O Audio 500W BASH® Subwoofer Amplifier – Usage Guide

Nearfield Frequency Plots Showing the Effects of the Subsonic Filter/EQ Control and Parametric Equalization

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INTRODUCTION:

The O Audio 500W BASH® Subwoofer Amplifier includes the controls (output level, phase, crossover frequency, subsonic filter/EQ, and parametric equalization) required to properly integrate a subwoofer into your listening environment. The User's Manual (found at http://www.oaudio.com/500W_SUBAMP.html under "Product Info") describes amplifier operation.

The document you are now reading focuses on the effects of the Subsonic Filter/EQ control and Parametric EQ (abbreviated PEQ throughout this document). To demonstrate the controlled low frequency extension that the Subsonic Filter/EQ control provides, this document includes nearfield frequency measurements made on a TC Sounds TC2+ 12" Subwoofer Driver (dual voice coil version which is available from O Audio) in a 50liter sealed enclosure. The Subsonic Filter/EQ control can be set to one of four settings: 12Hz, 16Hz, 20Hz, 25Hz.

The measurement conditions for Graphs 1A through 5B are as follows:

-One 12" TC Sounds TC2+ Subwoofer Driver (dual voice coil version – 4 ohms/VC) in a 50liter sealed enclosure.
-2.83VRMS applied across the voice coils wired in series (8 ohm configuration)
-Measurement microphone is located 0.5" from the center of the driver, on-axis.
-1/3 octave smoothing on all graphs
-Crossover set to 120Hz (except Graphs 5A and 5B, crossover is disabled)
-A minor amount of PEQ is used in all 'A' graphs (1 through 5) to produce the flattest frequency response. In all 'B' graphs (1 through 5), PEQ is off.

Graphs 5A and 5B show nearfield frequency response with the crossover disabled.

Graph 6A shows the deleterious effects of a room mode on in-room frequency response. Graph 6B demonstrates how effectively the PEQ tames the room mode. The measurement conditions for Graphs 6A and 6B:

-Crossover set to 80Hz
-Subsonic Filter/EQ control set to 20Hz
-Microphone was randomly placed in the room a few feet away from the subwoofer

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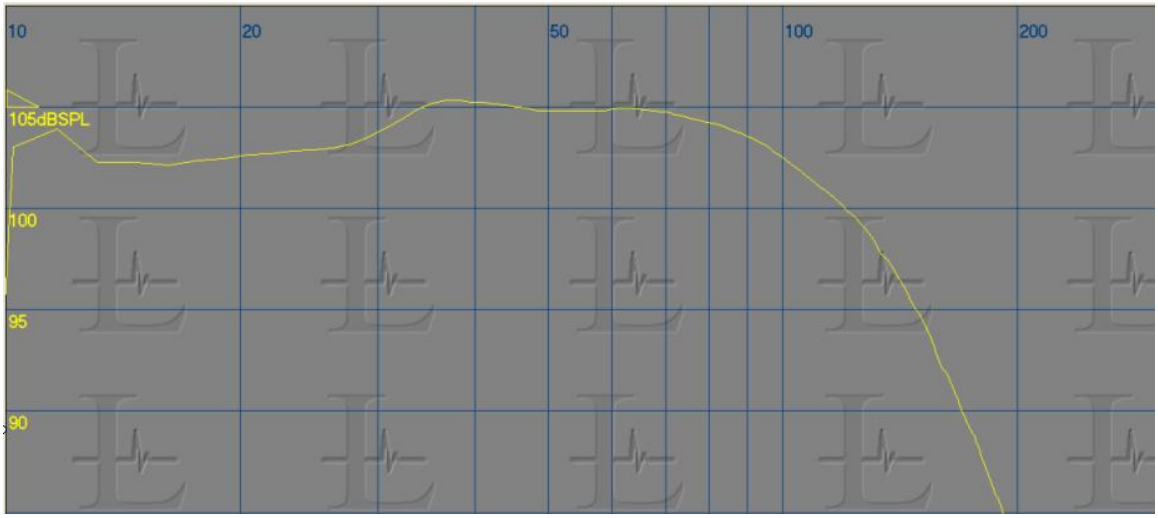
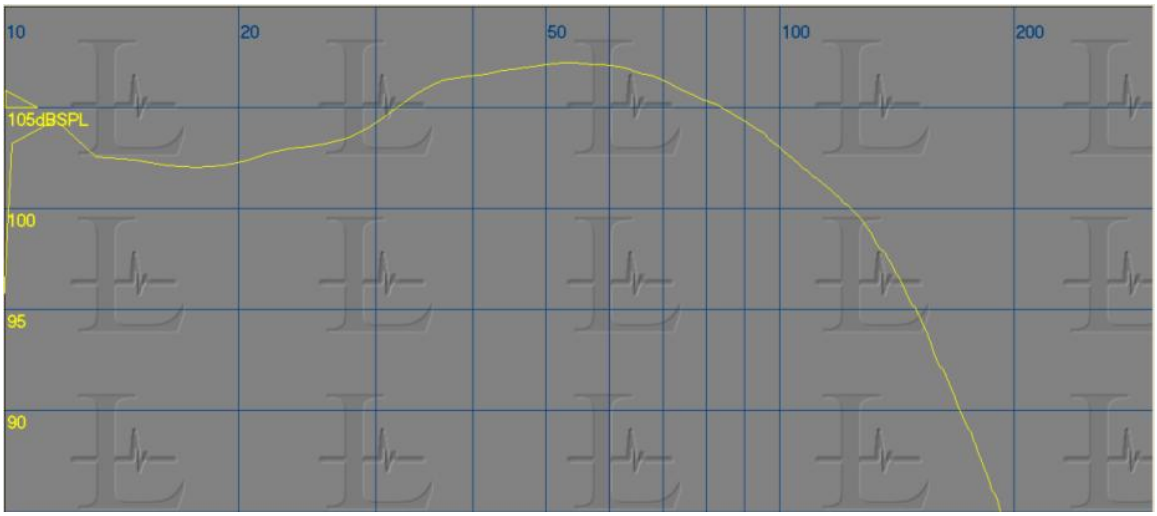
SUBSONIC FILTER/EQ – 12Hz SETTING

Graph 1A – 12Hz Setting – PEQ used to provide flattest frequency response



Graph 1B – 12Hz Setting – PEQ Off



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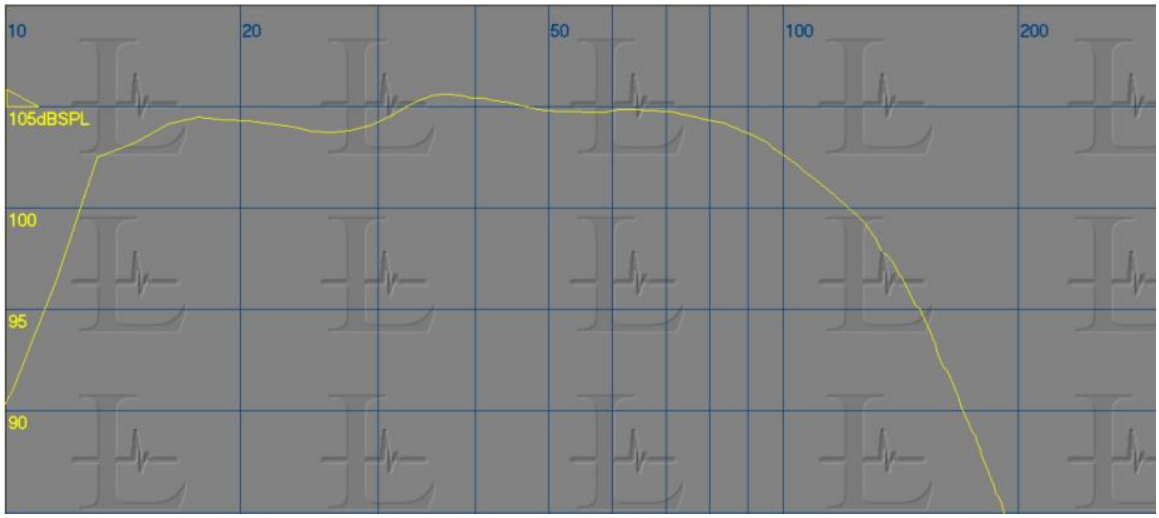
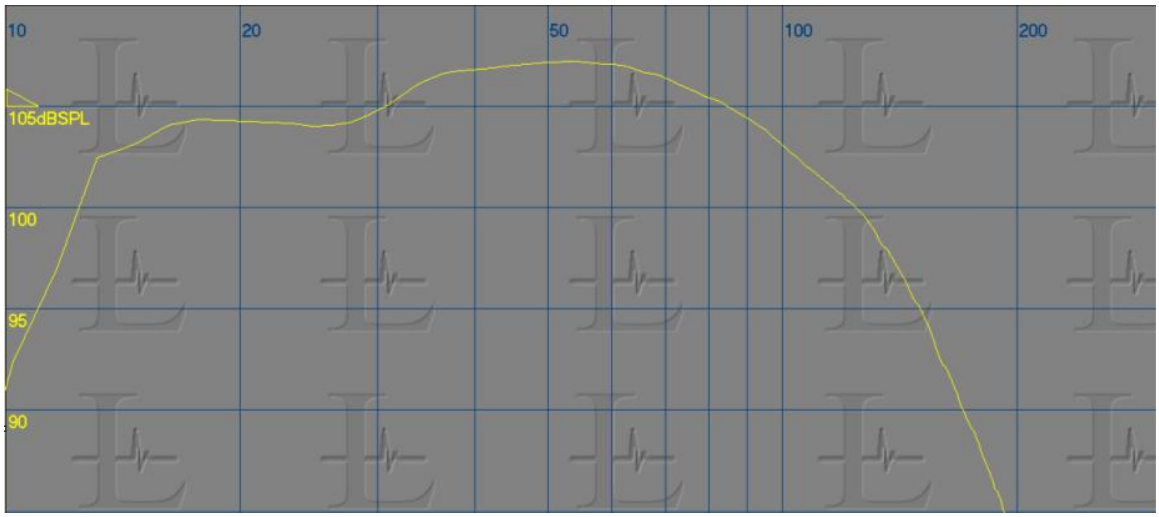
SUBSONIC FILTER/EQ – 16Hz SETTING

Graph 2A – 16Hz Setting – PEQ used to provide flattest frequency response

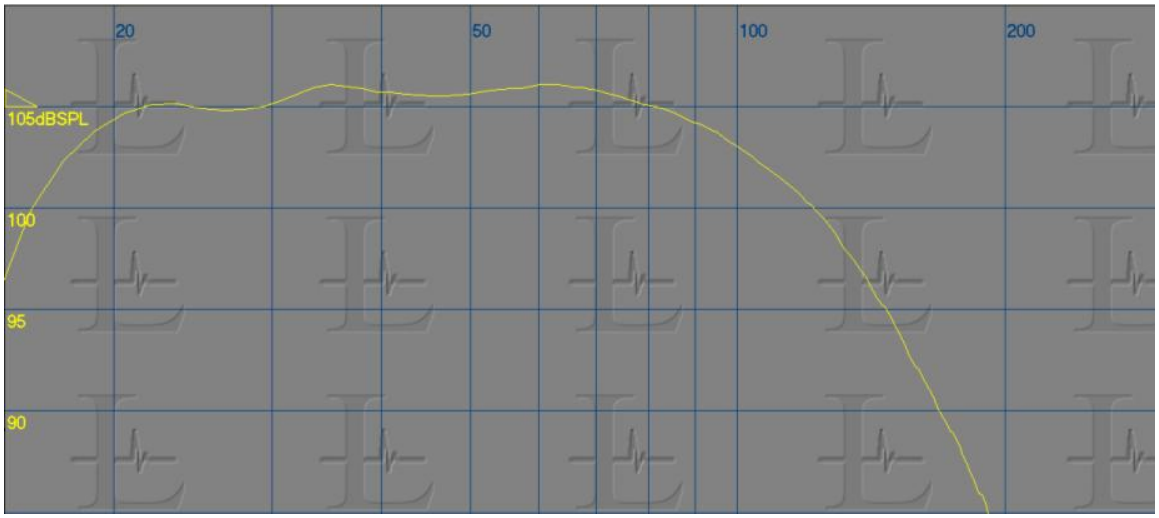


Graph 2B – 16Hz Setting – PEQ off

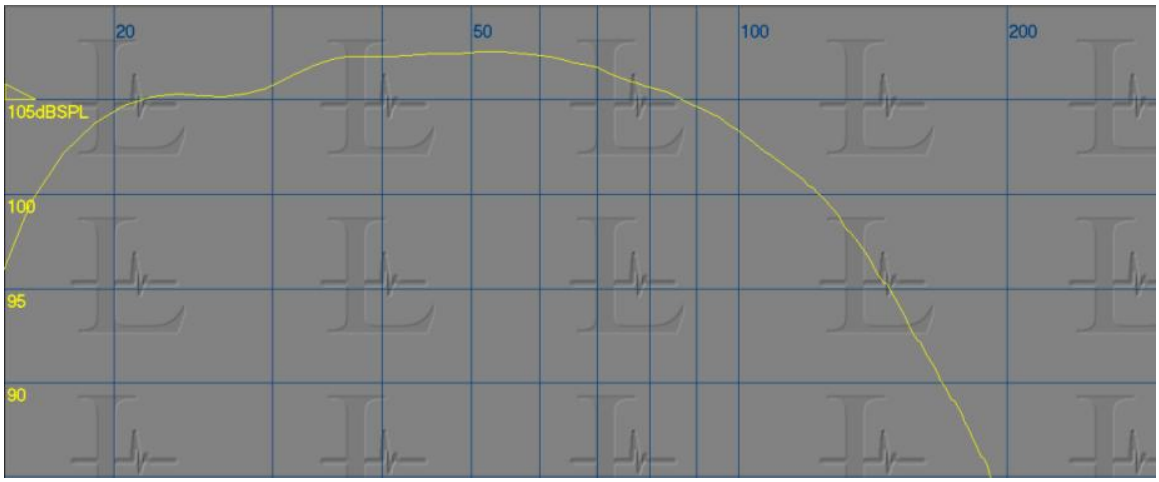


SUBSONIC FILTER/EQ – 20Hz SETTING

Graph 3A – 20Hz Setting – PEQ used to provide flattest frequency response

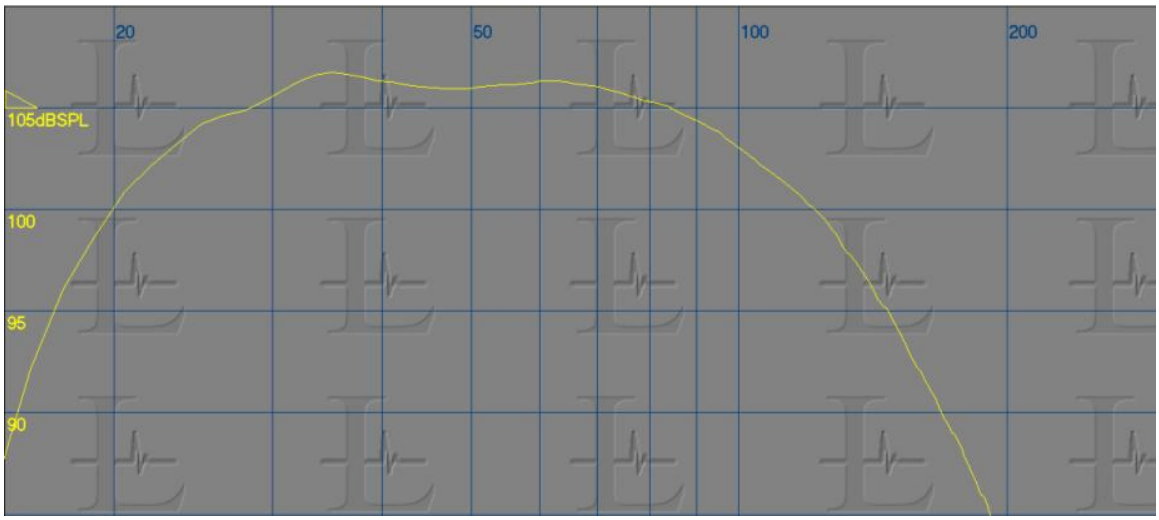


Graph 3B – 20Hz Setting – PEQ off

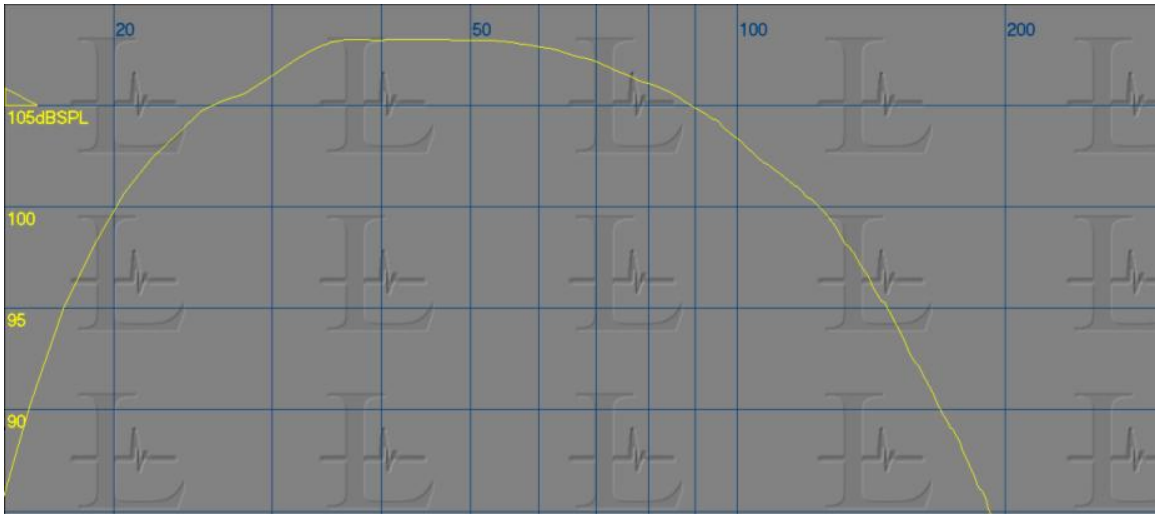


SUBSONIC FILTER/EQ – 25Hz SETTING

Graph 4A – 25Hz Setting – PEQ used to provide flattest frequency response

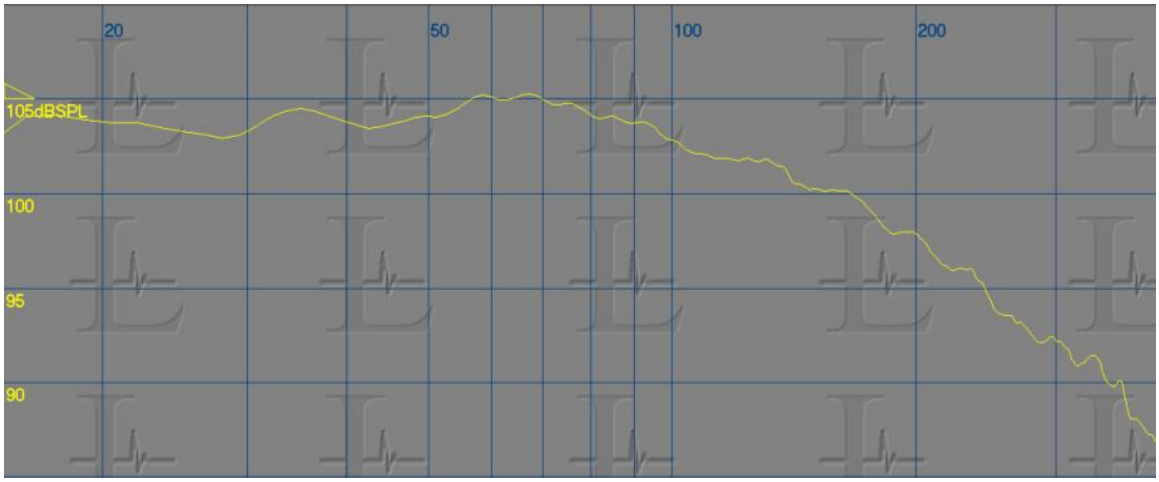


Graph 4B – 25Hz Setting – PEQ off

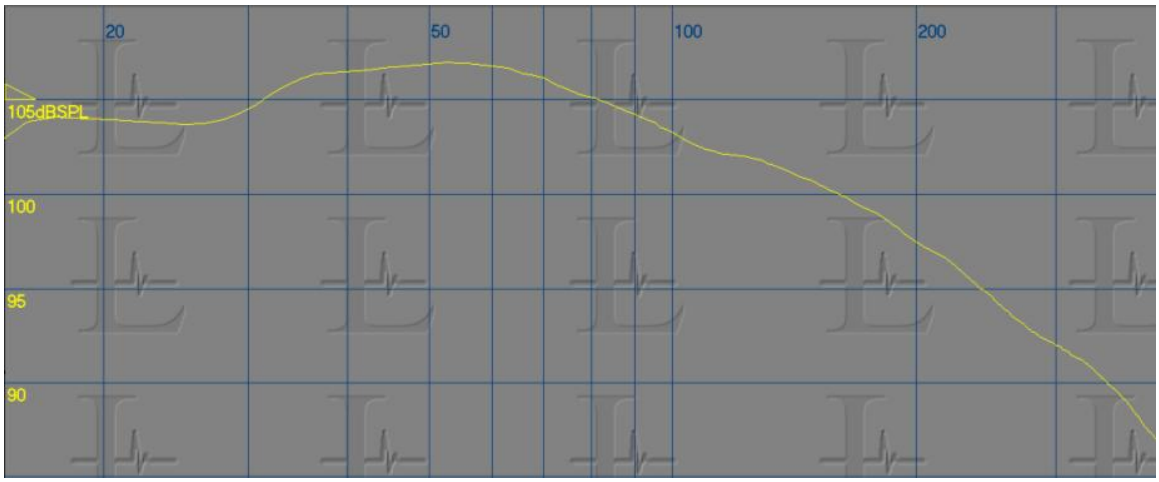


CROSSOVER DISABLED

Graph 5A – Subsonic Filter/EQ at 16Hz Setting – PEQ used to provide flattest frequency response



Graph 5B – Subsonic Filter/EQ at 16Hz Setting – PEQ off



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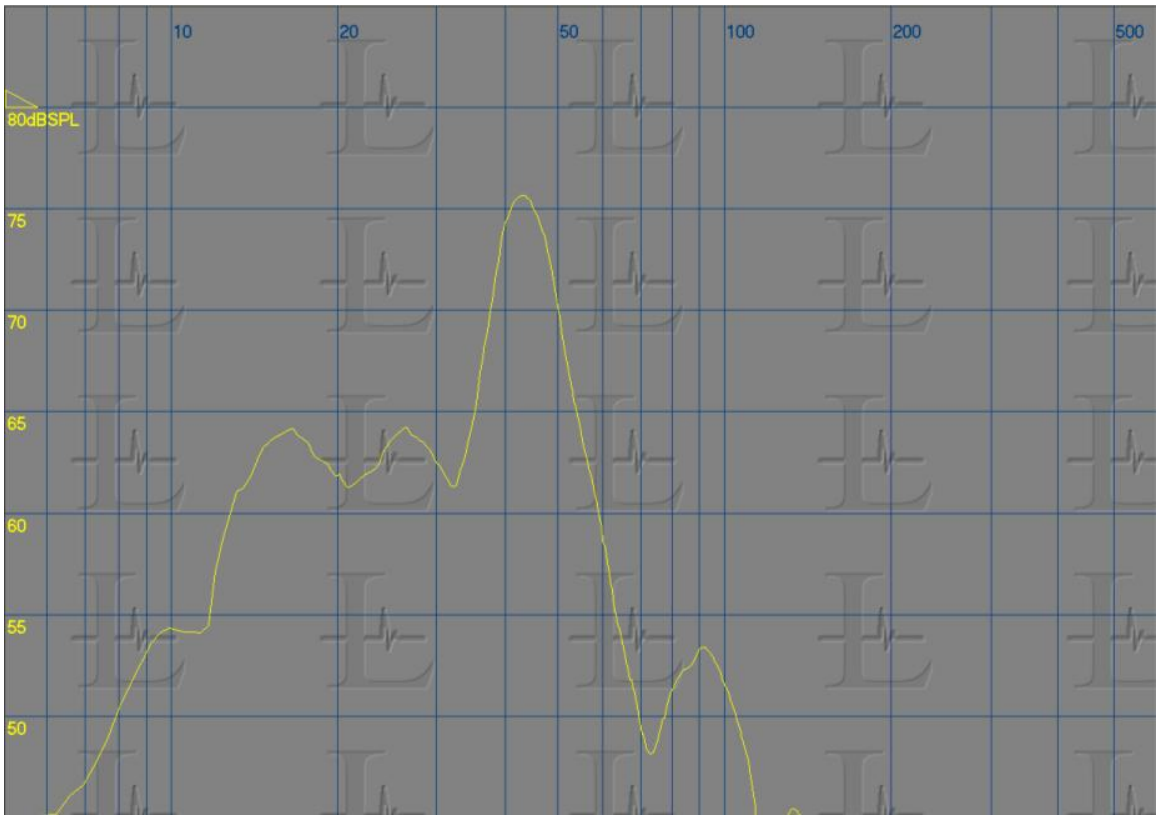
PARAMETRIC EQUALIZATION (PEQ) FOR ROOM MODE CONTROL

For a good explanation of room modes, take a look here:
http://www.marktaw.com/recording/Acoustics/AcousticsCrashCourse1-Mod.html

See the associated room mode calculator here:
http://www.marktaw.com/recording/Acoustics/RoomModeStandingWaveCalcu.html

Room width of 11.5ft corresponds to the ~45Hz mode (the +12dB peak) seen in the in-room response charts.

Graph 5A – In-Room Response Without PEQ (Subsonic Filter/EQ set to 20Hz, Crossover set to 80Hz)



Graph 5B – In-Room Response With PEQ (Subsonic Filter/EQ set to 20Hz, Crossover set to 80Hz)