

# TDFM-9100 SOFTWARE UPGRADE PROCEDURE

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## **INTRODUCTION:**

From time to time it may be necessary to update the operational software for the TDFM-9100 radios. This document describes the procedure to load new software in to the TDFM-9100. There two pieces of SW that need to be loaded when upgrading. All TDFM-9100s are field upgradeable and only require a PC, programming cable and terminal software to load the FW.

There are two variants of the TDFM-9100, the original with one or two RF modules and the MCP (MOD 14) which can support external transceivers. The procedures for upgrading the TIL SW is the same for both, except there are a few more items to adjust for MCP units to return the radios to service.

This document is broken down into three sections:

SECTION 1: DRIVER INSTALLATION & TERMINAL SET UP

SECTION 2: BOOTLOAD INITIALIZATION

SECTION 3: TDFM-9100 RADIO SW UPDATE PROCEDURE

## **EQUIPMENT REQUIRED:**

- 1) PC with Windows XP, Windows 7, or Windows 10.
- 2) PC-9000 programming cable 127499
- 3) Terminal program such as Tera Term V 4.75 or higher.
- 4) 28 V power supply.
- 5) TIL Upgrade SW.

## SECTION 1- DRIVER INSTALLATION & TERMINAL SET UP

### SETTING UP THE USB TO SERIAL DRIVER ON THE PC:

The TDFM-9100 radios have a built in USB to serial adaptor. When the radio is connected to a PC in Bootload Mode, it will create a Virtual Serial Port. The virtual serial port may require a driver to be installed in some Windows operating systems. The driver can be downloaded here:

<http://www.ftdichip.com/Drivers/VCP.htm>

Load the latest version for Windows Desktop: 2.12.36.4 WHQL Certified or newer.

Run the driver installer.

Determining the serial port:

- 1) Power up the radio and invoke the bootloader mode by holding the 7, 2, 3 & 0 keys and pushing the knob. Hold the keys until the Bootloader screen comes up on the display.
- 2) Connect the programming cable PC-9000 to the radio and a USB port on the computer.
- 3) The PC will detect new hardware and finish installing the USB to serial driver.
- 4) Navigate the PC to the Device manager. Open my computer in explorer. Then right click and select Properties.

#### ***Determining the Com Port for Windows XP:***

On windows XP, Open my computer in explorer. Then right click and select Properties.

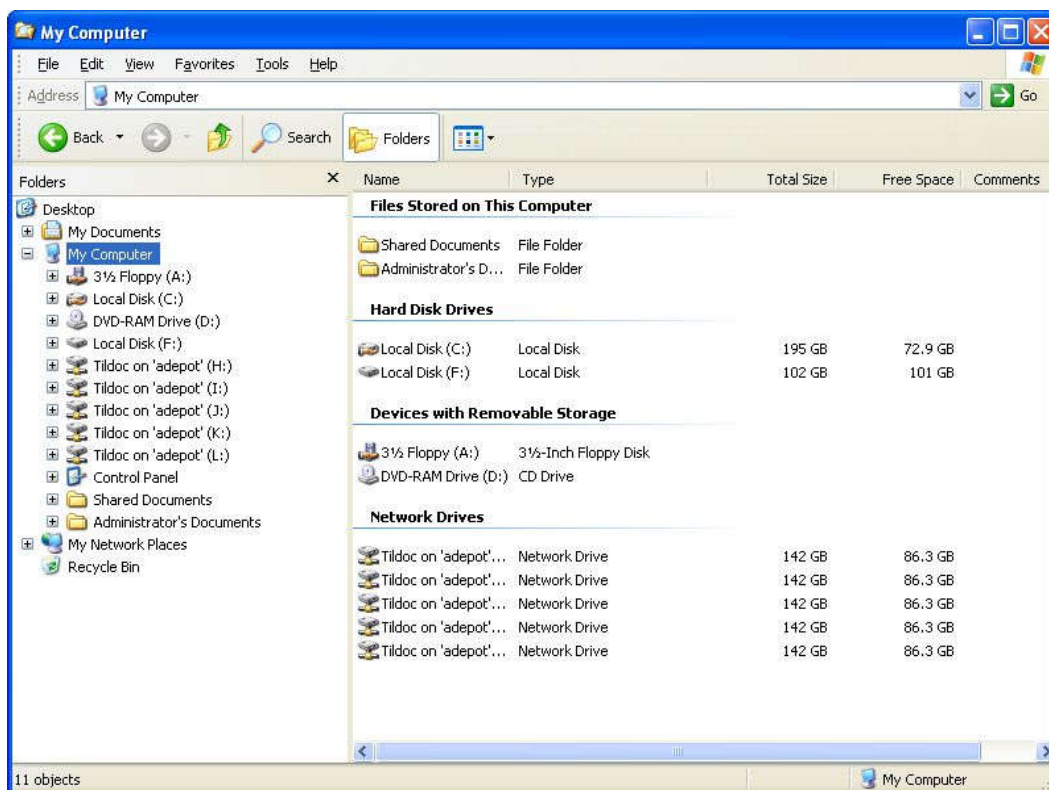


FIGURE 1: My Computer in Explorer (Win XP)

Click on the Hardware Tab:

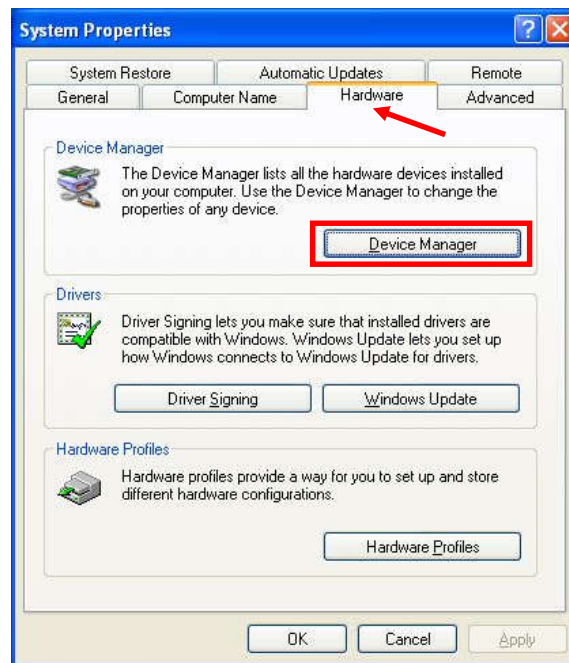


FIGURE 2: System Properties Tile (Win XP)

Then select Device Manager, and click on the “Ports (COM & LPT)”. There should be a USB to serial port listed. Mark it down, as it is needed for the next step.

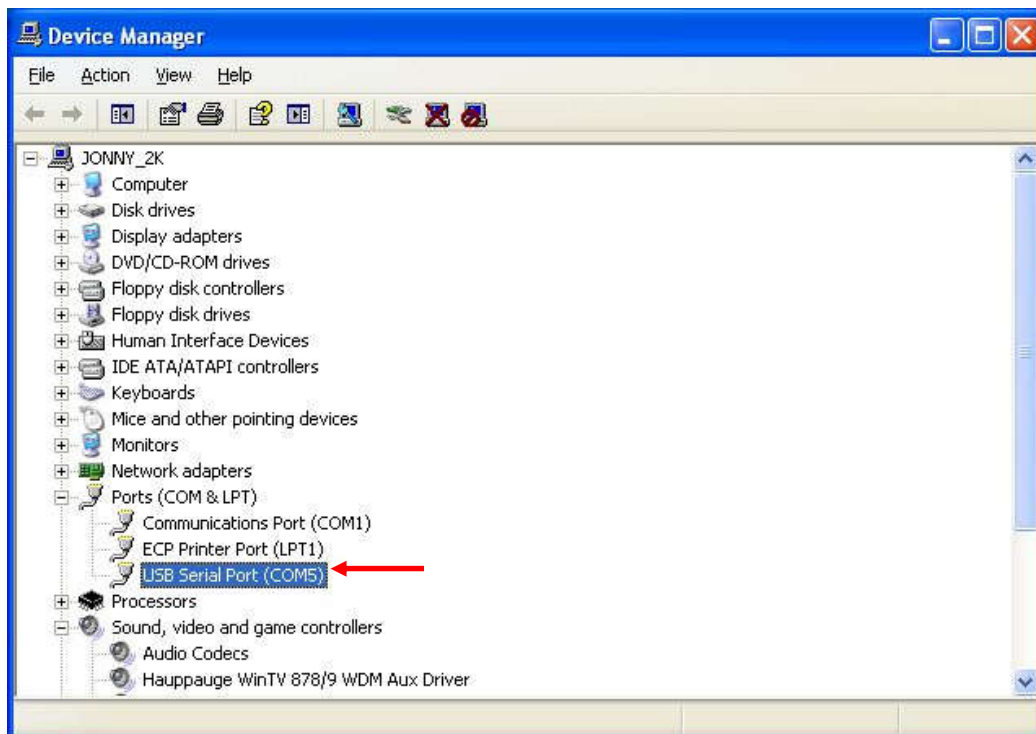


FIGURE 3: USB to Serial Port “COM 5” listed in device Manager (Win XP)

### ***Determining the Com Port for Windows 7:***

On Win 7, click on the Start Button, select Control Panel. Then Select "Hardware and Sound". Under Devices and Printers, click on Device Manager.

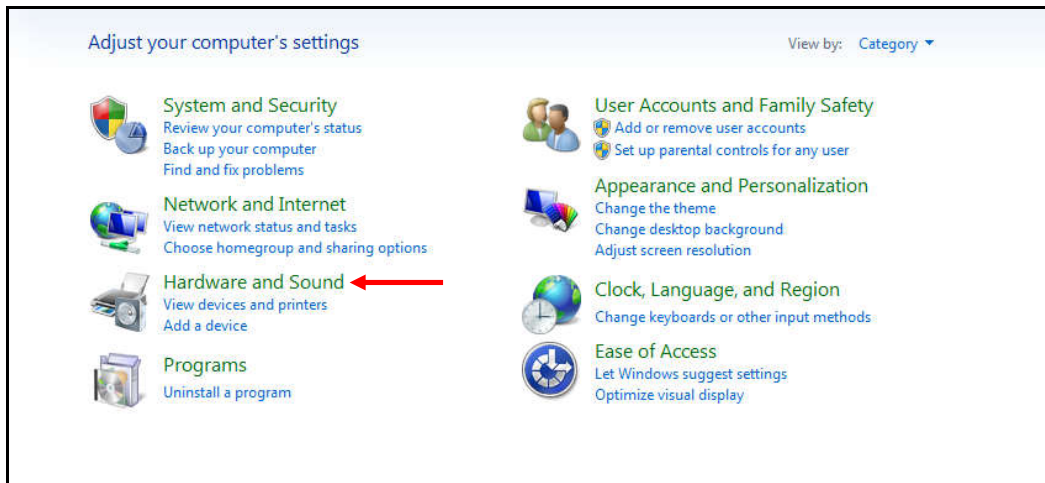


FIGURE 4: Control Panel (Win 7)

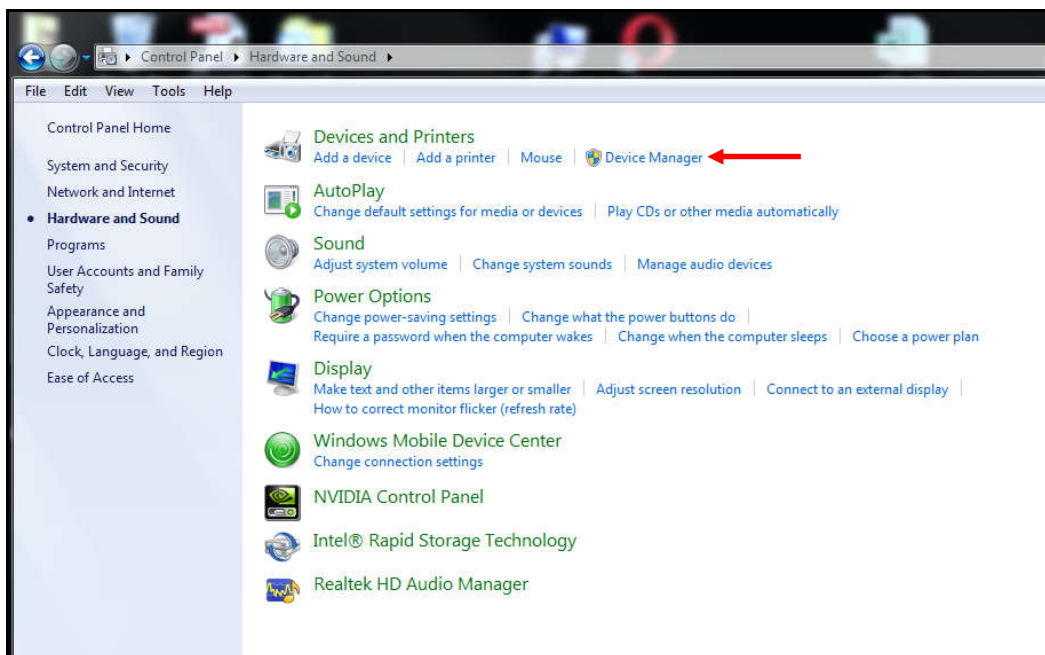


FIGURE 5: Hardware and Sound Screen (Win 7)

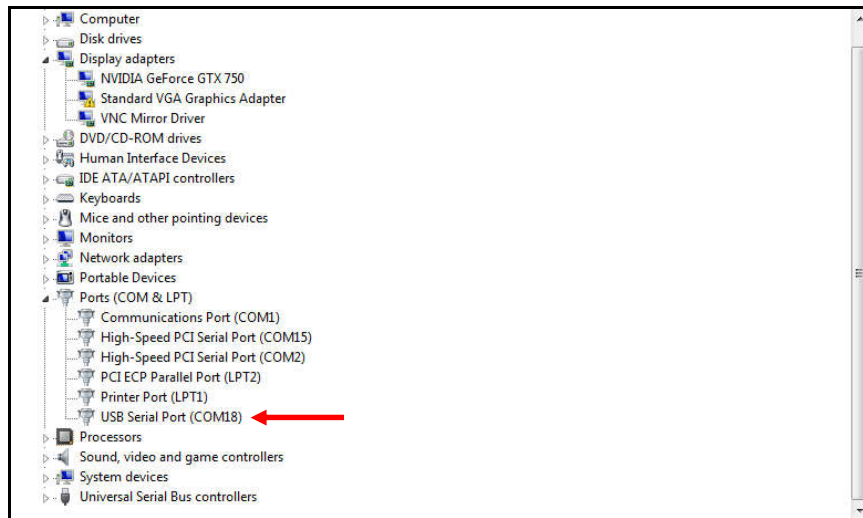


FIGURE 6: Device Manager Screen (Win 7).

In Device Manager, click on Ports (COM & LPT). Look for a USB Serial Port. Mark it down. This will be the Virtual Serial Port the radio will use with the Terminal program.

#### ***Determining the Com Port for Windows 10:***

On Win 10, click on the Start Button, type in the box below “Device Manager”. The Device Manager Button should come up on the upper left hand filter results.

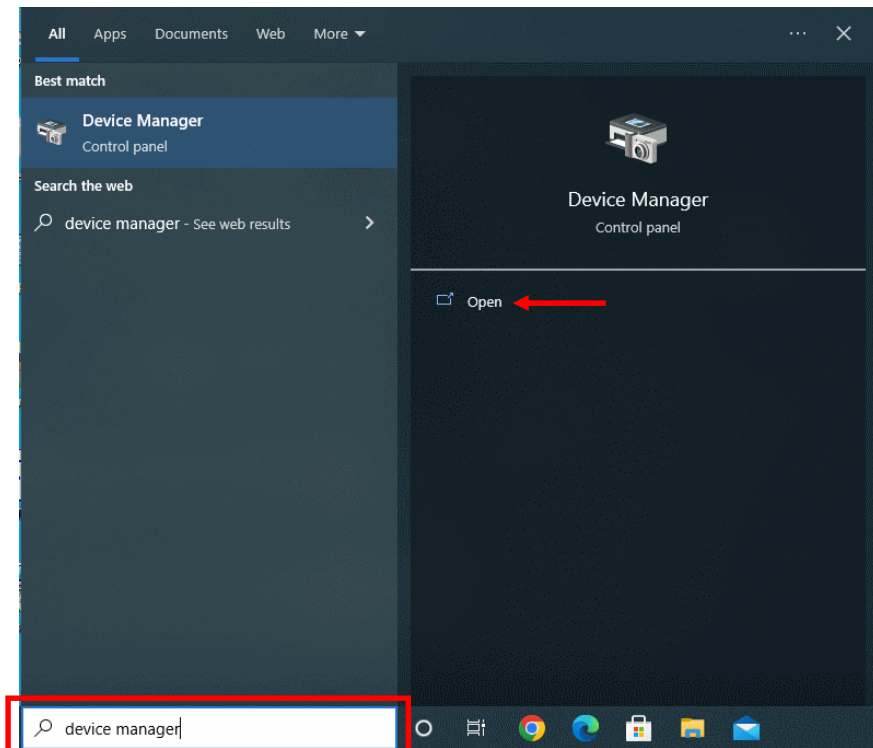


FIGURE 7: Locating the Device Manager (Win 10)

Click on the Device Manager in the filter window. It will take you to the Device manager screen.

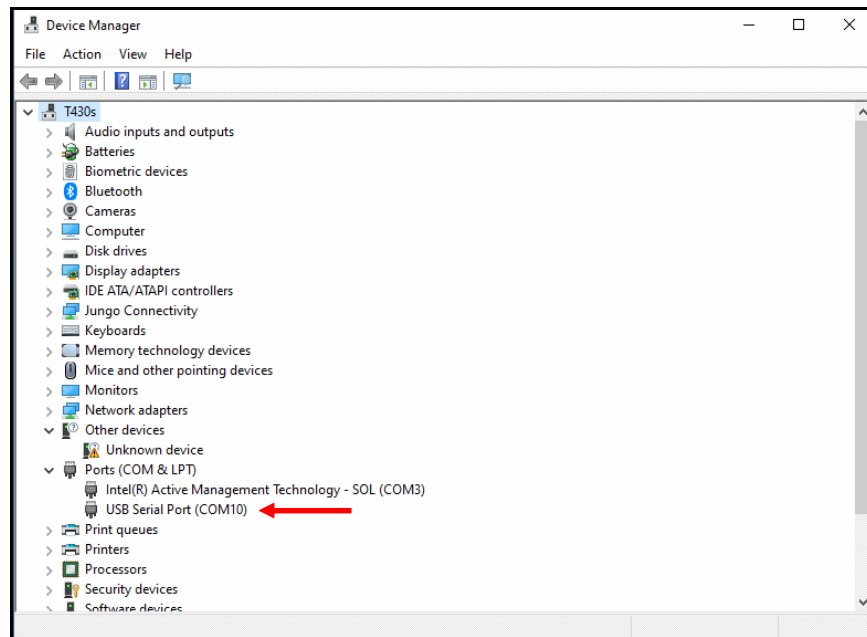


FIGURE 8: The Device Manager Screen (Win 10)

In Device Manager, click on Ports (COM & LPT). Look for a USB Serial Port. Mark it down.

This will be the Virtual Serial Port the radio will use with the Terminal program.

## INSTALLING TERA TERM:

**NOTE:** Bootloading the TDFM-9100 series radios requires a terminal program with Y-modem. Technisonic recommends using Tera Term V4.75 to V4.79. Newer versions have issues with the Y-modem and will not load the SW properly. You may choose to use another Terminal program that supports the Y-modem function.

You can download free version of Tera Term V4.75 here:

<http://en.sourceforge.jp/projects/ttssh2/downloads/56762/teraterm-4.75.exe/>

Install the terminal program. The first time you run Tera Term a new connection box will pop up.

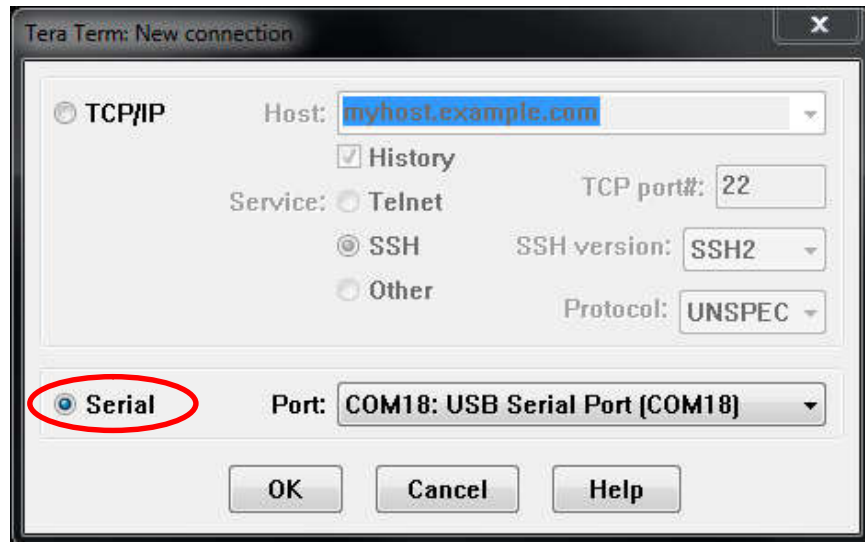


FIGURE 9: New Connection Window

Select "Serial" and in the pull down box, select the USB to Serial port as determined in the previous section. Click on OK. The Main window will be displayed.

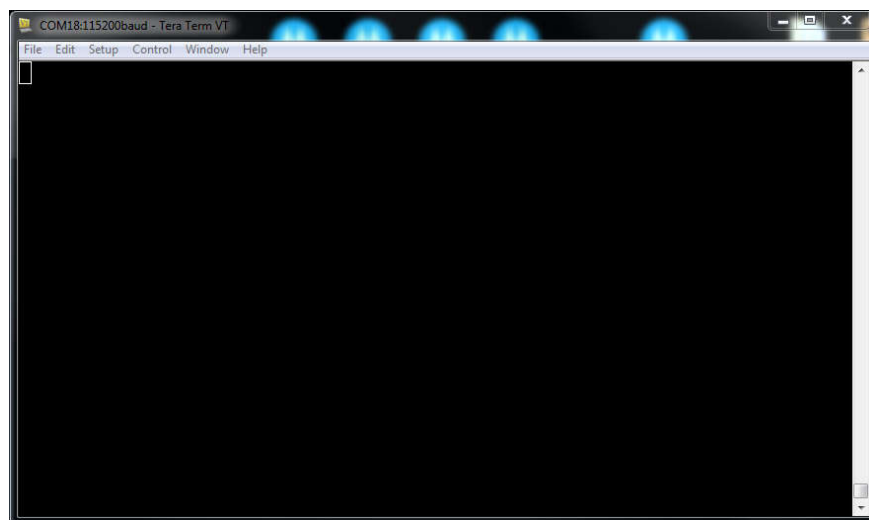


FIGURE 10: Main Tera Term Screen



Select SETUP> SERIAL PORT from the top menus. Select the serial port as determined above, and set the Baud Rate and other parameters as shown below:

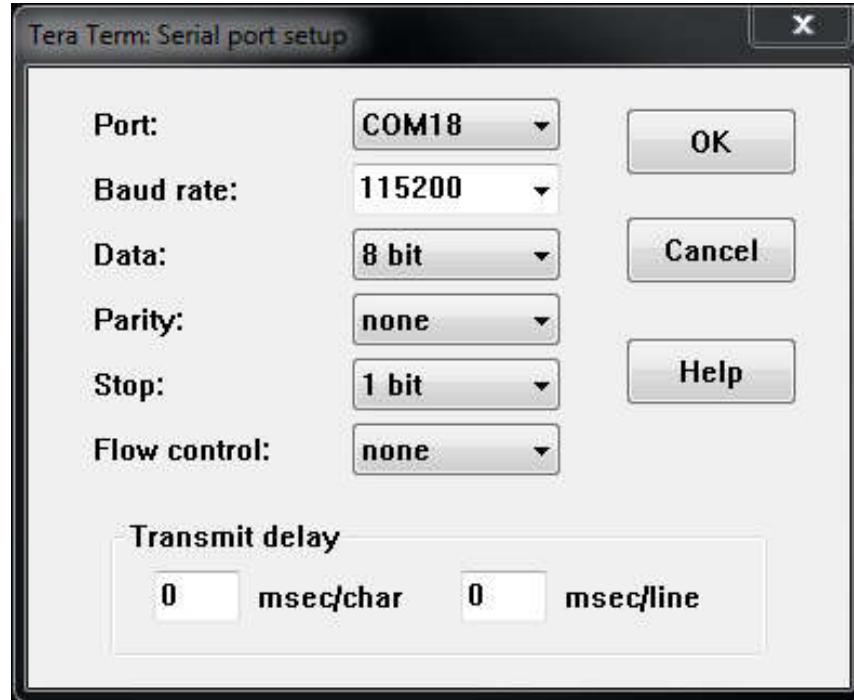


FIGURE 11: Port Setup

Click ok. Select SETUP>SAVE SETUP. Save the "TERATERM.INI" file. Then close Tera Term. The next time Tera term is started it will open with these settings.

**NOTE: The serial port only exists as long as the TDFM radio is connected to the PC and is in the Bootload Mode. Tera Term will not find the serial port if the radio is not already connected and in the Bootload Mode.**

## SECTION 2: BOOTLOAD INITIALIZATION

**NOTE:** These procedures will reset the Configuration Menu settings and Maintenance Menu settings to factory defaults for the target radio. It is highly recommended that all the custom settings in the Configuration Menu and Maintenance Menus be recorded prior to this upgrade procedure. After the upgrades are complete, the settings should be restored to the previous settings before putting the radio back into service.

### RECORDING THE RADIO SETUPS:

To access the Configuration Menu, Press the FUNC key and rotate the knob to highlight the CONFIGURE Menu. Press the Knob to select. Record the Knob Volume setting. Press the knob to advance to the next setting. Record all the configuration settings, stepping through by pressing the knob. After the final setting: Sidetone, press the knob one more time to return to the main screen.

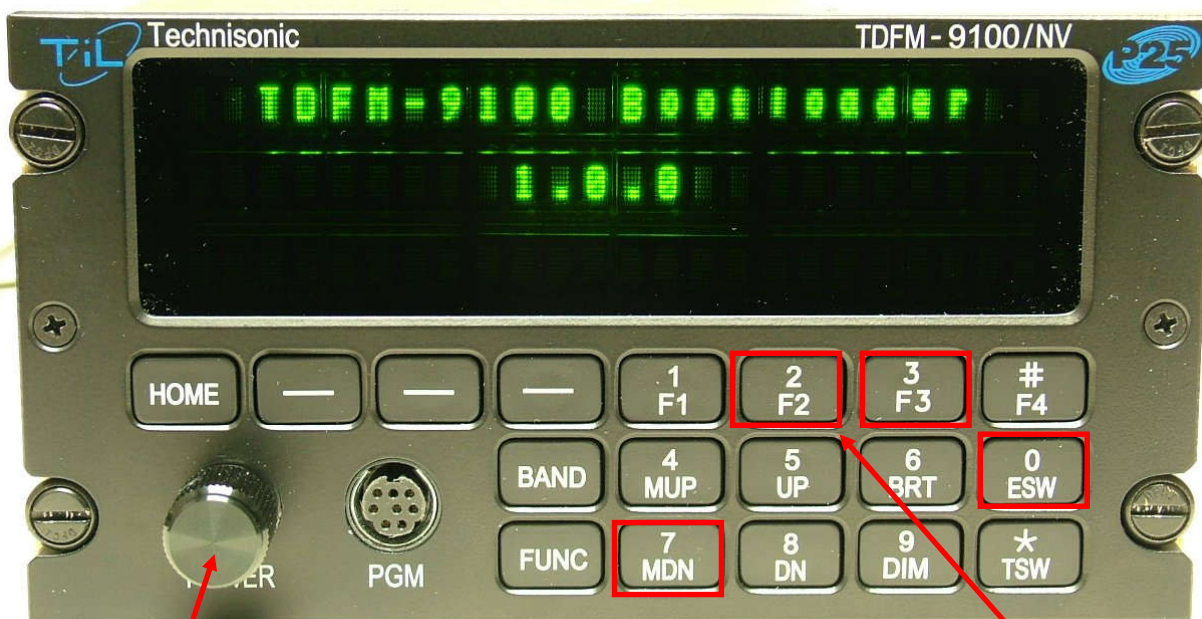
To access the Maintenance Menu, Press the FUNC key and rotate the knob to highlight the Maintenance Menu. Press the knob to enter. Enter password 1-5-9-3-5-7.

Record the MOD 7 setting and press the knob to step through the next menu item. Record each Menu item setting, including the Mic and RX audio settings. Press the knob to advance through the next items. Once the last item is reached - Initialize BT? Press the HOME soft key to return to the Main display screen.

### PUTTING THE RADIO INTO BOOTLOAD MODE:

To update the software in the TDFM-9100 the unit must be put into Bootload Mode.

To put the radio in to Bootload Mode, press and hold down the 7, 2, 3 & 0 keys together while pressing the knob. Hold all keys until the "Bootloader" screen comes up.



PUSH KNOB TO  
POWER UP

FIGURE 12: Invoking the Bootloader Mode

HOLD KEYS TO  
ENTER  
BOOTLOAD  
MODE



FIGURE13: The Bootloader Screen

#### **CONNECTING THE RADIO TO THE PC:**

Connect the radio to the PC with the PC-9000 programming cable (P/N 127499).

Plug the - 8 pin mini din connector into the front of the TDFM-9100 and the other end into a USB port on the PC. Wait for the USB cable to enumerate. See Figure 14 below:

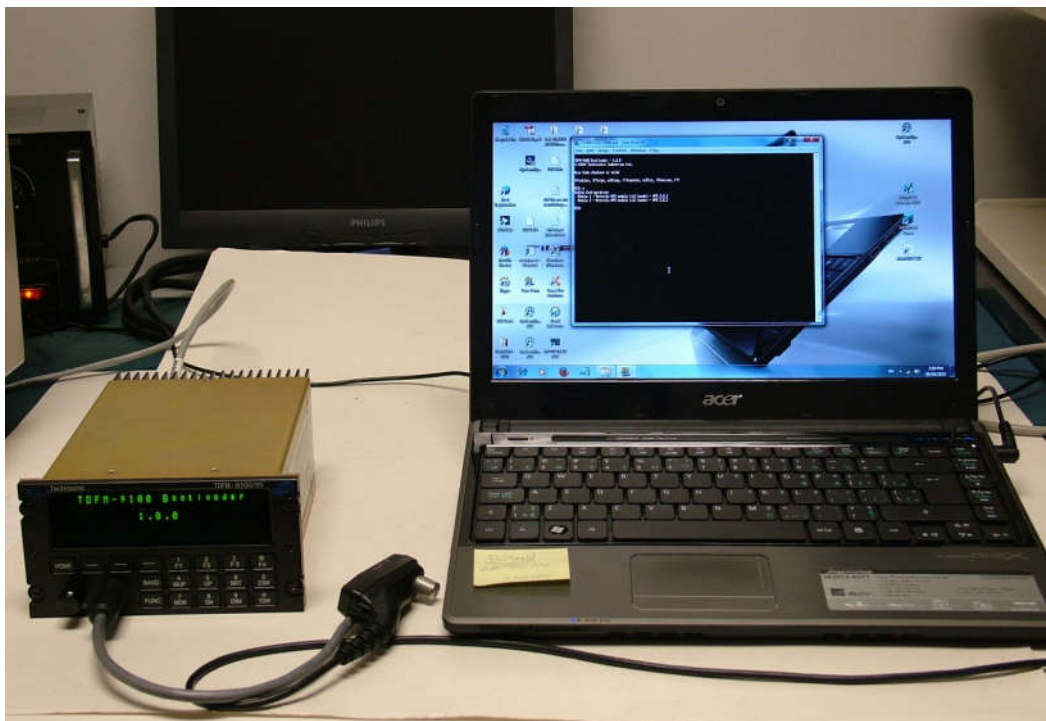
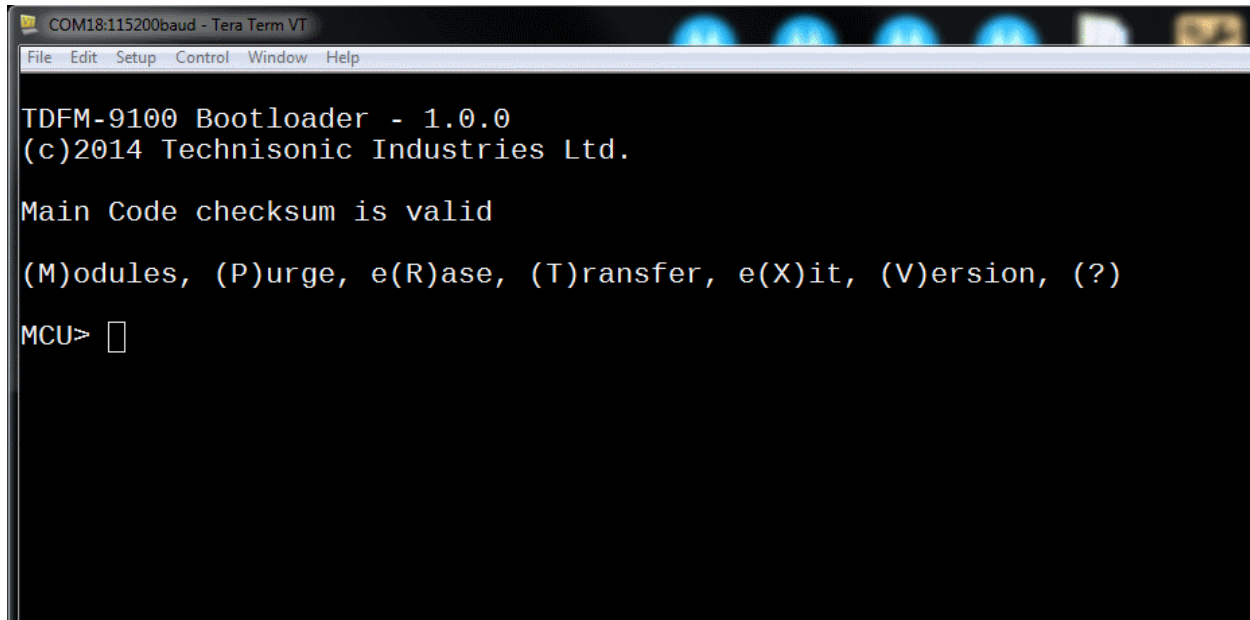


FIGURE 14: Typical Hook Up To PC

Start Tera Term with the radio connected to the PC. The terminal program should recognize the radio serial port. If it doesn't, set the serial port as determined above from the computer's Device Manager. Press <ENTER> on the terminal screen to confirm connection and to bring up the Bootloader Menu.



```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

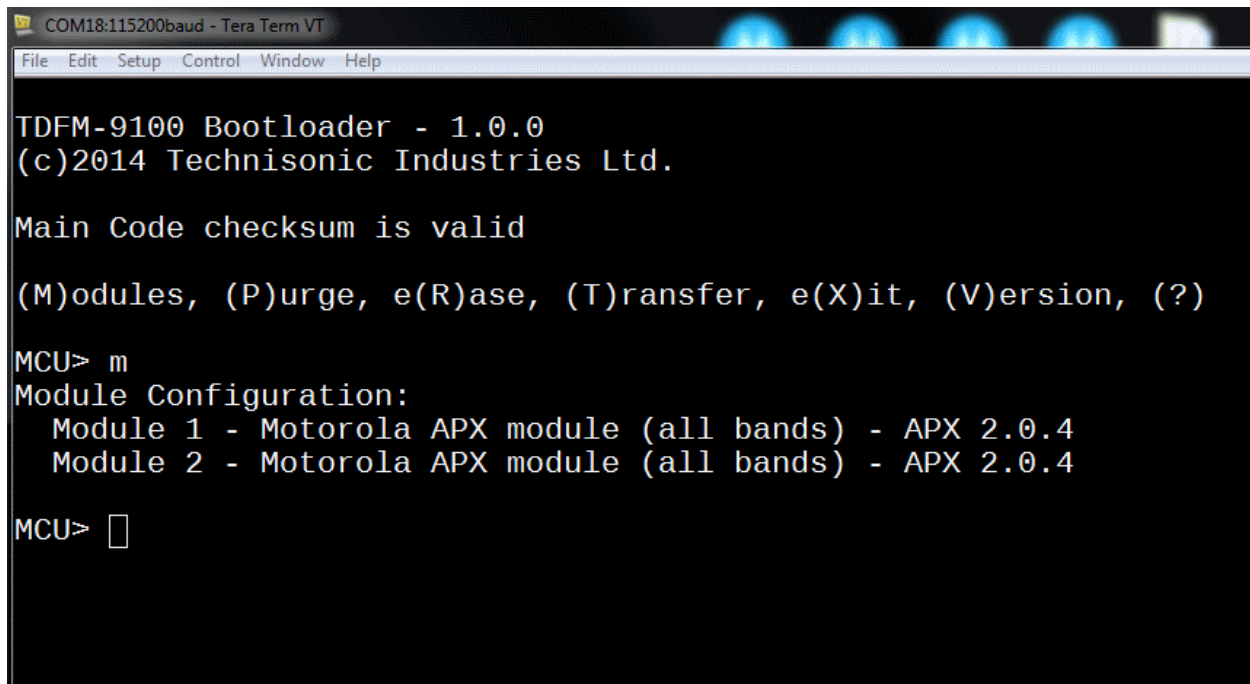
Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

MCU> 
```

FIGURE 15: Bootloader Menu

Type "m" and <ENTER> to display the current software versions installed in the TDFM-9100.



```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> 
```

FIGURE 16: Interface Software Installed In the Radio



## SECTION 3: TDFM-9100 RADIO SW UPDATE PROCEDURE

This section describes the SW update procedure for the TDFM-9100 radios only.

**NOTE: This procedure will reset the Configuration Menu settings and Maintenance Menu settings to factory defaults for the target radio. It is highly recommended that all the custom settings in the Configuration Menu and Maintenance Menus be recorded prior to this upgrade procedure. After the upgrade is complete, the settings should be restored to the previous settings before putting the radio back into service.**

TDFM-9100 radios only require two pieces of SW to be loaded. The Main software and the APX Module JM60 Interface software. The normal practice is to update the JM 60 Interface software first, purge the Main memory and then update Main software.

### **OBTAINING THE LATEST SOFTWARE:**

Technisonic is always improving the products. Software may be revised from time to time. Use the latest SW Version available. Visit the Technisonic website <https://til.ca/tdfm9100software/> to obtain the latest SW packages.

Table 1 below shows a list of all the software files that would be used for the TDFM-9100 radios. All files have a file name convention of: (Software P/N.S19); Eg: 13S173E.S19 would be a file for the Main software.

TDFM-9100 SOFTWARE		
SOFTWARE	PART NUMBER	FILE NAME
TDFM-9100 MAIN SW	13S173	13S173xx_9100_MAIN_Vy.y.y.s19
APX INTERFACE (JM60)	15S189	15S189xx_9100_JM60_APX_Vy_y_y.s19

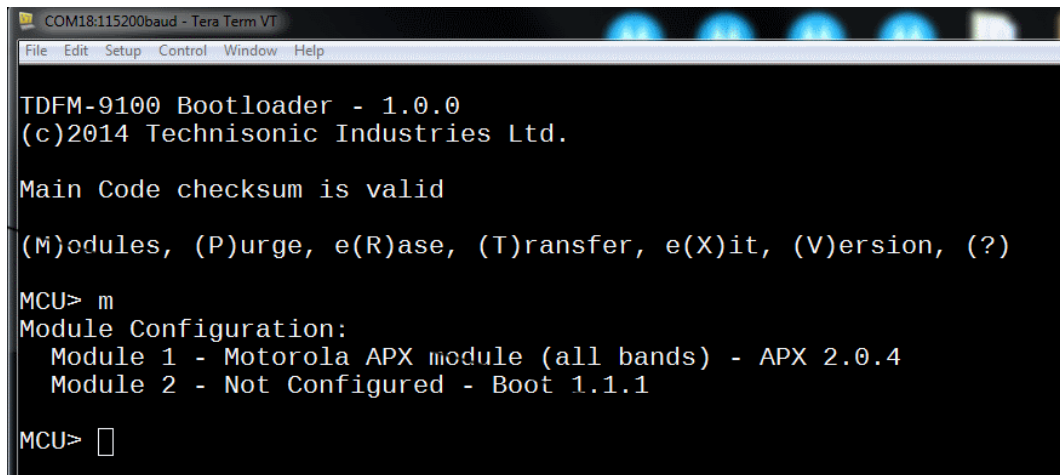
TABLE 1

NOTE: \* x is the revision of the SW and yyy is the Version Number displayed of the SW.

## **TDFM-9100 SINGLE MODULE SW UPDATE**

Power up the radio and put it into Bootload Mode. Establish connection to the terminal program as described in Section 2.

Type m <ENTER> at the prompt on the terminal. This will show the Bootloader Table configuration for the radio and shows the current version of the module Interface SW.

A screenshot of a terminal window titled 'COM18:115200baud - Tera Term VT'. The window shows the TDFM-9100 Bootloader interface. The text displayed is: 'TDFM-9100 Bootloader - 1.0.0', '(c)2014 Technisonic Industries Ltd.', 'Main Code checksum is valid', and a menu '(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)'. The user has entered 'm' at the 'MCU>' prompt, resulting in the 'Module Configuration:' screen. It shows 'Module 1 - Motorola APX module (all bands) - APX 2.0.4' and 'Module 2 - Not Configured - Boot 1.1.1'. The prompt 'MCU>' is followed by a cursor box.

```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

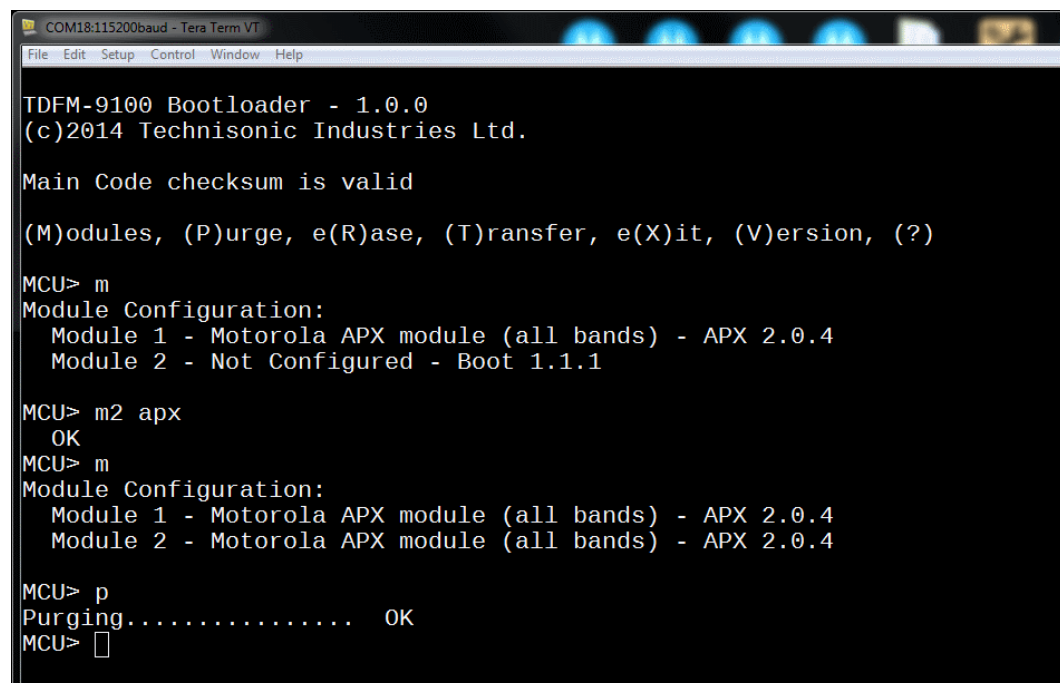
MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Not Configured - Boot 1.1.1

MCU> 
```

FIGURE 17: Bootloader Menu showing one JM 60 enabled.

To upgrade the Interface SW, it is necessary to update both JM 60s to the same version. If upgrading a single module TDFM-9100 the second JM 60 must be enabled in the Bootloader Table. Type the following command to enable the second JM 60:

M2 apx<ENTER>

A screenshot of a terminal window titled 'COM18:115200baud - Tera Term VT'. The window shows the TDFM-9100 Bootloader interface. The text displayed is: 'TDFM-9100 Bootloader - 1.0.0', '(c)2014 Technisonic Industries Ltd.', 'Main Code checksum is valid', and a menu '(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)'. The user has entered 'm' at the 'MCU>' prompt, resulting in the 'Module Configuration:' screen. It shows 'Module 1 - Motorola APX module (all bands) - APX 2.0.4' and 'Module 2 - Not Configured - Boot 1.1.1'. The user then enters 'm2 apx' at the 'MCU>' prompt, resulting in 'OK'. The user enters 'm' again, resulting in the 'Module Configuration:' screen. It now shows 'Module 1 - Motorola APX module (all bands) - APX 2.0.4' and 'Module 2 - Motorola APX module (all bands) - APX 2.0.4'. The user enters 'p' at the 'MCU>' prompt, resulting in 'Purging..... OK'. The prompt 'MCU>' is followed by a cursor box.

```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Not Configured - Boot 1.1.1

MCU> m2 apx
      OK
MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> p
Purging..... OK
MCU> 
```

FIGURE 18: Bootloader Menu Showing Both Module Enabled.

To upload the JM 60 Interface software press “t” on the terminal then click on FILE>TRANSFER>Y MODEM>SEND.

Navigate to the interface software on the PC and select the file. Refer to Table 1 for the correct file name. The JM 60 file should have a name of “15S189XX...s19” or similar. On the Terminal window a transfer screen will come up with a progress bar. On the radio the display will show a progress bar on the bottom of the screen as the data is transferred. See Figures 19 and 20.

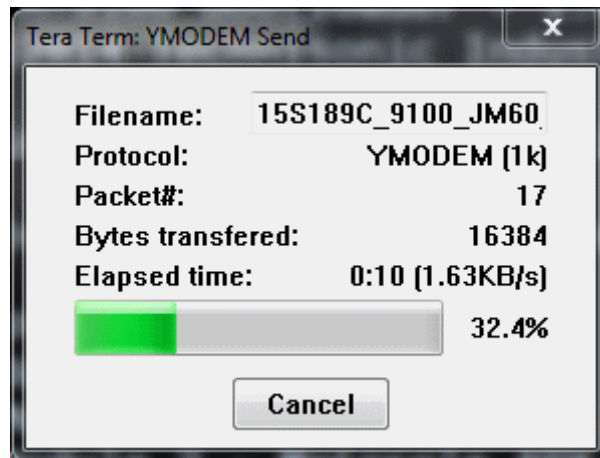


FIGURE 19: Terminal Progress Bar



FIGURE 20: JM 60 SW Radio Progress Bar



FIGURE 21: Upload Complete.

```

COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  APX 2.2.0 - OK

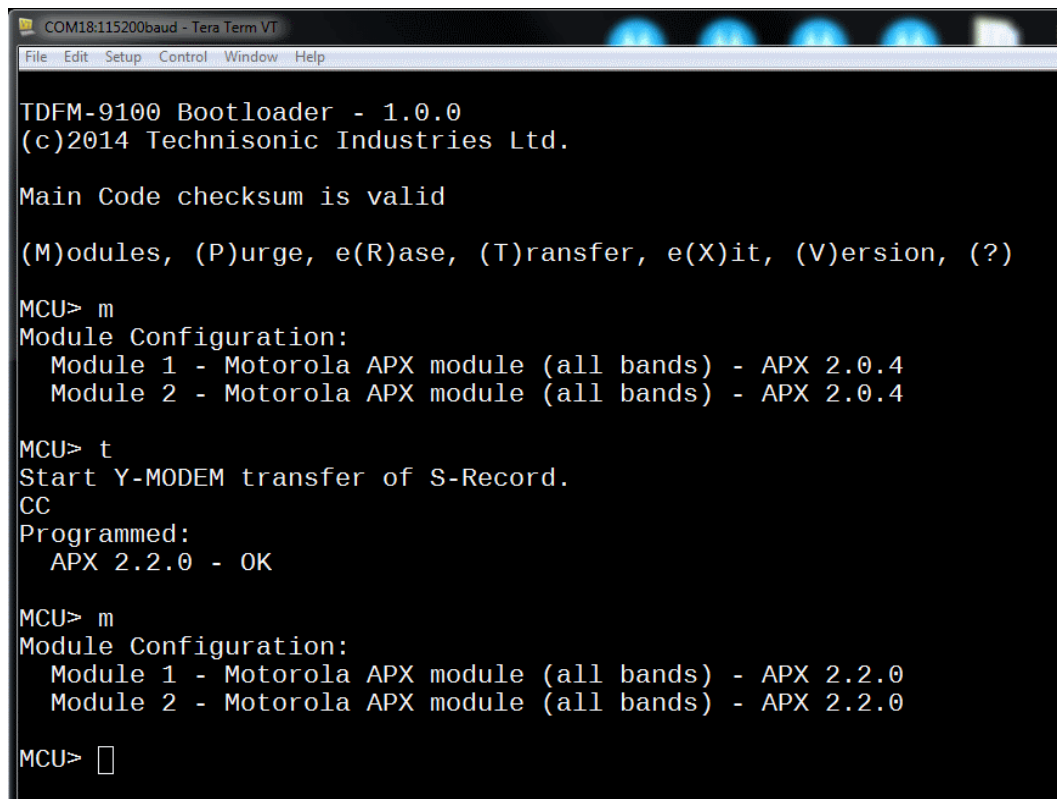
MCU> 

```

FIGURE 22: Uploaded File Programmed Ok.



Type m <ENTER> to verify all the JM 60 s were updated.



```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  APX 2.2.0 - OK

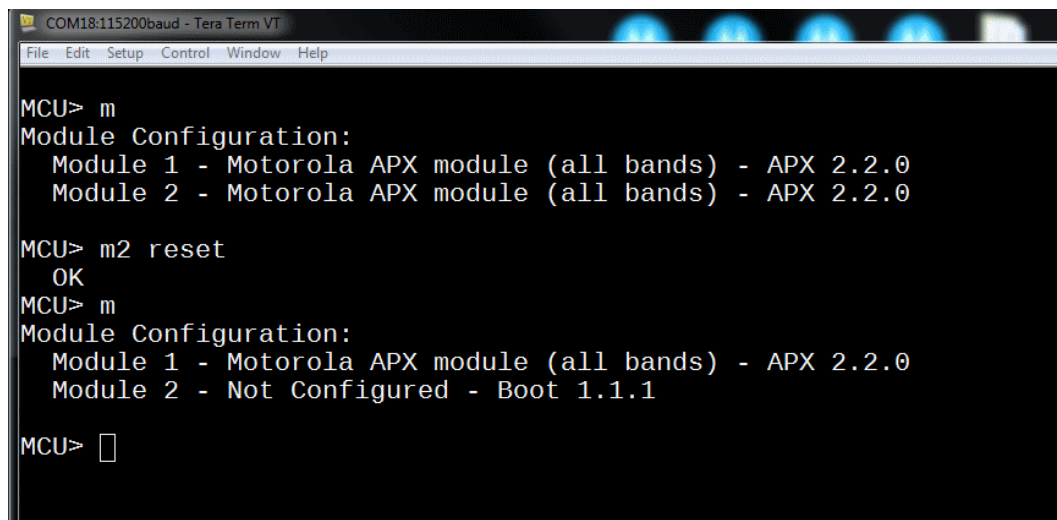
MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Motorola APX module (all bands) - APX 2.2.0

MCU> █
```

FIGURE 23: Both JM 60s Updated

The Bootloader Table must be reconfigured for single module before the Main SW can be uploaded. Use the following command at the terminal to deactivate the second module slot:

Type m2 reset <ENTER>



```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Motorola APX module (all bands) - APX 2.2.0

MCU> m2 reset
OK
MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Not Configured - Boot 1.1.1

MCU> █
```

FIGURE 24: Bootloader Table Reconfigured For Single Module

Type p <ENTER> to Purge the Main memory before uploading the Main SW.

To upload the Main software press “t” on the terminal then click on FILE>TRANSFER>Y MODEM>SEND. Navigate to the Main software on the PC and select the file. Refer to Table 1 for the correct file name. The Main SW file should have a name of “13S173XX...s19” or similar. The Terminal transfer screen will come up on the computer and a progress bar will show on the radio. See Figures 25 & 26.

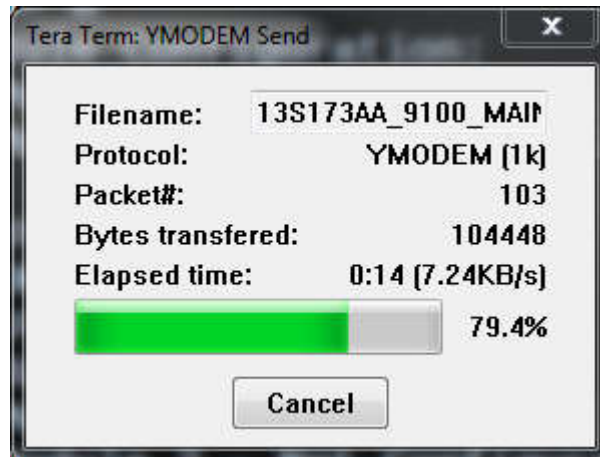


FIGURE 25: Terminal Progress Bar

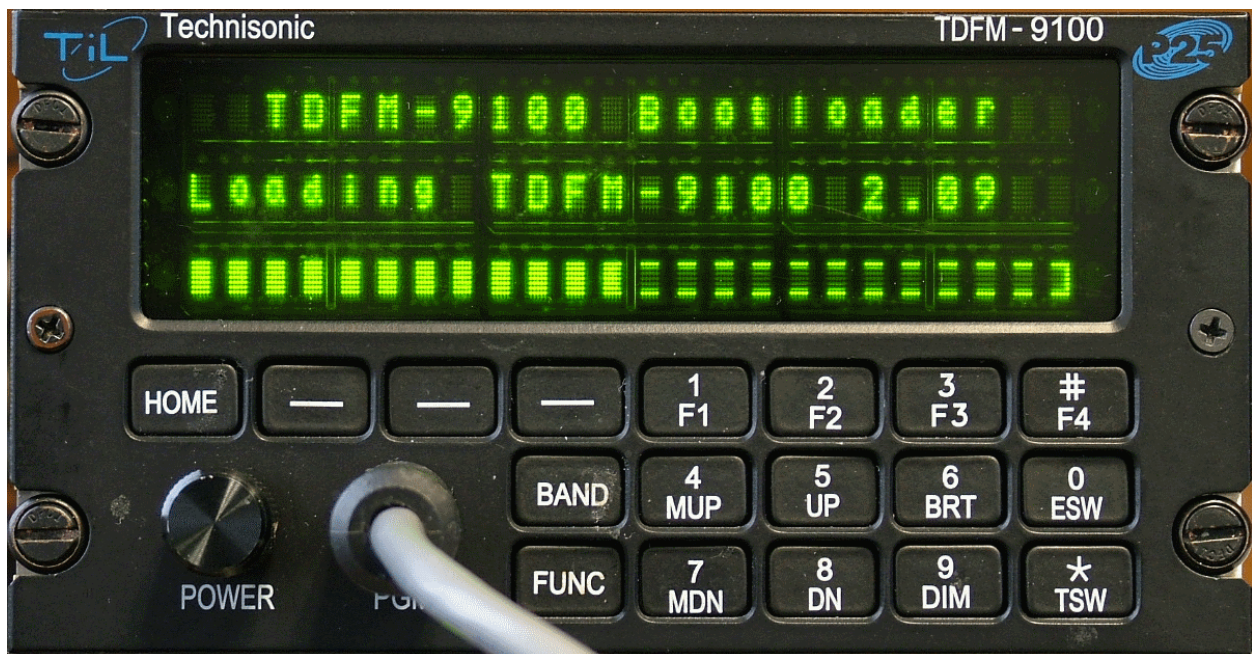


FIGURE 26: Radio Progress Bar

```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Motorola APX module (all bands) - APX 2.2.0

MCU> m2 reset
OK
MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Not Configured - Boot 1.1.1

MCU> p
Purging..... OK
MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  TDFM-9100 2.09 - OK

MCU> 
```

FIGURE 27: Main SW Uploaded Ok.

Type m <ENTER> to review the JM 60 configuration.  
Type v <ENTER> to verify the checksum is valid.

```
MCU> p
Purging..... OK
MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  TDFM-9100 2.09 - OK

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Not Configured - Boot 1.1.1

MCU> v
TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid ←
MCU> 
```

FIGURE 28: SW Update is Complete.

Disconnect the programming cable, and power cycle the radio. Verify the radio boots and detects the module with the SW version installed.





FIGURE 29: Radio Booting with New SW



FIGURE 30: Radio Main Display

## **RESETTING CONFIGURATION SETTINGS**

The Maintenance Menus and the Configuration Menus should be adjusted back to the previous settings as recorded once the radio has been updated successfully.

To access the Maintenance Menu, Press the FUNC key and rotate the knob to highlight the Maintenance Menu. Press the knob to enter. Enter password 1-5-9-3-5-7.

Set the Maintenance Menu items listed below as previously recorded. Press the knob to step through the menu items. Rotate the knob to set or toggle the item setting. Toggle items that are already correct to ensure the settings are updated. When the Initialize BT Menu is displayed, press the left soft key to exit back to the main screen.

NOTE: Band 3 should be always be disabled. Bands 4 & 5 should only be Enabled if the radio is Mod 14 (MCP) and the application requires external Transceivers. If the radio is non Mod 14, Bands 3, 4 & 5 should be Disabled.

MAINTENANCE MENU	FEATURE	PREVIOUS SETTING	DEFAULT SETTING
1	Mod 7	Enabled	Enabled
2	Band 2	Disabled	Disabled
3	Band 3	Disabled	Disabled
4	Band 4	A/R	Enabled
5	Band 5	A/R	Enabled
6	Remote	RC-9100	RC-9100
7	Mic 1 Level	A/R	220
8	Mic 2 Level	N/A	220
9	Mic 3 Level	N/A	N/A
10	Mic 4 Level	A/R	220
11	Mic 5 Level	A/R	220
12	Band 1 RX Audio	A/R	135
13	Band 2 RX Audio	A/R	135

To access the Configuration Menu, Press the FUNC key and rotate the knob to highlight the Configure Menu. Press the Knob to select.

Set the Configuration Menu items listed below as previously recorded. Press the knob to step through the Menu items. Rotate the knob to set or toggle the item setting. Toggle items that are already correct to ensure the settings are updated. When the Sidetone Menu is displayed, set accordingly, then press the knob one more time to exit back to the Main screen.

CONFIGURATION MENU	FEATURE	PREVIOUS SETTING	DEFAULT SETTING
1	Knob volume	A/R	Enabled
2	Knob Channel	A/R	Enabled
3	Knob Zone	A/R	Enabled
4	Knob Numlock	A/R	Enabled
5	Knob Recall	A/R	Enabled
6	Knob Default	A/R	Channel
7	Pg 3 Revert	A/R	Enabled
8	S200 Units	A/R	Miles
9	Backlighting	A/R	28 Volts
10	Always On	A/R	Disabled
11	Sidetone	A/R	13

Power cycle the radio and verify it boots correctly.

## **RETUNING THE RADIO TO SERVICE**

The radio can be returned to service by testing on the bench using the latest version of TIL Docs:

“146606\_TDFM-9100\_FINAL\_ACCEPTANCE\_TEST\_PROCEDURE” &  
“146607\_TDFM-9100\_FINAL\_ACCEPTANCE\_TEST\_DATA\_SHEET”

Or, in the case of a simple SW upgrade, follow the procedure of:

“146611A\_TDFM-9000\_SERIES\_QUICK\_FUNCTIONAL\_TEST”

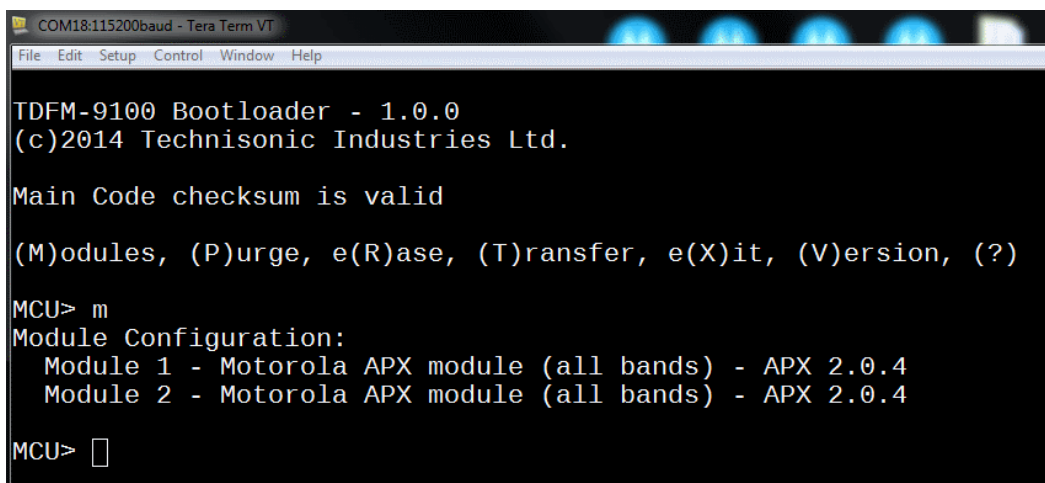
These documents are supplied with the software package download from the TIL website.

Please note that TDFM-9100 series units are airworthiness approved on a non-hazard, non-interference basis and that the firmware is E-level which does not have to be controlled. Hence it is not mandatory to install the latest version of firmware.

## **TDFM-9100 DUAL MODULE SW UPDATE**

Power up the radio and put it into Bootload Mode. Establish connection to the terminal program as described in Section 2.

Type m <ENTER> at the prompt on the terminal. This will show the Bootloader Table configuration for the radio and shows the current version of the module Interface SW.



```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> 
```

FIGURE 31: Bootloader Menu Showing Both JM 60s Enabled.

To upload the JM 60 Interface software press “t” on the terminal then click on FILE>TRANSFER>Y MODEM>SEND.

Navigate to the interface software on the PC and select the file. Refer to Table 1 for the correct file name. The JM 60 file should have a name of “15S189XX...s19” or similar. On the Terminal window a transfer screen will come up with a progress bar. On the radio the display will show a progress bar on the bottom of the screen as the data is transferred. See Figures 32 and 33.

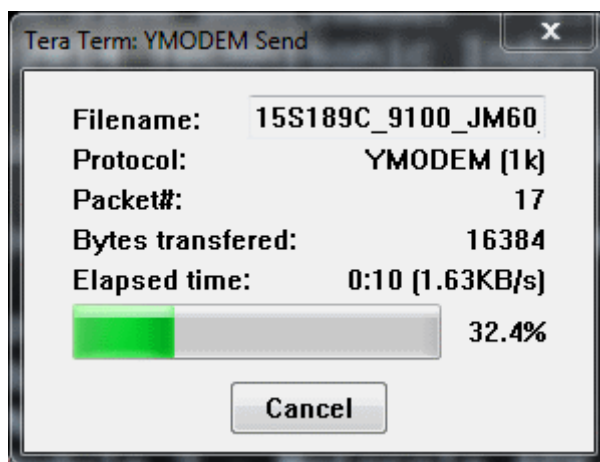


FIGURE 32: Terminal Progress Bar



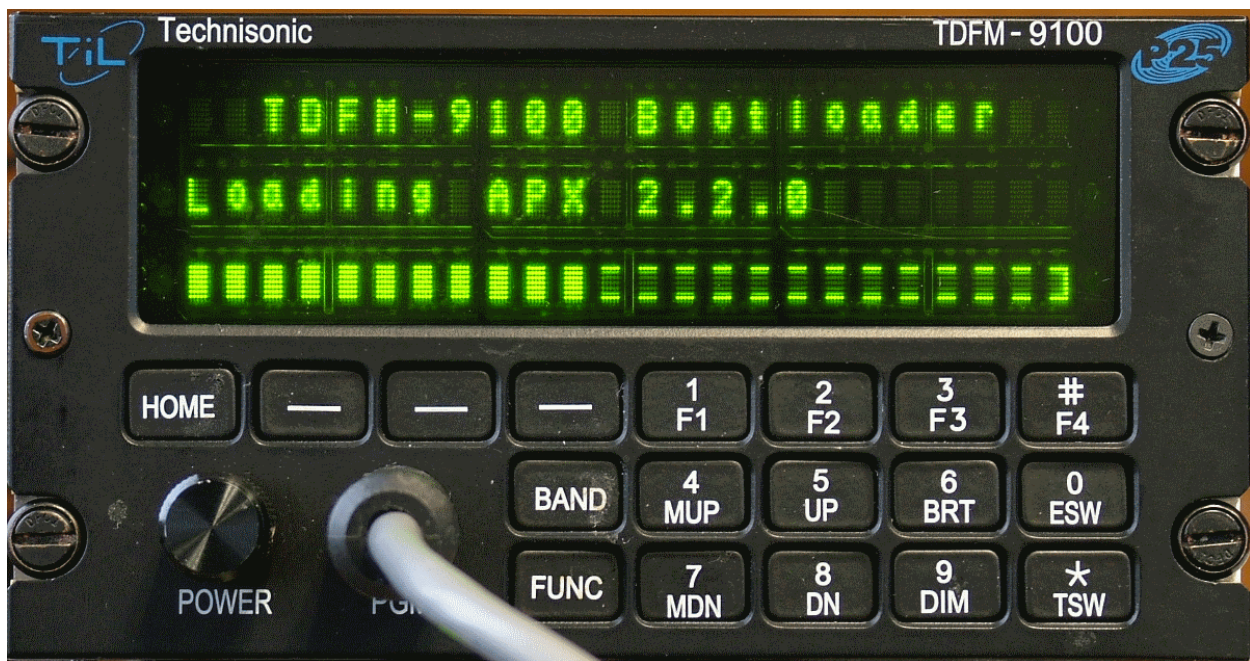
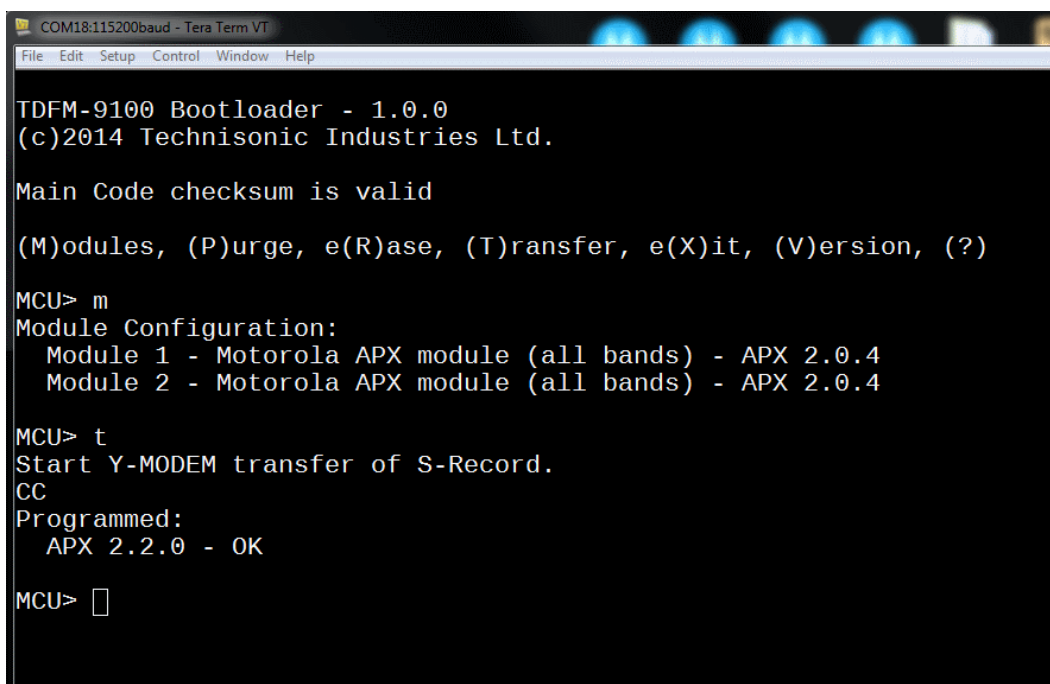


FIGURE 33: JM 60 SW Radio Progress Bar



FIGURE 34: Upload Complete.





```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

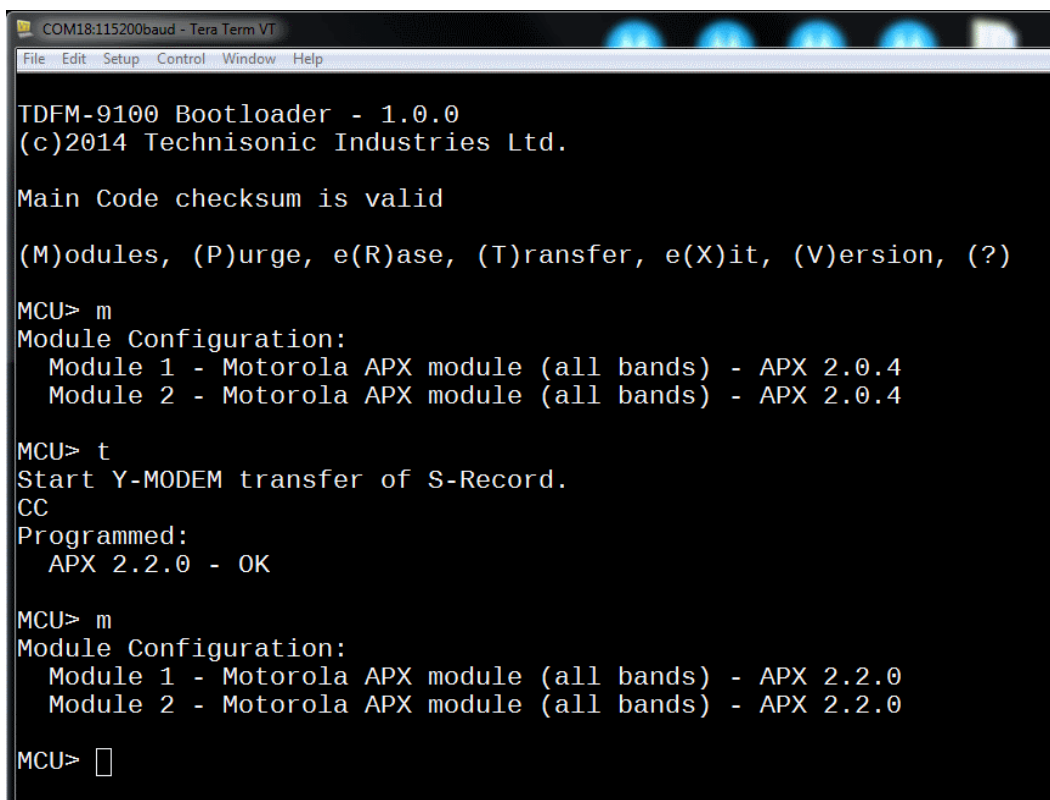
MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  APX 2.2.0 - OK

MCU> 
```

FIGURE 35: Uploaded JM 60 File Programmed Ok.

Type m <ENTER> to verify all the JM 60 s were updated.



```
COM18:115200baud - Tera Term VT
File Edit Setup Control Window Help

TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid

(M)odules, (P)urge, e(R)ase, (T)ransfer, e(X)it, (V)ersion, (?)

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  APX 2.2.0 - OK

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Motorola APX module (all bands) - APX 2.2.0

MCU> 
```

FIGURE 36: Both JM 60s Updated

Type p <ENTER> to Purge the Main memory before uploading the Main SW.

To upload the Main software press “t” on the terminal then click on FILE>TRANSFER>Y MODEM>SEND. Navigate to the Main software on the PC and select the file. Refer to Table 1 for the correct file name. The Main SW file should have a name of “13S173XX...s19” or similar. The Terminal transfer screen will come up on the computer and a progress bar will show on the radio. See Figures 37 & 38.

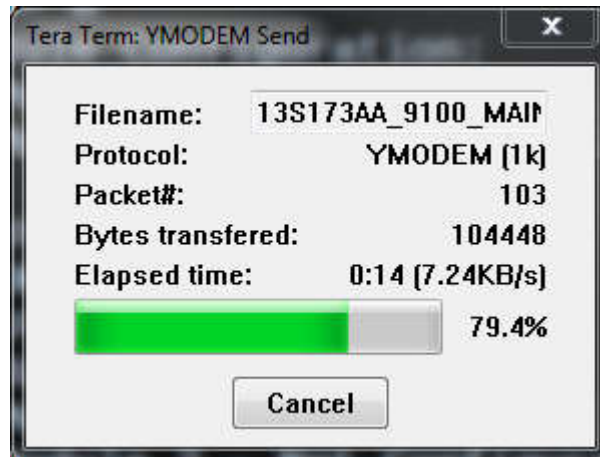


FIGURE 37: Terminal Progress Bar

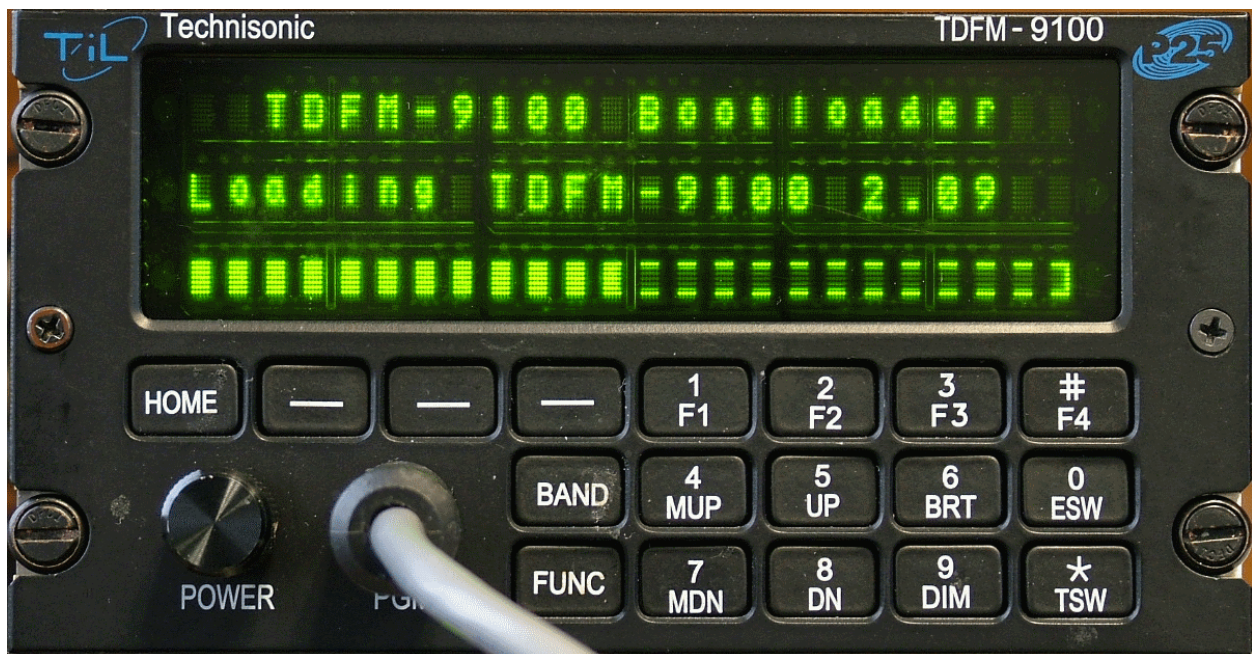


FIGURE 38: Radio Progress Bar

```

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.0.4
  Module 2 - Motorola APX module (all bands) - APX 2.0.4

MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  APX 2.2.0 - OK

MCU> p
Purging..... OK
MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  TDFM-9100 2.09 - OK

```

FIGURE 39: Main SW Uploaded Ok.

Type m <ENTER> to review the JM 60 configuration.  
Type v <ENTER> to verify the checksum is valid.

```

MCU> p
Purging..... OK
MCU> t
Start Y-MODEM transfer of S-Record.
CC
Programmed:
  TDFM-9100 2.09 - OK

MCU> m
Module Configuration:
  Module 1 - Motorola APX module (all bands) - APX 2.2.0
  Module 2 - Motorola APX module (all bands) - APX 2.2.0

MCU> v
TDFM-9100 Bootloader - 1.0.0
(c)2014 Technisonic Industries Ltd.

Main Code checksum is valid ←
MCU> 

```

FIGURE 40: SW Update is Complete.

Disconnect the programming cable, and power cycle the radio. Verify the radio boots and detects both modules with the SW version installed.





FIGURE 41: Radio Booting with New SW



FIGURE 42: Radio Main Display

## **RESETTING CONFIGURATION SETTINGS**

The Maintenance Menus and the Configuration Menus should be adjusted back to the previous settings as recorded once the radio has been updated successfully.

To access the Maintenance Menu, Press the FUNC key and rotate the knob to highlight the Maintenance Menu. Press the knob to enter. Enter password 1-5-9-3-5-7.

Set the Maintenance Menu items listed below as previously recorded. Press the knob to step through the Menu items. Rotate the knob to set or toggle the item setting. Toggle items that are already correct to ensure the settings are updated. When the Initialize BT Menu is displayed, press the left soft key to exit back to the main screen.

NOTE: Band 3 should be always be disabled. Bands 4 & 5 should only be Enabled if the radio has Mod 14 (MCP) and the application requires external Transceivers. If the radio is non Mod 14, Bands 3, 4 & 5 should be Disabled.

MAINTENANCE MENU	FEATURE	PREVIOUS SETTING	DEFAULT SETTING
1	Mod 7	Enabled	Enabled
2	Band 2	Enabled	Enabled
3	Band 3	Disabled	Disabled
4	Band 4	A/R	Enabled
5	Band 5	A/R	Enabled
6	Remote	RC-9100	RC-9100
7	Mic 1 Level	A/R	220
8	Mic 2 Level	N/A	220
9	Mic 3 Level	N/A	N/A
10	Mic 4 Level	A/R	220
11	Mic 5 Level	A/R	220
12	Band 1 RX Audio	A/R	135
13	Band 2 RX Audio	A/R	135

To access the Configuration Menu, Press the FUNC key and rotate the knob to highlight the Configure Menu. Press the Knob to select.

Set the Configuration Menu items listed below as previously recorded. Press the knob to step through the menu items. Rotate the knob to set or toggle the item setting. Toggle items that are already correct to ensure the settings are updated. When the Sidetone Menu is displayed, set accordingly, then press the knob one more time to exit back to the main screen.

CONFIGURATION MENU	FEATURE	PREVIOUS SETTING	DEFAULT SETTING
1	Knob volume	A/R	Enabled
2	Knob Channel	A/R	Enabled
3	Knob Zone	A/R	Enabled
4	Knob Numlock	A/R	Enabled
5	Knob Recall	A/R	Enabled
6	Knob Default	A/R	Channel
7	Pg 3 Revert	A/R	Enabled
8	S200 Units	A/R	Miles
9	Backlighting	A/R	28 Volts
10	Always On	A/R	Disabled
11	Sidetone	A/R	13

Power cycle the radio and verify it boots correctly.

## **RETUNING THE RADIO TO SERVICE**

The radio can be returned to service by testing on the bench using the latest version of TIL Docs:

“146606\_TDFM-9100\_FINAL\_ACCEPTANCE\_TEST\_PROCEDURE” &  
“146607\_TDFM-9100\_FINAL\_ACCEPTANCE\_TEST\_DATA\_SHEET”

Or, in the case of a simple SW upgrade, follow the procedure of:

“146611A\_TDFM-9000\_SERIES\_QUICK\_FUNCTIONAL\_TEST”

These documents are supplied with the software package download from the TIL website.

Please note that TDFM-9100 series units are airworthiness approved on a non-hazard, non-interference basis and that the firmware is E-level which does not have to be controlled. Hence it is not mandatory to install the latest version of firmware.