DEFENSE AND SECURITY

3D LANZA FAMILY RADARS

Defense and security in five continents

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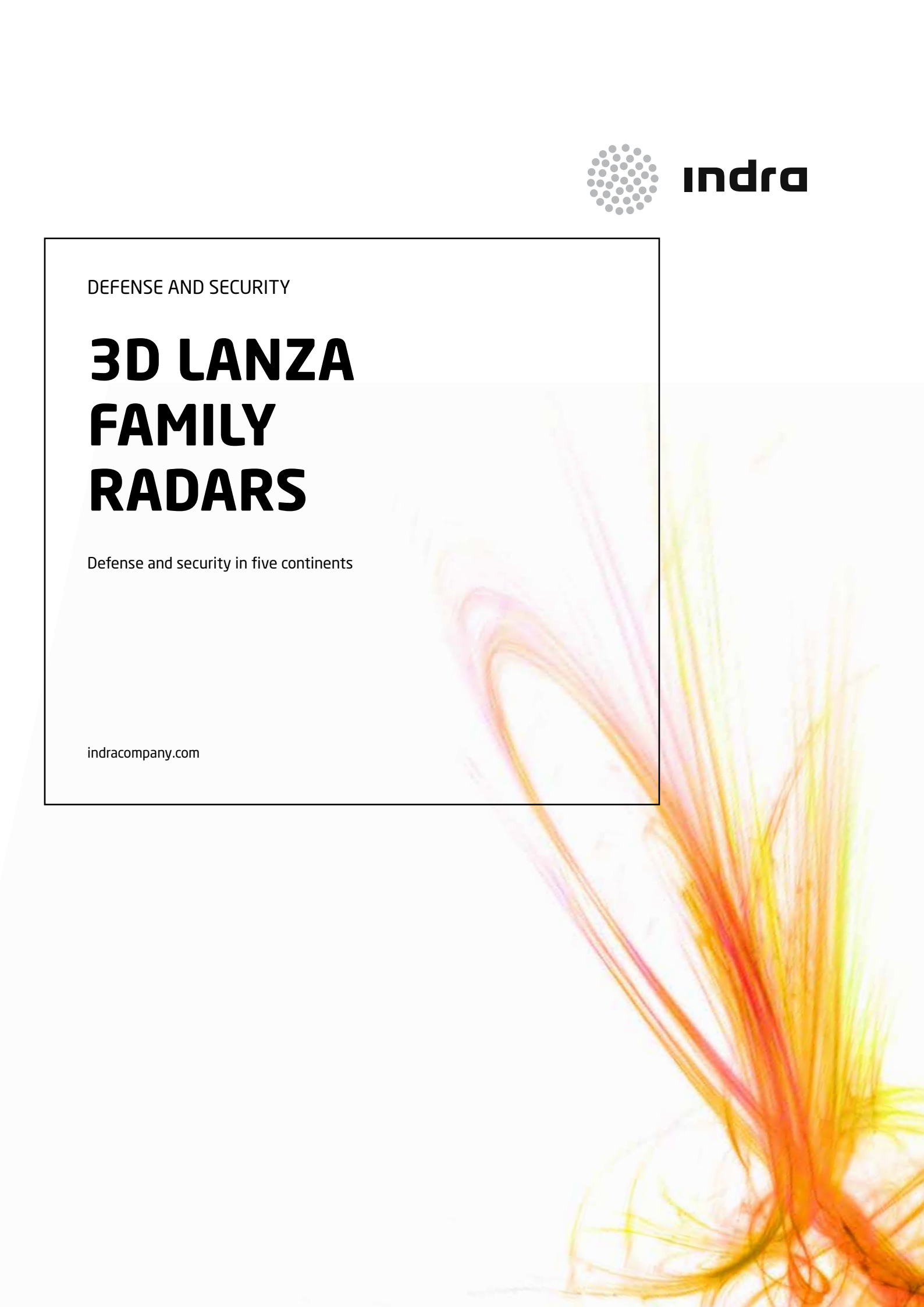


3D LANZA FAMILY RADARS

Radar 3D mobile

Long range 3D radar

Radar 3D naval

State-of-the art last generation 3d radars

Principles of operation

The LANZA is a multi-scenario, multi-threat adaptive radar. The radar design meets not only the operational and technical requirements of the current NATO radar specifications, but anticipates the changing threat scenario of the future.

Established principles are combined with major advances in planar array, solid state amplifiers and signal processing technology to achieve the ultimate in radar detection. Precise energy adecuation to coverage needs and programmable detection algorithms create a versatile, multi-role operational capability. Inherent in the design are excellent performance against stealth-protected jammers, enhanced detection in clutter, improved low level performance and tracking capability.

The Spanish Air Force have procured 10 3D long range LANZA radars for use in its Sistema Integrado de Mando y Control Aéreo (SIMCA) programme, with the first unit being comissioned during 2000. Then, Indra was awarded with the delivery of a long range 3D radar for Portugal as a NATO project. In 2007 the Uruguayan air forced adquire two LANZA radars with delivery scheduled by completion by the end of 2009. One of the radars is mobile and the other fixed, with both sensors being able to provide back-up civilian air traffic control services. Indra has also provided a naval version of LANZA radar from which the Spanish Navy has adquire two units, one of them for the LHD, that are currently under comissioning.

Principles of operation

The planar array antenna consist of precision cut horizontal linear elements vertically stacked, each with its own receiver. Ultra low sidelobes are achieved by precise control of the phase and amplitude of the signal fed to each element. The array is driven by distributed solid-state transmitter modules which are phase controlled. The position of the beams and their characteristics are software controlled to match the threat scenario and hence maximise the time on target, allowing TBM detection with a minimum degradation of ABT detection performances.

The shapes and the positions of the narrow pencil beam are controlled in range and elevation (both in transmission and in reception) to step over the clutter inducing terrain, with the exceptionally narrow beamwidth further reducing clutter returns. Target height is obtained using monopulse techniques, with enhanced measurement at low elevation angles by means of special pencil beam combination techniques.

The unique soft-fail signal processor, fully controlled by software, provides adaptative MTI/MTD modes to suppress all types of clutter (weather, terrain...).

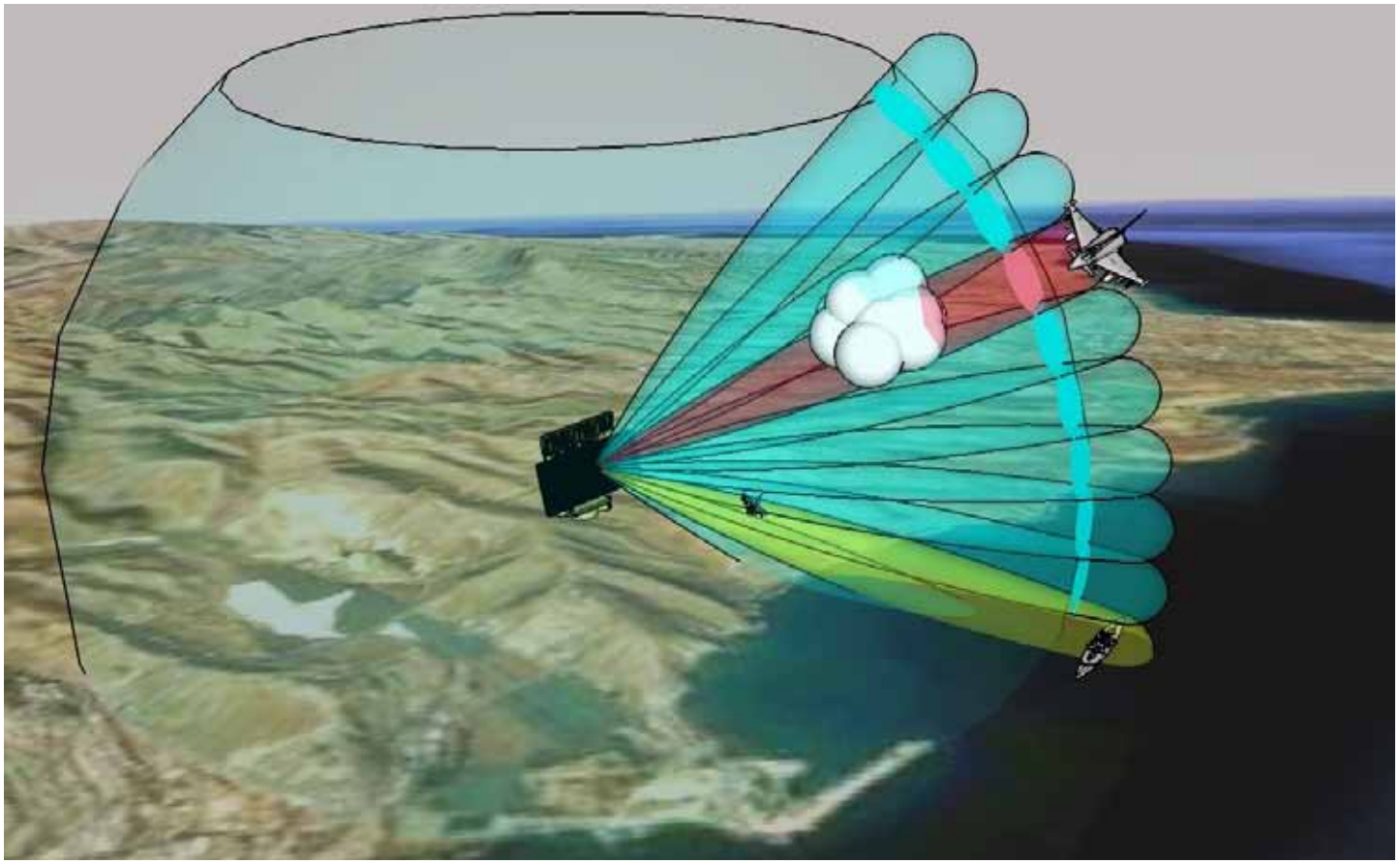
Using advanced digital pulse compression techniques, the processor provides extremely accurate range and height information while automatically adapting to the prevailing environmental conditions.

Intelligent BITE instantly reconfigures to divert processing from failed modules to redundant units.

An integral IFF/MSSR system incorporates advance monopulse detection techniques and Mode 4 and Mode S capability.

Principal features

- Wide operating bandwidth, essential for effective ECCM. Distributed solid-state transmitter provides full coverage of the NATO D band spectrum
- Unmatched inventory of ECCM techniques
- Three fully controlable independent simultaneous channels (SUM, DIF, SLB)
- Advanced technology planar array antenna, with high efficiency distribution, yields exceptionally low sidelobe levels in both azimuth and elevation. Sidelobe blanking further enhances resistance to jamming
- Uncommitted frequency agility
- True agility pulse to pulse, burst to burst
- High PRF variability
- Programmable operating modes (pulse group, pulse coding, power concentration "Burnthrough")
- State-of-art reconfigurable, programmable signal processor with soft-fail architecture
- Advanced signal processing techniques for accurate extraction of target coordinates
- TBM detection and tracking in a wide elevation angle (tested with low orbital satellites)
- Terrain following capability
- Integrated IFF/MSSR system with Mode 4 and Mode S capability
- Transportable by road, rail, sea and air
- High MTBF soft-fail modular architecture, automatic hardware reconfiguration, comprehensive BITE and a low level of preventive maintenance - all contribute to a high level of operating availability with low through- life logistic support costs
- Automatic radar management with local or remote control and manual override
- For green field, semi-static or static installation
- Radar environment simulator (optional)



Pencil beam architecture

Hardware architecture and controller display

Performances		
COVERAGE	**LANZA-MRR**	**LANZA-LRR**
Azimuth	360°	360°
Elevation	2° - 40°	20° (30° TBM)
Maximum instrumented range	60-180 NM	470 Km (255 NM)
Altitude	3 - 100 Kfeet	3-100 Kfeet
Antenna scan rate	3 - 10 s/scan	10 -12 s/scan

MRR: Medium Range Radar
LRR: Long Range Radar

Medium range 3D radar

Long range 3D radar

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
lanza@indra.es
indracompany.com