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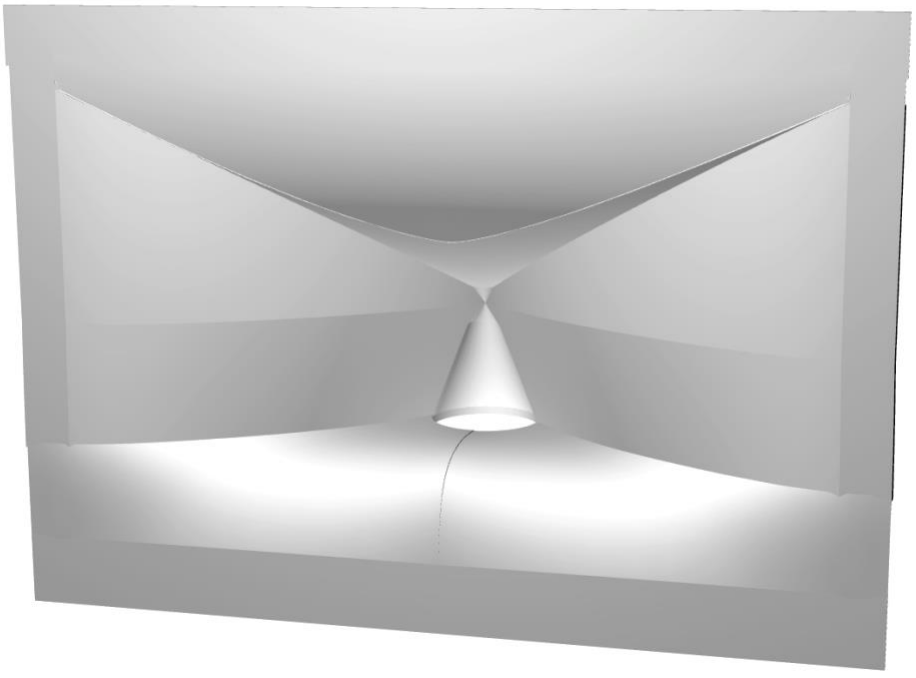
In-Wall CSA Prototype Measurement Data



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This is Sausalito Audio's first design that mimics the form factor of a conventional "flat faced" waveguide. This form factor necessarily reduces the otherwise ultra-wide dispersion that CSA waveguides exhibit. This device is 7.25" wide, 5.25" tall and 3" deep making it suitable for use in in-wall loudspeakers. It would, of course, work well in other applications where less horizontal dispersion, or this type of form factor is desired. For these measurements the CSA was fitted with a Vifa OX20SC00-04 tweeter. The EQ applied is shown in Fig. 15. The data was collected with 1V of input at 2kHz (0.25W at 4Ohms). The waveguide was mounted in a 24" x 24" baffle.

This CSA exhibits some interesting characteristics not seen in the devices we've prototyped thus far. Over approximately 110° of horizontal coverage, this CSA shows the usual outstandingly constant directivity up to the highest frequencies. Then its output falls relatively rapidly. Also, this CSA exhibits much more asymmetry in the vertical plane than other CSAs we've tested.

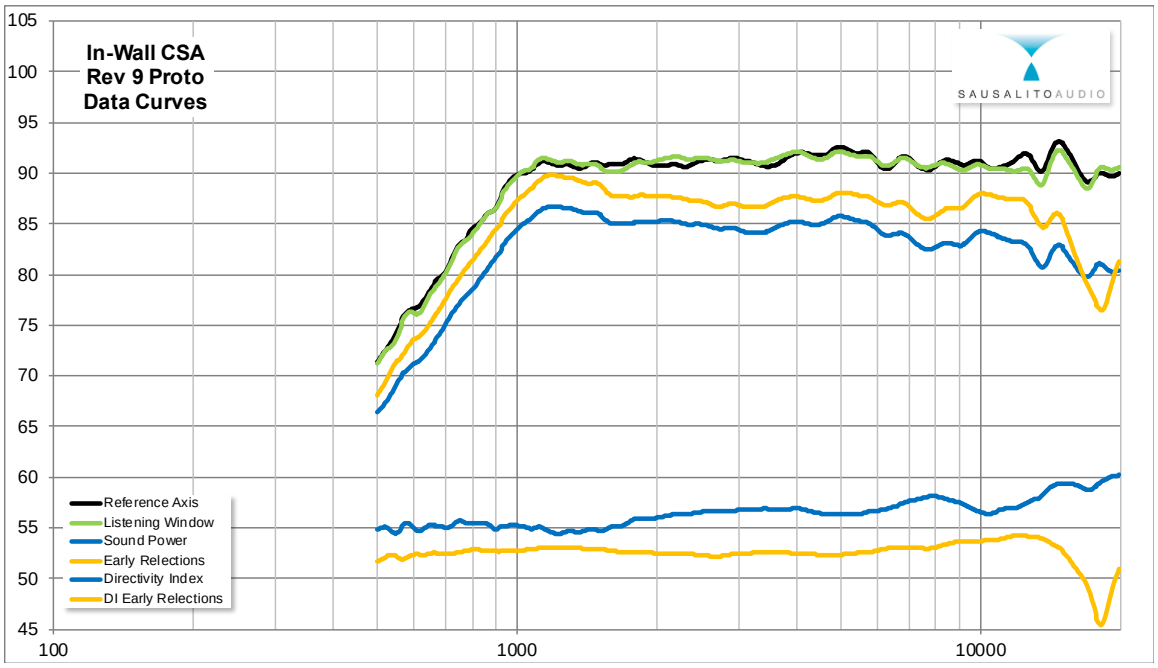

Figure 1: Spinorama chart for the in-wall CSA rev 9 prototype. For information on how to interpret this chart, please see "Interpreting Spinorama Charts" on the SA web site.

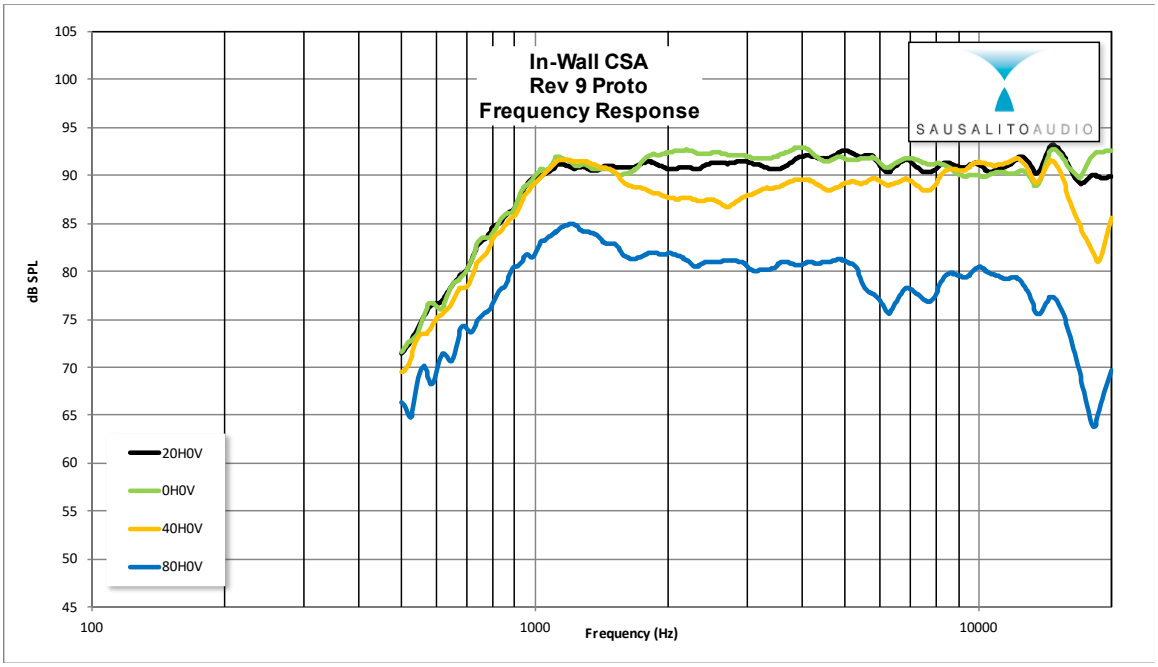

Figure 2: Frequency response curves at the referenced horizontal angles.

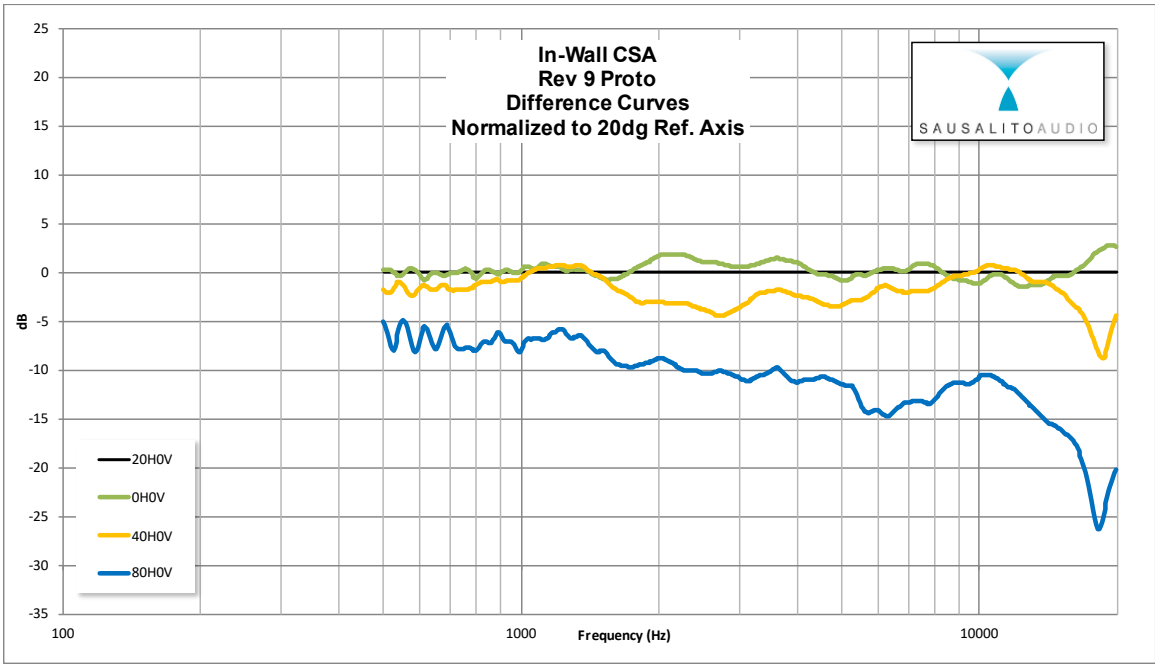

Figure 3: The data from figure 2 normalized to the reference axis of 20° horizontal, 0° vertical to more clearly show how the response of the waveguide changes as one moves off to the side.

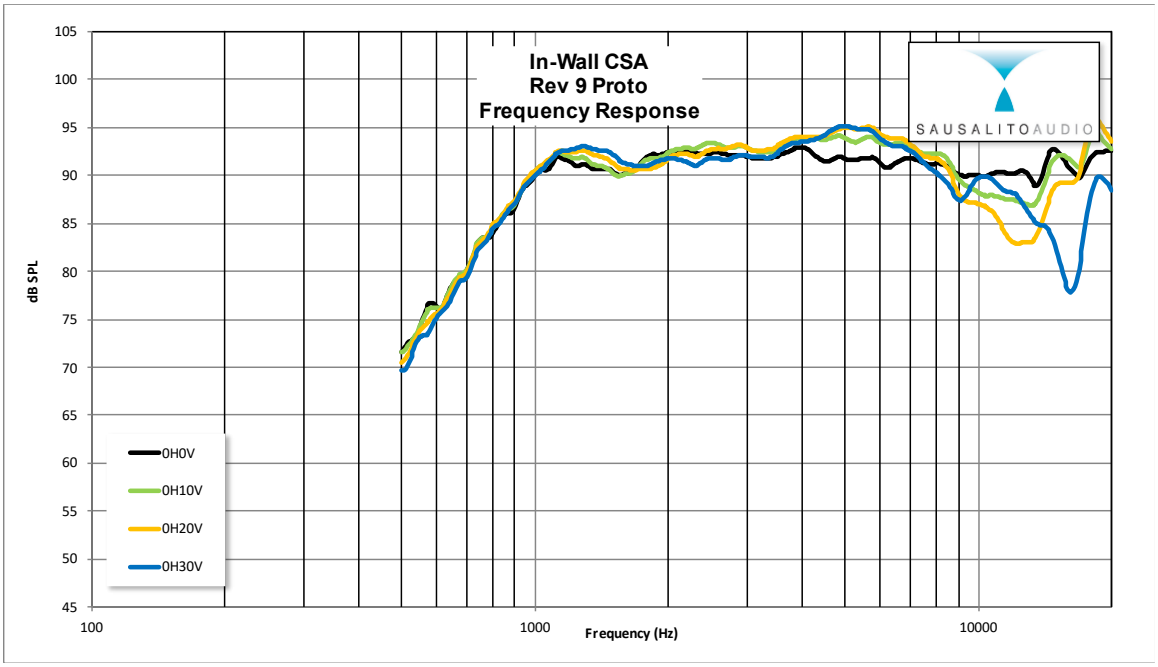

Figure 4: Response curves for 10°, 20° & 30° above the 0° reference.

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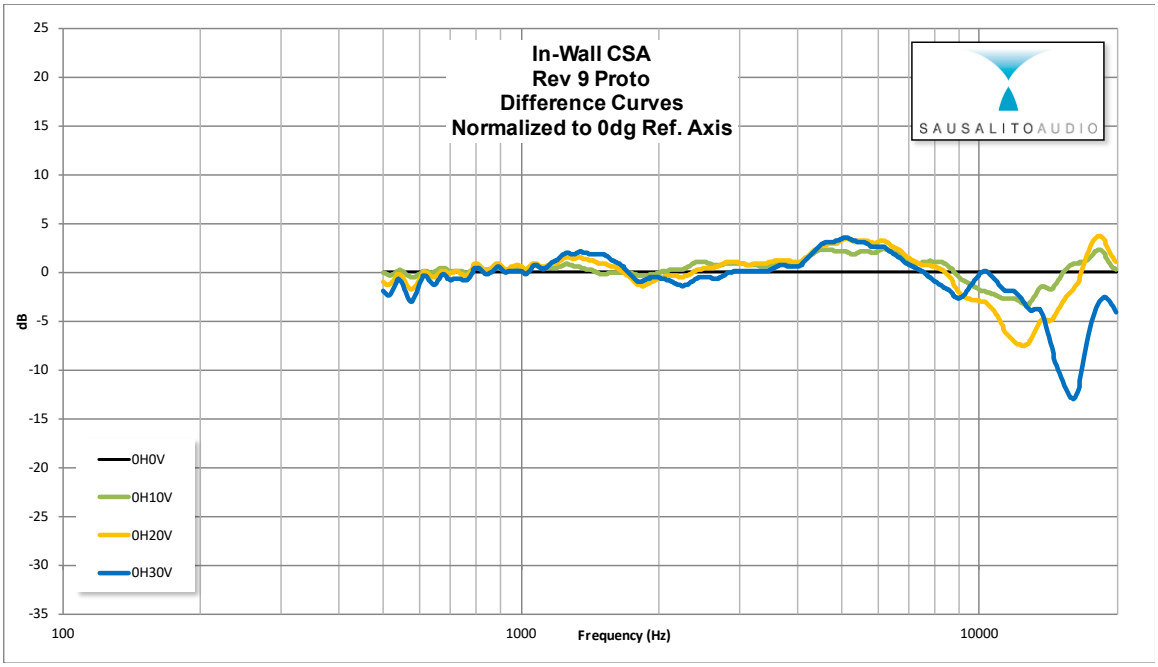

Figure 5: Difference curves for the reference angles normalized to 0° on axis.

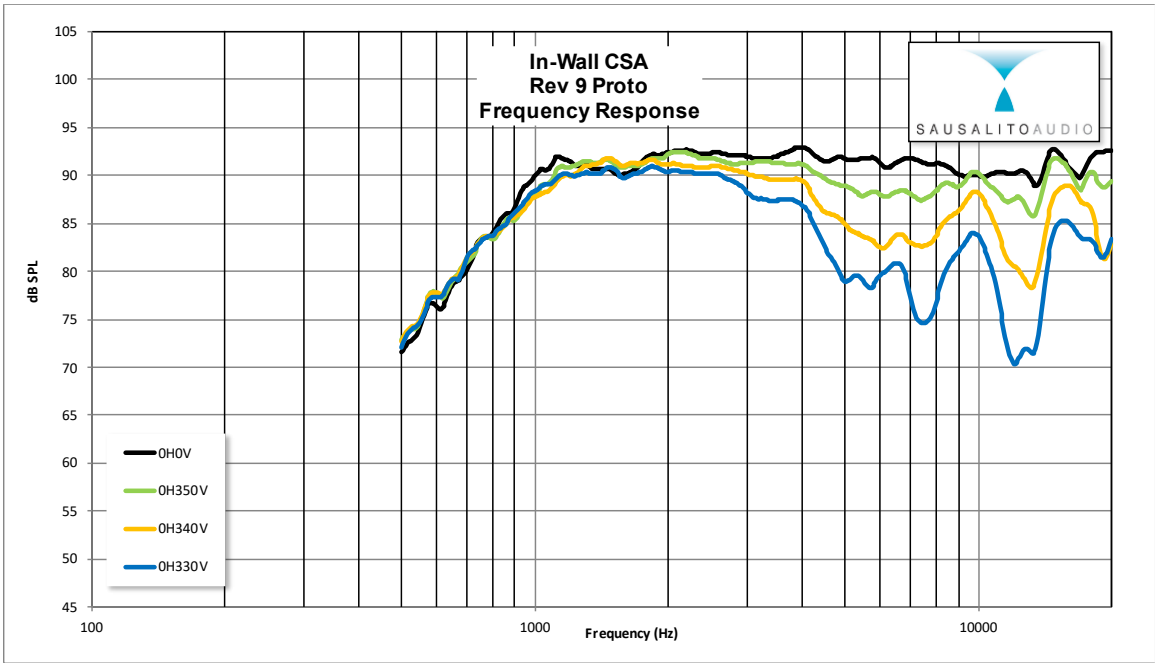

Figure 6: Response curves for 10°, 20° & 30° below the 0° reference.

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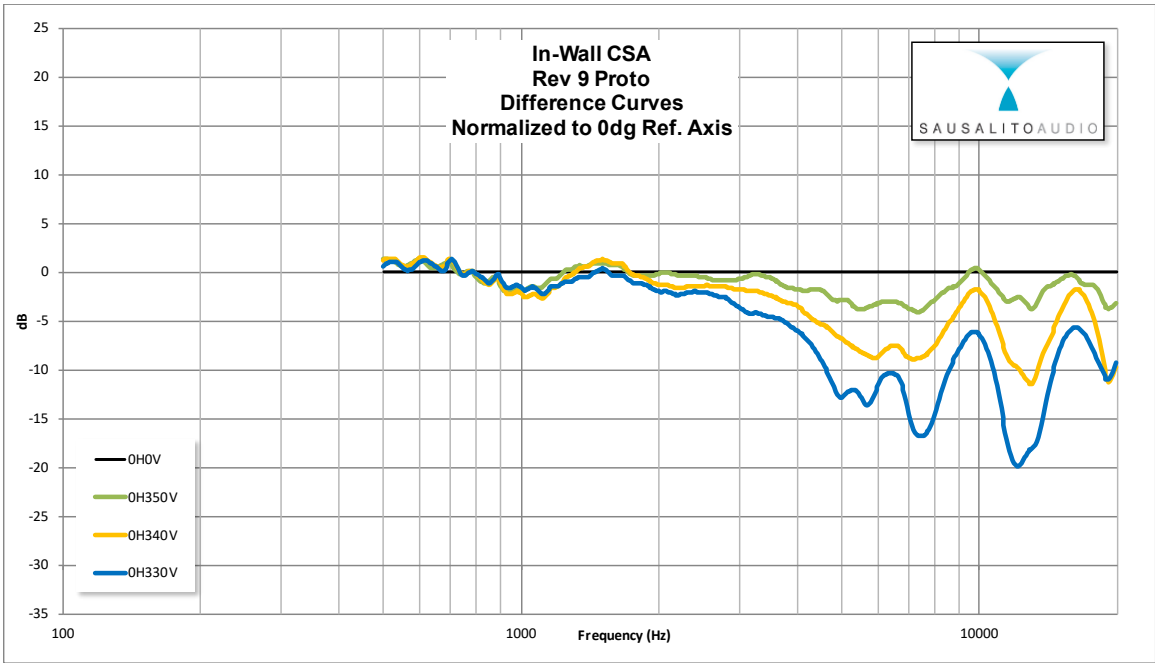

Figure 7: Difference curves for the reference angles normalized to 0° on axis.

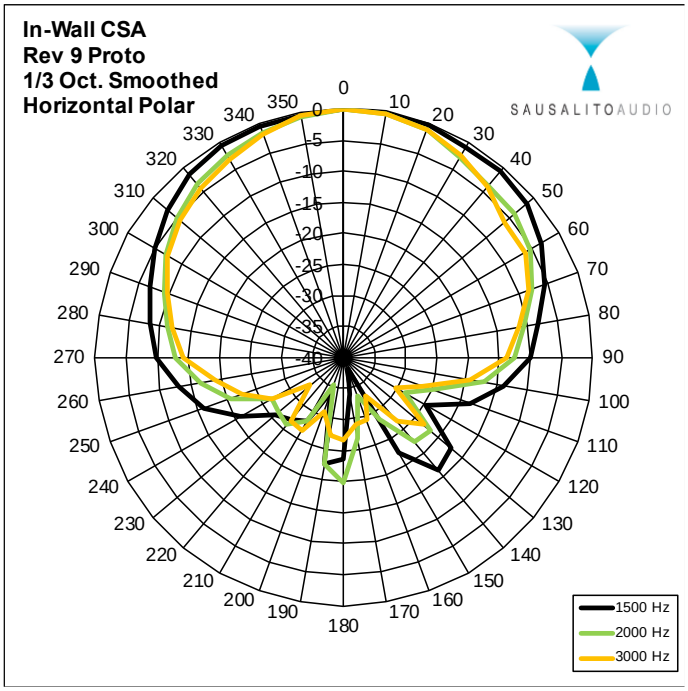

Figure 8: Horizontal polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per the convention for polar plots.

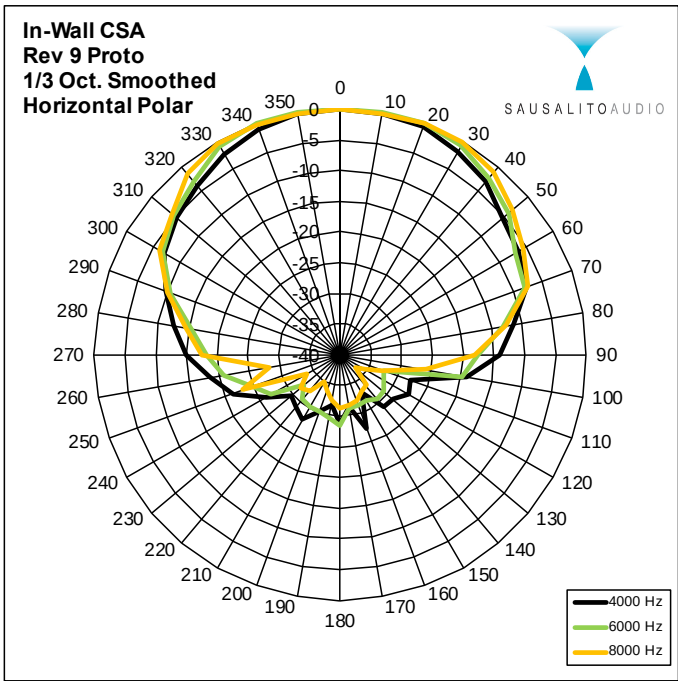

Figure 9: Horizontal polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per the convention for polar plots.

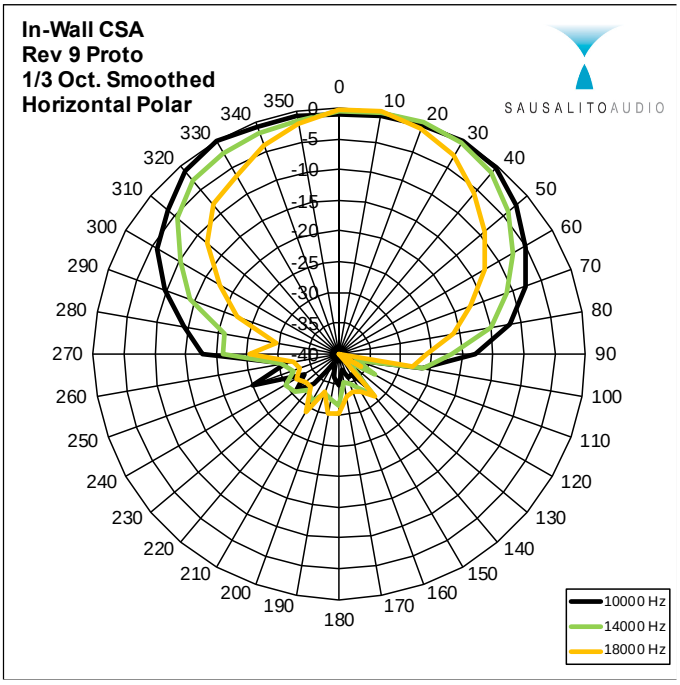

Figure 10: Horizontal polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per the convention for polar plots.

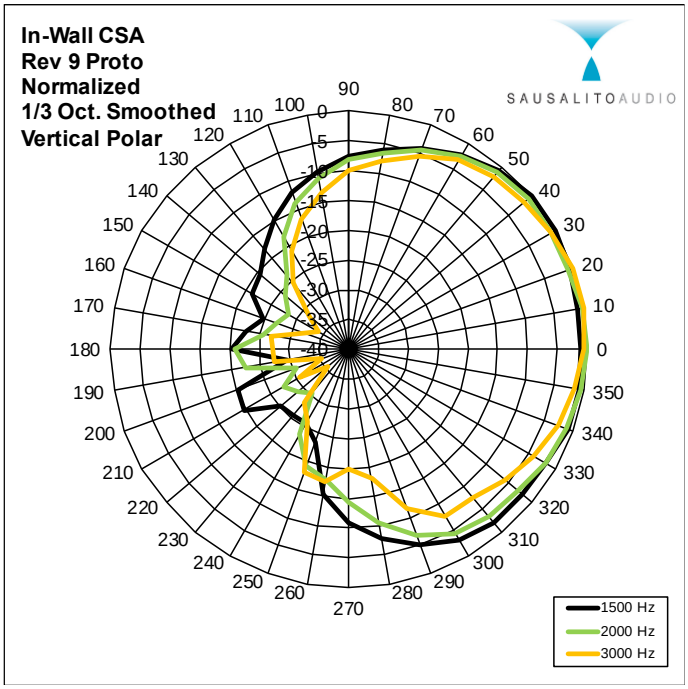

Figure 11: Vertical polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per the convention for polar plots.

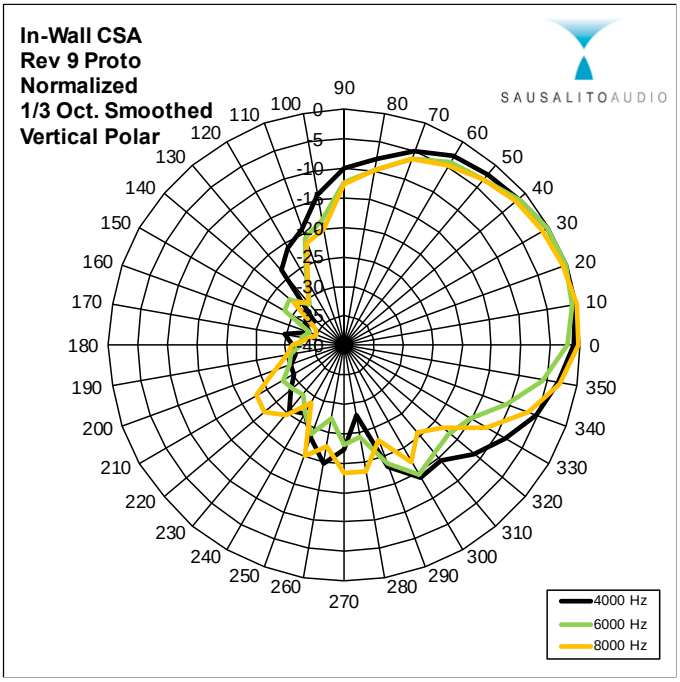

Figure 12: Vertical polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per the convention for polar plots.

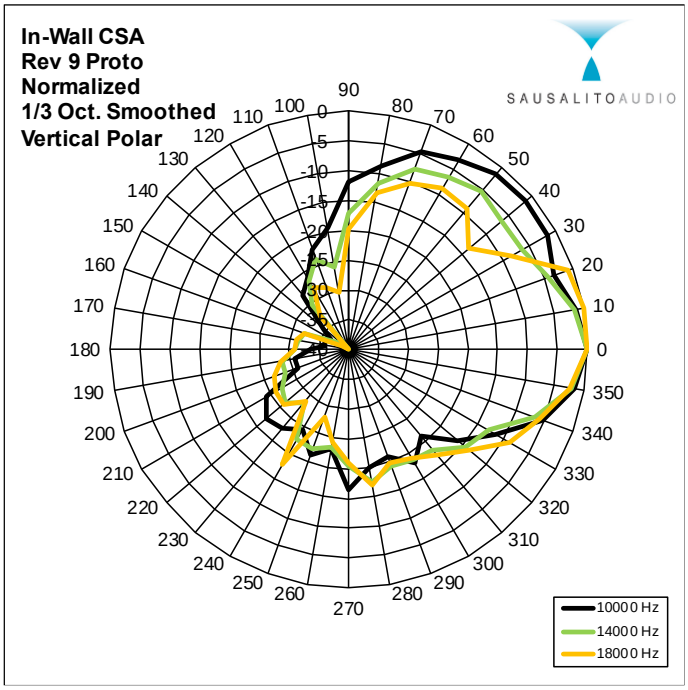

Figure 13: Vertical polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per the convention for polar plots.

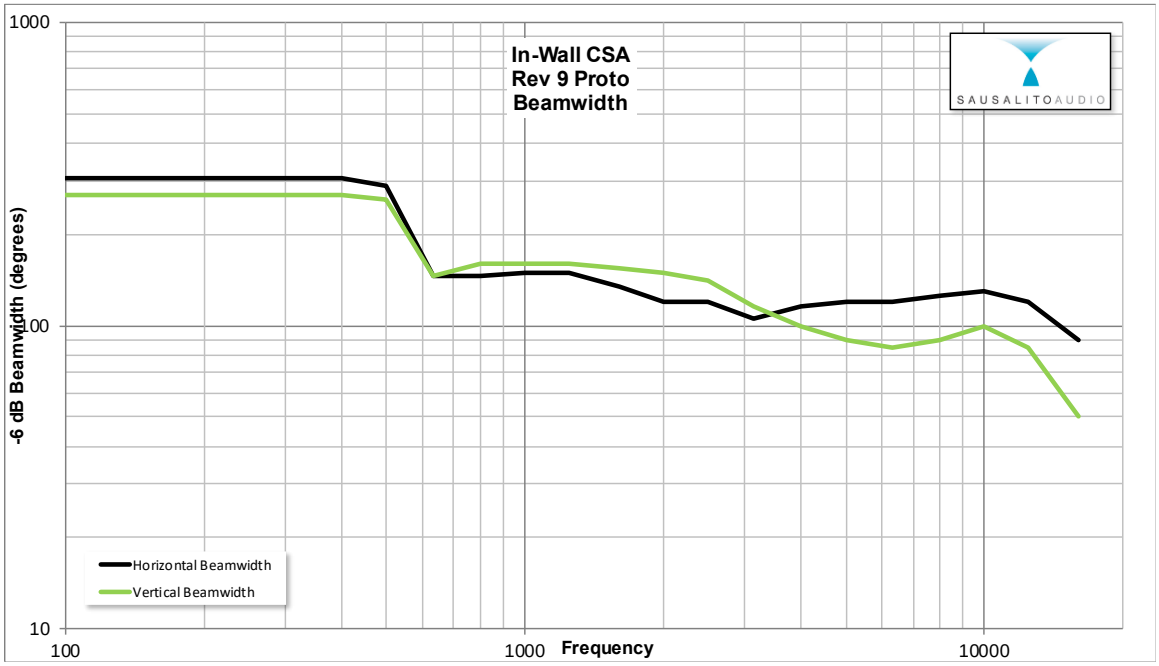

Figure 14: The chart shows the -6dB point as a function of frequency and coverage angle.

Figure 15: This is the EQ applied for all the above measurements. The scale is 6dB/division.