

802.11n (HT20) Modulation

Lowest channel



Middle channel



Highest channel



802.11n (HT40) Modulation

Lowest channel



Middle channel



Highest channel



For MIMO antenna port 1+antenna port 2

TX 802.11b Mode			
Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	/	8	/
2437 MHz	/	8	/
2462 MHz	/	8	/
TX 802.11g Mode			
2412 MHz	/	8	/
2437 MHz	/	8	/
2462 MHz	/	8	/
TX 802.11n/HT20 Mode			
2412 MHz	-8.32	8	PASS
2437 MHz	-7.85	8	PASS
2462 MHz	-7.23	8	PASS
TX 802.11n/HT40 Mode			
2422 MHz	-13.37	8	PASS
2437 MHz	-10.13	8	PASS
2452 MHz	-11.30	8	PASS

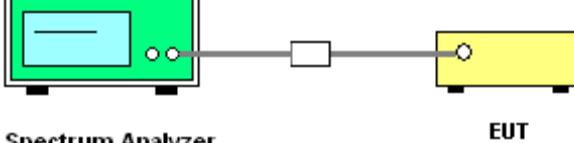
Note: 1 According to KDB 662911, Result power = $10\log(10^{(\text{ant1}/10)} + 10^{(\text{ant2}/10)})$.

2 Result unit: W, The end result is converted to units of dBm.

Note: This product supports antenna 1 and antenna 2 launch, but only support 802.11 n for MIMO mode, not support 802.11 b and 802.11 g for MIMO mode.

6.5. Conducted Band Edge and Spurious Emission Measurement

6.5.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
Test Setup:	 <p>The diagram illustrates the test setup. A green rectangular box labeled "Spectrum Analyzer" is connected to a yellow rectangular box labeled "EUT" (Equipment Under Test) via a grey horizontal line representing an RF cable. A small white square component is positioned between the two boxes, likely representing an attenuator.</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04. 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d). 5. Measure and record the results in the test report. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
Test Result:	PASS

6.5.2. Test Instruments

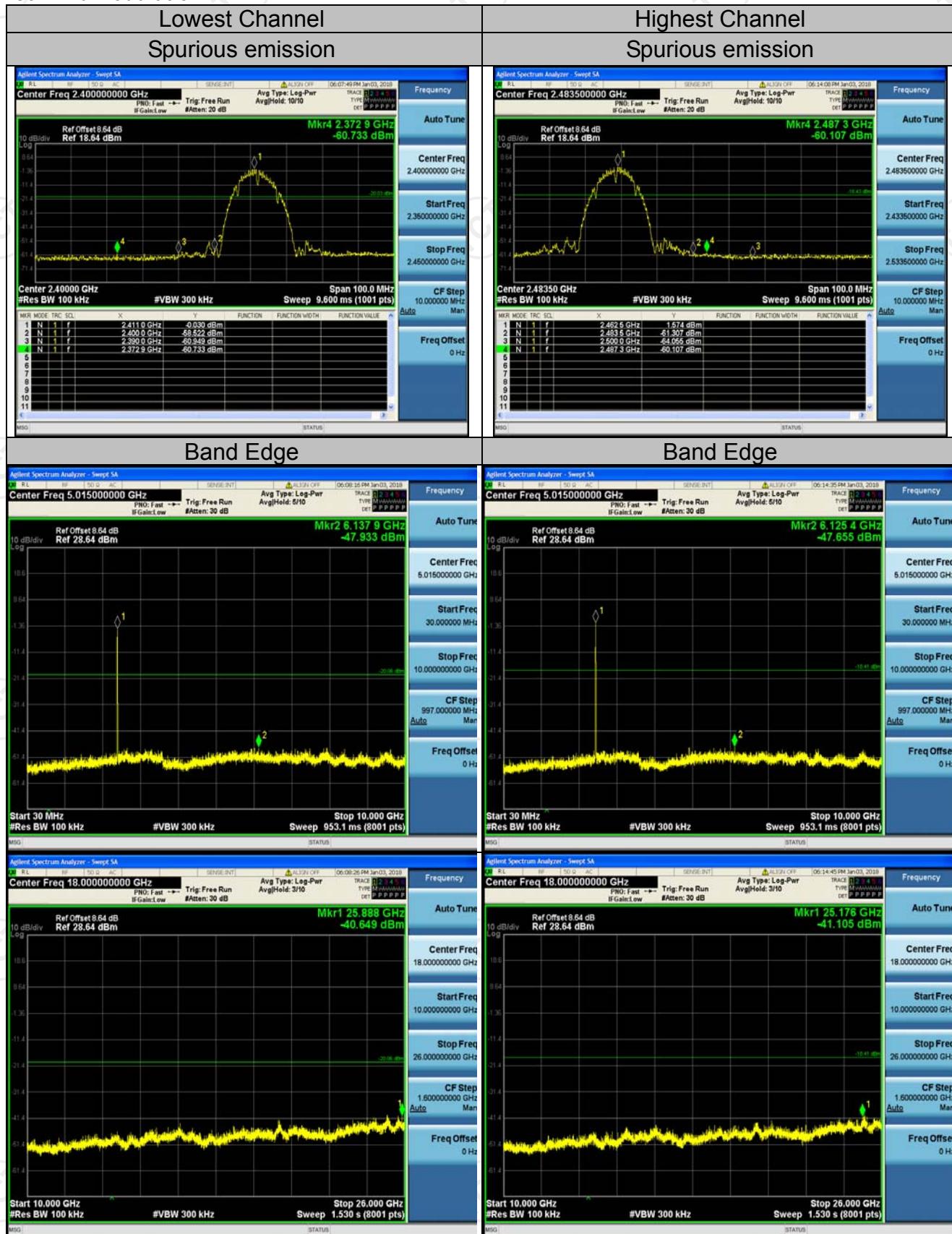
RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHWARZ	FSQ	200061	Sep. 27, 2018
RF Cable (9KHz-26.5GHz)	TCT	RE-06	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-01	N/A	Sep. 27, 2018

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.5.3. Test Data

Chain 1

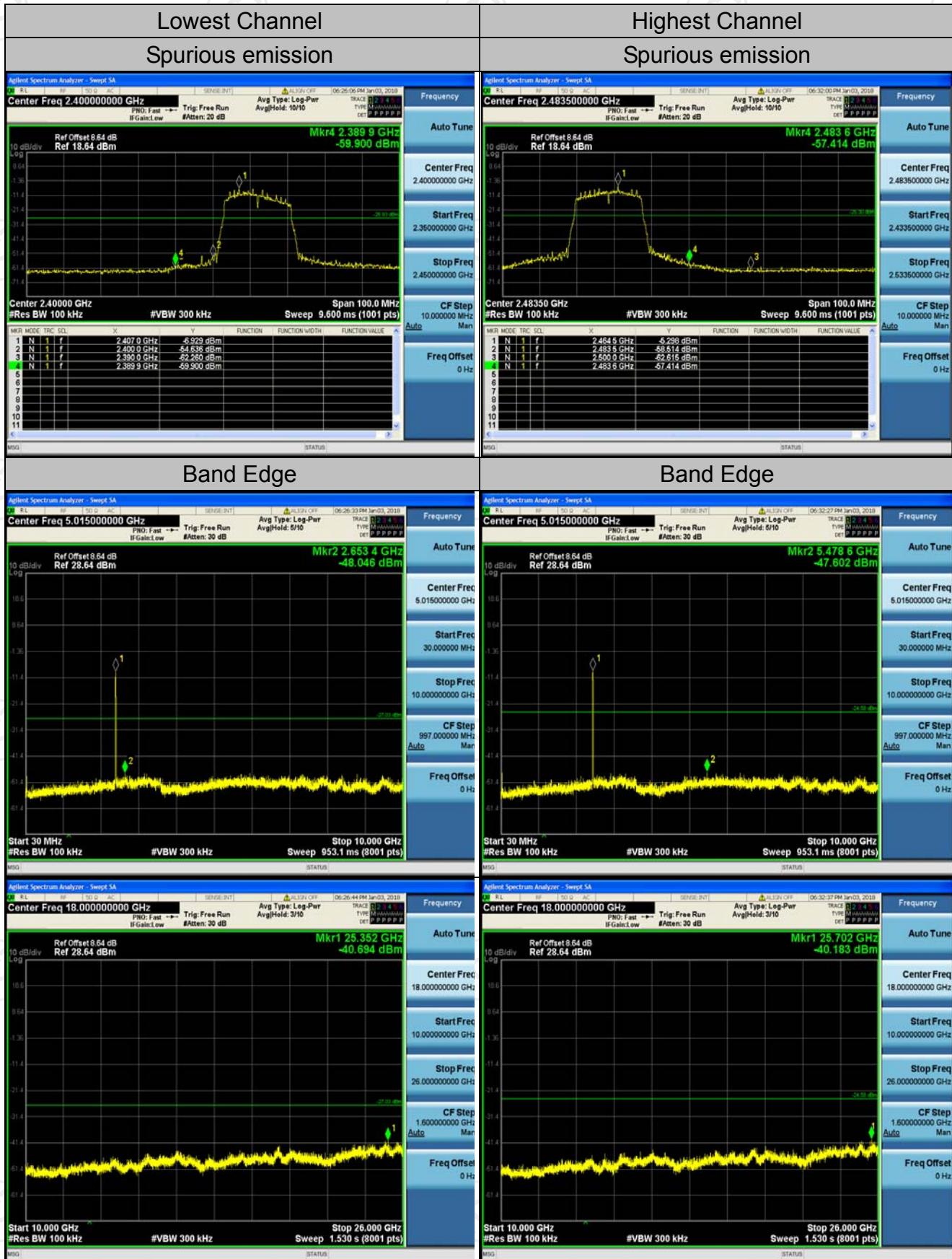
802.11b Modulation



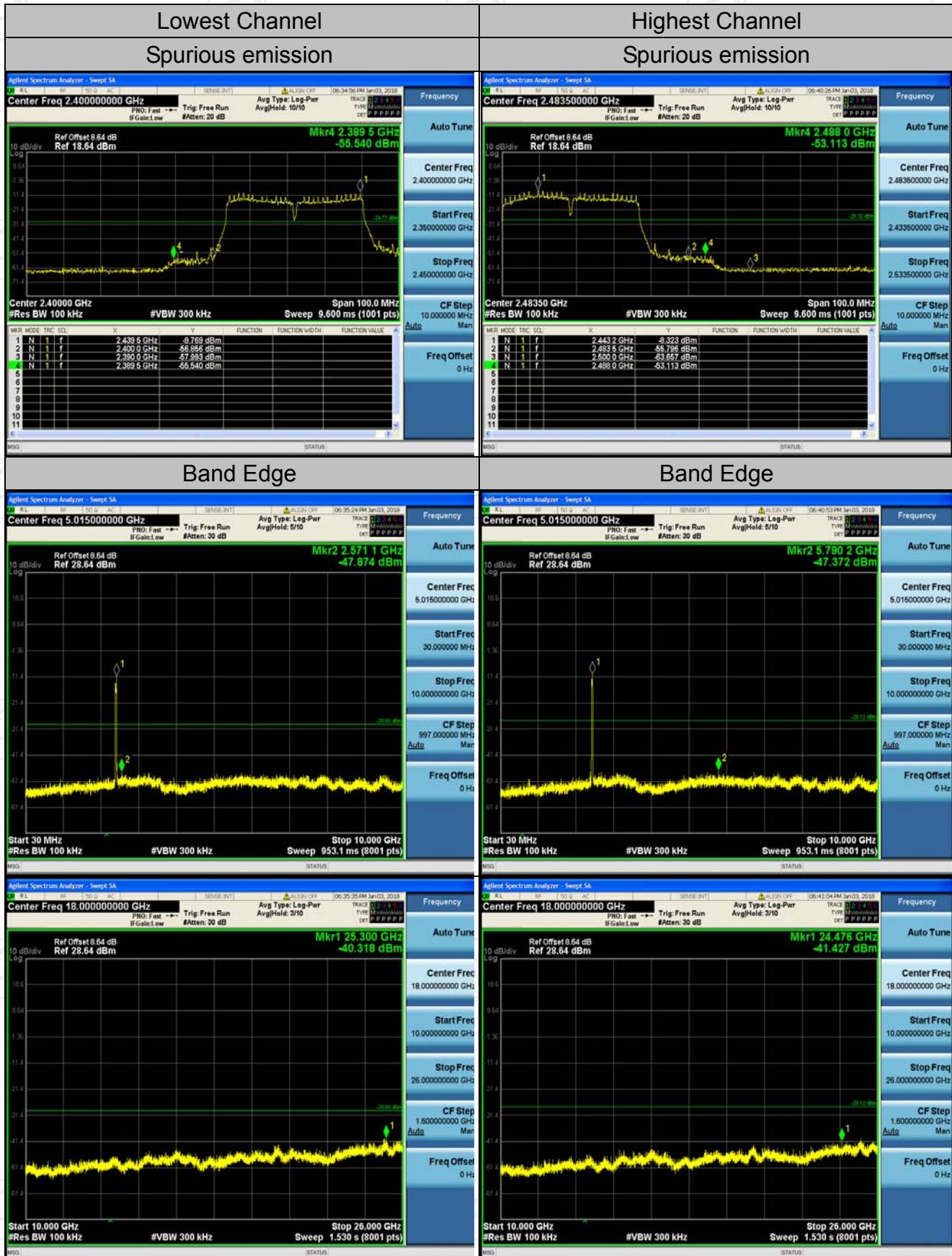
802.11g Modulation



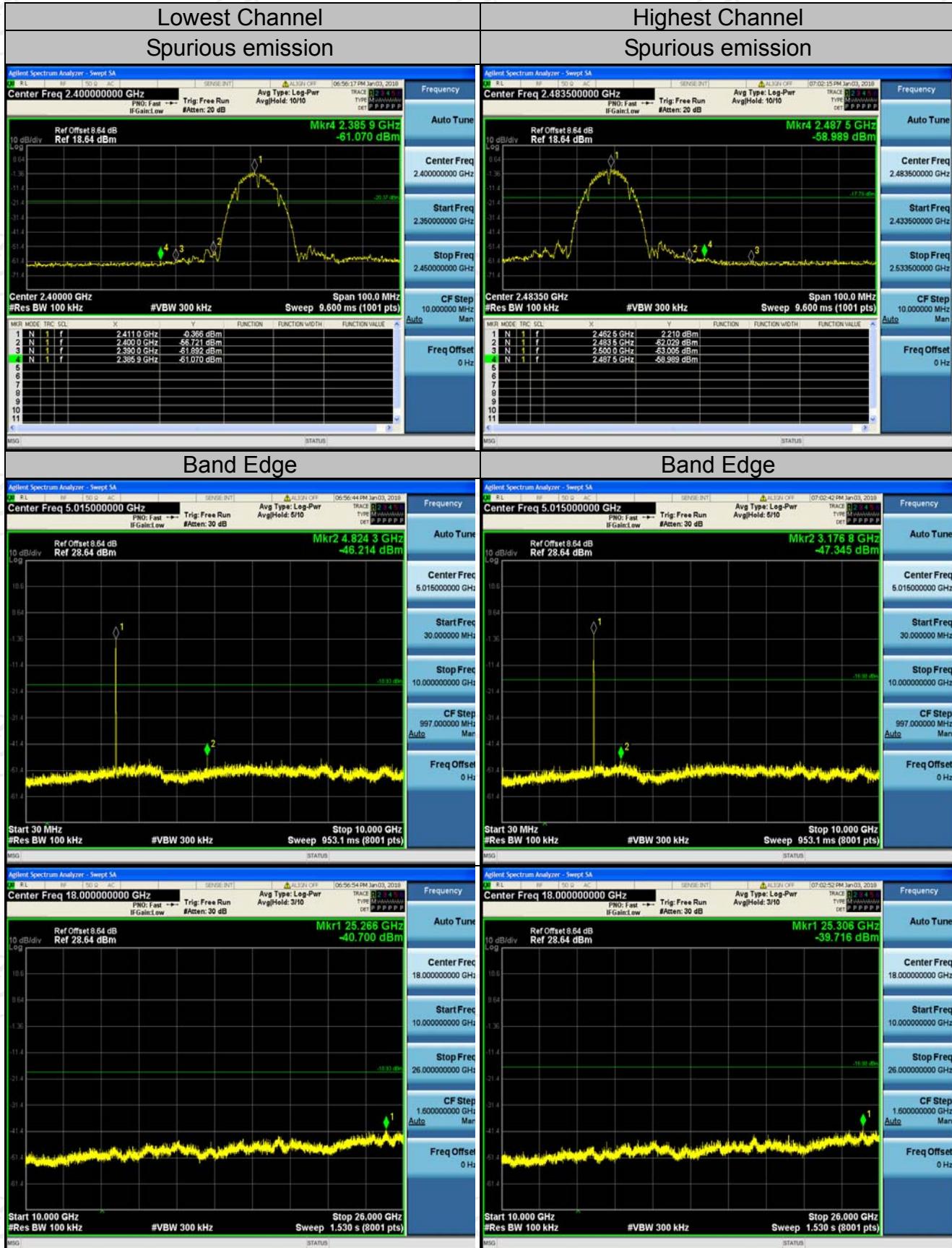
802.11n (HT20) Modulation



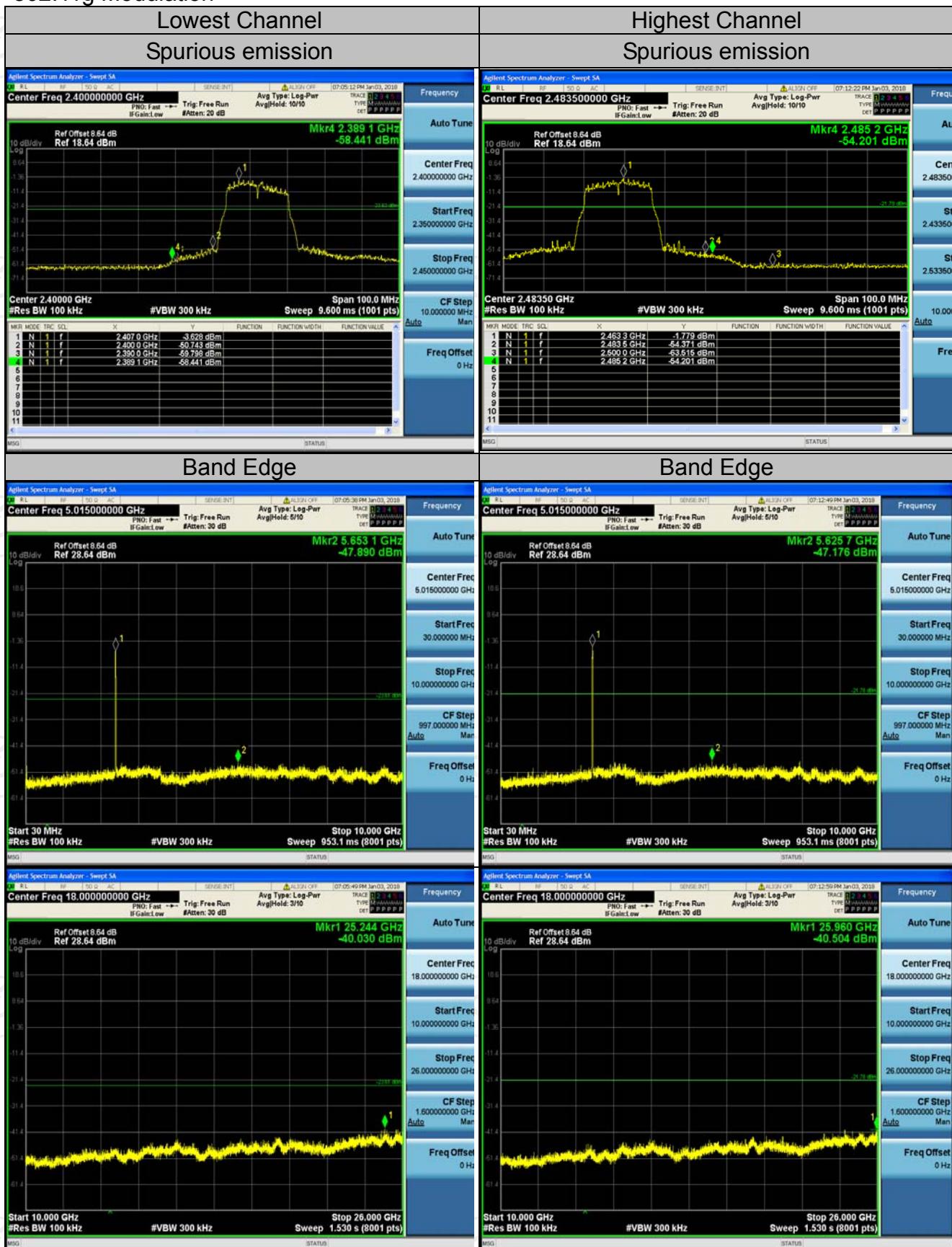
802.11n (HT40) Modulation



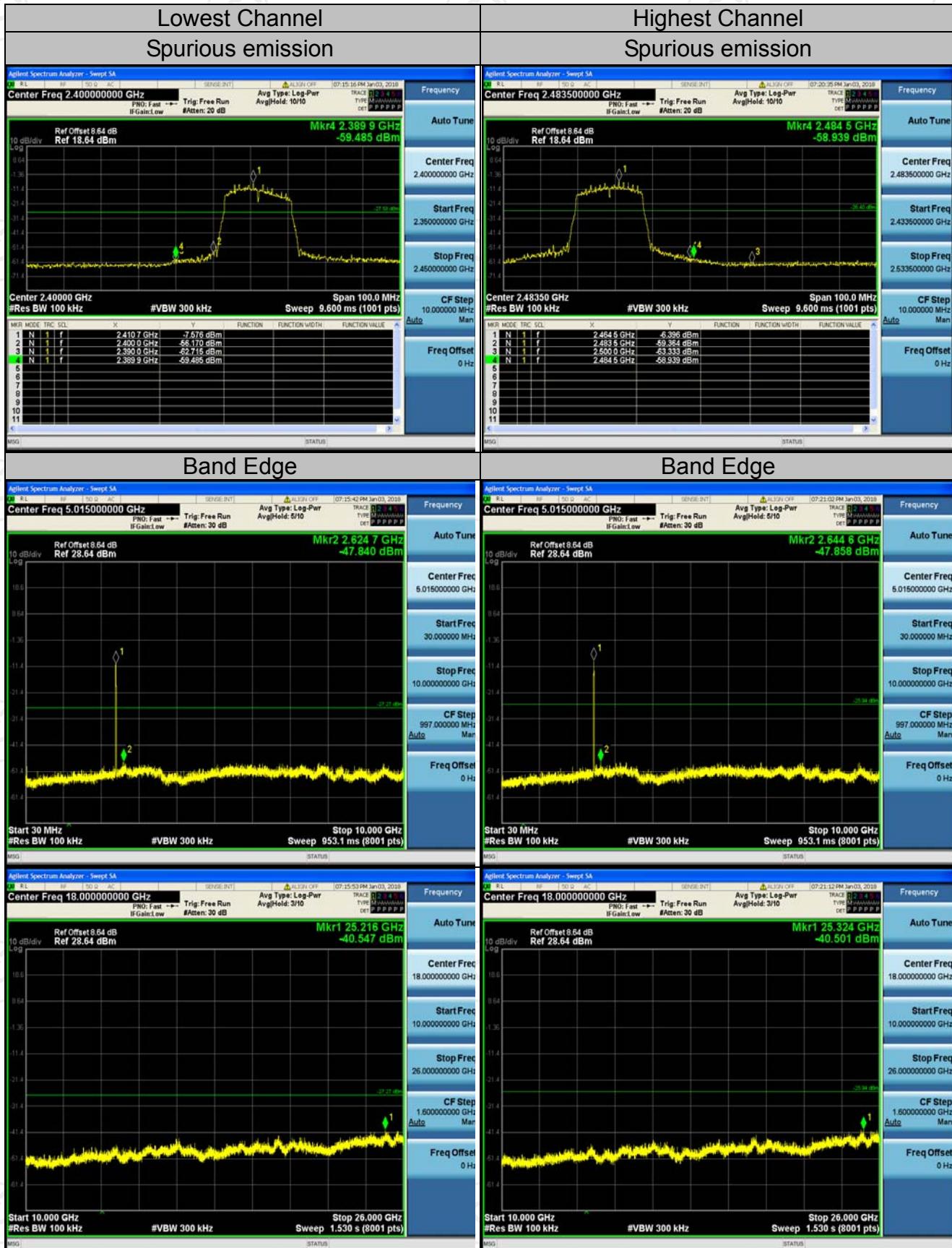
Chain 2 802.11b Modulation



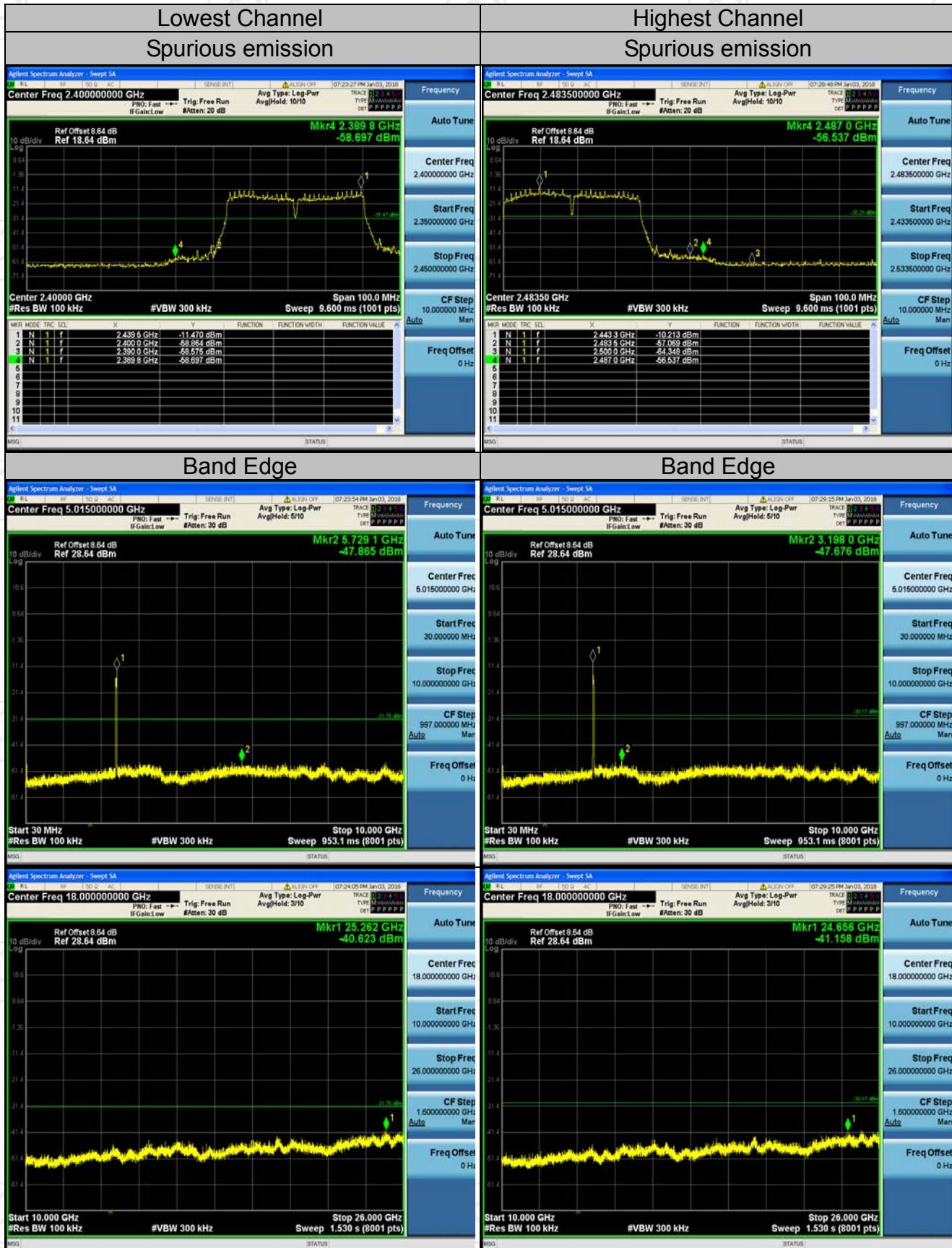
802.11g Modulation



802.11n (HT20) Modulation

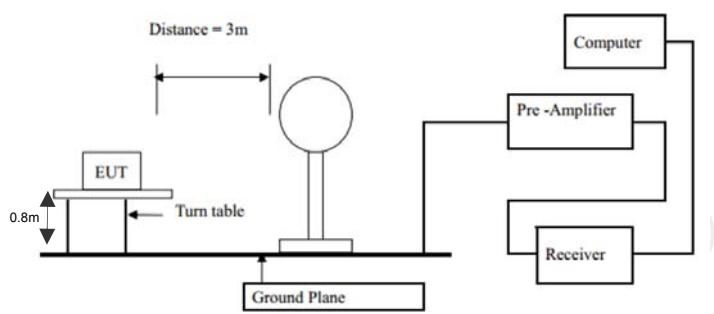


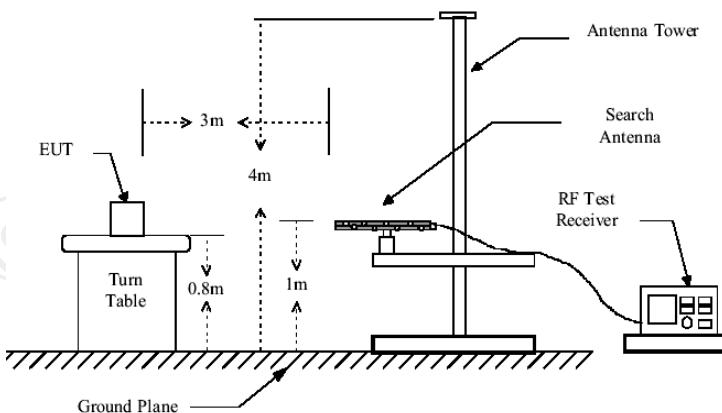
802.11n (HT40) Modulation



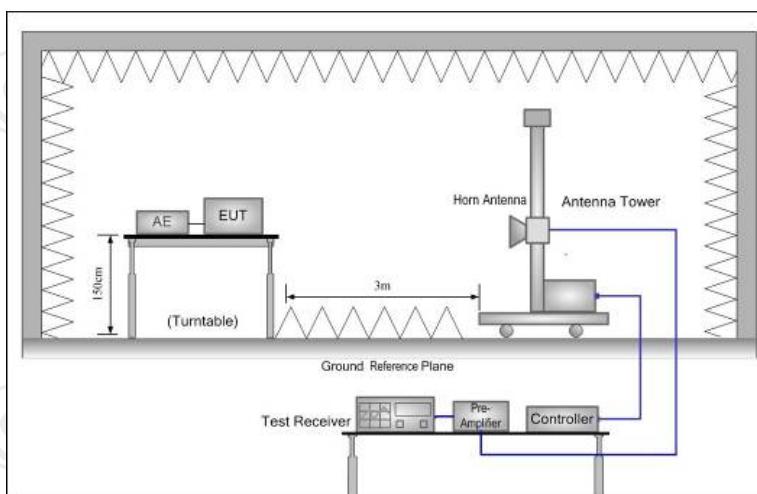
6.6. Radiated Spurious Emission Measurement

6.6.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209																																															
Test Method:	ANSI C63.10: 2013																																															
Frequency Range:	9 kHz to 25 GHz																																															
Measurement Distance:	3 m																																															
Antenna Polarization:	Horizontal & Vertical																																															
Operation mode:	Transmitting mode with modulation																																															
Receiver Setup:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Detector</th> <th>RBW</th> <th>VBW</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>9kHz- 150kHz</td> <td>Quasi-peak</td> <td>200Hz</td> <td>1kHz</td> <td>Quasi-peak Value</td> </tr> <tr> <td>150kHz- 30MHz</td> <td>Quasi-peak</td> <td>9kHz</td> <td>30kHz</td> <td>Quasi-peak Value</td> </tr> <tr> <td>30MHz-1GHz</td> <td>Quasi-peak</td> <td>100KHz</td> <td>300KHz</td> <td>Quasi-peak Value</td> </tr> <tr> <td rowspan="2">Above 1GHz</td><td>Peak</td> <td>1MHz</td> <td>3MHz</td> <td>Peak Value</td> </tr> <tr> <td>Peak</td> <td>1MHz</td> <td>10Hz</td> <td>Average Value</td> </tr> </tbody> </table>					Frequency	Detector	RBW	VBW	Remark	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value														
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Frequency	Field Strength (microvolts/meter)	Measurement Distance (meters)	Detector																																													
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0.490-1.705	24000/F(KHz)	30																																														
1.705-30	30	30																																														
30-88	100	3																																														
88-216	150	3																																														
216-960	200	3																																														
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Above 1GHz	500	3	Average																																													
	5000	3	Peak																																													
Test setup:	<p>For radiated emissions below 30MHz</p>  <p>Distance = 3m</p> <p>EUT</p> <p>Turn table</p> <p>Ground Plane</p> <p>Computer</p> <p>Pre -Amplifier</p> <p>Receiver</p> <p>30MHz to 1GHz</p>																																															



Above 1GHz



- Test Procedure:**
- For the radiated emission test below 1GHz:
The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.
 - For the radiated emission test above 1GHz:
Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for

	<p>receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.</p> <p>3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level</p> <p>4. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.</p> <p>5. Use the following spectrum analyzer settings:</p> <ul style="list-style-type: none">(1) Span shall wide enough to fully capture the emission being measured;(2) Set RBW=100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;(3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. <p>For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</p>
Test results:	PASS

6.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESVD	100008	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ	200061	Sep. 27, 2018
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 27, 2018
Pre-amplifier	HP	8447D	2727A05017	Sep. 27, 2018
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBH 9170	582	Jun. 07, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
Coax cable (9KHz-1GHz)	TCT	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	TCT	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9KHz-1GHz)	TCT	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9KHz-40GHz)	TCT	RE-high-04	N/A	Sep. 27, 2018
EMI Test Software	Shurples Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.6.3. Test Data

Frequency Range (9 kHz-30MHz)

test mode: TX 802.11b 2412MHz

All the test modes completed for test. The worst case of Radiated Emission; the test data of this mode was reported.

Frequency (MHz)	Level@3m (dB μ V/m)	Limit@3m (dB μ V/m)
--	--	--
--	--	--
--	--	--
--	--	--

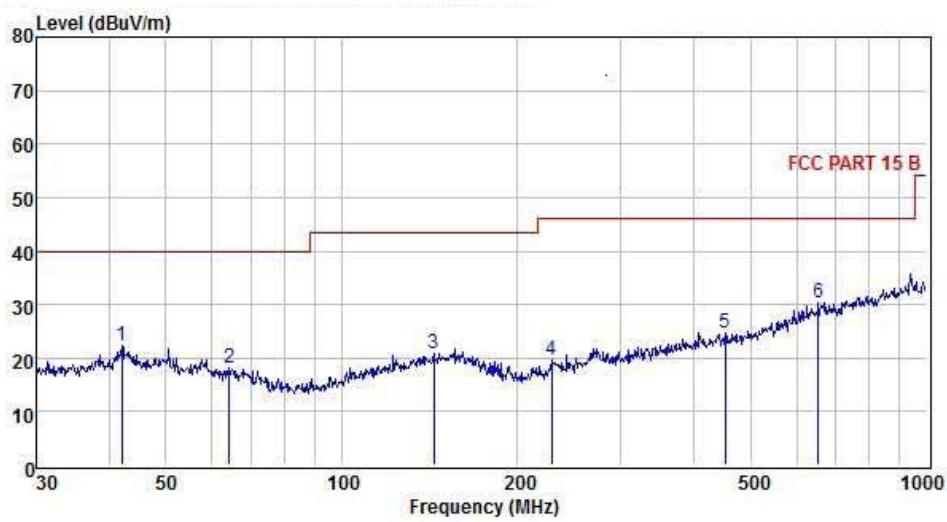
Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

Please refer to following diagram for individual
Below 1GHz

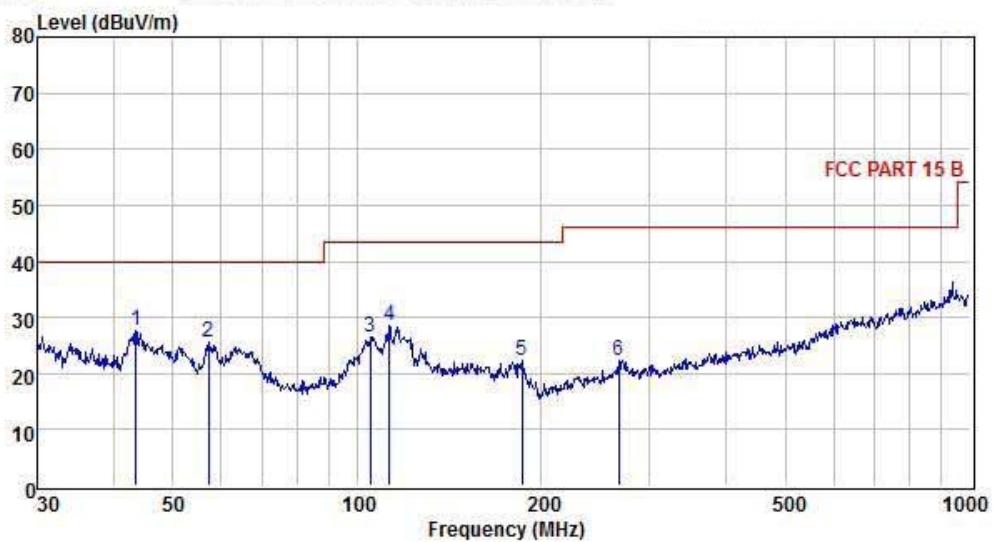
test mode: TX 802.11b 2412MHz

All the test modes completed for test. The worst case of Radiated Emission; the test data of this mode was reported.

Horizontal


Item	Condition : FCC PART 15 B			POL: HORIZONTAL					
	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	42.01	38.61	13.93	30.40	0.19	22.33	40.00	-17.67	Peak
2	64.21	36.50	11.98	30.52	0.24	18.20	40.00	-21.80	Peak
3	143.83	36.06	13.77	29.39	0.38	20.82	43.50	-22.68	Peak
4	228.49	36.09	11.10	28.14	0.55	19.60	46.00	-26.40	Peak
5	452.72	35.02	16.01	27.52	1.15	24.66	46.00	-21.34	Peak
6	654.23	35.55	19.14	25.52	1.11	30.28	46.00	-15.72	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Vertical


Condition : FCC PART 15 B		POL: VERTICAL							
Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	43.51	44.12	13.79	30.40	0.09	27.60	40.00	-12.40	Peak
2	57.19	43.30	12.91	30.88	0.14	25.47	40.00	-14.53	Peak
3	104.90	45.33	10.74	30.04	0.36	26.39	43.50	-17.11	Peak
4	112.92	46.47	11.50	29.85	0.47	28.59	43.50	-14.91	Peak
5	185.79	39.74	10.95	28.98	0.57	22.28	43.50	-21.22	Peak
6	267.55	37.71	12.03	28.14	0.70	22.30	46.00	-23.70	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Above 1GHz

RADIATED EMISSION TEST

LOW CH1 (802.11b Mode)/2412

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	62.76	-3.64	59.12	74	-14.88	peak
4824	46.93	-3.64	43.29	54	-10.71	AVG
7236	57.18	-0.95	56.23	74	-17.77	peak
7236	45.65	-0.95	44.7	54	-9.3	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	62.59	-3.64	58.95	74	-15.05	peak
4824	46.34	-3.64	42.7	54	-11.3	AVG
7236	56.16	-0.95	55.21	74	-18.79	peak
7236	42.41	-0.95	41.46	54	-12.54	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

MID CH6 (802.11b Mode)/2437

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	62.62	-3.51	59.11	74	-14.89	peak
4874	46.25	-3.51	42.74	54	-11.26	AVG
7311	56.47	-0.82	55.65	74	-18.35	peak
7311	41.86	-0.82	41.04	54	-12.96	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	62.13	-3.51	58.62	74	-15.38	peak
4874	46.08	-3.51	42.57	54	-11.43	AVG
7311	56.37	-0.82	55.55	74	-18.45	peak
7311	41.54	-0.82	40.72	54	-13.28	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

HIGH CH11 (802.11b Mode)/2462

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	61.84	-3.43	58.41	74	-15.59	peak
4924	45.63	-3.43	42.2	54	-11.8	Avg
7386	55.77	-0.75	55.02	74	-18.98	peak
7386	41.39	-0.75	40.64	54	-13.36	Avg
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---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	61.46	-3.43	58.03	74	-15.97	peak
4924	45.38	-3.43	41.95	54	-12.05	Avg
7386	55.62	-0.75	54.87	74	-19.13	peak
7386	41.05	-0.75	40.3	54	-13.7	Avg
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---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.

LOW CH1 (802.11g Mode)/2412
Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	61.85	-3.64	58.21	74	-15.79	peak
4824	46.37	-3.64	42.73	54	-11.27	AVG
7236	55.84	-0.95	54.89	74	-19.11	peak
7236	41.25	-0.95	40.3	54	-13.7	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	62.38	-3.64	58.74	74	-15.26	peak
4824	46.52	-3.64	42.88	54	-11.12	AVG
7236	56.74	-0.95	55.79	74	-18.21	peak
7236	42.15	-0.95	41.2	54	-12.8	AVG
---	---	---	---	---	---	---
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

MID CH6 (802.11g Mode)/2437
Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	62.24	-3.51	58.73	74	-15.27	peak
4874	46.13	-3.51	42.62	54	-11.38	Avg
7311	56.11	-0.82	55.29	74	-18.71	peak
7311	41.85	-0.82	41.03	54	-12.97	Avg
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	61.96	-3.51	58.45	74	-15.55	peak
4874	46.35	-3.51	42.84	54	-11.16	Avg
7311	55.78	-0.82	54.96	74	-19.04	peak
7311	41.63	-0.82	40.81	54	-13.19	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

HIGH CH11 (802.11g Mode)/2462

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4924	62.04	-3.43	58.61	74	-15.39	peak
4924	46.21	-3.43	42.78	54	-11.22	Avg
7386	55.67	-0.75	54.92	74	-19.08	peak
7386	42.83	-0.75	42.08	54	-11.92	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4924	61.45	-3.43	58.02	74	-15.98	peak
4924	45.77	-3.43	42.34	54	-11.66	Avg
7386	55.32	-0.75	54.57	74	-19.43	peak
7386	41.16	-0.75	40.41	54	-13.59	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.

LOW CH1 (802.11n/H20 Mode)/2412
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4824	62.03	-3.64	58.39	74	-15.61	peak
4824	46.25	-3.64	42.61	54	-11.39	AVG
7236	55.48	-0.95	54.53	74	-19.47	peak
7236	41.67	-0.95	40.72	54	-13.28	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4824	61.46	-3.64	57.82	74	-16.18	peak
4824	45.72	-3.64	42.08	54	-11.92	AVG
7236	55.49	-0.95	54.54	74	-19.46	peak
7236	41.35	-0.95	40.4	54	-13.6	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

MID CH6 (802.11n/H20 Mode)/2437
Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874.00	61.25	-3.51	57.74	74.00	-16.26	peak
4874.00	46.08	-3.51	42.57	54.00	-11.43	AVG
7311.00	55.64	-0.82	54.82	74.00	-19.18	peak
7311.00	41.22	-0.82	40.40	54.00	-13.60	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874.00	60.59	-3.51	57.08	74.00	-16.92	peak
4874.00	45.37	-3.51	41.86	54.00	-12.14	AVG
7311.00	55.42	-0.82	54.60	74.00	-19.40	peak
7311.00	40.06	-0.82	39.24	54.00	-14.76	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

HIGH CH11 (802.11n/H20 Mode)/2462
Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	61.57	-3.43	58.14	74	-15.86	peak
4924	46.32	-3.43	42.89	54	-11.11	Avg
7386	55.71	-0.75	54.96	74	-19.04	peak
7386	41.08	-0.75	40.33	54	-13.67	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	60.35	-3.43	56.92	74	-17.08	peak
4924	45.18	-3.43	41.75	54	-12.25	Avg
7386	55.26	-0.75	54.51	74	-19.49	peak
7386	40.54	-0.75	39.79	54	-14.21	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

LOW CH3 (802.11n/H40 Mode)/2422

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4844	61.55	-3.63	57.92	74	-16.08	peak
4844	46.27	-3.63	42.64	54	-11.36	Avg
7266	56.48	-0.94	55.54	74	-18.46	peak
7266	42.13	-0.94	41.19	54	-12.81	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4844	62.11	-3.63	58.48	74	-15.52	peak
4844	46.32	-3.63	42.69	54	-11.31	Avg
7266	55.94	-0.94	55	74	-19	peak
7266	41.58	-0.94	40.64	54	-13.36	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

MID CH6 (802.11n/H40 Mode)/2437
Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	62.05	-3.51	58.54	74	-15.46	peak
4874	46.23	-3.51	42.72	54	-11.28	Avg
7311	56.47	-0.82	55.65	74	-18.35	peak
7311	41.19	-0.82	40.37	54	-13.63	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	61.85	-3.51	58.34	74	-15.66	peak
4874	45.67	-3.51	42.16	54	-11.84	Avg
7311	55.39	-0.82	54.57	74	-19.43	peak
7311	41.56	-0.82	40.74	54	-13.26	Avg
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

HIGH CH9 (802.11n/H40 Mode)/2452
Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4904	61.43	-3.43	58	74	-16	peak
4904	45.76	-3.43	42.33	54	-11.67	AVG
7356	55.18	-0.75	54.43	74	-19.57	peak
7356	41.02	-0.75	40.27	54	-13.73	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4904	60.86	-3.43	57.43	74	-16.57	peak
4904	45.27	-3.43	41.84	54	-12.16	AVG
7356	55.12	-0.75	54.37	74	-19.63	peak
7356	40.39	-0.75	39.64	54	-14.36	AVG
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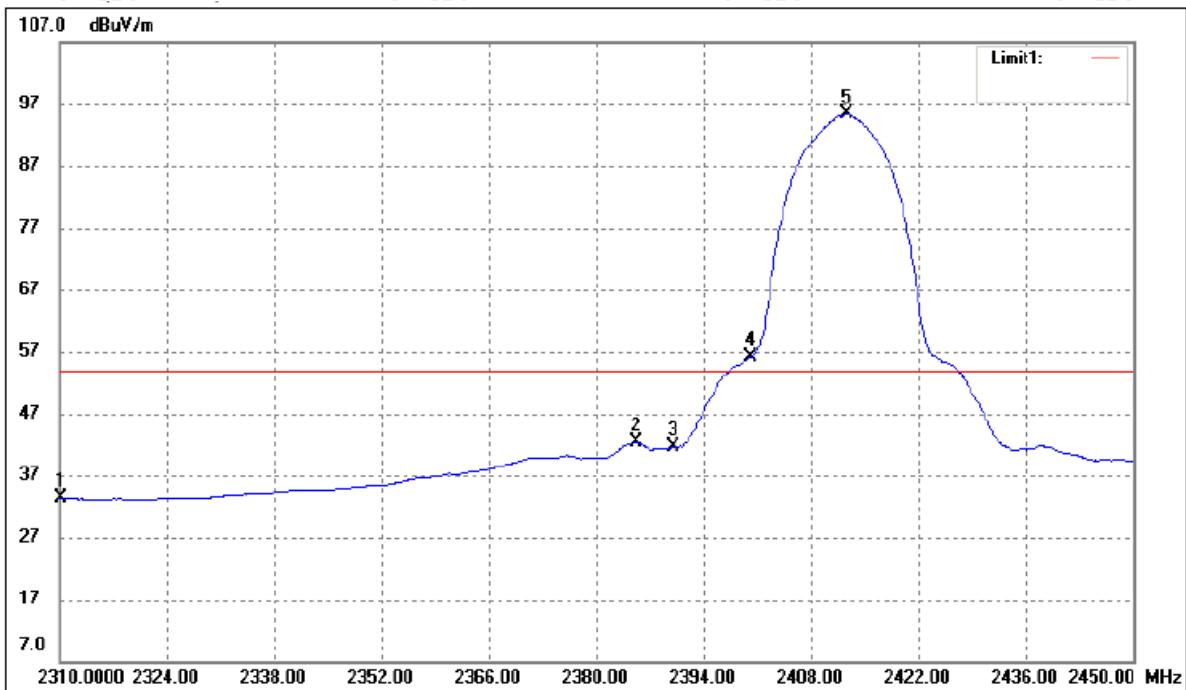
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.

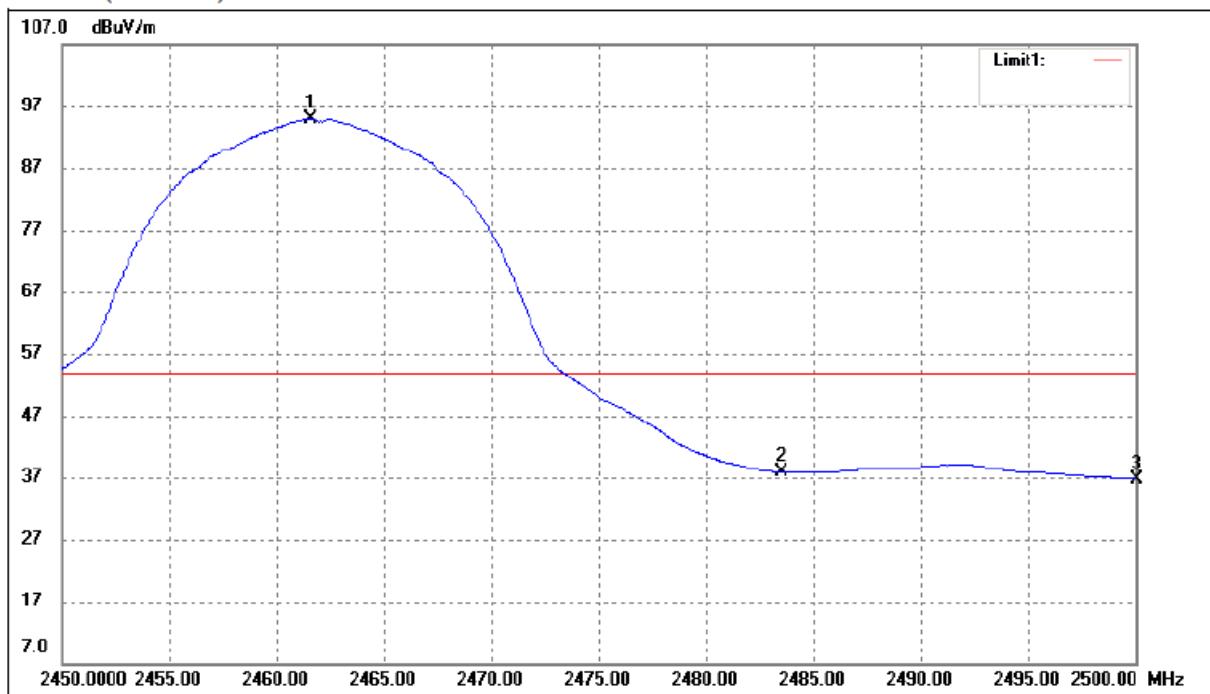
Test Result of Radiated Spurious at Band edges

Operation Mode:
802.11b-Lowest Bandedge
Vertical (Worst case)



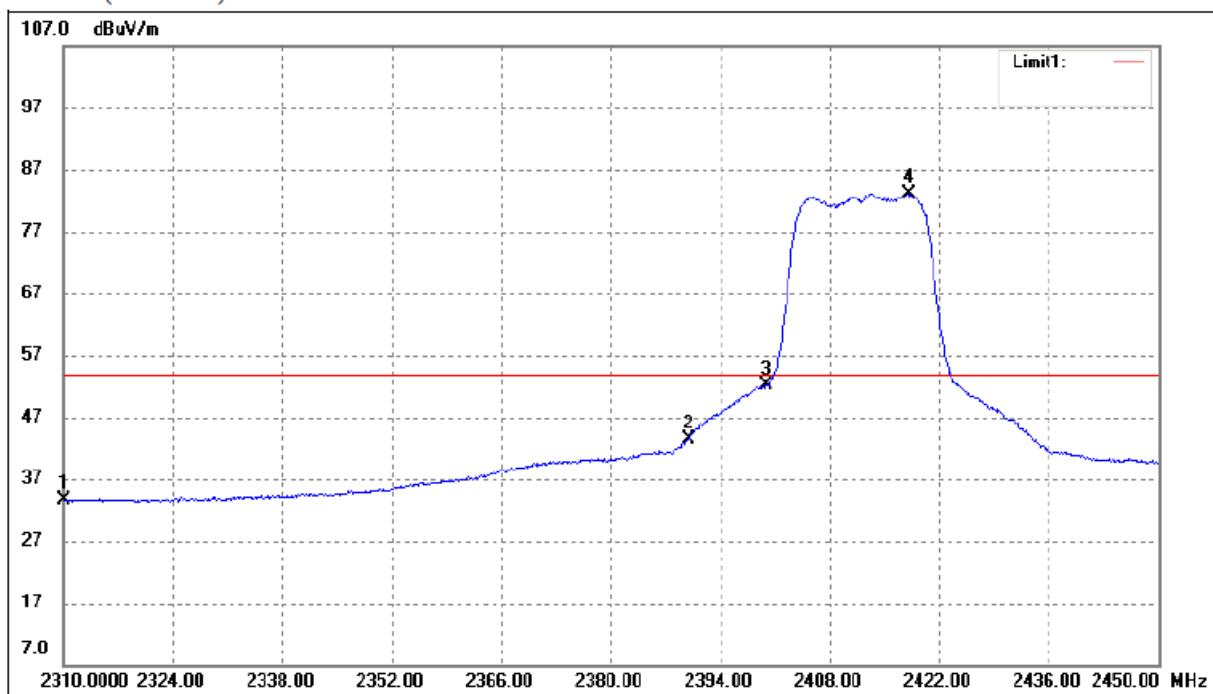
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	34.76	-1.30	33.46	54.00	-20.54	Average Detector
	2310.000	44.87	-1.30	43.57	74.00	-30.43	Peak Detector
2	2385.180	42.96	-0.55	42.41	54.00	-11.59	Average Detector
	2383.640	55.28	-0.56	54.72	74.00	-19.28	Peak Detector
3	2390.000	42.10	-0.50	41.60	54.00	-12.40	Average Detector
	2390.000	54.12	-0.50	53.62	74.00	-20.38	Peak Detector
4	2400.000	56.50	-0.40	56.10	Delta =39.29dBc		Average Detector
	2412.480	95.75	-0.36	95.39			Average Detector

802.11b-Highest Bandedge
Vertical (Worst case)



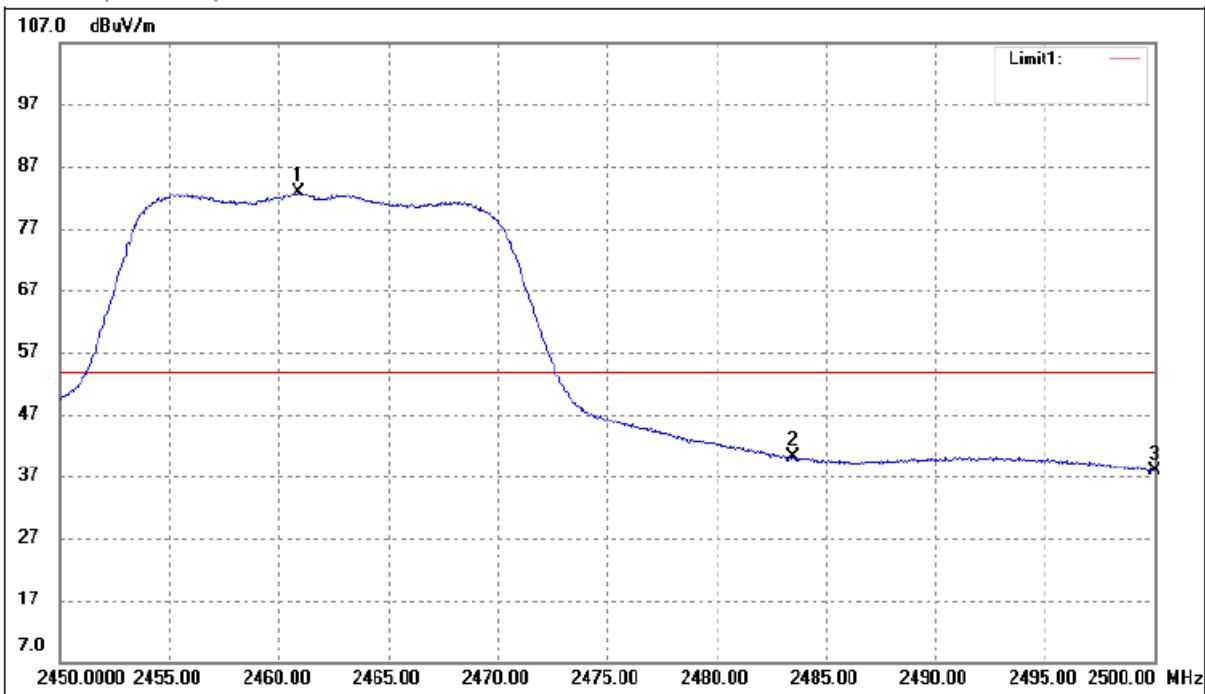
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2461.550	95.12	-0.18	94.94	/	/	Average Detector
	2461.800	110.10	-0.18	109.92	/	/	Peak Detector
2	2483.500	38.04	-0.11	37.93	54.00	-16.07	Average Detector
	2483.500	48.53	-0.11	48.42	74.00	-25.58	Peak Detector
3	2483.500	38.04	-0.11	37.93	54.00	-16.07	Average Detector
	2500.000	47.62	-0.05	47.57	74.00	-26.43	Peak Detector

802.11g-Lowest Bandedge
Vertical (Worst case)



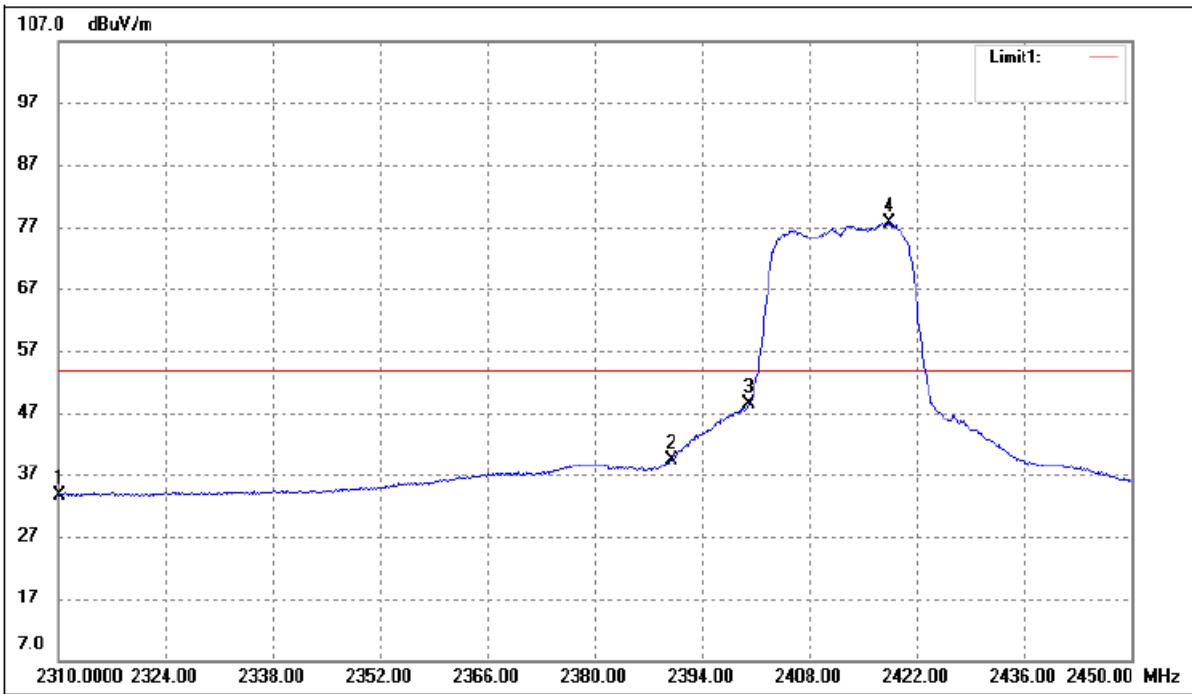
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	34.88	-1.30	33.58	54.00	-20.42	Average Detector
	2310.000	55.74	-1.30	54.44	74.00	-19.56	Peak Detector
2	2390.000	43.99	-0.50	43.49	54.00	-10.51	Average Detector
	2360.000	64.76	-0.80	63.96	74.00	-10.04	Peak Detector
3	2400.000	52.51	-0.40	52.11	Delta =31.08dBc		Average Detector
4	2418.080	83.53	-0.34	83.19			Average Detector

802.11g-Highest Bandedge
Vertical (Worst case)



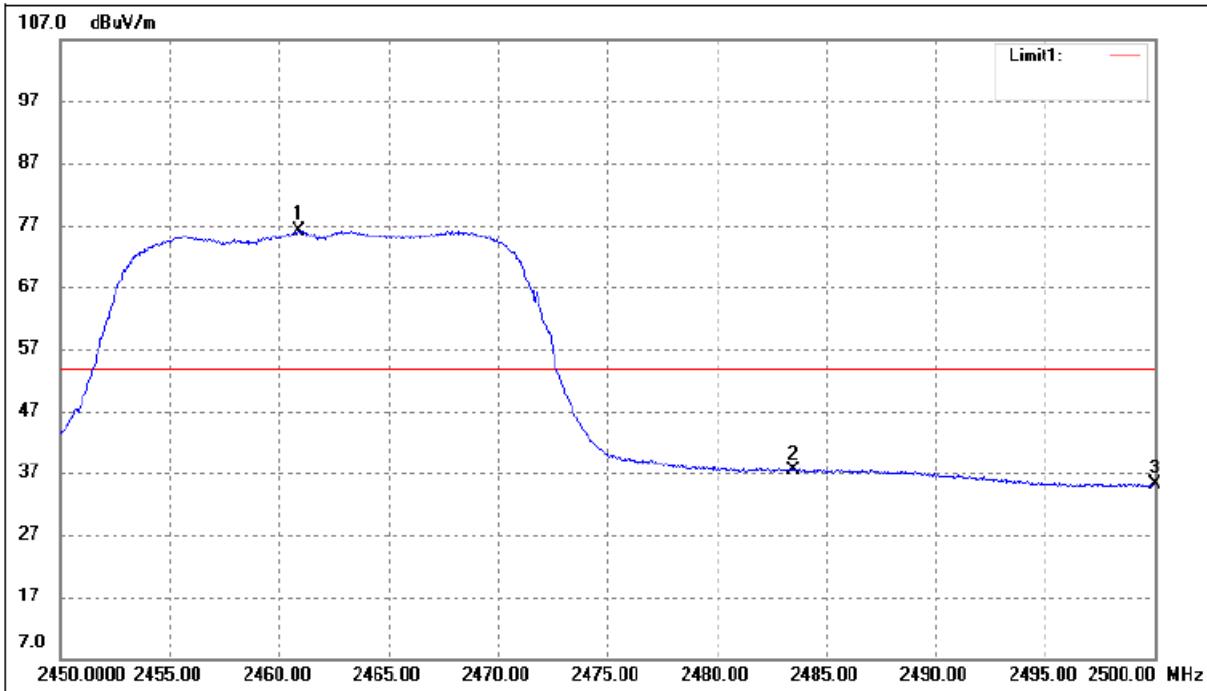
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2460.900	82.95	-0.19	82.76	/	/	Average Detector
	2461.250	106.30	-0.19	106.11	/	/	Peak Detector
2	2483.500	40.22	-0.11	40.11	54.00	-13.89	Average Detector
	2483.500	66.19	-0.11	66.08	74.00	-7.92	Peak Detector
3	2500.000	37.87	-0.05	37.82	54.00	-16.18	Average Detector
	2500.000	63.31	-0.05	63.26	74.00	-10.74	Peak Detector

802.11n-HT20-Lowest Bandedge
Vertical (Worst case)



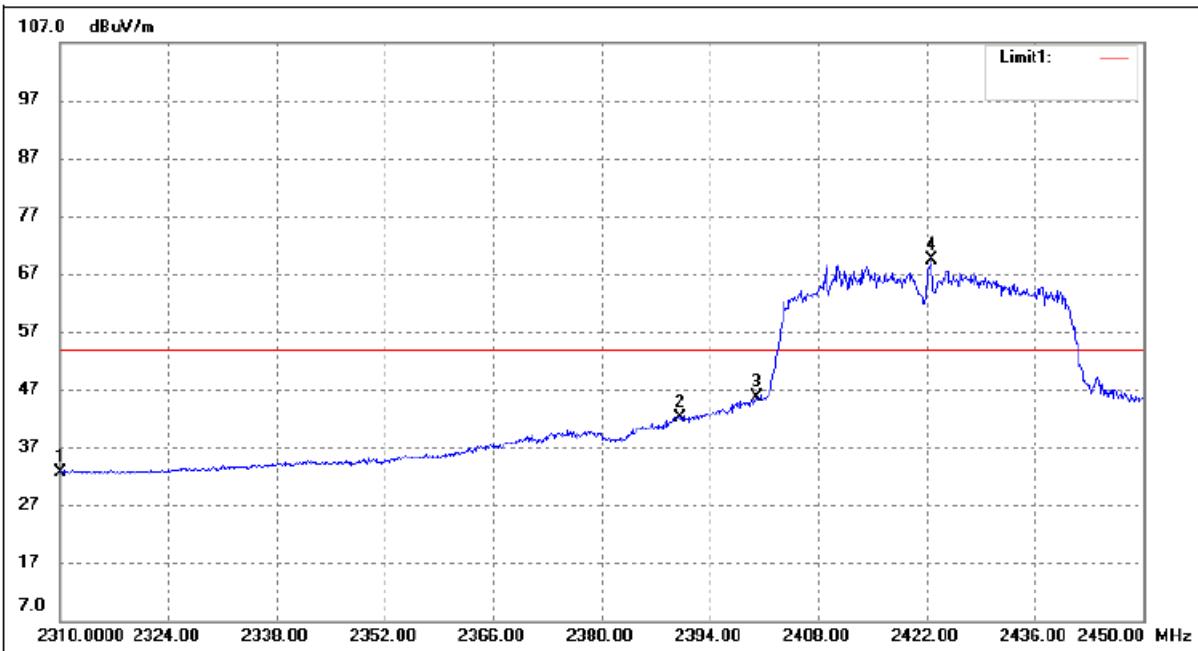
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	35.04	-1.30	33.74	54.00	-20.26	Average Detector
	2310.000	54.87	-1.30	53.57	74.00	-20.43	Peak Detector
2	2390.000	39.84	-0.50	39.34	54.00	-14.66	Average Detector
	2390.000	65.89	-0.50	65.39	74.00	-8.61	Peak Detector
3	2400.000	48.66	-0.40	47.66	Delta =30.12dBc	Average Detector	Average Detector
4	2418.360	78.02	-0.34	77.78			Average Detector

802.11n-HT20-Highest Bandedge
Vertical (Worst case)



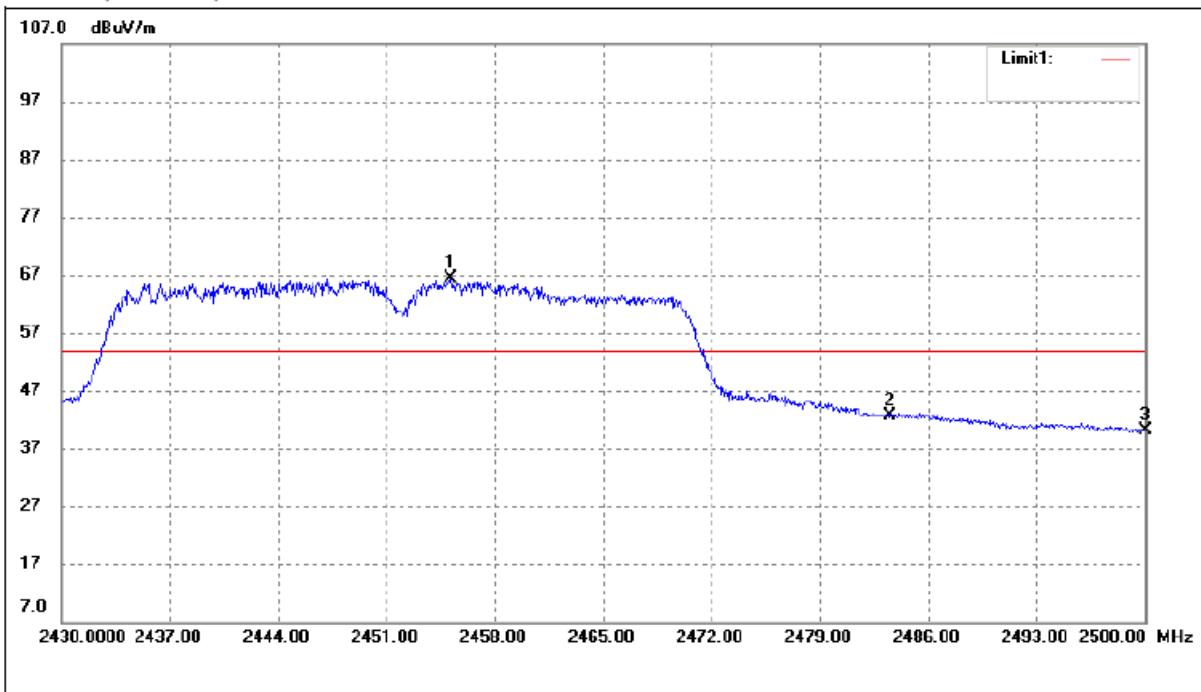
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2460.900	76.39	-0.19	76.20	/	/	Average Detector
	2468.200	99.73	-0.16	99.57	/	/	Peak Detector
2	2483.500	37.48	-0.11	37.37	54.00	-16.63	Average Detector
	2483.500	65.47	-0.11	65.36	74.00	-8.64	Peak Detector
3	2500.000	35.08	-0.05	35.03	54.00	-18.97	Average Detector
	2500.000	55.19	-0.05	55.14	74.00	-18.86	Peak Detector

802.11n-HT40-Lowest Bandedge
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	33.75	-1.00	32.75	54.00	-21.25	Average Detector
	2310.000	46.18	-1.00	45.18	74.00	-28.82	Peak Detector
2	2390.000	43.09	-0.88	42.21	54.00	-11.79	Average Detector
	2390.000	61.15	-0.88	60.27	74.00	-13.73	Peak Detector
3	2400.000	46.48	-0.86	45.62	54.00	-8.38	Average Detector
	2400.000	65.66	-0.86	64.80	74.00	-9.20	Peak Detector
4	2422.700	70.28	-0.82	69.46	/	/	Average Detector
	2420.460	101.27	-0.83	100.44	/	/	Peak Detector

802.11n-HT40-Highest Bandedge
Vertical (Worst case)



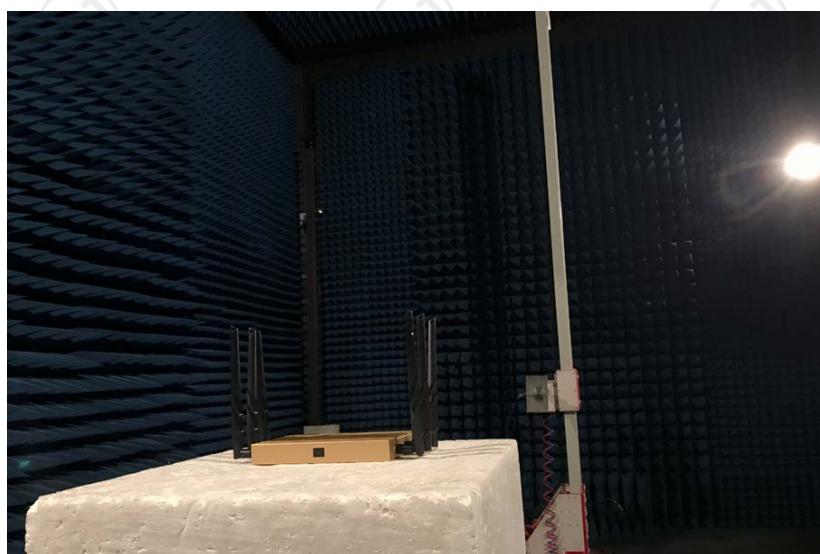
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2455.130	67.13	-0.77	66.36	/	/	Average Detector
	2453.800	97.55	-0.77	96.78	/	/	Peak Detector
2	2483.500	43.43	-0.73	42.70	54.00	-11.30	Average Detector
	2483.500	53.22	-0.73	52.49	74.00	-21.51	Peak Detector
3	2500.000	40.72	-0.70	40.02	54.00	-13.98	Average Detector
	2500.000	55.27	-0.70	54.57	74.00	-19.43	Peak Detector

Appendix A: Photographs of Test Setup

Product: Pronto Intelligent Access Point

Model: PIAP-11AC-M-GW4

Radiated Emission



Conducted Emission



*******END OF REPORT*******