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World Leader of In-Rack, Audio, Video, Data Monitoring, and Closed Captioning Solutions

HDCC-200A (OP-47/WST) Multi-Function Card

Multi-Purpose Closed Caption Card:
Inserter, Decoder, Bridger, Monitor, and
Transcoder

System Test

Software Version: V2.34

PIC Code Version: V1.09

Part Number 821049, Revision A

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Last Update

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CHAPTER 1

Encode Testing

Introduction

Overview

This chapter describes how to install, set up, and use the Newfor Streamer application to test the closed caption encoding through the HDCC-200A in your production environment.

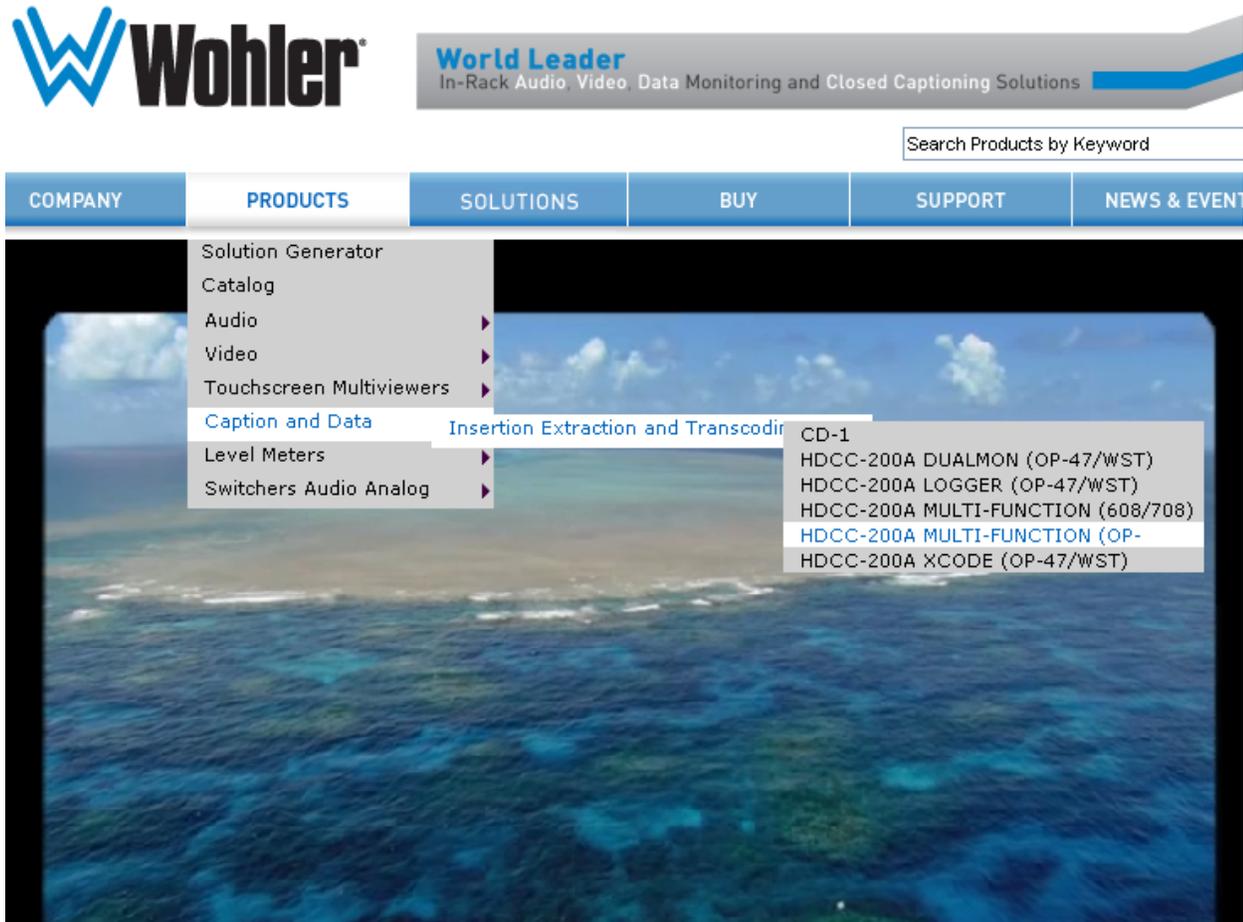
Topics

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Downloading and Installing the Application

1. Launch your web browser and navigate to www.wohler.com (shown in [Figure 1-1](#) below).
2. Click the **Products** tab.
 - A. Mouse down to **Caption and Data**.
 - B. Mouse right to **Insertion, Extraction and Transcoding**.
 - C. Mouse down to **HDCC-200A Multi-Function (OP...** and click to select.

Figure 1–1 Selecting the HDCC-200A (OP-47/WST) Multi-Function Card



- When the product displays, click the **Downloads** tab about halfway down the page (shown in Figure 1-2 below).

Figure 1-2 Displaying the HDCC-200A Multi-Function Card

The screenshot shows the product page for the HDCC-200A Multi-Function Card on the Wohler website. The page layout includes a header with the Wohler logo and 'World Leader' tagline, a search bar, and a navigation menu with tabs for COMPANY, PRODUCTS, SOLUTIONS, BUY, SUPPORT, and NEWS & EVENTS. The breadcrumb trail reads: PRODUCTS > CAPTION AND DATA > INSERTION EXTRACTION AND TRANSCODING > HDCC-200A MULTI-FUNCTION (OP-47/WST).

PRODUCT INFORMATION

Products	Qty
0	0

Submit for Quote ...

0	0
---	---

View My Cart Buy Direct!

SOLUTION GENERATOR [arrow]

- Audio
- Video
- Touchscreen Multiviewers
- Caption and Data
- Level Meters
- Switchers Audio Analog

ICON KEY

- A Analog
- AES AES/EBU
- SDI SD/SDI
- HD HD/SDI
- 3G 3G
- Dolby® Digital
- Speakers
- Level Meters

HDCC-200A MULTI-FUNCTION (OP-47/WST)
List Price : \$10,800

Definitive closed captioning solution that encodes, decodes and transcodes (from SD to HD) in either the EIA-608/708 standard or the OP-47 standard.

- Data sheet
- Manual
- Close up front view
- Close up back view

Quantity: 1 [dropdown]

Add to Quote

DESCRIPTION | FEATURES | DOWNLOADS

The HDCC-200A is a compact, closed captioning solution for HD/SD-SDI broadcast and production applications. The dual channel module occupies a single card slot in a variety of conversion frames including IRT®, Codan®, and Evertz®.

Each HDCC-200A card encodes, decodes, and transcodes. The card accepts 2 HD/SD-SDI input video streams, receives/returns live closed-captioning data via RS-232 or Ethernet, and produces 2 HD/SD-SDI output video streams, and 2 HD/SD-SDI monitoring output (open captioned) video streams.

As an encoder, the card automatically inserts the data into an SD- or HD-SDI stream in EIA-608/708 or OP-47/WST formats. Additionally, the card will insert GPI data into the HD VANC, for recording on a variety of HD storage devices or distribution over the facility's digital video network.

As a decoder, the card will extract EIA-608/708 or OP-47/WST captioning data (and GPI data) from an HD- or SD-SDI stream.

As a transcoder, the card will duplicate the captions from one HD/SD-SDI stream

- Click on **NewforStreamer.zip**.
- When the **Save As** dialog box appears, navigate to the desktop and click **Save**.
- Unzip the application and save it to the desktop.

Setting Up the Hardware

1. Refer to the *HDCC-200A (OP-47/WST) Installation Guide* (PN 821046) for instructions to connect your HDCC-200A card to your PC or laptop and a monitor.

Important: When connecting the monitor, verify that you are connecting the monitor to the output port that corresponds to the input data stream you selected. In other words, if you connected your input test signal to I/P 1, then verify that you connected the monitor to O/P 3. If you connected the input signal to I/P 2, verify you have connected the monitor to O/P 4.

2. In our example, we're using the serial port to demonstrate how to set the serial communications. Set **Switch 1 to E** to display the engineering menu via the serial port.

Note: To use the Ethernet port, refer to *HDCC-200A (OP-47/WST) Installation Guide* (PN 821046) for instructions to configure the Ethernet port as a virtual serial port. Also, don't forget to set SW1 to F.

Establishing Communications from the Laptop to the HDCC-200A

1. On the laptop, launch **HyperTerminal**.
 - A. Click the Windows **Start** button.
 - B. Mouse over **All Programs**.
 - C. Mouse over **Accessories**.
 - D. Mouse over **Communications**.
 - E. Click on **HyperTerminal** (usually at the top of the list).

Establishing Communications from the Laptop to the HDCC-200A

- When the **Connection Description** dialog displays (Figure 1-3 below) you can optionally enter a name for this connection's configuration so that you can re-use it next time you launch HyperTerminal. Press Enter to continue.

Figure 1-3 Connection Description Dialog



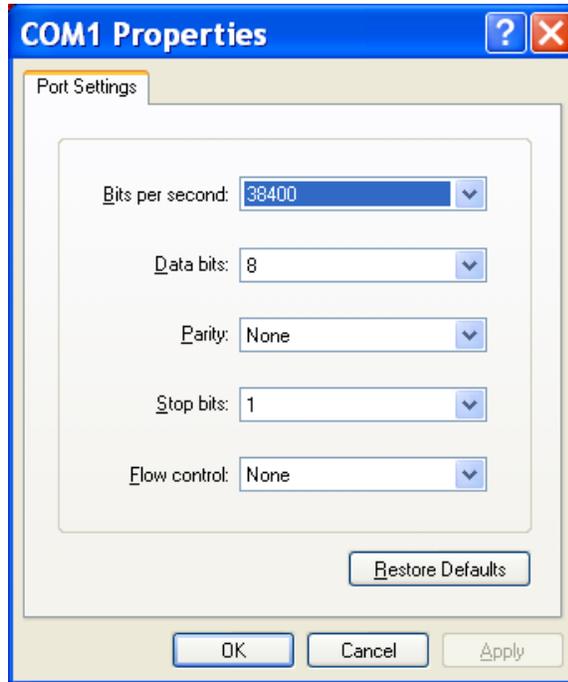
- On the **Connect To** dialog, set the COM port for your particular serial connection (Figure 1-4 below). In our example, we're using COM1. Press Enter to continue.

Figure 1-4 Setting the COM Port



4. When the **COMx Properties** dialog displays,
 - A. Set the **Bits per second** to 38400, and
 - B. Set the **Flow control** to None as shown in [Figure 1-5](#) below.
 - C. Press Enter to continue.

Figure 1-5 **Setting the Communication Parameters**

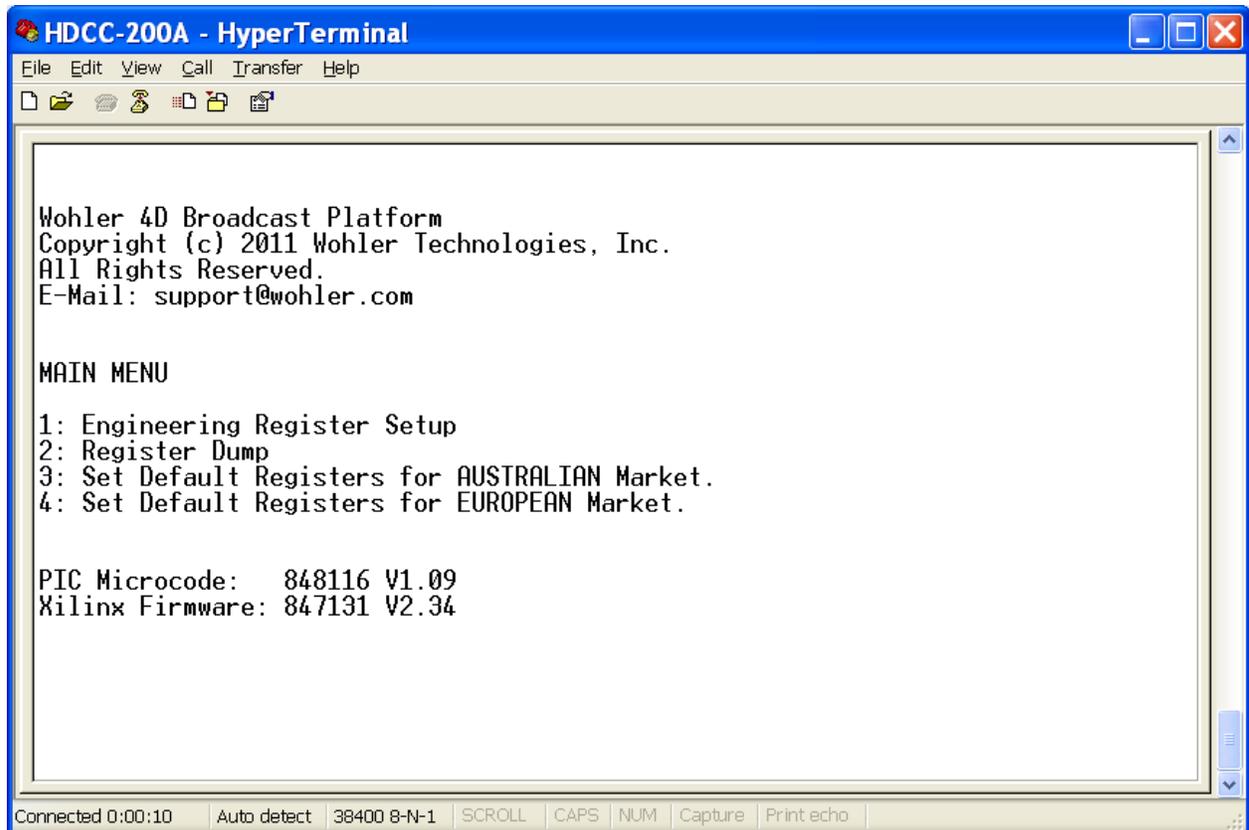


Note: The baud rate is always 38400 for the **Main Menu**.

Selecting the Regional Defaults

1. When the **HyperTerminal** application displays, and press the Enter key. You should see the HDCC-200A **Main Menu** (as shown in (Figure 1-6 below)).

Figure 1-6 Launching Your Terminal Emulator

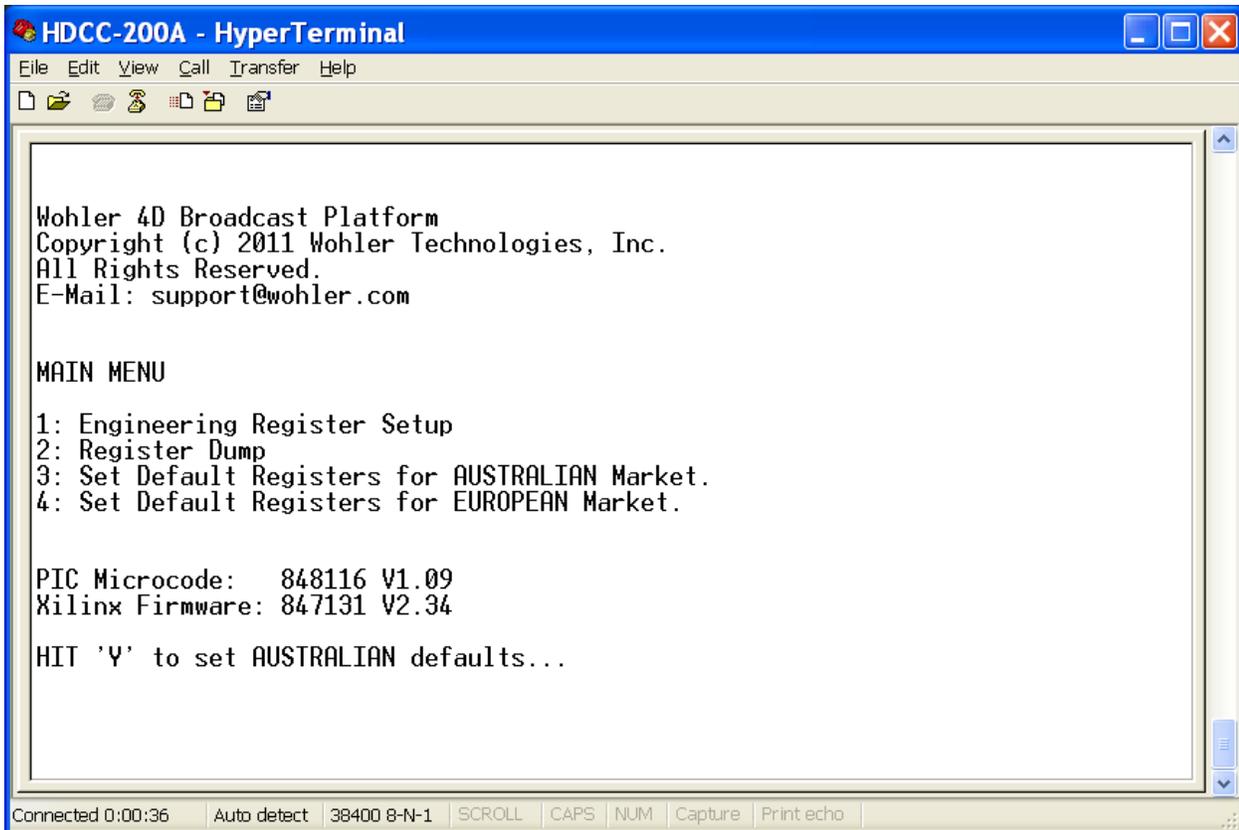


Chapter 1 Encode Testing

Selecting the Regional Defaults

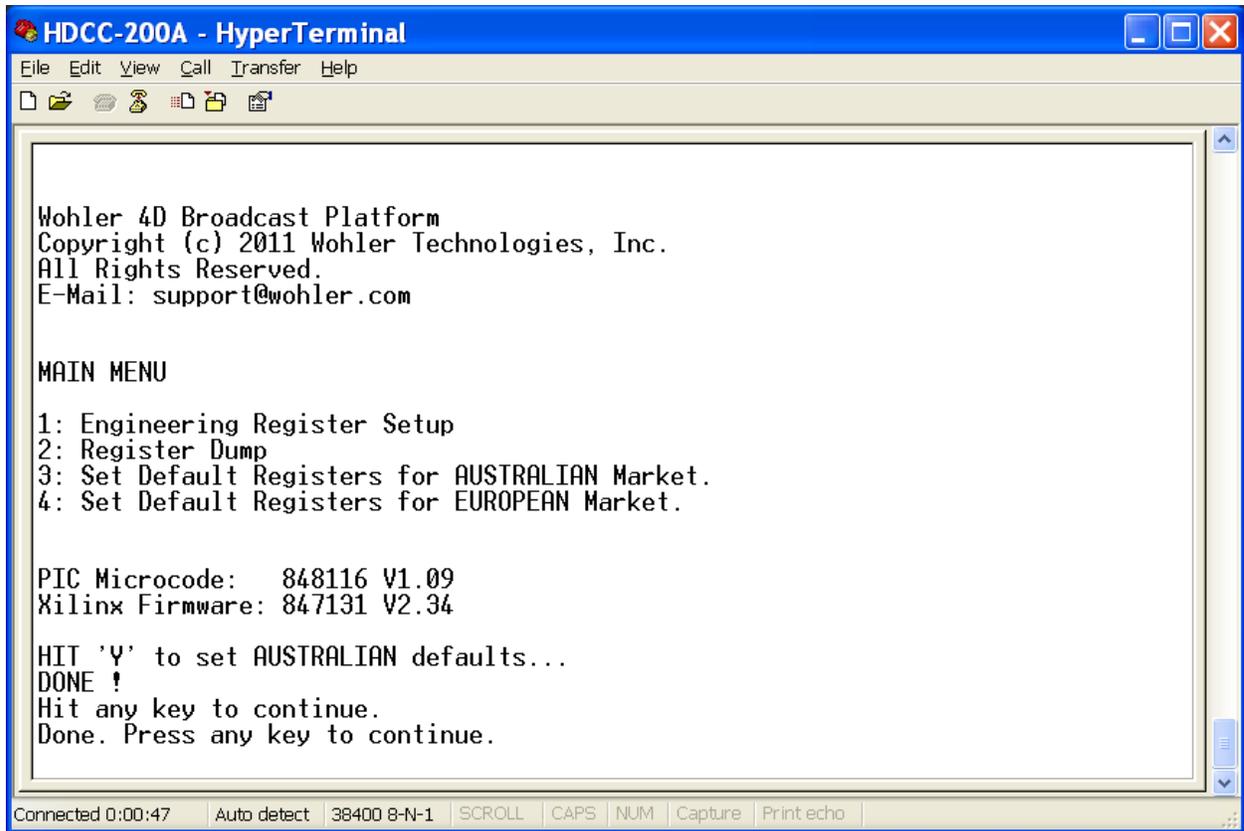
2. On the **Main Menu** type either 3 to select Australian defaults, or 4 to select European defaults. See [Figure 1-7](#) below.

Figure 1-7 **Selecting the Regional Defaults**



3. Press y to confirm your selection. See Figure 1-7 below.

Figure 1-8 Confirming the Selection

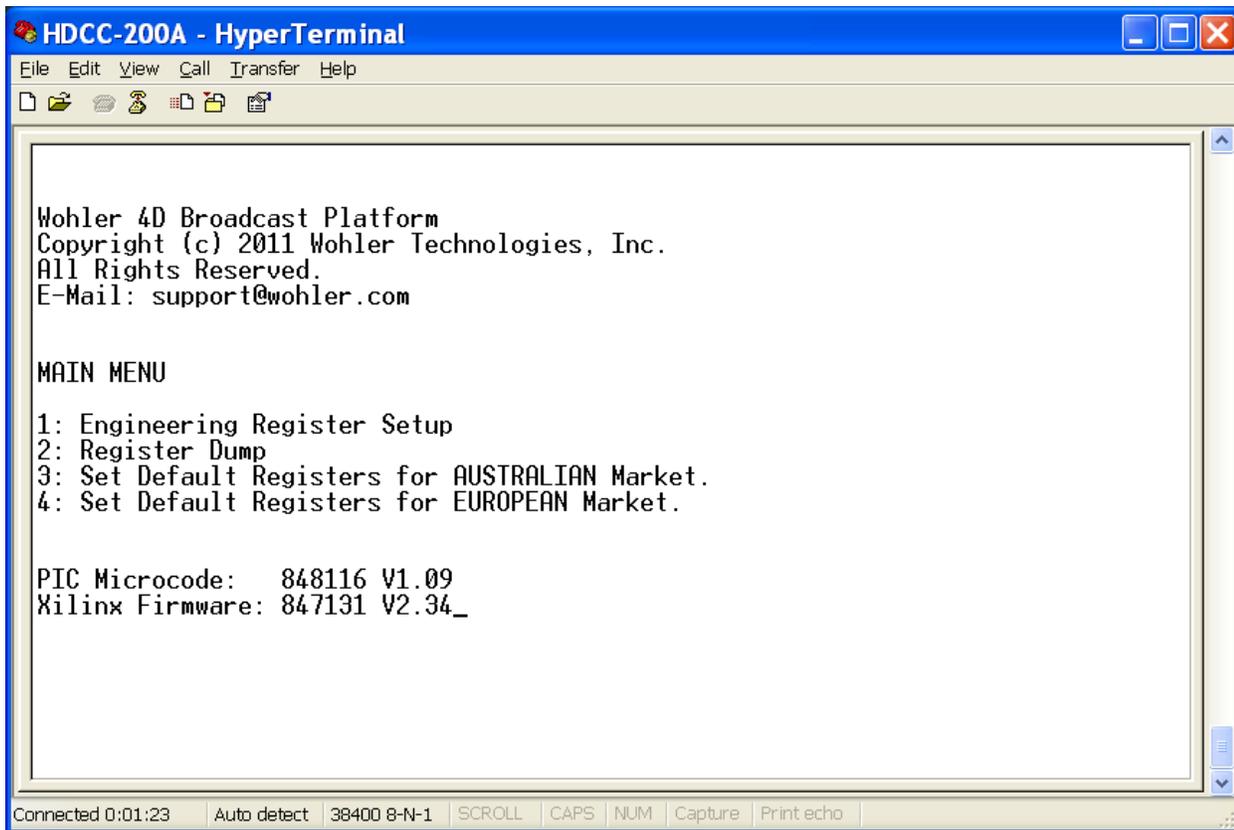


Chapter 1 Encode Testing

Selecting the Regional Defaults

4. Press the Enter key to complete the operation.

Figure 1–9 Confirming the Selection

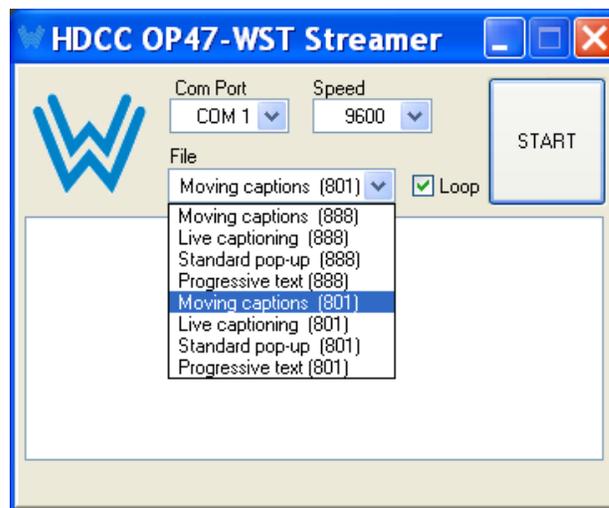


5. When the **Main Menu** reappears, close **HyperTerminal**.

Using Newfor Streamer

1. Launch the **Newfor Streamer** application from the desktop.
2. Select the **COM Port** for the laptop's serial port. In our example, we used COM1.
3. Set the communication **Speed**. In our example, we used 9600.
4. Click the drop down menu for the **File** field to display the options (See [Figure 1-8](#) below).

Figure 1–10 Selecting the Text Style



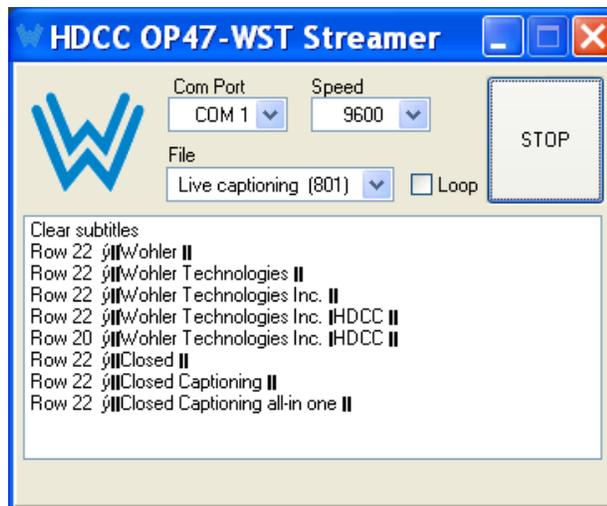
Important: Note that all the options in the **File** drop down list end in either 888 or 801. Make sure you're selecting the correct options for your regional standard:

- 801 = Australia
- 888 = Europe

Chapter 1 Encode Testing Using Newfor Streamer

5. For your region, select any of the available options:
 - **Moving Captions:** Selecting this option displays two lines of text that move from the top of the screen (starting at line 4) and step to the bottom of the screen (ending at line 22).
 - **Live Captioning:** Selecting this option momentarily displays a text string that appears on lines 18, 20, and/or 22 and then displays the next text string in the queue.
 - **Standard Pop-Ups:** Selecting this option displays two or three lines of text on the screen at a time randomly on the screen simulating live dialog.
 - **Progressive Text:** Selecting this option displays two lines of text that appear on lines 18 and 20 that scroll continuously.
6. After selecting the text display option from the **File** field, click the **Start** button and verify that you see captions scrolling in the Newfor **Streamer** application as shown in [Figure 1-9](#) below.

Figure 1-11 Newfor Streamer Content Display



7. Also verify that you see the captions on the monitor as shown [Figure 1-12](#) below.

Figure 1–12 Captions Display on the Monitor Connected to the HDCC-200A



CHAPTER 2

Decode Testing

Introduction

Overview

This chapter describes how to install, set up, and use the Calisto Lite application to test the closed caption encoding through the HDCC-200A in your production environment.

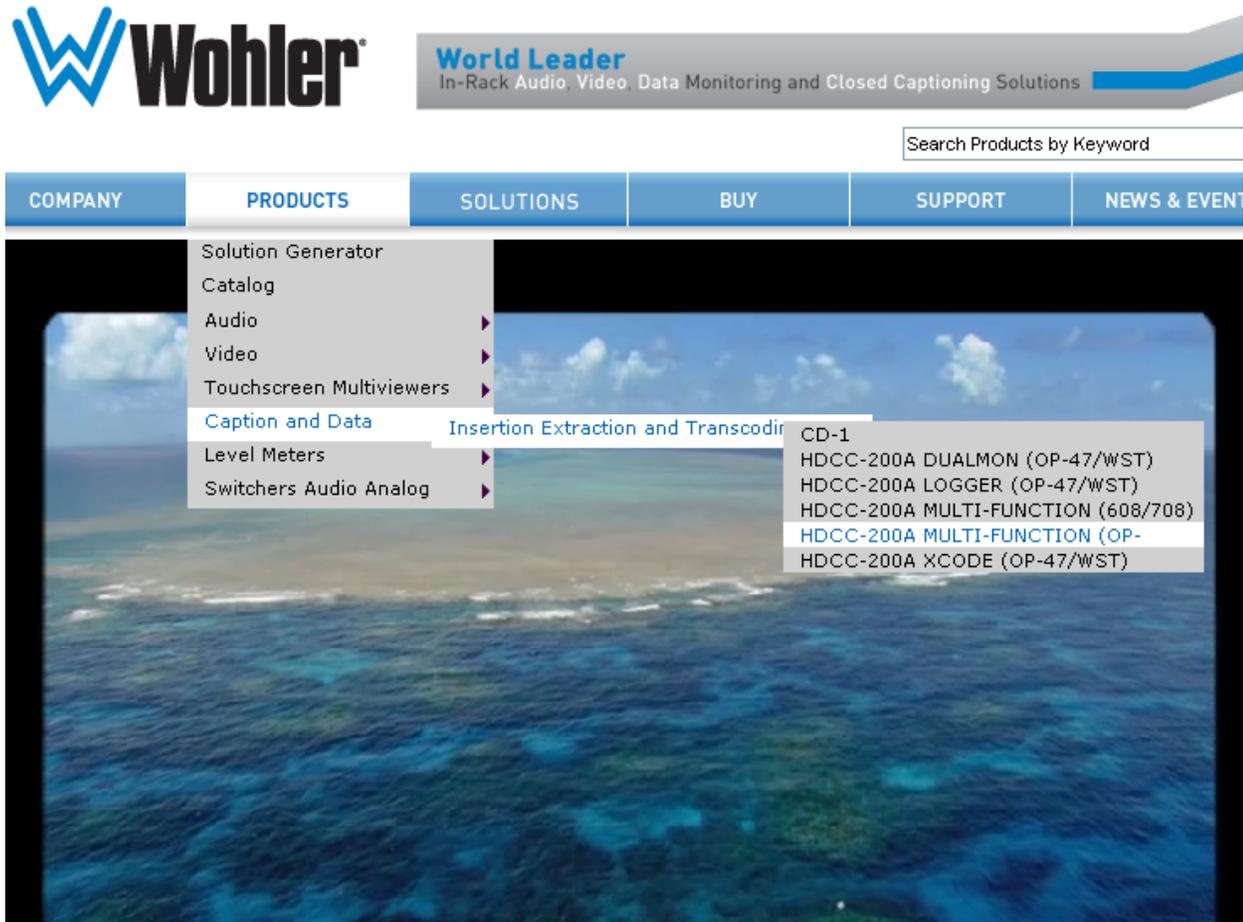
Topics

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Downloading and Installing the Application

1. Launch your web browser and navigate to www.wohler.com (shown in Figure 2-1 below).
2. Click the **Products** tab.
 - A. Mouse down to **Caption and Data**.
 - B. Mouse right to **Insertion, Extraction and Transcoding**.
 - C. Mouse down to **HDCC-200A Multi-Function (OP...** and click to select.

Figure 2-1 Selecting the HDCC-200A (OP-47/WST) Multi-Function Card



- When the product displays, click the **Downloads** tab about halfway down the page (shown in Figure 2-2 below).

Figure 2-2 Displaying the HDCC-200A Multi-Function Card

The screenshot shows the Wohler website interface. At the top, there is a logo for Wohler and a tagline 'World Leader In-Rack Audio Video Data Monitoring and Closed Captioning Solutions'. A search bar is located to the right. Below the navigation menu, the breadcrumb trail reads: PRODUCTS > CAPTION AND DATA > INSERTION EXTRACTION AND TRANSCODING > HDCC-200A MULTI-FUNCTION (OP-47/WST). The main content area is divided into several sections: 'PRODUCT INFORMATION' with a table showing 0 products and 0 quantity, a 'Submit for Quote...' button, and 'View My Cart Buy Direct!' links; 'SOLUTION GENERATOR' with a right-pointing arrow; an 'ICON KEY' listing various features like Analog, AES/EBU, SDI, HD, 3G, Dolby Digital, Speakers, and Level Meters; and a detailed product description for the HDCC-200A Multi-Function Card. The description includes a 'DESCRIPTION' tab, a 'FEATURES' section, and a 'DOWNLOADS' section. The 'DESCRIPTION' section states: 'The HDCC-200A is a compact, closed captioning solution for HD/SD-SDI broadcast and production applications. The dual channel module occupies a single card slot in a variety of conversion frames including IRT®, Codan®, and Evertz®. Each HDCC-200A card encodes, decodes, and transcodes. The card accepts 2 HD/SD-SDI input video streams, receives/returns live closed-captioning data via RS-232 or Ethernet, and produces 2 HD/SD-SDI output video streams, and 2 HD/SD-SDI monitoring output (open captioned) video streams. As an encoder, the card automatically inserts the data into an SD- or HD-SDI stream in EIA-608/708 or OP-47/WST formats. Additionally, the card will insert GPI data into the HD VANC, for recording on a variety of HD storage devices or distribution over the facility's digital video network. As a decoder, the card will extract EIA-608/708 or OP-47/WST captioning data (and GPI data) from an HD- or SD-SDI stream. As a transcoder, the card will duplicate the captions from one HD/SD-SDI stream'. The 'DOWNLOADS' section lists 'Data sheet' and 'Manual' with checkboxes, and 'Close up front view' and 'Close up back view' with plus signs. A 'Quantity: 1' dropdown and an 'Add to Quote' button are also visible.

- Click on **CalistoLite.zip**.
- When the **Save As** dialog box appears, navigate to the desktop and click **Save**.
- Unzip the application and save it to the desktop.

Setting Up the Hardware

1. Refer to the *HDCC-200A (OP-47/WST) Installation Guide* (PN 821046) for instructions to connect your HDCC-200A card to your PC or laptop and a monitor.

Important: When connecting the monitor, verify that you are connecting the monitor to the output port that corresponds to the input data stream you selected. In other words, if you connected your input test signal to I/P 1, then verify that you connected the monitor to O/P 3. If you connected the input signal to I/P 2, verify you have connected the monitor to O/P 4.

Also verify that your incoming video stream already has embedded closed captions. If it doesn't, this test will not work.

2. In our example, we're using the serial port to demonstrate how to set the serial communications. Set **Switch 1 to E** to display the engineering menu via the serial port.

Note: To use the Ethernet port, refer to *HDCC-200A (OP-47/WST) Installation Guide* (PN 821046) for instructions to configure the Ethernet port as a virtual serial port. Also, don't forget to set SW1 to F.

Establishing Communications from the Laptop to the HDCC-200A

1. On the laptop, launch **HyperTerminal**.
 - A. Click the Windows **Start** button.
 - B. Mouse over **All Programs**.
 - C. Mouse over **Accessories**.
 - D. Mouse over **Communications**.
 - E. Click on **HyperTerminal** (usually at the top of the list).

Establishing Communications from the Laptop to the HDCC-200A

- When the **Connection Description** dialog displays (Figure 2-3 below) you can optionally enter a name for this connection's configuration so that you can re-use it next time you launch HyperTerminal.

Figure 2-3 Connection Description Dialog



- On the **Connect To** dialog, set the COM port for your particular serial connection (Figure 2-4 below).

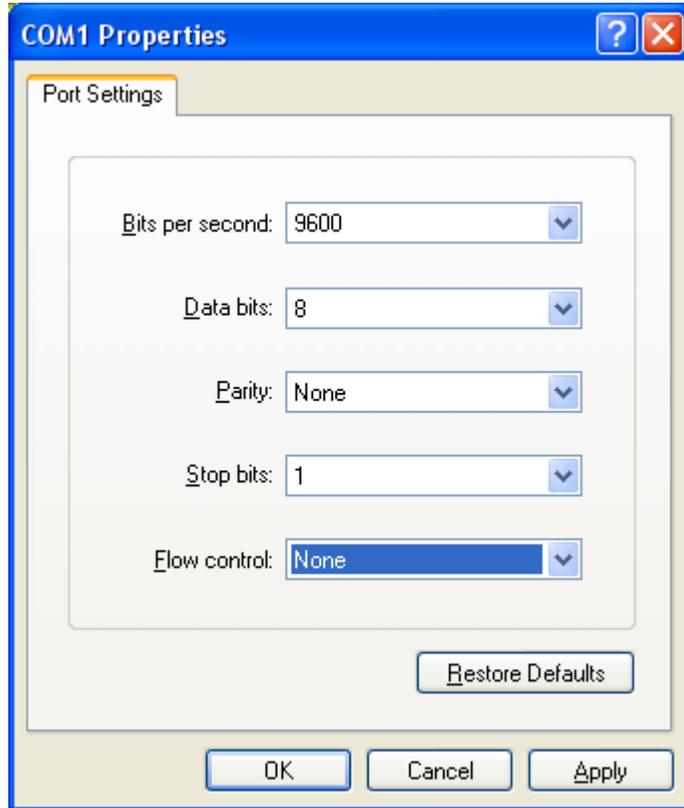
Figure 2-4 Setting the COM Port



Establishing Communications from the Laptop to the HDCC-200A

4. When the **COMx Properties** dialog displays, set the **Bits per second** to 9600 and **Flow control** to None as shown in [Figure 2-5](#) below.

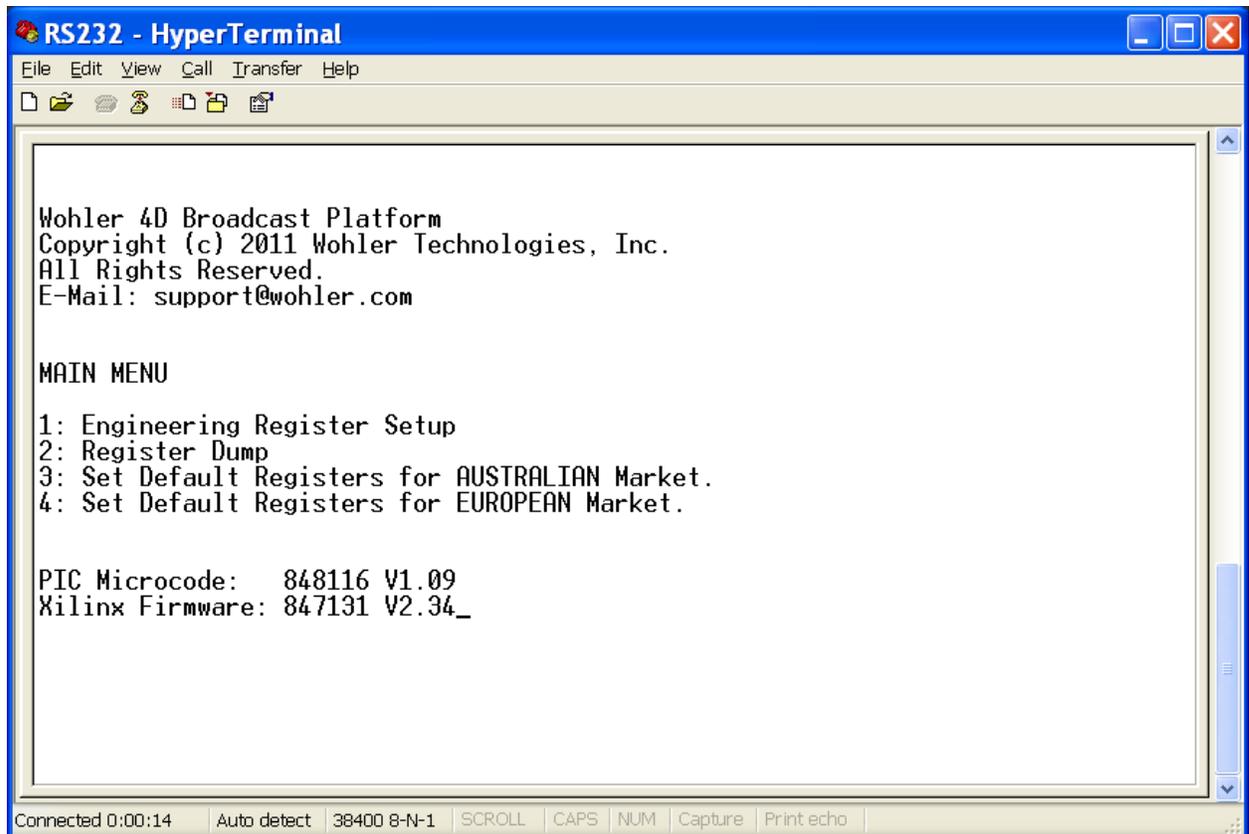
Figure 2–5 Setting the Communication Parameters



Selecting the Regional Defaults

1. On the laptop, select the **HyperTerminal** application and press the Enter key. You should see the HDCC-200A **Main Menu** (as shown in (Figure 2-6 below).

Figure 2-6 Launching Your Terminal Emulator

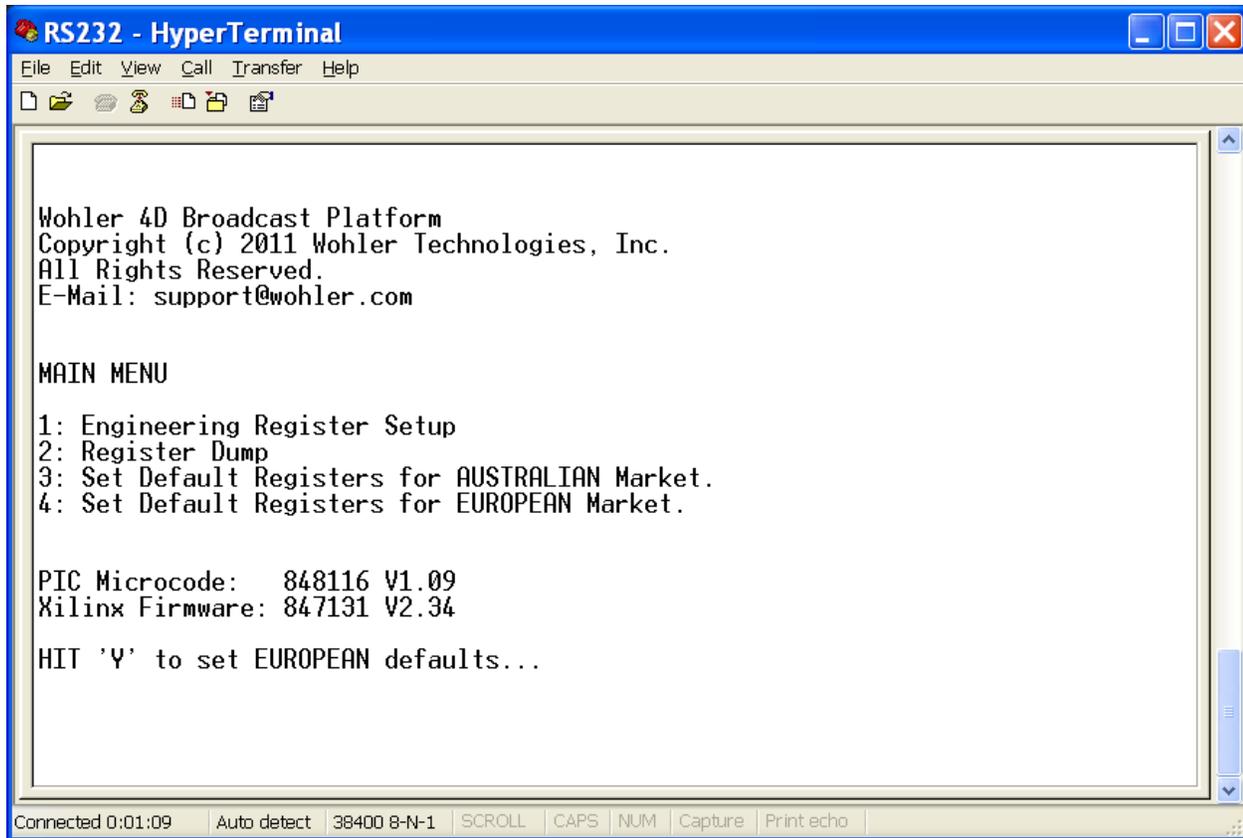


Chapter 2 Decode Testing

Selecting the Regional Defaults

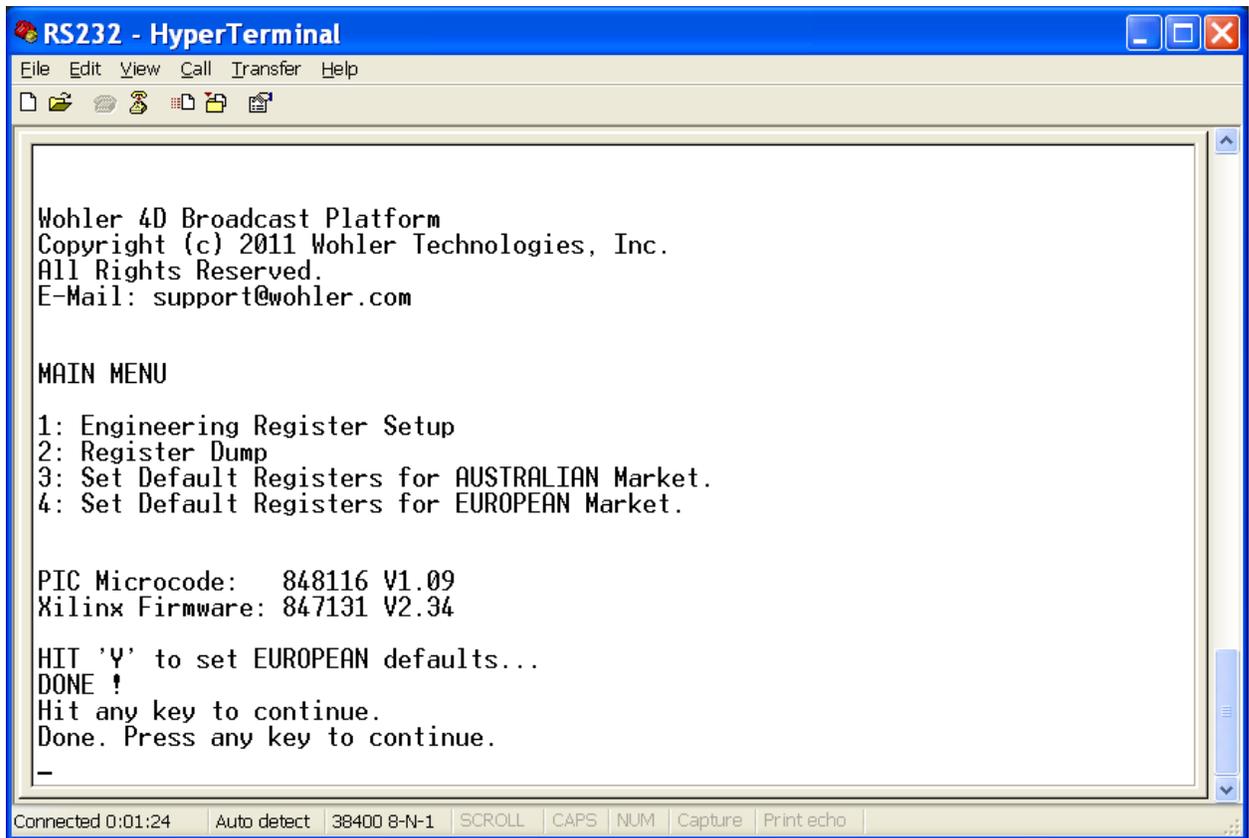
2. On the **Main Menu** type either 3 to select Australian defaults, or 4 to select European defaults.

Figure 2–7 Selecting the Regional Defaults



3. Press y to confirm your selection. See Figure 2-7 below.

Figure 2-8 Selecting the Regional Default Set



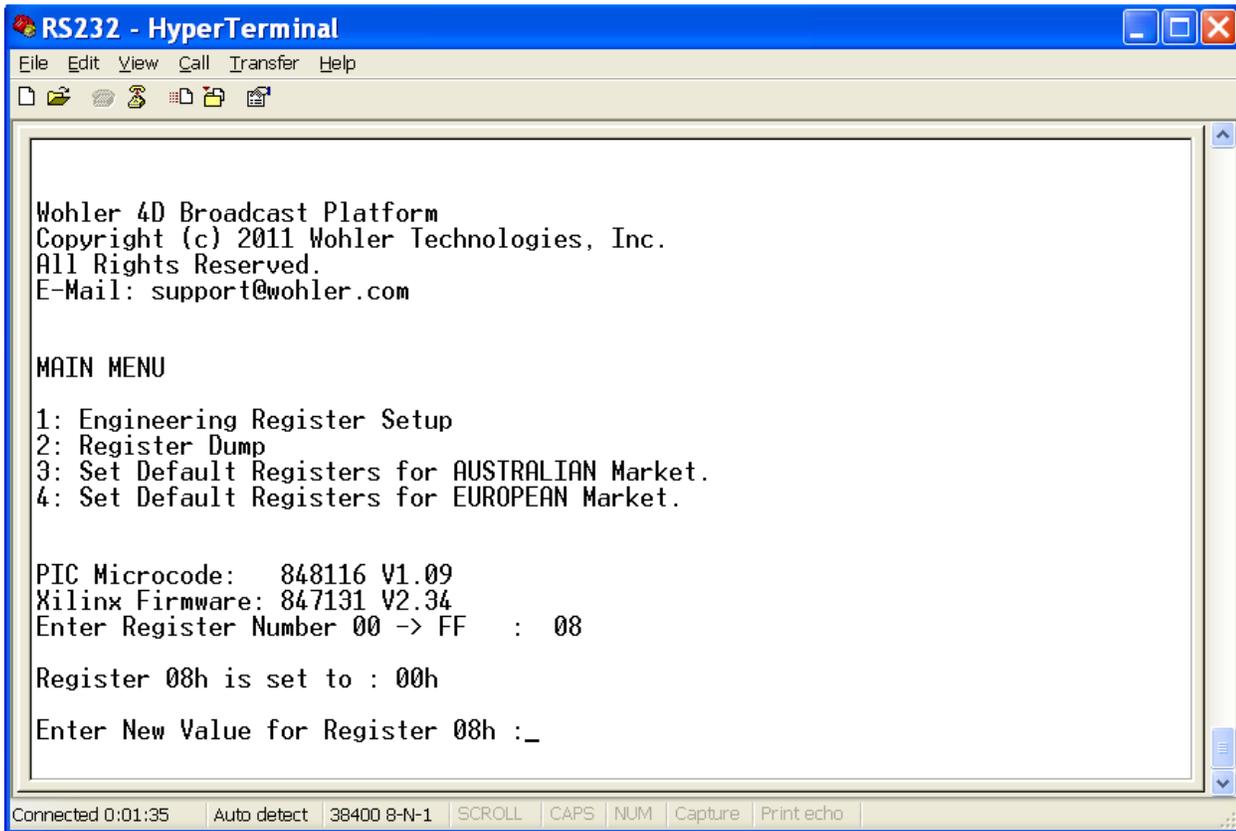
4. Press the Enter key to return to the Main Menu.

Resetting the Communications Speed

For decoding, the minimum baud rate is 38400. In this section, you will update the baud rate in the HDCC-200A for this communications speed.

1. Referring to [Figure 2-8](#) below, type 1 at the **Main Menu** to modify the engineering registers.

Figure 2-9 Resetting the Baud Rate



2. When the prompt appears, type 08. Register 08h is the one responsible for the baud rate.

```
Enter Register Number 00 -> FF : 08
```

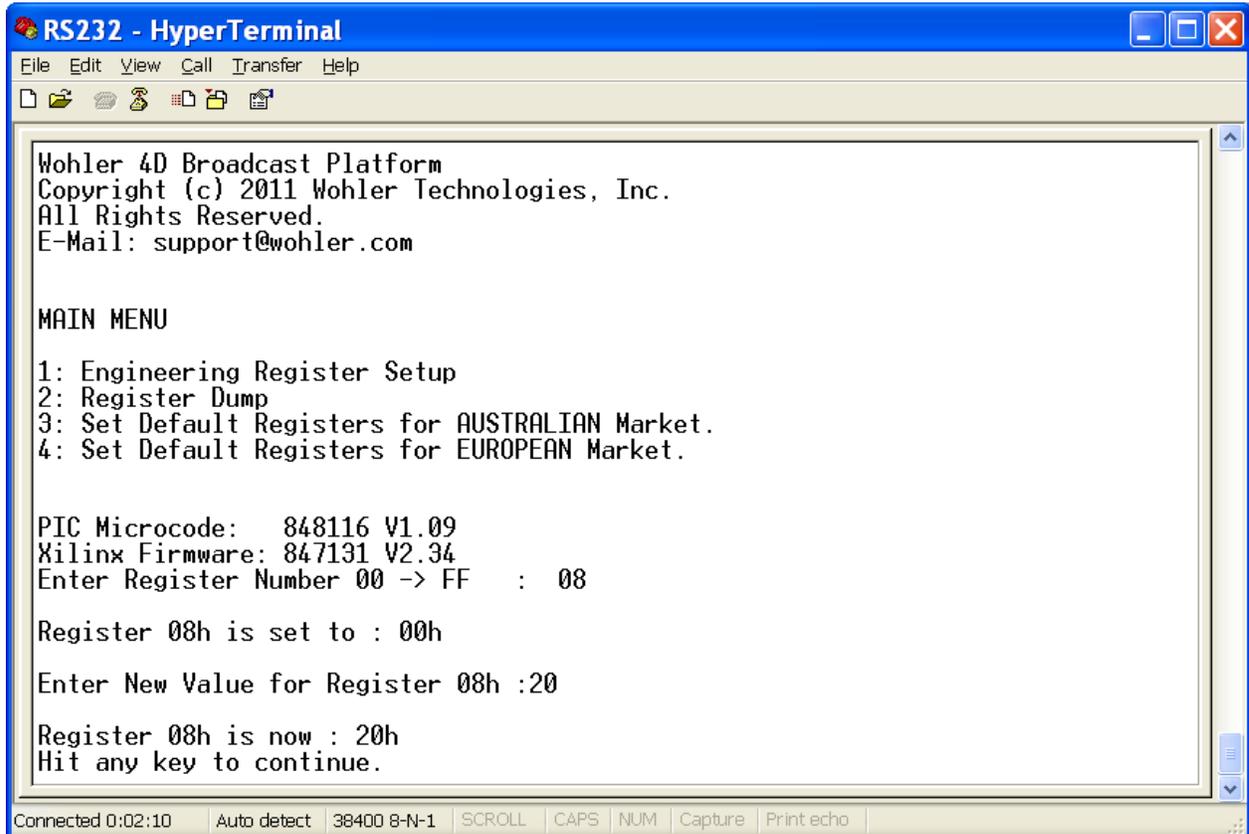
```
Register 08h is set to : 00h
```

3. Now enter the new value for register 08h, in this case 20.

Enter New Value for Register 08h : 20

```
Register 08h is now : 20h  
Hit any key to continue.
```

Figure 2–10 Resetting the Baud Rate

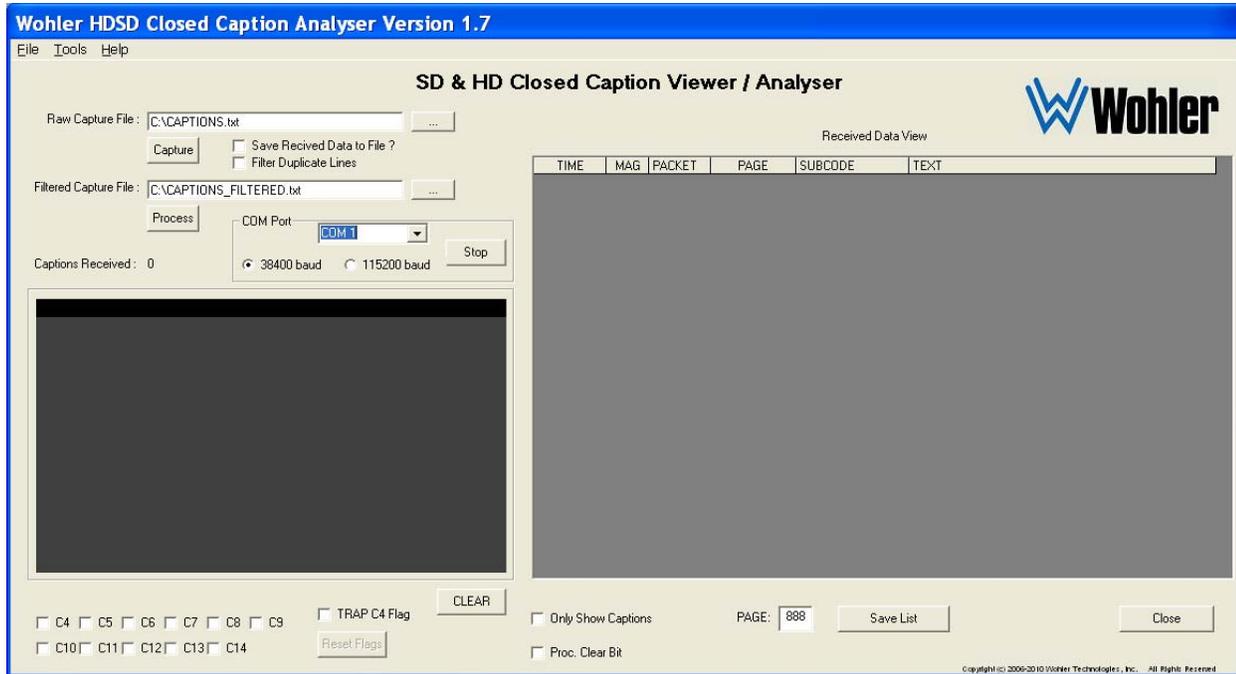


Now the baud rate is set to 38400. You can begin your decode test.

Using Calisto Lite

1. Set SW 1 on the HDCC-200A to 8.
2. Launch the Calisto Lite application from the desktop (Figure 2-10).

Figure 2-11 Calisto Lite Application Window



Important: Note that the default value for the Page field (bottom of the screen) is 801. Make sure you select the correct page value for your regional standard:

- 801 = Australia
- 888 = Europe

3. Click the **38400 baud** radio button if it is not already selected.
4. Set the **COM Port** field to the COM port you selected. In this example, we're using COM1.

- Click the **Stop** button to begin decoding text. You should now see closed caption data both in the Calisto Lite application and on the monitor connected to the HDCC-200A.

Figure 2–12 Calisto Lite Application with Closed Caption Data

Wohler HDS Closed Caption Analyser Version 1.7

File Tools Help

SD & HD Closed Caption Viewer / Analyser

Raw Capture File: C:\CAPTIONS.txt

Filtered Capture File: C:\CAPTIONS_FILTERED.txt

COM Port: COM 1

Captions Received: 22

38400 baud 115200 baud

Start

Received Data View

TIME	MAG	PACKET	PAGE	SUBCODE	TEXT
14:57:17.00	[M:8]	[Y:0]	[PAGE:8FF]	[SUBCODE:3F7F]	[6A][2F][6A][5E][C][15]
14:57:33.00	[M:8]	[Y:0]	[PAGE:888]	[SUBCODE:0000]	[15][50][15][50][2F][15]
14:57:33.01	[M:8]	[Y:0]	[PAGE:8FF]	[SUBCODE:3F7F]	[6A][2F][6A][5E][C][15]
14:57:33.07	[M:8]	[Y:0]	[PAGE:888]	[SUBCODE:0000]	[15][50][15][50][2F][15]
14:57:33.07	[M:8]	[Y:4]			[D][B][B] #3@[_] caption 1, line 4
14:57:33.08	[M:8]	[Y:6]			[D][B][B] #3@[_] caption 1, line 6
14:57:33.08	[M:8]	[Y:0]	[PAGE:8FF]	[SUBCODE:3F7F]	[6A][2F][6A][5E][C][15]
14:57:34.07	[M:8]	[Y:0]	[PAGE:888]	[SUBCODE:0000]	[15][50][15][50][2F][15]
14:57:34.08	[M:8]	[Y:6]			[D][B][B] #3@[_] caption 2, line 6
14:57:34.08	[M:8]	[Y:8]			[D][B][B] #3@[_] caption 2, line 8
14:57:34.09	[M:8]	[Y:0]	[PAGE:8FF]	[SUBCODE:3F7F]	[6A][2F][6A][5E][C][15]
14:57:35.07	[M:8]	[Y:0]	[PAGE:888]	[SUBCODE:0000]	[15][50][15][50][2F][15]
14:57:35.08	[M:8]	[Y:8]			[D][B][B] #3@[_] caption 3, line 8
14:57:35.08	[M:8]	[Y:10]			[D][B][B] #3@[_] caption 3, line 10
14:57:35.09	[M:8]	[Y:0]	[PAGE:8FF]	[SUBCODE:3F7F]	[6A][2F][6A][5E][C][15]
14:57:48.05	[M:8]	[Y:0]	[PAGE:888]	[SUBCODE:0000]	[15][50][15][50][2F][15]
14:57:48.08	[M:8]	[Y:12]			[D][B][B] #3@[_] caption 5, line 12
14:57:48.09	[M:8]	[Y:14]			[D][B][B] #3@[_] caption 5, line 14
14:57:48.09	[M:8]	[Y:0]	[PAGE:8FF]	[SUBCODE:3F7F]	[6A][2F][6A][5E][C][15]
14:57:48.10	[M:8]	[Y:0]	[PAGE:888]	[SUBCODE:0000]	[15][50][15][50][2F][15]
14:57:48.11	[M:8]	[Y:14]			[D][B][B] #3@[_] caption 6, line 14
14:57:48.11	[M:8]	[Y:16]			[D][B][B] #3@[_] caption 6, line 16
14:57:48.13	[M:8]	[Y:0]	[PAGE:8FF]	[SUBCODE:3F7F]	[6A][2F][6A][5E][C][15]

C4 C5 C6 C7 C8 C9 TRAP C4 Flag Only Show Captions Proc. Clear Bit
 C10 C11 C12 C13 C14 Reset Flags

PAGE: 888

Save List Close

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Chapter 2 Decode Testing Using Calisto Lite