

## THE RADAR FOR AN ATMOSPHERE MONITORING

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The radar for an atmosphere monitoring is designed on a base of an aircraft ground surface observation radar. It consists of the antenna, transceiver, power supply unit, diagnostic system and personal computer (PC). The radar has the following characteristics: a) transmitted frequency - 10 GHz; b) pulse power - 65 kW; c) pulse length - 2  $\mu$ s; d) pulse repetition rate - 400 Hz; e) receiver sensitivity in relation to 1 mV - 95 dB.

For the atmosphere monitoring there were made some alterations and additions. Such as, the radar potential increasing account for the replacement an original antenna by the dish antenna 1.8 m in a diameter. It was also changed the power supply system and carried out the radar-PC interface unit for a data recording and processing. Furthermore, the program of the data primary processing was developed for a signal-noise relation at the receiver output improving with an incoherent accumulation technique.

The results of experiments allow observing different clouds (fleecy, cumulus and stratus) up to height 20 km. The signal level at the receiver output was about 100 mV. Furthermore, the signal-noise relation was increasing in root of N times during the incoherent accumulation. It was also revealed that the radar could be used for the remote detection of a radioactive and chemical ejection under any weather conditions.