



# CTC Laboratories, Inc.

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## TEST REPORT

**Report No.** ..... : **CTC20231341E03**

**FCC ID**..... : **WNA-HP46H**

**Applicant** ..... : **Shenzhen Skyworth Digital Technology Co.,LTD**

Address..... : 14/F,Block A,Skyworth Building,Gaoxin Ave.1.S.,Nanshan District,Shenzhen,China

Manufacturer..... : Shenzhen Skyworth Digital Technology Co.,LTD

Address..... : 14/F,Block A,Skyworth Building,Gaoxin Ave.1.S.,Nanshan District,Shenzhen,China

**Product Name** ..... : **4K UHD Streaming TV Box**

Trade Mark ..... : SKYWORTH, STRONG, QVWI, MECOOL, XG500, Next, NEXT, 9MAX, coocaa, COOCOA, TESLA, SVI studio, QQBOX

Model/Type reference..... : HP46H

Listed Model(s) ..... : Leap-S3, LEAP-S3, Leap S3, MECOOL, THOMSON, KM7 PLUS, THA 200, THA200, XG500, Start-4K, 9MAX, ATBOX001 THE ULTRA, atbox001 the ultra, QQBOX s100

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

Date of receipt of test sample..... : Jul. 01, 2023

Date of testing..... : Jul. 01, 2023 ~ Jul. 12, 2023

Date of issue..... : Aug. 03, 2023

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

Compiled by:

(Printed name+signature)

Lucy Lan

Supervised by:

(Printed name+signature)

Eric Zhang

Approved by:

(Printed name+signature)

Totti Zhao

**Testing Laboratory Name** ..... : **CTC Laboratories, Inc.**

Address..... : 2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, 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 902–928MHz, 2400–2483.5MHz, and 5725–5850MHz.

[ANSI C63.10-2013](#): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

## 1.2. Report Version

Revised No.	Date of issue	Description
01	Aug. 03, 2023	Original

## 1.3. Test Description

FCC Part 15 Subpart C (15.247)			
Test Item	Standard Section	Result	Test Engineer
Antenna Requirement	15.203	Pass	Lucy
Conducted Emission	15.207	Pass	Lucy
Conducted Band Edge and Spurious Emissions	15.247(d)	Pass	Lucy
Radiated Band Edge and Spurious Emissions	15.205&15.209&15.247(d)	Pass	Lucy
6dB Bandwidth	15.247(a)(2)	Pass	Lucy
Conducted Max Output Power	15.247(b)(3)	Pass	Lucy
Power Spectral Density	15.247(e)	Pass	Lucy
Transmitter Radiated Spurious	15.209&15.247(d)	Pass	Lucy

Note:

- The measurement uncertainty is not included in the test result.
- N/A: means this test item is not applicable for this device according to the technology characteristic of device.



## 1.4. Test Facility

### Address of the report laboratory

#### CTC Laboratories, Inc.

Add: 2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, 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 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
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:	15 °C to 35 °C
Relative Humidity:	20 % to 75 %
Air Pressure:	101 kPa



## 2. GENERAL INFORMATION

### 2.1. Client Information

Applicant:	Shenzhen Skyworth Digital Technology Co.,LTD
Address:	14/F,Block A,Skyworth Building,Gaoxin Ave.1.S.,Nanshan District,Shenzhen,China
Manufacturer:	Shenzhen Skyworth Digital Technology Co.,LTD
Address:	14/F,Block A,Skyworth Building,Gaoxin Ave.1.S.,Nanshan District,Shenzhen,China
Factory:	Shenzhen Skyworth Digital Technology Co.,LTD
Address:	14/F,Block A,Skyworth Building,Gaoxin Ave.1.S.,Nanshan District,Shenzhen,China

### 2.2. General Description of EUT

Product Name:	4K UHD Streaming TV Box
Trade Mark:	SKYWORTH, STRONG, QVWI, MECOOL, XG500, Next, NEXT, 9MAX, coocaa, COOCOA, TESLA, SVI studio, QQBOX
Model/Type reference:	HP46H
Listed Model(s):	Leap-S3, LEAP-S3, Leap S3, MECOOL, THOMSON, KM7 PLUS, THA 200, THA200, XG500, Start-4K, 9MAX, ATBOX001 THE ULTRA, atbox001 the ultra, QQBOX s100
Model Difference:	All these models are identical in the same PCB, layout and electrical circuit, Different is Trade Mark and model number.
Power Supply:	DC12V 1A from AC/DC Adapter
Adapter Model 1:	YS-SKY120100U00P <sup>Note1</sup> Input: 100-240Vac 50/60Hz 0.5A Output:12Vdc 1A
Adapter Model 2:	RJ-SKY120100U00S <sup>Note2</sup> Input: 100-240Vac 50/60Hz 0.5A Output:12Vdc 1A
Hardware Version:	/
Software Version:	/

Note:

1. YS-SKY120100U0XP, (where X represents for marketing purpose with no safety impact, it can be 0-9)
2. RJ-SKY120100UXXS (XX=00-99, stands for customer code)



2.4G Wi-Fi	
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): 11 channels 802.11n(HT40): 7 channels
Channel Separation:	5MHz
Antenna Type:	PCBA Antenna
Antenna Gain:	2.6dBi



## 2.3. Accessory Equipment Information

Equipment Information			
Name	Model	S/N	Manufacturer
Notebook	ThinkBook 14G3 ACL	MP246QDR	Lenovo
Displayer	EW3270-T	EW3270U	BenQ
Cable Information			
Name	Shielded Type	Ferrite Core	Length
LAN Cable	Without	Without	1.5M
HDMI Cable	Without	Without	1.5M
Test Software Information			
Name	Version	/	/
SecureCRT	/	/	/





## 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 the worsted case mode.

Test Mode	Data Rate (worst mode)
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)/ (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 RF Test System					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	MXA Signal Analyzer	Keysight	N9020A	MY46471737	Dec. 16, 2023
2	Spectrum Analyzer	R&S	FSU26	100105	Dec. 16, 2023
3	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 14, 2024
4	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 16, 2023
5	PSG Analog Signal Generator	Agilent	E8257D	MY46521908	Dec. 16, 2023
6	Power Sensor	Keysight	U2021XA	MY55130004	Mar. 14, 2024
7	Power Sensor	Keysight	U2021XA	MY55130006	Mar. 14, 2024
8	Wideband Radio Communication Tester	R&S	CMW500	102414	Dec. 16, 2023
9	High and low temperature box	ESPEC	MT3035	/	Mar. 24, 2024
10	JS1120 RF 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	Dec. 07, 2024
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-648	Dec. 07, 2024
3	Spectrum Analyzer	R&S	FSU26	100105	Dec. 16, 2023
4	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 14, 2024
5	Pre-Amplifier	SONOMA	310	186194	Dec. 16, 2023
6	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 16, 2023
7	Test Receiver	R&S	ESC17	100967	Dec. 16, 2023
8	3m chamber 2	Frankonia	EE025	/	Oct. 23, 2024

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. 16, 2023
4	Broadband Premplifier	SCHWARZBECK	BBV9743B	259	Dec. 16, 2023
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 16, 2023
6	3m chamber 3	YIHENG	EE106	/	Sep. 09, 2023

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Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	LISN	R&S	ENV216	101112	Dec. 16, 2023
2	LISN	R&S	ENV216	101113	Dec. 16, 2023
3	EMI Test Receiver	R&S	ESCS30	100353	Dec. 16, 2023
4	ISN CAT6	Schwarzbeck	NTFM 8158	CAT6-8158-0046	Dec. 16, 2023
5	ISN CAT5	Schwarzbeck	NTFM 8158	CAT5-8158-0046	Dec. 16, 2023

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

2. The Cal. Interval was three years of the antenna.

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

### 3. TEST ITEM AND RESULTS

#### 3.1. Conducted Emission

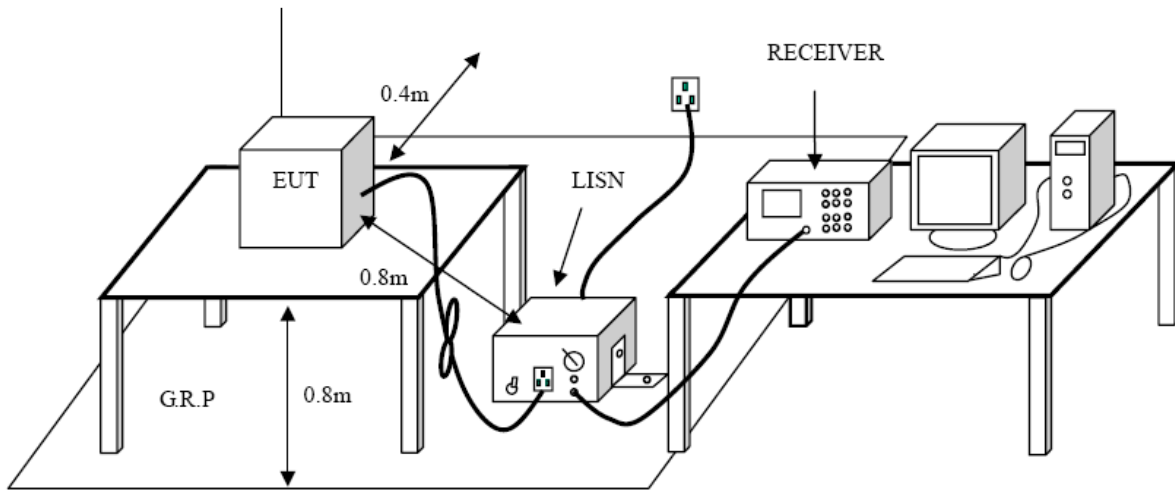
**Limit**

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency (MHz)	Conducted Limit (dBμV)	
	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 impedance stabilization network (LISN). The LISN provides a 50 ohm / 50 μH coupling impedance for the measuring equipment.
4. 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)
5. 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.
6. 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.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

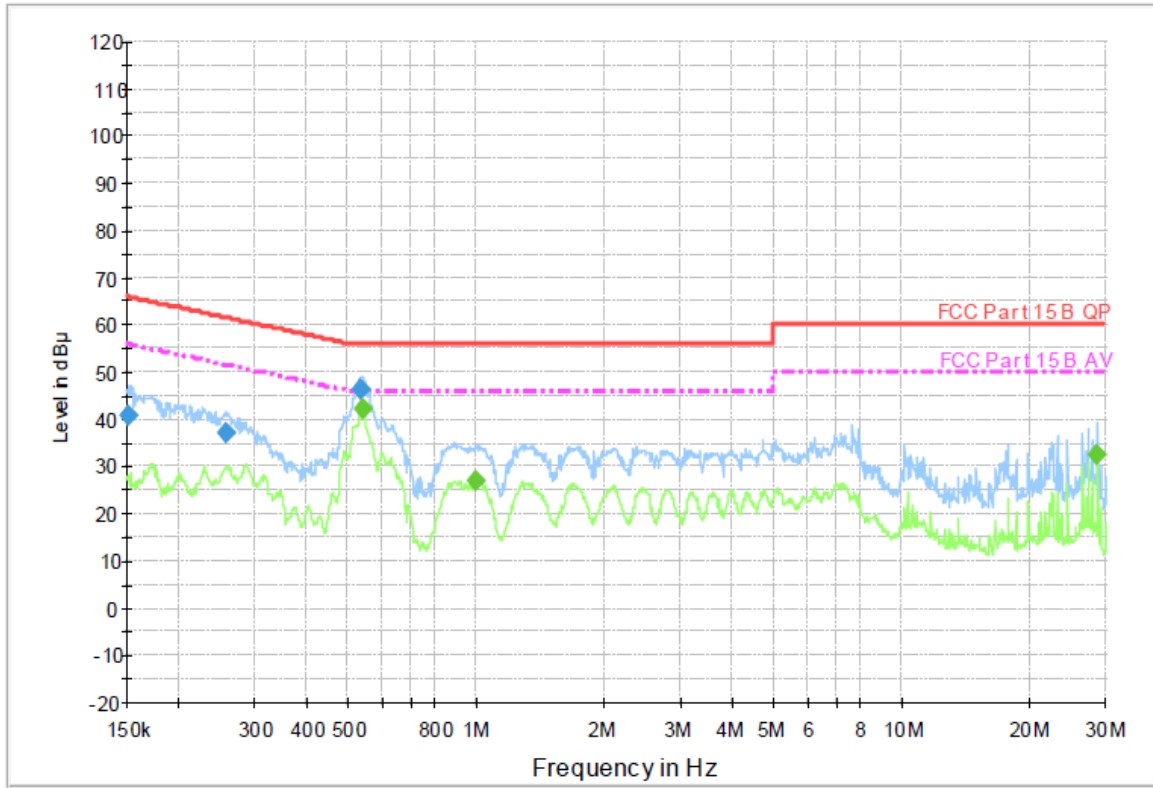
**Test Mode**

Please refer to the clause 2.4.



**Test Result**

<b>Test Voltage:</b>	AC 120V/60Hz
<b>Terminal:</b>	Line
<b>Remark:</b>	Only worse case is reported



**Final Measurement Detector 1**

Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.151810	41.0	1000.00	9.000	On	L1	9.7	24.9	65.9	
0.256100	36.9	1000.00	9.000	On	L1	9.7	24.7	61.6	
0.533840	46.2	1000.00	9.000	On	L1	9.7	9.8	56.0	

**Final Measurement Detector 2**

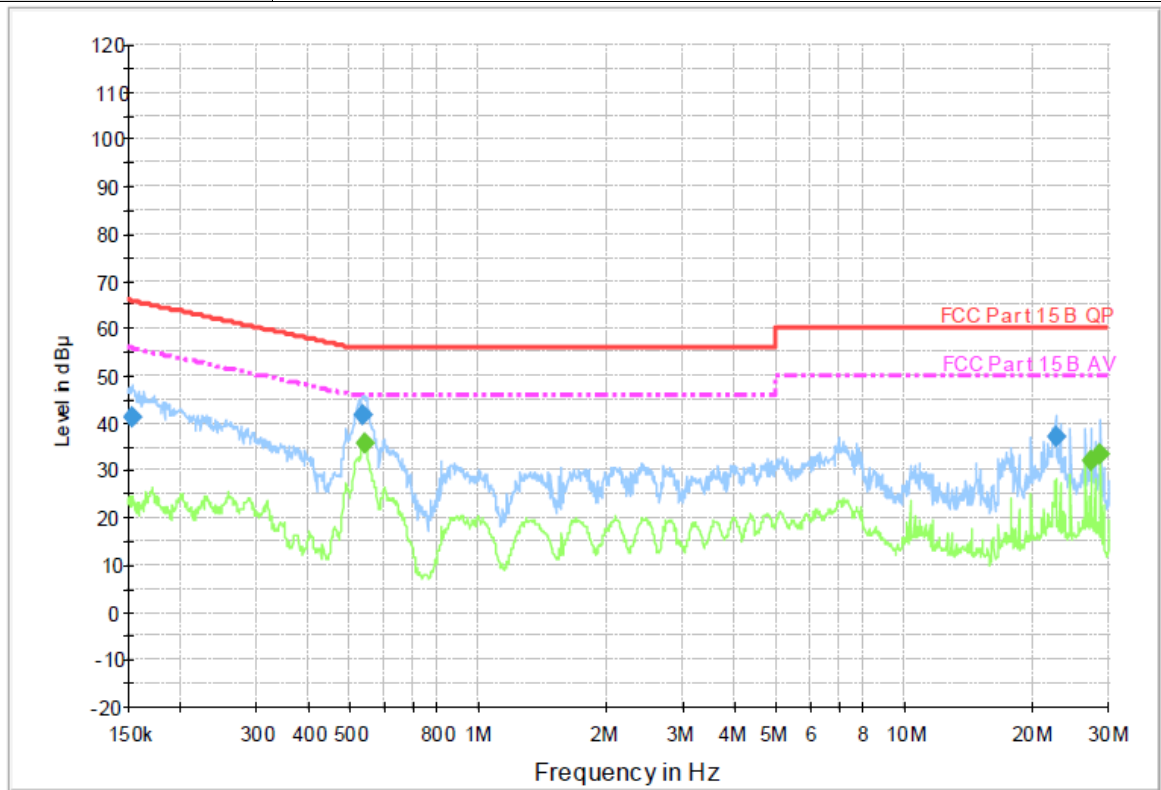
Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.540270	42.3	1000.00	9.000	On	L1	9.7	3.7	46.0	
0.991150	27.1	1000.00	9.000	On	L1	9.7	18.9	46.0	
28.685180	32.3	1000.00	9.000	On	L1	9.9	17.7	50.0	

Emission Level = Read Level + Correct Factor





<b>Test Voltage:</b>	AC 120V/60Hz
<b>Terminal:</b>	Neutral
<b>Remark:</b>	Only worse case is reported



### Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.153640	41.4	1000.00	9.000	On	N	10.0	24.4	65.8	
0.531710	41.7	1000.00	9.000	On	N	10.0	14.3	56.0	
22.575370	37.1	1000.00	9.000	On	N	10.0	22.9	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
0.538120	35.7	1000.00	9.000	On	N	10.0	10.3	46.0	
27.343430	31.9	1000.00	9.000	On	N	10.0	18.1	50.0	
28.685180	33.3	1000.00	9.000	On	N	10.0	16.7	50.0	

Emission Level = Read Level + Correct Factor

### 3.2. Radiated Emission

**Limit**

FCC CFR Title 47 Part 15 Subpart C Section 15.209

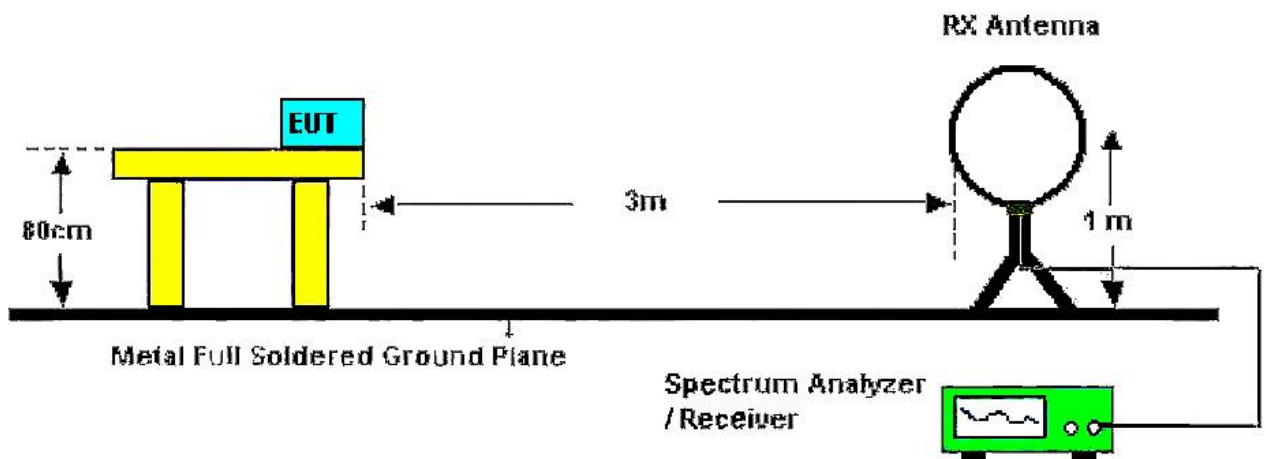
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F (kHz)	300
0.490~1.705	24000/F (kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

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

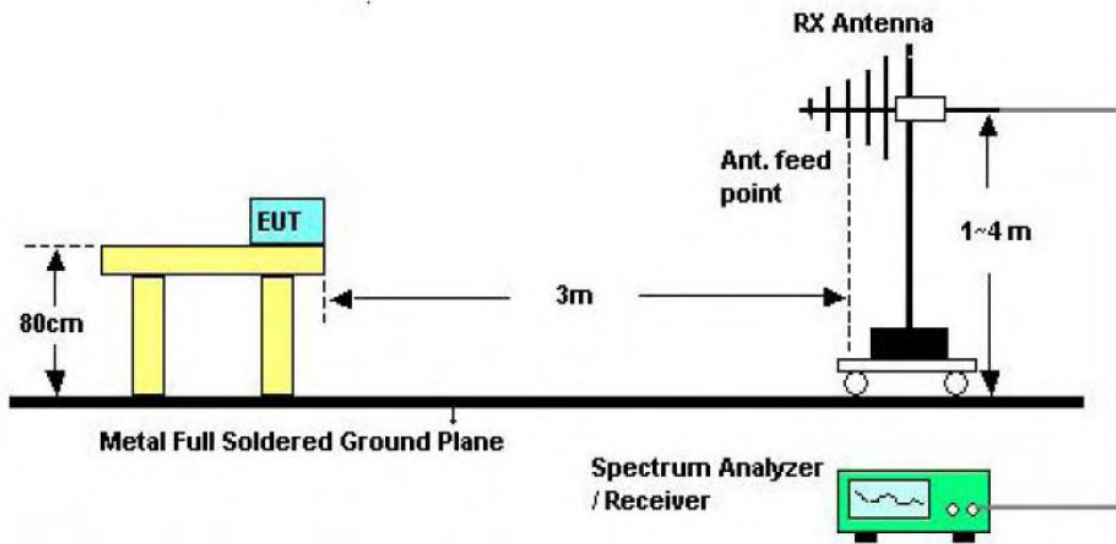
Note:

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

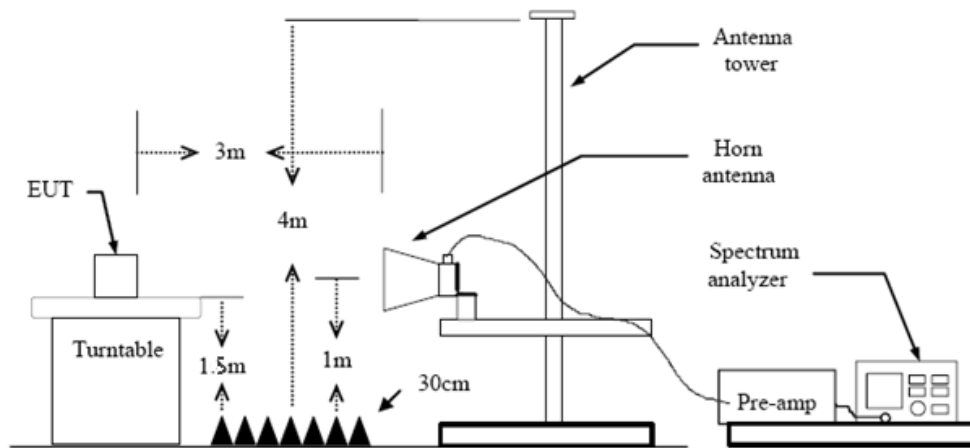
**Test Configuration**



Below 30MHz Test Setup



30-1000MHz 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 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 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 Result**

#### **9 kHz~30 MHz**

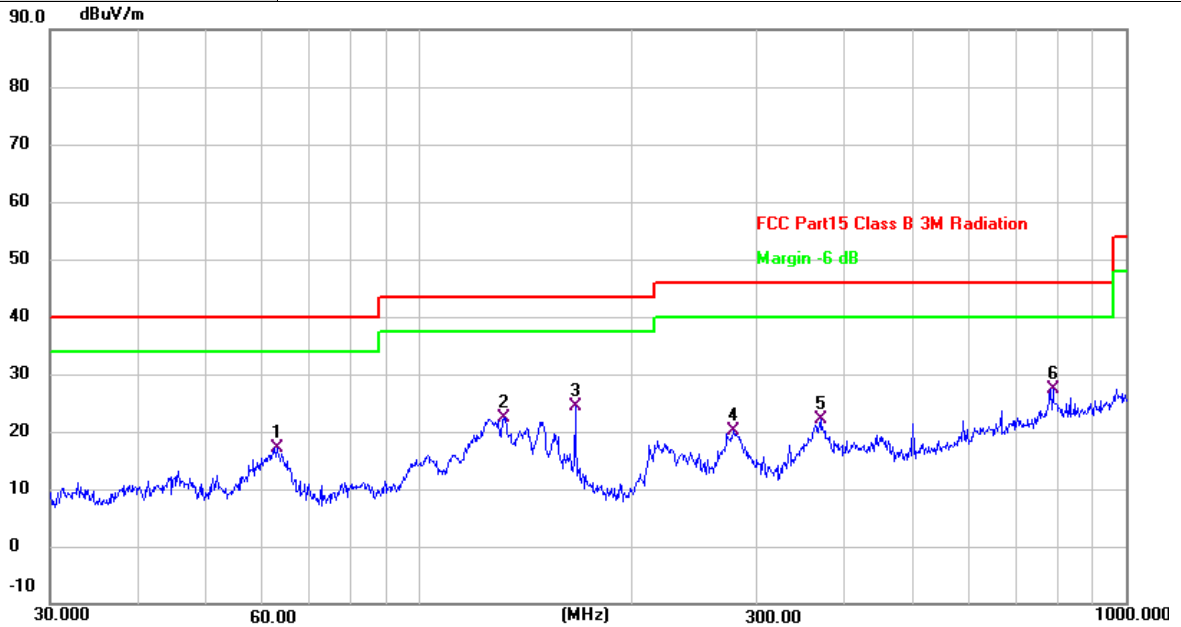
From 9 kHz to 30 MHz: The conclusion is PASS.

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



30MHz-1GHz

Ant. No.	Ant 1
Ant. Pol.	Horizontal
Test Mode:	TX 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	62.8707	36.34	-19.13	17.21	40.00	-22.79	QP
2	131.7577	40.75	-18.35	22.40	43.50	-21.10	QP
3	166.0680	41.90	-17.61	24.29	43.50	-19.21	QP
4	278.0668	37.86	-17.80	20.06	46.00	-25.94	QP
5	369.4047	37.57	-15.53	22.04	46.00	-23.96	QP
6 *	787.8512	34.91	-7.47	27.44	46.00	-18.56	QP

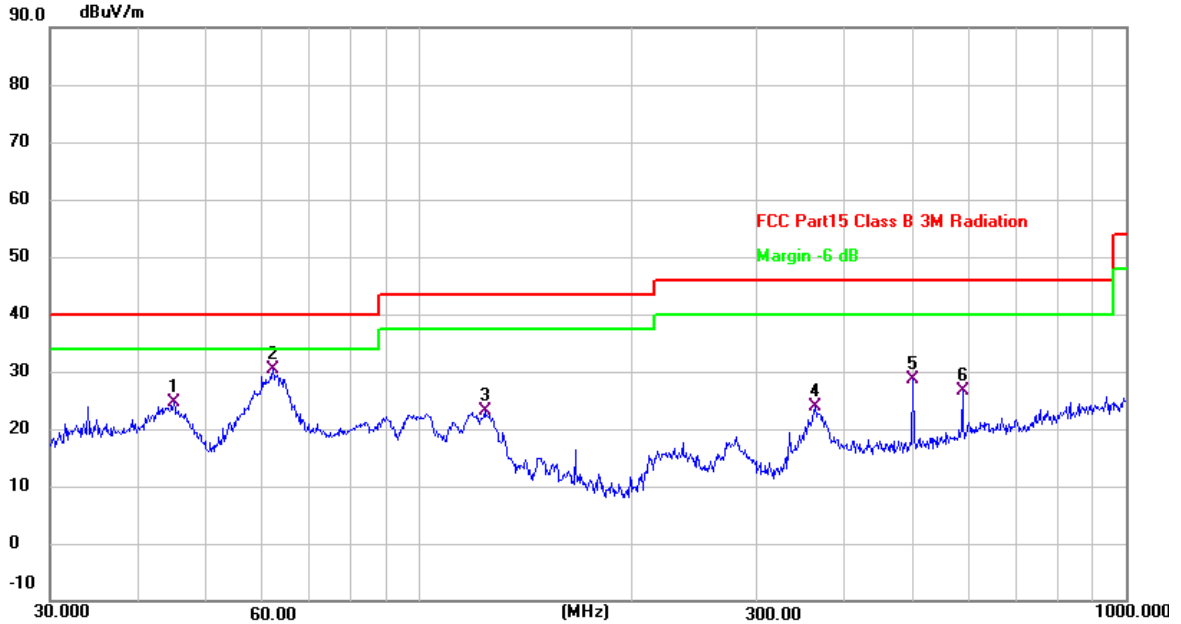
Remarks:

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
<b>Ant. Pol.</b>	Vertical
<b>Test Mode:</b>	TX 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	44.9006	42.45	-17.73	24.72	40.00	-15.28	QP
2 *	61.9951	49.35	-18.97	30.38	40.00	-9.62	QP
3	123.6985	42.20	-19.00	23.20	43.50	-20.30	QP
4	362.9844	39.64	-15.67	23.97	46.00	-22.03	QP
5	499.4247	41.31	-12.67	28.64	46.00	-17.36	QP
6	586.8437	37.53	-11.01	26.52	46.00	-19.48	QP

Remarks:

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



## Above 1GHz

<b>Ant. No.</b>	Ant 1																														
<b>Ant. Pol.</b>	Horizontal																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4873.999	34.23	-2.14	32.09	54.00	-21.91	AVG																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4874.000	33.82	-2.14	31.68	54.00	-22.32	AVG																								
2	4874.001	47.25	-2.14	45.11	74.00	-28.89	peak																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4924.000	33.55	-1.93	31.62	54.00	-22.38	AVG																								
2	4924.001	47.23	-1.93	45.30	74.00	-28.70	peak																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4924.000	33.39	-1.93	31.46	54.00	-22.54	AVG																								
2	4924.001	46.89	-1.93	44.96	74.00	-29.04	peak																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4824.000	34.91	-2.36	32.55	54.00	-21.45	AVG																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4824.001	47.20	-2.36	44.84	74.00	-29.16	peak																								
2 *	4824.001	33.84	-2.36	31.48	54.00	-22.52	AVG																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4874.000	48.47	-2.14	46.33	74.00	-27.67	peak																								
2 *	4874.000	34.07	-2.14	31.93	54.00	-22.07	AVG																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4874.000	46.78	-2.14	44.64	74.00	-29.36	peak																								
2 *	4874.000	33.68	-2.14	31.54	54.00	-22.46	AVG																								
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<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 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4824.000	47.28	-2.36	44.92	74.00	-29.08	peak																								
2 *	4824.000	33.84	-2.36	31.48	54.00	-22.52	AVG																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

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<b>Test Mode:</b>	TX 802.11n(HT20) Mode 2412MHz																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4823.999	47.36	-2.36	45.00	74.00	-29.00	peak																								
2 *	4824.001	33.80	-2.36	31.44	54.00	-22.56	AVG																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



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<b>Test Mode:</b>	TX 802.11n(HT20) Mode 2437MHz																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4874.000	47.45	-2.14	45.31	74.00	-28.69	peak																								
2 *	4874.001	33.81	-2.14	31.67	54.00	-22.33	AVG																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4873.999	47.12	-2.14	44.98	74.00	-29.02	peak																								
2 *	4874.000	33.76	-2.14	31.62	54.00	-22.38	AVG																								
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<b>Ant. No.</b>	Ant 1 + Ant 2																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4923.999	33.51	-1.93	31.58	54.00	-22.42	AVG																								
2	4924.001	47.31	-1.93	45.38	74.00	-28.62	peak																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4923.999	47.16	-1.93	45.23	74.00	-28.77	peak																								
2 *	4924.000	33.61	-1.93	31.68	54.00	-22.32	AVG																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



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<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 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4843.999	47.48	-2.27	45.21	74.00	-28.79	peak																								
2 *	4843.999	33.86	-2.27	31.59	54.00	-22.41	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4844.000	48.15	-2.27	45.88	74.00	-28.12	peak																								
2 *	4844.000	33.81	-2.27	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																															



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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	4873.999	47.17	-2.14	45.03	74.00	-28.97	peak																								
2 *	4874.000	33.71	-2.14	31.57	54.00	-22.43	AVG																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4873.999	33.83	-2.14	31.69	54.00	-22.31	AVG																								
2	4874.000	47.25	-2.14	45.11	74.00	-28.89	peak																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



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<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 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4903.999	33.52	-2.01	31.51	54.00	-22.49	AVG																								
2	4904.000	47.88	-2.01	45.87	74.00	-28.13	peak																								
<b>Remarks:</b> 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

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<b>Test Mode:</b>	TX 802.11n(HT40) Mode 2452MHz																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	4903.999	33.73	-2.01	31.72	54.00	-22.28	AVG																								
2	4904.000	46.74	-2.01	44.73	74.00	-29.27	peak																								
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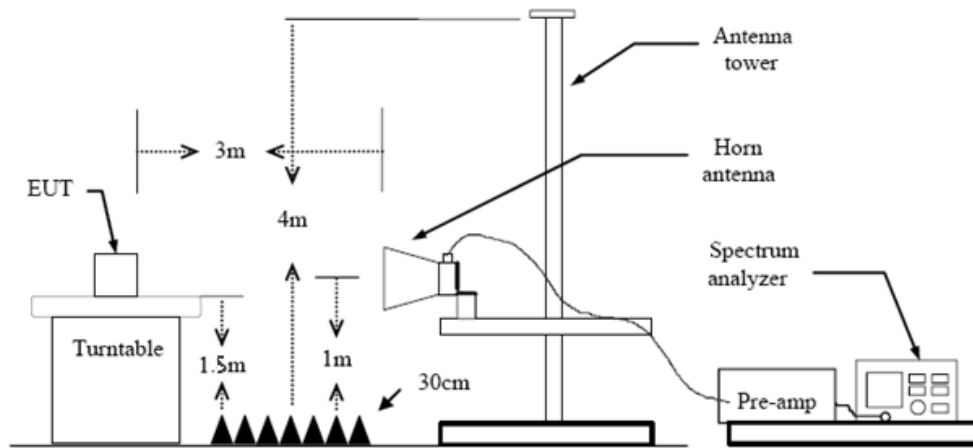
### 3.3. Band Edge Emissions (Radiated)

**Limit**

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

Restricted Frequency Band (MHz)	(dBμV/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**

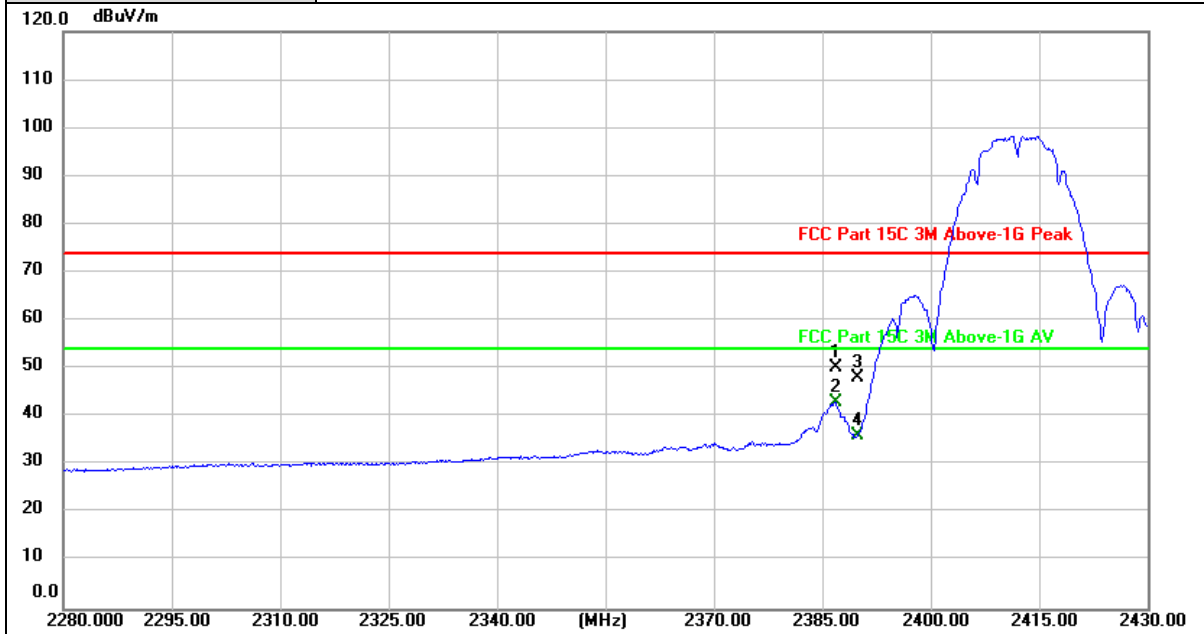
Please refer to the clause 2.4.





**Test Result**

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2386.800	58.11	-7.73	50.38	74.00	-23.62	peak
2 *	2386.800	50.88	-7.73	43.15	54.00	-10.85	AVG
3	2390.000	55.87	-7.72	48.15	74.00	-25.85	peak
4	2390.000	44.00	-7.72	36.28	54.00	-17.72	AVG

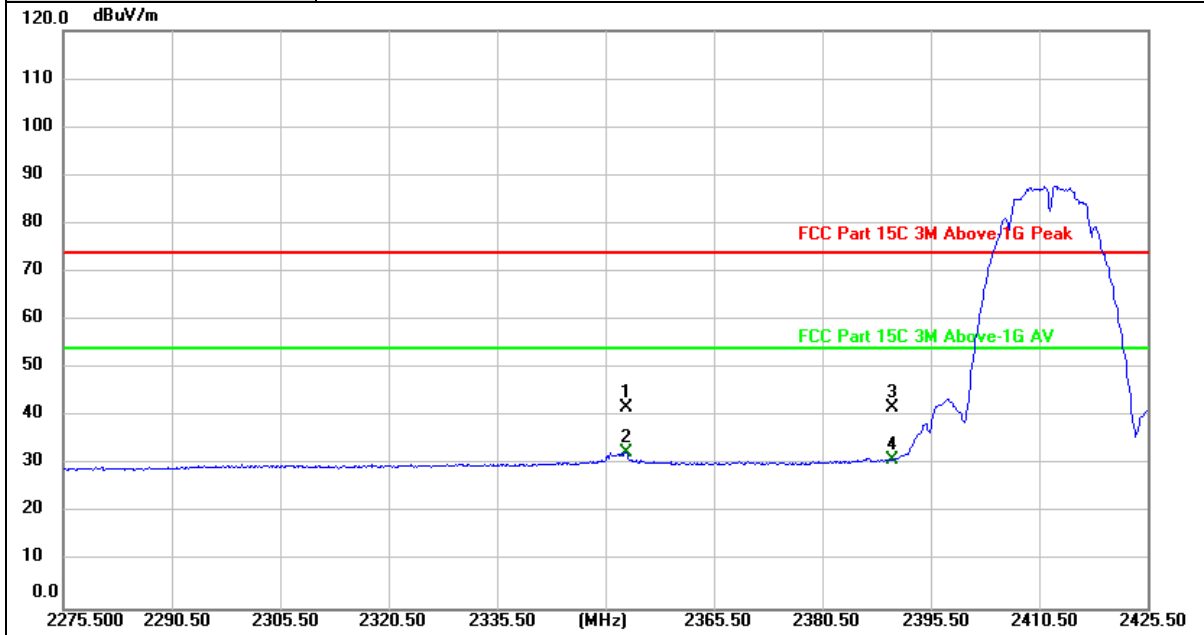
**Remarks:**

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





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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2353.380	49.78	-7.89	41.89	74.00	-32.11	peak
2 *	2353.380	40.51	-7.89	32.62	54.00	-21.38	AVG
3	2390.000	49.72	-7.72	42.00	74.00	-32.00	peak
4	2390.000	38.85	-7.72	31.13	54.00	-22.87	AVG

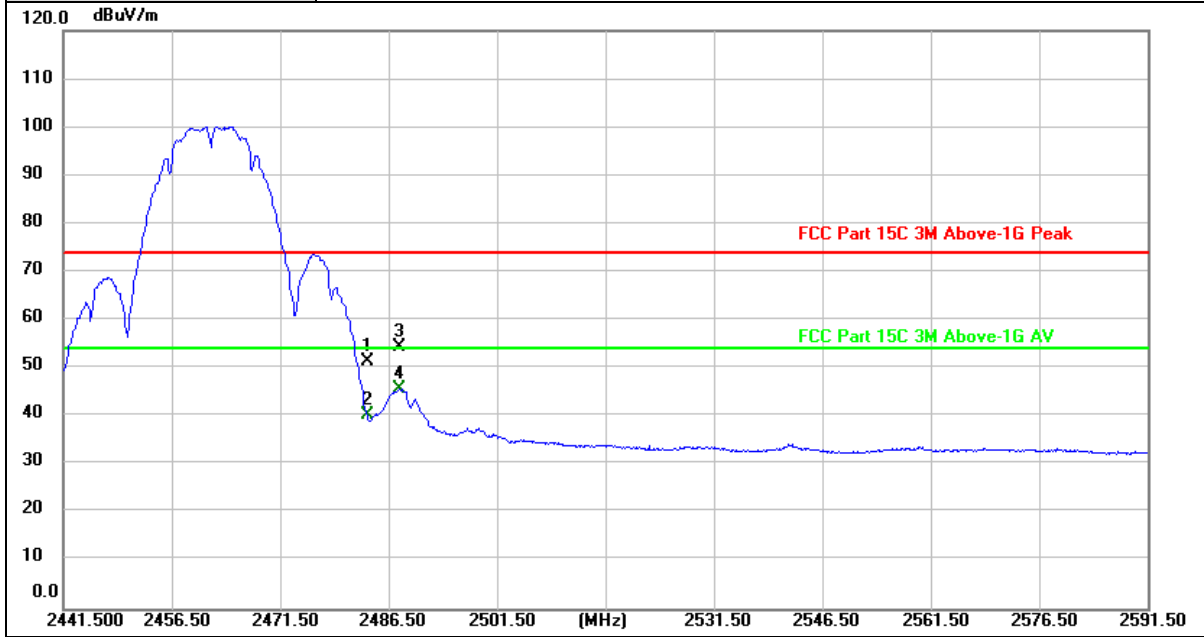
Remarks:

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





Ant. No.	Ant 1
Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2462MHz



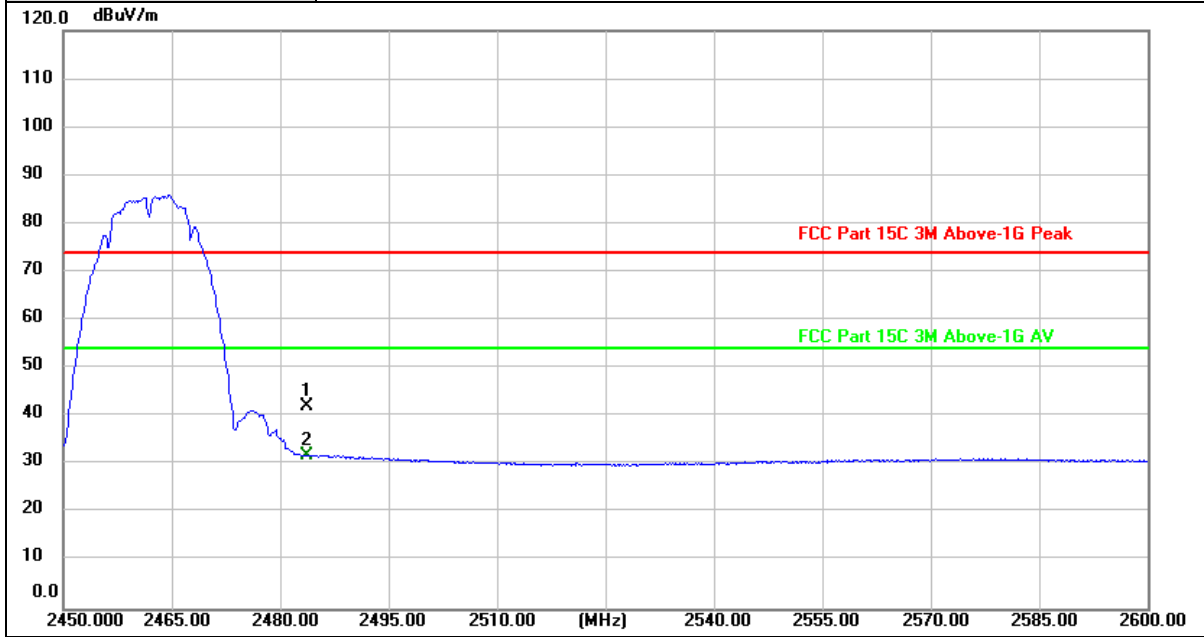
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	58.65	-7.32	51.33	74.00	-22.67	peak
2	2483.500	47.62	-7.32	40.30	54.00	-13.70	AVG
3	2488.060	61.81	-7.30	54.51	74.00	-19.49	peak
4 *	2488.060	52.96	-7.30	45.66	54.00	-8.34	AVG

Remarks:

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



Ant. No.	Ant 1
Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2462MHz



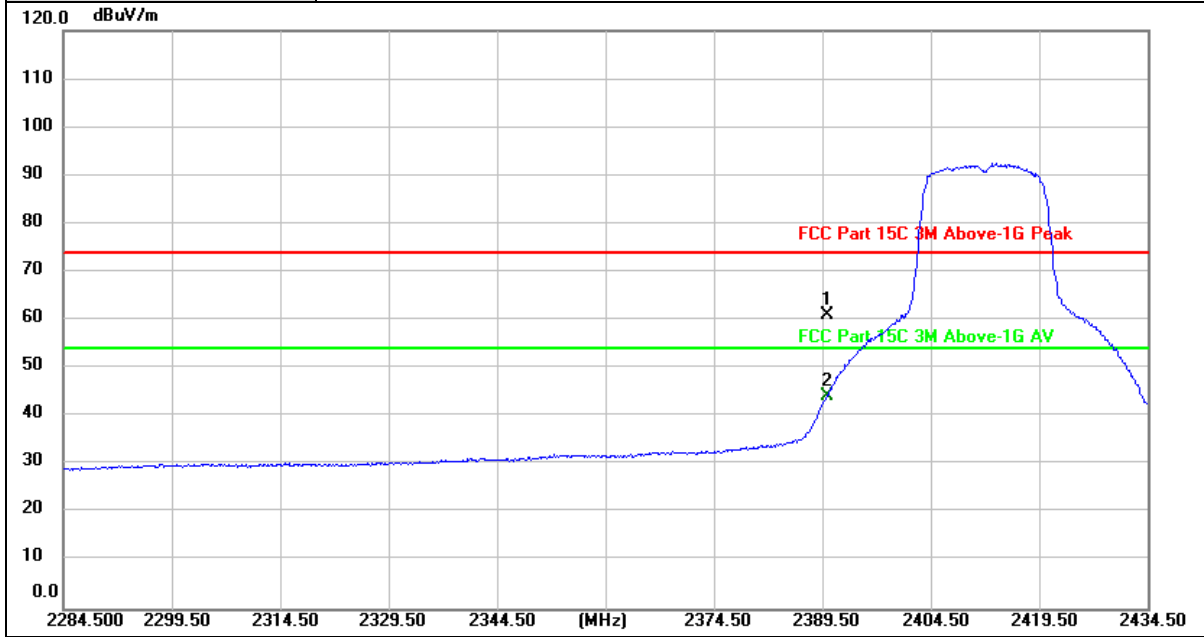
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	49.40	-7.32	42.08	74.00	-31.92	peak
2 *	2483.500	39.18	-7.32	31.86	54.00	-22.14	AVG

Remarks:

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



Ant. No.	Ant 1
Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	68.68	-7.72	60.96	74.00	-13.04	peak
2 *	2390.000	52.12	-7.72	44.40	54.00	-9.60	AVG

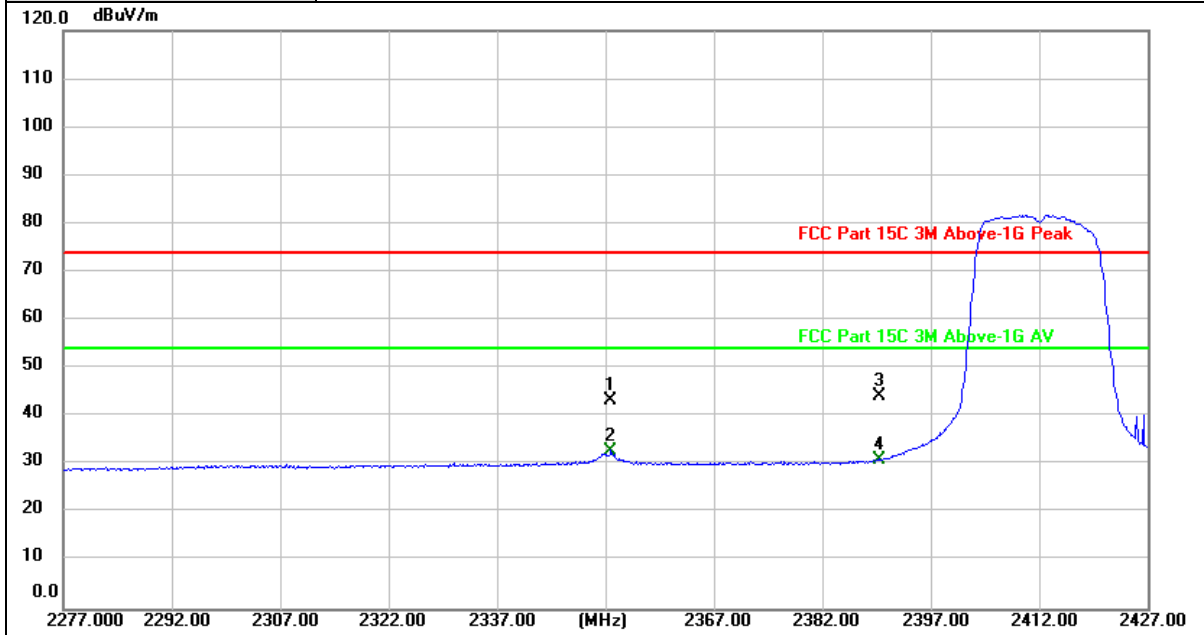
Remarks:

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





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



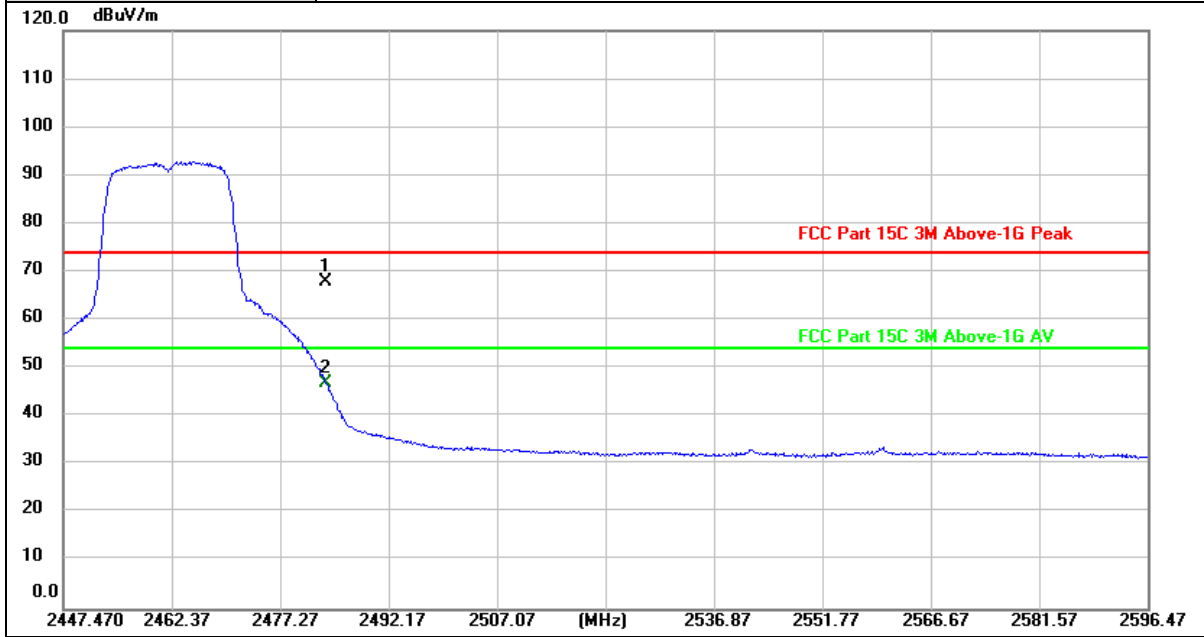
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2352.840	51.27	-7.89	43.38	74.00	-30.62	peak
2 *	2352.840	40.89	-7.89	33.00	54.00	-21.00	AVG
3	2390.000	51.92	-7.72	44.20	74.00	-29.80	peak
4	2390.000	38.63	-7.72	30.91	54.00	-23.09	AVG

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2483.500	75.13	-7.32	67.81	74.00	-6.19	peak
2	2483.500	54.24	-7.32	46.92	54.00	-7.08	AVG

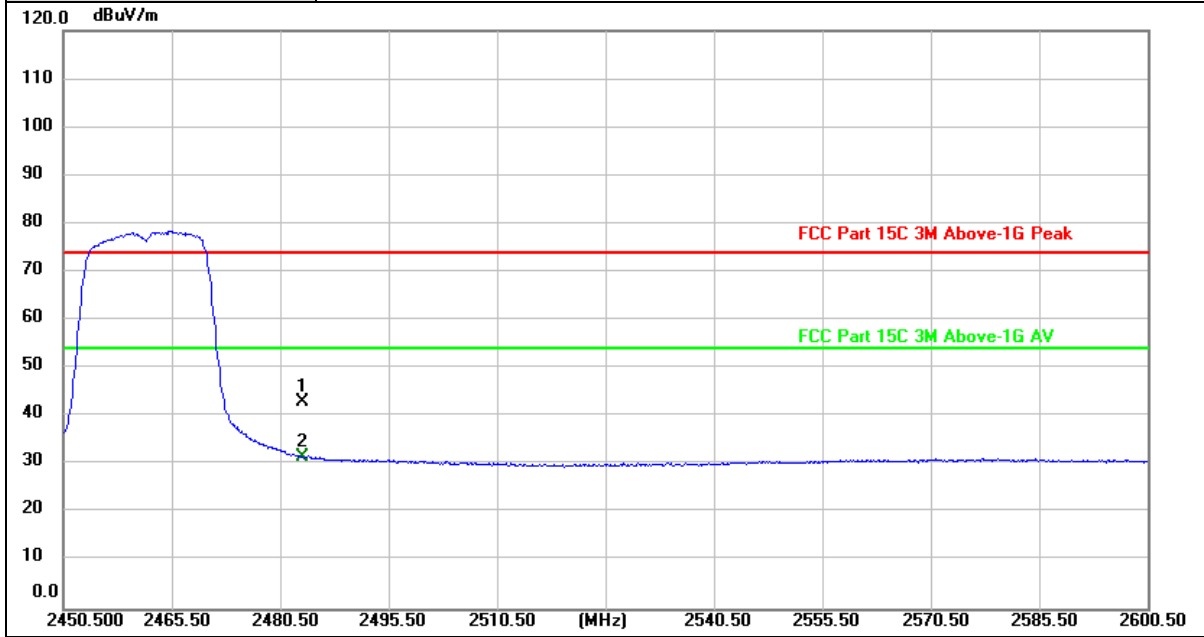
Remarks:

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





Ant. No.	Ant 1
Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	50.42	-7.32	43.10	74.00	-30.90	peak
2 *	2483.500	38.98	-7.32	31.66	54.00	-22.34	AVG

Remarks:

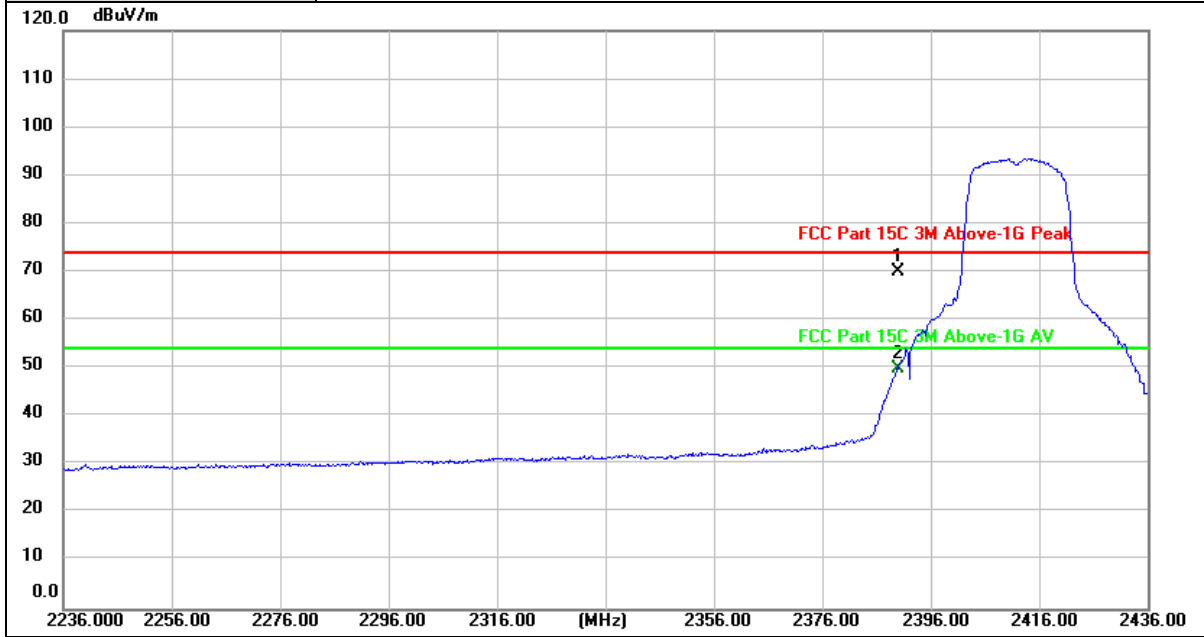
- 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2.Margin value = Level -Limit value







Ant. No.	Ant 1 + Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 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	77.62	-7.72	69.90	74.00	-4.10	peak
2 *	2390.000	57.74	-7.72	50.02	54.00	-3.98	AVG

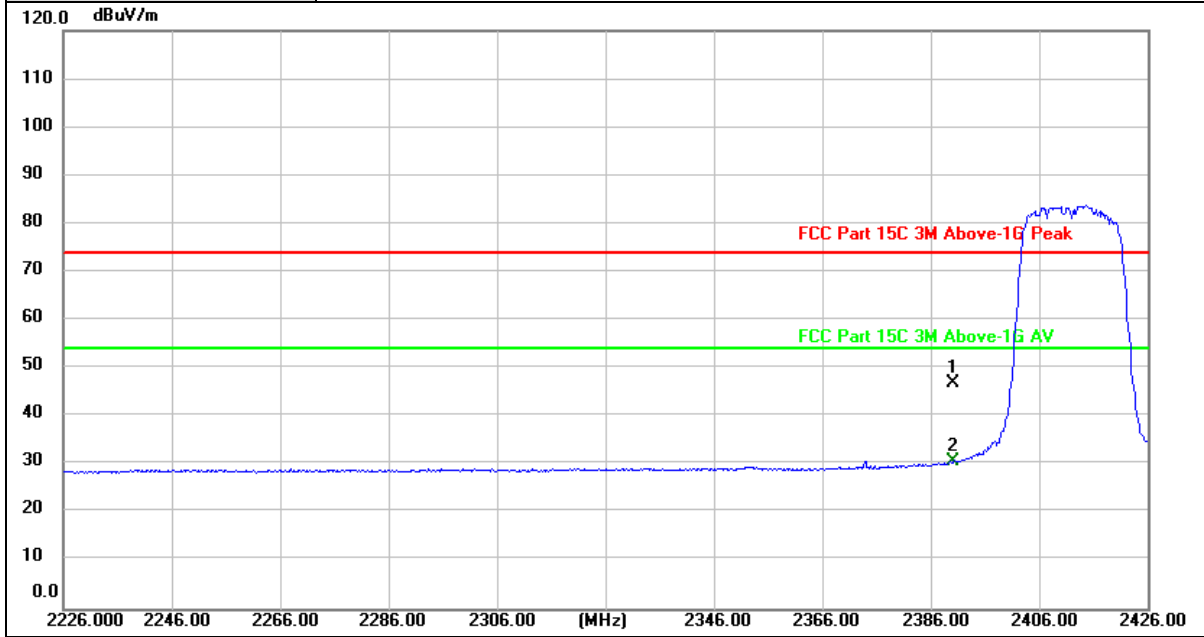
Remarks:

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





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



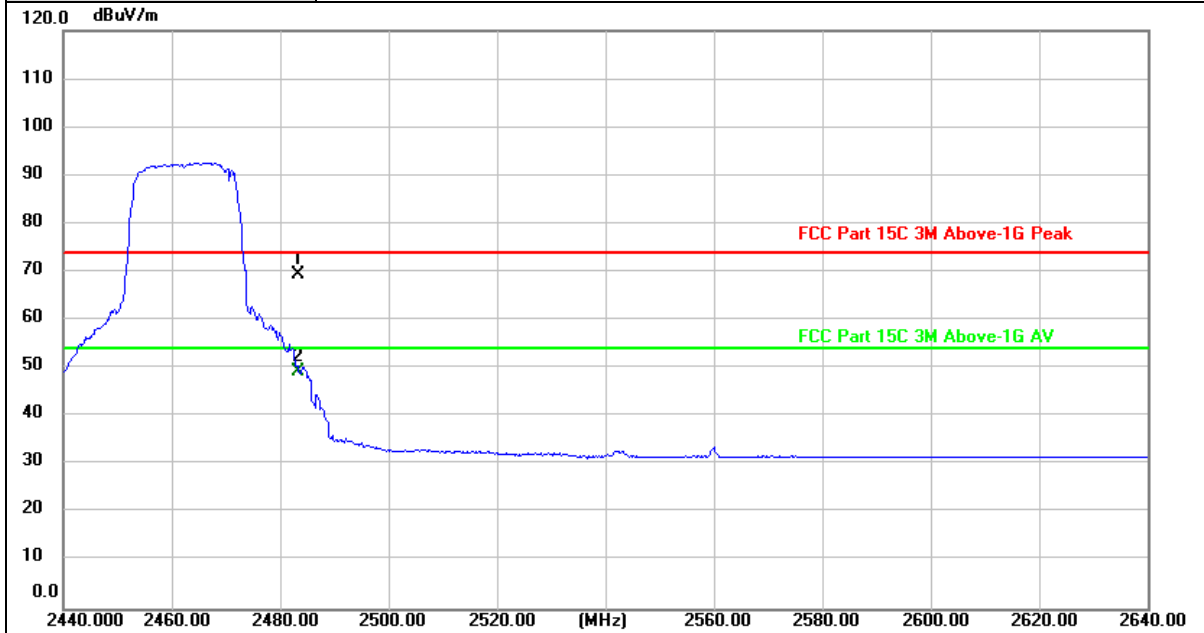
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	54.55	-7.72	46.83	74.00	-27.17	peak
2 *	2390.000	38.45	-7.72	30.73	54.00	-23.27	AVG

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 2462MHz



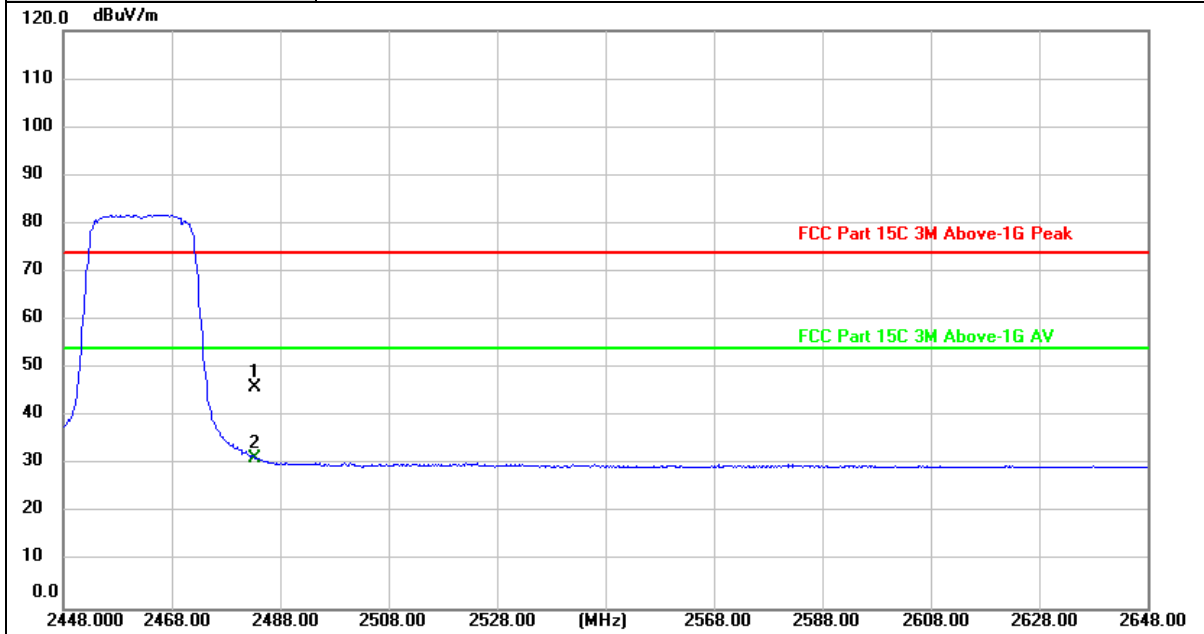
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2483.500	76.90	-7.32	69.58	74.00	-4.42	peak
2	2483.500	56.68	-7.32	49.36	54.00	-4.64	AVG

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 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	53.28	-7.32	45.96	74.00	-28.04	peak
2 *	2483.500	38.68	-7.32	31.36	54.00	-22.64	AVG

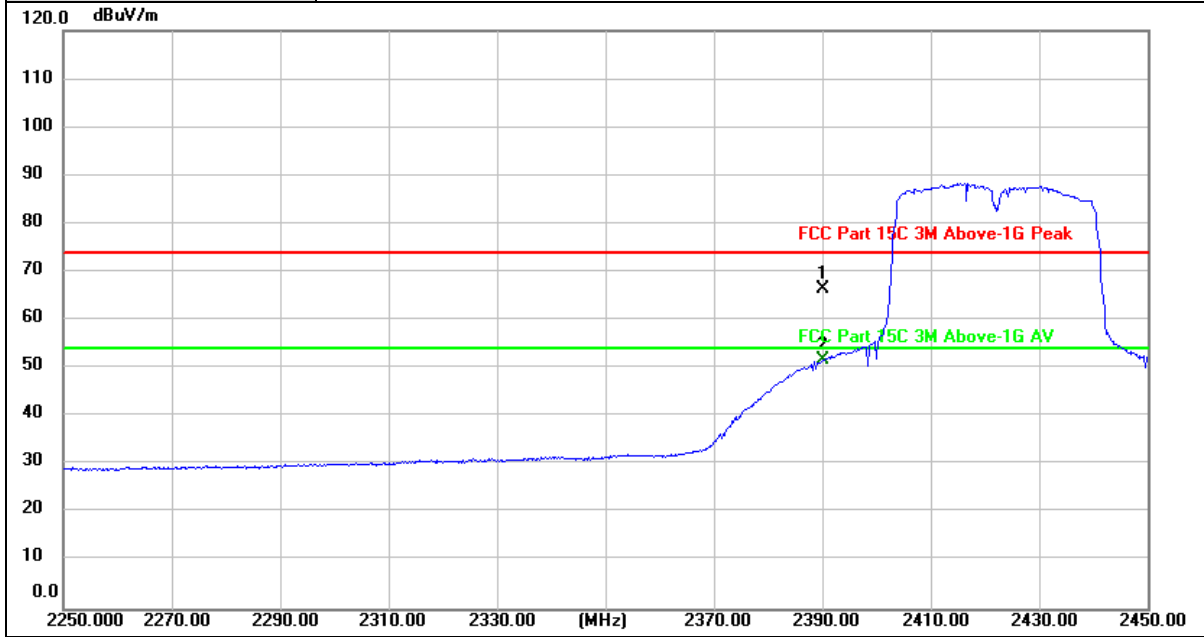
Remarks:

- 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(HT40) Mode 2422MHz



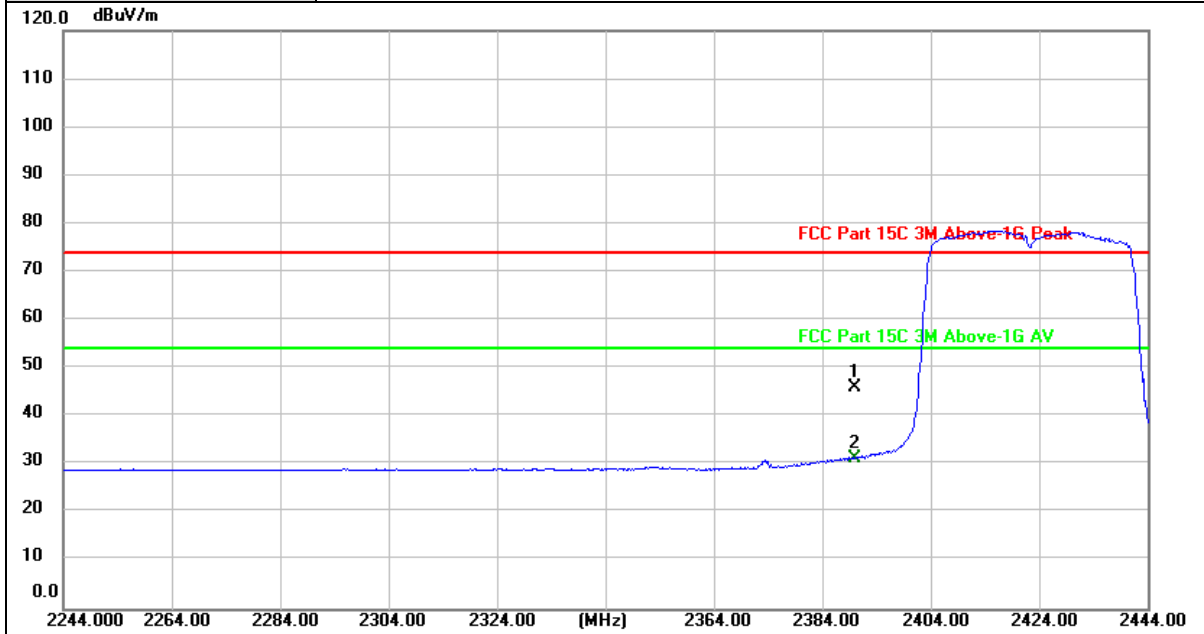
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	74.25	-7.72	66.53	74.00	-7.47	peak
2 *	2390.000	59.42	-7.72	51.70	54.00	-2.30	AVG

Remarks:

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



Ant. No.	Ant 1 + Ant 2
Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT40) Mode 2422MHz



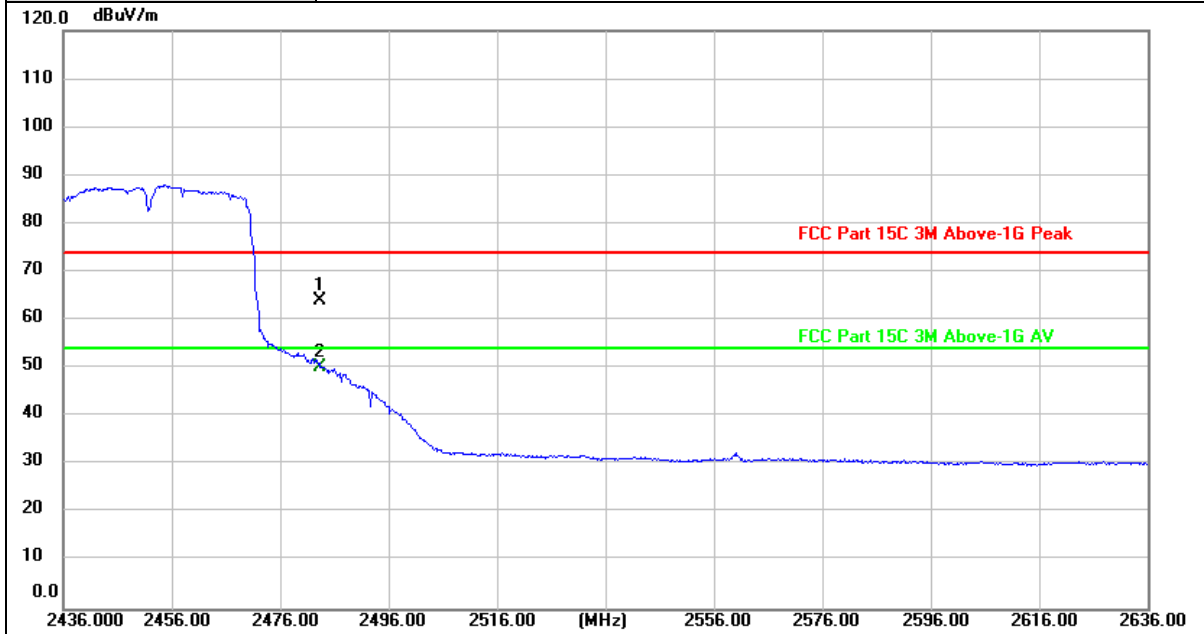
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	53.81	-7.72	46.09	74.00	-27.91	peak
2 *	2390.000	39.06	-7.72	31.34	54.00	-22.66	AVG

Remarks:

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



Ant. No.	Ant 1 + Ant 2
Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 2452MHz



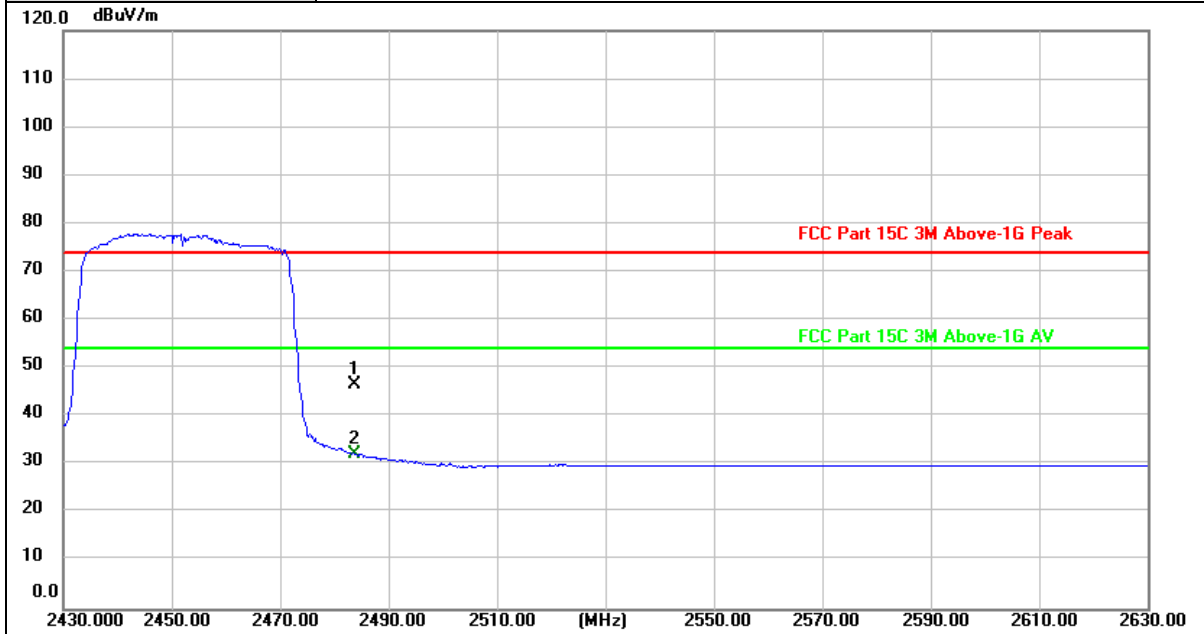
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	71.31	-7.32	63.99	74.00	-10.01	peak
2 *	2483.500	57.50	-7.32	50.18	54.00	-3.82	AVG

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(HT40) Mode 2452MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	54.08	-7.32	46.76	74.00	-27.24	peak
2 *	2483.500	39.65	-7.32	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







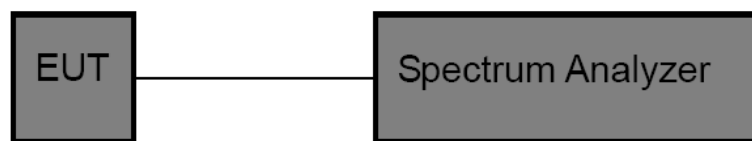
### 3.4. Band Edge and Spurious Emissions (Conducted)

#### 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

#### 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

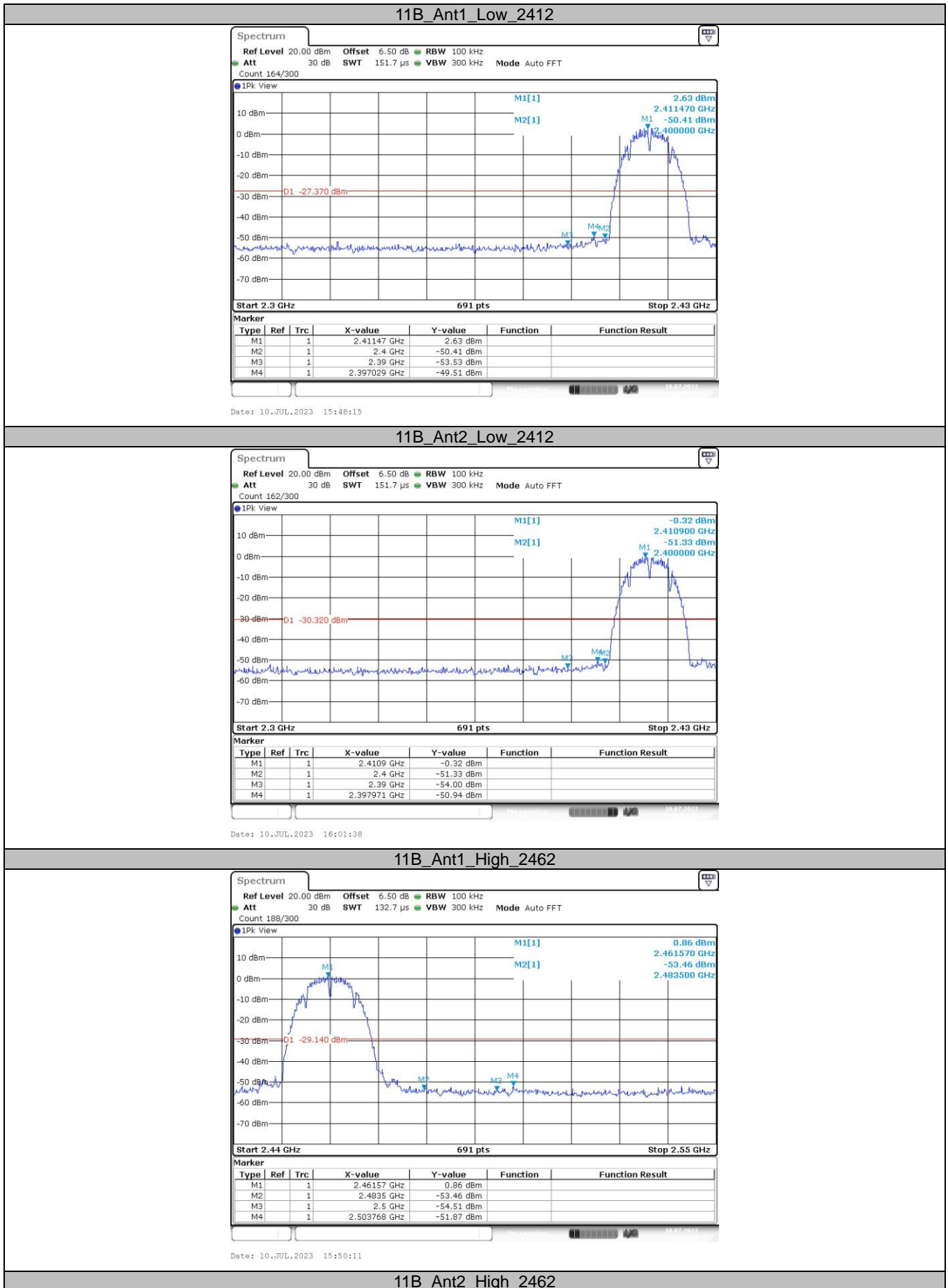
Please refer to the clause 2.4.

**Test Result****(1) Band Edge Conducted Test**

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	2.63	-49.51	≤-27.37	PASS
	Ant2	Low	2412	-0.32	-50.94	≤-30.32	PASS
	Ant1	High	2462	0.86	-51.87	≤-29.14	PASS
	Ant2	High	2462	-2.03	-52.52	≤-32.03	PASS
11G	Ant1	Low	2412	-4.11	-43.55	≤-34.11	PASS
	Ant2	Low	2412	-1.87	-43.26	≤-31.87	PASS
	Ant1	High	2462	-4.24	-52.58	≤-34.24	PASS
	Ant2	High	2462	-2.70	-52.47	≤-32.7	PASS
11N20MIMO	Ant1	Low	2412	-2.44	-38.76	≤-32.44	PASS
	Ant2	Low	2412	-4.80	-42.32	≤-34.8	PASS
	Ant1	High	2462	-3.37	-51.65	≤-33.37	PASS
	Ant2	High	2462	-3.88	-52.51	≤-33.88	PASS
11N40MIMO	Ant1	Low	2422	-6.82	-46.85	≤-36.82	PASS
	Ant2	Low	2422	-9.20	-49.99	≤-39.2	PASS
	Ant1	High	2452	-6.46	-52.91	≤-36.46	PASS
	Ant2	High	2452	-9.03	-53.08	≤-39.03	PASS



Test plot as follows:

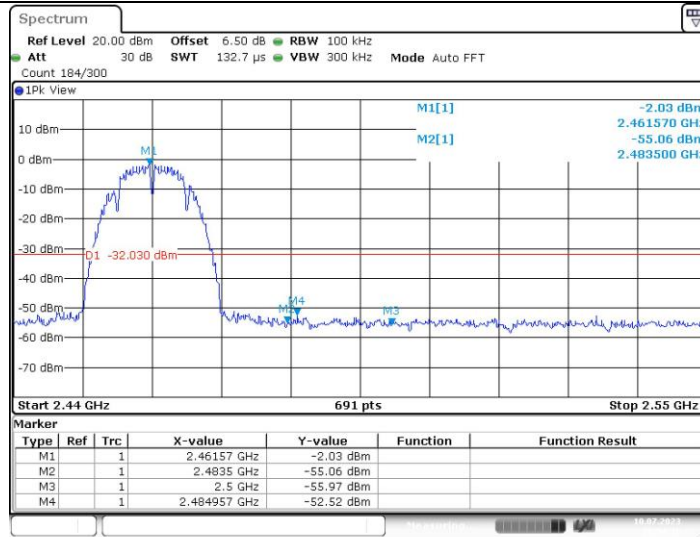


CTC Laboratories, Inc.

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

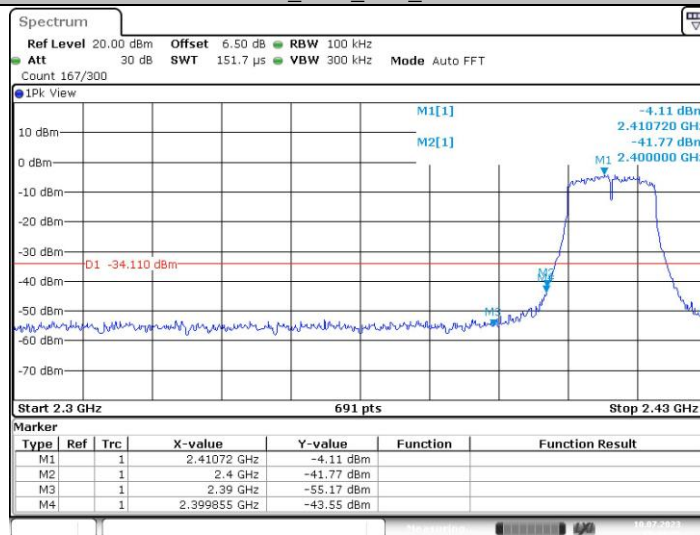


For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : <http://yz.cnca.cn>



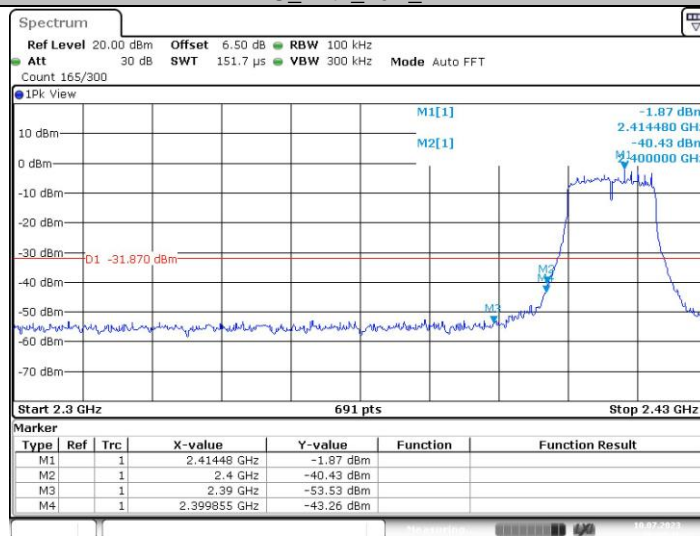
Date: 10.JUL.2023 16:04:10

11G\_Ant1\_Low\_2412



Date: 10.JUL.2023 15:53:35

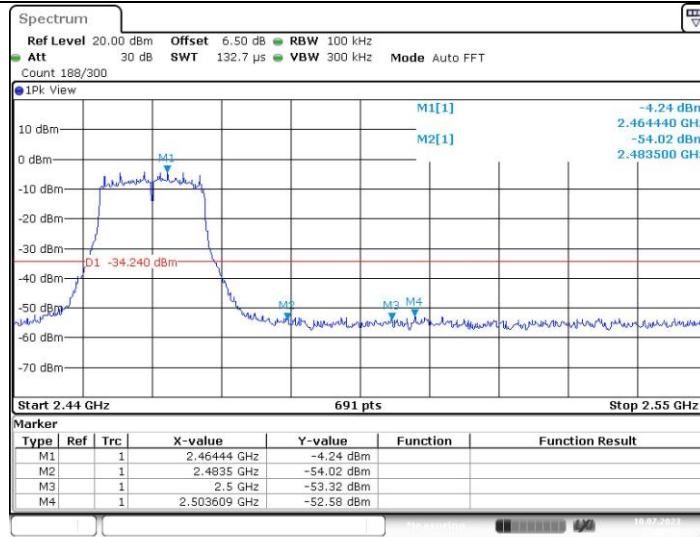
11G\_Ant2\_Low\_2412



Date: 10.JUL.2023 16:07:15

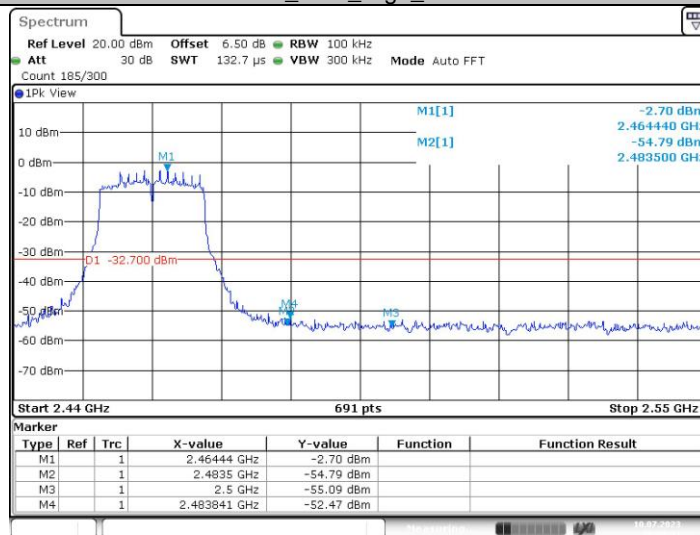
11G\_Ant1\_High\_2462





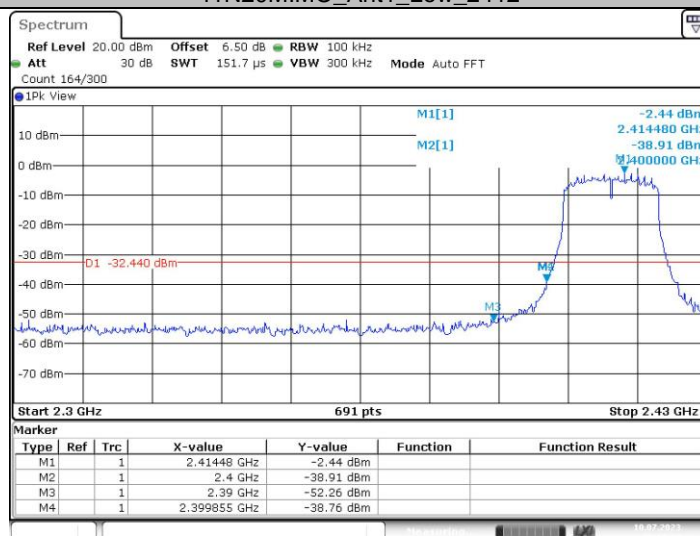
Date: 10.JUL.2023 15:57:07

11G\_Ant2\_High\_2462



Date: 10.JUL.2023 16:09:31

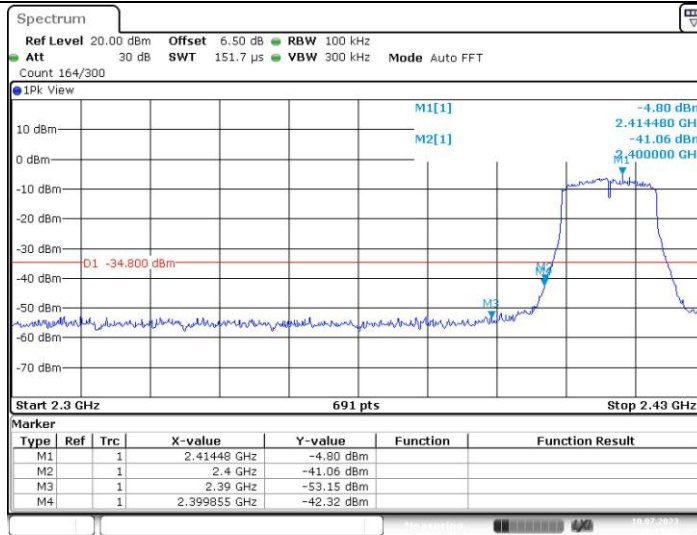
11N20MIMO\_Ant1\_Low\_2412



Date: 10.JUL.2023 16:12:24

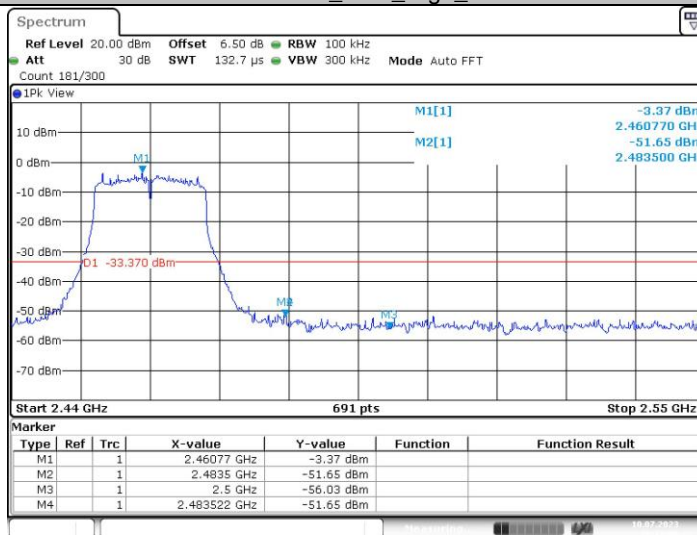
11N20MIMO\_Ant2\_Low\_2412





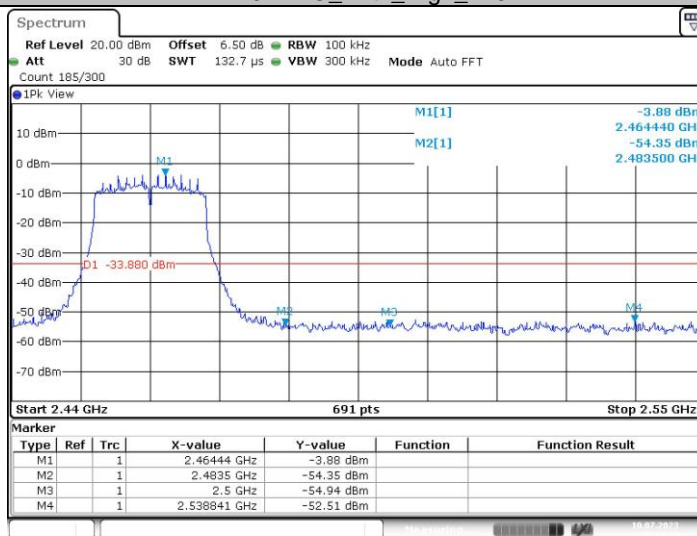
Date: 10.JUL.2023 16:14:22

11N20MIMO\_Ant1\_High\_2462



Date: 10.JUL.2023 16:17:09

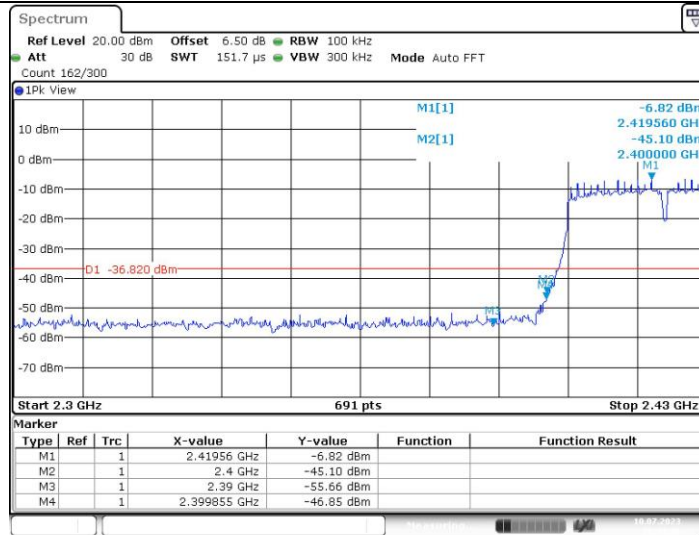
11N20MIMO\_Ant2\_High\_2462



Date: 10.JUL.2023 16:19:14

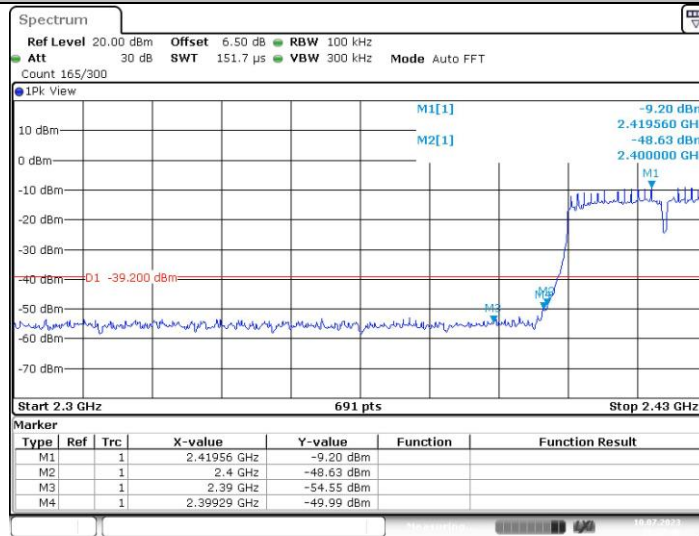
11N40MIMO\_Ant1\_Low\_2422





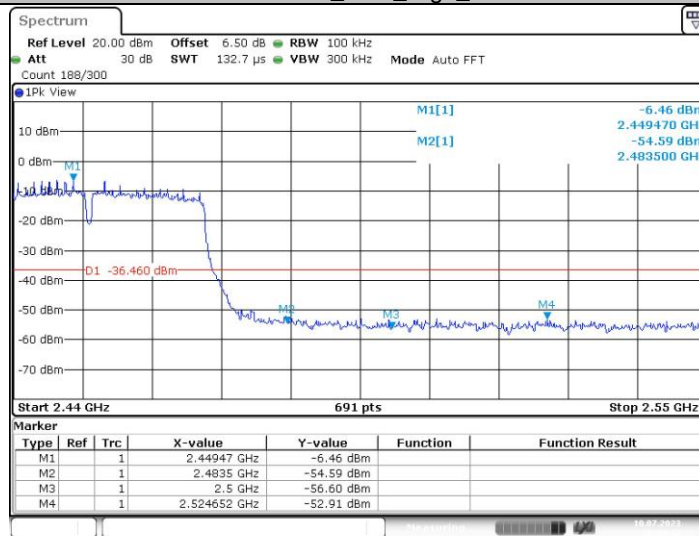
Date: 10.JUL.2023 16:23:38

11N40MIMO\_Ant2\_Low\_2422



Date: 10.JUL.2023 16:27:40

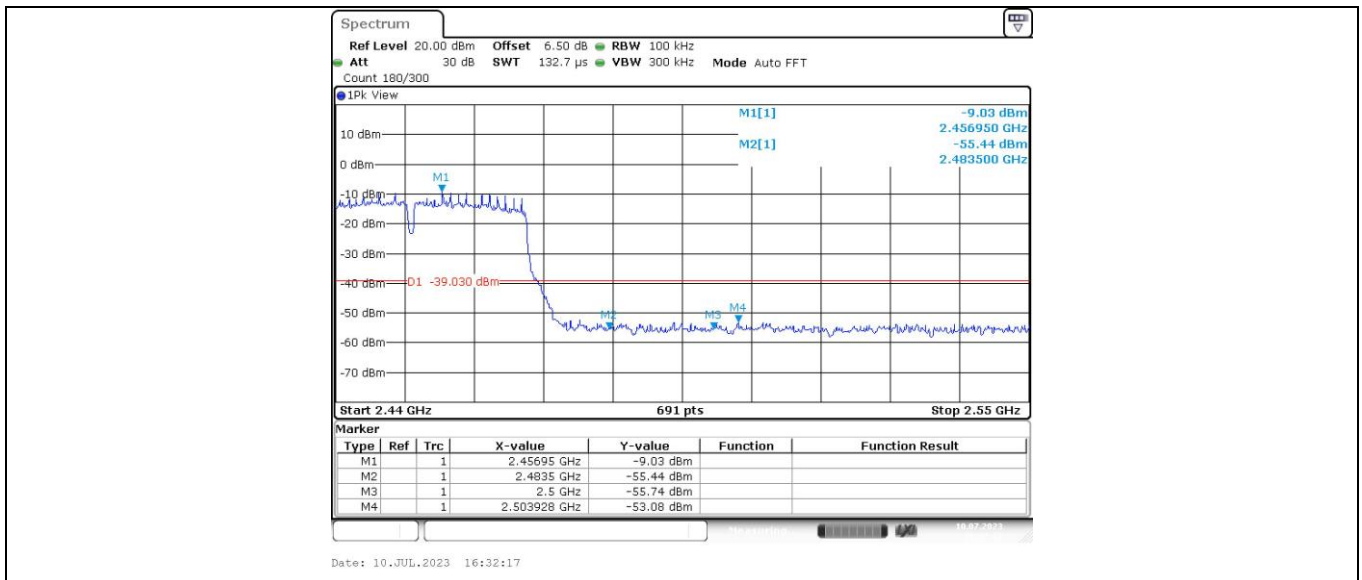
11N40MIMO\_Ant1\_High\_2452



Date: 10.JUL.2023 16:30:17

11N40MIMO\_Ant2\_High\_2452









## (2) Spurious Emissions Conducted Test

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	1.56	1.56	---	PASS
			30~1000	1.56	-53.63	≤-28.44	PASS
			1000~26500	1.56	-37.32	≤-28.44	PASS
	Ant2	2412	Reference	-0.54	-0.54	---	PASS
			30~1000	-0.54	-54.76	≤-30.54	PASS
			1000~26500	-0.54	-37.71	≤-30.54	PASS
	Ant1	2437	Reference	4.48	4.48	---	PASS
			30~1000	4.48	-59.75	≤-25.52	PASS
			1000~26500	4.48	-41.35	≤-25.52	PASS
	Ant2	2437	Reference	3.74	3.74	---	PASS
			30~1000	3.74	-60.55	≤-26.26	PASS
			1000~26500	3.74	-41.41	≤-26.26	PASS
Ant1	2462	Reference	1.55	1.55	---	PASS	
		30~1000	1.55	-54.64	≤-28.45	PASS	
		1000~26500	1.55	-36.94	≤-28.45	PASS	
Ant2	2462	Reference	-0.79	-0.79	---	PASS	
		30~1000	-0.79	-54.21	≤-30.79	PASS	
		1000~26500	-0.79	-36.92	≤-30.79	PASS	
11G	Ant1	2412	Reference	-1.43	-1.43	---	PASS
			30~1000	-1.43	-53.87	≤-31.43	PASS
			1000~26500	-1.43	-37.38	≤-31.43	PASS
	Ant2	2412	Reference	-2.72	-2.72	---	PASS
			30~1000	-2.72	-53.7	≤-32.72	PASS
			1000~26500	-2.72	-36.92	≤-32.72	PASS
	Ant1	2437	Reference	2.88	2.88	---	PASS
			30~1000	2.88	-60.72	≤-27.12	PASS
			1000~26500	2.88	-41.68	≤-27.12	PASS
	Ant2	2437	Reference	1.68	1.68	---	PASS
			30~1000	1.68	-60.51	≤-28.32	PASS
			1000~26500	1.68	-41.37	≤-28.32	PASS
Ant1	2462	Reference	-4.04	-4.04	---	PASS	
		30~1000	-4.04	-54.45	≤-34.04	PASS	
		1000~26500	-4.04	-37.27	≤-34.04	PASS	
Ant2	2462	Reference	-2.84	-2.84	---	PASS	
		30~1000	-2.84	-53.96	≤-32.84	PASS	
		1000~26500	-2.84	-37.51	≤-32.84	PASS	
11N20MIMO	Ant1	2412	Reference	-0.72	-0.72	---	PASS
			30~1000	-0.72	-53.58	≤-30.72	PASS
			1000~26500	-0.72	-36.85	≤-30.72	PASS
	Ant2	2412	Reference	-3.68	-3.68	---	PASS
			30~1000	-3.68	-54.71	≤-33.68	PASS
			1000~26500	-3.68	-37.16	≤-33.68	PASS
	Ant1	2437	Reference	-0.11	-0.11	---	PASS
			30~1000	-0.11	-60.93	≤-30.11	PASS
			1000~26500	-0.11	-41.51	≤-30.11	PASS
	Ant2	2437	Reference	-2.26	-2.26	---	PASS
			30~1000	-2.26	-60.13	≤-32.26	PASS
			1000~26500	-2.26	-41.15	≤-32.26	PASS
Ant1	2462	Reference	-2.53	-2.53	---	PASS	
		30~1000	-2.53	-53.84	≤-32.53	PASS	
		1000~26500	-2.53	-37.77	≤-32.53	PASS	
Ant2	2462	Reference	-3.87	-3.87	---	PASS	
		30~1000	-3.87	-54.69	≤-33.87	PASS	
		1000~26500	-3.87	-37.55	≤-33.87	PASS	
11N40MIMO	Ant1	2422	Reference	-6.23	-6.23	---	PASS
			30~1000	-6.23	-55.06	≤-36.23	PASS
			1000~26500	-6.23	-44.31	≤-36.23	PASS
	Ant2	2422	Reference	-9.66	-9.66	---	PASS
			30~1000	-9.66	-54.14	≤-39.66	PASS
			1000~26500	-9.66	-43.13	≤-39.66	PASS

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	Ant1	2437	Reference	-4.34	-4.34	---	PASS
			30~1000	-4.34	-60.47	$\leq -34.34$	PASS
			1000~26500	-4.34	-41.39	$\leq -34.34$	PASS
	Ant2	2437	Reference	-5.93	-5.93	---	PASS
			30~1000	-5.93	-60.41	$\leq -35.93$	PASS
			1000~26500	-5.93	-41.75	$\leq -35.93$	PASS
	Ant1	2452	Reference	-8.61	-8.61	---	PASS
			30~1000	-8.61	-54.46	$\leq -38.61$	PASS
			1000~26500	-8.61	-44.39	$\leq -38.61$	PASS
	Ant2	2452	Reference	-9.05	-9.05	---	PASS
			30~1000	-9.05	-53.84	$\leq -39.05$	PASS
			1000~26500	-9.05	-43.77	$\leq -39.05$	PASS

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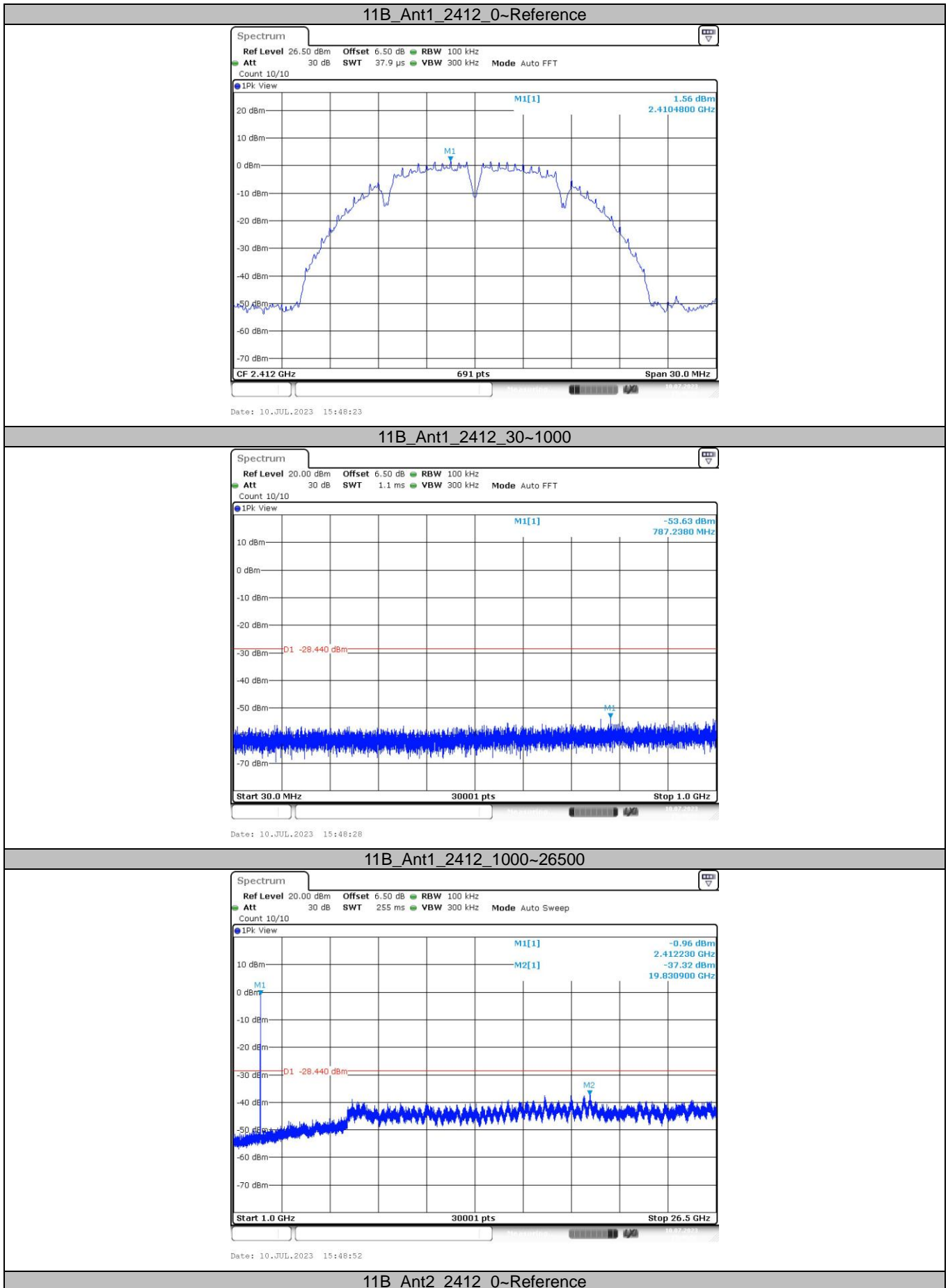
2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, Shenzhen, Guangdong, China  
Tel.: (86)755-27521059

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Test plot as follows:

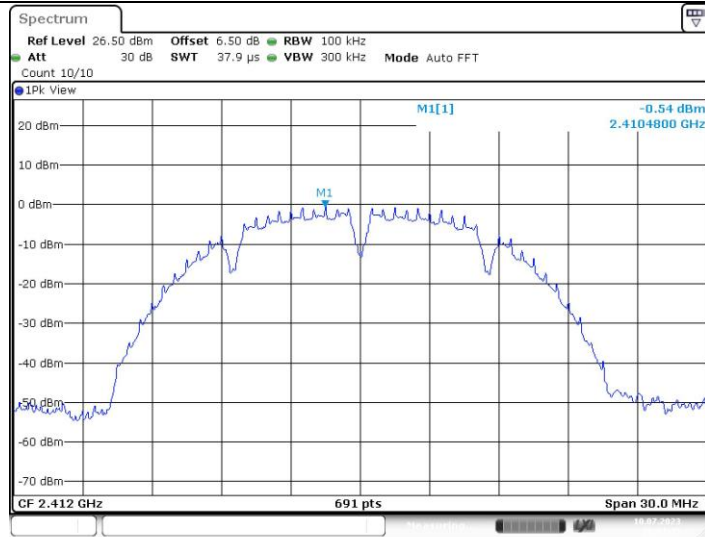


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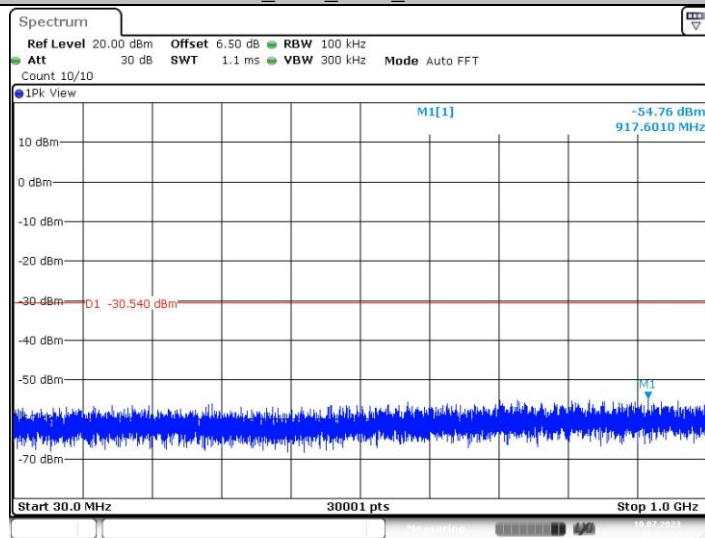
2/F., Building 1 and 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Longhua District, Shenzhen, Guangdong, China  
Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn



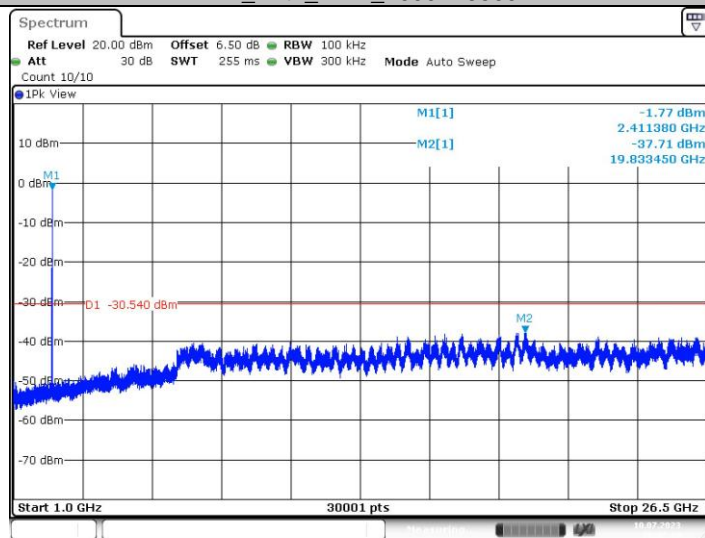
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : <http://yz.cnca.cn>



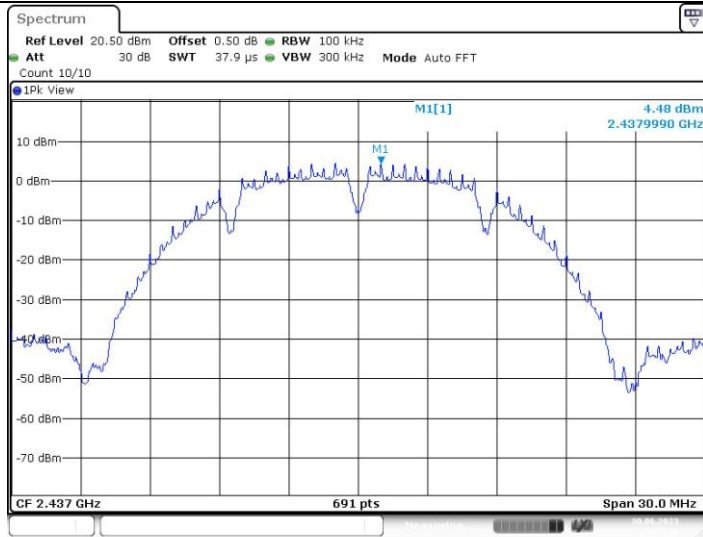
11B\_Ant2\_2412\_30~1000



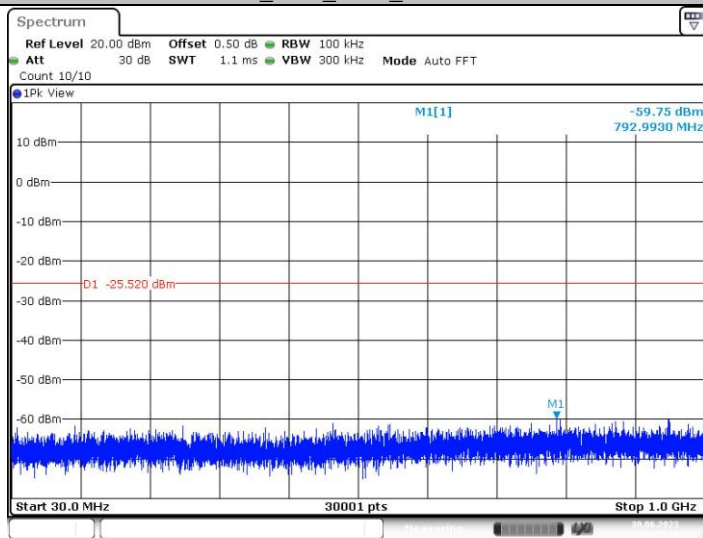
11B\_Ant2\_2412\_1000~26500



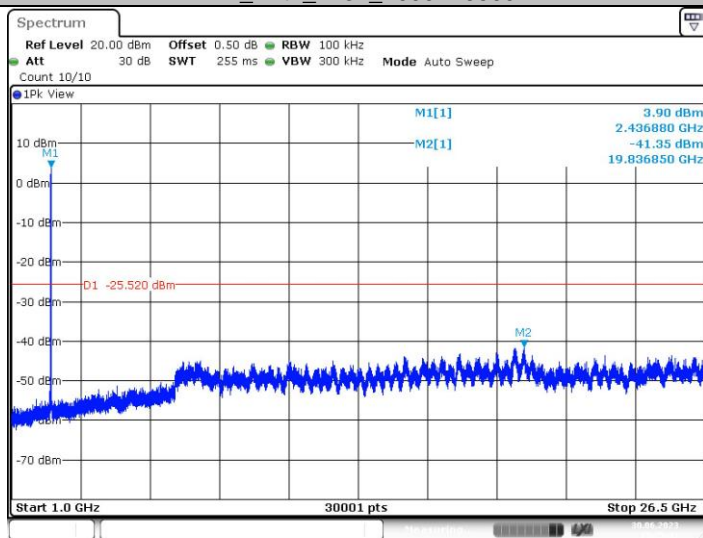
11B\_Ant1\_2437\_0~Reference



11B\_Ant1\_2437\_30~1000

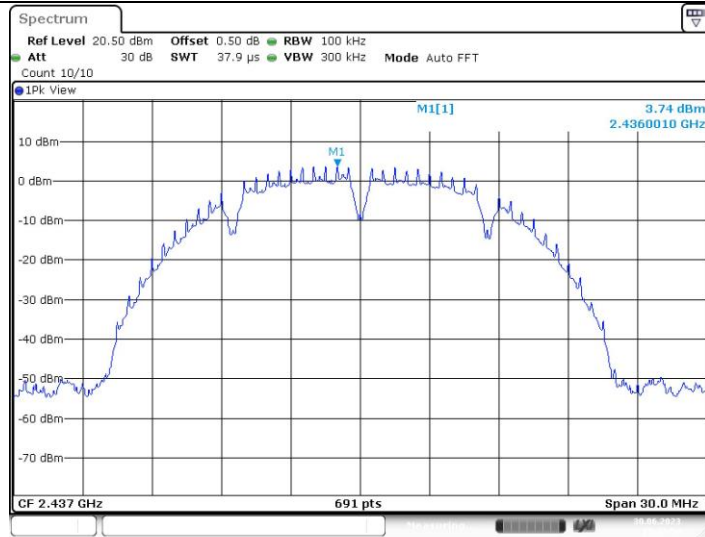


11B\_Ant1\_2437\_1000~26500

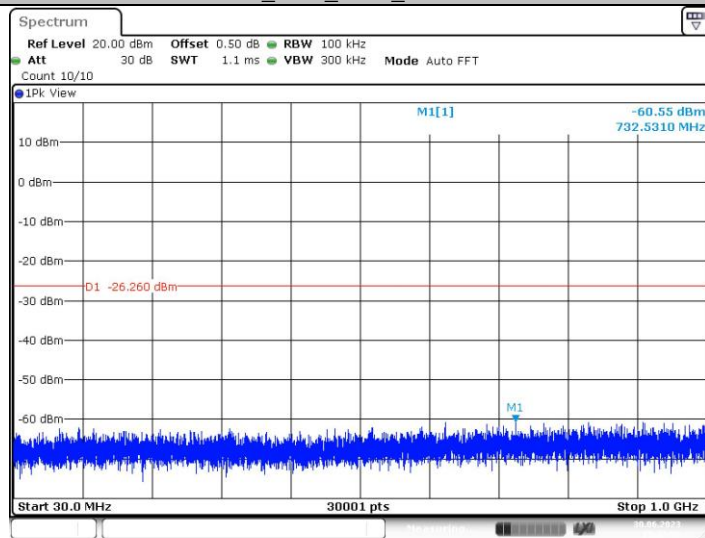


11B\_Ant2\_2437\_0~Reference

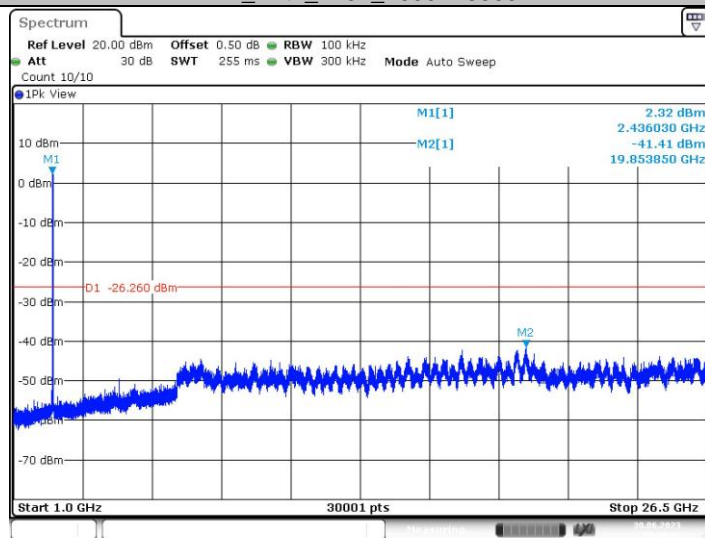




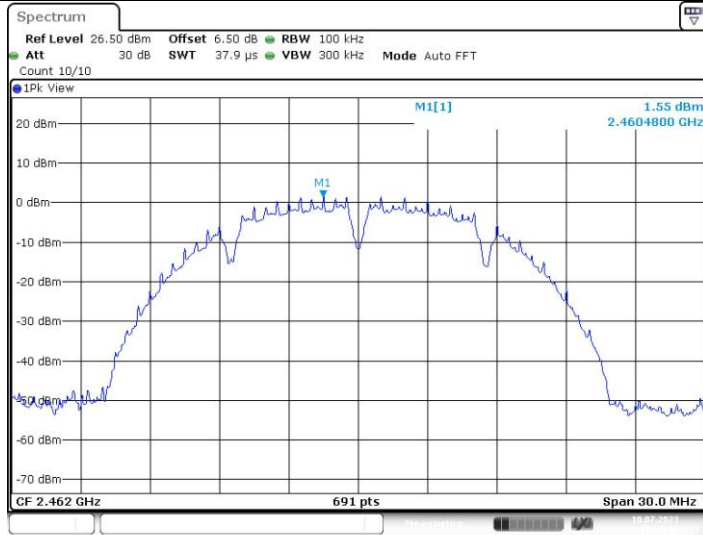
11B\_Ant2\_2437\_30~1000



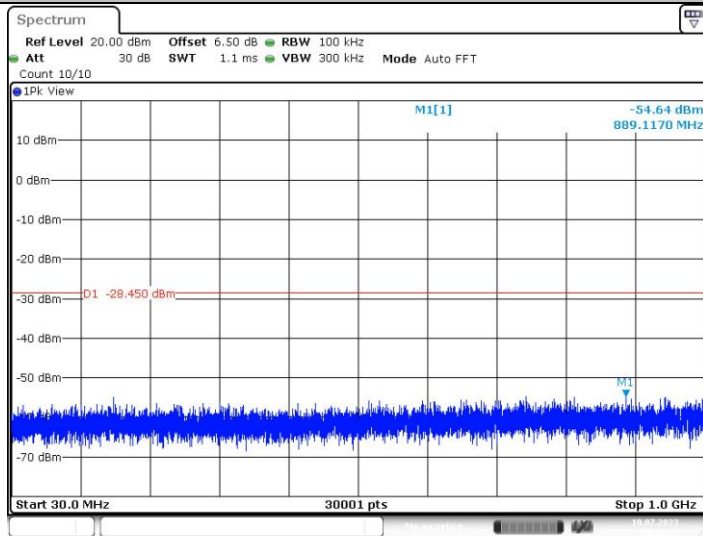
11B\_Ant2\_2437\_1000~26500



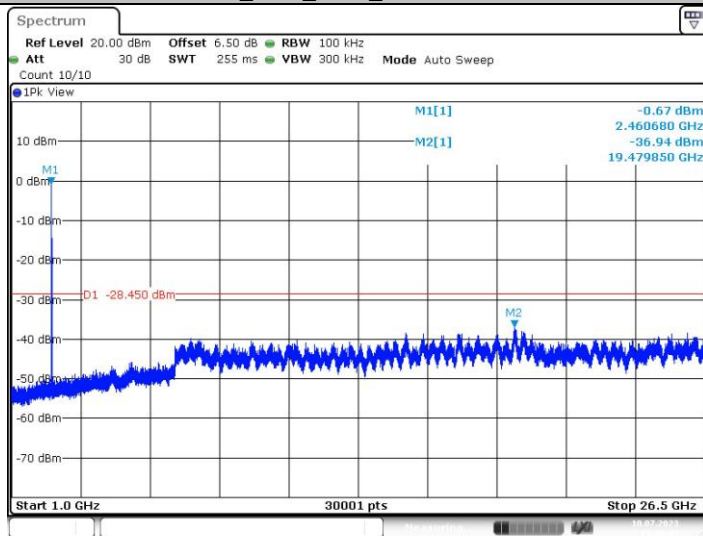
11B\_Ant1\_2462\_0~Reference



11B\_Ant1\_2462\_30~1000



11B\_Ant1\_2462\_1000~26500



11B\_Ant2\_2462\_0~Reference