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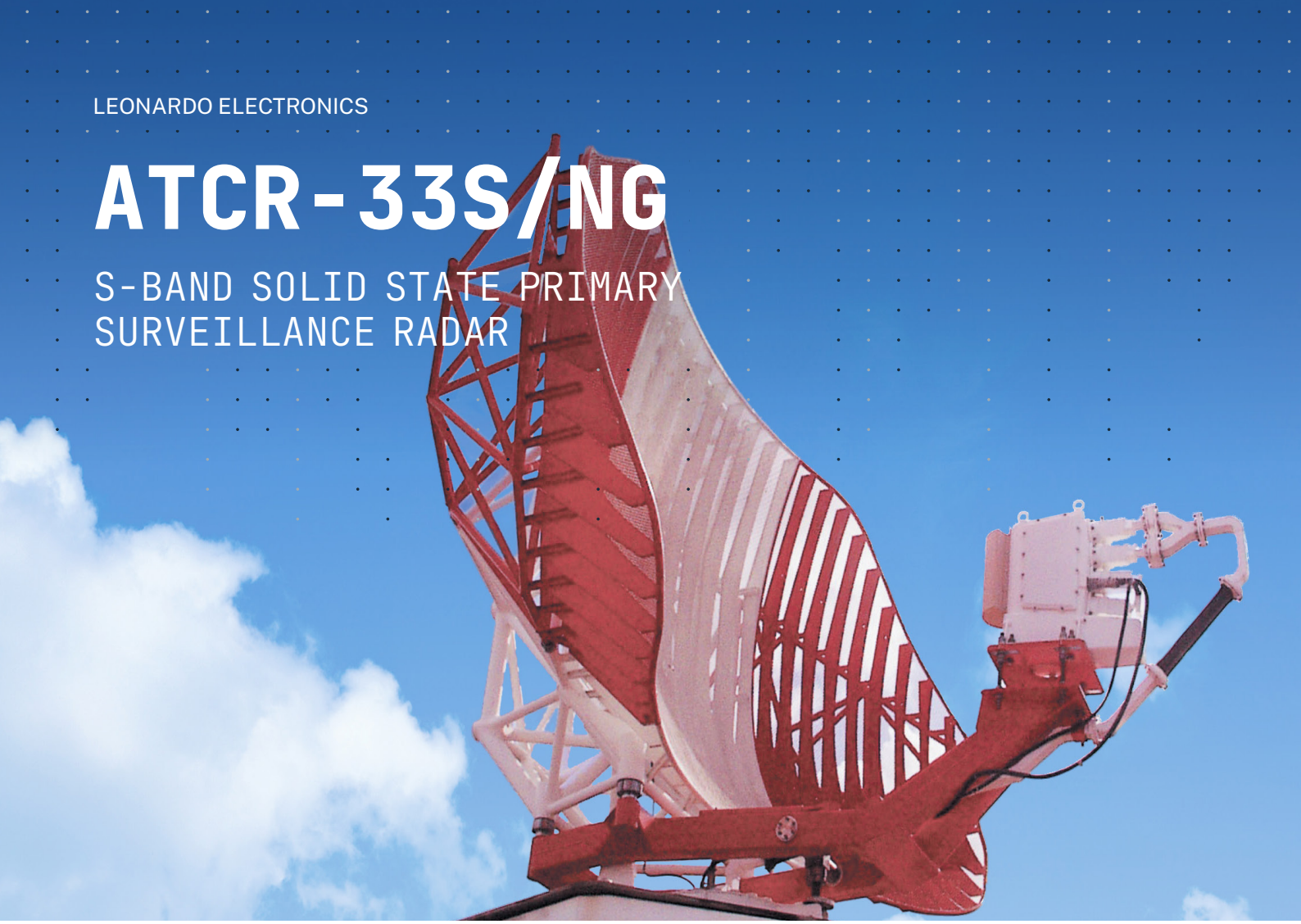
ATCR-33S/NG

S-BAND SOLID STATE PRIMARY SURVEILLANCE RADAR



ATCR-33S/NG is the New Generation Best in class S-Band Primary Surveillance Radar, belonging to the Company's family of ATC primary radars.

OPERATIONAL CONTEXT

ATCR-33S/NG meets the most demanding international requirements issued by ICAO and EUROCONTROL, involving functional and performance characteristics.

ATCR-33S/NG system employs a wide range of processing techniques which automatically optimise the operational performance under the most severe environmental conditions. Radar processing is controlled on a cell-by-cell basis by a very sophisticated geographical mapping system managed by the data processor.

An integrated weather channel, included in the ATCR-33S/NG, provides six levels of weather contours according to the U.S. National Weather Service recommendations. Full control of system status and parameters is performed via local or remote positions, with a user-friendly operator interface, allowing simple and effective radar system setting and monitoring.

The equipment is fully solid-state, including the Receiver Protectors and based on a "state of the art" technology, ensuring high reliability and availability. ATCR-33S/NG system interfaces with the S-Band Antenna Group which includes the G-33 S-Band Antenna and the S-Band Antenna Base with azimuth encoders and duplicated motors with automatic electronic clutch. ATCR-33S/NG supplies Air Traffic Surveillance in departure/arrival procedures, and extended Terminal Management Area (TMA) applications.

PROCESSING FEATURES

- Digital pulse compression with enhanced peak-to-side lobe ratio
- Operation in diversity or fixed frequency
- Automatic antenna beam switching (Low and High beams) for ground clutter suppression
- Fully coherent Adaptive Moving Target Detection
- (A-MTD) System with four sets of Doppler filters (6-12 per set)
- Adaptive selection among four MTD filter sets according to ground clutter intensity
- Extensive mapping techniques employed to adaptively maintain CFAR in presence of clutter with different time and spatial characteristics

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- High resolution maps, updated separately for each MTD filter, to provide extra-clutter visibility and tangential target detection
- Built-In Test Equipment (BITE) for enhanced failure identification and isolation
- Emission control function to reduce or disable RF radiation on given azimuth sectors
- Linear/circular polarization, for optimum target detection in all weather conditions
- Anomalous propagation rejection
- Asynchronous Interference Blanking (AIB)
- Concurrent Beam Processing, for Wind farm effects mitigation, by target height estimation
- Compact Design, ease of maintenance
- Modular Fault Tolerant solid-state transmitter, based on last-gen RF power modules using GaN-on-SiC technology
- Independent power supplies for TX HPAs
- Expandable Architecture
- Redundant receivers in a single cabinet, providing target and weather signals
- Duplicated digital A-MTD signals
- Duplicated Radar processor
- Configurable for embedded or external combiner/tracker

TECHNICAL SPECIFICATIONS

Frequency band	From 2700 to 2900 MHz;
Maximum range	60/80/100 NM;
Antenna rotation rate	15/12/10 rpm;
Transmitter architecture	Modular (with fail soft capability) 8 modules (Single TX cabinet) / 16 outputs 16 modules (Dual TX cabinet) / 32 output)
Peak power	> 21kW (single cabinet) > 32kW (dual cabinet)
Transmitted waveforms	Short/Long Pulses: 1uS /90 us; 10us/100 us;
Frequency management	Burst to burst frequency diversity with capability of 100 frequency selection over the S-Band;
Cooling	Air Cooling;
Conversion type	A/D Conversion @ IF level;
Signal Processor	Adapting Moving Target Detector (A-MTD) with four blocks including up to 2 FIR filters;
Radar Processor Platform	COTS architecture with standard interfaces Use of adaptive algorithm on LINUX OS Large plot processing capability
RMA	MTBFc > 40.000 hours; MTTR < 20 minutes; Avaliability better than 99,999 %;

For more information:
infomarketing@leonardo.com

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

leonardo.com

MM08610 1-17

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