



## Thales Onboard the Tiger

**Neuilly sur Seine, June 16, 2010** - Thales is proud to be onboard Eurocopter's Tiger, the most versatile attack and armed reconnaissance helicopter available on the market. The Tiger, known in France and Spain as Tigre, is a multi-mission helicopter capable of carrying out day and night time missions in all-weather conditions.

The Tiger has additional capabilities compared to other attack helicopters. These include measures for armed reconnaissance and escort, destruction, anti-tank and fire support. The Tiger, of which France, Germany, Australia and Spain have ordered more than 200 models, has been in operation with the French Army in Afghanistan since August 2009. The strength of this platform's operational performance in this theatre is paving the way for expansion into additional export markets.

The Tiger is fully equipped with Thales avionics and mission technology. These systems range from multi-function colour displays in the cockpit with FLIR, map and video images, to the TopOwl helmet-mounted sight display available on some variants, and to systems for flight and mission management, as well as for self-protection and firing.



### Cockpit

#### MFD66 smart display

Thales supplies the MFD66 smart multipurpose electronic display in the Tiger cockpit. This full-colour high-resolution fully integrated display is capable of providing synthetic and raster image for primary flight, navigation and tactical displays and systems, as well as engine monitoring.

The multifunction display is compatible with night vision goggles and integrates in one panel-mounted LRU all the necessary functions for stand-alone operation. These include the aircraft systems bus interface, data processor and graphics generator.

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## TopOwl Helmet Mounted Sight Display

Thales designs and supplies the most advanced piloting helmet system available for helicopters, TopOwl, which can be found onboard some variants of the Tiger. The helmet mounted sight and display is based on a unique concept that incorporates a night vision system with a 100% overlapping projection of a binocular image on the visor.

TopOwl enhances operational effectiveness by means of high accuracy head tracking symbology used to display flight and weapon management data and in turn help to reduce crew workload and to increase flight safety.

TopOwl features day and night symbology, FLIR images (including high resolution), integrated image intensifier tubes (I<sup>2</sup>T), and a visor display equivalent to the highest level of night vision performance. Its modular design allows easy and immediate in-flight transition between day/night and I<sup>2</sup>T/FLIR configurations. TopOwl meets increasingly rigorous demands for safe flight operations in degraded visual environments such as night, brownout, and whiteout.

This system offers high-quality video image and graphic symbology that can be projected on to the periphery of the visor, leaving the central area free from visual obstruction. But what pilots particularly appreciate is the low weight of the ergonomically designed helmet sight.

Easily integrated with a full weapon suite (guns, rockets, air-to-air missiles), the system features top-of-the-market accuracy. A head position sensor used during target designation and weapon-firing sequences enhances this precision.

## Self-protection and Firing

Thales systems onboard the Tiger include those that help protect the helicopter and its crew from attacks, particularly surface-to-air and air-to-air missiles. These self-protection systems include radar-warning receivers that identify and locate radar threats and alert pilots in real time. They also indicate the engagement status of weapon systems allowing for the deployment of countermeasures.

## Compact Airborne Threat Surveyor (CATS)

The CATS-150 is the latest generation radar-warning receiver developed by Thales. It incorporates the most recent advances in threat detection, based on direct operational feedback from military personnel onboard helicopters, transport aircraft and combat aircraft.

This system allows pilots onboard the Tiger to detect and identify threats, displaying them on a screen to support real-time tactical situation awareness. Pilots are alerted to threats in time to re-route and avoid high-risk areas, thereby enhancing platform security and survivability.

CATS 150 is based on an open architecture for enabling modular integration of receive band extensions. This architecture also increases the range for detecting all types of radar threats (additional digital receiver).

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The system also provides a complete self-protection management function that controls a laser warning receiver, missile launch detector and/or missile approach detector. It also provides a comprehensive report on these threats to support the pilot's decision to engage appropriate countermeasures (manoeuvres, decoying, jamming).

## **Missile systems**

Thales subsidiaries TDA (Thales Armaments) and FZ (Forges de Zeebrugge) have been developing armed missiles for the Tiger for several years. TDA and FZ offer two missile calibres (68 and 70mm) and a range of launchers (7, 12, 19 and 19) for the Tiger, in order to meet a variety of operational constraints.

This range of munitions draws on the experience gained from having sold several million missiles in the world for all types of platforms. The munitions were specifically developed to allow for the easy integration of laser-guided missiles throughout ongoing qualification phases for both 68- and 70-mm calibres.

## **Communication, Navigation and Identification**

Thales furnishes the communication, navigation and identification systems onboard the Tiger. These include V/UHF secure voice communications, tactical air navigation (TACAN interrogator), multi-mode receivers (MMR with VOR, ILS, MKR) and IFF transponders.

### **Communication**

The Communications system onboard the Tiger covers the entire tactical V/UHF spectrum (tactical VHF, ATC VHF, maritime VHF and military UHF). It offers all the necessary voice and data services, with redundancies, via the latest generation protection modes (PR4G Fasnet, SATURN). All radios in this system are encrypted according to NATO (COMSEC) standards.

Two tactical VHF channels of the communications system are fully integrated into the Tiger's mission system. They provide data services (and voice) specifically needed inside the patrol of helicopters and for helicopter's integration into voice/data communications networks deployed on the battlefield.

### **Navigation**

Thales supplies the TACAN transponder onboard the Tiger. This equipment allows the helicopter to precisely position itself in relation to TACAN beacons, which Thales also provides.

The Thales multi-mode receiver (MMR) onboard the Tiger is used for in-flight navigation and for landing the rotorcraft, by combining functions including VOR, ILS and Marker.

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## Identification

Identification functions onboard the Tiger are provided by the Thales IFF (Identification Friend-or-Foe) transponder, which is fully compliant with civil, NATO (mode 4) and national secure (NSM) modes. The IFF transponder is up-gradable and will soon integrate Mode 5, the new NATO secure mode.

Equipped with the IFF transponder, the Tiger is instantly identifiable on the battlefield by the ground-air defence systems and allied armies.

## TopSIS

Thales designs and manufactures the TopSIS Secure Intercom System, a fully digital system designed for providing secure communications. TopSIS manages and integrates audio signals, internal and external data, as well as voice.

The system, which is compliant with TEMPEST requirements, relies on fibre optic data buses between the central management unit and peripheral equipment. It offers lower mass installation compared with conventional systems.

TopSIS provides the Tiger's aircrew with fully secure voice communications throughout the helicopter. It has also been CESG approved for the processing and routing of classified voice information to other intercom users and for transfer off board via approved encryption devices.

## Services, Support

Thales, along with German partner Rheinmetall Defence Electronics GmbH, has developed 26 simulators, in Full Flight (FFS) and Cockpit Procedure Trainer versions. The Joint Armaments Cooperation Organisation, OCCAR, runs this programme.

The simulators are equipped with Thales's Computer Generated Forces software, SETHI, which simulates a very realistic tactical environment for crew. Nine channels feed a 240-degree view to crewmembers, along with channels for generating sensor images. These infrared, TV and image intensified sighting systems are displayed by the ThalesVIEW visual image software, which draws on a visual database also developed by Thales.

Thales develops the simulator's instructor station, as well as simulations of several helicopter systems found onboard Tiger. The company also supplies the movement system that equips the FFS simulator and allows it to accurately recreate the dynamic effects associated with helicopter flight.

These facilities will be used at the joint training centre for French and German Tiger pilots in Le Luc, Var, southeast France and in the operational regiments in Germany (Fritzlar and Roth) and France (Pau), to train Tiger combat helicopter aircrews.

FFS Tiger Thales simulators are being used to train troops deployed in Afghanistan. This training brings a high level of operational preparedness to crewmembers, meaning they are engaged in optimum security conditions and are effective in combat.

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## **Ground Mission Management System (GMMS)**

Thales equips the Tiger with the Ground Mission Management System (GMMS). This system provides mission management in real time so as to help reduce pilot workloads.

The GMMS prepares the Tiger for the mission at hand via Data Load Devices (DLDs). DLDs are used to upload pre-mission configuration data and to download data captured for post-mission analysis and debriefing.

The GMMS is a vital link between the Tiger, ground control and external operational support systems. Real-time voice and data links provide automatic updates of the tactical situation and mission tasking.

The system includes a 2D map display and a 3D simulated environment. It operates with common military message formats so as to provide the automatic storage and display of data received via formatted messages. The GMMS core supports other air, maritime and ground platforms through the use of a mobile computing device. It has a scalable distributed architecture that allows for both standalone laptop and networked operation.

**The Tiger is a high-performance technological platform through which Thales has demonstrated its expertise in cutting-edge avionics and mission systems.**

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### **About Thales**

Thales is a global technology leader for the Aerospace and Space, Defence, Security and Transportation markets. In 2009, the company generated revenues of 12.9 billion euros with 68,000 employees in 50 countries. With its 25,000 engineers and researchers, Thales has a unique capability to design, develop and deploy equipment, systems and services that meet the most complex security requirements. Thales has an exceptional international footprint, with operations around the world working with customers as local partners. [www.thalesgroup.com](http://www.thalesgroup.com)

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