*TB 9-6625-1873-40

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR IMPEDANCE MATCHING TRANSFORMER, ANZAC ELECTRONICS CO, MODELS TP-75 AND TP-93

Headquarters, Department of the Army, Washington, DC
1 April 2008

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also send in your comments electronically to our E-mail address: 2028@redstone.army.mil or by fax 256-842-6546/DSN 788-6546. For the World Wide Web use: https://amcom2028.redstone.army.mil. Instructions for sending an electronic 2028 can be found at the back of this manual.

*This bulletin supersedes TB 9-6625-1873-50, dated 9 November 1971.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Impedance Matching Transformer, Anzac Electronics Co, Models TP-75 and TP-93. The manufacturers' manuals 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. Variations among models are described in text.

b. Time and Technique. The time required for this calibration is approximately 1 hour, using the microwave 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
VSWR	Less than 1.2 to 1 from 100 to 200 MHz.
Insertion loss	Less than 0.25 db (0.4 db for TP-93) from 1 to 200 MHz.
Impedance	Input, 50 ohms. Output, 75 ohms for TP-75 and 93 ohms for TP-93.

SECTION II
EQUIPMENT REQUIREMENTS

4. Equipment Required. Table 2 identifies the specific equipment to be used in this calibration procedure. This equipment is issued with Secondary Reference Calibration Standards Set, NSN 4931-00-621-7878. Alternate items may be used by the calibrating activity. 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 ratio between the standard and TI. Where the four-to-one ratio cannot be met, the actual accuracy of the equipment selected is shown in parenthesis.

5. Accessories Required. The accessories required for this calibration are common usage accessories, issued as indicated in paragraph **4** above, and are not listed in the calibration procedure. The following peculiar accessories are also required for this calibration: Terminations, BNC plug connector, 75 ohm (7913356-2) and 93 ohm (7913356-3).

Table 2. Minimum Specifications of Equipment Required

Common name	Minimum use specifications	Manufacturer and model (part number)
ATTENUATOR (FIXED)	Range: 6 dB[1] Accuracy: ± 0.3 dB	Weinschel, Model 9918, 9918-3dB, 9918-6dB, 9918-10dB, 9918-20dB, 9918-30dB, 9918-60dB (9918)
SIGNAL GENERATOR	Range: 200 MHz Accuracy: ± 10 ppm	(SG-1207/U)
SPECTRUM ANALYZER	Range: 200 MHz Accuracy: ± 10 ppm Range: 0 to -25 dB Accuracy: ± 0.30 dB	(AN/USM-677)
SWR BRIDGE	Range: 200 MHz Directivity: 40 dB	Wiltron, Model 60NF50 (60NF50)

[1]Two required.

SECTION III
CALIBRATION PROCESS

6. Preliminary Instructions

a. The instructions outlined in paragraphs **6** and **7** are preparatory to the calibration process. Personnel should become familiar with the entire bulletin before beginning the calibration.

b. Items of equipment used in this procedure are referenced within the text by common name as listed in table 2.

c. Unless otherwise specified, verify the result of each test and, whenever the test requirement is not met, take corrective action before continuing with the calibration. Adjustments required to calibrate the TI are included in this procedure. Additional maintenance information is contained in the manufacturers' manuals for this TI.

d. Unless otherwise specified, all control and control settings refer to the TI.

7. Equipment Setup

WARNING

HIGH VOLTAGE is used or exposed during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions. REDUCE OUPUT(S) to minimum after each step within the performance check where applicable.

Connect equipment as shown in figure 1.

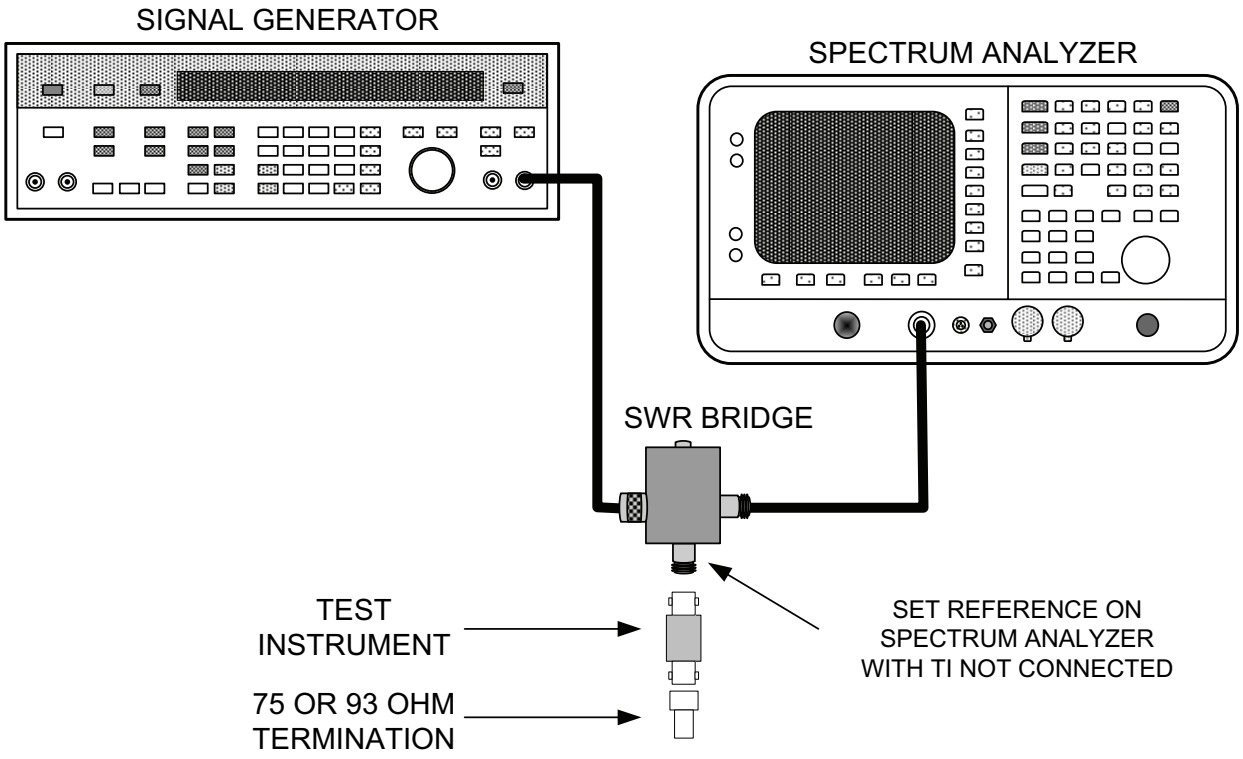

Figure 1. VSWR - equipment setup.

8. VSWR

a. Performance Check

(1) Adjust signal generator 200 MHz output at 0 dBm.

(2) Set spectrum analyzer to measure a 200 MHz signal.

(3) On spectrum analyzer, press **PEAK SEARCH**, **MARKER**, and **[DELTA]** to set up delta marker reference measurement.

(4) Connect TI and termination. Spectrum analyzer will indicate ≤ -20.83 dBm.

(5) Repeat technique of (1) through (4) above for model TP-93.

b. Adjustments. No adjustments can be made.

9. Insertion Loss

a. Performance Check

(1) Connect equipment as shown in figure 2. Connect points A and B together.

(2) Adjust signal generator 200 MHz output at 0 dBm.

(3) Set spectrum analyzer to measure a 200 MHz signal.

(4) On spectrum analyzer, press **PEAK SEARCH**, **MARKER**, and **[DELTA]** to set up delta marker reference measurement.

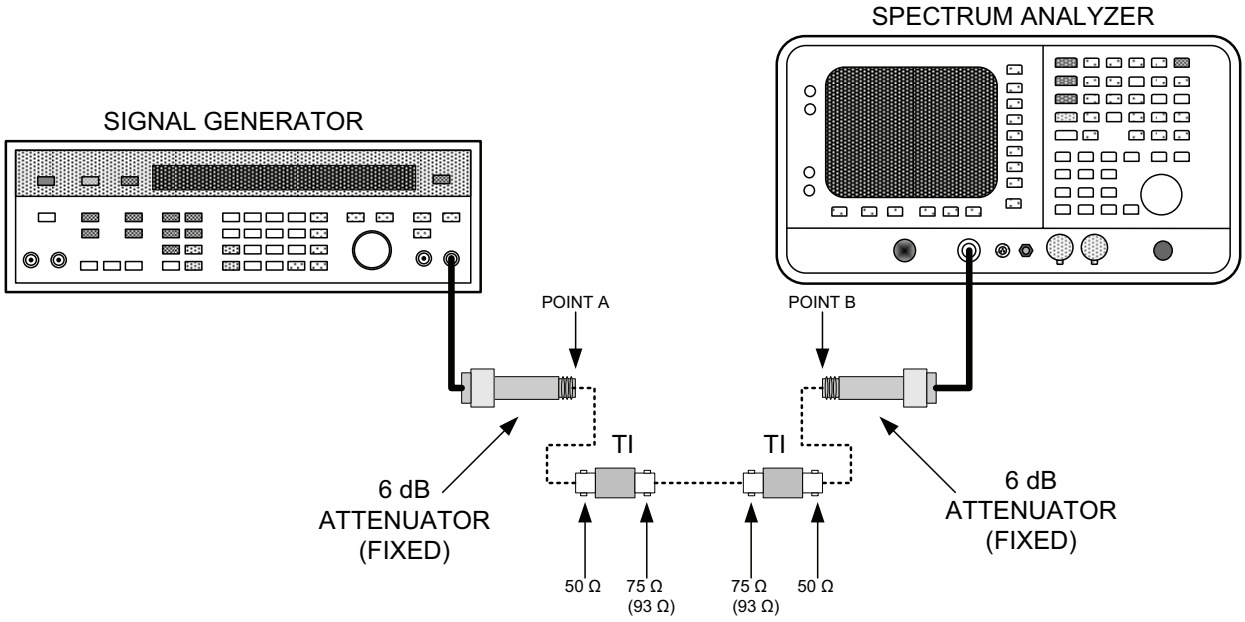

Figure 2. Insertion loss - equipment setup.

(5) Insert TI models TP-75 between points A and B in equipment setup. Insertion loss will not exceed 0.5 dB.

(6) Substitute TI models TP-93 in equipment setup. Insertion loss will not exceed 0.8 dB.

b. Adjustments. No adjustments can be made.

10. Final Procedure

a. Deenergize and disconnect all equipment.

b. Annotate and affix DA label/form in accordance with TB 750-25.

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army

0803812

Distribution:

To be distributed in accordance with STD IDS No. RLC-1500, 2 January 2003, requirements for calibration procedure TB 9-6625-1873-40.

Instructions for Submitting an Electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" whomever@redstone.army.mil
To: <2028@redstone.army.mil

Subject: DA Form 2028
1. **From**: Joe Smith
2. Unit: home
3. **Address**: 4300 Park
4. **City**: Hometown
5. **St**: MO
6. **Zip**: 77777
7. **Date Sent**: 19-OCT –93
8. **Pub no:** 55-2840-229-23
9. **Pub Title**: TM
10. **Publication Date**: 04-JUL-85
11. Change Number: 7
12. Submitter Rank: MSG
13. **Submitter FName**: Joe
14. Submitter MName: T
15. **Submitter LName**: Smith
16. **Submitter Phone**: 123-123-1234
17. **Problem**: 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. **Text**

This is the text for the problem below line 27.