

Soundcard based Measurement and Analysis, Comparison of different Analysis-Software

THD Measurements

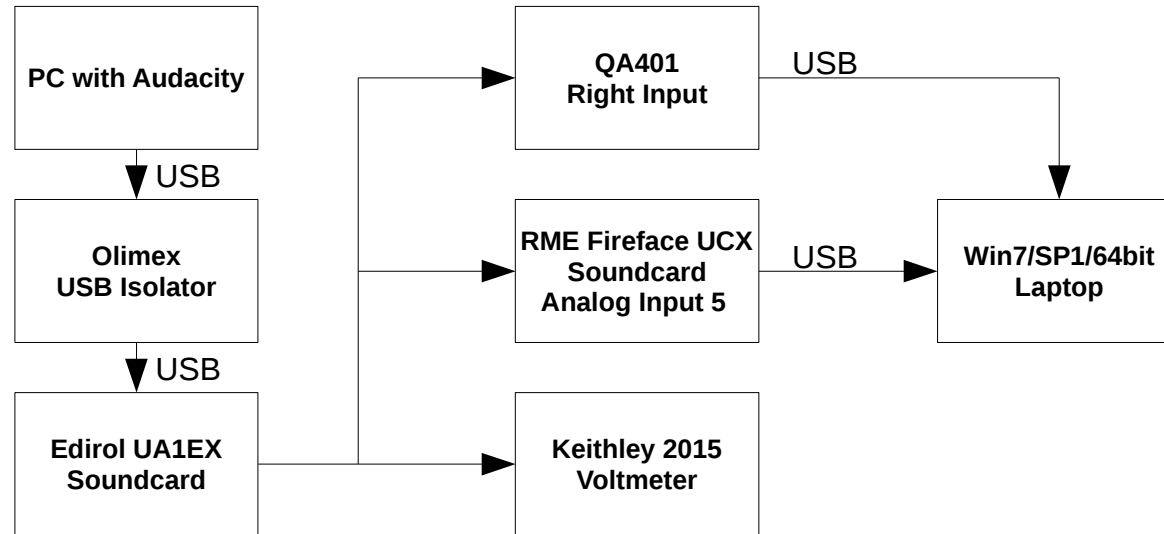
06/07/2017

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1 Test Setup

All cabling shielded, partially RG58, partially balanced Cordial.

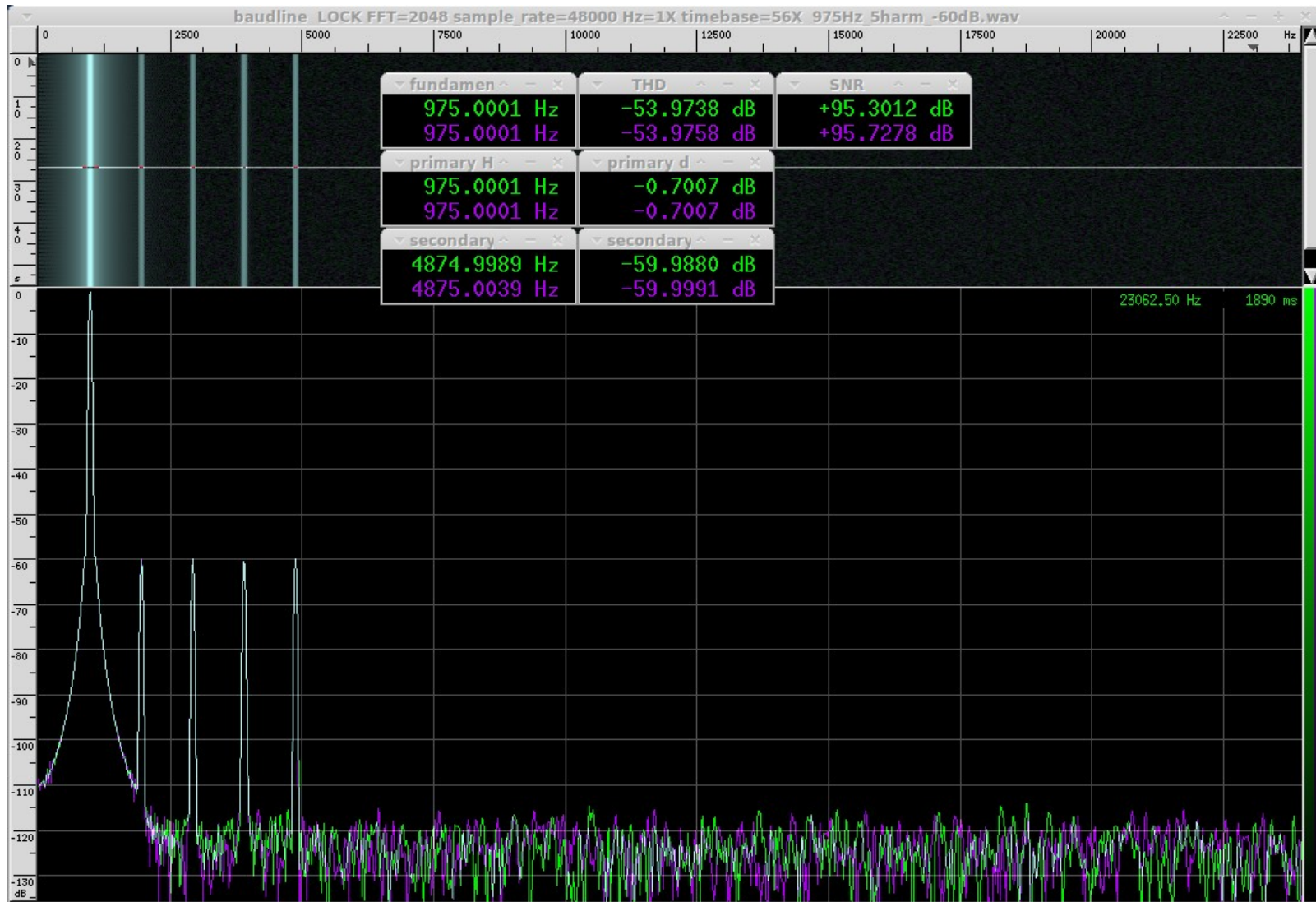


2 Test Signals

Two test signals were generated with Audacity and saved as .wav (48kHz, 24bit PCM).

2.1 975Hz, 5 Harmonics at -60dB

Mathematical THD = 0.22361% / -53.010dB. Baudline analysis of .wav below:



2.2 825Hz, 5 Harmonics at -70dB

Mathematical THD = 0.070711% / -63.010dB. Baudline analysis of .wav below:



3 Keithly 2015

Config: read THD in dB up to 5 harmonics, AVG=50

Signal 1: THD = -53.12 dB, Level= 0.6217 Vrms

Signal 2: THD = -60.64 dB, Level=0.6215 Vrms

4 QA401

4.1 Summary

Config

fs [kHz]	48
bit depth	24
sample duration [sec]	1,125
sample points	65536
averages	0
Anal. Bandwidth [kHz]	24
FFT Window	Hanning

Results

Voltage reading [Vrms]	0,613
THD [%]	0,20874
THD+N [%]	0,23059

Harmonics

peak	frequency [Hz]	amplitude [dBV]	amplitude [dBr]
f0	974,85	-4,4	
f1	1949,7	-62,6	-58,2
f2	4875	-64,1	-59,7
f3	3900,1	-64,6	-60,2
f4	2924,5	-65,1	-60,7

Config

fs [kHz]	48
bit depth	24
sample duration [sec]	1,125
sample points	65536
averages	0
Anal. Bandwidth [kHz]	24
FFT Window	Hanning

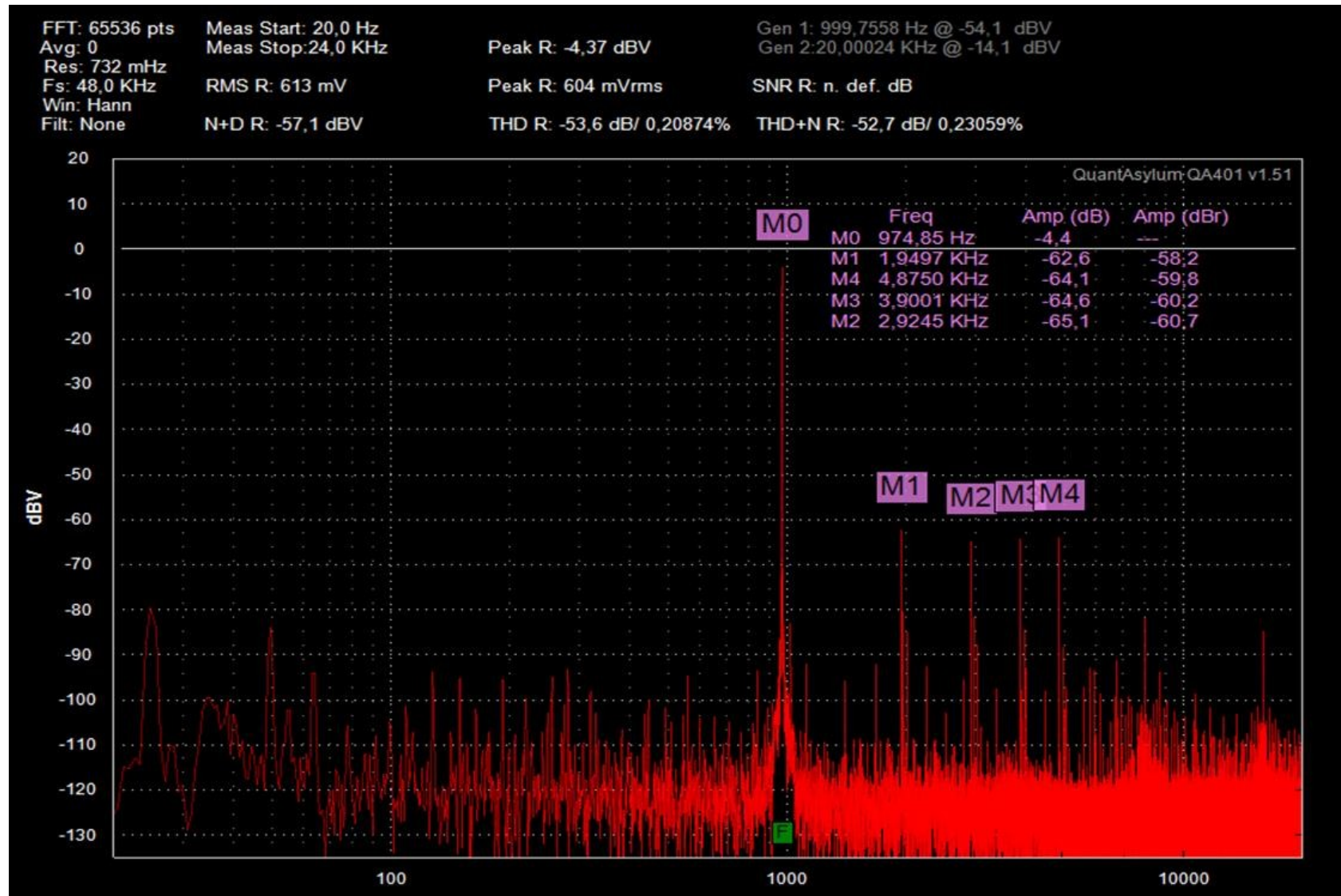
Results

Voltage reading [Vrms]	0,613
THD [%]	0,09762
THD+N [%]	0,11475

Harmonics

peak	frequency [Hz]	amplitude [dBV]	amplitude [dBr]
f0	824,7	-5	
f1	1650,1	-67,8	-63,4
f2	4125	-73,3	-68,9
f3	2474,8	-73,3	-68,9
f4	3299,5	-73,8	-69,4

4.2 Plots



FFT: 65536 pts
Avg: 0
Res: 732 mHz
Fs: 48,0 KHz
Win: Hann
Filt: None

Meas Start: 20,0 Hz
Meas Stop: 24,0 KHz

RMS R: 613 mV

N+D R: -63,8 dBV

Peak R: -4,97 dBV

Peak R: 564 mVrms

THD R: -60,2 dB/ 0,09762%

Gen 1: 999,7558 Hz @ -54,1 dBV
Gen 2: 20,00024 KHz @ -14,1 dBV

SNR R: n. def. dB

THD+N R: -58,8 dB/ 0,11475%

