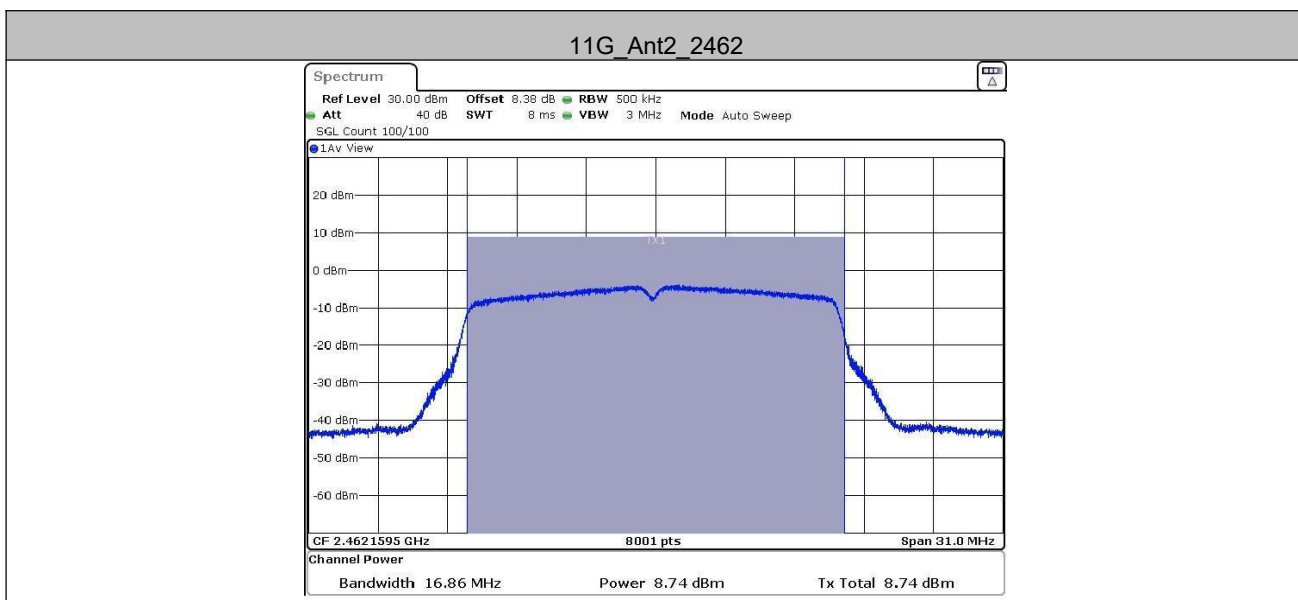
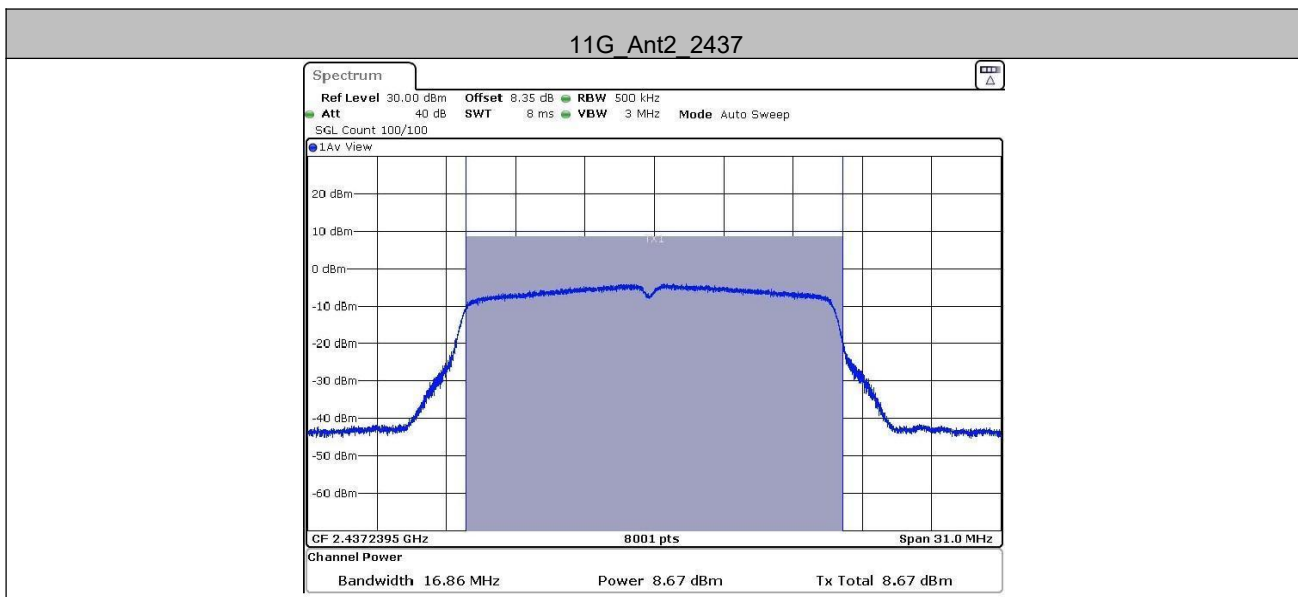
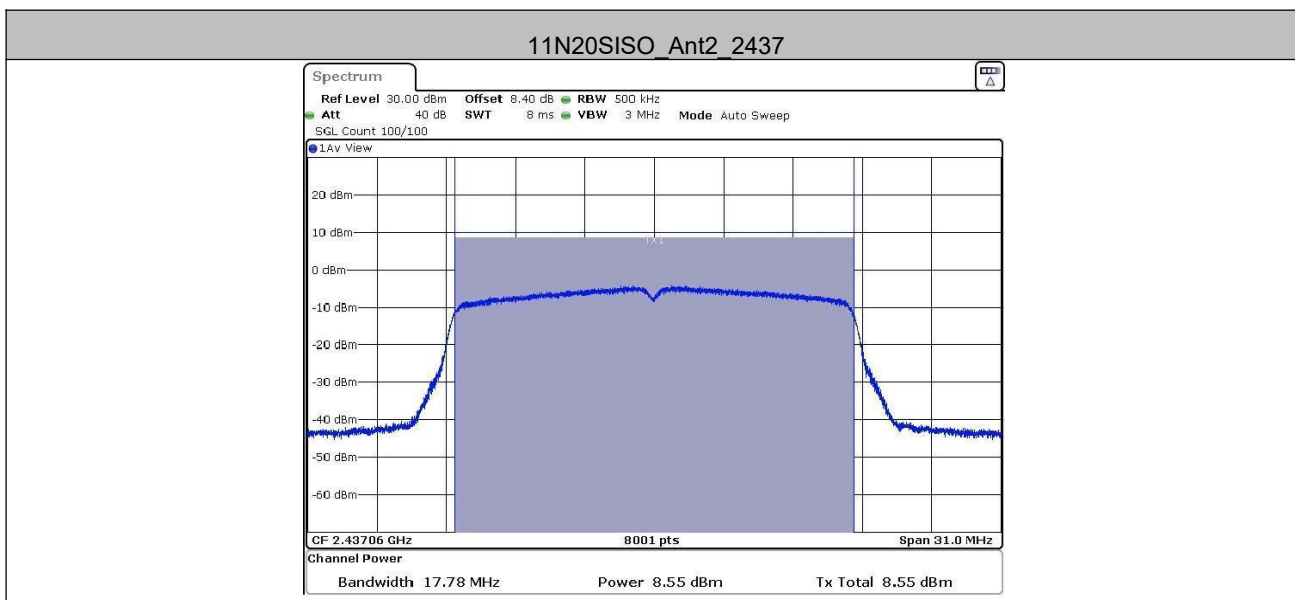
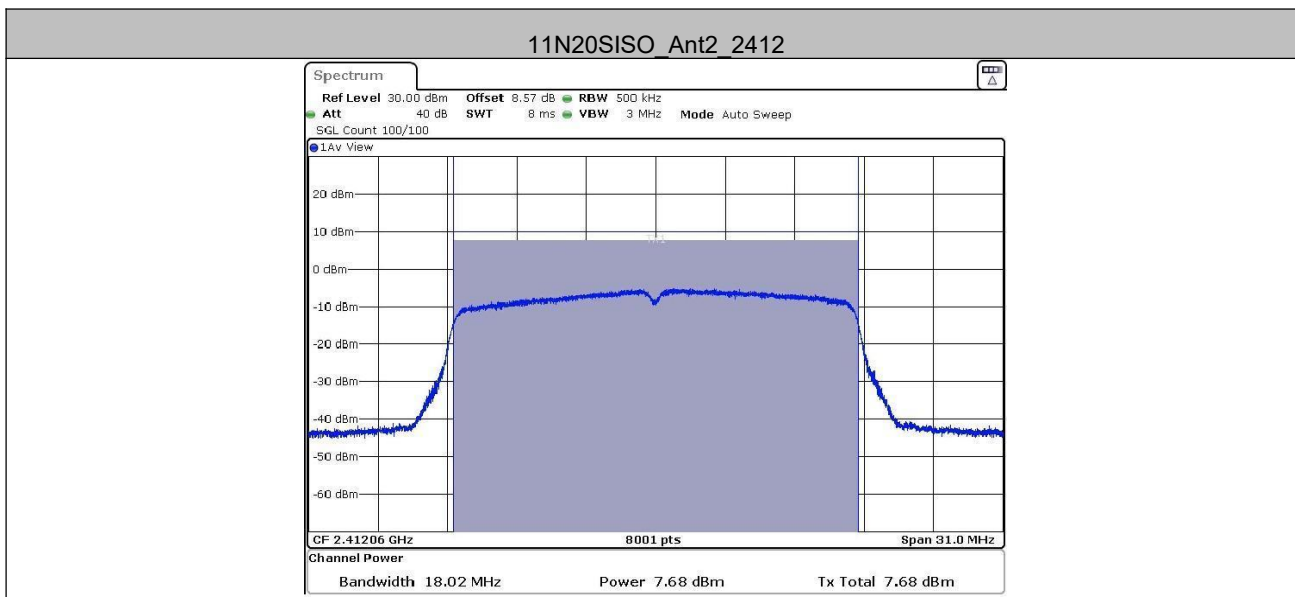
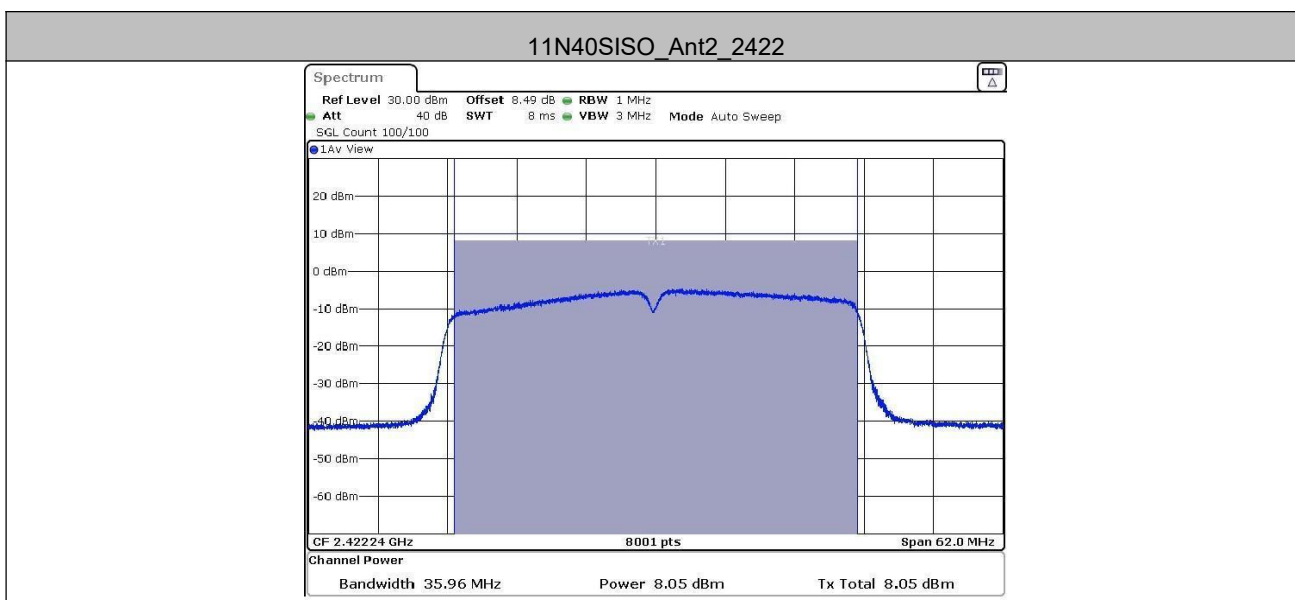
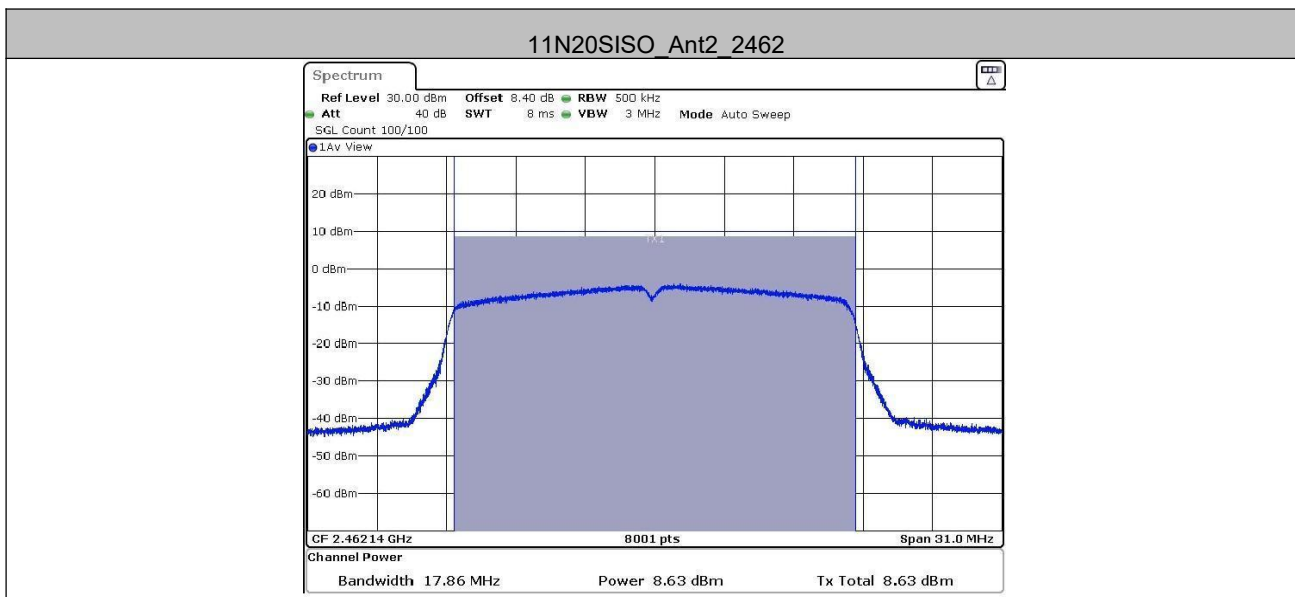
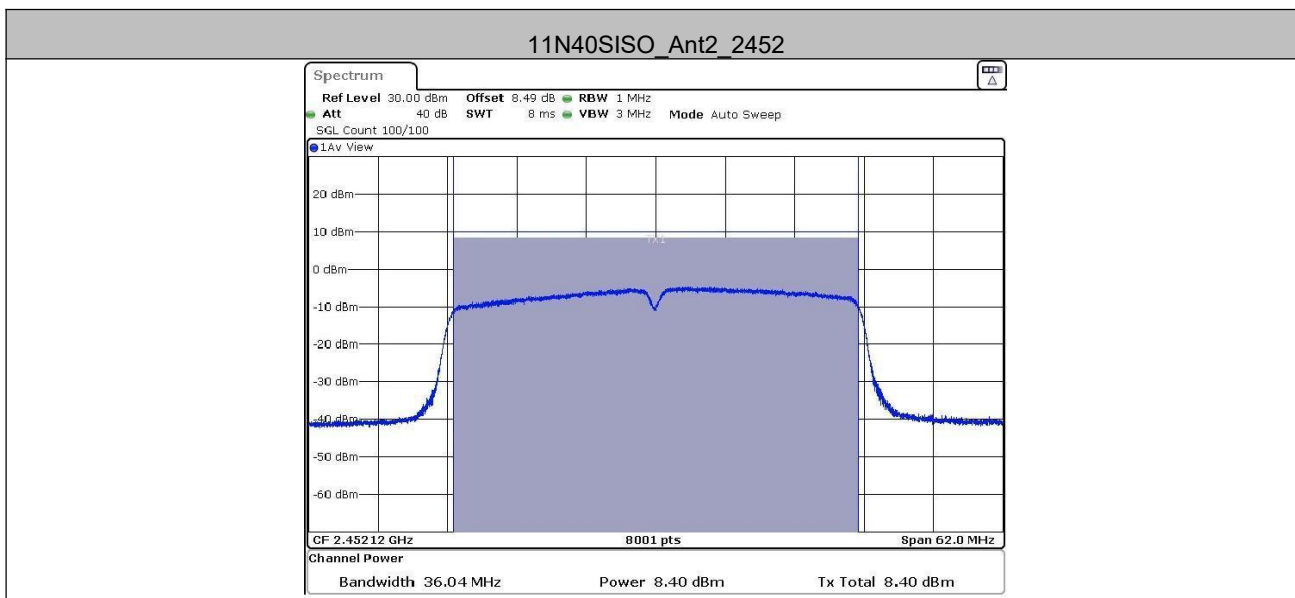
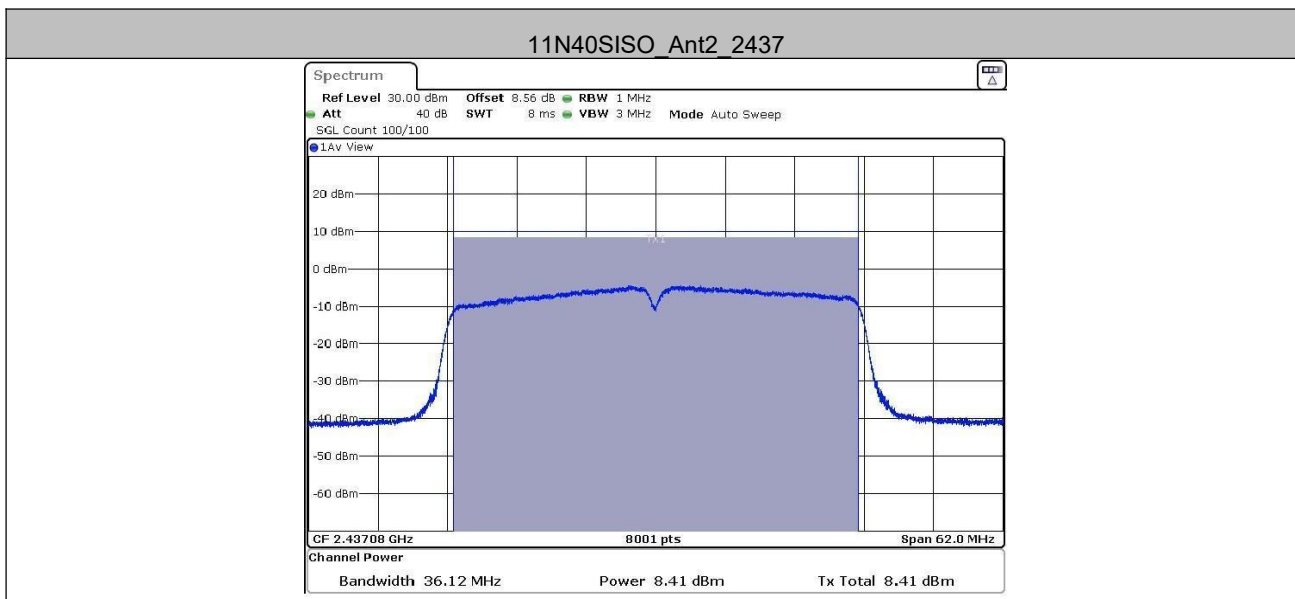


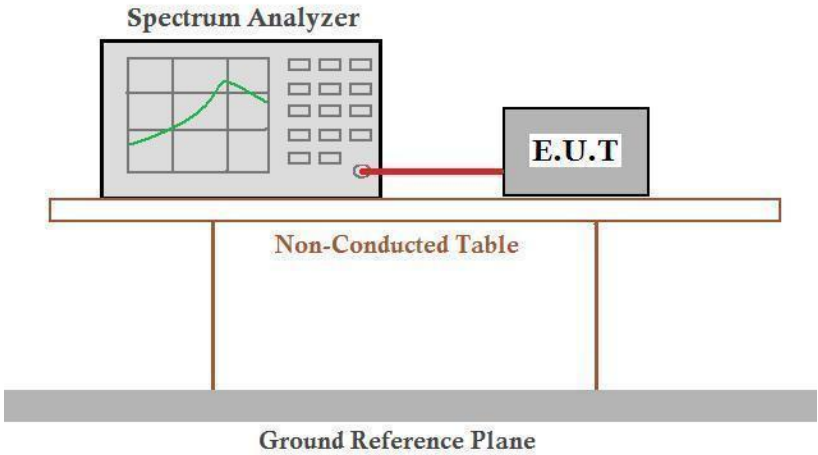








5.4 6dB Occupy Bandwidth

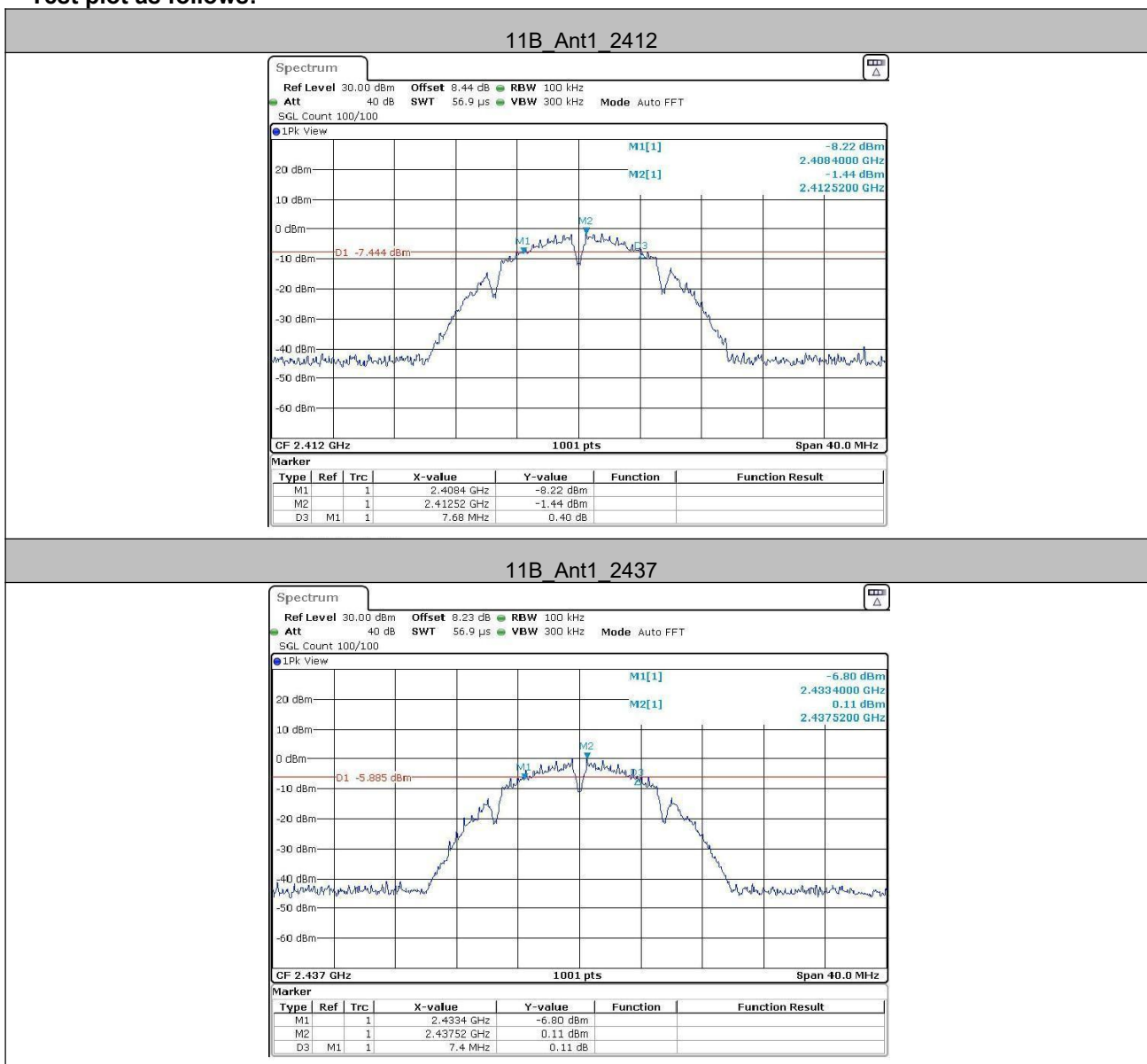
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013
Test Setup:	 Offset=cable loss+ attenuation factor
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40). Only the worst case is recorded in the report.
Limit:	≥ 500 kHz
Test Results:	Pass

Measurement Data

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.680	2408.400	2416.080	0.5	PASS
		2437	7.400	2433.400	2440.800	0.5	PASS
		2462	7.200	2458.400	2465.600	0.5	PASS
11G	Ant1	2412	16.400	2403.800	2420.200	0.5	PASS
		2437	13.920	2430.640	2444.560	0.5	PASS
		2462	16.400	2453.800	2470.200	0.5	PASS
11N20SISO	Ant1	2412	17.640	2403.200	2420.840	0.5	PASS
		2437	17.640	2428.200	2445.840	0.5	PASS
		2462	17.040	2453.800	2470.840	0.5	PASS
11N40SISO	Ant1	2422	32.800	2406.880	2439.680	0.5	PASS
		2437	35.920	2419.320	2455.240	0.5	PASS
		2452	30.160	2439.440	2469.600	0.5	PASS

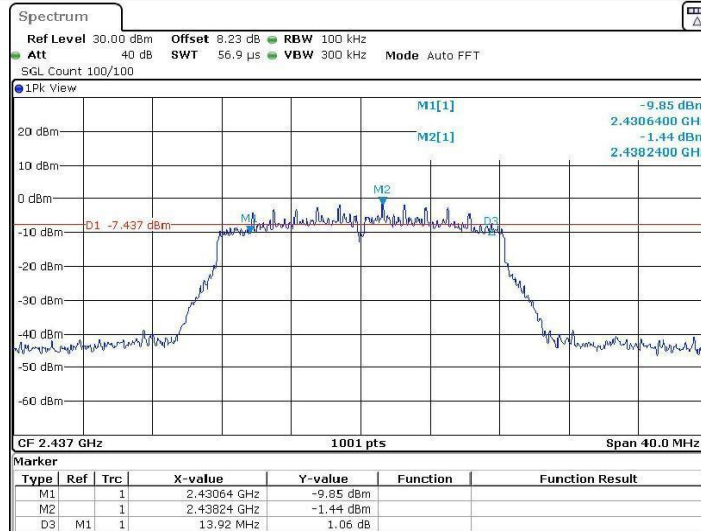
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant2	2412	8.160	2407.920	2416.080	0.5	PASS
		2437	8.160	2432.920	2441.080	0.5	PASS
		2462	8.120	2457.960	2466.080	0.5	PASS
11G	Ant2	2412	15.760	2404.440	2420.200	0.5	PASS
		2437	16.400	2428.800	2445.200	0.5	PASS
		2462	16.120	2454.080	2470.200	0.5	PASS
11N20SISO	Ant2	2412	17.720	2403.160	2420.880	0.5	PASS
		2437	13.960	2429.400	2443.360	0.5	PASS
		2462	16.040	2454.400	2470.440	0.5	PASS
11N40SISO	Ant2	2422	35.440	2404.400	2439.840	0.5	PASS
		2437	34.640	2420.600	2455.240	0.5	PASS
		2452	28.400	2441.280	2469.680	0.5	PASS

Test plot as follows:

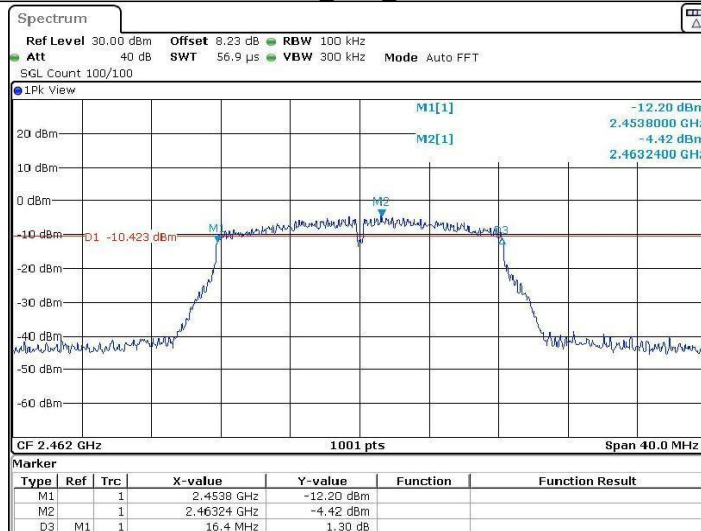




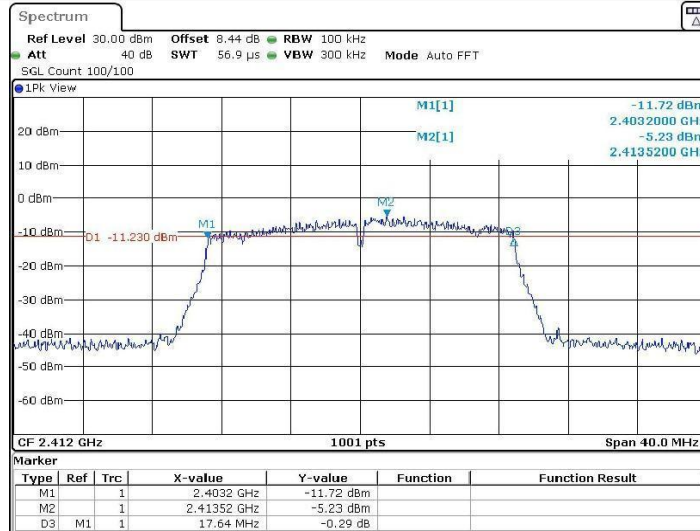
11G_Ant1_2437



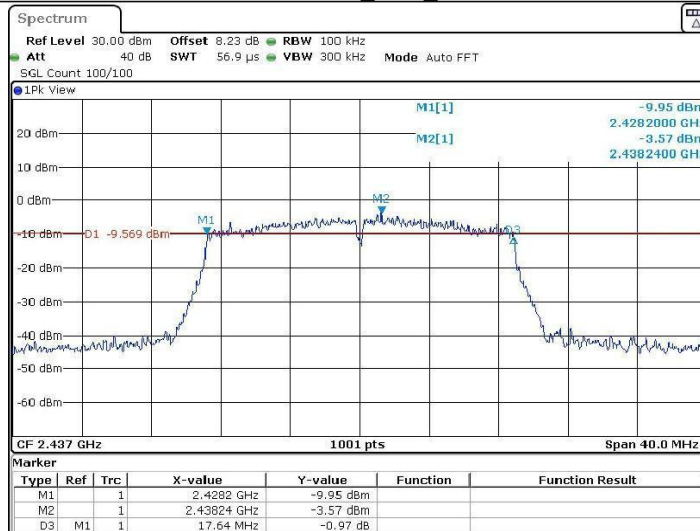
11G_Ant1_2462



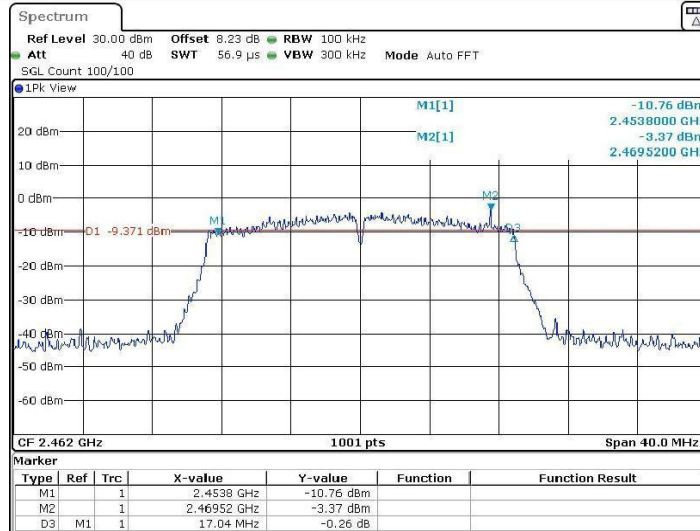
11N20SISO_Ant1_2412



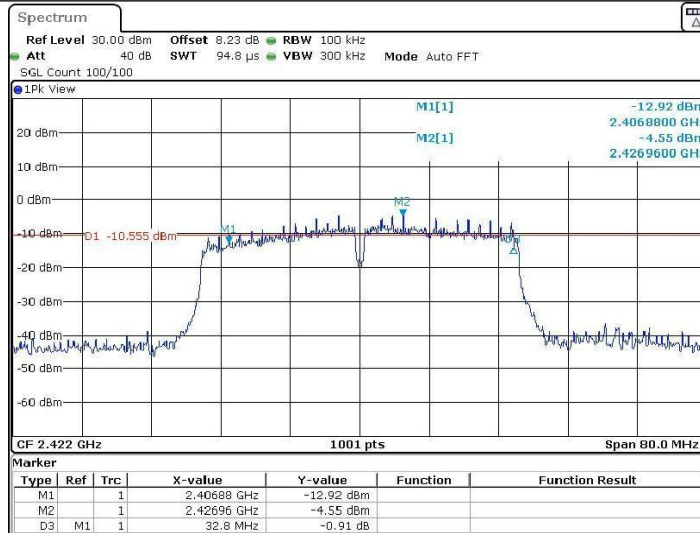
11N20SISO_Ant1_2437



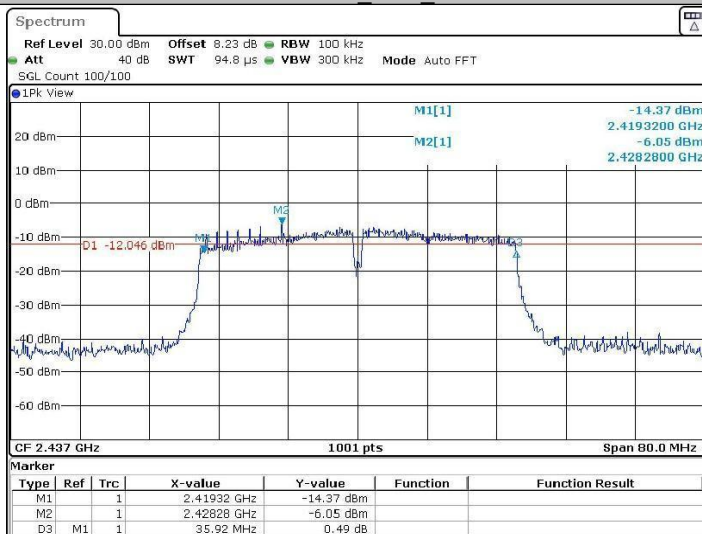
11N20SISO_Ant1_2462



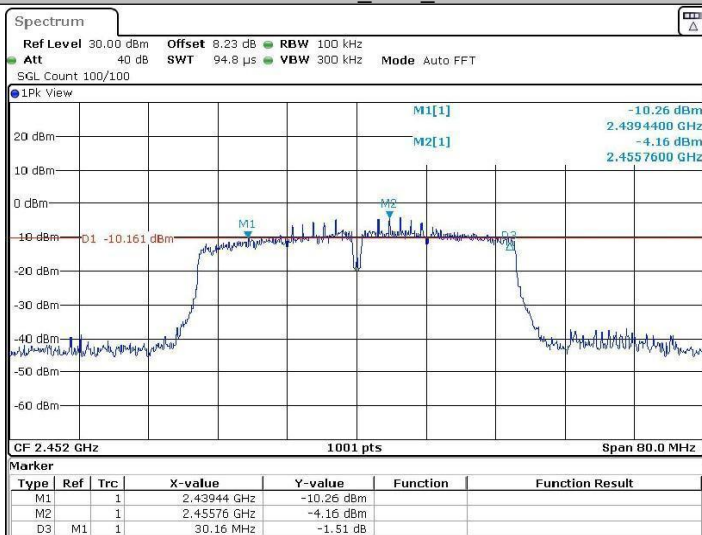
11N40SISO_Ant1_2422



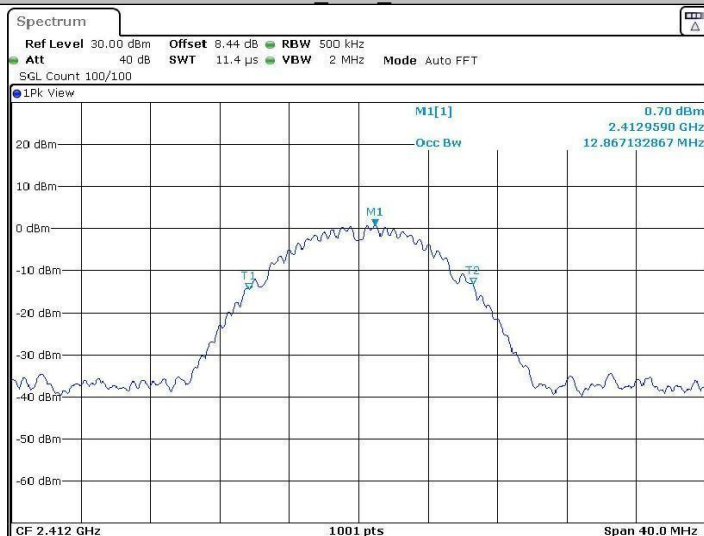
11N40SISO_Ant1_2437



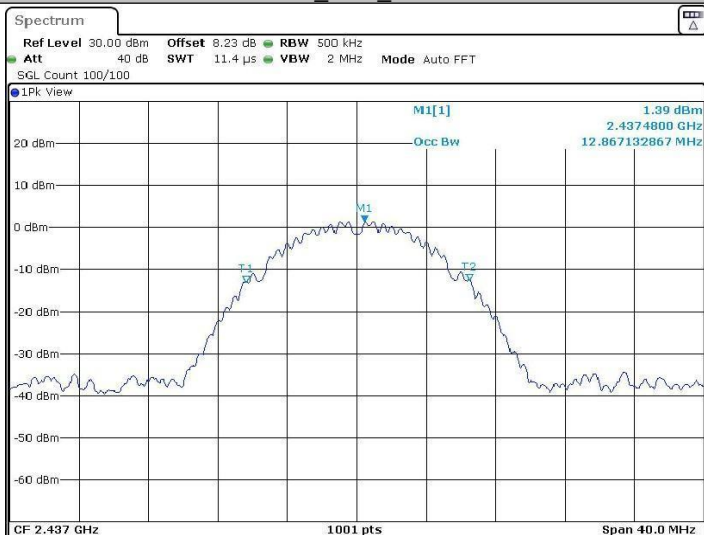
11N40SISO_Ant1_2452



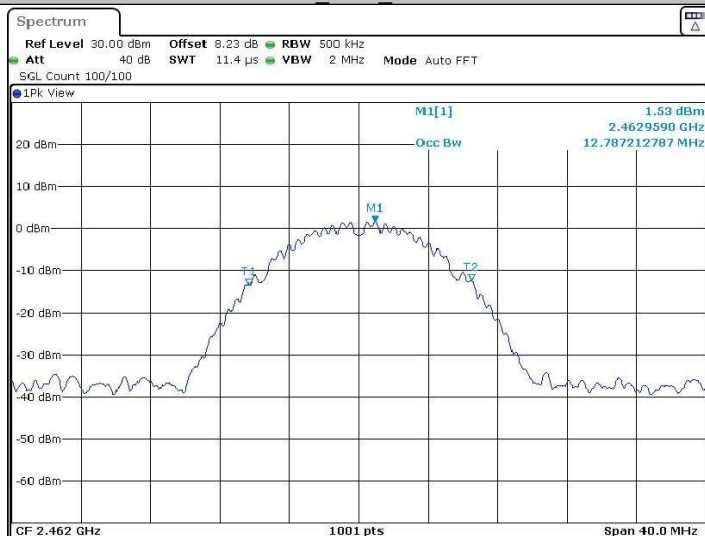
11B_Ant1_2412



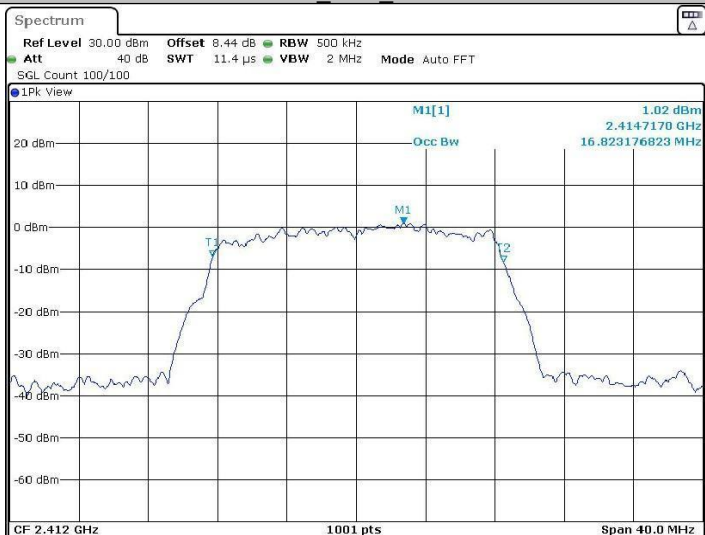
11B_Ant1_2437



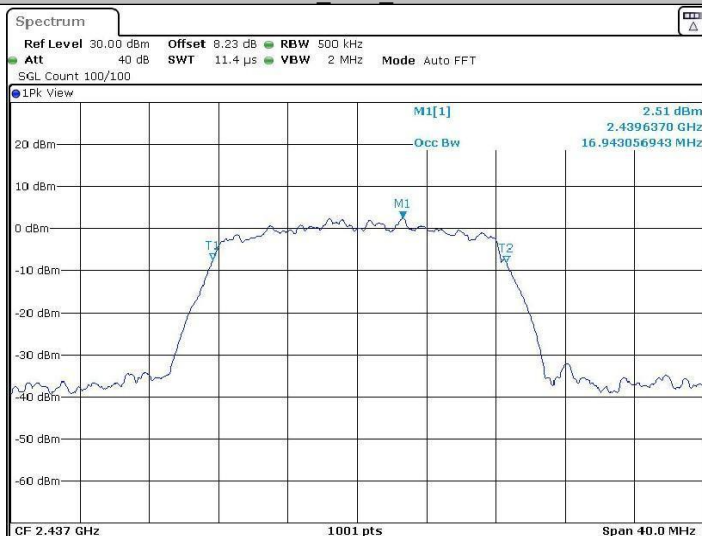
11B_Ant1_2462



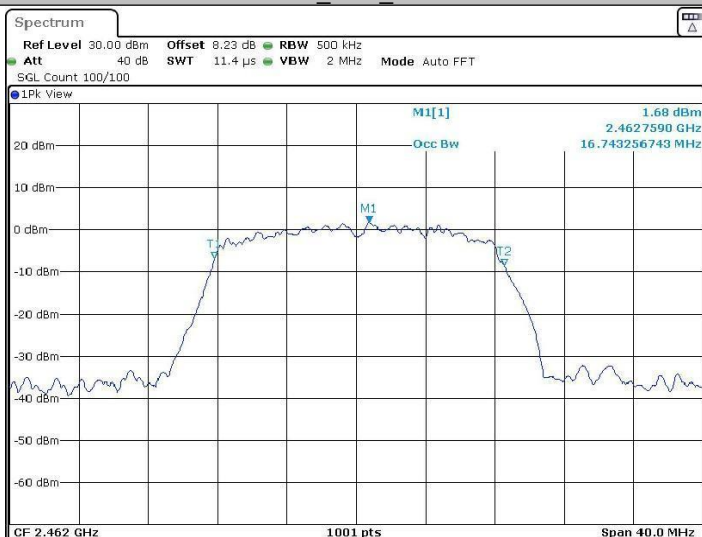
11G_Ant1_2412



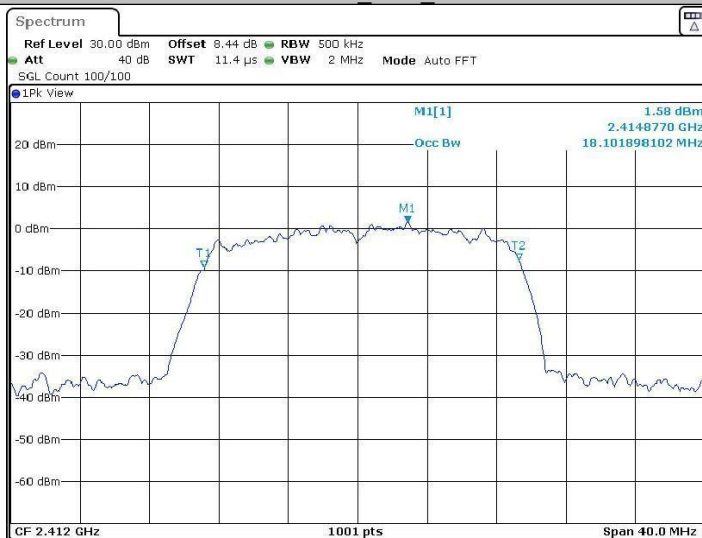
11G_Ant1_2437



11G_Ant1_2462



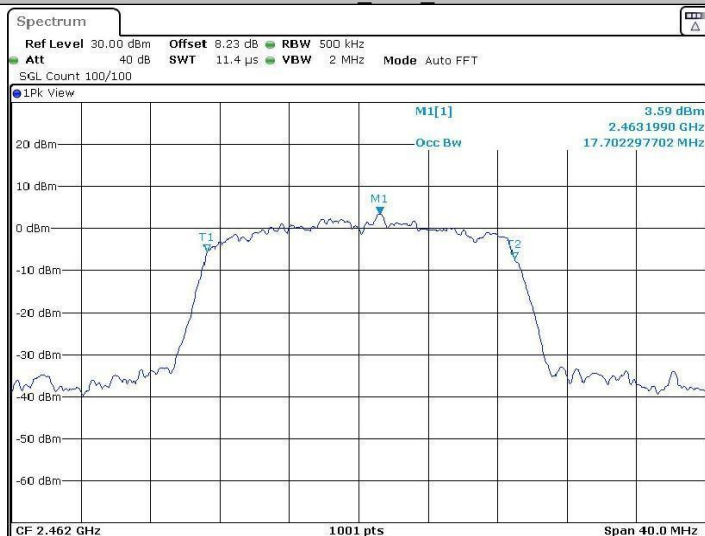
11N20SISO_Ant1_2412



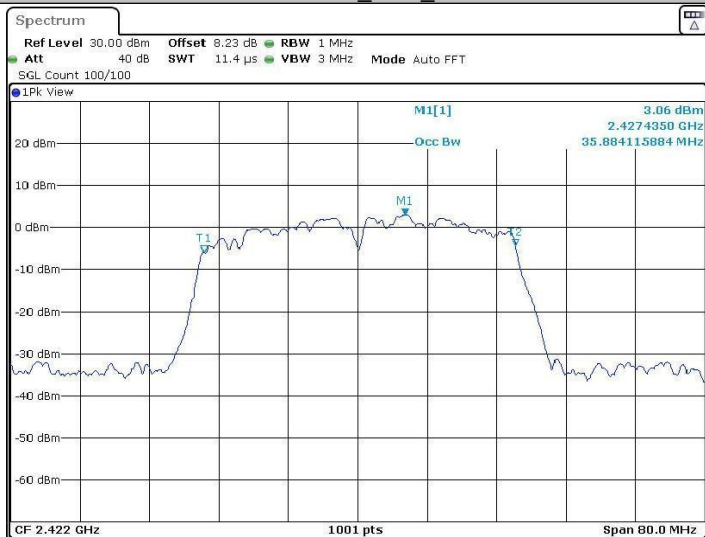
11N20SISO_Ant1_2437



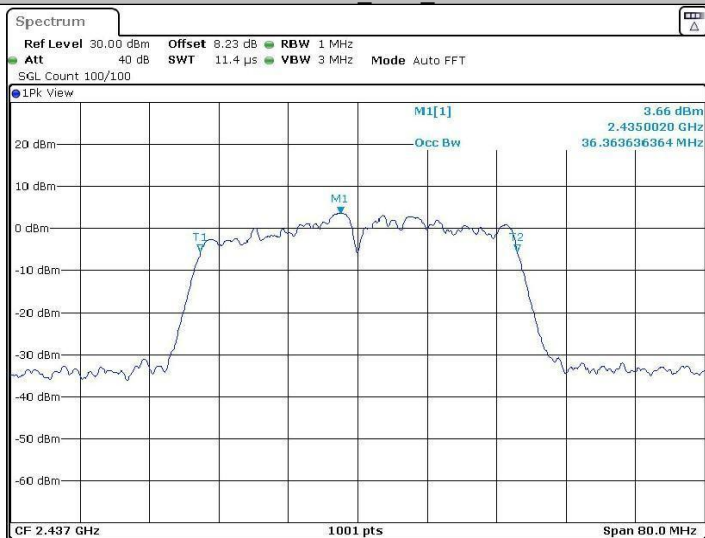
11N20SISO_Ant1_2462



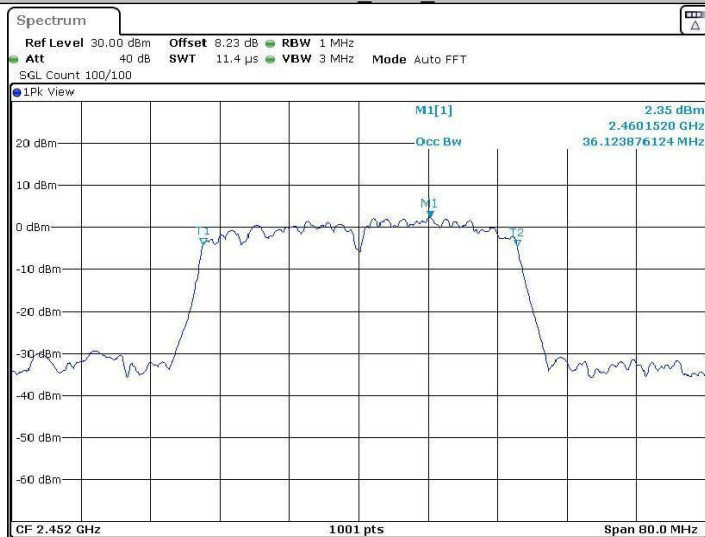
11N40SISO_Ant1_2422



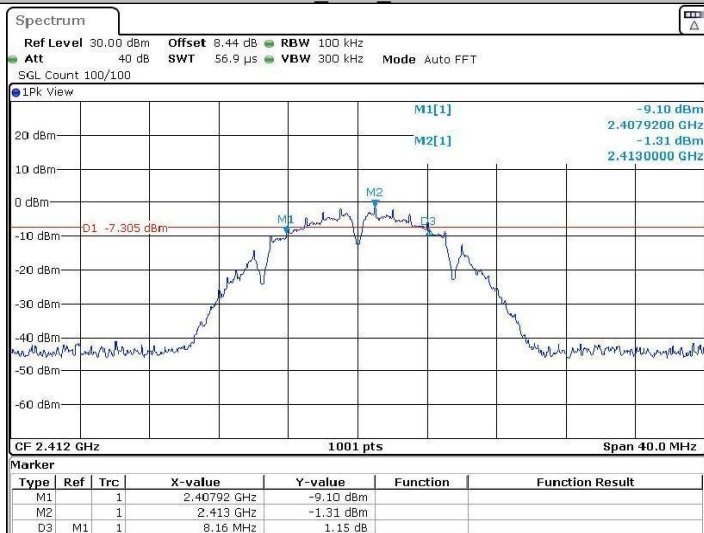
11N40SISO_Ant1_2437



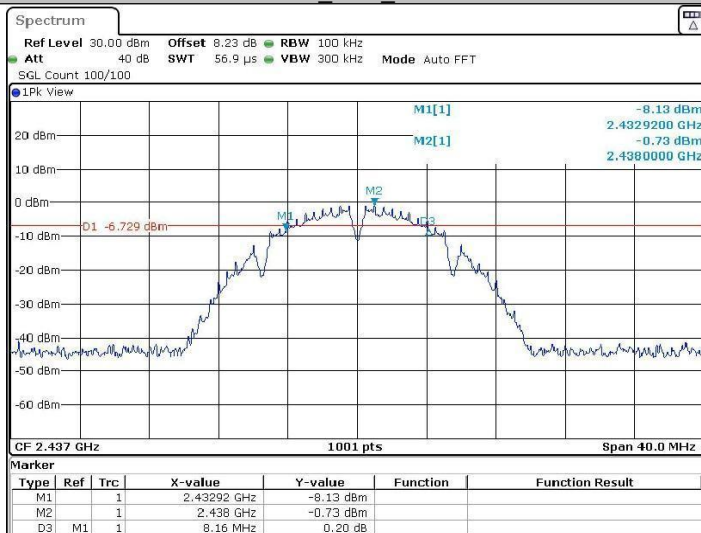
11N40SISO_Ant1_2452



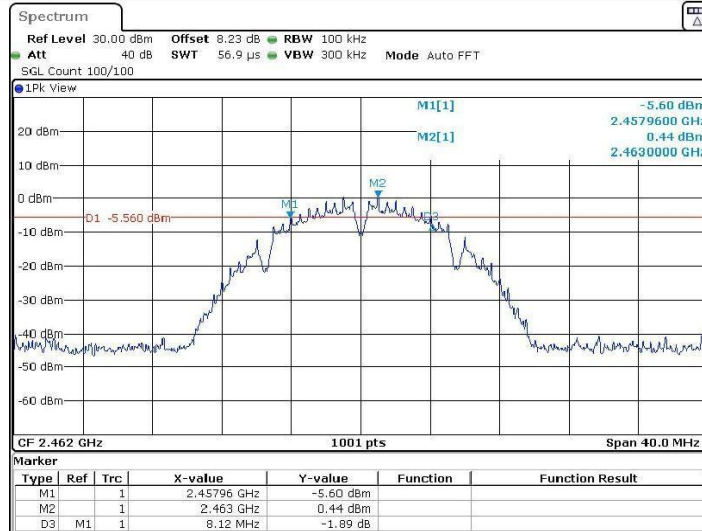
11B_Ant2_2412



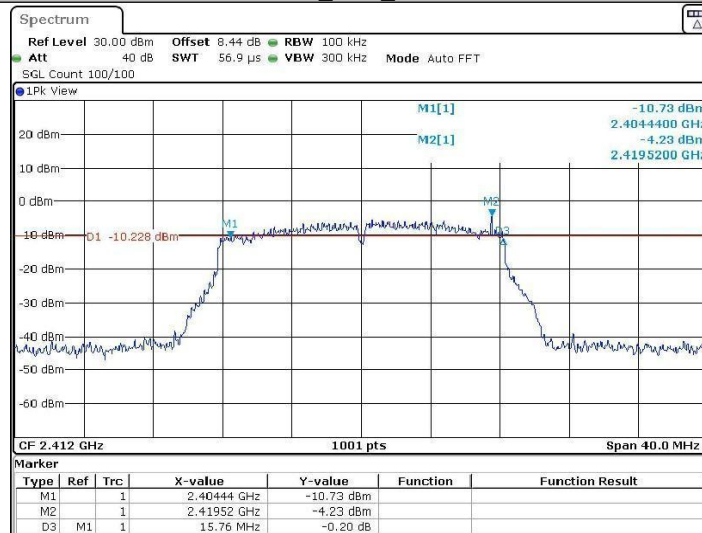
11B_Ant2_2437



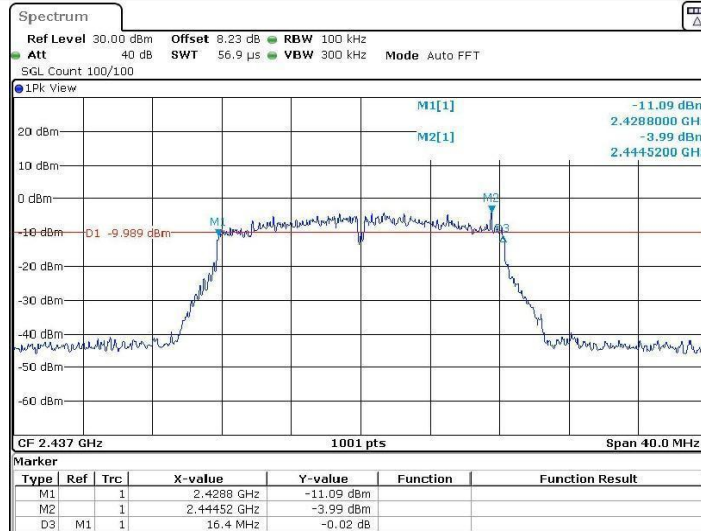
11B_Ant2_2462



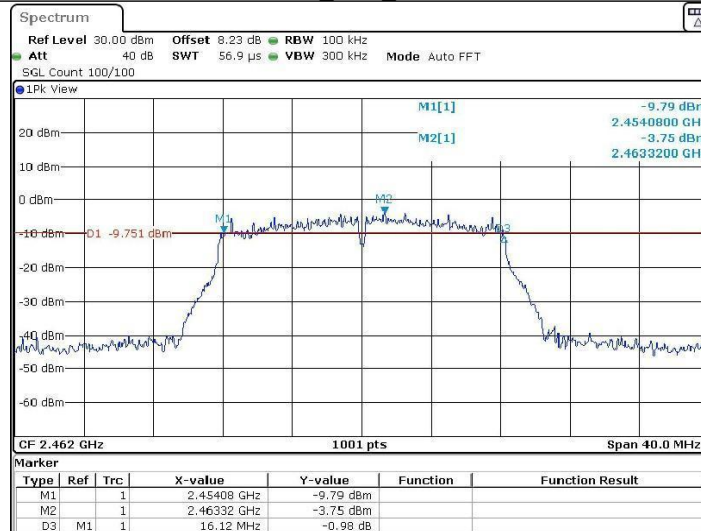
11G_Ant2_2412



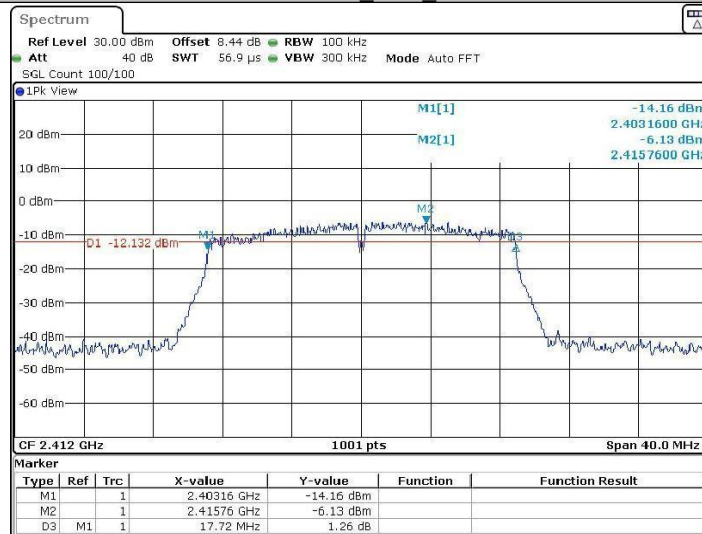
11G_Ant2_2437



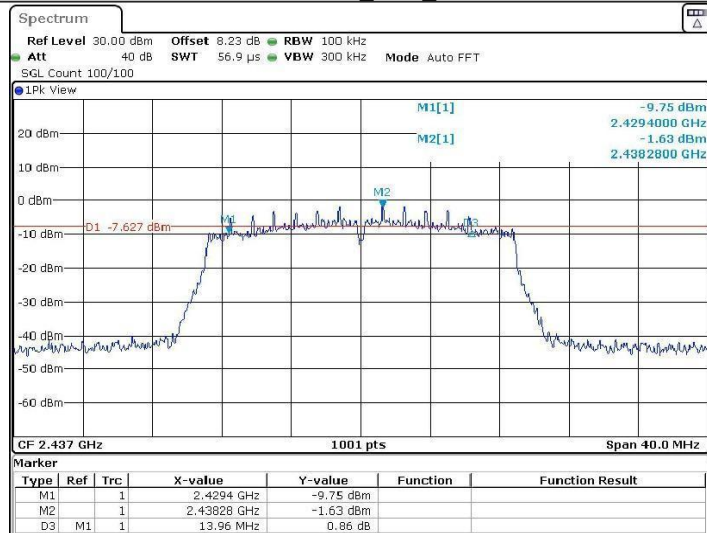
11G_Ant2_2462



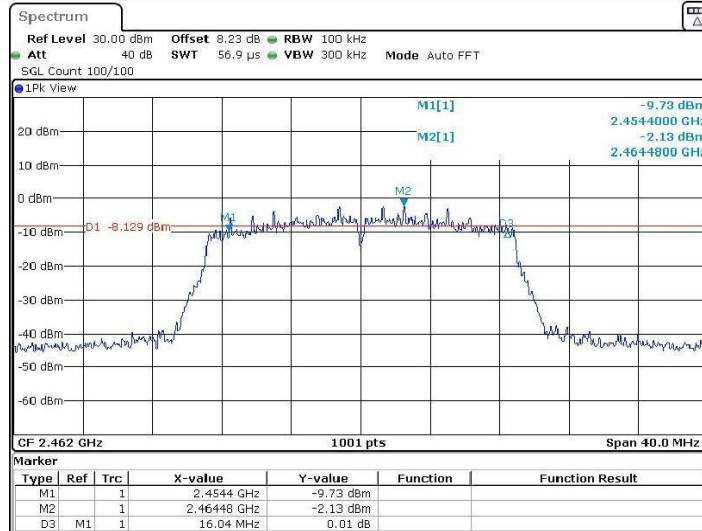
11N20SISO_Ant2_2412



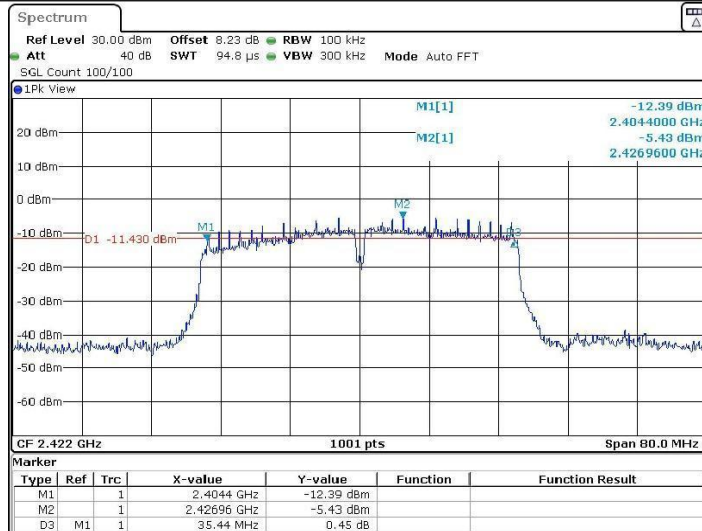
11N20SISO_Ant2_2437



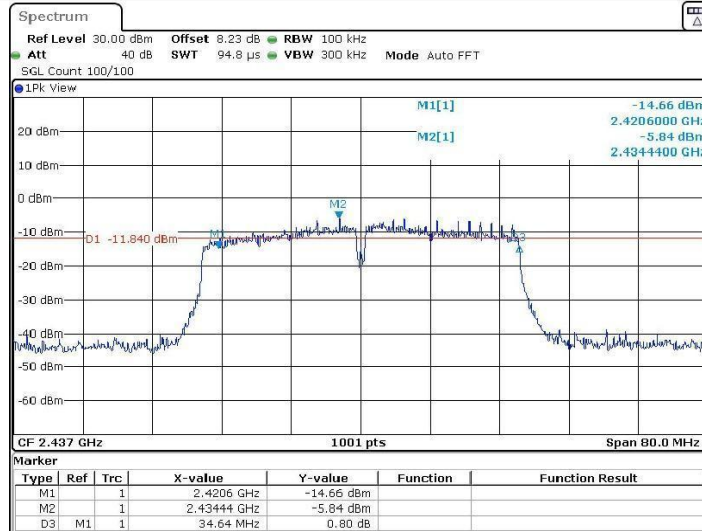
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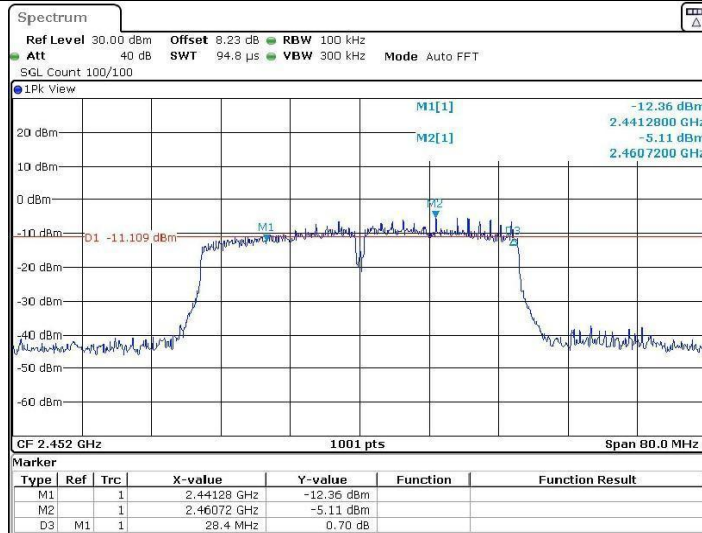
11N40SISO_Ant2_2422



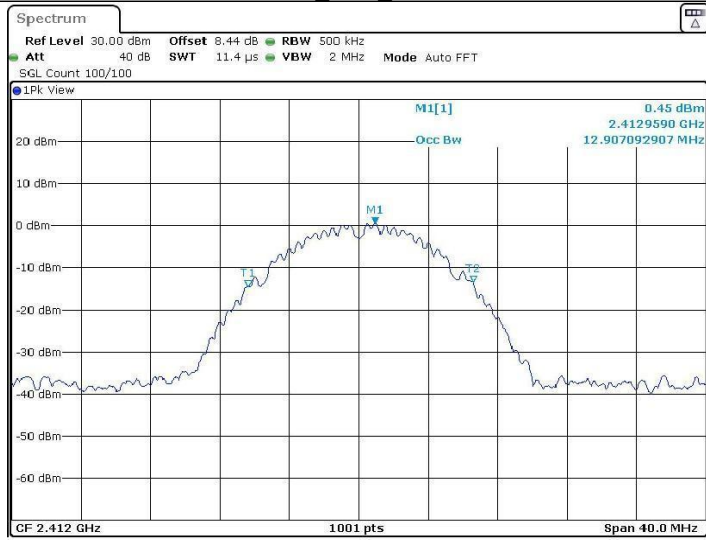
11N40SISO_Ant2_2437



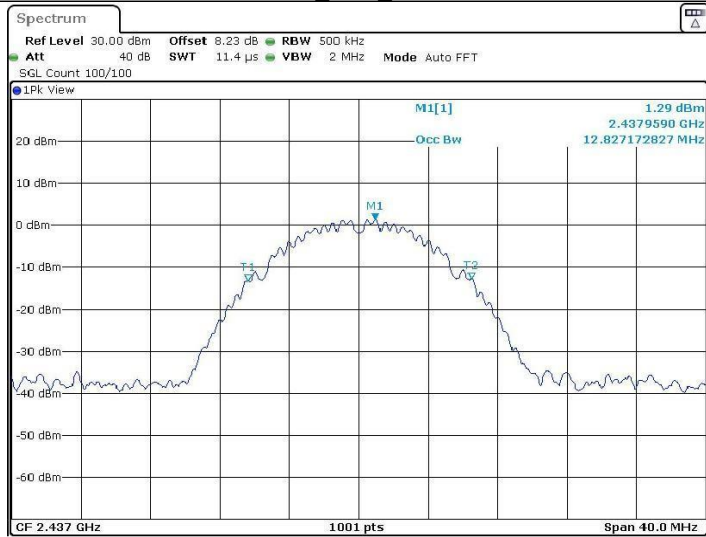
11N40SISO_Ant2_2452



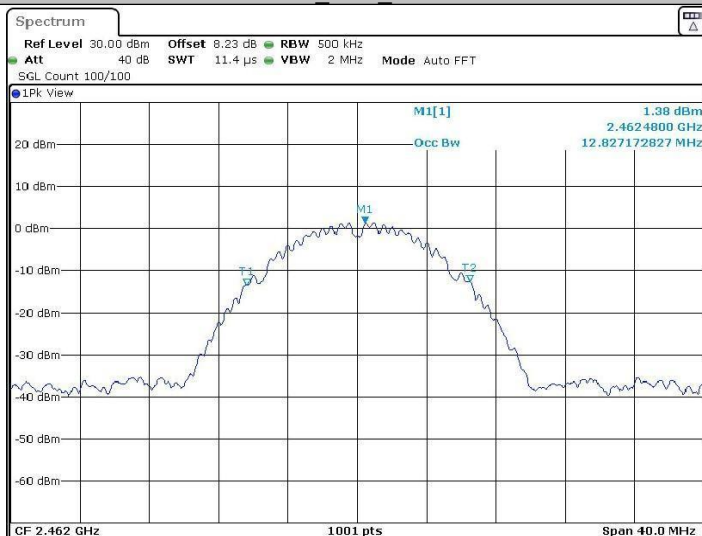
11B_Ant2_2412



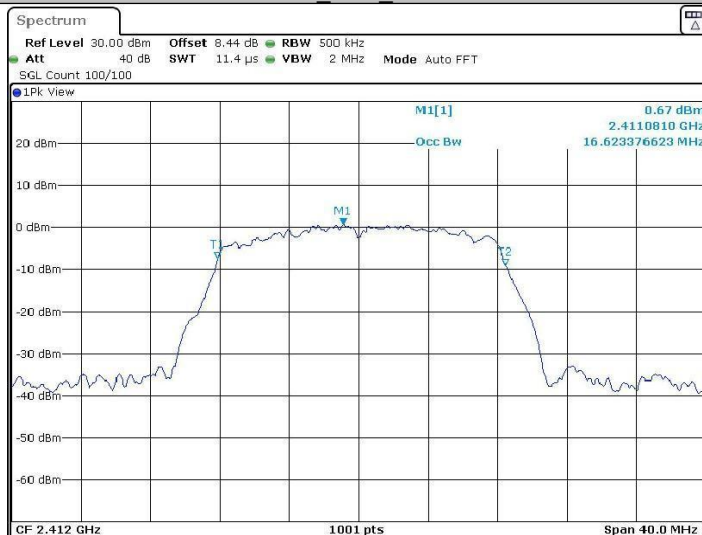
11B_Ant2_2437



11B_Ant2_2462



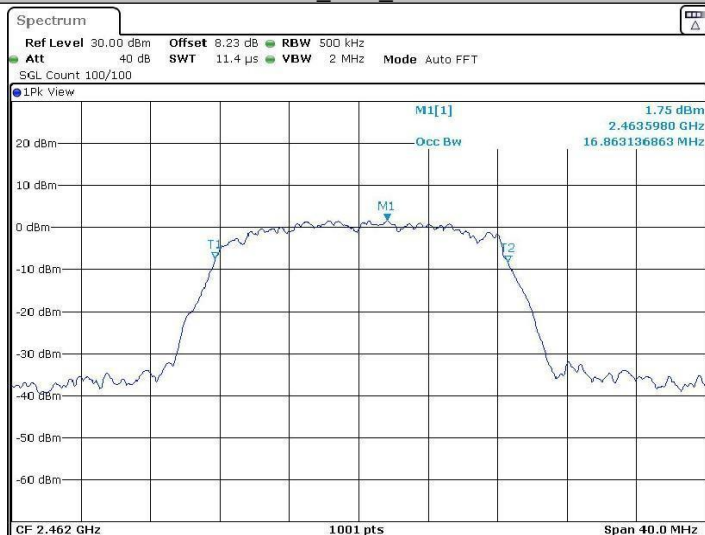
11G_Ant2_2412



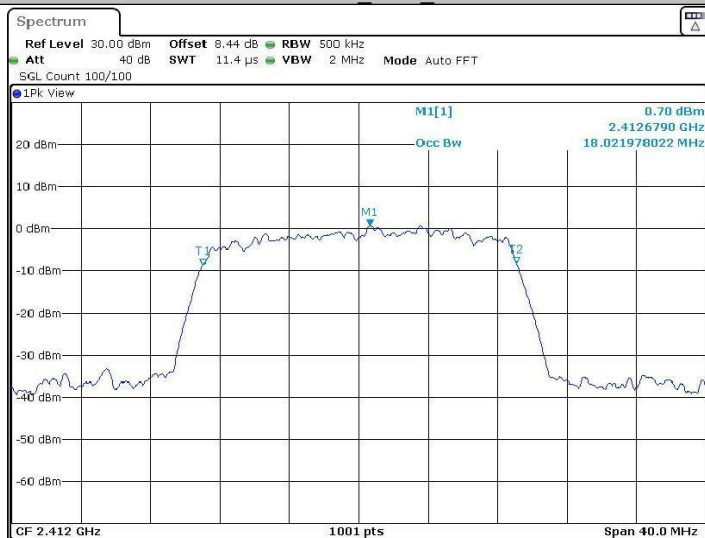
11G_Ant2_2437



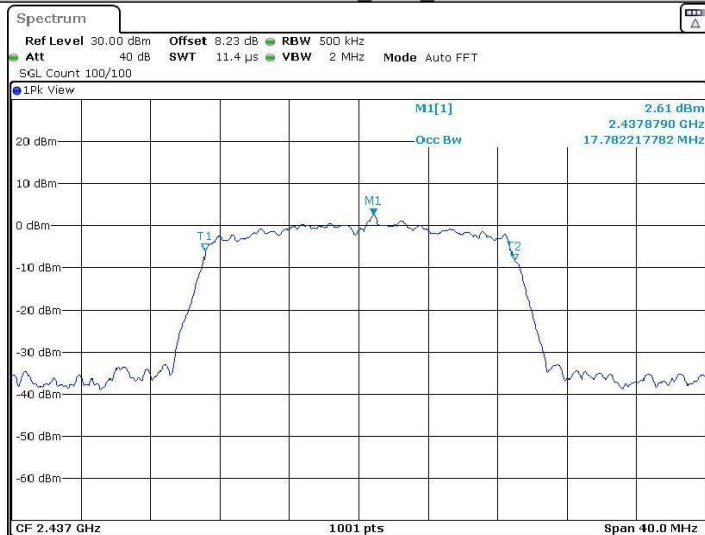
11G_Ant2_2462



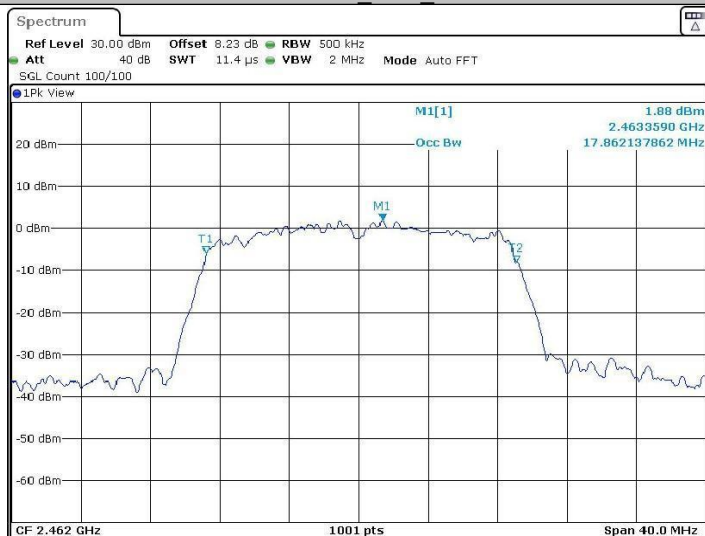
11N20SISO_Ant2_2412



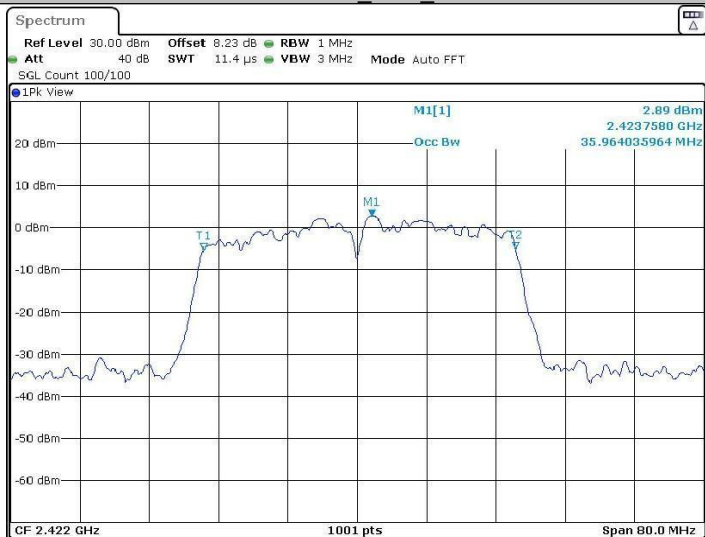
11N20SISO_Ant2_2437



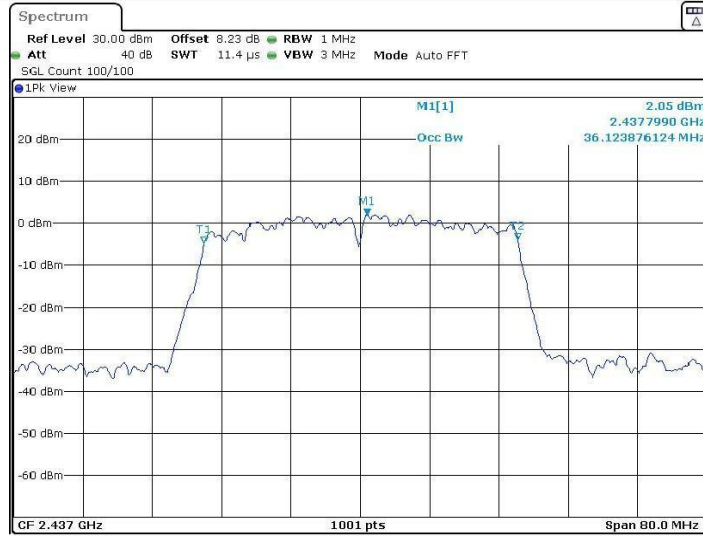
11N20SISO_Ant2_2462



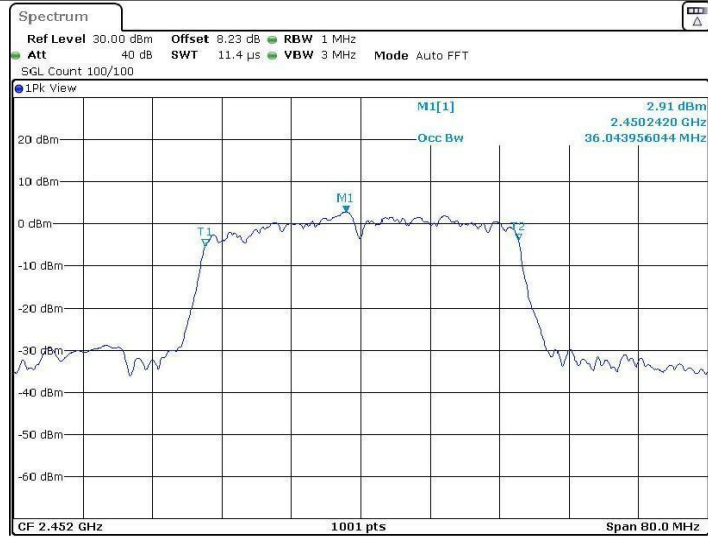
11N40SISO_Ant2_2422



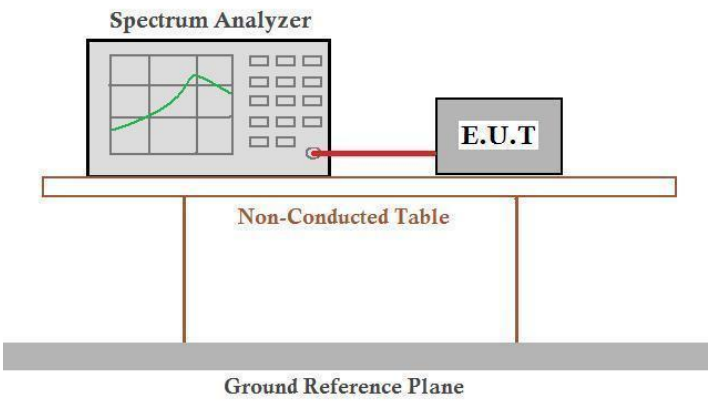
11N40SISO_Ant2_2437



11N40SISO_Ant2_2452



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); 13.5Mbps of rate is the worst case of 802.11n(HT40). Only the worst case is recorded in the report.
Limit:	≤8.00dBm/3kHz
Test Results:	Pass

Measurement Data

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-22.88	≤8	PASS
		2437	-21.64	≤8	PASS
		2462	-21.95	≤8	PASS
11G	Ant1	2412	-24.95	≤8	PASS
		2437	-20.97	≤8	PASS
		2462	-24.34	≤8	PASS
11N20SISO	Ant1	2412	-24.65	≤8	PASS
		2437	-20.21	≤8	PASS
		2462	-23.32	≤8	PASS
11N40SISO	Ant1	2422	-24.45	≤8	PASS
		2437	-22.88	≤8	PASS
		2452	-21.47	≤8	PASS

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant2	2412	-23.02	≤8	PASS
		2437	-22.12	≤8	PASS
		2462	-21.94	≤8	PASS
11G	Ant2	2412	-22.58	≤8	PASS
		2437	-19.79	≤8	PASS
		2462	-24.07	≤8	PASS
11N20SISO	Ant2	2412	-22.53	≤8	PASS
		2437	-19.81	≤8	PASS
		2462	-24.25	≤8	PASS
11N40SISO	Ant2	2422	-23.12	≤8	PASS
		2437	-21.17	≤8	PASS
		2452	-20.42	≤8	PASS

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11N20MIMO	Ant1+Ant2	2412	-20.45	≤8	PASS
		2437	-17.00	≤8	PASS
		2462	-20.75	≤8	PASS
11N40MIMO	Ant1+Ant2	2422	-20.72	≤8	PASS
		2437	-18.93	≤8	PASS
		2452	-17.90	≤8	PASS

Note:

The antenna is Omni Directional Antenna.

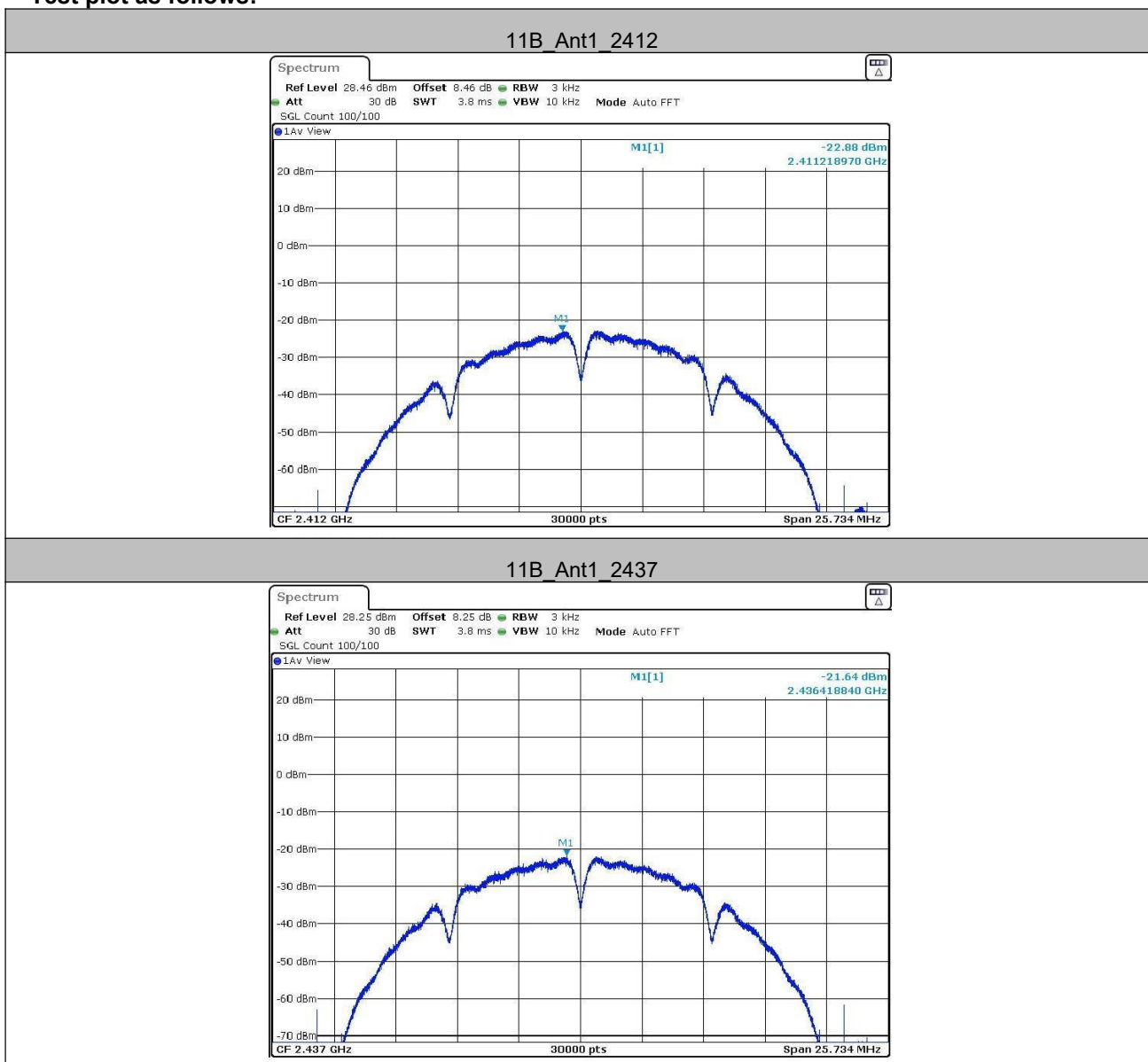
The best case gain of the ANT1 is 2.58dBi. The best case gain of the ANT2 is 2.58dBi.

MIMO mode:the antenna gain is 5.59dBi.

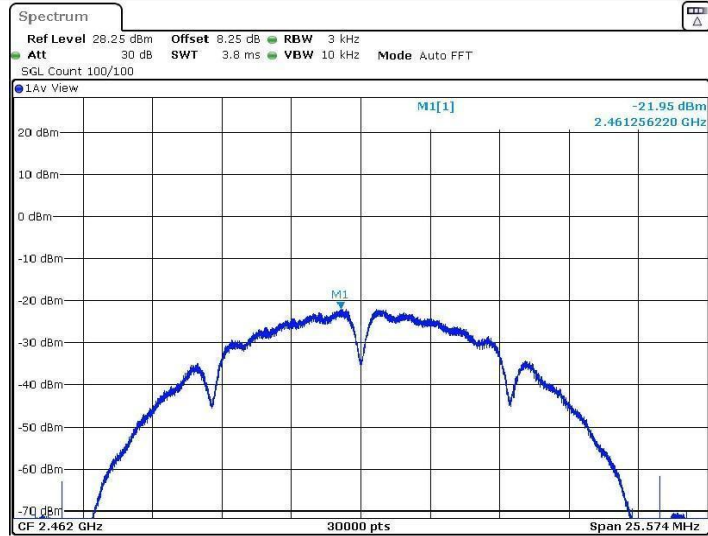
Transmit signals are correlated with each other,

Directional gain= $G_{ANT}+10\log(N_{ANT})$ dBi=2.58+10log(2)dBi=5.59dBi

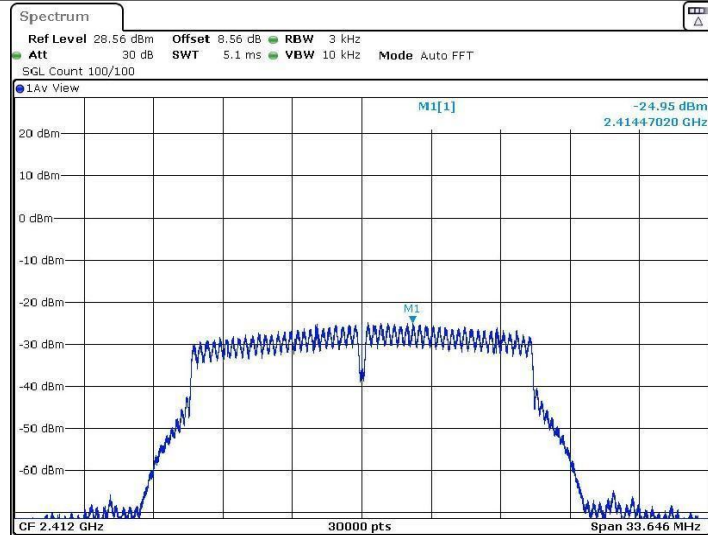
Test plot as follows:



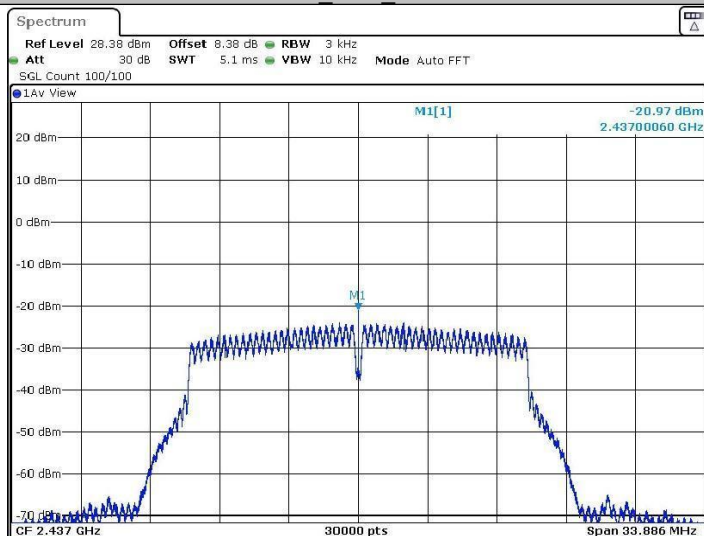
11B_Ant1_2462



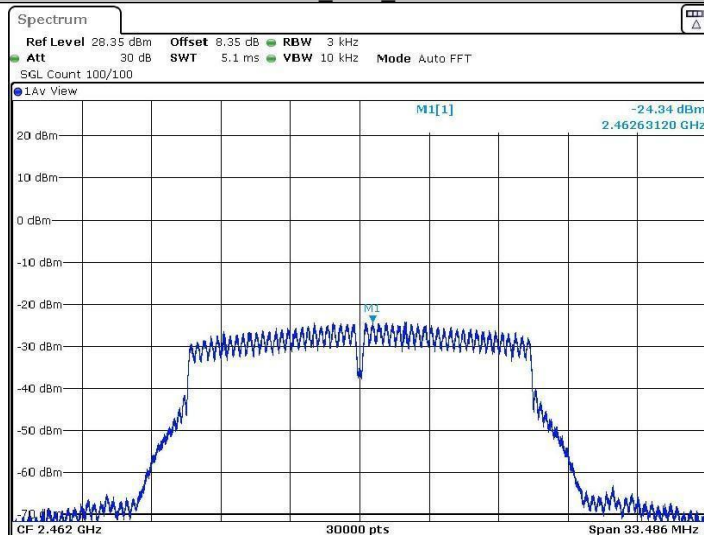
11G_Ant1_2412



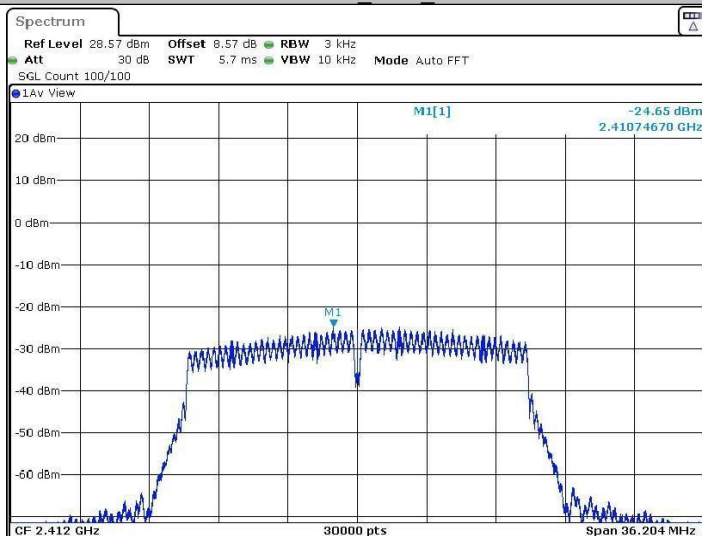
11G_Ant1_2437



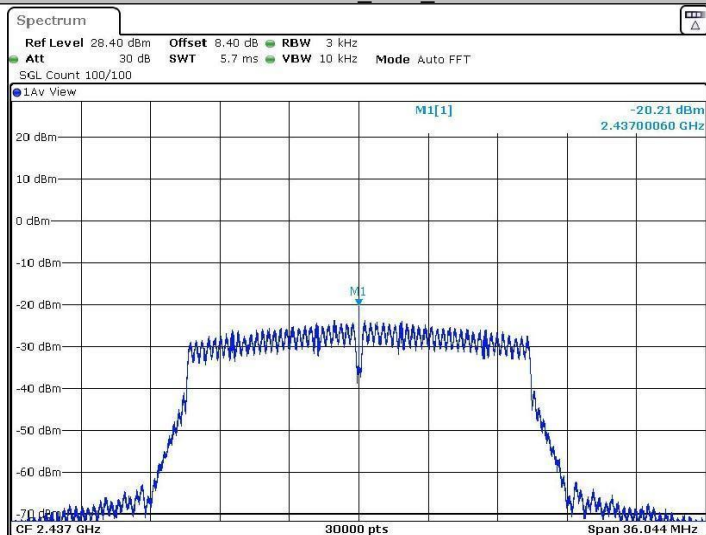
11G_Ant1_2462



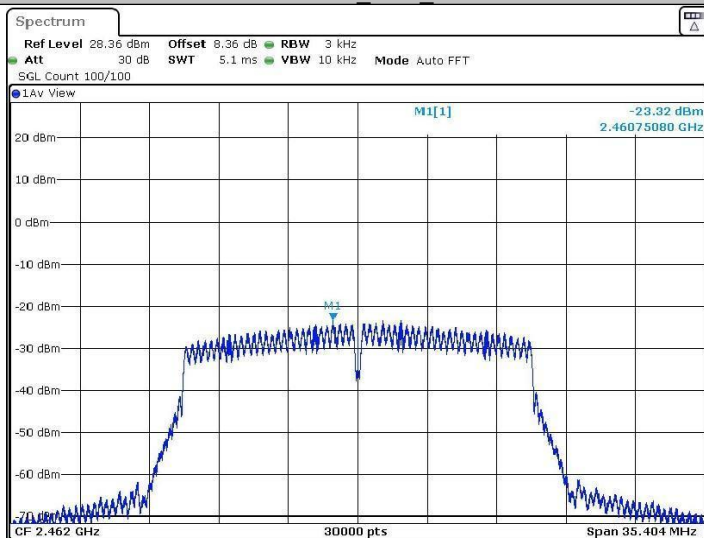
11N20SISO_Ant1_2412



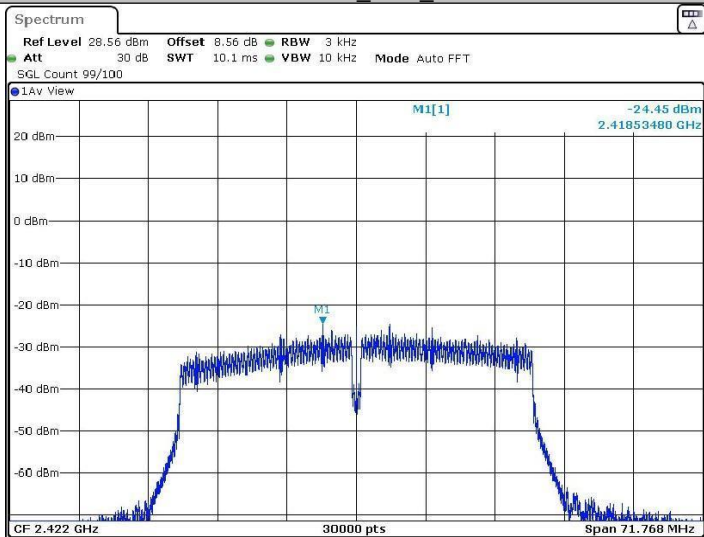
11N20SISO_Ant1_2437



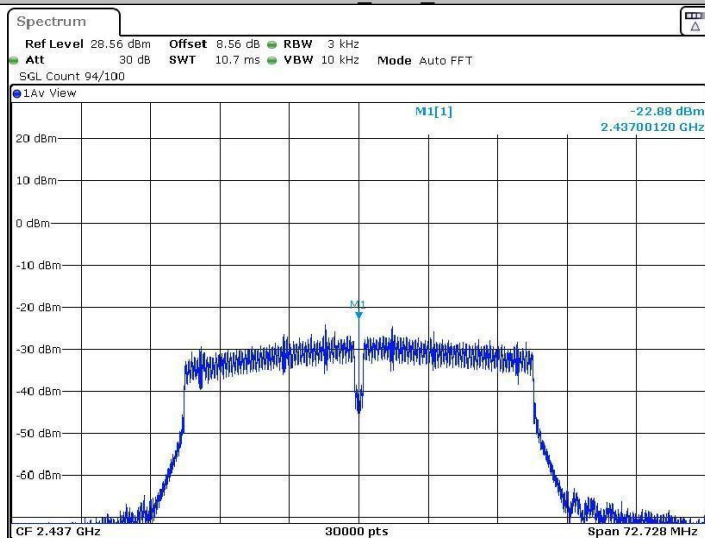
11N20SISO_Ant1_2462



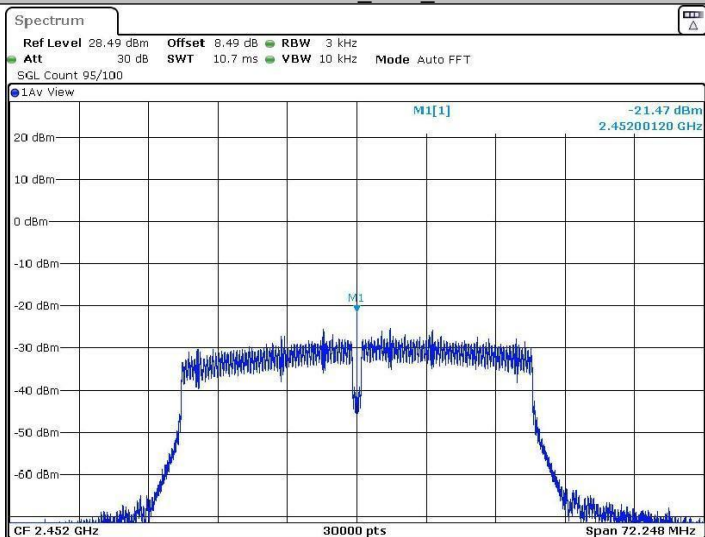
11N40SISO_Ant1_2422



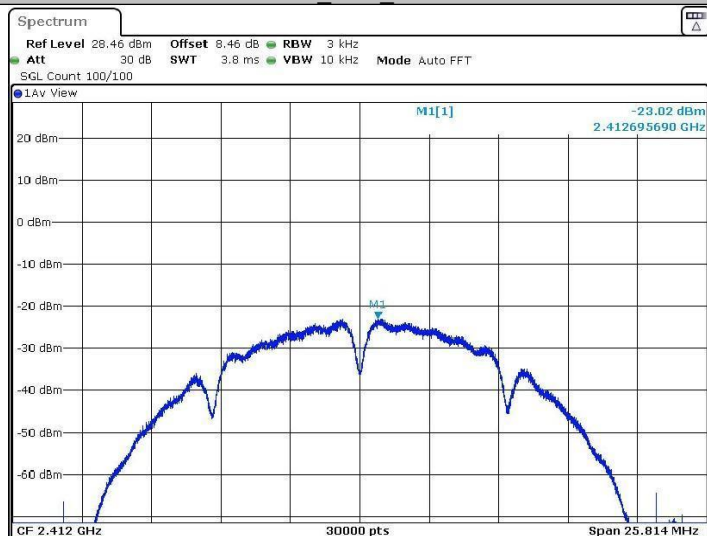
11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



11B_Ant2_2412



11B_Ant2_2437

