



Information Sheet IS11003B

VS and NVLT Series – Operating with Orban Inside

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INFORMATION SHEET

1 INTRODUCTION

This document describes how to enable and operate the Orban audio processor after it is installed in a VS or NVLT series transmitter. The user can interface with audio processor functionality locally, using the transmitter's front panel UI, or remotely, using the advanced user interface (AUI). The extent of the features available depends on which interface is used.

Using the Orban Inside option requires the installation of an Orban audio processor card in your transmitter. If you had a pre-existing transmitter when you received your Orban card, install the Orban card in the transmitter using the Orban Inside Quick Install Guide, provided with the Orban card, and then verify your minimum software requirements (see 1.1.1). If your transmitter shipped with the Orban card installed (look for the Orban Inside label on the rear of the transmitter), no further modifications are required.

NOTE

Frequent reference has been made in this document to Orban's Optimod-FM 5500 Digital Audio Processor Operating Manual (see link below). The equipment covered in the 5500 manual uses the same Orban audio processor as in your transmitter. The 5500 manual provides detailed information on the audio processor's functionality. If a discrepancy exists between the operational instructions in the Orban manual and this document, the latter shall prevail as this document is specific to operation with a VS or NVLT transmitter.

View the Orban Optimod-FM 5500 Digital Audio Processor Operating Manual online at:

http://www.orban-europe.com/support/manuals/5500_1.0.0_Operating_Manual.pdf

(this version number referenced in this link is controlled by a third party and is subject to change without notice)

1.1 Equipment Affected

This procedure applies to VS or NVLT series transmitters that have been factory equipped or field modified with the Orban model # 5500N card.

1.1.1 Minimum Software Required

For VS series transmitters: VS SW version 2.0. For NVLT series transmitters: NVLT SW version 1.0. The appropriate software version is included with transmitters containing the factory equipped Orban card referenced in paragraph 1.1.

1.2 Responsibility for Implementation of Procedure

This procedure should be carried out by qualified station maintenance personnel who are familiar with the operation of VS or NVLT series transmitters.

1.3 Scheduling

This procedure must be performed when operation with the Orban audio processor functions is desired. With the exception of a transmitter reboot in step 3 (c) (as required), the transmitter can remain "on air" during normal operation and configuration of Orban audio processor functions.



1.4 Publications Affected

Local front panel screens and remote AUI pages that are pertinent to enabling and operating the Orban audio processor are included in this document. Where applicable, references to the VS or NVLT series documentation are also included.

2 PRELIMINARY CHECKS

Ensure the VS or NVLT transmitter is configured for the Orban Inside feature as follows:

- (a) Verify that the Orban Inside label is present on the rear panel of the transmitter (see Figure 1). This label indicates that the Orban card is installed.



Figure 1: Orban Inside Label

- (b) Verify that your transmitter meets the minimum software requirements (see 1.1.1).

- If you purchased the transmitter complete with an Orban card installed, then your transmitter already contains the correct version of software and is configured to recognize the Orban Inside card as its audio processor. Proceed to paragraph 4.
- If you installed the Orban card in a pre-existing transmitter, turn on the transmitter and view the software version on the front panel UI (**View Status ► View SW Versions** screen) or through the remotely accessed AUI (for older software versions, go to the **Software Configuration ► Upgrade Software** page; for newer software versions, go to the **System Settings ► Upgrade Software** page). If it is necessary to upgrade the software, obtain the necessary upgrade file from Nautel and upgrade the software as detailed in Section 4 of the VS or NVLT transmitter's Operations and Maintenance Manual. Proceed to paragraph 3.

3 CONFIGURING THE TRANSMITTER FOR ORBAN INSIDE

Configure the VS or NVLT transmitter to recognize the presence of the Orban card using the transmitter's front panel UI as follows:

- (a) Turn on the transmitter and set to local mode of operation. Depending on the software version installed in the transmitter, there could be two different paths to navigate to the front panel UI's **Audio Processor** screen (see Figure 2).
- Go to the **Main Menu ► User Settings** menu, scroll down and select **Audio Processor**.
 - Go to the **Main Menu ► System Settings ► HW Config** menu, scroll down and select **Audio Processor**.
- (b) In the **Audio Processor** screen, press the up arrow (▲) and select "**Orban Inside**". Press the green center check mark to save.

NOTE

In the Audio Processor menu, selecting "None" disables the Orban Inside.

- (c) Reboot the transmitter by switching the ac power off and then on; this will ensure the transmitter properly detects the Orban Inside card upon recovery.

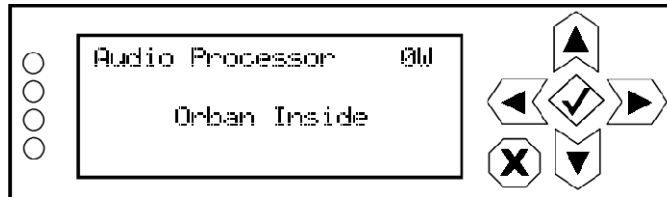


Figure 2: Configuring the Transmitter – Audio Processor screen

4 ENABLING THE ORBAN AUDIO PROCESSOR FOR PRESET SELECTION

Enable the Orban audio processor to allow preset selection using either the transmitter's front panel UI (see 4.1) or remotely accessed AUI (see 4.2) as follows:

NOTE

Enabling the Orban audio processor locally will cause the remote AUI to display an enabled setting. The same occurs on the front panel UI when enabling remotely.

4.1 Using the Front Panel UI

- (a) With the transmitter turned on and in local mode of operation, navigate to the front panel UI's **Main Menu ► User Settings** menu. Select **Edit Presets** (see Figure 3a).
- (b) In the **Edit Presets** screen (see Figure 3b) select from the list the desired preset for use with the Orban audio processor or create a new preset.
- (c) Within the selected preset's screen (see Figure 3c), scroll down and select **Main Audio**.
- (d) Within the **Main Audio** screen (see Figure 3d), scroll down and select **Audio Processor**.
- (e) Within the **Audio Processor** screen (see Figure 3e), select **Enable**. From the **Enable** screen, select **ON** to enable the audio processor (selecting **OFF** disables the audio processor).

NOTE

The Orban Inside card processes only the main audio; however it is possible for the composite SCA inputs to result in excessive modulation. The L/R limiter is automatically disabled when the Orban Inside card is selected; however the other limiters (hard limiter, AGC limiter, 2-slope limiter) remain active. Nautel recommends that you set the thresholds for these other limiters high enough to ensure the signal is unaffected. These other limiters remain as a last resort to prevent over-modulation.

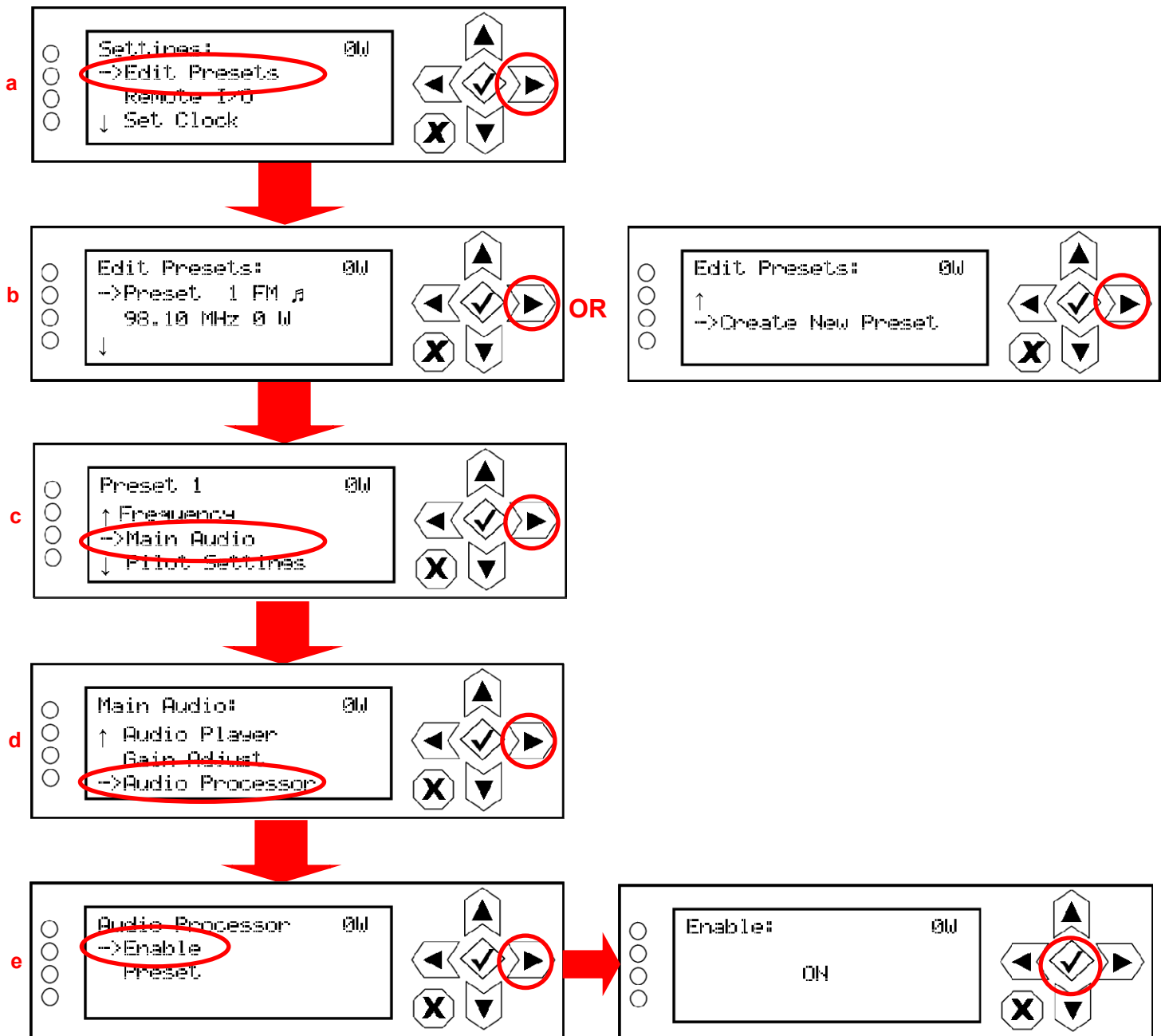


Figure 3: Enabling the Orban Audio Processor – Front Panel UI

4.2 Using the Remote AUI

- With the transmitter turned on, connected to a remote monitoring PC or laptop and in remote mode of operation, navigate to the AUI's **Main Menu ► Presets** page.
- For the applicable preset, click on the **Other Settings** tab (see Figure 4).
- In the **Orban Processor Enable** drop-down list, select **Enabled** to enable the audio processor (selecting **Disabled** disables the audio processor). Click **Save** to store the change.

The screenshot shows the Nautel AUI interface. At the top, there's a header with 'Date & Time' (Tue Feb 21 2017, 11:45:11), 'Transmitter' (0 W, FM, 98.10 MHz, 32.0 W, Reflected 0 W, Set Point 32.0 W, Preset: Preset 1), and 'Exciter' (Active Exciter Internal, FM Modulation 8.990 %). Below this is a 'Presets: * Current Settings' window. The window has tabs for 'General', 'Main Audio', 'SCA', 'RDS', and 'Other Settings'. The 'Other Settings' tab is selected. On the left side of the window, there are buttons: 'Load', 'Save', 'Save New', and 'Delete'. The main area of the window lists various settings: 'Pilot Level' (9.0 %), 'Pilot 1PPS Sync' (Disabled), 'Audio Delay' (Disabled), 'Mod Loss Timeout' (Disabled), 'Hard Limiter' (Disabled), 'AGC Limiter' (Disabled), 'Two Slope Limiter' (Disabled), 'Orban Processor' (Enabled), 'Orban Preset' (ROCK-LOUD), 'L/R Limiter' (Disabled), and 'MPX Power Limiter' (Disabled). The 'Orban Processor' and 'Orban Preset' rows are highlighted with a red circle.

Figure 4: Enabling the Orban Audio Processor – AUI

5 SELECTING AN ORBAN AUDIO PROCESSOR PRESET

Select an Orban audio processor preset using either the transmitter's front panel UI (see 5.1) or remotely accessed AUI (see 5.2) as follows:

NOTE

Selecting an Orban preset locally will cause the remote AUI to also reflect the change. The same occurs on the front panel UI when remotely selecting a preset.

To create a new Orban Audio Processor Preset, refer to paragraph 6 – Managing Orban Audio Processor presets.



5.1 Using the Front Panel UI

- From the **User Settings ► Edit Presets ►** (Select desired preset to edit) ► **Main Audio ► Audio Processor** menu (see Figure 5), select **Preset**.
- Use the up and down arrows to scroll through the list of available Orban presets (e.g., ROCK-LOUD, etc). Select the desired preset and press the 'accept' (checkmark) button to activate. Refer to the Orban Optimod 5500 manual for detailed information on the factory programmed presets available.

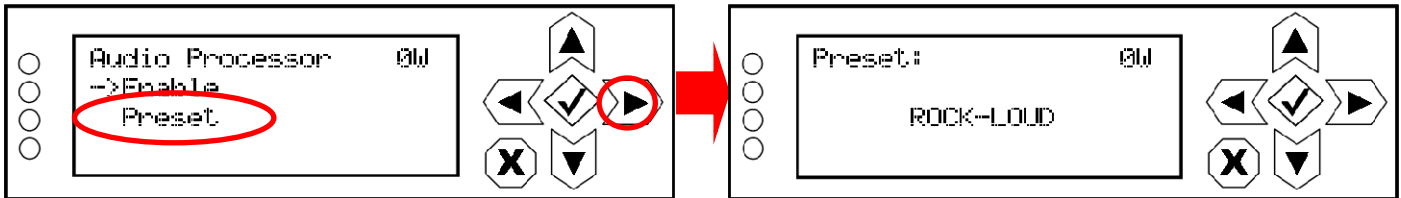


Figure 5: Selecting an Orban Preset – Front Panel UI

5.2 Using the Remote AUI

- From the AUI's **Main Menu ► Presets** page, click on the **Other Settings** tab (see Figure 6).
- From the **Orban Preset** drop-down list, select the desired Orban preset (e.g., ROCK-LOUD, etc). Refer to the Orban Optimod 5500 manual for detailed information on the factory programmed presets available. Click **Save** to store the change. To create a new Orban preset, see paragraph 6.

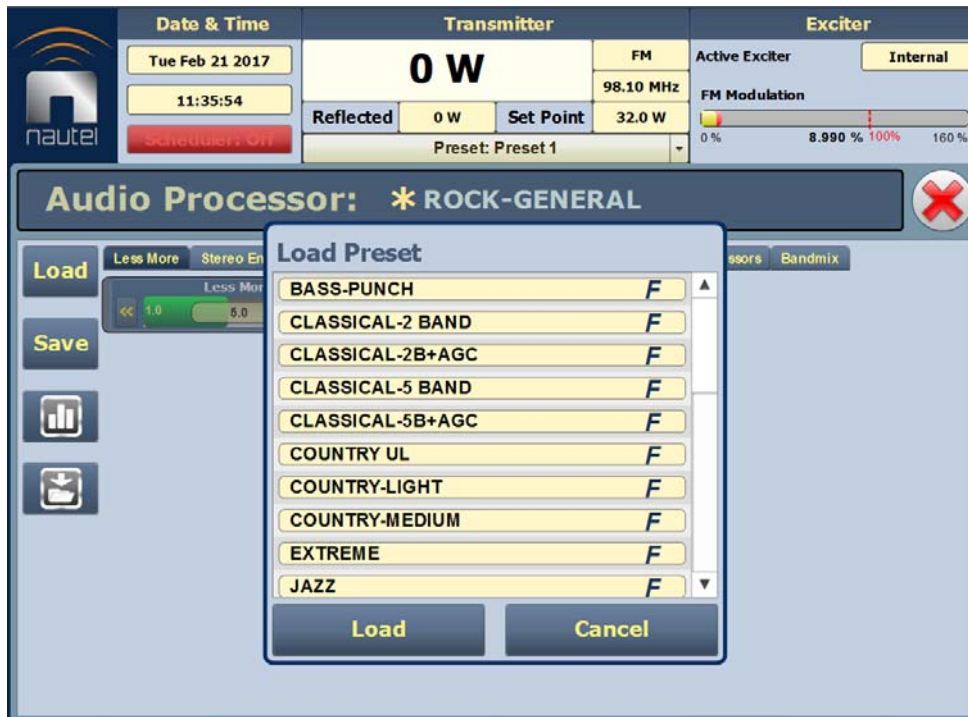


Figure 6: Selecting an Orban Preset – AUI

6 MANAGING ORBAN AUDIO PROCESSOR PRESETS

Orban presets contain many audio processing settings, including stereo enhancement, AGC, EQ, final clipping and distortion. From the remote AUI (not available from the front panel UI), you can create Orban presets, manage their various settings and save the preset settings to a text file.

When the Orban Inside feature is enabled (see paragraph 4), an **Audio Processor** icon appears on the AUI's **Main Menu** window (see Figure 7). Click on this icon to enter the **Audio Processor** menu (see Figure 8).

WARNING

When you open the Audio Processor page while the transmitter is on and Orban is enabled, the active preset in the Orban audio processor is loaded by default. Loading another Orban preset causes that preset to become active. Make sure you understand the impact that a preset change will have on your broadcast.

NOTE

The Audio Processor page contains nine tabbed sections that allow managing of Orban presets. These tabbed pages are shown in Figures 8 through 16 they illustrate the many parameters associated with an Orban preset. Detailed descriptions are not included in this document. Refer to the Orban Optimod 5500 manual for more information on setting these parameters.

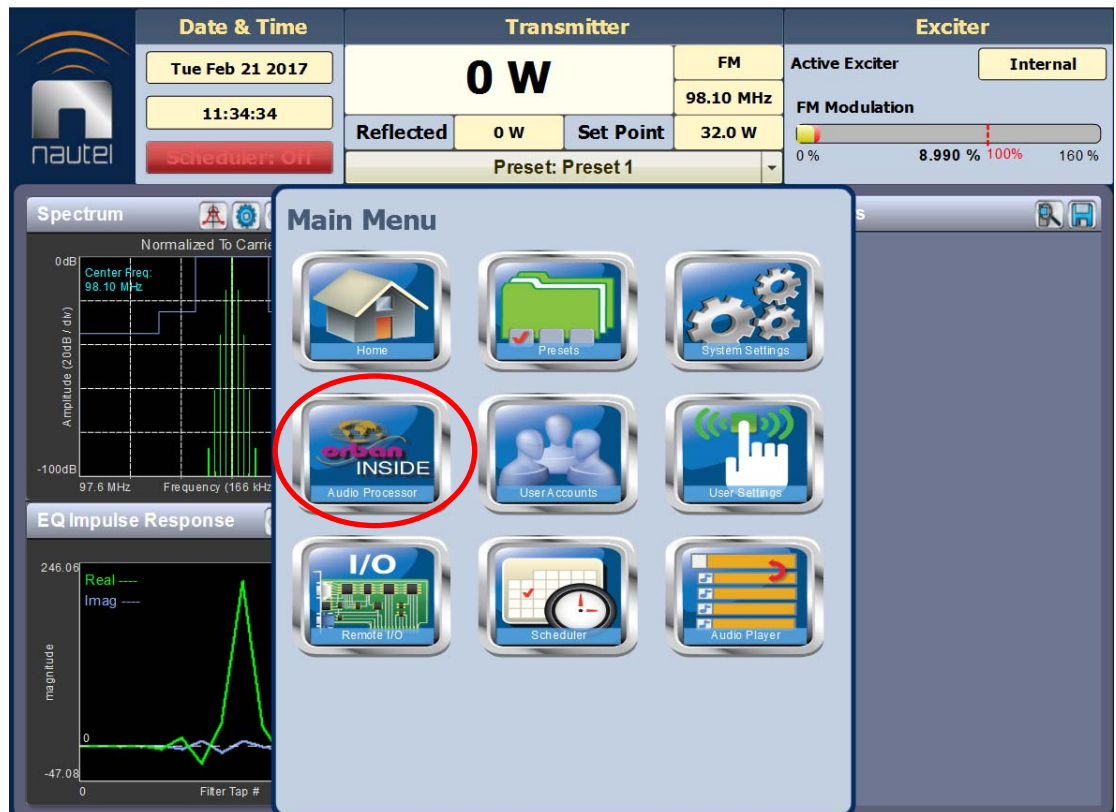


Figure 7: AUI Main Menu – with Audio Processor icon (VS series AUI shown)



Figure 8: Audio Processor menu – Less More tab shown

6.1 Loading and Saving Presets

The left-hand side of the **Audio Processor** page has four buttons (see below).



When you first enter the **Audio Processor** page, the current preset is displayed. If the current preset is not the preset you want to work with, click the **Load** button to call up a window containing a list of alternate presets. Presets that display an 'F' are factory presets that cannot be modified. Presets that display a 'U' are user presets that can be modified.

To activate any change in the Audio Processor page, click the **Save** button and then click the **Save Preset** window's **Save As** button [**Save As** and **Delete** buttons not available for factory (F) presets]. When creating a new preset, you can also enter a new name in the **Save Preset** window before clicking the **Save As** button. Click **Cancel** to discard changes and return to the **Audio Processor** page.

Clicking this button opens an **Audio Processor** meter window (see Figure 9) that displays various meters that indicate levels for inputs, AGC, gain reduction, multiplex (MPX) power and composite. Refer to the Operation section of the Orban Optimod 5500 manual for detailed information on these meters.

Clicking this button opens a window that allows downloading a text version of the preset to a folder on your PC or laptop.

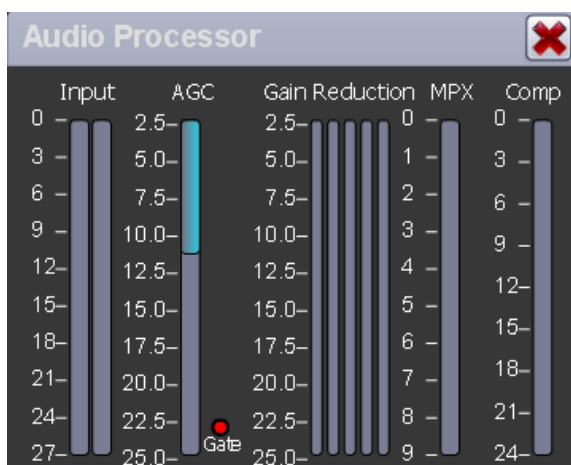


Figure 9: Audio Processor meter window

There are two types of Orban audio processor presets: factory presets and user presets. Factory presets, designated by an 'F' in the **Load** or **Save** screens, cannot be modified. When a factory preset control is changed, a new preset is automatically created. This preset's default name will be the same as the Orban preset with an asterisk (*) prefix (e.g., * BASS-PUNCH). Modified presets should be saved to a new name, otherwise they will be overwritten by any edits made to subsequent presets. A saved preset will display as a User preset, designated by a 'U' in the **Load** or **Save** screens. User presets can be modified.

6.2 Tab Sections

The following tabs (and referenced Figure numbers) are available on the **Audio Processor** page. Each provides specific control functions for the selected preset. Refer to the Orban Optimod 5500 manual for details on these settings.

- **Less More** – see Figure 8
- **Stereo Enhancer** – see Figure 10
- **AGC** – see Figure 11
- **EQ** – see Figure 12
- **Final Clipping** – see Figure 13
- **Multiband** – see Figure 14
- **Compressors** – see Figure 15
- **Bandmix** – see Figure 16
- **Distortion** – see Figure 17

See Figure 8. Each control shows the current setting (in the middle of the control) and the available range of settings. You can make adjustments either by clicking on the << or >> buttons or by moving (click, hold and move mouse accordingly) the green slider bar, which indicates the setting graphically.



Figure 10: Stereo Enhancer tab



Figure 11: AGC tab



Figure 12: EQ tab

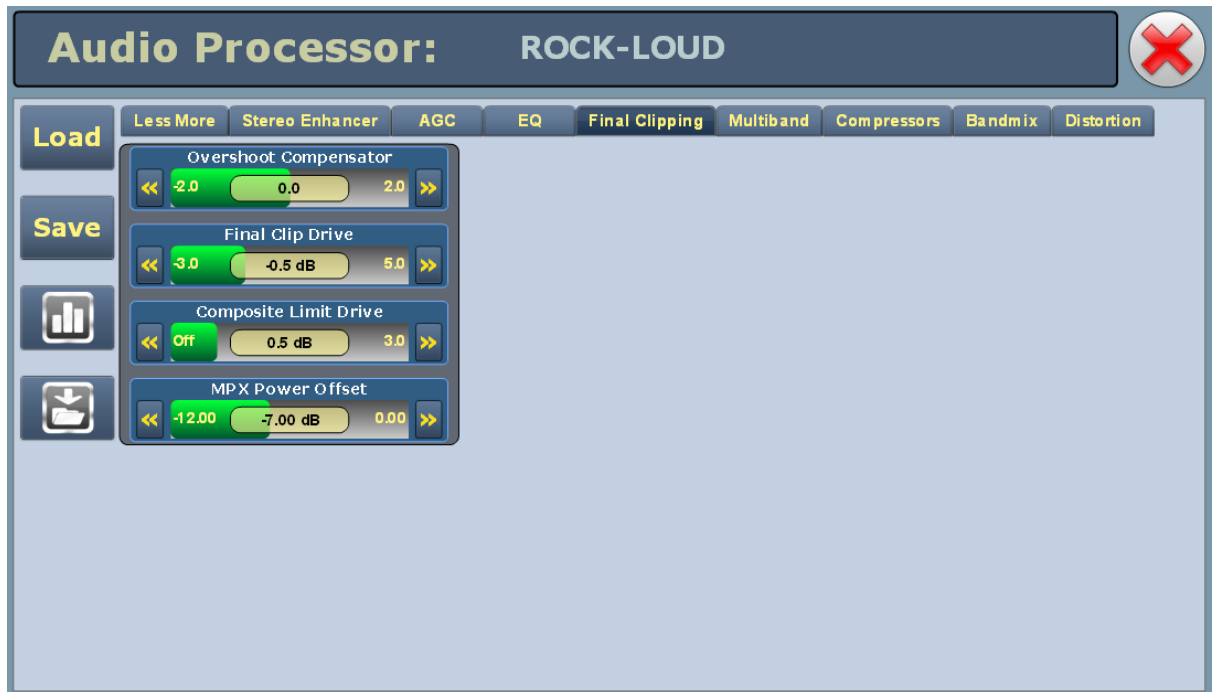


Figure 13: Final Clipping tab



Figure 14: Multiband tab



Figure 15: Compressors tab



Figure 16: Bandmix tab

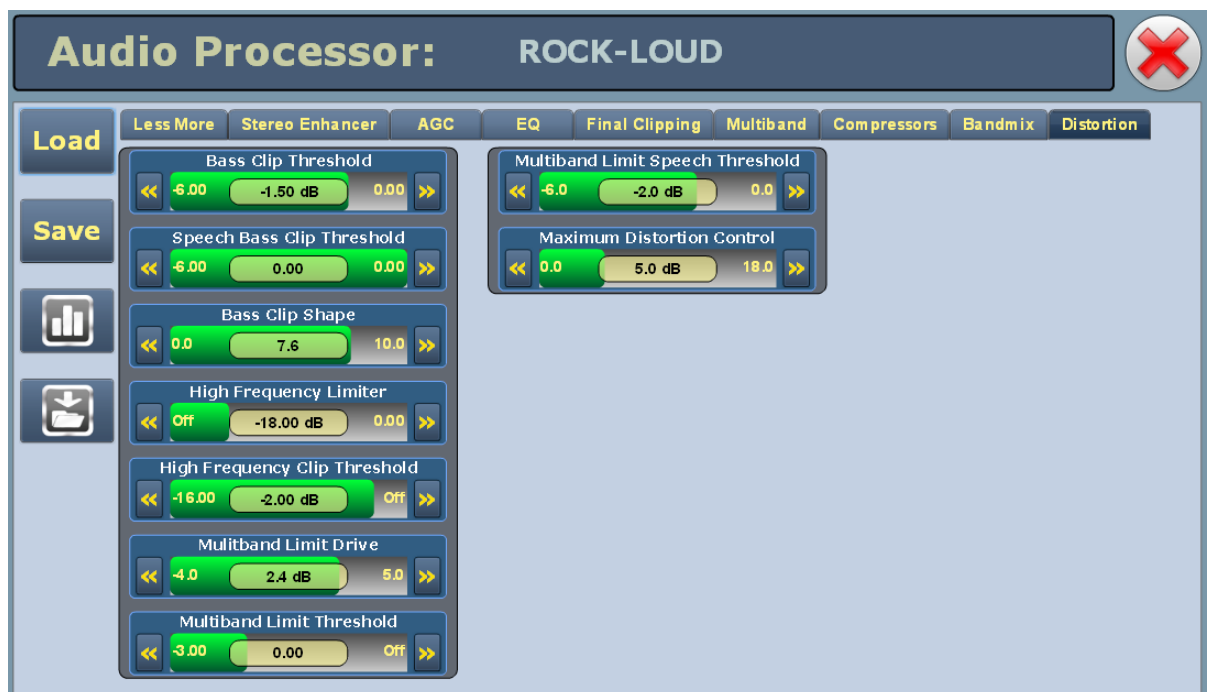


Figure 17: Distortion tab

**If you have any questions or require additional assistance, please contact
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Email: support@nautel.com

