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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Air Force	DATE: February 2011
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APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				PE 0207449F: <i>C2 Constellation</i>							
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	29.378	24.229	18.102	-	18.102	18.113	16.869	-	-	Continuing	Continuing
675078: <i>Horizontal Integration</i>	15.356	10.863	8.365	-	8.365	8.522	8.516	-	-	Continuing	Continuing
675140: <i>Joint Expeditionary Force Experiments</i>	14.022	13.366	9.737	-	9.737	9.591	8.353	-	-	Continuing	Continuing

Note

The program funding includes reductions for efficiencies that are not intended to impact program content. The efficiencies reductions total \$2.262M in FY12.

A. Mission Description and Budget Item Justification

The Command and Control Constellation (C2C) is the primary Air Force program for defining, developing and assessing integrated effects of global, theater and tactical level Air Force air, space and cyber Command and Control (C2) capabilities in support of the joint warfighter. The Air Force faces a complex future where conflict will range across a broad spectrum of operations and lethality. The Air Force requires capabilities with the maximum possible flexibility to deal with the widest possible range of conflict. The black and white distinction between irregular war and conventional war is an outdated model. Near-peers will use irregular or asymmetric tactics that target traditional strengths. Irregular warfare brings non-conventional adversaries that require non-conventional approaches for defeating them. The C2C is the enabling PE for future C2 Integration/Modernization. The Air Force is working to establish a C2 Framework to be used as a unifying vision of command and control for each of the services core functions and core function master plans. C2C will support the C2 Framework by providing a venue for prototyping, experimentation and innovation to develop non-conventional solutions and enable an improved "sense-to-kill" cycle time. C2C innovations and experimentation provides strategic, operational, and tactical direction for Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) solutions to facilitate the integration of Global Effects that support Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) planning and execution for air, space, and cyberspace. In-depth development and analyses of C2C operational, systems, and technical architectures are geared towards identifying capability gaps, identifying required "TO BE" information services, and evaluating Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) program planned improvements. Through prototyping and experimentation, C2C will integrate rapidly developing technologies to promote common standards, data sharing and information services across Air Force and joint warfighting applications to support a networkcentric, joint enterprise solution to address these findings. C2C innovations will develop consistent with the Joint Airborne Layer Network (JALN) Initial Capabilities Document.

Project 5078, Horizontal Integration (HI) conducts DOTMLPF analysis and assessments to guide cross-cutting net-centric, C2ISR sub-enterprise and cyberspace investment decisions that integrate USAF capabilities into joint and coalition operations. HI identifies, prioritizes, and develops horizontally integrated solution recommendations to ensure the latest technologies and information services are integrated into a cross cutting net centric C2 system that enables integrated Global Effects in all warfighter domains. The Fiscal Year 2012 strategy will be validated by HQ AF/A3 and AF/A5 to ensure that initiatives are harmonized with the most urgent warfighter needs described in the Air Force Capabilities Review and Risk Assessment and the Joint Forces Command Warfighter challenge program. Once validated, HI funds are applied toward identifying the most critical warfighter capabilities and ensuring they are horizontally integrated into both Air Force and Joint C2ISR programs of record.

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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>
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Project 5140, Joint Expeditionary Force Experiments (JEFX) has transitioned from a large biennial warfighting experiment to more agile, smaller and frequent innovation-focused experiments leading to pre-fielding operational assessments. Constructive, live-fly and virtual force operationally representative warfighter environments are created to focus on critical C2ISR areas of interest that support the Joint warfighter. This includes C2ISR innovation that supports the air, space and cyberspace domains. JEFX provides a vehicle for experimentation with emerging operational concepts and attendant new technologies that fill operational gaps in Air Force capabilities to meet emerging real world threats. The JEFX strategy is validated by Headquarters Air Combat Command (HQ ACC) and coordinated with AF/A3 and A5 ensuring initiatives are harmonized with the most urgent warfighter needs described in the Air Force Capabilities Review Risk Assessment and the Joint Forces Command Warfighter Challenge Program. JEFX themes are based on emerging CONOPS and warfighter challenges. JEFX initiatives are important enablers of innovation and transformation and are designed to support the themes and demonstrate emerging Air Force capabilities to deploy and employ decisive air, space and cyberspace power in support of the Joint Force.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	30.293	24.229	21.924	-	21.924
Current President's Budget	29.378	24.229	18.102	-	18.102
Total Adjustments	-0.915	-	-3.822	-	-3.822
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.787	-			
• Other Adjustments	-0.128	-	-3.822	-	-3.822

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 675078: *Horizontal Integration*

Congressional Add: *Global Air Presentation System/Airborne Web Services (GAPS/AWS) Horizontal Integration*

Congressional Add Subtotals for Project: 675078

Congressional Add Totals for all Projects

FY 2010	FY 2011
3.922	-
3.922	-
3.922	-

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<u>Change Summary Explanation</u> In FY 2012: The program has been funded to latest cost estimate, less efficiencies. The reduction for efficiencies is not intended to impact program content. Reductions for efficiencies in FY 2010 through 2014 are not intended to impact program content. Reductions for efficiencies may be spread to other Air Force programs at a later date. Amounts of the reductions are: \$2.262M/FY12, \$1.560M (Cursor-on-Target)/FY12, \$2.493M/FY13, \$2.794M/FY14, \$17.465M/FY15, \$17.866M/FY16. In FY 2012-2016, \$7.774M from Project 5078, Horizontal Integration, transferred to PE 064281F, Tactical Data Networks, to support Cursor-on-Target (CoT) efforts.		

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force								DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation				PROJECT 675078: Horizontal Integration			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
675078: Horizontal Integration	15.356	10.863	8.365	-	8.365	8.522	8.516	-	-	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification											
Project 5078, Horizontal Integration (HI), is established to develop a Global Effects integrated capability to support cross-cutting net-centric solutions across air, space and Cyberspace C2ISR Warfighter domain. HI activities include studies and analysis, technology development, risk reduction, prototyping, experimentation and transition. These activities are required to identify, design, develop, experiment and implement C2ISR solutions supporting warfighting integration and interoperability needs which are not the sole responsibility of a specific program of record. The nature of integrated and interoperable C2ISR warfighting capabilities span multiple platforms and domains; these capabilities are routinely overlooked by traditional programs dedicated to supporting the requirements of specific warfighting communities. The HI Project is uniquely designed to look across these platforms and domains, which enables the Air Force to respond to the needs across the seams of individual systems. These horizontal integration initiatives will be prototyped, assessed, appropriately captured in requirements documents and then transitioned to programs of record for production, fielding and sustainment. Systems Engineering and Analysis is the 'glue' that holds C2C elements together, and closes the seams in the Command, Control, Communications Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) architectures. Capability analysis identifies areas where interoperability can be improved within the Air Force, among joint services, and among coalition partners. Once capability issues are identified, they are prioritized and pilot initiatives are developed to provide solutions to the warfighter challenges that resolve the capability gaps. The HI Project also helps to competitively prototype integrated solutions against validated program requirements. The benefits of this activity are two-fold: the operational community is able to weigh the cost, risk, and performance trade-offs between enterprise solutions versus program centric solutions; and the activity supports the DoDI 5000.02 requirement for competitive prototyping for all ACAT programs. The synchronization of HI prototyping and program milestone requirements offers an effective environment for increasing interoperability while reducing the impact of this policy on multiple pre-milestone B programs. Modeling and Simulation (M&S) Infrastructure and Experimentation leverage existing government/industry simulation sites that allow 'virtual' assessments of the C2 Constellation. This Infrastructure environment manages a continuous distributed operational environment that supports air, space, and cyberspace C2ISR and rapid acquisition, prototyping, development, integration, and fielding. C2ISR initiatives use this infrastructure to mature their development status prior to entry into JEFX for final operational assessment. The HI prototype performances are assessed for operational utility; the most promising initiatives/technologies will be matured and transitioned into weapon system configuration control baselines. Requirements documents will be published and revised, and a requirements database and implementation plan identifying the most significant C2C net-centric integration issues will be updated to catalog the activities necessary to accomplish this integration. This program is in Budget Activity 7 - Operational System Development because it provides developers, testers and warfighters a way to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve future capabilities leading to a horizontally integrated C2ISR Warfighter Sub-enterprise.											
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Reqmts and CBP							4.320	3.440	2.650	-	2.650
Description: Requirements/Capabilites Based Planning (CBP)											

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation		PROJECT 675078: Horizontal Integration	
B. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
FY 2010 Accomplishments: Continue CBP efforts.					
FY 2011 Plans: Will develop and document integrated Command and Control (C2) requirements for integrated air and missile defense. Will analyze and document emerging Air Force (AF) C2 requirements. Focus on the Future C2 Integration/Modernization Strategy. Namely integration of material sources with theater support in the Langley Air Force Base Operations Support Center (OSF). Concentrating efforts on Integrated Operating Environment (IOE) Space, IOE Electronic Warfare Battle Management, IOE Targeting, IOE Agile Combat Support and Joint Air Ground Integration Cell (JAGIC).					
FY 2012 Base Plans: Refine integrated Air and Missile Defense C2 requirements. Continue Future C2 Integration/Modernization Strategy.					
FY 2012 OCO Plans:					
Title: Arch and SE					
Description: Architecture Development and Systems Engineering					
FY 2010 Accomplishments: Continued to participate in and support planning for the Joint Air Ground Integration Cell (JAGIC) functional analysis. Work with the Army, AF & USMC as well as ESC/XR and Joint Expeditionary Force Experiment (JEFX) to produce a plan that identifies scope of the analysis assumptions, functions to be addressed, scenarios to be analyzed, and measures to be assessed.					
FY 2011 Plans: Efforts will continue in support of functional and engineering analysis within the C2ISR community, with specific emphasis on Air-Ground Modernization, C2 of ISR Integration, Dynamic ISR management, and C2 of Cyber.					
FY 2012 Base Plans: Technical expertise supporting functional and engineering analysis within the C2ISR community will continue, with specific emphasis on Air-Ground Modernization, C2 of ISR Integration, Dynamic ISR management, and C2 of Cyber.					
FY 2012 OCO Plans:					
	0.406	0.499	0.364	-	0.364

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B. Accomplishments/Planned Programs (\$ in Millions)				FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Analysis Integ and SE				0.506	0.805	0.519	-	0.519
Description: Analysis Integration and Systems Engineering								
FY 2010 Accomplishments: Work on improved Battle Damage Assessment (iBDA), which is an effort that provides near-real time Phase 1 BDA information by culling munitions and asset data from Link-16, associating it with target and asset information in the ATO and producing a Joint Munitions Effectiveness Manual (JMEM) probability of destruction. The effort will come to completion and transition to a Program of Record (PoR). Efforts remaining are code clean up and documentation, which will be necessary in order to transition to a Program of Record.								
FY 2011 Plans: Analysis and integration efforts will continue. Specific focus areas and efforts to be piloted will depend on real world needs and C2/ISR enterprise PoR requirements. Will continue analysis and transition of prototype capability developed in previous years.								
FY 2012 Base Plans: Analysis and integration efforts will continue. Specific focus areas and efforts to be piloted will depend on real world needs, C2/ISR enterprise and C2 of Cyber PoR requirements. Will continue analysis and transition of prototype capability developed in previous years.								
FY 2012 OCO Plans:								
Title: Ops-Tech Analysis-Concept Dev't				2.687	2.623	1.533	-	1.533
Description: Ops/Tech Analysis and Concept Development								
FY 2010 Accomplishments: Space/Cyber. Develop FY12 Science and Technology Program Objective Memorandum inputs based on analysis of critical Numbered Air Force's capability shortfalls. Develop and assess prototype solutions for integration of non-kinetic "strike effects" capabilities into an integrated mission package. Develop and assess cyber C2 IOE integration concepts and space situational awareness capabilities in support of theater planning and execution.								
FY 2011 Plans: Area Air Forces Forward. Will develop and prototype a capability for in transit visibility of Global Strike assets for 8AF. Will develop an Integrated Operational Environment capability for improved mobility force integration								

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation	PROJECT 675078: Horizontal Integration				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
supporting theater planning efforts. Will investigate a multi-level security solution to planning integrated ISR mobility and weather data in support of political/military operations. Continue Developing an Integrated Operating Environment concept to guide AF integration of Command and Control (C2) and provide the necessary material and non-material capabilities to enable the effective and efficient cross-functional domain flow of monitoring, assessment, planning and execution data. FY 2012 Base Plans: Support synchronized modernization of TACS and global C2 center (JSPOC, TACC, AFSTRAT AOC, etc) programs. Enable a collaborative Integrated Operating Environment (IOE) to present , plan and execute AF capabilities in support of Joint operations. Improve real time information exchange through the planning and execution phases. FY 2012 OCO Plans:						
Title: M&S, Infrastructure and Expt Description: M&S Infrastructure and Experimentation FY 2010 Accomplishments: Re-use M&S infrastructure tools/systems in experimentation venues for further refinement of Tactic, Techniques and Procedures for Joint Warfighters. FY 2011 Plans: FY 2012 Base Plans: FY 2012 OCO Plans:		-	-	-	-	-
Title: HI Solutions Assessments Description: Horizontal Integration Solutions Assessment FY 2010 Accomplishments: In order to foster enterprise integration across C2ISR programs and support the DoDI 5000.02 requirement for competitive prototyping, initiatives were selected for execution in FY10. Three prototyping efforts have been selected for execution: continuation of the Unmanned Aircraft Systems (UAS) C2 efforts under the MAESTRO initiative; prototyping an Air Mission Information Service (AMIS) under the guidance of the AO COI that will support deliberate and immediate mission planning; and prototyping an improved ISR management/visualization		3.515	3.496	3.299	-	3.299

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force			DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>		R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>		PROJECT 675078: <i>Horizontal Integration</i>	
B. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
tool based on SOA technology. Additional program increase of \$3.5M is intended to support development of Global Air Presentation System (GAPS) and Airborne Web Services (AWS) for C2C. FY 2011 Plans: Initiatives are selected for execution that will foster enterprise integration across C2ISR programs and support the DoDI 5000.02 requirement for competitive prototyping. A data call was issued in third quarter FY10 and the initiatives selected for funding in FY11 include: Extension to support of near-term Cyber integration for situation Awareness (Map-The Mission); Extended capabilities for Air-Ground Modernization to integrate AF systems (TBMCS) with a number of Army systems (AFATDS, TAIS, AMDWS) to share air space information; Gap filling capabilities to address identified shortcomings during IMDE operator experiments. FY 2012 Base Plans: Continue selection of Initiatives for execution that will foster enterprise integration across C2ISR and C2 of Cyber programs and support the DoDI 5000.02 requirement for competitive prototyping. A data call will be issued in third quarter FY11 and the submission will be evaluated and selected initiatives will be funded for execution in FY12. FY 2012 OCO Plans:					
Accomplishments/Planned Programs Subtotals	11.434	10.863	8.365	-	8.365
	FY 2010	FY 2011			
Congressional Add: Global Air Presentation System/Airborne Web Services (GAPS/AWS) Horizontal Integration FY 2010 Accomplishments: For the Global Awareness Presentation System (GAPS), continued development of a visualization system that provided fused situation awareness and strategic information to USTRATCOM commanders. For the Airborne Web Services (AWS), continued to migrate JSTARS and AWACS towards a NetCentric Warfare capability that provided web services the capability to exchange data between the aircraft and ground user. FY 2011 Plans:	3.922	-			
Congressional Adds Subtotals	3.922	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force			DATE: February 2011
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C. Other Program Funding Summary (\$ in Millions)

			<u>FY 2012</u>	<u>FY 2012</u>	<u>FY 2012</u>						<u>Cost To</u>	
	<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Complete</u>	<u>Total Cost</u>
• N/A:		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

This project uses full and open competition for operational requirements document creation, systems engineering & architecture development, modeling & simulation and experimentation, joint interoperability/integration, and horizontal integration approaches.

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force											DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation				PROJECT 675078: Horizontal Integration						
Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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	
Requirements/Capability Based Planning (CBP)/ GAPS/ AWS Horizontal Integration	C/FFP	MITRE Corp:ESC, Hanscom AFB, MA	0.259	-		-		-		-	0.000	0.259	0.259	
Requirements/Capability Based Planning (CBP)	C/CPFF	Northrop Grumman:AFRL Rome, Langley AFB, VA	3.771	3.032	Oct 2010	2.400	Oct 2011	-		2.400	Continuing	Continuing	TBD	
Architecture Development and Systems Engineering/ GAPS/ AWS Horizontal Integration	C/FFP	MITRE CORP:ESC HAFB, MA	0.200	0.289	Nov 2010	0.228	Nov 2011	-		0.228	Continuing	Continuing	TBD	
Analysis, Integration, and SE/ Capability Roadmaps (2)	C/FFP	MITRE:HAFB, MA	0.300	0.595	Nov 2010	0.383	Nov 2011	-		0.383	Continuing	Continuing	TBD	
Tech Analysis and Concept Development	C/CPFF	Northrup Grumman:AFRL Rome, NY	1.662	1.775	Nov 2010	1.239	Nov 2011	-		1.239	Continuing	Continuing	TBD	
Tech Analysis and Concept Development (1)	C/CPFF	BAE:AFRL Rome, NY	0.475	0.440	Oct 2010	0.044	Oct 2011	-		0.044	Continuing	Continuing	TBD	
Horizontal Integration Solution Assessment (1)	C/FFP	MITRE:HAFB, MA	3.000	1.828	Nov 2010	1.700	Oct 2011	-		1.700	Continuing	Continuing	TBD	
Horizontal Integration Solution Assessment	C/Various	Not specified.:HAFB, MA	0.309	1.457	Nov 2010	1.463	Oct 2011	-		1.463	Continuing	Continuing	TBD	
HI Sol Assess - Congressional Add GAPS/AWS	C/CPFF	Prologic:HAFB, MA	3.564	-		-		-		-	0.000	3.564	3.564	
Subtotal			13.540	9.416		7.457		-		7.457				
Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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 Assessment	C/FFP	Quantech PASS:ESC, HAFB, MA	0.026	0.062	Nov 2010	-	Nov 2011	-		-	0.000	0.088	0.000	
Support Assessment - 2	Various	Various:ESC, HAFB, MA	0.174	0.095	Nov 2010	-	Nov 2011	-		-	0.000	0.269	0.000	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force											DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development					R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation					PROJECT 675078: Horizontal Integration				
Support (\$ in Millions)					FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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 Assessment - 3	C/FFP	Jacobs, ETASS:ESC, HAFB, MA	0.009	0.050	Nov 2010	-	Nov 2011	-		-	0.000	0.059	0.000	
Support Assessment - 4	C/CPFF	Spectrum:AFRL Rome, NY	1.100	0.816	Sep 2010	0.500	Nov 2011	-		0.500	0.000	2.416	0.000	
Subtotal			1.309	1.023		0.500		-		0.500	0.000	2.832	0.000	
Test and Evaluation (\$ in Millions)					FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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	
Subtotal			-	-		-		-		-	0.000	0.000	0.000	
Management Services (\$ in Millions)					FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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	
Program Management Support-1	C/FFP	Quantech PASS:ESC, HAFB, MA	0.232	0.236	Nov 2010	0.247	Jan 2012	-		0.247	Continuing	Continuing	TBD	
Program Management Support-2	C/FFP	Jacobs ETASS:ESC, HAFB, MA	0.179	0.188	Dec 2010	0.161	Jan 2012	-		0.161	Continuing	Continuing	TBD	
Program Management Support-GAPS/AWS	C/FFP	Quantech PASS:ESC,HAFB, MA	0.096	-		-		-		-	0.000	0.096	0.000	
Subtotal			0.507	0.424		0.408		-		0.408				
			Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			15.356	10.863		8.365		-		8.365				
Remarks														

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>	PROJECT 675078: <i>Horizontal Integration</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Air Force			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>	PROJECT 675078: <i>Horizontal Integration</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Requirements/Capability Based Planning	1	2010	4	2014
Integrated Ops Environment and C2 Framework	1	2010	4	2014
Architecture Development and Systems Engineering	1	2010	4	2014
Analysis (Integration/Ops/Tech) and Systems Engineering	1	2010	4	2014
M&S Infrastructure and Experimentation	1	2010	3	2011
Horizontal Integration Solutions	1	2010	4	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force									DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation				PROJECT 675140: Joint Expeditionary Force Experiments			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
675140: Joint Expeditionary Force Experiments	14.022	13.366	9.737	-	9.737	9.591	8.353	-	-	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Joint Expeditionary Force Experiments (JEFX) and supporting Limited Objective Experiments (LOE) are warfighter experiments that address emerging operational challenges and are part of the Air Force (AF) concept development and experimentation enterprise. JEFX/LOE activities are: exploring significant capability gaps across the range of AF Concept of Operations (CONOPS); addressing critical lessons learned from recent operations, findings from the Air Force Capabilities Review and Risk Assessments and the Combatant Commander's and Services Warfighter Challenge program; creating operationally representative warfighter environments through the combination of constructive, live-fly forces and virtual forces and simulations; providing a multi-dimensional, multi-national, multi-service/Joint environment for an end-to-end process of innovation, experimentation, assessment, and transition of capabilities; providing joint and coalition warfighters with solutions to critical warfighting gaps; demonstrating emerging Air Force capabilities to deploy and employ decisive air, space and cyberspace power for the Joint Force Commander; enabling innovation and transformation. Unique systems and process integration capabilities are the major reasons JEFX is an experiment and not simply a demonstration or exercise. JEFX 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 because it provides horizontal integration of the efforts of developers, testers, and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve capabilities of the air, space, and cyberspace forces.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Arch, SE and Initiatives	2.447	2.928	2.108	-	2.108
Description: Spiral develop systems architecture, systems engineering, and integration of initiatives into a cohesive system of systems process					
FY 2010 Accomplishments: Irregular Warfare. Involves 12 critical NAF sponsored initiatives aimed at improving C2 & ISR integration in support of Joint operations including UAV data encryption and improved B2/AWACS communications; tactical C2 and JAGIC integration with the Army; AF/Navy/Army/SOF airborne IP integration. SPIRIT ICE provides a cost effective, operationally configured environment to easily discover data link interoperability issues, improving B-2/AWACS combat readiness.					
FY 2011 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force			DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation		PROJECT 675140: Joint Expeditionary Force Experiments		
B. Accomplishments/Planned Programs (\$ in Millions)						
		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Day Without Space. Will continue experimentation efforts with focus on tactical and strategic architectures, communications, systems, and TTPs affected by loss or disruption of space signals due to atmospheric or intentional factors; evaluating effects and refining technologies, Tactics, Techniques, and Procedures aimed at improving AF contributions to the Joint Warfighters assuring mission assurance in a contested environment. Increasing focus on rapid spiral fielding in support of tactical operations; airborne communication integration. FY 2012 Base Plans: Continue support for Architecture, SE, and JEFX activities. JEFX 12 LOEs will focus on the 4 issues outlined per CORONA Fall 2009 direction: (1)Lack AF-wide IAMD knowledge & emphasis—strategic to tactical; (2)Significant C-NAF organization & personnel deficiencies; (3)Lack exercise, experimentation & wargame oversight & fidelity; and (4)Obsolete C2 radars / sensors, & C2 systems lack integration with joint partners. To address these issues, JEFX will initiate integration of the BMD systems (C2BMC) & other technology and process initiatives into the AOC Weapons System with the goal of full integration into the Joint Counter Air Mission capabilities of the JFACC and AADC. Will also initiate the CSAF/CNO initiative (Air Sea Battle concept) as the relevant operational scenario for JEFX 12. FY 2012 OCO Plans:						
Title: Plan and Design Description: Plan, design, coordinate, assess and report the JEFX experiments, provide expertise to support initiative selection, acquisition, program management, communications and systems planning FY 2010 Accomplishments: Irregular Warfare. Involves 12 critical NAF sponsored initiatives aimed at improving C2 & ISR integration in support of Joint operations including UAV data encryption and improved B2/AWACS communications; tactical C2 and JAGIC integration with the Army; AF/Navy/Army/SOF airborne IP integration. SPIRIT ICE provides a cost effective, operationally configured environment to easily discover data link interoperability issues, improving B-2/AWACS combat readiness. FY 2011 Plans: Day Without Space. Will continue experimentation efforts with focus on tactical and strategic architectures, communications, systems, and TTPs affected by loss or disruption of space signals due to atmospheric or intentional factors; evaluating effects and refining technologies, Tactics, Techniques, and Procedures aimed		4.125	3.829	2.799	-	2.799

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force			DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation	PROJECT 675140: Joint Expeditionary Force Experiments				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
at improving AF contributions to the Joint Warfighters assuring mission assurance in a contested environment. Increasing focus on rapid spiral fielding in support of tactical operations; airborne communication integration. FY 2012 Base Plans: Continue support for plan & design activities. JEFX 12 LOEs will focus on the 4 issues outlined per CORONA Fall 2009 direction: (1)Lack AF-wide IAMD knowledge & emphasis—strategic to tactical; (2)Significant C-NAF organization & personnel deficiencies; (3)Lack exercise, experimentation & wargame oversight & fidelity; and (4)Obsolete C2 radars / sensors, & C2 systems lack integration with joint partners. To address these issues, JEFX will initiate integration of the BMD systems (C2BMC) & other technology and process initiatives into the AOC Weapons System with the goal of full integration into the Joint Counter Air Mission capabilities of the JFACC and AADC. Will also initiate the CSAF/CNO initiative (Air Sea Battle concept) as the relevant operational scenario for JEFX 12. FY 2012 OCO Plans:						
Title: Develop Initiatives Description: Develop initiatives to introduce new technologies and operational capabilities into the Aerospace Expeditionary Force (AEF) Concept of Operations (CONOPS) FY 2010 Accomplishments: Irregular Warfare. Involves 12 critical NAF sponsored initiatives aimed at improving C2 & ISR integration in support of Joint operations including UAV data encryption and improved B2/AWACS communications; tactical C2 and JAGIC integration with the Army; AF/Navy/Army/SOF airborne IP integration. SPIRIT ICE provides a cost effective, operationally configured environment to easily discover data link interoperability issues, improving B-2/AWACS combat readiness. FY 2011 Plans: Day Without Space. Will continue experimentation efforts with focus on tactical and strategic architectures, communications, systems, and TTPs affected by loss or disruption of space signals due to atmospheric or intentional factors; evaluating effects and refining technologies, Tactics, Techniques, and Procedures aimed at improving AF contributions to the Joint Warfighters assuring mission assurance in a contested environment. Increasing focus on rapid spiral fielding in support of tactical operations; airborne communication integration. FY 2012 Base Plans:		3.200	2.908	2.125	-	2.125

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force			DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation	PROJECT 675140: Joint Expeditionary Force Experiments				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Continue support for initiative development. JEFX 12 LOEs will focus on the 4 issues outlined per CORONA Fall 2009 direction: (1)Lack AF-wide IAMD knowledge & emphasis—strategic to tactical; (2)Significant C-NAF organization & personnel deficiencies; (3)Lack exercise, experimentation & wargame oversight & fidelity; and (4)Obsolete C2 radars / sensors, & C2 systems lack integration with joint partners. To address these issues, JEFX will initiate integration of the BMD systems (C2BMC) & other technology and process initiatives into the AOC Weapons System with the goal of full integration into the Joint Counter Air Mission capabilities of the JFACC and AADC. Will also initiate the CSAF/CNO initiative (Air Sea Battle concept) as the relevant operational scenario for JEFX 12.						
FY 2012 OCO Plans:						
Title: Implement Arch Config		3.500	3.023	2.209	-	2.209
Description: Implement architectural configuration, conduct M&S, install and the test the communications infrastructure and execute the experiment						
FY 2010 Accomplishments: Irregular Warfare. Involves 12 critical NAF sponsored initiatives aimed at improving C2 & ISR integration in support of Joint operations including UAV data encryption and improved B2/AWACS communications; tactical C2 and JAGIC integration with the Army; AF/Navy/Army/SOF airborne IP integration. SPIRIT ICE provides a cost effective, operationally configured environment to easily discover data link interoperability issues, improving B-2/AWACS combat readiness.						
FY 2011 Plans: Day Without Space. Will continue experimentation efforts with focus on tactical and strategic architectures, communications, systems, and TTPs affected by loss or disruption of space signals due to atmospheric or intentional factors; evaluating effects and refining technologies, Tactics, Techniques, and Procedures aimed at improving AF contributions to the Joint Warfighters assuring mission assurance in a contested environment. Increasing focus on rapid spiral fielding in support of tactical operations; airborne communication integration.						
FY 2012 Base Plans: Continue support for Architecture Implementation activities. JEFX 12 LOEs will focus on the 4 issues outlined per CORONA Fall 2009 direction: (1)Lack AF-wide IAMD knowledge & emphasis—strategic to tactical; (2)Significant C-NAF organization & personnel deficiencies; (3)Lack exercise, experimentation & wargame oversight & fidelity; and (4)Obsolete C2 radars / sensors, & C2 systems lack integration with joint partners.						

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force			DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation	PROJECT 675140: Joint Expeditionary Force Experiments				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
To address these issues, JEFX will initiate integration of the BMD systems (C2BMC) & other technology and process initiatives into the AOC Weapons System with the goal of full integration into the Joint Counter Air Mission capabilities of the JFACC and AADC. Will also initiate the CSAF/CNO initiative (Air Sea Battle concept) as the relevant operational scenario for JEFX 12. FY 2012 OCO Plans:						
Title: Transition Description: Transition successful JEFX assessed and CSAF approved warfighting capabilities for fielding into an integrated C2ISR baseline FY 2010 Accomplishments: Irregular Warfare. Involves 12 critical NAF sponsored initiatives aimed at improving C2 & ISR integration in support of Joint operations including UAV data encryption and improved B2/AWACS communications; tactical C2 and JAGIC integration with the Army; AF/Navy/Army/SOF airborne IP integration. SPIRIT ICE provides a cost effective, operationally configured environment to easily discover data link interoperability issues, improving B-2/AWACS combat readiness. FY 2011 Plans: Day Without Space. Will continue experimentation efforts with focus on tactical and strategic architectures, communications, systems, and TTPs affected by loss or disruption of space signals due to atmospheric or intentional factors; evaluating effects and refining technologies, Tactics, Techniques, and Procedures aimed at improving AF contributions to the Joint Warfighters assuring mission assurance in a contested environment. Increasing focus on rapid spiral fielding in support of tactical operations; airborne communication integration. FY 2012 Base Plans: Continue support for Transition activities. JEFX 12 LOEs will focus on the 4 issues outlined per CORONA Fall 2009 direction: (1)Lack AF-wide IAMD knowledge & emphasis—strategic to tactical; (2)Significant C-NAF organization & personnel deficiencies; (3)Lack exercise, experimentation & wargame oversight & fidelity; and (4)Obsolete C2 radars / sensors, & C2 systems lack integration with joint partners. To address these issues, JEFX will initiate integration of the BMD systems (C2BMC) & other technology and process initiatives into the AOC Weapons System with the goal of full integration into the Joint Counter Air Mission capabilities of the		0.750	0.678	0.496	-	0.496

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force				DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>		R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>		PROJECT 675140: <i>Joint Expeditionary Force Experiments</i>	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
JFACC and AADC. Will also initiate the CSAF/CNO initiative (Air Sea Battle concept) as the relevant operational scenario for JEFX 12.					
<i>FY 2012 OCO Plans:</i>					
Accomplishments/Planned Programs Subtotals	14.022	13.366	9.737	-	9.737

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• N/A: <i>Other</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy
JEFX supports evolutionary acquisition of multiple programs by providing a venue to experiment new and emerging technologies to be integrated into other systems-of-record.

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force										DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development					R-1 ITEM NOMENCLATURE PE 0207449F: C2 Constellation				PROJECT 675140: Joint Expeditionary Force Experiments				
Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Experimentation-1	C/CPAF	MITRE:ESC Hanscom AFB, MA	2.000	2.286	Oct 2010	2.254	Oct 2011	-		2.254	Continuing	Continuing	TBD
Experimentation-3	C/FFP	Quantech:ESC Hanscom AFB, MA	0.251	0.285	Oct 2010	0.285	Oct 2011	-		0.285	Continuing	Continuing	TBD
Experimentation-4	C/CPAF	Lockheed Martin:ESC Hanscom AFB, MA	0.329	-		-		-		-	0.000	0.329	0.329
Experimentation-5	Various	ESC:Hanscom AFB, MA	0.372	0.649	Oct 2010	0.649	Oct 2011	-		0.649	Continuing	Continuing	TBD
Experimentation-6	C/CPFF	Spectrum:AFRL Rome, NY	5.022	5.540	Nov 2010	3.400	Oct 2011	-		3.400	Continuing	Continuing	TBD
Experimentation-7	C/CPAF	L-3 Services:Hurlburt Field, FL	1.500	1.500	Nov 2010	1.000	Nov 2011	-		1.000	Continuing	Continuing	TBD
Experimentation-8	C/CPAF	Jacob Sverdrup:Hurlburt Field, FL	0.200	0.200	Nov 2010	-		-		-	0.000	0.400	0.400
Experimentation-9	C/CPFF	Northrop Grumman:AFRL/Rome, NY	1.843	1.404	Nov 2010	0.725	Nov 2011	-		0.725	Continuing	Continuing	TBD
Experimentation-10	C/CPFF	Macaully Brown:Hampton, VA	0.540	-		-		-		-	0.000	0.540	0.540
Experimentation-11	C/CPFF	SAIC:San Diego, CA	0.456	0.275	Nov 2010	0.275	Nov 2011	-		0.275	Continuing	Continuing	TBD
Experimentation-12	MIPR	46TS:Eglin AFB, FL	0.313	0.250	Nov 2010	0.250	Nov 2011	-		0.250	Continuing	Continuing	TBD
Experimentation-13	MIPR	AFC2IC:Hampton, VA	0.971	0.852	Nov 2010	0.774	Nov 2011	-		0.774	Continuing	Continuing	TBD
Experimentation-14	MIPR	98RANWG:Nellis AFB, NV	0.225	0.125	Nov 2010	0.125	Nov 2011	-		0.125	Continuing	Continuing	TBD
Subtotal			14.022	13.366		9.737		-		9.737			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force											DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>				PROJECT 675140: <i>Joint Expeditionary Force Experiments</i>					

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Subtotal			-	-		-		-		-	0.000	0.000	0.000

			Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			14.022	13.366		9.737		-		9.737			

Remarks													

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>	PROJECT 675140: <i>Joint Expeditionary Force Experiments</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Air Force			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0207449F: <i>C2 Constellation</i>	PROJECT 675140: <i>Joint Expeditionary Force Experiments</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Arch, SE, Initiatives Calls	1	2010	4	2014
Plan and Design	1	2010	4	2014
Develop Initiatives	1	2010	4	2014
Implement Arch Config (JEFX and LOEs)	1	2010	4	2014
Transitions, Assessment	1	2010	4	2014

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