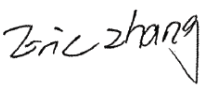
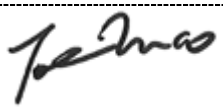
CTC Laboratories, Inc.

1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China
Tel: +86-755- 27521059 Fax: +86-755- 27521011 Http://www.sz-ctc.org.cn

TEST REPORT

Report No. ……:	**CTC20240867E01**
FCC ID……:	**2ALYRHG-F09**
IC……:	**30768-F09**
Applicant……:	**Shenzhen HighGreat Innovation Technology Development Co., Ltd.**
Address……:	2/F, Building 6, Yuanlingzi Industrial Zone, Hengping Road, Yuanshan Street, Longgang District, Shenzhen, China
Manufacturer……:	Shenzhen HighGreat Innovation Technology Development Co., Ltd.
Address……:	2/F, Building 6, Yuanlingzi Industrial Zone, Hengping Road, Yuanshan Street, Longgang District, Shenzhen, China
Product Name……:	**Hula**
Trade Mark……:	/
Model/Type reference……:	HG-F09
Listed Model(s) ……:	/
Standard……:	**FCC CFR Title 47 Part 15 Subpart C Section 15.247** **RSS-247 Issue 3**
Date of receipt of test sample…:	Mar. 26, 2024
Date of testing……..:	Mar. 27, 2024 ~ Apr. 03, 2024
Date of issue……....:	Apr. 04, 2024
Result……:	**PASS**

Compiled by: (Printed name+signature)	Terry Su	
Supervised by: (Printed name+signature)	Eric Zhang	
Approved by: (Printed name+signature)	Totti Zhao	

Testing Laboratory Name……:	**CTC Laboratories, Inc.**
Address……:	1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.
RSS 247 Issue 3: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Report No.	Date of issue	Description
01	CTC20240867E01	Apr. 04, 2024	Original

1.3. Test Description

FCC Part 15 Subpart C (15.247) / RSS 247 Issue 3				
Test Item	Standard Section		Result	Test Engineer
	FCC	IC		
Antenna Requirement	15.203	/	Pass	Alicia Liu
Conducted Emission	15.207	RSS-Gen 8.8	N/A	N/A
Radiated Band Edge and Spurious Emissions	15.205&15.209& 15.247(d)	RSS 247 5.5	Pass	Alicia Liu
Conducted Band Edge and Spurious Emissions	15.247(d)	RSS 247 5.5	Pass	Alicia Liu
6dB Bandwidth	15.247(a)(2)	RSS 247 5.2 (a)	Pass	Alicia Liu
Conducted Max Output Power	15.247(b)(3)	RSS 247 5.4 (d)	Pass	Alicia Liu
Power Spectral Density	15.247(e)	RSS 247 5.2 (b)	Pass	Alicia Liu
Transmitter Radiated Spurious	15.209&15.247(d)	RSS 247 5.5& RSS-Gen 8.9	Pass	Alicia Liu

Note: The measurement uncertainty is not included in the test result.

1.4. Test Facility

CTC Laboratories, Inc.
Add: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Laboratory accreditation
The test facility is recognized, certified, or accredited by the following organizations:

A2LA-Lab Cert. No.: 4340.01
CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)
CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)
CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained inour files. Registration 951311, Aug 26, 2017.

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.

Test Items	Measurement Uncertainty	Notes
DTS Bandwidth	±0.0196%	(1)
Maximum Conducted Output Power	±0.686 dB	(1)
Maximum Power Spectral Density Level	±0.743 dB	(1)
Band-edge Compliance	±1.328 dB	(1)
Unwanted Emissions In Non-restricted Freq Bands	9kHz-1GHz: ±0.746dB 1GHz-26GHz: ±1.328dB	(1)
Conducted Emissions 9kHz~30MHz	±3.08 dB	(1)
Radiated Emissions 30~1000MHz	±4.51 dB	(1)
Radiated Emissions 1~18GHz	±5.84 dB	(1)
Radiated Emissions 18~40GHz	±6.12 dB	(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	21°C ~ 27°C
Relative Humidity:	40% ~ 60%
Air Pressure:	101kPa

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Shenzhen HighGreat Innovation Technology Development Co., Ltd.
Address:	2/F, Building 6, Yuanlingzi Industrial Zone, Hengping Road, Yuanshan Street, Longgang District, Shenzhen, China
Manufacturer:	Shenzhen HighGreat Innovation Technology Development Co., Ltd.
Address:	2/F, Building 6, Yuanlingzi Industrial Zone, Hengping Road, Yuanshan Street, Longgang District, Shenzhen, China

2.2. General Description of EUT

Product Name:	Hula
Trade Mark:	/
Model/Type reference:	HG-F09
Listed Model(s):	/
Power supply:	3.8Vdc from 1200mAh Li-ion Battery
Hardware version:	HG_F09_MAIN_RV1108G_V2P4
Software version:	1.0.1.0.1.0.1.0
WIFI 802.11b/ g/ n(HT20) / n(HT40)	
Modulation:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK, QPSK, 16QAM, 64QAM)
Operation frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Channel number:	802.11b/g/n(HT20):11channels 802.11n(HT40): 7channels
Channel separation:	5MHz
Antenna type:	PCB Antenna
Antenna gain:	3.41dBi Max

2.3. Accessory Equipment information

Equipment Information			
Name	Model	S/N	Manufacturer
Notebook	ThinkBook 14G3 ACL	MP246QDR	Lenovo
Cable Information			
Name	Shielded Type	Ferrite Core	Length
/	/	/	/
Test Software Information			
Name	Versions	/	/
SecureCRT.exe	8.7.1	/	/

2.4. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List:

Channel	Frequency (MHz)
01	2412
02	2417
03	2422
04	2427
05	2432
06	2437
07	2442
08	2447
09	2452
10	2457
11	2462

Note: CH 01~CH 11 for 802.11b/g/n(HT20), CH 03~CH 09 for 802.11n(HT40).

Data Rated

Preliminary tests were performed in different data rate, and found which the below bit rate is worst case mode, so only show data which it is a worst case mode.

Mode	Data rate (worst mode)
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)	HT-MCS0
802.11n(HT40)	HT-MCS0

Test mode

For RF test items:
The engineering test program was provided and enabled to make EUT continuous transmit.
For AC power line conducted emissions:
The EUT was set to connect with the WLAN AP under large package sizes transmission.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data Recorded in the report.

2.5. Measurement Instruments List

RF Test System					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 21, 2025
2	Spectrum Analyzer	R&S	FSV40-N	101654	Aug. 07, 2024
3	Spectrum Analyzer	R&S	FSU26	100105	Dec. 12, 2024
4	MXA Signal Analyzer	Keysight	N9020A	MY46471737	Dec. 12, 2024
5	MXA Signal Analyzer	Keysight	N9020A	MY52091402	Aug. 22, 2024
6	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 12, 2024
7	PSG Analog Signal Generator	Agilent	E8257D	MY46521908	Dec. 12, 2024
8	EXG Analog Signal Generator	Keysight	N5173B	MY59100842	Dec. 12, 2024
9	MXG Vector Signal Generator	Keysight	N5182B	MY59100212	Dec. 12, 2024
10	USB Wideband Power Sensor	Keysight	U2021XA	MY55130004	Mar. 21, 2025
11	USB Wideband Power Sensor	Keysight	U2021XA	MY55130006	Mar. 21, 2025
12	Wideband Radio Communication Tester	R&S	CMW500	102257	May. 25, 2024
13	Wideband Radio Communication Tester	R&S	CMW500	102414	Dec. 12, 2024
14	RF Control Unit	Tonscend	JS0806-2	/	Aug. 22, 2024
15	High and low temperature test chamber	ESPEC	MT3035	/	Mar. 21, 2025
16	Test Software	Tonscend	JS1120-3	V2.6.88.0346	/
17	Test Software	Tonscend	JS1120-3	V3.3.38	/
18	Test Software	WCS	WCS-WCN	2023.08.04	/

Radiated Emission (3m chamber 2)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-1013	Dec. 07, 2024
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-648	Dec. 07, 2024
3	Spectrum Analyzer	R&S	FSU26	100105	Dec. 12, 2024
4	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 15, 2025
5	Pre-Amplifier	SONOMA	310	186194	Dec. 12, 2024
6	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 12, 2024
7	Test Receiver	R&S	ESCI7	100967	Dec. 12, 2024
8	3m chamber 2	Frankonia	EE025	/	Oct. 23, 2024
9	Test Software	FARA	EZ-EMC	FA-03A2	/

Radiated Emission (3m chamber 3)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9163	01026	Dec. 18, 2024

2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 01, 2024
3	Test Receiver	Keysight	N9038A	MY56400071	Dec. 12, 2024
4	Broadband Amplifier	SCHWARZBECK	BBV9743B	259	Dec. 12, 2024
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 12, 2024
6	3m chamber 3	YIHENG	EE106	/	Aug. 28, 2026
7	Test Software	FARA	EZ-EMC	FA-03A2	/

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	LISN	R&S	ENV216	101112	Dec. 12, 2024
2	LISN	R&S	ENV216	101113	Dec. 12, 2024
3	EMI Test Receiver	R&S	ESCS30	100353	Dec. 12, 2024
4	ISN CAT6	Schwarzbeck	NTFM 8158	CAT6-8158-0046	Dec. 12, 2024
5	ISN CAT5	Schwarzbeck	NTFM 8158	CAT5-8158-0046	Dec. 12, 2024
6	Test Software	R&S	EMC32	6.10.10	/

Note: 1. The Cal. Interval was one year.
2. The Cal. Interval was three year of the chamber
3. The cable loss has calculated in test result which connection between each test instruments.

3.TEST ITEM AND RESULTS

3.1. Conducted Emission

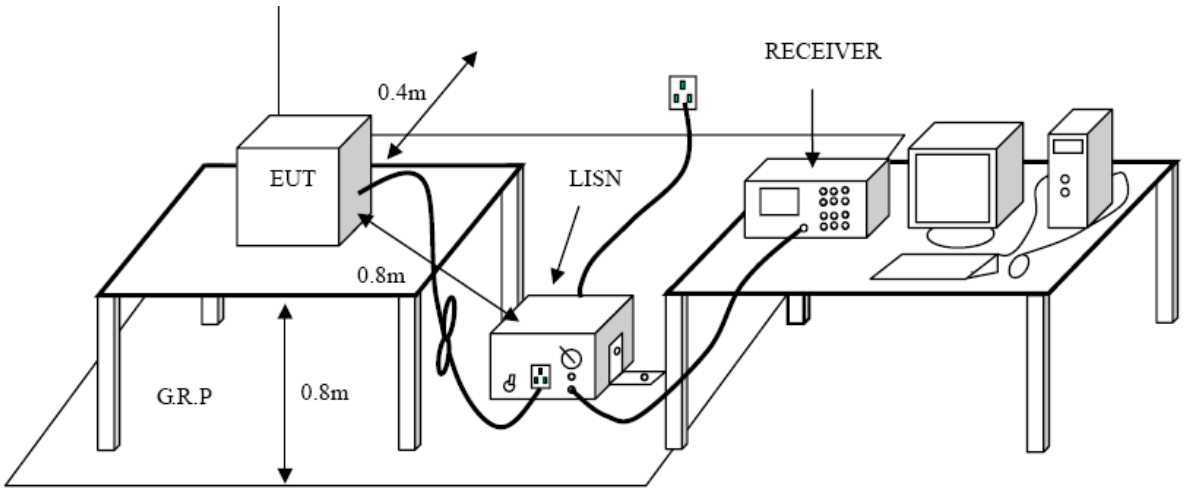
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.207/ RSS - Gen 8.8:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

Test Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.

Test Mode:

Please refer to the clause 2.4.

Test Results

Note: Not applicable.

3.2. Radiated Emission

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.209/ RSS – Gen 8.9:

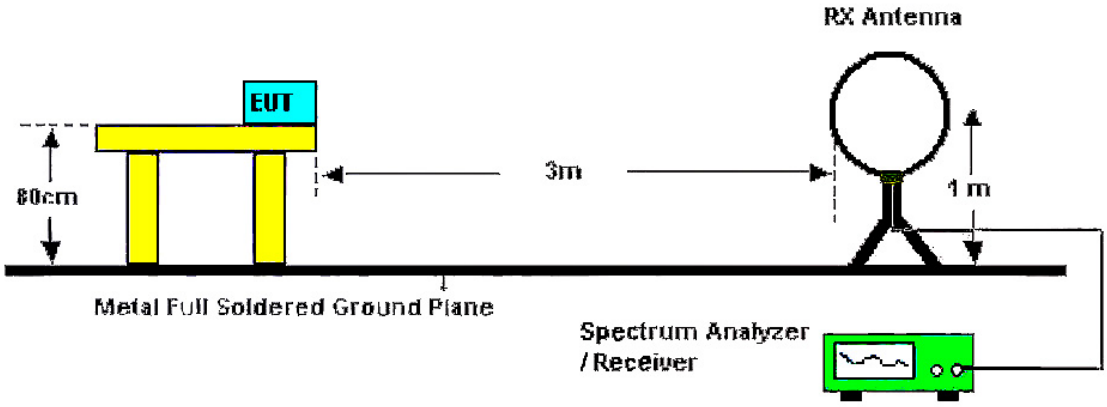
Frequency	Limit (dBuV/m @3m)	Value
30 MHz ~ 88 MHz	40.00	Quasi-peak
88 MHz ~ 216 MHz	43.50	Quasi-peak
216 MHz ~ 960 MHz	46.00	Quasi-peak
960 MHz ~ 1 GHz	54.00	Quasi-peak
Above 1 GHz	54.00	Average
	74.00	Peak

Note:

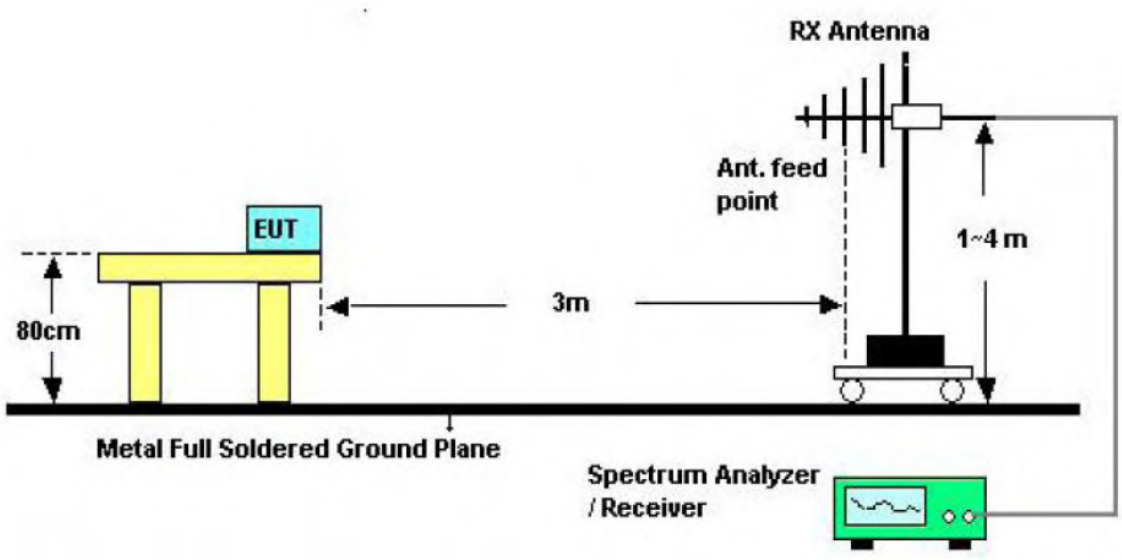
(1) The tighter limit applies at the band edges.

(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

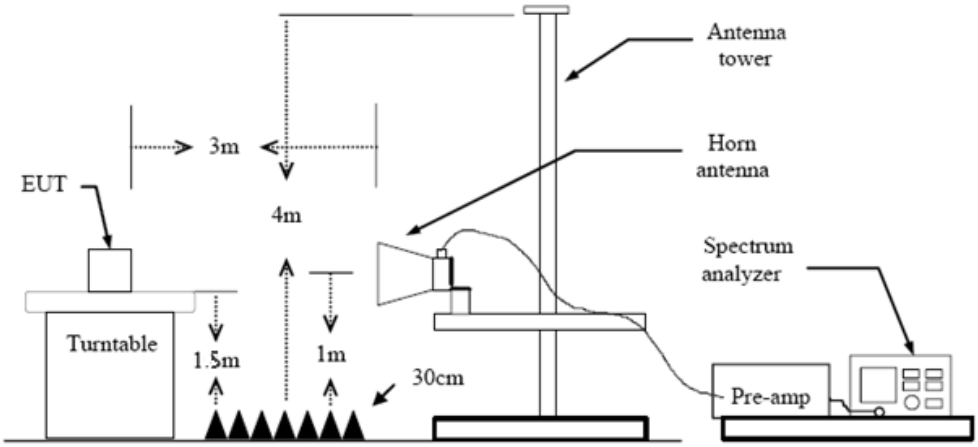
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, 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 to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

(1) Span shall wide enough to fully capture the emission being measured

(2) Below 30 MHz:

9kHz – 150kHz, RBW=200Hz, VBW≥RBW, Sweep=auto, Detector function=peak, Trace=max hold;

150kHz – 30MHz, RBW=9kHz, VBW≥RBW, Sweep=auto, Detector function=peak, Trace=max hold; 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.

(3) 30 MHz - 1 GHz:

RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;

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.

(4) From 1 GHz to 10th harmonic:

RBW=1MHz, VBW=3MHz Peak detector for Peak value.

RBW=1MHz, VBW≥1/T Peak detector for Average value.

Note 1: For the 1/T& Duty Cycle please refer to clause 3.8 Duty Cycle.

Test Mode

Please refer to the clause 2.4.

Test Result

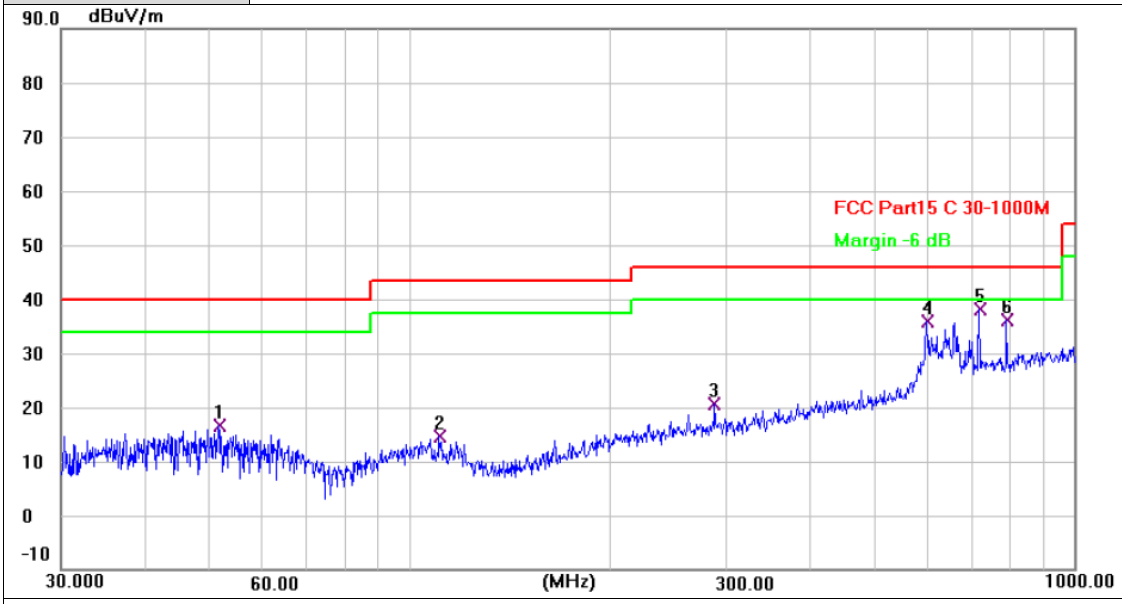
9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

30MHz-1GHz

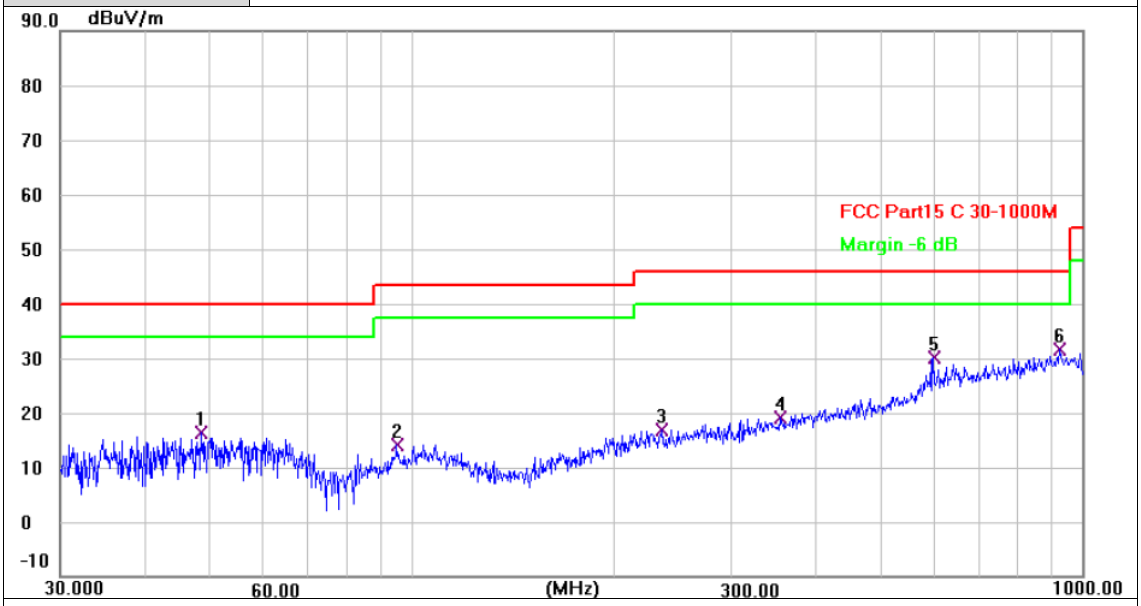
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	51.6615	32.48	-15.93	16.55	40.00	-23.45	QP
2	110.9570	32.50	-17.94	14.56	43.50	-28.94	QP
3	287.9904	36.10	-15.35	20.75	46.00	-25.25	QP
4	599.3212	44.09	-8.32	35.77	46.00	-10.23	QP
5 *	719.1995	44.73	-6.59	38.14	46.00	-7.86	QP
6	790.6187	41.64	-5.50	36.14	46.00	-9.86	QP

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

Ant. Pol.	Vertical
Test Mode:	802.11b Mode 2412MHz
Remark:	Only worse case is reported

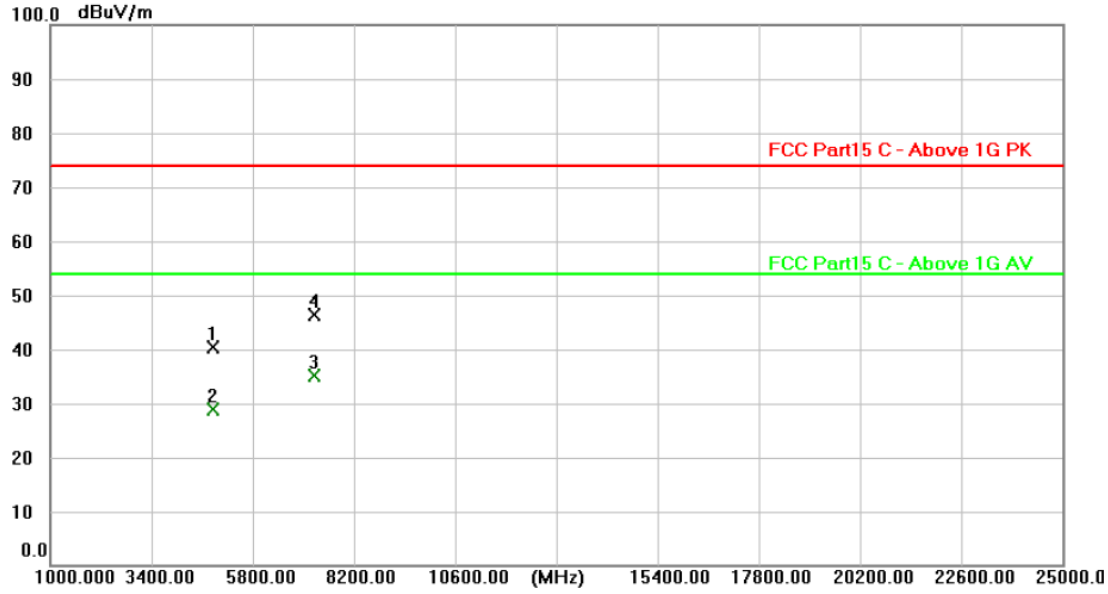


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	48.6719	32.12	-15.76	16.36	40.00	-23.64	QP
2	95.0930	32.70	-18.49	14.21	43.50	-29.29	QP
3	236.6447	33.43	-16.63	16.80	46.00	-29.20	QP
4	354.1831	32.29	-13.28	19.01	46.00	-26.99	QP
5	599.3212	38.35	-8.32	30.03	46.00	-15.97	QP
6 *	927.5733	35.36	-3.78	31.58	46.00	-14.42	QP

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

Adobe 1GHz

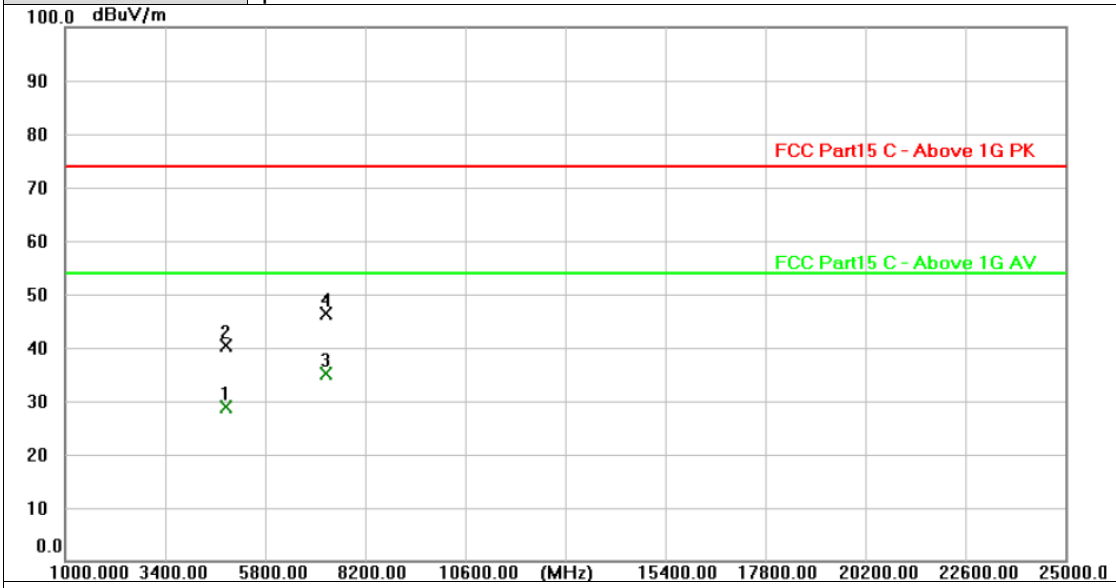
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.091	38.45	2.01	40.46	74.00	-33.54	peak
2	4824.954	26.87	2.02	28.89	54.00	-25.11	AVG
3 *	7235.657	25.19	10.03	35.22	54.00	-18.78	AVG
4	7236.069	36.34	10.03	46.37	74.00	-27.63	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

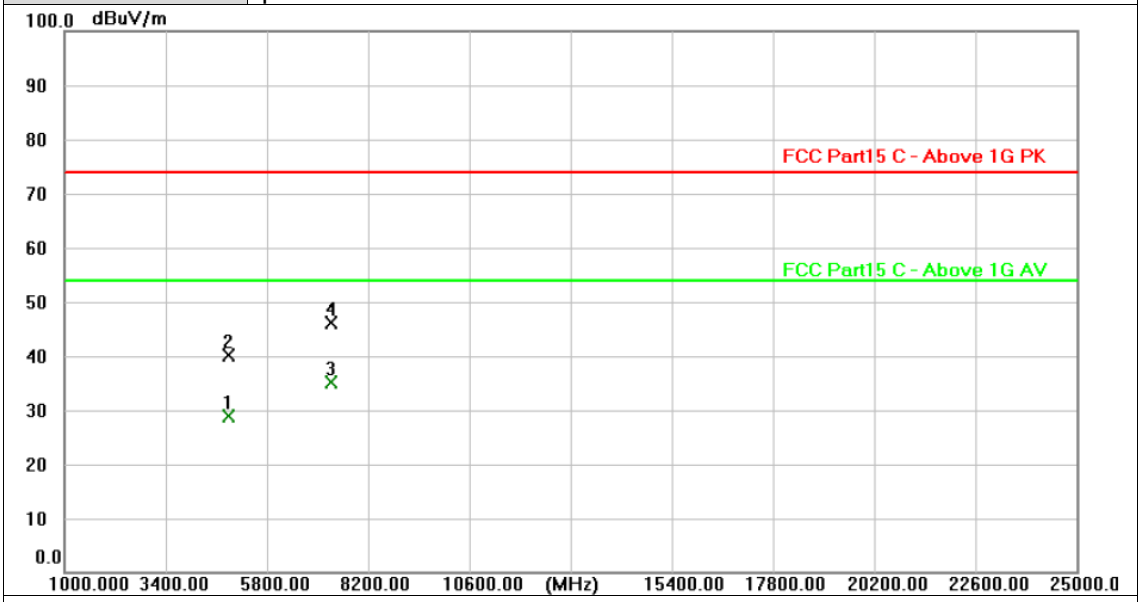
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.213	26.95	2.01	28.96	54.00	-25.04	AVG
2	4823.729	38.39	2.02	40.41	74.00	-33.59	peak
3 *	7236.103	25.06	10.03	35.09	54.00	-18.91	AVG
4	7236.793	36.43	10.03	46.46	74.00	-27.54	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

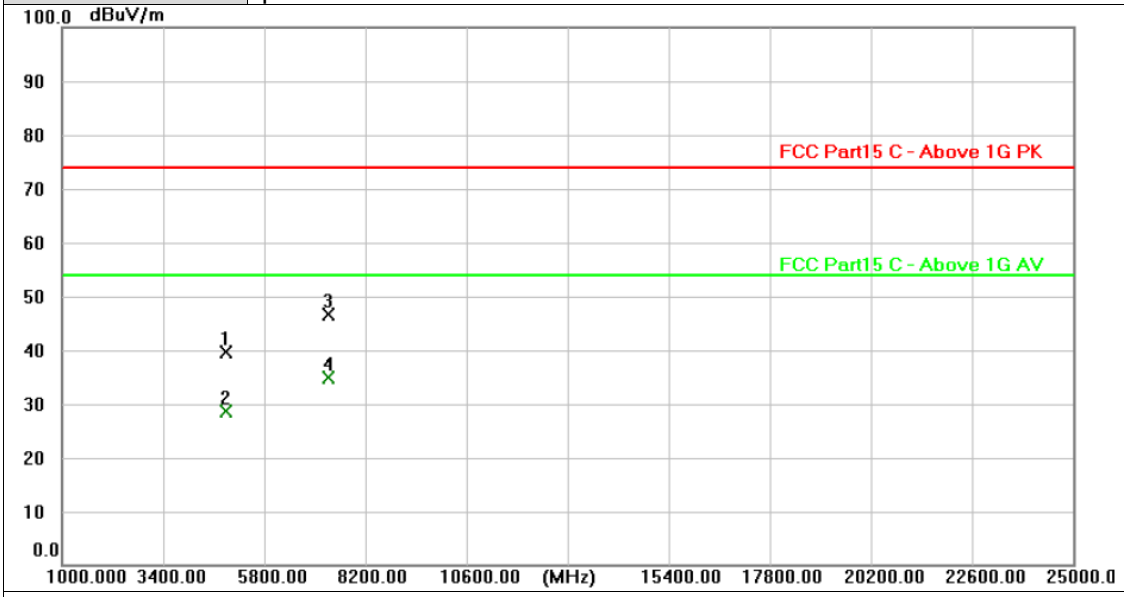
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.287	26.86	2.09	28.95	54.00	-25.05	AVG
2	4874.088	37.98	2.09	40.07	74.00	-33.93	peak
3 *	7311.108	25.09	10.07	35.16	54.00	-18.84	AVG
4	7311.228	36.17	10.07	46.24	74.00	-27.76	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

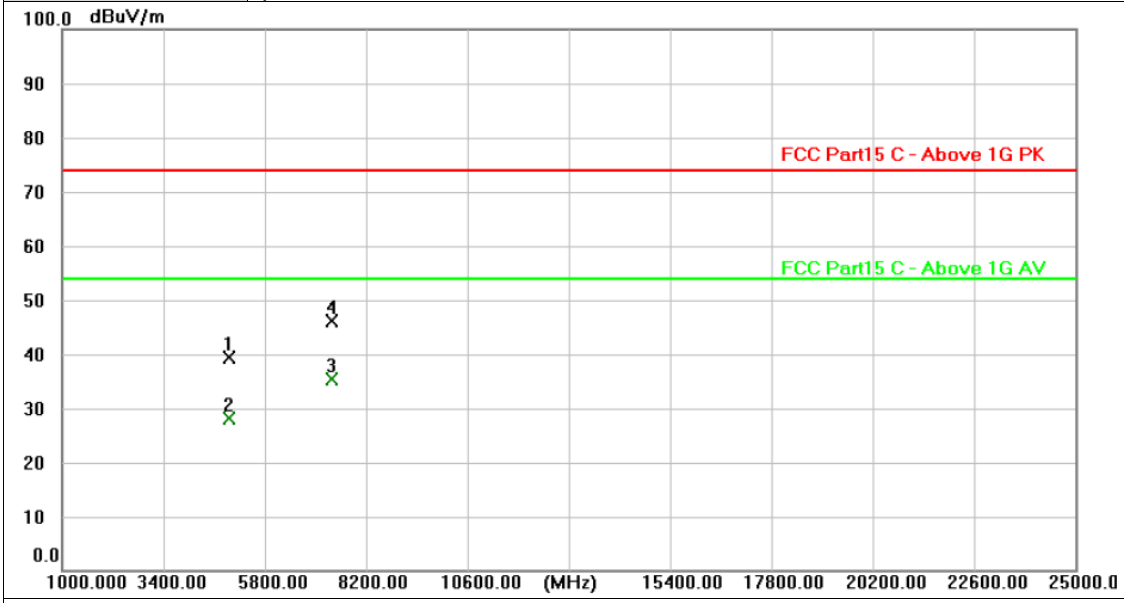
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4874.880	37.63	2.09	39.72	74.00	-34.28	peak
2	4874.979	26.51	2.09	28.60	54.00	-25.40	AVG
3	7310.969	36.61	10.07	46.68	74.00	-27.32	peak
4 *	7311.875	24.75	10.07	34.82	54.00	-19.18	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

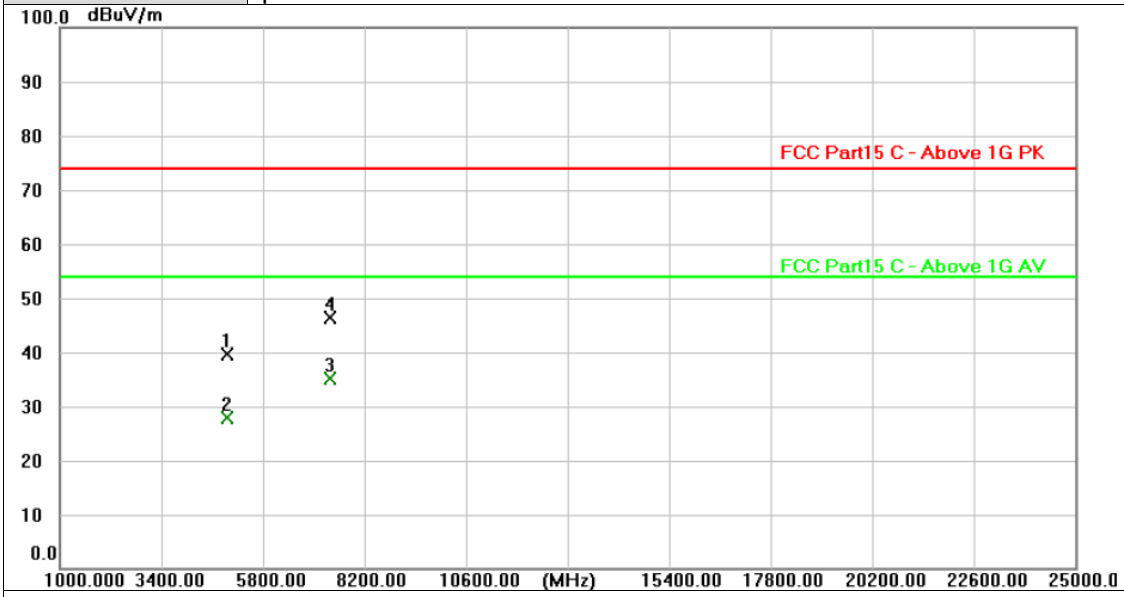
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4924.568	37.25	2.16	39.41	74.00	-34.59	peak
2	4924.615	26.02	2.16	28.18	54.00	-25.82	AVG
3 *	7385.371	25.19	10.09	35.28	54.00	-18.72	AVG
4	7385.431	35.94	10.09	46.03	74.00	-27.97	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

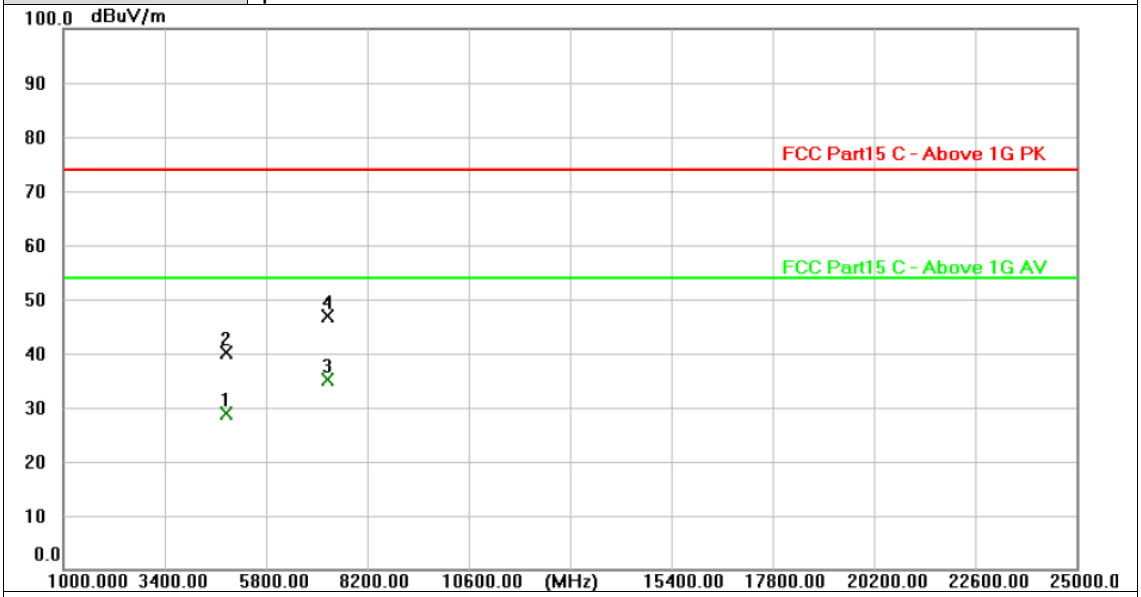
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.880	37.47	2.16	39.63	74.00	-34.37	peak
2	4924.747	25.78	2.16	27.94	54.00	-26.06	AVG
3 *	7385.237	24.95	10.09	35.04	54.00	-18.96	AVG
4	7386.633	36.33	10.09	46.42	74.00	-27.58	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

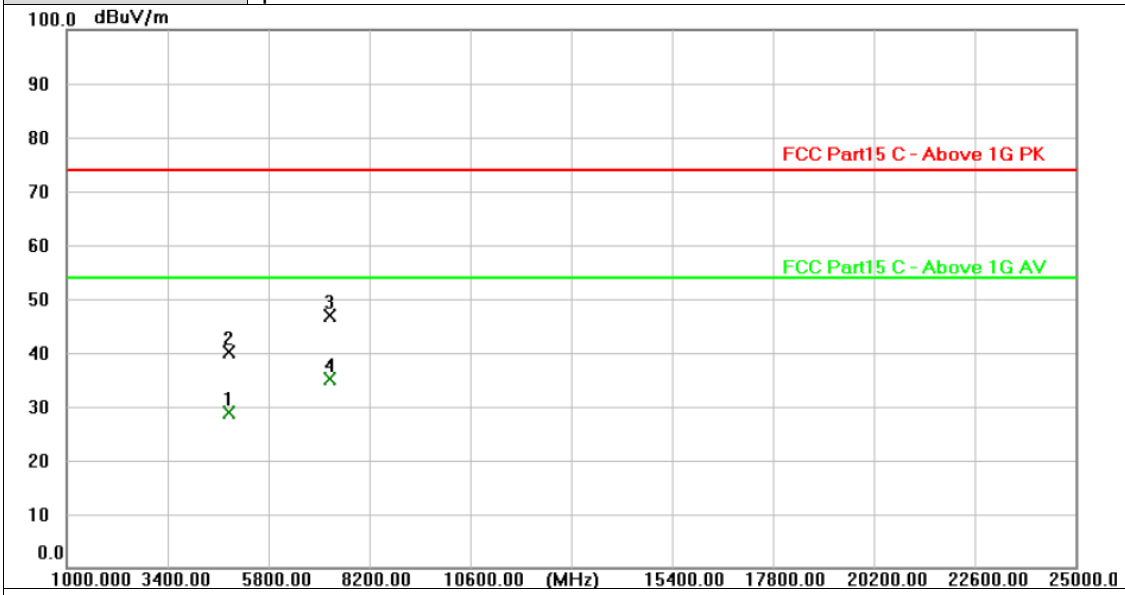
Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.289	26.87	2.01	28.88	54.00	-25.12	AVG
2	4824.002	38.19	2.02	40.21	74.00	-33.79	peak
3 *	7235.733	24.99	10.03	35.02	54.00	-18.98	AVG
4	7236.153	36.82	10.03	46.85	74.00	-27.15	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

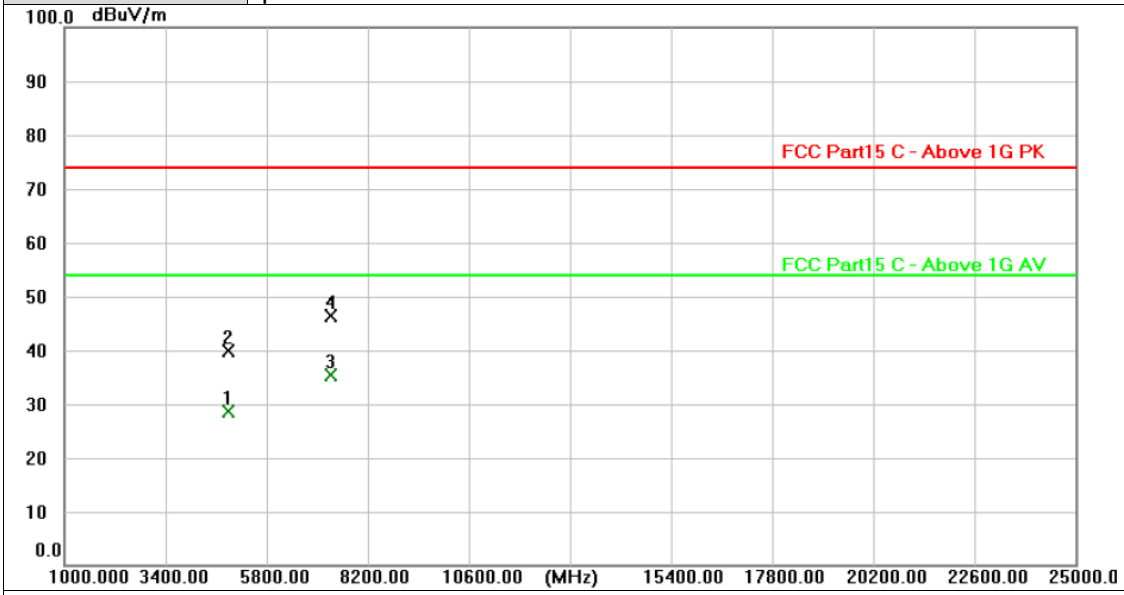
Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.219	26.80	2.01	28.81	54.00	-25.19	AVG
2	4823.709	38.17	2.02	40.19	74.00	-33.81	peak
3	7235.747	36.82	10.03	46.85	74.00	-27.15	peak
4 *	7236.723	24.99	10.03	35.02	54.00	-18.98	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

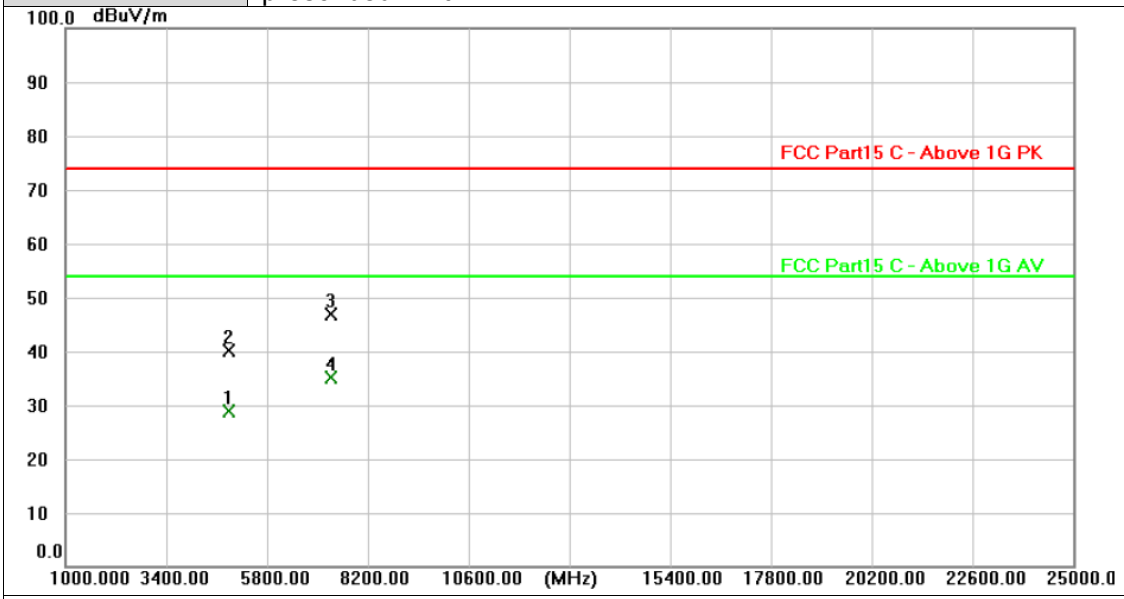
Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.849	26.54	2.09	28.63	54.00	-25.37	AVG
2	4874.369	37.85	2.09	39.94	74.00	-34.06	peak
3 *	7310.260	25.24	10.07	35.31	54.00	-18.69	AVG
4	7310.447	36.34	10.07	46.41	74.00	-27.59	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

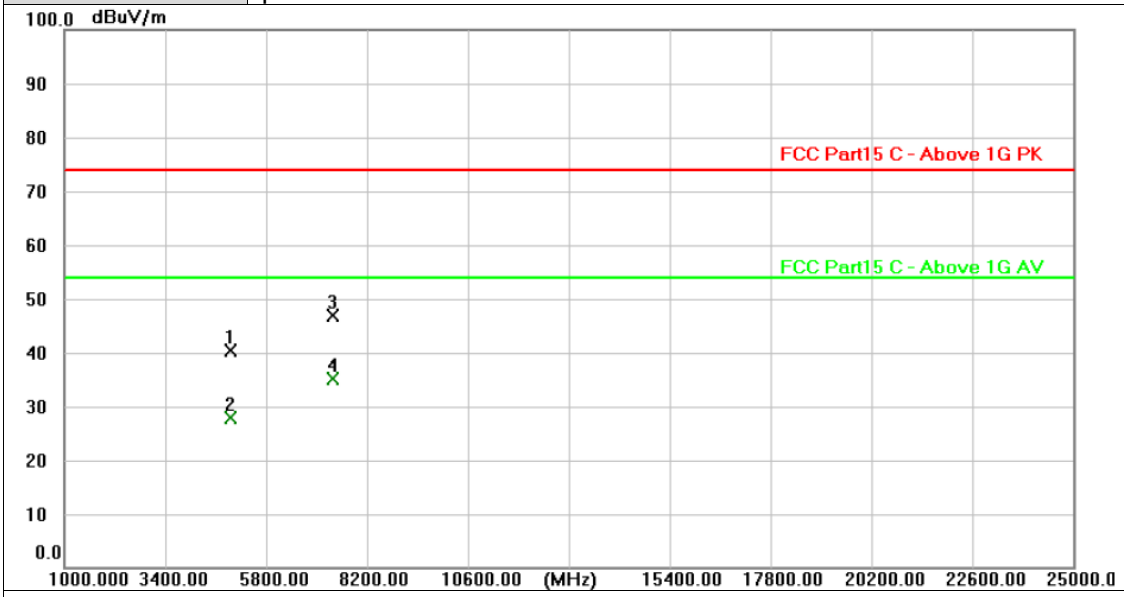
Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4874.006	26.91	2.09	29.00	54.00	-25.00	AVG
2	4874.453	38.10	2.09	40.19	74.00	-33.81	peak
3	7310.937	36.69	10.07	46.76	74.00	-27.24	peak
4 *	7311.317	24.94	10.07	35.01	54.00	-18.99	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

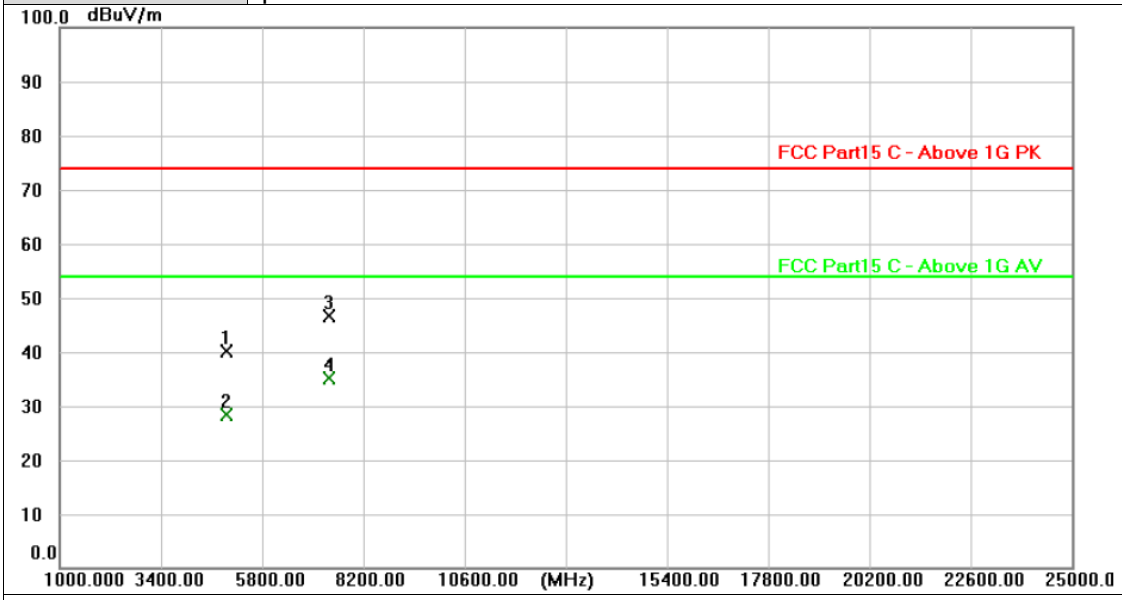
Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.659	38.22	2.16	40.38	74.00	-33.62	peak
2	4924.031	25.80	2.16	27.96	54.00	-26.04	AVG
3	7385.811	36.72	10.09	46.81	74.00	-27.19	peak
4 *	7386.117	24.97	10.09	35.06	54.00	-18.94	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

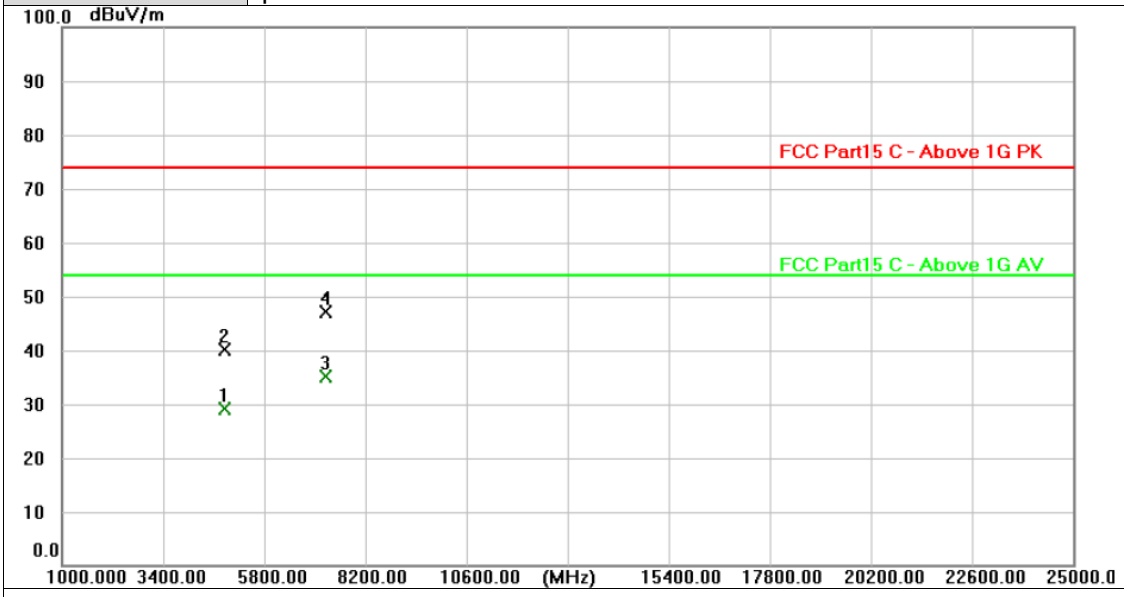
Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.633	37.96	2.16	40.12	74.00	-33.88	peak
2	4924.456	26.15	2.16	28.31	54.00	-25.69	AVG
3	7385.707	36.44	10.09	46.53	74.00	-27.47	peak
4 *	7386.997	24.99	10.09	35.08	54.00	-18.92	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

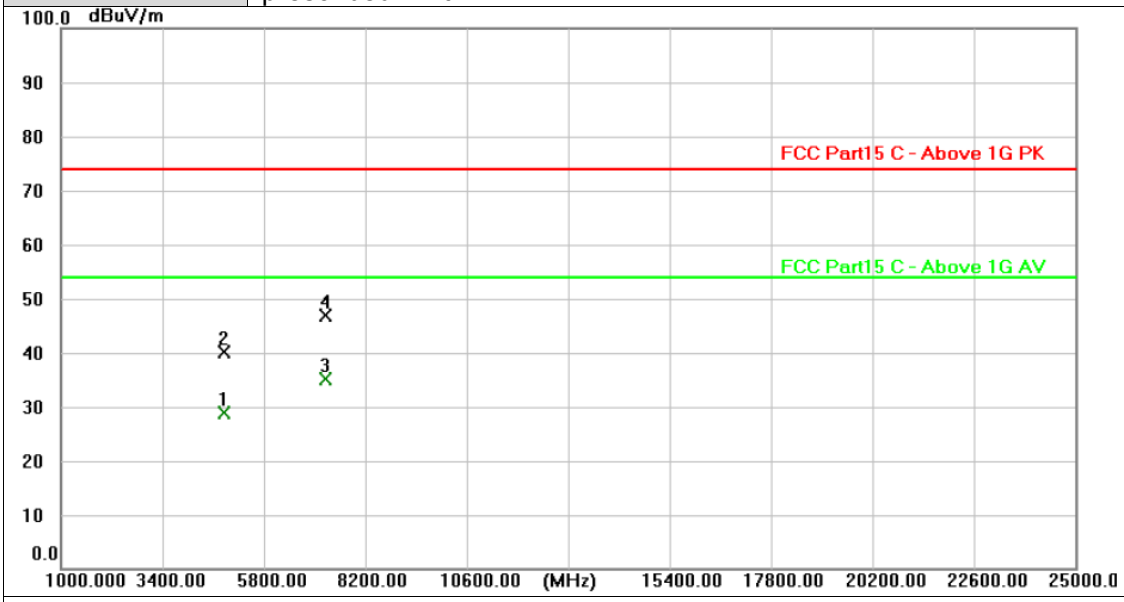
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.037	27.02	2.01	29.03	54.00	-24.97	AVG
2	4823.393	38.02	2.02	40.04	74.00	-33.96	peak
3 *	7235.191	25.05	10.03	35.08	54.00	-18.92	AVG
4	7236.123	37.20	10.03	47.23	74.00	-26.77	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

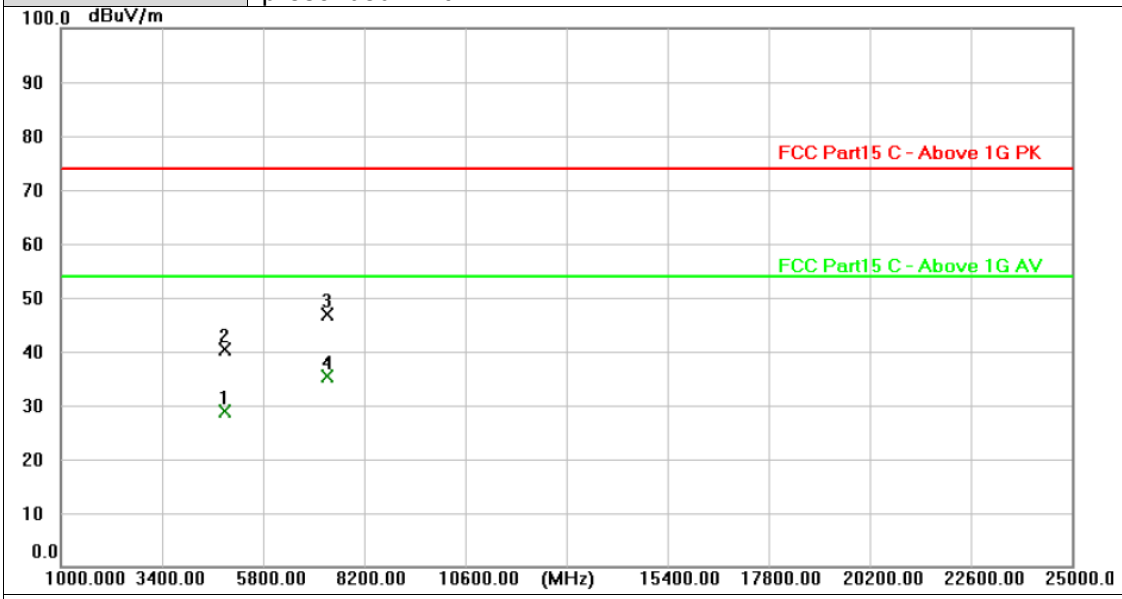
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4824.469	26.91	2.02	28.93	54.00	-25.07	AVG
2	4824.778	38.01	2.02	40.03	74.00	-33.97	peak
3 *	7235.046	25.17	10.03	35.20	54.00	-18.80	AVG
4	7236.941	36.88	10.03	46.91	74.00	-27.09	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

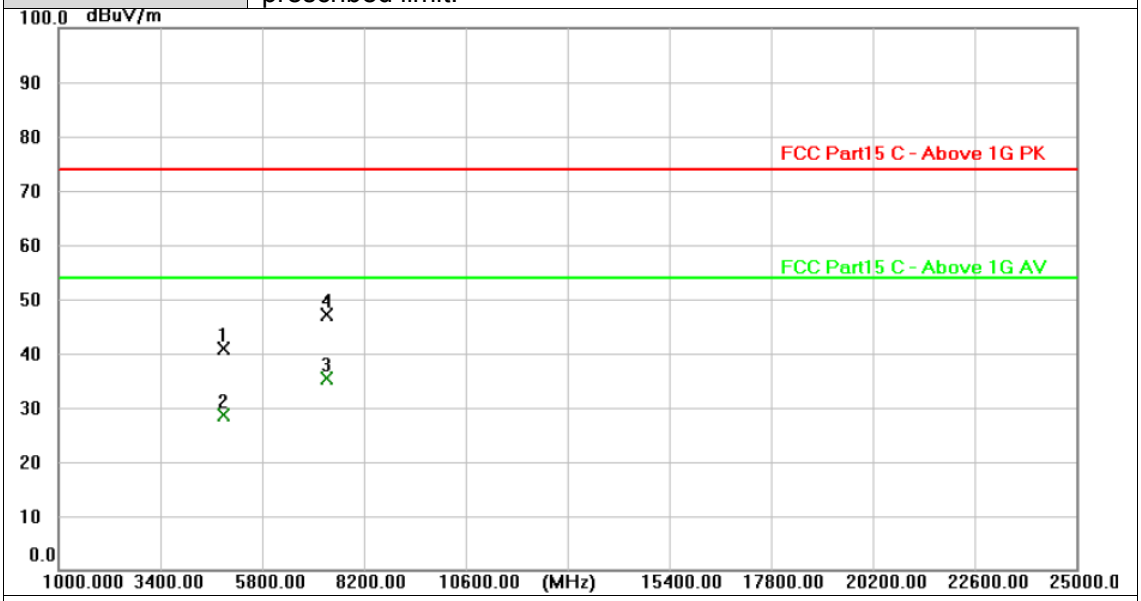
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.295	26.81	2.09	28.90	54.00	-25.10	AVG
2	4873.479	38.22	2.09	40.31	74.00	-33.69	peak
3	7311.428	36.93	10.07	47.00	74.00	-27.00	peak
4 *	7311.791	25.30	10.07	35.37	54.00	-18.63	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

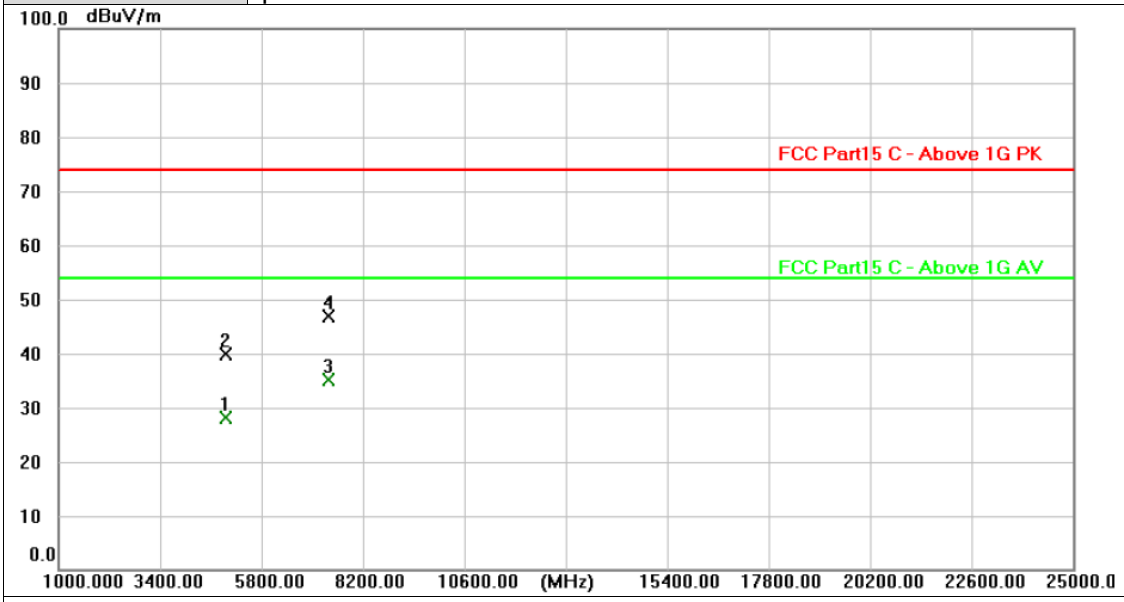
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4874.267	38.86	2.09	40.95	74.00	-33.05	peak
2	4874.713	26.58	2.09	28.67	54.00	-25.33	AVG
3 *	7310.923	25.21	10.07	35.28	54.00	-18.72	AVG
4	7311.979	37.13	10.07	47.20	74.00	-26.80	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

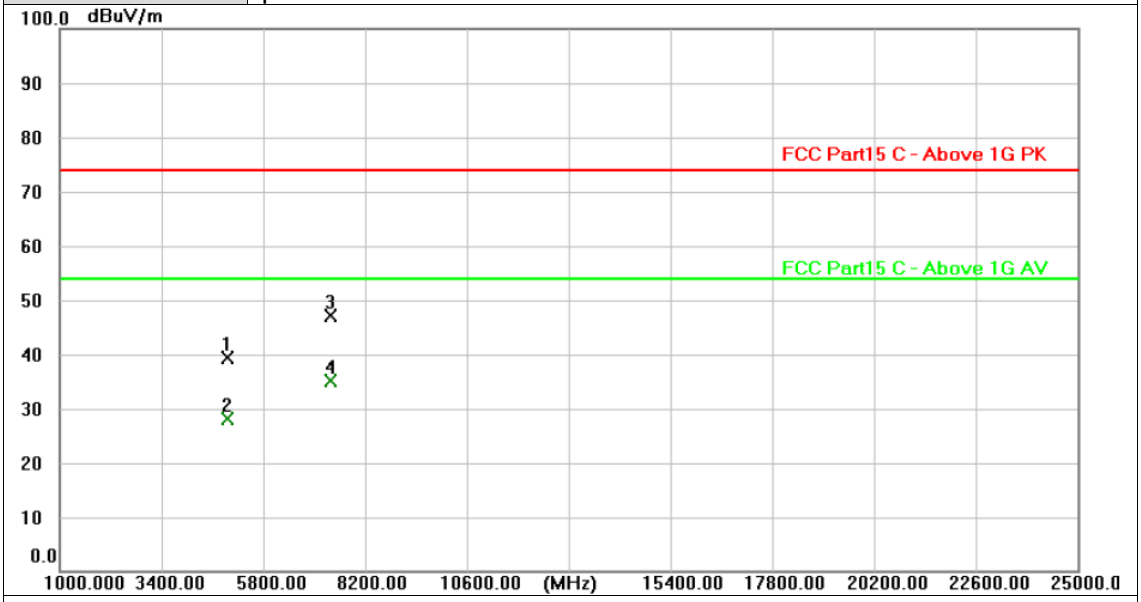
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4924.775	25.99	2.16	28.15	54.00	-25.85	AVG
2	4924.926	37.60	2.16	39.76	74.00	-34.24	peak
3 *	7385.161	25.07	10.09	35.16	54.00	-18.84	AVG
4	7385.971	36.69	10.09	46.78	74.00	-27.22	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

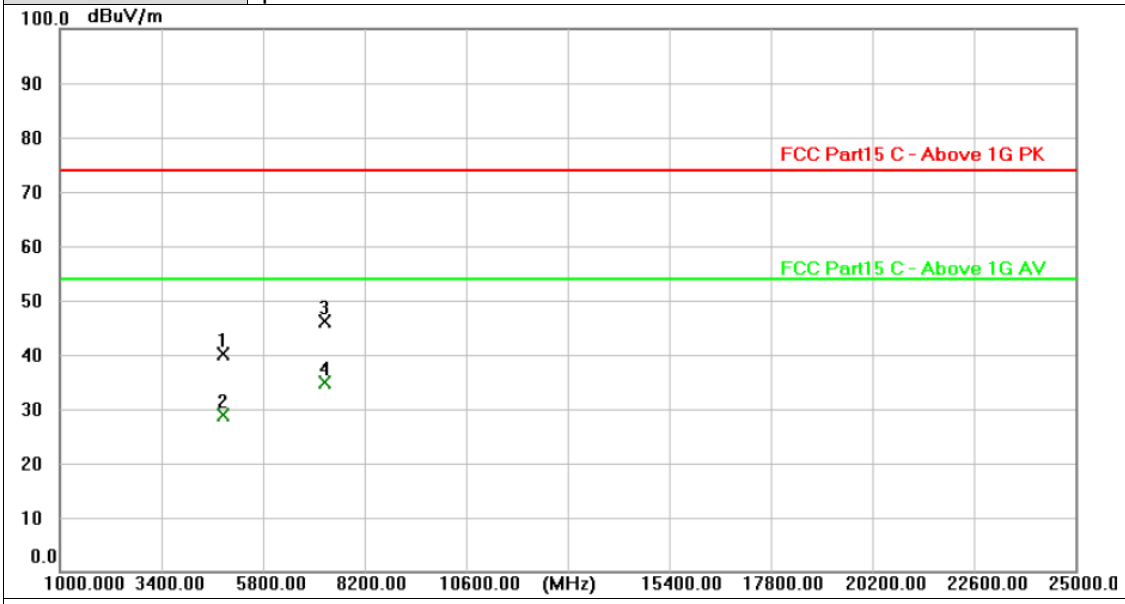
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.292	37.35	2.15	39.50	74.00	-34.50	peak
2	4923.594	25.89	2.16	28.05	54.00	-25.95	AVG
3	7385.379	36.99	10.09	47.08	74.00	-26.92	peak
4 *	7386.599	24.96	10.09	35.05	54.00	-18.95	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

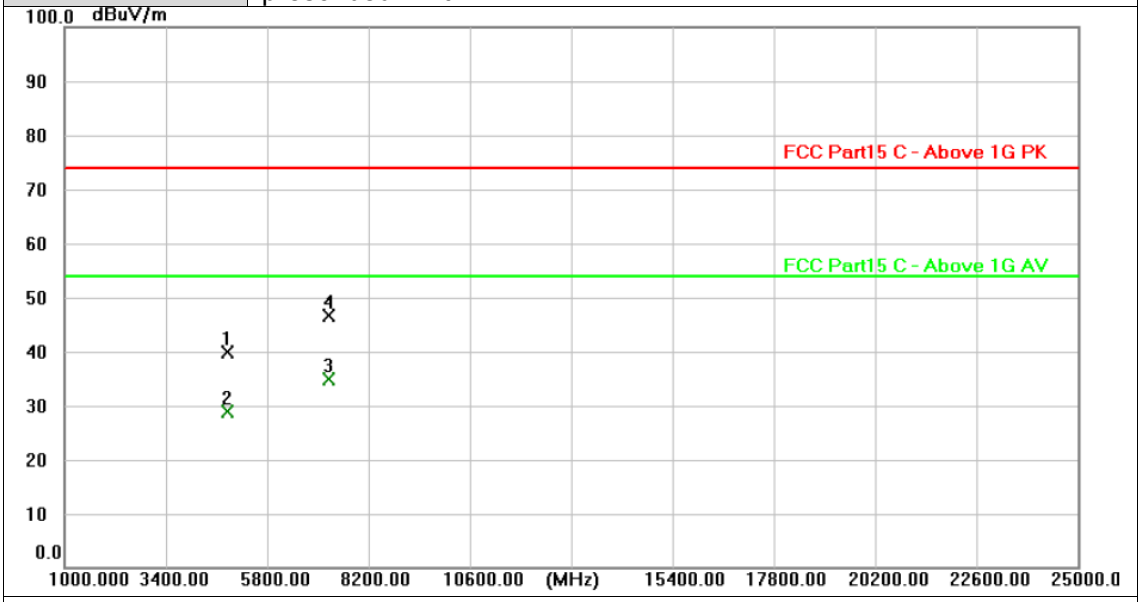
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 2422MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4843.438	38.11	2.05	40.16	74.00	-33.84	peak
2	4843.654	26.89	2.05	28.94	54.00	-25.06	AVG
3	7265.950	35.96	10.05	46.01	74.00	-27.99	peak
4 *	7266.103	24.82	10.05	34.87	54.00	-19.13	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

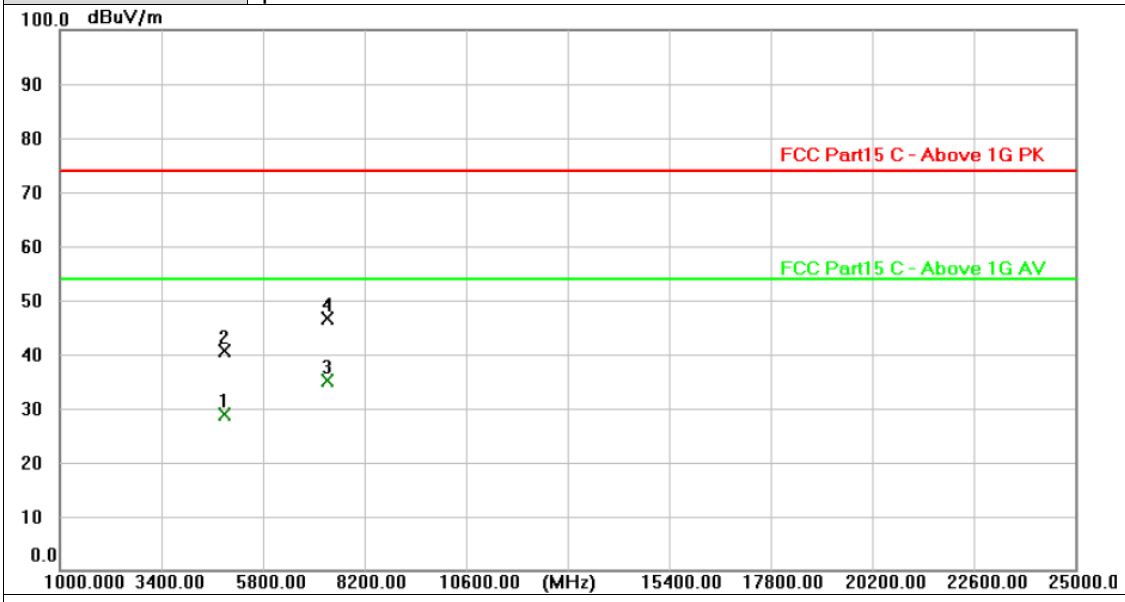
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT40) Mode 2422MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4844.266	37.94	2.05	39.99	74.00	-34.01	peak
2	4844.879	26.85	2.05	28.90	54.00	-25.10	AVG
3 *	7266.668	24.77	10.05	34.82	54.00	-19.18	AVG
4	7266.923	36.66	10.05	46.71	74.00	-27.29	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

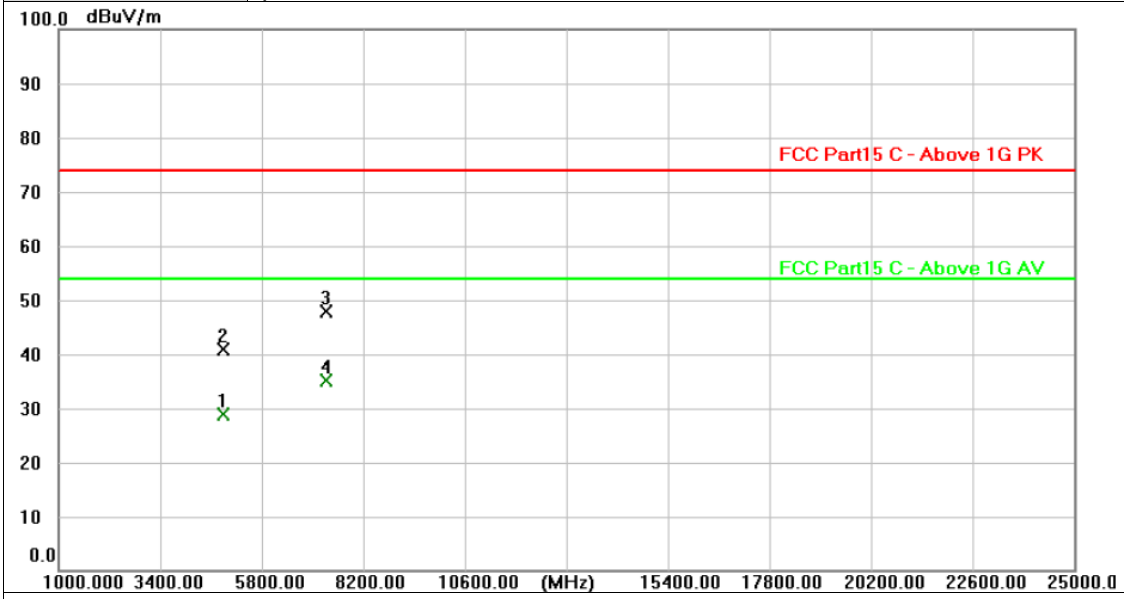
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4874.068	26.76	2.09	28.85	54.00	-25.15	AVG
2	4874.473	38.47	2.09	40.56	74.00	-33.44	peak
3 *	7310.840	24.97	10.07	35.04	54.00	-18.96	AVG
4	7311.549	36.54	10.07	46.61	74.00	-27.39	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

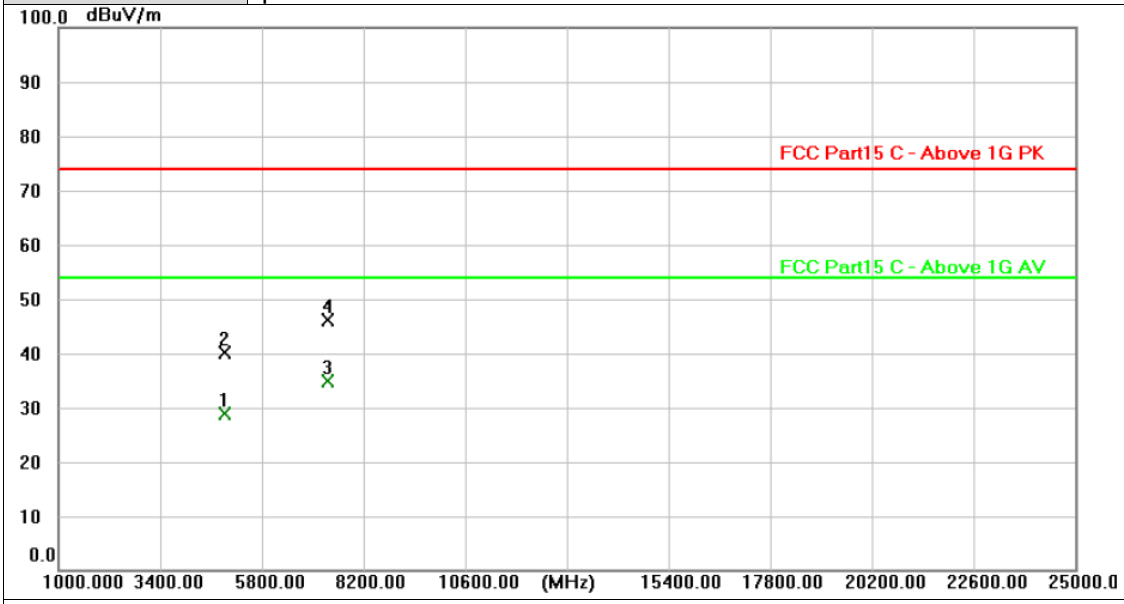
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT40) Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4874.205	26.68	2.09	28.77	54.00	-25.23	AVG
2	4874.903	38.74	2.09	40.83	74.00	-33.17	peak
3	7311.868	37.82	10.07	47.89	74.00	-26.11	peak
4 *	7311.935	25.05	10.07	35.12	54.00	-18.88	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

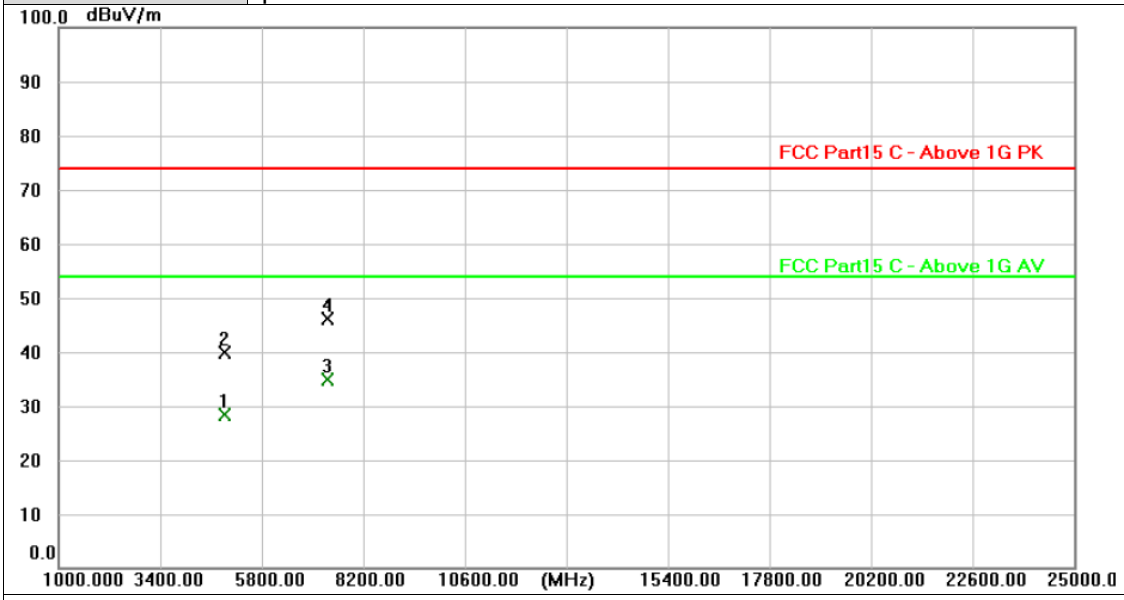
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 2452MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4903.061	26.70	2.12	28.82	54.00	-25.18	AVG
2	4903.135	38.03	2.12	40.15	74.00	-33.85	peak
3 *	7355.183	24.76	10.08	34.84	54.00	-19.16	AVG
4	7356.575	36.15	10.08	46.23	74.00	-27.77	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT40) Mode 2452MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4903.144	26.36	2.12	28.48	54.00	-25.52	AVG
2	4904.514	37.79	2.13	39.92	74.00	-34.08	peak
3 *	7355.785	24.73	10.08	34.81	54.00	-19.19	AVG
4	7356.833	36.04	10.08	46.12	74.00	-27.88	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

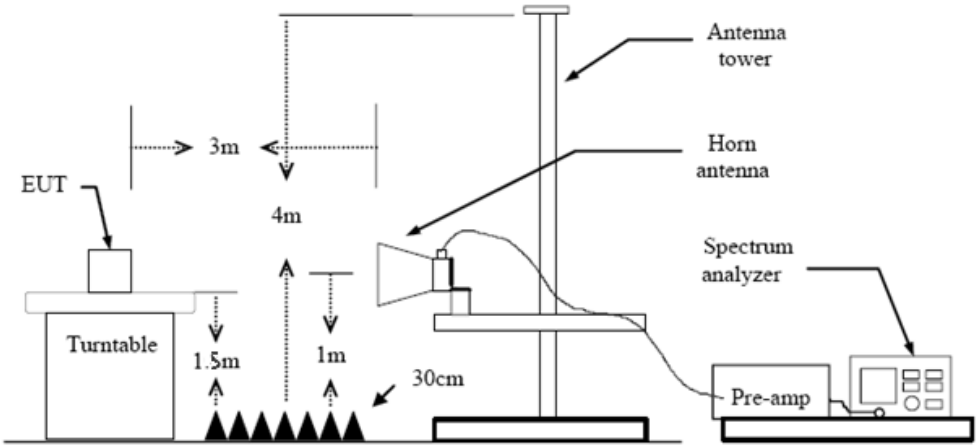
3.3. Band Edge Emissions (Radiated)

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d)/ RSS 247 5.5:

Restricted Frequency Band (MHz)	(dBuV/m)(at 3m)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

Test Configuration



Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:
   RBW=1MHz, VBW=3MHz Peak detector for Peak value.
   RBW=1MHz, VBW see note 1 with Peak Detector for Average Value.

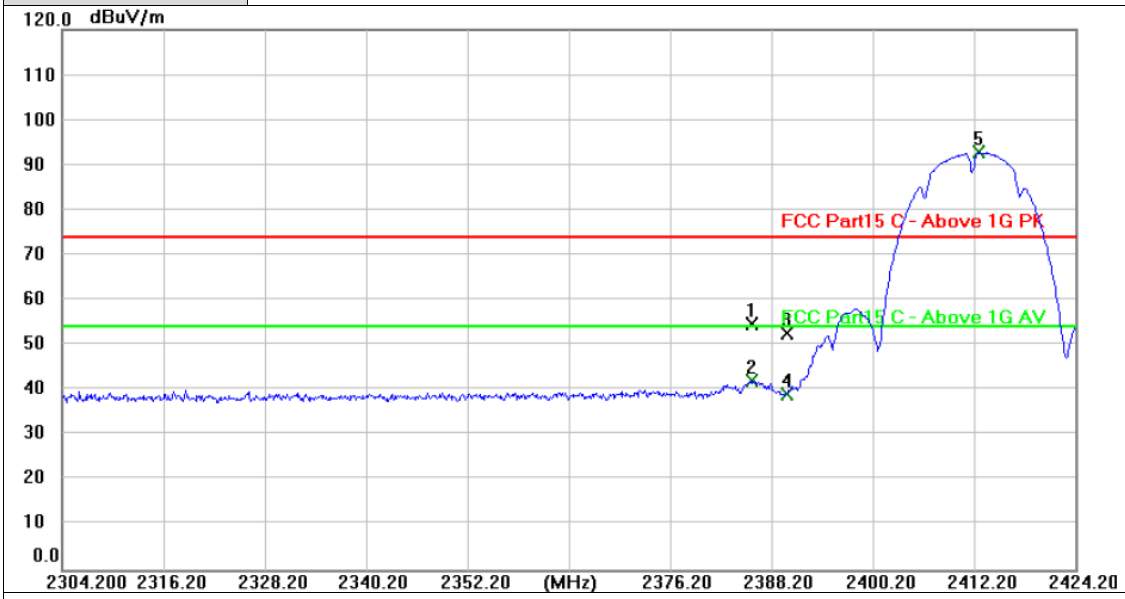
   Note 1: For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 3.8 Duty Cycle.

Test Mode

Please refer to the clause 2.4.

Test Results

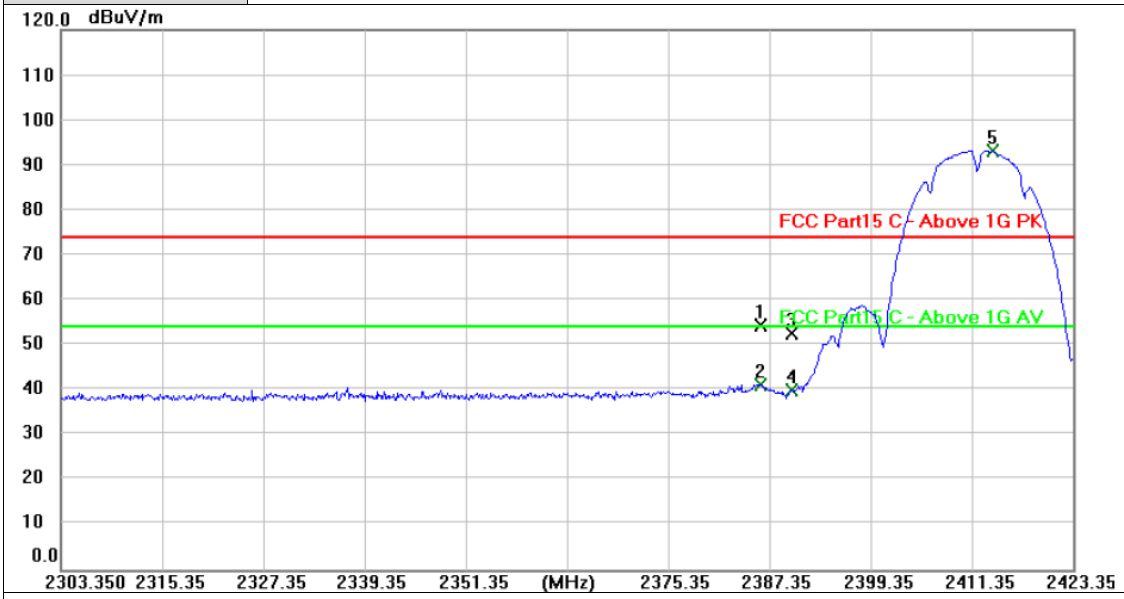
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2385.960	23.55	31.31	54.86	74.00	-19.14	peak
2	2385.960	10.75	31.31	42.06	54.00	-11.94	AVG
3	2390.000	21.48	31.31	52.79	74.00	-21.21	peak
4	2390.000	7.97	31.31	39.28	54.00	-14.72	AVG
5 *	2412.880	61.46	31.34	92.80	54.00	38.80	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

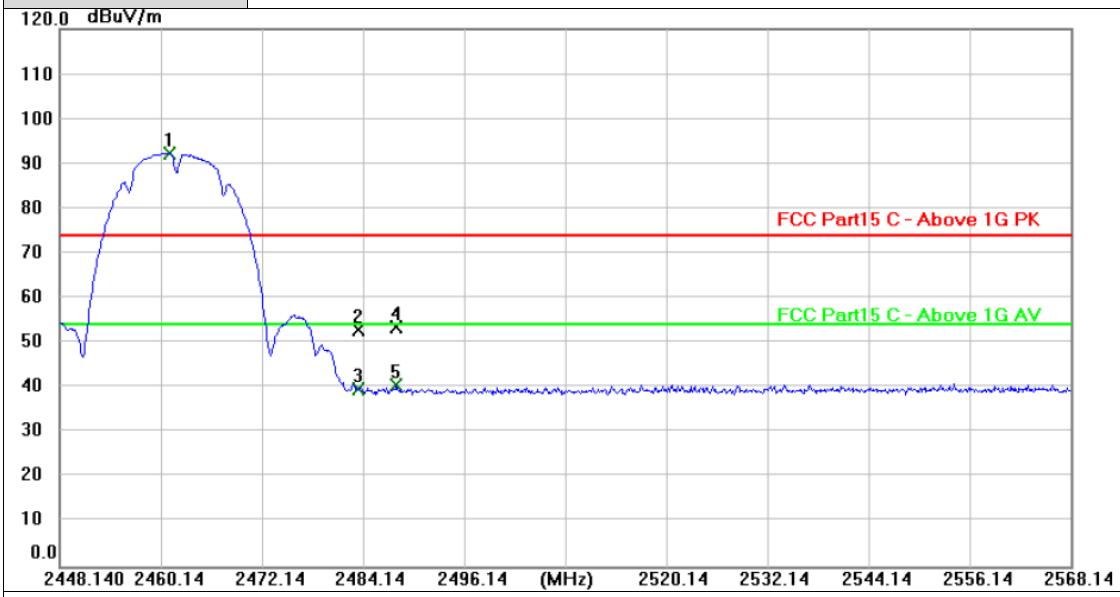
Ant. Pol.	Vertical
Test Mode:	802.11b Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2386.310	23.13	31.31	54.44	74.00	-19.56	peak
2	2386.310	10.00	31.31	41.31	54.00	-12.69	AVG
3	2390.000	21.38	31.31	52.69	74.00	-21.31	peak
4	2390.000	8.67	31.31	39.98	54.00	-14.02	AVG
5 *	2413.910	61.88	31.34	93.22	54.00	39.22	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

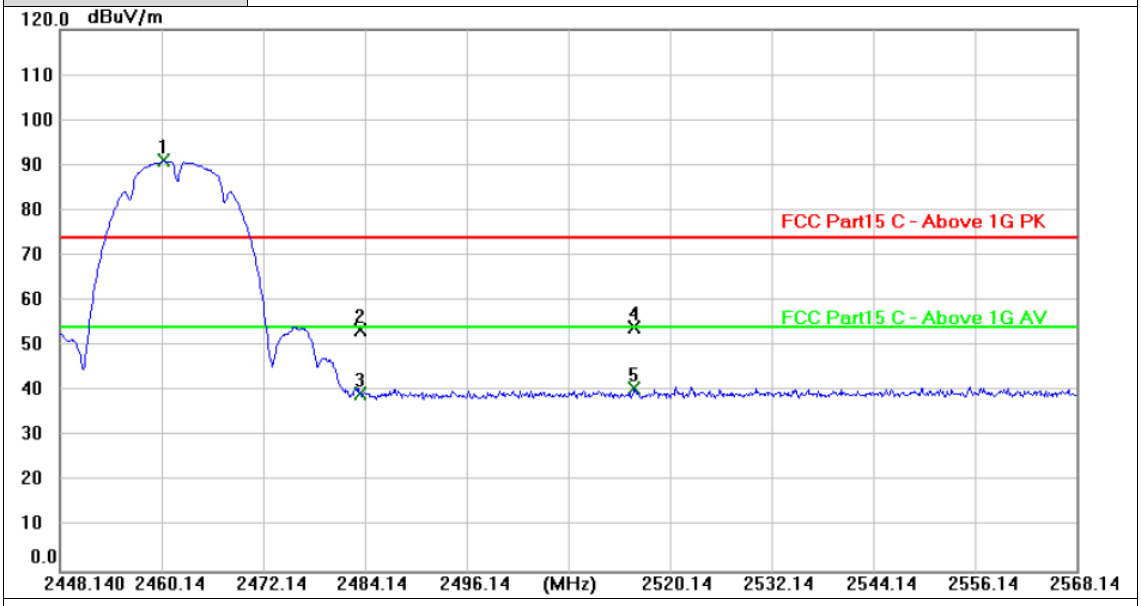
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2462 MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2461.300	60.91	31.44	92.35	54.00	38.35	AVG
2	2483.500	21.57	31.48	53.05	74.00	-20.95	peak
3	2483.500	8.26	31.48	39.74	54.00	-14.26	AVG
4	2488.180	22.13	31.49	53.62	74.00	-20.38	peak
5	2488.180	9.04	31.49	40.53	54.00	-13.47	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

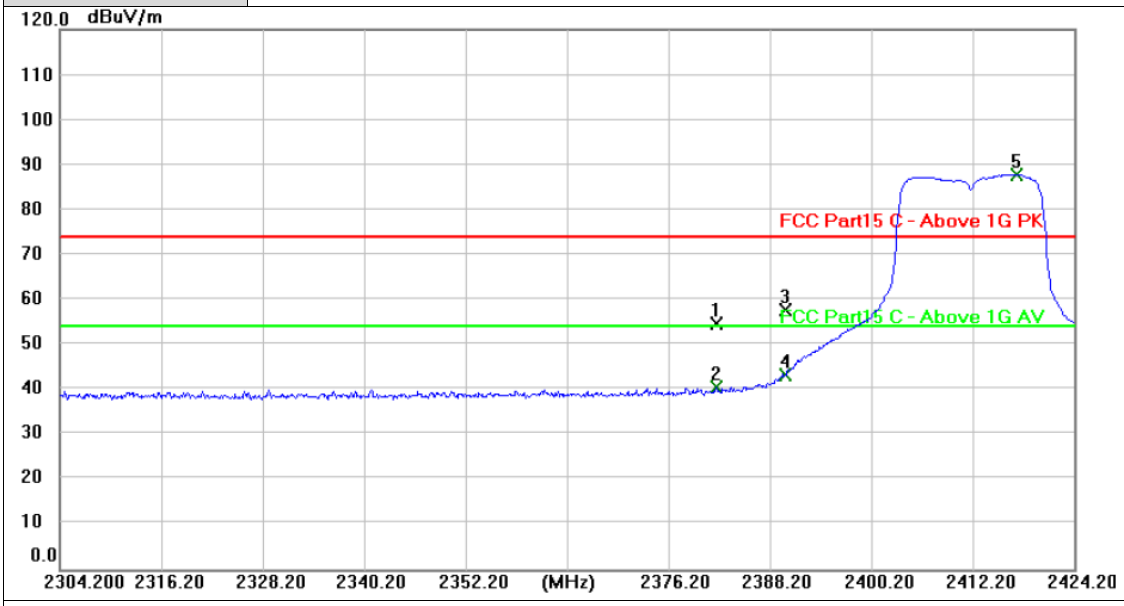
Ant. Pol.	Vertical
Test Mode:	802.11b Mode 2462 MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2460.460	59.48	31.43	90.91	54.00	36.91	AVG
2	2483.500	22.14	31.48	53.62	74.00	-20.38	peak
3	2483.500	7.89	31.48	39.37	54.00	-14.63	AVG
4	2516.020	22.67	31.54	54.21	74.00	-19.79	peak
5	2516.020	9.01	31.54	40.55	54.00	-13.45	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

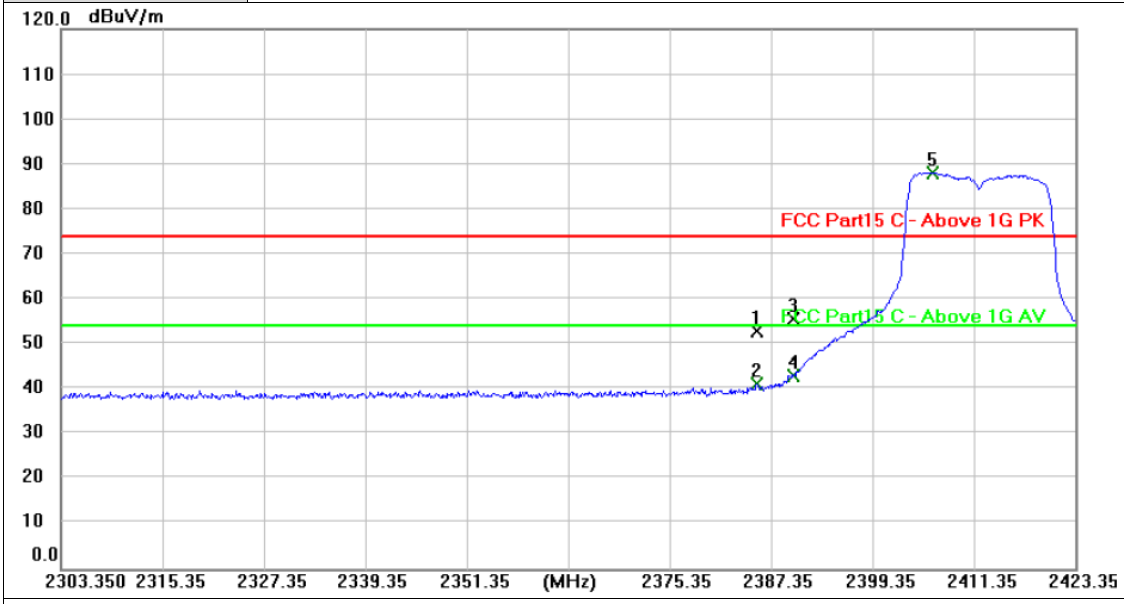
Ant. Pol.	Horizontal
Test Mode:	802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2381.880	23.42	31.30	54.72	74.00	-19.28	peak
2	2381.880	9.23	31.30	40.53	54.00	-13.47	AVG
3	2390.000	26.48	31.31	57.79	74.00	-16.21	peak
4	2390.000	12.11	31.31	43.42	54.00	-10.58	AVG
5 *	2417.440	56.52	31.36	87.88	54.00	33.88	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

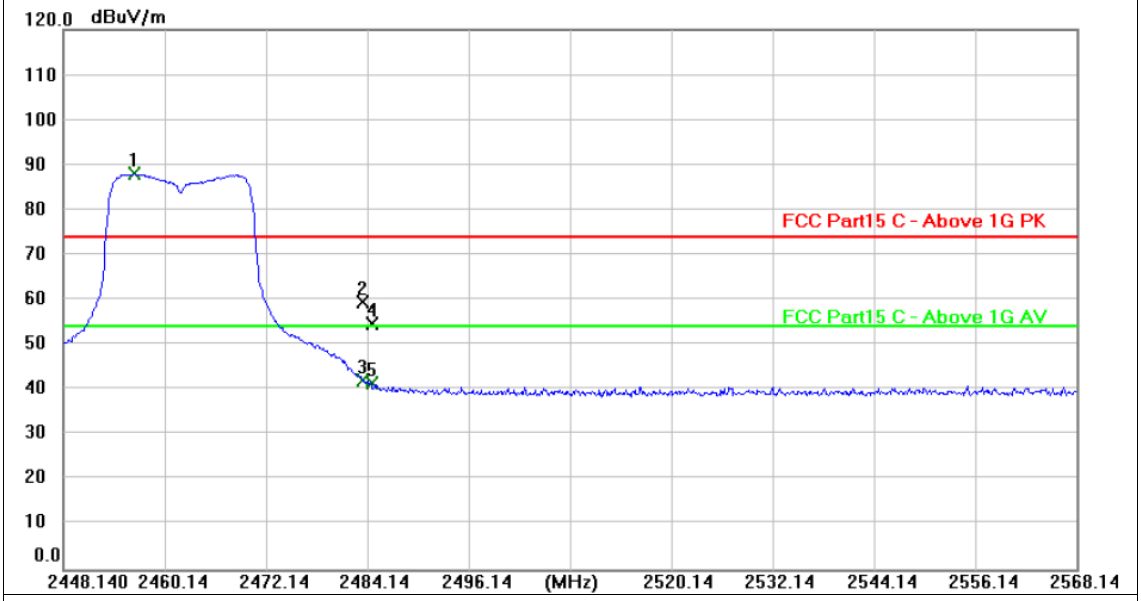
Ant. Pol.	Vertical
Test Mode:	802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2385.670	21.74	31.31	53.05	74.00	-20.95	peak
2	2385.670	10.01	31.31	41.32	54.00	-12.68	AVG
3	2390.000	24.37	31.31	55.68	74.00	-18.32	peak
4	2390.000	11.63	31.31	42.94	54.00	-11.06	AVG
5 *	2406.510	56.79	31.34	88.13	54.00	34.13	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

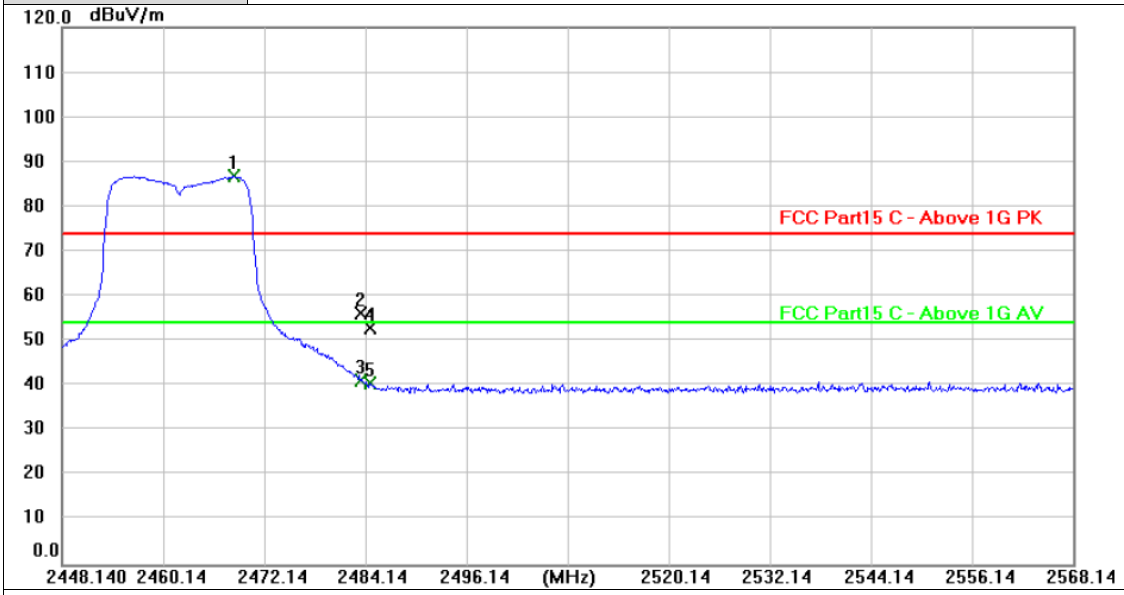
Ant. Pol.	Horizontal
Test Mode:	802.11g Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2456.540	56.50	31.43	87.93	54.00	33.93	AVG
2	2483.500	27.99	31.48	59.47	74.00	-14.53	peak
3	2483.500	10.63	31.48	42.11	54.00	-11.89	AVG
4	2484.620	23.40	31.48	54.88	74.00	-19.12	peak
5	2484.620	10.06	31.48	41.54	54.00	-12.46	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

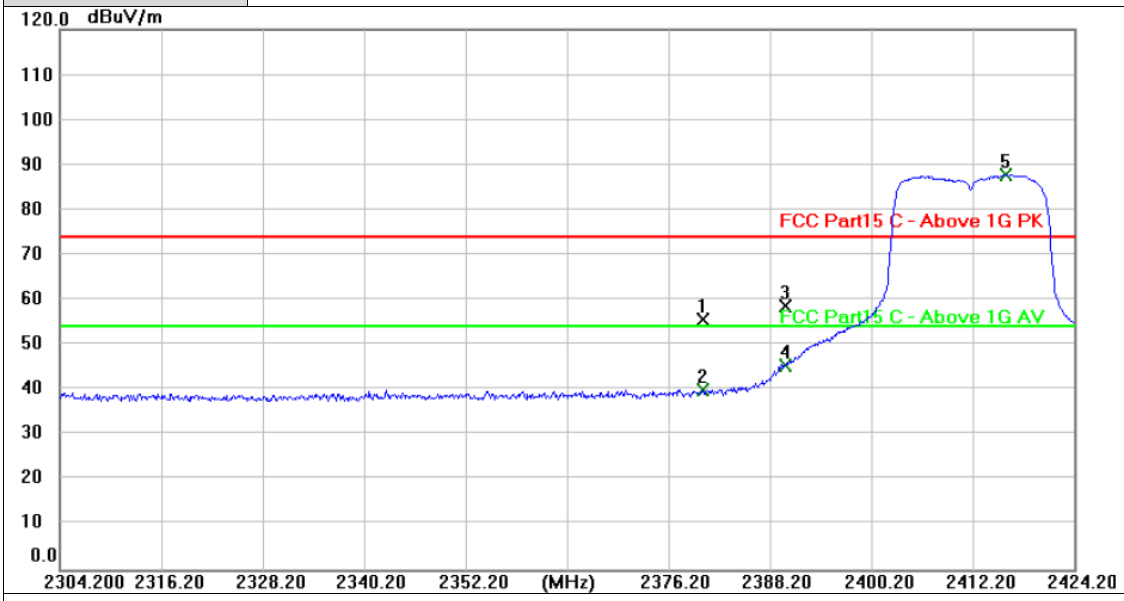
Ant. Pol.	Vertical
Test Mode:	802.11g Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2468.540	55.28	31.45	86.73	54.00	32.73	AVG
2	2483.500	24.92	31.48	56.40	74.00	-17.60	peak
3	2483.500	9.64	31.48	41.12	54.00	-12.88	AVG
4	2484.820	21.50	31.48	52.98	74.00	-21.02	peak
5	2484.820	9.14	31.48	40.62	54.00	-13.38	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

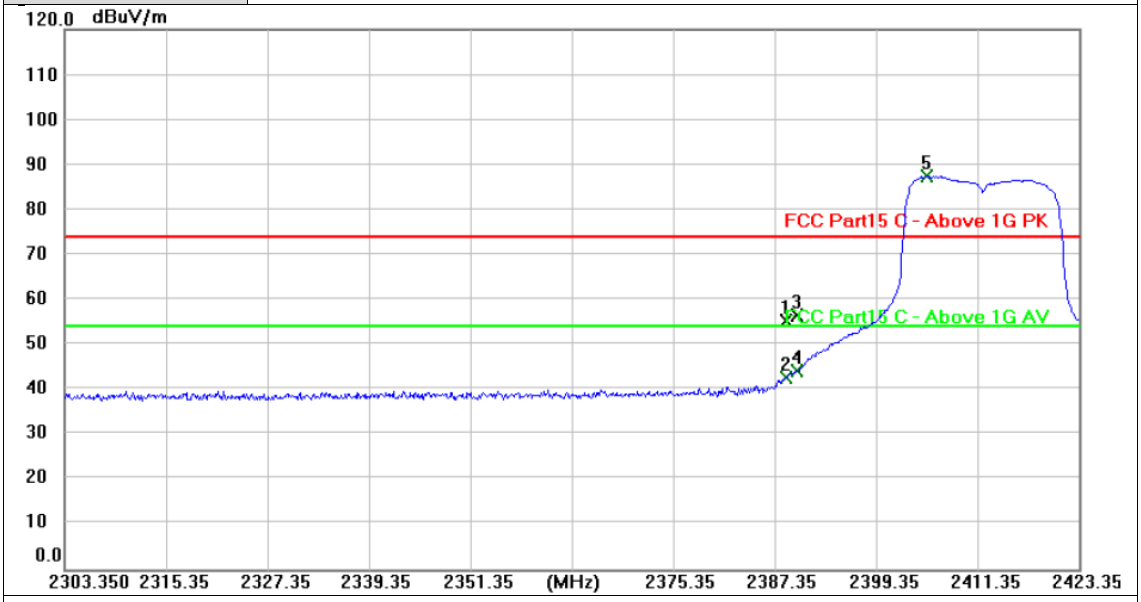
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT20) Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2380.280	24.22	31.30	55.52	74.00	-18.48	peak
2	2380.280	8.85	31.30	40.15	54.00	-13.85	AVG
3	2390.000	27.27	31.31	58.58	74.00	-15.42	peak
4	2390.000	14.12	31.31	45.43	54.00	-8.57	AVG
5 *	2416.040	56.37	31.35	87.72	54.00	33.72	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

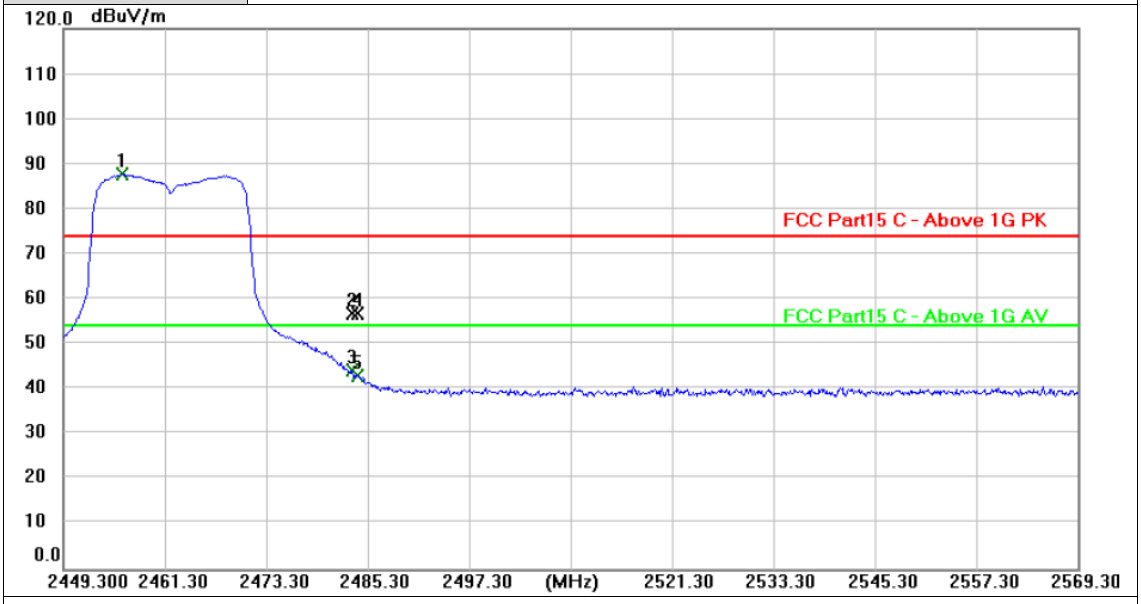
Ant. Pol.	Vertical
Test Mode:	802.11n(HT20) Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2388.670	24.02	31.31	55.33	74.00	-18.67	peak
2	2388.670	11.55	31.31	42.86	54.00	-11.14	AVG
3	2390.000	25.16	31.31	56.47	74.00	-17.53	peak
4	2390.000	13.04	31.31	44.35	54.00	-9.65	AVG
5 *	2405.430	56.18	31.33	87.51	54.00	33.51	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

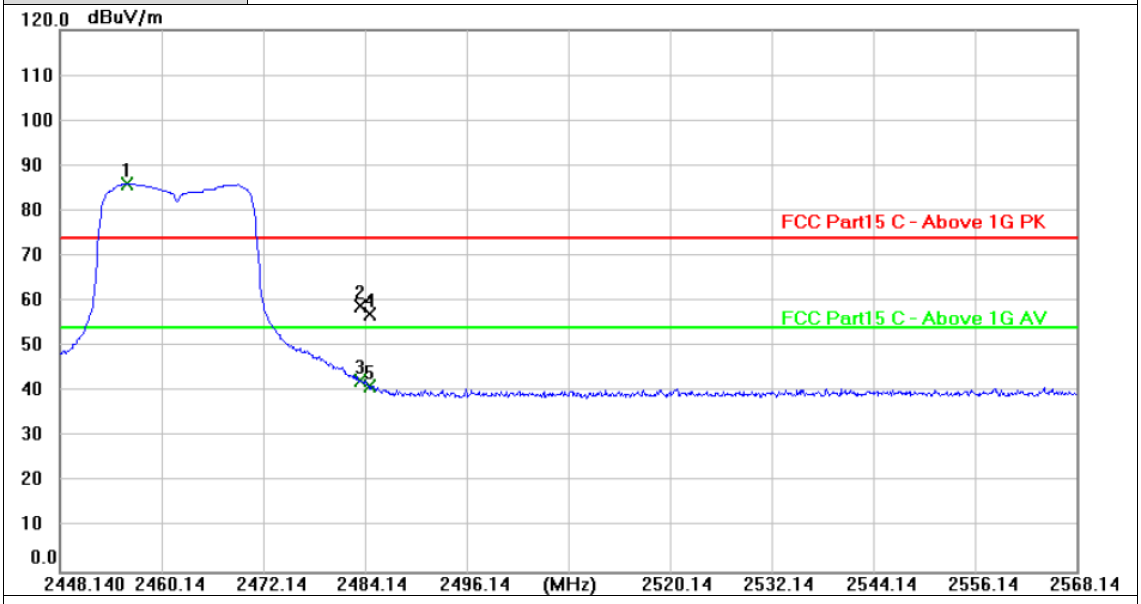
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT20) Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2456.340	56.27	31.43	87.70	54.00	33.70	AVG
2	2483.500	25.36	31.48	56.84	74.00	-17.16	peak
3	2483.500	12.81	31.48	44.29	54.00	-9.71	AVG
4	2484.140	25.39	31.48	56.87	74.00	-17.13	peak
5	2484.140	11.49	31.48	42.97	54.00	-11.03	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

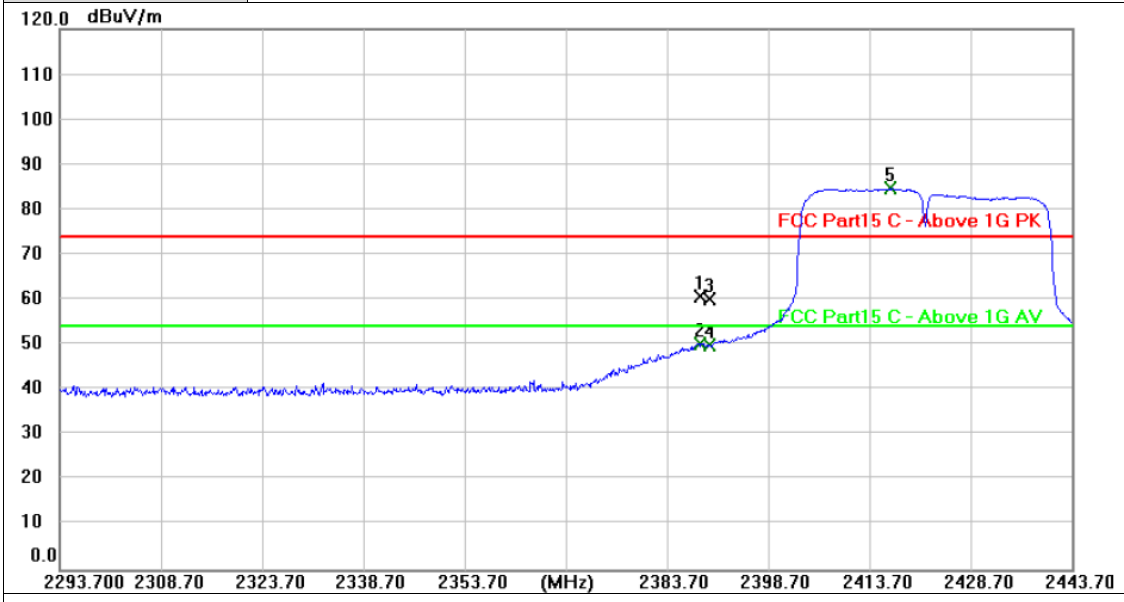
Ant. Pol.	Vertical
Test Mode:	802.11n(HT20) Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2456.100	54.54	31.43	85.97	54.00	31.97	AVG
2	2483.500	27.44	31.48	58.92	74.00	-15.08	peak
3	2483.500	10.96	31.48	42.44	54.00	-11.56	AVG
4	2484.620	25.75	31.48	57.23	74.00	-16.77	peak
5	2484.620	9.76	31.48	41.24	54.00	-12.76	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

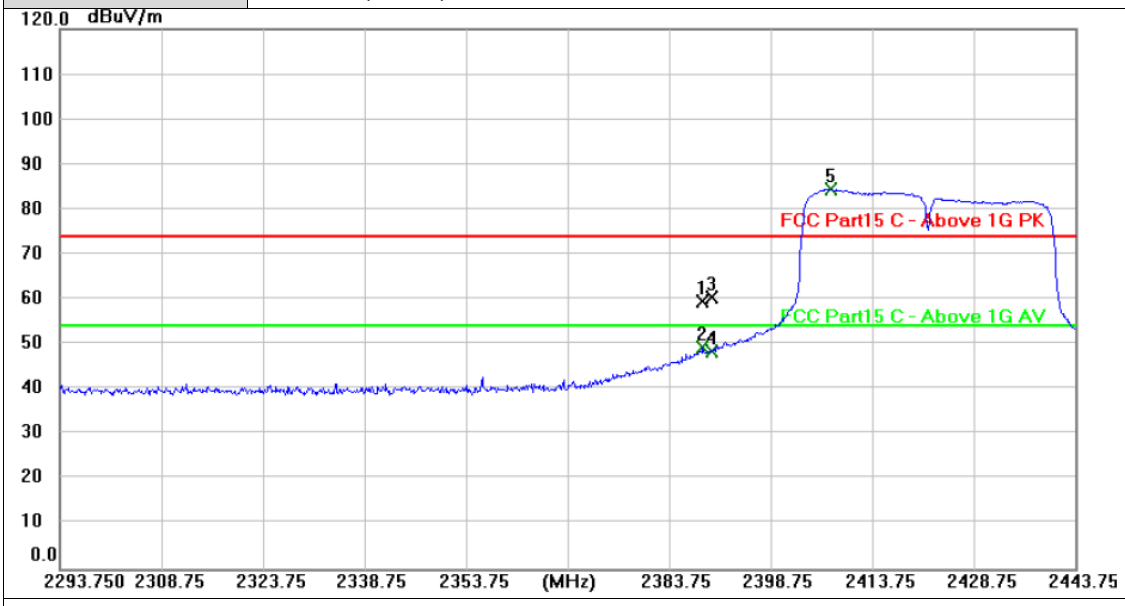
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT40) Mode 2422MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2388.600	29.56	31.31	60.87	74.00	-13.13	peak
2	2388.600	18.99	31.31	50.30	54.00	-3.70	AVG
3	2390.000	28.95	31.31	60.26	74.00	-13.74	peak
4	2390.000	18.66	31.31	49.97	54.00	-4.03	AVG
5 *	2416.850	53.25	31.36	84.61	54.00	30.61	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

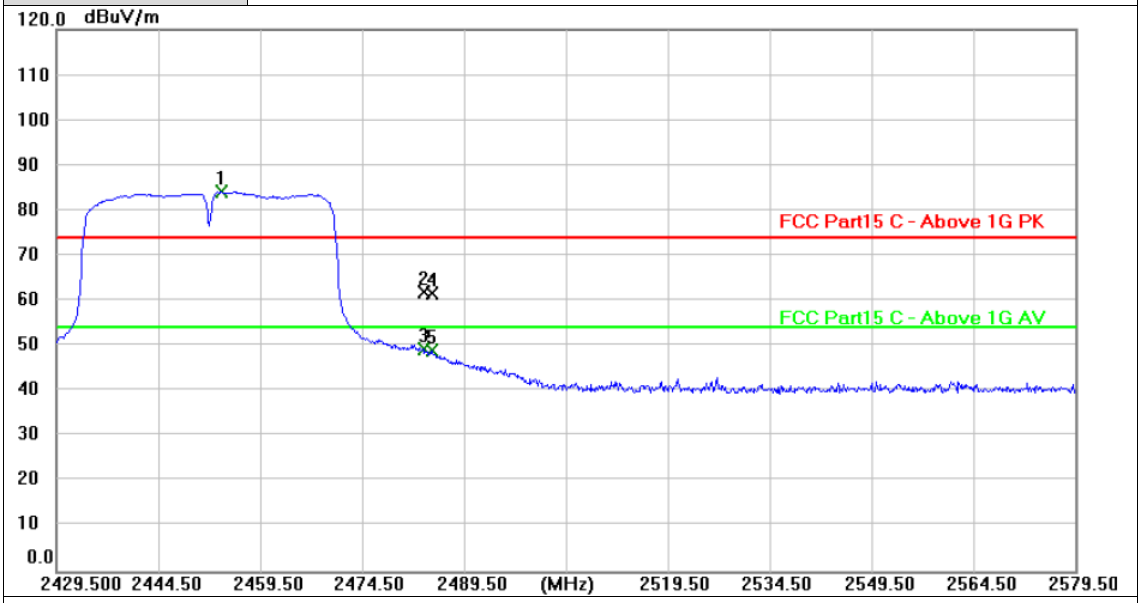
Ant. Pol.	Vertical
Test Mode:	802.11n(HT40) Mode 2422MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2388.800	28.14	31.31	59.45	74.00	-14.55	peak
2	2388.800	18.11	31.31	49.42	54.00	-4.58	AVG
3	2390.000	29.09	31.31	60.40	74.00	-13.60	peak
4	2390.000	17.02	31.31	48.33	54.00	-5.67	AVG
5 *	2407.600	53.20	31.34	84.54	54.00	30.54	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

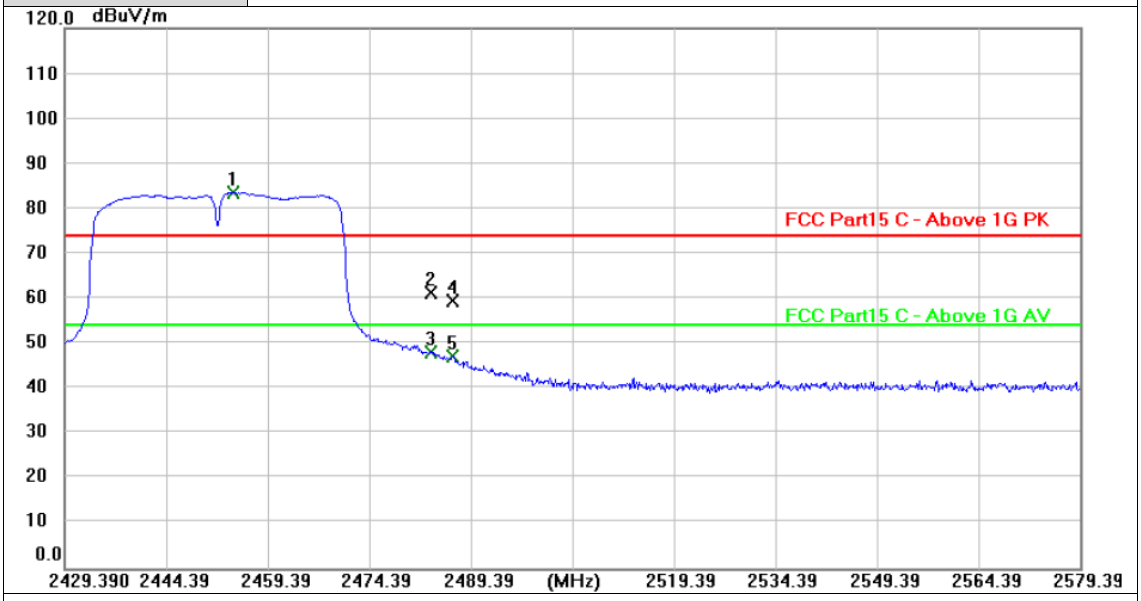
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT40) Mode 2452MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2453.850	52.66	31.42	84.08	54.00	30.08	AVG
2	2483.500	30.49	31.48	61.97	74.00	-12.03	peak
3	2483.500	17.97	31.48	49.45	54.00	-4.55	AVG
4	2484.800	30.32	31.48	61.80	74.00	-12.20	peak
5	2484.800	17.45	31.48	48.93	54.00	-5.07	AVG

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

Ant. Pol.	Vertical
Test Mode:	802.11n(HT40) Mode 2452MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2454.390	52.12	31.42	83.54	54.00	29.54	AVG
2	2483.500	29.87	31.48	61.35	74.00	-12.65	peak
3	2483.500	16.67	31.48	48.15	54.00	-5.85	AVG
4	2486.790	28.01	31.49	59.50	74.00	-14.50	peak
5	2486.790	15.87	31.49	47.36	54.00	-6.64	AVG

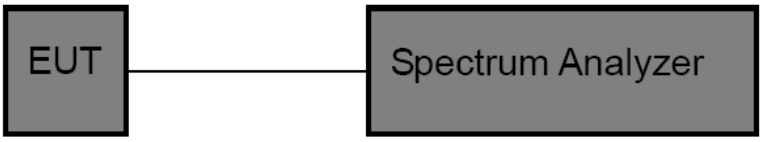
Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

3.4. Band edge and Spurious Emissions (Conducted)

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):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 Configuration



Test Procedure

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
   RBW = 100 kHz, VBW ≥ RBW, scan up through 10th harmonic.
   Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

Test Mode

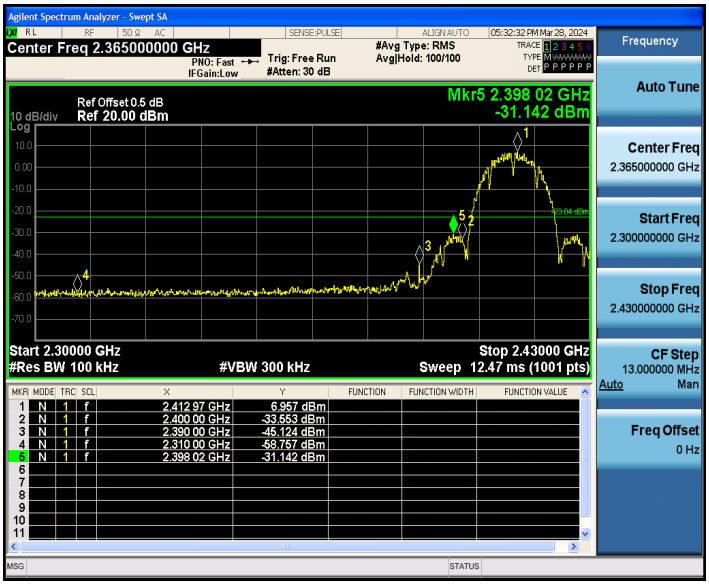
Please refer to the clause 2.4.

Test Results

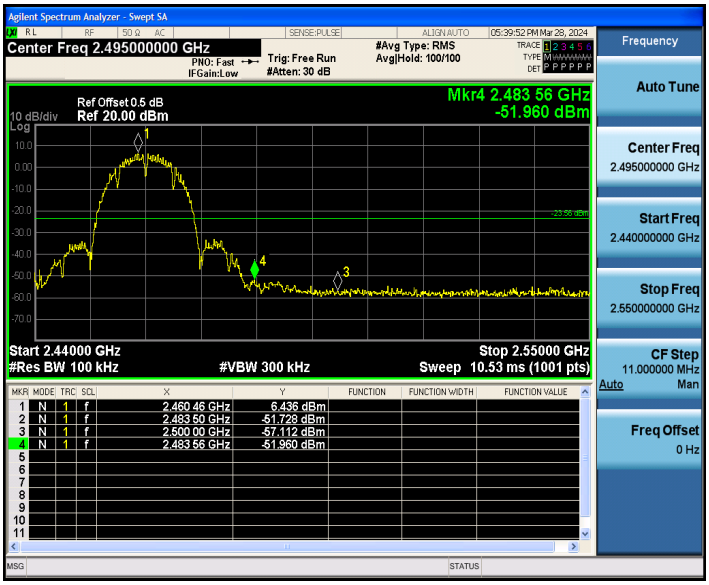
(1) Band edge Conducted Test

Test Mode	Test Frequency	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
802.11b	2412	6.96	-31.14	≤-23.04	PASS
	2462	6.44	-51.96	≤-23.56	PASS
802.11g	2412	3.14	-29.80	≤-26.87	PASS
	2462	3.24	-40.29	≤-26.76	PASS
802.11n(HT20)	2412	2.95	-28.70	≤-27.05	PASS
	2462	2.33	-41.33	≤-27.67	PASS
802.11n(HT40)	2422	0.43	-29.82	≤-29.57	PASS
	2452	-0.07	-35.45	≤-30.07	PASS

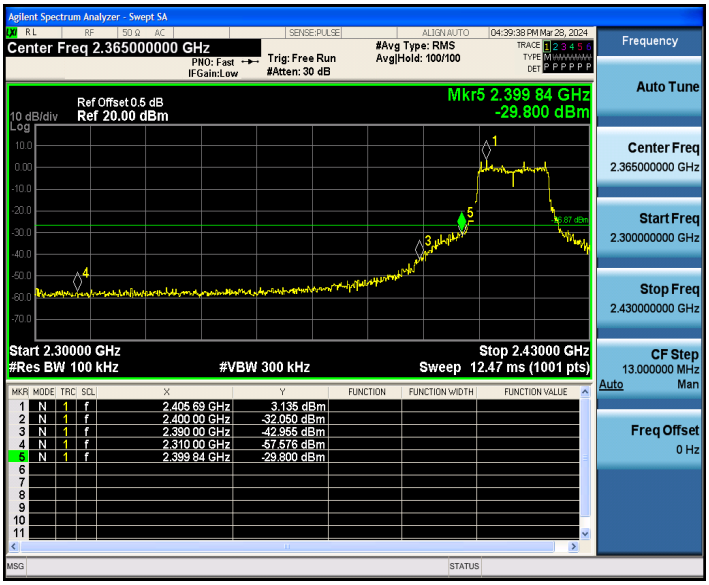
802.11b_Low_2412



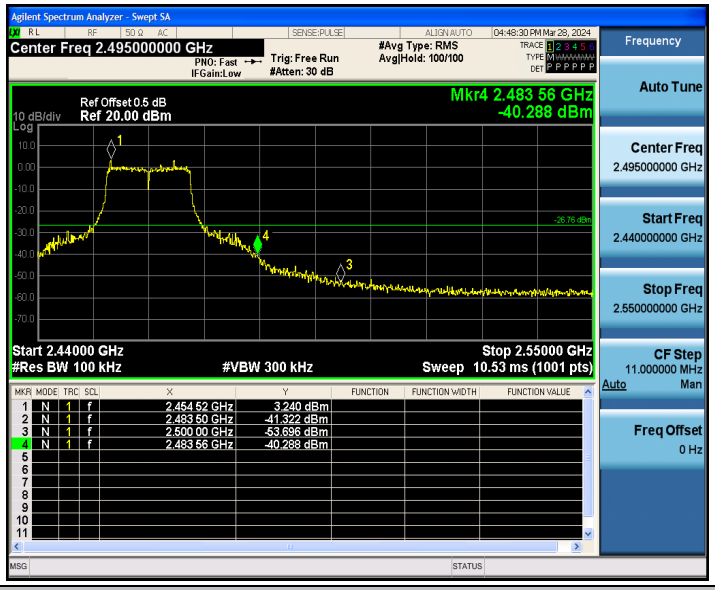
802.11b_High_2462



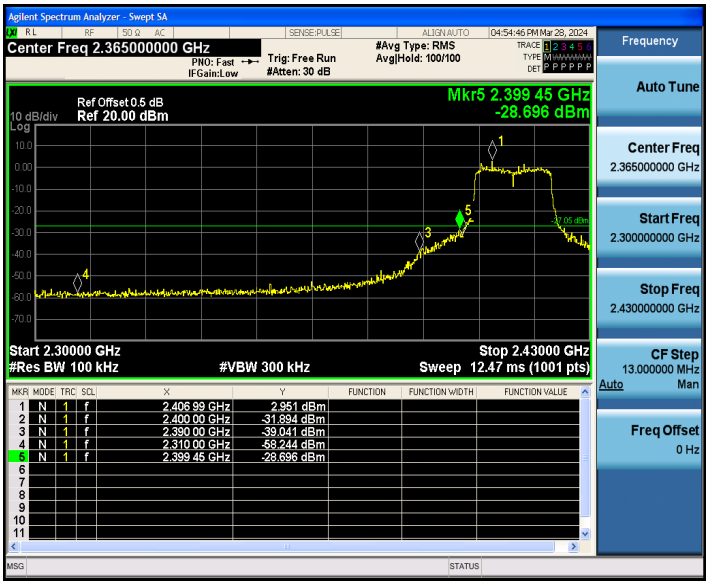
802.11g_Low_2412



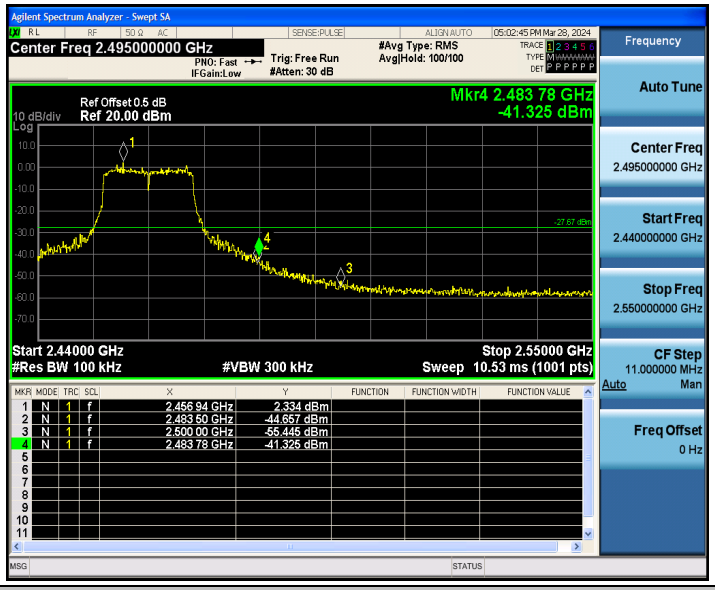
802.11g_High_2462



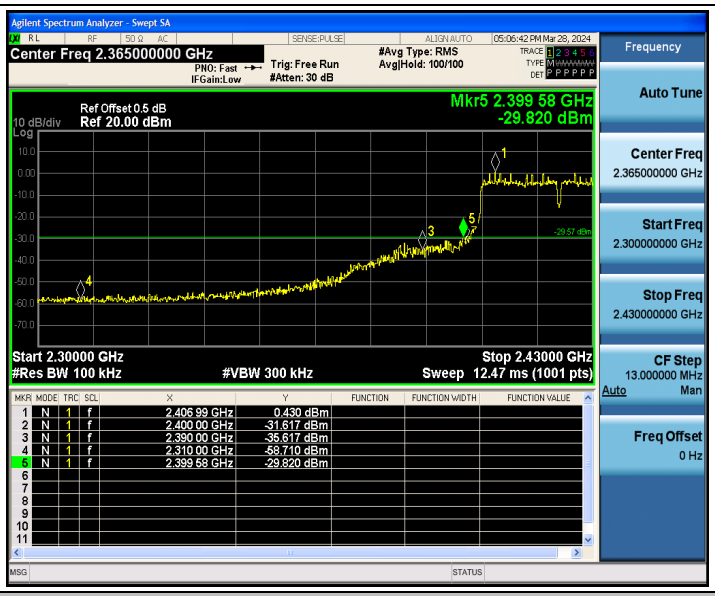
802.11n(HT20)_Low_2412



802.11n(HT20)_High_2462



802.11n(HT40)_Low_2422

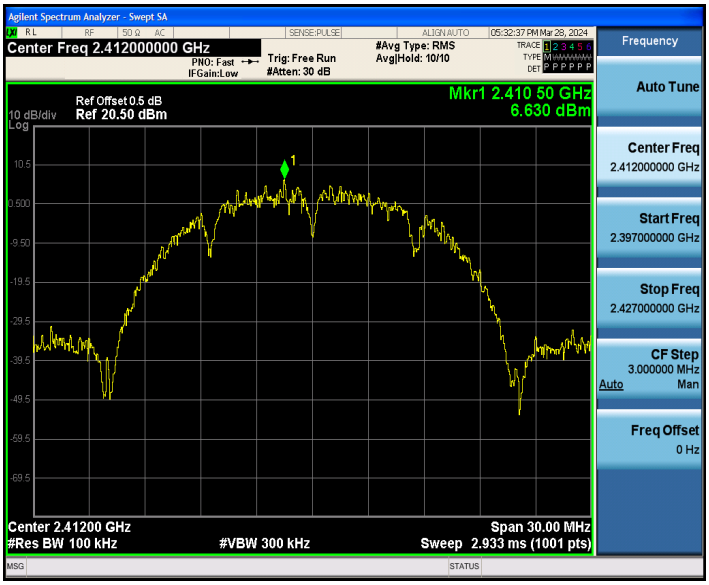


802.11n(HT40)_High_2452

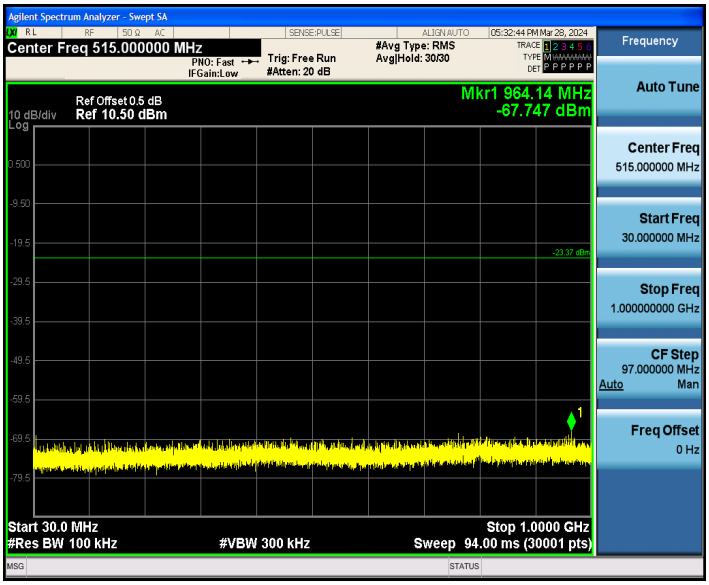
(2) Conducted Spurious Emissions Test

Test Mode	Frequency[MHz]	Freq Range [Mhz]	Ref Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
802.11b	2412	Reference	6.63	6.63	---	PASS
		30~1000	6.63	-67.75	≤-23.37	PASS
		1000~26500	6.63	-48.56	≤-23.37	PASS
	2437	Reference	6.16	6.16	---	PASS
		30~1000	6.16	-68.02	≤-23.84	PASS
		1000~26500	6.16	-48.63	≤-23.84	PASS
	2462	Reference	6.00	6.00	---	PASS
		30~1000	6.00	-67.09	≤-24.00	PASS
		1000~26500	6.00	-47.93	≤-24.00	PASS
802.11g	2412	Reference	0.68	0.68	---	PASS
		30~1000	0.68	-68.13	≤-29.32	PASS
		1000~26500	0.68	-48.30	≤-29.32	PASS
	2437	Reference	-0.02	-0.02	---	PASS
		30~1000	-0.02	-68.32	≤-30.02	PASS
		1000~26500	-0.02	-48.42	≤-30.02	PASS
	2462	Reference	1.60	1.60	---	PASS
		30~1000	1.60	-68.52	≤-28.40	PASS
		1000~26500	1.60	-48.70	≤-28.40	PASS
802.11n(HT20)	2412	Reference	1.99	1.99	---	PASS
		30~1000	1.99	-68.04	≤-28.01	PASS
		1000~26500	1.99	-48.14	≤-28.01	PASS
	2437	Reference	-0.46	-0.46	---	PASS
		30~1000	-0.46	-67.56	≤-30.46	PASS
		1000~26500	-0.46	-48.13	≤-30.46	PASS
	2462	Reference	-0.93	-0.93	---	PASS
		30~1000	-0.93	-68.53	≤-30.93	PASS
		1000~26500	-0.93	-48.43	≤-30.93	PASS
802.11n(HT40)	2422	Reference	-0.44	-0.44	---	PASS
		30~1000	-0.44	-66.60	≤-30.44	PASS
		1000~26500	-0.44	-47.51	≤-30.44	PASS
	2437	Reference	-0.09	-0.09	---	PASS
		30~1000	-0.09	-63.42	≤-30.09	PASS
		1000~26500	-0.09	-48.23	≤-30.09	PASS
	2452	Reference	-1.94	-1.94	---	PASS
		30~1000	-1.94	-65.90	≤-31.94	PASS
		1000~26500	-1.94	-48.59	≤-31.94	PASS

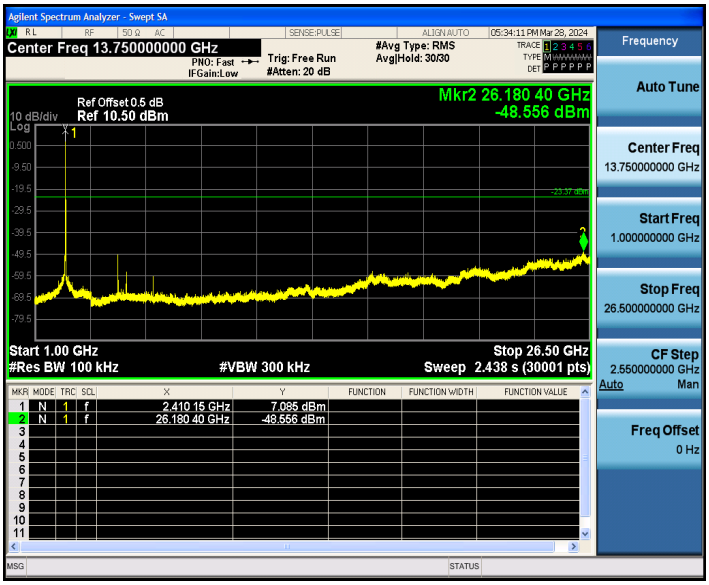
802.11b_2412_0~Reference



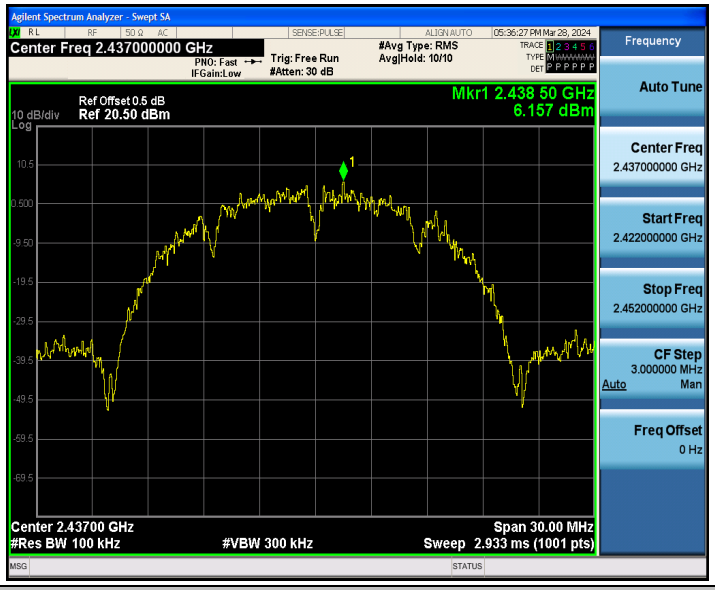
802.11b_2412_30~1000



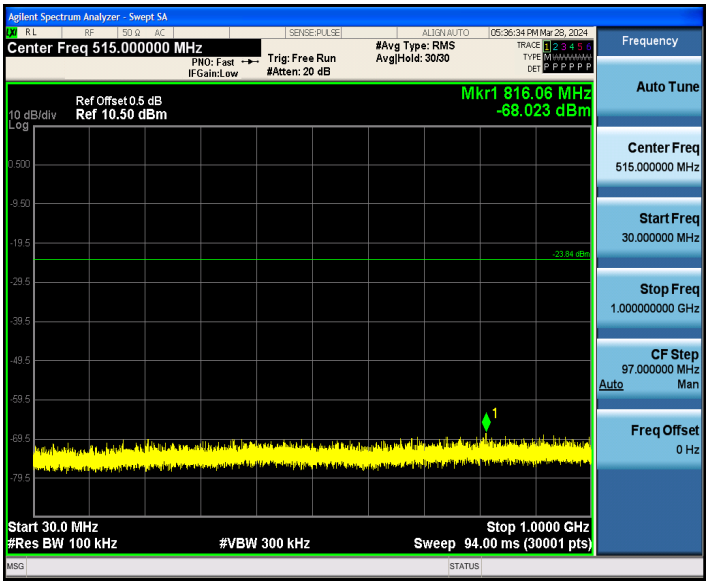
802.11b_2412_1000~26500



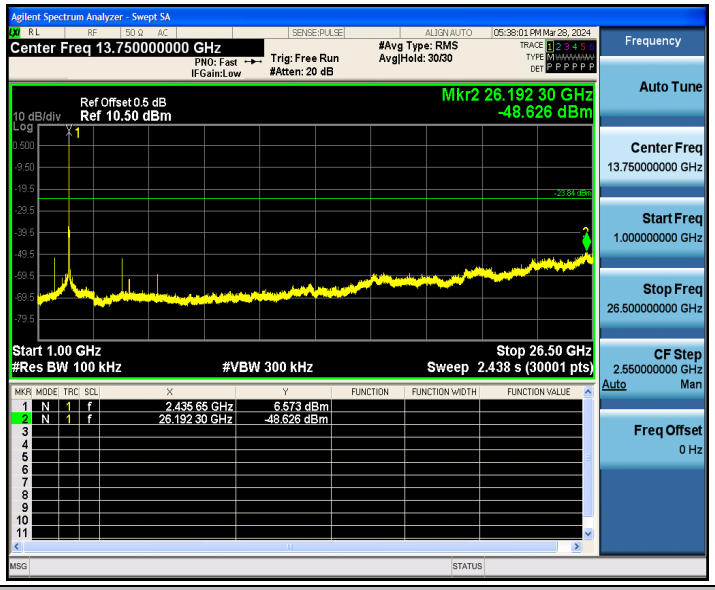
802.11b_2437_0~Reference



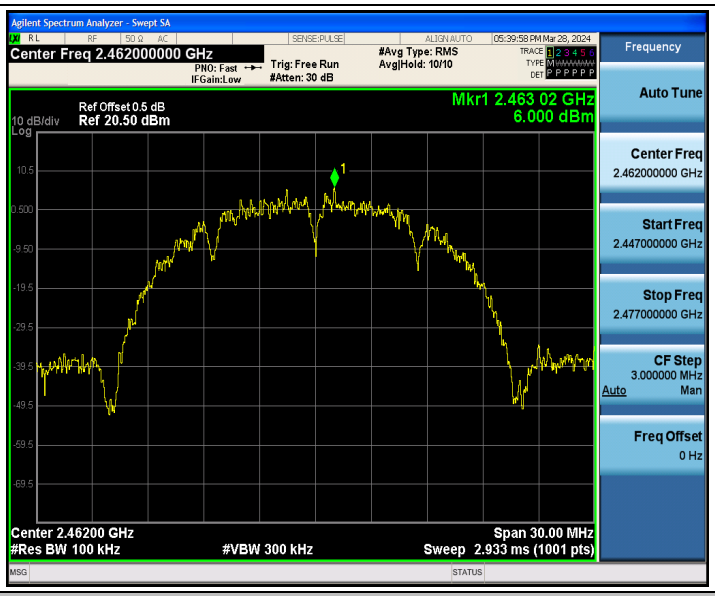
802.11b_2437_30~1000



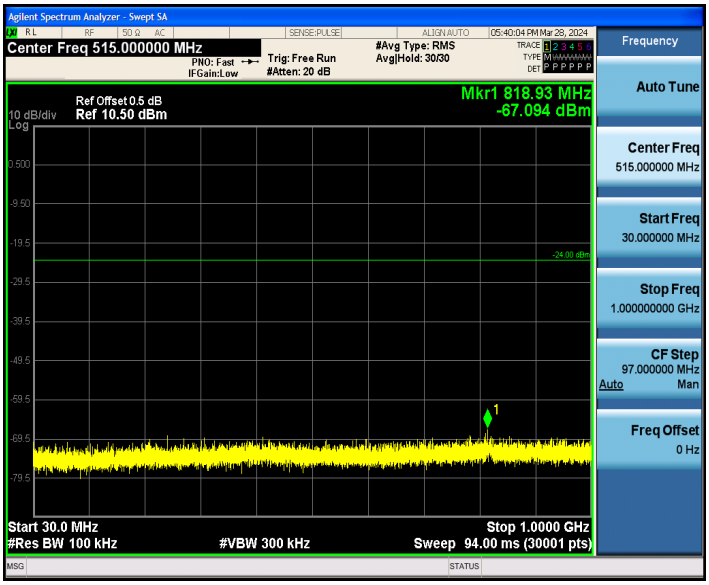
802.11b_2437_1000~26500



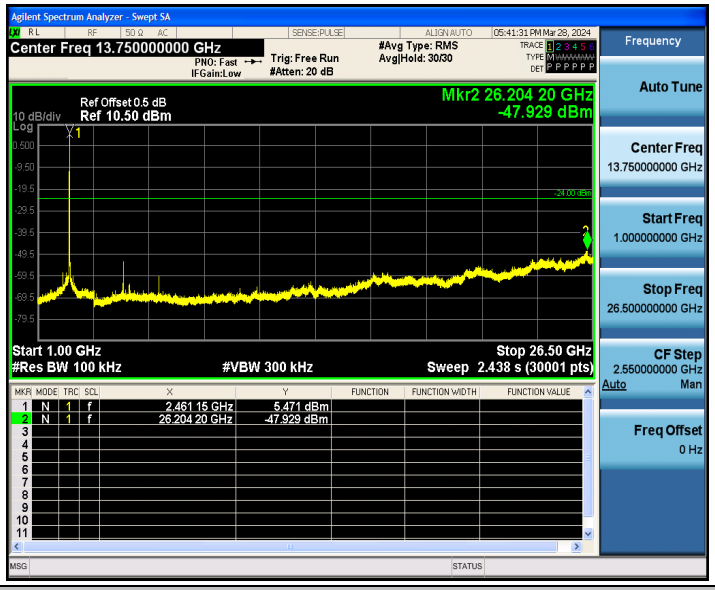
802.11b_2462_0~Reference



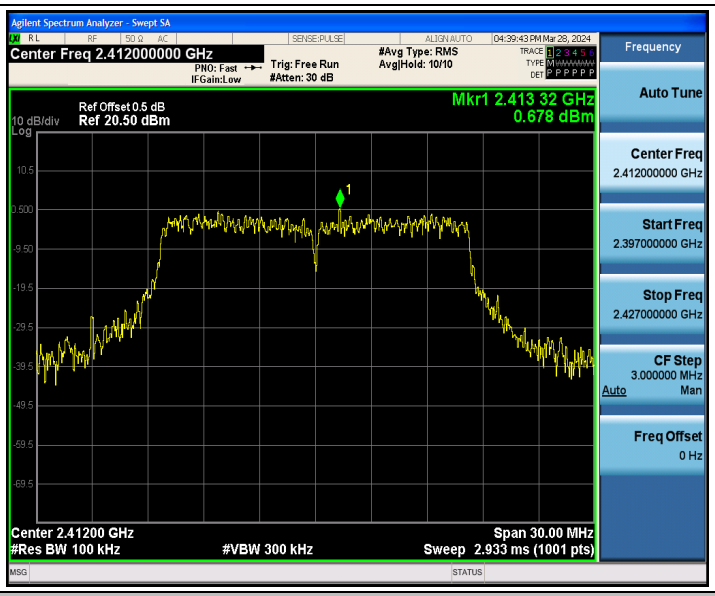
802.11b_2462_30~1000



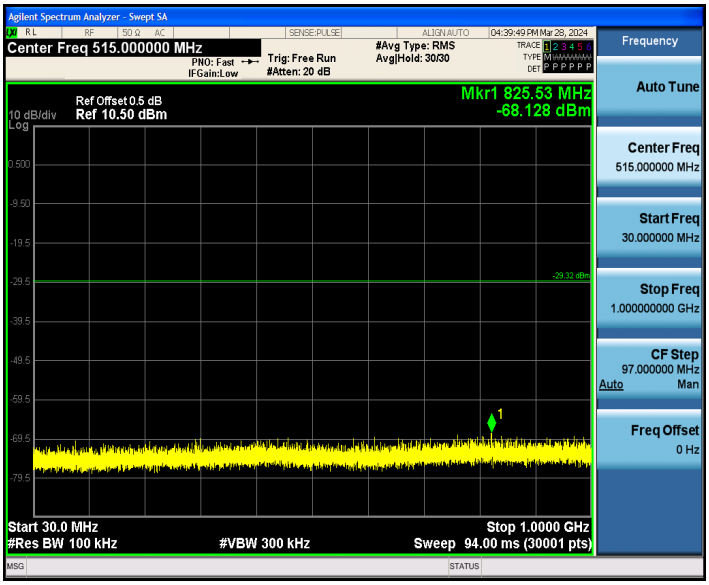
802.11b_2462_1000~26500



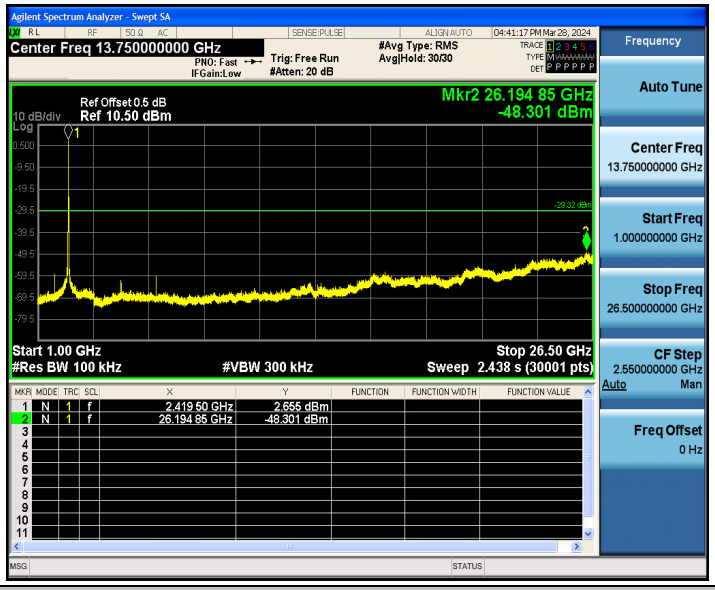
802.11g_2412_0~Reference



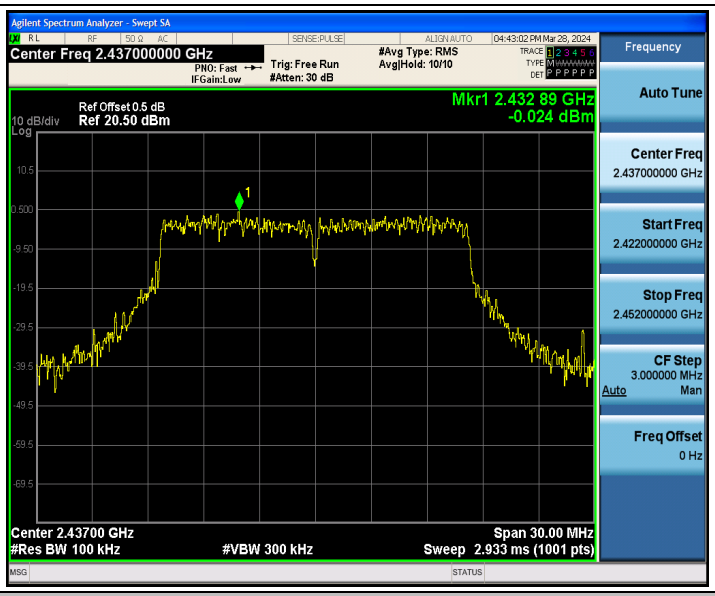
802.11g_2412_30~1000



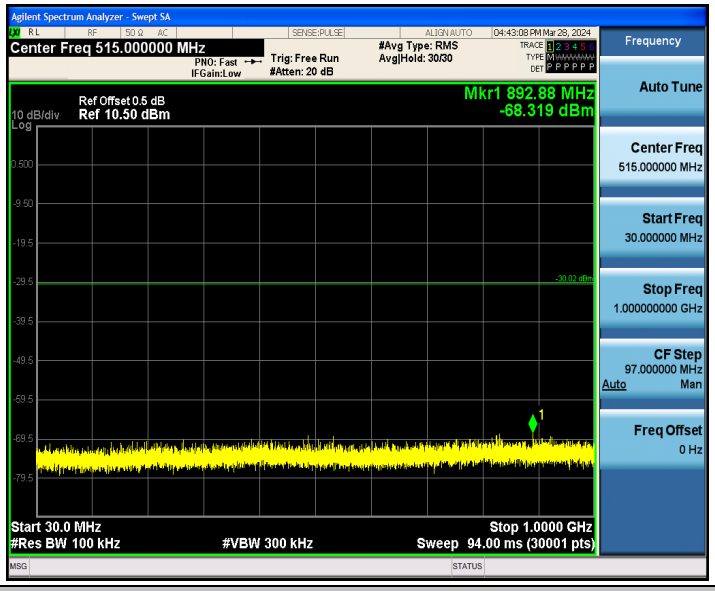
802.11g_2412_1000~26500



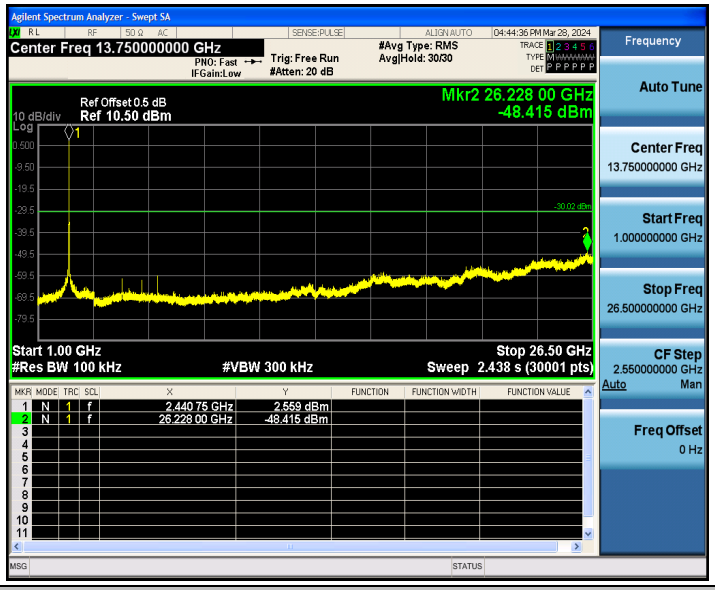
802.11g_2437_0~Reference



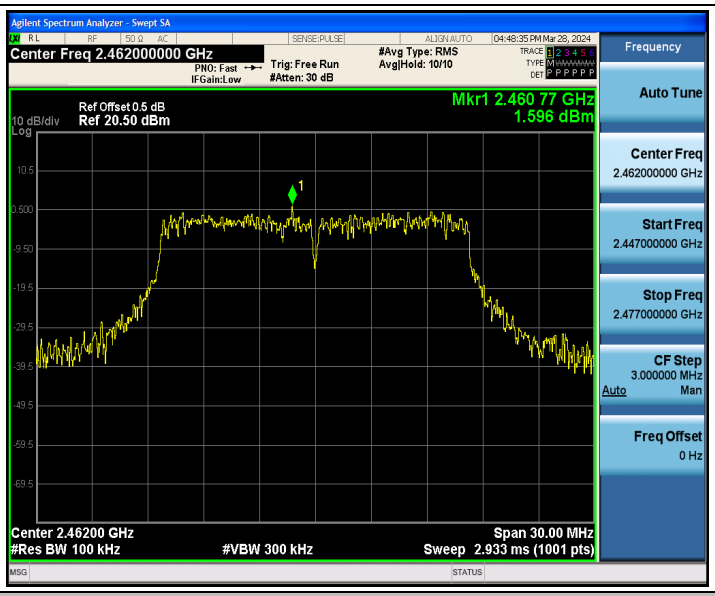
802.11g_2437_30~1000



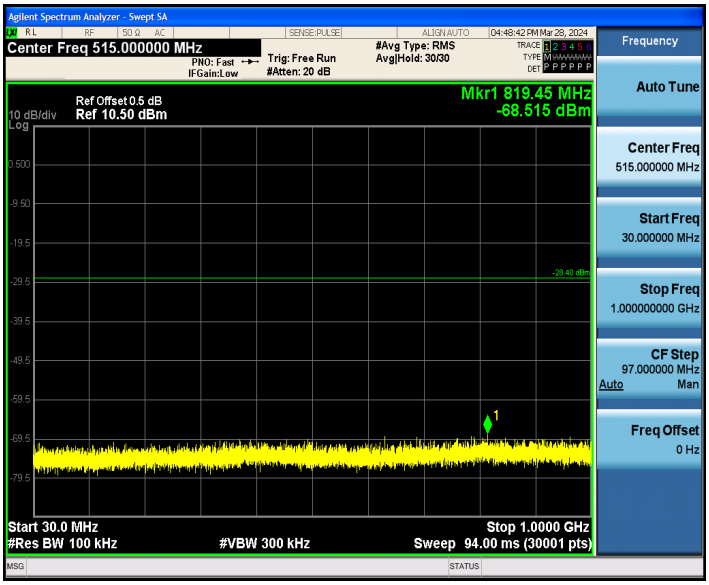
802.11g_2437_1000~26500



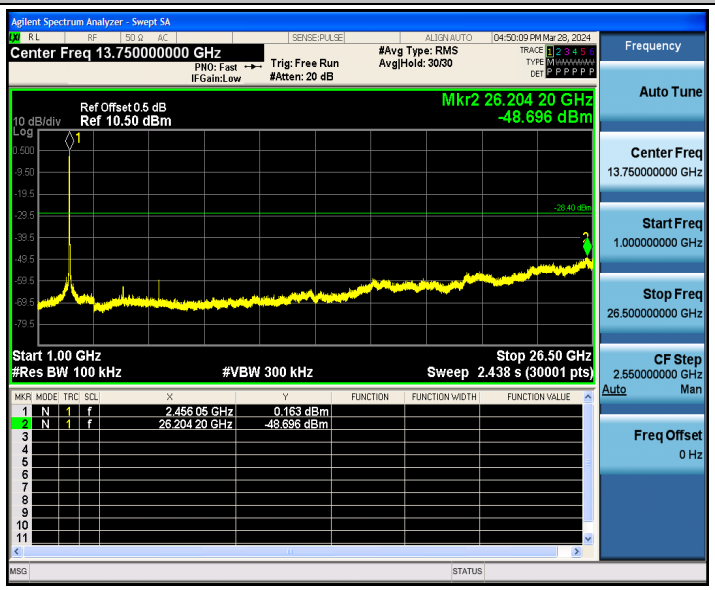
802.11g_2462_0~Reference



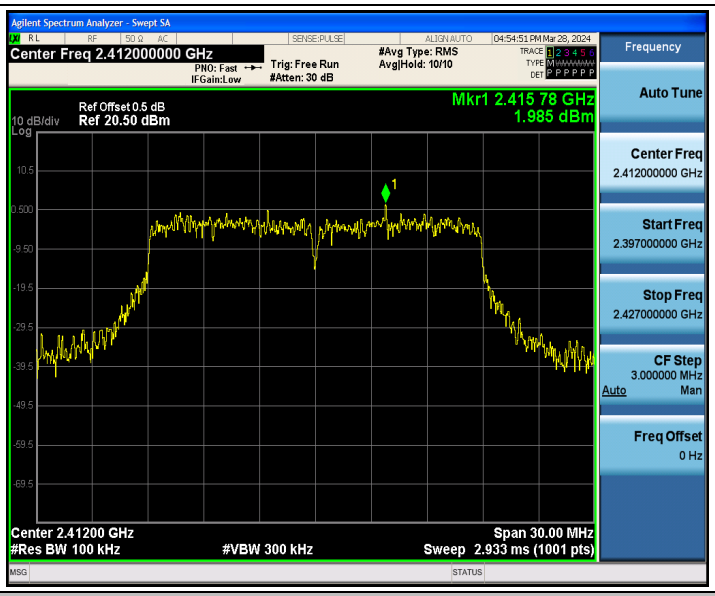
802.11g_2462_30~1000



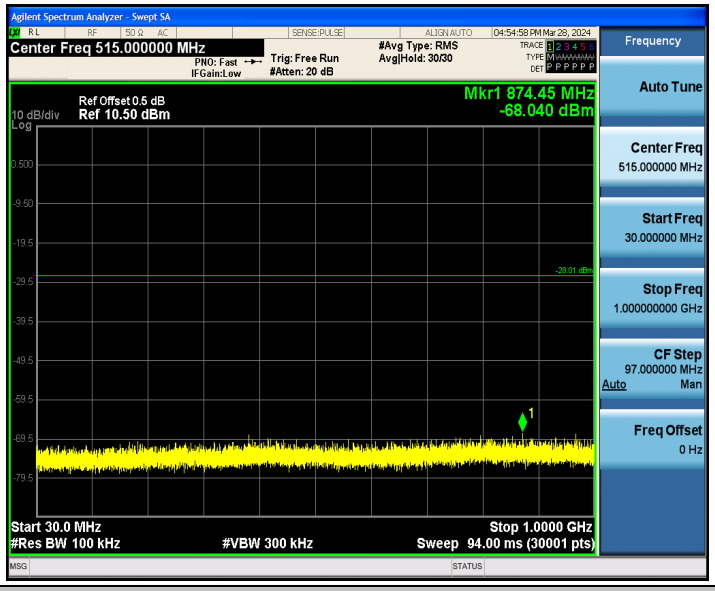
802.11g_2462_1000~26500



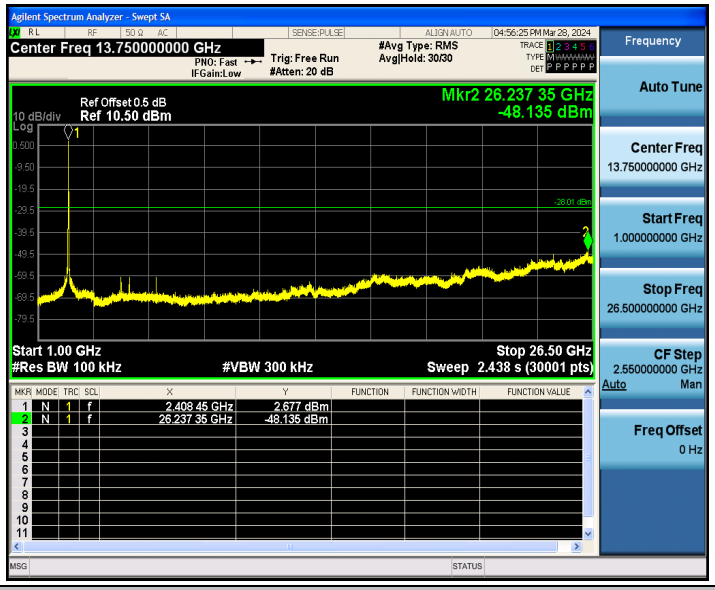
802.11n(HT20)_2412_0~Reference



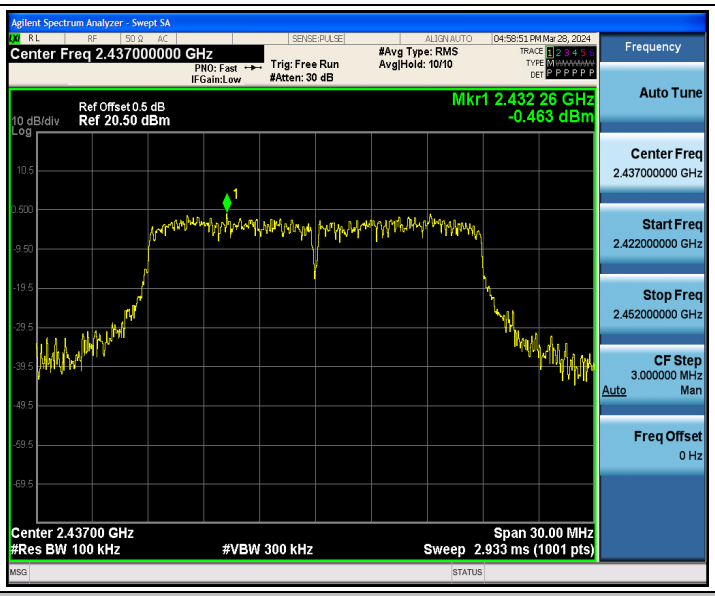
802.11n(HT20)_2412_30~1000



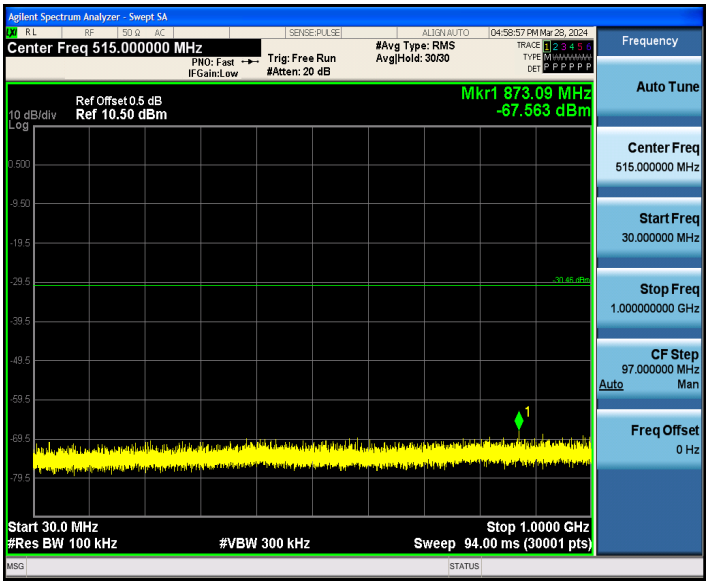
802.11n(HT20)_2412_1000~26500



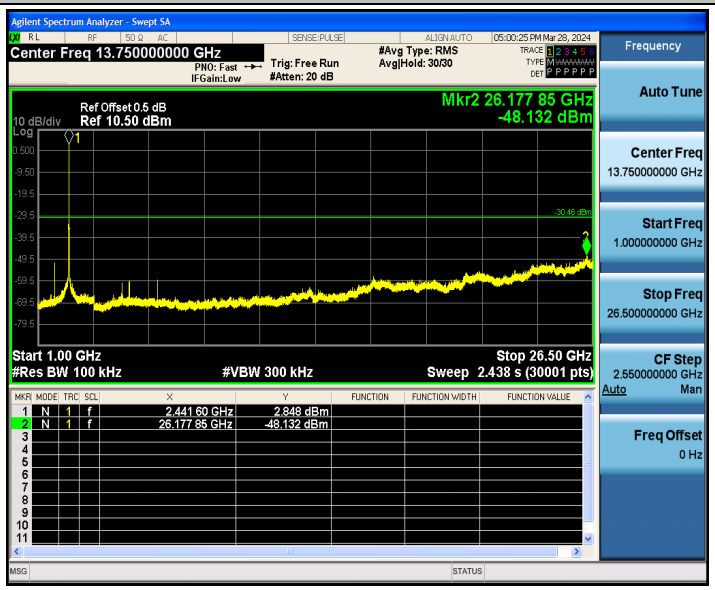
802.11n(HT20)_2437_0~Reference



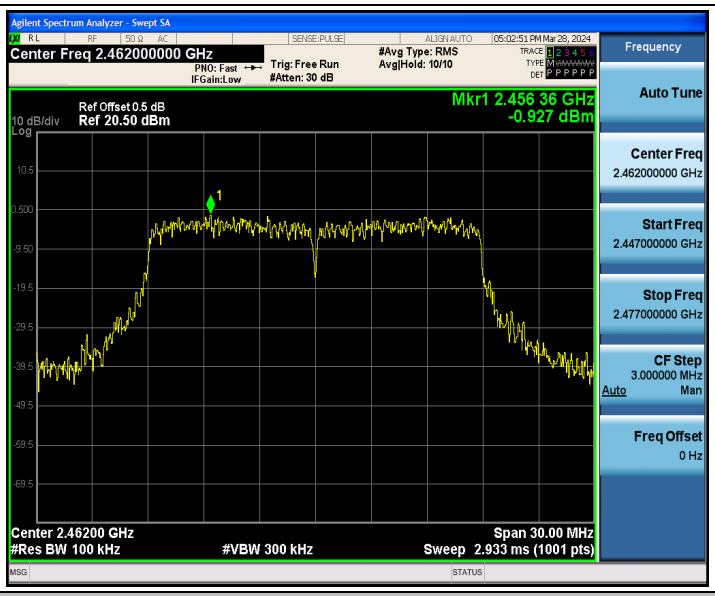
802.11n(HT20)_2437_30~1000



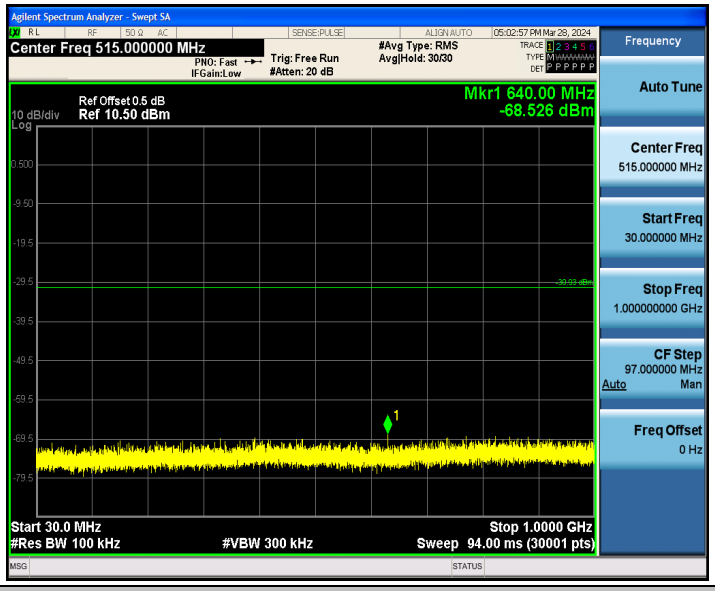
802.11n(HT20)_2437_1000~26500



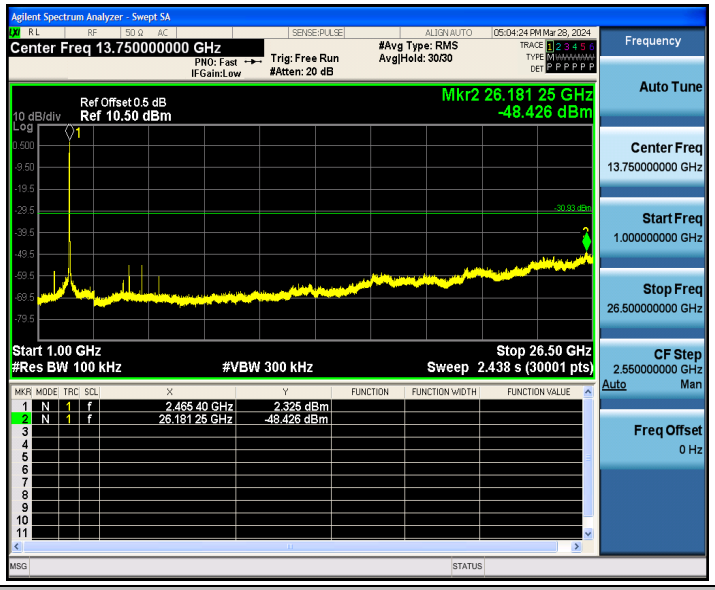
802.11n(HT20)_2462_0~Reference



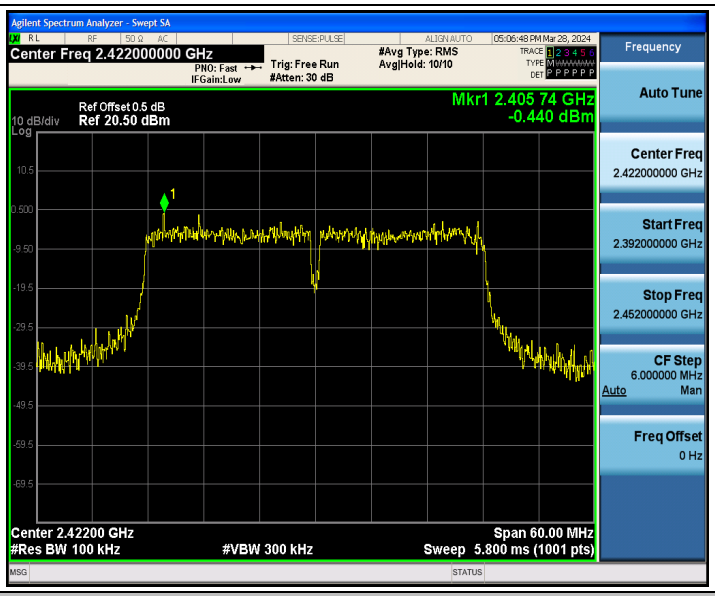
802.11n(HT20)_2462_30~1000



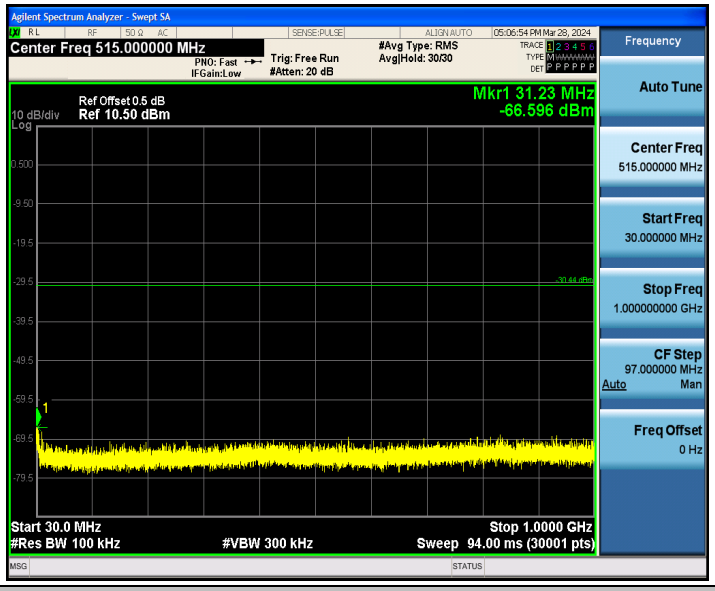
802.11n(HT20)_2462_1000~26500



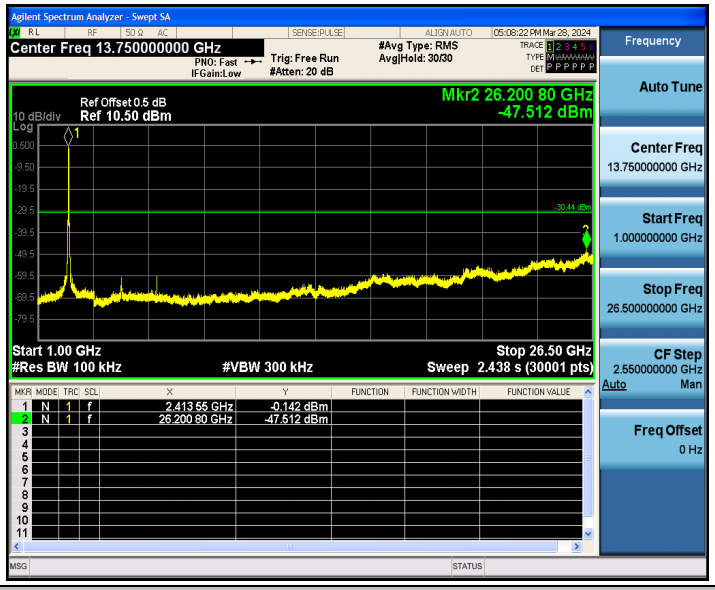
802.11n(HT40)_2422_0~Reference



802.11n(HT40)_2422_30~1000



802.11n(HT40)_2422_1000~26500



802.11n(HT40)_2437_0~Reference