

DOPPLER METEOROLOGICAL RADAR "DMRL-C"

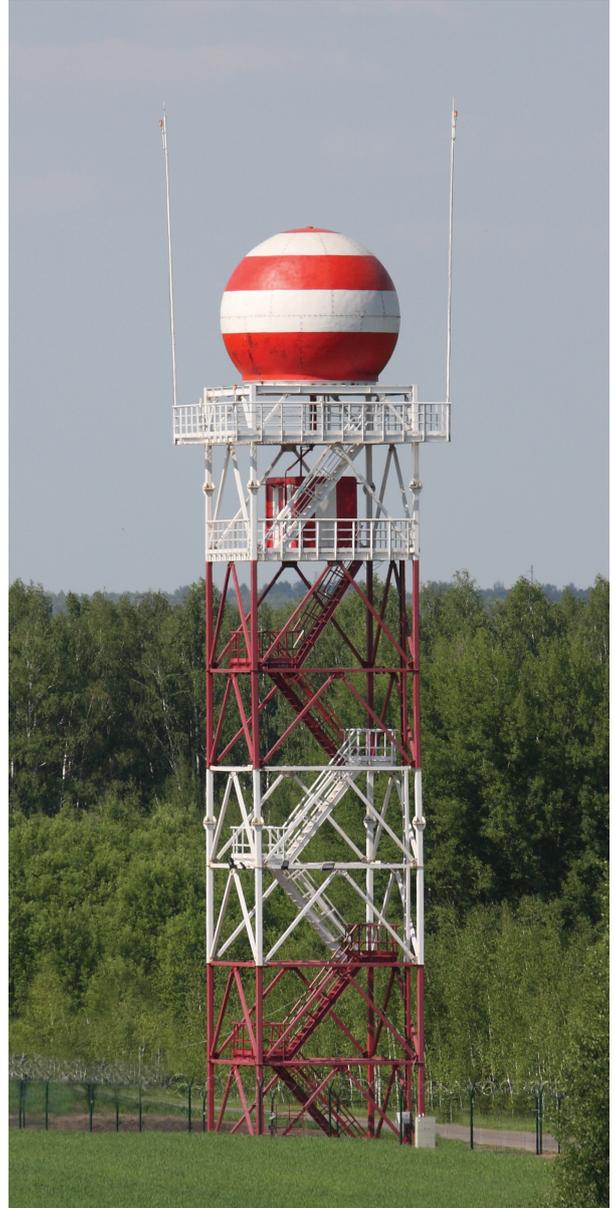
PURPOSE

Doppler meteorological radar "DMRL-C" is designed for:

- » display of various meteorological data (reflectivity, velocity, spectrum width, and in dual-polarization mode: differential reflectivity, differential phase, cross-correlation factor and linear depolarization ratio) at different altitude levels as per pseudo-CAPPI type;
- » calculation and display of vertical velocity profile, wind direction up to the altitude of the upper limit of detection of meteorological phenomena and other Doppler products;
- » calculation and display of precipitation intensity for any time interval;
- » detection of hazardous weather phenomena (hail, thunderstorms, squall, heavy rain, heavy snowfall and severe turbulence);
- » display of velocity and direction of movement of cloud systems;
- » output of radar data in required codegrams.

The distinctive feature of the "DMRL-C" in comparison with the similar meteorological radars is the application of complex signals and pulse compression with side-lobe suppression level below 60 dB. This is implemented by the use of the latest advances in digital technology. It led to a decrease in radiated pulse power from hundreds to dozens of kilowatts and an increase in the "DMRL-C" capabilities by extending the width of signals. In addition, it excluded the waveguide pressurization system and high-voltage units with voltages higher than 12 kV from the design of the radar, thus enhancing the radar performances.

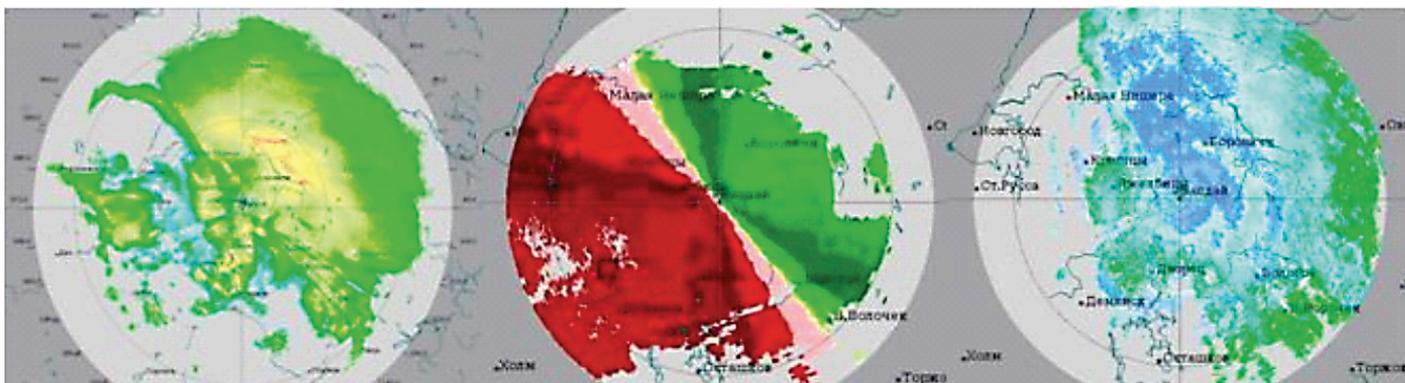
The "DMRL-C" is equipped with subscriber stations for local users, data transmission equipment, self-contained power source (optionally), UPS and SPTA set. High performance of the "DMRL-C" is ensured by the use of highly-reliable components, including multiple-beam klystron with low pulse power, state-of-art signal processing technologies, which allow to use the full capabilities of the radar as in field work for the ATC systems, and for other purposes such as research and development. The "DMRL-C" can be controlled using automated control and monitoring system and a remote terminal.



BASIC SPECIFICATIONS OF "DMRL-C"

Operating frequency band, MHz	5600–5650
Antenna type	parabolic, reflector
» Antenna gain factor, dB, at least	45
» Side-lobe level, dB, not lower than	minus 29
Transmitter type	klystron
» Pulse power, kW, at least	15
» Pulse duration, μ s	1.0–60.0
» Sounding frequency, Hz	300–1500
Receiver	2/4 channel (1/2 polarization)
» Dynamic range of each polarization, dB, at least	100
Static clutter suppression ratio, dB, at least	50
Power consumption, kW, at most	10

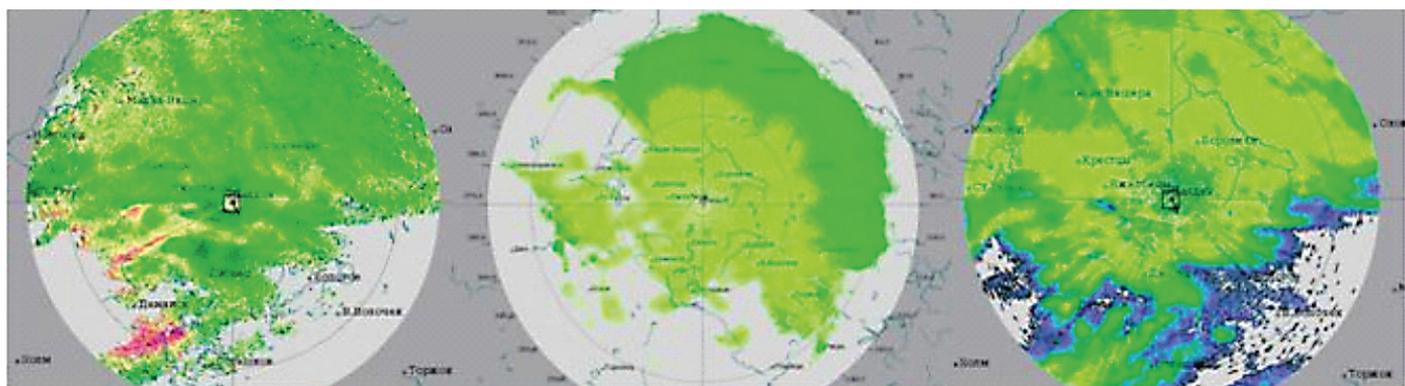
PRIMARY METEOROLOGICAL DATA



Stationary version

Radial velocity

Spectrum width



Differential reflectivity

Differential phase

Cross-correlation factor