

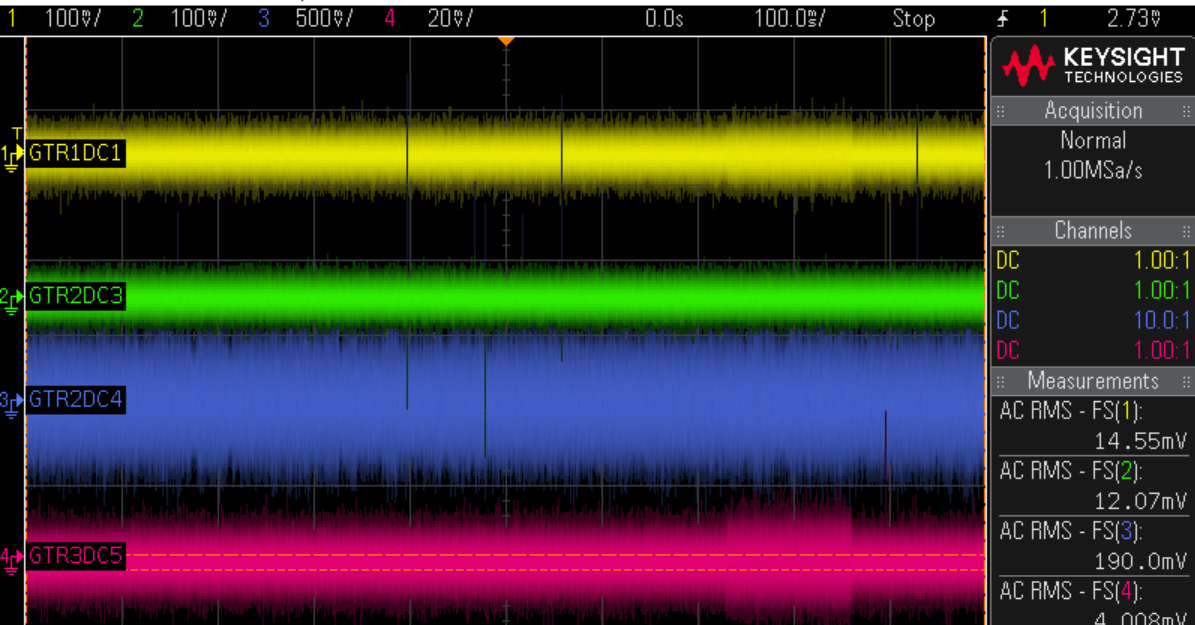
HITRAP RE-COMMISSIONING Femto Amplifier Signals

A. Reiter (BEA)

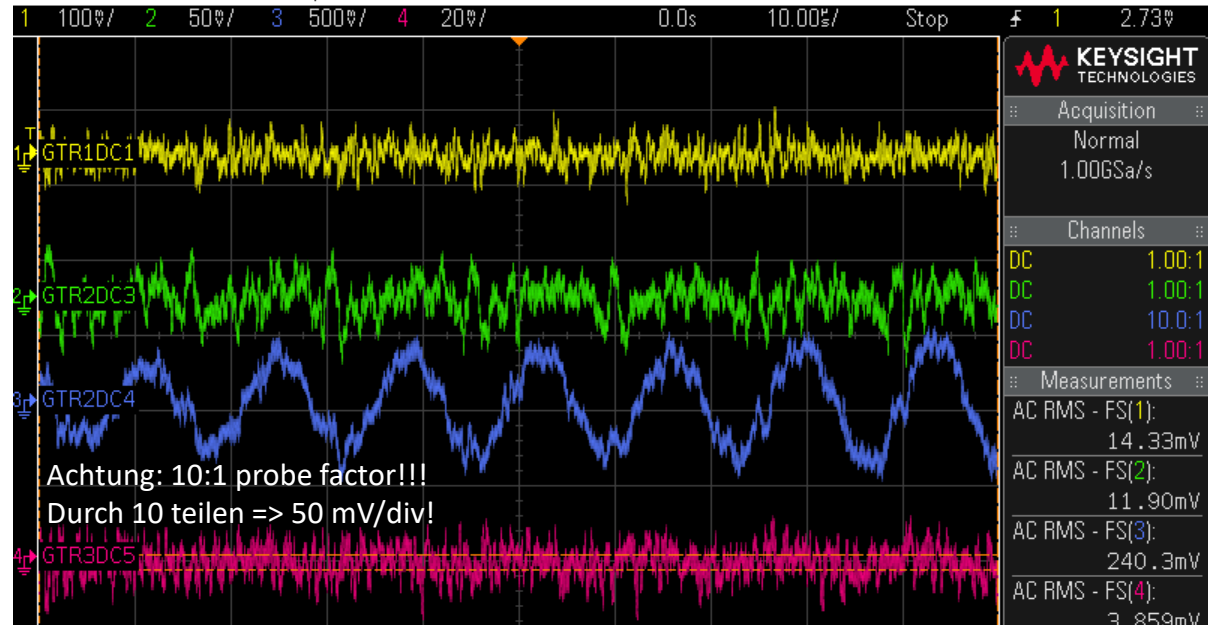
22nd & 23rd April 2022

1 μ A: Vergleich mit HV (oben) und ohne HV (unten)

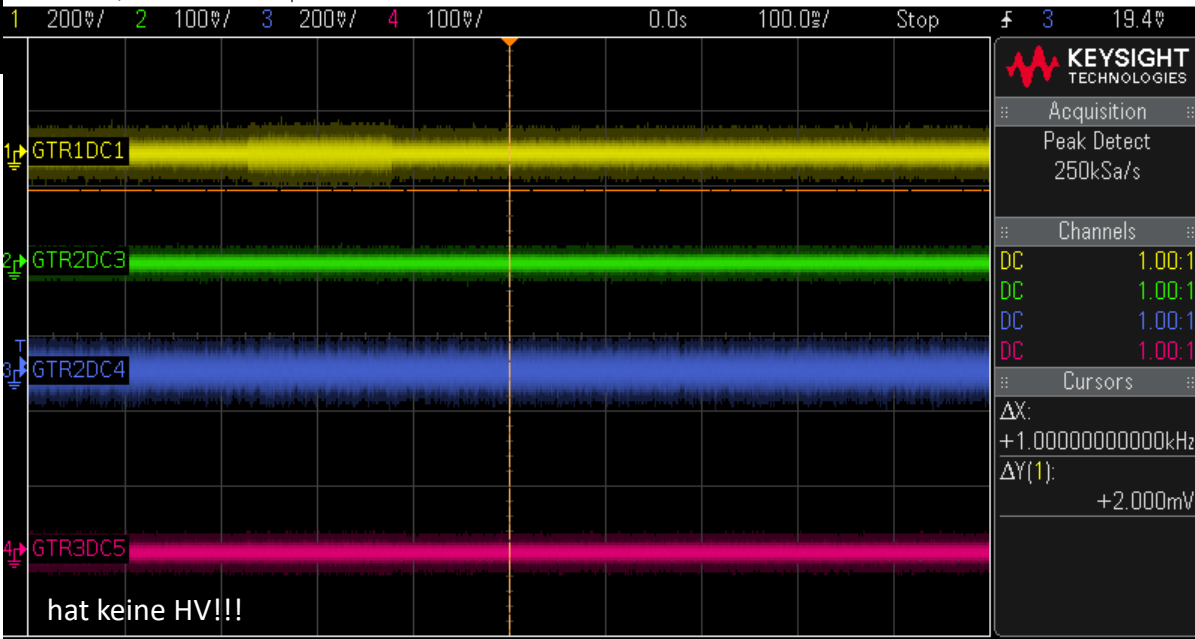
MSO-X 2024A, MY58101875: Wed Apr 20 20:47:08 2022



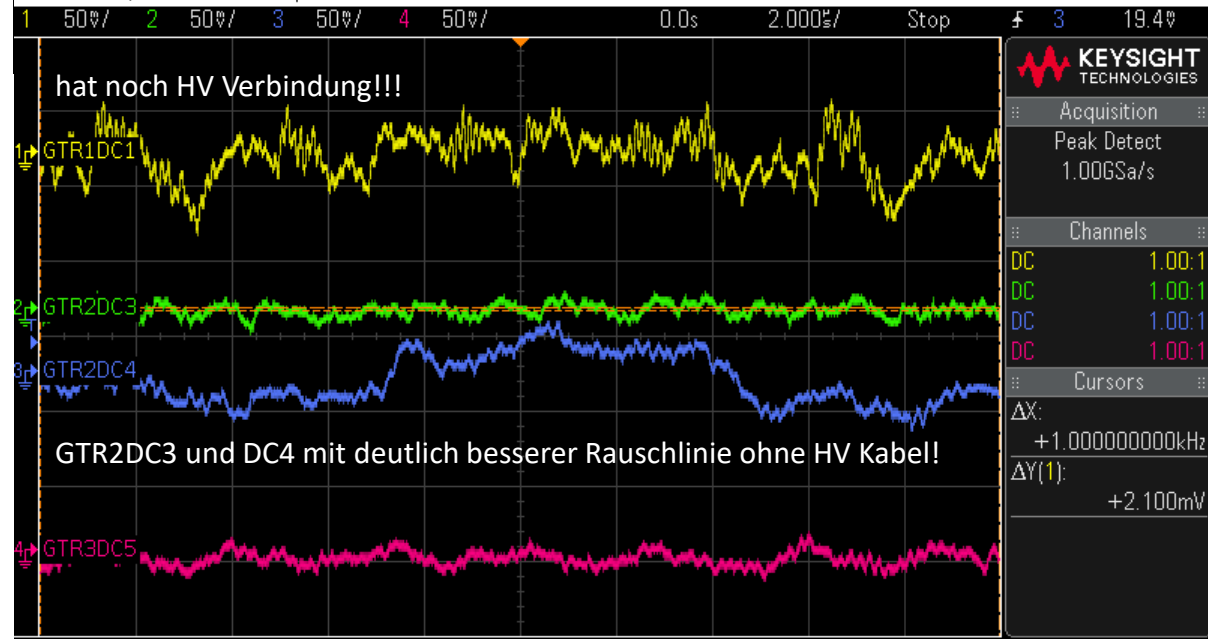
MSO-X 2024A, MY58101875: Wed Apr 20 20:48:16 2022



MSO-X 2024A, MY58101875: Sat Apr 23 09:56:36 2022



MSO-X 2024A, MY58101875: Fri Apr 22 21:01:52 2022

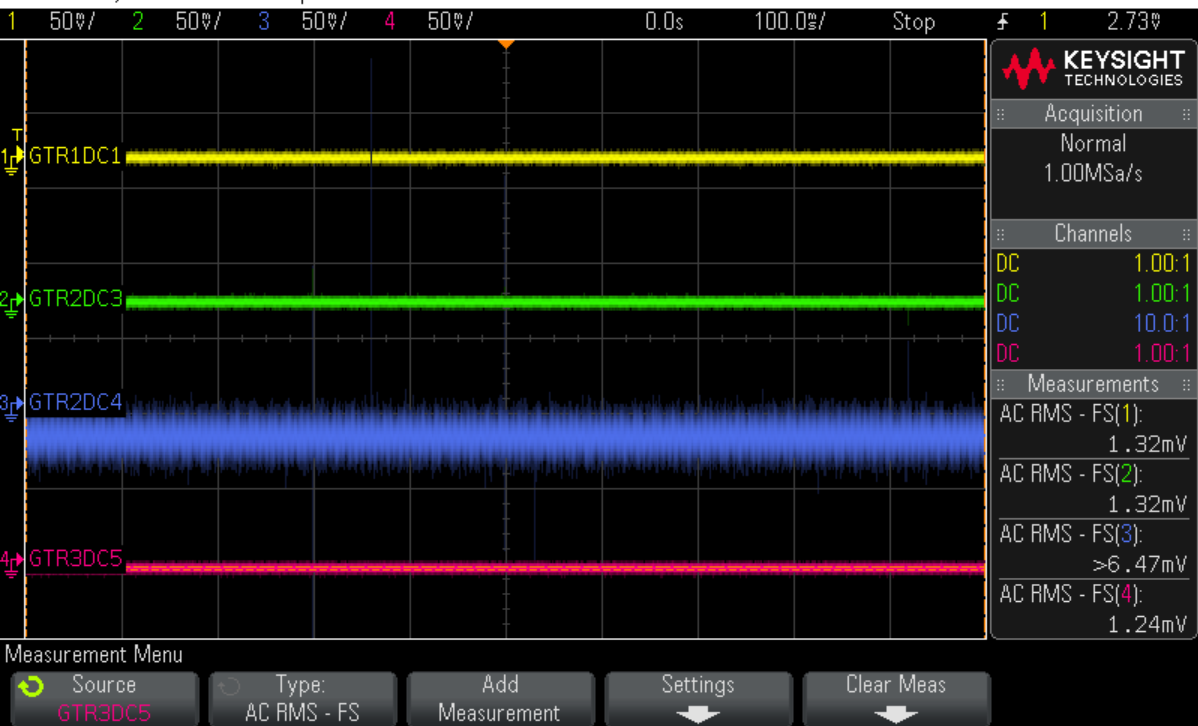


Femtos with remote power supply and control & HV cable connection (HW = OFF)

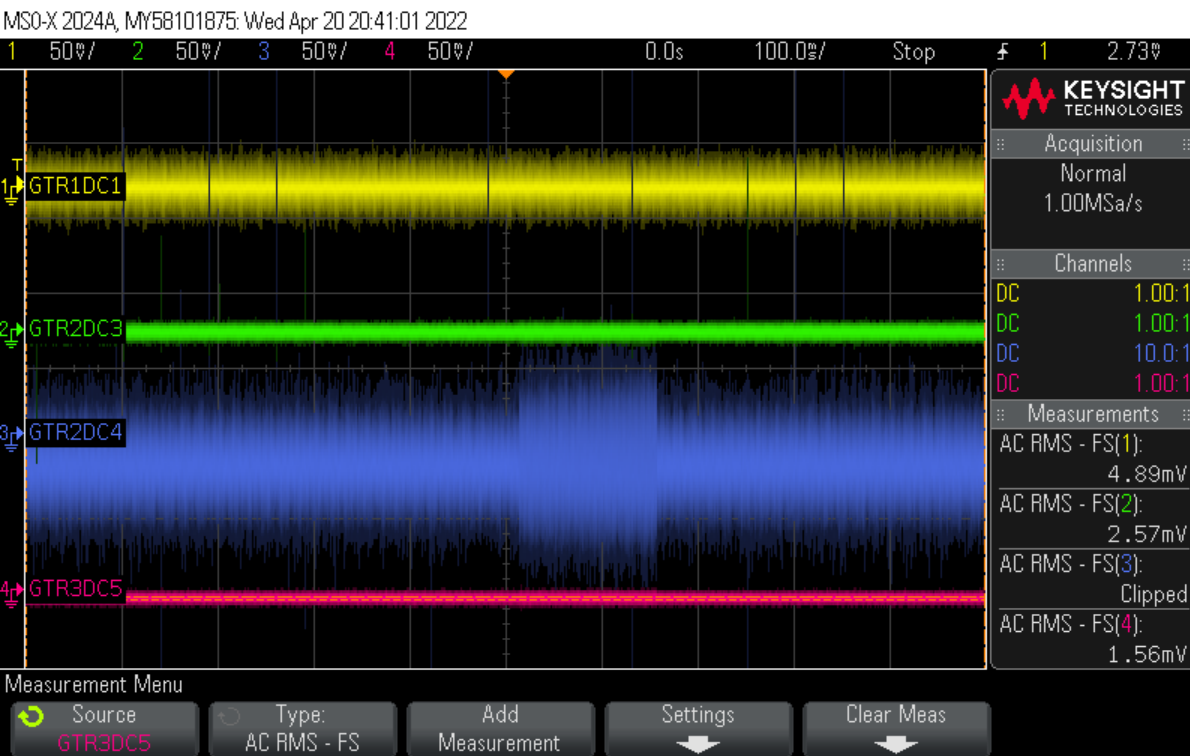
- Amplifiers with remote gain control
- Amplifiers supplied remotely
- HV cables connected (as ever!); HV hardware is OFF (Freischaltung!)
- Note: GTR3DC5 has no HV, but an isolated signal feedthrough that must be bridged!!!!

1 mA

MSO-X 2024A, MY58101875: Wed Apr 20 20:39:34 2022



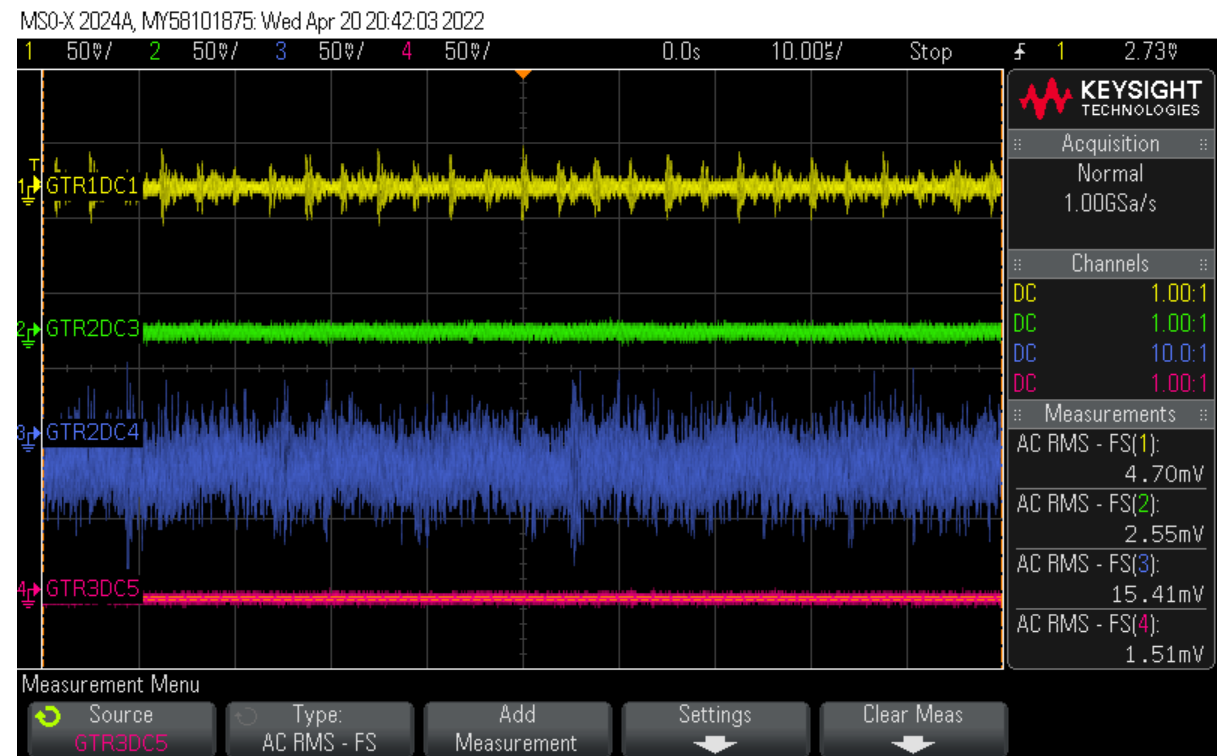
100 μ A



GTR2DC4: Large noise signal !

Tests:

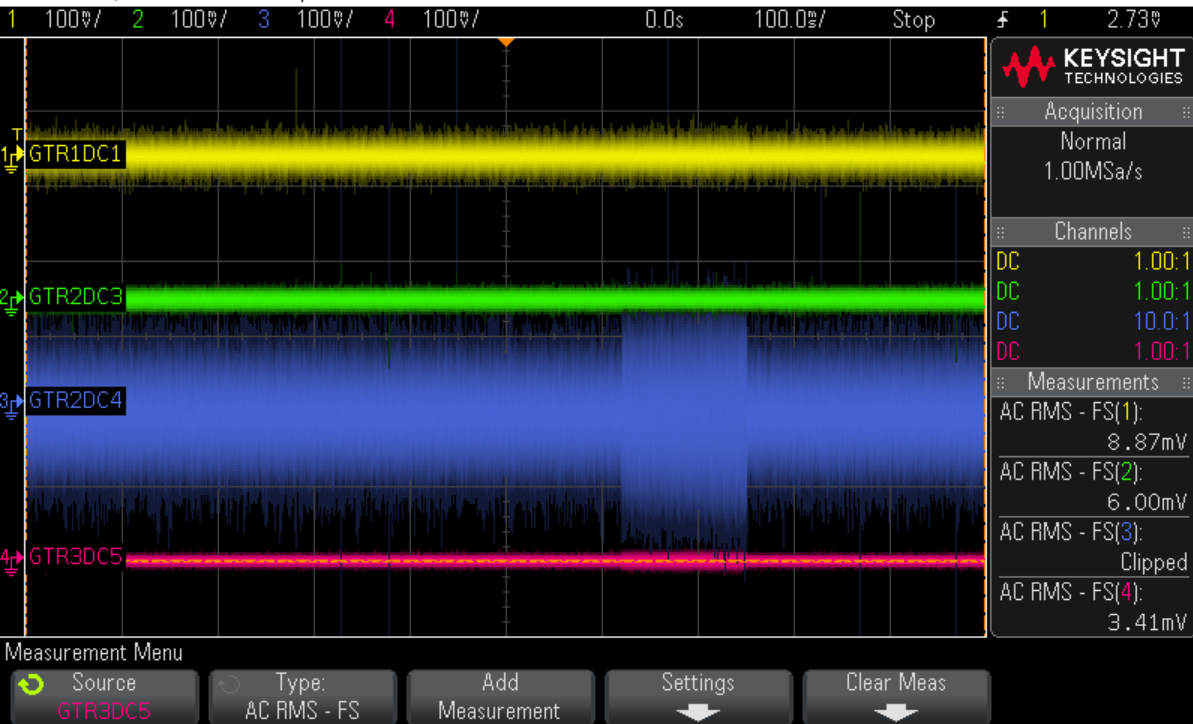
- Local power supply (PS): no change!
- Different Femto, operated manually with local PS: no change!
- **Disconnect signal cable from FC: noise gone!**



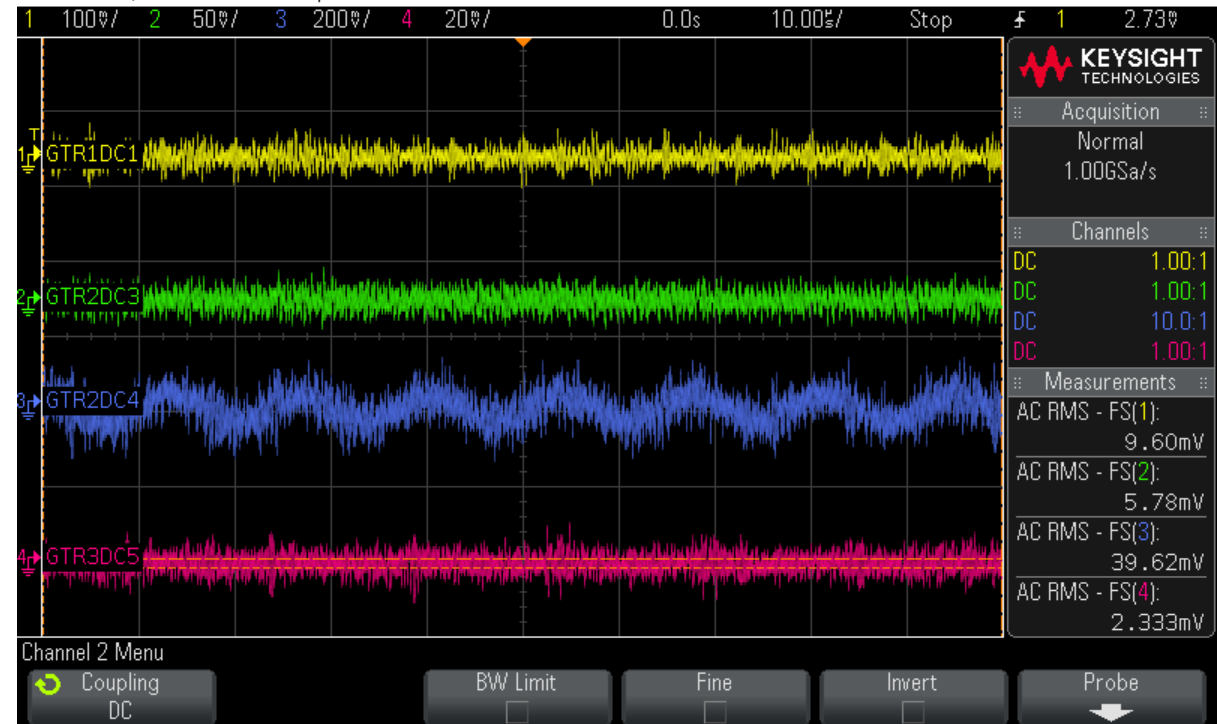
Noise on GTR1DC1?

10 μ A

MSO-X 2024A, MY58101875: Wed Apr 20 20:44:22 2022

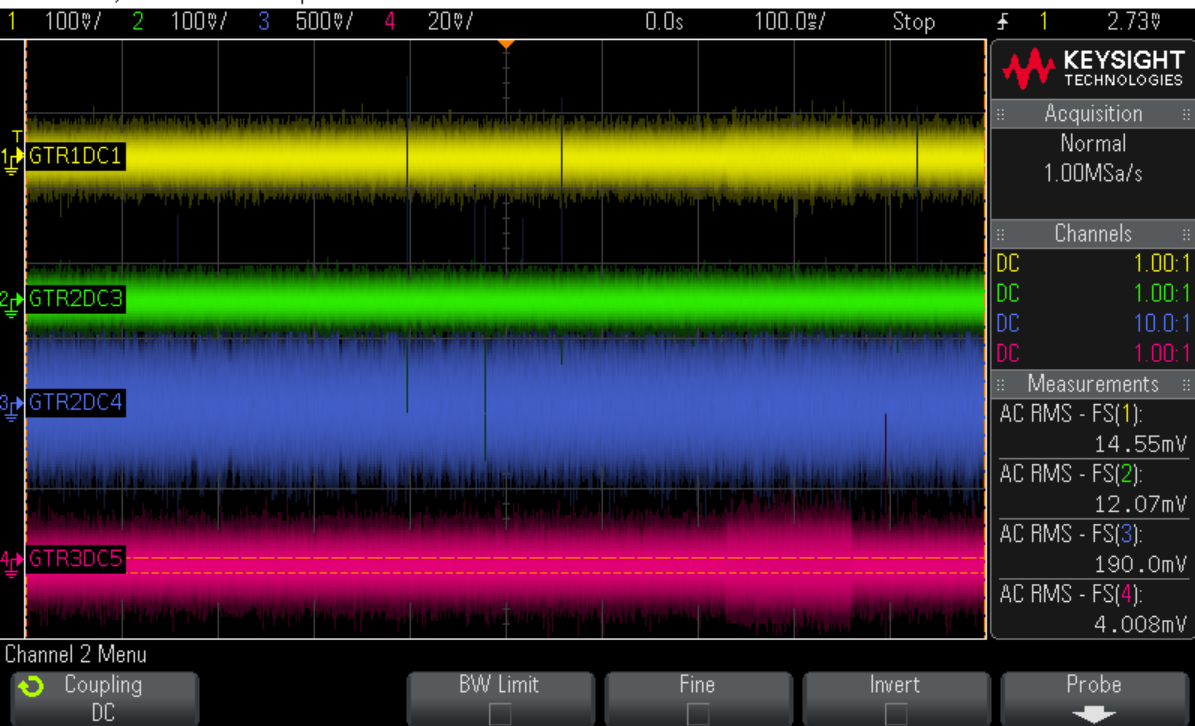


MSO-X 2024A, MY58101875: Wed Apr 20 20:50:28 2022

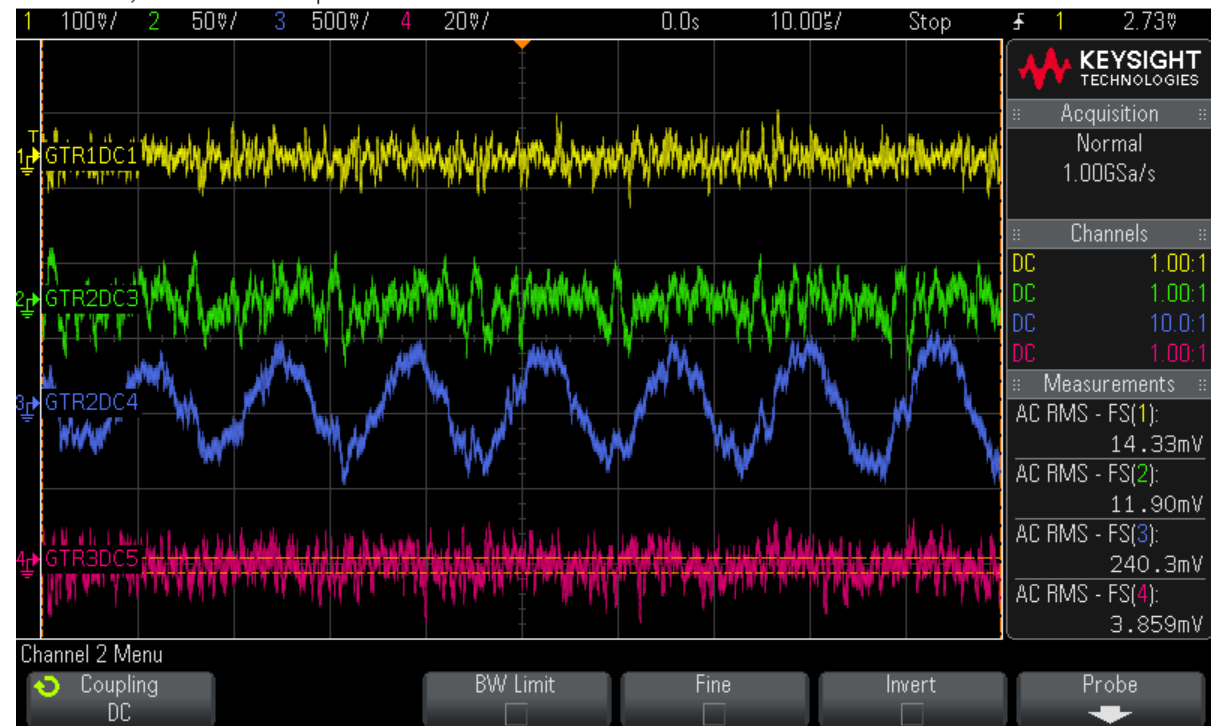


1 μ A

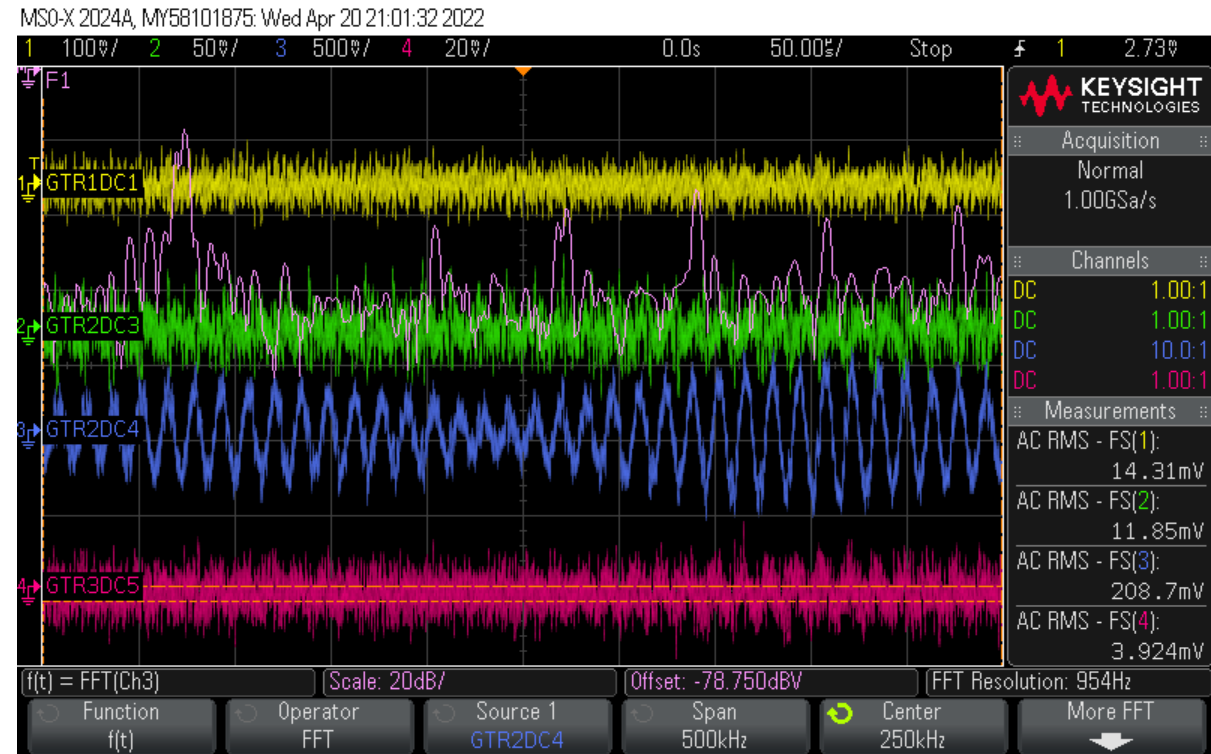
MSO-X 2024A, MY58101875: Wed Apr 20 20:47:08 2022



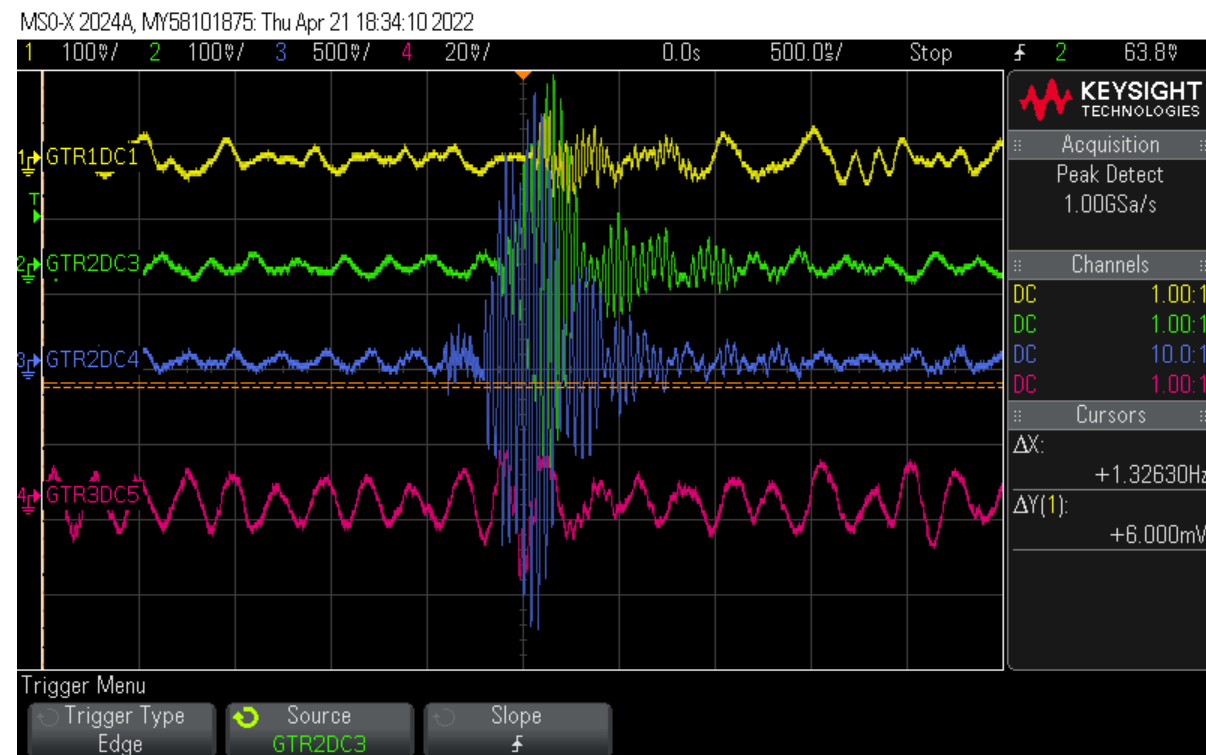
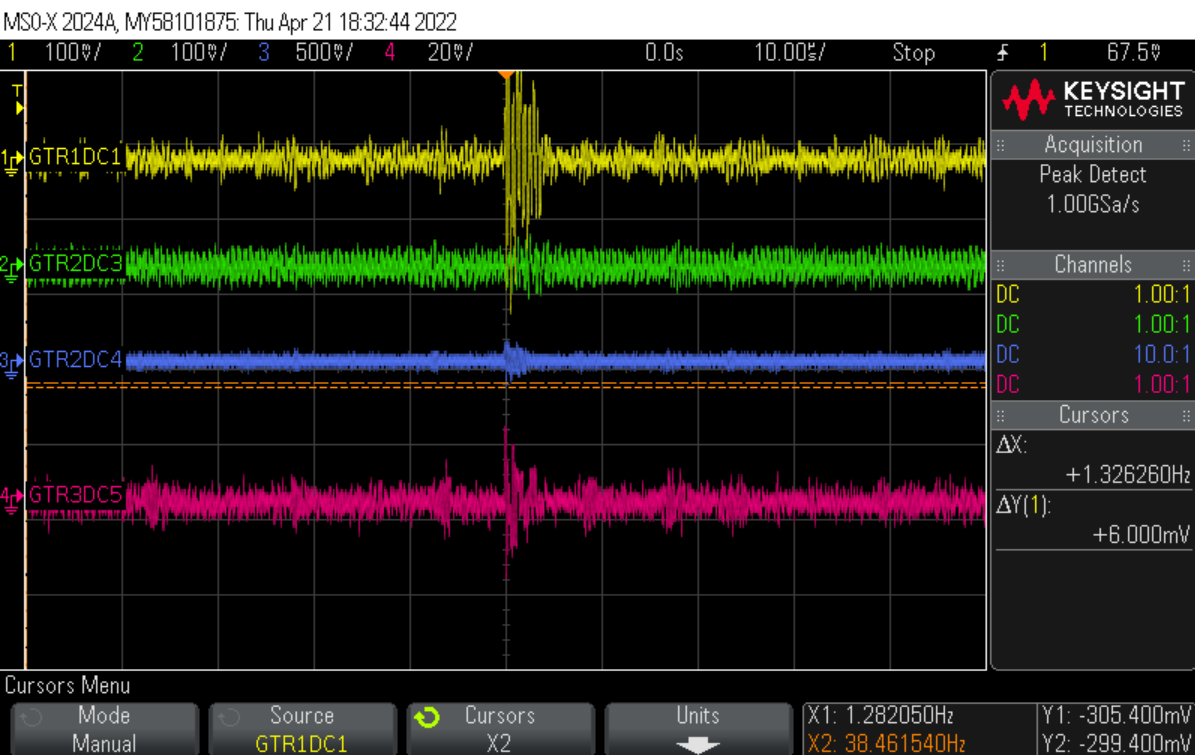
MSO-X 2024A, MY58101875: Wed Apr 20 20:48:16 2022



1 μA



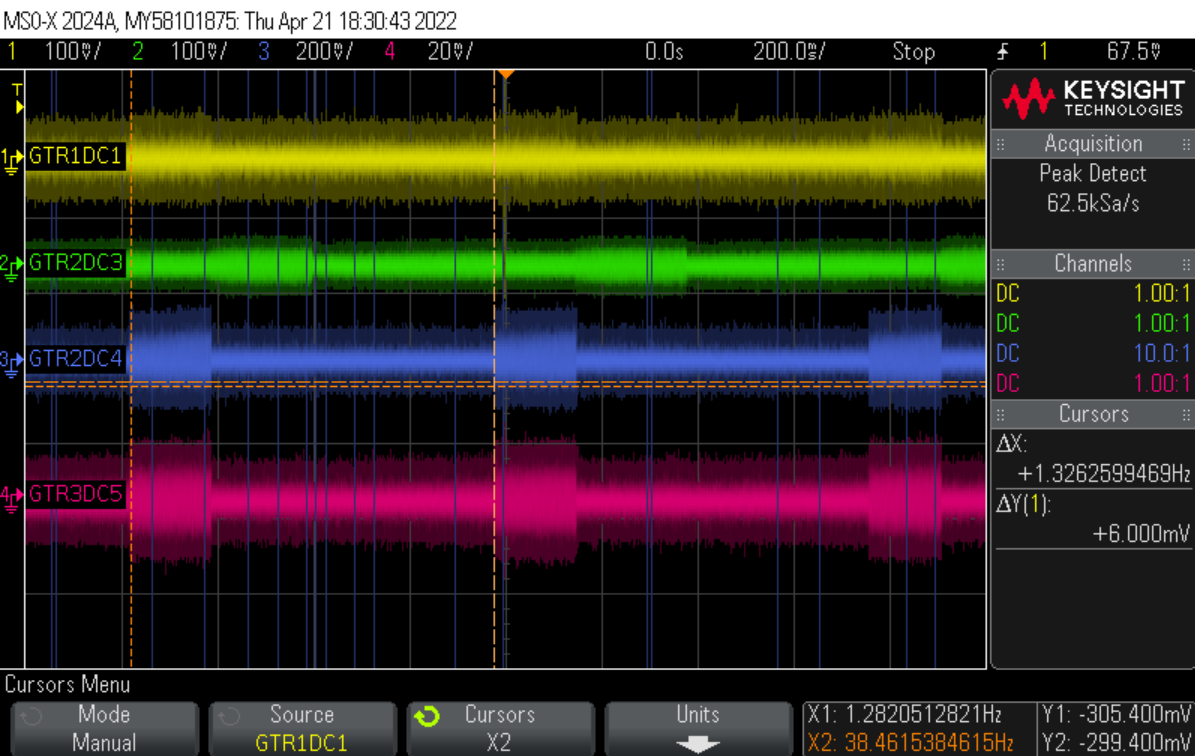
Noise Observations



Trigger on GTR1DC1 shows synchronous noise pulses on other Femtos, but not on GTR3DC5. Note different vertical scales!

This seems to disappear when the HV cables are removed from signal feedthrough on flange in tunnel!

Noise Observations



All FCs: Regular noise at 1.3 Hz, visible in ranges 10 μ A, 1 μ A, 100 nA

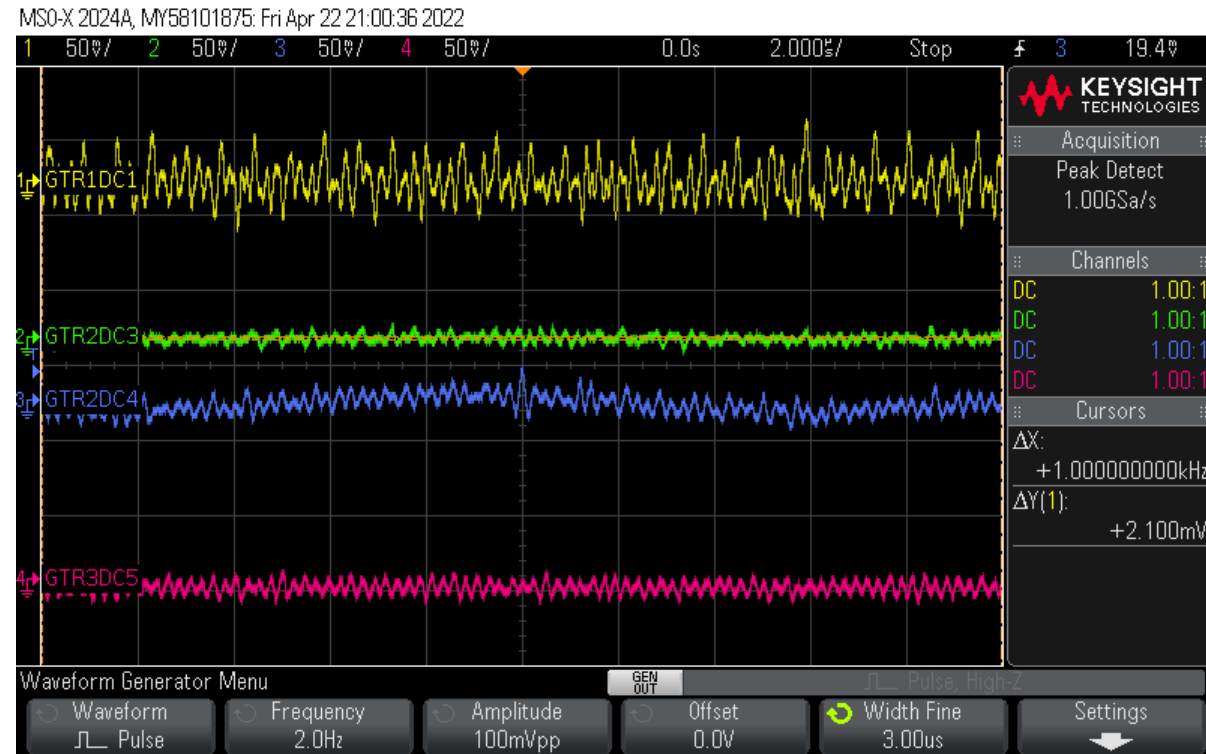
GTR2DC4: Spikes

**⇒ Reason: HV connection => If HV cable is removed in tunnel on Faraday Cup, the noise is significantly reduced!
Removing the cable in the container on the HV box does not have the same effect!
HV cables pick up noise along track from container to tunnel ???**

Femtos with remote control & HV connection removed at flange!

- HV cable removed at flange for GTR2DC3 and DC4, but not for GTR1DC1!
- GTR1DC1 with local power supply => some less noise!
- All other FCs with remote power supply

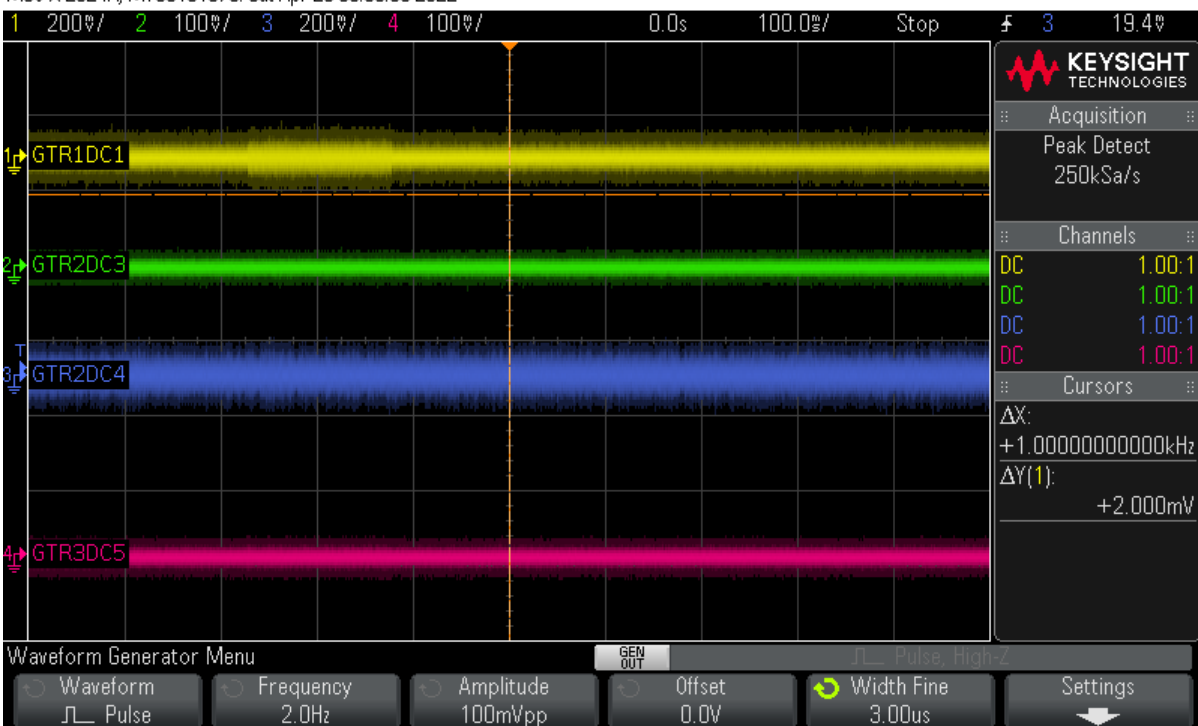
10 μ A



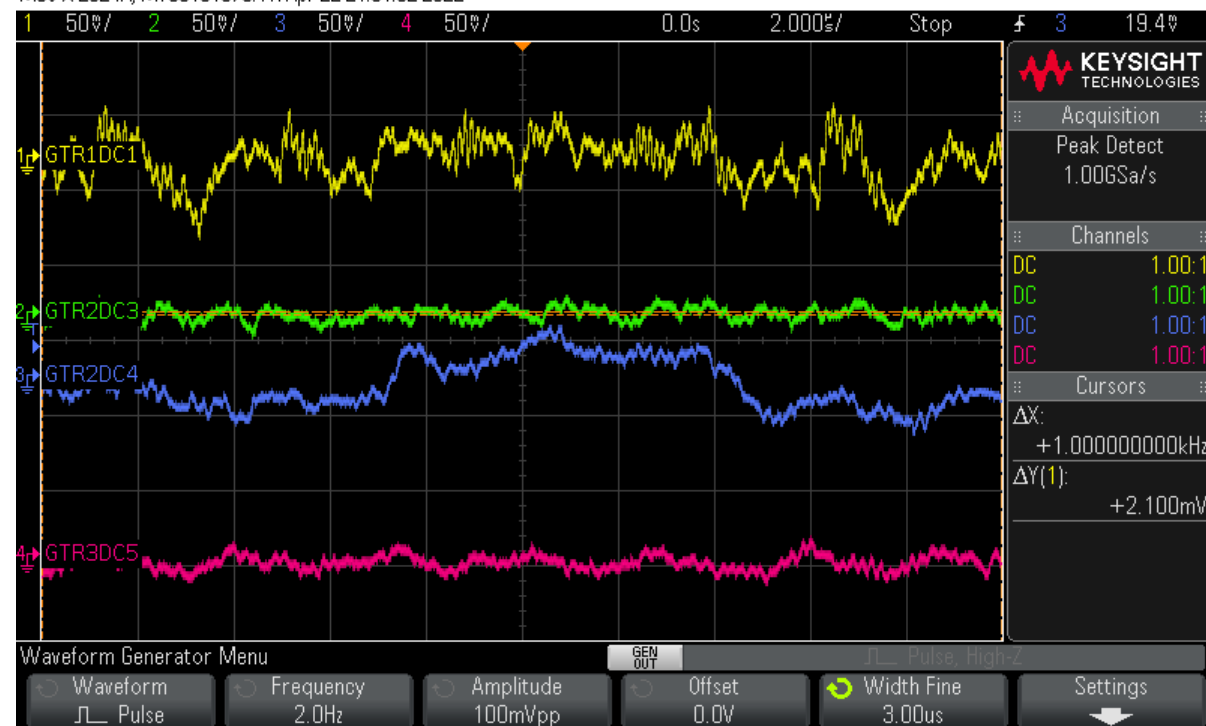
GTR2DC4: Some 70 kHz noise via signal input from FC signal

1 μ A

MSO-X 2024A, MY58101875: Sat Apr 23 09:56:36 2022



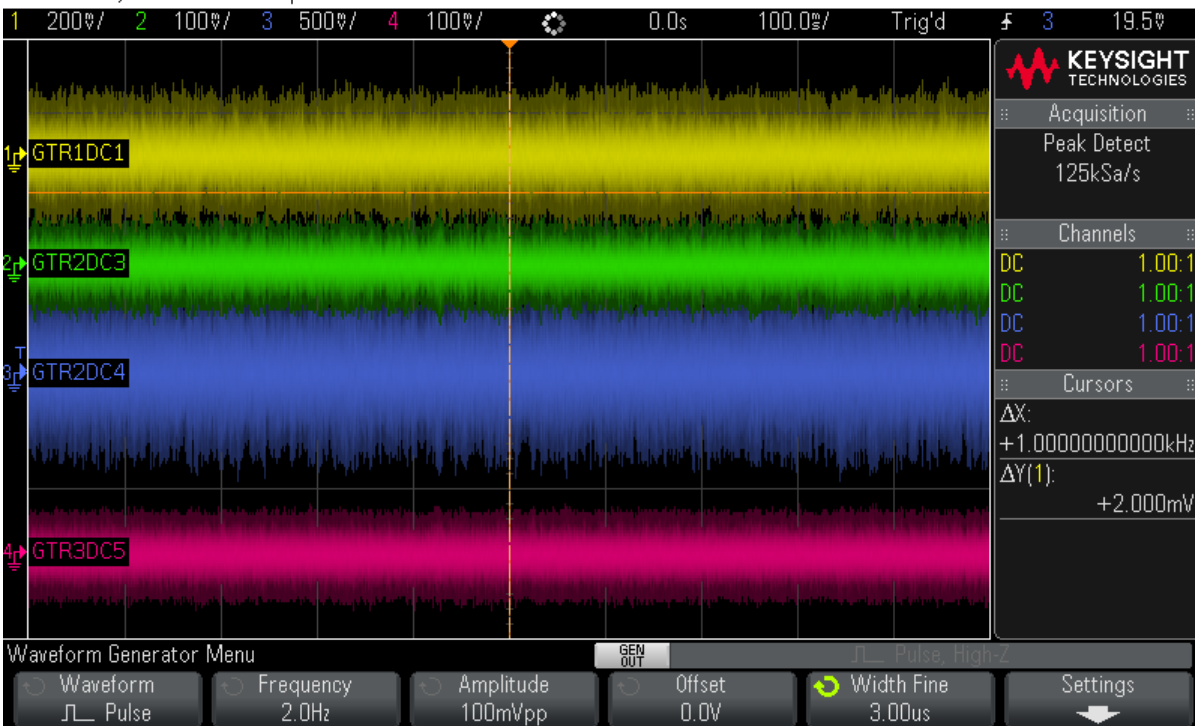
MSO-X 2024A, MY58101875: Fri Apr 22 21:01:52 2022



GTR2DC4: Some 70 kHz noise via signal input from FC signal

100 nA

MSO-X 2024A, MY58101875: Sat Apr 23 09:53:35 2022



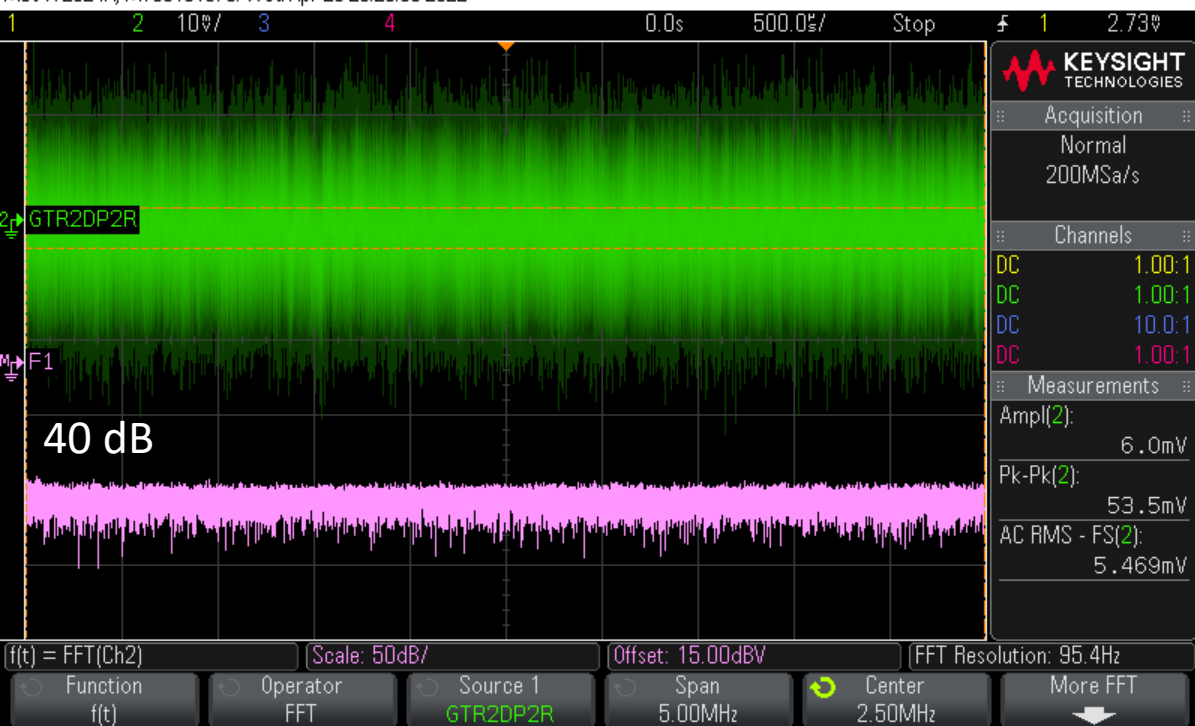
MSO-X 2024A, MY58101875: Fri Apr 22 21:08:54 2022



GTR2DC4: Some 70 kHz noise via signal input from FC signal
10x larger than in 1 μ A range

Rohrsonde GTR2DP2R

M50-X 2024A, MY58101875: Wed Apr 20 20:29:33 2022



M50-X 2024A, MY58101875: Wed Apr 20 20:26:14 2022

