

RAT 31DL

L-BAND/SOLID STATE 3D AIR SURVEILLANCE RADAR

ELECTRONICS DIVISION

The RAT 31DL is an advanced L-band solid state active phased array, 3D surveillance radar, effective to a range of over 500km.

The RAT 31DL is operational all over the world and is a standing point for the Air Defence in many countries, including a large number of NATO member nations.

The RAT 31 is continuously upgraded keeping on with the radar technology evolution.

Its Active Electronically Scanned Antenna elements use state-of-the-art solid state components. IFF colocated secondary radar system can be incorporated.

The RAT 31DL radar uses multiple simultaneous independently phase controlled pencil beams, which provide flexibility in scanning and very high data rate, effective for clutter processing.

Each beam provides monopulse altitude measurements with excellent accuracy, even in the frequency agility mode. Reduced peak power provides resistance against Anti Radiation Missile (ARM) and Electronic Counter Measures (ECM).

Fixed and adaptive notch Moving Target Indicator (MTI) filters are enabled by updated maps to increase the performance for ground and sea clutter, rain, chaff and clear conditions.

Excellent Electronic Counter Counter Measures (ECCMs) are provided by very low sidelobe antennas, reduced peak power, frequency agility, jam strobe reporting and by a separate receiver for ECM monitoring.

The radar can be controlled through the local radar management console or through a remote console installed in new or pre-existing Control Centres.

The mechanical configuration is designed to facilitate assembly/disassembly, adapting to relocation operational needs.

The RAT 31 DL is capable to be operated continuously (24 hours / 7 days a week) with the antenna on tower and or ground, with and without radome protection.

The RAT 31DL is highly reliable due to its total solid state technology and its graceful degradation characteristics.





TECHNICAL DESCRIPTION

PRIMARY ANTENNA

- › Active array, elevation phase scanning
- › 42 Tx/Rx modules
- › 0°-20° electronic elevation scan (ABT mode)
- › 0°-60° electronic elevation scan (TBM mode)
- › 4 simultaneous independent pencil beams in elevation
- › 5/6 rpm azimuth scale rate
- › Linear horizontal polarization
- › Monopulse in elevation with special low angle technique
- › Sidelobe blanking.

RECEIVER

- › Type: double conversion superheterodyne
- › RF receivers: dual matched
- › Frequency selection: manual, random, automatic
- › Adaptive clutter attenuator: IF STC with steps controlled in azimuth and range

- › IF receiver: linear
- › Pulse compression: SAW matched filters, FM chirp in long range channels and digital for high PRF channel.

SIGNAL PROCESSOR

- › Type: digital with in-phase and quadrature processing
- › Anticlutler filters: adaptive notch MTI cancellers, fixed and real-time automatic clutter mapper
- › Azimuth correlator: moving window type
- › Amplitude detectors: digital modulus extractor.

INTERFACE

- › The programmable, control-flexible interface to remote centers is able to accept remote controls and orders.

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