ATMO Model Speaker Measurement

Open Baffle Design by DIAGRAMMaudio®

December 2025

Frequency Response (SPL)

Methodology and Conditions

The following acoustic measurements were conducted to provide an indicative performance profile of the tested unit.
The measurements were conducted in a standard room of approximately 20 square meters. The room featured concrete walls, thick curtains, a soft sofa, and some furniture, but no specialized acoustic treatment. These conditions may have introduced reflections and reverberation, which could affect the results. It is crucial for the reader to understand that the resulting data reflects the combined acoustic response of the loudspeaker and typical home or some studios environments.

Measurement Setup and Equipment

The measurements were executed using the REW (Room EQ Wizard) software package.

The acoustic data was captured using a Dayton Audio iMM-6C USB-C Measurement Calibrated Microphone. This microphone was utilized in conjunction with its specific calibration file to ensure accuracy across the frequency spectrum.

The setup utilized the microphone positioned at a distance of approximately 0.8 meters from the acoustic center of the unit to reduce modal artifacts as much as possible.
The loudspeaker was placed roughly in the center of the room (the room is rectangular), at an approximate equal distance from the walls to minimize reflections during the measurement. The loudspeaker was positioned along the long wall. Since the test model is an open-baffle speaker (a dipole) - it doesn't radiate as strongly to the sides, but has significant rearward radiation.

Data Interpretation and Smoothing

To ensure the presented data is relevant and interpretable, specific signal processing techniques were applied, which must be considered when evaluating the results.

The Amplitude-Frequency Response (SPL) was measured and processed using one-third octave smoothing (1/3 Octave).

This level of smoothing is commonly referred to as "psychoacoustic smoothing." In a reflective environment, finer smoothing (e.g., 1/6 octave) would primarily display artifacts caused by room modes and reflections, rather than the intrinsic response of the loudspeaker.

The 1/3 octave smoothing significantly mitigates the influence of these room-induced peaks and dips, presenting a more representative curve that correlates better with the perceived in-room performance of the unit.

Additional Information on the Measurement Process

To ensure the reliability and accuracy of the obtained data, the measurements were conducted twice. This allowed us to identify possible variations and increase the credibility of the results. Both sets of data will be available for download via a link, enabling interested parties to analyze the results independently.

Data download link: https://drive.google.com/drive/folders/15IulPMtOc2h7GfR3p9TU9CcLM4sOIjCL?usp=drive_link

As a studio monitoring usage recommendations

Despite some irregularities in the overall frequency range, we at DIAGRAMMaudio® recommend leaving the frequency response of the speakers as is when using them as studio monitors. This is because the speakers have a lively and responsive characteristic that ensures accurate sound reproduction. Correcting the frequency response using DSP or other methods may make the sound lifeless.

For full-range monitoring down to the lowest octaves (≈30–40 Hz), the use of active subwoofers may be beneficial, especially in larger rooms or those with complex acoustics.