TM 11-6625-524-14-4

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL,

DIRECT SUPPORT AND GENERAL SUPPORT

MAINTENANCE MANUAL

FOR

VOLTMETER, ELECTRONIC AN/URM-145D

(MILLIVAC INSTRUMENTS MODEL MV-828A)

(NSN 6625-01-119-7271)

HEADQUARTERS, DEPARTMENT OF THE ARMY

24 MAY 1982

Technical Manual
No. 11-6625-524-14-4

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OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL FOR VOLTMETER, ELECTRONIC AN/URM-145D (MILLIVAC INSTRUMENTS MODEL MV-828A) (NSN 6625-01-119-7271)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications or Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications - Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703.

In either case, a reply will be furnished direct to you.

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This manual is an authentication of the manufacturer's commercial literature which, through usage, has been found to cover the data required to operate and maintain this equipment. Since the manual was not prepared in accordance with military specifications and AR-310-1, the format has not been structured to consider levels of maintenance.

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LIST OF ILLUSTRATIONS

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1 SCOPE
This manual describes Voltmeter, Electronic AN/URM-145D and provides operator and maintenance instructions, testing procedures and schematic diagrams.

1-2 CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS
Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes, or additional publications pertaining to this equipment.

1-3 MAINTENANCE FORMS, RECORDS, AND REPORTS
a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those described by TM 38-750, The Army Maintenance System.

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73A/AFR 400-54/MC0 4430.3F.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MC0 P4610.19D/DLAR 4500.15.

1-4 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)
If your AN/URM-145D needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368(Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth NJ 07703. We'll send you a reply.

1-5 ADMINISTRATIVE STORAGE
Adminstrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1.

1-6 DESTRUCTION OF ARMY ELECTRONICS MATERIEL
Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

Section II. Description and Data

1-7 DESCRIPTION AND USE
a. Voltmeter, Electronic AN/URM-145D is a sensitive, wide band instrument for the measurements of voltages from 100 microvolt (µV)to 3 volts (V) spanning a frequency range of 20 kilohertz (KHz) to 600 megahertz (MHz).

b. The general` purpose rf probe supplied employs a fullwave germanium diode detecting circuit. In the square-law region(100µV to 30mV) the voltmeter is true RMS responding. In the transition region(30mV to 1V)the characteristics of the probe's detecting circuit changes gradually from RMS to peak. In the linear region (1V to 3V) the voltmeter is peak responding.

c. The type BNC 50-ohm termination adapter supplied has a VSWR of less than 1.2:1 up to 600MHz. The adapter has a 5 watt max. power rating.

d. The high impedance probe tip supplied allows for direct high impedance measurements up to 250MHz. However, a short wire should be substituted for the ground lead when using above 100MHz to minimize the effects of ground lead induction.

e. The main controls required to operate the voltmeter are on the front panel. Several minor controls are on the rear panel.

1-8 TECHNICAL CHARACTERISTICS

Voltage range . . . . . 100µV to 3V, 8 ranges; 0.001V to 3V full scale
dBm range . . . . . -60 to + 23, 8 ranges in 10dB steps per range
Frequency range 20KHz to600MHz
Frequency response . . . . . True RMS up to 30mV, peak reading above 1V
Wide band accuracy . . . . . (see Fig. 1-1)

Frequency	0.001V Full Scale Range	0.003V Full Scale to 3V Full Scale Ranges
20KHz to 100MHz	±15% of full scale	±10% of full scale
100MHz to 400MHz	±10% of full scale	±5% of full scale
400MHZ to 600MHZ	±15% of full scale	±10% of full scale

INPUT IMPEDANCE . . . . . Approx. 2.2 pf and 200KΩ
V.S.W.R. . . . . Less than 1.2:1 at 600MHz
CREST FACTOR . . . . . 450 to 1.4 (function of input voltages)
MAXIMUM INPUTS . . . . . RF: 42V P-P or 15V RMS; DC: 400V
DC OUTPUT . . . . . 1.0V, 1mA max. at full scale, linear. Impedance load of 2KΩ, ±1% required
RISE TIME . . . . . 1 sec. on the 0.001V full scale range, decreasing to 100 millisec. about the 0.01V full scale range
INDICATOR . . . . . Precision 5.5" taut band meter movement, mirror-backed dial and knife edge pointer. Expanded linear dial scales except dBm.
LINE VOLTAGE & POWER . . . . . 115V or 230V AC +20%, 45-1000Hz; less than 12W
DIMENSIONS&WEIGHT . . . . . 9" H x 6.5"W x 11.25" D. Weight approx. 12 lbs.

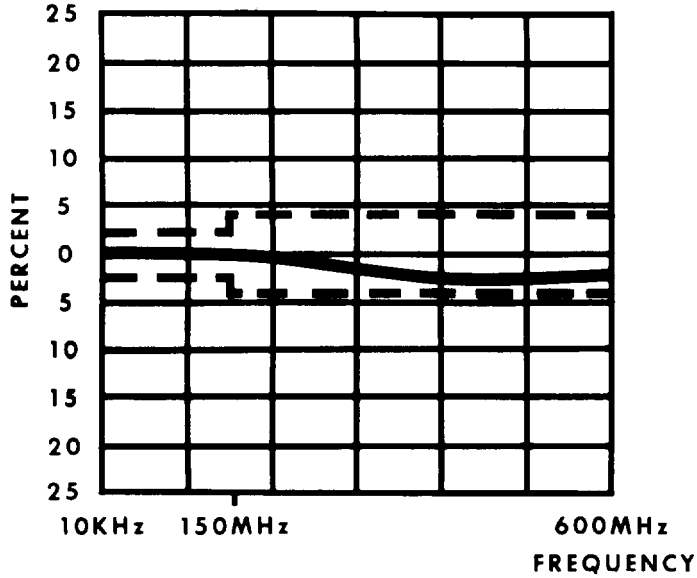

Figure 1-1: Typical frequency response for 0dBm level.