

RF Test Report

Applicant : Getac Technology Corporation
Product Type : Wireless LAN Adapter
Trade Name : Getac
Model Number : 9260NGW
Applicable Standard : FCC 47 CFR PART 15 SUBPART C
ANSI C63.10:2013
Receive Date : Mar. 06, 2019
Test Period : Apr. 03 ~ Apr. 12, 2019
Issue Date : May 10, 2019

Issue by

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Taiwan Accreditation Foundation accreditation number: 1330
Test Firm MRA designation number: TW0010

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Apr. 18, 2019	Initial Issue	Janet Chao
01	May 08, 2019	Page 7 Revised Class II Permissive Change description & Frequency Range.	Tobey Cheng
02	May 10, 2019	Page 7 Revised Antenna Type. Page 24~27 Revised Conducted Emission Note: 1	Tobey Cheng

Verification of Compliance

Issued Date: May 10, 2019

Applicant : Getac Technology Corporation

Product Type : Wireless LAN Adapter

Trade Name : Getac

Model Number : 9260NGW

FCC ID : QYL9260NG

EUT Rated Voltage : DC 3.7 V

Test Voltage : 120 Vac / 60 Hz

Applicable Standard : FCC 47 CFR PART 15 SUBPART C
ANSI C63.10:2013

Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330
<http://www.atl-lab.com.tw/e-index.htm>

A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By : Fly Lu Reviewed By : Eric Ou Yang
(Manager) (Fly Lu) (Testing Engineer) (Eric Ou Yang)

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1 General Information

1.1. Summary of Test Result

Standard	Item	Result	Remark
FCC			
15.207	AC Power Conducted Emission	PASS	-----
15.247(d)	Transmitter Radiated Emissions	PASS (Note 2)	-----
15.247(b)(3)	Max. Output Power	PASS	-----
15.247(a)(2)	6 dB RF Bandwidth	N/A (Note 1)	-----
15.247(e)	Maximum Power Spectral Density	N/A (Note 1)	-----
15.247(d)	Out of Band Conducted Spurious Emission	N/A (Note 1)	-----
15.203	Antenna Requirement	PASS	-----

The test results of this report relate only to the tested sample(s) identified in this report.

Note1: Class II permissive change. No need for verification.

Note2: Transmitter Radiated Emissions in above 1 GHz use the worst Max. Output Power to do the test.

Standard	Description
CFR47, Part 15, Subpart C	Intentional Radiators
ANSI C63. 10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074 D01 15.247 Meas Guidance v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

1.2. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	9 kHz ~ 150 kHz	2.7
	150 kHz ~ 30 MHz	2.7
Radiated Emission	9 kHz ~ 30 MHz	1.7
	30 MHz ~ 1000 MHz	5.7
	1000 MHz ~ 18000 MHz	5.5
	18000 MHz ~ 26500 MHz	4.8
	26500 MHz ~ 40000 MHz	4.8
Conducted Output Power	+0.27 dB / -0.28 dB	

2 EUT Description

Applicant	Getac Technology Corporation 5F.,Building A,No.209,Sec.1 Nangang.,Rd., Taipei City, 11568, Taiwan			
Manufacturer	Intel Mobile Communications 100 Center Point Circle, Suite 200, Columbia, South Carolina 29210, USA			
Product Type	Wireless LAN Adapter			
Trade Name	Getac			
Model Number	9260NGW			
FCC ID	QYL9260NG			
Class II Permissive Change	This is to request a Class II permissive change for FCC ID: QYL9260NG, originally granted on 2019/3/26 The major change filed under this application is: Change #1: Additional Chassis added, Getac, model number: UX10 #2: Addition one antenna, the antenna type is same, the 2.4 GHz antenna gain is higher than the original application and the 5 GHz antenna gain is low than the original application. Therefore, 2.4 GHz band RSE verification will be executed and the RF report will be submitted afterwards.			
Host Information	Product Type: Tablet Trade Name: Getac Model Name: UX10			
Operate Freq. Band	Frequency Range (MHz)	Modulation	Channel Bandwidth	Data Rate 400 GI (ns)
IEEE 802.11b	2412 ~ 2472	DSSS	20 MHz	Up to 11 Mbps
IEEE 802.11g	2412 ~ 2472	OFDM	20 MHz	Up to 54 Mbps
IEEE 802.11n 2.4 GHz 20 MHz	2412 ~ 2472	OFDM	20 MHz	Up to 72.2 Mbps
IEEE 802.11n 2.4 GHz 40 MHz	2422 ~ 2462	OFDM	40 MHz	Up to 150 Mbps
Antenna information	Antenna	Model	Type	Max. Gain (dBi)
	Main (ANT-0)	T-0239 UX10 MAIN WIFI ANT	PIFA Antenna	3.70
	AUX (ANT-1)	T-0239 UX10 AUX WIFI ANT	PIFA Antenna	0.36
Antenna Delivery	See section 3.1			
Operate Temp. Range	0 ~ +80 °C			

Frequency Band	Max. RF Output Power (W)	
	SYSTEM 2 Full	SYSTEM 1 Basic
IEEE 802.11b	0.116	0.115
IEEE 802.11g	0.106	0.123
IEEE 802.11n 2.4 GHz 20 MHz	0.105	0.122
IEEE 802.11n 2.4 GHz 40 MHz	0.038	0.113

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit mode
Mode 2: IEEE 802.11b Continuous TX mode
Mode 3: IEEE 802.11g Continuous TX mode
Mode 4: IEEE 802.11n 2.4 GHz 20 MHz Continuous TX mode
Mode 5: IEEE 802.11n 2.4 GHz 40 MHz Continuous TX mode

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes.

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

Test Mode	ANT-0	ANT-1	ANT-0+1
Mode 2	V	V	---
Mode 3	V	V	---
Mode 4	V	V	---
Mode 5	V	V	---

Test Mode	Antenna Delivery	Data Rate (Mbps)	Test Channel
Mode 2	1TX(Diversity)	1	1, 6, 11, 12, 13
Mode 3	1TX(Diversity)	6	1, 6, 11, 12, 13
Mode 4	1TX(Diversity)	6.5	1, 6, 11, 12, 13
Mode 5	1TX(Diversity)	13.5	3, 6, 9, 10, 11

Decision of Test Mode		V	V
Description	Remarks	SYSTEM 2 Full	SYSTEM 1 Basic
Main Board	---	V	V
CPU	i7 4.60 GHz	V	
	i5 3.90 GHz		V
Memory	8 GB		V
	16 GB	V	
HDD	256 GB		V
	512 GB	V	
LCM	Digitizer	V	
Upside Option	NXP RFID		V
	SE4710	V	
STD Battery (Optional)	11.1 VDC, 4200 mAh		V
Large Battery (Optional)	10.8 VDC, 9240 mAh	V	
Bridge Battery (Optional)	7.4 VDC, 2100 mAh	V	
Fingerprint CrossMatch	Right Expansion Bay	V	
MSR Reader		V	
Module	WLAN/BT	V	V
	WWAN / GPS	V	
	GPS/GNS		V
Capacitive Pen	---		V
AC Adapter (1)	INPUT: 100-240 VAC, 50-60 Hz, 1.5 A OUTPUT: 19 VDC, 3.42 A Non-Shielded,1.5 m, with one core	V	V
AC Adapter (2)	INPUT: 100-240 VAC, 50-60 Hz, 1.5 A OUTPUT: 19 VDC, 4.74 A Non-Shielded,1.55 m		
Power Cord (1)	3 pin Non-Shielded,1.75 m	V	V
Power Cord (2)	3 pin Non-Shielded,1.75 m With AC Adapter model: ADM-9019M		
Digitizer Pen (Optional)	---	V	

Note: SYSTEM 2 Full is the worst case in Transmitter Radiated Emissions.

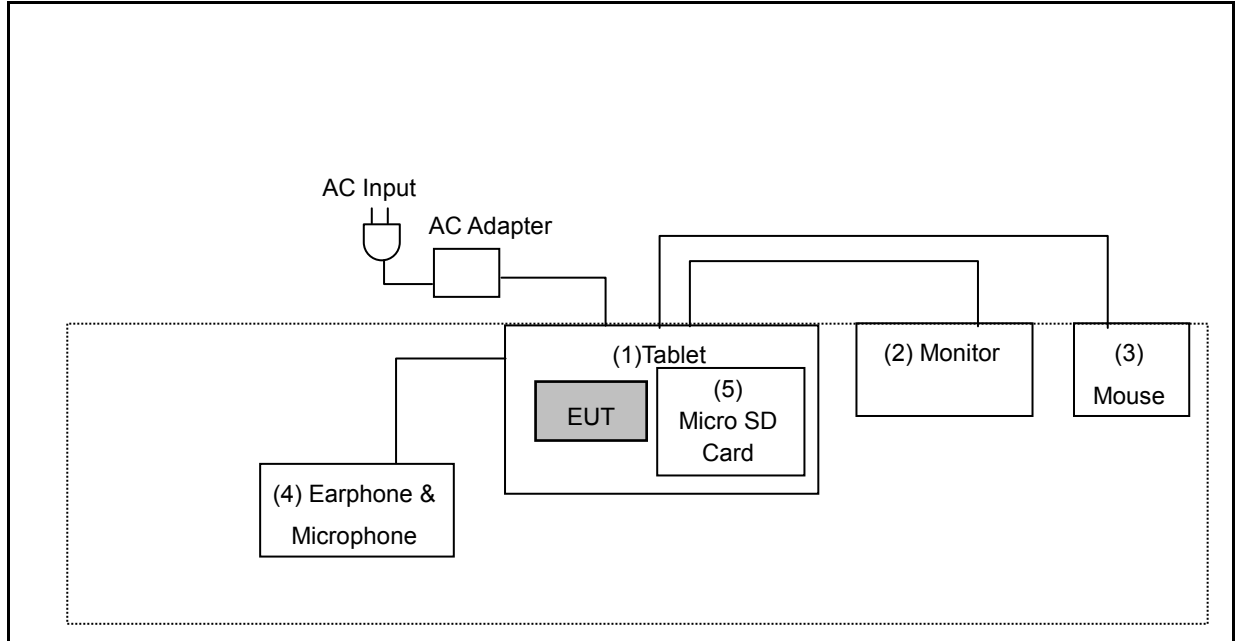
3.2. EUT Test Step

1.	Setup the EUT shown on “Configuration of Test System Details”.
2.	Turn on the power of all equipment.
3.	Turn on TX function
4.	EUT run test program.

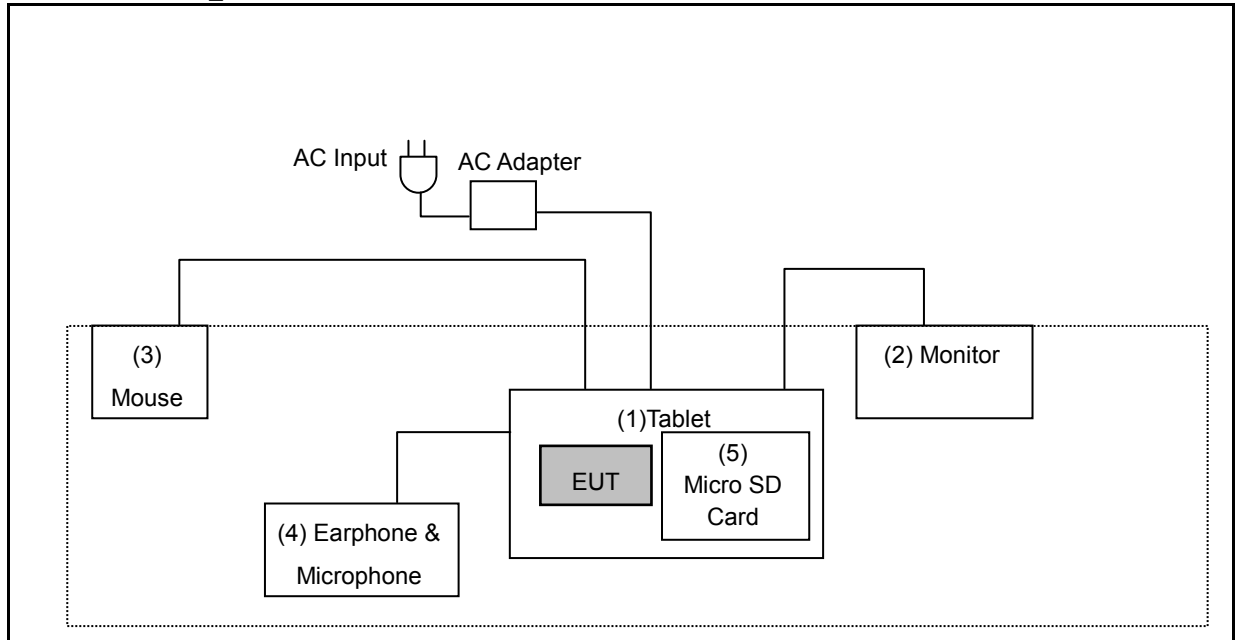
Measurement Software			
No.	Description	Software	Version
1	Conducted Emission	EZ EMC	1.1.4.3
2	Radiated Emission	EZ EMC	1.1.4.4

3.3. Configuration of Test System Details

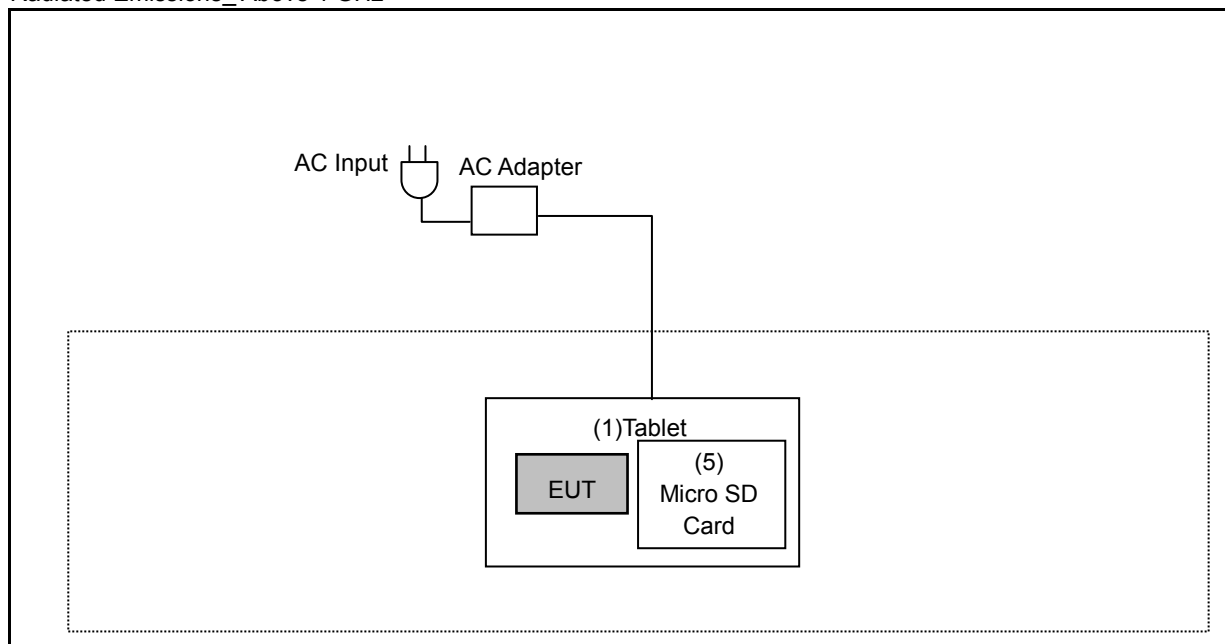
Conducted Emissions



Radiated Emission_ Below 1 GHz



Radiated Emissions_ Above 1 GHz



Devices Description					
	Product	Manufacturer	Model Number	Serial Number	Power Cord
(1)	Tablet	Getac	UX10	---	---
(2)	Monitor	DELL	P2415Qb	CN-0D3C8Y-74261-523-0HUL	---
(3)	Mouse	Logitech	M-UAG96B	---	---
(4)	Earphone & Microphone	HTC	---	---	---
(5)	Micro SD Card	Transcend	---	---	---



3.4. Test Instruments

For Conducted Emission

Test Period: Apr. 09, 2019

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Test Receiver	R&S	ESCI	100367	05/21/2018	1 year
LISN	R&S	ENV216	101040	04/11/2018	1 year
RF Cable	Woken	00100D1380194M	TE-02-03	05/17/2018	1 year

For Radiated Emissions

Test Period: Apr. 03, 2019

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
EXA Signal Analyzer (10 Hz~44 GHz)	Keysight	N9010A	MY52221312	01/14/2019	1 year
Pre Amplifier (1~26.5 GHz)	Agilent	8449B	3008A02237	10/16/2018	1 year
Pre Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	01/14/2019	1 year
Trilog Broadband Antenna	Schwarzbeck Mess-Elektronik	VULB9168	416	10/23/2018	1 year
Horn Antenna (1~18 GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	08/23/2018	1 year
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	08/07/2018	1 year
Loop Antenna	Electro-Metrics	EMCI-LPA600	277	04/19/2018	1 year
RF Cable	EMCI	EMC104-N-N-6000	TE01-1	02/20/2019	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1 3000	170814	10/30/2018	1 year
Microwave Cable	EMCI	EMC102-KM-KM-1 4000	151001	02/20/2019	1 year

Note: N.C.R. = No Calibration Request.



For Conducted

Test Period: Apr. 12, 2019

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer (20 Hz~26.5 GHz)	Agilent	N9020A	US47520902	09/25/2018	1 year
Power Sensor	Anritsu	MA2411B	1126022	08/29/2018	1 year
Power Meter	Anritsu	ML2495A	1135009	08/29/2018	1 year
Microwave Cable	EMCI	EMC102-SM-SM15 00	001	11/21/2018	1 year

Note: N.C.R. = No Calibration Request.

3.5. Test Site Environment

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	990

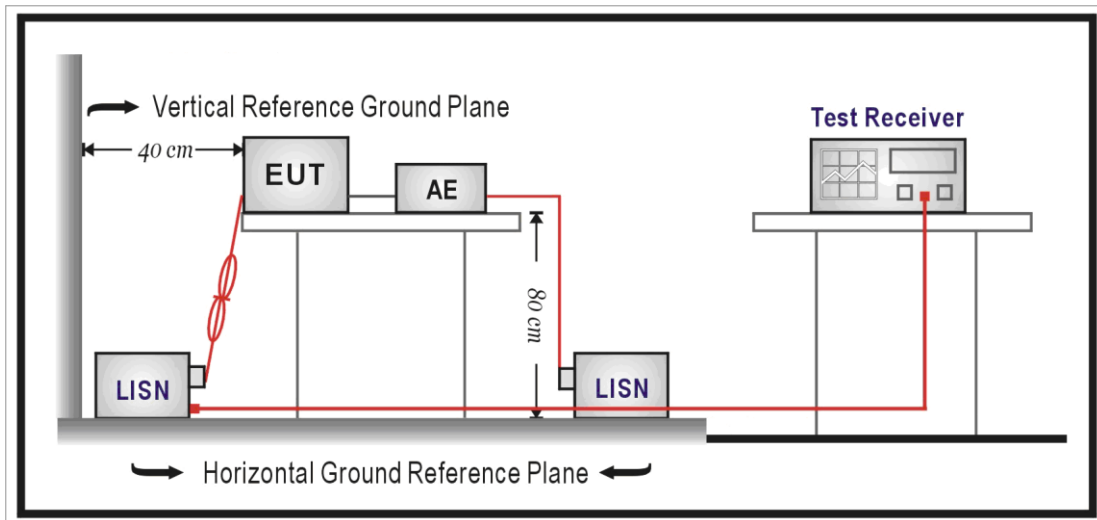
4 Measurement Procedure

4.1. AC Power Line Conducted Emission Measurement

■ Limit

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

■ Test Setup



■ Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a $50\ \Omega // 50\ \mu\text{H}$ coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a $50\ \Omega // 50\ \mu\text{H}$ coupling impedance with 50 ohm termination.

Tabletop device shall be placed on a non-conducting platform, of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The wall of screened room shall be located 40 cm to the rear of the EUT. Other surfaces of tabletop or floor standing EUT shall be at least 80 cm from any other ground conducting surface including one or more LISNs. For floor-standing device shall be placed under the EUT with a 12 mm insulating material.

Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a resolution bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1, as applicable, including the average limit and the quasi-peak limit when using respectively, an average detector and quasi-peak detector measured in accordance with the methods described of related standard. When all of peak value were complied with quasi-peak and average limit from 150 kHz to 30 MHz then quasi-peak and average measurement was unnecessary.

The AMN shall be placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for AMNs mounted on top of the ground reference plane. This distance is between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8 m from the AMN. If the mains power cable is longer than 1 m then the cable shall be folded back and forth at the centre of the lead to form a bundle no longer than 0.4 m. All of interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long. All of EUT and AE shall be separate place more than 0.1 m. All 50 Ω ports of the LISN shall be resistively terminated into 50 Ω loads when not connected to the measuring instrument.

If the reading of the measuring receiver shows fluctuations close to the limit, the reading shall be observed for at least 15 s at each measurement frequency; the higher reading shall be recorded with the exception of any brief isolated high reading which shall be ignored.

4.2. Radiated Emission Measurement

■ Limit

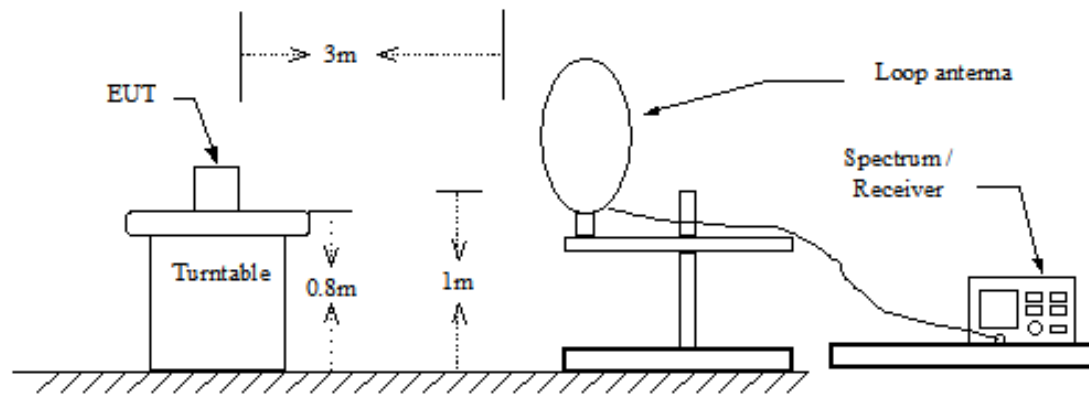
According to §15.209(a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ($\mu\text{V/m}$ at meter)	Measurement Distance (meters)
0.009 – 0.490	$2400 / F$ (kHz)	300
0.490 – 1.705	$24000 / F$ (kHz)	30
1.705 – 30.0	30	30
30 - 88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

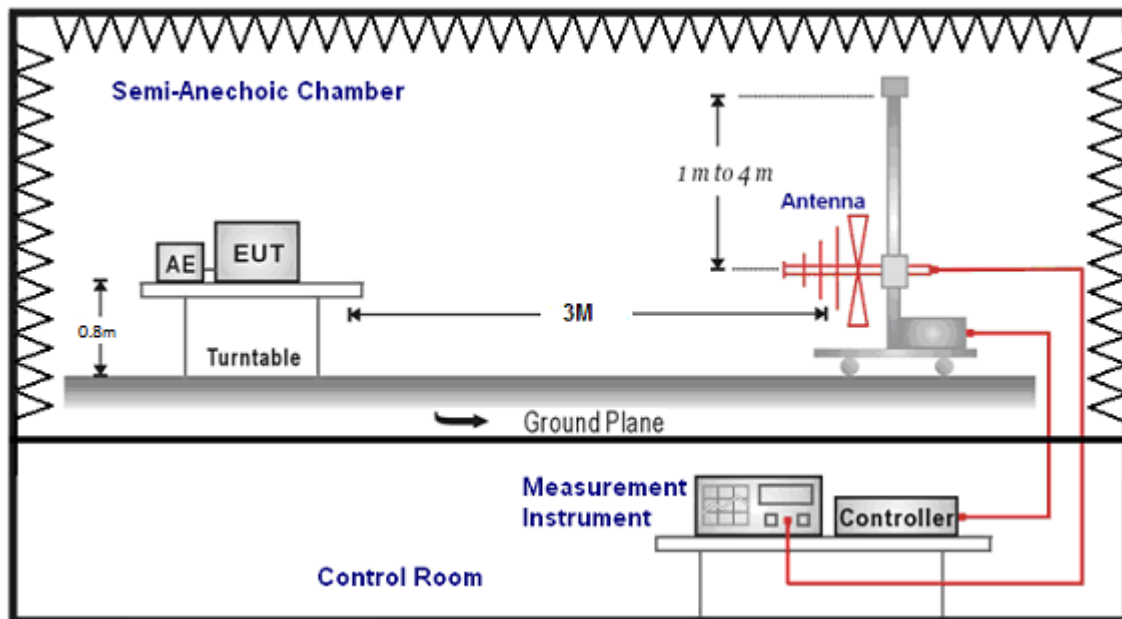
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

■ Setup

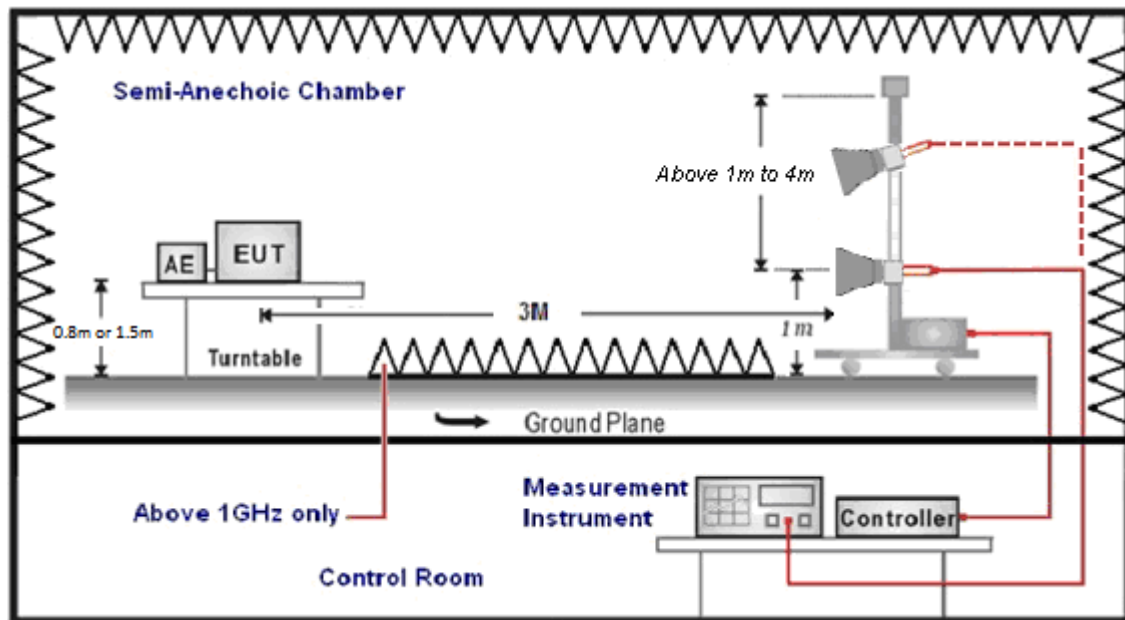
9 kHz ~ 30 MHz



Below 1 GHz



Above 1 GHz



■ Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 or 1.5 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements and 10 Hz for average measurements when Duty cycle >0.98 / $1/T$ for average measurements when Duty cycle <0.98 . A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna was used in frequencies 1 –26.5 GHz at a distance of 3 meter. The antenna at an angle toward the source of the emission. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20 dB/decade).

For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m) = FI (dBuV) + AF (dBuV) + CL (dBuV) - Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m) = Amplitude (dBuV) - Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30 dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

Data of measurement within this frequency range without mark in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.

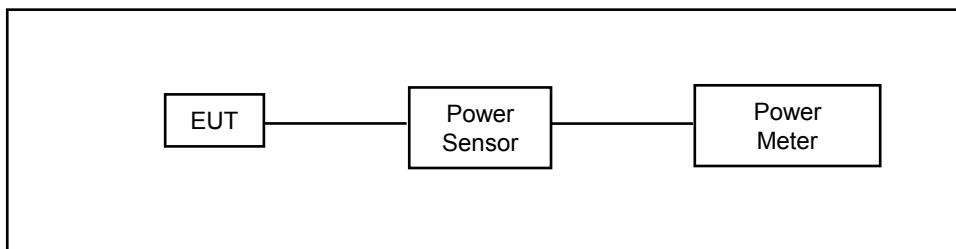
4.3. Maximum Conducted Output Power Measurement

■ Limit

For systems using digital modulation in the 2400-2483.5 MHz, the limit for maximum output power is 30 dBm.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

■ Test Setup



■ Test Procedure

The testing follows the Measurement Procedure of ANSI C63.10:2013 section 11.9.2.3.2 Method AVGPM.

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor.



4.4. Antenna Measurement

- **Limit**

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

- **Antenna Description**

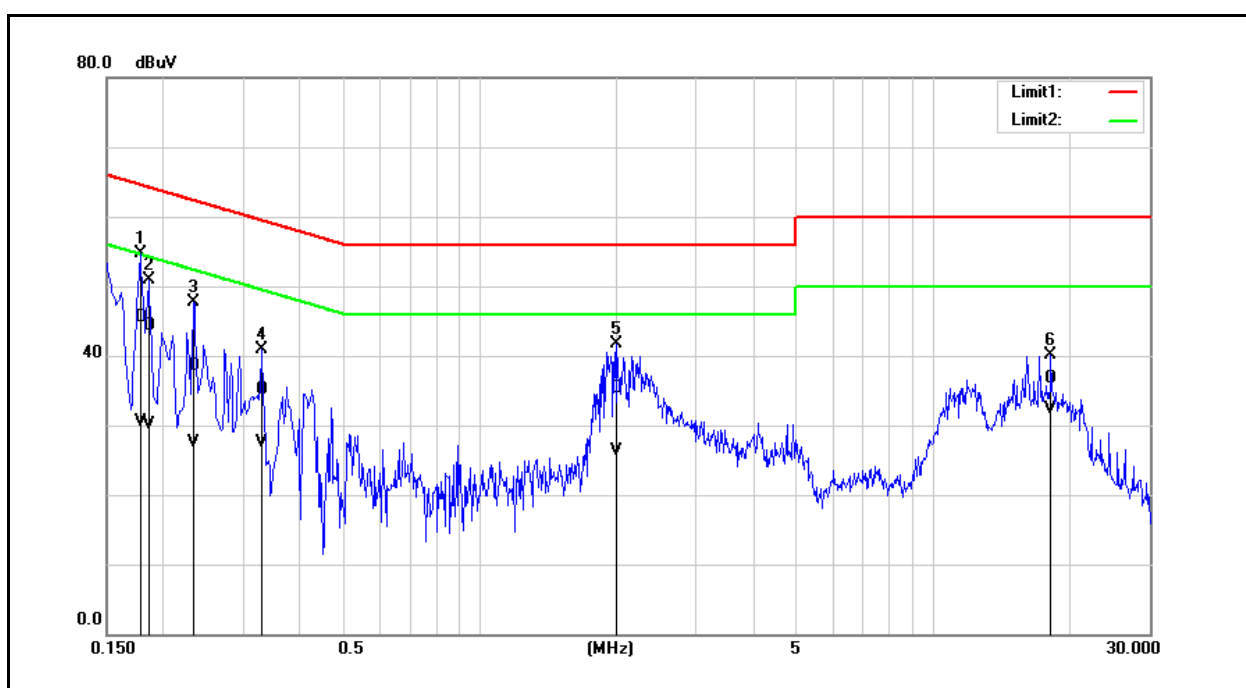
See section 2 – antenna information.

5 Test Results

Annex A. Conducted Emission

SYSTEM 2 Full

Standard:	FCC Part 15.247	Line:	L1
Test Mode:	Mode 1	Power:	AC 120 V/60 Hz
		Temp.(°C)/Hum. (%RH):	26(°C)/60 %RH
Description:			

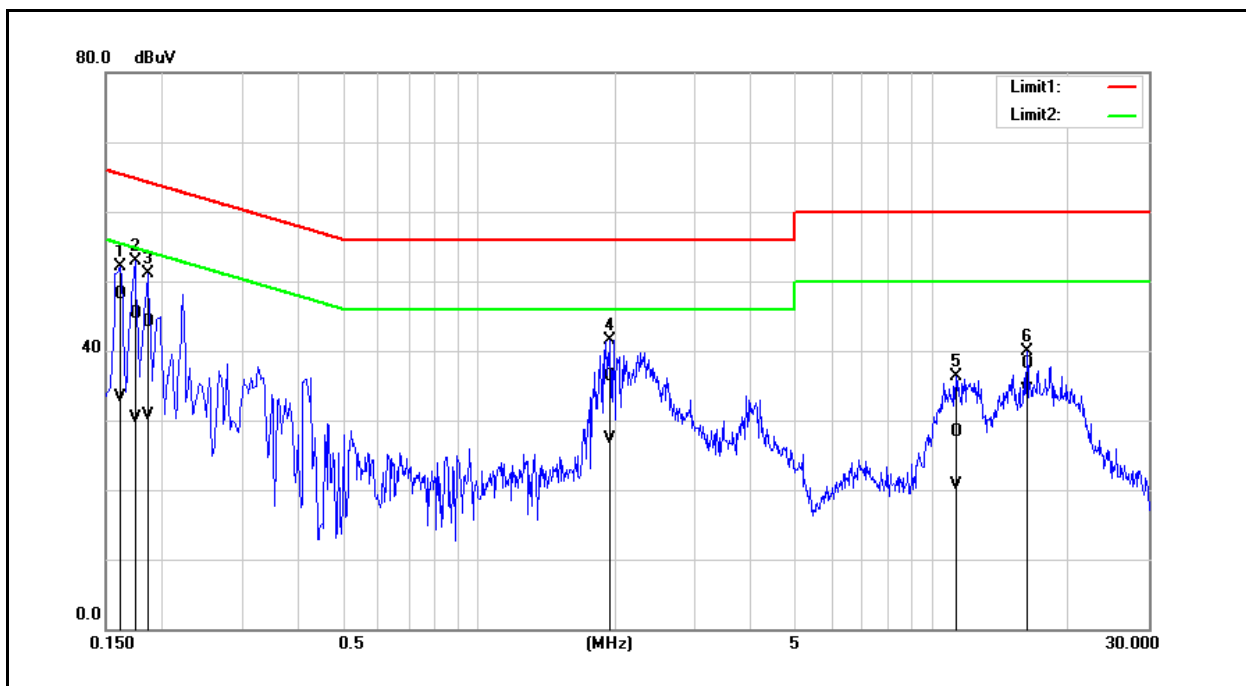


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1780	36.05	20.91	9.52	45.57	30.43	64.58	54.58	-19.01	-24.15	Pass
2	0.1860	34.87	20.50	9.52	44.39	30.02	64.21	54.21	-19.82	-24.19	Pass
3	0.2340	28.90	17.91	9.52	38.42	27.43	62.31	52.31	-23.89	-24.88	Pass
4	0.3300	25.65	17.96	9.52	35.17	27.48	59.45	49.45	-24.28	-21.97	Pass
5	2.0020	25.66	16.63	9.60	35.26	26.23	56.00	46.00	-20.74	-19.77	Pass
6	18.2260	26.87	22.40	9.86	36.73	32.26	60.00	50.00	-23.27	-17.74	Pass

Note: 1. Result (dBuV) = Correct Factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

Standard:	FCC Part 15.247	Line:	N
Test Mode:	Mode 1	Power:	AC 120 V/60 Hz
		Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1620	38.51	23.62	9.60	48.11	33.22	65.36	55.36	-17.25	-22.14	Pass
2	0.1740	35.67	20.72	9.60	45.27	30.32	64.77	54.77	-19.50	-24.45	Pass
3	0.1860	34.46	21.08	9.59	44.05	30.67	64.21	54.21	-20.16	-23.54	Pass
4	1.9420	26.60	17.70	9.66	36.26	27.36	56.00	46.00	-19.74	-18.64	Pass
5	11.2620	18.45	10.88	9.87	28.32	20.75	60.00	50.00	-31.68	-29.25	Pass
6	16.1460	28.08	24.27	9.97	38.05	34.24	60.00	50.00	-21.95	-15.76	Pass

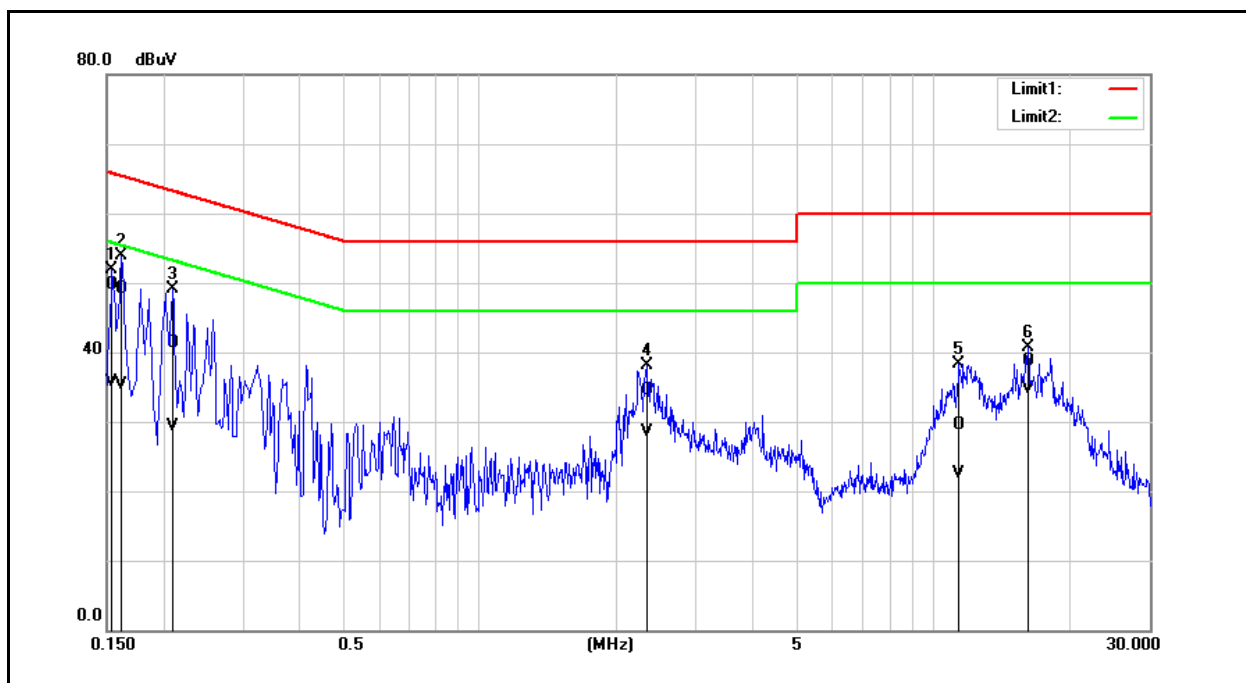
Note: 1. Result (dBuV) = Correct Factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

SYSTEM 1 Basic

Standard:	FCC Part 15.247	Line:	L1
Test Mode:	Mode 1	Power:	AC 120 V/60 Hz
		Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH

Description:



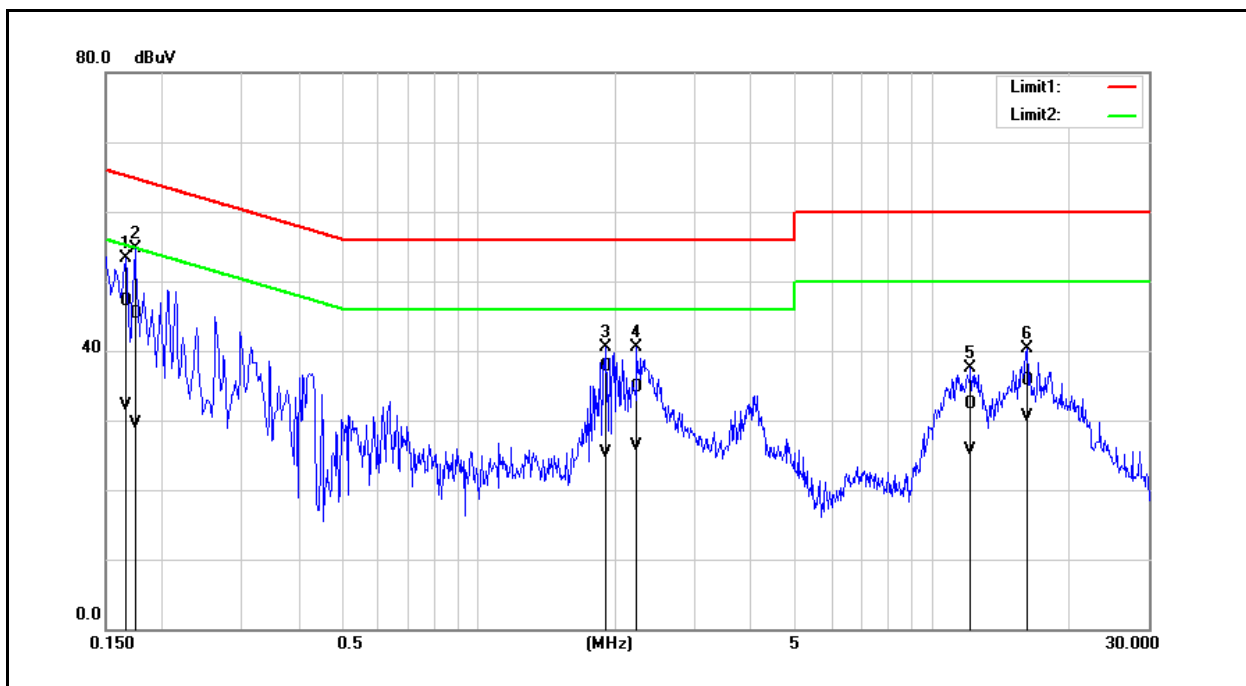
No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1540	40.16	26.26	9.52	49.68	35.78	65.78	55.78	-16.10	-20.00	Pass
2	0.1620	39.62	25.70	9.52	49.14	35.22	65.36	55.36	-16.22	-20.14	Pass
3	0.2100	31.76	19.77	9.52	41.28	29.29	63.21	53.21	-21.93	-23.92	Pass
4	2.3420	24.95	18.94	9.61	34.56	28.55	56.00	46.00	-21.44	-17.45	Pass
5	11.4100	19.64	12.79	9.78	29.42	22.57	60.00	50.00	-30.58	-27.43	Pass
6	16.1500	28.87	24.81	9.83	38.70	34.64	60.00	50.00	-21.30	-15.36	Pass

Note: 1. Result (dBuV) = Correct Factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).



Standard:	FCC Part 15.247	Line:	N
Test Mode:	Mode 1	Power:	AC 120 V/60 Hz
		Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1660	37.42	22.58	9.60	47.02	32.18	65.16	55.16	-18.14	-22.98	Pass
2	0.1740	35.61	19.87	9.60	45.21	29.47	64.77	54.77	-19.56	-25.30	Pass
3	1.8980	28.11	15.71	9.66	37.77	25.37	56.00	46.00	-18.23	-20.63	Pass
4	2.2260	25.06	16.72	9.66	34.72	26.38	56.00	46.00	-21.28	-19.62	Pass
5	12.1260	22.49	15.73	9.89	32.38	25.62	60.00	50.00	-27.62	-24.38	Pass
6	16.1580	25.66	20.46	9.97	35.63	30.43	60.00	50.00	-24.37	-19.57	Pass

Note: 1. Result (dBuV) = Correct Factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

Annex B. Conducted Test Results

Maximum Conducted Output Power Measurement

SYSTEM 2 Full					
Test Mode	Data Rate (Mbps)	Frequency (MHz)	Average Output Power		
			ANT-0		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	1	2412.0	19.71	0.094	≤ 30
		2442.0	20.46	0.111	≤ 30
		2462.0	20.62	0.115	≤ 30
		2467.0	18.39	0.069	≤ 30
		2472.0	15.57	0.036	≤ 30
Mode 3	6	2412.0	16.16	0.041	≤ 30
		2442.0	20.04	0.101	≤ 30
		2462.0	16.42	0.044	≤ 30
		2467.0	16.68	0.047	≤ 30
		2472.0	-3.95	0.000	≤ 30
Mode 4	6.5	2412.0	15.57	0.036	≤ 30
		2442.0	19.46	0.088	≤ 30
		2462.0	15.81	0.038	≤ 30
		2467.0	16.30	0.043	≤ 30
		2472.0	-4.01	0.000	≤ 30
Mode 5	13.5	2422.0	13.33	0.022	≤ 30
		2437.0	15.51	0.036	≤ 30
		2452.0	13.73	0.024	≤ 30
		2457.0	11.37	0.014	≤ 30
		2462.0	3.02	0.002	≤ 30

Note: The relevant measured result has the offset with cable loss already.

Test Mode	Data Rate (Mbps)	Frequency (MHz)	Average Output Power		
			ANT-1		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	1	2412.0	19.58	0.091	≤ 30
		2442.0	20.63	0.116	≤ 30
		2462.0	20.23	0.105	≤ 30
		2467.0	18.50	0.071	≤ 30
		2472.0	14.76	0.030	≤ 30
Mode 3	6	2412.0	16.68	0.047	≤ 30
		2442.0	20.24	0.106	≤ 30
		2462.0	15.93	0.039	≤ 30
		2467.0	17.02	0.050	≤ 30
		2472.0	-3.25	0.000	≤ 30
Mode 4	6.5	2412.0	16.34	0.043	≤ 30
		2442.0	20.20	0.105	≤ 30
		2462.0	16.29	0.043	≤ 30
		2467.0	15.39	0.035	≤ 30
		2472.0	-4.58	0.000	≤ 30
Mode 5	13.5	2422.0	12.88	0.019	≤ 30
		2437.0	15.81	0.038	≤ 30
		2452.0	13.92	0.025	≤ 30
		2457.0	10.80	0.012	≤ 30
		2462.0	2.92	0.002	≤ 30

Note: The relevant measured result has the offset with cable loss already.

SYSTEM 1 Basic

Test Mode	Data Rate (Mbps)	Frequency (MHz)	Average Output Power		
			ANT-0		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	1	2412.0	15.86	0.039	≤ 30
		2442.0	15.27	0.034	≤ 30
		2462.0	15.98	0.040	≤ 30
		2467.0	15.71	0.037	≤ 30
		2472.0	15.77	0.038	≤ 30
Mode 3	6	2412.0	15.75	0.038	≤ 30
		2442.0	15.73	0.037	≤ 30
		2462.0	15.73	0.037	≤ 30
		2467.0	15.75	0.038	≤ 30
		2472.0	-3.35	0.000	≤ 30
Mode 4	6.5	2412.0	15.58	0.036	≤ 30
		2442.0	15.87	0.039	≤ 30
		2462.0	15.76	0.038	≤ 30
		2467.0	15.72	0.037	≤ 30
		2472.0	-3.41	0.000	≤ 30
Mode 5	13.5	2422.0	15.85	0.038	≤ 30
		2437.0	15.70	0.037	≤ 30
		2452.0	15.94	0.039	≤ 30
		2457.0	15.92	0.039	≤ 30
		2462.0	3.62	0.002	≤ 30

Note: The relevant measured result has the offset with cable loss already.

Test Mode	Data Rate (Mbps)	Frequency (MHz)	Average Output Power		
			ANT-1		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	1	2412.0	19.71	0.094	≤ 30
		2442.0	20.43	0.110	≤ 30
		2462.0	20.62	0.115	≤ 30
		2467.0	20.25	0.106	≤ 30
		2472.0	15.36	0.034	≤ 30
Mode 3	6	2412.0	19.17	0.083	≤ 30
		2442.0	20.59	0.115	≤ 30
		2462.0	20.90	0.123	≤ 30
		2467.0	20.06	0.101	≤ 30
		2472.0	-2.65	0.001	≤ 30
Mode 4	6.5	2412.0	19.20	0.083	≤ 30
		2442.0	20.50	0.112	≤ 30
		2462.0	20.87	0.122	≤ 30
		2467.0	20.17	0.104	≤ 30
		2472.0	-3.98	0.000	≤ 30
Mode 5	13.5	2422.0	19.35	0.086	≤ 30
		2437.0	20.08	0.102	≤ 30
		2452.0	20.52	0.113	≤ 30
		2457.0	20.32	0.108	≤ 30
		2462.0	3.52	0.002	≤ 30

Note: The relevant measured result has the offset with cable loss already.

Annex C. Radiated Emission Test Results

Harmonic

SYSTEM 2 Full							
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Below 1 GHz

Standard:		FCC Part 15.247		Test Distance:		3 m	
Test item:		Harmonic		Power:		AC 120 V/60 Hz	
Frequency:		2442 MHz		Temp.(°C)/Hum.(%RH):		26(°C)/60 %RH	
Test Mode:		Mode 2					
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
159.9800	42.25	-5.33	36.92	43.50	-6.58	QP	H
205.5700	44.08	-7.68	36.40	43.50	-7.10	QP	H
337.4900	38.66	-3.20	35.46	46.00	-10.54	QP	H
563.5000	36.95	1.49	38.44	46.00	-7.56	QP	H
679.9000	34.34	3.81	38.15	46.00	-7.85	QP	H
788.5400	32.41	6.17	38.58	46.00	-7.42	QP	H
158.0400	41.20	-5.38	35.82	43.50	-7.68	QP	V
289.9600	39.70	-4.12	35.58	46.00	-10.42	QP	V
393.7500	34.61	-1.89	32.72	46.00	-13.28	QP	V
525.6700	38.49	0.65	39.14	46.00	-6.86	QP	V
655.6500	34.37	3.35	37.72	46.00	-8.28	QP	V
788.5400	31.99	6.17	38.16	46.00	-7.84	QP	V

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

Example: $36.92 = -5.33 + 42.25$

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.



SYSTEM 1 Basic

Below 1 GHz

Standard:	FCC Part 15.247			Test Distance:	3 m		
Test item:	Harmonic			Power:	AC 120 V/60 Hz		
Frequency:	2442 MHz			Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH		
Test Mode:	Mode 2						
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
182.2900	40.95	-6.87	34.08	43.50	-9.42	QP	H
262.8000	40.36	-5.23	35.13	46.00	-10.87	QP	H
525.6700	35.20	0.65	35.85	46.00	-10.15	QP	H
637.2200	32.74	3.06	35.80	46.00	-10.20	QP	H
788.5400	30.71	6.17	36.88	46.00	-9.12	QP	H
867.1100	30.39	7.28	37.67	46.00	-8.33	QP	H
159.9800	36.26	-5.33	30.93	43.50	-12.57	QP	V
295.7800	38.91	-3.89	35.02	46.00	-10.98	QP	V
525.6700	36.27	0.65	36.92	46.00	-9.08	QP	V
646.9200	33.85	3.20	37.05	46.00	-8.95	QP	V
738.1000	30.33	5.19	35.52	46.00	-10.48	QP	V
932.1000	30.02	8.37	38.39	46.00	-7.61	QP	V

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

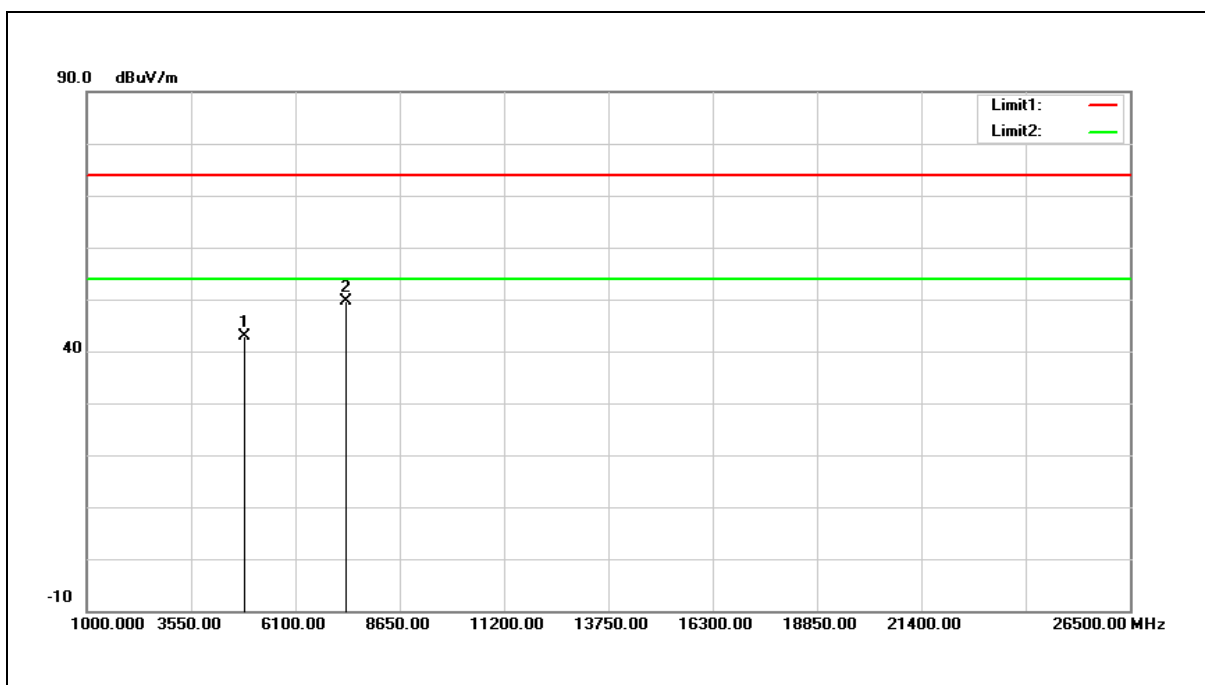
2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

SYSTEM 2 Full

Above 1 GHz

Standard:	FCC Part 15.247	Test Distance:	3 m
Test item:	Harmonic	Power:	AC 120 V/60 Hz
Frequency:	2442 MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4844.000	37.54	5.42	42.96	74.00	-31.04	peak
2	7326.000	37.44	12.17	49.61	74.00	-24.39	peak

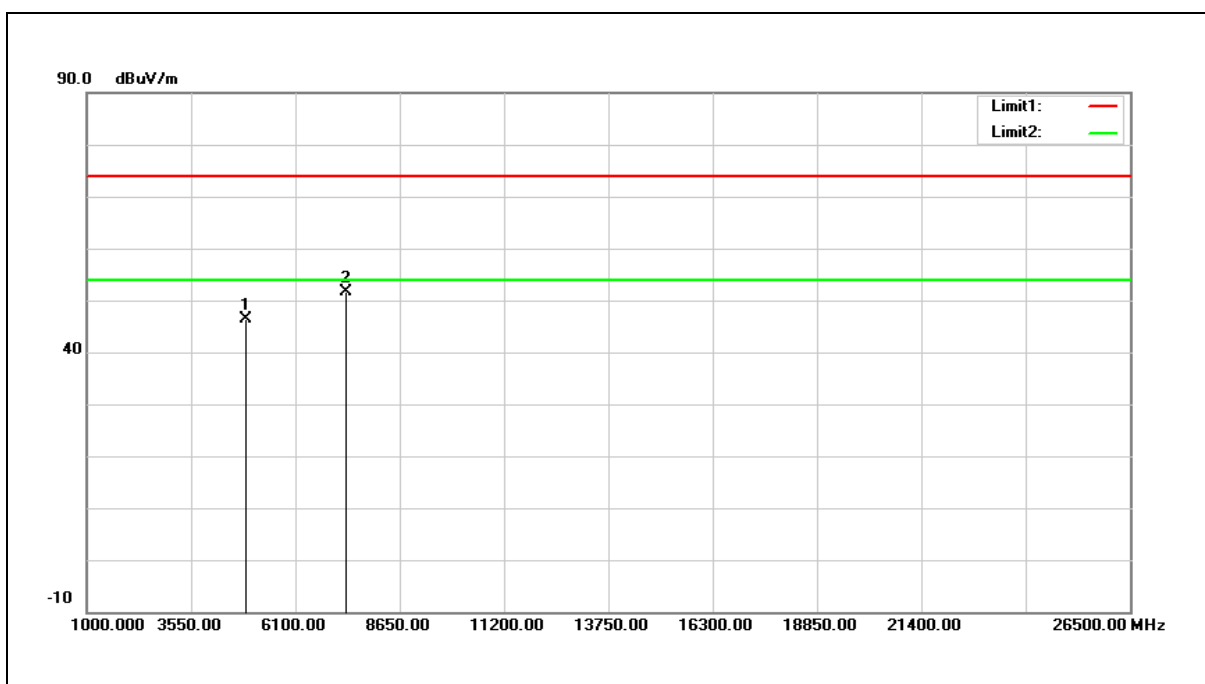
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

Example: 42.96 = 5.42+37.54

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.247	Test Distance:	3 m
Test item:	Harmonic	Power:	AC 120 V/60 Hz
Frequency:	2442 MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Mode:	Mode 2		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4884.000	40.79	5.49	46.28	74.00	-27.72	peak
2	7326.000	39.46	12.17	51.63	74.00	-22.37	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

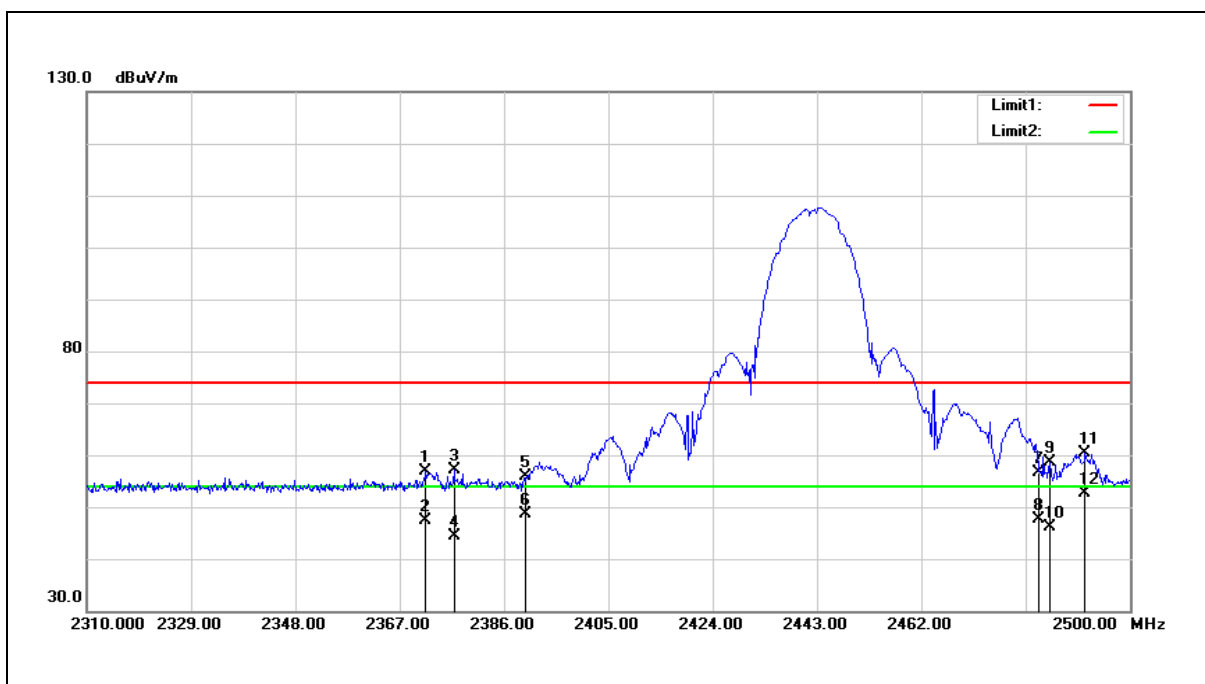
Example: 46.28 = 5.49+40.79

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Band Edge

Standard:	FCC Part 15.247	Test Distance:	3 m
Test item:	Band edge	Power:	AC 120 V/60 Hz
Frequency:	2442 MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2371.750	58.00	-1.22	56.78	74.00	-17.22	peak
2	2371.750	48.71	-1.22	47.49	54.00	-6.51	AVG
3	2376.880	58.34	-1.22	57.12	74.00	-16.88	peak
4	2376.880	45.68	-1.22	44.46	54.00	-9.54	AVG
5	2390.000	56.96	-1.17	55.79	74.00	-18.21	peak
6	2390.000	49.72	-1.17	48.55	54.00	-5.45	AVG

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.247	Test Distance:	3 m
Test item:	Band edge	Power:	AC 120 V/60 Hz
Frequency:	2442 MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Mode:	Mode 2		
Ant.Polar.:	Horizontal		

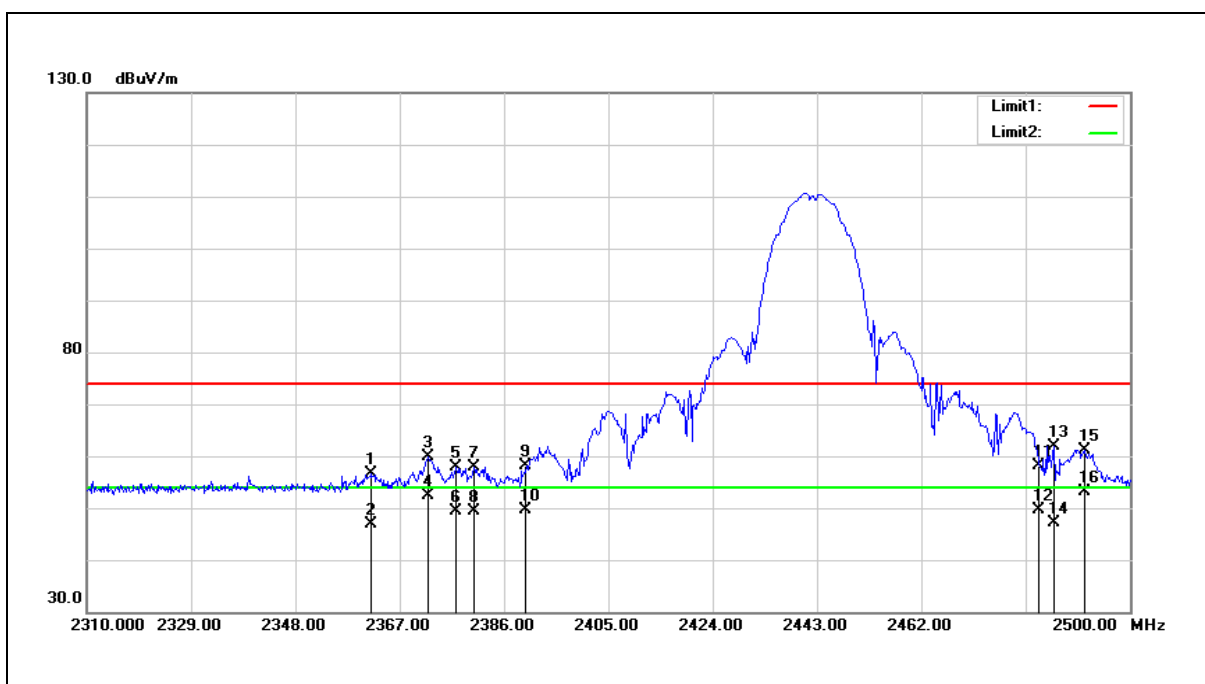
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7	2483.500	57.35	-0.82	56.53	74.00	-17.47	peak
8	2483.500	48.42	-0.82	47.60	54.00	-6.40	AVG
9	2485.370	59.40	-0.82	58.58	74.00	-15.42	peak
10	2485.370	47.07	-0.82	46.25	54.00	-7.75	AVG
11	2491.830	61.27	-0.79	60.48	74.00	-13.52	peak
12	2491.830	53.30	-0.79	52.51	54.00	-1.49	AVG

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.247	Test Distance:	3 m
Test item:	Band edge	Power:	AC 120 V/60 Hz
Frequency:	2442 MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Mode:	Mode 2		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2361.870	57.88	-1.26	56.62	74.00	-17.38	peak
2	2361.870	48.21	-1.26	46.95	54.00	-7.05	AVG
3	2372.130	61.01	-1.22	59.79	74.00	-14.21	peak
4	2372.130	53.66	-1.22	52.44	54.00	-1.56	AVG
5	2377.260	59.05	-1.21	57.84	74.00	-16.16	peak
6	2377.260	50.57	-1.21	49.36	54.00	-4.64	AVG
7	2380.490	59.07	-1.20	57.87	74.00	-16.13	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.247	Test Distance:	3 m
Test item:	Band edge	Power:	AC 120 V/60 Hz
Frequency:	2442 MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Mode:	Mode 2		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
8	2380.490	50.58	-1.20	49.38	54.00	-4.62	AVG
9	2390.000	59.19	-1.17	58.02	74.00	-15.98	peak
10	2390.000	50.84	-1.17	49.67	54.00	-4.33	AVG
11	2483.500	58.96	-0.82	58.14	74.00	-15.86	peak
12	2483.500	50.46	-0.82	49.64	54.00	-4.36	AVG
13	2486.130	62.75	-0.82	61.93	74.00	-12.07	peak
14	2486.130	47.94	-0.82	47.12	54.00	-6.88	AVG
15	2491.830	61.81	-0.79	61.02	74.00	-12.98	peak
16	2491.830	53.97	-0.79	53.18	54.00	-0.82	AVG

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.