4 T836/837 Functional Testing

The following test procedures will confirm that the T836/837 has been tuned and adjusted correctly and is fully operational.

Refer to Figure 3.2 for the test equipment set-up.

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

The following topics are covered in this section.

4.1 Current Consumption

Connect the T836/837 to a 13.8V power supply.

Connect an RF power meter to the T836/837 output socket.

Check that the current in the 13.8V power cable is less than 120mA.

Key the T836/837 (the "Carrier On" LED should light).

T836 Only: Adjust &RV356 (power control) to obtain 25W output power.

Check that the current is as follows:

T836	<4.5A
T837	<600mA.

4.2 Output Power

Connect an RF power meter to the T836/837 output socket.

Key the T836/837.

Check that:

T836	the output power adjusts to >30W with &RV356 turned fully clockwise
T837	the output power is 800mW +200, -100mW.

4.3 Output Frequency

Connect the T836/837 output to a frequency counter via an attenuator pad:

T836	40dB pad
T837	20dB pad.

Measure the output frequency and, if necessary, adjust the TCXO (IC1) to trim to the nominal frequency (±100Hz).

4.4 Tail Timer

Adjust RV202 fully anticlockwise.

Connect the key line to earth, then disconnect, and check that the T836/837 remains on for at least 3 seconds.

Reset RV202 fully clockwise.

Connect the key line to earth, then disconnect, ensuring that the T836/837 turns off immediately the key line is broken.

Set RV202 for the required tail time.

4.5 Transmit Timer

Ensure that R257 is in circuit.

Adjust RV201 fully anticlockwise.

Earth the key line.

Check that the T836/837 turns off after approximately 1 minute.

Adjust RV201 fully clockwise.

Open and then earth the key line.

Check that the T836/837 turns off after approximately 3 minutes.

Set RV201 for the required transmit time.

4.6 Frequency Response

If the T836/837 has been correctly adjusted, the pre-emphasis and limiting responses should closely match those shown in Figure 4.1 and Figure 4.2 respectively.

Note 1: The limits shown on these graphs should not be exceeded.

Note 2: The curves are shown for wide band sets.

- Measure the pre-emphasis response as follows:

  Reduce the line level to give 1kHz [0.5kHz] deviation at 1kHz.

  Sweep the modulation frequency.

  The response should closely match that shown in Figure 4.1.

- Measure the limiting response as follows:

  Set the line level to give 3kHz [1.5kHz] deviation at 1kHz.

  Increase the line level 20dB and sweep the modulation frequency.

  The response should closely match that shown in Figure 4.2.

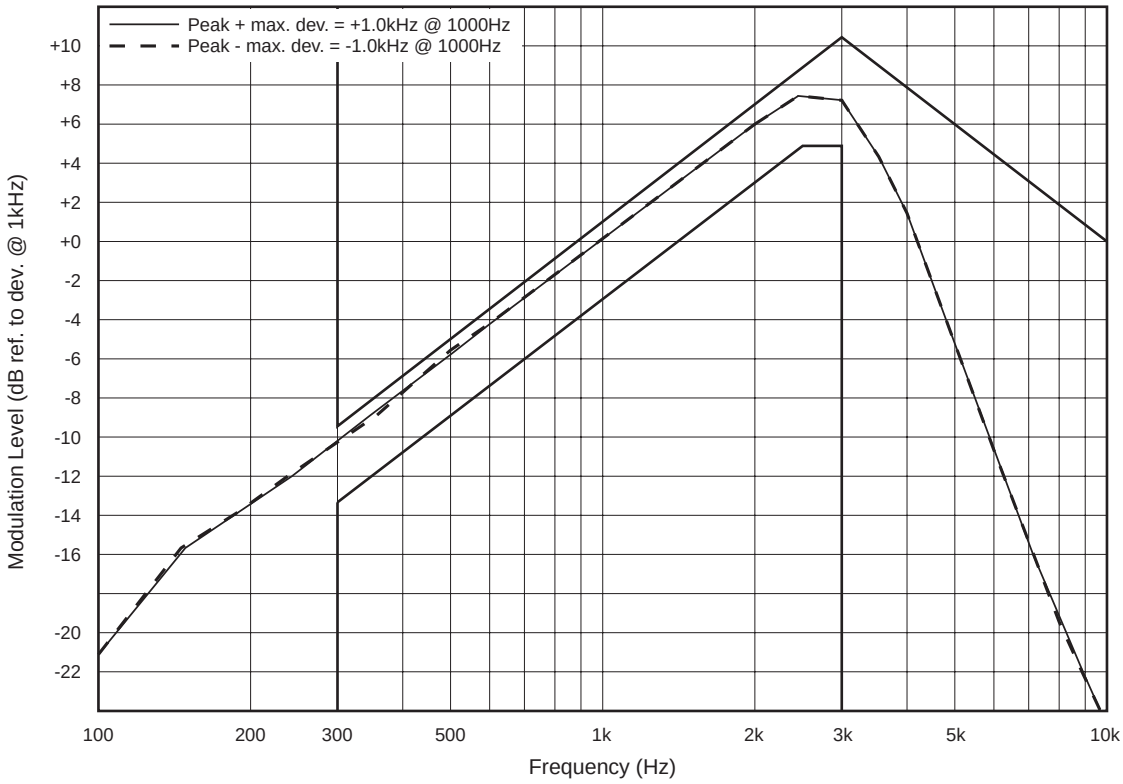

Figure 4.1 T836/837 Pre-emphasis Response

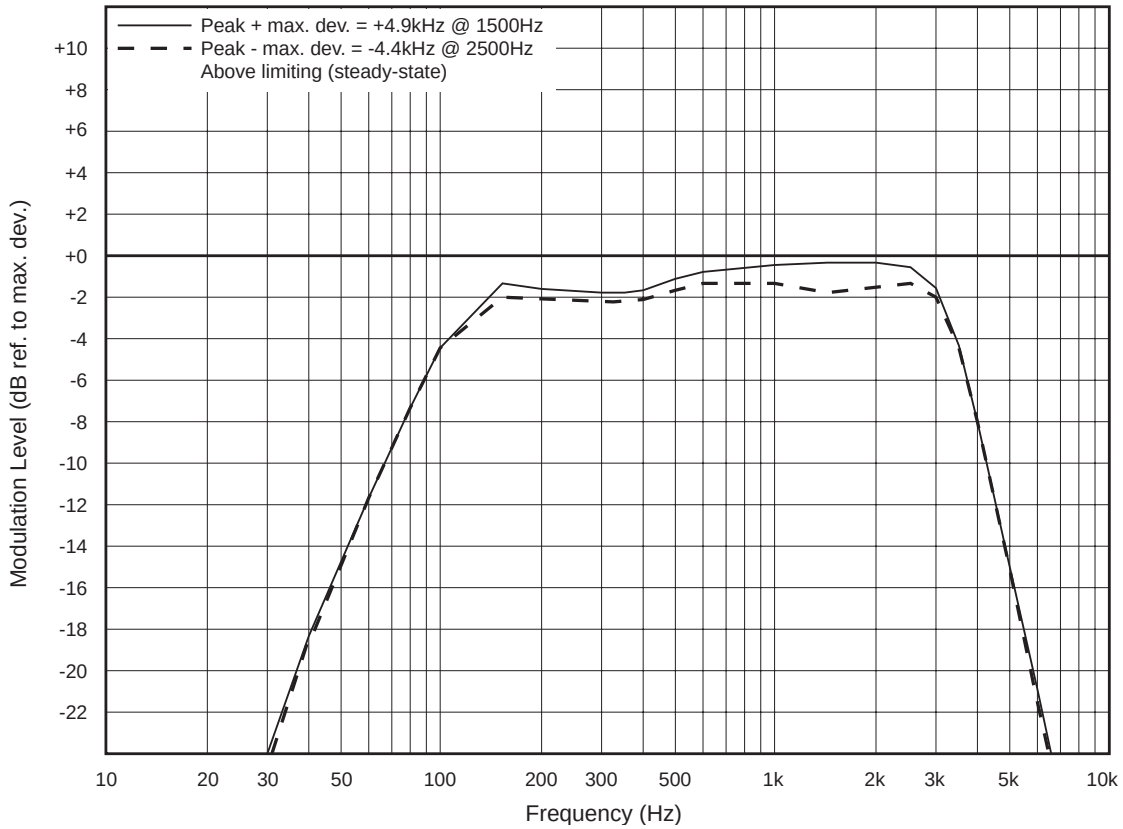

Figure 4.2 T836/837 Limiting Response

4.7 Audio Level Input Sensitivity

- Adjust RV100 (line sensitivity) fully clockwise.
- Check that the input sensitivities are better than those specified below:

Line Input	600 ohms, 3kHz [1.5kHz] deviation at 1kHz:	
	with compressor	-50dBm
	without compressor	-30dBm
Microphone Input	600 ohms, 3kHz [1.5kHz] deviation at 1kHz:	
	with compressor	-75dBm
	without compressor	-55dBm
CTCSS Input	1kHz deviation at 150Hz	500mV rms

Note: A degraded signal to noise ratio can be expected with the compressor selected. The extent of the degradation is dependent on the audio input level.