Rephase

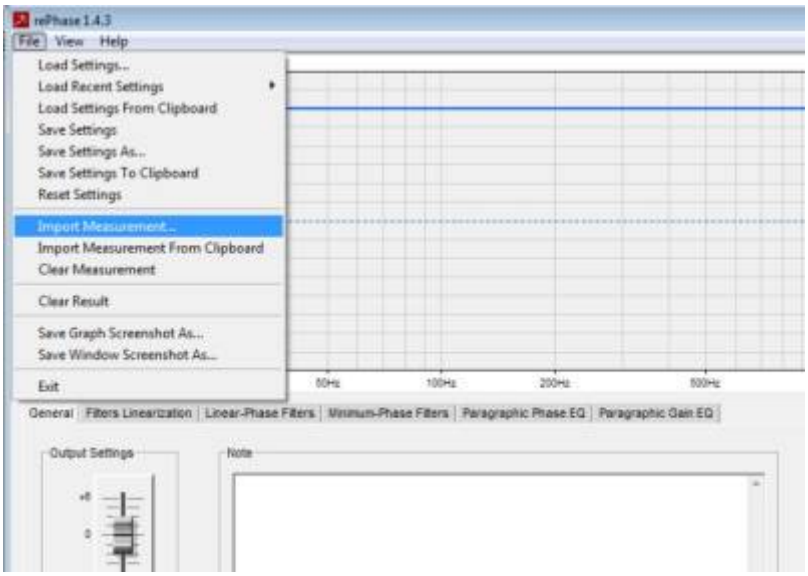
Rephase will be used to do the following:

1. tweak the EQ filter settings generated by REW and;
2. create the FIR filters for the BruteFIR software convolution engine that runs on Volumio

For each individual stereo channel do the following steps:

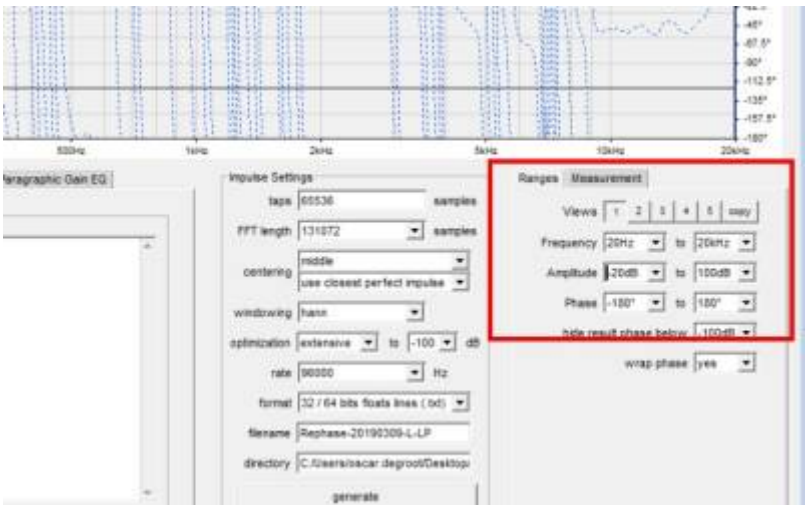
Load Measurement

From the file menu choose “Import Measurement…” to import the REW measurement.



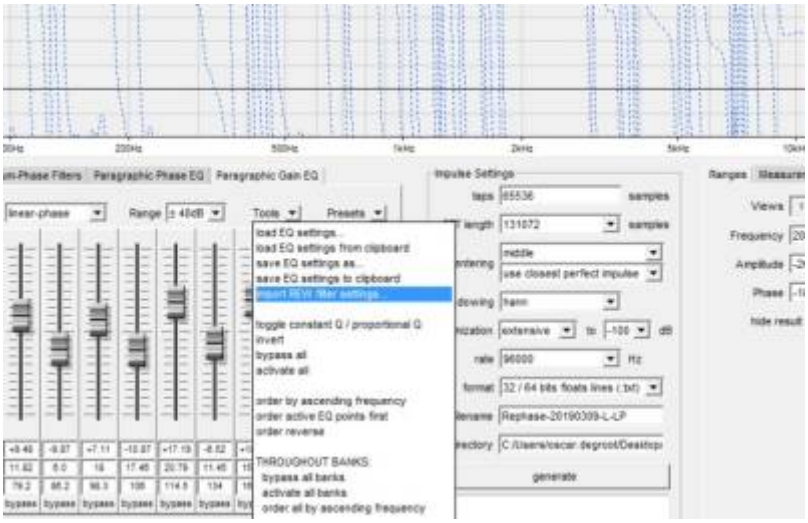
Adjust the visual ranges

Sometimes the measurement graph from REW is not directly visible, because it falls outside the default visual range of Rephase window. Choose Ranges and adjust Frequency (20Hz - 20kHz) and Amplitude (-20 dB to 100 dB).



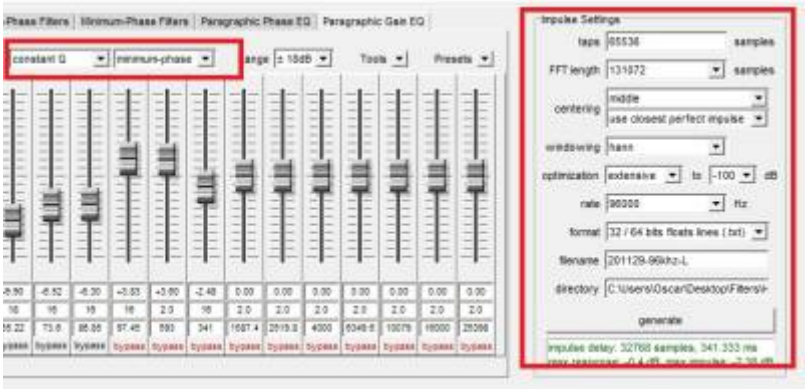
Import the REW filter settings

The EQ filter settings generated by REW can be loaded into Rephase by: Under the “Paragraphic Gain EQ” tab choose “import REW filter settings … ” in the “tools” list. After loading, Rephase displays the effects on the EQ settings on the frequenty displayed curve. The parametric EQ filters can be changed and optimized manually.



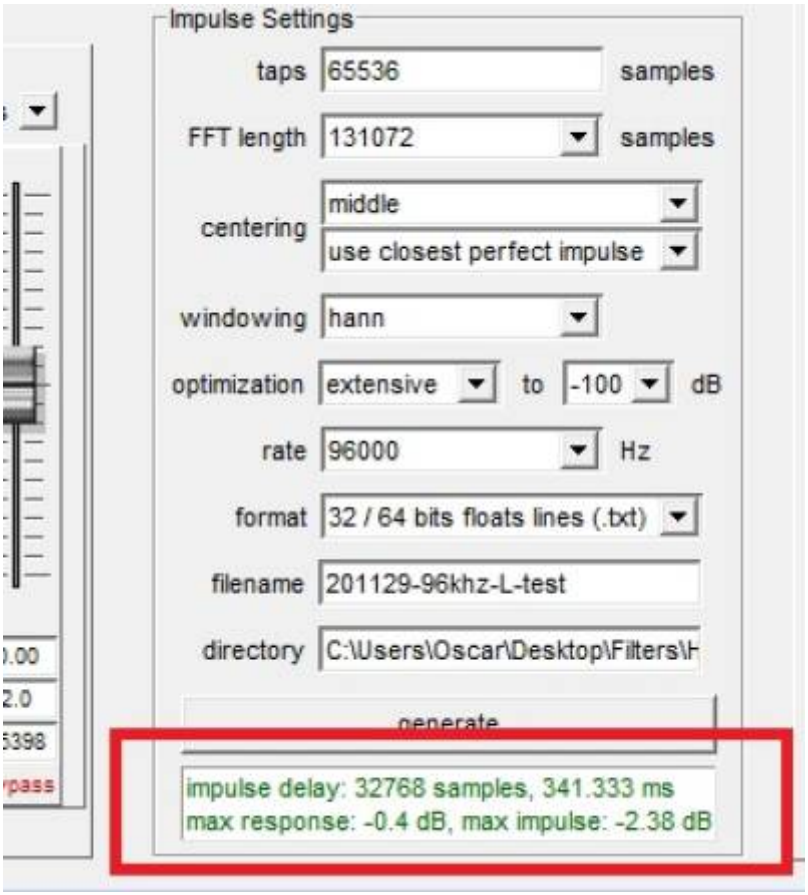
Configure parameters and generate filter

Configure following rePhase parameters: set taps to 65536, rate to 96000, filename to the name of of the filter and choose directory in which rephase will create filter. For simple EQ amplitude corrections use “**Minimum Phase**”. Hit generate to generate and save FIR filter Save your work under File/Save settings



Maximum Response Peak Output

Position the target curve at 100% below 0 dB by adjusting the potentiometer located under the first Rephase tab. It is after having clicked on the generate button that you have the maximum gain values obtained. max response: -4.33 dB on the example above. If this value is greater than 0 dB, you are not good at all, you are going to have distortion. This value must be <0dB, there is a 0dB truncation for all values that exceed 0dB, I'm not explaining the distortion that goes with it. A good setting is between -0.5 dB and -1.0 dB, with the same value on channels D and G. The example above shows the right channel. The maximum response is at -0.62 dB on the G channel, it is the G channel which has chosen the attenuation to be used.



Why is it absolutely necessary to mitigate? Imagine a power surge at both 100, 1000 and 10000 Hz, exactly at the same time when recording. With the absence of phasing, the three power peaks arrive shifted in time: We can easily have 300 ° of phase rotation between 100 and 10,000 Hz. With phasing, power peaks are added. The digital part will be more in demand, hence the absolute need to attenuate. The dynamics will be greater since the strong signal will be stronger, the weak signal will be weaker. This point is important, the pavilions are not the obligatory passage to increase the dynamics of your installation. The example is certainly open to criticism, but it still gives a good indication of the reasons which justify a digital attenuation.