Measuring the Dynamic Range of Your Hearing

WARNING: EXTREME CARE SHOULD BE TAKEN TO FOLLOW THE STEPS OUTLINED SO AS NOT TO RISK DAMAGE TO YOUR HEARING OR YOUR AUDIO SYSTEM. PROCEED AT YOUR OWN RISK.

Measure the Dynamic Range of your Hearing easily

Often, people debate the dynamic range of their hearing and thus the needs of their recording system. Here is a method and a file that allows users to measure it easily. The file that you will be downloading starts out with a 440 (A4) note at full-scale signal level (0 dB) for ten seconds. Then, it goes through a two minute slew in loudness from - 90 dB and then back to 0 dB again. You will need a decent sound system to run this test (10 Watts per channel is adequate for this test when using near-field speakers). The speakers on a laptop computer will not be able to achieve the power levels needed for this test. If you decide to run the test using a set of headphones, you will need to convert this mono file to stereo first using the file conversion filter found under the filter menu. Use the "From Mono to Stereo" feature to accomplish this. This test is best performed with low ambient noise present. Turn off all other sources of audio or noise that you have control over before running the test. For example, do not run the test with the TV or Radio playing or other appliances running (clothes dryer, dishwasher, washing machine, etc.).

To run this test, open the test file and play it. Then, adjust the loudness of your system during the first 10 seconds of the file playback to what you would consider the loudest level that you would ever listen to an audio system (being very careful that is kept below the threshold of aural pain). Then, watch the software VU meter on the right hand side of the software program as it starts at -90 dB and slowly increases to 0 dB. Simply make a mental note of the VU meter indication where you just barely begin to hear the 440 Hz signal again. That dB number shown on the VU meter is roughly the dynamic range of your hearing at 440 Hz.

To measure the dynamic range of your hearing, you will need a copy (or a demo version) of the Diamond Cut Software. You will be using the high resolution VU meter that this software has by putting the VU meter in Log mode. To do this, go to the Edit/Preferences/General Tab and check the box that says VU Meter and check Log. Below, is a detailed procedure that you can follow:

Setup:

Download the trial version of Diamond Cut Productions DCArt10.xx (or DCForensics10.xx) if you do not own a copy. A free trial version of DCArt10.5x can be found at this link:

https://www.diamondcut.com/Downloads/DC105Setup.msi

Install the software (it is a free trial version)

Next, do the following - - -

Go to the software's Edit/Preferences/General tab and find the VU meter settings.

Set the VU Meter Scale to “Log” and apply it.

Next, download this file to an easily locatable directory (consider using the desktop as a convenient holding place for it):

Dynamic Range Tester - 440 Hz, -90 to 0 dB Test File is found here:

http://www.diamondcut.com/Downloads/...angeTester.wav

Bring the test file into the software program via the File Menu/Open Source and then proceed with the test outlined above.

Note 1 – **VERY IMPORTANT: DO NOT** turn the level up on your sound system past a comfortable point. Do not increase it to the point of pain or sound system clipping as it could damage your hearing and/or your sound system.

Note 2 - There are other variables that impact this measurement, so it is by no means absolute in terms of accuracy, but it will give you a decent ball-park figure. For example, your sensitivity at 440 Hz may be different than it is at 1000 Hz (or any other frequency). Also, the ambient noise in the room in which you conduct this test will impact the result.