



Make sure that both power cords are disconnected before opening the top cover of the unit.

6.2.1. Changing the Fuses

The fuse holder is located inside the power entry module. To change the fuses, disconnect the line cord from the power entry module and pull out the fuse holder from the power entry module using a small screwdriver. The fuse holder contains two fuses, one for the line and one for the neutral side of the mains connection. Pull out the blown fuse and place a fuse of the correct value in its place. Use time delay 5 x 20 mm fuses rated for 250 Volts with a current rating of 1 amp. (T1AL250V) Carefully reinsert the fuse holder into the power entry module.



Check that the line fuse is rated for the correct value marked on the rear panel. Never replace with a fuse of greater value.

6.3. UPGRADING FIRMWARE

The VANC Encoder contains application firmware that is contained in a FLASH EPROM device. From time to time firmware updates will be provided to add additional features to the unit. In addition the VANC Encoder contains a separate set of firmware for the network interface CPU.



Sometimes, updating the firmware in the unit will cause a reset of the non-volatile memory settings to their factory default values, including the IP addresses of the units. If this occurs, you may not be able to upgrade the firmware until you re-program your custom IP addresses back into the VANC Encoder. If you are operating the VANC Encoder in a stand-alone configuration (not using KeyLog TRACKER™ to configure the unit) it is advisable to save the current configuration before you update the firmware. If the non-volatile settings are reset during the firmware upgrade you will be able to restore them after you have restored the IP addresses of the VANC Encoder.

There are four methods of updating the firmware in the VANC Encoder: KeyLog TRACKER™ (serial communication or FTP), PostUpgrade Utility (FTP), manual File Transfer Protocol (FTP) and Serial communication upload. Due to the large size of the firmware binary files one of the FTP methods is the preferred method of updating the firmware. If you have KeyLog TRACKER™ connected to the VANC Encoder using an Ethernet connection then you can do a FTP firmware update using the KeyLog TRACKER™ software.

Prior to initiating the upgrade process:

- Download the new application code from the download section of the Evertz web site (www.evertz.com/download.php). Choose the firmware downloads section and type in HDSD9155Q in the model number entry box and press the “GO” button. Unzip the file into a

working folder on your PC. If you are using the KeyLog TRACKER™ software you should place the file into the “Firmware” sub-folder of the Tracker installation folder (C:\Program Files\Evertz\Tracker by default). If you are using the PostUpgrade utility software you should place the file into the same folder (or a sub folder) as the PostUpgrade installation folder.



Set up the temporary working folder in the root of your c:\ drive with a maximum 8 character folder name. This will make it easier to navigate the file system from the command prompt that only allows 8 character file names in some operating systems.

Firmware file names use the following naming conventions. (xxxx is the build number)

Firmware File name	Description
HS9045TR_xxxx	VANC Encoder main application firmware
NETIF_xxxx	VANC Encoder Network interface CPU firmware

Table 6-1: Typical Firmware File Names

To update the firmware using the KeyLog TRACKER™ software follow the procedure outlined in section 6.3.1. To update the firmware using the PostUpgrade FTP utility software follow the procedure outlined in section 6.3.2. To update the firmware using the FTP upgrade process follow the procedure outlined in section 6.3.3. To update the firmware using the serial upgrade process follow the procedure outlined in section 6.3.4.

6.3.1. KeyLog TRACKER™ Method of Updating Firmware

You will need the following equipment in order to update the Firmware using the KeyLog TRACKER™ method:

- PC with KeyLog TRACKER™ software running
- PC connected to the VANC Encoder
- New firmware supplied by Evertz

6.3.1.1. Step 1 – Configuring the Unit for Firmware Upgrades

1. Power up the unit.

6.3.1.2. Step 2 – KeyLog TRACKER™ Setup

2. Start KeyLog TRACKER™
3. Confirm that you have established communications to the unit that you wish to upgrade. (A green COMM indicator will show at the bottom of the KeyLog TRACKER™ screen)
4. From the TOOLS menu of the KeyLog TRACKER™ choose the UPGRADE FIRMWARE option. A dialog box asking you to choose the serial port or FTP method will appear.

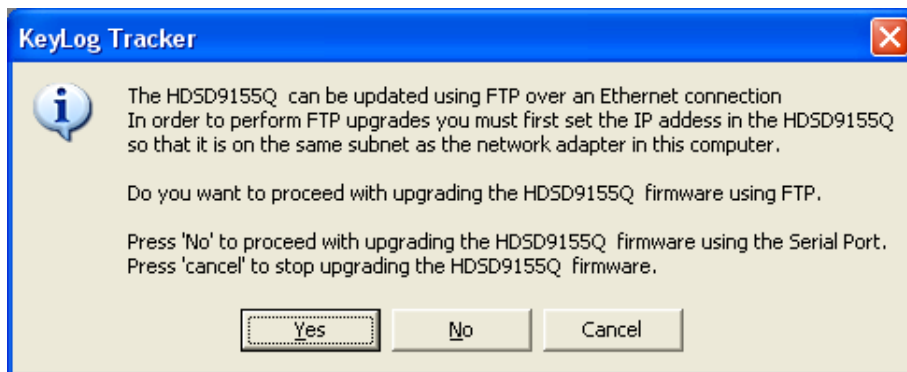


Figure 6-1: KeyLog Tracker

If you are connected to the VANC Encoder over a network (see section 6.3.2.1 for info about connecting the network) you can upgrade using the FTP method by pressing the “Yes” button. From here the procedure is similar to the PostUpgrade Utility. Follow the instructions starting in step 6 of section 6.3.2.2.

If you wish to upgrade using the serial port method press the “No” button. You will be presented with the following dialog box.

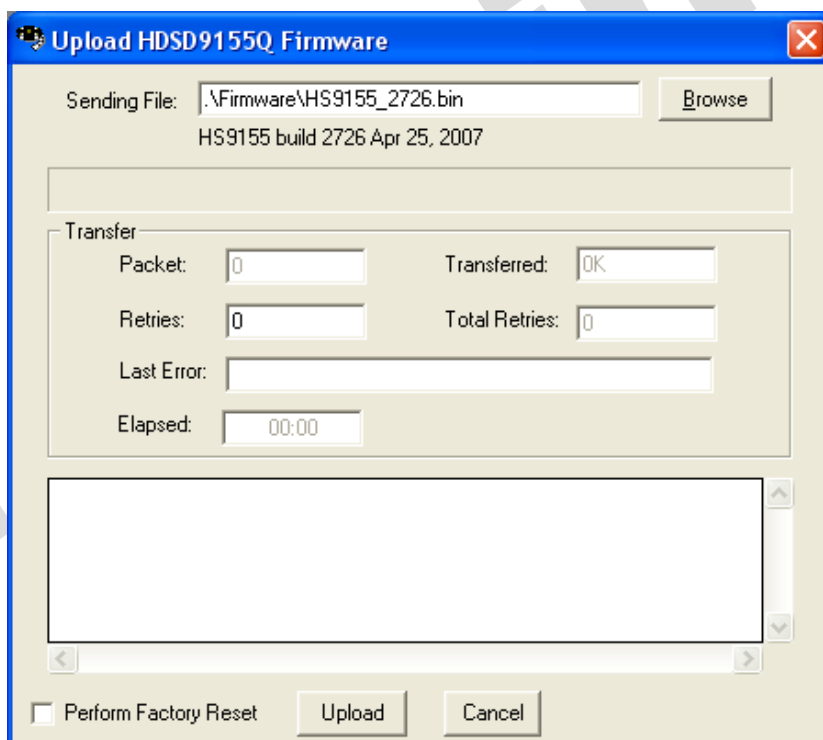


Figure 6-2: Upload HDSD9155Q Firmware Window

5. Use the BROWSE button to open the file dialog and choose the new firmware file. Typical filenames are in Figure 6-1. The build version of the firmware will be shown in the dialog box.
6. Click the UPLOAD button at the bottom of the upgrade dialog. Tracker will begin upgrading the firmware showing the communications and progress of the upgrade. On successful completion of the upload the unit should now reboot. After the unit reboots successfully with the new firmware the

'Upload Firmware' dialog will disappear. You can then resume normal operations with the KeyLog TRACKER™ software.

7. If the upgrade is interrupted or cancelled before completion, then KeyLog TRACKER™ will not be able to communicate to the unit. In that case you will have to manually upload the firmware using the procedure outlined in section 6.3.4.

6.3.2. PostUpgrade FTP Utility Method of Updating Firmware

You will need the following equipment in order to update the Firmware using the PostUpgrade FTP utility software:

- PC with Ethernet network port
- Appropriate Ethernet cable as outlined in section 2.6
- PostUpgrade utility software downloaded from the Evertz web site. Install the utility on your PC by double clicking on the PostUpgrade.EXE file.
- New firmware downloaded from the Evertz web site as described in section 6.3. Unzip the firmware into the same folder where you installed the PostUpgrade utility software.

6.3.2.1. Step 1 – Establishing a Valid Network Connection

Before any FTP (file transfer protocol) upgrades can be initiated, the user must determine the IP address of the VANC Encoder. Both the PC/laptop and the units must be on the same subnet for the FTP upgrade to work properly. See section 3.6.2.

1. The *System IP* menu item allows the user to set the networking parameters of the unit. See section 3.6.2. If you are not sure how to set the network parameters, contact your networking/IT administrator.

Once you return to the Main Menu wait for 30 seconds for the new network parameters to be saved in the Flash memory.

2. Connect a crossover network cable from the PC/laptop to the unit. If you are connecting through a hub then use a straight through network cable as shown in section 2.6.
3. On your PC, open a Command Prompt window. This can be accomplished by using the run command under the start button, type "cmd"; see Figure 6-3:

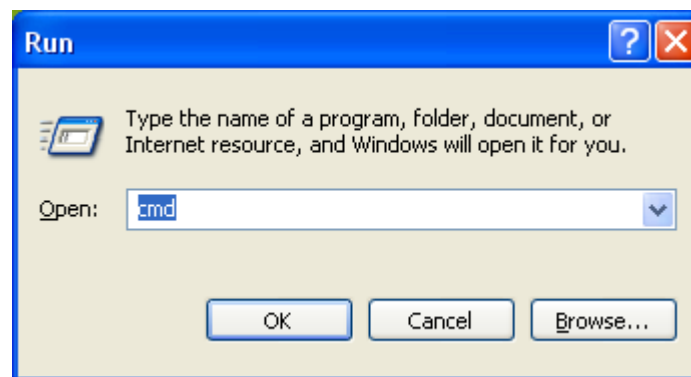


Figure 6-3: Run Window

4. “Ping” the IP addresses of both devices in the system. (VANC Encoder main CPU and network CPU) For example, in the command window type:

```
C:\>ping 192.168.9.10 <Enter>
```

If a proper network connection has been established to the device, a “reply” is displayed on the DOS window. If there is a faulty network connection, a “Destination Host Unreachable” message is provided. If this occurs, either the IP addresses of the nodes should be verified or the network (Ethernet) cable is faulty. For more information, please see section 2.6 of this manual.

If you are unable to ‘ping’ the devices, you will have to use the serial port upgrade method outlined in section 6.3.4.

6.3.2.2. Step 2 – Upgrading the Application Code



The firmware in the VANC Encoder main CPU and network CPU need to be in a matched set for proper operation of the system. If you are upgrading multiple firmware images you should upgrade the VANC Encoder main application code first, and the network CPU last. If you do not follow this order you may not be able to update some parts of the system using the FTP method.

5. Start the PostUpgrade Software

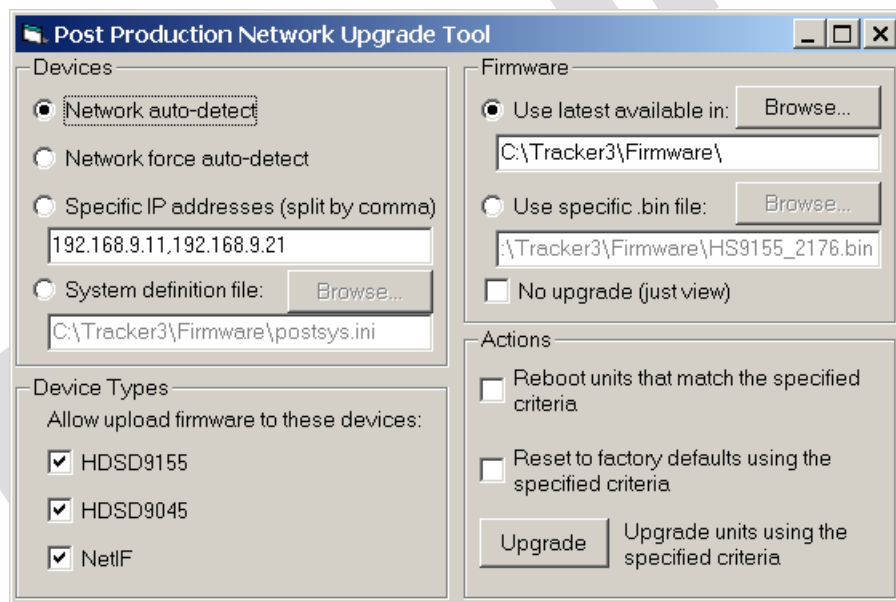
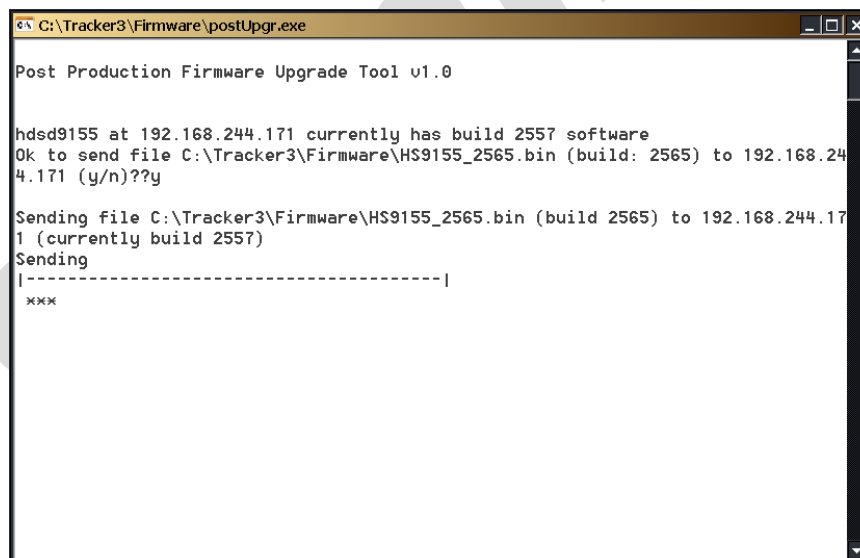


Figure 6-4: Post Production Network Upgrade Tool

6. The Devices box allows you to choose how you are going to specify the units to be upgraded.
 - If you have the *Network Announce* function turned on in your **VANC Encoder** the firmware utility can auto-detect your unit.
 - If you have the *Network Announce* function turned off, you can force an auto-detect by checking the appropriate radio button.
 - You can specify a list of valid IP addresses for units you wish to upgrade

- You can list the valid IP addresses in a “System Definition File” such as the *Postsys.ini* sample file provided with the PostUpgrade utility.
- 7. The Device Types box allows you to choose the device types you are upgrading.
 - Check the type of device you are upgrading.
 - If you want to upgrade the network interface CPU also check that box.
- 8. The Firmware box allows you to select the location of the firmware you will send.
 - You can send the latest firmware in the specified folder.
 - You can send a specific firmware version from the specified location.
 - You can run the utility to see what versions are installed in each unit.
- 9. The Action box allows you to determine what actions you will perform after the upgrade:
 - You can reboot the device after upgrading the firmware (recommended). The firmware you upload to the unit will not become active until after a reboot.
 - You can reset the device back to its factory defaults. This action will cause the IP settings to revert to the factory default values, and therefore you may lose communications with the unit. Use the Factory Reset feature with caution. It is not normally required for firmware upgrades.
- 10. After you have selected the upgrade options that you want, press the "Upgrade" button. The PostUpgrade software will open an FTP session on your computer and begin communicating with each of the devices that you have specified. It will prompt you before upgrading or rebooting individual units. You will get a progress indicator as the firmware is sent to the unit.



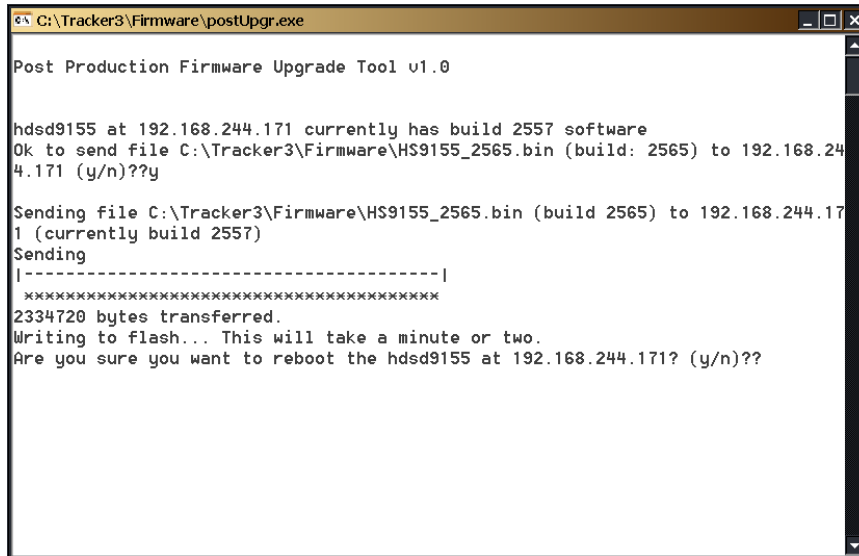
```

C:\Tracker3\Firmware\postUpgr.exe
Post Production Firmware Upgrade Tool v1.0

hdsd9155 at 192.168.244.171 currently has build 2557 software
Ok to send file C:\Tracker3\Firmware\HS9155_2565.bin (build: 2565) to 192.168.244.171 (y/n)??y

Sending file C:\Tracker3\Firmware\HS9155_2565.bin (build 2565) to 192.168.244.171 (currently build 2557)
Sending
|-----|
xxx
  
```

- 11. After the firmware is transferred it will be written to the Flash memory of the unit – this will take a minute or two. The On screen display and the front panel will also provide some progress indicators during the upgrade. The screen below shows a sample of what you would expect when upgrading your VANC Encoder.



```

C:\Tracker3\Firmware\postUpgr.exe

Post Production Firmware Upgrade Tool v1.0

hds9155 at 192.168.244.171 currently has build 2557 software
Ok to send file C:\Tracker3\Firmware\HS9155_2565.bin (build: 2565) to 192.168.244.171 (y/n)??y

Sending file C:\Tracker3\Firmware\HS9155_2565.bin (build 2565) to 192.168.244.171 (currently build 2557)
Sending
|-----|
|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX|
|2334720 bytes transferred.
|Writing to flash... This will take a minute or two.
|Are you sure you want to reboot the hds9155 at 192.168.244.171? (y/n)??

```

12. When the upgrade is complete the FTP session will end. You can close the PostUpgrade utility software.

6.3.3. Manual FTP (File Transfer Protocol) Method of Updating Firmware


You will need the following equipment in order to update the Firmware using the FTP process.

- PC with Ethernet network port.
- Appropriate Ethernet cable as outlined in section 2.6.
- New firmware downloaded from the Evertz web site as described in section 6.3.

6.3.3.1. Step 1 – Establishing a Valid Network Connection


Before any FTP (file transfer protocol) upgrades can be initiated, the user must establish a valid network connection.

1. Follow the procedure in section 6.3.2.1 to establish a valid network connection.



The Network Interface CPU and the main CPU in the VANC Encoder share the same IP address. An FTP connection to the VANC Encoder using the default FTP port of 23 will FTP to the main CPU. In order to FTP to the Network CPU you must use port 50023. Note that some FTP clients (including the standard one provided with Windows) will not allow you to FTP to port 50023. It is therefore recommended that you use the KeyLog TRACKER™ or the PostUpgrade utility if you need to update the network interface firmware.

6.3.3.2. Step 2 – Upgrading the Application Code



The firmware in the VANC Encoder main CPU and network CPU need to be in a matched set for proper operation of the system. If you are upgrading multiple firmware images you should upgrade the VANC Encoder main application code first, and the network CPU last. If you do not follow this order you may not be able to update some parts of the system using the FTP method.

2. In the Command window type: `ftp xxx.xxx.xxx.xxx` (IP address)
3. Press the <Enter> key when prompted for a "Username"
4. Press the <Enter> key when prompted for a "Password"
5. Type "hash" at the "FTP>" to turn on the progress indicator during the ftp upload.
6. At the "FTP>" prompt, type the following: `put "the name of the file.bin"`.
(For example: `put hs9155q_1133.bin`)
7. If the application file is not local to where you are performing the ftp, then include the path with the name (For example: `put c:\firmware\hs9155q_2557.bin`)
8. The FTP screen displays a message indicating the successful opening of a data connection to the device.
9. The file transfer takes about 90 seconds during which time you will see the transfer progress indicated by # characters on the FTP screen. You will also see a progress indication on the On screen display and the **VANC Encoder** front panel.
10. When the # characters stop the unit will transfer the firmware to its Flash memory. During this process, which takes about 60 seconds, you will not see any activity on the FTP screen. The On screen display will show the progress of writing the application code to the Flash memory.



During this time it is mandatory that all power cycles of the unit be avoided.

11. You will see a 'Transfer complete' message when the firmware has been successfully written to the flash memory.
12. Type "quote boot" at the "FTP>" prompt to reboot the unit so that the new firmware will take effect. You will see a message indicating that the unit will reboot in 5 seconds.
13. Within 5 seconds type "quit" at the "FTP>" prompt to exit the FTP session for this unit before it reboots. If you do not quit the session before the reboot then the FTP session will freeze and you will have to type <ctrl-C> one or more times to terminate the FTP session.

```
331 User name okay, need password.  
Password:  
230 User logged in, proceed.  
ftp> hash  
Hash mark printing On ftp: (2048 bytes/hash mark) .  
ftp> put hs9155_2565.bin  
200 PORT command successful.  
150 Opening ASCII mode data connection for file store  
#####  
#####  
#####  
#####  
#####  
#####
```



14. When you are done upgrading the **VANC Encoder** you can close the DOS window and disconnect the network cable.

You will need the following equipment in order to update the camera adapter or base station firmware.

- PC with available communications port. The communication speed is 57600 baud, therefore a PC capable of supporting this baud rate is required.
- “Straight-thru” serial extension cable (DB9 female to DB9 male)
- Terminal program that is capable of Xmodem file transfer protocol. (such as HyperTerminal)
- New firmware downloaded from the Evertz web site as described in section 6.3

6.3.4.1. Step 1 – Terminal Program Setup

1. Connect the serial cable to the **SERIAL CONTROL** DB9 connector.
2. Connect the 9 pin connector on the end of the serial update cable to the PCs' RS-232 communications port.
3. Start the terminal program.
4. Configure the port settings of the terminal program as follows:

Baud	57600
Parity	no
Data bits	8
Stop bits	2
Flow Control	None

5. Power up the VANC Encoder unit.

6.3.4.2. Step 2 – Invoke Upload Mode from the Terminal Program

7. Power up the unit. After the unit powers up, a banner with the boot code version information should appear in the terminal window. The cursor to the right of the word **BOOT>** should be spinning for about 5 seconds then the unit will continue to boot.

For example:

```
EVERTZ MCF5407 MONITOR 2.3 BUILD 8
COPYRIGHT 1997, 1998, 1999, 2000, 2001, 2002 EVERTZ MICROSYSTEMS LTD.
28F160C3B FLASH DETECTED
MCF5407 COLD BOOT> |
```

8. The following is a list of possible reasons for failed communications:
 - Defective Serial Upgrade cable.
 - Wrong communications port selected in the terminal program.
 - Improper port settings in the terminal program. (Refer to step 7 for settings). Note that HyperTerminal will not change port settings while connected. Click on HyperTerminal's "Disconnect" Button then click the "Reconnect" button to activate changes to the port settings.
 - PC requires hardware flow control despite the HyperTerminal settings.
9. While the cursor is spinning press the <CTRL> and <X> keys on your computer keyboard at the same time, this should stop the cursor from spinning. The spinning prompt will only remain for about 5 seconds. You must press <CTRL-X> during this 5 second delay. If the unit continues to boot-up, simply cycle the power and repeat this step.
10. Hit the <ENTER> key on your computer once.
11. Type the word "upgrade", without quotes, and hit the <ENTER> key once.
12. The boot code will ask for confirmation. Type "y", without quotes.

13. You should now see a prompt asking you to upload the file.

6.3.4.3. Step 3 – Uploading the New Firmware

14. Upload the “*.bin” file supplied using the X-Modem transfer protocol of your terminal program. If you do not start the upload within 10 minutes the unit’s Boot code will time out. You can restart the upgrade process by power cycling the unit.

15. The boot code will indicate whether the operation was successful upon completion of the upload.

For Example:

```
UPLOAD OKAY
MCF5407 COLD BOOT> |
```

16. The following is a list of possible reasons for a failed upload:

- If you get the message "transfer cancelled by remote" you must restart the terminal program and load the bin file, then remove and install the module again.
- The supplied “*.bin” file is corrupt.
- Wrong file specified to be uploaded.
- Wrong file transfer protocol used – make sure you specify Xmodem, not Xmodem 1K.
- The PCs’ RS-232 communications port cannot handle a port speed of 57600.
- Noise induced into the Serial Upgrade cable.

6.3.4.4. Step 4 – Completing the Upgrade

17. Type the word “boot”, without quotes, and hit the <ENTER> key once or power cycle the unit. The unit should now reboot.

18. You can now close the terminal program and disconnect the RS-232 serial cable from the PC.

6.4. HDSD9045TR DEBUG WINDOWS

Each Tracker configuration has one or more text windows called "DEBUG", on the WINDOWS tab of the project or system configuration. DEBUG windows can display additional information on the output video. Changing the HORIZONTAL position value for the DEBUG window can control the information format. (The window cannot be moved horizontally).

The format and content of the displays may change as the firmware evolves, but here are the current displays. Some content is intended for use only by the Evertz engineers, and is not documented ("EV_ENG"). Some displays may be truncated when using Standard Definition video.

Some Displays show a line of "#####" characters under specific conditions. These displays are designed to be visible on an oscilloscope that is monitoring the output video (usually in some analog form).