SAUSALITOAUDIO

SA PA1

Prototype Measurement Data

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This concept prototype developed by Sausalito Audio uses 2 x 10” woofers sourced from Faital and 1” throat compression from BMS. It is a 2 ½ way design with the crossover to the CSA waveguide at 1000Hz. The box has a 6” front firing port tuned to 55Hz. The three channels of amplification total 2500W and DSP is used for all signal manipulation. The overall dimensions of the Conic Section Array waveguide used are 12”W x 3”H x 8”D.

This speaker was tuned to have a flat listening window response with a 120° horizontal coverage angle. The standard for Spinorama charts is a 60° horizontal coverage angle. This explains the “hump” in the chart at 1kHz.

All measurements were made at Sausalito Audio which does not have a full anechoic chamber. The data is anechoic to ~500Hz and becomes increasingly corrupted by room reflections below that. Below ~150Hz the data should be largely disregarded.

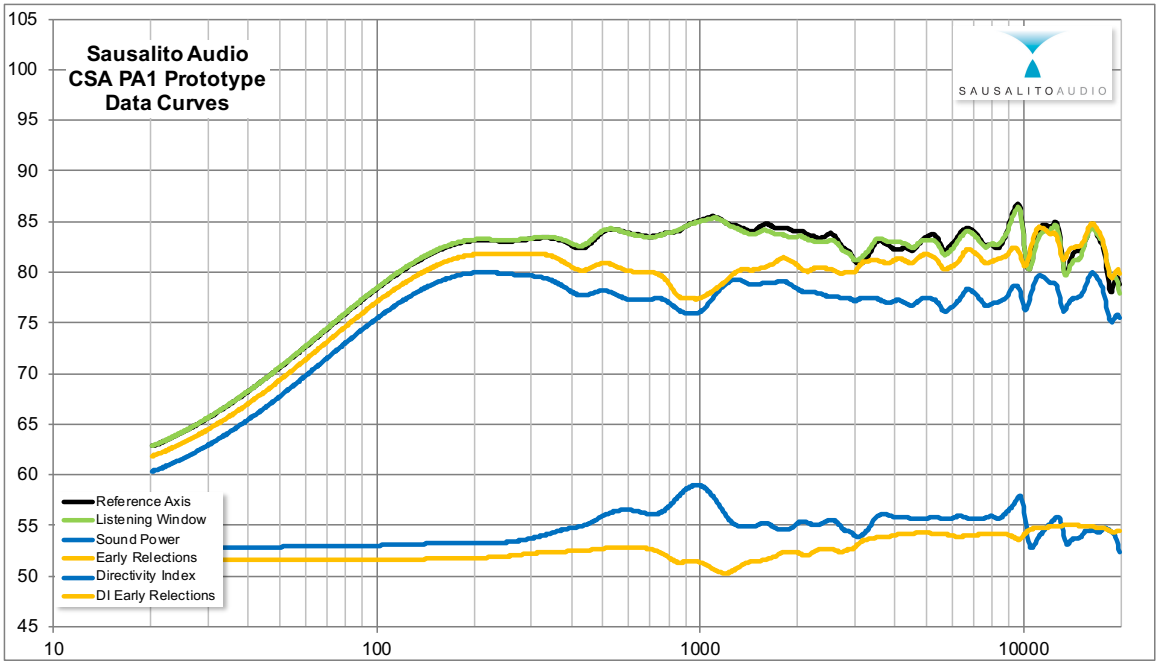

Figure 1: Spinorama chart for the SA PA1 Prototype. For information on how to interpret this chart, please see “Interpreting Spinorama Charts” on the SA web site.

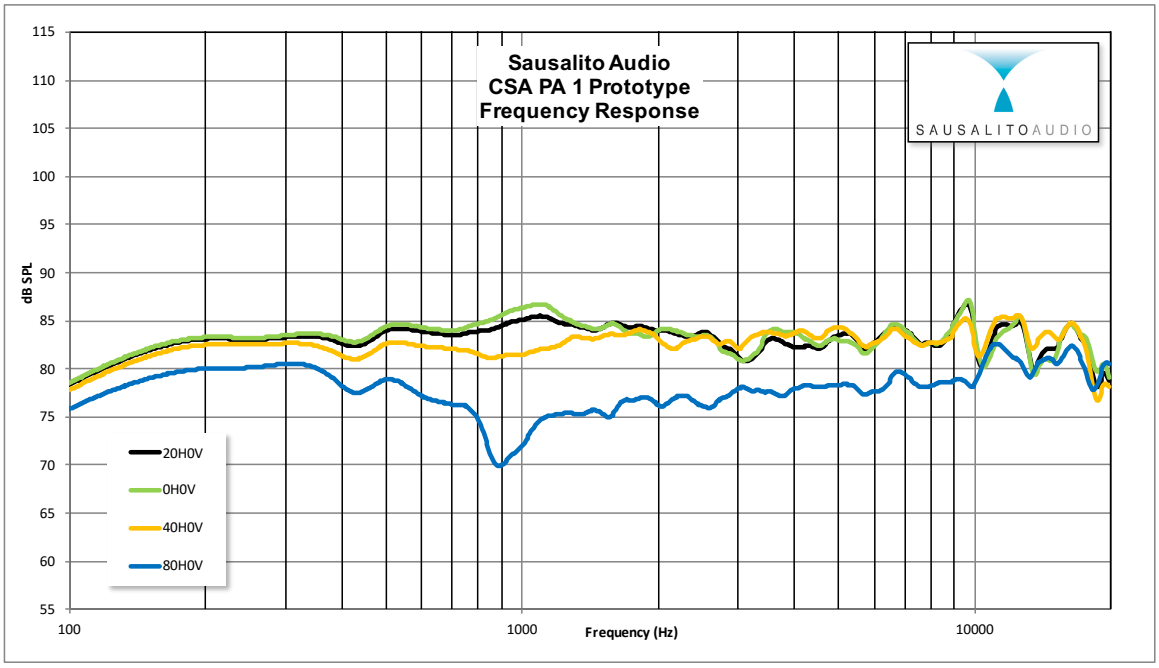

Figure 2: Frequency response curves at the referenced horizontal angles. 0° vertical is taken as the center of the mouth of the waveguide. For CSA loudspeakers, it has been Sausalito Audio's convention to use 20° horizontal, 0° vertical as the reference axis. The off-axis performance of the CSA waveguide obviates the need to "toe in" the speaker.

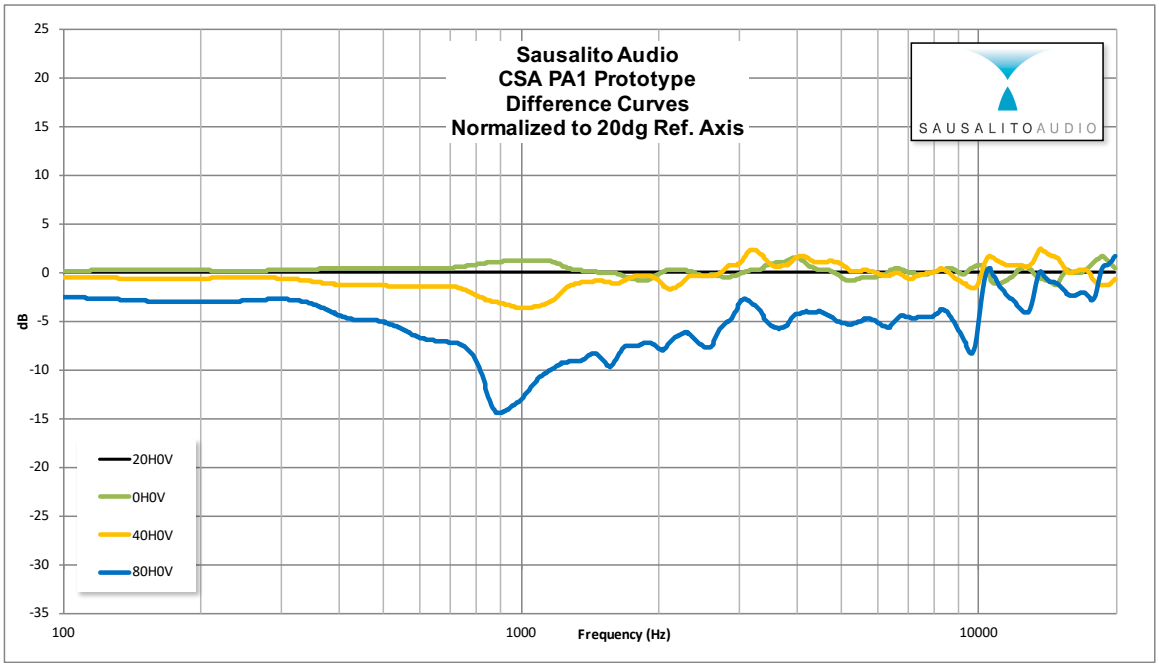

Figure 3: The data from figure 2 normalized to the reference axis of 20° horizontal, 0° vertical to more clearly show how the response of the speaker changes as one moves off the center line.

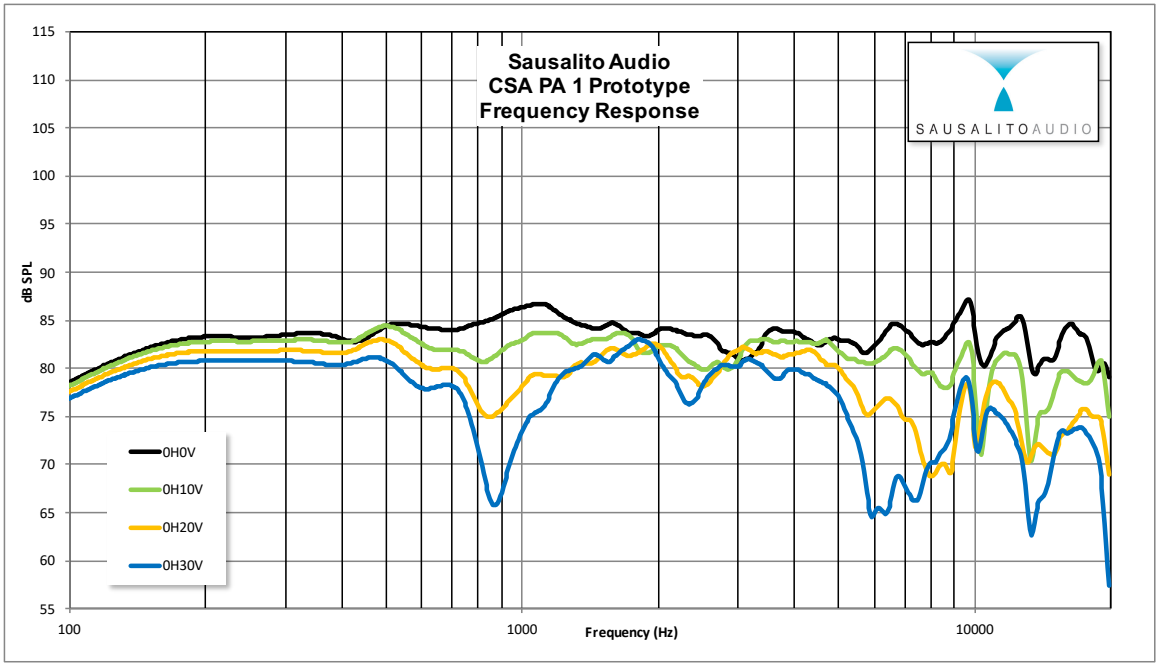

Figure 4: Response curves for 10°, 20° & 30° above the 0° vertical reference which is the center of the waveguide.

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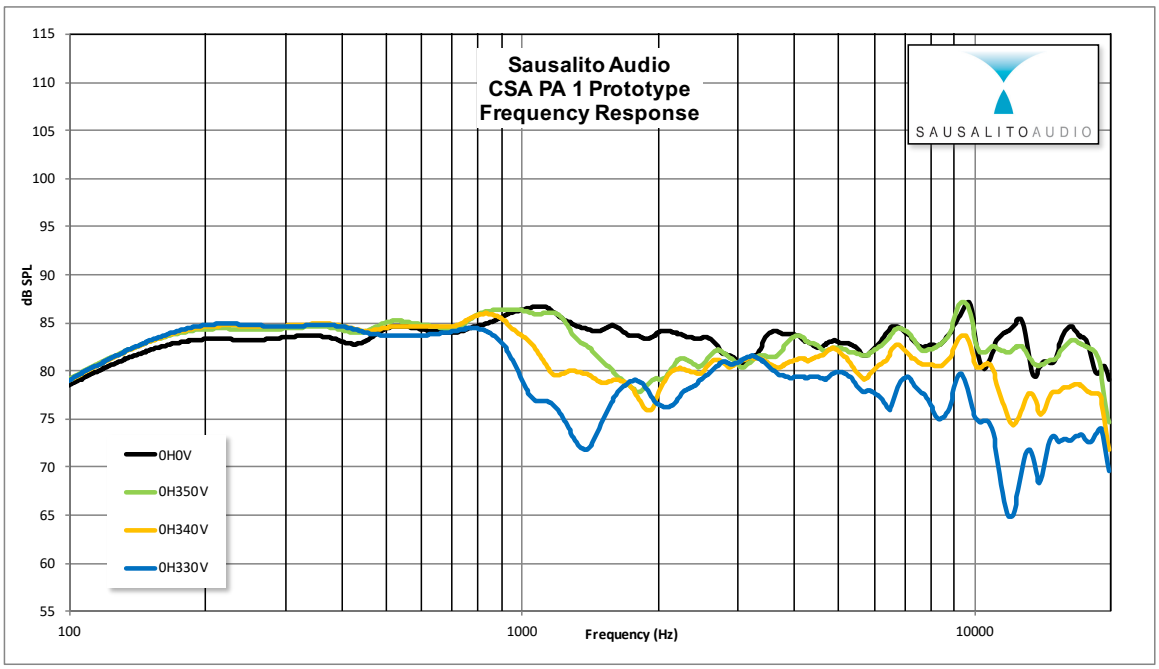

Figure 5: Response curves for 10°, 20° & 30° below the 0° vertical reference which is the center of the waveguide.

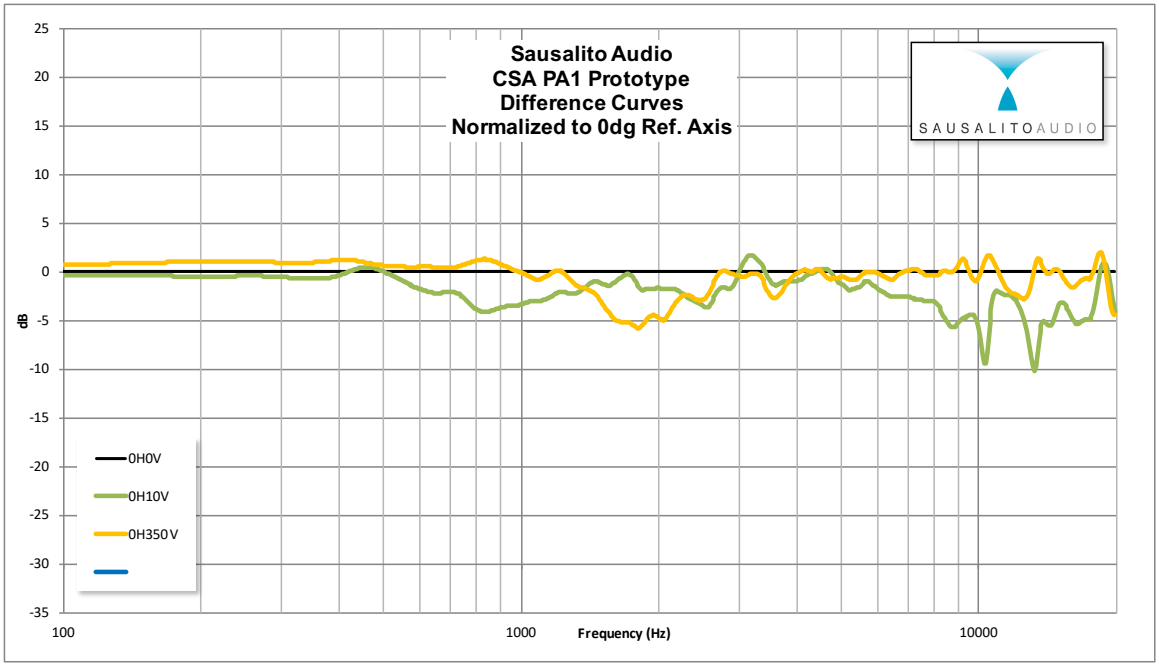

Figure 6: +10° & -10° vertical response normalized to 0° vertical reference axis to better show change over the 20° vertical listening window.

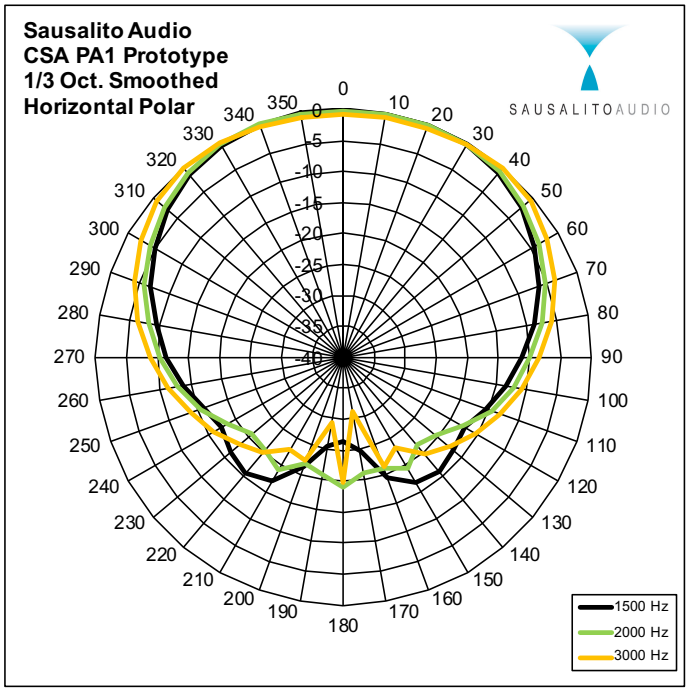

Figure 7: Horizontal polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per convention for polar plots.

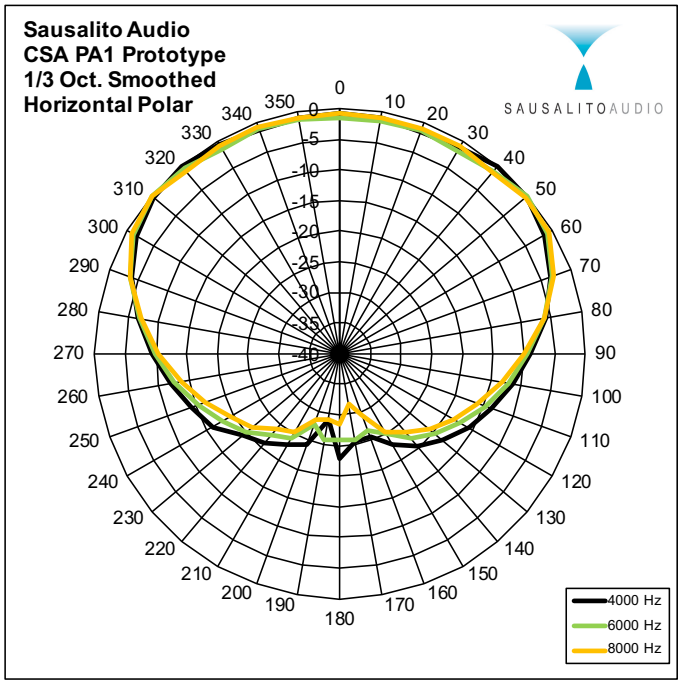

Figure 8: Horizontal polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per convention for polar plots.

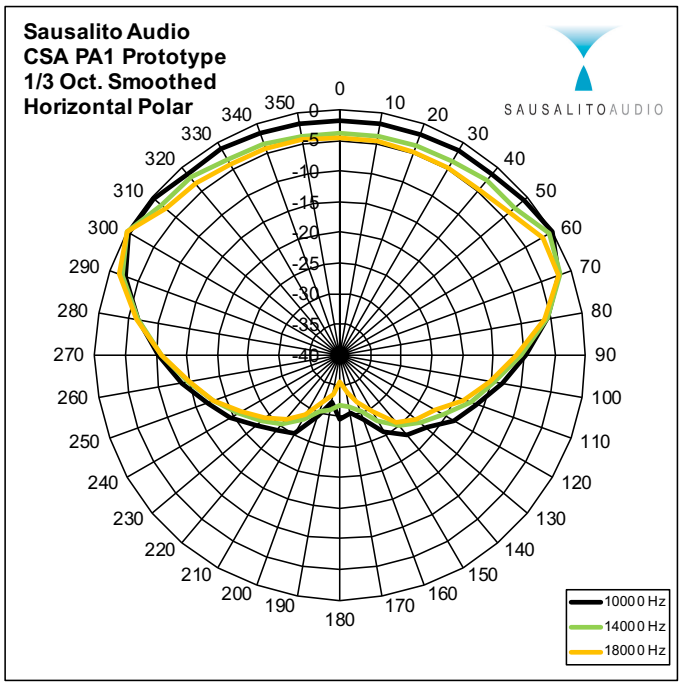

Figure 9: Horizontal polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per convention for polar plots.

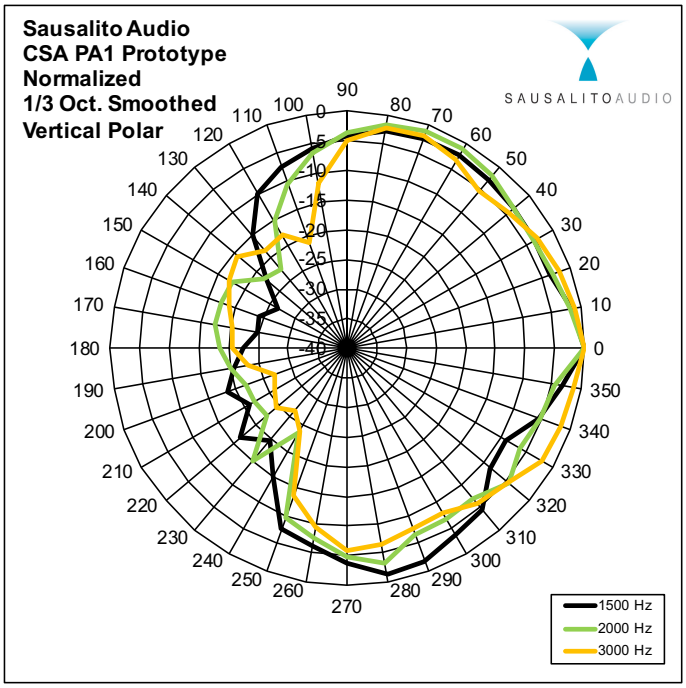

Figure 10: Vertical polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per convention for polar plots.

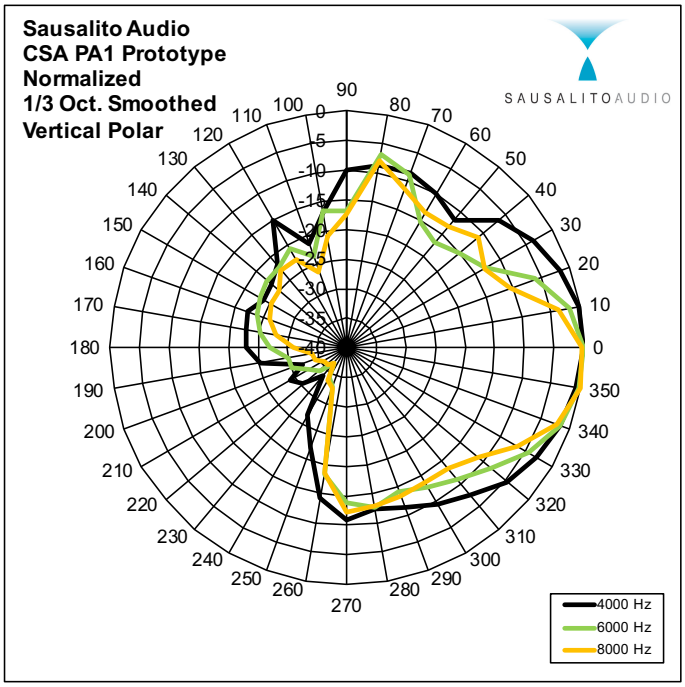

Figure 11: Vertical polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per convention for polar plots.

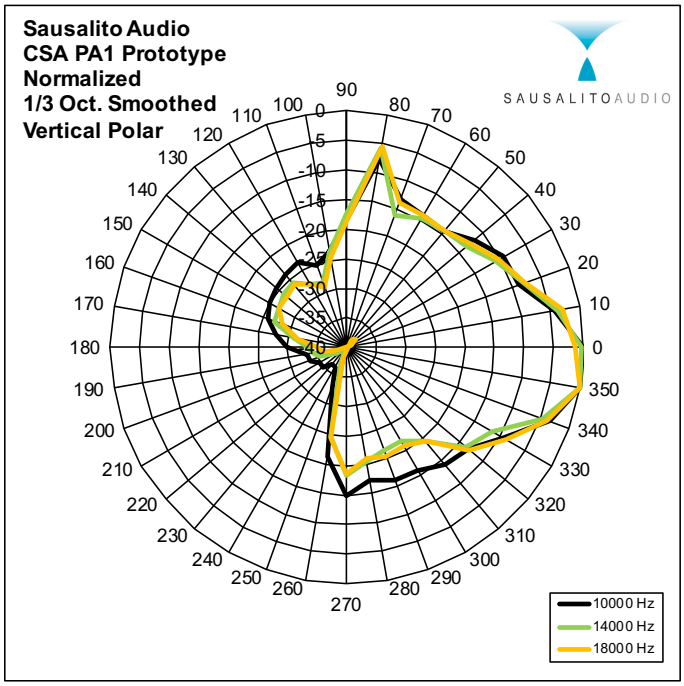

Figure 12: Vertical polar response at the indicated frequency. Data is normalized to 0dB and smoothed to 1/3 octave per convention for polar plots.

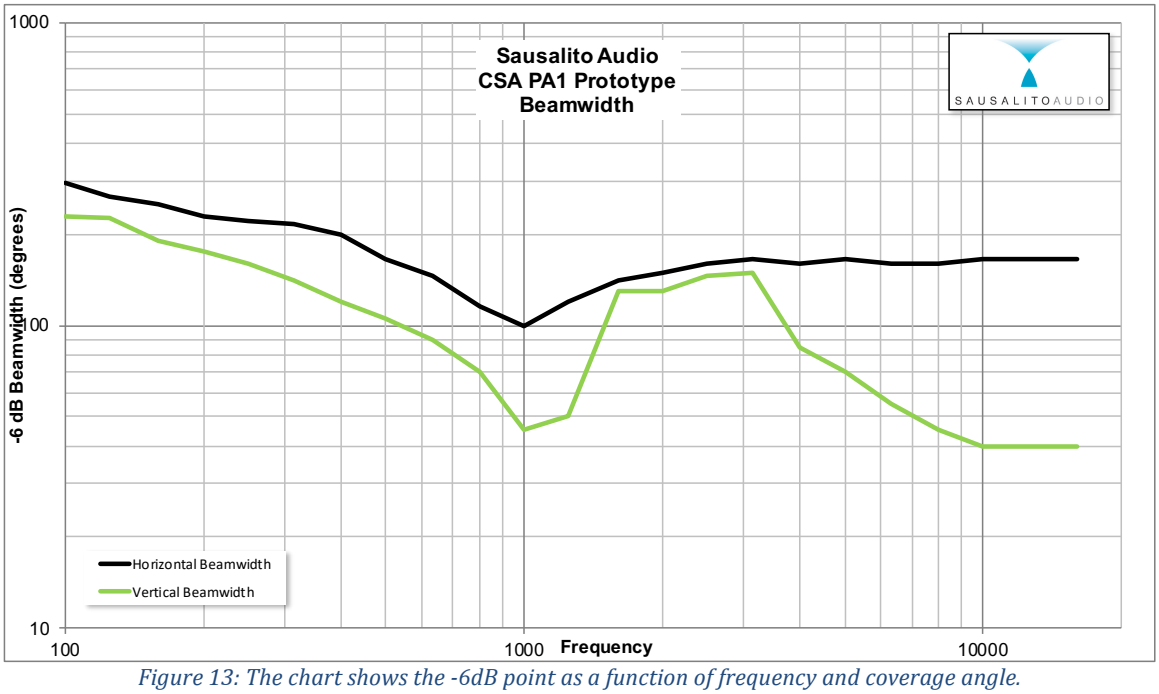

Figure 13: The chart shows the -6dB point as a function of frequency and coverage angle.