



X-band solid-state surface movement radar "ALCOR"



X-band solid-state surface movement radar «ALCOR» is intended to control and monitor the movement of aircrafts, special purpose vehicles, technical means and other objects located in airfield movement area (manoeuvring area and aprons, runways, taxiways and aircraft parking areas).

Surface movement radar operates both in auto mode with data output to controller's working position and as component of advanced surface movement control and monitoring system (A-SMGCS).

SMR "ALCOR" encompasses:

- antenna module comprised of linear antenna array and rotary device;
- hardware cabinet containing transmitting-receiving equipment, processing equipment, means of interface with communication links, power supply lines and rotation control equipment;
- waveguide path;
- technological work position;
- uninterruptible power supply (UPS).

SMR "ALCOR" provides:

- 360-degree coverage of airfield movement area adjacent to SMR installation site;
- ground object detection within SMR coverage area;
- coordinate measurement of detected objects in horizontal plane;

- objects' coordinate output to consumers including A-SMGCS equipment.

SMR "ALCOR" processing and data display capabilities:

- false alarm stabilization;
- auto and manual signal detection threshold adjustment (in range);
- auto and manual targets lock-on and tracking;
- manual targets reset from tracking;
- clutter reflection suppression including undesirable reflections from objects in assigned area using maps with at least 3 meters resolution;
- radiation blockage in assigned sectors with at least 1 degree resolution;
- signal averaging according to neighbour probes (with wobulation) and scans;
- Squint-effect processing;
- information display on technological monitor and controller's work position in case of autonomous operation;
- ability to enter cartographic information and airfield objects' coordinates;
- smooth zooming and display center shifting;
- high-quality information display on color monitors with at least 43 cm (17 inches) screen diagonal and at least 1280x1024 pixel resolution;
- airfield movement situation monitoring with screen illumination up to 1000 lux.
- brightness adjustment for separate target signs and underlying surface display;
- color scheme selection for ground situation display;
- manual identification codes activation in target label structure.



SMR "ALCOR" basic specifications

Radiation band	X
coverage area: in range	90 - 5000 m
in azimuth	360°
Transmitter type and pulse power	Solid-state, 600 W
Radiation polarization	circular horizontal
Antenna rotation rate	1 sec
Echo-signal quantization	500 MHz, 14 digits
Probing signal duration: short pulse mode	20 ns
long pulse mode	5 µs
Maximum detection range at target's RCS=1m ² and rain intensity equal to 16 mm/h	at least 6000 m
Position determination accuracy for "raw video" and target plots	at least 7,5 m
Resolution capability: in azimuth and range at 2000 m from antenna stand-point	at least 15 m
Antenna:	
Type	wide-band linear antenna array
Antenna overall dimensions (WxHxD):	6560x410x637 mm
Antenna directional pattern beam width (horizontal - vertical)	0.36° - 10°
Gain factor	38 dB

