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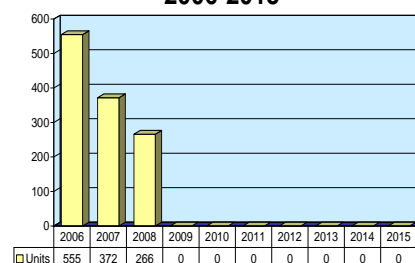
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USQ-140 Multifunctional Information Distribution System (MIDS) - Archived 9/2007

Outlook

- SPAWAR ordered \$74 million worth of terminals in June 2006
- Data Link Solutions and ViaSat received contracts in April 2006 for Airborne Networking Waveforms for MIDS JTRS
- First MIDS JTRS production terminals due May 2007
- Germany and France expected to purchase more MIDS units

Unit Production Forecast
2006-2015



Orientation

Description. The Multifunctional Information Distribution System (MIDS) is a datalink that provides jam-resistant, secure, digital voice and data communications to the warfighter.

Sponsor

U.S. Space and Naval Warfare Systems Command
Arlington, VA
USA

U.S. Navy

Program Executive Office (Space, Communications,
and Sensors)
MIDS International Program Office
Washington, DC
USA

Status. In production and service.

Total Produced. Over 2,100 MIDS units have been produced. In April 2006, ViaSat announced it had delivered more than 700 MIDS terminals for the U.S. Navy, U.S. Air Force, U.S. Army and coalition customers. In June 2004, Data Link Solutions

completed deliveries of 832 FDL terminals and reported deliveries of over 1,400 MIDS terminals.

Application. The program is designed to grow with applications on aircraft, helicopters, ships, and ground sites.

LVT(1) terminals are intended for use on the A-10, 6B-52, EA-6B, Eurofighter, F-16, Mirage, Rafale, and MH-60 helicopter.

LVT(2) terminals are intended for use on the JICO Support System (JSS), the Army Airspace Command and Control (A2C2), Air Battle Management Operation Center (ABMOC), Battery Command Post (BCP), Patriot Information and Coordination Central (ICC), PM-TRCS (Tactical Radio Communication System), SHORAD (Short Range Air Defense), TFIS (Tactical Data Link Fielding and Integration Support System), TOC/AMDCC (Tactical Operation Center/Air Missile Defense Command and Control), and J-UCAS (Joint - Unmanned Combat Air System),

LVT(3) or Fighter Data Link (FDL) terminals are intended for F-15 aircraft.

MIDS on Ships (MOS) are intended for a variety of ships from fast patrol boats to frigates.

Price Range. Forecast International estimates the price of MIDS units to range between \$225,000 and \$375,000 based on quantity and variant. Early units

such as First Article Test (FAT) units would be more expensive. These numbers are derived from a January 2003 contract worth \$14 million for 40 MIDS (\$350,000 each) for South Korea and an April 2004 contract worth \$7.6 million for 32 additional MIDS terminals (\$237,500 each) for the United States.

Contractors

Prime

| | |
|--------------------------------|---|
| Data Link Solutions LLC | http://www.datalinksolutions.net/dls , 350 Collins Rd NE, Cedar Rapids, IA 52498 United States, Tel: + 1 (319) 295-8144, Prime |
| EuroMIDS | http://www.euromids.com , 1 bis rue de Paradis, Paris, 75010 France, Tel: + 33 1 48 01 86 30, Fax: + 33 1 48 01 86 34, Prime |
| ViaSat Inc | http://www.viasat.com , 6155 El Camino Real, Carlsbad, CA 92009-1699 United States, Tel: + 1 (760) 476-2200, Fax: + 1 (760) 929-3941, Prime |

Subcontractor

| | |
|--|--|
| EADS Defence & Security Systems, LFK Lenkflugkörpersysteme GmbH | PO Box 1661, Unterschleisheim, 85705 Germany, Tel: + 49 89 3179 0, Fax: + 49 89 3179 2219 (MIDS Power Amplifiers) |
|--|--|

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to www.forecastinternational.com (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

Design Features. The Multifunctional Information Distribution System (MIDS) is a Low-Volume Terminal (LVT) operationally similar to the Joint Tactical Information Distribution System (JTIDS) Class 2 terminal. Its purpose is to provide secure, digital, anti-jam voice communications (in real time) in the Lx band (960-1215 MHz), and to communicate beyond the line-of-sight through automatic relay techniques. MIDS complies with NATO STANAG 4175 and 5516 (Link 16) transmission parameters, and is a third-generation Link 16 system.

MIDS incorporates Very High Speed Integrated Circuit (VHSIC) microchip technology and Microwave/Millimeter Wave Monolithic Integrated Circuit (MIMIC) technology components. While MIDS and JTIDS terminals are interoperable, MIDS occupies much less space and is lighter. Roughly 0.6 cubic feet (as opposed to 1.6 cu ft for the JTIDS Class 2) and weighing 64.3 pounds (29.5 kg, roughly half the weight of the JTIDS Class 2), MIDS comprises one main unit

and a smaller secondary unit in ATR format (3/4 ATR and 1/4 ATR, respectively). Each terminal can send or receive up to 238 kbits/sec. These features will make it ideal for use on platforms unable to accommodate the larger JTIDS.

Operational Characteristics. MIDS enhances the effectiveness and survivability of fighter pilots by allowing them to analyze current tactical air situations almost immediately.

The elimination of nodal stations between communicators allows hundreds of omnidirectional links to be established simultaneously without jeopardizing the integrity of the signal or performance of the system architecture. This interoperability is complemented by advanced electronic warfare protection techniques such as rapid frequency hopping, spread spectrum modulation (which allows signals to remain undetected in background noise), a powerful error detection and correction code, formatted message catalogs, and encryption of voice or text transmission.

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Potential applications for MIDS are numerous and transcend the individual services. In Air Force applications, MIDS allows multi-service links, including the ability to broadcast general air situation information (AWACS, C², interceptors); airborne relays; or general broadcast of aeronautical information such as ground or weather conditions. In naval

applications, air surveillance is increased between aircraft and air defense ships as well as surface and anti-submarine warfare operations. Armies stand to benefit from increased battlefield air management, as MIDS boosts the interoperability of weapons and networks on the battlefield.



Link 16 MIDS Tactical Data Link Terminal Made by ViaSat

Source: ViaSat Inc

Variants/Upgrades

LVT-1. The Low Volume Terminal Version 1 is for aircraft.

LVT-2. The Low Volume Terminal Version 2 is for Army combat systems and was initially developed for Patriot missile batteries.

LVT-3 or Fighter Data Link (FDL). The FDL terminal is unique to USAF Boeing F-15 aircraft. Under the name Data Link Solutions, BAE Systems (formerly GEC-Marconi Systems) and Rockwell Collins jointly developed the MIDS FDL for Link 16

interoperability, as well as for affordability purposes. It offers frequency hopping at a rate of 13 μ sec across 51 frequencies (969 to 1,206 MHz in the L-band), full MIDS-LVT hardware/software commonality, 50-watt transmit power (less than 1-watt LPI mode), open architecture, and embedded GPS. The FDL has a height of 7.6 inches, a width of 7.5 inches, and a depth of 13.5 inches, at a maximum weight of 50 pounds.

MIDS on Ships (MOS). MIDS-LVT in a cabinet for shipboard application.

Program Review

Background. The MIDS concept can be traced back to a French version, called SINTAC, developed by Thomson-CSF (now Thales) in the early 1970s. SINTAC led to the validation of several functions that would go on to become invaluable elements of the Joint Tactical Information Distribution System (JTIDS). The concerned parties decided to standardize the two communications systems in the late 1980s.

MIDS: A Sleeker, Lighter JTIDS

MIDS grew as an extension of the JTIDS program when it became apparent that the bulky and somewhat heavy JTIDS Class 2 terminals in development were too large

for certain applications (e.g., the F-16). Since MIDS is a smaller, more advanced design, it is able to fit into a larger number of NATO fighters, helicopters, ground sites, and ships.

In 1988, a Memorandum of Understanding (MoU) was signed by Canada, France, Germany, Italy, Norway, Spain, the U.K., and the U.S. to undertake a Phase I study to establish program objectives and determine a labor division upon approval for full-scale development.

A number of electronics firms – Siemens (Germany), Thomson-CSF (France), Italtel (Italy), Inisel (Spain), and Plessey Electronics Systems (a U.S. subsidiary) –

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were selected in June 1989 to form a consortium called MIDSCO Inc to pursue full-scale development. The MIDS Class 2 project definition phase was completed by the end of fiscal year 1989. The demonstration and validation phase began in October 1991.

A second program MoU was signed in December 1991 to standardize principles. The agreement broke out financial commitment for the pre-engineering and manufacturing development (EMD) phase as follows: France, 26.5 percent; Italy, 18 percent; Germany, 7.5 percent; Spain, 7 percent; and the U.S., 41 percent. Further funding for the second phase of work was established, and was signed by all participating nations.

First Contracts & Early Deliveries

In February 1996, the Navy's Space and Naval Warfare Systems Command (SPAWAR) released the final Request for Proposals (RFP) for 500 MIDS Fighter Data Link (FDL) terminals for the F-15. For consideration, candidate MIDS FDLs had to be interoperable with the JTIDS Class 2/MIDS waveform; compliant with the TADIL-J/Link 16 message standard; and compatible with the existing F-15 JTIDS interfaces. Further, the terminal had to be able to transmit over 150 nautical miles and receive from a JTIDS Class 2 terminal up to 300 nautical miles away. It also had to provide a field reliability of 1,000 hours mean time between critical failures; provide 98 percent fault detection with a false alarm rate of no more than 1 percent using Built-in Test (BIT) features; and meet the MIDS architectural attributes. Most importantly, terminals needed to fit within the F-15.

The date of the first MIDS-LVT EMD terminal was moved from June 1997 to December 1997 due to minor problems encountered during integration of the first six EMD terminals and a delay in test software development related to the French Rafale's interface bus. In addition to this delay, a funding shortfall pushed the first EMD flight from April 1998 to December 1998.

On March 11, 1998, the U.S. DoD finally accepted delivery of the first LVT EMD system from MIDSCO Inc at the Pentagon. This was part of the work performed under the \$342.4 million EMD contract awarded in March 1994.

Final approval of MIDS was granted in late 1999. By April 2000, the Defense Acquisition Board had approved Lot 1 low-rate initial production (LRIP) of MIDS by ViaSat and Data Link Solutions (DLS), a BAE Systems/Rockwell Collins company.

Action in Afghanistan Accelerates MIDS Program

It was reported in November 2000 that the Air Combat Command was pushing for an additional \$20 million to accelerate the installation of MIDS aboard the F-15E Strike Eagle. This upgrade would dramatically improve the combat effectiveness of the F-15E by tripling its kill ratio. After the start of military action in Afghanistan in the fall of 2001, the U.S. Air Force announced that it was accelerating its deployment of Link 16 terminals such as MIDS. Emphasis was on fitting the F-15E with MIDS.

The U.S. DoD reached an agreement in December 2000 with France, Germany, Italy, and Spain for the cooperative production of MIDS. The agreement called for the production of more than 2,700 MIDS units. MIDS reached another milestone in February 2001 when it achieved Initial Operational Capability (IOC) after being fitted on the first unit of F-15C fighters stationed at Elmendorf Air Force Base in Alaska.

During the April 2002 Joint Combat Identification Evaluation Team (JCIET) exercise at Eglin Air Force Base, MIDS completed the first phase of its technical evaluation. Installed on an F/A-18 Hornet, the system demonstrated its ability to increase the aircrew's situational awareness through its jam-resistant digital communications link. The JCIET exercise proved that MIDS could work in a real-life battlefield situation.

U.S. and Foreign Deliveries

Boeing placed an order with DLS in January 2003 to provide Link 16 MIDS FDL terminals for the Korean F-15K program. Forty Korean F-15Ks are to be built, and there is an option for an additional 40 F-15K aircraft.

SPAWAR placed a \$56.6 million order with DLS in September 2003 for 216 MIDS-LVTs plus spares. This delivery order combined purchases by the U.S. Navy (48.5 percent) and the governments of Australia (32 percent), Belgium (9 percent), Norway (10 percent) and Poland (0.5 percent) under the Foreign Military Sales (FMS) program.

The following month, SPAWAR placed a \$43.8 million order with ViaSat. That contract called for the delivery of an unspecified number of MIDS airborne and ground-based terminals.

The year ended with the Royal Netherlands Air Force paying ViaSat \$30 million for approximately 120 MIDS terminals for its F-16 fighters.

Both Data Link Solutions and ViaSat were awarded contracts in June 2004 to supply Lot 5 MIDS to the U.S., Canada, Japan, Switzerland, Belgium, Taiwan, and Poland. The values of the contracts were \$48.3

million for DLS and \$47.1 million for ViaSat. ViaSat received an add-on order in August 2004 for approximately \$6.6 million. Both airborne and ground-based MIDS terminals were included in these orders.

At the time of the contracts, DLS claimed it had delivered more than 1,400 MIDS terminals to various domestic and international customers. DLS also reported in July 2004 that it had been chosen to supply MIDS to the Royal Danish Air Force for its fleet of 56 F-16 fighters. The contract is scheduled to be completed by the end of 2008. Reportedly, the Finnish government made a request to the U.S. in early 2004 for retrofit kits for the Mid-Life Upgrades of its F-18C/D aircraft. MIDS is suspected to be a part of the MLU of these fighters.

In the spring of 2005, Turkey signed a deal worth \$1.1 billion to upgrade 117 Block 30 and Block 50 F-16 fighters. Seventy-six of the Block 50s will be receiving MIDS. The Turkish Defense Minister said the modernization effort would be completed by 2012.

SPAWAR awarded MIDS Production Lot 6 contracts in June 2005, with DLS getting \$32.6 million and ViaSat receiving \$61 million. The majority of these contracts (78.4 percent of the DLS contract and 98 percent of the ViaSat contract) will be dedicated to supplying the U.S. with MIDS. The remainder is designated for Australia, Switzerland, Japan, and New Zealand. The U.S. MIDS will be utilized for F/A-18, F-16, and B-52 aircraft, the MH-60 helicopter, and Link 16 Alaska. Other U.S. Air Force and Army programs will be supported by this contract as well. Multiple add-ons to Lot 6 totaling \$19.7 million were added to the contract value in September 2005 and April 2006.

MIDS Gets on the JTRS Bandwagon

On December 28, 2004, DLS and ViaSat were awarded contracts for product improvement of the MIDS to a four-channel architecture compliant with JTRS software. ViaSat was awarded a \$61 million contract and DLS received \$82 million. DLS and ViaSat are to cooperate on the development of the MIDS JTRS terminal and will later compete in sales. The four-channel MIDS JTRS will have one channel dedicated to Link 16 and three for advanced waveforms. The first MIDS JTRS terminal is due in May 2007, 29 months after contract award. LRIP is scheduled for the 2007-2008 timeframe. IOC is expected in 2009.

Due to concerns over the sensitive cryptographic technology involved in MIDS JTRS, the U.S. National Security Agency (NSA) has strictly limited European MIDS partners from participating in the development of MIDS JTRS. European involvement, such as performing program reviews, continues on a limited basis. Relevant data from this work will be transferred to the partner nations via a technical data package (TDP) supported by U.S. companies connected with the program. ViaSat is teaming with Italy's SELEX Communications and German partner Rohde & Schwarz. Within Data Link Solutions, Rockwell Collins is working with Thales France and BAE has paired with Spain's Indra.

Significant News

JTRS Delays Will Not Delay MIDS – Uncertainty over JTRS will not delay the introduction of the MIDS JTRS on Air Force platforms, according to Lt. Gen. William Hobbins, the USAF acting chief information officer. Lt. Gen. Hobbins acknowledged “trouble” with the Army’s program, but said the Air Force was still planning to move ahead with its radio acquisition. “We are still planning to move forward with MIDS JTRS in the FY07 timeframe, and still have the idea that we are going to be able to buy a bunch of MIDS JTRS terminals and radios for A-10 Thunderbolt II ground attack aircraft.” MIDS JTRS would make the Link 16 network used by the United States and its allies JTRS compatible, replacing the MIDS-LVT. Countries participating in MIDS JTRS would include France, Germany, Italy, and Spain. “We have a hard requirement for 2008 for the MIDS JTRS to have that airborne network waveform ... we feel pretty confident about MIDS JTRS,” said Hobbins. (*Defense Daily*, 5/05)

Saudi Arabia Requests MIDS Terminals – On October 3, 2005, the U.S. Defense Security Cooperation Agency (DSCA) notified Congress of the possible Foreign Military Sale (FMS) to the Royal Saudi Air Force of 165 MIDS-LVT Fighter Data Link (FDL) terminals and 25 JTIDS terminals, for up to \$401 million. (*Military Procurement International*, Vol. 15, No. 20, 10/05)

Germany Allows MIDS Program to Proceed – Germany’s newly elected conservative-social democratic government coalition approved a EUR27 million (\$34.5 million) contract for MIDS radios by Euro-MIDS in

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December 2005. Euro-MIDS will deliver a second batch of 91 data transmission radios to the Bundeswehr by 2009, according to the MIDS spending plan. (*Defense News*, 1/06)

USAF Tests New IP-Based Waveform on FDL Terminal – The U.S. Air Force, along with BAE Systems and SRA International, test flew a new IP-based waveform dubbed Fast Access Secure Transfer (FAST) on March 29, 2006. This demonstration involved the Fighter Data Link (FDL) terminal unique to USAF Boeing F-15s. FAST will later be expanded to the MIDS-LVT terminal, to be fitted to a wide variety of platforms. BAE expects the waveform to be ready for deployment by the service by late 2008 or early 2009. FAST allows low-latency, high-throughput data, such as urgent target video, to be transmitted via narrowband Link 16. (*Flight International*, 4/06)

DLS and Thales Team on MIDS JTRS – DLS and Thales have signed an agreement to cooperatively produce and sell MIDS terminals for the JTRS. “This agreement enables DLS to team with Thales on worldwide marketing and production for MIDS JTRS to meet European requirements,” said Bruce King, VP and general manager of Communications Systems for Rockwell Collins. Work will be performed by DLS in Cedar Rapids, Iowa, and Wayne, New Jersey, and by Thales in Colombes, France and at Thales Communications Inc in Clarksburg, Maryland. Development of the base terminal is scheduled for September 2007, with additional capabilities and European-unique developments running through 2009. (DLS, 6/06)

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Funding

| U.S. FUNDING, NAVY | | | | | | | | |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | FY05 QTY | FY05 AMT | FY06 QTY | FY06 AMT | FY07 QTY | FY07 AMT | FY08 QTY | FY08 AMT |
| RDT&E (U.S. Navy) | | | | | | | | |
| PE#0604280N | | | | | | | | |
| Joint Tactical Radio System | | | | | | | | |
| 3020 MIDS JTRS Common | 13 | 21.794 | - | 77.056 | - | 0.000 | - | 0.000 |
| 3020 MIDS JTRS Navy | - | 0.000 | - | 1.890 | - | 1.153 | - | 0.000 |
| Unique | | | | | | | | |
| 3073 MIDS | | 0.000 | | 0.000 | | 0.000 | | 26.077 |
| | FY09 QTY | FY09 AMT | FY10 QTY | FY10 AMT | FY11 QTY | FY11 AMT | FY12 QTY | FY12 AMT |
| RDT&E (U.S. Navy) | | | | | | | | |
| PE#0604280 | | | | | | | | |
| Joint Tactical Radio System | | | | | | | | |
| 3020 MIDS JTRS Common | - | 0.000 | - | 0.000 | - | 0.000 | - | N/A |
| 3020 MIDS JTRS Navy | - | 0.000 | - | 0.000 | - | 0.000 | - | N/A |
| Unique | | | | | | | | |
| 3073 MIDS | - | 4.956 | - | 0.000 | - | 0.000 | - | N/A |

All \$ are in millions.

Source: U.S. Navy Fiscal Year 2007 Budget Estimates Submission February 2006, RDT&E, Navy Budget Activity 5

N/A = Not Available

In FY07, Project No. 3020 MIDS JTRS efforts were transferred from PE#0604280N to PE#0604280A to support the revised JTRS joint program development acquisition strategy.

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U.S. FUNDING, U.S. NAVY

| | Prior Yr <u>QTY</u> | Prior Yr <u>AMT</u> | FY05 <u>QTY</u> | FY05 <u>AMT</u> | FY06 <u>QTY</u> | FY06 <u>AMT</u> | FY07 <u>QTY</u> | FY07 <u>AMT</u> |
|--|------------------------|------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Procurement (U.S. Navy) MIDS 012-99, FA-18C/D/E/F MIDS-LVT | 237 | 73.3 | 72 | 21.2 | 54 | 13.7 | 52 | 15.2 |
| | FY08 <u>QTY</u> | FY08 <u>AMT</u> | FY09 <u>QTY</u> | FY09 <u>AMT</u> | FY10 <u>QTY</u> | FY10 <u>AMT</u> | FY11 <u>QTY</u> | FY11 <u>AMT</u> |
| Procurement (U.S. Navy) MIDS 012-99, F/A-18C/D/E/F MIDS-LVT | - | N/A | - | N/A | - | N/A | - | N/A |

All \$ are in millions.

Source: U.S. Navy Fiscal Year 2007 Budget Estimates Submission February 2006, Aircraft Procurement, Navy, Volume II, Budget Activity 5

N/A = Not Available

U.S. FUNDING, USAF

| | FY05 <u>QTY</u> | FY05 <u>AMT</u> | FY06 <u>QTY</u> | FY06 <u>AMT</u> | FY07 <u>QTY</u> | FY07 <u>AMT</u> | FY08 <u>QTY</u> | FY08 <u>AMT</u> |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| RDT&E (USAF) PE#0604280F MIDS | - | 0.000 | - | 0.000 | - | 0.000 | - | 26.010 |
| | FY09 <u>QTY</u> | FY09 <u>AMT</u> | FY10 <u>QTY</u> | FY10 <u>AMT</u> | FY11 <u>QTY</u> | FY11 <u>AMT</u> | FY12 <u>QTY</u> | FY12 <u>AMT</u> |
| RDT&E (USAF) PE#0604280F MIDS | - | 4.949 | - | 0.000 | - | 0.000 | - | N/A |

All \$ are in millions.

Source: U.S. Navy Fiscal Year 2007 Budget Estimates Submission February 2006, RDT&E, Navy Budget Activity 5

N/A = Not Available

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U.S. FUNDING, U.S. ARMY

| | <u>FY05 QTY</u> | <u>FY05 AMT</u> | <u>FY06 QTY</u> | <u>FY06 AMT</u> | <u>FY07 QTY</u> | <u>FY07 AMT</u> | <u>FY08 QTY</u> | <u>FY08 AMT</u> |
|---|---------------------|----------------------|---------------------|---------------------|---------------------|------------------------|---------------------|-----------------------|
| RDT&E (U.S. Army) PE#0604280A MIDS | - | 0.000 | - | 0.000 | - | 128.330 ^(a) | - | 26.010 ^(b) |
| | <u>FY09 QTY</u> | <u>FY09 AMT</u> | <u>FY10 QTY</u> | <u>FY10 AMT</u> | <u>FY11 QTY</u> | <u>FY11 AMT</u> | <u>FY12 QTY</u> | <u>FY12 AMT</u> |
| RDT&E (U.S. Army) PE#0604280A MIDS | - | 4.949 ^(b) | - | 0.000 | - | 0.000 | - | N/A |

All \$ are in millions.

N/A = Not Available

^(a) FY07 Source: U.S. Army Fiscal Year 2007 Descriptive Summaries of the RDT&E, February 2006 Army Appropriation Budget Activities 4 and 5

^(b) FY08/FY09 Source: U.S. Navy Fiscal Year 2007 Budget Estimates Submission February 2006, RDT&E, Navy Budget Activity 5

U.S. FUNDING, U.S. ARMY

| | <u>FY05 QTY</u> | <u>FY05 AMT</u> | <u>FY06 QTY</u> | <u>FY06 AMT</u> | <u>FY07 QTY</u> | <u>FY07 AMT</u> | <u>FY08 QTY</u> | <u>FY08 AMT</u> |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Procurement (U.S. Army) B22603 Radio Terminal Set, MIDS-LVT(2) | - | 3.2 | - | 3.2 | - | 3.2 | - | 3.0 |
| | <u>FY09 QTY</u> | <u>FY09 AMT</u> | <u>FY10 QTY</u> | <u>FY10 AMT</u> | <u>FY11 QTY</u> | <u>FY11 AMT</u> | <u>FY12 QTY</u> | <u>FY12 AMT</u> |
| Procurement (U.S. Army) B22603 Radio Terminal Set, MIDS-LVT(2) | - | 3.0 | - | 1.1 | - | 1.1 | - | N/A |

All \$ are in millions.

N/A = Not Available

Source: U.S. Army Fiscal Year 2007 Budget Estimates Submission February 2006, Other Procurement, Army, Communications and Electronics, Budget Activity 2

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U.S. FUNDING, U.S. ARMY

| | FY05 <u>QTY</u> | FY05 <u>AMT</u> | FY06 <u>QTY</u> | FY06 <u>AMT</u> | FY07 <u>QTY</u> | FY07 <u>AMT</u> | FY08 <u>QTY</u> | FY08 <u>AMT</u> |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Procurement (U.S. Army) | | | | | | | | |
| BZ8420 | | | | | | | | |
| Joint Tactical Ground Station | | | | | | | | |
| Mods (JTACS) | | | | | | | | |
| MIDS Equipment | - | - | 8 | 3.2 | - | - | - | - |

All \$ are in millions.

Source: U.S. Army Fiscal Year 2007 Budget Estimates Submission February 2006, Other Procurement, Army, Communications and Electronics, Budget Activity 2

FY06/07 procures 8 MIDS radios and spares and incorporates them into the current JTACS and the classroom training suites.

Contracts / Orders & Options

| Contractor | Award (\$ millions) | Date/Description |
|---------------------|--------------------------------|---|
| ViaSat Inc | 1.0 | Jan 2003 – Delivery orders for MIDS-LVT and spares. The orders are for ground-based terminals for the U.S. Army. ViaSat completed Qualification Testing of the MIDS-LVT(2) terminal in December 2002. |
| Data Link Solutions | 14.0 | Jan 2003 – An order from Boeing to provide Link 16 MIDS FDL terminals for the Korean F-15K program. A total of 40 Korean F-15Ks are to be built. There is an option for an additional 40 F-15K aircraft. Contract is scheduled to be completed by February 2008. |
| Data Link Solutions | 15.4 | Jan 2003 – Contract to provide MIDS on Ships (MOS) system for the U.S. Navy. Initial contract is for seven systems, with the potential for as many as 50. The first terminals will be delivered October 2004. The Space and Naval Warfare Systems Command (SPAWAR), San Diego, CA, was the contracting agency. |
| Data Link Solutions | 56.6 | Sep 2003 – A firm-fixed-price delivery order under a previously awarded contract (N00039-00-D-2100) for 216 MIDS-LVTs plus spares. This delivery order combined purchases by the U.S. Navy (48.5 percent) and the governments of Australia (32 percent), Belgium (9 percent), Norway (10 percent) and Poland (0.5 percent) under the FMS program. Work was expected to be completed by September 2005. SPAWAR was the contracting agency. |
| ViaSat | 43.8 | Oct 2003 – A contract for the delivery of an unspecified number of MIDS airborne and ground-based terminals. Deliveries were to be made between Oct 2004 and the second quarter of 2006. SPAWAR was the contracting agency. |
| ViaSat | 30.0 | Dec 2003 – A contract from the Royal Netherlands Air Force for approximately 120 MIDS terminals. These terminals are to be installed on the RNLAF fleet of F-16 fighters. |

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| <u>Contractor</u> | <u>Award (\$ millions)</u> | <u>Date/Description</u> |
|---------------------|--------------------------------|--|
| Data Link Solutions | 7.6 | Apr 2004 – A firm fixed-price delivery order under a previously awarded contract (N00039-00-D-2100) for an additional 32 terminals. These terminals will be installed on several U.S. aircraft, including the U.S. Navy's P-3 and the USAF's F-16, F-22 and B-1 platforms. DLS will deliver ground terminals for the U.S. Navy Common Aviation Command and Control System (Raider Program) China Lake facility. SPAWAR was the contracting agency. |
| Data Link Solutions | 48.3 | Jun 2004 – A firm fixed-price delivery order for MIDS-LVTs. This delivery order combines purchases by the U.S. (76 percent) and the governments of Switzerland (4.8 percent), Belgium (4.5 percent), Taiwan (1 percent), and Poland (13.7 percent) under the FMS Program. In the U.S., terminals will be installed on F/A-18, F-16, EA-6B, MH-60, and B-2 Aircraft. Work was expected to be completed by May 2006. SPAWAR was the contracting agency. (N00039-00-D-2100) |
| ViaSat | 47.1 | Jun 2004 – A firm fixed price delivery order for Lot 5 MIDS-LVT(1) and LVT(2) terminals. This delivery order combines purchases by the U.S. (92 percent) and the governments of Canada (2 percent), Japan (2 percent), and Taiwan (4 percent) under the FMS Program. Work was expected to be completed by May 2006. SPAWAR was the contracting agency. (N00039-00-D-2101) |
| Data Link Solutions | N/A | Jul 2004 – Contract from the Royal Danish Air Force (RDAF), Air Material Command to provide Multi-Functional Information Distribution System (MIDS) Low Volume Terminals (LVT) as part of their MLU Upgrade Program incorporating Link 16 capability on its F-16 aircraft fleet. Under the terms of the contract, which runs through 2008, DLS will deliver MIDS-LVT terminals, as well as Link 16 support equipment and training. |
| ViaSat | 6.6 | Aug 2004 – Add-on order to Lot 5 for MIDS-LVT(1) and -LVT(2) terminals. SPAWAR is the contracting agency. |
| Data Link Solutions | 80.0 | Sep 2004 – Press Release that DLS is under contract to SPAWAR to deliver 50 MOS systems at a value of \$80 million. |
| Data Link Solutions | 82.1 | Dec 2004 – A not-to exceed amount of \$82,141,155 for a cost-plus-incentive-fee/firm fixed-price Engineering Change Proposal modification, and a cost-plus-incentive-fee/firm fixed-price delivery order for the product improvement of the MIDS-LVT to a JTRS software communications compliant architecture under Contract N00039-00-D-2101 for U.S. Navy and Air Force Platforms. The MIDS JTRS will replace the MIDS-LVT to provide secure, high capacity, jam resistant, digital data and voice communications capability. Work is expected to be completed by September 2007. SPAWAR is the contracting agency. (N00039-00-D-2100) |

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| <u>Contractor</u> | <u>Award (\$ millions)</u> | <u>Date/Description</u> |
|--------------------------|--------------------------------|--|
| ViaSat | 60.7 | Dec 2004 – A not-to exceed amount of \$60,729,345 for a cost-plus-incentive-fee/firm fixed-price Engineering Change Proposal modification, and a cost-plus-incentive-fee/firm fixed-price delivery order for the product improvement of the MIDS-LVT to a JTRS software communications compliant architecture under Contract N00039-00-D-2101 for U.S. Navy and Air Force Platforms. The MIDS JTRS will replace the MIDS-LVT to provide secure, high capacity, jam resistant, digital data and voice communications capability. Work is expected to be completed by September 2007. SPAWAR is the contracting agency. (N00039-00-D-2101) |
| Data Link Solutions | 32.6 | Jun 2005 – A firm-fixed-price delivery order for MIDS-LVTs. This delivery order combines purchases by the U.S. (78.4 percent) and the governments of Australia (4.5 percent), Switzerland (8.2 percent), Japan (6.7 percent), and New Zealand (2.2 percent) under the FMS program. Work is expected to be completed by May 2007. SPAWAR is the contracting agency. (N00039-00-D-2100) |
| ViaSat | 61.1 | Jun 2005 – A firm-fixed-price delivery order for MIDS-LVTs, Lot 6. This order includes LVT(1) airborne and LVT(2) ground-based terminals. It combines purchases by the U.S. (98 percent) and the government of Japan (2 percent) under the FMS program. Work is expected to be completed by May 2007. SPAWAR is the contracting agency. (N00039-00-D-2101) |
| EADS Defence Electronics | N/A | Jul 2005 – Contract to supply eight MIDS-LVTs for the German Navy's F-122 class frigates. |
| Data Link Solutions | 5.5 | Sep 2005 – Delivery order for MIDS-LVTs. This order combines purchases for the U.S. (29 percent) and the government of Australia (71 percent) under the FMS program. Work will be performed in Wayne, NJ (50%) and Cedar Rapids, Iowa (50%) and is expected to be completed by May 2007. (N00039-00-D-2100) |
| ViaSat | 5.2 | Sep 2005 – Add-on order for MIDS terminals Lot 6. This add-on order includes primarily LVT(2) ground-based Low Volume Terminals, as well as LVT(1) airborne terminals and spares. SPAWAR is the contracting agency. (N00039-00-D-2101) |
| ViaSat | 5.7 | Sep 2005 – Second add-on order for MIDS terminals Lot 6. This add-on order includes LVT(1) airborne terminals, LVT(2) ground-based terminals and spares. SPAWAR is the contracting agency. (N00039-00-D-2101) |
| Data Link Solutions | 7.8 | Sep 2005 – Firm-fixed-price contract for multiple spares applicable to MIDS. This work will be completed by September 2006. The Headquarters Warner Robins Air Logistics Center, Robins AFB, GA, is the contracting agency. (FA8522-05-C-0048) |
| Data Link Solutions | 22.7 | Nov 2005 – Firm-fixed-price delivery order under previously awarded contract for MIDS-LVTs. This order is for the government of Canada under the FMS program, and is part of the CF-18 Hornet fleet modernization program, incorporating Link 16 capability. Work will be performed in Wayne, NJ (50%) and Cedar Rapids, Iowa (50%) and is expected to be completed by May 2007. SPAWAR is the contracting agency. (N00039-00-D-2100) |

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| <u>Contractor</u> | <u>Award (\$ millions)</u> | <u>Date/Description</u> |
|--------------------------|---------------------------------------|---|
| ViaSat | 3.3 | Apr 2006 – Final add-on to Lot 6. This procurement is for MIDS-LVT(2) ground-based terminal and spares. This final add-on brings the total Lot 6 delivery order value to more than \$74 million. SPAWAR is the contracting agency. |
| ViaSat | 3.5 | Apr 2006 – An undefinitized delivery order to begin development of specifications for an Airborne Networking Waveform (ANW) for MIDS JTRS. Under this effort, the integration of Tactical Targeting Networking Technology (TTNT) into MIDS JTRS will begin. SPAWAR is the contracting agency. |
| Data Link Solutions | 9.3 | May 2006 – Contract to insert Tactical Targeting Networking Technology (TTNT) into MIDS JTRS terminal. This effort covers design specification development toward integration of TTNT into the MIDS JTRS platform, along with initial hardware development. |
| ViaSat | 39.5 | Jun 2006 – Contract for MIDS-LVTs. This delivery order combines purchases for the United States (83.5 percent) and the governments of Portugal (11 percent), Turkey (4.5 percent), and Germany (1 percent) under the FMS program. Work will be performed in Carlsbad, CA (30 percent) and in various other sites worldwide (70 percent), and is expected to be completed by May 2008. SPAWAR is the contracting agency. (N00039-00-D-2101) |
| DLS | 34.6 | Jun 2006 – Contract for MIDS-LVTs. This delivery order combines purchases for the United States (77 percent) and the governments of Switzerland (12 percent), Poland (5 percent), Japan (3 percent), Australia (2 percent), and Germany (1 percent) under the FMS program. Work will be performed in Wayne, NJ (50%), and Cedar Rapids, Iowa (50%), and is expected to be completed by May 2008. SPAWAR is the contracting agency. (N00039-00-D-2100) |

N/A = Not Available

Timetable

| <u>Month</u> | <u>Year</u> | <u>Major Development</u> |
|---------------------|--------------------|---|
| Fall | 1988 | MoU for Phase I study into life-cycle costs and technical specifications for MIDS |
| Jun | 1989 | MIDSCO consortium formed |
| Mar | 1990 | U.S. MIDS management switched to Navy |
| Apr | 1990 | MIDS Mission Needs Statement |
| Oct | 1991 | Demonstration/validation phase begins |
| Mar | 1992 | Joint AT/Navy and AF/Navy testing and evaluation begin (both continued through Sep 1992) |
| Jun | 1993 | Operational Requirements Document |
| | 1993 | International project office set up; MIDS engineering integrated with F/A-18 |
| Mar | 1994 | EMD phase begins |
| Mar | 1996 | Completion of initial MIDS software construction and F/A-18 modifications for incorporation into Operational Flight Program (OFP) |
| Mar | 1998 | First MIDS-LVT (EMD model) delivered to U.S. DoD |
| Aug | 1998 | Completion of shipboard operational testing for U.S. Navy |
| | 1999 | MIDS LRIP production contracts awarded |
| Dec | 2000 | U.S. DoD reaches an agreement with France, Germany, Italy, and Spain for the cooperative production of MIDS |
| Feb | 2001 | MIDS achieves IOC after being fitted on the first unit of F-15C fighters |

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| <u>Month</u> | <u>Year</u> | <u>Major Development</u> |
|--------------|-------------|--|
| Jan | 2003 | Data Link Solutions receives a MIDS order for South Korea's F-15 program |
| Jan | 2003 | DLS wins first MIDS on Ships (MOS) contract |
| Oct | 2003 | SPAWAR places its first order with ViaSat |
| Sep | 2004 | First MOS production terminal delivered |
| Dec | 2004 | Global Power Bomber Test Force conducts Link 16 integration demonstration tests on B-2A Stealth Bomber |
| Dec | 2004 | Data Link Solutions and ViaSat receive contracts to incorporate JTRS into MIDS |
| May | 2007 | First MIDS JTRS terminals scheduled to be delivered |
| Early | 2008 | MIDS JTRS LRIP scheduled to begin |
| | 2009 | MIDS JTRS to achieve IOC |

Worldwide Distribution / Inventories

MIDS terminals have been, or will be, installed on a variety of platforms in the following countries: **Australia, Belgium, Canada, Denmark, France, Germany, Hungary, Iceland, Italy, Japan, the Netherlands, New Zealand, Norway, Poland, Portugal, Spain, South Korea, Sweden, Switzerland, Taiwan, Turkey, the U.K., and the U.S.**

Forecast Rationale

Foreign Market Holds Strong Potential

December 2004 marked the acceptance of the Eurofighter Typhoon Batch 2 aircraft, which allows the delivery of the first series-production aircraft. For the first time, the DASS (Defensive Aids Sub-System) and the MIDS datalink have been cleared for flight operation. *Defense News* reported that flights of Italian Eurofighter Typhoons using the MIDS Link 16 communications systems were scheduled to start in February 2006.

Defense News reports that in December 2005, Germany's newly elected conservative-social democratic government coalition approved a EUR27 million (\$34.5 million) contract for production of MIDS radios by Euro-MIDS. Euro-MIDS will deliver a second batch of 91 data transmission radios to the Bundeswehr by 2009, according to the MIDS spending plan. Germany's Eurofighter Typhoon program will receive 85 radios. In addition, four will equip Patriot and Medium-Extended Air Defense System troops and two are slated for the NH90 helicopter program.

In May 2005, the Defense Security Cooperation Agency (DSCA) notified the U.S. Congress of a possible Foreign Military Sale (FMS) of 94 MIDS terminals to Canada. This potential contract, which includes MIDS-related items and support, has an estimated value of \$34 million. In November 2005, the Canadian Forces issued DLS a contract worth in excess of \$27.7 million to provide MIDS-LVTS as part of the CF-18 Hornet fleet

modernization program, incorporating Link 16 capability. The contract runs through 2007.

In October 2005, DSCA notified Congress of a possible FMS to the Royal Saudi Air Force of 165 Link 16 MIDS-LVT FDL terminals and 25 JTIDS terminals, worth up to \$401 million. DLS was named the prime contractor.

DLS reported in June 2005 that it will be providing Link 16 terminals for the NATO Air Command and Control System (ACCS). Three terminals will be supplied for use in the validation phase of the program. If the systems meet the requirements of the NATO ACCS, more terminals will likely be procured.

Over the next four years, France is also planning to expand the numbers of its aircraft equipped with MIDS. The Dassault Mirage 2000D and 2000-5 fighters are scheduled to receive MIDS by the end of 2007. Dassault's Rafale F2, designed for the French Air Force and Navy, are equipped with the MIDS tactical datalink. In April 2006, the French Navy was scheduled to receive its first Rafale F2. A second aircraft is due in October 2006 and another 14 by late 2008. The French Air Force took delivery of 10 F2 aircraft in 2005 and plans to receive 12 in 2006. The Dassault Rafale F3s will also be fitted with MIDS, starting in 2008.

South Korea reportedly might upgrade 180 of its F-16s in order to improve their interoperability with the country's new F-15Ks, currently under construction. The F-15Ks will be equipped with Link 16, and the

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South Korean Air Force is therefore said to have inquired about procuring Link 16 systems for its F-16 aircraft.

MIDS Sets Sail

The first MIDS on Ships (MOS) contract, for \$15.4 million for production of seven systems, was awarded to DLS in January 2003. The completed system was delivered to the U.S. Space and Naval Warfare Systems Command (SPAWAR) in September 2004. This was the first of 58 systems ordered under an \$80 million contract to DLS. MOS is the first 1-kilowatt MIDS

terminal to be installed on a command and control platform.

Other navies are scheduled to receive MIDS for their ships. In the spring of 2004, the Royal Norwegian Navy issued a contract to Thales, a member of EuroMIDS, for the installation of MIDS on six new Skjold-class fast patrol boats. The contract value was not released. Germany has installed Link 16 systems as well, on its Types F-123 and F-124 frigates. In July 2005, EADS signed a contract with IBM Germany for the delivery of eight MIDS-LVT datalink systems for the German Navy 's Type F-122 frigates.

Ten-Year Outlook

| ESTIMATED CALENDAR YEAR UNIT PRODUCTION | | | | | | | | | | | | |
|---|-----------------|------|------|------|------|-----------------|------|------|-------------|------|------|-------|
| Designation or Program | High Confidence | | | | | Good Confidence | | | Speculative | | | |
| | Thru 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
| Data Link Solutions LLC | | | | | | | | | | | | |
| USQ-140 (MIDS) Australia | | | | | | | | | | | | |
| | 69 | 16 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| USQ-140 (MIDS) Belgium F-16 | | | | | | | | | | | | |
| | 19 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| USQ-140 (MIDS) Canada F/A-18 CF-18 | | | | | | | | | | | | |
| | 0 | 24 | 47 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94 |
| USQ-140 (MIDS) Denmark F-16 | | | | | | | | | | | | |
| | 14 | 14 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| USQ-140 (MIDS) Germany | | | | | | | | | | | | |
| | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| USQ-140 (MIDS) Japan | | | | | | | | | | | | |
| | 0 | 6 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| USQ-140 (MIDS) New Zealand | | | | | | | | | | | | |
| | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| USQ-140 (MIDS) United States | | | | | | | | | | | | |
| | 330 | 172 | 114 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 323 |
| USQ-140 (MIDS) United States Navy Note: MIDS on Ships (MOS) | | | | | | | | | | | | |
| | 32 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| USQ-140 (MIDS) Korea, Republic of (South) F-15 K | | | | | | | | | | | | |
| | 22 | 8 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| USQ-140 (MIDS) Poland | | | | | | | | | | | | |
| | 21 | 5 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| USQ-140 (MIDS) Switzerland | | | | | | | | | | | | |
| | 8 | 8 | 3 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Subtotal | 515 | 288 | 198 | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 589 |

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| ESTIMATED CALENDAR YEAR UNIT PRODUCTION | | | | | | | | | | | | |
|--|-----------|-----------------|------|------|------|-----------------|------|------|-------------|------|------|-------|
| Designation or Program | | High Confidence | | | | Good Confidence | | | Speculative | | | |
| | Thru 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
| EADS Defence & Security Systems | | | | | | | | | | | | |
| USQ-140 (MIDS) Germany Note: F122 Class Frigates | | | | | | | | | | | | |
| | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| EuroMIDS | | | | | | | | | | | | |
| USQ-140 (MIDS) France RAFALE | | | | | | | | | | | | |
| | 10 | 12 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| ViaSat Inc | | | | | | | | | | | | |
| USQ-140 (MIDS) Germany | | | | | | | | | | | | |
| | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| USQ-140 (MIDS) Japan | | | | | | | | | | | | |
| | 4 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| USQ-140 (MIDS) Netherlands F-16 | | | | | | | | | | | | |
| | 80 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| USQ-140 (MIDS) Portugal | | | | | | | | | | | | |
| | 0 | 0 | 12 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| USQ-140 (MIDS) Taiwan R.O.C. | | | | | | | | | | | | |
| | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| USQ-140 (MIDS) Turkey | | | | | | | | | | | | |
| | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| USQ-140 (MIDS) United States | | | | | | | | | | | | |
| | 314 | 208 | 145 | 140 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 493 |
| Subtotal | 402 | 255 | 166 | 149 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 570 |
| Total | 927 | 555 | 372 | 266 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,193 |

| ESTIMATED CALENDAR YEAR RDT&E FUNDING (in millions US\$) | | | | | | | | | | | | |
|--|-----------|-----------------|-------|------|------|-----------------|------|------|-------------|------|------|-------|
| Designation or Program | | High Confidence | | | | Good Confidence | | | Speculative | | | |
| | Thru 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
| Data Link Solutions LLC | | | | | | | | | | | | |
| MIDS JTRS United States | | | | | | | | | | | | |
| | 33.24 | 33.24 | 24.93 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 58.16 |
| ViaSat Inc | | | | | | | | | | | | |
| MIDS JTRS United States | | | | | | | | | | | | |
| | 23.35 | 23.35 | 17.51 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 40.85 |
| Total | 56.58 | 56.58 | 42.44 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 99.02 |