4 T825 Functional Testing

The following test procedures will confirm that the T825 has been tuned and adjusted correctly and is fully operational.

Note: In this and following sections deviation settings are given first for wide band sets, followed by settings in brackets for narrow band sets [ ].

Refer to Section 6 where the parts lists, grid reference index and diagrams will provide detailed information on identifying and locating components and test points on the main PCB. The parts lists and diagrams for the memory and VCO PCBs are in Part E.

The following topics are covered in this section.

4.1 Current Consumption

Connect the T825 to a 13.8V power supply.

Rotate the front panel mute pot. anticlockwise until the mute LED is extinguished.

Turn the front panel "Monitor Mute" switch to the ***on*** position.

Check that the current in the 13.8V power cable is less than 280mA.

Rotate the mute pot. clockwise until the mute LED is lit.

Rotate the line level adjuster and the volume control to give maximum outputs.

Check that the current is less than 730mA.

4.2 Sensitivity

Apply an on-channel signal from the RF generator with 3kHz deviation [1.5kHz] at 1kHz.

Adjust the RF level to give 12dB audio sinad.

Check that the sensitivity is better than -117dBm.

4.3 Switching Band (Multichannel Only)

Apply an on-channel signal from the RF generator at various frequencies within the 2MHz front end bandwidth, corresponding to pre-programmed channels.

Measure the sensitivity at each frequency as described in Section 4.2.

Ensure that the sensitivity is better than -115dBm across the whole band.

4.4 Audio Distortion

The level of distortion measured at the line output gives a good indication of the accuracy of the IF alignment.

Apply an accurate on-channel signal from the RF generator at a level of -70dBm with 3kHz deviation [1.5kHz] at 1kHz.

Adjust the front panel line level control (RV102) to give +10dBm into 600 ohms.

Check that the distortion is approximately 1% THD.

Note: For a de-emphasised response, the distortion should always be better than 2%.

Adjust the front panel monitor volume control (RV103) to give 2V rms into a 4 ohm resistive load.

Check that the distortion at the monitor output is better than 2% THD.

4.5 Ultimate Signal-To-Noise Ratio

Apply a signal from the RF generator at a level of -57dBm with 3kHz deviation [1.5kHz] at 1kHz.

Select de-emphasis on the links provided in the audio processor (refer to Section 3.3), and link pins 2 & 3 of PL105 to include the 300Hz filter.

Adjust RV102 (line level) to provide +10dBm output.

Switch off the modulation, checking that the residual noise is lower than -45dBm [-39dBm] at the line output (this corresponds to S/N of 55dB [49dB] and is in accordance with EIA measurement conditions).

Note: The measurement can be made without the 300Hz high pass filter but will give a result which is 10dB worse.

4.6 De-emphasised Audio Frequency Response

Set RV102 (line level) to provide 0dBm output at 1kHz modulating frequency.

Sweep the modulating frequency, checking that the response closely follows that shown in Figure 4.1 - the limits should not be exceeded.

Note: The curve is shown for wide band sets. The narrow band response is similar, but rolls off earlier at 2.5kHz.

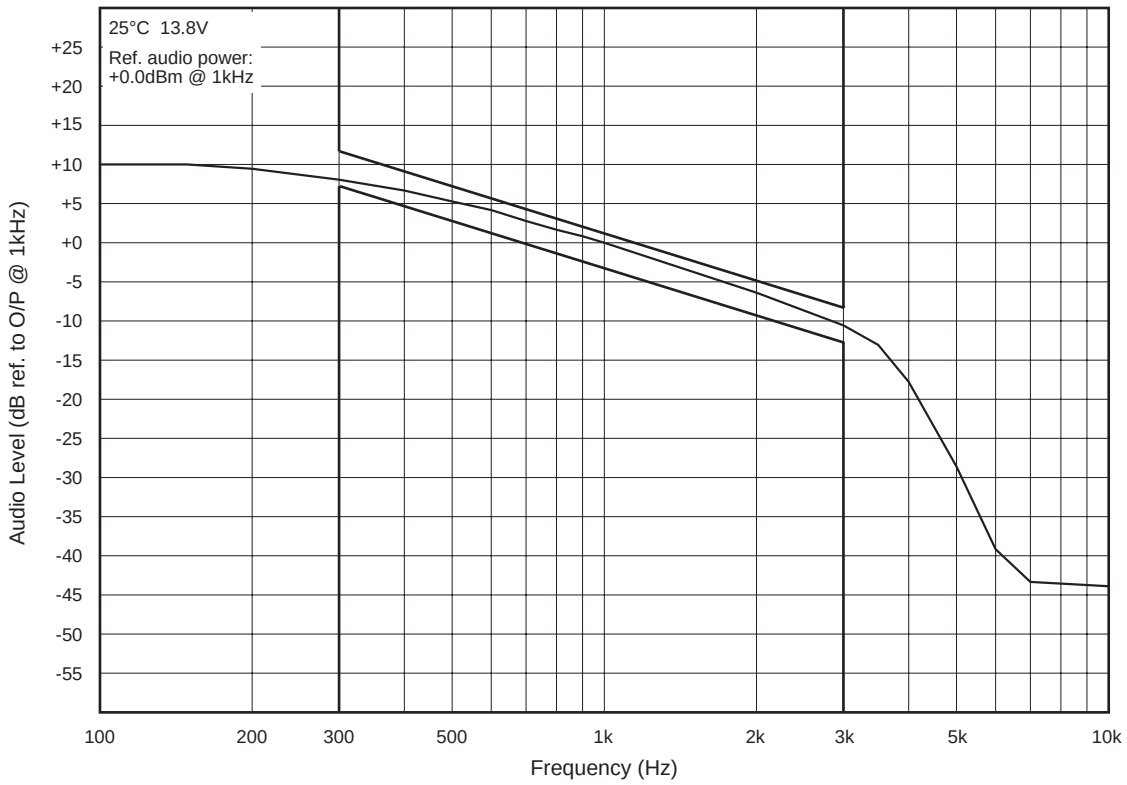

Figure 4.1 De-emphasised Audio Frequency Response

4.7 Noise Mute (If Linked In)

Rotate the front panel mute pot. (RV100) fully anticlockwise.

Apply an on-channel signal from the RF generator at a level of -110dBm with 3kHz deviation [1.5kHz] at 1kHz.

Increase the RF level in 1dB steps, checking that the mute opens for an RF input level of approximately -105dBm.

Turn the RF off and check that the mute closes.

Rotate the mute pot. clockwise and check that the mute opens.

Reset the mute pot. to give the required opening sinad.

4.8 RSSI

Apply an on-channel signal from the RF generator at a level of -100dBm with 3kHz deviation [1.5kHz] at 1kHz.

Using a high impedance DMM, check that the RSSI output voltage on pin 5 of the rear D-range connector is 4.5V (nominal).

Vary the RF level in 5dB steps and check that the RSSI output voltage changes at a rate of approximately 15dB/V over the range of -115dBm to -70dBm (refer to Figure 4.2 for RSSI voltage vs signal strength).

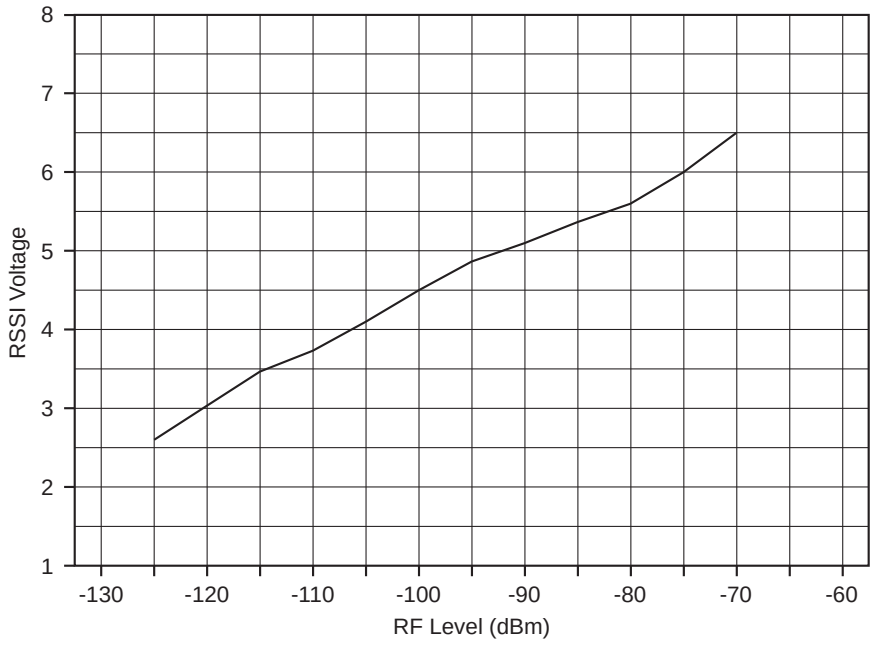

Figure 4.2 RSSI Voltage vs Signal Strength

4.9 Carrier Level Mute (Carrier Mute Linked In)

Apply an on-channel signal from the RF generator at a level of -120dBm with 3kHz deviation [1.5kHz] at 1kHz.

Increase the RF level in 2dB steps and check that the mute opens at an RF level which corresponds with the preset level on RV104 (i.e. between -115dBm and -70dBm).

