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DEPARTMENT OF THE ARMY TECHNICAL MANUAL

**OPERATOR, ORGANIZATIONAL DS, GS
AND DEPOT MAINTENANCE MANUAL**

**VOLTIMETER, ELECTRONIC
AN/URM-145**

This copy is a reprint which includes current pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY

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Electronic Voltmeter AN/URM-145



SECTION II

GENERAL DESCRIPTION

The AN/URM-145 RF Voltmeter is a sensitive instrument for the measurement of voltages of 300 microvolt to 3 Volts spanning a frequency range of 20 kilocycles to 600 megacycles. In addition to conveniently measuring voltage levels in a diversity of RF circuits, the instrument has application for many associated tests. Such measurements include: the frequency response of both active and passive networks, i.e., amplifiers and filters; VSWR and return loss on transmission lines and attendant systems; attenuation and insertion loss of RF attenuators; and high frequency parameters of transistors. With true RMS response below 0.03 Volt, wide band noise can be measured, and using suitable null networks measurement of the harmonic distortion of RF waveforms can be performed without the attendant errors of average type meters.

The instrument is also useful as an RF null detector for bridge measurements and analogous techniques when a sensitivity in the order of 200 microvolt will suffice.

Supplied with each instrument is a general purpose RF Probe, 50 ohm Adapter, and probe Tip. The adapter is fitted with a BNC coaxial connector and provides a 50 ohm termination with a low VSWR up to 600 megacycles. The Probe Tip is useful for direct measurement to approximately 250 megacycles, however, a short wire should be substituted for the ground lead when using above 100 Mc to minimize the effects of ground lead inductance. Above 250 megacycles, the probe may be used directly without the tip but the connecting leads must be extremely short to avoid resonant effects. Normally the RF Probe is used with the **50Ω** Adapter in a coaxial system for accurate measurements above 100 Mc.