

---

Subject: Re: 1pi Measurements

Posted by [Wayne Parham](#) on Tue, 06 Dec 2022 20:25:13 GMT

[View Forum Message](#) <> [Reply to Message](#)

---

You'll probably need to get the microphone out. Speakers like these have great on-axis response, and the overall average balance is pretty good too. But move the microphone off-axis even just a little bit and the response changes, especially in the vertical. So the published charts are a best location capture of on-axis response.

What you see when you measure a "traditional" speaker like this - one not made for uniform directivity - is it doesn't really make sense to talk about the "edge of the pattern," finding the place where response falls off 6dB. You won't find places at each side and above and below the speaker where response clearly starts to fall, like what you can expect from a speaker with uniform directivity.

Instead what you see is a lot of nulls, much like what you see as the reverberant field, which is characterized by dense interference from all the reflections in the room. Actually, I would not describe it as dense interference, more like "medium" interference. It is between the widely-spaced and clearly-defined nulls from a waveguide speaker and the tightly-packed and nearly indistinguishable nulls that form dense interference. It's just looks like the response curve varies a lot depending on the position of the microphone.

I considered taking a bunch of off-axis measurements, and then averaging and smoothing them to provide a view of the spectral balance of the reverberant field. In this averaged form, you could see a directivity trend, because all the sharp nulls would be smoothed out. But I elected not to do that because, even though I think it is useful data, it isn't any sort of standard. Only on-axis and polars really are. So I decided not to even mess with that.

---