



S763-LANZA

Long Range D Band 3D Radar

Multi-scenario, Multi-threat Adaptive Radar

The S763 LANZA, NATO D band, scanning pencil beam radar, combines the very successful antenna from the Marconi Martello 743-D with the highly flexible state-of-the-art signal processor from the CESELSA LANZA radar. The S763 LANZA design meets not only the operational and technical requirements of current NATO Class I radar specifications, but anticipates the changing threat scenario of the future.

Established principles are combined with major advances in planar array, solid state transmission and signal processing technology to achieve the ultimate in radar detection. Programmable RF power scanning and programmable detection algorithms create a versatile, multi-role operational capability. Inherent in the design is excellent performance against stealth-protected targets, ballistic missiles, self protected jammers, enhanced detection in clutter, improved low level performance and tracking capability.

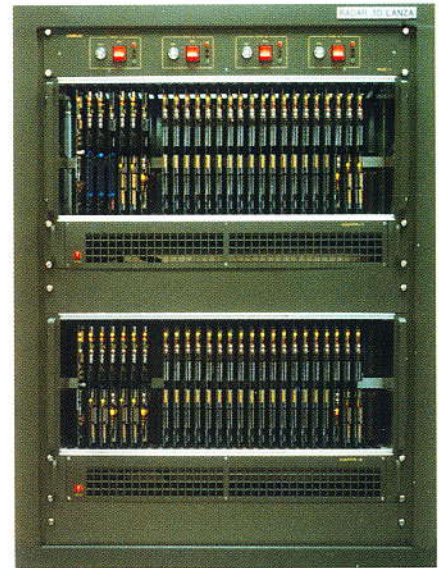
LANZA has been ordered in quantity by the Spanish Air Force, under a contract signed in 1994.



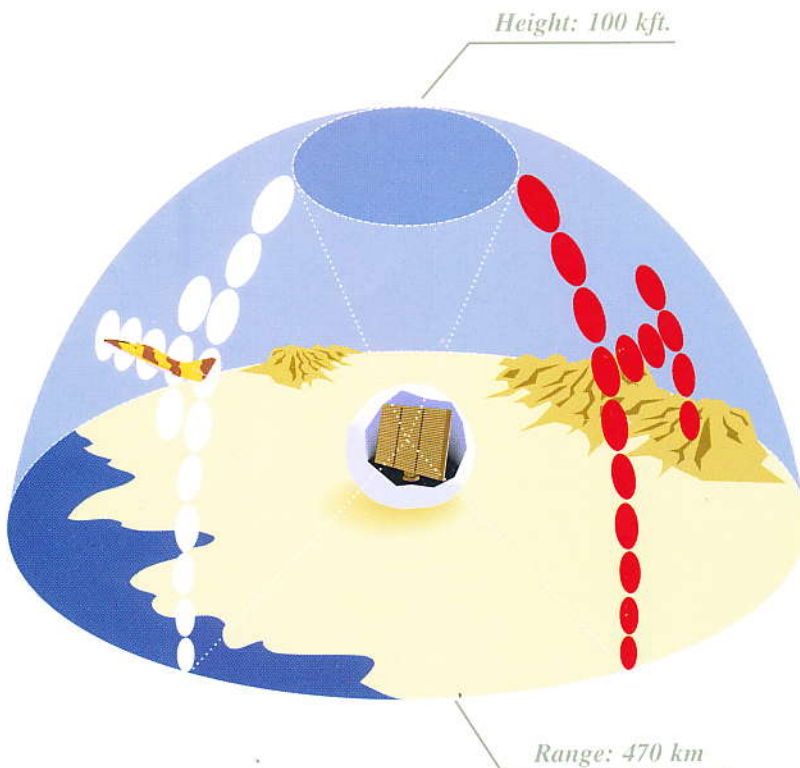
PRINCIPLES OF OPERATION

The planar array antenna consists of 40 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 32 distributed solid-state transmitter modules which are phase controlled by means of a new, high speed, beam switching system. The number of beams and their positions are software controlled to match the threat scenario and hence maximise the time on target.

The shapes and positions of the narrow pencil beam are controlled in range and elevation (both in transmission and in reception) to step over 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 formations.



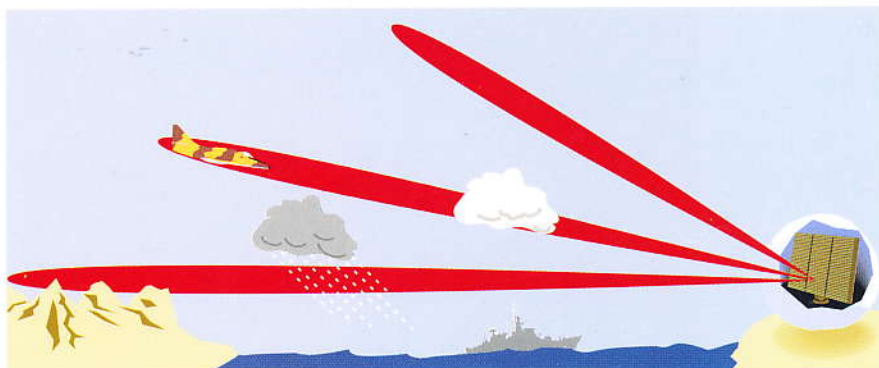
Software controlled signal processor



The unique fail-soft signal processor, fully controlled by software, provides adaptive MTI/MTD modes to suppress all types of clutter (weather, terrain, etc) and includes a mode offering MTI/MTD processing right out to the radar's 470 km maximum instrumented range.

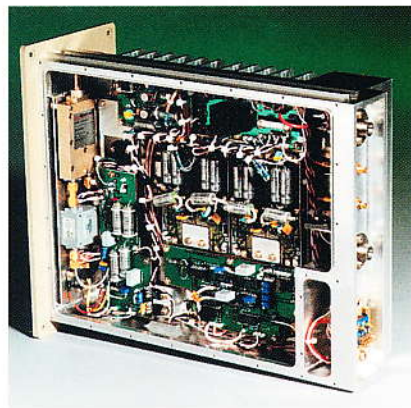
Using advanced digital pulse compression techniques, the processor provides extremely accurate range and height information while automatically adapting to the prevailing environmental conditions. Intelligent BITE instantly reconfigures to divert processing from failed modules to redundant units.

An integral IFF/MSSR system incorporates advanced monopulse detection techniques and Mode 4 capability, to enable correlated primary and secondary plots to be passed to operations centres.



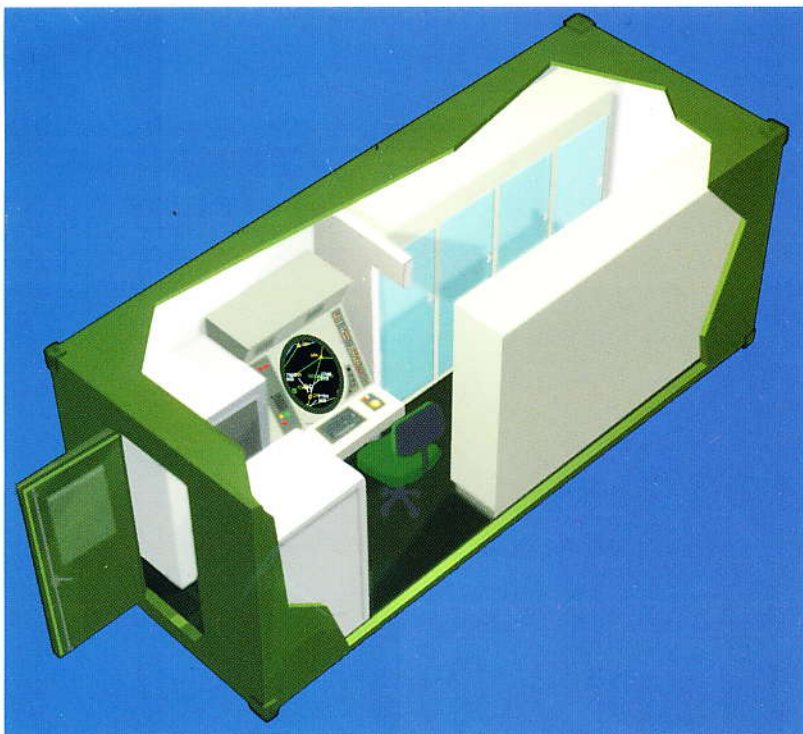


Precision cut antenna assembly



Transmitter unit and module

Electronic shelter layout



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.
- 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 in elevation and range.



- High PRF variability.
- Programmable operating modes (pulse group, pulse coding, power concentration "burnthrough").
- Elevation silent sectors as well as azimuth.
- State-of-the-art reconfigurable, programmable signal processor with fail-soft architecture.
- Advanced signal processing techniques for accurate extraction of target co-ordinates.
- Integrated IFF/MSSR system with Mode 4 & Mode S capability.
- High MTBF fail-soft modular architecture, automatic hardware reconfiguration, comprehensive BITE and a low level of preventative 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. Fully EMP protected.
- Transportable by road, rail, sea & air.
- Self contained antenna erecting mechanism (no crane needed).
- For green field, semi-static or static installation.
- Radar environment simulator (optional).



S763-LANZA

Long Range D Band 3D Radar

PERFORMANCE

| | INSTRUMENTED COVER | ACCURACY | RESOLUTION |
|-----------|--------------------|------------------|-------------|
| Range | 10-470 km. | 50 m sd. | 50 m 80% PD |
| Azimuth | 360° at 6 rev/min | 0.1° sd | 1° 80% PD |
| Height | 100 k ft. | 340 m at 185 km. | |
| Elevation | 0-20° | | |

SPECIFICATIONS

● ANTENNA

- Dimensions: 12m wide x 7m high
- Azimuth beamwidth: 1.4°.
- Sidelobes off axis : -55 dB.
- Gain: 41 dB transmit
41 dB receive (lower beams)

● RECEIVER

- No. of modules: 40.
- No. of beams: Programmable

● TRANSMITTER

- No. of modules: 32
- Effective peak power: 53.5 kW
- Mean power: 5.35 kW
- Frequency agility: Full NATO D band spectrum

● SIGNAL PROCESSOR

- Versatile digital compression.
- Auto adaptive MTI/MTD (between 3-8 pulses).
- Both time and frequency processing.

● RMA

- MTBF > 1250 hrs.
- MTTR < 0.5 hrs.
- Availability: 99.8%.
- On-line performance monitoring and fault isolation.
- Hardware redundancy with automatic reconfiguration

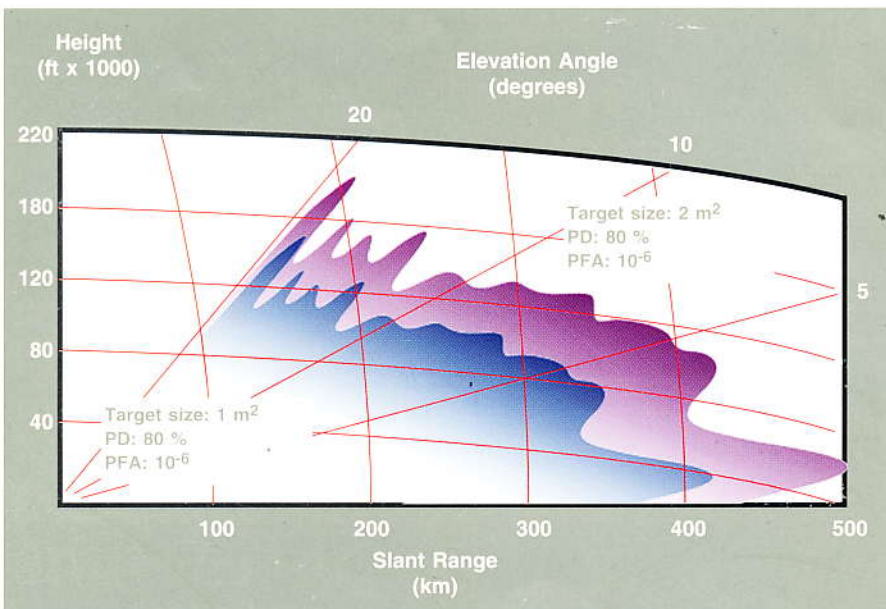
● ECCM FEATURES

- Very low sidelobe antenna.
- Wide frequency band, pulse agile or burst agile
- Distributed receivers.
- Pulse compression.
- Sidelobe blanking
- PRF stagger.
- Moving notch MTL.
- Fast acting CFAR
- Sectorised processing.
- Jamming strobe processing.
- Least jammed frequency.

● ANTENNA DEPLOYMENT

- In less than 5 hrs. with a 5 man crew.
- No crane needed.

TYPICAL COVERAGE DIAGRAM



Ceselsa

Ctra. de Loeches, 9
28850 Torrejón de Ardoz
Madrid • SPAIN

Tel: (34-1) 396 8012
Fax: (34-1) 656 5887

Grupo **Indra**

Marconi

Radar Systems

Marconi Radar Systems
Eastwood House, Glebe Road
Chelmsford CM1 1QW, United Kingdom
Telephone: +44(0) 1245 702702
Telex: 99108
Facsimile: +44(0) 1245 702700

