Continuing	TBD	TBD
Communications & Network Upgrade (CNU)(Joint Tactical Radio System (JTRS))	TBD	TBD				6.588	Mar-08	8.912	Oct-08	Continuing	TBD	TBD
ELMM/AMSTE	Various	Various		26.847	Dec-06	4.943	Oct-07	4.000	Oct-08		35.790	TBD
PME DMS	TBD	TBD						36.119	Feb-09	Continuing	TBD	TBD
SYERS Demonstration	TBD	TBD				16.800	Jul-08				16.800	TBD
Subtotal Product Development			0.000	96.764		40.076		52.041		Continuing	TBD	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) <u>Support</u>												
SPO Ops Support	Various	HAFB, MA		0.000	Oct-06	0.000	Oct-07	0.000	Oct-08	Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) <u>Test & Evaluation</u>												
E-8C JSTARS Ext. Test Spt (JETS)	Various	Various		30.875	Nov-06	28.456	Nov-07	21.141	Nov-08	Continuing	TBD	TBD
JTF Test Ops/Support	Various	Various		5.935	Nov-06	9.276	Nov-07	7.721	Nov-08	Continuing	TBD	TBD
PL-2	Various	Various		1.800	Nov-06	2.200	Nov-07	2.300	Nov-08	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	38.610		39.932		31.162		Continuing	TBD	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) <u>Management</u>												
Integration & Analysis				0.000	Oct-06	0.000	Oct-07	0.000	Oct-08	Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) <u>Re-Engining</u>												
Re-Engining	TBD	TBD		36.254	Aug-07	1.970	Nov-07	14.438	Jan-09	Continuing	TBD	TBD
Subtotal Re-Engining			0.000	36.254		1.970		14.438		Continuing	TBD	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) Total Cost			0.000	171.628		81.978		97.641		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

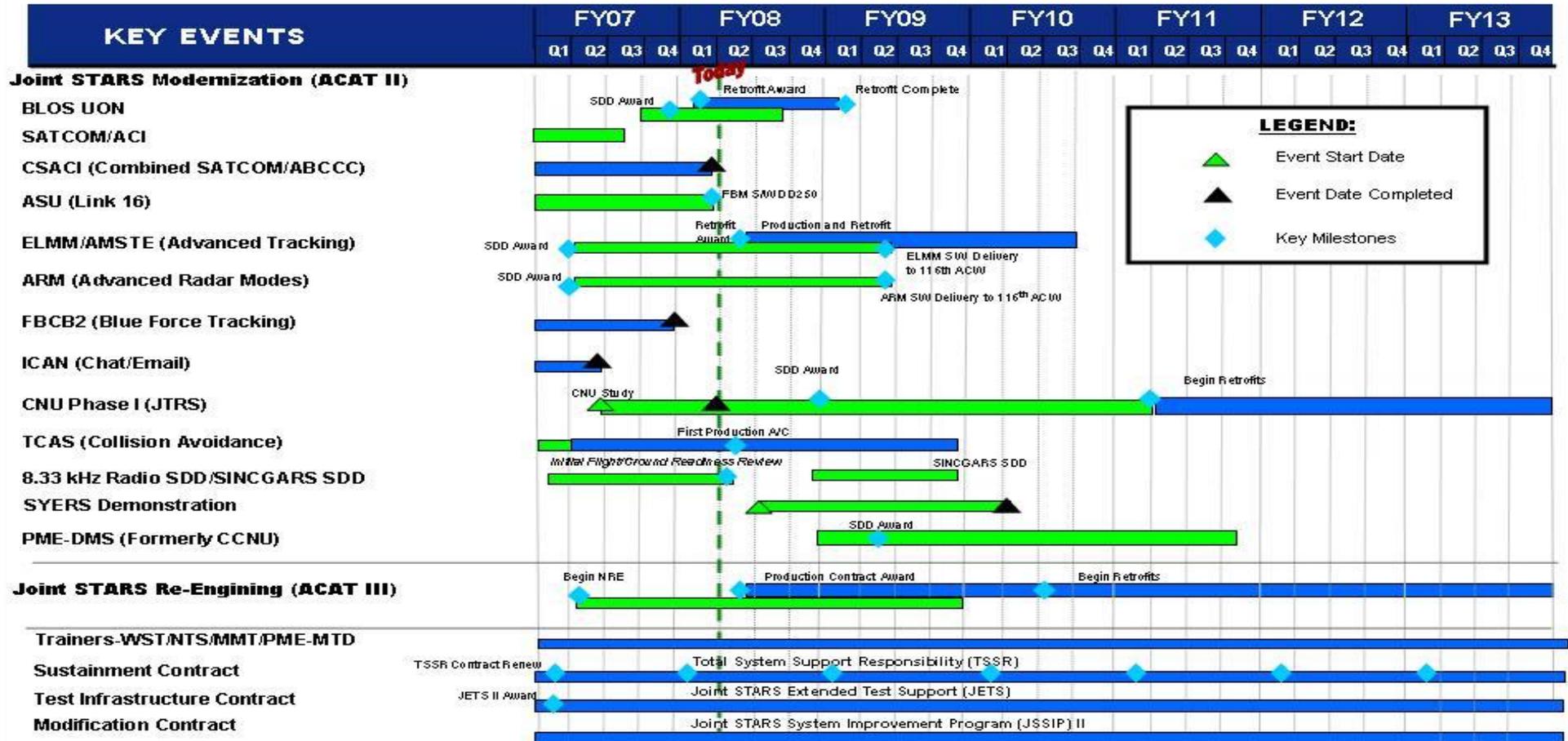
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LEGEND:

- ▲ Event Start Date
- ▲ Event Date Completed
- ◆ Key Milestones

ACRONYM KEY:		
BLOS: Beyond Line of Site -UON	CNU: Communications & Network Upgrade (JTRS, FAB-T, MP-CDL)	MMT: Mission Maintenance Trainer
AMSTE: Affordable Moving Surface Target Engagement	CSACI: Combined SATCOM/ABCCC Capability Integration (ACI)	NTS: Navigator Training Station
ARM: Advanced Radar Modes	ELMM: Enhanced Land-Maritime Mode	PME-DMS: Primary Mission Equipment-Diminishing Manufacturing Sources
ASU: Attack Support Upgrade	FBCB2: Force Battle Command Brigade & Below	PME-MTD: Primary Mission Equipment-Maintenance Training Device
CCNU: Communication Computer Net-Centric Update (JABM)	FBM: Full Battle Mgmt	TCAS: Traffic Alert & Collision Avoidance System
CNS/ATM: Communications, Navigation, Surveillance, and Air Traffic Management	ICA: Interim Capability for Airborne Networking	WST: Weapon System Trainer
	JASSM-MI: Joint air to surface Standoff Missile-Maritime Interdiction	

Development/Demo Phase

Retrofit Phase

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2008
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile			
(U) CSACI Retrofit Complete		1Q	
(U) ASU Full Battle Management, S/W DD250		1Q	
(U) PME DMS SDD Contract Award			2Q
(U) ELMM/AMSTE SDD Contract Award	1Q		
(U) ELMM/AMSTE Initial Retrofit Contract Award		2Q	
(U) ELMM/AMSTE Follow-On Retrofit Contract Award			1Q
(U) ARM/ELMM/AMSTE S/W Release to TSSR			2Q
(U) ARM Contract Award	1Q		
(U) FBCB2 Complete	4Q		
(U) ICAN Complete	2Q		
(U) CNU Phase I SDD Award		4Q	
(U) TCAS First A/C Retrofit		2Q	
(U) CNS/ATM (8.33 kHz VHF SDD) Initial Flight/Ground Readiness Review		2Q	
(U) Re-engining Begin NRE	2Q		
(U) Re-engining Production Award		2Q	
(U) BLOS Urgent Operational Need (UON) Pre-SDD Risk Reduction Contract Award	3Q		
(U) BLOS UON SDD Contract Award	4Q		
(U) BLOS Retrofit Contract Award		1Q	
(U) Begin SYERS Demonstration preparation		3Q	