Eurofighter update

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Le Bourget

June 18-24, 2007

CAESAR Trials on Eurofighter Typhoon

Future E-Scan Capability

As deliveries of the multi-role capable Eurofighter Typhoon get underway, a major emphasis has been placed on the next generation of capabilities that are to go under consideration for integration onto the aircraft. The signature of the "First Phase Enhancements" contract has been achieved, but industry has already initiated work on the capability-enhancing features that will further boost the operational performance of Eurofighter Typhoon. Most notably, the first important steps towards the introduction of an electronically-scanning antenna onto the weapon system have been taken by the Euroradar team. In May, the CAESAR completed its first flight on Eurofighter Typhoon.

The CAESAR (Captor Active Electronically Scanned Array Radar) system is an e-scan radar demonstrator developed and funded by the Euroradar consortium, consisting of Selex Sensors and Airborne Systems (UK), Galileo Avionica (Italy), EADS Defence Electronics (Germany) and Indra (Spain). While maintaining the excellent operational standards of the Captor radar, CAESAR promises significant performance improvements as well as a reduction in operating costs. The new e-scan antenna also has a relatively simple installation due to the electrical interface matching exactly with that of the Captor. The CAESAR test programme will be used to support confirmation of the technologies in the Eurofighter Typhoon environment and as a risk reduction measure, in terms of air vehicle aspects, for future integration.

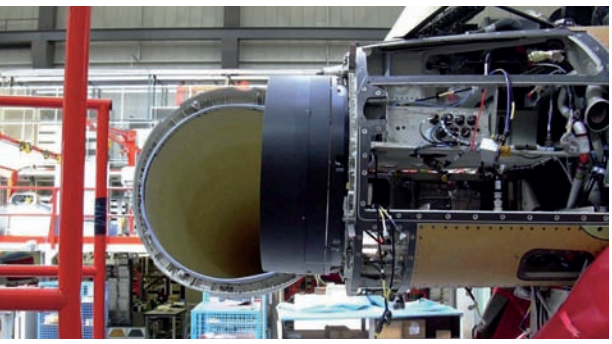
The first flight was conducted at EADS Military Air Systems' Manching facility, Germany, using Development Aircraft Five (DA5) which, only recently, had completed all of its scheduled tasks under the Main Development Contract. DA5 had also been one of the principle test platforms for the Captor radar. Four flights in total were performed and the initial results were very promising. The antenna successfully performed Track While Scan (TWS) functions against dedicated targets while the air-to-surface radar mapping ability was comprehensively demonstrated over the course of the trials.

The Euroradar team had previously proven the potential of the CAESAR antenna on specialised ground rigs as well as conducting seven flights on a modified BAC 1-11 aircraft, but this was the first opportunity for trials on Eurofighter Typhoon.

Industry and the NATO Eurofighter Tornado Management Agency (NETMA) had agreed on the use of DA5 for these tests following funding approval from the German Procurement Agency (BWB).

The successful flights on Eurofighter Typhoon prove the high level of technology readiness of the e-scan upgrade to Captor. The accumulated data from the trials will now be assessed and evaluated by the Euroradar consortium and will be used as inputs to customer considerations on the future development and operation of their Eurofighter Typhoon fleets.

The CAESAR demonstrator was fitted into DA5 for the purpose of the trials



The Euroradar Team with DA5 and the CAESAR antenna at Manching

Eurofighter Typhoon

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Industrial Participation in Eurofighter Typhoon

Partnership Strength

The Eurofighter Typhoon programme is a pan-European success story. Supporting more than 100,000 jobs in over 400 companies across nine European Nations, the supplier infrastructure behind the best-selling next-generation weapon system is powering the aerospace industrial base.

From the major international organisations to the local medium-sized companies, creating a synergy effect of technology standardisation and knowledge sharing is central to the consortium ethic. Highly-accomplished engineers in skill-intensive jobs are required in the areas of development, production and support of the aircraft. A study by Professor Keith Hartley, from the University of York's Centre for Defence Economics, on the Industrial and Economic Benefits of Eurofighter Typhoon, confirmed this factor of a higher skill requirement. Significantly, a major percentage of these engineering skills are transferable, meaning that European competitiveness can be achieved and sustained right across the industrial region.

The four Eurofighter Partner Companies, Alenia Aeronautica, BAE Systems, EADS CASA and EADS Germany, provide the Eurofighter Typhoon programme with world-class 'centres of excellence'. Financed by the customer Nations, these research and development centres have delivered "free gifts" of engineering expertise in the form of carbon fibre technology and super plastic bonding, as well as the leading edge capability found on Eurofighter Typhoon and in its EJ200 engines.

The collaborative nature of this international venture requires the creation of modern business practices and new ways of thinking in order to manage the technological complexity. These business models are incorporated right across the supplier community helping to develop a management infrastructure as well as skill sets.

Eurofighter Typhoon, as Europe's largest defence programme, delivers on all levels as an industrial partnership. It is an open partnership, with new members granted access to the expertise afforded to the existing Partner Companies. Eurofighter Typhoon is security for Europe's aerospace industry.

Images show Eurofighter Typhoon assembly across the four Partner Nations

The industrial network behind the Eurofighter Typhoon programme features close to 100 top-tier equipment manufacturers (shown below and on map) supported by more than 300 additional product suppliers across Europe.

Austin Semiconductor Europe Ltd
01 Alton (Hampshire)
SELEX Sensors and Airborne Systems
02 Basildon
Rosemount Aerospace Ltd
03 Bognor Regis
Claverham Ltd
04 Bristol
Chelton Electrostatics Ltd
GOODRICH POWER SYSTEMS
05 Buckinghamshire
Smiths Aerospace Electronic Systems
Ultra Electronics-Electrics Ltd
06 Cheltenham
Dunlop Aerospace Braking Syst. Ltd
07 Coventry
SELEX Sensors and Airborne Syst. (Ed)
08 Edinburgh
EATON Aerospace (Titchfield) Ltd
MICROTURBO Ltd
09 Fareham
Messier-Dowty Ltd
10 Gloucester
Raytheon Syst. Ltd
11 Harlow
Druck Limited
12 Leicester
GKN Aerospace Transparency Systems
SELEX Sensors and Airborne Syst. (Lu)
13 Luton
Cogent Defence Security Networks
14 Newport
Ferranti Technologies
15 Oldham
Bookham Technology Plc
16 Paignton
BAES (Plymouth)
17 Plymouth
Pall Aerospace
18 Portsmouth
EATON LTD Aerospace Fluid Systems
Honeywell Hymatic
19 Redditch
BAES Avionics (Rochester)
20 Rochester
Meggitt Avionics UK
21 Segensworth West
Kidde-Graviner Ltd
22 Slough
General Dynamics UK Ltd
23 St. Leonards-On-Sea
Thales Optronics Ltd
24 Staines
Cobham Chelton Radomes
25 Stevenage
AMETEK Aircontrol Technologies
Airscrew Ltd
Page Aerospace Ltd
26 Sunbury-on-Thames
Martin Baker Aircraft Co Ltd
27 Uxbridge
Cobham Air Refuelling AME
EATON Aerospace Ltd
28 Wimborne
Goodrich Actuation Systems Ltd
HS Marston Aerospace Ltd
Smiths Aerospace Mechanical Systems
29 Wolverhampton
Honeywell Aerospace Yeovil
30 Yeovil
BAES
31 Weybridge

LEACH International Europe S.A.
01 Deiningen
Diehl Aerospace GmbH
02 Frankfurt
LITEF GmbH
03 Freiburg
EADS D (Friedrichshafen)
04 Friedrichshafen
AOA Apparatebau Gauting GmbH
05 Gauting
Eaton Fluid Power GmbH
06 Gilching
Hawker GmbH
07 Hagen
Rockwell Collins Deutschland GmbH
08 Heidelberg
EME Elektro Metall Export GmbH
09 Ingolstadt
Liebherr-Aerospace Lindenberg GmbH
10 Lindenberg
Goodrich Lighting Systems GmbH
11 Lippstadt
Dräger Aerospace GmbH
12 Lübeck
EADS D (München)
Rohde Schwarz GmbH Co KG
13 München
Heckler and Koch GmbH
Rheinmetall Waffe Munition GmbH
14 Oberndorf/Neckar
Honeywell Aerospace GmbH
15 Raunheim
Autoflug Gruppe GmbH
16 Rellingen
ACMA GmbH
17 Riemerling
Behr Industrie GmbH Co
18 Stuttgart
Diehl Aerospace GmbH
19 Überlingen
EADS D (Ulm)
20 Ulm
LFK Lenkflugkörpersysteme GmbH
21 Unterschleissheim
SITEC Aerospace GmbH
22 Waakirchen
ESW Extel Systems-Wedel
23 Wedel

OTO Melara - Unita Breda Meccanica
01 Brescia
OMA
02 Foligno PG
SELEX Communications S.p.A. (Genova)
03 Genova Cornigliano
Sicamb S.p.A.
04 Latina
AEREA S.p.A.
Elettronica Aster S.p.A.
FIMAC S.p.A.
Galileo Avionica S.p.A. (Nerviano)
Galileo Avionica/Selex S.p.A.
LOGIC S.p.A.
Microtecnica Srl Divisione Magnaghi
Secondo Mona S.p.A.
05 Milano
Sirio Panel S.p.A.
06 Monte-varchi Arezzo
Elettronica S.p.A
Galileo Avionica S.p.A. (Pomezia)
Litat S.p.A.
SELEX Communications S.p.A.
07 Roma
ASE S.p.A.
08 San Giorgio Su Legnano
Alenia Aeronautica
AVIO S.p.A.
Galileo Avionica S.p.A.
Galileo Avionica S.p.A. (Caselle)
Microtecnica Srl
09 Turin

Kongsberg Gruppen ASA
01 Kongsberg
EPM Technology
Ericsson
Thales
Triad
02 Oslo
SINTEF
03 Trondheim

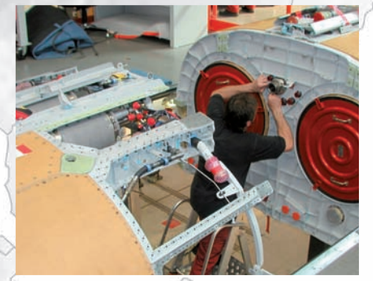
Systematic
Terma
01 Aarhus

INDRA DTD S.A.
01 Alcobendas
EADS CASA
AVOX Hispania S.L.
CESA
General Dynamics E.N. Santa Barbara
INDRA Sistemas S.A.
Page Iberica S.A.
02 Madrid
CONSUR S.A.
03 Sevilla
INTA
04 Torrejon De Ardoz
Tecnobit S.A.
05 Valdepenas
BERU Microelectronica S.A.
Fibertecnic
06 Vitoria

Austria Metall AG, AMAG
01 Ranshofen
Böhler
02 Kapfenberg
Datawarehouse
Testfuchs
03 Wien
MCE Maschinen und Apparatebau
04 Linz
Peters GmbH
05 Stainz
Wild GmbH
06 Volkermark

Michelin
01 Clermont Ferrand
THALES Avionics
02 Le Haillan

Saab Tch AB
01 Stockholm



Flight testing with METEOR on IPA2 over Decimomannu, Italy

Eurofighter Typhoon flies METEOR

Beyond Visual Range Lethality

The integration of advanced weaponry is set to become a major task in the future development of Eurofighter Typhoon. The recently-contracted “First Phase Enhancements” will look to match the Tranche 2 hardware changes in the avionics suite with the rewritten and upgraded software. As a result, the 2012 timeframe will see multi-role leading edge capabilities delivered to the Partner Air Forces through the availability of new air-to-air and air-to-surface weapons. The state-of-the-art Meteor Beyond Visual Range missile is set to be one such addition.

Eurofighter Typhoon first flew with METEOR during an RAF flight in December 2005, in the UK

A Royal Air Force Eurofighter Typhoon achieved first flight with Meteor in December 2005 in the United Kingdom. Following the release of funding from the customer, the data gathering trials with the weapon have continued throughout 2007 in Spain and Italy. In March, Instrumented Production Aircraft Four (IPA4), operated by EADS CASA out of Morón, undertook a series of five flights in order to assess how the missile responded in vibration and load environments on both the front and rear fuselage stations.

In May, the focus of the testing shifted to Decimomannu, Italy, as IPA2 began a ten-flight campaign with Meteor. Continuing the data gathering, the missile was flown for the first time on the underwing, outboard pylons on the aircraft, exploring the weapon’s reactions to flutter and vibration. The result of the two 2007 campaigns is that Meteor has now flown successfully on all operationally-applicable weapon stations on Eurofighter Typhoon.

The Meteor test campaign is set to continue with a further ten flights scheduled for later in the year at Morón, Spain. These trials are part of a package of risk reduction activities undertaken by the Eurofighter consortium which will support the projected integration of Meteor onto Eurofighter Typhoon.

The first test campaign of 2007 with Eurofighter Typhoon carrying METEOR was conducted by EADS CASA, in Spain

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