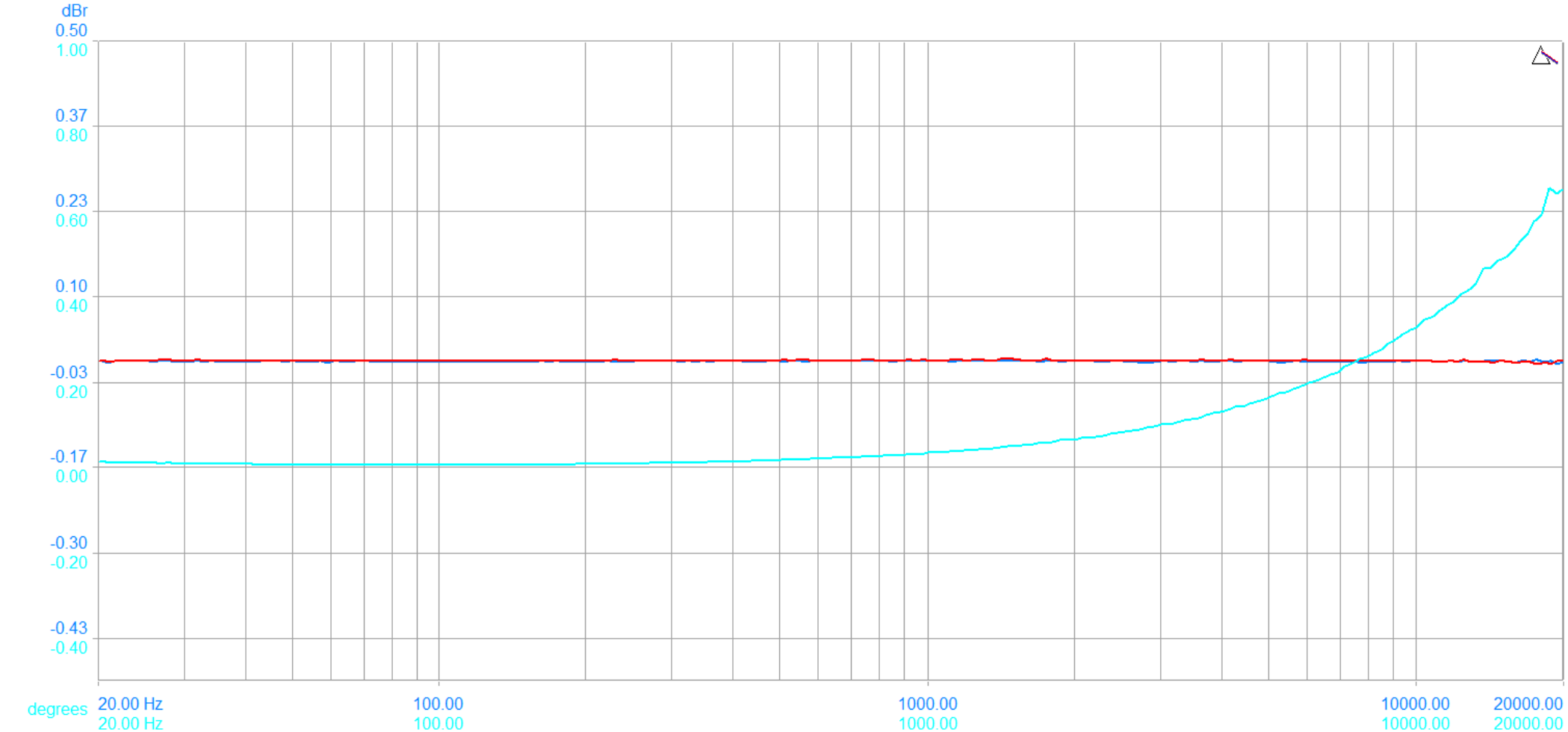
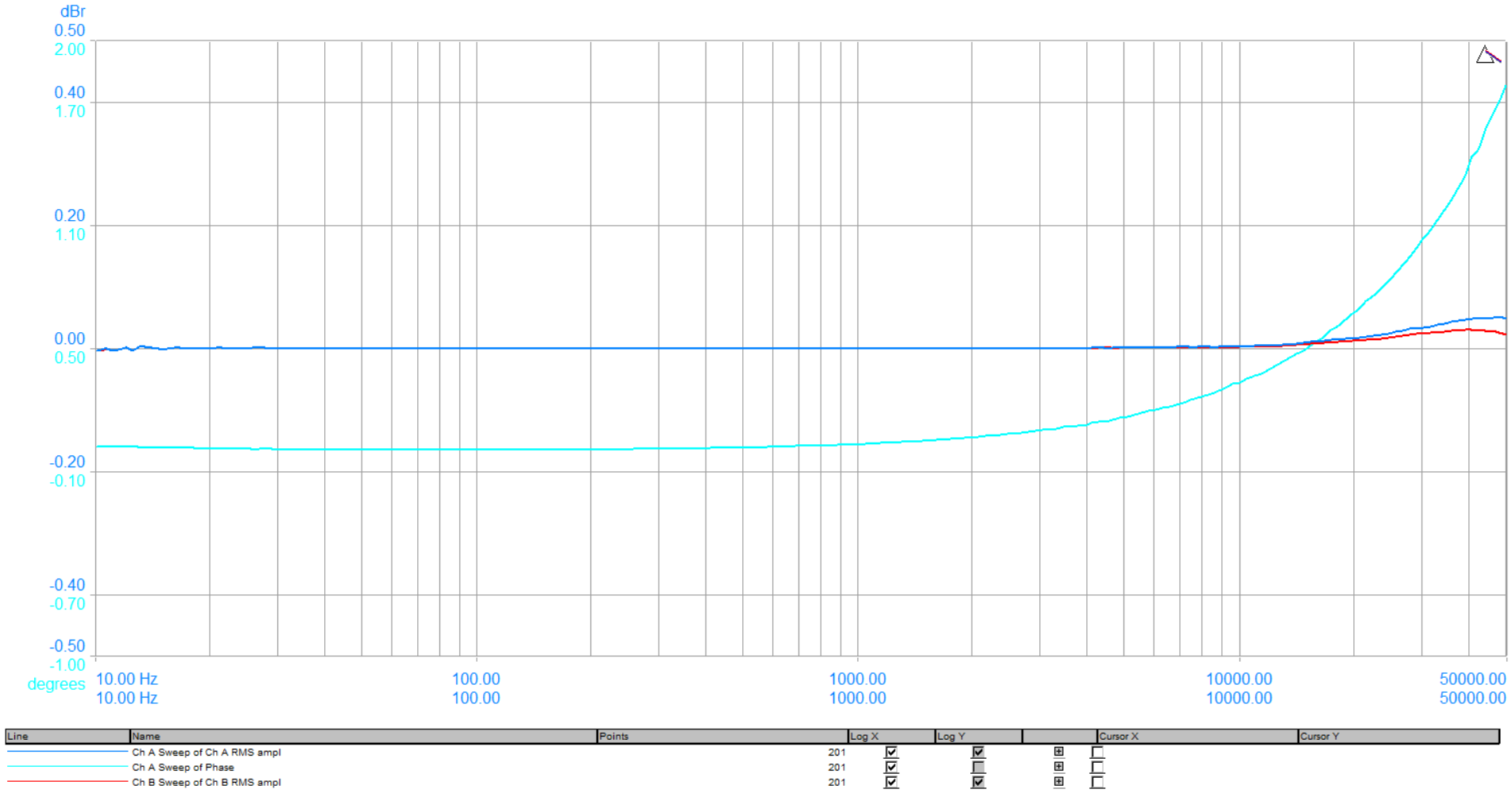
Liquid Spark Frequency Response and Inter-channel Phase 20-20 kHz

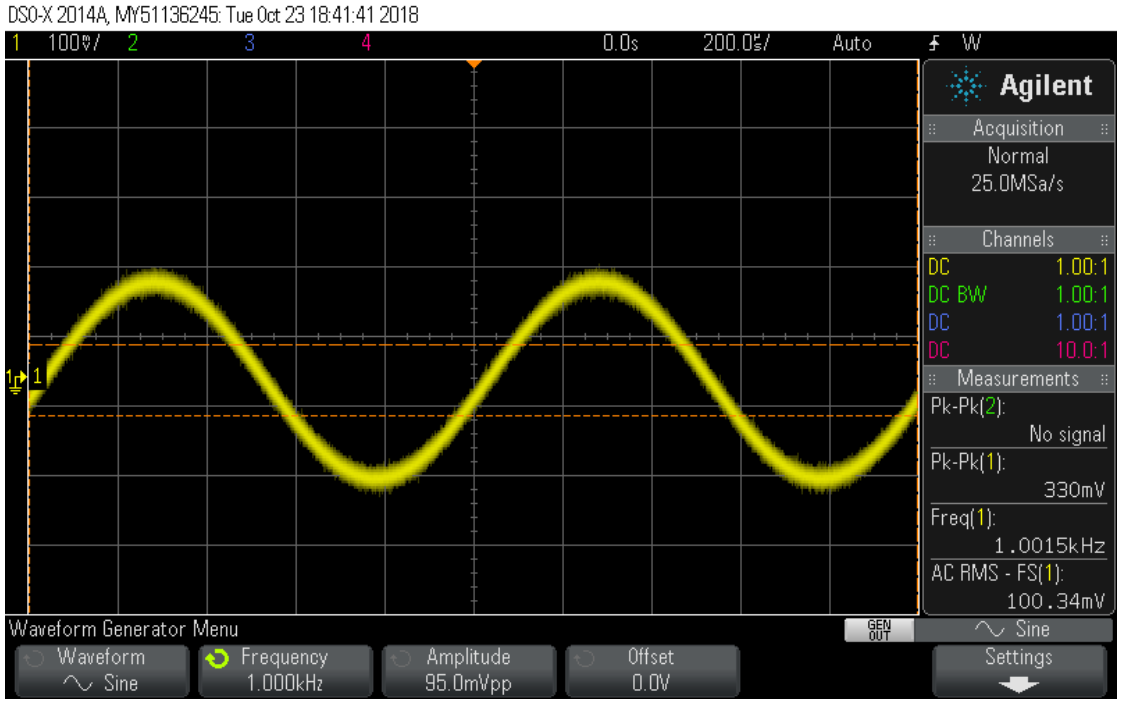


Line	Name	Points	Log X	Log Y		Cursor X	Cursor Y
	Ch A Sweep of Ch A RMS ampl	201	☑	☑	⊞	☐	
	Ch A Sweep of Phase	201	☑	☐	⊞	☐	
	Ch B Sweep of Ch B RMS ampl	201	☑	☑	⊞	☐	

Liquid Spark Frequency Response and Inter-channel Phase 10 Hz -50 kHz



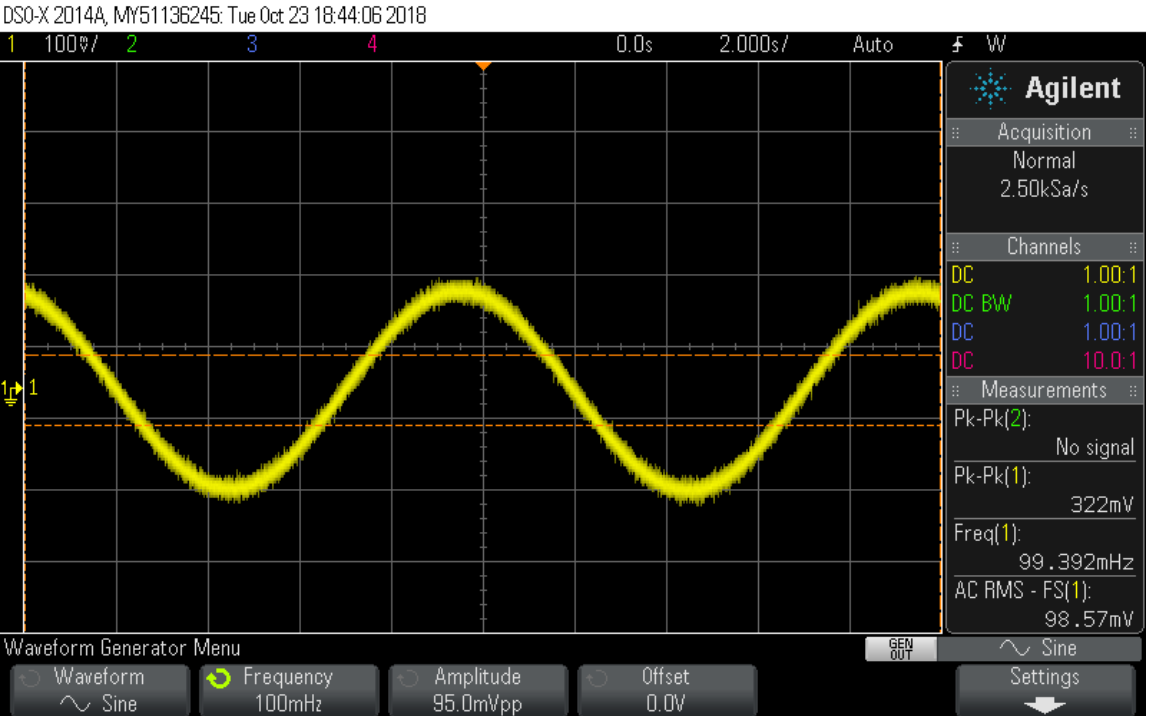
Flat +/- 0.05 db in the 10-50kHz zone

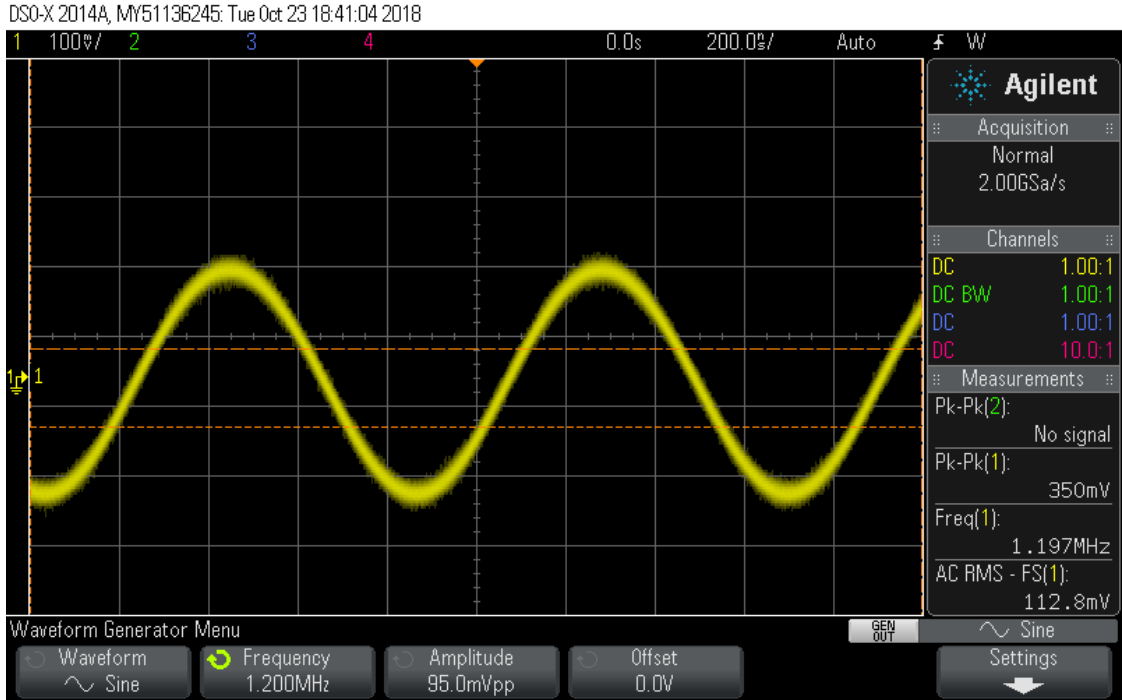


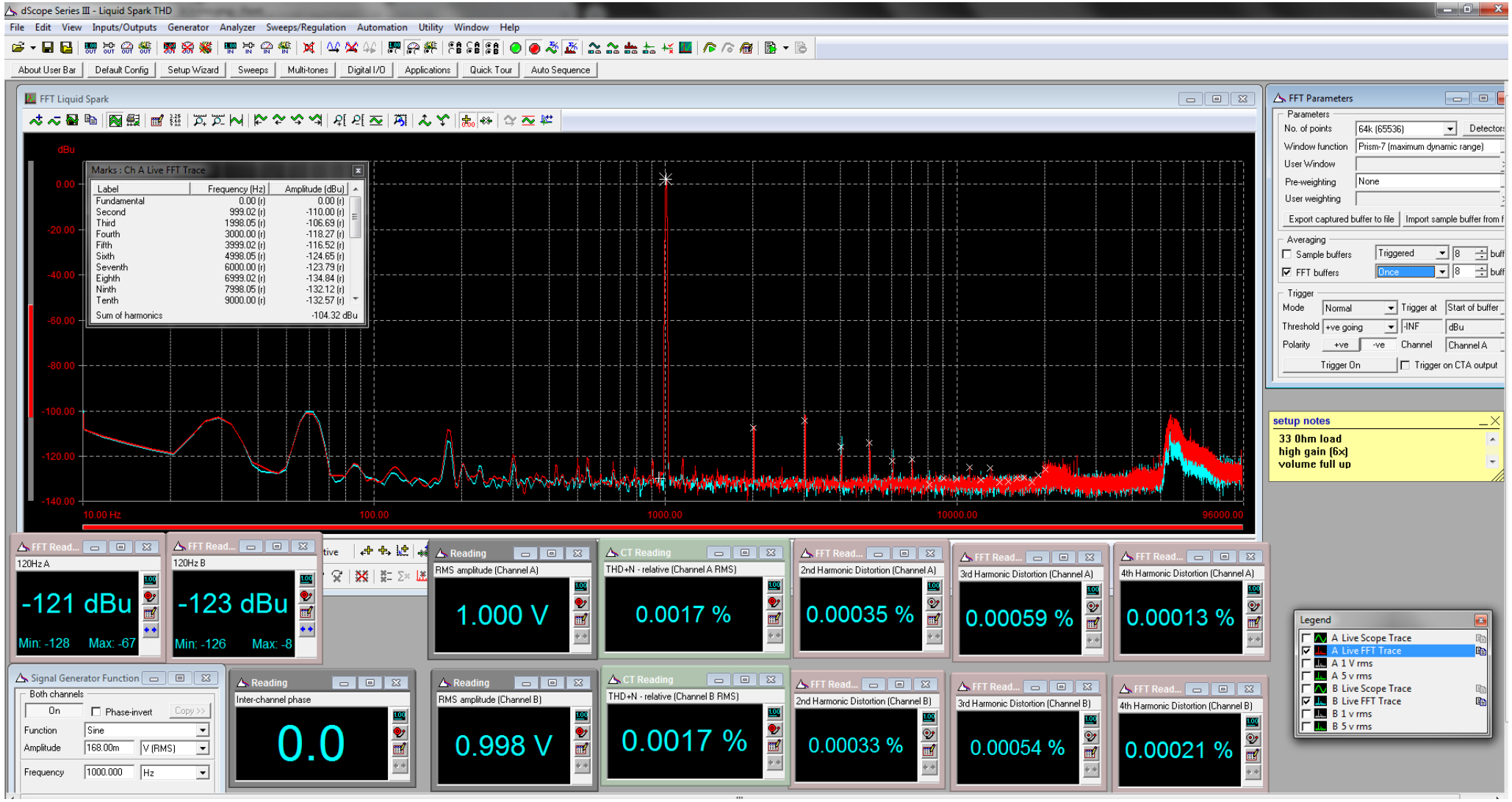
So what is the +/- 3db points? It was hard to measure.

Lets focus on +/- 1db instead.

0.1 Hz is -0.18 db
1.2 MHz is +1 db.



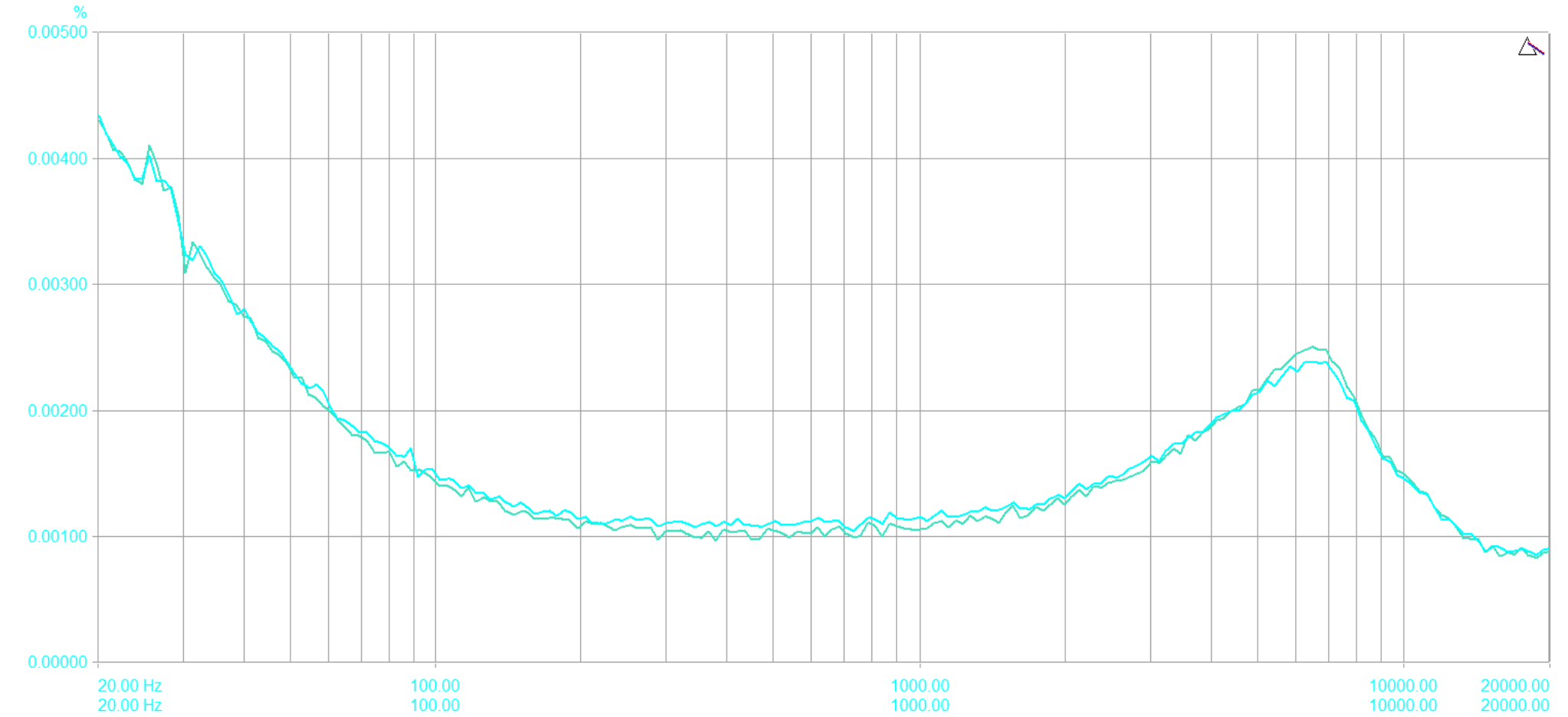




THD for 1V rms output into 33 ohms

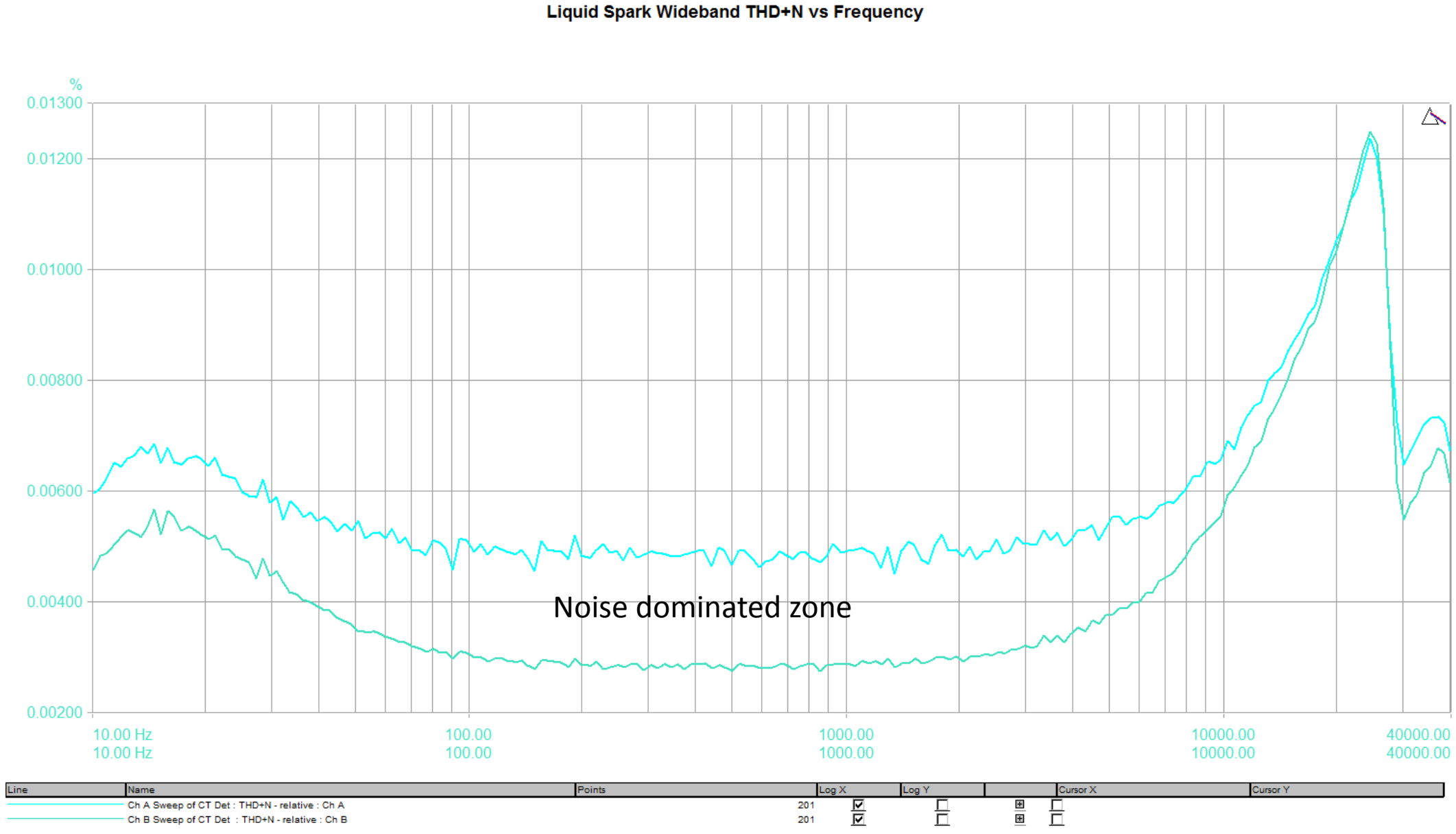
THD for 5V rms output into 33 ohms

Liquid Spark THD+N vs Frequency



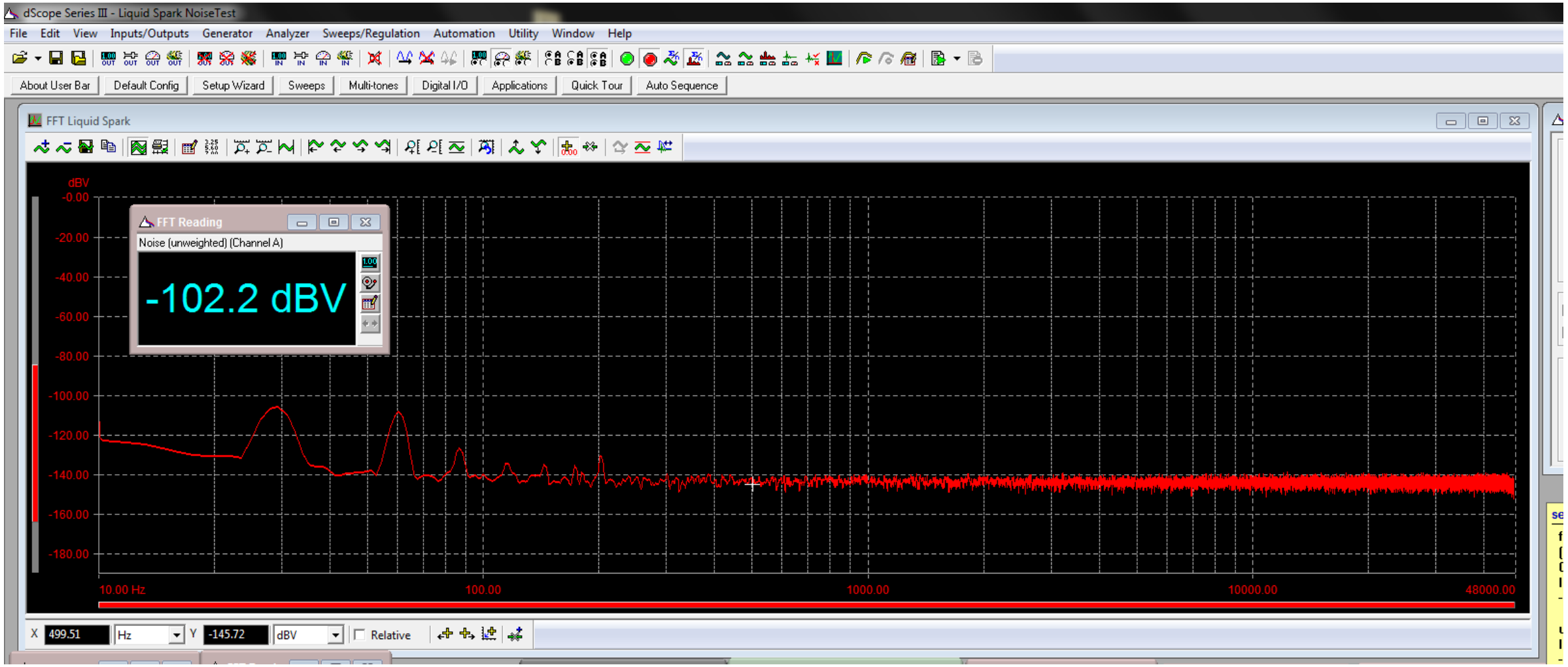
Line	Name	Points	Log X	Log Y		Cursor X	Cursor Y	Comment/label
	Ch A Sweep of CT Det : THD+N - relative : Ch A	201	☑	☐	⊞	☐		
	Ch B Sweep of CT Det : THD+N - relative : Ch B	201	☑	☐	⊞	☐		

THD+N sweep for 1V rms output into 33 ohms

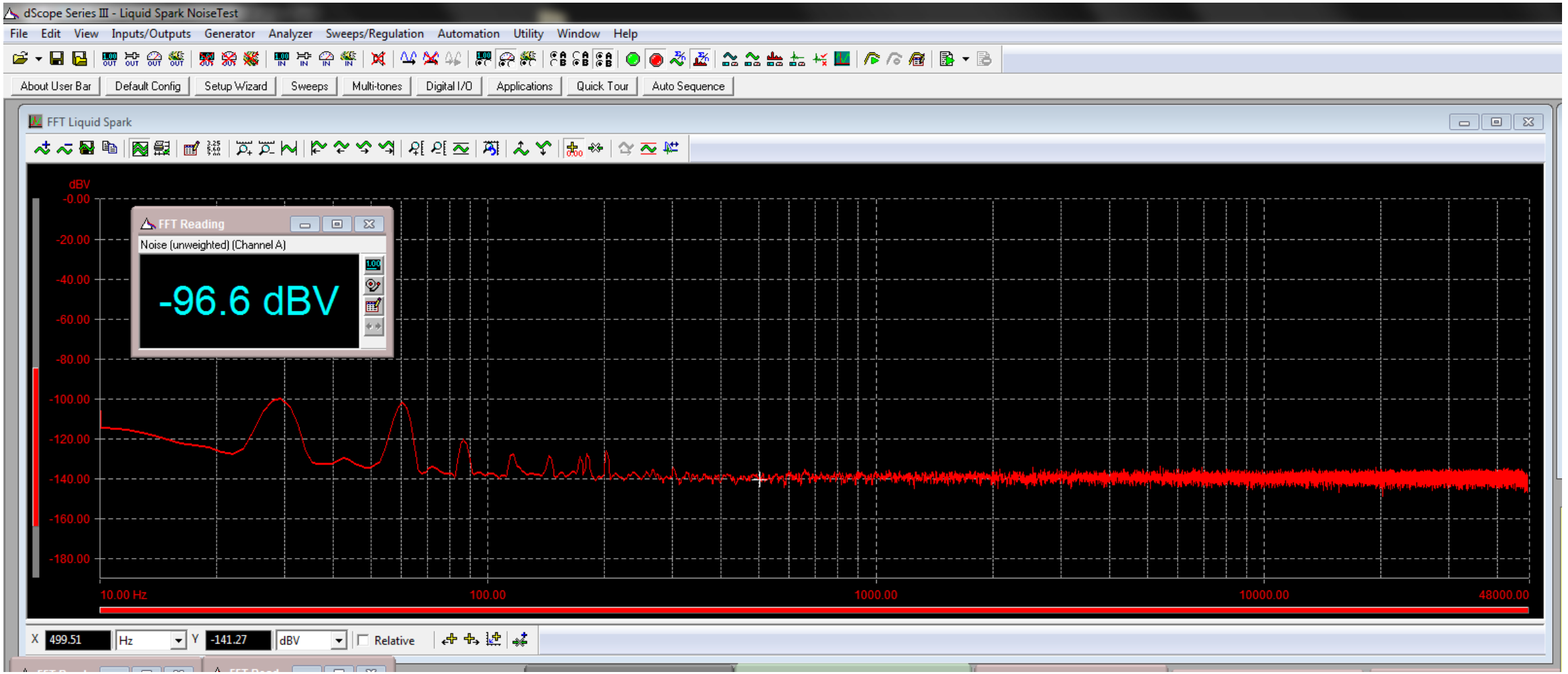


THD+N sweep for 1V rms output into 33 ohms

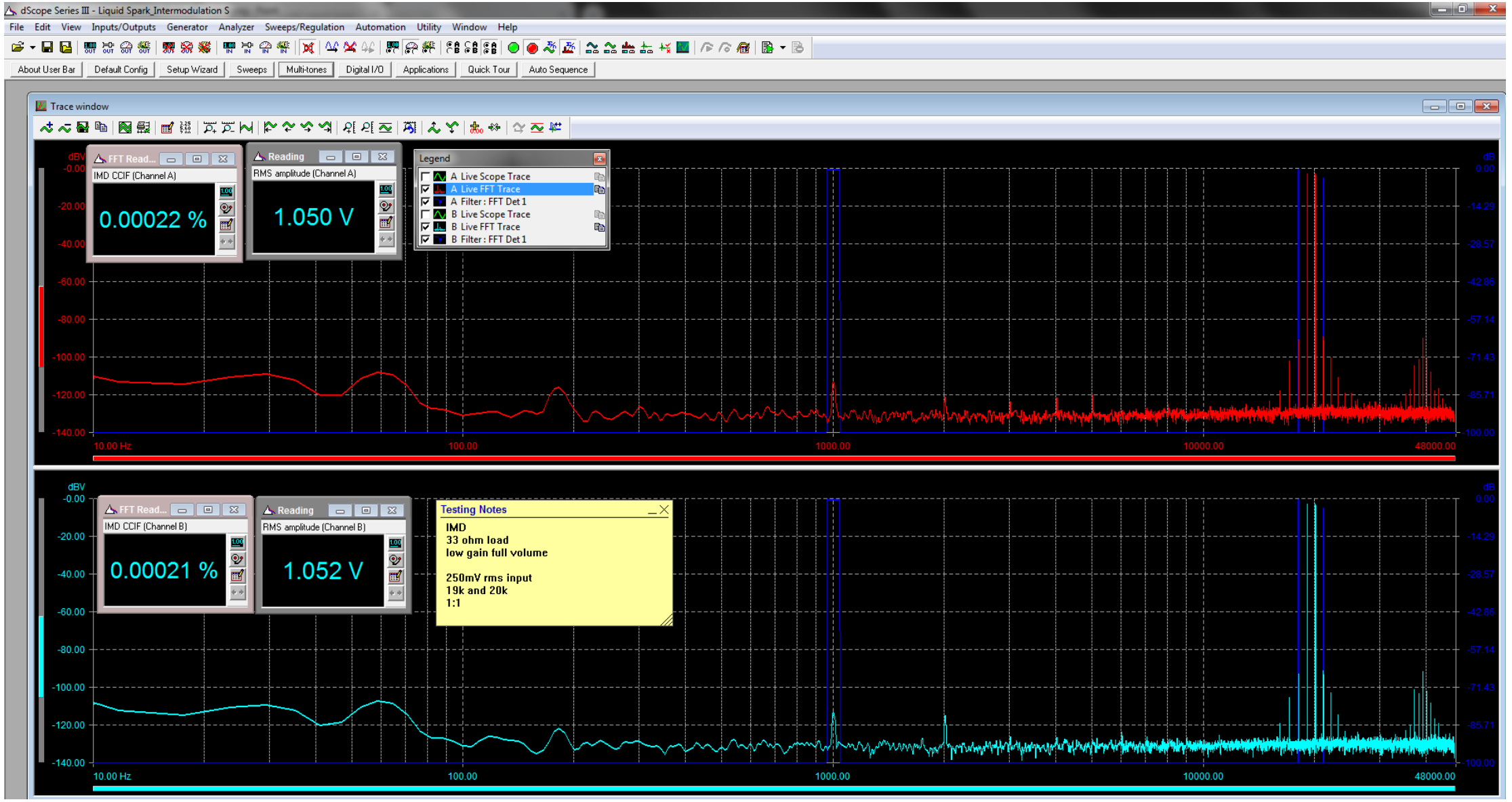
This is with the bandwidth opened up to 40kHz. This increases the overall noise some, but shows THD above 10K better



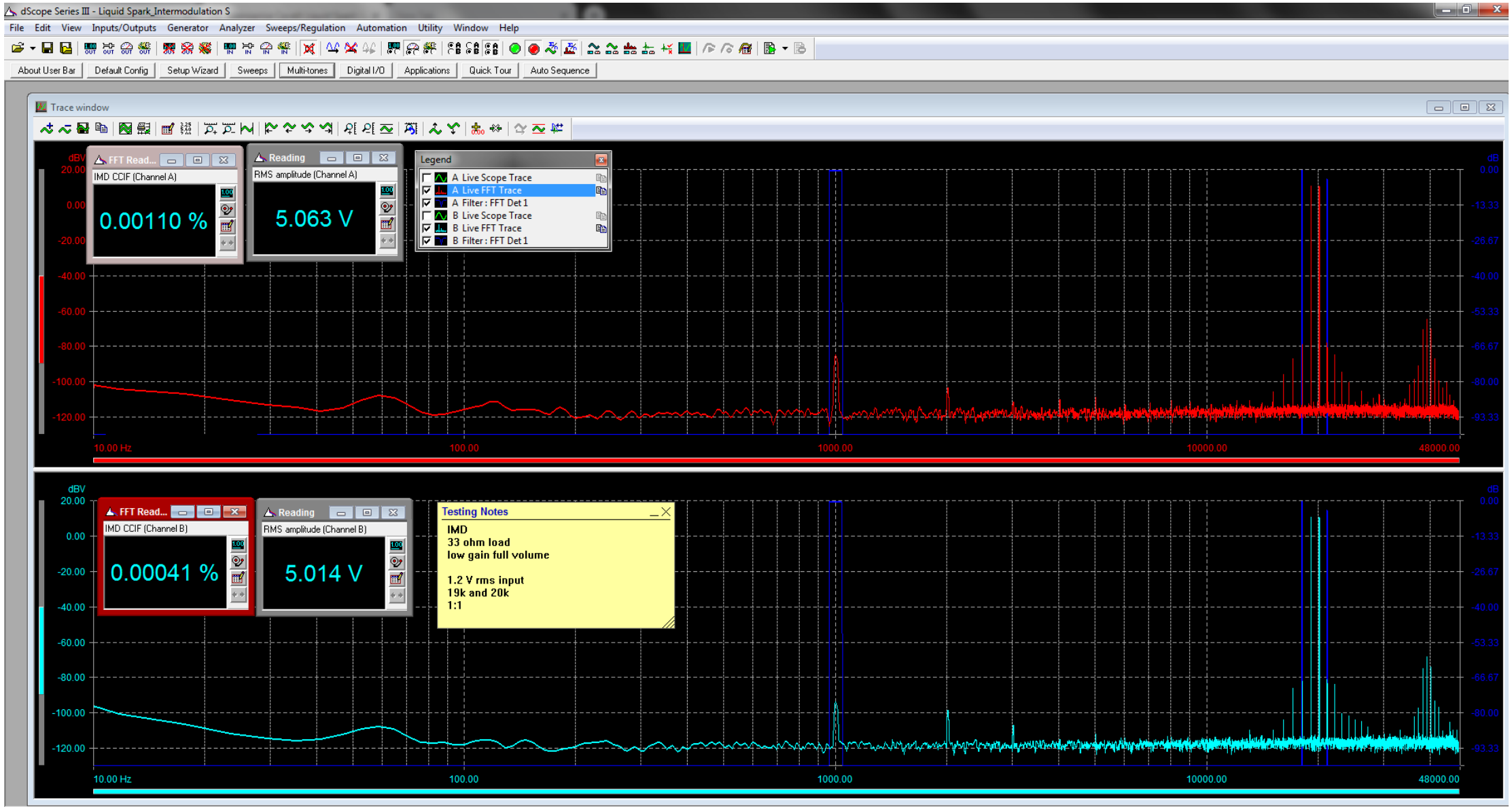
Low gain setting SNR relative to 1v rms unweighted



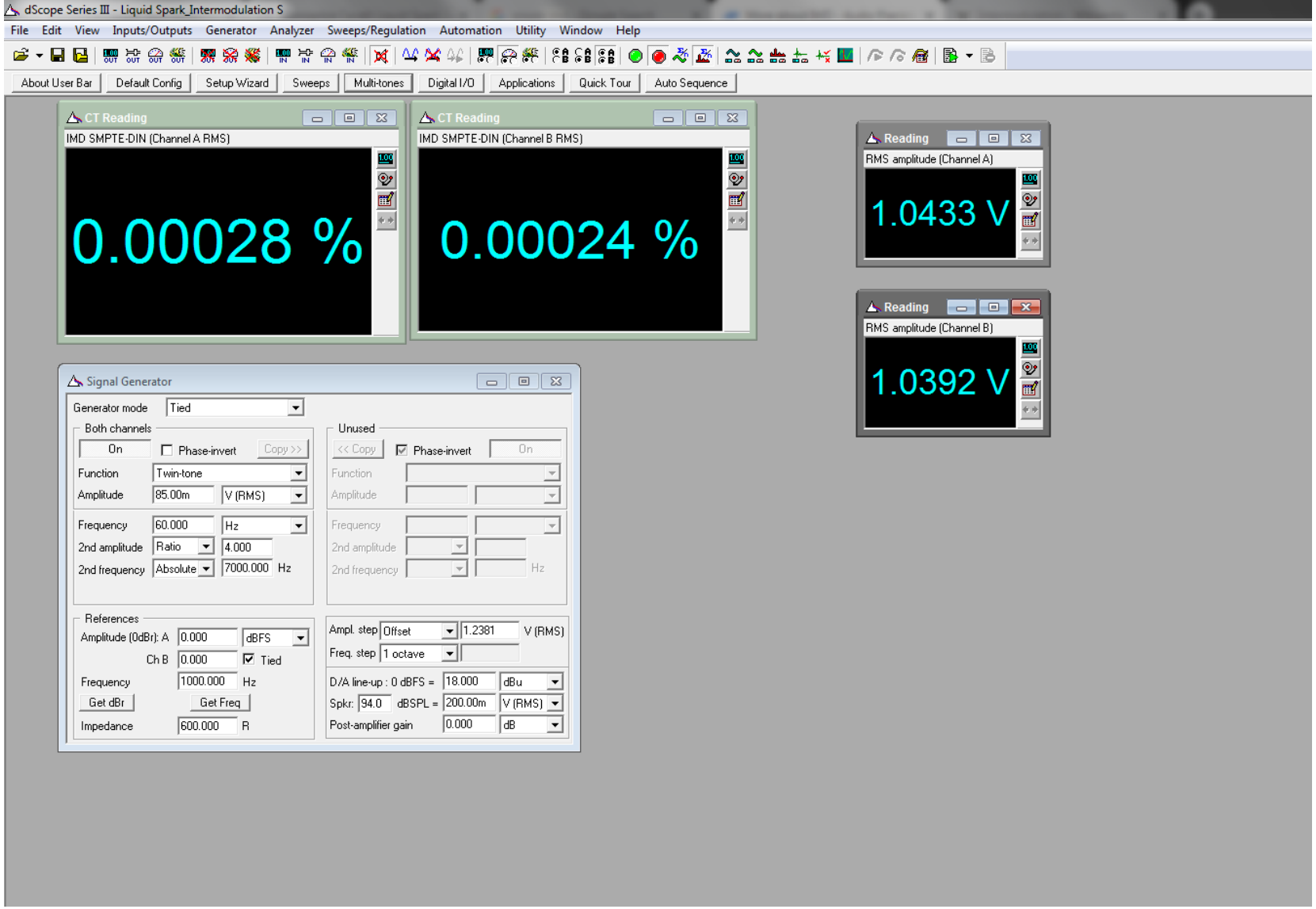
High gain setting SNR relative to 1v rms unweighted



IMD (CCIF) with a 1v rms output



IMD (CCIF) with a 5v rms output



IMD (SMPTE) with a 1v rms output

Maximum Power

load in ohms	Maximum Voltage for ~1% THD		power Watts rms Per channel
33	8.900		2.400
56	9.260		1.531
150	9.600		0.614
300	9.700		0.314

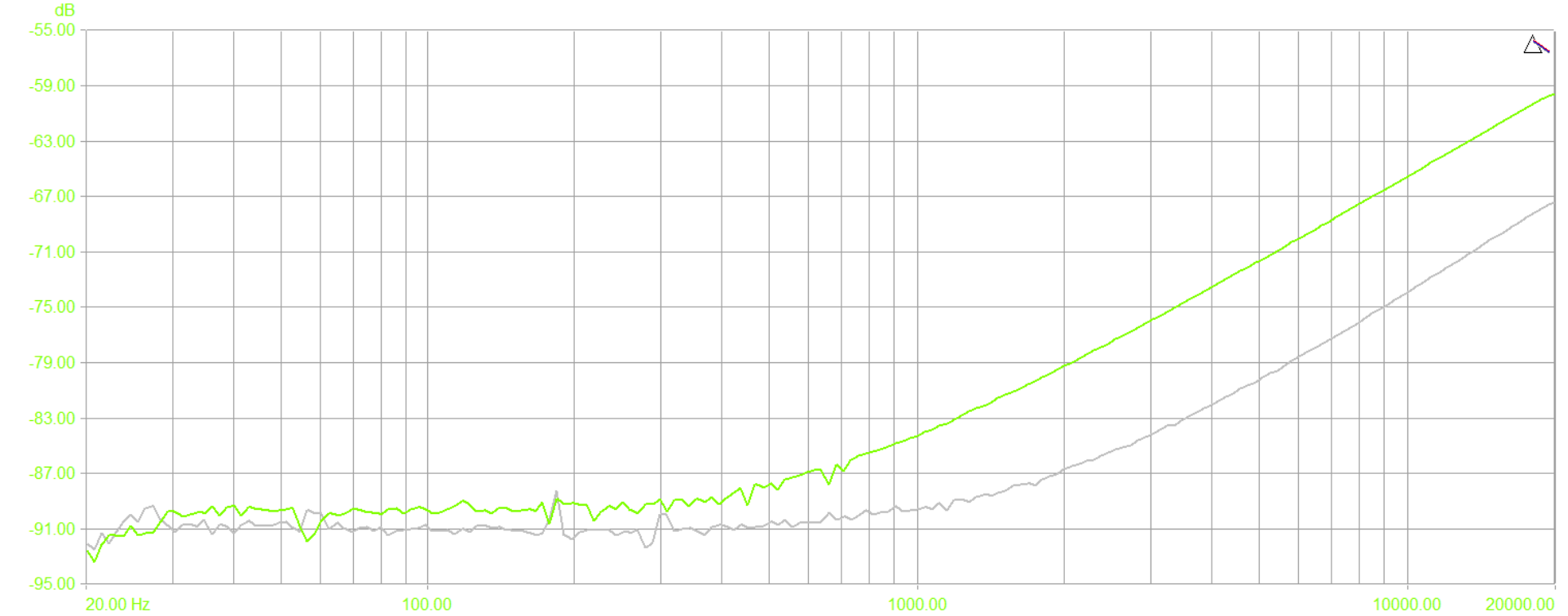
Output Impedance

- Measured output with 100k load
- Then measured output with 1.07 ohm load

$$Z_{\text{Source}} = R_{\text{Load}} \times \left(\frac{V_1}{V_2} - 1 \right)$$

- 6x gain is about 0.08 ohms
- 3x gain is about 0.09 ohms

Cross-talk A to B vs Frequency



Line	Name	Points	Log X	Log Y		Cursor X	Cursor Y
	Sweep of CT Det : Cross-talk : Ch B	201	☑	☑	⊞	☐	
	Copy of Sweep of CT Det : Cross-talk : Ch B	201	☑	☑	⊞	☐	

gain pushed in (6x mode)
volume turned down to get 0 db gain
hooked measurement to jack directly
use unbalanced input shorting jacks
two sweeps are L-R and R-L
33 ohm load

Sweep of cross talk vs frequency