

# UNCLASSIFIED

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2014 Air Force **DATE:** April 2013

APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>					PE 0604281F: <i>Tactical Data Networks Enterprise</i>							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 <sup>#</sup>	FY 2014 Base	FY 2014 OCO <sup>##</sup>	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	-	45.104	24.534	51.456	-	51.456	46.999	35.686	21.863	22.257	Continuing	Continuing
655050: <i>TDL System Integration</i>	-	30.683	20.310	14.544	-	14.544	18.999	20.017	21.863	22.257	Continuing	Continuing
655262: <i>Family of Gateways</i>	-	14.421	4.224	15.512	-	15.512	20.600	15.669	0.000	0.000	Continuing	Continuing
657003: <i>Airborne Networking Enterprise</i>	-	0.000	0.000	21.400	-	21.400	7.400	0.000	0.000	0.000	Continuing	Continuing

<sup>#</sup> FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

<sup>##</sup> The FY 2014 OCO Request will be submitted at a later date

## Note

In FY 2014, Project Number 657003, Airborne Networking Enterprise, received funds for a classified effort. This is a New Start.

## A. Mission Description and Budget Item Justification

The Tactical Data Networks Enterprise (TDNE) contributes to the development, delivery and deployment of the next generation aerial layer network through a portfolio of legacy and advanced waveforms and airborne network management/development efforts that advance interoperability and connectivity. This will be accomplished via fielded and future ground and gateway investments while addressing warfighter urgent demands through the establishment of Quick Reaction Capabilities (QRC). The TDNE conceptualizes, acquires and fields aerial layer networking capabilities supporting legacy, current, in-development, and future systems across all domains of information exchange enabling strike, mobility, special operations, command and control (C2), intelligence, surveillance and reconnaissance (ISR), air, surface, subsurface and space operations. These capabilities ensure a robust and agile extension of the global information domain out to the tactical edge in support of increasing air domain awareness.

Funding will provide for the study, analysis, enhancement, development, integration, demonstration, test, and evaluation of Tactical Data Links (TDLs) as a subset of the broader aerial layer networks. TDLs are used in both peace time and combat environments to exchange information such as character-oriented and fixed-formatted messages, data, radar tracks, target information, platform status, imagery, free-text messaging and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs increase mission effectiveness by providing enhanced air domain situational awareness, positive combat identification of aircraft in the network, correlation of on- and off-board sensor data, digital sharing of machine to machine target and threat information, thereby, enabling time critical targeting and other mission assignment tasking. 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), Variable Message Format (VMF), Intra-Flight Data Link (IFDL), and other Advanced TDL Link technologies, such as Tactical Targeting Network Technology (TTNT) and Multifunction Advanced Data Link (MADL).

Funding also supports Family of Gateways study, analysis, enhancement, development, integration, demonstration, test, and evaluation efforts that will allow joint combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks producing

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604281F: <i>Tactical Data Networks Enterprise</i>
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operational effects not possible within individual networks. Gateway functions include enabling interoperability between data formats, protocols, and communication mediums. Additionally, gateway functions extend connectivity range, consolidate data from multiple networks into high capacity links for transmission to key C4ISR nodes, route information between disadvantaged users, and correlate data from multiple sources to improve accuracy. Gateway functions also provide application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring/network management. Funding will also support quick reaction response capability requests by the warfighter and support activities associated with the Joint Aerial Layer Network (JALN) Analysis of Alternatives and its follow-on activities as directed by the JALN Council.

This program is in Budget Activity 5, System Development and Demonstration (SDD), it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.

<b><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2012</u></b>	<b><u>FY 2013</u></b>	<b><u>FY 2014 Base</u></b>	<b><u>FY 2014 OCO</u></b>	<b><u>FY 2014 Total</u></b>
Previous President's Budget	47.057	24.534	25.116	-	25.116
Current President's Budget	45.104	24.534	51.456	-	51.456
Total Adjustments	-1.953	0.000	26.340	-	26.340
• 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	-0.664	0.000			
• SBIR/STTR Transfer	-1.289	0.000			
• Other Adjustments	0.000	0.000	26.340	-	26.340

**Change Summary Explanation**

FY14 funding increase due to the addition of \$10.0M for 5th to 4th Generation Gateway, partially offset by \$5.060M reduction for higher Air Force priorities.

FY14 \$21.4M in Project 657003 for classified effort.

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise				PROJECT 655050: TDL System Integration			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 <sup>#</sup>	FY 2014 Base	FY 2014 OCO <sup>##</sup>	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
655050: TDL System Integration	-	30.683	20.310	14.544	-	14.544	18.999	20.017	21.863	22.257	Continuing	Continuing
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
Funding will provide for the study, analysis, enhancement, development, integration, demonstration, test, and evaluation of Tactical Data Links (TDL) as a subset of the broader aerial layer network. TDLs are used in both peacetime and combat environments to exchange information such as character-oriented and fixed-formatted messages, data, radar tracks, target information, platform status, imagery, free-text messaging and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs increase mission effectiveness by providing enhanced air domain situational awareness, positive combat identification of aircraft in the network, correlation of on- and off-board sensor data, digital sharing of machine to machine target and threat information and, thereby, enabling time critical targeting and other mission assignment tasking. TDLs are used by all service theater command and control (C2) elements, weapons platforms, and sensors.												
The number of Air Force platforms hosting TDLs has expanded from C2 aircraft (E-3, E-8, etc.) to the fighter, bomber, intelligence, surveillance and reconnaissance (ISR), tanker, airlift and other tactical fleets (F-15, F-16, F-22A, Rivet Joint, B-1, B-2, B-52, etc.), as well as to precision guided munitions. Utilization of TDLs in a joint environment requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint and coalition platforms. TDLs have become the primary means of tactical, battlefield communications.												
Efforts in this project include waveform and integration activities.												
Waveform: Waveform activities include, but are not limited to, enabling and supporting Joint Interoperability of Tactical Command and Control Systems (JINTACCS), interoperable System Management and Requirements Transformation (iSMART), Coalition Interoperability, Cursor on Target, Tactical Edge Network C2 (TEN C2) efforts, and Link 16 Enhancements. Funding will provide training, logistics development, certification of individual TDL implementations to joint/allied standards, establishment of service-wide network management procedures/operations, and system wide enhancements/testing.												
Integration: Integration activities include, but are not limited to, the Joint Aerial Layer Network (JALN) Analysis of Alternatives (AoA) and follow-on activities, Data Link Test Facility (DTF), Air Force Participating Test Unit (AFPTU), Joint Airborne Network Tactical Edge (JAN-TE) Network Centric Capability Assessment (NCCA), the Joint Warfighting Integrated NetOps (JWIN) Joint Concept Technology Demonstration (JCTD), and Tactical Communications Suite (TCS). Funding will ensure continued enhanced interoperability of Air Force and joint assets through efforts such as early systems engineering and use of the POET (Political, Operational, Economic												

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise	PROJECT 655050: TDL System Integration		
and Technical) process for program requirements analysis and architectural design development/coordination of all TDN standards and management capabilities, configuration management, platform/system interoperability assessments, development of government reference architectures, and interoperability certification testing.  Activities also include studies and analysis to support both current program planning and execution and future program planning efforts for Tactical Data Networks, including development of joint concepts for C2 of JALN and the Joint Tactical Air Picture (JTAP).  This program is in Budget Activity 5, System Development and Demonstration (SDD), it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2012	FY 2013	FY 2014
Title: TDN Integration  Description: TDN Integration efforts include DTF, AFPTU, NCCA, JAN-TE, coalition interoperability, JALN AoA and follow-on, and JWIN JCTD.  FY 2012 Accomplishments: Funding provided training, logistics, development, and certification to individual TDL implementations to joint/allied standards.  FY 2013 Plans: Funding is providing training, logistics, development, and certification to individual TDL implementations to joint/allied standards.  FY 2014 Plans: Funding will provide training, logistics, development, and certification to individual TDL implementations to joint/allied standards.		8.819	7.921	7.478
Title: Joint Interoperability of Tactical Command and Control Systems (JINTACCS)  Description: JINTACCS ensures interoperability of AF TDL systems with associated joint, allied, and coalition systems and includes development, interoperability certification, TDL message standard implementation utilizing iSMART (e.g., Links 11A/B, 16, 22, VMF, IBS, MADL), and configuration management of standards.  FY 2012 Accomplishments: Funding ensured compatibility and interoperability of TDLs by conducting necessary joint compatibility and interoperability tests.  FY 2013 Plans: Funding is ensuring compatibility and interoperability of TDLs by conducting necessary joint compatibility and interoperability tests.  FY 2014 Plans: Funding will ensure compatibility and interoperability of TDLs by conducting necessary joint compatibility and interoperability tests.		2.539	3.363	2.531
Title: Cursor on Target (CoT)		0.144	0.024	0.123

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise	PROJECT 655050: TDL System Integration		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2012	FY 2013	FY 2014
<p><b>Description:</b> CoT is an extensible, 'What, When, Where' (W3) XML message format for interconnecting tactical information systems. The CoT suite consists of the W3 base schema, 14 tailored sub-schemas, and a set of S/W plug-ins and translators that facilitate machine to machine (M2M) transmission of C2, ISR, and situational awareness data at reduced cost compared with traditional integration methods.</p> <p><b>FY 2012 Accomplishments:</b> Funding supported development, test, certification and accreditation of new CoT apps/plugin-ins/schema and transitioning of apps/plugin-ins/schema to sustainment.</p> <p><b>FY 2013 Plans:</b> Funding is supporting development, test, certification and accreditation of new CoT apps/plugin-ins/schema and transitioning of apps/plugin-ins/schema to sustainment.</p> <p><b>FY 2014 Plans:</b> Funding will support development, test, certification and accreditation of new CoT apps/plugin-ins/schema and transitioning of apps/plugin-ins/schema to sustainment.</p>				
<p><b>Title:</b> Gateways Integration</p> <p><b>Description:</b> Supporting integration efforts including CLIP, LAK, Quick Reaction Capabilities (QRC), that cover work to support AF and Joint Urgent Operational Needs, and JETPack JCTD.</p> <p><b>FY 2012 Accomplishments:</b> Funding supported integration efforts including CLIP, LAK and QRC, that cover work to support AF and Joint Urgent Operational Needs, and the JCTD JETPack that is predecessor to 5th-4th Generation program of record.</p> <p><b>FY 2013 Plans:</b> Funding is supporting completion of the JCTD efforts including testing and verification of the JETPack capabilities.</p> <p><b>FY 2014 Plans:</b> Funding will not be requested in FY 2014.</p>		11.030	4.800	0.000
<p><b>Title:</b> Program Management Administration (PMA)</p> <p><b>Description:</b> Program Management Administration costs provide management with the necessary engineering, technical, and administrative support needed to facilitate development and implementation.</p> <p><b>FY 2012 Accomplishments:</b></p>		8.151	4.202	4.412

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b> Funding supported TDN Integration, JINTACCS, CoT, and Gateways Integration programs with engineering, technical, and administrative support.  <b>FY 2013 Plans:</b> Funding is supporting TDN Integration, JINTACCS, CoT, and Gateways Integration programs with engineering, technical, and administrative support.  <b>FY 2014 Plans:</b> Funding will support TDN Integration, JINTACCS, and CoT programs with engineering, technical, and administrative support.										<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>
<b>Accomplishments/Planned Programs Subtotals</b>										30.683	20.310	14.544
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014 Base</b>	<b>FY 2014 OCO</b>	<b>FY 2014 Total</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• RDTE:BA07:PE 0207448F: <i>C2ISR TDL</i>	1.489	1.633	1.431		1.431	1.805	1.791	1.732	1.763	Continuing	Continuing	
• APAF:BA05:Line Item #A01000: <i>A-10</i>	0.674	0.000	0.000		0.000	0.000	0.000	0.000	0.000	Continuing	Continuing	
• APAF:BA05:Line Item #F01500: <i>F-15</i>	0.000	0.000	0.000		0.000	6.290	18.946	44.593	45.393	Continuing	Continuing	
• APAF:BA05:Line Item #F01600: <i>F-16</i>	0.000	0.000	0.000		0.000	8.303	7.994	8.137	8.283	Continuing	Continuing	
• APAF:BA05:Line Item #B00200: <i>B-2A</i>	0.000	0.000	0.257		0.257	0.488	0.477	0.102	0.000	Continuing	Continuing	
• APAF:BA05:Line Item #B01B00: <i>B-1B</i>	0.000	0.000	0.696		0.696	1.273	1.144	0.129	0.000	Continuing	Continuing	
• APAF:BA05:Line Item #OTHACF: <i>Other Aircraft</i>	0.957	0.000	0.192		0.192	1.590	2.561	1.608	0.617	Continuing	Continuing	
• OPAF:BA03:Line Item #834010: <i>General Information Technology</i>	10.388	0.269	0.248		0.248	0.169	0.170	0.173	0.176	Continuing	Continuing	
<b>Remarks</b>												

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604281F: <i>Tactical Data Networks Enterprise</i>	<b>PROJECT</b> 655050: <i>TDL System Integration</i>
<b>D. Acquisition Strategy</b> The Airborne Networking Directorate provides for common development, integration, and interoperability across the entire airborne network and ensures that data links 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.		
<b>E. Performance Metrics</b> 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 2014 Air Force												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)						R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise				PROJECT 655050: TDL System Integration					
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tactical Edge Network C2 development efforts	TBD	TBD:TBD,	-	0.000		0.000		0.120	Dec 2013	-		0.120	Continuing	Continuing	TBD
Gateway Integration efforts - LAK	C/Various	ProLogic:Manassas, VA	-	2.670	Jun 2012	0.000		0.000		-		0.000	0.000	2.670	TBD
Gateway Integration efforts	C/FFP	Northrop Grumman:San Diego, CA	-	5.300	Apr 2012	4.800	Jan 2013	0.000		-		0.000	0.000	10.100	TBD
Subtotal			0.000	7.970		4.800		0.120		0.000		0.120			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DMS - NCCA	C/T&M	MITRE:Bedford, MA	-	0.000		1.247	Oct 2012	0.000		-		0.000	Continuing	Continuing	TBD
DMS - Coalition Interoperability	RO	NATO Support Agency in Luxembourg;.,	-	0.061	Sep 2012	0.062	May 2013	0.048	Dec 2013	-		0.048	Continuing	Continuing	TBD
DMS - Gateways Integration	C/Various	Various:Various,	-	1.221	Sep 2012	0.000		0.000		-		0.000	0.000	1.221	TBD
DMS - Gateways Integration - FFRDC support	C/T&M	MITRE:Various,	-	1.112	Sep 2012	0.000		0.000		-		0.000	0.000	1.112	TBD
Subtotal			0.000	2.394		1.309		0.048		0.000		0.048			
Remarks															
DMS - Gateways Integration contains multiple efforts for Airlift, Radio Repair, etc...that each total less than \$1M but add to a total of \$1.221M when combined together.															



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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force												DATE: April 2013			
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Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DTF efforts	PO	46th Test Squadron:Eglin AFB, FL	-	2.307	Feb 2012	1.358	Nov 2012	1.018	Nov 2013	-		1.018	Continuing	Continuing	TBD
JINTACCS/iSMART efforts	C/FFP	Spectrum Comm Inc:Newport News, VA	-	2.539	Feb 2012	3.363	Feb 2013	2.531	Feb 2014	-		2.531	Continuing	Continuing	TBD
AFPTU efforts	MIPR	Various:Various,	-	2.530	May 2012	2.039	May 2013	1.652	May 2014	-		1.652	Continuing	Continuing	TBD
JALN AoA efforts	MIPR	Various:Various,	-	2.921	Jan 2012	2.715	Dec 2012	4.640	Dec 2013	-		4.640	Continuing	Continuing	TBD
JWIN JCTD efforts	PO	Rome Labs:Rome, NY	-	1.000	Aug 2012	0.500	Mar 2013	0.000		-		0.000	0.000	1.500	TBD
Various Test Centers, Test Equipment, Vehicle Maintenance, Freight Shipping, etc.	Various	Various:Various,	-	0.871	May 2012	0.024	May 2013	0.123	May 2014	-		0.123	Continuing	Continuing	TBD
Subtotal			0.000	12.168		9.999		9.964		0.000		9.964			
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All 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 - A&AS support to various programs	C/Various	Various:Various,	-	1.785	Apr 2012	0.606	Dec 2012	0.265	Dec 2013	-		0.265	Continuing	Continuing	TBD
PMA - A&AS support - Gateways Integration	C/T&M	Various:Various,	-	2.908	Dec 2011	0.000		0.000		-		0.000	0.000	2.908	TBD
PMA - FFRDC support - NCCA	C/T&M	MITRE:Bedford, MA	-	0.816	Oct 2011	1.614	Oct 2012	2.861	Oct 2013	-		2.861	Continuing	Continuing	TBD
PMA - FFRDC support - CoT	C/T&M	MITRE:Various,	-	0.980	Nov 2011	1.076	Nov 2012	0.895	Nov 2013	-		0.895	Continuing	Continuing	TBD
PMA - FFRDC support - various programs	C/Various	MITRE:Bedford, MA	-	0.903	Sep 2012	0.323	Nov 2012	0.359	Nov 2013	-		0.359	Continuing	Continuing	TBD

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2014 Air Force												<b>DATE:</b> April 2013		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>						<b>R-1 ITEM NOMENCLATURE</b> PE 0604281F: <i>Tactical Data Networks Enterprise</i>				<b>PROJECT</b> 655050: <i>TDL System Integration</i>				

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013</b>		<b>FY 2014 Base</b>		<b>FY 2014 OCO</b>		<b>FY 2014 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>All Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PMA - Travel, Government Purchase Cards, Telephones, etc.	Various	Various:Various,	-	0.759	Apr 2012	0.583	Dec 2012	0.032	Dec 2013	-		0.032		Continuing	Continuing	TBD
<b>Subtotal</b>			0.000	8.151		4.202		4.412		0.000		4.412				

<b>Remarks</b> PMA - A&AS support for various programs is for multiple contracts totaling less than \$1M each: FY2012 (total cost \$1.785M); FY2013 (total cost \$.606M); FY2014 (total cost \$.265M).																
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	<b>All Prior Years</b>	<b>FY 2012</b>		<b>FY 2013</b>		<b>FY 2014 Base</b>		<b>FY 2014 OCO</b>		<b>FY 2014 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.000	30.683		20.310		14.544		0.000		14.544			

<b>Remarks</b>																
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**Exhibit R-4, RDT&E Schedule Profile:** PB 2014 Air Force

**DATE:** April 2013

**APPROPRIATION/BUDGET ACTIVITY**

3600: *Research, Development, Test & Evaluation, Air Force*  
BA 5: *System Development & Demonstration (SDD)*

**R-1 ITEM NOMENCLATURE**

PE 0604281F: *Tactical Data Networks Enterprise*

**PROJECT**

655050: *TDL System Integration*



## Tactical Data Networks Enterprise/ Tactical Data Link System Integration

PE 0604281F Project 655050	FY12	FY13	FY14	FY15	FY16	FY17	FY18
<b>TDN Integration</b>	Development, test, certification, and accreditation						
<b>JINTACCS</b>	Configuration Management of TDL MIL-STD5						
<b>Cursor on Target (CoT)</b>	Development, test, certification, and accreditation						
<b>Gateways Integration</b>	Development						

△ ◇ Key Events

Program Phases  
 Development/Demonstration  
 Test  
 Integration/Fielding

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Air Force			<b>DATE:</b> April 2013
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604281F: <i>Tactical Data Networks Enterprise</i>	<b>PROJECT</b> 655050: <i>TDL System Integration</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TDN Integration	1	2012	4	2018
JINTACCS	1	2012	4	2018
Cursor on Target (CoT)	1	2012	4	2018
Gateways Integration	1	2012	4	2013

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise				PROJECT 655262: Family of Gateways			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 <sup>#</sup>	FY 2014 Base	FY 2014 OCO <sup>##</sup>	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
655262: Family of Gateways	-	14.421	4.224	15.512	-	15.512	20.600	15.669	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
Funding supports Family of Gateways study, analysis, enhancement, development, integration, demonstration, test, and evaluation efforts that will allow joint combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks producing operational effects not possible within individual networks. Gateway functions include enabling interoperability between data formats, protocols, and communication mediums. Additionally, gateway functions extend the connectivity range, consolidate data from multiple networks into high capacity links for transmission to key C2ISR nodes, route information between disadvantaged users, and correlate data from multiple sources to improve accuracy. Gateway functions also provide application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring/network management. Funding in this project will also support quick reaction capability requests by the warfighter such as the Battlefield Airborne Communications Node (BACN), 5th to 4th and 5th to 5th Generation efforts, and the STRATCOM Distributed Nuclear Command and Control (DNC2) capabilities. Additionally, funding will support activities associated with the Joint Aerial Layer Network (JALN) Analysis of Alternatives and follow-on recommendation.												
Efforts in this project include waveform, ground, and quick reaction capability activities.												
BACN Program of Record: Program of Record (POR) activities include the preparation of POR and potential P3I efforts related to BACN aircraft. These activities include: documentation, milestone decision documentation, acquisition strategies, and studies and analysis. This effort will reduce risk/schedule impact in FY15.												
Waveforms: Waveform activities include, but are not limited to Common Link Integration Processing (CLIP), Situational Awareness Data Link (SADL), and 5th to 4th Generation efforts. CLIP is a software-only, platform-independent middleware application that provides gateway services between diverse message sets and waveforms. CLIP will initially be fielded on the B-1 and B-52 platforms. SADL integrates US Air Force close air support aircraft with the networked battlefield via the US Army's Enhanced Position Location Reporting System (EPLRS). The 5th to 4th Generation gateway facilitates sharing of 5th Generation aircraft track data with 4th Generation aircraft as well as C2 nodes.												
Ground:												

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise	PROJECT 655262: Family of Gateways		
Ground activities include, but are not limited to the Joint Air Defense System Integrator (JADSI), Pocket J, and Link 16 Alaska (LAK). Funding will support enhancements to the interoperability and capabilities of fielded gateways through processing capability upgrades, operating system updates, display/graphical user interface upgrades, incorporation of additional messaging standards and protocols, and completion of gateway architecture fielding.				
Quick Reaction Capability: Quick reaction capability activities include, but are not limited to, BACN, Beyond Line of Sight Command and Control (BLOS C2), and STRATCOM DNC2. Funding will support AF rapid acquisition requirements for communications bridging of waveforms through gateway technology.				
Activities also include studies and analysis to support both current program planning and execution and future program planning efforts for Family of Gateways.				
This program is in Budget Activity 5, System Development and Demonstration (SDD), it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2012	FY 2013	FY 2014
Title: Common Link Integration Processing (CLIP)  Description: CLIP efforts provide Link 16 and Joint Range Extension Application Protocol (JREAP) A & C message processing to the B-1B FIDL and B-52 CONECT Platforms via a software upgrade.  FY 2012 Accomplishments: Funding provided an enterprise solution for Link-16 and Joint Range Extension Application Protocol (JREAP) message processing.		0.594	0.000	0.000
Title: Joint Air Defense System Integrator (JADSI)  Description: JADSI efforts provide command & control centers a common tactical picture by receiving, processing, and correlating TDL, intelligence, and radar feeds.  FY 2012 Accomplishments: Funding provided testing of a software and hardware package that connects and translates between multiple communication devices and provides situational awareness, permitting the program to transition to sustainment.		1.952	0.000	0.000
Title: Beyond Line of Sight Command & Control (BLOS C2)  Description: QRC effort to establish an IP-based, aerial network with extended range for bi-directional VOIP, chat, imagery, situational awareness, full motion video and collaborative C2 in direct support of NAVCENT CONPLAN.  FY 2012 Accomplishments:		1.221	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise	PROJECT 655262: Family of Gateways		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2012	FY 2013	FY 2014
Awarded contracts and conducted requirements and design reviews focused on implementing first two architecture deliveries for BLOS C2.				
<p><b>Title:</b> STRATCOM DNC2</p> <p><b>Description:</b> STRATCOM DNC2 efforts provide for the distribution of data from airborne assets to ground components for analysis, decision-making and re-tasking of critical assets.</p> <p><b>FY 2012 Accomplishments:</b> Funding supported development, test, and fielding of operational-hardened, wideband Ground Entry Points (GEPs) and testing with up to three aircraft to ensure functionality of the system in an operational environment.</p> <p><b>FY 2013 Plans:</b> Funding is supporting development, test, and fielding of operational-hardened, wideband GEPs and testing with up to three aircraft to ensure functionality of the system in an operational environment.</p> <p><b>FY 2014 Plans:</b> Funding will support development, test, and fielding of operational-hardened, wideband GEPs and testing with up to three aircraft to ensure functionality of the system in an operational environment.</p>		8.153	2.992	5.512
<p><b>Title:</b> 5th To 4th Generation Gateway</p> <p><b>Description:</b> 5th to 4th Generation gateway facilitates sharing of 5th Generation track data with 4th Generation aircraft as well as C2 nodes.</p> <p><b>FY 2014 Plans:</b> Funding will support projects including 5th to 4th Generation gateway with engineering, technical, and administrative support.</p>		0.000	0.000	9.000
<p><b>Title:</b> Program Management Administration (PMA)</p> <p><b>Description:</b> PMA costs provide management with the necessary engineering, technical, and administrative support needed to facilitate development and implementation.</p> <p><b>FY 2012 Accomplishments:</b> Funding supported projects including CLIP, SADL, JADSI, BLOS C2, and other gateways with engineering, technical, and administrative support.</p> <p><b>FY 2013 Plans:</b></p>		2.501	1.232	1.000

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise				PROJECT 655262: Family of Gateways			
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2012	FY 2013	FY 2014
Funding is supporting projects including STRATCOM DNC2 with engineering, technical, and administrative support.											
FY 2014 Plans: Funding will support projects including 5th to 4th Generation gateway, and BACN Program of Record planning with engineering, technical, and administrative support.											
Accomplishments/Planned Programs Subtotals									14.421	4.224	15.512
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTE:BA07:PE 0207448F: C2/ISR TDL	1.489	1.633	1.431		1.431	1.805	1.791	1.732	1.763	Continuing	Continuing
• APAF:BA05:Line Item #A01000: A-10	0.674	0.000	0.000		0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• APAF:BA05:Line Item #F01500: F-15	0.000	0.000	0.000		0.000	6.290	18.946	44.593	45.393	Continuing	Continuing
• APAF:BA05:Line Item #F01600: F-16	0.000	0.000	0.000		0.000	8.303	7.994	8.137	8.283	Continuing	Continuing
• APAF:BA05:Line Item #B00200: B-2A	0.000	0.000	0.257		0.257	0.488	0.477	0.102	0.000	Continuing	Continuing
• APAF:BA05:Line Item #B01B00: B-1B	0.000	0.000	0.696		0.696	1.273	1.144	0.129	0.000	Continuing	Continuing
• APAF:BA05:Line Item #OTHACF: Other Aircraft	0.957	0.000	0.192		0.192	1.590	2.561	1.608	0.617	Continuing	Continuing
• OPAF:BA03:Line Item #834010: General Information Technology	10.388	0.269	0.248		0.248	0.169	0.170	0.173	0.176	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The Airborne Networking Directorate provides for common development, integration and interoperability across the entire airborne network and ensures that data links 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.											



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Exhibit R-2A, RDT&E Project Justification: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604281F: <i>Tactical Data Networks Enterprise</i>	PROJECT 655262: <i>Family of Gateways</i>

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 2014 Air Force												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE				PROJECT					
3600: Research, Development, Test & Evaluation, Air Force						PE 0604281F: Tactical Data Networks Enterprise				655262: Family of Gateways					
BA 5: System Development & Demonstration (SDD)															
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CLIP Development Efforts	C/CPIF	Northrop Grumman:San Diego, CA	-	0.201	May 2012	0.000		0.000		-		0.000	0.000	0.201	TBD
JADSI Development Efforts	SS/T&M	Ultra Electronics:Austin, TX	-	1.676	Mar 2012	0.000		0.000		-		0.000	0.000	1.676	TBD
BLOS C2 MR TCDL	C/CPFF	Northrop Grumman:San Diego, CA	-	0.125	Sep 2012	0.000		0.000		-		0.000	0.000	0.125	TBD
BLOS C2 NRE for the CDL subsystem of TACPod C&D pods	C/T&M	Ultra Electronics:Austin, TX	-	0.795	Sep 2012	0.000		0.000		-		0.000	0.000	0.795	TBD
5th To 4th Generation Gateway efforts	TBD	TBD:TBD,	-	0.000		0.000		9.000	Jan 2014	-		9.000	Continuing	Continuing	TBD
Subtotal			0.000	2.797		0.000		9.000		0.000		9.000			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All 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			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CLIP Navy Support	MIPR	SPAWAR:San Diego, CA	-	0.393	Apr 2012	0.000		0.000		-		0.000	0.000	0.393	TBD
BLOS C2 efforts	PO	46th Test Squadron:Eglin AFB, FL	-	0.301	Sep 2012	0.000		0.000		-		0.000	0.000	0.301	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)						R-1 ITEM NOMENCLATURE PE 0604281F: Tactical Data Networks Enterprise				PROJECT 655262: Family of Gateways					
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
STRATCOM DNC efforts	C/CPFF	Northrop Grumman:Redondo Beach, CA	-	8.153	Feb 2012	2.992	Dec 2012	5.512	Dec 2013	-		5.512	0.000	16.657	TBD
Various Test Centers, Test Equipment, etc.	Various	Various:Various,	-	0.276	Jun 2012	0.000		0.000		-		0.000	0.000	0.276	TBD
Subtotal			0.000	9.123		2.992		5.512		0.000		5.512	0.000	17.627	
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All 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 - A&AS support	C/Various	Various:Various,	-	1.785	Jan 2012	1.232	Jan 2013	0.715	Nov 2013	-		0.715	Continuing	Continuing	TBD
PMA - FFRDC support	C/Various	Various:Various,	-	0.523	Jan 2012	0.000		0.285	Oct 2013	-		0.285	Continuing	Continuing	TBD
PMA - Travel, Government Purchase Cards, Telephones, etc.	Various	Various:Various,	-	0.193	Jan 2012	0.000		0.000		-		0.000	0.000	0.193	TBD
Subtotal			0.000	2.501		1.232		1.000		0.000		1.000			
Remarks															
Multiple A&AS contracts less than \$1M: FY11 (total cost \$1.785M).															
			All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	14.421		4.224		15.512		0.000		15.512			
Remarks															

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**Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force**

**DATE:** April 2013

**APPROPRIATION/BUDGET ACTIVITY**

3600: Research, Development, Test & Evaluation, Air Force  
BA 5: System Development & Demonstration (SDD)

**R-1 ITEM NOMENCLATURE**

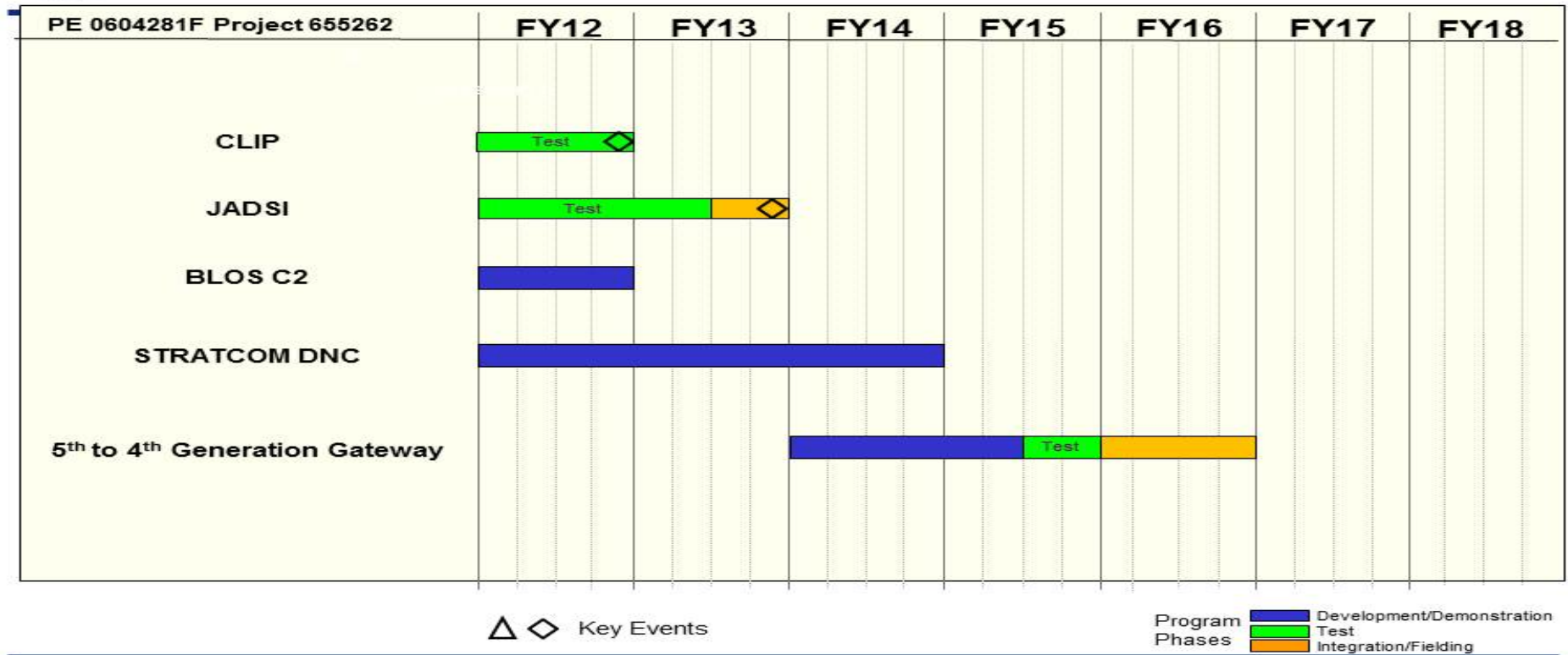
PE 0604281F: Tactical Data Networks  
Enterprise

**PROJECT**

655262: Family of Gateways



## Tactical Data Networks Enterprise Family of Gateways Schedules



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Air Force			<b>DATE:</b> April 2013
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604281F: <i>Tactical Data Networks Enterprise</i>	<b>PROJECT</b> 655262: <i>Family of Gateways</i>	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CLIP Test	1	2012	4	2012
CLIP Transition to Sustainment	4	2012	4	2012
JADSI Test	1	2012	2	2013
JADSI Ver 15 Integration/Fielding	3	2013	4	2013
JADSI Transition to Sustainment	4	2013	4	2013
BLOS C2 Design/Development	1	2012	4	2012
STRATCOM Risk-Reduction Activities	1	2012	4	2014
5th to 4th Generation Gateway - Development	1	2014	2	2015
5th to 4th Generation Gateway - Test	3	2015	4	2015
5th to 4th Generation Gateway - Integration/Fielding	1	2016	4	2016

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APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE				PROJECT			
3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)					PE 0604281F: Tactical Data Networks Enterprise				657003: Airborne Networking Enterprise			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 <sup>#</sup>	FY 2014 Base	FY 2014 OCO <sup>##</sup>	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
657003: Airborne Networking Enterprise	-	0.000	0.000	21.400	-	21.400	7.400	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles												

<sup>#</sup> FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

<sup>##</sup> The FY 2014 OCO Request will be submitted at a later date

**A. Mission Description and Budget Item Justification**

This is a classified effort. Details provided upon request.