Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

**DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

3600: Research, Development, Test & Evaluation, Air Force

PE 0207446F: Bomber Tactical Data Link

BA 7: Operational Systems Development

COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	21.603	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675041: Bomber Tactical Data Link	21.603	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

#### 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 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), Integrated Broadcast Service (IBS), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration, and interoperability among all Air Force bomber platforms to include, but not limited to B-1B, B-2, and B-52 aircraft. Keeps all bomber platforms and data linked weapons current, interoperable in the network, and compatible with the USAF Global Strike (GS) operations concept beyond 2020. Also expands LOS and BLOS data link capabilities. TDLs increase mission effectiveness, provide situational awareness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the data link to accomplish time critical targeting and other mission update functions. The BLOS data link capability works with Link 16 to extend the range of local Link 16 networks to other areas/theaters. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016D) and applicable Interface Change Proposals (ICPs); assisting with AF and Joint interoperability certification testing; 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 CONOPS and Global Persistent Attack CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

Bomber platforms have both current work and future plans for Tactical Data Links. The B-1 Fully Integrated Data Link (FIDL) program is ongoing. FIDL is being developed for B-1. MADL will be developed for and integrated on B-2 to enable Global Strike (GS), Global Persistent Attack (GPA) and Suppression of Enemy Air Defenses (SEAD) missions.

**UNCLASSIFIED** 

**Exhibit R-2**, **RDT&E Budget Item Justification:** PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

3600: Research, Development, Test & Evaluation, Air Force

PE 0207446F: Bomber Tactical Data Link

BA 7: Operational Systems Development

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

Bomber Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

# **B. Program Change Summary (\$ in Millions)**

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	11.603	0.000	0.000	0.000	0.000
Current President's Budget	21.603	0.000	0.000	0.000	0.000
Total Adjustments	10.000	0.000	0.000	0.000	0.000
<ul> <li>Congressional General Reductions</li> </ul>		0.000			
<ul> <li>Congressional Directed Reductions</li> </ul>		0.000			
<ul> <li>Congressional Rescissions</li> </ul>	0.000	0.000			
<ul> <li>Congressional Adds</li> </ul>		0.000			
<ul> <li>Congressional Directed Transfers</li> </ul>		0.000			
<ul> <li>Reprogrammings</li> </ul>	0.000	0.000			
<ul> <li>SBIR/STTR Transfer</li> </ul>	0.000	0.000			
<ul> <li>Other Adjustments</li> </ul>	10.000	0.000	0.000	0.000	0.000

# **Change Summary Explanation**

In FY09, funding was added to complete B-1 Fully Integrated Data Links (FIDL) System Development and Demonstration (SDD).

Exhibit R-2A, RDT&E Project Just	ification: Pl	3 2011 Air F	orce						DATE: Feb	ruary 2010	
APPROPRIATION/BUDGET ACTIV 3600: Research, Development, Test BA 7: Operational Systems Develop	& Evaluatio	n, Air Force						<b>PROJECT</b> 675041: <i>Bo</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To	Total Cost
675041: Bomber Tactical Data Link	21.603	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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 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 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), Integrated Broadcast Service (IBS), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration, and interoperability among all Air Force bomber platforms to include, but not limited to B-1B, B-2, and B-52 aircraft. Keeps all bomber platforms and data linked weapons current, interoperable in the network, and compatible with the USAF Global Strike (GS) operations concept beyond 2020. Also expands LOS and BLOS data link capabilities. TDLs increase mission effectiveness, provide situational awareness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the data link to accomplish time critical targeting and other mission update functions. The BLOS data link capability works with Link 16 to extend the range of local Link 16 networks to other areas/theaters. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016D) and applicable Interface Change Proposals (ICPs); assisting with AF and Joint interoperability certification testing; 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 CONOPS and Global Persistent Attack CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

Bomber platforms have both current work and future plans for Tactical Data Links. The B-1 Fully Integrated Data Link (FIDL) program is ongoing. FIDL is being developed for B-1. MADL will be developed for and integrated on B-2 to enable Global Strike (GS), Global Persistent Attack (GPA) and Suppression of Enemy Air Defenses (SEAD) missions.

**UNCLASSIFIED** 

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE PROJECT

3600: Research, Development, Test & Evaluation, Air Force PE 0207446F: Bomber Tactical Data Link 675041: Bomber Tactical Data Link

BA 7: Operational Systems Development

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

Bomber Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

## B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: B-1 Fully Integrated Data Link (FIDL) System Design and Development	17.969	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Continued the development of Link 16 capability for the B-1 with emphasis on the FIDL Phase 1 software and hardware. Integrated Link 16 hardware for Phase 1 flight test. Developed and tested software components for integration into Phase 2 flight testing. Completed qualification and testing of Phase 1 including flight test, integrated Phase 2 software and test Phase 2 Link 16 and Joint Range Extension Applications Protocol A (JREAP A) functionality.					
FY 2010 Plans: In FY 2010: N/A					
FY 2011 Base Plans: In FY 2011: N/A					
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.					
MAJOR THRUST: Common Bomber Tactical Data Link (TDL) analysis, systems engineering, testing, and technical support	3.634	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Performed Common Bomber Tactical Data Link (TDL) analysis, systems engineering, testing, and technical support					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010 APPROPRIATION/BUDGET ACTIVITY **R-1 ITEM NOMENCLATURE PROJECT** 

3600: Research, Development, Test & Evaluation, Air Force

PE 0207446F: Bomber Tactical Data Link

675041: Bomber Tactical Data Link

EV 2014 EV 2014 EV 2014

# B. Accomplishments/Planned Program (\$ in Millions)

BA 7: Operational Systems Development

	FY 2009	FY 2010	Base	OCO	Total
FY 2010 Plans: In FY 2010: N/A					
FY 2011 Base Plans: In FY 2011: N/A					
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	21.603	0.000	0.000	0.000	0.000

# C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	<b>Total Cost</b>
• PE 0207434F-A: Link 16 Sup &	278.961	65.619	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sus, (RDT&E)											
• PE 0207445F-A: Fighter TDL,	55.069	66.872	85.492	0.000	85.492	169.748	118.655	0.000	0.000	0.000	0.000
(RDT&E)											
• PE 0207448F-A: <i>C2ISR TDL</i> ,	1.671	1.659	1.584	0.000	1.584	1.608	1.633	1.658	1.682	0.000	0.000
(RDT&E)											
• PE 0401839F-A: <i>Airlift TDL</i> ,	7.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(RDT&E)											
• PE 0604281F-A: <i>TDN</i>	0.000	87.444	102.941	0.000	102.941	67.790	40.507	43.037	34.930	0.000	0.000
Enterprise, (RDT&E)											
• PE 0207434F-B: Link 16 Sup &	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sus, (APAF)											
• PE 0207445F-B: <i>Fighter TDL</i> ,	5.788	9.585	0.929	0.000	0.929	7.695	6.925	7.043	12.785	0.000	0.000
(APAF)											

**UNCLASSIFIED** 

R-1 Line Item #156 Page 5 of 10

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development

PE 0207446F: Bomber Tactical Data Link

675041: Bomber Tactical Data Link

## C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					<b>Cost To</b>	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	<b>Complete</b>	<b>Total Cost</b>
• PE 0207446F: Bomber TDL,	0.000	0.000	0.000	0.000	0.000	0.339	0.337	0.368	0.972	0.000	0.000
(APAF)											
• PE 0207448F-B: <i>C2ISR TDL</i> ,	0.000	0.000	0.000	0.000	0.000	0.959	0.912	0.927	1.729	0.000	0.000
(APAF)											
• PE 0207434F-C: Link 16 Sup &	131.597	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sus, (O&M)											
• PE 0207445F-C: Fighter TDL,	0.208	0.198	0.219	0.000	0.219	0.221	0.257	0.258	0.268	0.000	0.000
(O&M)											
• PE 0401839F-B : Airlift TDL,	1.574	8.175	7.857	0.000	7.857	3.629	1.634	1.666	2.944	0.000	0.000
(O&M)											
• PE 0604281F-B: <i>TDN</i>	0.000	33.727	31.382	0.000	31.382	19.165	17.303	20.026	21.534	0.000	0.000
Enterprise, (O&M)											
• PE 0207434F-D: Link 16 Sup &	16.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sus, (OPAF)											
• PE 0604281F-C: <i>TDN</i>	0.000	32.343	21.742	0.000	21.742	9.270	0.337	0.311	0.240	0.000	0.000
Enterprise, (OPAF)											

# D. Acquisition Strategy

The 653rd Electronic Systems Group (ELSG) 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.

#### **E. Performance Metrics**

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force

**DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

**PROJECT** 

3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development

PE 0207446F: Bomber Tactical Data Link

675041: Bomber Tactical Data Link

**Product Development (\$ in Millions)** 

				FY 2	2010	FY 2 Ba		FY 20 OC		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
B-1 FIDL System Development and Demonstration (SDD) *	SS/CPIF	Boeing Long Beach, CA	50.556	0.000		0.000		0.000		0.000	Continuing	Continuing	194.234
Bomber TDL analysis, systems engineering & technical support/MITRE	Various/ Various	Various Various	1.933	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	52.489	0.000		0.000		0.000		0.000			

#### Remarks

\*MIPR funding to Bomber platform program offices for scheduled contract awards and development efforts.

**Management Services (\$ in Millions)** 

managomoni con vic	ν.	,		FY 2	010	FY 2 Ba		FY 2		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Office and Contractor Support	C/FFP	Various Various	2.051	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	2.051	0.000		0.000		0.000		0.000			

**Remarks** 

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force

**DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY

BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

**PROJECT** 

3600: Research, Development, Test & Evaluation, Air Force

PE 0207446F: Bomber Tactical Data Link

675041: Bomber Tactical Data Link

**Test and Evaluation (\$ in Millions)** 

	-												
				FY 20	010	FY 2 Ba		FY 2		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
B-1 Lab Development	C/CPFF	Tinker AFB OK	2.308	0.000		0.000		0.000		0.000	0.000	2.308	0.000
B-1 FIDL Testing	РО	AF Flight Test Center Edwards AFB, CA	1.630	0.000		0.000		0.000		0.000	0.000	1.630	0.000
		Subtotal	3.938	0.000		0.000		0.000		0.000	0.000	3.938	0.000

#### Remarks

	Total Prior Years Cost	FY 2	2010	FY :	2011 Ise	FY 2	-	2011 otal	Cost To	Total Cost	Target Value of Contract
Project Cost Totals	58.478	0.000		0.000		0.000		0.000			

#### Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

**DATE:** February 2010

#### APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 7: Operational Systems Development

#### R-1 ITEM NOMENCLATURE

PE 0207446F: Bomber Tactical Data Link

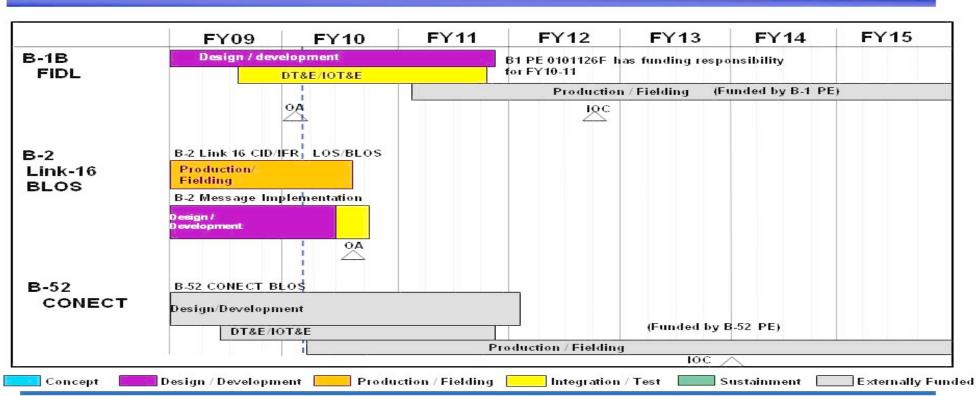
## **PROJECT**

675041: Bomber Tactical Data Link



# Bomber Tactical Data Link Schedule (as of 08 Dec 09)





Integrity - Service - Excellence

R-1 Line Item #156 Page 9 of 10

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY

**R-1 ITEM NOMENCLATURE PROJECT** 3600: Research, Development, Test & Evaluation, Air Force PE 0207446F: Bomber Tactical Data Link

BA 7: Operational Systems Development

675041: Bomber Tactical Data Link

## Schedule Details

	St	art	E	nd
Event	Quarter	Year	Quarter	Year
B-1 Fully Integrated Data Link System Design & Development (SDD)*	1	2009	4	2011
B-1 Fully Integrated Data Link Flight Test (DT&E/IOTE)	3	2009	4	2011
B-1 Fully Integrated Data Link Production & Fielding	1	2011	4	2011
B-2 Message Implementation	1	2009	3	2010
B-2 Message Implementation Operational Assessment	3	2010	3	2010
B-52 Integrated Data Link SDD**	1	2009	4	2011
B-52 Integrated Data Link (DT&E/IOT&E)**	2	2009	4	2011