

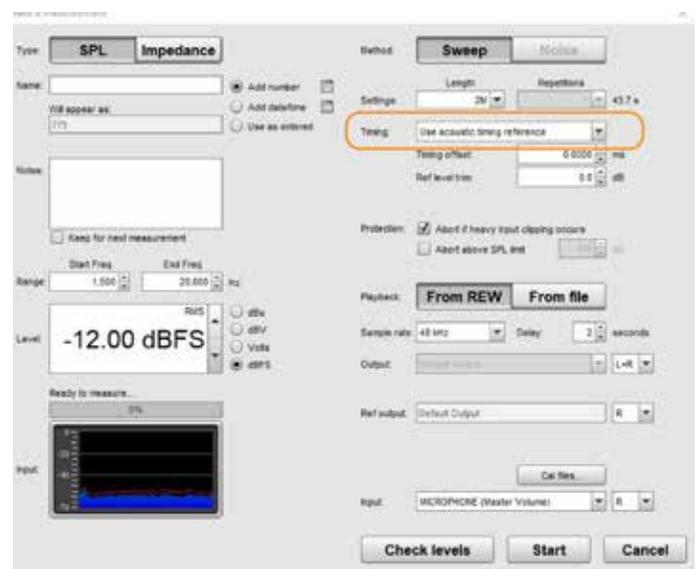
## REW average measurements and impulse correction rePhase

Tutorial is meant to be use for speakers/ drivers integration in to your listening area. Taking measurements point mikrofon`s tip vertically ,towards sealing and use 90° calibration file for your mikrofon, resulting much better measuring results for REW.

### 1.Preferences of REW.



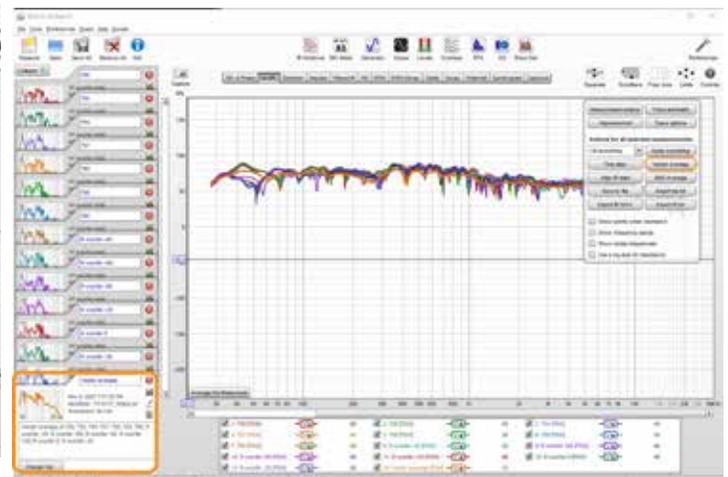
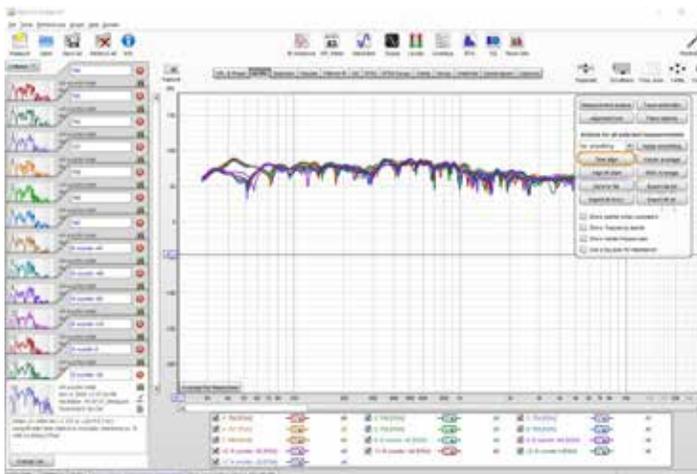
*1/6th octave smoothing and 15 cycles FDW to generate the correction filters and avoid 'micro-managing' the amplitude and phase corrections.*



*Timing reference activated.*

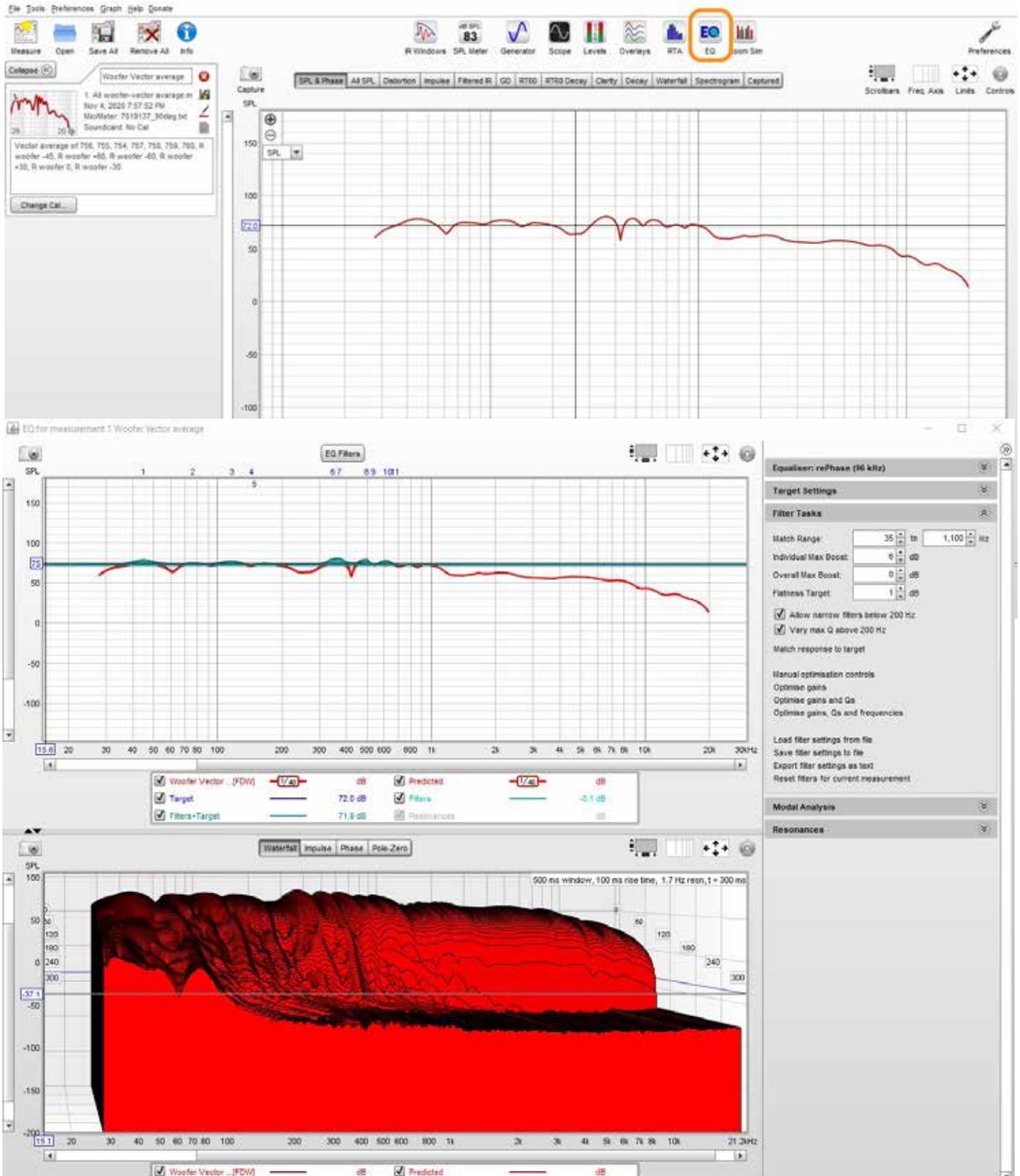
### 2.Averaged measurements.

Take several meaningful measurements representing your listening area . Import all of them in to the REW .  
 "All SPL" -> "Control" -> "Time Align" -> "Vector average".

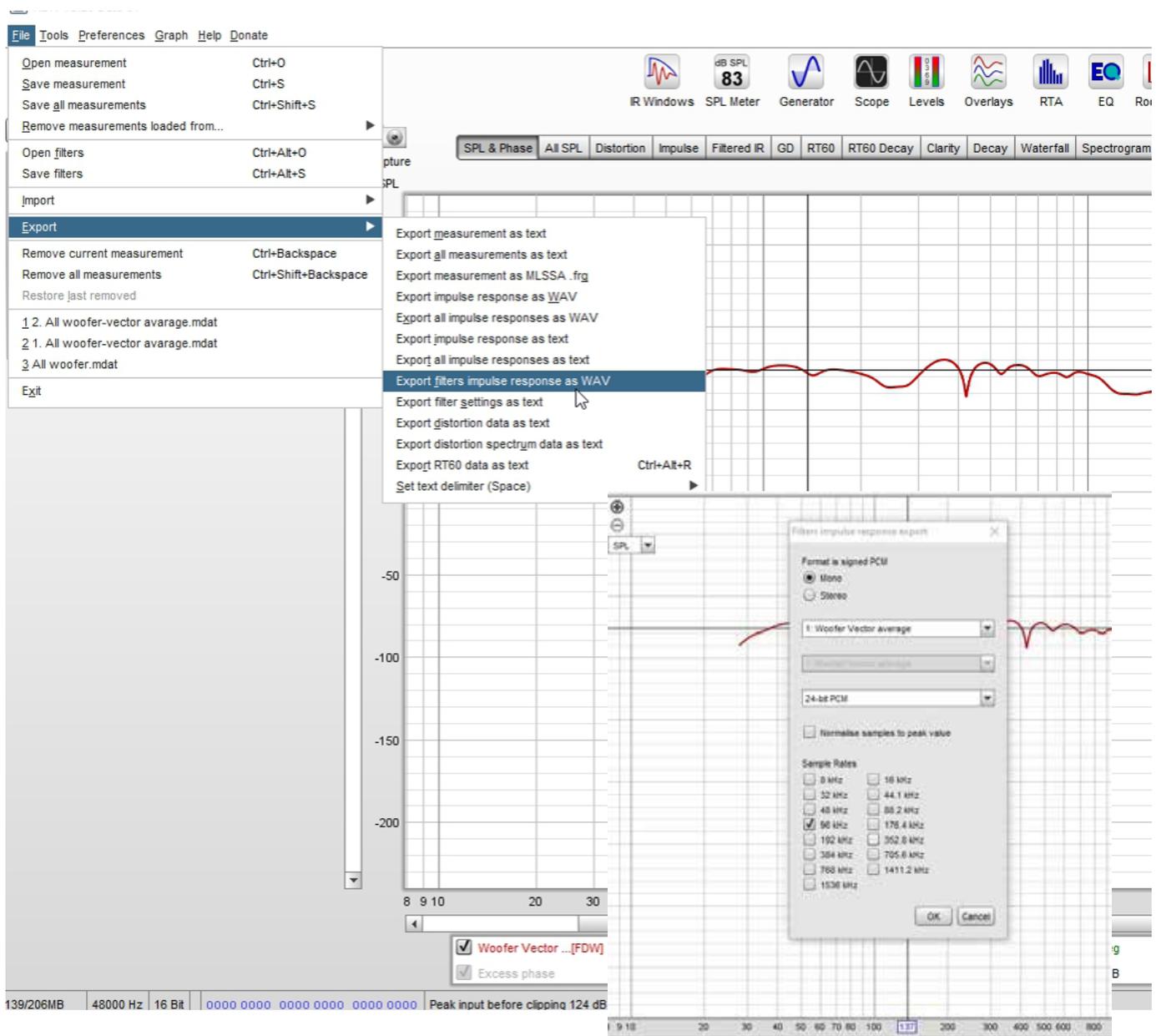


### 3. PEQ generated filter

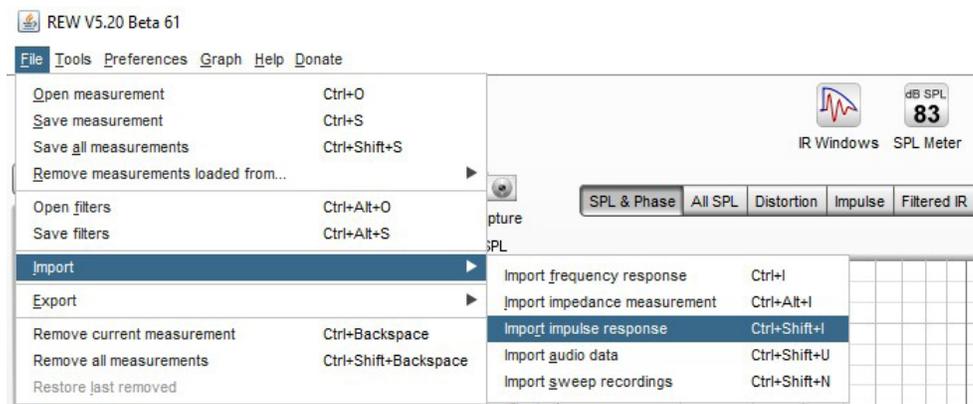
We have ended up with REW generated "Vector average" measurement. Next is to make PEQ filter for "Vector average" measurement. At this point you would like to save PEQ filter to be used together with FIR correction in your DSP. Or exported PEQ filter before as an xml for RePhase to create a combined filter -step **6. Combined filter**



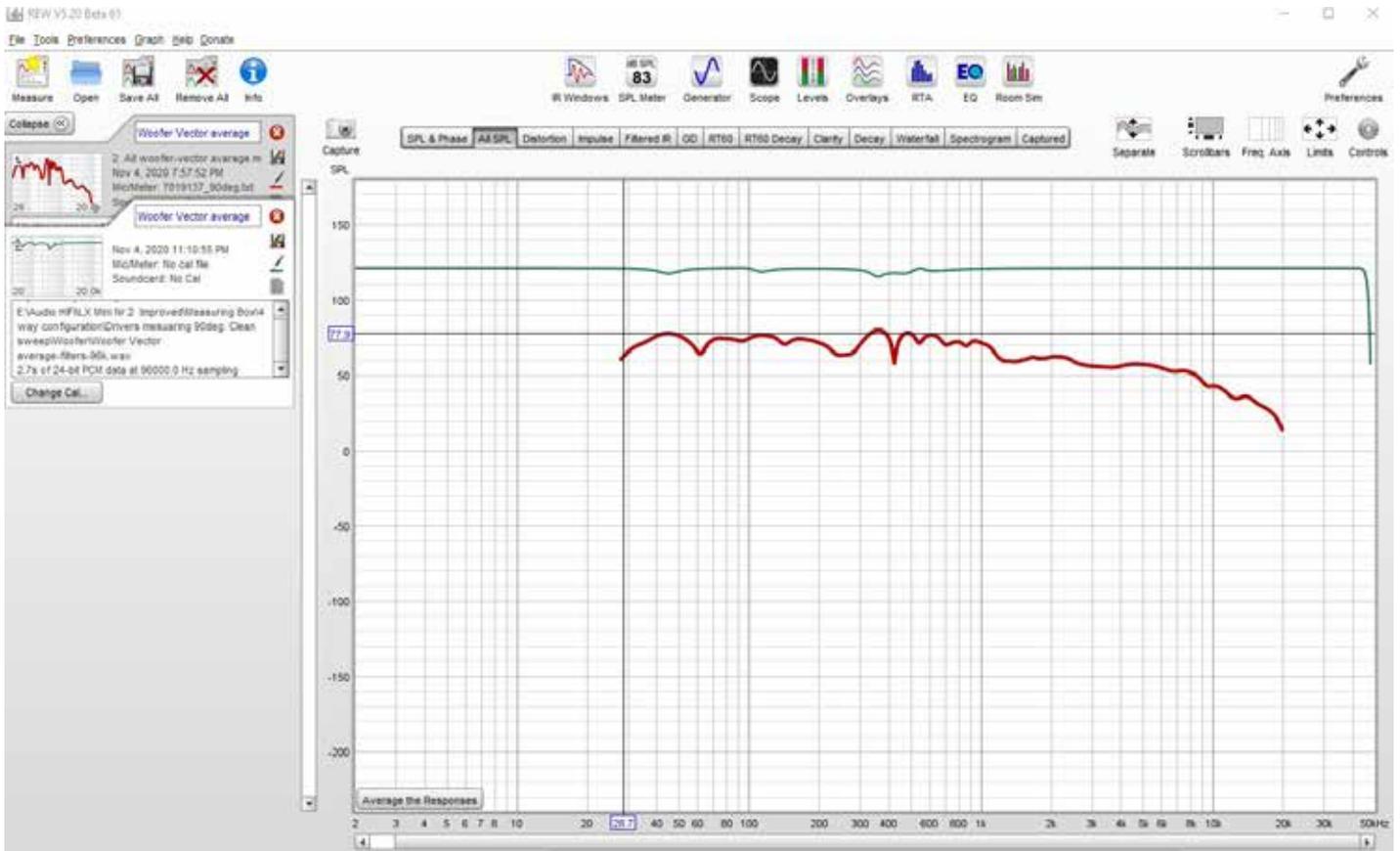
File-> Export -> Export filters impulse response as a wav file and save it .



Import wav file. Main REW window " All SPL." Controls--> File--> Import --> Import impulse response.



Result is "Vector average" and "Vector average .wav" measurements with in a main REW window "All SPS" tab activated.



#### 4.Trace Arithmetic.

Controls -> Trace arithmetic -> Choose both measurements in windows A and B -> Choose A\*B -> Generate

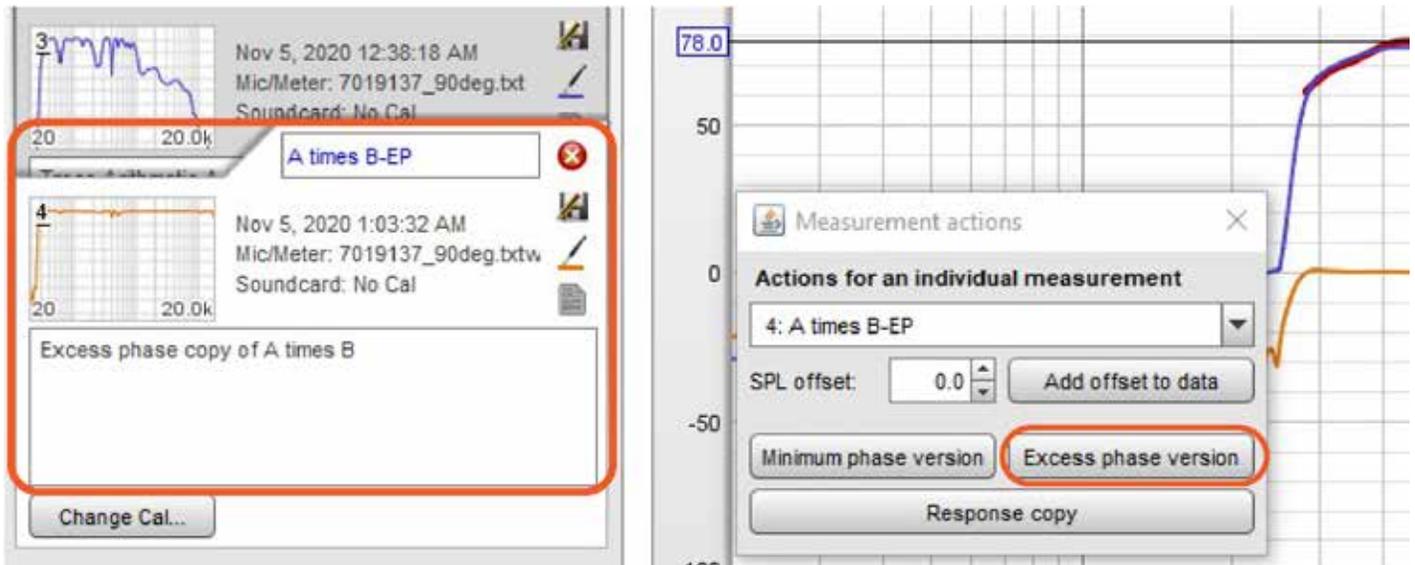
The screenshot shows the 'Trace arithmetic' dialog box in the REW software. The dialog box has two input fields, A and B, with dropdown menus. A is set to '1: Woofer Vector average' and B is set to '2: W. Vector average wav'. Below these fields is a dropdown menu for the operation, which is currently set to 'A \* B'. A 'Generate' button is located to the right of the operation dropdown. The dialog box is overlaid on a plot of the two traces from the previous screenshot. In the background, the 'Controls' menu is open, and the 'Trace arithmetic' option is highlighted with a red circle.

Controls -> Measurement actions -> A times B -> then enter a negative "SPL offset" to match "Vector average" value -> when you are happy press "Add offset to data".

The ultimate level does not matter for this only relative level so use the same amount for each channel. If the level not be reduced the measurement will end up at 150dB or more.



When press " Excess phase version". That will result to "A times B-EP" measurement .



## 5. Finalization

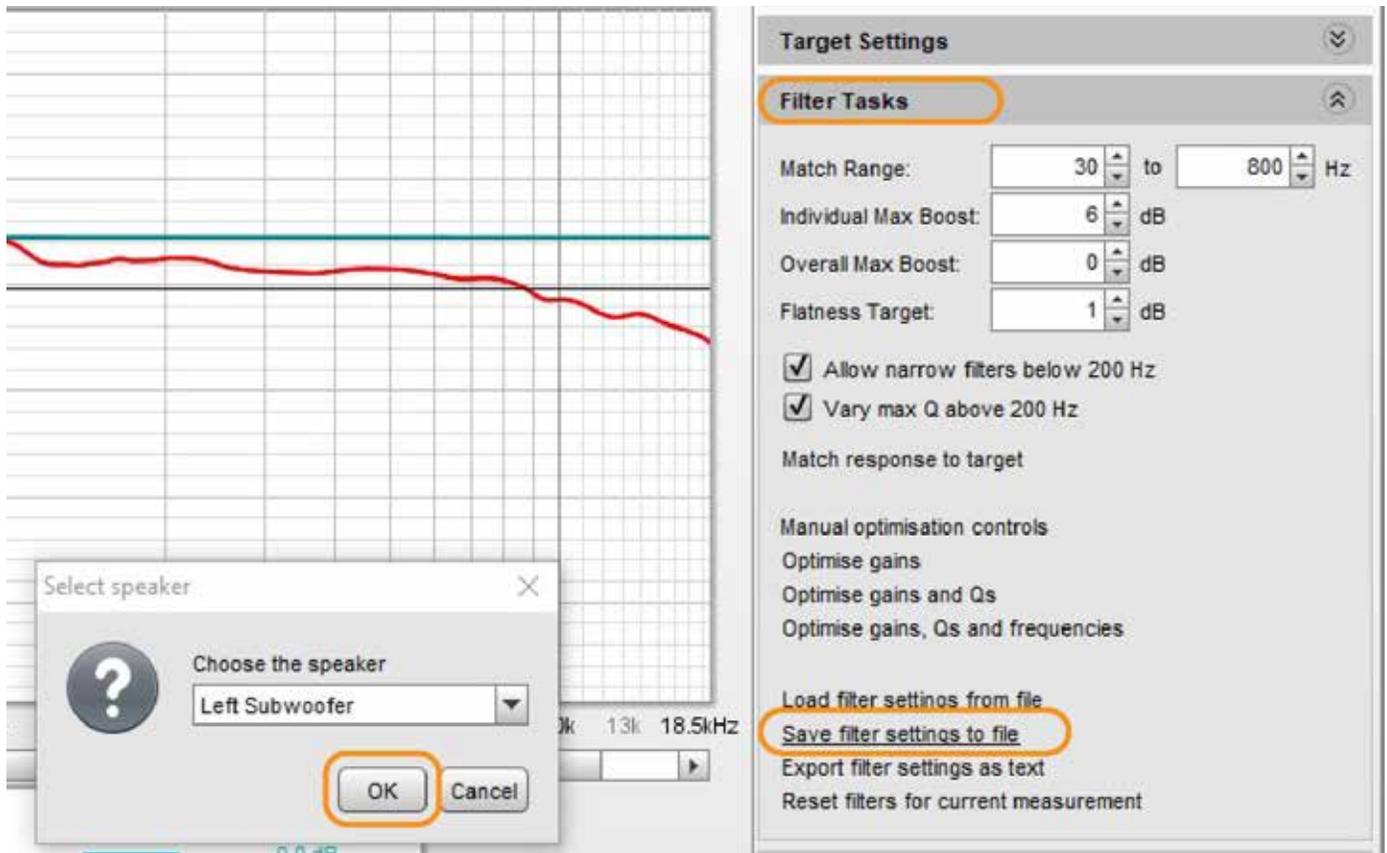
Main REW window " All SPL"File>Export>Export measurement as text.

Import saved txt file to rePhase. Then from rePhase generate \*.bin file be used in MiniDsp FIR filter.

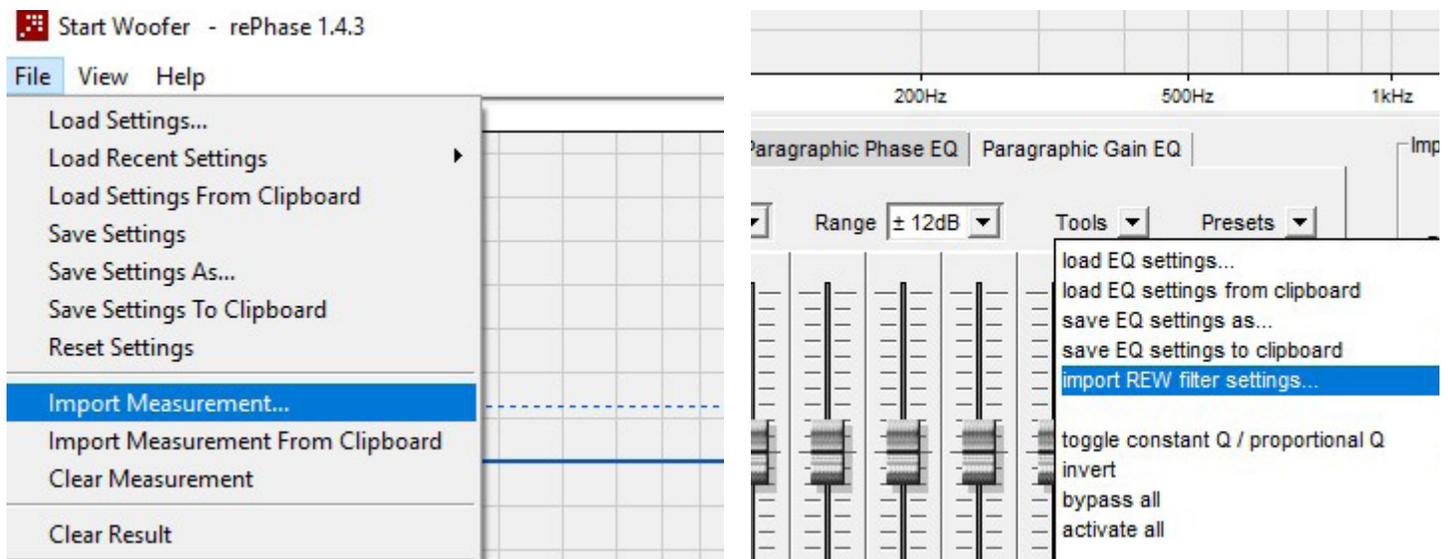
## 6. Combined filter

Everything the same as in the first part of step **“3.PEQ generated filter”**.

“Vector average ” measurement. Next is to make PEQ filter for “Vector average ”. Choose “Equalizer Rephase” -Filter Tasks-Save filter settings to file. Filtar will be saved as \*.xml file



Open Rephase import \*.txt file made in step **5.Finalization**. Then : Paragraphic Gain EQ -> Tools-> Import REW filter settings and import saved \*.xml file



Finally "Generated" file in RePhase for your device.

Star Woofer - rePhase 1.4.1

File View Help

General Filters Linearization Linear-Phase Filters Minimum-Phase Filters Paragrophic Phase EQ Paragrophic Gain EQ

Bark D1 EQ type constant Q minimum-phase Range  $\pm 12$ dB Tools Presets

dB: -12, 0, +12

Hz: 4.54, 9.17, 18.3, 36.6, 73.2, 146.4, 292.8, 585.6, 1171.2, 2342.4, 4684.8, 9369.6, 18739.2, 37478.4

bypass bypass

Impulse Settings

taps: 1024 samples

FFT length: 16384 samples

centering: 0%

use closest perfect impulse

windowing: blackman

optimization: none to -100 dB

rate: 96000 Hz

format: 32 bits IEEE-754 (bin)

filename: woofercombinedfilter

directory: E:\Audio\HFVFX\MiniDSP 2\Improv

generate

impulse delay: 0.001 samples, 0 ms

max response: 0.21 dB, max impulse: -0.05 dB

Ranges Measurement

import from file import from clipboard

bypass clear

gain offset: 0 dB

time offset: 0 msec

hide magnitude hide phase

invert response invert polarity

name: to rephase

taps: 307 mag points: 367 phase points

ranges: [10Hz, 20kHz] [-17 fdb, 0.5dB]

My settings for MiniDsp FIR filter