

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Air Force **DATE:** February 2011

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i> | R-1 ITEM NOMENCLATURE PE 0207445F: <i>FIGHTER TACTICAL DATA LINK</i> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|

| COST (\$ in Millions) | FY 2010 | FY 2011 | FY 2012 Base | FY 2012 OCO | FY 2012 Total | FY 2013 | FY 2014 | FY 2015 | FY 2016 | Cost To Complete | Total Cost |
|-------------------------------------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 66.592 | 85.492 | - | - | - | - | - | - | - | Continuing | Continuing |
| 675043: <i>Fighter Tactical Data Link</i> | 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.

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| 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.

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| 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: <i>Fighter Tactical Data Link</i> | 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 | - | - | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force | | DATE: February 2011 |
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| 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: <i>C2ISR TDL, RDT&E AF</i> | 1.604 | 1.584 | 1.536 | 0.000 | 1.536 | 1.626 | 1.650 | 1.674 | 1.703 | Continuing | Continuing |
| • PE 0604281F: <i>TDN Enterprise, RDT&E AF</i> | 160.316 | 102.941 | 52.355 | 0.000 | 52.355 | 32.351 | 37.081 | 30.846 | 31.438 | Continuing | Continuing |
| • PE 0207445F: <i>Fighter TDL, APAF</i> | 9.585 | 0.929 | 0.741 | 0.000 | 0.741 | 0.000 | 14.609 | 14.610 | 14.361 | Continuing | Continuing |
| • PE 0207446F: <i>Bomber TDL, APAF</i> | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.796 | 1.756 | 1.509 | Continuing | Continuing |
| • PE 0207448F (4): <i>C2ISR TDL, APAF</i> | 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 |

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

| <u>Line Item</u> | <u>FY 2010</u> | <u>FY 2011</u> | <u>FY 2012</u> <u>Base</u> | <u>FY 2012</u> <u>OCO</u> | <u>FY 2012</u> <u>Total</u> | <u>FY 2013</u> | <u>FY 2014</u> | <u>FY 2015</u> | <u>FY 2016</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|---------------------------------------------------------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • PE 0604281F (5): <i>TDN Enterprise, OPAF</i> | | | | | | | | | | | |
| • PE 0207448F (6): <i>C2ISR TDL, OPAF</i> | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 7.732 | 15.464 | Continuing | Continuing |
| • PE 0604281F (7): <i>TDN Enterprise, OPAF</i> | 34.613 | 21.742 | 10.498 | 0.000 | 10.498 | 0.269 | 0.248 | 0.169 | 0.170 | Continuing | Continuing |
| • PE 0207434F: <i>Link 16 Support & Sustainment, O&M AF</i> | 18.621 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.766 | 3.333 | 5.391 | Continuing | Continuing |
| • PE 0207445F (9): <i>Fighter TDL, O&M AF</i> | 0.155 | 0.221 | 0.217 | 0.000 | 0.217 | 0.246 | 0.248 | 0.253 | 0.259 | Continuing | Continuing |
| • PE 0401839F: <i>Air Mobility TDL, O&M AF</i> | 7.862 | 7.892 | 2.054 | 0.000 | 2.054 | 0.112 | 0.149 | 1.338 | 1.365 | Continuing | Continuing |
| • PE 0604281F (11): <i>TDN Enterprise, O&M AF</i> | 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force **DATE:** February 2011

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| Product Development (\$ in Millions) | | | | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------------------------------------|------------------------|--------------------------------|------------------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | 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) | | | | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|--------------------------------|------------------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Subtotal | | | - | - | | - | | - | | - | 0.000 | 0.000 | 0.000 |

| Test and Evaluation (\$ in Millions) | | | | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------------------|------------------------|--------------------------------|------------------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Subtotal | | | - | - | | - | | - | | - | 0.000 | 0.000 | 0.000 |

| Management Services (\$ in Millions) | | | | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------------------|------------------------|--------------------------------|------------------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | 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 | | - | | - | | - | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2012 Air Force | | DATE: February 2011 |
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| Exhibit R-4A, RDT&E Schedule Details: PB 2012 Air Force | | DATE: February 2011 |
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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 |