

# ATCR-44S BLOCK 2

ELECTRONICS DIVISION

## 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.

# 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 filter 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 DESCRIPTION

› Frequency band	From 1250 to 1350 MHz;	› Signal Processor	Adapting Moving Target Detector (A-MTD) with four sets, each configurable up to 10 FIR;
› Transmitter architecture;	Solid State (with fail soft capability) composed of 16 power chains and radial power combiner;		Filters according to the radar timing;
› Output Power:	≥ 30 KW;	› Conversion type	A/D Conversion @ IF level;
› Transmitted Waveforms	Short/Long pulses: 16 us/150 us for en route Application 1.2 us/100 us for Extended TMA Application;	› Radar Processor Platform	COTS architecture based on DSP processors and standard Interfaces;
› Compressed Pulse length:	1.2 us;	› Use of C language algorithms running on LINUX OS;	
› Frequency management	Burst to burst frequency diversity with capability of on line frequency selection over the L-Band;	› Large extraction processing capability (>1600 plots);	
		› LAN connections	3 for each channel;
› Cooling	Air Cooling;	› RMA	High reliability with a MTBF > 40.000 hours MTTR < 20 minutes;
		› Availability	Better than 99,999 %;
		› CE Mark	Compliant.

For more information:  
infomarketing@leonardocompany.com



Electronics Division  
Via Tiburtina  
Km 12.400  
00131 Rome - Italy  
T +39 06 41501  
F +39 06 4131133

This publication is issued to provide outline information only and is supplied without liability for errors or omissions. No part of it may be reproduced or used unless authorised in writing. We reserve the right to modify or revise all or part of this document without notice.

2020 © Leonardo Sp.A.

MM08669 09-21