Subject: Re: Dayton Audio/Eminence Full Range Single Driver
Posted by Wayne Parham on Tue, 19 Feb 2013 22:41:49 GMT
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Sounds like a worthwhile approach.

As an aside, I've always said baffle step compensation is a one-dimensional treatment of a three-dimensional problem, so I'm generally not for it. The two things don't match: BSC tailors uses electrical equalization to improve on-axis response, but since the "baffle step" is actually a side-effect of increasing directivity, this kind of equalization is done at the expense of off-axis response. It's a circuit that makes power response worse, which is not good in any respect for a speaker used indoors. Power response has as much influence on the percieved sound as on-axis response because the reverberent field is so powerful compared to the on-axis sound.

But the truth is I think people often mislabel what is essentially loudspeaker voicing and call it BSC because that has become a DIYers buzzword. Whatever a person calls it, I think if a speaker is a little bit shouty, then some response shaping is probably in order. So what I'm saying is that if a filter were truly implementing BSC, it would make the speaker sound worse. But when it is actually just voicing the speaker, that may very well sound better. Kind of a semantics thing, but an important distinction, I think.

I think that applies here too. If the humpty-dumpty response is too much, then give it a filter to make it better. There's a sort of balance, I think, between a little bit of voicing and what's too much. Some designs clearly go too far in the quest of ruler-flat on-axis response and the speaker sounds dead and lifeless. I think this is largely due to reduced dynamic range and also due to uneven power response. That's common for mini-monitors with a few dozen components in the crossover for response shaping.

Your speaker clearly doesn't fit that description. It's a high-efficiency design with enough dynamics to spare a few decibels for response shaping. That's no different than what is required for CD equalization of a compression driver. Sometimes electrical filters (in addition to the basic crossover splitter filters) are really important in the overall design.

All that to say I think you know what you're doing and have a pretty good handle on it. Should be a killer speaker when you're finished.