



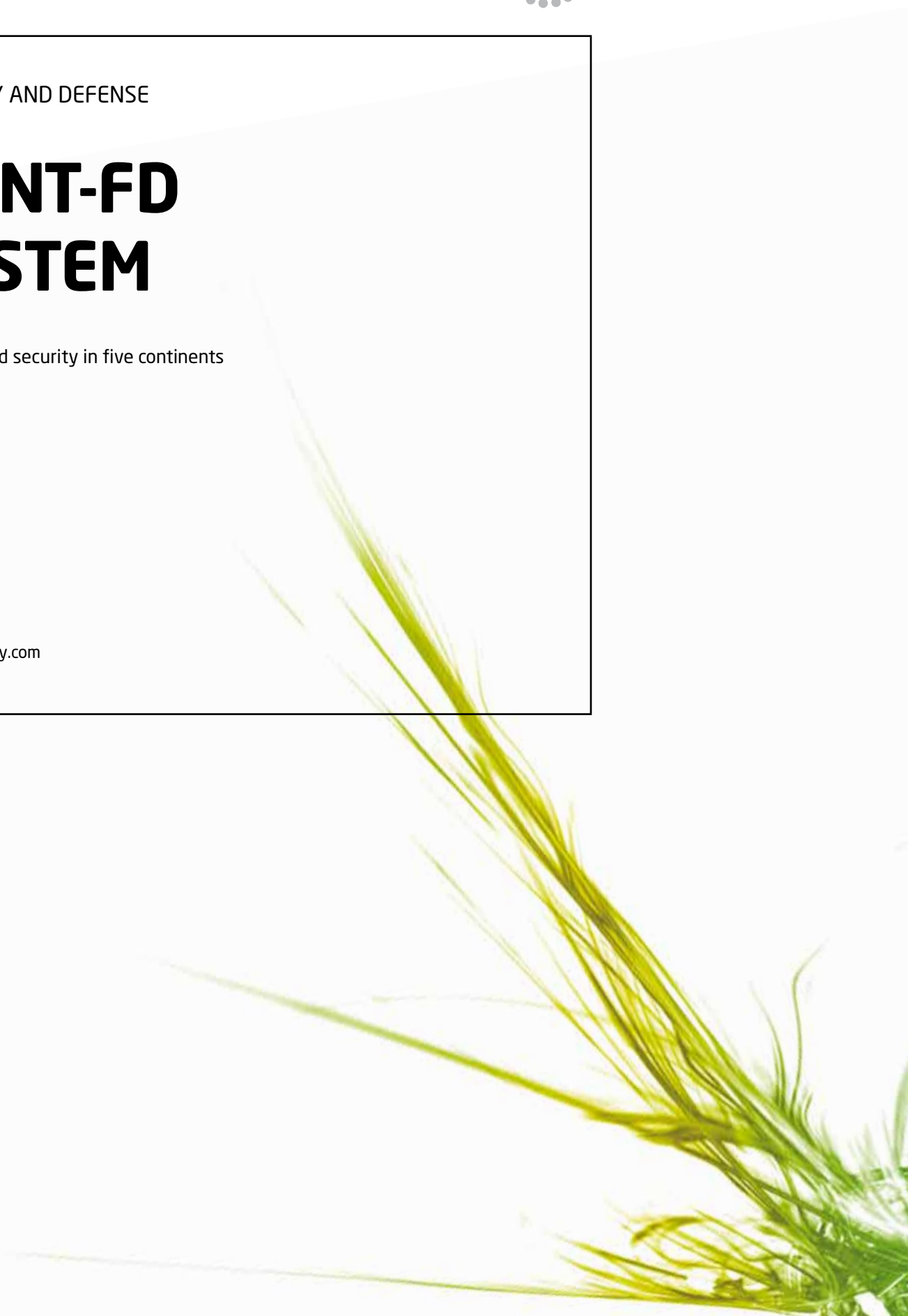
indra

SECURITY AND DEFENSE

ELINT-FD SYSTEM

Defense and security in five continents

indracompany.com



ELINT-FD SYSTEM



ELINT FD System



True all-weather radar ELINT system, providing: acquisition, direction finding, technical characterization, pulse and intrapulse detailed analysis and identification of radar signals

Technical description

Mission

The ELINT-FD is a unique instrument to perform outstanding strategic information about enemy forces and their radars.

The analysis sensor, working in coordination with the pertinent analysis SW, performs the following functions:

- Narrow band signals detection of pulsed and CW emitters within the radar bands
- signals technical parameters characterization
- information report to workstation
- search and surveillance according to strategy tables
- pulse buffers capture
- built-in-test

This system can be optimally complemented with the 800-VLB (in order to extend the frequency coverage down to 50 MHz), as well as with the Rigel ES System (to provide with the benefits of a Wide-Band ES dedicated sensor and processing module).

Capabilities

Detection and parameters measurement are performed in four operative modes:

Surveillance Mode

The receiver explores the frequencies contained in the Surveillance Table and generates reports

Search Mode

The receiver explores the entries of the Search Table until the detection of a signal.

Assignment Mode

The operator can manually put the receiver in this mode, setting up the required tunings criteria. The Analysis Sensor is stopped in the desired signal, analyzing and reporting data.

Manual Mode

It is a manual programming of the receiver, setting up the frequency, bandwidth, antenna movement...

Configuration

The ELINT-FD is physically composed by four elements

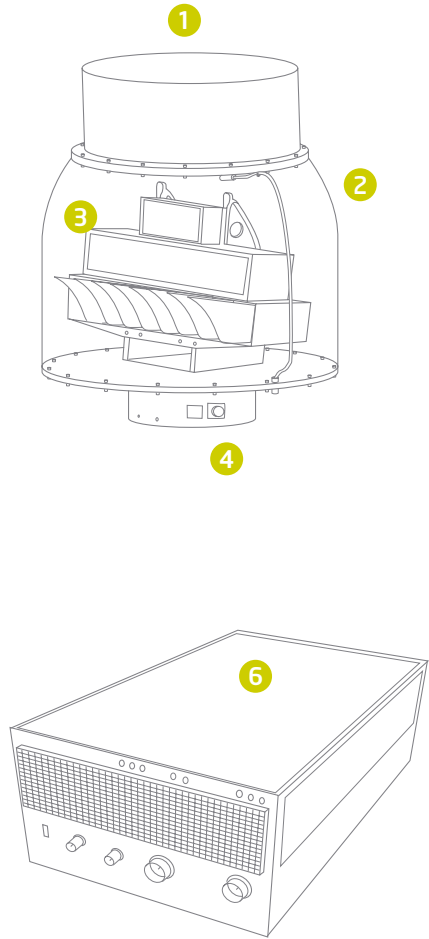
ELINT Antenna Set

- DF sub-assembly, based on a FlatSpin Antenna, composed by a series of stacks covering the C/J band, from 0.5 to 18 GHz, and optionally including the K band (18-40 GHz)
- An omni antenna to support detection (maximizing system POI) in the C/J band, and optionally including a dedicated omni antenna covering the K band (18-40 GHz)
- Positioner unit, which allows the DF sub-assembly azimuth rotation

Dual Super-heterodyne Receiver (RGSH)
It provides two IF channels (1 GHz signal with a BW of 500 MHz), which are delivered to the Fine Analysis Processor.

Fine Analysis Processor (MGSH)
It concentrates both the IF resources (providing an output bandwidth that can be tuned from 1 to 500 MHz) and the digitization and processing resources. It contains the Digital Receiver (core technology), basis for the main technical features described below. It also contains the antenna rotation controller.

Presentation and Display Set
It is composed by the emitters data base and the Human machine interface (HMI).



- 1 OMNI
- 2 Radom
- 3 DF antenna
- 4 Positioner
- 5 Dual superheterodyne
- 6 Fine Analysis Processor

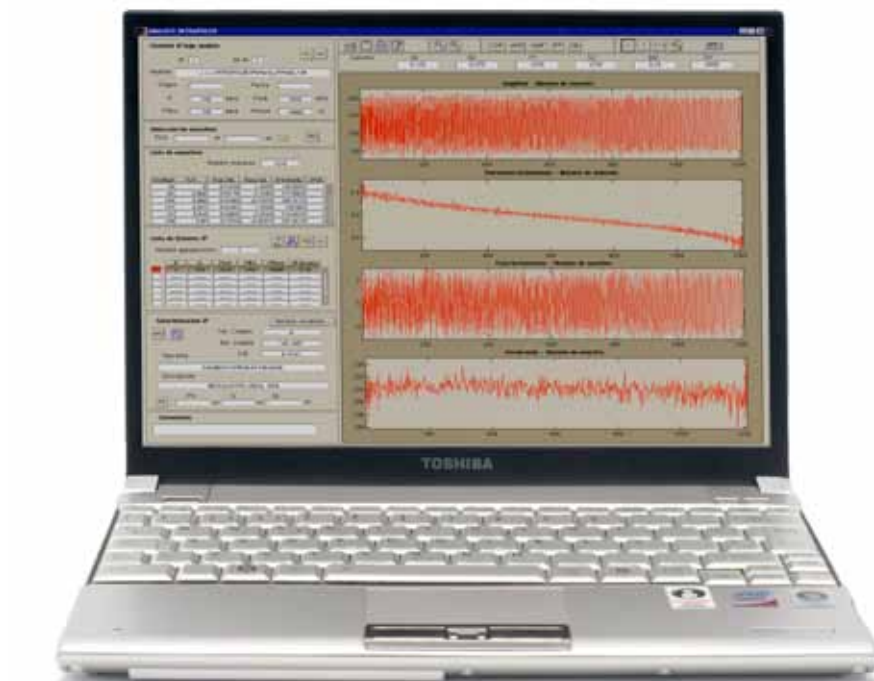
Technical features

The most important features of the ELINT-FD are the following

- FLAT-DF Antenna capable of rotating at a high speed with a big elevation coverage, therefore maximizing the POI figure
- Very high accurate angle of arrival (AOA) measurement
- Super-Heterodyne Receiver with maximum bandwidth of 500MHz for each of the two FLAT-DF and omni channels
- Frequency measurement accuracy better than 1 MHz RMS
- Very high mean system sensitivity
- Measurement of parameters of the signal, by means of intra-pulse and inter-pulse analysis
- BITE (initialization, manual or continuous)
- Emitters Library can be adapted to the customer's requirements (large experience regarding the NATO standard Data Base). The Applied Software includes programming tools to update or modify the Emitters Library
- Standard interface to exchange data with Command and Control Centers
- Advanced Human Machine Interface (HMI) with a high-resolution display system and multiple graphic windows
- Activity and sensor histograms (Frequency, PRI, PW, PA, azimuth)
- Temporal Diagram: Frequency-Time that indicates activity according to time, providing a clear idea of the present situation
- The Pulse Analysis component has been designed to provide the operator with powerful graphic tools and algorithms to analyze pulse buffers captured with the sensors
- The Intrapulse Analysis component has been designed to provide the operator with powerful graphic tools and algorithms to analyze the intrapulse modulation and the radar signature of a signal
- Data Base Tools component implements query and handling tools for ELINT System databases
- Capability to be integrated with communication devices for remote control
- GPS reception capability
- Mapping of the mission area using the Customer's Digitized Map

Technological advantages

- Directional spinning antenna based on linear arrays of printed antennas (high gains, narrow azimuth beams, wide elevation beams)
- Dual channel Super-Heterodyne Receiver for FLAT-DF antenna and Omni antenna
- Processing architecture based on POWER-PC board
- Digitized pulse data received can be stored for subsequent analysis adding an important ELINT capability to the ES system
- Very high reliability
- System maintainability criteria based on replacement, minimised programmed/preventive maintenance, minimized use of tools for maintenance operations (only commercial tools), both at operator and base maintenance level



Intrapulse analysis component

Technical characteristics

Emitters frequency Types

Fixed, agile, jump

IP Modulation

- FMOP (chirp + and -, discrete shift, quadratic)
- PMOP (binary, barker and code detection)

Physical characteristics

EXTERNAL EQUIPMENT	(W x H)	WEIGHT
ELINT Antenna Assembly	945x1333 mm	87 Kg
Super-het receiver	575x290x254 mm	36 Kg
INTERNAL EQUIPMENT	(W x H x D)	WEIGHT
Fine analysis processor	482,6x592x266 mm	42 Kg

Notes

Regarding dimensions and weights, radome has been taken into account.

The physical characteristics shown above could be modified according to the requirements and installation constraints.

Main standards

Environment specification	MIL-STD-2036/A
Human engineering	MIL-STD-14272
Design safety	MIL-STD-544/N
EMI/EMC	MIL-STD-461/D
Power supply	According MIL-STD 1399 adaptable to the Customer



ISO 9001:2000



indra

Ctra. de Loeches, 9
28850 Torrejón de Ardoz
Madrid (Spain)
T +34 91 626 80 12
F +34 91 626 58 87
c4i@indra.es
indracompany.com

Indra, a member of
MRCM Products

Monitoring, reconnaissance
and counter measures

Indra reserves the right to
modify these specifications
without prior notice.