DOPPLER METEOROLOGICAL RADAR "DMRL-C"

"DMRL-C" Doppler Meteorological Radar is intended for the following purposes:

- Displaying distribution of various meteorological data (reflectivity, velocity, spectrum width, and (in the mode of dual polarization) differential reflectivity, phase, cross-correlation factor and linear depolarization ratio on different levels of height as per pseudo-CAPPI type;
- Calculation and displaying of vertical profile of speed, wind direction up to the height of upper limit of detection of meteorological objects and other Doppler products;
- Calculation and displaying of precipitation intensity within any time-interval;
- Detection of dangerous weather phenomena (hail, thunder-storm, squall acceleration of wind, intensive rain and snow, strong turbulence);
- Displaying velocity and direction of movement of cloud systems;
- Output of radar data in codograms required.

Due to introduction of latest achievements of digital technologies, basic distinguishing feature of "DMRL-C" in comparison to similar radars, is application of composite signals and pulse compression technique with the level of compression side-lobes of lower than 60 dB. This allows decreasing radiated pulse power from hundreds up to dozens of kilowatts and enhancing radar potential due to increasing duration of signals. In addition to this, such a way the possibility is arisen to exclude from the design the system of waveguide pressurization and high-voltage units with a voltage higher than 12 kW, and thanks to this, radar performance data is enhanced.

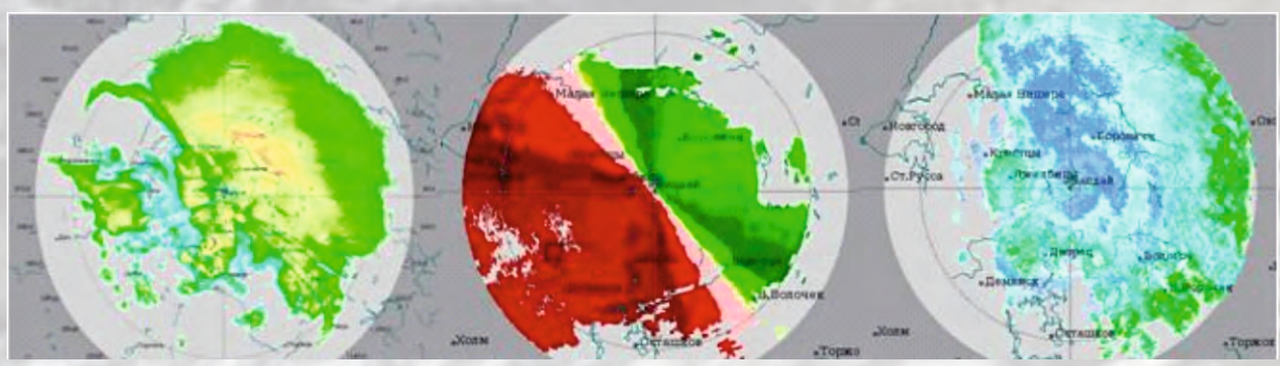
"DMRL-C" set includes subscriber's posts for local users, equipment for transfer of data, self-contained power supply source (as per a separate order), power supply source and SPTA.

High performance data of "DMRL-C" are ensured by application of highly-reliable elements including multi-beam klystron with low pulse power, and modern signal processing techniques, which allows using in maximal volume the radar potentialities both in on-line operation for ATC systems, and for other purposes, including scientific-research ones. "DMRL-C" has automated system of monitoring and control, also from a remote terminal.

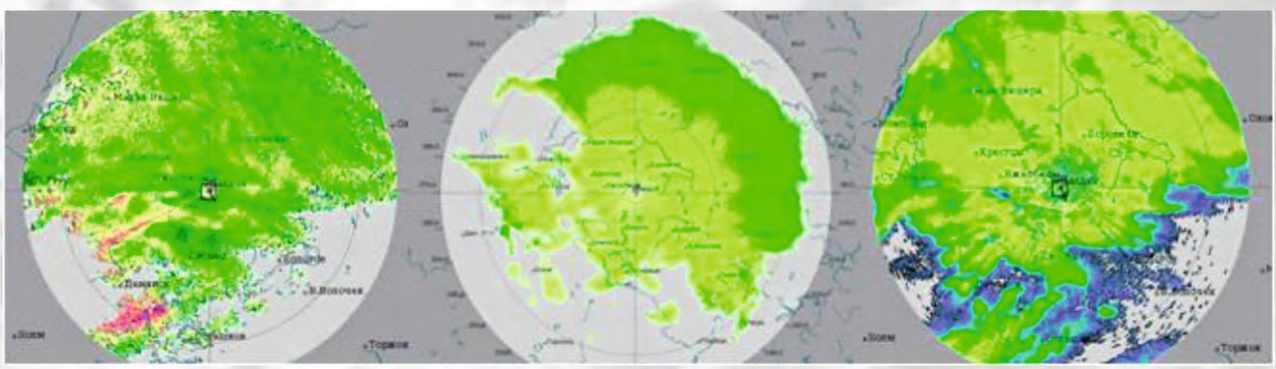
Basic Technical Specifications of “DMRL-C”

Operating frequency band, MHz	5600 – 5650
Antenna antenna gain factor, dB level of side-lobes, dB	reflector-type, parabolic not less than 45 not worse than minus 29
Transmitter pulse power, kW, not less than Pulse width, μs sounding frequency, Hz	klystron 15 1.0-60.0 300-1500
Receiver dynamic range of each polarization, dB	2/4 channels (1/2 polarizations) not less than 100
Static clutter suppression factor, dB	not less than 50
Power consumption, kW, not more than	10

Primary Meteorological Data



Reflectivity *Radial Velocity* *Spectrum Width*



Differential Reflectivity *Differential Phase* *Cross-Correlation Factor*

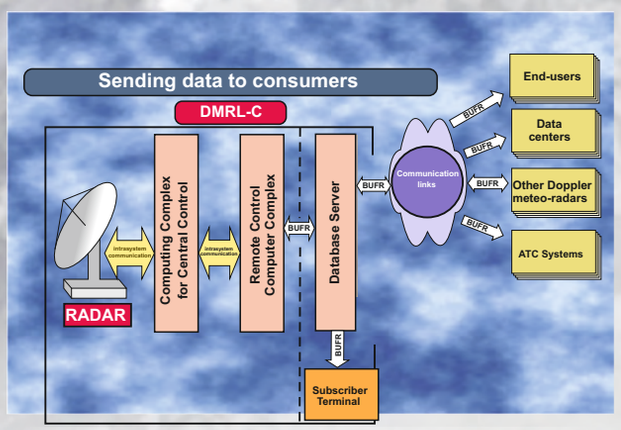
“DMRL-C”

Type Certificate issued by Interstate Aviation Committee


СЕРТИФИКАТ ТИПА
TYPE CERTIFICATE
№ 576

Composition

“DMRL-C” Radar set includes subscriber’s consoles for local users, data transfer equipment, self-contained power supply source, UPS unit and SPTA set



Radar Equipment

Transmitter Cabinet

Receiver and Signal Processing Cabinet

Output Amplifier, i.e. Multi-Beam Klystron

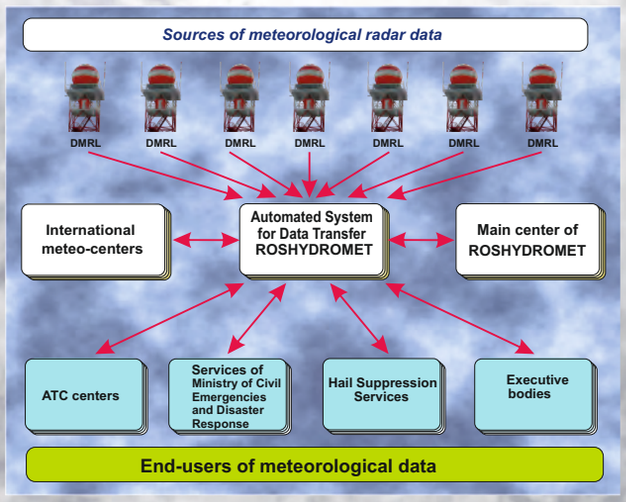
Modules of Solid-State Modulator and High-Voltage Power Supply Source

Antenna Design

Elevation and Azimuthal gearless synchronous drives

Antenna reflector made of aluminum/composite materials

Scheme of Meteorological Data Gathering and Transfer



Construction and Equipping of Objects in favor of Roshydromet

Commissioned “DMRL-C” Radars

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