

TTS-28 PORTABLE STATION TEST SET

TEST METHODS

1. GENERAL

1.01 This section covers the calibration procedures and test methods for the TTS-28 portable station test set.

2. CALIBRATION

2.01 For Resistance Tests:

- (a) Set the FUNCTION switch to the desired OHMS position.
- (b) Connect the + and - terminals on the set together through the test leads or by means of a wire or screwdriver. The meter should read zero.
- (c) If the meter does not read zero, set the OHMS ADJ control for a zero reading. If it is not possible to reach zero, the batteries used for the OHMS circuit should be replaced.

2.02 For DBM Operation: Normally there are no calibration adjustments required to calibrate the amplifier. A factory adjustment has been made to assure a reading of 0 dbm at 900 ohms input impedence. If there is any question on the accuracy of the dbm readings, it may be checked as follows:

- (a) With no input signal, the meter should read zero. If this is off, reset the mechanical zero adjustment screw. This adjustment should be made with the meter in the vertical position.
- (b) Connect the output terminals of an accurate 900-ohm source of 1,000 cps 1 mw sine wave power to the + and - terminals of the Model TTS-28.
- (c) Set the FUNCTION switch to the DBM 900-OHM TERM - 0 (dbm) position.
- (d) Switch the DB, AC SCALES AND BATT TEST switch to ON. The meter should now read 0 within the limits specified under the performance characteristics in the section covering the description of the Model TTS-28 Set.
- (e) Only if the meter reads out of limits should the panel of the test set be removed from the case. The control on the component board designated as R23 on the circuit diagram can then be reset to give 0 on the meter.

3. OPERATION

3.01 Initial Steps:

- (a) Unlatch and open cover. The cover can be detached from the case by sliding the cover up to the handle end of the case. When measurements are completed, it is recommended that the cover be attached and closed, as a bracket on the cover will turn off the power switch when the cover is closed. This avoids leaving the set on when not in use and can substantially prolong battery life.
- (b) Turn the switch marked DB, AC SCALES AND BATT TEST to ON if dbm or ac voltage measurements are to be made.
- (c) Connect the line or circuit to be tested to + and - terminals. If the test leads are to be used, connect them to these terminals.
- (d) When a telephone set is to be used, connect it to the TEL SET terminals.

The instrument is now set up to receive signals, dial through and talk, or to use the test leads.

3.02 To Make Level Measurements:

- (a) On a 900-ohm termination basis:
 - (1) If it is necessary to connect through to a reference tone generator or call a testboard, set the FUNCTION switch to TEL SET - DIAL and call the desired number by using the telephone set connected to the TEL SET terminals. If the power switch has been moved to the ON position, this position of the FUNCTION switch will cause the meter to read the condition of the battery as described in 3.08.
 - (2) When a tone is received, turn the FUNCTION switch to one of the two DBM 900-OHM TERM positions which will give a meter reading on the upper part of the scale where possible.
- (b) On a bridging basis: Turn the FUNCTION switch to the DBM BRDG position which will give a meter reading on the upper part of the scale where possible.

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3.03 To measure line current through the instrument connected to TEL SET terminals:

- (a) Follow 3.02(a)(1).
- (b) Set FUNCTION switch to TEL SET-150 MA position and read the current on the red DC, 0 to 150 scale.

3.04 To Measure AC Voltage:

- (a) Set FUNCTION switch to the VAC position which will give a convenient meter reading.
- (b) Connect the test leads to the circuit under test.
- (c) Read the voltage on the black AC, 0 to 150 scale.

3.05 To Measure DC Voltage:

- (a) Set FUNCTION switch to the VDC position which will give a convenient meter reading.
- (b) Connect the test leads to the circuit under test.
- (c) Read the voltage on the appropriate red DC scale on the meter.

3.06 To Measure DC Current Up to 150 MA:

- (a) Set FUNCTION switch to the MA DC position which will give a convenient meter reading.
- (b) Connect the circuit to be tested to the + and - terminals.
- (c) Read the current on the appropriate red DC scale on the meter.

3.07 To Measure Resistance:

- (a) Set the FUNCTION switch to the OHMS position which will provide the desired resistance range.
- (b) Set the OHMS ADJ control in accordance with the calibration procedure outlined in 2.02.
- (c) Connect the test leads to the circuit or component under test.
- (d) Read the resistance on the green scale on the meter and multiply by the X1 or X100 factor selected with the FUNCTION switch.

3.08 Battery Test:

- (a) When the DC, AC SCALES AND BATT TEST switch is in the ON position and the FUNCTION switch is set at TEL SET-DIAL, the meter will read the condition of the amplifier battery. If the meter reads within the area of the heavy green arc, the battery is good; if it reads below the arc, the battery should be replaced.
- (b) The OHMS scale batteries are good if the OHMS ADJ control can be set in accordance with the OHMS calibration procedure. If the adjustment cannot be made as outlined, the batteries should be replaced.

3.09 Transportation: When measurements are completed, the FUNCTION switch should be turned to METER SHORT and the lid closed. This will provide a short circuit across the meter during transport. Furthermore, battery life will be prolonged, as closing the lid turns off the battery power to the amplifier if manual operation of switch is overlooked.