



LIRA-A10 TERMINAL AREA RADAR COMPLEX

Lira-A10 Terminal Area Radar Complex of S-band is intended for application as the source of radar data concerning air situation in airport zone for automated and non-automated ATC systems.

Lira-A10 complex comprises the following:

Primary radar with equipment for processing and combining of radar data from PSR and SSR and for sending radar data to consumers.

Built-in interconnected monopulse secondary radar of the type **MVRL-K** capable to operate in S-mode, or a secondary radar of another type (upon the Customer's request). Interface with an independent SSR of any type can be ensured as well.

Lira-A10 radar complex features are:

- High tactical-technical characteristics, which do comply with ICAO and Eurocontrol requirements;
- Automatic redundancy that ensures high reliability of the radar complex;
- Automated system of remote control, monitoring and diagnostics;
- Possibility of non-attended operation;
- High-stable solid-state modular transmitter with air-cooling and extended service life;
- Modern methods of signal and data processing;
- Gearless rotation drive;
- Radar data recording and replay;
- Interface with modern ATC aids of any type.

TARC comprises the following:

Antenna module, hardware module comprising transmitting device, receiving device, system for digital processing of echo-signals and radar data, and support systems.

Antenna system shapes two-beam directional pattern. MSSR antenna is placed on the same turntable with PSR antenna and it is turned backwards to PSR antenna by 180°.

Implementation of gearless rotation drive does enhance reliability of the drive because such a way the reduction gear, i.e. the least reliable element of a traditional drive, is excluded from the design.



Transmitting device of PSR is based on the principle of coherent adding of power from 16 modules and thereat the each module has integrated secondary source of power supply. Transmitter generates signals on two frequencies simultaneously.

Receiving system comprises four identical receiving channels with single conversion of frequency, which do ensure simultaneous reception and conversion of radar signals from upper and lower beams of antenna device directional pattern.

Signal and data processing system ensures digital processing of signals as well as primary and secondary processing of radar data.

Digital processing equipment provides dynamic range of signals processed of not less than 80dB without STC. Algorithm of MTI is realized within the special signal processor and is based on the principle of adoptive grid-type Doppler filtration. For the purpose to exclude "blind" speed, staggering of repetition periods of sounding signals is applied.

Automated System for Monitoring and Control (ASMC) performs remote and local control over equipment switching-on, control over operation modes and over the system itself and its reconfiguration etc. Built-in monitoring equipment provides diagnostics and trouble finding up to the level of a line replaceable unit.

Design. Equipment of TARC is mounted inside of container-type building called Uiversal, which provides all conditions indispensable for equipment operation and for personnel work (ventilation, air conditioning, heating, lighting, fire and security alarms etc.).

Equipment of LIRA-A10 TARC

Transmitter Cabinet Receiver Cabinet Signal Processing Cabinet



Basic Tactical-Technical Specifications

Frequency band, MHz	2700 – 2900
Coverage:	
in range, km	160
in azimuth, deg	360
in elevation, deg	up to 45
in height, km	10
Accuracy of coordinate measurement (RMS-error):	
in range, m	50
in azimuth, minutes	6
Resolution:	
in range, m	225
in azimuth, deg	1.5
Data renewal ratio, s	5 or 4
Static clutter suppression factor, dB	not less than 50
Number of tracks	not less than 400
Consumption power, kW	not more than 15
MTBF, hrs	20 000



In-Line Assembling System for LIRA-A10 TARC