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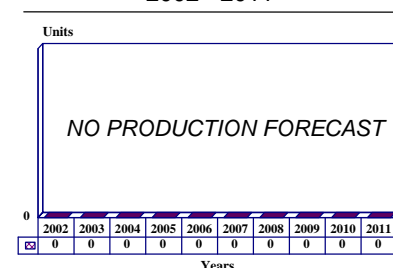
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FLAIR TRS-2140 – Archived 01/2003

Outlook

- No information on the TRS-2140 has been published since 1996
- If no new information becomes available, this report will be archived in 2003

10 Year Unit Production Forecast
2002 - 2011



Orientation

Description. Advanced 3D radar optimized for medium- and low-altitude airspace surveillance.

Sponsor

Thales

(formerly Thomson-CSF)
Division Systèmes Défense et Contrôle
7 Rue des Mathurines BP. 10
F-92223 Bagneux Cédex
France
Tel: +33 1 41 07 50 00
Fax: +33 1 41 07 54 22
Web site: www.thalesgroup.com

Contractors

Thales

(formerly Thomson-CSF AIRSYS)
7-9 rue des Mathurins
F-92221 Bagneux Cédex
France
Tel: +33 1 40 84 40 00
Fax: +33 1 40 84 33 81
Web site: www.thalesgroup.com

Licensee. No known production licenses have been granted.

Status. Believed to have completed development.

Total Produced. Three units are estimated to have been produced through 2001.

Application. Intended for use with point and area air defense systems, filling a gap within air defense networks and in local military air traffic control.

Price Range. Thales has released no price data. Comparison with the known costs of similar systems suggests a price range between US\$4.5 million and US\$8 million.

Technical Data

Characteristics

Frequency:

E/F-band (2-4 GHz)

Rotation speed:

12 rpm

Characteristics

Horizontal beamwidth:	1.6°
Vertical beamwidth:	4.2°
Compressed pulse duration:	0.5 microseconds
Instrumented range:	145 km
Elevation:	45°
Altitude ceiling:	30,000 ft
Maximum elevation:	45°
Azimuth scan:	360°
Range resolution:	210 m
Bearing resolution:	2.5°
MTBF:	1.5 hours (between critical failures)
MTTR:	30 minutes

Dimensions

	<u>Metric</u>	<u>US</u>
Antenna width:	5 m	16.55 ft
Antenna height:	2 m	6.62 ft

Design Features. The Thomson-CSF FLAIR (Field Low-Altitude Intermediate Range) radar is an E/F-band, 3D intermediate-range surveillance radar. It utilizes a solid-state active planar array antenna with distributed transit/receive modules. Simultaneous coherent and non-coherent processing with map-controlled switching in range and azimuth is used for clutter suppression.

Clutter is also minimized by the high phase stability of the complete coherent chain, the very low sidelobe levels, and the small radar cells. Scanning patterns can be matched to the profiles of the surrounding terrain, while a thin pencil beam, high pulse repetition frequencies, adaptive moving target indication, and Doppler processing are helpful in detecting low-flying and elusive targets.

Advanced electronic counter-countermeasures (ECCM) capability is ensured by the use of frequency agility on a burst-to-burst or pulse-to-pulse basis. Sidelobe blanking is applied to the already low sidelobe levels while digital pulse compression, multiple pulse duration, mono-pencil-beam generation, PRF (pulse repetition frequency) staggering, automatic choice of least jammed frequency, and jamming analysis are all used to improve performance in hostile environments.

Other major features of the FLAIR radar include variable operating modes with automatic selection, low

probability of intercept allowing the use of relatively long pulses, unmanned remote-control operation, and high reliability with a built-in fault detection and diagnostic facility.

Operational Characteristics. The FLAIR radar was designed to provide medium, low and very low surveillance coverage against aircraft, helicopters, and cruise missiles. It was intended to provide cueing facilities for point and area defense air warfare systems and to act as a gap filler for air defense networks. It has been designed for easy integration into such sensor networks.

FLAIR is highly mobile and can be transported by truck, cargo aircraft, or slung beneath a helicopter. The radar itself is installed on a four-leg self-lifting platform which carries the antenna and associated identification friend or foe (IFF) system. A 2x2-meter shelter contains the digital frequency generator, receiver, signals processing equipment, display console, and power supply. The equipment can be set up in less than 30 minutes by unskilled personnel.

Provisions for nuclear, chemical, and biological protection have been built into the system and can be implemented upon request, at extra charge.

Variants/Upgrades

There are currently no variants of this system.

Program Review

Background. The FLAIR radar was designed as a new-generation successor to the older TRS-2100 Tiger radar system. That system fulfilled much the same basic functions as FLAIR but was 2D in operation and used technology dating from the early 1970s. FLAIR, in contrast, is completely state-of-the-art and provides a tactically mobile 3D solution.

FLAIR was first introduced at the 1993 Paris Air Show. At that time, it was announced as being available for purchase, although Thomson-CSF admitted that much

of the final development and testing had to be completed.

Although little information has been published about the system, the TRS-2140 has apparently completed its testing phase, as evidenced by Thomson-CSF bidding to fulfill a contract for Bangladesh in 1996 with the system. The Thomson-CSF TRS-2140 was said to have outperformed its competitors but lost the contract on the basis of price.

Funding

The development of FLAIR was funded by Thomson-CSF as a corporate venture.

Recent Contracts

No known contracts have been awarded.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Jun	1993	FLAIR introduced
	1996	FLAIR loses bid for Bangladeshi contract
	2000	FLAIR expected to be operational

Worldwide Distribution

To date, no known procurements have been detected.

Forecast Rationale

There has been little information published on the Thales (formerly Thomson-CSF) TRS-2140 FLAIR (Field Low-Altitude Intermediate Range) radar since its debut in 1993. This mobile, solid-state surveillance E/F band radar was designed to detect aircraft flying at medium, low, and very low altitudes. Used as a point and area defense or as a gap filler, the TRS-2140 has a resolution range of 210 miles.

The TRS-2140 FLAIR was reported to have made the short list of contenders for a Bangladeshi Air Defense contract in 1996. Although the TRS-2140 was said to have the best performance, it was defeated by a Russian system which was able to undercut the French system's price. Because the TRS-2140 was offered in the

Bangladesh competition, it is assumed that the TRS-2140 has successfully completed its testing stage.

However, since the Bangladeshi contract competition, no new information about the system has been forthcoming. The lack of information makes it impossible to forecast the TRS-2140 sales performance. Also, since the system can not be found on any of the Thales websites, it can also be assumed that this system is no longer being offered. Additionally, the French DGA placed an order for an unspecified number of Giraffe AMB air defense surveillance radar systems, which are scheduled to be deployed beginning in 2003. It is possible that these systems will be used in the French air defense system, rather than the TRS-2140 even

though they have a shorter range. For these reasons, information on the TRS-2140 is detected.
this report will be archived in 2003 if no new

Ten-Year Outlook

Ten-Year Outlook table has been deleted due to a lack of information.

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