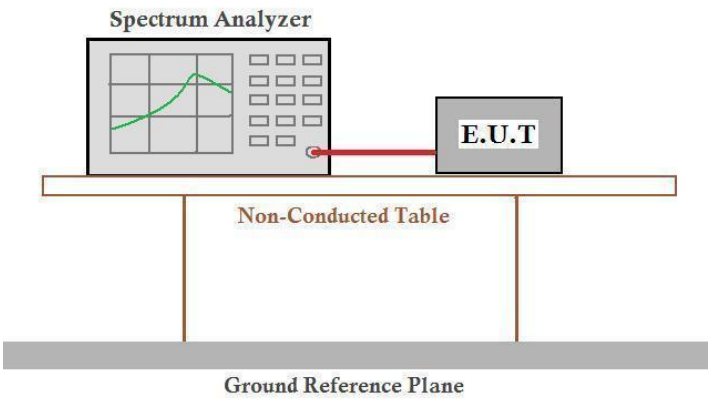


5.5 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20). Only the worst case is recorded in the report.
Limit:	$\leq 8.00\text{dBm}/3\text{kHz}$
Test Results:	Pass

Measurement Data

Ant1

802.11b mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-20.05	≤8.00	Pass
Middle	-16.83	≤8.00	Pass
Highest	-15.75	≤8.00	Pass
802.11g mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-20.42	≤8.00	Pass
Middle	-20.4	≤8.00	Pass
Highest	-19.2	≤8.00	Pass
802.11n(HT20) mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-19.35	≤8.00	Pass
Middle	-19.54	≤8.00	Pass
Highest	-27.03	≤8.00	Pass

Ant2

802.11b mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-18.2	≤8.00	Pass
Middle	-17.79	≤8.00	Pass
Highest	-14.92	≤8.00	Pass
802.11g mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-18.81	≤8.00	Pass
Middle	-19.4	≤8.00	Pass
Highest	-17.29	≤8.00	Pass
802.11n(HT20) mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-21.57	≤8.00	Pass
Middle	-20.72	≤8.00	Pass
Highest	-18.81	≤8.00	Pass

Ant1+Ant2

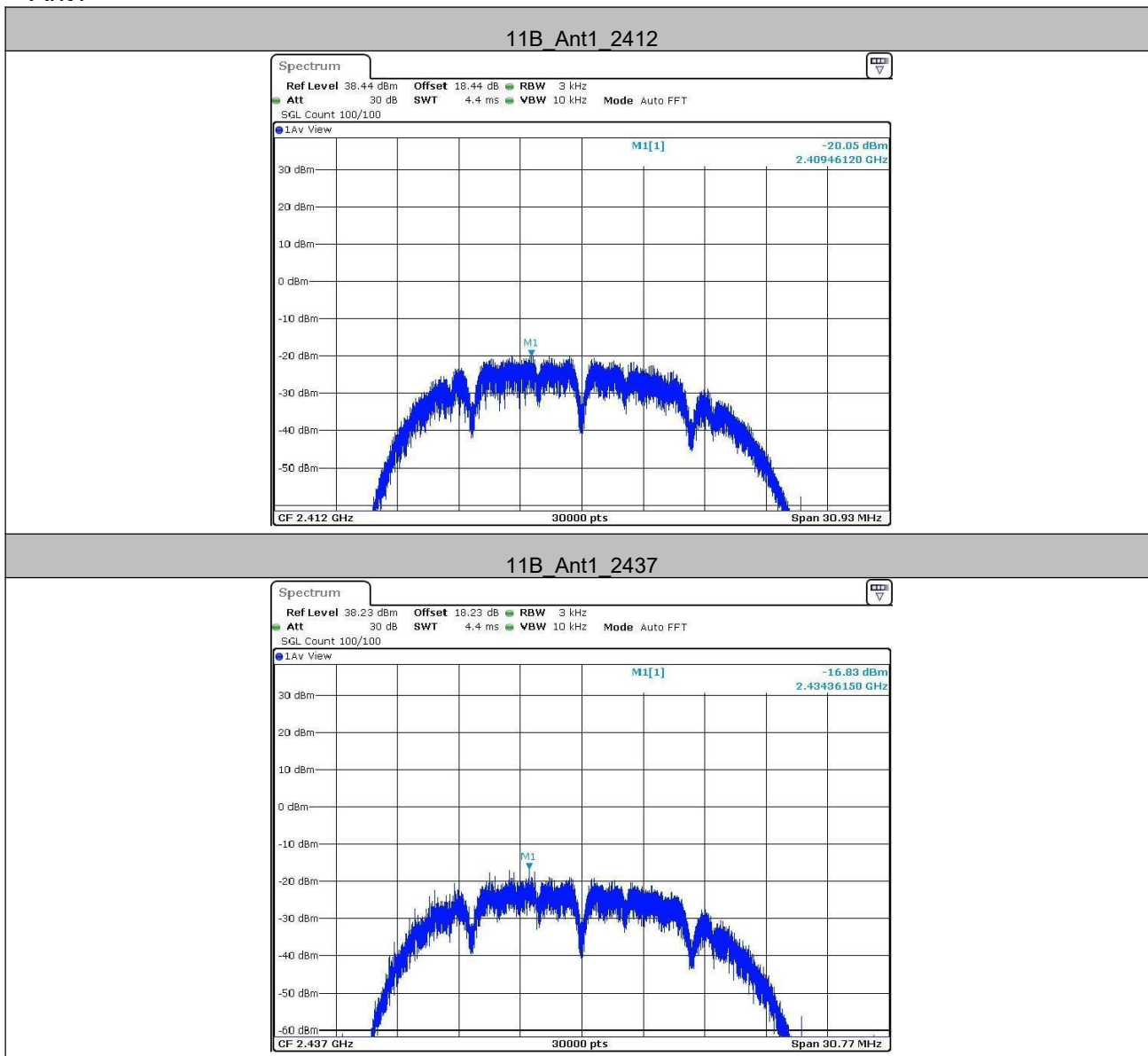
802.11n(HT20) mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-17.31	≤8.00	Pass
Middle	-17.08	≤8.00	Pass
Highest	-18.20	≤8.00	Pass

Note: The EUT supports MIMO and transmit signals are correlated with each other, then

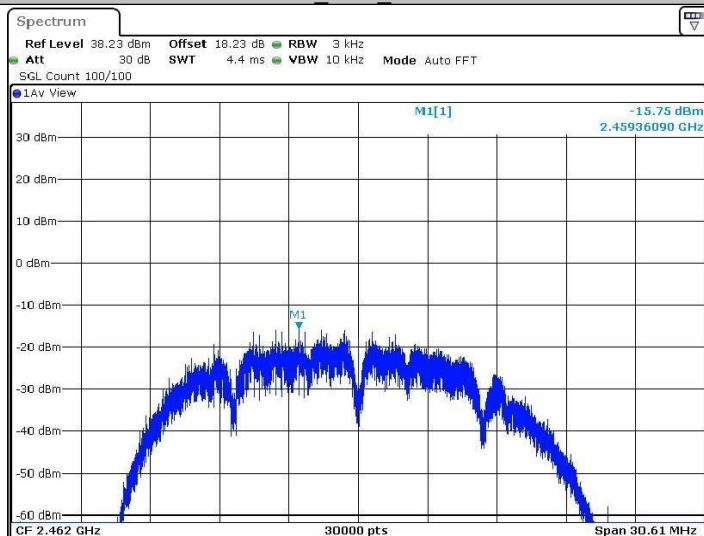
Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$ dBi = 5.41 dBi < 6dBi

Test plot as follows:

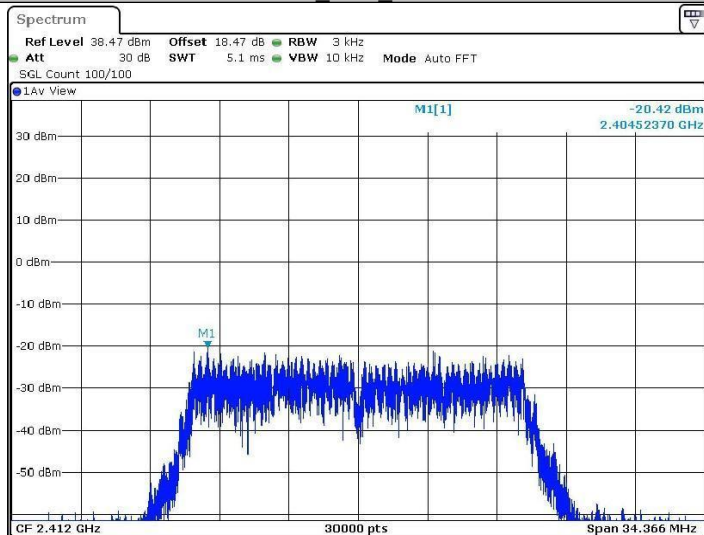
Ant1



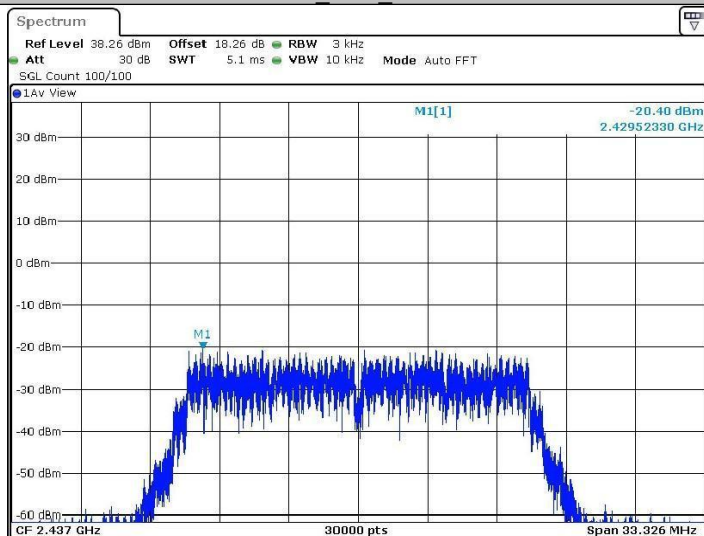
11B_Ant1_2462



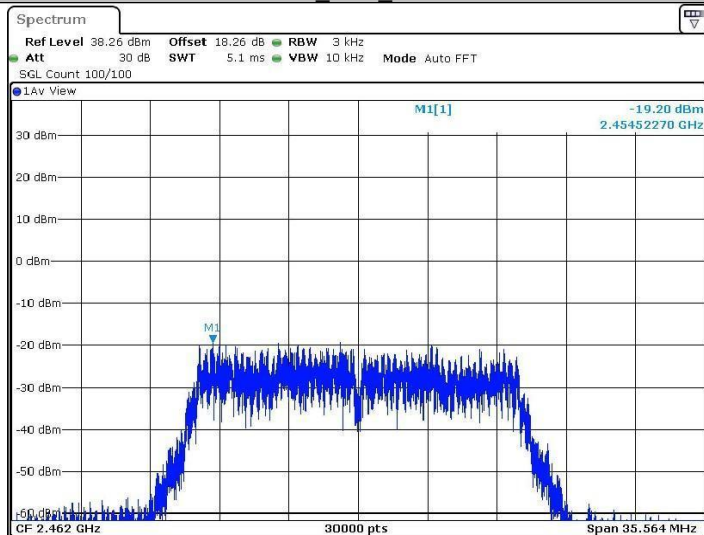
11G_Ant1_2412



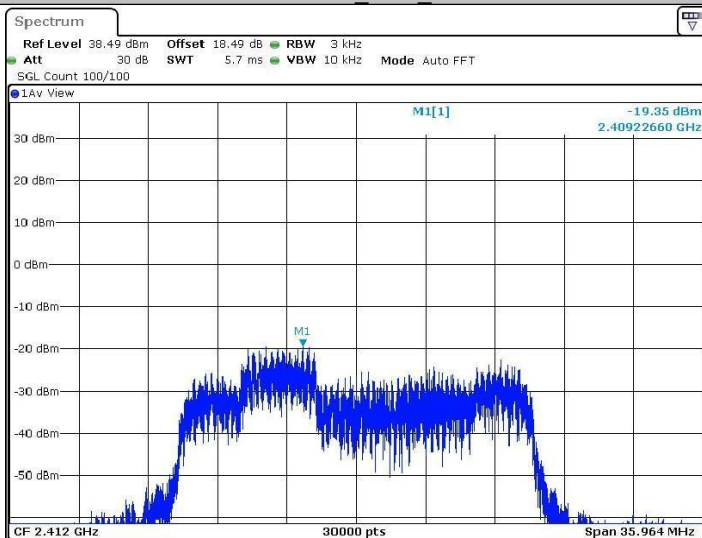
11G_Ant1_2437



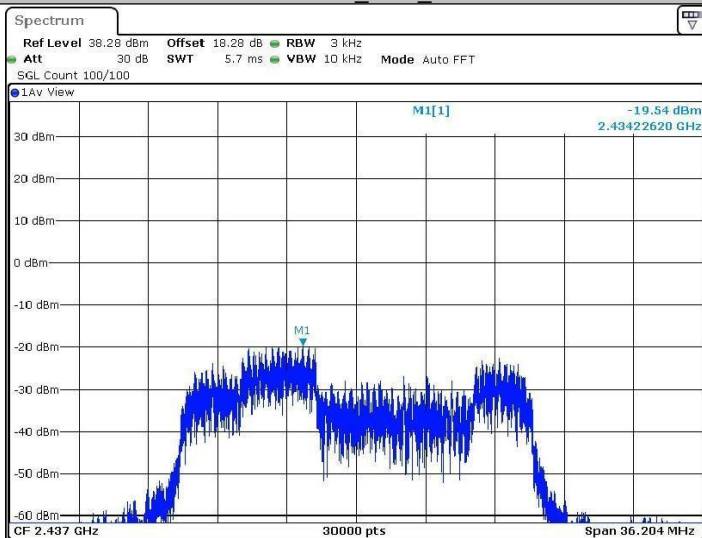
11G_Ant1_2462

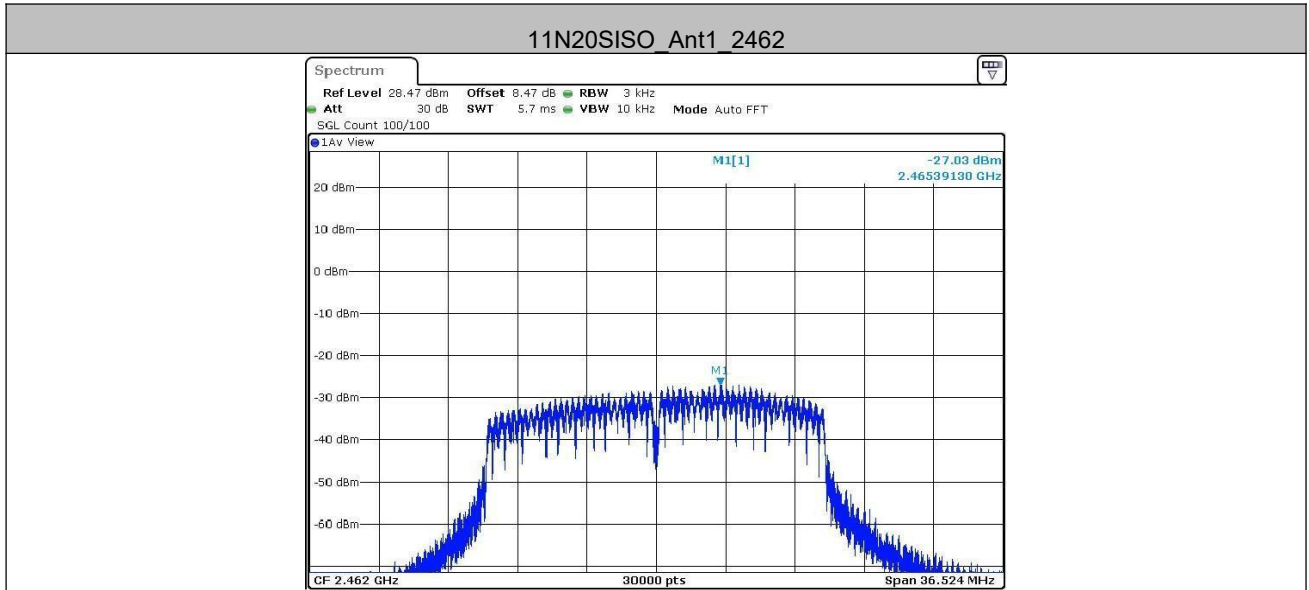


11N20SISO_Ant1_2412

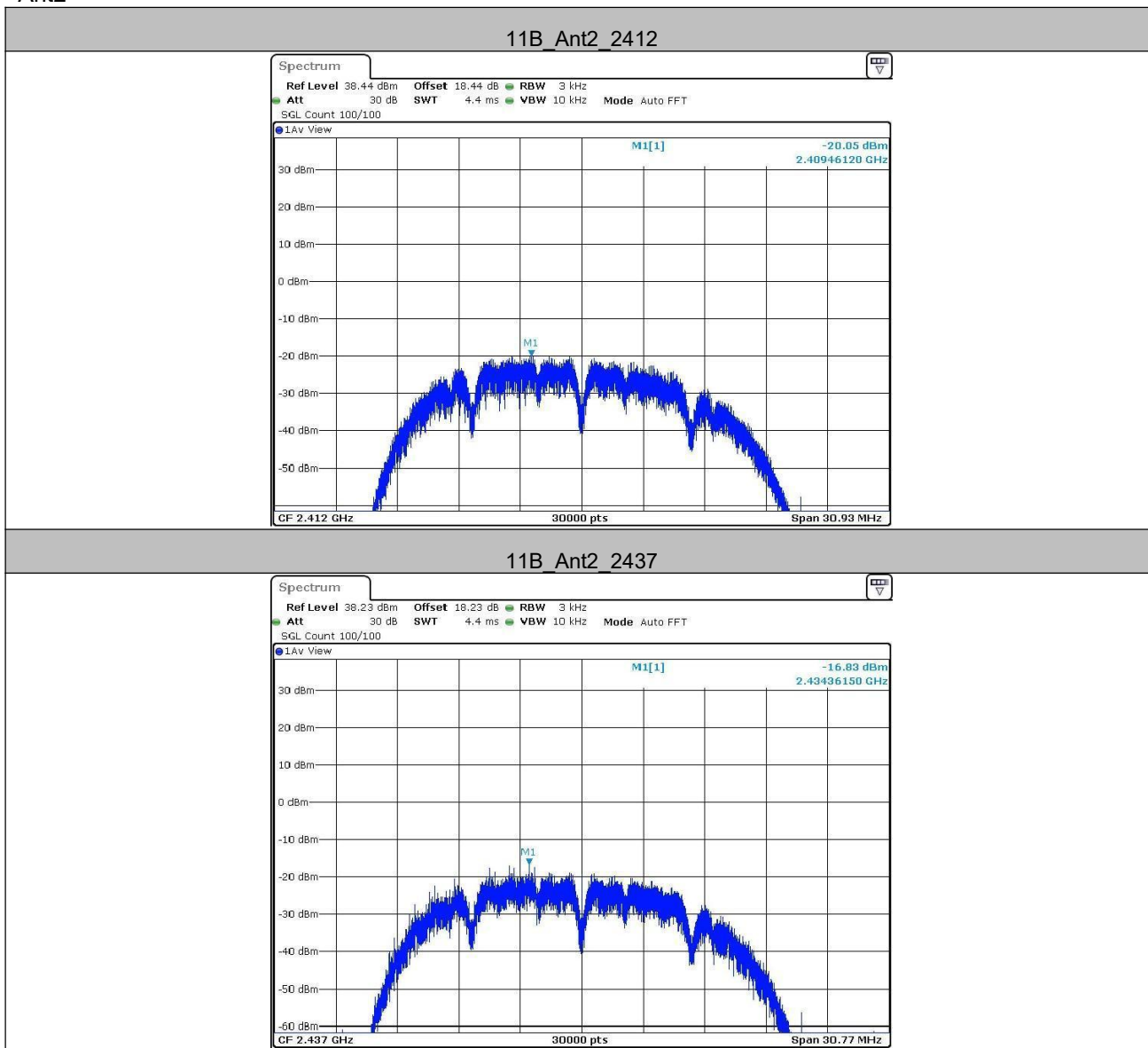


11N20SISO_Ant1_2437

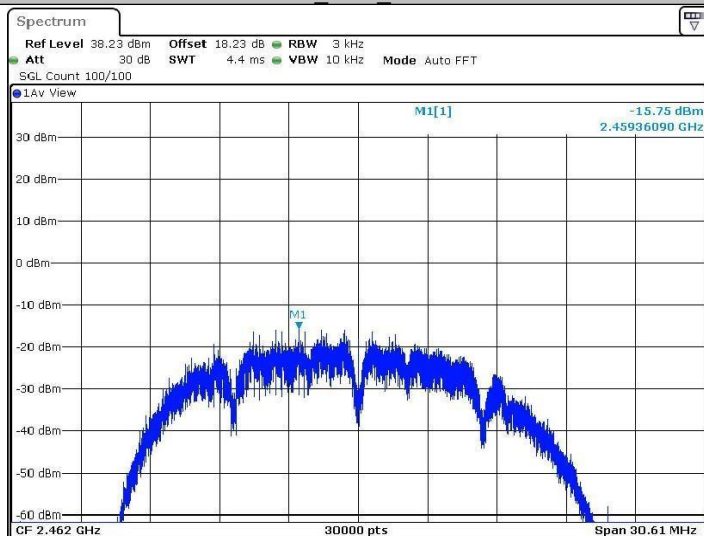




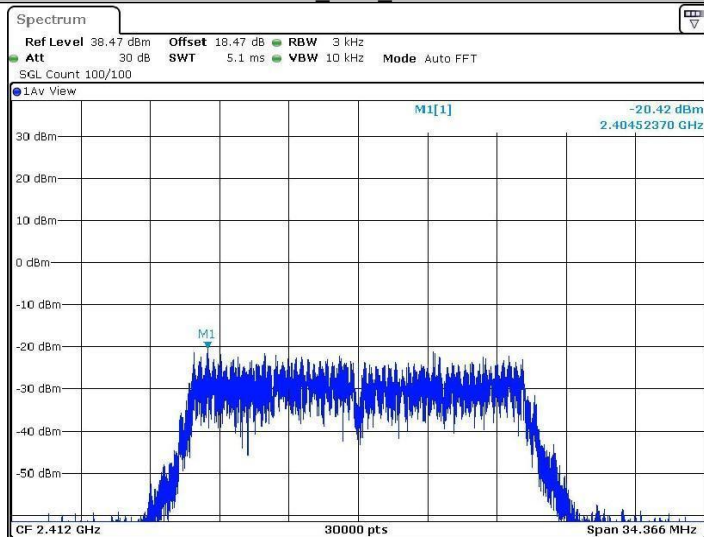
Ant2



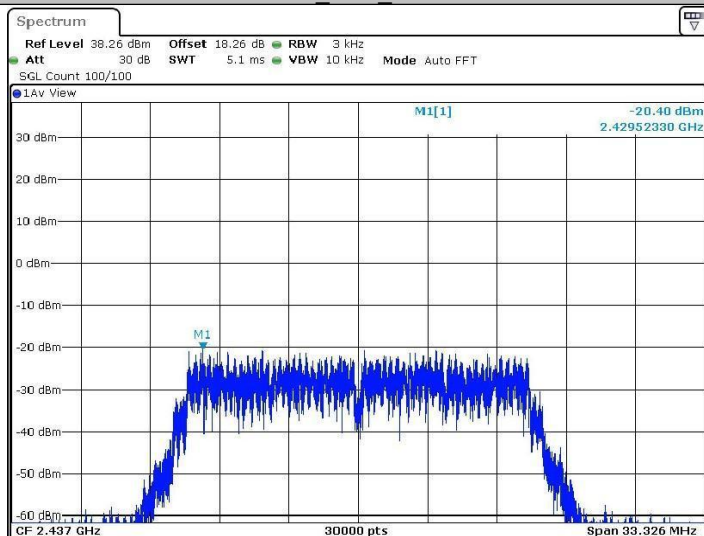
11B_Ant2_2462



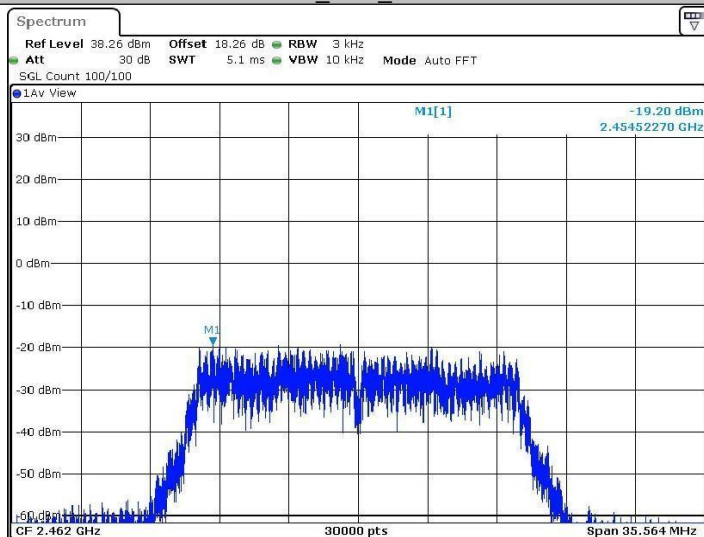
11G_Ant2_2412



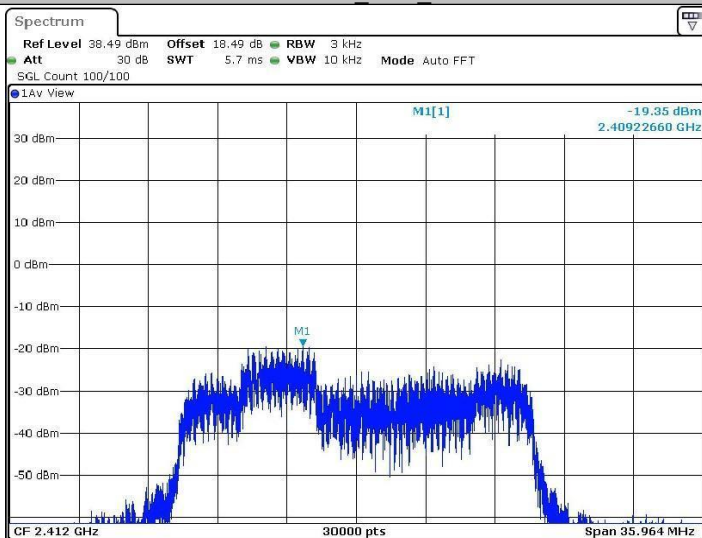
11G_Ant2_2437



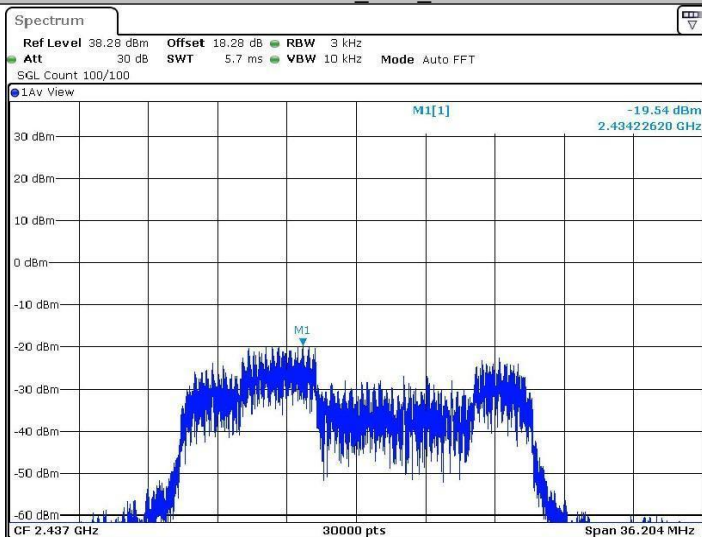
11G_Ant2_2462

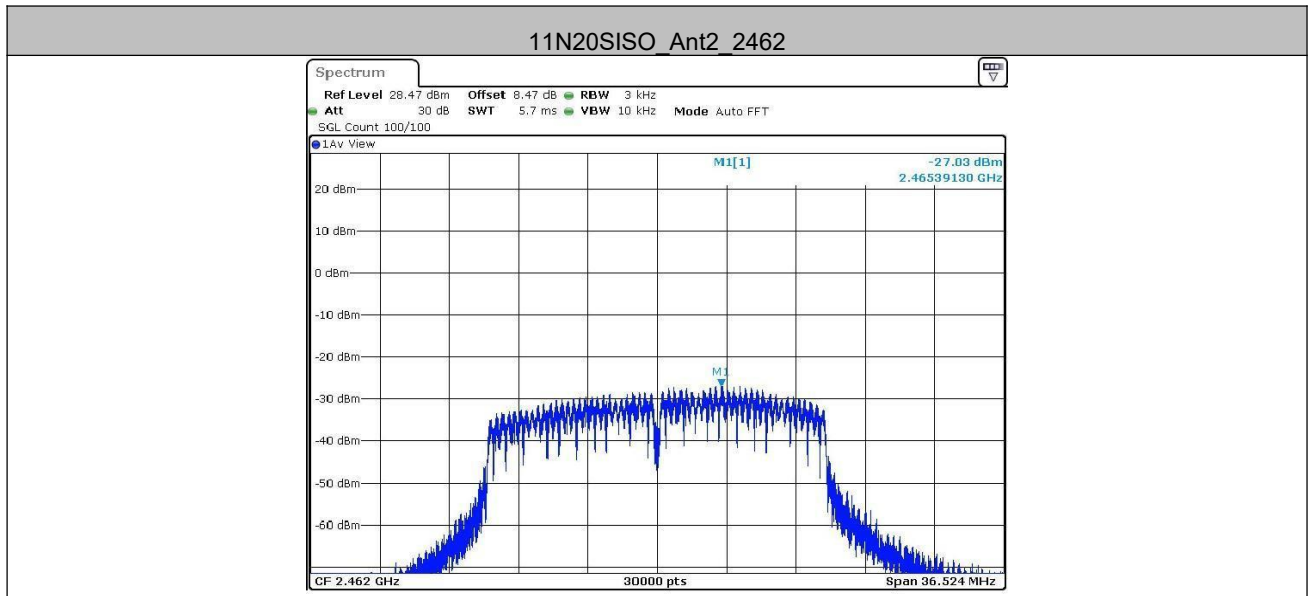


11N20SISO_Ant2_2412

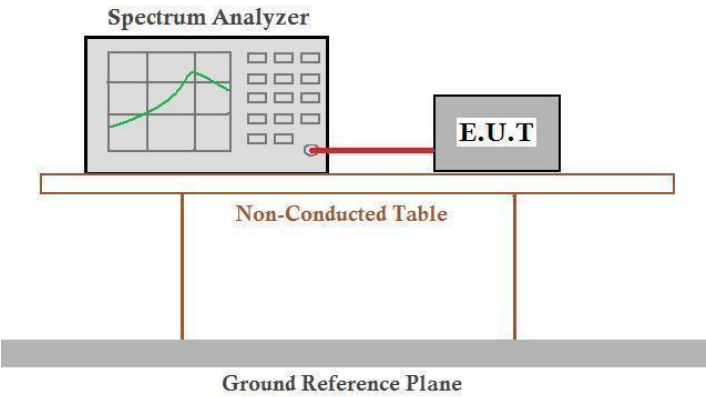


11N20SISO_Ant2_2437





5.6 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20). Only the worst case is recorded in the report.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Results:	Pass

Test Data:
Ant1

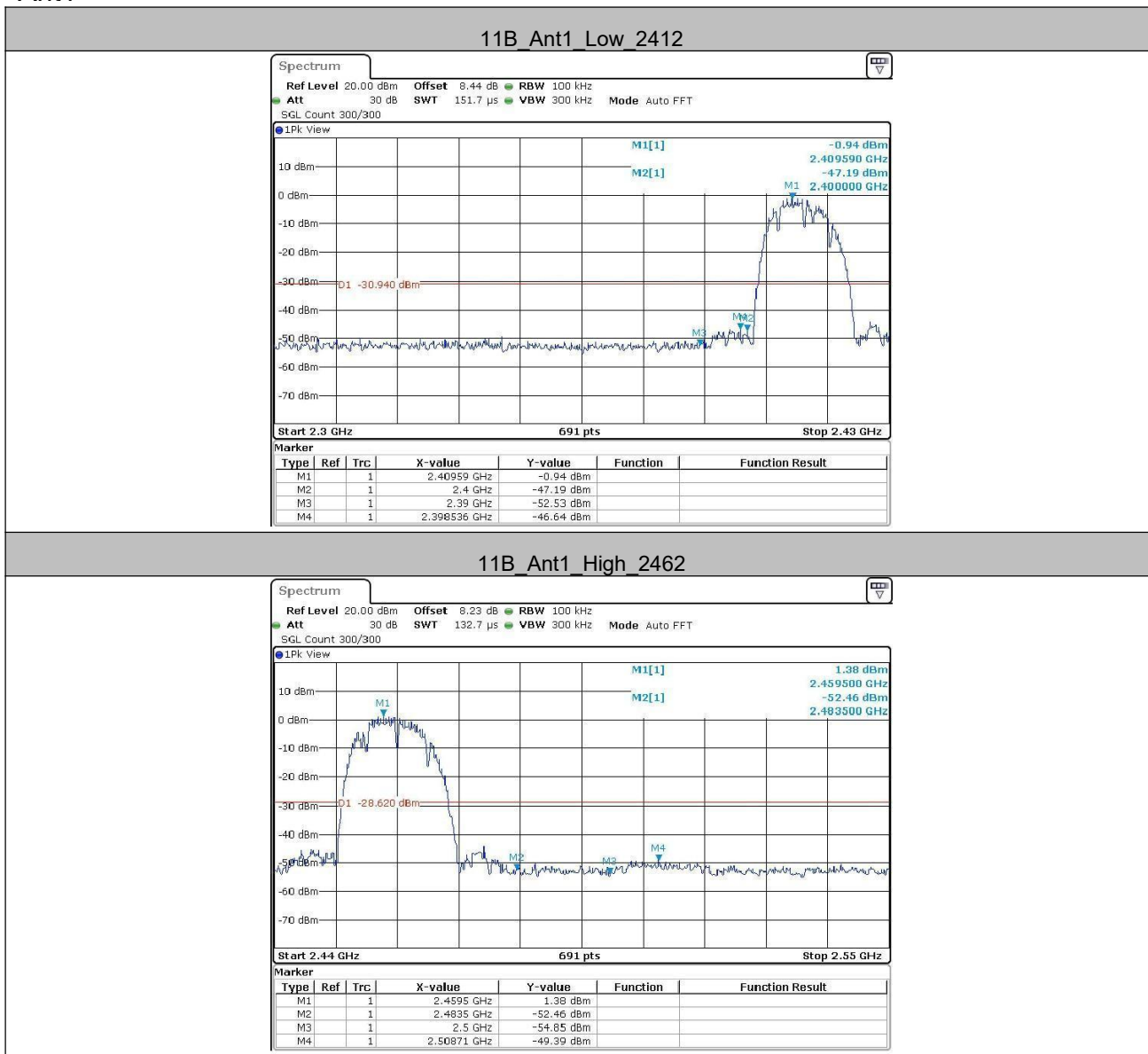
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	-0.94	-46.64	≤-30.94	PASS
		High	2462	1.38	-49.39	≤-28.62	PASS
11G	Ant1	Low	2412	-3.73	-39.03	≤-33.73	PASS
		High	2462	-0.70	-49.73	≤-30.7	PASS
11N20SISO	Ant1	Low	2412	-6.28	-43.16	≤-36.28	PASS
		High	2462	-4.26	-48.38	≤-34.26	PASS

Ant2

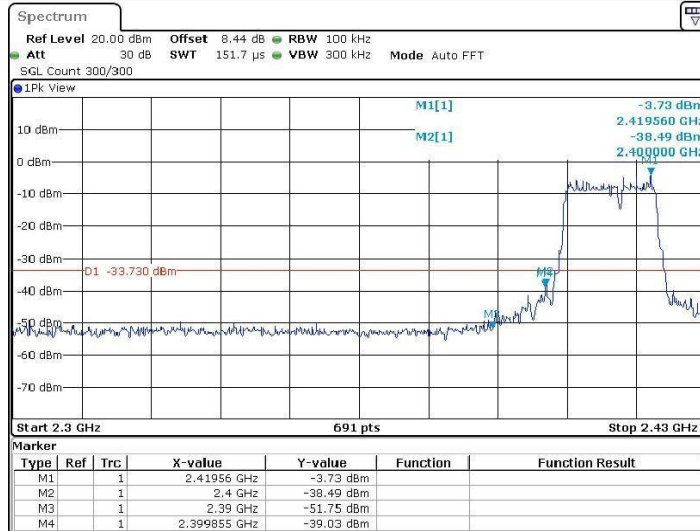
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant2	Low	2412	-2.42	-47.2	≤-32.42	PASS
		High	2462	1.34	-49.66	≤-28.66	PASS
11G	Ant2	Low	2412	-6.40	-40.87	≤-36.4	PASS
		High	2462	-0.99	-47.26	≤-30.99	PASS
11N20SISO	Ant2	Low	2412	-6.65	-43.29	≤-36.65	PASS
		High	2462	-3.40	-49.26	≤-33.4	PASS

Test plot as follows:

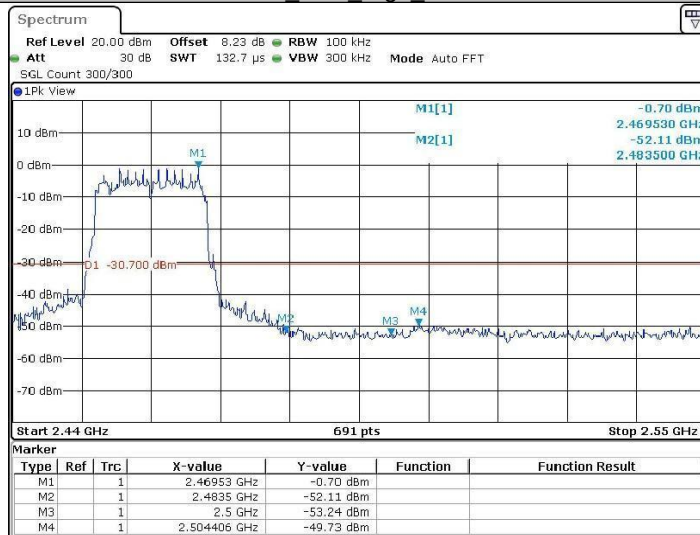
Ant1



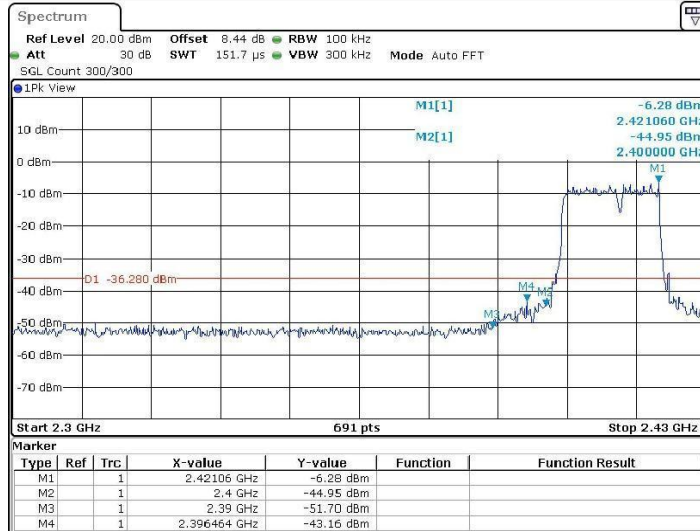
11G_Ant1_Low_2412



11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462

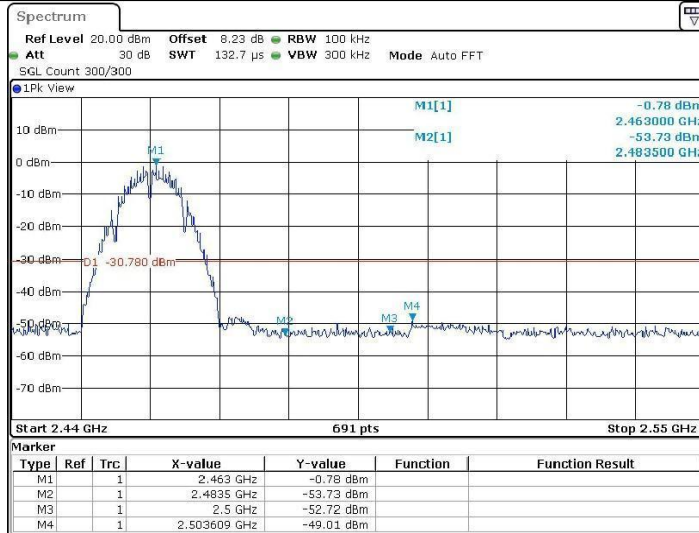


Ant2

11B_Ant2_Low_2412



11B_Ant2_High_2462



11G_Ant2_Low_2412



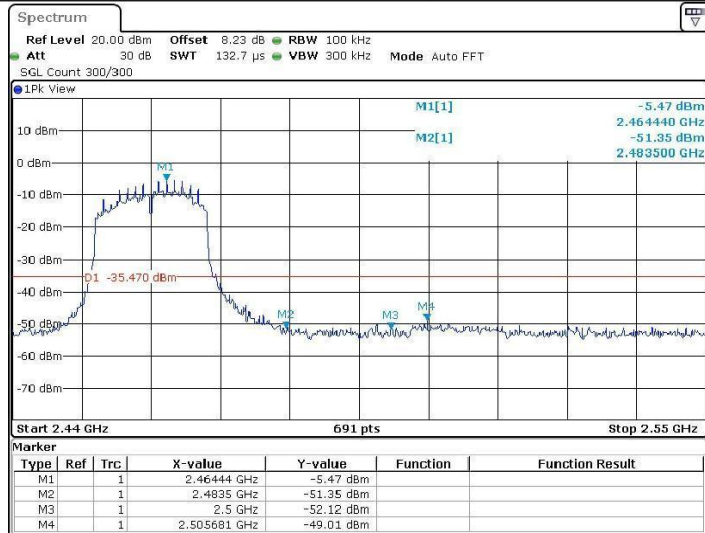
11G_Ant2_High_2462



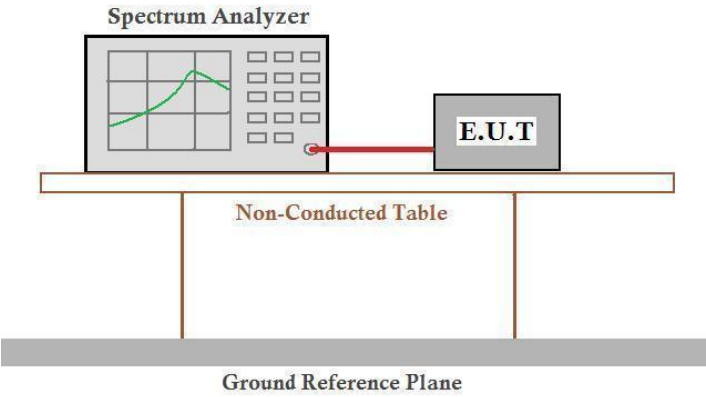
11N20SISO_Ant2_Low_2412



11N20SISO_Ant2_High_2462

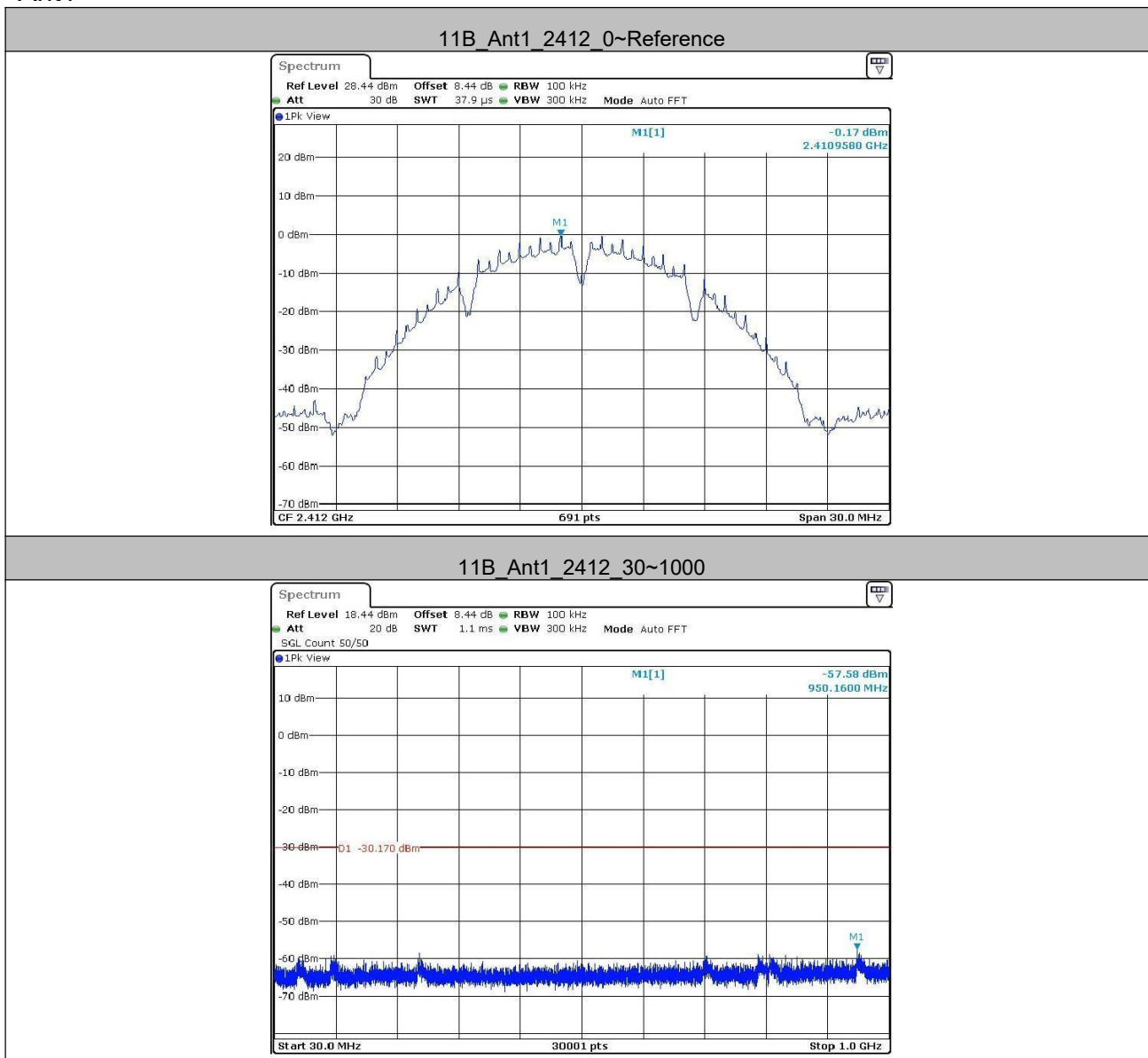


5.7 RF Conducted Spurious Emissions

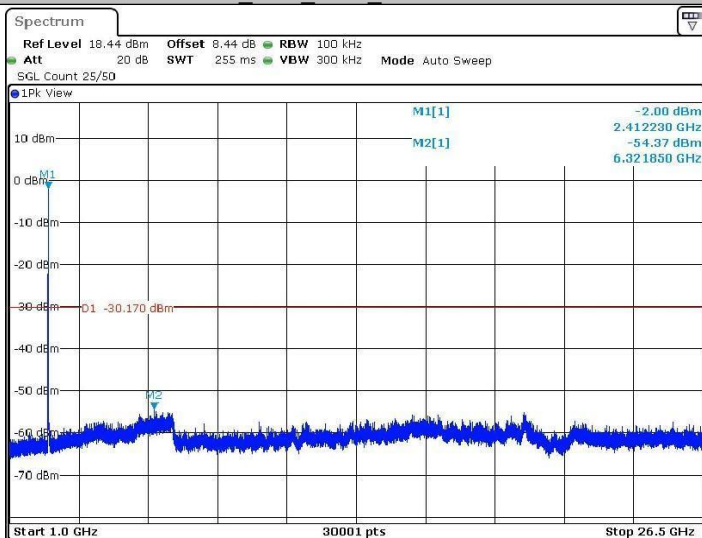
Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20). Only the worst case is recorded in the report.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Results:	Pass

Test plot as follows:

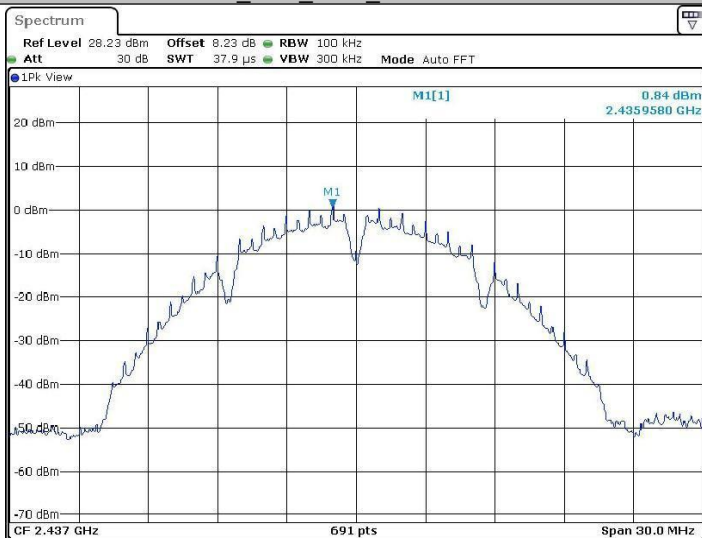
Ant1



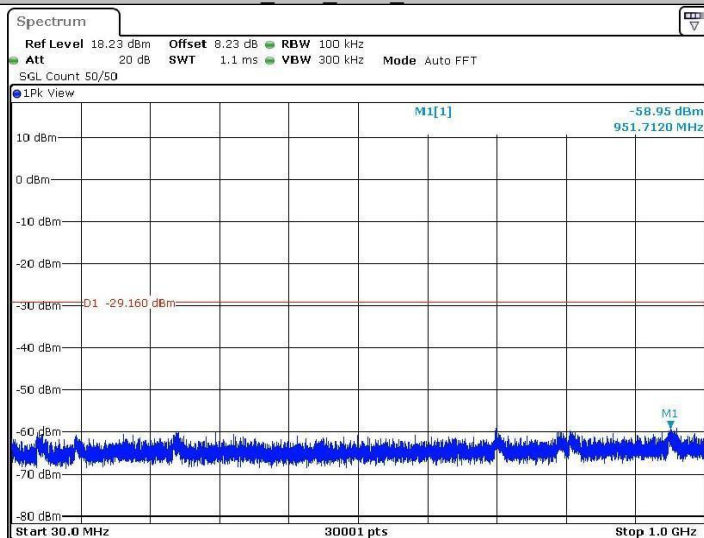
11B_Ant1_2412_1000~26500



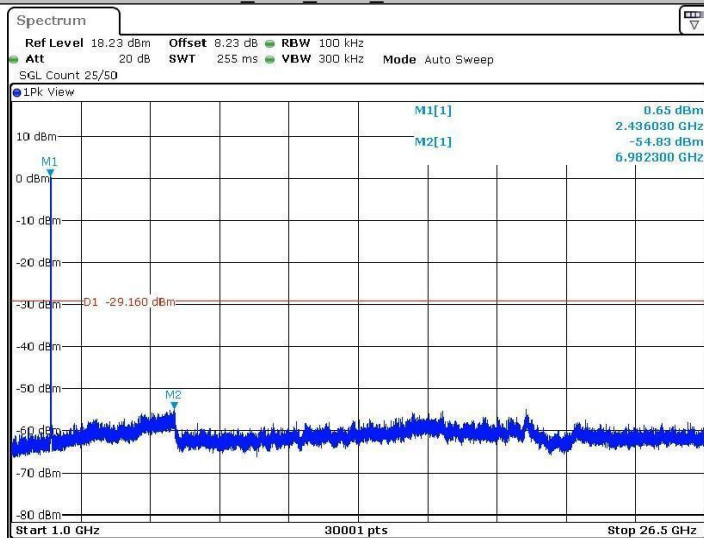
11B_Ant1_2437_0~Reference



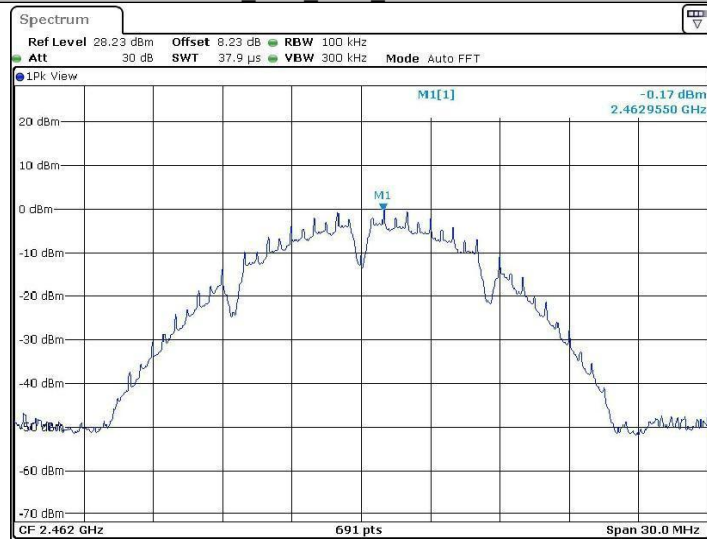
11B_Ant1_2437_30~1000



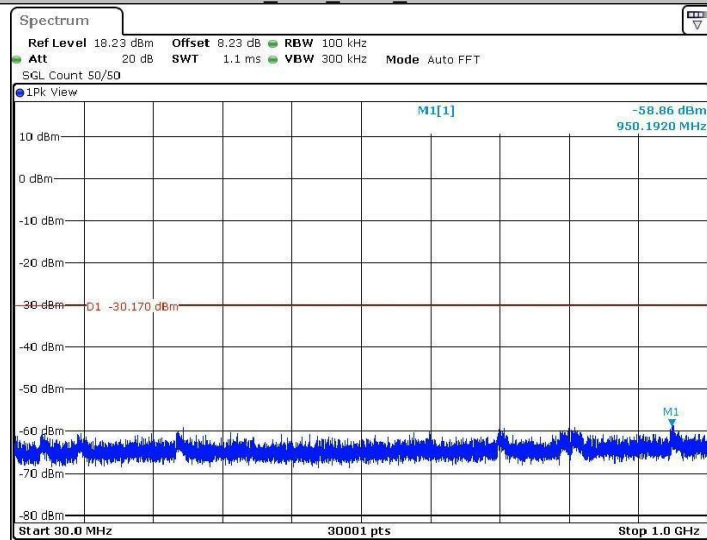
11B_Ant1_2437_1000~26500



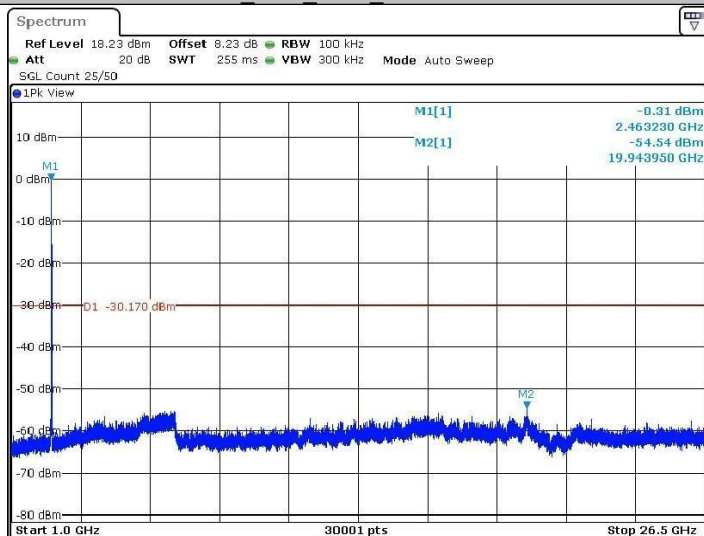
11B_Ant1_2462_0~Reference



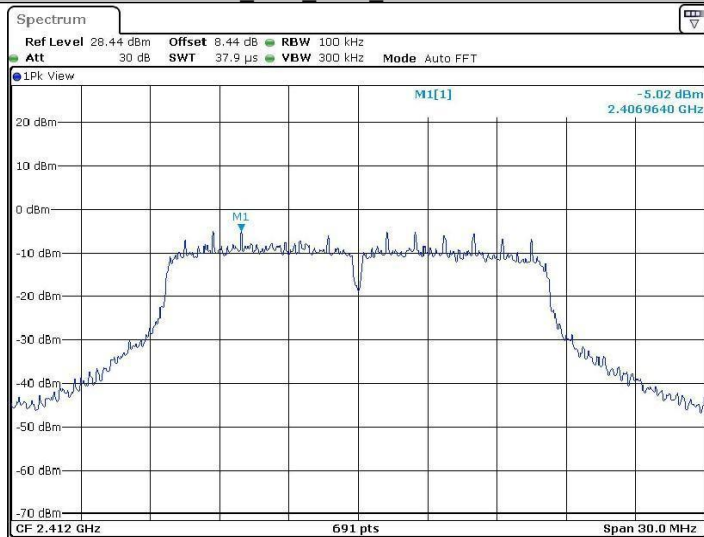
11B_Ant1_2462_30~1000



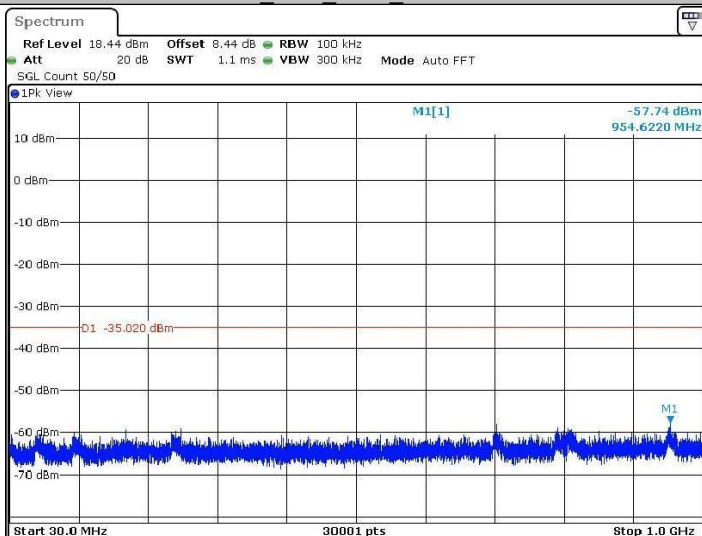
11B_Ant1_2462_1000~26500



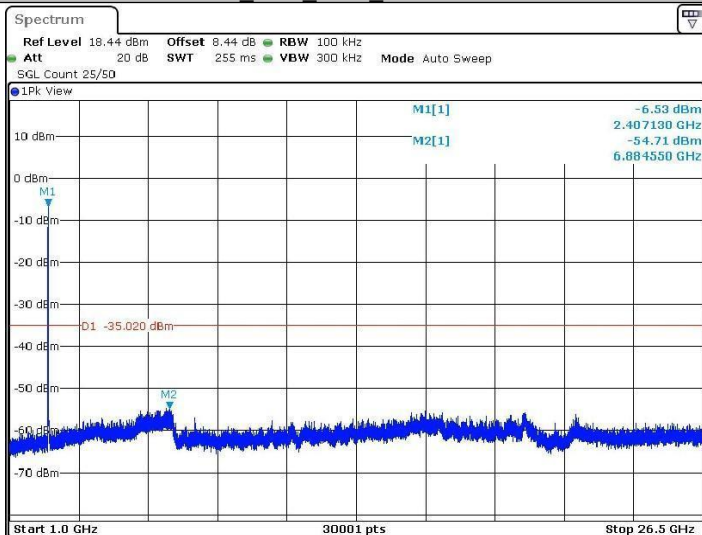
11G_Ant1_2412_0~Reference



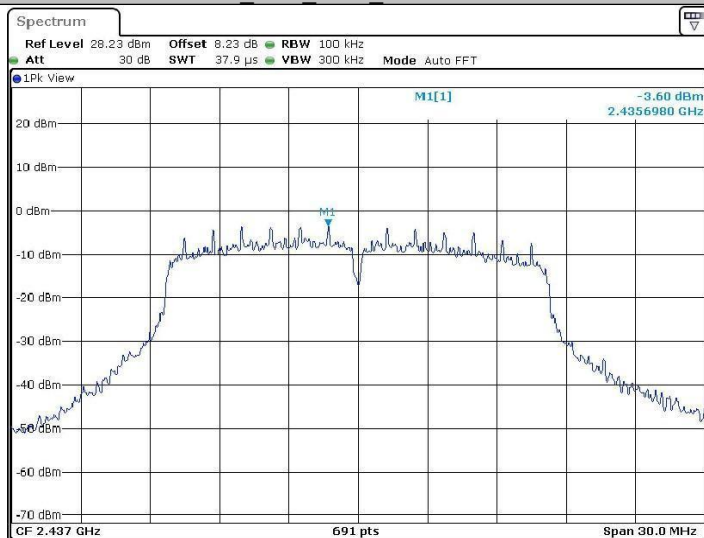
11G_Ant1_2412_30~1000



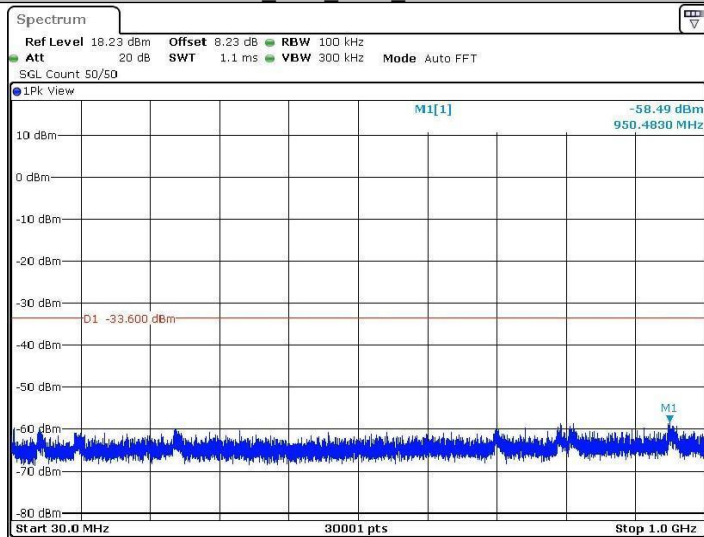
11G_Ant1_2412_1000~26500



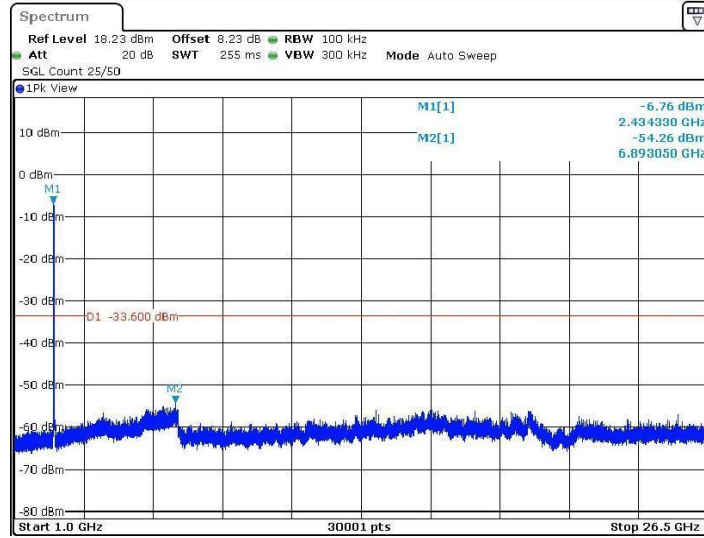
11G_Ant1_2437_0~Reference



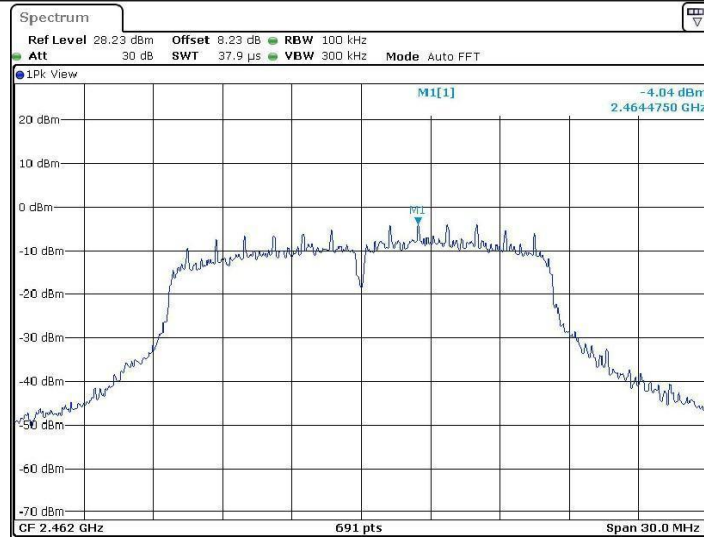
11G_Ant1_2437_30~1000



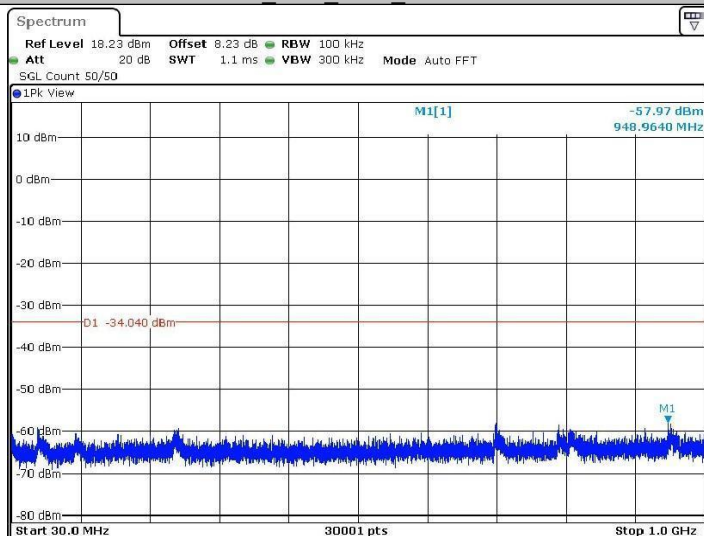
11G_Ant1_2437_1000~26500



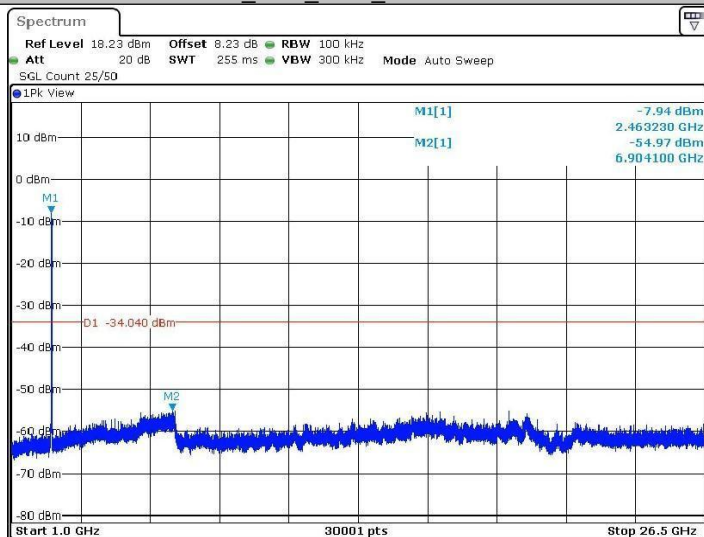
11G_Ant1_2462_0~Reference



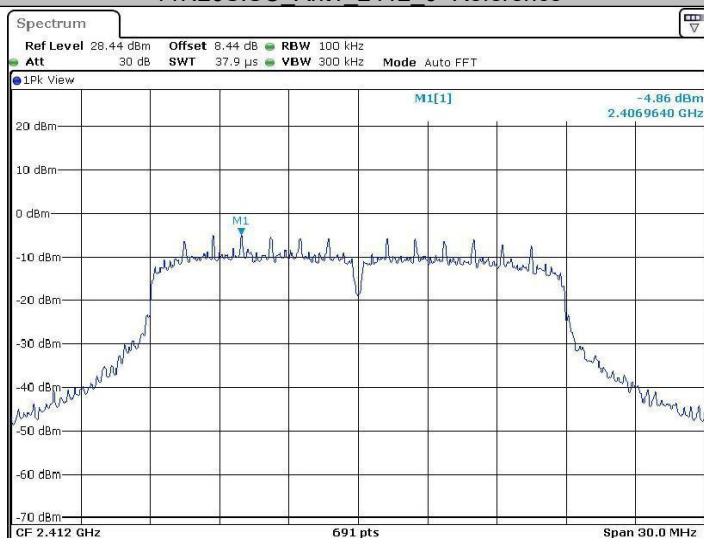
11G_Ant1_2462_30~1000



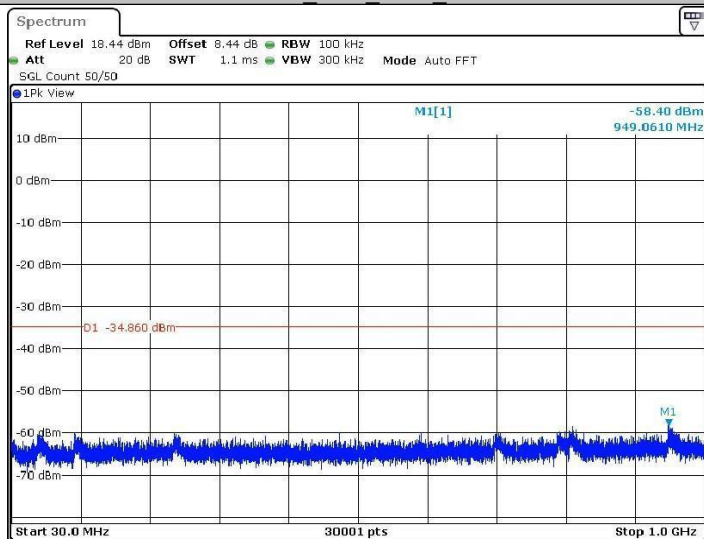
11G_Ant1_2462_1000~26500



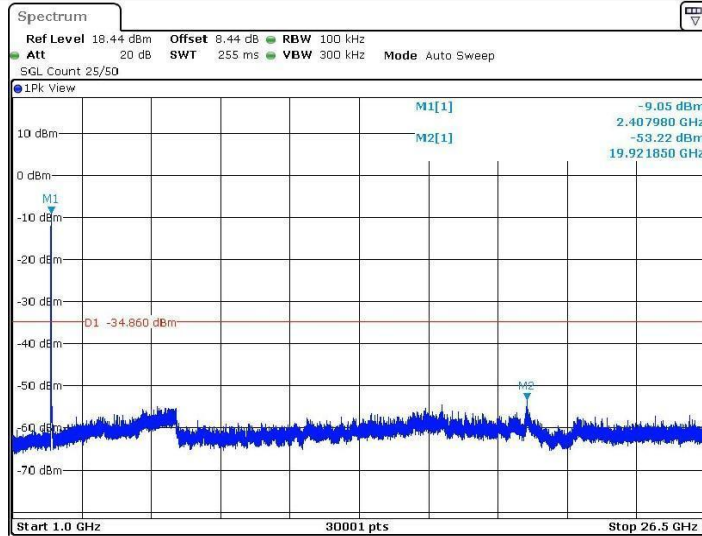
11N20SISO_Ant1_2412_0~Reference



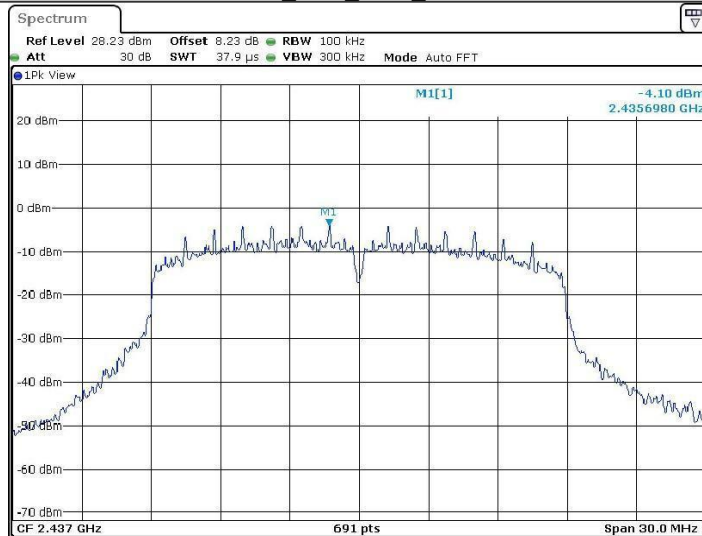
11N20SISO_Ant1_2412_30~1000



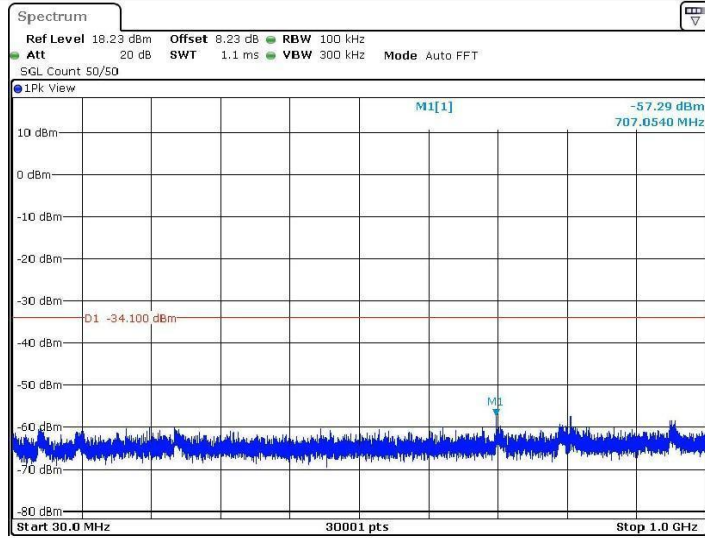
11N20SISO_Ant1_2412_1000~26500



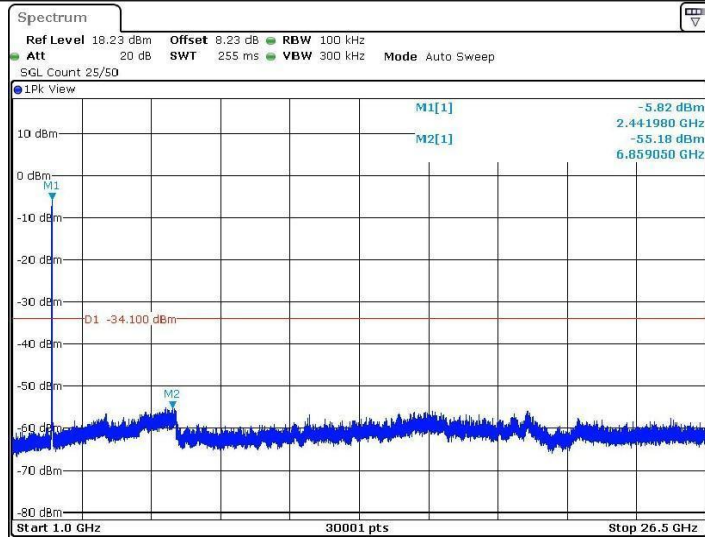
11N20SISO_Ant1_2437_0~Reference



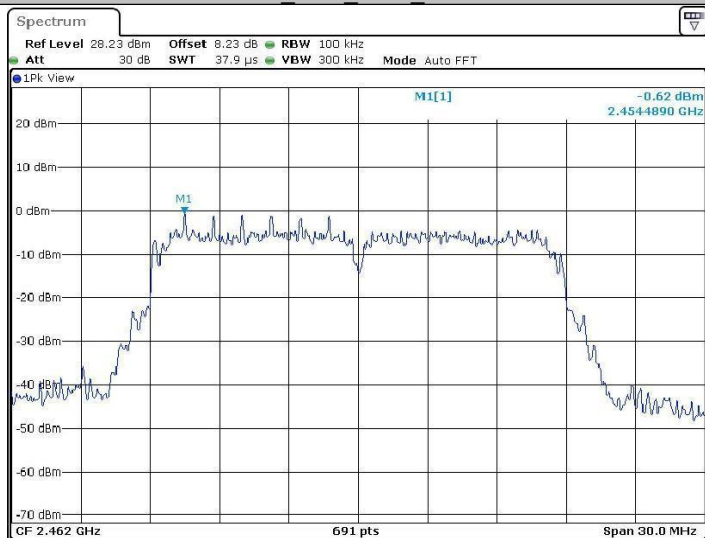
11N20SISO_Ant1_2437_30~1000



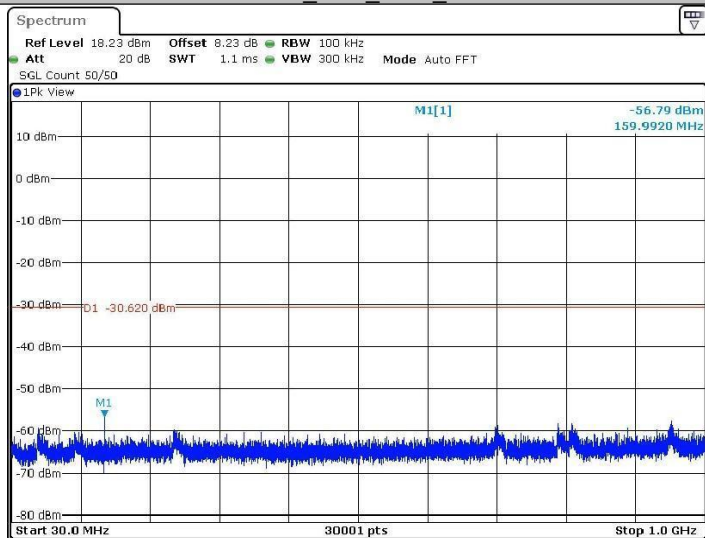
11N20SISO_Ant1_2437_1000~26500

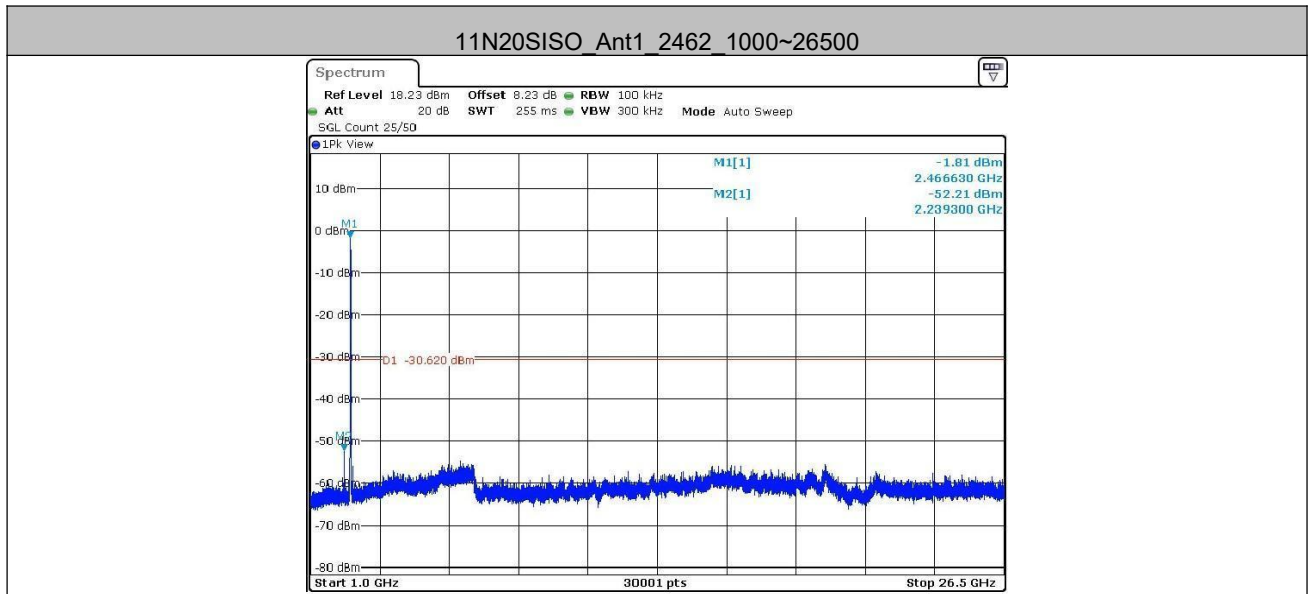


11N20SISO_Ant1_2462_0~Reference

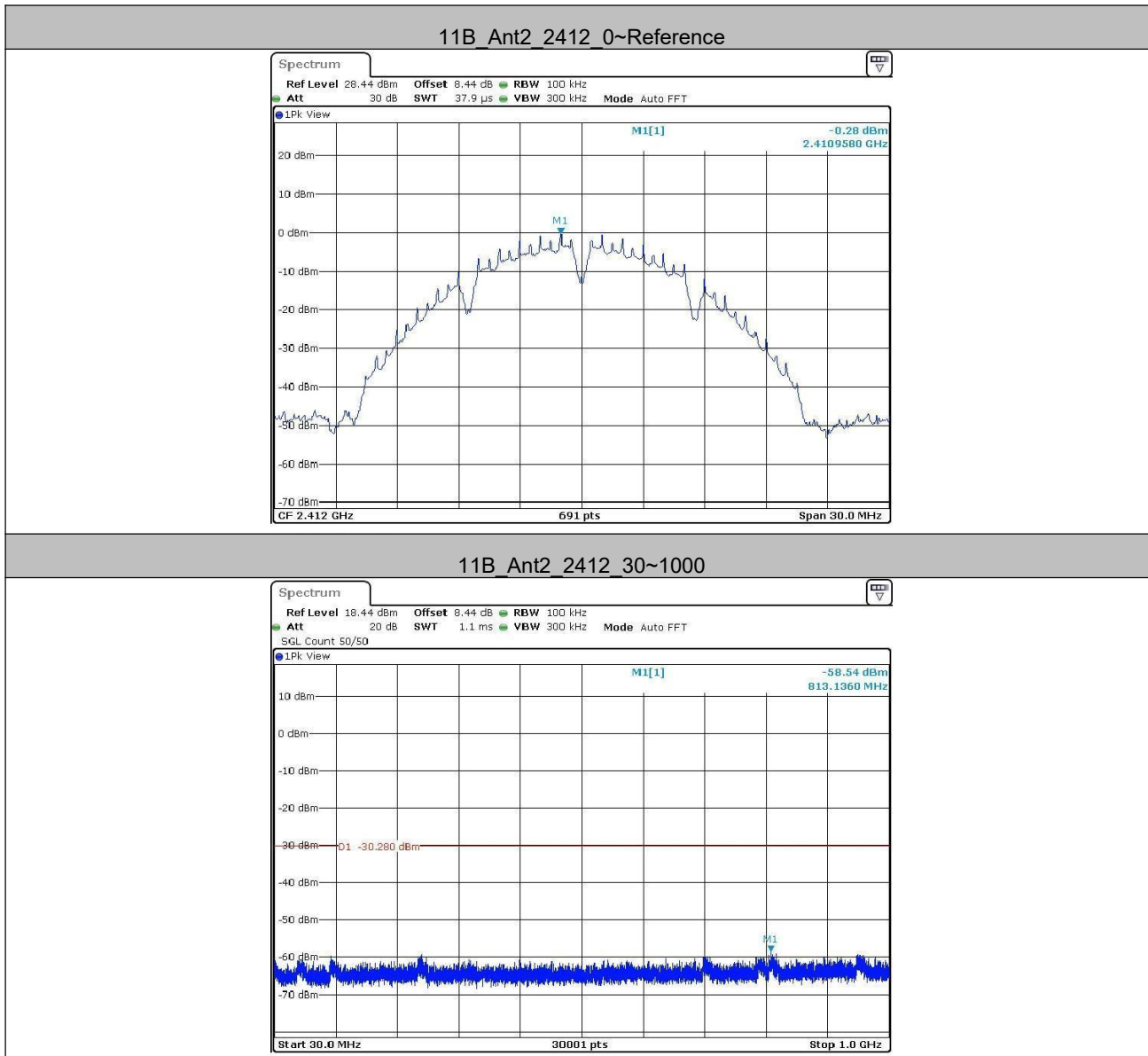


11N20SISO_Ant1_2462_30~1000

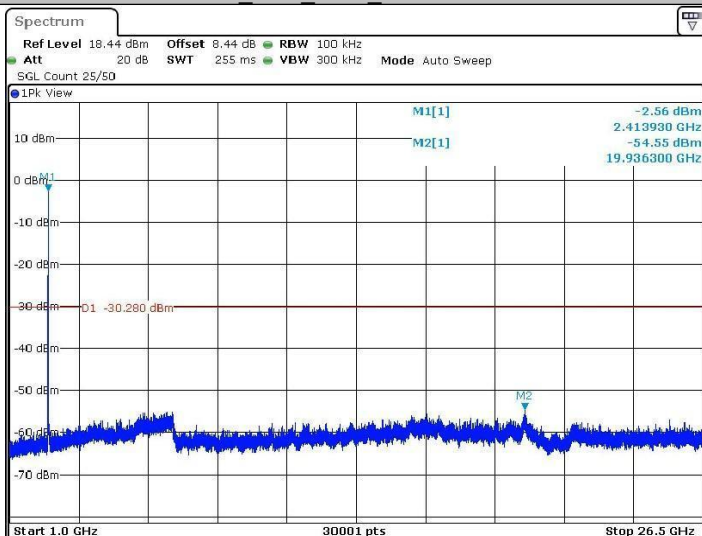




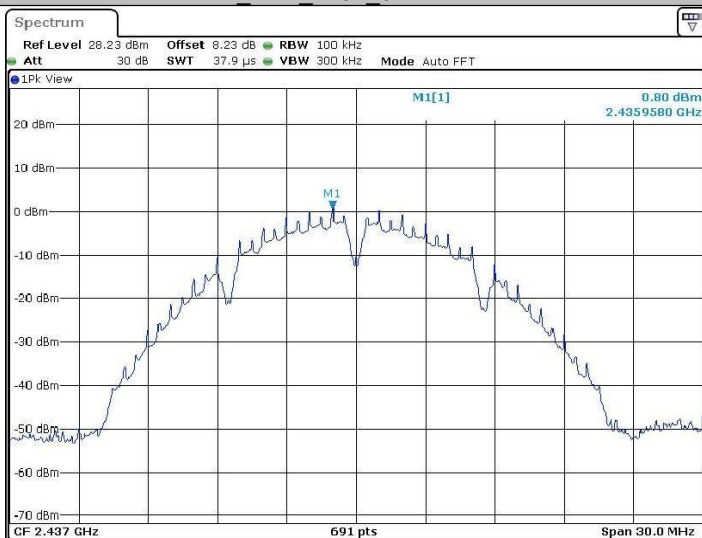
Ant2



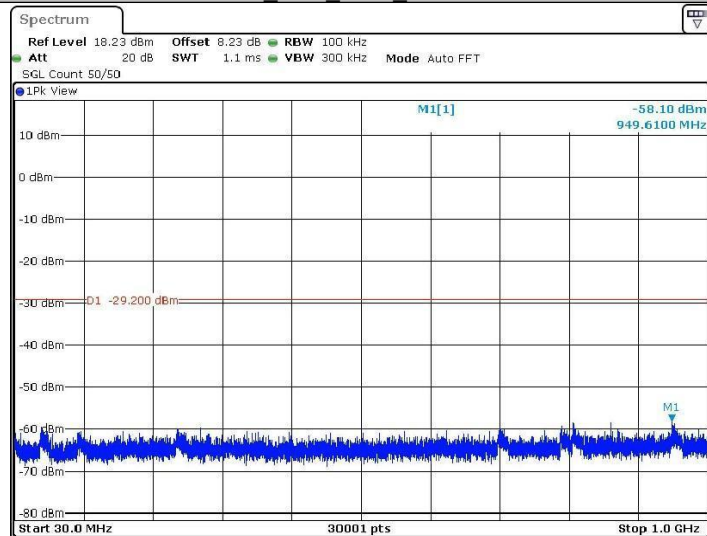
11B_Ant2_2412_1000~26500



11B_Ant2_2437_0~Reference



11B_Ant2_2437_30~1000



11B_Ant2_2437_1000~26500

