



AED Audio Shaper

Software manual

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The AED Audio, Audio Shaper Manual

Introduction

This manual (hereinafter referred to as the “Manual”) is intended to be used as work of reference for professional, well trained and authorized users. Thanks to the Audio Shaper software, you will be able to “virtually” determine the acoustical response of one or various cabinets at the same time. Based on polar response measurements, taken meticulously with a 360° coverage both vertically and horizontally, the Audio Shaper software is able to calculate the SPL response including the interaction between them taking into account the magnitude and phase response, in order to enable the user to correct cancellations and even to create them if the acoustical design so requires.

As usual with any AED Audio software, Audio Shaper is very easy to use and offers a very intuitive design, multi-tool interface and on-line updatable data base. The AED Audio Shaper software has been designed by and for sound technicians. Its aim is to help installers and users of AED audio products.

For information about specific adjustments, bugs or issues which are not dealt within this manual, please contact your Product supplier or AED Audio.

Disclaimers

AED Audio, AED DISTRIBUTION SA, with registered office at Bedrijvenpark De Veert 13/4, 2830 Willebroek (Belgium), or any of its affiliates, does not accept any liability for material damage, including damage to the Product, or personal injury caused by non-observance by the user of the safety instructions in the Manual or the applicable laws. As such AED Audio shall among others not be liable for any damage or injury if the Product is used contrary to or for purposes other than its intended use, is installed, used, maintained or repaired negligently or contrary to the instructions mentioned in the Manual or on the Product, when the Product is modified and when the safety devices and features of the Product are disregarded or overridden.

Intended use

This system is intended for use by trained personnel for professional applications. The Product is not intended to be used by minors. Any use, regardless whether or not under the supervision of an adult, is at own risk.

Symbol description

Symbols used

- ▶ Information and tips to ease things for you as you use your AED Audio Audio Shaper
- @ References to the online AED Audio website, where you can find interesting further information: <https://www.AEDAudio.com>
- ! Warning/ prompt to take action. This symbol means that you are warned and/or being prompted to perform some action.

Abbreviations used

Abbreviation	Definition

Revision history

Version number	date	update
V1.1.0	17/10/2023	Initial version
V1.1.1	02/11/2023	Adding basic operations
V1.2.2	04/06/2024	Small changes in general

Contact details Manufacturer

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Manufacturer's declarations

EU declaration of conformity (CE symbol)



Software installation

These software installation instructions assume some basic knowledge of Microsoft Windows concepts, such as selecting menu items, locating folders and files, and starting programs. For more information on Windows, please consult your Windows documentation.

Minimal PC requirements

Before you install your copy of the **Audio Shaper** software, you must verify that your computer meets a series of minimum requirements to make it work. These requirements are:

- Intel i5 or higher.
- 4Gb RAM memory.
- 10 Gb Free Hard disk space.
- Windows™ VISTA/ 7/ 8

If your computer meets or exceeds these requirements, the software will be installed and operated without any problem. It is recommended that you close all applications currently in use. Run the installation file. You can also download the latest version at <https://aedaudio.com/en/downloads>.

Tablet PC and laptop power settings

- When using a laptop or portable PC with the AED Audio Shaper software, it is recommended to switch off power-saving features, which can reduce the performance of your PC. If you experience slower performance while using the
- ! Controller on battery power, turn off any battery power-saving settings that affect general performance of your PC. Some battery optimizations also affect wireless connection speed.

First time installation

To install the AED Audio Shaper software, double-tap the executable installer that was downloaded through the internet or received from your AED Audio supplier; choose **INSTALL AED Audio Shaper**. The installation wizard will automatically install all the packages required.

Following successful installation, the AED Audio Shaper software will automatically start, there will also appear an icon on the desktop.

Overwriting existing Audio Shaper installation

If there is already an older version of Audio Shaper installed on your desktop, the new version will overwrite the installation and Shortcut folders of the existing installation.

AED Audio Shaper

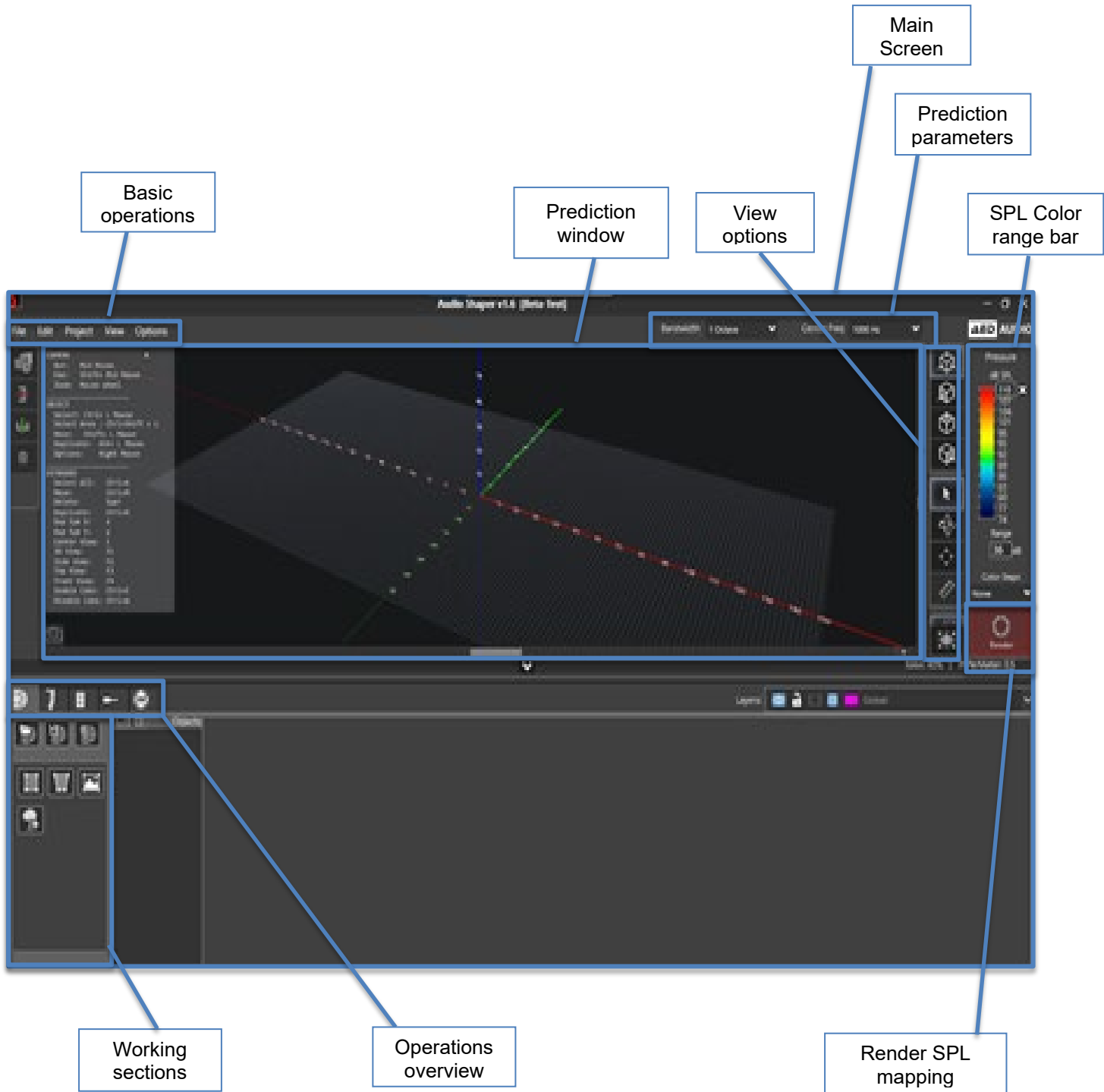
Starting the AED Audio Shaper application on windows

To start Audio Shaper:

1. Double tap the AED Audio Shaper software icon on the windows location.
2. AED Audio Shaper will automatically start up the program and you're now ready to use the software

General overview

Main page components



Main screen:

This is the window when you open the program. When you are in this window you can access all the options that Audio Shaper has to offer.

Basic Operations

- **File Menu:** from here you can create a new project, open project / recent / template, import library, load sound system from file, save, save as, save report, exit, about.
- **Edit Menu:** it allows you copy, paste and delete. and import a CAD drawing file on WMF format (with transparent background) to overlapping the calculated prediction.
- **Layers:** In the tab 'layers' can you create a new layer, change the name, change selection of layer or delete the active layer.
- **Project:** In the tab 'project' you can add cabinet, add line array, add a new DSP process and can you go the venue design / cabinets configuration / array configuration / mechanical data / measurements / DSP process / project info tabs.
- **View:** You can customize visual options allowing to show or to hide like:
 - 3D view
 - Side view
 - Top view
 - Front view

You can also customize your options like

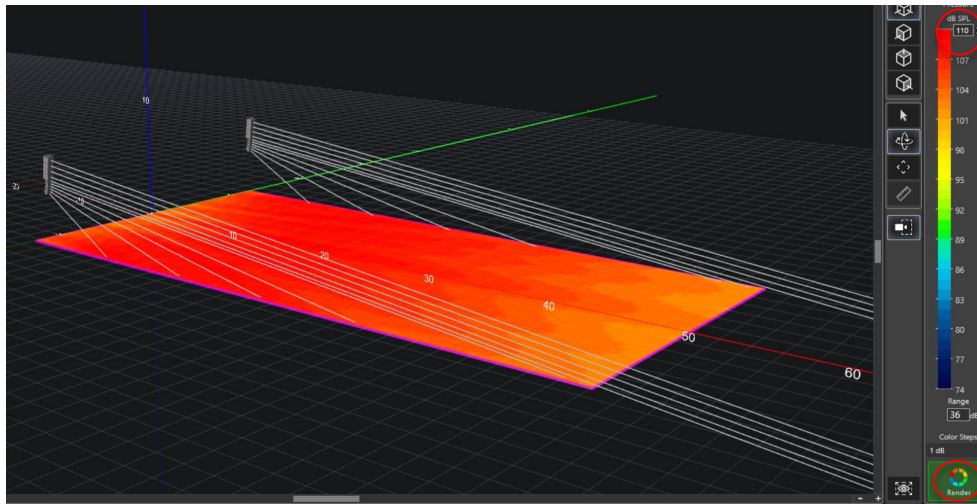
 - Show short cuts
 - Show Throw lines
 - Show coverage lines
 - Show grid venue: This is the option to turn the grid on or off
 - Show zone edges
 - Show axis numbers: This is the option for the y and x and z axes distance numbers
- **Options:** Preferences, manage library, mapping configuration, render solution, environment data, show air absorption, camera target.

Prediction parameters

With this function you can choose at which center frequency your prediction will be. You can also set how wide the frequency should be expressed in octave or full band.

Prediction window

This section shows you all the elements you have inserted in your project: distribution of cabinets, array coverage angles, throw direction, listening areas, etc...



Options view

At the options view you can change your camera position to 3D view, Side view, Top view and Front view. The next three options is basically the option for the movements for your mouse. The first option is the Default mouse selection, the second for the rotate view and last one for the panning view.

SPL Color range

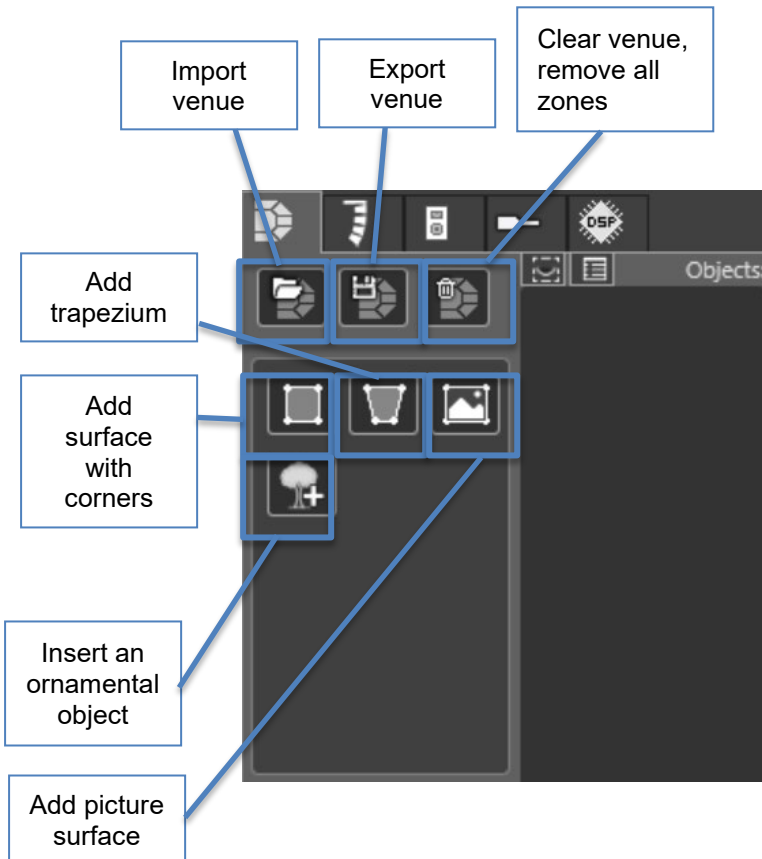
With the color range of the SPL pressure, you can tell the software which pressure range we want to show in our representation of colors. There is a default 35 dB SPL range. It is also possible to fix the maximum SPL pressure level so as to compare with other predictions. By default it is configured as Normalized (max. automatic level).

Render SPL map

Once the cabinets are placed in the project, you can tell the program to show you the prediction for a frequency and Decibel range (that you chose before). If you want a prediction of your sound system press the button 'render'. (the button turns green once the render has been completed)

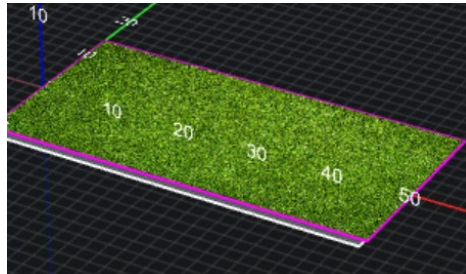
Working sections

Venue configuration

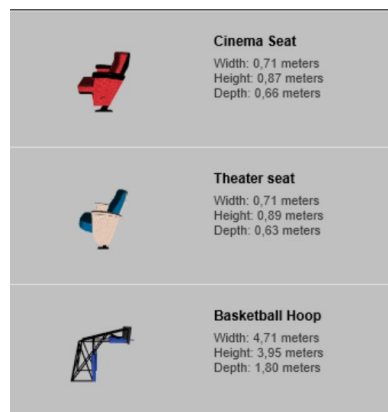


- **Import venue:** Import a venue you have saved on your computer.
- **Export venue:** Export a venue that you have made in Audioshaper.
- **Clear venue, removing all its zones:** remove everything inserted into your Audioshaper file.
- **Add surface with corners:** By clicking on this button, a surface with straight lines and corners, will be automatically inserted in your prediction window.
- **Add trapezium:** By clicking on this button, a trapezium-shaped surface will be automatically inserted in your prediction window.

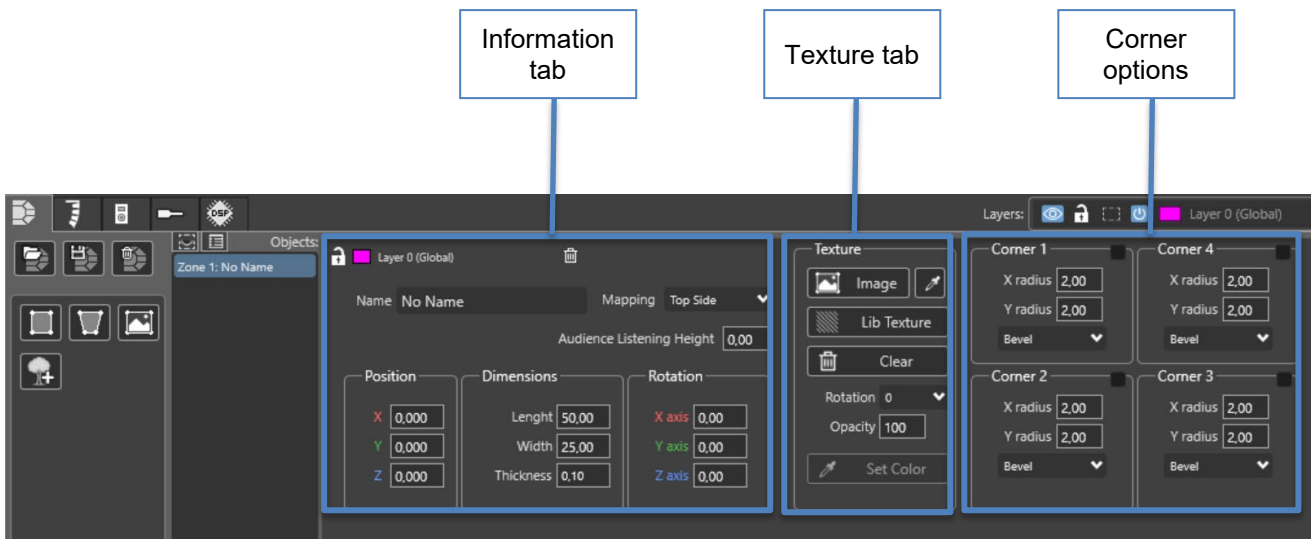
- **Add picture surface:** By clicking on this button, you can add a picture, which is saved on your computer, onto the surface inserted into your prediction window. (this can be handy to give some texture to your surface as shown in the picture below).



- **Insert an ornamental object:** Clicking this button, will open a pop-up window with a catalogue of insert-able objects as shown in the example below. These go from trusses to chairs, basketball hoops, soccer fields etc...



If you insert a surface, there will be open a new window right of the venue configuration.



Information tab

- **Name:** Change the name of the surface you have inserted into the working space.
- **Mapping:** The 'mapping' options will make sure you can decide which side of your surface you want the frequency render to be shown. Under the mapping menu you will find the options: 'no mapping', 'top side', and 'both sides'. These options talk about the rendering of your frequency range of you speakers.
 - **No mapping:** This will show no render on the inserted surface.
 - **Top side:** This will only show the render on the top side of the surface.
 - **Both sides:** This will show the render on both sides of the surface.
- **Audience listening height:** This option alters the listening height of the fictional audience. This will make sure that the speakers know at which height the audiences ears will be to have the most accurate representation of reality using your render.
 - Standing audience: 1.7m
 - Sitting audience: 1.2m
- **Position:** Alter the position of the surface you have inserted into the working space using the X, Y and Z coordinates.
- **Dimensions:** Alter the dimensions (size) of the surface you have inserted into the working space using: length, width and thickness in meters. Thickness being the size in height of the surface.
- **Rotation:** Alter the rotation of the surface you have inserted into the working space using the X, Y and Z coordinates (in degrees°).

Texture tab

- **Imagine:** If you want to insert a photo of your computer, you can chose this option.
- **Set Transparant color:** In this tab you can select which color you want from the picture.
- **Library Texture:** In Audioshaper we already included multiple textures into the library, you can find it with a click on this button.
- **Clear:** If you press clear, the image will erase from the surface.
- **Rotation:** The rotation option will alter the position of the image you have inserted on your surface in degrees(°).
- **Opacity:** The opacity will alter the contrast of the image you have inserted on your surface.
- **Set color:** Set the color selected with the 'Set Transparant Color' button.

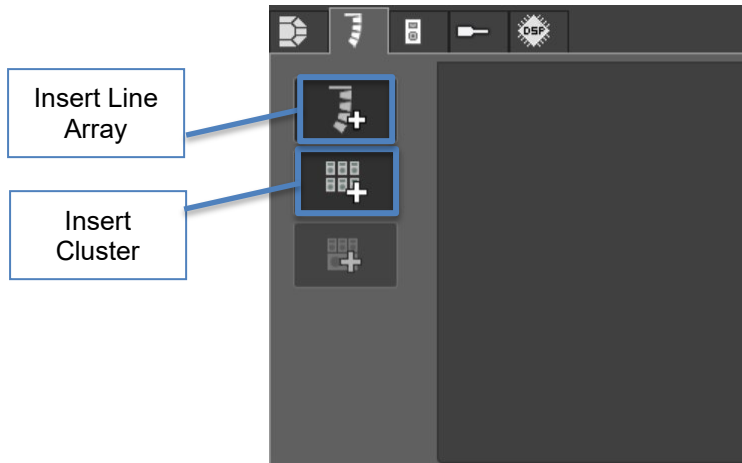
Corner options

This option gives you the possibility to alter each corner of your surface using the X, Y and X radius. As you can see in the example down below, each corner of your surface has its own box. In these boxes you can alter your corners respecting the X and Y-radius. For each corner you have two options: bevel and round. This will alter the way your corner will be bent.

- **Bevel:** Gives an edge where the faces are not perpendicular but introduces a slope which can be symmetrical or asymmetrical based on the given inputs.
- **Round:** This will round out the edge, and can be set for all corners symmetrical or asymmetrical. When the X and Y radius of all corners are equal to $\frac{1}{2}$ of the side of the square you will get a circle.



Line array or cluster configuration



Step 1:

The first step of your Line Array drawing process is to insert your line array or speakers. The first thing we have to do is to select if we want to make a Line Array or to insert a cluster.



Step 2:

Once you have selected a model you can decide how many cabinets are going to be used (you can select up to 16 units). Here you can decide if you want to stack or fly your speakers. After selecting the fly or stack option, you're asked which series you want to assemble. (Flex 6, Solid 15 or Solid 28)



- ➔ If you want to fly your Line Array top to bottom: be sure to select your Solid speakers first (otherwise you won't be able to add you flex 6 speakers because the Audio Shaper software will always work as you would in the professional setting)



→ If you want to stack your Line Array bottom to top: Be sure to start your stack with AED Audio solid 15 or solid 28 speakers. When these are chosen, you will get 4 options in which way you want to stack your flex 6 speaker. You get the options:

- Flex 6 column: stacked with a tube pole mount
- Flex 6 array: yoke on tube



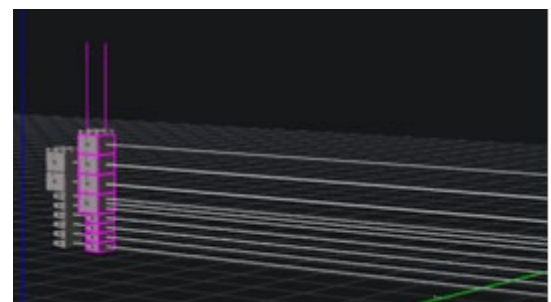
Step 3:

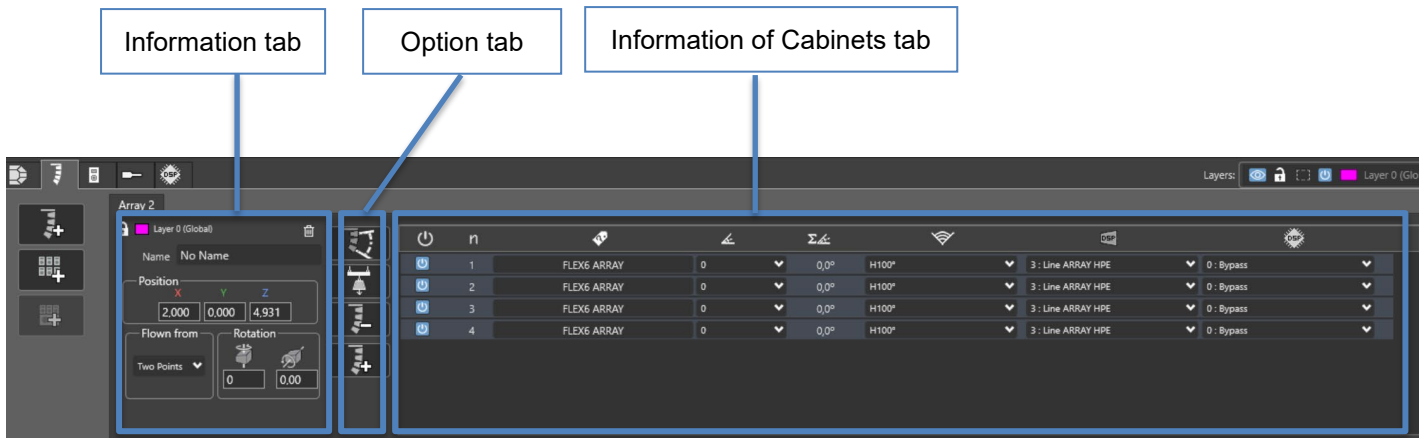
After deciding how many speakers you want to use and in which combination, you can press the 'insert array in project' button to insert the array into the prediction window



Step 4:

Now that your Line Array is inserted in your prediction window, you can modify the angle of each box as well as the general angle of the array. You can also select the direction of the cabinets, left or right, and their vertical or horizontal orientation. To position the Array on the prediction window you will use the X and Y and Z values. As you add and modify the box angles, you will automatically be shown the center of gravity of the array as well as the point from where it has to be flown. This information will be shown on the detailed picture (Flying Frame) together with the weight of the array. This last information is very important when you have to fly the equipment on a structure with a limited loading capacity.

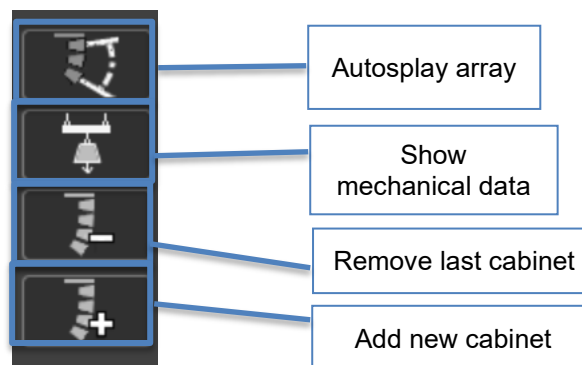




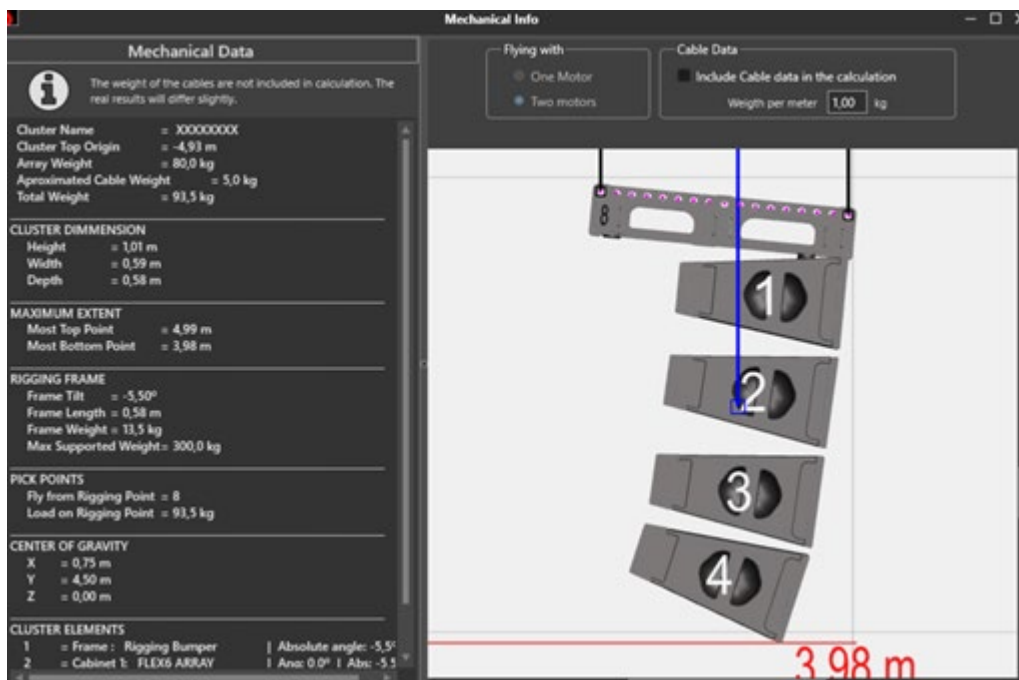
Information tab

- **Name:** Change the name of the surface you have inserted into the working space
- **Position:** Alter the position of the Line array you have inserted into the working space using the X, Y and Z coordinates.
- **Flown from:** In this option you can chose of your line array will be flown by 1 or 2 points of rigging.
- **Rotation:** Alter the rotation of the Line array you have inserted into the working space using the X, Y and Z coordinates. (in degrees°)

Option tab

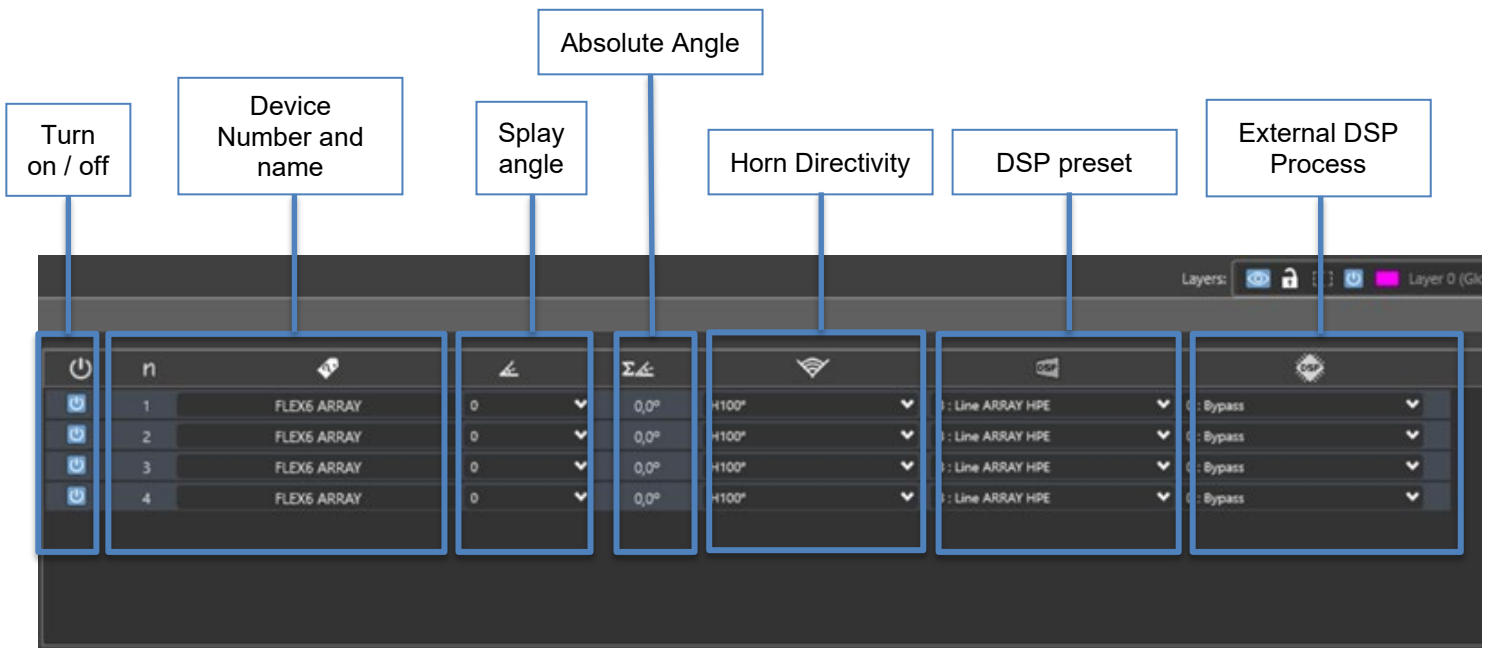


- **Auto splay array:** This option will automatically splay your inserted line array over the surface. If you have drawn multiple surfaces, the Auto splay array will take all surfaces into account.
- **Show mechanical data:** The 'Show mechanical data' option will open a window that displays all the mechanical data that can be shown about your inserted Line Array. This mechanical data includes:
 - Cluster name
 - Cluster top origin
 - Array weight
 - Approximated cable weight
 - Total weight
 - ...



- **Remove last cabinet:** Remove the lowest cabinet from your Line Array.
- **Add new cabinet:** Add a new cabinet to your Line Array.

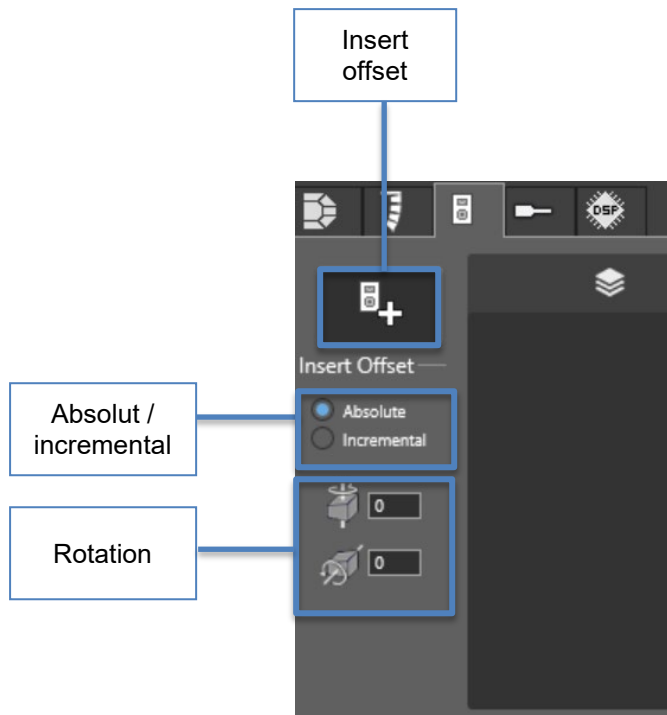
Information of cabinets



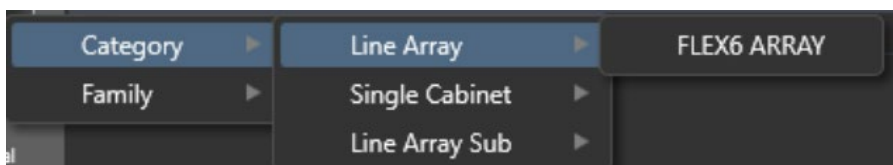
- **Turn on / off:** In this table can you turn on or off each speaker individually.
- **Device number and name:** The numbering is from top to bottom. This way you can quickly see how many cabinets there are in the line array. You cannot change the name, this only depends on the type of cabinet, whether they are hanging or stacked.
- **Splay angle:** The splay angle, this determines per speaker how many degrees it will tilt downwards. These are fixed values that are determined based on the angles of the speaker.
- **Absolute angle:** The absolute angle is the reel angle the cabinet currently has in relation to the ground (0°).
- **Horn Directivity:** With the 'Horn Directivity' you can choose the horizontal spread of your speaker. With the flex6 you have the option to choose between 15° or 100°.
- **DSP preset:** With the 'DSP preset' you can choose the presets of your speaker. The flex6 has 3 choices, TOP HPE, Line array HPE or Full range. The solid15 has 2 choices, namely Low HPE or Low-sub. However, the solid28 also has 2 choices, Sub HPE or low-sub.
- **External DSP Process:** Use extra DSP on selected cabinets like level, polarity, delay, eq to virtually simulate the prediction with the DSP changes.

Cabinet configuration

In the 'insert offset' section, you get the chance to insert an extra single specific speaker or line array to your prediction window. This could be handy to do some alternations to your already created setup. The position, rotation, angle, preset and more can also be decided in this section.

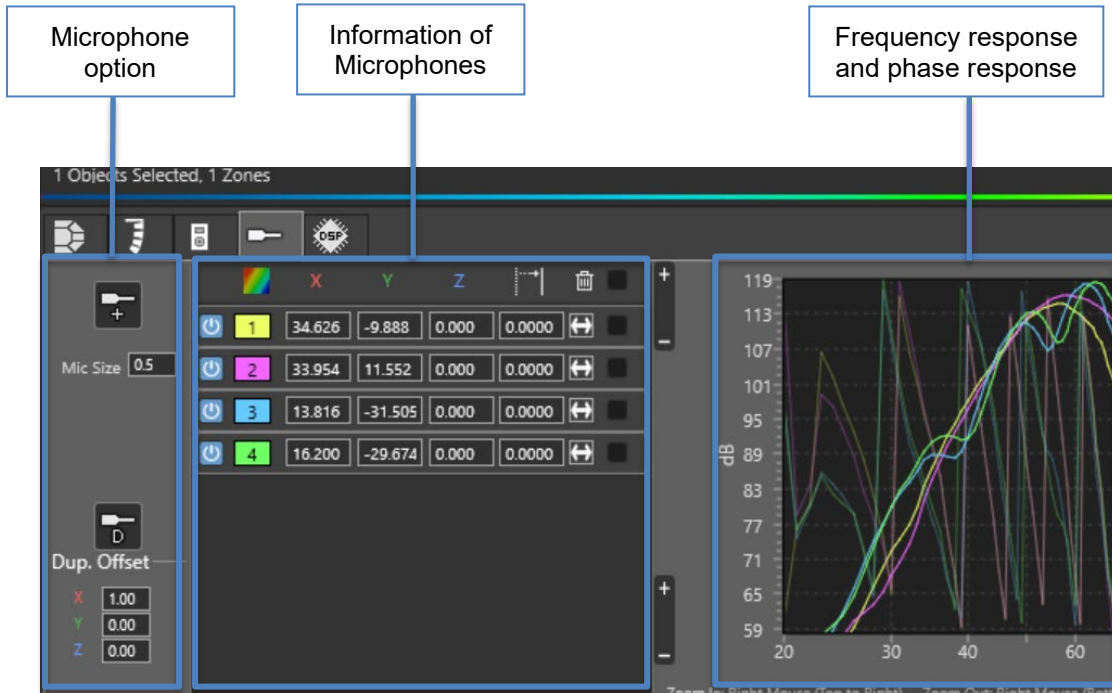


After you press the button 'insert offset', you have multiple chooses to choose.

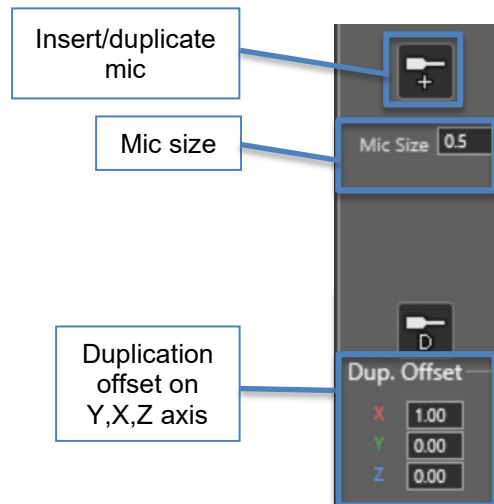


- **Absolute insert:** Using this button will enable the fact that you apply the same values for each insertion.
- **Incremental insert:** Using this button, the program will sum each insertion following the previous.
- **Rotation:** Altering the value in this field will rotate the speaker respecting the Z and Y axis.

Microphone configuration

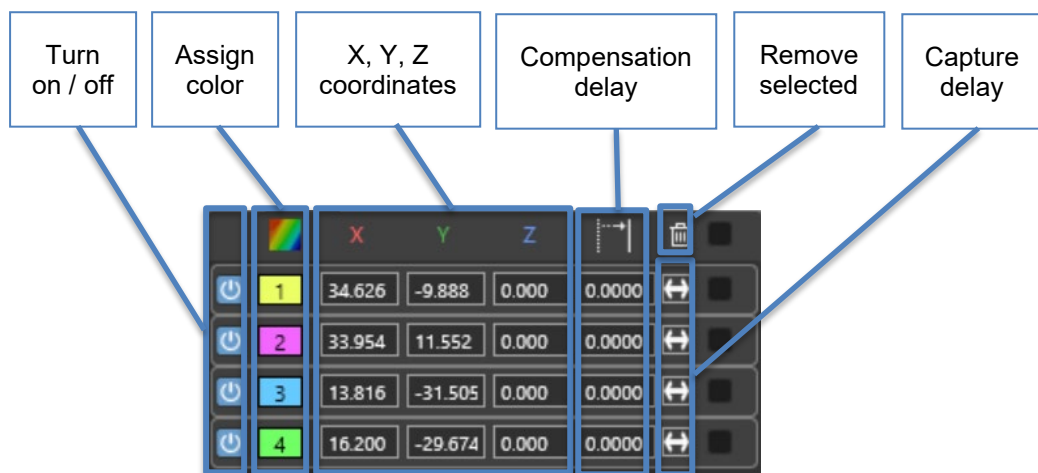


Microphone option

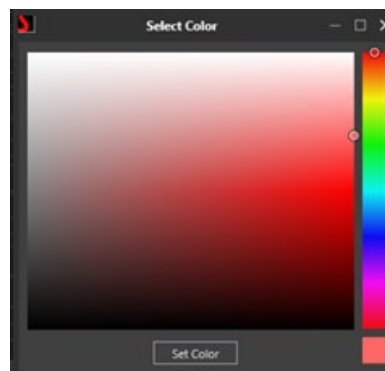


- **Insert/duplicate mic:** Add a microphone to your prediction window, or duplicate an already inserted microphone.
- **Mic size:** This option gives you the possibility to alter the microphone size. This can be handy to make the microphone more visible inside your prediction window.
- **Duplication offset on Y,X,Z axis:** This button gives you the option to duplicate an already inserted microphone. Under the 'duplicate offset', the Y,X and Z values can be altered. This gives you the option to instantly decide where you want your duplicated microphone to appear on the prediction window.

Information of Microphones

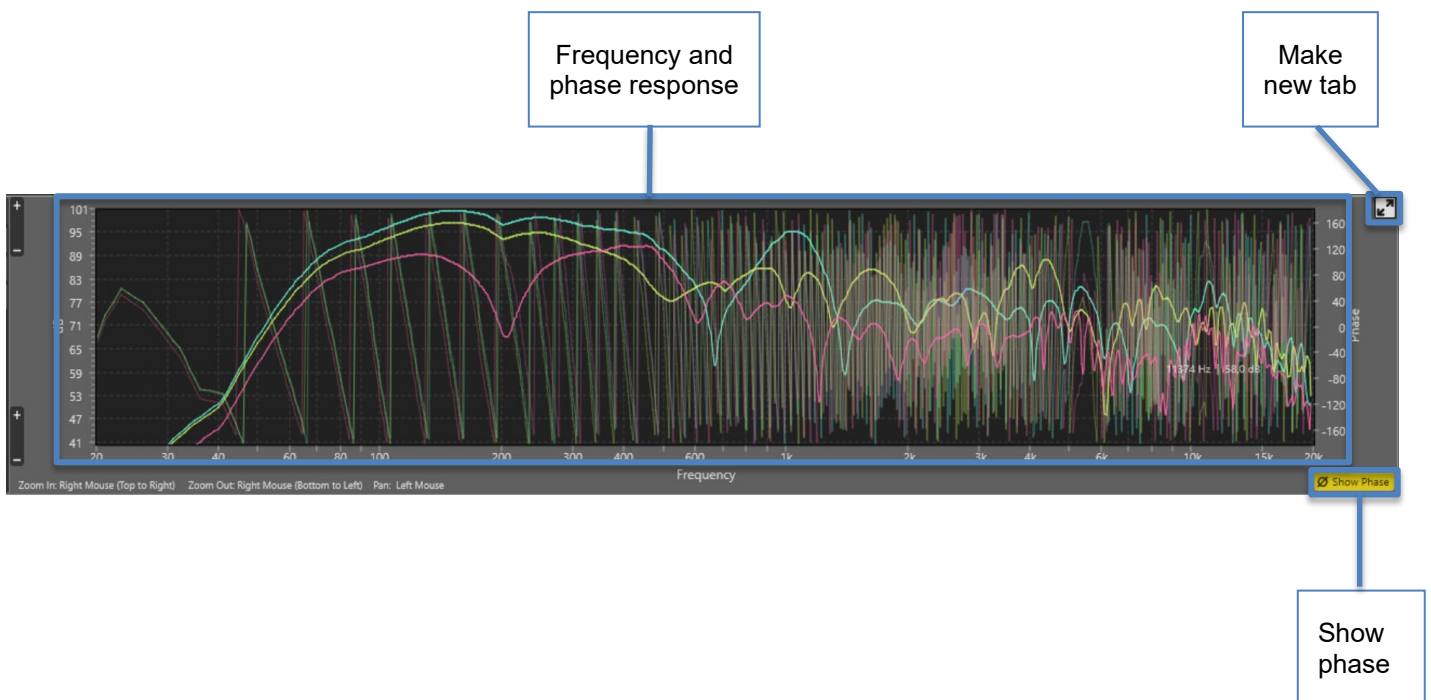


- **Turn on / off:** You can select 2 options, turn on the microphone or off.
- **Assign color:** This button gives you the option to change the color of your measuring microphone. Clicking this button opens a window, as shown below, that allows you to choose any color out of the rainbow spectrum.



- **X,Y,Z coordinates microphone**: By changing the values in these boxes, the position of the microphone will be altered respecting the X,Y and Z axis.
- **Compensation delay**: Sets a propagation delay to realign the virtual reference channel to the measurement channel.
- **Remove selected**: If you select a microphone and press on this button it will delete the selected microphone.
- **Capture delay**: Automatically detects and captures the compensation delay on the measurement position of the microphone.

Frequency and phase response

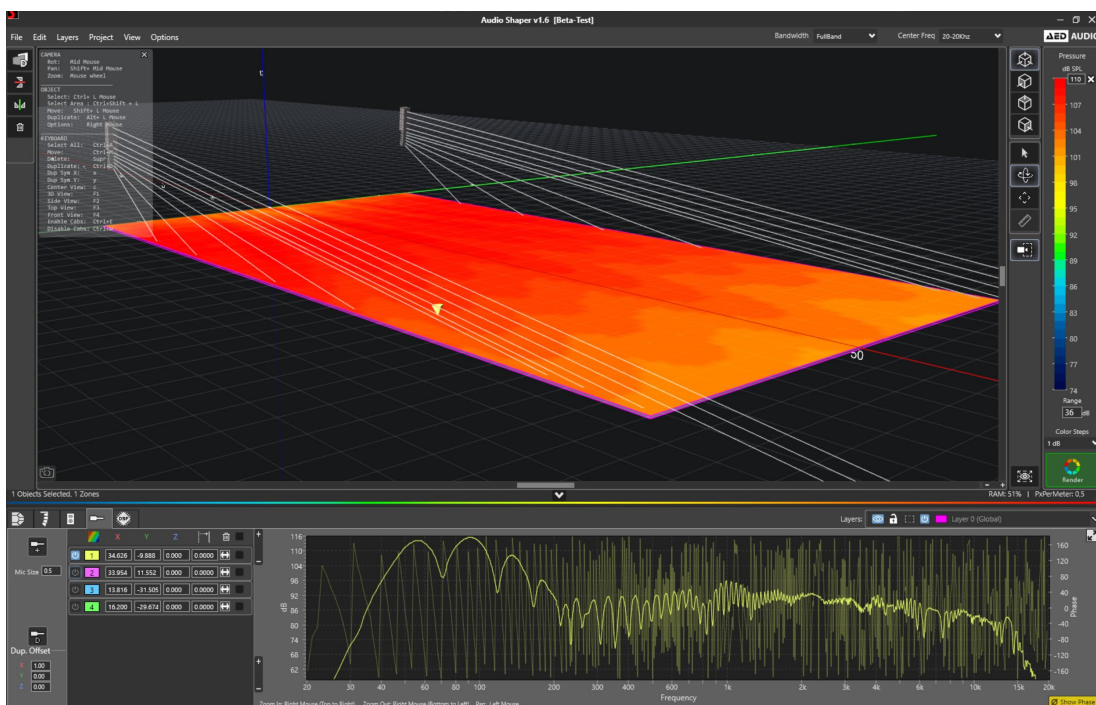


- **Frequency and Phase response**: This is a graph with 2 variables, namely the frequency response and phase response. The colors correspond to the measurement microphone that you have in Audio Shaper. The frequency response is visible on the front and the phase response is behind the frequency response.
- **Make new tab**: When you press this button the graph will open in another tab. If you want the graph on a full screen, this button makes this possible.
- **Show phase**: When you press this button, the phase response hides or reappears. (The phase response is in the background of the frequency response.)

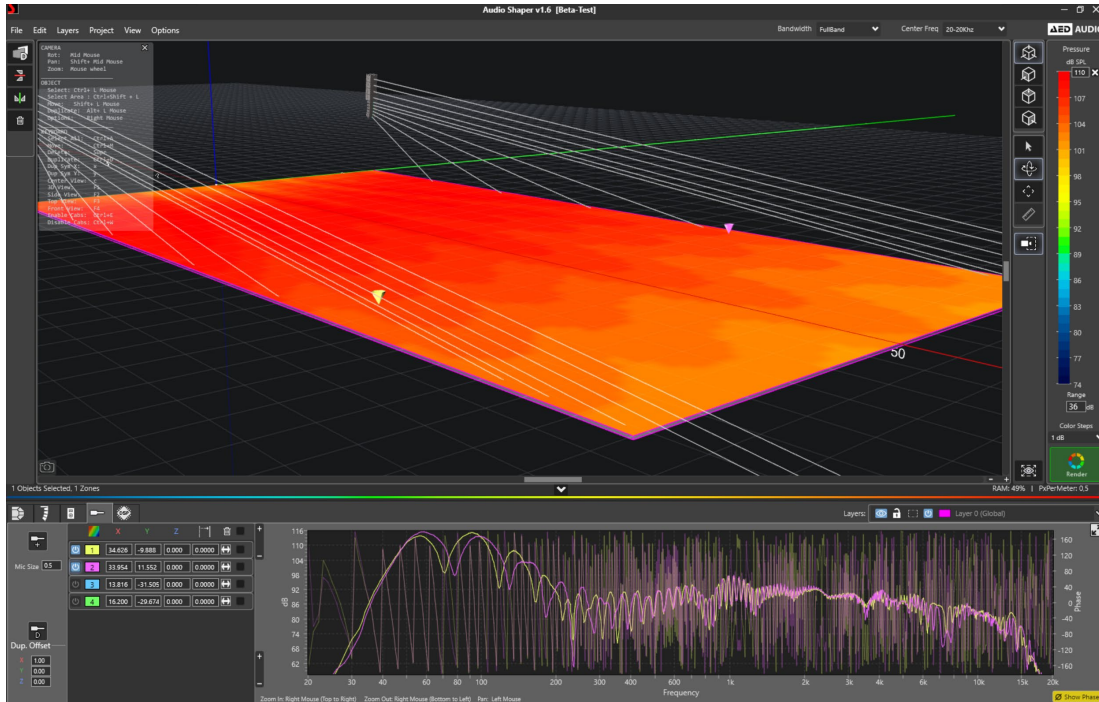
Coverage/Microphone measuring

From the 'insert microphone' section you can graphically and precisely view the coverage, both vertically and horizontally and see the corresponding pressure levels measured by a microphone you can place yourself on the surface you added.

When you have placed a microphone on your placed surface, the coverage curve will appear with the color of each microphone. This way, you can simultaneously view all active sound zones. The curve is displayed with the same SPL range as selected from the color palette for the vertical axis and with the same distance as the prediction window.



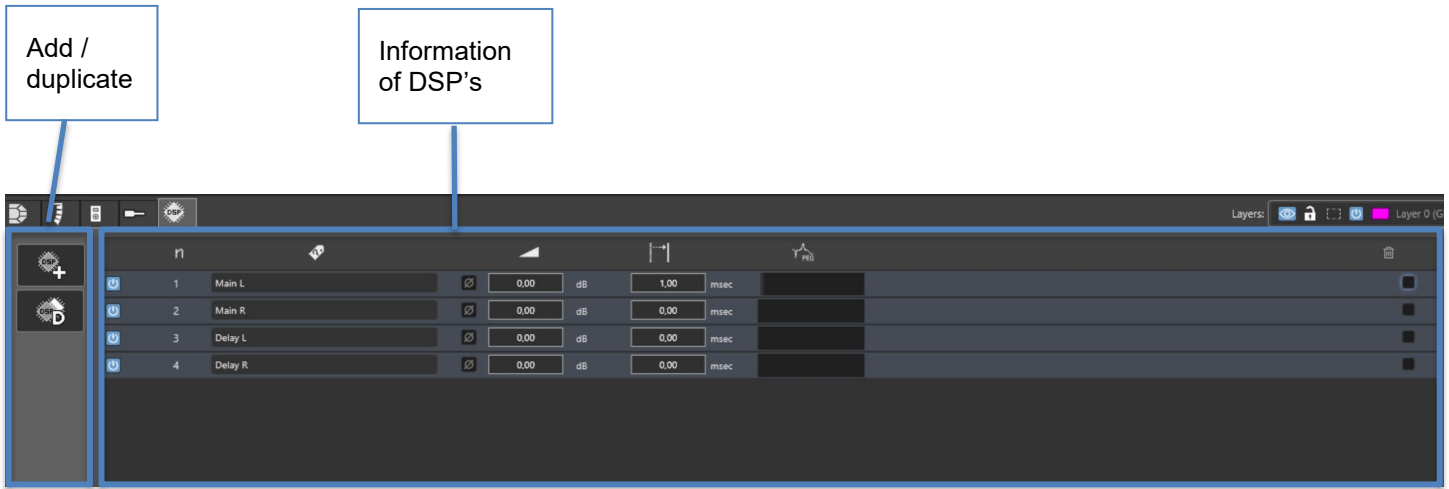
As you can see in the picture above, a yellow microphone (shown in Audio Shaper as an arrow) was placed in front of the left Line Array. Knowing that the arrow is yellow, the Audio Shaper program will show the reading in a yellow colored graph-line. This is mainly done to make sure that you can distinguish between the different microphones that are placed on your surface. A clear example of this is shown in the picture below. Here you can see that a second purple microphone (shown in Audio Shaper as a purple arrow) has been placed in front of the right Line Array. Now the Audio Shaper software will show the reading of the second microphone in a purple colored graph-line. The two lines are then put on top of each other so that the difference between the two readings is clearly visible. In this way you can detect the way your sound will move itself around in your venue and in this way drastical peaks or dips in your frequency range can be prevented.



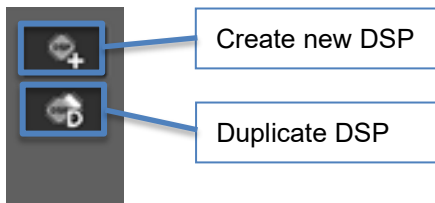
Digital Signal Processing

Once your array is set up, and if necessary, you can apply an independent Digital Process into each box. You can equalize, change the gain, invert its polarity or add delay, you can rotate the positions and decide in which angel the speaker will be hung.

It is very practical when you want to simulate delay lines for instance. You can have up to 4 independent array systems on the same prediction window, and simulate the interaction between them and with other cabinets also placed in this prediction window. There is also a global Mute option to study what is the effect of that array on the whole system as well as a button to delete it completely.

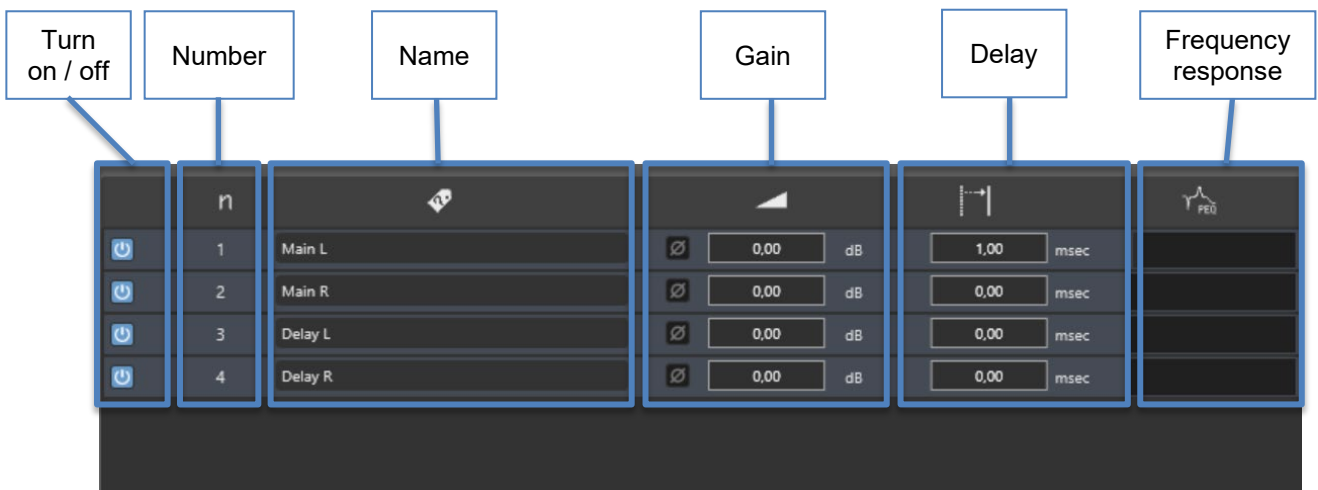


Add / Duplicate



- Create new DSP: If you press this button you can create a new DSP.
- Duplicate DSP: If you press this button you can duplicate a new DSP.

Information of DSP's



- **Turn on / off:** You can select 2 options, turn on the DSP or off.
- **Number:** The numbering is from top to bottom. This way you can quickly see how many DSP there are.
- **Name:** Each DSP can you give a unique name for easy to work in Audioshaper.
- **Gain:** The gain button is a kind of extra volume button.
- **Delay:** In this tab you can delay your sound, in milliseconds (ms)
- **Frequency response:** Here you can set an EQ for a DSP module.

Notes:

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This manual has been written with great care. However, the manufacturer cannot be held responsible, either for any errors occurring in this manual or their consequences.