

elodis subwoofer

MEASUREMENT DATA

ELODIS-SUB-VB21L

Date: March 09, 2008 by Franz Hinterlehner

Measurement devices:

Software: Arta, Steps, Limp

Micro: Earthworks M30

Soundcard: Tascam US 122-L

Power Amplifier: Crown K2, Marantz MA700

Room correction system: Tact RCS 2.2

Elodis-Sub-VB21L

Frequency response

by using different low-pass filters
no equalizing and no high-pass filters were used

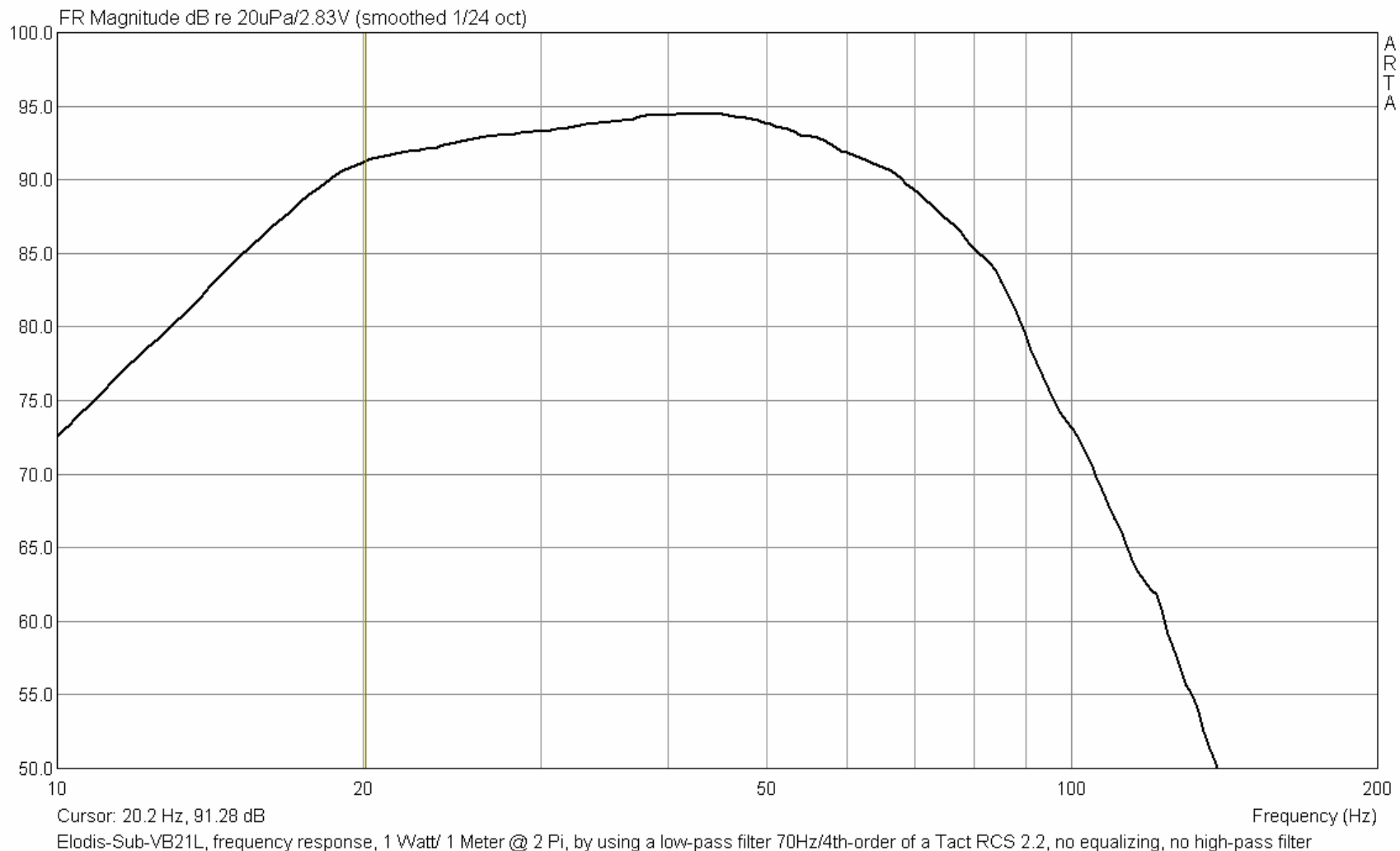
**Moderate equalizing down to 20 Hz
depending on room conditions
by using high quality ROOM-CORRECTION-PROCESSORS
or other high quality LOUDSPEAKER MANAGEMENT SYSTEMS
is highly recommendable.**

The following frequency response measurements are made by using a
TACT RCS 2.2 Room Correction System

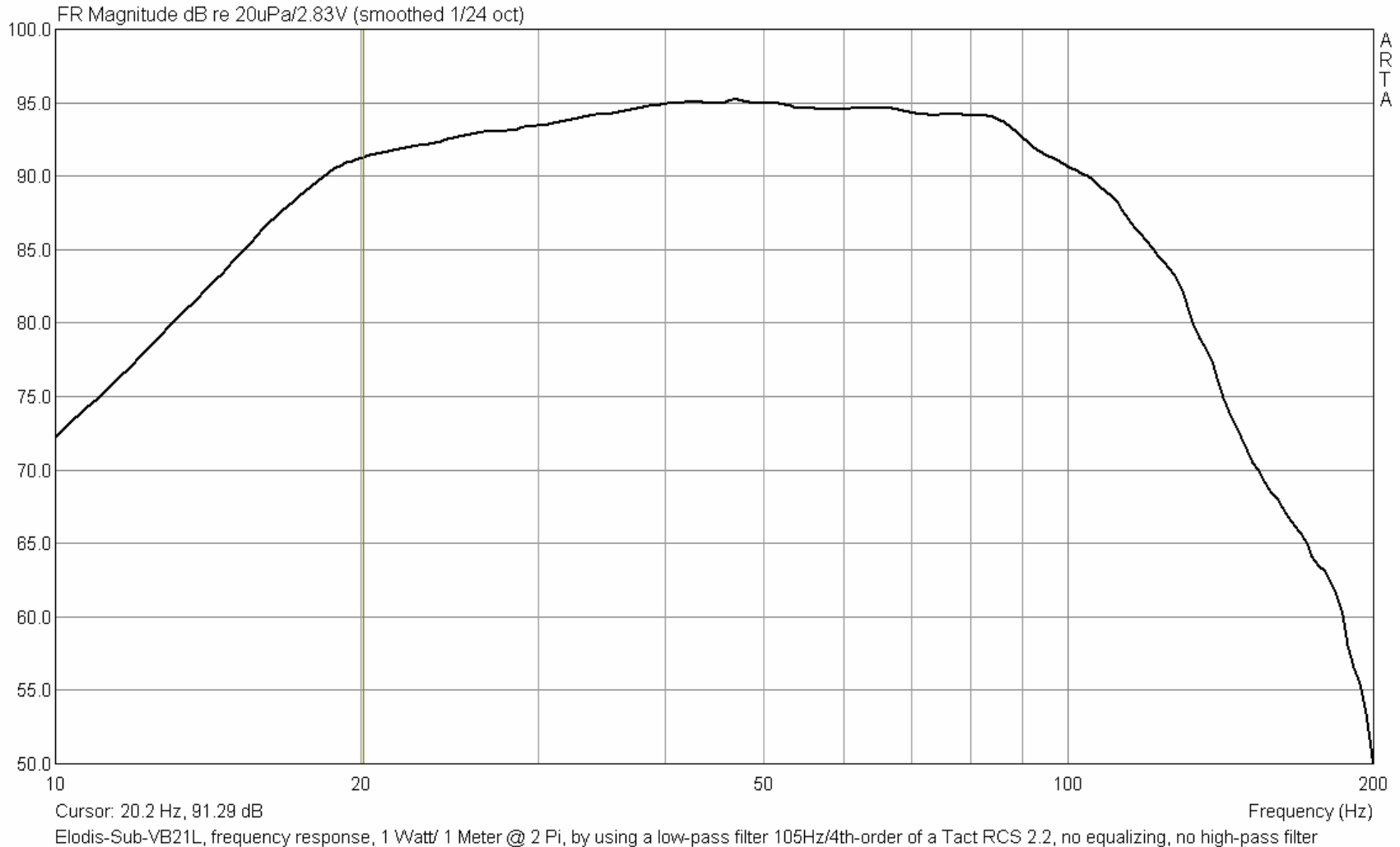
The slightly falling frequency response below 50 Hz harmonizes very
well with a wall/floor junction placement when no equalizing is
preferred.

**To protect the speaker from mechanical destruction below 20 Hz
a fitted subsonic filter (high-pass filter) must be used!**

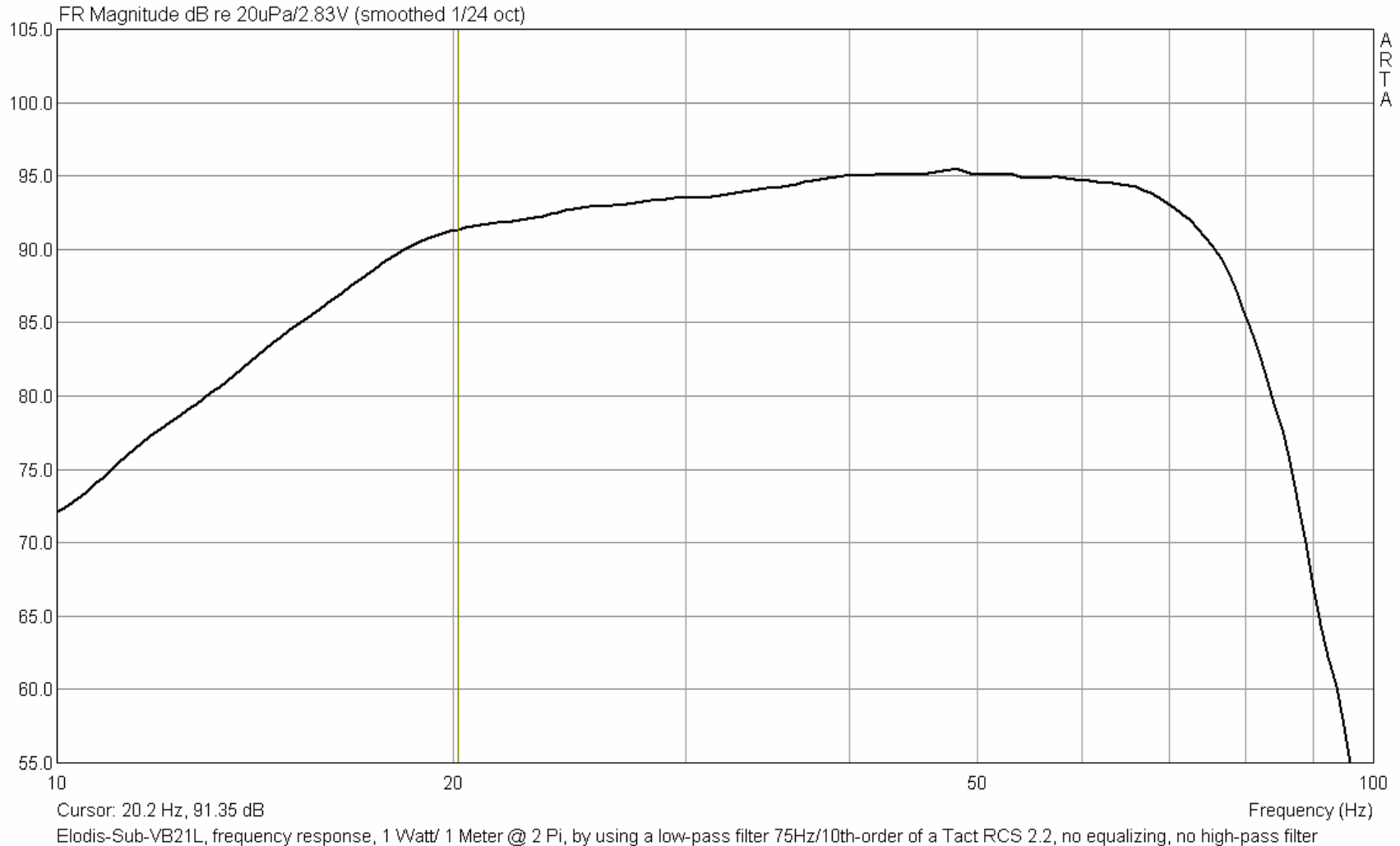
Elodis-Sub-VB21L, frequency response, 2.83 Volts/1 Meter, 2 Pi,
by using a low-pass filter 70Hz/4th-order of a Tact RCS 2.2,
no equalizing, no high-pass filter



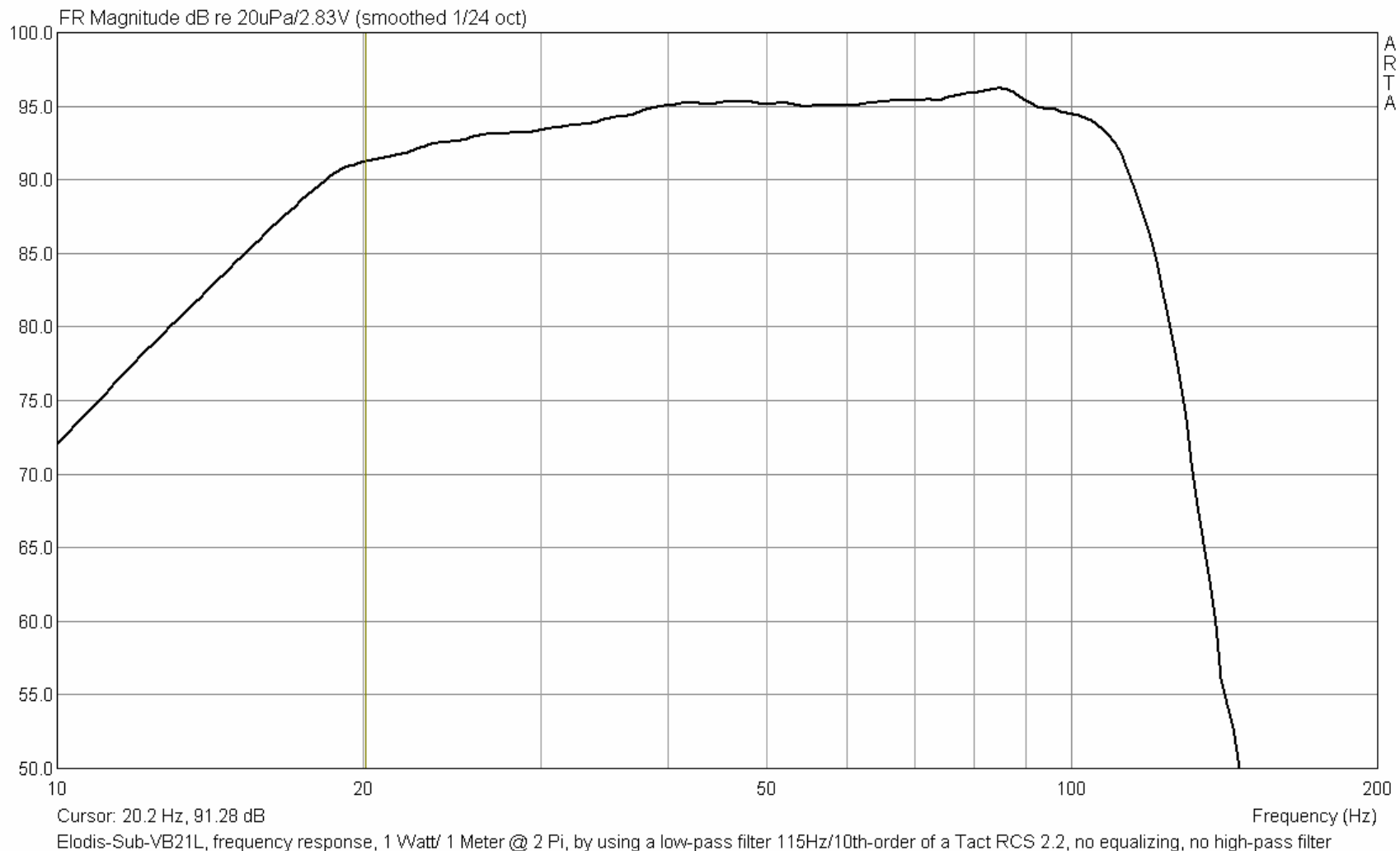
Elodis-Sub-VB21L, frequency response, 2.83 Volts/1 Meter, 2 Pi,
by using a low-pass filter 105Hz/4th-order of a Tact RCS 2.2,
no equalizing, no high-pass filter



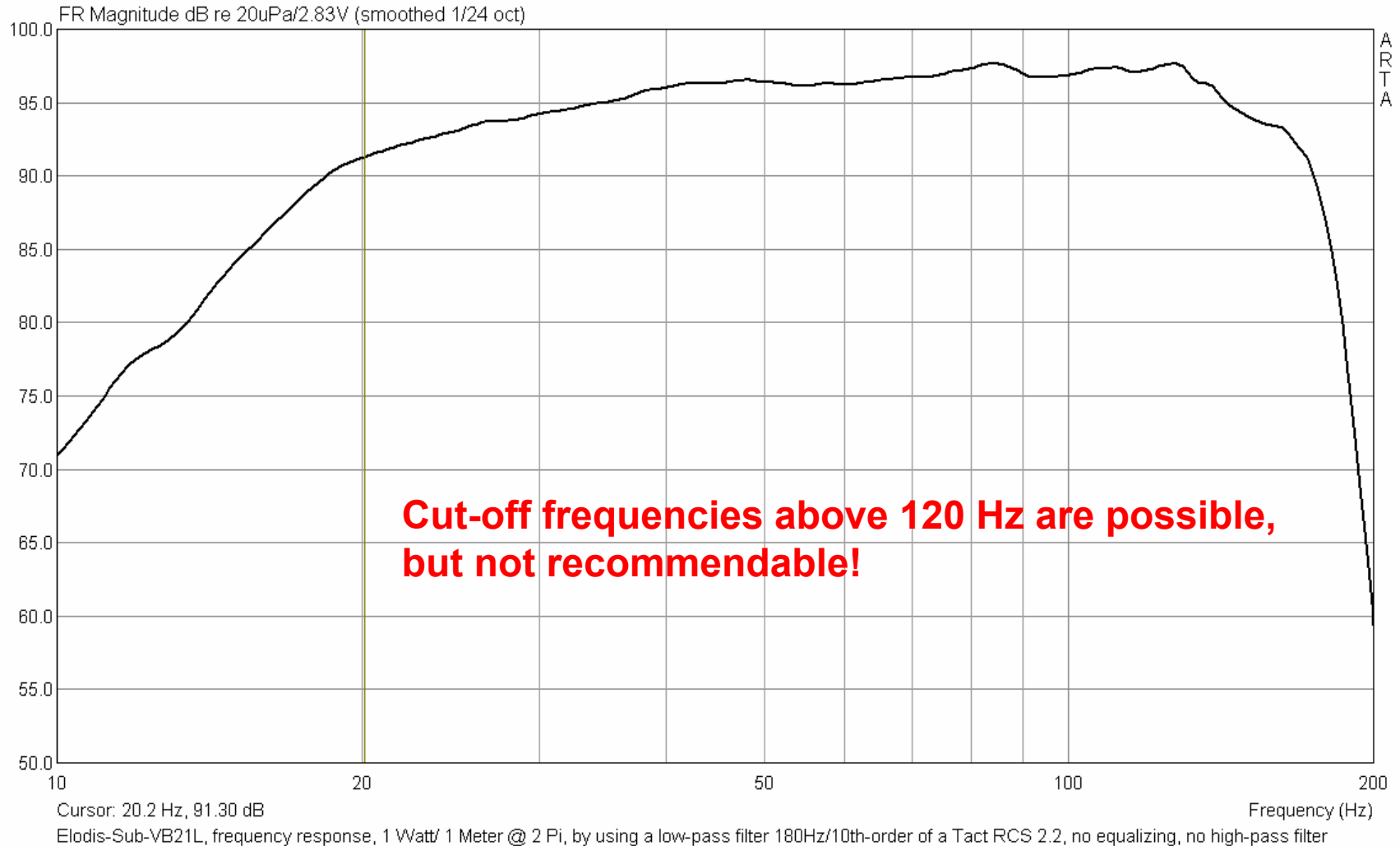
Elodis-Sub-VB21L, frequency response, 2.83 Volts/1 Meter, 2 Pi, by using a low-pass filter 75Hz/10th-order of a Tact RCS 2.2, no equalizing, no high-pass filter



Elodis-Sub-VB21L, frequency response, 2.83 Volts/1 Meter, 2 Pi, by using a low-pass filter 115Hz/10th-order of a Tact RCS 2.2, no equalizing, no high-pass filter



Elodis-Sub-VB21L, frequency response, 2.83 Volts/1 Meter, 2 Pi,
by using a low-pass filter 180Hz/10th-order of a Tact RCS 2.2,
no equalizing, no high-pass filter



Elodis-Sub-VB21L

Harmonic distortion

Measurement Setup



Measurement System

Single channel - Level

Response channel

Left

Sampling frequency (Hz)

48000

Min. integration time (ms)

300

Transient time (ms)

300

I/O delay (ms)

0

Intra burst pause (ms)

300

Stepped Sine Generator

Start frequency (Hz)

20.00

Stop frequency (Hz)

100.00

Frequency increment

1/24 octave

Generator level (dB re FS)

-3

Test frequency (Hz)

1000

L		-70		-50		-30		-10	dB
R	-80		-60		-40		-20		dB

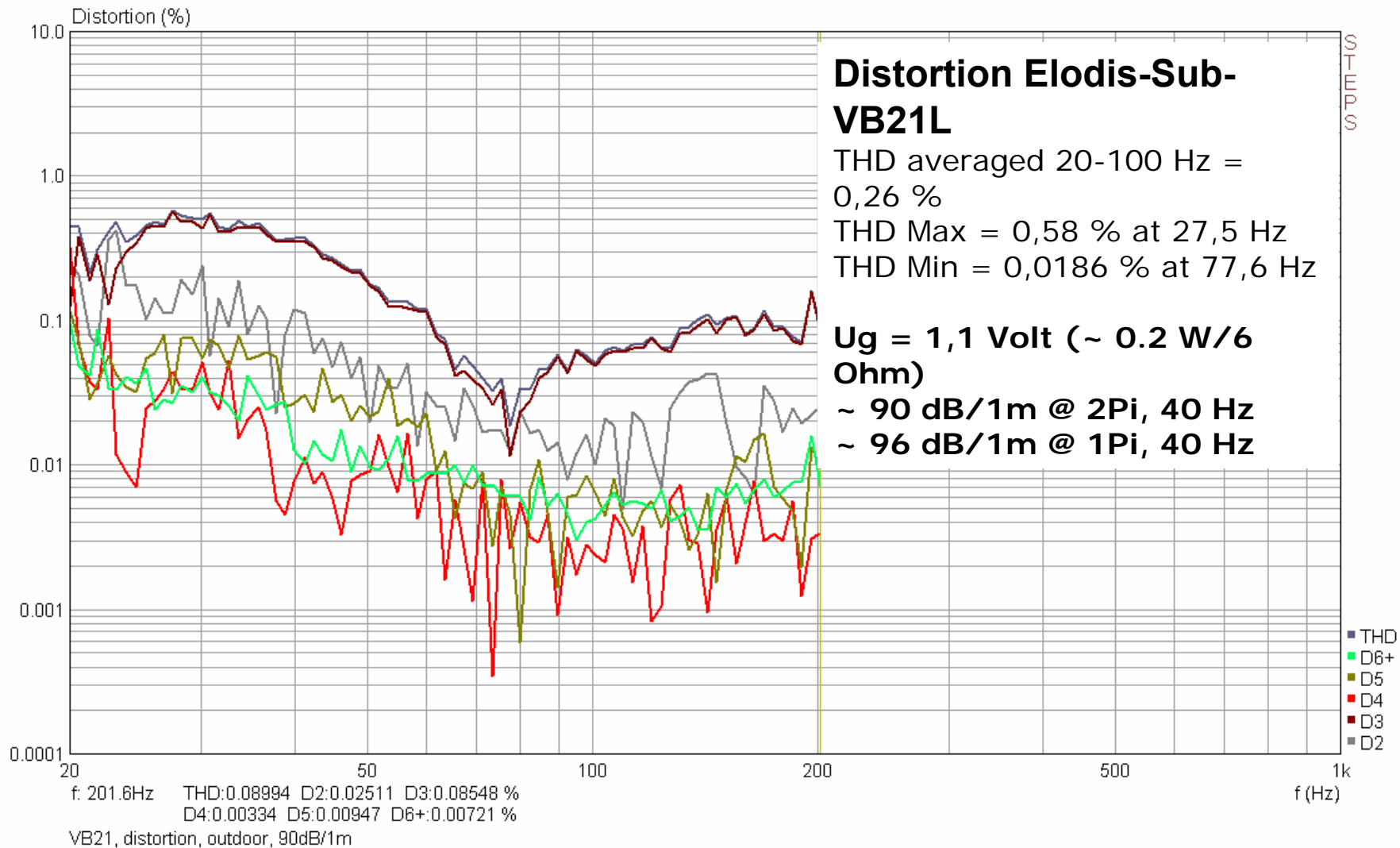
Generate

Default

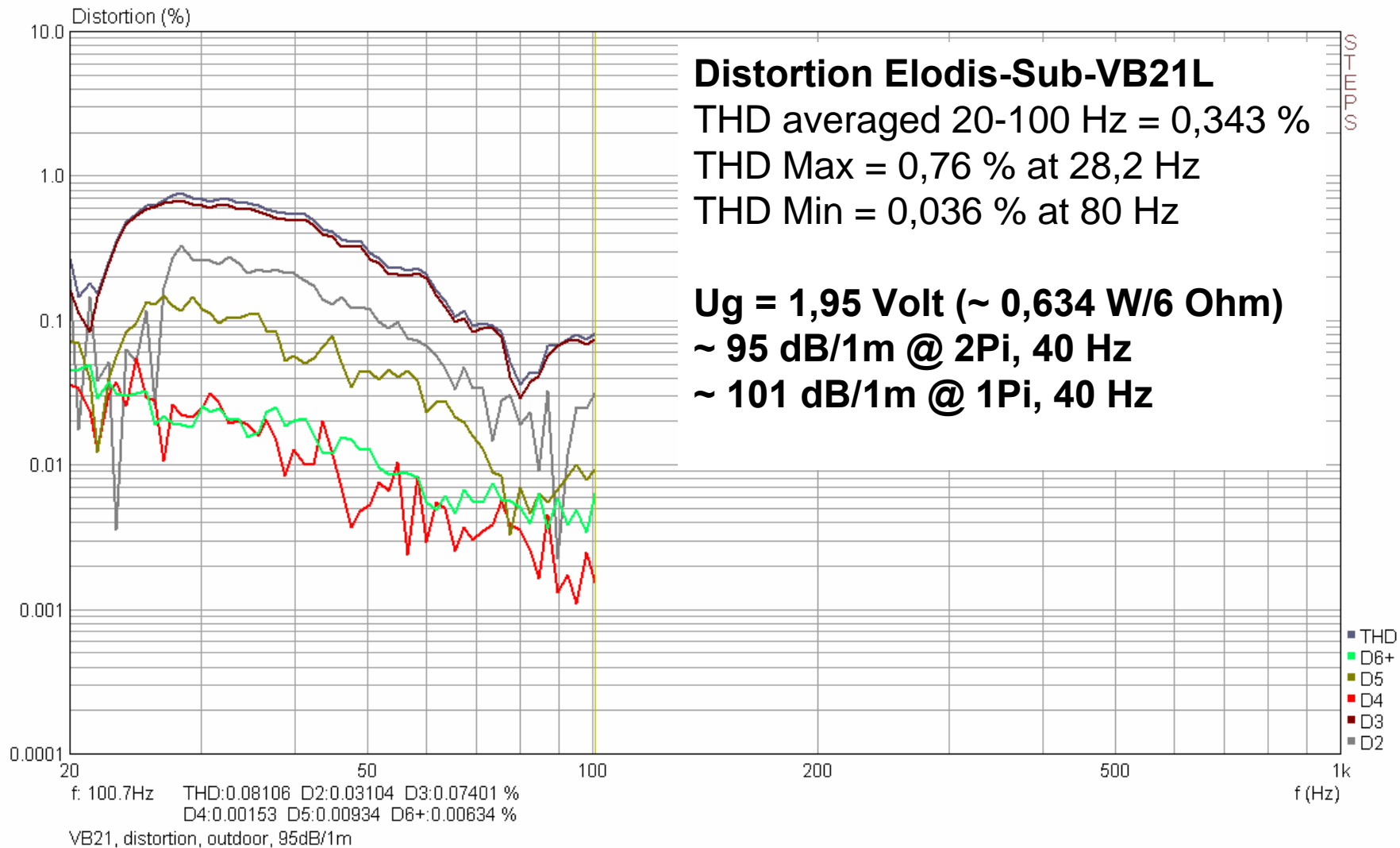
Cancel

OK

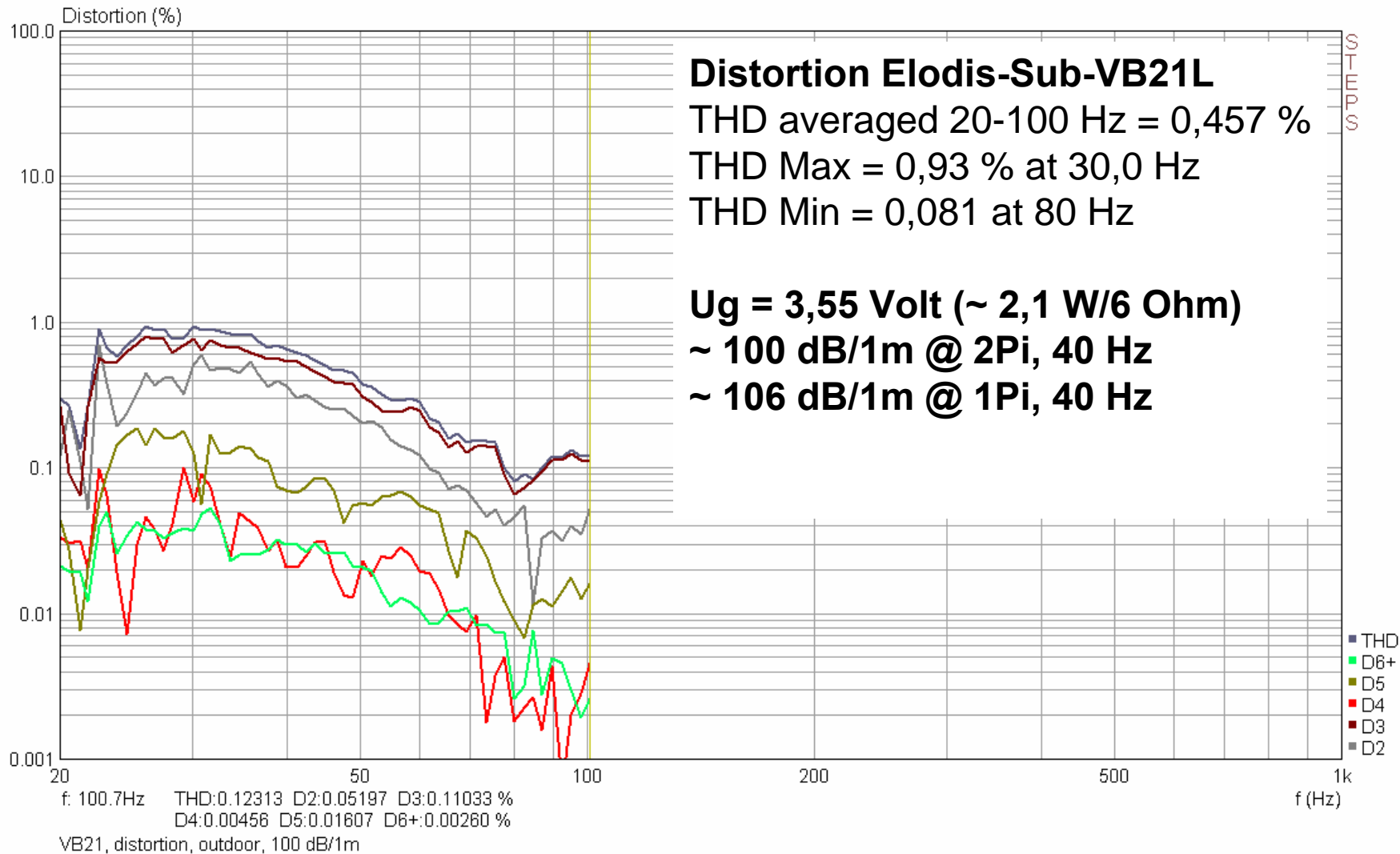
Distortion Elodis-Sub-VB21L, without filter networks



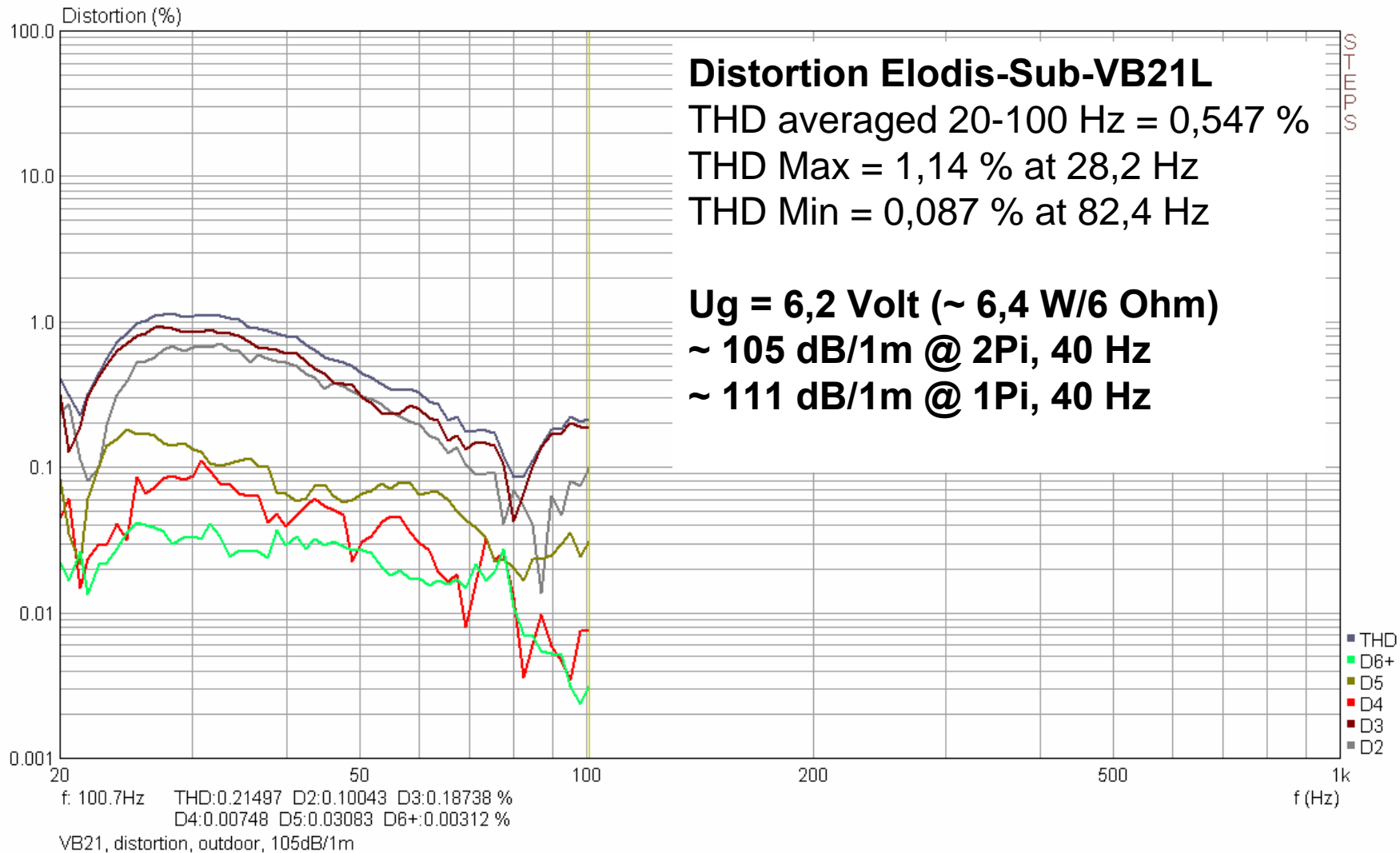
Distortion Elodis-Sub-VB21L, without filter networks



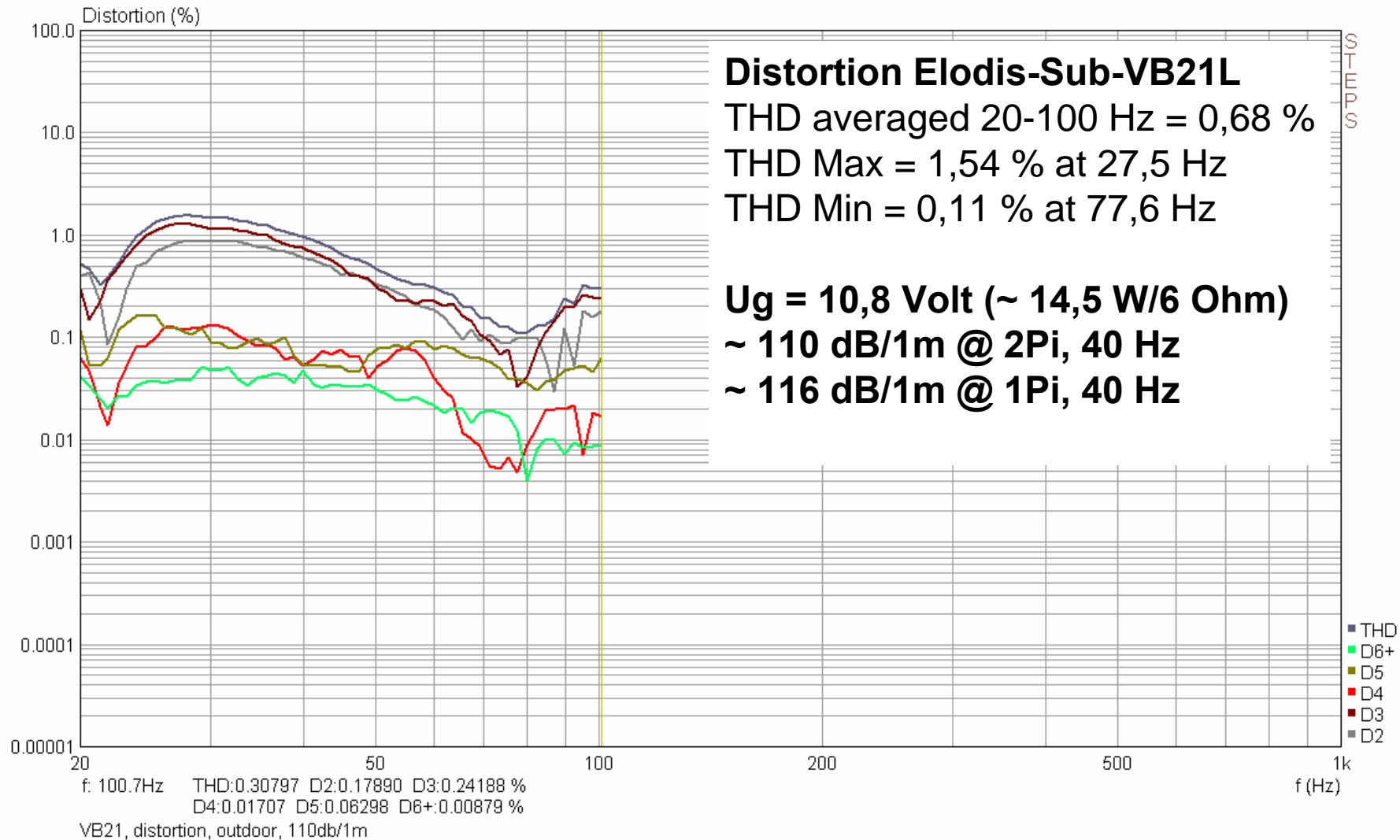
Distortion Elodis-Sub-VB21L, without filter networks



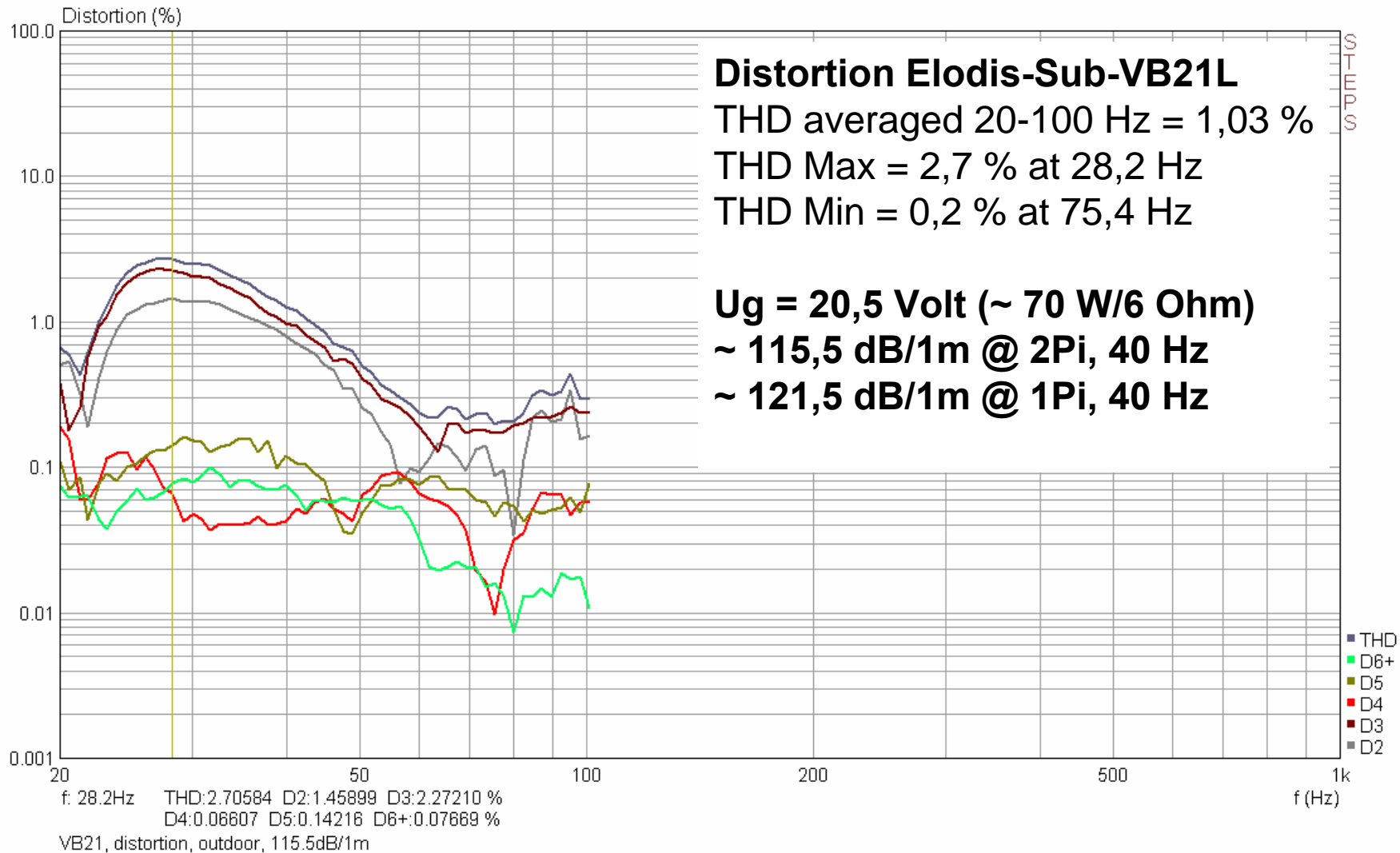
Distortion Elodis-Sub-VB21L, without filter networks



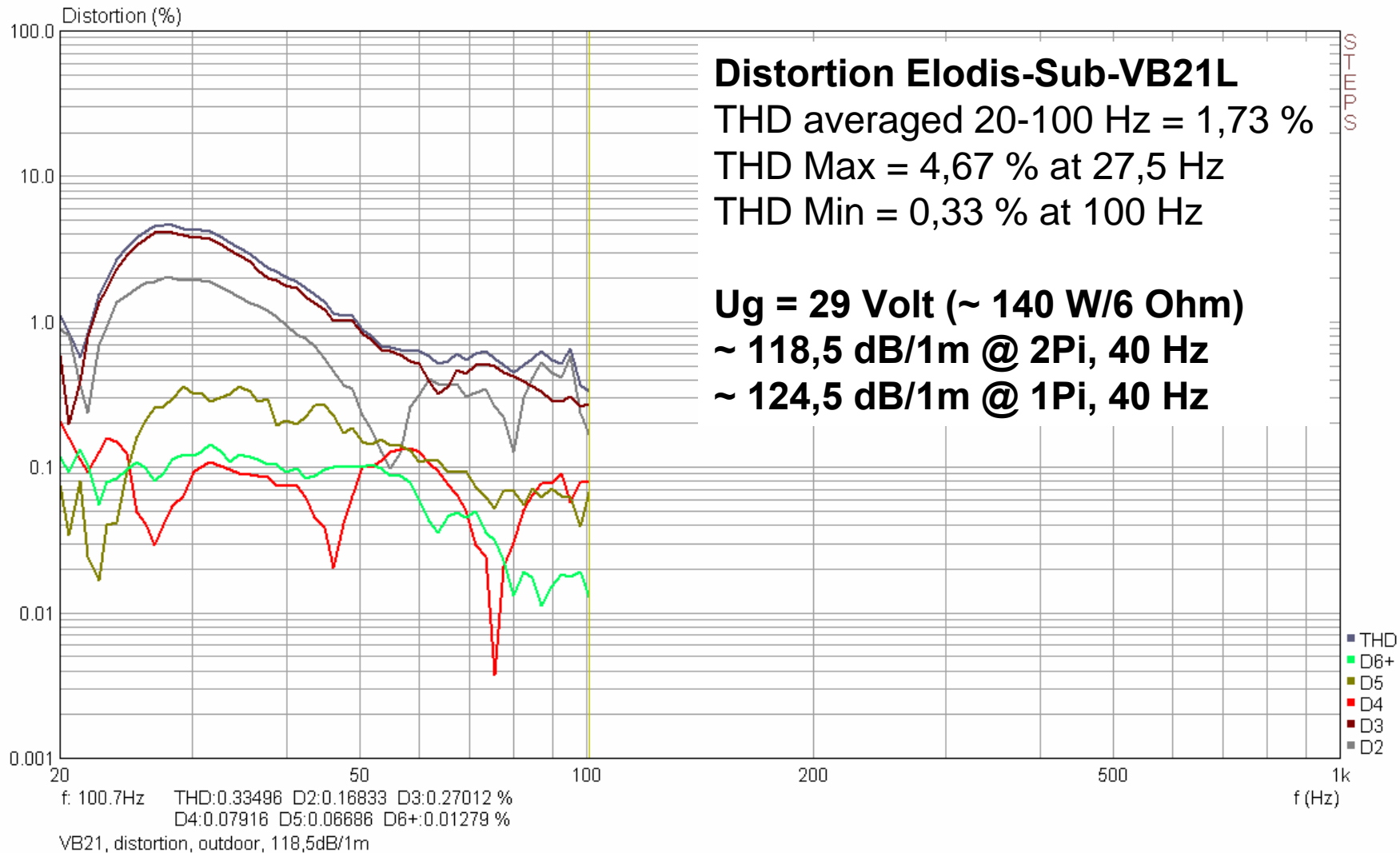
Distortion Elodis-Sub-VB21L, without filter networks



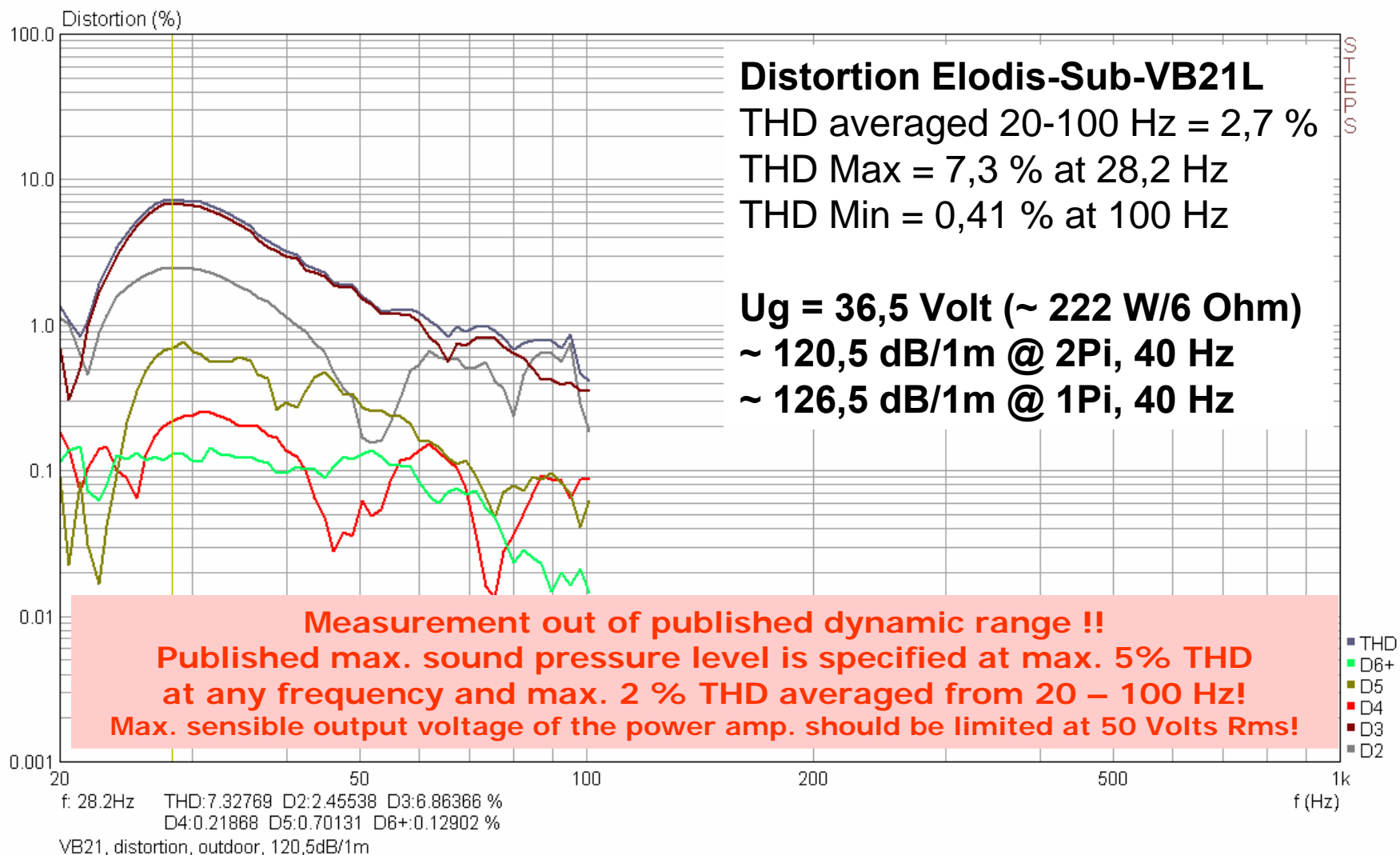
Distortion Elodis-Sub-VB21L, without filter networks



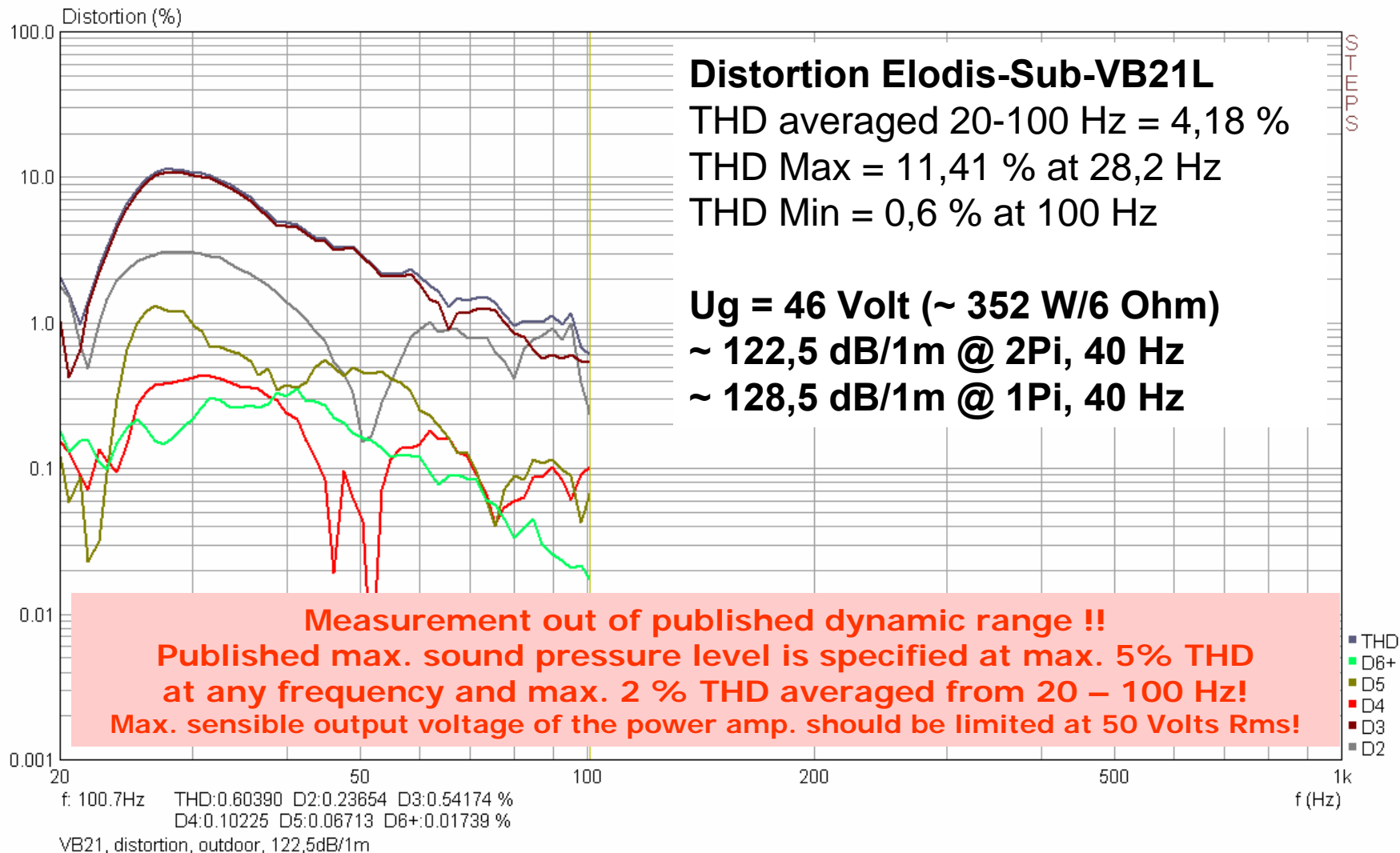
Distortion Elodis-Sub-VB21L, without filter networks



Distortion Elodis-Sub-VB21L, without filter networks



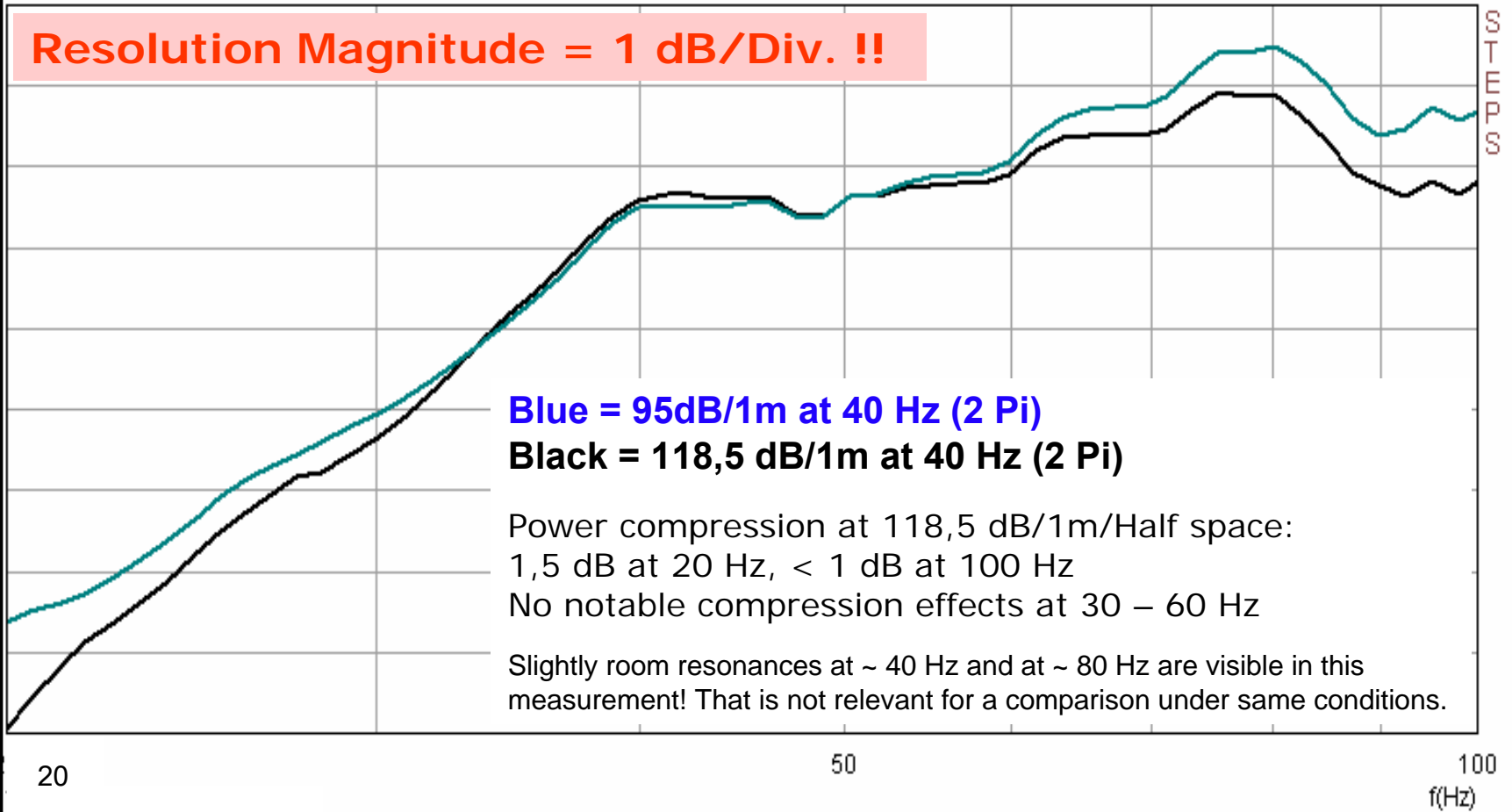
Distortion Elodis-Sub-VB21L, without filter networks



Power Compression Elodis-Sub-VB21L

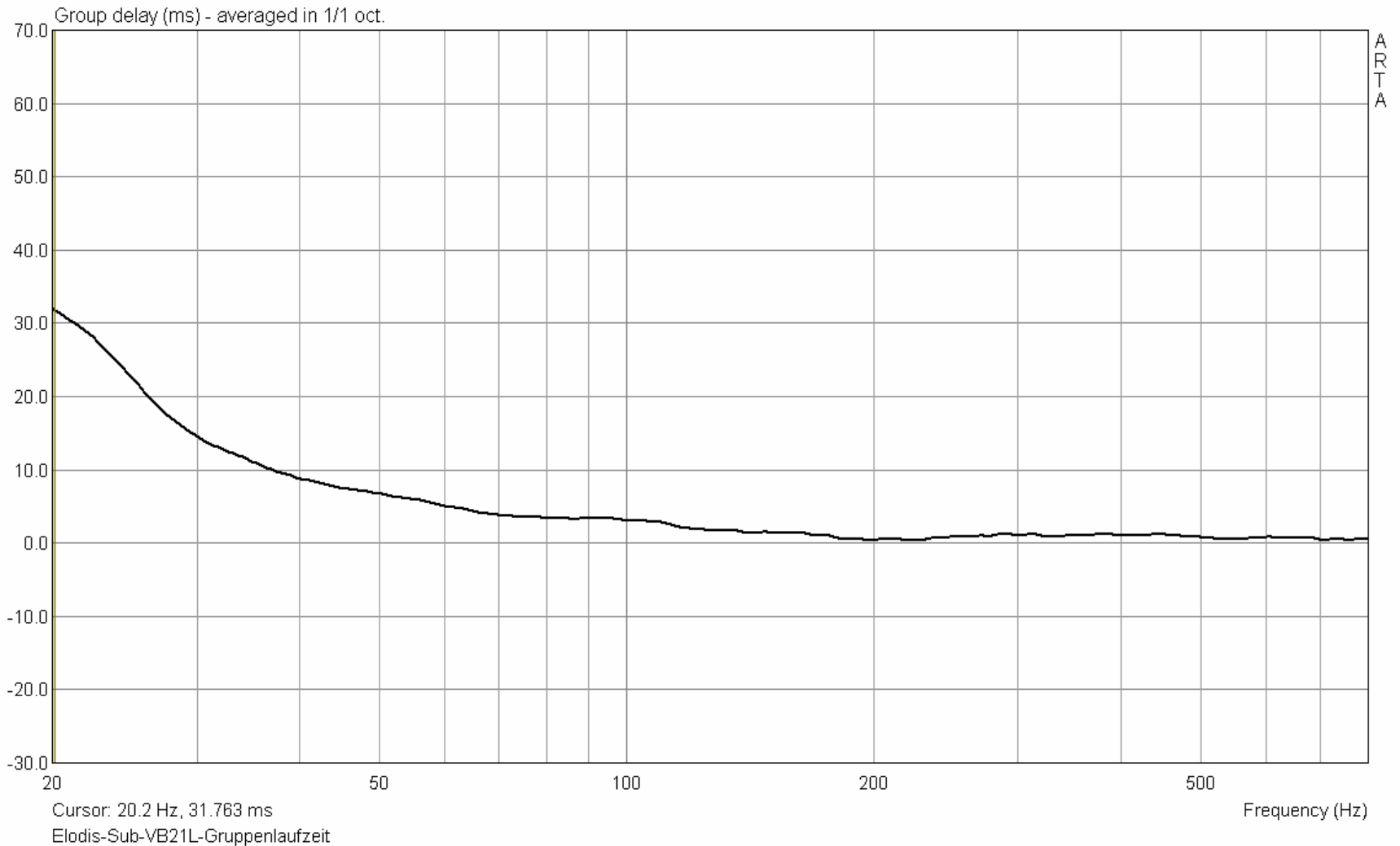
Comparison 95/118,5 dB/1m@2Pi (40 Hz), according 1,95/29 Volt

Magnitude dB re 20uPa

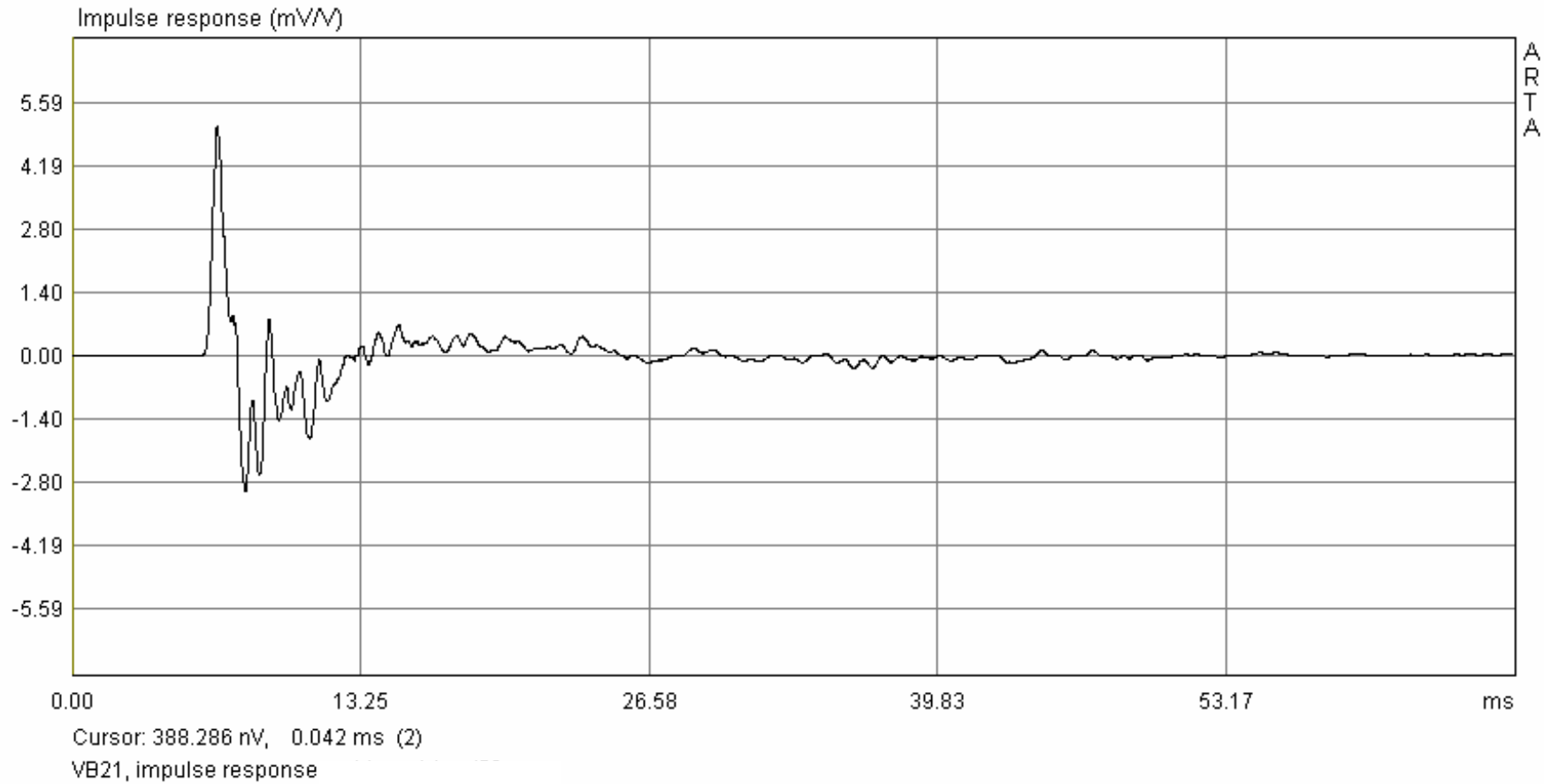


VB21, Kompression, 95/118,5dB/1m

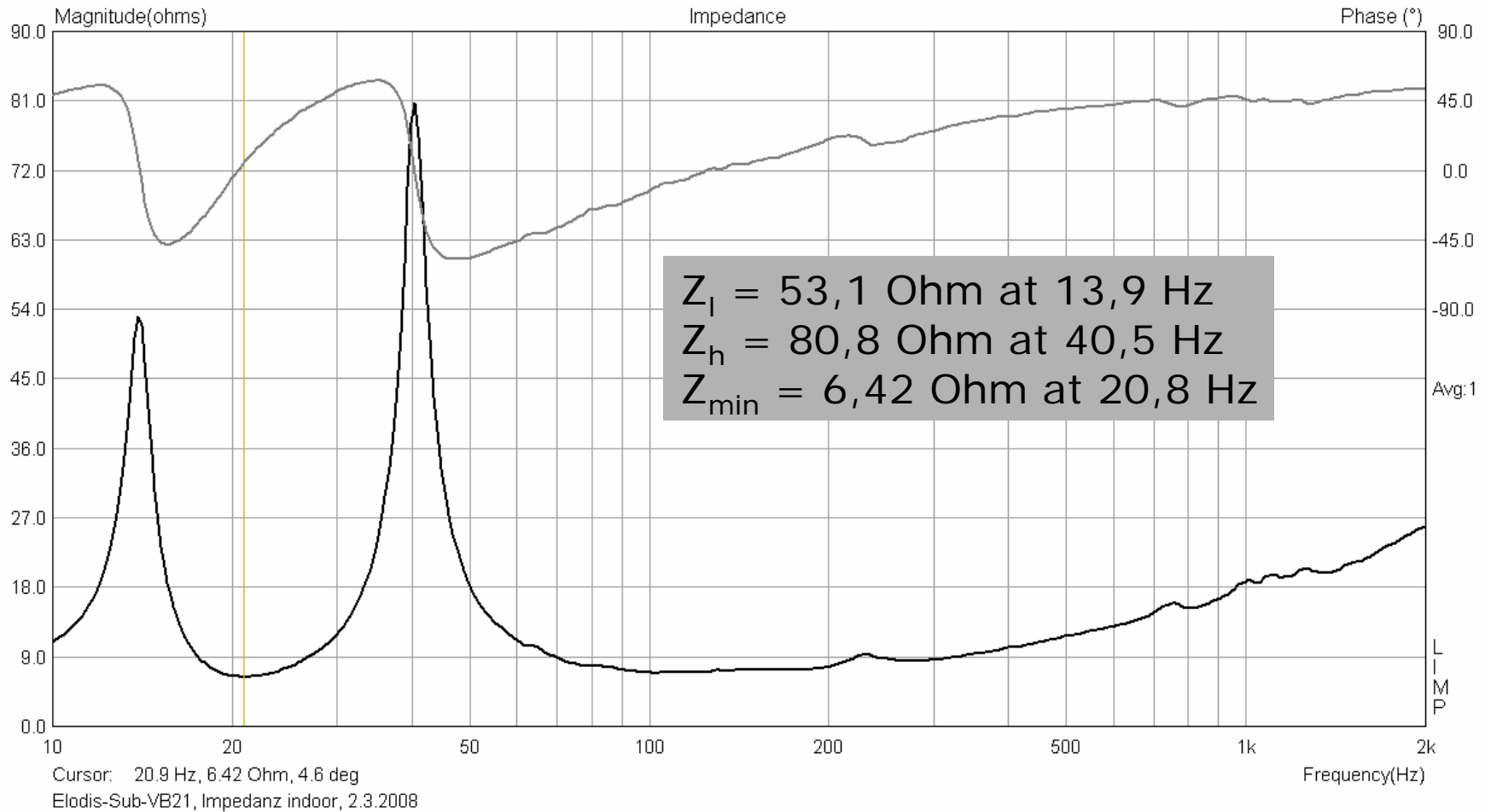
Group Delay Elodis-Sub-VB21L, without filter networks



Impulse response Elodis-Sub-VB21L, without filter networks



Elodis-Sub-VB21L, Impedance and Phase

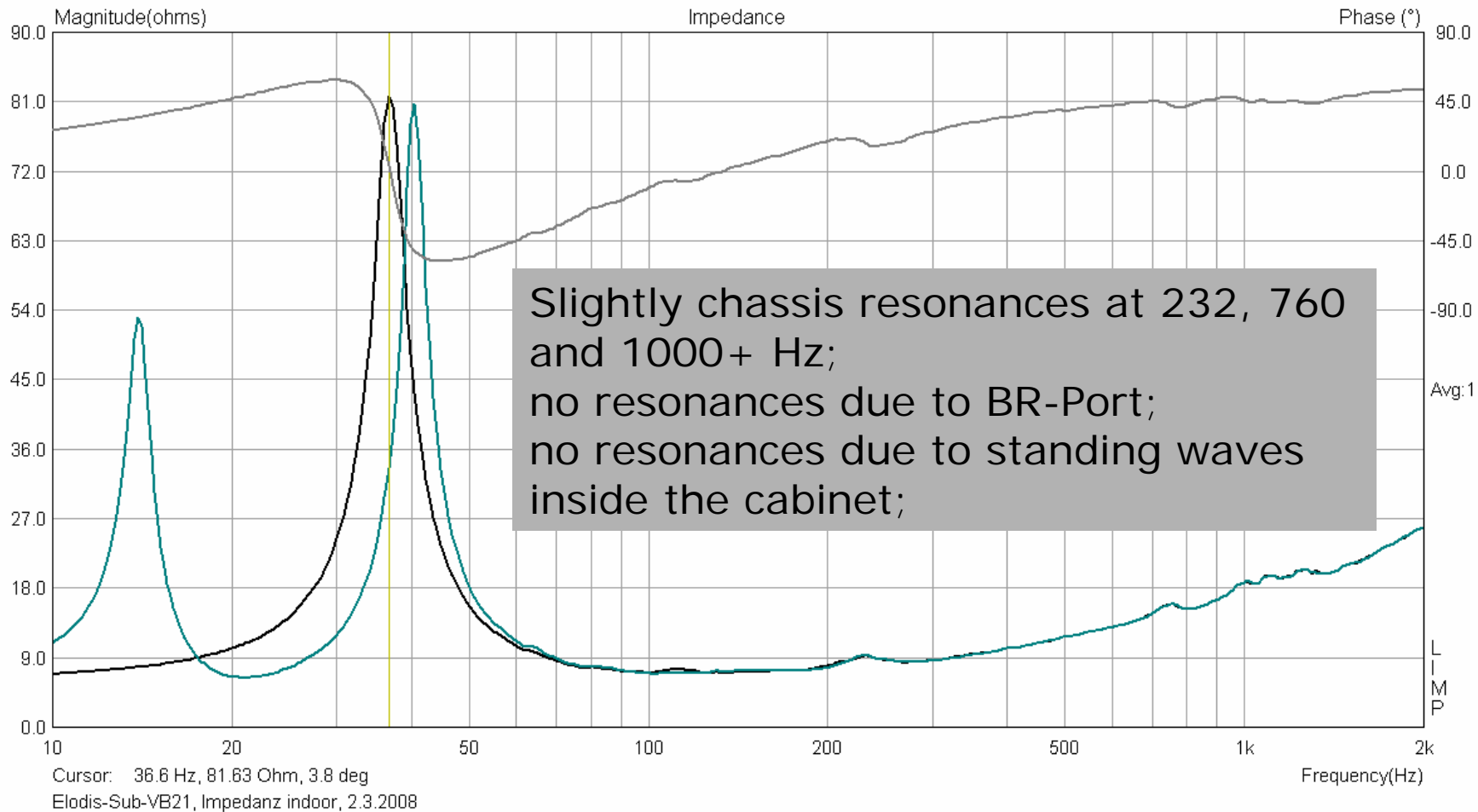


Elodis-Sub-VB21, Impedance, indoor, $R_g = 0.15 \text{ Ohm}$, $U_g = 3 \text{ Volt}$, sine steps 10-2000 Hz, FFT 131K, sampling rate 48K, **room resonances between 65 Hz and 150 Hz!**

Elodis-Sub-VB21L, Impedance and Phase

blue = bassreflex

black = BR-ports air-sealed



Elodis-Sub-VB21, Impedance, indoor, $R_g = 0.15 \text{ Ohm}$, $U_g = 3 \text{ Volt}$, sine steps 10-2000 Hz, FFT 131K, sampling rate 48K, **room resonances between 65 Hz and 150 Hz!**

Comparison → Sealed box – BR

Recommended maximum dimensions of the listening room for one piece of

Elodis-Sub-VB21L:

Up to approximately

700 cubic meters

equal to

25,000 cubic feet

which would correspond to the size of a cinema hall with about 125 seats

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