

L-BAND SOLID STATE PRIMARY SURVEILLANCE RADAR

ATCR-44S BLOCK 2, belonging to the company's family of Primary radars, provides superior surveillance for long range and en-route applications and optimum performance at lower ranges for TMA applications.

THE SOLUTION

Compliant with international standards for Primary Surveillance Radar (PSR), the ATCR-44S BLOCK 2 also meets the requirements issued by ICAO and EUROCONTROL in terms of functional and performance characteristics. In conjunction with Secondary Radars, ATCR-44S BLOCK 2 can be deployed at terminal air traffic control sites to optimize performances in lower and higher ranges. An innovative solution used for the radar replacement of TSR (Terminal Surveillance Radars) in twelve major Canadian airports including Toronto, Montreal, Ottawa, Vancouver and Calgary.

The ATCR-44S BLOCK 2 radar provides enhanced processing capabilities and extended monitoring

performance during 24 hour operations. Monitor and Control activities are performed from local or remote stations with user-friendly operator's interface. High operational flexibility, system availability and maintainability are guaranteed through cutting edge technological choices.

ATCR-44S BLOCK 2 employs a wide range of processing techniques, which automatically optimise the operational performance under the most severe environmental conditions, controlled by a very sophisticated geographical mapping. The ATCR-44S BLOCK 2 also includes an integrated weather channel delivering six levels of contours according to the U.S. National Weather Service recommendations.

Corrective maintenance consists of easy removal and replacement (plug-out, plug-in) of complete LRU's with few and simple adjustments. Full control of radar parameters is performed via local or remote control panels, allowing simple and effective on-site radar setting.

ATCR-44S BLOCK 2

SYSTEM FEATURES

Enhanced processing capabilities

- Digital pulse compression with enhanced peak-to-sidelobe ratio for high radar sensitivity and improved range resolution.
- Fully coherent adaptive moving target detection (A-MTD) system with four sets of Doppler filters including from 6 to 12 per set
- Adaptive selection among four MTD filters according to ground clutter intensity.
- Extensive mapping techniques employed to adaptively preserve the CFAR in presence of clutter with different temporary and spatial and Doppler characteristics.
- High resolution clutter maps updated separately for each MTD filter, to provide super-clutter visibility and tangential target detection.

High operational flexibility

- Operation in en-route or extended TMA, using different programmable antenna rotation rates and timing configurations;
- Emission control function to disable RF radiation on given azimuth sectors
- Manual and Automatic polarization selection (Linear/Circular), for target detection in all weather conditions
- Anomalous propagation rejection
- Asynchronous Interference Detector (AID).
- Fully solid state and fail soft modular transmitter designed for “on line” replacement for improved system availability and reduced maintenance;
- Raw video streaming on LAN.



TECHNICAL CHARACTERISTICS

Frequency band:	from 1250 to 1350 MHz
Transmitter Architecture:	Solid State (with fail soft capability) composed of 16 power chains and radial power combiner.
Output Power:	≥ 30 KW
Transmitted Waveforms:	Short/Long pulses: 16 μs/150 μs for en route e Application 1.2 μs/100 μs for Extended TMA Application
Compressed Pulse length:	1.2 μs
Frequency Management:	Burst to burst frequency diversity with capability of on line frequency selection over the L-Band
Cooling:	Air cooling
Signal Processor:	Adaptive Moving Target Detector (A-MTD) with four sets, each configurable up to 10 FIR Filters according to the radar timing
Conversion Type:	A/D conversion at IF (30 MHz)
Radar Processor Platform:	COTS architecture based on DSP processors and standard interfaces;
Use of C language algorithms running on LINUX OS;	
Large extraction processing capability (>1600 plots);	
Detection Logic:	Automatic selection of fixed and adaptive thresholds based on high resolution clutter maps separate for each Doppler channel
LAN Connections:	3 (for each channel)
Weather Vector Extraction:	Classified in six levels, calibrated according to the U.S. National Weather service
RMA:	High reliability with a MTBF >40.000 hours; MTTR < 20 minutes Availability better than 99,999%
CE Mark	Compliant