Proel Line Array Configurator

Quick-start Users Guide

Ver 1.00

Introduction:

This users guide provides a quick overview of the functions of the Proel Line Array Configurator.

Installing the Software:

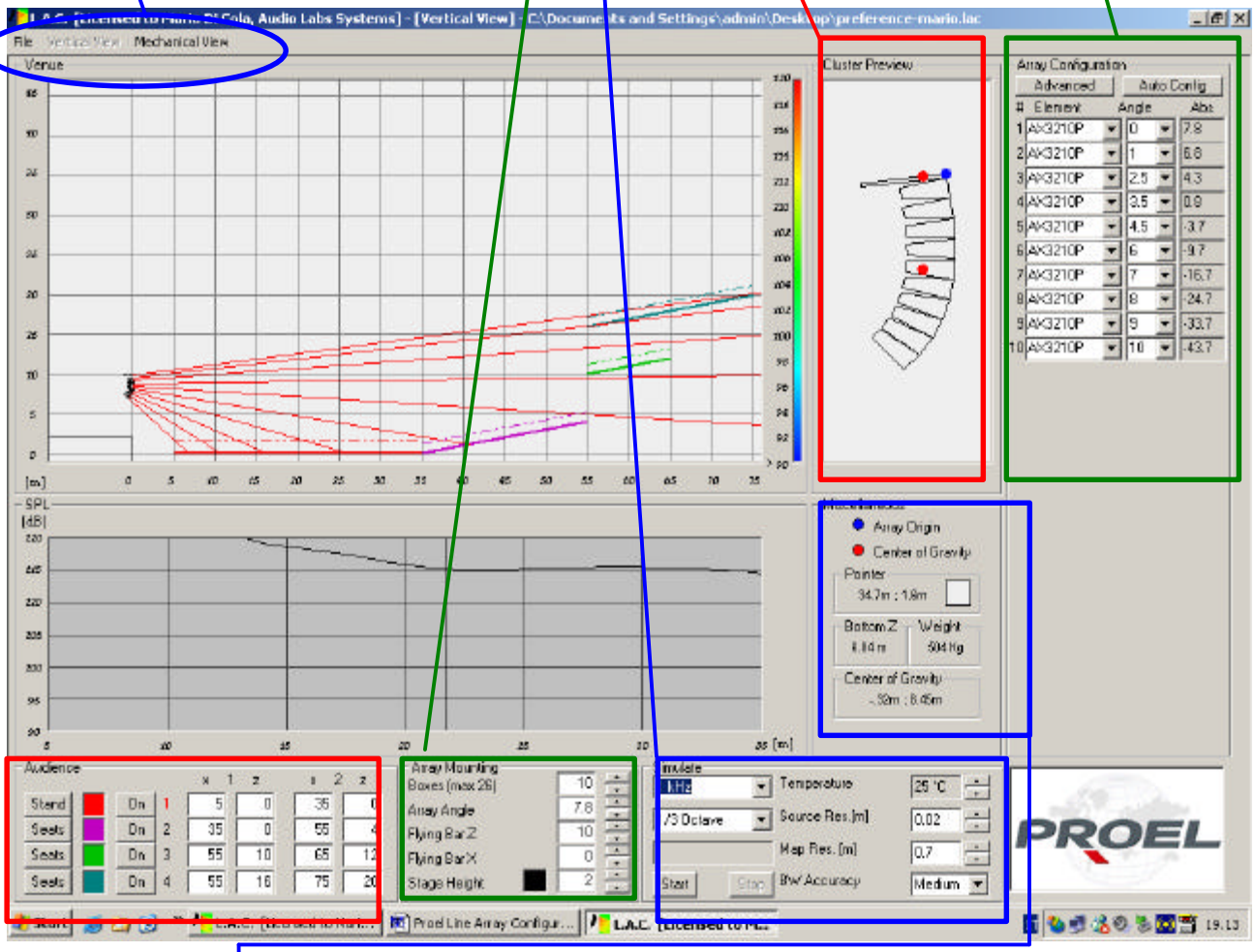
To install the Proel Line Array Configurator it is necessary to launch the installation package supplied by Proel S.p.A. and follow the on screen instructions.
It is not possible to launch the auto-install package directly from a compressed file. If the installation package has arrived in a compressed format, it is necessary to de-compress before installing.

During the installation the user will be required to insert personal details and the license code supplied by Proel S.p.A.
The license code is strictly personal and linked exclusively to the copy of the software supplied with the installation package. The use of copied software with the license code by third parties will render the diffusion modules and therefore the software itself unusable.
The installation software requires Windows 98 or more recent operating system and it is recommended that the monitor be set at a resolution of 1024x768 pixels or higher.

At the end of the installation the user will be asked, if necessary, to re-launch the computer to enable the operating system to correctly register the software.

Uses of the software:

The Proel Line Array Configurator allows the accurate simulation of the acoustic and mechanical behaviour of the Axiom Line Array series.
The software consists of two main windows, the ***Vertical view*** and the ***Mechanical view.*** These are used in sequence while inserting the information referring to the set up location of the Line Array. The "Vertical view" window is displayed automatically upon opening the program. Information referring to the structure and dimension of the venue should be inserted into the ***Audience*** section. Next the composition of the Array itself (model, number of speaker boxes and the angles between the boxes) should be entered in the ***Array Mounting*** and ***Array Configuration*** sections, followed by the simulation parameters in ***Simulate***.
Once completed, the "Mechanical view" will allow the verification of the flying bar connection points and the manual configuration of the suspension points, depending on the maximum weight capacity of the structure to which the system is to be hung.
The ***windows*** can be selected in two different ways: by clicking on the required section from the main menu or by clicking directly on the ***Cluster Preview***, a faster and more immediate method while selecting the optimal system configuration.



The ***Miscellaneous*** section gives information about the flown system, the centre of gravity and the total weight of the whole Array.

The software allows the user to see the position of each single element of the array: this can be useful to correctly guide the energy of the entire Array.

Once the structure where the Array will be located and the configuration of the Array itself have been ascertained, it is possible to simulate the direct SPL field irradiated by the whole Array. This acoustic simulation is carried out for one frequency at a time, chosen from the list of ISO octave frequencies available on the pull-down menu. The distribution of the direct SPL field is represented by a colour key which ranges from dark blue at the point where the pressure is at it's lowest to dark red at it's highest. This mapping will disappear if a parameter that can change the outcome is modified. In this case, the simulation must be recalculated. The calculation is not carried out to a precise single frequency, but rather to a range of frequencies around the selected frequency.

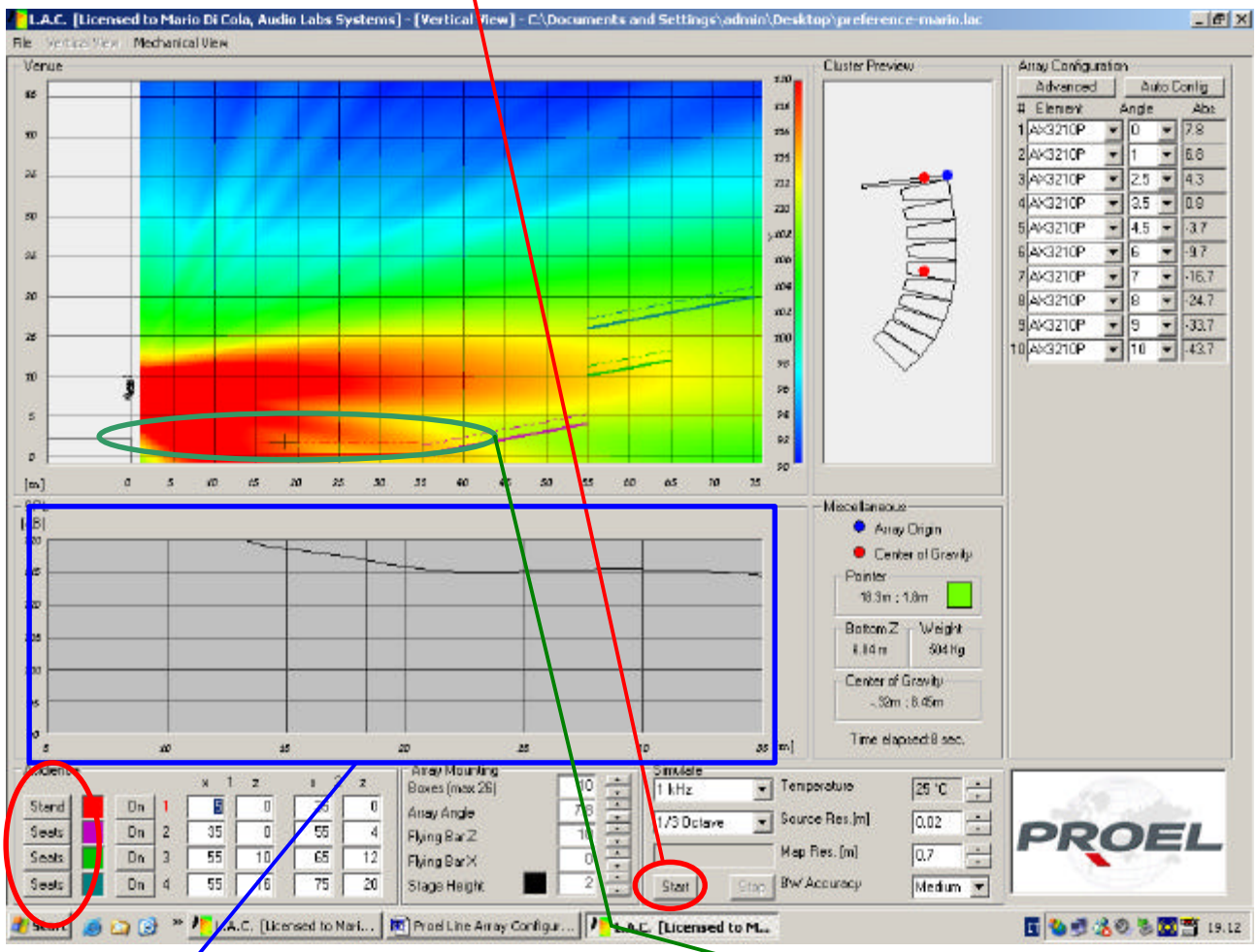
The options in the *Simulate* pull down menu allow the choice of the simulation frequency to be used as reference in the simulation.

The ***Map Res*** parameter indicates the dimension of the area upon which the colour mapping is calculated. The surface of the vertical view is divided into a number of square sections; *Map Res* indicates the size of these squares, which can be varied from 0.1 (10cm) to 5 (5m).

The ***Source Res*** parameter indicates how the simulation divides the array. For example, a value of 0.02 indicates that the Array is divided vertically into 2 cm pieces.
If we are interested in only the bass frequencies, for example, we can use a higher *Source Res* –even up to 0.1 (10cm), making the calculation noticeably lighter for the CPU. The more precise this factor is, the longer will be needed for the calculation.

The ***BW Accuracy*** parameter allows the user to choose how many points around the frequency will be used in the calculation. Therefore, however large the band used (1/3, 1/6, 1/12, 1/24 of an octave), ***Low***, ***Medium*** or ***High*** accuracy can be implemented so that the calculation is carried out at 3, 5, or 7 points respectively around the chosen band.

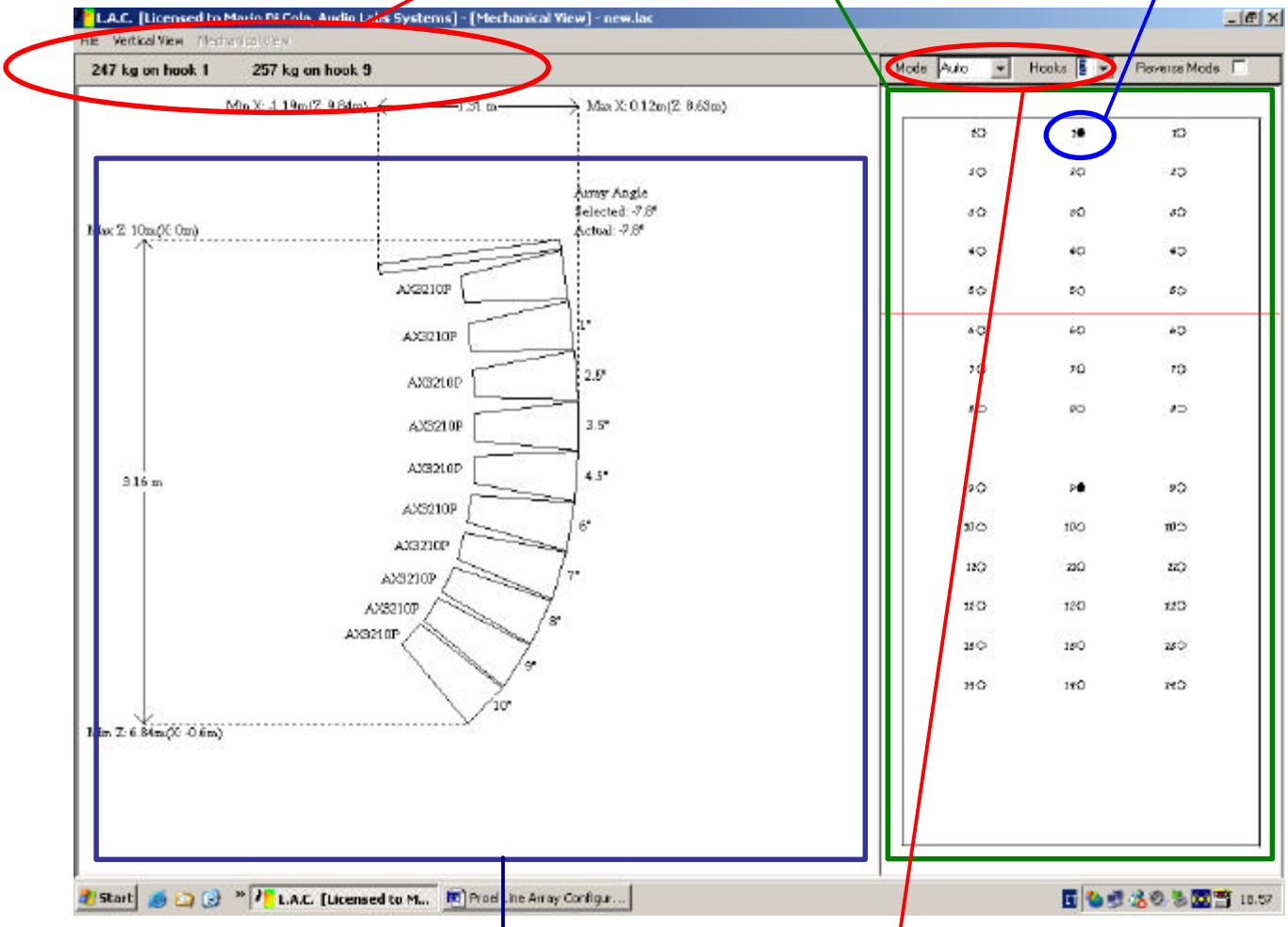
Once all of the parameters required for the simulation have been entered, it is possible to launch the calculation, by clicking on the "Start" button in the *Simulate* module. A bar will show the time needed to complete the calculation, after which, the direct SPL field will be shown for the chosen configuration.



In the diagram shown above, it is possible to see how the colour map shows the acoustic pressure distribution generated by the Array. The pressure is determined in association to the projected line upon which it is possible to see the cross indicator, which corresponds spatially to the vertical line of the chart. The projected line represents the ideal head height of the spectators, either standing or seated according to the data inserted into the ***Audience*** section. This can also be seen on the raised balcony areas (if present), as in this example. The chart of the acoustic pressure as a function of the frequency is always shown automatically after calculation and will need to be updated following any parameter changes. The accuracy of the calculation shown in this chart can be set in the *preferences* module. It is also possible to change the frequency used in the calculation in this module. This pull down menu can be controlled by the mouse wheel, which allows the frequency to be changed to that shown. With this system it is simple to scroll through the frequencies quickly to have a complete view of the situation.

Once the correct configuration for the application has been found, the next step is to pass on to the ***Mechanical view*** window.

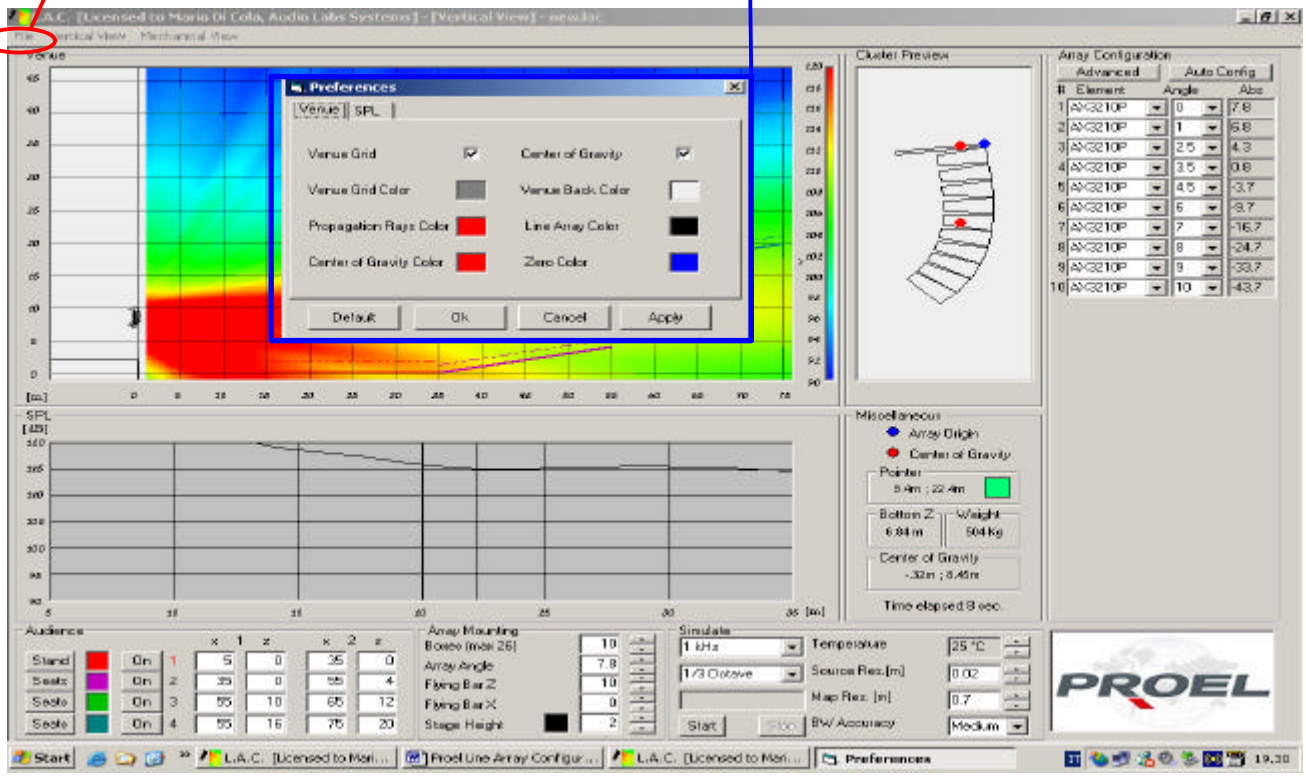
To the left of the Mechanical View is shown the side view of the Line Array with the weight of the flown system and the total dimensions of the Array. If the system set up selected is not possible, a warning message will be shown, flashing in red, explaining the reason for the error.
On the right of the window a schematic of the Flying-bar is shown with the various numbered holes. The horizontal red line shows the centre of gravity of the system. The highlighted holes represent the ideal position for hanging the system with regards to the angles chosen in the *Vertical View*.
Here it is possible to select manually the number of motors to be used to fly the system as well as the attachment points.
For every configuration, the motor load is re-calculated automatically.



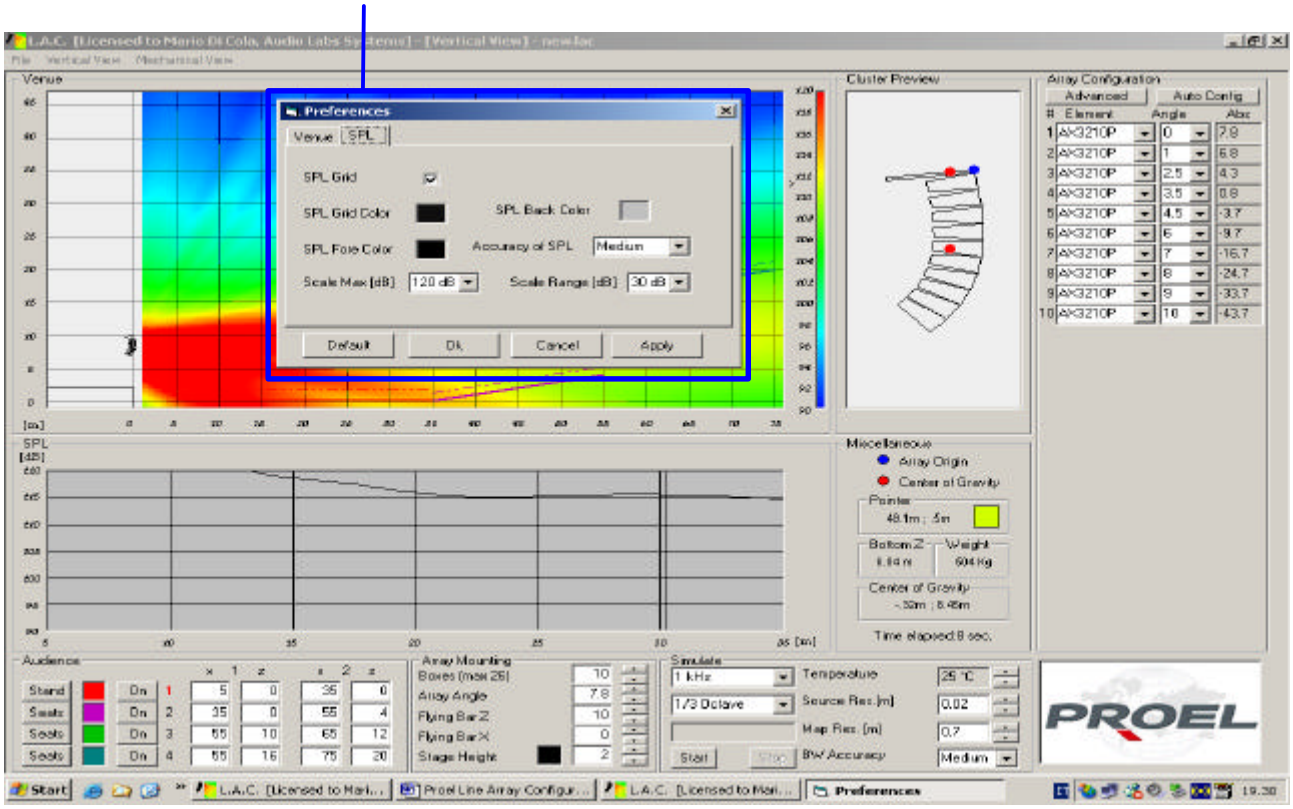
As before, clicking on the left window will take the user back to the *Vertical view* (this area is shown by a change in the pointer symbol).
Naturally, changing the configuration from Automatic to Manual will change the position of the Array and therefore the SPL field will need to be recalculated. The software allows the settings and the location of the Line Array to be saved. To do this it is necessary to select *Save As* from the File menu of the main tool bar.

It is possible to set analogically the preferences for the visualisation of the SPL field colour mapping and the general aspect of the programme. These preferences will be recalled every time the programme is opened.

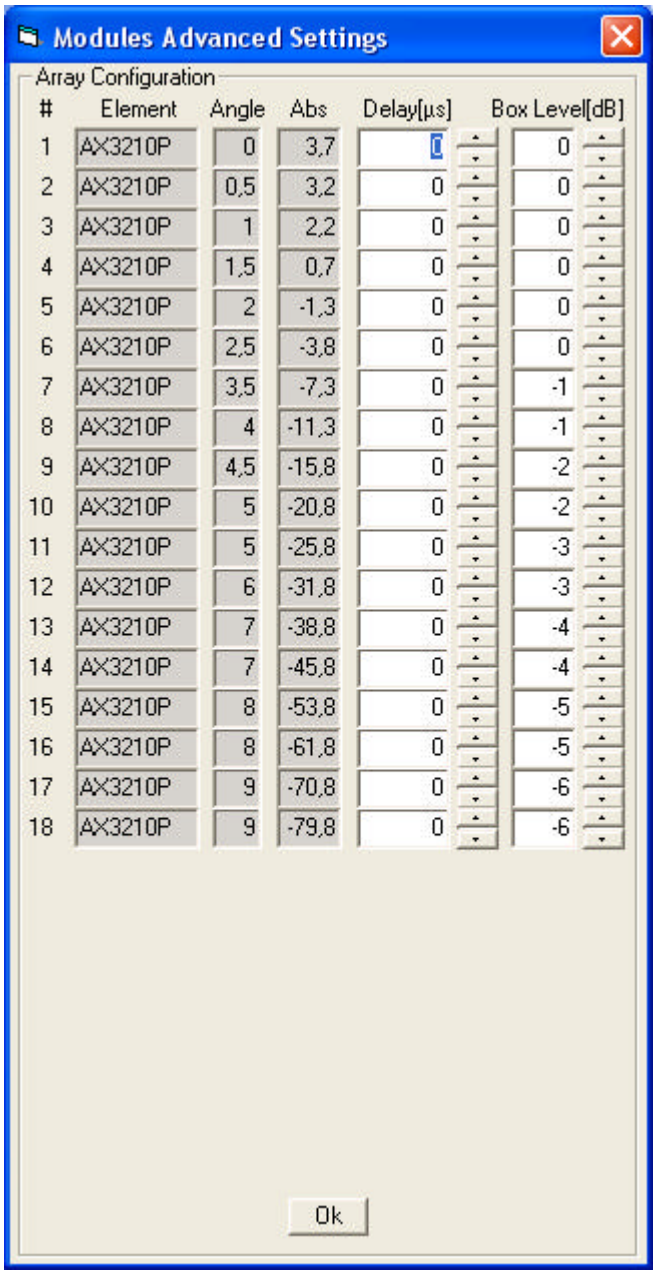
The following charts show some of the configurations accessible from the ***Preferences*** section of the ***File*** menu, in particular, the configuration of the ***Venue***:



And the parameters of the ***SPL*** graphic representation:



On the top right of the main window a further two buttons are available. The first- ***Advanced*** leads to a further window (shown below) in which it is possible to set various parameters, which are zero by default. These parameters are the *speaker box power level* and the *delay* of the single elements. If some of the speakers are in parallel, this needs to be taken into account, inserting the same settings for these boxes.
The power level is expressed in "-dB" with respect to zero, which represents full power.
This window also allows the setting of single delays of the boxes. This setting should be the same for the speakers if piloted as a group. This function is, however, rather advanced and to be used only in specific exceptional cases and should be carried out by experts. The 'shading' of the levels is a procedure that is recommended to be used for many instillations as it allows limiting the noticeable difference between the areas close to the system and those further away. Inserting these variations into the software will allow a simulation the effects.



The ***Autoconfig*** button allows the program to suggest to the user, through an automatic procedure, a good starting point for the relative angles of the various elements. The results of this function do not show the optimal configuration, but a good point at which to start. In all cases it will be necessary to re-touch the relative angles. It is important to notice that the angles suggested will always be made up of augmenting angles. Whatever modifications are made to the configuration, it should always have increasing angles. This will permit an improved uniformity of the vertical dispersion, as can be seen from the SPL field graphic at every frequency.