



# CTC Laboratories, Inc.

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## TEST REPORT

**Report No.** .....: **CTC20211721E02**

**FCC ID**.....: **2AFIW-SFT1200**

**Applicant**.....: **GL TECHNOLOGIES (HONG KONG) LIMITED**

**Address**.....: **FLAT/RM 203 2/F BUILDING 19W 19 SCIENCE PARK WEST AVENUE SHATIN NT SHATIN HONG KONG**

**Manufacturer**.....: **Shenzhen Guanglianzhitong Tech Co., Ltd**

**Address**.....: **Room 305-306, Skyworth Digital Building, Shiyuan Street, Baoan District, Shenzhen, China**

**Product Name**.....: **AC1200 Wireless Travel Router**

**Trade Mark**.....: **GL.iNET**

**Model/Type reference**.....: **GL-SFT1200**

**Listed Model(s)** .....: **/**

**Standard**.....: **FCC CFR Title 47 Part 15 Subpart C Section 15.247**

**Date of receipt of test sample**...: **Nov. 05, 2021**

**Date of testing**.....: **Nov. 06, 2021 ~ Nov. 22, 2021**

**Date of issue**.....: **Nov. 23, 2021**

**Result**.....: **PASS**

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**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 2](#): 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	Nov. 23, 2021	Original



### 1.3. Test Description

FCC Part 15 Subpart C (15.247) / RSS 247 Issue 2				
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	Eva Feng
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:

#### CNAS-Lab Code: L5365

CTC Laboratories, Inc. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation. Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### 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 in our 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
Transmitter power conducted	0.42 dB	(1)
Transmitter power Radiated	2.14 dB	(1)
Conducted spurious emissions 9kHz~40GHz	1.60 dB	(1)
Radiated spurious emissions 9kHz~40GHz	2.20 dB	(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)
Occupied Bandwidth	-----	(1)

**Note (1):** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

## 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:	GL TECHNOLOGIES (HONG KONG) LIMITED
Address:	FLAT/RM 203 2/F BUILDING 19W 19 SCIENCE PARK WEST AVENUE SHATIN NT SHATIN HONG KONG
Manufacturer:	Shenzhen Guanglianzhitong Tech Co., Ltd
Address:	Room 305-306, Skyworth Digital Building, Shiyan Street, Baoan District, Shenzhen, China



## 2.2. General Description of EUT

Product Name:	AC1200 Wireless Travel Router
Trade Mark:	GL.iNET
Model/Type reference:	GL-SFT1200
Listed Model(s):	/
Power supply:	5Vdc/3A from AC/DC Adapter
Adapter model:	ICP20-050-3000D Input: 100-240V~ 50/60Hz 0.6A Output: 5Vdc/3A
Hardware version:	V1.0
Software version:	3.206
<b>WIFI 802.11b/ g/ n(HT20)/ n(HT40)</b>	
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 technology:	CDD
Antenna 1 and 2 type:	External Antenna
Antenna 1 and 2 gain:	3.79dBi Max

Directional gain				
Mode	Frequency	Max Antenna Gain (dBi)	For power measurements Directional gain Gain (dBi)	For power spectral density (PSD) measurements Gain (dBi)
SISO	2412~2462MHz	3.79	3.79	3.79
CDD 2TX	2412~2462MHz	3.79	3.79	6.80

Note: Directional gain = GANT + Array Gain

For power spectral density (PSD) measurements on all devices, Array Gain = 10 log(NANT/NSS)dB.

For power measurements on IEEE 802.11 devices, 1, 2

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.





### 2.3. Accessory Equipment information

Equipment Information			
Name	Model	S/N	Manufacturer
Notebook	X220	R9-NCMYL 12/04	Lenovo
/	/	/	/
Cable Information			
Name	Shielded Type	Ferrite Core	Length
DC Output line	With	Without	1M
Lan line	Without	Without	1.2M
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

Tonscend JS0806-2 Test system					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Spectrum Analyzer	KEYSIGHT	N9020A	100231	Dec. 25, 2021
2	Spectrum Analyzer	Rohde & Schwarz	FUV40-N	101331	Mar. 15, 2022
3	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 25, 2021
4	Signal Generator	Agilent	E8257D	MY46521908	Dec. 25, 2021
5	Power Sensor	Agilent	U2021XA	MY5365004	Mar. 15, 2022
6	Power Sensor	Agilent	U2021XA	MY5365006	Mar. 15, 2022
7	High and low temperature box	ESPEC	MT3035	N/A	Mar. 24, 2022
8	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	102414	Dec. 25, 2021
9	300328 v2.2.2 test system	TONSCEND	v2.6	/	/

Radiated emission(3m chamber 2)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-1013	Jan. 12, 2022
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 24, 2021
3	Spectrum Analyzer	R&S	FSU26	100105	Dec. 25, 2021
4	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 15, 2022
5	Pre-Amplifier	SONOMA	310	186194	Dec. 25, 2021
6	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 25, 2021
7	Test Receiver	R&S	ESC17	100967	Dec. 25, 2021

Radiated emission(3m chamber 3)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-759	Nov. 09, 2022
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 24, 2021
3	Test Receiver	Keysight	N9038A	MY56400071	Dec. 25, 2021
4	Broadband Premplifier	SCHWARZBECK	BBV9743B	259	Dec. 25, 2021
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 25, 2021

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	LISN	R&S	ENV216	101112	Dec. 25, 2021
2	LISN	R&S	ENV216	101113	Dec. 25, 2021
3	EMI Test Receiver	R&S	ESCS30	100353	Dec. 25, 2021

Note:1. The Cal. Interval was one year.

2. The cable loss has calculated in test result which connection between each test instruments.

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### 3. TEST ITEM AND RESULTS

#### 3.1. Conducted Emission

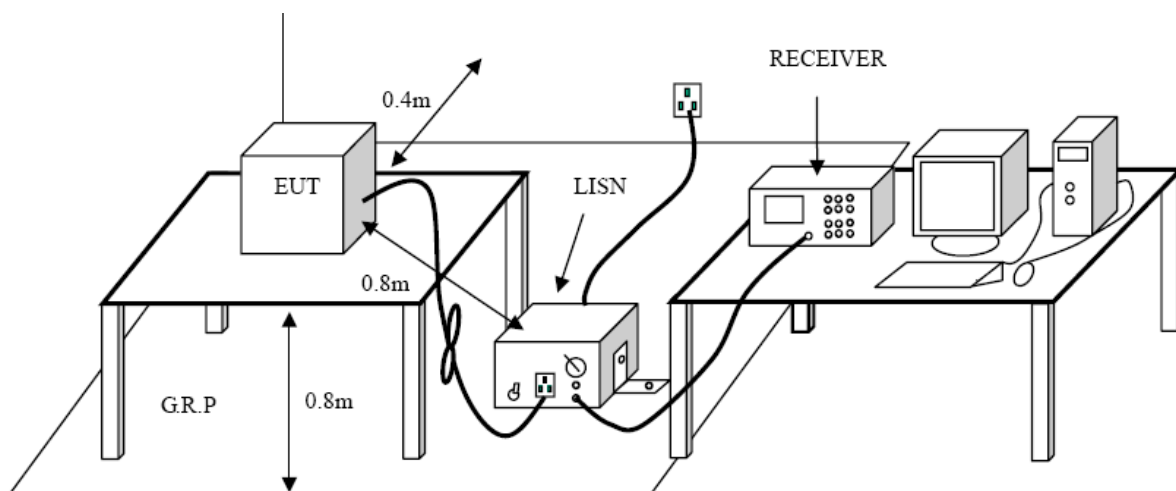
**Limit**

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**

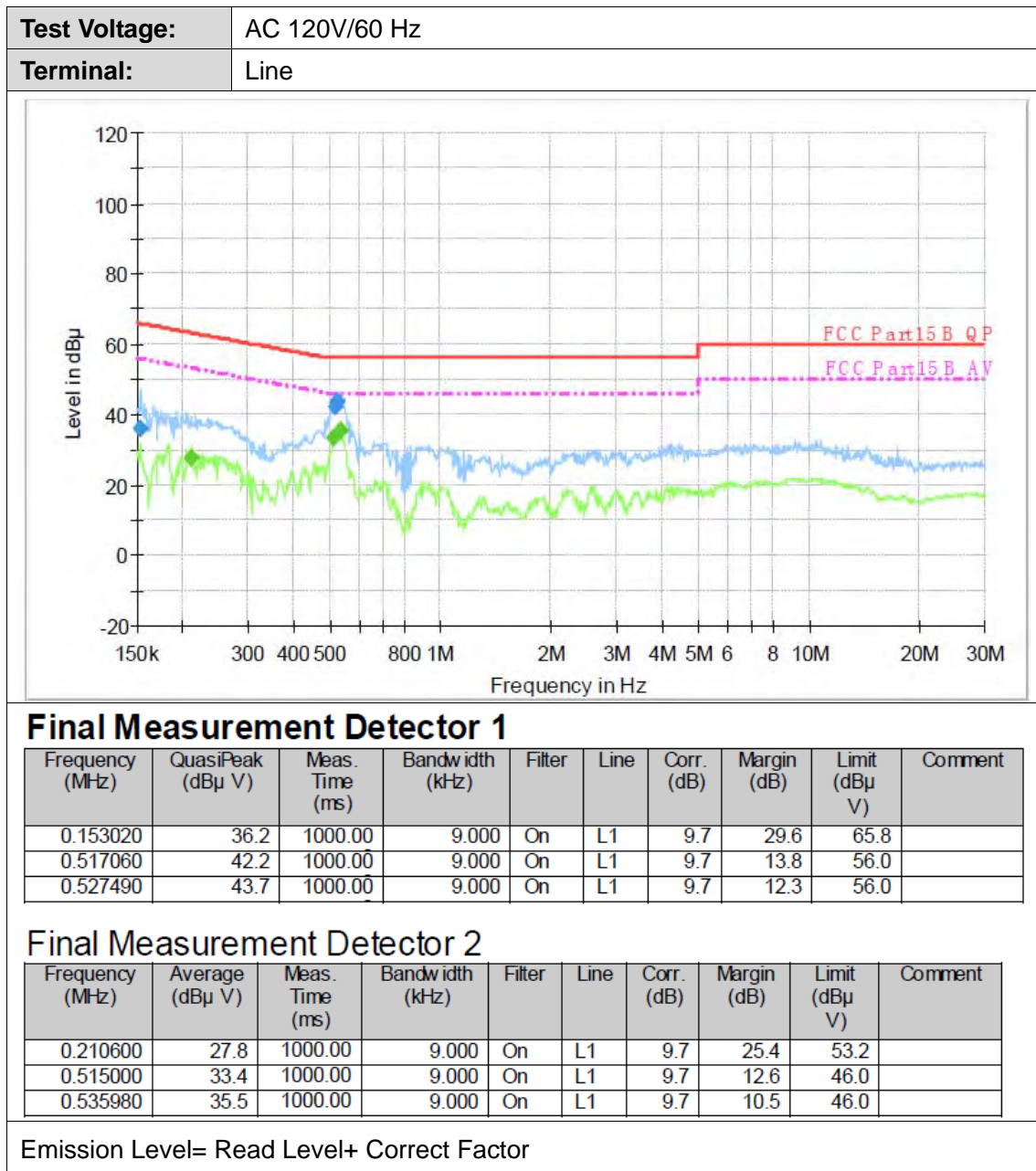


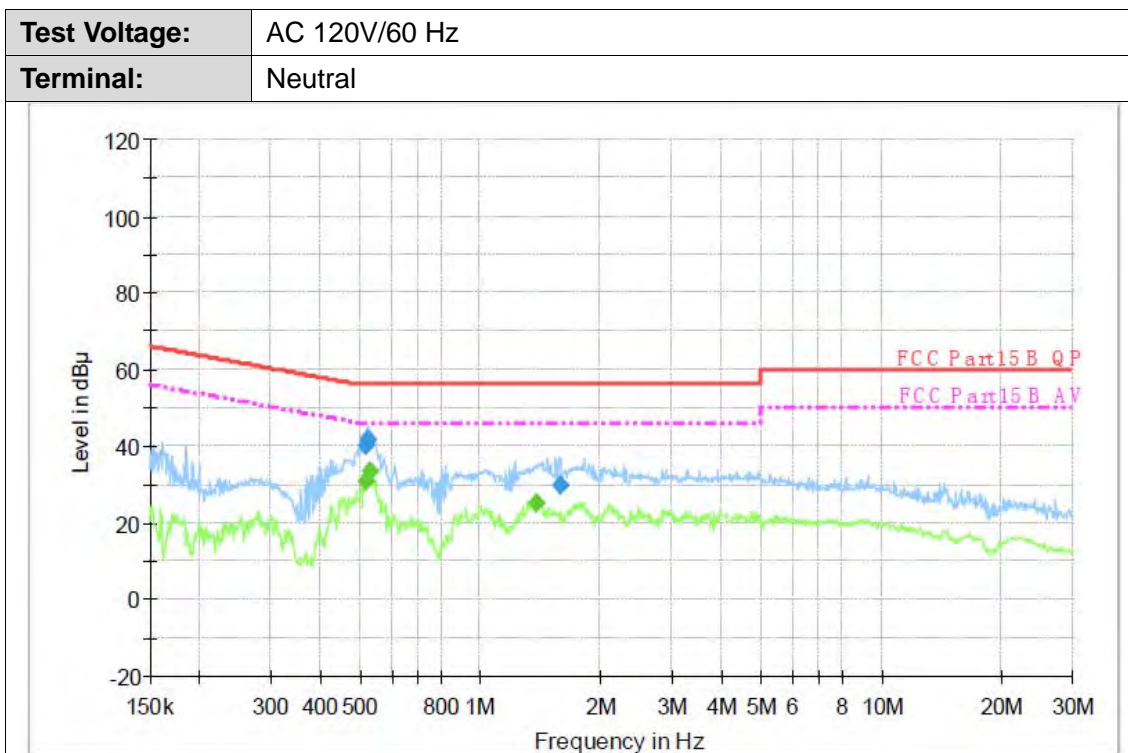
**Test Procedure**

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**



**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBu V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBu V)	Comment
0.519130	40.3	1000.00	9.000	On	N	10.0	15.7	56.0	
0.525380	41.6	1000.00	9.000	On	N	10.0	14.4	56.0	
1.581180	29.9	1000.00	9.000	On	N	10.0	26.2	56.0	

**Final Measurement Detector 2**

Frequency (MHz)	Average (dBu V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBu V)	Comment
0.519130	31.0	1000.00	9.000	On	N	10.0	15.0	46.0	
0.533840	33.3	1000.00	9.000	On	N	10.0	12.7	46.0	
1.391560	25.2	1000.00	9.000	On	N	10.0	20.8	46.0	

Emission Level= Read Level+ Correct Factor



### 3.2. Radiated Emission

**Limit**

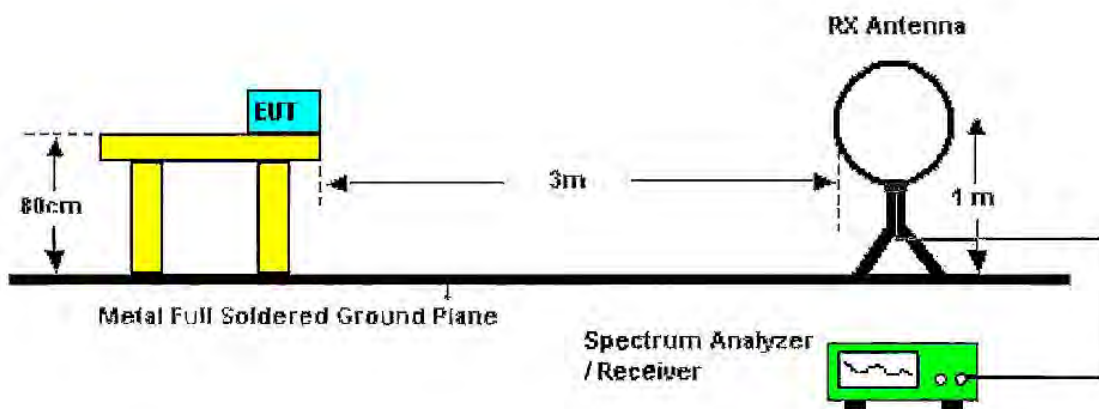
FCC CFR Title 47 Part 15 Subpart C Section 15.209/ RSS – Gen 8.9:

Frequency	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

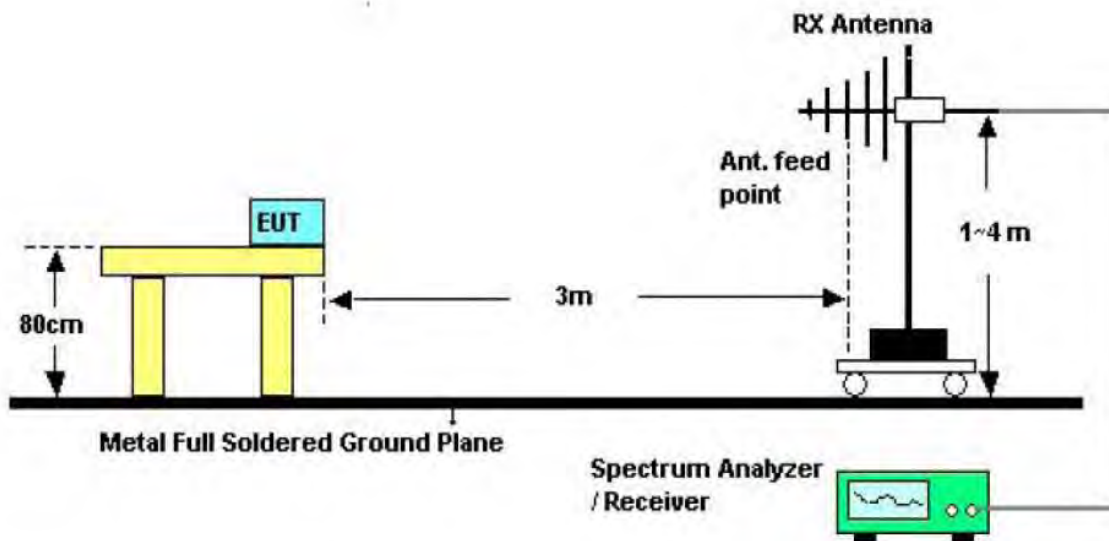
**Note:**

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

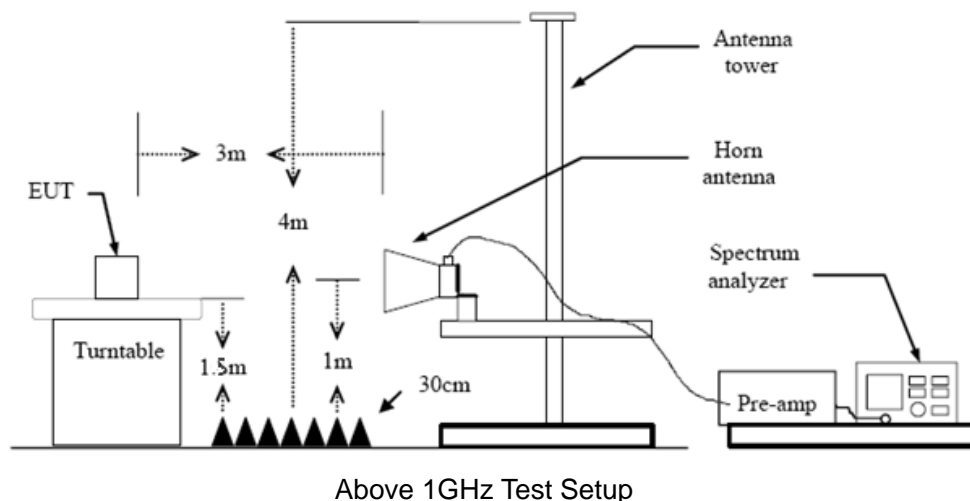
**Test Configuration**



Below 30MHz Test Setup



Below 1000MHz Test Setup



### 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 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.
    - (3) From 1 GHz to 10<sup>th</sup> harmonic:  
RBW=1MHz, VBW=3MHz Peak detector for Peak value.  
RBW=1MHz, VBW $\geq$ 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.

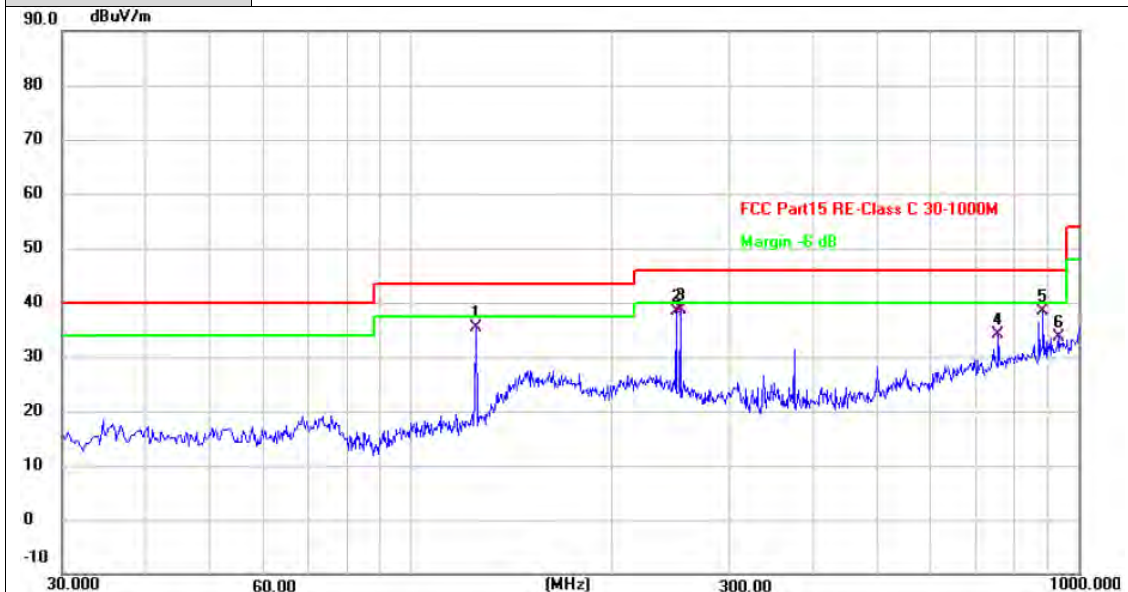
*Pre-scan all antenna, only show the test data for worse case antenna on the test report.*





30MHz-1GHz

<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	Ant 1 + Ant 2 802.11b Mode 2412MHz
<b>Remark:</b>	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	125.0600	51.47	-16.00	35.47	43.50	-8.03	QP
2	249.8667	54.47	-16.19	38.28	46.00	-7.72	QP
3 *	253.1000	54.61	-16.06	38.55	46.00	-7.45	QP
4	759.4400	37.47	-3.46	34.01	46.00	-11.99	QP
5	887.4800	40.39	-1.90	38.49	46.00	-7.51	QP
6	932.7467	34.71	-0.99	33.72	46.00	-12.28	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 + Ant 2 802.11b 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 *	38.0833	46.11	-14.33	31.78	40.00	-8.22	QP
2	62.3333	46.29	-16.10	30.19	40.00	-9.81	QP
3	249.8667	50.40	-16.19	34.21	46.00	-11.79	QP
4	253.1000	50.20	-16.06	34.14	46.00	-11.86	QP
5	759.4400	38.54	-3.46	35.08	46.00	-10.92	QP
6	913.0233	35.07	-1.47	33.60	46.00	-12.40	QP

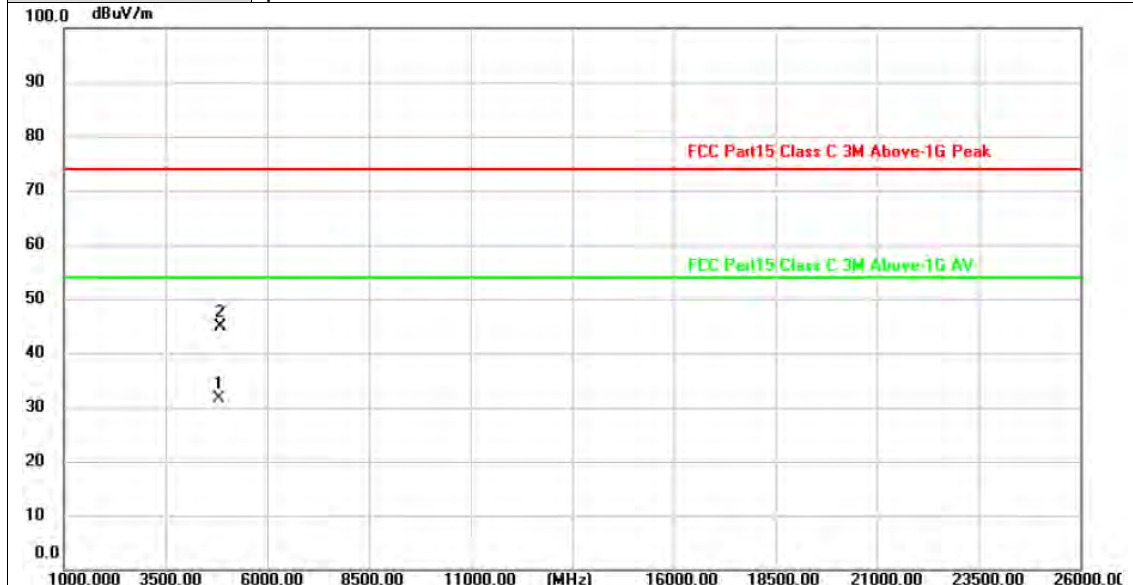
Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Adobe 1GHz

<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11b Mode 2412MHz
<b>Remark:</b>	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 *	4824.564	34.45	-2.76	31.69	54.00	-22.31	AVG
2	4824.774	47.70	-2.76	44.94	74.00	-29.06	peak

Remarks:

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11b Mode 2412MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.



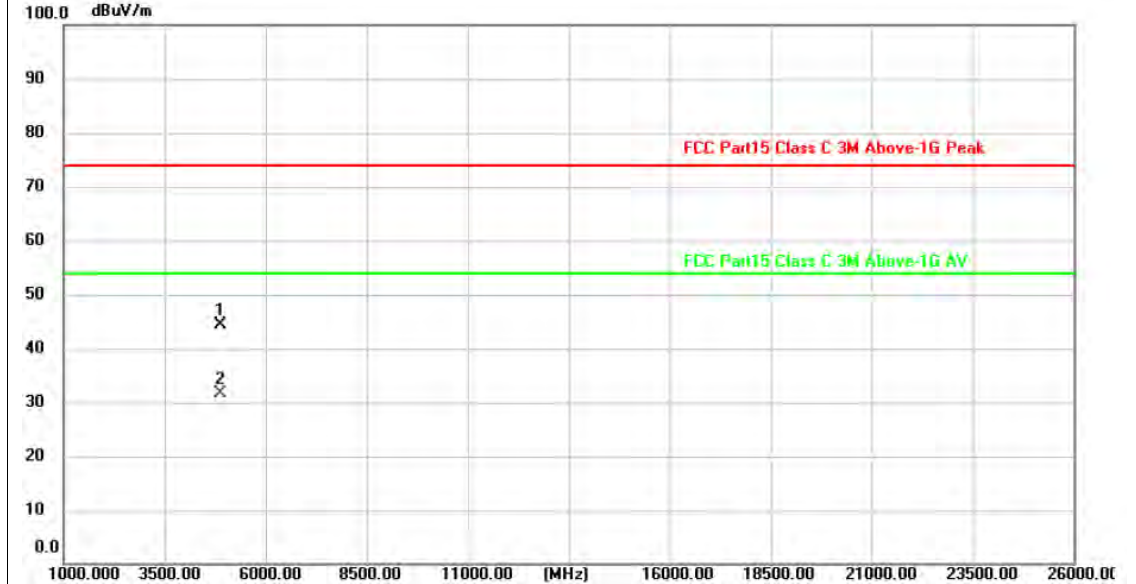
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.474	46.83	-2.76	44.07	74.00	-29.93	peak
2 *	4824.084	33.36	-2.76	30.60	54.00	-23.40	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11b Mode 2437MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.

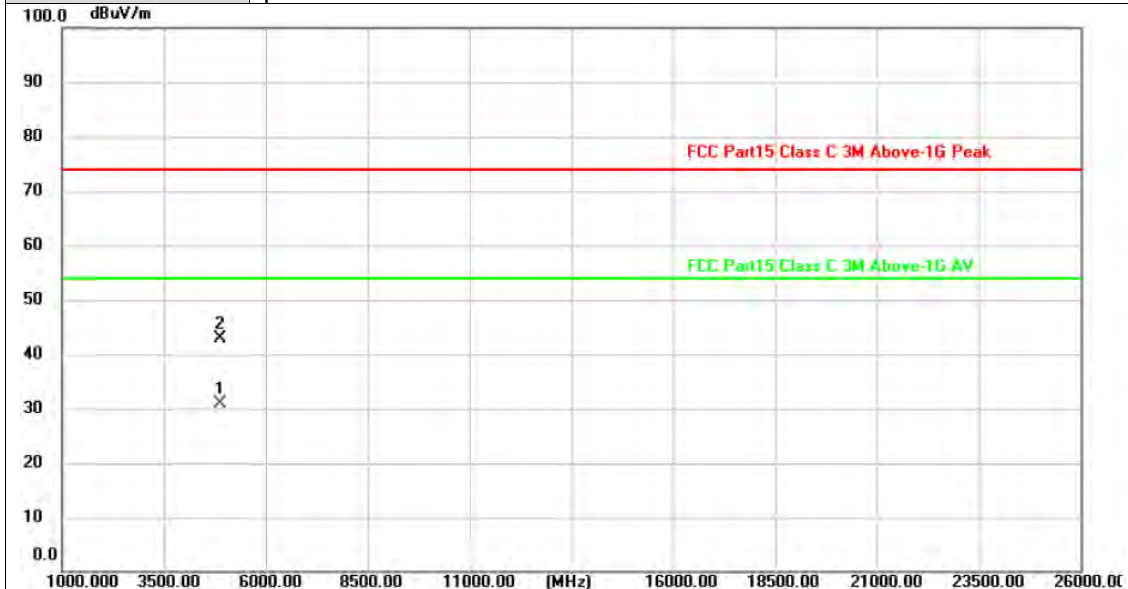


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.154	46.98	-2.61	44.37	74.00	-29.63	peak
2 *	4873.886	34.30	-2.61	31.69	54.00	-22.31	AVG

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11b Mode 2437MHz
<b>Remark:</b>	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 *	4873.560	33.50	-2.61	30.89	54.00	-23.11	AVG
2	4873.968	45.42	-2.61	42.81	74.00	-31.19	peak

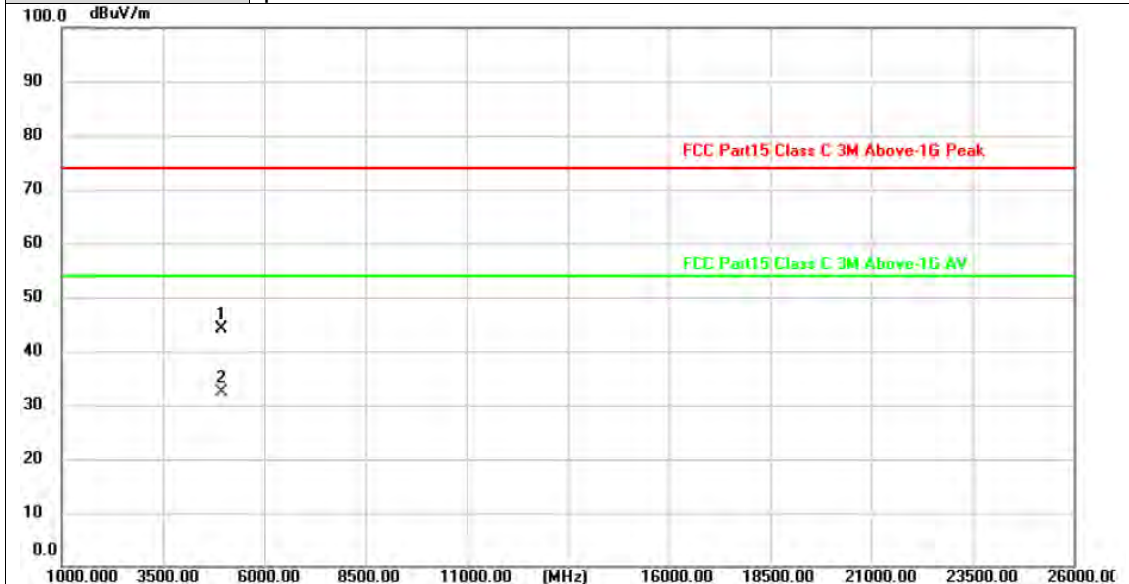
Remarks:

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11b Mode 2462MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.



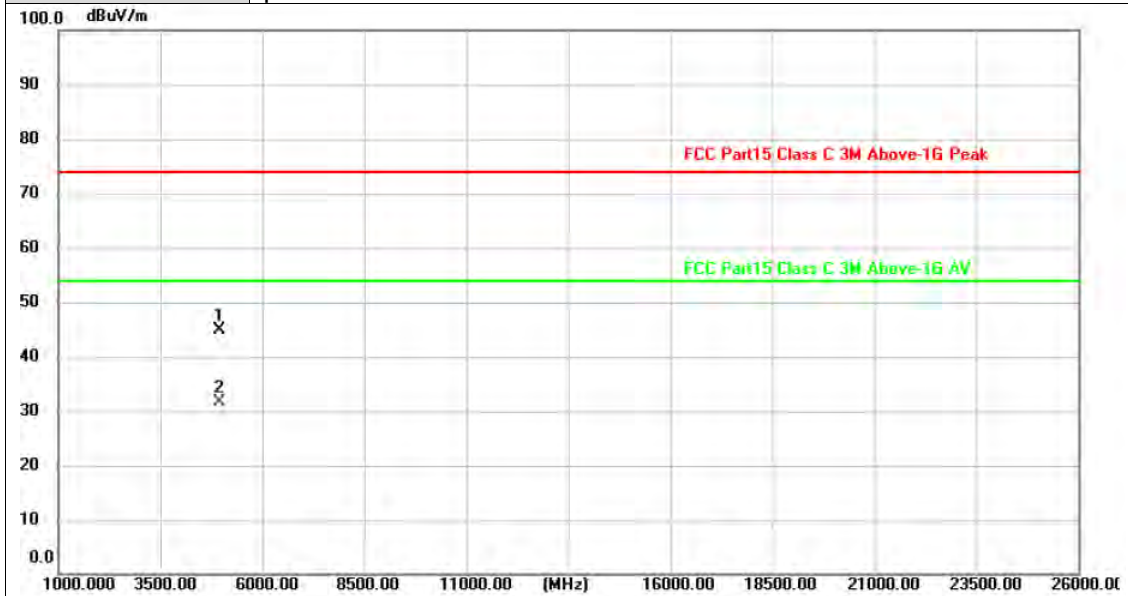
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.636	46.53	-2.47	44.06	74.00	-29.94	peak
2 *	4924.084	34.80	-2.47	32.33	54.00	-21.67	AVG

Remarks:

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11b Mode 2462MHz
<b>Remark:</b>	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	4923.236	47.41	-2.47	44.94	74.00	-29.06	peak
2 *	4923.520	34.21	-2.47	31.74	54.00	-22.26	AVG

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11g Mode 2412MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.

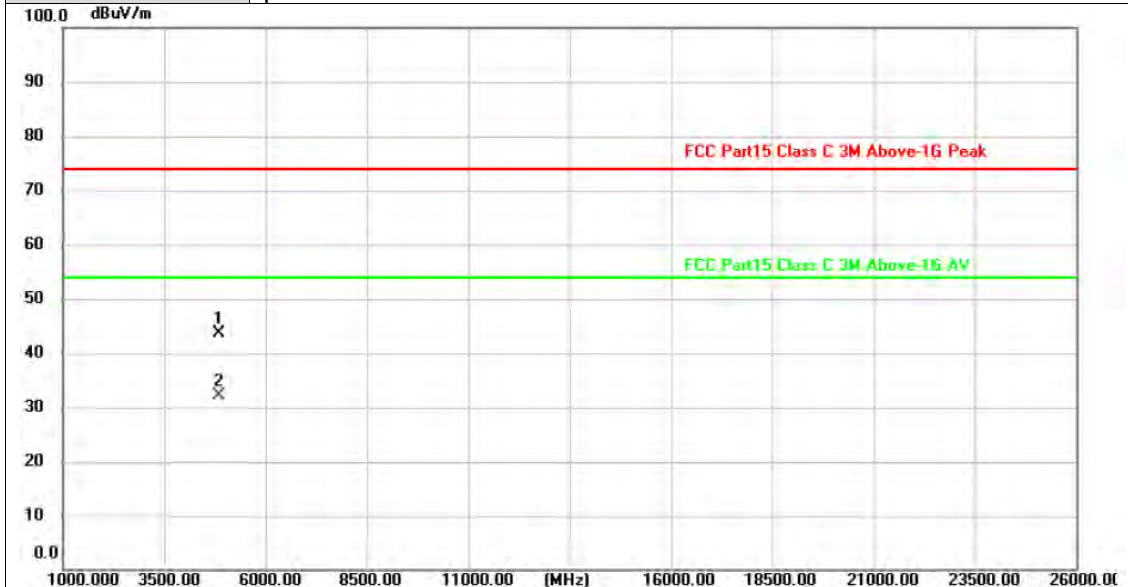


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.150	46.67	-2.76	43.91	74.00	-30.09	peak
2 *	4824.014	35.96	-2.76	33.20	54.00	-20.80	AVG

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11g Mode 2412MHz
<b>Remark:</b>	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	4823.154	46.41	-2.76	43.65	74.00	-30.35	peak
2 *	4824.208	34.92	-2.76	32.16	54.00	-21.84	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11g Mode 2437MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.



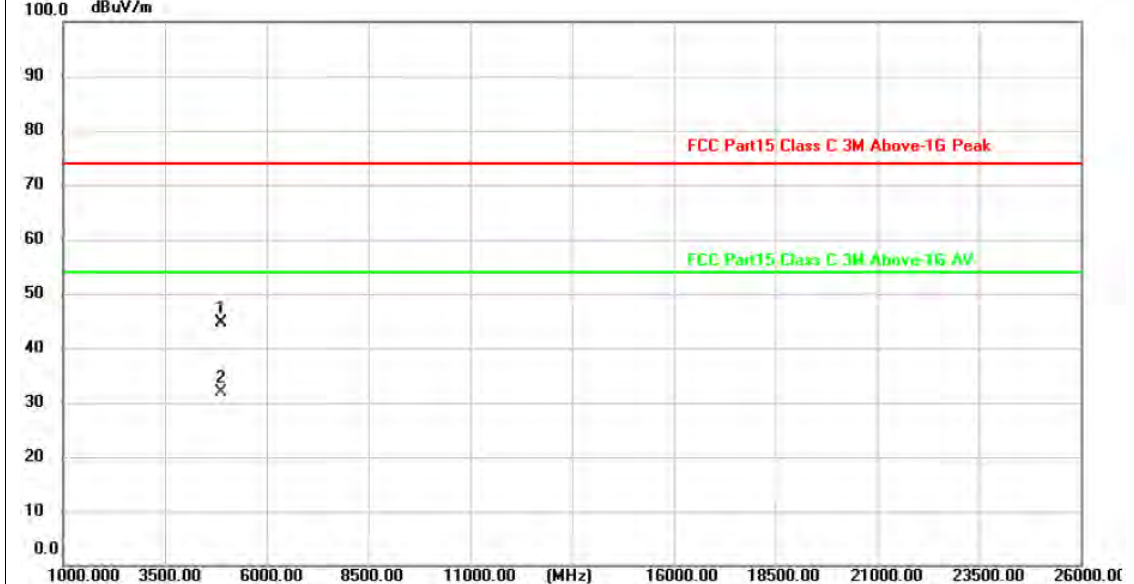
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.458	47.37	-2.61	44.76	74.00	-29.24	peak
2 *	4873.936	34.45	-2.61	31.84	54.00	-22.16	AVG

Remarks:

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11g Mode 2437MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.

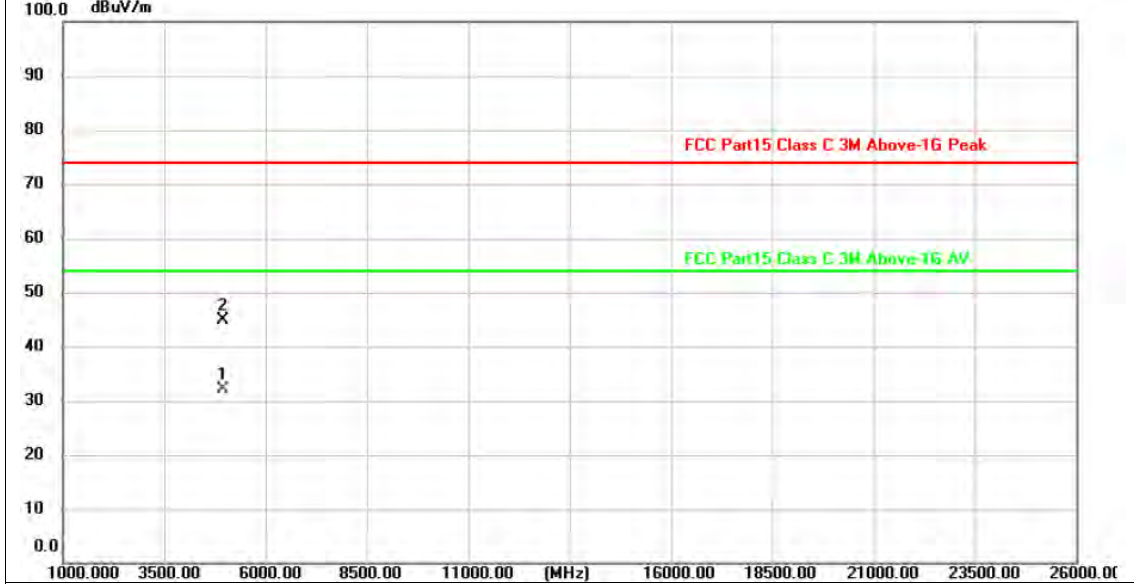


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.362	47.27	-2.61	44.66	74.00	-29.34	peak
2 *	4874.284	34.58	-2.61	31.97	54.00	-22.03	AVG

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11g Mode 2462MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.

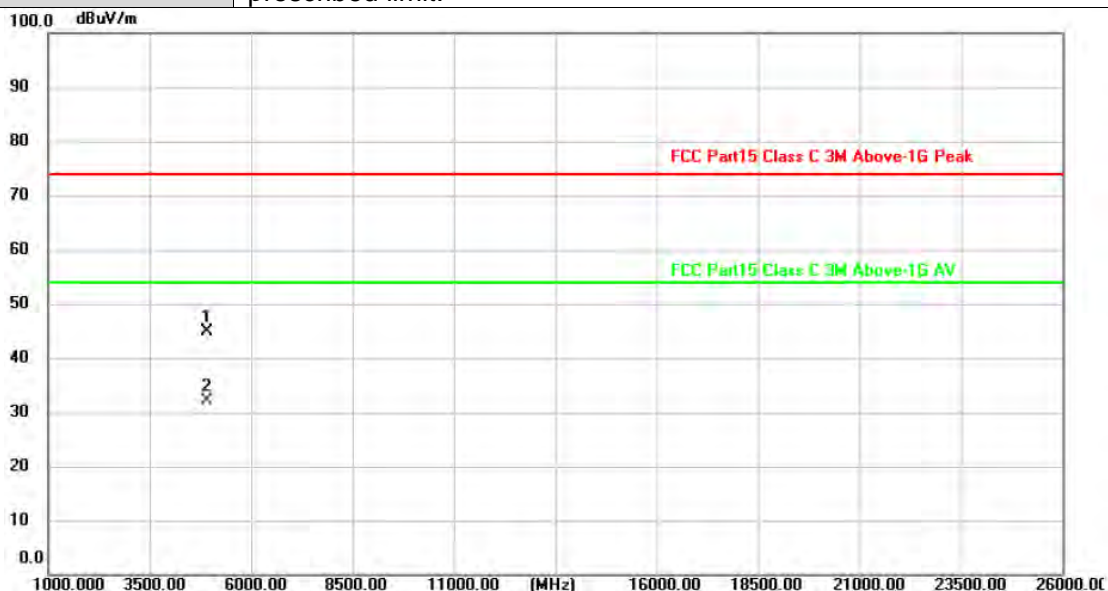


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.908	34.71	-2.47	32.24	54.00	-21.76	AVG
2	4924.422	47.43	-2.47	44.96	74.00	-29.04	peak

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11g Mode 2462MHz
<b>Remark:</b>	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	4923.074	47.43	-2.47	44.96	74.00	-29.04	peak
2 *	4923.354	34.69	-2.47	32.22	54.00	-21.78	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11n(HT20) Mode 2412MHz
<b>Remark:</b>	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	4823.578	46.92	-2.76	44.16	74.00	-29.84	peak
2 *	4824.156	34.10	-2.76	31.34	54.00	-22.66	AVG

Remarks:

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n(HT20) Mode 2412MHz
<b>Remark:</b>	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	4824.082	47.42	-2.76	44.66	74.00	-29.34	peak
2 *	4824.304	34.30	-2.76	31.54	54.00	-22.46	AVG

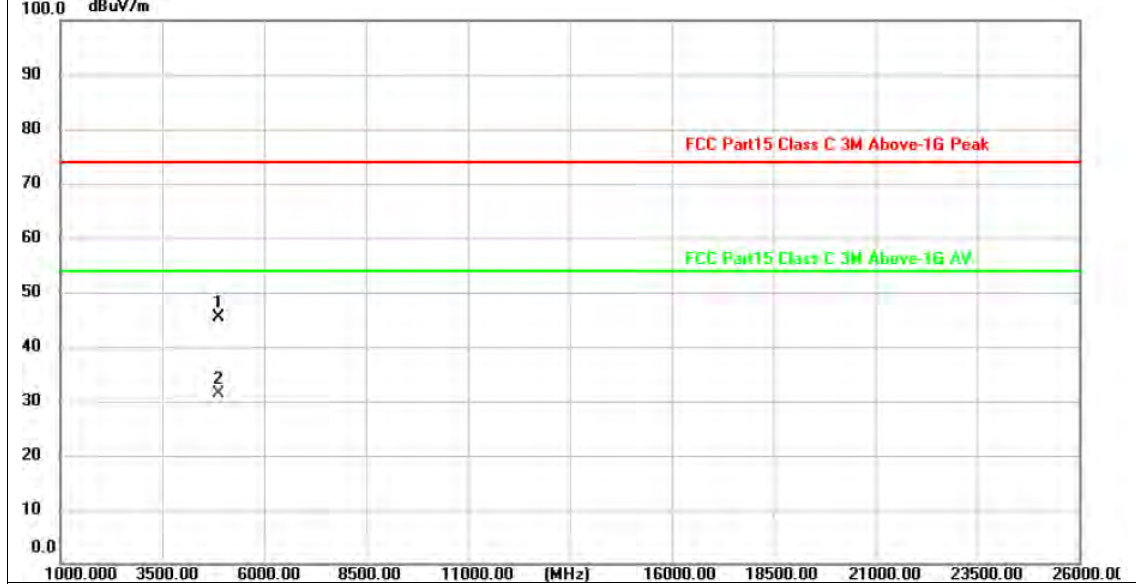
Remarks:

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





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

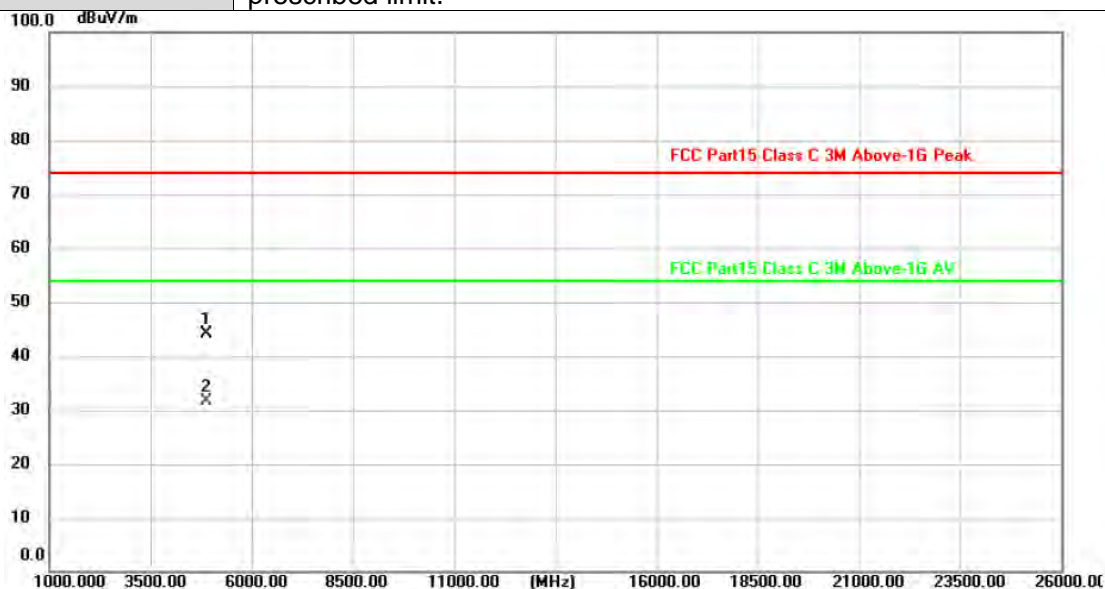


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.060	48.03	-2.61	45.42	74.00	-28.58	peak
2 *	4874.298	34.11	-2.61	31.50	54.00	-22.50	AVG

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



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



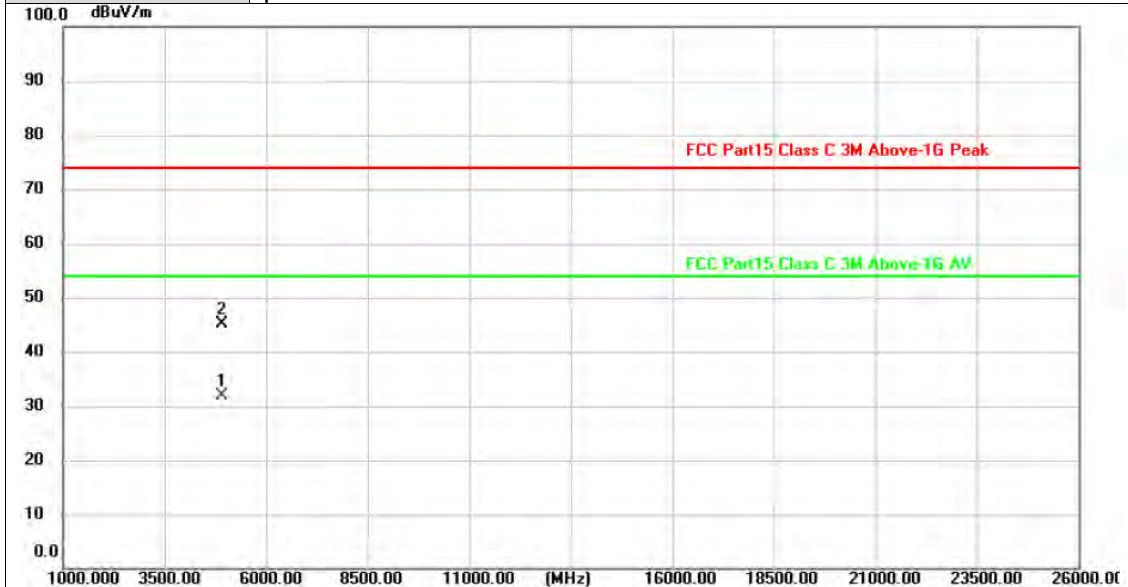
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.660	46.85	-2.61	44.24	74.00	-29.76	peak
2 *	4874.474	34.33	-2.61	31.72	54.00	-22.28	AVG

Remarks:

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



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

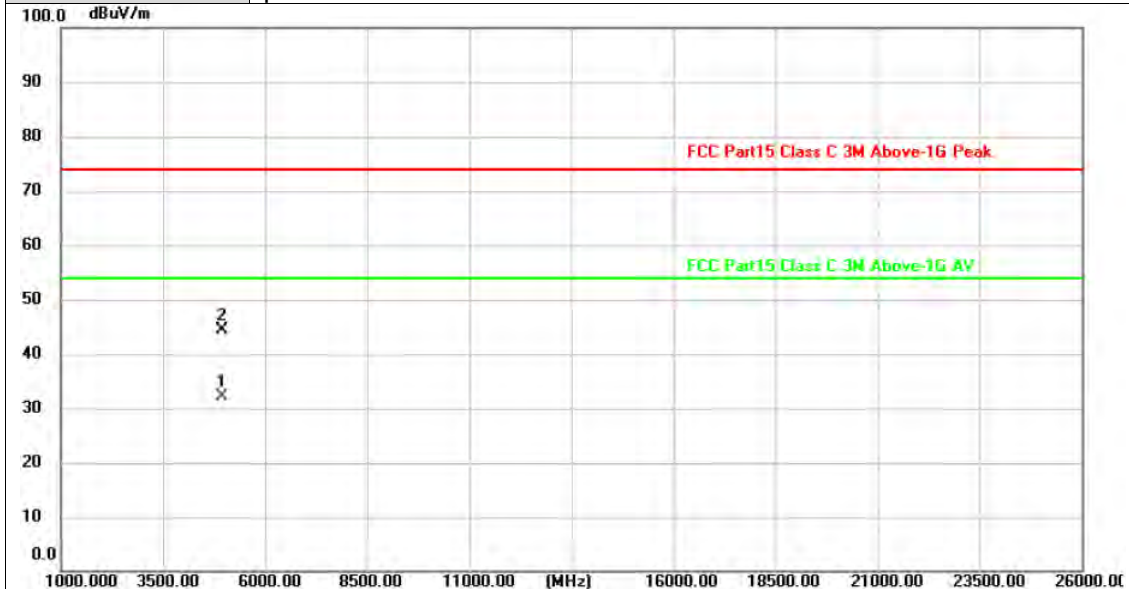


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.708	34.37	-2.47	31.90	54.00	-22.10	AVG
2	4924.962	47.66	-2.47	45.19	74.00	-28.81	peak

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n(HT20) Mode 2462MHz
<b>Remark:</b>	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 *	4923.164	34.57	-2.47	32.10	54.00	-21.90	AVG
2	4923.808	46.84	-2.47	44.37	74.00	-29.63	peak

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11n(HT40) Mode 2422MHz
<b>Remark:</b>	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	4843.676	46.48	-2.70	43.78	74.00	-30.22	peak
2 *	4844.506	34.02	-2.70	31.32	54.00	-22.68	AVG

Remarks:

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n(HT40) Mode 2422MHz
<b>Remark:</b>	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	4843.794	47.17	-2.70	44.47	74.00	-29.53	peak
2 *	4844.550	34.17	-2.70	31.47	54.00	-22.53	AVG

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11n(HT40) Mode 2437MHz
<b>Remark:</b>	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 *	4873.240	34.04	-2.61	31.43	54.00	-22.57	AVG
2	4874.510	46.66	-2.61	44.05	74.00	-29.95	peak

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n(HT40) Mode 2437MHz
<b>Remark:</b>	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 *	4873.012	34.74	-2.61	32.13	54.00	-21.87	AVG
2	4873.180	46.80	-2.61	44.19	74.00	-29.81	peak

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	TX 802.11n(HT40) Mode 2452MHz
<b>Remark:</b>	No report for the emission which more than 10 dB below the prescribed limit.



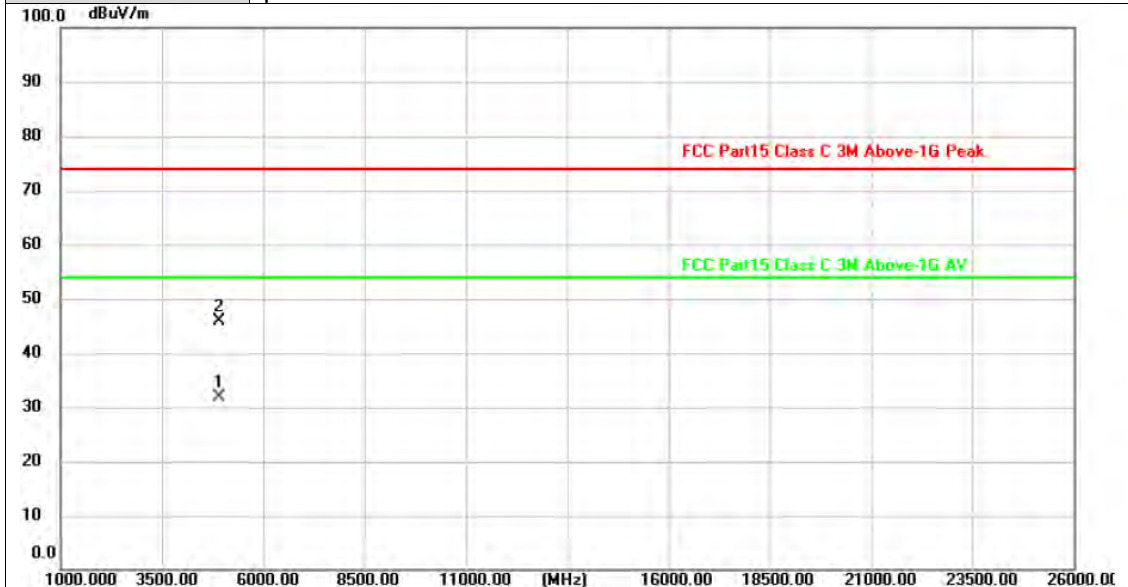
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4903.164	34.46	-2.53	31.93	54.00	-22.07	AVG
2	4904.074	46.80	-2.53	44.27	74.00	-29.73	peak

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 802.11n(HT40) Mode 2452MHz
<b>Remark:</b>	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 *	4903.262	34.29	-2.53	31.76	54.00	-22.24	AVG
2	4903.562	48.32	-2.53	45.79	74.00	-28.21	peak

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

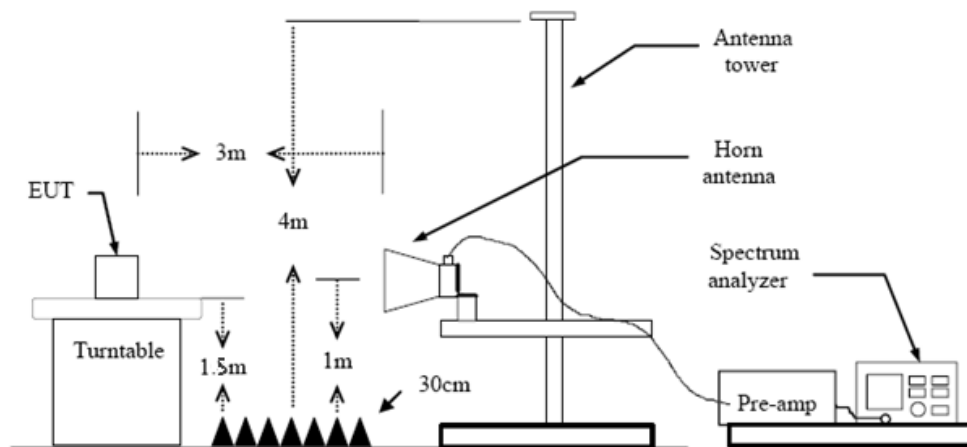
### 3.3. Band Edge Emissions (Radiated)

#### 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

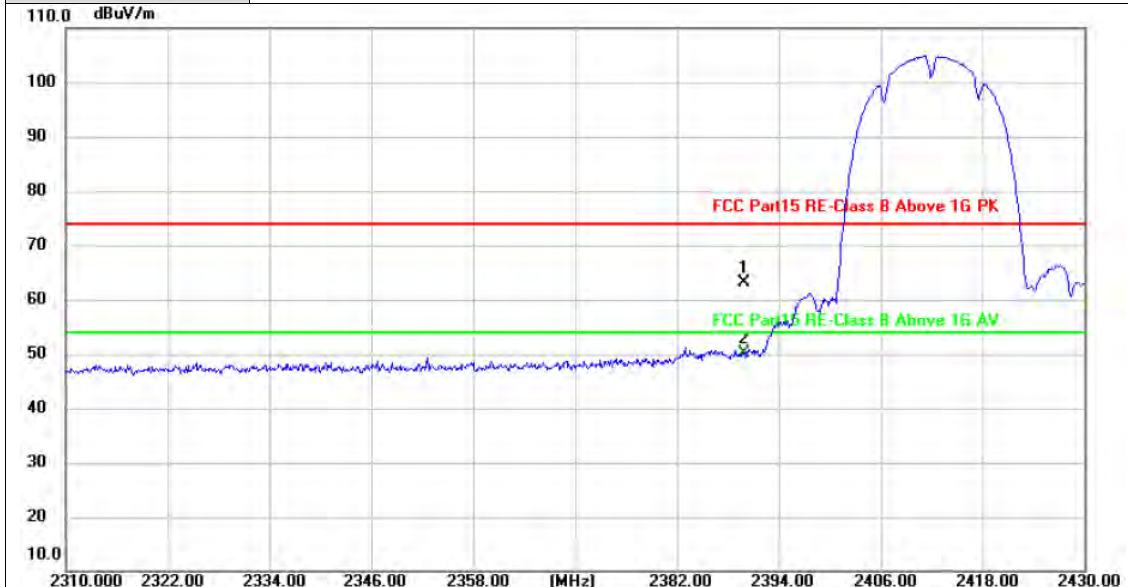
Please refer to the clause 2.4.



**Test Results**

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

<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	802.11b Mode 2412MHz

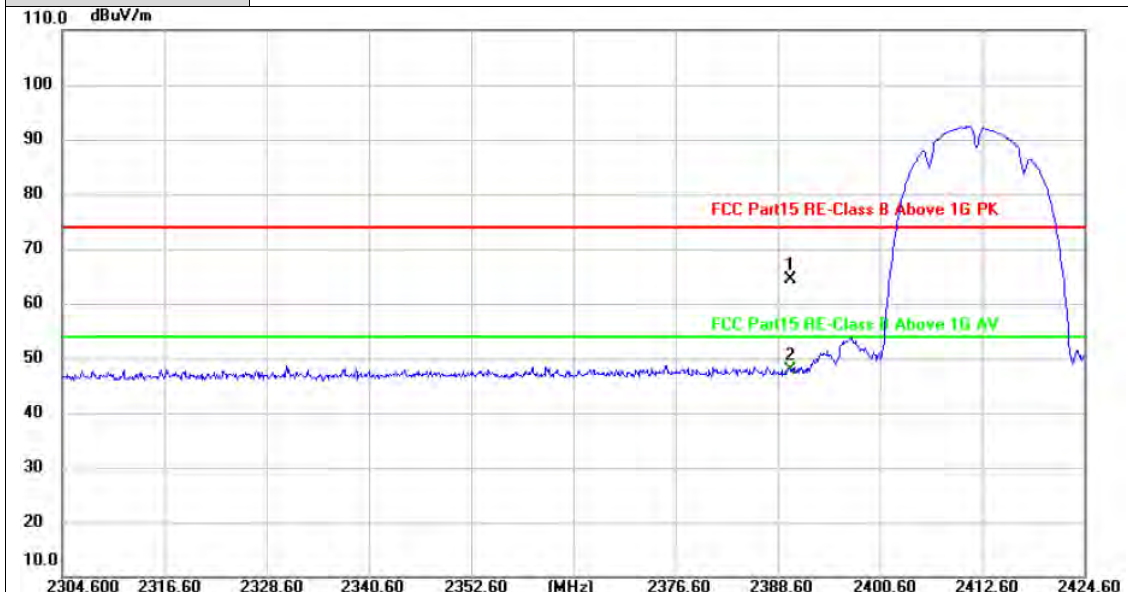


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	32.17	30.84	63.01	74.00	-10.99	peak
2 *	2390.000	19.28	30.84	50.12	54.00	-3.88	AVG

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	802.11b Mode 2412MHz



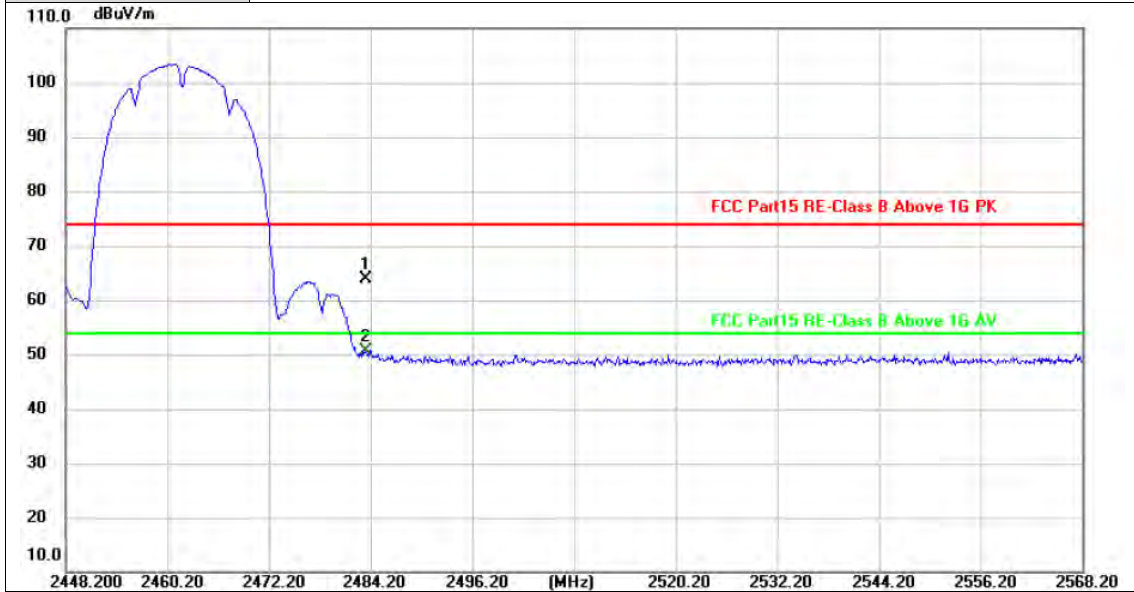
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	33.60	30.84	64.44	74.00	-9.56	peak
2 *	2390.000	16.96	30.84	47.80	54.00	-6.20	AVG

Remarks:

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	802.11b Mode 2462 MHz



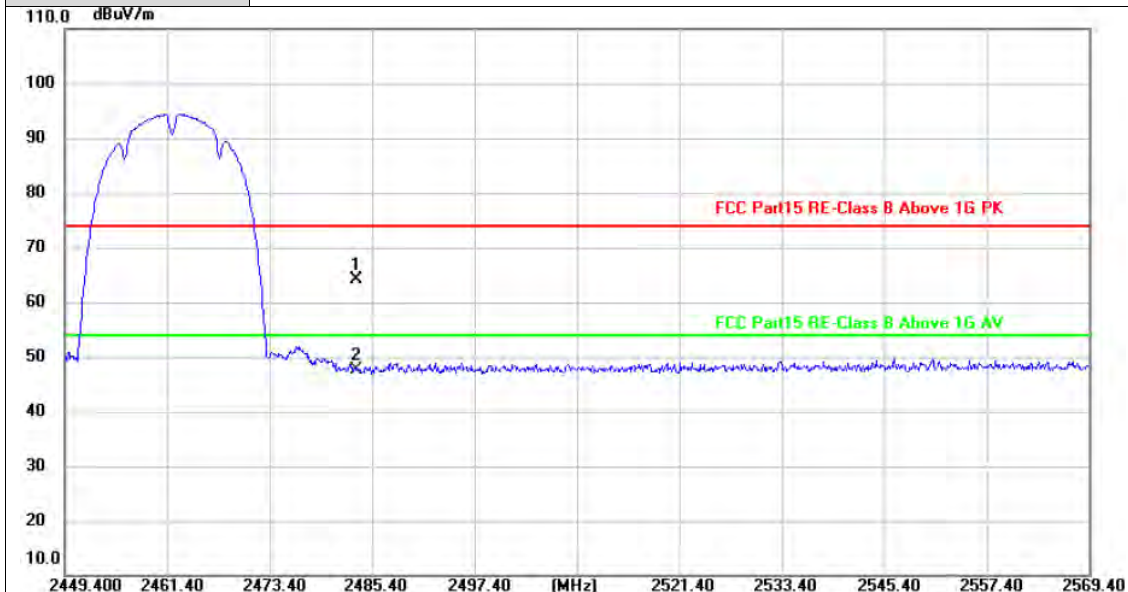
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	32.66	31.24	63.90	74.00	-10.10	peak
2 *	2483.500	19.27	31.24	50.51	54.00	-3.49	AVG

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	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	32.94	31.24	64.18	74.00	-9.82	peak
2 *	2483.500	16.32	31.24	47.56	54.00	-6.44	AVG

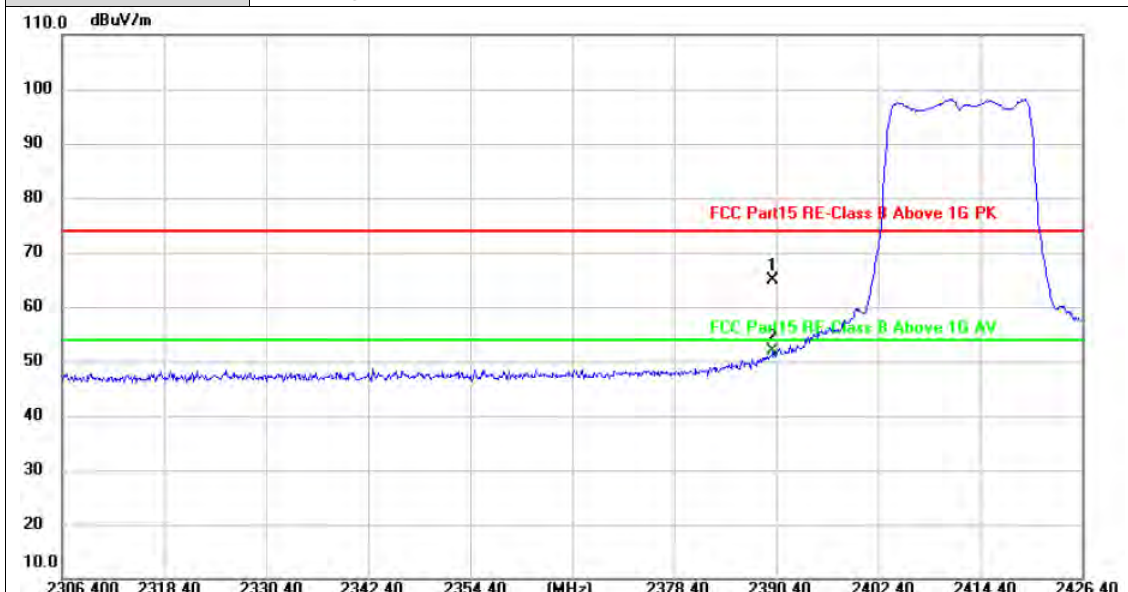
Remarks:

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	802.11g Mode 2412MHz



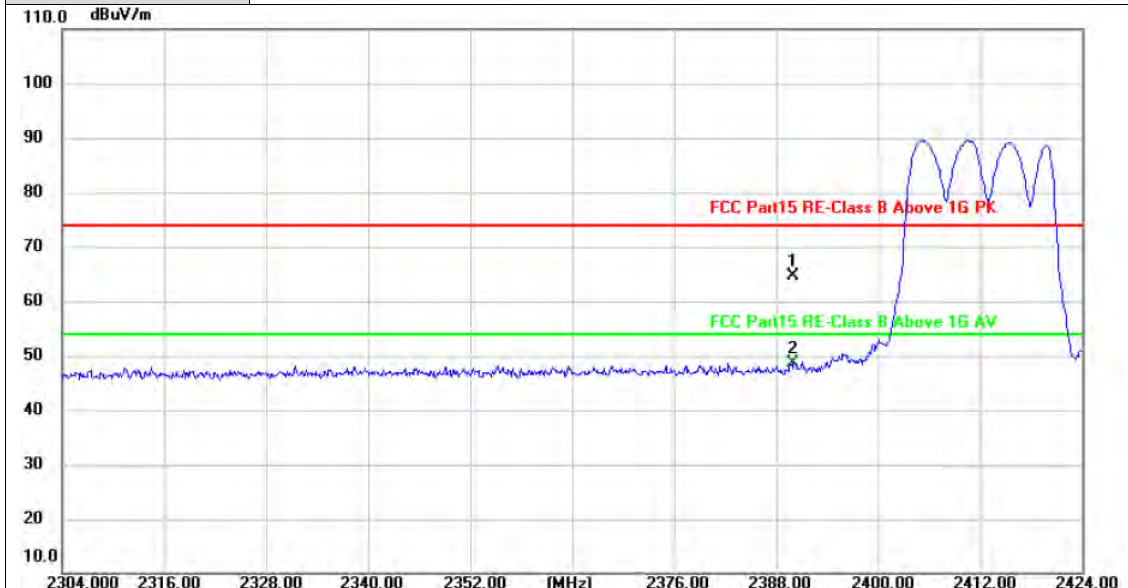
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	34.03	30.84	64.87	74.00	-9.13	peak
2 *	2390.000	21.16	30.84	52.00	54.00	-2.00	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	33.77	30.84	64.61	74.00	-9.39	peak
2 *	2390.000	17.78	30.84	48.62	54.00	-5.38	AVG

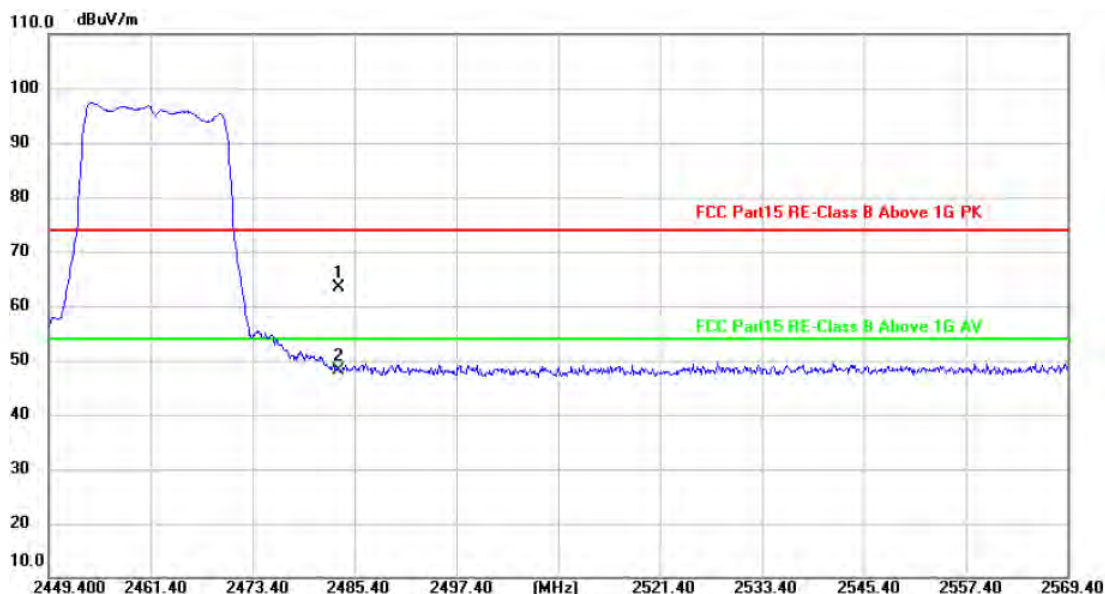
Remarks:

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	802.11g Mode 2462MHz



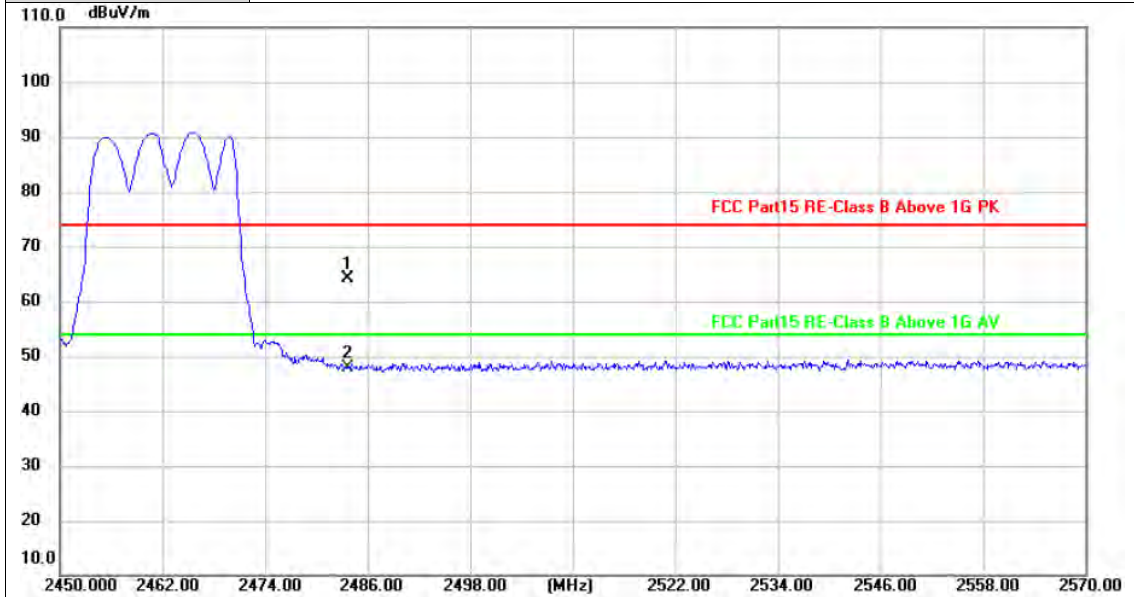
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	32.06	31.24	63.30	74.00	-10.70	peak
2 *	2483.500	16.85	31.24	48.09	54.00	-5.91	AVG

Remarks:

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	802.11g Mode 2462MHz

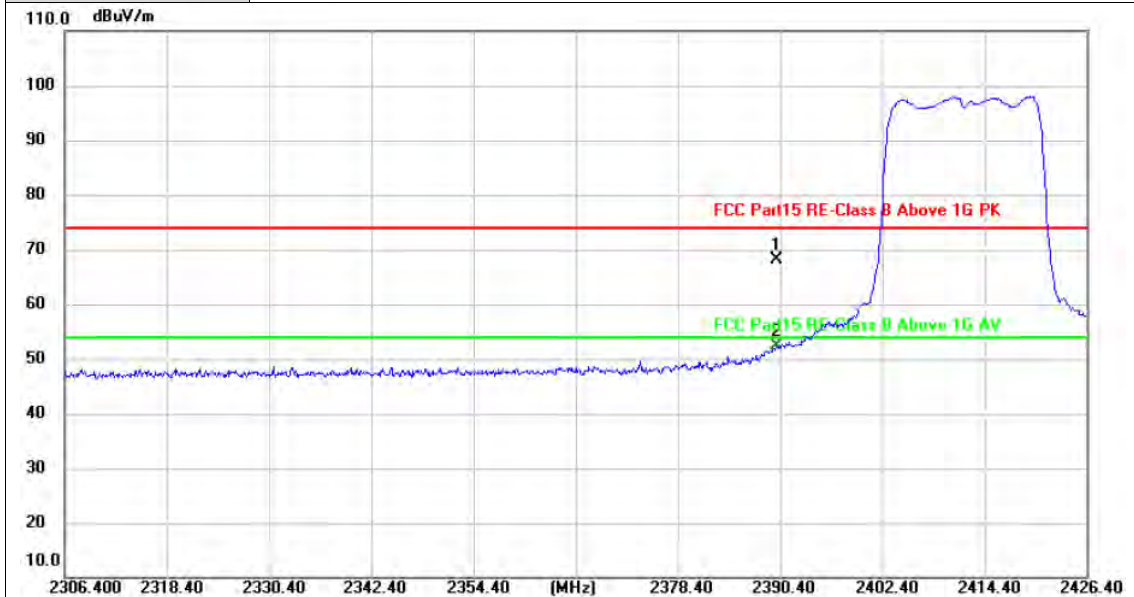


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	32.77	31.24	64.01	74.00	-9.99	peak
2 *	2483.500	16.73	31.24	47.97	54.00	-6.03	AVG

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



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

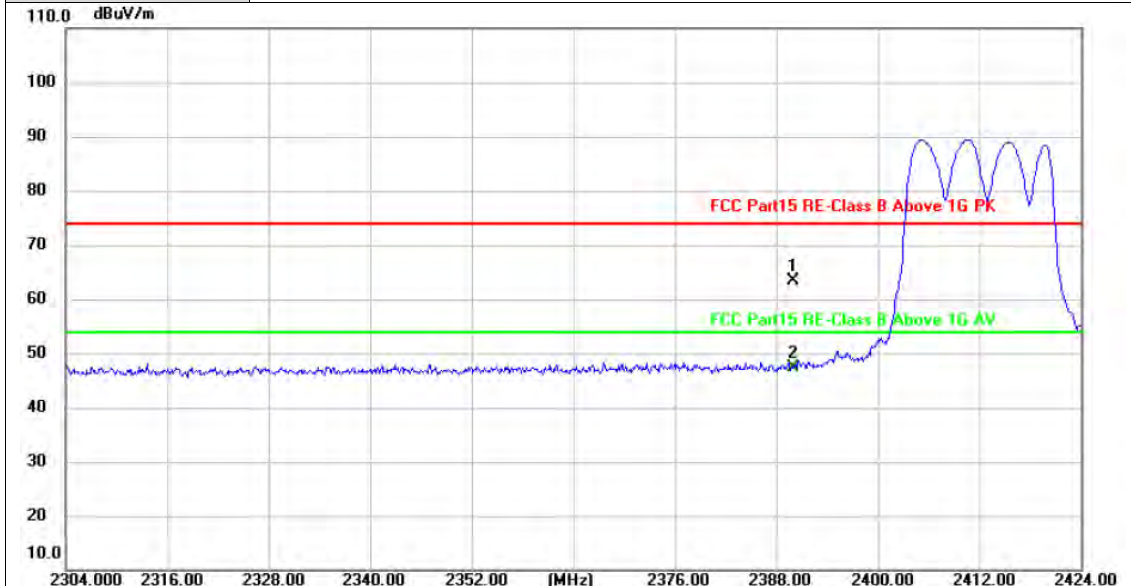


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	37.32	30.84	68.16	74.00	-5.84	peak
2 *	2390.000	21.55	30.84	52.39	54.00	-1.61	AVG

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



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



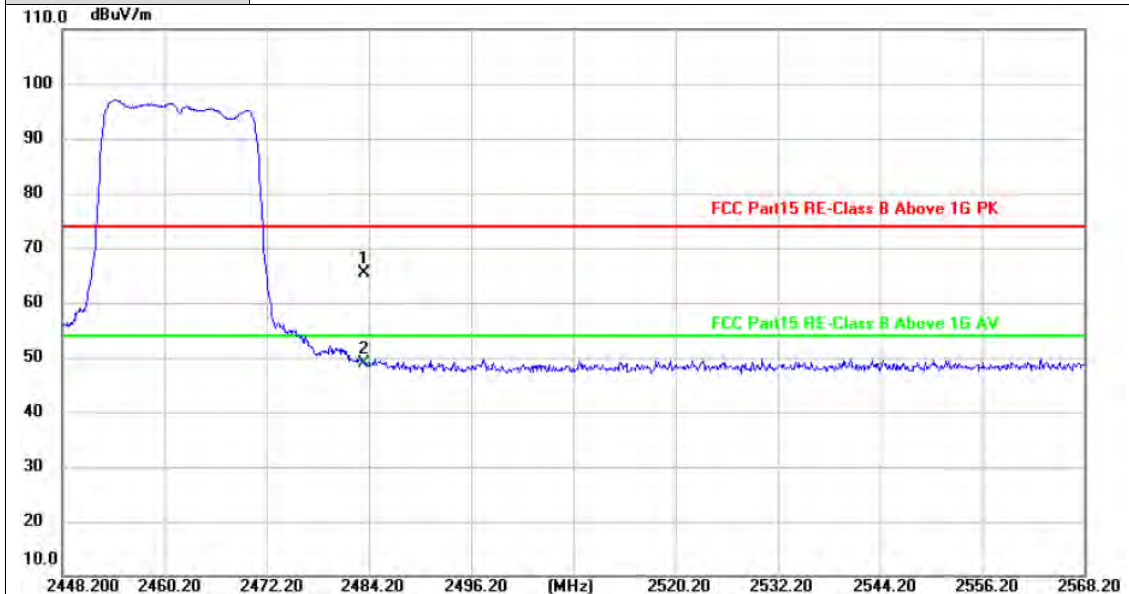
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	32.61	30.84	63.45	74.00	-10.55	peak
2 *	2390.000	16.65	30.84	47.49	54.00	-6.51	AVG

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





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



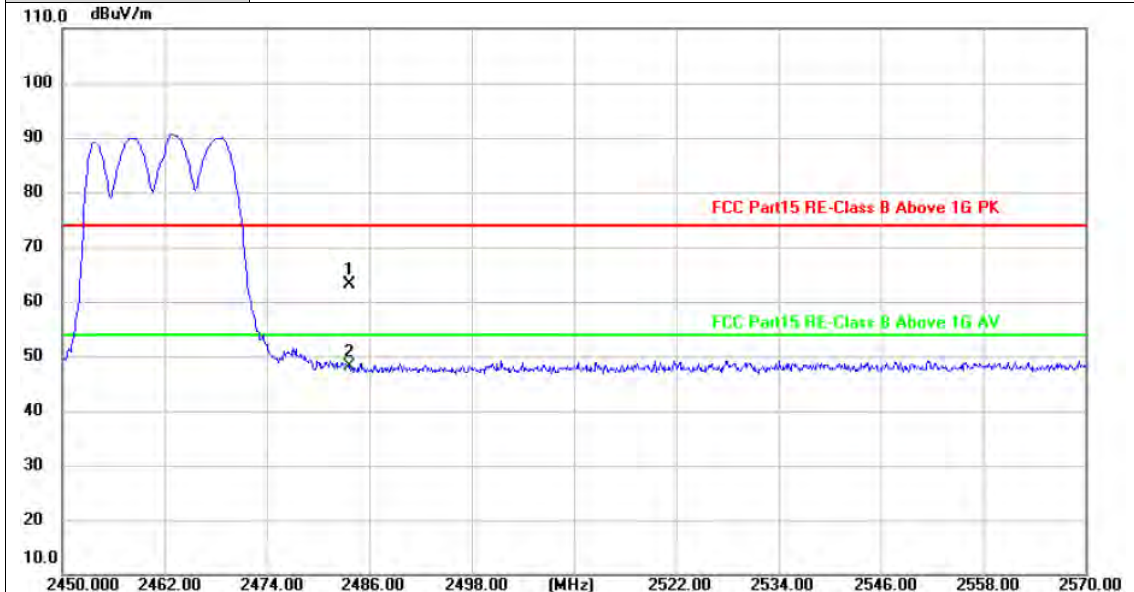
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	34.09	31.24	65.33	74.00	-8.67	peak
2 *	2483.500	17.54	31.24	48.78	54.00	-5.22	AVG

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





<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	802.11n(HT20) Mode 2462MHz

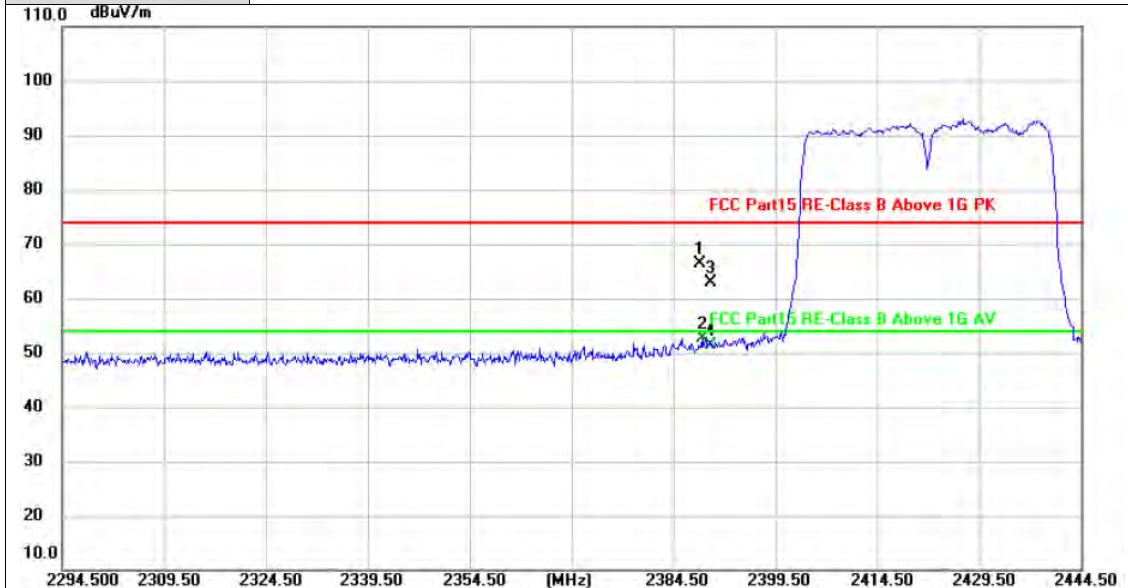


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	31.89	31.24	63.13	74.00	-10.87	peak
2 *	2483.500	16.99	31.24	48.23	54.00	-5.77	AVG

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	802.11n(HT40) Mode 2422MHz



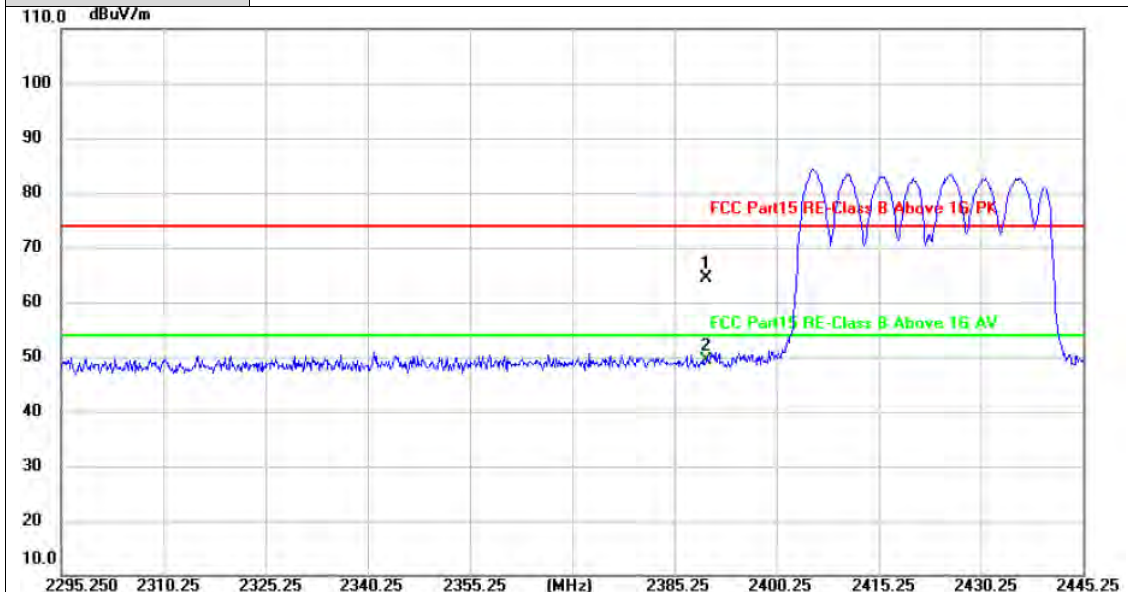
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2388.450	35.55	30.83	66.38	74.00	-7.62	peak
2 *	2388.750	21.71	30.83	52.54	54.00	-1.46	AVG
3	2390.000	32.00	30.84	62.84	74.00	-11.16	peak
4	2390.000	20.50	30.84	51.34	54.00	-2.66	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	802.11n(HT40) Mode 2422MHz



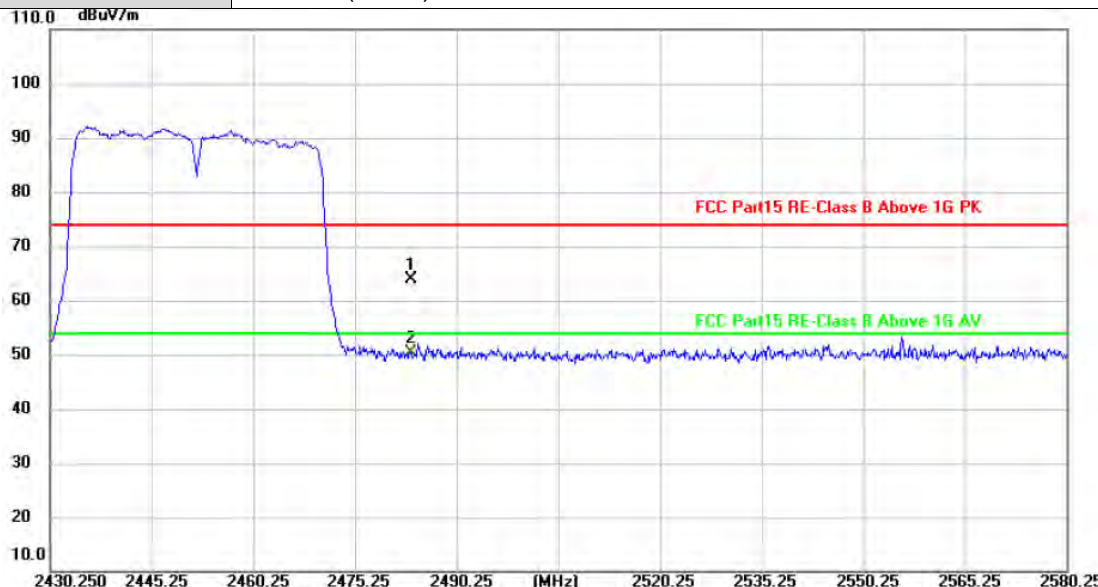
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	33.65	30.84	64.49	74.00	-9.51	peak
2 *	2390.000	18.45	30.84	49.29	54.00	-4.71	AVG

Remarks:

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



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	802.11n(HT40) Mode 2452MHz



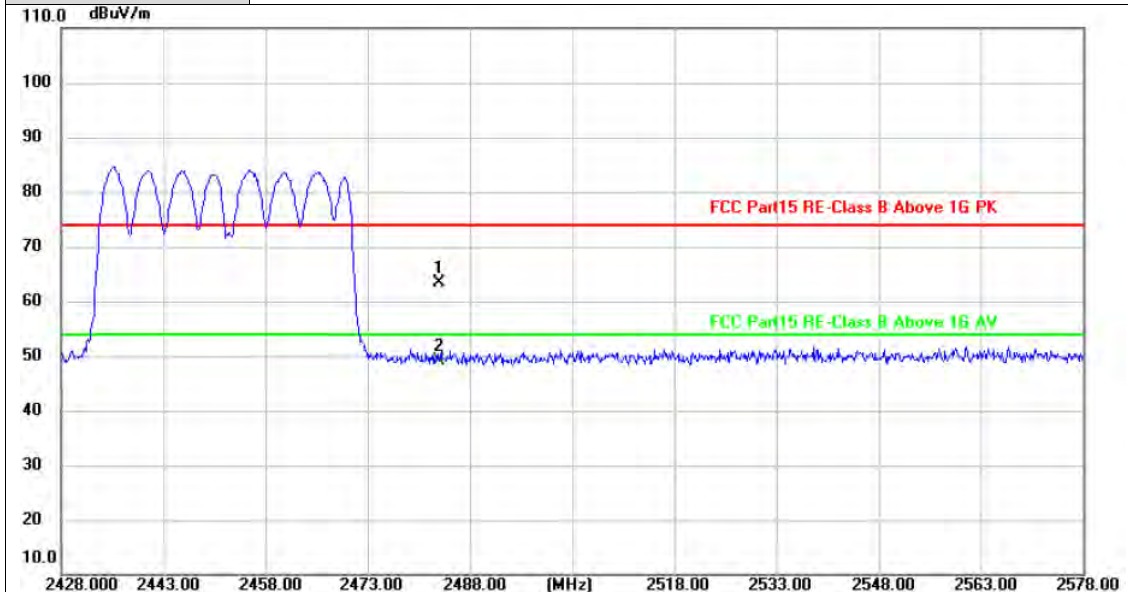
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	32.62	31.24	63.86	74.00	-10.14	peak
2 *	2483.500	19.26	31.24	50.50	54.00	-3.50	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



<b>Ant No.:</b>	Ant 1 + Ant 2
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	802.11n(HT40) Mode 2452MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	32.07	31.24	63.31	74.00	-10.69	peak
2 *	2483.500	17.98	31.24	49.22	54.00	-4.78	AVG

Remarks:

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

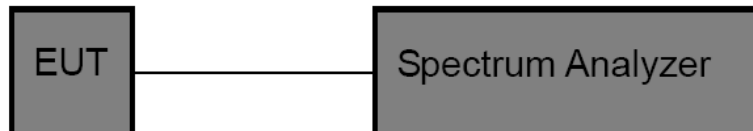


### 3.4. Band edge and Spurious Emissions (Conducted)

#### 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  $\geq$  RBW, scan up through 10<sup>th</sup> 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	5.71	-39.47	<=-24.29	PASS
	Ant2	2412	6.86	-39.35	<=-23.14	PASS
	Ant1	2462	5.33	-51.17	<=-24.67	PASS
	Ant2	2462	7.01	-47.84	<=-22.99	PASS
802.11g	Ant1	2412	-0.68	-37.23	<=-30.68	PASS
	Ant2	2412	1.11	-36.53	<=-28.89	PASS
	Ant1	2462	-0.72	-47.84	<=-30.72	PASS
	Ant2	2462	0.93	-44.01	<=-29.07	PASS
802.11n(HT20)	Ant1	2412	-0.83	-37.78	<=-30.83	PASS
	Ant2	2412	0.23	-36.77	<=-29.77	PASS
	Ant1	2462	-0.94	-46.03	<=-30.94	PASS
	Ant2	2462	1.10	-44.04	<=-28.91	PASS
802.11n(HT40)	Ant1	2422	-6.97	-42.18	<=-36.97	PASS
	Ant2	2422	-6.09	-40.35	<=-36.09	PASS
	Ant1	2452	-6.73	-46.4	<=-36.73	PASS
	Ant2	2452	-4.93	-43.66	<=-34.93	PASS





802.11b\_Ant1\_Low\_2412



802.11b\_Ant2\_Low\_2412



802.11b\_Ant1\_High\_2462



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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



802.11n(HT40)\_Ant1\_Low\_2422

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802.11n(HT40)\_Ant2\_Low\_2422



802.11n(HT40)\_Ant1\_High\_2452



802.11n(HT40)\_Ant2\_High\_2452

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## (2) Conducted Spurious Emissions Test

Test Mode	Antenna	Channel	Freq Range [Mhz]	Ref Level [dBm]	Result [dBm]	Limit [dBm]	Verdict	
802.11b	Ant1	2412	Reference	7.05	7.05	---	PASS	
			30~1000	7.05	-58.82	<=-12.95	PASS	
			1000~26500	7.05	-46.15	<=-12.95	PASS	
	Ant2	2412	Reference	5.93	5.93	---	PASS	
			30~1000	5.93	-59.80	<=-14.08	PASS	
			1000~26500	5.93	-46.55	<=-14.08	PASS	
	Ant1	2437	Reference	6.51	6.51	---	PASS	
			30~1000	6.51	-60.06	<=-13.49	PASS	
			1000~26500	6.51	-46.55	<=-13.49	PASS	
	Ant2	2437	Reference	5.69	5.69	---	PASS	
			30~1000	5.69	-58.39	<=-14.31	PASS	
			1000~26500	5.69	-46.56	<=-14.31	PASS	
	Ant1	2462	Reference	6.99	6.99	---	PASS	
			30~1000	6.99	-59.83	<=-13.01	PASS	
			1000~26500	6.99	-45.97	<=-13.01	PASS	
	Ant2	2462	Reference	6.14	6.14	---	PASS	
			30~1000	6.14	-59.16	<=-13.86	PASS	
			1000~26500	6.14	-46.00	<=-13.86	PASS	
	802.11g	Ant1	2412	Reference	2.34	2.34	---	PASS
				30~1000	2.34	-59.93	<=-17.66	PASS
				1000~26500	2.34	-45.55	<=-17.66	PASS
		Ant2	2412	Reference	2.97	2.97	---	PASS
				30~1000	2.97	-59.32	<=-17.03	PASS
				1000~26500	2.97	-46.07	<=-17.03	PASS
Ant1		2437	Reference	2.09	2.09	---	PASS	
			30~1000	2.09	-59.76	<=-17.92	PASS	
			1000~26500	2.09	-39.34	<=-17.92	PASS	
Ant2		2437	Reference	2.02	2.02	---	PASS	
			30~1000	2.02	-58.94	<=-17.98	PASS	
			1000~26500	2.02	-45.91	<=-17.98	PASS	
Ant1		2462	Reference	1.68	1.68	---	PASS	
			30~1000	1.68	-59.40	<=-18.32	PASS	
			1000~26500	1.68	-41.48	<=-18.32	PASS	
Ant2		2462	Reference	3.21	3.21	---	PASS	
			30~1000	3.21	-58.56	<=-16.79	PASS	
			1000~26500	3.21	-45.51	<=-16.79	PASS	
802.11n(HT20)		Ant1	2412	Reference	2.13	2.13	---	PASS
				30~1000	2.13	-59.53	<=-17.87	PASS
				1000~26500	2.13	-46.13	<=-17.87	PASS
		Ant2	2412	Reference	1.54	1.54	---	PASS
				30~1000	1.54	-59.41	<=-18.46	PASS

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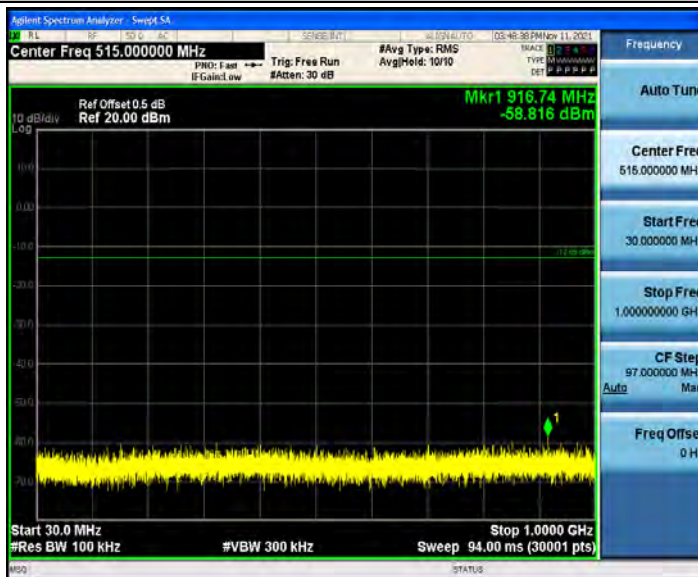
	Ant1	2437	1000~26500	1.54	-46.66	<=-18.46	PASS
			Reference	1.52	1.52	---	PASS
			30~1000	1.52	-59.72	<=-18.48	PASS
	Ant2	2437	1000~26500	1.52	-46.20	<=-18.48	PASS
			Reference	3.10	3.10	---	PASS
			30~1000	3.10	-59.69	<=-16.9	PASS
	Ant1	2462	1000~26500	3.10	-46.53	<=-16.9	PASS
			Reference	-1.49	-1.49	---	PASS
			30~1000	-1.49	-59.20	<=-21.49	PASS
	Ant2	2462	1000~26500	-1.49	-46.60	<=-21.49	PASS
			Reference	1.16	1.16	---	PASS
			30~1000	1.16	-58.83	<=-18.84	PASS
802.11n(HT40)	Ant1	2422	1000~26500	1.16	-45.66	<=-18.84	PASS
			Reference	-7.85	-7.85	---	PASS
			30~1000	-7.85	-59.06	<=-27.85	PASS
	Ant2	2422	1000~26500	-7.85	-46.50	<=-27.85	PASS
			Reference	-7.50	-7.50	---	PASS
			30~1000	-7.50	-59.48	<=-27.5	PASS
	Ant1	2437	1000~26500	-7.50	-46.15	<=-27.5	PASS
			Reference	-7.96	-7.96	---	PASS
			30~1000	-7.96	-59.45	<=-27.96	PASS
	Ant2	2437	1000~26500	-7.96	-45.92	<=-27.96	PASS
			Reference	-7.48	-7.48	---	PASS
			30~1000	-7.48	-59.79	<=-27.48	PASS
Ant1	2452	1000~26500	-7.48	-46.40	<=-27.48	PASS	
		Reference	-7.82	-7.82	---	PASS	
		30~1000	-7.82	-59.76	<=-27.82	PASS	
Ant2	2452	1000~26500	-7.82	-46.49	<=-27.82	PASS	
		Reference	-7.34	-7.34	---	PASS	
		30~1000	-7.34	-59.77	<=-27.34	PASS	
	Ant2	2452	1000~26500	-7.34	-46.08	<=-27.34	PASS
			Reference	-7.34	-46.08	<=-27.34	PASS



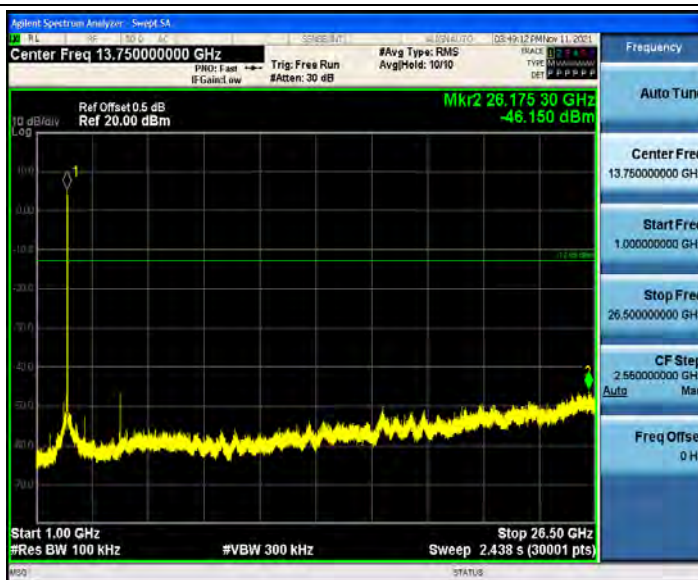
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802.11b\_Ant1\_2412\_30~1000



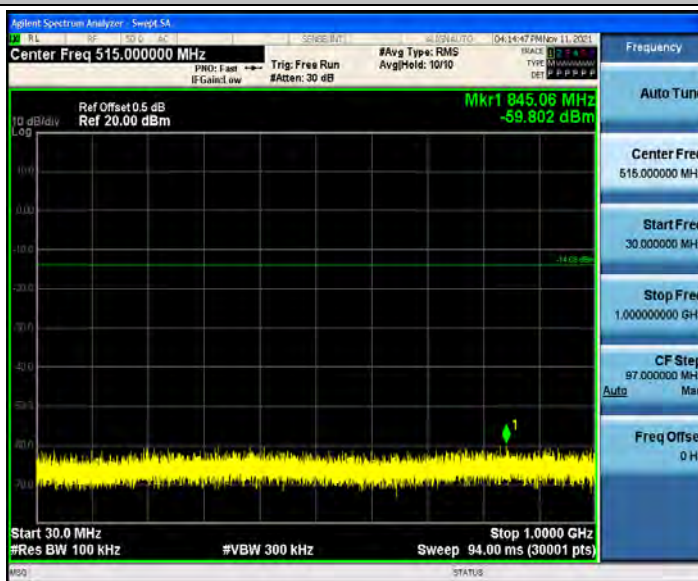
802.11b\_Ant1\_2412\_1000~26500



802.11b\_Ant2\_2412\_0~Reference



802.11b\_Ant2\_2412\_30~1000



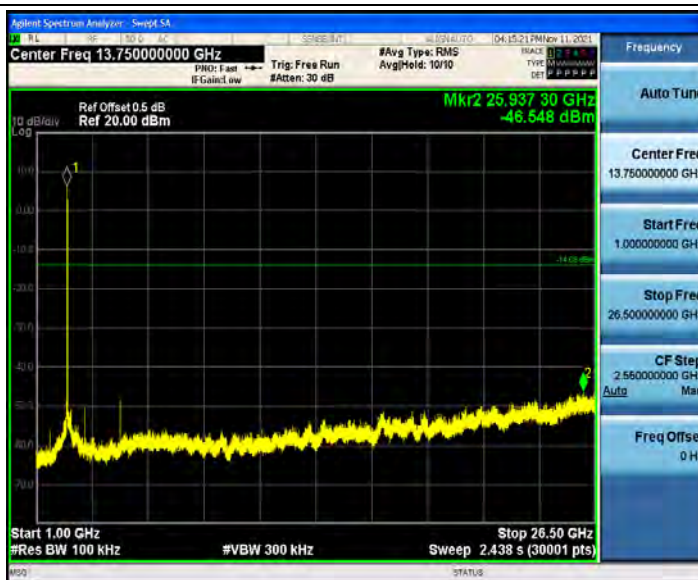
802.11b\_Ant2\_2412\_1000~26500

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802.11b\_Ant1\_2437\_0~Reference



802.11b\_Ant1\_2437\_30~1000



802.11b\_Ant1\_2437\_1000~26500

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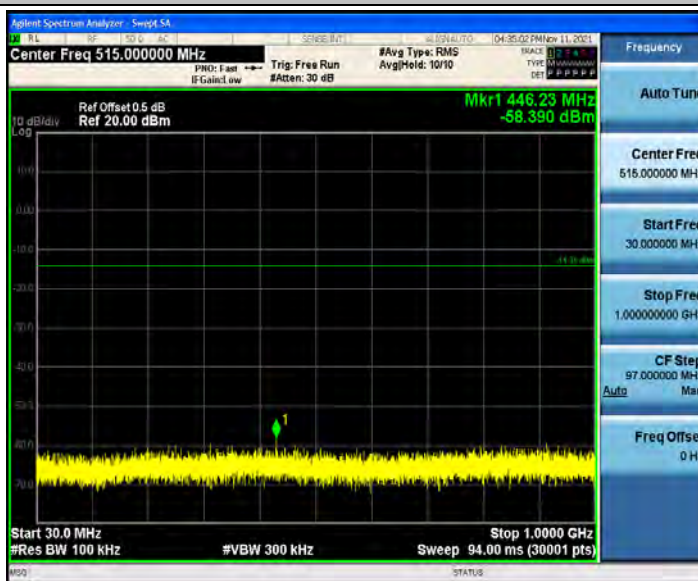




802.11b\_Ant2\_2437\_0~Reference



802.11b\_Ant2\_2437\_30~1000



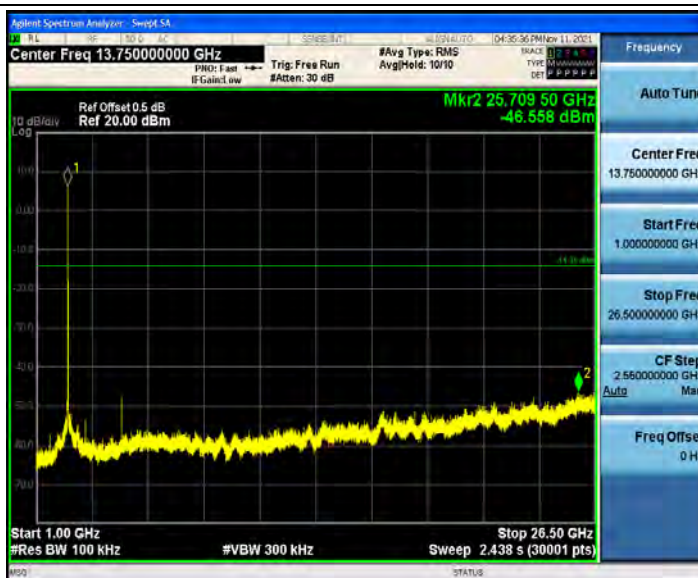
802.11b\_Ant2\_2437\_1000~26500

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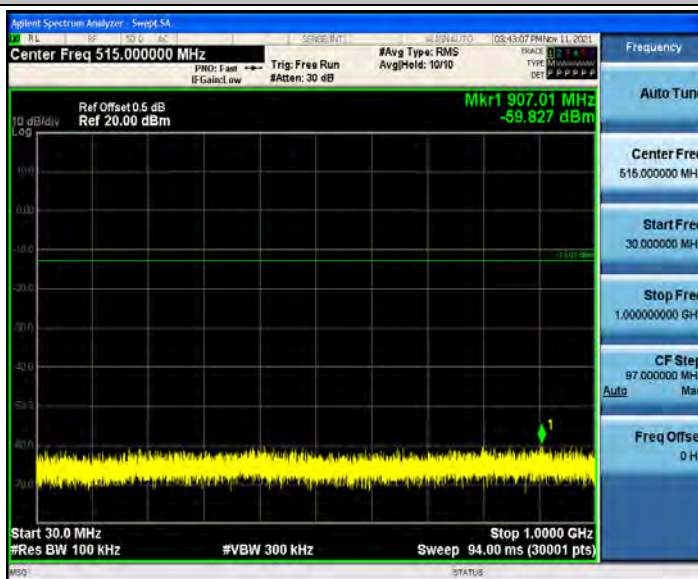




802.11b\_Ant1\_2462\_0~Reference



802.11b\_Ant1\_2462\_30~1000



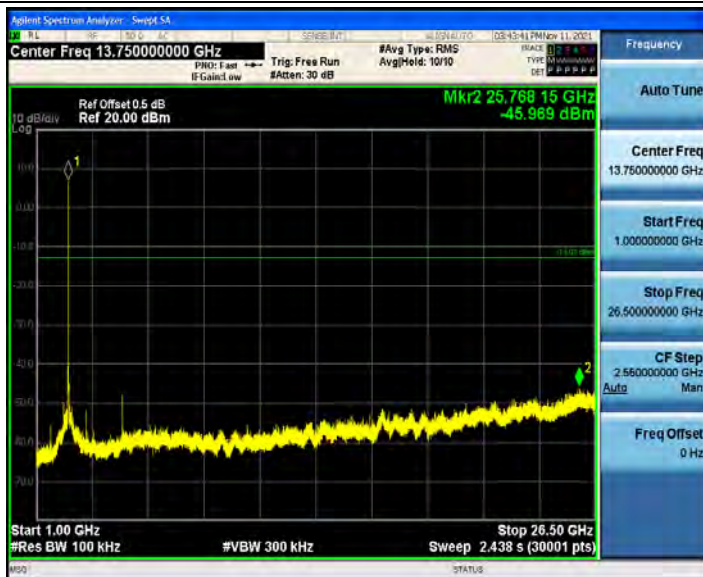
802.11b\_Ant1\_2462\_1000~26500

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802.11b\_Ant2\_2462\_0~Reference



802.11b\_Ant2\_2462\_30~1000



802.11b\_Ant2\_2462\_1000~26500

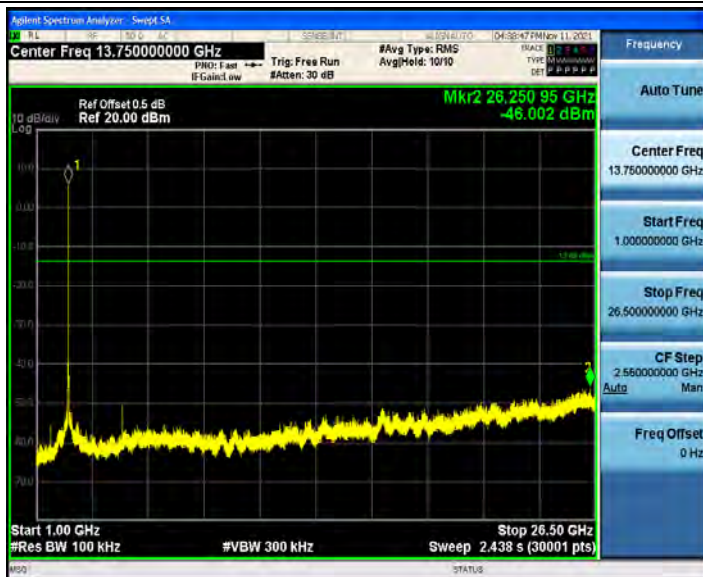
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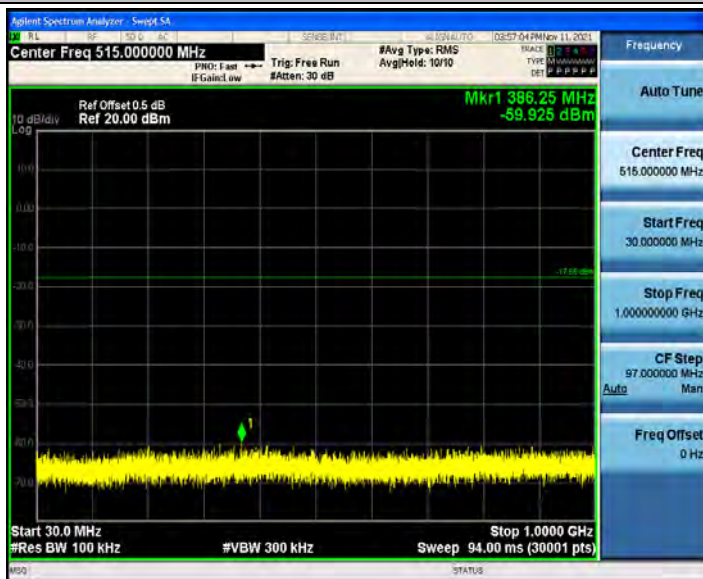




802.11g\_Ant1\_2412\_0~Reference



802.11g\_Ant1\_2412\_30~1000



802.11g\_Ant1\_2412\_1000~26500

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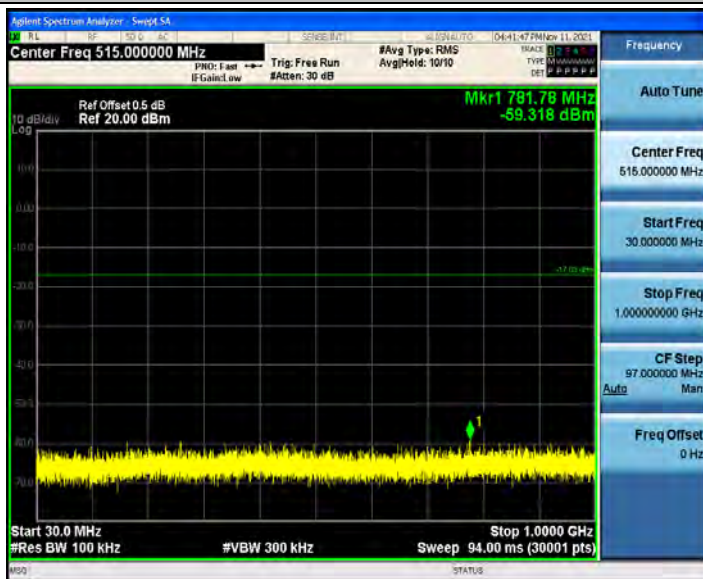
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cnca.cn](http://yz.cnca.cn)



802.11g\_Ant2\_2412\_0~Reference



802.11g\_Ant2\_2412\_30~1000



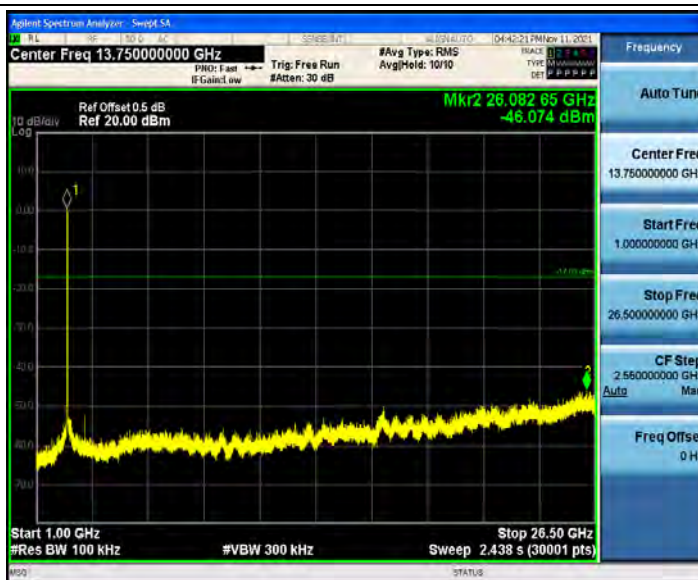
802.11g\_Ant2\_2412\_1000~26500

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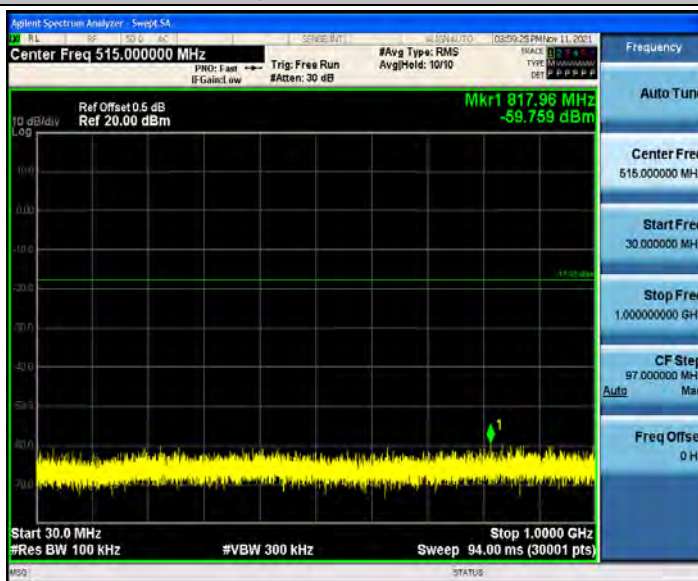
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cnca.cn](http://yz.cnca.cn)



802.11g\_Ant1\_2437\_0~Reference



802.11g\_Ant1\_2437\_30~1000



802.11g\_Ant1\_2437\_1000~26500

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Tel.: (86)755-27521059

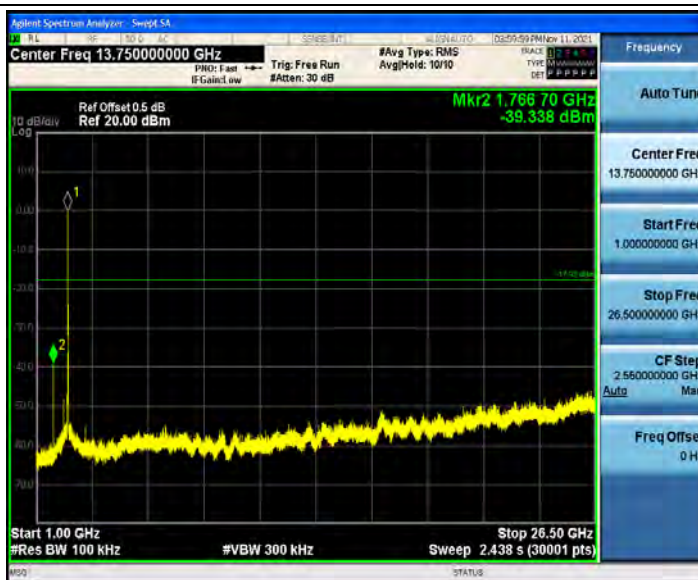
Fax: (86)755-27521011

Http://www.sz-ctc.org.cn



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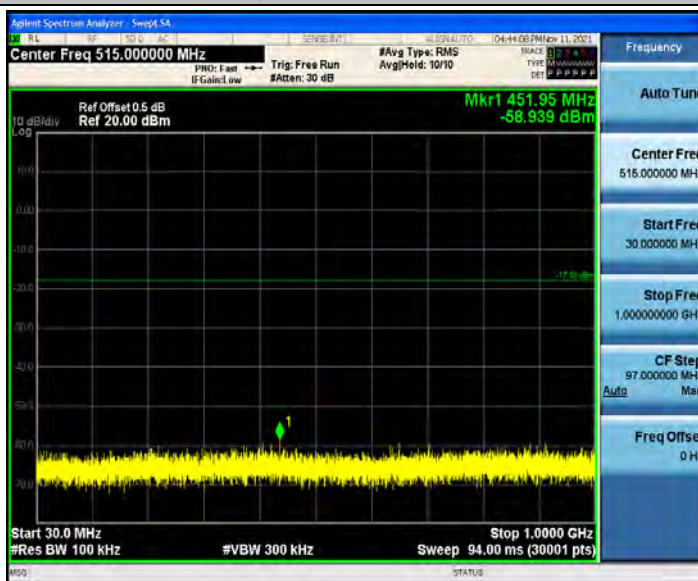




802.11g\_Ant2\_2437\_0~Reference



802.11g\_Ant2\_2437\_30~1000



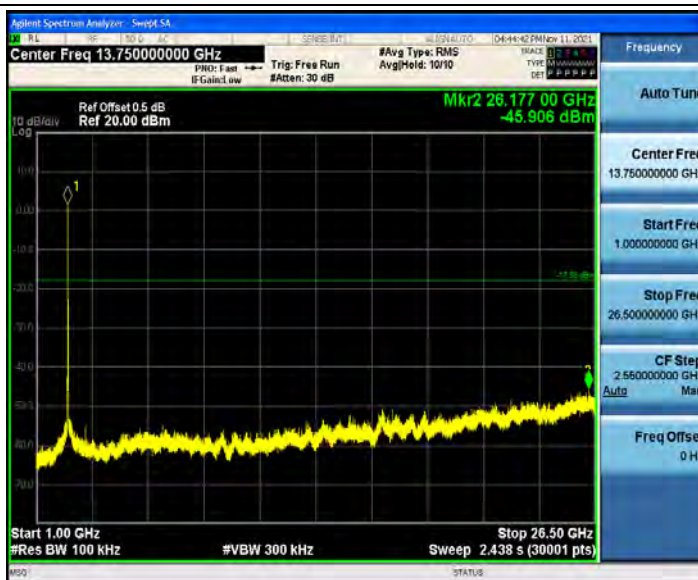
802.11g\_Ant2\_2437\_1000~26500

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802.11g\_Ant1\_2462\_0~Reference



802.11g\_Ant1\_2462\_30~1000



802.11g\_Ant1\_2462\_1000~26500

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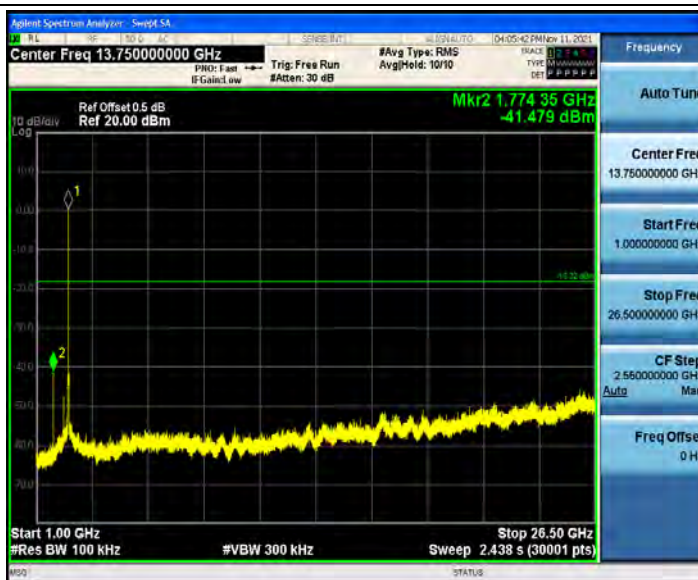
Tel.: (86)755-27521059

Fax: (86)755-27521011

Http://www.sz-ctc.org.cn



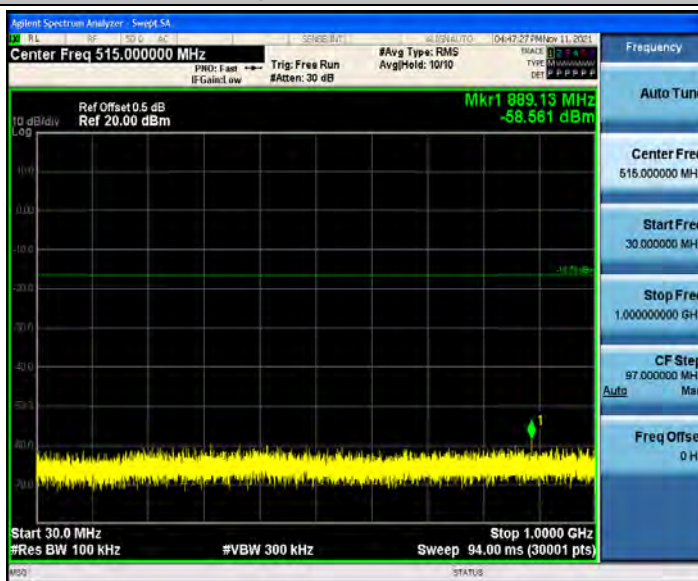
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cnca.cn](http://yz.cnca.cn)



802.11g\_Ant2\_2462\_0~Reference



802.11g\_Ant2\_2462\_30~1000



802.11g\_Ant2\_2462\_1000~26500

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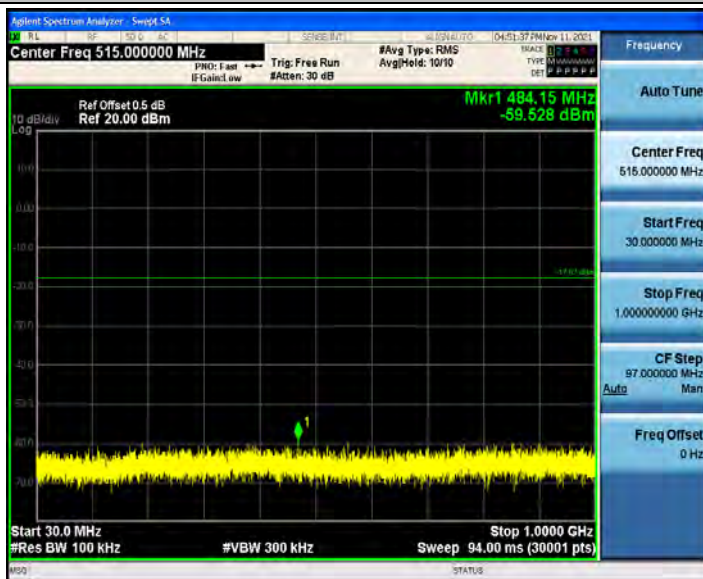




802.11n(HT20)\_Ant1\_2412\_0~Reference



802.11n(HT20)\_Ant1\_2412\_30~1000



802.11n(HT20)\_Ant1\_2412\_1000~26500

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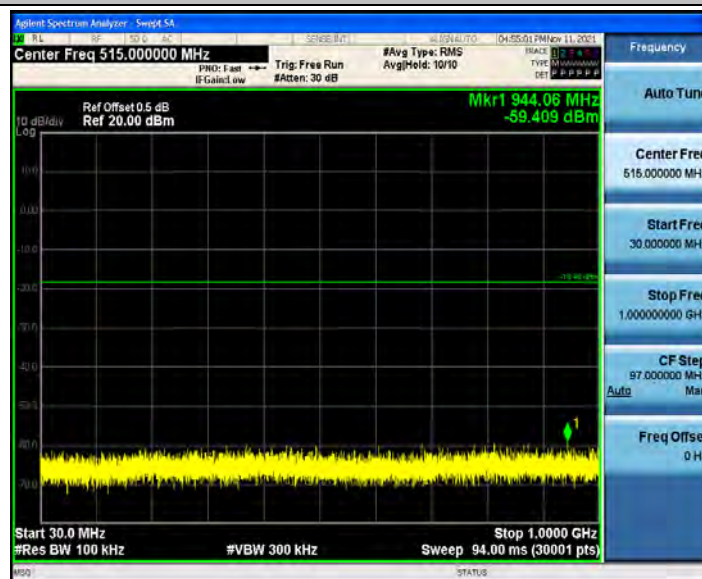




802.11n(HT20)\_Ant2\_2412\_0~Reference



802.11n(HT20)\_Ant2\_2412\_30~1000



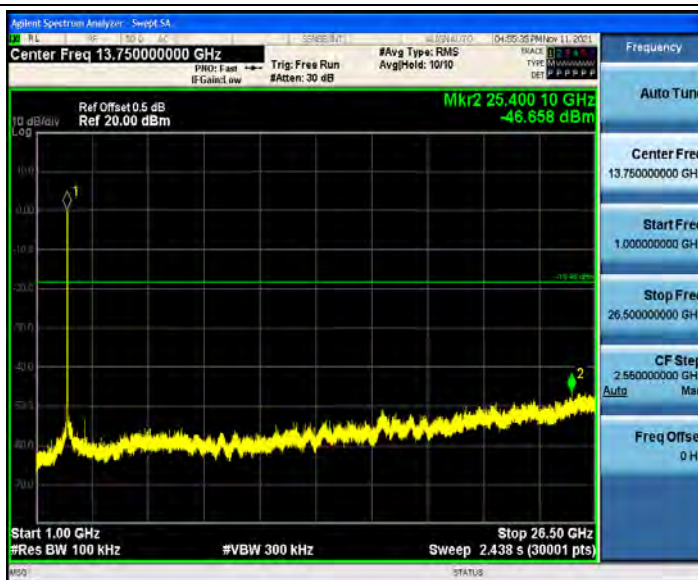
802.11n(HT20)\_Ant2\_2412\_1000~26500

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802.11n(HT20)\_Ant1\_2437\_0~Reference



802.11n(HT20)\_Ant1\_2437\_30~1000



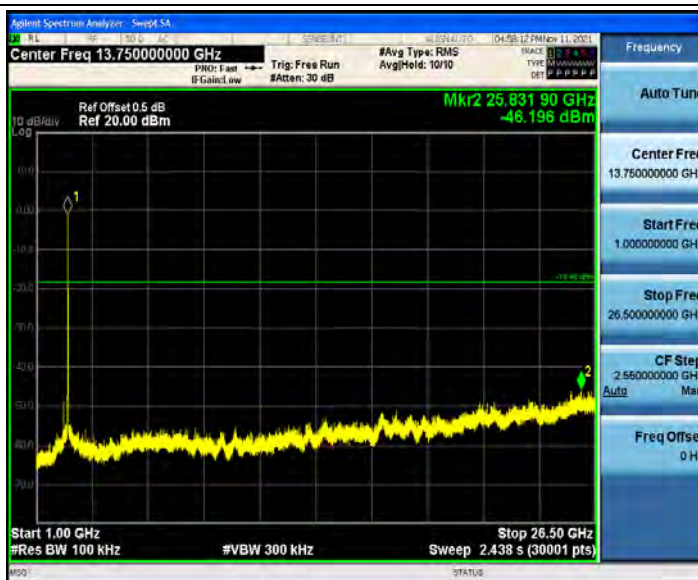
802.11n(HT20)\_Ant1\_2437\_1000~26500

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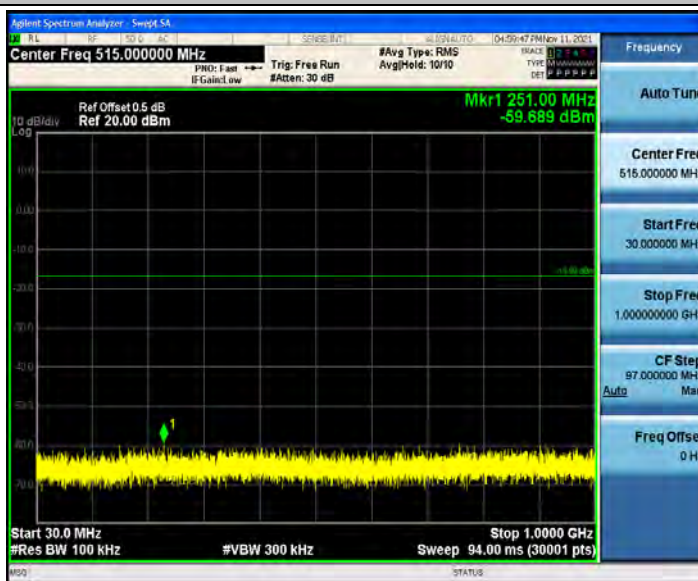




802.11n(HT20)\_Ant2\_2437\_0~Reference



802.11n(HT20)\_Ant2\_2437\_30~1000



802.11n(HT20)\_Ant2\_2437\_1000~26500

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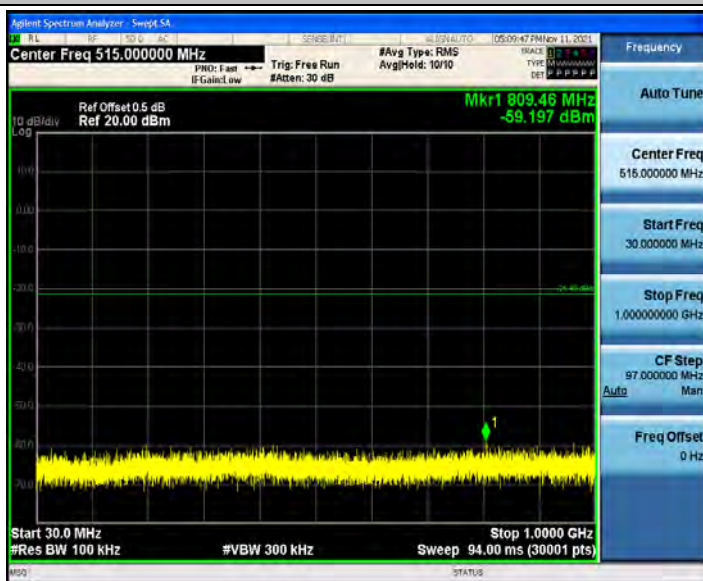




802.11n(HT20)\_Ant1\_2462\_0~Reference



802.11n(HT20)\_Ant1\_2462\_30~1000



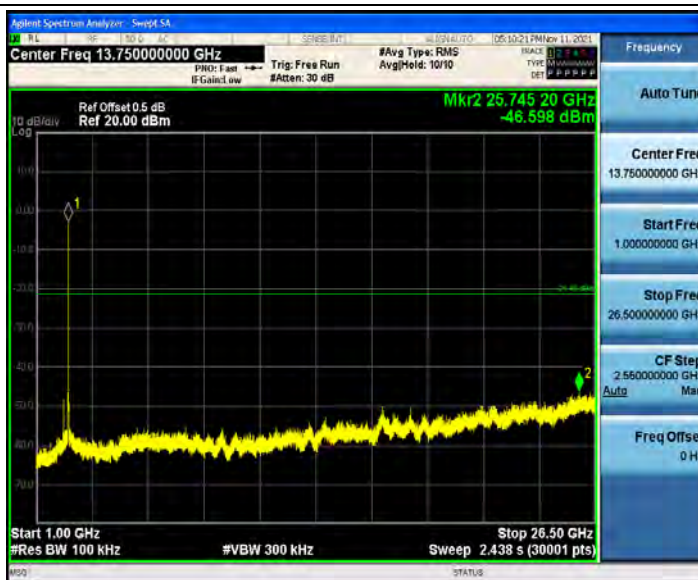
802.11n(HT20)\_Ant1\_2462\_1000~26500

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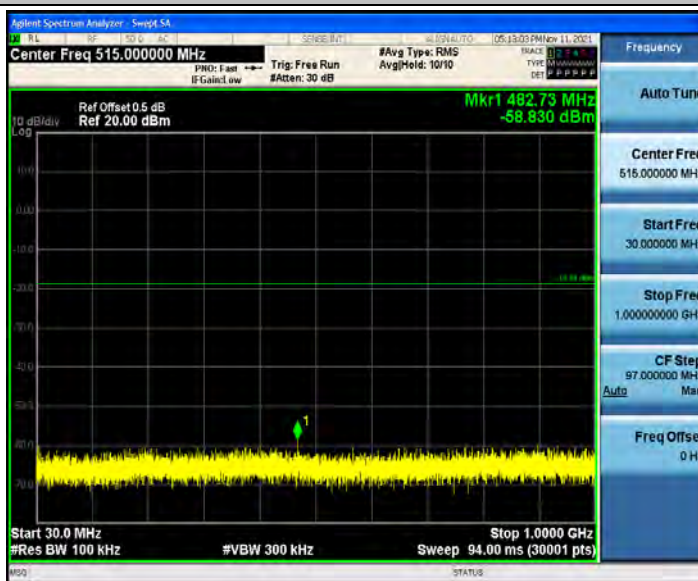




802.11n(HT20)\_Ant2\_2462\_0~Reference



802.11n(HT20)\_Ant2\_2462\_30~1000



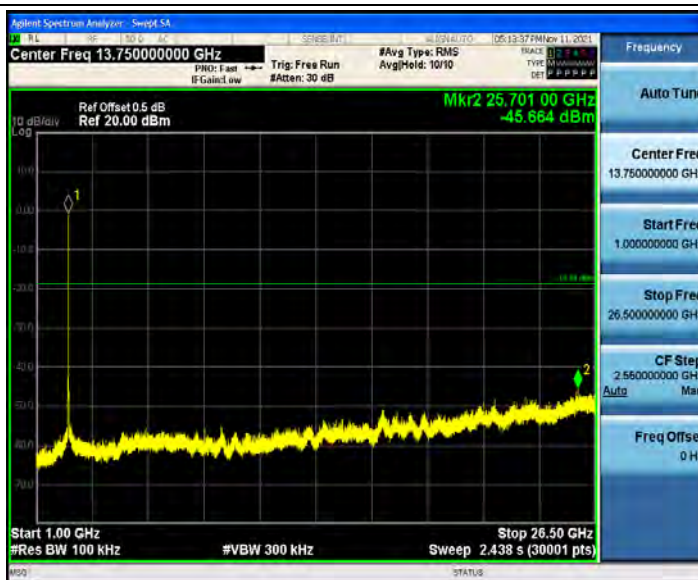
802.11n(HT20)\_Ant2\_2462\_1000~26500

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802.11n(HT40)\_Ant1\_2422\_0~Reference



802.11n(HT40)\_Ant1\_2422\_30~1000



802.11n(HT40)\_Ant1\_2422\_1000~26500

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802.11n(HT40)\_Ant2\_2422\_0~Reference



802.11n(HT40)\_Ant2\_2422\_30~1000



802.11n(HT40)\_Ant2\_2422\_1000~26500

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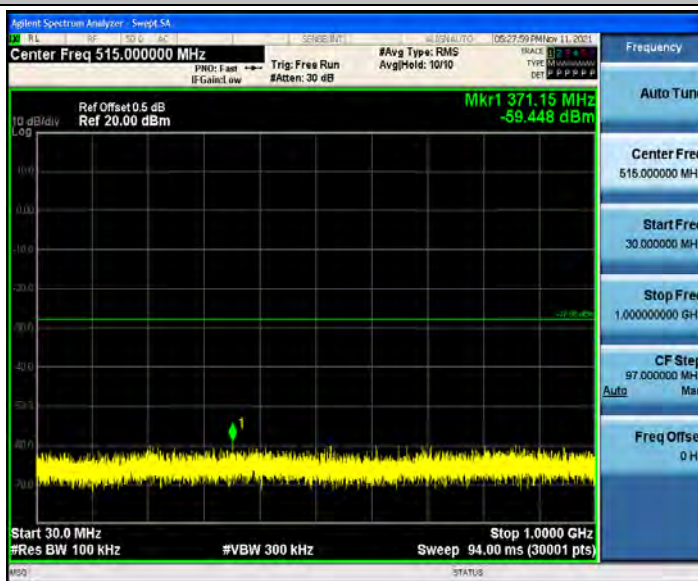




802.11n(HT40)\_Ant1\_2437\_0~Reference



802.11n(HT40)\_Ant1\_2437\_30~1000



802.11n(HT40)\_Ant1\_2437\_1000~26500

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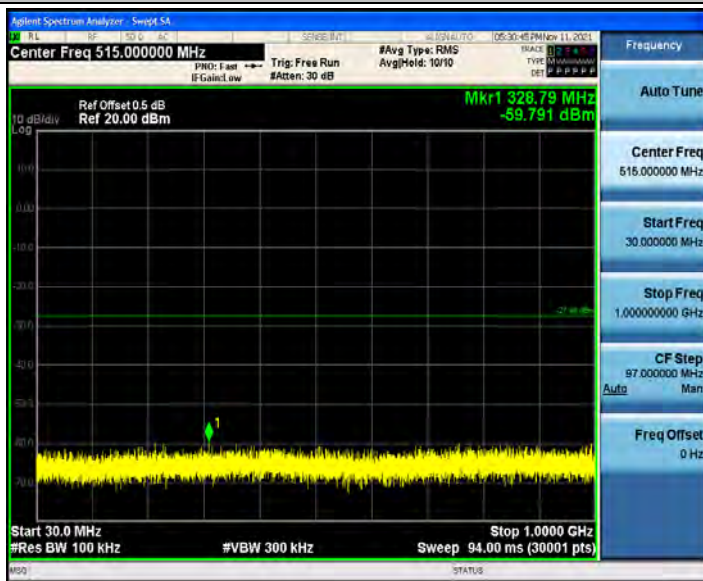
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802.11n(HT40)\_Ant2\_2437\_0~Reference



802.11n(HT40)\_Ant2\_2437\_30~1000



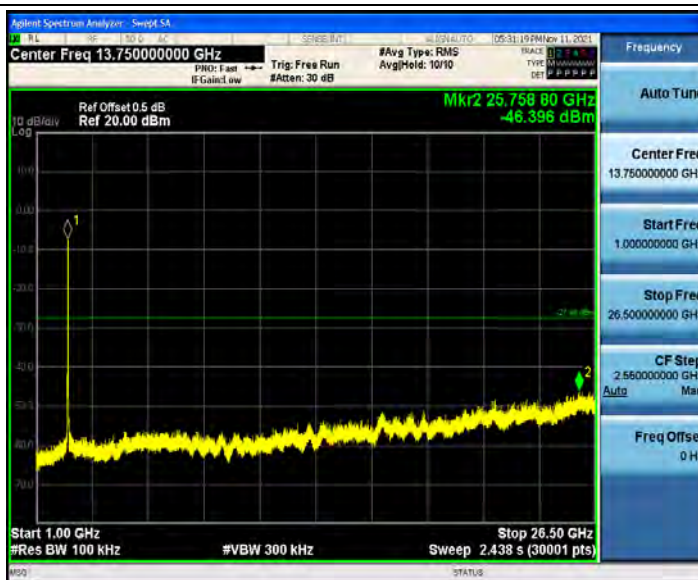
802.11n(HT40)\_Ant2\_2437\_1000~26500

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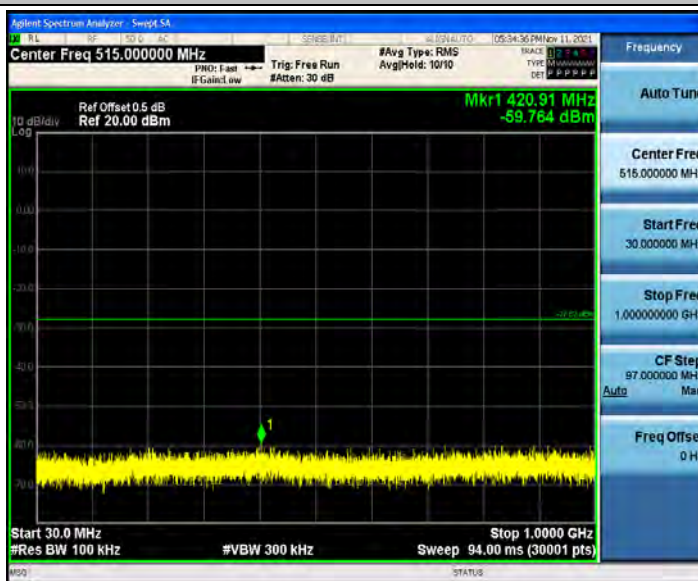
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802.11n(HT40)\_Ant1\_2452\_0~Reference



802.11n(HT40)\_Ant1\_2452\_30~1000



802.11n(HT40)\_Ant1\_2452\_1000~26500

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802.11n(HT40)\_Ant2\_2452\_0~Reference



802.11n(HT40)\_Ant2\_2452\_30~1000



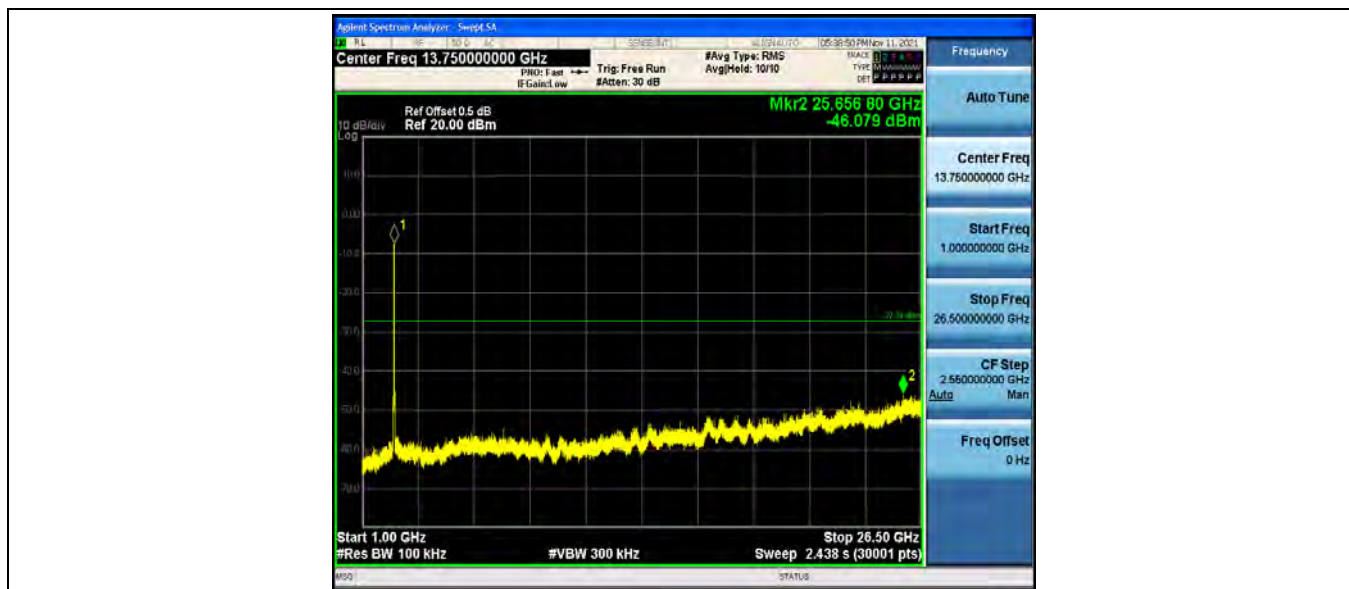
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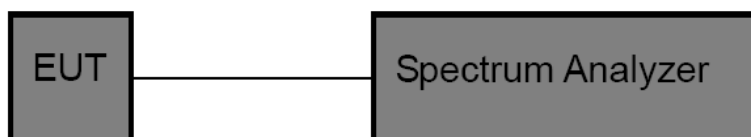
### 3.5. DTS Bandwidth

#### 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	$\geq 500$ 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)  $\geq 3$  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)  $\geq 3$  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	DTS BW [MHz]	Limit[MHz]	Verdict
802.11b	Ant1	2412	11.680	>=0.5	PASS
	Ant2	2412	12.640	>=0.5	PASS
	Ant1	2437	13.160	>=0.5	PASS
	Ant2	2437	13.080	>=0.5	PASS
	Ant1	2462	13.120	>=0.5	PASS
	Ant2	2462	13.120	>=0.5	PASS
802.11g	Ant1	2412	16.560	>=0.5	PASS
	Ant2	2412	16.480	>=0.5	PASS
	Ant1	2437	16.440	>=0.5	PASS
	Ant2	2437	16.440	>=0.5	PASS
	Ant1	2462	16.440	>=0.5	PASS
	Ant2	2462	16.440	>=0.5	PASS
802.11n(HT20)	Ant1	2412	17.160	>=0.5	PASS
	Ant2	2412	17.480	>=0.5	PASS
	Ant1	2437	17.200	>=0.5	PASS
	Ant2	2437	17.040	>=0.5	PASS
	Ant1	2462	17.120	>=0.5	PASS
	Ant2	2462	17.600	>=0.5	PASS
802.11n(HT40)	Ant1	2422	36.240	>=0.5	PASS
	Ant2	2422	36.480	>=0.5	PASS
	Ant1	2437	35.840	>=0.5	PASS
	Ant2	2437	36.560	>=0.5	PASS
	Ant1	2452	36.160	>=0.5	PASS
	Ant2	2452	36.240	>=0.5	PASS



802.11b\_Ant1\_2412



802.11b\_Ant2\_2412



802.11b\_Ant1\_2437



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802.11b\_Ant2\_2437



802.11b\_Ant1\_2462



802.11b\_Ant2\_2462



802.11g\_Ant1\_2412

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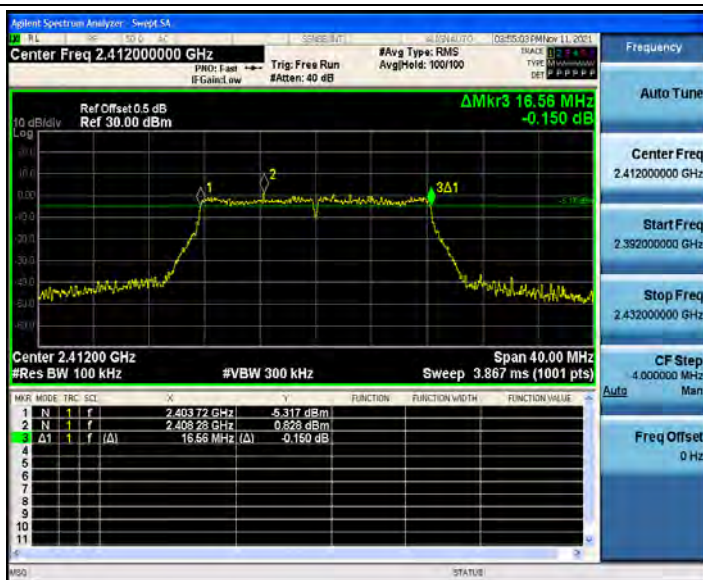
Fax: (86)755-27521011

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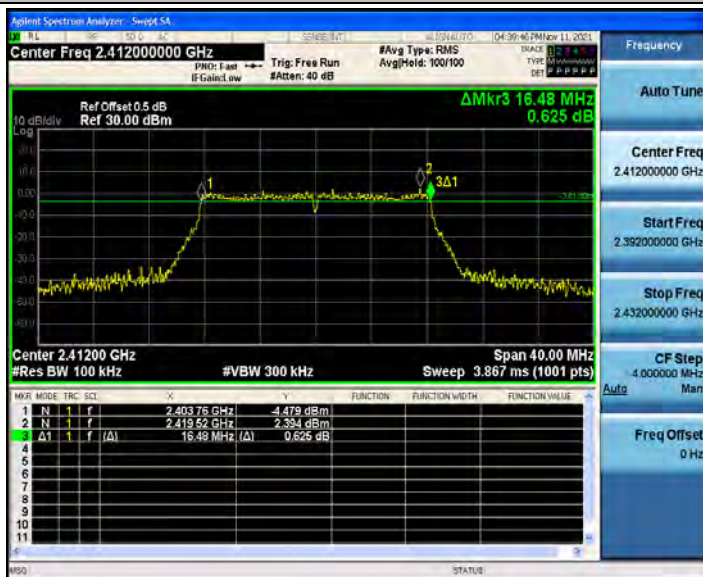


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802.11g\_Ant2\_2412



802.11g\_Ant1\_2437



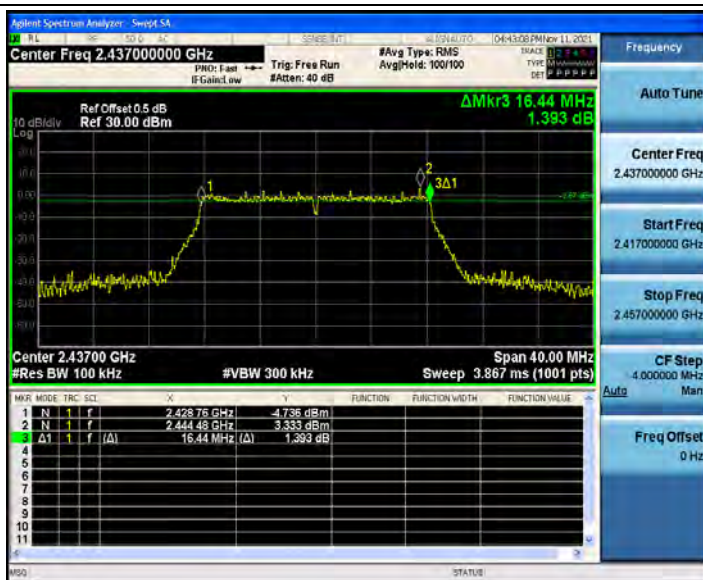
802.11g\_Ant2\_2437

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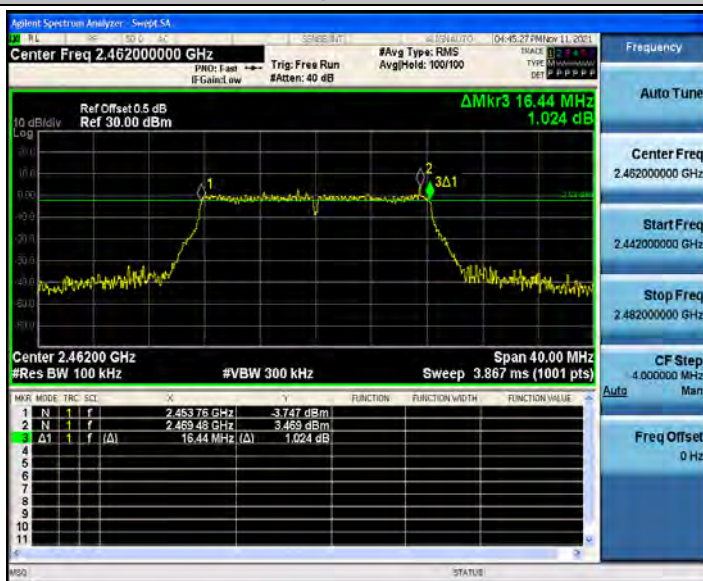




802.11g\_Ant1\_2462



802.11g\_Ant2\_2462



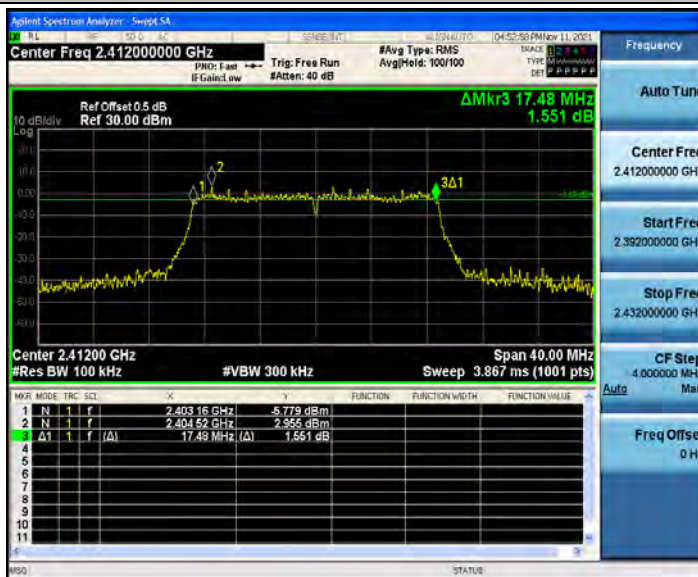
802.11n(HT20)\_Ant1\_2412







802.11n(HT20)\_Ant2\_2412



802.11n(HT20)\_Ant1\_2437



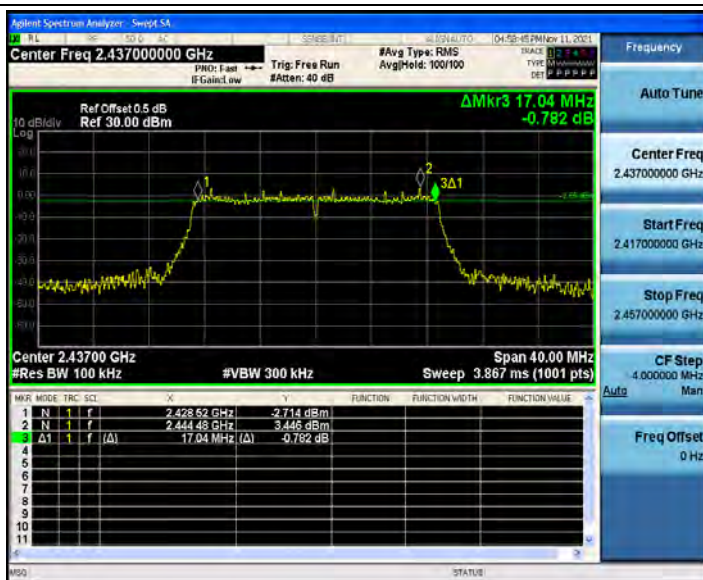
802.11n(HT20)\_Ant2\_2437

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802.11n(HT20)\_Ant1\_2462

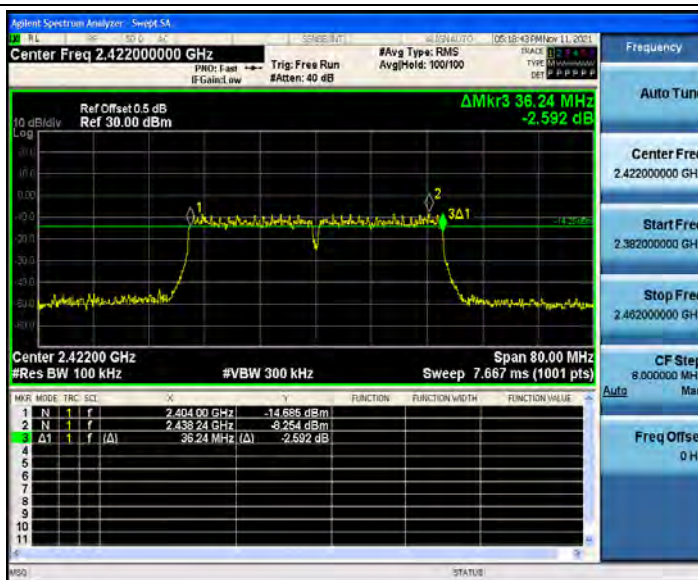


802.11n(HT20)\_Ant2\_2462

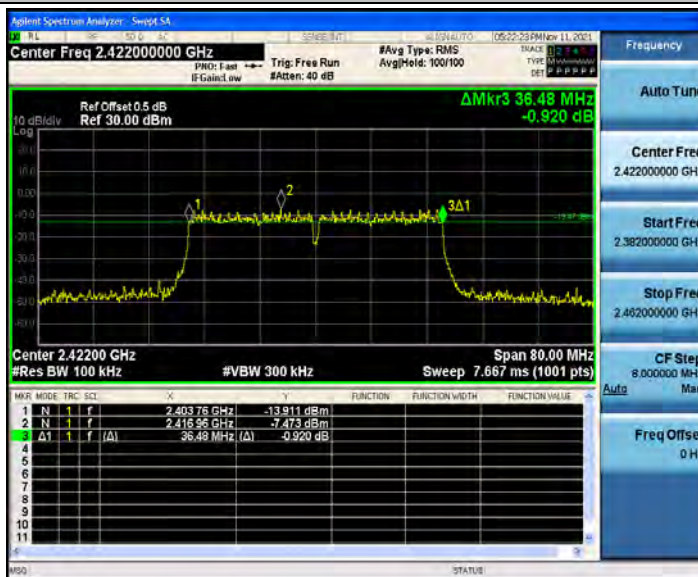


802.11n(HT40)\_Ant1\_2422

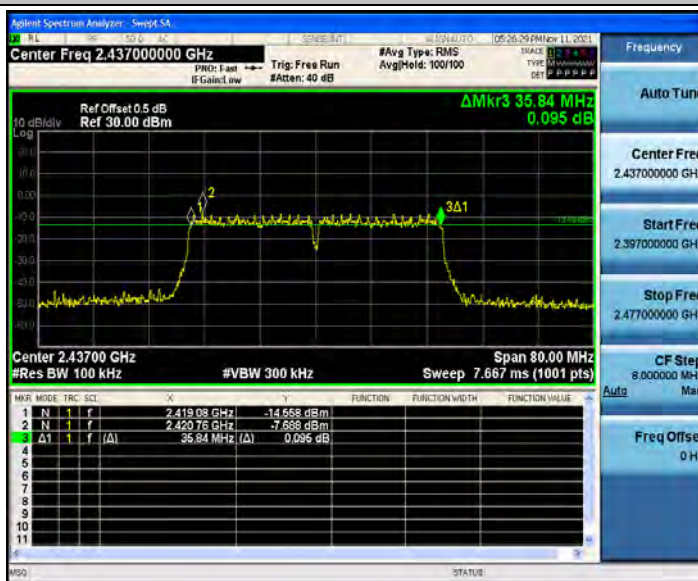




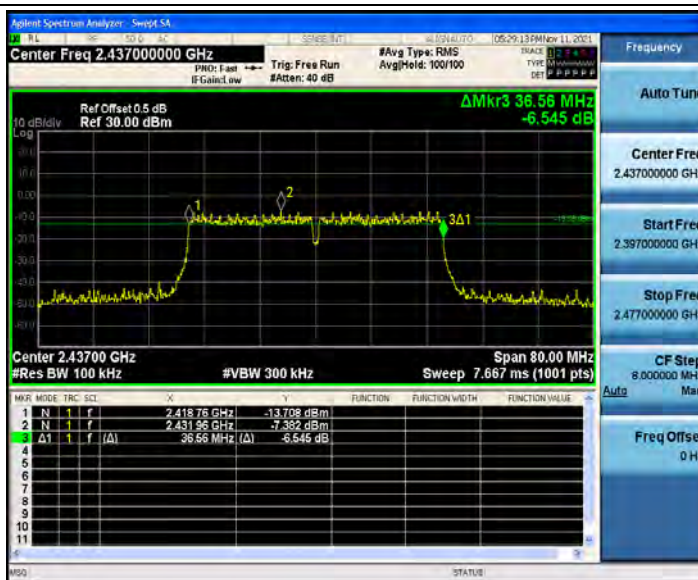
802.11n(HT40)\_Ant2\_2422



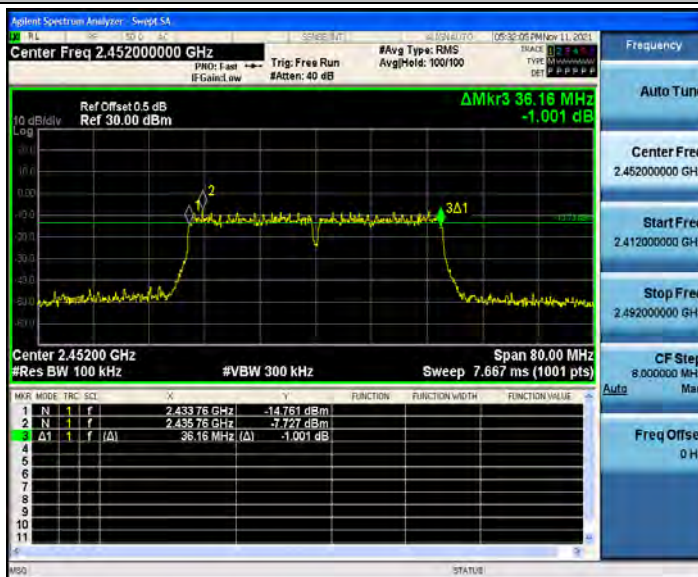
802.11n(HT40)\_Ant1\_2437



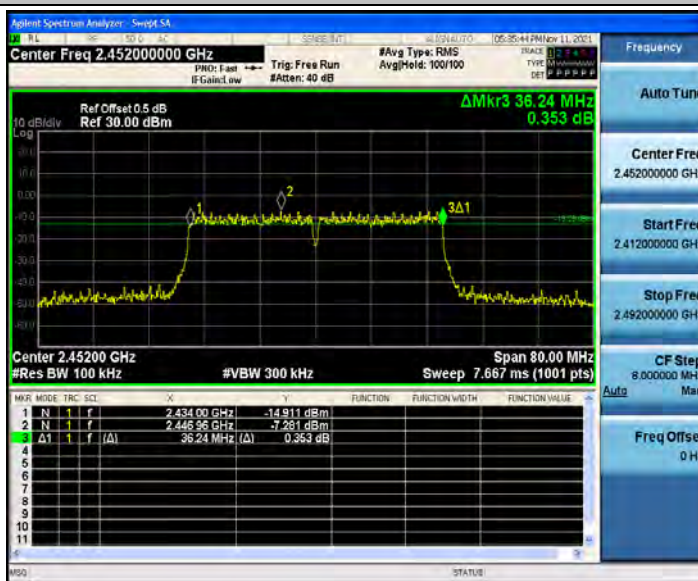
802.11n(HT40)\_Ant2\_2437



802.11n(HT40)\_Ant1\_2452



802.11n(HT40)\_Ant2\_2452







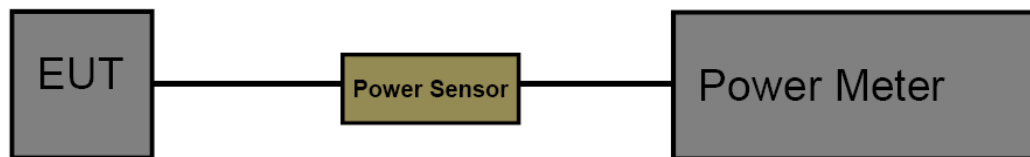
### 3.6. Peak Output Power

#### Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3)/ RSS-247 5.4:

Section	Test Item	Limit	Frequency Range(MHz)
CFR 47 FCC 15.247(b)(3)	Maximum conducted output power	1 Watt or 30dBm	2400~2483.5
ISED RSS-247 5.4 d	EIRP	4 Watt or 36dBm	2400~2483.5

#### Test Configuration



#### Test Procedure

1. The maximum conducted output power may be measured using a broadband Peak RF power meter.
2. Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor.
3. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.
4. Record the measurement data.

#### Test Mode

Please refer to the clause 2.4.

#### Test Result



Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
802.11b	Ant1	2412	15.23	<=30	PASS
	Ant2	2412	16.43	<=30	PASS
	Ant1	2437	15.16	<=30	PASS
	Ant2	2437	16.42	<=30	PASS
	Ant1	2462	14.86	<=30	PASS
	Ant2	2462	16.52	<=30	PASS
802.11g	Ant1	2412	10.48	<=30	PASS
	Ant2	2412	12.14	<=30	PASS
	Ant1	2437	10.51	<=30	PASS
	Ant2	2437	11.85	<=30	PASS
	Ant1	2462	10.33	<=30	PASS
	Ant2	2462	12.00	<=30	PASS
802.11n(HT20)	Ant1	2412	10.28	<=30	PASS
	Ant2	2412	11.61	<=30	PASS
	Total	2412	14.00	<=30	PASS
	Ant1	2437	10.35	<=30	PASS
	Ant2	2437	11.89	<=30	PASS
	Total	2437	14.20	<=30	PASS
	Ant1	2462	10.15	<=30	PASS
	Ant2	2462	12.01	<=30	PASS
	Total	2462	14.19	<=30	PASS
802.11n(HT40)	Ant1	2422	6.50	<=30	PASS
	Ant2	2422	7.79	<=30	PASS
	Total	2422	10.20	<=30	PASS
	Ant1	2437	7.32	<=30	PASS
	Ant2	2437	8.83	<=30	PASS
	Total	2437	11.15	<=30	PASS
	Ant1	2452	7.20	<=30	PASS
	Ant2	2452	8.88	<=30	PASS
	Total	2452	11.13	<=30	PASS

Note: 1. Test results increased RF cable loss by 0.5dB.



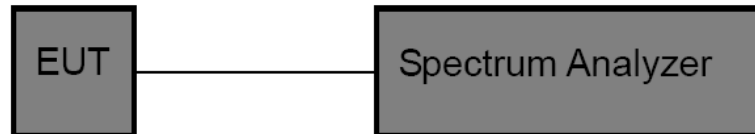
### 3.7. Power Spectral Density

#### Limit

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

Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
3. Spectrum Setting:  
Set analyzer center frequency to DTS channel center frequency.  
Set the span to 1.5 times the DTS bandwidth.  
Set the RBW to: 3 kHz  
Set the VBW to: 10 kHz  
Detector: PK  
Sweep time: Auto  
Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

#### Test Mode

Please refer to the clause 2.4.

**Test Result**

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
802.11b	Ant1	2412	-7.39	<=8	PASS
	Ant2	2412	-7.52	<=8	PASS
	Ant1	2437	-6.47	<=8	PASS
	Ant2	2437	-8.18	<=8	PASS
	Ant1	2462	-7.45	<=8	PASS
	Ant2	2462	-8.28	<=8	PASS
802.11g	Ant1	2412	-12.11	<=8	PASS
	Ant2	2412	-11.47	<=8	PASS
	Ant1	2437	-12.57	<=8	PASS
	Ant2	2437	-10.14	<=8	PASS
	Ant1	2462	-11.69	<=8	PASS
	Ant2	2462	-11.05	<=8	PASS
802.11n(HT20)	Ant1	2412	-12.58	<=8	PASS
	Ant2	2412	-11.66	<=8	PASS
	Total	2412	-9.09	<=7.20	PASS
	Ant1	2437	-12.17	<=8	PASS
	Ant2	2437	-10.26	<=8	PASS
	Total	2437	-8.10	<=7.20	PASS
	Ant1	2462	-13.82	<=8	PASS
	Ant2	2462	-12.72	<=8	PASS
	Total	2462	-10.23	<=7.20	PASS
802.11n(HT40)	Ant1	2422	-20.94	<=8	PASS
	Ant2	2422	-20.53	<=8	PASS
	Total	2422	-17.72	<=7.20	PASS
	Ant1	2437	-20.85	<=8	PASS
	Ant2	2437	-18.94	<=8	PASS
	Total	2437	-16.78	<=7.20	PASS
	Ant1	2452	-20.09	<=8	PASS
	Ant2	2452	-19.10	<=8	PASS
	Total	2452	-16.56	<=7.20	PASS

Note: The Directional Gain=6.80dBi > 6dBi. So  $P_{out} = P_{limit} - (G_{TX} - 6) = 8 - 0.80 = 7.20\text{dBm}$





802.11b\_Ant1\_2412



802.11b\_Ant2\_2412



802.11b\_Ant1\_2437



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802.11b\_Ant2\_2437



802.11b\_Ant1\_2462



802.11b\_Ant2\_2462



802.11g\_Ant1\_2412

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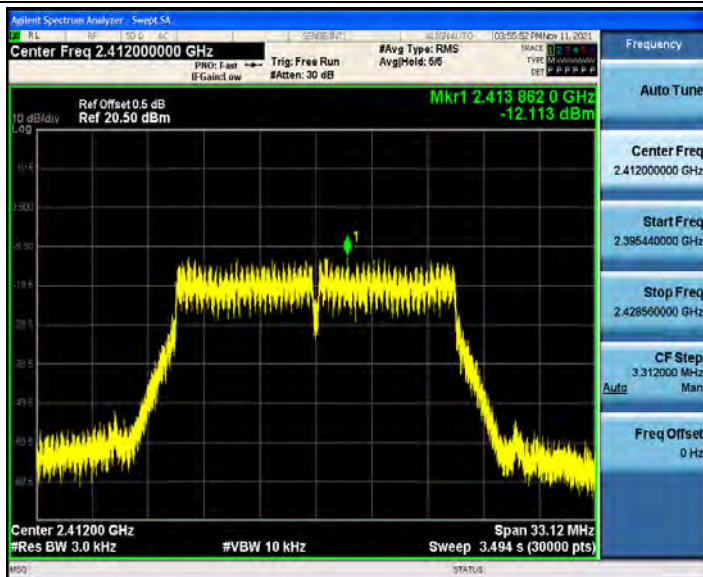
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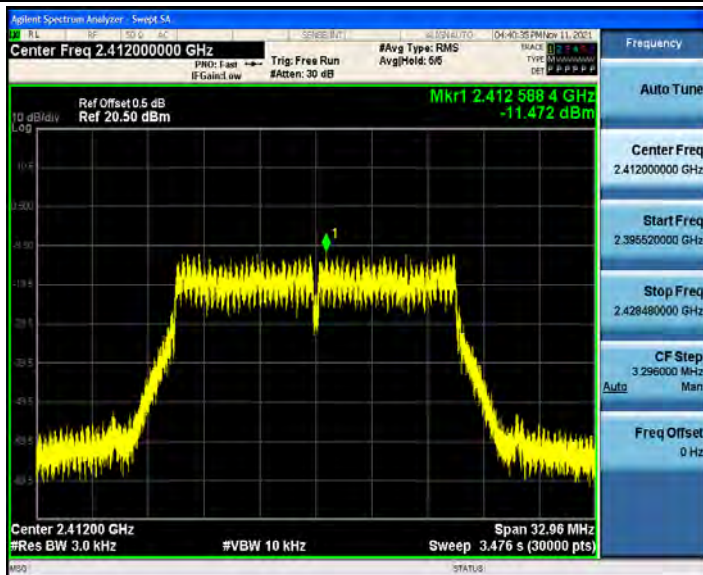


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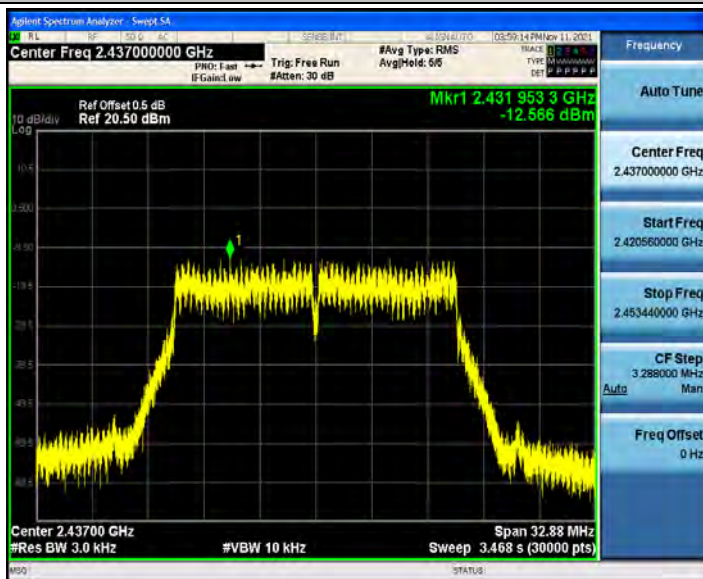




802.11g\_Ant2\_2412



802.11g\_Ant1\_2437



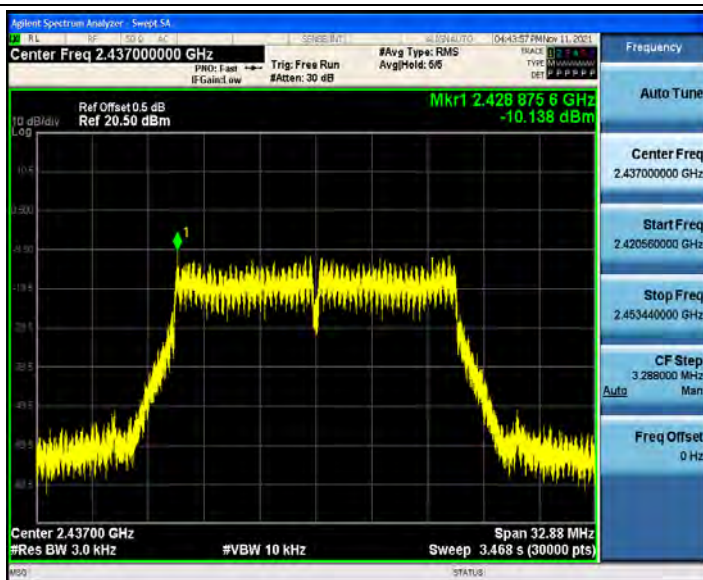
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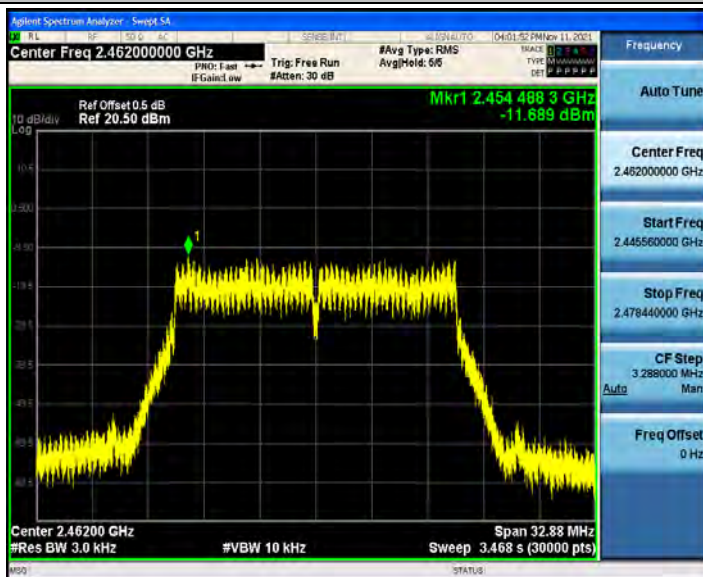
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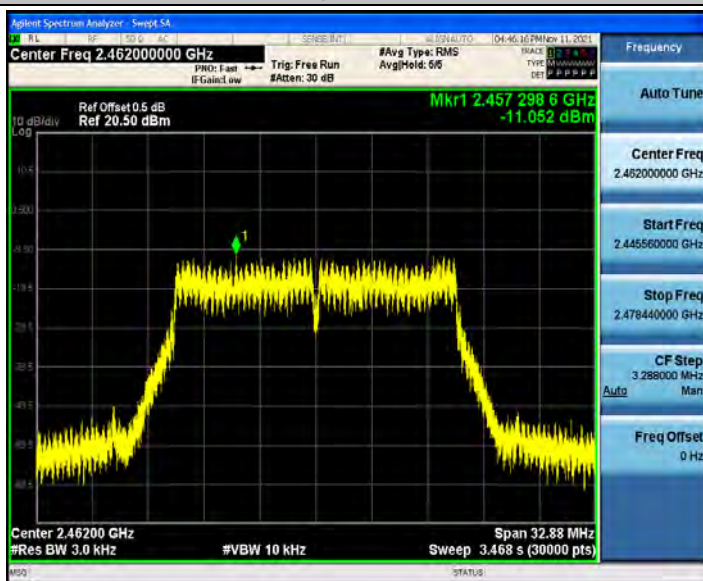
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802.11g\_Ant1\_2462



802.11g\_Ant2\_2462



802.11n(HT20)\_Ant1\_2412

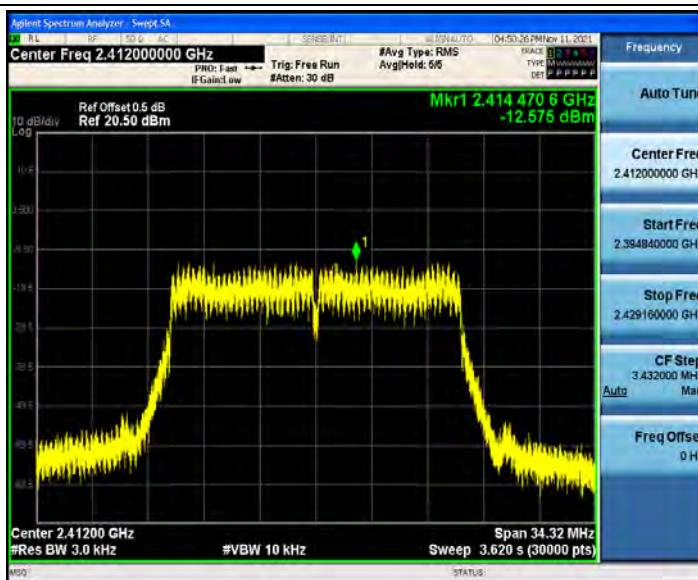
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802.11n(HT20)\_Ant2\_2412



802.11n(HT20)\_Ant1\_2437



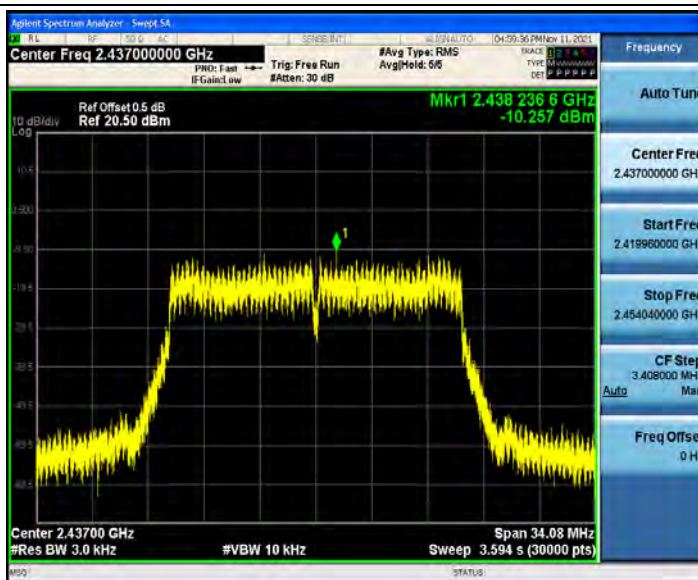
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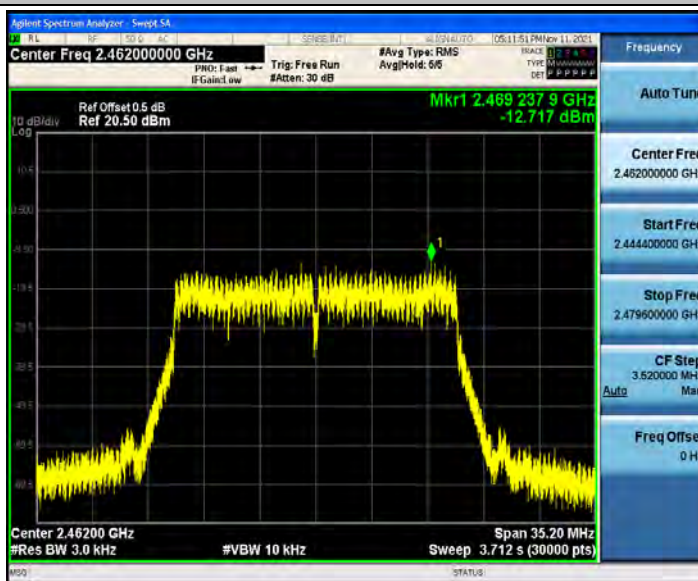
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802.11n(HT20)\_Ant1\_2462



802.11n(HT20)\_Ant2\_2462



802.11n(HT40)\_Ant1\_2422

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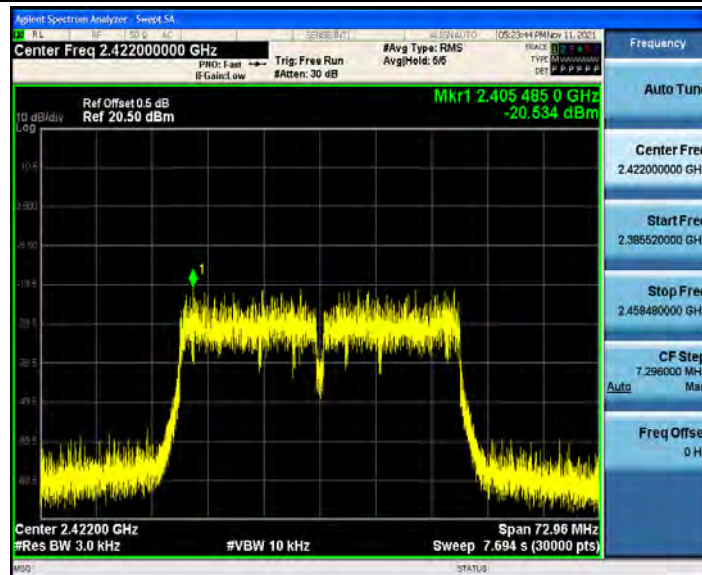


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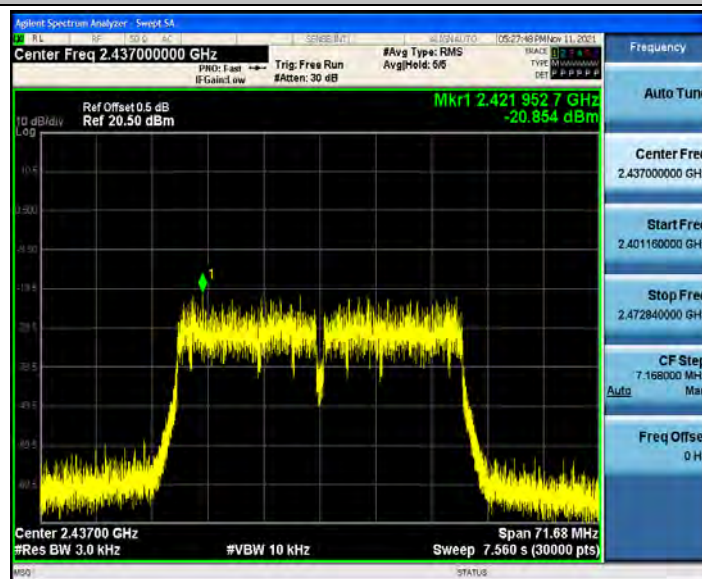




802.11n(HT40)\_Ant2\_2422



802.11n(HT40)\_Ant1\_2437



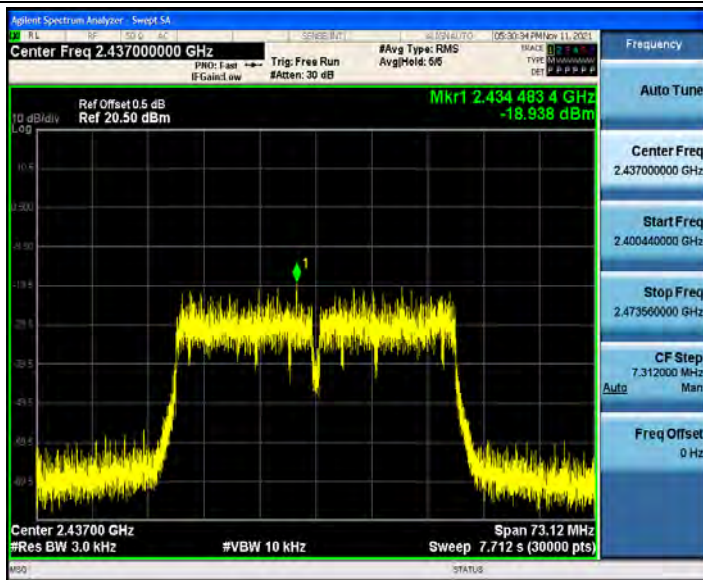
802.11n(HT40)\_Ant2\_2437

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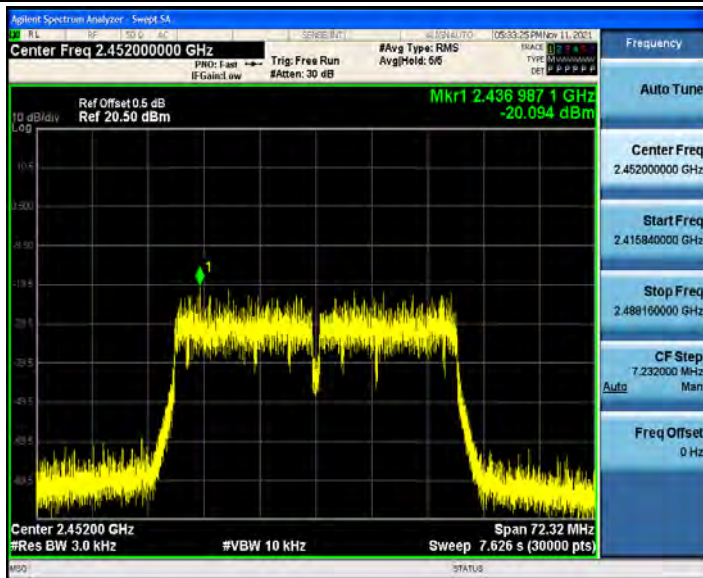
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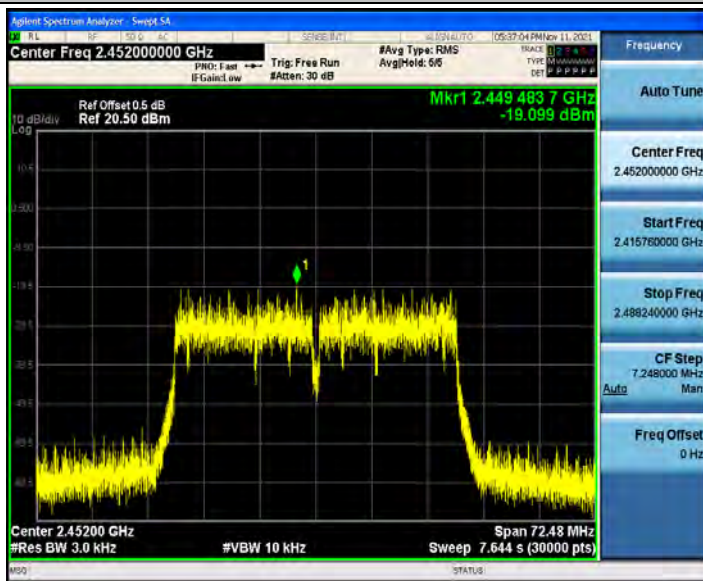
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802.11n(HT40)\_Ant1\_2452



802.11n(HT40)\_Ant2\_2452



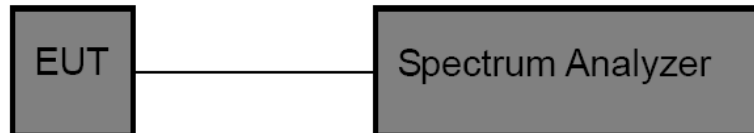


### 3.8. Duty Cycle

#### Limit

None, for report purposes only.

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
3. Spectrum Setting:  
Set analyzer center frequency to DTS channel center frequency.  
Set the span to 0Hz  
Set the RBW to 10MHz  
Set the VBW to 10MHz  
Detector: peak  
Sweep time: auto  
Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

#### Test Mode

Please refer to the clause 2.4.

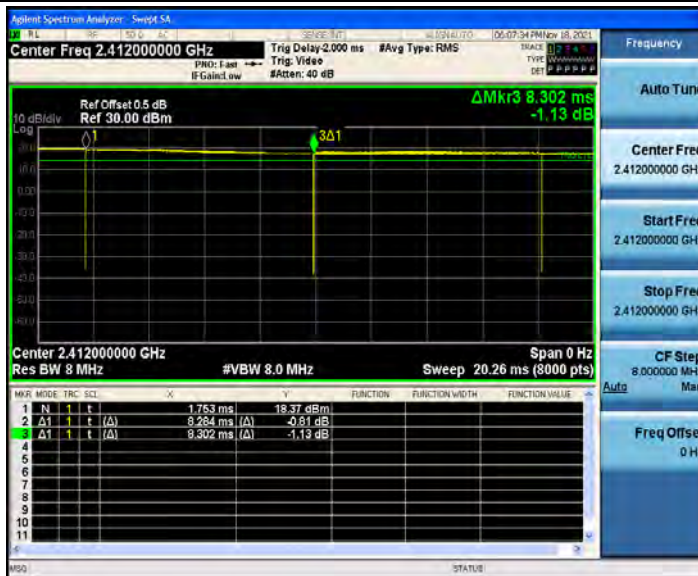
#### Test Result



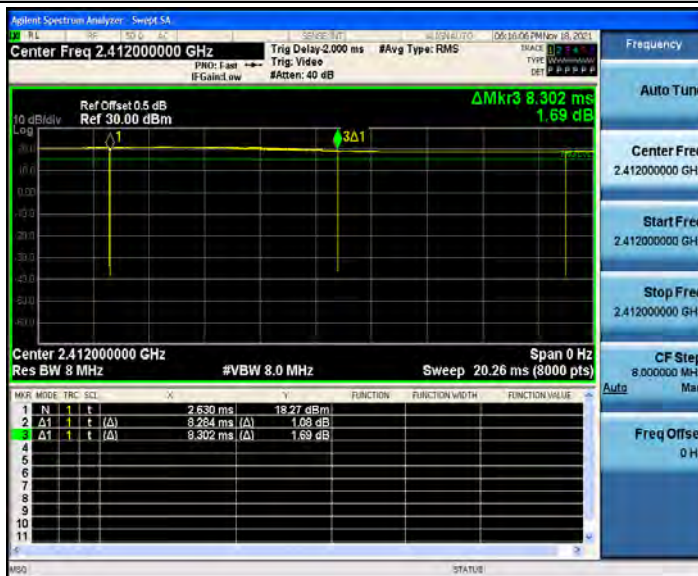
Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
802.11b	Ant1	2412	8.28	8.30	99.76	0.12	1
	Ant2	2412	8.28	8.30	99.76	0.12	1
	Ant1	2437	8.28	8.30	99.76	0.12	1
	Ant2	2437	8.28	8.30	99.76	0.12	1
	Ant1	2462	8.28	8.30	99.76	0.12	1
	Ant2	2462	8.28	8.30	99.76	0.12	1
802.11g	Ant1	2412	1.39	1.40	99.29	0.72	1
	Ant2	2412	1.39	1.40	99.29	0.72	1
	Ant1	2437	1.39	1.40	99.29	0.72	1
	Ant2	2437	1.39	1.40	99.29	0.72	1
	Ant1	2462	1.39	1.40	99.29	0.72	1
	Ant2	2462	1.39	1.40	99.29	0.72	1
802.11n(HT20)	Ant1	2412	1.30	1.31	99.24	0.77	1
	Ant2	2412	1.30	1.31	99.24	0.77	1
	Ant1	2437	1.39	1.40	99.29	0.72	1
	Ant2	2437	1.39	1.40	99.29	0.72	1
	Ant1	2462	1.39	1.40	99.29	0.72	1
	Ant2	2462	1.39	1.40	99.29	0.72	1
802.11n(HT40)	Ant1	2422	0.10	0.11	90.91	10.00	10
	Ant2	2422	0.10	0.11	90.91	10.00	10
	Ant1	2437	0.10	0.11	90.91	10.00	10
	Ant2	2437	0.10	0.11	90.91	10.00	10
	Ant1	2452	0.10	0.11	90.91	10.00	10
	Ant2	2452	0.10	0.11	90.91	10.00	10



802.11b\_Ant1\_2412



802.11b\_Ant2\_2412



802.11b\_Ant1\_2437



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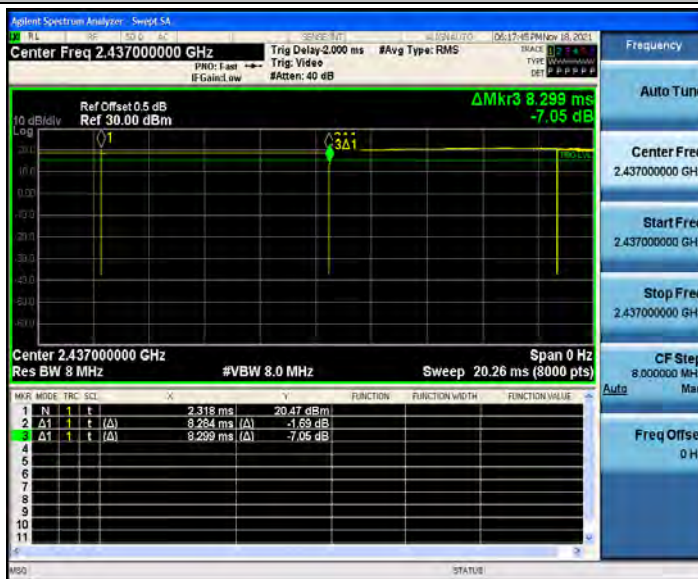
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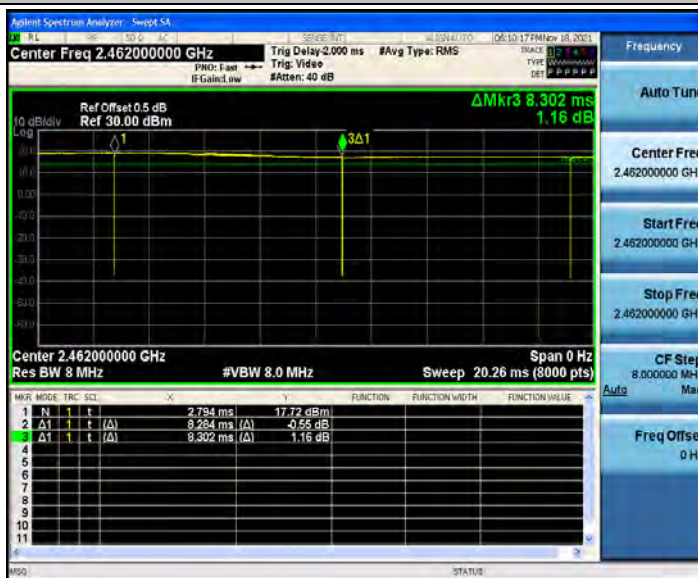




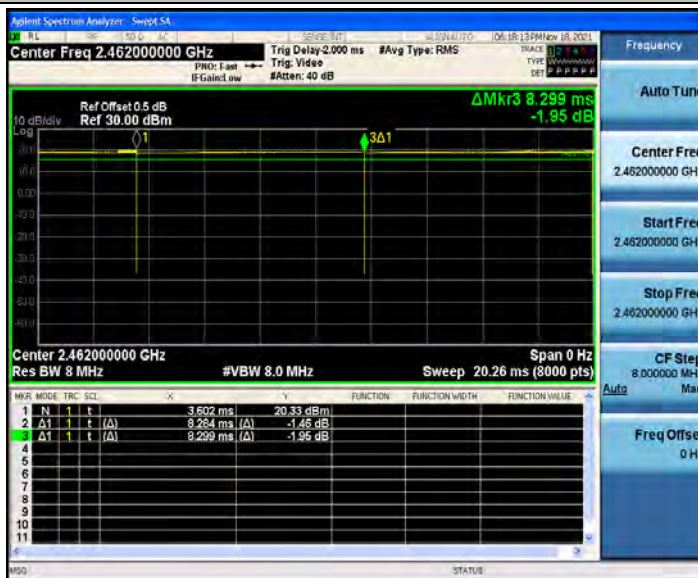
802.11b\_Ant2\_2437



802.11b\_Ant1\_2462



802.11b\_Ant2\_2462



802.11g\_Ant1\_2412

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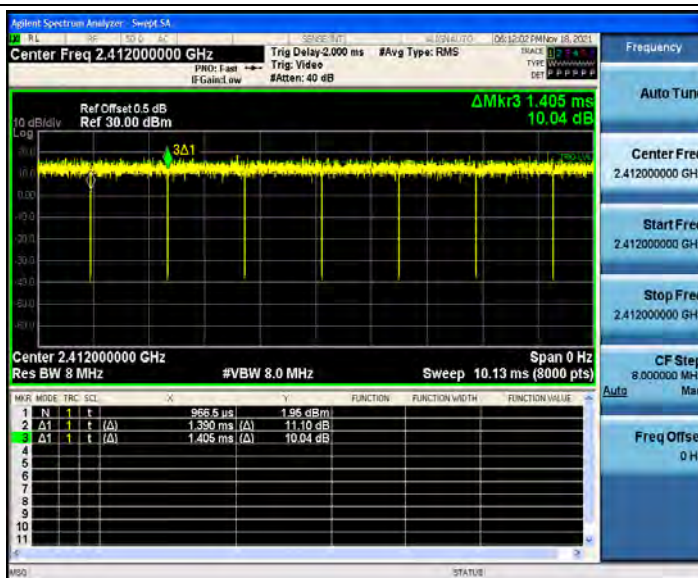
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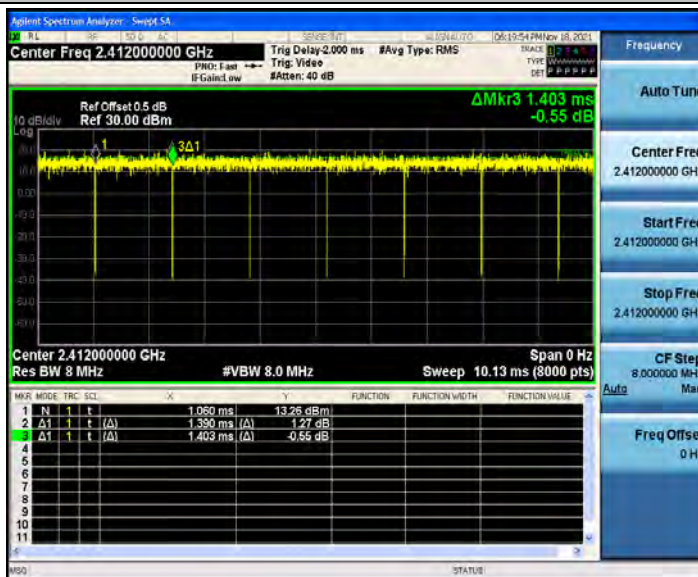


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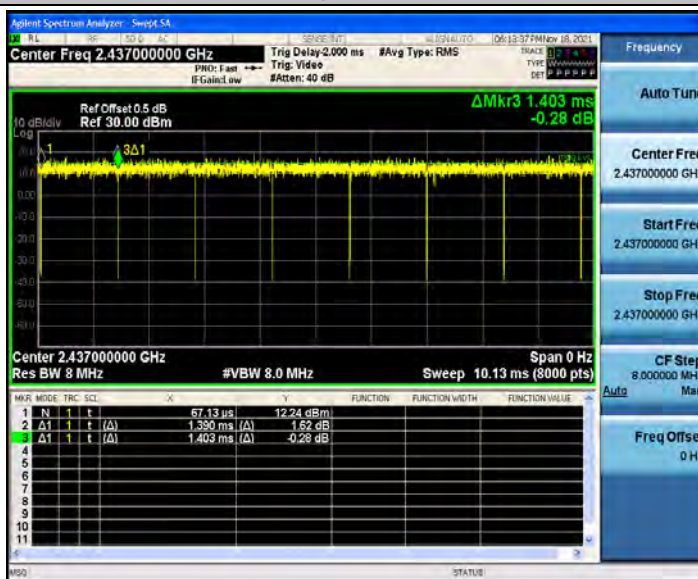




802.11g\_Ant2\_2412



802.11g\_Ant1\_2437



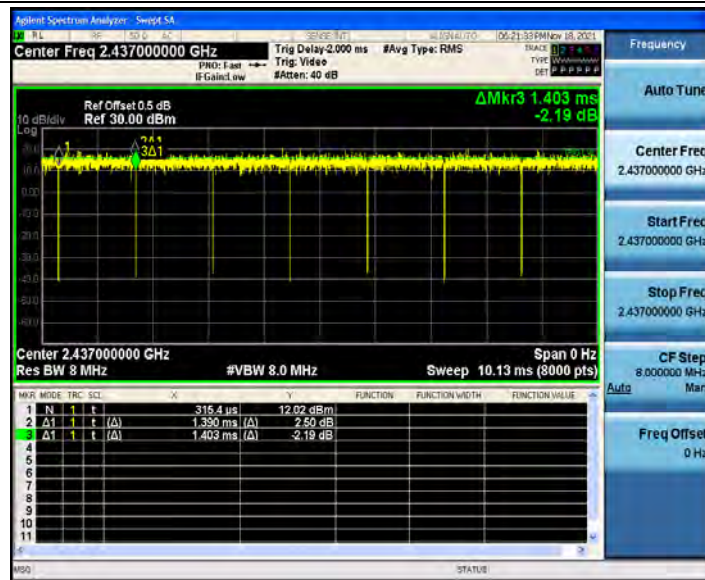
802.11g\_Ant2\_2437

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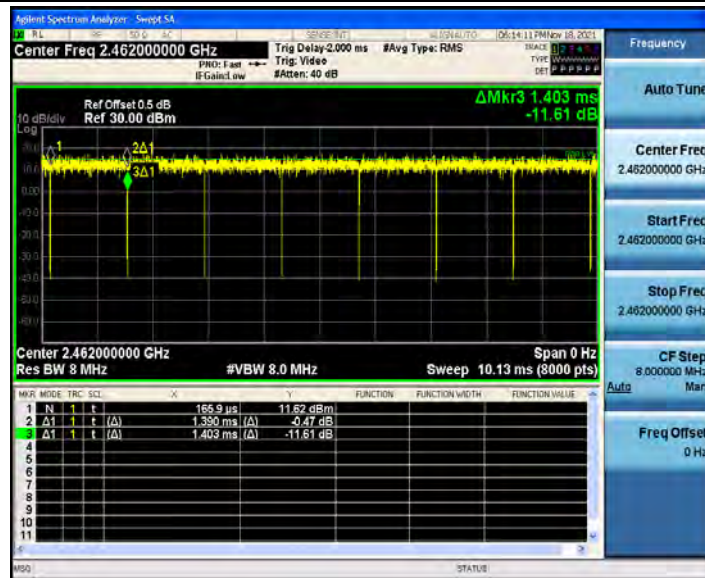
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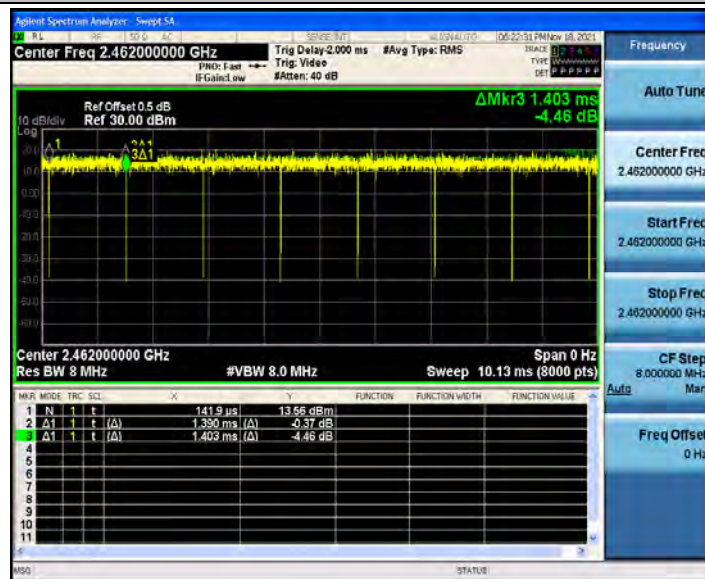




802.11g\_Ant1\_2462



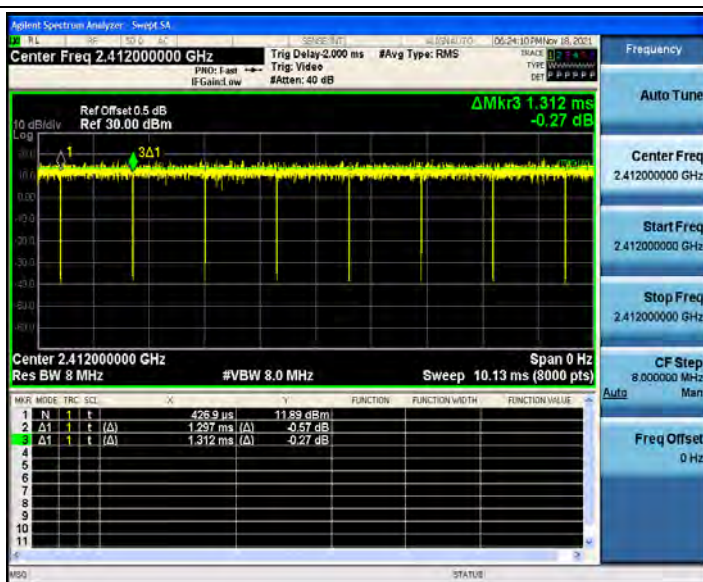
802.11g\_Ant2\_2462



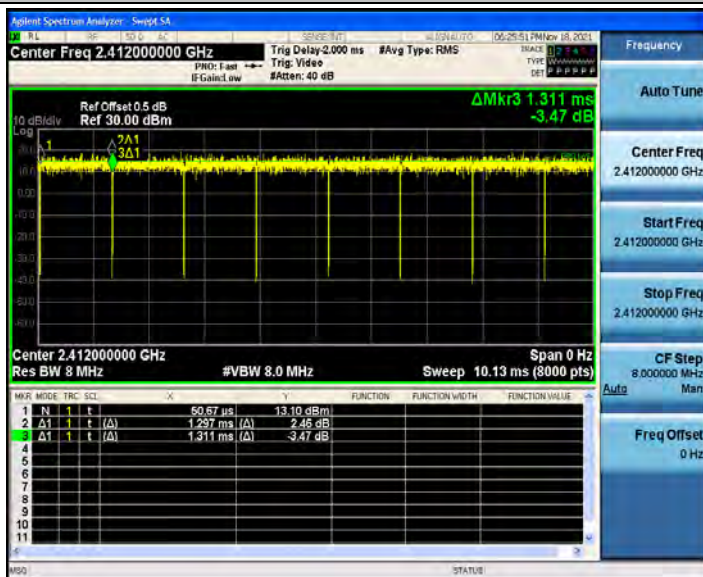
802.11n(HT20)\_Ant1\_2412



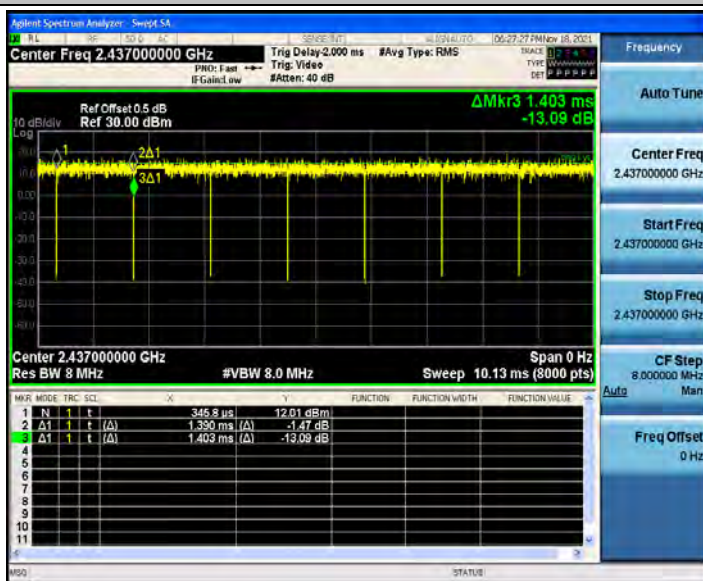




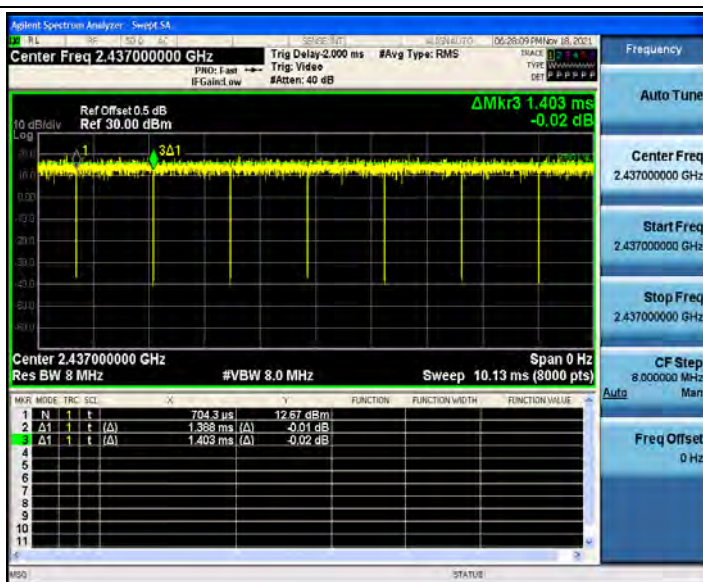
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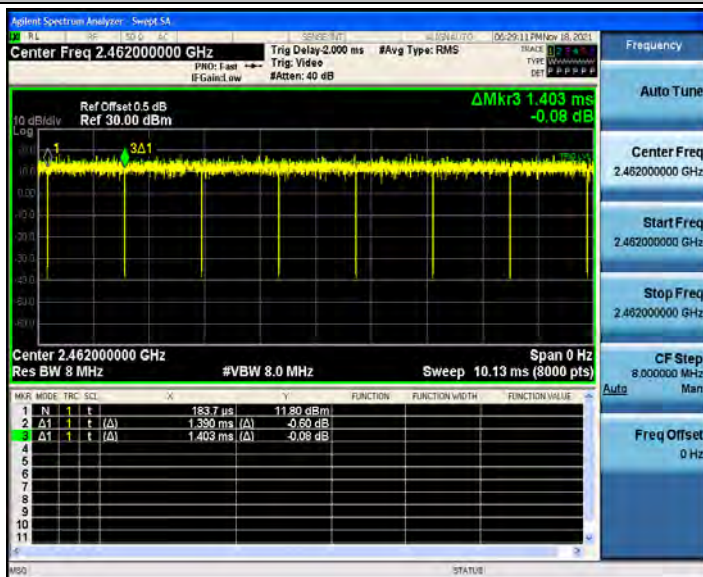
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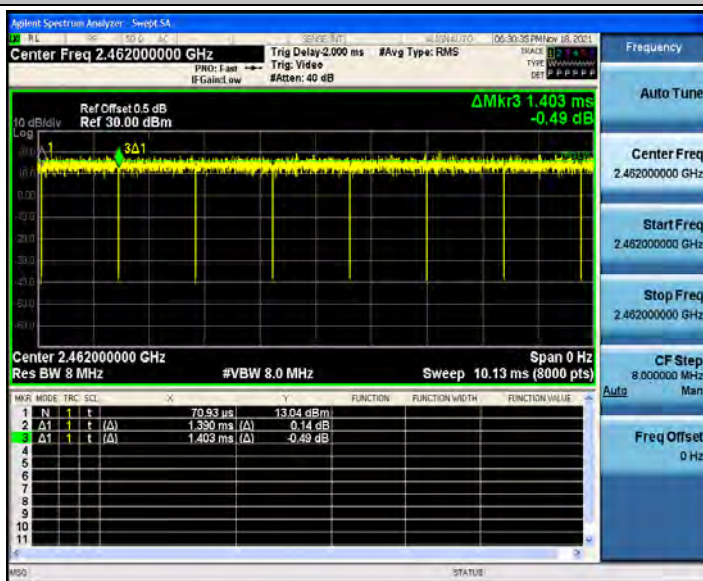
802.11n(HT20)\_Ant2\_2437



802.11n(HT20)\_Ant1\_2462



802.11n(HT20)\_Ant2\_2462



802.11n(HT40)\_Ant1\_2422

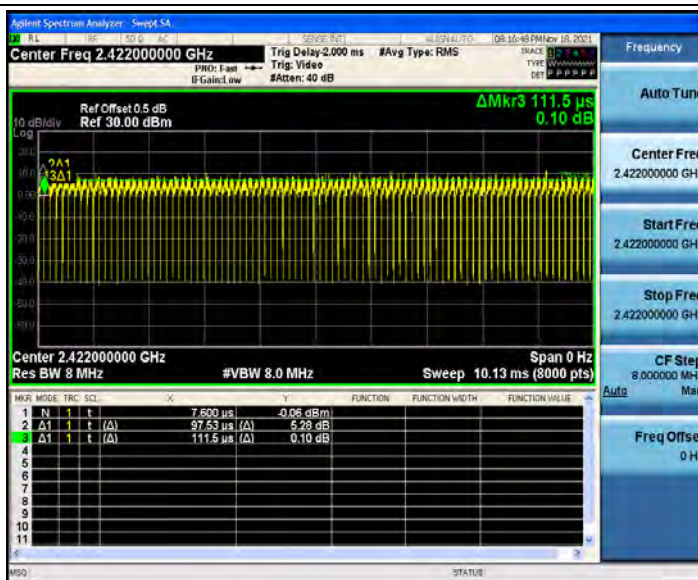
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Tel.: (86)755-27521059

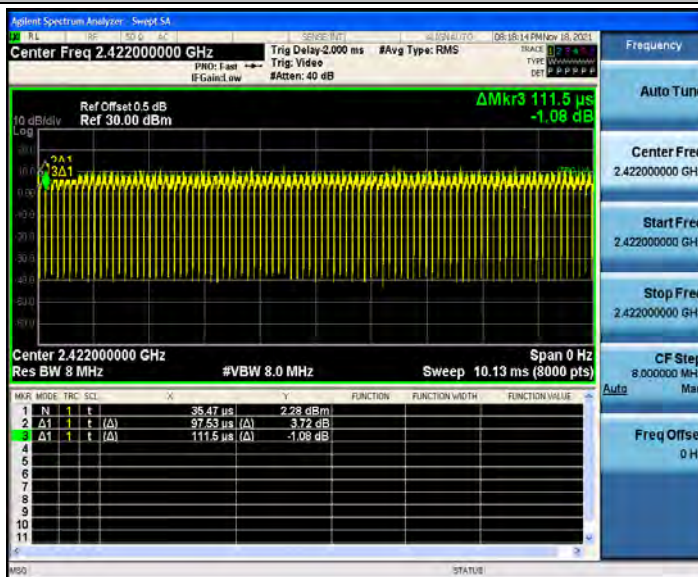
Fax: (86)755-27521011 Http://www.sz-ctc.org.cn  
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cnca.cn](http://yz.cnca.cn)



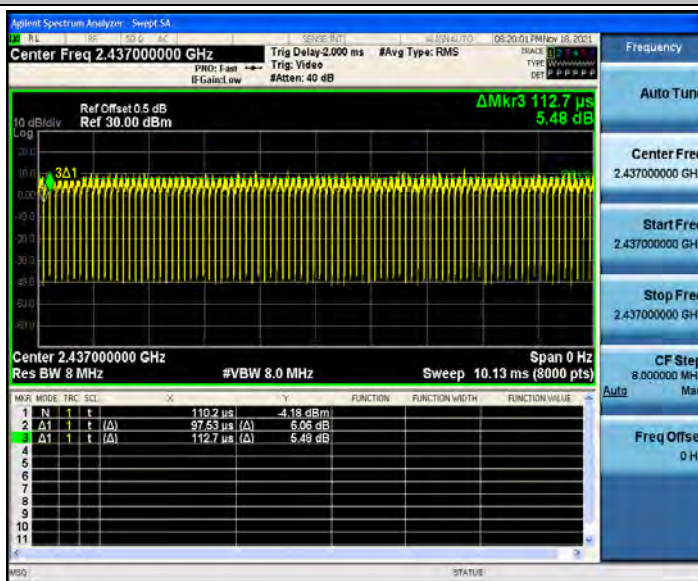




802.11n(HT40)\_Ant2\_2422



802.11n(HT40)\_Ant1\_2437



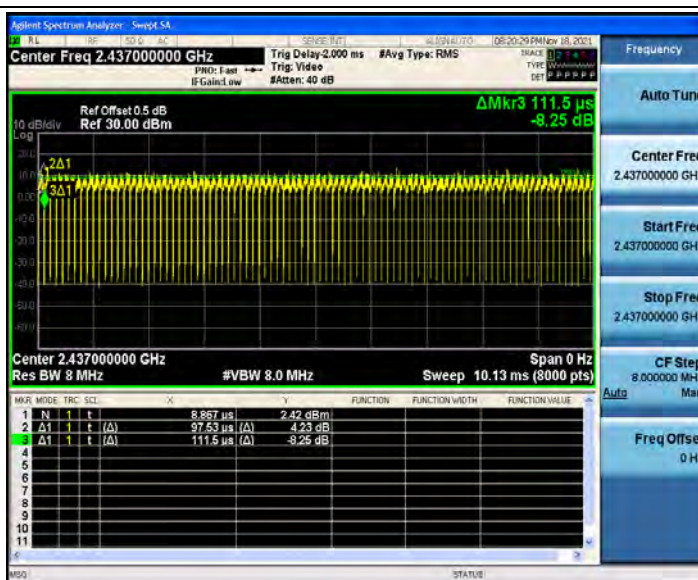
802.11n(HT40)\_Ant2\_2437

CTC Laboratories, Inc.

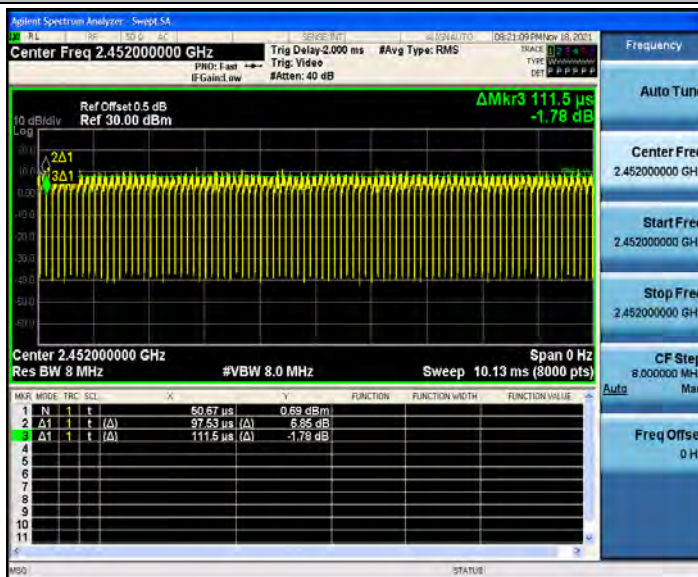
1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China  
Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn



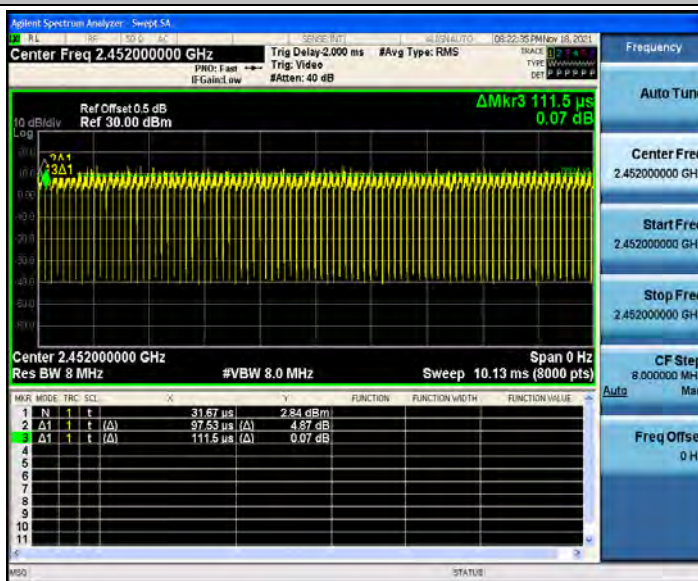
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : [yz.cnca.cn](http://yz.cnca.cn)



802.11n(HT40)\_Ant1\_2452



802.11n(HT40)\_Ant2\_2452





### 3.9. Antenna requirement

#### Requirement

**FCC CFR Title 47 Part 15 Subpart C Section 15.203:**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

**FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):**

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

#### Test Result

The directional gain of the antenna 6.8dBi, please refer to the EUT internal photographs antenna photo.

\*\*\*\*\*THE END\*\*\*\*\*