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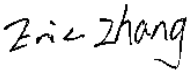
TEST REPORT

Report No. ·····:	**CTC20231618E01**
FCC ID·····:	**WNA-GN543V**
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·····:	**GPON ONT**
Trade Mark·····:	SKYWORTH
Model/Type reference·····:	GN543V
Listed Model(s) ·····:	SK-G5110, TCN22
Standard·····:	**FCC CFR Title 47 Part 15 Subpart C Section 15.247**
Date of receipt of test sample…:	Aug. 01, 2023
Date of testing……..:	Aug. 01, 2023 to Sep. 11, 2023
Date of issue……....:	Sep. 12, 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……..:	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.
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	Sep. 12, 2023	Original

1.3. Test Description

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

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

1.4. Test Facility

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

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

A2LA-Lab Cert. No.: 4340.01
CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in th e 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 Indus try 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 (F CC) Federal Communications Commission. The acceptance letter from the FCC is maintained inour files. Registration 951311, Aug 26, 2017.

1.5. Measurement Uncertainty

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

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

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

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

1.6. Environmental conditions

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

Temperature:	25°C
Relative Humidity:	40%
Air Pressure:	101kPa

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. Baoan Branch Factory
Address:	2-5F,Integration Multi-Storied Building, Skyworth Science and Technology Industrial Park, Tangtou Industrial Zone, Shiyan Street, Baoan District, Shenzhen city, China

2.2. General Description of EUT

Product Name:	GPON ONT
Trade Mark:	SKYWORTH
Model/Type reference:	GN543V
Listed Model(s):	SK-G5110, TCN22
Model Difference:	All these models are identical in the same PCB, layout and electrical circuit, Different is model number.
Power supply:	DC12V 1.5A from AC/DC Adapter
Adapter Model:	YS-SKY120150U03P[Note1] Input: 100-240V~ 50/60Hz 0.6A Output: 12Vdc/1.5A
Hardware version:	/
Software version:	/
WIFI 802.11b/ g/ n(HT20)/n(HT40)	
Modulation:	DSSS for 802.11b OFDM for 802.11g/802.11n(HT20)/802.11n(HT40)
Operation frequency:	2412MHz~2462MHz for 802.11b/802.11g/802.11n(HT20) 2422MHz~2452MHz for 802.11n(HT40)
Channel number:	11 for 802.11b/802.11g/802.11n(HT20) 7 for 802.11n(HT40)
Channel separation:	5MHz
Antenna 0 and 1 type:	dipole Antenna
Antenna 0 gain:	3dBi
Antenna 1 gain:	3dBi

Note:

1. YS-SKY120150U0xP, (x=0-9, indicates marketing purpose, no safety and EMC impact)

2.3. Accessory Equipment Information

Equipment Information			
Name	Model	S/N	Manufacturer
Notebook	ThinkBook 14 G3ACL	/	Lenovo
Cable Information			
Name	Shielded Type	Ferrite Core	Length
LAN Cable	Unshielded	NO	150cm
Test Software Information			
Name	Version	/	/
MT7603 QA	V0.0.1.85	/	/

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-MCS8
802.11n(HT40)	HT-MCS8

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 (duty cycle>98%). EUT support for SISO and MIMO Transmission,802.11b/g only supports SISO Mode, SISO mode sets the same power level as MIMO mode, so MIMO mode is the worst case. Recorded in the report.

2.5. Measurement Instruments List

Radiated emission					
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 Amplifier	SCHWARZBECK	BBV9743B	259	Dec. 16, 2023
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 16, 2023
6	3m chamber 3	YIHENG	EE106	/	Aug. 28, 2026
7	Test Software	FARA	EZ-EMC	FA-03A2	/

Conducted emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	LISN	R&S	ENV216	101112	Dec. 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

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	/	/

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

3. TEST ITEM AND RESULTS

3.1. Conducted Emission

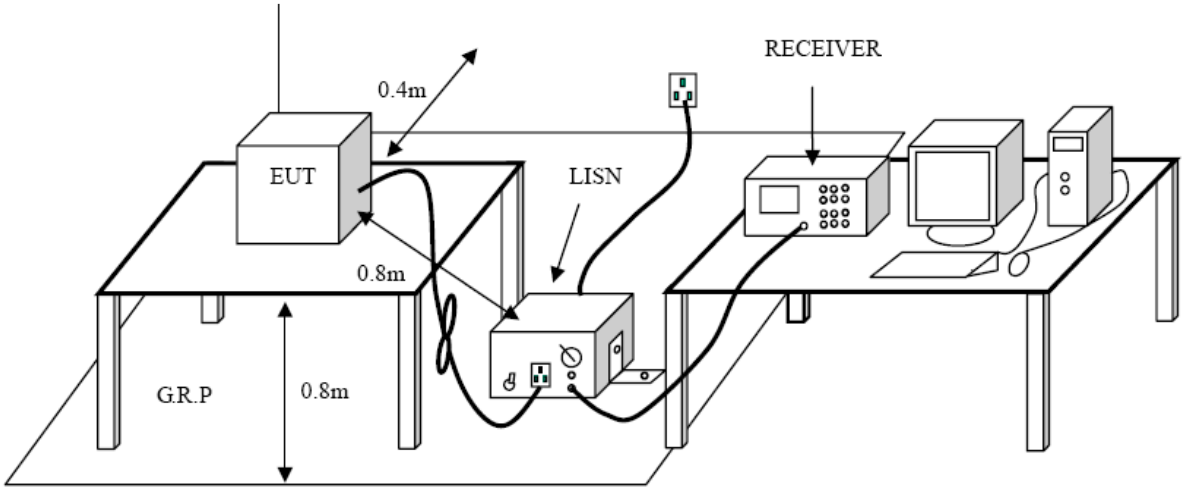
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.207

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

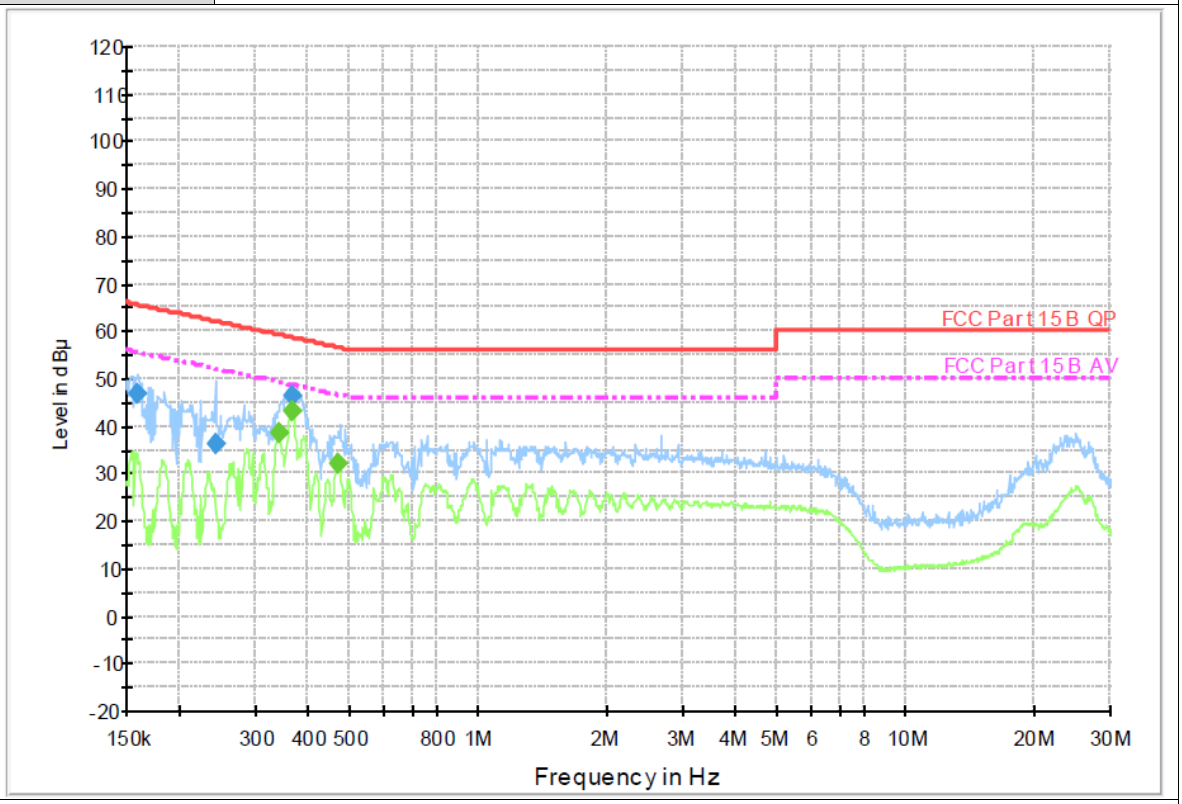
1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from 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 2.3.

Test Results

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



Final Measurement Detector 1

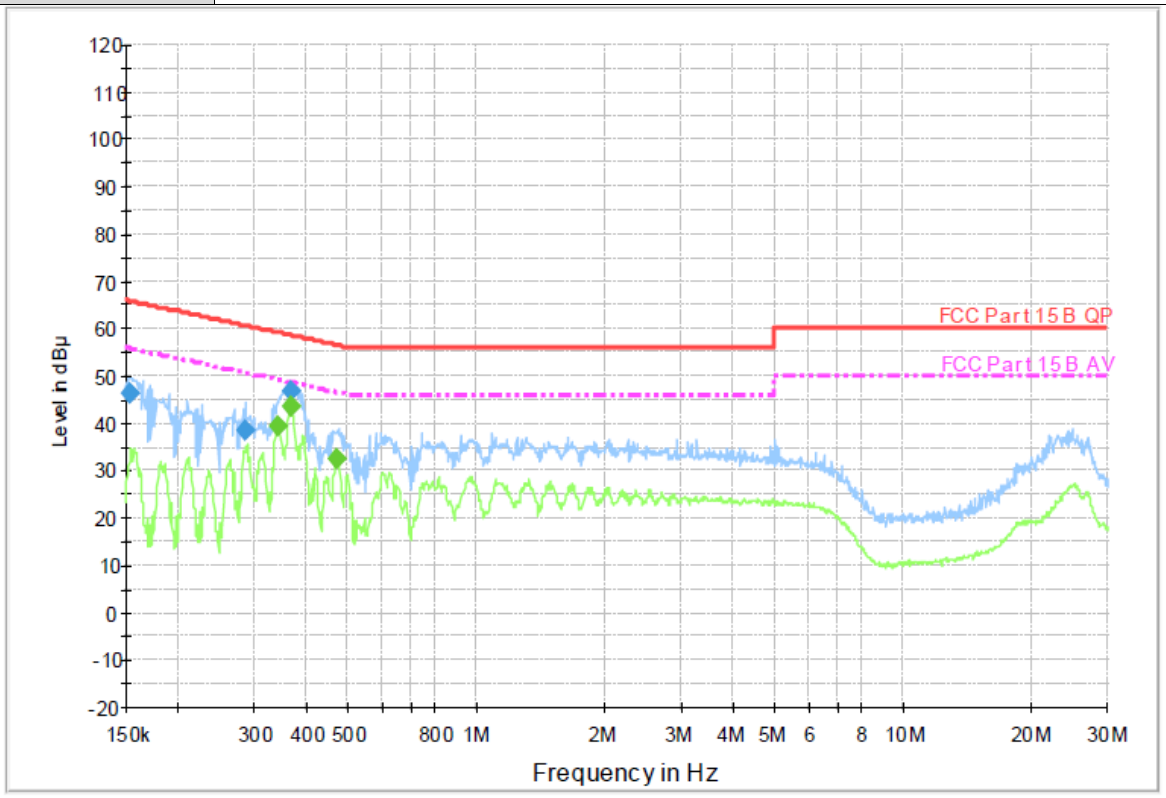
Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.159890	46.7	1000.00	9.000	On	L1	9.7	18.8	65.5	
0.242180	36.0	1000.00	9.000	On	L1	9.7	26.0	62.0	
0.366810	46.3	1000.00	9.000	On	L1	9.7	12.3	58.6	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.341380	38.4	1000.00	9.000	On	L1	9.7	10.8	49.2	
0.366810	43.1	1000.00	9.000	On	L1	9.7	5.5	48.6	
0.469820	31.9	1000.00	9.000	On	L1	9.7	14.6	46.5	

Emission Level= Read Level+ Correct Factor

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



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.153640	46.3	1000.00	9.000	On	N	10.0	19.5	65.8	
0.286390	38.5	1000.00	9.000	On	N	10.0	22.1	60.6	
0.368280	46.6	1000.00	9.000	On	N	10.0	11.9	58.5	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.341380	39.3	1000.00	9.000	On	N	10.0	9.9	49.2	
0.365350	43.6	1000.00	9.000	On	N	10.0	5.0	48.6	
0.469820	32.4	1000.00	9.000	On	N	10.0	14.1	46.5	

Emission Level= Read Level+ Correct Factor

3.2. Radiated Emission

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.209:

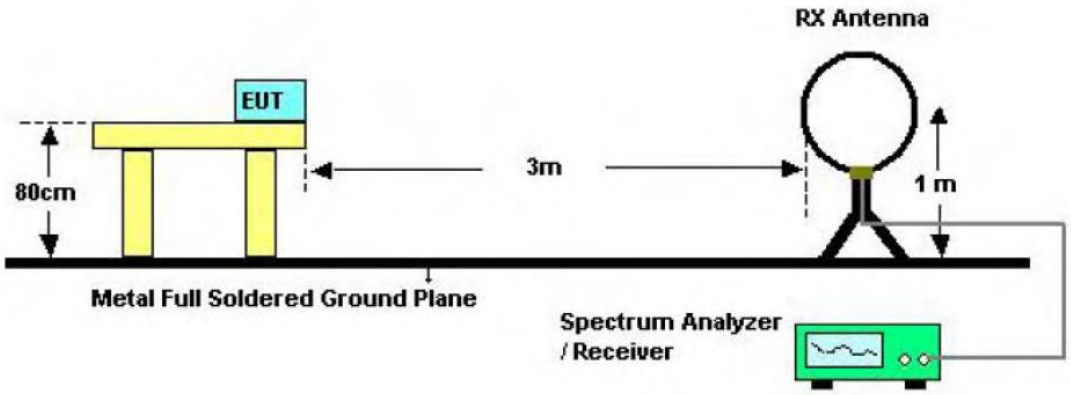
Frequency	Limit (dBuV/m @3m)	Value
30 MHz ~ 88 MHz	40.00	Quasi-peak
88 MHz ~ 216 MHz	43.50	Quasi-peak
216 MHz ~ 960 MHz	46.00	Quasi-peak
960 MHz ~ 1 GHz	54.00	Quasi-peak
Above 1 GHz	54.00	Average
	74.00	Peak

Note:

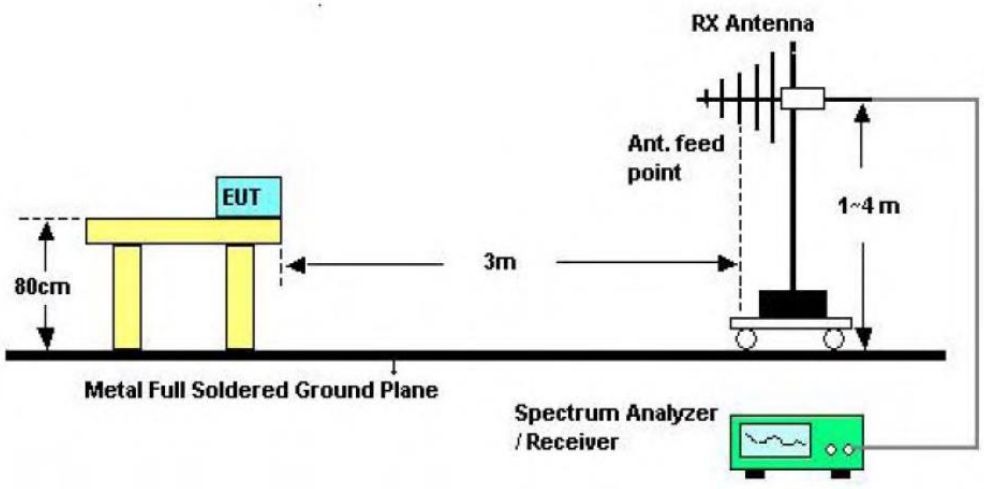
(1) The tighter limit applies at the band edges.

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

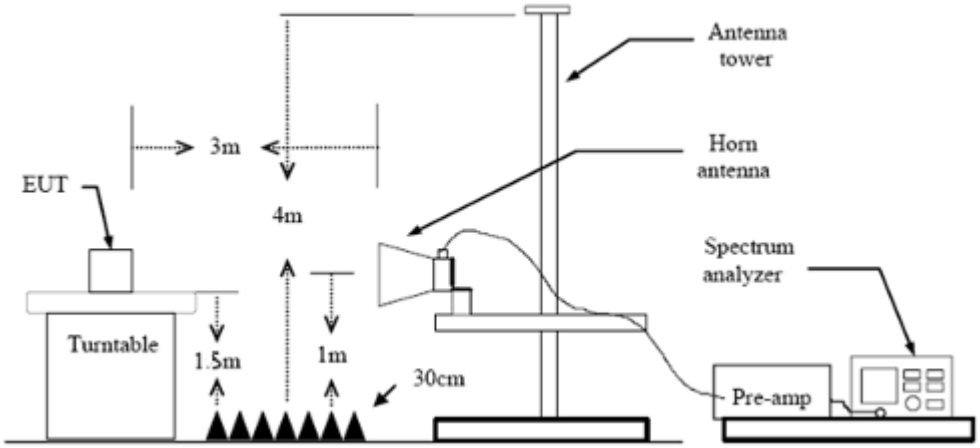
Test Configuration



Below 30MHz Test Setup



Below1000MHz 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 10th harmonic:
RBW=1MHz, VBW=3MHz Peak detector for Peak value.
RBW=1MHz, VBW=3MHz RMS detector for Average value.

Test Mode

Please refer to the clause 2.3.

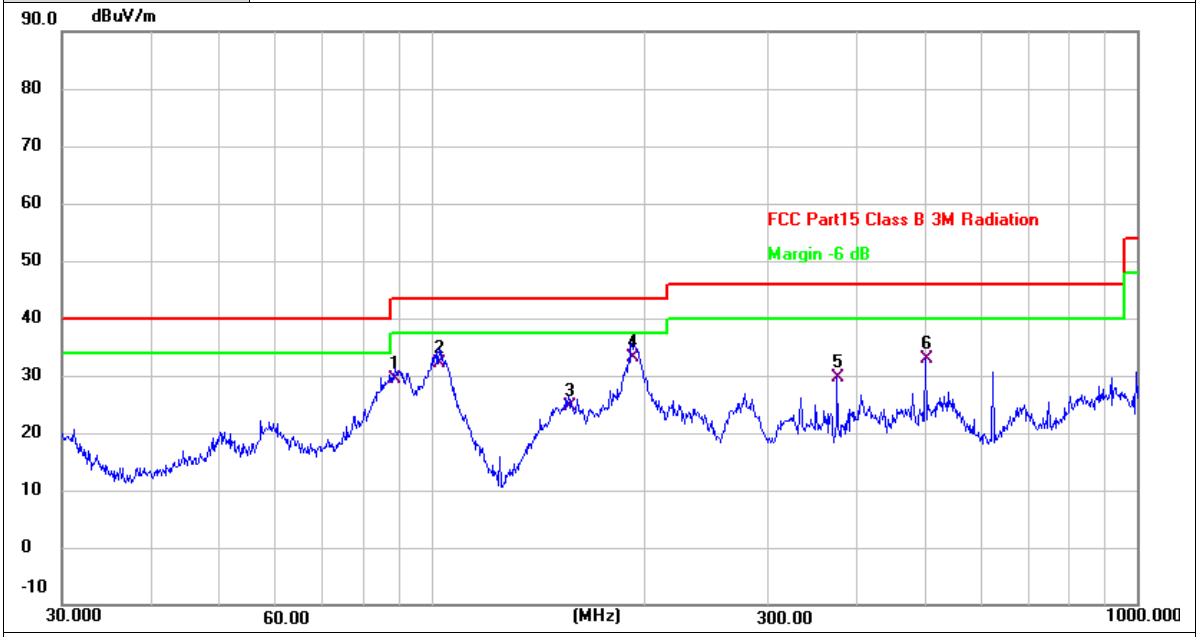
Test Result

9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS
Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

30MHz-1GHz

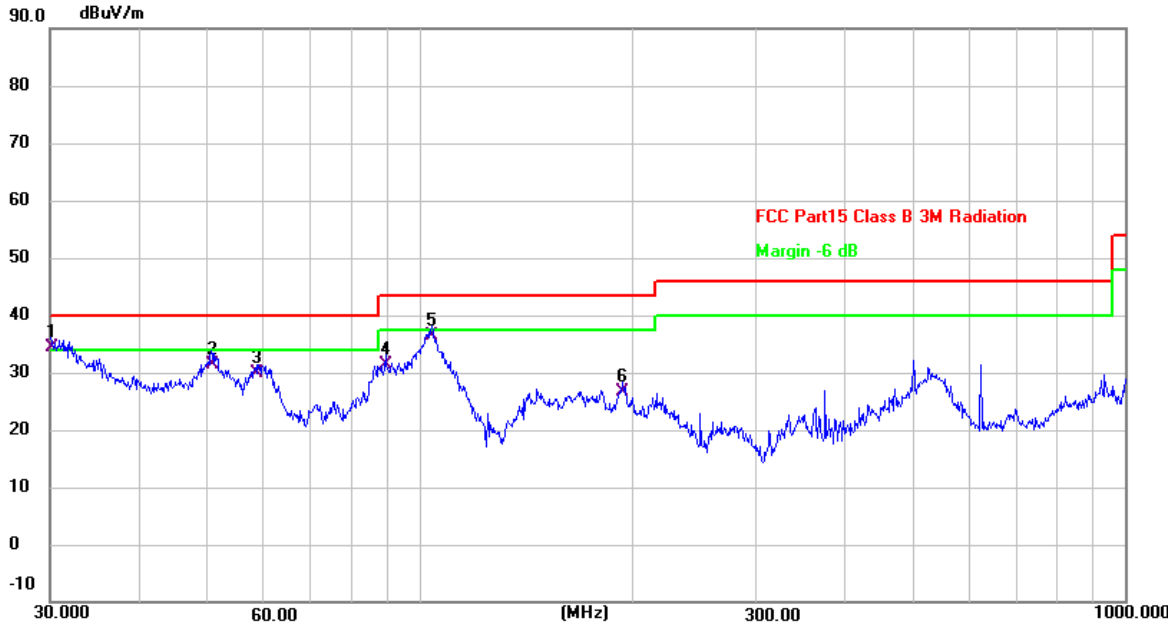
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	88.9637	51.25	-21.80	29.45	43.50	-14.05	QP
2	102.7192	52.75	-20.60	32.15	43.50	-11.35	QP
3	156.4577	41.35	-16.82	24.53	43.50	-18.97	QP
4 *	192.4185	52.96	-19.79	33.17	43.50	-10.33	QP
5	375.9385	44.91	-15.39	29.52	46.00	-16.48	QP
6	501.1790	45.56	-12.64	32.92	46.00	-13.08	QP

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

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	30.1054	52.52	-18.24	34.28	40.00	-5.72	QP
2	50.7637	48.99	-17.73	31.26	40.00	-8.74	QP
3	58.8185	48.26	-18.50	29.76	40.00	-10.24	QP
4	89.5899	53.04	-21.78	31.26	43.50	-12.24	QP
5	104.1701	56.92	-20.55	36.37	43.50	-7.13	QP
6	193.7728	46.45	-19.91	26.54	43.50	-16.96	QP

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

Adobe 1GHz

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.968	45.78	2.20	47.98	54.00	-6.02	AVG
2	4824.026	46.00	2.20	48.20	74.00	-25.80	peak

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

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4824.013	43.53	2.20	45.73	54.00	-8.27	AVG
2	4824.108	47.61	2.20	49.81	74.00	-24.19	peak

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

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.961	45.98	2.30	48.28	74.00	-25.72	peak
2 *	4874.038	40.39	2.30	42.69	54.00	-11.31	AVG

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

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.879	47.01	2.30	49.31	74.00	-24.69	peak
2 *	4873.976	42.72	2.30	45.02	54.00	-8.98	AVG

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

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.923	46.40	2.41	48.81	74.00	-25.19	peak
2 *	4924.071	41.41	2.41	43.82	54.00	-10.18	AVG

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

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.949	46.39	2.41	48.80	54.00	-5.20	AVG
2	4924.018	49.66	2.41	52.07	74.00	-21.93	peak

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

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX G Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.511	27.73	2.20	29.93	54.00	-24.07	AVG
2	4824.098	41.99	2.20	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

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX G Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.973	29.86	2.20	32.06	54.00	-21.94	AVG
2	4824.112	44.31	2.20	46.51	74.00	-27.49	peak

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

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX G Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.825	40.51	2.30	42.81	74.00	-31.19	peak
2 *	4874.257	25.72	2.30	28.02	54.00	-25.98	AVG

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

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX G Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4873.667	28.66	2.30	30.96	54.00	-23.04	AVG
2	4873.968	42.28	2.30	44.58	74.00	-29.42	peak

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

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX G Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4924.103	40.76	2.41	43.17	74.00	-30.83	peak
2 *	4924.280	25.11	2.41	27.52	54.00	-26.48	AVG

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

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX G Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.956	41.81	2.41	44.22	74.00	-29.78	peak
2 *	4924.042	29.32	2.41	31.73	54.00	-22.27	AVG

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

Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.878	46.02	2.20	48.22	74.00	-25.78	peak
2 *	4823.982	40.56	2.20	42.76	54.00	-11.24	AVG

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

Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.973	50.61	2.20	52.81	74.00	-21.19	peak
2 *	4823.975	47.68	2.20	49.88	54.00	-4.12	AVG

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

Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.964	43.69	2.30	45.99	74.00	-28.01	peak
2 *	4873.996	36.78	2.30	39.08	54.00	-14.92	AVG

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

Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.958	48.49	2.30	50.79	74.00	-23.21	peak
2 *	4874.014	44.28	2.30	46.58	54.00	-7.42	AVG

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

Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4924.024	30.58	2.41	32.99	54.00	-21.01	AVG
2	4924.103	42.16	2.41	44.57	74.00	-29.43	peak

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

Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.977	42.24	2.41	44.65	54.00	-9.35	AVG
2	4924.022	47.02	2.41	49.43	74.00	-24.57	peak

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

Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	TX G Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.531	42.52	2.20	44.72	74.00	-29.28	peak
2 *	4824.107	27.55	2.20	29.75	54.00	-24.25	AVG

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

Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	TX G Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.667	46.50	2.20	48.70	74.00	-25.30	peak
2 *	4823.926	32.81	2.20	35.01	54.00	-18.99	AVG

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

Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	TX G Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4874.100	25.52	2.30	27.82	54.00	-26.18	AVG
2	4874.153	40.75	2.30	43.05	74.00	-30.95	peak

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

Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	TX G Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4874.086	28.47	2.30	30.77	54.00	-23.23	AVG
2	4874.093	44.08	2.30	46.38	74.00	-27.62	peak

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

Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	TX G Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.938	24.26	2.41	26.67	54.00	-27.33	AVG
2	4924.402	40.16	2.41	42.57	74.00	-31.43	peak

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

Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	TX G Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.879	42.61	2.41	45.02	74.00	-28.98	peak
2 *	4924.213	28.19	2.41	30.60	54.00	-23.40	AVG

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

Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	TX N20 Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.887	27.01	2.20	29.21	54.00	-24.79	AVG
2	4824.093	41.62	2.20	43.82	74.00	-30.18	peak

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

Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	TX N20 Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.525	45.06	2.20	47.26	74.00	-26.74	peak
2 *	4824.432	31.63	2.20	33.83	54.00	-20.17	AVG

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

Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	TX N20 Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4874.081	39.70	2.30	42.00	74.00	-32.00	peak
2 *	4874.300	25.75	2.30	28.05	54.00	-25.95	AVG

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

Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	TX N20 Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4873.544	28.69	2.30	30.99	54.00	-23.01	AVG
2	4873.653	42.72	2.30	45.02	74.00	-28.98	peak

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

Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	TX N20 Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.777	39.56	2.41	41.97	74.00	-32.03	peak
2 *	4924.055	24.71	2.41	27.12	54.00	-26.88	AVG

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

Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	TX N20 Mode 2462MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4923.510	43.44	2.41	45.85	74.00	-28.15	peak
2 *	4923.817	28.91	2.41	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

Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	TX N40 Mode 2422MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4843.775	25.20	2.24	27.44	54.00	-26.56	AVG
2	4844.147	40.49	2.24	42.73	74.00	-31.27	peak

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

Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	TX N40 Mode 2422MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4843.509	41.56	2.24	43.80	74.00	-30.20	peak
2 *	4844.216	28.57	2.24	30.81	54.00	-23.19	AVG

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

Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	TX N40 Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4873.707	25.91	2.30	28.21	54.00	-25.79	AVG
2	4873.893	40.02	2.30	42.32	74.00	-31.68	peak

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

Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	TX N40 Mode 2437MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4873.624	40.79	2.30	43.09	74.00	-30.91	peak
2 *	4874.424	27.41	2.30	29.71	54.00	-24.29	AVG

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

Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	TX N40 Mode 2452MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4904.202	39.85	2.36	42.21	74.00	-31.79	peak
2 *	4904.211	25.99	2.36	28.35	54.00	-25.65	AVG

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

Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	TX N40 Mode 2452MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4903.750	27.33	2.36	29.69	54.00	-24.31	AVG
2	4904.413	40.25	2.36	42.61	74.00	-31.39	peak

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

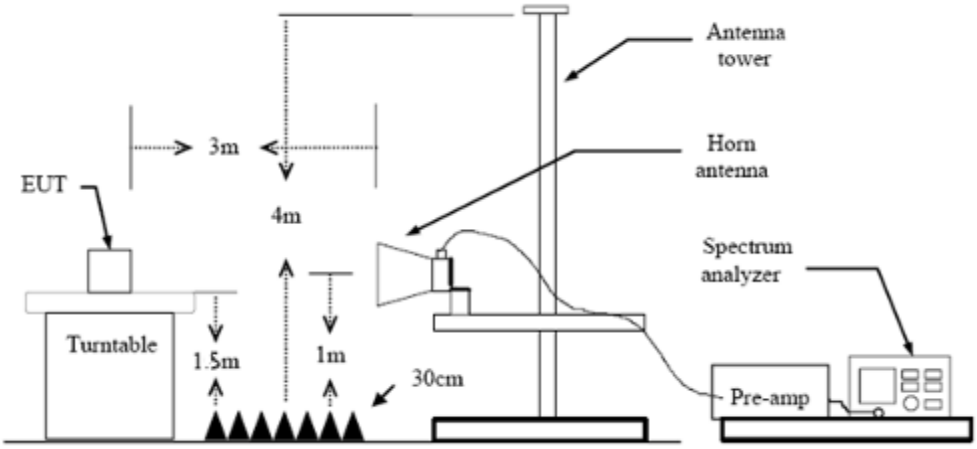
3.3. Band Edge Emissions

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

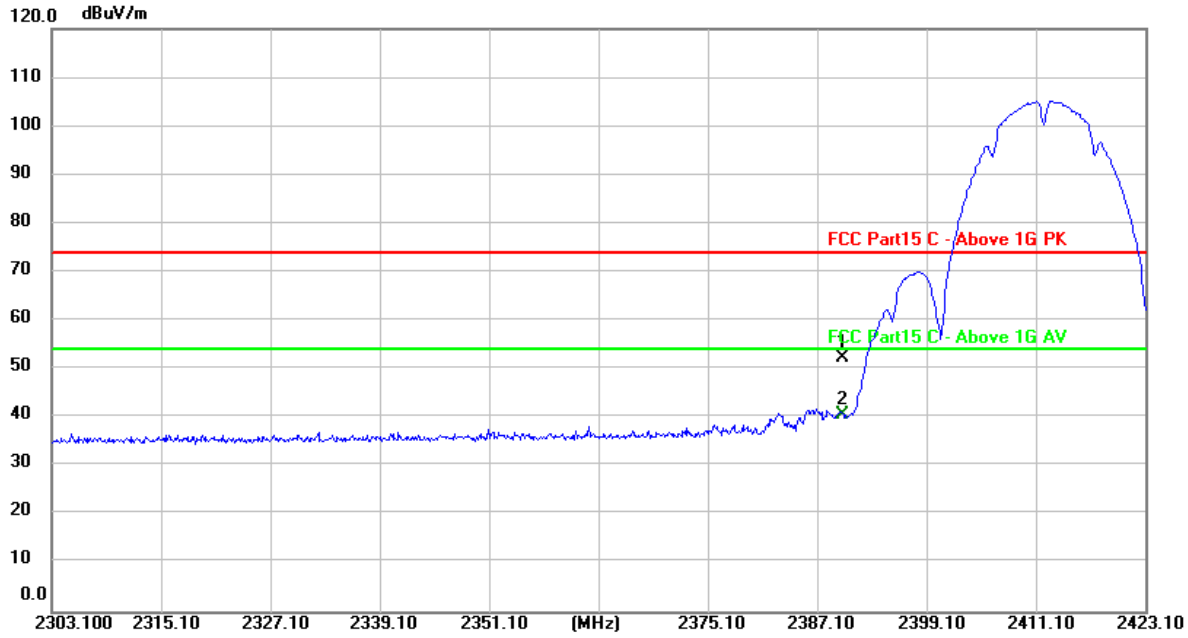
1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna 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=10Hz with PEAK Detector for Average Value.

Test Mode

Please refer to the clause 2.3.

Test Results

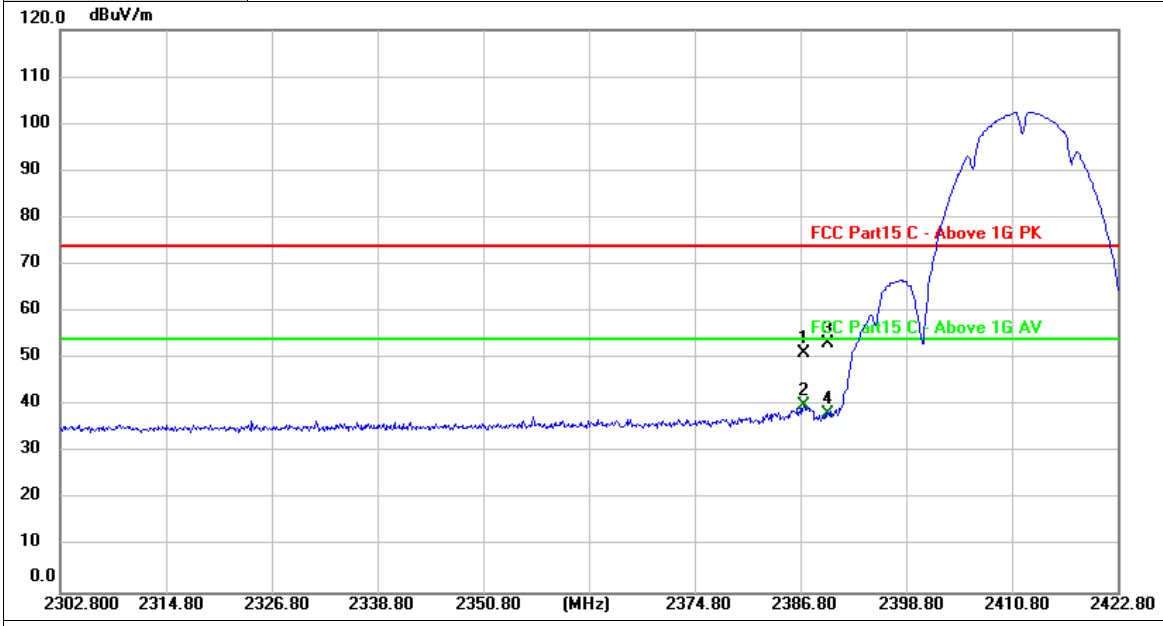
Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	B Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	21.42	30.84	52.26	74.00	-21.74	peak
2 *	2390.000	9.83	30.84	40.67	54.00	-13.33	AVG

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

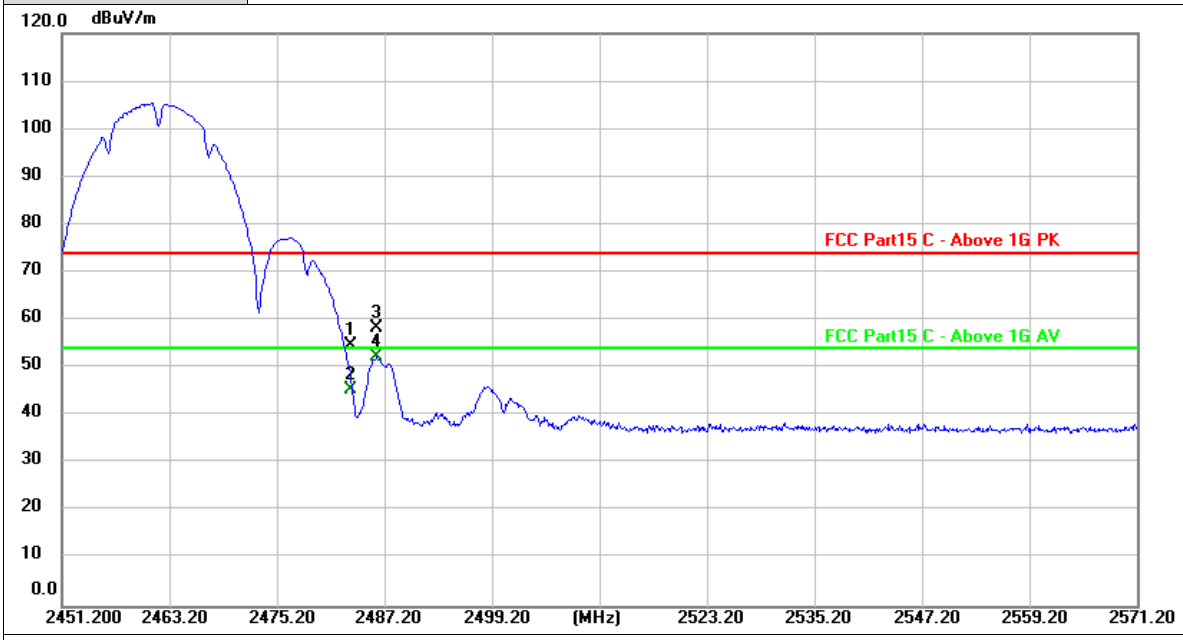
Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	B Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2387.240	20.32	30.83	51.15	74.00	-22.85	peak
2 *	2387.240	9.27	30.83	40.10	54.00	-13.90	AVG
3	2390.000	22.39	30.84	53.23	74.00	-20.77	peak
4	2390.000	7.38	30.84	38.22	54.00	-15.78	AVG

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

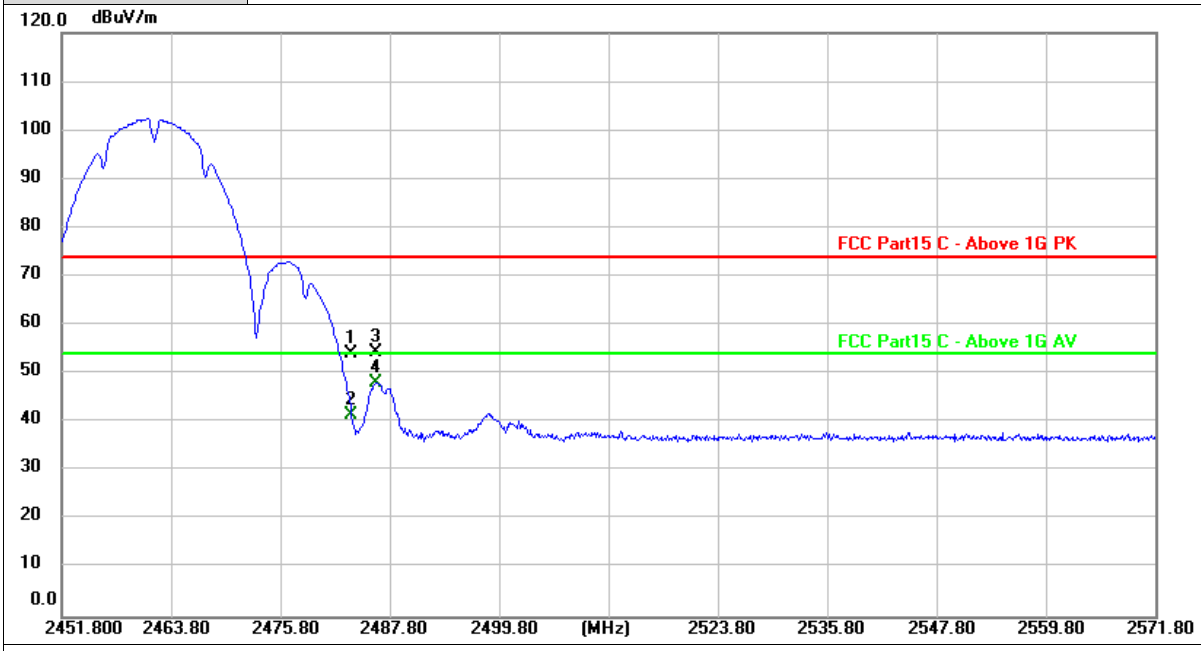
Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	B Mode 2462 MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	23.53	31.24	54.77	74.00	-19.23	peak
2	2483.500	14.19	31.24	45.43	54.00	-8.57	AVG
3	2486.400	27.24	31.25	58.49	74.00	-15.51	peak
4 *	2486.400	21.01	31.25	52.26	54.00	-1.74	AVG

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

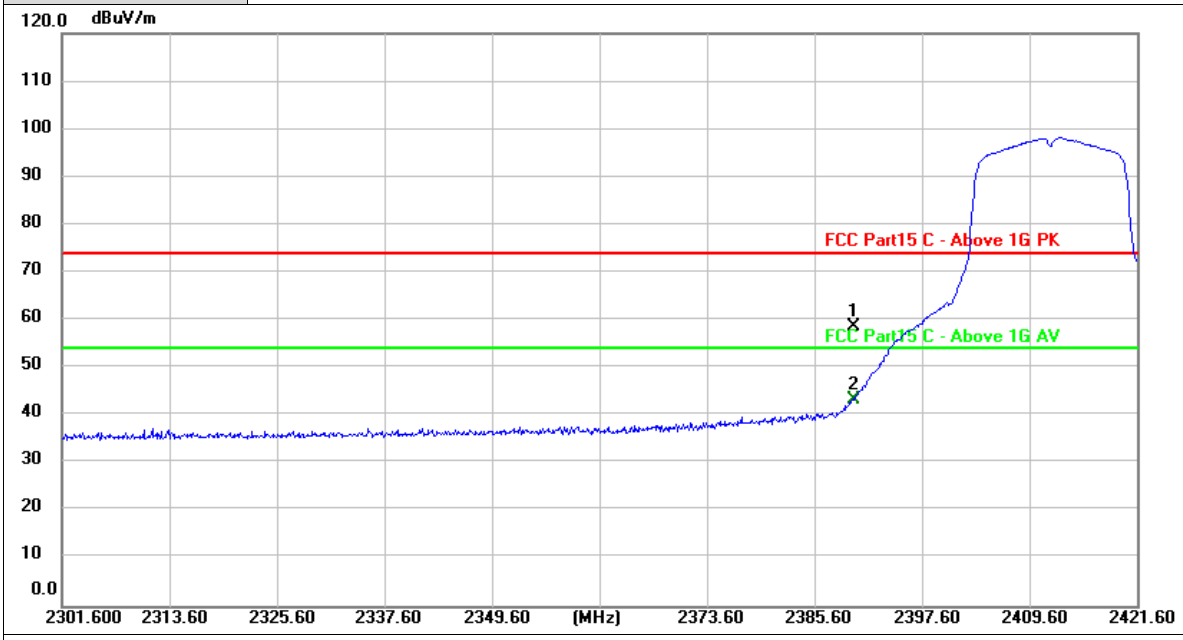
Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	B Mode 2462 MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	22.82	31.24	54.06	74.00	-19.94	peak
2	2483.500	10.32	31.24	41.56	54.00	-12.44	AVG
3	2486.320	23.16	31.25	54.41	74.00	-19.59	peak
4 *	2486.320	16.94	31.25	48.19	54.00	-5.81	AVG

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

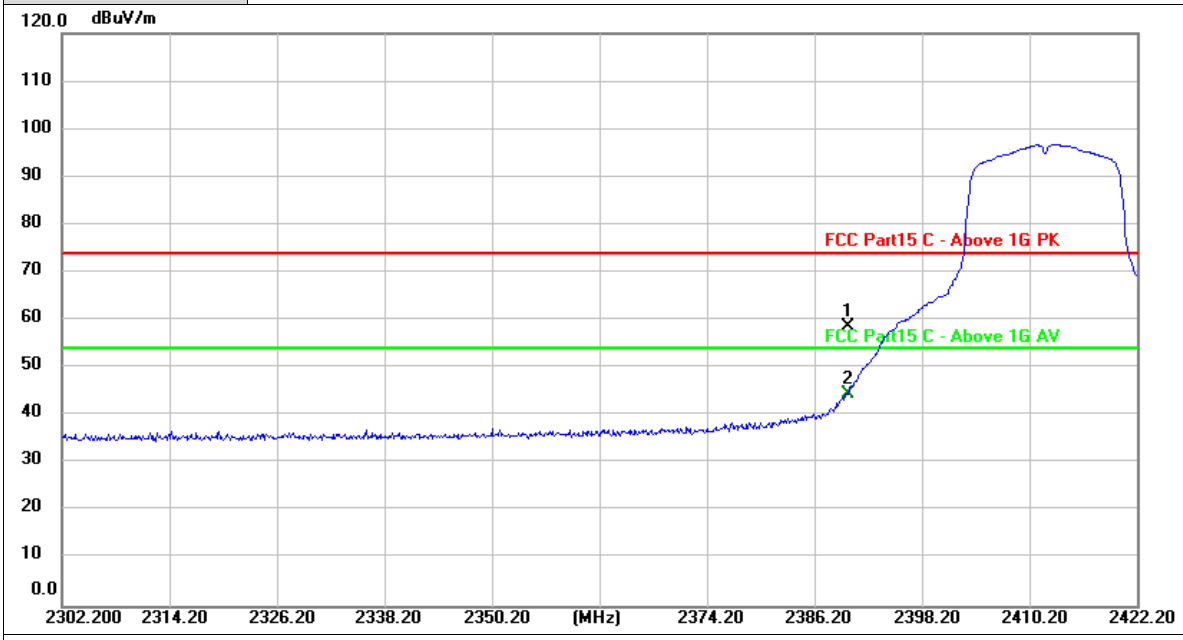
Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	G Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	27.75	30.84	58.59	74.00	-15.41	peak
2 *	2390.000	12.44	30.84	43.28	54.00	-10.72	AVG

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

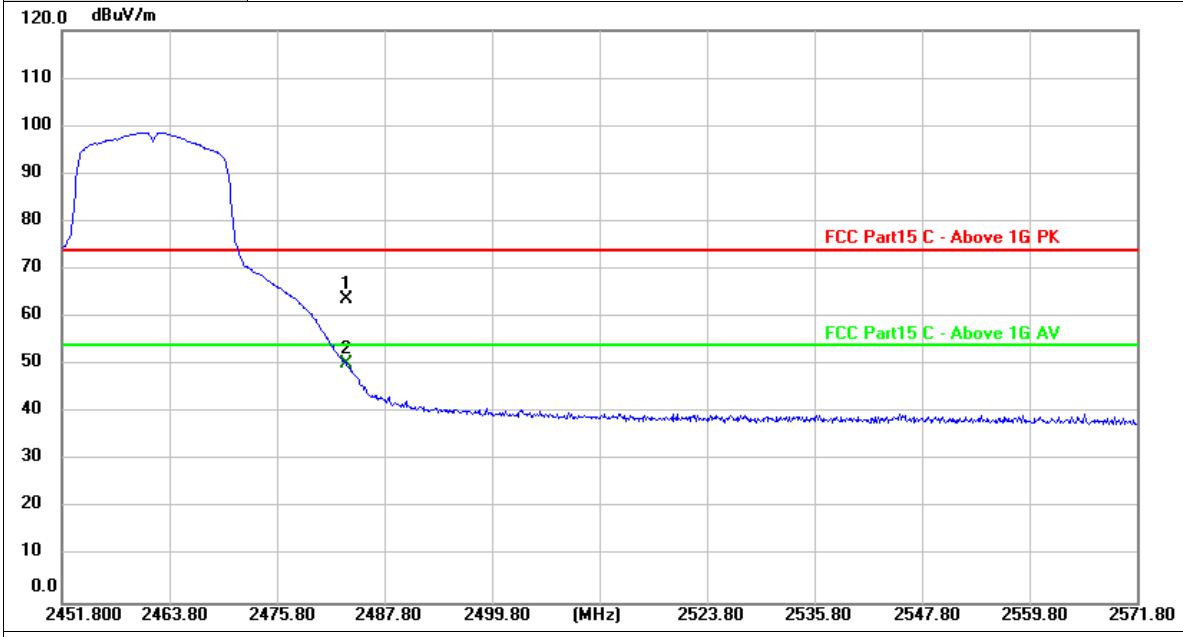
Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	G Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	27.82	30.84	58.66	74.00	-15.34	peak
2 *	2390.000	13.82	30.84	44.66	54.00	-9.34	AVG

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

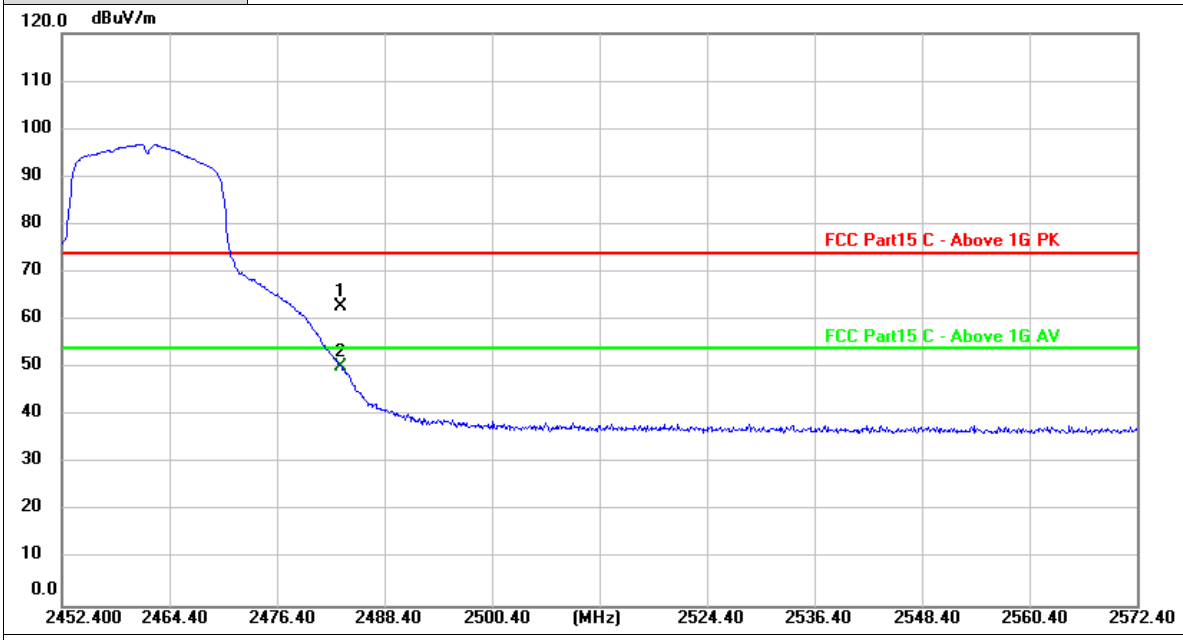
Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	G Mode 2462MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	32.64	31.24	63.88	74.00	-10.12	peak
2 *	2483.500	19.04	31.24	50.28	54.00	-3.72	AVG

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

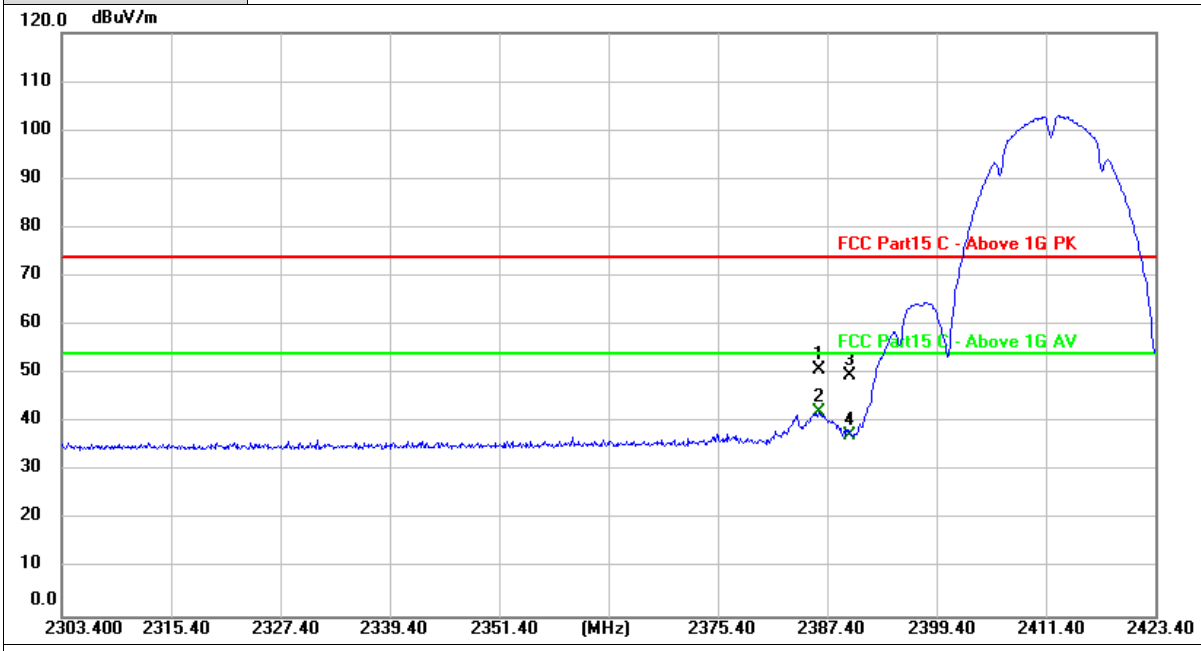
Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	G Mode 2462MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	31.65	31.24	62.89	74.00	-11.11	peak
2 *	2483.500	19.02	31.24	50.26	54.00	-3.74	AVG

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

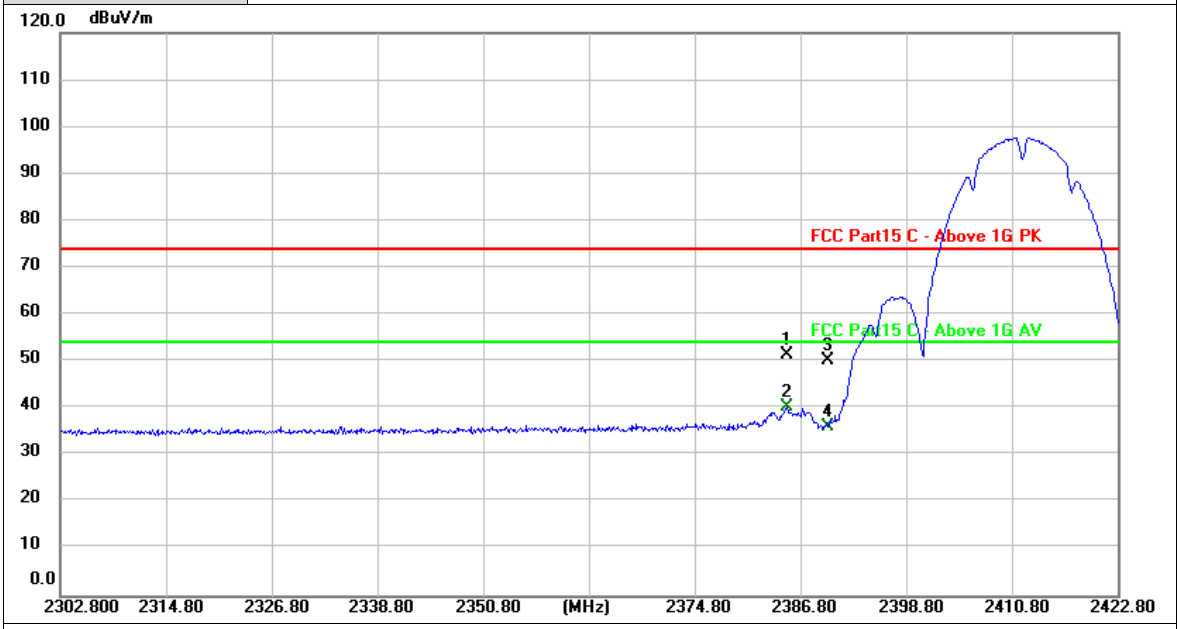
Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	B Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2386.640	20.12	30.82	50.94	74.00	-23.06	peak
2 *	2386.640	11.43	30.82	42.25	54.00	-11.75	AVG
3	2390.000	18.72	30.84	49.56	74.00	-24.44	peak
4	2390.000	6.61	30.84	37.45	54.00	-16.55	AVG

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

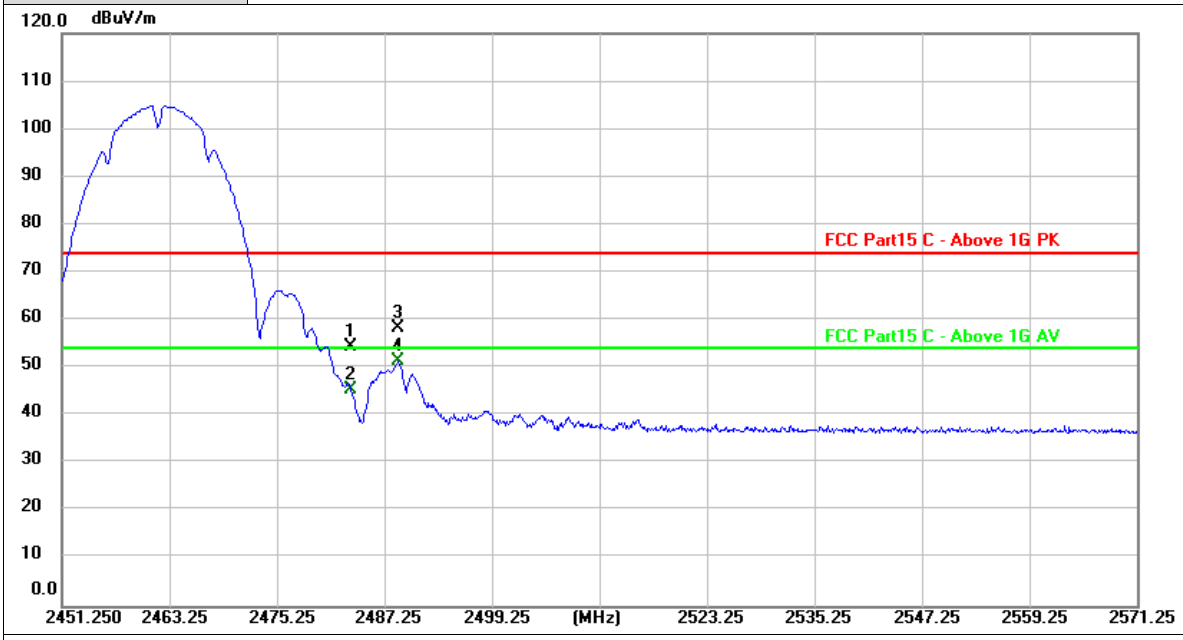
Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	B Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2385.280	20.62	30.82	51.44	74.00	-22.56	peak
2 *	2385.280	9.59	30.82	40.41	54.00	-13.59	AVG
3	2390.000	19.33	30.84	50.17	74.00	-23.83	peak
4	2390.000	5.44	30.84	36.28	54.00	-17.72	AVG

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

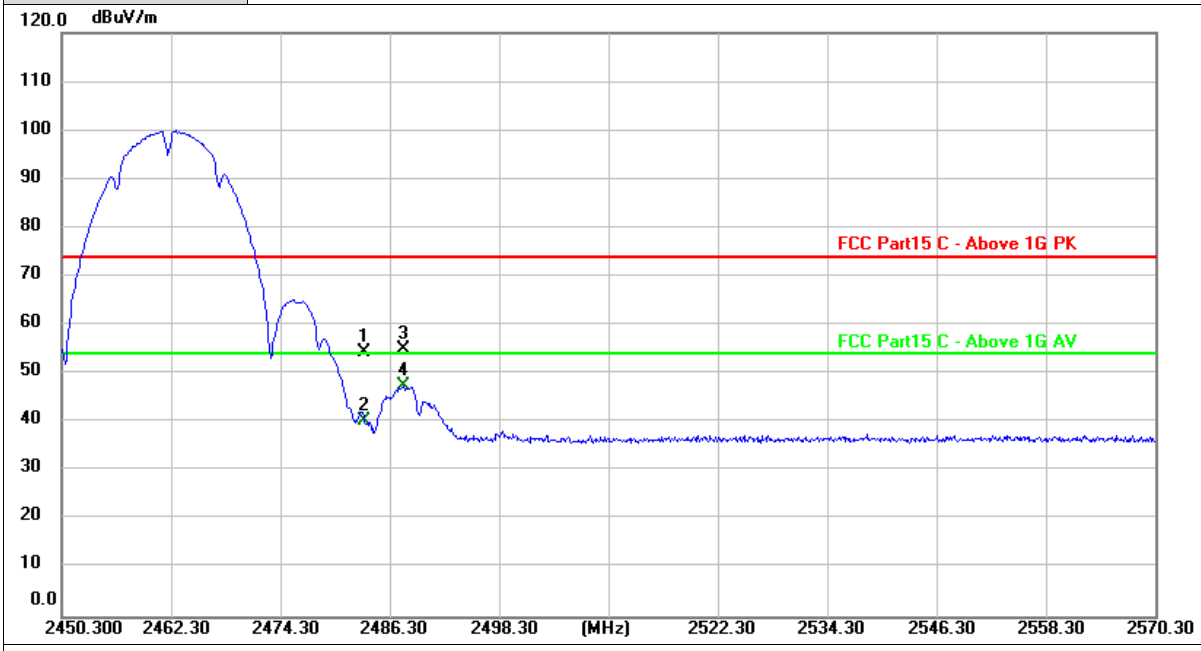
Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	B Mode 2462 MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	23.10	31.24	54.34	74.00	-19.66	peak
2	2483.500	14.12	31.24	45.36	54.00	-8.64	AVG
3	2488.810	27.16	31.26	58.42	74.00	-15.58	peak
4 *	2488.810	20.05	31.26	51.31	54.00	-2.69	AVG

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

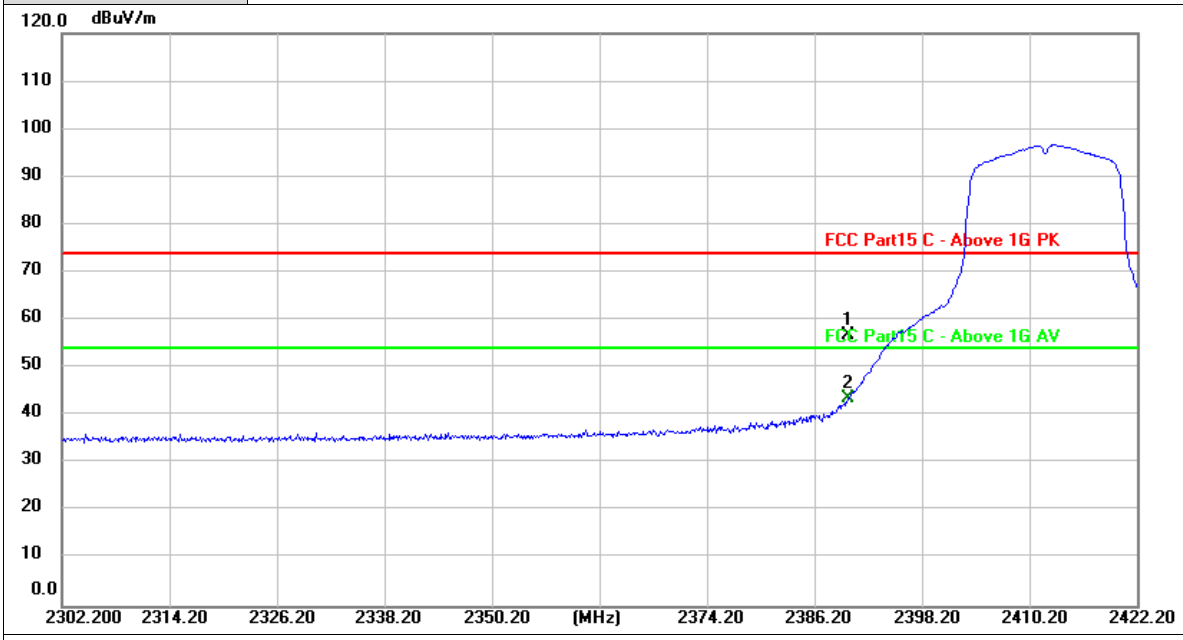
Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	B Mode 2462 MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	23.11	31.24	54.35	74.00	-19.65	peak
2	2483.500	9.12	31.24	40.36	54.00	-13.64	AVG
3	2487.900	23.80	31.26	55.06	74.00	-18.94	peak
4 *	2487.900	16.43	31.26	47.69	54.00	-6.31	AVG

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

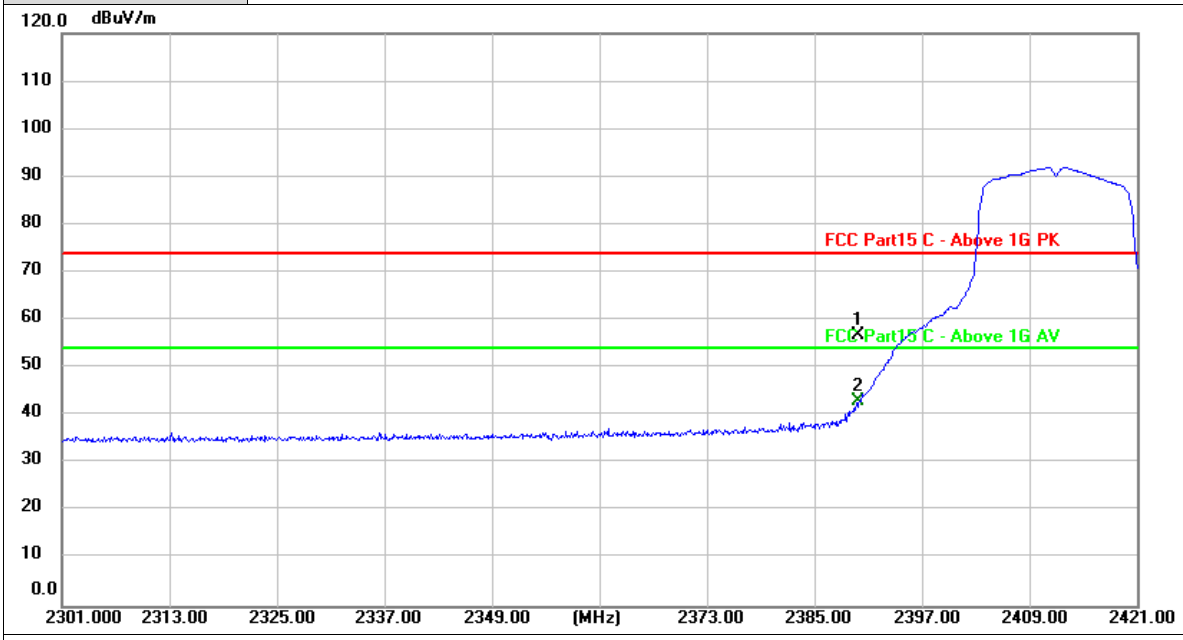
Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	G Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	26.01	30.84	56.85	74.00	-17.15	peak
2 *	2390.000	12.88	30.84	43.72	54.00	-10.28	AVG

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

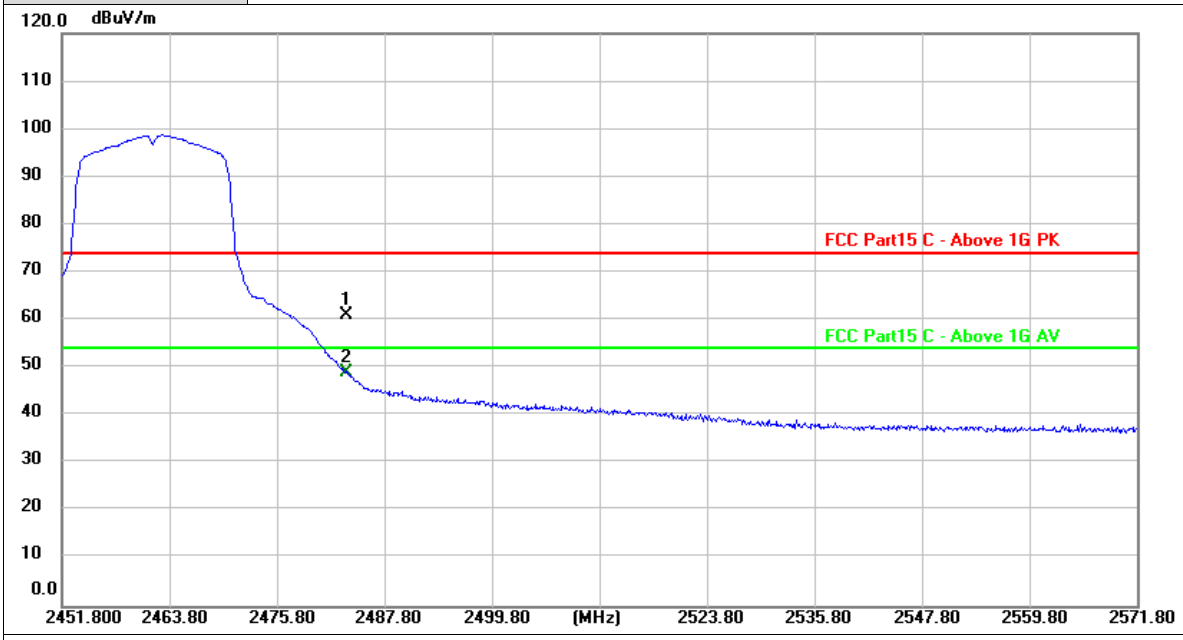
Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	G Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	25.96	30.84	56.80	74.00	-17.20	peak
2 *	2390.000	12.07	30.84	42.91	54.00	-11.09	AVG

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

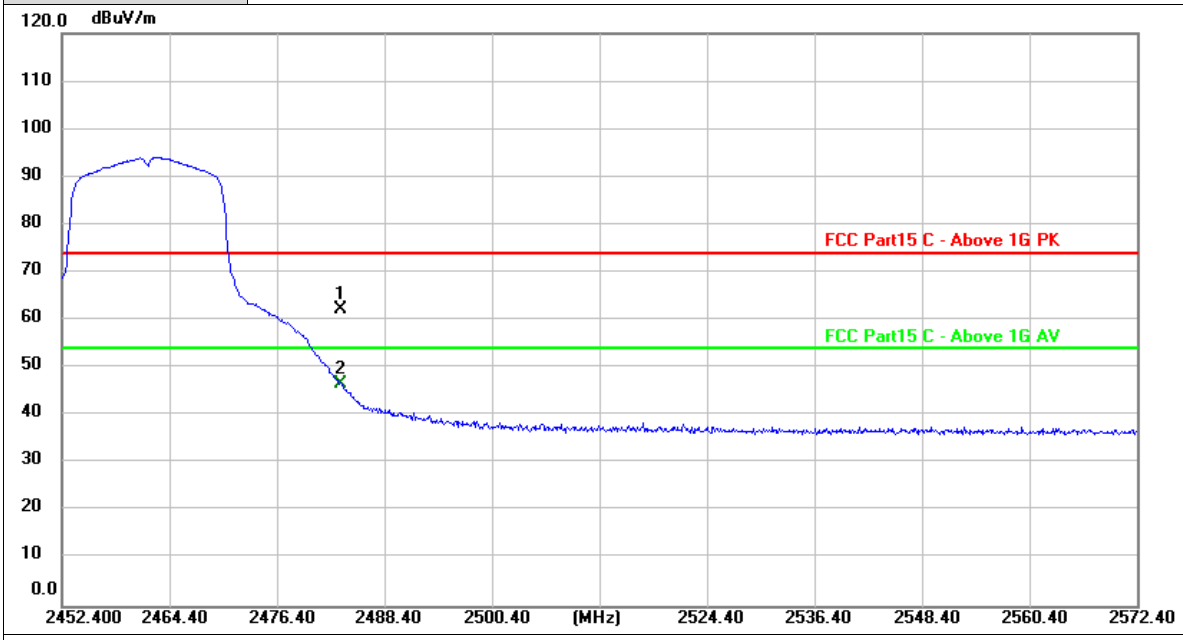
Ant No.	ANT2
Ant. Pol.	Horizontal
Test Mode:	G Mode 2462MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	29.70	31.24	60.94	74.00	-13.06	peak
2 *	2483.500	17.73	31.24	48.97	54.00	-5.03	AVG

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

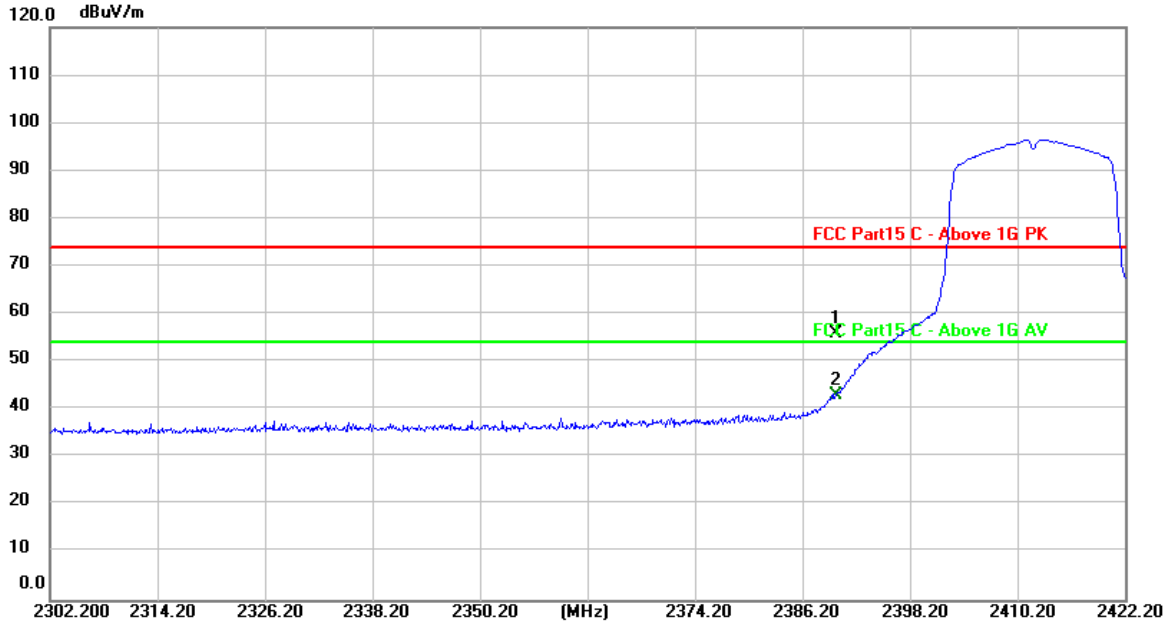
Ant No.	ANT2
Ant. Pol.	Vertical
Test Mode:	G Mode 2462MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	31.00	31.24	62.24	74.00	-11.76	peak
2 *	2483.500	15.42	31.24	46.66	54.00	-7.34	AVG

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

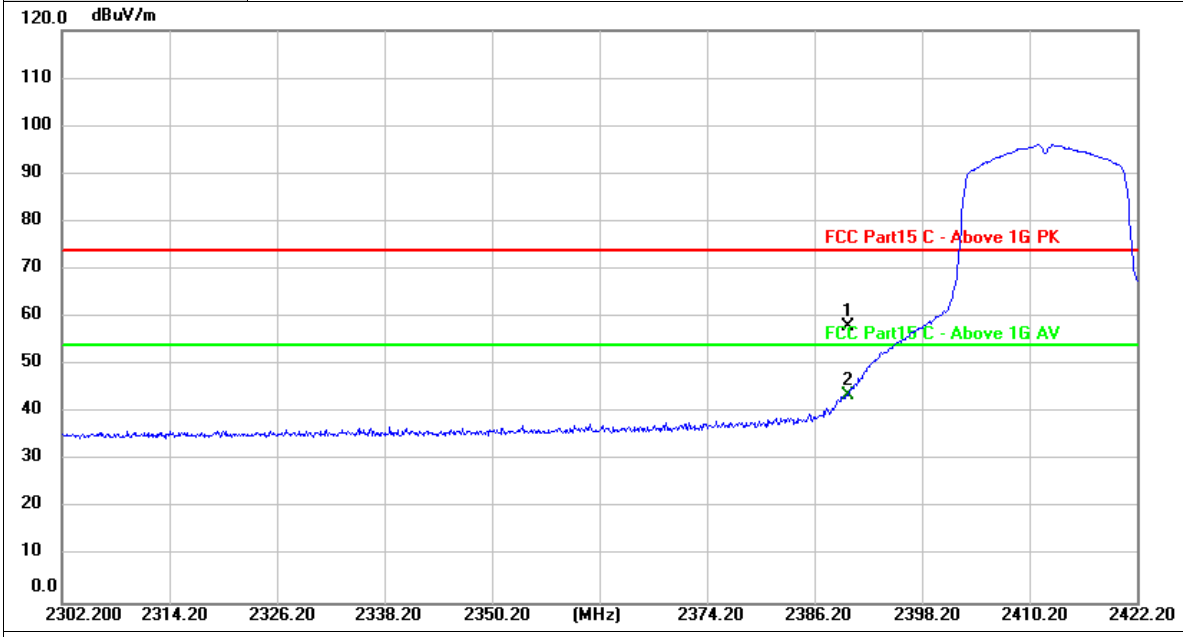
Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	N(HT20) Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	25.13	30.84	55.97	74.00	-18.03	peak
2 *	2390.000	12.30	30.84	43.14	54.00	-10.86	AVG

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

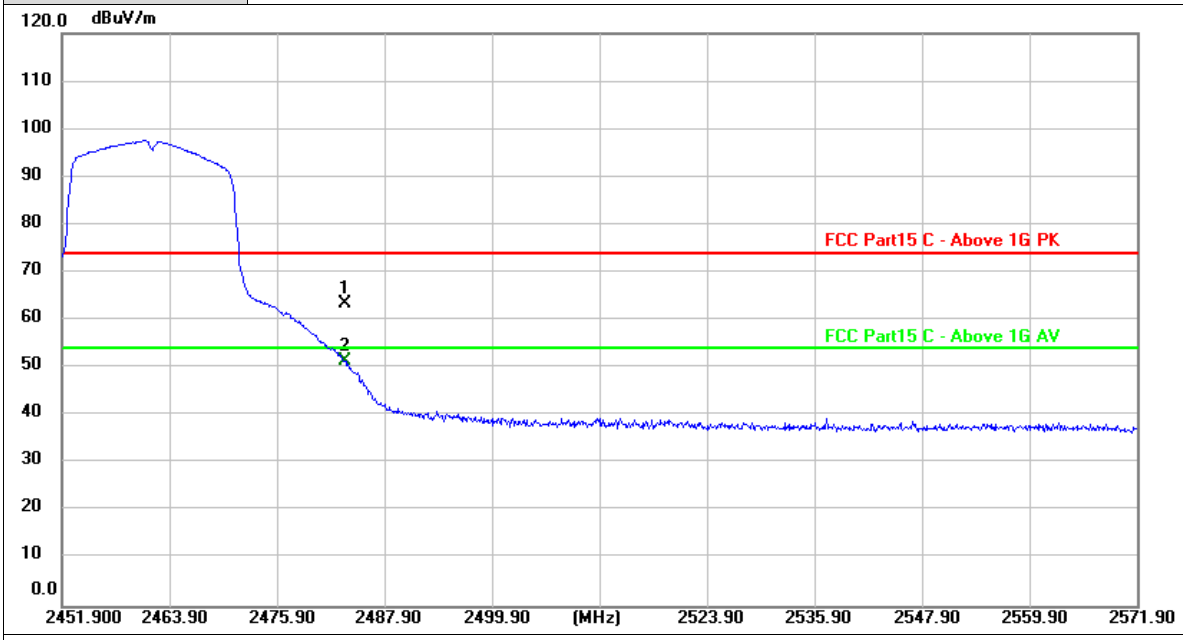
Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	N(HT20) Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	27.34	30.84	58.18	74.00	-15.82	peak
2 *	2390.000	12.85	30.84	43.69	54.00	-10.31	AVG

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

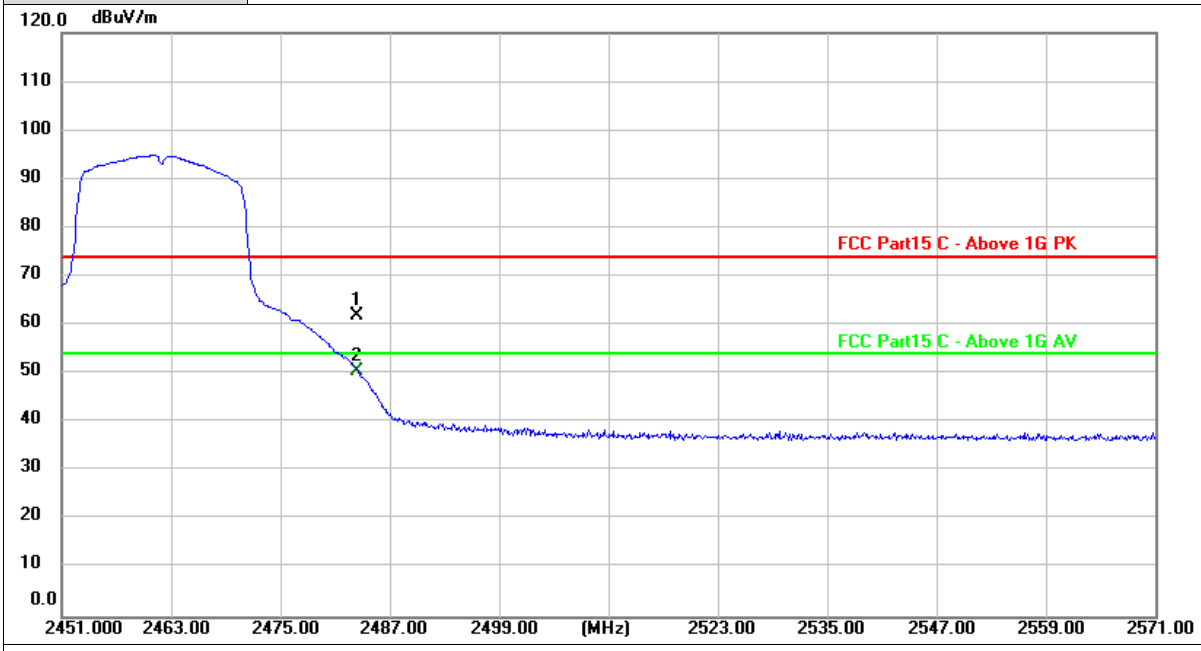
Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	N(HT20) Mode 2462MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	32.24	31.24	63.48	74.00	-10.52	peak
2 *	2483.500	20.18	31.24	51.42	54.00	-2.58	AVG

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

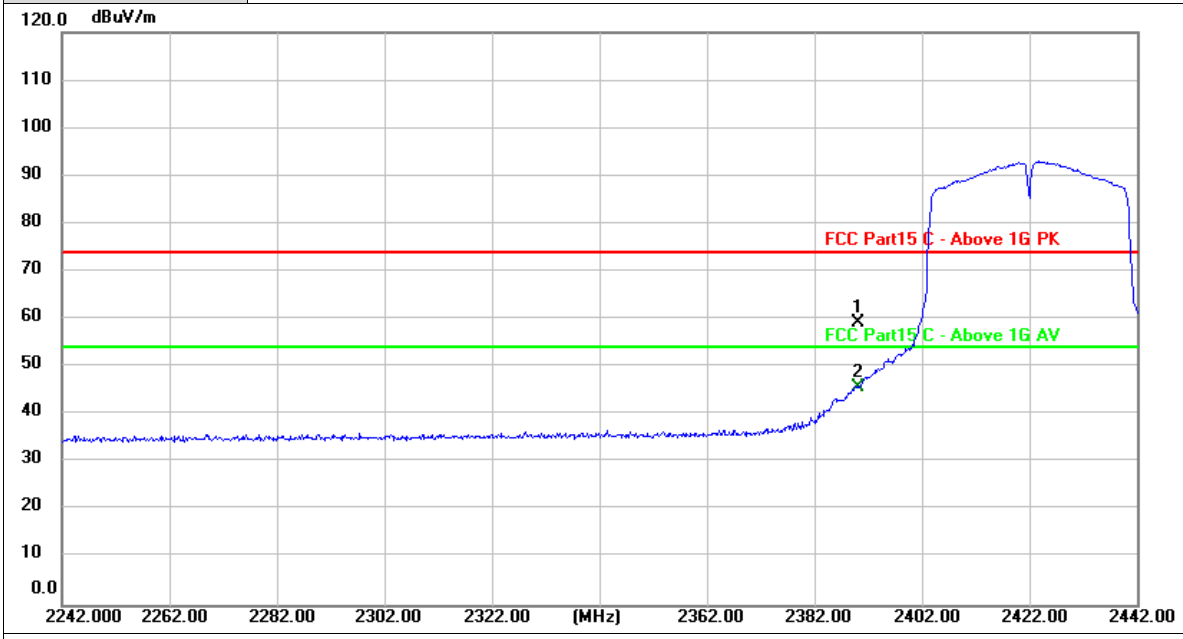
Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	N(HT20) Mode 2462MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	30.81	31.24	62.05	74.00	-11.95	peak
2 *	2483.500	19.30	31.24	50.54	54.00	-3.46	AVG

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

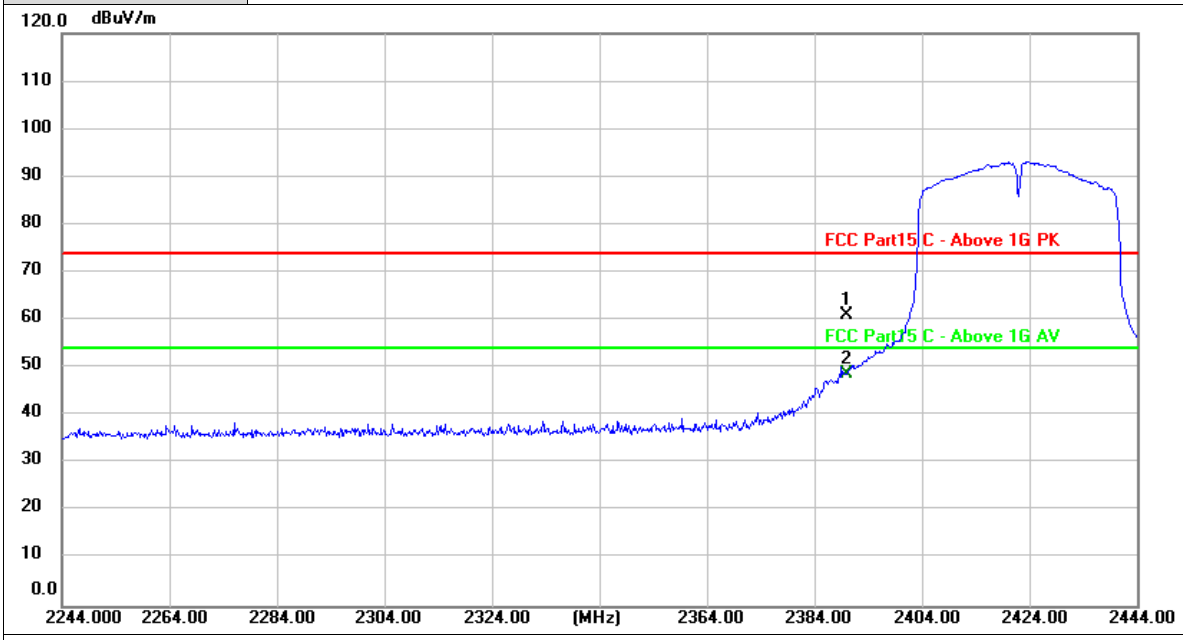
Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	N(HT40) Mode 2422MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	28.36	30.84	59.20	74.00	-14.80	peak
2 *	2390.000	15.06	30.84	45.90	54.00	-8.10	AVG

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

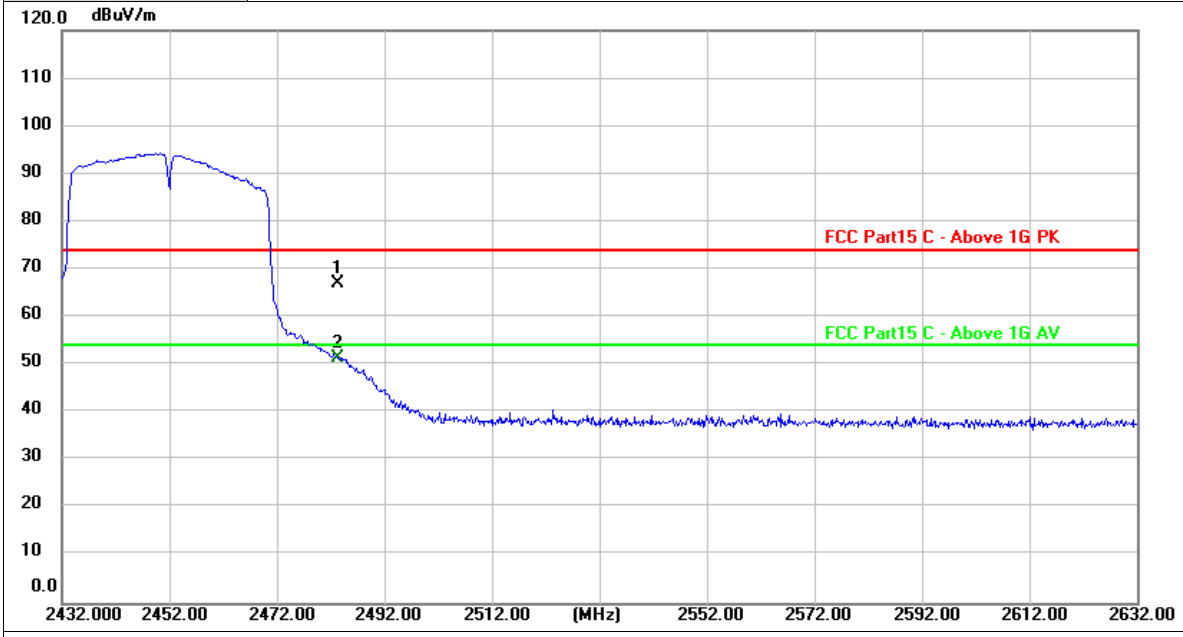
Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	N(HT40) Mode 2422MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	30.23	30.84	61.07	74.00	-12.93	peak
2 *	2390.000	18.03	30.84	48.87	54.00	-5.13	AVG

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

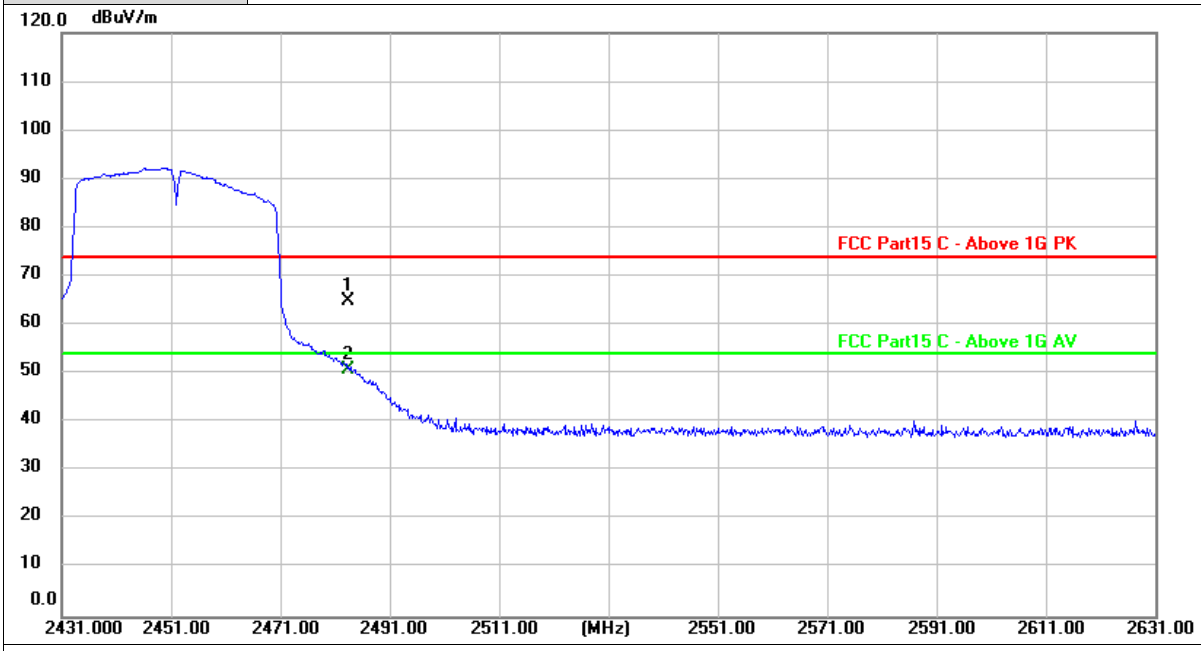
Ant No.	MIMO
Ant. Pol.	Horizontal
Test Mode:	N(HT40) Mode 2452MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	35.82	31.24	67.06	74.00	-6.94	peak
2 *	2483.500	20.31	31.24	51.55	54.00	-2.45	AVG

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

Ant No.	MIMO
Ant. Pol.	Vertical
Test Mode:	N(HT40) Mode 2452MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	33.86	31.24	65.10	74.00	-8.90	peak
2 *	2483.500	19.48	31.24	50.72	54.00	-3.28	AVG

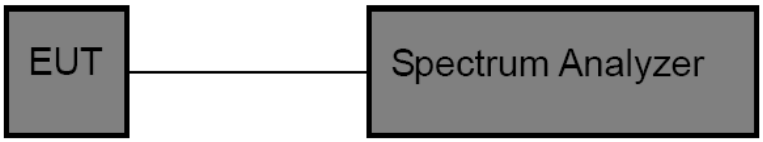
Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

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 or digitally modulated 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 ≥ RBW, scan up through 10th harmonic.
   Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

Test Mode

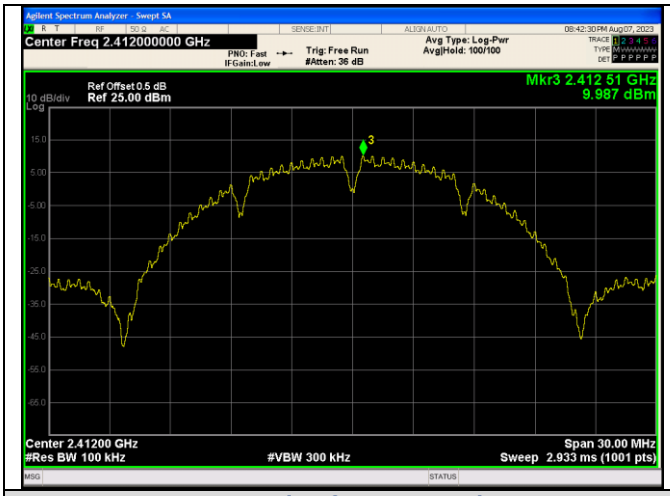
Please refer to the clause 2.4.

Test Results

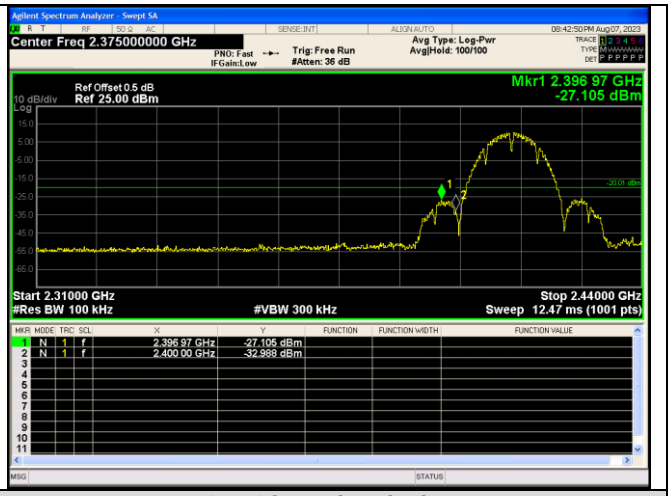
Band edge measurements & Conducted Spurious Emission

Mode	Channel	Ant.	Frequency (MHz)	Level (dBm)	Limit (dBm)	Result
IEEE 802.11b	1	0	2400.00	-32.988	-20.01	PASS
			2396.97	-27.105	-20.01	PASS
			23549.2	-41.264	-20.01	PASS
		1	2400.00	-33.797	-20.23	PASS
			2396.97	-28.715	-20.23	PASS
			24888.9	-42.176	-20.23	PASS
	6	0	5770.75	-33.142	-20.34	PASS
		1	23718.4	-42.024	-20.26	PASS
	11	0	2483.50	-49.528	-20.88	PASS
			5806.95	-39.393	-20.88	PASS
		1	2483.50	-47.891	-20.36	PASS
			23759.0	-42.272	-20.36	PASS
IEEE 802.11g	1	0	2400.00	-28.269	-23.87	PASS
			24886.4	-41.957	-23.87	PASS
		1	2400.00	-27.475	-23.75	PASS
			24812.1	-42.099	-23.75	PASS
	6	0	5763.88	-25.849	-23.97	PASS
		1	24935.1	-41.957	-24.31	PASS
	11	0	2483.50	-44.132	-24.64	PASS
			23674.7	-41.996	-24.64	PASS
		1	2483.50	-44.571	-23.99	PASS
			24968.2	-41.815	-23.99	PASS
IEEE 802.11n_20	1	0	2400.00	-31.830	-24.83	PASS
			24801.5	-41.866	-24.83	PASS
		1	2400.00	-29.612	-24.74	PASS
			24822.1	-41.797	-24.74	PASS
	6	0	23181.5	-40.926	-24.81	PASS
		1	5738.28	-39.937	-25.51	PASS
	11	0	2483.50	-39.201	-24.85	PASS
			5617.80	-48.385	-24.85	PASS
		1	2483.50	-39.052	-24.97	PASS
			5837.54	-40.214	-24.97	PASS
IEEE 802.11n_40	3	0	2400.00	-41.266	-29.2	PASS
			2397.88	-36.570	-29.2	PASS
			24788.4	-42.342	-29.2	PASS
		1	2400.00	-38.418	-28.73	PASS
			2398.27	-35.325	-28.73	PASS
			23693.4	-41.364	-28.73	PASS
	6	0	24908.9	-41.130	-29.53	PASS
		1	23633.5	-42.164	-29.39	PASS
	9	0	2483.50	-41.441	-29.01	PASS
			22773.9	-42.170	-29.01	PASS
		1	2483.50	-45.958	-29.33	PASS
			22781.4	-42.046	-29.33	PASS

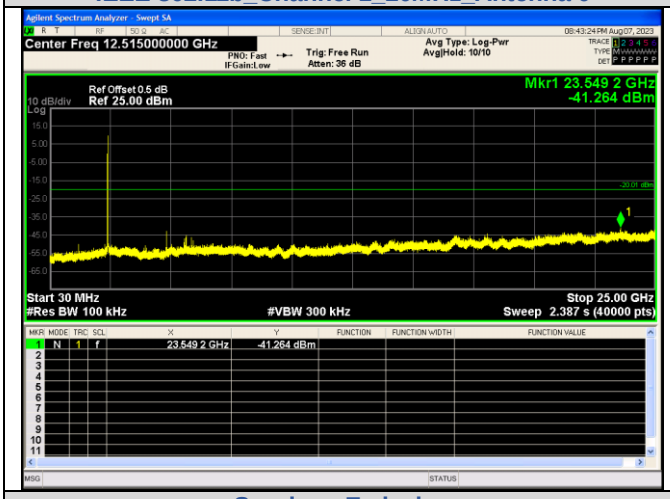
Test Graphs



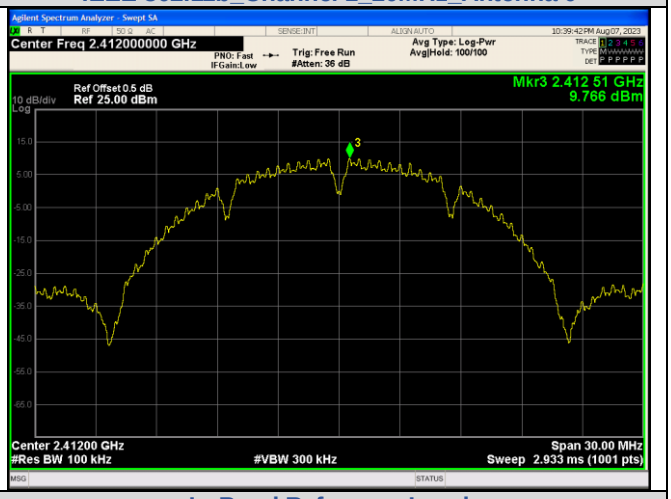
In-Band Reference Level
IEEE 802.11b_Channel 1_20MHz_Antenna 0



Out Of Band Emission
IEEE 802.11b_Channel 1_20MHz_Antenna 0



Spurious Emission
IEEE 802.11b_Channel 1_20MHz_Antenna 0



In-Band Reference Level
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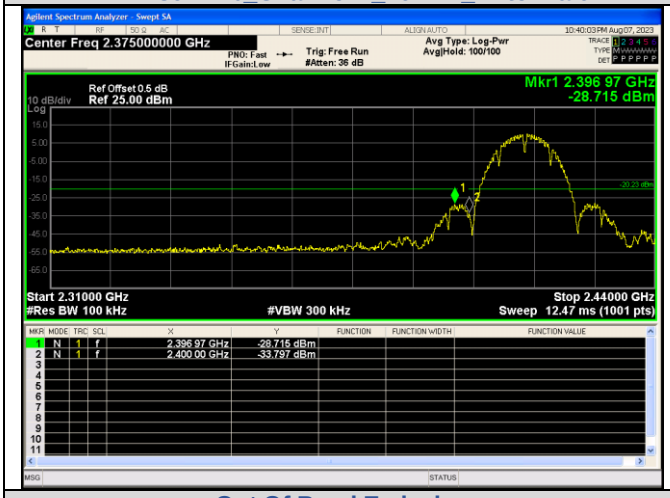
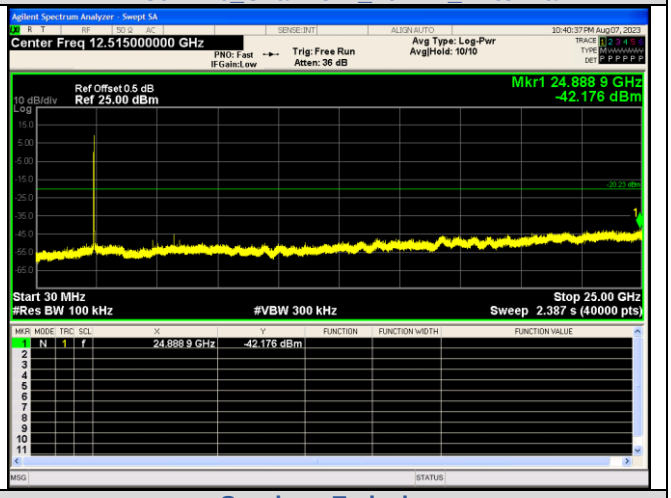
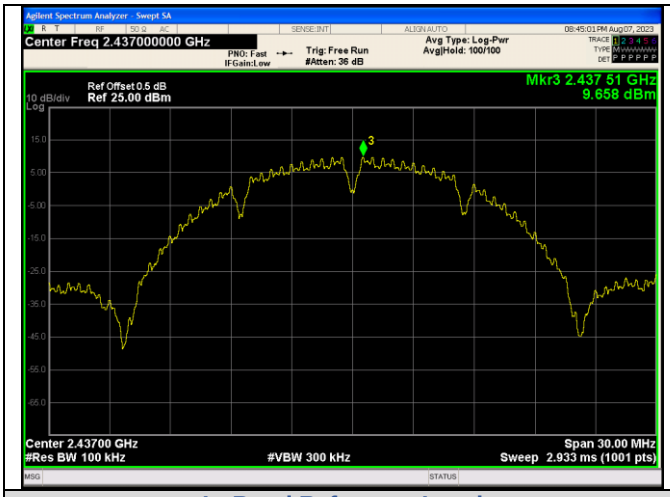


Out Of Band Emission
IEEE 802.11b_Channel 1_20MHz_Antenna 1



Spurious Emission
IEEE 802.11b_Channel 1_20MHz_Antenna 1



In-Band Reference Level
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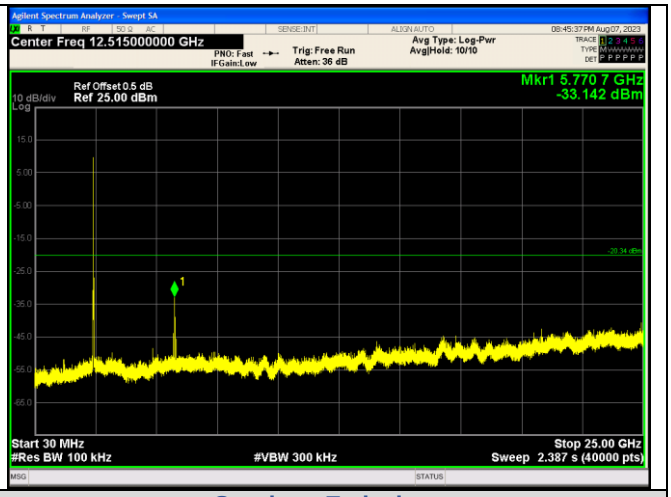

Spurious Emissions
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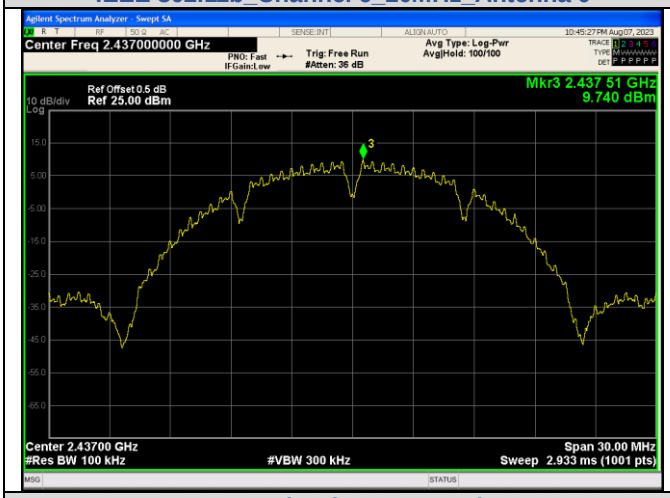

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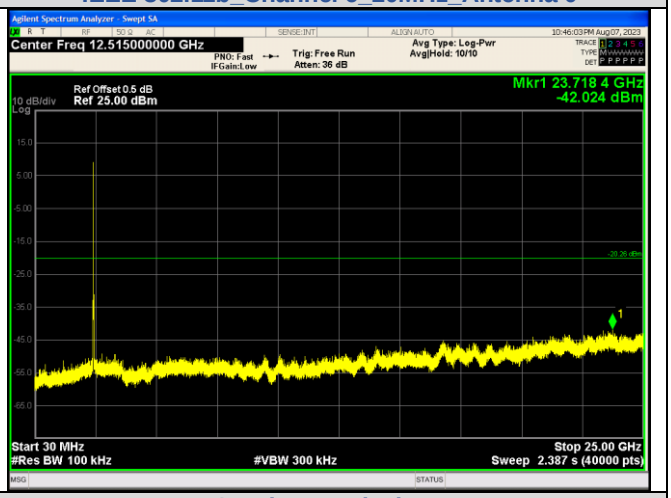
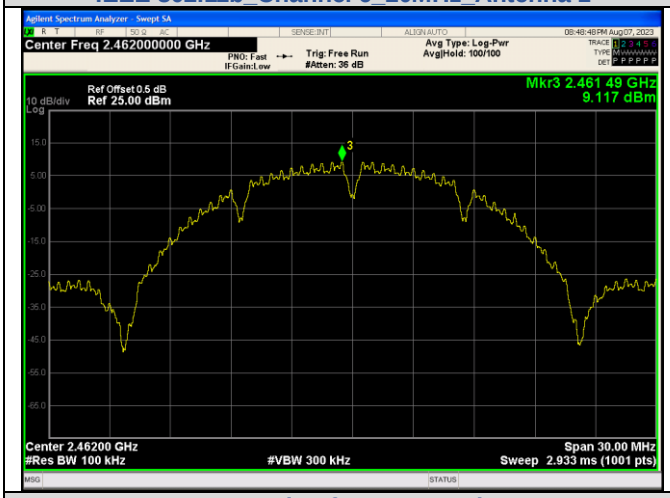


Spurious Emissions
IEEE 802.11b_Channel 6_20MHz_Antenna 1



In-Band Reference Level
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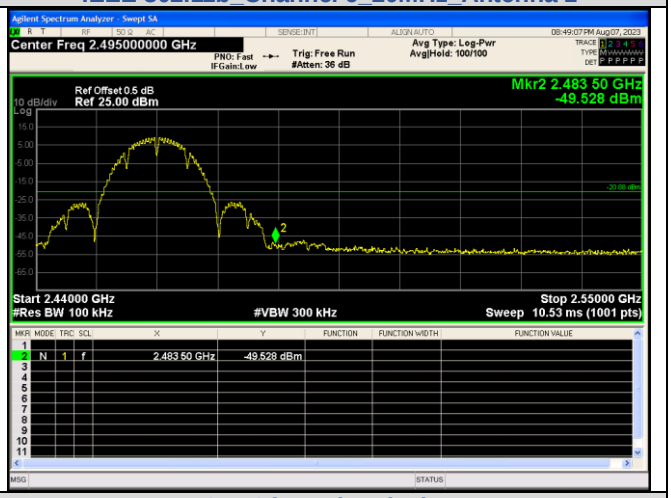

Out Of Band Emission
IEEE 802.11b_Channel 11_20MHz_Antenna 0

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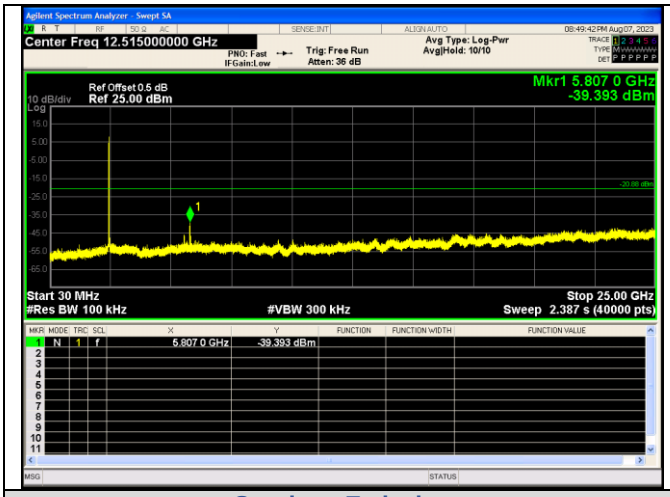

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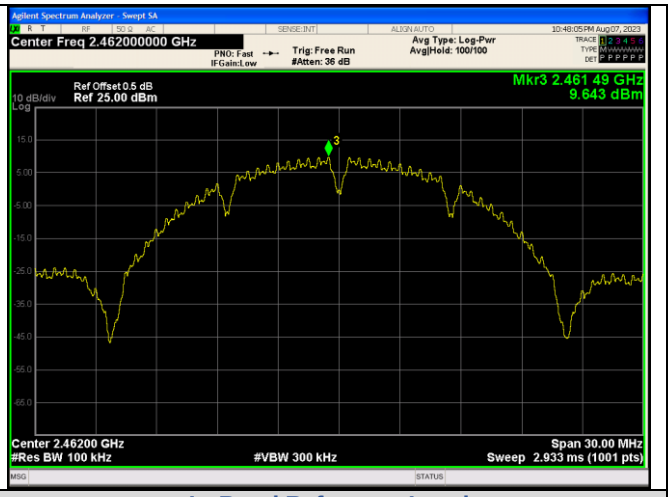

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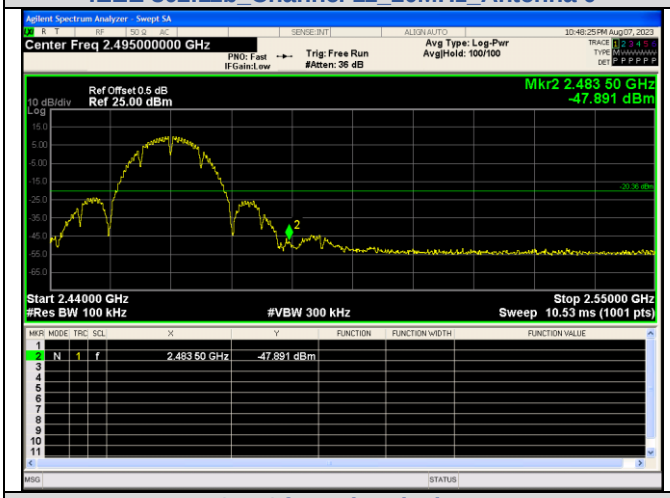

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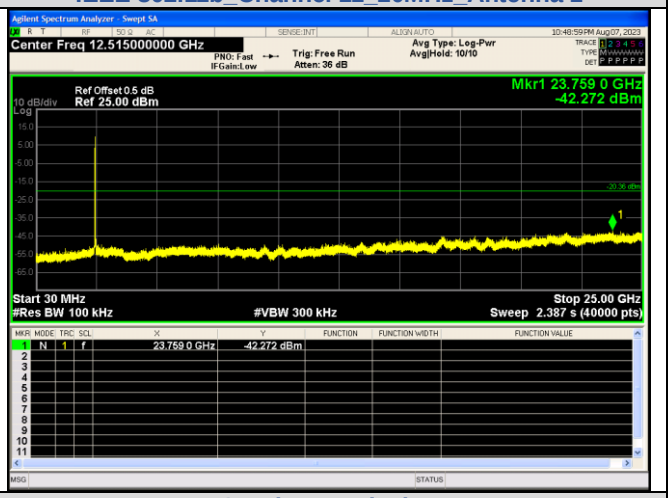

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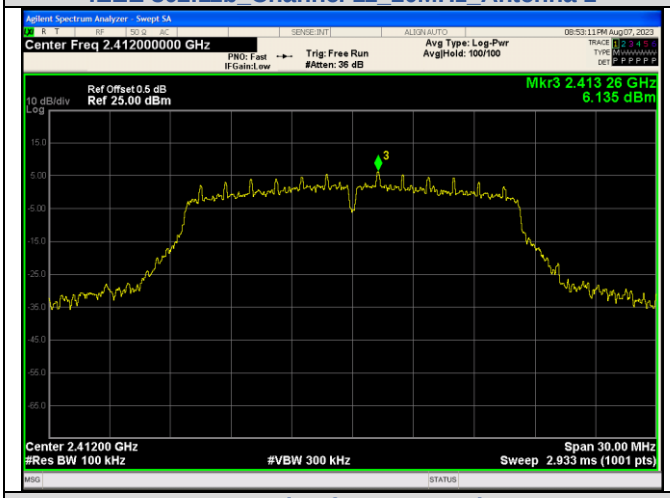

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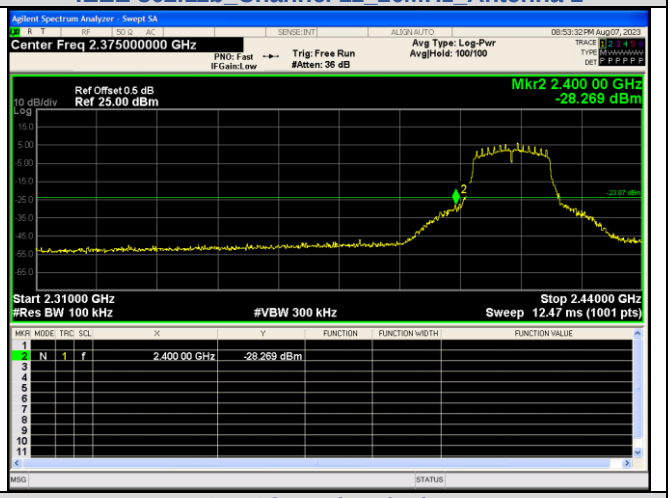

Out Of Band Emission
IEEE 802.11g_Channel 1_20MHz_Antenna 0

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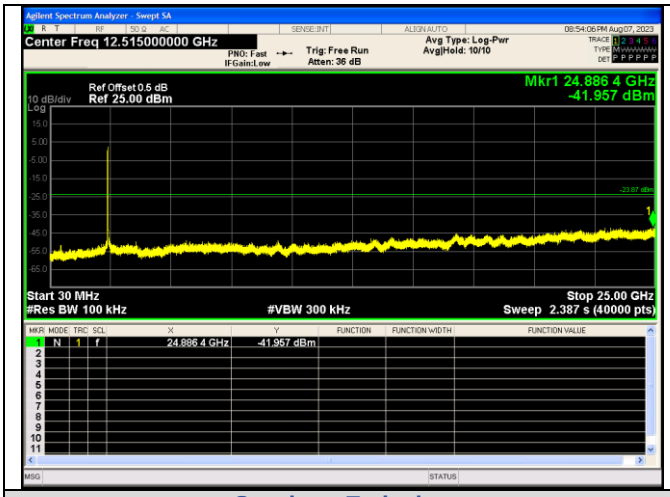

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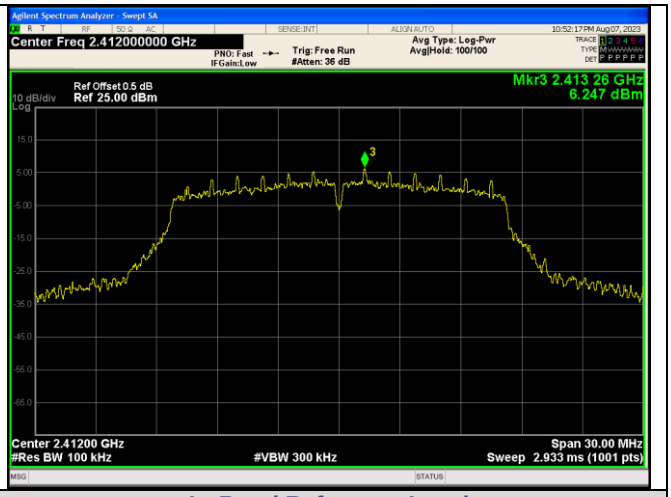

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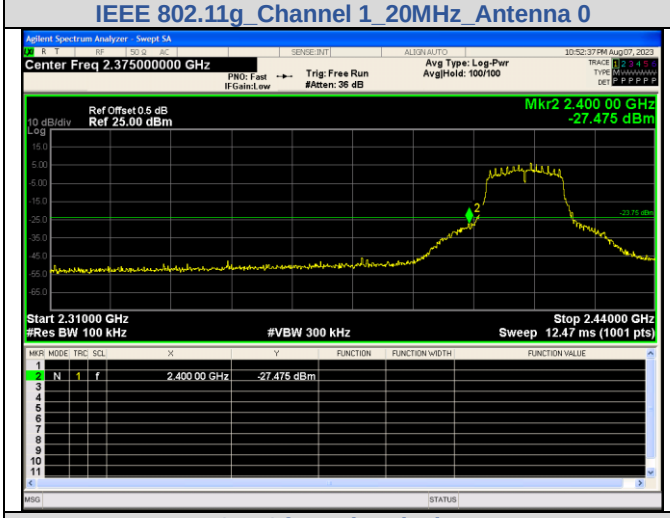
IEEE 802.11g_Channel 1_20MHz_Antenna 1



Out Of Band Emission
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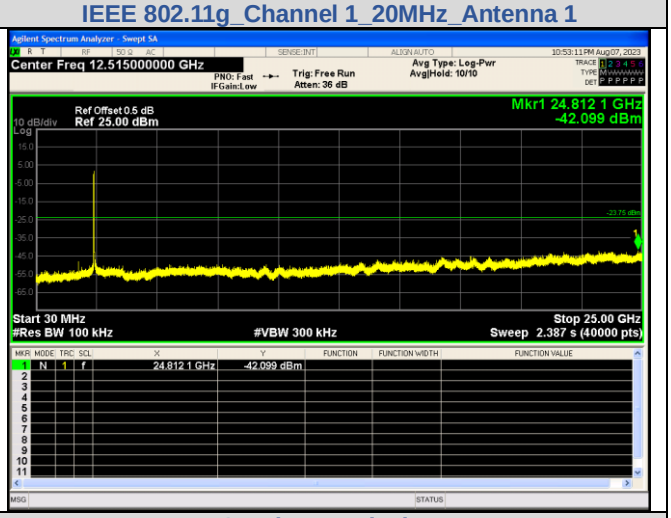

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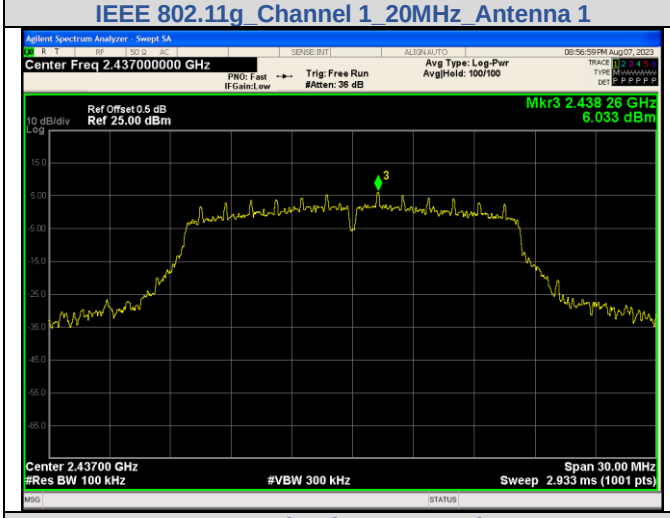

In-Band Reference Level
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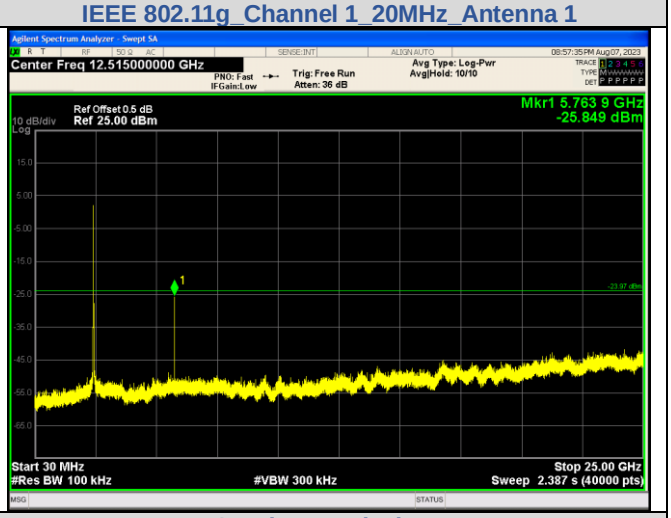

Spurious Emissions
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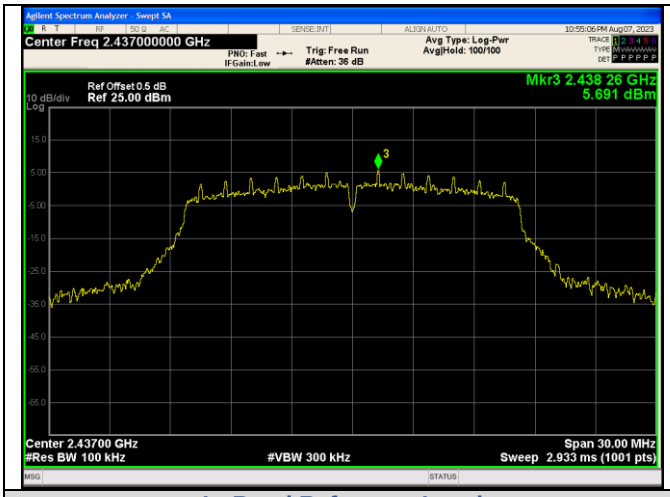

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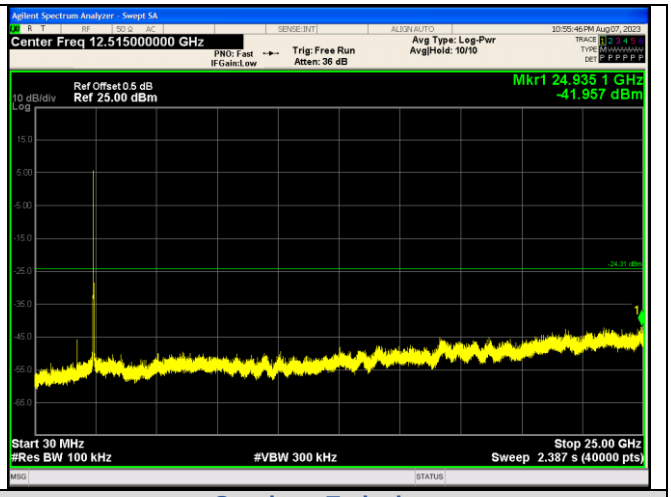

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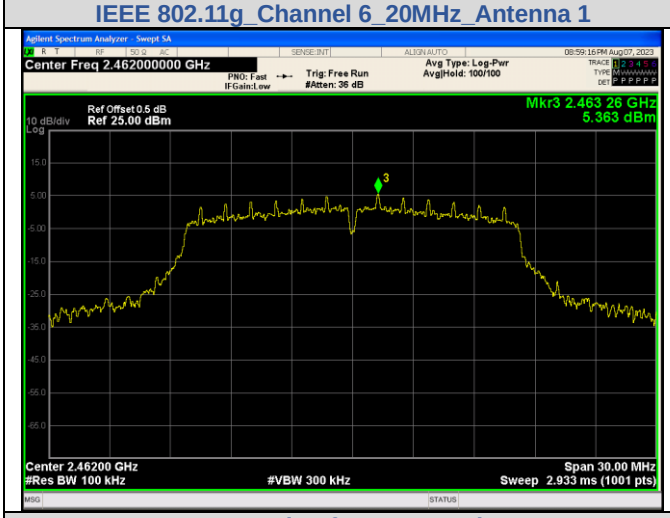
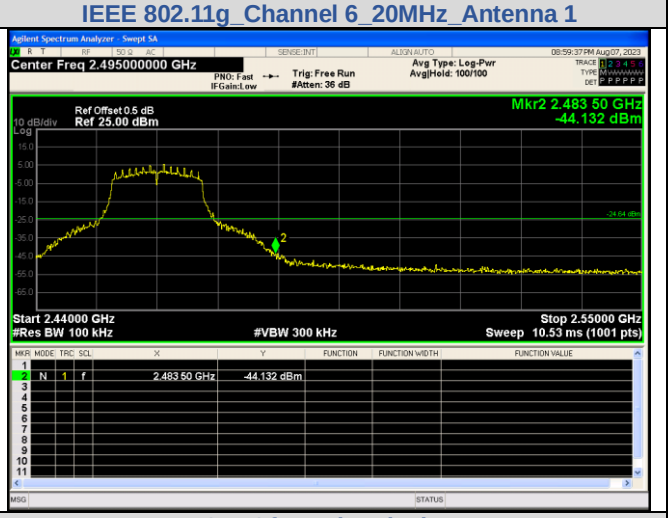


In-Band Reference Level
IEEE 802.11g_Channel 11_20MHz_Antenna 0



Out Of Band Emission
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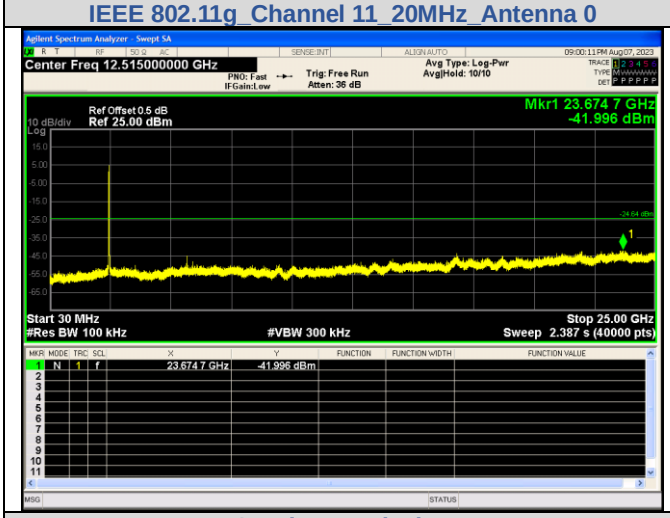

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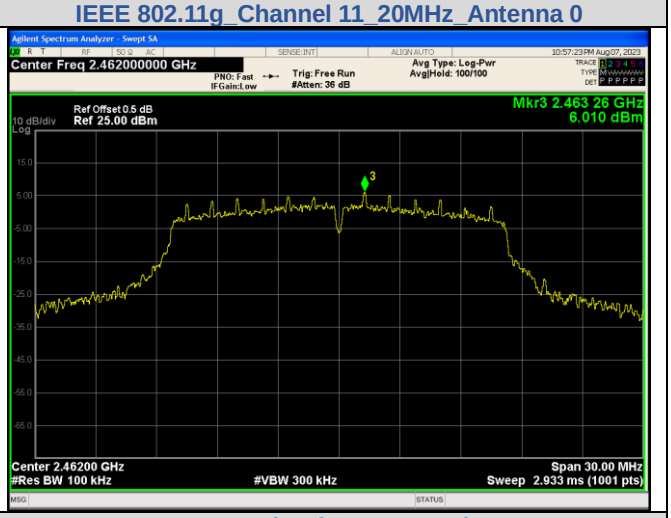

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