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DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

## CALIBRATION PROCEDURE FOR TRUE RMS VOLTMETER ME-545/G (RACAL-DANA, MODEL 5002)

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## SECTION I IDENTIFICATION AND DESCRIPTION

**1. Test Instrument Identification.** This bulletin provides instructions for the calibration of True RMS Voltmeter ME-545/G (Racal-Dana, Model 5002). The manufacturer's manual and purchase specifications were used as the prime data sources in compiling these instructions. The equipment being calibrated will be referred to as the TI (test instrument) throughout this bulletin.

**a. Model Variations.** None.

**b. Time and Technique.** The time required for this calibration is approximately 1.5 hours, using the dc and low frequency technique.

### 2. Forms, Records, and Reports

**a.** Forms, records, and reports required for calibration personnel at all levels are prescribed by TB 750-25.

**b.** Adjustments to be reported are designated (R) at the end of the sentence in which they appear. When adjustments are in tables, the (R) follows the designated adjustment. Report only those adjustments made and designated with (R).

**3. Calibration Description.** TI parameters and performance specifications which pertain to this calibration are listed in table 1.

Table 1. Calibration Description

| Test instrument parameters | Performance specifications              |                      |                   |
|----------------------------|-----------------------------------------|----------------------|-------------------|
| Ac voltage                 | Range: 100 $\mu$ V to 316 V rms         |                      |                   |
|                            | Frequency: 10 Hz to 20 MHz <sup>1</sup> |                      |                   |
|                            | Accuracy: $\pm(\%)^2$                   |                      |                   |
|                            | Frequency                               | Voltage              |                   |
|                            |                                         | 100 to 999.9 $\mu$ V | 1.0 mV to 300 V   |
|                            | 10 Hz to 49.99 Hz                       | 5.0                  | 5.0               |
|                            | 50 Hz to 19.9 kHz                       | 5.0                  | 3.0               |
|                            | 20 kHz to 99.9 kHz                      | 5.0                  | 3.0               |
|                            | 100 kHz to 999.9 kHz                    | 5.0                  | 5.0 <sup>3</sup>  |
|                            | 1.0 MHz to 9.99 MHz                     | 10.0                 | 10.0 <sup>3</sup> |
|                            | 10 MHz to 20 MHz                        | 15.0                 | 15.0 <sup>3</sup> |

<sup>1</sup>100  $\mu$ V range only checked at 50 Hz and 1 kHz (calibration points of DT72A Ratio Transformer), 10.00 V and 31.62 V ranges not checked above 1 MHz, 100.0 V range not checked above 500 kHz, and 316.2 V range not checked above 100 kHz due to standards limitations.

<sup>2</sup>Accuracy based on purchase specifications and does not agree with manufacturer's specifications.

<sup>3</sup>Volts-hertz product not to exceed  $1 \times 10^8$ .