
Subject: Measurement Microphones

Posted by [jshupe](#) on Sat, 14 Feb 2015 23:28:30 GMT

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I decided to measure my speakers today, Pi 4 mains with Pi 3 subs. I used a Pyle Pro PDMIC58 (Shure SM58 clone) that I have laying around the house for drunken karaoke nights, so I knew going in that these measurements may not be accurate.

They ended up having a slope to them that I haven't seen on other Pi speaker measurements.

After doing a little reading, I found this chart for the SM58 (bottom) that looks quite familiar...

So as someone who does not measure speakers very often (I'm actually only measuring them now because I plan to rebuild my cabinets in the next couple of months and would like before/after measurements) I'd like to know what microphone(s) I should be looking at. I've seen several units that claim to be measurement microphones starting around \$40 online. Or am I barking up the wrong tree?

File Attachments

1) [speakers.png](#), downloaded 2435 times

2) [Clipboard01.jpg](#), downloaded 2418 times

Subject: Re: Measurement Microphones

Posted by [Wayne Parham](#) on Sun, 15 Feb 2015 17:44:24 GMT

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You can definitely see the influence of the microphone superimposed on the measurements. Your charts look right considering the microphone response curve has rolloff down low, up high and a peak between 3kHz and 5kHz. If you were to account for the microphone chart with a conjugate curve, and then apply that curve to the measurement charts, you'd have a chart that accurately showed loudspeaker response.

Subject: Re: Measurement Microphones

Posted by [jshupe](#) on Sun, 15 Feb 2015 18:52:54 GMT

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I found the following SM58.cal file out on the internet, and loaded it.

20 -15
50 -7
100 -1
120 0
1000 0
2000 +1
4000 +4
5000 +5
7000 +3
7500 +2
9000 +3
10000 +4
15000 -5
20000 -15

My microphone is knockoff, so I don't expect those figures to be exact. And my room is terrible: 16' ceilings, ceramic tile floors, very few treatments. I think the measurements look pretty good all considered, but I'm not entirely sure what they're expected to look like in my case.

File Attachments

1) [speakers.png](#), downloaded 2234 times

Subject: Re: Measurement Microphones

Posted by [Wayne Parham](#) on Mon, 16 Feb 2015 05:26:37 GMT

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There you go! That's what I'd expect to see.
