

# THE BLACK SWAN Be PRO-ACTIVE EXT

Report of BLACK SWAN Be PRO-ACTIVE EXT

## ASCENDO

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Date	Author	Changes	Version
22/12/2023	GL		V1
27/05/2024	AB	Contour Ranges	V2

## Summary

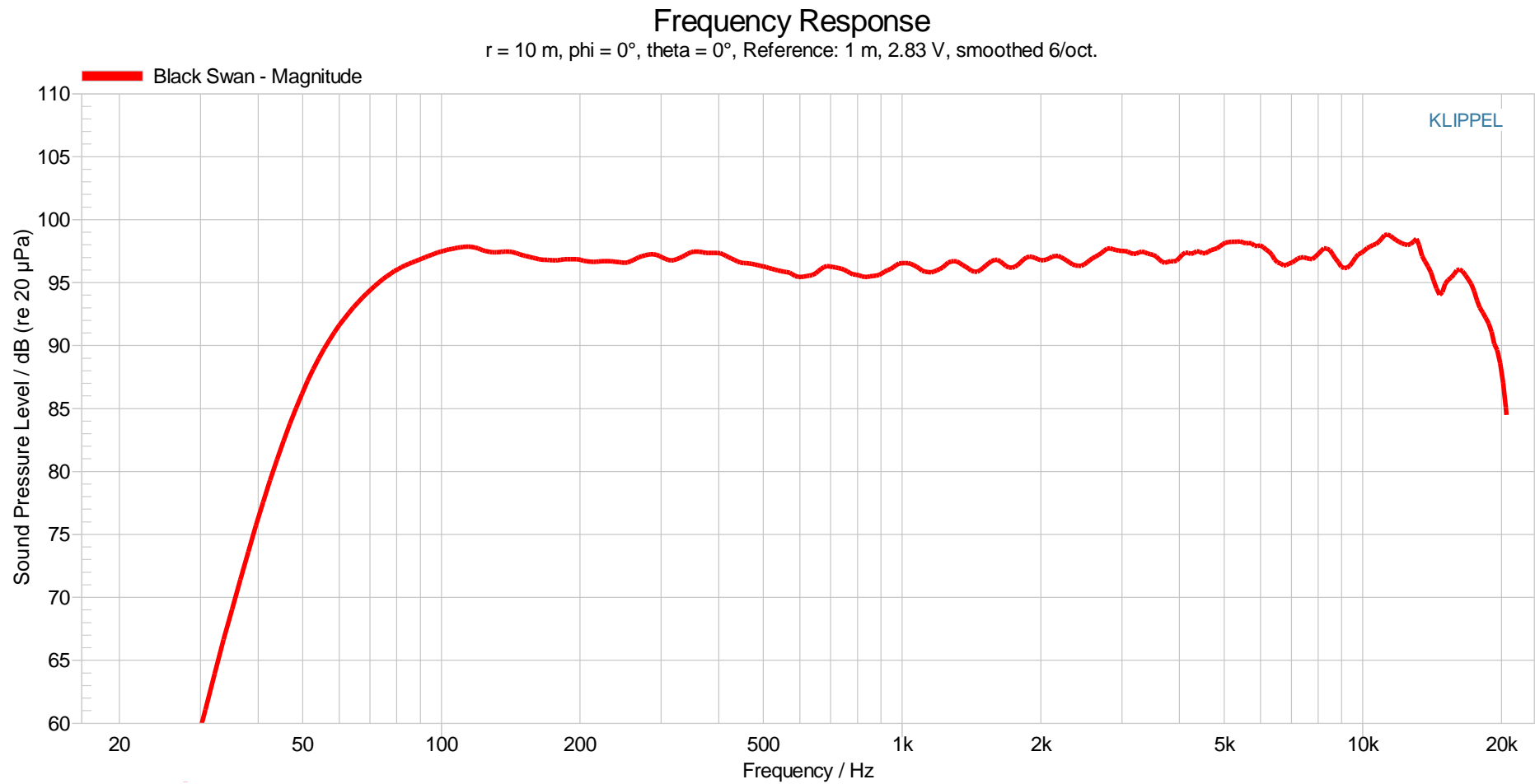
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## 1. Pictures of measurements



## 2. Frequency Response

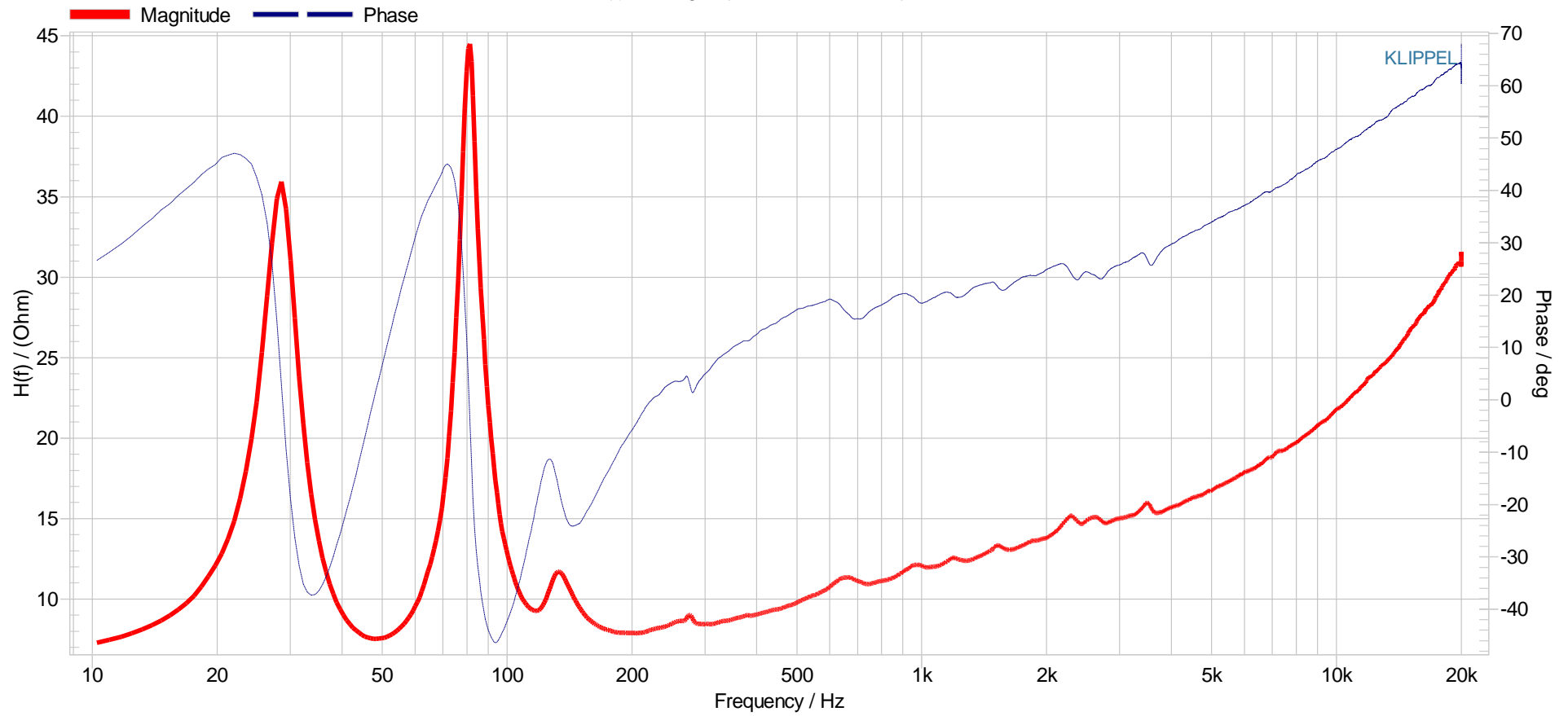
2,83v @1m – 1/6 oct. Smoothing



### 3. Impedance Curve

2,83v @1m – No Smoothing

Magnitude of transfer function  $H(f)$   
 $H(f) = \text{Voltage Speaker 1} / \text{Current Speaker 1}$



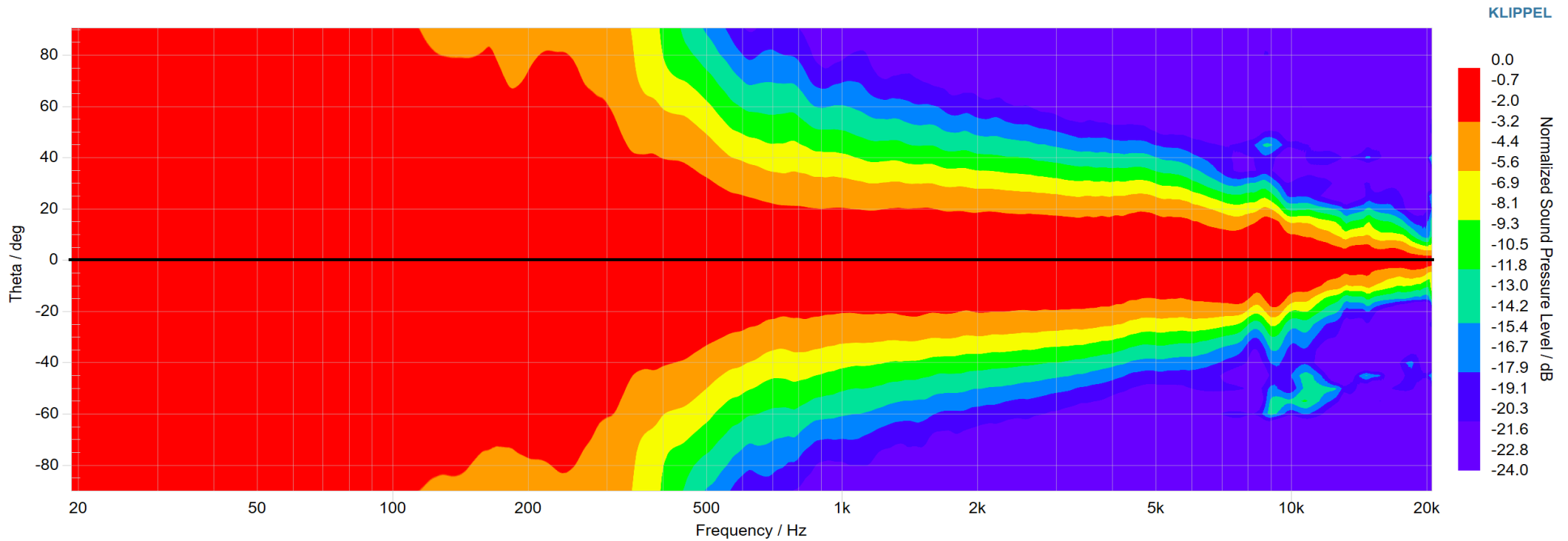
## 4. Contour Plot

### 4.1. Horizontal

*xReferenced @10m – Baffle loaded ( $2\pi$  steradians)*

#### Contour Plot - Horizontal

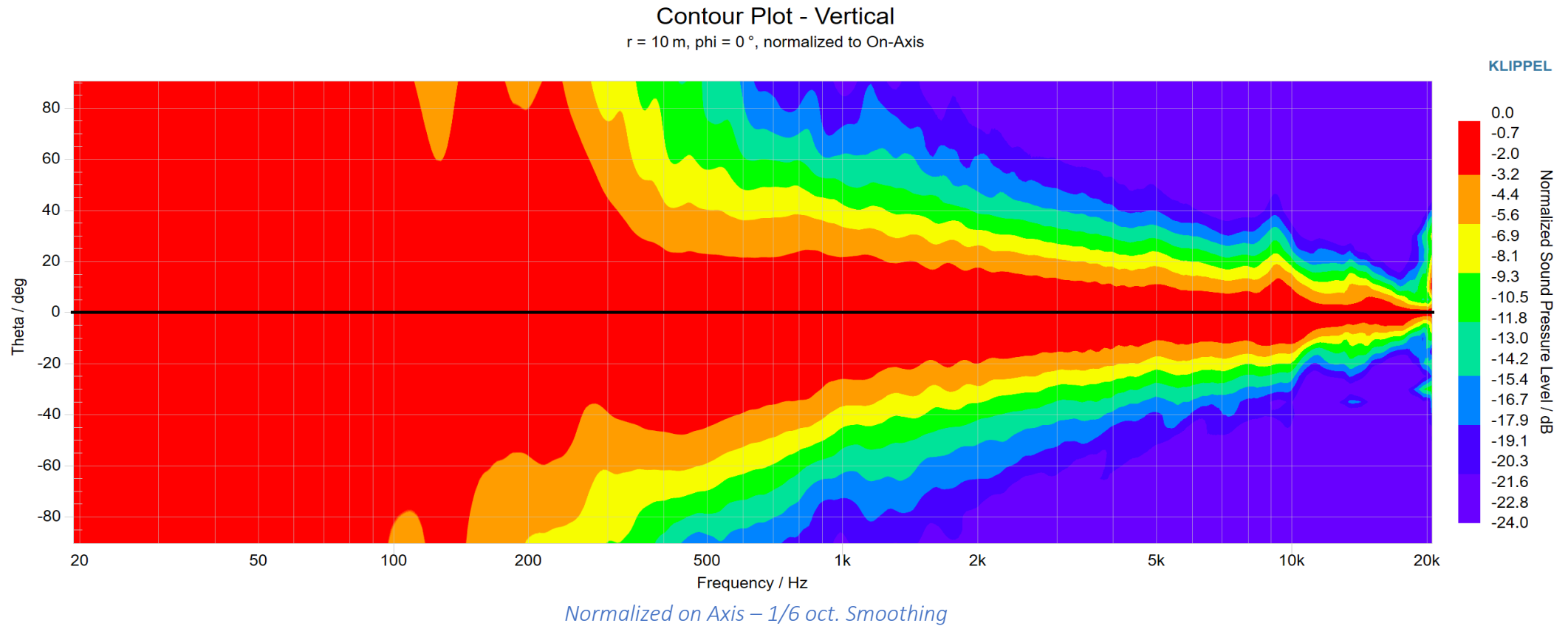
$r = 10$  m,  $\phi = 90^\circ$ , normalized to On-Axis



*Normalized on Axis – 1/6 oct. Smoothing*

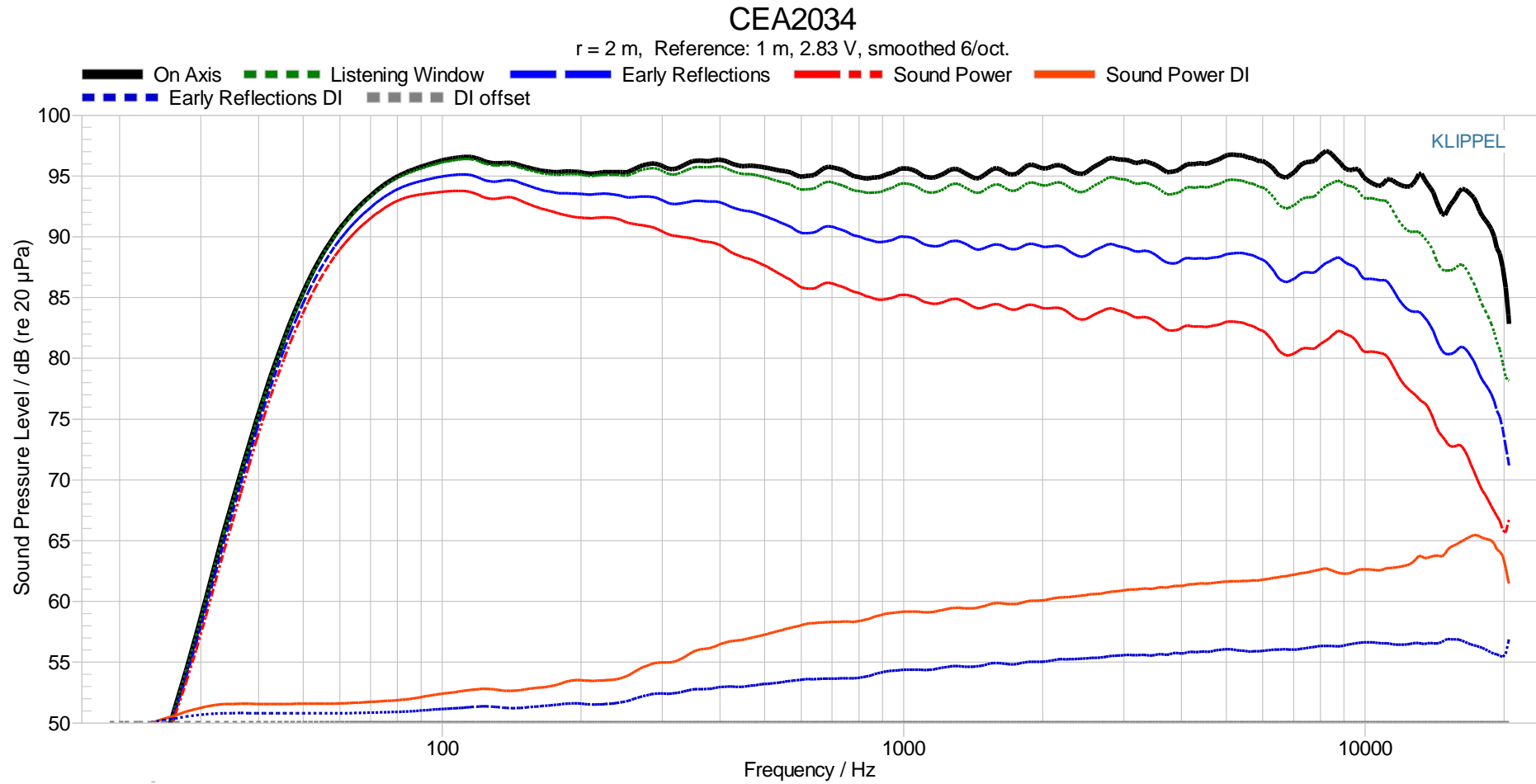
## 4.2. Vertical

*Referenced @10m – Baffle loaded ( $2\pi$  steradians)*



## 5. CEA2034 Spinorama

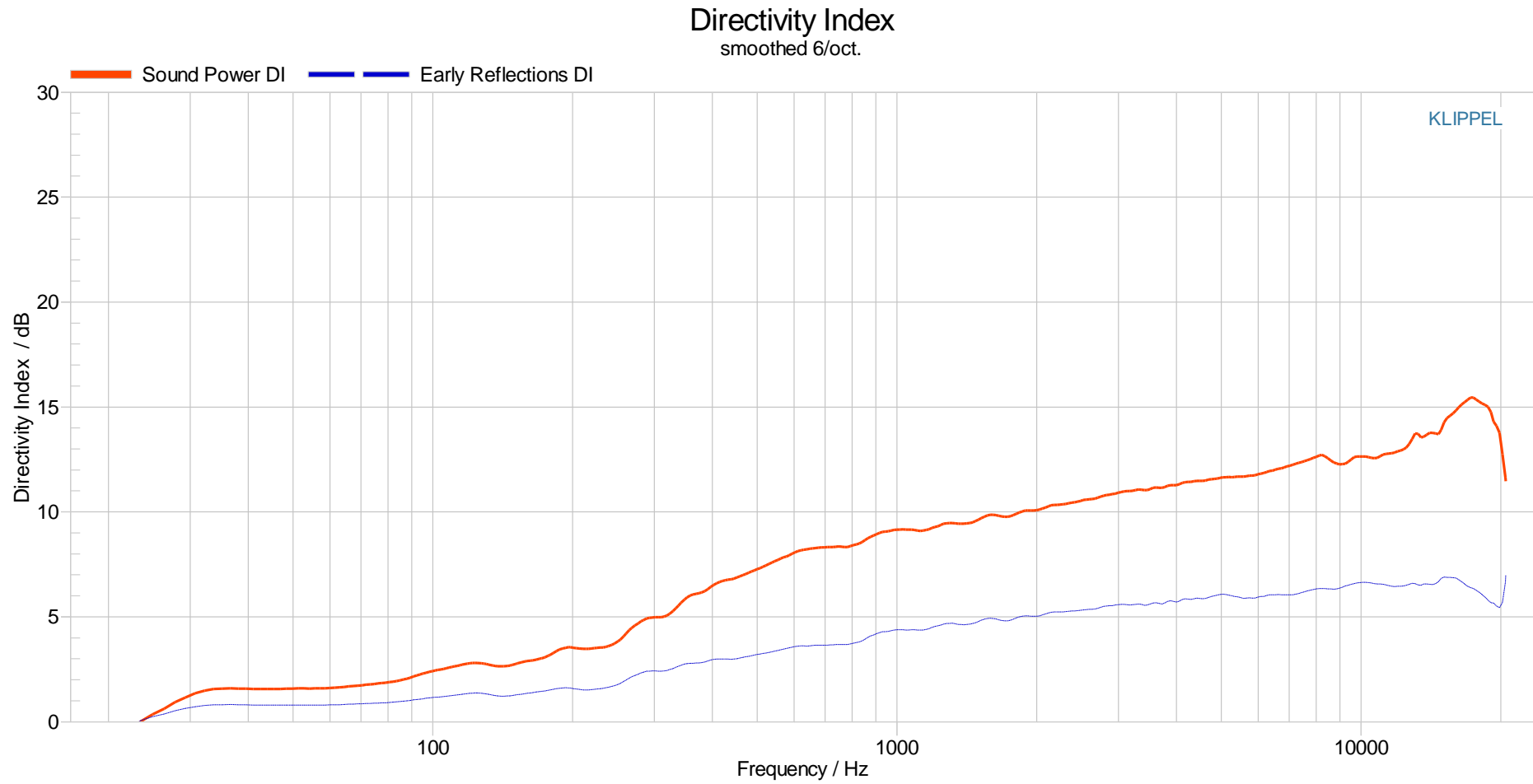
2,83v @1m – 1/6 oct. Smoothing





## 5.1. Directivity Index

*1/6 oct. Smoothing*

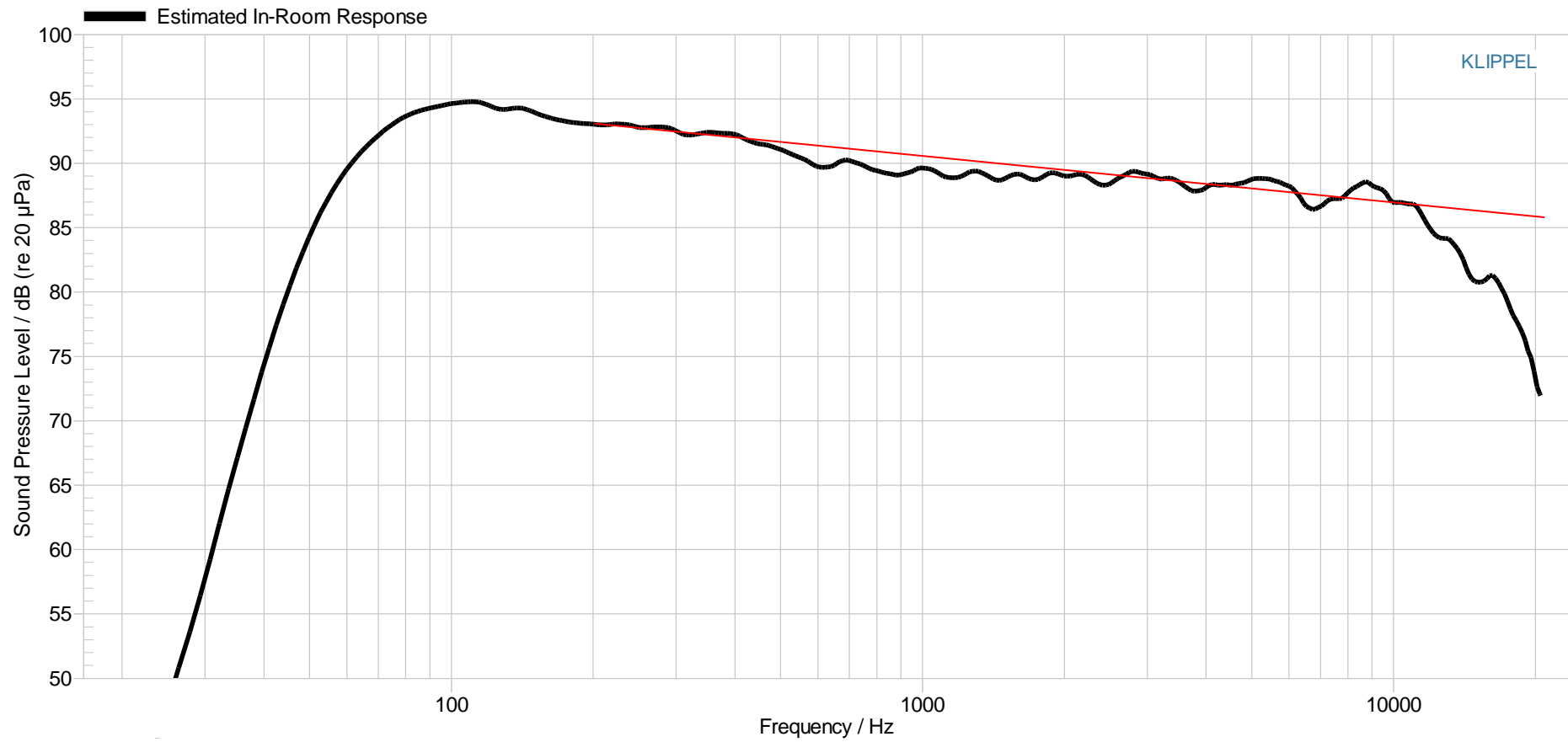


## 5.2. In-Room response

*1/6 oct. Smoothing*

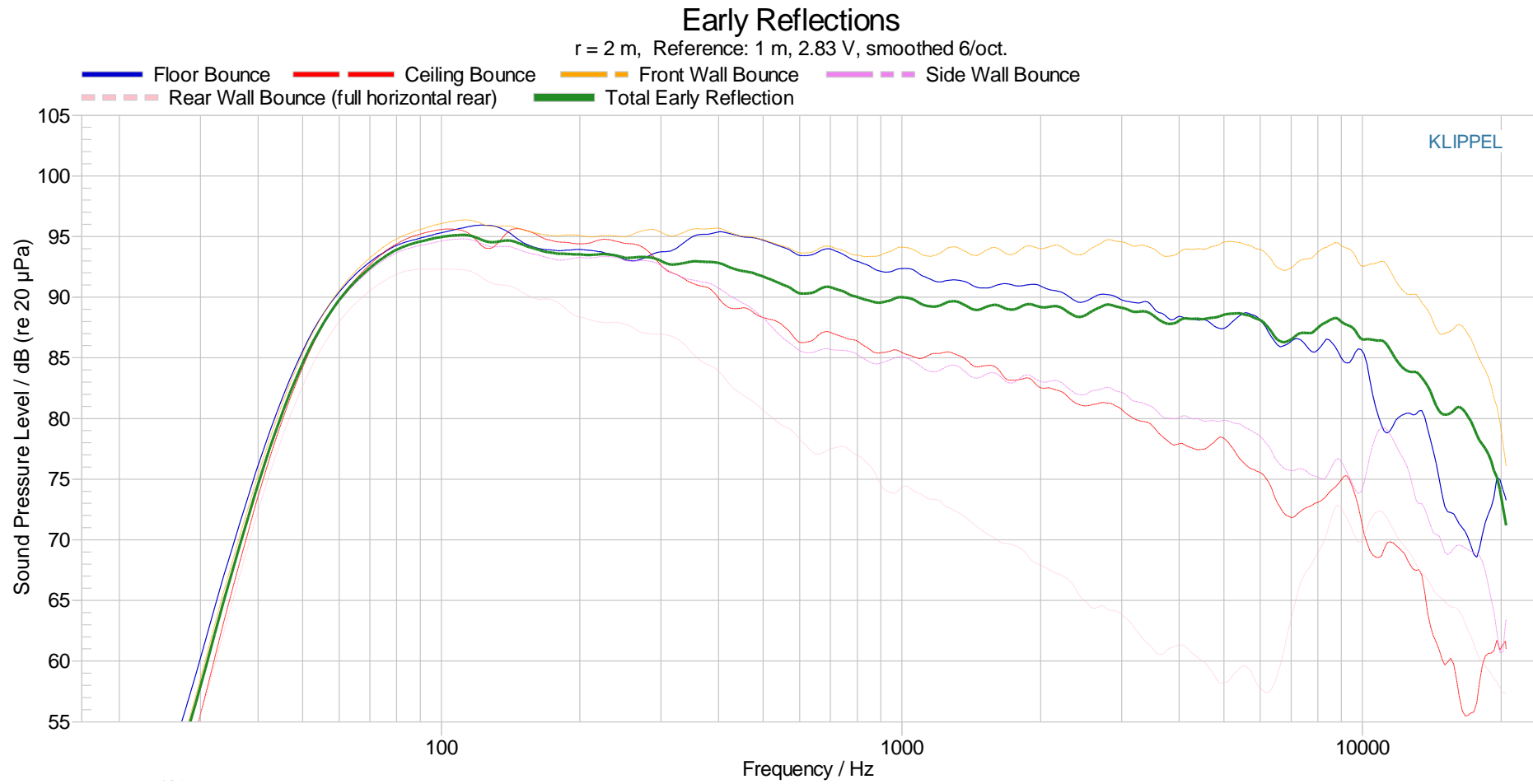
### Estimated In-Room Response

r = 2 m, Reference: 1 m, 2.83 V, smoothed 6/oct.



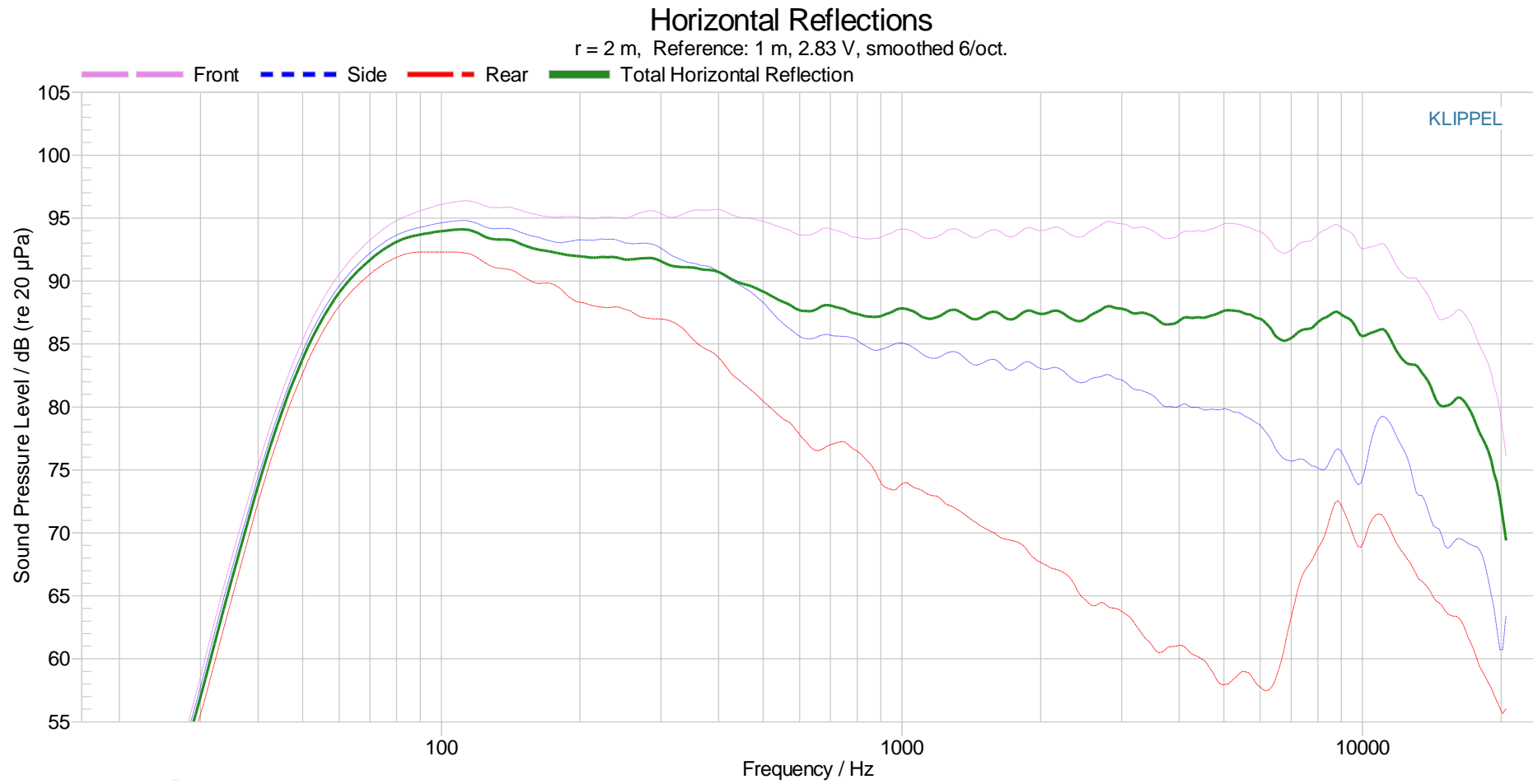
## 5.3. Early reflections

*1/6 oct. Smoothing*



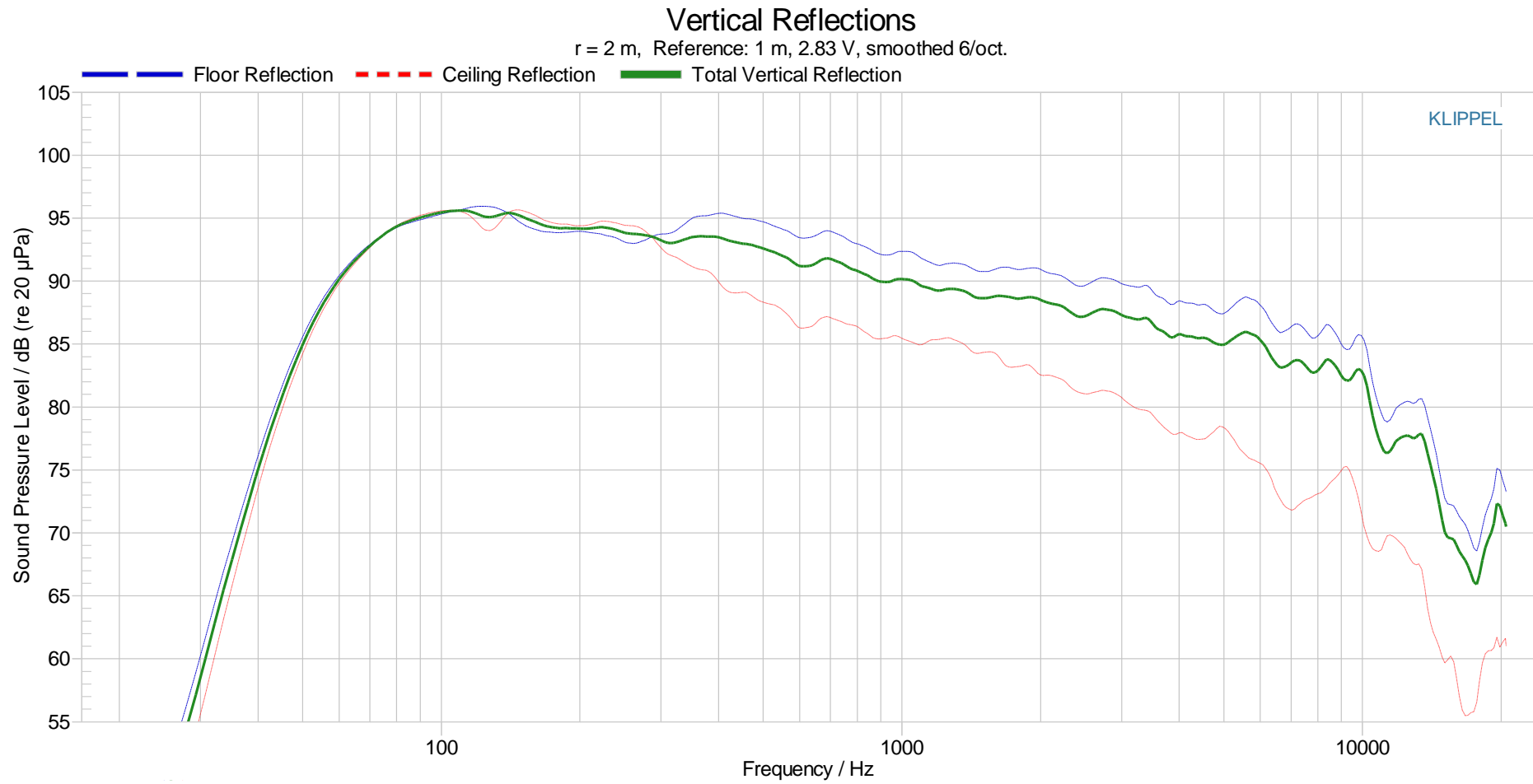
## 5.4. Horizontal Reflections

*1/6 oct. Smoothing*



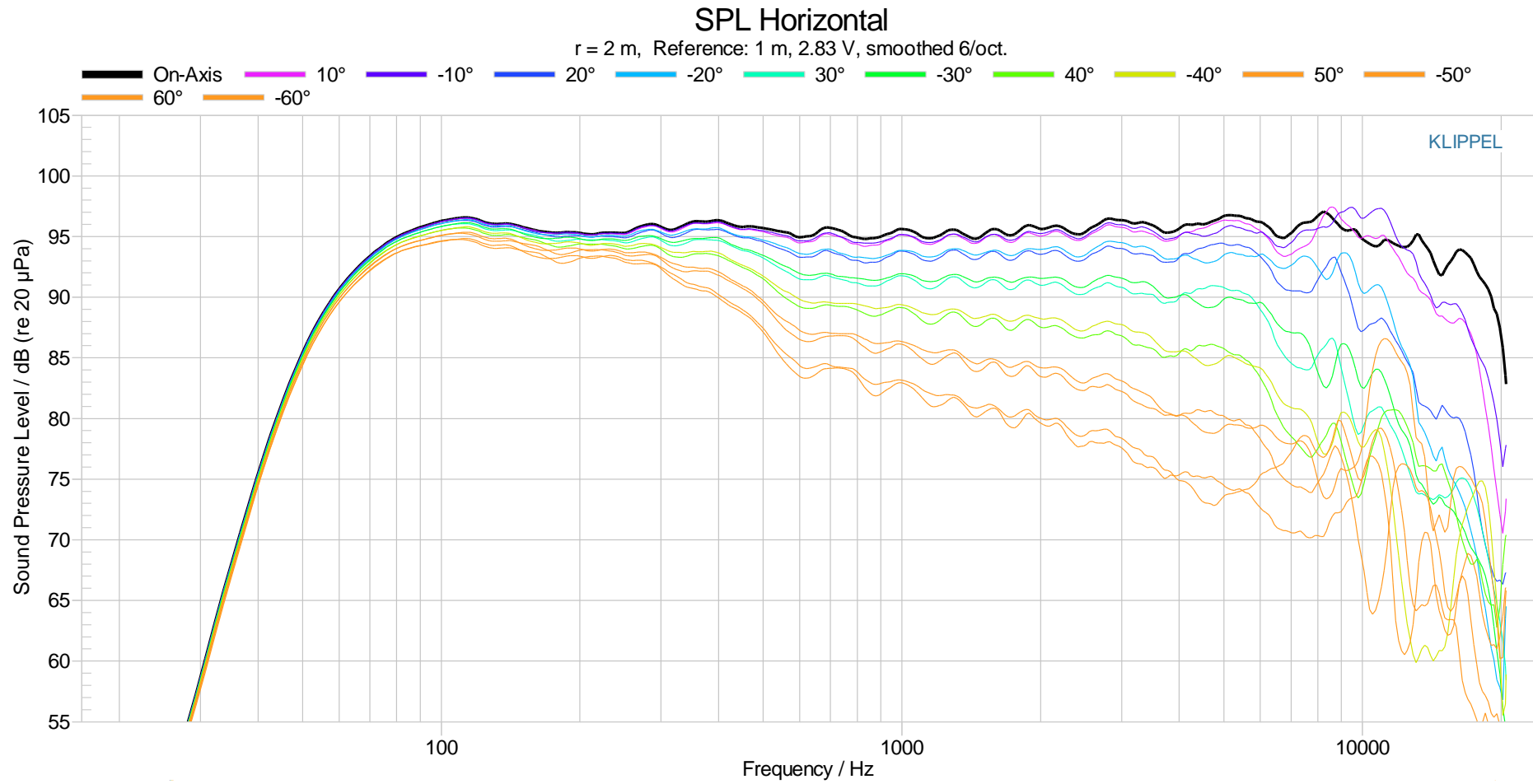
## 5.5. Vertical Reflections

*1/6 oct. Smoothing*



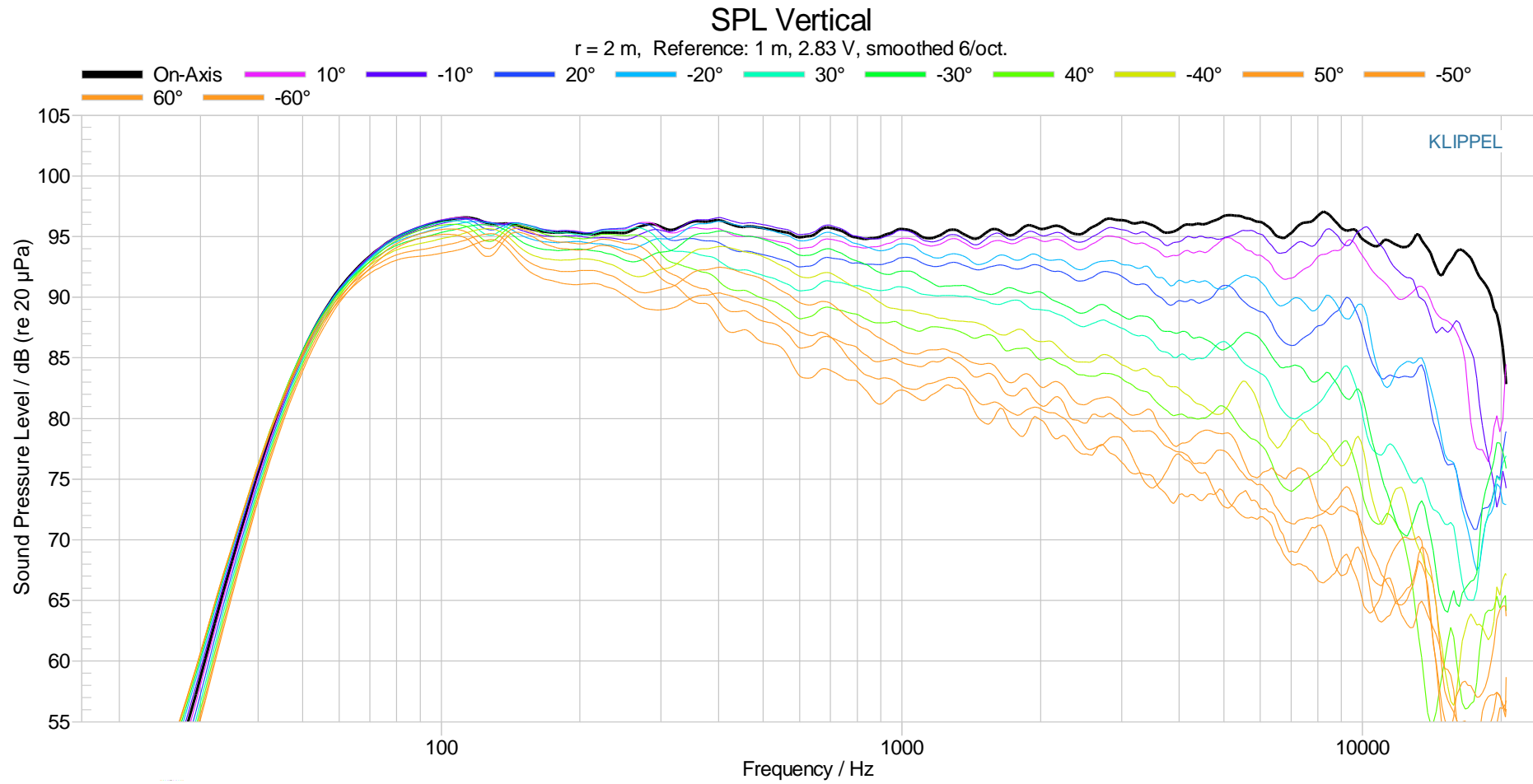
## 5.6. Horizontal Frequency Response

*1/6 oct. Smoothing*



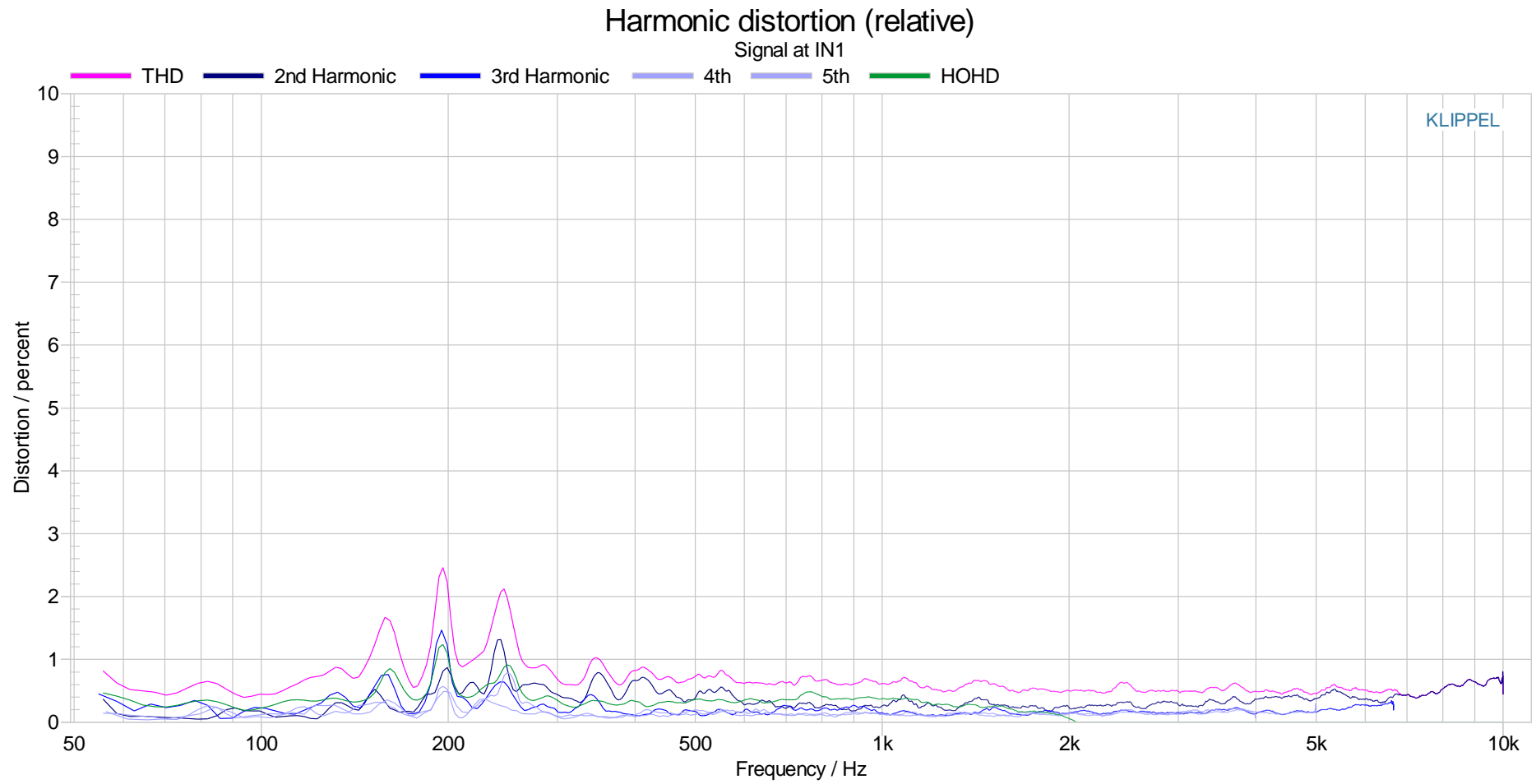
## 5.7. Vertical Frequency Response

*1/6 oct. Smoothing*



## 6. Harmonic Distortion

*1/6 oct. Smoothing – +7dBu Stimulus*





## 7. MTON Max SPL – 1s Stimulus

### 7.1. Results

#### Results of last passed measurement

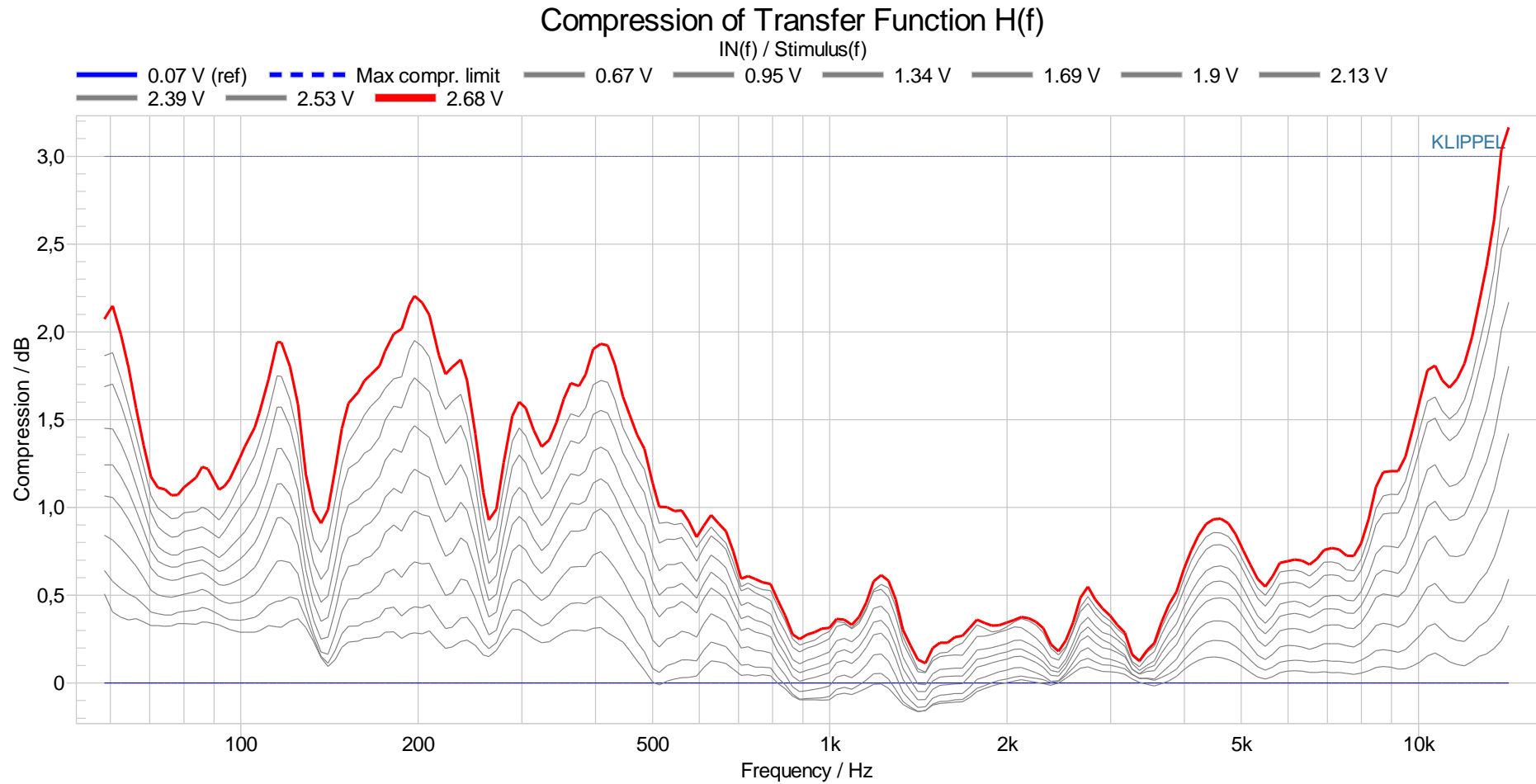
Parameter	Value	Unit	Description
$U_{\max}$	2.53	V	Root mean square of stimulus.
$SPL_{\max}$	121.5	dB	Sum level of fundamentals in microphone signal.
Eff. Freq. Range	258 - 13436	Hz	Effective frequency range (freq. response > SPL value - 10 dB).
$C_{\max}$	2.7	dB	Max compression in the frequency range 59 - 13828 Hz.
$RMD_{\max}$	-21.54 (8.4)	dB (%)	Maximum multi-tone distortion of microphone signal relative to mean value.
TMDR	-14.92 (18)	dB (%)	Total multi-tone distortion ratio of microphone signal.

#### Stimulus properties

Parameter	Value	Unit	Description
$f_{\min}$	58.59	Hz	Lowest multi-tone frequency line
$f_{\max}$	14234.38	Hz	Highest multi-tone frequency line
$t$	0.51	s	Signal duration
$K$	3	-	Kurtosis
$C$	12.28	dB	Crest factor

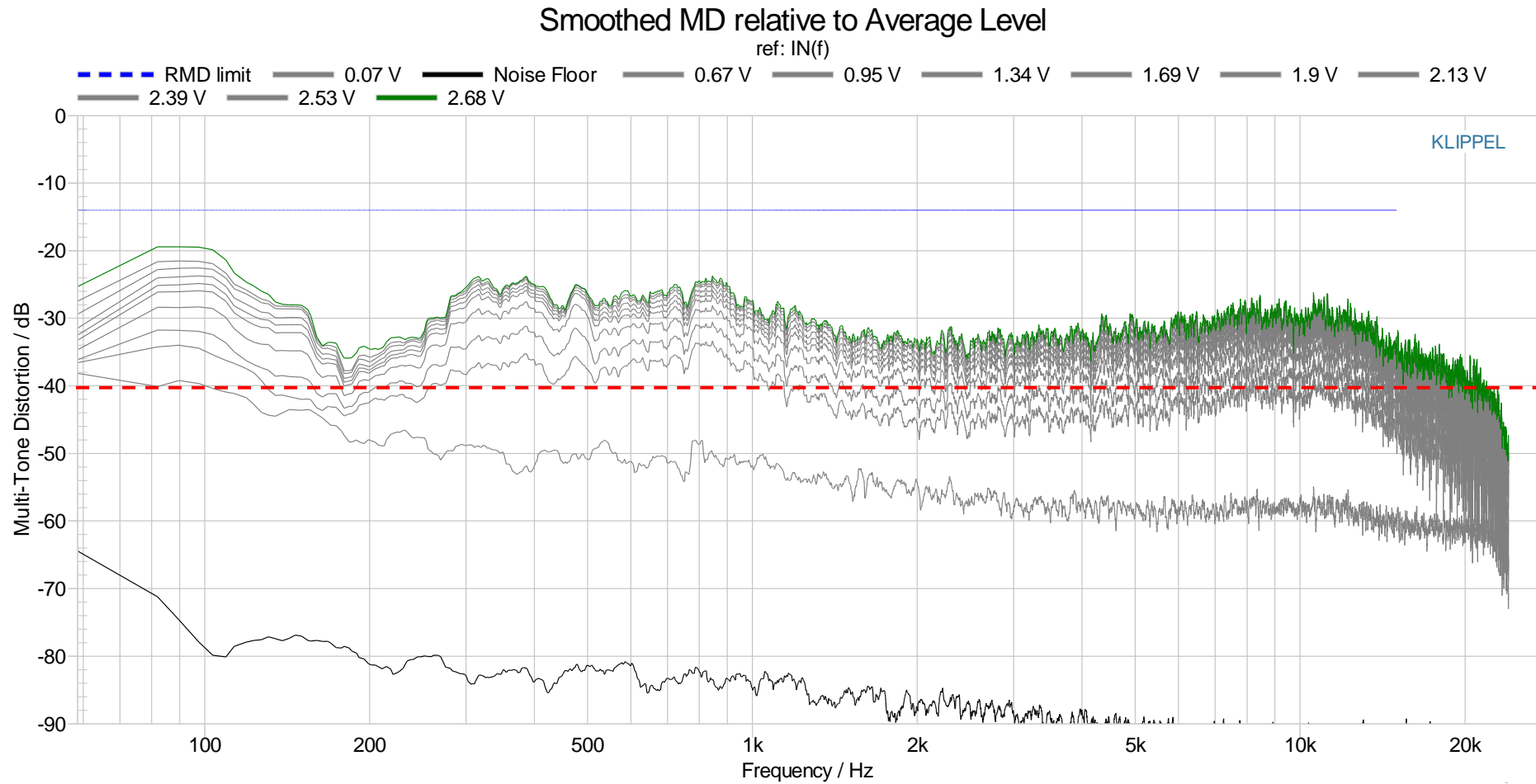
## 7.2. Compression Chart

-32dB Voltage Values – 1/6 Smoothing



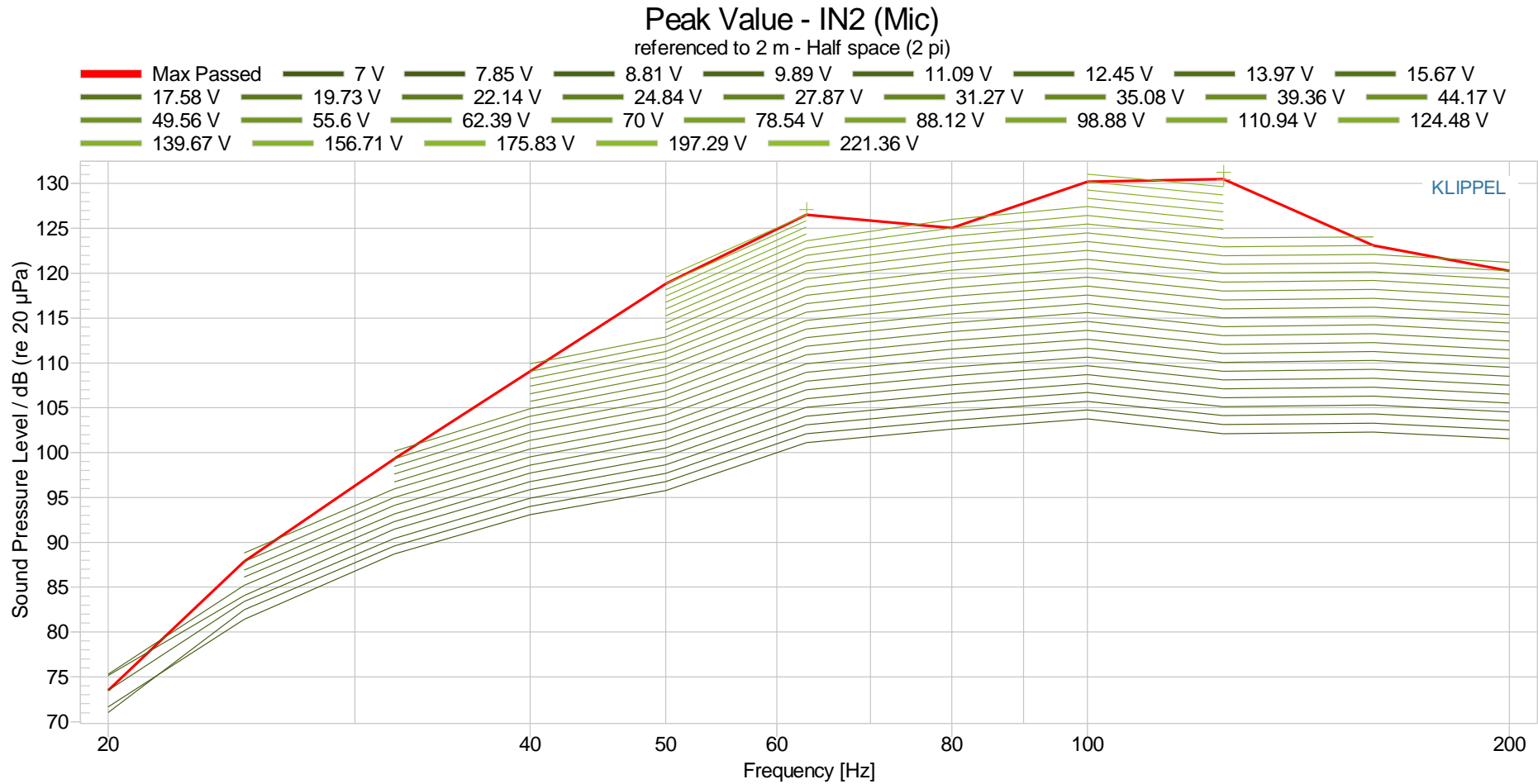
### 7.3. Multi Tone Distortion Chart

-32dB Voltage Values – No Smoothing



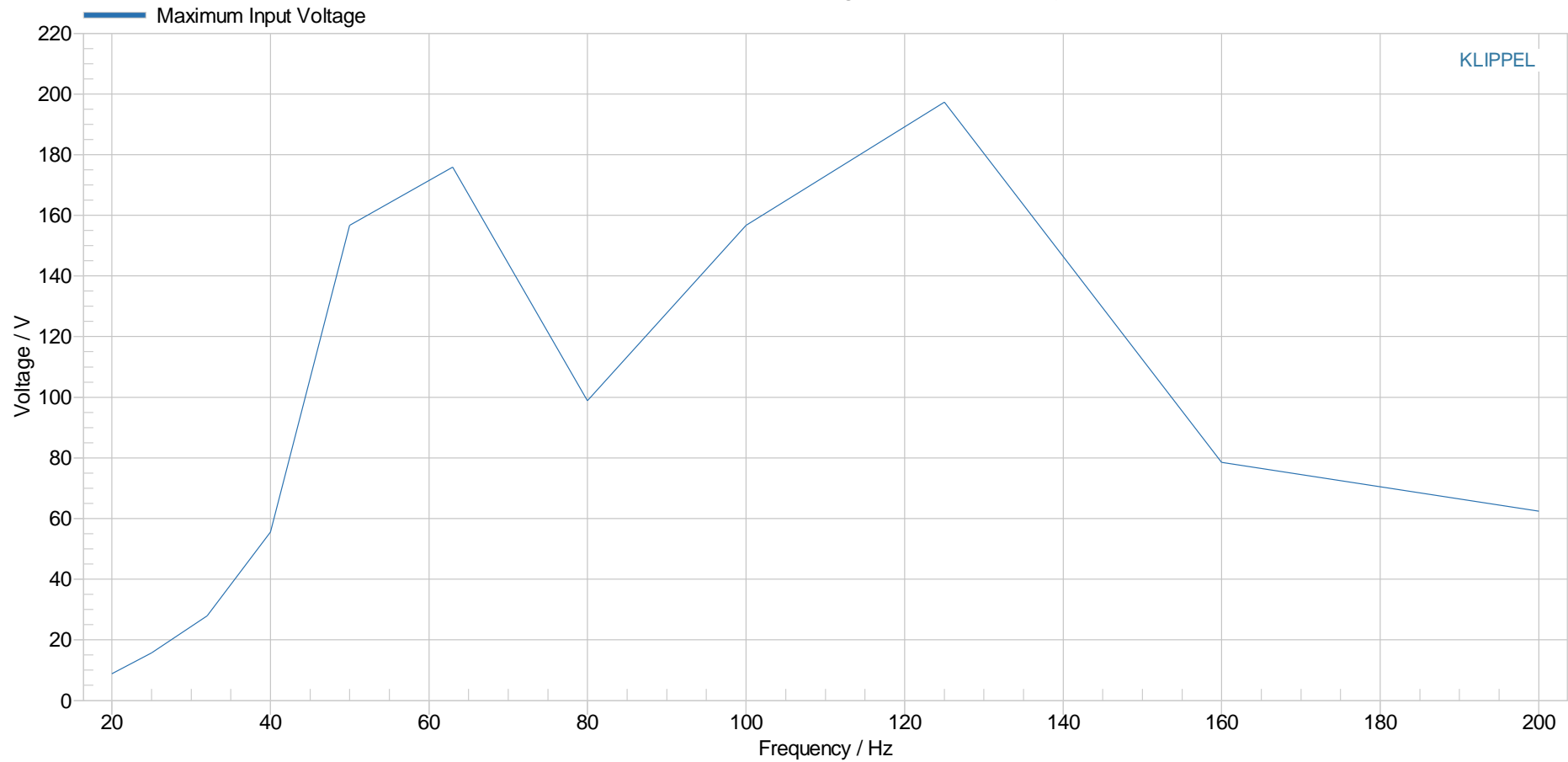
## 8. CEA2010B

### 8.1. Max Peak SPL



## 8.2. Max Peak Voltage

Maximum passed Input Voltage vs. Frequency Profile



### 8.3. THD on Burst

