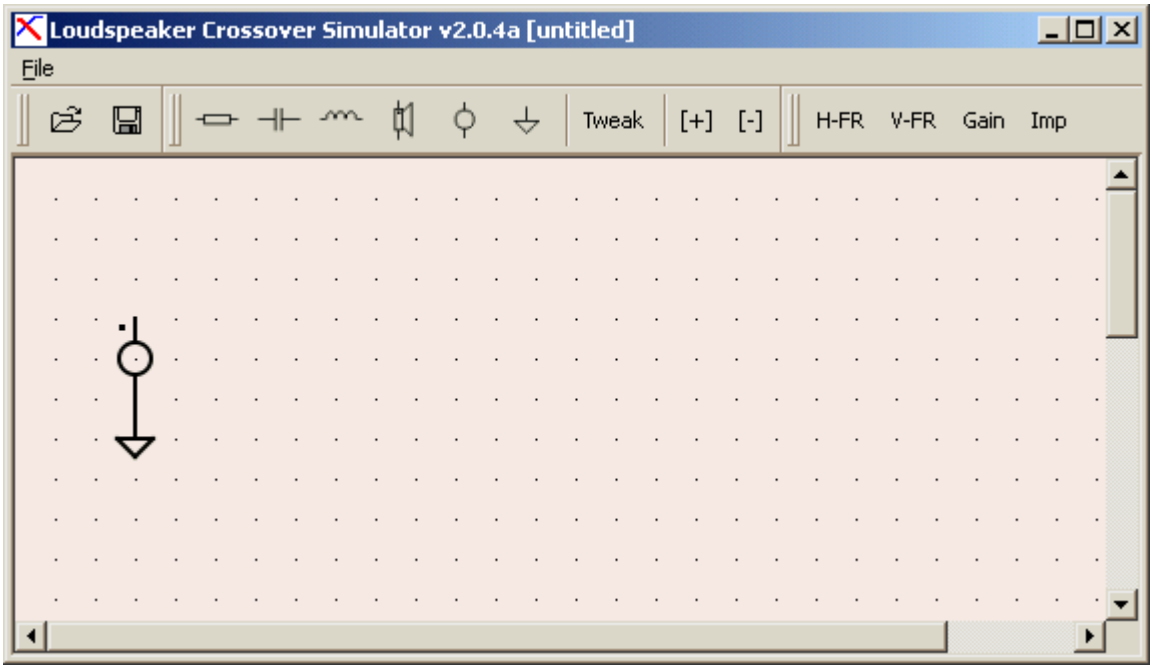
LS Crossover Designer

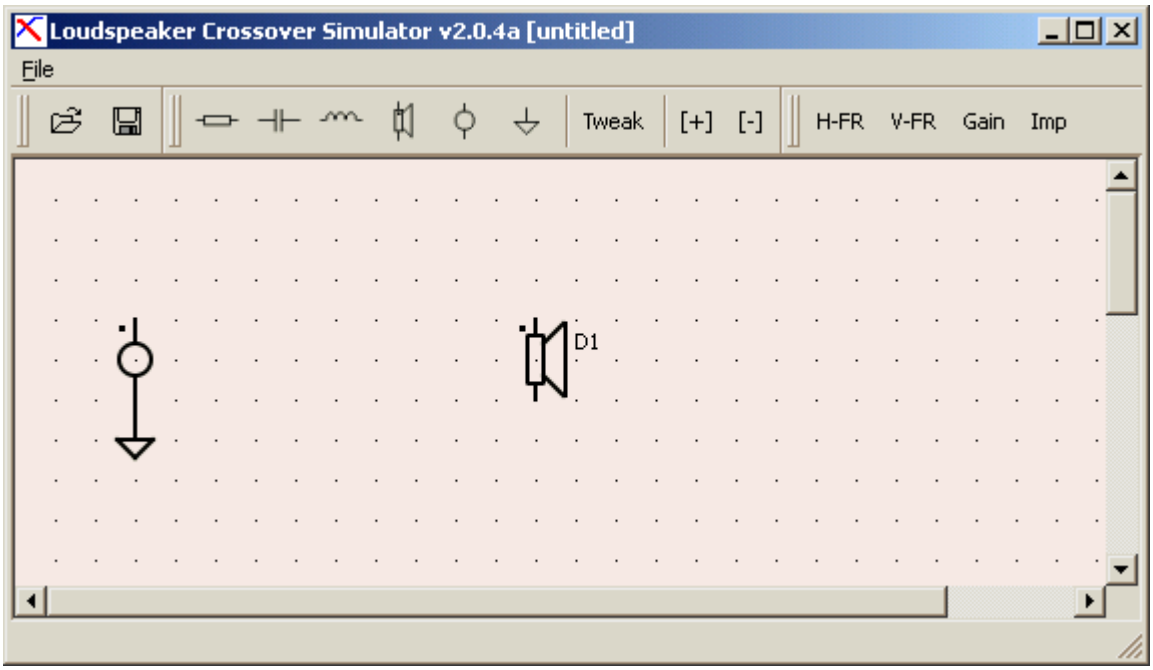
Xover 2.0.4a
Simple Instructions

Xover is a CAD tool for loudspeaker crossover simulation. Version 2.0.4 is given "as is" to DIY community for free. What follows are some very basic instructions for those interested. There will be no real user guide for this version of the software. Use it for whatever you want and at your own risk. There will be new version released in near future, which will be much more functional and well documented.

1) Run the application. The only component initially present is a voltage source connected to ground.

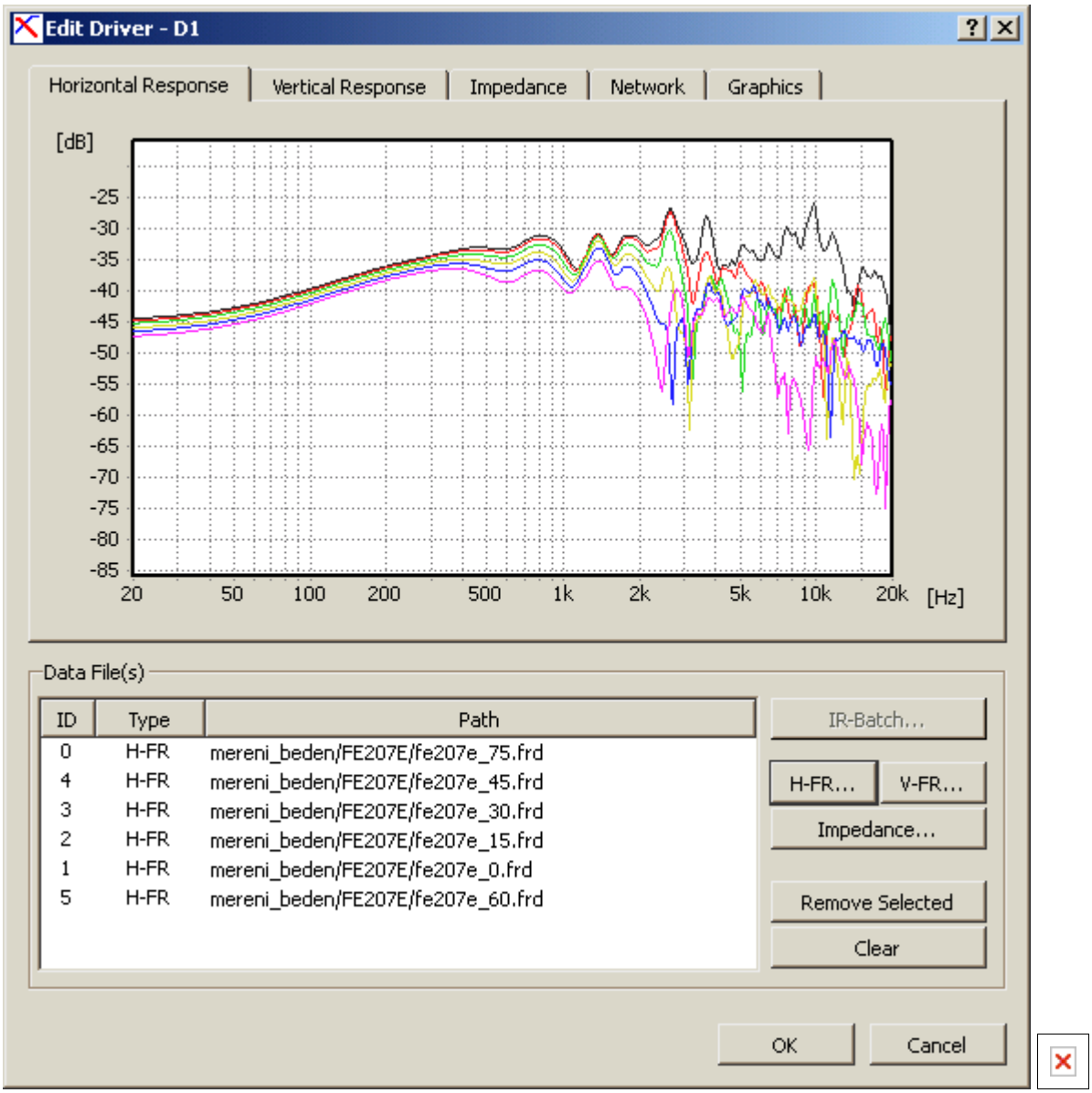


2) Add a driver to the circuit via "Add Driver" toolbar button. Enter a name for the driver when asked.
Then place the driver somewhere in the circuit by pressing left mouse button (it will follow mouse cursor as you move it).



3) Load data for the new driver:

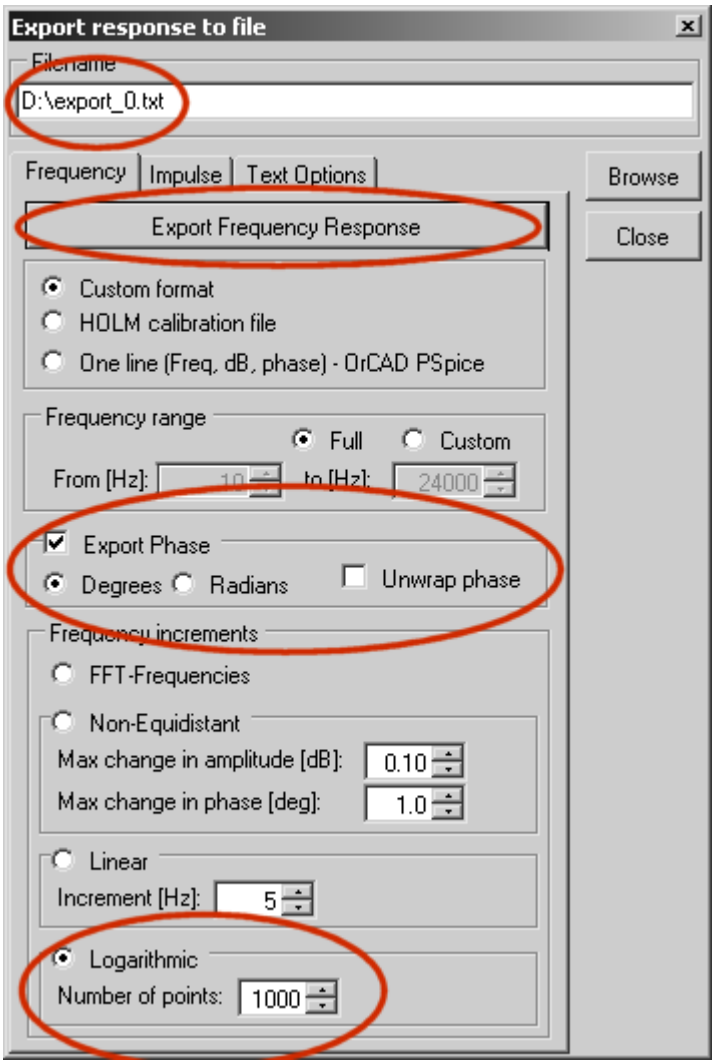
Double-click on the driver's symbol. Use buttons "H-FR", "V-FR" and "Impedance" buttons for loading horizontal, vertical frequency response(s) and electrical impedance.
Data files are ordinary text files (known as "FRD" and "ZMA" formats) – see the example data files.

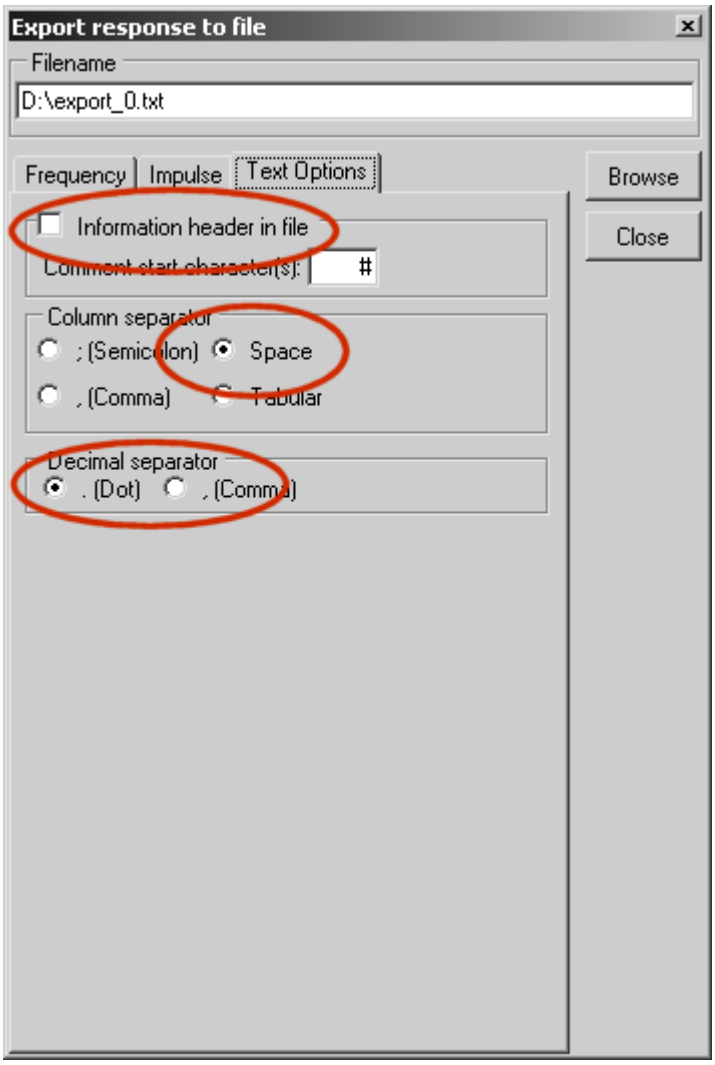


Naming convention for data files is as follows: frequency response file name **must end with a number** (to one optional decimal place, e.g. "tweeter_22,5.txt"). This number (and only this number) gives information about which angle from axis it was measured for. Even if you load only one file (for example on-axis only), you still must end it with some number ("tweeter_0.txt").

No headers are allowed. On each line in the files there must be three numbers separated by white space.

Export of frequency response from HOLMImpulse in FRD format:

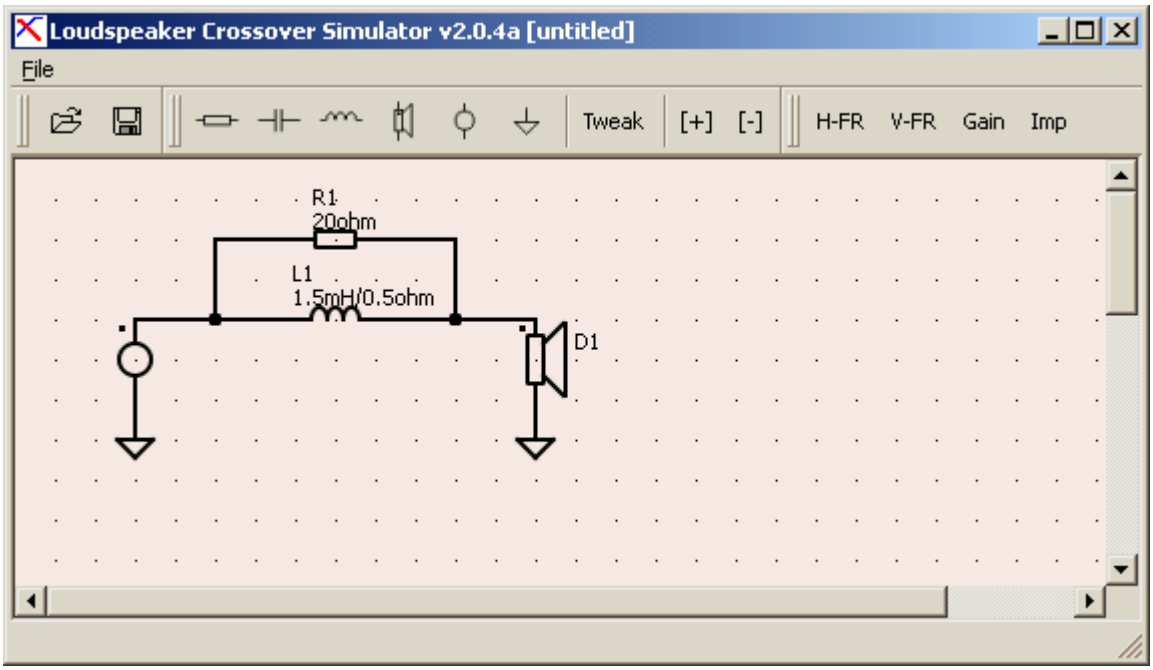

Export response to file
Filename
D:\export_0.txt
Frequency
Impulse
Text Options
Browse
Export Frequency Response
Close
Custom format
HOLM calibration file
One line (Freq, dB, phase) - OrCAD PSpice
Frequency range
Full
Custom
From [Hz]:
10
to [Hz]:
24000
Export Phase
Degrees
Radians
Unwrap phase
Frequency increments
FFT-Frequencies
Non-Equidistant
Max change in amplitude [dB]:
0.10
Max change in phase [deg]:
1.0
Linear
Increment [Hz]:
5
Logarithmic
Number of points:
1000



Repeat steps 2-3 for each driver in a simulation.

4) Circuit editation.

By adding passive components you can now play with the circuit. Connecting **wires are drawn by holding Ctrl key and then drawing a line holding left mouse button** from a point to point.
Before you place or connect other components be sure you have loaded data files for all the drivers.



Each time your circuit is electrically valid, the simulation will show all the current results in separated windows. You can open these windows by pressing "H-FR", "V-FR" ... buttons on the toolbar.

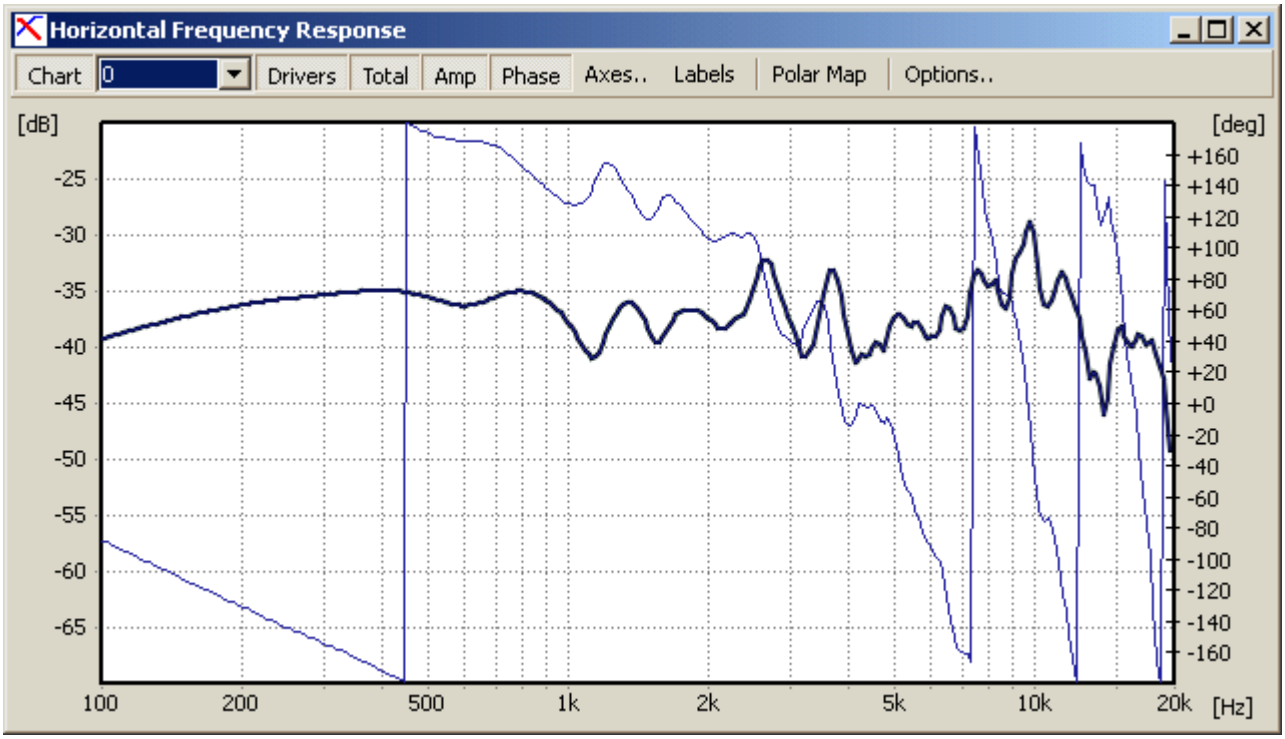
You can select components and wires with left mouse button (or draw a rectangle for a group of them). Then you can move them, rotate (right mouse button or pressing Space) or delete by pressing Del.

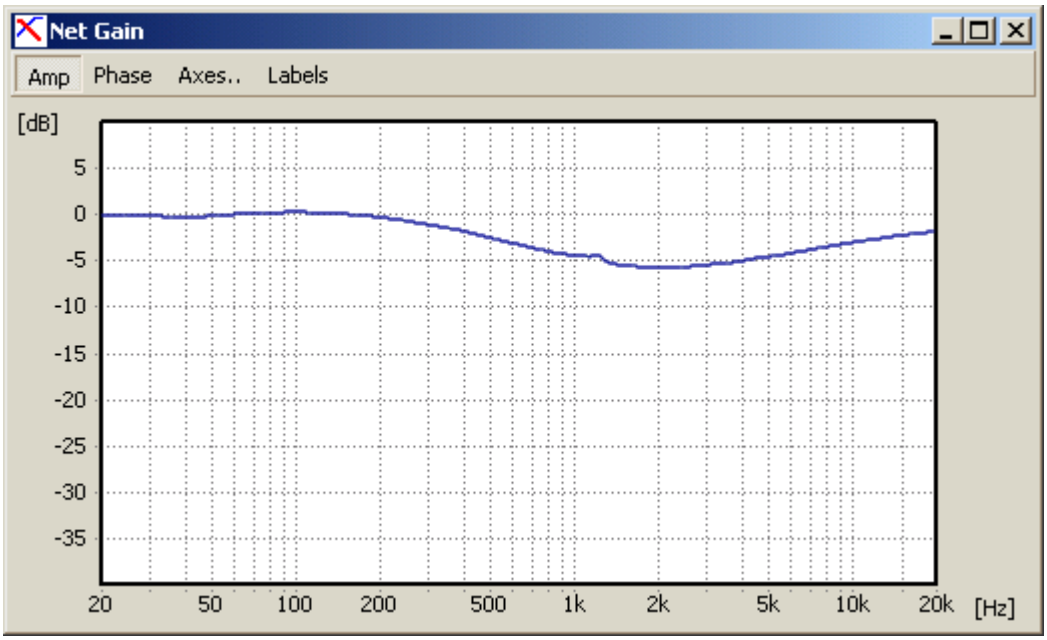
Notes:
Only passive components can be rotated.
Diagonal wires are selectable by drawing a rectangle around them

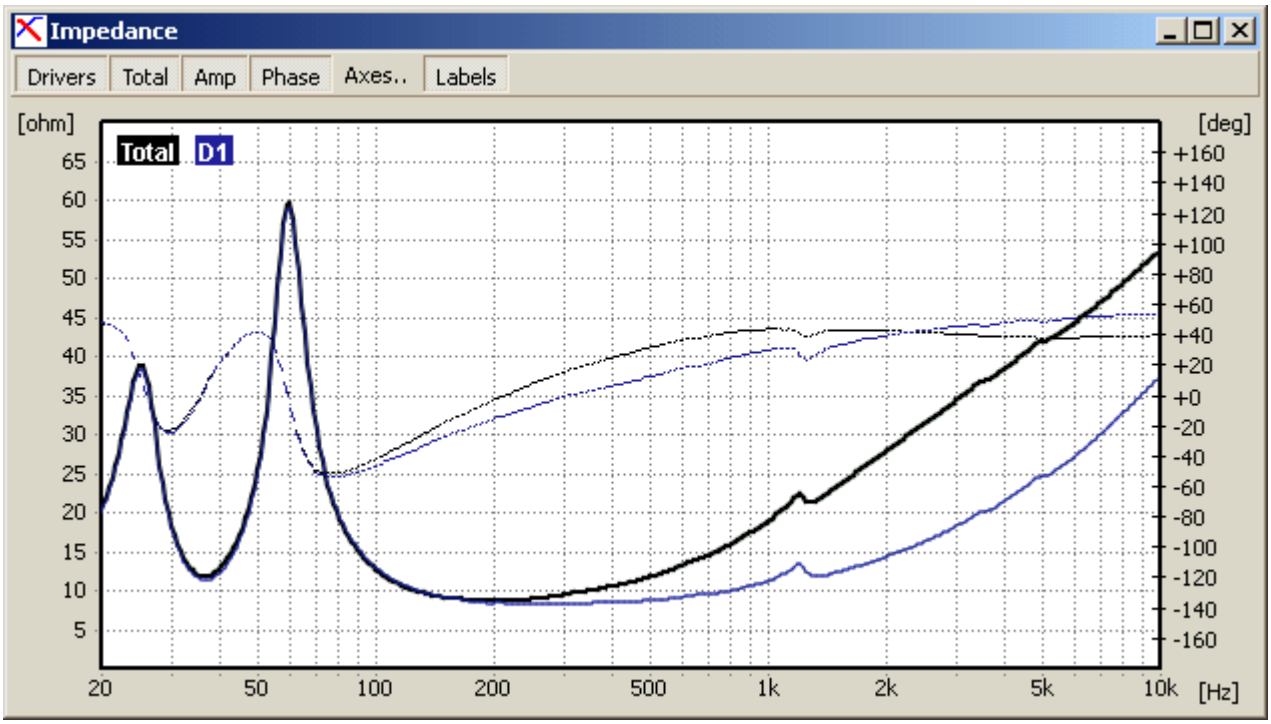
5) Tweaking.

After making some selection of passive components you can manually change their values gradually with real-time watching of all the results in separated windows. Just select some components and press a "Tweak" toolbar button.


Horizontal Frequency Response
Chart
ALL
Drivers
Total
Amp
Phase
Axes..
Labels
Polar Map
Options..
[dB]
0
15
30
45
60
75
-25
-30
-35
-40
-45
-50
-55
-60
-65
100
200
500
1k
2k
5k
10k
20k
[Hz]


Horizontal Frequency Response
Chart
0
Drivers
Total
Amp
Phase
Axes..
Labels
Polar Map
Options..
[dB]
[deg]
-25
-30
-35
-40
-45
-50
-55
-60
-65
+160
+140
+120
+100
+80
+60
+40
+20
+0
-20
-40
-60
-80
-100
-120
-140
-160
100
200
500
1k
2k
5k
10k
20k
[Hz]





For any questions please use local forum or contact me at *admin@loudspeakersoft.com*

Marcel Batík, 5/17/2011, Rev.2