Fig 5-28 PSU Thermal Pad Position

(6)   Turn the radio over so that access is from the top.

(7)   Connect the module's two-wire power connector (Fig 5-24) and ribbon cable (Fig 5-25).

(8)   Connect the RF PA in-line power connector (Fig 5-20).

(9)   Replace the Interface module (page 5-26).

(10)   Refer to page 5-12 and refit the radio's top cover.

(11)   Reapply input power to the radio.

Replacing Faulty Cables

The BIT system monitors the status of interconnecting coaxial cables as listed in Table 5-6. Should a BIT indication show a cable fault, a replacement cable as listed in the table should be fitted.

Table 5-6 Monitored Coaxial Cables

Displayed Parameter	Provides Connection Between		Replacement Cable Part Number
	Module and Connector (CN)	Module and Connector (CN)	
Receive Cable	RF PA, CN6	RF Control, CN6	17T11700022
Linearisation Feedback cable **	RF PA, CN5	RF Control, CN2	17T11700021
Rx 90 MHz IF cable	Processor, CN5	RF Control, CN3	17T11700023
Tx 90 MHz IF cable	Processor, CN6	RF Control, CN4	17T11700019
Transmit Drive **	RF PA, CN4	RF Control, CN5	17T11700020
10 MHz Reference Input	Rear panel 10 MHz Input connector	RF Control, CN1	17T11700027
Guard Receiver cable	RF PA, CN7	Guard Receiver, CN6	17T11700026

Note:
    Cables listed in Table 5-6 showing a double asterix (**) are not fitted in the M7R receiver.

Data Loader Application

The Data Loader Application (DLA) is a Park Air software package, supplied on CD, that provides the ability to:

❑ Set up, or amend radio settings (configuration, waveform profiles, frequency presets, frequency bands and IP configuration) via a PC or laptop running Microsoft Windows.

❑ Save radio settings and use the saved file to download settings into other radios

❑ Download any module software into the radio after a module has been replaced

❑ Store the radio's build state.

Loading the Software

To use the DLA, identify the interconnecting cable (part number 17N12000021) and connect it from the radio's Microphone/Headset/Maintenance connector to the PC's USB port. Then:

❑ Insert the CD into your disk drive. The CD will autorun

❑ If the CD does not autorun, run the CD file: Setup.exe

❑ Follow the on screen instructions to install the software

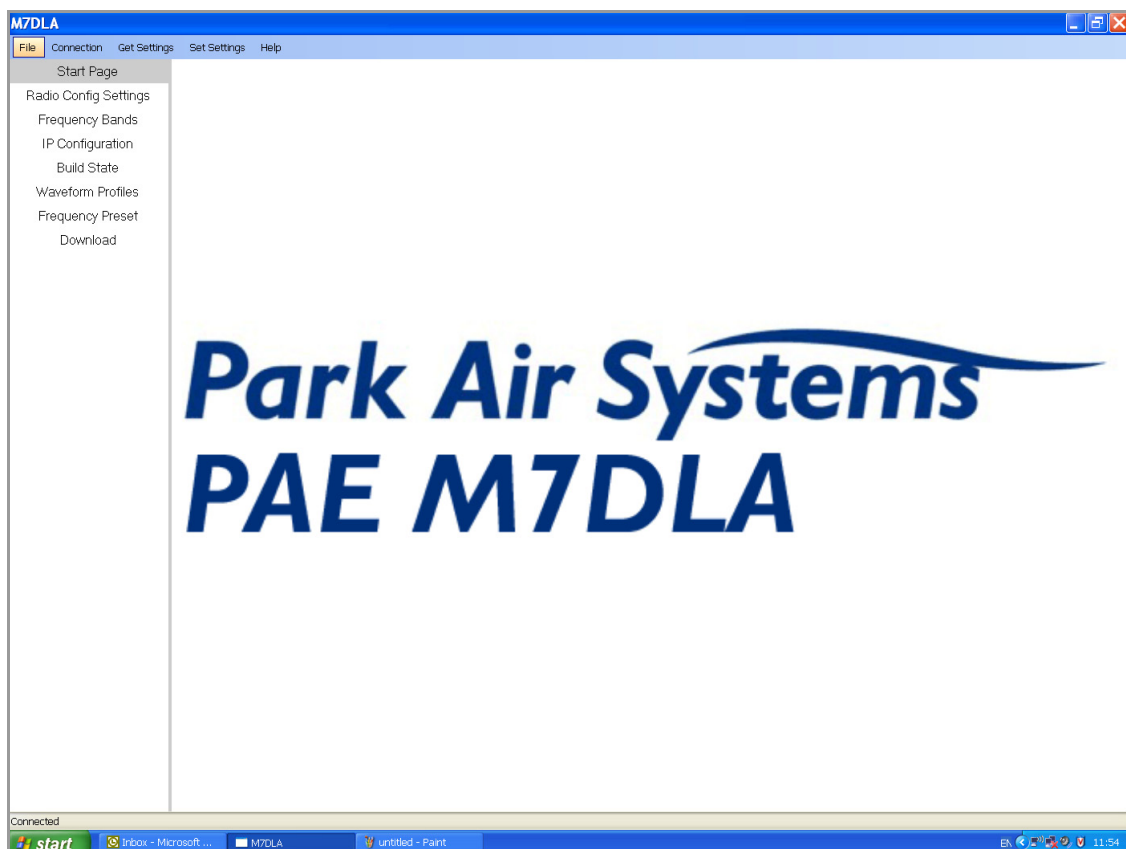❑ When the DLA is 'Run', the DLA Start Page (Fig 5-29) is displayed.

Fig 5-29 DLA Start Page

Radio Config Settings Page

The radio config settings page allows the configuration to be uploaded from a radio, or set and downloaded to a radio. The parameters are the same as those available from the radio's front panel; refer to Topic 3 – Operation.

To upload the Config settings from the radio, at the menu bar select: Get Settings and then Radio Config Settings. Fig 5-30 shows an empty page that is ready to be compiled. To manually make settings at the PC, select each field in turn and enter the required value. When complete, download into the radio by using the Set Settings drop-down menu (see below). If an invalid parameter is entered, a red exclamation mark (!) is returned when downloaded (because the example in Fig 5-30 is empty, all fields show the invalid symbol).
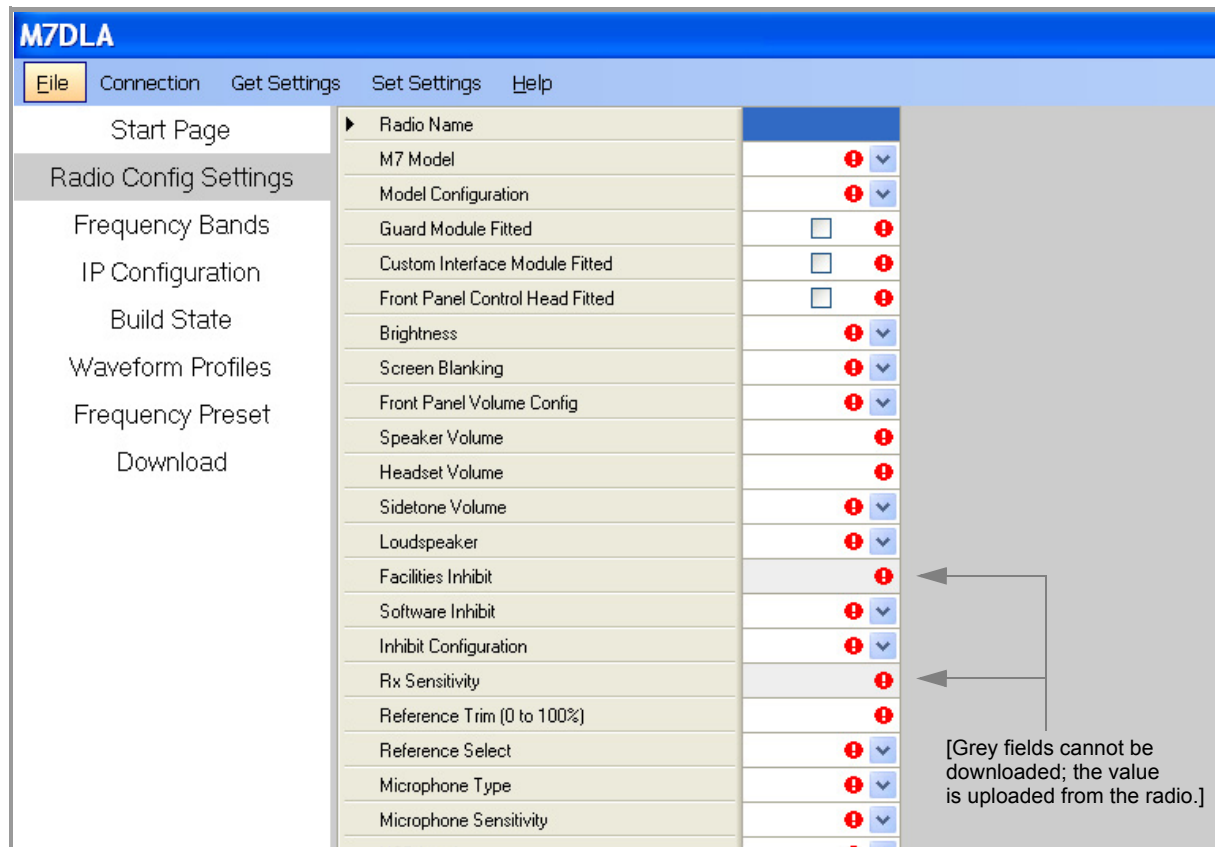

Fig 5-30 Radio Config Settings Page

Note:
>   To make the illustration easier to read, Fig 5-30 shows only part of the Radio Config Settings page.

Get Settings drop-down menu	Set Settings drop-down menu
All Settings	All Settings (excluding Build State)
Radio Config Settings	Radio Config Settings
Freq Bands	Freq Bands
IP Configuration	IP Configuration
Build State	Waveform Profiles
Waveform Profiles	Frequency Presets
Frequency Presets	Build States

Frequency Bands

The frequency bands page allows the radio's frequency range to be restricted. The parameters are the same as those available from the radio's front panel; refer to Topic 3 – Operation. Select the required fields in turn and enter the required value. Stop Bands (grey fields) cannot be set at the DLA, they are (if used) returned from the radio.

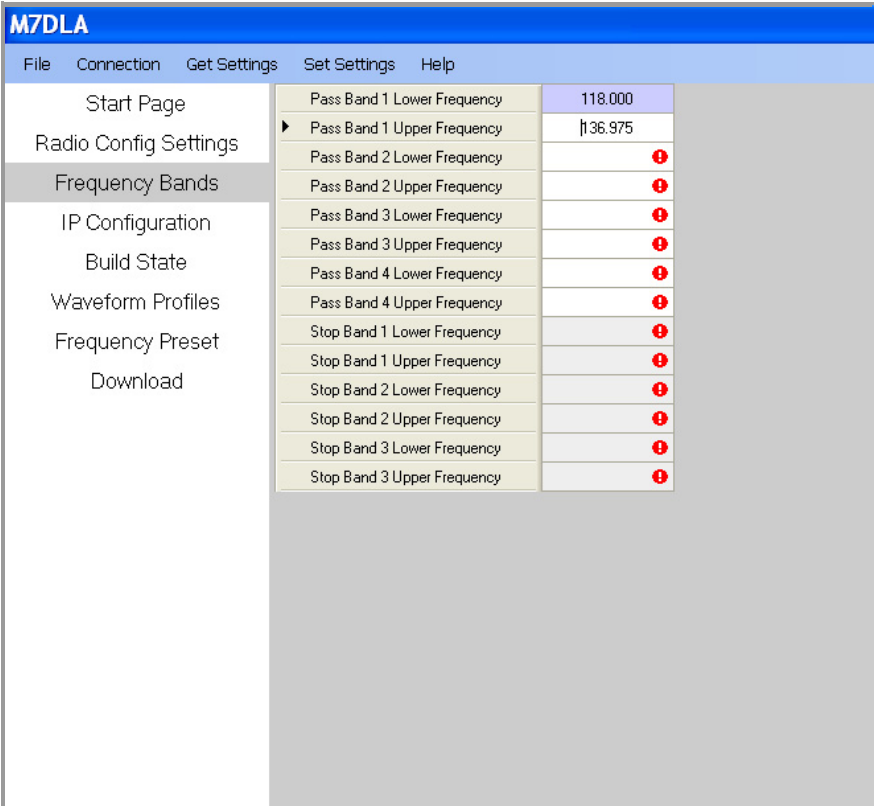When the page has been set, use Freq Bands from the Set Settings drop-down menu to download the settings into the radio.

M7DLA

File   Connection   Get Settings   Set Settings   Help

Start Page	Pass Band 1 Lower Frequency	118.000
Radio Config Settings	▶ Pass Band 1 Upper Frequency	136.975
Frequency Bands	Pass Band 2 Lower Frequency	❗
IP Configuration	Pass Band 2 Upper Frequency	❗
Build State	Pass Band 3 Lower Frequency	❗
Waveform Profiles	Pass Band 3 Upper Frequency	❗
Frequency Preset	Pass Band 4 Lower Frequency	❗
Download	Pass Band 4 Upper Frequency	❗
	Stop Band 1 Lower Frequency	❗
	Stop Band 1 Upper Frequency	❗
	Stop Band 2 Lower Frequency	❗
	Stop Band 2 Upper Frequency	❗
	Stop Band 3 Lower Frequency	❗
	Stop Band 3 Upper Frequency	❗

Fig 5-31 Frequency Bands Page

IP Configuration

The IP configuration page (Fig 5-32) allows the same settings as those available from the radio's front panel. To upload the IP Configuration settings from the radio, at the menu bar select: Get Settings and then IP Configuration.

To set or amend settings at the DLA, select each field in turn and enter the required value. When the page has been set, use IP Configuration from the Set Settings drop-down menu to download the settings into the radio.

If an invalid parameter is entered, a red exclamation mark (!) is returned when downloaded (because the example in Fig 5-32 is empty, all fields show the invalid symbol.
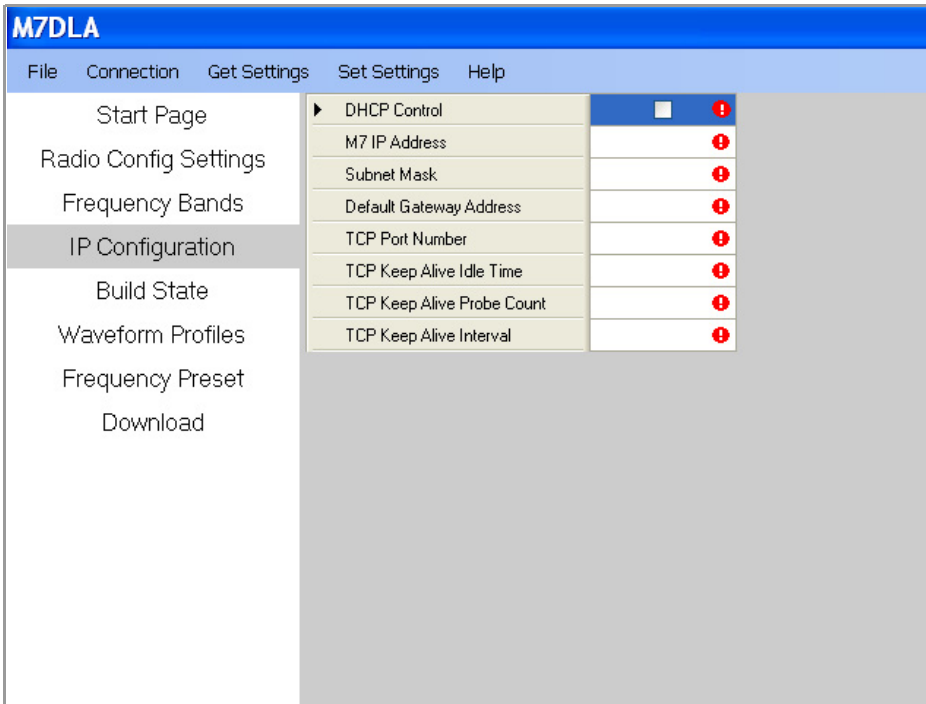
Fig 5-32 IP Configuration Page

Get Settings drop-down menu	Set Settings drop-down menu
All Settings	All Settings (excluding Build State)
Radio Config Settings	Radio Config Settings
Freq Bands	Freq Bands
IP Configuration	IP Configuration
Build State	Waveform Profiles
Waveform Profiles	Frequency Presets
Frequency Presets	Build States

Build State Page

The build state page (Fig 5-33) shows information including the part number and serial number of the connected radio and all modules fitted within the radio.

This information can be viewed only after 'All Settings' or 'Build State' has been activated from the 'Get Settings' drop-down menu (see below).

Only the Radio settings (the white fields in Fig 5-33) can be set. Information regarding the modules is uploaded from the radios.

Fig 5-33 Build State Page

Get Settings drop-down menu	Set Settings drop-down menu
All Settings	All Settings (excluding Build State)
Radio Config Settings	Radio Config Settings
Freq Bands	Freq Bands
IP Configuration	IP Configuration
Build State	Waveform Profiles
Waveform Profiles	Frequency Presets
Frequency Presets	Build States

Waveform Profiles Page

The waveform profiles page allows the 20 profiles to be uploaded from a radio using the Get Settings drop-down menu (see below), or set/amended and downloaded to a radio. The parameters that make up a waveform profile are the same as those available from the radio's front panel; refer to Topic 3 – Operation.

Fig 5-34 shows an example page. Any fields can be amended by selecting it and entering the required value. When complete, download into the radio by using the Set Settings drop-down menu (see below). If an invalid parameter is entered, a red exclamation mark (!) is returned when downloaded

M7DLA

File Connection Get Settings Set Settings Help

	1	2	3	4	5
Waveform Profile Number	1	2	3	4	5
Waveform Profile Name	TEST 001	TEST 002	TEST 003	TEST 004	TEST 005
Waveform ID	AM Voice	AM Wideband	FM Voice	FM Wideband	Maritime
RF Power Output (W)	10	50	100	100	100
Squelch Level (-110 to -60dBm)	-102	-102	-102	-102	-102
Audio AGC	☐		☐		☐
Squelch	☑	☑	☐	☐	☑
Transmit Timeout (secs)	Off	Off	Off	Off	Off
Mute	☑		☑		☑
RF Power Delay	☐	☐	☐	☐	☐
Automatic Level Control	☑		☑		☑
COMSEC Interface					
Offset Carrier	0				
Maritime Operation Mode					Ship
Maritime Operation Format					International
Scramble Vector					
MAC TM1 - Inter-access Delay					
MAC TM2 - Channel Busy					
MAC p - Persistance					
MAC M1 - Maximum number of access attempts					
TX Enable					
Loop Back					
Reed Solomon Decode					
Address Filtering					

Start Page
Radio Config Settings
Frequency Bands
IP Configuration
Build State
Waveform Profiles
Frequency Preset
Download

Fig 5-34 Waveform Profile Page

Note:

To make the illustration easier to read, Fig 5-34 shows only part of the Waveform Profile page.
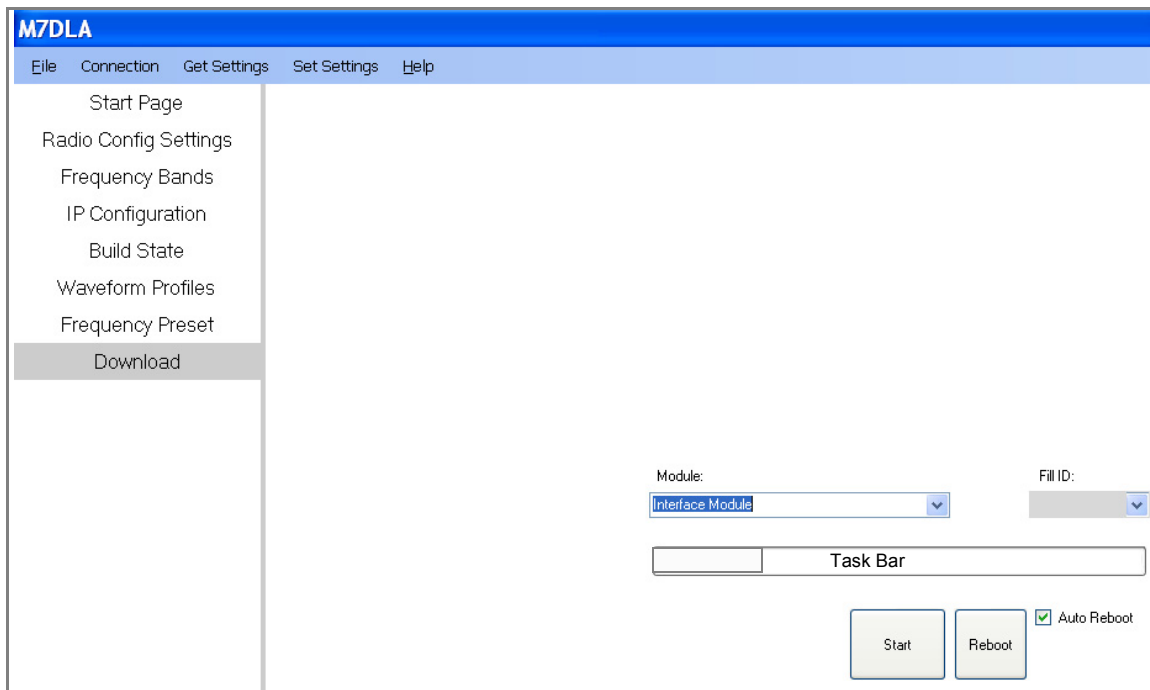
Get Settings drop-down menu	Set Settings drop-down menu
All Settings	All Settings (excluding Build State)
Radio Config Settings	Radio Config Settings
Freq Bands	Freq Bands
IP Configuration	IP Configuration
Build State	Waveform Profiles
Waveform Profiles	Frequency Presets
Frequency Presets	Build States

Frequency Preset Page

The frequency preset page allows the 400 profiles to be uploaded from a radio using the Get Settings drop-down menu (see below), or set/amended and downloaded to a radio. The parameters that make up a frequency preset are the same as those available from the radio's front panel; refer to Topic 3 – Operation.

Fig 5-35 shows an example page. Any fields can be amended by selecting it and entering the required value. When complete, download into the radio by using the Set Settings drop-down menu (see below). If an invalid parameter is entered, a red exclamation mark (!) is returned when downloaded

Fig 5-35 Frequency Presets Page

Note:
> To make the illustration easier to read, Fig 5-35 shows only part of the Frequency Presets page.

Get Settings drop-down menu	Set Settings drop-down menu
All Settings	All Settings (excluding Build State)
Radio Config Settings	Radio Config Settings
Freq Bands	Freq Bands
IP Configuration	IP Configuration
Build State	Waveform Profiles
Waveform Profiles	Frequency Presets
Frequency Presets	Build States

Download Page

The download page (Fig 5-36) is used to download software into the radio after a module has been changed, or when new version software has been received from Park Air.

To download software:

(1)   Place the Park Air software CD into the PC's drive.

(2)   From the drop-down module menu, select the required module.

(3)   If the processor module is being reloaded, select Fill ID 1, 2, 3 or 4. The correct fill ID is identified with the spare module. Note that this box is greyed out if Processor is not selected at the Module menu.

(4)   Select Start. The software is downloaded to the radio. Progress is indicated by the taskbar.

(5)   When the software is downloaded, it will automatically reboot and run if the Auto Reboot box displays a tick. If the Auto Reboot box is empty, select Reboot to manually reboot the software.

Fig 5-36   Download Page

Setting the Carrier Power Trim

Applicable only to M7X.

The carrier power trim procedure should be carried out after the RF PA, RF Control module or the Processor module has been replaced and the appropriate software has been loaded into the replacement module.

(1)   Switch off the radio and disconnect the transmit antenna.

(2)   Connect a power meter and associated dummy load to the transmit antenna connector. Note that the power meter should be capable of reading up to 100 W.

(3)   Switch on the radio and run the DLA software as detailed on page 5-39.

(4)   Select the DLA Radio Config Settings page.

(5)   Upload the Config settings from the radio by selecting, from the menu bar, Get Settings and then All Settings.

(6)   When the settings have been received from the radio, tune the radio to an AM-Voice frequency of 360 MHz.

(7)   At the Radio Config Settings page, select a value of 70% for the Carrier Power Trim (see Fig 5-37) and then press *Enter*. Note that the % value on screen is 'greyed out'.

(8)   From the menu bar select Set Settings and then Radio Config Settings. This sends the configuration settings to the radio; the % value on screen now turns white.

(9)   Key the transmitter (no modulation is required) and note the reading in the power meter. Dekey the transmitter.

(10)   Repeat steps (7) to (9) increasing the % value until the power meter reads 50 W.

(11)   Retune the radio to AM-Voice frequencies of 118 MHz, 250 MHz and 399 MHz checking that the indicated power as shown in the power meter is 50 W ±1 dB.

(12)   Switch off the radio and disconnect the power meter and associated dummy load.

(13)   Reconnect the antenna and restore the radio ready for operational use.

Get Settings drop-down menu	Set Settings drop-down menu
All Settings	All Settings (excluding Build State)
Radio Config Settings	Radio Config Settings
Freq Bands	Freq Bands
IP Configuration	IP Configuration
Build State	Waveform Profiles
Waveform Profiles	Frequency Presets
Frequency Presets	Build States

M7DLA - [M7 test profiles.xml *]

File   Connection   Get Settings   Set Settings   Help

Start Page	▶ Radio Name	M7
Radio Config Settings	M7 Model	M7X ▾
Frequency Bands	Model Configuration	Transceiver ▾
IP Configuration	Guard Module Fitted	☐
Build State	Custom Interface Module Fitted	☐
Waveform Profiles	Front Panel Control Head Fitted	☑
Frequency Preset	Brightness	Medium ▾
Download	Screen Blanking	On ▾
	Front Panel Volume Config	Speaker ▾
	Speaker Volume	20
	Headset Volume	0
	Sidetone Volume	High ▾
	Loudspeaker	On ▾
	Facilities Inhibit	Off
	Software Inhibit	Off ▾
	Inhibit Configuration	Inhibit Both ▾
	Rx Sensitivity	Standard
	Reference Trim (0 to 100%)	62
	Reference Select	Internal ▾
	Microphone Type	Passive ▾
	Microphone Sensitivity	Low ▾
	USB Interface	On ▾
	NB(B) Audio Config	Guard and ... ▾
	NB(A) Audio Config	Guard and ... ▾
	NB(A) Input Reference Voltage	+14 ▾
	NB(A) PTT Input Polarity	Standard ▾
	NB(A) PTT Output Polarity	n/o ▾
	NB(A) Squelch Output Polarity	n/o ▾
	NB(A) Line Input Level (-20 to +10 dBm)	-13
	NB(A) Line Output Level (-20 to +10 dBm)	-13
	NB(B) Line Input Level (-20 to +10 dBm)	-13
	NB(B) Line Output Level (-20 to +10 dBm)	-13
	WB(A) Line Input Level (-10 to +10 dBm)	0
	WB(A) Line Output Level (-10 to +10 dBm)	0
	WB(B) Line Input Level (-10 to +10 dBm)	0
	WB(B) Line Output level (-10 to +10 dBm)	0
	Carrier Power Trim (70 to 140%)	95

Carrier Power Trim

Fig 5-37 Carrier Power Trim Adjustment