

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL,  
DIRECT SUPPORT, AND GENERAL SUPPORT  
MAINTENANCE MANUAL

RADIATION HAZARD METER

ME-513/U  
(NSN 6625-01-068-1485)

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HEADQUARTERS, DEPARTMENT OF THE ARMY

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 DEPARTMENT OF THE ARMY  
 WASHINGTON, DC, 17 June 1981

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 AND GENERAL SUPPORT MAINTENANCE MANUAL**

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**ME-513/U**

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**REPORTING OF ERRORS**

You can improve this manual by recommending improvements using DA Form 2028-2 located in the back of the manual. Simply tear out the self-addressed form, fill it out as shown on the sample, fold it where shown, and drop it in the mail.

If there are no blank DA Forms 2028-2 in the back of your manual, use the standard DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN:DRSEL-ME-MQ, Fort Monmouth, NJ 07703.

In either case a reply will be forwarded direct to you.

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## SECTION 0

### GENERAL

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#### 1. Scope

This manual describes Radiation Hazard Meter ME-513/U (fig. 1) and provides maintenance instructions, testing procedures, and replacement parts list. A parts manual containing ordering information and National Stock Numbers will be available approximately six months after the date of this manual.

#### 2. Indexes of Publications

*a. DA Pam 310-4.* Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to this equipment.

*b. DA Pam 310-7.* Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO'S) pertaining to this equipment.

#### 3. Forms and Records

*a. Reports of Maintenance and Unsatisfactory Equipment.* Maintenance forms, records, and reports which are to be used by maintenance personnel at all levels of maintenance are listed in and prescribed by TM 38-750.

*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 4140.5/NAVMATINST 4355.73/AFR 400-54/MCO 4430.3E.

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

#### 4. Reporting Equipment Improvement Recommendations (EIR)

EIR's will be prepared using SF 368 (Quality Deficiency Report). Instructions for preparing EIR's

are provided in TM 38-750, the Army Maintenance Management System. EIR's should be mailed direct to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. A reply will be furnished direct to you.

#### 5. Administrative Storage.

Administrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1 and paragraph 18.

#### 6. Destruction of Army Electronics Materiel.

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

### SAFETY PRECAUTIONS

A periodic review of safety precautions in TB 385-4 is recommended. When the equipment is to be operated in or near a radiation field a review of TB MED 270, Control of Hazards to Health from Microwave Radiation is recommended.

### WARNING

The batteries used in this Radiation Hazard Meter contain mercury and require special handling to prevent explosion as follows:

Do not dispose in fire.

Do not short circuit.

Return to Property Disposal Officer for disposal in accordance with DLSC Handbook 41601,

## SECTION I

### INTRODUCTION

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#### 1. General

The Radiation Hazard Meter ME-515/U is a portable battery-operated device which detects and measures potentially hazardous electromagnetic radiation emanating from rf and microwave energy sources. It responds isotropically; that is, irrespectively of the direction and polarization of the incident energy. The Radiation Hazard Meter ME-513/U (See Figure 1) is comprised of four basic components: (1) the power density meter assembly (hereinafter referred to as the power density meter), (2) probe assembly, (3) cable assembly, and (4) the carrying case. The power density meter is the hand-held, battery-operated device which contains a differential amplifier circuit card assembly, associated controls, and a meter to indicate power density in milliwatts per square centimeter. Detection of power density is accomplished by means of the probe assembly which is connected to the power density meter. If desired, the cable assembly may be connected between the probe assembly and the power density meter for extension purposes. All three assemblies are conveniently stored in the carrying case.

#### 2. Technical Characteristics

The Radiation Hazard Meter operates over the frequency range from 0.3 to 18 GHz and over a power density range of 30 dB. It has three 10 dB ranges with full scale readings of  $2\text{mW}/\text{cm}^2$ ,  $20\text{mW}/\text{cm}^2$ , and  $200\text{mW}/\text{cm}^2$ . Wideband frequency performance and accurate power density measurement results from the thermocouple array in the isotropic probe which holds frequency sensitivity over the operating band to within  $\pm 1\text{dB}$ . pertinent technical characteristics of the Radiation Hazard Meter are given in Table 1.

#### 3. Test Equipment Required

Test equipment required to maintain the power density meter and probe assembly is listed in Table 2.

#### 4. Warranty Data

The manufacturer warranties all parts of this equipment to be free from defects caused by faulty material or poor workmanship. This warranty excludes batteries, natural rubber, and material normally consumed in operation unless such excepted items fail as a result of improper application by the manufacturer. Liability under this warranty is limited to the obligation to repair, or to replace without charge, any part found to be defective under normal use and service within one year after delivery of the equipment. The warranty period shall not include any period of time the unit or part fails to perform satisfactorily due to such defect, and any unit, part or component repaired or replaced by the manufacturer pursuant to this warranty shall itself be guaranteed as specified above.

#### 5. Safety Precautions

The following precautions are defined as mandatory where the possibility exists that safe levels of radiation may be exceeded.

a. The transmitting antenna of the radiating device is never pointed directly at the monitoring personnel for the initial power measure at any point. Orientation of the antenna and other operating procedures related to the survey are performed at the direction of the monitoring personnel.

b. Systems operators should pay particular attention to the instructions issued by the monitoring personnel. The transmitting antenna of the radiating device should be moved slowly to prevent accidental exposure of personnel to high levels of radiation.

c. When there is a probability that exposure of monitoring personnel will exceed the recommended levels, remote detecting devices should be used or the average power output reduced and the readings raised proportionately.