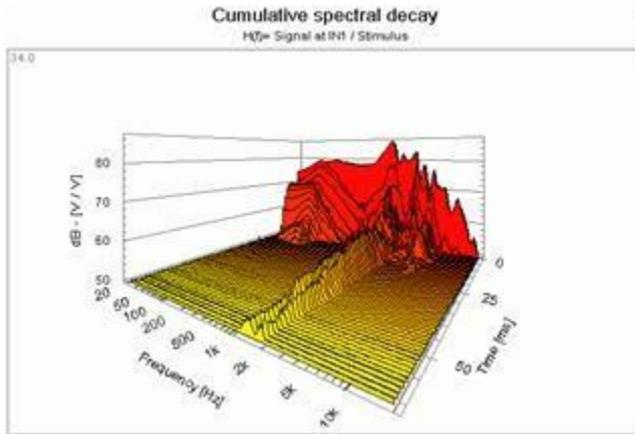


Ringing

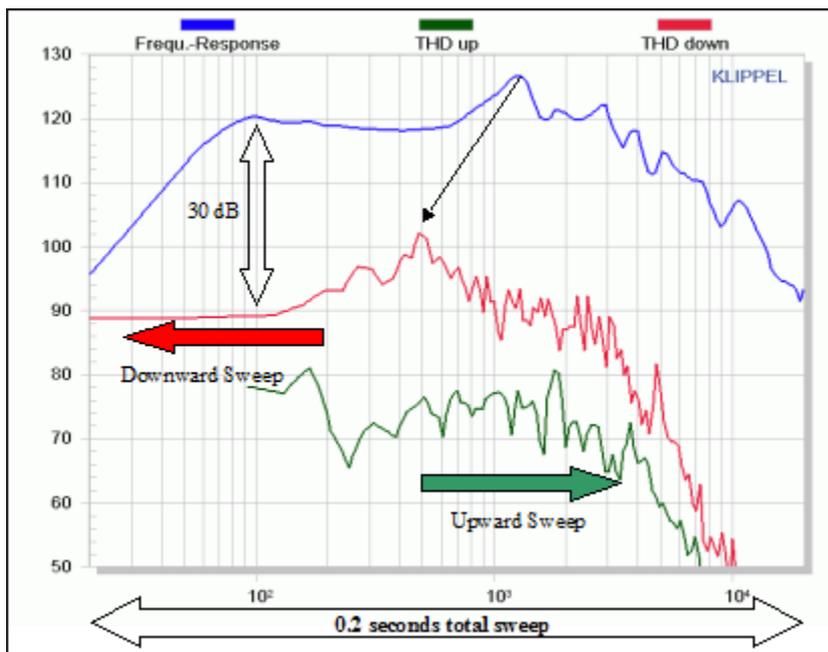
Driver with a higher Q resonance in the frequency response show a characteristic ringing when analyzing the waterfall plot. In the example below, a strong resonance at about 1 kHz oscillates more than 80ms at about 30dB below the fundamental.



If a very fast sweep from high to low frequencies (downward) is used, then the ringing is still active, and the tracking high pass filter for THD is collecting this energy. This energy is wrongly interpreted as THD, which is not true. It is just the ringing from higher frequencies. This effect is due to high speed. It can be omitted if the sweep

- starts below these resonance effects (e.g. 700 Hz in the example) · the sweep direction is changed from down to up.

This is a linear effect and happens at all amplitudes.



The upward sweep is close to the steady state measurement and does not show this effect. This is caused by the high pass cut off frequency is shifting upwards, leaving the region of resonance, whereas for downward sweeps the high pass pass band is entering the region of resonance.