

FCC 47 CFR PART 15 SUBPART C

RF Test Report

Applicant : TP-Link Technologies Co., Ltd.
Product Type : AC1300 High Power Wireless Dual Band USB Adapter
Trade Name : TP-LINK
Model Number : Archer T4UHP
Applicable Standard : FCC 47 CFR PART 15 SUBPART C
ANSI C63.10:2013
Receive Date : Aug. 23, 2016
Test Period : Aug. 30 ~ Dec. 02, 2016
Issue Date : Dec. 06, 2016

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Dec. 06, 2016	Initial Issue	Joyce Liao

Verification of Compliance

Issued Date: Dec. 06, 2016

Applicant : TP-Link Technologies Co., Ltd.

Product Type : AC1300 High Power Wireless Dual Band USB Adapter

Trade Name : TP-LINK

Model Number : Archer T4UHP

FCC ID : TE7T4UHP

EUT Rated Voltage : DC 5V, 0.9A

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.

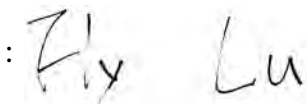
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Taiwan Accreditation Foundation accreditation number: 1330
<http://www.atl-lab.com.tw/e-index.htm>

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. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By



(Manager)

Reviewed By



(Testing Engineer)

(Eric Ou Yang)

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1 General Information

1.1 Summary of Test Result

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

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	9kHz ~ 150KHz	2.7
	150kHz ~ 30MHz	2.7
Radiated Emission	9kHz ~ 30MHz	1.7
	30MHz ~ 1000MHz	5.7
	1000MHz ~ 18000MHz	5.5
	18000MHz ~ 26500MHz	4.8
	26500MHz ~ 40000MHz	4.8
Conducted Output Power	+0.27 dB / -0.28 dB	
RF Bandwidth	4.96%	
Power Spectral Density	+0.71 dB / -0.77 dB	

2 EUT Description

Applicant	TP-Link Technologies Co., Ltd. Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan, Shenzhen, China 518057			
Manufacturer	TP-Link Technologies Co., Ltd. Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan, Shenzhen, China 518057			
Product Type	AC1300 High Power Wireless Dual Band USB Adapter			
Trade Name	TP-LINK			
Model Number	Archer T4UHP			
FCC ID	TE7T4UHP			
Operate Freq. Band	Frequency Range (MHz)	Modulation	Channel Bandwidth	Data Rate 400 GI (ns)
IEEE 802.11b	2412 ~ 2462	DSSS	20MHz	Up to 11Mbps
IEEE 802.11g	2412 ~ 2462	OFDM (64QAM)	20MHz	Up to 54Mbps
IEEE 802.11n 2.4GHz 20MHz	2412 ~ 2462	OFDM (64/256QAM)	20MHz	Up to 173.4Mbps
IEEE 802.11n 2.4GHz 40MHz	2422 ~ 2452	OFDM (64/256QAM)	40MHz	Up to 400Mbps
Antenna information	Model	Type		Max. Gain (dBi)
	3101500924	Dipole Antenna (Reversed-SMA Connector)		3
Antenna Delivery	See section 3.1			

Frequency Band	Max. RF Output Power (W)
IEEE 802.11b	0.148
IEEE 802.11g	0.200
IEEE 802.11n 2.4GHz 20MHz	0.242
IEEE 802.11n 2.4GHz 40MHz	0.087

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: Continuous TX mode
Mode 2: IEEE 802.11b link mode
Mode 3: IEEE 802.11g link mode
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Mode 5: IEEE 802.11n 2.4GHz 40MHz link 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 as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

Test Mode	ANT-0	ANT-1	ANT-0+1
Mode 2: IEEE 802.11b link mode	V	---	---
Mode 3: IEEE 802.11g link mode	V	---	---
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode	V	V	V
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode	V	V	V

Test Mode	Antenna Delivery	Test Channel	Data Rate (Mbps)
Mode 2: IEEE 802.11b link mode	1TX / 1RX (SISO)	1, 6, 11	1
Mode 3: IEEE 802.11g link mode	1TX / 1RX (SISO)	1, 6, 11	6
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode	2TX / 2RX (MIMO)	1, 6, 11	13
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode	2TX / 2RX (MIMO)	3, 6, 9	27

Duty cycle

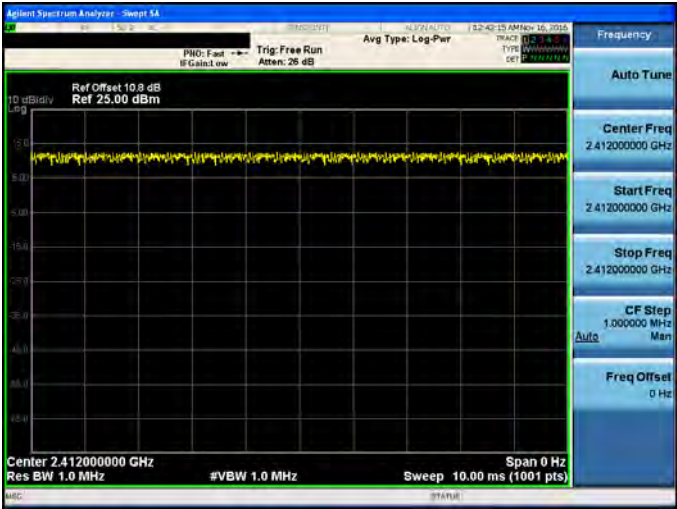
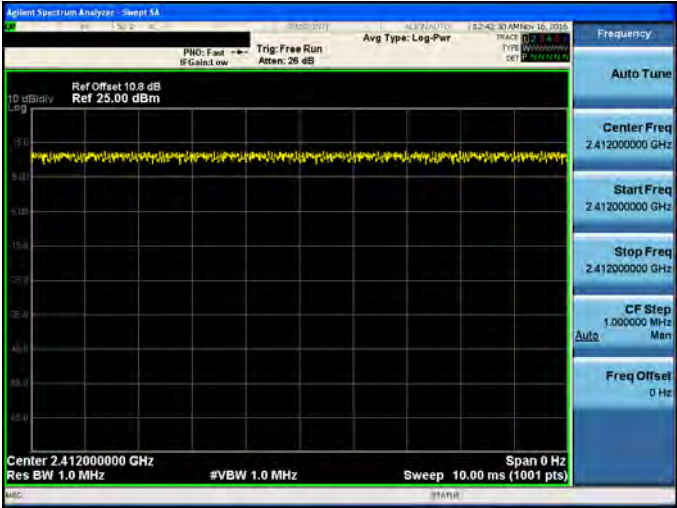
Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 2: IEEE 802.11b link mode	2412.0	1.000	1.000	1.000	0.000	0.010
Mode 3: IEEE 802.11g link mode	2412.0	1.000	1.000	1.000	0.000	0.010
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode	2412.0	1.000	1.000	1.000	0.000	0.010
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode	2422.0	1.000	1.000	1.000	0.000	0.010



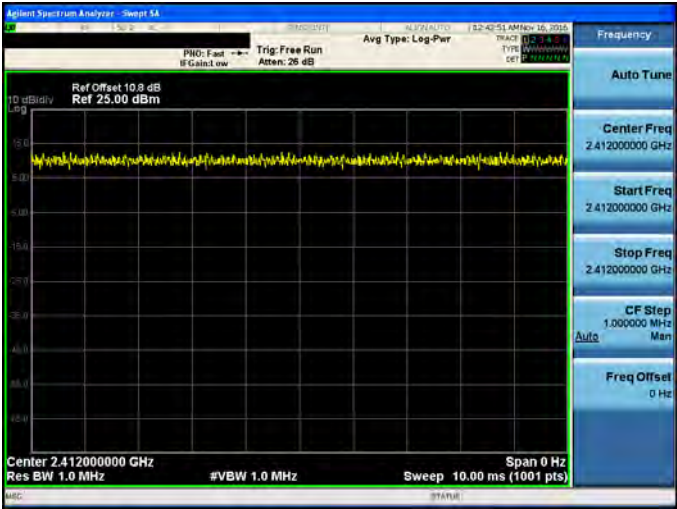
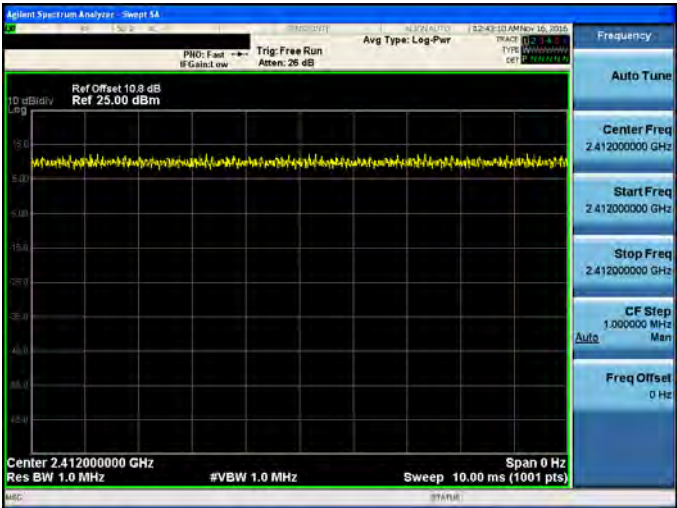
Duty Cycle Graphs

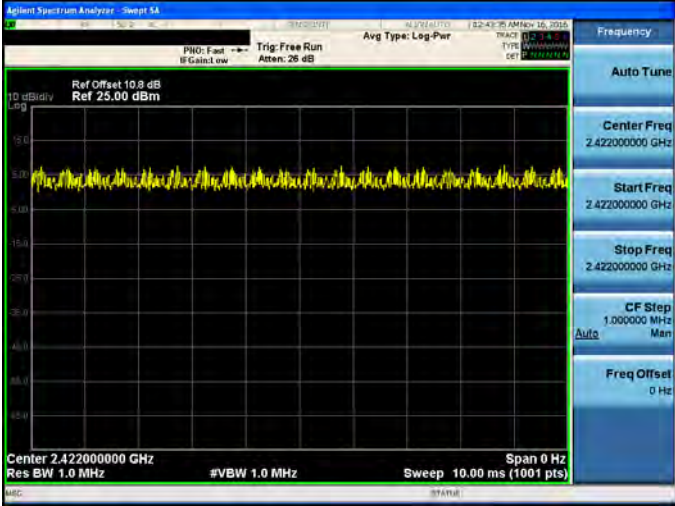
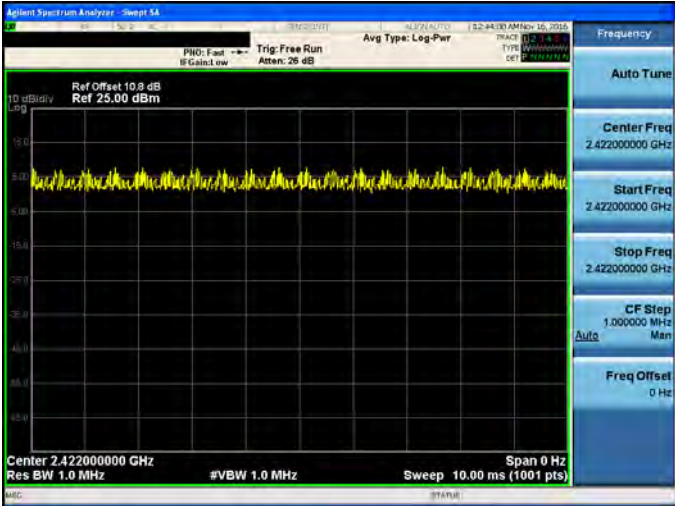
Mode 2: IEEE 802.11b link mode	
On time	
On+off time	



Mode 3: IEEE 802.11g Mode	
On time	
On+off time	



Mode 4: IEEE 802.11n 2.4GHz 20MHz Mode	
On time	
On+off time	

Mode 5: IEEE 802.11n 2.4GHz 40MHz Mode	
On time	
On+off time	

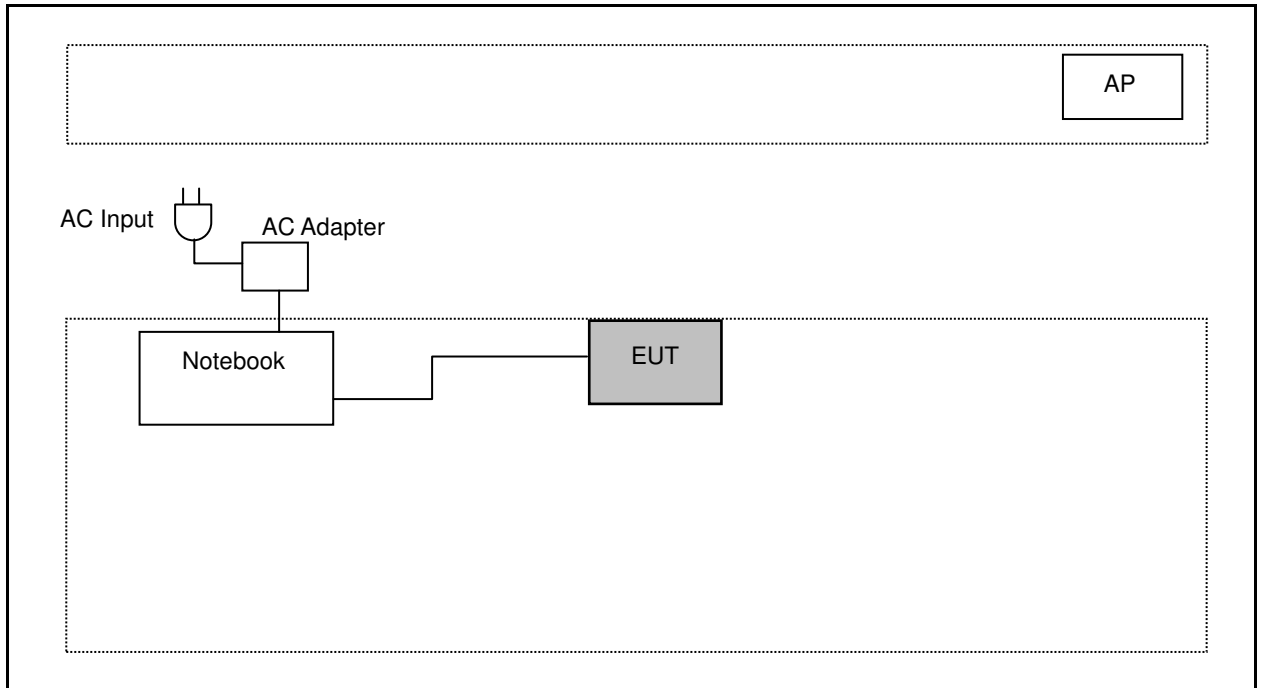
3.2. EUT Exercise Software

1.	Setup the EUT shown on 3.3.
2.	Turn on the power of all equipment.
3.	Turn Wi-Fi function link to AP.
4.	EUT run test program.

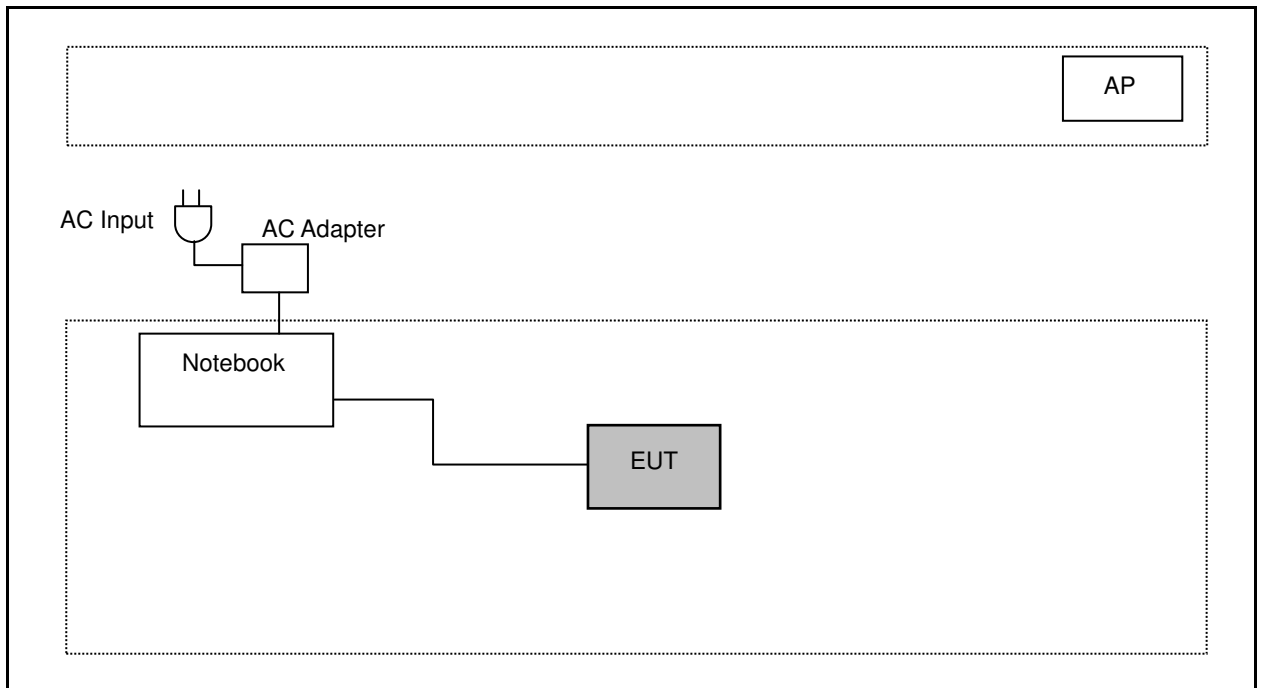
Measurement Software	
1	EZ-EMC Ver. ATL-03A1-1
2	EZ-EMC Ver ATL-ITC-3A1-1

3.3. Configuration of Test System Details

AC Power Conducted Emission



Radiated Emissions





3.4. Test Site Environment

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

4 AC Power Line Conducted Emission Measurement

4.1. Limit

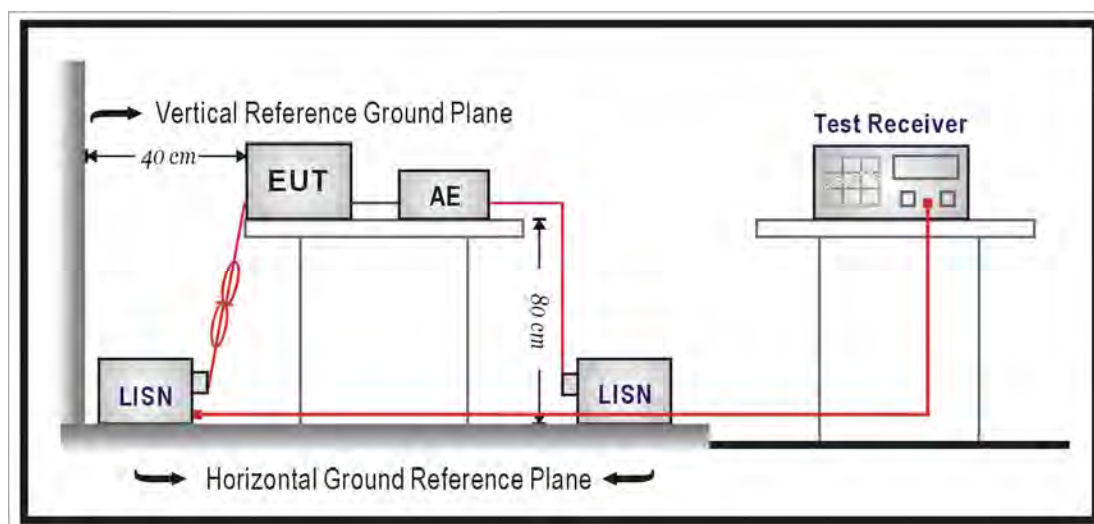
Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Test Receiver	R&S	ESCI	100367	05/13/2016	1 year
LISN	R&S	ENV216	101040	03/15/2016	1 year
LISN	R&S	ENV216	101041	03/07/2016	1 year
RF Cable	Woken	00100D1380194M	TE-02-02	05/31/2016	1 year
Test Site	ATL	TE02	TE02	N.C.R.	-----

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

4.3. Test Setup



4.4. 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 50ohm 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 40cm to the rear of the EUT. Other surfaces of tabletop or floor standing EUT shall be at least 80cm from any other ground conducting surface including one or more LISNs. For floor-standing device shall be placed under the EUT with a 12mm insulating material.

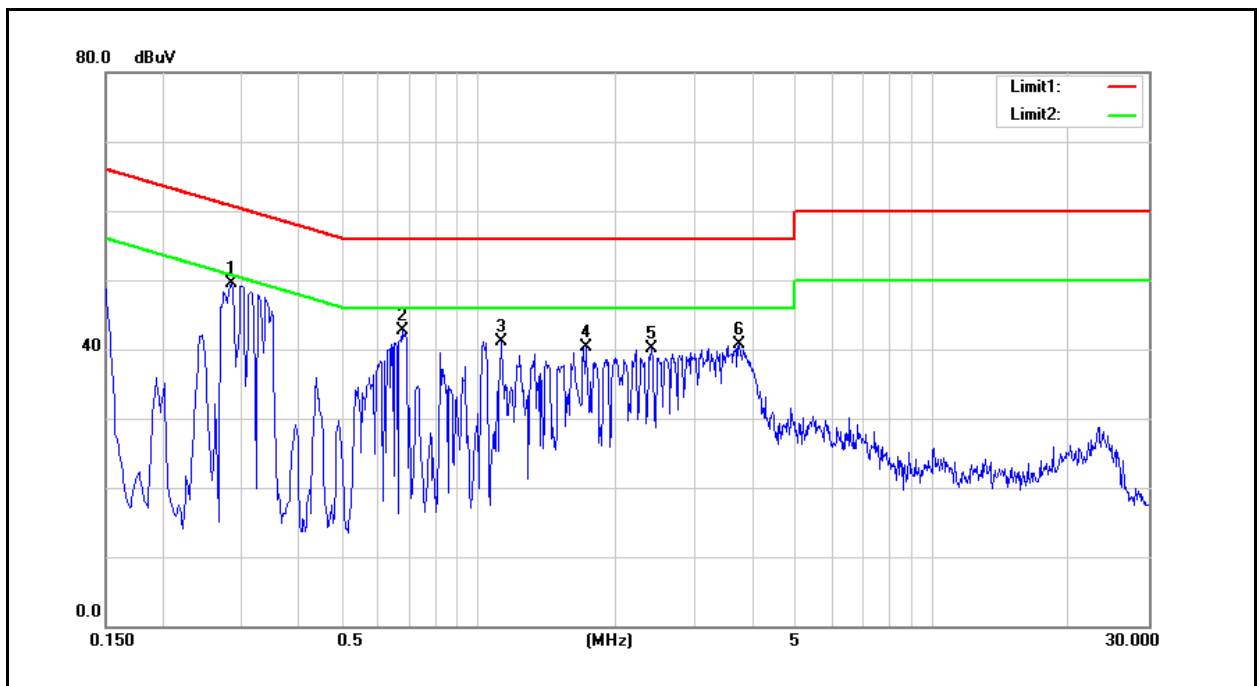
Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a resolution bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1, as applicable, including the average limit and the quasi-peak limit when using respectively, an average 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 150kHz to 30MHz 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 1m then the cable shall be folded back and forth at the centre of the lead to form a bundle no longer than 0.4m. All of interconnecting cables that hang closer than 40cm 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 0.1m. 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.

4.5. Test Result

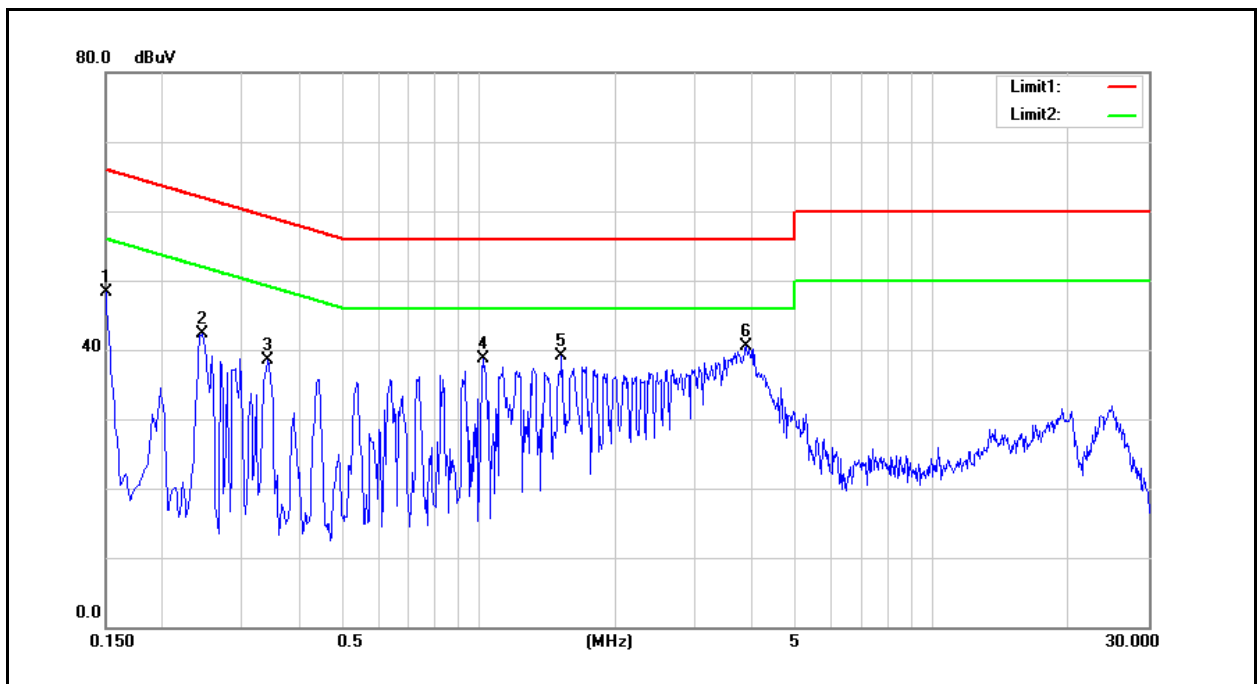
Standard:	FCC Part 15C	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 1	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
		Date:	08/30/2016
Description:			



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

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

Standard:	FCC Part 15C	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 1	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
		Date:	08/30/2016
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	0.1500	37.22	35.00	9.59	46.81	44.59	66.00	56.00	-19.19	-11.41	Pass
2	0.2460	32.06	29.43	9.58	41.64	39.01	61.89	51.89	-20.25	-12.88	Pass
3	0.3420	28.47	24.96	9.59	38.06	34.55	59.15	49.15	-21.09	-14.60	Pass
4	1.0220	27.50	20.49	9.63	37.13	30.12	56.00	46.00	-18.87	-15.88	Pass
5	1.5260	25.77	16.62	9.66	35.43	26.28	56.00	46.00	-20.57	-19.72	Pass
6	3.8940	26.19	18.39	9.75	35.94	28.14	56.00	46.00	-20.06	-17.86	Pass

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

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



5 Radiated Emission Measurement

5.1. 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.

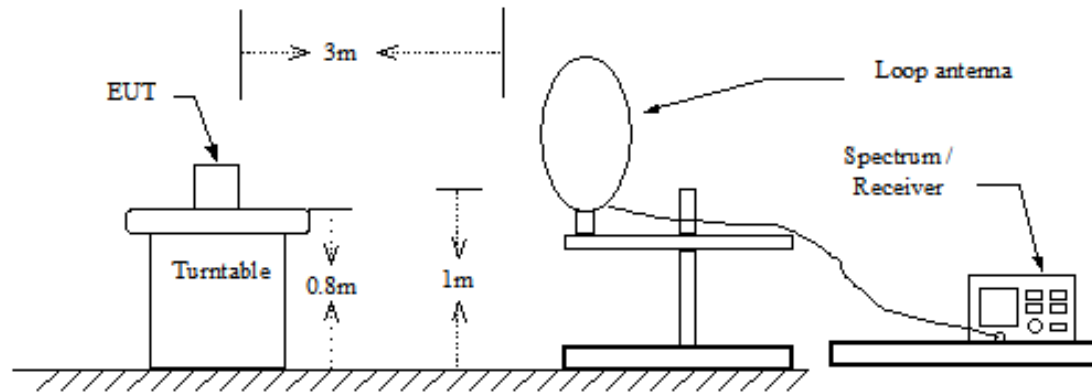
5.2. Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
RF Pre-selector	Agilent	N9039A	MY46520256	03/22/2016	1 year
Spectrum Analyzer	Agilent	E4446A	MY46180578	03/22/2016	1 year
Pre Amplifier	Agilent	8449B	3008A02237	10/11/2016	1 year
Pre Amplifier	Agilent	8447D	2944A11119	01/11/2016	1 year
Broadband Antenna	Schwarzbeck	VULB9168	416	10/13/2016	1 year
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/06/2016	1 year
Horn Antenna (18~40GHz)	ETS	3116	86467	09/05/2016	1 year
Loop Antenna	COM-POWER CORPORATION	AL-130	121014	02/01/2016	1 year
Microwave Cable	EMCI	EMC102-KM-KM-14000	151001	02/23/2016	1 year
Microwave Cable	EMCI	EMC-104-SM-SM-14000	140202	02/23/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-600	140301	02/23/2016	1 year
Test Site	ATL	TE01	888001	08/29/2016	1 year

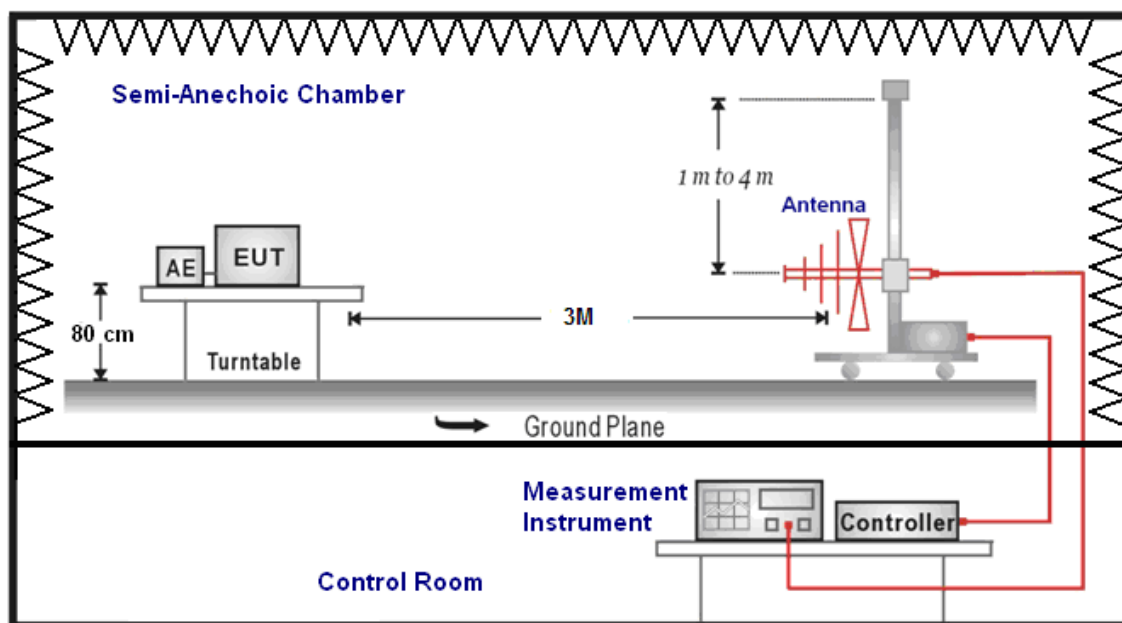
Note: N.C.R. = No Calibration Request.

5.3. Setup

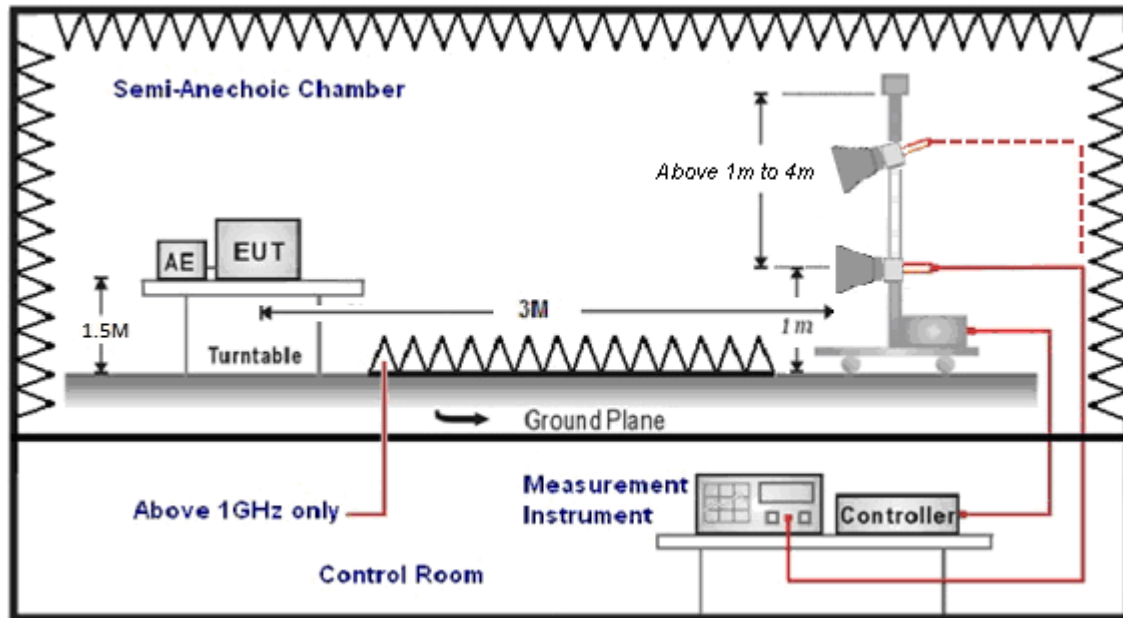
9kHz ~ 30MHz



Below 1GHz



Above 1GHz



5.4. 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 (below 1GHz use 0.8m turntable / above 1GHz use 1.5m turntable), 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 1 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 (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB 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 per 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 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 < +30dBm

(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 20dB below the permissible limits or the field strength is too small to be measured.

5.5. Test Result

Below 1GHz

Standard:		FCC Part 15C		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Test Mode:		Mode 1		Temp.(°C)/Hum.(%RH):		26(°C)/60%RH	
				Date:		09/07/2016	
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
266.5000	20.73	-4.64	16.09	46.00	-29.91	QP	H
374.0000	27.92	-2.21	25.71	46.00	-20.29	QP	H
519.5000	23.76	1.01	24.77	46.00	-21.23	QP	H
662.0000	23.49	4.08	27.57	46.00	-18.43	QP	H
725.0000	23.83	5.34	29.17	46.00	-16.83	QP	H
839.0000	24.03	7.35	31.38	46.00	-14.62	QP	H
177.5000	22.13	-6.00	16.13	43.50	-27.37	QP	V
304.5000	25.62	-3.31	22.31	46.00	-23.69	QP	V
419.0000	27.20	-1.11	26.09	46.00	-19.91	QP	V
535.0000	28.23	1.25	29.48	46.00	-16.52	QP	V
609.0000	26.53	3.10	29.63	46.00	-16.37	QP	V
873.0000	25.52	8.03	33.55	46.00	-12.45	QP	V

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

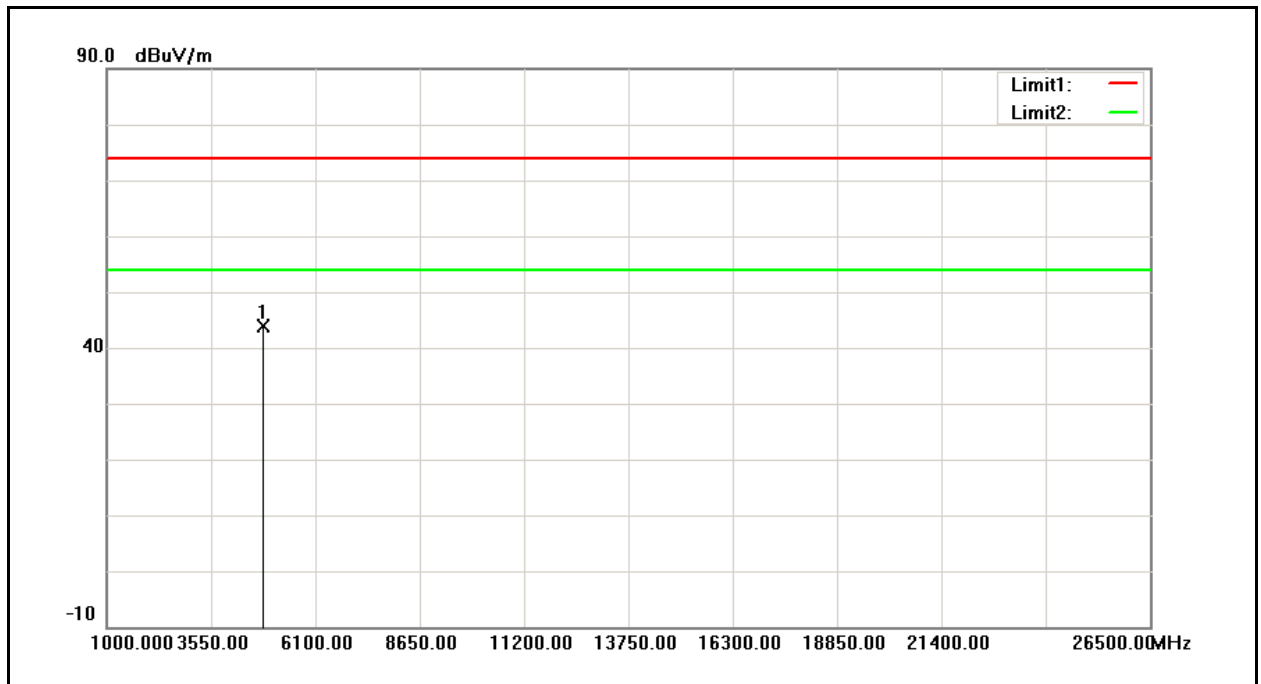
2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.No emission found between lowest internal used/generated frequencies to 30MHz (9 kHz~30MHz).



Above 1GHz

Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 2	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.000	51.74	-7.96	43.78	74.00	-30.22	peak

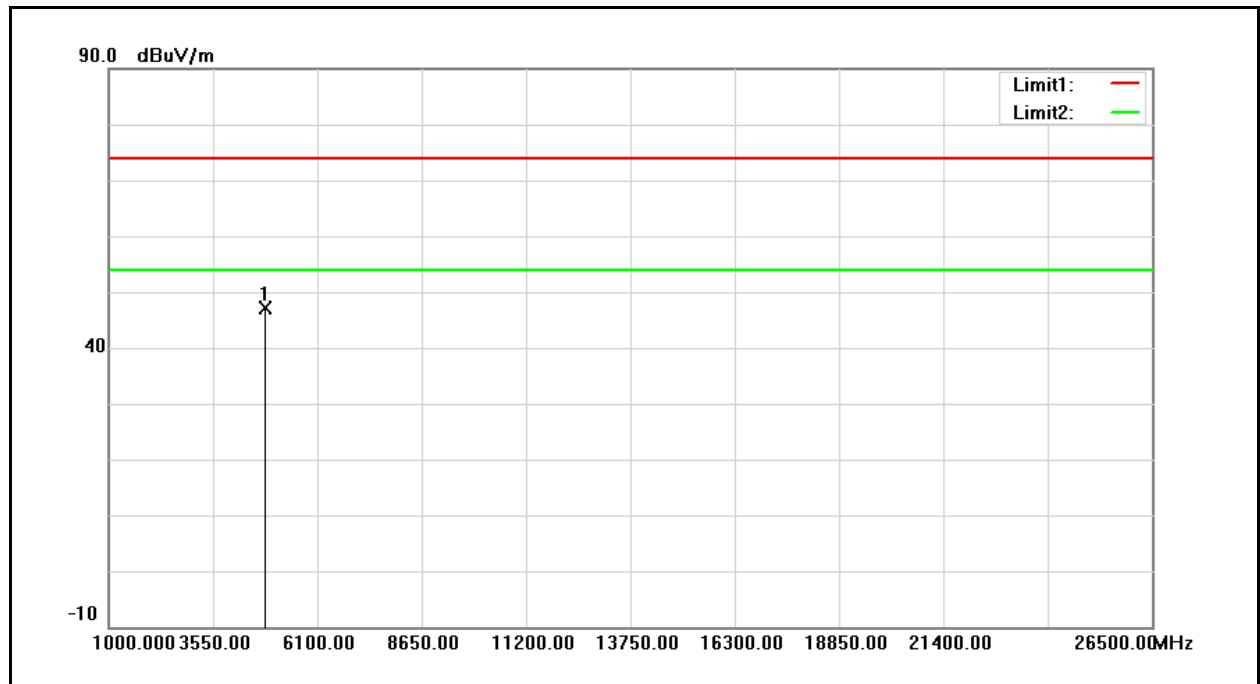
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 2	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.000	55.04	-7.96	47.08	74.00	-26.92	peak

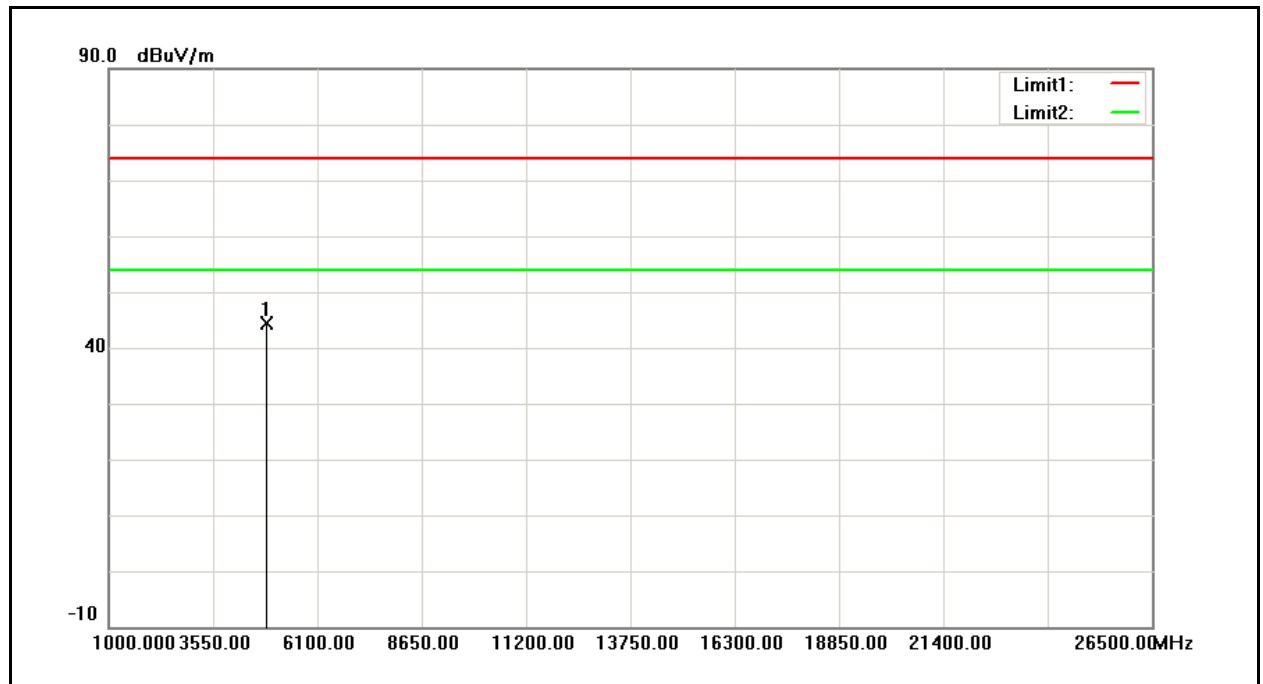
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 2	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	52.28	-7.80	44.48	74.00	-29.52	peak

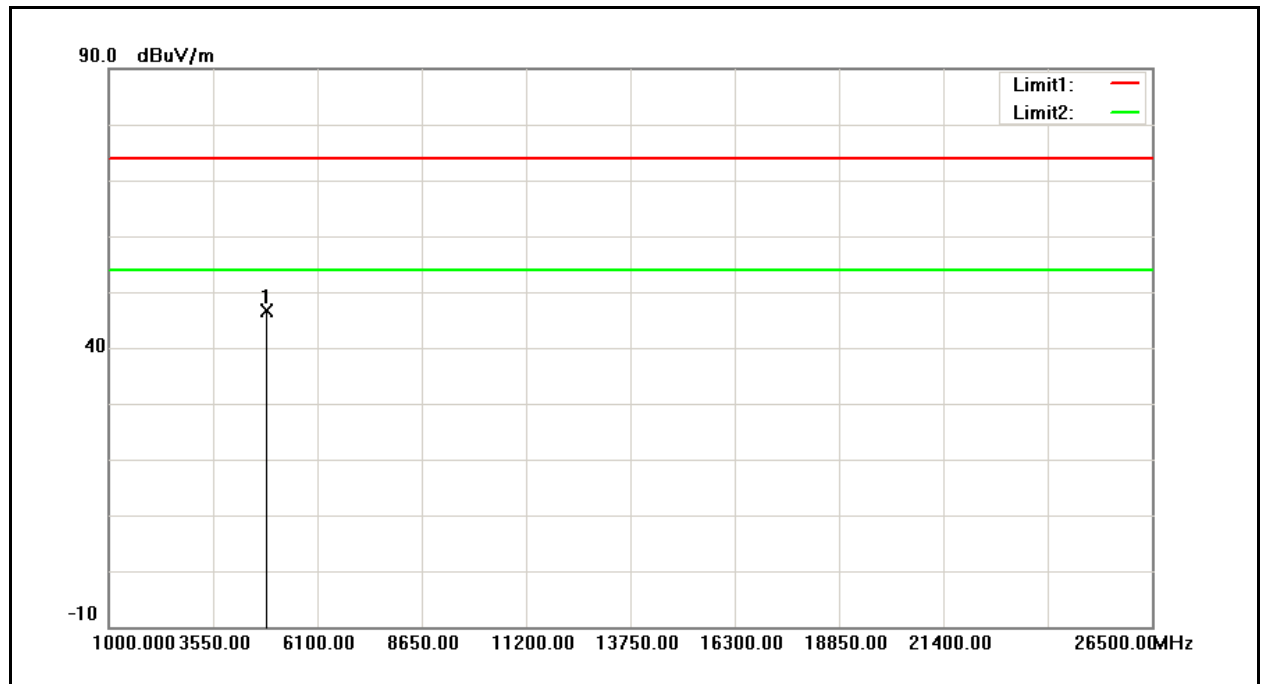
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 2	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	54.39	-7.80	46.59	74.00	-27.41	peak

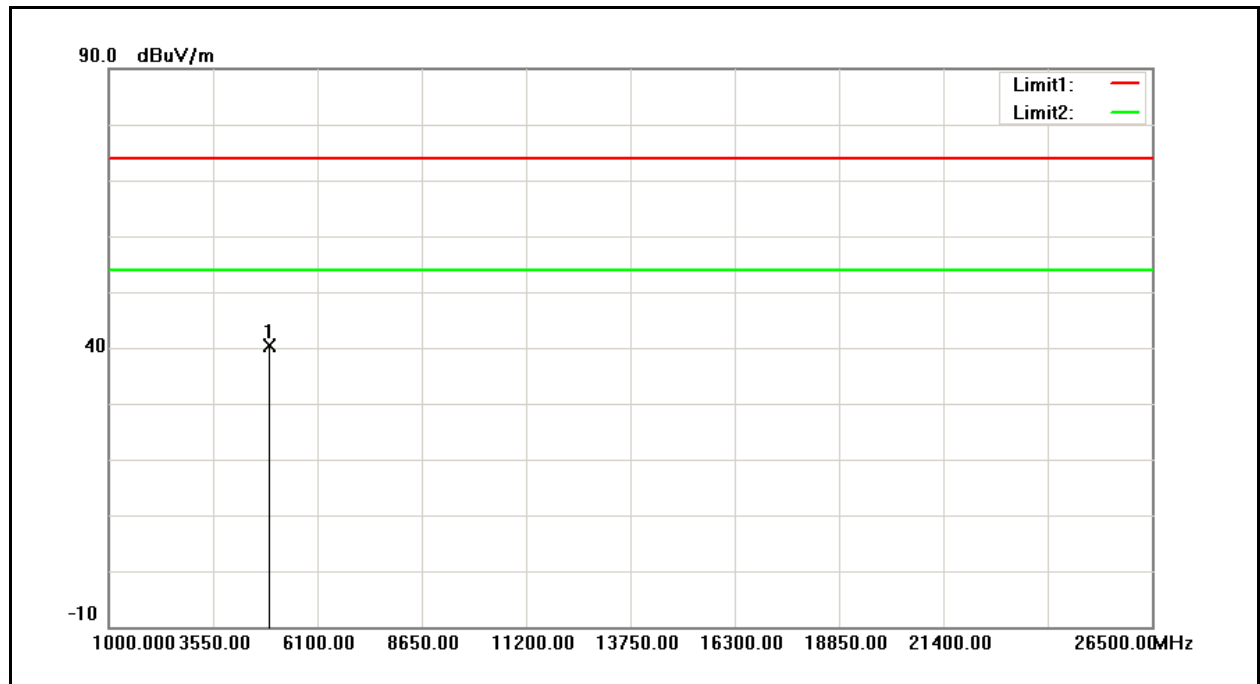
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 2	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.000	48.13	-7.65	40.48	74.00	-33.52	peak

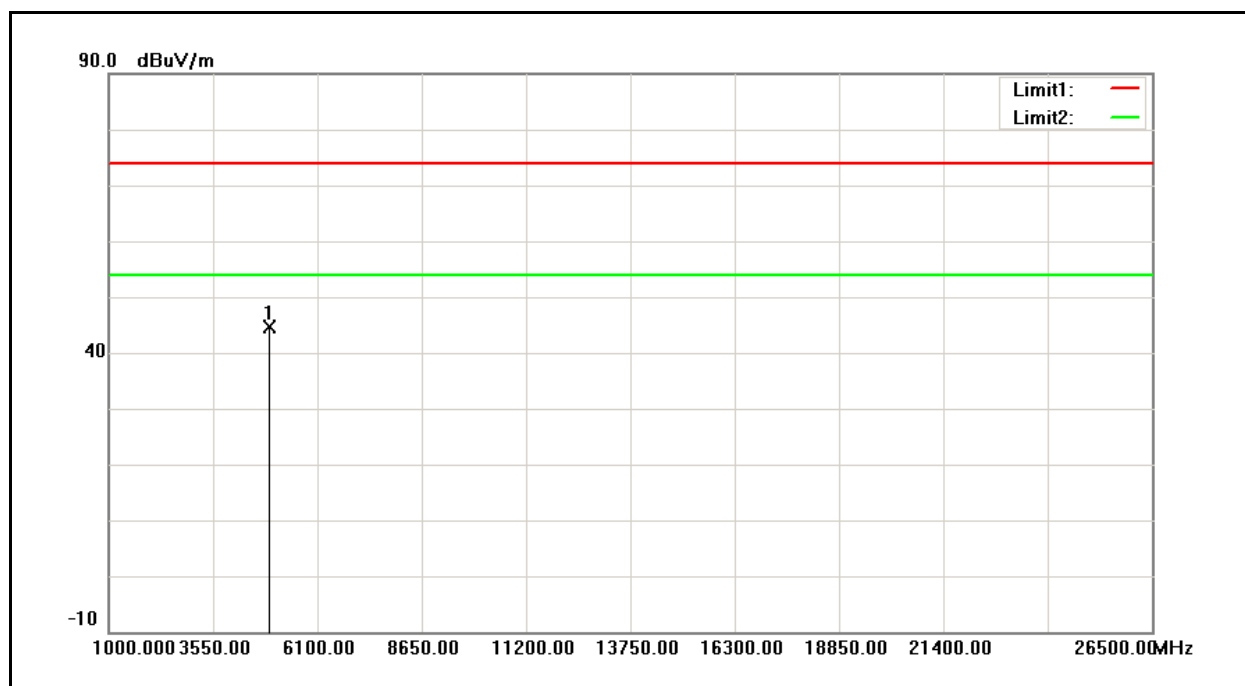
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 2	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.000	52.17	-7.65	44.52	74.00	-29.48	peak

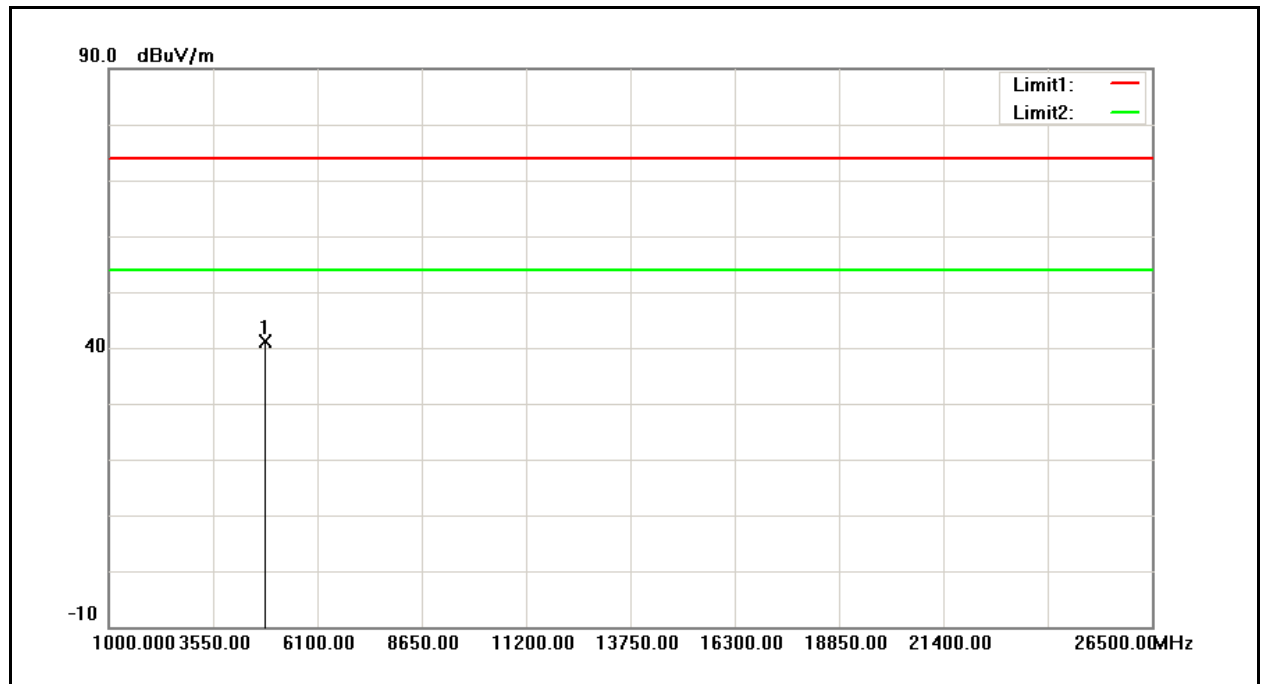
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 3	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.000	49.11	-7.96	41.15	74.00	-32.85	peak

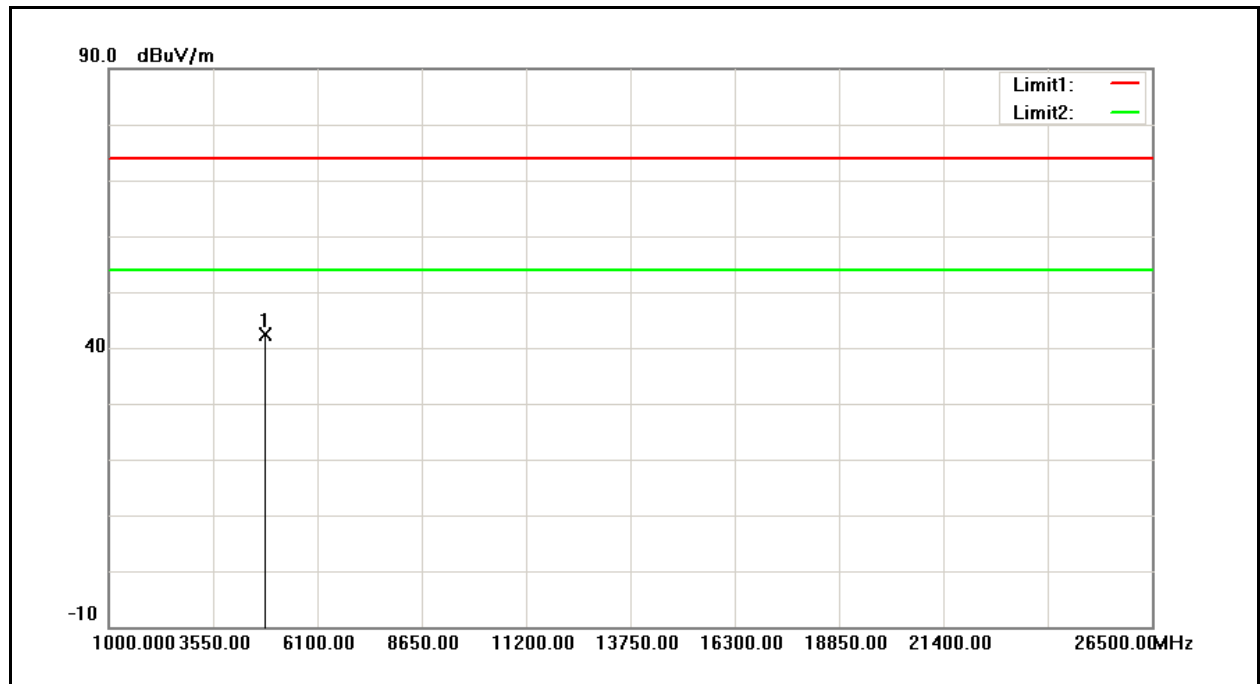
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 3	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.000	50.35	-7.96	42.39	74.00	-31.61	peak

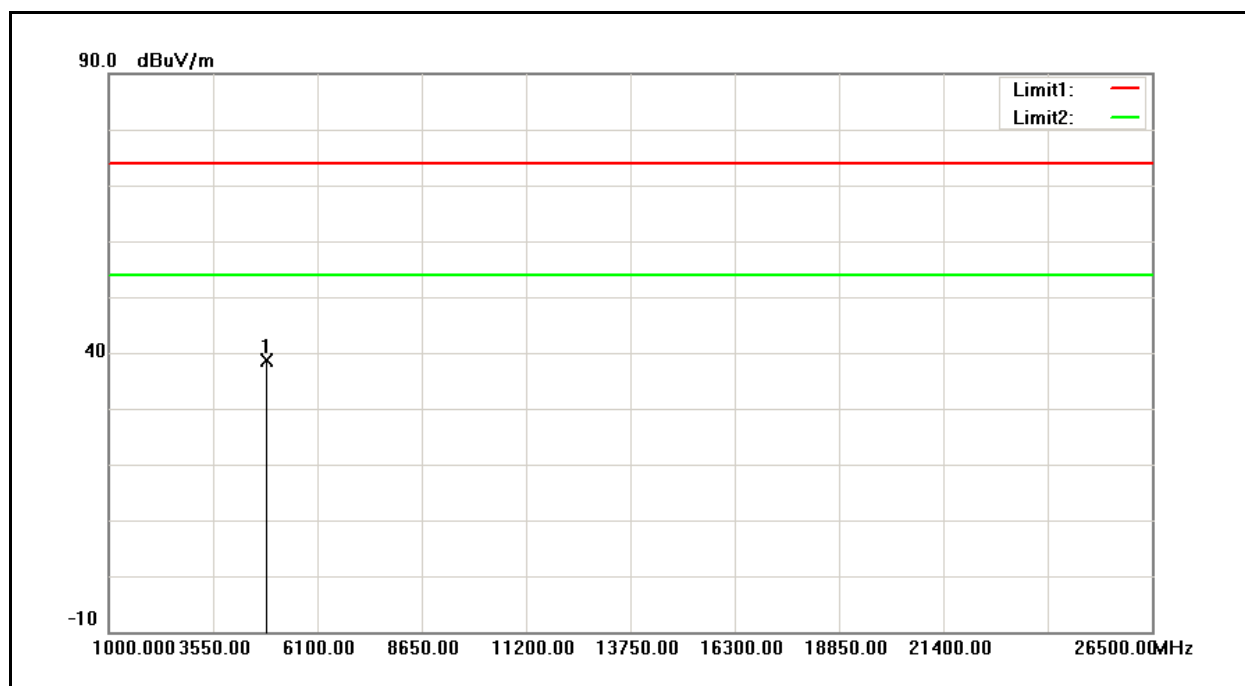
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 3	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	46.41	-7.80	38.61	74.00	-35.39	peak

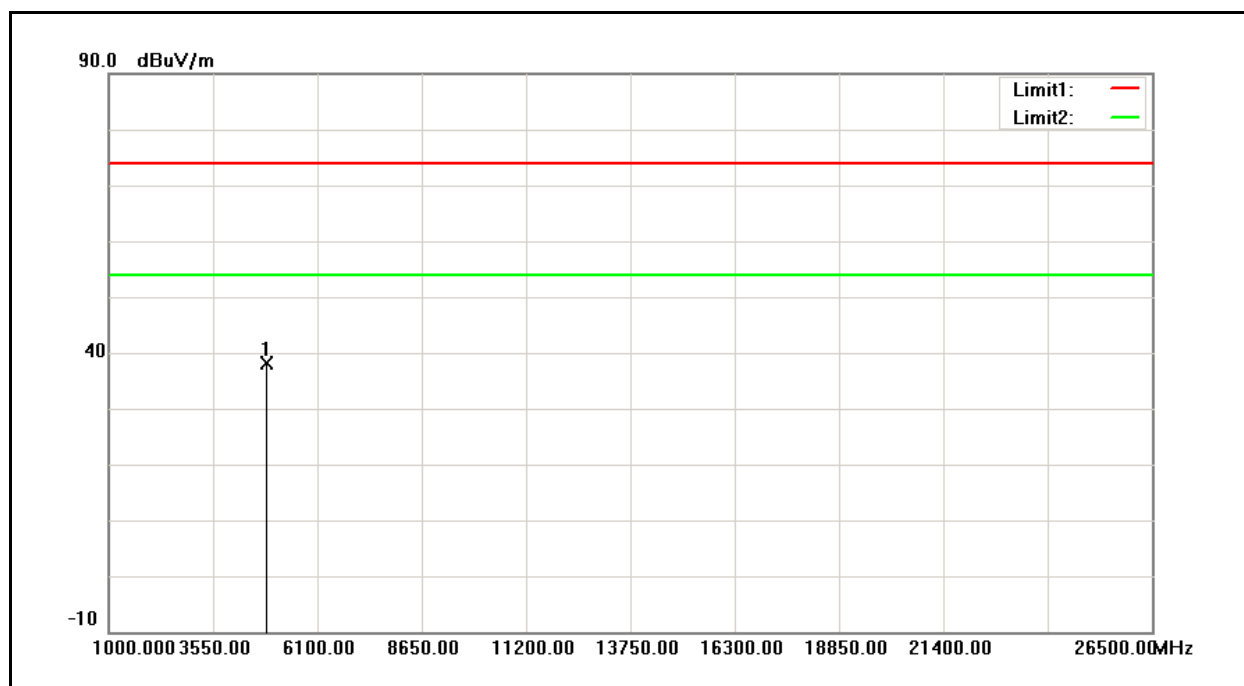
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 3	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	46.04	-7.80	38.24	74.00	-35.76	peak

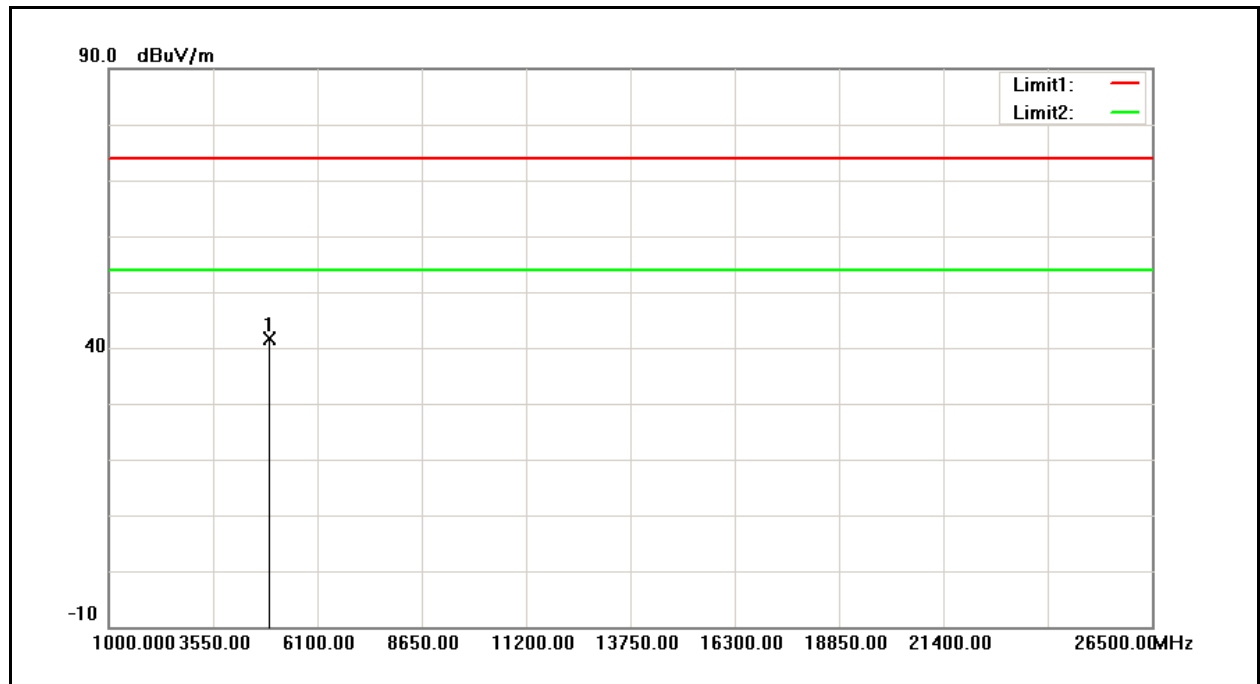
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 3	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.000	49.34	-7.65	41.69	74.00	-32.31	peak

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

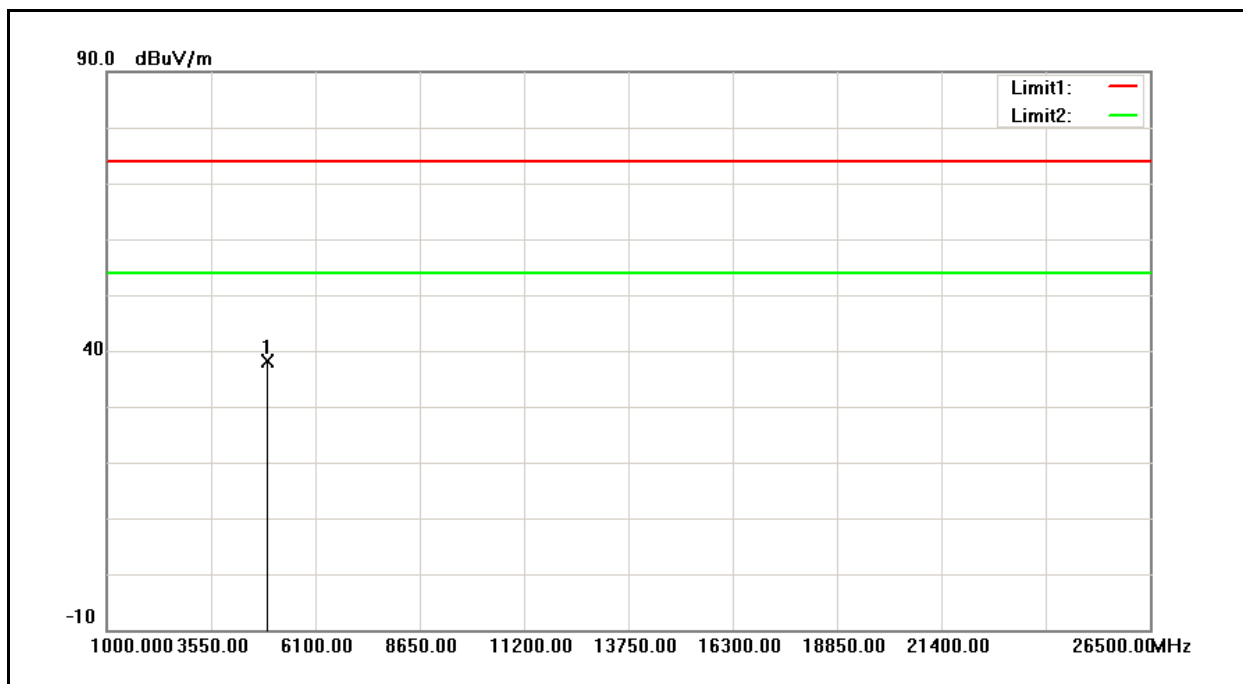
2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

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



Report Number: 1611FR35

Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 3	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.000	45.87	-7.65	38.22	74.00	-35.78	peak

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

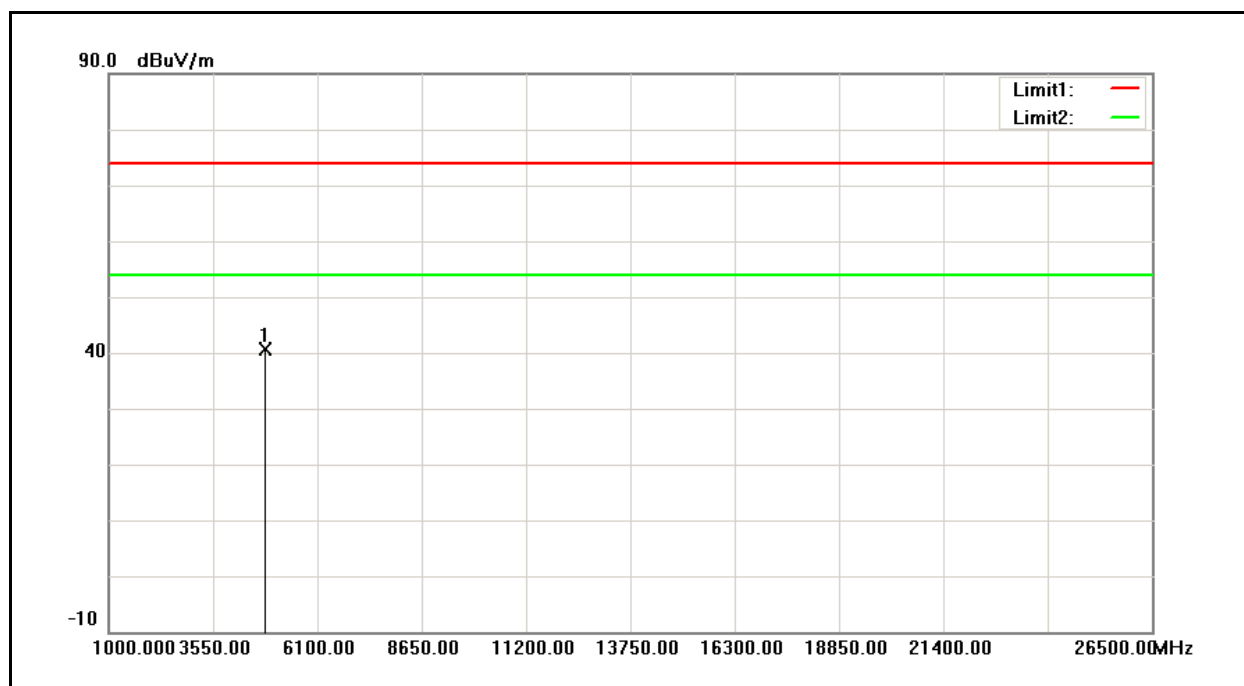
2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

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



Report Number: 1611FR35

Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.000	48.69	-7.96	40.73	74.00	-33.27	peak

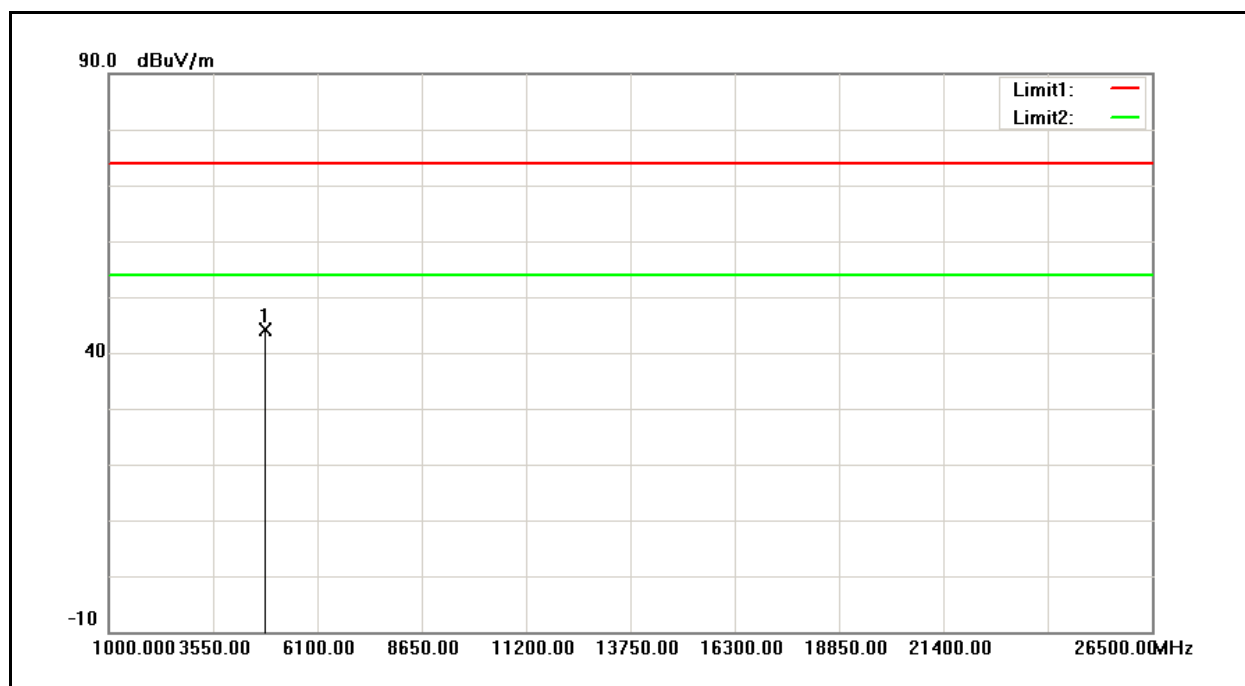
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.000	52.10	-7.96	44.14	74.00	-29.86	peak

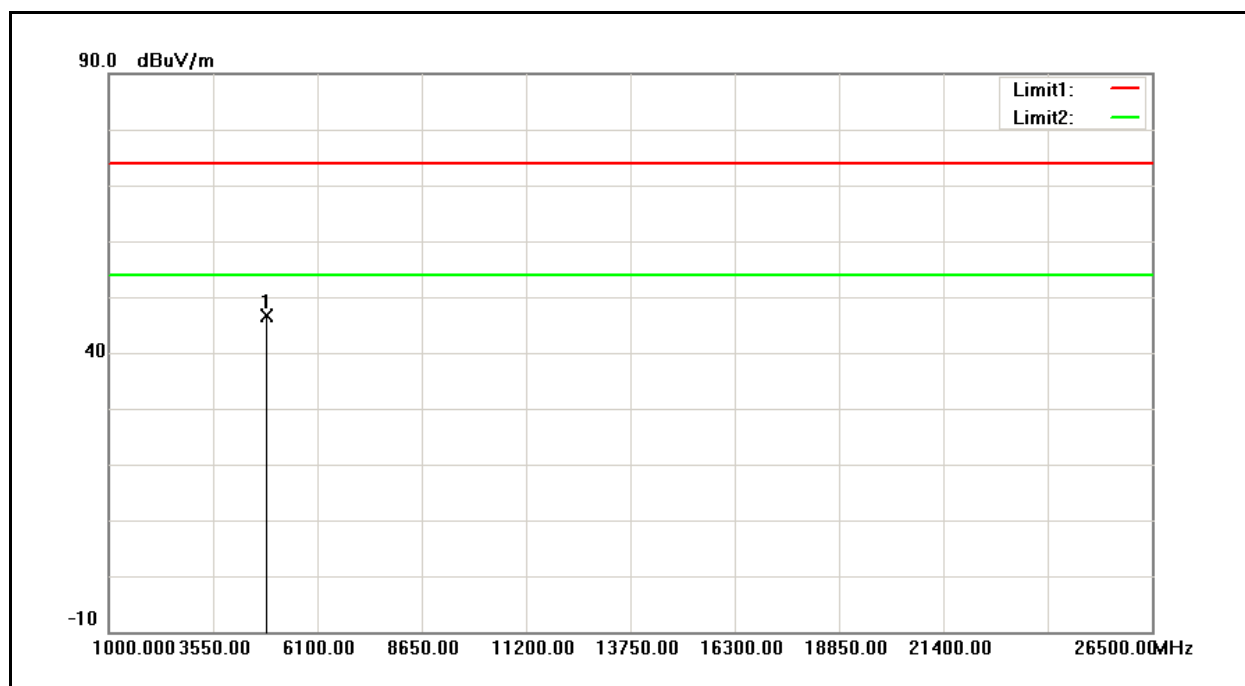
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	54.36	-7.80	46.56	74.00	-27.44	peak

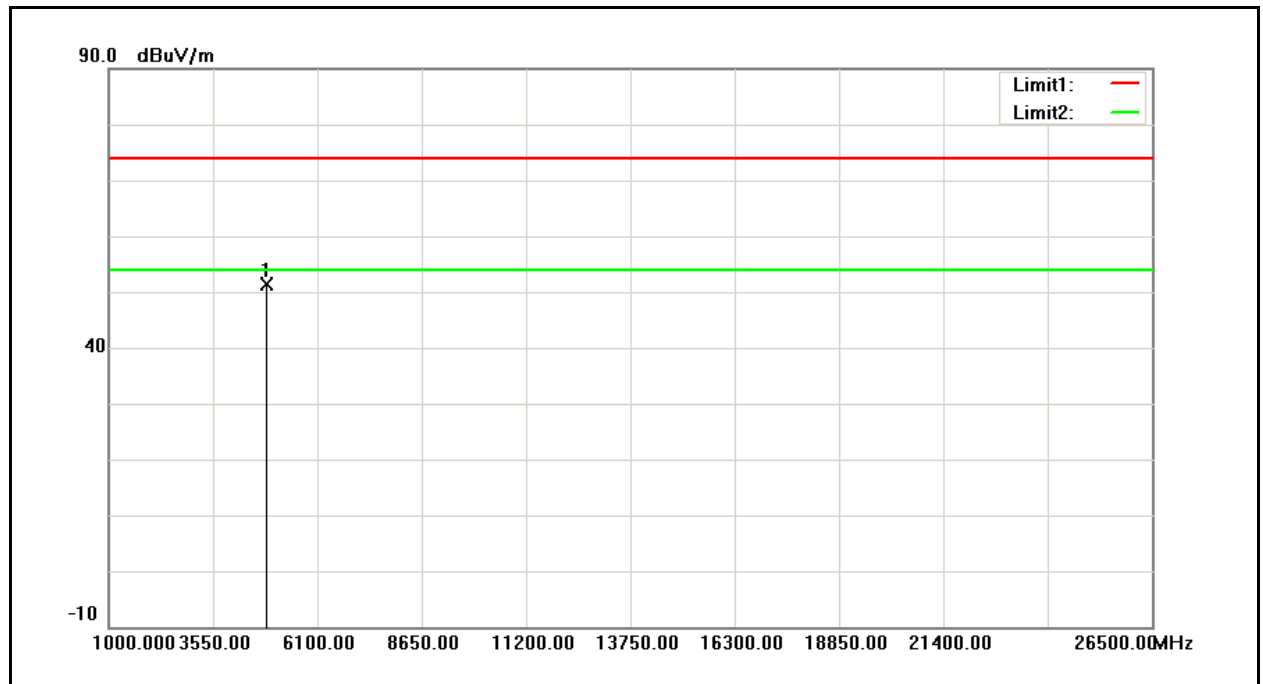
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	59.29	-7.80	51.49	74.00	-22.51	peak

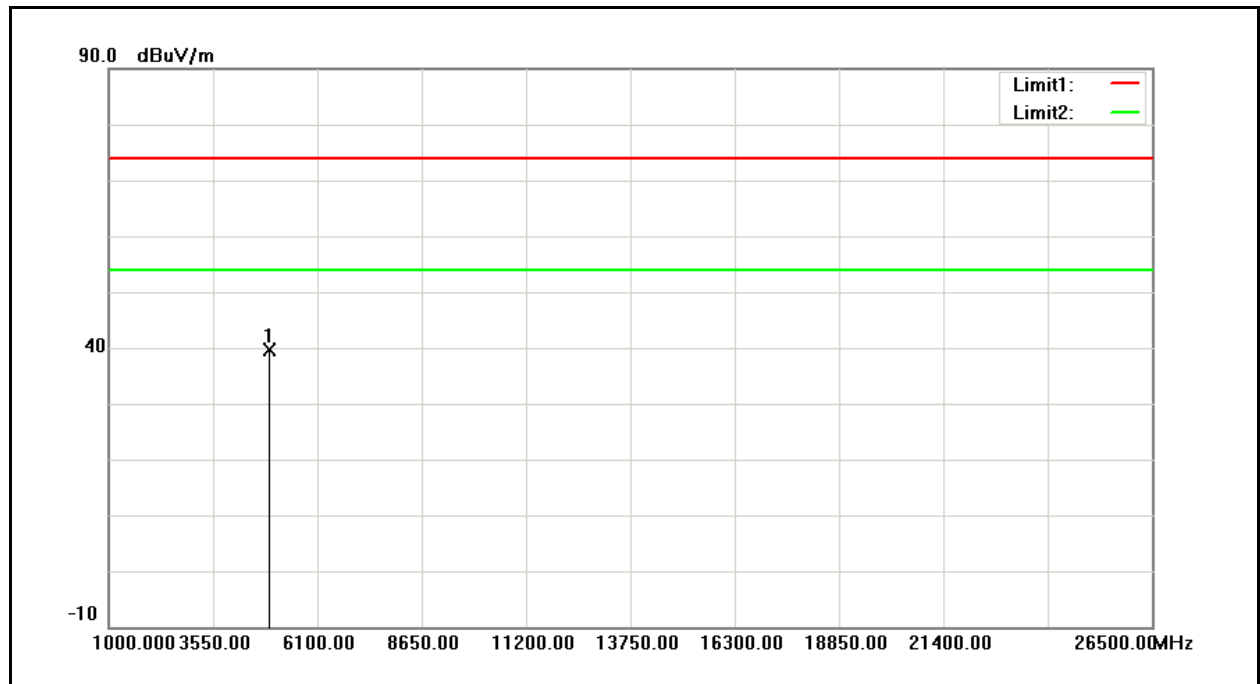
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.000	47.38	-7.65	39.73	74.00	-34.27	peak

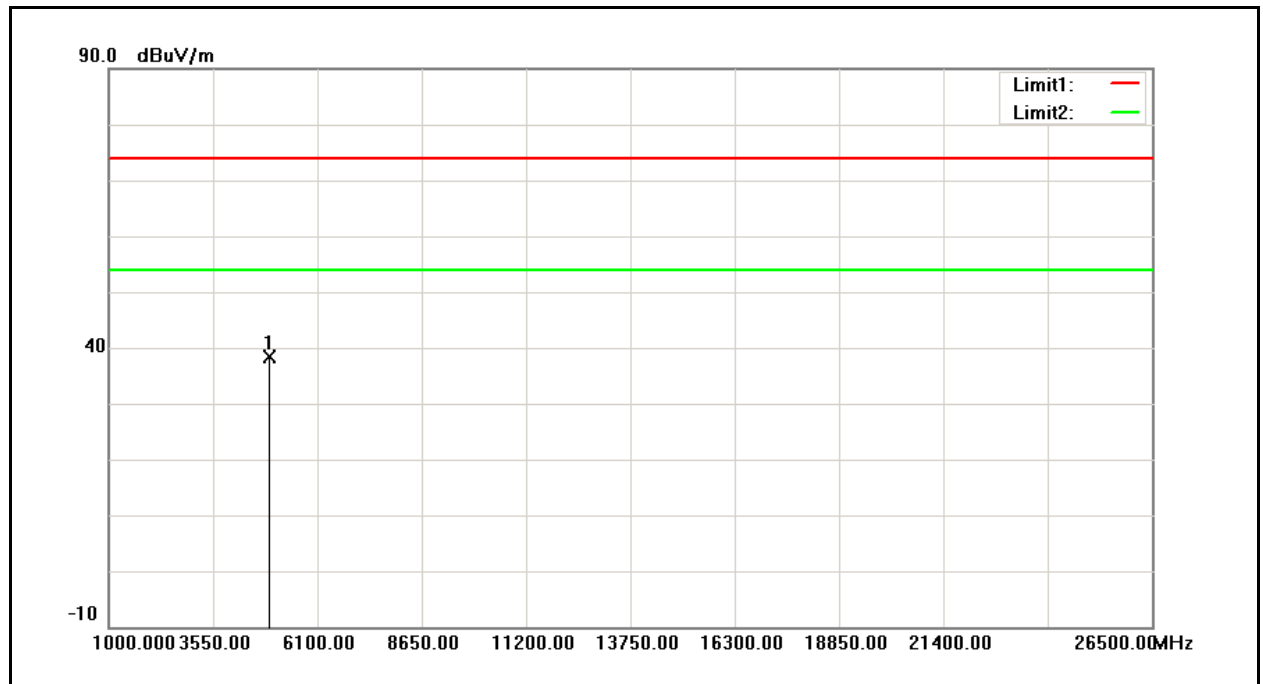
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.000	45.96	-7.65	38.31	74.00	-35.69	peak

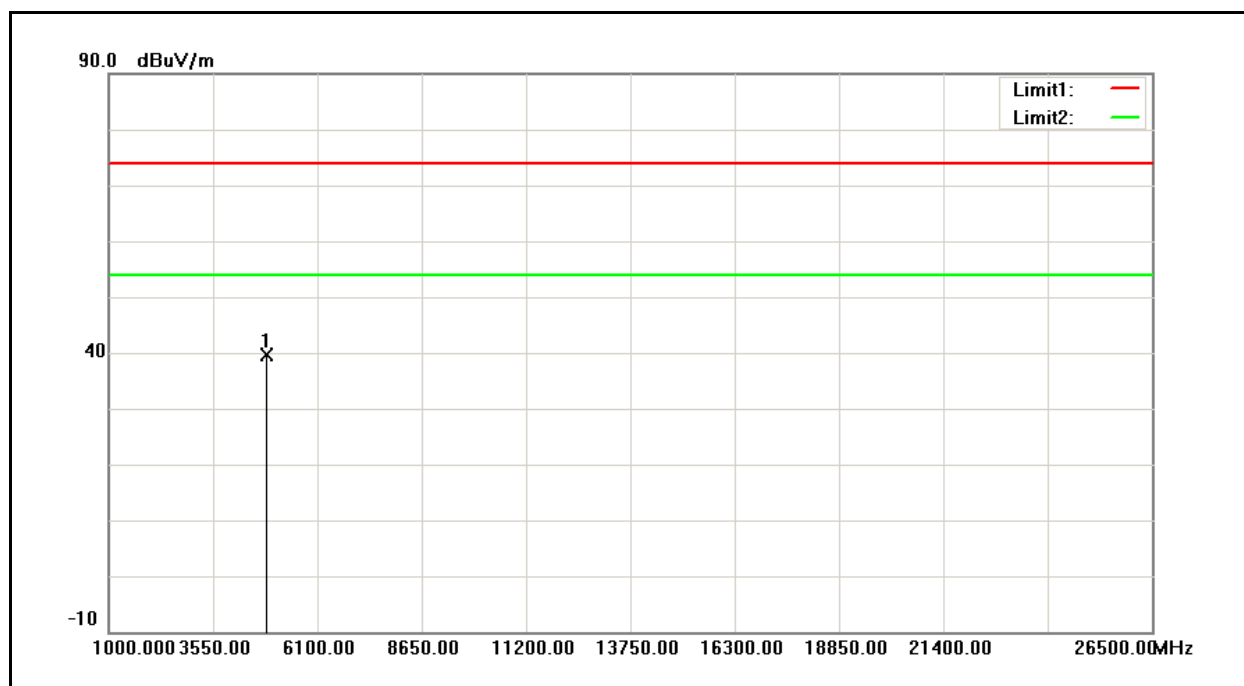
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 5	Power:	AC 120V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4844.000	47.44	-7.88	39.56	74.00	-34.44	peak

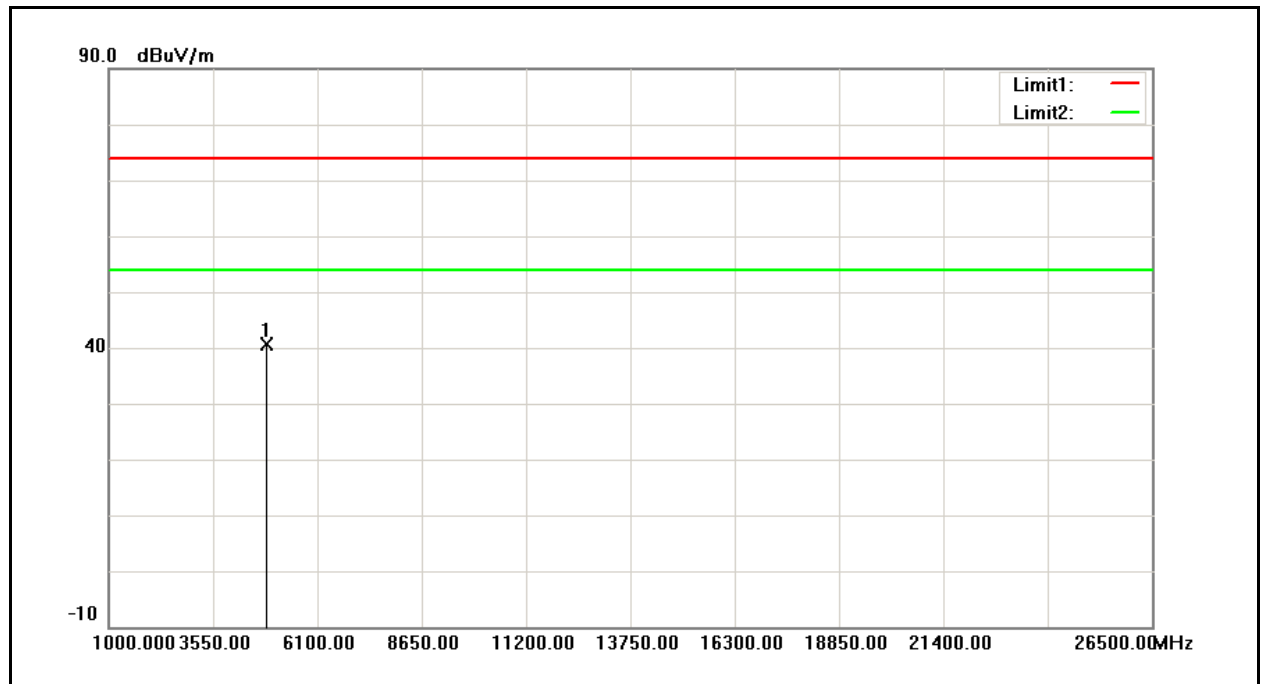
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 5	Power:	AC 120V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4844.000	48.47	-7.88	40.59	74.00	-33.41	peak

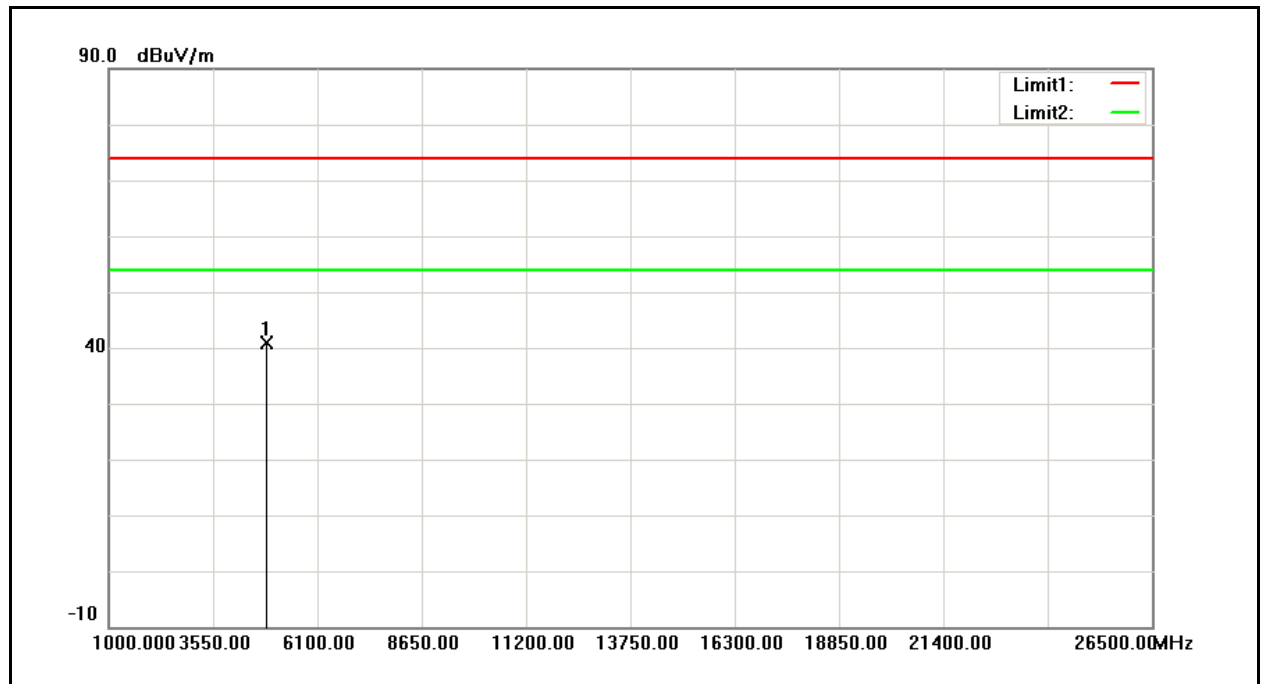
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	48.61	-7.80	40.81	74.00	-33.19	peak

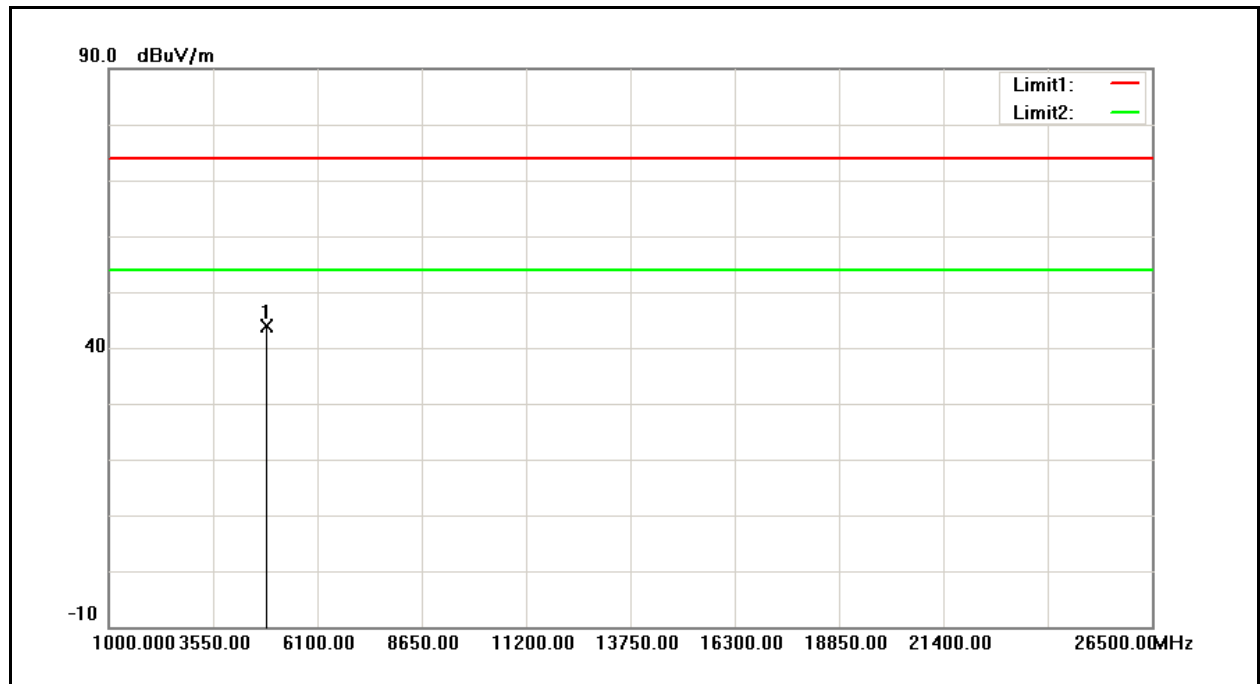
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 4	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.000	51.59	-7.80	43.79	74.00	-30.21	peak

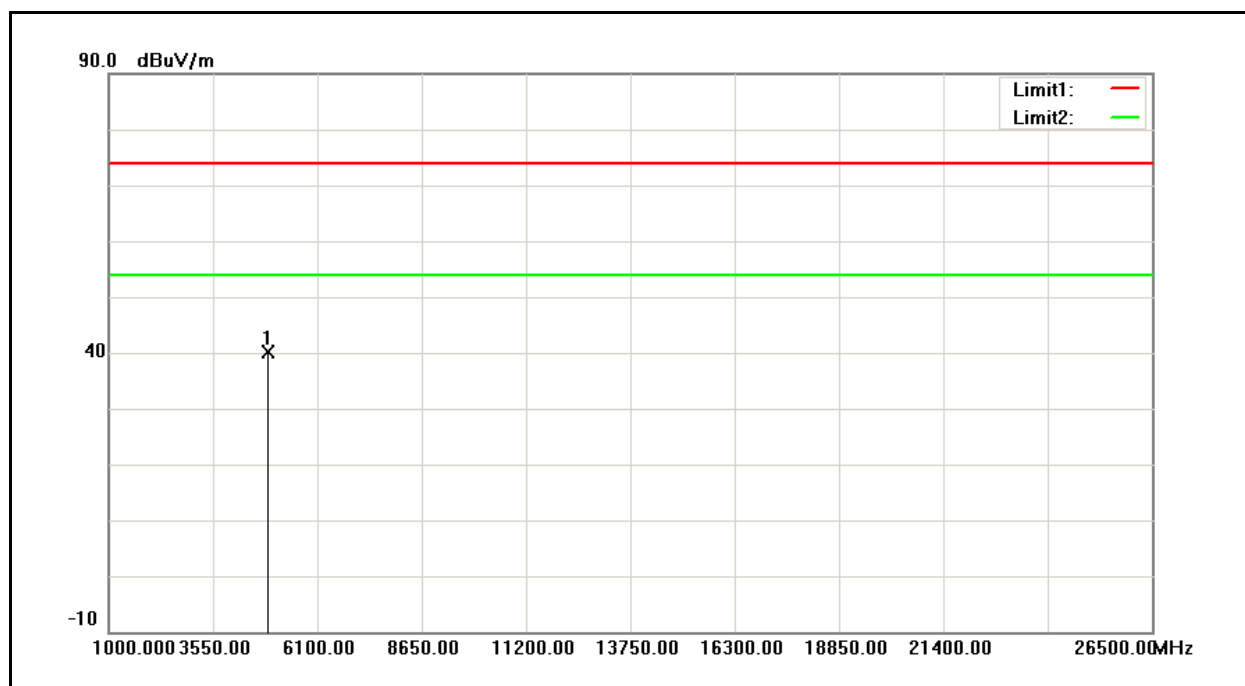
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 5	Power:	AC 120V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Horizontal	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4904.000	47.88	-7.70	40.18	74.00	-33.82	peak

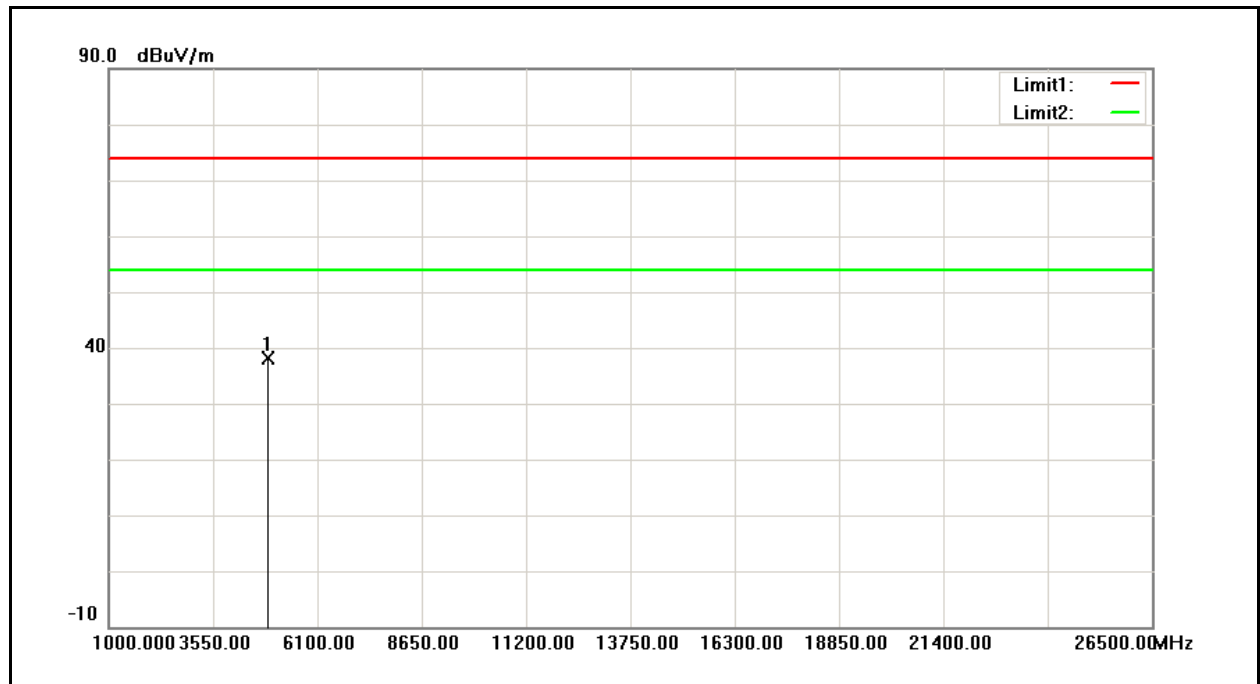
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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



Standard:	FCC Part 15C	Test Distance:	3m
Test Mode:	Mode 5	Power:	AC 120V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Ant.Polar.:	Vertical	Date:	09/04/2016



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4904.000	45.80	-7.70	38.10	74.00	-35.90	peak

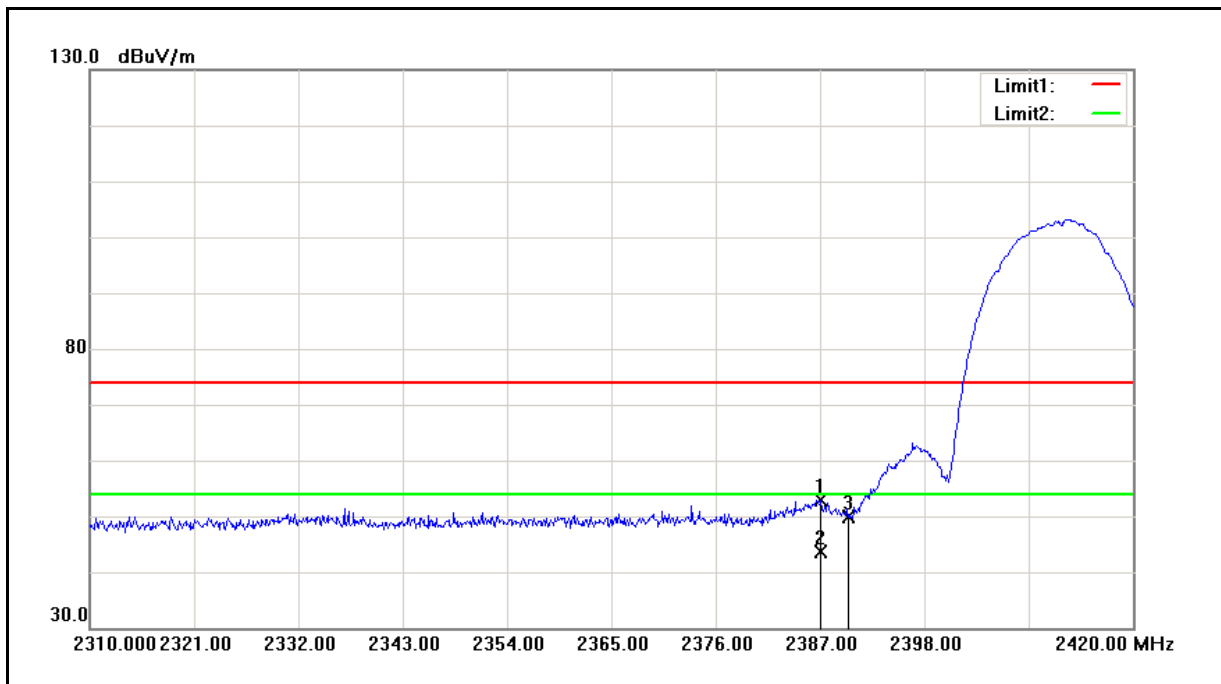
Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

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

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

Band Edge

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2412 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



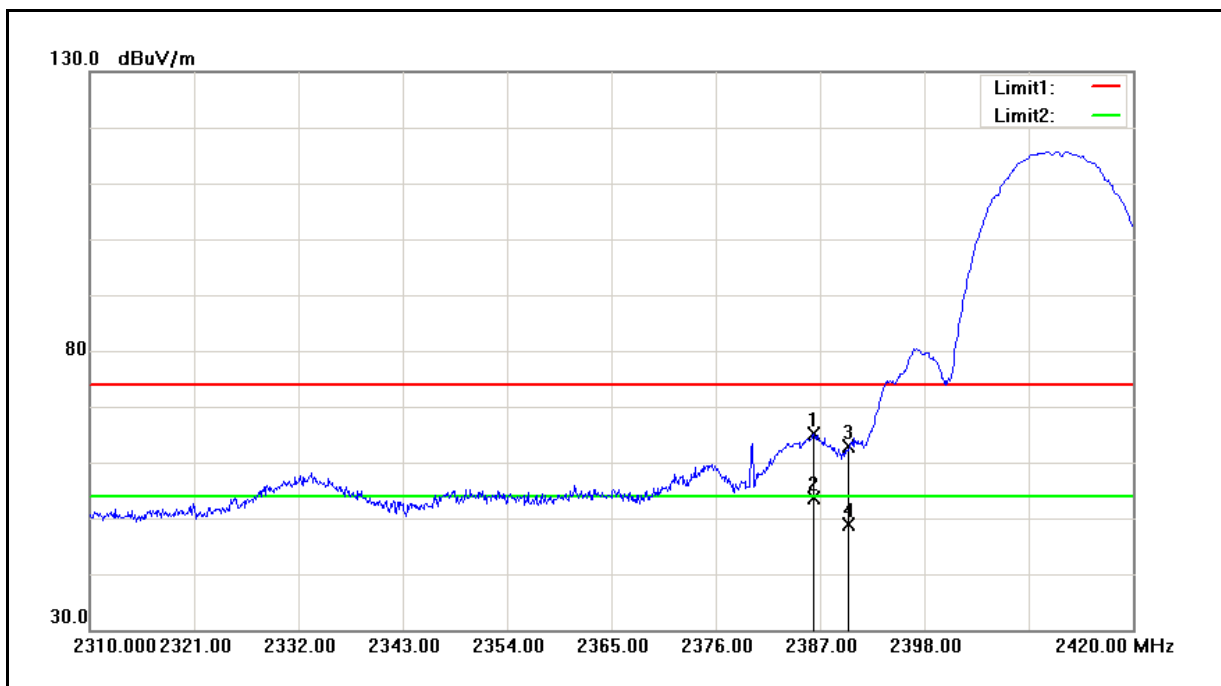
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2387.110	53.33	-0.35	52.98	74.00	-21.02	peak
2	2387.110	44.08	-0.35	43.73	54.00	-10.27	AVG
3	2390.000	50.19	-0.34	49.85	74.00	-24.15	peak

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2412 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.340	65.50	-0.36	65.14	74.00	-8.86	peak
2	2386.340	53.88	-0.36	53.52	54.00	-0.48	AVG
3	2390.000	63.31	-0.34	62.97	74.00	-11.03	peak
4	2390.000	49.22	-0.34	48.88	54.00	-5.12	AVG

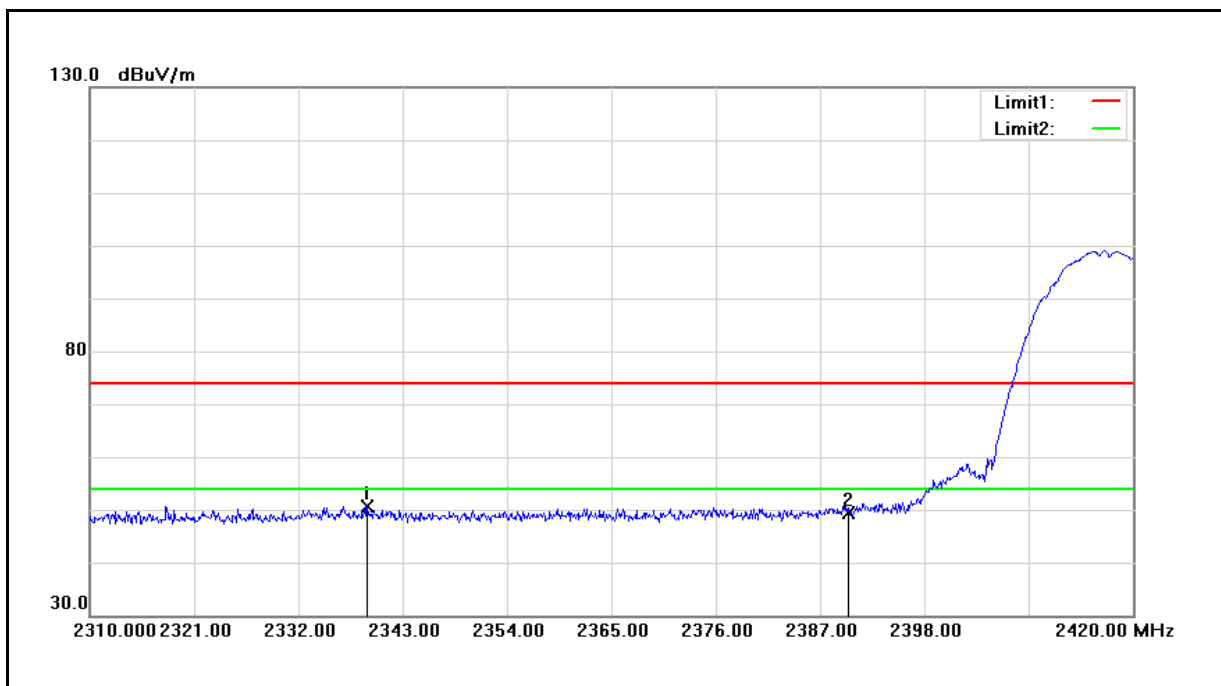
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2417 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



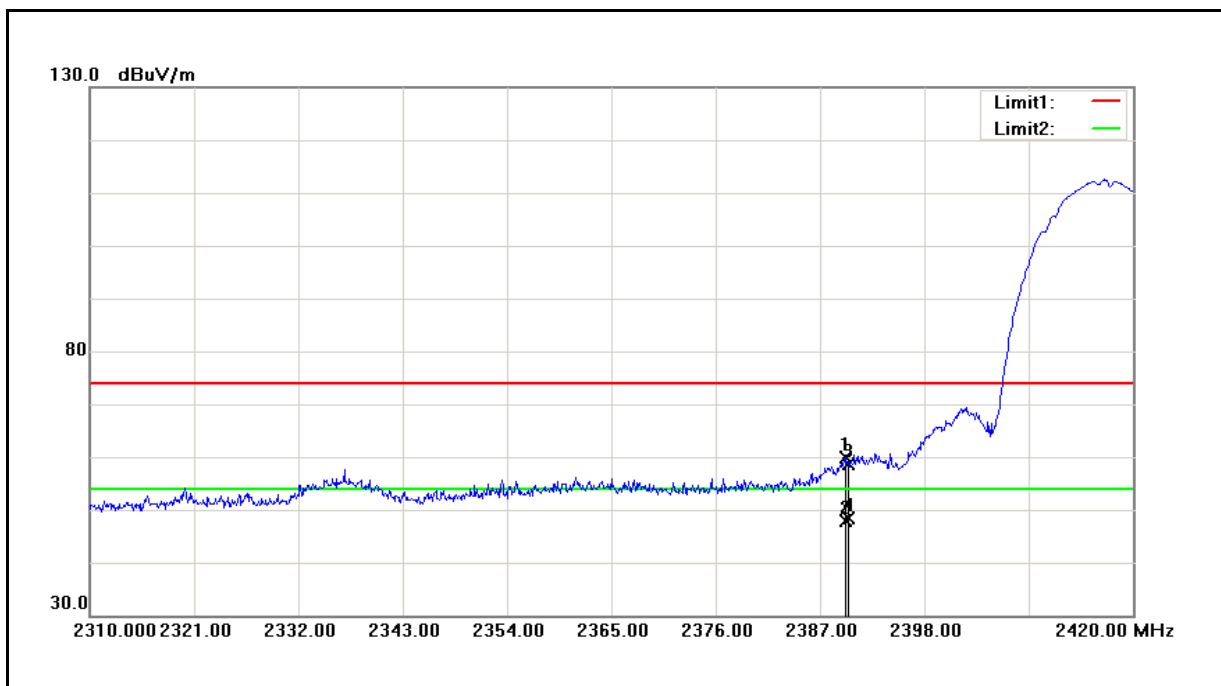
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2339.260	51.12	-0.47	50.65	74.00	-23.35	peak
2	2390.000	49.52	-0.26	49.26	74.00	-24.74	peak

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2417 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



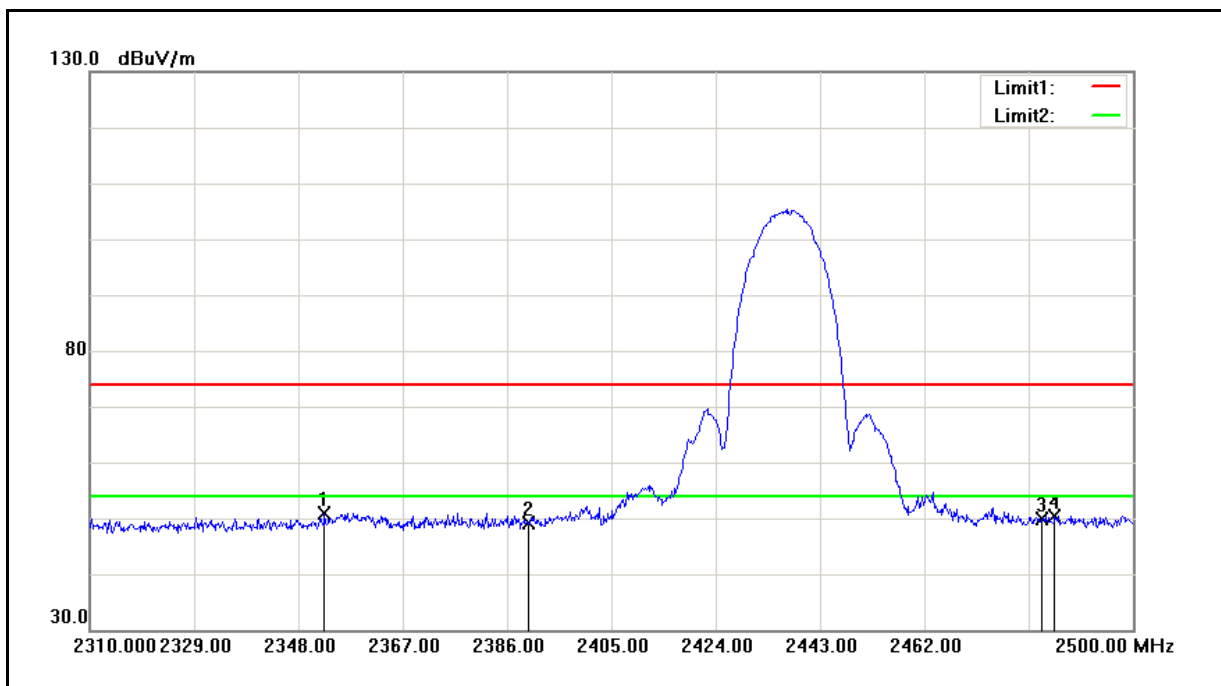
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.640	60.21	-0.26	59.95	74.00	-14.05	peak
2	2389.640	48.07	-0.26	47.81	54.00	-6.19	AVG
3	2390.000	58.87	-0.26	58.61	74.00	-15.39	peak
4	2390.000	48.74	-0.26	48.48	54.00	-5.52	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



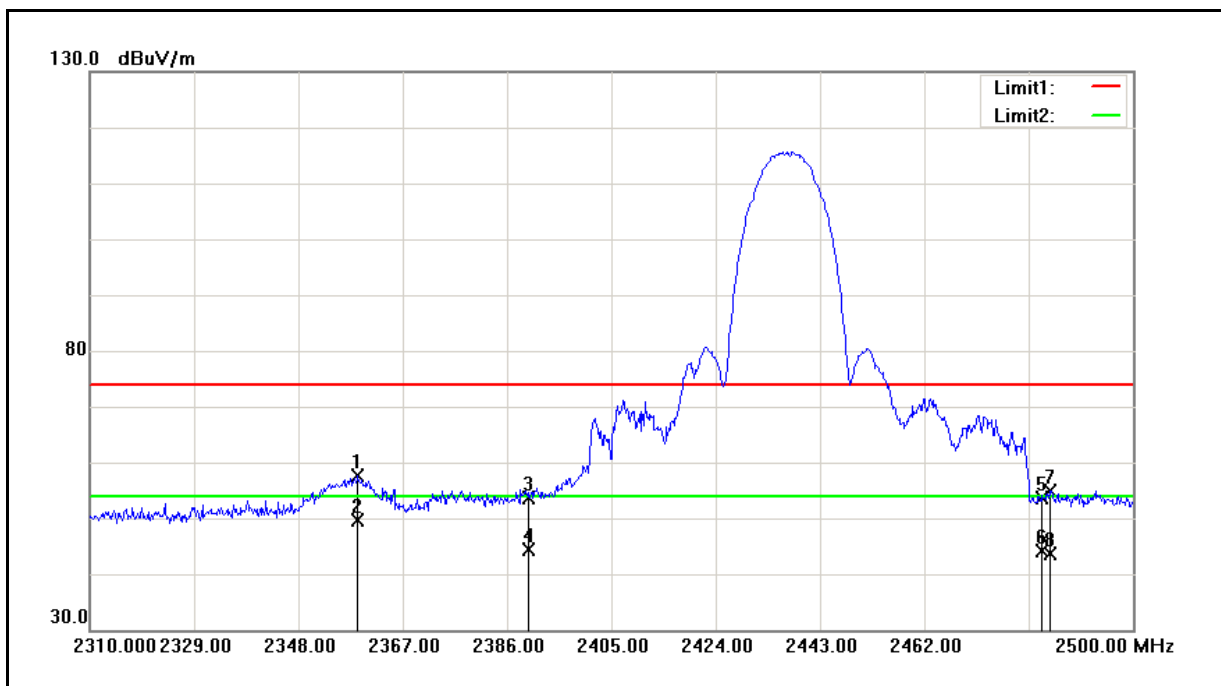
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2352.750	51.48	-0.49	50.99	74.00	-23.01	peak
2	2390.000	49.50	-0.34	49.16	74.00	-24.84	peak
3	2483.500	49.76	0.03	49.79	74.00	-24.21	peak
4	2485.750	50.42	0.04	50.46	74.00	-23.54	peak

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



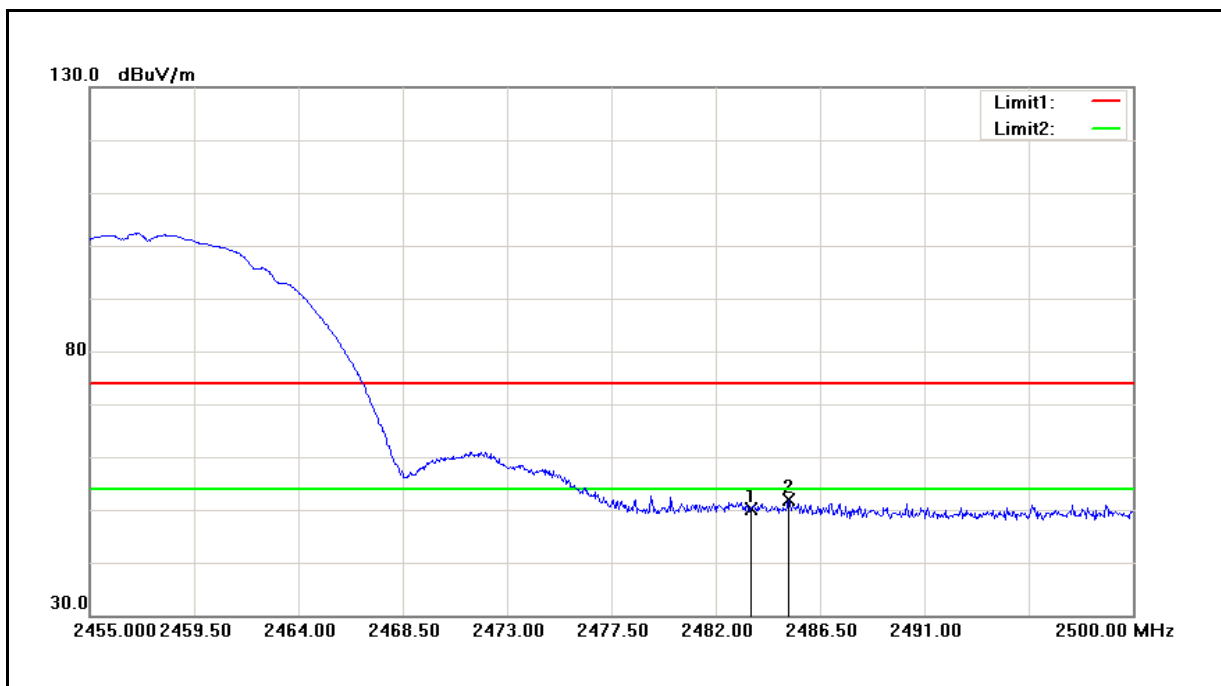
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2358.830	57.99	-0.47	57.52	74.00	-16.48	peak
2	2358.830	50.13	-0.47	49.66	54.00	-4.34	AVG
3	2390.000	54.03	-0.34	53.69	74.00	-20.31	peak
4	2390.000	44.73	-0.34	44.39	54.00	-9.61	AVG
5	2483.500	53.67	0.03	53.70	74.00	-20.30	peak
6	2483.500	44.01	0.03	44.04	54.00	-9.96	AVG
7	2484.800	54.89	0.04	54.93	74.00	-19.07	peak
8	2484.800	43.62	0.04	43.66	54.00	-10.34	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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2457 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



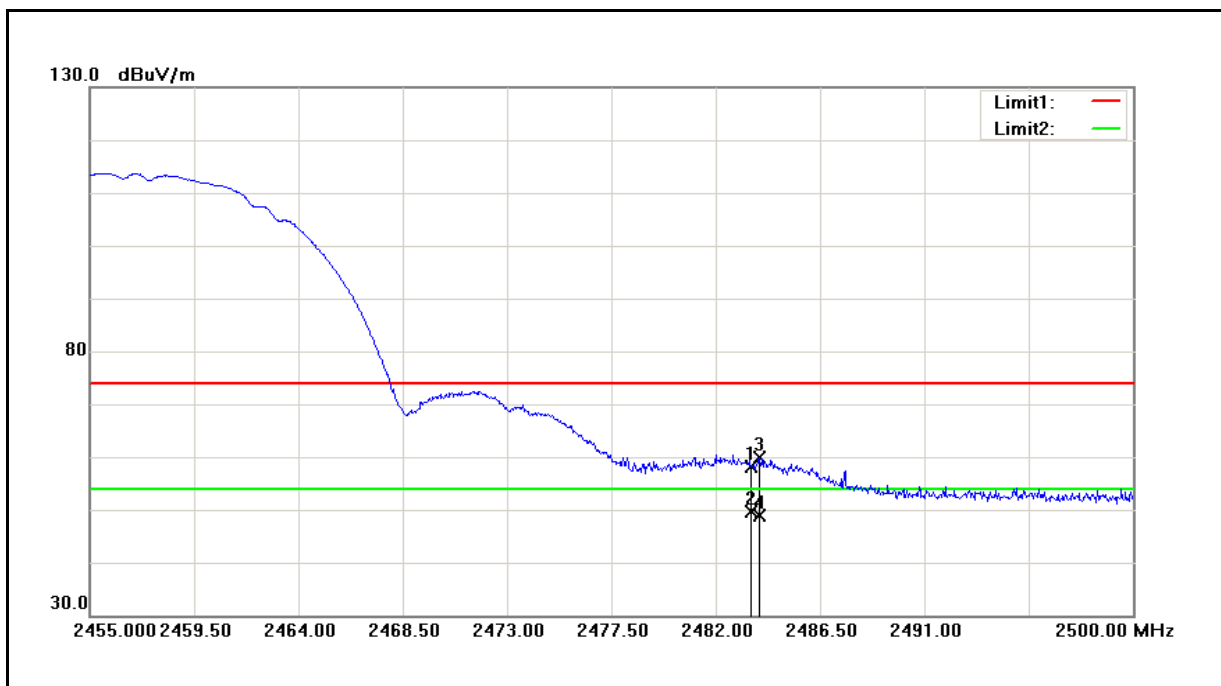
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	50.12	0.11	50.23	74.00	-23.77	peak
2	2485.150	51.67	0.12	51.79	74.00	-22.21	peak

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2457 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



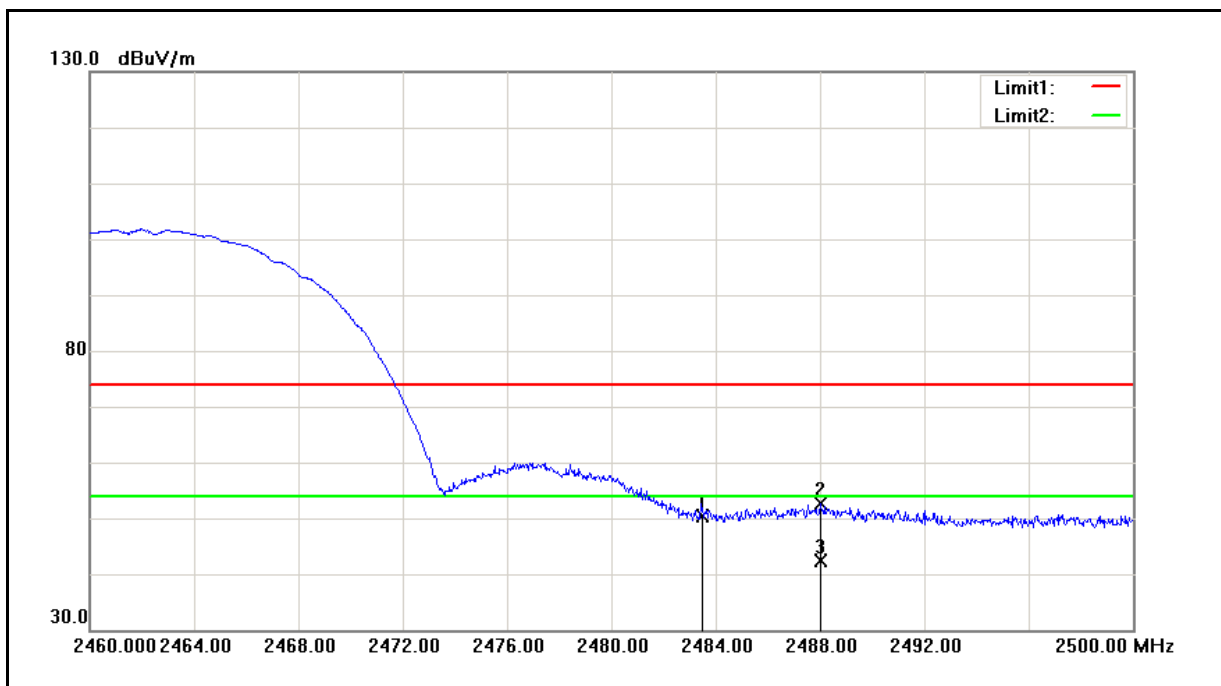
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	58.13	0.11	58.24	74.00	-15.76	peak
2	2483.500	49.59	0.11	49.70	54.00	-4.30	AVG
3	2483.890	59.76	0.11	59.87	74.00	-14.13	peak
4	2483.890	48.86	0.11	48.97	54.00	-5.03	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2462 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



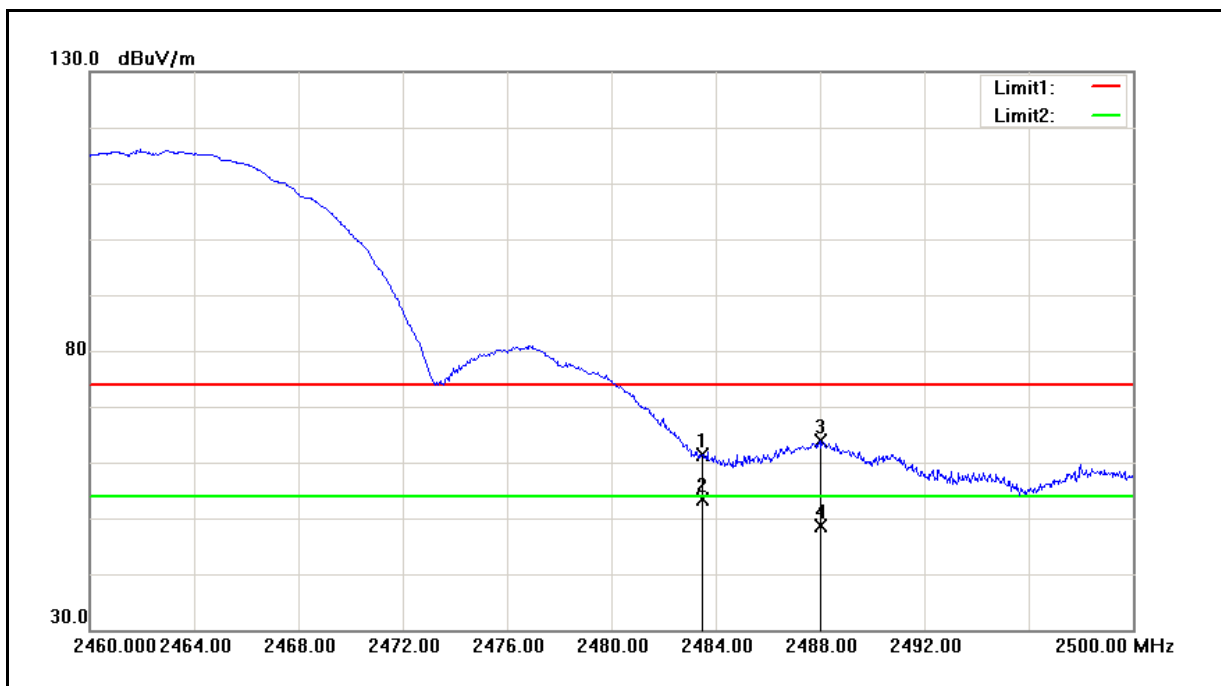
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	50.46	0.03	50.49	74.00	-23.51	peak
2	2488.000	52.50	0.05	52.55	74.00	-21.45	peak
3	2488.000	42.37	0.05	42.42	54.00	-11.58	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2462 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



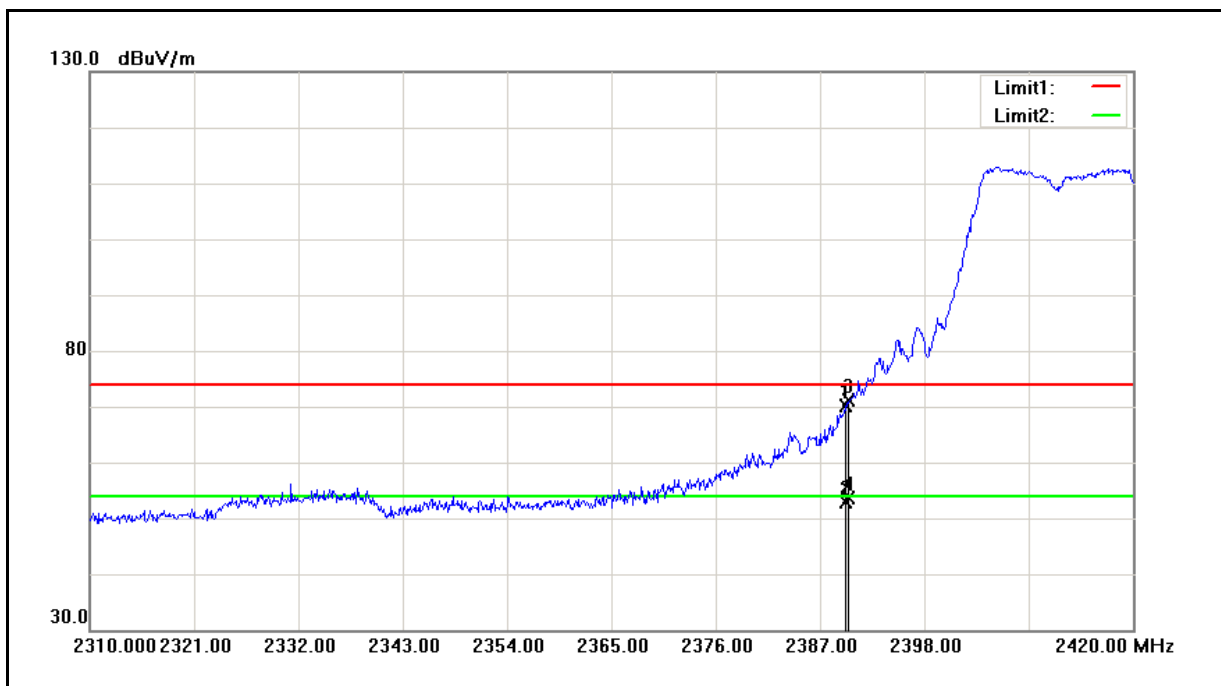
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	61.35	0.03	61.38	74.00	-12.62	peak
2	2483.500	53.31	0.03	53.34	54.00	-0.66	AVG
3	2488.000	63.76	0.05	63.81	74.00	-10.19	peak
4	2488.000	48.46	0.05	48.51	54.00	-5.49	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2412 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



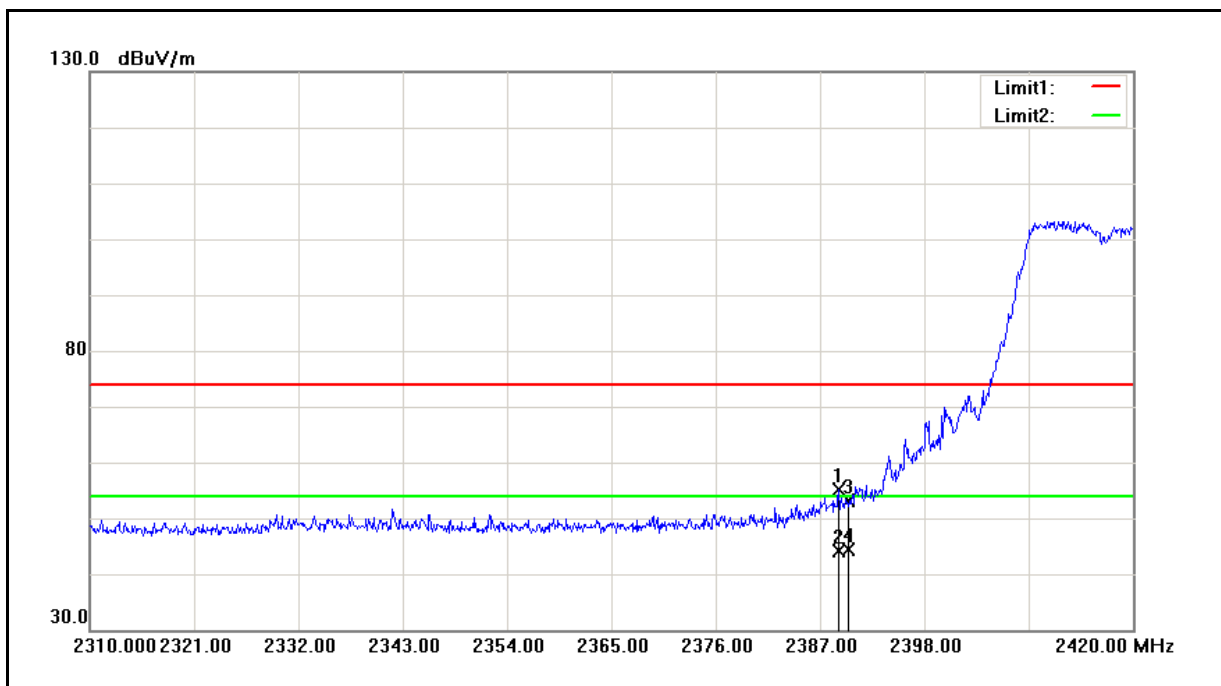
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.640	70.45	-0.34	70.11	74.00	-3.89	peak
2	2389.640	53.20	-0.34	52.86	54.00	-1.14	AVG
3	2390.000	71.36	-0.34	71.02	74.00	-2.98	peak
4	2390.000	53.94	-0.34	53.60	54.00	-0.40	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2412 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



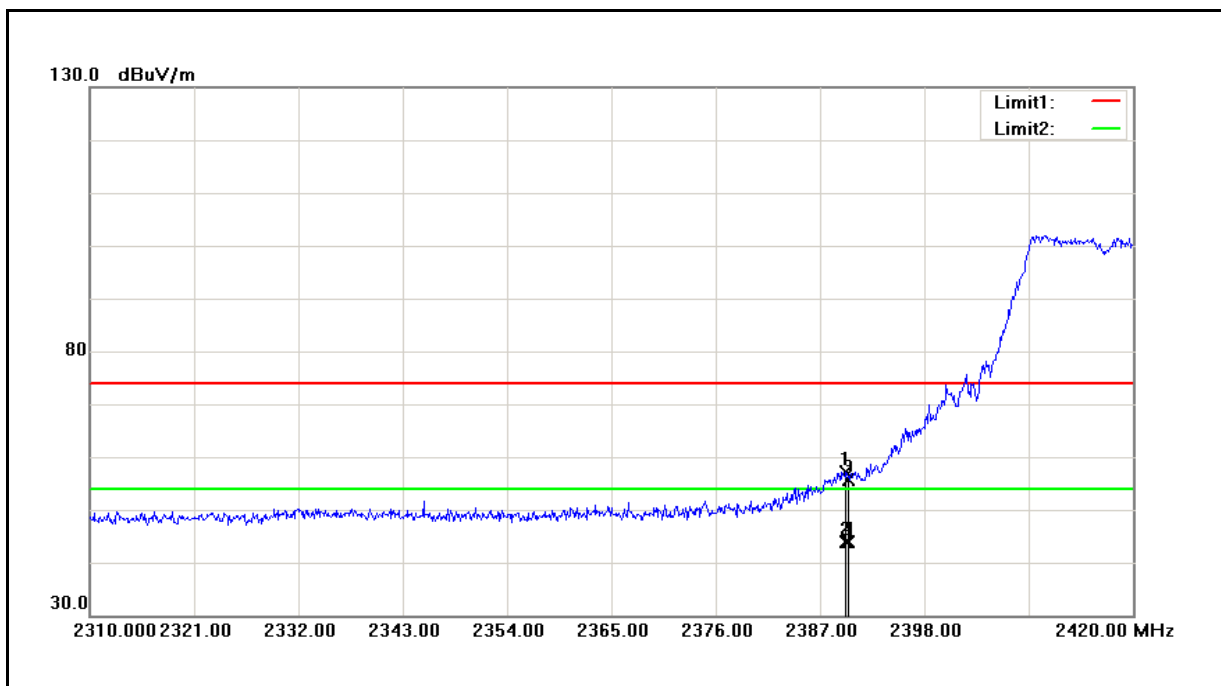
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.980	55.50	-0.34	55.16	74.00	-18.84	peak
2	2388.980	44.35	-0.34	44.01	54.00	-9.99	AVG
3	2390.000	53.57	-0.34	53.23	74.00	-20.77	peak
4	2390.000	44.63	-0.34	44.29	54.00	-9.71	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2417 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



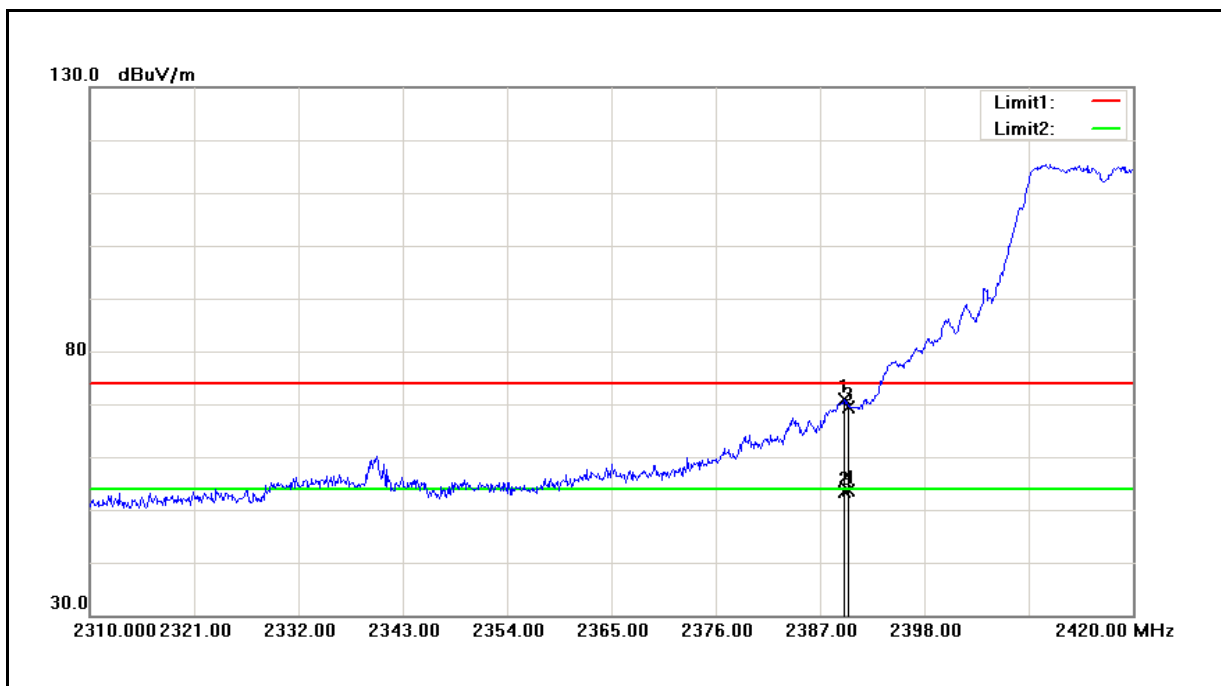
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.750	57.50	-0.26	57.24	74.00	-16.76	peak
2	2389.750	44.03	-0.26	43.77	54.00	-10.23	AVG
3	2390.000	55.89	-0.26	55.63	74.00	-18.37	peak
4	2390.000	44.12	-0.26	43.86	54.00	-10.14	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2417 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



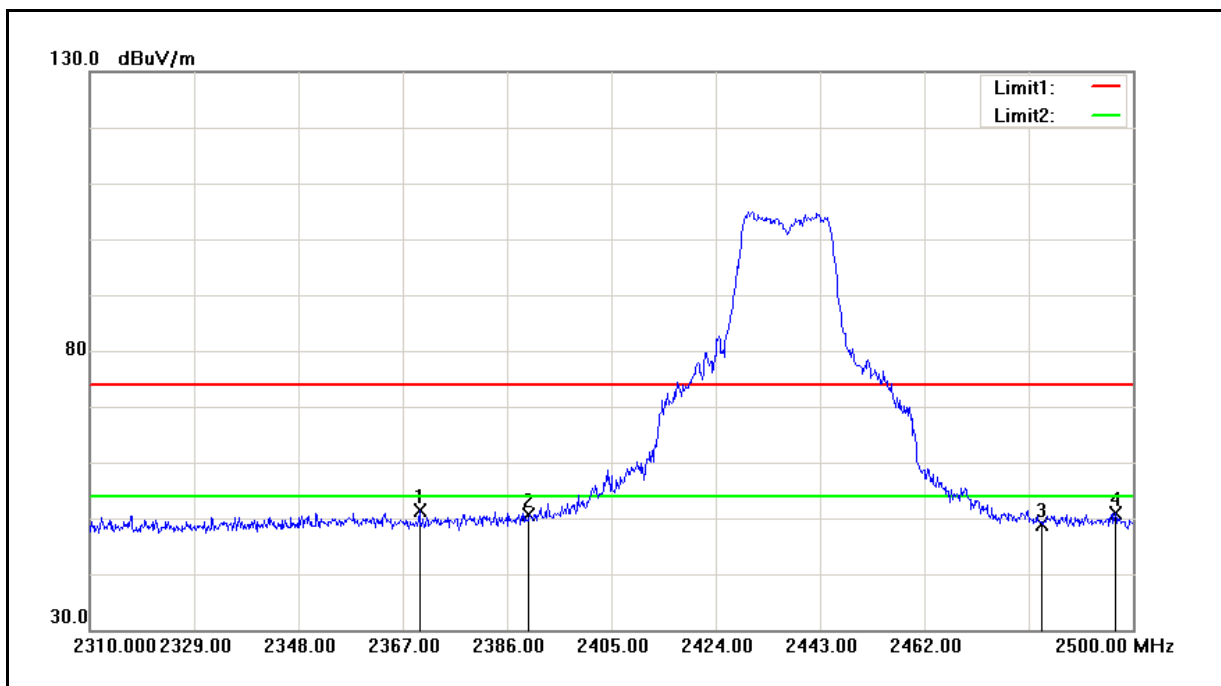
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.530	71.07	-0.26	70.81	74.00	-3.19	peak
2	2389.530	53.61	-0.26	53.35	54.00	-0.65	AVG
3	2390.000	69.52	-0.26	69.26	74.00	-4.74	peak
4	2390.000	53.99	-0.26	53.73	54.00	-0.27	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



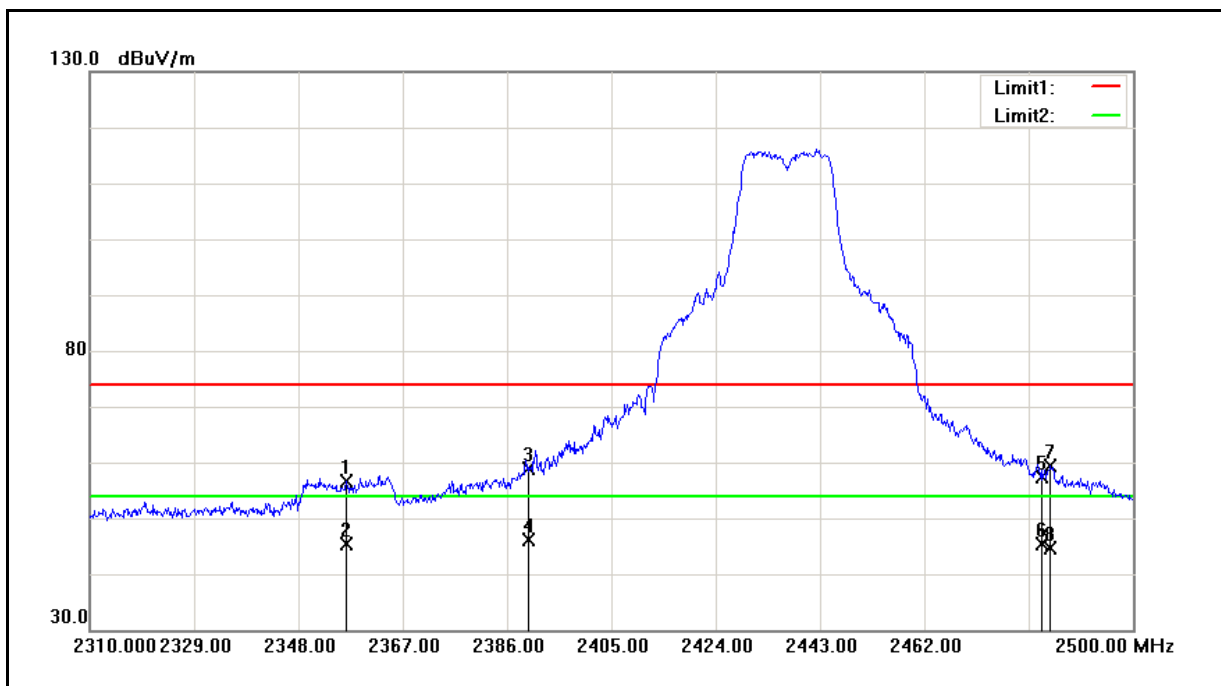
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2370.040	51.69	-0.42	51.27	74.00	-22.73	peak
2	2390.000	50.87	-0.34	50.53	74.00	-23.47	peak
3	2483.500	48.87	0.03	48.90	74.00	-25.10	peak
4	2496.770	50.73	0.09	50.82	74.00	-23.18	peak

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



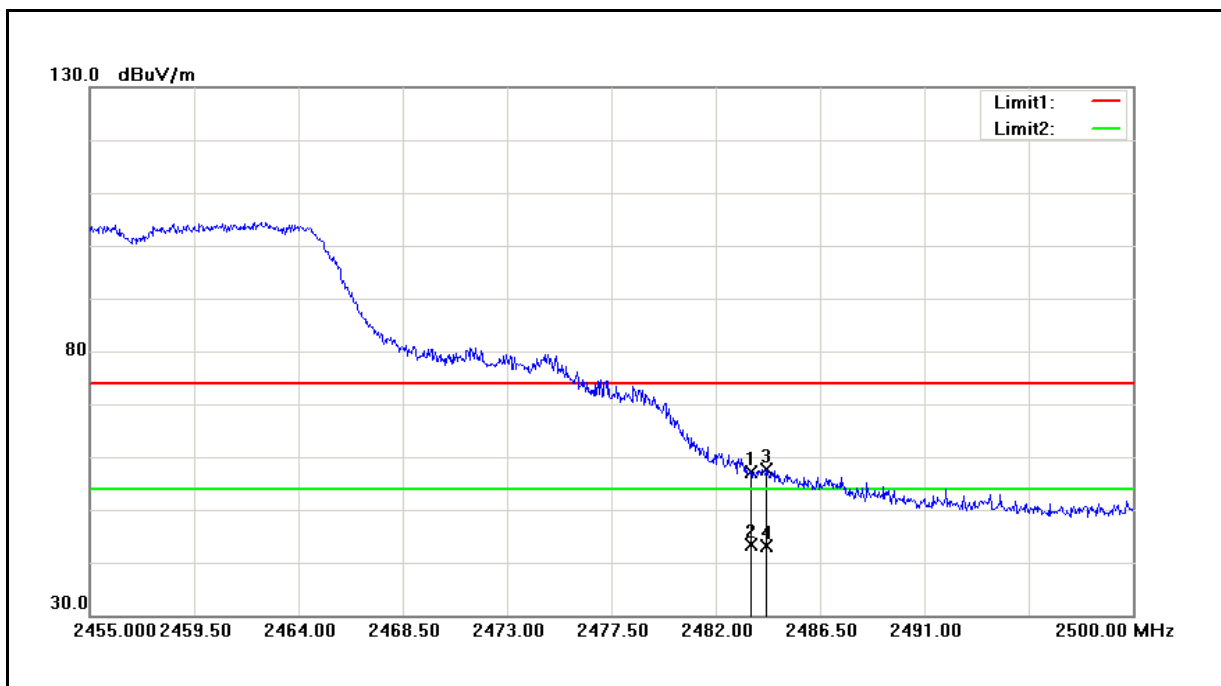
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2356.740	57.02	-0.47	56.55	74.00	-17.45	peak
2	2356.740	45.90	-0.47	45.43	54.00	-8.57	AVG
3	2390.000	59.18	-0.34	58.84	74.00	-15.16	peak
4	2390.000	46.36	-0.34	46.02	54.00	-7.98	AVG
5	2483.500	57.32	0.03	57.35	74.00	-16.65	peak
6	2483.500	45.40	0.03	45.43	54.00	-8.57	AVG
7	2484.990	59.28	0.04	59.32	74.00	-14.68	peak
8	2484.990	44.59	0.04	44.63	54.00	-9.37	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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2457 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



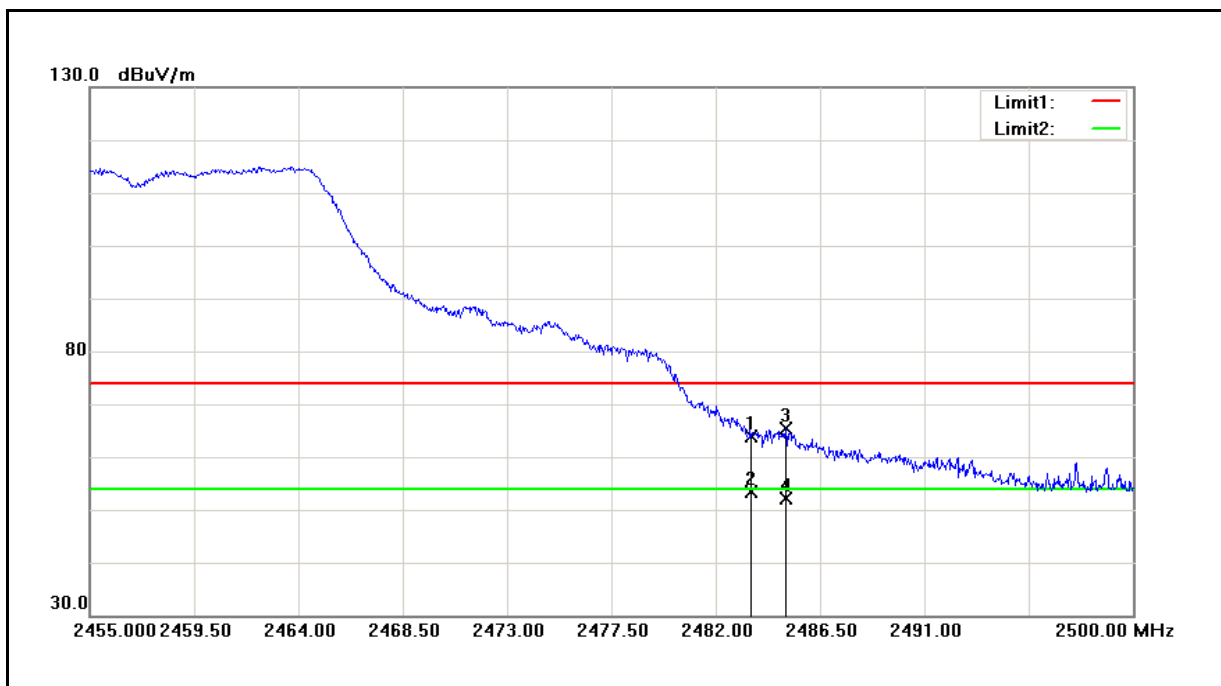
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	56.93	0.11	57.04	74.00	-16.96	peak
2	2483.500	43.17	0.11	43.28	54.00	-10.72	AVG
3	2484.205	57.47	0.12	57.59	74.00	-16.41	peak
4	2484.205	43.05	0.12	43.17	54.00	-10.83	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2457 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



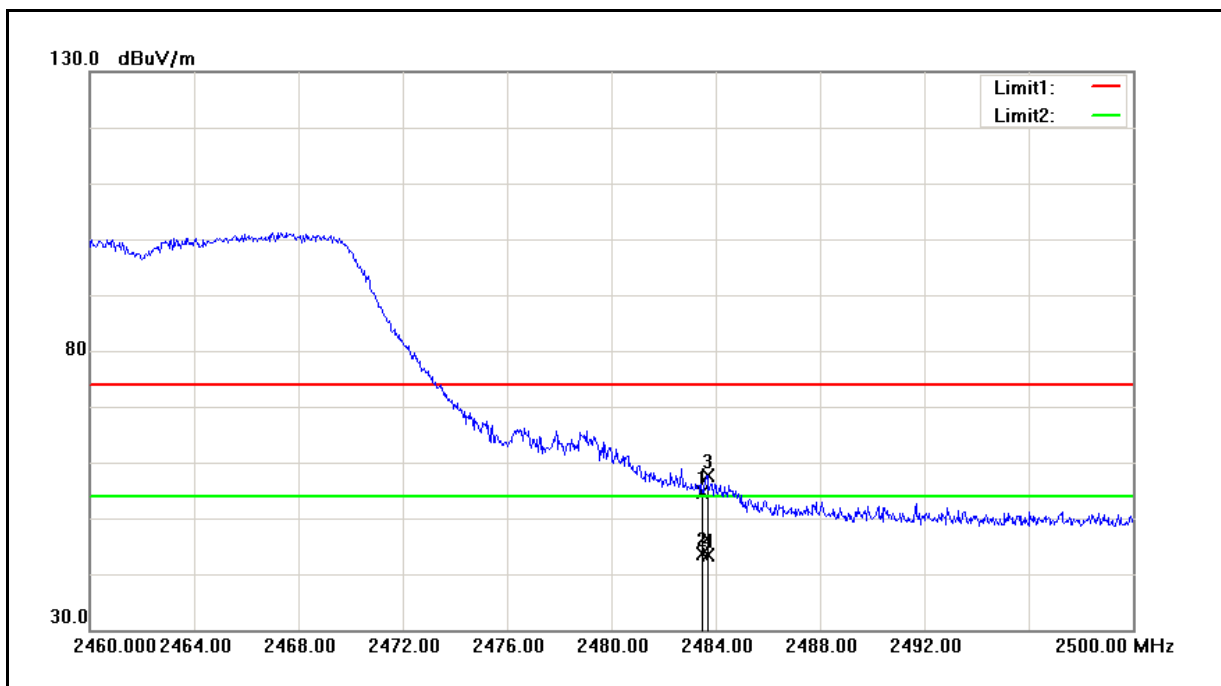
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	60.98	0.03	61.01	74.00	-12.99	peak
2	2483.500	50.13	0.03	50.16	54.00	-3.84	AVG
3	2483.832	61.92	0.03	61.95	74.00	-12.05	peak
4	2483.832	50.07	0.03	50.10	54.00	-3.90	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2462 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



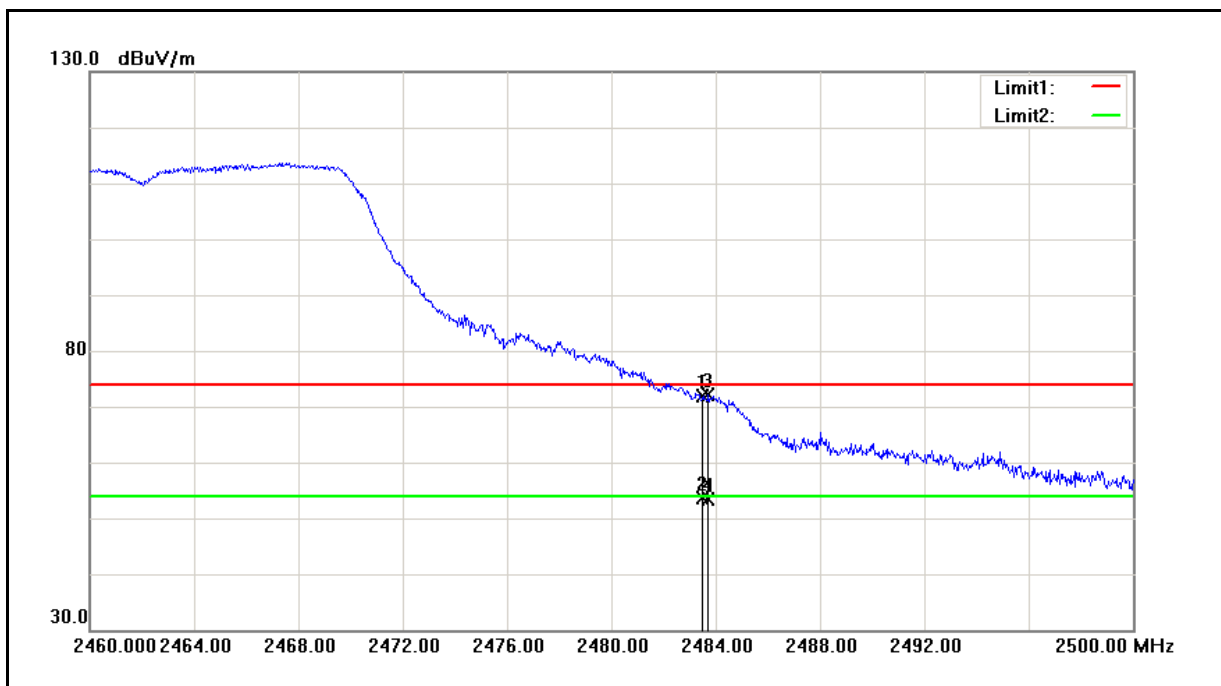
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	54.52	0.03	54.55	74.00	-19.45	peak
2	2483.500	43.49	0.03	43.52	54.00	-10.48	AVG
3	2483.680	57.72	0.03	57.75	74.00	-16.25	peak
4	2483.680	43.30	0.03	43.33	54.00	-10.67	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 3	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2462 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



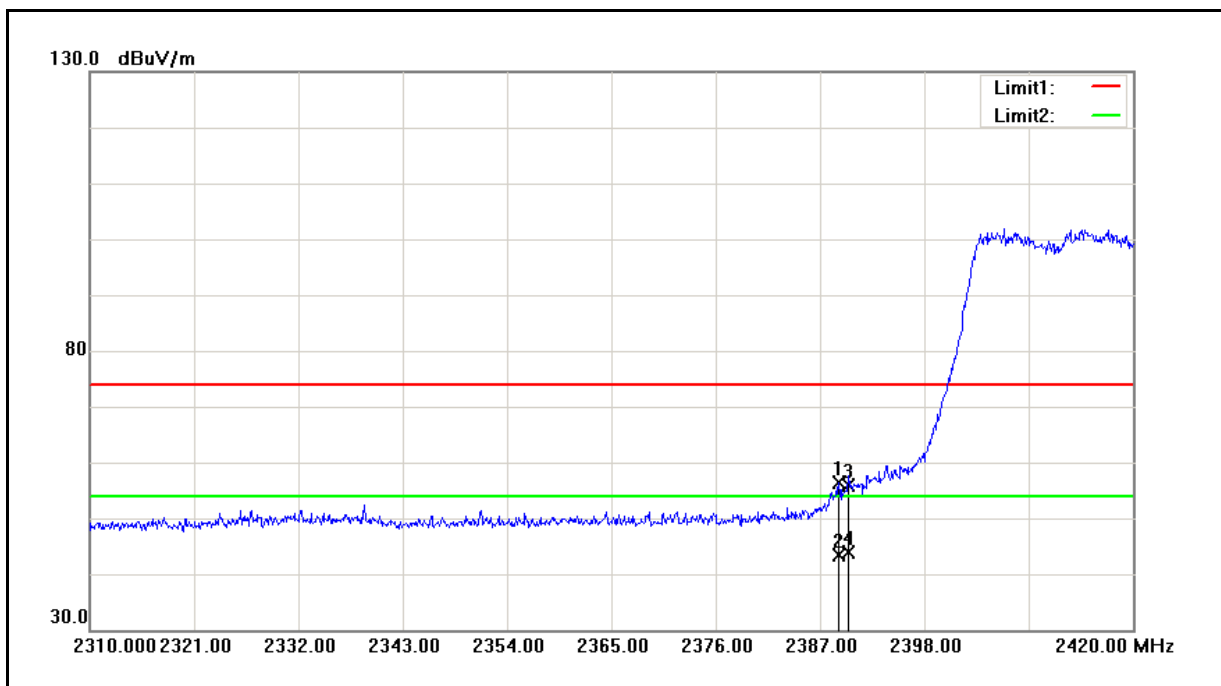
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	71.83	0.03	71.86	74.00	-2.14	peak
2	2483.500	53.72	0.03	53.75	54.00	-0.25	AVG
3	2483.720	72.01	0.03	72.04	74.00	-1.96	peak
4	2483.720	53.34	0.03	53.37	54.00	-0.63	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2412 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



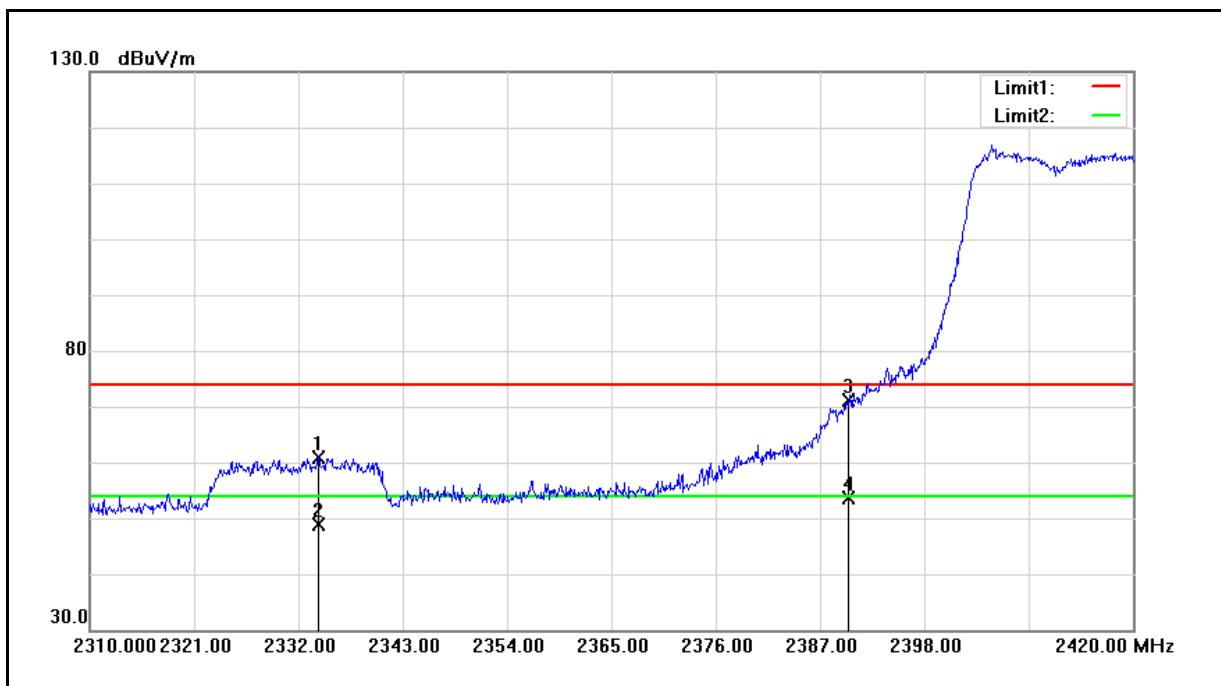
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.980	56.76	-0.34	56.42	74.00	-17.58	peak
2	2388.980	43.61	-0.34	43.27	54.00	-10.73	AVG
3	2390.000	56.18	-0.34	55.84	74.00	-18.16	peak
4	2390.000	44.24	-0.34	43.90	54.00	-10.10	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2412 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



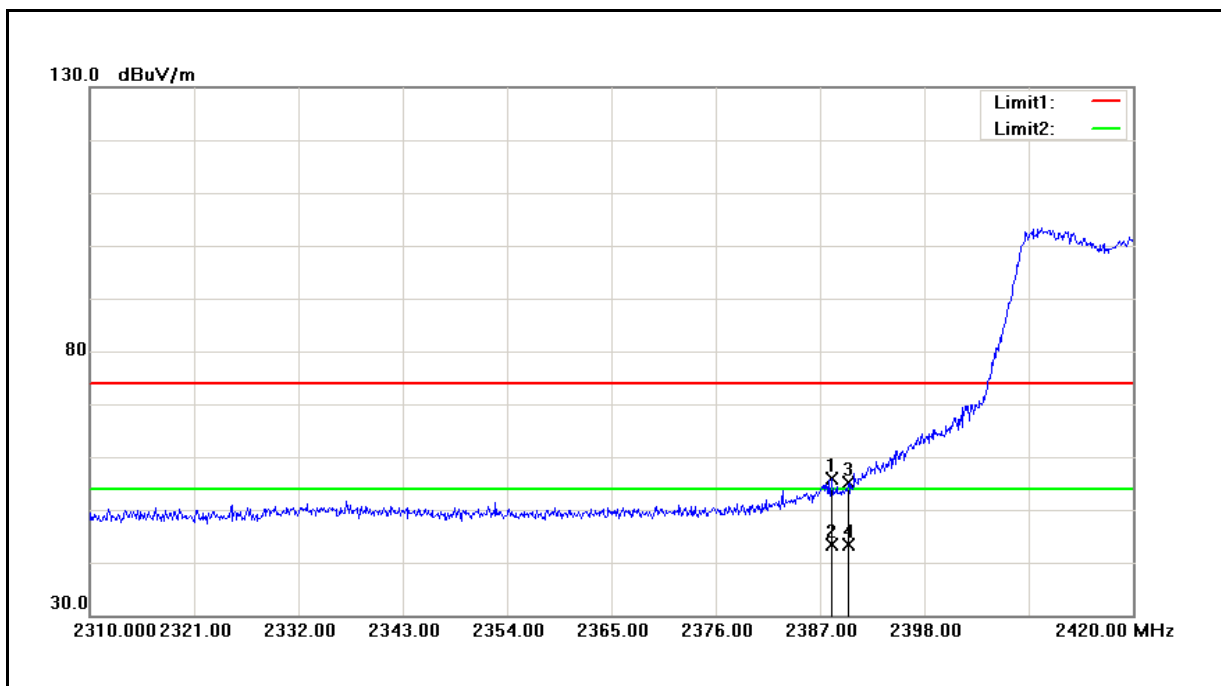
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2334.090	61.54	-0.56	60.98	74.00	-13.02	peak
2	2334.090	49.46	-0.56	48.90	54.00	-5.10	AVG
3	2390.000	71.58	-0.34	71.24	74.00	-2.76	peak
4	2390.000	54.08	-0.34	53.74	54.00	-0.26	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2417 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



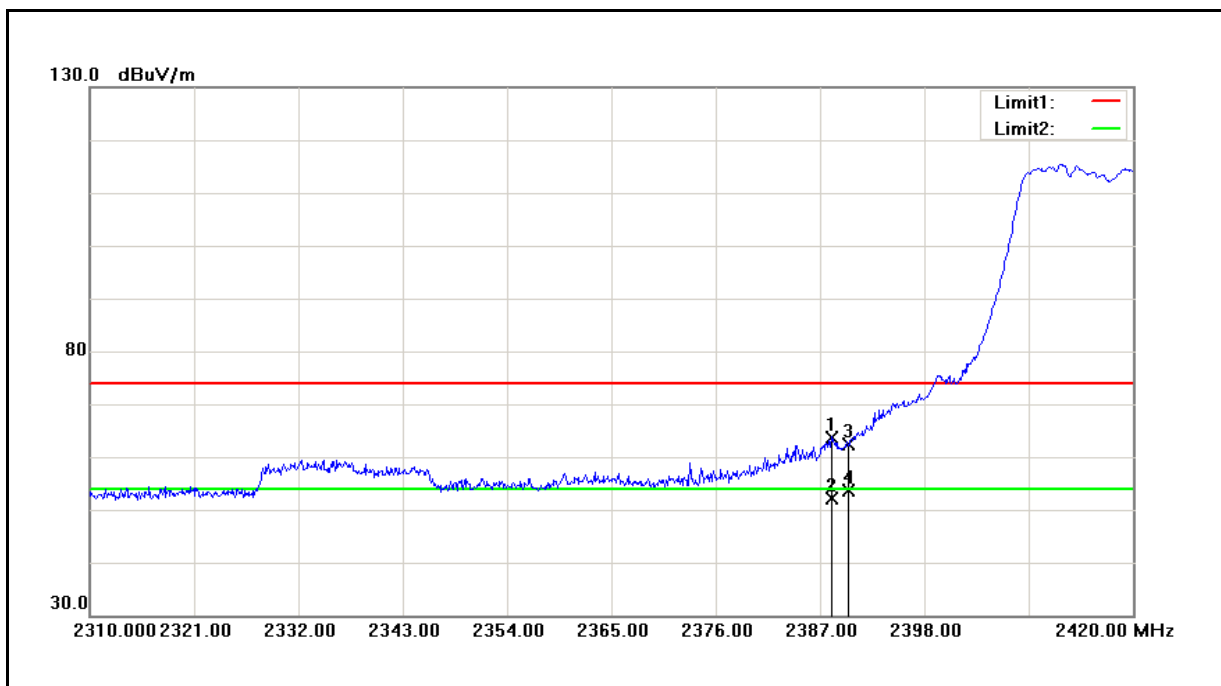
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.210	56.15	-0.26	55.89	74.00	-18.11	peak
2	2388.210	43.54	-0.26	43.28	54.00	-10.72	AVG
3	2390.000	55.29	-0.26	55.03	74.00	-18.97	peak
4	2390.000	43.72	-0.26	43.46	54.00	-10.54	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2417 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



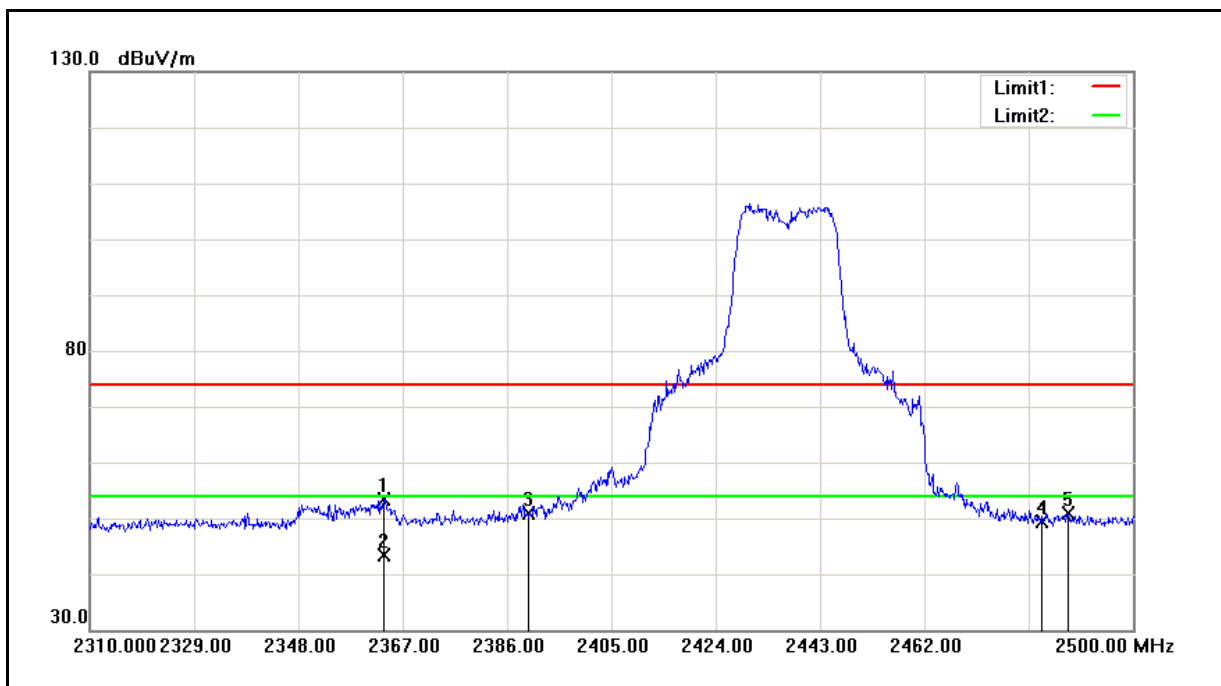
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.210	64.01	-0.26	63.75	74.00	-10.25	peak
2	2388.210	52.32	-0.26	52.06	54.00	-1.94	AVG
3	2390.000	62.56	-0.26	62.30	74.00	-11.70	peak
4	2390.000	53.82	-0.26	53.56	54.00	-0.44	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



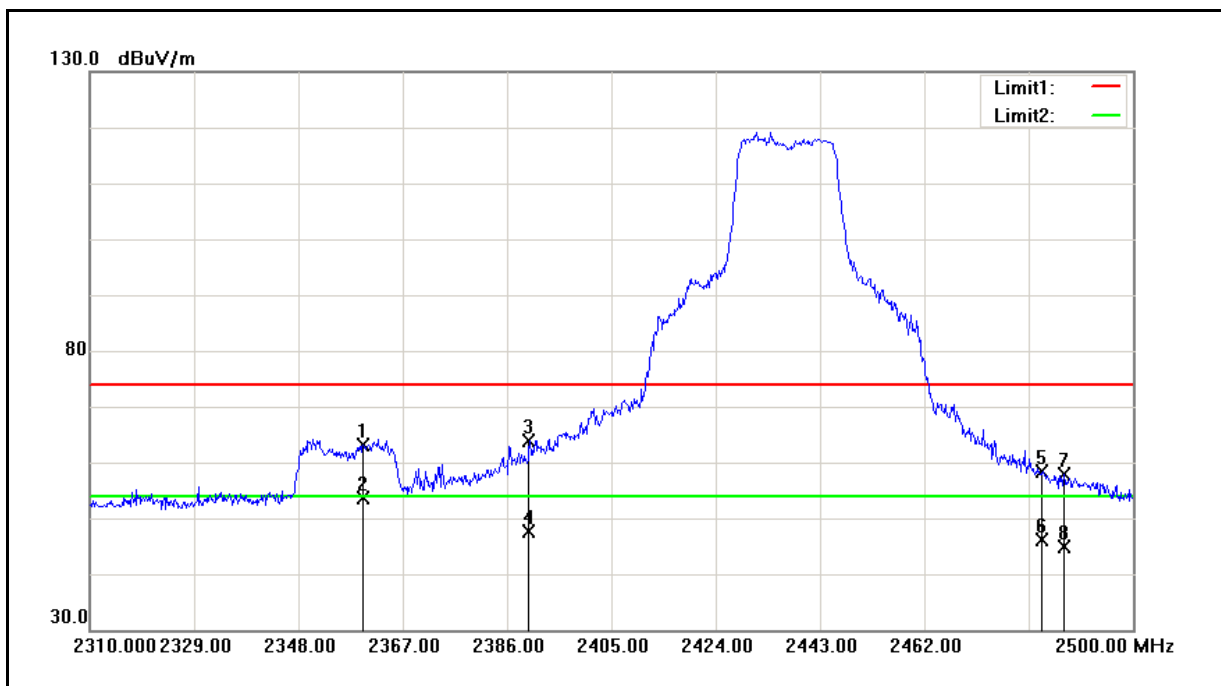
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2363.580	53.92	-0.44	53.48	74.00	-20.52	peak
2	2363.580	43.93	-0.44	43.49	54.00	-10.51	AVG
3	2390.000	51.25	-0.34	50.91	74.00	-23.09	peak
4	2483.500	49.41	0.03	49.44	74.00	-24.56	peak
5	2488.220	50.88	0.05	50.93	74.00	-23.07	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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



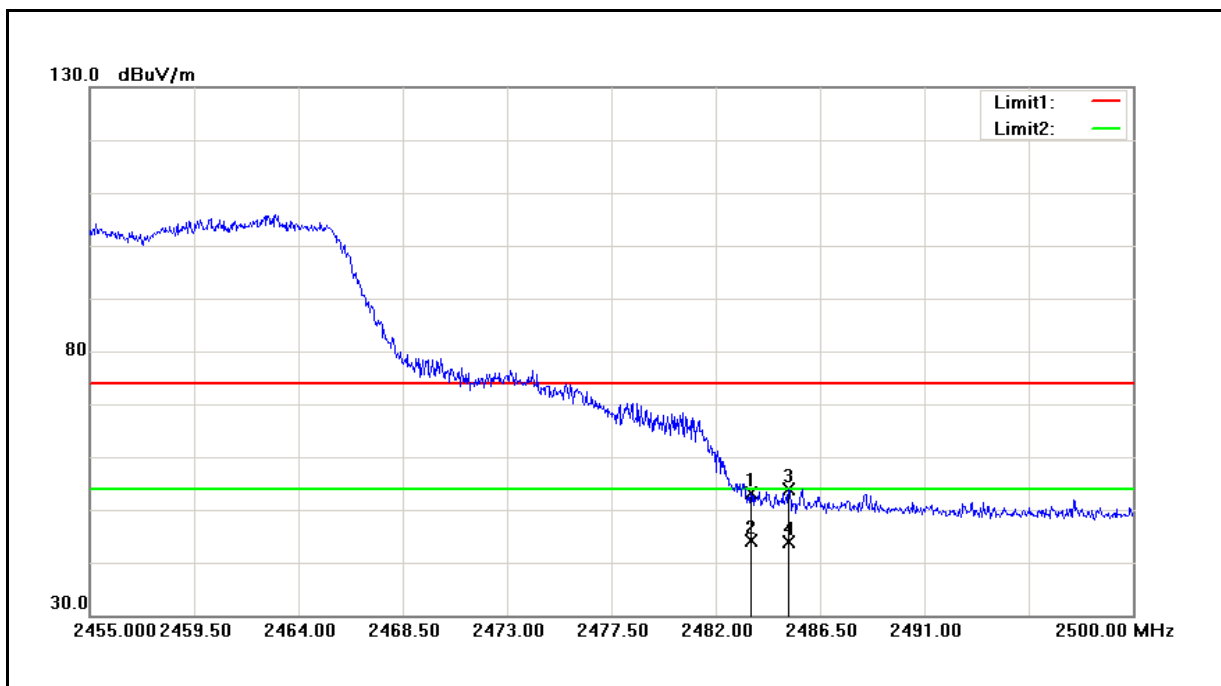
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2359.780	63.60	-0.46	63.14	74.00	-10.86	peak
2	2359.780	54.18	-0.46	53.72	54.00	-0.28	AVG
3	2390.000	64.13	-0.34	63.79	74.00	-10.21	peak
4	2390.000	48.08	-0.34	47.74	54.00	-6.26	AVG
5	2483.500	58.36	0.03	58.39	74.00	-15.61	peak
6	2483.500	46.07	0.03	46.10	54.00	-7.90	AVG
7	2487.460	57.78	0.04	57.82	74.00	-16.18	peak
8	2487.460	44.91	0.04	44.95	54.00	-9.05	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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2457 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



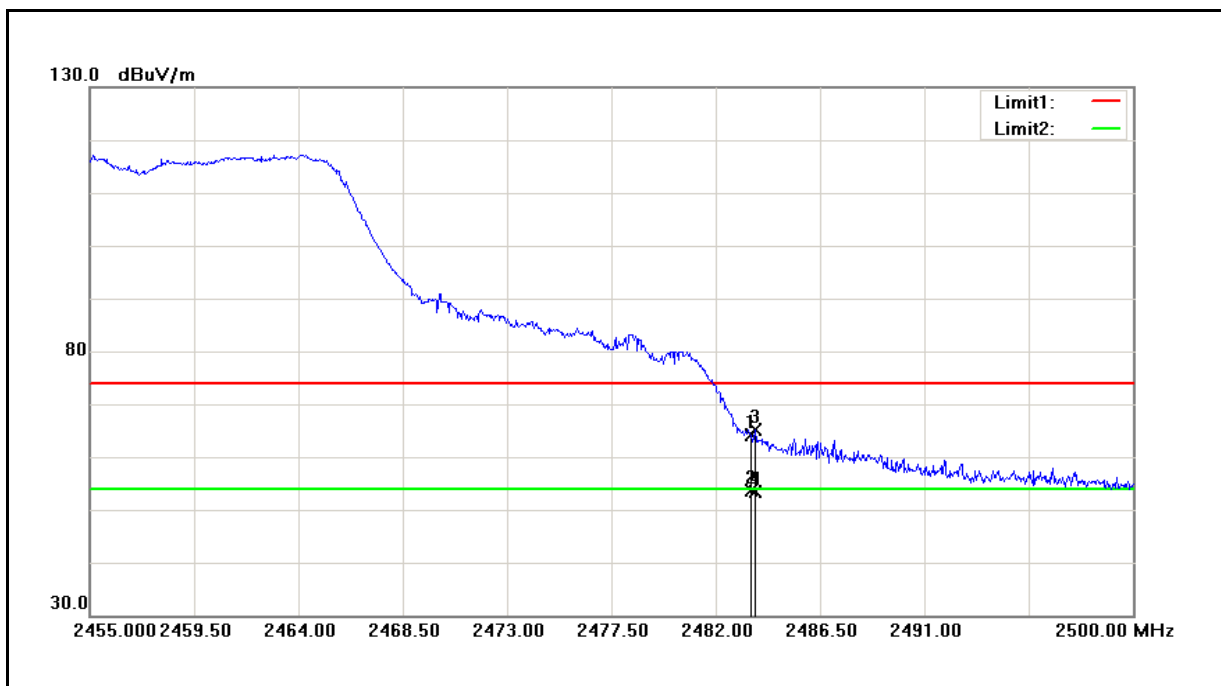
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	52.91	0.11	53.02	74.00	-20.98	peak
2	2483.500	44.12	0.11	44.23	54.00	-9.77	AVG
3	2485.150	53.83	0.12	53.95	74.00	-20.05	peak
4	2485.150	43.66	0.12	43.78	54.00	-10.22	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2457 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



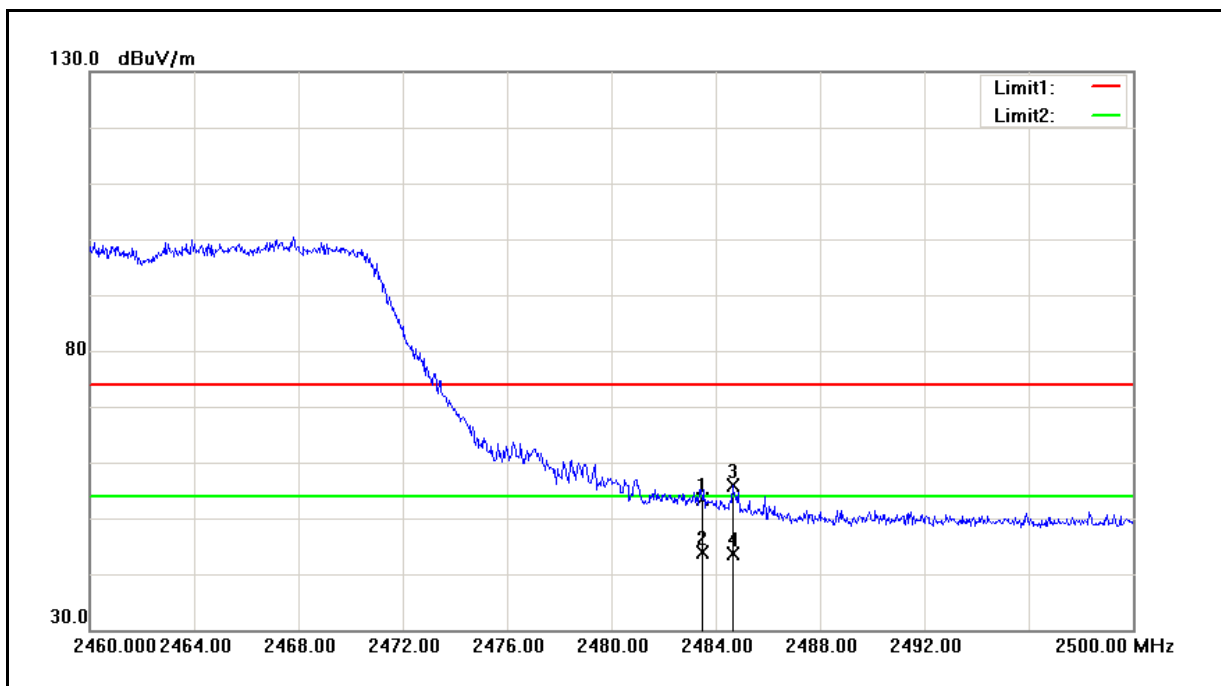
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	64.02	0.11	64.13	74.00	-9.87	peak
2	2483.500	53.52	0.11	53.63	54.00	-0.37	AVG
3	2483.710	64.92	0.11	65.03	74.00	-8.97	peak
4	2483.710	53.39	0.11	53.50	54.00	-0.50	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2462 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



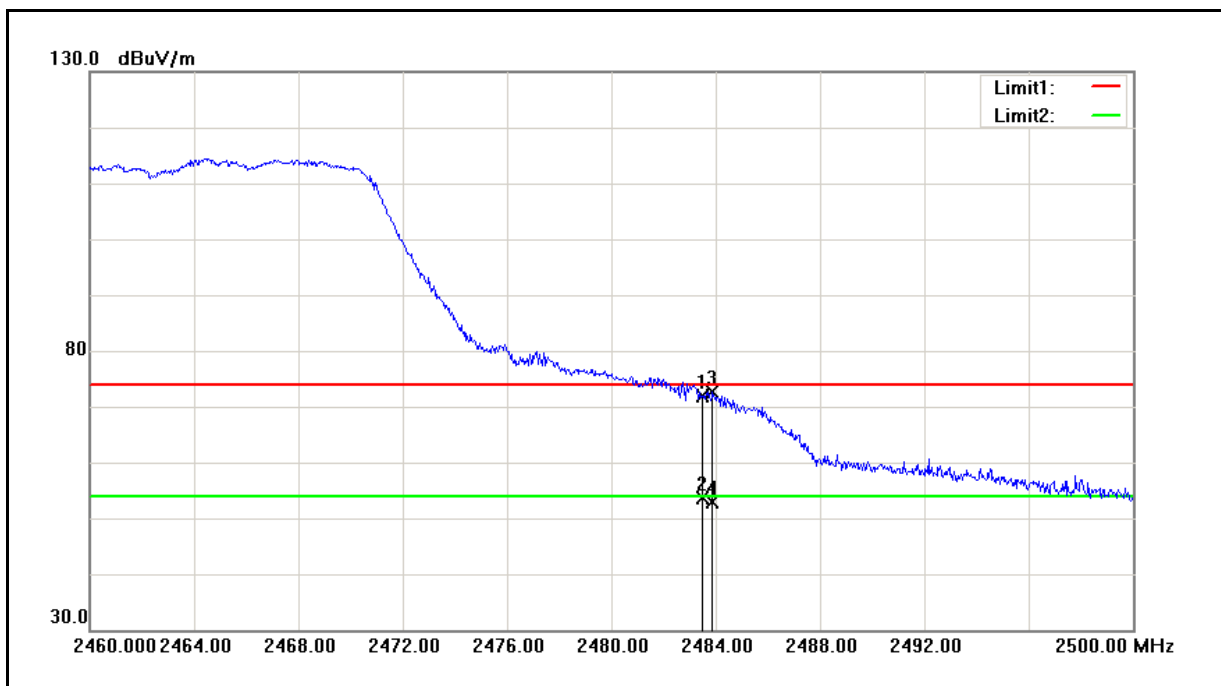
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	53.23	0.03	53.26	74.00	-20.74	peak
2	2483.500	43.78	0.03	43.81	54.00	-10.19	AVG
3	2484.640	55.93	0.04	55.97	74.00	-18.03	peak
4	2484.640	43.47	0.04	43.51	54.00	-10.49	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 4	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2462 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



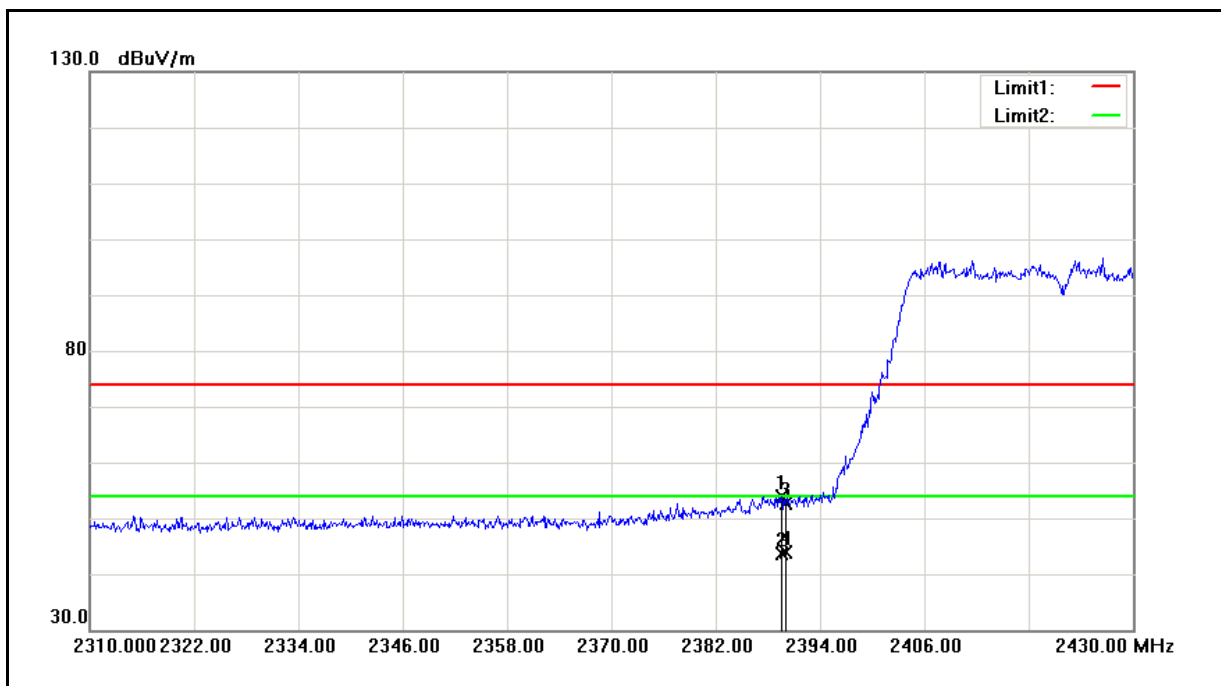
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	71.78	0.03	71.81	74.00	-2.19	peak
2	2483.500	53.51	0.03	53.54	54.00	-0.46	AVG
3	2483.880	72.64	0.03	72.67	74.00	-1.33	peak
4	2483.880	52.80	0.03	52.83	54.00	-1.17	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2422 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



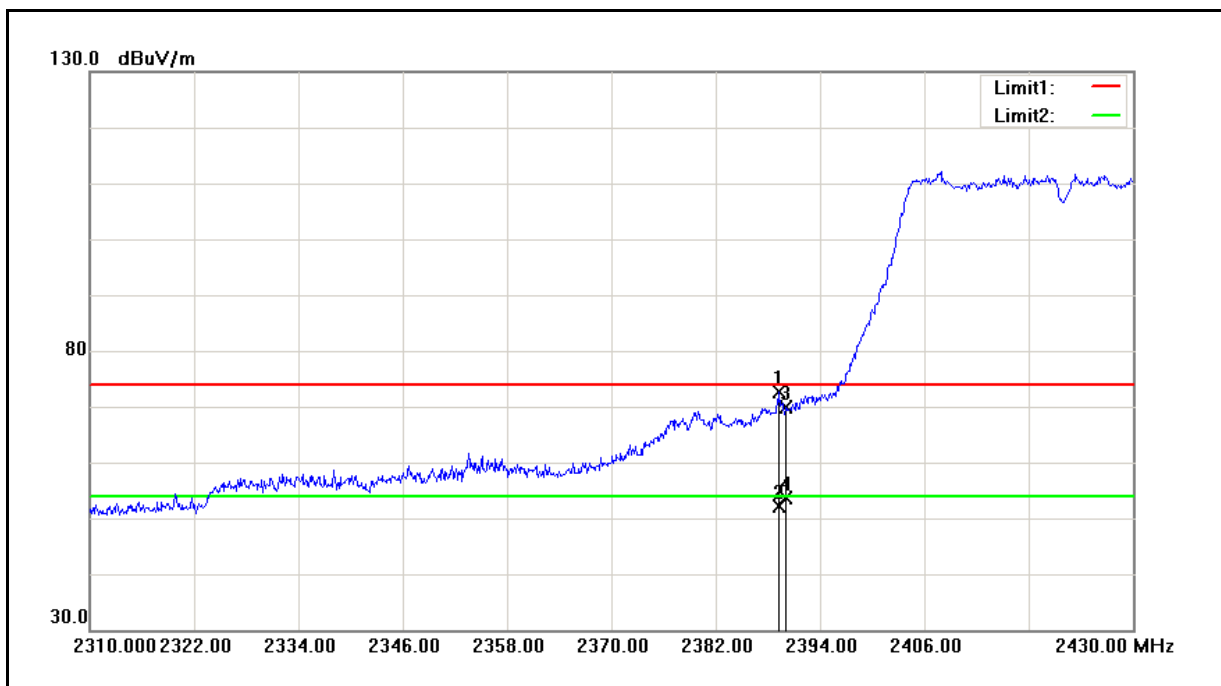
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.560	54.27	-0.34	53.93	74.00	-20.07	peak
2	2389.560	44.08	-0.34	43.74	54.00	-10.26	AVG
3	2390.000	53.03	-0.34	52.69	74.00	-21.31	peak
4	2390.000	44.24	-0.34	43.90	54.00	-10.10	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2422 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



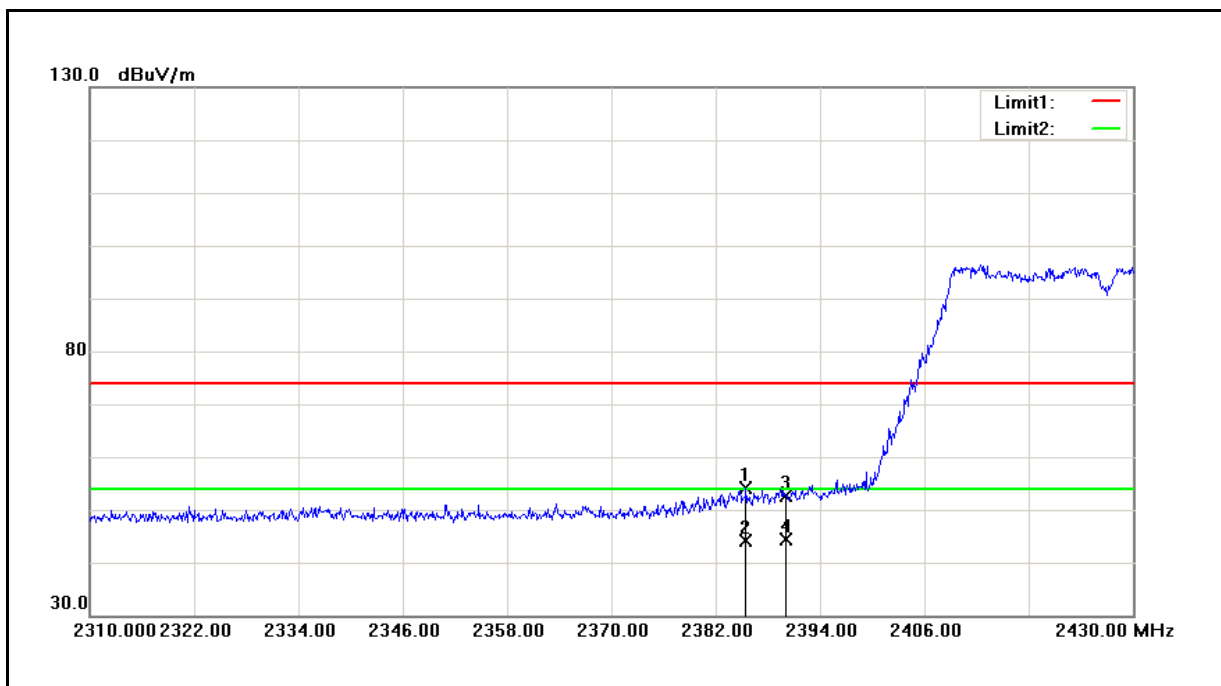
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.320	73.02	-0.34	72.68	74.00	-1.32	peak
2	2389.320	52.57	-0.34	52.23	54.00	-1.77	AVG
3	2390.000	70.20	-0.34	69.86	74.00	-4.14	peak
4	2390.000	53.94	-0.34	53.60	54.00	-0.40	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2427 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



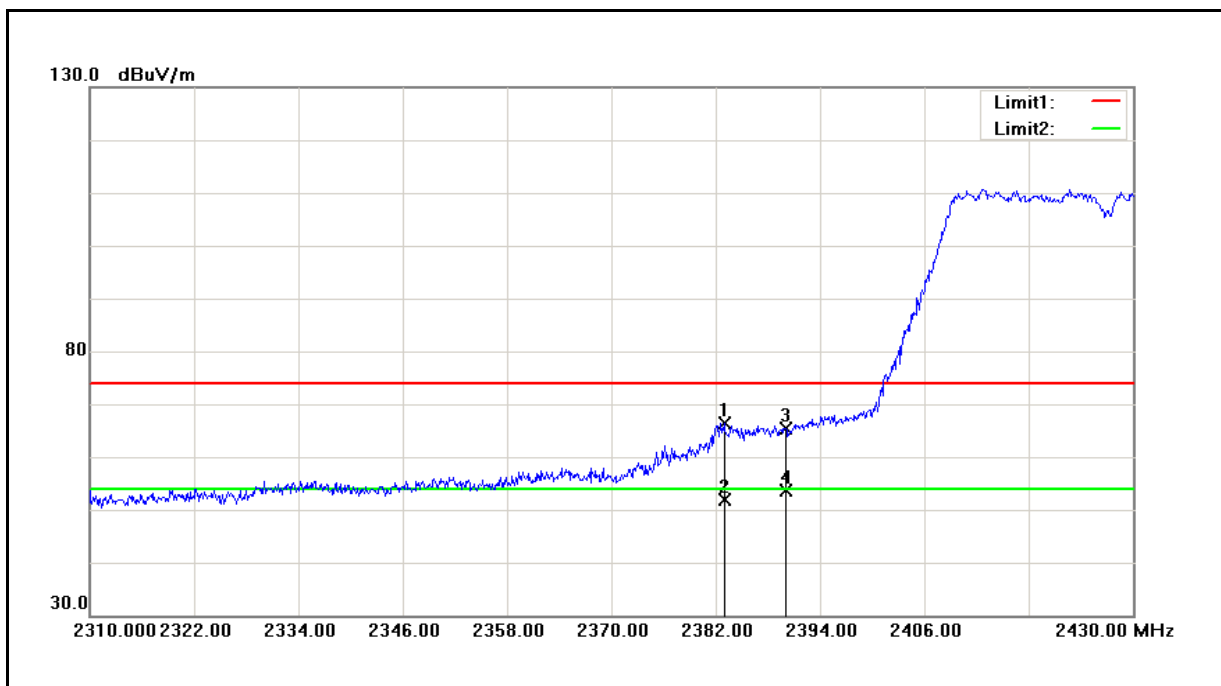
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.480	54.36	-0.28	54.08	74.00	-19.92	peak
2	2385.480	44.40	-0.28	44.12	54.00	-9.88	AVG
3	2390.000	52.93	-0.26	52.67	74.00	-21.33	peak
4	2390.000	44.57	-0.26	44.31	54.00	-9.69	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2427 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



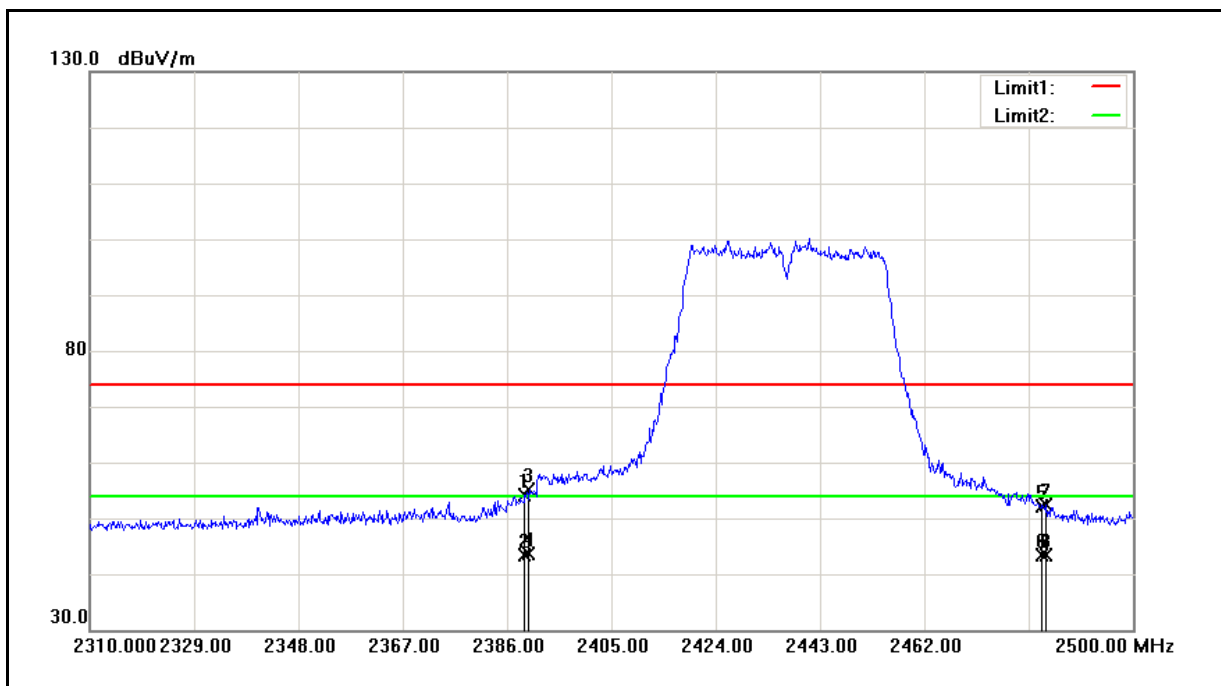
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2382.960	66.74	-0.29	66.45	74.00	-7.55	peak
2	2382.960	52.08	-0.29	51.79	54.00	-2.21	AVG
3	2390.000	65.57	-0.26	65.31	74.00	-8.69	peak
4	2390.000	53.81	-0.26	53.55	54.00	-0.45	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



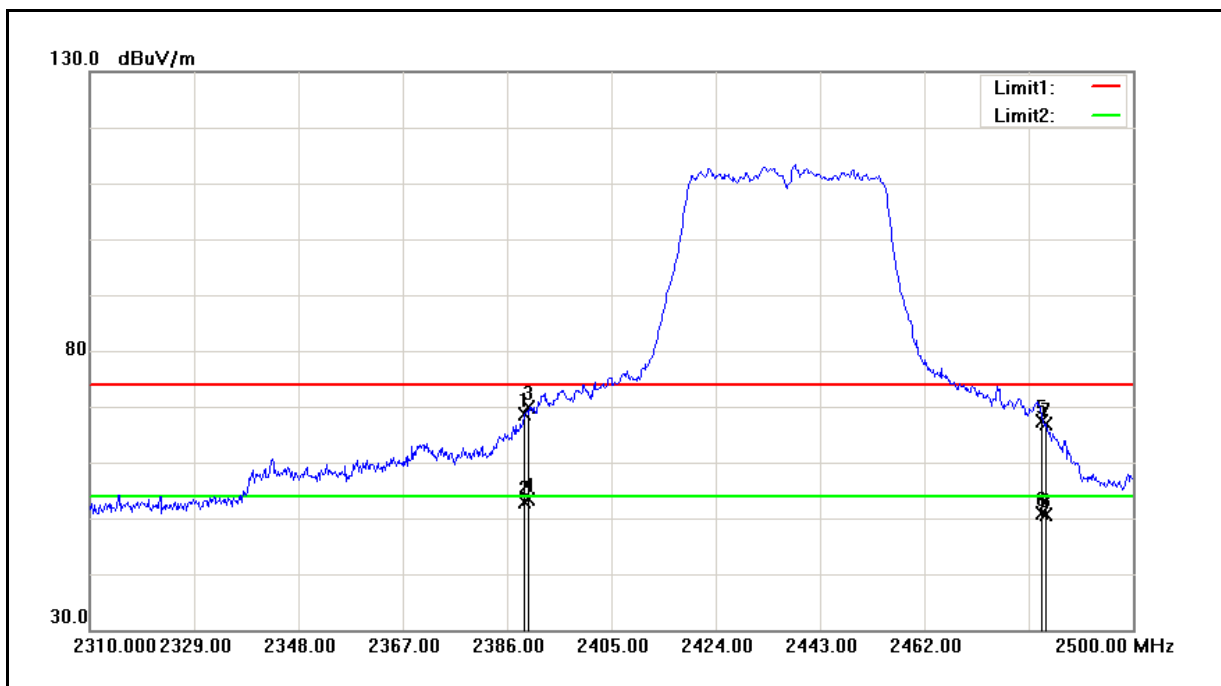
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.230	54.46	-0.34	54.12	74.00	-19.88	peak
2	2389.230	43.81	-0.34	43.47	54.00	-10.53	AVG
3	2390.000	55.41	-0.34	55.07	74.00	-18.93	peak
4	2390.000	43.93	-0.34	43.59	54.00	-10.41	AVG
5	2483.500	52.18	0.03	52.21	74.00	-21.79	peak
6	2483.500	43.28	0.03	43.31	54.00	-10.69	AVG
7	2484.230	52.30	0.04	52.34	74.00	-21.66	peak
8	2484.230	43.25	0.04	43.29	54.00	-10.71	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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2437 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



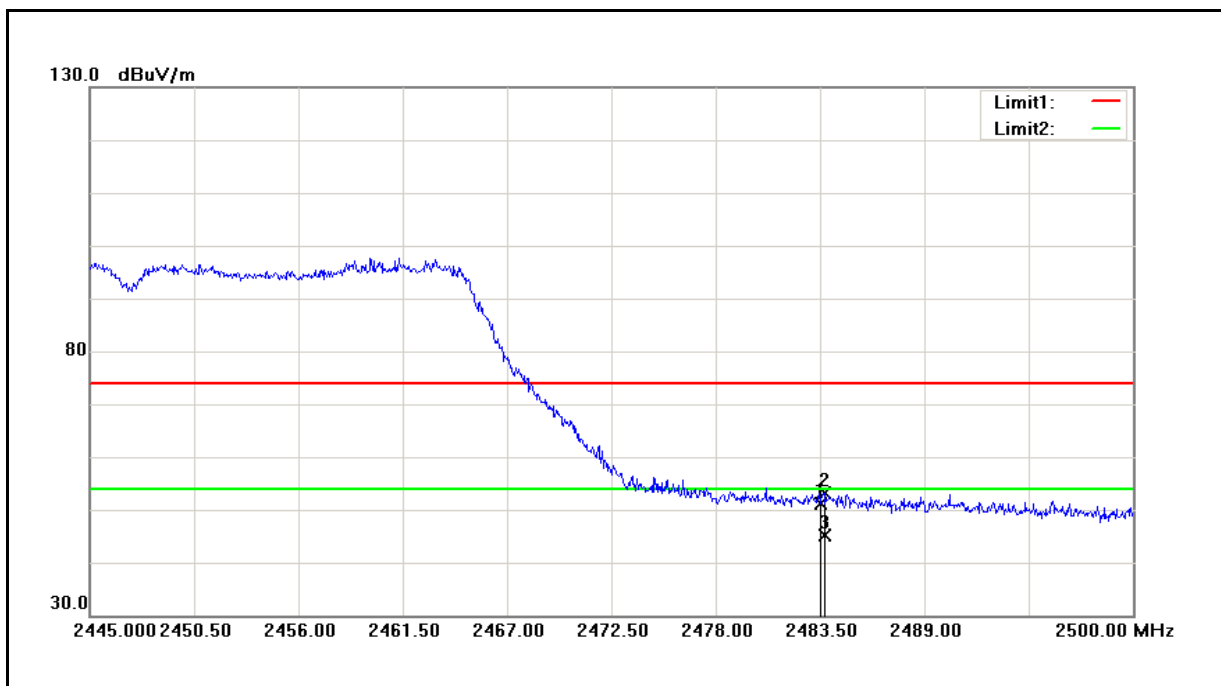
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.230	68.86	-0.34	68.52	74.00	-5.48	peak
2	2389.230	53.25	-0.34	52.91	54.00	-1.09	AVG
3	2390.000	70.25	-0.34	69.91	74.00	-4.09	peak
4	2390.000	53.79	-0.34	53.45	54.00	-0.55	AVG
5	2483.500	67.32	0.03	67.35	74.00	-6.65	peak
6	2483.500	50.95	0.03	50.98	54.00	-3.02	AVG
7	2484.040	66.80	0.04	66.84	74.00	-7.16	peak
8	2484.040	50.60	0.04	50.64	54.00	-3.36	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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2447 MHz	Date:	12/02/2016
Ant.Polar.:	Horizontal		



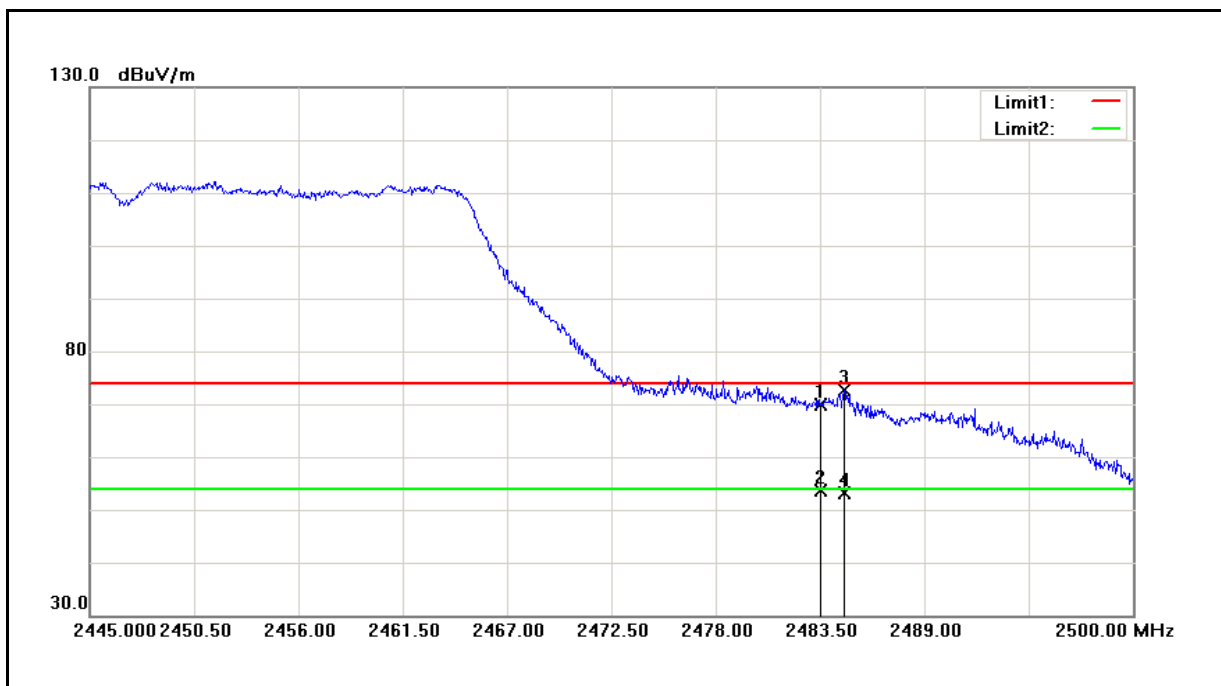
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	51.09	0.11	51.20	74.00	-22.80	peak
2	2483.720	53.02	0.11	53.13	74.00	-20.87	peak
3	2483.720	45.06	0.11	45.17	54.00	-8.83	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2447 MHz	Date:	12/02/2016
Ant.Polar.:	Vertical		



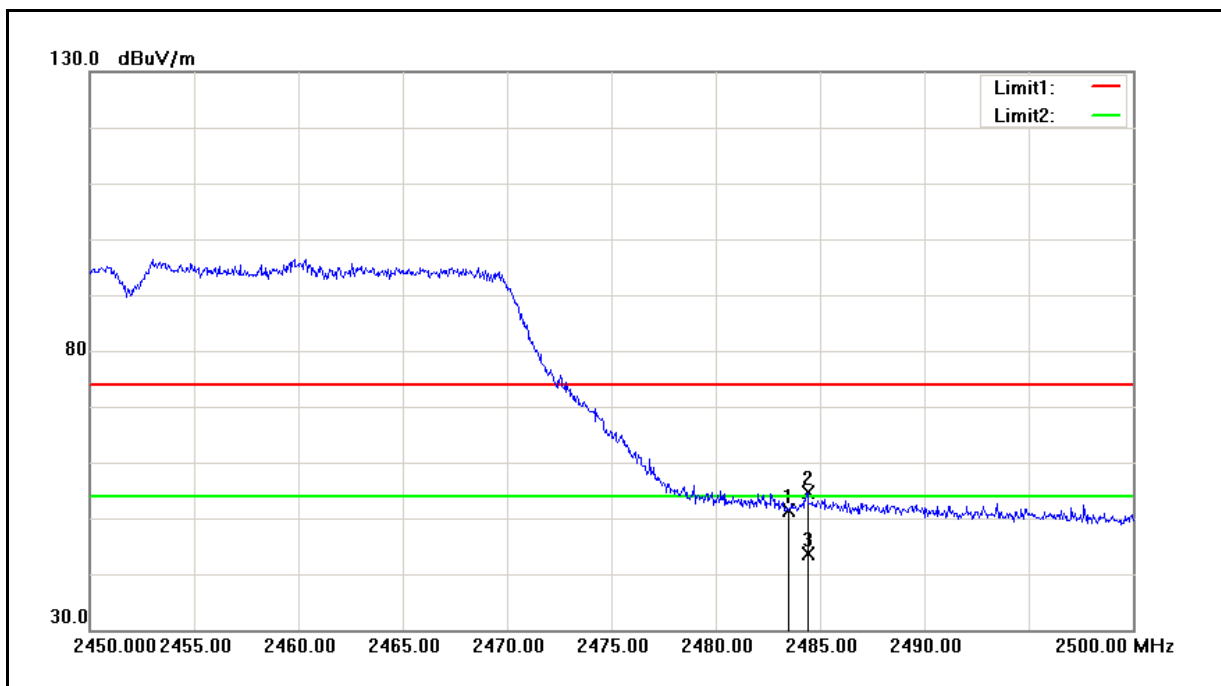
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	69.77	0.11	69.88	74.00	-4.12	peak
2	2483.500	53.52	0.11	53.63	54.00	-0.37	AVG
3	2484.765	72.56	0.12	72.68	74.00	-1.32	peak
4	2484.765	52.92	0.12	53.04	54.00	-0.96	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2452 MHz	Date:	09/04/2016
Ant.Polar.:	Horizontal		



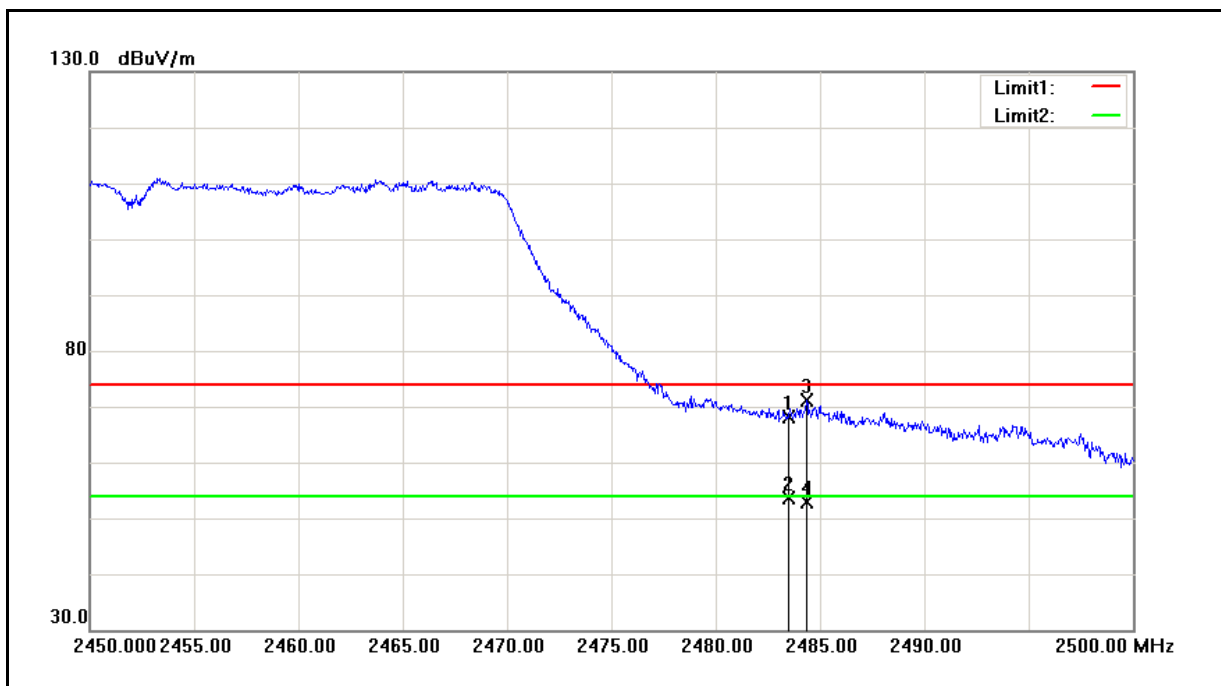
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	51.41	0.03	51.44	74.00	-22.56	peak
2	2484.400	54.55	0.04	54.59	74.00	-19.41	peak
3	2484.400	43.51	0.04	43.55	54.00	-10.45	AVG

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 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 5	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Frequency:	2452 MHz	Date:	09/04/2016
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	68.17	0.03	68.20	74.00	-5.80	peak
2	2483.500	53.59	0.03	53.62	54.00	-0.38	AVG
3	2484.350	71.02	0.04	71.06	74.00	-2.94	peak
4	2484.350	52.90	0.04	52.94	54.00	-1.06	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.

6 Maximum Conducted Output Power Measurement

6.1. Limit

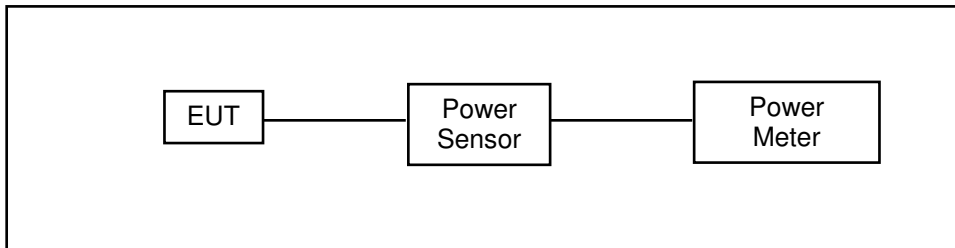
For systems using digital modulation in the 2400-2483.5MHz, the limit for maximum output power is 30dBm.

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 6dBi.

* SISO mode : Directional Gain = Max. Gain = 3 dBi < 6 dBi.

* MIMO mode : Directional Gain = $10 \cdot \log\{10^{(G_1/10)} + 10^{(G_2/10)} + \dots + 10^{(G_n/10)}\} / N_{ANT} = 3 \text{ dBi} < 6 \text{ dBi}$

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Power Sensor	Anritsu	MA2411B	1126022	08/29/2016	1 year
Power Meter	Anritsu	ML2495A	1135009	08/29/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/23/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

6.4. Test Procedure

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.

6.5. Test Result

Date of Test:	08/30/2016				
Antenna	ANT-0				
Test Mode	Frequency (MHz)	Data Rate (Mbps)	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1	18.00	0.063	< 30
	2427		18.02	0.063	< 30
	2437		19.70	0.093	< 30
	2457		21.22	0.132	< 30
	2462		21.69	0.148	< 30
	2437	2	19.65	0.092	< 30
	2437	5.5	19.64	0.092	< 30
	2437	11	19.60	0.091	< 30
Mode 3	2412	6	18.90	0.078	< 30
	2427		19.87	0.097	< 30
	2437		23.01	0.200	< 30
	2457		22.05	0.160	< 30
	2462		17.44	0.055	< 30
	2437	9	22.99	0.199	< 30
	2437	12	22.98	0.199	< 30
	2437	18	22.93	0.196	< 30
	2437	24	22.97	0.198	< 30
	2437	36	22.95	0.197	< 30
	2437	48	22.94	0.197	< 30
	2437	54	22.91	0.195	< 30

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



Date of Test	08/30/2016				
Antenna	ANT-0				
Test Mode	Frequency (MHz)	Data Rate (Mbps)	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 4	2412	13	14.35	0.027	< 30
	2427		18.08	0.064	< 30
	2437		21.01	0.126	< 30
	2457		20.20	0.105	< 30
	2462		13.08	0.020	< 30
	2437	26	20.99	0.126	< 30
	2437	39	20.94	0.124	< 30
	2437	52	20.98	0.125	< 30
	2437	78	20.93	0.124	< 30
	2437	104	20.95	0.124	< 30
	2437	117	20.97	0.125	< 30
	2437	130	20.90	0.123	< 30
	2437	156	20.92	0.124	< 30
Mode 5	2422	27	13.24	0.021	< 30
	2427		14.40	0.028	< 30
	2437		16.47	0.044	< 30
	2447		15.13	0.033	< 30
	2452		14.67	0.029	< 30
	2437	54	16.46	0.044	< 30
	2437	81	16.44	0.044	< 30
	2437	108	16.40	0.044	< 30
	2437	162	16.45	0.044	< 30
	2437	216	16.38	0.043	< 30
	2437	243	16.41	0.044	< 30
	2437	135	16.44	0.044	< 30
	2437	324	16.39	0.044	< 30
	2437	360	16.37	0.043	< 30

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

Date of Test	08/30/2016				
Antenna	ANT-1				
Test Mode	Frequency (MHz)	Data Rate (Mbps)	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 4	2412	13	13.97	0.025	< 30
	2427		17.67	0.058	< 30
	2437		20.63	0.116	< 30
	2457		20.60	0.115	< 30
	2462		13.20	0.021	< 30
	2437	26	20.59	0.115	< 30
	2437	39	20.56	0.114	< 30
	2437	52	20.55	0.114	< 30
	2437	78	20.61	0.115	< 30
	2437	104	20.55	0.114	< 30
	2437	117	20.54	0.113	< 30
	2437	130	20.60	0.115	< 30
	2437	156	20.58	0.114	< 30
Mode 5	2422	27	12.78	0.019	< 30
	2427		14.04	0.025	< 30
	2437		16.33	0.043	< 30
	2447		15.20	0.033	< 30
	2452		14.93	0.031	< 30
	2437	54	16.24	0.042	< 30
	2437	81	16.25	0.042	< 30
	2437	108	16.27	0.042	< 30
	2437	162	16.20	0.042	< 30
	2437	216	16.29	0.043	< 30
	2437	243	16.30	0.043	< 30
	2437	135	16.22	0.042	< 30
	2437	324	16.24	0.042	< 30
	2437	360	16.28	0.042	< 30

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

Date of Test	08/30/2016				
Antenna	ANT-0+1				
Test Mode	Frequency (MHz)	Data Rate (Mbps)	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 4	2412	13	17.17	0.052	< 30
	2427		20.89	0.123	< 30
	2437		23.83	0.242	< 30
	2457		23.41	0.220	< 30
	2462		16.15	0.041	< 30
	2437	26	23.80	0.240	< 30
	2437	39	23.76	0.238	< 30
	2437	52	23.78	0.239	< 30
	2437	78	23.78	0.239	< 30
	2437	104	23.76	0.238	< 30
	2437	117	23.77	0.238	< 30
	2437	130	23.76	0.238	< 30
	2437	156	23.76	0.238	< 30
Mode 5	2422	27	16.03	0.040	< 30
	2427		17.23	0.053	< 30
	2437		19.41	0.087	< 30
	2447		18.18	0.066	< 30
	2452		17.81	0.060	< 30
	2437	54	19.36	0.086	< 30
	2437	81	19.36	0.086	< 30
	2437	108	19.35	0.086	< 30
	2437	162	19.34	0.086	< 30
	2437	216	19.35	0.086	< 30
	2437	243	19.37	0.086	< 30
	2437	135	19.34	0.086	< 30
	2437	324	19.33	0.086	< 30
	2437	360	19.34	0.086	< 30

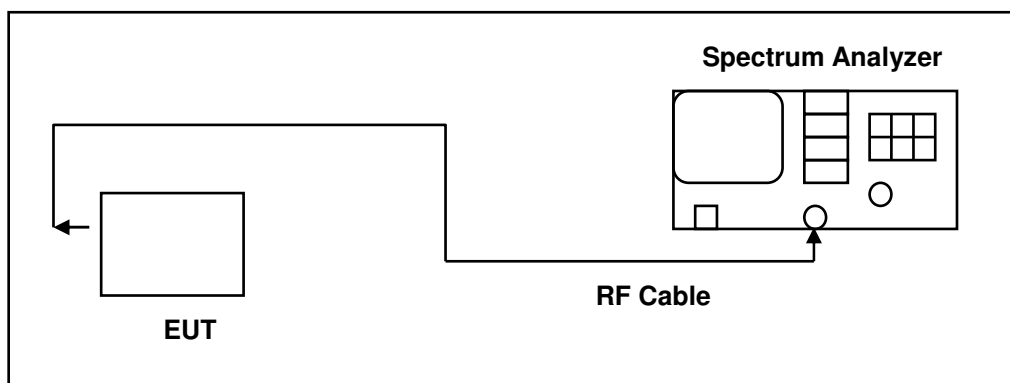
Note: The relevant measured result has the offset with cable loss already.

7 6dB RF Bandwidth Measurement

7.1. Limit

6dB RF Bandwidth: Systems using digital modulation techniques may operate in the 2400–2483.5 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

7.2. Test Setup



7.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/23/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

7.4. Test Procedure

The EUT tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.

6dB RF Bandwidth: The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels (Channel low, middle, high)



7.5. Test Result

Date of Test	11/16/2016			
Test Mode	Frequency (MHz)	Measurement (kHz)		Limit (kHz)
		ANT-0	ANT-1	
Mode 2	2412	10130	---	> 500
	2437	10120	---	> 500
	2462	10120	---	> 500
Mode 3	2412	16590	---	> 500
	2437	16560	---	> 500
	2462	16580	---	> 500
Mode 4	2412	17810	17810	> 500
	2437	17750	17750	> 500
	2462	17770	17730	> 500
Mode 5	2422	36560	36430	> 500
	2437	36520	36460	> 500
	2452	36520	36430	> 500



7.6. Test Graphs

Test Mode:	Mode 2: IEEE 802.11b link mode
Antenna:	ANT-0
2412 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.41200000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center: 2.412 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 14.974 MHz Total Power: 24.7 dBm Transmit Freq Error: 21.278 kHz OBW Power: 99.00 % x dB Bandwidth: 10.13 MHz x dB: -6.00 dB
2437 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 14.977 MHz Total Power: 26.8 dBm Transmit Freq Error: 7.581 kHz OBW Power: 99.00 % x dB Bandwidth: 10.12 MHz x dB: -6.00 dB
2462 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.46200000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center: 2.462 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 14.998 MHz Total Power: 28.9 dBm Transmit Freq Error: -4.742 kHz OBW Power: 99.00 % x dB Bandwidth: 10.12 MHz x dB: -6.00 dB



Test Mode:	Mode 3: IEEE 802.11g link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-0
2412 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.41200000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth: 17.649 MHz Total Power: 21.0 dBm Transmit Freq Error: 12.810 kHz OBW Power: 99.00 % x dB Bandwidth: 17.81 MHz x dB: -6.00 dB Frequency: Center Freq 2.41200000 GHz CF Step 3.000000 MHz Freq Offset 0 Hz
2437 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth: 17.716 MHz Total Power: 27.8 dBm Transmit Freq Error: 5.618 kHz OBW Power: 99.00 % x dB Bandwidth: 17.75 MHz x dB: -6.00 dB Frequency: Center Freq 2.43700000 GHz CF Step 3.000000 MHz Freq Offset 0 Hz
2462 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.46200000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth: 17.653 MHz Total Power: 19.5 dBm Transmit Freq Error: 5.743 kHz OBW Power: 99.00 % x dB Bandwidth: 17.77 MHz x dB: -6.00 dB Frequency: Center Freq 2.46200000 GHz CF Step 3.000000 MHz Freq Offset 0 Hz

Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-0
2422 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.42200000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Dev: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz Sweep 4.8 ms Occupied Bandwidth: 36.212 MHz Total Power: 19.9 dBm Transmit Freq Error: -20.017 kHz x dB Bandwidth: 36.56 MHz OBW Power: 99.00 % x dB: -5.00 dB Frequency: Center Freq 2.42200000 GHz CF Step 5.000000 MHz Freq Offset 0 Hz
2437 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Dev: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz Sweep 4.8 ms Occupied Bandwidth: 36.200 MHz Total Power: 23.1 dBm Transmit Freq Error: -22.609 kHz x dB Bandwidth: 36.52 MHz OBW Power: 99.00 % x dB: -5.00 dB Frequency: Center Freq 2.43700000 GHz CF Step 5.000000 MHz Freq Offset 0 Hz
2452 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.45200000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Dev: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz Sweep 4.8 ms Occupied Bandwidth: 36.200 MHz Total Power: 21.4 dBm Transmit Freq Error: -31.547 kHz x dB Bandwidth: 36.52 MHz OBW Power: 99.00 % x dB: -5.00 dB Frequency: Center Freq 2.45200000 GHz CF Step 5.000000 MHz Freq Offset 0 Hz



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-1
2412 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2412000000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center: 2.412 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.649 MHz Total Power: 21.0 dBm Transmit Freq Error: 12.810 kHz OBW Power: 99.00 % x dB Bandwidth: 17.81 MHz x dB: -6.00 dB Frequency: Center Freq 2.412000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz
2437 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2437000000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.708 MHz Total Power: 27.2 dBm Transmit Freq Error: -15.569 kHz OBW Power: 99.00 % x dB Bandwidth: 17.75 MHz x dB: -6.00 dB Frequency: Center Freq 2.437000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz
2462 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2462000000 GHz Trig: Free Run #Att: 26 dB Avg/Hold: 10/10 Radio Device: BTS Ref Offset: 10.0 dB Ref: 20.00 dBm Center: 2.462 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.639 MHz Total Power: 21.5 dBm Transmit Freq Error: -10.766 kHz OBW Power: 99.00 % x dB Bandwidth: 17.73 MHz x dB: -6.00 dB Frequency: Center Freq 2.462000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz



Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-1
2422 MHz	
2437 MHz	
2452 MHz	

8 Maximum Power Density Measurement

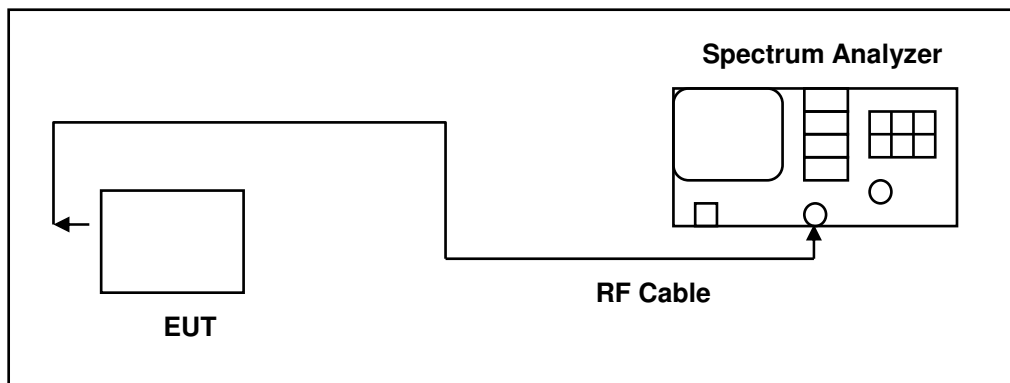
8.1. Limit

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.

* SISO mode : Directional Gain = Max. Gain = 3 dBi < 6 dBi.

* MIMO mode : Directional Gain = $10 \cdot \log\{[10^{(G1/10)} + 10^{(G2/10)} + \dots + 10^{(Gn/10)}] / NANT\}$ = 3 dBi < 6dBi

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/23/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

8.4. Test Procedure

The EUT tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



8.5. Test Result

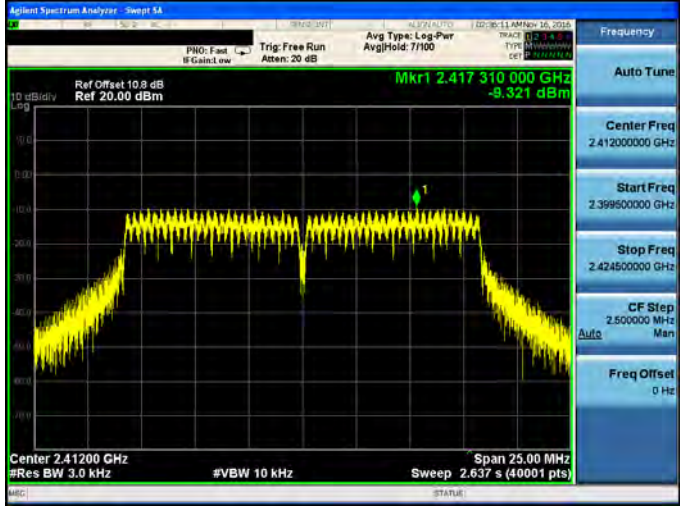
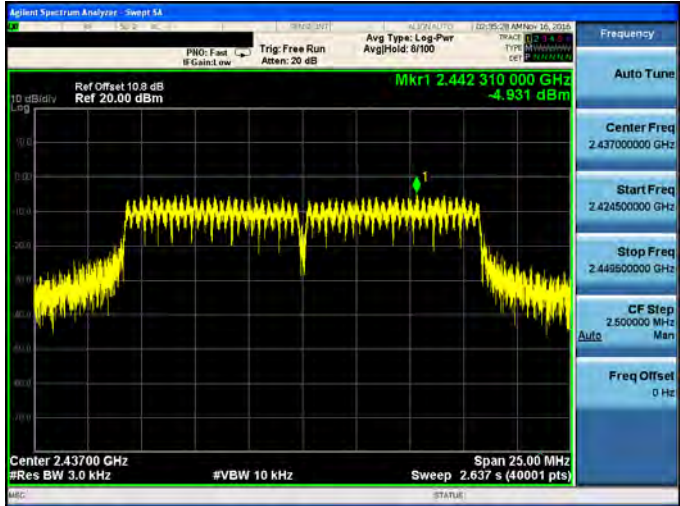
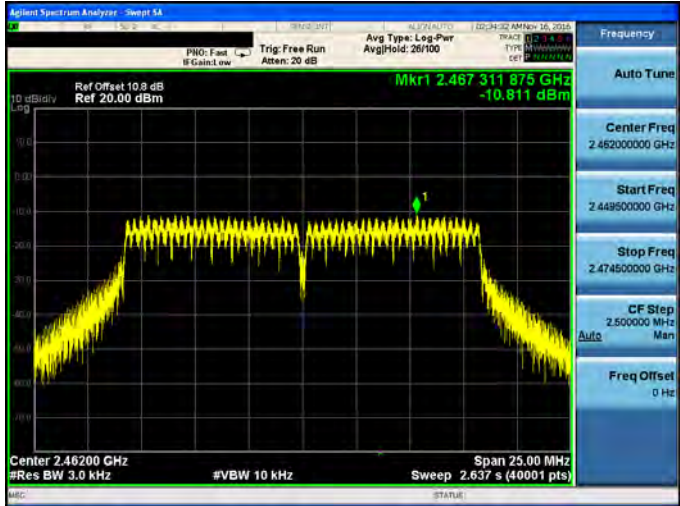
Date of Test	11/16/2016				
Test Mode	Frequency (MHz)	Measurement (dBm/3KHz)			Limit (dBm/3KHz)
		ANT-0	ANT-1	ANT-0+1	
Mode 2	2412	-12.322	---	---	< 8
	2437	-10.233	---	---	< 8
	2462	-8.276	---	---	< 8
Mode 3	2412	-9.321	---	---	< 8
	2437	-4.931	---	---	< 8
	2462	-10.811	---	---	< 8
Mode 4	2412	-12.375	-12.961	-9.648	< 8
	2437	-5.434	-6.342	-2.854	< 8
	2462	-13.777	-13.446	-10.598	< 8
Mode 5	2422	-16.419	-14.552	-12.376	< 8
	2437	-12.338	-13.645	-9.932	< 8
	2452	-15.200	-15.099	-12.139	< 8



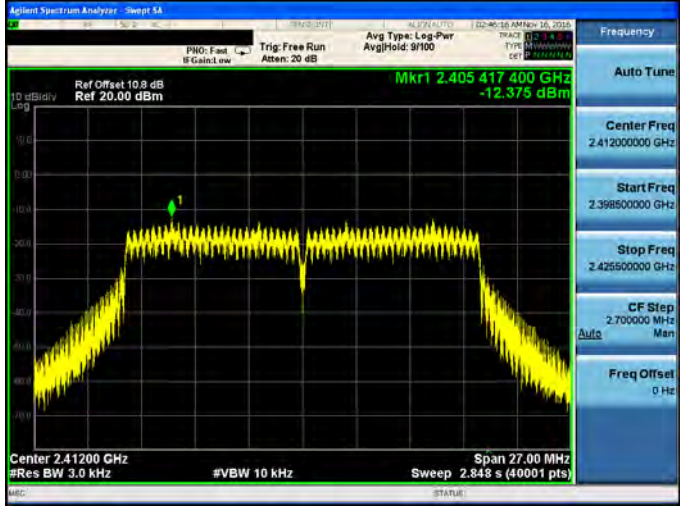
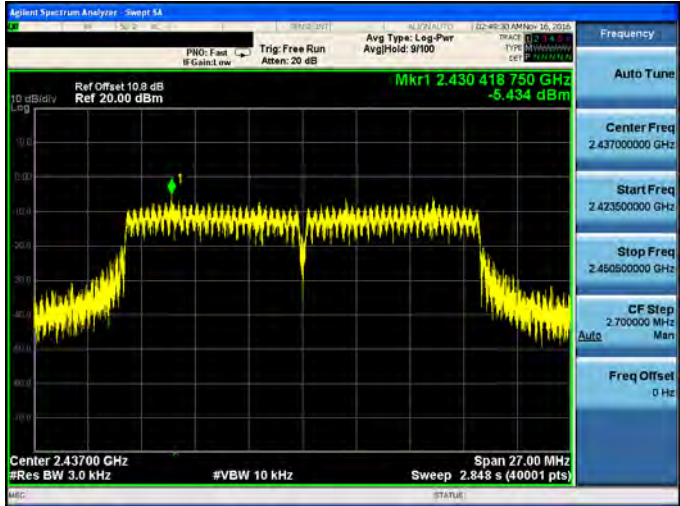
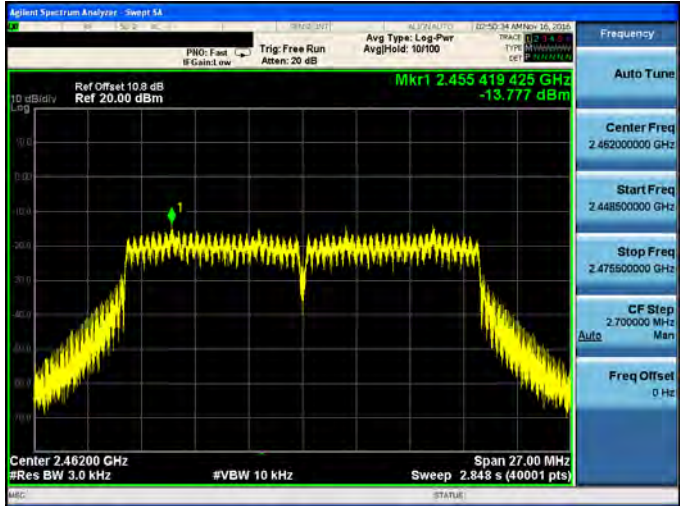
8.6. Test Graphs

Test Mode:	Mode 2: IEEE 802.11b link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

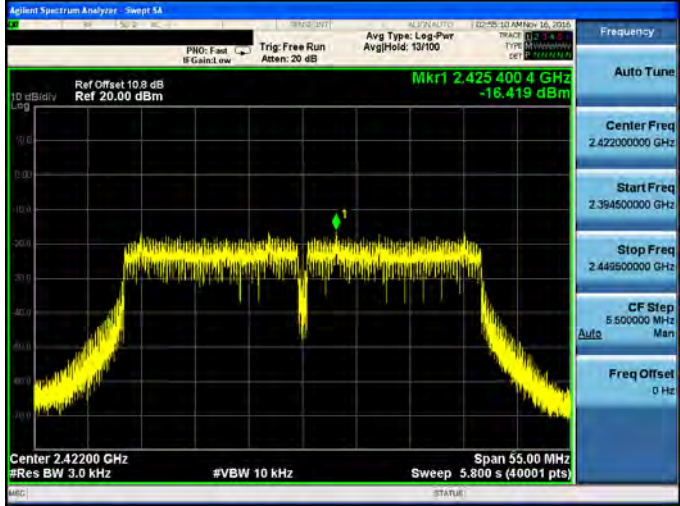
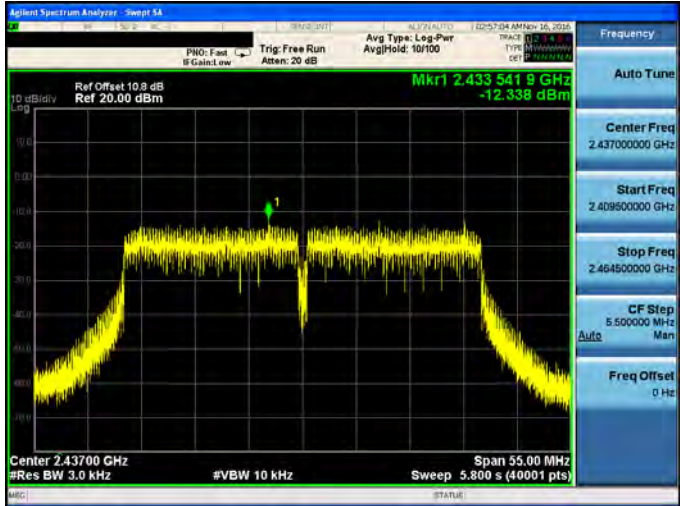
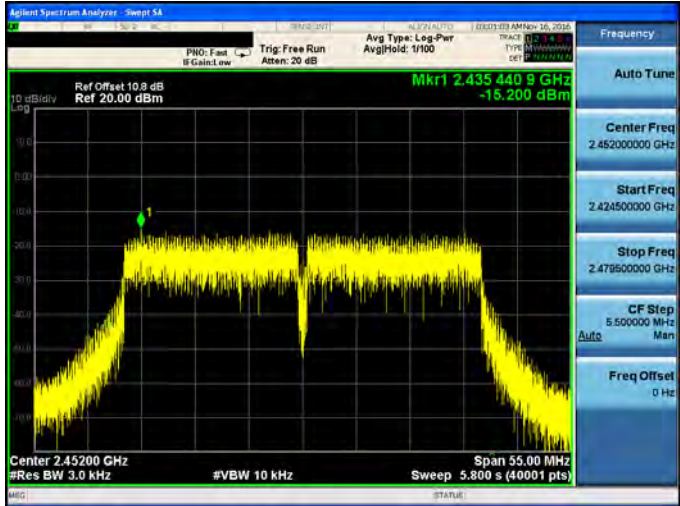


Test Mode:	Mode 3: IEEE 802.11g link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

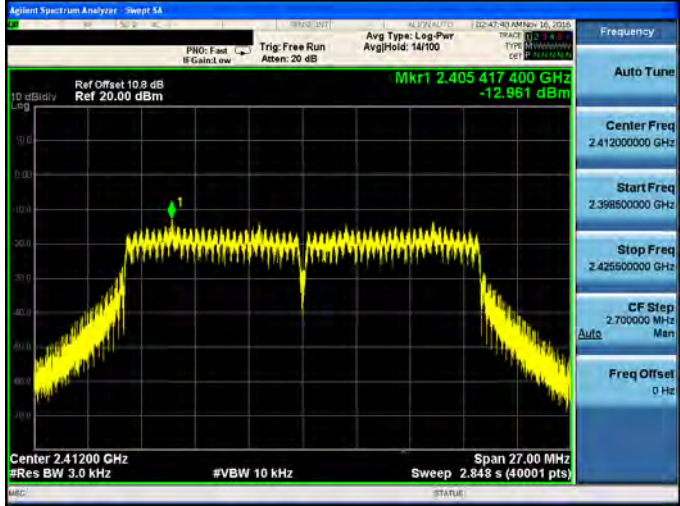
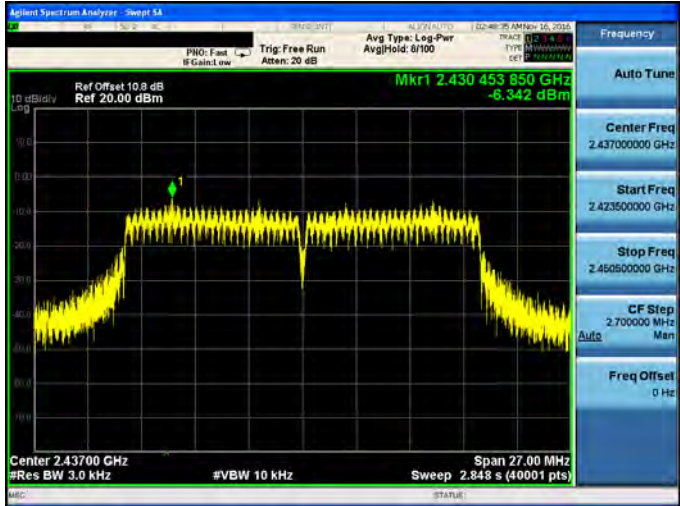
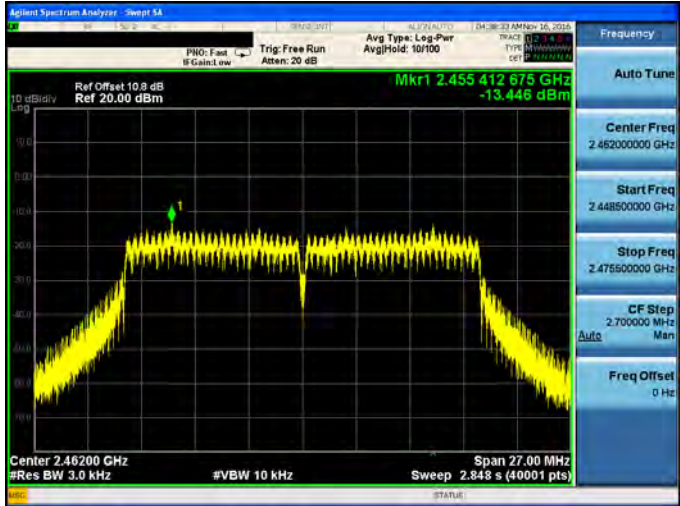


Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

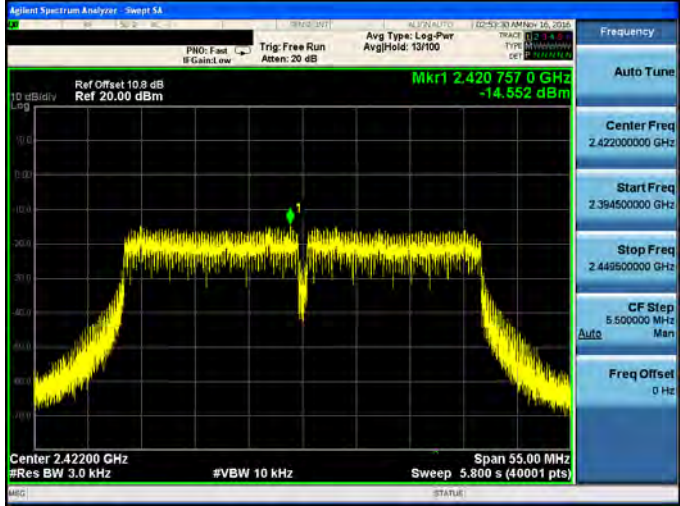
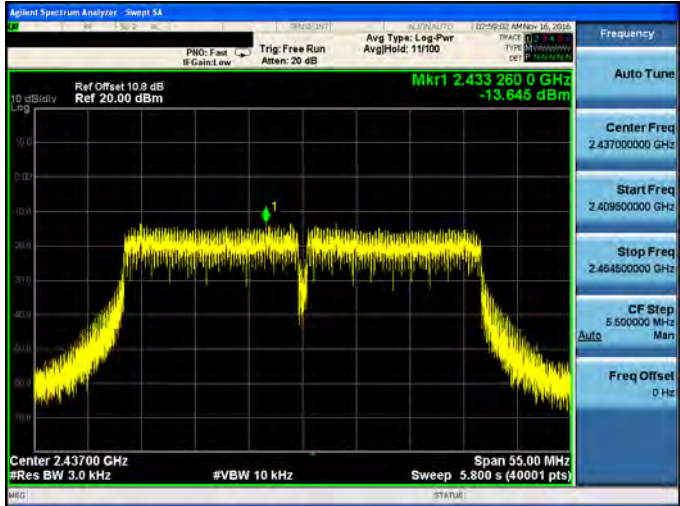
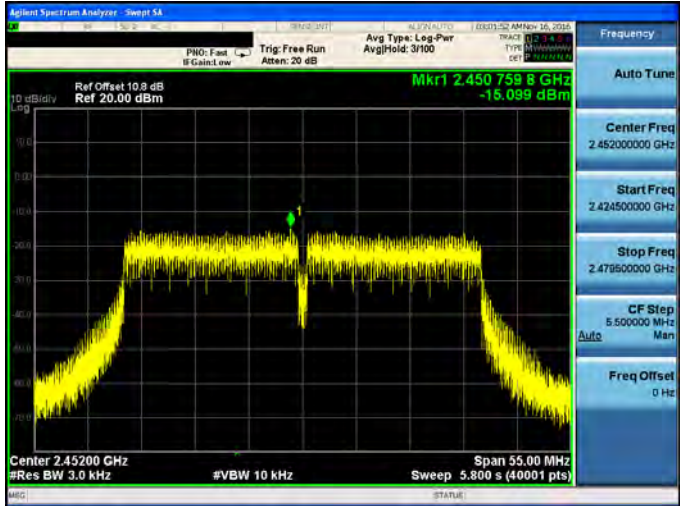


Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-0
2422 MHz	
2437 MHz	
2452 MHz	



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



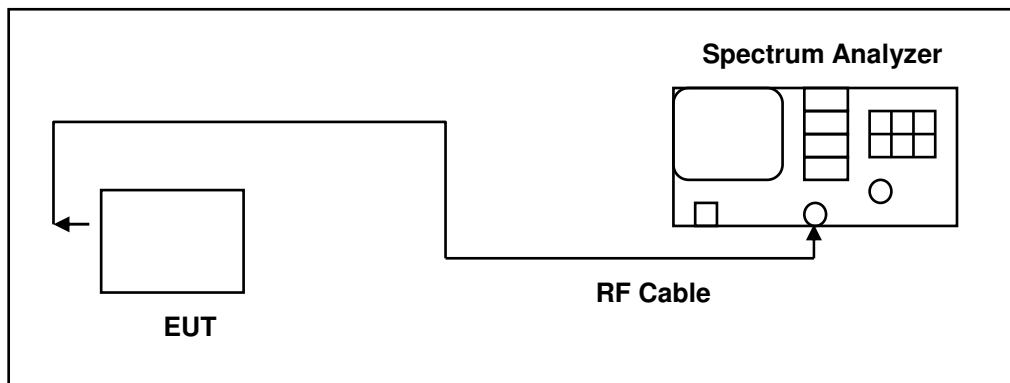
Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-1
2422 MHz	
2437 MHz	
2452 MHz	

9 Out of Band Conducted Emissions Measurement

9.1. Limit

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 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	1 year
Spectrum Analyzer	Agilent	E4408B	MY45107753	08/08/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/23/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

9.4. Test Procedure

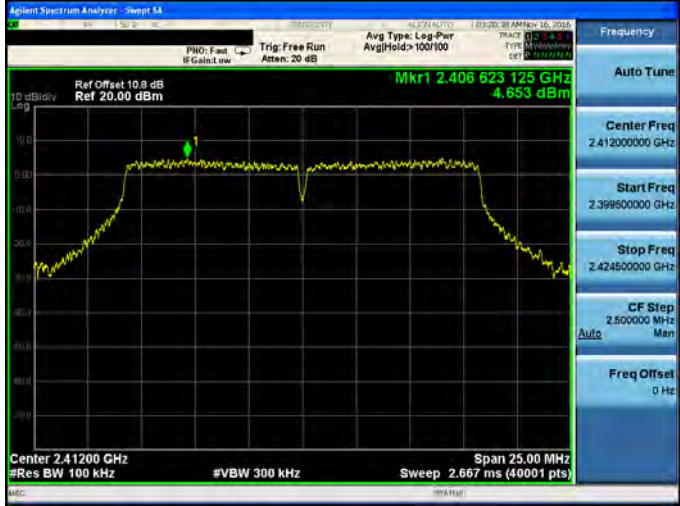
In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 30 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function. All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels.

9.5. Test Graphs

Reference level

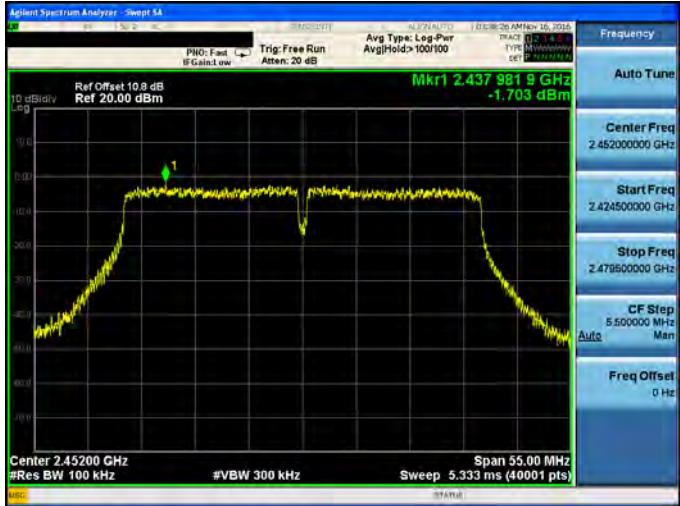
Test Mode:	Mode 2: IEEE 802.11b link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

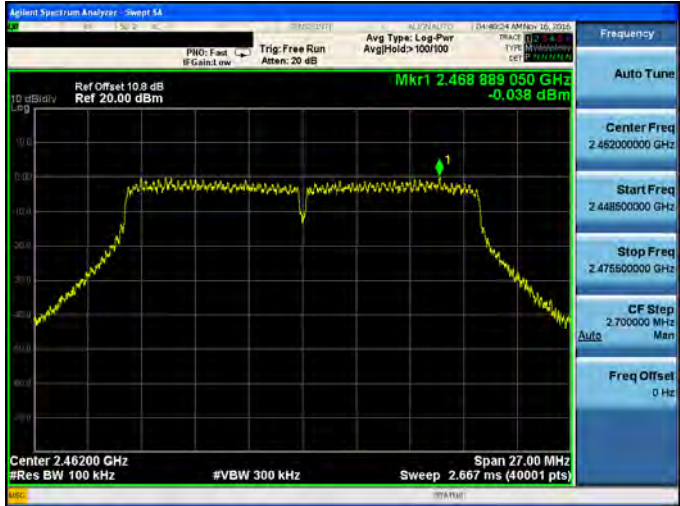


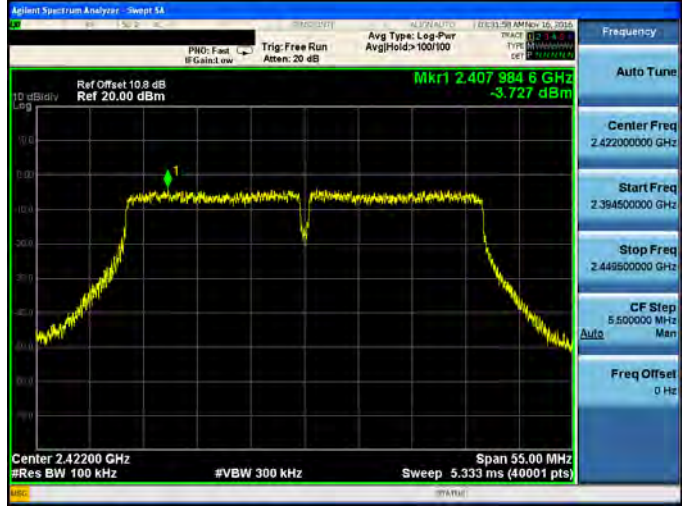
Test Mode:	Mode 3: IEEE 802.11g link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

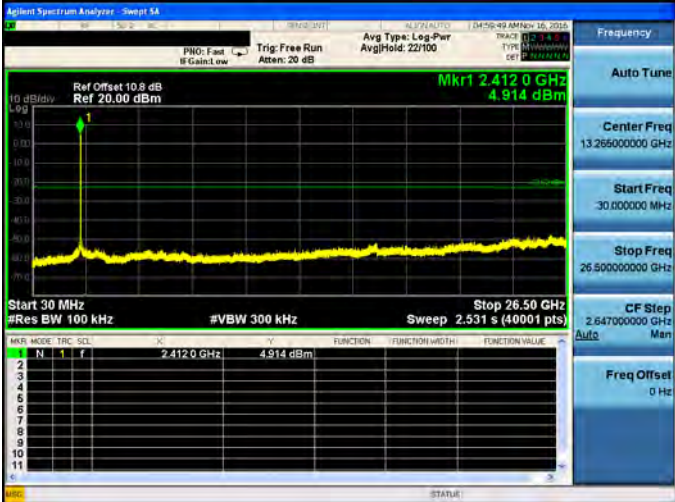
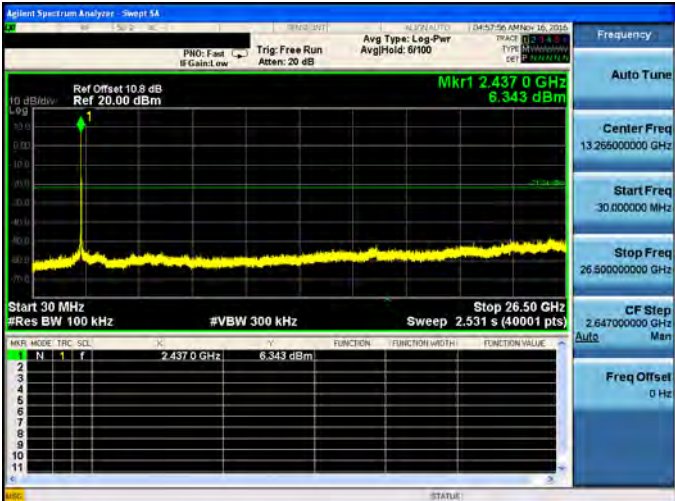
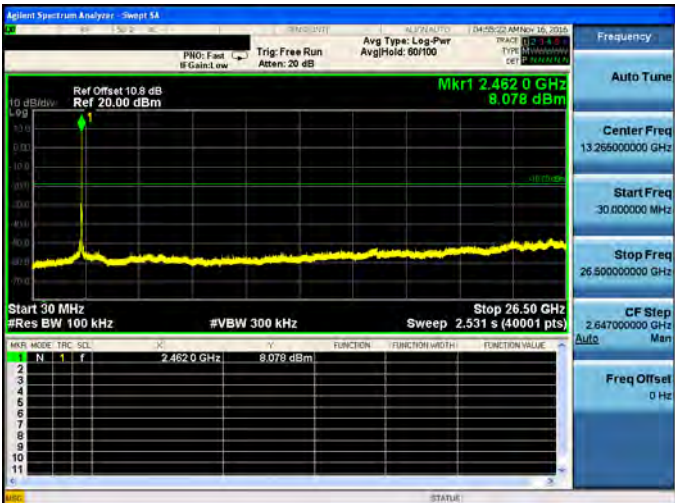


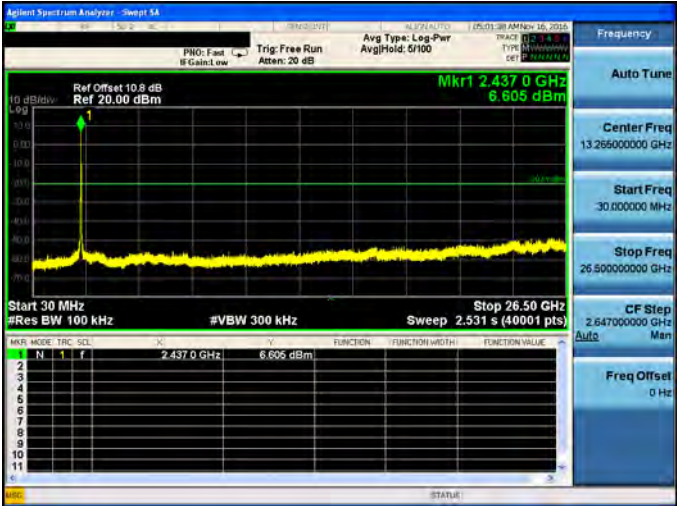
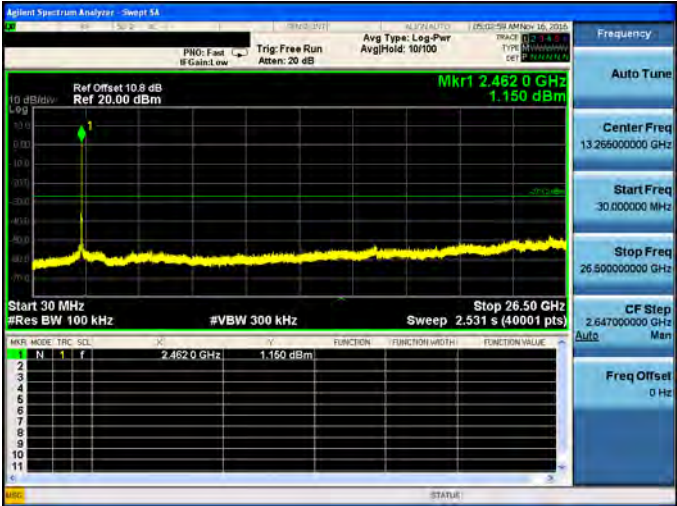
Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-0
2422 MHz	
2437 MHz	
2452 MHz	

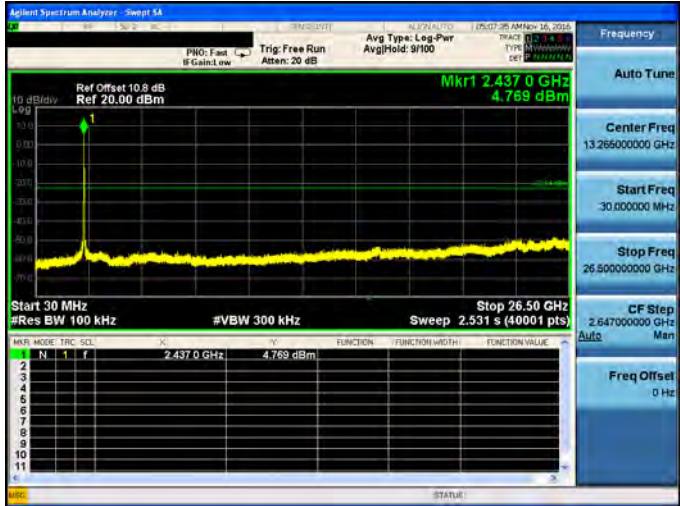
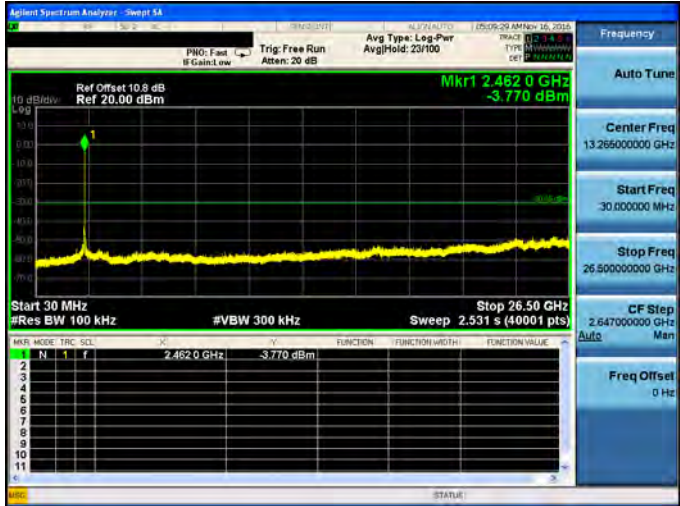
Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	

Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-1
2422 MHz	
2437 MHz	
2452 MHz	

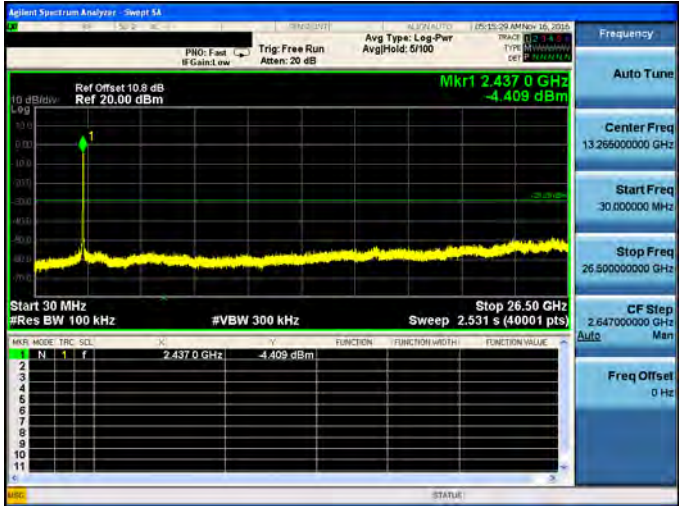
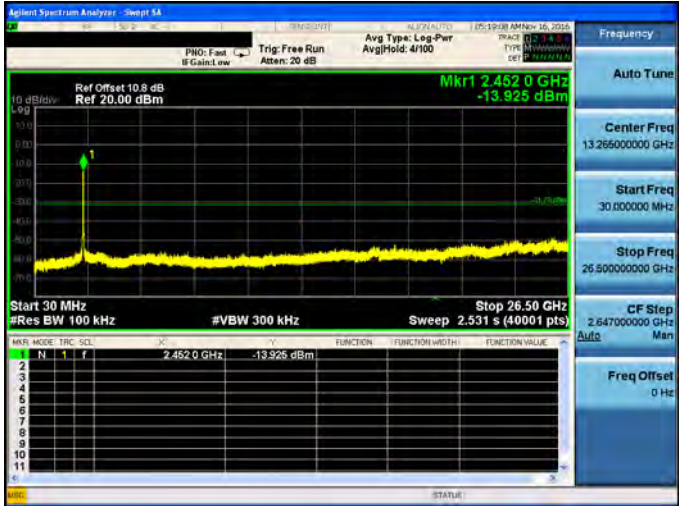
Out of Band Conducted Emissions

Test Mode:	Mode 2: IEEE 802.11b link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

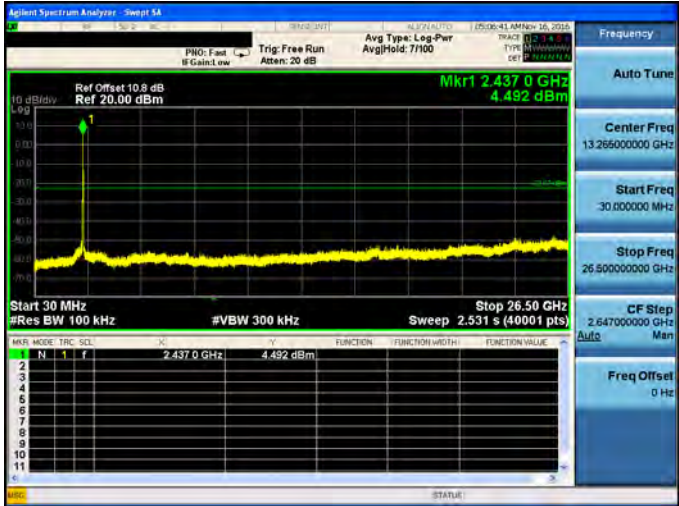
Test Mode:	Mode 3: IEEE 802.11g link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

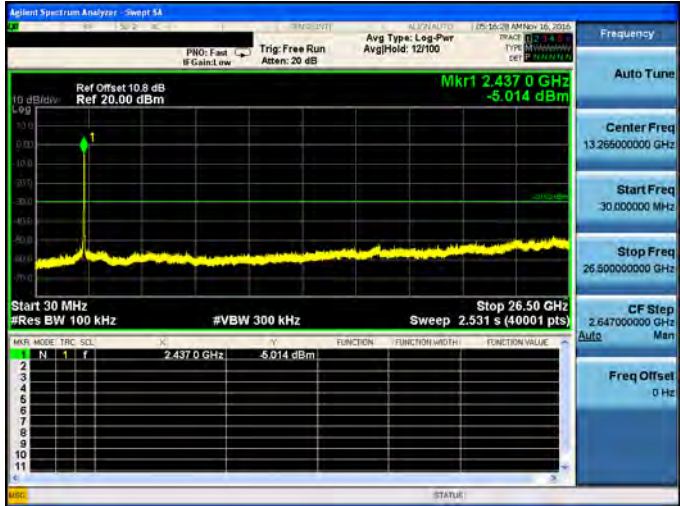
Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	



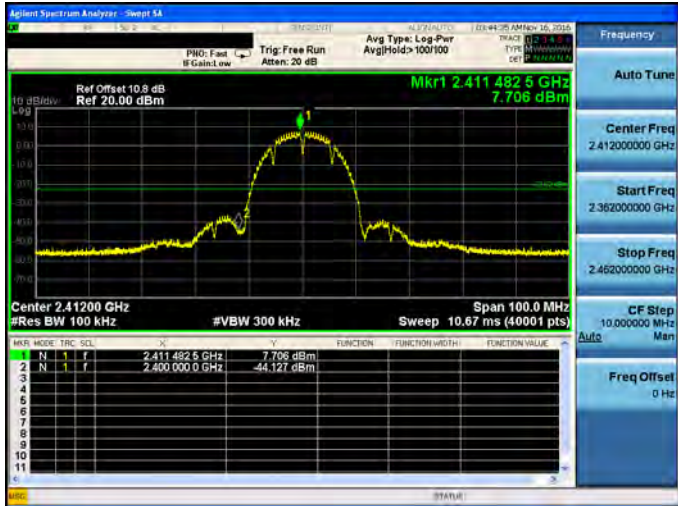
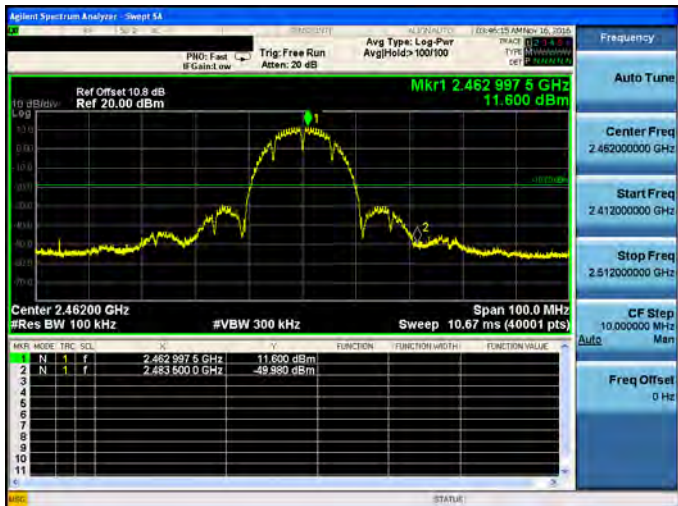
Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-0
2422 MHz	
2437 MHz	
2452 MHz	



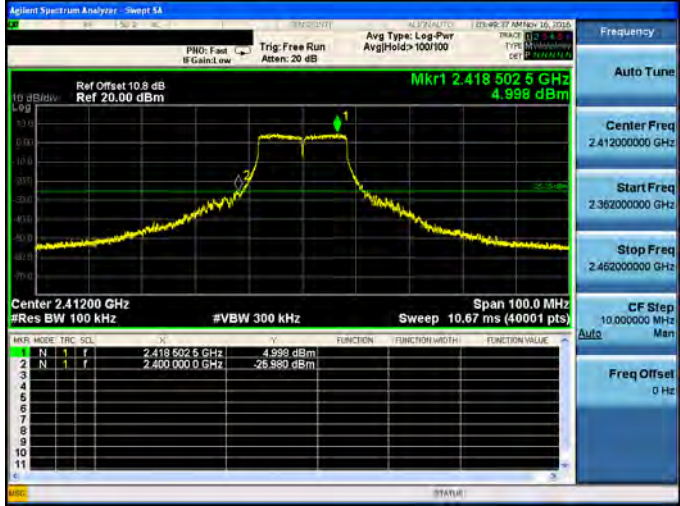
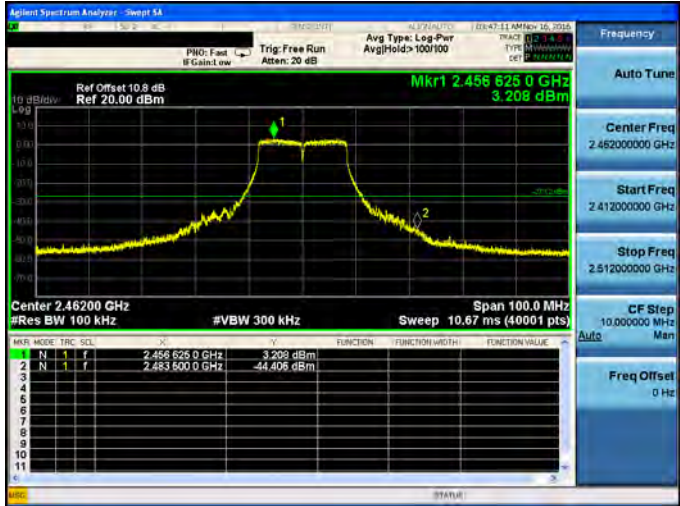
Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	

Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-1
2422 MHz	
2437 MHz	
2452 MHz	

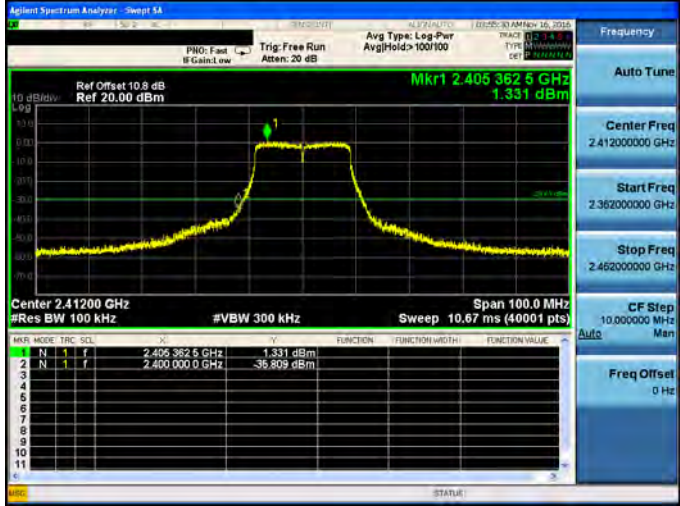
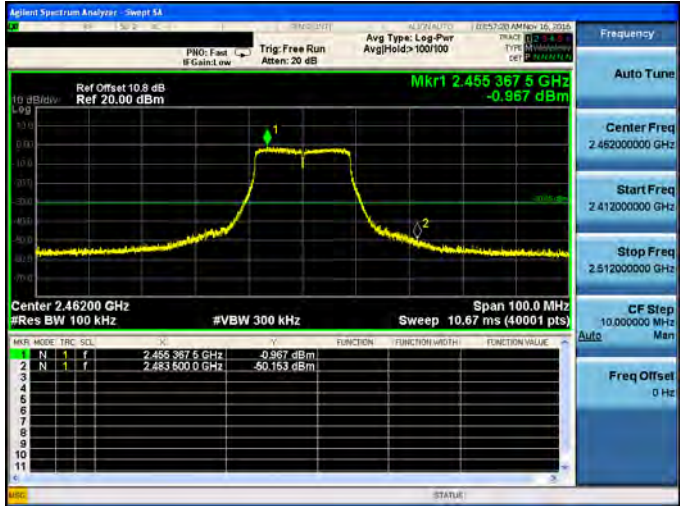
**Conducted Band Edge**

Test Mode:	Mode 2: IEEE 802.11b link mode
Antenna:	ANT-0
2412 MHz	
2462 MHz	

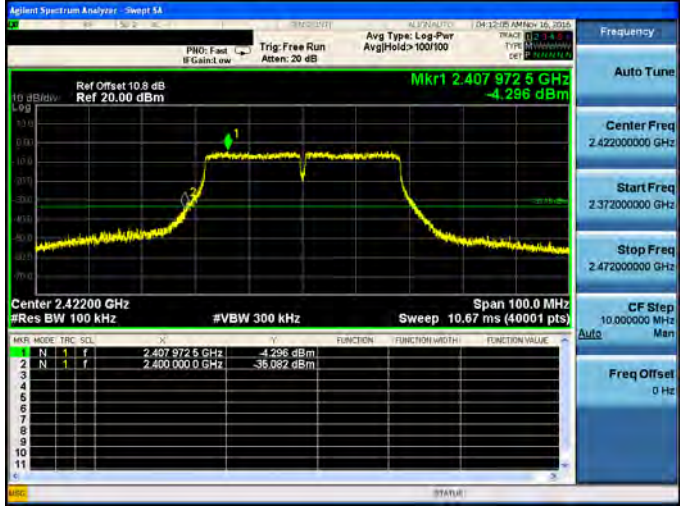


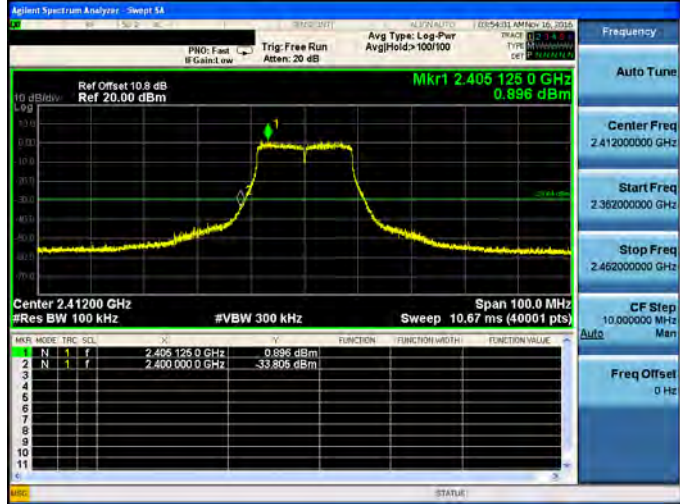
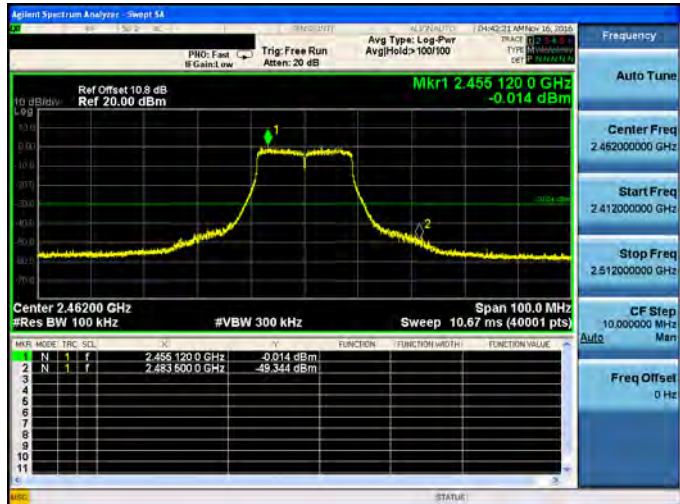
Test Mode:	Mode 3: IEEE 802.11g link mode
Antenna:	ANT-0
2412 MHz	
2462 MHz	



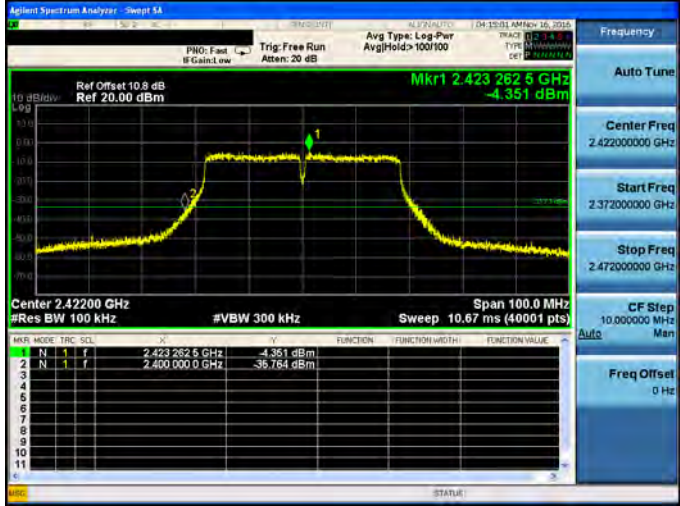
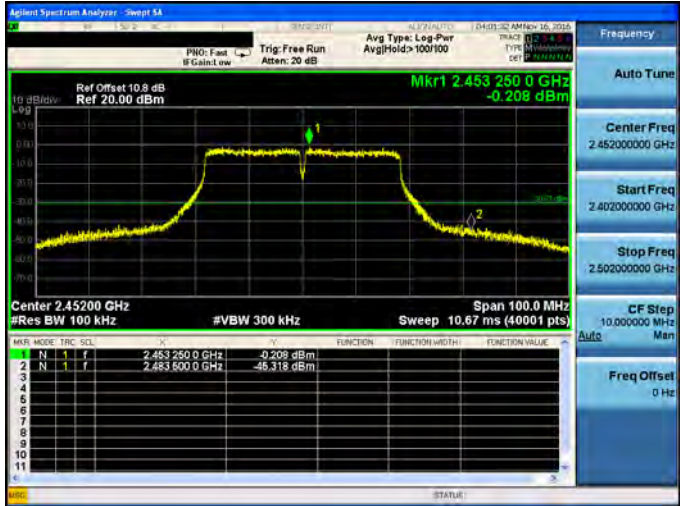
Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-0
2412 MHz	
2462 MHz	



Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-0
2422 MHz	
2452 MHz	

Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Antenna:	ANT-1
2412 MHz	
2462 MHz	



Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode
Antenna:	ANT-1
2422 MHz	
2452 MHz	



10 Antenna Measurement

10.1.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 6dBi.

10.2.Antenna Description

See section 2 – antenna information.

10.3.Directiona Gain Calculated

$$\text{Directional Gain} = 10 \cdot \log\{[10^{(G1/10)} + 10^{(G2/10)} + \dots + 10^{(Gn/10)}] / NANT\} = 3 \text{ dBi} < 6 \text{ dBi}$$

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11n 2.4GHz 20MHz	3
IEEE 802.11n 2.4GHz 40MHz	3