

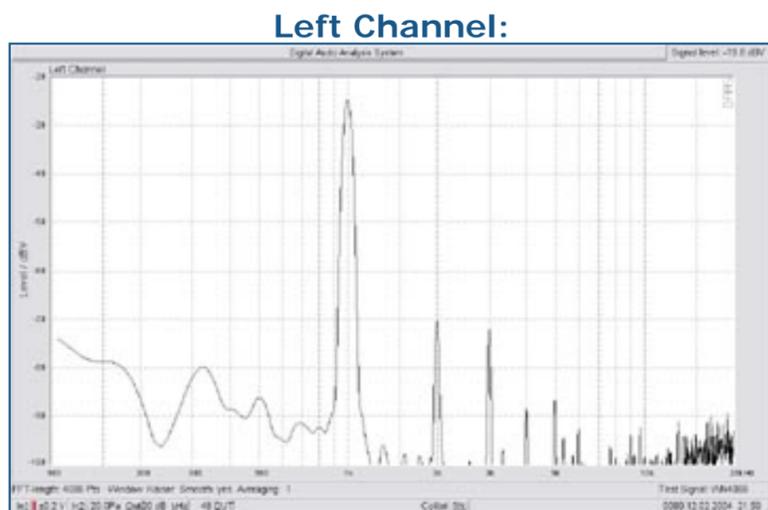
Van den Hul

The COLIBRI XCP-HO

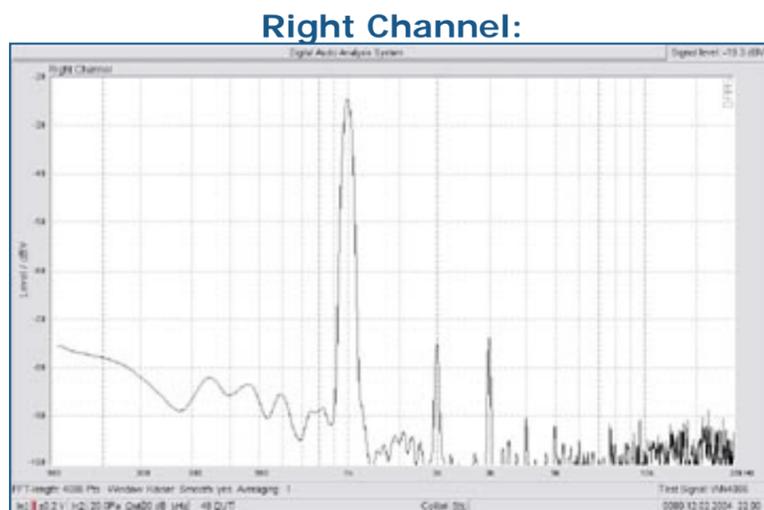
a harmonic distortion spectrum measurement

As the following distortion spectrum measurement graphs and figures show, The COLIBRI's optimal tracking VDH - 1S type stylus combined with its linear modulator design exhibits excellent low distortion replay performance. Only the low order second and third harmonics prevail and level at around 54 dB (see note 2) below the test record's 1 kHz sine wave signal, thus also providing technical proof of lack of any sound harshness.

Measurement plots:



[Jump to Appendix 1](#) for an enlarged plot



[Jump to Appendix 2](#) for an enlarged plot

Distortion figures:

Left Channel:

Total Harmonic Distortion (THD):	0.376 %	
Partial distortion figures:	Second harmonic:	0.285 %
	Third harmonic:	0.239 %
	Fourth harmonic:	0.035 %
	Fifth harmonic:	0.040 %

Right Channel:

Total Harmonic Distortion (THD):	0.241 %	
Partial distortion figures:	Second harmonic:	0.156 %
	Third harmonic:	0.180 %
	Fourth harmonic:	0.027 %
	Fifth harmonic:	0.024 %

Notes:

- The distortion performance of The COLIBRI itself is actually better than the given figures. This since, apart from The COLIBRI's transduction itself, there are many factors in the record cutting and replay process which can cause these higher figures; Original sine wave distortion, cutting amplifier distortion, cutting arrangement misalignment, cutting chisel shape and wear. And during replay: possible minor tracking misalignment and distortion due to all further devices in the chain...
- The level of the fundamental 1 kHz tone as shown in the plots has been attenuated by a measurement system filter. The actual fundamental tone levels are shown in the plots' upper right corner and for resp. the left and right channel amount to -19.6 and -19.3 dBV.

Measurement data kindly supplied by: Prof. Dr.-Ing. P. Steinke
Münster University of Applied Sciences

Equipment used:

Cartridge:	The COLIBRI XCP-HO Snr.: GC2A180
Measurement system:	Digital Audio Analysis System ADM Engineering Version: DAAS4 USB www.ADMnet.de
Pre-amplifier:	Tube Phono-preamp (self built) Tubes: ECC801S (Telefunken) & 5692 + J-FET Power supplied by lead gel batteries
Power:	Total set up powered by an uninterruptible power supply unit

Turntable: Self built with 3 motors, 3 flywheels and inverted bearing
Bearings: PTFE and ceramic ball type
Motors: Employing separate power supply (Wien bridge sine oscillator)

Tone arm used: Wheaton Triplanar IV

Test record & track used: Audio Soundcheck (DMM)
Track No. 1: Sine wave 1000 Hz, -10 dB

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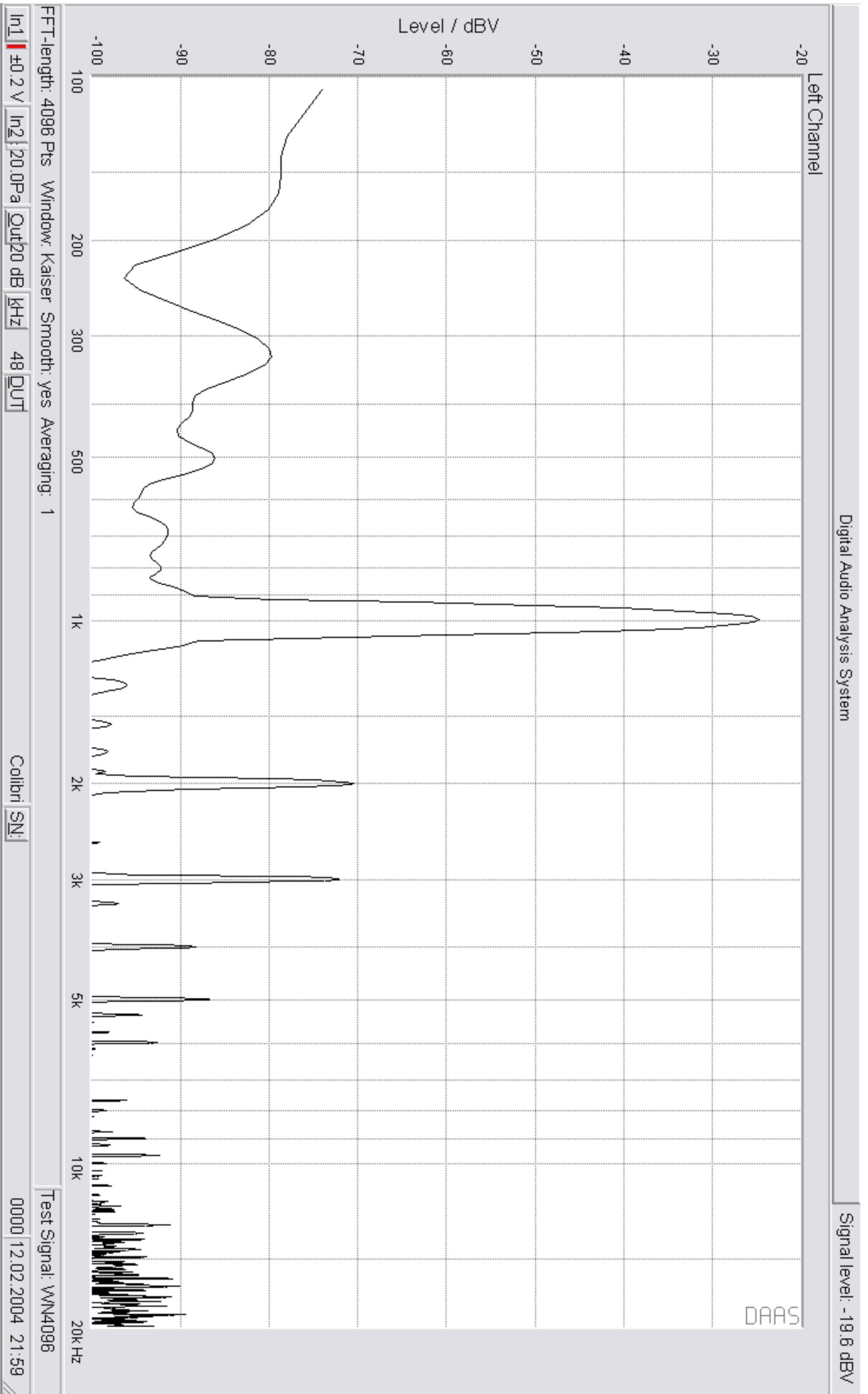
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Appendix 1



Appendix 2

