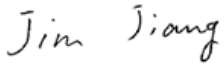
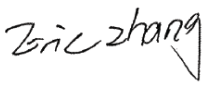
CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China
Tel: +86-755- 27521059 Fax: +86-755- 27521011 Http://www.sz-ctc.org.cn

TEST REPORT

Report No. ·····:	**CTC2024190801**
FCC ID·····:	**2AWAA-HRYXBSZ-F8**
Applicant·····:	**ZHEJIANG DALI TECHNOLOGY CO., LTD**
Address·····:	NO639 Binkang Road, Hangzhou, P.R.CHINA, 310053
Manufacturer·····:	ZHEJIANG DALI TECHNOLOGY CO., LTD
Address·····:	NO639 Binkang Road, Hangzhou, P.R.CHINA, 310053
Product Name·····:	**Thermal Imaging Camera**
Trade Mark·····:	/
Model/Type reference·····:	HRYXBSZ-640-F8
Listed Model(s) ·····:	HRYXBSZ-384-F8
Standard·····:	**FCC CFR Title 47 Part 15 Subpart C Section 15.247**
Date of receipt of test sample…:	Jun. 13, 2024
Date of testing……..:	Jun. 13, 2024 ~ Aug. 8, 2024
Date of issue……....:	Aug. 16, 2024
Result……:	**PASS**

Compiled by: (Printed name+signature)	Jim Jiang	
Supervised by: (Printed name+signature)	Eric Zhang	
Approved by: (Printed name+signature)	Totti Zhao	

Testing Laboratory Name……:	**CTC Laboratories, Inc.**
Address……..:	Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

Table of Contents Page

1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

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

1.2. Report Version

Revised No.	Report No.	Date of issue	Description
01	CTC2024190801	Aug. 16, 2024	Original

1.3. Test Description

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

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

1.4. Test Facility

CTC Laboratories, Inc.
Add: Room 101 of Building B, Room 107, 108, 207, 208 of Building A, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, 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 inour files. Registration 951311, Aug 26, 2017.

1.5. Measurement Uncertainty

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

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

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

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

1.6. Environmental Conditions

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

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

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	ZHEJIANG DALI TECHNOLOGY CO., LTD
Address:	NO639 Binkang Road, Hangzhou, P.R.CHINA, 310053
Manufacturer:	ZHEJIANG DALI TECHNOLOGY CO., LTD
Address:	NO639 Binkang Road, Hangzhou, P.R.CHINA, 310053

2.2. General Description of EUT

Product Name:	Thermal Imaging Camera
Trade Mark:	/
Model/Type reference:	HRYXBSZ-640-F8
Listed Model(s):	HRYXBSZ-384-F8
Model Different:	The circuit design is the same, the difference is the optical lenses.
Power supply:	DC5V from Type-C Port 3.2V 4500mAh from Li-ion Battery
Hardware version:	/
Software version:	/
2.4G WIFI 802.11b/ g/ n(HT20)	
Modulation:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK, QPSK, 16QAM, 64QAM)
Operation frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz
Channel number:	802.11b/g/n(HT20):11channels
Channel separation:	5MHz
Antenna type:	FPC Antenna
Antenna gain:	2.26dBi

2.3. Accessory Equipment Information

Equipment Information			
Name	Model	S/N	Manufacturer
Power Adapter	CD122	/	Chengguo
Cable Information			
Name	Shielded Type	Ferrite Core	Length
USB Cable	Shielded	No	100cm
Test Software Information			
Name	Version	/	/
Engineering mode	/	/	/

2.4. Operation State

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

Operation Frequency List:

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

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

Data Rated

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

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

Test mode

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

2.5. Measurement Instruments List

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

Radiated Emission (3m chamber 3)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9163	01026	Dec. 18, 2024
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 01, 2024
3	Test Receiver	Keysight	N9038A	MY56400071	Dec. 12, 2024
4	Broadband Amplifier	SCHWARZBECK	BBV9743B	259	Dec. 12, 2024
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 12, 2024
6	3m chamber 3	YIHENG	EE106	/	Aug. 28, 2026
7	Test Software	FARA	EZ-EMC	FA-03A2	/

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

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

3.TEST ITEM AND RESULTS

3.1. Conducted Emission

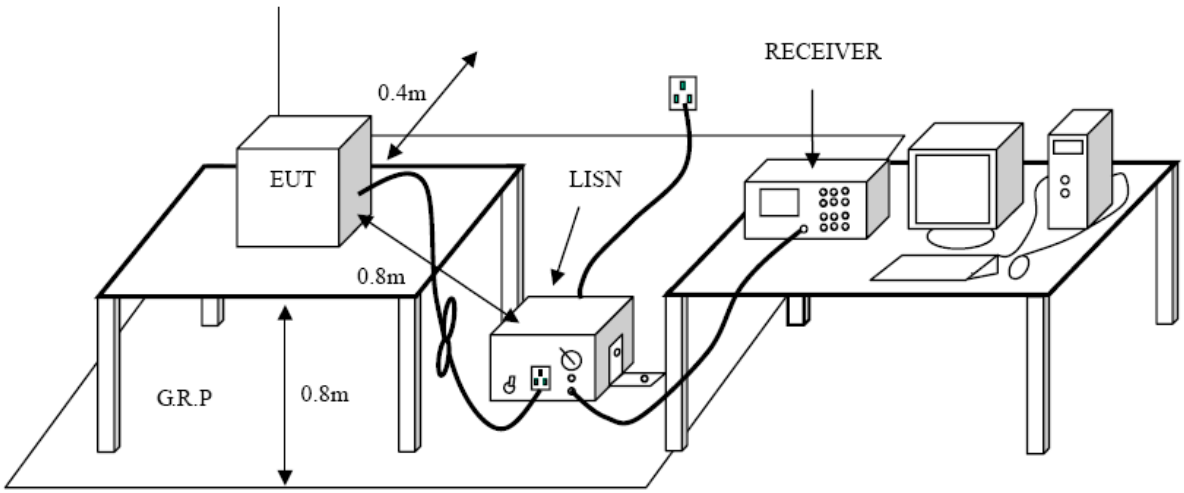
Limit

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

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

* Decreases with the logarithm of the frequency.

Test Configuration



Test Procedure

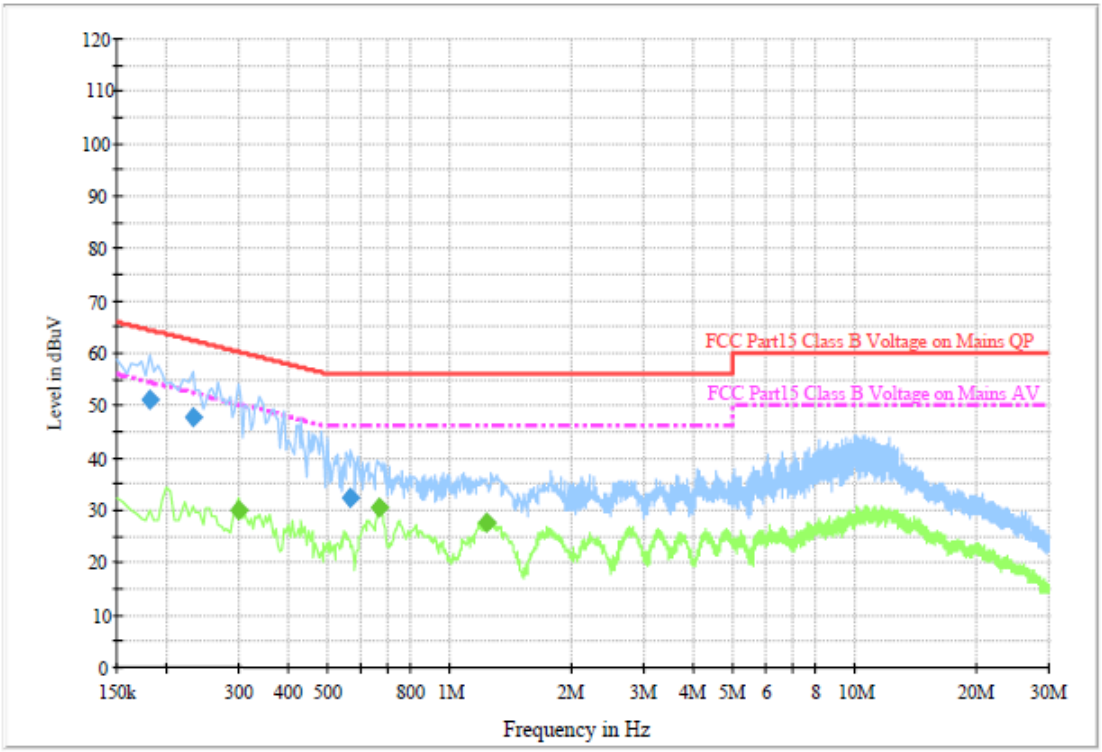
1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from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

Test Mode:

Please refer to the clause 2.4.

Test Results

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



Final Measurement Detector 1

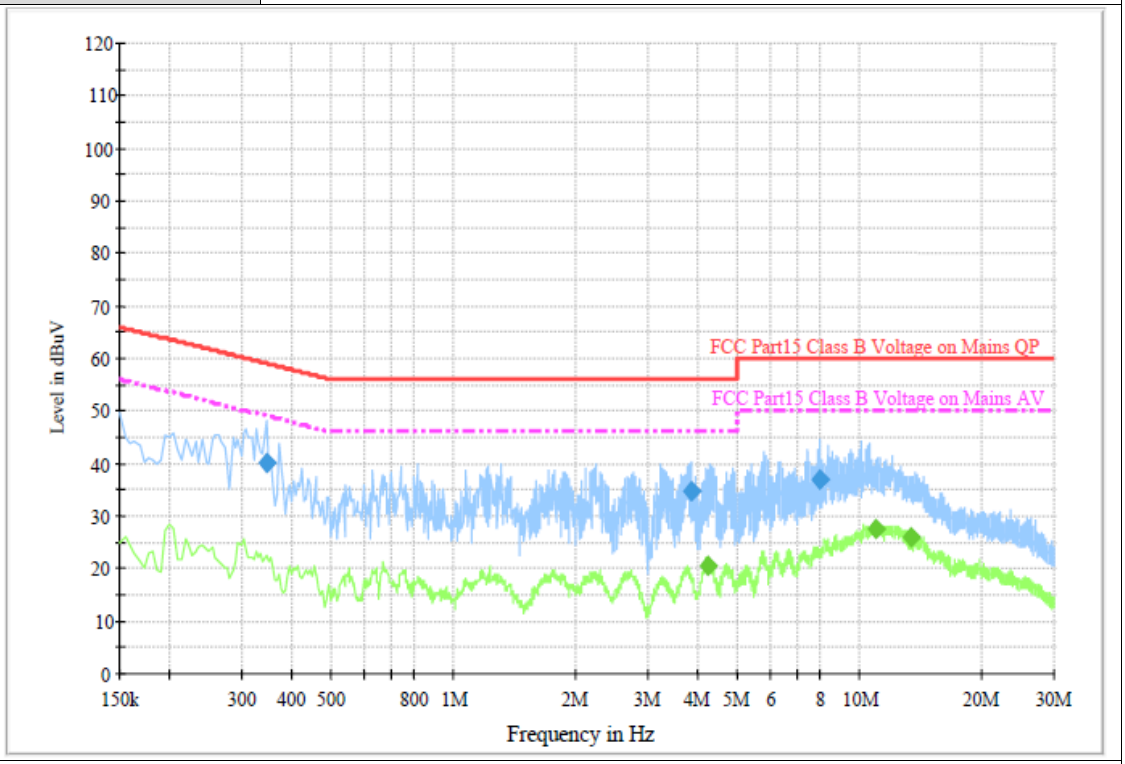
Frequency (MHz)	QuasiPeak (dB µ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)	Comment
0.181500	50.7	1000.00	9.000	On	L1	9.5	13.7	64.4	
0.231000	47.6	1000.00	9.000	On	L1	9.5	14.8	62.4	
0.568500	32.3	1000.00	9.000	On	L1	9.5	23.7	56.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dB µ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)	Comment
0.298500	30.1	1000.00	9.000	On	L1	9.5	20.2	50.3	
0.667500	30.5	1000.00	9.000	On	L1	9.5	15.5	46.0	
1.230000	27.4	1000.00	9.000	On	L1	9.6	18.6	46.0	

Emission Level= Read Level+ Correct Factor

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



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB µ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)	Comment
0.343500	40.0	1000.00	9.000	On	N	9.4	19.1	59.1	
3.831000	34.8	1000.00	9.000	On	N	9.4	21.2	56.0	
7.984500	36.6	1000.00	9.000	On	N	9.6	23.4	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dB µ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)	Comment
4.218000	20.4	1000.00	9.000	On	N	9.4	25.6	46.0	
10.891500	27.2	1000.00	9.000	On	N	9.6	22.8	50.0	
13.366500	25.7	1000.00	9.000	On	N	9.7	24.3	50.0	

Emission Level= Read Level+ Correct Factor

3.2. Radiated Emission

Limit

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

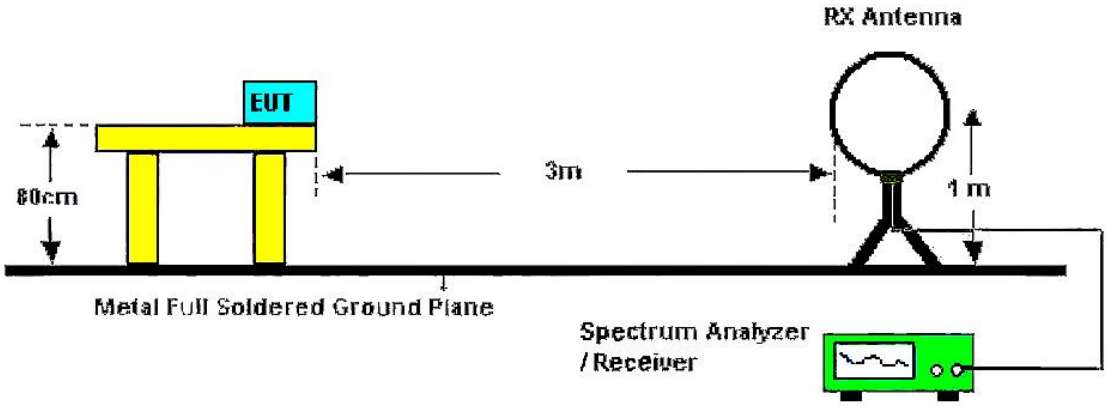
Frequency	Limit (dBuV/m @3m)	Value
30 MHz ~ 88 MHz	40.00	Quasi-peak
88 MHz ~ 216 MHz	43.50	Quasi-peak
216 MHz ~ 960 MHz	46.00	Quasi-peak
960 MHz ~ 1 GHz	54.00	Quasi-peak
Above 1 GHz	54.00	Average
	74.00	Peak

Note:

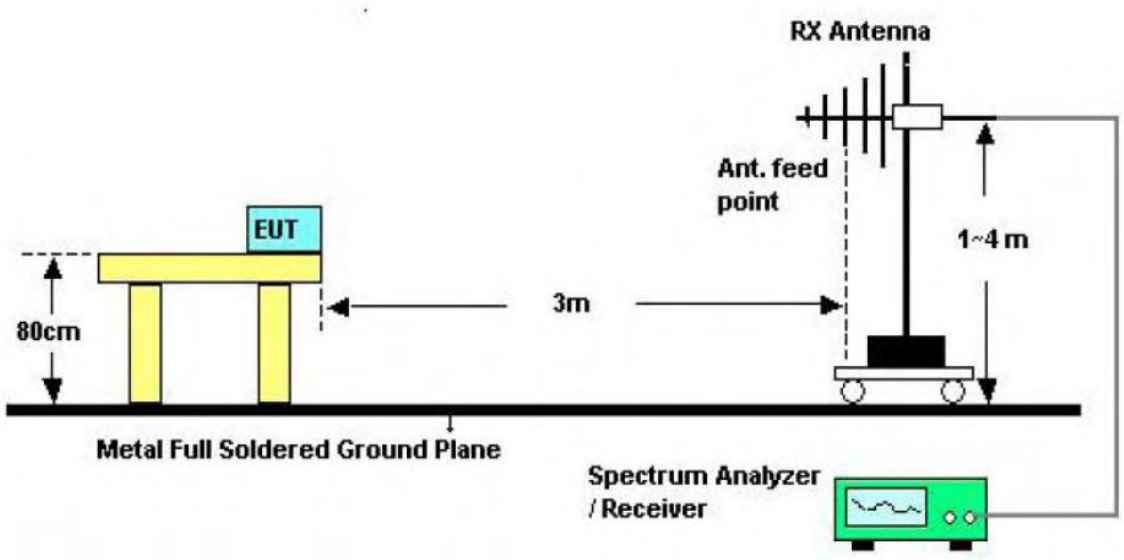
(1) The tighter limit applies at the band edges.

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

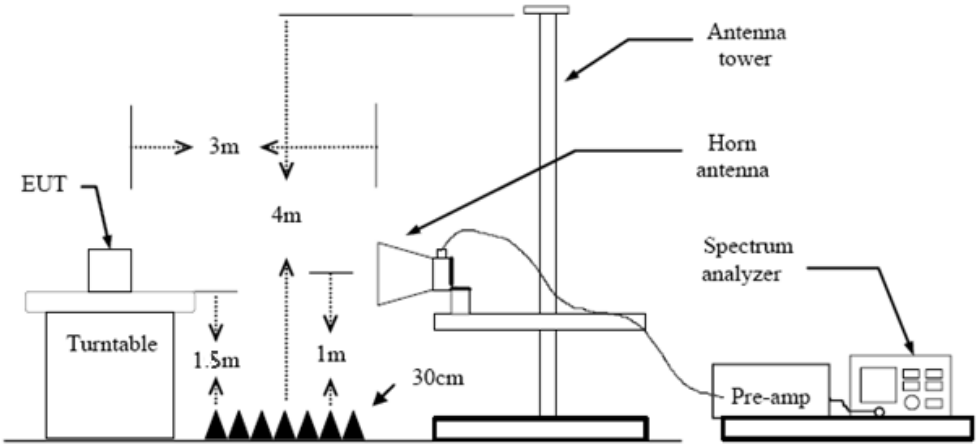
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

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

(2) Below 30 MHz:

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

150kHz – 30MHz, RBW=9kHz, VBW≥RBW, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

(3) 30 MHz - 1 GHz:

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

If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

(4) From 1 GHz to 10th harmonic:

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

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

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

Test Mode

Please refer to the clause 2.4.

Test Result

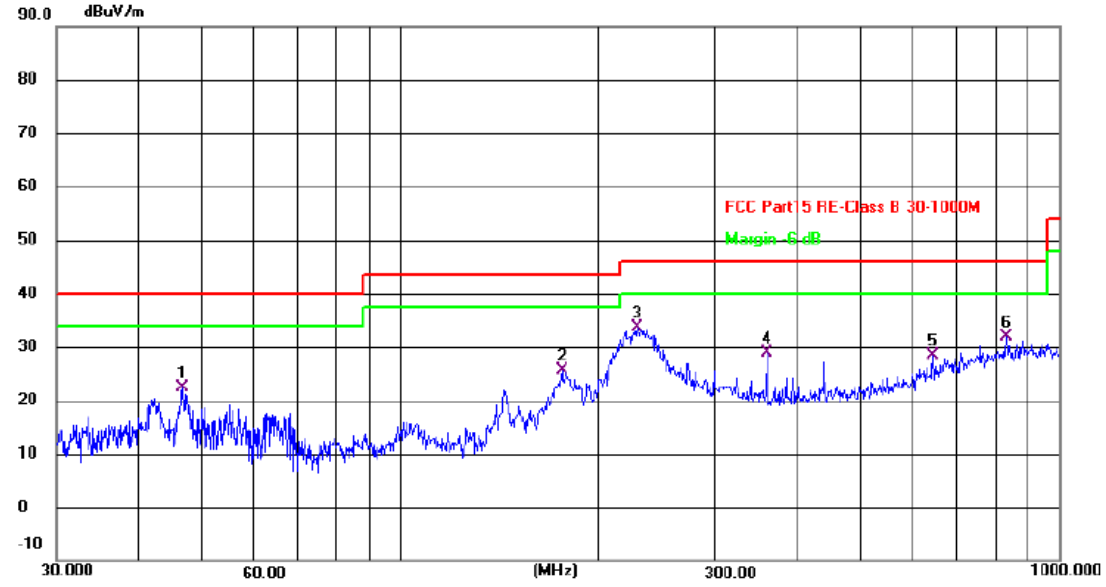
9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

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

30MHz-1GHz

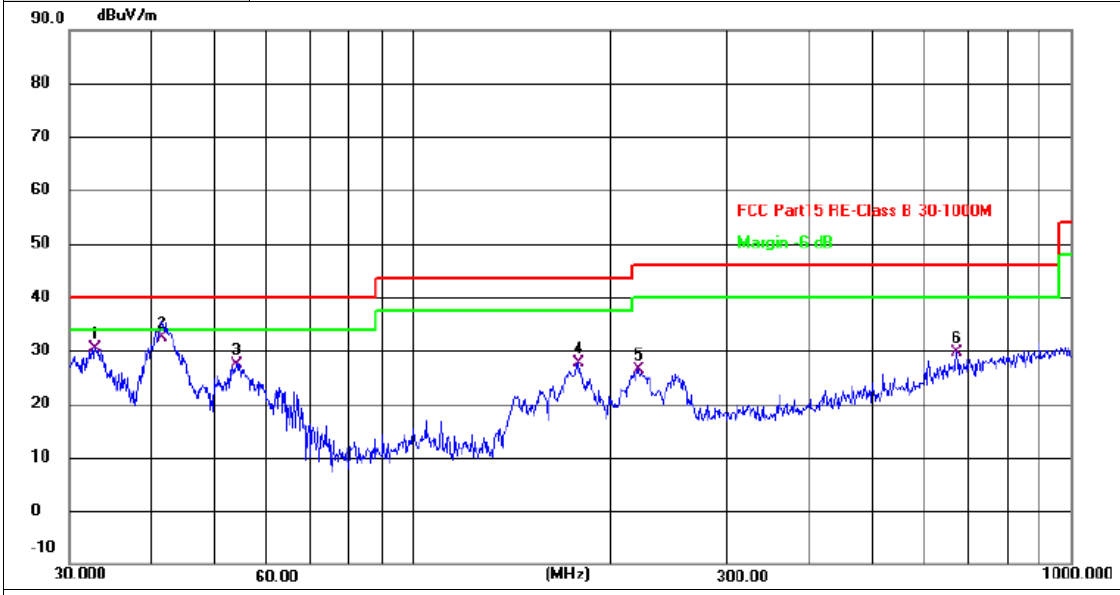
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2412MHz
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	46.6662	38.07	-15.68	22.39	40.00	-17.61	QP
2	175.6516	45.60	-19.94	25.66	43.50	-17.84	QP
3 *	228.4901	50.45	-16.88	33.57	46.00	-12.43	QP
4	359.1859	42.10	-13.19	28.91	46.00	-17.09	QP
5	642.8612	36.12	-7.69	28.43	46.00	-17.57	QP
6	830.4000	36.99	-5.01	31.98	46.00	-14.02	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	32.8635	48.17	-17.77	30.40	40.00	-9.60	QP
2 *	41.5670	48.65	-16.17	32.48	40.00	-7.52	QP
3	53.8817	43.50	-16.10	27.40	40.00	-12.60	QP
4	178.7581	47.29	-19.74	27.55	43.50	-15.95	QP
5	220.6168	43.63	-17.13	26.50	46.00	-19.50	QP
6	670.4891	36.87	-7.34	29.53	46.00	-16.47	QP

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

Adobe 1GHz

Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3197.250	41.88	-1.97	39.91	74.00	-34.09	peak
2	4470.167	41.10	1.29	42.39	74.00	-31.61	peak
3	6643.917	39.26	7.65	46.91	74.00	-27.09	peak
4	9056.583	39.50	11.88	51.38	74.00	-22.62	peak
5	10779.917	38.28	14.42	52.70	74.00	-21.30	peak
6 *	12009.750	37.85	15.46	53.31	74.00	-20.69	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2412MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2562.750	43.21	-2.87	40.34	74.00	-33.66	peak
2	4897.083	41.46	2.12	43.58	74.00	-30.42	peak
3	7309.750	39.25	10.07	49.32	74.00	-24.68	peak
4	8441.667	40.26	10.62	50.88	74.00	-23.12	peak
5	10282.500	38.70	13.71	52.41	74.00	-21.59	peak
6 *	11978.417	37.93	15.41	53.34	74.00	-20.66	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2535.333	43.61	-2.92	40.69	74.00	-33.31	peak
2	3710.333	41.29	-0.51	40.78	74.00	-33.22	peak
3	6029.000	39.03	5.74	44.77	74.00	-29.23	peak
4	7270.583	38.54	10.05	48.59	74.00	-25.41	peak
5	9930.000	39.51	13.09	52.60	74.00	-21.40	peak
6 *	11633.750	38.32	15.12	53.44	74.00	-20.56	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2437MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2590.167	42.91	-2.81	40.10	74.00	-33.90	peak
2	3972.750	41.48	0.44	41.92	74.00	-32.08	peak
3	5057.667	40.47	2.44	42.91	74.00	-31.09	peak
4	7642.667	39.88	10.14	50.02	74.00	-23.98	peak
5	10897.417	38.44	14.56	53.00	74.00	-21.00	peak
6 *	12417.083	37.83	15.55	53.38	74.00	-20.62	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2590.167	42.37	-2.81	39.56	74.00	-34.44	peak
2	3984.500	40.96	0.47	41.43	74.00	-32.57	peak
3	5531.583	40.30	3.87	44.17	74.00	-29.83	peak
4	6847.583	39.58	8.15	47.73	74.00	-26.27	peak
5	9154.500	39.11	12.22	51.33	74.00	-22.67	peak
6 *	11951.000	38.02	15.37	53.39	74.00	-20.61	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11b Mode 2462MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2554.917	42.84	-2.89	39.95	74.00	-34.05	peak
2	3710.333	42.02	-0.51	41.51	74.00	-32.49	peak
3	5747.000	40.04	4.71	44.75	74.00	-29.25	peak
4	7830.667	39.56	10.48	50.04	74.00	-23.96	peak
5	10682.000	39.05	14.22	53.27	74.00	-20.73	peak
6 *	11708.167	38.38	15.10	53.48	74.00	-20.52	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2412MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2225.917	43.23	-3.39	39.84	74.00	-34.16	peak
2	3197.250	42.27	-1.97	40.30	74.00	-33.70	peak
3	6428.500	39.48	7.14	46.62	74.00	-27.38	peak
4	8390.750	40.41	10.53	50.94	74.00	-23.06	peak
5	10364.750	38.82	13.83	52.65	74.00	-21.35	peak
6 *	12393.583	37.74	15.50	53.24	74.00	-20.76	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2412MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2582.333	43.26	-2.83	40.43	74.00	-33.57	peak
2	3961.000	40.89	0.38	41.27	74.00	-32.73	peak
3	6397.167	39.61	7.05	46.66	74.00	-27.34	peak
4	7709.250	39.67	10.26	49.93	74.00	-24.07	peak
5	9268.083	38.68	12.43	51.11	74.00	-22.89	peak
6 *	12162.500	37.84	15.67	53.51	74.00	-20.49	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2437MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2539.250	43.02	-2.91	40.11	74.00	-33.89	peak
2	4027.583	40.70	0.57	41.27	74.00	-32.73	peak
3	7180.500	39.13	9.91	49.04	74.00	-24.96	peak
4	9201.500	40.01	12.37	52.38	74.00	-21.62	peak
5 *	10701.583	39.22	14.25	53.47	74.00	-20.53	peak
6	12033.250	37.87	15.49	53.36	74.00	-20.64	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2437MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2578.417	42.70	-2.83	39.87	74.00	-34.13	peak
2	3957.083	40.59	0.37	40.96	74.00	-33.04	peak
3	5132.083	40.28	2.66	42.94	74.00	-31.06	peak
4	7192.250	38.96	9.98	48.94	74.00	-25.06	peak
5	9299.417	39.83	12.45	52.28	74.00	-21.72	peak
6 *	11853.083	38.23	15.19	53.42	74.00	-20.58	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11g Mode 2462MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2590.167	42.55	-2.81	39.74	74.00	-34.26	peak
2	4791.333	41.26	1.97	43.23	74.00	-30.77	peak
3	6420.667	39.63	7.12	46.75	74.00	-27.25	peak
4	8069.583	39.47	10.69	50.16	74.00	-23.84	peak
5	10016.167	39.14	13.21	52.35	74.00	-21.65	peak
6 *	11316.500	38.87	14.82	53.69	74.00	-20.31	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11g Mode 2462MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2562.750	41.83	-2.87	38.96	74.00	-35.04	peak
2	3914.000	40.34	0.21	40.55	74.00	-33.45	peak
3	6001.583	40.00	5.65	45.65	74.00	-28.35	peak
4	8833.333	39.93	11.46	51.39	74.00	-22.61	peak
5 *	10709.417	39.05	14.27	53.32	74.00	-20.68	peak
6	11966.667	37.85	15.39	53.24	74.00	-20.76	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2412MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2574.500	42.64	-2.85	39.79	74.00	-34.21	peak
2	5081.167	40.72	2.51	43.23	74.00	-30.77	peak
3	6260.083	39.46	6.50	45.96	74.00	-28.04	peak
4	7403.750	38.96	10.10	49.06	74.00	-24.94	peak
5	9914.333	39.83	13.08	52.91	74.00	-21.09	peak
6 *	11786.500	38.59	15.09	53.68	74.00	-20.32	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2412MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2554.917	42.21	-2.89	39.32	74.00	-34.68	peak
2	3961.000	41.08	0.38	41.46	74.00	-32.54	peak
3	5633.417	41.43	4.25	45.68	74.00	-28.32	peak
4	7811.083	39.26	10.44	49.70	74.00	-24.30	peak
5	9287.667	39.74	12.44	52.18	74.00	-21.82	peak
6 *	11187.250	38.89	14.76	53.65	74.00	-20.35	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2437MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2590.167	43.90	-2.81	41.09	74.00	-32.91	peak
2	4387.917	40.96	1.11	42.07	74.00	-31.93	peak
3	6393.250	39.39	7.04	46.43	74.00	-27.57	peak
4	8053.917	39.48	10.73	50.21	74.00	-23.79	peak
5 *	10764.250	39.06	14.39	53.45	74.00	-20.55	peak
6	12436.667	37.63	15.59	53.22	74.00	-20.78	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2437MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2590.167	42.76	-2.81	39.95	74.00	-34.05	peak
2	3972.750	40.78	0.44	41.22	74.00	-32.78	peak
3	5045.917	41.16	2.40	43.56	74.00	-30.44	peak
4	6432.417	39.61	7.14	46.75	74.00	-27.25	peak
5	8085.250	39.49	10.66	50.15	74.00	-23.85	peak
6 *	11269.500	38.66	14.79	53.45	74.00	-20.55	peak

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

Ant. Pol.	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 2462MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2163.250	43.91	-3.75	40.16	74.00	-33.84	peak
2	3964.917	41.87	0.40	42.27	74.00	-31.73	peak
3	6338.417	39.65	6.81	46.46	74.00	-27.54	peak
4	9142.750	39.59	12.18	51.77	74.00	-22.23	peak
5	10407.833	38.52	13.89	52.41	74.00	-21.59	peak
6 *	11747.333	38.30	15.10	53.40	74.00	-20.60	peak

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

Ant. Pol.	Vertical
Test Mode:	TX 802.11n(HT20) Mode 2462MHz
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2590.167	43.43	-2.81	40.62	74.00	-33.38	peak
2	4188.167	41.00	0.72	41.72	74.00	-32.28	peak
3	5617.750	40.86	4.19	45.05	74.00	-28.95	peak
4	7258.833	38.37	10.05	48.42	74.00	-25.58	peak
5	8872.500	39.88	11.51	51.39	74.00	-22.61	peak
6 *	12471.917	37.97	15.70	53.67	74.00	-20.33	peak

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

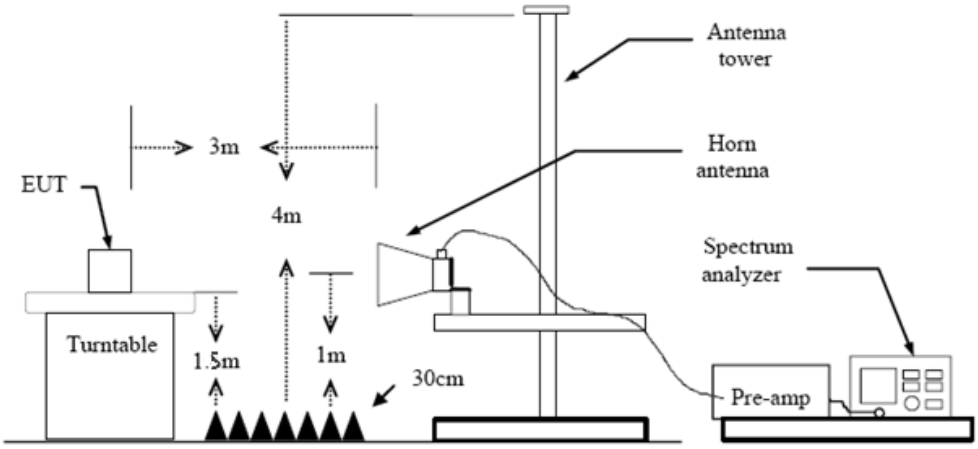
3.3. Band Edge Emissions (Radiated)

Limit

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

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

Test Configuration



Test Procedure

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

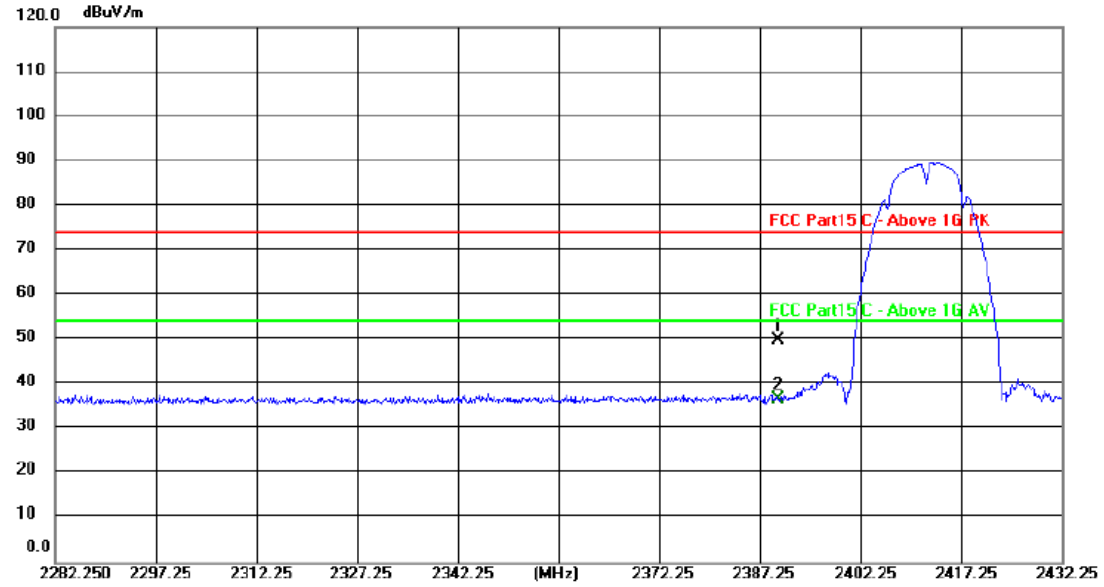
   Note 1: For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 3.8 Duty Cycle.

Test Mode

Please refer to the clause 2.4.

Test Results

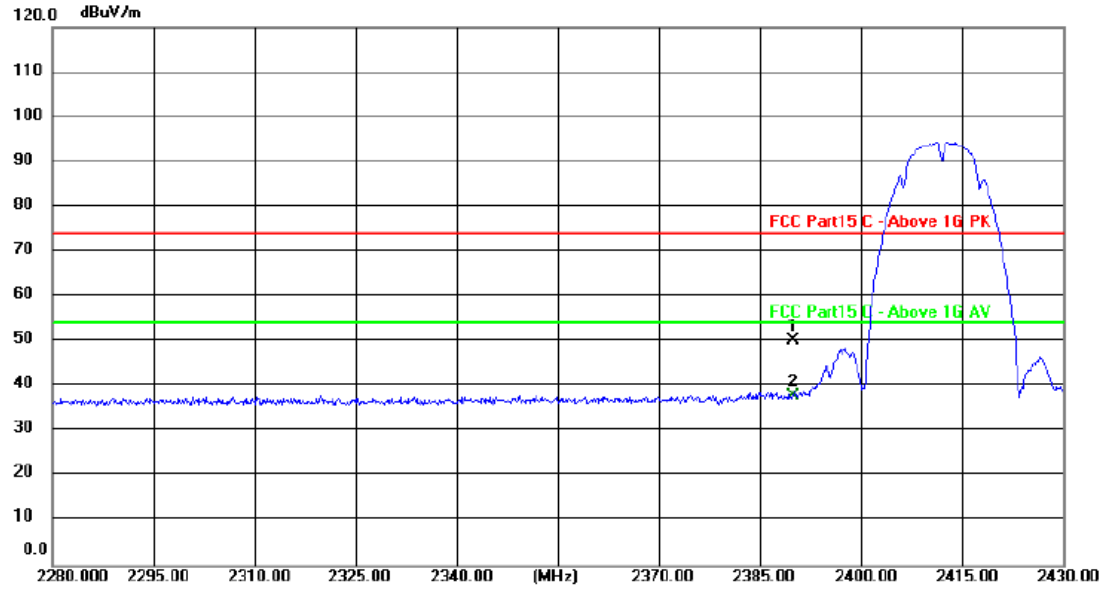
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	18.69	31.31	50.00	74.00	-24.00	peak
2 *	2390.000	5.45	31.31	36.76	54.00	-17.24	AVG

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

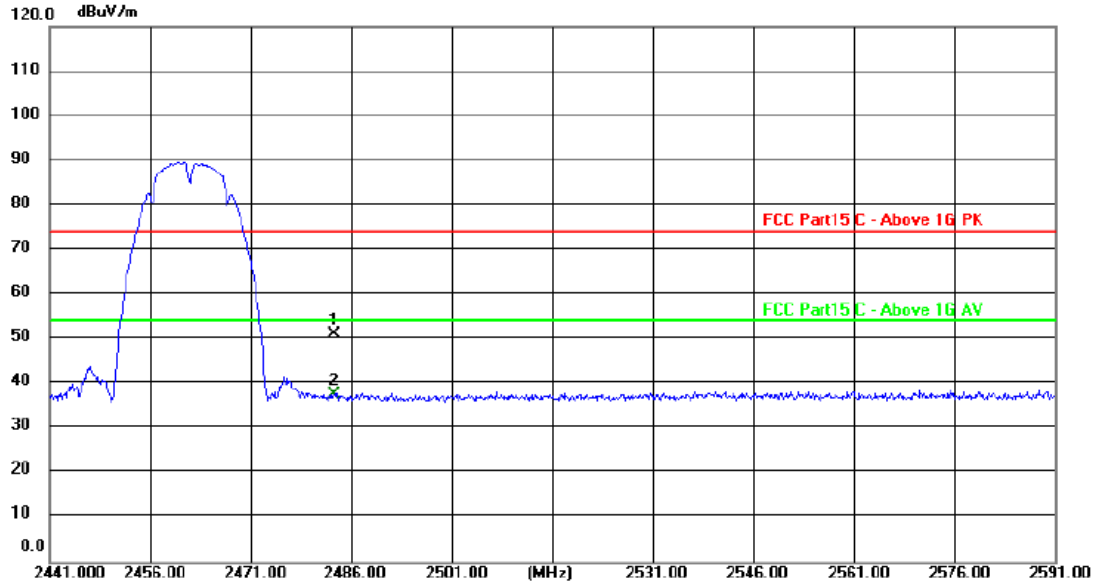
Ant. Pol.	Vertical
Test Mode:	802.11b Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	18.89	31.31	50.20	74.00	-23.80	peak
2 *	2390.000	6.61	31.31	37.92	54.00	-16.08	AVG

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

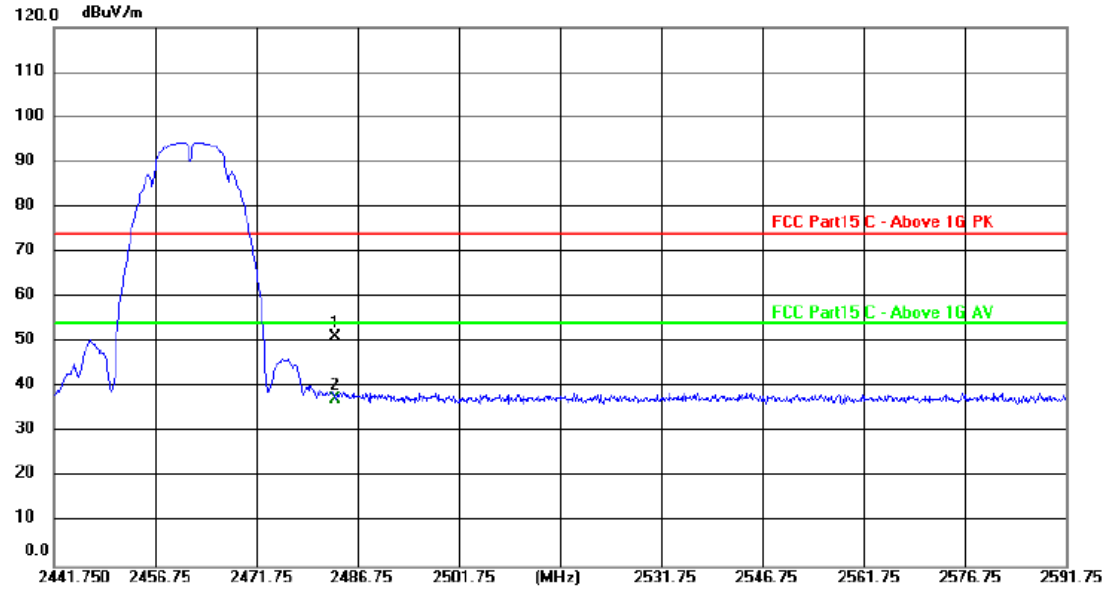
Ant. Pol.	Horizontal
Test Mode:	802.11b Mode 2462 MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	19.76	31.48	51.24	74.00	-22.76	peak
2 *	2483.500	6.09	31.48	37.57	54.00	-16.43	AVG

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

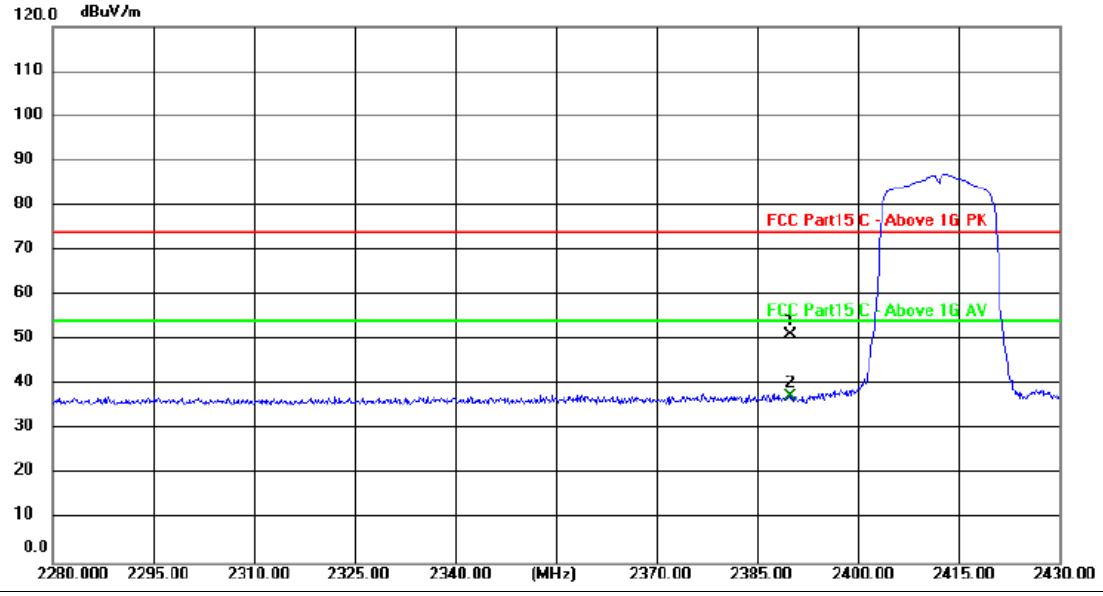
Ant. Pol.	Vertical
Test Mode:	802.11b Mode 2462 MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	19.63	31.48	51.11	74.00	-22.89	peak
2 *	2483.500	6.00	31.48	37.48	54.00	-16.52	AVG

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

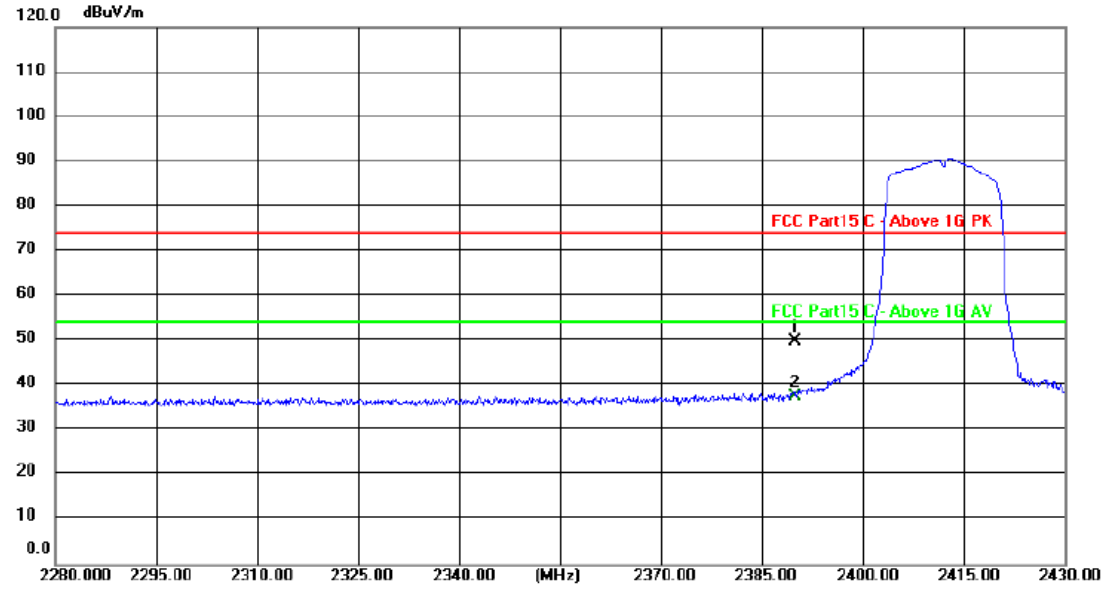
Ant. Pol.	Horizontal
Test Mode:	802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	19.80	31.31	51.11	74.00	-22.89	peak
2 *	2390.000	6.04	31.31	37.35	54.00	-16.65	AVG

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

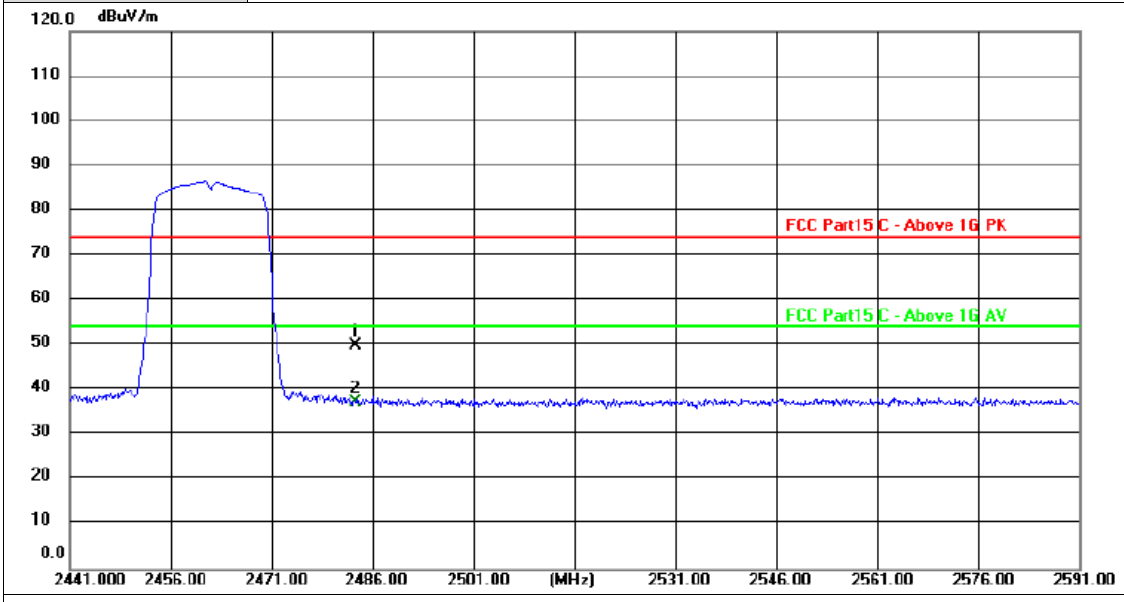
Ant. Pol.	Vertical
Test Mode:	802.11g Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	18.58	31.31	49.89	74.00	-24.11	peak
2 *	2390.000	6.39	31.31	37.70	54.00	-16.30	AVG

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

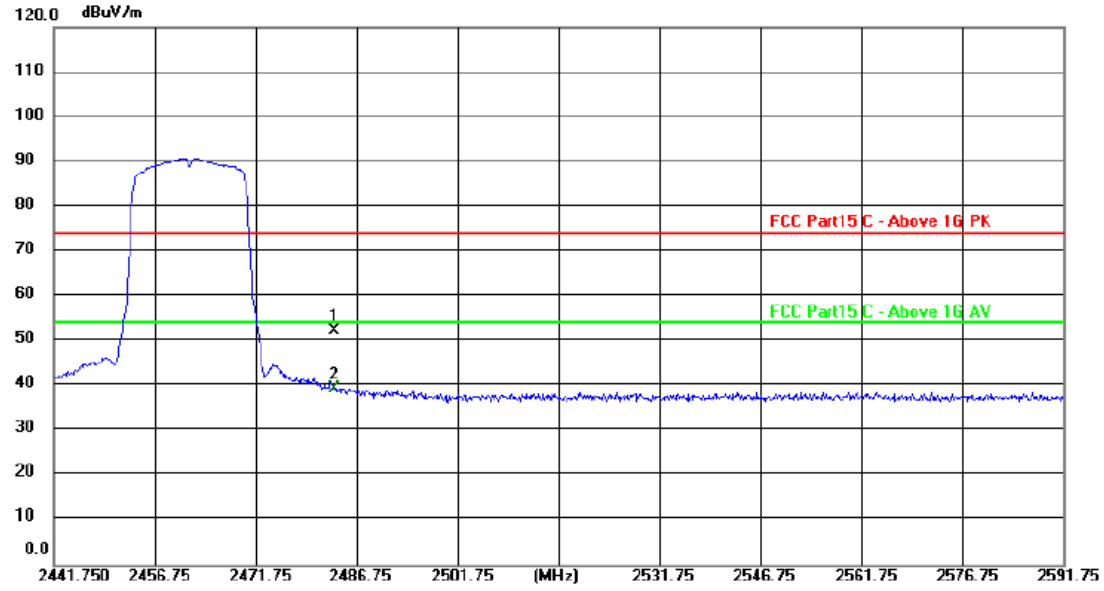
Ant. Pol.	Horizontal
Test Mode:	802.11g Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	18.51	31.48	49.99	74.00	-24.01	peak
2 *	2483.500	5.88	31.48	37.36	54.00	-16.64	AVG

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

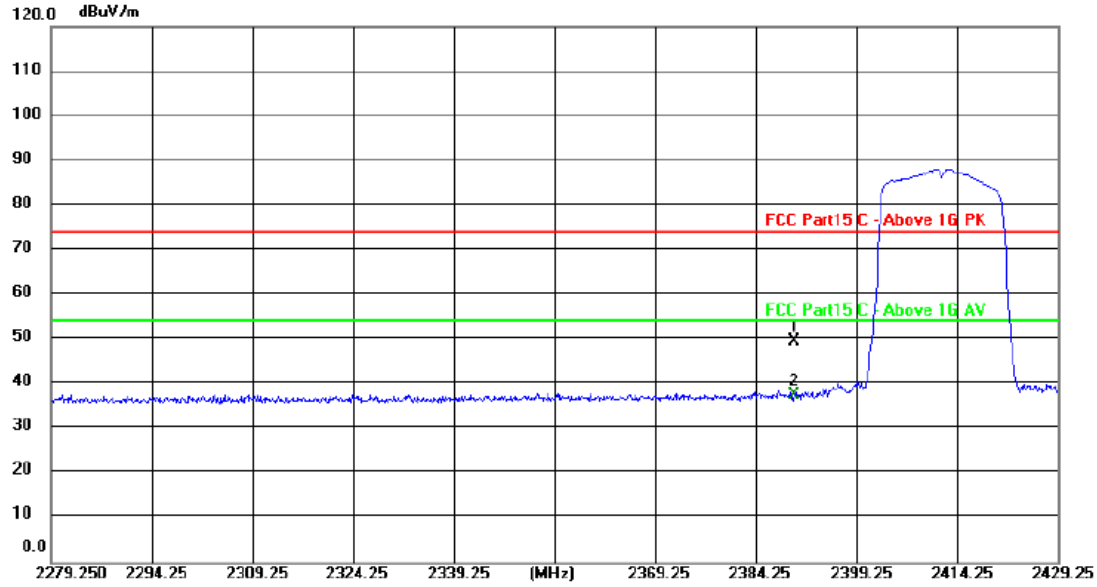
Ant. Pol.	Vertical
Test Mode:	802.11g Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	20.77	31.48	52.25	74.00	-21.75	peak
2 *	2483.500	8.03	31.48	39.51	54.00	-14.49	AVG

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

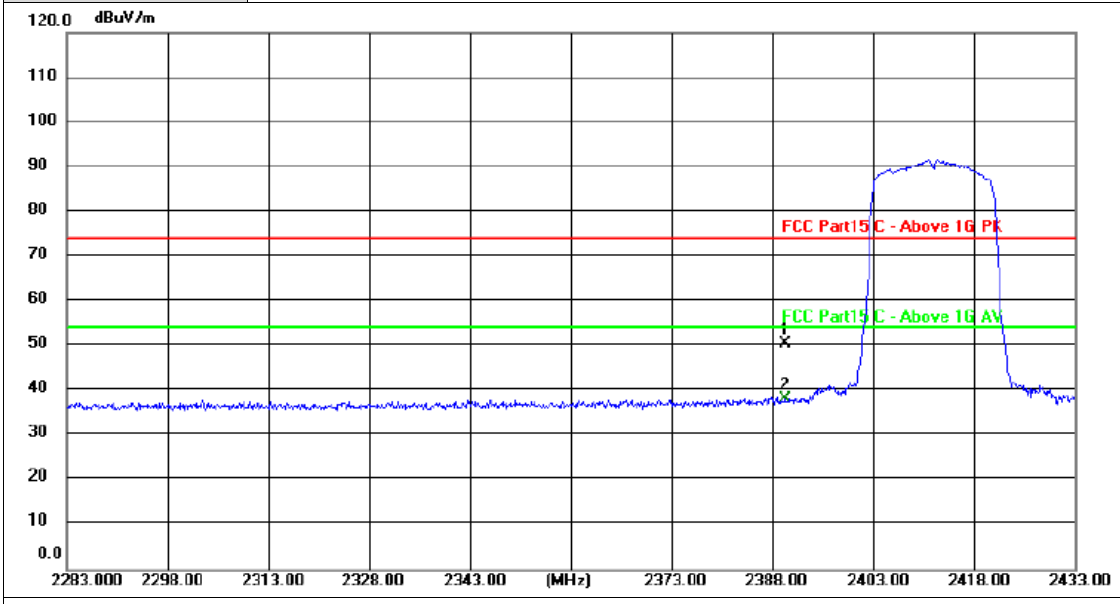
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT20) Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	18.29	31.31	49.60	74.00	-24.40	peak
2 *	2390.000	6.26	31.31	37.57	54.00	-16.43	AVG

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

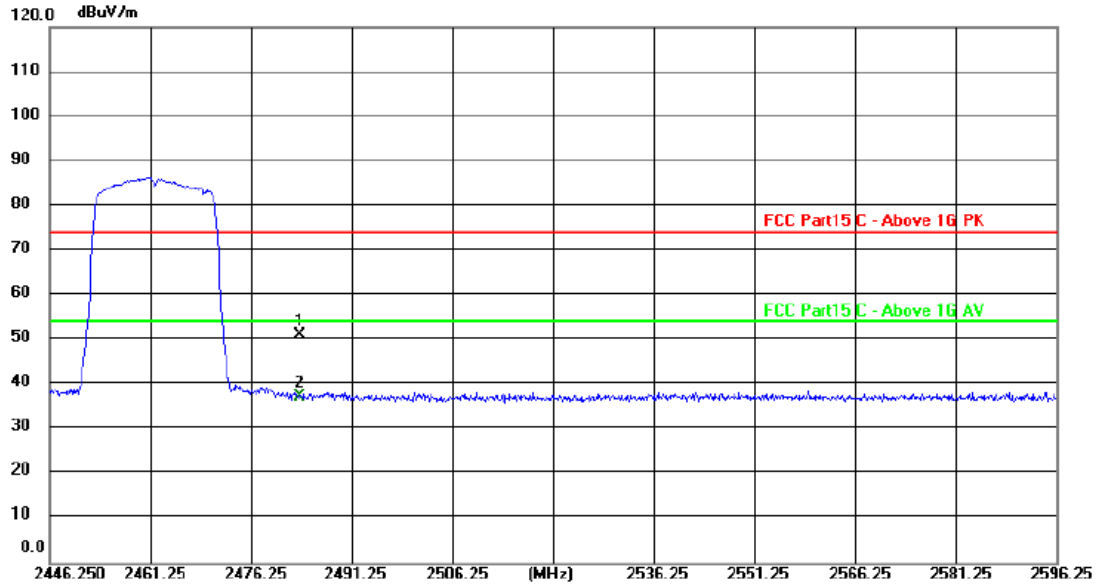
Ant. Pol.	Vertical
Test Mode:	802.11n(HT20) Mode 2412MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	19.23	31.31	50.54	74.00	-23.46	peak
2 *	2390.000	6.79	31.31	38.10	54.00	-15.90	AVG

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

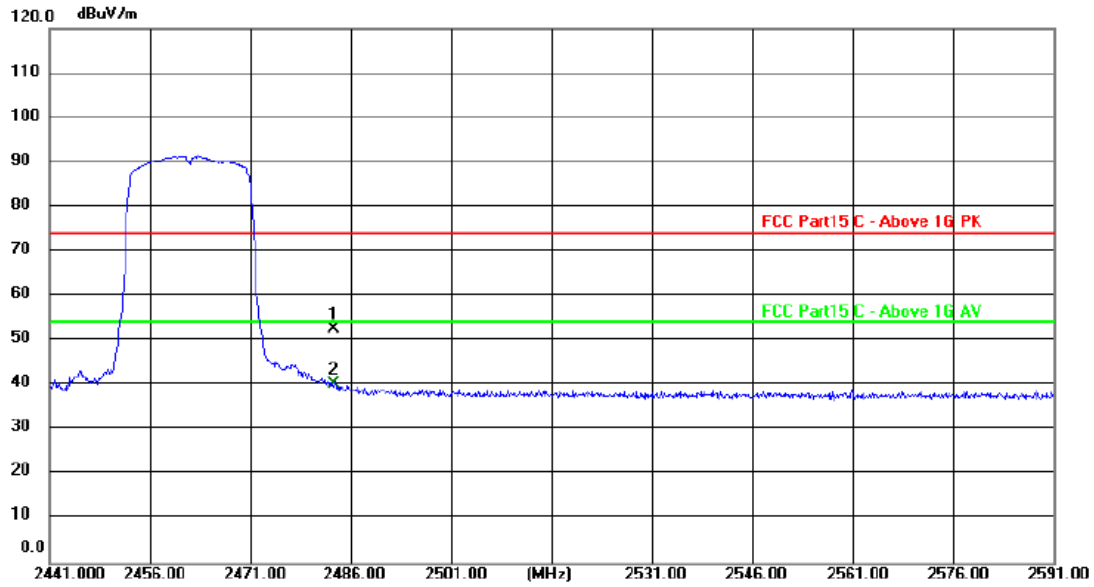
Ant. Pol.	Horizontal
Test Mode:	802.11n(HT20) Mode 2462MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	19.59	31.48	51.07	74.00	-22.93	peak
2 *	2483.500	5.87	31.48	37.35	54.00	-16.65	AVG

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

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	21.17	31.48	52.65	74.00	-21.35	peak
2 *	2483.500	8.89	31.48	40.37	54.00	-13.63	AVG

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