

DOPPLER METEOROLOGICAL RADAR "DMRL-10"

PURPOSE

- » displaying of distribution of various meteorological data (reflectivity, velocity, spectrum width) on different levels of altitude basing on pseudo-CAPPI;
- » calculation and displaying of vertical profile of velocity and wind direction up to the altitude of the upper detection boundary of meteo objects and other Doppler products;
- » calculation and display of precipitation intensity for any time-interval;
- » detection and classification of clouds, precipitation and dangerous weather phenomena related thereto (hail, thunderstorm, showers, whirlwinds, squalls etc.);
- » output of data for active reaction to hail and other cloud processes aimed to prevention of hail and accompanying dangerous phenomena (thunderstorm, squall, whirlwind, shower precipitation), and to precipitation control;
- » displaying of velocity and movement direction of cloud systems;
- » output of radar data in codograms required.

In "DMRL-10", the fully solid-state transistor-type transmitter with soft failure function is used and therefore reliability of the transmitting device is enhanced manifold relatively to the transmitters using vacuum-tube devices (magnetrons, klystrons etc.). This technique is based on latest achievements of digital engineering, which allow application of complex signals for weather radars of new generation.

Application of complex signals allows reducing radiated peak power by more than one order. This ensures possibility to exclude pressurization of waveguide section and to exclude high-voltage units of more than 380 V, and this enhances the radar performance data significantly.

"DMRL-10" set includes subscriber stations for local users, data transfer equipment necessary, operational documentation, independent power supply source (under a separate order), UPS-source and SPTA. Integration with active suppression systems is possible.

Modular design of "DMRL-10" Doppler weather radar allows using the equipment capabilities to the fullest extent possible, also during modernization of obsolete radars of 10-cm band.



*"DMRL-10" Antenna System
with Gearless Synchronous Motors*

BASIC SPECIFICATIONS OF "DMRL-10"

Operating frequency band, MHz	2700-3100
Antenna:	reflector-type, parabolic
» Antenna gain factor, dB	not less than 39
» Side-lobe level, dB	not worse than minus 29
Transmitter:	transistor-type
» Peak power, kW	not less than 5
» Pulse width, μ s	1.0-100.0
» Effective peak power at compression of 100:1, kW	500
» Sounding frequency, Hz	300-3000
Receiver:	2 channels (horizontal polarization)
» Noise factor, dB	not more than 3
» Dynamic range of the receiver, dB	not less than 105
Spatial resolution, m	150
Suppression factor for returns of stationary local clutter, dB	not less than 50
Consumed power including life support system, kW	not more than 10

RADAR EQUIPMENT



*Transistor-Type
Transmitter Cabinet*



*Signal Reception
and Processing Cabinet*

Amplifying Module



PARAMETERS:

- » Peak power – 0.4 kW (0.8 kW optional)
- » Duty cycle – 10 %
- » Pulse width – 02:100 μ s
- » Air cooling