

ABSTRACT

The design, development, and testing of an inexpensive dual-processor system for the acquisition and processing of upper atmospheric wind data by the automated control of the Kingston meteor-radar are described.

The radar operates in two modes: the watch mode and the observation mode. During the watch mode the radar transmits at a minimum pulse repetition frequency of 50 Hz. Once the system intelligence is satisfied that a meteor trail is positively identified the radar pulse repetition frequency is switched to its maximum value of 250 Hz for data acquisition. This is the observation mode. Data acquisition is optimized by the real-time computing of the range of the meteor trail which allows for the enabling of radar receiver system just prior to the reception of the meteor backscatter.

The system is based on the AIM 65 which is supported by another 6502 CPU which supervises the MET 65 interface subsystem. A detailed discussion of the system hardware and software which processes meteor data in a typical time of 20 seconds (based on 100 samples per trail) per trail is given.