* TB 11-6625-213-35

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR RADIO TEST SETS TS-538/U, TS-538A/U, TS-538B/U, AND TS-538C/U

Headquarters, Department of the Army, Washington, DC
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REPORTING OF ERRORS

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Section I. INTRODUCTION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Radio Test Sets TS-538/U, TS-438A/U, TS-538B/U, and TS-538C/U. TM11-6625-205-35 was used as the primed at a source in compiling these instructions. The equipment being calibrated will be referred to as the TI (test instrumerit) throughout this bulletin.

a. Model Variations. Variations among models are described in text.

b. Time and Technique. The time required for this calibration is approximately 2 hours, using the dc and low frequency technique.

2. Calibration Data Card (DA Form 2416). a. Forms, records, and reports required for calibration

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personnel at all levels are prescribed by TM 38-750. DA Form 2416 must be annotated in accordance with TM 36-750 for each calibration performed.

b. Adjustments to be reported on DA Form 2416 are designated (R) at the end of the sentence in which they appear. Report only those adjustment 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
Input power requirement	117±12 vac, 50 to 1,600 Hz.
Rf oscillator frequency range	1,630 to 1,730 MHz, CW or interrupted CW.
Duration of interruption	45±5 µ sec.
VSWR *	1.45 to 1.
Output power and accuracy	-107 to -20 dBm. A 1 dBm from -20 to -70 dBm, ±3 dBm from -70 to -107 dBm.
Frequency meter range and accuracy	1,630 to 1,730 MHz ± MHz.
Power monitor[1] sensitivity	150 to 250 mw at 10 in. from source.

* This specification is for information only and is not verified in this bulletin.

Section II. EQUIPMENT REQUIREMENTS

4. Equipment Required. Table 2 identifies the specific equipment used in this calibration procedure. This equipment is issued with Secondary Transfer Standards Calibration Set AN/GSM-256, NSN 4931-00-525-8175 and electronic maintenance shop sets and is to be used in performing this procedure. Alternate items may be used by the calibrating activity when the equipment listed in table 2 is not available. The items selected must be verified to perform satisfactorily prior to use and must bear evidence of current calibration. The equipment must meet or exceed the minimum use specifications listed in table 2 The accuracies listed in table 2 provide a four-to-one accuracy ratio between the standard and TI.

5. Accessories Required. The accessories listed in table 3 are issued with Secondary Transfer Standards Calibration Set AN/GSM-256, NSN 4931-00-525-8175, and electronic maintenance shop sets and are to be used in this calibration procedure.

Table 2. Minimum Specifications of Equipment Required

Item	Common name	Minimum use specifications	Manufacturer, model and part number*	
			Electronic maintenance shop sets	AN/GSM-246
A1	FREQUENCY CONVERTER	Range: 100 to 200 MHz Accuracy: ± 0.3%	CV-1921/USM-207.	Hewlett-Packard Model 5253B.
A2	FREQUENCY METER	Range: 23 Hz to 1732 MHz Accuracy: ± 0.3%	AN/USM-207	Hewlett-Packard Model 5245L
A3	OSCILLOSCOPE	Range: Dc to 15 MHz Accuracy: ± 3%	AN/USM-281	Hewlett-Packard, Model 180D.
A4	RF POWER TESTS	Range: -40 to 10 dBm Accuracy: ± 2%	AN/USM-161	Hewlett-Packard, Model E12-432A.
A5	TRANSFER OSCILLATOR	Range: Harmonic frequency to 12 GHz. Accuracy: ± 2%	CM-77/USM	N/A.

* The calibration equipment utilized in this procedure was selected from those known to be available at Department of Defense facilities, and the listing by make or model number carries no implication of preference, recommendation, or approval by the Department of Defense for use by other agencies. It is recognized that equivalent equipment produced by other manufacturers maybe capable of equally satisfactory performance in the procedure.

Table 3. Accessories Required

Item	Common name	Description and part number
B1	Adapter	BNC jack to N plug (10519457).
B2	Adapter *	BNC jack to UHF plug (10619439).
B3	Adapter	"T" - N type, 2 jacks, 1 plug (7907472).
B4	Cable **	30-in., RG-58/U; BNC plug termination (7907467).

* Two required.
** Three required