

Microphone plug and cable, 3-wire
Audio Generator, B&K Model 3020
Digital Voltmeter, Fluke
Spectrum Analyzer, Hewlett Packard Model 8568B
Spectrum Analyzer, Polarad Model ESVP
Computer, Hewlett Packard Model 9826, with printer
Antenna, Emco Biconical Model 3109 (30-200 Mhz)
Antenna, Electro-Metrics Log Periodic Model LPA-25
Coaxial cables
FCC Approved Open Field Test Site

Procedure:

Tests were made at the Open Field Test Site at Spectrum Control Inc., 8061 Avonia Rd., Fairview, PA 16415. The Model M15 was placed on a wooden table in the center of the rotating platform, along with the AV-5 antenna, speaker, harness and coaxial cable between the radio and antenna. The antenna was mounted on a wooden pole approximately 24 in. above the radio. The automotive battery was located below the table. The microphone plug was inserted into the M15's microphone jack, and the 3-wire microphone cable was run through the rotating platform to the room below where the test equipment (spectrum analyzer, computer, etc.) was located. The M15 was thus configured similarly to how it might be when installed in a work vehicle at an airport.

The transmitter could be energized from the test equipment room by shorting the microphone "key" (push-to-talk) wire to ground. The microphone audio wire was connected to the B&K audio generator, which was set for 2500 Hz. The microphone audio level was set to 189 millivolts, which had previously been determined to be 16 dB above the level required to produce 50% modulation.

The receiving antennas were mounted on the test site's antenna mounting fixture, which provides for moving the antenna up and down. Initially the biconical antenna was mounted, for the 30 to 200 Mhz range; for the range 200 to 1300 Mhz, the log periodic antenna was used. In either case, the antenna was mounted for vertical polarization, to match the AV-5 antenna used with the M15. (Vertical polarization is normally used for Part 87 transmitters.)

The transmitter was energized and the transmitter signal at 126.2 Mhz examined on the spectrum analyzer, with 100 Hz resolution. The sidebands showed the modulation to be near 100%, and sideband amplitudes agreed closely with data elsewhere in this report measured earlier on different equipment and submitted for part 2.989 (occupied bandwidth).

The spectrum was scanned from 30 to 1300 Mhz, interrupted once to change antennas. The measured data was recorded by the Hewlett-Packard computer, which automatically processes the data for coax losses and antenna factors.