Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	28.210	73.009	67.532	0.000	67.532	71.459	71.693	64.893	65.545	Continuing	Continuing
674934: *Tactical Air Control Party (TACP)*	12.246	26.943	17.298	0.000	17.298	17.494	17.421	10.829	10.698	Continuing	Continuing
675189: *C2ISR JTRS Integration*	15.964	46.066	50.234	0.000	50.234	53.965	54.272	54.064	54.847	Continuing	Continuing

A. Mission Description and Budget Item Justification

The TACP-Modernization (TACP-M) 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-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. Upgraded digital communications enable machine-to machine interface between TACPs and Close Air Support (CAS) aircraft, Army units and other TACP units. Machine-to-Machine communication provides reliable, high speed digital communications, ultimately 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 Overseas Contingency Operations (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 three segments: Dismounted, mounted, and software. The dismounted TACP provides a modernized/modular capability via a streamlined acquisition using non-developmental, off-the-shelf (OTS) Manpack Radios (MPR) or Handheld Radios (HHR), laser targeting devices (LTDs) that include Laser Range Finder (LRFs), Joint Effects Targeting System (JETS), and laser designators, and imagers), tactical computers for dismounted and Tactical Operations Center use, and ancillary equipment combined with TACP Close Air Support System (CASS) software. The mounted TACP Vehicular Communications System (VCS) is an upgrade of the existing TACP communications systems with new Software Communication Architecture (SCA)-CERTIFIED, Joint Tactical Radio System (JTRS) or available

software programmable radios and some legacy radios and ancillary components, which provides reliable communications for CAS operations. TACP-M will integrate Internet Protocol (IP)-capable, SCA radios for voice & data UHF SATCOM and LOS UHF / VHF communications. TACP-M funds will continue to develop systems integration software (for dismounted and mounted) for multiple air/ground platforms (e.g. JETS (TECS software development), Small Diameter Bomb II (SDBII), F-35, Mine Resistant Ambush Protected (MRAP) vehicle, Gateway Lite, and ASOC Gateway vehicle) and will provide interoperability datalinks such as Situational Awareness Data Link (SADL), Link-16 and other transformational communications capabilities

Mounted operations in overseas contingency operations also require new digital communications/network enabled capabilities for armored High Mobility, Multi-Wheeled Vehicle (HMMWV)s and Mine Resistant Ambush Protected (MRAP) and other support vehicle platforms used in times of conflict. Vehicle Communications System (VCS) is a vital modular solution that provides network enabled communications to the aircraft and C2 nodes throughout the area of operations.

Joint Tactical Radio Systems (JTRS) will link the power of the Global Information Grid (GIG) to the warfighter in applying fire effects and achieving overall battlefield superiority. By developing and implementing an open architecture of cutting-edge radio waveform technology, multiple radio types (e.g., handheld, ground-mobile, airborne, maritime, etc.) are now allowed to communicate with one another. The ultimate goal is to produce a family of interoperable, modular, software-defined radios that operate as nodes in a network to ensure secure wireless communication and networking services for mobile and fixed forces. These goals extend to U.S. allies, joint and coalition partners, and, in time, disaster response personnel. JTRS is critical to serving as the "last tactical mile" connecting the warfighter on the ground into the networking capabilities that are delivered through the GIG. As a critical component of the DoD network-centric transformation effort, JTRS provides:
Ad-hoc networked communications on-the-move and at the tactical edge to support information sharing and combat readiness - the most challenging requirement, representing the highest capability payoff; Interoperability through a common set of shared open system standards and applications, including the Software Communications Architecture; Cost savings via an 'open' Enterprise Business Model promoting competition; Tactical voice, video, and data battlefield communications when reach back is not possible.

JTRS will make the Air Force more effective in Joint warfighting through a series of new, joint networking waveforms. JTRS radios are software defined, digital radios capable of running software defined legacy waveforms. JTRS will provide next generation SATCOM beyond-line-of-sight communication capability, to replace UHF DAMA SATCOM, which is nearing the end of its life cycle, through the Mobile User Objective System (MUOS) waveform. It will also provide the Wideband Networking Waveform (WNW) and Soldier Radio Waveform (SRW) which, in combination, provide interoperability with the Army, from the brigade level, down to the dismounted soldier, enabling Joint Close Air Support (JCAS), Combat Search and Rescue (CSAR) and other Joint missions.

To successfully integrate these digital radios on Air Force platforms, displaying information received and transmitted over these radios for operator use, and integrating JTRS information with information from other aircraft systems, non-recurring engineering investment in JTRS "A-Kit" items is required. The JTRS A-Kit includes racks, cabling, digital processors and data displays necessary to integrate JTRS radio sets, or B-Kits, onto multiple Air Force platforms. Air Force will continue looking for solutions for the Joint Aerial Networking-Tactical Edge (JAN-TE) requirement.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207423F: *Advanced Communications Systems*

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

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	29.587	73.157	0.000	0.000	0.000
Current President's Budget	28.210	73.009	67.532	0.000	67.532
Total Adjustments	-1.377	-0.148	67.532	0.000	67.532
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	9.375			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-1.377	-9.523	67.532	0.000	67.532

Change Summary Explanation

FY10 increase to support Command & Control, Intelligence, Surveillance, and Reconaissance (C2ISR) platform installation kit development and radio integration to meet FY11 projected platform installation schedule.

FY10-13 increase to support AF share of Joint Effects Targeting System (JETS) for laser designators development.

FY10 funding for ROVER FMV encryption ($9.375M) inadvertently reported in this PE, but will be moved to PE 0207277F.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 674934: *Tactical Air Control Party (TACP)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
674934: *Tactical Air Control Party (TACP)*	12.246	26.943	17.298	0.000	17.298	17.494	17.421	10.829	10.698	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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. Upgraded digital communications enable machine-to-machine interfaes between TACPs and Close Air Support (CAS) aircraft, Army units, and other TACP units. Machine-to-Machine communication provides for reliable, high-speed digital communications, that ultimately 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.

TACP-M is divided into three segments: Dismounted, mounted, and software. The dismounted TACP provides a modernized/modular capability via a streamlined acquisition using non-developmental, off-the-shelf (OTS) Manpack Radios (MPR) or Handheld Radios (HHR), laser targeting devices (LTDs that include Laser Range Finder (LRFs), Joint Effects Targeting System (JETS), and laser designators and imagers), tactical computers for dismounted and Tactical Operations Center use, and ancillary equipment combined with TACP Close Air Support System (CASS) software. The mounted TACP Vehicular Communications System (VCS) is an upgrade of the existing TACP analog only communications systems with new Software Communications Architecture (SCA)-certified, Joint Tactical Radio System (JTRS) approved radios and some legacy radios and ancillary components, which provides reliable digital and voice communications for CAS operations. TACP-

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 674934: *Tactical Air Control Party (TACP)*

M will integrate Internet Protocol (IP)-capable, SCA radios for voice & data UHF SATCOM and LOS UHF / VHF communications. TACP-M funds will continue to develop systems integration software (for dismounted and mounted) for multiple air/ground platforms (e.g. JETS (TECS software development), Small Diameter Bomb II (SDBII), F-35, Mine Resistant Ambush Protected (MRAP) vehicle, Gateway Lite, and ASOC Gateway vehicle) and will provide interoperability datalinks such as Situational Awareness Data Link (SADL), Link-16 and other transformational communications capabilities

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 mobile TACPs network enabled communications in order to communicate with aircraft and C2 nodes throughout the area of operations.

Activities also include studies and analysis to both current program planning and execution 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 OTS equipment, provides software development, and determines and resolves integration issues pertaining to OTS.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Vehicle Communications System (VCS) - Design, develop, fabricate, integrate , test, provide associated documentation (e.g. technical manuals) in support of delivering a digital multip...	7.895	4.432	3.037	0.000	3.037
FY 2009 Accomplishments: In FY 2009: Initiated the design/development/documentation/testing of the VCS for integration into High Mobility Multi-Wheeled Vehicles (HMMWVs). Completed development efforts up to Critical Design Review (CDR). This effort required contractor and engineering support to accomplishing the engineering, management, and test planning activities.					
FY 2010 Plans: In FY 2010: Complete the design/development/documentation of the VCS for integration into High Mobility Multi-Wheeled Vehicles (HMMWVs). Fabricate and integrate VCS developmental units into HMMWVs for contractor, qualification, and operational testing and evaluation of the VCS. Complete					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
all contractor and qualification testing. Start detailed operational test planning and activities. Initiate study and development effort to integrate VCS into an additional TACP vehicle type (e.g. Stryker). This effort requires contractor and engineering support to accomplish the engineering, management, and test planning activities. *FY 2011 Base Plans:* In FY 2011: Complete operational testing and other management activities to support Milestone C production decision. Continue development effort to integrate VCS into additional TACP vehicle type (e.g. Stryker). Continue investigating additional vehicle types for integration of VCS. This effort requires contractor and engineering support to accomplish the engineering, management, and test planning activities. *FY 2011 OCO Plans:* In FY2011 OCO: N/A					
MAJOR THRUST: Close Air Support System (CASS) Software - Upgrade TACP digital communications mission software to enable machine-to-machine (MTM) interfaces between TACPs and multiple systems (e.g. ... *FY 2009 Accomplishments:* In FY 2009: Developed new interfaces allowing the Joint Terminal Attack Controller (JTAC) forward to communicate MTM with multiple aircraft and C2 nodes across the battlefield. Developed Link 16 C2 compliant architecture at the Air Support Operations Center Gateway component level; allowing a JTAC to enter the Link 16 network from anywhere on the battlefield. This effort included contractor support, engineering support, test and evaluation. This effort also included support to the Joint Digital Aided Close Air Support (DACAS) initiative to drive all major players in the Close CAS arena to a common standard, thus providing a truly Joint environment.	4.351	6.136	7.261	0.000	7.261

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 674934: *Tactical Air Control Party (TACP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In FY 2010: Develop new MTM interfaces to Small Diameter Bomb II and Joint Strike Fighter (F35). Develop new MTM interfaces with C2 nodes and aircraft across the USAF, Joint, and Coalition environment and as well as developing new capabilities to satisfy ORD requirements. Develop, integrate, and test CASS mission software to be hosted on VCS. This effort will include contractor support, engineering support, test and evaluation. This effort also continues support to the Joint Digital Aided Close Air Support (DACAS) initiative to drive all major players in the Close CAS arena to a common standard. *FY 2011 Base Plans:* In FY 2011: Continue to develop new MTM interfaces to Small Diameter Bomb II and Joint Strike Fighter (F35). Develop new interfaces with Joint Air Ground Integration Cell, C2 nodes, and aircraft across the USAF, Joint, and Coalition environment as well as developing new capabilities to satisfy ORD requirements. This effort will include contractor support, engineering support, test and evaluation. This effort also continues support to the Joint Digital Aided Close Air Support (DACAS) initiative to drive all major players in the Close CAS arena to a common standard. *FY 2011 OCO Plans:* In FY2011 OCO: N/A					
MAJOR THRUST: Joint Effect Targeting System (JETS) - An Army-led program to develop, integrate, and test an integrated CAS targeting system that is smaller, lighter, and more accurate than current... *FY 2009 Accomplishments:* In FY 2009: Supported a TECS test excursion. N/A *FY 2010 Plans:* In FY 2010: AF funds will support the development of a prototype TLDS system through the JETS program office. The primary TLDS capability requirements are; provide a reduction in hardware	0.000	7.000	7.000	0.000	7.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
weight from current similar systems; provide a highly accurate target location capability, and achieve connectivity for TECS. In support to the over-all JETS requirement, total targeted weight for all hardware shall be at or under a total system weight of seventeen, 17 pounds with all supporting items including power sources. Support two TECS test excursions. This effort includes contractor support, engineering support, and test and evaluation. *FY 2011 Base Plans:* In FY 2011: AF funds will continue support the development of a prototype TLDS system through the JETS program office. The primary TLDS capability requirements are; provide a reduction in hardware weight from current similar systems; provide a highly accurate target location capability, and achieve connectivity for TECS. Support TECS test excursions. This effort includes contractor support, engineering support, and test and evaluation. *FY 2011 OCO Plans:* In FY 2011 OCO: N/A					
MAJOR THRUST: Funding for ROVER FMV encryption inadvertently placed in this PE, and will be transferred to correct PE, 0207277F *FY 2009 Accomplishments:* In FY 2009: N/A *FY 2010 Plans:* In FY 2010: Continuation of above listed activities *FY 2011 Base Plans:* In FY 2011: N/A	0.000	9.375	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 674934: *Tactical Air Control Party (TACP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: In FY 2011 OCO: N/A					
Accomplishments/Planned Programs Subtotals	12.246	26.943	17.298	0.000	17.298

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0207423F: *Advanced Communications System, (OPAF)*	76.295	64.815	133.494	0.000	133.494	137.686	135.159	108.808	108.299	0.000	0.000

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 development contract (with options for production) 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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ESC Sys Int Software Dev't	C/CPFF	Rockwell Collins Poway, CA	1.317	2.601	Jan 2010	4.577	Jan 2011	0.000		4.577	Continuing	Continuing	Continuing
VCS (MRC-144 Upgrade)	C/FFP	BAE Systems, Inc Rockville, MD	6.967	2.230	Jan 2010	2.239	Jan 2011	0.000		2.239	Continuing	Continuing	Continuing
JETS/TDLS	MIPR	Army - SSL Division Ft Belvoir, VA	0.000	6.650	Mar 2010	7.000	Mar 2011	0.000		7.000	Continuing	Continuing	Continuing
ROVER FMV encryption	TBD/TBD	TBD TBD	0.000	9.375	Mar 2010	0.000		0.000		0.000	0.000	9.375	0.000
		Subtotal	8.284	20.856		13.816		0.000		13.816			

Remarks

Funds for ROVER transferred to PE 0207277F; NVESD Omnibus.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	TBD/TBD	TBD TBD	1.051	1.104		1.291		0.000		1.291	Continuing	Continuing	Continuing
		Subtotal	1.051	1.104		1.291		0.000		1.291			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 674934: *Tactical Air Control Party (TACP)*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Agency Support	Various/ Various	Various Various	2.683	3.100	Dec 2009	1.999	Dec 2010	0.000		1.999	Continuing	Continuing	Continuing
		Subtotal	2.683	3.100		1.999		0.000		1.999			

Remarks

Development, operational and interoperability testing

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Support	Various/ Various	Various Various	0.228	1.883	Jan 2010	0.192	Jan 2011	0.000		0.192	Continuing	Continuing	Continuing
		Subtotal	0.228	1.883		0.192		0.000		0.192			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.246	26.943		17.298		0.000		17.298			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force			DATE: February 2010
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	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 674934: *Tactical Air Control Party (TACP)*

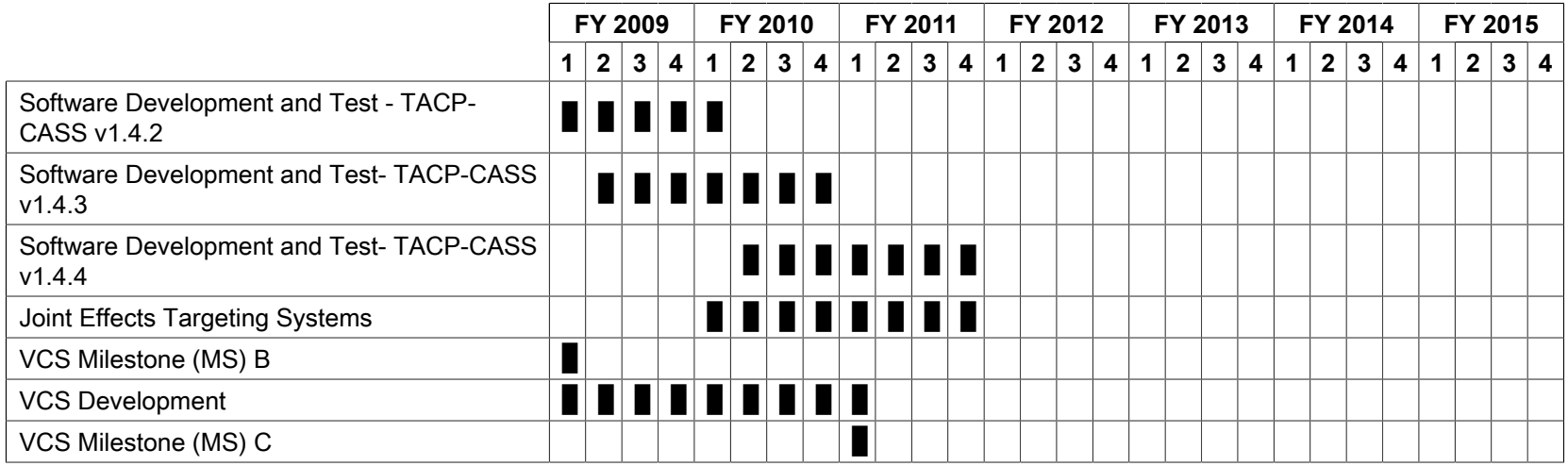

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207423F: *Advanced Communications Systems*	**PROJECT** 674934: *Tactical Air Control Party (TACP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Software Development and Test - TACP-CASS v1.4.2	1	2009	1	2010
Software Development and Test- TACP-CASS v1.4.3	2	2009	4	2010
Software Development and Test- TACP-CASS v1.4.4	2	2010	4	2011
Joint Effects Targeting Systems	1	2010	4	2011
VCS Milestone (MS) B	1	2009	1	2009
VCS Development	1	2009	1	2011
VCS Milestone (MS) C	1	2011	1	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 675189: *C2ISR JTRS Integration*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
675189: *C2ISR JTRS Integration*	15.964	46.066	50.234	0.000	50.234	53.965	54.272	54.064	54.847	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Joint Tactical Radio Systems (JTRS) will link the power of the Global Information Grid (GIG) to the warfighter in applying fire effects and achieving overall battlefield superiority. By developing and implementing an open architecture of cutting-edge radio waveform technology, multiple radio types (e.g., handheld, ground-mobile, airborne, maritime, etc.) are now allowed to communicate with one another. The ultimate goal is to produce a family of interoperable, modular, software-defined radios that operate as nodes in a network to ensure secure wireless communication and networking services for mobile and fixed forces. These goals extend to U.S. allies, joint and coalition partners, and, in time, disaster response personnel. JTRS is critical to serving as the "last tactical mile" connecting the warfighter on the ground into the networking capabilities that are delivered through the GIG. As a critical component of the DoD network-centric transformation effort, JTRS provides:
Ad-hoc networked communications on-the-move and at the tactical edge to support information sharing and combat readiness - the most challenging requirement, representing the highest capability payoff; Interoperability through a common set of shared open system standards and applications, including the Software Communications Architecture; Cost savings via an 'open' Enterprise Business Model promoting competition; Tactical voice, video, and data battlefield communications when reach back is not possible.

JTRS will make the Air Force more effective in Joint warfighting through a series of new, joint networking waveforms. JTRS radios are software defined, digital radios capable of running software defined legacy waveforms. JTRS will provide next generation SATCOM beyond-line-of-sight communication capability, to replace UHF DAMA SATCOM, which is nearing the end of its life cycle, through the Mobile User Objective System (MUOS) waveform. It will also provide the Wideband Networking Waveform (WNW) and Soldier Radio Waveform (SRW) which, in combination, provide interoperability with the Army, from the brigade level, down to the dismounted soldier, enabling Joint Close Air Support (JCAS), Combat Search and Rescue (CSAR) and other Joint missions.

To successfully integrate these digital radios on Air Force platforms, displaying information received and transmitted over these radios for operator use, and integrating JTRS information with information from other aircraft systems, non-recurring engineering investment in JTRS "A-Kit" items is required. The JTRS A-Kit includes racks, cabling, digital processors and data displays necessary to integrate JTRS radio sets, or B-Kits, onto multiple Air Force platforms. Air Force will continue looking for solutions for the Joint Aerial Networking-Tactical Edge (JAN-TE) requirement.

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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 675189: *C2ISR JTRS Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Systems engineering and integration to assist platforms in acquiring and integrating various JTRS systems. *FY 2009 Accomplishments:* In FY 2009: Funds system engineering and integration to deliver an interoperable, fully synchronized, and deployable JTRS system. *FY 2010 Plans:* In FY 2010: Funds system engineering and integration to deliver an interoperable, fully synchronized, and deployable JTRS system. *FY 2011 Base Plans:* In FY 2011: Funds system engineering and integration to deliver an interoperable, fully synchronized, and deployable JTRS system. *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.	15.612	38.827	47.947	0.000	47.947
MAJOR THRUST: Program office support to include platform planning and integration *FY 2009 Accomplishments:* In FY 2009:Funds technical, engineering, and enterprise architecture support to MAJCOMs developing operational requirements and CONOPs. *FY 2010 Plans:* In FY 2010:Funds technical, engineering, and enterprise architecture support to MAJCOMs developing operational requirements and CONOPs.	0.352	1.036	1.130	0.000	1.130

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: In FY 2011:Funds technical, engineering, and enterprise architecture support to MAJCOMs developing operational requirements and CONOPs. *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.					
MAJOR THRUST: Interoperability testing and evalution to perform risk reduction to ensure successful platform integration. *FY 2009 Accomplishments:* In FY 2009: N/A *FY 2010 Plans:* In FY 2010: Funds are used for EDMs to perform interoperability testing and evaluation on various platforms. Extensive evaluations and reporting to be accomplished. *FY 2011 Base Plans:* In FY 2011: Funds are used for EDMs to perform interoperability testing and evaluation on various platforms. Extensive evaluations and reporting to be accomplished. *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.	0.000	6.203	1.157	0.000	1.157
Accomplishments/Planned Programs Subtotals	15.964	46.066	50.234	0.000	50.234

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0207423F: *Advanced Communication System, (APAF)*	61.740	12.755	11.571	0.000	11.571	177.312	256.181	223.404	249.251	0.000	0.000
• PE 0207423F (1): *Advanced Communication System, (OPAF)*	87.291	59.591	31.693	0.000	31.693	199.515	156.096	298.801	340.180	0.000	0.000

D. Acquisition Strategy

Air Force JTRS Procurement and Integration Office will perform system engineering integration, to deliver an interoperable, fully synchronized, deployable JTRS system under various contract awards. This effort will assist various AF platform in acquiring and integrating the next generation communications system, to include all key documentation (CONOPS, TTPs, ICDs, TRDs, etc.)

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 675189: *C2ISR JTRS Integration*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering, Planning, and Integration-1	SS/CPIF	Northrop Grumman Melbourne, FL	4.820	21.830	Feb 2010	14.770	Feb 2011	0.000		14.770	Continuing	Continuing	Continuing
Systems Engineering, Planning, and Integration-2	SS/CPIF	Boeing and Lockheed Martin Various	0.000	2.497	Feb 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering, Planning, and Integration-3	SS/CPIF	General Atomics San Diego, CA	0.000	4.500	Feb 2010	9.000	Feb 2011	0.000		9.000	Continuing	Continuing	Continuing
Systems Engineering, Planning, and Integration-4	C/CPFF	L3COM IS Greenville, TX	3.000	0.000		3.820	Feb 2011	0.000		3.820	Continuing	Continuing	Continuing
Systems Engineering, Planning, and Integration-5	SS/CPIF	Rockwell Collins Various	7.792	10.000	Feb 2010	4.100	Feb 2011	0.000		4.100	Continuing	Continuing	Continuing
Systems Engineering, Planning, and Integration-6	Various/ Various	Various Various	0.000	0.000		16.257	Feb 2011	0.000		16.257	0.000	16.257	0.000
		Subtotal	15.612	38.827		47.947		0.000		47.947			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 675189: *C2ISR JTRS Integration*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Office Support	Various/ Various	Various Various	0.352	1.036	Feb 2010	1.130	Feb 2011	0.000		1.130	0.000	2.518	0.000
		Subtotal	0.352	1.036		1.130		0.000		1.130	0.000	2.518	0.000

Remarks

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Interoperability Test (EDMs)	MIPR	Various Various	0.000	6.203	Feb 2010	1.157		0.000		1.157	0.000	7.360	0.000
		Subtotal	0.000	6.203		1.157		0.000		1.157	0.000	7.360	0.000

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.964	46.066		50.234		0.000		50.234			

Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207423F: *Advanced Communications Systems*	PROJECT 675189: *C2ISR JTRS Integration*

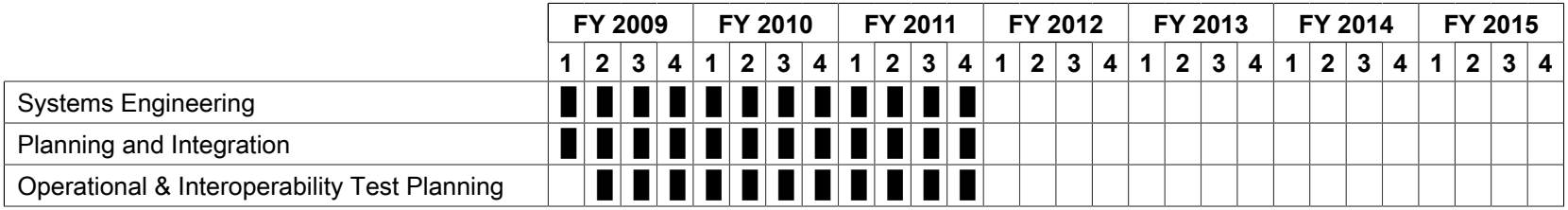

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207423F: *Advanced Communications Systems*	**PROJECT** 675189: *C2ISR JTRS Integration*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Systems Engineering	1	2009	4	2011
Planning and Integration	1	2009	4	2011
Operational & Interoperability Test Planning	2	2009	4	2011