PE NUMBER: 0207423F
PE TITLE: Advanced Communications Systems

Exhibit R-2, RDT&E Budget Item Justification

DATE: May 2009

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

	Cost ($ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	30.226	29.587	63.782	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4934	Tactical Air Control Party (TACP)	12.170	13.166	17.568	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5189	C2ISR JTRS Integration	18.056	16.421	46.214	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The TACP-Modernization program is acquiring new equipment to give TACPs the capability to detect targets and compute precise target coordinates for employment of GPS aided weapons, reduce the potential for fratricide, and reduce the potential for collateral damage in civilian-occupied areas. This new equipment reduces the kill chain by reducing the time required to submit air support requests, provide target information to aircraft, and ensure pilots are tracking the correct target. By reducing the time required to execute close air support missions in "troops-in-contact" situations, the TACP-M program helps reduce the number of U.S and coalition casualties due to enemy action.TACPs deploy with Army maneuver units and provide a Command and Control (C2) link for Close Air Support (CAS), airlift and AF surveillance/reconnaissance missions. TACPs are equipped with various targeting and communications equipment needed to interface with ground maneuver forces, aircraft conducting CAS operations, aerospace C2 aircraft/agencies, and Intelligence, Surveillance and Reconnaissance (ISR) platforms/agencies. The TACP-Modernization (TACP-M) program provides TACP and Air Support Operations Centers (ASOCs) personnel with the capability to precisely locate and target enemy ground forces by integrating various Laser Targeting Devices (LTD) and ultra high frequency satellite communications (UHF SATCOM) for beyond-line-of-sight (BLOS) Air Force Air Request Net operations. The purpose of the TACP-M program is to reduce reliance on voice transmission and replace analog equipment with the latest digital, data link and streaming video (e.g. Remote Operations Video Enhanced Receiver (ROVER)) technology. This capability supports joint and multinational interoperability, improves battlefield Situational Awareness (SA), increases targeting accuracy, reduces kill chain decision time, improves data flows/information exchange, and reduces potential fratricide. The TACP-M program supports the OCO and significantly increased the mission effectiveness of the TACPs and ASOCs during Operations Enduring and Iraqi Freedom. The TACP-M program continues to be instrumental in providing ground communications for TACPs during federal emergency relief operations and Homeland Defense initiatives.

TACP-M is divided into two segments: Dismounted and mounted. The dismounted TACP provides a modernized/modular capability via a streamlined acquisition using non-developmental, commercial off-the-shelf (COTS) Manpack Radios (MPR) or Handheld Radios (HHR), Targeting Devices (that include Laser Range Finding capability, Joint Effects Targeting System (JETS), and laser designators), tactical computers for dismounted and Tactical Operations Center use, and ancillary equipment combined with TACP Close Air Support System (CASS) Software. Dismounted Operations include overseas contingency operations centered around irregular (guerilla) warfare. These operations require smaller, lighter, and more capable communications systems and targeting devices to enable TACPs to operate in high altitude, rough terrain, and accurately determine target coordinates, request air support, and control air strikes in support of U.S. and coalition troops conducting dismounted patrols far from other fire support assets.

Mounted operations in overseas contingency operations also require new digital communications/network enabled capabilities for armored HMMWVs and Mine Resistant Ambush Protected (MRAP) and other support vehicle platforms used in times of conflict. Vehicle Communications System is a vital modular solution that

provides network enabled communications to the aircraft and C2 nodes throughout the area of operations.

Joint Effects Targeting System (JETS) is a 2-phase program intended to improve dismounted laser targeting devices (both range finders and designators) and targeting/communications mission software. The first phase is to develop handheld target location designation systems (TLDS) for use by all Services' dismounted operators. The second phase is to develop interoperable mission software systems. FY10 funding will be utilized for phase one implementation only.

Funding cuts toward this program will directly impact the warfighter in areas such as increased potential for fratricide, increased potential for collateral damage, increased potential for U.S. and coalition casualties in a "troops in contact" situation, the inability to conduct net-centric operations, inability to receive and display friendly force positions, inability to accurately locate targets for employment of GPS-aided munitions, inability to maintain situation awareness during operations, and the inability to communicate to airborne and C2 nodes throughout the area of operations.

AF JTRS program office will develop and support strategies to develop communication architectures, connectivy, bandwidth compatibility, radio procurement, logistics, and engineering studies to ensure waveform integration and interoperabilty among platforms and systems, in support of all AF CONOPS to ensure network voice and data exchange.

Activities also include studies and analysis to support both current program planning and execution and future program planning

This program is in budget activity 7, Operational System Development, since it examines appropriate emerging technologies for the continuing incremental development of Commercial-Off-The-Shelf (COTS) equipment, provides software development, and determines and resolves integration issues pertaining to COTS.

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

		FY 2008	FY 2009	FY 2010
(U)	Previous President's Budget	33.372	29.782	57.877
(U)	Current PBR/President's Budget	30.226	29.587	63.782
(U)	Total Adjustments	-3.146	-0.195	
(U)	Congressional Program Reductions		-0.114	
	Congressional Rescissions		-0.081	
	Congressional Increases			
	Reprogrammings	-2.218		
	SBIR/STTR Transfer	-0.928		

(U) Significant Program Changes:

FY09 and FY10 100% increase to support C2ISR platform installation kit development and radio integration to meet FY11 projected platform installation schedule.
FY10 increase to support AF share of Joint Effects Targeting System (JETS) for laser designators development

Exhibit R-2a, RDT&E Project Justification			DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE: 4934 Tactical Air Control Party (TACP)	

Cost ($ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4934 Tactical Air Control Party (TACP)	12.170	13.166	17.568	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The TACP-Modernization program is acquiring new equipment to give TACPs the capability to detect targets and compute precise target coordinates for employment of GPS aided weapons, reduce the potential for fratricide, and reduce the potential for collateral damage in civilian-occupied areas. This new equipment reduces the kill chain by reducing the time required to submit air support requests, provide target information to aircraft, and ensure pilots are tracking the correct target. By reducing the time required to execute close air support missions in "troops-in-contact" situations, the TACP-M program helps reduce the number of U.S and coalition casualties due to enemy action.TACPs deploy with Army maneuver units and provide a Command and Control (C2) link for Close Air Support (CAS), airlift and AF surveillance/reconnaissance missions. TACPs are equipped with various targeting and communications equipment needed to interface with ground maneuver forces, aircraft conducting CAS operations, aerospace C2 aircraft/agencies, and Intelligence, Surveillance and Reconnaissance (ISR) platforms/agencies. The TACP-Modernization (TACP-M) program provides TACP and Air Support Operations Centers (ASOCs) personnel with the capability to precisely locate and target enemy ground forces by integrating various Laser Targeting Devices (LTD) and ultra high frequency satellite communications (UHF SATCOM) for beyond-line-of-sight (BLOS) Air Force Air Request Net operations. The purpose of the TACP-M program is to reduce reliance on voice transmission and replace analog equipment with the latest digital, data link and streaming video (e.g. Remote Operations Video Enhanced Receiver (ROVER)) technology. This capability supports joint and multinational interoperability, improves battlefield Situational Awareness (SA), increases targeting accuracy, reduces kill chain decision time, improves data flows/information exchange, and reduces potential fratricide. The TACP-M program supports the OCO and significantly increased the mission effectiveness of the TACPs and ASOCs during Operations Enduring and Iraqi Freedom. The TACP-M program continues to be instrumental in providing ground communications during federal emergency relief operations and Homeland Defense initiatives.

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Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 4934 Tactical Air Control Party (TACP)

Joint Effects Targeting System (JETS) is a 2-phase program intended to improve dismounted laser targeting devices (both range finders and designators) and targeting/communications mission software. The first phase is to develop handheld target location designation systems (TLDS) for use by all Services' dismounted operators. The second phase is to develop interoperable mission software systems. FY10 funding will be utilized for phase one implementation only.

Funding cuts toward this program will directly impact the warfighter in areas such as increased potential for fratricide, increased potential for collateral damage, increased potential for U.S. and coalition casualties in a "troops in contact" situation, the inability to conduct net-centric operations, inability to receive and display friendly force positions, inability to accurately locate targets for employment of GPS-aided munitions, inability to maintain situation awareness during operations, and the inability to communicate to airborne and C2 nodes throughout the area of operations.

This program is in budget activity 7, Operational System Development, since it examines appropriate emerging technologies for the continuing incremental development of COTS equipment, provides software development, and determines and resolves integration issues pertaining to COTS.

(U)	**B. Accomplishments/Planned Program ($ in Millions)**	FY 2008	FY 2009	FY 2010
(U)	Continue TACP Vehicular Communication System (VCS) integration of hardware (GFE & COTS) development	5.700	5.800	1.926
(U)	Software development and systems integration	3.805	3.895	4.458
(U)	Joint Effects Targeting System (JETS)			7.000
(U)	Operational and interoperability test planning	1.370	2.151	2.818
(U)	Contractor support and systems engineering	1.295	1.320	1.366
(U)	Total Cost	12.170	13.166	17.568

(U) C. Other Program Funding Summary ($ in Millions)

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U) Advanced Communications System Other Procurement, AF PE 0207423F	99.509	68.972	99.004						Continuing	TBD

(U) D. Acquisition Strategy

The TACP-M is executing an incremental development for the TACP CASS software. TACP CASS software systems engineering, design, integration, and fielding support is being provided under a cost plus fixed fee contract. TACP-M awarded a fixed price contract for the Vehicular Communication System (VCS) in FY09 under full and open competition. This contract will deliver an integrated system (mounted/dismounted) with an emphasis on Reduced Total Ownership Cost (RTOC) over the life cycle of the program.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: May 2009

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE: 4934 Tactical Air Control Party (TACP)

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
ESC Sys Int Software Dev't	CPFF	Rockwell Collins, Poway, CA	4.392	3.540	Dec-07	3.895	Mar-09	4.458	Jan-10	Continuing	TBD	TBD
VCS (MRC-144 Upgrade)	FFP	BAE Systems, Inc., Rockville, MD	5.700	5.700	Dec-08	5.800	Dec-08	1.926	Jan-10	Continuing	TBD	
JETS	TBD	TBD	0.000	0.000		0.000		7.000			7.000	
Subtotal Product Development			10.092	9.240		9.695		13.384		Continuing	TBD	TBD
Remarks: Vehicular Communication System (VCS) GFE & COTS hardware integration												
(U) Support												
System Engineering/Software Development	C/FFP	Various	0.000	0.265	Apr-08	0.000				Continuing	TBD	TBD
Subtotal Support			0.000	0.265		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) Test & Evaluation												
Test Agency Support	Various	Various	1.526	1.370	Dec-07	2.151	Dec-08	2.818	Dec-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			1.526	1.370		2.151		2.818		Continuing	TBD	TBD
Remarks:												
(U) Management												
Support	Various	Various	1.519	1.295	Feb-08	1.320	Jan-09	1.366	Jan-10	Continuing	TBD	TBD
Subtotal Management			1.519	1.295		1.320		1.366		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			13.137	12.170		13.166		17.568		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE May 2009
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 4934 Tactical Air Control Party (TACP)

TACP-M Program Schedule

As of 20 Apr 09

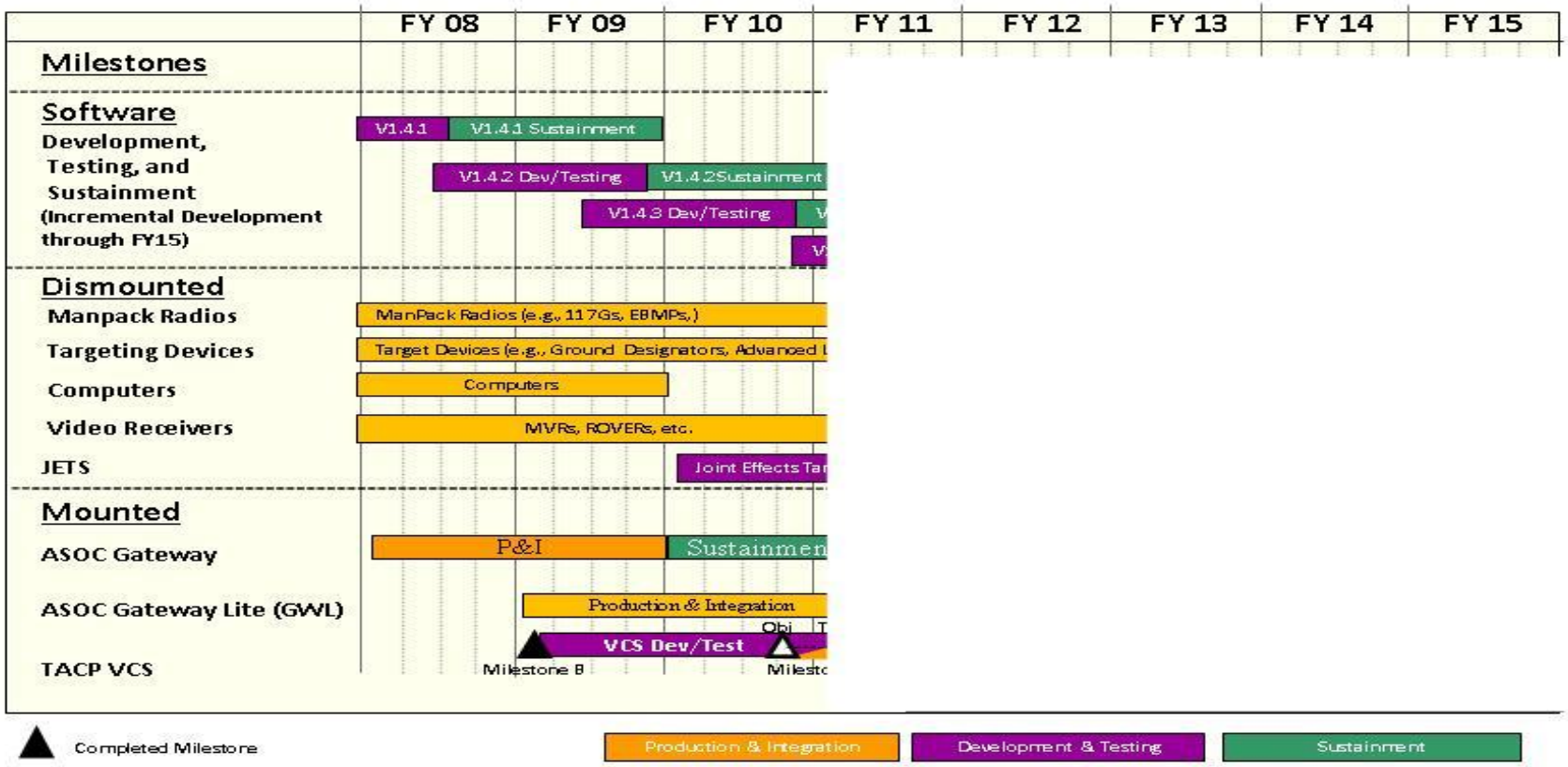

Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0207423F Advanced Communications Systems**	PROJECT NUMBER AND TITLE **4934 Tactical Air Control Party (TACP)**

(U) **Schedule Profile**	FY 2008	FY 2009	FY 2010
(U) Software Development - TACP-CASS v1.4.1	1-2Q		
(U) Software Development - TACP-CASS v1.4.2	2-4Q	1-4Q	
(U) Software Development - TACP-CASS v1.4.3		2-4Q	1-3Q
(U) Software Development - TACP-CASS v1.4.4			4Q
(U) Laser Targeting Device - Dismounted (JETS)			1-4Q
(U) VCS Milestone (MS) B		1Q	
(U) VCS Development		1-4Q	1-4Q
(U) VCS Milestone (MS) C (Obj)			4Q

Exhibit R-2a, RDT&E Project Justification			DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE: 5189 C2ISR JTRS Integration	

Cost ($ in Millions)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5189	C2ISR JTRS Integration	18.056	16.421	46.214	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

Joint Tactical Radio System (JTRS), as part of the broader and crucial Airborne Network used in a combat environment, will be a family of software programmable radios for reliable multi-channel voice, data, imagery, and video communications, as well as necessary gateways, routers or other associated components to achieve an IP-based networking capability. JTRS radios will be modular, scalable, and network ready. Legacy and other available upgraded communication products will be utilized until JTRS products, developed by the JTRS JPEO or other qualified vendors, are available. The AF JTRS program office will execute funding that provides capabilities on various platforms.

AF JTRS program office will develop and support strategies to develop communication architectures, connectivy, bandwidth compatibility, radio procurement, logistics, and engineering studies to ensure waveform integration and interoperabilty among platforms and systems, in support of all AF CONOPS to ensure unprecedented network voice and data exchange.

This program is in Budget Activity 7, Operational System Development, since it supports integration of JTRS products and legacy radios into operational systems.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010
(U) System Engineering, Planning, and Integration	15.675	15.253	42.842
(U) Platform Planning and Integration	1.376	0.330	0.940
(U) Develop Operational and Interoperability	1.005	0.838	2.432
(U) Total Cost	18.056	16.421	46.214

(U) C. Other Program Funding Summary ($ in Millions)

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U) Advanced Communication System-Aircraft Procurement, AF PE 0207423F	21.144	66.670	12.796						Continuing	TBD
(U) Advanced Communication System-Other Procurement, AF PE 0207423F	44.276	87.291	59.771						Continuing	TBD

(U) D. Acquisition Strategy

Air Force JTRS integration will perform system engineering integration, to deliver an interoperable, fully synchronized, deployable JTRS system under various

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0207423F Advanced Communications Systems**	PROJECT NUMBER AND TITLE **5189 C2ISR JTRS Integration**

contract awards. This effort will assist various AF platform efforts to acquire and integrate the next generation communications system, to include all key documentation (CONOPS, TTPs, ICDs, TRDs, etc.)

Exhibit R-3, RDT&E Project Cost Analysis

DATE: May 2009

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE: 5189 C2ISR JTRS Integration

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Systems Engineering, Planning, and Integration	C/FFP	Northrop Grumman, Melbourne, FL	1.600	1.600	Feb-08	4.820	Feb-09	21.830	Feb-10	Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	MIPR	Northrop Grumman, Wright-Patterson AFB, OH	2.800	2.800	Jul-08					Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	C/FFP	General Atomics, San Diego, CA	3.100	3.300	Jul-08			4.500	Feb-10	Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	C/FFP	L3COM IS, Greenville, TX	1.500	3.557	Jul-08	3.000	Feb-09			Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	Various	Various	3.405	4.418	Jul-08	7.433	Feb-09	16.512	Feb-10	Continuing	TBD	TBD
Subtotal Product Development			12.405	15.675		15.253		42.842		Continuing	TBD	TBD
Remarks:												
(U) Planning and Integration												
	MIPR	ASC/AA Various	7.530	1.376	Feb-08	0.330	Feb-09	0.940	Feb-10		10.176	
Subtotal Planning and Integration			7.530	1.376		0.330		0.940		0.000	10.176	0.000
Remarks:												
(U) Development operational amd interoperability test												
	MIPR	Test Agency Support		1.005	Jul-08	0.838	Feb-09	2.432	Feb-10		4.275	
Subtotal Development operational amd interoperability test			0.000	1.005		0.838		2.432		0.000	4.275	0.000
Remarks:												
(U) Total Cost			19.935	18.056		16.421		46.214		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE May 2009
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE 5189 C2ISR JTRS Integration

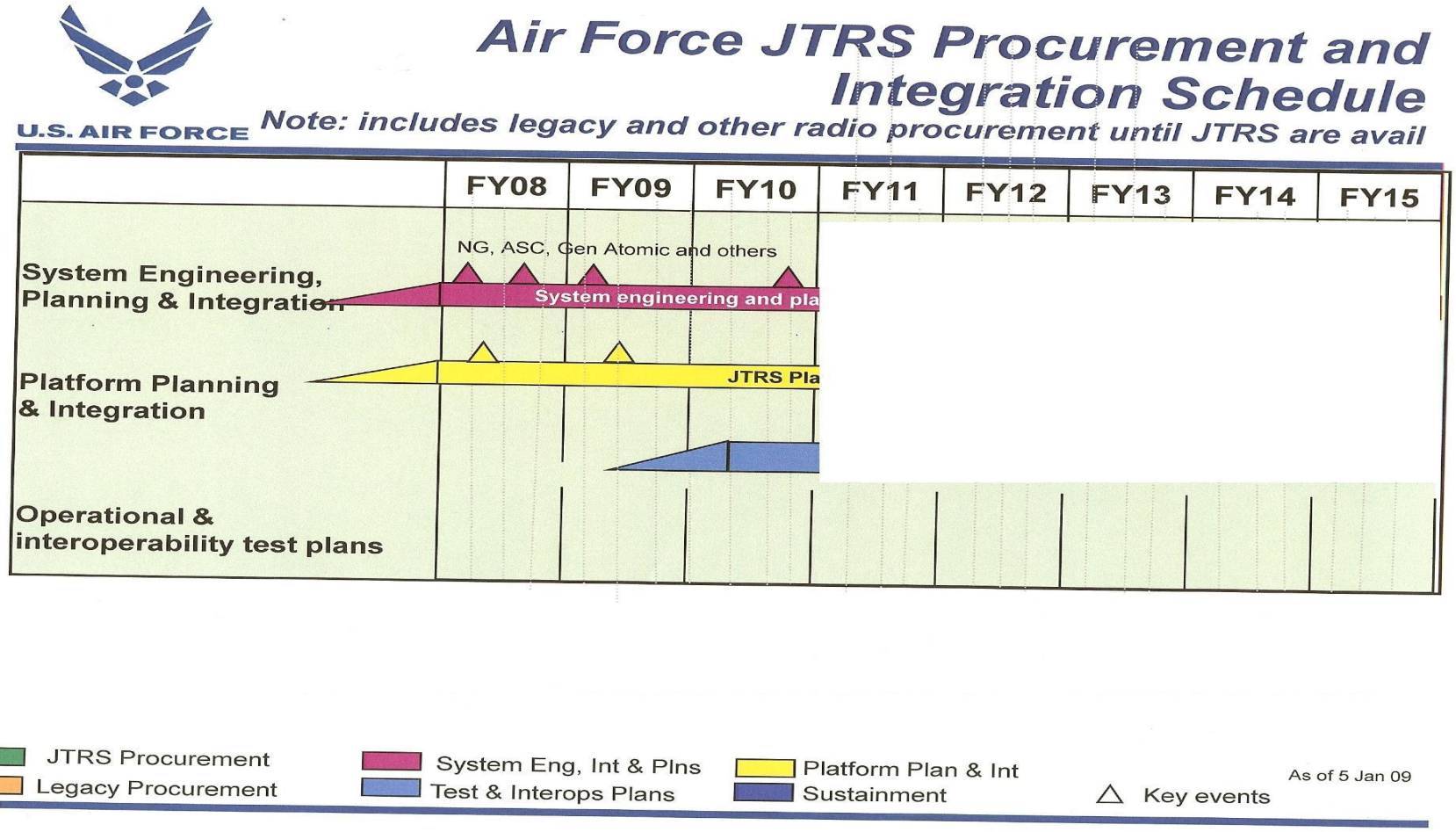

Exhibit R-4a, RDT&E Schedule Detail		DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0207423F Advanced Communications Systems	PROJECT NUMBER AND TITLE: 5189 C2ISR JTRS Integration

(U) Schedule Profile	FY 2008	FY 2009	FY 2010
(U) Systems Engineering	1-4Q	1-4Q	1-4Q
(U) Planning and Integration	1-4Q	1-4Q	1-4Q
(U) Operational & Interoperability Test Planning		2-4Q	1-4Q