TERMA UPDATE . JULY 2006

update

AMASE/DIRCM pod during flight certification testing in the Netherlands

In this Update issue

The Apache Modular Survivability Equipment, AMASE, gets a significant increase in performance against IR-guided missiles through addition of a Directed Infra-Red Countermeasures (DIRCM) unit. See page 2

The availability of the new generation of 500 lbs. class bombs will allow the F-16 to improve the mission effectiveness with up to a factor three – provided that there is a capable triple ejector rack available. See page 5

Terma has entered a contract with Raytheon Systems Space and Airborne Systems for integrating the Airborne Survivability Equipment on the Raytheon Joint Cargo Aircraft for the U.S. Army, the CASA C-295 and CN-235. See page 10

Contents

Protection of the new U.S. Navy P-8A **Multi-mission Maritime Aircraft** / 4

Danish F-16's to be the first fighters equipped with **Integrated Missile Warning** System / 6

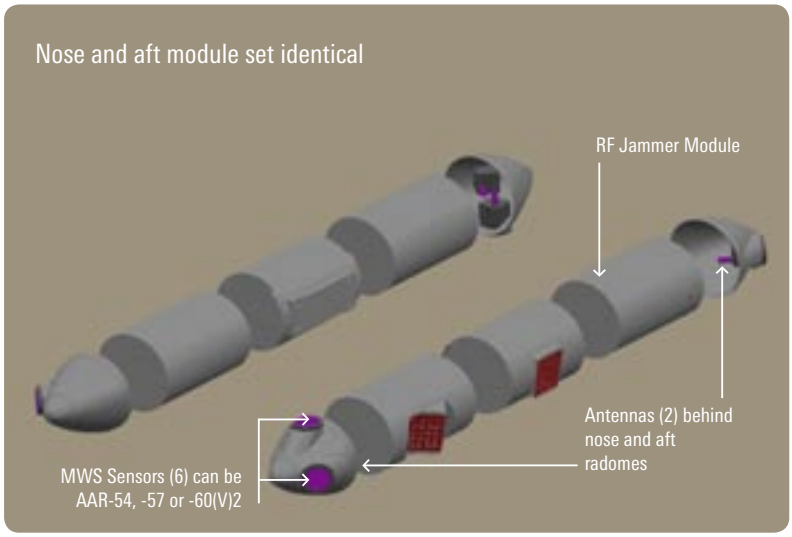
Advanced self-protection for Fennec and Ecureuil / 8

Terma Contracted for Integrating Airborne **Survivability Equipment** for Team JCA / 10

Electronics Equipment for AWACS Aircraft / 11

TERMA

DIRCM to be added to AMASE



AMASE Pod Modularity - Individual Barrel Modules can be replaced to accommodate other ASE sensors - Dispenser modules are rotatable.

The Apache Modular Survivability Equipment, AMASE, gets a significant increase in performance against IR-guided missiles through addition of a Directed Infra-Red Countermeasures (DIRCM) unit.

AMASE pod with AN/AAQ-24(V) DIRCM mounted on the stub wing of a Royal Netherlands AH-64D Apache helicopter together with Northrop Grumman AAR-54 Missile Warning UV sensors and TERMA flare dispensers. The system is controlled by TERMA's AN/ALQ-213(V) EW Management System.

The basic AMASE configuration, introduced in the Royal Netherlands Air Force (RNLAF) AH-64D Apache helicopters in 2004 uses IR flares as countermeasures against IR-seeking missiles. This system has fully met the requirements originally laid down, and has operated satisfactorily during operations in Iraq and Afghanistan. There is, however, a requirement for protection against more sophisticated IR missiles. An upgrade program has therefore been started to add to the AMASE pod, a Directed Infra-Red Countermeasures (DIRCM) capability.

This upgrade is based on the AN/AAQ-24(V) Nemesis DIRCM, which is a joint cooperative program between the United Kingdom and the United States. The system uses IR laser energy to disrupt the guidance system of even the most advanced IR- or "heat-seeking missiles". Nemesis is in production and combat-proven, and installed on fixed and rotary wing aircraft from the U.S. and UK and other allied countries, including Australia and Denmark.

Terma and Northrop Grumman are working together to offer to Apache users this upgraded version of the AMASE pod, complete with DIRCM protection.

Flight Demonstration in 2006

RNLAF, Terma, and Northrop Grumman are preparing to complete flight demonstration in 2006. The remaining testing will include simulated live-fire testing to prove the DIRCM installation. The RNLAF will provide AH-64D test aircraft with air and ground crew, Terma provides AN/ALQ-213(V) and AMASE pods, and Northrop Grumman provides AN/AAQ-24(V) laser DIRCM with transmitters from SELEX Sensors and Airborne Systems, Edinburg, UK. The Netherlands National Aerospace Laboratory, NLR, provides support, the flight certification, as well as test and trial in the Netherlands.

In preparation for the simulated live-fire demonstration, Terma and Northrop Grumman have successfully

New AMASE pod center module - update to existing AMASE pod with DIRCM

AMASE pod with AN/AAQ-24(V) DIRCM, ready to be tested in the air.

completed Systems Integration Laboratory (SIL) testing. The RNLAF has also successfully completed in-flight certification tests on the AMASE/DIRCM solution. This testing was necessary to qualify the DIRCM modification and prepare for flight demonstration.

AMASE Provides Full 360 Deg. Spherical Coverage

Compared to alternative fuselage-installed UV sensor suites, which suffer from critical obscuration by the aircraft structure, the AMASE pod location for the UV sensors provides full 360 deg. spherical coverage of the Apache. Similarly, the coverage by the DIRCM is un-obscured and ideal compared to alternative installations behind the main rotor. Furthermore, the pod location on the stub wing with weight demanding flare magazines and DIRCM hardware is nearly neutral and resolves severe CoG and stress problems seen with alternative flare dispenser installations further towards the tail boom of the Apache.

Protection of the new U.S. Navy P-8A Multi-mission Maritime Aircraft

Terma has been awarded a contract by the Northrop Grumman Corporation to provide Electronic Warfare (EW) equipment for the Multi-mission Maritime Aircraft (MMA) – the new submarine hunting aircraft being built by Boeing for the U.S. Navy - designated the P-8A. Built on a Boeing 737-800 platform, the P-8A will replace the P-3 Orion that has been in service since 1962.

Northrop Grumman has been selected by Boeing and the U.S. Navy to also provide the Electronic Warfare and Aircraft Self-Protection (EWSP) suite for the P-8A aircraft. In this context, Northrop Grumman has chosen Terma's AN/ALQ-213(V) Electronic Warfare Management System (EWMS) to integrate and control the suite of Electronic Warfare subsystems.

Best Situational Awareness Functionality

The integration will provide the pilot with the best Situational Awareness functionality available, including Advanced Audio Threat Cuing, Automatic Threat Response through the Terma-developed algorithms and the AN/AAQ-24(V) DIRCM Enhanced Integration.

The AN/ALQ-213(V) will be integrated into a brand new Aircraft Avionics architecture, including Ethernet communication. Choosing the Terma system is a positive indication of the AN/ALQ-213(V) being capable of meeting new and future requirements on EW integration.

The P-8A MMA is a long-range antisubmarine warfare, anti-surface warfare, intelligence, surveillance, and reconnaissance aircraft. It possesses an advanced mission system for maximum interoperability in battle space. Capable of broad-area, maritime, and littoral operations, the P-8A MMA is expected to influence how the U.S. Navy's maritime patrol and reconnaissance forces train, operate, and deploy.

AN/ALQ-213(V) EWMS

The system was originally developed for the F-16 aircraft. In a number of updated versions, the system was later certified and selected by the U.S., Norway, the Netherlands, Belgium, Portugal, Australia, Germany, as well as other countries. More than 1,600 systems have been deployed worldwide on fighters, transport aircraft, and helicopters.

Terma has been awarded a contract to provide Electronic Warfare (EW) equipment for the P-8A Multi-mission Maritime Aircraft (MMA).

Photo: Courtesy of the Boeing Company, www.boeing.com

Enhanced Smart Triple Ejector Rack

ESTER is the baseline F-16 MLU M5 multiple ejector rack. Ground and flight tests will start in the fall of 2006.

The availability of the new generation of 500 lbs class bombs, such as the WCMD and EGBU-12, will allow the F-16 to improve the mission effectiveness with up to a factor three – provided that there is a capable triple ejector rack available.

A powerful team comprising of Terma A/S and EDO Corporation with their combined capabilities within rack and F-16 technology and worldwide market access is now developing such Enhanced Smart Triple Ejector Rack (ESTER). The ESTER is the baseline F-16 Mid Life Update (MLU) M5 multiple ejector rack, and ground and flight tests will start in the fall of 2006.

The TERMA/EDO team is developing an upgrade kit for the TER-9/A bomb rack. When equipped with this kit, the resultant ESTER features a MIL-STD-1760 "Smart" aircraft interface and a MIL-STD-1760 BRU-57 emulation mode while maintaining the legacy TER-9/A aircraft interface and functionality. The TER's legacy-mode functions are implemented using modern digital technology.

The ESTER is capable of carrying and releasing all legacy TER-9/A weapons also including the JDAM, WCMD, and EGBU-12 type weapons.

The ESTER also has the capability of carrying and releasing three "Smart" Weapons in the BRU-57 emulation mode which means that an F-16 equipped with BRU-57 software (which normally controls two stores) is capable of releasing three stores from the ESTER.

Field Replaceable Connector Shell

An additional benefit of the ESTER is EDO's Field Replaceable Connector Shell (FRCS). The FRCS, which has been adopted for use by the United State Air Force on the A-10 aircraft and by the Royal Netherlands Air Force on the F-16, provides a "Jam-Free" MIL-STD-1760 interface during stores release. This unique feature improves the reliability of the entire system by eliminating the risk of jammed connectors as seen on current installations.

The launch customer is the RDAF who is responsible for providing the ESTER as test assets for the F-16 MLU M5 certification. A series of prototypes are being built in the summer of 2006 and will be used for ground and flight test tests in the U.S. and Denmark starting in the fall of 2006.

The joint capabilities between Terma and EDO with Terma's experience in F-16 and MIL-STD-1760 implementation in the weapon pylons and EDO's experience in ejector racks and digital bus buffers are generating a very competent and cost-effective alliance by using "the best from both worlds". The combined worldwide market access possessed by the team will provide for the commercial success of the ESTER.

Danish F-16's to be the first fighters equipped with Integrated Missile Warning System

In today's asymmetrical warfare where the F-16 missions include operation from deployed operational bases, the base itself may be safe but especially the corridors for take-off and landing are often uncontrolled.

These corridors provide potentially hiding sites for shoulder-borne infra-red-seeking missiles which cannot be detected by any of the current F-16 equipment. To protect crew and equipment the Royal Danish Air Force has decided to install an integrated Missile Warning System (MWS) on their F-16 aircraft.

To survive a missile attack, several measures need to be taken in timely fashion.

Missile Declaration

The missile must be declared as soon as possible but at the same time with minimum false alarms. This is accomplished by installing the EADS AAR-60(V)2 MILDS-F. This system is a fighter version of the MILDS system of which more than 4,000 units have been ordered. The AAR-60(V)2 is a state-of-the-art UV-based MWS which assures low false alarm rates, and which is operational up to 45,000+ feet. The (V)2 version includes repackaging to a smaller envelope, updated software, much faster processing speed, and the introduction of a Countermeasures Signal Processor (CSP) which is being developed and manufactured by Terma. The sensors and CSP are installed in modified wing weapon pylons which provide good coverage as well as an unmatched cost-effective installation as no aircraft modifications are needed and because the pylons may be shifted between aircraft.

Effective Countermeasures Must be Executed

The AAR-60(V)2 is integrated with the Terma ALQ-213 Electronic Warfare Management System (EWMS). The EWMS receives the threat information, and based on the aircraft parameters, such as speed, altitude - and not least trial results, the EWMS selects the optimum flare dispense program. To facilitate countermeasures of even the latest missiles, additional dispensers have been integrated in the weapon pylons. Up to four additional dispensers can be installed which is

To protect crew and equipment, the Royal Danish Air Force has selected an integrated Missile Warning System (MWS) on its F-16's developed by Terma.

200 percent additional capacity on a pre block 40 F-16.

Situational Awareness

The pilot must obtain situational awareness and perform the required evasive maneuvers. The flight time for a missile is typically 4 to 7 seconds. Within that timeframe, the pilot needs to detect and decoy the missile, including maneuvering. As soon as the threat is declared the pilot receives both audio and visual information. The audio information is received through a Terma-developed 3D audio system which provides virtual direction indication as the system generates a tone in the direction of the threat. This system provides the fastest information to the pilot as it allows the pilot to react intuitively to a sound without the need to process visual information into a sense of direction. The 3D Audio system is integrated with the aircraft avionics and the JHMCS so both aircraft and head movements are being compensated for. To enhance the pilot's situational awareness, a visual set of information is being provided on a new Advanced Threat Display (ATD). This is a new color, night vision goggle-compatible display which provides a total picture of the EW situation, including status for CMDS, RWR, ECM, EWMS, and obviously elevation and azimuth information of the incoming missile. The pilot has now the necessary information to do the evasive maneuvers which he has been practicing and which – together with flare dispensing – will provide him with the maximum chances of avoiding being hit by the missile.

Aircraft Audio Management System

The 3D Audio system is one half of the Terma Aircraft Audio Management System (AAMS) where it is not only MWS information which is being enhanced. Radar Warning threats are processed similarly. Other information, such as radio communication from other aircraft or tower, can also be presented in the applicable direction. The other half of Terma's AAMS is an Active Noise Reduction system which lowers the noise level perceived by the pilot and thus reduces the fatigue impact.

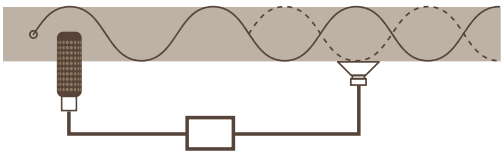
F-16 MWS Integration Contract

Terma received the integration contract from the RDAF in late 2004, and the design and manufacture are progressing as planned. The first phase of the program was focused on data collection of the F-16 physical and operational environment, and these data are now used to design sensor hardware and software as well as pylon installation where the sensors have been installed with optimum coverage where a missile attack is most lethal.

The first flights with the new MWS system hardware integrated into the pylon will take place in the fall of 2006 with the remaining certification being performed in 2007-08. The complete system will be operational in late 2008 and ready for the F-16 Mid Life Update M5 software.

3-Dimensional Audio Warning for improved situational awareness

Active Noise reduction for reduced crew fatigue



Advanced Self-Protection Equipment for Fennec and Ecureuil

Danish helicopters operating in southern Iraq during winter 2005/06 as part of the multi-national stabilization force have been fitted with advanced IR self-protection equipment provided by Terma.

The equipment was installed in record time (within two months) following an operational requirement received on 6 October 2005 from the Royal Danish Air Force (RDAF).

Three AS-550C2 Fennec light utility and observation helicopters from the RDAF were to become operational from early December 2005 to support the Danish contingent in Iraq in fulfilling their mission related specifically to the Iraqi election. It was deemed necessary to give these aircraft and their crews the best possible protection against shoulder-launched infrared-guided surface-to-air missiles.

Co-operation with RNLAF

Terma quickly determined that the required level of protection could best be achieved by a system derived from the company's new AMASE (Apache Modular Aircraft Survivability Equipment) system. The AMASE had been developed by Terma at an earlier Quick Reaction Case (QRC) program to be fielded on RNLAF Apache attack helicopters deployed in Afghanistan and Iraq in April and May 2004, respectively. This QRC program was performed in close co-operation with the Royal Netherlands Air Force (RNLAF) and the National Aerospace Laboratory of the Netherlands (NLR).

For the Danish requirement necessary to equip the Fennec, the RNLAF kindly agreed to a loan of the AMASE equipment and to provide support. System analysis, conceptual drawings for the installation on the Fennec and a project schedule were prepared within just a few days, and Tactical Air Command Denmark decided to go ahead with the project on 12 October

The advance self-protection equipment was installed in record time.

2005. The new system was to be called FASE (for Fennec Aircraft Survivability Equipment).

Reconfiguration

The AMASE Stub Wing Pods, each equipped with three Northrop Grumman AN/AAR-54 missile warning sensors and two ACMDS counter-measures dispenser magazines, needed to be reconfigured for the Fennec application. Also, a new adaptor fitting was manufactured to connect the resulting FASE pods to the stub wings of the Fennec.

In addition to the two FASE pods (one left, one right), each Fennec was upgraded with Terma's AN/ALQ-213 Electronic Warfare Management Unit (co-pilot instrument panel) and Tactical Data Unit (in an equipment tray newly designed by Terma's Aerostructures Business Unit in Grenaa, Denmark). That latter position was also used to place the AN/AAR-54 electronics unit and the embedded GPS inertial (EGI) navigation set. Manual counter-measures activation switches were placed on the two cyclic sticks.

Ground and Flight Testing

Development testing was done using a trial, verification, and installation (TVI) helicopter equipped with the AMASE equipment at Terma´s facility in Lystrup, Denmark.

Ground and limited flight certification testing took place at Karup Air Base, Denmark, and at Soesterberg and Noordoostpolder, the Netherlands, supported by the RDAF and NLR, during November 2005. Meanwhile, three FASE ship-sets were delivered by Terma and subsequently shipped to Iraq. There, the helicopters were retrofitted in-theatre between 21 November and 6 December 2005 by RDAF personnel supported by Terma.

Each Fennec was upgraded with Terma´s AN/ALQ-213 Electronic Warfare Management System.

As of today, FASE incorporates all the lessons learned during operational usage in Iraq, and the system is available for other users of the Fennec/ Ecureuil family of helicopters.

RDAF Fennec Helicopter ready for take off after development testing at the Terma facility in Lystrup, Denmark.

Terma Contracted for Integrating Airborne Survivability Equipment for Team JCA

Terma Airborne Systems has entered a contract with Raytheon Systems Space and Airborne Systems for integrating the Airborne Survivability Equipment (ASE) on the Raytheon Joint Cargo Aircraft (JCA) for the U.S. Army, the CASA C-295 and CN-235.

The U.S. Army and U.S. Air Force are in the process of procuring a new tactical transport aircraft, taking over the transport role from, e.g. the U.S. Army C-23 Sherpa. Army requirements for a combat-proven air lifter are that it is capable of supporting the "last mile and beyond", and it is interoperable with the Army CH-47 Chinooks and UH-60 Black Hawks.

Terma will integrate the individual self-protection subsystems into the C-295 and the CN-235 cockpit

The Raytheon-led Team JCA is proposing the combat-proven CASA C-295 and CN-235 for that purpose. The total program will accommodate 140+ aircraft.

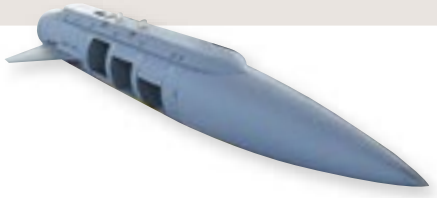
The two aircraft proposed are the most capable candidates for the JCA role, and will require the most effective ASE functionality available. Terma will integrate the individual ASE subsystems into the C-295 and CN-235 cockpit and provide the pilot with a single point dedicated ASE Situational Awareness display and control panel. Furthermore, the integration has all the necessary provisions for future requirements, e.g. 3D Audio, Active Noise Reduction, and Threat Response Processing. Selecting the AN/ALQ-213(V) Tactical Data Unit and the Tactical Threat Display, for integrating the ASE, will provide the JCA with the flexibility for the U.S. Army and U.S. Air Force to chose their individual preferred ASE/EW (Electronic Warfare) configuration – without changing the overall architecture of the aircraft.

More than 260 EADS/CASA built CN-235 and C-295 are operational within 24 Air Forces worldwide, and today, they have completed more than 1 million flight hours.

The AN/ALQ-213(V) family of EW controllers was originally developed for use on the Royal Danish Air Force F-16 fleet. The effectiveness and flexibility of the system has entered it into many other Air Forces and aircraft around the world, and currently, the system is operational on more than 1,600 aircraft worldwide. The AN/ALQ-213(V) is not only suited for legacy aircraft retrofit but also as part of new production aircraft.

Aircraft Survivability Equipment (ASE) and Electronic Warfare (EW) cover the same type of equipment. By tradition, ASE is the Army terminology, whereas the EW is Air Force terminology.

Modular Countermeasures Pod



The Modular Countermeasures Pod was originally developed by Terma for Transport & Utility aircraft in the mid 1990´s.

Terma Modular Countermeasures Pod (MCP) concept has since the initial fielding on the Royal Netherlands Air Force Fokker 60 in the basic MCP-7 configuration continued its development.

The follow on MCP-10 configuration brought a comprehensive upgrade of the dispenser capability into the German C-160 Transall series modification program. The basic concept was recently tailored for helicopters and fielded on AH-64 Apace under the name of the AMASE – short for Apache Modular Aircraft Survivability Equipment. This concept is currently being considered for the NH-90 helicopter applications.

One of the promising variants of the MCP is the MCP-F (Fighter). The MCP-F is a supersonic version of the modular wing-mounted dispenser designed for fast jets, such as Tornado, F-16, etc. In Enhanced Smart Triple Ejector Rack the basic version, the MCP-F will accommodate eight Chaff/Flare dispensers and associated electronics.

Electronics Equipment for AWACS Aircraft

For the third year in a row, Northrop Grumman has chosen Terma as a preferred supplier for the AWACS Radar System Improvement Program (RSIP).

The future of the AWACS fleet looks very bright; Northrop Grumman is the process of developing a state-of-the-art upgrade of the radar systems - a project to become known as "Single Cabinet".

Both NATO and the U.S. Air Force (USAF) have expressed their interest in the Single Cabinet update. Terma is ready to support Northrop Grumman with continued production tasks as the user governments request this essential and necessary update of their AWACS fleets.

For the third year in a row, Northrop Grumman has chosen Terma as a preferred supplier in the AWACS Radar System Improvement Program (RSIP) in 2003. The program provides upgrades of the radar systems for all AWACS aircrafts operated by NATO, USAF, UK, and France. Saudi Arabia and Japan are currently in the process of joining the RSIP upgrades for their fleets.

So far, Terma's involvement in the AWACS upgrades have included manufacturing, test, and delivery of more than 6,600 Circuit Card Assemblies and Power Supplies, in more than 40 different styles for NATO, USAF, UK, and France. Whereas the initial contracts were placed to fulfil offset obligations, the business evolved into deliveries on a purely commercial basis. Terma has been chosen because over the period, we have provided the best value for the program.

In addition to the production capability, Terma's know-how and test facilities are used to provide maintenance service and upgrades for previously delivered equipment plus other equipment relating to the NATO AWACS fleet. Terma is certified by NATO to perform repair on a total of 80 different items from the AWACS.

Between 1981 and 1984, NATO received their 18 Boeing 707's for the NATO AWACS Fleet of surveillance aircrafts. All installed radar equipment was developed by Westinghouse of the U.S., now Northrop Grumman.

Apart from the NATO AWACS fleet, the following countries also operate fleets of AWACS, i.e. USAF (32 units), United Kingdom (8 units), France (4 units), Saudi Arabia (5 units) and Japan (4 units). However, the Japanese fleet of AWACS platforms are based on Boeing 767´s.

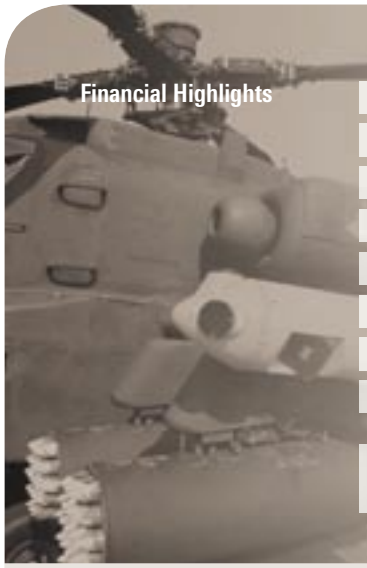
The modular and flexible design of the MCP-F makes it easy to install other systems in the pod, and several versions are currently being evaluated for various other platforms.

Leading parameters of the MCP in enabling optimum protection for multiple platforms are its compatibility with modern payload and the adjustable dispensing angles on each dispenser module, including forward firing capabilities to take advantage of new expendables efficiency.

Currently planned growth potential includes volume for Towed Decoy, Missile Warning System, and RF Jammer.

In June 2006, the first MCP-F was delivered to EADS for flight tests on a German Tornado aircraft.

The modular and flexible design makes it easy to install other systems in the pod, and several versions are currently being evaluated for various other platforms.



Financial Highlights

USD million	2005/06	2004/05	2003/04	2002/03	2001/02
Sales	165	202	183	161	170
Sales share abroad	140	163	147	134	99
Profit for the year before tax	12	14	12	10	10
Equity Capital, year-end	57	57	53	52	42
Assets, total	151	167	189	177	156
Order intake	166	189	145	211	179
Order book, year-end	227	228	241	279	228
Number of full-time employees – Average for the year	1,014	1,034	1,010	945	855

We Provide Mission Customized Solutions

Terma develops and markets high-tech solutions, systems, and products for civilian and military applications. Terma A/S is headquartered at Lystrup near Århus, Denmark. Terma is a 100 percent Danish owned company.

Terma's high-tech solutions and products are developed and designed for use in extreme mission critical environments and situations, where human lives and valuable material assets are at stake.

In Denmark, Terma facilities are located at Lystrup, Grenaa, and Herlev (Copenhagen).

Terma's international locations include Leiden, the Netherlands; Besozzo, Italy; Darmstadt near Frankfurt, Germany; Washington, DC, and Warner Robins, GA, USA.

Terma A/S was established in 1949. For many years, Terma has worked closely with defense forces, public authorities, and international organizations around the world. Through these relationships, Terma has gained in-depth knowledge of and insight into our customers' working environment and an equally deep understanding of their situations and needs.

Terma is fully owned by the Thomas B. Thrige Foundation.

Terma's business areas cover:

- Aerostructures for aircraft
- Airborne systems, including
  - Self-protection systems for aircraft
  - Audio systems solutions
  - Reconnaissance systems for fighter aircraft
  - Electronics manufacturing
- Integrated systems, including
  - Self-protection systems for naval vessels
  - Command and control systems for navy, army, and air force applications
  - Air traffic management systems
- Radar surveillance systems
- Solutions, services, and products for space applications

TERMA UPDATE . FEBRUARY 2006 **Editor** Kasper Rasmussen, kar@terma.com

Terma A/S
Hovmarken 4
8520 Lystrup
Denmark
T +45 8743 6000
F +45 8743 6001

Terma A/S
Fabrikvej 1
8500 Grenaa
Denmark
T +45 8743 6000
F +45 8743 6001

Terma A/S
Vasekær 12
2730 Herlev
Denmark
T +45 8743 6000
F +45 8743 6001

Terma North America Inc.
645 Tallulah Trail, Suite 204
Warner Robins, GA 31088
USA
T +1 (478) 923 7233
F +1 (478) 923 7360

Terma North America Inc.
2461 South Clark Street,
Century Two, Suite 810,
Arlington, VA 22202, USA
T +1 (703) 412 9410
F +1 (703) 412 9415

www.terma.com

TERMA

idworks.dk 2509/07.06