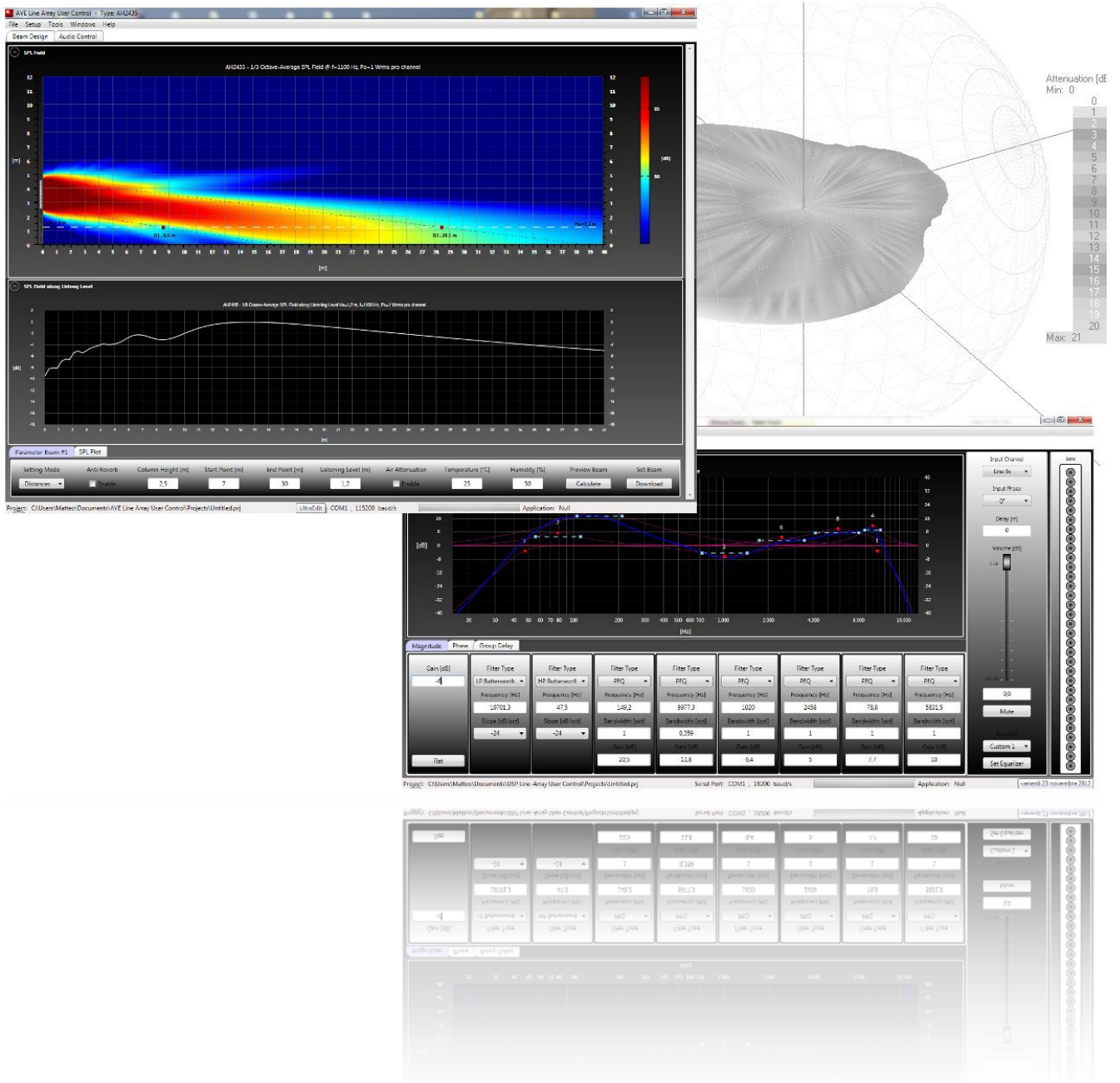




# AVE Line Array User Control

## Software Manual



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## 1.0 – Software Introduction

**AVE Line Array User Control** software is a sophisticated program that uses a complex proprietary algorithm to accurately calculate SPL distribution of AVE Ascolto® Line Arrays.

**AVE Line Array User Control** software has been developed for use with all Ascolto® Line Arrays.

**AVE Line Array User Control** software allows to simulate the environment to sound reinforce, select the appropriate dispersion pattern, introduce the proper acoustic equalization for the typology of audience and transfer all the aiming and filtering parameters through the dedicated network.

### Key Features

**Easy Setup:** line array types, audience area geometry, beam design mode, appropriate audio equalization and audio classic controls can all be set from AVE Line Array User Control software.

**Intuitive User Interface:** AVE Line Array User Control software uses both familiar “point and click” and “click and drag” commands and intuitive screens to display setup information.

**Project Backup and Restore:** project configurations are stored to the hard drive for record retention. These file are especially convenient to restore line array settings or to copy configurations.

**Configuration Recall:** global settings can be retrieved directly from the line array unit for proof checking or for maintenance uses.

## 2.0 – Getting Started

### 2.1 – Workspace

AVE Line Array User Control is used to design appropriate beam shape making the AVE Digital Line Array optimally aimed towards audience and achieving a maximum direct to ambient sound ratio, for best intelligibility.

When user starts up AVE Line Array User Control for the first time, it will create and be shown an empty workspace. In order to start controlling, user will have to create a new project.

Following sections provide a description of beam design modalities, audio controls and project managements.

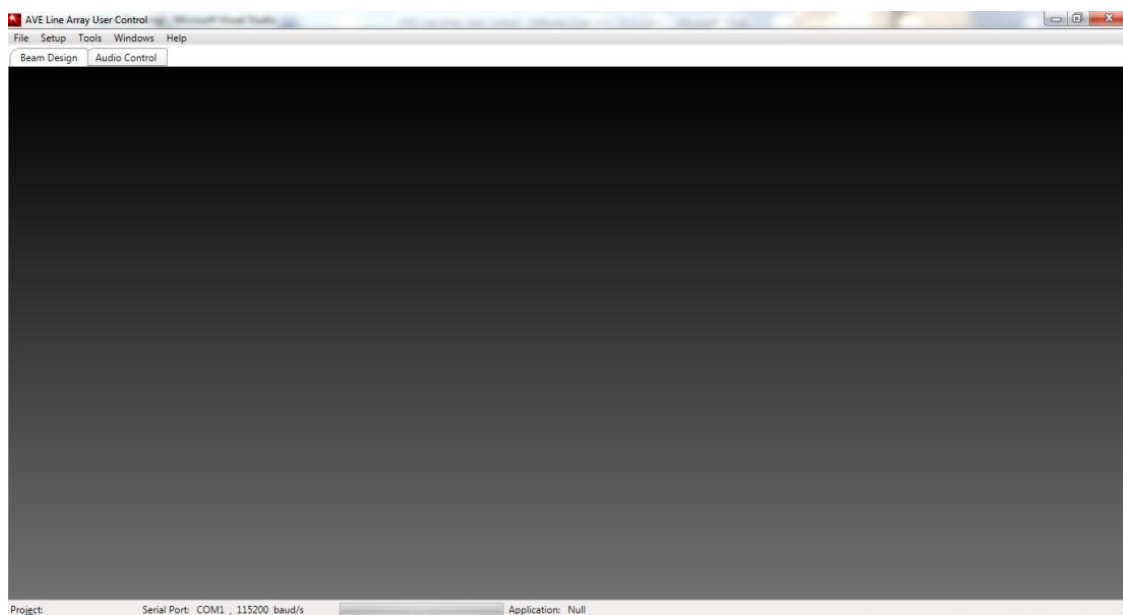


Figure: Empty Workspace.

### 2.2 – COM Setup

The PC running AVE Line Array User Control software should be connected to the line array unit using the USB to RS485 Serial Converter and cables supplied with the AVE Line Array User Control Configuration Kit. See the Driver Installation Section below for specific information.

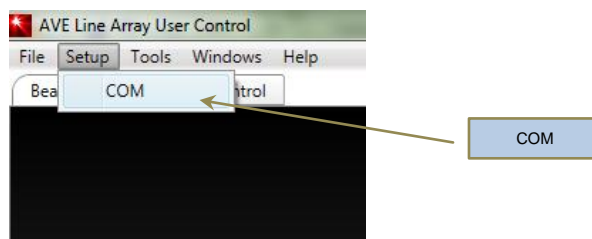
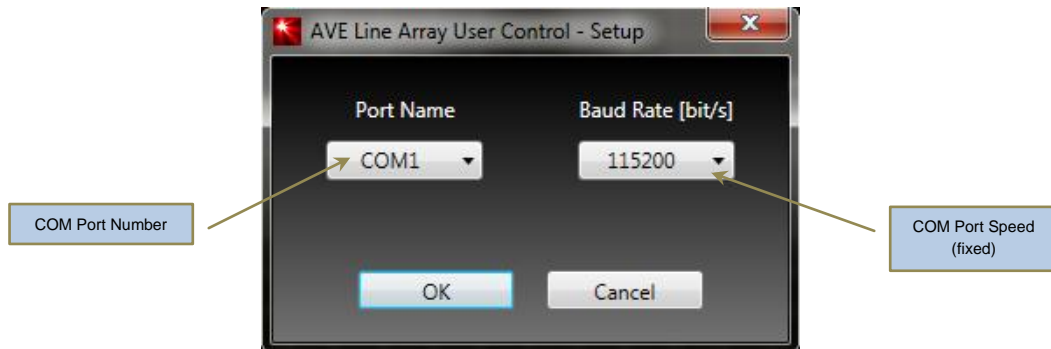


Figure: Selecting COM port.

Before to start, user has to select the serial port COM from the **COM** menu item in **SETUP** menu, which will be used by USB-RS485 serial converter to communicate with the AVE Line Array device.



**Figure: COM Setup.**

The proper COM port number associated to the USB-RS485 Serial Converter can be retrieved in Windows, opening Device Manager (see SETUP menu paragraph) and checking Ports (COM & LPT) or user can disconnect your USB-RS485 converter and re-open the menu **SETUP**→**COM** menu; the entry that disappears should be USB-RS485 converter. Reconnect the board and select that serial port.

### 2.2.1 - Driver Installation

Follow the steps below to install driver of USB-RS485 Serial Converter:

1. Power on your computer and make sure that the USB port is enabled and working properly.
2. Plug in the USB-High Speed Serial Converter into the USB port, the PC should then detect the new hardware, or if not, then run the Add New Hardware Wizard to assist you in setting up the new device.
3. If the PC detect the new hardware it ask you to insert the USB – RS485 Serial Converter software driver (FTDI USB driver) into the CD-ROM drive and click next to continue.
4. Windows will now detect the driver. Click Next to continue installation.

Normally Windows is able to install device drivers automatically and you'll be notified that the device is ready to use. Otherwise, unzip file USB-RS485 serial converter\_win\_driver.zip included in the installation package and indicate to Windows such a folder containing the driver for the device when it will prompt you.

Alternatively latest USB-RS485 drivers can be retrieved at following link:

<http://www.ftdichip.com/Drivers/VCP.htm>

### 2.3 - Create a New Project

To create a new Project in AVE Line Array User Control, follow these steps:

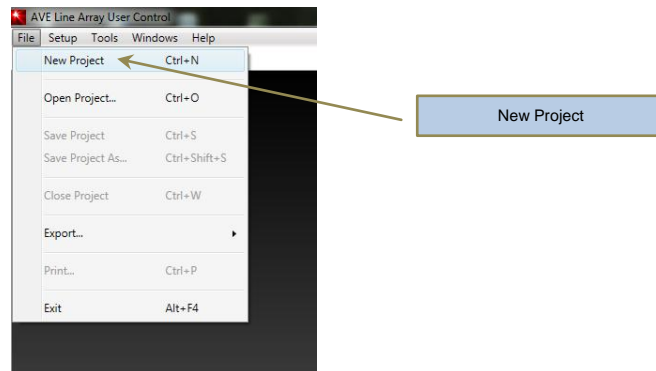


Figure: Creating new project.

1. Click the **New Project** on the **File** menu, or press CTRL+N. The New Project dialog box appears.
2. In the **New Project** dialog box select the proper line array series from leftmost column, and then choose the line array model in middle column which matches the used device. The rightmost column shows main features of the selected line array of loudspeakers.
3. Name the project, select his location, and then click **OK**. By default, the AVE Line Array User Control application saves a project named untitled.prj in the default working folder.

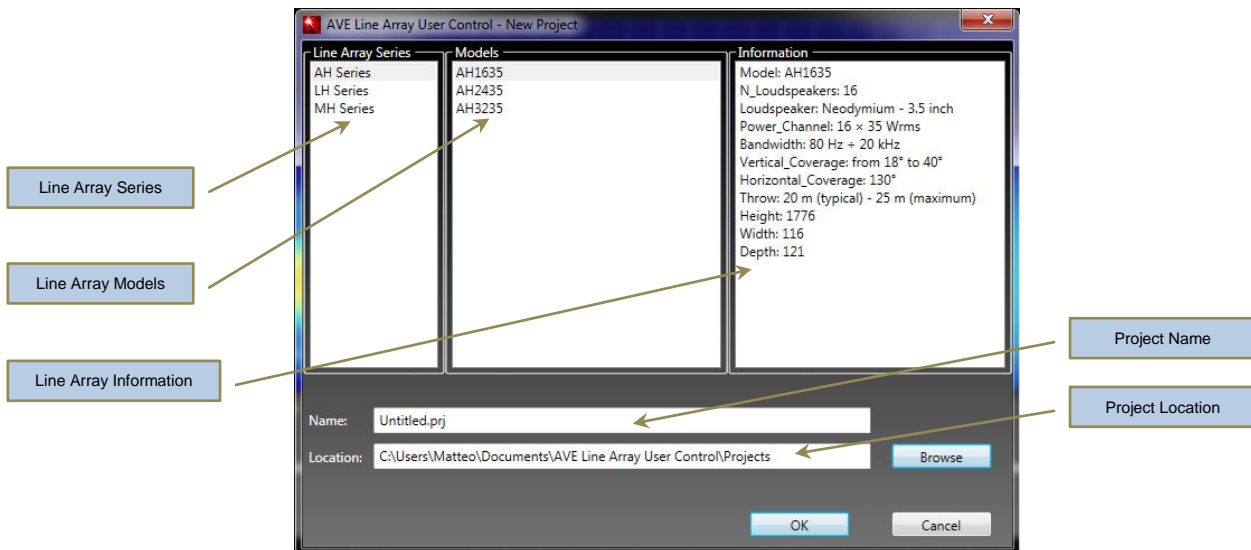


Figure: New Project dialog box.

This will create a "blank" project with default parameters for selected line array unit. The first tab control is the **Beam Design** tab control when the project first loads. The second tab is **Audio Control** (see next chapter). You are now ready to start entering your beam configuration and audio settings.

## 3.0 – Beam Design

### 3.1 – Beam Design Panel

Beam Design tab content is composed by three expandable panels:

- SPL Field panel.
- SPL Field along Listening Level panel.
- Beam Parameters panel.

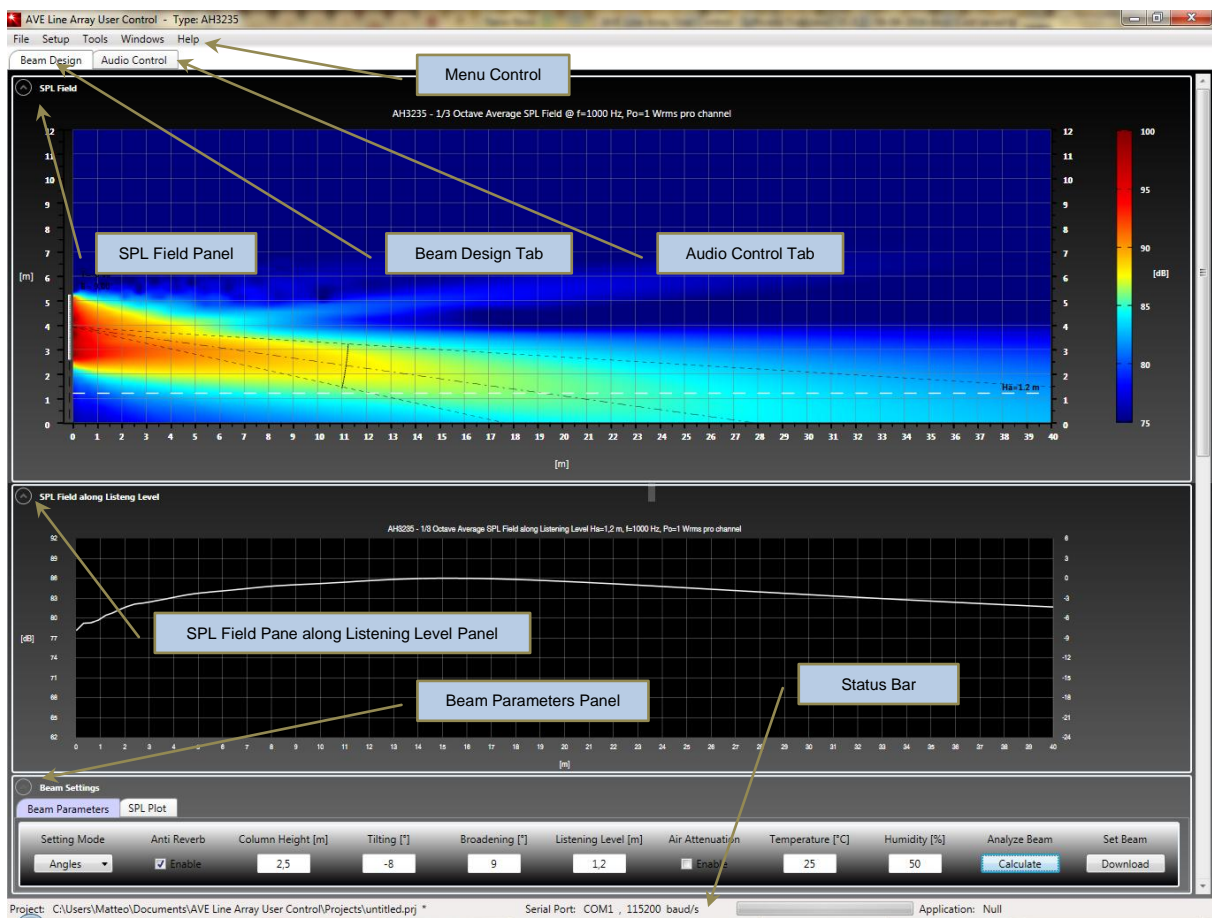


Figure: Beam Design Panel.



### 3.2 – SPL Field

**SPL Field** prediction panel depicts the averaged SPL field at selectable frequencies over an on-axis, vertical cross-section.

SPL field is computed analyzing sound propagation in direct field condition, defined as the sound field which has not suffered any reflection from any room surfaces or obstacles.

The SPL prediction technique uses a high-resolution method which employs a 1/12<sup>th</sup> octave complex frequency resolution (magnitude and phase) and 1-degree angular resolution dataset to predict the direct-field sound pressure level field.

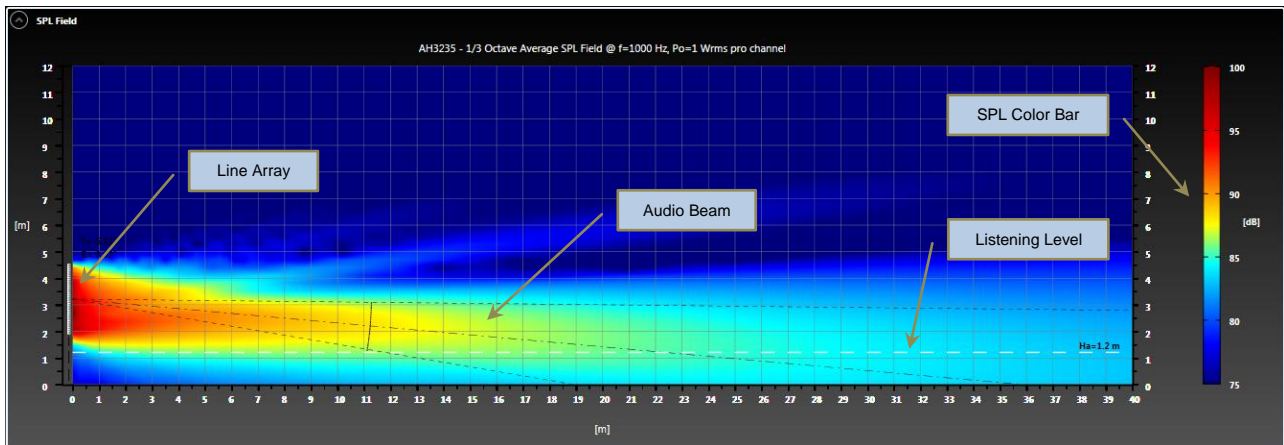


Figure: SPL Field.

### 3.3. – SPL Field along Listening Level

**SPL Field along Listening Level** panel shows average SPL along audience listening level  $H_a$  over distance. Such curve aids user in optimizing design process to estimate ripple in SPL field at various frequencies with different averaging bandwidths.

Left ordinates indicate absolute SPL values in dB scale whereas, on the right plot side, relative SPLs are referred to the maximum value along the listening level.

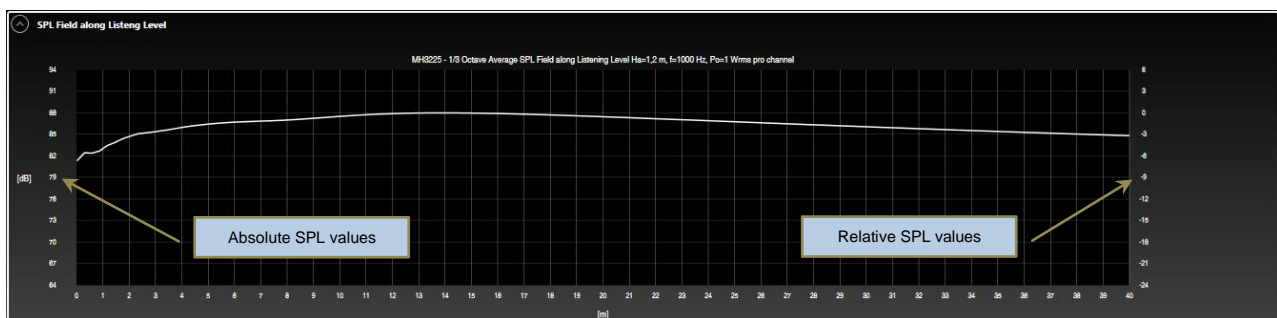


Figure: SPL Field along Listening Level.

Sound pressure estimating is conducted assuming an electrical output power for each channel equal to  $1 W_{RMS}$  at selected frequency as chosen in **SPL plot** in **Beam Parameters** panel.

### 3.4 – Beam Parameters

In **Beam Parameters** panel, user can define dimensions of the listening area referring on a section through the space and choose the beam design mode for proper beam configuration.

Such panel is composed by two tabs:

- **Beam #1 Parameters.**
- **SPL Plot.**



Figure: Beam Parameters – Beam #1.

Two beam design approaches are selectable in **Beam #1 Parameters** tab panel by means of the **Settings Mode** drop box:

- **Angles Mode**
- **Distances Mode**

The **SPL Plot** tab of **Beam Parameters** panel allows user in selecting beam frequency at which SPL is predicted as well as the averaging bandwidth, expressed in fractional octave over that SPL values are averaged.



Figure: Beam Parameters – SPL Plot.

In addition, user can read the SPL value on single point over depicted area and clear all SPL tags previously inserted through the **Clear SPL Tags** button.

### 3.4.1 - Angles Setting Mode

This setting mode allows user to control in an arbitrary manner the beam tilting angle, either positive or negative as well as the beam broadening angle. Studied for experienced users, it allows having the full control of the main beam lobe features.



Figure: Audience area panel in Angles Setting Mode.

Input parameters are defined as:

- **Anti Reverberation System.**
- **Column Height.**
- **Tilting Angle.**
- **Broadening Angle.**
- **Listening Level.**
- **Air Attenuation Compensation.**

Select **Anti Reverberation System** checkbox in **Beam #1 Parameters** panel to activate anti reverberation feature. Ascolto Line Arrays possess the innovative **ARS<sup>®</sup>**, capable of increasing the voice intelligibility in reverberant environments.

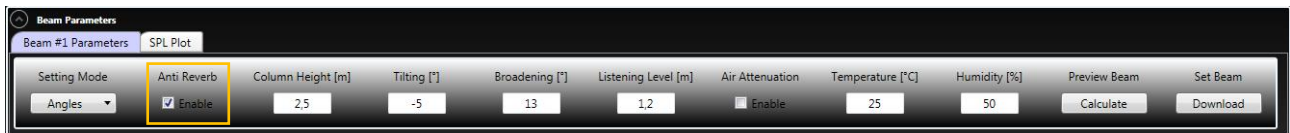
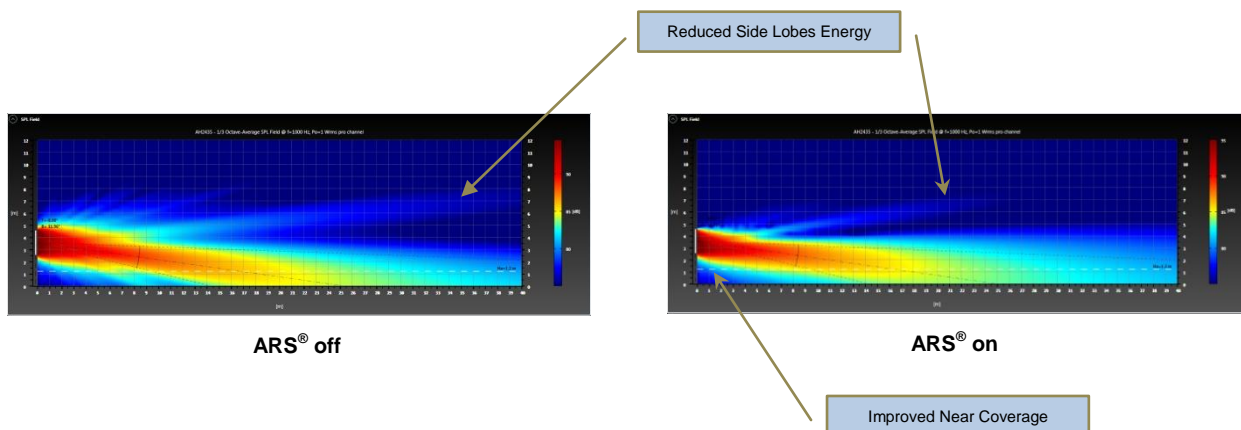
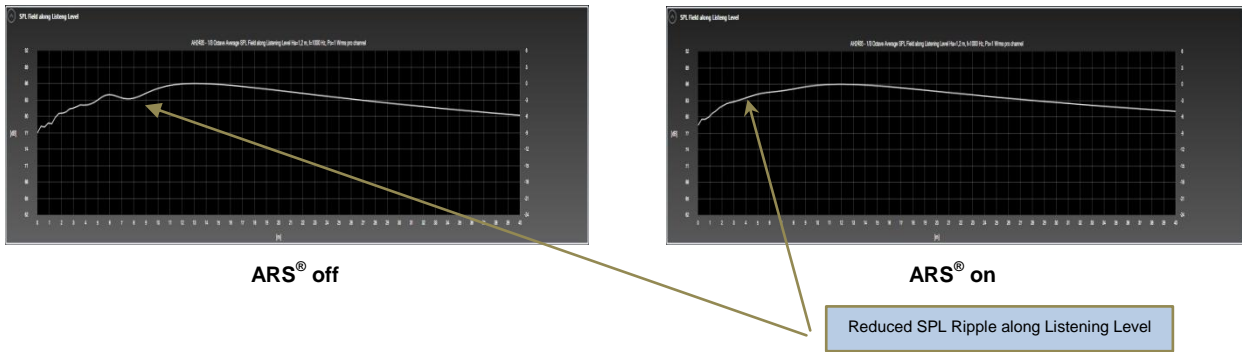


Figure: Anti Reverberation System.

The **ARS** conveys uniformly acoustic energy on the lower part of the audio beam and reduce drastically the audio emission upwards, attenuating significantly the acoustic reflections related to ceilings.





Figures: Anti Reverberation System ARS®.

**ARS** usage is specifically studied and convenient in large reverberant environments, such as churches with long aisles, cathedrals or basilicas with high reverberation times  $RT_{60}$  (greater than 8 – 9 s). Conversely, for maximal line array throw, consider disabling **ARS** function.

The **Column Height** is assumed as the height in meters between below floor and line array bottom side.

**Tilting Angle** and **Broadening Angle** define respectively aiming and size of audio beam expressed in degrees.

Start and end side dashed segments in SPL field plot define graphically the computed beam broadness angle assumed as SPL variation does not exceed more than 3 dB. Beam bisector indicates the computed tilting angle.

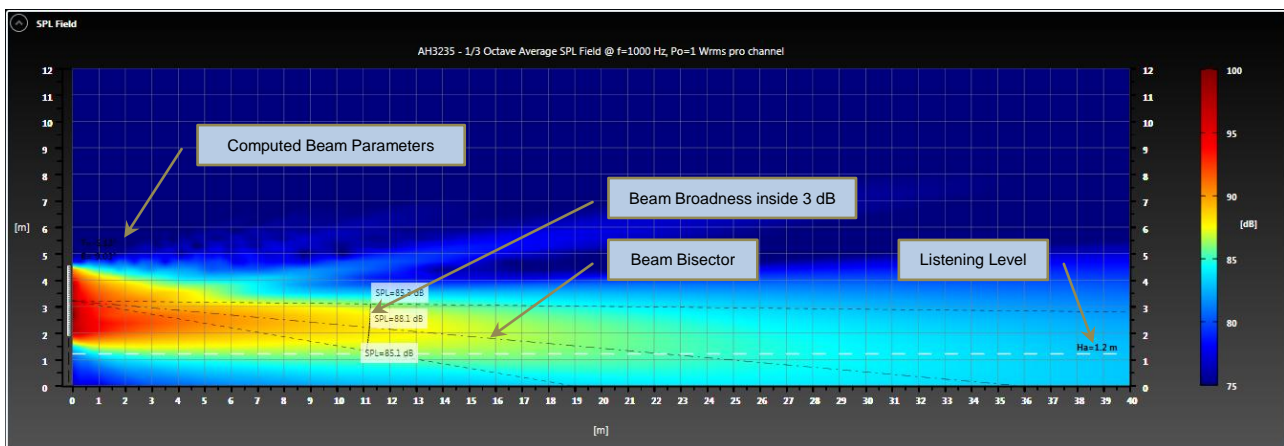
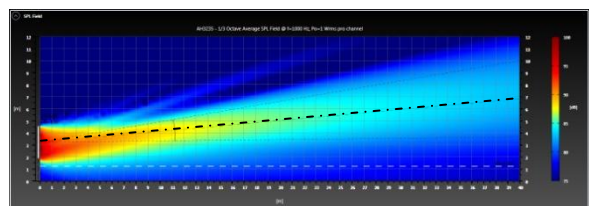
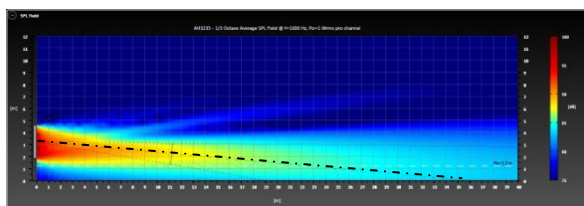
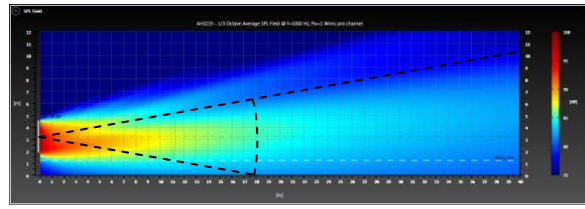
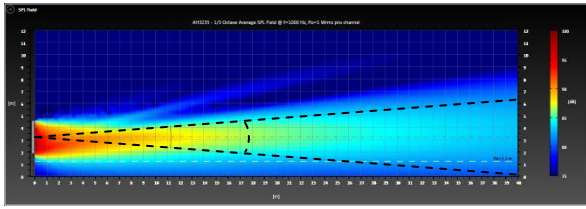


Figure: SPL Field in angle mode.



Figures: SPL Field examples for different tilting angles.



Figures: SPL Field examples for different broadening angles.

**Listening Level** indicates the average height of the audience plane and it would be a point midway between the sitting and the standing position (normally 1.2 m – 1.3 m).



Figure: Listening Level.

With **Air Attenuation Compensation** enabling check box, users may specify a frequency response correction in SPL analysis, based on a given relative humidity and temperature.

Air absorption is sensitive to air temperature, air composition, particularly humidity concentration, and sound frequency.

It is particularly necessary to account for air absorption in large spaces.

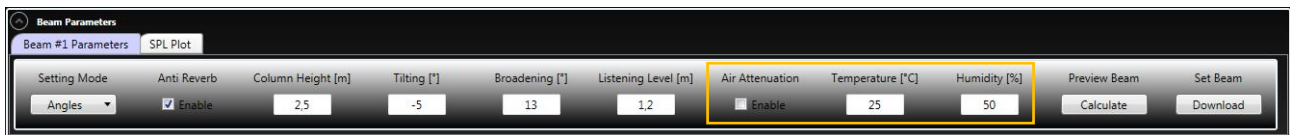


Figure: Air Attenuation Compensation.

### 3.4.2 - Distances Setting Mode

Used generally to optimize sound pressure level SPL within 3 dB inside a desired distance range, this setting mode is typically adopted for flat audience areas. It makes straightforward to quickly set-up and robustly your line array unit.

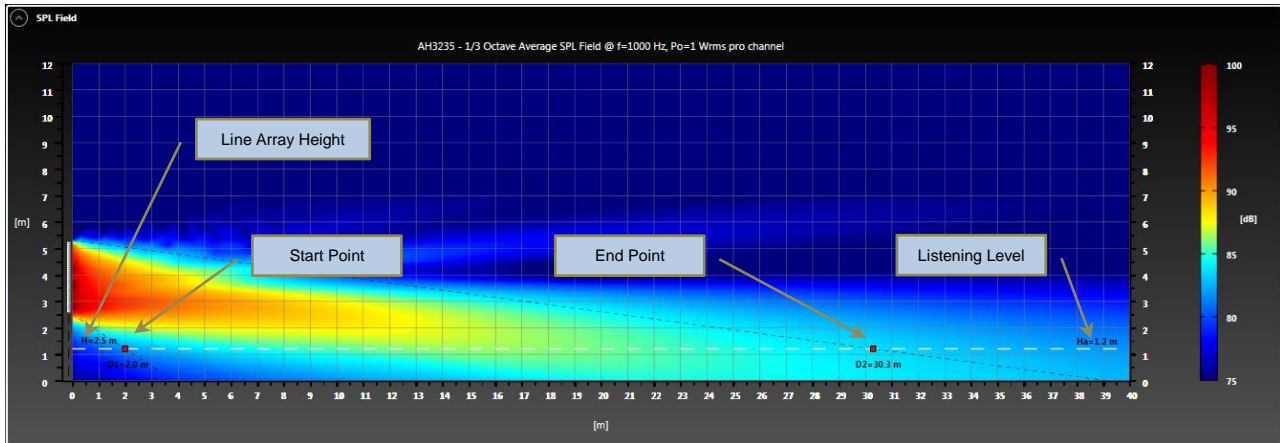


Figure: SPL Field in distances mode.

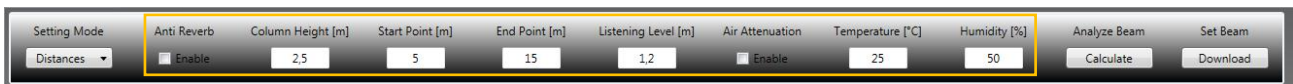


Figure: Audience area panel in Distances Setting Mode.

Input parameters to manage beam setup are listed below:

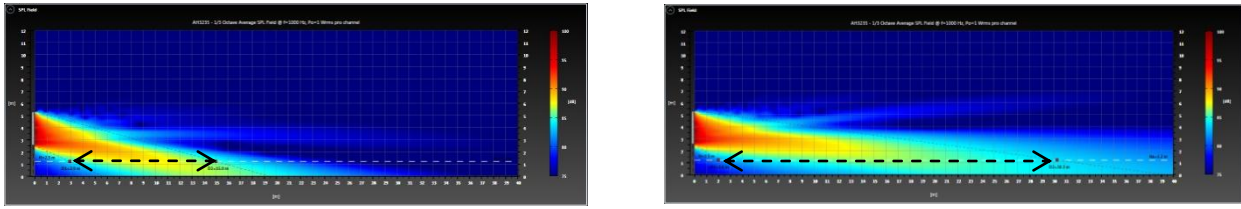
- **Anti Reverberation System**
- **Column Height**
- **Start Point**
- **End Point**
- **Listening Level**
- **Air Attenuation Compensation**

Select **Anti Reverberation System** checkbox to enable anti reverberation feature (see previous paragraph for a complete description).

The **Column Height** is defined as the height in meters between below floor and line array bottom side.

Instead of defining beam shape by angles, user can select a range along SPL variation does not exceed more than 3 dB.

User can define such range selection by means of **Start Point** and **End point** text boxes, by typing values in meters.



Figures: SPL Field examples for distances setting mode for different ranges.

**Listening Level** represents the average height of the audience plane and it would be a point midway between the sitting and the standing position (normally 1.2 m – 1.3 m).



Figure: Listening Level.

With **Air Attenuation Compensation** enabling check box, users may specify a frequency response correction in SPL analysis, based on a given relative humidity and temperature.

Remember that air absorption is sensitive to air temperature, air composition, particularly humidity concentration, and sound frequency.

It is particularly necessary to account for air absorption in large spaces.

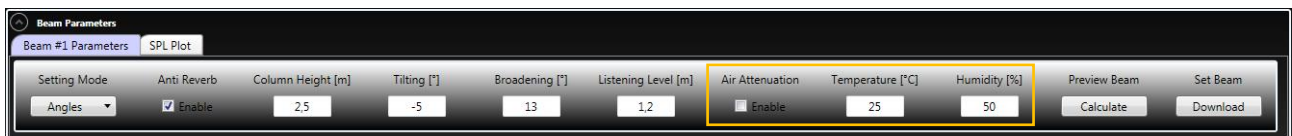


Figure: Air Attenuation Compensation.

### 3.5 - Computing Beam Configuration

Pressing **Calculate** Beam button, the AVE Line Array User Control software computes spatial filtering analysis on each audio output channel to fit your input beam requirements.

Optimum spatial filtering DSP processing allows user to obtain the desired listening pattern making line array unit high directive, featuring the beam less dependent on the frequency and minimizing side-lobes energy.

Once the analysis is completed, the predicted audio beam is then depicted both on SPL Field and SPL Field along Listening Level plots.



Figure: Analysis Beam.

Selecting the **Set Beam** button would cause the application to send spatial filter coefficients to AVE line array unit and stored in non volatile memory in the unit themselves.



Figure: Set Beam.

**Note:** make sure you have a RS-485 network connection with AVE Line Array when using **Set Beam** button.

**Note:** using **Set Beam** command, it will overwrite existing beam setup stored inside line array unit.

Both beam configuration and audio settings, stored inside the line array unit, can be retrieved whenever needed using **Get Configuration** in **Tools** menu (see Menu chapter).



## 4.0 – Audio Control

The Audio Control panel features advanced digital signal processing to configure the main audio parameters. AVE mbH has designed exclusive DSP functions that greatly enhance the capabilities and performance of the AVE Digital Line Array. These functions include equalizer, time alignment and presets control. Simply **click and drag** any marker in the graph for easy control of Frequency, Gain and Bandwidth of filtering modules.



Figure: Audio Control Panel.

### 4.1 – Main Audio Panel

Key features in the Main Audio panel are:

**Input Channel Control:** to choose which input to switch to the output: Line Input Level (0 dBu) or 100 V Input Level.

**Input Phase Control:** to reverse the phase of the signal when multiple microphone applications pick up the same signal from different locations (in some such cases signals can be out of phase and sound and audio is “thin” or “out of position”).

**Delay Control:** designed primarily for time alignment in multi-speaker sound systems. With 50 m equivalent maximum time delay (ca. 150 ms), the AVE Digitally Controlled Line Array can be aligned with multiple

speaker systems from small room acoustic to the largest environments such as churches, cathedrals, venues, etc. The minimum delay increment of 0.1 m (ca. 294  $\mu$ s) allows fine speaker alignments.

**Volume Control:** used to match the input sensitivity of the line array to the particular source unit that you are using. The volume control can be programmed from a gain of +6 dB to an attenuation of -120 dB in 0.5 dB step.

**Mute Control:** to remove temporarily the output from the line array unit.

**Solo Control:** to isolate a particular loudspeaker channel so that only that channel's output is heard.

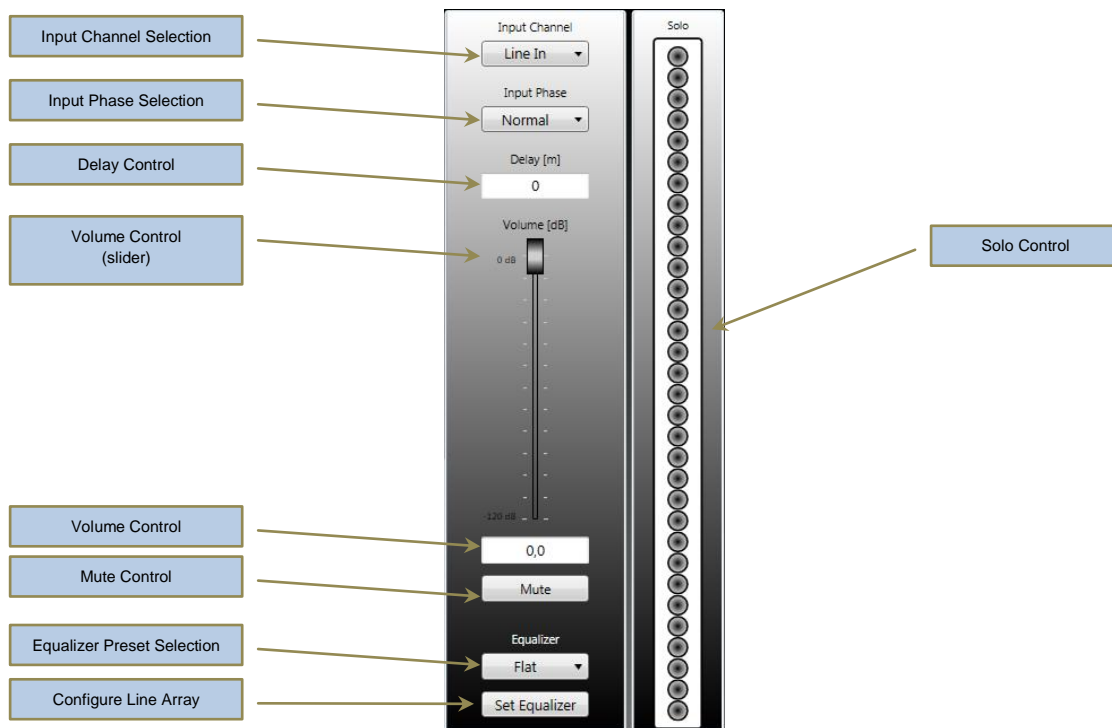


Figure: Main Audio and Solo Panels.

**Equalizer Preset Selection:** to quickly access three default preset equalizations:

- Flat** with no filtering modules  
Equalizer Preset neither emphasizes nor de-emphasizes any part of the audio spectrum.
- Speech**  
Equalizer Preset with two fixed filter intended to exalt voiced sounds.

Filter #1: lowshelving  $f = 4000$  Hz,  $G = -12$  dB, Slope = 6 dB/oct  
Filter #2: highshelving  $f = 250$  Hz,  $G = -12$  dB, Slope = 6 dB/oct

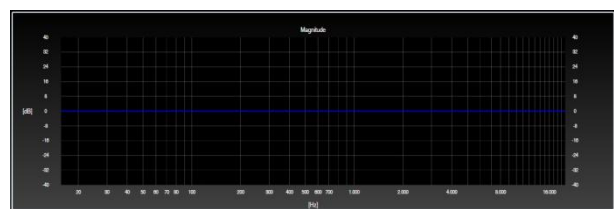


Figure: Flat Equalizer

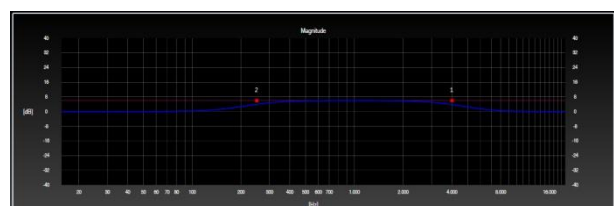


Figure: Speech Equalizer

- **Music**

Equalizer Preset with two fixed filter suitable to exalt music sounds.

Filter #1: lowshelving f = 250 Hz, G = -12 dB, Slope = 6 dB/oct  
 Filter #2: highshelving f = 4000 Hz, G = -12 dB, Slope = 6 dB/oct

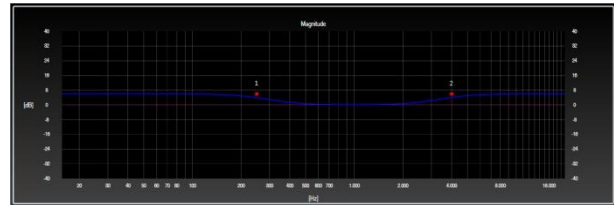


Figure: Music Equalizer

Or to assign three different custom preset equalization, fully configurable:

- **Custom #1**
- **Custom #2**
- **Custom #3**

which can be recalled quickly with AVE Infrared Remote Control.

#### 4.2 – Equalizer Panel

**High Precision 8-Modules Equalizer:** once your beam design is completed, you can design a suitable audio equalization to be applied to increase the naturalness or intelligibility of the voice or to compensate environment acoustic.

AVE mbH have developed an optimized technique of IIR filter design and realization to minimize the effects of round-off noise at the filter output.

All filter modules are based on ultra low-noise and low-distortion algorithms. A new structure for IIR filters is adopted, which exhibits reduced coefficient sensitivity and superior round-off noise properties as compared to the classic filtering realization.

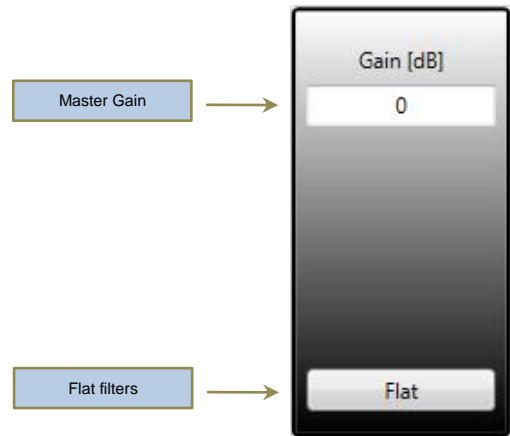


Figure: High Precision 8-Modules Equalizer.

**High Precision 8-Modules Equalizer** allows user to configure easily up to 8 filtering modules selecting among following filter typologies:

- **Master Gain**

Control to adjust general level over a range from -24 dB to 24 dB in arbitrary steps.

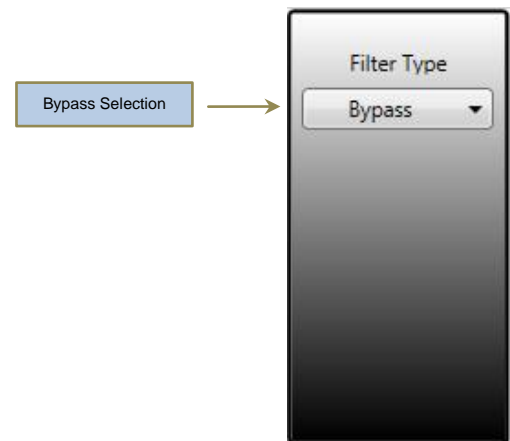


Clicking the **Flat** button forces all the EQ modules to bypass but it does not clear typed filter parameters. User can recall them simply reverting filter type from Bypass to previous one.

- **Bypass**

Allows all audio frequencies to pass.

It does not affect magnitude and phase of the input signal.



- **Butterworth High/Low Pass Filter**

The Butterworth filter is a type of signal processing filter designed to have frequency response as flat as possible (no ripples) in the pass-band and zero roll off response in the stop-band.

This type of filter allows only frequencies above/below the cut-off frequency to pass thus eliminating low/high frequencies respectively.

For example, a high pass filter is extremely useful for eliminating booming sounds inside churches with high reverberation time.

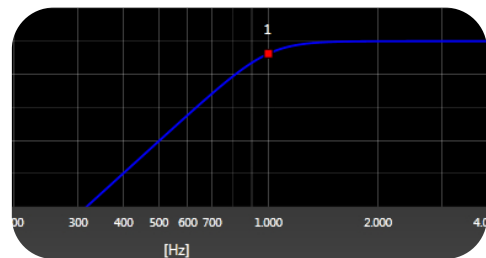


Figure: Butterworth Highpass Filter

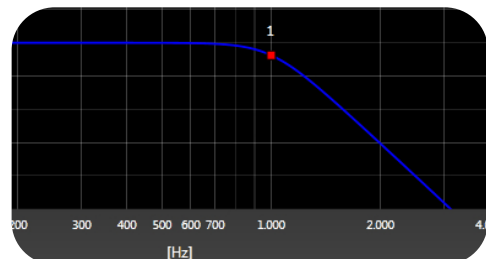
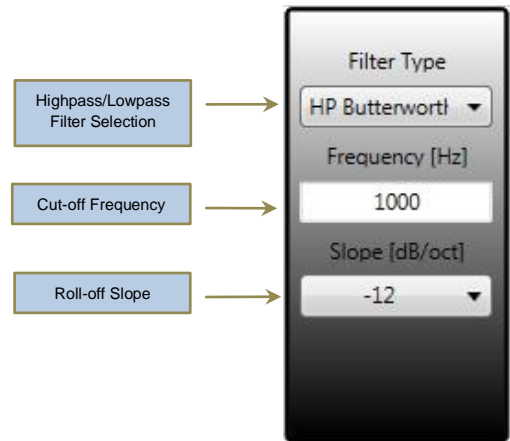


Figure: Butterworth Lowpass Filter

**Butterworth High/Low Pass filters** are characterized by two control only:

- **Cut-off Frequency** (from 20 Hz to 20 kHz).
- **Roll-off slope** (-12 dB/oct or -24 dB/oct).

You change Cut-off frequency by dragging leftward or rightward the red squared handle.



- **High/Low Shelving Filter**

It allows reducing or boosting all frequencies equally, above or below a desired cut-off frequency, and making a straightforward and efficient implement for bass and treble control.

User can select a high/low shelving filter to reduce the high/low frequencies respectively without completely eliminating some frequencies, as would happen with a classic high/low pass filters.

It is useful for getting rid of low-frequency hum, mic bumps, and rumbles.

**High/low shelving filters** have three controls:

- **Knee Frequency** (from 20 Hz to 20 kHz),
- **Gain** (from -24 dB to 24 dB)
- **Roll-off Slope** (-6 dB/oct or -12 dB/oct).

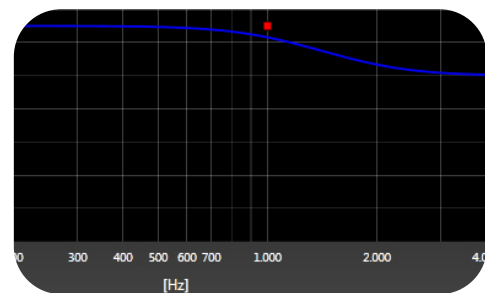


Figure: Lowshelving Filter

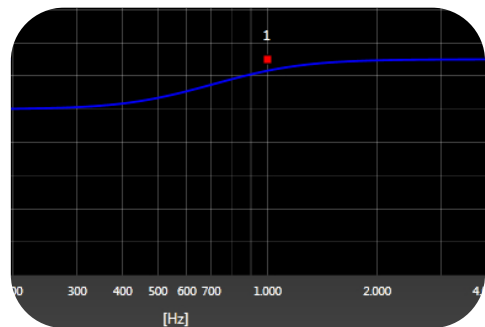
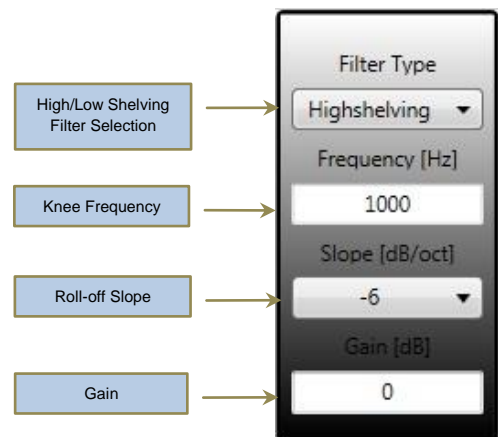


Figure: Highshelving Filter



- **PEQ Filter**

PEQ filters can be used to realize complex frequency curves with highest precision. It represents the most useful and versatile audio filter for a wide range of applications. For example, using the very narrow notching PEQ filters, it will eliminate most audio feedbacks in your audio system.

The **PEQ** filter gives the user three controls parameters:

- **Central Frequency.**
- **Bandwidth.**
- **Notching/Peaking Gain.**

**Central Frequency** (from 20 Hz to 20 kHz) adjusts the center of the range of frequencies which will be boosted (increased) or cut (reduced).

**Bandwidth** (in fractional octave) controls the range of frequencies that will be boosted or cut.

**Notching/Peaking Gain** (from -24 dB to +24 dB) controls how much of the given range of frequencies should be added or removed.

To adjust a parametric filter, insert values in textboxes or just point and click on the filter. Each red squared handle has two light blue squared boxes. Drag these to adjust the bandwidth of the filter.

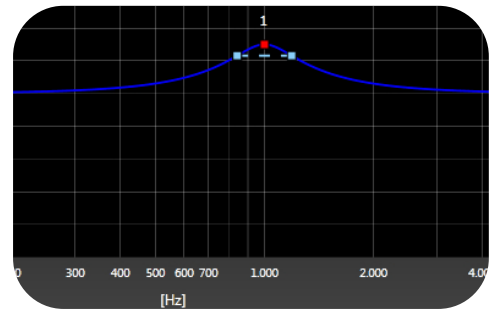


Figure: Peaking Filter

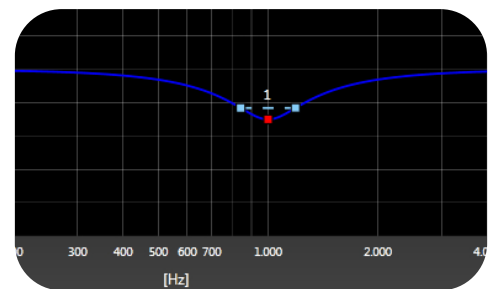
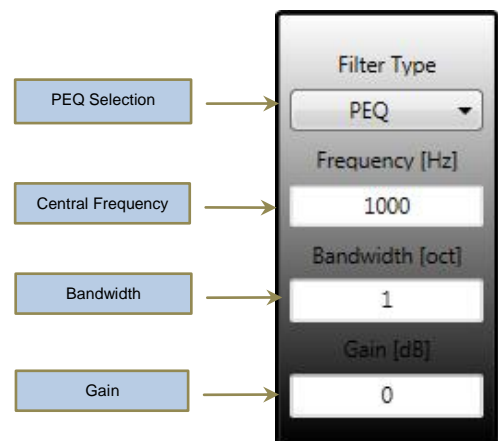


Figure: Notch Filter



### 4.3 – Equalizer Plot

Once users have designed the filter, they can view the following filter analyses in the display window by clicking any of the buttons: **Magnitude**, **Phase** or **Group Delay** on the EQ tabs bar.

- **Magnitude response**

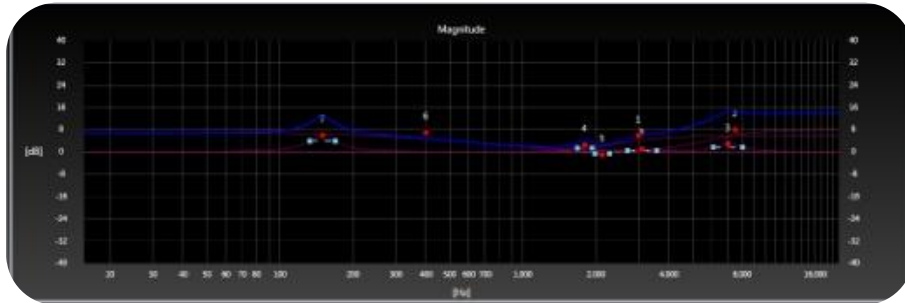


Figure: Magnitude

- **Phase response**

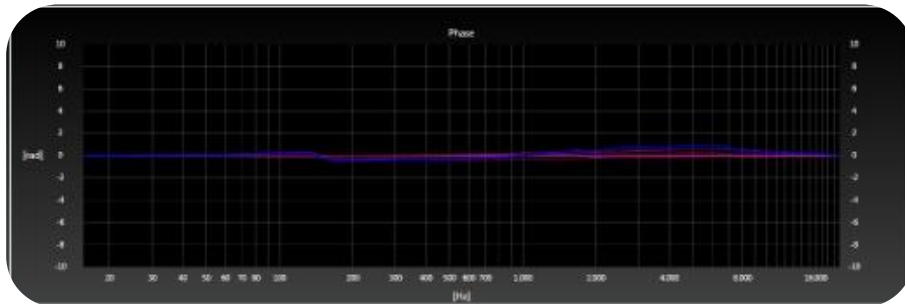


Figure: Phase

- **Group delay response**

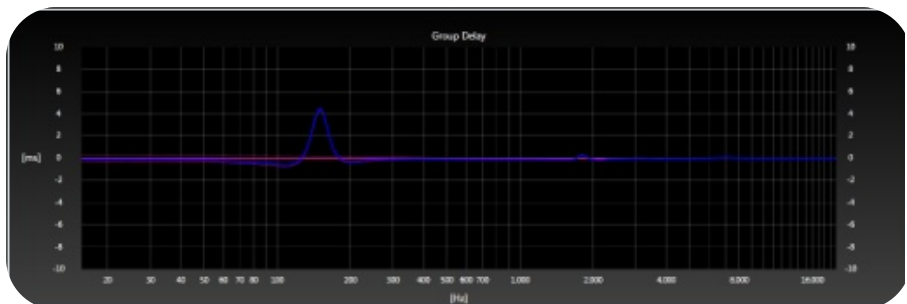


Figure: Group delay

## 5.0 – Menu Commands

### 5.1 – File Menu

AVE Line Array User Control **File menu** contains various commands for opening, saving, exporting, printing and closing projects.

#### 5.1.1 – New Project

To create a new Project in AVE Line Array User Control, follow these steps:

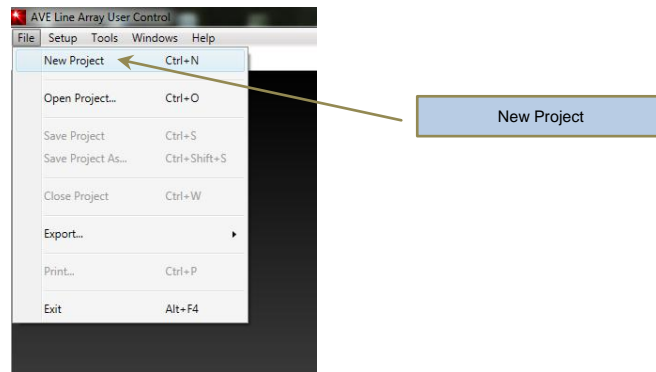


Figure: New project.

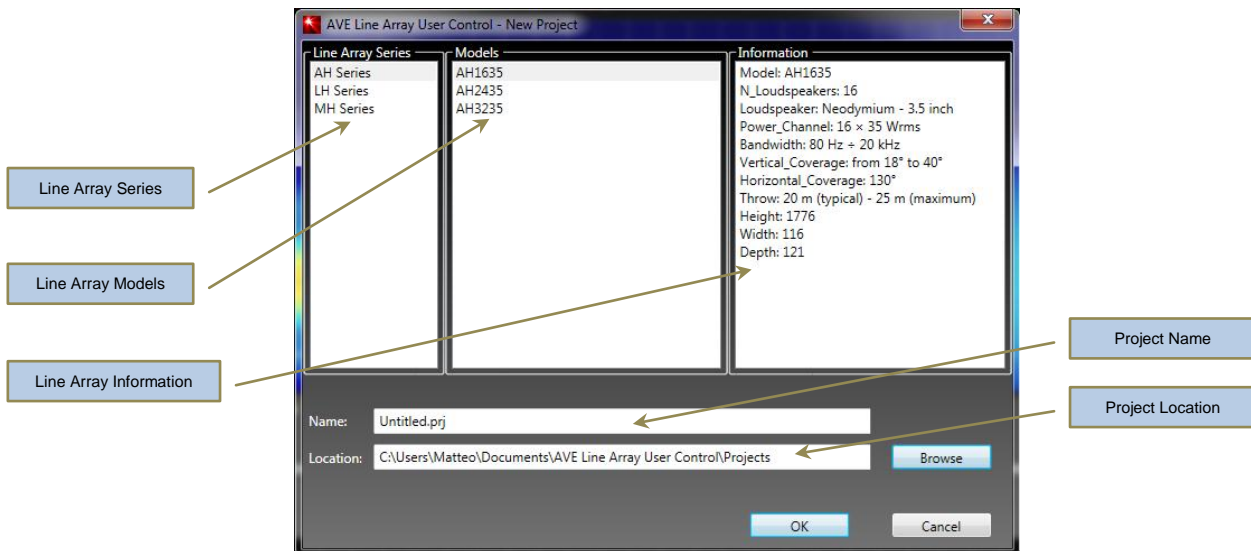


Figure: New Project dialog box.

1. Click the **New Project** on the **File** menu, or press CTRL+N. The New Project dialog box appears.
2. In the **New Project** dialog box select the proper line array series from leftmost column, and then choose the line array model in middle column which matches the used device. The rightmost column shows main features of the selected line array of loudspeakers.



3. Name the project, select his location, and then click **OK**. By default, the AVE Line Array User Control application saves a project named untitled.prj in the default working folder.

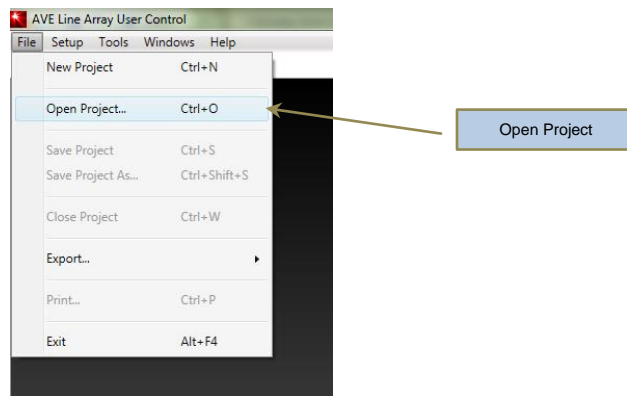
**Keyboard Shortcut:** **Ctrl+N**

### 5.1.2 – Open Project

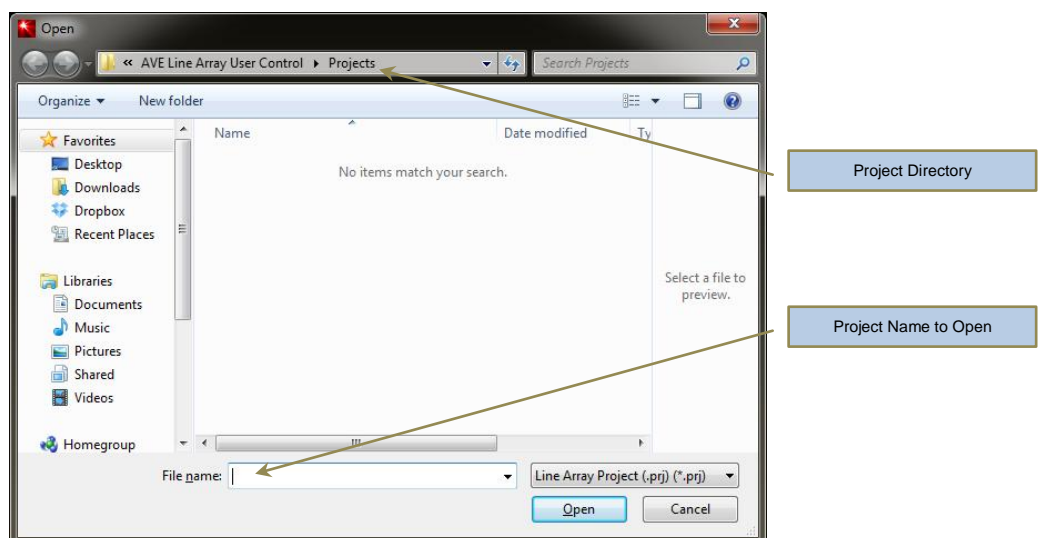
If user needs to edit one project that exists already, choose **Open** in **File** Menu, or press CTRL+O, and then browse to find the file you want.

Then double click on the file name to open it in main window. Loading a project returns the AVE Line Array User Control to the state it was in when the project was saved, and the working directory set to that of the loaded project.

**Keyboard Shortcut:** **Ctrl+O**



**Figure: Open Project.**



**Figure: Open Project dialog box.**

### 5.1.3 – Save Project

Use the **Save** command in **File** menu to save the currently active line array project to your file system. When user closes an unsaved document, or attempt to quit AVE Line Array User Control with unsaved open project, AVE Line Array User Control will prompt you to save your work before continuing.

**Keyboard Shortcut:** **Ctrl+S**

**Save As** command in **File** menu is same as **Save** above, but allows user to save a copy of an open project to a different name or location.

This can be useful if you want to preserve a snapshot of the state of a project at a particular time, and then proceed to make further changes to the project you just saved.

**Keyboard Shortcut:** **Ctrl+Shift+S**

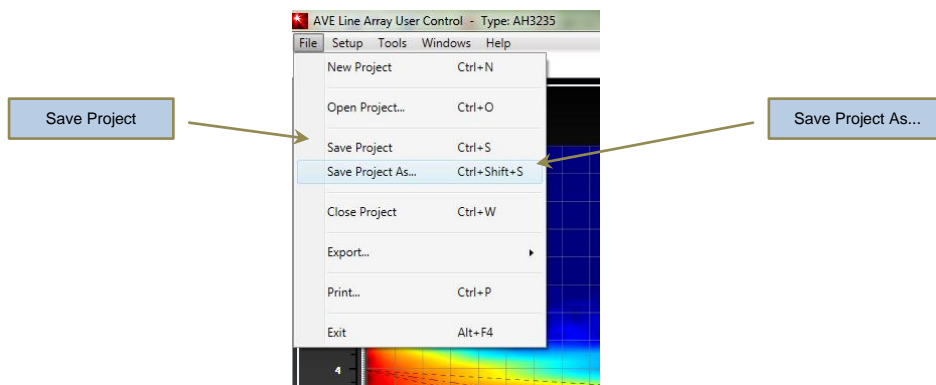


Figure: Save Project and Save Project As...

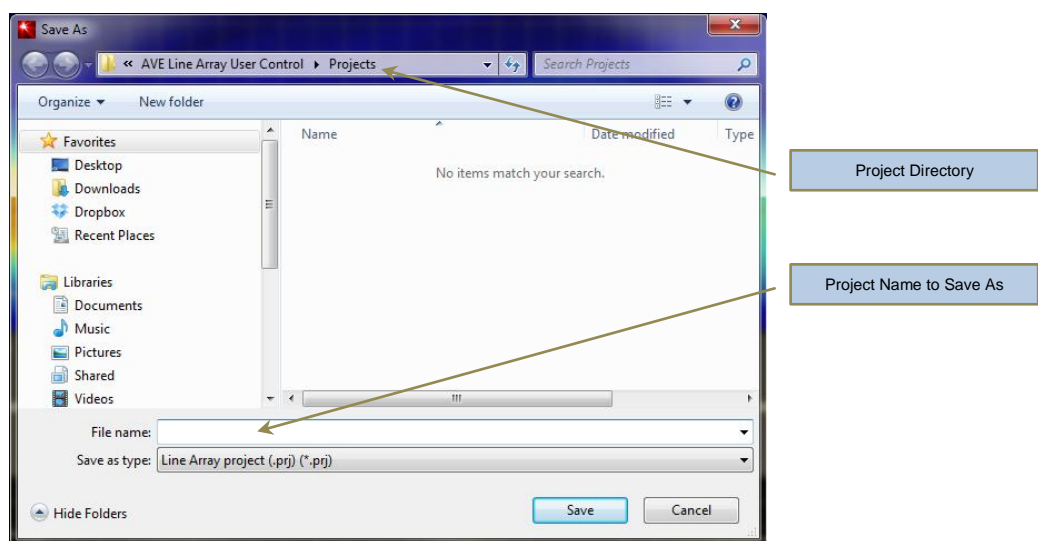


Figure: Save As dialog box.

If you specify a filename that already exists, a warning message is displayed. Select **Yes** to use the filename or **No** to return to the dialog to select another filename. If you select **Yes**, target file will be overwritten.

Note: after you modify a project in the panels, an asterisk (\*) follows the file name. This asterisk indicates that there are unsaved changes to the file.

### 5.1.4 – Close Project

Choose **Close Project** menu item to close the active project. If you're closing a document to which you've made changes not yet saved, AVE Line Array User Control will ask you if you want to save your changes.

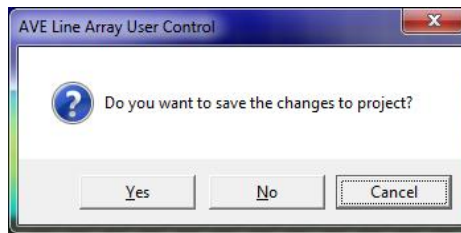


Figure: Close project dialog box.

Click **Yes** to save your changes, or click **No** if you don't want your changes preserved. Click **Cancel** to return to that project without closing it.

**Keyboard Shortcut:** **Ctrl+W**

### 5.1.5 – Export...

**SPL Field** as well as **Equalization plot** may also be exported as image, choosing among different formats (BMP, GIFF, JPG, PNG and TIFF), for use in documentation and proposals.

1. Click the **Export...** on the **File** menu then choose one of **Beam Plot** or **Equalizer Plot** menu items.
2. In the **Export** dialog box choose the output directory and then the filename and the proper image format too.

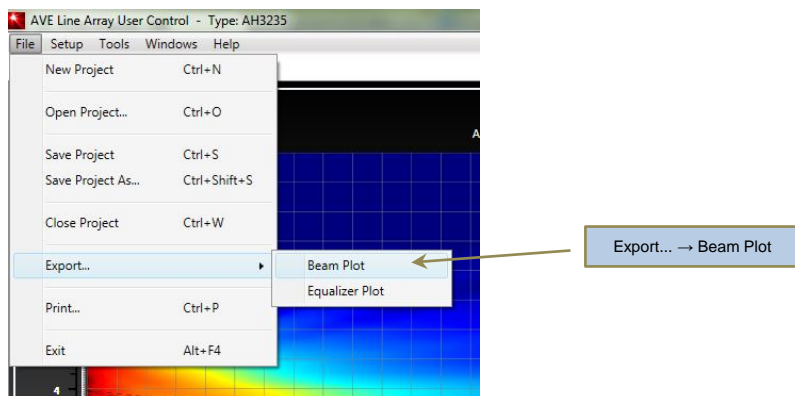


Figure: Export Beam Plot.

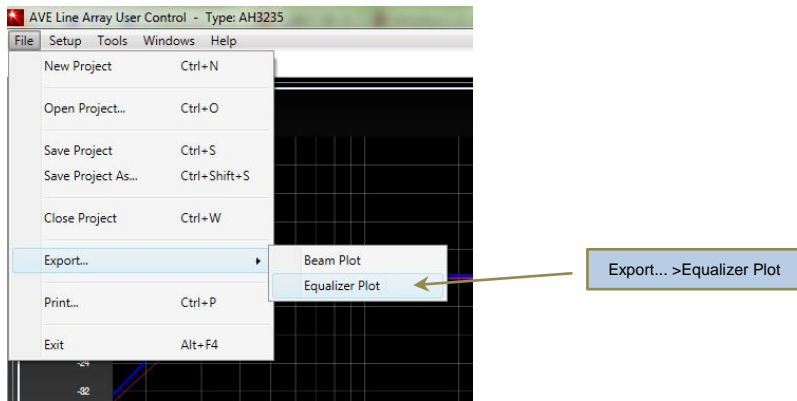


Figure: Export Equalizer Plot.

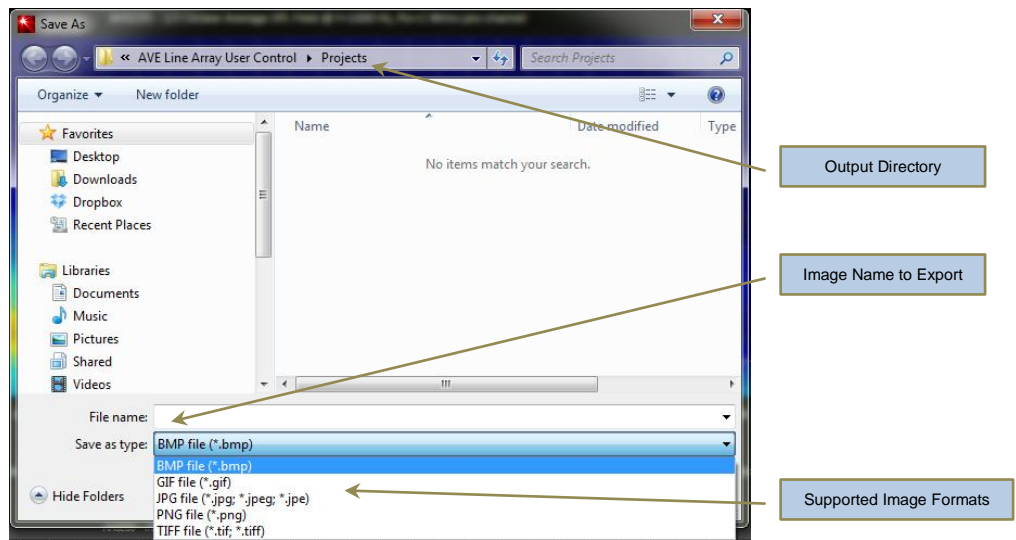


Figure: Export dialog box.

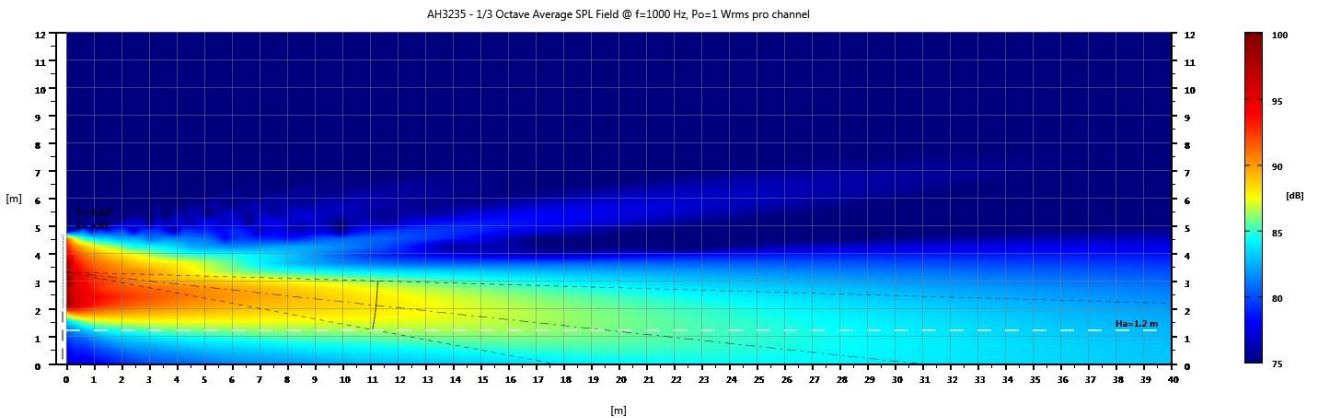


Figure: Exported SPL Field image.

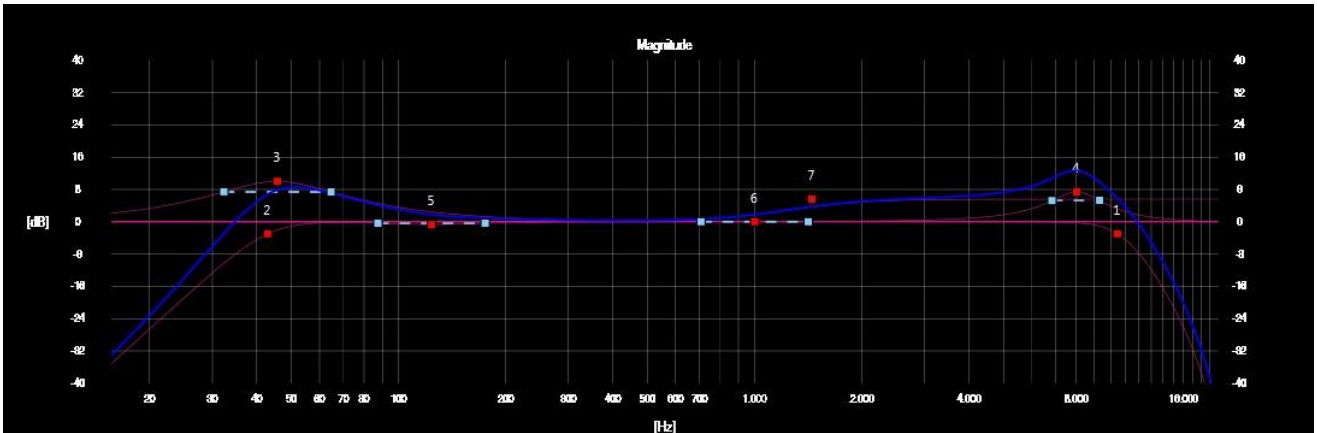


Figure: Exported Equalizer Plot.

### 5.1.6 - Print

The **Print** menu item opens the standard Print dialog box. This dialog box enables you to generate a report to the currently selected printer of all parameters contained in a Beam Design panel, including SPL Field plot.

**Keyboard Shortcut:** **Ctrl+P**

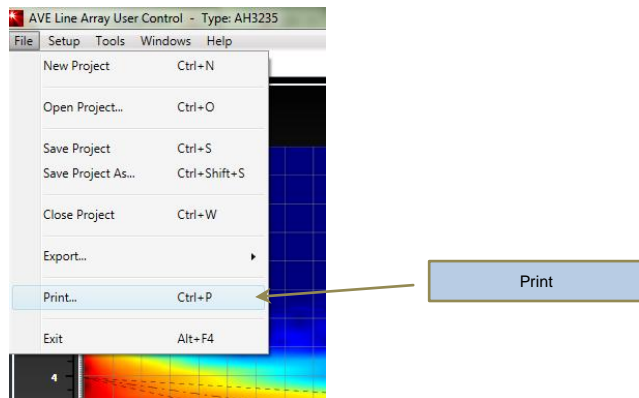


Figure: Print...

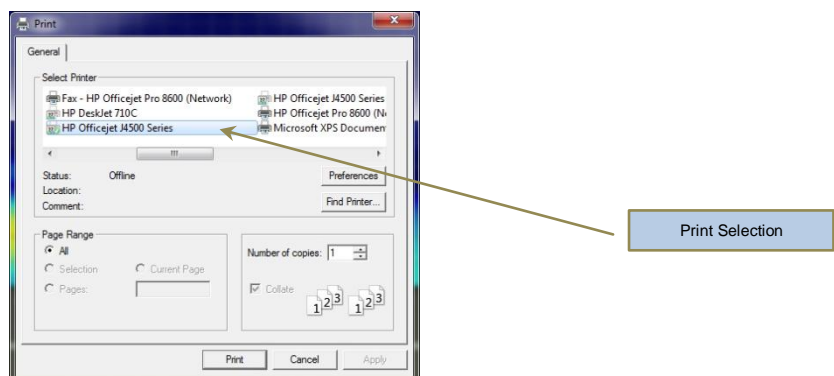
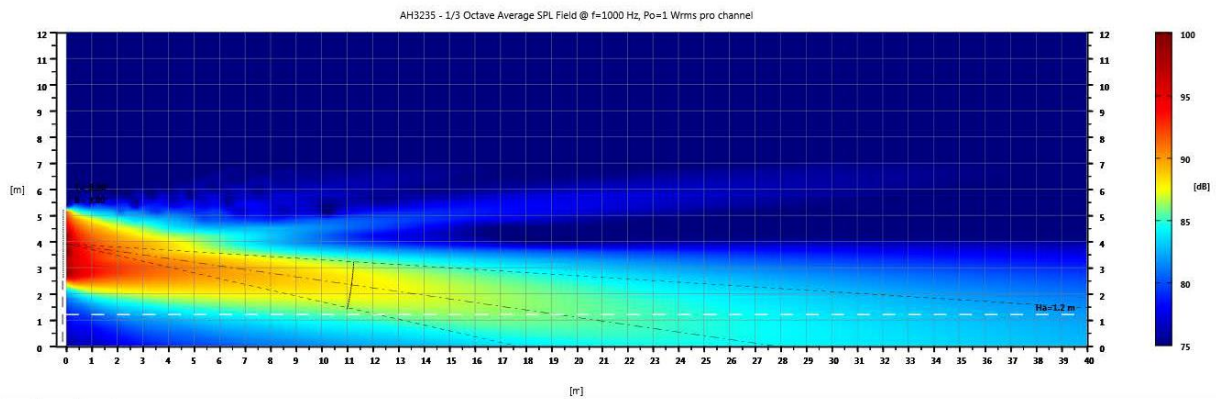


Figure: Print dialog box.

AH3235 Line Array Configuration Report



<b>Line Array Device</b>	
Model:	AH3235
<b>Project Info</b>	
Name:	untitled.prj
File:	C:\Users\Documents\AVE Line Array User Control\Projects\untitled.prj
Date:	16/04/2014
SW Version:	1.0.7.3
<b>Beam Design</b>	
Setting Mode:	Angles
Line Array Mounting Height:	2,5 m
Anti Reverberation:	enabled
Tilting:	-8°
Broadening:	9,002931°
Listening Height:	1,2 m
Air Compensation:	disabled

Figure: Printed Report.

5.1.7 - Exit

Close current project window and exits AVE Line Array User Control. If there are any unsaved changes to your project, AVE Line Array User Control will ask if you want to save them.

Keyboard Shortcut: **Alt+F4**

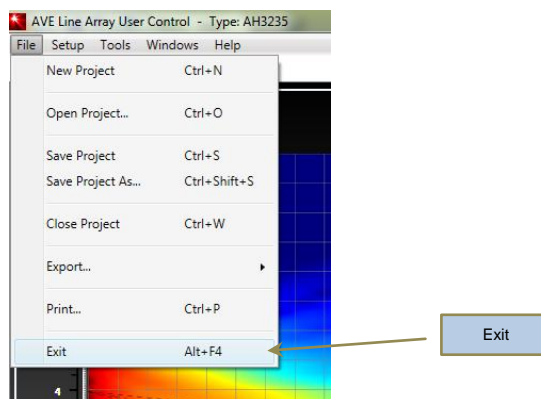


Figure: Exit.

## 5.2 –Setup Menu

The setup menu allows you to customize the operation of the Line Array User Control.

### 5.2.1 – COM

User can select the serial port COM number from the **COM** menu item in **Setup** menu, which will be used by USB-RS485 serial converter to communicate with the AVE Line Array unit.

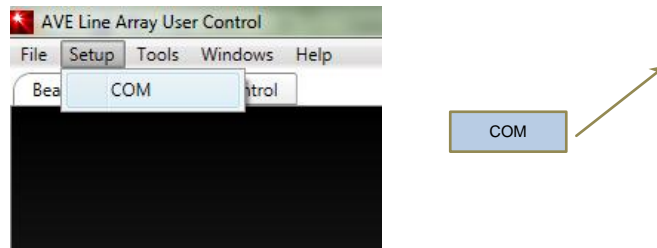


Figure: COM.

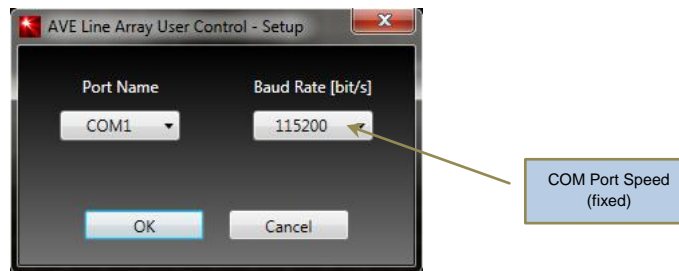


Figure: COM Setup.

The proper COM port number associated to the USB-RS485 Serial Converter can be retrieved in Windows opening Device Manager and checking Ports (COM & LPT) or you can disconnect your USB-RS485 converter and re-open the menu **SETUP**→**COM** menu; the entry that disappears should be USB-RS485 converter. Reconnect USB-RS485 Serial Converter and select that serial port.

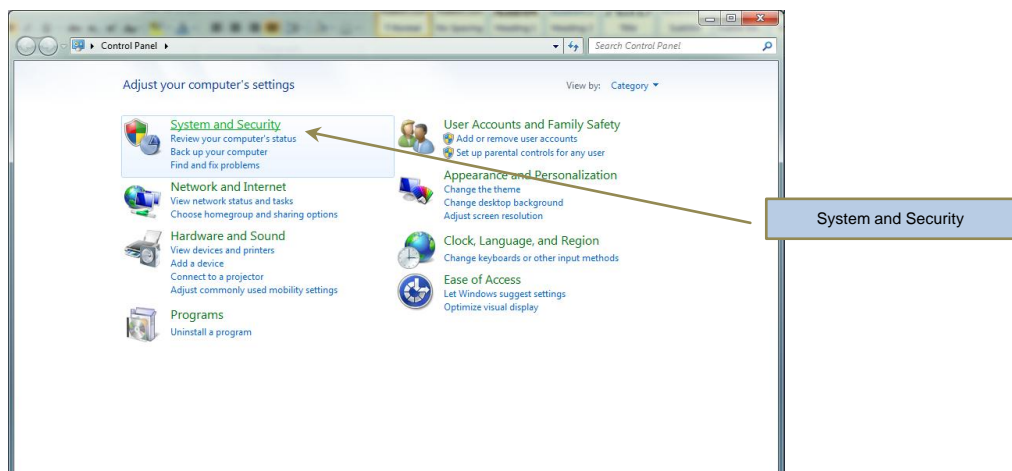


Figure: Control Panel.

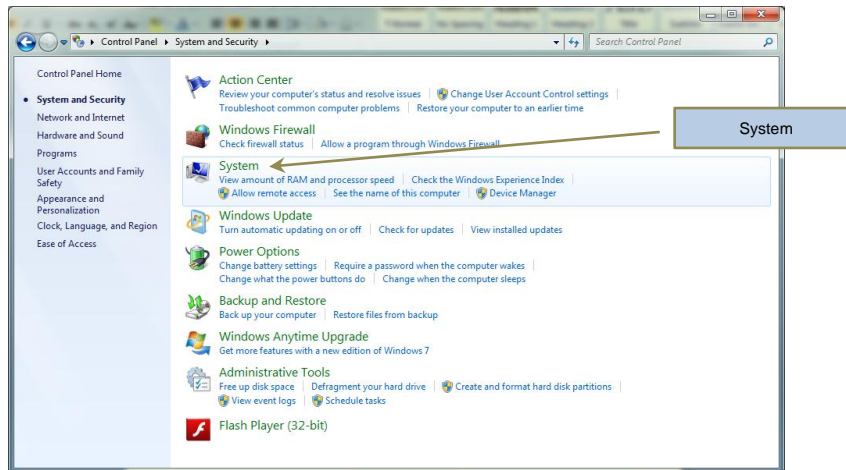


Figure: Control Panel – System and Security.

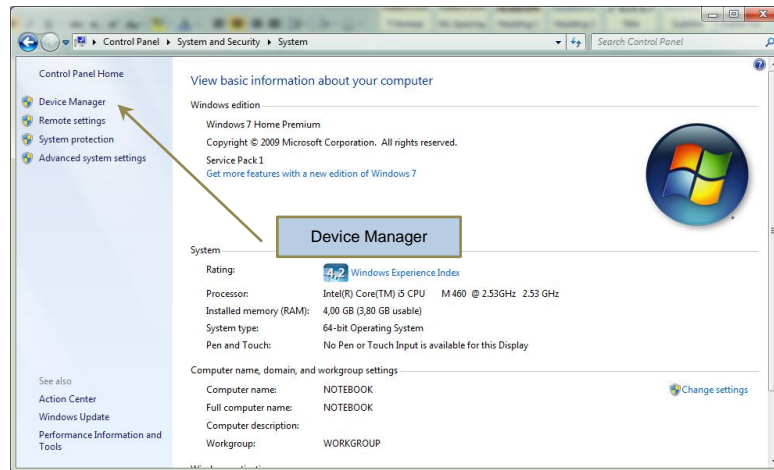


Figure: Control Panel – System and Security - System.

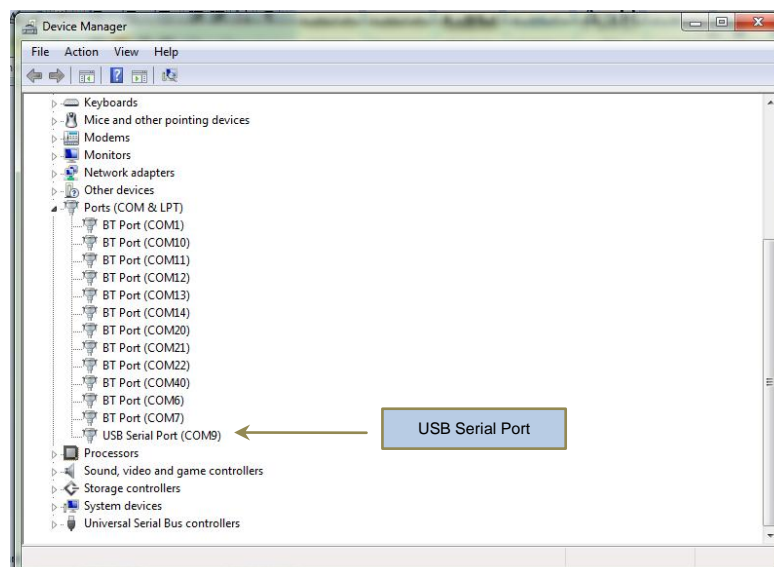


Figure: Device Manager.



### 5.3 – Tools Menu

This menu contains various tools for working with current project.

#### 5.3.1 – Analyze Beam

Pressing **Analyze Beam** command, AVE Line Array User Control software computes the best beam setup to fit your input beam requirements and then it plots predicted SPL field and SPL Field along Listening Level. This command invokes the same beam analysis function as **Calculate** button in **Beam #1 Parameters** tab.

**Keyboard Shortcut:** F5

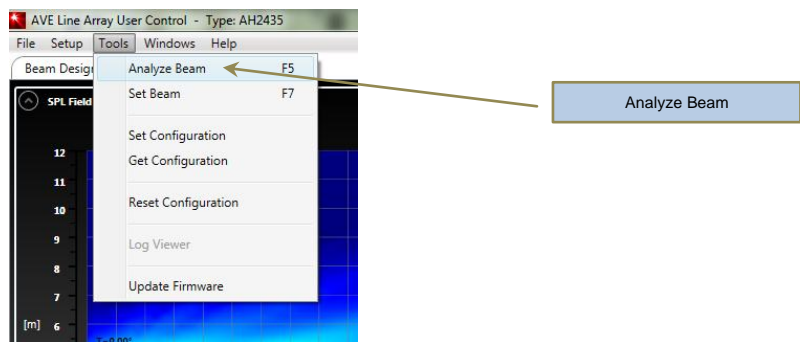


Figure: Analyze Beam.

#### 5.3.2 – Set Beam

Pressing **Set Beam** menu item, AVE Line Array User Control software sends computed beam setup to line array unit. AVE Line Array User Control will ask you if you want to download your beam configuration. Click **Ok** to send your beam setup, or click **Cancel** if you want delete command and return to project window.

**Note:** make sure you have a RS-485 network cable connected to the line array unit when using **Set Beam** menu item.

**Note:** using **Set Beam** command, it will overwrite existing beam setup stored inside line array unit.

**Keyboard Shortcut:** F7

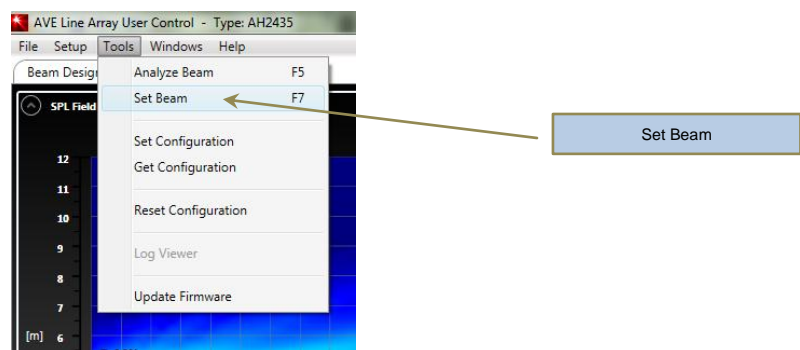


Figure: Set Beam.

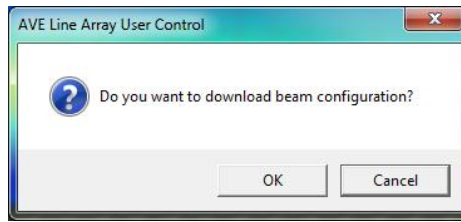


Figure: Set Beam dialog box.

### 5.3.3 – Set Configuration

User can send the current line array configuration, comprising both beam and audio designs, by selecting **Set Configuration** on the **Tools** menu.

This function is useful to configure quickly a pair of line array units.

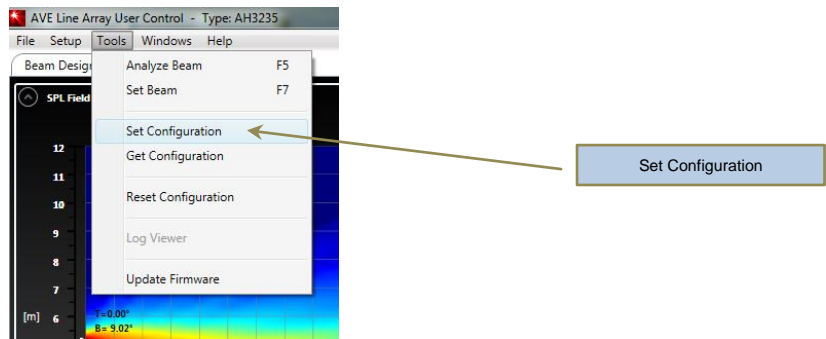


Figure: Set Configuration.

A dialog box asks user to approve requested operation.

Click **Ok** to send the entire line array configuration, or click **Cancel** if you want delete command and return to project window.

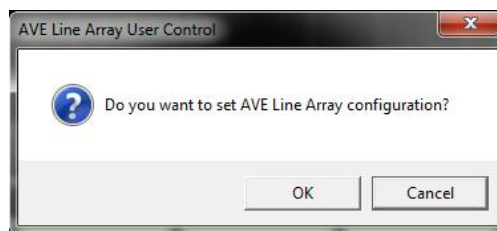


Figure: Set Configuration dialog box.

### 5.3.4 – Get Configuration

At meantime, AVE Line Array User Control allows retrieving set-up configuration stored inside a line array unit by mean the **Get Configuration** function on **Tools** menu.

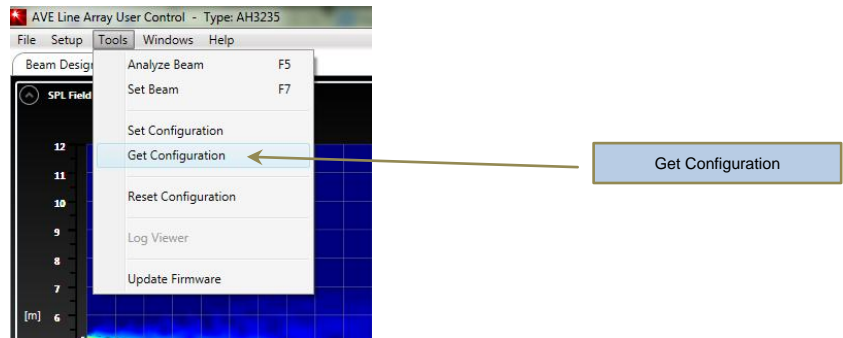


Figure: Get Configuration.

Click **Ok** to get the entire line array configuration, or click **Cancel** if you want delete command and return to project window.

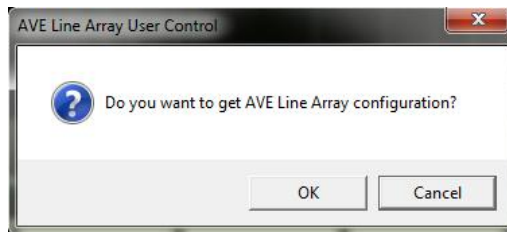


Figure: Get Configuration dialog box.

On retrieving completion, **Beam Design** and **Audio Control** panels are populated with loaded parameters and SPL Field and SPL Field along Listening Level are plotted.

### 5.3.5 – Reset Configuration

The command **Reset Configuration** in **Tools** menu clears all configuration of the line array unit and sets it to the default, including beam and main audio parameters as well as custom equalizations.

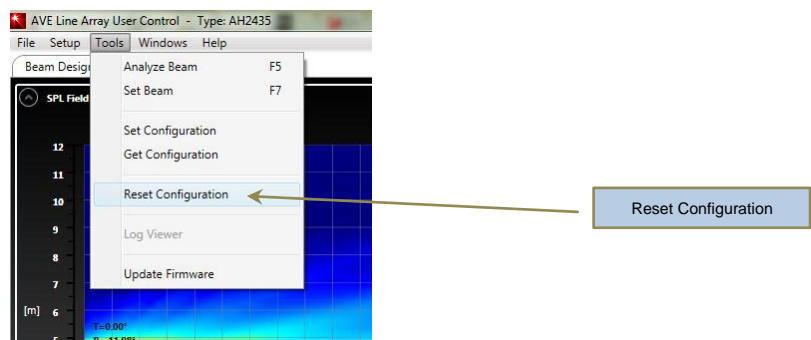


Figure: Reset Configuration.

A dialog box asks user to approve requested operation.

Click **Ok** to reset the entire line array configuration, or click **Cancel** if you want delete command and return to project window.

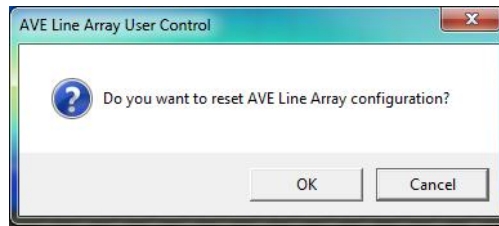


Figure: Reset Configuration dialog box.

**PLEASE NOTE: all of your data settings will be erased using the Reset Configuration command.**

## 5.4 – Windows Menu

The Windows menu allows user to switch panels between Beam Design and Audio Control.

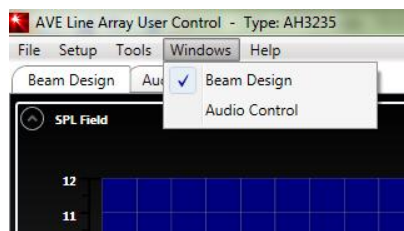


Figure: Windows menu.

## 5.5 – Help Menu

The help menu enables user to collect information related to the line array unit such as installed hardware and firmware versions, as well as to get information and to check for updates about current AVE Line Array User Control application.

### 5.5.1 – Line Array Info

By **Line Array Info** menu item, user can retrieve the product name, the device and hardware IDs and firmware version of connected device.

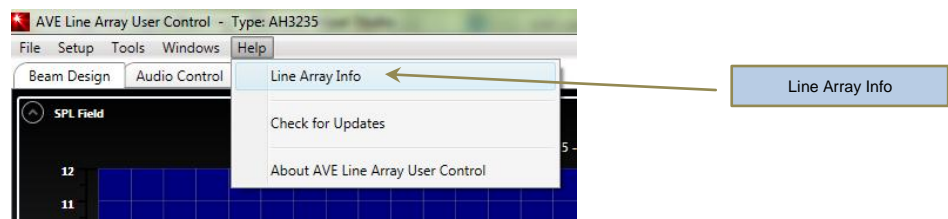
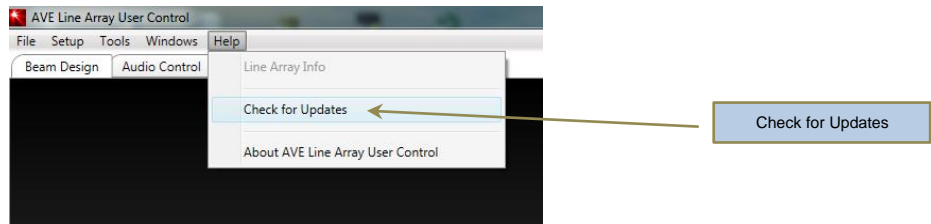


Figure: Line Array Info.

### 5.5.2 – Check for Updates

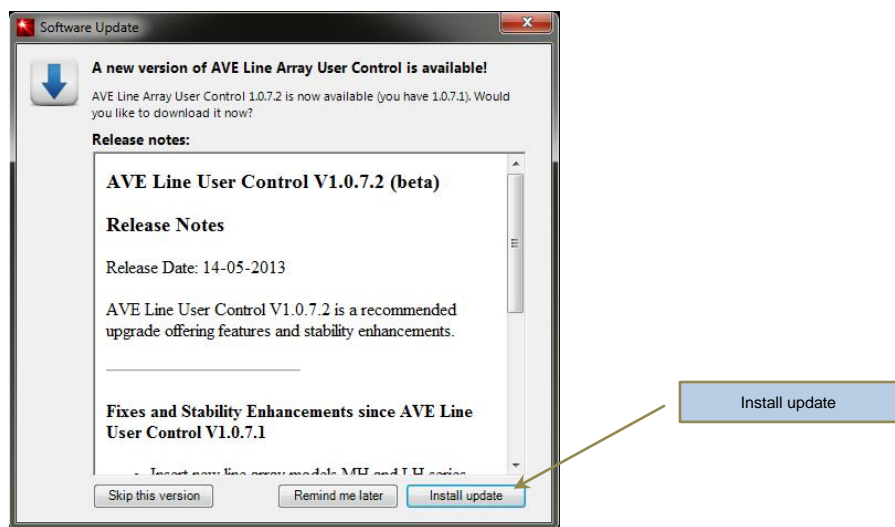
By default, AVE Line Array User Control is set to automatically update itself but user can always do a manual update. The **Check for Updates** menu item checks to see if you have the most current version of AVE Line Array User Control.



**Figure: Check for Updates.**

You will be prompted to download the latest version if your version is out-of-date. Clicking **Install update** in Software update dialog box, AVE Line Array User Control will begin downloading updates automatically.

**Note:** an Internet connection is required to use this feature.

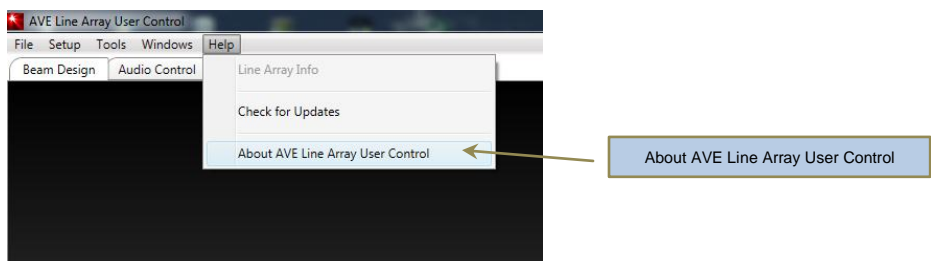


**Figure: Software Update.**

### 5.5.3 – About AVE Line Array User Control

The About AVE Line Array User Control menu item activates the About AVE dialog box.

This dialog box provides information about installed application version.



**Figure: About AVE Line Array User Control.**



**Figure: About AVE Line Array User Control message box.**

## 6.0 – System Requirements

### Recommended System Requirements

- Windows 7 (32-bit or 64-bit).
- Intel® Core™2 Duo/Quad 2.66GHz (or faster) processor or equivalent.
- 4 GByte RAM.
- 500 MByte hard disk space.
- Main monitor 1280x1024 screen resolution.
- NVIDIA® GeForce® 8000 series, 256MB (or more) graphics card or equivalent.
- USB2.0 port.
- CD/DVD Drive.
- Adobe® Reader® 8 (or above).

### Minimum System Requirements

- Windows XP Professional SP2 (or later).
- Intel® Pentium™ 1.8GHz processor or equivalent.
- 2 GByte RAM.
- 100 MByte hard disk space.
- Main monitor 1280x1024 screen resolution.
- NVIDIA® GeForce® 6000/7000 series, 128MB graphics card or equivalent.
- USB2.0 port.
- CD/DVD Drive.
- Adobe® Reader® 8 (or above).

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