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GOLDMUND CONFIGURATOR FOR OURANOS DEVICES

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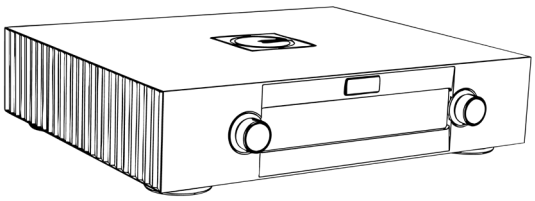
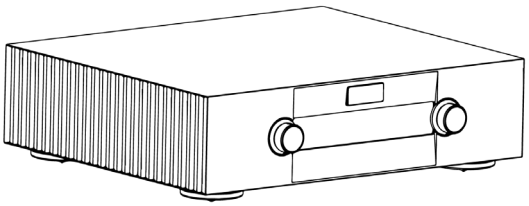
OURANOS SIGNATURE



OURANOS EXCELLENCE



1. PRELIMINARIES

The configurator app is available both as a software to install on a computer and accessible online via a web browser. Updates are installed automatically when the computer is connected to internet.

The application is available in four languages: English, French, Korean, and Chinese.

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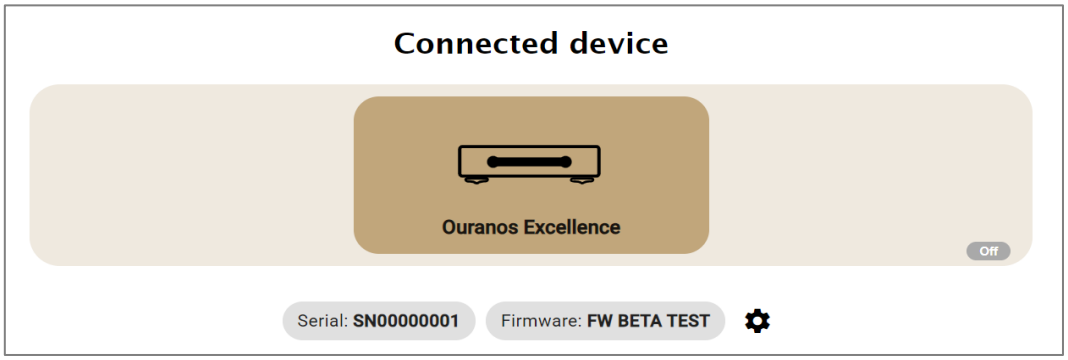
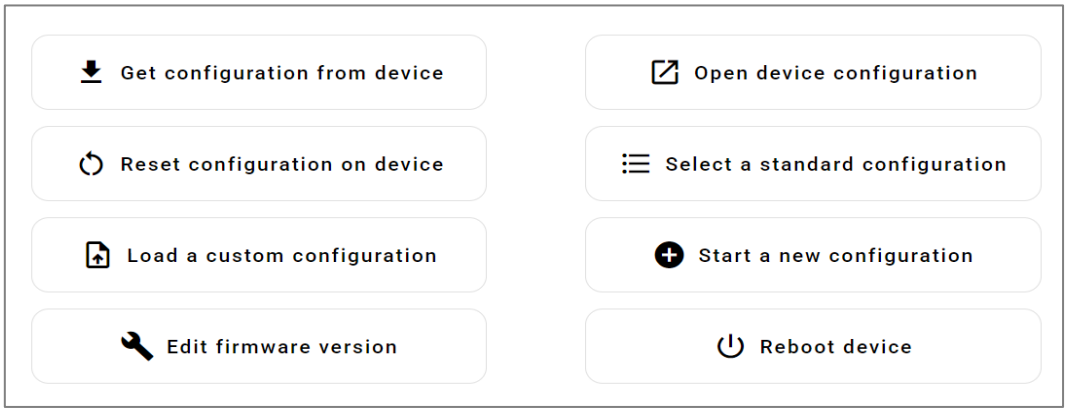
2. HOME PAGE

The home page automatically detects the connected device by displaying its serial number and the current version of the installed firmware. It also enables device-specific information to be edited by clicking on the small icon located to the right of the firmware display.



From the homepage page, several actions are available to properly configure the installed system:



- Get configuration from device

  Find the active configuration from the device and download it in JSON format.

- Open device configuration

  Open the active configuration from the device using the Advanced Configuration page.

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- Reset configuration on device

  Restore factory default settings.

- Select standard configuration

  Open a "Basic Configuration" page containing a collection of stereo and multichannel ready-to-use predefined configurations and respective wiring diagrams.

- Load a custom configuration

  Load an existing custom configuration (in YAML or JSON format) using the "Advanced Configuration" page.

- Start a new configuration

  Create a new stereo and/or multichannel configuration from a blank setup using the "Advanced Configuration" page.

- Edit Firmware version

  Update or modify the Firmware.

- Reboot device

  Restart of the device.

3. CONFIGURATION SETTINGS

The application offers two different configuration modes, a basic mode and an advanced mode.

3.1. BASIC CONFIGURATIONS

The basic configurator offers standard configurations with wiring diagrams allowing for quick and independent installation of simple systems.

The list of available configurations offers 27 configurations for the Ouranos Excellence and 23 configurations for the Ouranos Signature.

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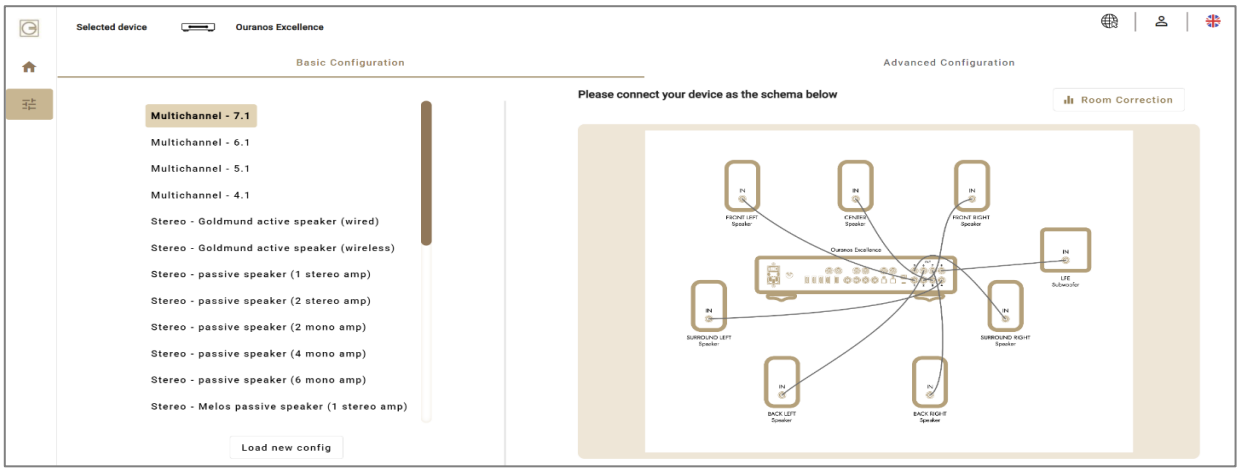
Among these configurations, you will find:

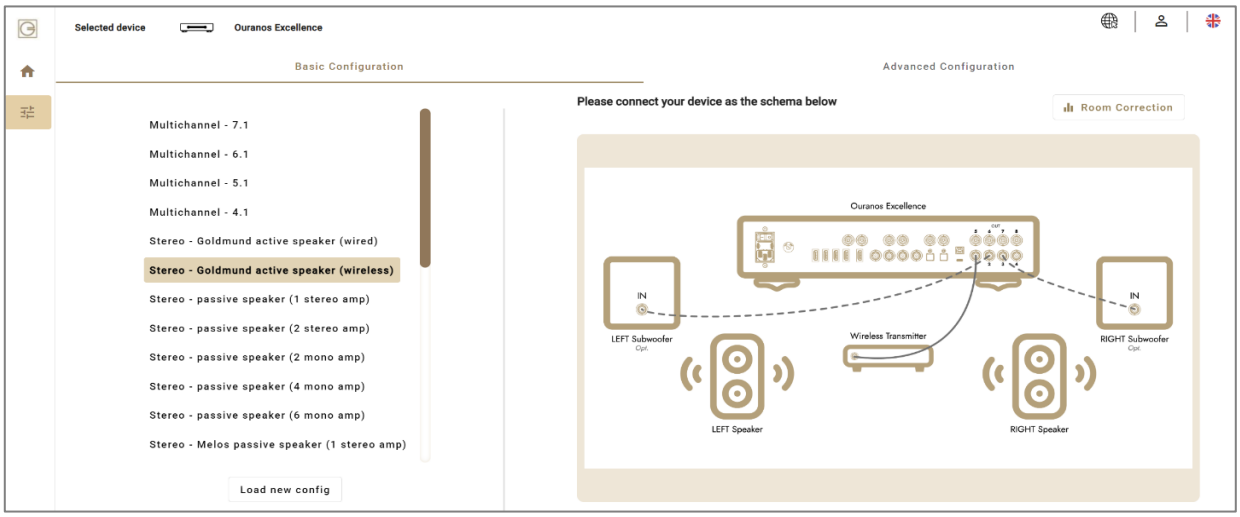
- Four basic multichannel configurations for speaker installations in 7.1, 6.1, 5.1, and 4.1 (only for Ouranos Excellence)
- Two stereo configurations for any GOLDMUND active speakers (wired and wireless)
- Five stereo configurations for passive speakers of any brand used with stereo or mono amplifiers (mono/bi/tri amplification)
- Two stereo configurations for MELOS passive with dedicated Leonardo correction used with stereo or mono amplifiers (mono amplification)
- Four stereo configurations for TETHYS passive with dedicated Leonardo correction used with stereo or mono amplifiers (mono/bi amplification)
- Five stereo configurations for RHEA passive with dedicated Leonardo correction used with stereo or mono amplifiers (mono/bi/tri amplification)
- Five stereo configurations for THEIA passive with dedicated Leonardo correction used with stereo or mono amplifiers (mono/bi/tri amplification)

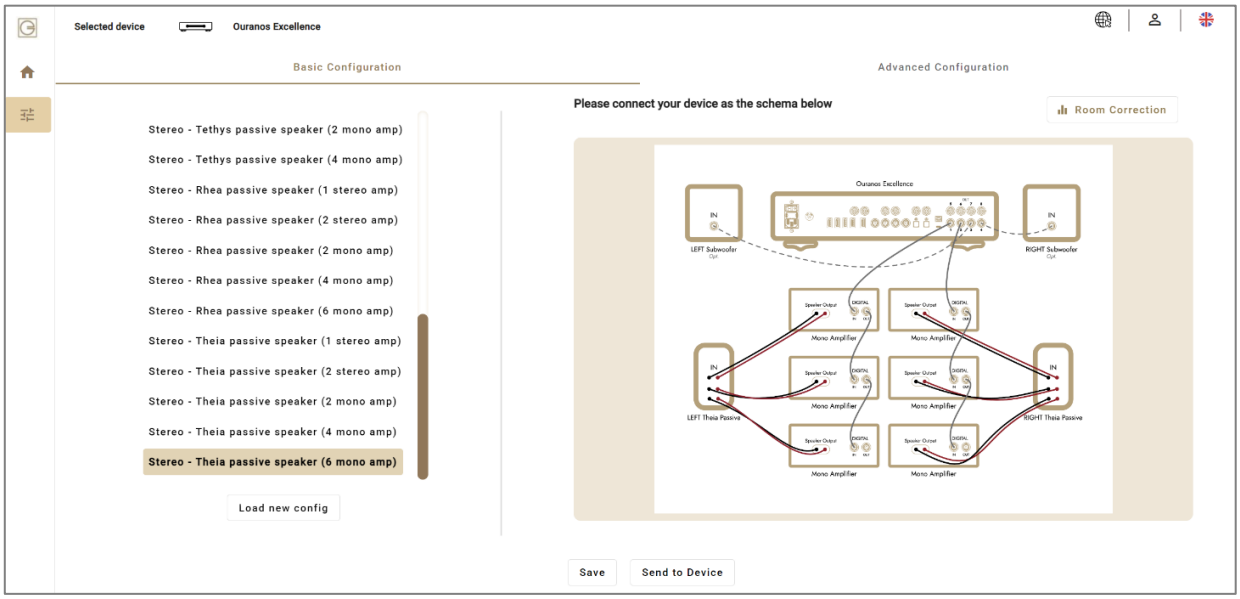
When a configuration is selected, its wiring diagram appears. At this stage, the configuration can simply be sent to the device using the "Send to Device" button. Once sent, a message will indicate whether the configuration has been successfully transmitted.

If it is necessary to apply an acoustic correction to the room using the "Room Correction" button (see § 3.3), we recommend saving the modified configuration and renaming it using the "Save" button.

Three examples of basic configurations:







3.2. ADVANCED CONFIGURATIONS

The advanced configurator allows setting up a system optimized for a specific installation, starting from an empty configuration. With this version, each output channel can be configured individually in terms of signal mixing, gain, delay, and filtering.

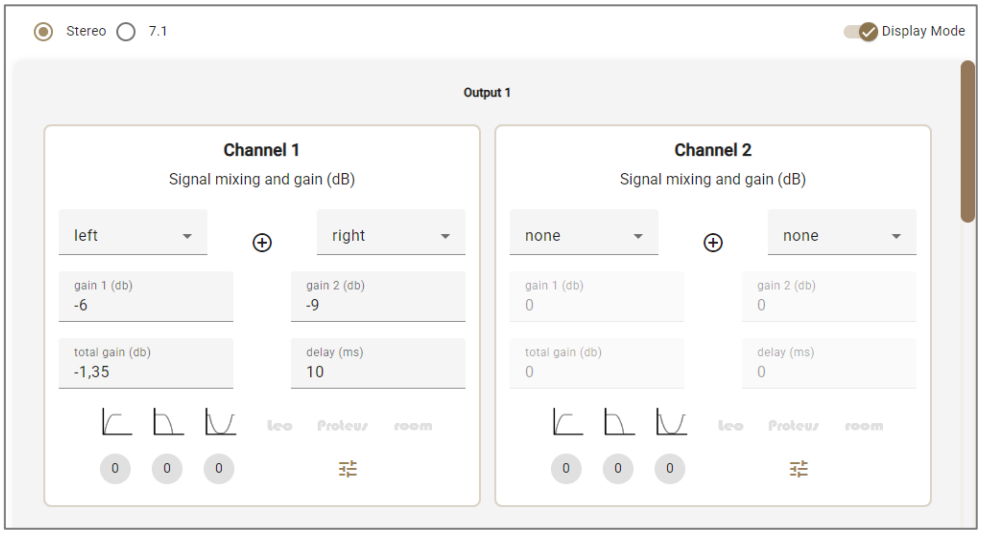
The "Display Mode" button provides two workflow ergonomics depending on the computer being used. It allows viewing all outputs using a scrolling bar or viewing each output individually.

The stereo / 7.1 mode and the number of outputs are adjusted according to the connected device:

- The Ouranos Excellence offers stereo and multichannel configurations with 8 physical digital outputs, i.e. 16 channels. The stereo / 7.1 selection offers two independent configurations according to the decoded format.
- The Ouranos Signature is limited to stereo mode with 4 physical digital outputs, i.e. 8 channels.

The output channels can be configured independently from one another using multiple parameters. In each channel, two signals can be mixed with different gain levels (< 0 dB). The total gain value is the result of the addition of the two gains. A delay can also be applied to the sum of the two gains (< 50 ms).

Stereo mode based on 2 signals, ie: left and right



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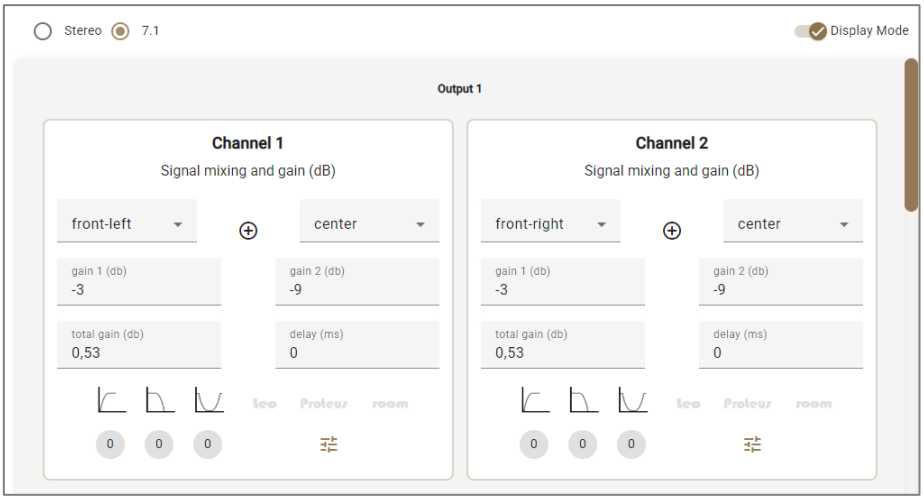
7.1 mode based on 8 signals, ie: front-left, front-right, center, surround-left, surround-right, back-left, back-right and subwoofer



Filters can be applied individually to each output channel, using the icon:

The window below opens, in which three types of filters can be applied: low-pass, high-pass, and band-reject. In the latest filter, the gain can be implemented as positive values to boost certain frequencies, or as negative values to reduce specific frequencies. When the maximum number of filters is reached, a message appears: *"Number of 10 biquads reached. Cannot add more filters."*. One biquad corresponds to one band-reject filter or to one 6 dB/oct or 12 dB/oct high-pass/low-pass filter. Filters with 18 dB/oct and 24 dB/oct slopes are implemented using two biquads.

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The figure below shows an example of channel filtering.

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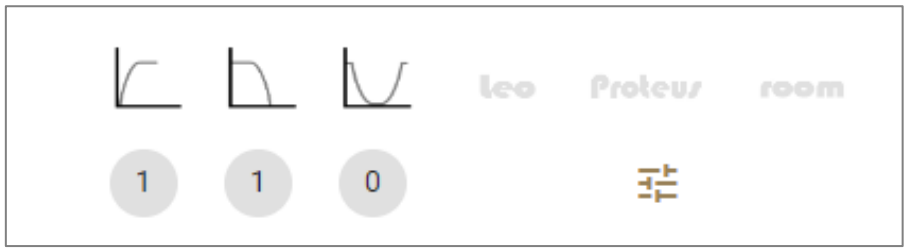
The implemented filters correspond to those shown in the graph, where the blue curve represents the amplitude in dB. When the filter is unchecked, the parameters remain visible, but the filter is no longer applied as it no longer appears in the graph. The "Close" button is used to exit the "Filter Settings" window.

The indications "Leo," "Proteus," and "Room" are highlighted when the configuration contains, respectively, "Leonardo", "Proteus", or room correction filters. The Proteus and Leonardo filters are immutable filters that cannot be modified and are included in Goldmund's custom configurations.

The number appearing in the circles located below the icons of the high-pass, low-pass, and band-reject indicates the number of filters selected for each type of filter.



3.3. ROOM CORRECTION

This interface enables acoustic corrections of the listening room by applying targeted filters. These filters make it possible to implement a three-band frequency correction (low/mid/high) using the "Add Shelving" button, as well as two low-frequency mode corrections using the "Add Band-Reject" button.

The gains can be implemented as positive values to boost certain frequency bands, or as negative values to reduce specific frequency bands. The blue curve represents the total correction filtering amplitude level in dB. The "Close" button is used to exit the "Filter Settings" window.

It is important to note that this room correction interface is available in both modes (Basic and Advanced) and applies to all outputs in use.

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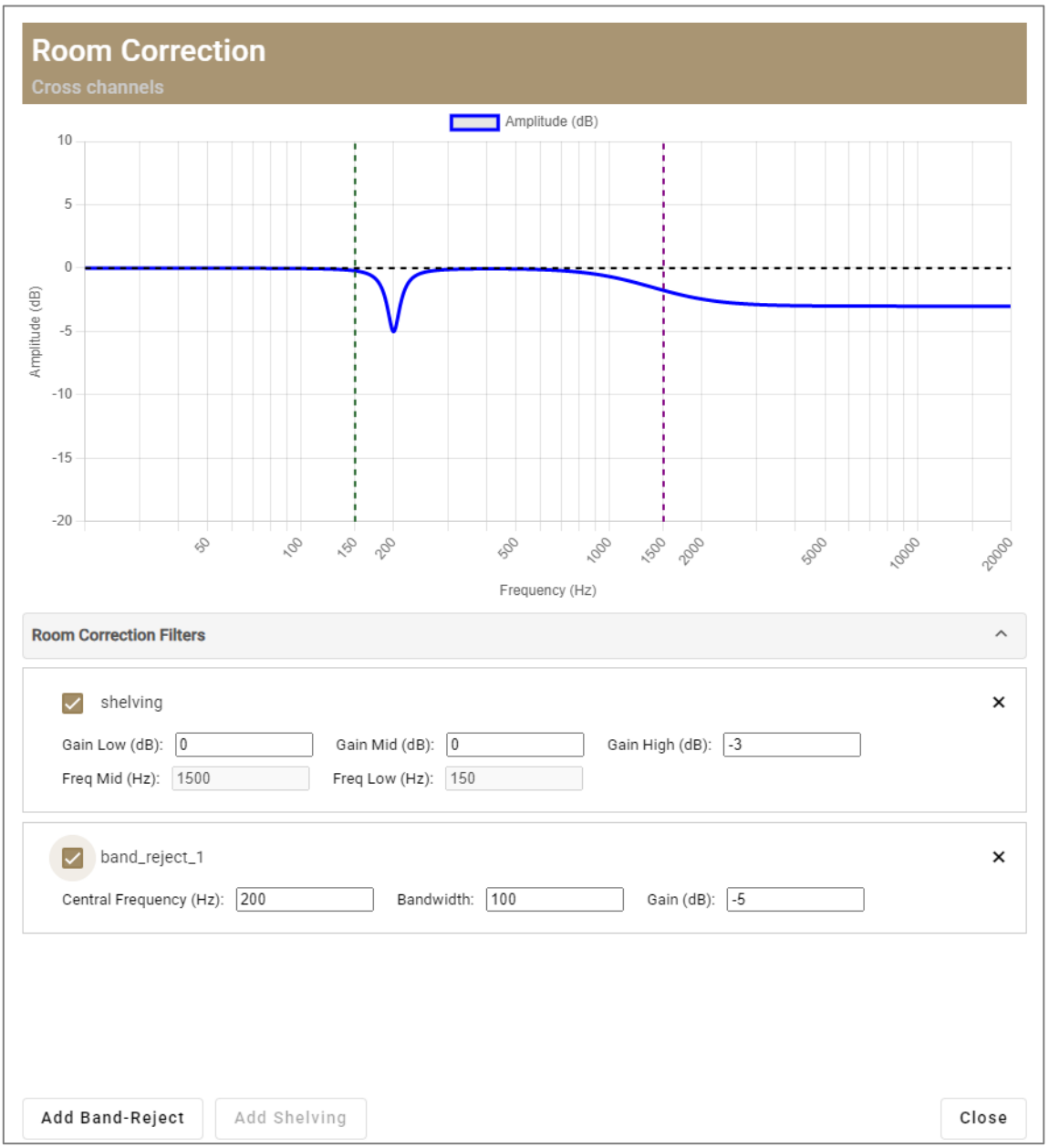
Example of room correction filtering :



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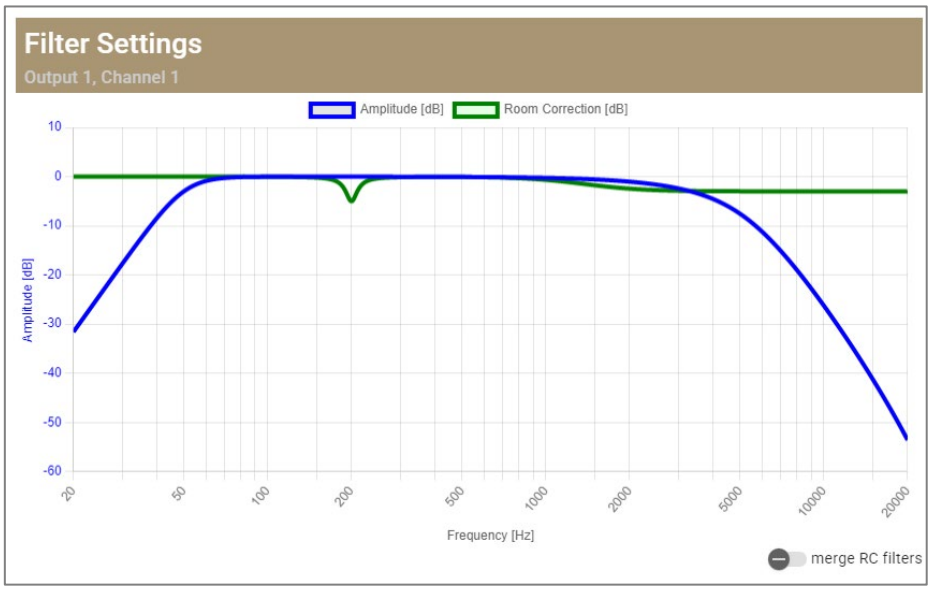
Once the room correction has been implemented, you can reopen the per-channel filter window to see the final result of the corrections.



This figure shows the filters implemented on the channel (in blue) and the filters implemented by the room correction (in green). When you click the "merge RC filters" button, the global curve is calculated.