



RADIO COMMUNICATIONS TEST SET 2955A 0.4 to 1000 MHz

TRANSMITTER TESTING

RF power meter and frequency meter

Press **TX TEST** and **SELECT** for RF IN/OUT socket. Sustained overload makes display flash and sounds alarm. Read power and frequency on **TRANSMITTER TEST** display.

For frequency OFFSET on display, enter datum frequency:
e.g. **TX TEST** **FREQ** **1** **0** **MHz** **V**

AF generators

Connect Tx modulating input to AF GEN OUTPUT.

Press **TX TEST** and **AF GEN** for first AF generator.

Enter frequency of first AF generator:

e.g. **FREQ** **1** **.** **2** **3** **4** **MHz** **mV**

Enter level of first AF generator:

e.g. **LEVEL** **5** **0** **MHz** **mV**

Press **AF GEN** and **2** for second AF generator.

Enter frequency and level in same way.

Press **AF GEN** and **1** to return to first AF generator.

Press **ON OFF** to enable or disable selected AF generator.

For increments of frequency and level, use **Δ** **ADJ** to set, then **Δ** **INCREMENT** keys for increase or decrease.

Modulation meter

Press **TX TEST** and **SELECT** for RF IN/OUT socket.

Select modulation from **FM** or **AM** or **SSB**.

Press **RF MOD PASS** once or twice for 0.3 to 3.4 KHz or **EXTERNAL**.

Press **LOW PASS** once or twice for 0.3 or 15 KHz.

For receiving, connect audio unit to AF INPUT.

Press **TONES** and then as under 'Transmitter testing'.

AUDIO AND MODULATION SETUP

On a **TONES** menu, press **AUDIO SETUP** ; **MOD SETUP** ; or **MOD/AF SETUP** .

Select generator as under 'AF generators' or as for modulation setting under 'RF generator' .

Press **ON OFF** to select enabled or OFF.

Press **LOCK** to lock level of GEN 2 to that of GEN 1. Press **SHAPE** to select SINE, SQUARE, TRIANGLE or SAWTOOTH.

Press **EXT MOD** to show EXT MOD INPUT FREQ and LEVEL where applicable.

OSCILLOSCOPE DISPLAYS

Press **SCORE BAR** and set INTENSITY and POSITION controls.

Press **◀▶** or **▶◀** to adjust HORIZ scale.

Press **▲▼** or **▼▲** to adjust VERT scale.

Press **SCALE** or **REP** for single SWEEP storage or repetitive on auto trigger.

STORE AND RECALL

Press **STORE** and number keys (01 to 26) for storage.

Press **RECALL** and same number keys to recall or 00 to recall settings at last switch-off or power failure.

HELP KEY OPERATION

Press **HELP** to display **HELP** menu.

Press a **MODE** key for an operating summary.

Press **CHANGE PARAMETERS** to display the parameters menu.

Select any of the parameters and reset as required.

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Receiver testing

Press **RF TEST** **SELECT** for RF IN/OUT socket.

Press **TONES** to display **TONES** menu.

Select from **SEQUENTIAL** ; **DTMF** ; **DCS** and **POCSAG** .

On **SEQUENTIAL TONES MENU**, select required standard or REVERTIVE.

On **RX SEQUENTIAL TONES** menu, use **NEXT TONE** and number keys to enter up to 11 tones on each of 3 pages.

Use **-tone STEP** ; **tone BURST** or **CONTINUOUS** to generate the sequence.

On **DTMF GENERATOR AND DECODER** display, set **MOD LEVEL** and under **SEND DATA**, use **CLEAR** ; **LOAD** ; number keys and **SEND** for sequence of digits. Under **RECEIVE DATA**, decoded digits are shown.

On **DCS GENERATOR** display, set **MOD FREQ**, sub-audible deviation **LEVEL** and **POLARITY** and use **CODE** ; **ENTER** ; number keys and **SEND** for address code (3 octal digits) until **STOP** is used.

On **POCSAG RADIO PAGER TEST** display, set pager's **RF FREQ**, **RF LEVEL**, **MOD FREQ** and **MOD LEVEL**, and use **RIC** ; **ENTER** and number keys for **RIC** number.

Set **ADDRESS** and use **ERRORS** and **CHANGE** to insert errors and use **SEND** to transmit signal.

Duplex testing

Press **ONE PORT** and **SELECT** for ONE PORT or TWO PORT.

Press **TONES** to display **TONES** menu.

Select from **SEQUENTIAL** ; **DTMF** ; **DCS** and **POCSAG** .

For generating, proceed as for 'Receiver testing'. For receiving, use **TRANSMITTER TEST** mode.

Audio testing

Press **TX TEST** and **AF GEN** for **AUDIO TEST** mode.

For generating, connect audio unit to **AF GEN OUTPUT**.

Press **TONES** and then as under 'Receiver testing'.

Use AF GEN OUTPUT to modulate Tx if required.

Read modulation level on display. Demodulated signal can be heard on internal speaker or on earphones connected to ACCESSORY socket. Signal also available at DE-MOD OUT socket.

Audio distortion and noise meter

Connect Tx modulating input to AF GEN OUTPUT.

Press **TEST** and **SELECT** for RF IN/OUT socket.

Select modulation from **FUN**, **AM** or **FM**.

Press **DISTN ON-OFF** for distortion reading on display.

Modulation frequency of 1 kHz and 0.3 to 3.4 kHz filter are automatically selected.

Press **LOW PASS** once or twice for up to 0.3 or 15 kHz.

Press **SINAD S/N** for SINAD reading on display.

Press **LOW PASS** once or twice for up to 0.3 or 15 kHz.

Press **HIGH PASS** once or twice to return to 0.3 to 3.4 kHz or for an EXTERNAL filter (between DE-MOD OUT socket and AF INPUT socket).

Press **SINAD S/N** again for S/N reading on display.

Select filter as for SINAD.

RECEIVER TESTING

RF generator

Press **RF TEST**

and **SELECT** for RF IN/OUT socket.

Reverse overload makes display flash and sounds alarm. Enter frequency and level of RF generator:

e.g. **FREQ** **1** **2** **3** **4** **5** **Hz**

and **LEVEL** **-** **3** **4** **dBm**

For increments of frequency and level, use **INC** to set, then **Δ INCREMENT** keys for increase or decrease.

Press **SET MOD** for first modulation generator.

Press **SET MOD** and **2** for second generator.

Press **ON** to enable or disable selected generator.

When both are enabled, press **SET MOD** and **1** for first modulation generator.

For one or both generators, enter modulation frequency: e.g. **FREQ** **1** **5** **kHz**

For one or both generators, enter modulation level and type of modulation:

e.g. **LEVEL** **5** **Hz** **FM** for FM deviation

and **LEVEL** **6** **0** **AM** for AM depth

and **LEVEL** **2** **0** **Hz** **FM** for ϕ M deviation radians.

For increments of frequency and level, use **INC** to set, then **Δ INCREMENT** keys for increase or decrease.

Connect external modulation to EXT MOD INPUT. External modulation is added to internal modulation.

For external only, enter **LEVEL** **0** and any unit.

Audio distortion and noise meter

Connect Rx audio output to AF INPUT.

Press **RF TEST** and **SELECT** for RF IN/OUT socket.

Set RF frequency and level as above. Set modulation level and type as above.

Press **DISTN ON-OFF** for distortion reading on display.

Modulation frequency of 1 kHz, AC coupling and 0.3 to 3.4 kHz filter are automatically selected.

Press **LOW PASS** once or twice for up to 0.3 or 50 kHz.

Press **SINAD S/N** for SINAD reading on display.

Modulation frequency of 1 kHz and 0.3 to 3.4 kHz filter are automatically selected.

Press **LOW PASS** once or twice for up to 0.3 or 50 kHz.

Press **SINAD S/N** again for S/N reading on display.

Select filter as for SINAD.

DUPLEX TESTING

Press **DUPLEX TEST** and **SELECT** for ONE PORT or TWO

PORT as shown on the DUPLEX display.

Connect Tx modulating input to AF GEN OUTPUT. Set AF generator as for 'Transmitter testing'.

Connect Tx output to RF IN/OUT N socket.

Connect Rx input to RF IN/OUT N (1-port) or BNC (2-port) socket.

Connect Rx audio output to AF INPUT.

Set RF generator frequency, level and modulation as for 'Receiver testing'. Then proceed as for 'Transmitter testing' and 'Receiver testing'.

AUDIO TESTING

AF voltmeter

Connect audio unit to AF GEN OUTPUT and AF INPUT.

Press **RF TEST** and **AF** for AUDIO TEST mode.

Set AF generators as for 'Transmitter testing'.

Read input voltage on display.

Press **dB** once or twice to add dBV or dBm reading.

Press **AC DC** for AC or DC + AC.

Press **HIGH PASS** for 0.3 to 3.4 kHz.

Press **LOW PASS** once or twice for 0.3 or 50 kHz.

Distortion and noise meter

Proceed as for 'Transmitter testing' except that LOW PASS filter is 0.3 or 50 kHz.

SIGNALLING CODES

Transmitter testing

Press **TX TEST** and **SELECT** for RF IN/OUT socket.

Press **TONES** to display TONES menu.

Select from **SEQUENTIAL**, **DTMF** and **DCS**

On **SEQUENTIAL TONES MENU**, select required standard. Trigger Tx to show TONE number, FREQ and % ERROR on TX SEQUENTIAL TONES menu.

On **DTMF GENERATOR AND DECODER** display, set AF generator LEVEL and, under SEND DATA, use **CLEAR**, **LOAD**, number keys and **SEND** for sequence of digits. Under RECEIVE DATA, decoded digits are shown.

On **DCS DECODER** display, set MOD FREQ and POLARITY to show decoded signal and each address CODE.