

# ARCHIVED REPORT

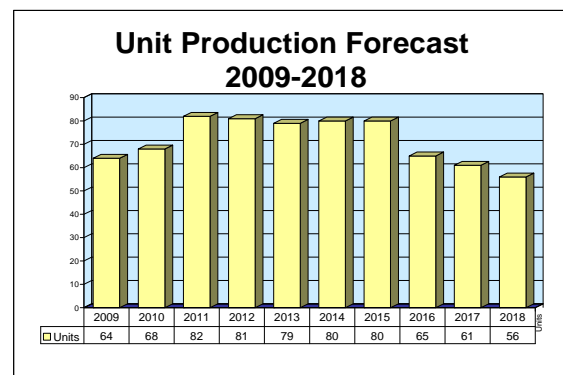
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## EuroMIDS – Multifunctional Information Distribution System - Archived 9/2010

### Outlook

- EuroMIDS producing terminals to support Eurofighter Typhoon and Dassault Rafale fighter production
- U.S. to define an MIDS-JTRS export terminal that addresses U.S. cryptographic security concerns and allows for new software-defined waveforms as required by other countries
- Two U.S. firms monopolize sales to the U.S. military and to nations that procure hardware under the U.S. Foreign Military Sales (FMS) program



### 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

EuroMIDS

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Paris, France 75010

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Web site: <http://www.euromids.com>

**Status.** In production and service.

**Total Produced.** According to EuroMIDS, several hundred terminals have been delivered.

**Application.** MIDS-Low Volume Terminals (LVTs) are intended for use on aircraft, helicopters, and ships.

**Price Range.** Forecast International estimates the price of airborne MIDS units to range between \$175,000 and \$375,000 based on quantity and variant.

As no information was available from European sources, the estimates are based on contracts from U.S. firms. Specifically, the U.S. Navy issued a contract in June 2006 worth \$34.6 million for 193 MIDS (\$179,275 each), primarily for the U.S. military. Also, in January 2003, the U.S. Navy awarded a contract worth \$14 million for 40 MIDS (\$350,000 each) for South Korea, to be distributed via the Foreign Military Sales program.

Information on the prices of LVT(2) and LVT(11) ground-based terminals is limited. A range between \$200,000 and \$750,000 can be estimated, depending on quantity and options ordered. This range is based on a \$2.4 million contract awarded in September 2007 by the U.S. Navy for four LVT(11) ground terminals (\$600,000 each) for South Korea, again via FMS. Also, U.S. Army budget documentation for FY09 shows expected procurement of 129 LVT(2) terminals for \$27.7 million, or approximately \$214,730 each.

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The only information on MIDS on Ships (MOS) pricing available is a U.S. Navy FY09 budget line for one MIDS on Ships (MOS) terminal indicating an amount of \$2.31 million. A range of between \$1 million and \$2.5 million can be speculated, depending on quantity and options ordered.

## Contractors

## Prime

<b>EADS Deutschland GmbH, Division HQ</b>	<a href="http://www.eads.com">http://www.eads.com</a> , Willy-Messerschmitt-Strasse, Ottobrunn, 85521 Germany, Tel: + 49 89 607 0, Fax: + 49 89 607 26481, Consortium Member
<b>EuroMIDS</b>	<a href="http://www.euromids.com">http://www.euromids.com</a> , 1 bis, rue de Paradis, Paris, 75010 France, Tel: + 33 1 48 01 86 30, Fax: + 33 1 48 01 86 31, Email: euromids@euromids.com, Prime
<b>Indra Sistemas SA</b>	<a href="http://www.indra.es">http://www.indra.es</a> , Avda. Bruselas 35, Alcobendas, Madrid, 28108 Spain, Tel: + 34 91 480 50 01, Fax: + 34 91 480 50 58, Email: indra@indra.es, Consortium Member
<b>SELEX Communications SpA</b>	<a href="http://www.selex-comms.com/en/">http://www.selex-comms.com/en/</a> , Viale dell'Industria, 4, Pomezia Rome, 00040 Italy, Tel: + 39 06 910911, Fax: + 39 06 91091339, Email: info@selex-comms.com, Consortium Member
<b>Thales</b>	<a href="http://www.thalesgroup.com">http://www.thalesgroup.com</a> , 45, rue de Villiers, Neuilly-sur-Seine, 92526 France, Tel: + 33 1 57 77 80 00, Fax: + 33 1 57 77 86 59, Consortium Member

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

## Technical Data

	<u>Metric</u>	<u>U.S.</u>
<b>Physical Characteristics</b>		
<i>Main Terminal</i>		
Weight	19.65 kg	43.3 lb
Size (W x H x L)	190.5 x 193.5 x 343 mm	7.5 x 7.6 x 13.5 in
<i>Remote Power Supply</i>		
Weight	6 kg	13.2 lb
Size (W x H x L)	57.2 x 193.5 x 343 mm	2.25 x 7.6 x 13.5 in
<b>Operating Characteristics</b>		
Frequency Band	960 -1,215 MHz	
Functions		
Datalink	TADIL-J, IJMS	
Secure Voice Capability	2.4 kbps LPC-10, 16 kbps CVSD	
Navigation	TACAN, relative and geodetic	
Identification	Direct and indirect	
Power Source (Basic)	115 V AC (400 Hz), 3 Phase, 280 DVC	
Power Consumption	< 800 W	

**Design Features.** The Multifunctional Information Distribution System (MIDS) is a Low-Volume Terminal (LVT) that provides secure, digital, anti-jam voice communications (in real time) in the L-band (960-1215 MHz), and communicates 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.

The MIDS LVT configuration consists of two Line Replaceable Units (LRUs), the receiver/transmitter (R/T) and the remote power supply (RPS). Additional power supply adapters can be provided to meet the prime power requirements of Army and Navy platforms.

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MIDS incorporates Very High Speed Integrated Circuit (VHSIC) microchip technology and Microwave/Millimeter-wave Monolithic Integrated Circuit (MIMIC) technology components. While interoperable, MIDS terminals are smaller and lighter than JTIDS (Joint Tactical Information Distribution System) terminals. Roughly 0.6 cubic feet (as opposed to 1.6 cu ft for JTIDS) and weighing 64.3 pounds (29.5 kg – roughly half JTIDS weight), 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. MIDS is 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 omni-

directional 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.

MIDS applications transcend the individual services. In Air Force applications, MIDS allows multi-service links, including the ability to broadcast general air situation information (AWACS, C<sup>2</sup>, interceptors), airborne relays, or general 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.

## Variants/Upgrades

**LVT-1.** This Low Volume Terminal is for aircraft.

**LVT-4.** The LVT-1 without TACAN (Tactical Air Navigation).

**LVT-6.** The LVT-1 without voice.

**LVT-8.** The LVT-4 with a high-power amplifier group interface assembly and an alternating current converter.

**LVT-9.** The LVT-4 with an alternating current converter.

**LVT-10.** The LVT-1 without TACAN and without voice.

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

## Program Review

**Background.** The MIDS concept can be traced back to a Thomson-CSF (now Thales) SINTAC terminal developed in the early 1970s. Several SINTAC functions would become invaluable elements of the Joint Tactical Information Distribution System (JTIDS).

### *MIDS: A Sleeker, Lighter JTIDS*

Because JTIDS terminals were too large for certain applications, MIDS was developed. Its smaller, more advanced design is able to fit into a larger number of 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.

The electronics firms Siemens (Germany), Thomson-CSF (France), Italtel (Italy), Inisel (Spain), and Plessey Electronics Systems (U.S.) were selected in June 1989 to form MIDSCO Inc to pursue full-scale development.

The MIDS Class 2 project definition phase was completed by late 1989. The demonstration and validation phase began in October 1991.

A second program MoU was signed in December 1991, to standardize principles and define the financial commitment for the pre-engineering and manufacturing development (EMD) phase. Details regarding funding for second phase work were also established.

### *Delays & First Delivery*

The first MIDS-LVT EMD terminal was delayed six months to December 1997 due to minor problems during EMD terminal integration and a delay in development of test software for the French Rafale interface bus. Additionally, a funding shortfall delayed the first EMD flight from April 1998 to December 1998.

In March 1998, the U.S. DoD accepted delivery of the first LVT EMD system from MIDSCO Inc. This was part of the work performed under a \$342.4 million EMD

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contract awarded in March 1994. Final approval of MIDS was granted in late 1999.

### *Milestones & Contracts*

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) on an F-15C fighter.

In July 2001, EADS provided details of a MIDS/Link 16 flight test between an Avionics Demonstrator Tornado and a German armed forces ground station. The tests led to a program to integrate MIDS in Tornado fighters. In September 2001, EADS was awarded a contract worth EUR31 million (\$27.9 million) to supply key components for the initial batch of MIDS communications systems, initially to be used by the German Air Force's Eurofighter Typhoons.

In late 2005, *Defense News* reported that Germany's new government approved a EUR27 million (\$34.5 million) EuroMIDS contract. EuroMIDS will deliver a second batch of 91 terminals to the Bundeswehr by 2009, according to the MIDS spending plan. Germany's Eurofighter program will receive 85 radios. In addition, four MIDS will equip Patriot and Medium-Extended Air Defense System troops, with two slated for the NH90 helicopter program.

### *MIDS Sets Sail*

In spring 2004, the Royal Norwegian Navy issued a contract to Thales for the installation of MIDS on six new Skjold class fast patrol boats. Contract details were not released. Germany has also installed Link 16 systems on its Type 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.

### *MIDS Gets on the JTRS Bandwagon*

In December 2004, U.S. companies ViaSat and Data Link Solutions (DLS) were awarded contracts to cooperate on the development of MIDS to a four-channel architecture compliant with JTRS software. JTRS is the U.S. DoD next-generation, software-based radio designed to replace most legacy communications systems. The new MIDS-JTRS will have one channel dedicated to Link 16 and three for advanced waveforms. The MIDS Program Management Office completed its

Critical Design Review (CDR) of a four-channel MIDS-JTRS in May 2006 and concluded the program was on schedule. In April 2007, DLS and ViaSat were both awarded contracts to produce MIDS-JTRS Production Transition Terminals (PTTs) by April 2009.

### *U.S. Limits European Participation on JTRS*

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

In June 2006, DLS and Thales signed an agreement to cooperatively produce and sell MIDS terminals for the JTRS. The agreement enables DLS to team with Thales on worldwide marketing and production of MIDS-JTRS to meet European requirements. Development of the base terminal was scheduled for September 2007, with development of additional capabilities for Europe running through 2009. Forecast International believes this effort will take at least an additional year.

In June 2009, ViaSat delivered the first pre-qualification Pre-Production Terminal (PPT) version of MIDS-JTRS for developmental flight testing on an F/A-18. The MIDS-JTRS is completing contractor qualification testing and F/A-18 integration in anticipation of a limited-rate initial production (LRIP) order.

### *MIDS on the Ground*

EADS reported in November 2007 that it had delivered two new MIDS ground stations to the Defense Procurement Department of the Spanish Ministry of Defense. The Data Link Management Cell based at Torrejyn Air Force Base will use these two stations to perform interoperability tests on different tactical platforms such as the Eurofighter, the EF-18 Hornet, the A400M transport aircraft, the air traffic control Rasp center, and the frigates of the Spanish Navy. The program is scheduled to deliver a third MIDS ground station in 2008 and to modernize a fourth one, which was delivered by Military Air Systems and is currently in operation at Moryn AFB.

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## Contracts/Orders &amp; Options

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
EADS Defence Electronics	Not disclosed	Jul 2005 – Contract to supply eight MIDS-LVTs for the German Navy's F-122 class frigates.
EADS	10.3	Jan 2007 – Contract from Spanish Ministry of Defense to support the Spanish Interoperability Management Cell. The goal is to ensure that all of Spain's Link 16 devices, including MIDS, perform well together.

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Fall	1988	MoU for Phase I study into MIDS life-cycle costs and technical specifications
Jun	1989	MIDSCO consortium formed
Apr	1990	MIDS Mission Needs Statement
Oct	1991	Demonstration/validation phase
Jun	1993	Preparation of Operational Requirements document
	1993	International project office set up; MIDS engineering integrated with F/A-18
Mar	1994	EMD phase begun
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 cooperative production of MIDS
Jun	2006	Thales & DLS sign agreement on MIDS-JTRS for European requirements
	2017	Possible end of MIDS procurements

## Worldwide Distribution/Inventories

MIDS terminals from EuroMIDS have been, or will be, installed on a variety of platforms for the following countries: **France, Germany, Italy, Norway, Saudi Arabia, Spain, and the U.K.**

## Forecast Rationale

Thales Communications (France), SELEX Communications (Italy), EADS Deutschland, and Indra Sistemas (Spain) form the EuroMIDS consortium. Each partner participates in the development and production of the MIDS terminal.

***The U.S. Market Supported by U.S. Firms***

Two American companies, Data Link Solutions (DLS) and ViaSat, also manufacture MIDS terminals. The U.S. military generally splits its orders almost evenly between these two companies. In addition, several nations purchase U.S. aircraft equipped with U.S.-made MIDS terminals under the U.S. Foreign Military Sales (FMS) program. These FMS cut into the EuroMIDS market.

***Working in Pairs***

In April 2009, *Flug Revue* stated that an MIDS terminal mounted on a Spanish Eurofighter Typhoon sent target data to a second MIDS-equipped Typhoon that was in radar "passive" mode. The passive Typhoon was "invisible" to electronic support measures (ESM) systems when it fired its AMRAAM missile using the data from the first MIDS-equipped Typhoon. The report suggests both aircraft were separated by some distance.

***MIDS-JTRS for Export***

In October 2008, *Aerospace Daily & Defense Report* quoted Jim Pits, DLS director, as saying that an effort is planned for 2009 to define an MIDS-JTRS "national

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terminal" for export customers that would address U.S. cryptographic security concerns and allow the incorporation of new software-defined waveforms as required by other countries.

In June 2009, ViaSat delivered the first pre-qualification Pre-Production Terminal (PPT) version of MIDS-JTRS for developmental flight testing on an F/A-18. The MIDS-JTRS is completing contractor qualification testing and F/A-18 integration in anticipation of a U.S. Navy limited-rate initial production (LRIP) order.

Another market is the replacement of older version MIDS terminals with new MIDS-JTRS units. *Aerospace Daily & Defense Report* stated that approximately 4,000 MIDS-LVTs have been delivered by DLS, Viasat, and the EuroMIDS consortium.

### ***Popular Platforms Guarantee Business***

The EuroMIDS terminal has been selected for the A400M, Rafale, Tornado, NH90, Eurofighter 2000 Typhoon, and Horizon frigate, as well as other systems and platforms of the French, German, Italian, Norwegian, and Spanish Armed Forces. MIDS is standard equipment for the Dassault Aviation Rafale and Eurofighter Typhoons.

**Typhoon.** Eurofighter Typhoon production has been divided into three production runs or tranches. Tranche 1 is complete; production of the 236 Tranche 2 aircraft is expected to run from mid-2008 through 2013.

Plans call for another 236 aircraft to be procured for Tranche 3. In May 2009, all four members agreed to participate in the third production tranche. (The partner nations include Germany, Italy, Spain, and the United Kingdom.) Nevertheless, the number of aircraft is subject to negotiations between the partner nations and could be reduced due to rising program costs. Most likely the M3AR will be included on Tranche 3 aircraft. Austria and Saudi Arabia are Eurofighter export customers, and the consortium is actively seeking new

orders. However, partner nations may sell their older Tranche 1 aircraft when Tranche 3 aircraft are delivered, thereby eliminating additional orders for Eurofighter. Tranche 3 production aircraft will probably not be delivered until 2013 or later. If all 236 aircraft are ordered, deliveries to the partner nations should end around 2019-2020.

In November 2008, *Military Technology* reported that the government of Saudi Arabia had requested the sale of 80 MIDS-LVT-1 terminals to be installed on its Eurofighter Typhoon order. The estimated cost of the deal is \$31 million.

**Rafale.** Currently, the French military is the only user of the Rafale multirole fighter. At this time, it appears that the French government is looking to have a fleet of approximately 250 Rafales and a number of upgraded Mirages. Dassault Aviation is aggressively marketing the aircraft to international customers.

**NH90.** Belgium, France, Germany, Italy, Portugal, and the Netherlands are the participating members of the NH90 program. Additionally, Australia, New Zealand, and Spain have placed orders for the NH90. The NH90 Multimission helicopter is available in two variants: the Tactical Transport Helicopter (TTH) and the NATO Frigate Helicopter (NFH). NH Industries states that the NH90 NFH comes with a datalink, and Forecast International assumes that is the MIDS terminal.

**A400M.** Airbus Military currently has 192 A400Ms on the order books. EADS has delayed first deliveries due to a number of factors. The first delivery may be pushed out as much as three years, or into 2012. Additionally, there are plans for up to 200 additional aircraft over the life of the program. MIDS is listed as optional equipment for the A400M Military Transport Aircraft.

Very little information is released on direct EuroMIDS contracts. The forecast shown below is generally a mirror of the platform production rates.

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## Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
<b>EuroMIDS</b>												
<b>MIDS-LVT &lt;&gt; Austria &lt;&gt; Typhoon Austria</b>												
	8	1	0	0	0	0	0	0	0	0	0	1
<b>MIDS-LVT &lt;&gt; Belgium &lt;&gt; NH90 NFH</b>												
	0	0	0	4	0	0	0	0	0	0	0	4
<b>MIDS-LVT &lt;&gt; France &lt;&gt; Rafale</b>												
	81	14	16	18	18	17	18	18	15	15	14	163
<b>MIDS-LVT &lt;&gt; Germany, Italy, Spain and UK &lt;&gt; Typhoon</b>												
	142	45	44	46	46	44	44	44	44	40	36	433
<b>MIDS-LVT &lt;&gt; Italy &lt;&gt; NH90 NFH</b>												
	0	0	0	2	5	6	6	6	6	6	6	43
<b>MIDS-LVT &lt;&gt; Saudi Arabia &lt;&gt; Typhoon Saudi</b>												
	0	4	8	12	12	12	12	12	0	0	0	72
<b>Subtotal</b>	231	64	68	82	81	79	80	80	65	61	56	716
<b>Total</b>	231	64	68	82	81	79	80	80	65	61	56	716