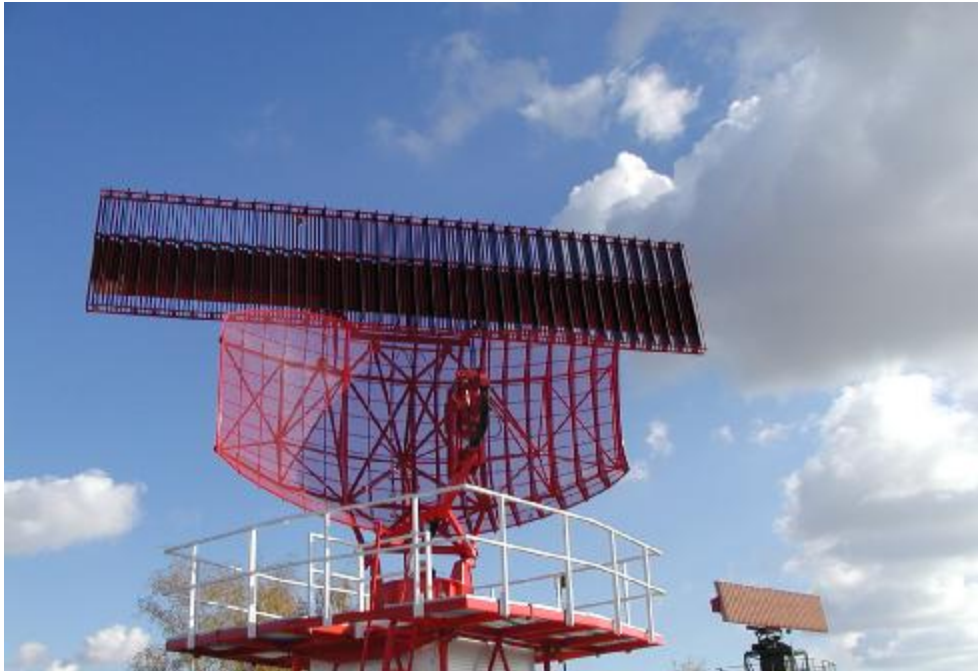


PRIMARY SURVEILLANCE RADAR RL-2000 with possibility of collocation with ELDIS MSSR-1 radar



RL-2000 is latest generation of ELDIS primary surveillance radars for Terminal Approach Control Application. The RL-2000 design is benefiting from the long time experience on several civilian and military radar types. The radar meets or exceeds ICAO and EUROCONTROL recommendations and standards. The RL-2000 features fully solid-state highly modular configuration, fail-safe system and low life cycle cost.

This radar provides enhanced system stability and powerful clutter suppression to allow no false reports while maintaining excellent target detection up to 60 NM, including enhanced performance for target accuracy and resolution. RL-2000 configuration includes weather channel for reporting of actual weather condition in airspace. Basic RL-2000 configuration can be extended by monopulse surveillance secondary radar MSSR-1. This configuration extension is representing integrated system solution to TMA.

The system configuration includes operational and stand by channels with automatic switchover processed by system Level. The data output format is using standardized ASTERIX data format, but as an option other data formats can be used. The maintenance and repair actions are reduced to minimum and sophisticated remote control and monitoring system allows an unattended system operation.

Antenna system

The antenna system is shaping double coverage cosec² illumination pattern. The antenna system can operate in linear or circular polarization, which is adjustable via radar control and monitoring system, to rapidly improve weather clutter rejection.

Transmitter

Transmitter is modular air-cooled solid-state transmitter. The transmitter is composed of 16 independent modules and is operating in full frequency range with frequency diversity for short

pulse and long pulse transmission. Design is fault tolerant with low voltage power supply, which allows continuous operation during maintenance.

RF generator

RF generator is digital waveform synthesizer, which provides optimum number of short and long pulses over coverage period. Short pulse and long pulse waveforms are generated fully digitally.



Receiver

Receiver is superheterodyne type with double frequency down conversion. The high dynamic range is achieved by direct IF A/D conversion by 14 bits A/D converters. The receiver has full digital automatic gain control, which is improving receiver stability and gain calibration. The receiver BITE is measuring on-line receiver performance parameters, including noise figure.

Signal Processor

The signal processor is based on 32-bit processors with high computing performance. Real time application software is written in "C" language, which provides efficient application solution for adaptive MTD processing. Signal processor performs digital pulse compression for short and long pulses, Doppler filtering through a bank of Doppler filters, adaptive CFAR filtering, target detection and extraction. Adaptive CFAR filtering includes scan to scan filtration criterion evaluation and weather mapping. Extraction process involves using of filter amplitude for range/azimuth target coordinates evaluation and their precision improving.

Control and Monitoring System (CMS)

Each system equipment or unit is fitted with independent BITE to perform performance monitoring and automatic system reconfiguration at system Level. CMS has two parts – local control and monitoring system (LCMS) and remote control and monitoring system (RCMS). LCMS is located on radar site, RCMS can be located on technical room of airport tower, etc.

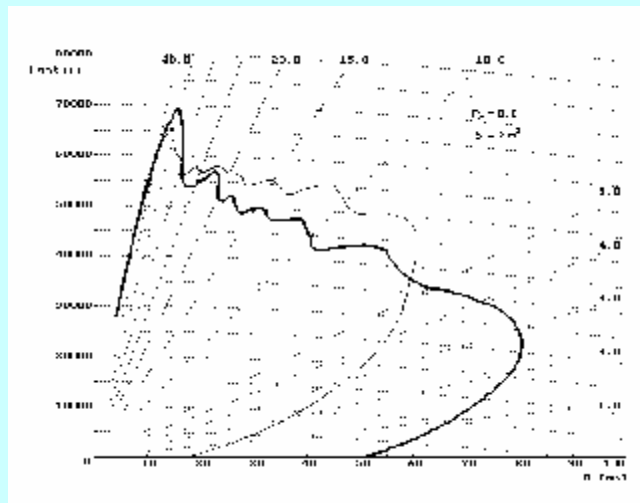
Both systems are communicating via communication line, which can be represented for example by LAN via optic fiber cable, and have same functional capabilities.

CMS monitors continuously radar status and performance and allows to the maintainer remotely control and adjust radar configuration and parameters.

CMS incorporates user-friendly graphical interface, which is used for data and status presentation.

RL-2000 System Parameters

Frequency (MHz)	2700 – 2900
Antenna gain (dB)	34 dB
Vertical coverage (°)	45
Polarization	Linear/Circular
Short/Long pulse width	2×1/45 μs
Short/Long pulse compression ratio	1/45
Peak power (kW)	14 kW
Receiver noise figure	1.5 dB
Signal processor	Adaptive MTD
Clutter improvement factor	55 dB
Range accuracy/resolution	75 m / 230 m
Azimuth accuracy/resolution (°)	0.15 / 2.3 (r.m.s.)
Target processing capacity	min. 1000



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