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Subject: Impedance question, please help me Mr. Wayne

Posted by [Gabriel](#) on Wed, 23 Jul 2003 13:37:17 GMT

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Dear Mr. Wayne,Hi, it's me again. I just decided to buy some speaker driver for my new system, it consist of:Woofer, 2ohm, 94dB, low pass 400hzMid, 2 ohm, 96dB bandpass 400-4000hzHigh, 4 ohm, 95dB hi-pass 4000hzall sensitivity is in 2.83v/1m.I want to know is the impedance of the driver "in the system" will affect the sensitivity? I mean, with my choice, I assumed that my system will have a sligthly weak in high and even weaker in low if the impedance is the same for all three driver (I also know that's an odd choice, but that what I want:)), but how if the impedance is like my driver choice above?And what is the total impedance for the system above?If I add a second same woofer (with the same lo pass and drive with different amplifier with the same watts) is that will make the sensitivity of my low section raise with 6dB (like parrarel two similar driver)?Thank's in advance.Regards,Gabriel Temmy

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Subject: Re: Impedance question, please help me Mr. Wayne

Posted by [Adam](#) on Wed, 23 Jul 2003 14:54:56 GMT

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I'm not Wayne, but I can help you out with this... Assuming you are using all passive crossovers, your final system impedance will vary from frequency to frequency. It always does, but it will moreso in this case. Generally speaking, the amp will see a 2 ohm load from 400 Hz and up, and a 4 ohm load below that. If your amp is designed to, it will deliver twice as much power into the 2 ohm load as it will the 4 ohm load. At reference, this will effectively cause the midrange to play at 99db and the high range to play at 98 db, with the woofer stuck at 94 db. However, this is not necessarily a bad thing. If you are building passive circuits, you can pad both the tweeter and midrange to match output with the woofer. If you are running an active, triamped system, you can simply adjust the gains on each amp to match.Adding a second woofer in parallel will increase system sensitivity to 97 db, but with the addition of a second amplifier (thus doubling power) it'll bring it to 100. Adam

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Subject: Thank's Mr. Adam, but some more question

Posted by [Gabriel](#) on Wed, 23 Jul 2003 17:12:11 GMT

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Dear Mr.Adam,Thank's for your explanation. I did understood with your explanation of doubling the woofer and adding power amplifier, but about the impedance and sensitivity, my data are:woofer 2 ohm 94 dBmid 2 ohm 96dBhigh 4 ohm 95dB, but you wrote: "Generally speaking, the amp will see a 2 ohm load from 400 Hz and up, and a 4 ohm load below that. If your amp is

designed to, it will deliver twice as much power into the 2 ohm load as it will the 4 ohm load. At reference, this will effectively cause the midrange to play at 99db and the high range to play at 98 db, with the woofer stuck at 94 db."I just confused why your explanation said the mid didn't stuck in 96 db, since it have the same impedance as the woofer? And when I see the spec in my power amp, it will doubling the power if the impedance drop from 4 ohm to 2 ohm. So I think and hope it will make my woofer play at 97dB, mid driver play 99dB, and high play at 95dB? And your explanation is completely the reverse of my hope (except for the mid, that still make me confuse). Are you sure about that? Please help me out.Thank's in advance.Regards,Gabriel Temmy

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Subject: Re: Thank's Mr. Adam, but some more question  
Posted by [Adam](#) on Wed, 23 Jul 2003 17:36:20 GMT

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Gabriel,I reread your first question, and you're correct. I misread it the first time. The woofer will play at 97 (with two drivers) and the mid will play at 99, but the highs will remain at 95. Running two woofers in parallel on the bottom end is risky. If you wire them in parallel, impedance will drop to 1 ohm, at which most amps will not run stable. Your only other option is to wire them in series to 4 ohms. The net result will be no gain in sensitivity.I would recommend attenuating the midrange 3-4 decibels with an L-pad, and otherwise keeping everything else the same.By the way, what woofer, midrange and tweeter are you using, and what diameters are they?Adam

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Subject: Re: Thank's Mr. Adam, but some more question  
Posted by [Gabriel](#) on Wed, 23 Jul 2003 18:25:20 GMT

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Dear Mr. Adam,Thank's for the explanation, i feel a lot of better now. Actually my current project is build a bass guitar cabinet system. Since I already have a pair of Blaupunkt Velocity VCS1200 woofer,(the response is good till 500Hz, dual 4 ohm voice coil, with 250 watts/voice coil) from my previous car, plus a Carvin DCM2000 power amp, I decide to use it.And want to order some hifi mid and tweeter, currently my choice are:2pcs Peerless 850518 4 ohm, 150 watts mid (will run in parrarrel)1pc Vifa MG27TG39-04 4ohm, 140 watts tweeter.I will use them for a 3 way system with passive x-over, (consist of one woofer, two mid, and one tweeter) that will drive with one channel of power amp, and an extended bass (one woofer) cab, also use a passive x-over, that will drive with the another channel of my amp. I didn't run 2 of my woofer in parrarrel, my power amp lowest allowable impedance is 2 ohm stereo and 4 ohm bridged. Thank's to remind me about the 1 ohm load. Maybe this system is not ideal, but I just want to use the equipment that I already have. By the way, I lived in INDONESIA, and since I must buy the parts from USA, I need to make sure that my choice is right. I didn't want to return the wrong parts, the shipping cost is very expensive.Thank's Regards,Gabriel Temmy PS: I see in this message board that You often

experimenting with pro loudspeaker. Have you ever try Selenium woofer or subwoofer? I already build a system using 2 Eminence Delta 15 and a Selenium horn each side for my band studio, and the result is really good. I really like Selenium horn base on their price vs performance, but didn't know about their woofer/subwoofer.

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Subject: Re: Thank's Mr. Adam, but some more question

Posted by [Adam](#) on Thu, 24 Jul 2003 20:42:42 GMT

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While I did take a serious look at the Selenium offerings a few years back, I never tried them. My primary interest was their compression drivers. The only thing I remember was some very strange anomalies in the impedance chart, primarily two separate and distinct impedance spikes, which really puzzled me. Ultimately, I went with Eminence gear. I haven't tried any of their stuff. Is the setup you are describing going to be used for bass guitar? Adam

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Subject: >>>>Mr. Adam, the description

Posted by [Gabriel](#) on Fri, 25 Jul 2003 00:43:47 GMT

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Dear Mr. Adam, The setup: Carvin DCM amp, Blaupunkt VCS 1200 woofer, Peerless mid, Vifa tweeter >> for bass guitar. Carvin DCM amp, Eminence Delta 15 Selenium horn >> for my band studio main speaker. Just for note, my band didn't use any amp and speaker for the instrument. All the instrument goes direct to mixer (the guitar player use cabinet simulator), the only speaker in the studio is the Eminence + Selenium.

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