



RAT 31SL 3D EARLY WARNING RADAR

The RAT 31 SL is a state-of-the-art 3D Radar system designed to operate within both military air defence and air traffic control networks. Sophisticated technology allows the RAT 31 SL to rapidly adapt to a broad spectrum of changing operational scenarios where jammers coexist with heavy clutter.

The RAT 31 SL 3D early warning radar uses multiple simultaneous independently phase controlled pencil beams.

That technology provides flexibility in scanning and very high data rate, which is 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 ARM (Anti Radiation Missiles) and ECM (Electronic Counter Measures).

Fixed and adaptive notch MTI filters are enabled by continuously updated maps to optimize the performance

for ground and sea clutter, rain, chaff and clear conditions.

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

The mechanical configuration has been designed to facilitate assembly/disassembly on battlefield to provide an increased survivability.

TECHNICAL CHARACTERISTICS

Primary Antenna

- Type and Scanning: planar array with electronic scanning in elevation; mechanical rotation in azimuth
- Elevation scanning 0° to 20°
- Polarization: linear/horizontal
- Beam pattern: pencil beam
- Target Altitude measurement: monopulse
- Rotation speed: 6 r.p.m.



Transmitter

- Type: coherent chain
- Final stage: TWT
- Driver: solid state
- Peak power: 155 KW
- PRF: staggered

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
- Anticlutter filters: adaptive notch MTI cancellers, fixed and real-time automatic clutter mapper
- Azimuth correlator: moving window type
- Amplitude detectors: digital modulus extractor