

Appendix E

Transmitter Spurious Radiated Emissions at 3m XB-9XR-DMCS-001

1. Test Data

Remark(s):

- All spurious emissions that are in excess of 20 dB below the specified limit shall be recorded.
- EUT shall be tested in three orthogonal positions.
- The following test data represent the worst-case derived from exploratory tests.

1.1. EUT with 0.8 dBi Ceramic Chip Antenna, 0.8 dBi Antenna Assembly Gain, 110 kbps Data Rate

1.1.1. Spurious Radiated Emissions

Fundamental Frequency:		902.5 MHz					
Power Setting:		High					
Frequency Test Range:		30 MHz – 10 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
902.5	111.22	--	V	--	--	--	--
902.5	112.82	--	H	--	--	--	--
2707.5	45.36	38.35	V	54.0	92.8	-15.7	Pass*
2707.5	45.11	36.83	H	54.0	92.8	-17.2	Pass*
3610.0	49.30	43.10	V	54.0	92.8	-10.9	Pass*
3610.0	48.52	41.62	H	54.0	92.8	-12.4	Pass*
All other spurious emissions and harmonics are more than 20 dB below the applicable limit.							

*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

Fundamental Frequency:		915 MHz					
Power Setting:		High					
Frequency Test Range:		30 MHz – 10 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
915.0	113.56	--	V	--	--	--	--
915.0	112.91	--	H	--	--	--	--
2745.0	48.36	46.22	V	54.0	93.6	-7.8	Pass*
2745.0	48.13	43.97	H	54.0	93.6	-10.0	Pass*
3660.0	47.40	37.52	V	54.0	93.6	-16.5	Pass*
3660.0	47.48	38.57	H	54.0	93.6	-15.4	Pass*
All other spurious emissions and harmonics are more than 20 dB below the applicable limit.							

*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

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File #: 24DIGI201_FCC15C247

March 27, 2024

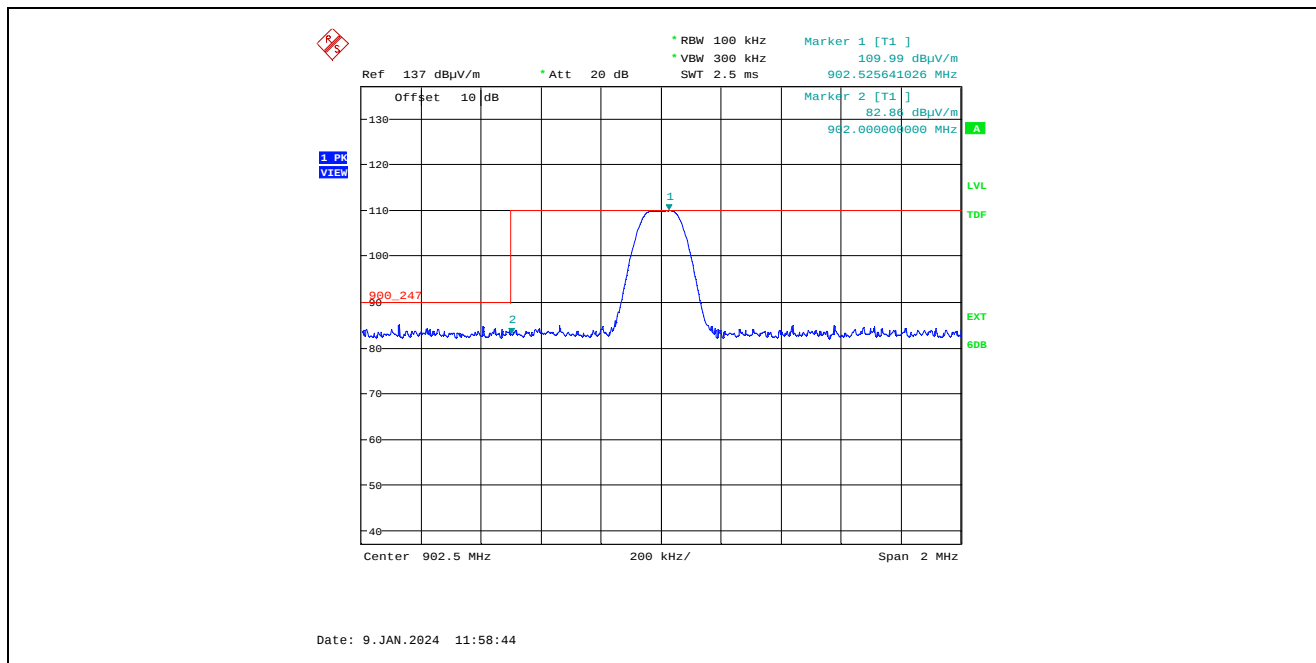
All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

Fundamental Frequency:		927 MHz					
Power Setting:		High					
Frequency Test Range:		30 MHz – 10 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
927.0	114.97	--	V	--	--	--	--
927.0	114.87	--	H	--	--	--	--
2781.0	49.19	44.34	V	54.0	95.0	-9.7	Pass*
2781.0	48.56	44.11	H	54.0	95.0	-9.9	Pass*
3708.0	46.99	37.94	V	54.0	95.0	-16.1	Pass*
3708.0	46.31	36.47	H	54.0	95.0	-17.5	Pass*
4635.0	49.91	41.90	V	54.0	95.0	-12.1	Pass*
4635.0	50.71	42.71	H	54.0	95.0	-11.3	Pass*
All other spurious emissions and harmonics are more than 20 dB below the applicable limit.							

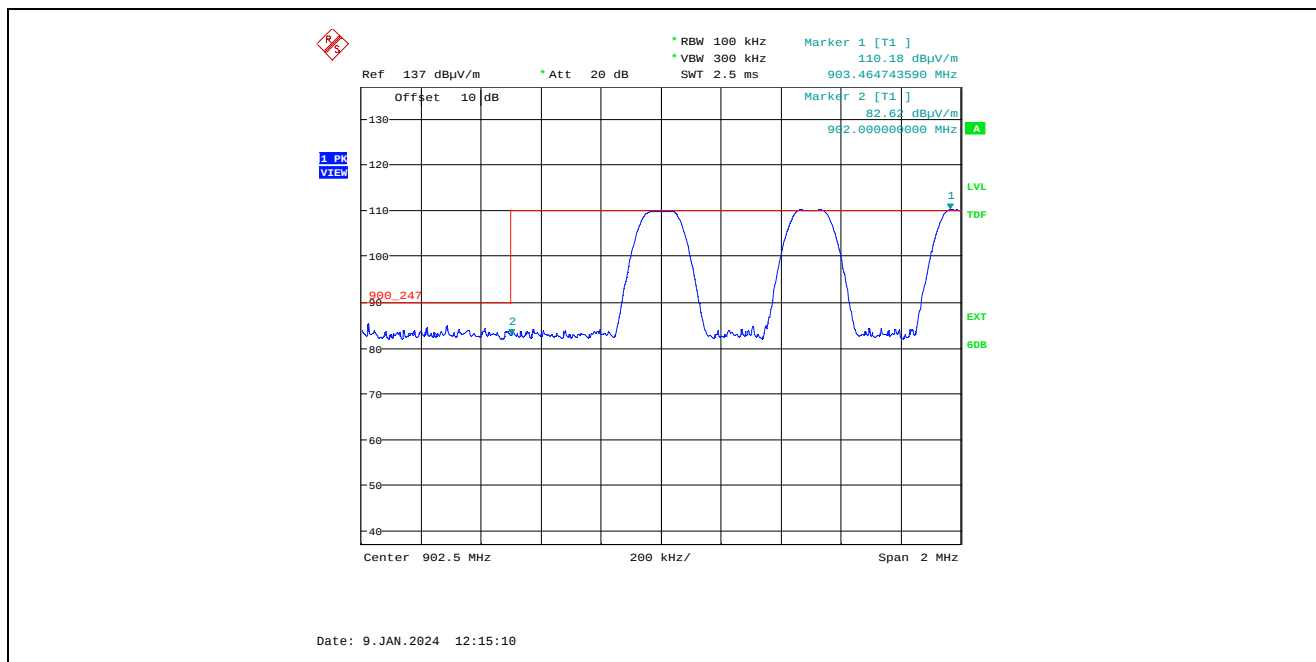
*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

1.1.2. Band –Edge RF Radiated Emissions

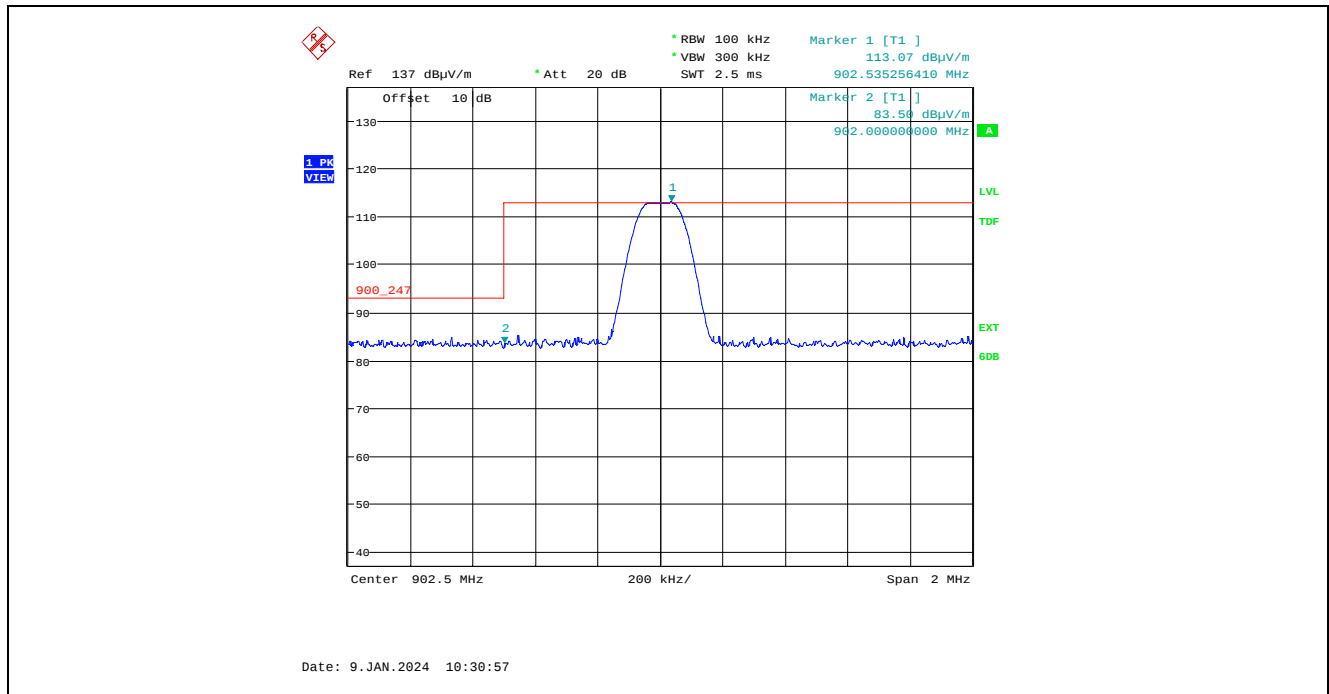
Plot 1.1.2.1. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
10 kbps, Single Frequency Mode, Low End of Frequency Band



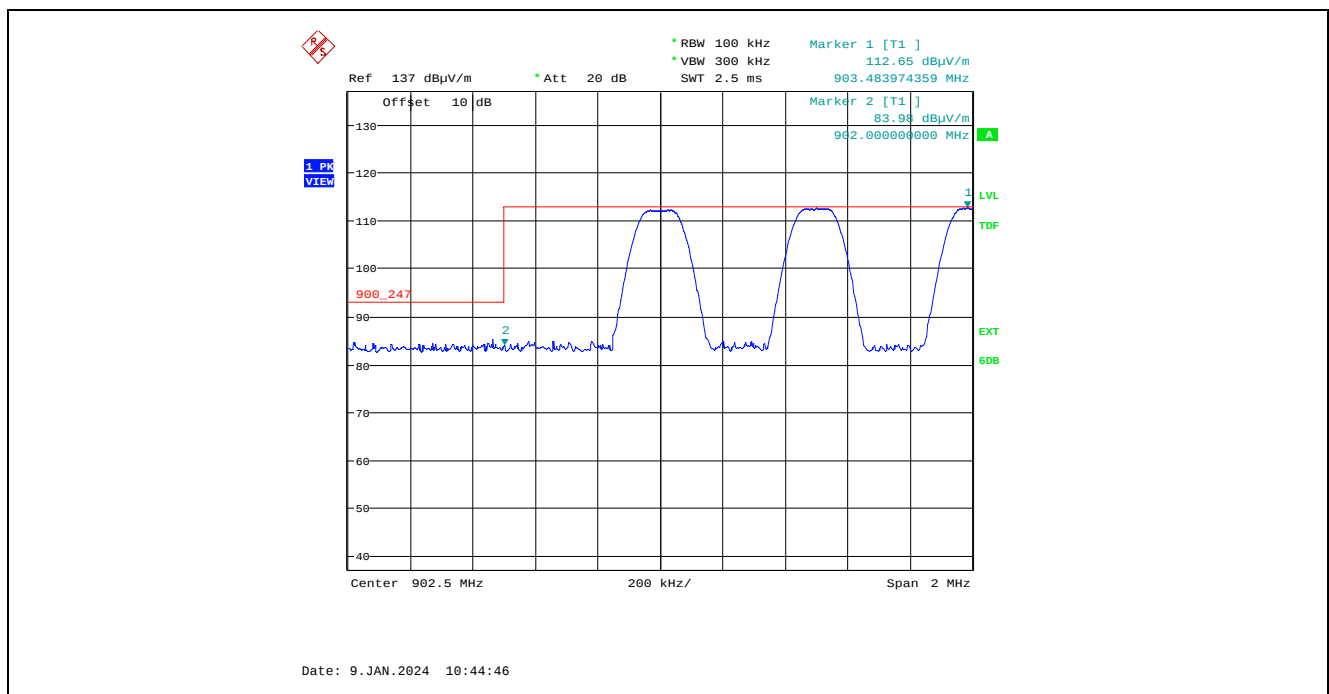
Plot 1.1.2.2. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
10 kbps, Pseudorandom Channel Hopping Mode, Low End of Frequency Band



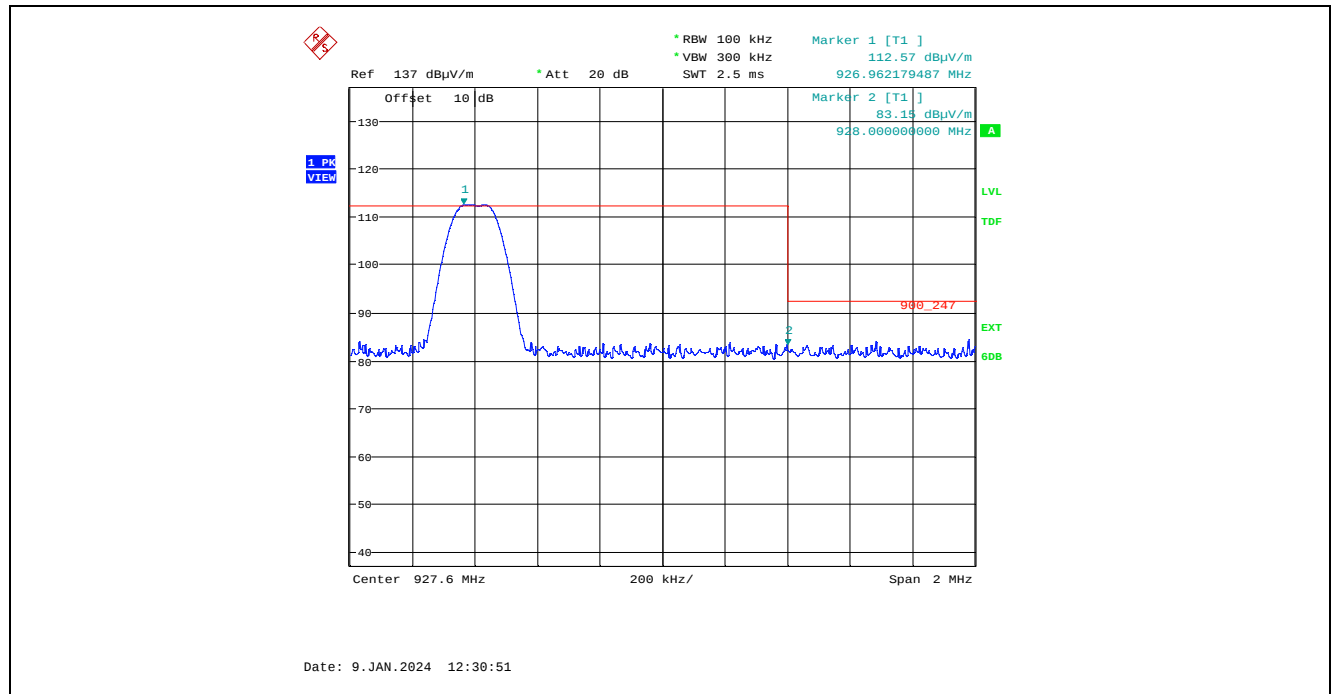
Plot 1.1.2.3. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
10 kbps, Single Frequency Mode, Low End of Frequency Band



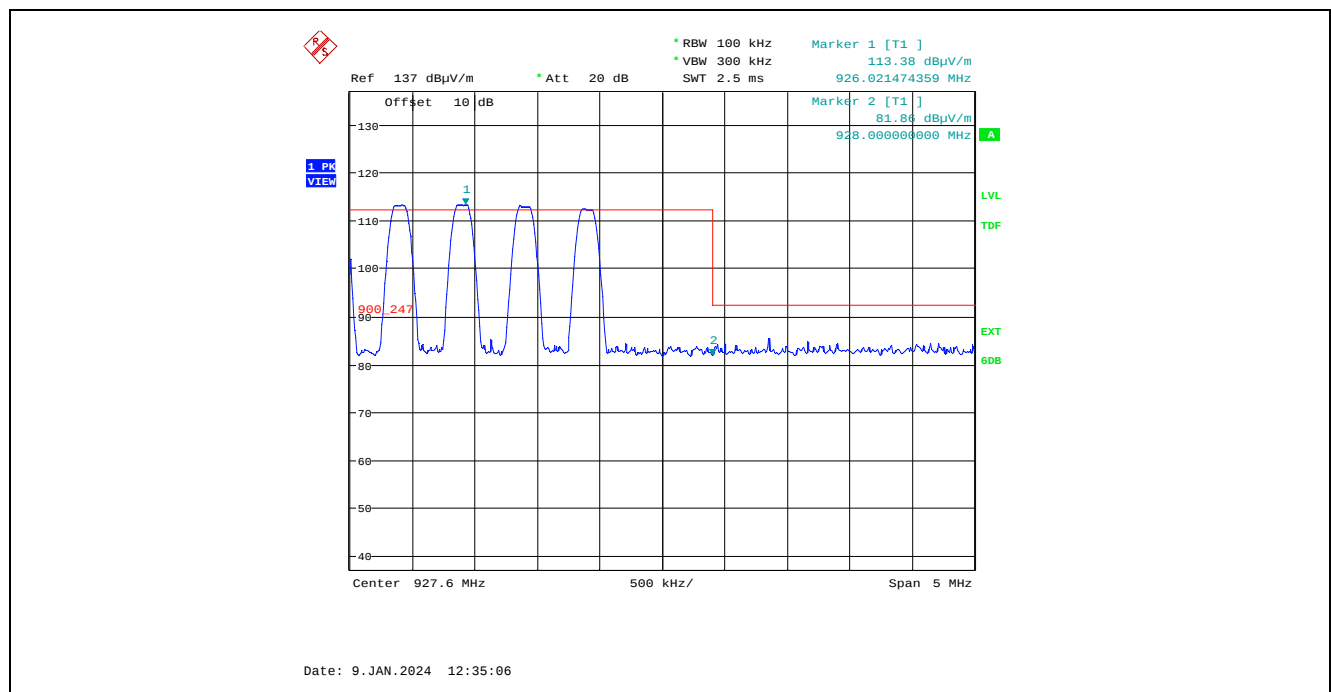
Plot 1.1.2.4. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
10 kbps, Pseudorandom Channel Hopping Mode, Low End of Frequency Band



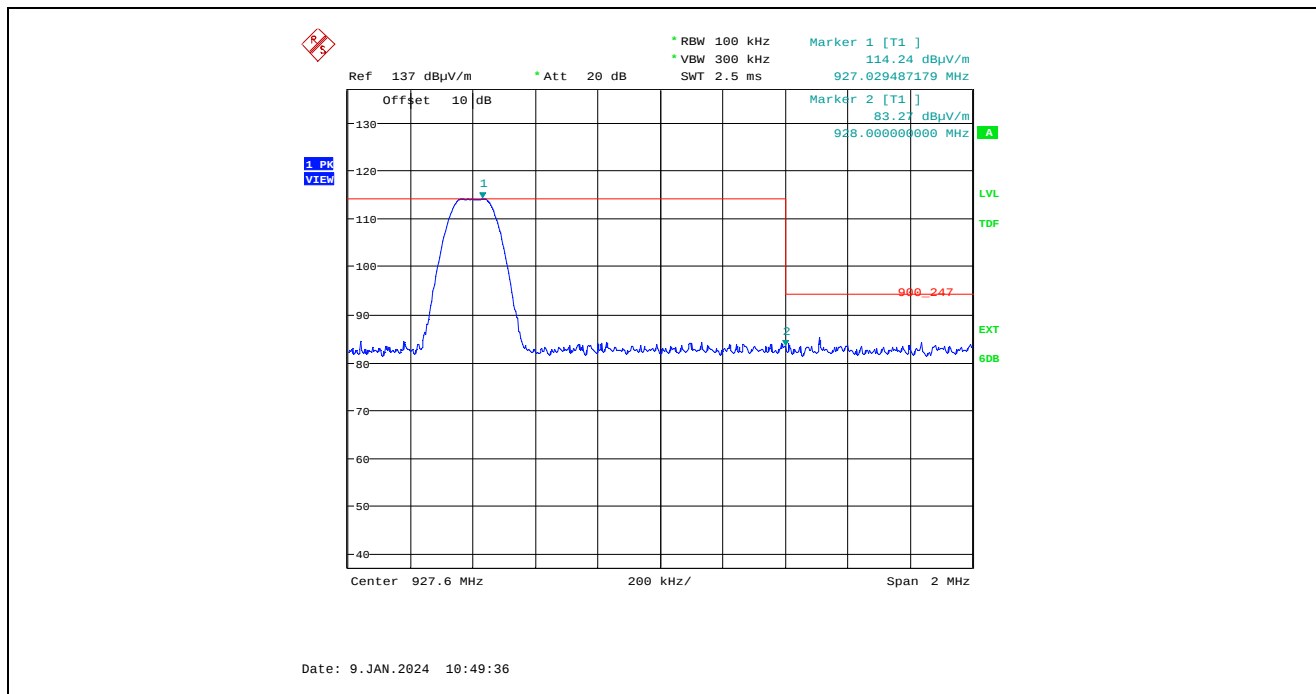
Plot 1.1.2.5. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
10 kbps, Single Frequency Mode, High End of Frequency Band



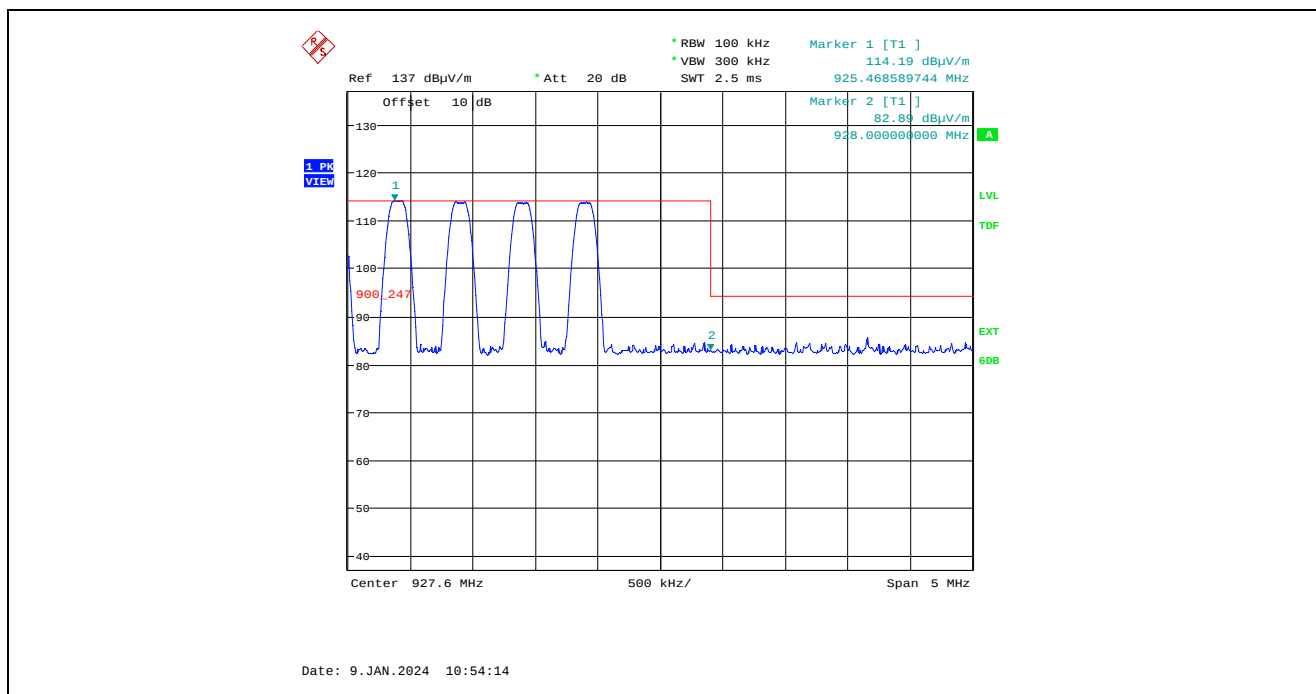
Plot 1.1.2.6. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
10 kbps, Pseudorandom Channel Hopping Mode, High End of Frequency Band



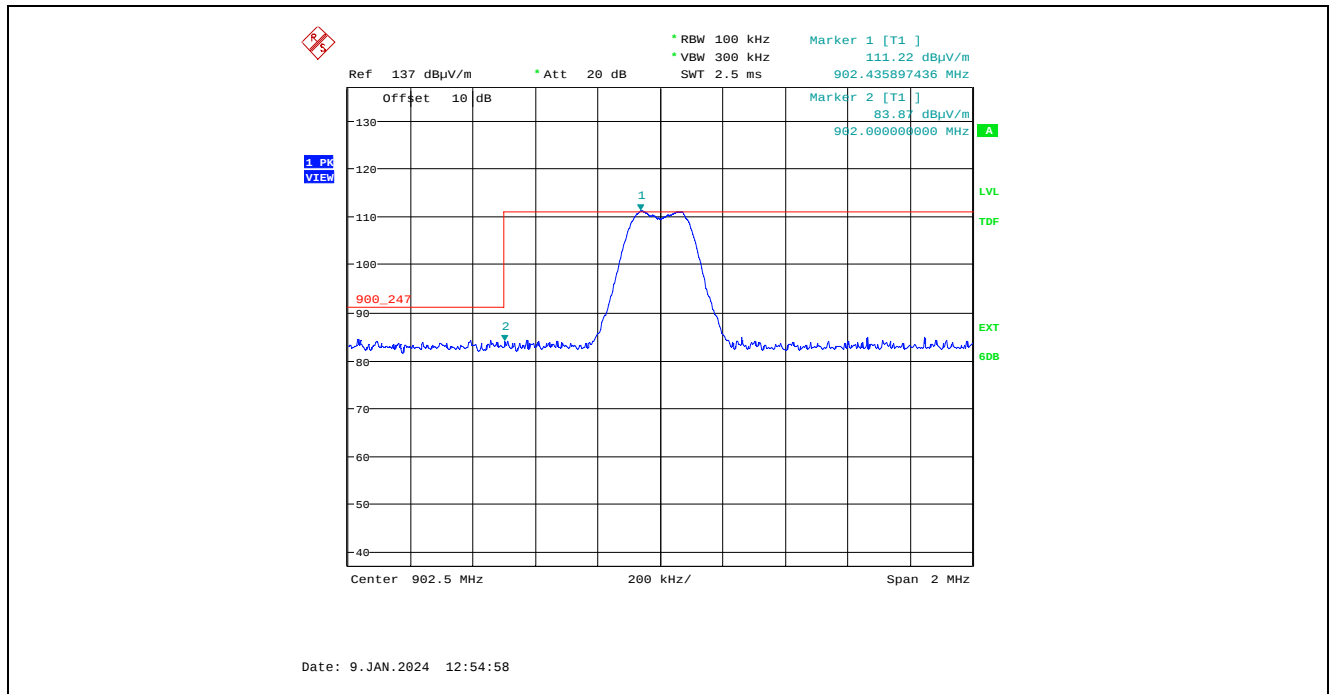
Plot 1.1.2.7. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
10 kbps, Single Frequency Mode, High End of Frequency Band



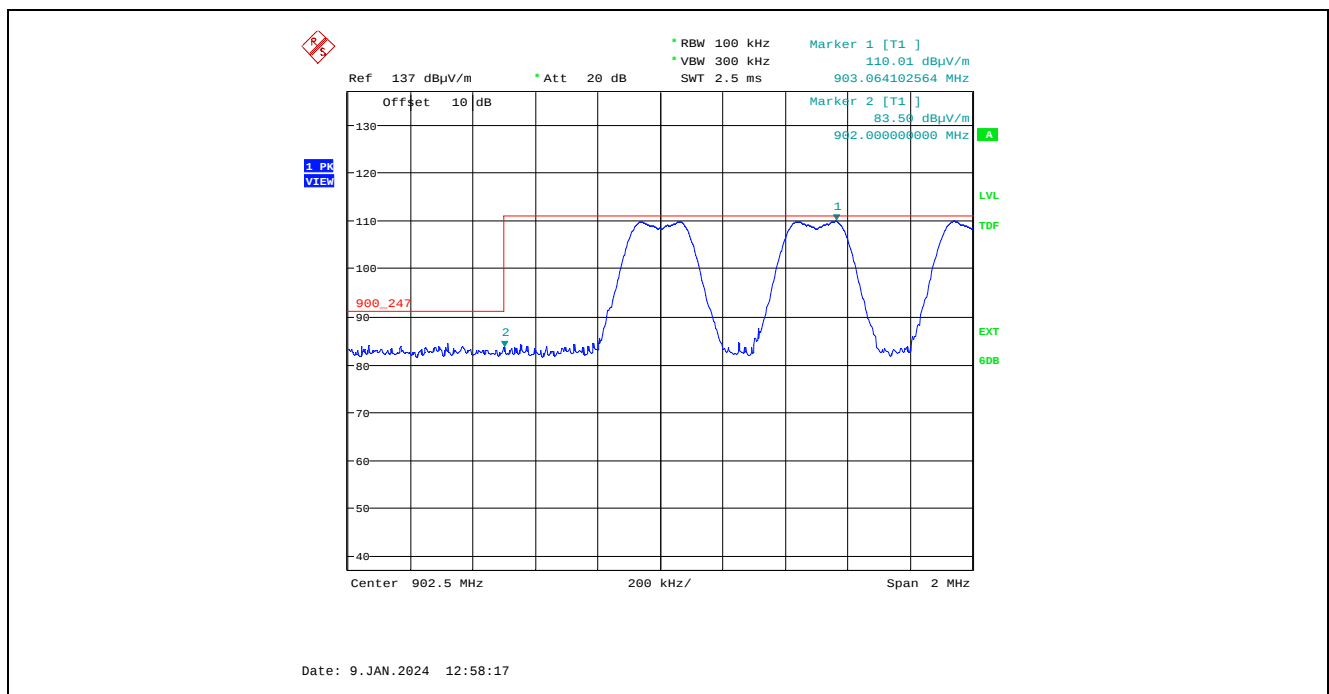
Plot 1.1.2.8. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
10 kbps, Pseudorandom Channel Hopping Mode, High End of Frequency Band



Plot 1.1.2.9. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
110 kbps, Single Frequency Mode, Low End of Frequency Band



Plot 1.1.2.10. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
110 kbps, Pseudorandom Channel Hopping Mode, Low End of Frequency Band



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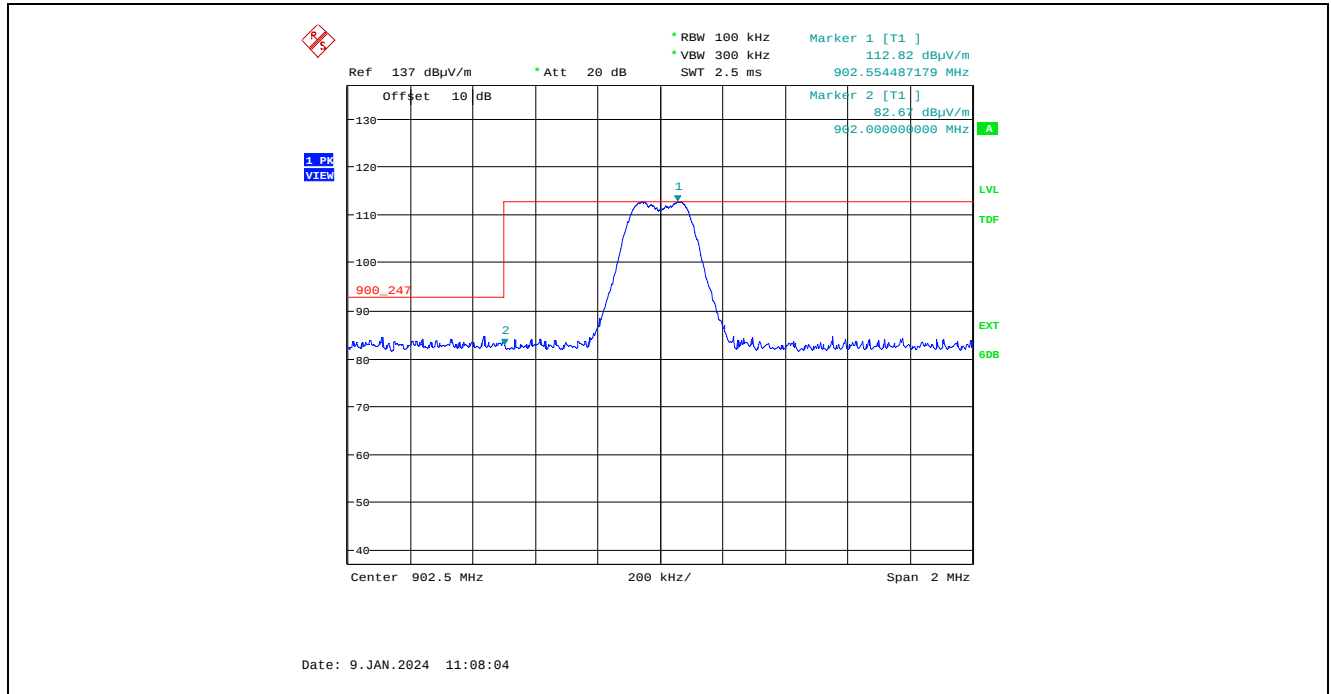
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: 24DIGI201_FCC15C247

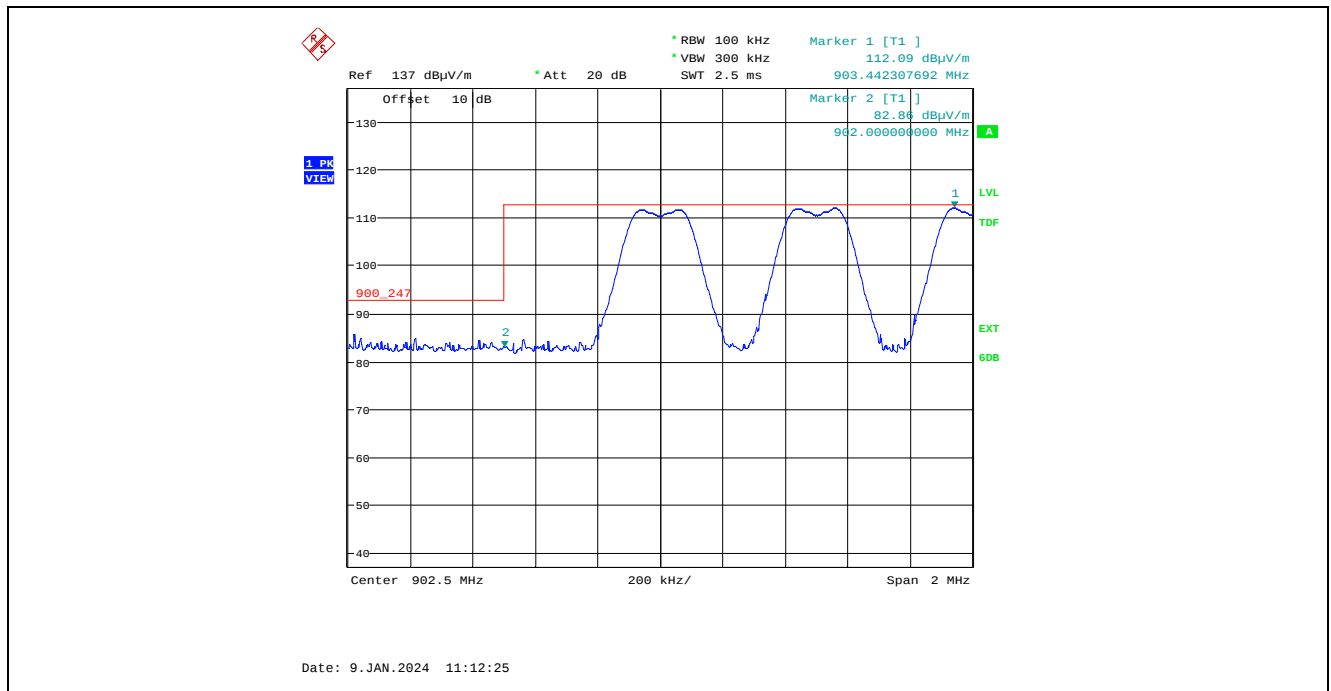
March 27, 2024

All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

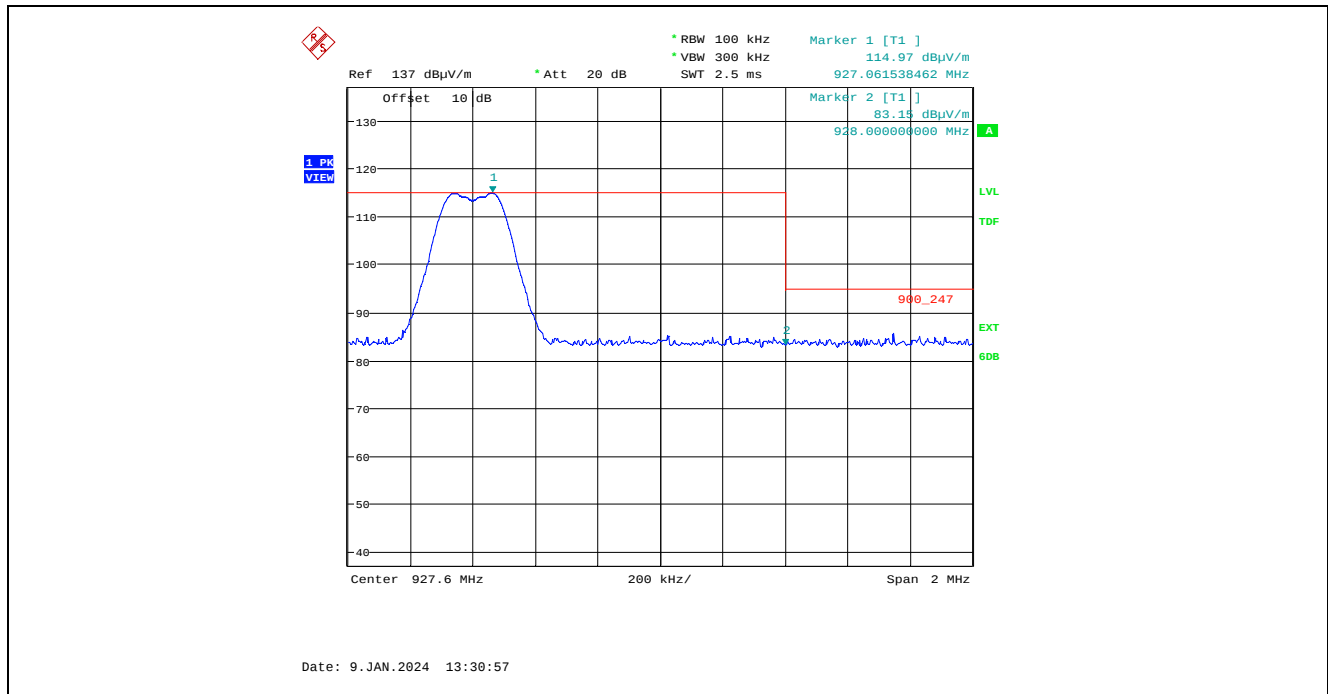
Plot 1.1.2.11. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
 110 kbps, Single Frequency Mode, Low End of Frequency Band



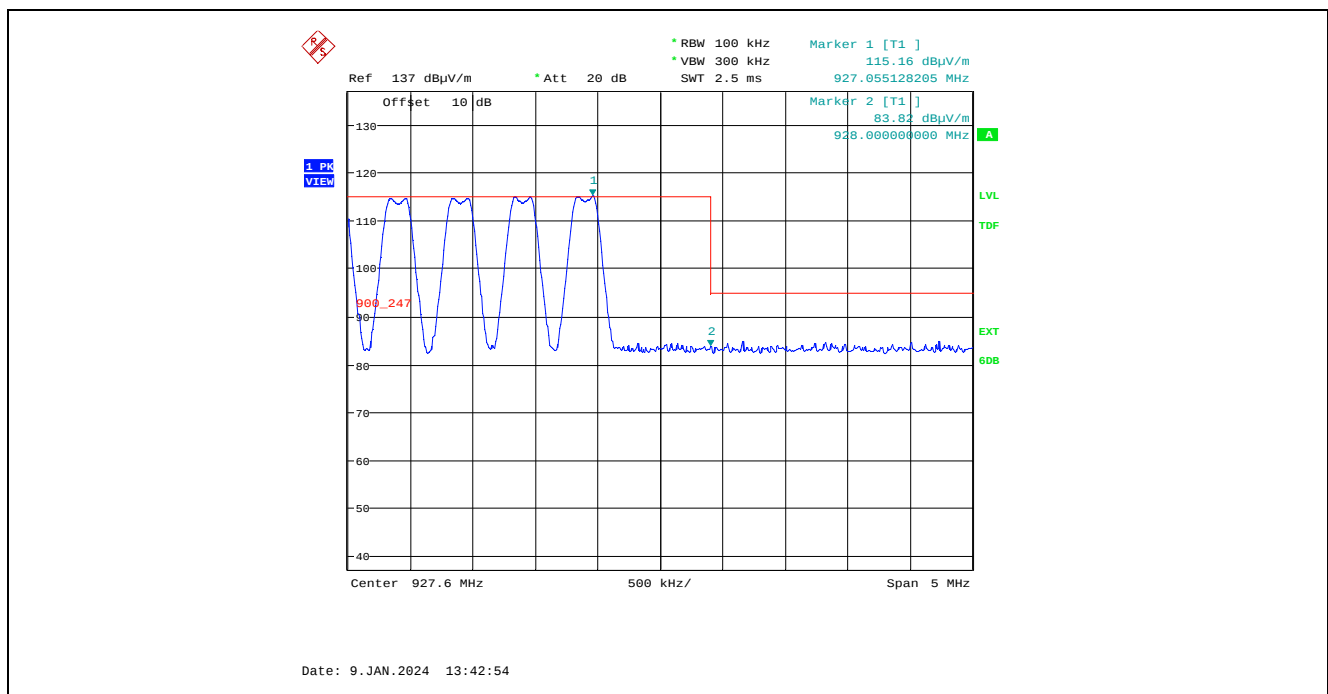
Plot 1.1.2.12. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
 110 kbps, Pseudorandom Channel Hopping Mode, Low End of Frequency Band



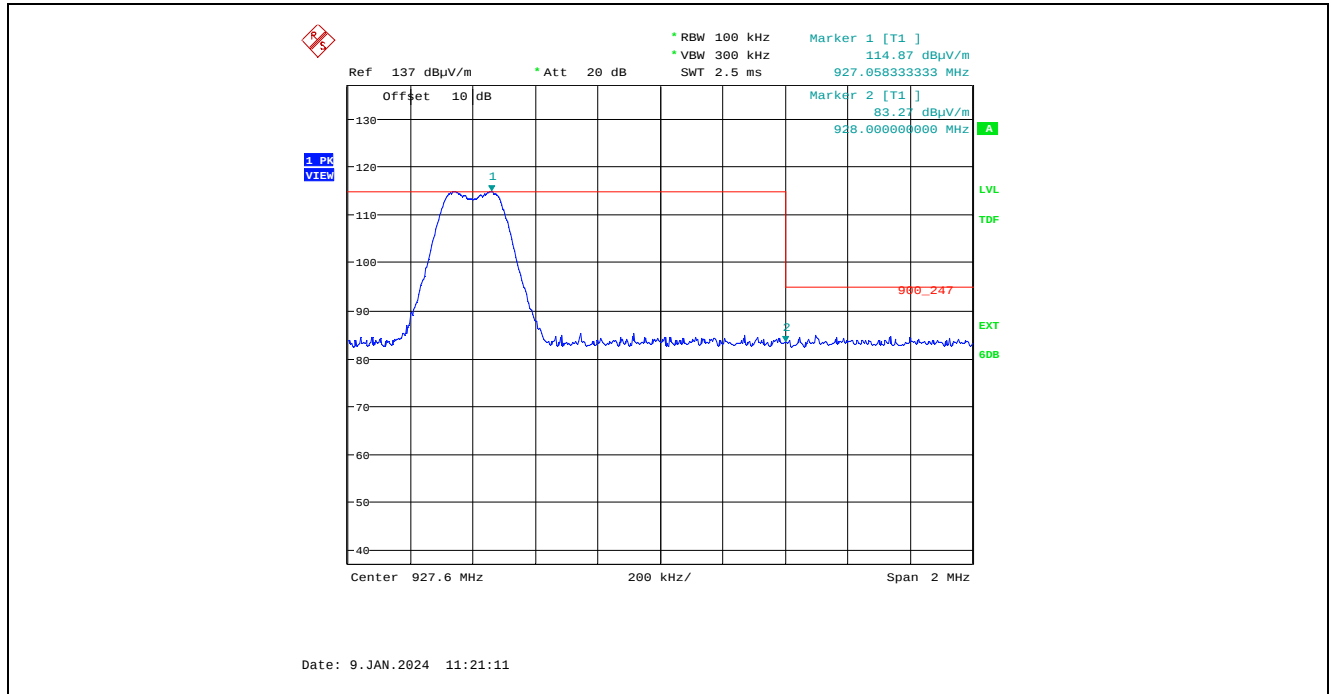
Plot 1.1.2.13. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
110 kbps, Single Frequency Mode, High End of Frequency Band



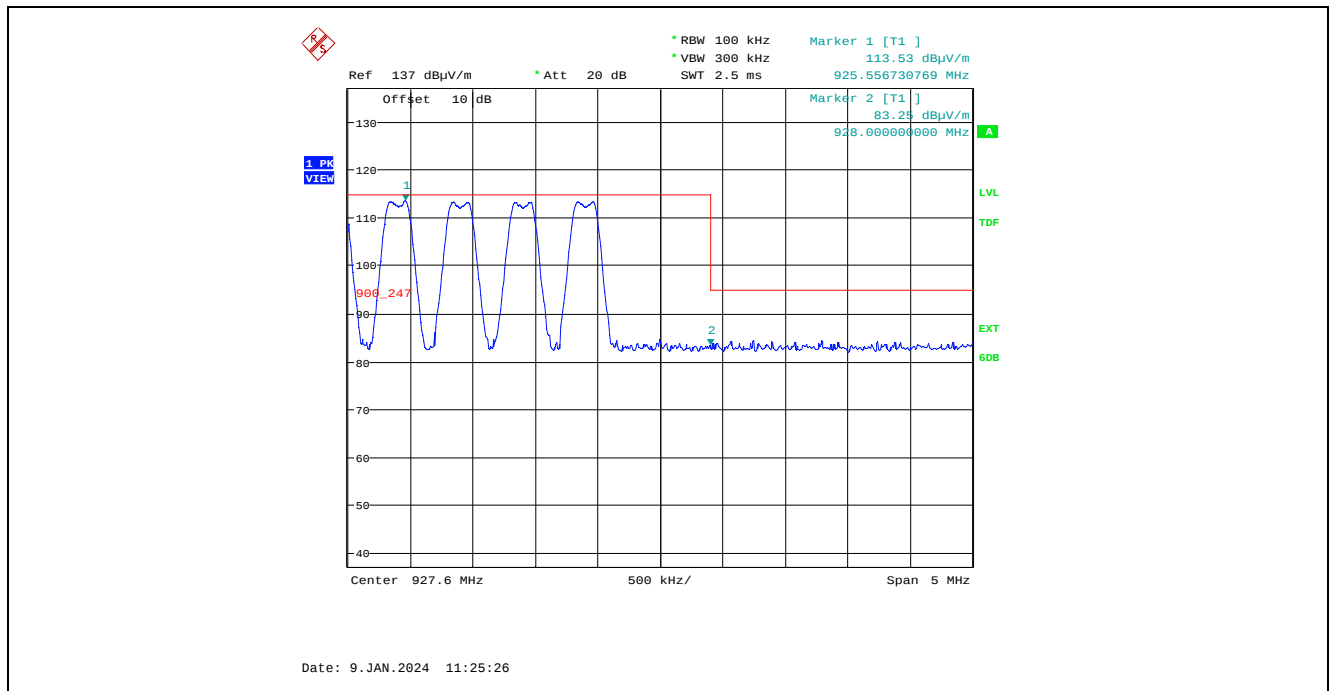
Plot 1.1.2.14. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
110 kbps, Pseudorandom Channel Hopping Mode, High End of Frequency Band



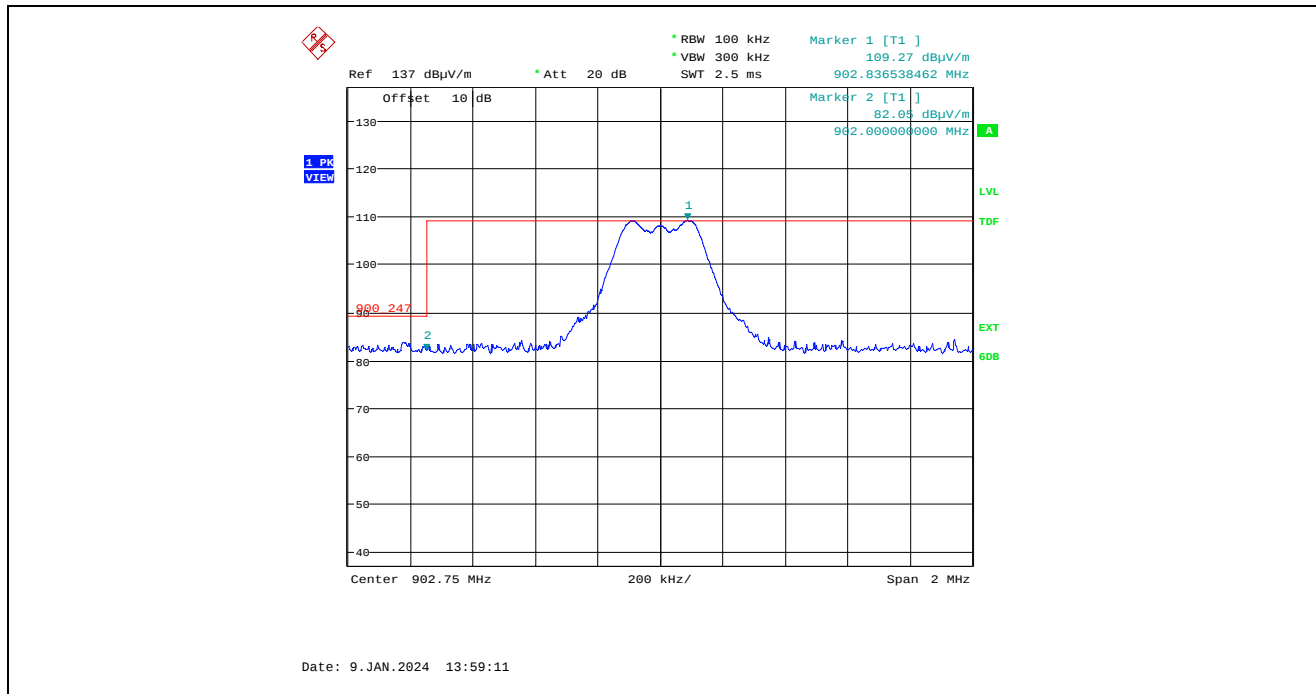
Plot 1.1.2.15. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
110 kbps, Single Frequency Mode, High End of Frequency Band



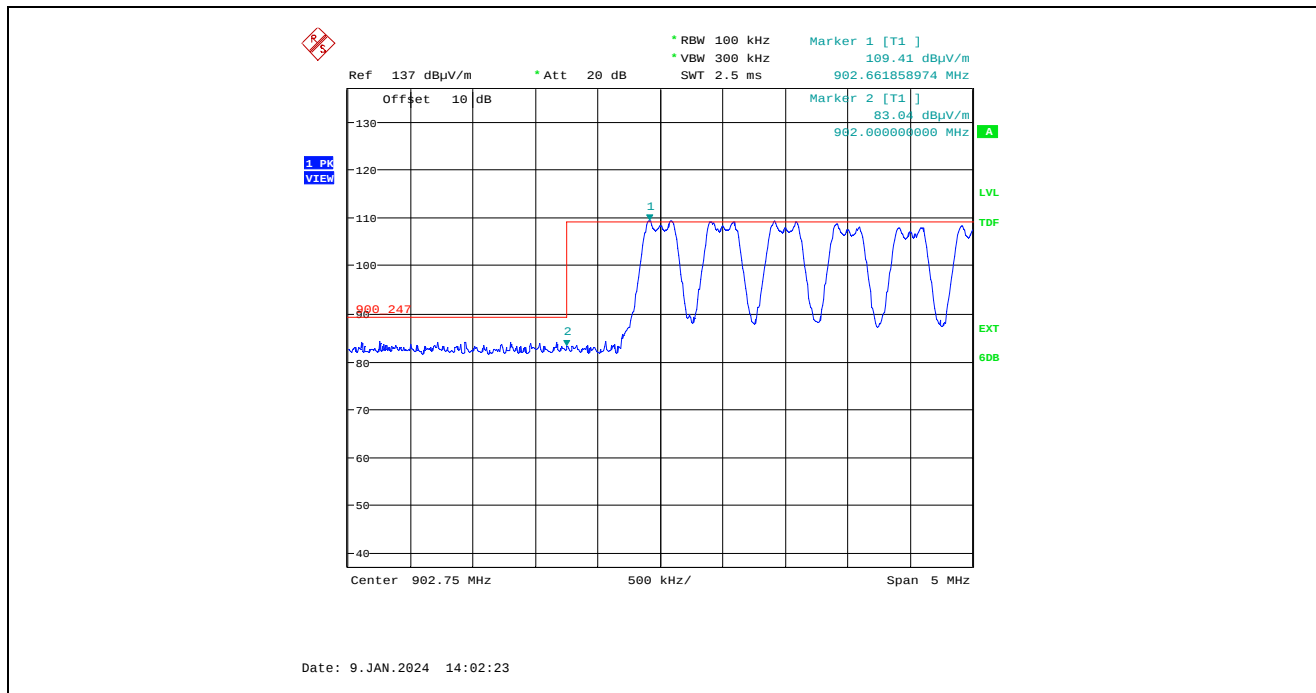
Plot 1.1.2.16. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
110 kbps, Pseudorandom Channel Hopping Mode, High End of Frequency Band



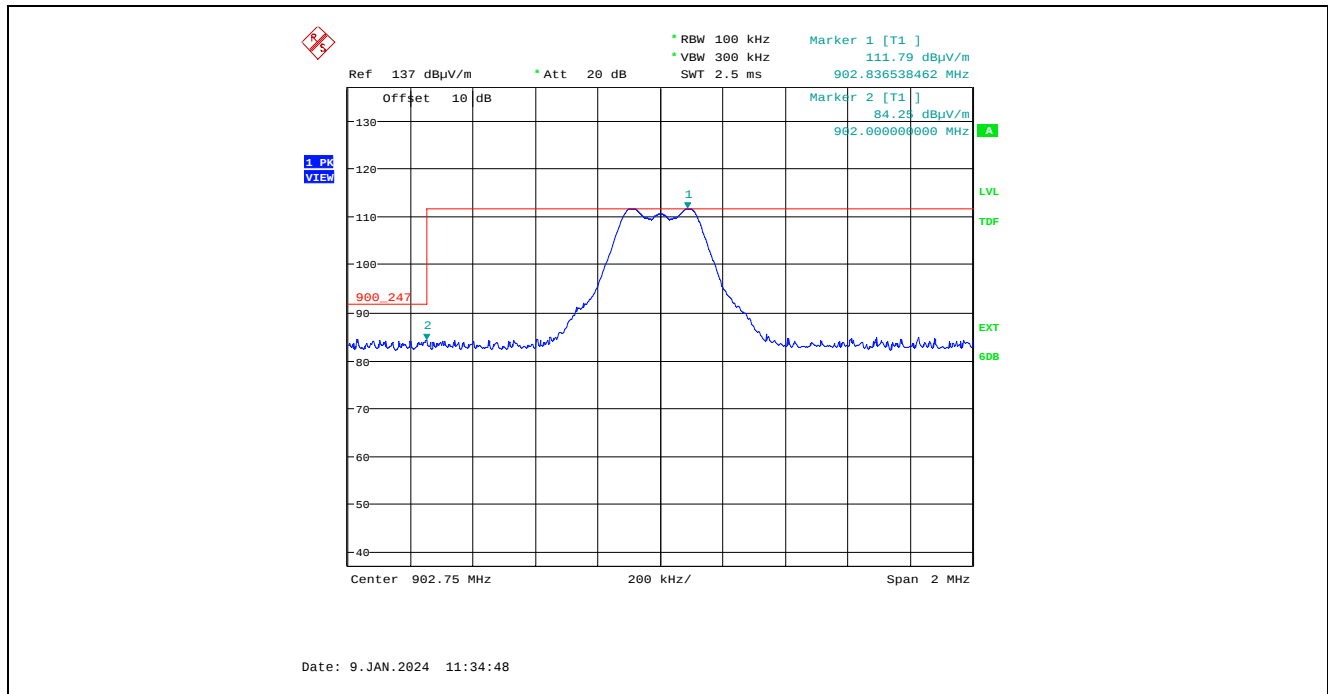
Plot 1.1.2.17. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
250 kbps, Single Frequency Mode, Low End of Frequency Band



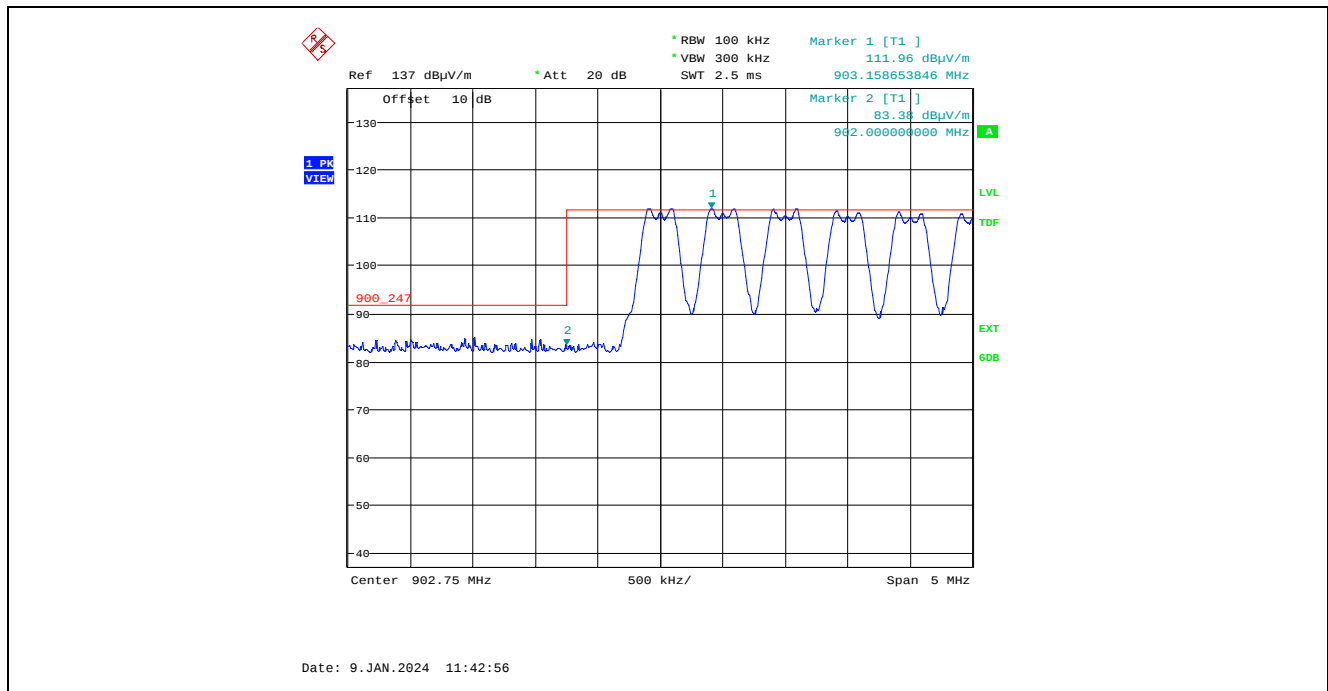
Plot 1.1.2.18. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
250 kbps, Pseudorandom Channel Hopping Mode, Low End of Frequency Band



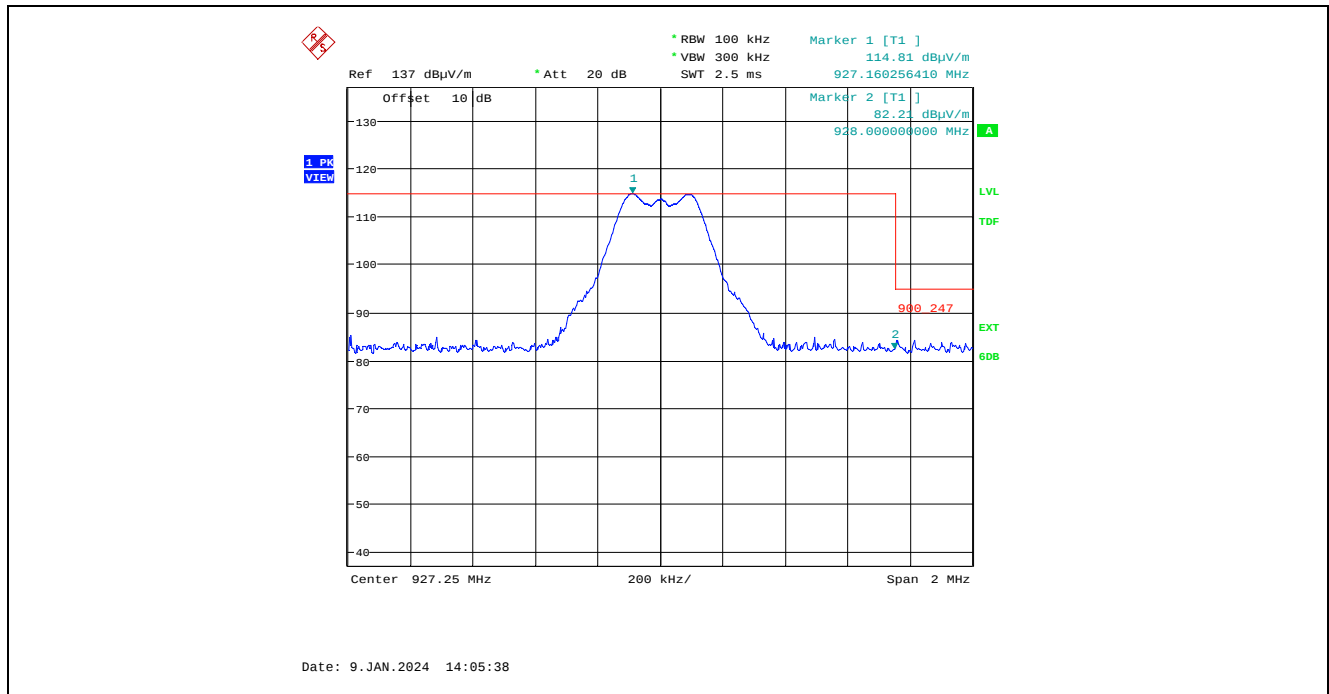
Plot 1.1.2.19. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
250 kbps, Single Frequency Mode, Low End of Frequency Band



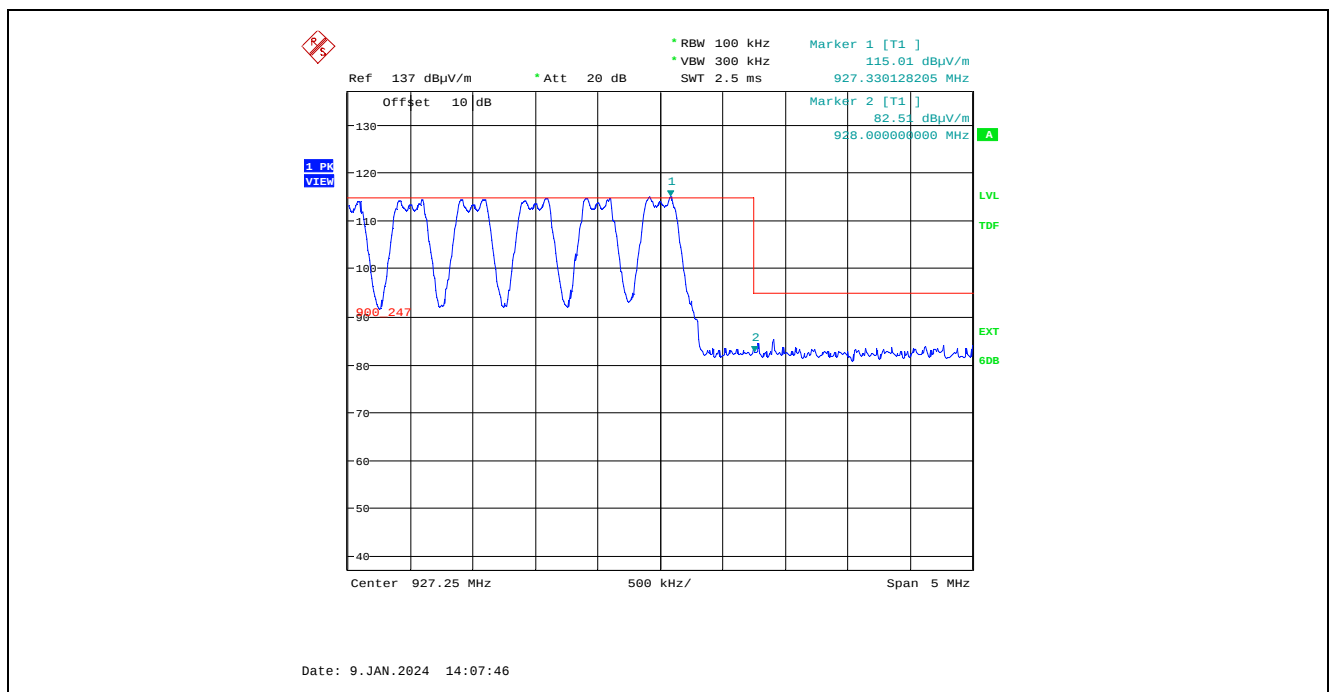
Plot 1.1.2.20. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
250 kbps, Pseudorandom Channel Hopping Mode, Low End of Frequency Band



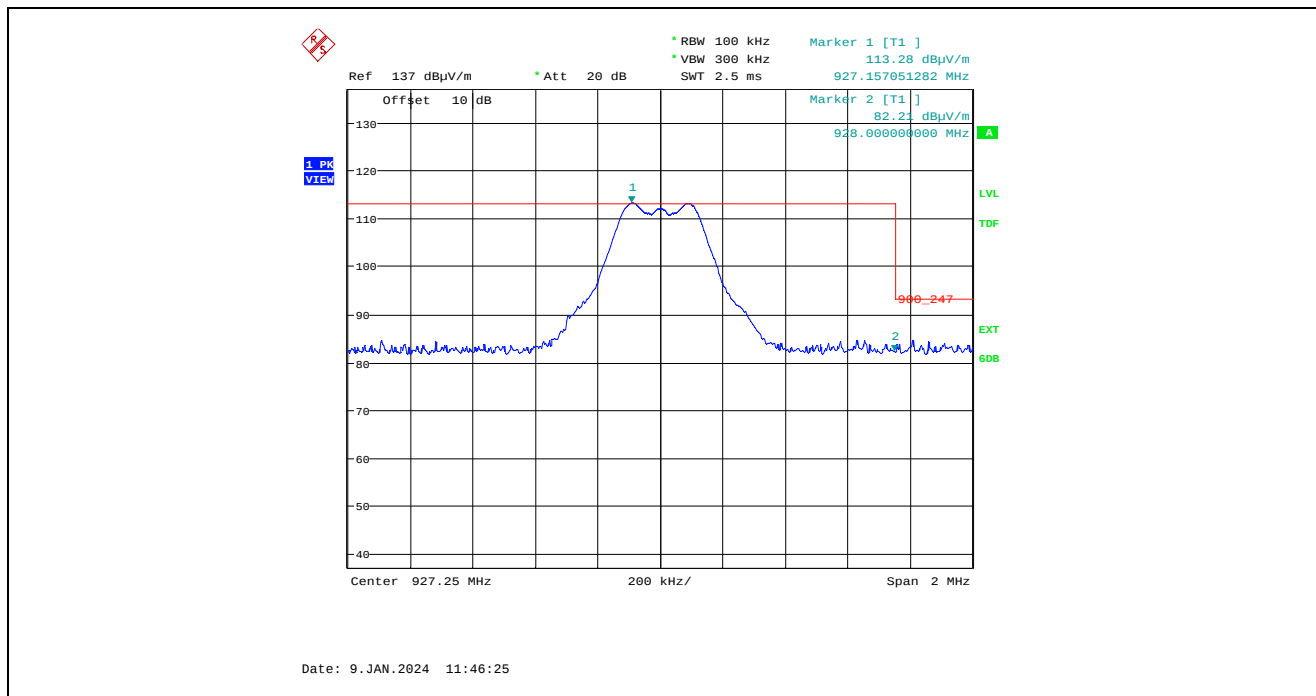
Plot 1.1.2.21. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
250 kbps, Single Frequency Mode, High End of Frequency Band



Plot 1.1.2.22. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization
250 kbps, Pseudorandom Channel Hopping Mode, High End of Frequency Band



Plot 1.1.2.23. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
250 kbps, Single Frequency Mode, High End of Frequency Band



Plot 1.1.2.24. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization
250 kbps, Pseudorandom Channel Hopping Mode, High End of Frequency Band

