

1st April 2014 Room Equalizer Wizard with JRiver Media Center

I wanted to document a very neat feature where you can use Room Equalizer Wizard (REW) to automatically generate a list (say 20) parametric EQ's that are generated by the program automatically based on the measured frequency response of your speakers. How cool is that? Home theater receivers have been doing this for a long time but I've always found them to be compromised. Using the Dayton UMM-6 Reference Microphone is a major step ahead along with the excellent REW software. This post assumes your using a music server which has replaced your CD player. If you haven't made the move to a music server then you should. The sound quality is far superior to any CD player. Just look at the recent finding by UHF Magazine. They found that the Stello U3 USB interface > Moon 300D DAC beat out their reference Linn Unidisk 1.1 CD player.

So let's get started!

First Download the two pieces of software.

JRiver Media Center

<http://www.jriver.com/download.html> [<http://www.jriver.com/download.html>]

REW

Requires a login for Home Theater Shack

<http://www.roomeqwizard.com/> [<http://www.roomeqwizard.com/>]

<http://www.hometheatershack.com/forums/> [<http://www.hometheatershack.com/forums/>]

Installation of JRiver is very straight forward. You just need to specify what output you'd like to use from your PC or

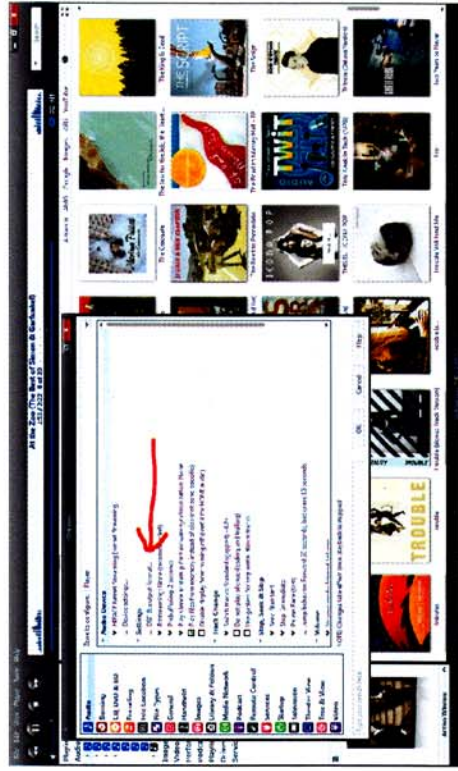
laptop. In my case I'm using my the USB output on my laptop so I selected the Kernel Streaming option.



[<http://3.bp.blogspot.com/-WLU2BtLBh-Q/UznmwYyJVkOI>

[/AAAAAAAAABTQ/t5aXqS06USQ/s1600/jriver+output.PNG](http://3.bp.blogspot.com/-WLU2BtLBh-Q/UznmwYyJVkOI)]

You will notice the parametric equalizer under Options > DSP & Output Format



[<http://1.bp.blogspot.com/-XE5PY0nax0g/UznxSg5ZgOI>

[/AAAAAAAAABTY/IHxoYDYjH77M/s1600/dsp.PNG](http://1.bp.blogspot.com/-XE5PY0nax0g/UznxSg5ZgOI)]

Shown are the parametric EQ settings I've already created. To create one you simply click Add > Adjust a Frequency (Equalizer Filter).



[<http://3.bp.blogspot.com/-nAEjtiDP-k4/UznyiUU42YI/AAAAAAAAABTo/eRJezMNGD7Y/s1600/peq.PNG>]

Run REW software and load your calibration file if required for your measurement mic.



[<http://1.bp.blogspot.com/-90DkmUpLxkc/Uznze9AOYsI>]

Product Description

The Dayton Audio UMM-6 is a professional quality USB measurement and recording microphone that is designed to work with industry-standard third party recording and measurement software. The rugged construction and compact size make it the perfect companion for audio professionals who must work on location performing acoustic analysis, monitoring audio levels, or recording. Each UMM-6 is individually calibrated using a laboratory-standard measurement microphone, for consistent, repeatable measurements on the PC that match the level of precision previously offered only by expensive stand-alone microphones and measurement equipment.

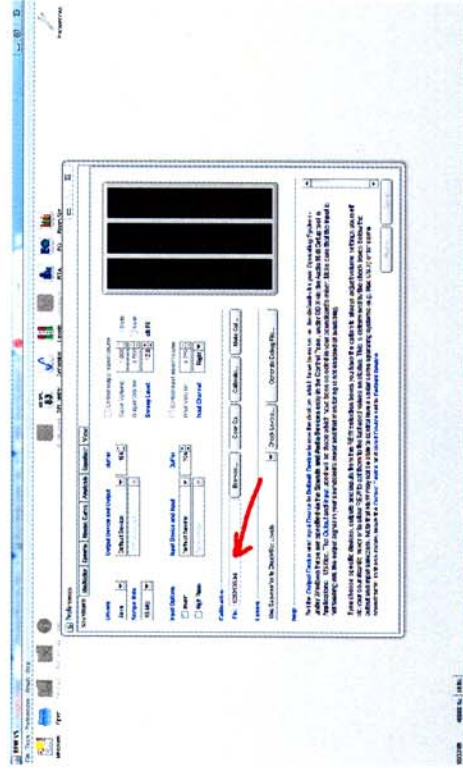
A carrying case with foam insert, 10 ft. USB connection cable, and a mini tripod mic stand are included with the UMM-6.

Specifications: • Capsule Type: Precision 6 mm electret condenser • Polar Response: True omnidirectional • Frequency response: 19-20,000 Hz (Calibrated) • Sensitivity: 1.142 mV @ 1K ohm, 10 mIPa (-40dB) / re 0dB = 1V/Pa • Maximum SPL: 127 dB @ 1000 Hz; 127 dB • SN ratio: 70 dB (A-weighted) • Connector: USB B Female • Weight: 1.88 grams.



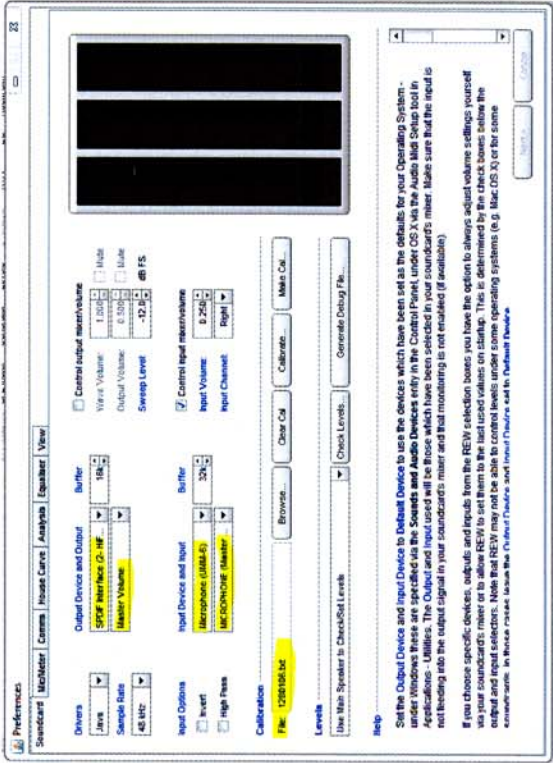
[/AAAAAAAAABT0/zDjJyzuEhl/s1600/rew+pref.PNG](#)

[<http://2.bp.blogspot.com/-B5I0PFMFrgA/Uzn1DGuOWPI/AAAAAAAAABUE/MW2IBZp56Zo/s1600/umm6.PNG>]



[http://3.bp.blogspot.com/-HbQyNQJevk/Uzn0jwT72II/AAAAAAAAAABT8/7cIDxl_DxZM/s1600/cal+file.PNG]

Next you'll want to set the appropriate output and input.

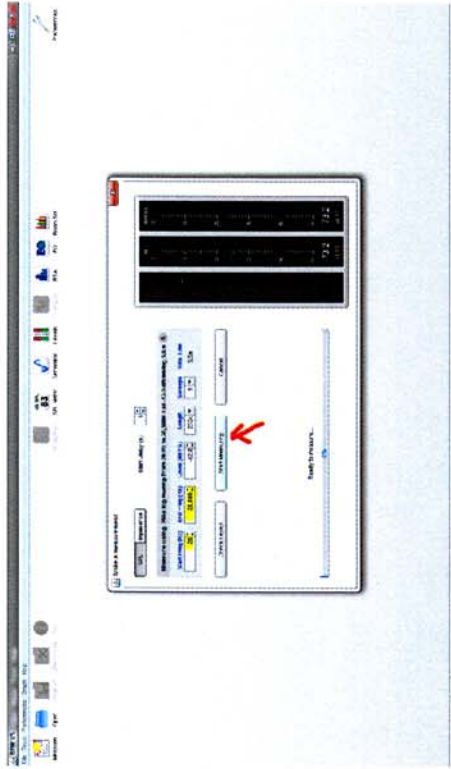


[<http://3.bp.blogspot.com/-cV9EYUNhDSY/Uzn3D7zZLLPI/AAAAAAAAABUQ/58SIfdpuhl/s1600/rew+preferences.PNG>]

You can then begin measuring.

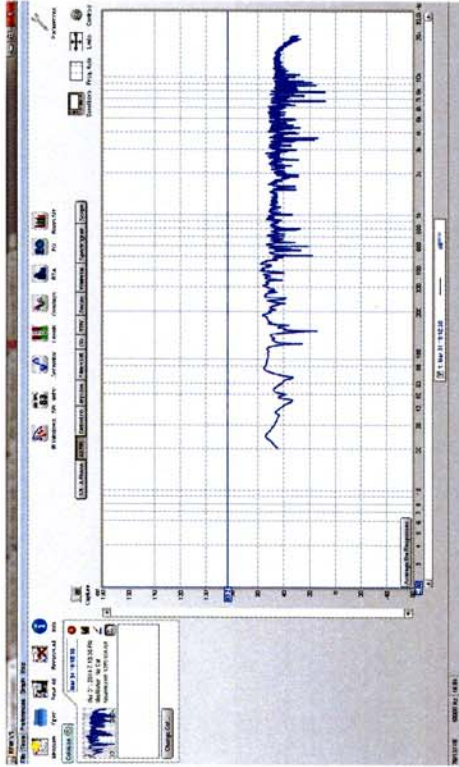


[<http://3.bp.blogspot.com/-tTaICxSyAwE/Uzn3R41tlbI/AAAAAAAAABUY/weUgcPae8IA/s1600/rew+measure.PNG>]



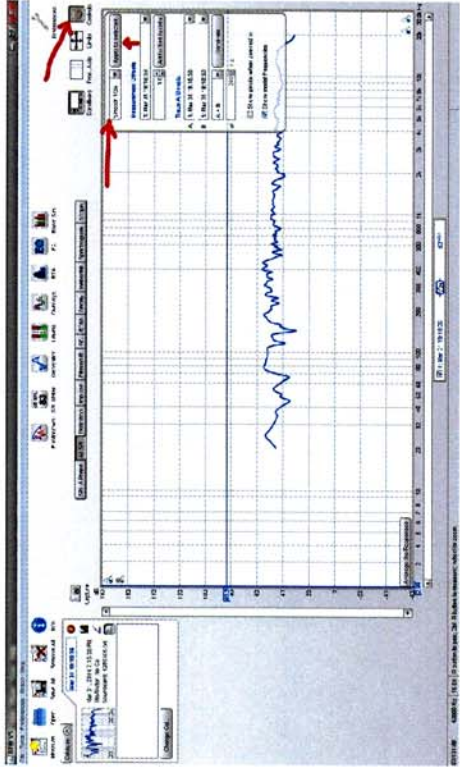
[<http://2.bp.blogspot.com/-MS4FwsFBalk/Uzn3i7cBtAI/AAAAAAAAABUg/L1bGaGpiqMo/s1600/measure+button.PNG>]

After you run your measurement you should get something like this.



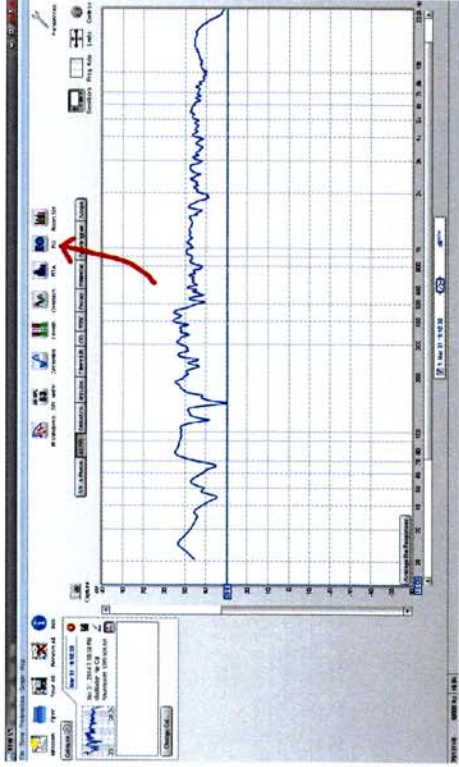
[http://2.bp.blogspot.com/-Z6bHIZq4QKY/Uzn3_k46xil/AAAAAAAAABUo/D96KPkwAlm4/s1600/results.JPG]

You may want to apply some smoothing to your results.

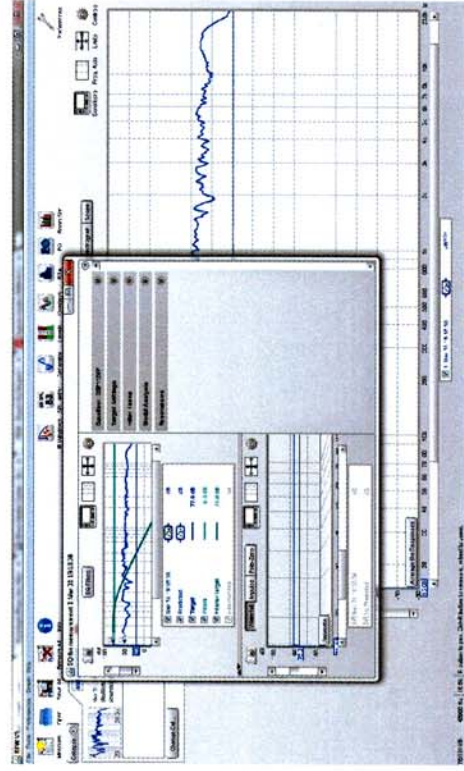


[<http://1.bp.blogspot.com/-8wPKA44uBbY/Uzn4mFjRRfI>]
/AAAAAAAAABUw/kM9vMjVzw4/s1600/smoothing.JPG]

Next we want the REW software to automatically generate an PEQ setting to flatten your curve.

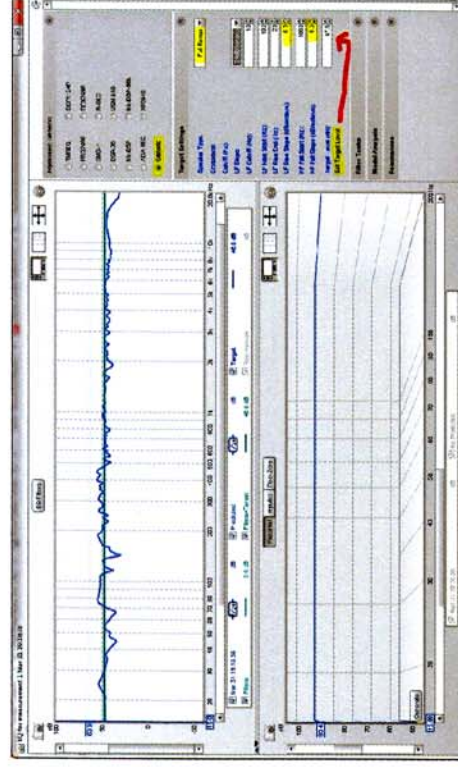


[<http://3.bp.blogspot.com/-G0e54g0cws/Uzn5P1v5ThI>]
/AAAAAAAAABU4/OadnKkhHP_4/s1600/rew+eq.JPG]



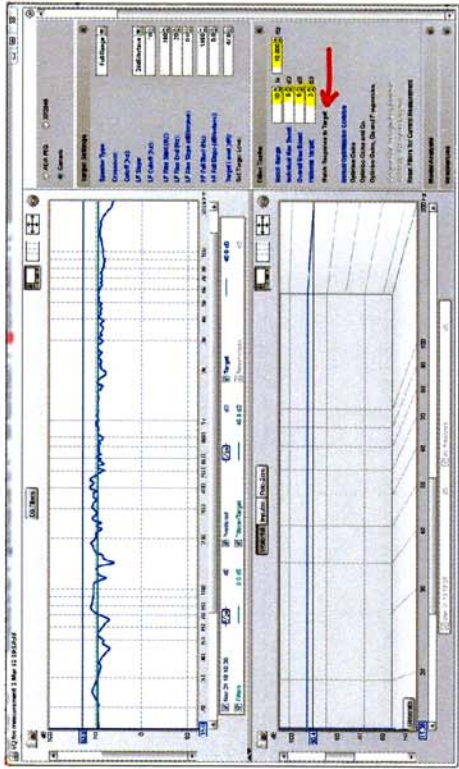
[http://4.bp.blogspot.com/-cSIFzpIqJLk/Uzn5bVoB6SI/AAAAAAAAABVA/6R686j9CaJo/s1600/rew+eq2.JPG]

Next you'll want to work your way down the right side changing the setting as follows:



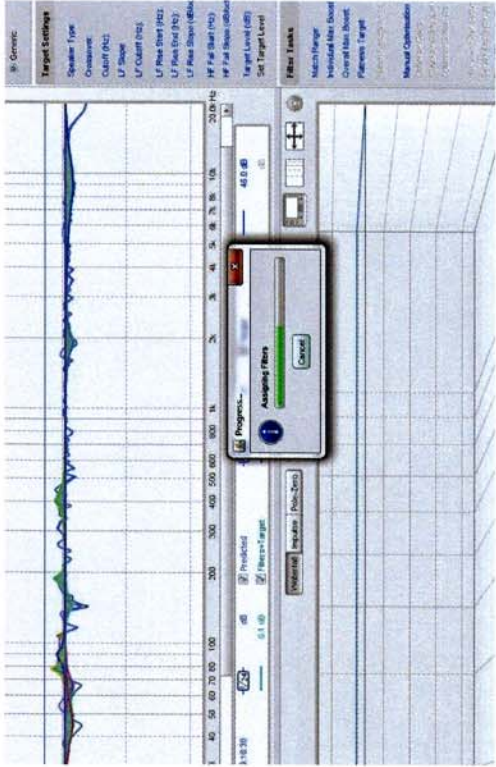
[http://2.bp.blogspot.com/-Ym9-UPFv4u4/Uzn6KhXl9BI/AAAAAAAAABVM/OePm75L2YQM/s1600/target+level.JPG]

Continue down the right side and once everything is set click on "Match Response to Target".



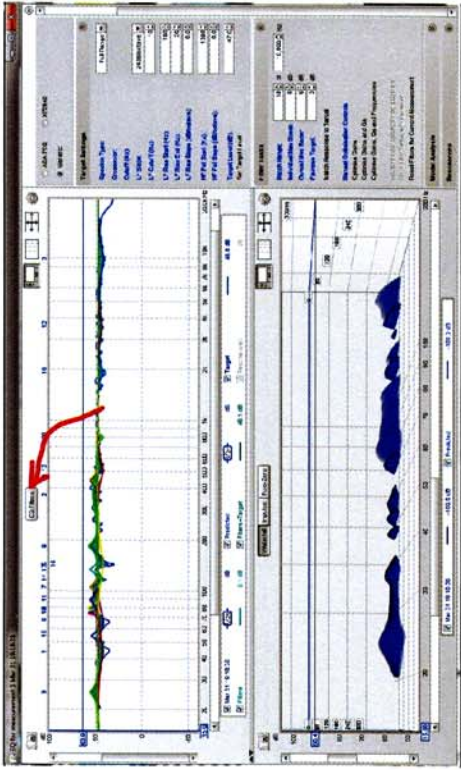
[\[http://3.bp.blogspot.com/-JVDeB0vpLDI/Uzn66fW62SI/AAAAAAAAABVU/w6xNG9zJNA4/s1600/match+target+response.JPG\]](http://3.bp.blogspot.com/-JVDeB0vpLDI/Uzn66fW62SI/AAAAAAAAABVU/w6xNG9zJNA4/s1600/match+target+response.JPG)

Next you will see your computer generate all the parametric EQ settings required to match to the target response within a tolerance that you can specify. In my case I selected 3 dB.



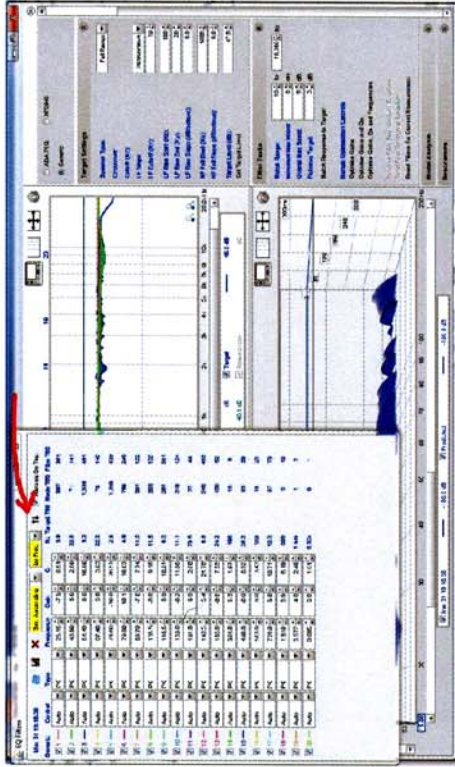
[<http://4.bp.blogspot.com/-ukiBJ7k6T6U/Uzn7RuiAKbI/AAAAAAAAABVc/8N5RKAIsHuc/s1600/matching....JPG>]

When that is complete your screen will look like this. You'll want to click on EQ Filters to see the individual settings required.



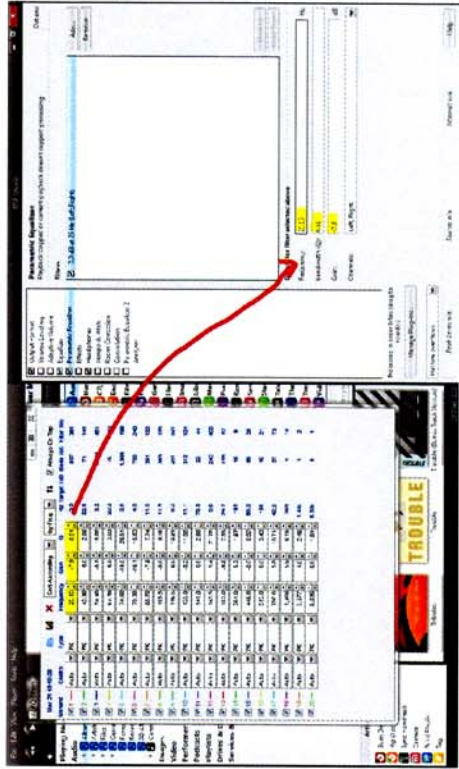
[http://2.bp.blogspot.com/-vOd6T_ysqnA/Uzn7oAybh7I/AAAAAAAAABVk/HEO0-427-40/s1600/after+matching.JPG]

You'll want to sort the list based on frequency.

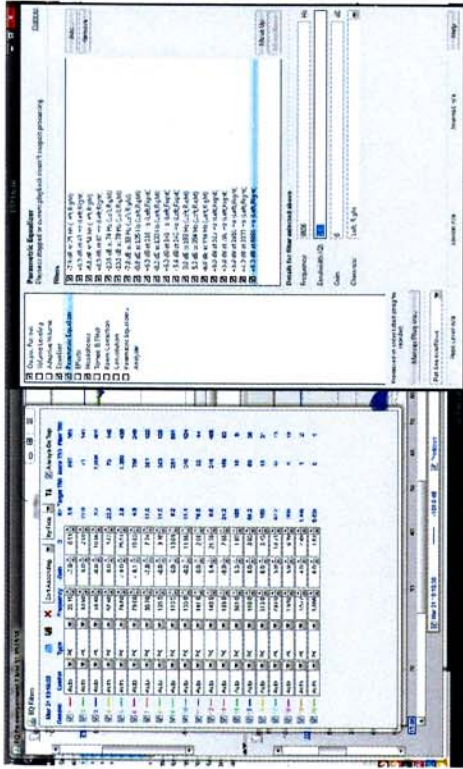


[<http://2.bp.blogspot.com/-GvDXGqXnv8/Uzn8bsgL5al/AAAAAAAAABVwWF07-d4AW30/s1600/sort.JPG>]

Next you'll take these values and manually input them into JRIver. It takes some time and you should use split screen to do this.



[\[http://4.bp.blogspot.com/-DilOGMEZ7IM/Uzn9g83JnOI/AAAAAAAAABV0I-pz5ehs9UU8/s1600/transfer.JPG\]](http://4.bp.blogspot.com/-DilOGMEZ7IM/Uzn9g83JnOI/AAAAAAAAABV0I-pz5ehs9UU8/s1600/transfer.JPG)



[\[http://4.bp.blogspot.com/-ptUS-pKSnPA/Uzn_bpHVtOI/AAAAAAAAABV8IqOpwVxH64OA/s1600/done.JPG\]](http://4.bp.blogspot.com/-ptUS-pKSnPA/Uzn_bpHVtOI/AAAAAAAAABV8IqOpwVxH64OA/s1600/done.JPG)

You are done! Close the window and apply the settings. If you don't like the results I suggest limiting the maximum

boost permitted when you match the response to the target. Say only 3 dB instead of 6 dB. If you really want to nail it down you can measure each speaker individually.

