RFI Test - Dimetix FLS-C 10

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1 Equipment

Figure 1: DIMETIX FLS-C 10.

Figure 2: Laser Shielding.

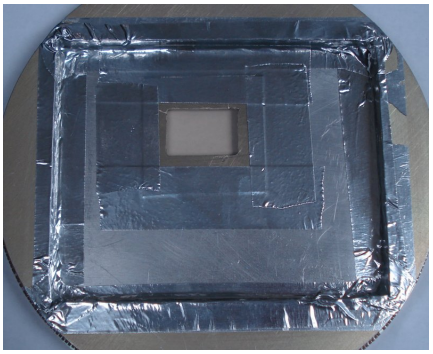

Figure 3: Shielding Window.

Agilent E4445A Spectrum Analyzer:

- Trace 1: Clear Write, Average ON, 20 spec.
- Trace 2: Max Hold.
- Trace 3: Min Hold.
- 8192 points per spec.
- Internal Amplifier ON.
- 6dB Attenuation.

ETS Model 7405[1] probe No.904:

- Electric field.
- Res. Freq. >1.0GHz.
- H/E Rejection 30dB.
- Performance: Fig. 4.
- + 15ft coax cable

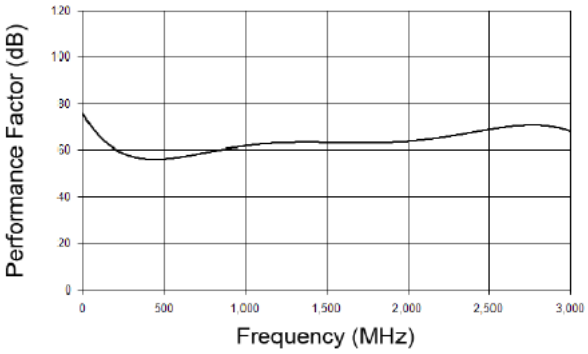

Figure 4: Probe No. 904 Performance.

2 Test Details

- Electric field test only.
- Screen/shielded room front door closed.
- A/C ON, eth. switch ON, 10MHz buffer OFF
- Other equipment: spectrum analyzer, laser power supply box (shielded).
- Disconnect 10MHz coax to the buffer (in some way this is causing interference at 10MHz).
- Thirty (30) 100MHz bandwidth scans (12.207kHz per channel), from 0 to 3000MHz.
- Test points, laser: front close to laser (22 May 2012); shielding: close to window/hole (6 June 2012).
- Twenty (20) seconds "integration" time per spectrum.
- Trace results recorded using SCPI commands from a Python script.

3 Notes

- Fig. 5, RFI below 400MHz probably from the laser and/or other electronic/electric equipment in the shielding room, or surrounding area (transformers and switches outside of the shielding room). Required magnetic field test (use probe No. 902) to confirm if RFI is coming from the laser.
- Fig. 5, 430MHz interference from our transmitter during a test on June 6.

References

[1] ETS LINDGREN, *ETS Near-Field Probe Set Model 7405*.

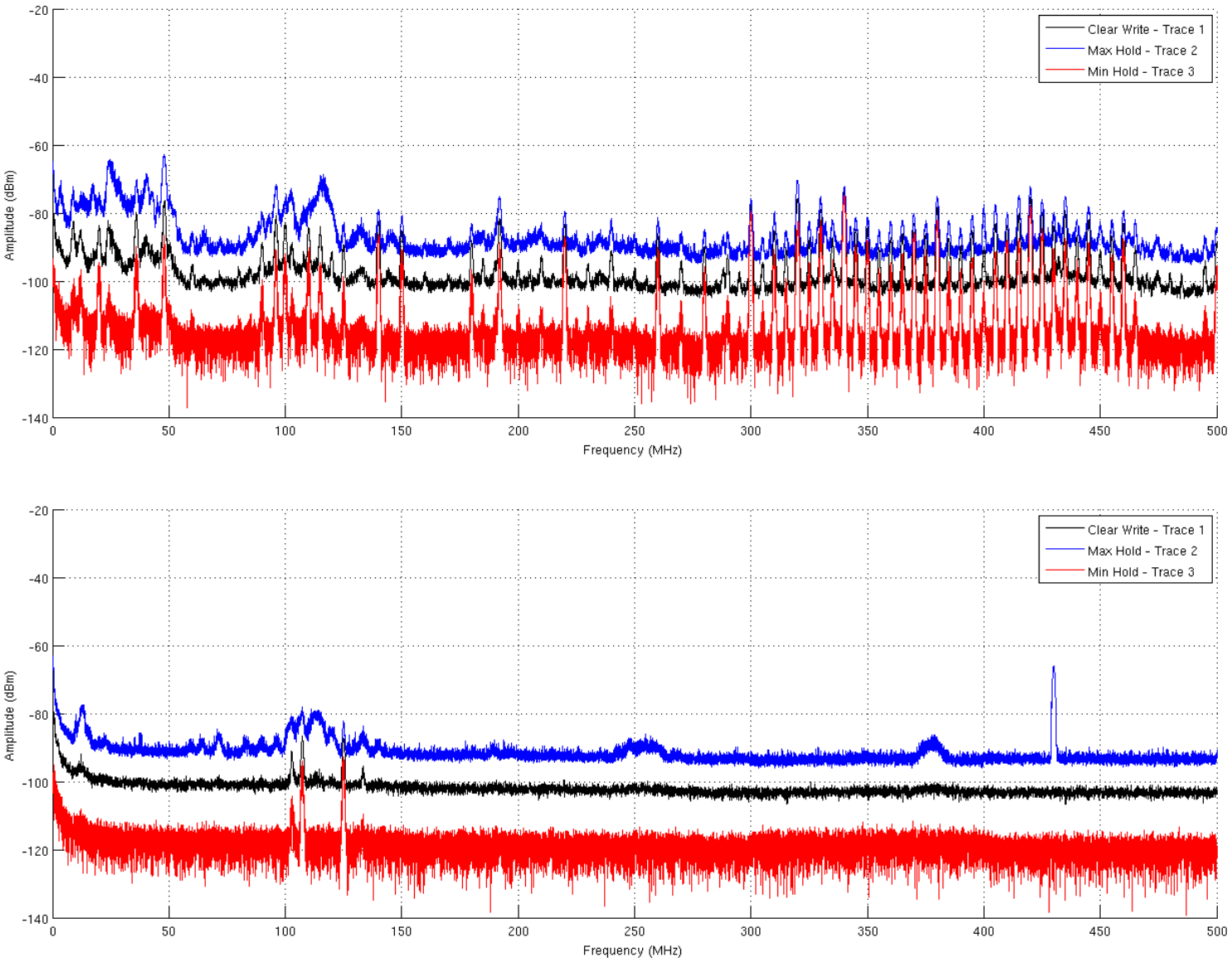

Figure 5: FLS-C 10 RFI test, Range: 0 - 500MHz, Top: laser; Bottom: shielding.

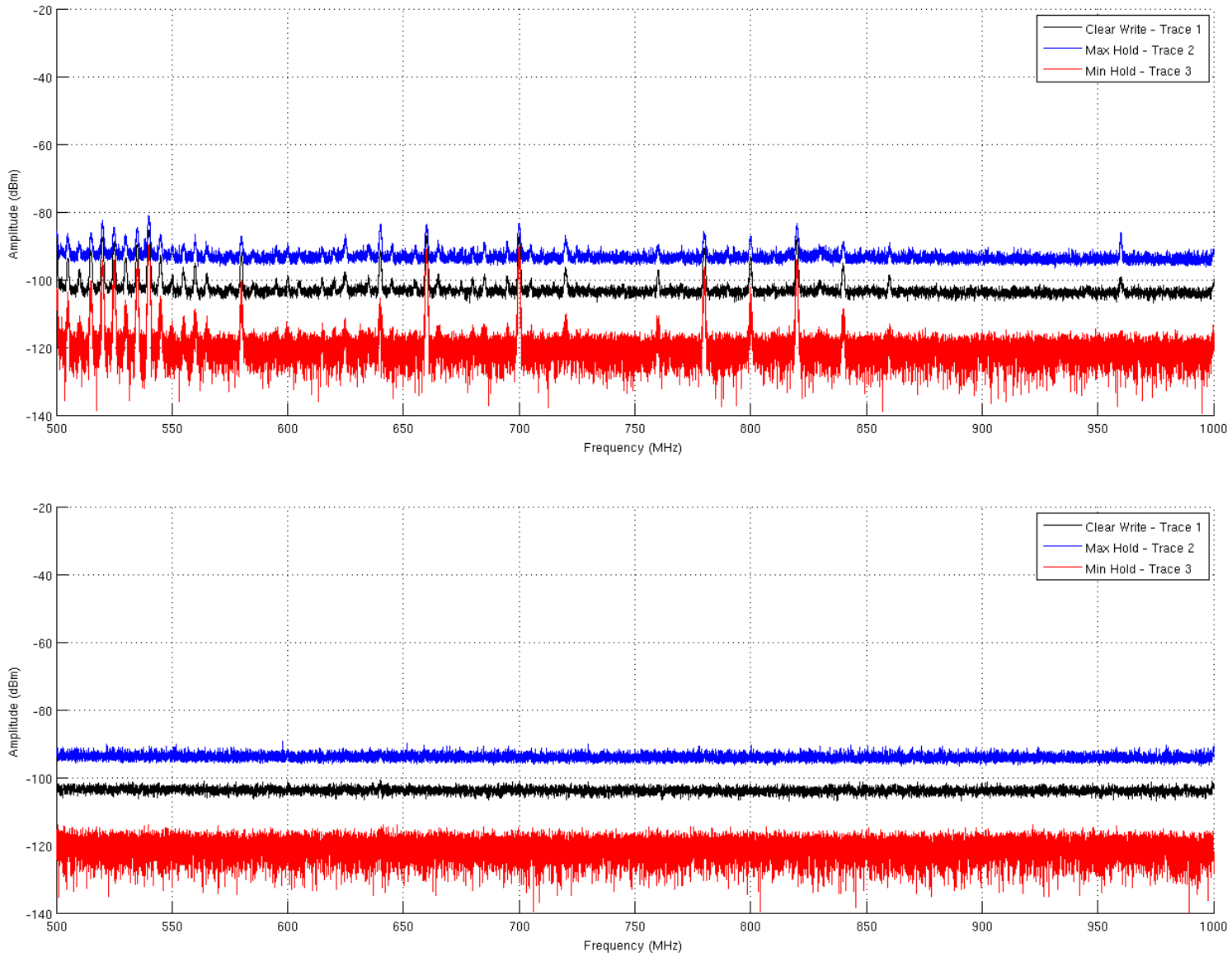

Figure 6: FLS-C 10 RFI test, Range: 500 - 1000MHz, Top: laser; Bottom: shielding.

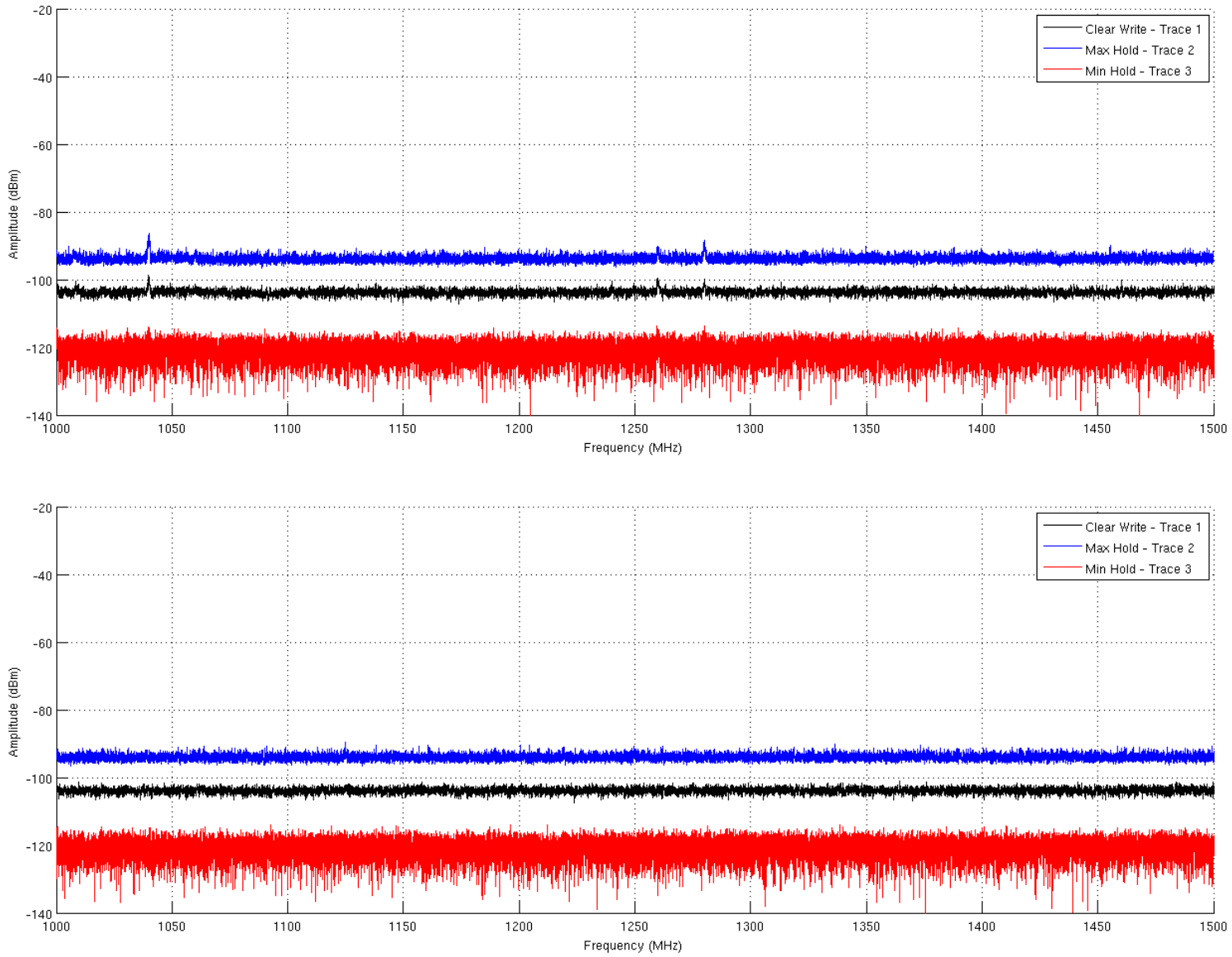

Figure 7: FLS-C 10 RFI test, Range: 1000 - 1500MHz, Top: laser; Bottom: shielding.

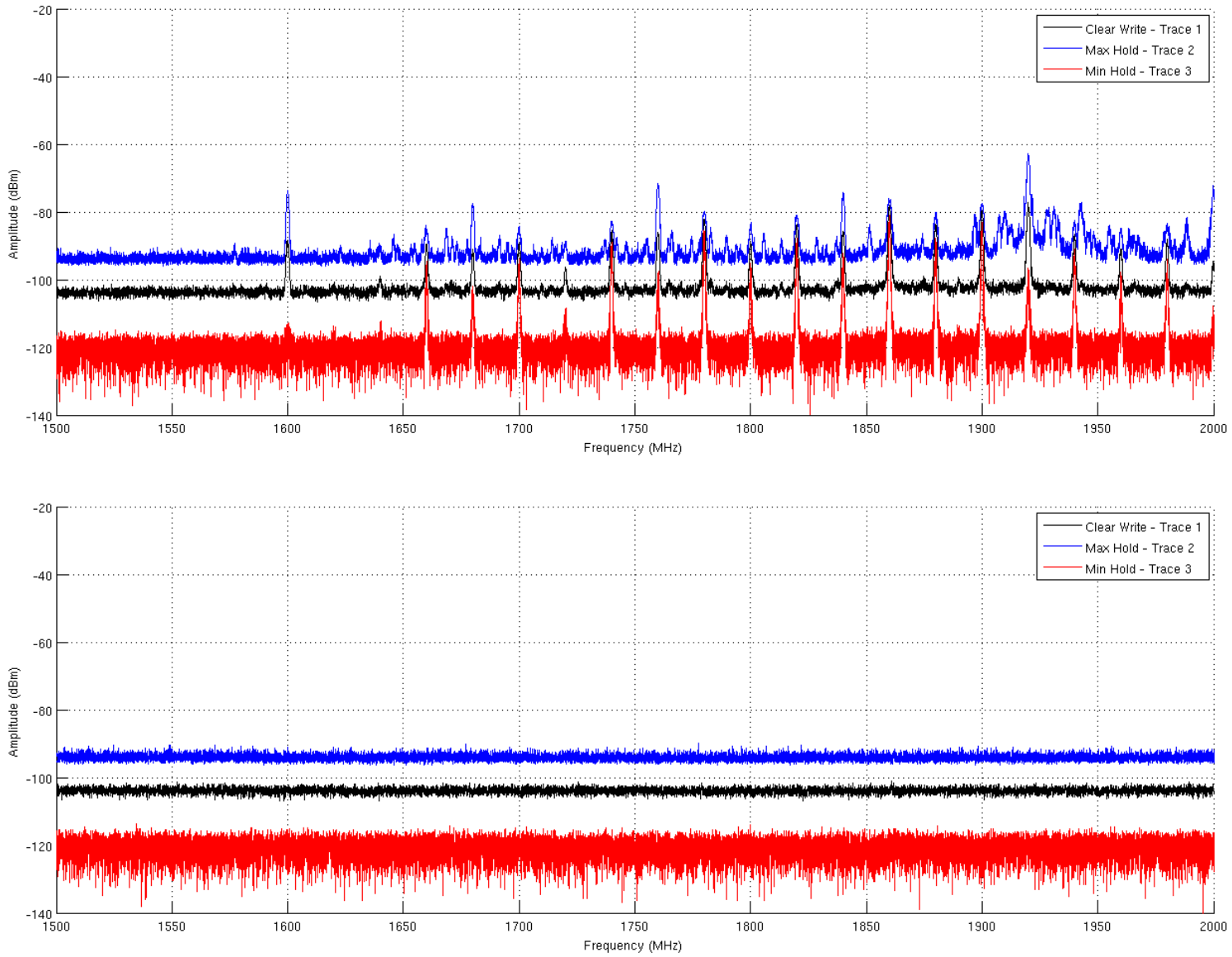

Figure 8: FLS-C 10 RFI test, Range: 1500 - 2000MHz, Top: laser; Bottom: shielding.

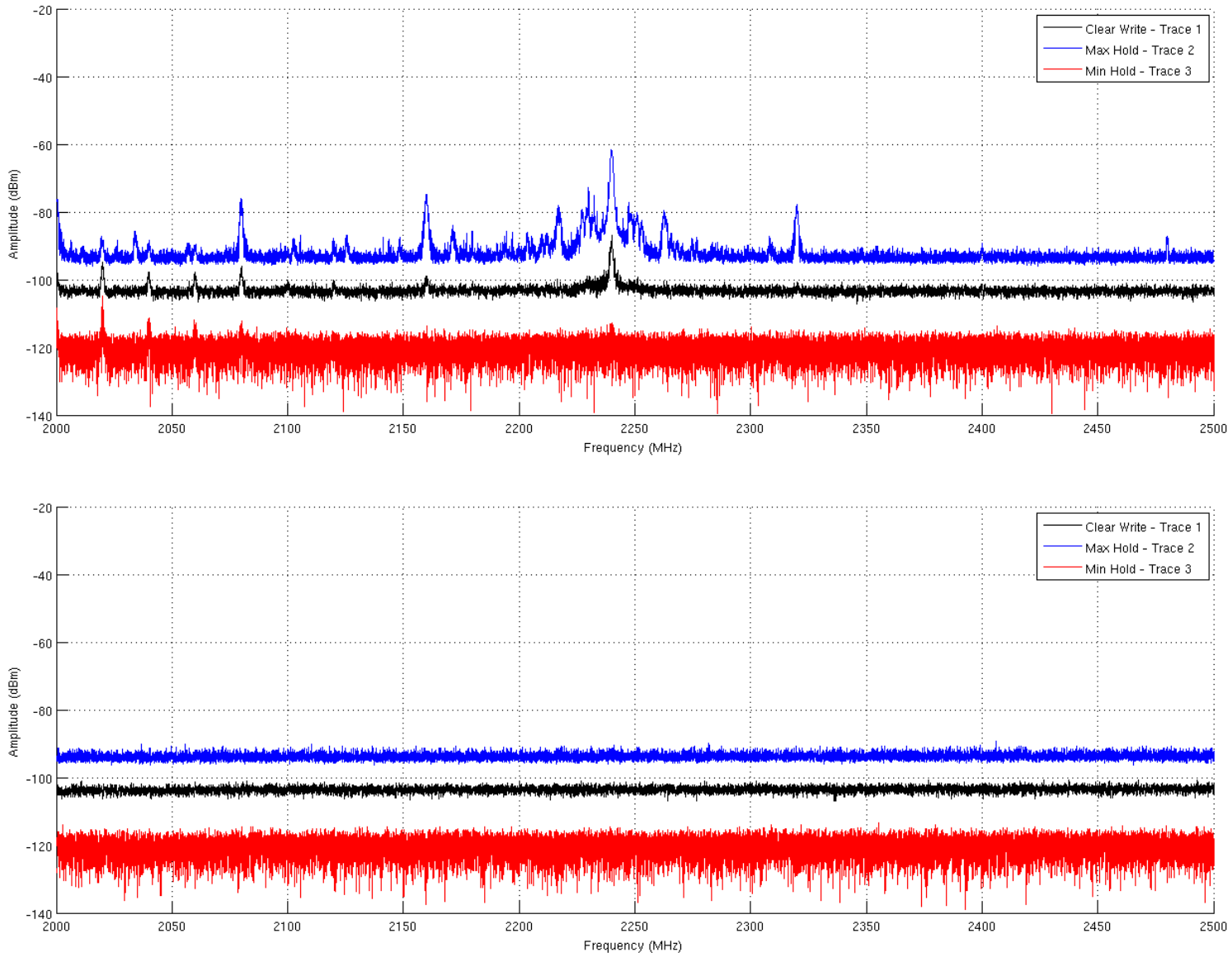

Figure 9: FLS-C 10 RFI test, Range: 2000 - 2500MHz, Top: laser; Bottom: shielding.

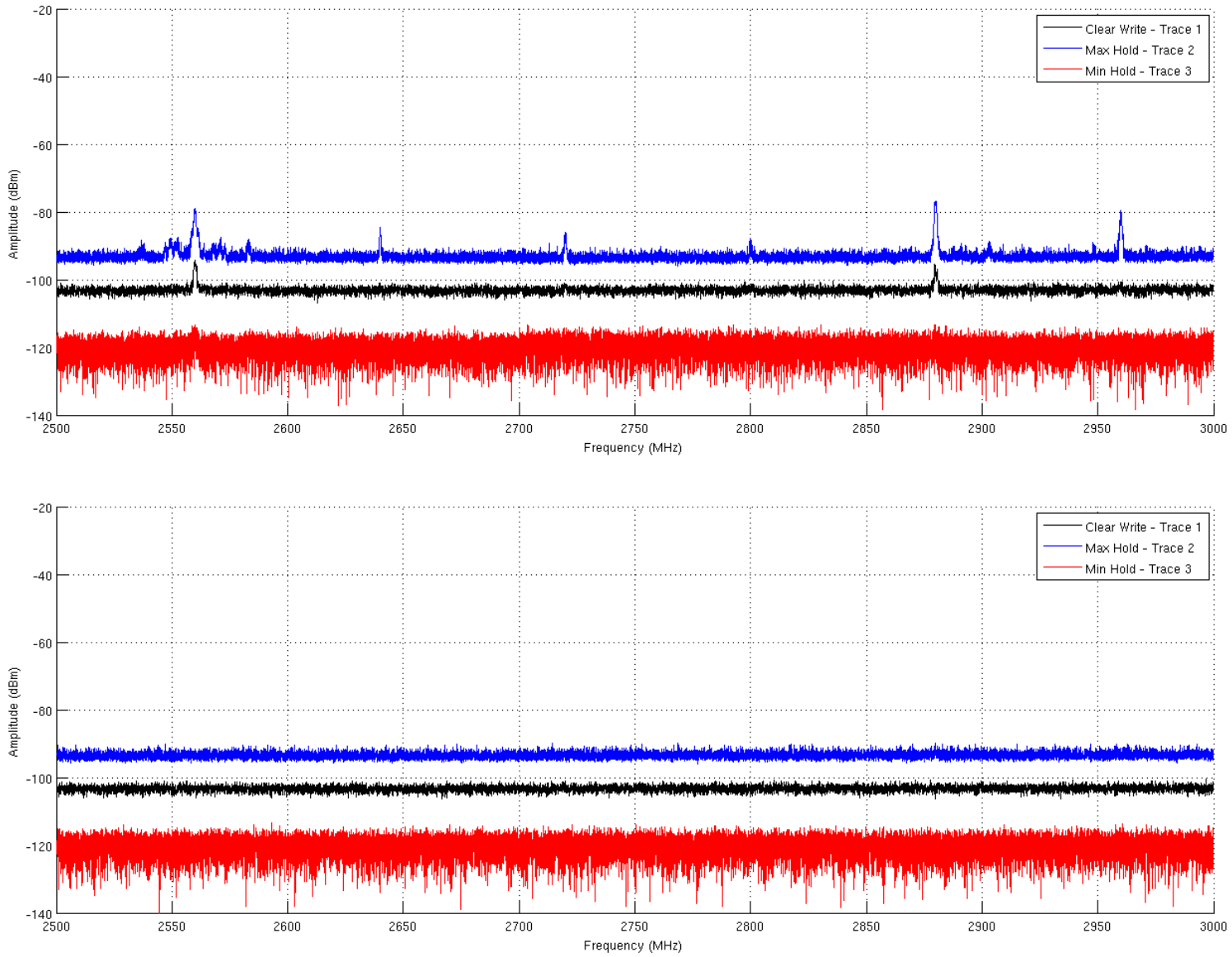

Figure 10: FLS-C 10 RFI test, Range: 2500 - 3000MHz, Top: laser; Bottom: shielding.