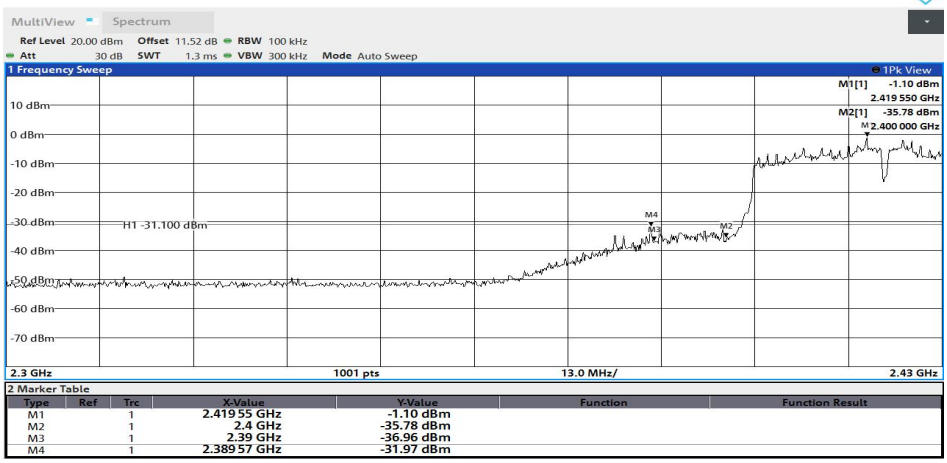
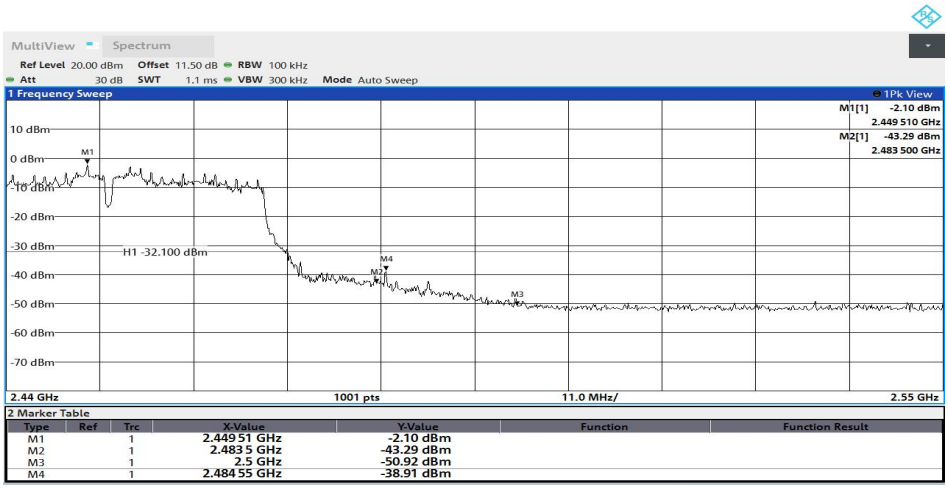


11N40SISO-Ant1-High-2452--2.10



6.6. Transmitter Spurious Emission-conducted

Specifications:	FCC 47 Part 15.247(d)
DUT Serial Number:	S1
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(d)	30dB below highest level power in 100KHz bandwidth

Measurement Uncertainty:

Measurement Uncertainty	±0.94dB

Test procedures

This measurement is according to ANSI C63.10 clause 11.11.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.

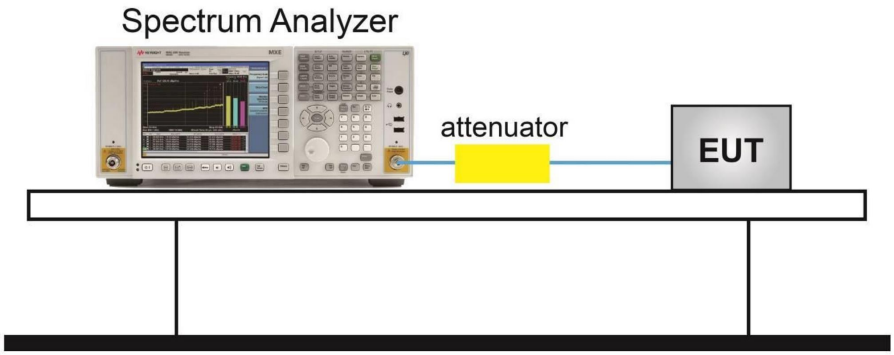
Reference level measurement

3. Set instrument center frequency to DTS channel center frequency.
4. Set the span to ≥ 1.5 times the DTS bandwidth.
5. Set the RBW = 100 kHz.
6. Set the VBW ≥ [3 × RBW].
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum PSD level.

Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured.
2. Set the RBW = 100 kHz.
3. Set the VBW ≥ [3 × RBW].
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

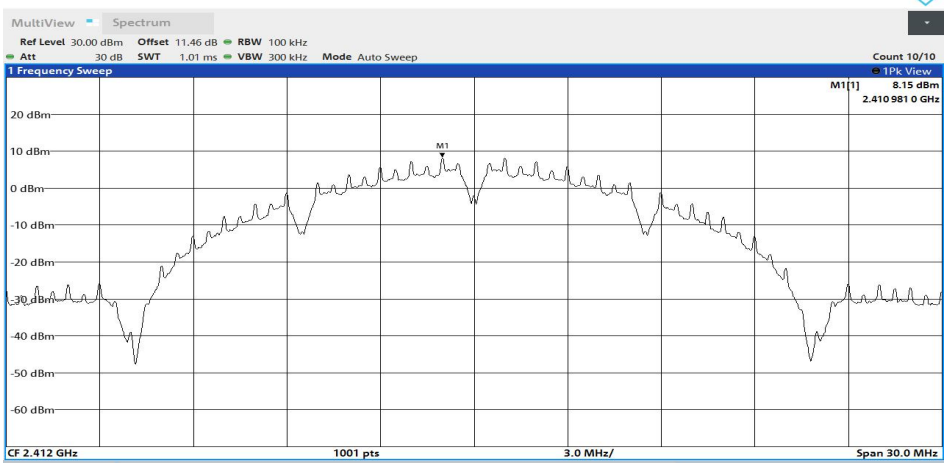
Test Setup



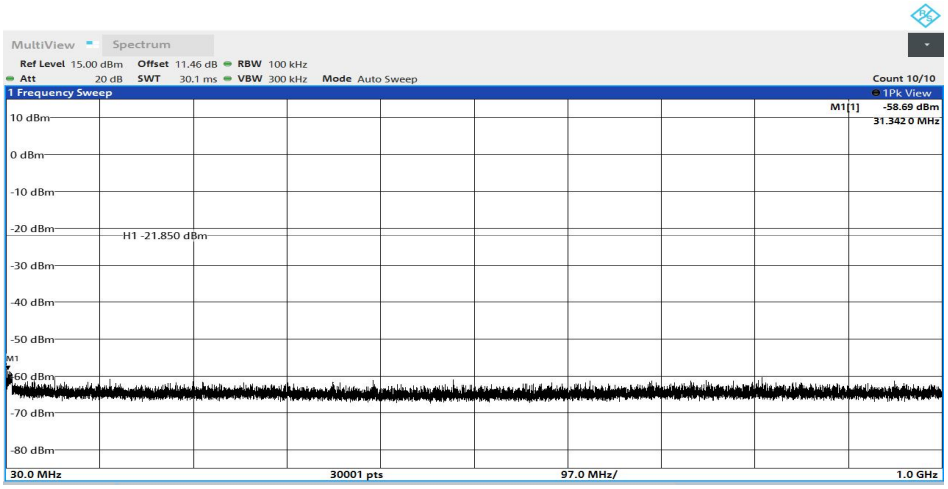
Measurement Result

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	8.15	8.15	---	PASS
11B	Ant1	2412	30~1000	8.15	-58.69	≤-21.85	PASS
11B	Ant1	2412	1000~26500	8.15	-53.56	≤-21.85	PASS
11B	Ant1	2437	0~Reference	7.32	7.32	---	PASS
11B	Ant1	2437	30~1000	7.32	-58.54	≤-22.68	PASS
11B	Ant1	2437	1000~26500	7.32	-52.97	≤-22.68	PASS
11B	Ant1	2462	0~Reference	6.77	6.77	---	PASS
11B	Ant1	2462	30~1000	6.77	-58.82	≤-23.23	PASS
11B	Ant1	2462	1000~26500	6.77	-52.34	≤-23.23	PASS
11G	Ant1	2412	0~Reference	5.58	5.58	---	PASS
11G	Ant1	2412	30~1000	5.58	-58.59	≤-24.42	PASS
11G	Ant1	2412	1000~26500	5.58	-53.74	≤-24.42	PASS
11G	Ant1	2437	0~Reference	4.88	4.88	---	PASS
11G	Ant1	2437	30~1000	4.88	-57.81	≤-25.12	PASS
11G	Ant1	2437	1000~26500	4.88	-51.99	≤-25.12	PASS
11G	Ant1	2462	0~Reference	4.55	4.55	---	PASS
11G	Ant1	2462	30~1000	4.55	-58.45	≤-25.45	PASS
11G	Ant1	2462	1000~26500	4.55	-53.61	≤-25.45	PASS
11N20SISO	Ant1	2412	0~Reference	5.56	5.56	---	PASS
11N20SISO	Ant1	2412	30~1000	5.56	-57.94	≤-24.44	PASS
11N20SISO	Ant1	2412	1000~26500	5.56	-53.5	≤-24.44	PASS
11N20SISO	Ant1	2437	0~Reference	4.80	4.80	---	PASS
11N20SISO	Ant1	2437	30~1000	4.80	-58.1	≤-25.2	PASS
11N20SISO	Ant1	2437	1000~26500	4.80	-53.02	≤-25.2	PASS
11N20SISO	Ant1	2462	0~Reference	4.45	4.45	---	PASS
11N20SISO	Ant1	2462	30~1000	4.45	-58.42	≤-25.55	PASS
11N20SISO	Ant1	2462	1000~26500	4.45	-53.69	≤-25.55	PASS
11N40SISO	Ant1	2422	0~Reference	2.15	2.15	---	PASS
11N40SISO	Ant1	2422	30~1000	2.15	-59.08	≤-27.85	PASS
11N40SISO	Ant1	2422	1000~26500	2.15	-52.9	≤-27.85	PASS
11N40SISO	Ant1	2437	0~Reference	1.58	1.58	---	PASS
11N40SISO	Ant1	2452	0~Reference	3.42	3.42	---	PASS
11N40SISO	Ant1	2452	30~1000	3.42	-58.87	≤-26.58	PASS
11N40SISO	Ant1	2452	1000~26500	3.42	-52.89	≤-26.58	PASS
11N40SISO	Ant1	2437	30~1000	1.58	-57.99	≤-28.42	PASS
11N40SISO	Ant1	2437	1000~26500	1.58	-53.24	≤-28.42	PASS

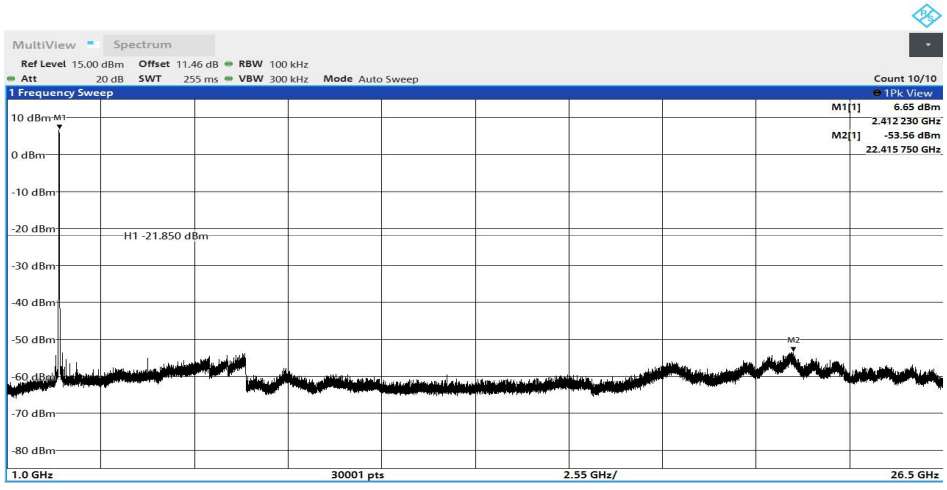
11B-Ant1-2412-0~Reference-8.44



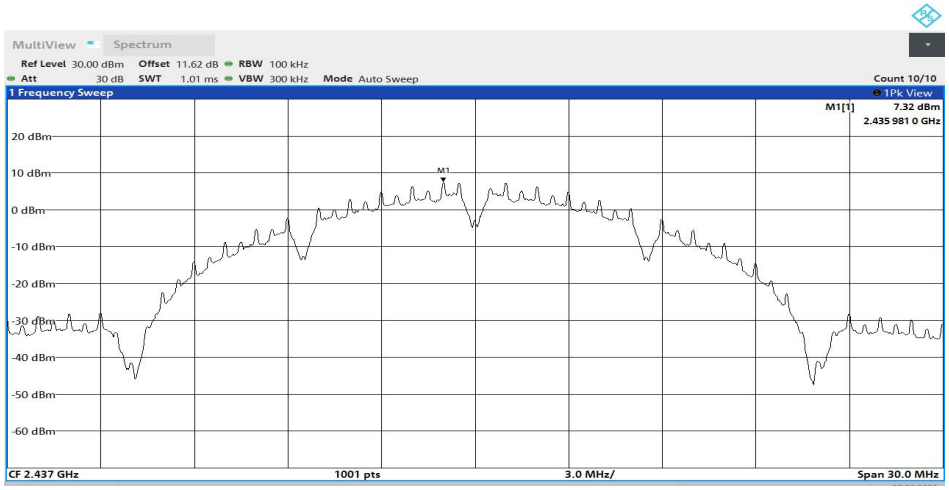
11B-Ant1-2412-30~1000-8.44



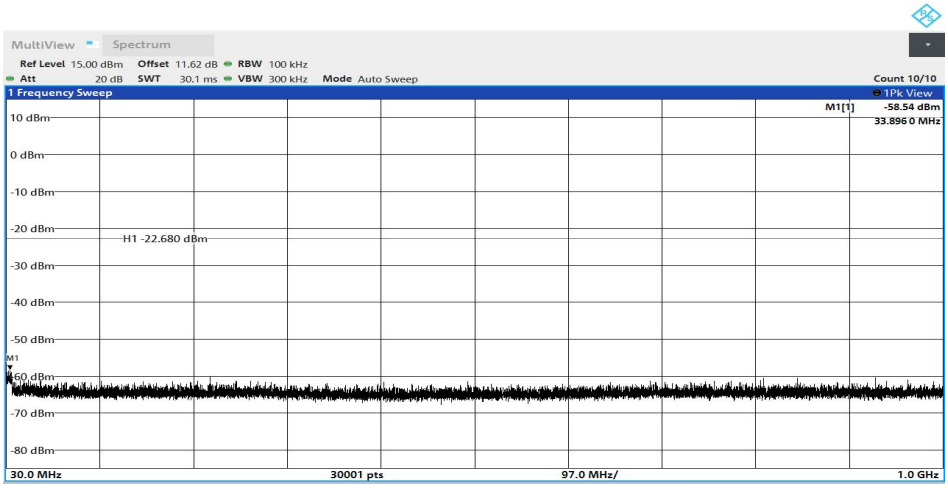
11B-Ant1-2412-1000~26500-8.44



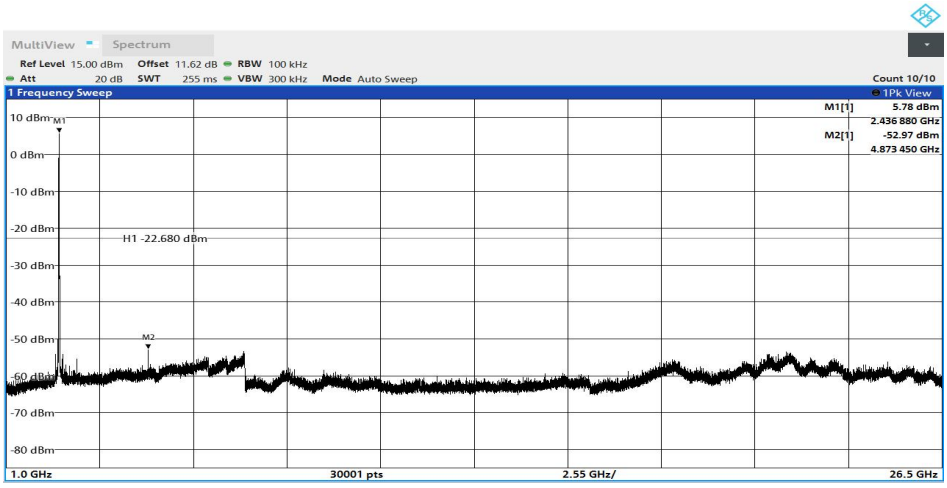
11B-Ant1-2437-0~Reference-6.67



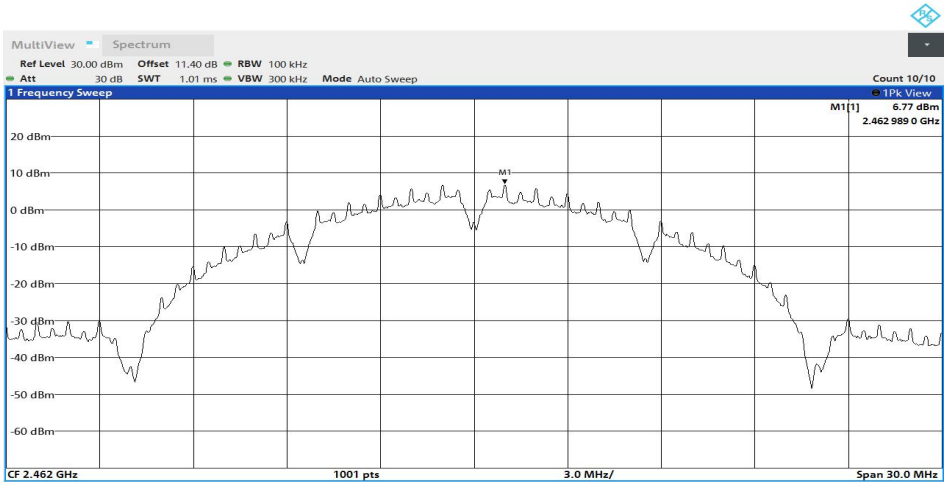
11B-Ant1-2437-30~1000-6.67



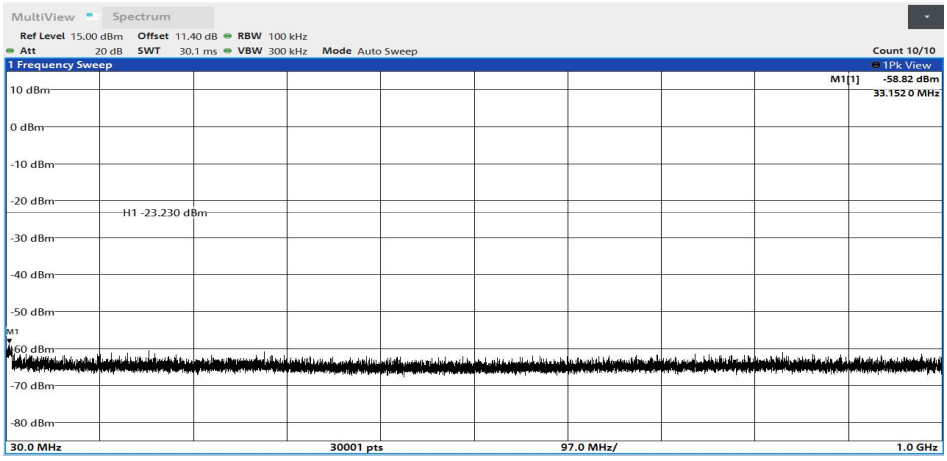
11B-Ant1-2437-1000~26500-6.67



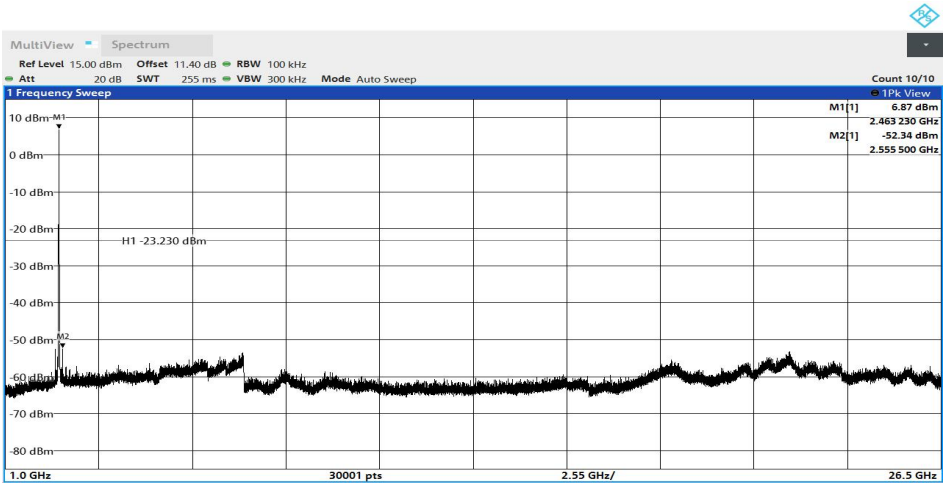
11B-Ant1-2462-0~Reference-6.83



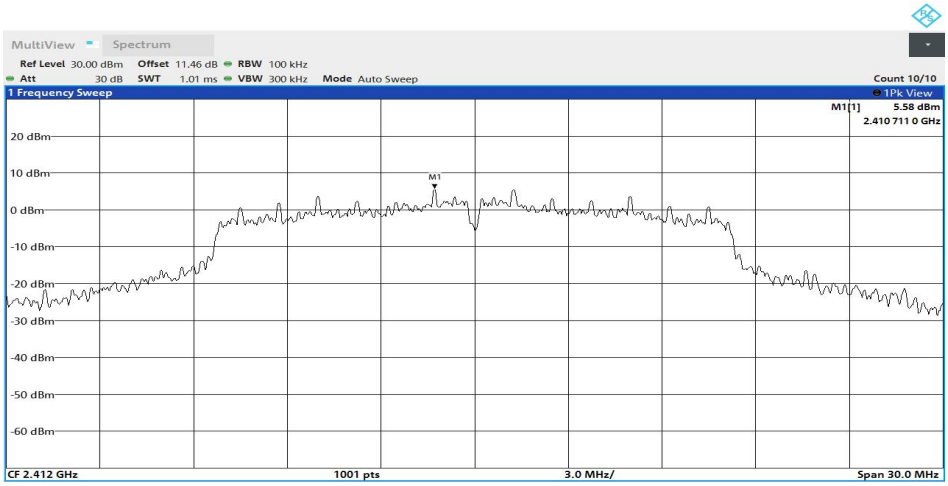
11B-Ant1-2462-30~1000-6.83



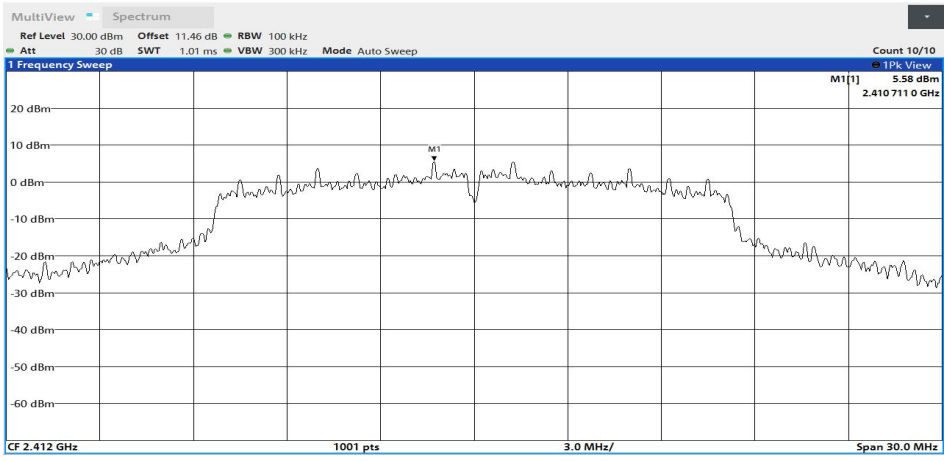
11B-Ant1-2462-1000~26500-6.83



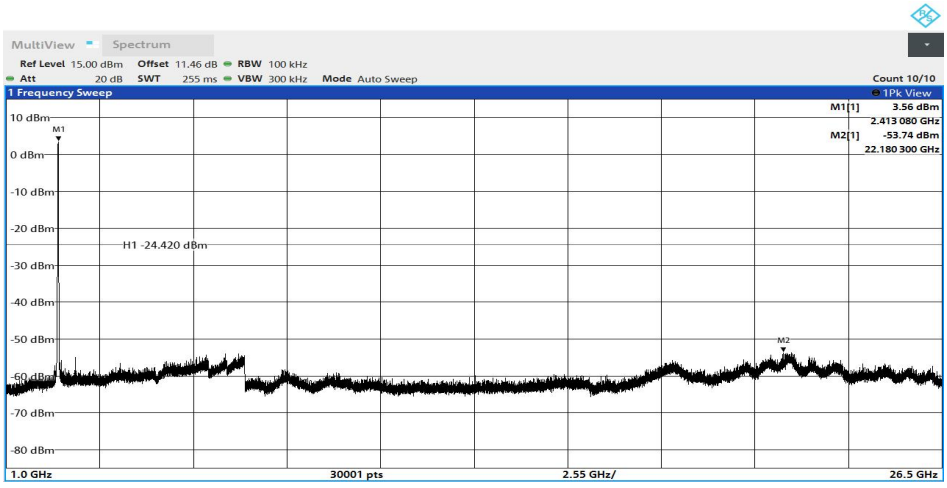
11G-Ant1-2412-0~Reference--0.90



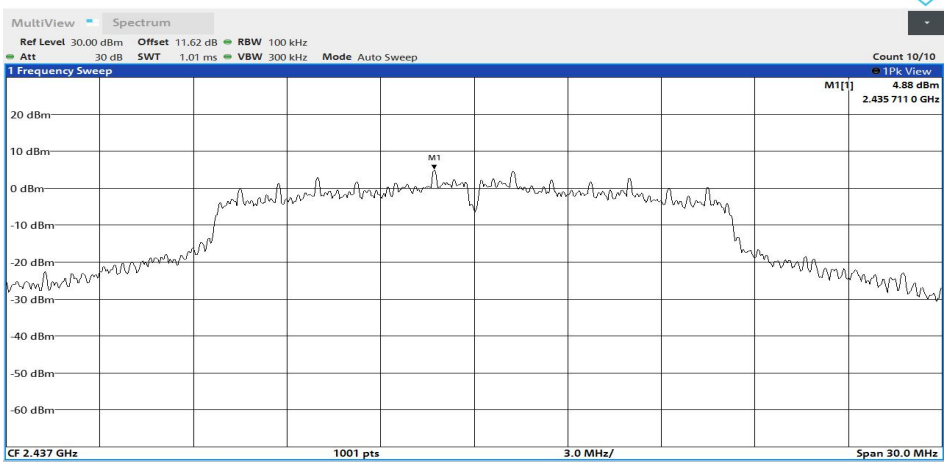
11G-Ant1-2412-30~1000--0.90



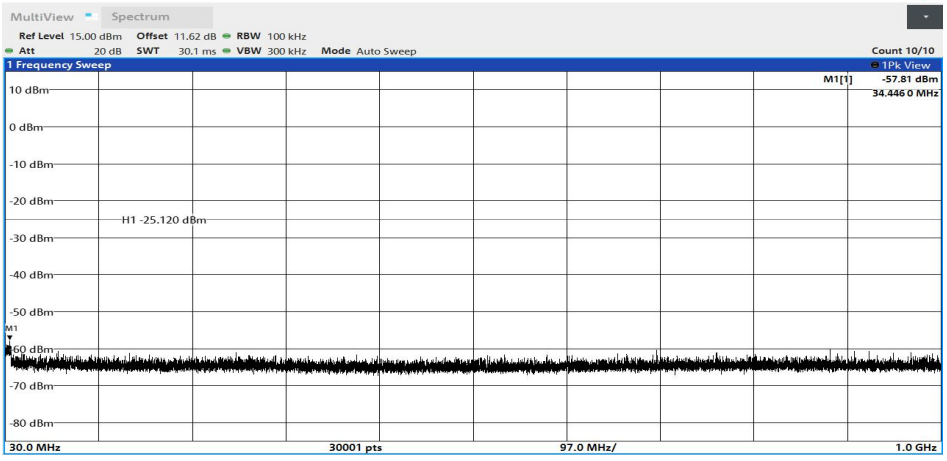
11G-Ant1-2412-1000~26500--0.90



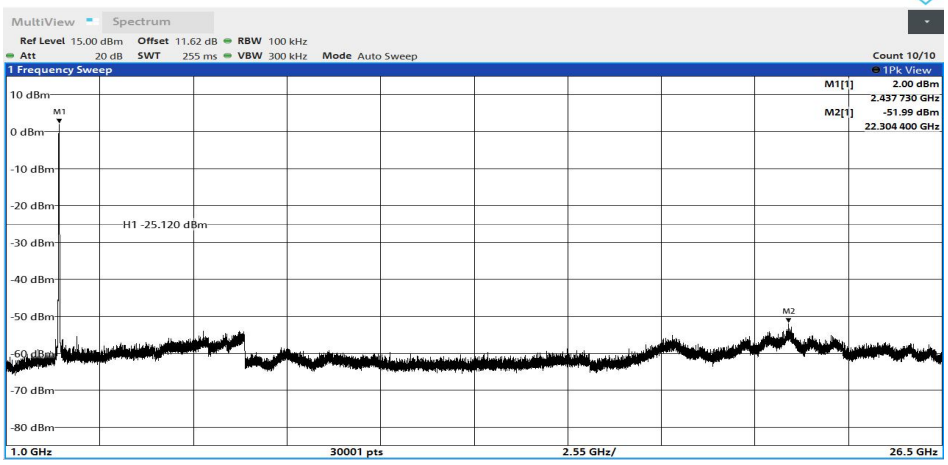
11G-Ant1-2437-0~Reference--2.40



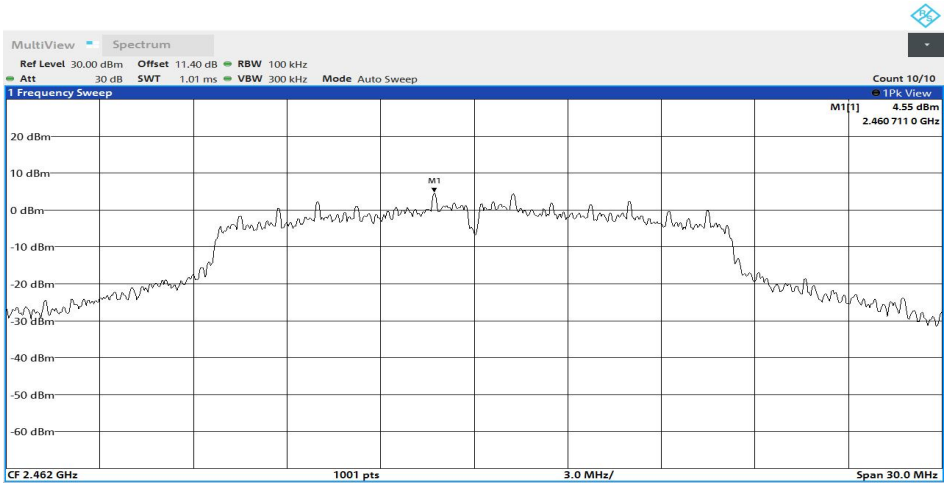
11G-Ant1-2437-30~1000--2.40



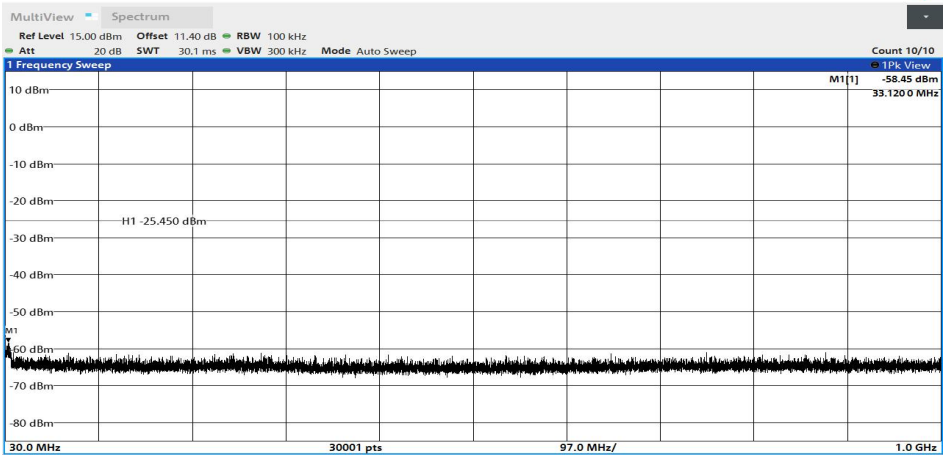
11G-Ant1-2437-1000~26500--2.40



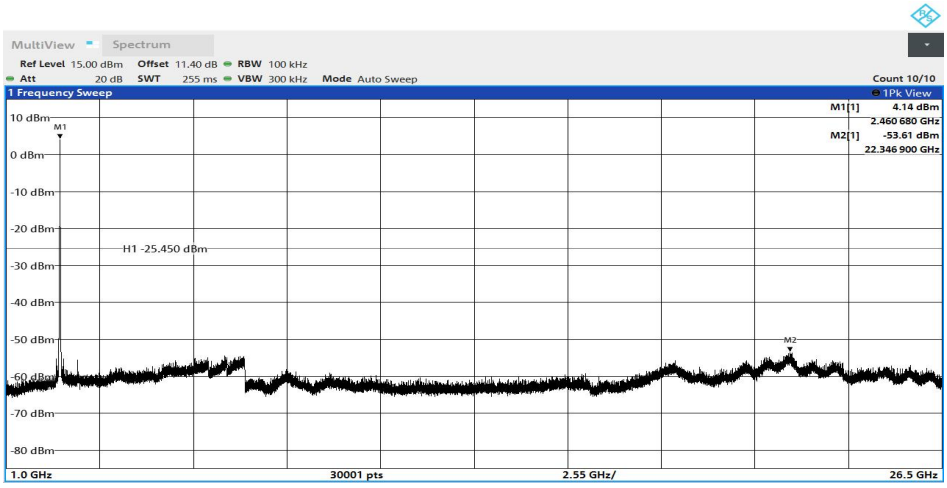
11G-Ant1-2462-0~Reference--0.47



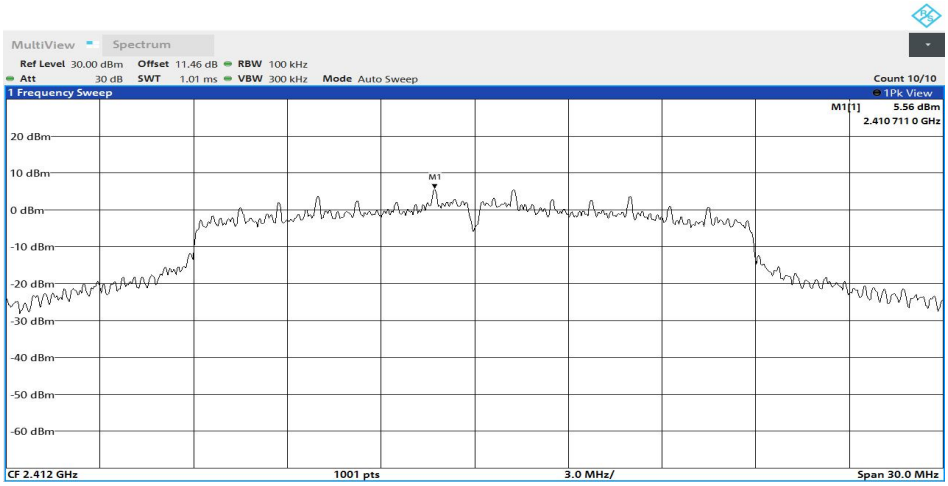
11G-Ant1-2462-30~1000--0.47



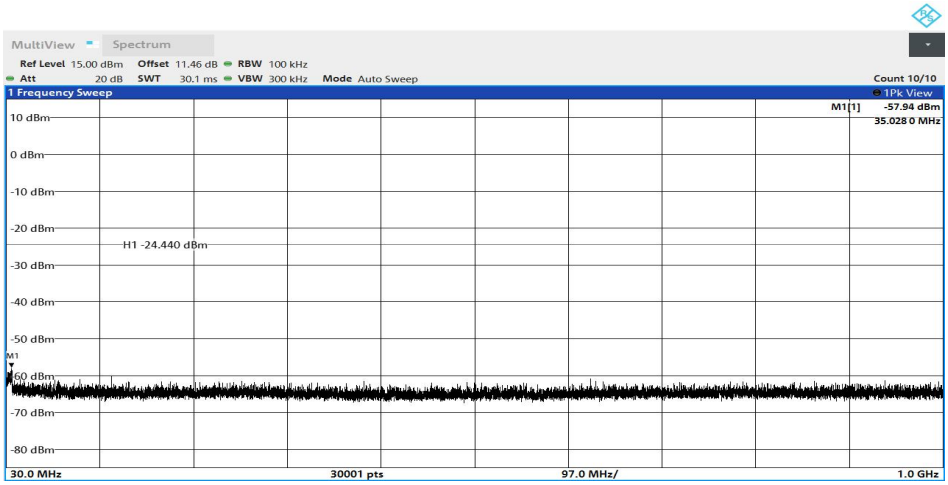
11G-Ant1-2462-1000~26500--0.47



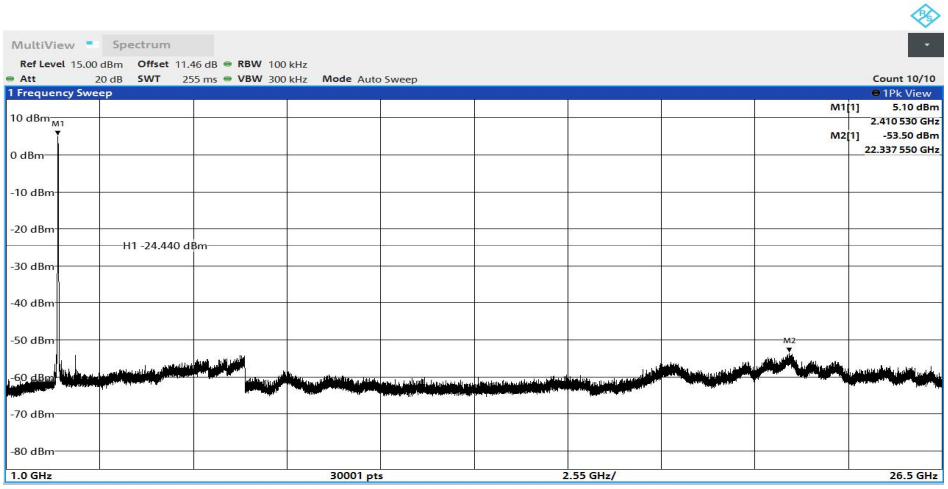
11N20SISO-Ant1-2412-0~Reference--0.83



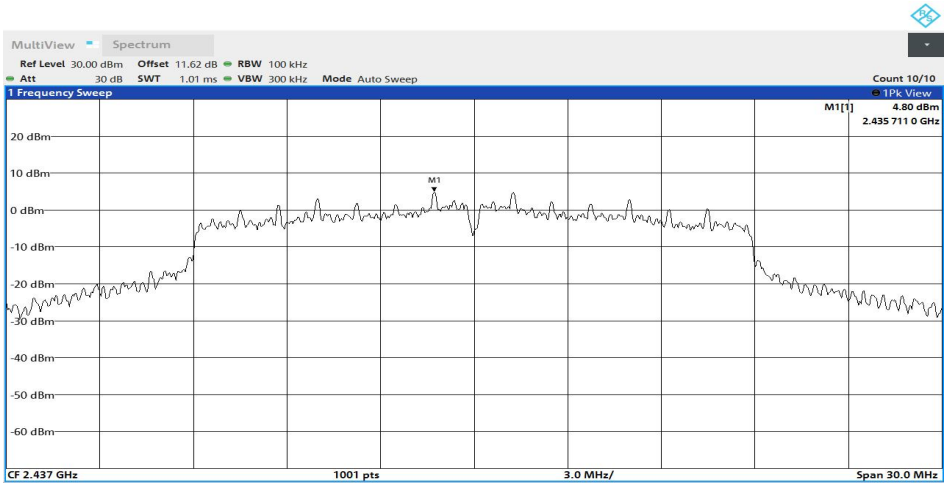
11N20SISO-Ant1-2412-30~1000--0.83



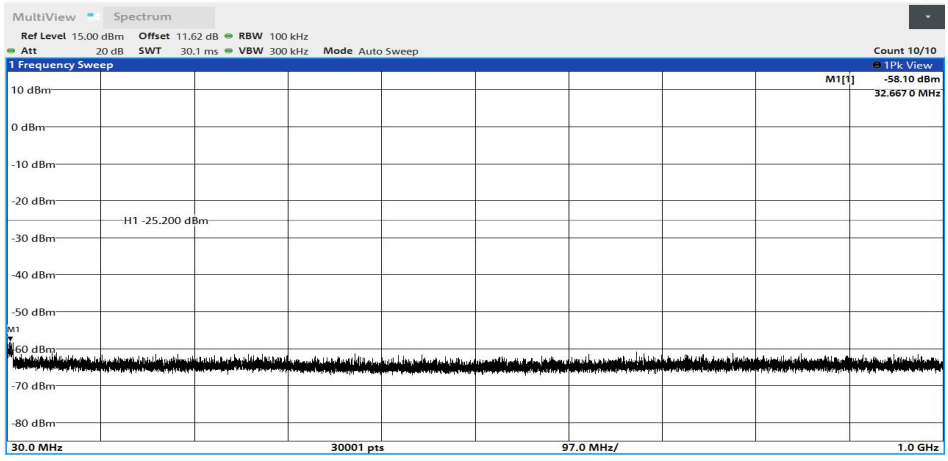
11N20SISO-Ant1-2412-1000~26500--0.83



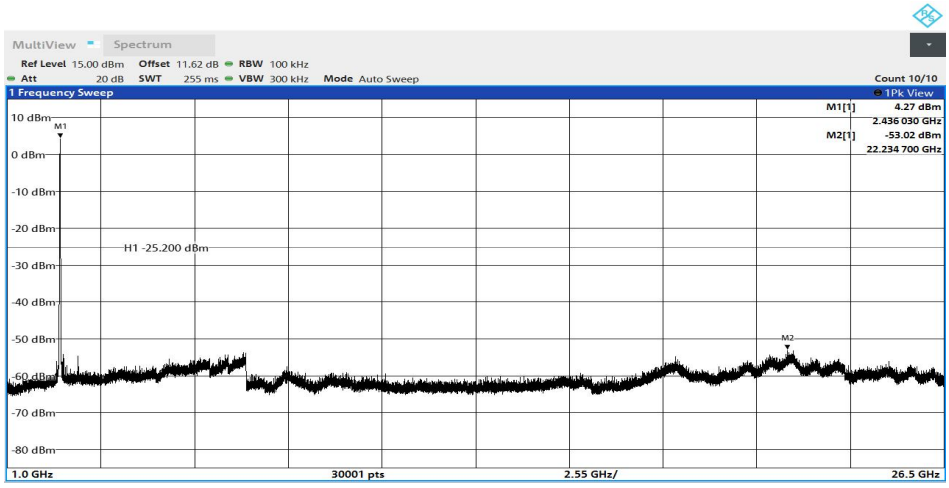
11N20SISO-Ant1-2437-0~Reference--2.49



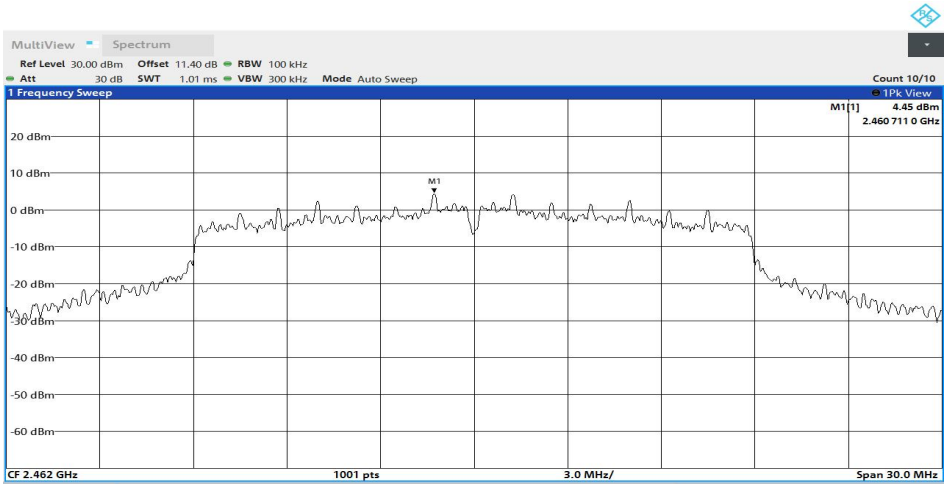
11N20SISO-Ant1-2437-30~1000--2.49



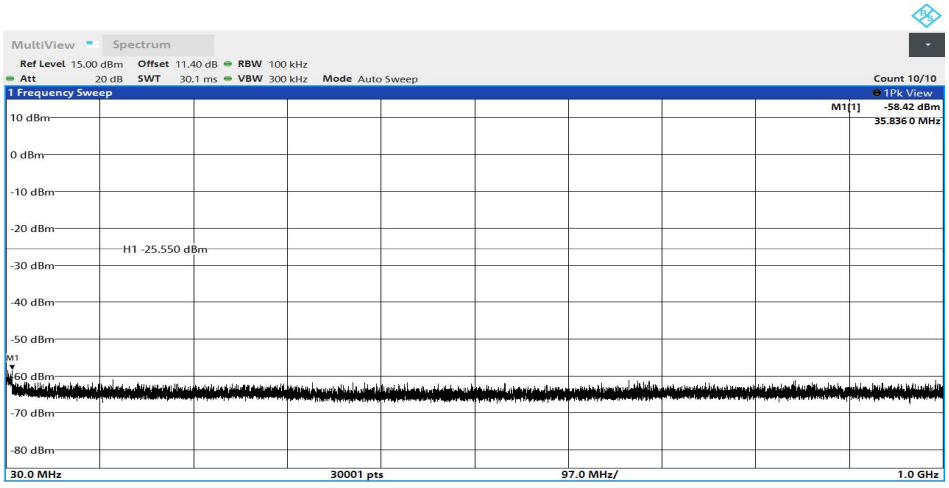
11N20SISO-Ant1-2437-1000~26500--2.49



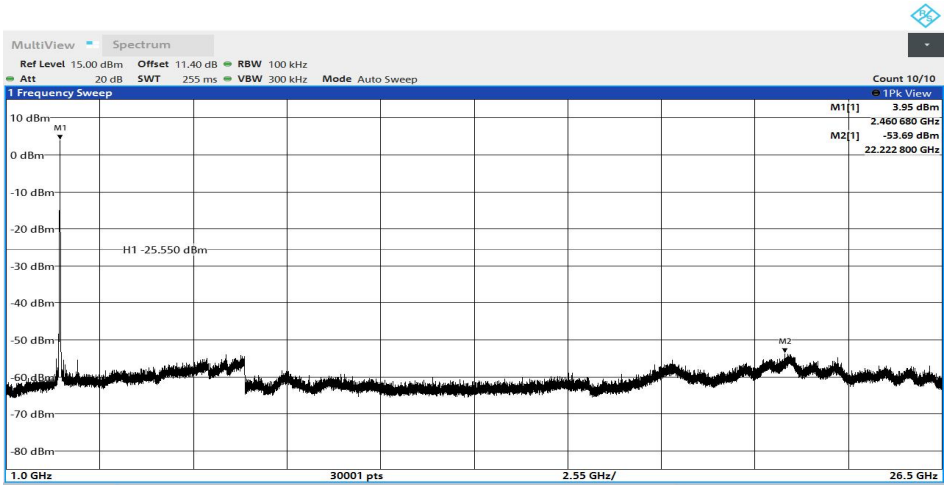
11N20SISO-Ant1-2462-0~Reference--0.40



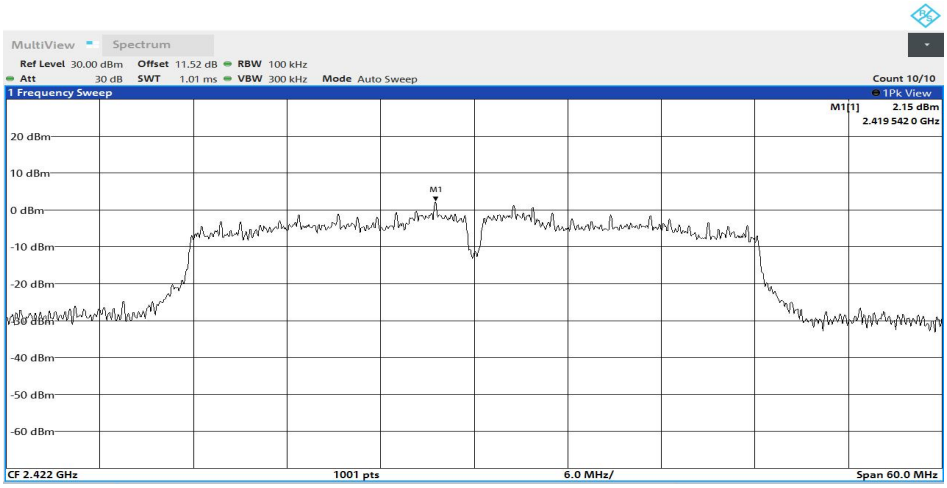
11N20SISO-Ant1-2462-30~1000--0.40



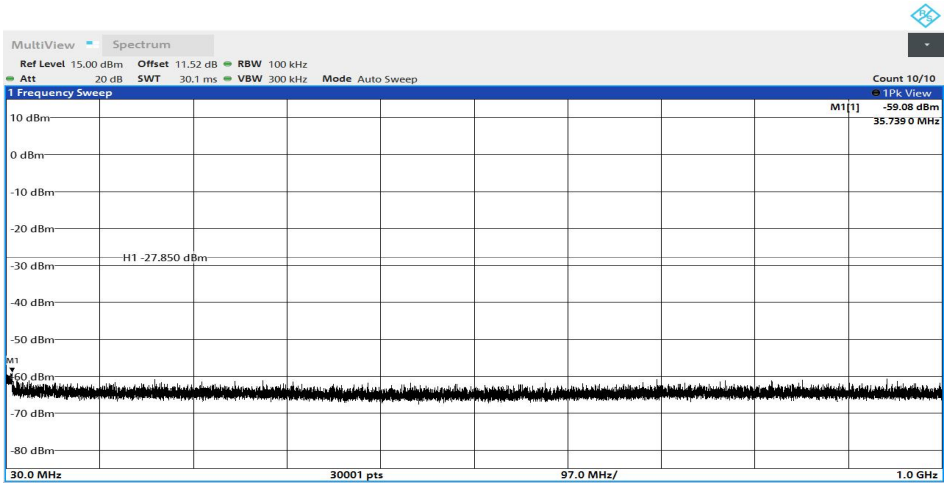
11N20SISO-Ant1-2462-1000~26500--0.40



11N40SISO-Ant1-2422-0~Reference-2.15



11N40SISO-Ant1-2422-30~1000-2.15



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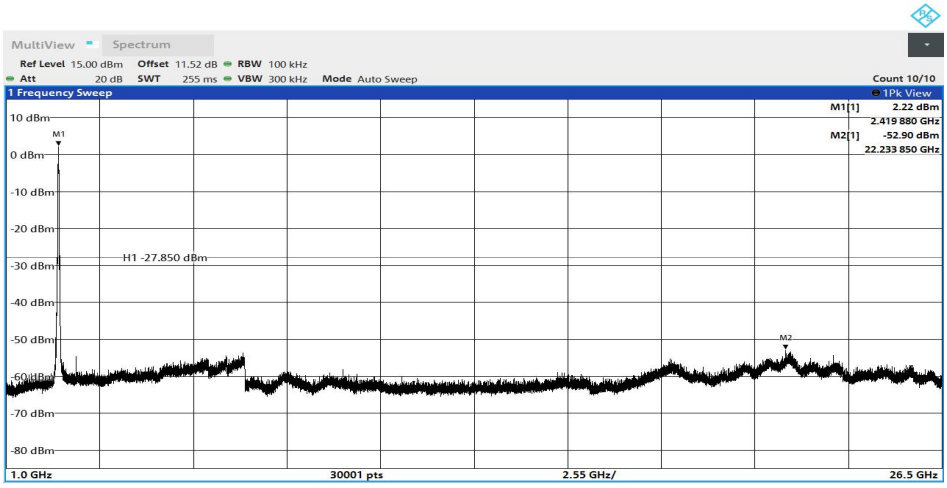
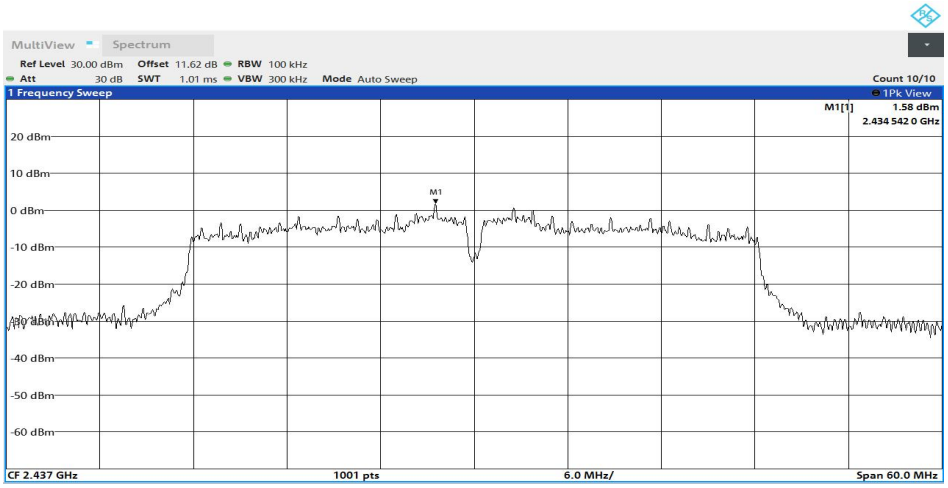
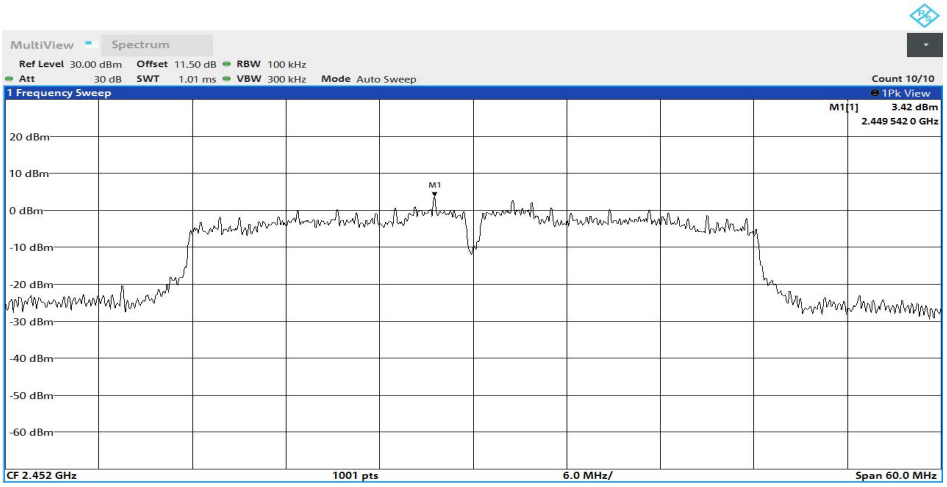


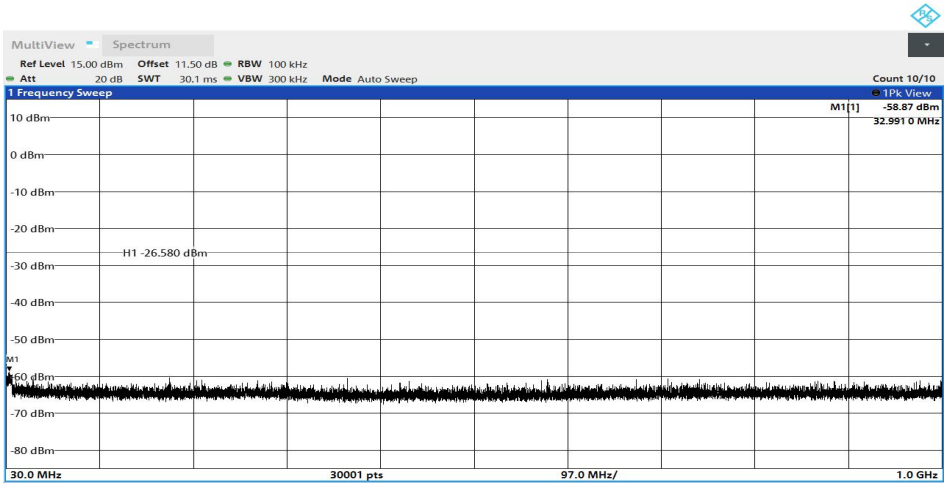
11N40SISO-Ant1-2437-0~Reference-1.58



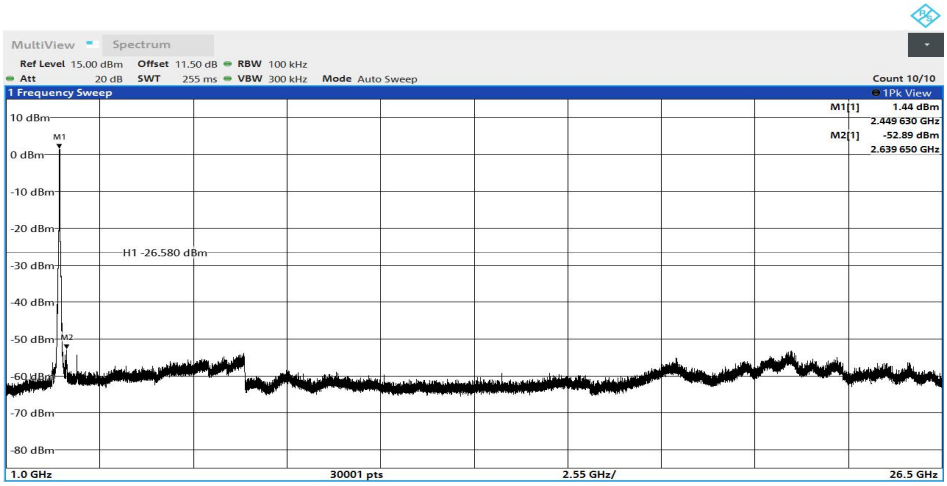
11N40SISO-Ant1-2452-0~Reference-3.42



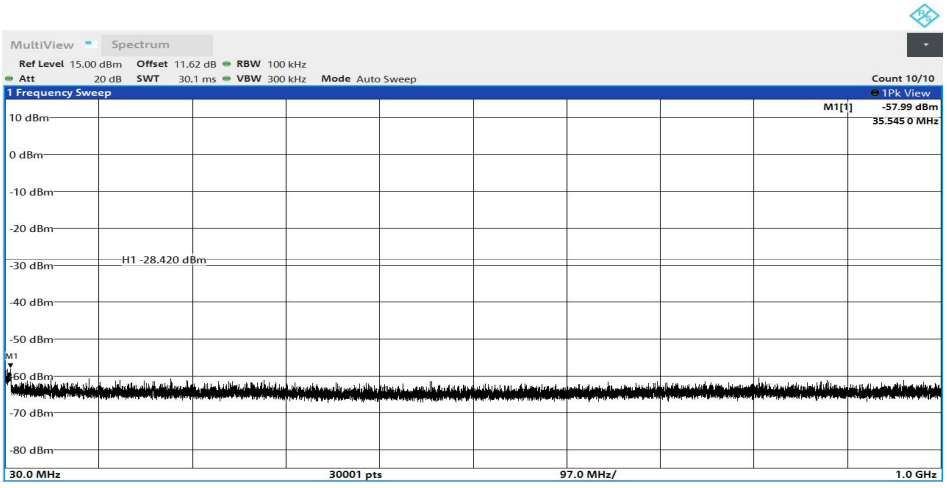
11N40SISO-Ant1-2452-30~1000-3.42



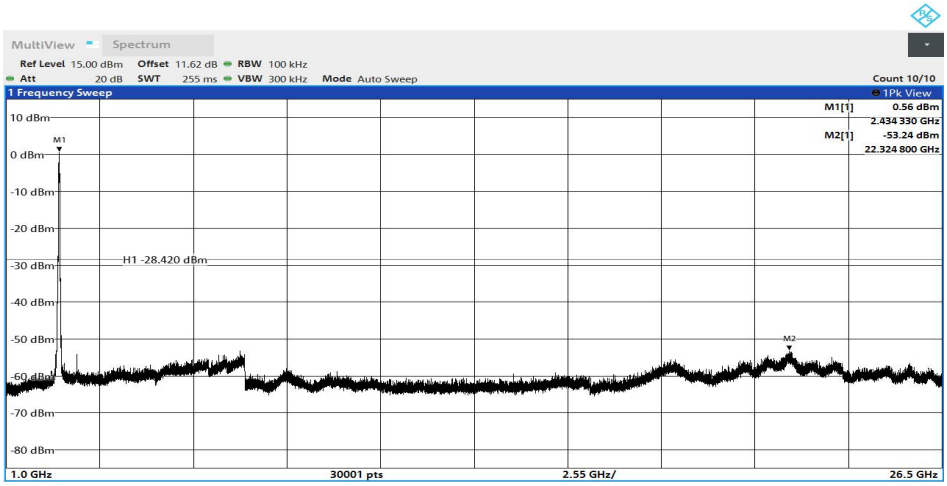
11N40SISO-Ant1-2452-1000~26500-3.42



11N40SISO-Ant1-2437-30~1000-1.58



11N40SISO-Ant1-2437-1000~26500-1.58



Note: 1. The out-of- limit signal in the picture is the main frequency signal.

2. The test data below 30MHz is more than 20dB lower than the limit value, so it is not provided in the report.

6.7. Transmitter Spurious Emission-Radiated

Specifications:	FCC 47 Part 15.247,15.205,15.209
DUT Serial Number:	S2
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247,15.205,15.209	20dB below peak output power

Measurement Uncertainty:

Measurement Uncertainty	30MHz-1000MHz: 4.09 dB(MAX) (k=2). 1000MHz-6000MHz : 4.84 dB (k=2). 6000MHz-18000MHz : 4.52 dB (k=2).

In addition, radiated emissions which fall in the restricted bands, as defined in 25.205(a), must also comply with the radiated emission limits specified in 15.209(a)(see 15.205(c)).

The measurement is according to ANSI C63.10 clause 11.11 and 11.12.

Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009~0.49	2400/F (kHz)	129-94
0.49~1.705	24000/F (kHz)	74-63
1.705~30	30	70
30~88	100	40
88~216	150	43.5
216~960	200	46
Above 960	500	54

Test procedures

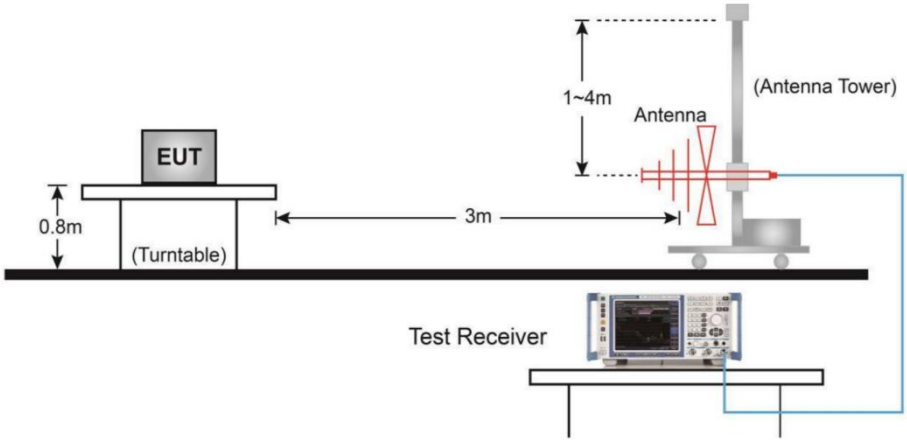
Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a nonconducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI C63.4-2013 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During testing, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emission from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

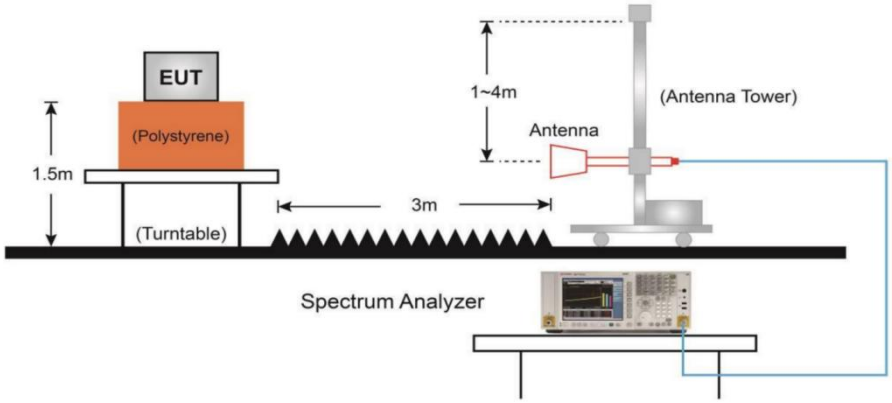
Frequency of emission	RBW/VBW	Sweep Time (s)
0.009~30	9KHz/30KHz	Auto
30~1000	100KHz/300KHz	5
1000~4000	1MHz/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

Test Setup

Below 1GHz Test Setup



Above 1GHz Test Setup



Frequency of emission (MHz)	RBW/VBW	Sweep Times (s)
30~1000	100KHz/300KHz	5
1000~4000	1MHz/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

Measurement Results

A "reference path loss" is established and A_{Rpi} is the attenuation of "reference path loss", and including the gain of receive antenna , the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

A_{Rpi} = Cable loss + Antenna Factor-Preamplifier gain

Result = PMea + Cable loss + Antenna Factor-Preamplifier gain = PMea + ARpi .

The test data below 30MHz is more than 20dB lower than the limit value, so it is not provided in the report.

Main Supply

<table>
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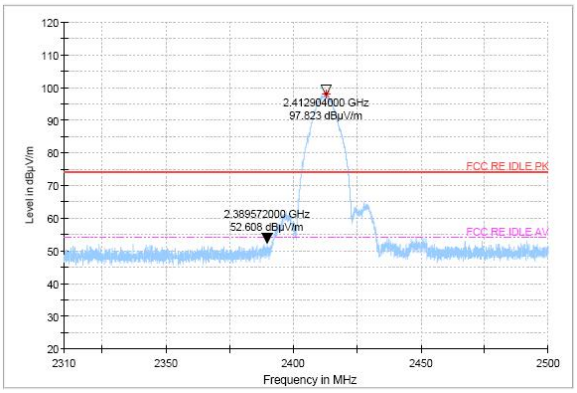
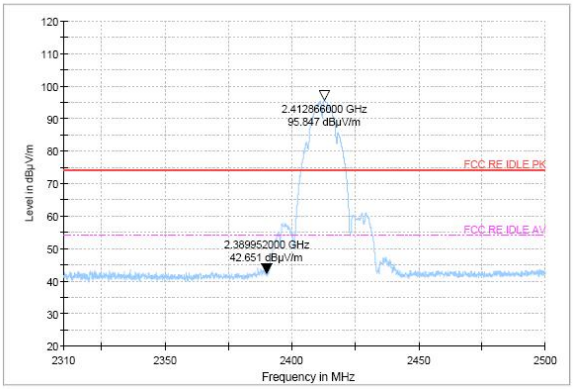
<tr><td>Peak detector</td><td>AV detector</td></tr>
<tr><td> 
</td><td> 
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<tr><td colspan="2">Band edge: 802.11b, high channel</td></tr>
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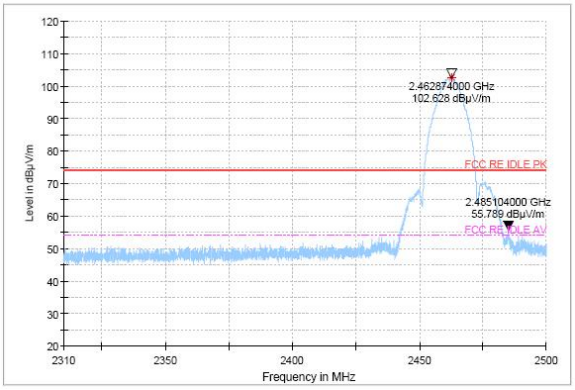
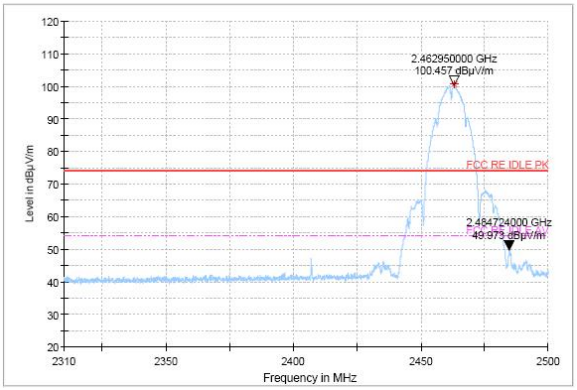
<tr><td> 
</td><td> 
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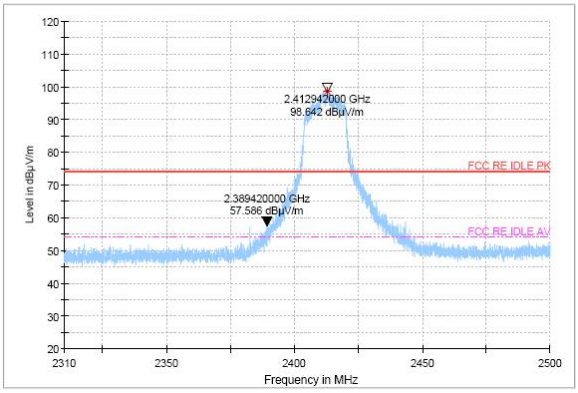
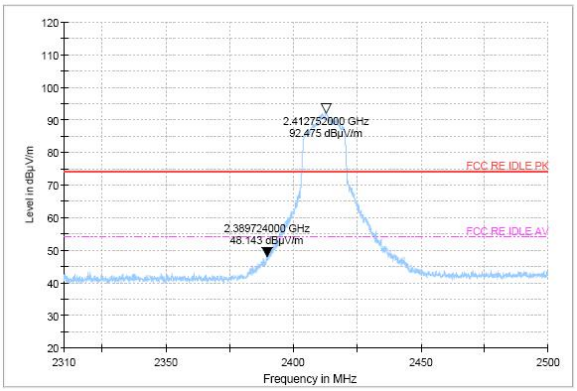
Band edge: 802.11g, low channel	
Peak detector	AV detector
	
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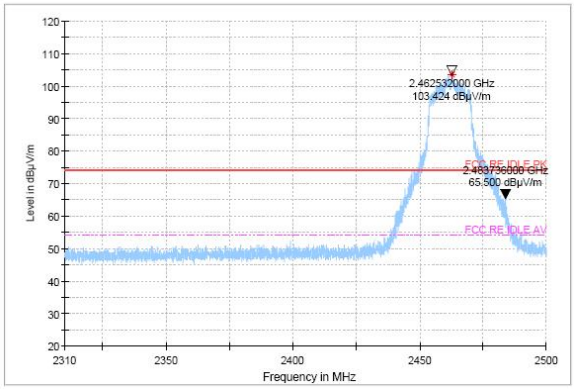
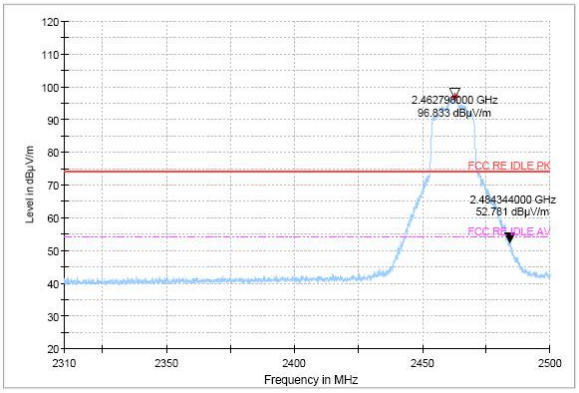
Peak detector	AV detector
	
Band edge: 802.11n, low channel	
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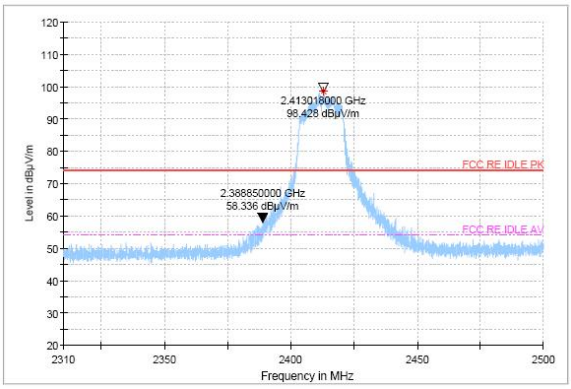
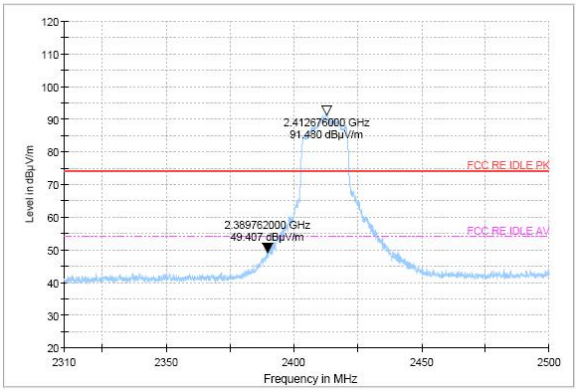
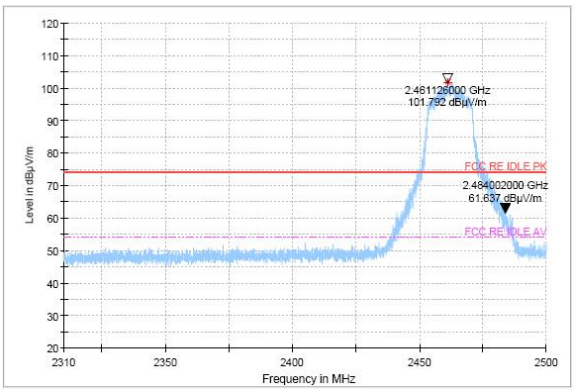
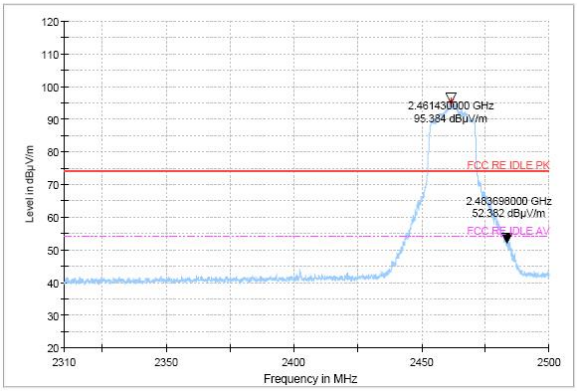
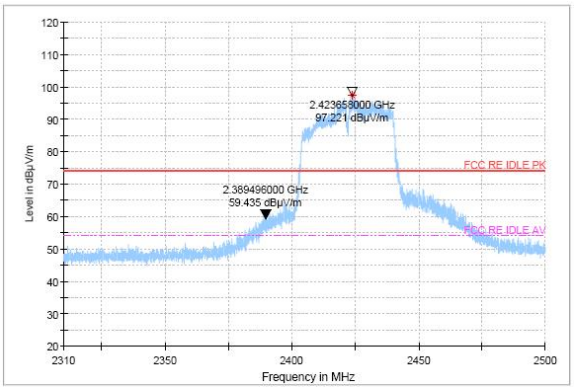
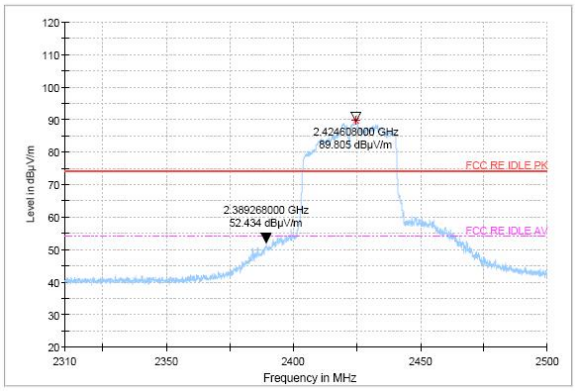
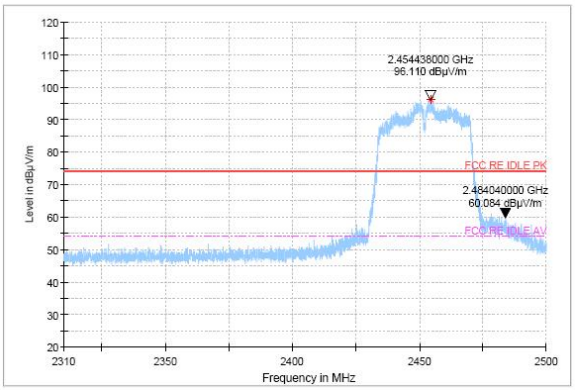
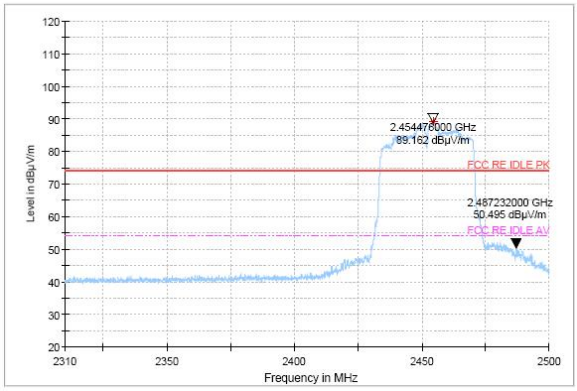
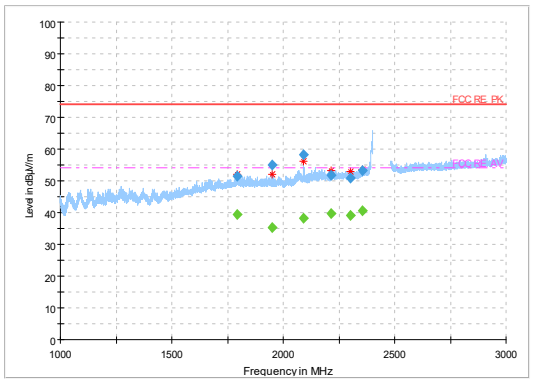
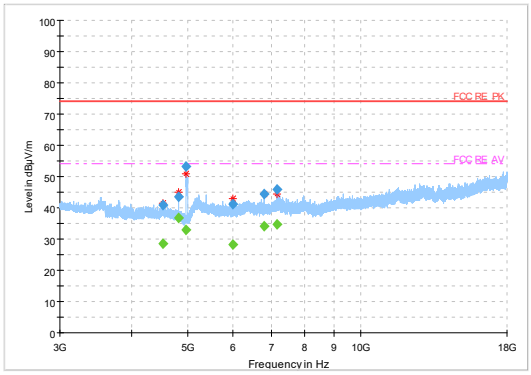
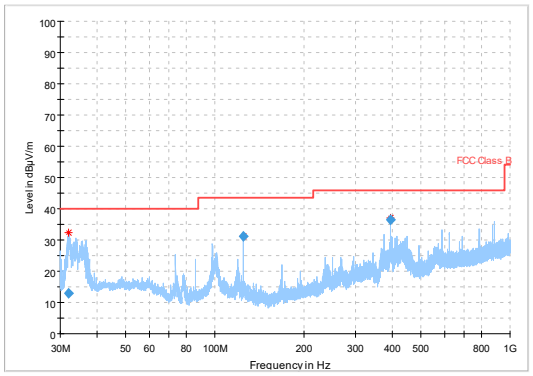
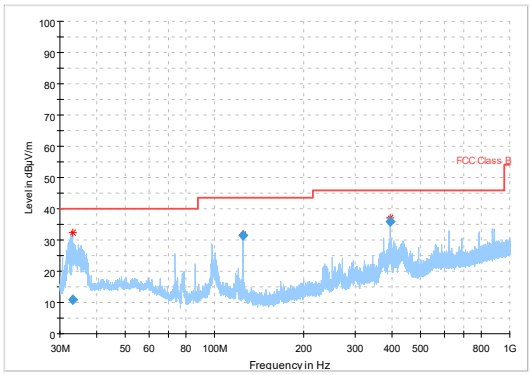
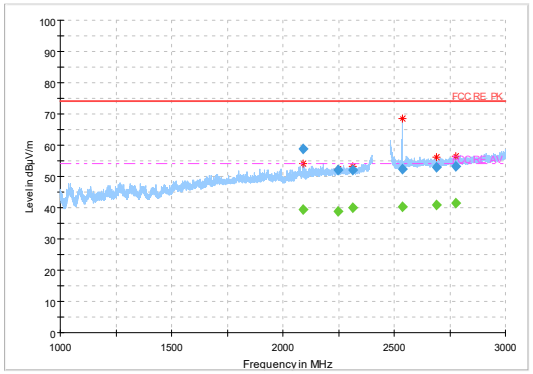
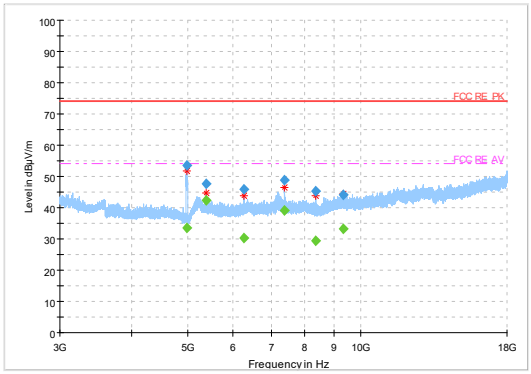
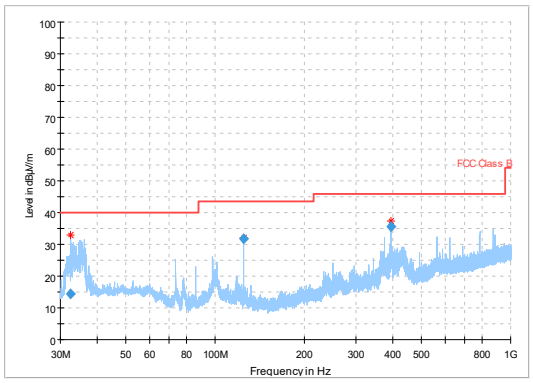
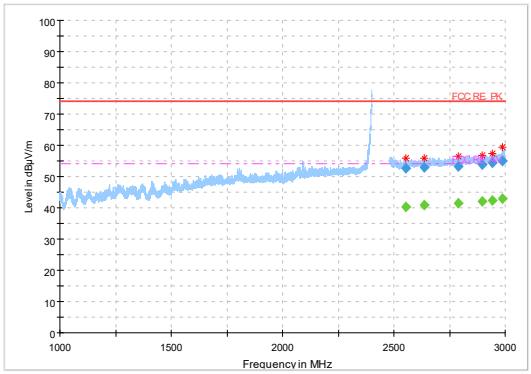
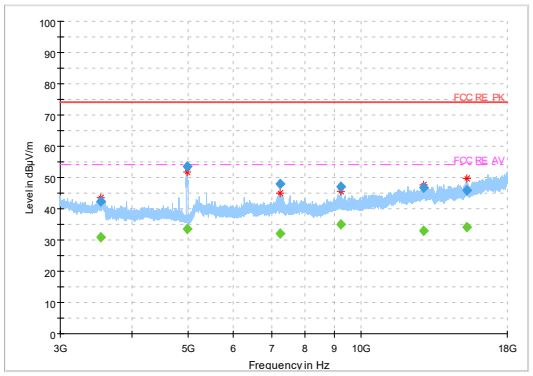
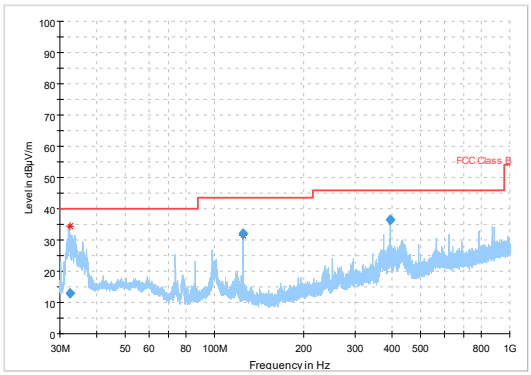
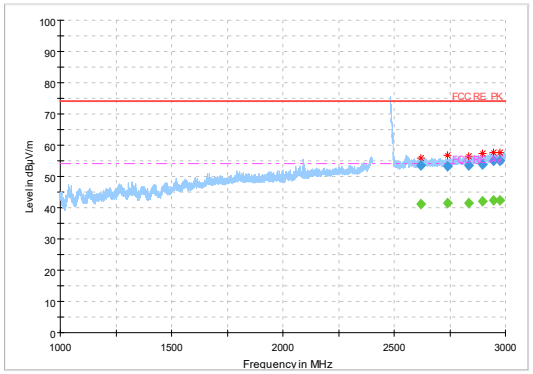
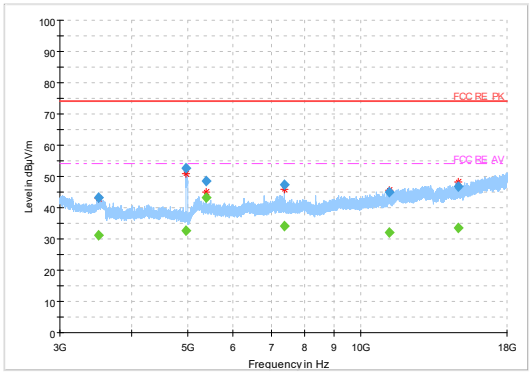
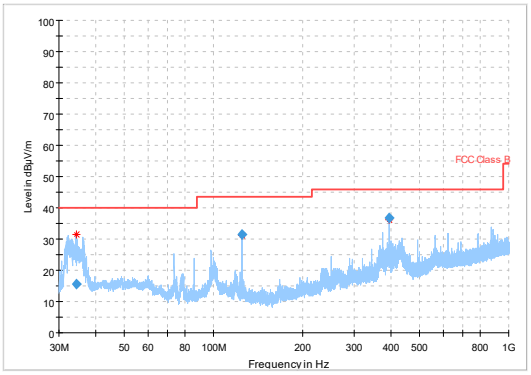
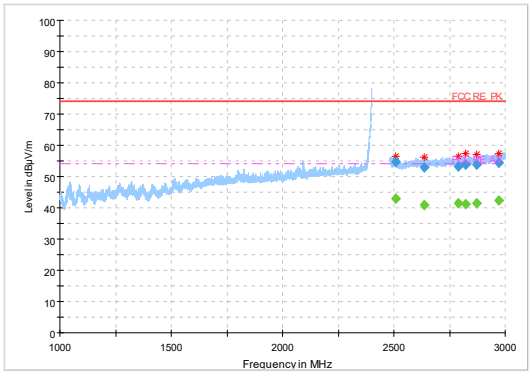
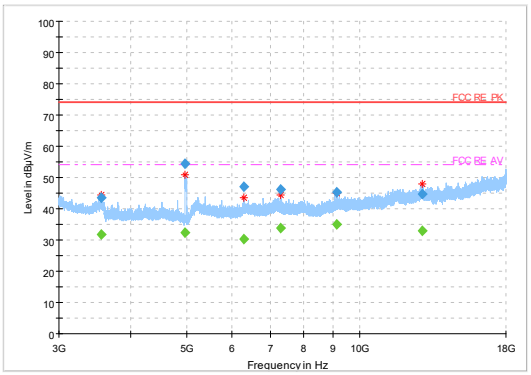
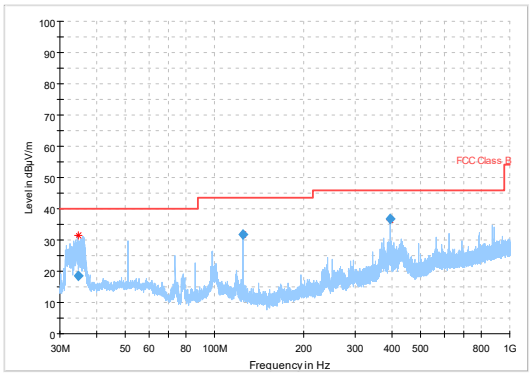
	

Band edge: 802.11n, high channel	
Peak detector	AV detector
	
Band edge: 802.11n(40M), low channel	
Peak detector	AV detector
	
Band edge: 802.11n(40M), high channel	
Peak detector	AV detector
	

Radiated Spurious Emission (802.11b, Ch1,1GHz~3GHz)	Radiated Spurious Emission (802.11b, Ch1,3GHz~18GHz)
	
Radiated Spurious Emission (802.11b, Ch1, 30M~1GHz)	Radiated Spurious Emission (802.11b, Ch11,30MHz~1GHz)
	
Radiated Spurious Emission (802.11b, Ch11,1GHz~3GHz)	Radiated Spurious Emission (802.11b, Ch11, 3GHz~18GHz)
	

Radiated Spurious Emission (802.11g, Ch1,30MHz~1GHz)	Radiated Spurious Emission (802.11g, Ch1,1GHz~3GHz)
	
Radiated Spurious Emission (802.11g, Ch1, 3GHz~18GHz)	**Radiated Spurious Emission (802.11g, Ch11,30MHz~1GHz)**
	
Radiated Spurious Emission (802.11g, Ch11,1GHz~3GHz)	**Radiated Spurious Emission (802.11g, Ch11, 3GHz~18GHz)**
	

Radiated Spurious Emission (802.11n, Ch1,30MHz~1GHz)	Radiated Spurious Emission (802.11n, Ch1,1GHz~3GHz)
	
Radiated Spurious Emission (802.11n, Ch1, 3GHz~18GHz)	**Radiated Spurious Emission (802.11n, Ch11,30MHz~1GHz)**
	
Radiated Spurious Emission (802.11n, Ch11,1GHz~3GHz)	**Radiated Spurious Emission (802.11n, Ch11, 3GHz~18GHz)**