

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

**CALIBRATION PROCEDURE FOR
SHF SIGNAL GENERATOR
AN/USM-47 (HEWLETT-PACKARD MODEL 626A)
(NSN 6625-00-455-6917)**

Headquarters, Department of the Army, Washington, DC
17 January 80

REPORTING OF ERRORS

You can help improve this publication by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) 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.

		Paragraph	Page
SECTION	I. IDENTIFICATION AND DESCRIPTION		
	Test instrument identification	1	3
	Calibration data card (DA Form 2416)	2	3
	Calibration description	3	3
	II. EQUIPMENT REQUIREMENTS		
	Equipment required	4	3
	Accessories required	5	3
	III. PRELIMINARY PROCESS		
	Preliminary instructions	6	5
	Equipment setup	7	5
SECTION	IV. CALIBRATION PROCESS		
	Zero set	8	5
	Power monitor	9	5
	Frequency dial	10	6
	Pulse rate	11	7
	Pulse delay	12	7
	Pulse width	13	7
	Attenuator	14	8
	Final procedure	15	10

*This bulletin supersedes TB 9-6625-776-50, 31 August 1966.

SECTION I

IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides information for the periodic calibration of SHF Signal Generator AN/USM-47 (Hewlett Packard model 626A) and is to be used by calibration personnel at all levels. Signal Generator AN/USM-47 (HP 626A) will be referred to as the TI (test instrument) throughout this bulletin.

a. *Model variations.* None

b. *Time and Technique.* The time required for calibration is approximately 4 hours using the Microwave Technique.

2. Calibration Data Card (DA Form 2416). a. Forms,

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

b. Adjustments to be reported on DA Form 2416 an designated (R) at the end of the sentence in which they appear. 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
Power input requirements	115 or 230 V $\pm 10\%$, 50 to 60 Hz, 200 W.
Frequency range	10 to 15.5 GHz.
Frequency accuracy	$\pm 1.0\%$ of dial indication.
Output range	10 mW to 1 pW (+ 10 dBm to - 90 dBm).
Output monitor accuracy	± 1.0 dB.
Attenuator	$\pm 2.0\%$
Internal pulse modulation	Variable from 40 to 4,000 pps. Pulse width variable from 0.5 to 10 μ sec.
Modulation	Internal or external pulsed, FM or square wave.
Internal square wave modulation	Variable from 40 to 4,000 Hz.
Internal frequency modulation ¹	Power line frequency, deviation up to ± 5 MHz.
External pulse modulation:	
Amplitude requirement ¹	15 to 70 volt peak (positive or negative).
Width requirement ¹	1.0 to 2,500 μ sec.
External frequency modulation ¹	Provides capacitive coupling to repeller of klystron. Max deviation ± 5 MHz.
Sync out signal ¹	20 to 50 v into 1,000 ohm load.
	Better than μ sec rise time.
	(1) Simultaneous with RF pulse-positive.
	(2) In advance of RF pulse-positive, variable 3 to 300 μ sec.
External sync ¹	Pulse or sine wave; 5 to 50 V, 0.5 to 5 μ sec wide.

¹These specifications are for information only and are not necessarily verified in this procedure.

SECTION II.

EQUIPMENT REQUIREMENTS

4. Equipment Required. Table 2 identifies the specific equipment used in this calibration procedure. This equipment is issued with the secondary transfer calibration standards set, NSN 6695-00-621-7877, 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 of specifications listed in table 2. The accuracies listed in table 2 provide a four-to-one accuracy ratio between the standard and the TI.

5. Accessories Required. The accessories listed in