



中国认可
国际互认
检测
TESTING
CNAS L2264

RF TEST REPORT

Applicant ESPRESSIF SYSTEMS (SHANGHAI) PTE LTD
FCC ID 2AC7Z-ESPWROOM02
Product Wi-Fi Internet of Things Module
Brand WROOM
Model ESP-WROOM-02
Report No. RXA1611-0266RF
Issue Date December 9, 2016

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2016)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Performed by: Xianqing Li

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

1. Test Laboratory	4
1.1. Notes of the test report	4
1.2. Test facility	4
1.3. Testing Location	5
2. General Description of Equipment under Test	6
3. Applied Standards	7
4. Test Configuration	8
5. Test Case Results	9
5.1. Average Power Output –Conducted	9
5.2. 6dB Bandwidth	11
5.3. Band Edge	15
5.4. Power Spectral Density	17
5.5. Spurious RF Conducted Emissions	21
5.6. Radiated Emissions in the Restricted Band	26
5.7. Radiates Emission	30
5.8. Conducted Emission	69
6. Main Test Instruments	75
ANNEX A: EUT Appearance and Test Setup	76
A.1 EUT Appearance	76
A.2 Test Setup	76
ANNEX B: Product Change Description	79



Summary of measurement results

Number	Summary of measurements of results	Clause in FCC rules	Verdict
1	Maximum Average conducted output power	15.247(b)(3)	PASS
2	6 dB bandwidth	15.247(a)(2)	PASS
3	Maximum power spectral density	15.247(e)	PASS
4	Band Edge	15.247(d)	PASS
5	Spurious RF Conducted Emissions	15.247(d)	PASS
6	Radiated Emissions in restricted frequency bands	15.247(d),15.205,15.209	PASS
7	Radiated Emissions	15.247(d),15.205,15.209	PASS
8	Conducted Emissions	15.207	PASS
Date of Original Testing: March 28, 2015 to April 5, 2015 Date of Variant Testing: December 2, 2016 to December 5, 2016			

ESP-WROOM-02 (RXA1611-0266RF) is a variant model of ESP-WROOM-02 (RXA1503-0042RF01R1). Test items tested see the table below. The detailed product change description please refers to the ANNEX B.

Test items	Modes/Modulation	
	Original (RXA1503-0042RF01R1)	Variant (RXA1611-0266RF)
Maximum Average conducted output power	pass	Refer to the Original
6 dB bandwidth	pass	Refer to the Original
Maximum power spectral density	pass	Refer to the Original
Band Edge	pass	Refer to the Original
Spurious RF Conducted Emissions	pass	Refer to the Original
Radiated Emissions in restricted frequency bands	pass	Refer to the Original
Radiated Emissions	pass	pass
Conducted Emissions	pass	pass

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by CNAS or any government agencies.

1.2. Test facility

CNAS (accreditation number: L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (recognition number is 428261)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.



1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

Client Information

Applicant	ESPRESSIF SYSTEMS (SHANGHAI) PTE LTD
Applicant address	Room 204, Building 2 , 690 Bibo Road, Zhangjiang Hi-tech Park, 201203,Shanghai/China
Manufacturer	ESPRESSIF SYSTEMS (SHANGHAI) PTE LTD
Manufacturer address	Room 204, Building 2 , 690 Bibo Road, Zhangjiang Hi-tech Park, 201203,Shanghai/China

General information

EUT Description	
Model:	ESP-WROOM-02
SN:	ESPWROOM02-292014-1
Hardware Version:	HW V1.0
Software Version:	SW V1.0
Power Supply:	External Power Supply
Antenna Type:	Internal Antenna
Test Mode:	802.11b 802.11g, 802.11n(HT20);
Modulation Type:	802.11b: DSSS; 802.11g/n(HT20): OFDM
Max. Conducted Power	Wi-Fi 2.4G :22.23dBm
Operating Frequency Range(s)	2400 ~ 2483.5 MHz
Note: The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.	



3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards

- **FCC CFR47 Part 15C (2016) Radio Frequency Devices**
- **ANSI C63.10 (2013)**
- **KDB 558074 D01 DTS Meas Guidance v03r05**

4. Test Configuration

Test Mode

The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Band	Data Rate
802.11b	11 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0

5. Test Case Results

5.1. Average Power Output –Conducted

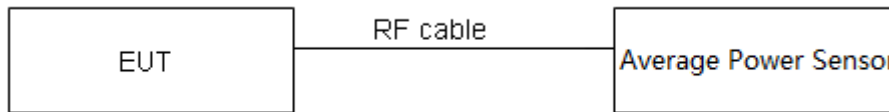
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to Average power meter with a known loss. The EUT is max power transmission with proper modulation. The Average detector is used. We use Maximum Average Conducted Output Power Level Method in KDB 558074 D01 for this test.

Test Setup



Limits

Rule Part 15.247 (b) (3) specifies that " For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz: 1 Watt."

Average Output Power	$\leq 1W$ (30dBm)
----------------------	-------------------

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44$ dB.

**Test Results****Original (RXA1503-0042RF01R1)**

Network Standards	Carrier frequency (MHz)	Average Output Power (dBm)	Limit (dBm)	Conclusion
802.11b	2412	21.67	30	PASS
	2437	22.08	30	PASS
	2462	22.23	30	PASS
802.11g	2412	21.57	30	PASS
	2437	21.17	30	PASS
	2462	21.39	30	PASS
802.11n HT20	2412	21.68	30	PASS
	2437	21.89	30	PASS
	2462	22.04	30	PASS

5.2. 6dB Bandwidth

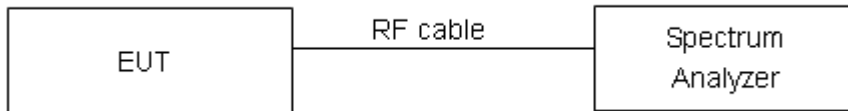
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. RBW is set to 100 kHz; VBW is set to 300 kHz on spectrum analyzer.

Test Setup



Limits

Rule Part 15.247 (a) (2) specifies that “Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.”

minimum 6 dB bandwidth	≥ 500 kHz
------------------------	-----------

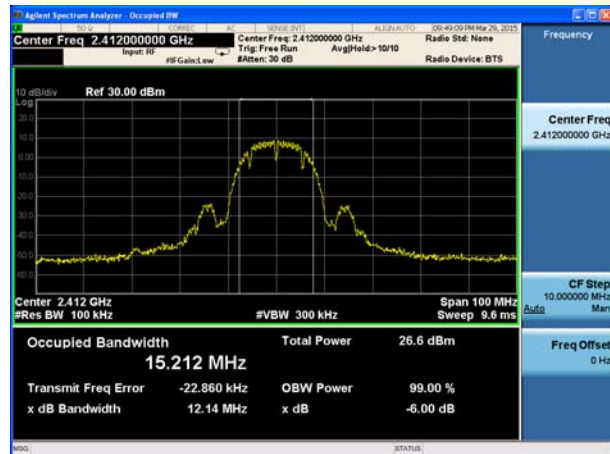
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

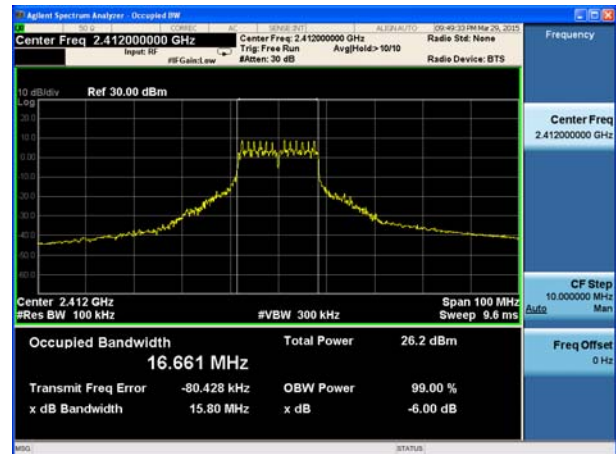
**Test Results:****Original (RXA1503-0042RF01R1)**

Network Standards	Carrier frequency (MHz)	Minimum 6 dB bandwidth (MHz)	Limit(kHz)	Conclusion
802.11b	2412	12.14	500	PASS
	2437	12.10	500	PASS
	2462	12.11	500	PASS
802.11g	2412	15.80	500	PASS
	2437	15.81	500	PASS
	2462	15.85	500	PASS
802.11n HT20	2412	17.04	500	PASS
	2437	16.67	500	PASS
	2462	17.02	500	PASS

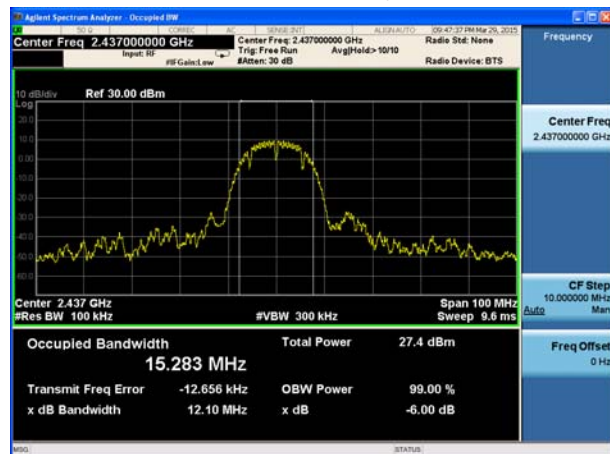
802.11b, Carrier frequency (MHz): 2412



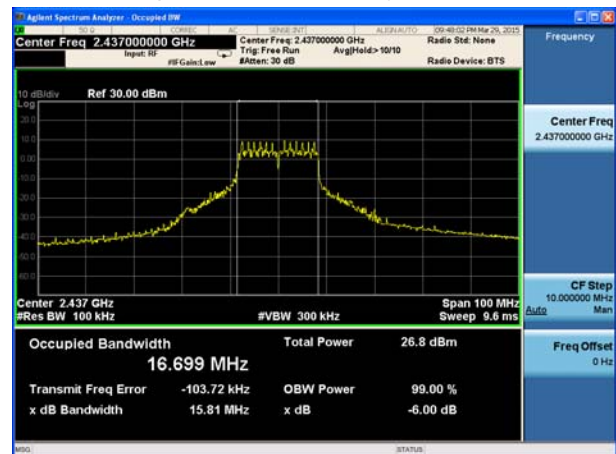
802.11g, Carrier frequency (MHz): 2412



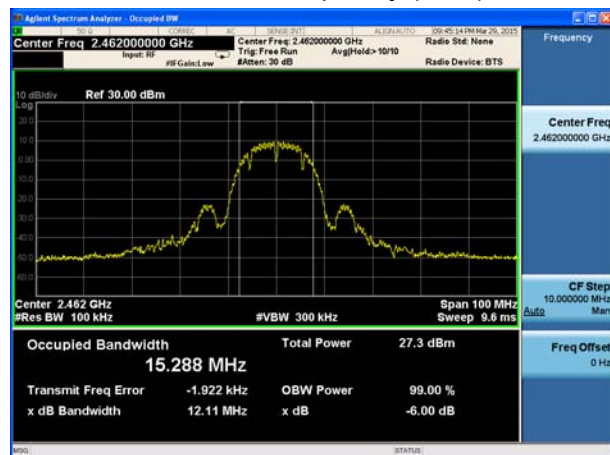
802.11b, Carrier frequency (MHz): 2437



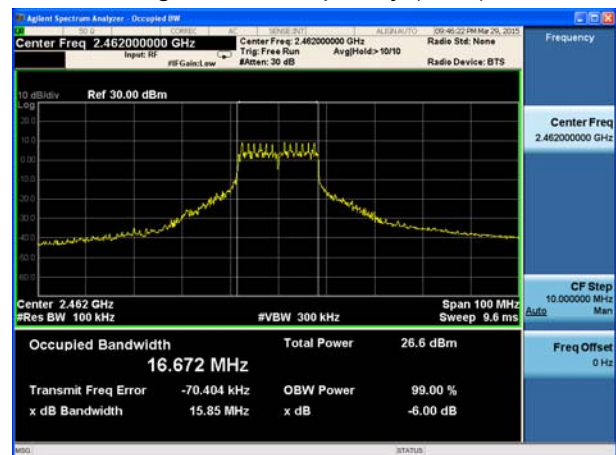
802.11g, Carrier frequency (MHz): 2437



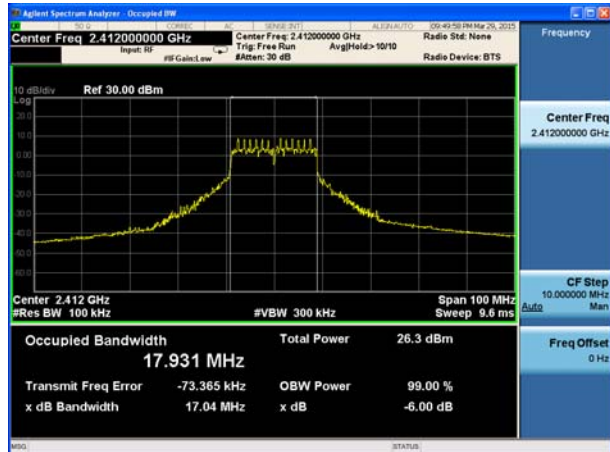
802.11b, Carrier frequency (MHz): 2462



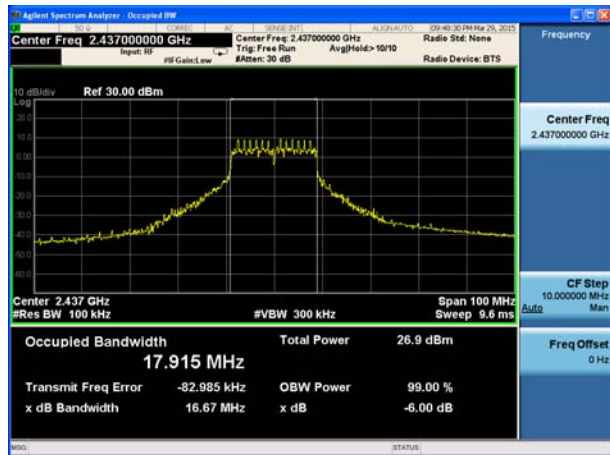
802.11g, Carrier frequency (MHz): 2462



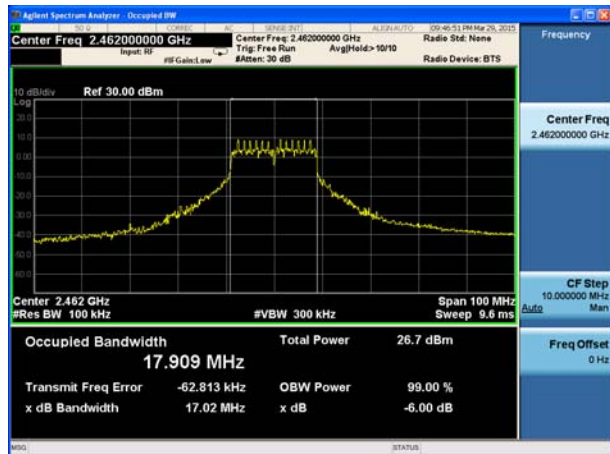
802.11n(HT20), Carrier frequency (MHz): 2412



802.11n(HT20), Carrier frequency (MHz): 2437



802.11n(HT20), Carrier frequency (MHz):2462



5.3. Band Edge

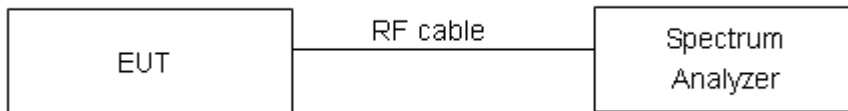
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable the band edge of the lowest and highest channels were measured. The peak detector is used and RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 15.247(d) specifies that “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.”

Measurement Uncertainty

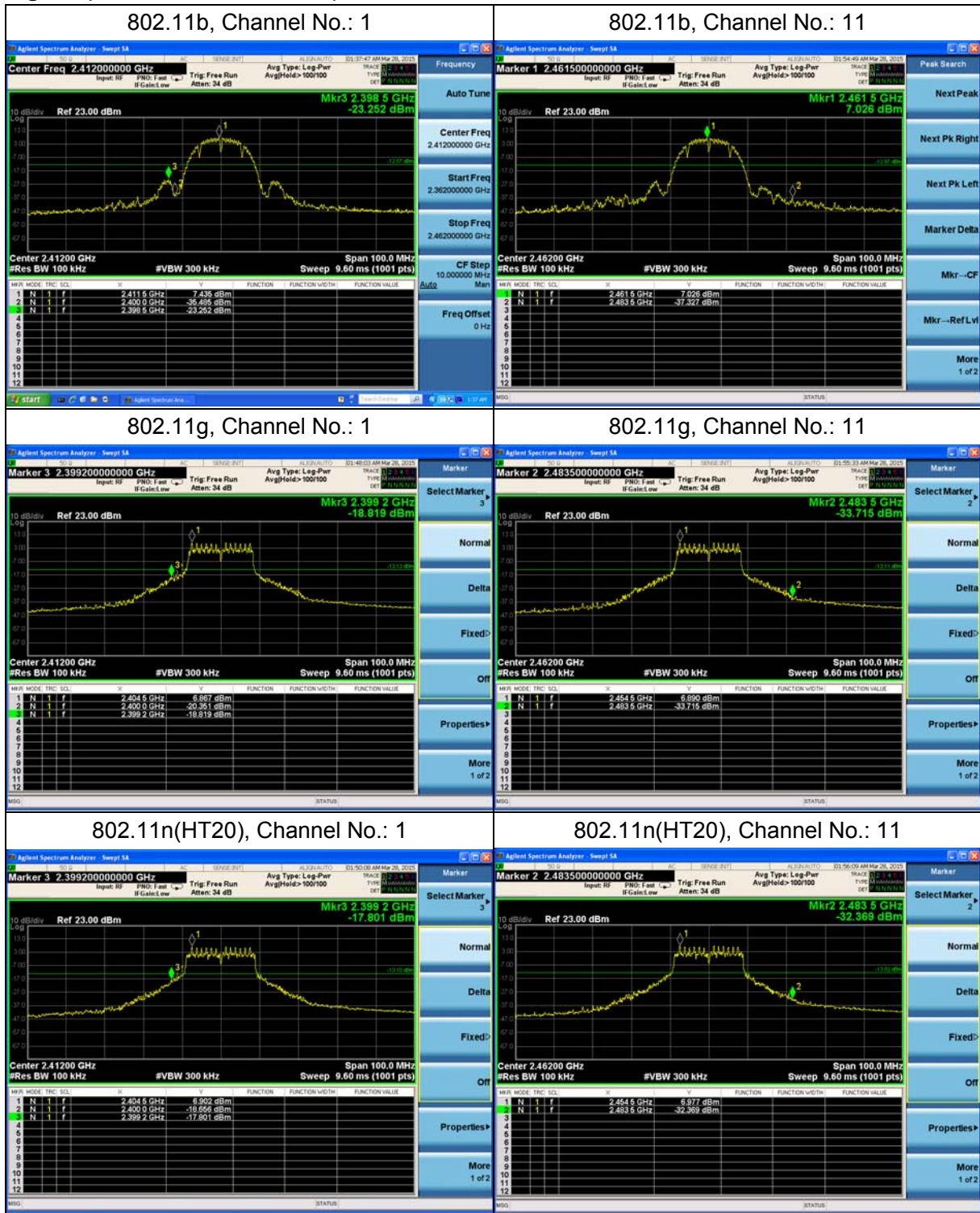
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
2GHz-3GHz	1.407 dB



Test Results:

Original (RXA1503-0042RF01R1)



5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

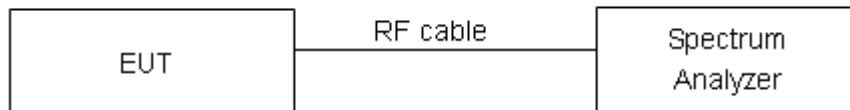
Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

RBW is set to 3 kHz and VBW is set to 10 kHz for BLE/ Wi-Fi 2.4G on spectrum analyzer.

Set the span to 1.5 times the DTS channel bandwidth. Sweep time = auto couple. Trace mode = max hold. The Average power spectral density is recorded.

Test setup



Limits

Rule Part 15.247(e) specifies that” For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. ”

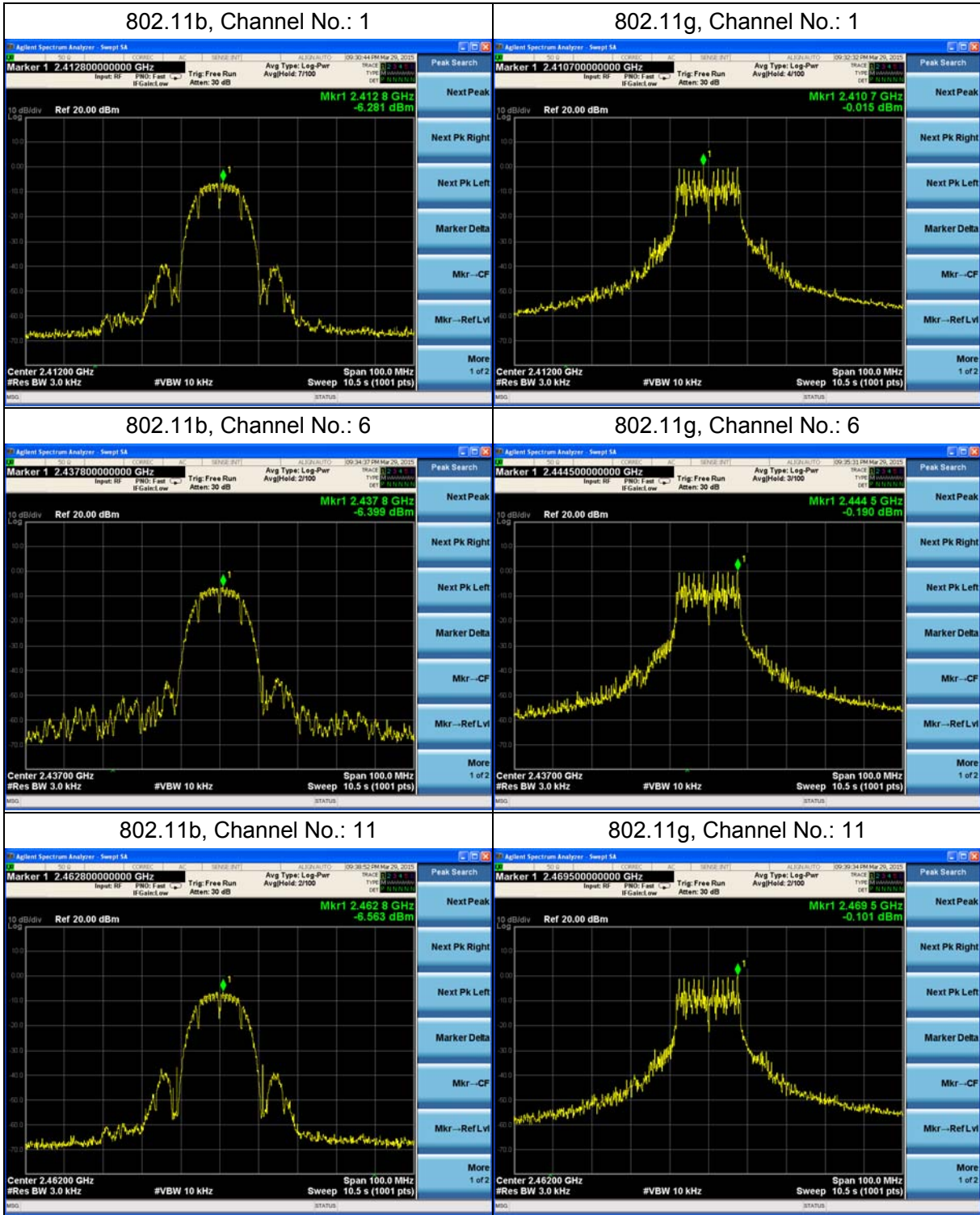
Limits	≤ 8 dBm / 3kHz
--------	----------------

Measurement Uncertainty

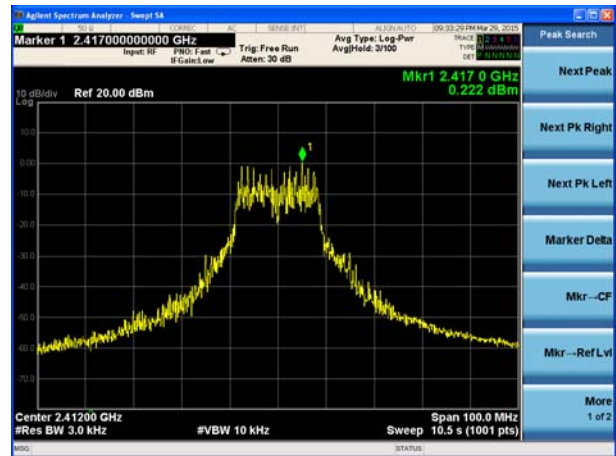
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.75\text{dB}$.

**Test Results:****Original (RXA1503-0042RF01R1)**

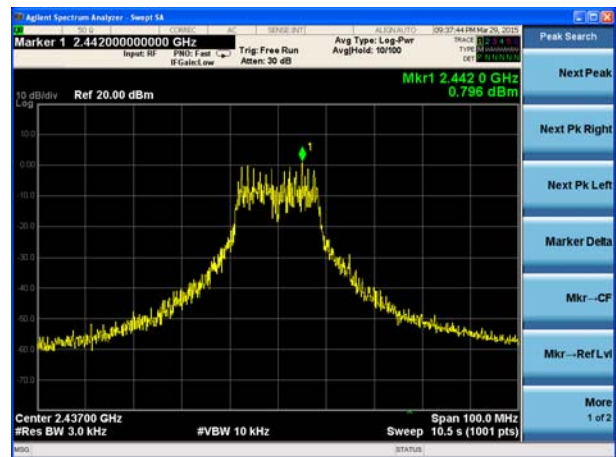
Network Standards	Channel Number	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
802.11b	1	-6.281	8	PASS
	6	-6.399	8	PASS
	11	-6.563	8	PASS
802.11g	1	-0.015	8	PASS
	6	-0.190	8	PASS
	11	-0.101	8	PASS
802.11n HT20	1	0.222	8	PASS
	6	0.796	8	PASS
	11	0.726	8	PASS



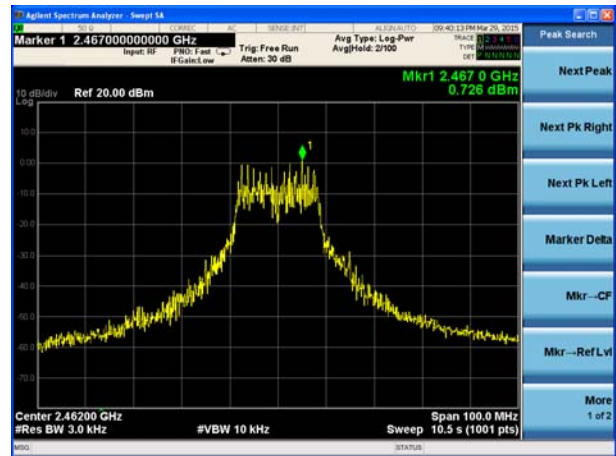
802.11n(HT20), Channel No. 1



802.11n(HT20), Channel No. 6



802.11n(HT20), Channel No. 11



5.5. Spurious RF Conducted Emissions

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. RBW and VBW are set to 100 kHz, Sweep is set to ATUO.

The test is in transmitting mode.

Test setup



Limits

Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.”

Network Standards	Carrier frequency (MHz)	Reference value (dBm)	Limit
802.11b	2412	21.67	1.67
	2437	22.08	2.08
	2462	22.23	2.23
802.11g	2412	21.57	1.57
	2437	21.17	1.17
	2462	21.39	1.39
802.11n HT20	2412	21.68	1.68
	2437	21.89	1.89
	2462	22.04	2.04

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

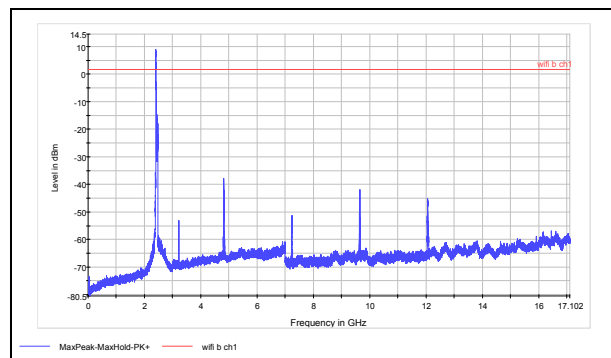


Test Results:

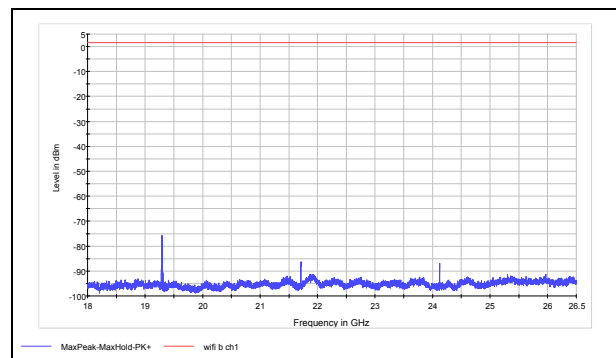
Original (RXA1503-0042RF01R1)

If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.

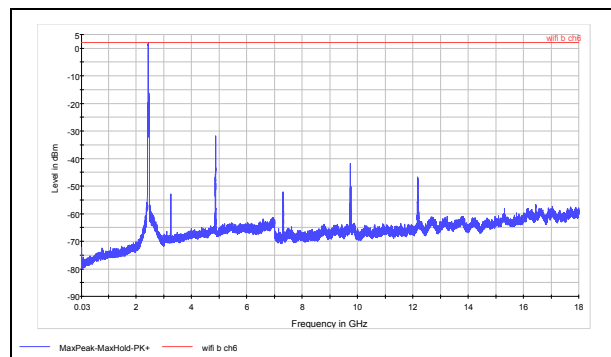
The signal beyond the limit is carrier.



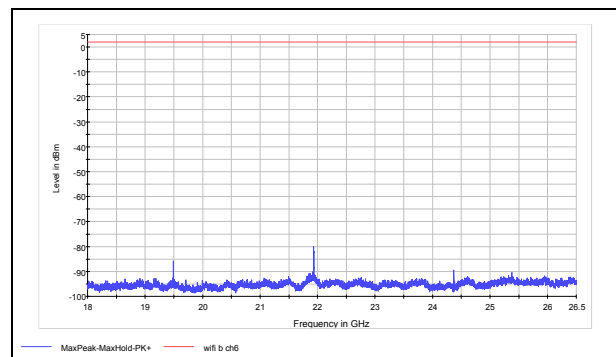
802.11b CH1 30MHz to 18GHz



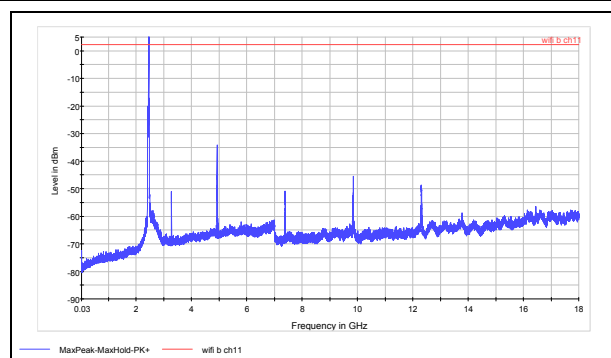
802.11b CH1 18GHz to 26.5GHz



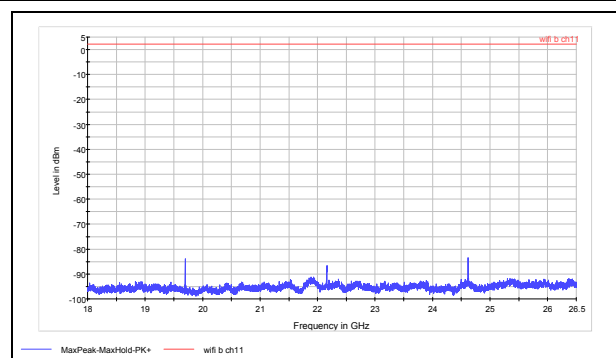
802.11b CH6 30MHz to 18GHz



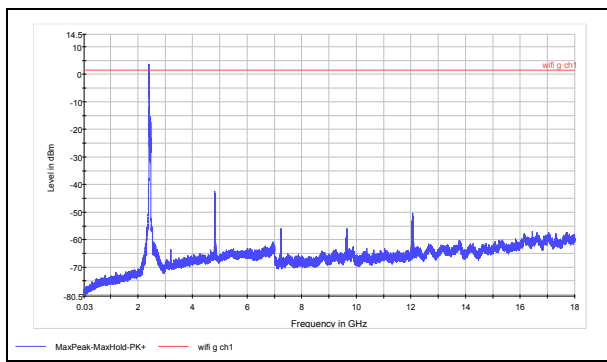
802.11b CH6 18GHz to 26.5GHz



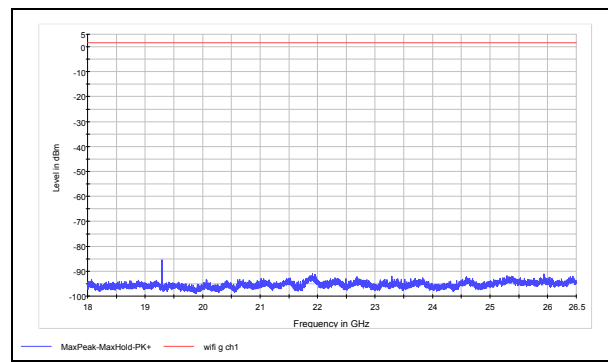
802.11b CH11 30MHz to 18GHz



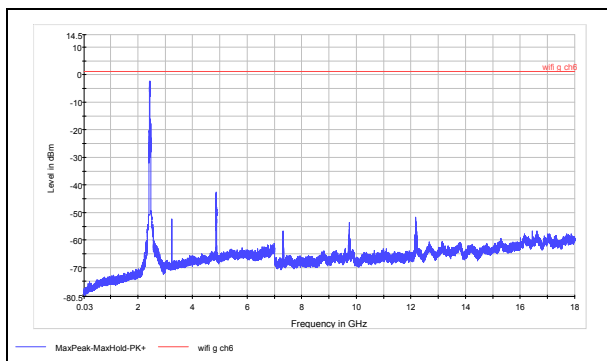
802.11b CH11 18GHz to 26.5GHz



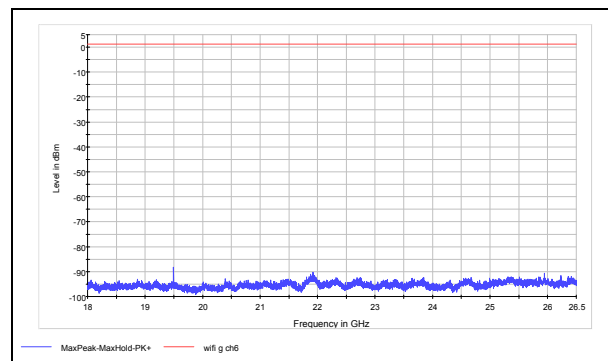
802.11g CH1 30MHz to 18GHz



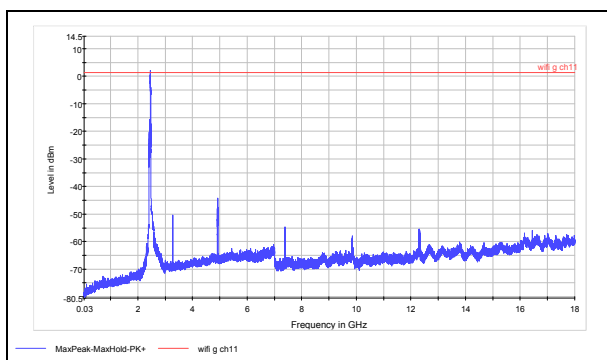
802.11g CH1 18GHz to 26.5GHz



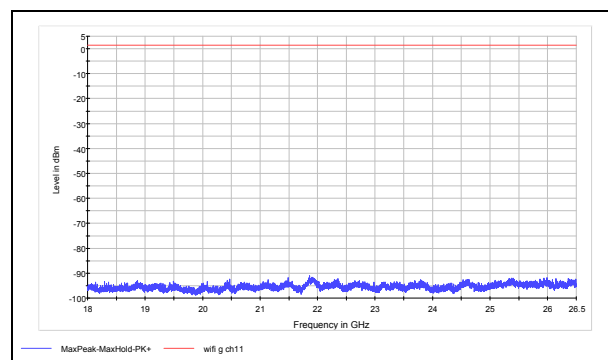
802.11g CH6 30MHz to 18GHz



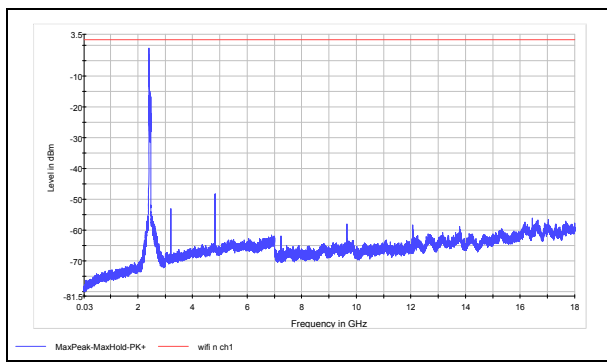
802.11g CH6 18GHz to 26.5GHz



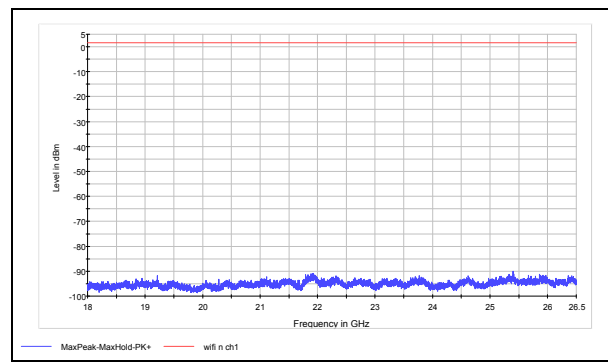
802.11g CH11 30MHz to 18GHz



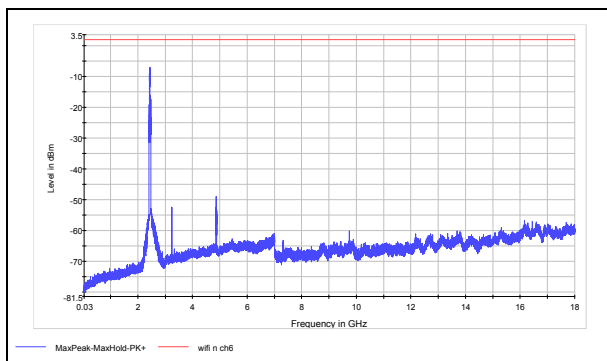
802.11g CH11 18GHz to 26.5GHz



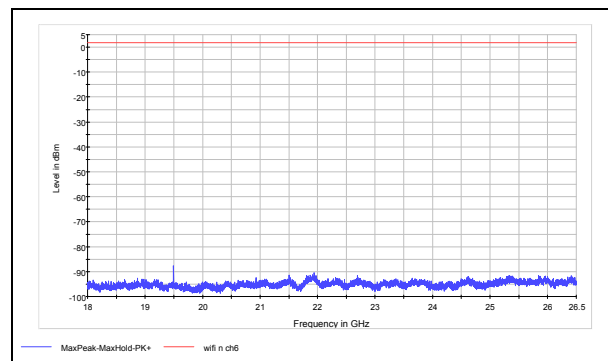
802.11n (HT20) CH1 30MHz to 18GHz



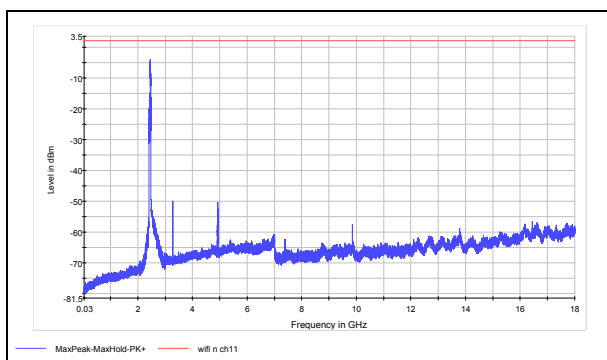
802.11n (HT20) CH1 18GHz to 26.5GHz



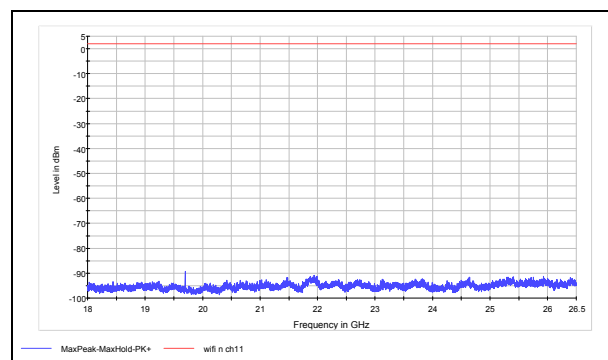
802.11n (HT20) CH6 30MHz to 18GHz



802.11n (HT20) CH6 18GHz to 26.5GHz



802.11n (HT20) CH11 30MHz to 18GHz



802.11n (HT20) CH11 18GHz to 26.5GHz

5.6. Radiated Emissions in the Restricted Band

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. RBW is set to 100kHz. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

Set the spectrum analyzer in the following:

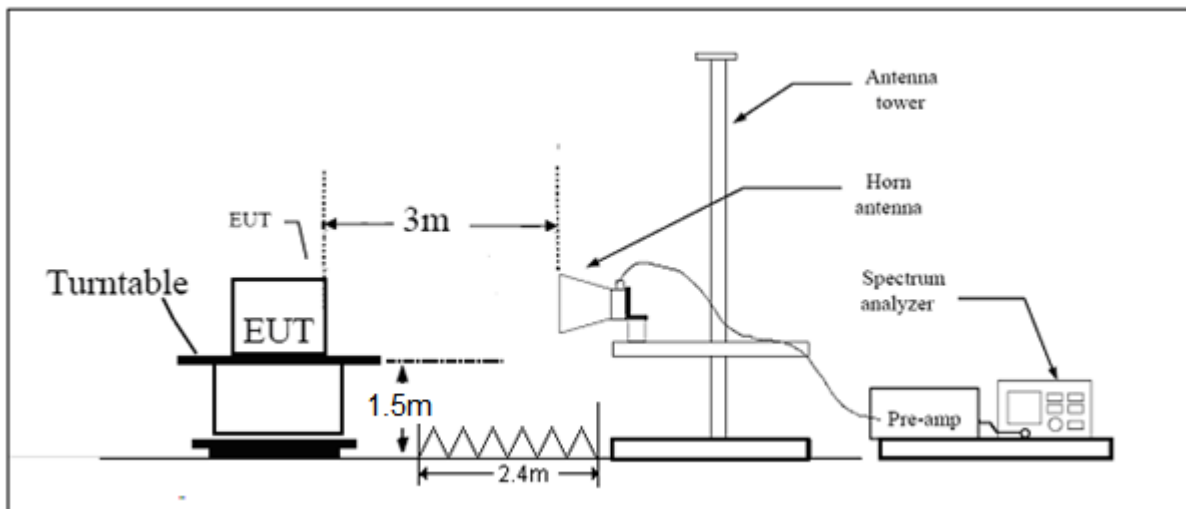
- (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
- (b) AVERAGE: RBW=1MHz / VBW=1MHz / Sweep=AUTO

This setting method can refer to **KDB 558074**.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Y axis) and the antenna is vertical.

The test is in transmitting mode.

Test setup



Note: Area side: 2.4mX3.6m

Limits

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

§15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Peak Limit=74 dBuV/m

Average Limit=54 dBuV/m

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ dB.

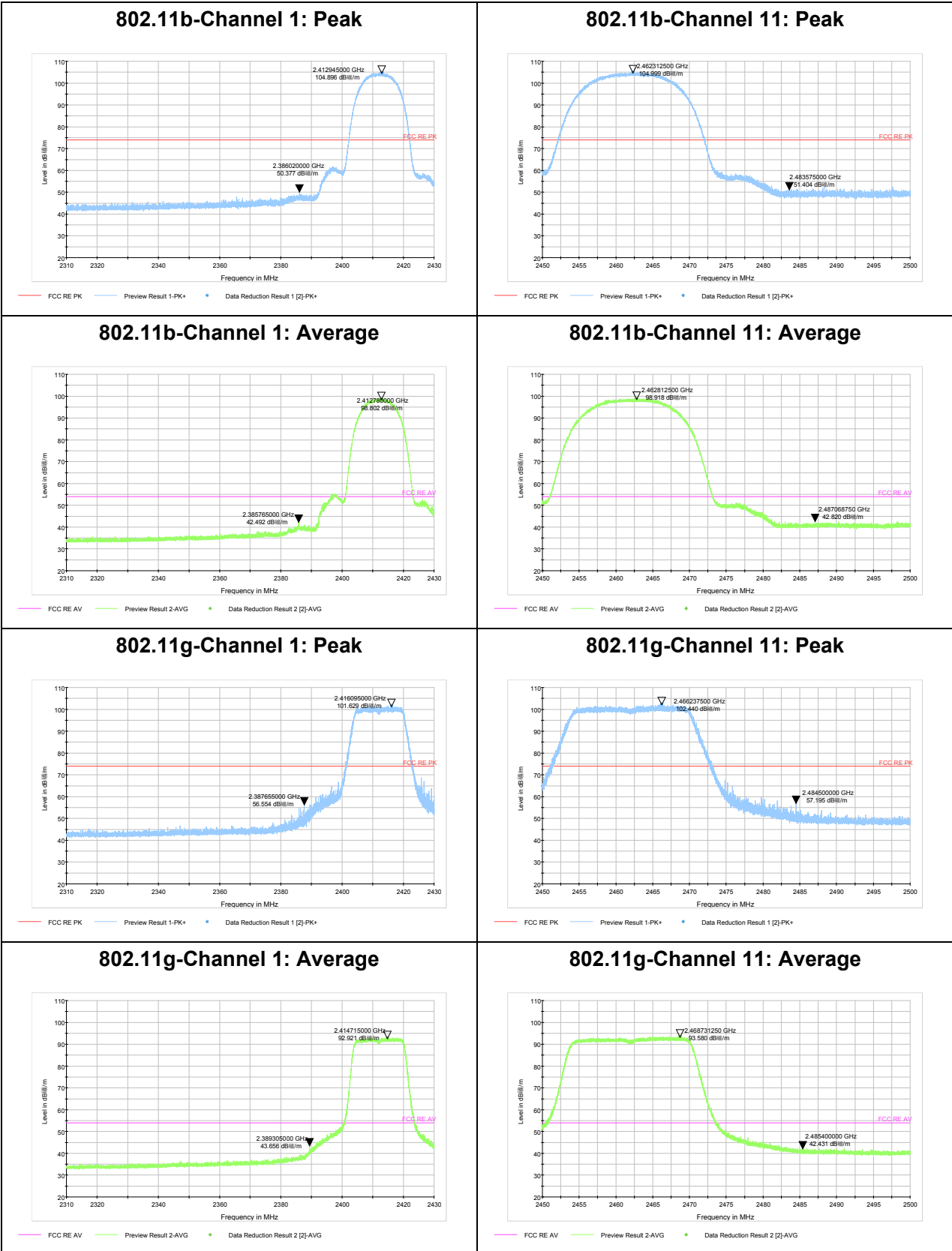


Test Results:

Original (RXA1503-0042RF01R1)

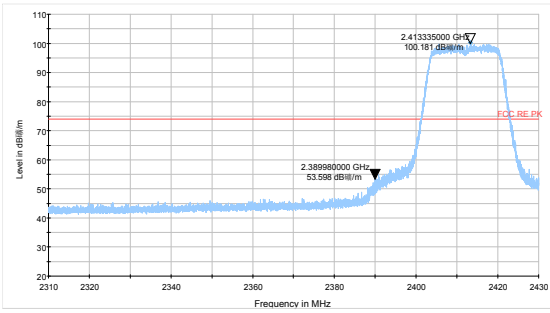
The messy code (dB μ m) including in the following plots mean dBuV/m.

The signal beyond the limit is carrier.



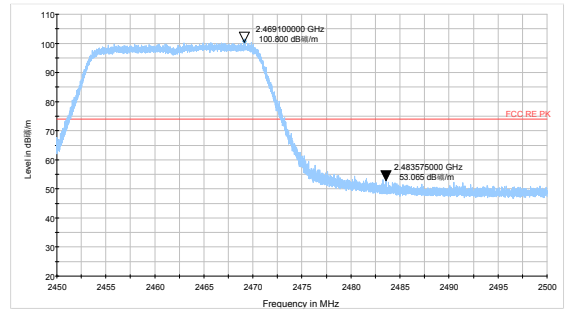


802.11n HT20 -Channel 1: Peak



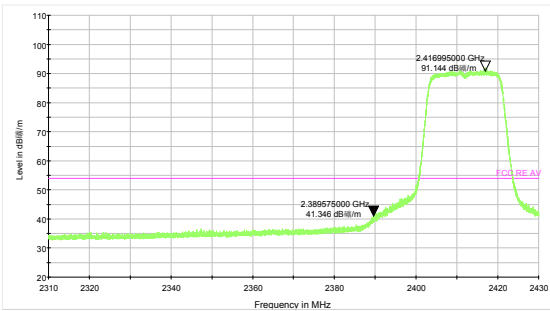
FCC RE PK Preview Result 1-PK+ Data Reduction Result 1 [2]-PK+

802.11n HT20-Channel 11: Peak



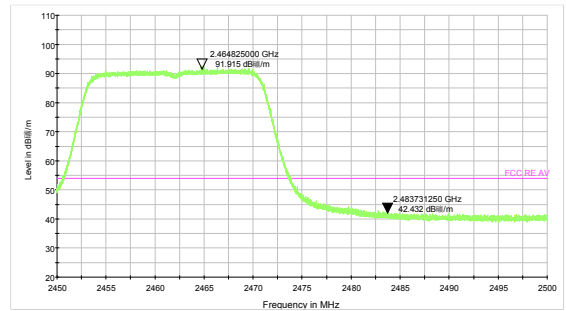
FCC RE PK Preview Result 1-PK+ Data Reduction Result 1 [2]-PK+

802.11n HT20-Channel 1: Average



FCC RE AV Preview Result 2-AVG Data Reduction Result 2 [2]-AVG

802.11n HT20-Channel 11: Average



FCC RE AV Preview Result 2-AVG Data Reduction Result 2 [2]-AVG

5.7. Radiates Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	102.5kPa

Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10-2013. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

Below 1GHz (detector: Peak and Quasi-Peak)

RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

Above 1GHz (detector: Peak):

(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

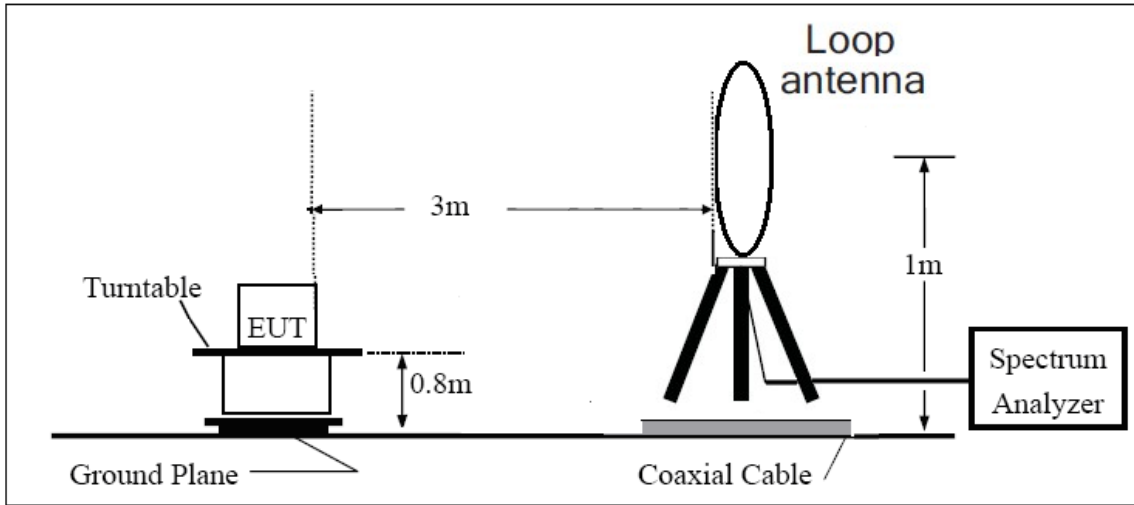
(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

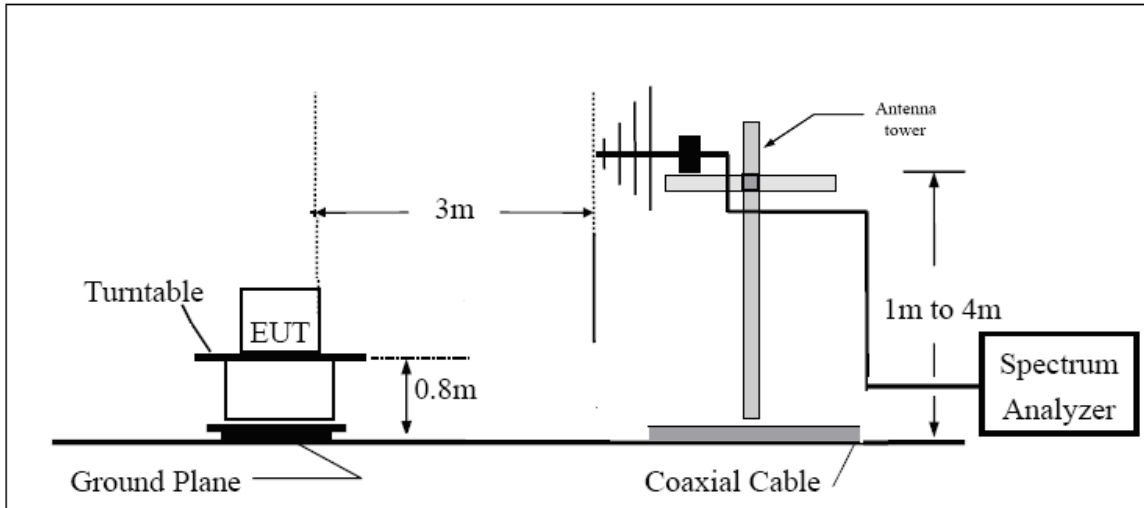
The test is in transmitting mode.

Test setup

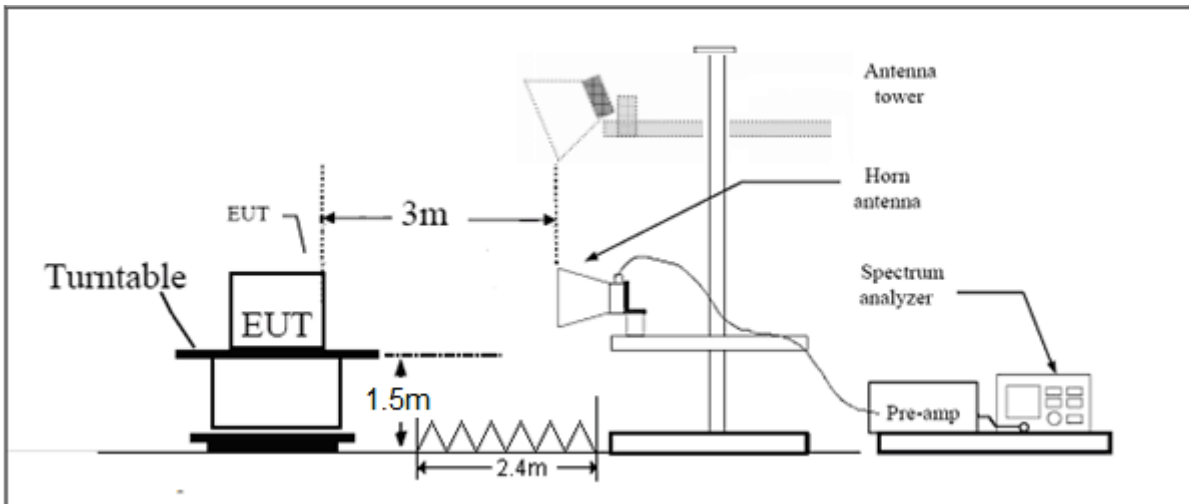
9KHz~~~ 30MHz



30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 15.247(d) specifies that “In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).”

Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

§15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
Above 1GHz	3.68 dB

Test result

Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

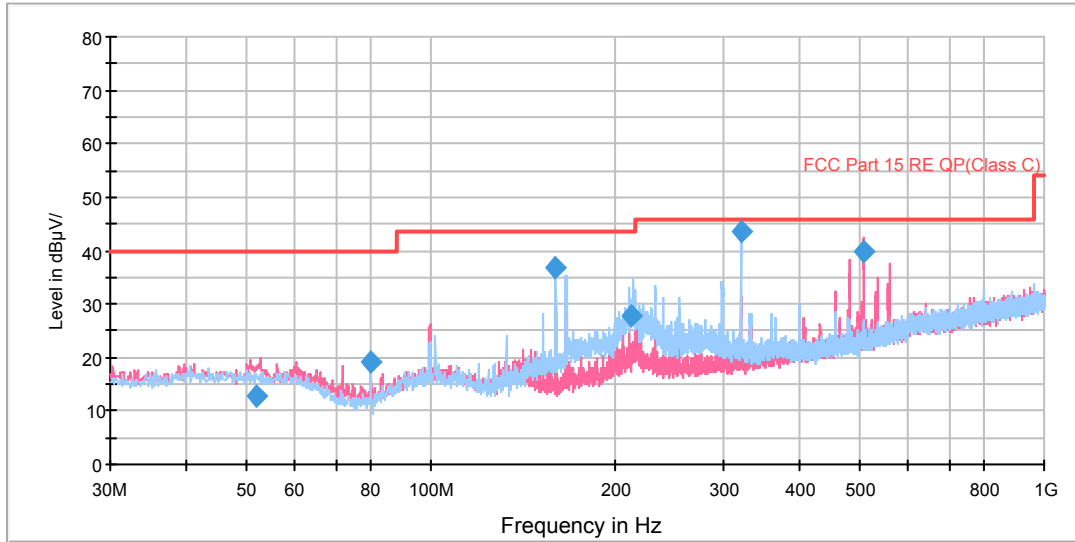
The following graphs display the maximum values of horizontal and vertical by software.

For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.

Variant (RXA1611-0266RF)

802.11b CH1

FCC RE 0.03-1GHz QP Class C

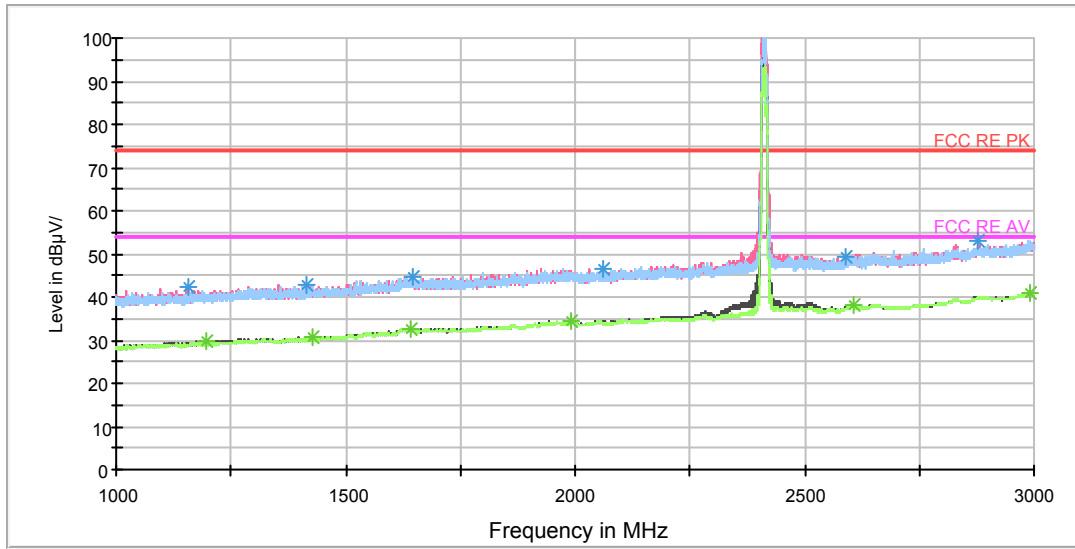


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
52.073750	12.6	100.0	V	140.0	25.5	12.9	27.4	40.0
79.995000	19.0	100.0	V	112.0	27.6	8.6	21.0	40.0
160.020000	36.8	125.0	H	153.0	46.5	9.7	6.7	43.5
212.968750	27.9	125.0	H	171.0	40.5	12.6	15.6	43.5
319.990000	43.6	116.0	H	10.0	59.6	16.0	2.4	46.0
506.755000	39.8	100.0	V	25.0	59.9	20.1	6.2	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss (cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

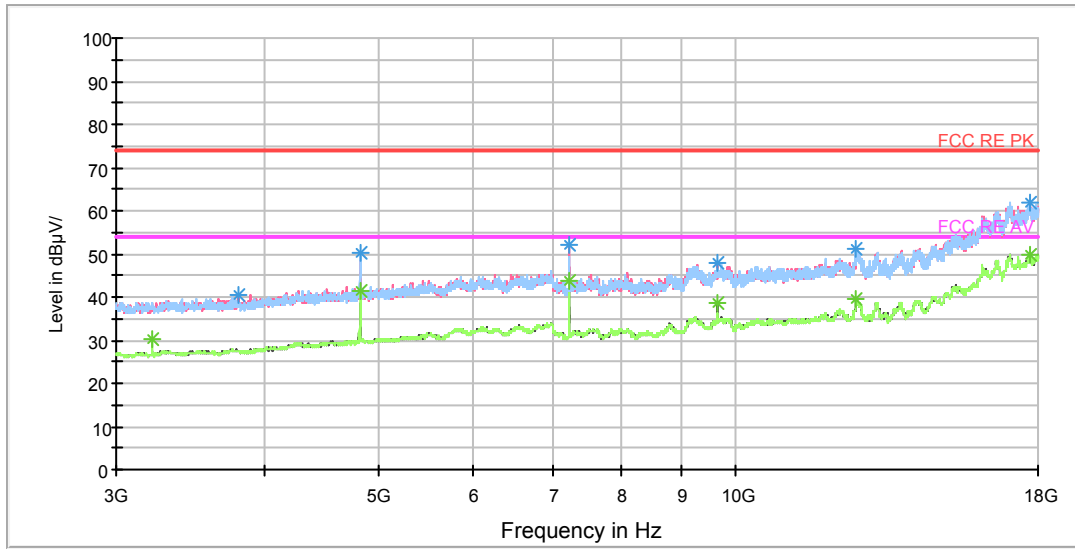
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1158.250000	42.5	101.0	V	191.0	50.9	-8.4	31.5	74
1416.750000	42.8	101.0	H	119.0	49.8	-7.0	31.2	74
1645.750000	44.9	101.0	V	285.0	49.8	-4.9	29.1	74
2059.250000	46.6	101.0	H	49.0	49.7	-3.1	27.4	74
2590.750000	49.3	101.0	H	262.0	49.3	0.0	24.7	74
2877.500000	53.2	101.0	H	119.0	55.5	2.3	20.8	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1196.750000	29.7	101.0	V	191.0	37.9	-8.2	24.3	54
1427.250000	30.7	101.0	V	0.0	37.6	-6.9	23.3	54
1640.000000	32.7	101.0	H	238.0	37.4	-4.7	21.3	54
1991.500000	34.5	101.0	H	0.0	37.8	-3.3	19.5	54
2607.500000	38.1	101.0	V	307.0	38.3	0.2	15.9	54
2991.500000	41.0	101.0	V	122.0	43.2	2.2	13.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

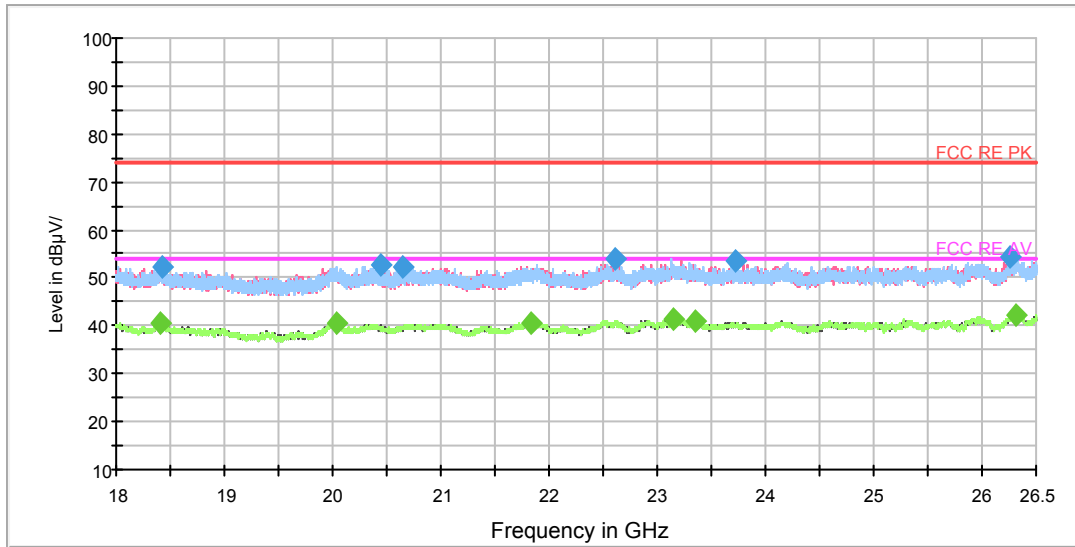
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3798.750000	40.7	101.0	V	166.0	42.4	-1.7	33.3	74
4822.500000	50.3	101.0	H	0.0	51.6	1.3	23.7	74
7237.500000	52.3	101.0	V	51.0	59.2	6.9	21.7	74
9646.875000	47.8	101.0	V	206.0	57.6	9.8	26.2	74
12635.625000	51.3	101.0	H	0.0	65.4	14.1	22.7	74
17703.750000	61.8	101.0	V	0.0	86.5	24.7	12.2	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3215.625000	30.1	101.0	H	114.0	32.9	-2.8	23.9	54
4824.375000	41.3	101.0	H	338.0	42.7	1.4	12.7	54
7235.625000	43.6	101.0	V	51.0	50.4	6.8	10.4	54
9648.750000	38.5	101.0	V	51.0	48.3	9.8	15.5	54
12639.375000	39.5	101.0	V	80.0	54.0	14.5	14.5	54
17716.875000	49.9	101.0	H	141.0	74.5	24.6	4.1	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18421.812500	52.3	H	21.0	55.9	-3.6	21.7	74
20438.968750	52.7	V	69.0	58.8	-6.1	21.3	74
20648.281250	52.3	H	21.0	58.9	-6.6	21.7	74
22610.187500	53.8	H	12.0	60.5	-6.7	20.2	74
23730.593750	53.5	H	0.0	59.4	-5.9	20.5	74
26264.125000	54.2	H	0.0	59.6	-5.4	19.8	74

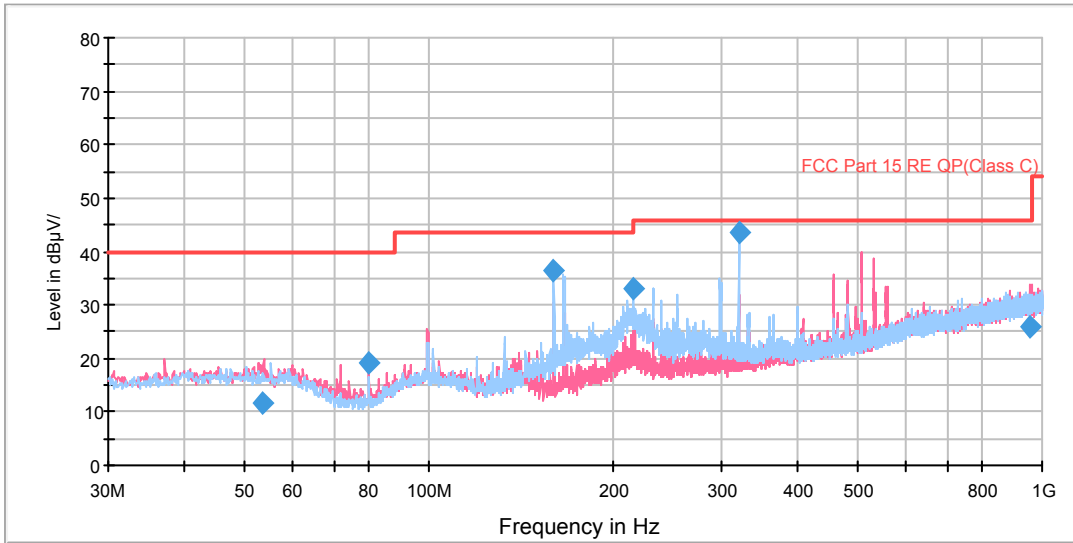
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18405.875000	40.6	V	69.0	44.1	-3.5	13.4	54
20036.812500	40.7	V	40.0	46.4	-5.7	13.3	54
21836.156250	40.7	H	12.0	48.7	-8.0	13.3	54
23141.437500	41.5	V	40.0	47.6	-6.1	12.5	54
23342.781250	40.9	H	0.0	46.8	-5.9	13.1	54
26320.968750	42.2	V	90.0	47.6	-5.4	11.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11b CH6

FCC RE 0.03-1GHz QP Class C

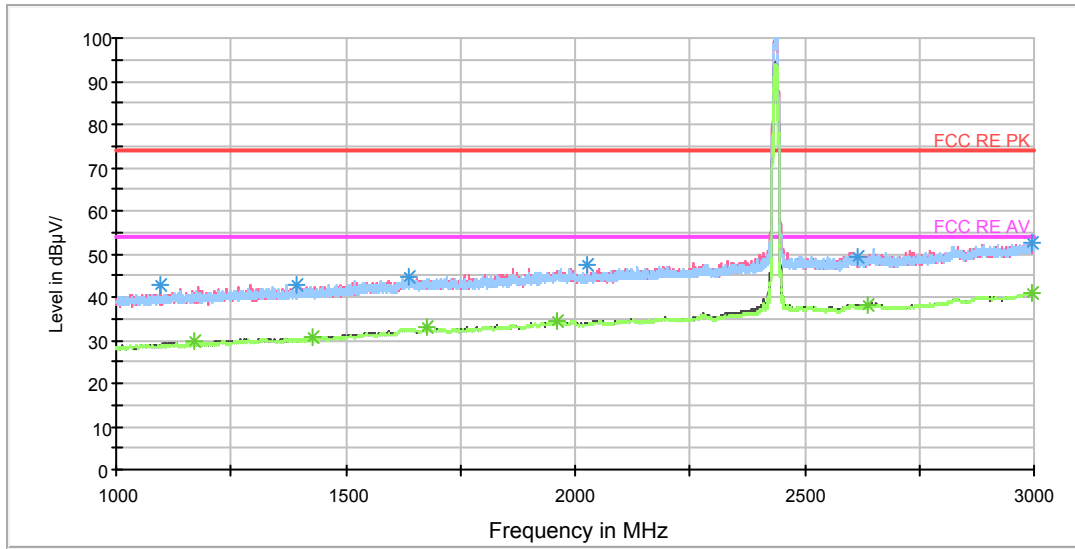


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
53.605000	11.6	100.0	V	176.0	24.4	12.8	28.4	40.0
79.995000	19.0	100.0	V	116.0	27.6	8.6	21.0	40.0
160.020000	36.6	125.0	H	155.0	46.3	9.7	6.9	43.5
215.997500	32.9	125.0	H	142.0	45.6	12.7	10.6	43.5
319.990000	43.6	113.0	H	10.0	59.6	16.0	2.4	46.0
954.323750	25.9	100.0	V	185.0	52.0	26.1	20.1	46.0

- Remark: 1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss (cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

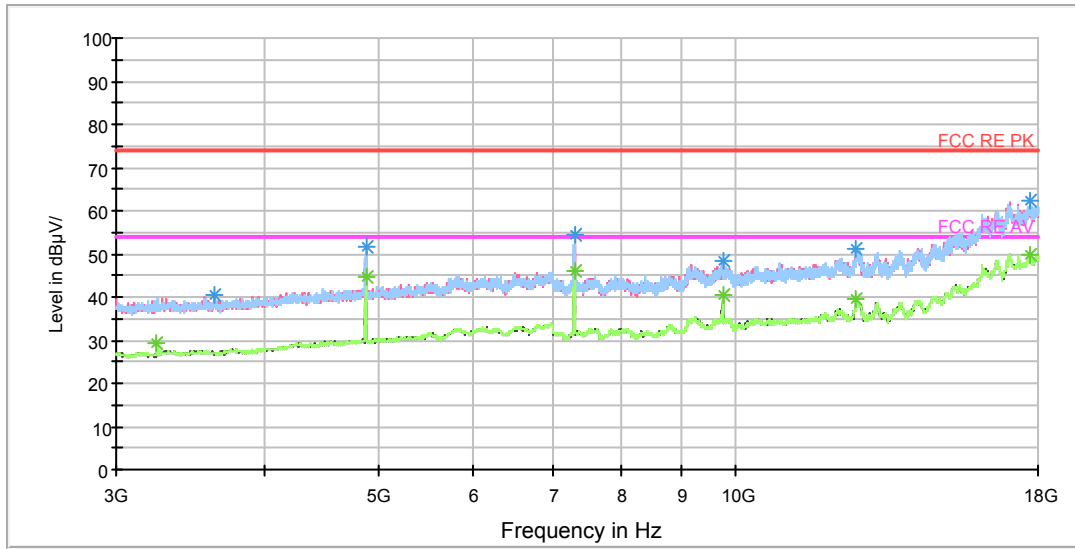
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1096.250000	42.9	101.0	V	241.0	51.8	-8.9	31.1	74
1392.000000	43.0	101.0	V	74.0	50.0	-7.0	31.0	74
1636.500000	44.8	101.0	V	312.0	49.5	-4.7	29.2	74
2024.750000	47.3	101.0	V	241.0	50.8	-3.5	26.7	74
2616.500000	49.5	101.0	H	97.0	49.5	0.0	24.5	74
2996.750000	52.7	101.0	V	0.0	55.0	2.3	21.3	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1171.000000	29.8	101.0	V	195.0	37.9	-8.1	24.2	54
1427.250000	30.7	101.0	V	0.0	37.6	-6.9	23.3	54
1677.500000	32.8	101.0	V	312.0	37.9	-5.1	21.2	54
1960.500000	34.4	101.0	V	0.0	37.6	-3.2	19.6	54
2638.250000	38.1	101.0	V	171.0	38.2	0.1	15.9	54
2996.750000	41.0	101.0	V	0.0	43.3	2.3	13.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

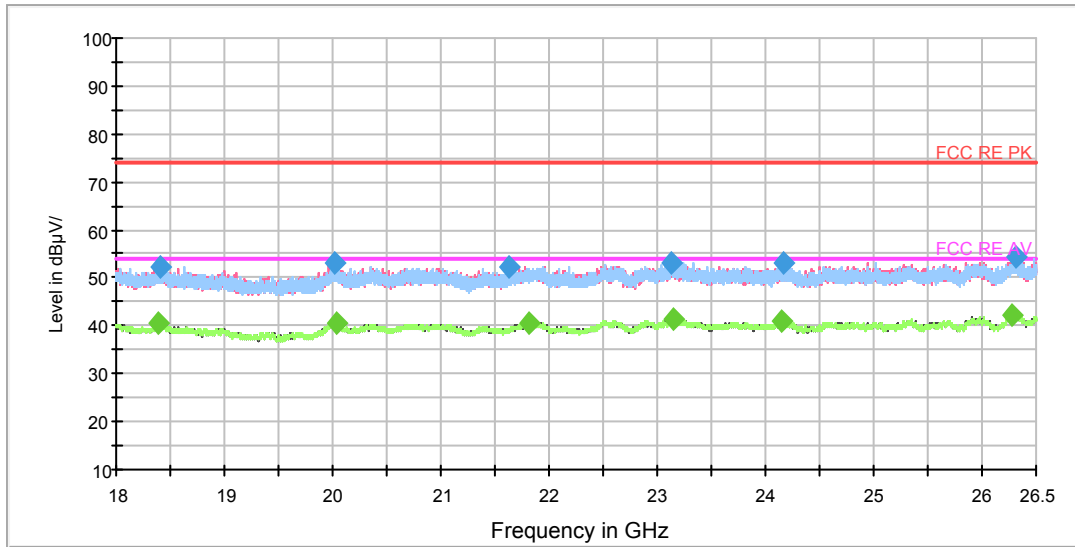
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3626.250000	40.5	101.0	V	278.0	42.4	-1.9	33.5	74
4873.125000	51.5	101.0	H	309.0	53.3	1.8	22.5	74
7310.625000	54.6	101.0	H	309.0	61.6	7.0	19.4	74
9748.125000	48.6	101.0	H	5.0	58.4	9.8	25.4	74
12650.625000	50.9	101.0	H	0.0	65.0	14.1	23.1	74
17722.500000	62.4	101.0	H	31.0	86.9	24.5	11.6	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3247.500000	29.5	101.0	H	140.0	32.0	-2.5	24.5	54
4873.125000	44.9	101.0	H	309.0	46.7	1.8	9.1	54
7312.500000	45.9	101.0	H	309.0	52.9	7.0	8.1	54
9748.125000	40.4	101.0	V	81.0	50.2	9.8	13.6	54
12639.375000	39.6	101.0	H	59.0	54.1	14.5	14.4	54
17700.000000	50.0	101.0	H	0.0	74.7	24.7	4.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18398.437500	52.3	H	22.0	55.8	-3.5	21.7	74
20013.437500	52.9	V	90.0	58.6	-5.7	21.1	74
21624.187500	52.3	V	49.0	60.3	-8.0	21.7	74
23137.718750	53.1	H	50.0	59.2	-6.1	20.9	74
24158.250000	53.0	H	3.0	58.9	-5.9	21.0	74
26317.781250	54.4	V	59.0	59.8	-5.4	19.6	74

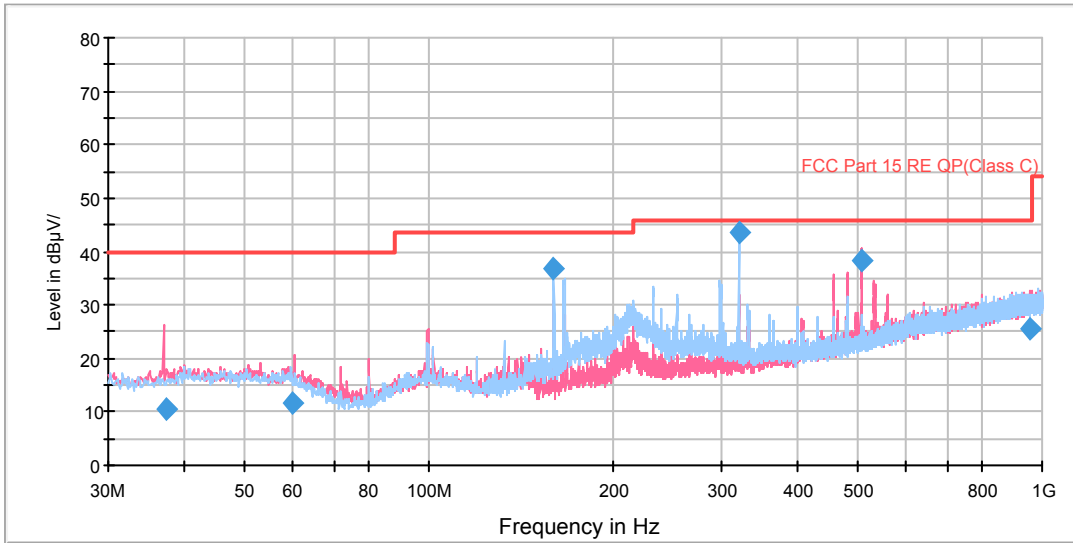
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18396.843750	40.5	H	22.0	44.0	-3.5	13.5	54
20037.343750	40.6	H	3.0	46.3	-5.7	13.4	54
21820.750000	40.5	V	8.0	48.5	-8.0	13.5	54
23144.625000	41.5	V	90.0	47.6	-6.1	12.5	54
24156.656250	40.8	H	3.0	46.7	-5.9	13.2	54
26272.093750	42.4	H	3.0	47.8	-5.4	11.6	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11b CH11

FCC RE 0.03-1GHz QP Class C

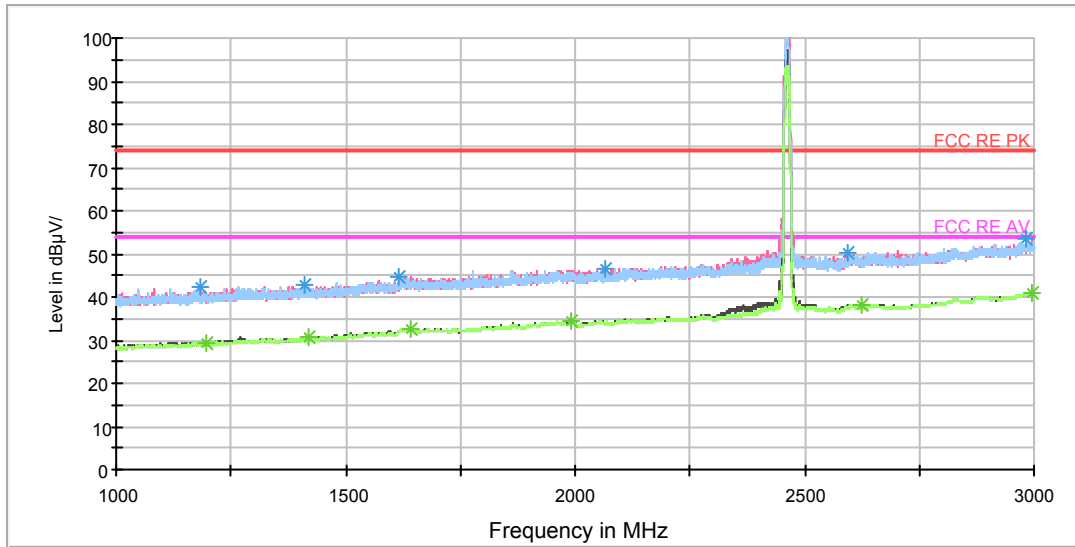


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
37.391250	10.6	100.0	V	150.0	23.1	12.5	29.4	40.0
59.833750	11.7	100.0	V	346.0	24.2	12.5	28.3	40.0
160.020000	36.9	125.0	H	152.0	46.6	9.7	6.6	43.5
319.990000	43.6	114.0	H	10.0	59.6	16.0	2.4	46.0
508.487500	38.4	100.0	V	25.0	58.5	20.1	7.6	46.0
954.533750	25.5	100.0	V	342.0	51.6	26.1	20.5	46.0

- Remark: 1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

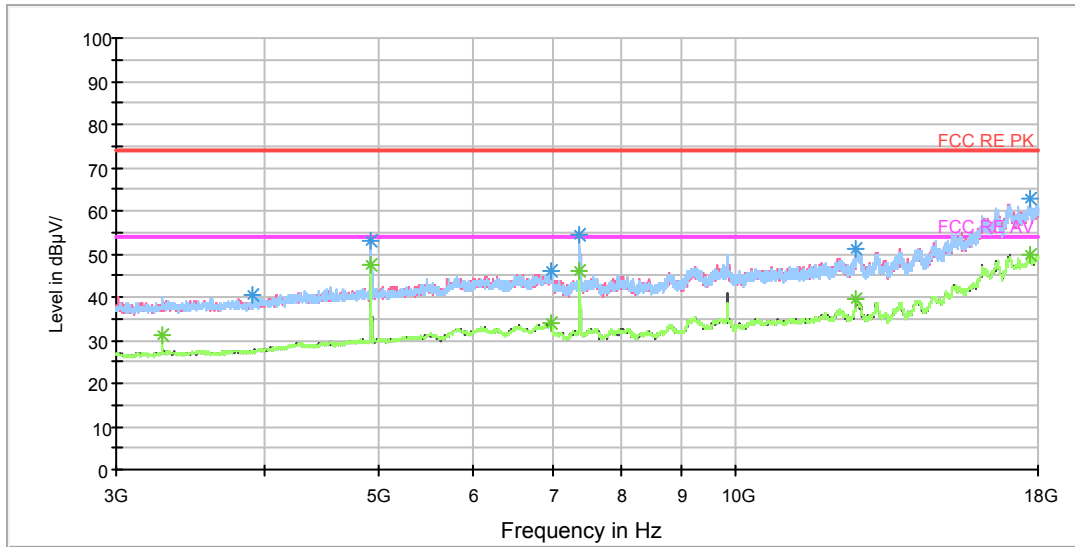
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1182.000000	42.4	101.0	V	355.0	50.4	-8.0	31.6	74
1409.250000	42.6	101.0	V	72.0	49.7	-7.1	31.4	74
1617.750000	44.6	101.0	H	0.0	49.6	-5.0	29.4	74
2064.750000	46.5	101.0	V	96.0	49.6	-3.1	27.5	74
2595.750000	50.4	101.0	V	306.0	50.6	0.2	23.6	74
2983.250000	53.5	101.0	V	0.0	55.7	2.2	20.5	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1196.250000	29.5	101.0	V	355.0	37.7	-8.2	24.5	54
1419.000000	30.7	101.0	V	0.0	37.6	-6.9	23.3	54
1640.000000	32.7	101.0	V	306.0	37.4	-4.7	21.3	54
1992.500000	34.4	101.0	H	26.0	37.7	-3.3	19.6	54
2623.000000	38.0	101.0	V	306.0	38.1	-0.1	16.0	54
2997.000000	41.0	101.0	V	191.0	43.3	2.3	13.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

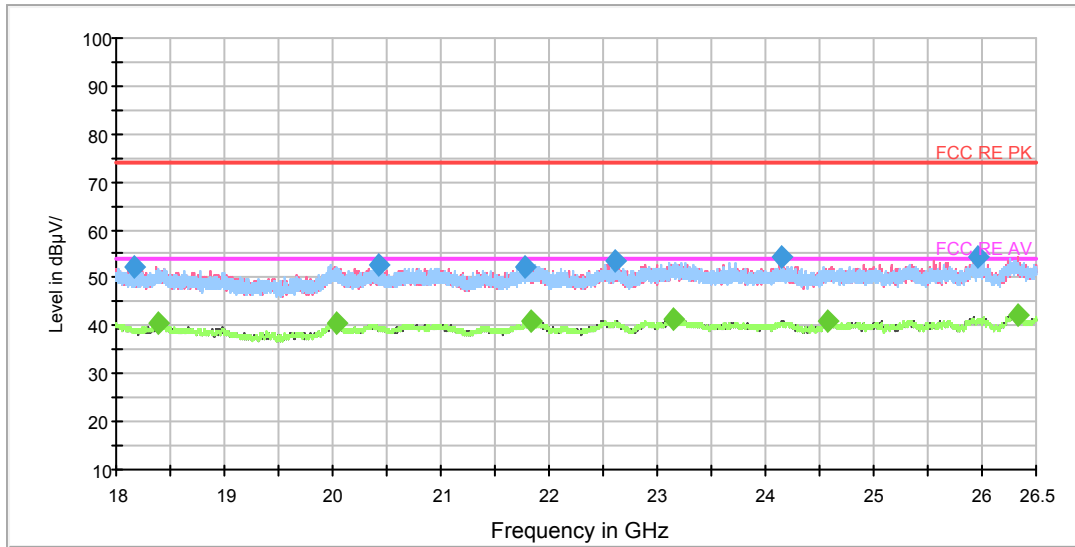
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3916.875000	40.7	101.0	H	0.0	41.9	-1.2	33.3	74
4923.750000	53.2	101.0	H	0.0	55.1	1.9	20.8	74
6988.125000	45.9	101.0	H	0.0	52.3	6.4	28.1	74
7385.625000	54.5	101.0	V	52.0	61.5	7.0	19.5	74
12639.375000	51.4	101.0	H	0.0	65.9	14.5	22.6	74
17696.250000	62.6	101.0	V	0.0	87.3	24.7	11.4	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3281.250000	31.2	101.0	H	168.0	33.3	-2.1	22.8	54
4923.750000	47.6	101.0	H	0.0	49.5	1.9	6.4	54
6995.625000	34.1	101.0	H	5.0	40.6	6.5	19.9	54
7385.625000	45.8	101.0	V	52.0	52.8	7.0	8.2	54
12641.250000	39.5	101.0	V	297.0	54.0	14.5	14.5	54
17718.750000	50.0	101.0	V	270.0	74.6	24.6	4.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18158.312500	52.4	V	87.0	54.9	-2.5	21.6	74
20428.875000	52.9	H	4.0	59.0	-6.1	21.1	74
21774.531250	52.4	V	90.0	60.4	-8.0	21.6	74
22604.343750	53.5	H	41.0	60.2	-6.7	20.5	74
24141.250000	54.3	H	4.0	60.2	-5.9	19.7	74
25966.093750	54.5	V	39.0	59.9	-5.4	19.5	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

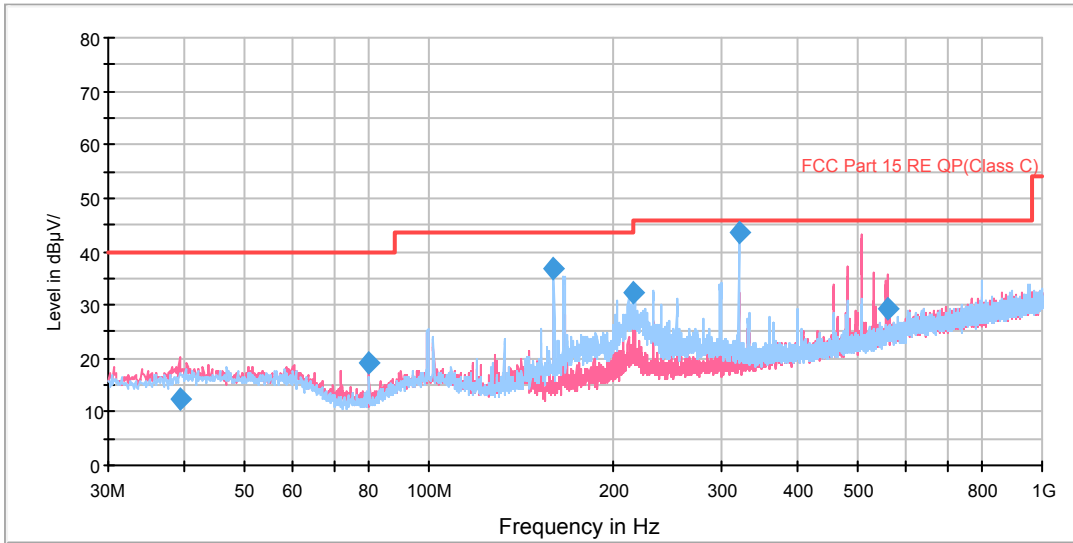
Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18388.875000	40.4	H	82.0	43.8	-3.4	13.6	54
20033.625000	40.6	V	90.0	46.3	-5.7	13.4	54
21825.531250	40.8	V	0.0	48.8	-8.0	13.2	54
23147.281250	41.4	V	39.0	47.5	-6.1	12.6	54
24581.656250	41.0	V	77.0	47.0	-6.0	13.0	54
26331.062500	42.3	H	0.0	47.7	-5.4	11.7	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)



802.11g CH1

FCC RE 0.03-1GHz QP Class C

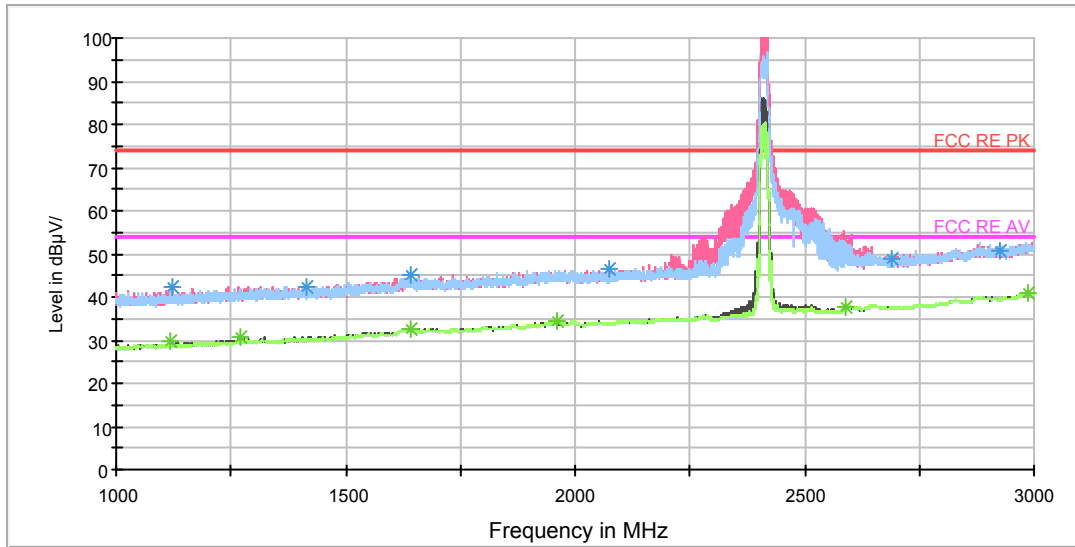


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
39.375000	12.5	100.0	V	22.0	25.5	13.0	27.5	40.0
79.995000	19.0	100.0	V	115.0	27.6	8.6	21.0	40.0
160.020000	36.9	125.0	H	156.0	46.6	9.7	6.6	43.5
215.992500	32.1	125.0	H	141.0	44.8	12.7	11.4	43.5
319.990000	43.7	114.0	H	7.0	59.7	16.0	2.3	46.0
559.212500	29.2	100.0	V	0.0	50.4	21.2	16.8	46.0

- Remark: 1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

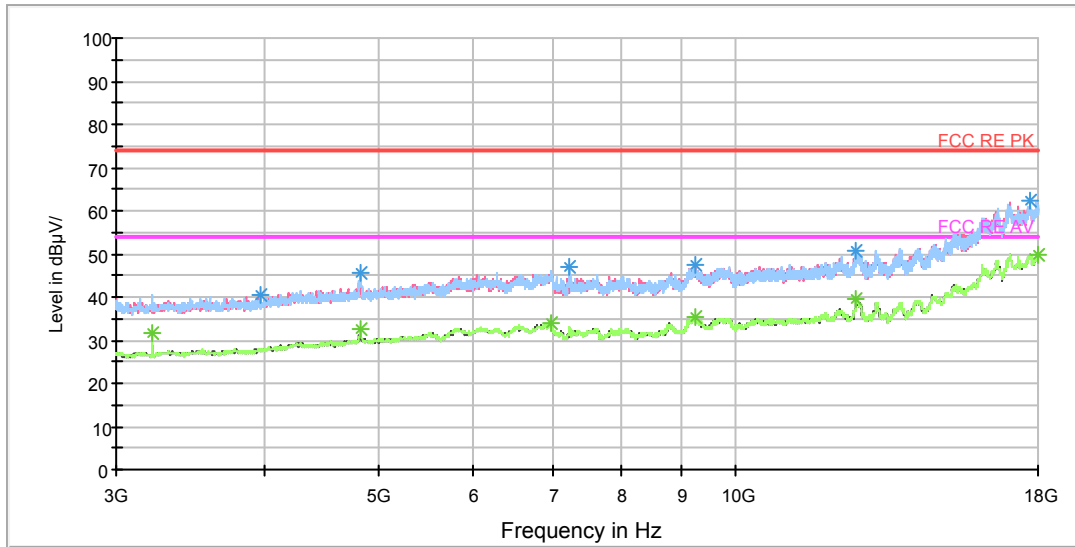
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.000000	42.2	101.0	V	0.0	50.7	-8.5	31.8	74
1415.250000	42.4	101.0	V	73.0	49.4	-7.0	31.6	74
1640.750000	45.3	101.0	H	118.0	50.0	-4.7	28.7	74
2073.000000	46.4	101.0	V	0.0	49.5	-3.1	27.6	74
2690.750000	48.6	101.0	V	215.0	48.7	0.1	25.4	74
2924.250000	50.9	101.0	H	0.0	52.6	1.7	23.1	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1120.000000	29.6	101.0	V	260.0	38.1	-8.5	24.4	54
1268.750000	30.6	101.0	V	353.0	38.3	-7.7	23.4	54
1642.250000	32.6	101.0	V	0.0	37.4	-4.8	21.4	54
1961.500000	34.4	101.0	H	26.0	37.6	-3.2	19.6	54
2591.000000	37.5	101.0	H	0.0	37.5	0.0	16.5	54
2986.250000	41.1	101.0	V	0.0	43.3	2.2	12.9	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

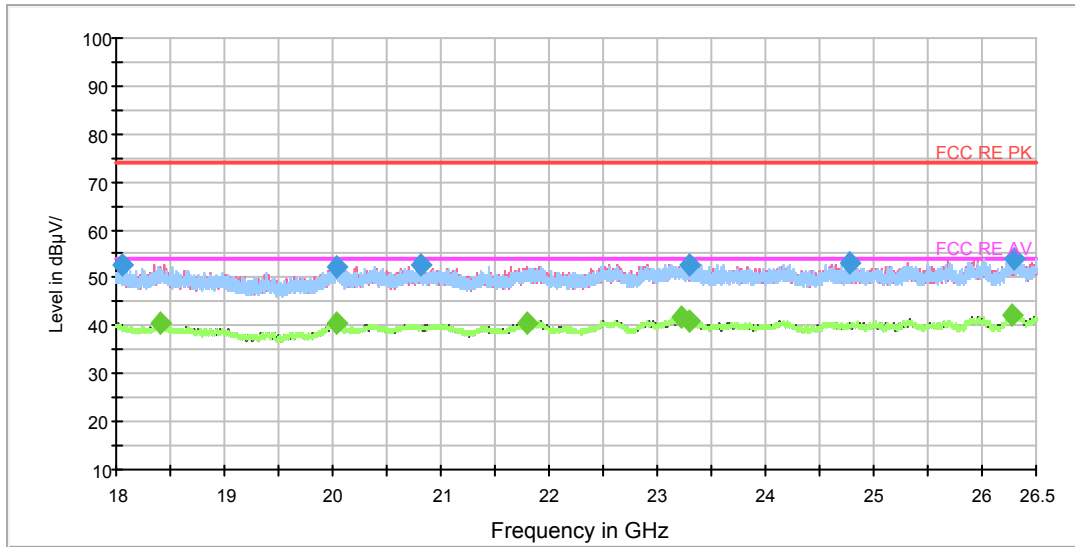
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3976.875000	40.6	101.0	H	0.0	41.5	-0.9	33.4	74
4828.125000	45.7	101.0	H	308.0	47.1	1.4	28.3	74
7241.250000	47.1	101.0	H	308.0	54.0	6.9	26.9	74
9238.125000	47.6	101.0	V	331.0	57.5	9.9	26.4	74
12639.375000	50.9	101.0	H	141.0	65.4	14.5	23.1	74
17716.875000	62.2	101.0	V	357.0	86.8	24.6	11.8	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3215.625000	31.5	101.0	H	113.0	34.3	-2.8	22.5	54
4822.500000	32.7	101.0	H	308.0	34.0	1.3	21.3	54
6997.500000	34.2	101.0	V	109.0	40.7	6.5	19.8	54
9240.000000	35.3	101.0	H	5.0	45.2	9.9	18.7	54
12641.250000	39.4	101.0	V	0.0	53.9	14.5	14.6	54
18000.000000	49.9	101.0	H	168.0	75.4	25.5	4.1	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18061.093750	52.9	V	68.0	55.0	-2.1	21.1	74.0
20029.906250	52.3	H	0.0	58.0	-5.7	21.7	74.0
20807.125000	52.7	H	29.0	59.6	-6.9	21.3	74.0
23290.187500	52.9	V	49.0	58.9	-6.0	21.1	74.0
24783.531250	53.2	V	90.0	59.2	-6.0	20.8	74.0
26299.187500	54.1	H	19.0	59.5	-5.4	19.9	74.0

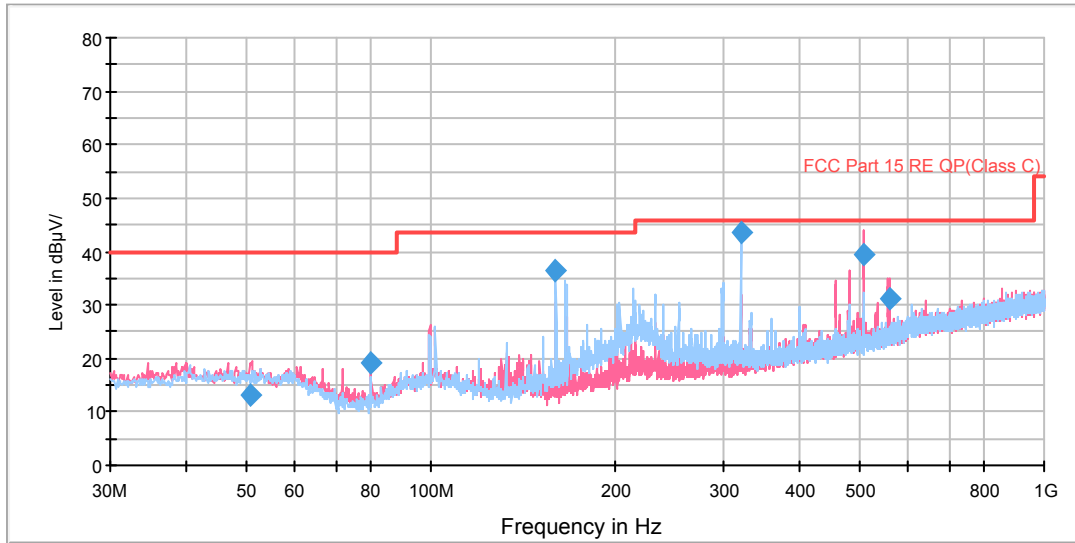
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18404.812500	40.6	H	0.0	44.1	-3.5	13.4	54.0
20034.687500	40.7	H	0.0	46.4	-5.7	13.3	54.0
21798.437500	40.6	H	0.0	48.6	-8.0	13.4	54.0
23225.375000	41.7	H	69.0	47.7	-6.0	12.3	54.0
23299.218750	41.0	V	90.0	47.0	-6.0	13.0	54.0
26284.312500	42.3	V	90.0	47.7	-5.4	11.7	54.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11g CH6

FCC RE 0.03-1GHz QP Class C

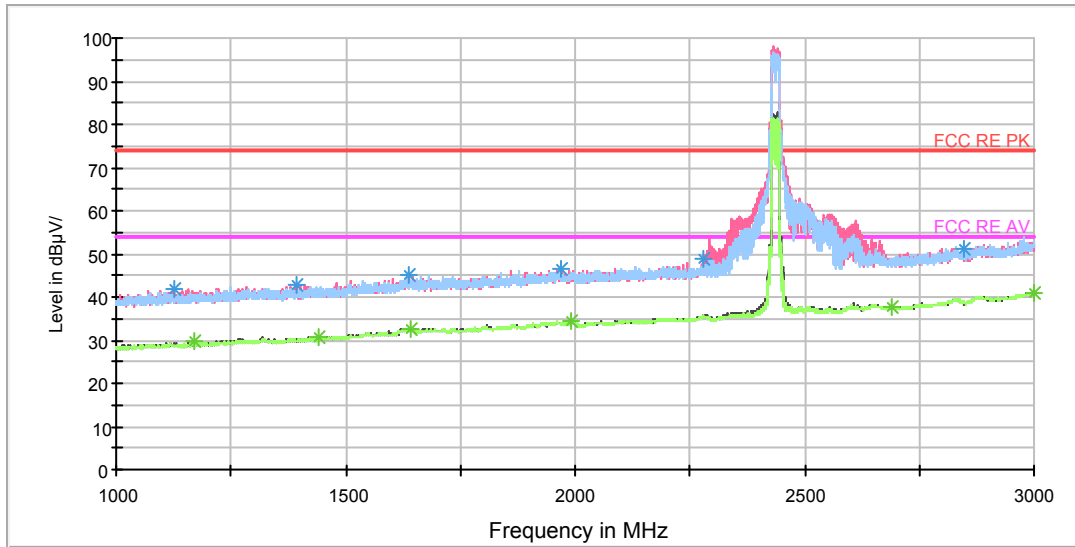


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.857500	13.2	100.0	V	138.0	26.2	13.0	26.8	40.0
79.995000	19.1	100.0	V	108.0	27.7	8.6	20.9	40.0
160.020000	36.6	125.0	H	157.0	46.3	9.7	6.9	43.5
319.990000	43.6	114.0	H	10.0	59.6	16.0	2.4	46.0
506.756250	39.4	111.0	V	0.0	59.5	20.1	6.6	46.0
559.620000	31.1	100.0	V	0.0	52.3	21.2	14.9	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

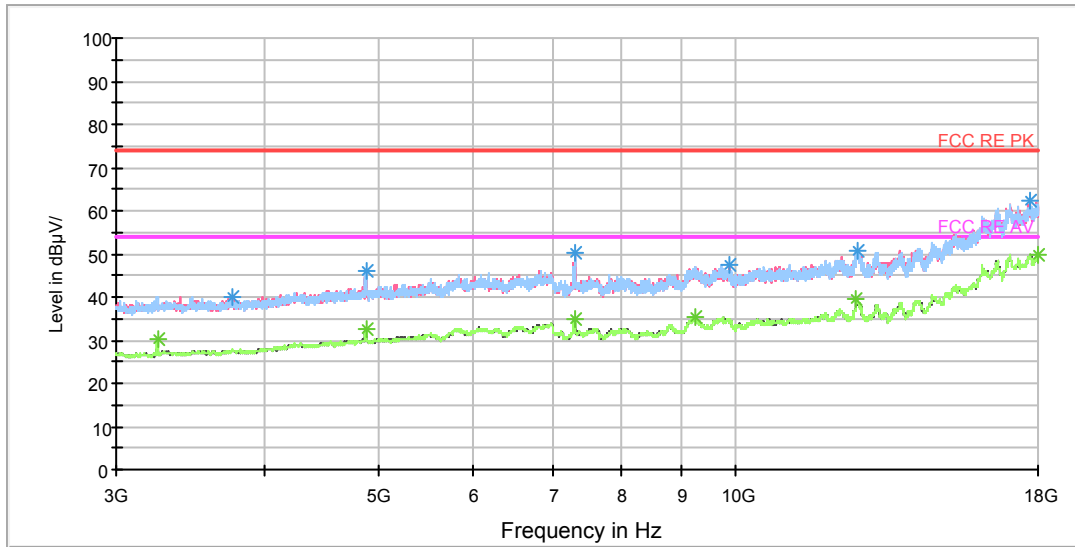
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1125.500000	41.7	101.0	V	219.0	50.1	-8.4	32.3	74
1391.750000	42.7	101.0	V	0.0	49.7	-7.0	31.3	74
1638.750000	45.2	101.0	V	73.0	49.9	-4.7	28.8	74
1971.500000	46.3	101.0	V	0.0	49.9	-3.6	27.7	74
2281.500000	49.0	101.0	V	358.0	50.4	-1.4	25.0	74
2846.500000	51.0	101.0	V	335.0	52.3	1.3	23.0	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1170.250000	29.6	101.0	V	219.0	37.7	-8.1	24.4	54
1440.250000	30.8	101.0	V	358.0	37.7	-6.9	23.2	54
1642.000000	32.7	101.0	V	358.0	37.5	-4.8	21.3	54
1991.750000	34.4	101.0	V	73.0	37.7	-3.3	19.6	54
2690.500000	37.6	101.0	V	0.0	37.7	0.1	16.4	54
2999.750000	41.1	101.0	H	238.0	43.4	2.3	12.9	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

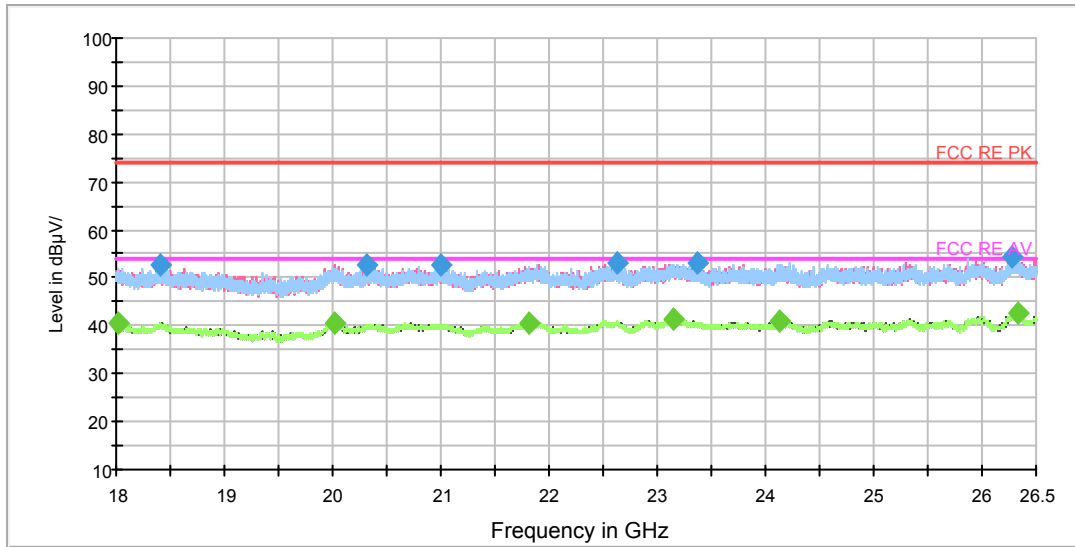
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3757.500000	40.1	101.0	V	274.0	41.7	-1.6	33.9	74
4873.125000	46.0	101.0	H	308.0	47.8	1.8	28.0	74
7316.250000	50.4	101.0	H	308.0	57.4	7.0	23.6	74
9883.125000	47.4	101.0	V	192.0	57.7	10.3	26.6	74
12678.750000	50.8	101.0	H	223.0	65.0	14.2	23.2	74
17722.500000	62.3	101.0	H	31.0	86.8	24.5	11.7	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3249.375000	30.1	101.0	H	113.0	32.6	-2.5	23.9	54
4873.125000	32.6	101.0	V	220.0	34.4	1.8	21.4	54
7312.500000	34.7	101.0	H	308.0	41.7	7.0	19.3	54
9240.000000	35.4	101.0	H	0.0	45.3	9.9	18.6	54
12641.250000	39.4	101.0	H	0.0	53.9	14.5	14.6	54
18000.000000	49.9	101.0	V	274.0	75.4	25.5	4.1	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18406.406250	52.7	H	0.0	56.2	-3.5	21.3	74.0
20320.500000	52.7	V	90.0	58.7	-6.0	21.3	74.0
21003.156250	52.6	H	22.0	60.0	-7.4	21.4	74.0
22629.312500	53.2	H	40.0	59.9	-6.7	20.8	74.0
23362.437500	53.1	V	69.0	59.0	-5.9	20.9	74.0
26277.937500	54.4	H	0.0	59.8	-5.4	19.6	74.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

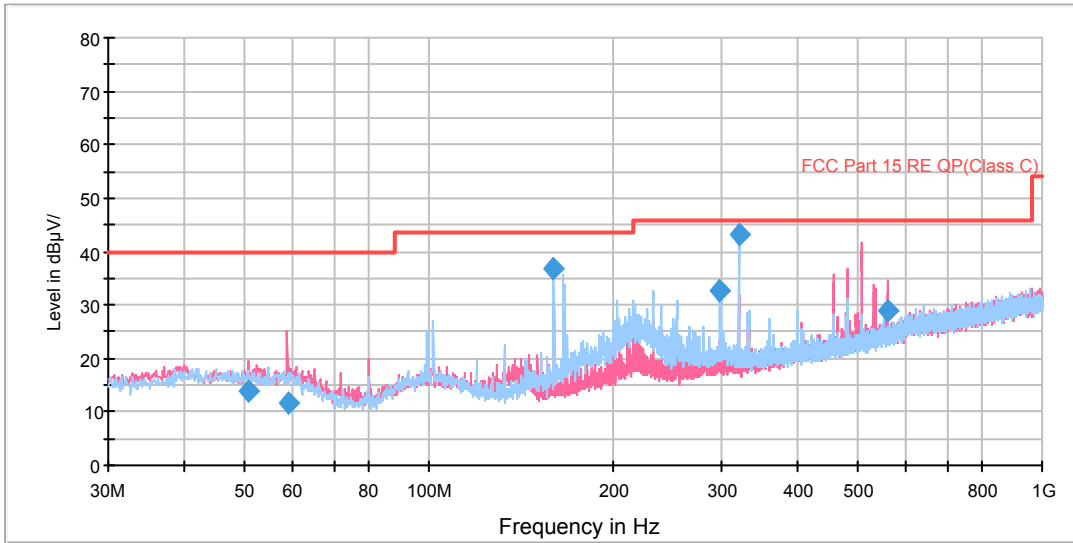
Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18022.312500	40.5	V	50.0	42.4	-1.9	13.5	54.0
20019.812500	40.7	H	0.0	46.4	-5.7	13.3	54.0
21822.343750	40.6	V	90.0	48.6	-8.0	13.4	54.0
23144.093750	41.5	H	0.0	47.6	-6.1	12.5	54.0
24138.593750	41.0	V	78.0	46.9	-5.9	13.0	54.0
26326.812500	42.5	H	0.0	47.9	-5.4	11.5	54.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)



802.11g CH11

FCC RE 0.03-1GHz QP Class C

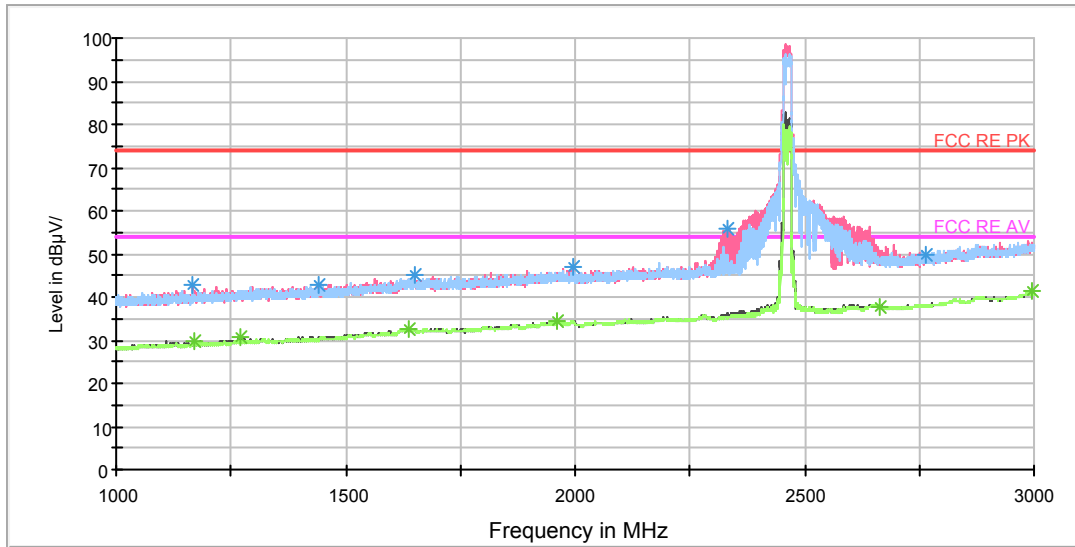


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.733750	13.9	112.0	V	356.0	26.9	13.0	26.1	40.0
58.856250	11.5	114.0	V	23.0	24.0	12.5	28.5	40.0
160.020000	36.6	125.0	H	155.0	46.3	9.7	6.9	43.5
298.776250	32.8	100.0	H	0.0	48.2	15.4	13.2	46.0
319.990000	43.4	114.0	H	11.0	59.4	16.0	2.6	46.0
559.211250	29.1	100.0	V	0.0	50.3	21.2	16.9	46.0

- Remark: 1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

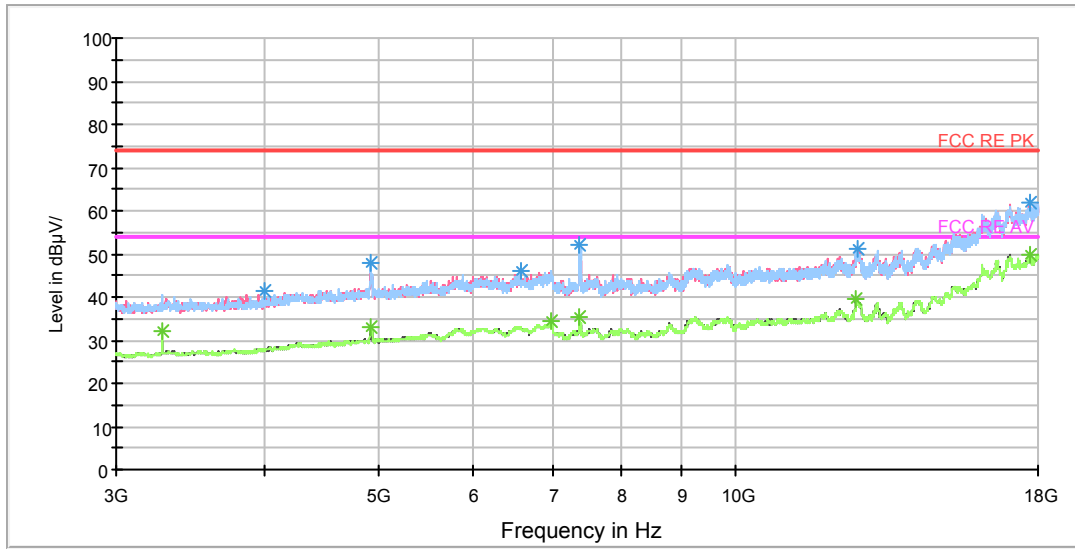
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1168.000000	42.9	101.0	V	311.0	51.0	-8.1	31.1	74
1439.750000	42.8	101.0	V	0.0	49.7	-6.9	31.2	74
1651.250000	44.9	101.0	V	357.0	50.0	-5.1	29.1	74
1994.750000	46.9	101.0	V	0.0	50.1	-3.2	27.1	74
2329.750000	55.7	101.0	V	357.0	57.2	-1.5	18.3	74
2762.750000	50.0	101.0	V	264.0	50.9	0.9	24.0	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1170.250000	29.7	101.0	V	357.0	37.8	-8.1	24.3	54
1270.500000	30.6	101.0	V	0.0	38.3	-7.7	23.4	54
1639.000000	32.7	101.0	H	145.0	37.4	-4.7	21.3	54
1960.500000	34.4	101.0	V	75.0	37.6	-3.2	19.6	54
2665.250000	37.7	101.0	V	311.0	38.0	0.3	16.3	54
2997.000000	41.2	101.0	V	122.0	43.5	2.3	12.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

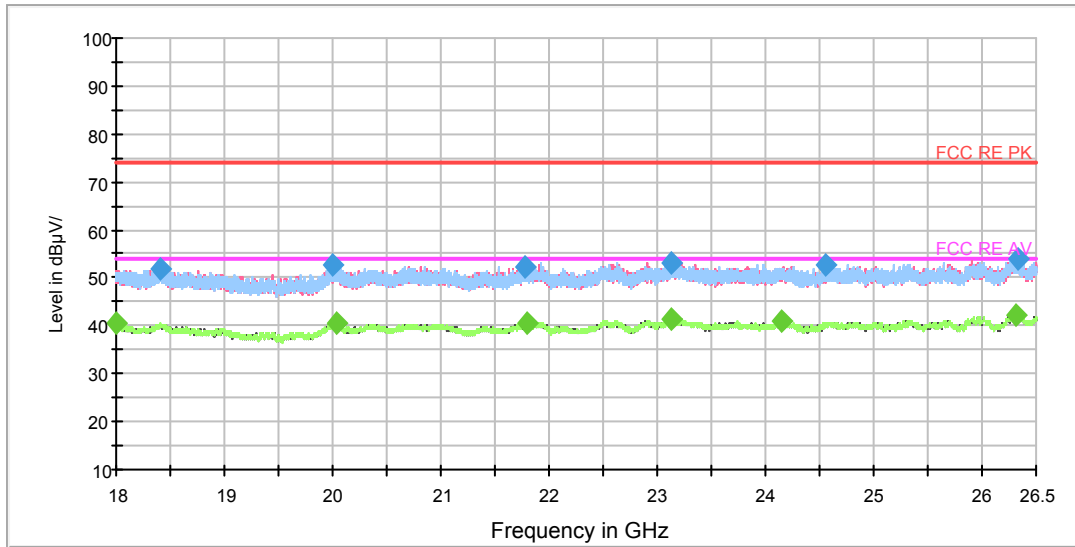
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3999.375000	41.2	101.0	H	33.0	42.3	-1.1	32.8	74
4927.500000	47.8	101.0	H	0.0	49.7	1.9	26.2	74
6579.375000	46.1	101.0	V	353.0	51.6	5.5	27.9	74
7385.625000	52.2	101.0	H	308.0	59.2	7.0	21.8	74
12654.375000	51.0	101.0	V	0.0	65.0	14.0	23.0	74
17688.750000	61.8	101.0	V	353.0	86.4	24.6	12.2	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3281.250000	32.2	101.0	H	114.0	34.3	-2.1	21.8	54
4923.750000	32.9	101.0	H	0.0	34.8	1.9	21.1	54
6997.500000	34.2	101.0	V	192.0	51.6	5.5	27.9	54
7385.625000	35.5	101.0	H	308.0	59.2	7.0	21.8	54
12641.250000	39.5	101.0	V	353.0	65.0	14.0	23.0	54
17707.500000	50.0	101.0	H	0.0	86.4	24.6	12.2	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18405.343750	51.8	V	59.0	55.3	-3.5	22.2	74.0
20005.468750	52.7	V	69.0	58.4	-5.7	21.3	74.0
21785.687500	52.5	H	61.0	60.5	-8.0	21.5	74.0
23132.937500	53.3	H	90.0	59.4	-6.1	20.7	74.0
24564.125000	52.8	H	0.0	58.8	-6.0	21.2	74.0
26328.937500	54.1	H	0.0	59.5	-5.4	19.9	74.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

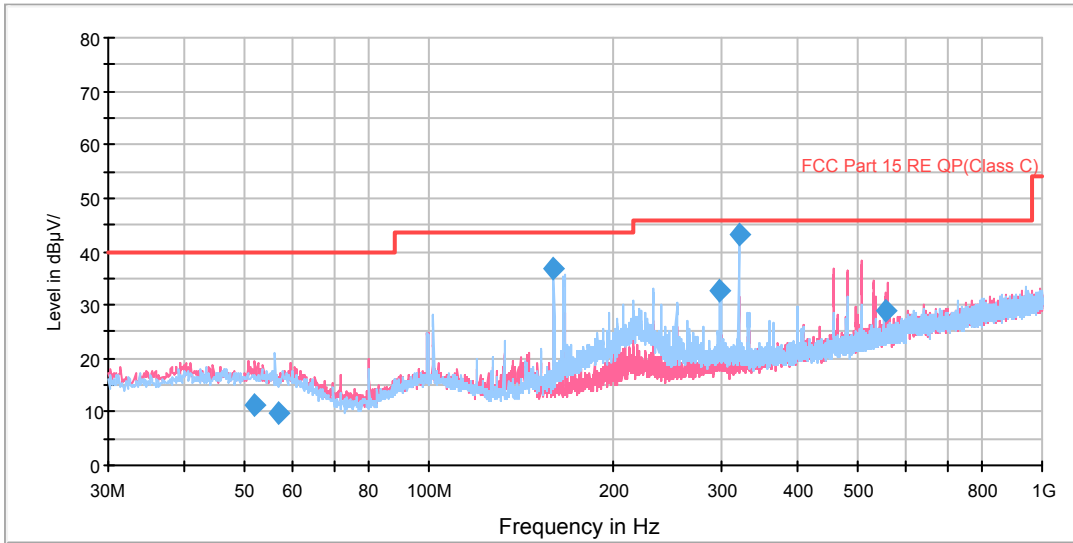
Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18006.375000	40.5	H	3.0	42.3	-1.8	13.5	54.0
20034.687500	40.7	V	90.0	46.4	-5.7	13.3	54.0
21804.812500	40.7	V	59.0	48.7	-8.0	13.3	54.0
23129.218750	41.6	H	51.0	47.7	-6.1	12.4	54.0
24151.343750	40.9	H	32.0	46.8	-5.9	13.1	54.0
26322.562500	42.4	H	0.0	47.8	-5.4	11.6	54.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)



802.11n (HT20) CH1

FCC RE 0.03-1GHz QP Class C

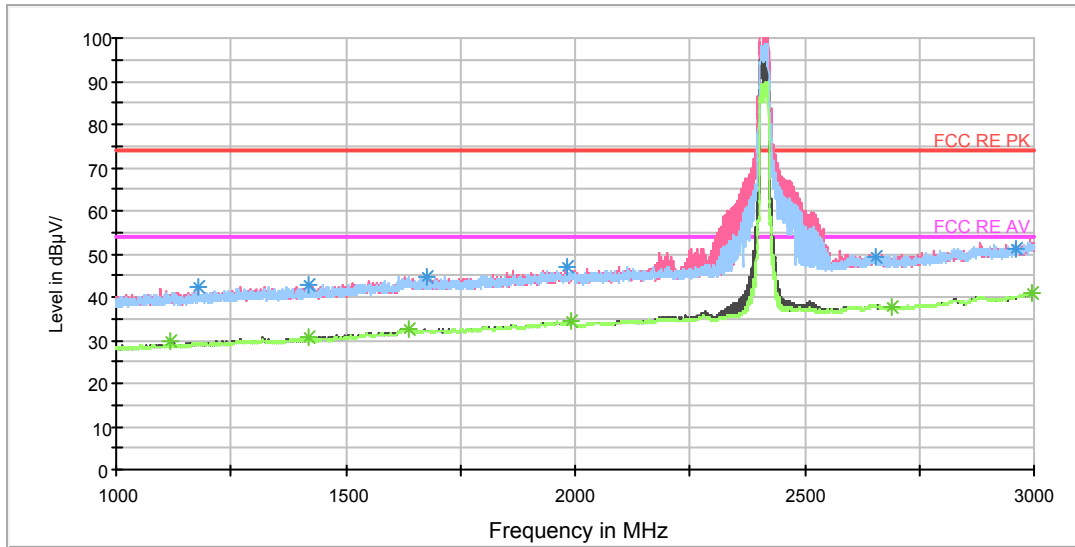


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
51.987500	11.1	100.0	V	219.0	24.0	12.9	28.9	40.0
56.750000	9.7	100.0	H	22.0	22.3	12.6	30.3	40.0
160.020000	36.7	125.0	H	153.0	46.4	9.7	6.8	43.5
298.770000	32.6	100.0	H	0.0	48.0	15.4	13.4	46.0
319.990000	43.0	125.0	H	9.0	59.0	16.0	3.0	46.0
557.686250	29.1	100.0	V	0.0	50.3	21.2	16.9	46.0

- Remark: 1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

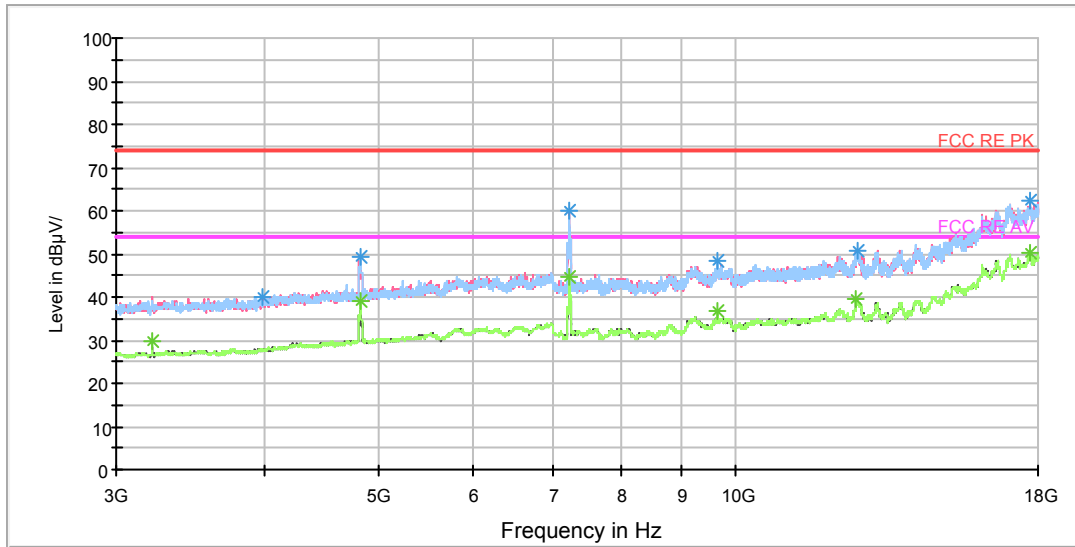
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1180.000000	42.2	101.0	V	190.0	50.2	-8.0	31.8	74
1420.500000	42.8	101.0	H	142.0	49.7	-6.9	31.2	74
1677.000000	44.8	101.0	H	0.0	49.9	-5.1	29.2	74
1980.750000	47.1	101.0	H	0.0	50.8	-3.7	26.9	74
2653.500000	49.5	101.0	H	0.0	49.9	0.4	24.5	74
2962.500000	51.2	101.0	V	306.0	53.3	2.1	22.8	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1118.000000	29.7	101.0	V	214.0	38.3	-8.6	24.3	54
1419.500000	30.6	101.0	V	73.0	37.5	-6.9	23.4	54
1638.250000	32.6	101.0	V	353.0	37.3	-4.7	21.4	54
1989.500000	34.4	101.0	H	51.0	37.8	-3.4	19.6	54
2689.250000	37.7	101.0	V	0.0	37.8	0.1	16.3	54
2996.250000	40.9	101.0	V	190.0	43.2	2.3	13.1	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

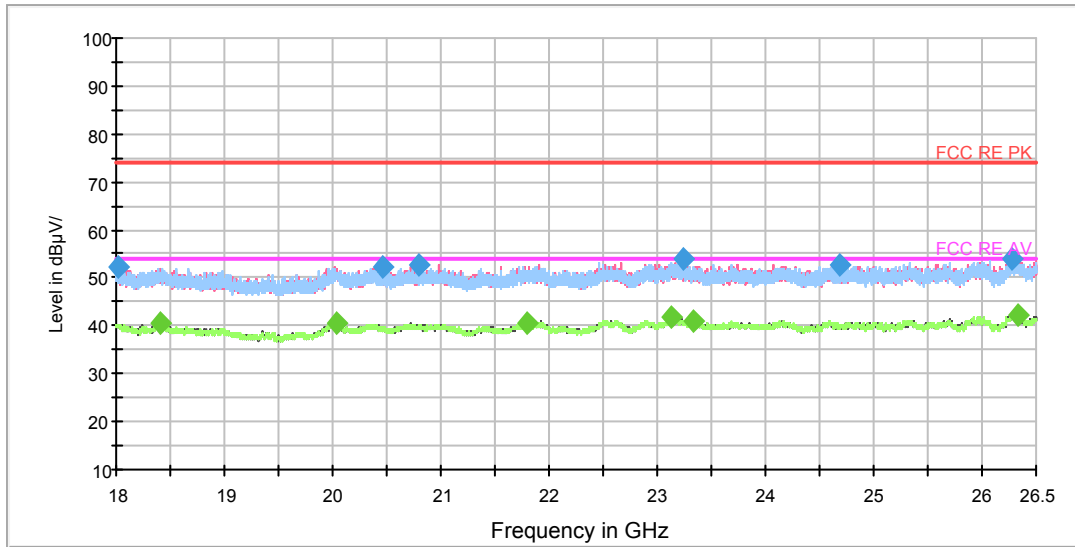
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3990.000000	40.0	101.0	V	345.0	41.0	-1.0	34.0	74
4820.625000	49.2	101.0	V	208.0	50.5	1.3	24.8	74
7235.625000	59.8	101.0	V	57.0	66.6	6.8	14.2	74
9652.500000	48.2	101.0	V	86.0	57.9	9.7	25.8	74
12656.250000	50.9	101.0	V	236.0	64.8	13.9	23.1	74
17711.250000	62.1	101.0	V	0.0	86.8	24.7	11.9	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3215.625000	29.7	101.0	H	141.0	32.5	-2.8	24.3	54
4822.500000	39.2	101.0	V	208.0	40.5	1.3	14.8	54
7235.625000	44.7	101.0	H	308.0	51.5	6.8	9.3	54
9648.750000	36.6	101.0	V	291.0	46.4	9.8	17.4	54
12641.250000	39.4	101.0	V	208.0	53.9	14.5	14.6	54
17716.875000	50.0	101.0	V	152.0	74.6	24.6	4.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18018.062500	52.2	V	90.0	54.1	-1.9	21.8	74.0
20464.468750	52.2	H	29.0	58.4	-6.2	21.8	74.0
20801.812500	52.9	H	0.0	59.8	-6.9	21.1	74.0
23235.468750	53.8	H	10.0	59.8	-6.0	20.2	74.0
24693.750000	52.7	V	87.0	58.7	-6.0	21.3	74.0
26272.093750	54.1	H	1.0	59.5	-5.4	19.9	74.0

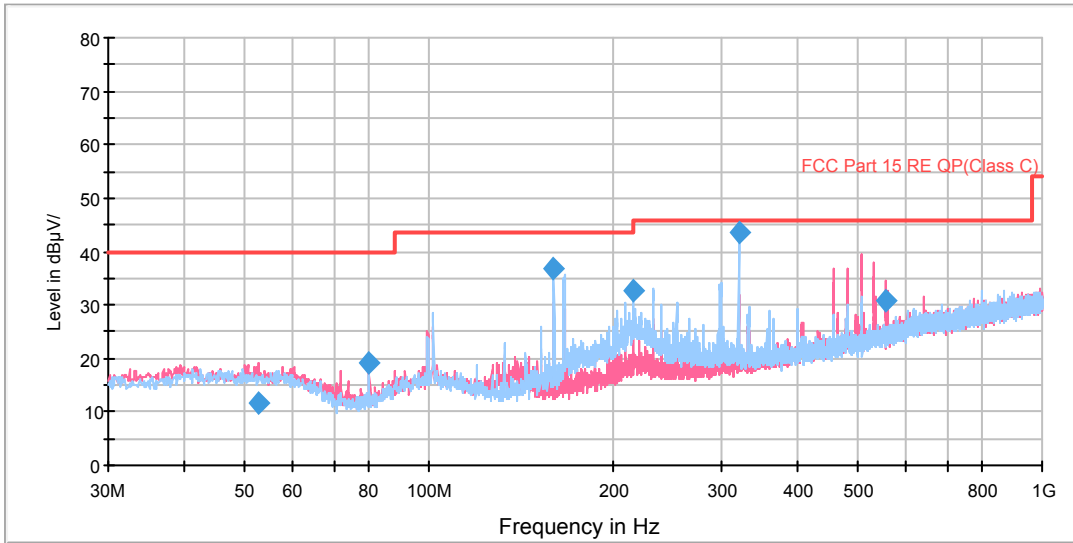
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18409.593750	40.5	H	49.0	44.0	-3.5	13.5	54.0
20030.437500	40.7	H	0.0	46.4	-5.7	13.3	54.0
21804.812500	40.7	H	39.0	48.7	-8.0	13.3	54.0
23133.468750	41.7	H	0.0	47.8	-6.1	12.3	54.0
23339.593750	41.1	V	90.0	47.1	-6.0	12.9	54.0
26330.000000	42.4	V	40.0	47.8	-5.4	11.6	54.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11n (HT20) CH6

FCC RE 0.03-1GHz QP Class C

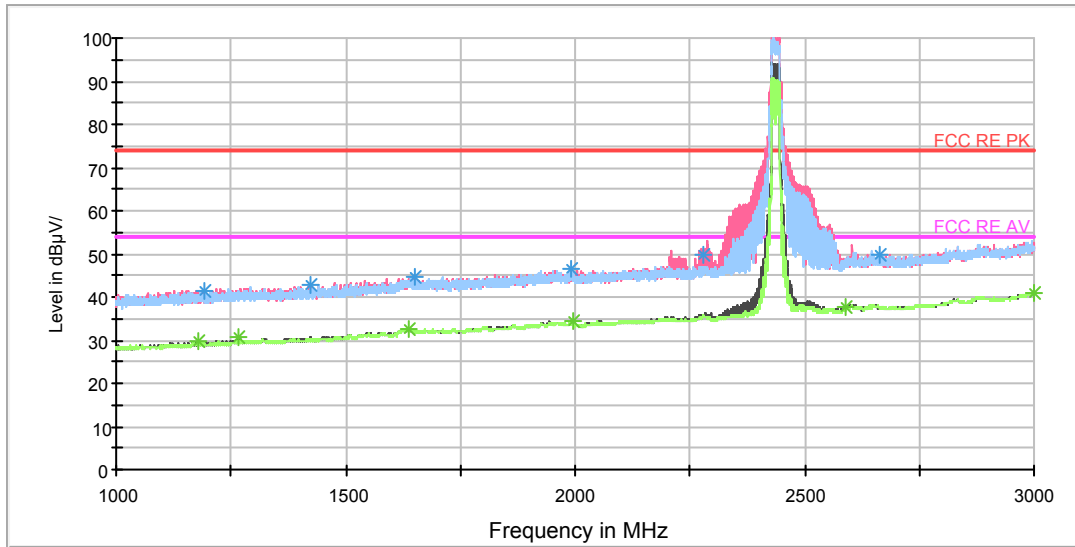


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
52.753750	11.5	100.0	V	183.0	24.4	12.9	28.5	40.0
79.995000	19.1	100.0	V	108.0	27.7	8.6	20.9	40.0
160.020000	36.7	125.0	H	154.0	46.4	9.7	6.8	43.5
215.997500	32.6	125.0	H	129.0	45.3	12.7	10.9	43.5
319.990000	43.7	114.0	H	10.0	59.7	16.0	2.3	46.0
557.438750	31.0	100.0	V	10.0	52.2	21.2	15.0	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

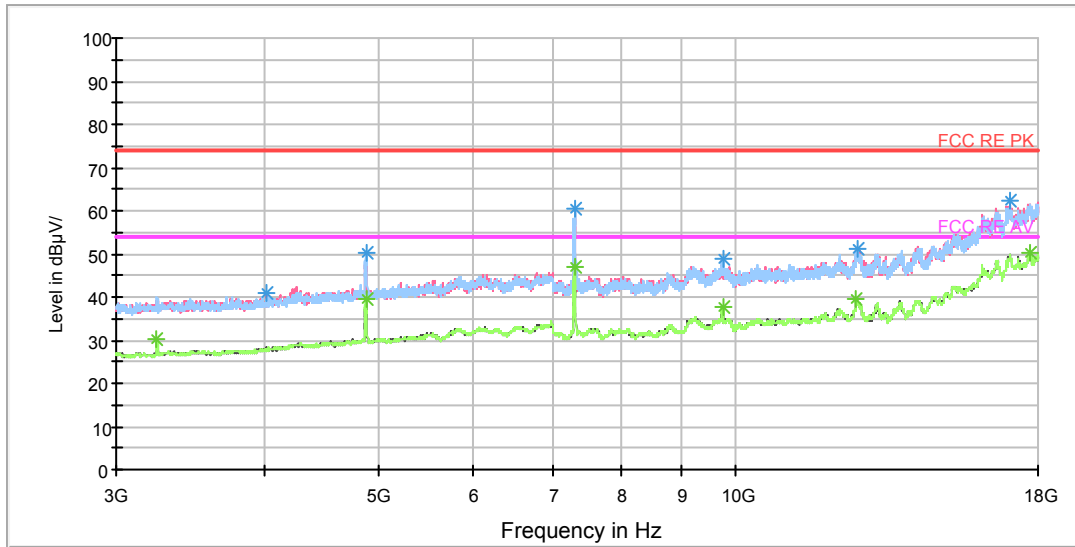
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1190.500000	41.5	101.0	V	353.0	49.7	-8.2	32.5	74
1423.000000	42.9	101.0	V	283.0	49.8	-6.9	31.1	74
1652.500000	44.7	101.0	V	306.0	49.8	-5.1	29.3	74
1991.500000	46.3	101.0	V	306.0	49.6	-3.3	27.7	74
2279.500000	49.7	101.0	V	353.0	51.0	-1.3	24.3	74
2662.750000	49.8	101.0	H	264.0	50.1	0.3	24.2	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1179.250000	29.6	101.0	V	353.0	37.6	-8.0	24.4	54
1267.750000	30.8	101.0	V	0.0	38.5	-7.7	23.2	54
1638.500000	32.6	101.0	H	76.0	37.3	-4.7	21.4	54
1993.500000	34.3	101.0	V	0.0	37.6	-3.3	19.7	54
2588.000000	37.7	101.0	V	306.0	37.8	-0.1	16.3	54
2999.750000	41.1	101.0	H	8.0	43.4	2.3	12.9	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

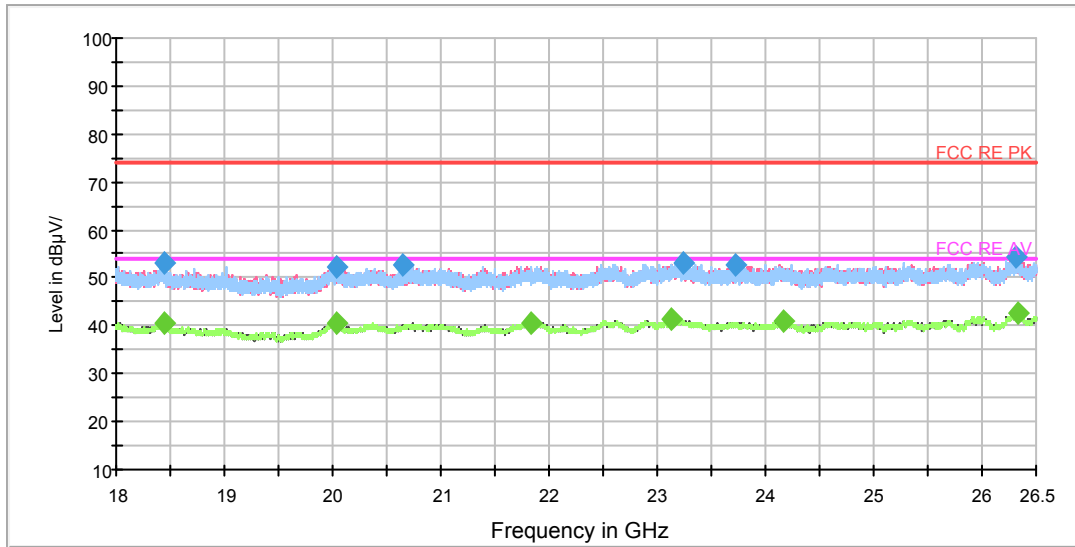
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4021.875000	40.8	101.0	V	0.0	41.9	-1.1	33.2	74
4873.125000	50.3	101.0	H	309.0	52.1	1.8	23.7	74
7308.750000	60.5	101.0	H	309.0	67.5	7.0	13.5	74
9748.125000	48.7	101.0	V	53.0	58.5	9.8	25.3	74
12675.000000	50.9	101.0	V	0.0	65.0	14.1	23.1	74
17049.375000	62.3	101.0	H	0.0	86.8	24.5	11.7	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3247.500000	30.3	101.0	H	140.0	32.8	-2.5	23.7	54
4875.000000	39.8	101.0	H	309.0	41.6	1.8	14.2	54
7306.875000	46.8	101.0	H	309.0	53.8	7.0	7.2	54
9748.125000	37.6	101.0	V	53.0	47.4	9.8	16.4	54
12641.250000	39.4	101.0	V	328.0	53.9	14.5	14.6	54
17716.875000	50.1	101.0	V	220.0	74.7	24.6	3.9	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18436.156250	53.0	V	90.0	56.6	-3.6	21.0	74.0
20027.781250	52.3	V	86.0	58.0	-5.7	21.7	74.0
20655.718750	52.6	H	0.0	59.2	-6.6	21.4	74.0
23232.281250	53.3	V	68.0	59.3	-6.0	20.7	74.0
23727.406250	52.9	V	77.0	58.8	-5.9	21.1	74.0
26317.781250	54.2	H	0.0	59.6	-5.4	19.8	74.0

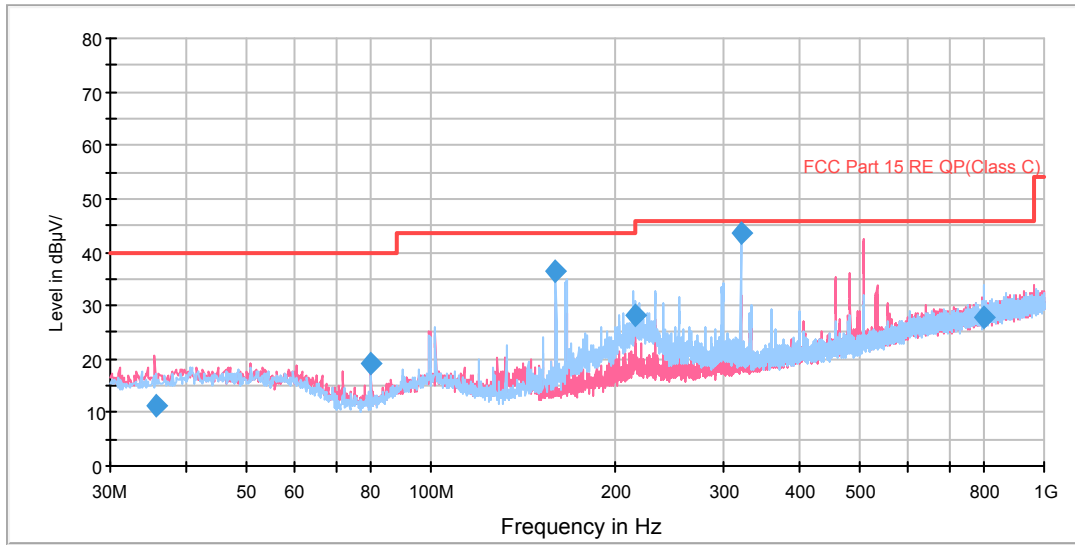
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18443.593750	40.4	H	71.0	44.1	-3.7	13.6	54.0
20034.156250	40.6	H	0.0	46.3	-5.7	13.4	54.0
21826.062500	40.7	H	20.0	59.2	-8.0	13.3	54.0
23136.656250	41.5	V	49.0	59.3	-6.1	12.5	54.0
24161.437500	41.0	H	20.0	58.8	-5.9	13.0	54.0
26333.718750	42.5	H	0.0	59.6	-5.4	11.5	54.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11n (HT20) CH11

FCC RE 0.03-1GHz QP Class C

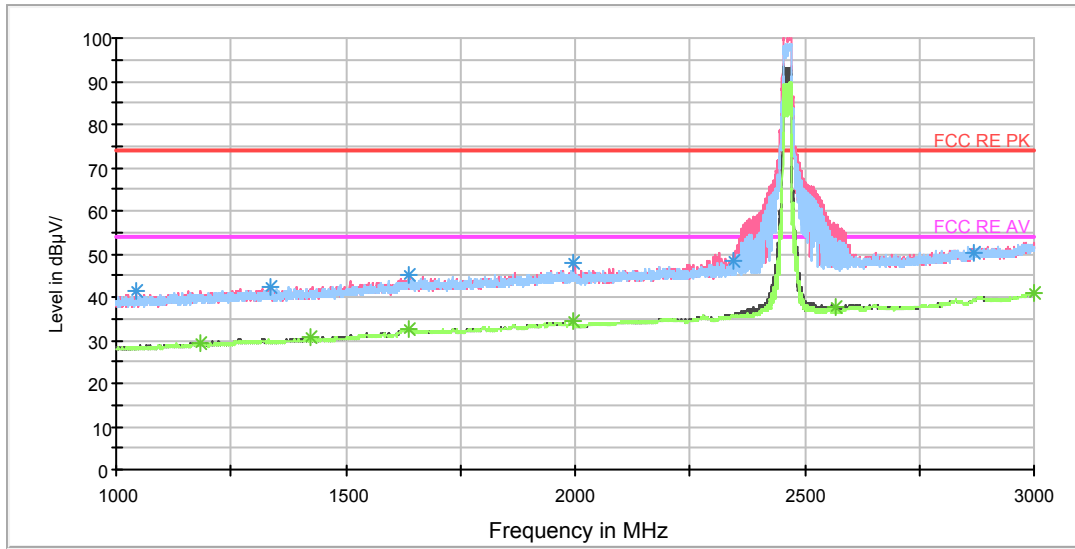


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
35.696250	11.4	100.0	V	69.0	23.4	12.0	28.6	40.0
79.995000	19.0	100.0	V	111.0	27.6	8.6	21.0	40.0
160.020000	36.6	125.0	H	156.0	46.3	9.7	6.9	43.5
214.778750	28.0	125.0	H	138.0	40.6	12.6	15.5	43.5
319.990000	43.6	114.0	H	7.0	59.6	16.0	2.4	46.0
798.200000	27.9	100.0	H	167.0	52.2	24.3	18.1	46.0

- Remark: 1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

RE 1G-3GHz PK+AV



Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

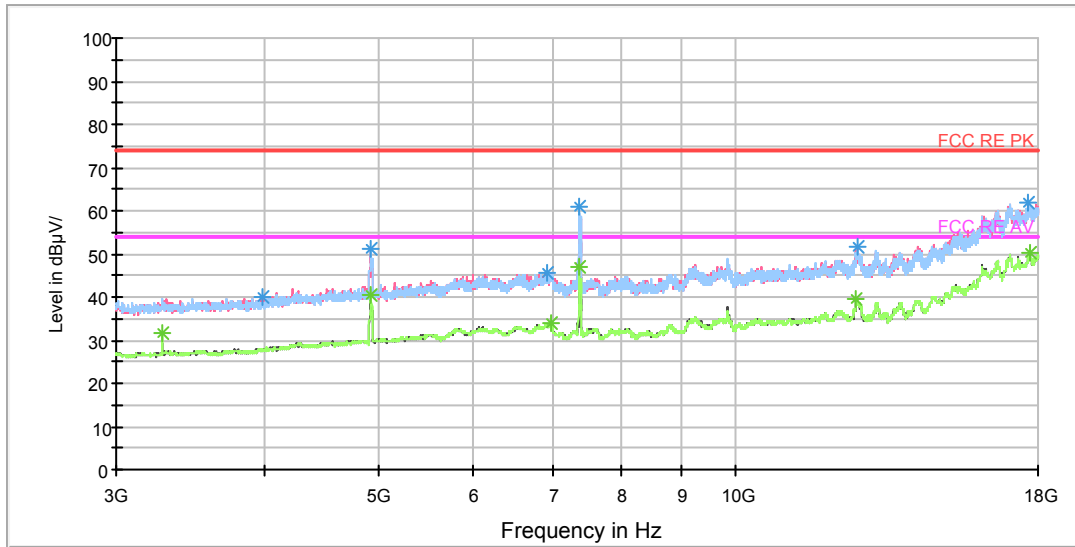
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1042.000000	41.5	101.0	V	268.0	50.5	-9.0	32.5	74
1338.250000	42.5	101.0	V	0.0	49.9	-7.4	31.5	74
1639.500000	45.3	101.0	V	0.0	50.0	-4.7	28.7	74
1996.750000	47.9	101.0	V	175.0	51.2	-3.3	26.1	74
2345.500000	48.6	101.0	V	292.0	49.9	-1.3	25.4	74
2868.500000	50.2	101.0	V	268.0	52.2	2.0	23.8	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1182.500000	29.3	101.0	V	199.0	37.3	-8.0	24.7	54
1423.500000	30.5	101.0	V	0.0	37.4	-6.9	23.5	54
1639.500000	32.6	101.0	V	0.0	37.3	-4.7	21.4	54
1995.500000	34.3	101.0	H	0.0	37.5	-3.2	19.7	54
2568.000000	37.6	101.0	V	315.0	38.2	-0.6	16.4	54
2998.750000	41.0	101.0	V	268.0	43.3	2.3	13.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



Radiates Emission from 3GHz to 18GHz

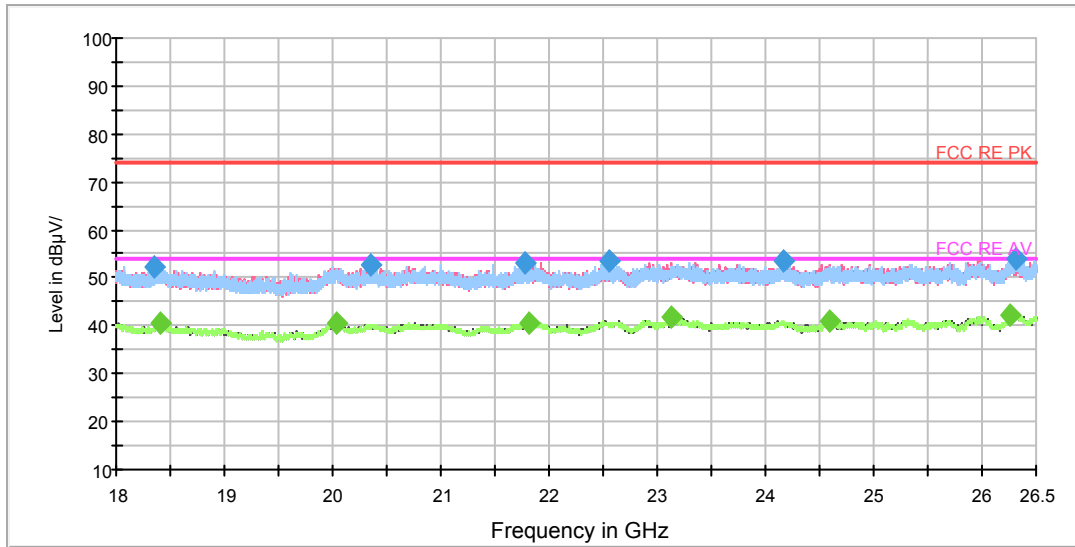
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3984.375000	39.8	101.0	V	81.0	40.8	-1.0	34.2	74
4925.625000	51.3	101.0	H	307.0	53.2	1.9	22.7	74
6943.125000	45.7	101.0	V	191.0	51.8	6.1	28.3	74
7381.875000	60.9	101.0	H	307.0	68.0	7.1	13.1	74
12669.375000	51.7	101.0	V	164.0	65.7	14.0	22.3	74
17686.875000	62.0	101.0	V	328.0	86.6	24.6	12.0	74

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3281.250000	31.5	101.0	H	166.0	33.6	-2.1	22.5	54
4925.625000	40.6	101.0	H	307.0	42.5	1.9	13.4	54
6993.750000	34.0	101.0	V	0.0	40.5	6.5	20.0	54
7389.375000	47.1	101.0	H	307.0	54.0	6.9	6.9	54
12641.250000	39.4	101.0	V	356.0	53.9	14.5	14.6	54
17709.375000	50.0	101.0	V	275.0	74.7	24.7	4.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18357.531250	52.2	V	88.0	55.5	-3.3	21.8	74.0
20358.218750	52.7	H	31.0	58.7	-6.0	21.3	74.0
21784.625000	53.1	H	3.0	61.1	-8.0	20.9	74.0
22550.687500	53.4	V	90.0	60.2	-6.8	20.6	74.0
24158.250000	53.7	V	90.0	59.6	-5.9	20.3	74.0
26319.375000	53.9	H	3.0	59.3	-5.4	20.1	74.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18409.593750	40.6	H	61.0	44.1	-3.5	13.4	54.0
20032.562500	40.7	H	0.0	46.4	-5.7	13.3	54.0
21820.218750	40.7	V	90.0	48.7	-8.0	13.3	54.0
23135.593750	41.6	H	0.0	47.7	-6.1	12.4	54.0
24596.000000	41.0	V	59.0	47.0	-6.0	13.0	54.0
26267.843750	42.4	V	88.0	47.8	-5.4	11.6	54.0

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

5.8. Conducted Emission

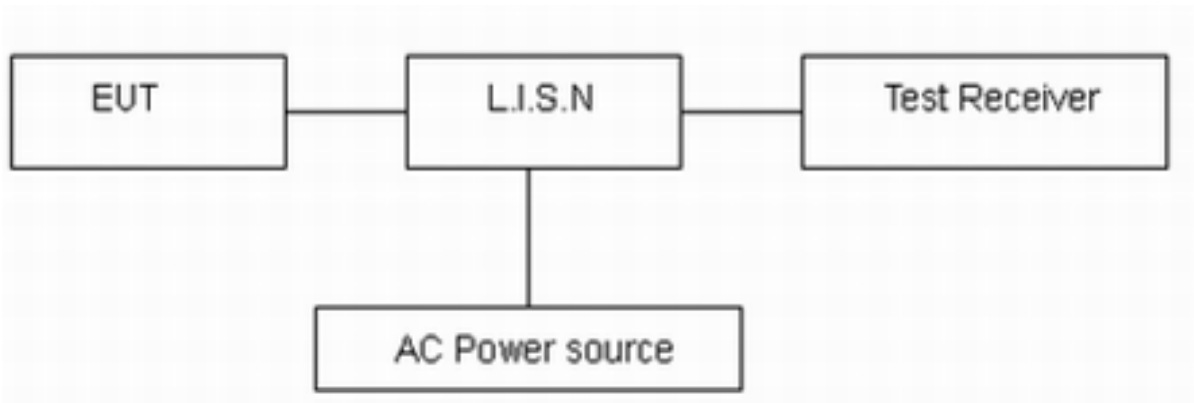
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10-2013. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line. The test is in transmitting mode.

Test Setup



Note: AC Power source is used to change the voltage 110V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

*: Decreases with the logarithm of the frequency.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 2.69$ dB.



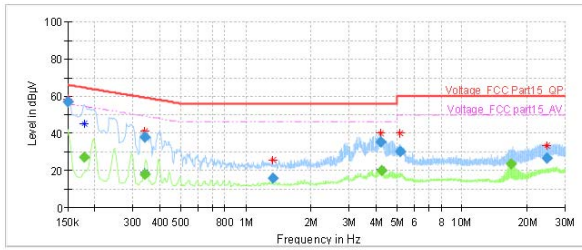
Test Results:

Variant (RXA1611-0266RF)

Following plots, Blue trace uses the peak detection and Green trace uses the average detection.

802.11b, Channel No.: 1

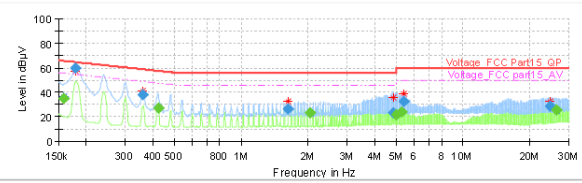
L Line



Final Result

Table with 11 columns: Frequency (MHz), QuasiPeak (dBuV), Average (dBuV), Limit (dBuV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 14 rows of test data.

N Line

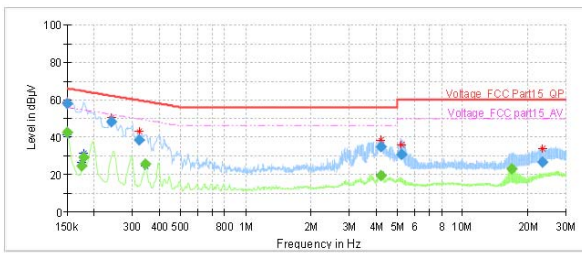


Final Result

Table with 11 columns: Frequency (MHz), QuasiPeak (dBuV), Average (dBuV), Limit (dBuV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 14 rows of test data.

802.11b, Channel No.: 6

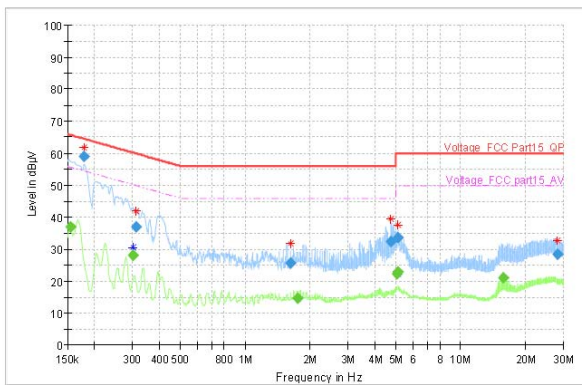
L Line



Final Result

Table with 11 columns: Frequency (MHz), QuasiPeak (dBuV), Average (dBuV), Limit (dBuV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 14 rows of test data.

N Line



Final Result

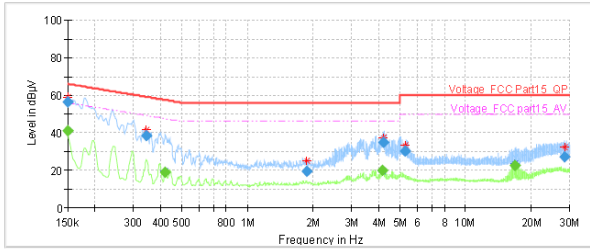
Table with 11 columns: Frequency (MHz), QuasiPeak (dBuV), Average (dBuV), Limit (dBuV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 14 rows of test data.

Table with 11 columns: Frequency (MHz), QuasiPeak (dBuV), Average (dBuV), Limit (dBuV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 3 rows of test data.



802.11b, Channel No.: 11

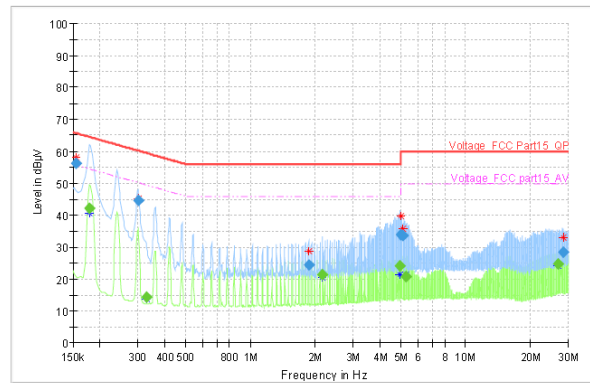
L Line



Final Result

Table with 10 columns: Frequency (MHz), QuasiPeak (dBµV), Average (dBµV), Limit (dBµV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 12 rows of test data.

N Line



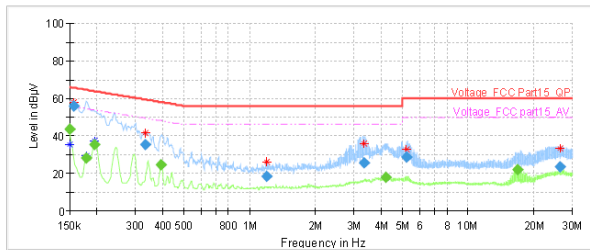
Final Result

Table with 10 columns: Frequency (MHz), QuasiPeak (dBµV), Average (dBµV), Limit (dBµV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 12 rows of test data.

Table with 10 columns: Frequency (MHz), QuasiPeak (dBµV), Average (dBµV), Limit (dBµV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 4 rows of test data.

802.11g, Channel No.: 1

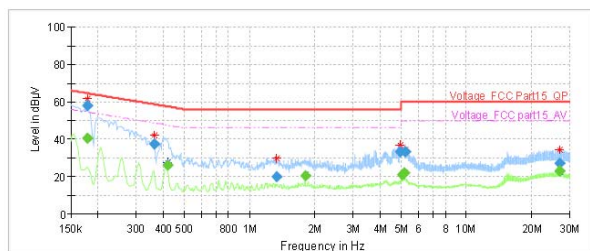
L Line



Final Result

Table with 10 columns: Frequency (MHz), QuasiPeak (dBµV), Average (dBµV), Limit (dBµV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 15 rows of test data.

N Line



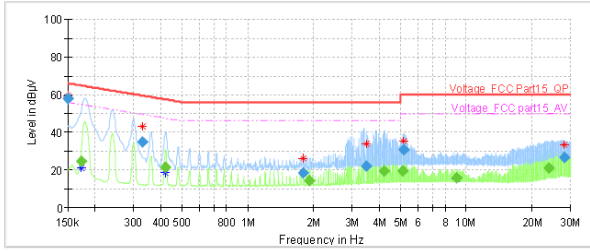
Final Result

Table with 10 columns: Frequency (MHz), QuasiPeak (dBµV), Average (dBµV), Limit (dBµV), Margin (dB), Meas. Time (ms), Bandwidth (kHz), Line, Filter, Corr. (dB). Contains 15 rows of test data.



802.11g, Channel No.: 6

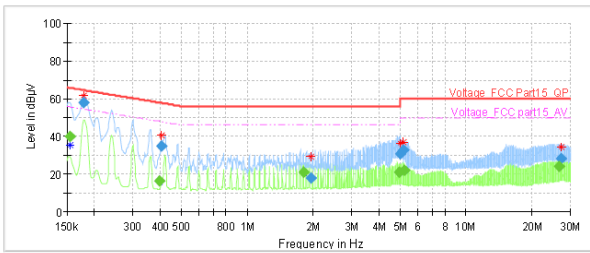
L Line



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.150000	58.12	---	66.00	7.88	1000.0	9.000	L1	ON	19.1
0.172500	---	24.78	54.84	30.06	1000.0	9.000	L1	ON	19.2
0.330000	34.70	---	59.45	24.75	1000.0	9.000	L1	ON	19.2
0.420000	---	21.45	47.45	26.00	1000.0	9.000	L1	ON	19.2
1.795250	18.59	---	56.00	37.41	1000.0	9.000	L1	ON	19.2
1.920750	---	14.36	46.00	31.64	1000.0	9.000	L1	ON	19.2
3.491250	22.29	---	56.00	33.71	1000.0	9.000	L1	ON	19.1
4.206750	---	19.51	46.00	26.49	1000.0	9.000	L1	ON	19.1
5.104500	---	19.28	50.00	30.72	1000.0	9.000	L1	ON	19.1
5.163000	30.66	---	60.00	29.34	1000.0	9.000	L1	ON	19.1
9.066750	---	15.86	50.00	34.14	1000.0	9.000	L1	ON	19.3
23.896500	---	20.90	50.00	29.10	1000.0	9.000	L1	ON	19.7
27.371250	26.70	---	60.00	33.30	1000.0	9.000	L1	ON	19.9

N Line

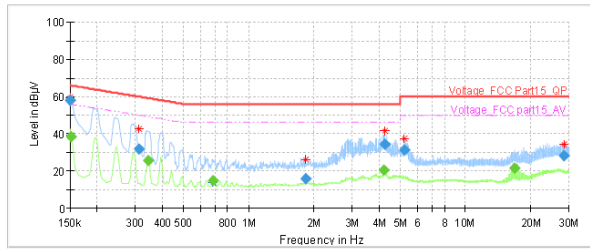


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.154500	---	40.00	55.75	15.75	1000.0	9.000	N	ON	19.1
0.179250	58.00	---	64.52	6.52	1000.0	9.000	N	ON	19.2
0.397500	---	16.49	47.91	31.41	1000.0	9.000	N	ON	19.2
0.404250	34.65	---	57.77	23.11	1000.0	9.000	N	ON	19.2
1.801500	---	20.81	46.00	25.19	1000.0	9.000	N	ON	19.2
1.959000	18.20	---	56.00	37.80	1000.0	9.000	N	ON	19.1
4.924500	---	21.12	46.00	24.88	1000.0	9.000	N	ON	19.1
4.989750	30.71	---	56.00	25.29	1000.0	9.000	N	ON	19.1
5.165250	32.87	---	60.00	27.13	1000.0	9.000	N	ON	19.1
5.226000	---	22.18	50.00	27.82	1000.0	9.000	N	ON	19.1
26.670750	---	24.10	50.00	25.90	1000.0	9.000	N	ON	19.9
27.267000	28.04	---	60.00	31.96	1000.0	9.000	N	ON	19.8

802.11g, Channel No.: 11

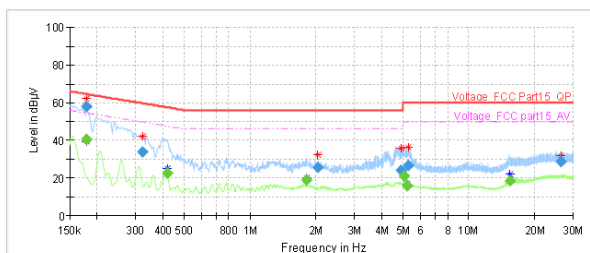
L Line



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.150000	57.81	---	66.00	8.19	1000.0	9.000	L1	ON	19.1
0.152250	---	38.36	55.88	17.52	1000.0	9.000	L1	ON	19.0
0.312000	31.98	---	59.92	27.93	1000.0	9.000	L1	ON	19.2
0.343500	---	25.83	49.12	23.29	1000.0	9.000	L1	ON	19.2
0.867750	---	14.76	46.00	31.24	1000.0	9.000	L1	ON	19.3
1.826250	15.97	---	56.00	40.03	1000.0	9.000	L1	ON	19.2
4.204500	---	20.60	46.00	25.40	1000.0	9.000	L1	ON	19.1
4.260750	34.12	---	56.00	21.88	1000.0	9.000	L1	ON	19.1
5.223750	31.18	---	60.00	28.82	1000.0	9.000	L1	ON	19.1
16.881000	---	21.69	50.00	28.31	1000.0	9.000	L1	ON	19.6
28.459500	28.09	---	60.00	31.91	1000.0	9.000	L1	ON	19.8

N Line



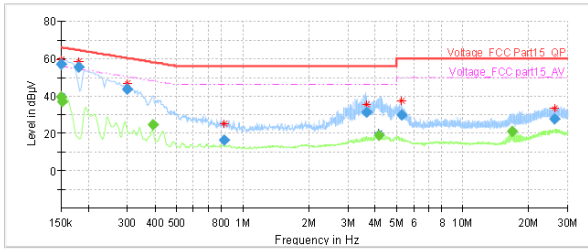
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.179250	---	40.28	54.52	14.24	1000.0	9.000	N	ON	19.2
0.179250	57.74	---	64.52	6.78	1000.0	9.000	N	ON	19.2
0.323250	33.72	---	59.62	25.90	1000.0	9.000	N	ON	19.2
0.420000	---	22.60	47.45	24.85	1000.0	9.000	N	ON	19.2
1.803750	---	19.11	46.00	26.90	1000.0	9.000	N	ON	19.2
2.042250	25.61	---	56.00	30.39	1000.0	9.000	N	ON	19.1
4.911000	24.00	---	56.00	32.00	1000.0	9.000	N	ON	19.1
5.046000	---	21.20	50.00	28.80	1000.0	9.000	N	ON	19.1
5.205750	---	16.08	50.00	33.92	1000.0	9.000	N	ON	19.1
5.309250	26.51	---	60.00	33.49	1000.0	9.000	N	ON	19.1
15.441000	---	18.51	50.00	31.49	1000.0	9.000	N	ON	19.4
26.252250	28.47	---	60.00	31.53	1000.0	9.000	N	ON	19.8



802.11n(HT20), Channel No.: 1

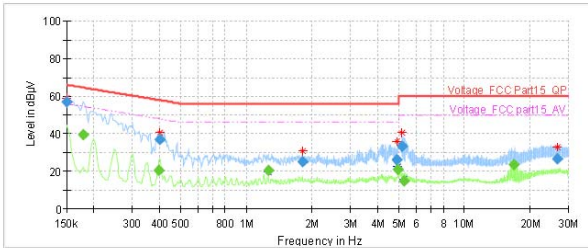
L Line



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.150000	---	39.66	56.00	16.34	1000.0	9.000	L1	ON	19.1
0.150000	57.03	---	66.00	8.97	1000.0	9.000	L1	ON	19.1
0.152250	---	36.80	55.88	19.08	1000.0	9.000	L1	ON	19.0
0.179250	55.29	---	64.52	9.23	1000.0	9.000	L1	ON	19.2
0.300750	43.37	---	60.22	16.85	1000.0	9.000	L1	ON	19.2
0.390750	---	24.79	49.05	23.25	1000.0	9.000	L1	ON	19.2
0.827250	16.53	---	56.00	39.47	1000.0	9.000	L1	ON	19.2
3.662250	31.11	---	56.00	24.89	1000.0	9.000	L1	ON	19.1
4.143750	---	19.22	46.00	26.78	1000.0	9.000	L1	ON	19.1
5.282250	29.81	---	60.00	30.19	1000.0	9.000	L1	ON	19.1
16.815750	---	21.16	50.00	28.84	1000.0	9.000	L1	ON	19.5
26.063250	27.58	---	60.00	32.42	1000.0	9.000	L1	ON	19.9

N Line

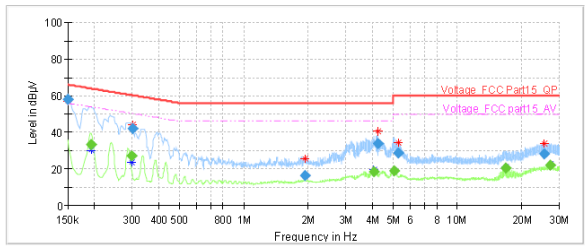


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.150000	57.16	---	66.00	8.84	1000.0	9.000	N	ON	19.1
0.179250	---	39.34	54.52	15.18	1000.0	9.000	N	ON	19.2
0.397500	---	20.32	47.91	27.59	1000.0	9.000	N	ON	19.2
0.402000	37.04	---	57.81	20.78	1000.0	9.000	N	ON	19.2
1.261500	---	20.34	46.00	25.66	1000.0	9.000	N	ON	19.2
1.801500	25.23	---	56.00	30.77	1000.0	9.000	N	ON	19.2
4.908750	26.05	---	56.00	29.95	1000.0	9.000	N	ON	19.1
4.926750	---	21.11	46.00	24.89	1000.0	9.000	N	ON	19.1
5.165250	33.19	---	60.00	26.81	1000.0	9.000	N	ON	19.1
5.266500	---	15.12	50.00	34.88	1000.0	9.000	N	ON	19.1
16.881000	---	23.47	50.00	26.53	1000.0	9.000	N	ON	19.5
26.544750	26.91	---	60.00	33.09	1000.0	9.000	N	ON	19.8

802.11n(HT20), Channel No.: 6

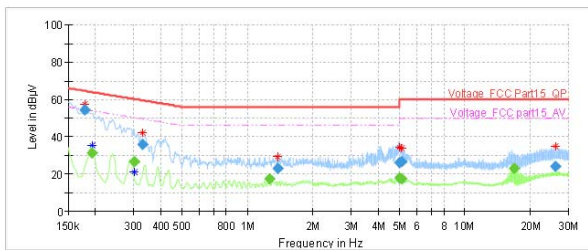
L Line



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.150000	57.92	---	66.00	8.08	1000.0	9.000	L1	ON	19.1
0.192750	---	33.09	53.92	20.83	1000.0	9.000	L1	ON	19.2
0.298500	---	27.18	50.28	23.10	1000.0	9.000	L1	ON	19.2
0.303000	41.90	---	60.16	18.26	1000.0	9.000	L1	ON	19.2
1.929750	16.26	---	56.00	39.74	1000.0	9.000	L1	ON	19.2
4.083000	---	18.43	46.00	27.57	1000.0	9.000	L1	ON	19.1
4.260750	33.71	---	56.00	22.29	1000.0	9.000	L1	ON	19.1
5.043750	---	18.88	50.00	31.12	1000.0	9.000	L1	ON	19.1
5.284500	20.91	---	60.00	31.09	1000.0	9.000	L1	ON	19.1
16.813500	---	20.54	50.00	29.46	1000.0	9.000	L1	ON	19.5
25.516500	28.15	---	60.00	31.85	1000.0	9.000	L1	ON	19.8
27.323250	---	21.86	50.00	28.14	1000.0	9.000	L1	ON	19.9

N Line



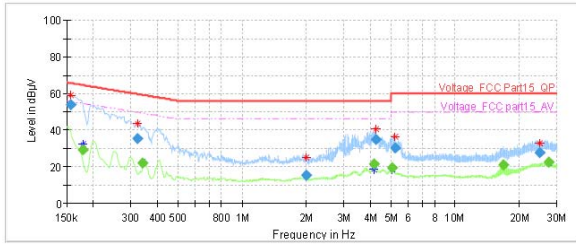
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.179250	54.20	---	64.52	10.32	1000.0	9.000	N	ON	19.2
0.192750	---	31.36	53.92	22.56	1000.0	9.000	N	ON	19.2
0.300750	---	26.88	50.22	23.35	1000.0	9.000	N	ON	19.2
0.330000	35.76	---	59.45	23.69	1000.0	9.000	N	ON	19.2
1.261500	---	17.34	46.00	28.66	1000.0	9.000	N	ON	19.2
1.380750	23.24	---	56.00	32.76	1000.0	9.000	N	ON	19.2
4.985250	---	18.20	46.00	27.80	1000.0	9.000	N	ON	19.1
4.996500	26.33	---	56.00	29.67	1000.0	9.000	N	ON	19.1
5.086500	26.87	---	60.00	33.13	1000.0	9.000	N	ON	19.1
5.097750	---	17.40	50.00	32.60	1000.0	9.000	N	ON	19.1
16.815750	---	23.17	50.00	26.83	1000.0	9.000	N	ON	19.5
26.052000	24.00	---	60.00	36.00	1000.0	9.000	N	ON	19.7



802.11n(HT20), Channel No.: 11

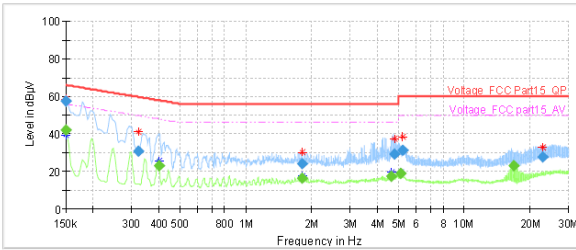
L Line



Final Result

Frequency (MHz)	Quasi/Peak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.156750	53.60	---	65.63	12.03	1000.0	9.000	L1	ON	19.1
0.179250	---	29.28	54.52	25.24	1000.0	9.000	L1	ON	19.2
0.321000	35.20	---	59.68	24.49	1000.0	9.000	L1	ON	19.2
0.341250	---	21.81	49.17	27.36	1000.0	9.000	L1	ON	19.2
1.995000	15.28	---	56.00	40.72	1000.0	9.000	L1	ON	19.1
4.146000	---	21.33	46.00	24.67	1000.0	9.000	L1	ON	19.1
4.263000	34.67	---	56.00	21.33	1000.0	9.000	L1	ON	19.1
5.043750	---	19.24	50.00	30.76	1000.0	9.000	L1	ON	19.1
5.223750	30.17	---	60.00	29.83	1000.0	9.000	L1	ON	19.1
16.815750	---	20.86	50.00	29.14	1000.0	9.000	L1	ON	19.5
24.895900	27.92	---	60.00	32.08	1000.0	9.000	L1	ON	19.8
27.317250	---	22.32	50.00	27.68	1000.0	9.000	L1	ON	19.9

N Line



Final Result

Frequency (MHz)	Quasi/Peak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.150000	---	41.82	56.00	14.18	1000.0	9.000	N	ON	19.1
0.150000	57.66	---	66.00	8.34	1000.0	9.000	N	ON	19.1
0.321000	30.80	---	59.68	28.88	1000.0	9.000	N	ON	19.2
0.399750	---	23.23	47.86	24.63	1000.0	9.000	N	ON	19.2
1.801500	24.08	---	56.00	31.92	1000.0	9.000	N	ON	19.2
1.803750	---	16.54	46.00	29.46	1000.0	9.000	N	ON	19.2
4.623000	---	17.56	46.00	28.44	1000.0	9.000	N	ON	19.1
4.803000	29.38	---	56.00	26.62	1000.0	9.000	N	ON	19.1
5.104500	---	18.92	50.00	31.08	1000.0	9.000	N	ON	19.1
5.226000	31.23	---	60.00	28.77	1000.0	9.000	N	ON	19.1
16.815750	---	22.94	50.00	27.06	1000.0	9.000	N	ON	19.5
22.881750	27.57	---	60.00	32.43	1000.0	9.000	N	ON	19.5



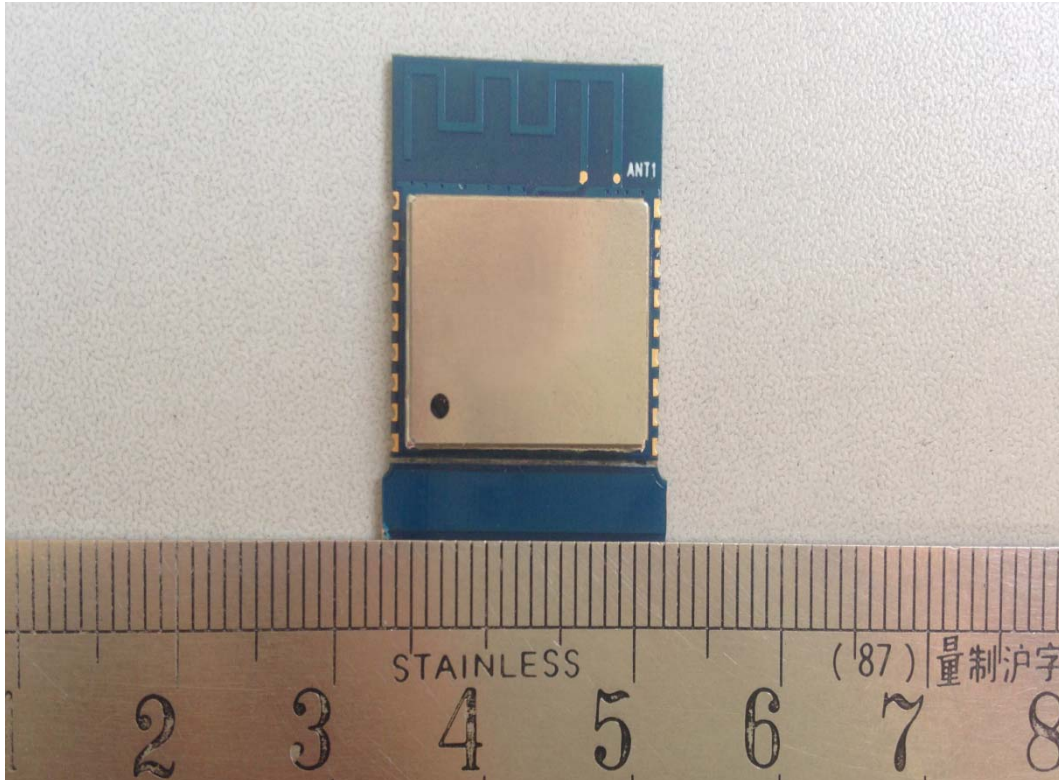
6. Main Test Instruments

Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time
Spectrum Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
EMI Test Receiver	ESCI	R&S	100948	2016-06-01	2017-05-31
TRILOG Broadband Antenna	VULB 9163	Schwarzbeck	9163-201	2014-12-06	2017-12-05
Double Ridged Waveguide Horn Antenna	HF907	R&S	100126	2014-12-06	2017-12-05
Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2014-02-19	2017-02-18
Standard Gain Horn	3160-09	ETS-Lindgren	00102644	2015-01-30	2018-01-29
EMI Test Receiver	ESCS30	R&S	100138	2015-12-17	2016-12-16
LISN	ENV216	R&S	101171	2013-12-18	2016-12-17
Spectrum Analyzer	N9010A	Agilent	MY47191109	2016-05-21	2017-05-20
MOB COMMS DC SUPPLY	66319D	Agilent	MY43004105	2016-05-21	2017-05-20
Peak Power Meter	U2021XA	Keysight	MY55240003	2016-06-26	2017-06-25
RF Cable	SMA 15cm	Agilent	0001	2016-10-05	2017-01-05

*****END OF REPORT *****

ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance



Picture 1 Constituents of EUT

A.2 Test Setup



30M Hz-1GHz



Above 1GHz

Picture 2 Radiated Emission Test Setup



Picture 3 Conducted Emission Test Setup

ANNEX B: Product Change Description

Product Change Description

We, **ESPRESSIF SYSTEMS (SHANGHAI) PTE LTD**, declare on our sole responsibility that the product, Wi-Fi Internet of Things Module

Type ESP-WROOM-02 ,

is the variant of the initial certified product,

ESP-WROOM-02

SOFTWARE MODIFICATIONS:

Protocol Stack changes: **NO**

MMS/STK changes: **NO**

JAVA changes: **NO**

Other changes detailed: **NO**

HARDWARE MODIFICATION:

Band changes: **NO**

Power Amplifier changes: **NO**

Antenna changes: **NO**

PCB Layout changes: **Yes, sub board change: power port add a ESD part for the ESD protection**

Components on PCB changes: **NO**

LCD changes: **No**

Speaker changes: **NO**

Camera changes: **NO**

Vibrator changes: **NO**

Bluetooth changes: **NO**

FM changes: **NO**

Other changes: **NO**

MECHANICAL MODIFICATIONS:

Use new metal front/back cover or keypad: **NO**

Mechanical shell changes: **NO**

Other changes detailed: **NO**

ACCESSORY MODIFICATIONS:

Battery changes: **NO**

AC Adaptor changes: **NO**

Earphone changes: **NO**



Signature:

Minjie Cai

Print name: Minjie Cai

Date: 2016.12.5

Company: ESPRESSIF SYSTEMS (SHANGHAI) PTE LTD

Address: Room 204, Building 2 , 690 Bibo Road, Zhangjiang Hi-tech Park

Tel: 021-61649387