Exhibit R-2, RDT&E Budget Item 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 0207445F: *FIGHTER TACTICAL DATA LINK* | | | | | | |

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	66.592	85.492	-	-	-	-	-	-	-	Continuing	Continuing
675043: *Fighter Tactical Data Link*	66.592	85.492	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Tactical Data Links (TDL), as a subset of the broader Aerial Layer Network, are used in both peace time and combat environments to exchange information such as 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, providing enhanced situational awareness, positive combat identification of aircraft in the network, correlation of on- and off-board sensor data, digital machine to machine target and threat information sharing; 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 Tactical Data Link technologies, such as Tactical Targeting Network Technology (TTNT), and Multifunction Advanced Data Link (MADL).

This effort provides critical capability and enhancements to the Aerial Layer Network by creating common development, integration and interoperability among all Air Force fighter platforms including but not limited to A-10, F-15A-E, F-16 Blocks 30/40/50, F-22A, and F-35 aircraft. The funds associated with the Fighter TDL PE ensure the Air Force (AF) fighter fleet maintains standardization; develops interoperable data link exchanges; and enables Global Strike (GS), Global Persistent Attack (GPA), Offensive and Defensive Counterair (OCA and DCA), Suppression of Enemy Air Defenses (SEAD), and Destruction of Enemy Air Defenses (DEAD) missions. Incorporation of TDLs on the fighter fleet also expands Line of Sight (LOS) and Beyond Line of Sight (BLOS) data link connectivity. Additional efforts aimed at maintaining interoperability amongst the platforms in this portfolio include: AF and Joint interoperability certification testing, waveform crypto modernization, updates to the Link-16 message standard (MIL-STD-6016D) and integration of applicable Interface Change Proposals (ICPs) within platform Operational Flight Programs and incorporating Interoperable Systems Management and Requirements Transformation (iSMART); a process which enables network centric interoperability assessments to be made more quickly and effectively.

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

Fighter Tactical Data Link 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.

Exhibit R-2, **RDT&E Budget Item 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 0207445F: *FIGHTER TACTICAL DATA LINK*

B. Program Change Summary ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**
Previous President's Budget	66.872	85.492	169.748	-	169.748
Current President's Budget	66.592	85.492	-	-	-
Total Adjustments	-0.280	-	-169.748	-	-169.748
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-0.280	-	-169.748	-	-169.748

Change Summary Explanation

FY12 funding realigned to higher AF priorities.

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 0207445F: FIGHTER TACTICAL DATA LINK				PROJECT 675043: Fighter Tactical Data Link		

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
675043: Fighter Tactical Data Link	66.592	85.492	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Tactical Data Links (TDL), as a subset of the broader Aerial Layer Network, are used in both peace time and combat environments to exchange information such as 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, providing enhanced situational awareness, positive combat identification of aircraft in the network, correlation of on- and off-board sensor data, digital machine to machine target and threat information sharing; 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 Tactical Data Link technologies, such as Tactical Targeting Network Technology (TTNT), and Multifunction Advanced Data Link (MADL).

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

Fighter Tactical Data Link 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. Accomplishments/Planned Programs ($ in Millions)

	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: F-22A Advanced Tactical Data Link (ATDL)	47.163	57.000	-	-	-

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 0207445F: *FIGHTER TACTICAL DATA LINK*	**PROJECT** 675043: *Fighter Tactical Data Link*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**
Description: Develop and integrate Dual Processing module, display upgrades and multi-purpose (MPM) electronic warfare module that are required to integrate an advanced tactical data link onto the F-22A. ***FY 2010 Accomplishments:*** Continued Pre-Phase A risk reduction, began Phase A Requirements Definition and conducted System Requirements Review for MADL on F-22A. Continued hardware and software development for radio, processor and crypto processor modules. Defined MADL information exchange requirements and waveform enhancements for consideration of inclusion in F-22A Inc 3.2. ***FY 2011 Plans:*** Continue hardware design of Dual Processing module, display upgrades and multi-pupose (MPM) electronic warfare module to be included in F-22A 3.2. ***FY 2012 Base Plans:*** ***FY 2012 OCO Plans:***					
Title: TDL Enterprise ***Description:*** Develop a well-documented, interoperable data link capability for Low Observable platforms in the anti access region. Explore options to enable interoperability between 4th & 5th generation fighters. ***FY 2010 Accomplishments:*** Matured initial documentation, including a waveform specification. Explored waveform improvements. Developed the initial MADL Message Standard with the content, formats and protocols for Increment 1 capability. Increased the fidelity of modeling and simulation capabilities to support decision making, expectation setting and employment procedures. Began to develop a test and evaluation strategy for MADL. Documented the initial Information Assurance Strategy from an enterprise perspective. Evaluated the maturity of MADL technologies. ***FY 2011 Plans:*** Finalize the Waveform Specification for the MADL Increment 1 capability. Begin development of a new MADL Message Standard revision for future MADL increments/capabilities. Continue to use modeling and simulation capabilities to develop MADL employment procedures and assess the mission utility of future MADL capabilities. Monitor Test and Evaluation activities on the F-35 and F-22A for MADL interoperability test planning. Explore	13.385	22.601	-	-	-

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 0207445F: *FIGHTER TACTICAL DATA LINK*	**PROJECT** 675043: *Fighter Tactical Data Link*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**
options for 4th to 5th generation fighter interoperability. Continue to develop a MADL enterprise Information Assurance strategy. Develop a roadmap for technology evolution. *FY 2012 Base Plans:* *FY 2012 OCO Plans:*					
Title: Direct Support *Description:* Fighter Tactical Data Link system engineering analysis, development, testing, integration, and technical support of common Fighter data link technology and capabilities. *FY 2010 Accomplishments:* Funds provided PMA in direct support of F-22A Advanced TDL development and MADL Enterprise. *FY 2011 Plans:* Funds will provide PMA in direct support of F-22A Advanced TDL development and MADL Enterprise. *FY 2012 Base Plans:* *FY 2012 OCO Plans:*	6.044	5.891	-	-	-
Accomplishments/Planned Programs Subtotals	66.592	85.492	-	-	-

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
• PE 0207448F: *C2ISR TDL, RDT&E AF*	1.604	1.584	1.536	0.000	1.536	1.626	1.650	1.674	1.703	Continuing	Continuing
• PE 0604281F: *TDN Enterprise, RDT&E AF*	160.316	102.941	52.355	0.000	52.355	32.351	37.081	30.846	31.438	Continuing	Continuing
• PE 0207445F: *Fighter TDL, APAF*	9.585	0.929	0.741	0.000	0.741	0.000	14.609	14.610	14.361	Continuing	Continuing
• PE 0207446F: *Bomber TDL, APAF*	0.000	0.000	0.000	0.000	0.000	0.000	1.796	1.756	1.509	Continuing	Continuing
• PE 0207448F (4): *C2ISR TDL, APAF*	0.000	0.000	0.957	0.000	0.957	0.910	0.925	1.726	1.756	Continuing	Continuing
	18.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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 0207445F: *FIGHTER TACTICAL DATA LINK*	**PROJECT** 675043: *Fighter Tactical Data Link*

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
• PE 0604281F (5): *TDN Enterprise, APAF*											
• PE 0207448F (6): *C2ISR TDL, OPAF*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.732	15.464	Continuing	Continuing
• PE 0604281F (7): *TDN Enterprise, OPAF*	34.613	21.742	10.498	0.000	10.498	0.269	0.248	0.169	0.170	Continuing	Continuing
• PE 0207434F: *Link 16 Support & Sustainment, O&M AF*	18.621	0.000	0.000	0.000	0.000	0.000	1.766	3.333	5.391	Continuing	Continuing
• PE 0207445F (9): *Fighter TDL, O&M AF*	0.155	0.221	0.217	0.000	0.217	0.246	0.248	0.253	0.259	Continuing	Continuing
• PE 0401839F: *Air Mobility TDL, O&M AF*	7.862	7.892	2.054	0.000	2.054	0.112	0.149	1.338	1.365	Continuing	Continuing
• PE 0604281F (11): *TDN Enterprise, O&M AF*	261.763	31.318	39.867	0.000	39.867	33.886	36.705	37.662	38.612	Continuing	Continuing

D. Acquisition Strategy

Airborne Networking Division provides for common development, integration and interoperability across all Air Force platforms and ensures that Tactical 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 contractors

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 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 0207445F: *FIGHTER TACTICAL DATA LINK*					**PROJECT** 675043: *Fighter Tactical Data Link*		

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
F-22A Advanced Tactical Data Link Development and Integration	Various	Lockheed Martin:Fort Worth, TX	338.636	57.000	Apr 2011	-		-		-	Continuing	Continuing	TBD
TDL Enterprise	Various	Various:Various,	22.202	22.601	Apr 2011	-		-		-	Continuing	Continuing	TBD
		Subtotal	360.838	79.601		-		-		-			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Common Fighter Data Link Support	Various	Various:Various,	24.069	5.891	Oct 2010	-		-		-	Continuing	Continuing	TBD
		Subtotal	24.069	5.891		-		-		-			

	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	384.907	85.492	-	-	-			

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 0207445F: *FIGHTER TACTICAL DATA LINK*	PROJECT 675043: *Fighter Tactical Data Link*

	Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: 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 0207445F: *FIGHTER TACTICAL DATA LINK*	PROJECT 675043: *Fighter Tactical Data Link*

Exhibit R-4A, RDT&E Schedule Details: 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 0207445F: *FIGHTER TACTICAL DATA LINK*	PROJECT 675043: *Fighter Tactical Data Link*

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
F-22A MADL Risk Reduction and Candidate Definition Pre-Phase A	1	2010	2	2010
F-22A Capabilities Requirements Review	1	2010	1	2010
F-22A MADL Requirements Development Phase A	2	2010	4	2010
F-22A MADL Systems Requirements Review	3	2010	3	2010
F-22A Crypto and Enabler Hardware (HW) Design	1	2010	2	2011
F-22A Enabler HW Development	4	2010	4	2011
MADL Enterprise Message Standard Development	1	2010	4	2011
MADL Enterprise Waveform Spec Development	1	2010	4	2011
MADL Enterprise Modeling and Simulation	1	2010	4	2011