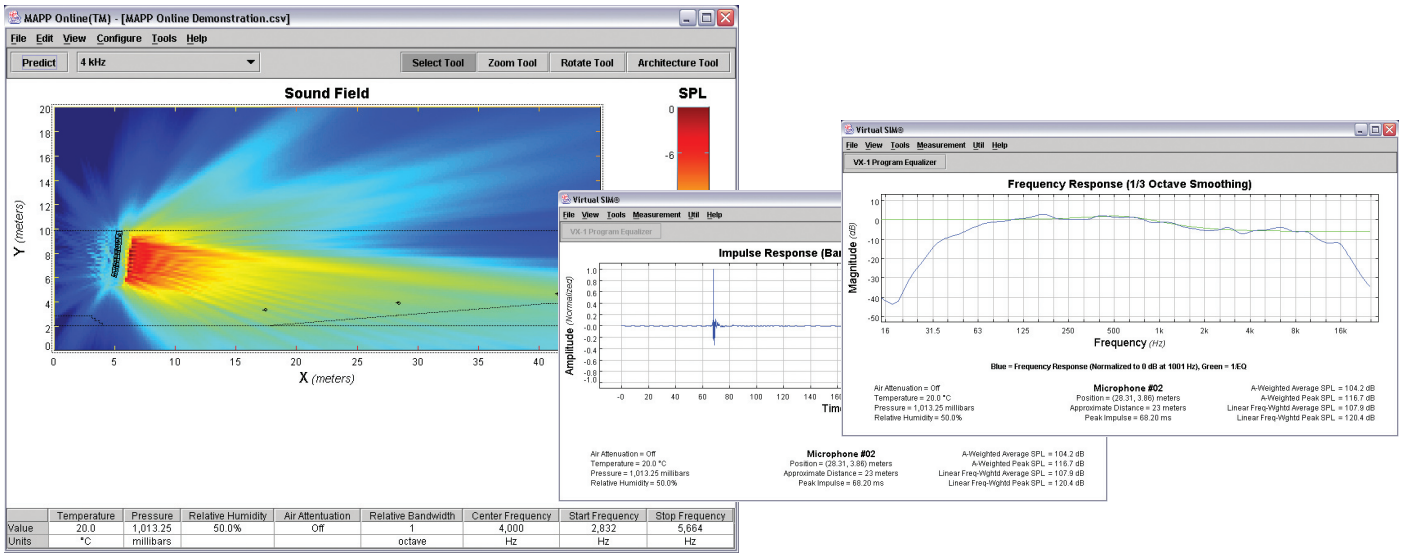
MEYER SOUND MAPP ONLINE®: Acoustical Prediction Program



MAPP Online is a powerful, cross-platform computer application for generating accurate predictive models of sound reinforcement systems comprising any combination of Meyer Sound loudspeakers. With MAPP Online, a system designer can determine critical performance parameters — including coverage, frequency response, impulse response and SPL — long before the actual system is assembled on site. This information helps assure optimum performance and coverage, and contributes to greater overall cost efficiency by minimizing on-site alignment time. The program also acts as an interactive datasheet, providing infinitely more practical and accurate data than traditional polar plots.

Free and available for download at www.meyersound.com/mapponline, MAPP Online benefits from the power of the Internet, with the local client computer's Java Web Start-based application working with a dedicated computational server located at Meyer Sound headquarters.

The application provides facilities for entry of all relevant data, including loudspeaker type, array configuration, and orientation in space relative to the horizontal and vertical axes of the virtual sound field. MAPP Online also provides the user the option to define acoustical boundaries (including composition of boundary surfaces), and critical environmental variables such as ambient temperature, air pressure and humidity that affect air attenuation and therefore the arrival time as seen in the impulse response.

After relevant data is defined, the user presses MAPP Online's Predict button. The local client connects with a server at Meyer Sound where a sophisticated acoustical prediction algorithm using high-resolution, complex (magnitude and phase) polar data creates the predicted response. This result is returned to the local client, where it is displayed as numerical data and in full color graphical plots.

In the highly intuitive MAPP Online plots, a spectrum of colors from "hot" to "cool" (with gradations in intensity within each) accurately depicts the relative sound intensity throughout the defined space. Using these plots as a guide, the system designer can adjust such parameters as loudspeaker type, placement, aiming, gain, delay and polarity to optimize overall performance and smooth coverage of the listening area.

MAPP Online also includes Virtual SIM, a powerful feature that emulates the functions of Meyer Sound's SIM® audio analyzer. By placing a virtual microphone anywhere in the sound field, the designer can generate accurate predictions of the modeled system's frequency response and impulse response at the microphone's given location. Another useful feature, the virtual VX-1 equalizer, allows the designer to determine EQ settings in advance that can be transferred to a real equalizer in the field during actual system alignment.

FEATURES & BENEFITS

- Web-based tool, with local client computer linked to a powerful Meyer Sound server
- Includes Array Wizards for all M Series line array and curvilinear array products
- Predictions based on very high resolution loudspeaker performance data
- Low frequency behavior accurately displayed down to 32 Hz
- Acts as an interactive data sheet for Meyer Sound loudspeakers
- Predictions can include boundary reflections
- Virtual SIM feature shows impulse response and frequency response at any point in the sound field
- Predictions account for environmental factors: temperature, humidity and barometric pressure/altitude
- Local client application is multi-platform (works with Windows, Linux, Unix and Macintosh System OSX v 10.1.2 or higher)
- Client application is free to qualified professional users

A COMPREHENSIVE SOLUTION FOR PREDICTIVE MODELING AND VIRTUAL ANALYSIS OF SYSTEM BEHAVIOR

Meyer Sound MAPP Online offers an intuitive user interface, one that can be fully mastered in just a few hours by any user already familiar with the basics of computer-aided design and the fundamentals of audio and acoustics.

Accuracy Empirically Verified

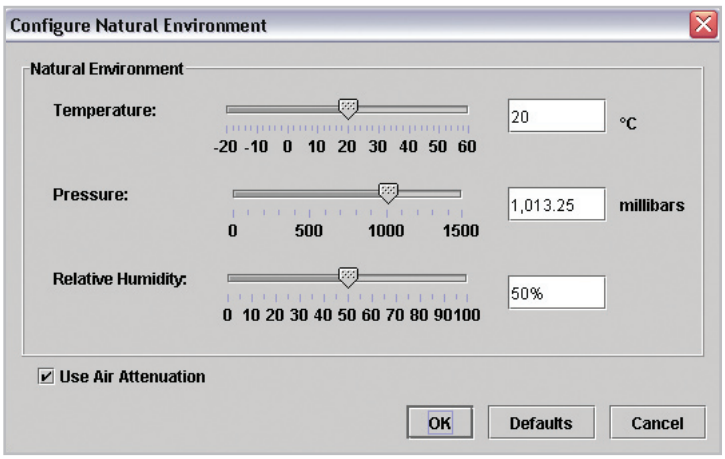
An excellent correlation exists between behavior predicted by MAPP Online and actual behavior, due to the extraordinarily high resolution of the raw polar data utilized in computations. Meyer Sound has tested and verified results for each loudspeaker model, in the laboratory and in the field, using the SIM audio analyzer. Each loudspeaker is measured at 1° increments in both axes to assure results that are accurate to greater than 1/36th octave from 20 Hz to 20 kHz. Interactions in small clusters at limited distances are verified in the Meyer Sound anechoic chamber. Predictions for larger systems have been verified in numerous tests both outdoors and in performance venues. In all cases, system behavior corresponded closely to the predictions.

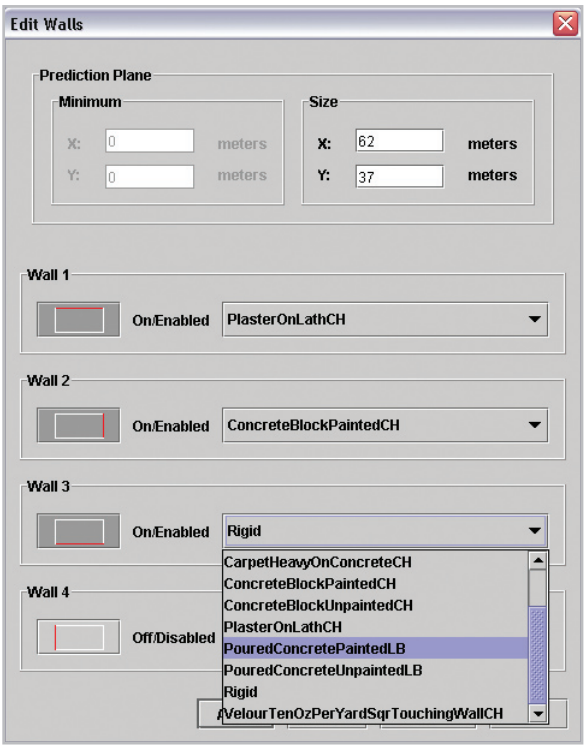
Automatic Updates

MAPP Online is continually updated in order to add new Meyer Sound products to the database and enhance user features. Most updates download automatically when a user logs on for a new MAPP Online session.

Specifying Environmental Variables

To assure the utmost accuracy in predictions, particularly in outdoor and touring applications, MAPP Online includes facilities for specifying the ambient natural environment expected at the time of system use. A window with slide bar adjustments enters the settings for temperature, pressure and relative humidity, and allows the designer to optionally include their affect on air attenuation.





Modelling the Sound Field and Acoustical Environment

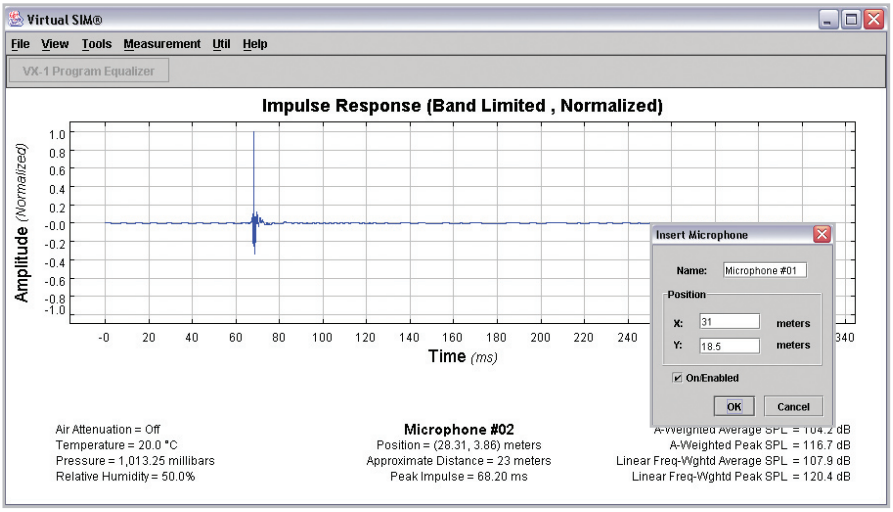
MAPP Online allows the system designer to model a sound field in free space, or enclosed within a structure with defined acoustical characteristics. The free space sound field is suited to outdoor applications, or for analysis of loudspeaker interactions. Creating a model of it is simply a matter of selecting an appropriate scale for the sound field's display window and setting the desired grid density.

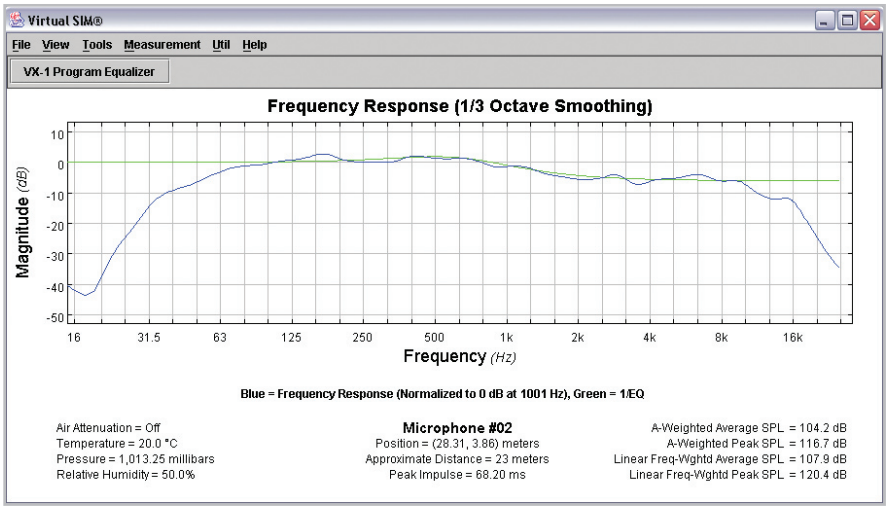
MAPP Online also accommodates configuration of enclosed interior spaces, using the built-in drawing tools. By viewing the proposed design within the intended space, in both the horizontal and vertical axes, the system designer can view coverage at various frequencies and make any necessary modifications.

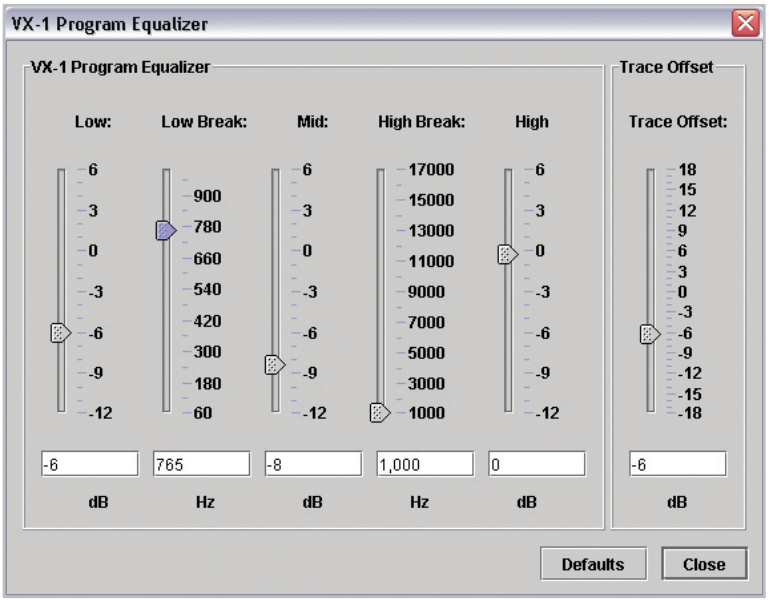
A more sophisticated model can be created by defining the acoustical characteristics of the boundaries in the enclosed space. The resulting prediction will include first reflections off the boundaries as determined by the type of wall construction materials. The MAPP Online database includes absorption coefficients for many common building materials.

Virtual SIM Analysis

MAPP Online includes a feature that allows users to emulate the operation of Meyer Sound's powerful SIM audio analyzer within the virtual environment of the program. To activate this feature, the user selects a microphone and places it anywhere in the sound field. Whenever a microphone is present, predictions are presented in the same format as would be seen on an actual SIM analyzer screen. For the chosen microphone location, the user may view the predicted third octave band spectrum, frequency response, impulse response and SPL. Scale is selectable, and a zoom feature allows detailed scrutiny of narrow frequency bands.







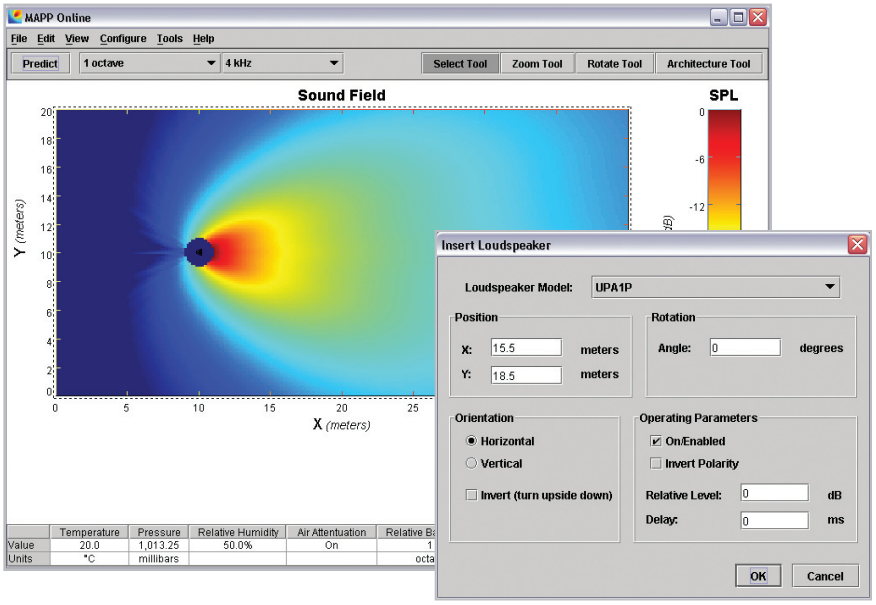
Virtual VX-1 Equalizer

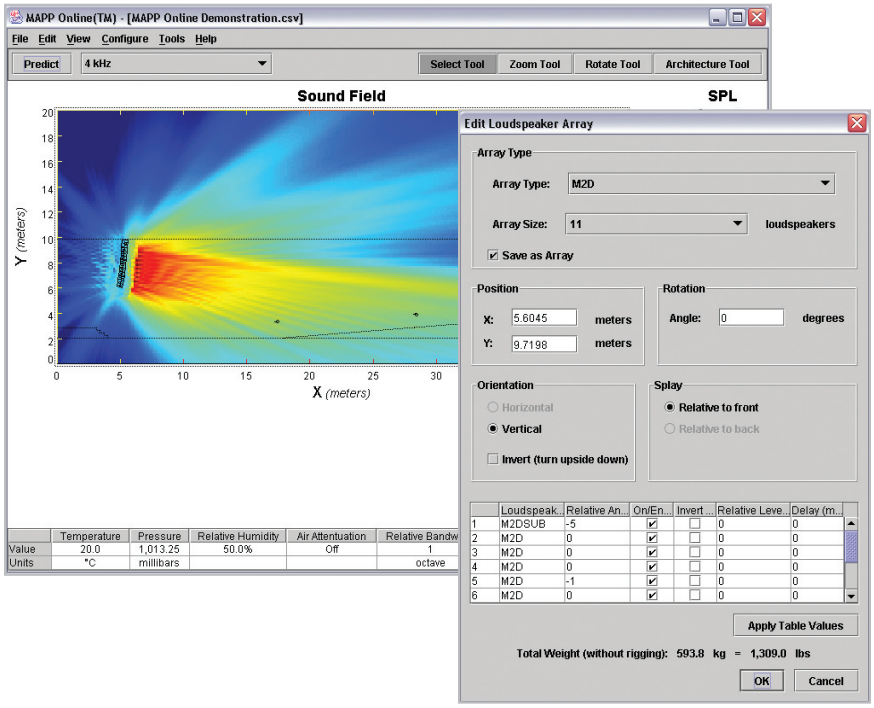
MAPP Online also includes a feature which emulates the effect of Meyer Sound's VX-1 stereo program equalizer. The VX-1 tool displays a green line, which represents the inverse of the equalization settings, over the frequency response in the Virtual SIM window. When the green line is adjusted to overlay the frequency response, the resulting VX-1 settings give the system alignment engineer a head start in achieving optimum results in the field.

Placement of Loudspeakers in the Sound Field

A Meyer Sound loudspeaker may be placed anywhere in the sound field, oriented either horizontally or vertically, and aimed at any angle relative to either axis.

Single loudspeakers are placed using the Insert Loudspeaker... dialog box (shown top right). Clusters and arrays are placed using a separate Edit Loudspeaker Array... dialog (shown bottom right). Arrays may be defined using most Meyer Sound loudspeakers by entering loudspeaker type, number in array and splay angles between cabinets. MAPP Online's Array Wizard also calculates the total weight of an M Series™ line or curvilinear array, less rigging.





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