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TEST REPORT

Report No. ……:	**CTC20240004E05**
FCC ID……:	**2A9TGHV50A**
IC……:	**29850-HV50A**
Applicant……:	**WETEK SOLUCOES TECNOLOGICAS SA**
Address……:	R PONTE PEDRA 240 EDIFICIO LOSA ESPACO DE2, PORTUGAL
Manufacturer……:	Videostrong Technology Co.,Ltd
Address……:	604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China
Product Name……:	**Android Hybrid TV Box**
Trade Mark……:	Hilton
FCC, IC Model/Type reference‥:	V5.0A
IC Listed Model(s) ……:	/
FCC Listed Model(s) ……:	V5.1A, V5.2A, V5.3A, V5.4A, V5.5A, V5.6A, V5.7A, V5.8A, V5.9A
Standard……:	**FCC CFR Title 47 Part 15 Subpart C Section 15.247** **RSS-247 Issue 3**
Date of receipt of test sample…:	Jan. 03, 2024
Date of testing……..:	Jan. 03, 2024 ~ Jan. 27, 2024
Date of issue……....:	Feb. 01, 2024
Result……:	**PASS**

Compiled by: (Printed name+signature)	Terry Su	Terry Su
Supervised by: (Printed name+signature)	Eric Zhang	Eric Zhang
Approved by: (Printed name+signature)	Totti Zhao	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: Standard Specifications for Frequency Hopping Systems (FHSs) and Digital Transmission Systems (DTSs) Operating in the Bands 902-928MHz, 2400-2483.5MHz and 5725-5850MHz.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	Feb. 01, 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	Pass	Seth Chen
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:	WETEK SOLUCOES TECNOLOGICAS SA
Address:	R PONTE PEDRA 240 EDIFICIO LOSA ESPACO DE2, PORTUGAL
Manufacturer:	Videostrong Technology Co.,Ltd
Address:	604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China

2.2. General Description of EUT

Product Name:	Android Hybrid TV Box
Trade Mark:	Hilton
FCC, IC Model/Type reference:	V5.0A
IC Listed Model(s):	/
FCC Listed Model(s):	V5.1A, V5.2A, V5.3A, V5.4A, V5.5A, V5.6A, V5.7A, V5.8A, V5.9A
Model Different:	All these models are identical in the same PCB, layout and electrical circuit, The difference is model name and appearance color.
Power supply:	12Vdc/1.5A from AC/DC Adapter
Adapter Model:	KA1801A-12015000DE Input: 100-240V~ 50/60Hz 0.55A Max Output: 12Vdc/1.5A
Hardware version:	/
Software version:	/
WIFI 802.11b/ g/ n(HT20)	
Modulation:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK, QPSK, 16QAM, 64QAM)
Operation frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
Channel number:	802.11b/g/n(HT20):11channels
Channel separation:	5MHz
Antenna type:	FPC Antenna
Antenna 1, 2 gain:	3.25dBi Max
Antenna 1 and 2 Directional gain:	6.26dBi

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)

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

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.

CDD Antenna Specification:

Ant.	Antenna Type	Gain (dBi)
1	FPC Antenna	3.25
2	FPC Antenna	3.25

Note:
For power spectral density (PSD) measurements on all devices, Directional gain = 6.26dBi,
For power measurements on IEEE 802.11 devices,
Directional gain = GANT + Array Gain
Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less, for 20MHz channel widths with NANT ≥ 5.
So the output power limit is 30, The power spectral density limit is 8-(6.26-6)=7.74.

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$

Directional gain=10*log[(10$^{(3.25/20)}$+10$^{(3.25/20)}$)^2/2]=6.26dBi

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. 14, 2024
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	Wideband Radio Communication Tester	R&S	CMW500	102257	May. 25, 2024
11	Wideband Radio Communication Tester	R&S	CMW500	102414	Dec. 12, 2024
12	High and low temperature test chamber	ESPEC	MT3035	/	Mar. 24, 2024
13	RF Control Unit	Tonscend	JS0806-2	/	Aug. 22, 2024
14	Test Software	Tonscend	JS1120-3	V3.3.38	/

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. 14, 2024
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	SCHWARZBECK	BBV9718C	111	Dec. 12, 2024

	Amplifier				
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

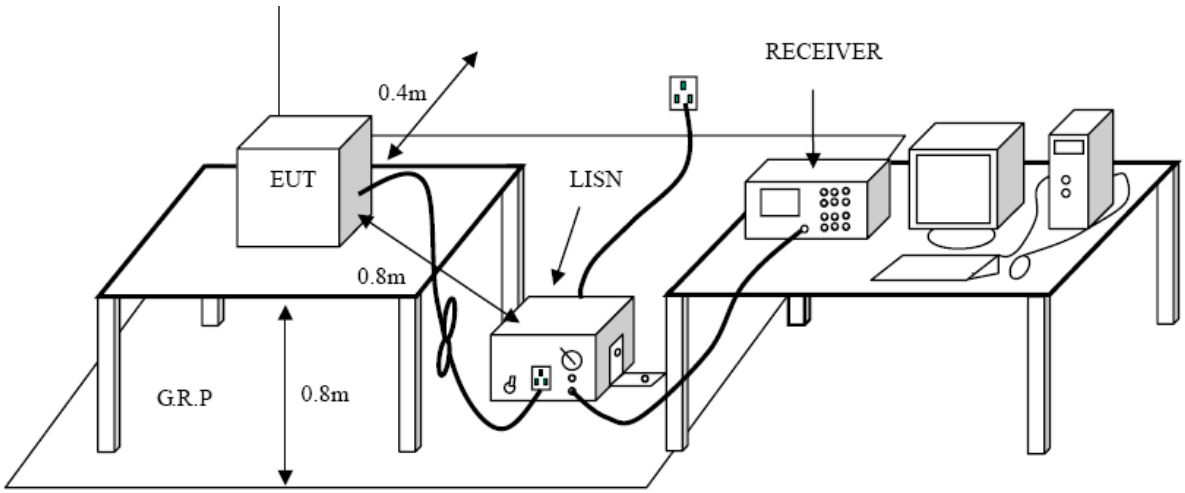
Limit

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

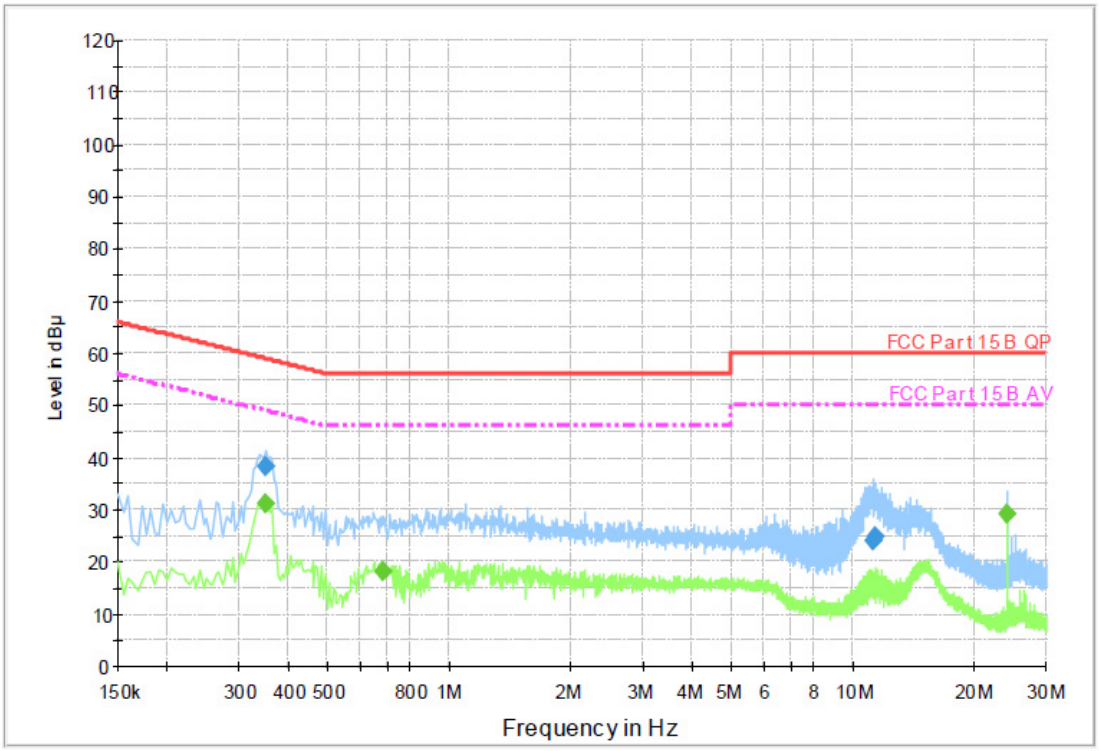
1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from 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

Test Voltage:	AC 120V/60 Hz
Terminal:	Line



Final Measurement Detector 1

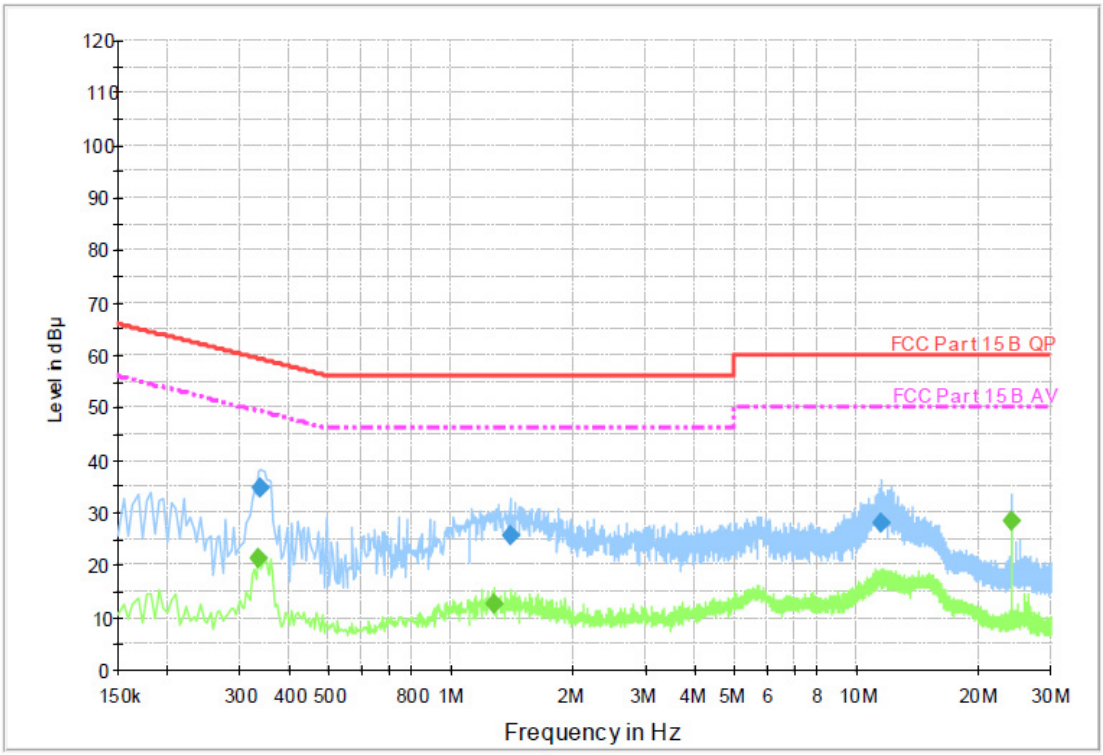
Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.348000	38.4	1000.00	9.000	On	L1	9.5	20.6	59.0	
11.161500	24.1	1000.00	9.000	On	L1	9.7	35.9	60.0	
11.328000	25.0	1000.00	9.000	On	L1	9.7	35.0	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.348000	31.2	1000.00	9.000	On	L1	9.5	17.8	49.0	
0.685500	18.2	1000.00	9.000	On	L1	9.5	27.8	46.0	
24.027000	29.2	1000.00	9.000	On	L1	9.7	20.8	50.0	

Emission Level= Read Level+ Correct Factor

Test Voltage:	AC 120V/60 Hz
Terminal:	Neutral



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.339000	34.6	1000.00	9.000	On	N	9.4	24.6	59.2	
1.392000	25.8	1000.00	9.000	On	N	9.4	30.2	56.0	
11.386500	28.0	1000.00	9.000	On	N	9.6	32.0	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.334500	21.4	1000.00	9.000	On	N	9.4	27.9	49.3	
1.275000	12.6	1000.00	9.000	On	N	9.4	33.4	46.0	
24.027000	28.5	1000.00	9.000	On	N	9.5	21.6	50.0	

Emission Level= Read Level+ Correct Factor

3.2. Radiated Emission

Limit

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F (kHz)	300
0.490~1.705	24000/F (kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

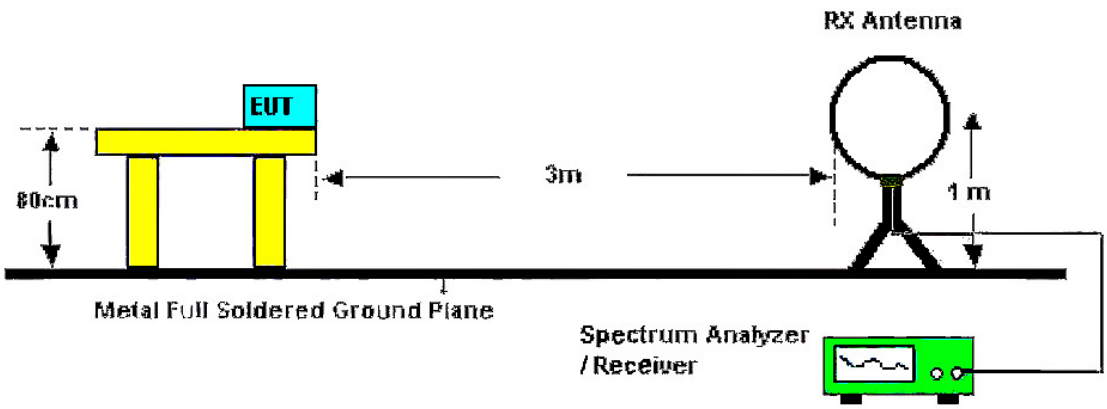
Frequency Range (MHz)	dBμV/m (at 3 meters)	
	Peak	Average
Above 1000	74	54

Note:

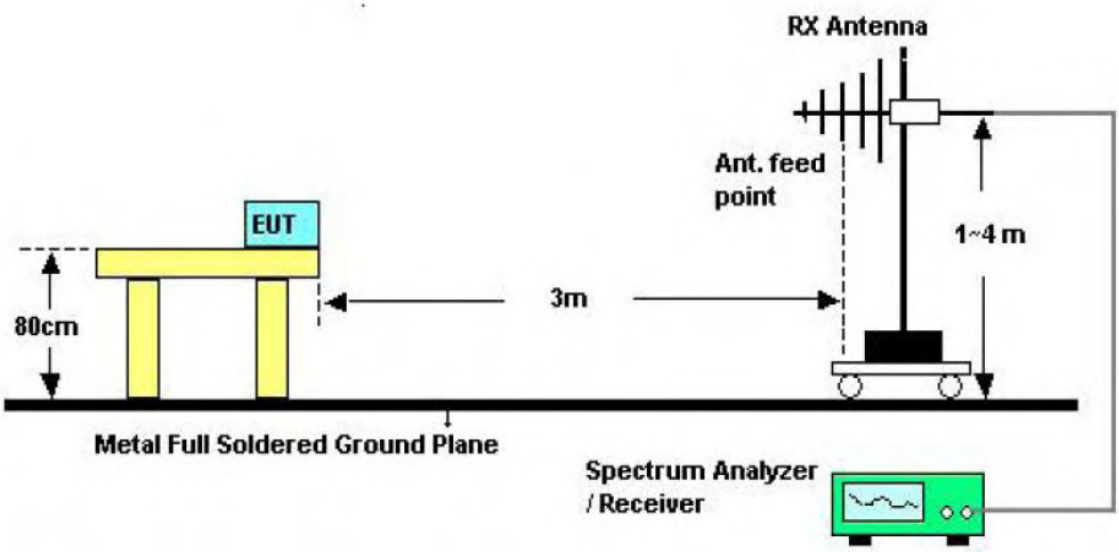
(1) The tighter limit applies at the band edges.

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

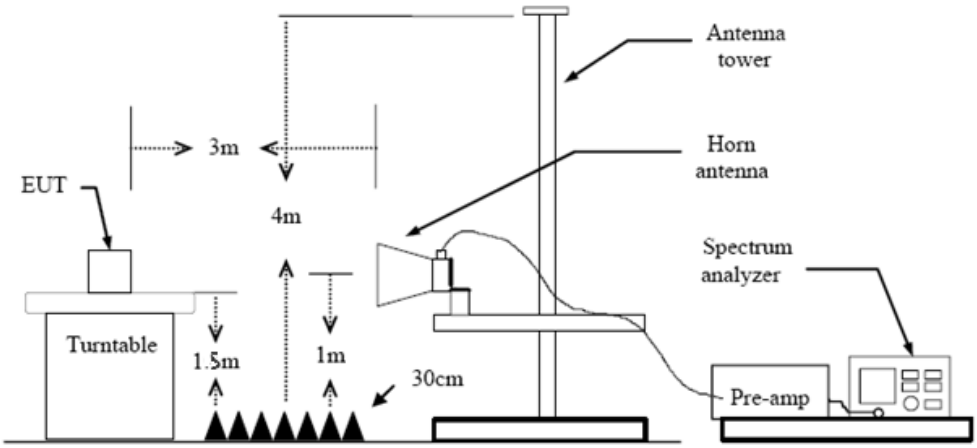
Test Configuration



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

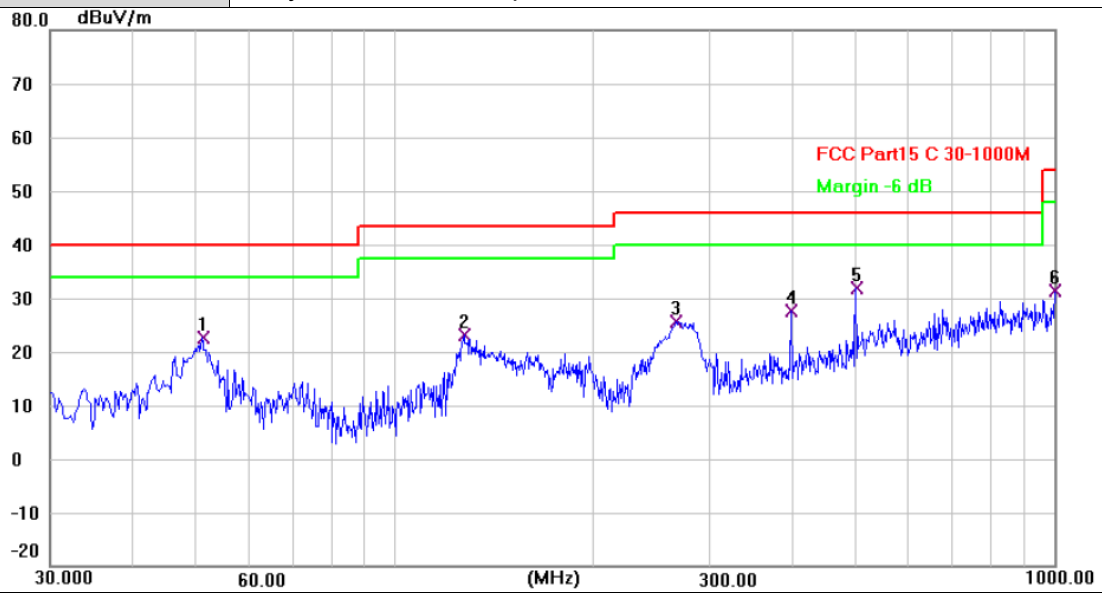
From 9 KHz to 30 MHz: Conclusion: PASS

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

Pre-scan all antenna, only show the test data for worse case antenna on the test report.

30MHz-1GHz

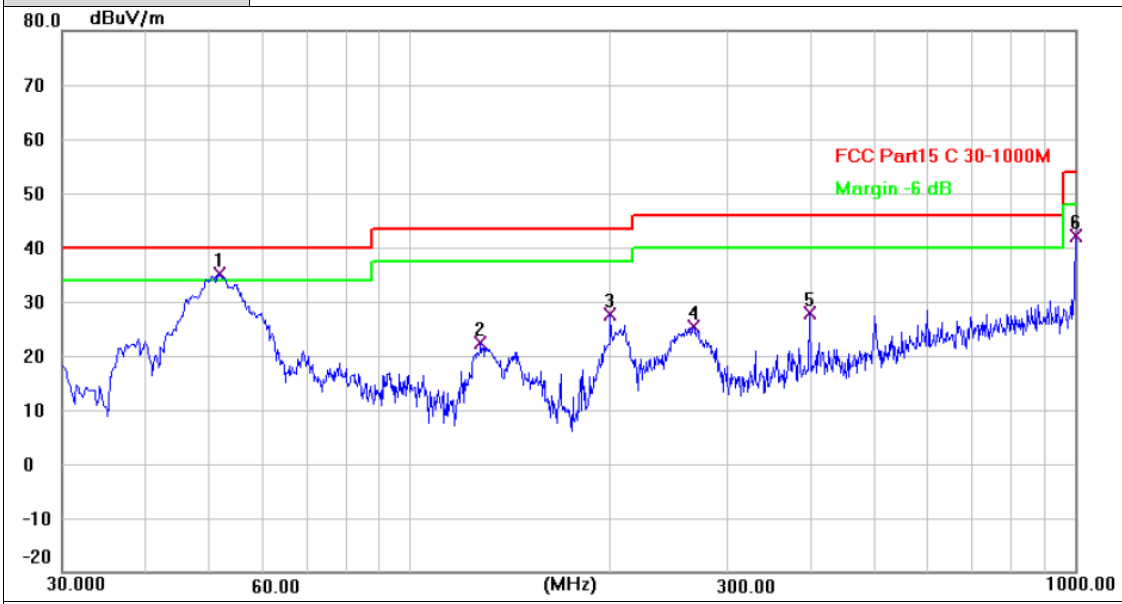
Ant. Pol.	Horizontal
Test Mode:	Ant 1 802.11b Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	51.0167	36.64	-13.99	22.65	40.00	-17.35	QP
2	127.6467	42.07	-18.89	23.18	43.50	-20.32	QP
3	267.0033	39.88	-14.15	25.73	46.00	-20.27	QP
4	399.8933	38.65	-11.13	27.52	46.00	-18.48	QP
5 *	500.1267	41.09	-9.29	31.80	46.00	-14.20	QP
6	1000.0000	33.47	-1.97	31.50	54.00	-22.50	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:	Ant 1 802.11b Mode 2412MHz
Remark:	Only worse case is reported

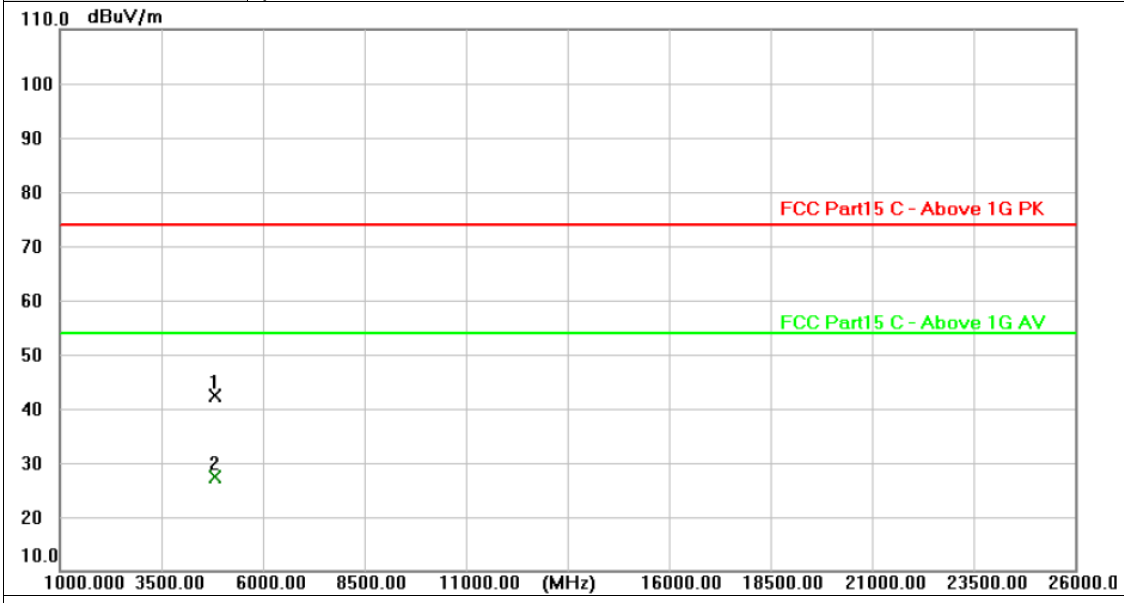


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	51.6633	49.04	-14.03	35.01	40.00	-4.99	QP
2	127.9700	41.25	-18.94	22.31	43.50	-21.19	QP
3	200.0733	43.50	-15.97	27.53	43.50	-15.97	QP
4	266.6800	39.62	-14.16	25.46	46.00	-20.54	QP
5	399.8933	39.00	-11.13	27.87	46.00	-18.13	QP
6	1000.0000	44.03	-1.97	42.06	54.00	-11.94	QP

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

Adobe 1GHz

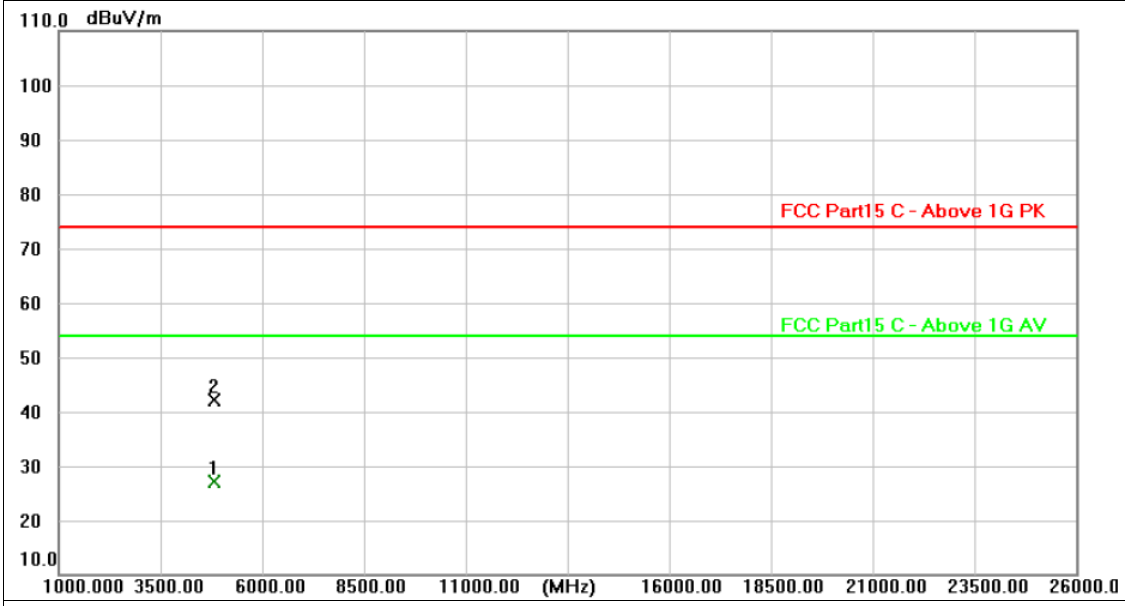
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.919	40.24	2.11	42.35	74.00	-31.65	peak
2 *	4824.083	25.23	2.11	27.34	54.00	-26.66	AVG

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

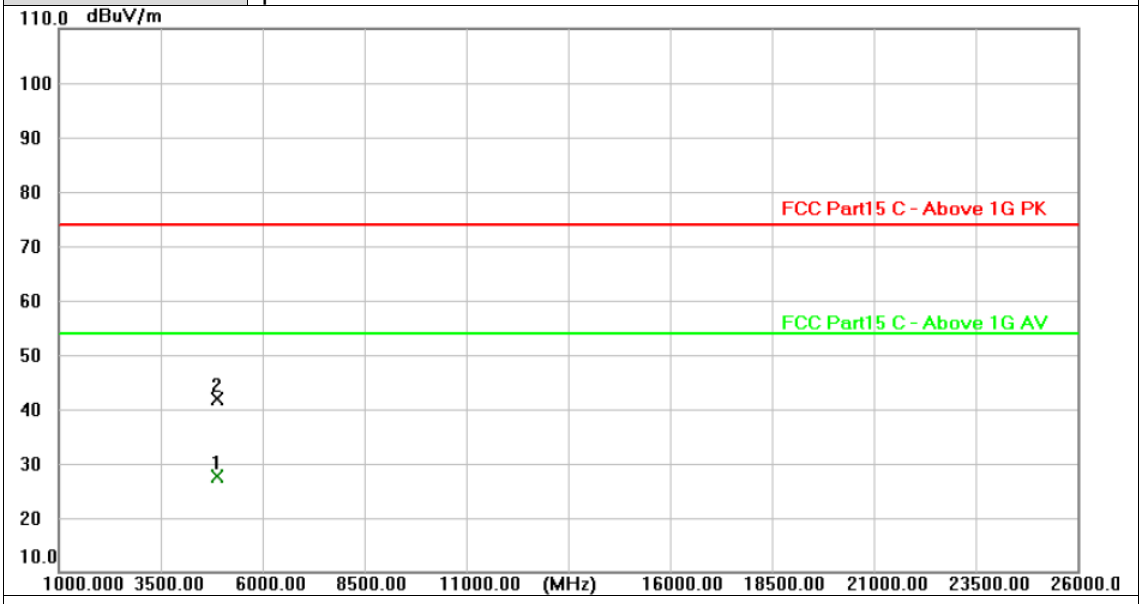
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.773	25.08	2.11	27.19	54.00	-26.81	AVG
2	4824.133	39.92	2.11	42.03	74.00	-31.97	peak

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

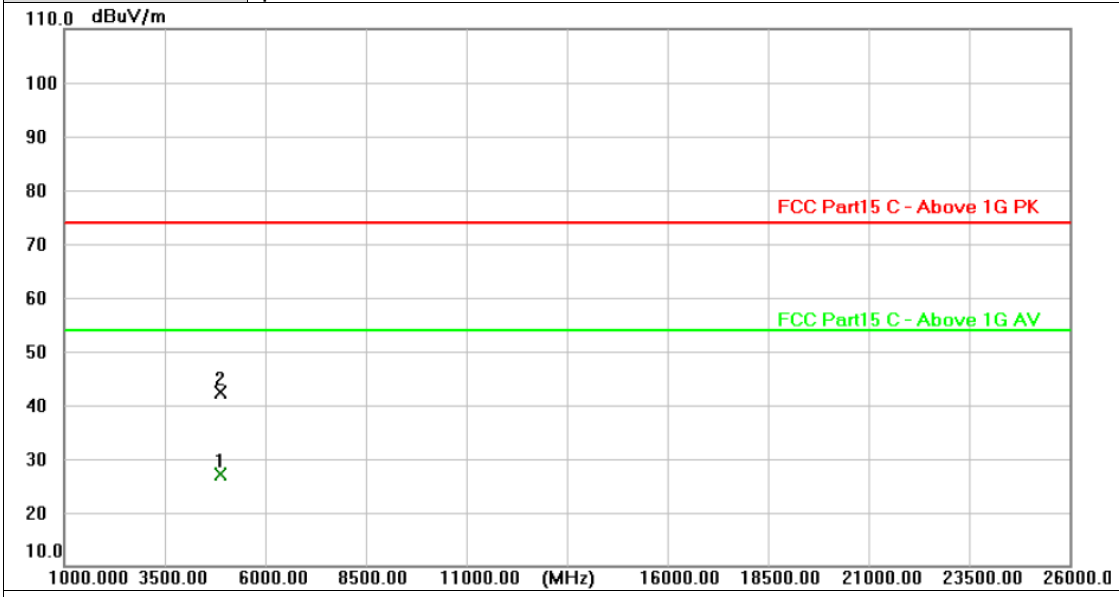
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4873.932	25.50	2.18	27.68	54.00	-26.32	AVG
2	4874.472	39.69	2.18	41.87	74.00	-32.13	peak

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

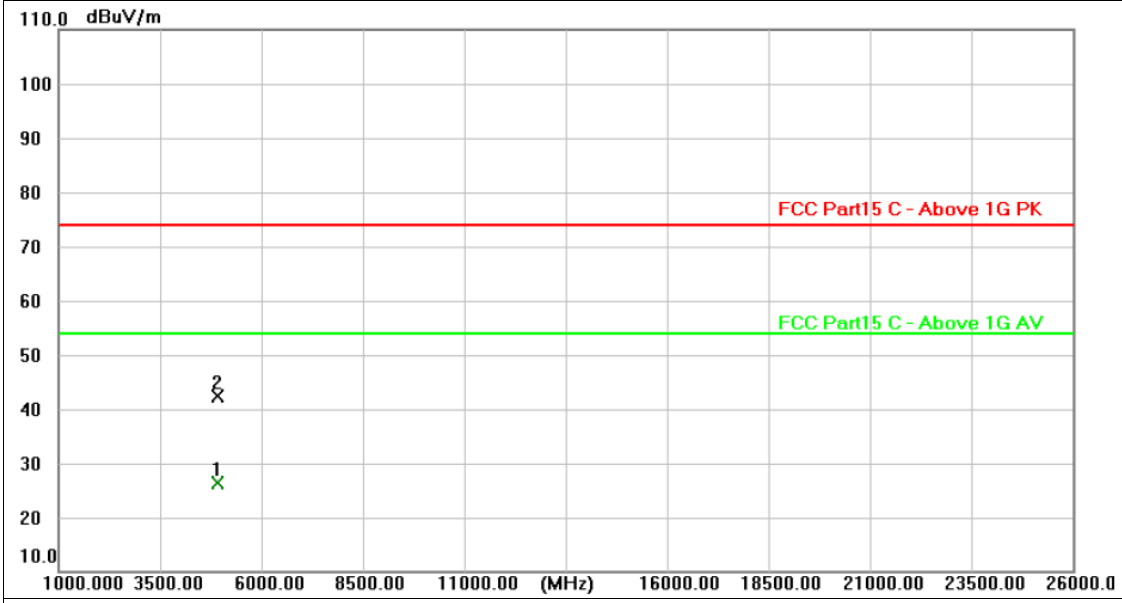
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4873.994	24.91	2.18	27.09	54.00	-26.91	AVG
2	4874.234	40.30	2.18	42.48	74.00	-31.52	peak

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

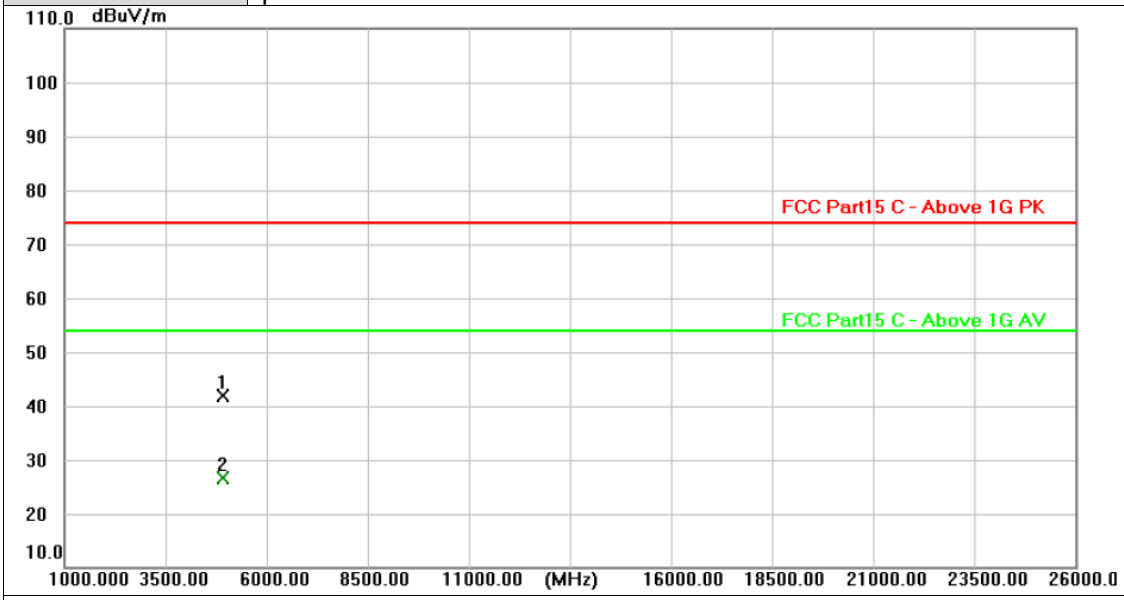
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.586	24.04	2.26	26.30	54.00	-27.70	AVG
2	4924.494	40.22	2.26	42.48	74.00	-31.52	peak

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

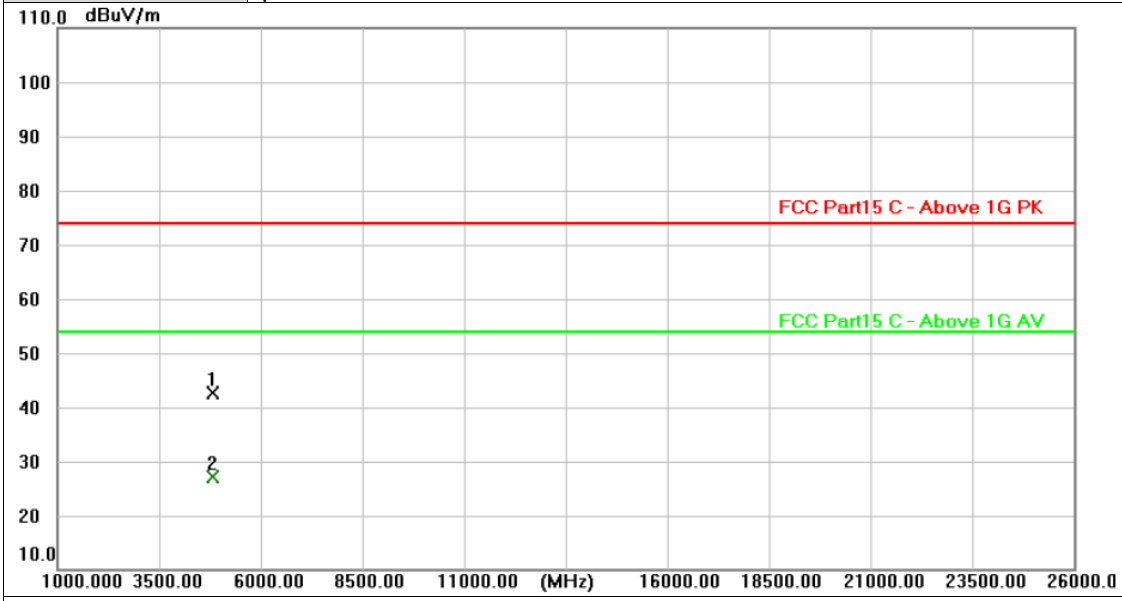
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.583	39.61	2.26	41.87	74.00	-32.13	peak
2 *	4924.359	24.25	2.26	26.51	54.00	-27.49	AVG

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

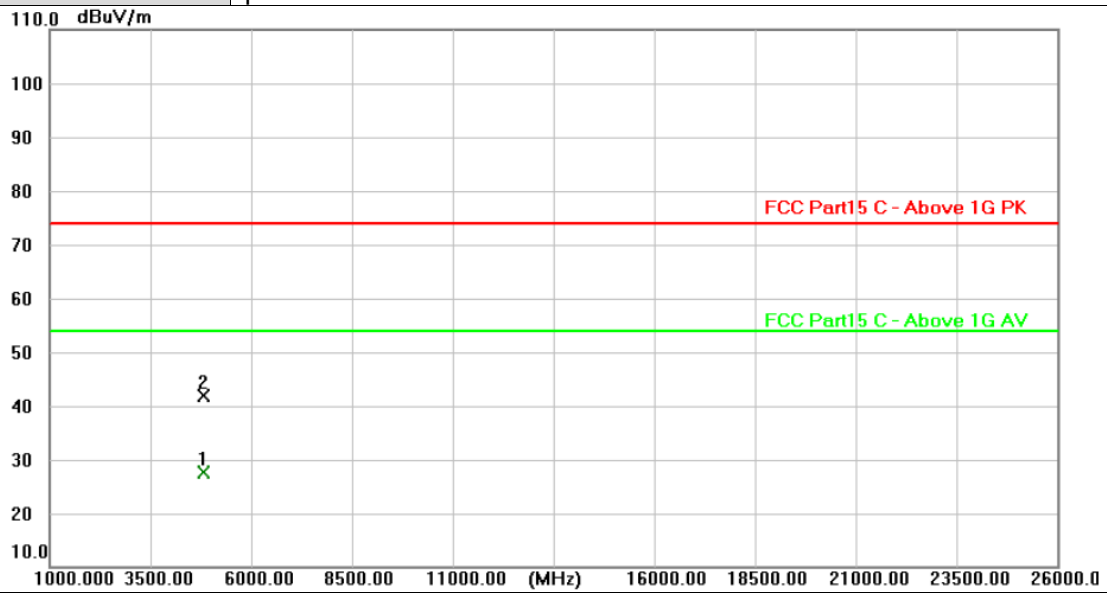
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.732	40.48	2.11	42.59	74.00	-31.41	peak
2 *	4824.017	25.02	2.11	27.13	54.00	-26.87	AVG

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

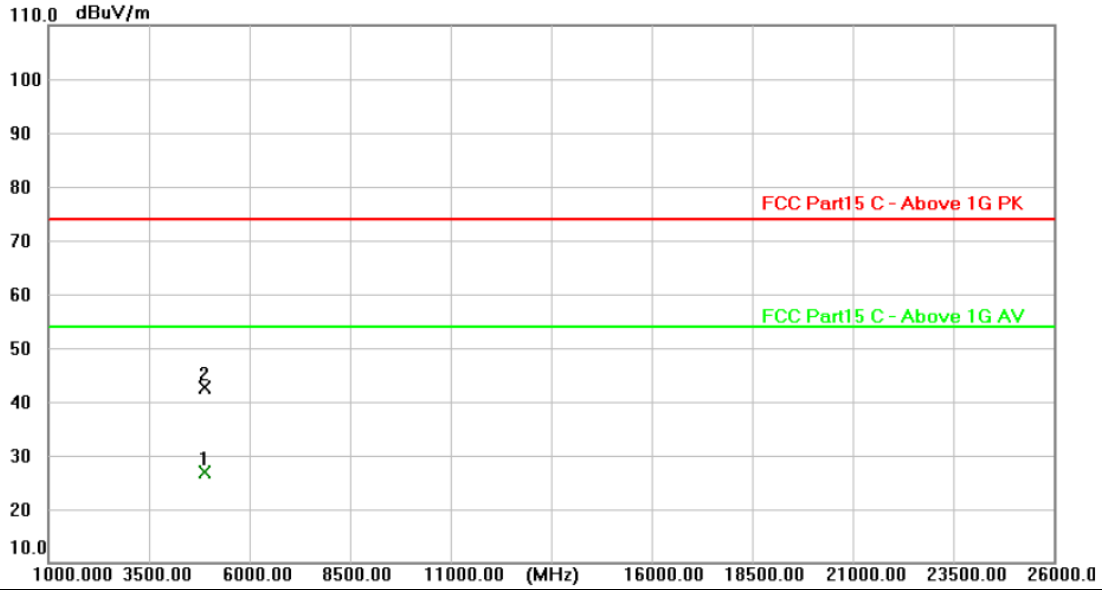
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.809	25.44	2.11	27.55	54.00	-26.45	AVG
2	4823.882	39.70	2.11	41.81	74.00	-32.19	peak

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

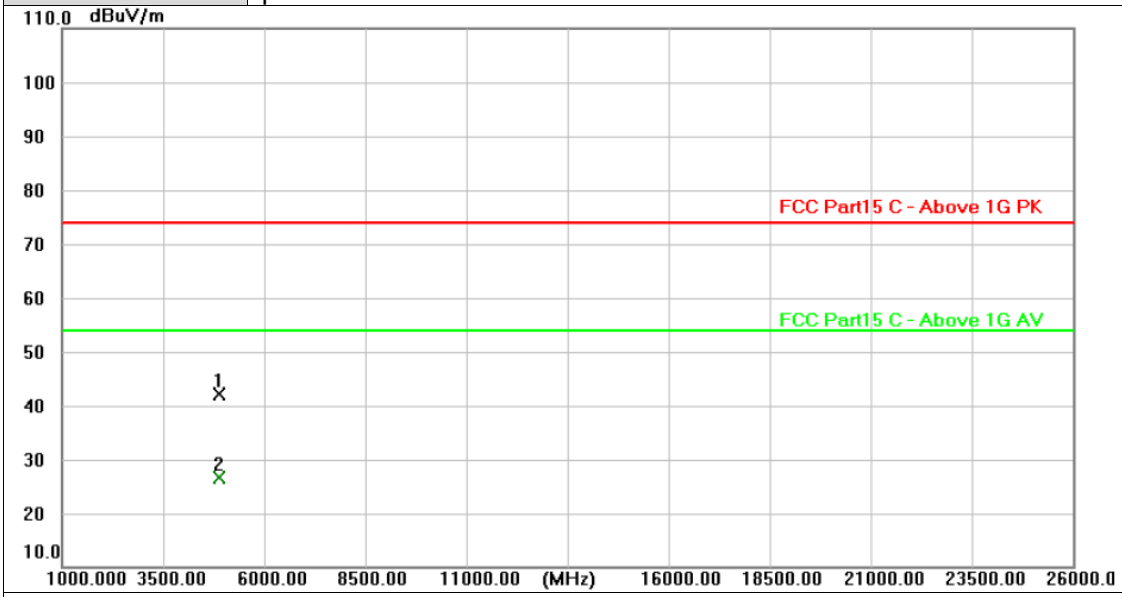
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4873.923	24.82	2.18	27.00	54.00	-27.00	AVG
2	4874.261	40.47	2.18	42.65	74.00	-31.35	peak

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

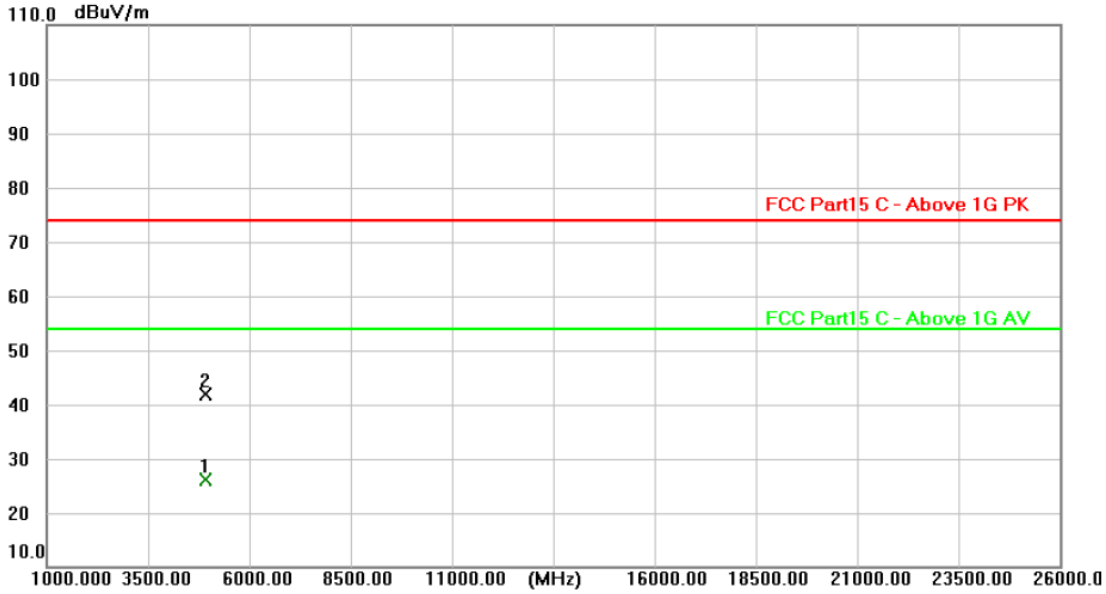
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.795	39.88	2.18	42.06	74.00	-31.94	peak
2 *	4874.248	24.48	2.18	26.66	54.00	-27.34	AVG

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

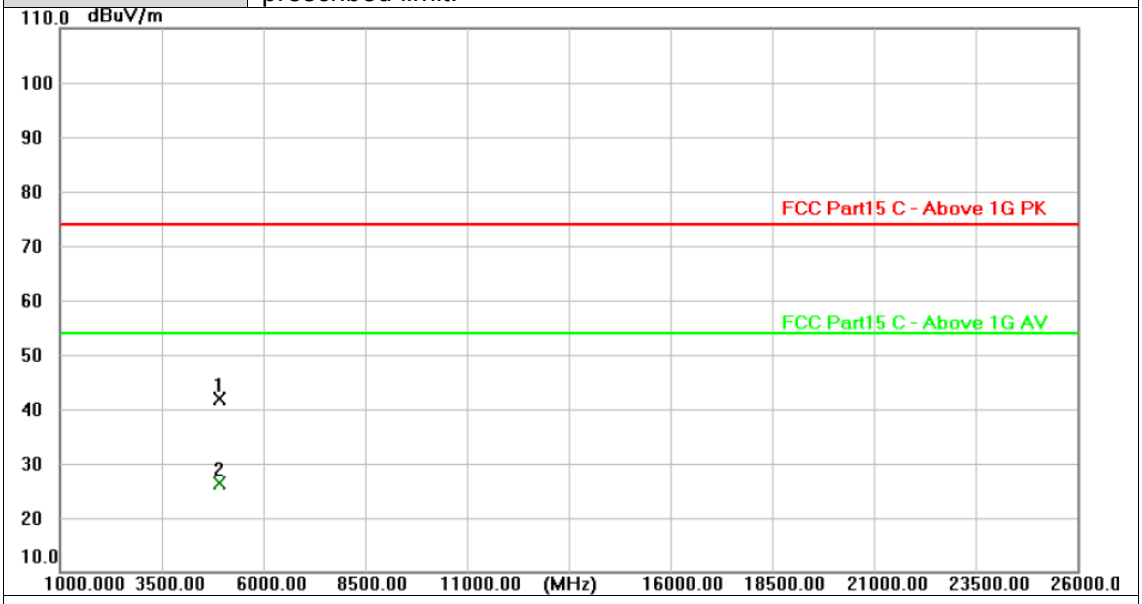
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4924.237	23.87	2.26	26.13	54.00	-27.87	AVG
2	4924.295	39.72	2.26	41.98	74.00	-32.02	peak

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

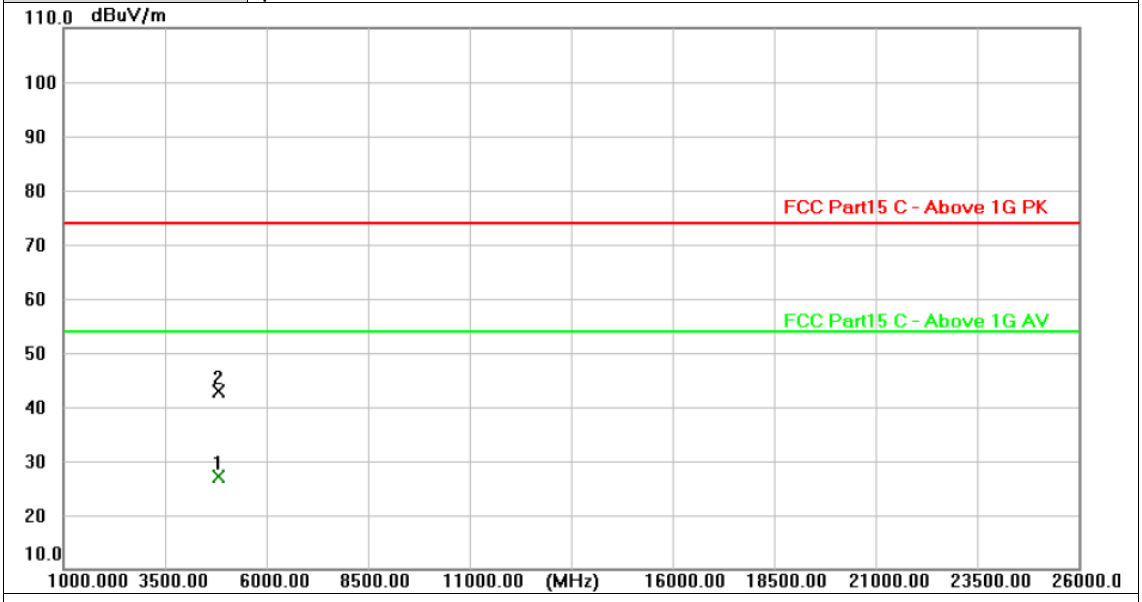
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.585	39.50	2.26	41.76	74.00	-32.24	peak
2 *	4924.355	24.05	2.26	26.31	54.00	-27.69	AVG

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

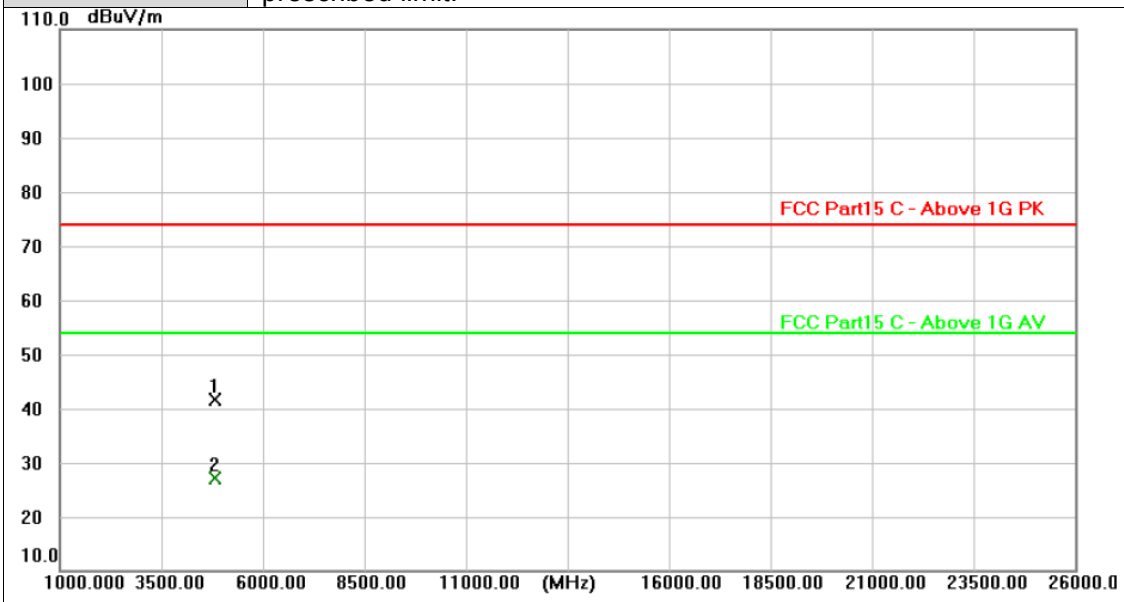
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.925	24.93	2.11	27.04	54.00	-26.96	AVG
2	4824.401	40.71	2.11	42.82	74.00	-31.18	peak

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

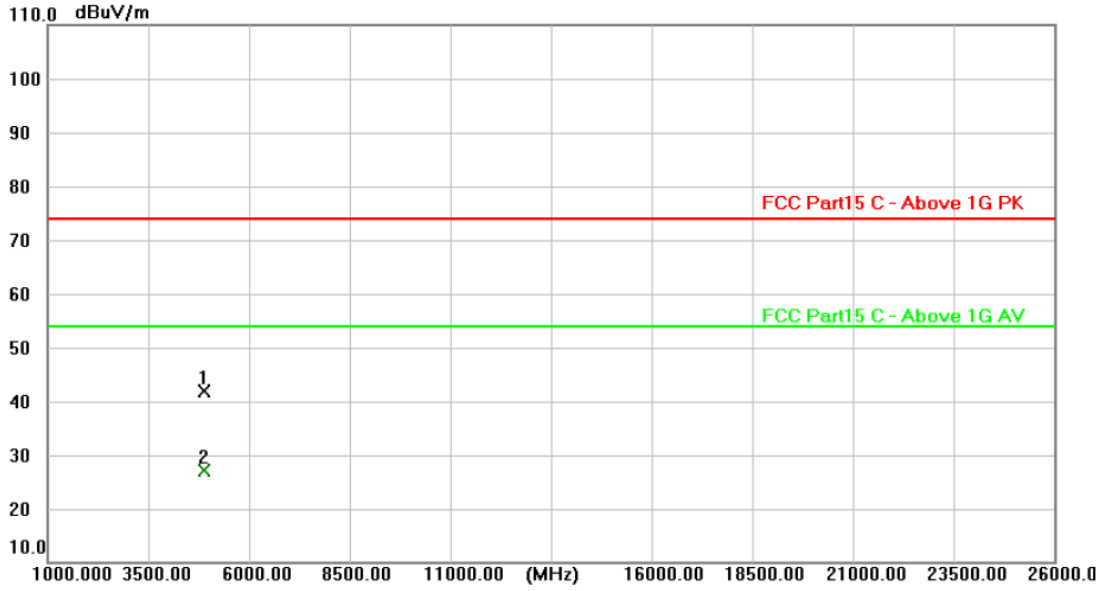
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4824.198	39.63	2.11	41.74	74.00	-32.26	peak
2 *	4824.351	25.14	2.11	27.25	54.00	-26.75	AVG

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

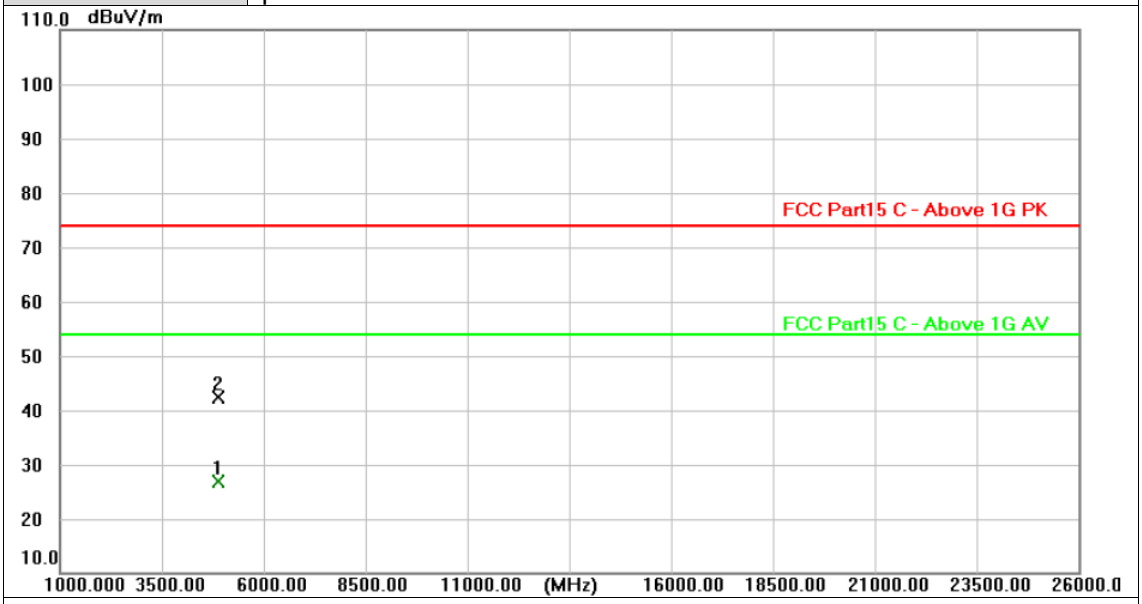
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4874.118	39.82	2.18	42.00	74.00	-32.00	peak
2 *	4874.205	24.88	2.18	27.06	54.00	-26.94	AVG

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

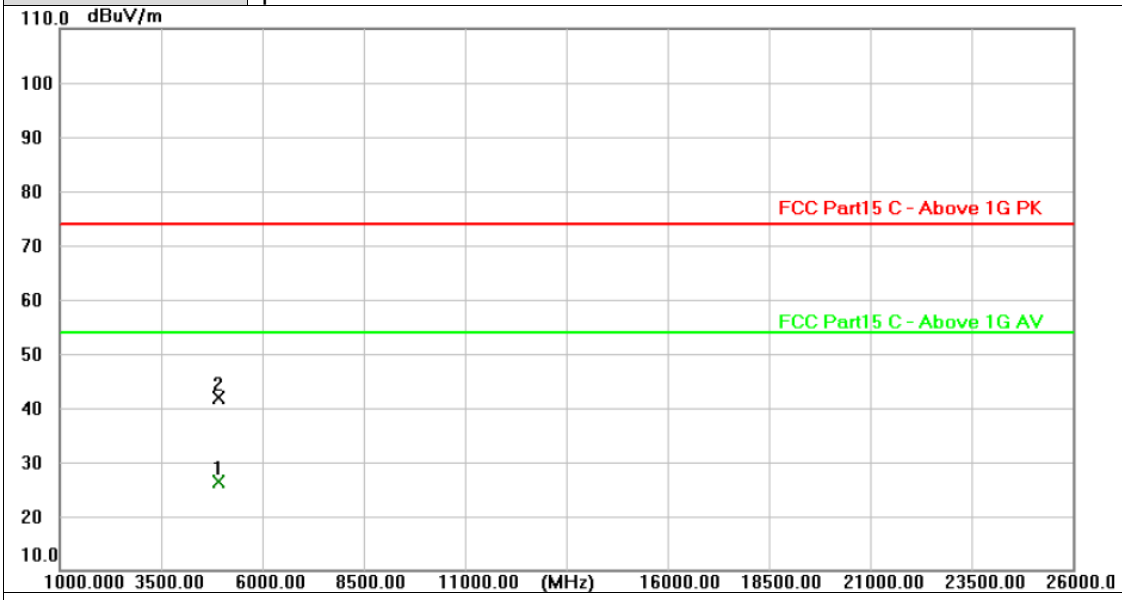
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4873.569	24.72	2.18	26.90	54.00	-27.10	AVG
2	4874.030	40.20	2.18	42.38	74.00	-31.62	peak

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

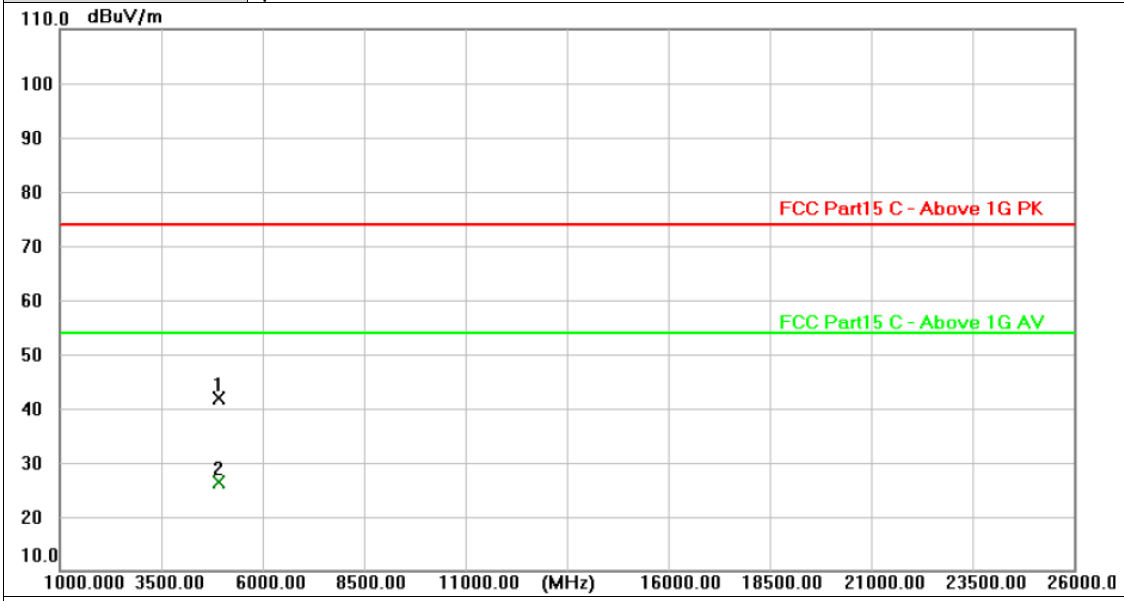
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.693	24.04	2.26	26.30	54.00	-27.70	AVG
2	4924.500	39.60	2.26	41.86	74.00	-32.14	peak

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

Ant No.:	Ant 1 + Ant 2
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	4924.215	39.55	2.26	41.81	74.00	-32.19	peak
2 *	4924.387	24.13	2.26	26.39	54.00	-27.61	AVG

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

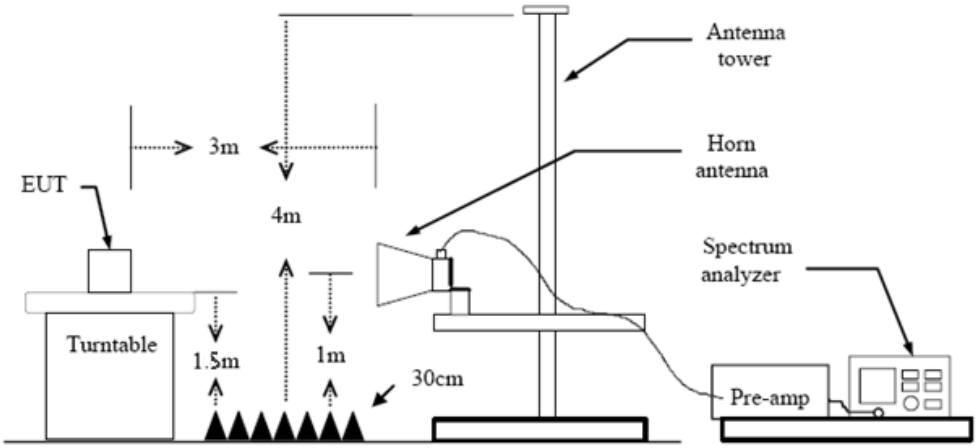
3.3. Band Edge Emissions (Radiated)

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.

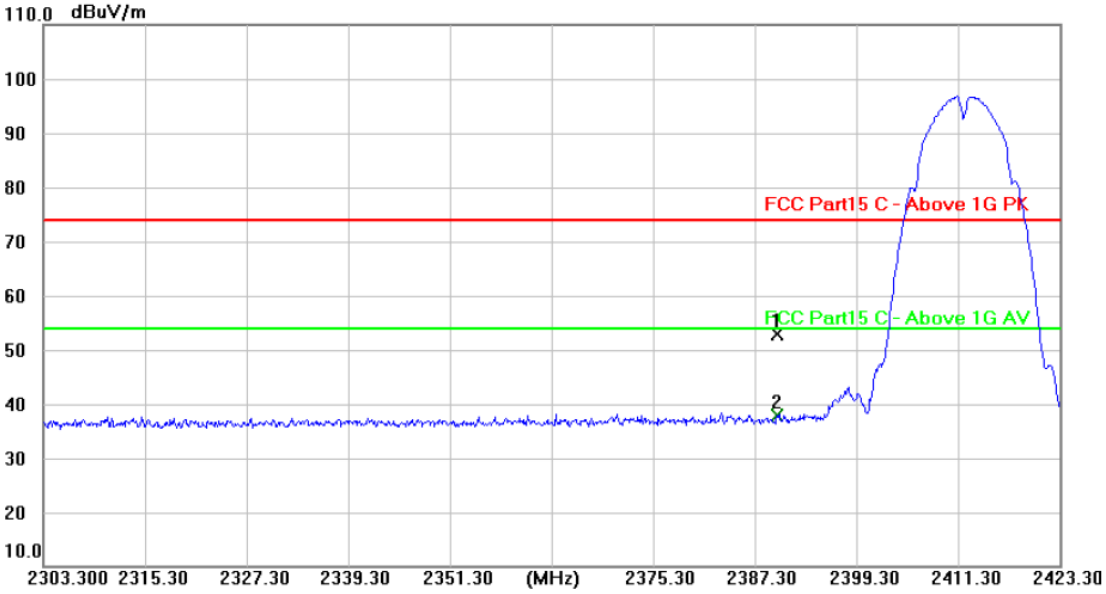
Test Mode

Please refer to the clause 2.4.

Test Results

Pre-scan all antenna, only show the test data for worse case antenna on the test report.

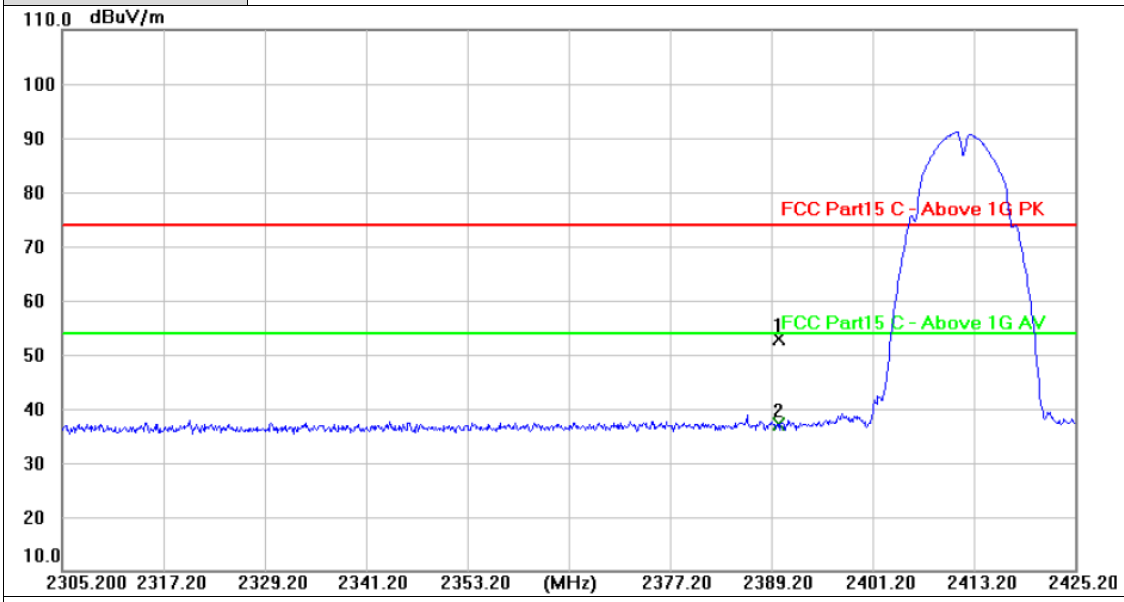
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	21.63	31.31	52.94	74.00	-21.06	peak
2 *	2390.000	6.61	31.31	37.92	54.00	-16.08	AVG

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

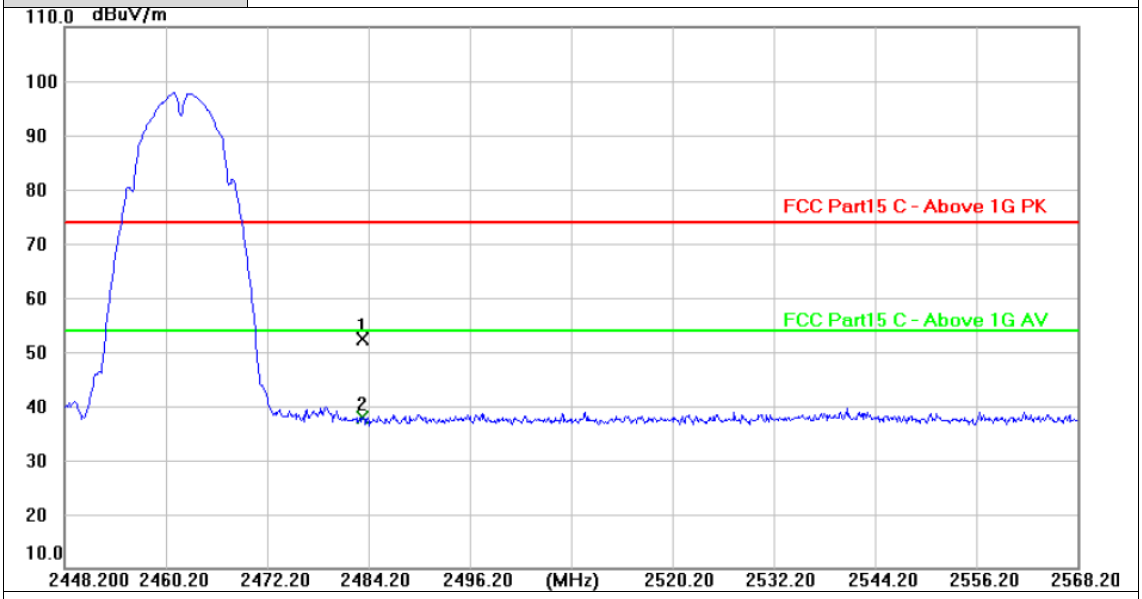
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	802.11b Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	21.63	31.31	52.94	74.00	-21.06	peak
2 *	2390.000	5.77	31.31	37.08	54.00	-16.92	AVG

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

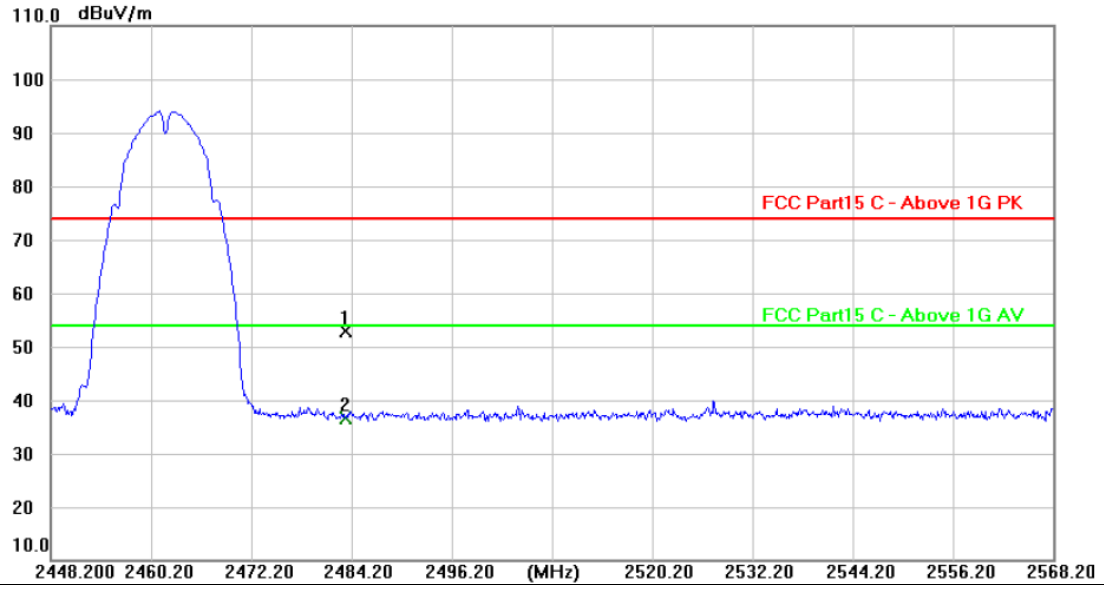
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2462 MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	21.00	31.48	52.48	74.00	-21.52	peak
2 *	2483.500	6.38	31.48	37.86	54.00	-16.14	AVG

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

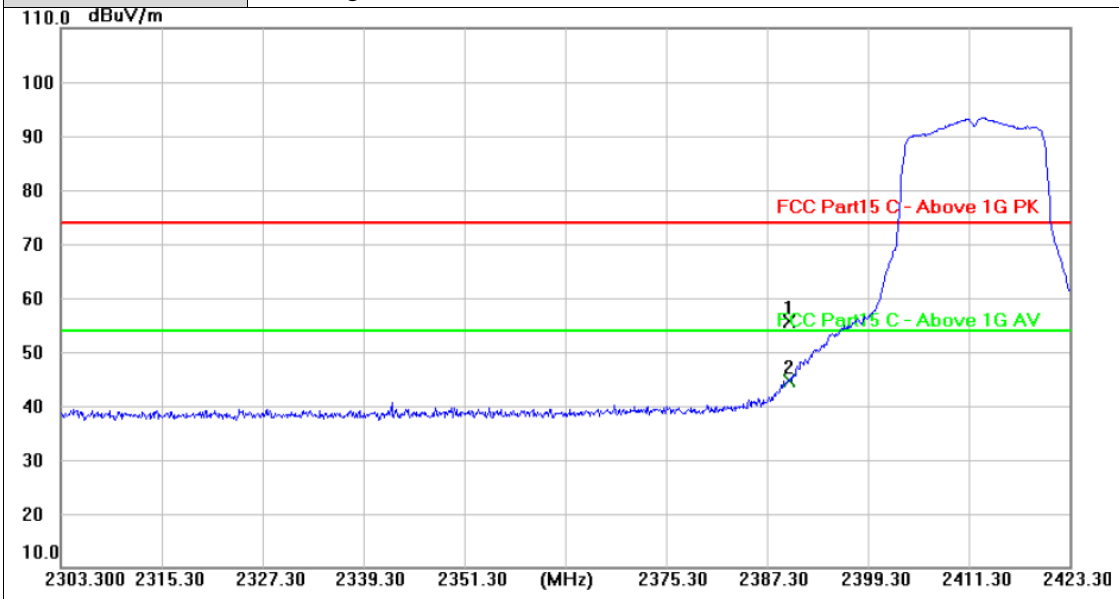
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	802.11b Mode 2462 MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	21.40	31.48	52.88	74.00	-21.12	peak
2 *	2483.500	5.04	31.48	36.52	54.00	-17.48	AVG

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

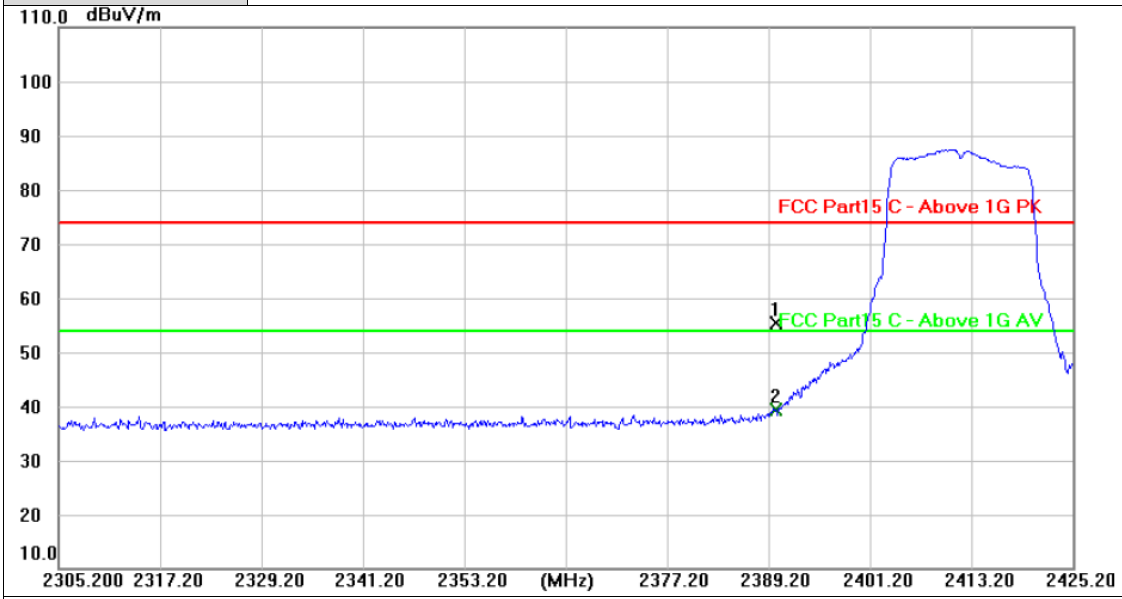
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	24.26	31.31	55.57	74.00	-18.43	peak
2 *	2390.000	13.39	31.31	44.70	54.00	-9.30	AVG

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

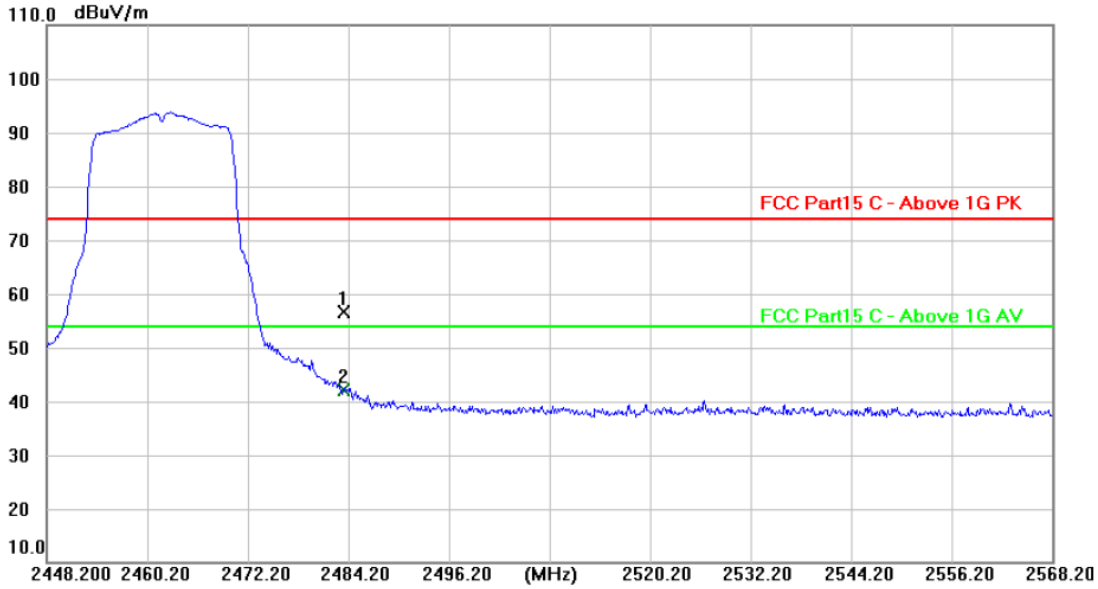
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	24.16	31.31	55.47	74.00	-18.53	peak
2 *	2390.000	8.04	31.31	39.35	54.00	-14.65	AVG

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

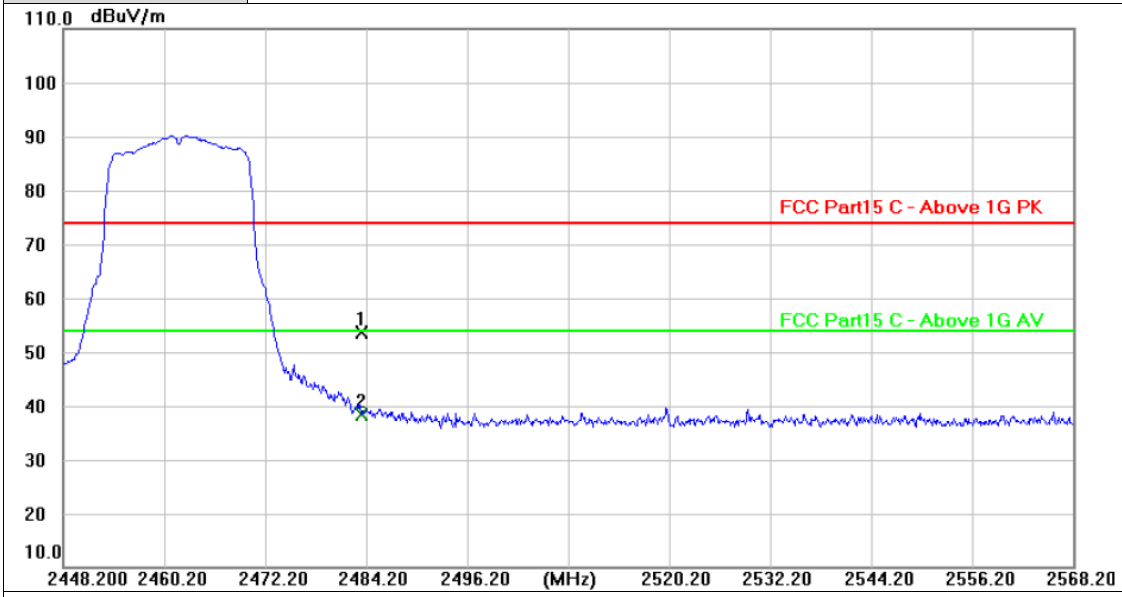
Ant No.:	Ant 2
Ant. Pol.	Horizontal
Test Mode:	802.11g Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	25.18	31.48	56.66	74.00	-17.34	peak
2 *	2483.500	10.67	31.48	42.15	54.00	-11.85	AVG

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

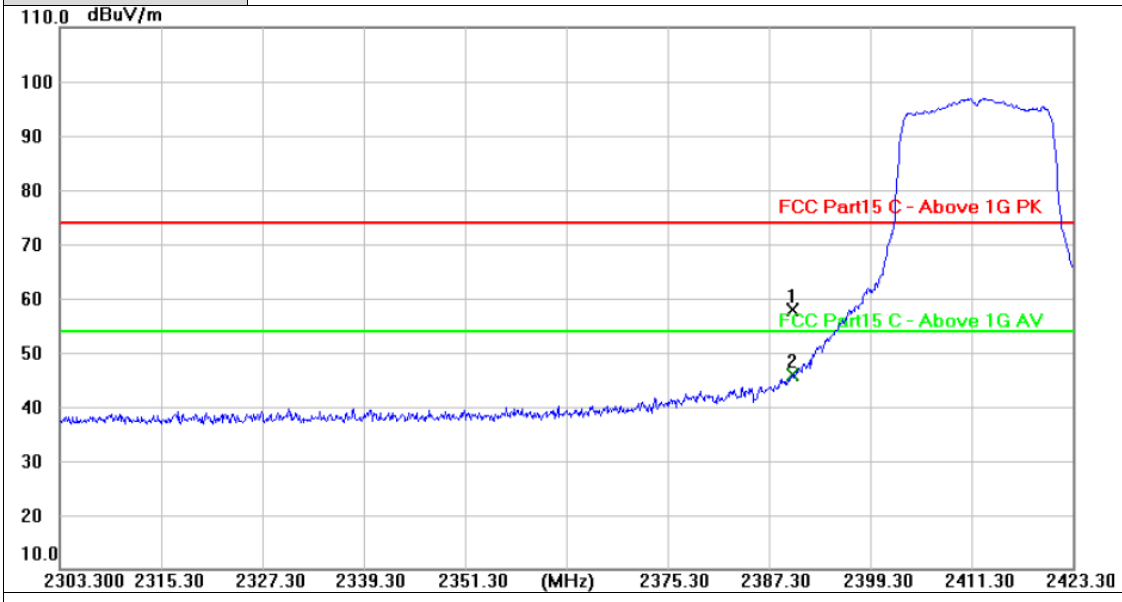
Ant No.:	Ant 2
Ant. Pol.	Vertical
Test Mode:	802.11g Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	22.05	31.48	53.53	74.00	-20.47	peak
2 *	2483.500	6.90	31.48	38.38	54.00	-15.62	AVG

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

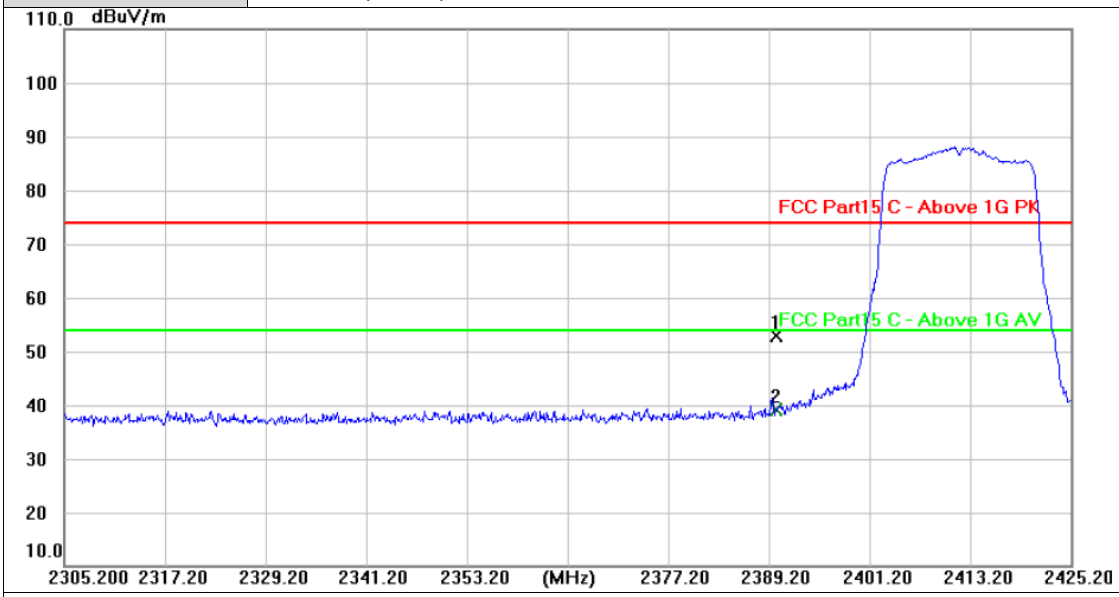
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT20) Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	26.62	31.31	57.93	74.00	-16.07	peak
2 *	2390.000	14.53	31.31	45.84	54.00	-8.16	AVG

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

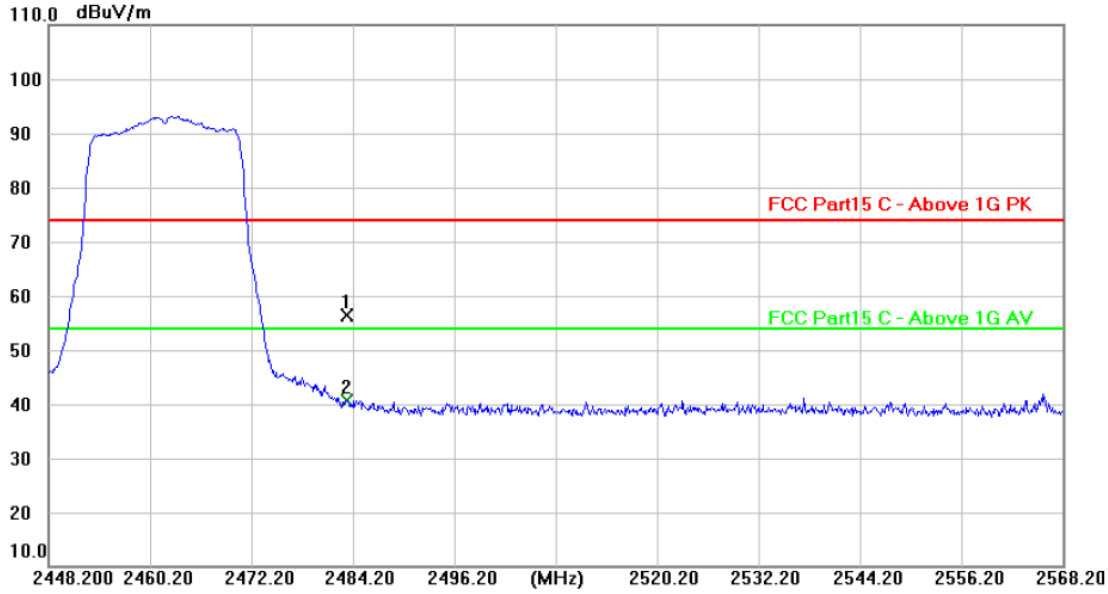
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Vertical
Test Mode:	802.11n(HT20) Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	21.47	31.31	52.78	74.00	-21.22	peak
2 *	2390.000	7.81	31.31	39.12	54.00	-14.88	AVG

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

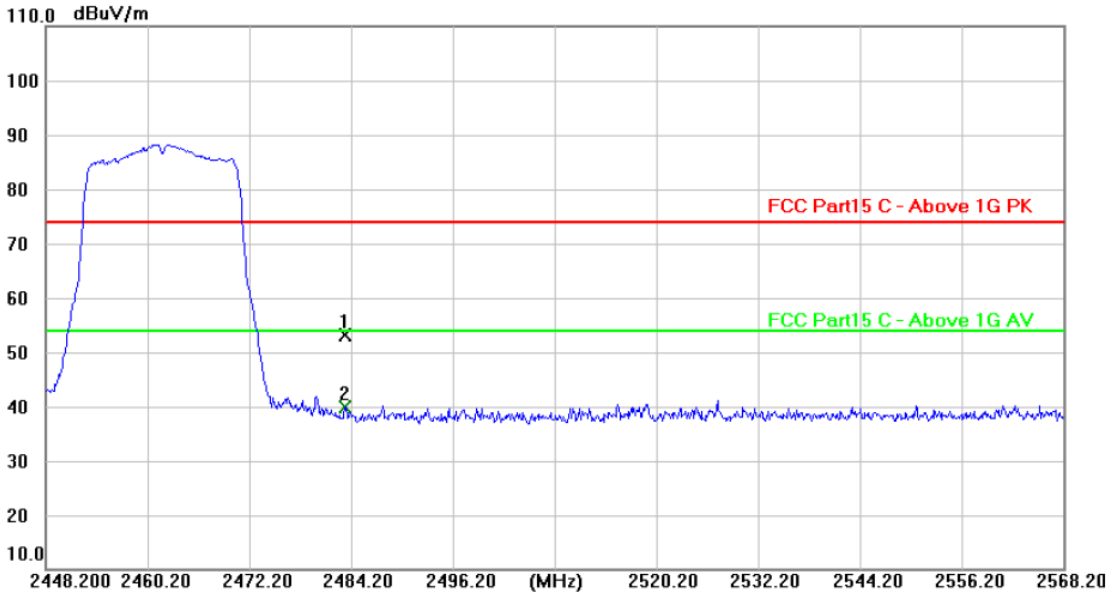
Ant No.:	Ant 1 + Ant 2
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT20) Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	24.89	31.48	56.37	74.00	-17.63	peak
2 *	2483.500	9.20	31.48	40.68	54.00	-13.32	AVG

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

Ant No.:	Ant 1 + Ant 2
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	2483.500	21.64	31.48	53.12	74.00	-20.88	peak
2 *	2483.500	8.35	31.48	39.83	54.00	-14.17	AVG

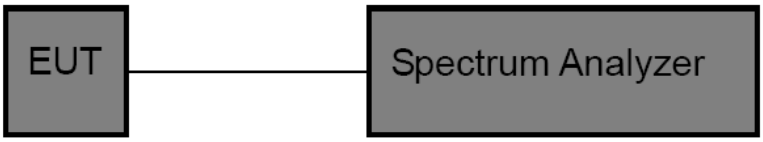
Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

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 30 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

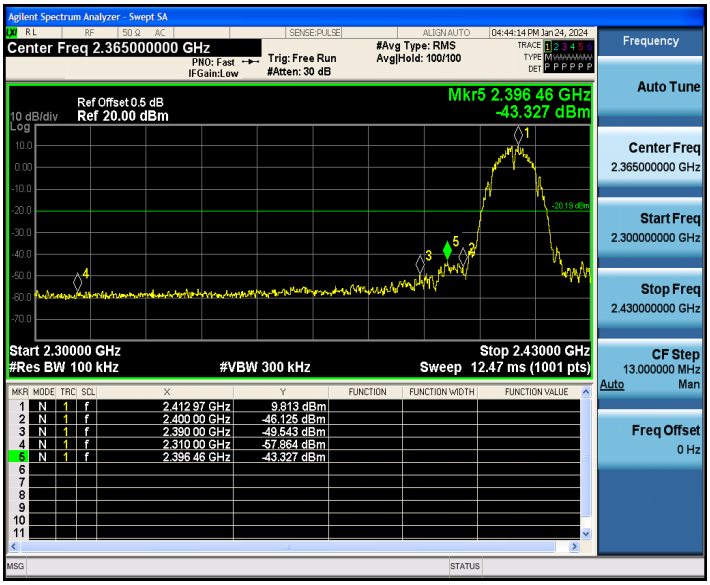
Please refer to the clause 2.4.

Test Results

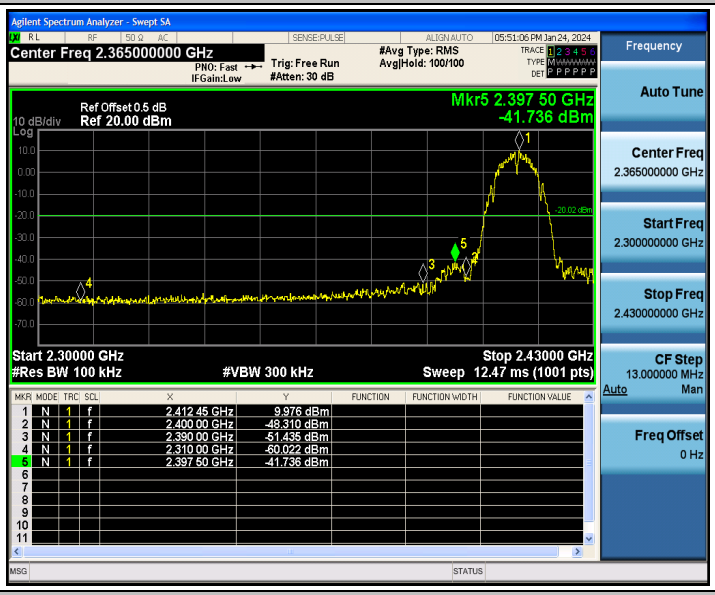
(1) Band edge Conducted Test

Test Mode	Antenna	Frequency[MHz]	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
802.11b	Ant1	2412	9.81	-43.33	≤-20.19	PASS
	Ant2	2412	9.98	-41.74	≤-20.02	PASS
	Ant1	2462	8.87	-48.95	≤-21.13	PASS
	Ant2	2462	8.81	-51.15	≤-21.19	PASS
802.11g	Ant1	2412	4.71	-30.80	≤-25.30	PASS
	Ant2	2412	4.03	-28.04	≤-25.97	PASS
	Ant1	2462	3.50	-39.40	≤-26.50	PASS
	Ant2	2462	4.18	-38.35	≤-25.82	PASS
802.11n(HT20)	Ant1	2412	1.81	-40.61	≤-28.19	PASS
	Ant2	2412	0.61	-37.89	≤-29.39	PASS
	Ant1	2462	1.48	-46.31	≤-28.52	PASS
	Ant2	2462	0.53	-52.35	≤-29.47	PASS

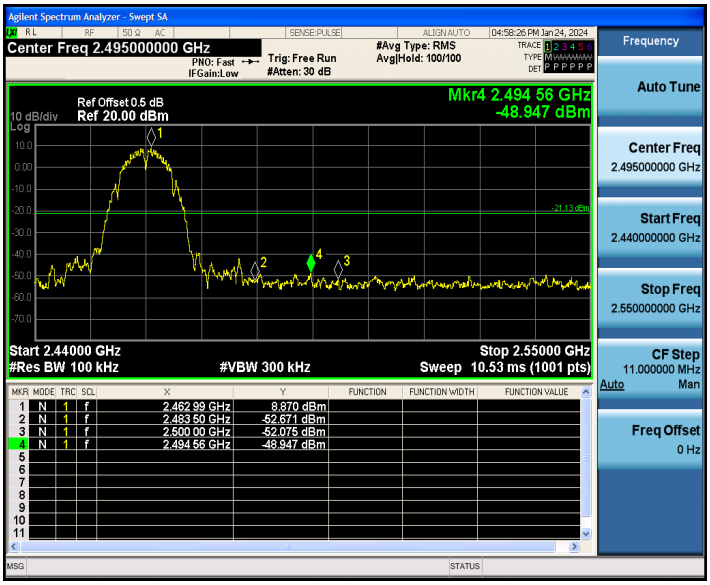
802.11b_Ant1_Low_2412



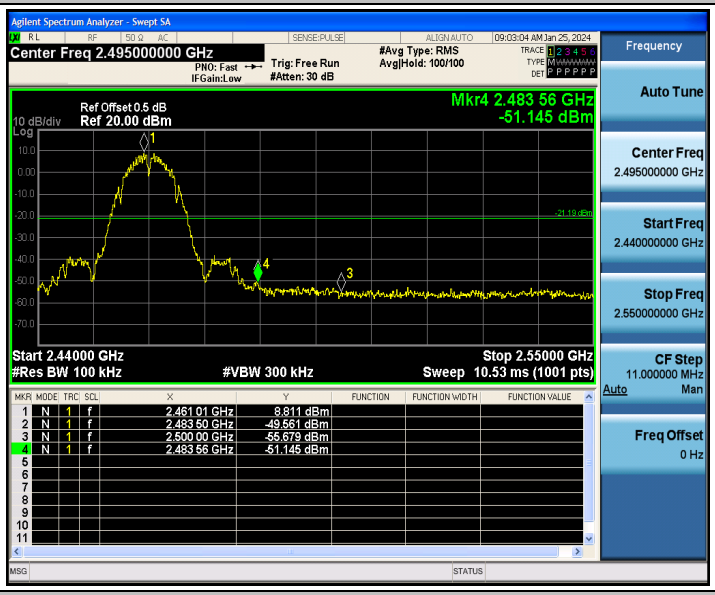
802.11b_Ant2_Low_2412



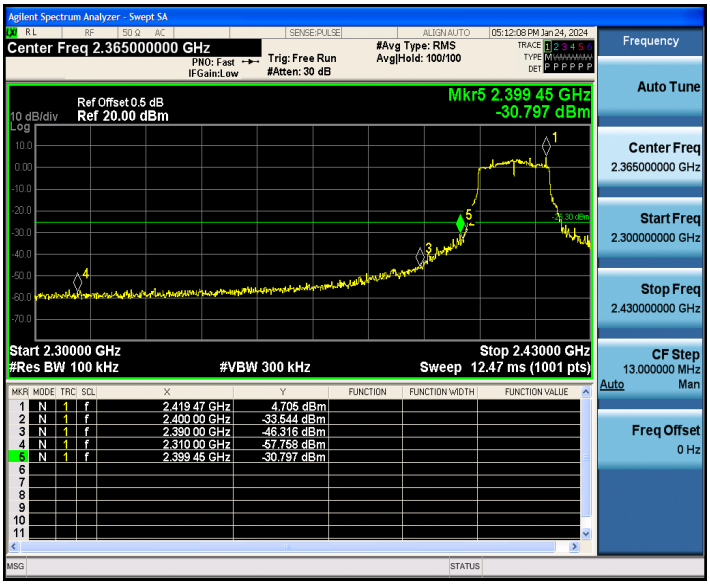
802.11b_Ant1_High_2462



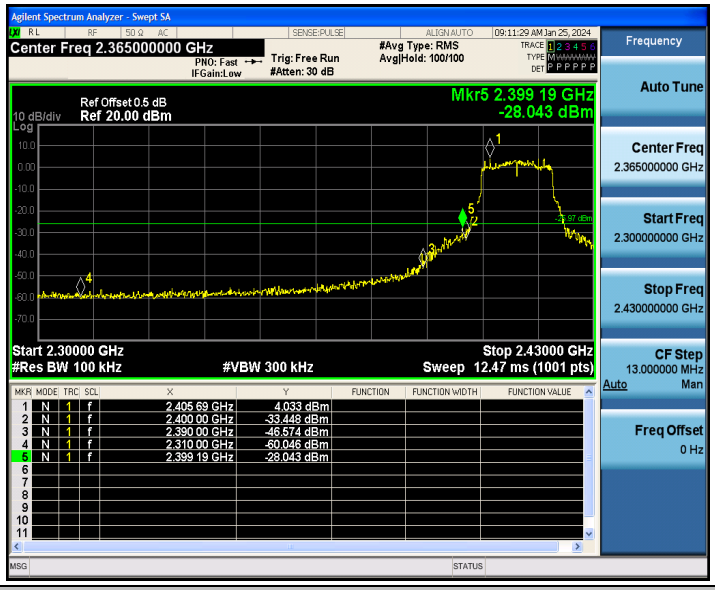
802.11b_Ant2_High_2462



802.11g_Ant1_Low_2412



802.11g_Ant2_Low_2412



802.11g_Ant1_High_2462

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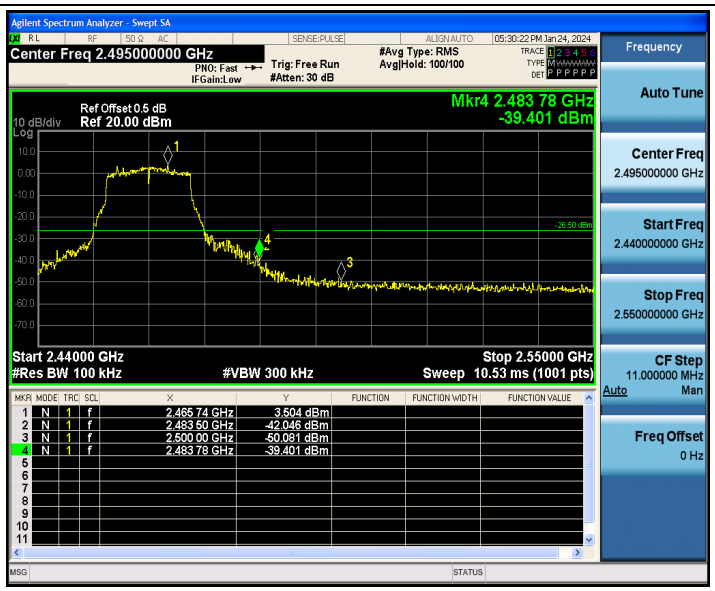
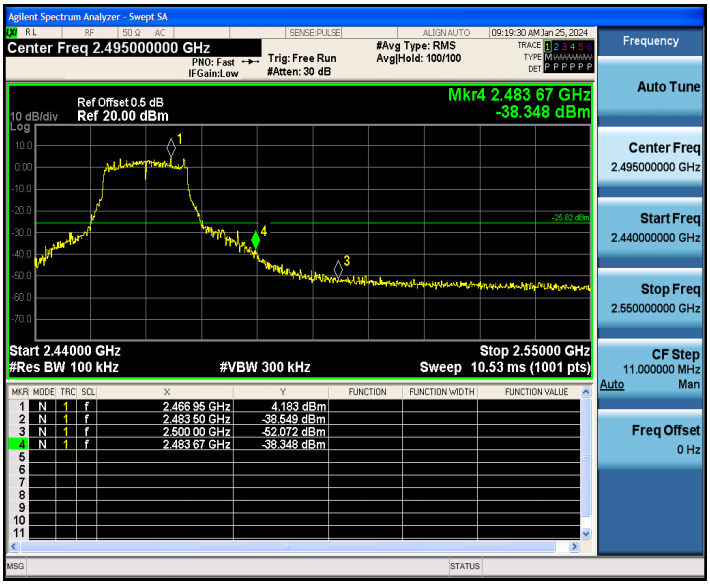
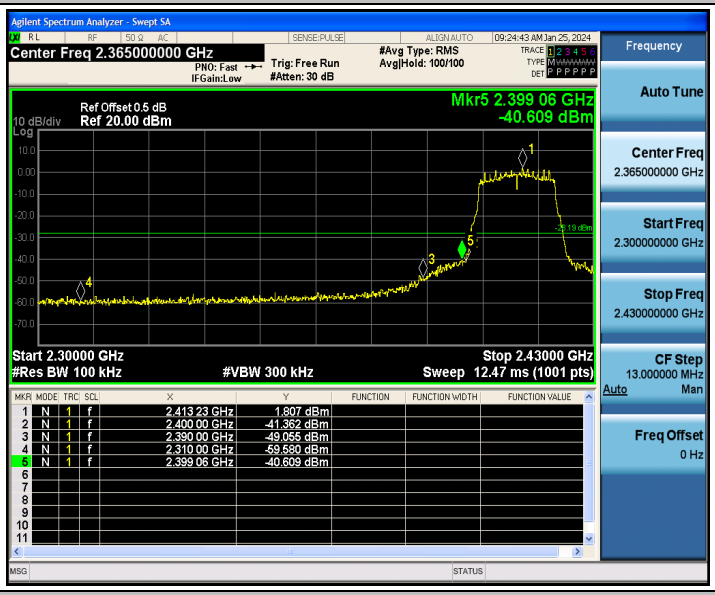


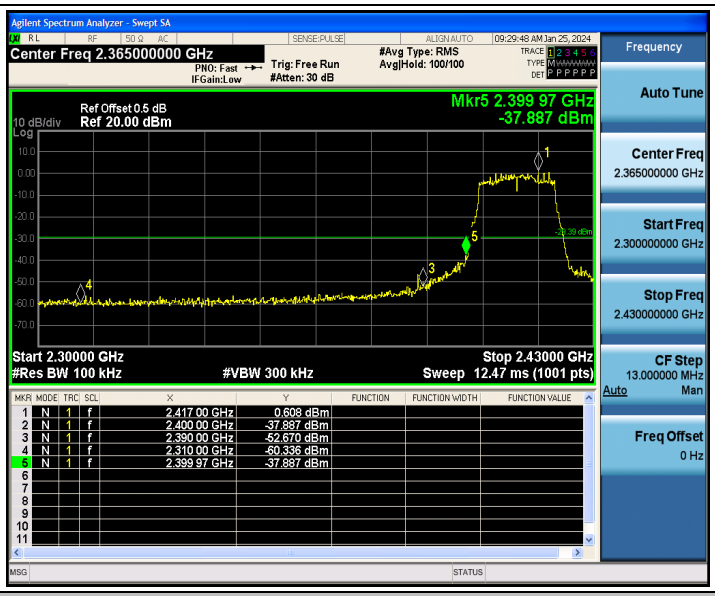
802.11g_Ant2_High_2462



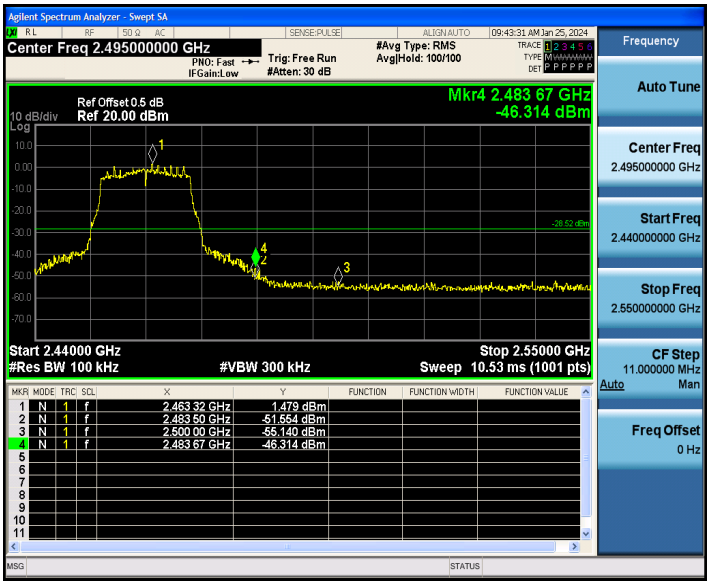
802.11n(HT20)_Ant1_Low_2412



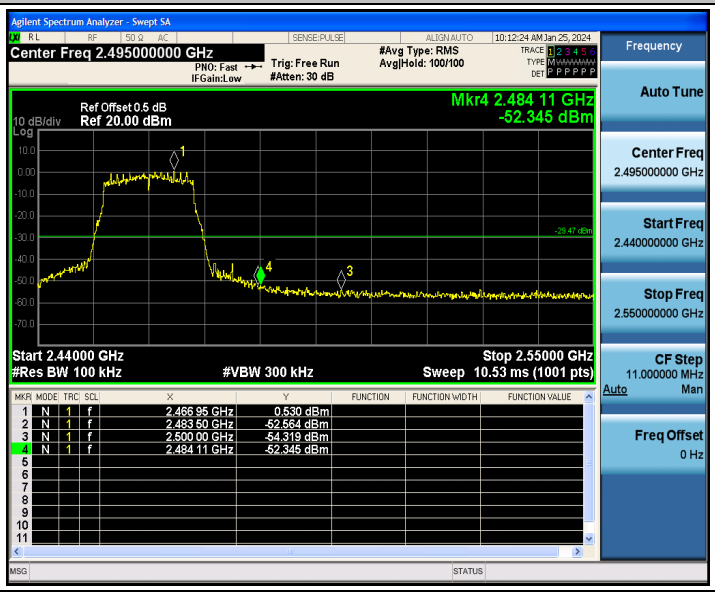
802.11n(HT20)_Ant2_Low_2412



802.11n(HT20)_Ant1_High_2462



802.11n(HT20)_Ant2_High_2462

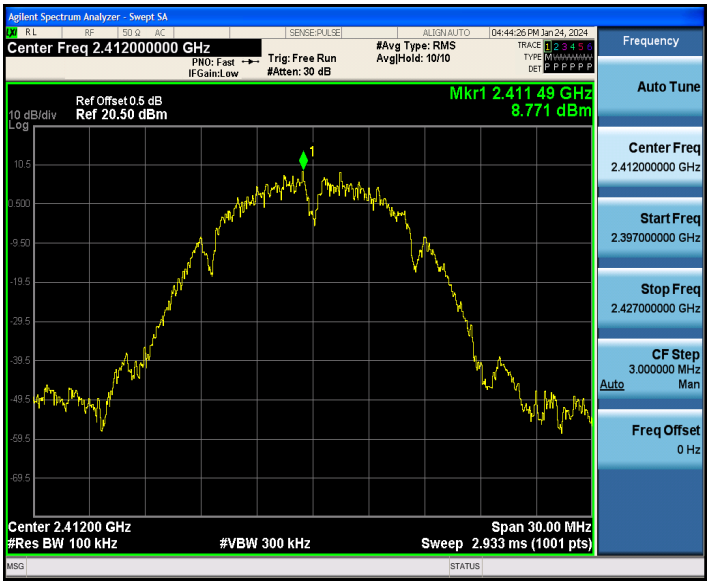


(2) Conducted Spurious Emissions Test

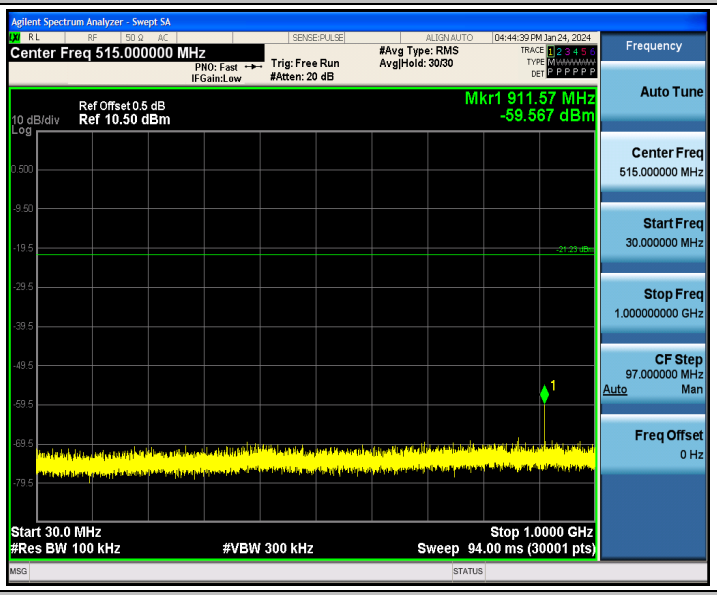
Test Mode	Antenna	Frequency[MHz]	Freq Range [Mhz]	Ref Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
802.11b	Ant1	2412	Reference	8.77	8.77	---	PASS
			30~1000	8.77	-59.57	≤-21.23	PASS
			1000~26500	8.77	-47.92	≤-21.23	PASS
	Ant2	2412	Reference	9.94	9.94	---	PASS
			30~1000	9.94	-67.5	≤-20.06	PASS
			1000~26500	9.94	-44.88	≤-20.06	PASS
	Ant1	2437	Reference	9.14	9.14	---	PASS
			30~1000	9.14	-67.61	≤-20.86	PASS
			1000~26500	9.14	-48.24	≤-20.86	PASS
	Ant2	2437	Reference	7.91	7.91	---	PASS
			30~1000	7.91	-68.49	≤-22.09	PASS
			1000~26500	7.91	-47.12	≤-22.09	PASS
	Ant1	2462	Reference	8.17	8.17	---	PASS
			30~1000	8.17	-68.4	≤-21.83	PASS
			1000~26500	8.17	-48.26	≤-21.83	PASS
	Ant2	2462	Reference	7.01	7.01	---	PASS
			30~1000	7.01	-68.11	≤-22.99	PASS
			1000~26500	7.01	-48.66	≤-22.99	PASS
802.11g	Ant1	2412	Reference	3.34	3.34	---	PASS
			30~1000	3.34	-68.13	≤-26.66	PASS
			1000~26500	3.34	-47.9	≤-26.66	PASS
	Ant2	2412	Reference	1.88	1.88	---	PASS
			30~1000	1.88	-68.72	≤-28.12	PASS
			1000~26500	1.88	-48.41	≤-28.12	PASS
	Ant1	2437	Reference	3.52	3.52	---	PASS
			30~1000	3.52	-68.31	≤-26.48	PASS
			1000~26500	3.52	-47.28	≤-26.48	PASS
	Ant2	2437	Reference	3.59	3.59	---	PASS
			30~1000	3.59	-68.93	≤-26.41	PASS
			1000~26500	3.59	-48.16	≤-26.41	PASS
	Ant1	2462	Reference	3.15	3.15	---	PASS
			30~1000	3.15	-68.12	≤-26.85	PASS
			1000~26500	3.15	-47.74	≤-26.85	PASS
	Ant2	2462	Reference	2.22	2.22	---	PASS
			30~1000	2.22	-68.48	≤-27.78	PASS
			1000~26500	2.22	-48.44	≤-27.78	PASS
802.11n(HT20)	Ant1	2412	Reference	0.97	0.97	---	PASS
			30~1000	0.97	-68.54	≤-29.03	PASS
			1000~26500	0.97	-48.15	≤-29.03	PASS
	Ant2	2412	Reference	0.10	0.10	---	PASS
			30~1000	0.10	-68.86	≤-29.9	PASS

			1000~26500	0.10	-48.46	≤-29.9	PASS
	Ant1	2437	Reference	0.88	0.88	---	PASS
			30~1000	0.88	-68.81	≤-29.12	PASS
			1000~26500	0.88	-47.05	≤-29.12	PASS
	Ant2	2437	Reference	-0.51	-0.51	---	PASS
			30~1000	-0.51	-68.4	≤-30.51	PASS
			1000~26500	-0.51	-48.05	≤-30.51	PASS
	Ant1	2462	Reference	-0.08	-0.08	---	PASS
			30~1000	-0.08	-68.36	≤-30.08	PASS
			1000~26500	-0.08	-48.59	≤-30.08	PASS
	Ant2	2462	Reference	0.27	0.27	---	PASS
			30~1000	0.27	-68.62	≤-29.73	PASS
			1000~26500	0.27	-48.07	≤-29.73	PASS

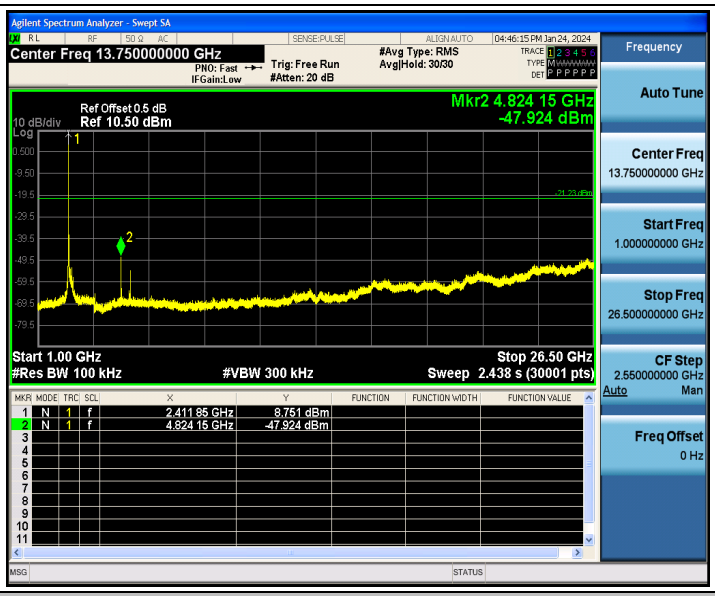
802.11b_Ant1_2412_0~Reference



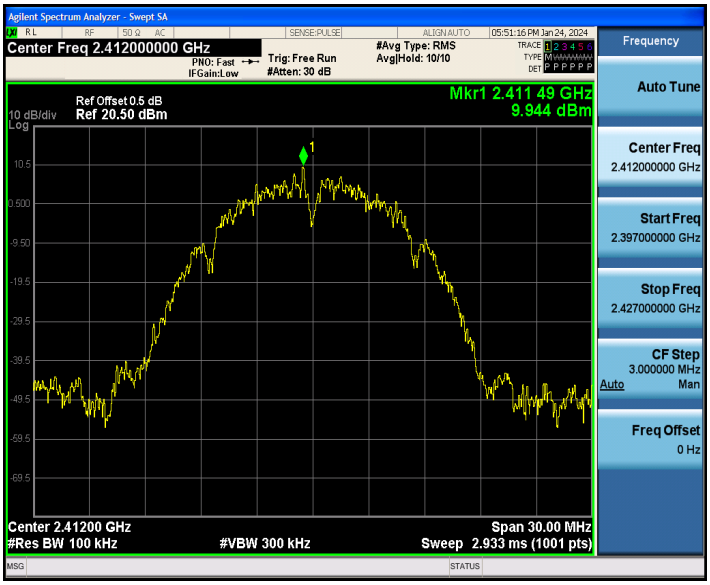
802.11b_Ant1_2412_30~1000



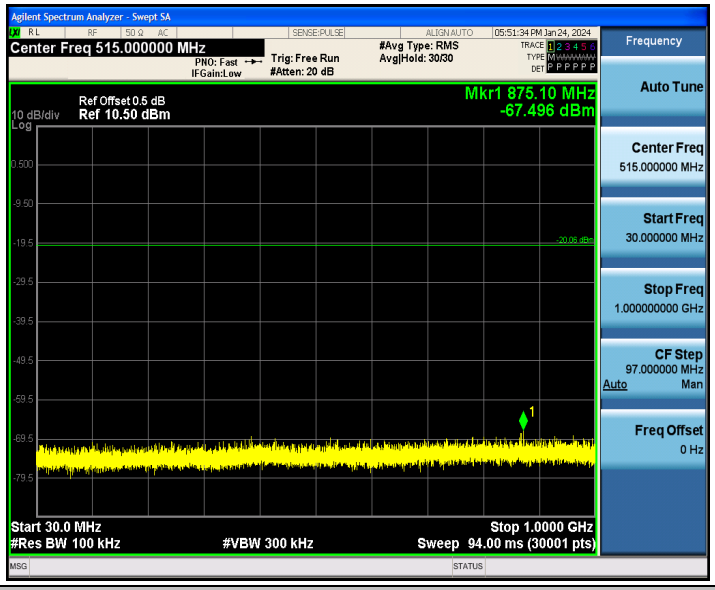
802.11b_Ant1_2412_1000~26500



802.11b_Ant2_2412_0~Reference



802.11b_Ant2_2412_30~1000



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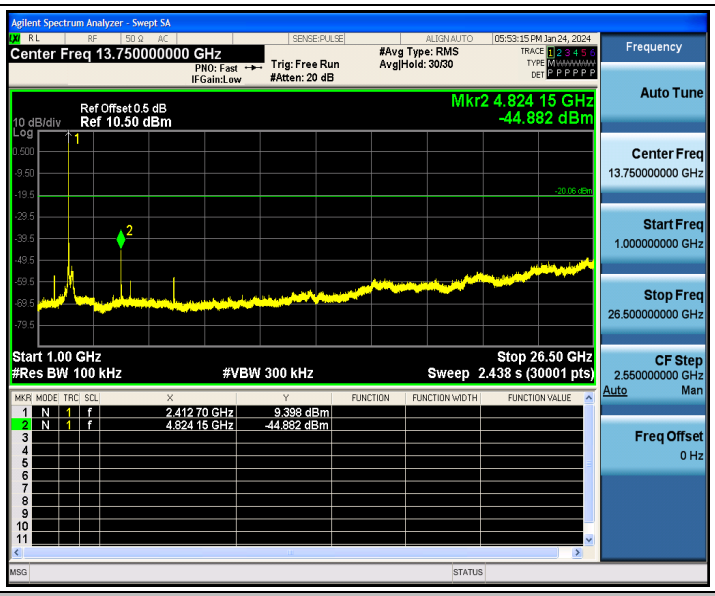
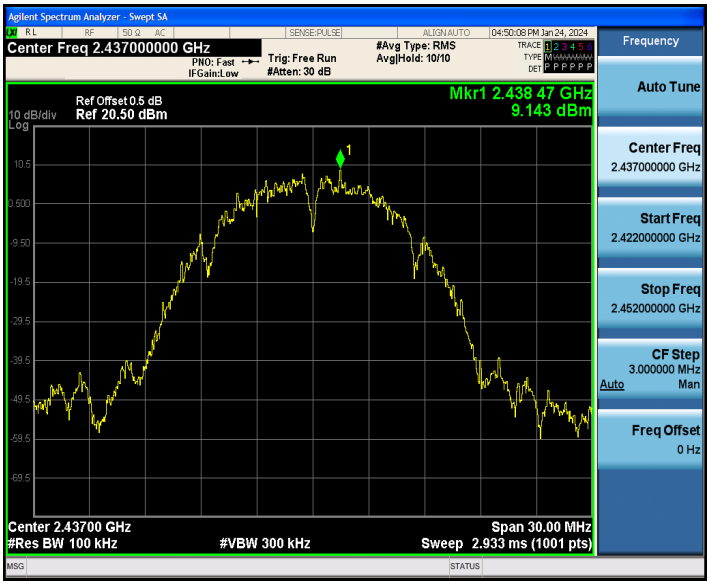


802.11b_Ant1_2437_0~Reference



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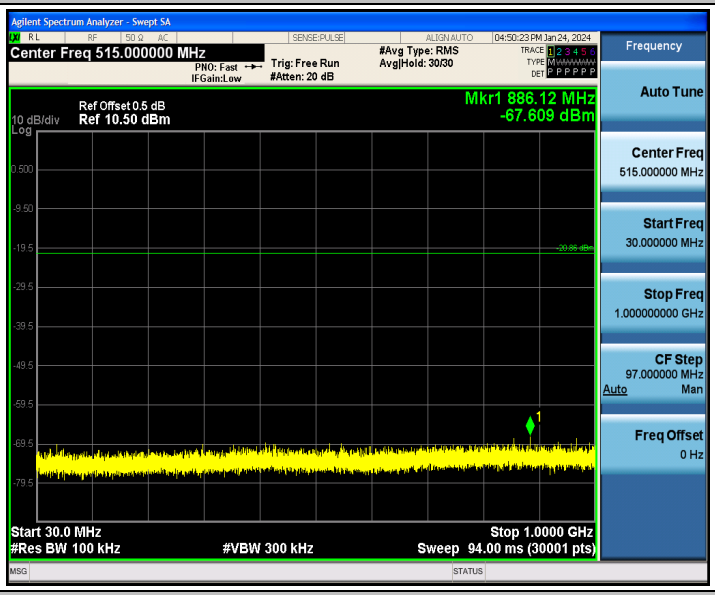
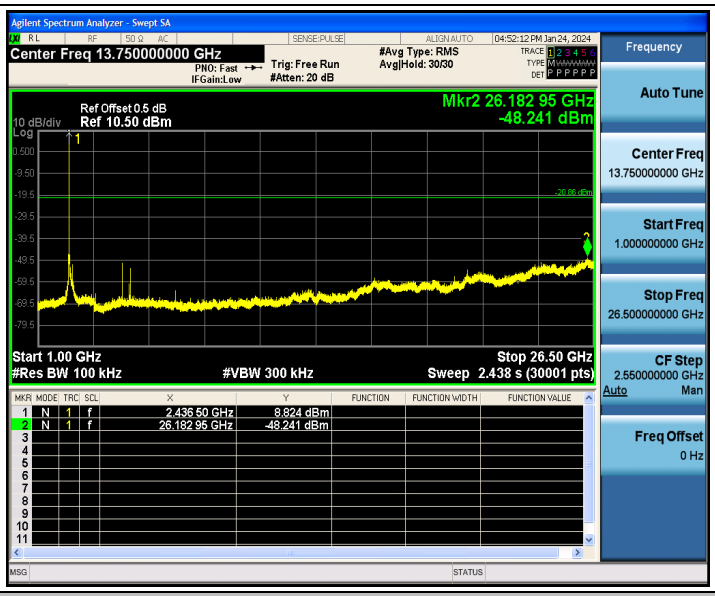


802.11b_Ant1_2437_1000~26500



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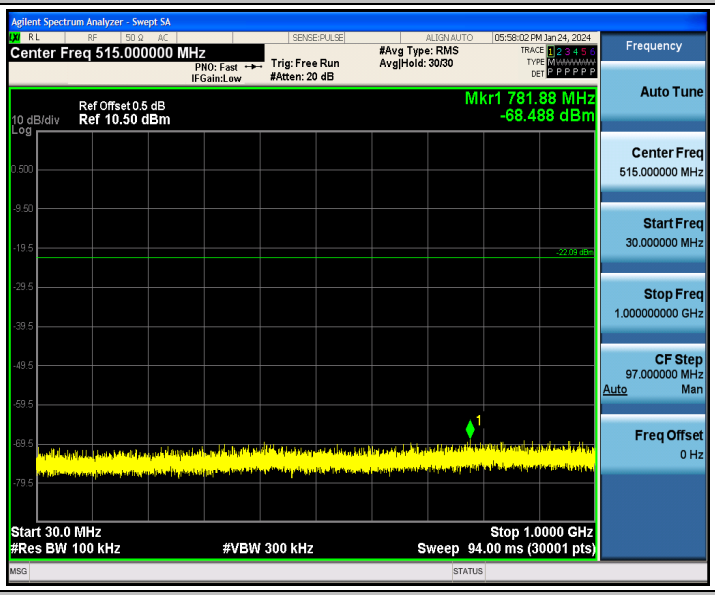
802.11b_Ant2_2437_30~1000



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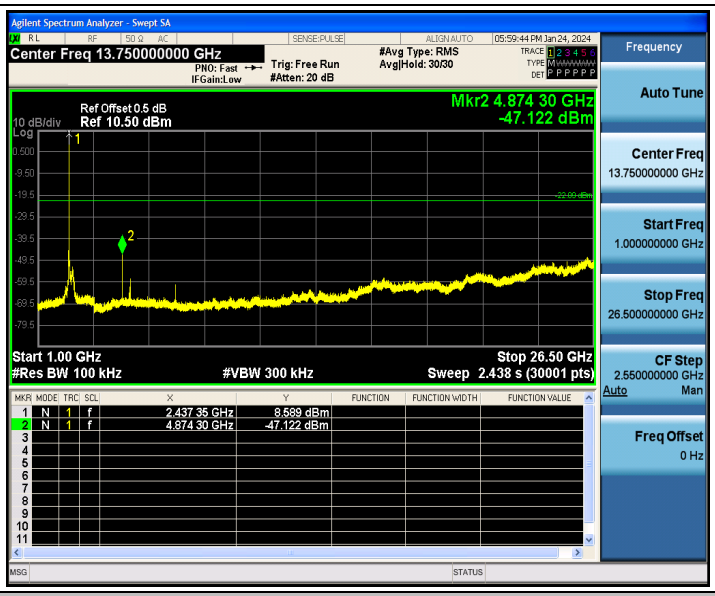

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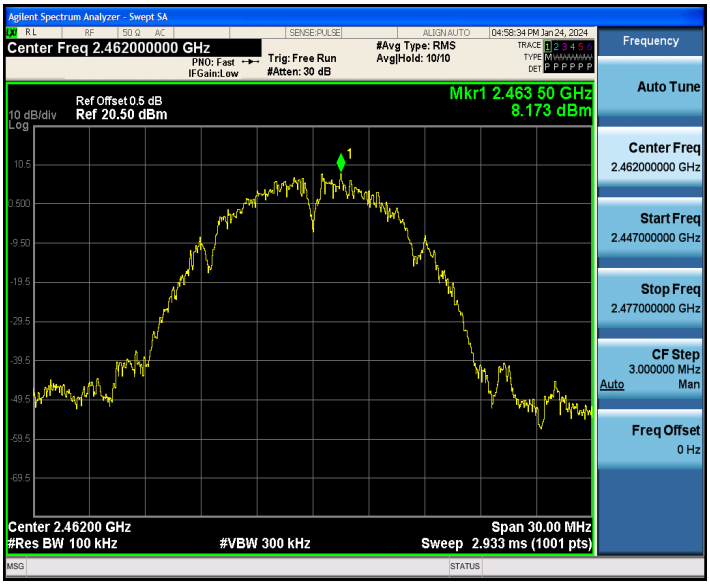

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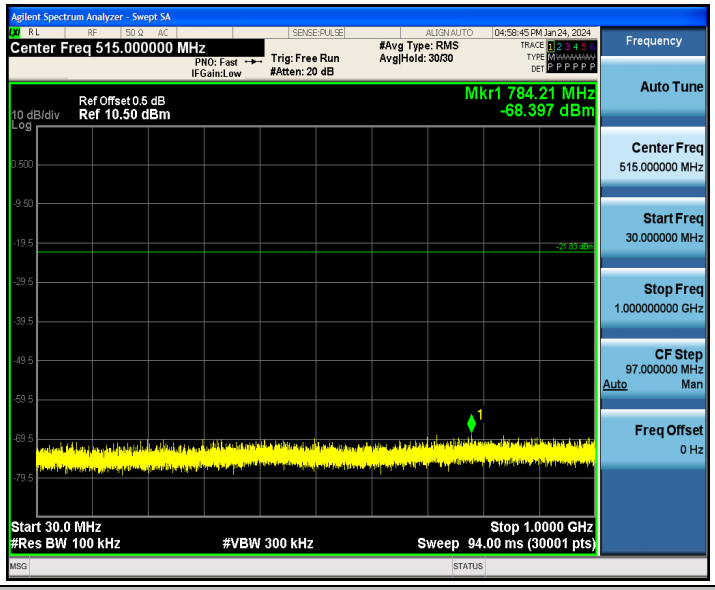

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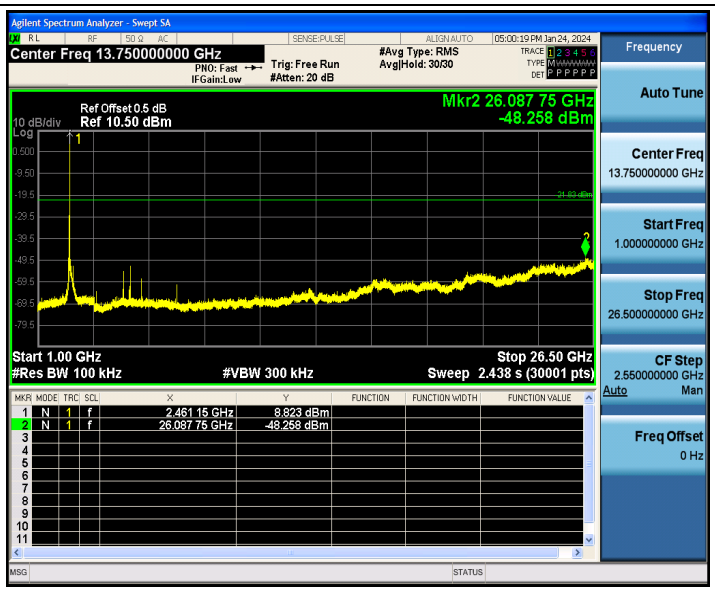

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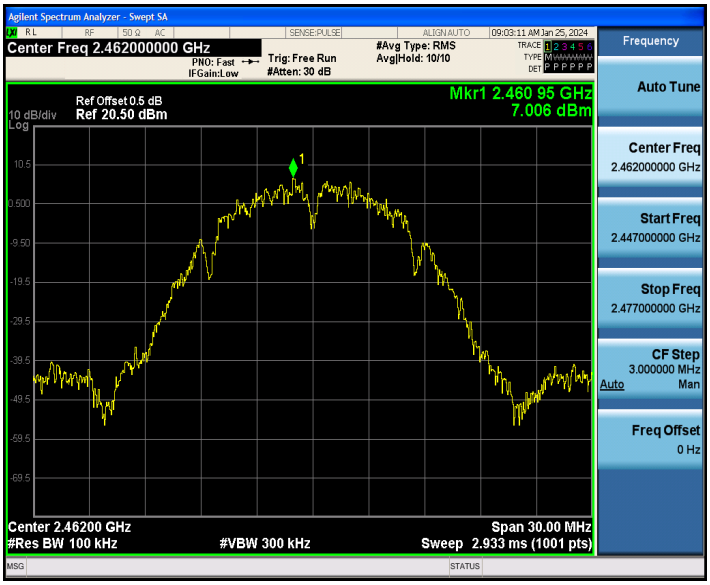
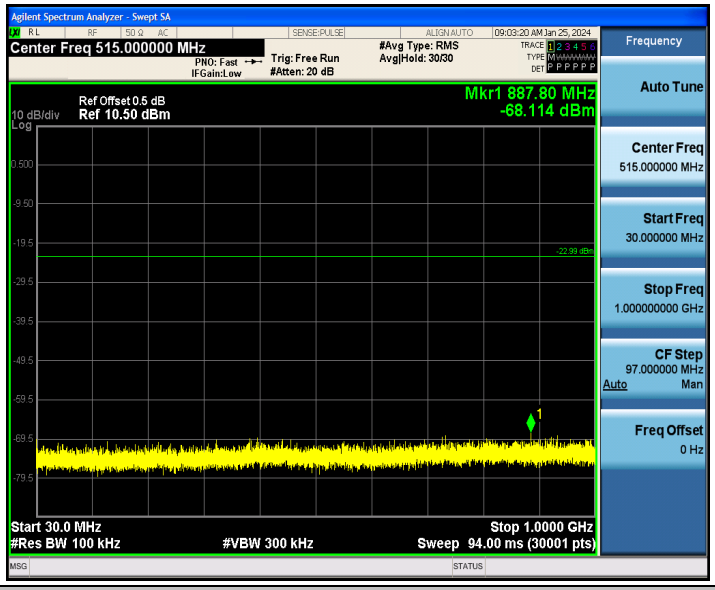
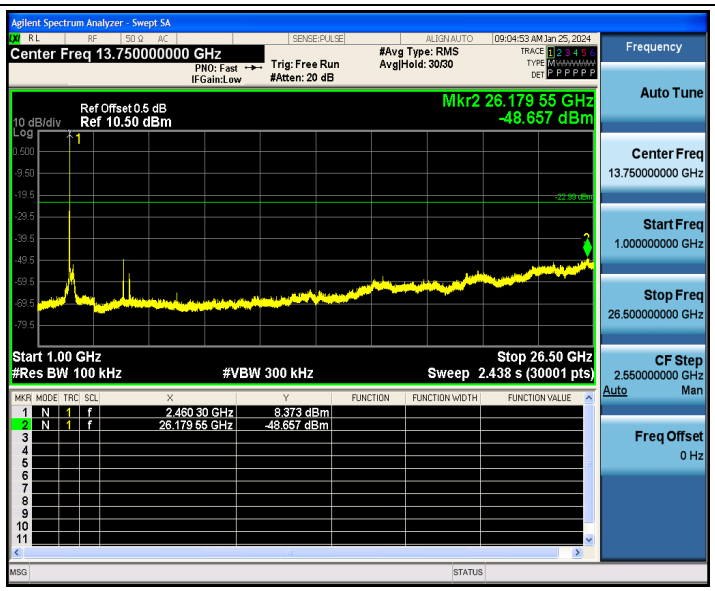


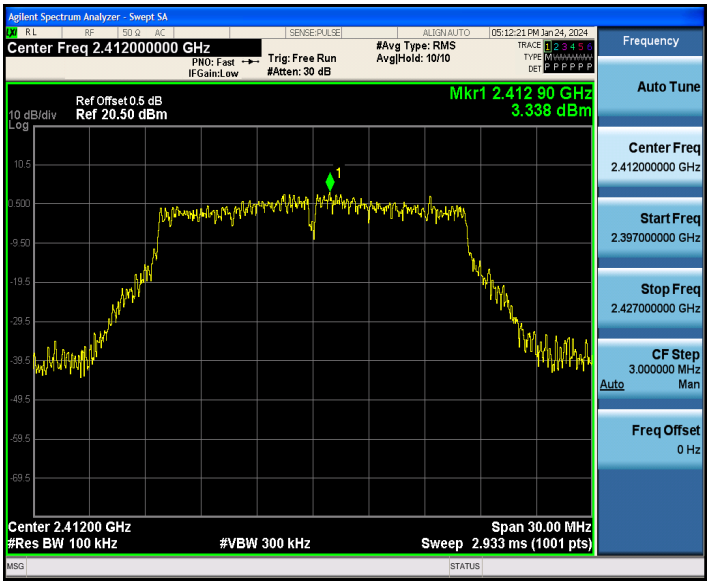
802.11b_Ant2_2462_30~1000



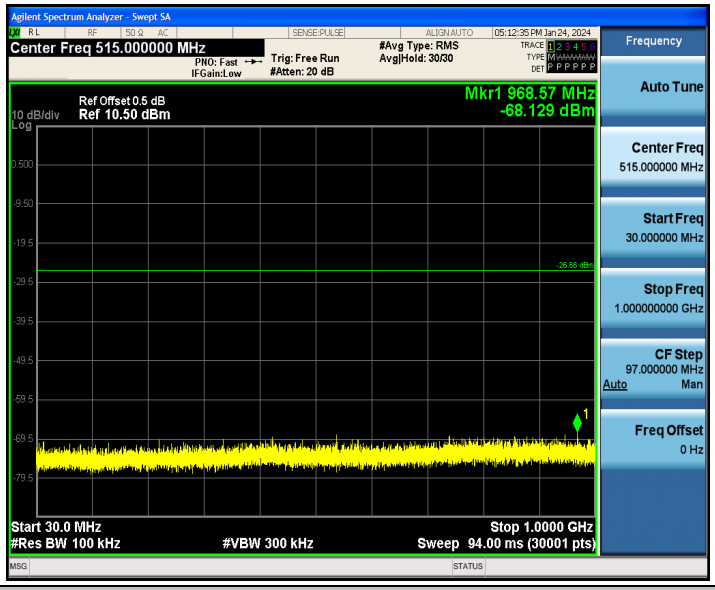
802.11b_Ant2_2462_1000~26500



802.11g_Ant1_2412_0~Reference



802.11g_Ant1_2412_30~1000



802.11g_Ant1_2412_1000~26500

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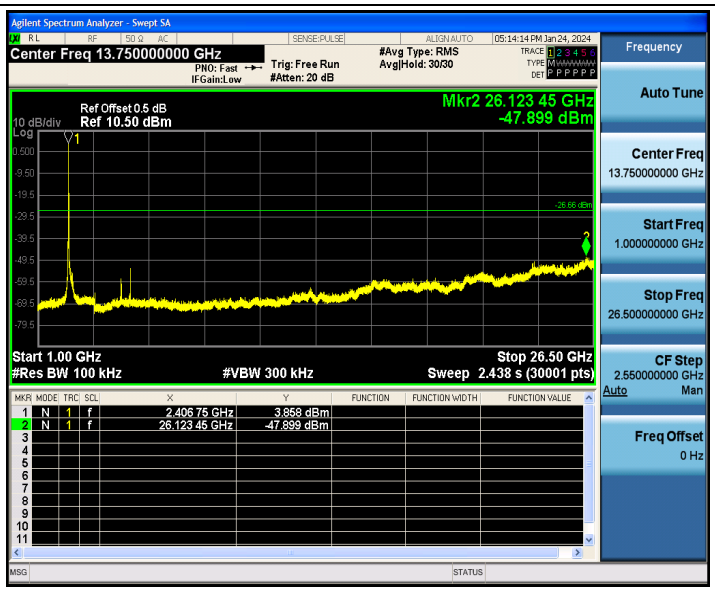
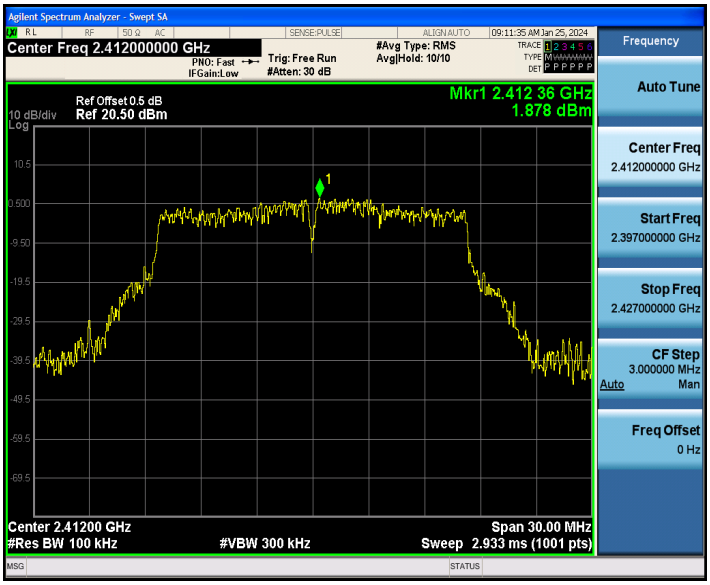
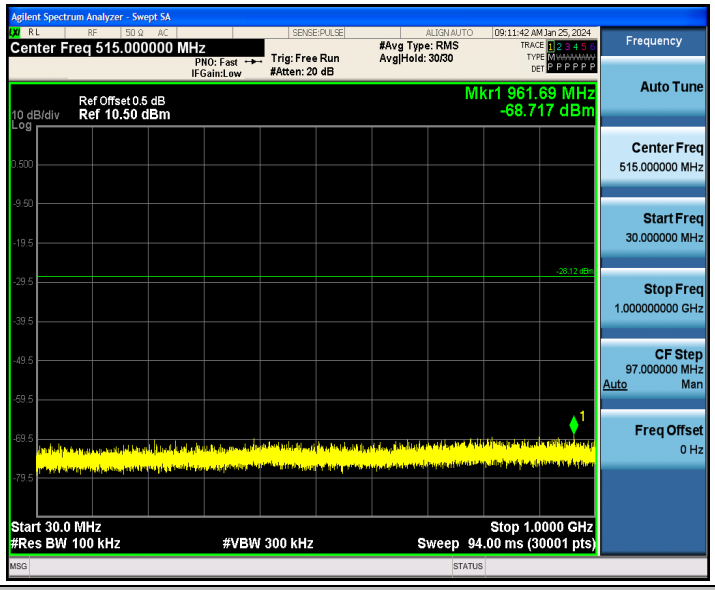


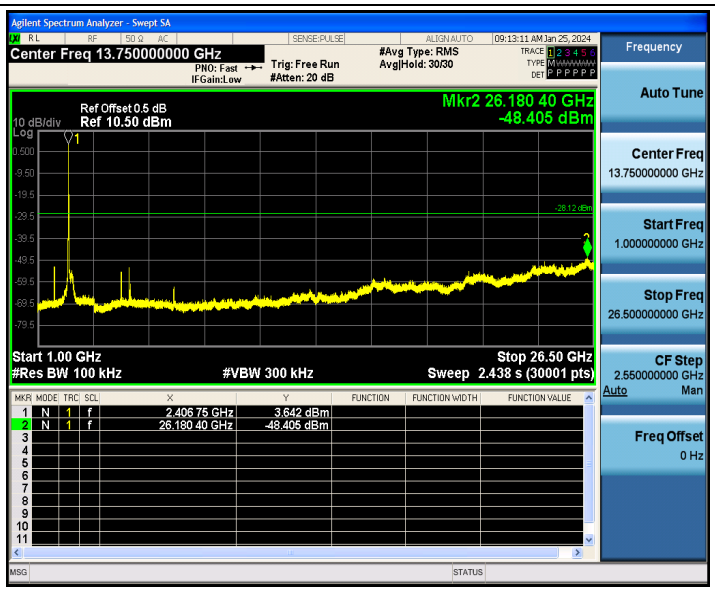
802.11g_Ant2_2412_0~Reference



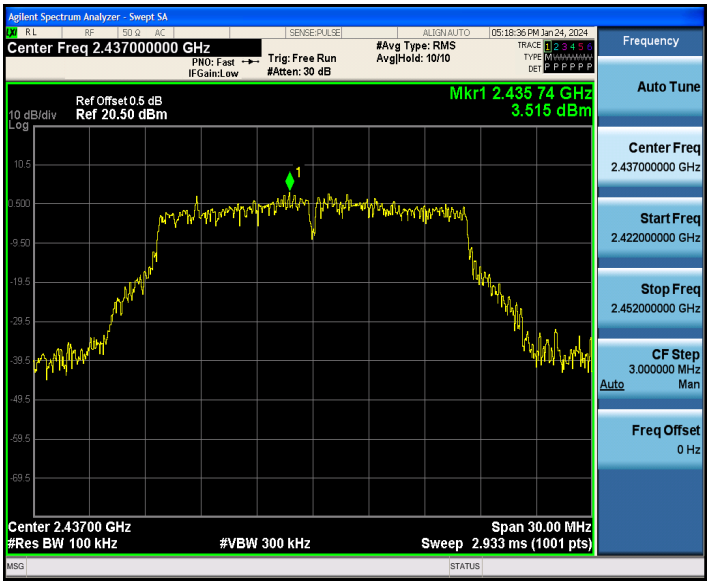
802.11g_Ant2_2412_30~1000



802.11g_Ant2_2412_1000~26500



802.11g_Ant1_2437_0~Reference



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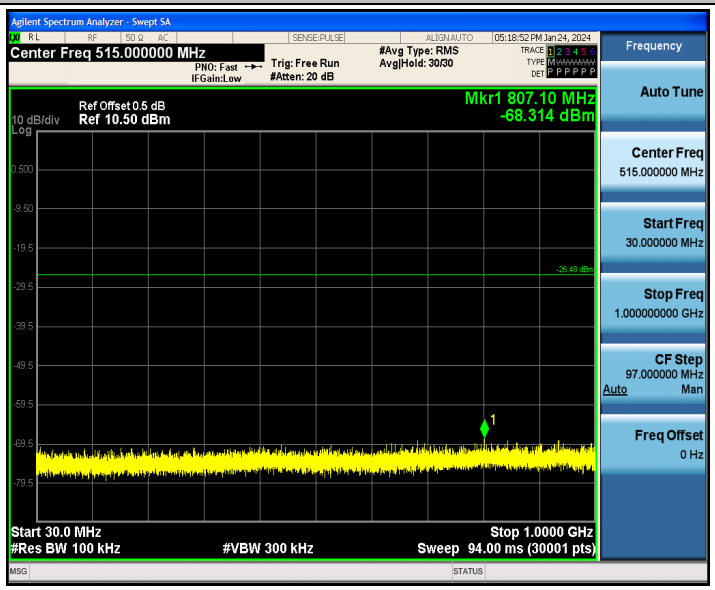
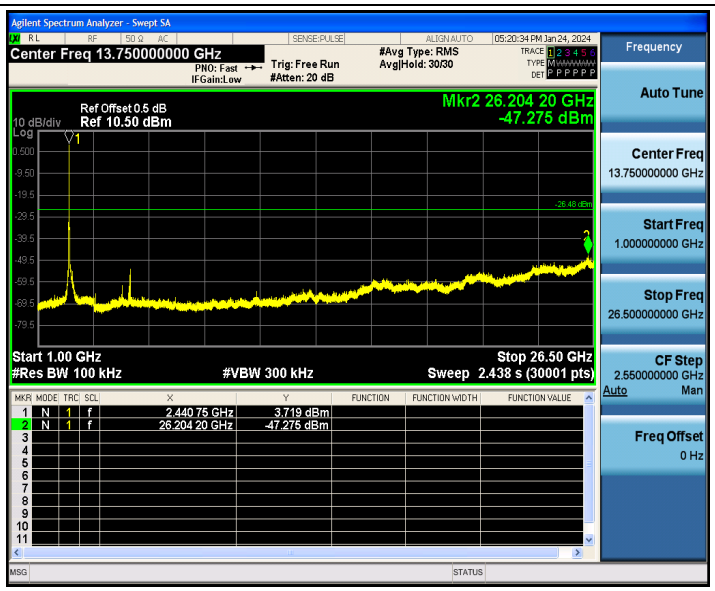


802.11g_Ant1_2437_1000~26500



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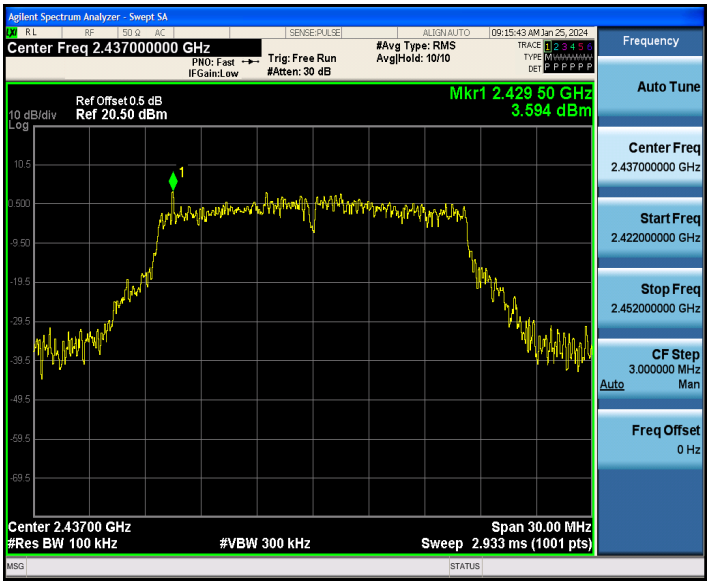
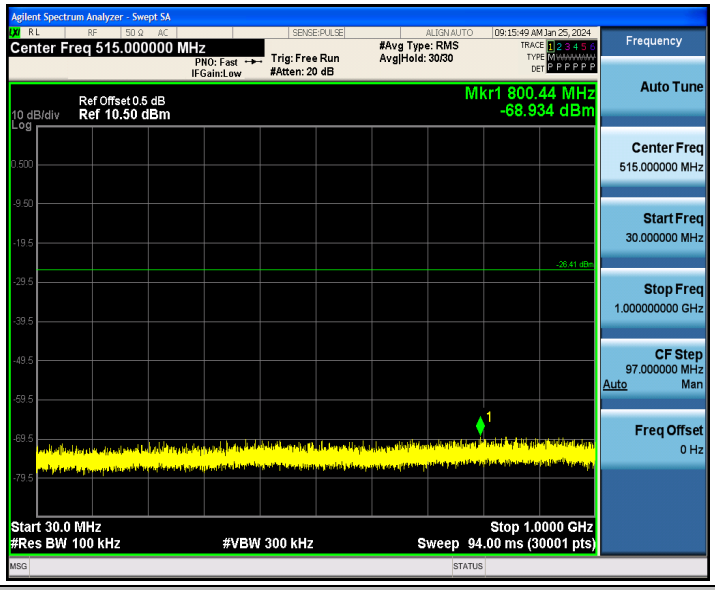
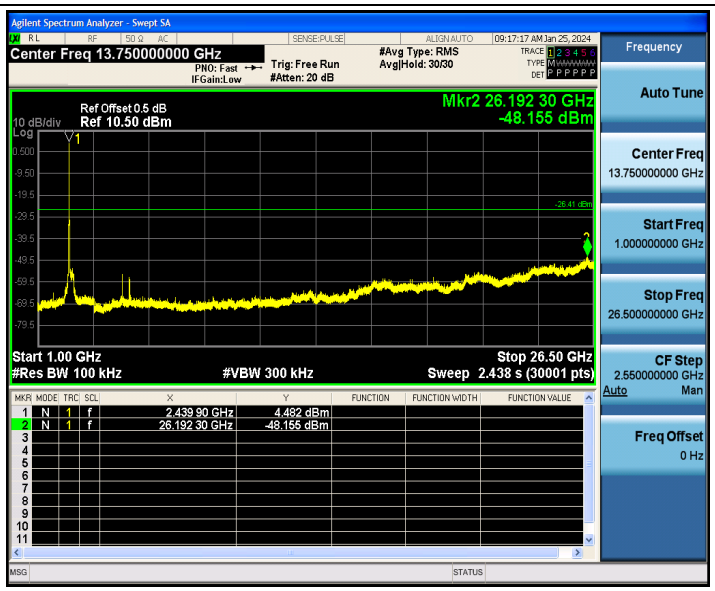


802.11g_Ant2_2437_30~1000



802.11g_Ant2_2437_1000~26500



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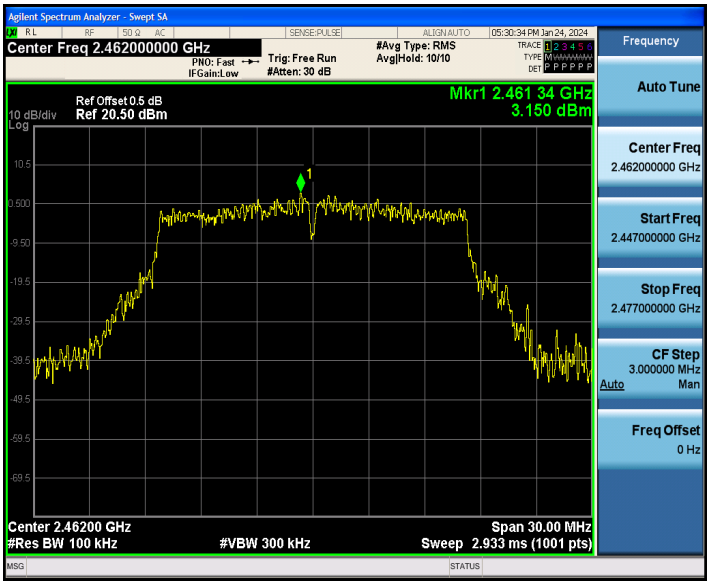

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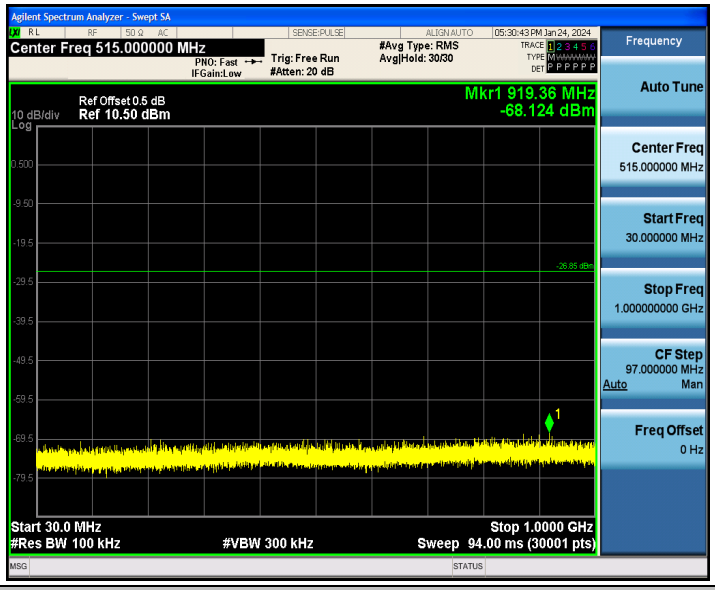
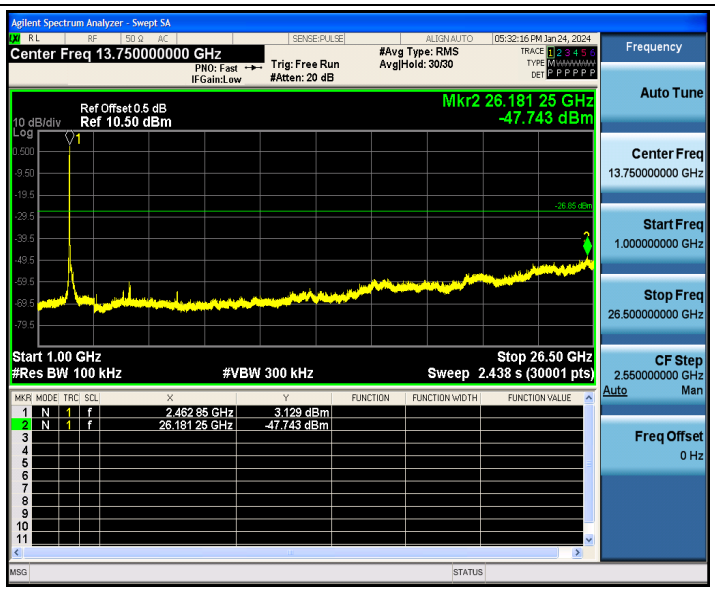


802.11g_Ant1_2462_1000~26500



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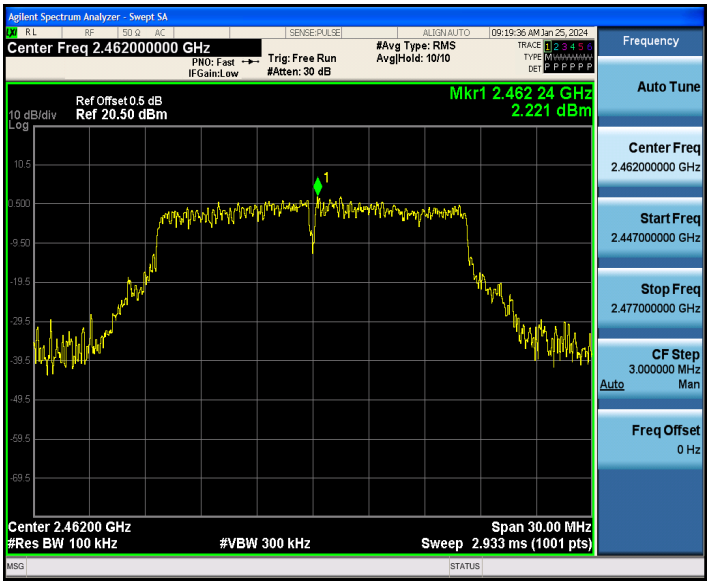

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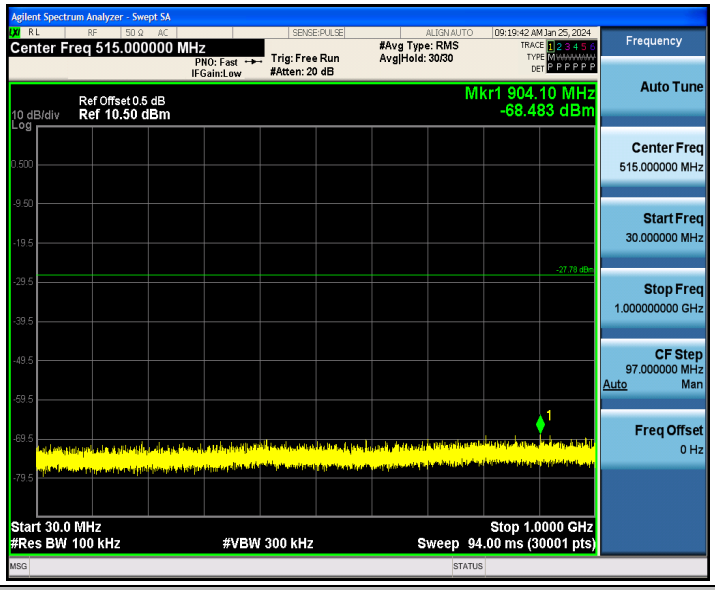
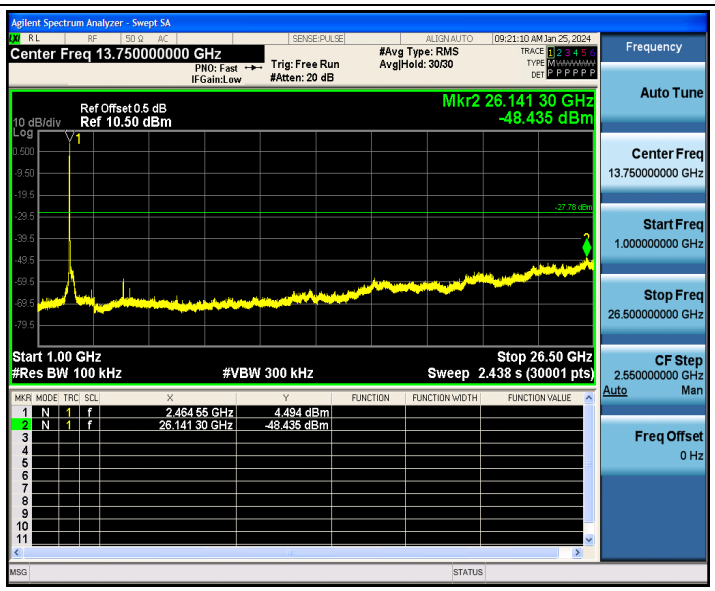
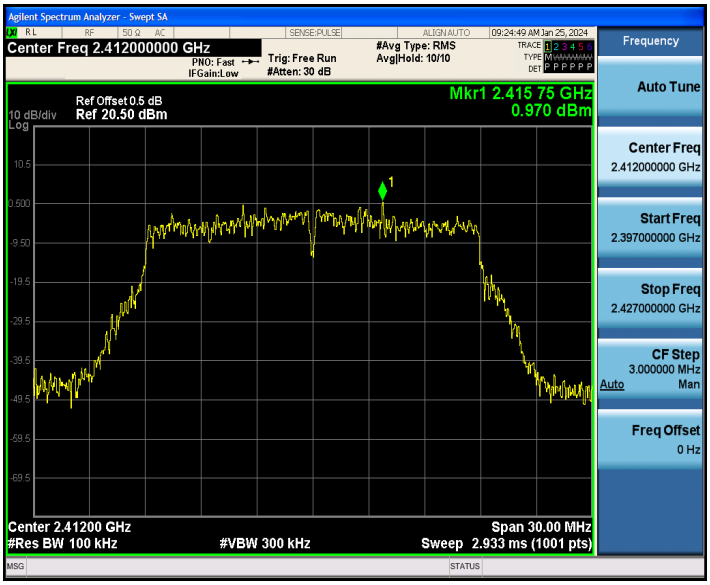


802.11g_Ant2_2462_1000~26500



802.11n(HT20)_Ant1_2412_0~Reference



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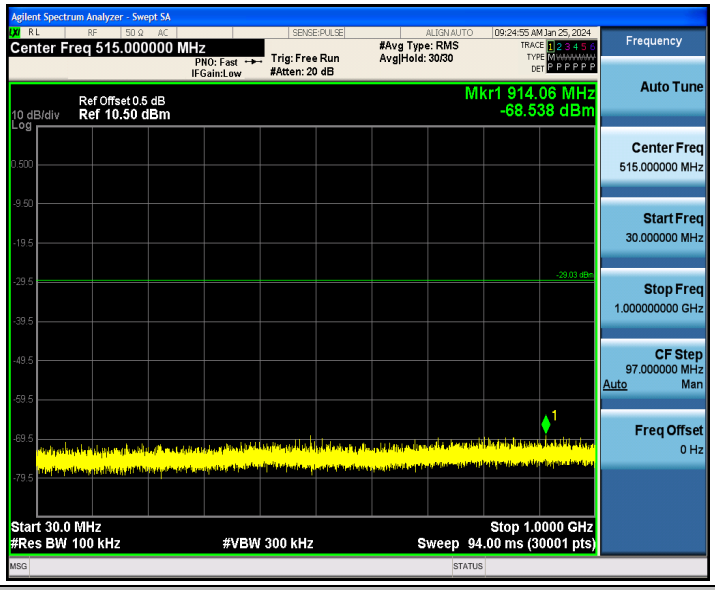

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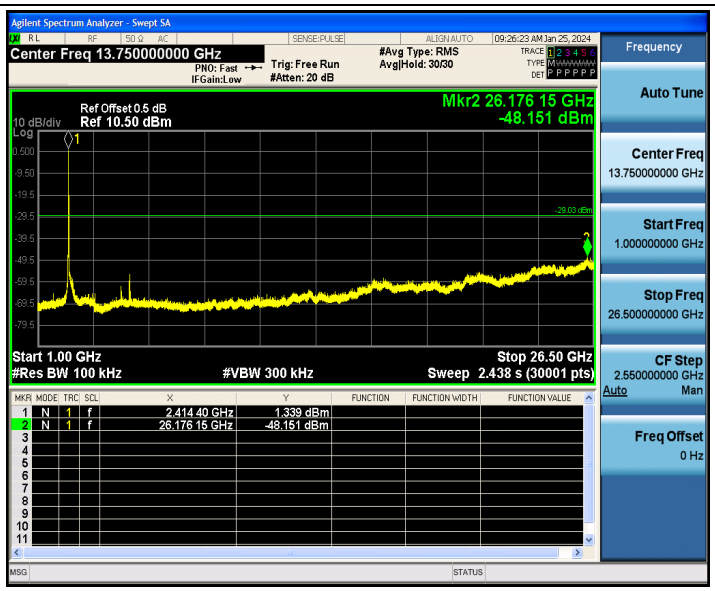

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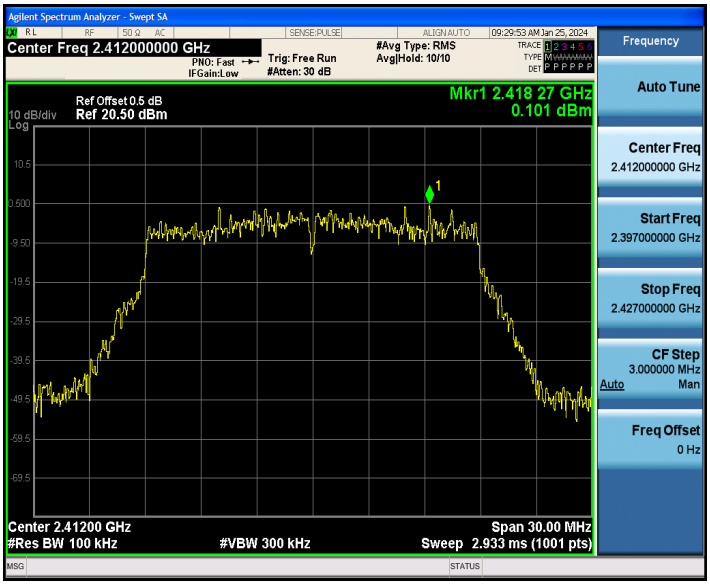

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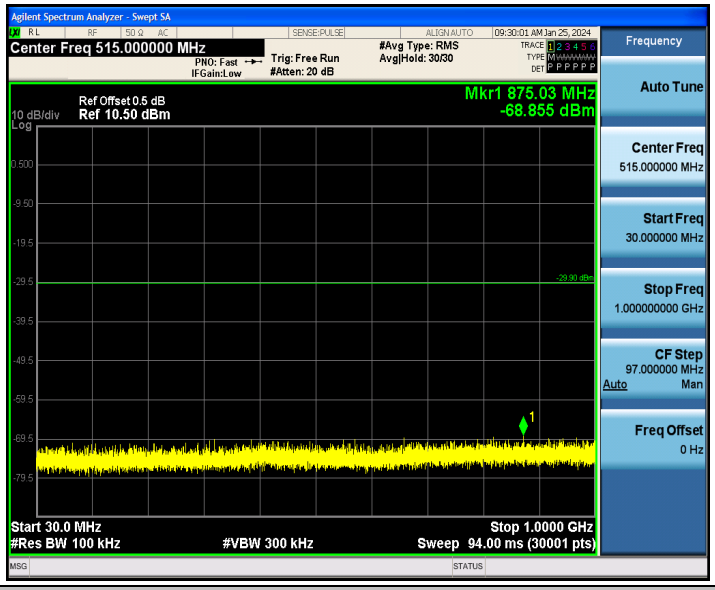

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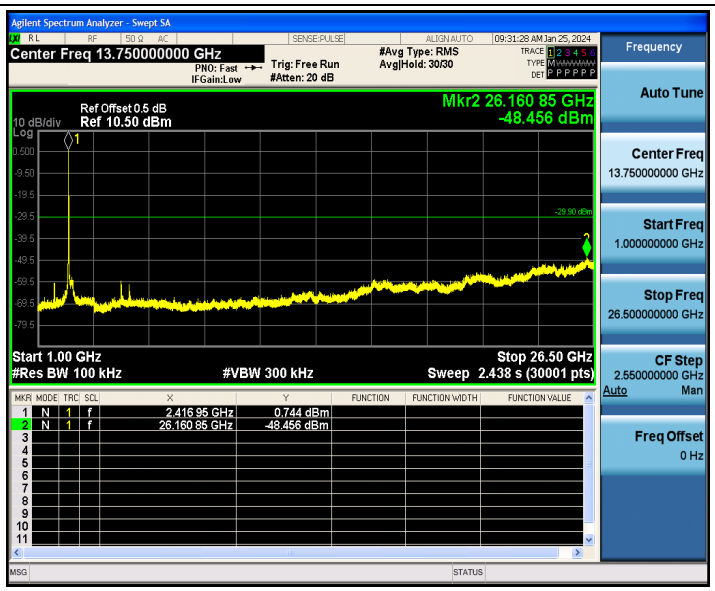
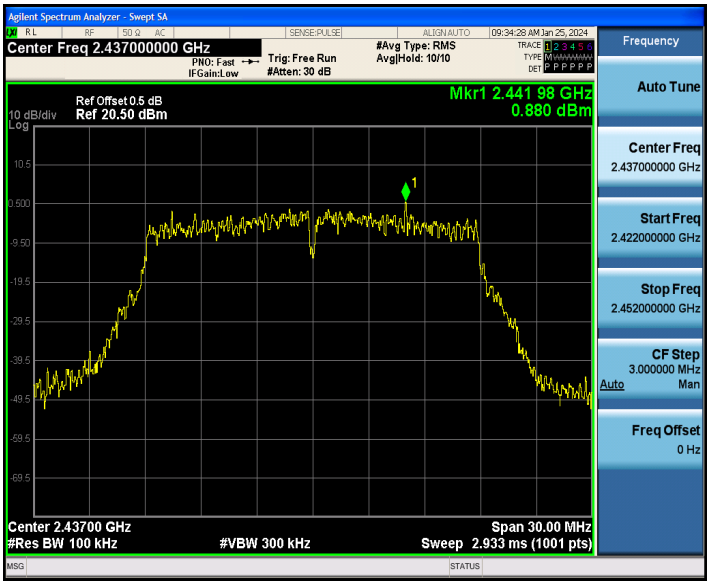


802.11n(HT20)_Ant1_2437_0~Reference



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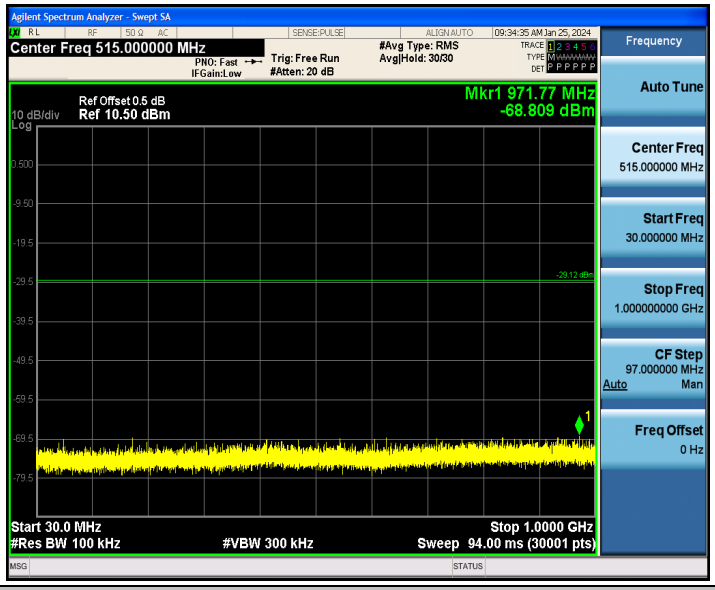

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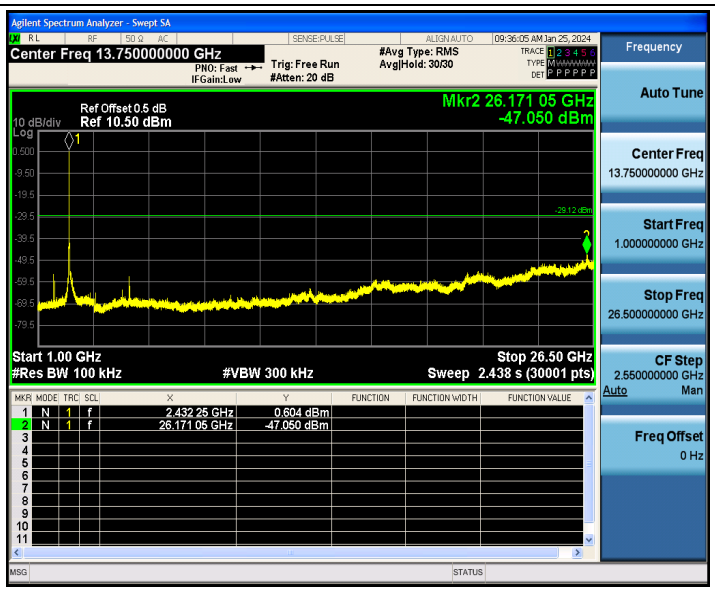

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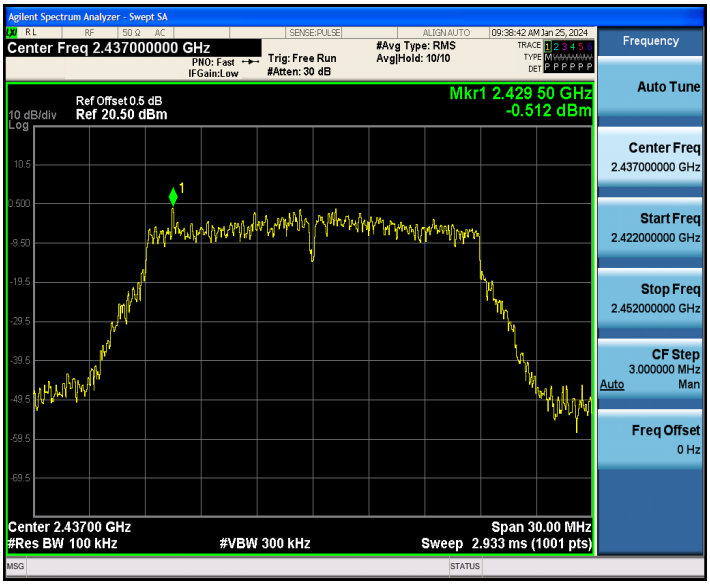

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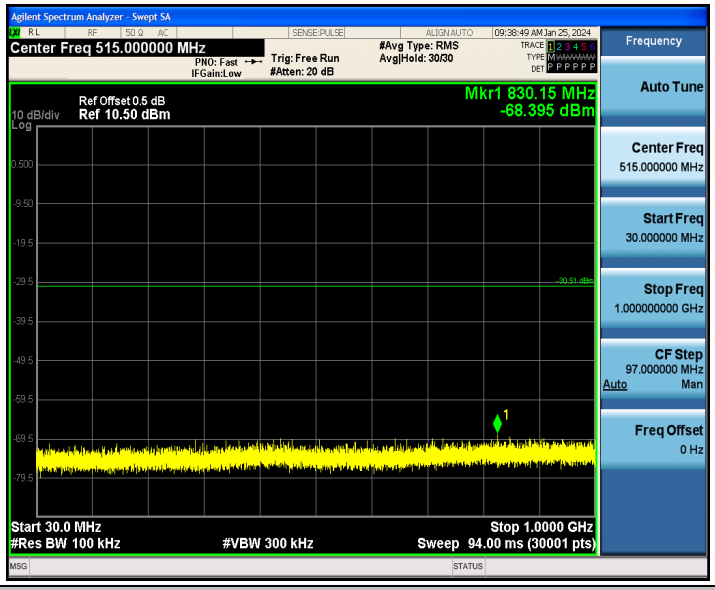

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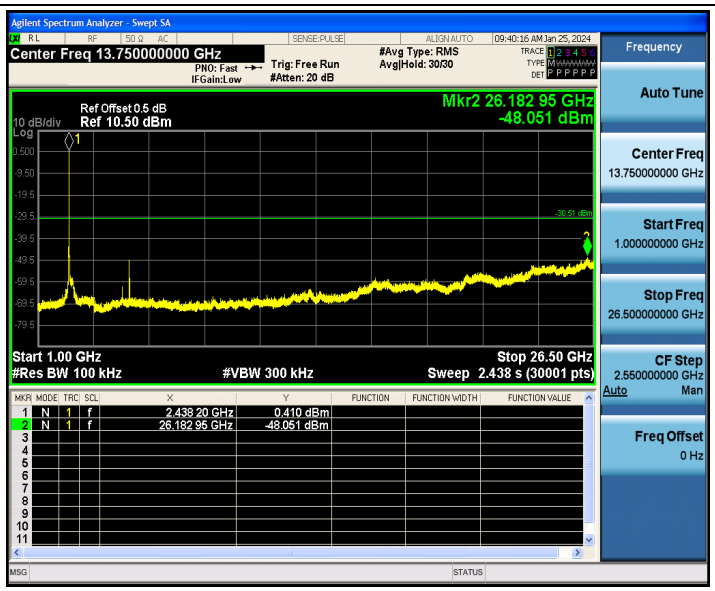

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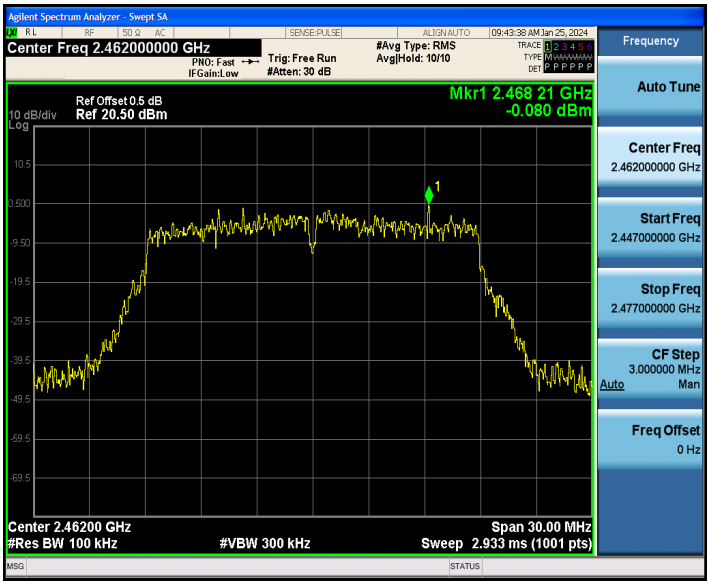

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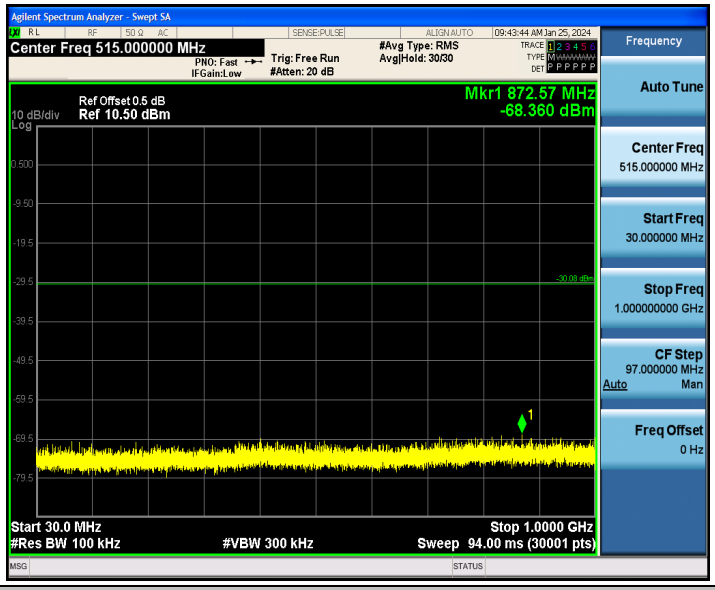
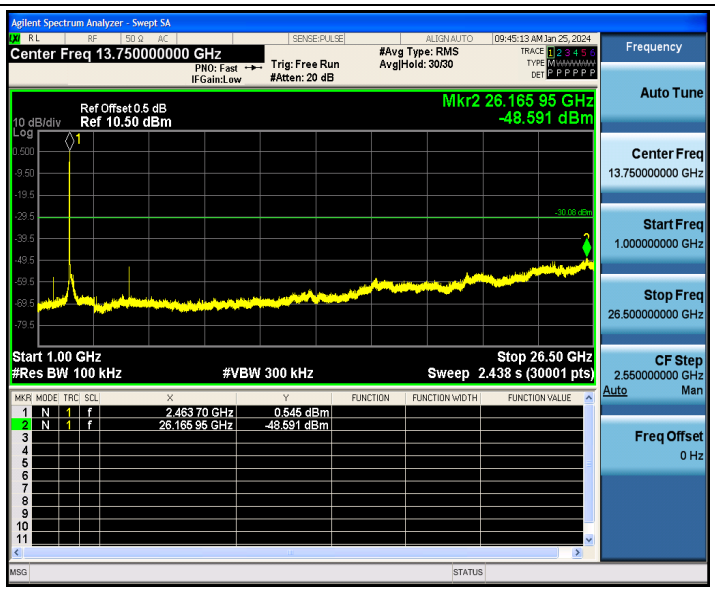


802.11n(HT20)_Ant1_2462_1000~26500



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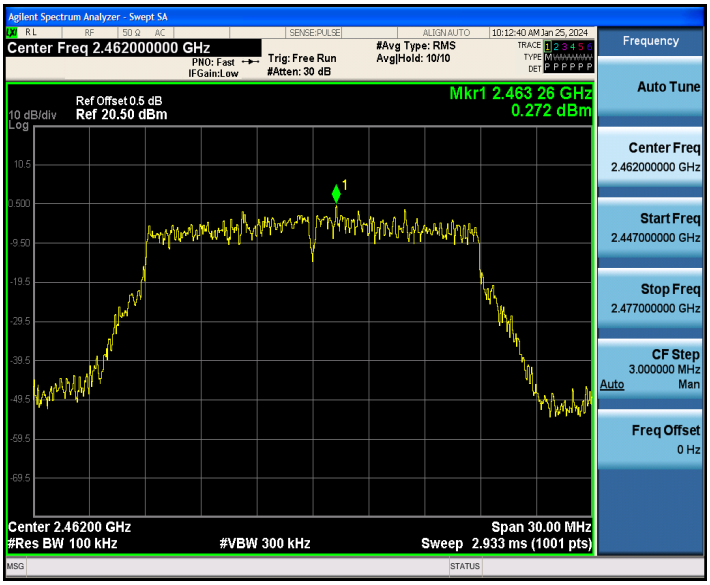

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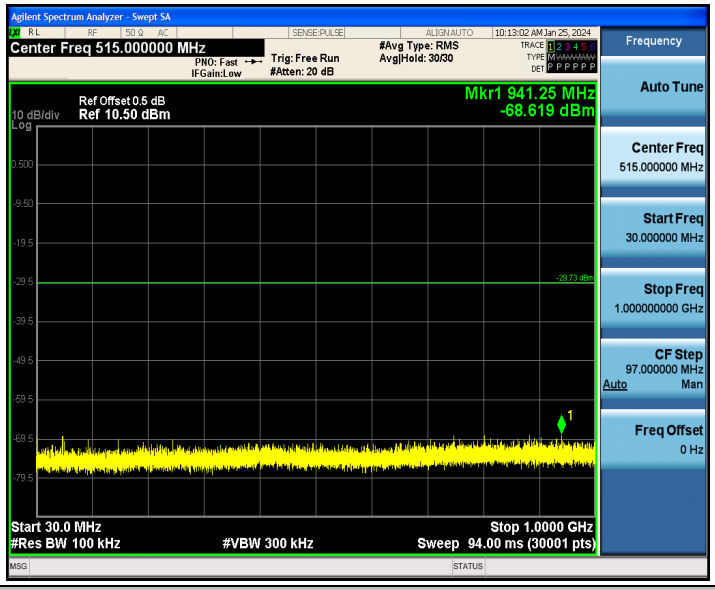
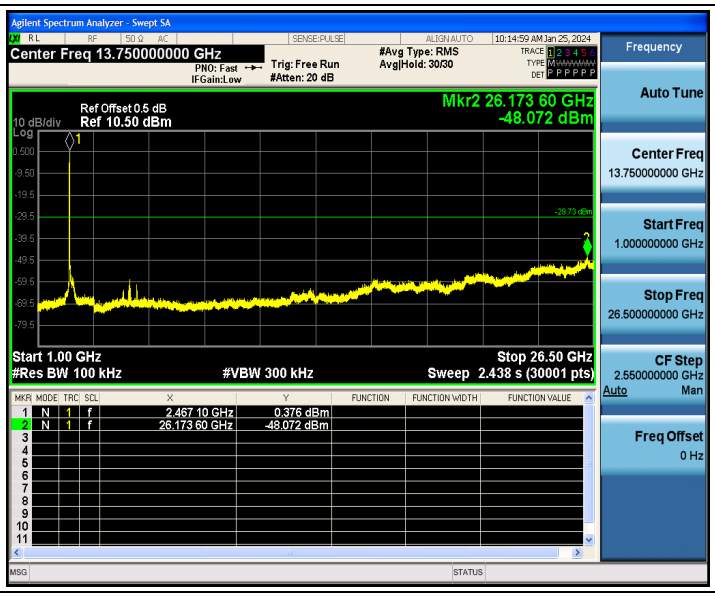


802.11n(HT20)_Ant2_2462_1000~26500


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 30/30
10:14:59 AM Jan 25, 2024
Ref Offset 0.5 dB
10 dB/div
Ref 10.50 dBm
Log
Mkr2 26.173 60 GHz
-48.072 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.467 10 GHz 0.376 dBm
2 N 1 f 26.173 60 GHz -48.072 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto Man
Freq Offset
0 Hz

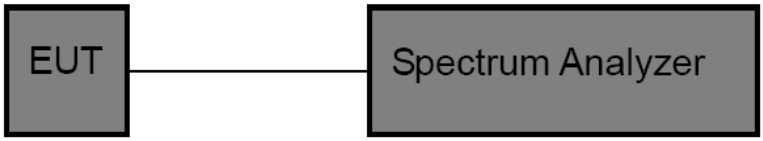
3.5. DTS Bandwidth

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(2)/ RSS-247 5.2 a:

Test Item	Limit	Frequency Range(MHz)
DTS Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5

Test Configuration



Test Procedure

5. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
6. DTS Spectrum Setting:
   (1) Set RBW = 100 kHz.
   (2) Set the video bandwidth (VBW) ≥ 3 RBW.
   (3) Detector = Peak.
   (4) Trace mode = Max hold.
   (5) Sweep = Auto couple.
   OCB Spectrum Setting:
   (1) Set RBW = 1% ~ 5% occupied bandwidth.
   (2) Set the video bandwidth (VBW) ≥ 3 RBW.
   (3) Detector = Peak.
   (4) Trace mode = Max hold.
   (5) Sweep = Auto couple.

NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

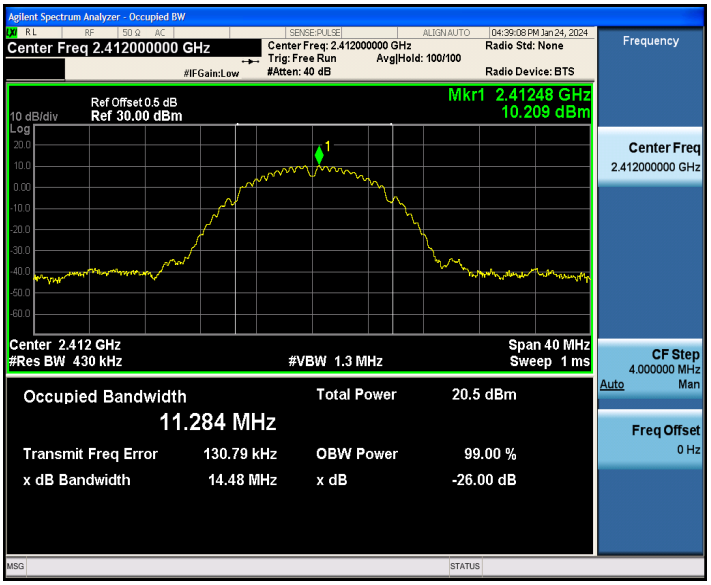
Test Mode

Please refer to the clause 2.4.

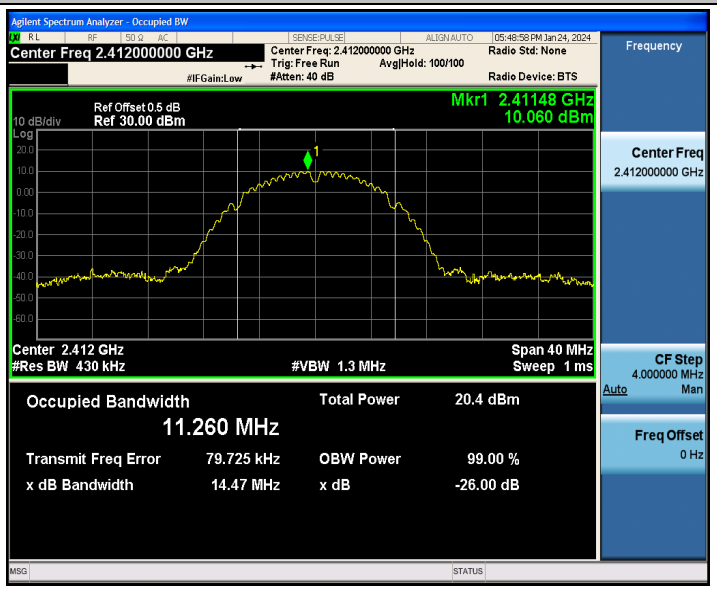
Test Results

Test Mode	Antenna	Channel	OBW [MHz]	DTS BW [MHz]	Limit[MHz]	Verdict
802.11b	Ant1	2412	11.284	6.600	>=0.5	PASS
	Ant2	2412	11.260	7.080	>=0.5	PASS
	Ant1	2437	11.200	6.560	>=0.5	PASS
	Ant2	2437	11.145	6.560	>=0.5	PASS
	Ant1	2462	11.127	7.120	>=0.5	PASS
	Ant2	2462	11.433	7.560	>=0.5	PASS
802.11g	Ant1	2412	17.203	16.320	>=0.5	PASS
	Ant2	2412	17.192	16.360	>=0.5	PASS
	Ant1	2437	17.189	16.320	>=0.5	PASS
	Ant2	2437	17.327	16.320	>=0.5	PASS
	Ant1	2462	17.320	16.400	>=0.5	PASS
	Ant2	2462	17.266	16.360	>=0.5	PASS
802.11n(HT20)	Ant1	2412	18.169	17.600	>=0.5	PASS
	Ant2	2412	17.936	17.600	>=0.5	PASS
	Ant1	2437	18.168	17.600	>=0.5	PASS
	Ant2	2437	17.948	17.600	>=0.5	PASS
	Ant1	2462	18.188	17.280	>=0.5	PASS
	Ant2	2462	17.982	17.600	>=0.5	PASS

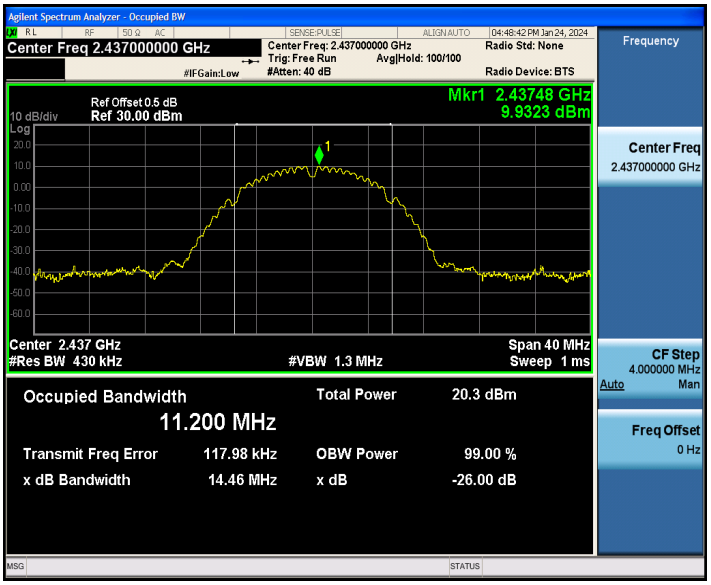
802.11b_Ant1_2412



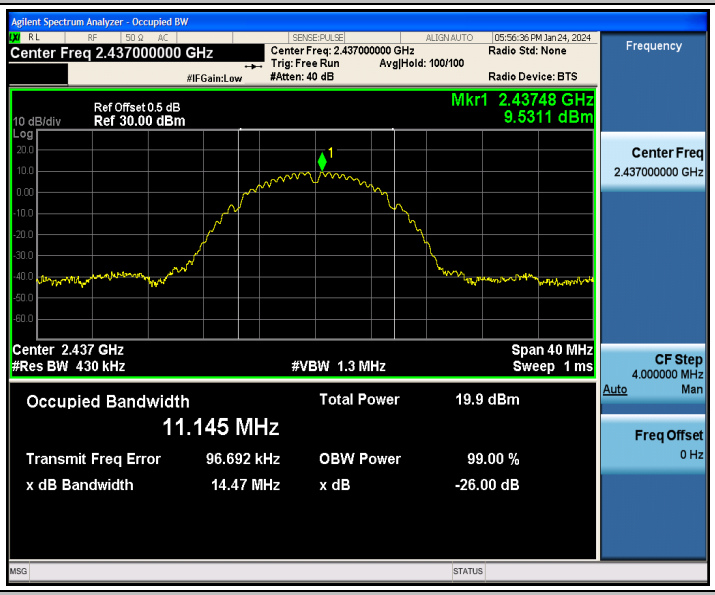
802.11b_Ant2_2412



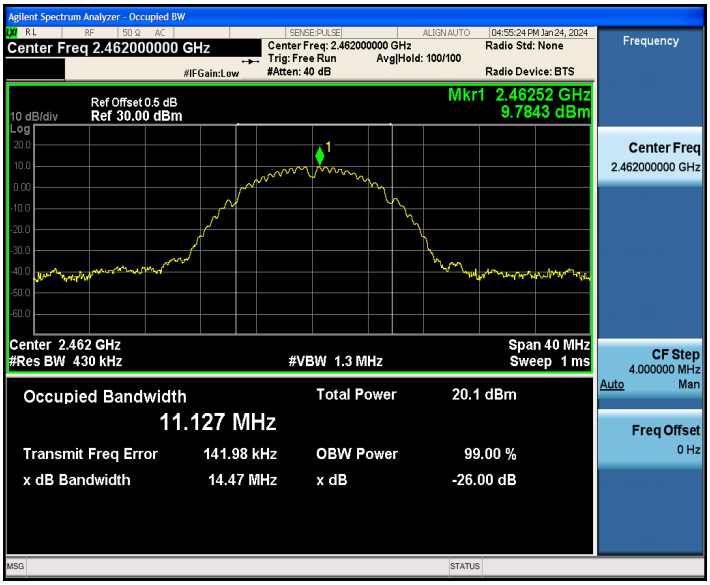
802.11b_Ant1_2437



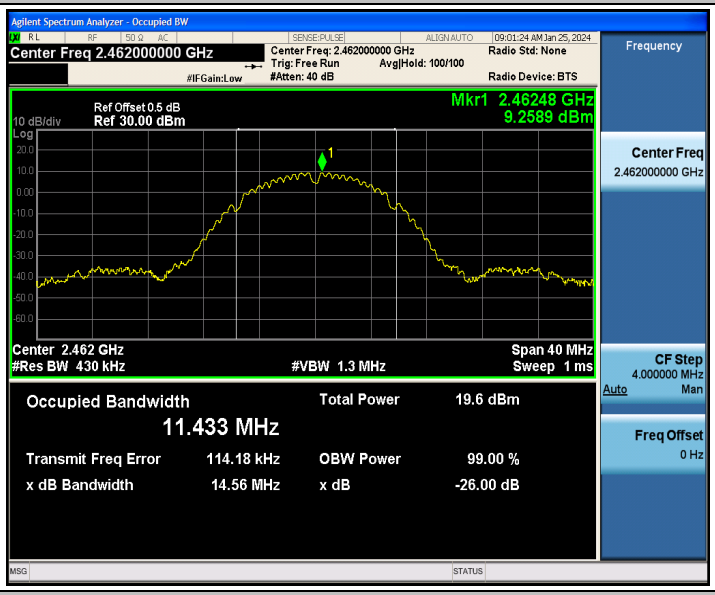
802.11b_Ant2_2437



802.11b_Ant1_2462



802.11b_Ant2_2462



802.11g_Ant1_2412

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