

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force										Date: February 2015		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207448F I C2ISR Tactical Data Link							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	1.373	1.744	1.681	-	1.681	1.748	1.766	1.767	1.798	Continuing	Continuing
675045: C2ISR Tactical Data Link	-	1.373	1.744	1.681	-	1.681	1.748	1.766	1.767	1.798	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Tactical Data Links (TDL), as a subset of the broader airborne network, are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant; secure digital data transfer network capability with new and standardized waveforms and data formats allowing line-of-sight (LOS) and beyond-line- of-sight (BLOS) intra- and inter-flight communications. TDLs increase mission effectiveness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. TDLs are used by all service theater command and control (C2) elements, weapons platforms, and sensors.

TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Multifunction Advanced Data Link (MADL) Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), and Tactical Targeting Network Technology (TTNT). TDL efforts include incorporating changes and additions to the Link-16 message standard (MIL-STD-6016E) and applicable Interface Change Proposals (ICPs), assisting with Air Force and joint interoperability certification testing with the Air Combat Command (ACC) and Joint Interoperability Test Center (JITC); future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration; support of data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike and Global Persistent Attack CONOPS.

This effort provides critical capability and enhancements to the airborne network by creating common development, integration and interoperability among ground and C2 platforms and responds to quick reaction capability integration and demonstration including, but not limited to Airborne Warning and Control System (AWACS), Joint Surveillance Target Attack Radar System (JSTARS), the Air and Space Operations Center (AOC), Global Hawk, Predator, Reaper, Rivet Joint, Combat Sent, and Cobra Ball. TDLs keep all C2ISR platforms and data linked weapons current/interoperable in the airborne network to enable Global Strike, Global Persistent Attack, Offensive and Defensive Counterair (OCA and DCA) and Suppression of Enemy Air Defenses (SEAD) missions.

Activities also include studies and analysis to support both current program planning and execution, as well as future program planning.

The FY2016 funding was reduced for under execution by \$.079 million to account for the availability of prior execution balances.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force				Date: February 2015		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207448F I C2ISR Tactical Data Link				
This program is in Budget Activity 7, Operational System Development. These budget activities include development efforts to upgrade systems currently fielded or has approval for full rate production and anticipate production funding in the current or subsequent fiscal year.						
B. Program Change Summary (\$ in Millions)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget		1.406	1.782	1.770	-	1.770
Current President's Budget		1.373	1.744	1.681	-	1.681
Total Adjustments		-0.033	-0.038	-0.089	-	-0.089
• Congressional General Reductions		-	-0.038			
• Congressional Directed Reductions		-	-			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-0.033	-			
• Other Adjustments		-	-	-0.089	-	-0.089
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2014	FY 2015	FY 2016
Title: E-3 AWACS Block 40/45 Mode 5 and MIL-STD- 6016E Link 16 Enhancements				0.555	0.802	0.713
Description: Improve E-3 AWACS Block 40/45 Link 16 interoperability and compatibility by incorporating key changes to communications software baseline.						
FY 2014 Accomplishments: Completed developing, testing and integrating the E-3 AWACS Block 40/45 effort.						
FY 2015 Plans: Funding studies to assess the sustainability of the Joint Tactical Information Distribution System (JTIDS) Class 2H terminal. Also, to fund studies and assessments to address the top technical risks for upgrading the AWACS JTIDS terminal with a terminal supporting Link 16 enhancements, especially the Crypto Modernization (CM) and Frequency Remapping (FR) mandates. Additionally, funds will support JALN activities.						
FY 2016 Plans: Will complete the study and assessment to address the sustainability of the JTIDS Class 2H terminal. Will continue the study to evaluate the top technical risks for replacing the AWACS JTIDS Class 2H terminal with a more advanced Multifunctional Information Distribution System (MIDS) terminal. Will complete the assessment for the use of Ethernet instead of a MIL-STD-1553B interface to the AWACS JTIDS Class 2H terminal and the implementation of a Tactical Targeting Network Technology (TTNT) IP communication capability with the terminal. To support a more advanced MIDS terminal, will complete development,						

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
evaluation, and documentation of a report that will address an upgraded High Powered Antenna (HPA) and antenna interface options for AWACS, to include potential modification of the current JTIDS Class 2H HPA.				
Title: Aerial Network Engineering Lab Description: Funded Command and Control (C2) focused airborne networking studies supporting data link enhancements to include, but not limited to Link-16 Pathfinder and strength track reporting and fusion/correlation. FY 2014 Accomplishments: Funded Command and Control (C2) focused airborne networking studies supporting data link enhancement to include, but not limited to integration and implementation impacts of mandatory upgrades for crypto modernization and frequency remapping, Advanced Link-16 Network planning concepts, L-16 Pathfinder and strength track reporting and fusion/correlation with translation and correlation of Sensor data, Multi-function Advanced Data Link (MADL), and Intra-Flight Data Link (IFDL) into enhanced command and control situational awareness to command and control platforms and infrastructure. FY 2015 Plans: Continue to fund Command and Control (C2) focused airborne networking studies supporting data link enhancements to include, but not limited to, Advanced Link-16 Network planning concepts, L-16 Pathfinder and strength track reporting and fusion/ correlation with translation and correlation of Sensor data, Multi-function Advanced Data Link (MADL), and Intra-Flight Data Link (IFDL) into enhanced command and control situational awareness to command and control platforms and infrastructure. Supports C2 platform terminal upgrade under lab impacts to system integration. FY 2016 Plans: Will continue to fund Command and Control (C2) focused airborne networking studies supporting data link enhancements to include, but not limited to, Advanced Link-16 Network planning concepts, L-16 Pathfinder and strength track reporting and fusion/ correlation with translation and correlation of Sensor data, Multi-function Advanced Data Link (MADL), and Intra-Flight Data Link (IFDL) into enhanced command and control situational awareness to command and control platforms and infrastructure. Will support C2 platform terminal upgrade under lab impacts to system integration.		0.318	0.332	0.342
Title: E-3 AWACS Block 40/45 User Identified Critical Interface Change Proposals (ICPs) Description: E-3 AWACS Block 40/45 User Identified Critical ICPs will be implemented such as time slot reallocation, strength track reporting and correlation, global area reference system, and MIL-STD updates. FY 2014 Accomplishments:		0.500	0.610	0.626

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force										Date: February 2015		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207448F I C2ISR Tactical Data Link							
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2014	FY 2015	FY 2016
Improved E-3 AWACS Block 40/45 Link 16 interoperability and compatibility by incorporating key MIL-STD 6016E improvements to the software baseline including additional mission assignment and fighter control capabilities.												
FY 2015 Plans: Activity is implementing E-3 AWACS Block 40/45 User Identified Interface Change Proposals (ICPs) that include time slot reallocation, strength track reporting and correlation, Global Area Reference System (GARS), and MIL-STD updates.												
FY 2016 Plans: Activity will implement E-3 AWACS Block 40/45 User Identified Interface Change Proposals (ICPs) that include time slot reallocation, strength track reporting and correlation, Global Area Reference System (GARS), and MIL-STD updates.												
Accomplishments/Planned Programs Subtotals										1.373	1.744	1.681
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost	
• RDTE:BA05:PE	41.388	39.059	60.256	-	60.256	37.240	37.490	22.287	22.714	Continuing	Continuing	
0604281F: TDN Enterprise												
• APAF:BA05:Line	-	0.002	2.837	-	2.837	42.694	43.027	57.283	46.618	Continuing	Continuing	
Item #F01500: F-15												
• APAF:BA05:Line	-	-	3.200	-	3.200	6.504	6.166	6.810	8.435	Continuing	Continuing	
Item #F01600: F-16												
• APAF:BA05:Line	-	0.049	0.474	-	0.474	0.419	0.297	0.249	0.203	Continuing	Continuing	
Item #B00200: B-2A												
• APAF:BA05:Line	-	1.261	1.011	-	1.011	1.392	0.539	0.800	-	Continuing	Continuing	
Item #B01B00: B-1B												
• APAF:BA05: Line Item	-	0.037	2.494	-	2.494	1.593	1.501	1.502	1.528	Continuing	Continuing	
#OTHACF: Other Aircraft												
• OPAF:BA03:Line Item #834010:	0.153	0.168	1.602	-	1.602	1.857	0.311	0.176	0.179	Continuing	Continuing	
General Information Technology												
Remarks												

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207448F I C2ISR Tactical Data Link	
E. Acquisition Strategy The Airborne Networking Division provides for common development, integration and interoperability across the entire airborne network and ensures that TDLs are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.		
F. 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.		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force												Date: February 2015			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207448F / C2ISR Tactical Data Link				Project (Number/Name) 675045 / C2ISR Tactical Data Link					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C2ISR Tactical Data Link Software Enhancements	SS/ Various	Boeing : Seattle, WA	-	0.555	Sep 2014	0.802	May 2015	0.713	Jan 2016	-		0.713	Continuing	Continuing	-
Subtotal			-	0.555		0.802		0.713		-		0.713	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aerial Network Engineering Lab	Various	AFLCMC Hanscom AFB : Bedford, MA	-	0.318	Nov 2013	0.332	Oct 2014	0.342	Oct 2015	-		0.342	Continuing	Continuing	-
Subtotal			-	0.318		0.332		0.342		-		0.342	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA - Program Office and Contractor Support	Various	Various : Various,	-	0.341	Jan 2014	0.445	Jan 2015	0.456	Oct 2015	-		0.456	Continuing	Continuing	-
FFRDC Support	C/T&M	MITRE : Bedford, MA	-	0.159	Oct 2013	0.165	Oct 2014	0.170	Oct 2015	-		0.170	Continuing	Continuing	-
Subtotal			-	0.500		0.610		0.626		-		0.626	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.373		1.744		1.681		-		1.681	-	-	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force							Date: February 2015			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207448F / C2ISR Tactical Data Link		Project (Number/Name) 675045 / C2ISR Tactical Data Link				
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force	Date: February 2015
---	----------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>	Project (Number/Name) 675045 / <i>C2ISR Tactical Data Link</i>
--	---	--

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AWACS Block 40/45 Mode 5 Link 16 Software Enhancements																												
Aerial Network Engineering Lab																												
AWACS Block 40/45 User Identified Critical ICPs																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207448F / <i>C2ISR Tactical Data Link</i>	Project (Number/Name) 675045 / <i>C2ISR Tactical Data Link</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AWACS Block 40/45 Mode 5 Link 16 Software Enhancements	1	2014	4	2016
Aerial Network Engineering Lab	1	2014	4	2020
AWACS Block 40/45 User Identified Critical ICPs	3	2014	4	2020