



RF Test Report

Applicant : Netgear Incorporated
Product Type : Mobile Router
Trade Name : NETGEAR
Model Number : MR1100-320
Test Specification : FCC 47 CFR PART 15 SUBPART E
ANSI C63.10:2013
Receive Date : Apr. 12, 2017
Test Period : Jul. 17 ~ Aug. 31, 2017
Issue Date : Sep. 05, 2017

Issue by

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade District,
Taoyuan City 33465, Taiwan (R.O.C)
Tel : +86-3-2710188 / Fax : +86-3-2710190



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

Note: This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp. This document may be altered or revised by A Test Lab Techno Corp. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by TAF, or any government agencies. The test results in the report only apply to the tested sample.



Revision History

Rev.	Issue Date	Revisions	Revised By
00	Aug. 11, 2017	Initial Issue	Nina Lin
01	Sep. 05, 2017	Revised report information.	Nina Lin



Verification of Compliance

Issued Date: Sep. 05, 2017

Applicant : Netgear Incorporated
Product Type : Mobile Router
Trade Name : NETGEAR
Model Number : MR1100-320
FCC ID : PY317200378
EUT Rated Voltage : DC 5V, 2A
Test Voltage : 120 Vac / 60 Hz, 3.85Vdc
Applicable Standard : FCC 47 CFR PART 15 SUBPART E
ANSI C63.10:2013
Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade District,
Taoyuan City 33465, Taiwan (R.O.C)
Tel : +86-3-2710188 / Fax : +86-3-2710190
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 : Fly Lu Reviewed By : Eric Ou Yang
(Manager) (Fly Lu) (Testing Engineer) (Eric Ou Yang)

TABLE OF CONTENTS

1	General Information	5
1.1.	Summary of Test Result	5
1.2.	Measurement Uncertainty	5
2	EUT Description	6
3	Test Methodology.....	8
3.1.	Mode of Operation	8
3.2.	EUT Exercise Software	12
3.3.	Configuration of Test System Details	13
3.4.	Test Site Environment.....	13
4	Test Results.....	14
4.1.	AC Power Conducted Emission Measurement	14
4.2.	Test Procedure	15
4.3.	Transmitter Radiated Emissions Measurement.....	18
4.4.	Maximum Conducted Output Power and Transmit power control Measurement	92
4.5.	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement.....	96
4.6.	6dB RF Bandwidth Measurement	104
4.7.	Peak Power Spectral Density Measurement	112
4.8.	Frequency Stability Measurement.....	135
4.9.	Antenna Requirement.....	137

1 General Information

1.1. Summary of Test Result

Standard	Item	Result	Remark
FCC			
15.407(b)(6) 15.207	AC Power Conducted Emission	PASS	---
15.407(b) 15.205 / 15.209	Transmitter Radiated Emissions	PASS	---
15.407(a)	Maximum Conducted Output Power	PASS	---
15.407(a)	26dB RF Bandwidth	Reference	---
15.407(e)	6dB RF Bandwidth	PASS	-----
15.407(a)	Peak Power Spectral Density	PASS	---
15.407(g)	Frequency Stability	PASS	---
15.407(a) 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
Frequency Stability		+ 2.212 x 10 ⁻⁷ % / - 2.170 x 10 ⁻⁷
Duty Cycle		1.06%
Time Occupancy		1.40%



2 EUT Description

Applicant	Netgear Incorporated 350 East Plumeria Drive, San Jose, California, United States 95134		
Manufacturer	Netgear Inc. Suite 168 - 10760 Shellbridge Way, Richmond, BC Canada V6X 3H1		
Product Type	Mobile Router		
Trade Name	NETGEAR		
Model No.	MR1100-320		
FCC ID	PY317200378		
Operate Frequency	Frequency Band		Frequency Range (MHz)
	IEEE 802.11a	U-NII Band I	5180 – 5240
		U-NII Band III	5745 – 5825
	IEEE 802.11n 5GHz 20 MHz / IEEE 802.11ac 20 MHz	U-NII Band I	5180 – 5240
		U-NII Band III	5745 – 5825
	IEEE 802.11n 5GHz 40 MHz / IEEE 802.11ac 40 MHz	U-NII Band I	5190 – 5230
		U-NII Band III	5755 – 5795
	IEEE 802.11ac 80 MHz	U-NII Band I	5210
		U-NII Band III	5775
Modulation Type	OFDM		
Equipment Type	Master		
Antenna information	Model	Type	Max. Gain (dBi)
	XKAB-B12	PIFA Antenna	5.0
Antenna Delivery	Reference section 3.1		
Frequency stability specification	± 20 ppm		
Operate Temp. Range	0 ~ +50 °C		



Frequency Band		RF Output Power (W)
IEEE 802.11a	U-NII Band I	0.016
	U-NII Band III	0.015
IEEE 802.11ac 20 MHz	U-NII Band I	0.015
	U-NII Band III	0.015
IEEE 802.11ac 40 MHz	U-NII Band I	0.015
	U-NII Band III	0.015
IEEE 802.11ac 80 MHz	U-NII Band I	0.015
	U-NII Band III	0.015

3 Test Methodology

3.1. Mode of Operation

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

Test Mode
Mode 1: Transmit mode
Mode 2: IEEE 802.11a Continuous TX mode
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode
Mode 5: IEEE 802.11ac 80MHz Continuous TX mode

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

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

Note : worst case_Battery Model:W-10a + Adapter Model: AD2037320.

Equipment Type	
Outdoor access point	---
Indoor access point	---
Fixed point-to-point access points	---
Client devices	---
Mobile access point	V

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

Test Mode	Antenna Delivery	Data Rate	Band	Test Channel
Mode 2	2TX / 2RX (MIMO)	6M	U-NII Band I	36, 40, 48
			U-NII Band III	149, 157, 165
Mode 3	2TX / 2RX (MIMO)	13M	U-NII Band I	36, 40, 48
			U-NII Band III	149, 157, 165
Mode 4	2TX / 2RX (MIMO)	27M	U-NII Band I	38, 46
			U-NII Band III	151,159
Mode 5	2TX / 2RX (MIMO)	58.6M	U-NII Band I	42
			U-NII Band III	155



Duty cycle

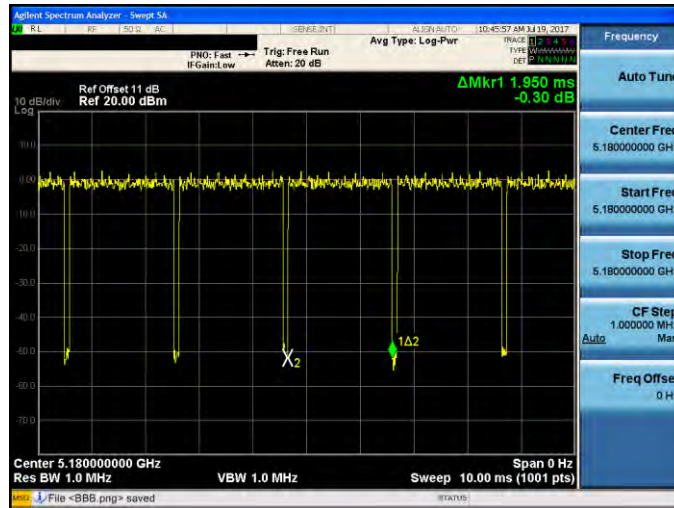
Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 2	5180.0	2.100	2.170	0.968	0.142	0.476
Mode 3	5180.0	1.950	2.030	0.961	0.175	0.513
Mode 4	5190.0	0.970	1.050	0.924	0.344	1.031
Mode 5	5210.0	0.480	0.555	0.865	0.631	2.083

Duty Cycle Graphs

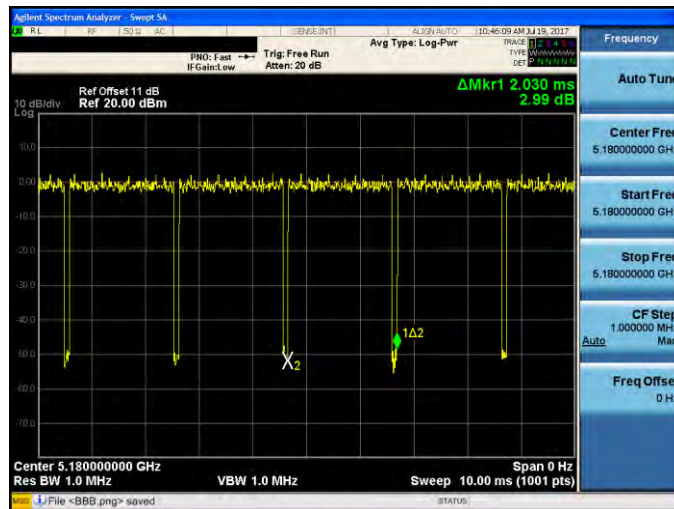


Mode 3: IEEE 802.11ac 20MHz Continuous TX mode

On time



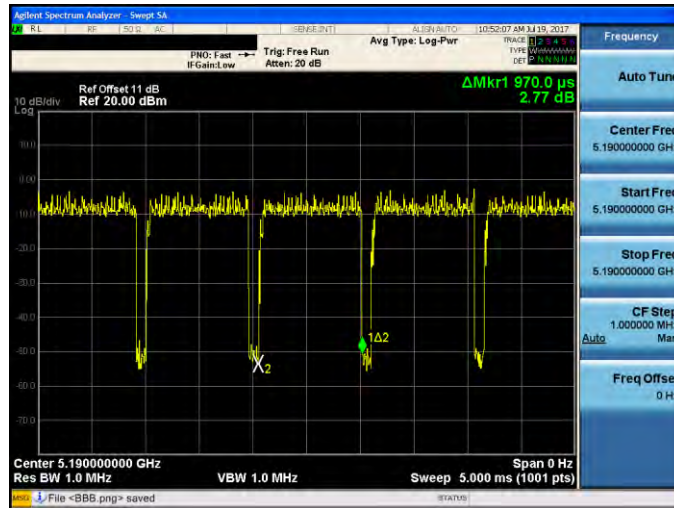
On+off time



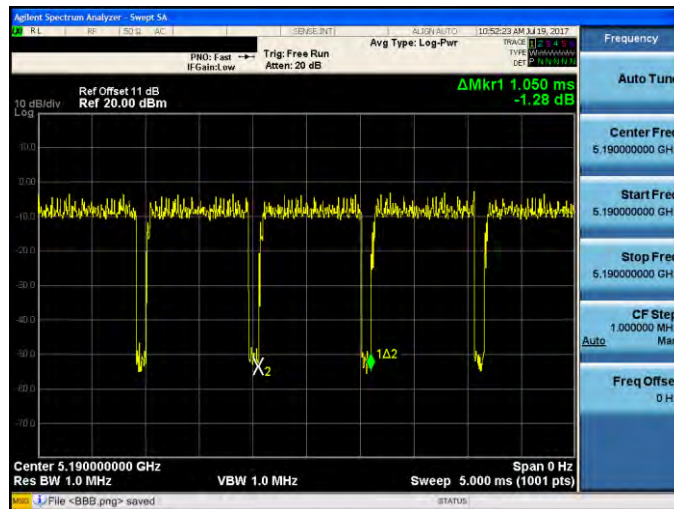


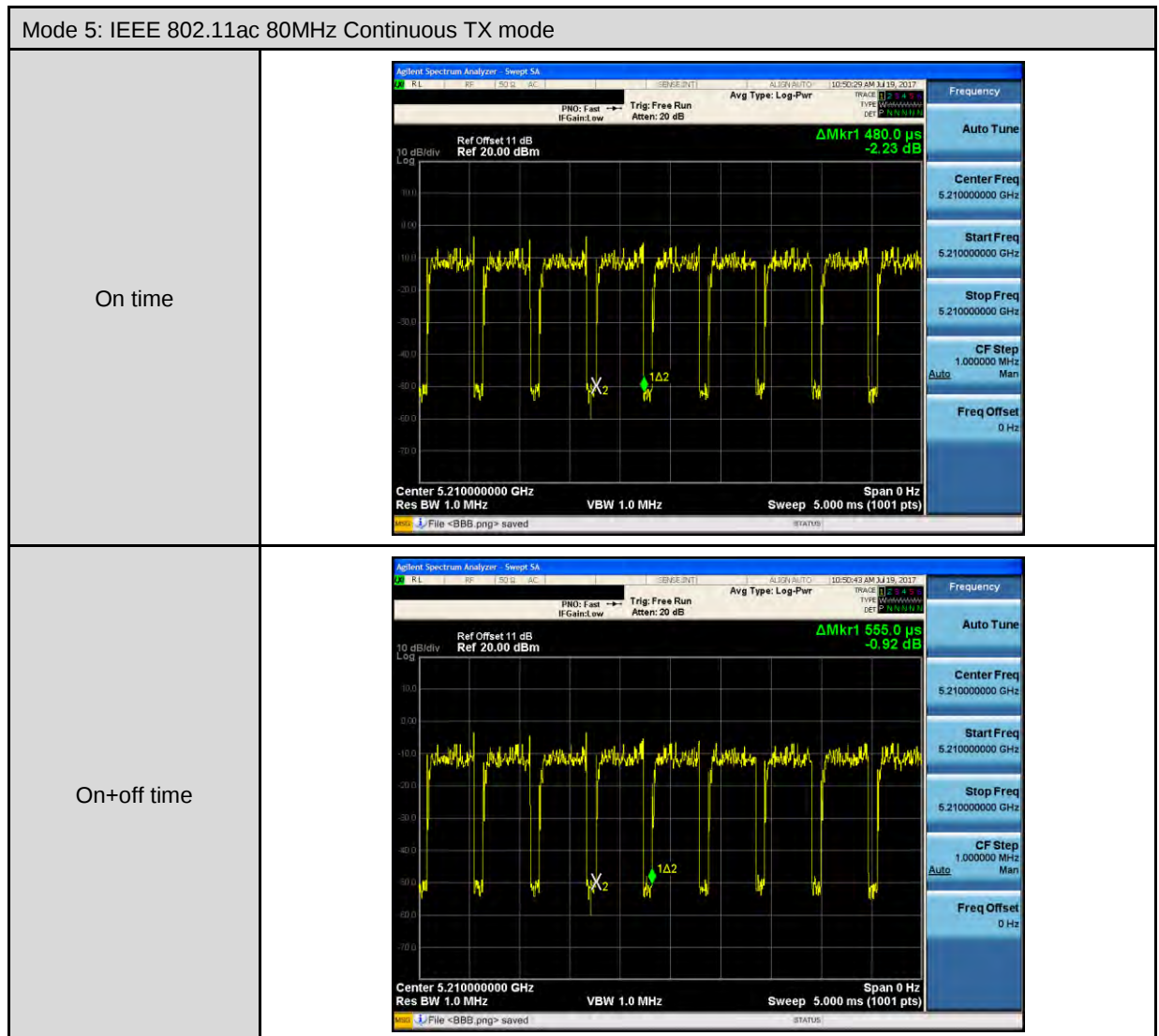
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode

On time



On+off time





3.2. EUT Exercise Software

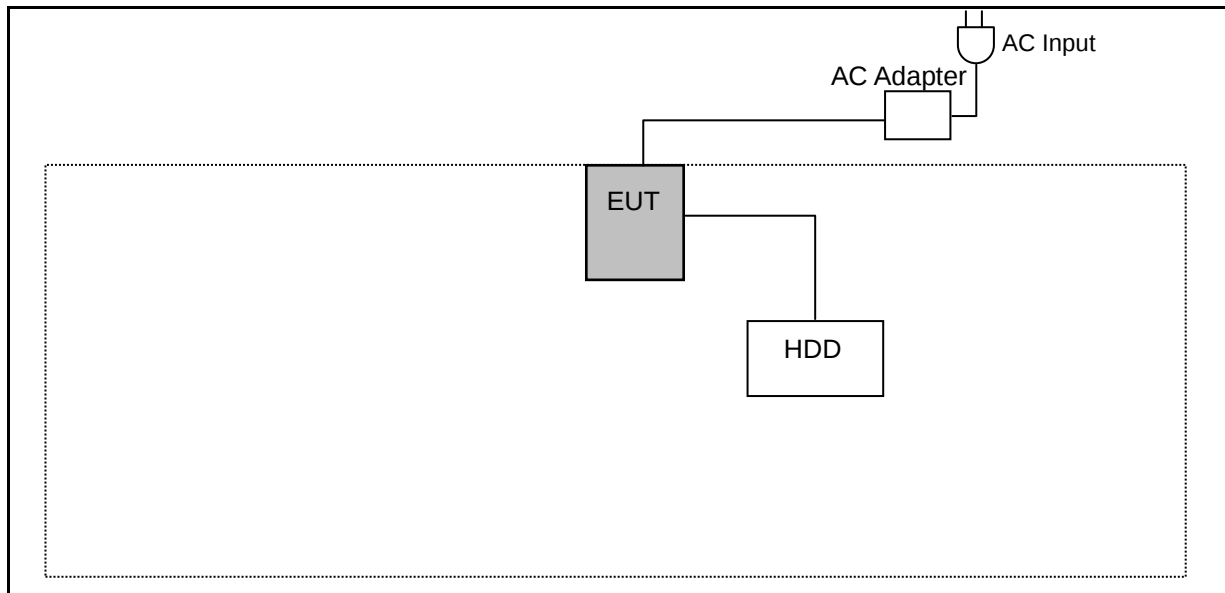
The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement. According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

1.	Setup the EUT shown on 3.3.
2.	Turn on the power of all equipment.
3.	EUT run test program.

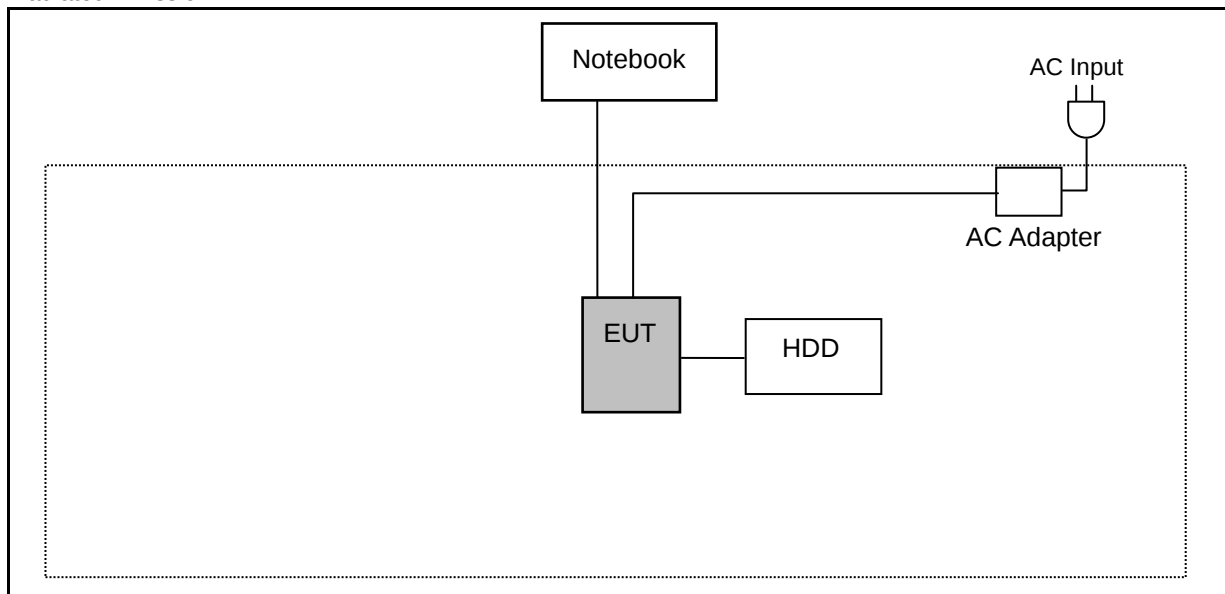
Measurement Software	
1	EZ-EMC Ver. ATL-03A1-1
2	EZ-EMC Ver ATL-ITC-3A1-1

3.3. Configuration of Test System Details

Conducted Emission



Radiated Emission



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 Test Results

4.1. AC Power Conducted Emission Measurement

■ Limit

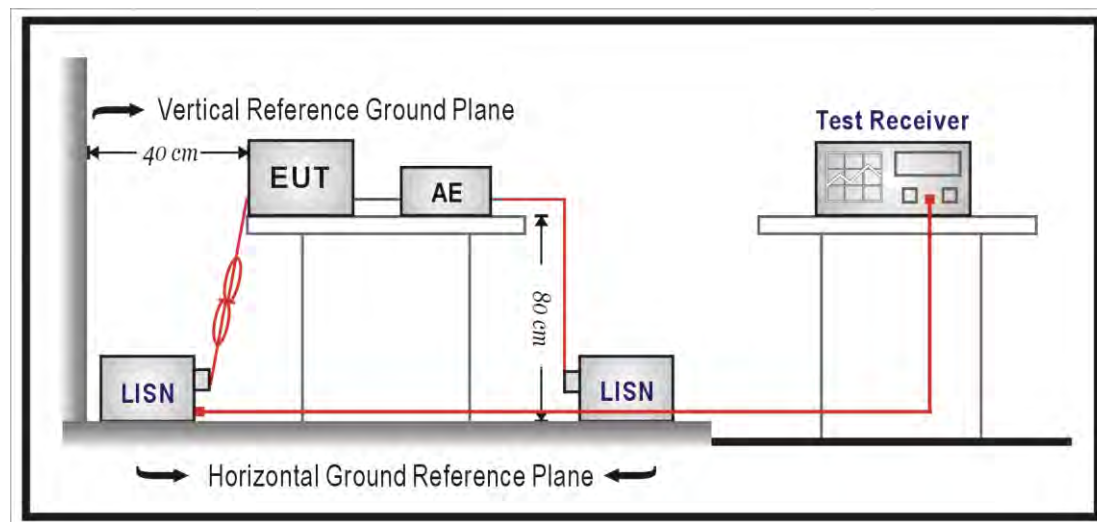
Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

■ Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	05/18/2017	1 year
LISN	R&S	ENV216	101040	04/01/2017	1 year
LISN	R&S	ENV216	101041	03/15/2017	1 year
RF Cable	Woken	00100D1380194M	TE-02-02	05/19/2017	1 year
Test Site	ATL	TE02	TE02	N.C.R.	-----

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

■ Test Setup



4.2. 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.

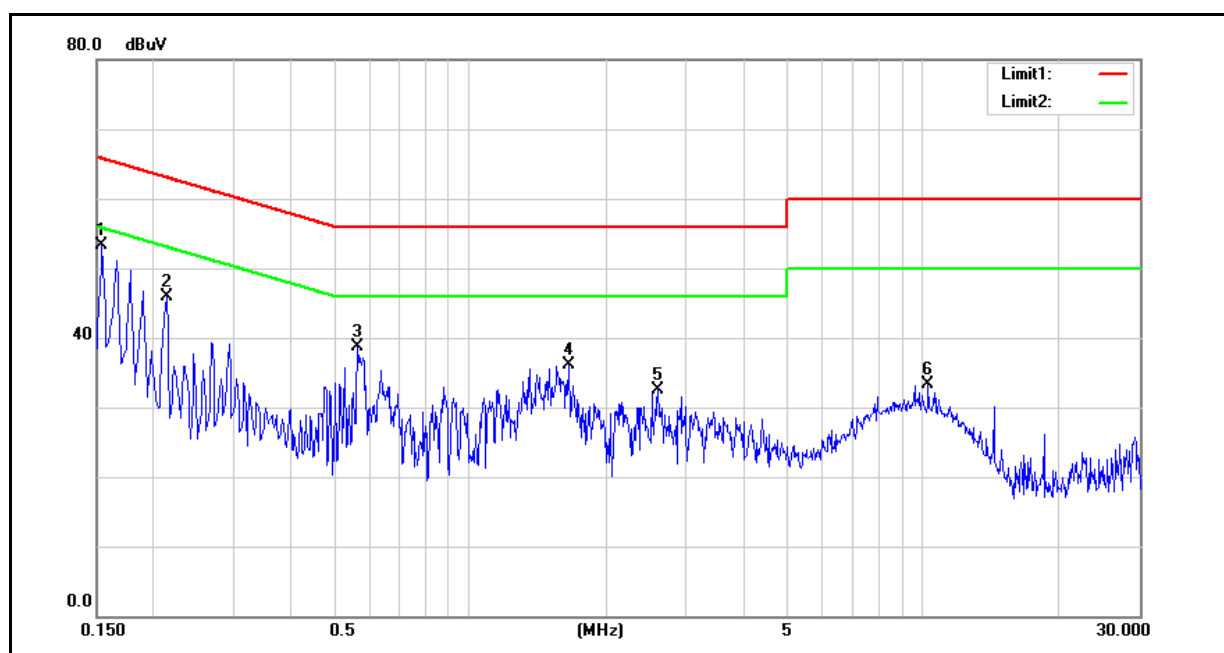
Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a resolution bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1, as applicable, including the average limit and the quasi-peak limit when using respectively, an average 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.

Test Result

Standard:	FCC Part 15.407	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 1	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
		Date:	07/17/2017
Description:			

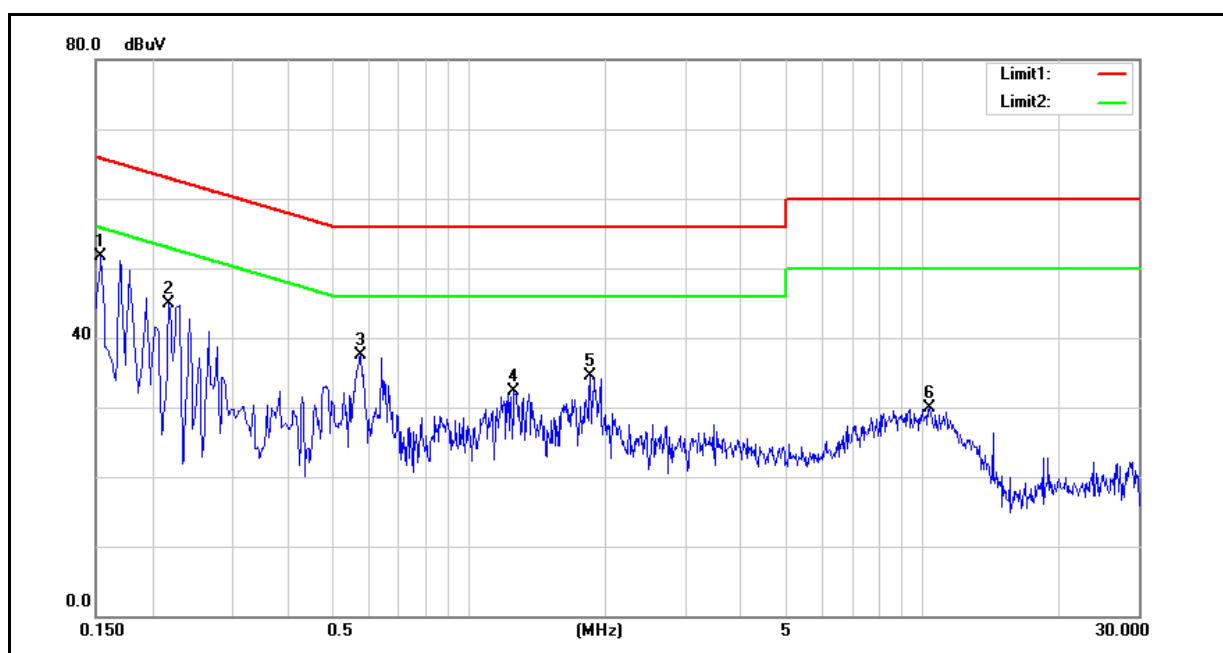


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1540	37.40	23.65	9.54	46.94	33.19	65.78	55.78	-18.84	-22.59	Pass
2	0.2140	28.39	13.56	9.53	37.92	23.09	63.05	53.05	-25.13	-29.96	Pass
3	0.5660	23.75	16.60	9.54	33.29	26.14	56.00	46.00	-22.71	-19.86	Pass
4	1.6500	21.17	13.22	9.60	30.77	22.82	56.00	46.00	-25.23	-23.18	Pass
5	2.6020	15.92	6.43	9.63	25.55	16.06	56.00	46.00	-30.45	-29.94	Pass
6	10.2380	20.61	13.20	9.80	30.41	23.00	60.00	50.00	-29.59	-27.00	Pass

Note: 1. Result = Correction factor + Reading

2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15.407	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Test Mode:	Mode 1	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
		Date:	07/17/2017
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1540	37.43	22.40	9.63	47.06	32.03	65.78	55.78	-18.72	-23.75	Pass
2	0.2180	27.64	12.83	9.63	37.27	22.46	62.89	52.89	-25.62	-30.43	Pass
3	0.5780	26.69	20.61	9.64	36.33	30.25	56.00	46.00	-19.67	-15.75	Pass
4	1.2620	19.47	10.83	9.68	29.15	20.51	56.00	46.00	-26.85	-25.49	Pass
5	1.8500	18.49	11.28	9.71	28.20	20.99	56.00	46.00	-27.80	-25.01	Pass
6	10.3900	13.38	5.61	9.94	23.32	15.55	60.00	50.00	-36.68	-34.45	Pass

Note: 1. Result = Correction factor + Reading

2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

4.3. Transmitter Radiated Emissions Measurement

■ Limit

(1)Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(a)For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(b)For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(c)For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(d)For transmitters operating in the 5.725-5.85 GHz band:

(i)All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(2)Limits of Radiated Emission Measurement

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequency Range (MHz)	Field Strength (microvolts/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	10	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

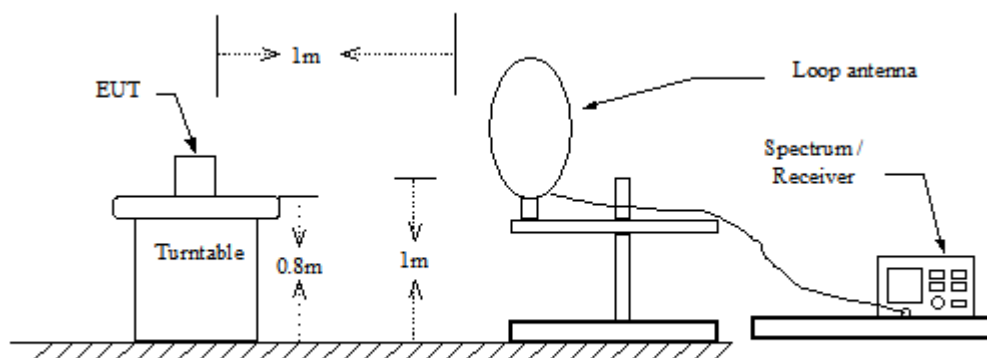
■ Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	04/24/2017	1 year
Spectrum Analyzer	Agilent	E4446A	MY46180578	04/24/2017	1 year
Pre Amplifier	Agilent	8449B	3008A02237	10/11/2016	1 year
Pre Amplifier	Agilent	8447D	2944A11119	01/12/2017	1 year
Broadband Antenna	Schwarzbeck	VULB9168	416	10/13/2016	1 year
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/22/2017	1 year
Horn Antenna (18~40GHz)	ETS	3116	86467	09/05/2016	1 year
Loop Antenna	COM-POWER CORPORATION	AL-130	121014	01/26/2017	1 year
Microwave Cable	EMCI	EMC102-KM-KM-1 4000	151001	02/20/2017	1 year
Microwave Cable	EMCI	EMC-104-SM-SM- 14000	140202	02/20/2017	1 year
Microwave Cable	EMCI	EMC104-SM-SM-6 00	140301	02/20/2017	1 year

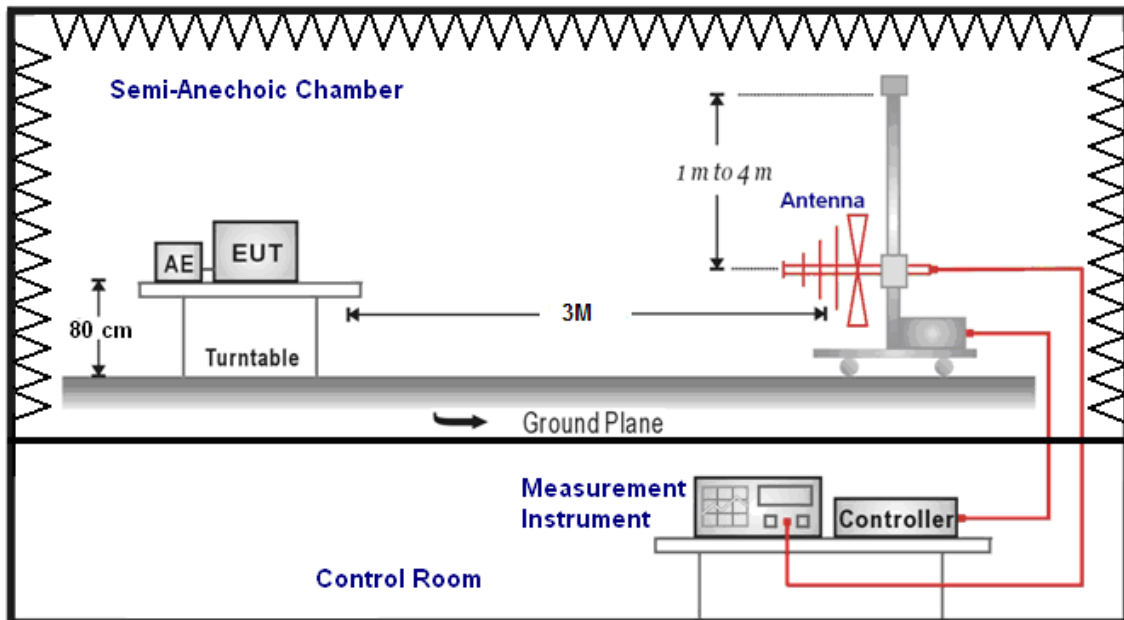
Note: N.C.R. = No Calibration Request.

■ Setup

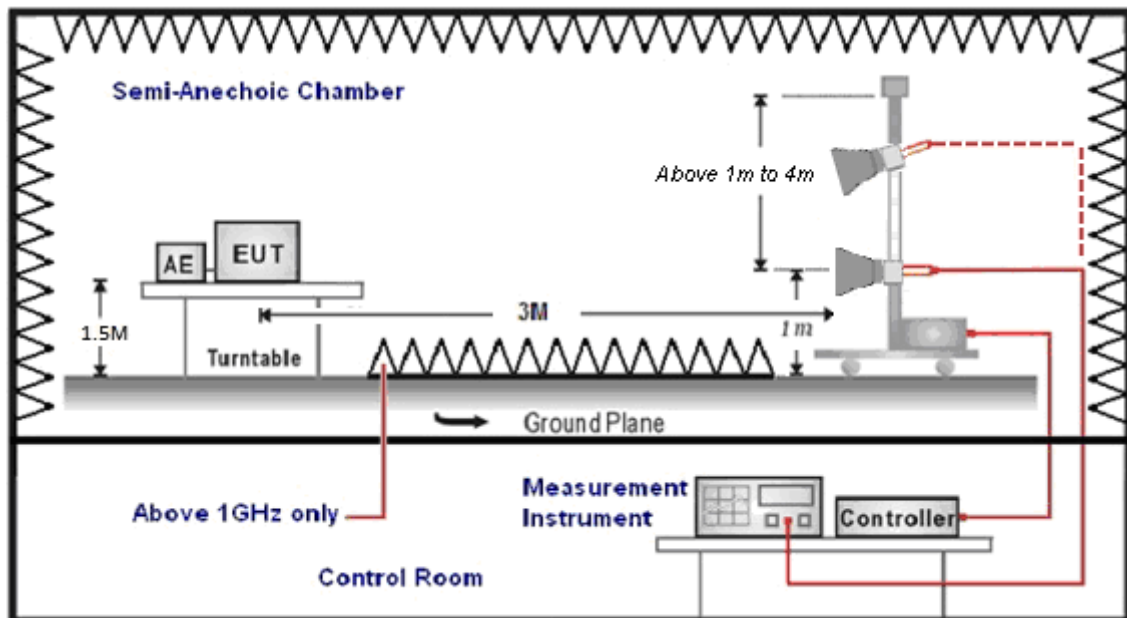
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



■ 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 40 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 restricted measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements and 10 Hz for average measurements when Duty cycle > 0.98 / 1/T for average measurements when Duty cycle < 0.98.

For out of band measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements.

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 Trilog-Broadband Antenna at 3 Meter and the ETS-Lindgren Double-Ridged Waveguide Horn antenna Schwarzbeck Mess-Elektronik Broadband Horn Antenna was used in frequencies 1 – 40 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

Measuring Instruments and setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000MHz
Stop Frequency	40GHz
RBW/VBW(Emission in restricted band)	1MHz / 3MHz for Peak 1MHz / (1/T) for Average
RBW/VBW(Emission in non-restricted band)	1MHz / 3MHz for Peak



■ Test Result

Below 1GHz

Standard:		FCC Part 15.407			Test Distance:		3m	
Test item:		Harmonic			Power:		AC 120V/60Hz	
Test Mode:		Mode 1			Temp.(°C)/Hum.(%RH):		26(°C)/60%RH	
Description:					Date:		07/23/2017	
Internal Antenna								
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V	
259.8900	45.44	-4.27	41.17	46.00	-4.83	QP	H	
323.9100	41.43	-2.30	39.13	46.00	-6.87	QP	H	
388.9000	37.11	-1.03	36.08	46.00	-9.92	QP	H	
600.3600	33.55	3.34	36.89	46.00	-9.11	QP	H	
744.8900	32.22	6.10	38.32	46.00	-7.68	QP	H	
889.4200	30.88	8.80	39.68	46.00	-6.32	QP	H	
210.4200	41.97	-6.37	35.60	43.50	-7.90	QP	V	
399.5700	38.01	-0.80	37.21	46.00	-8.79	QP	V	
518.8800	35.53	1.60	37.13	46.00	-8.87	QP	V	
600.3600	32.60	3.34	35.94	46.00	-10.06	QP	V	
697.3600	31.06	4.98	36.04	46.00	-9.96	QP	V	
915.6100	29.22	9.28	38.50	46.00	-7.50	QP	V	

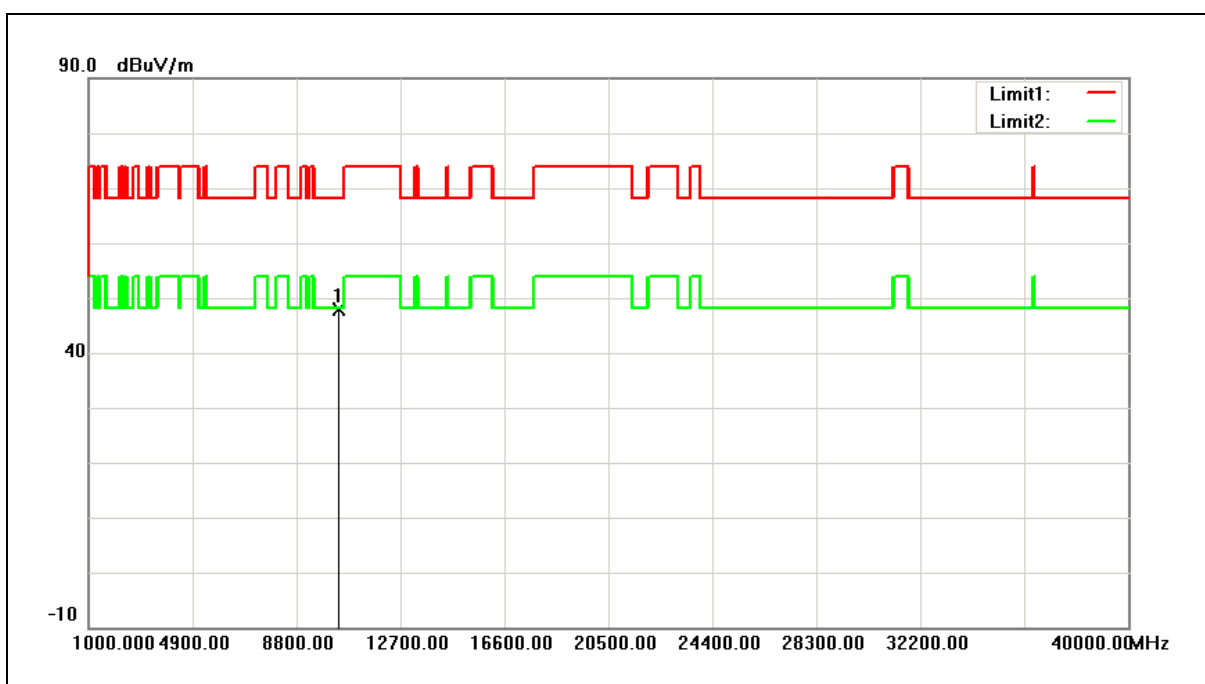
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

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

Above 1GHz

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Horizontal		



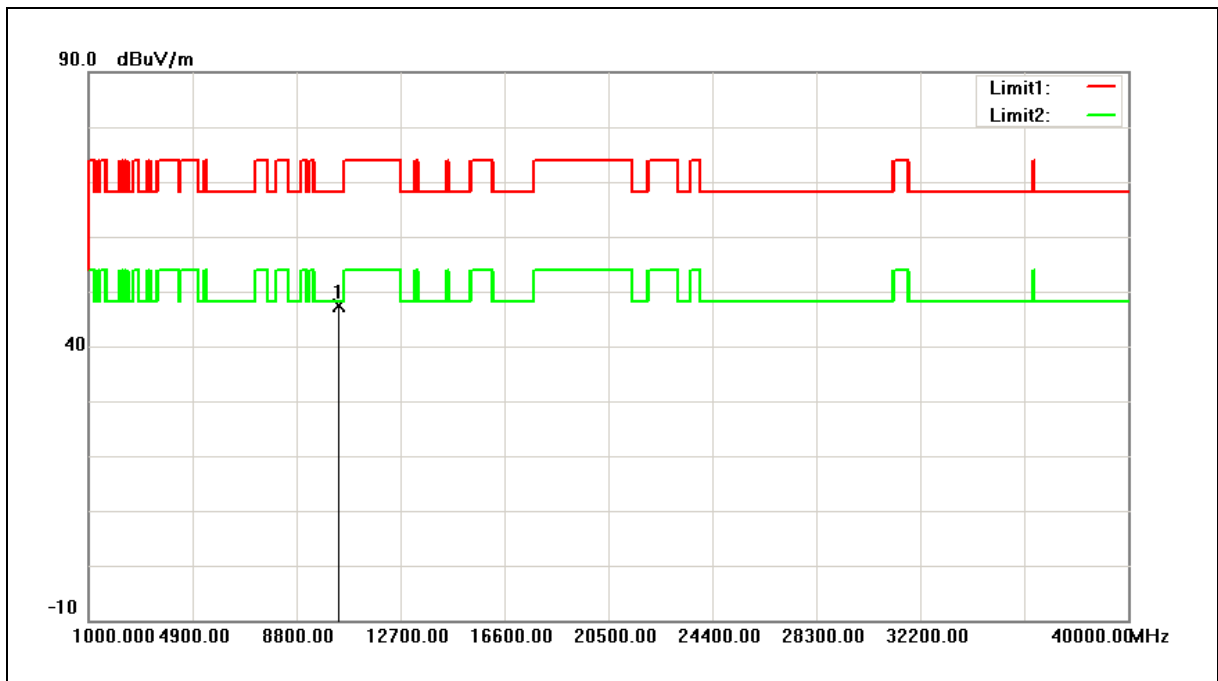
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	41.80	6.13	47.93	68.20	-20.27	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Vertical		



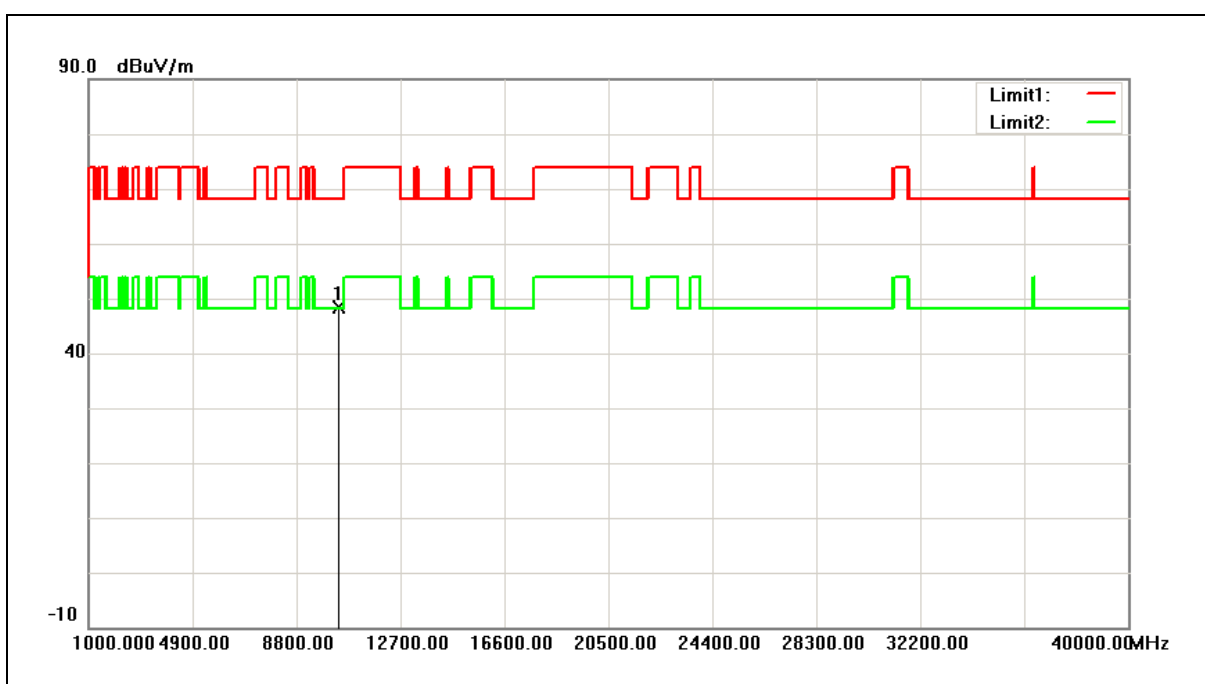
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	41.23	6.13	47.36	68.20	-20.84	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5200MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Horizontal		



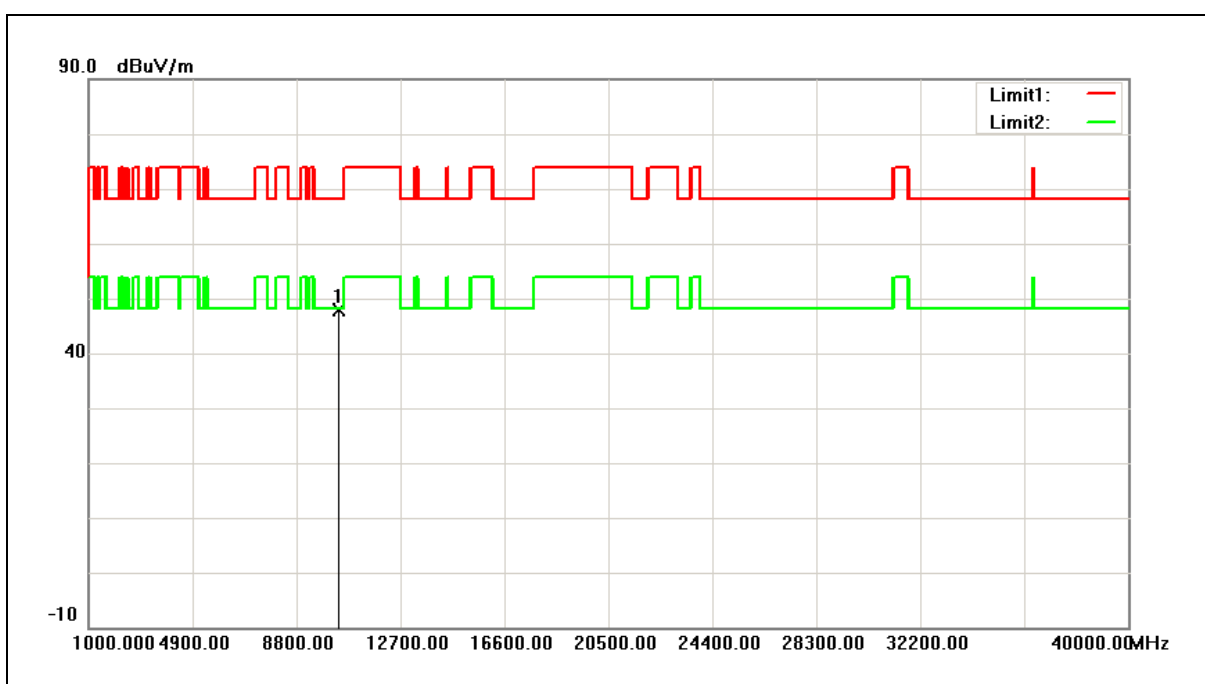
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	42.25	6.22	48.47	68.20	-19.73	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5200MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Vertical		



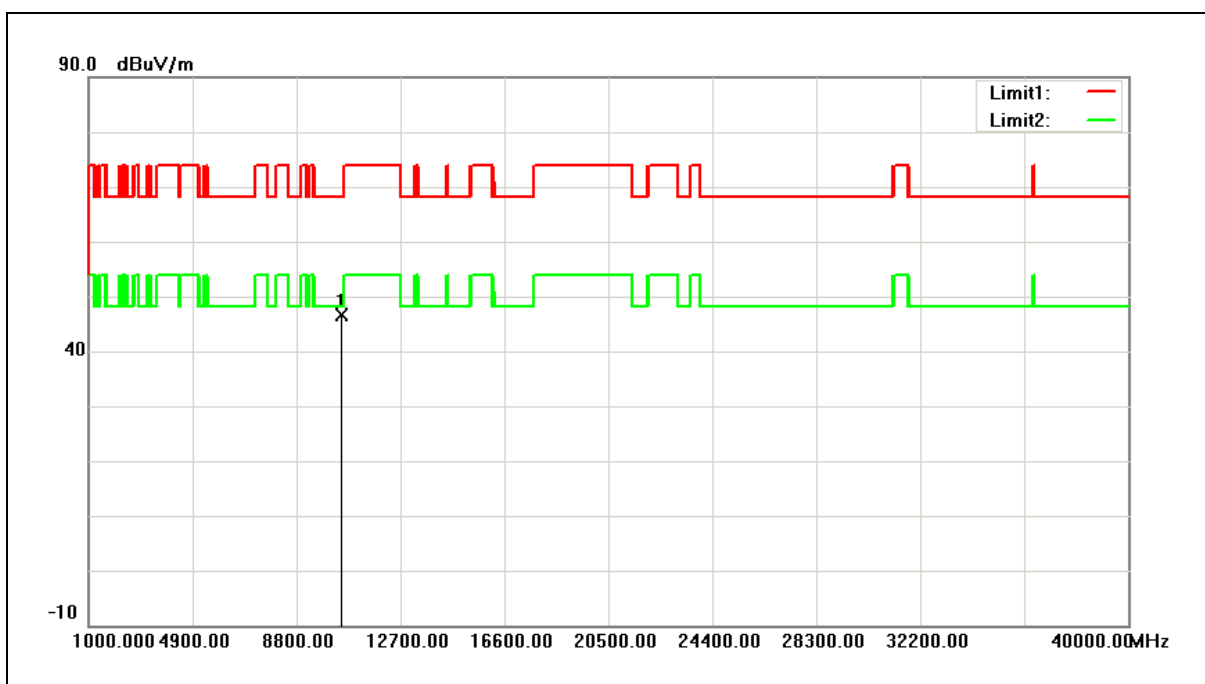
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	41.66	6.22	47.88	68.20	-20.32	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Horizontal		



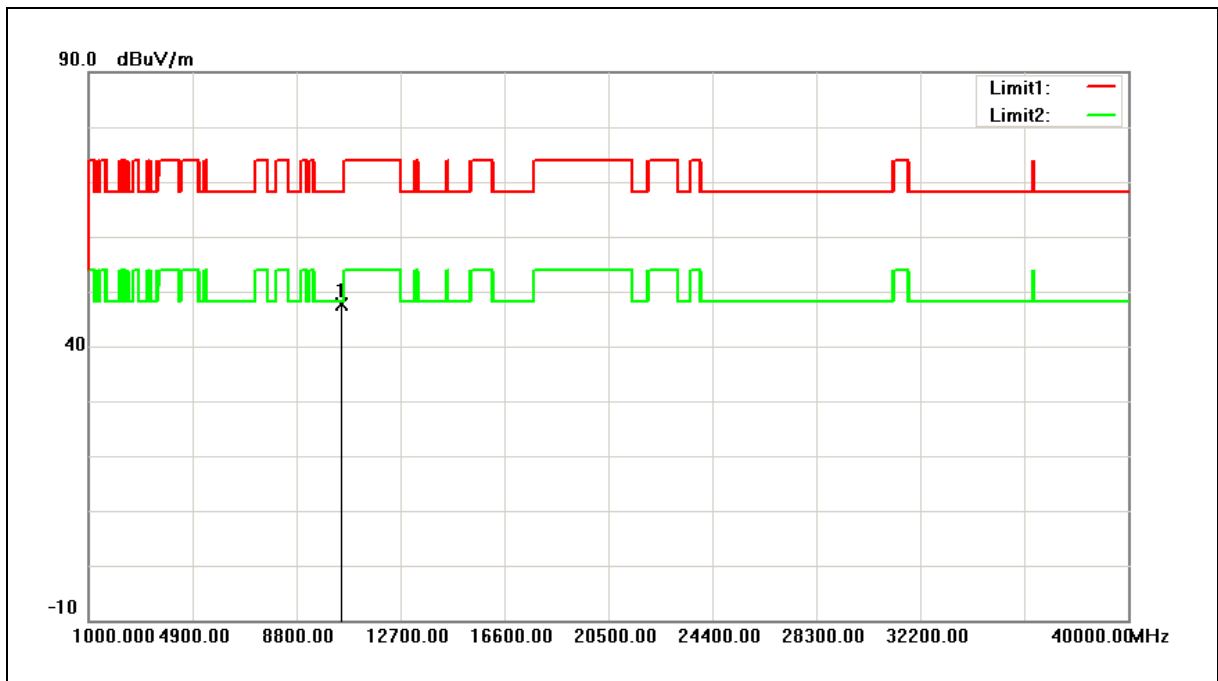
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	40.29	6.40	46.69	68.20	-21.51	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Vertical		



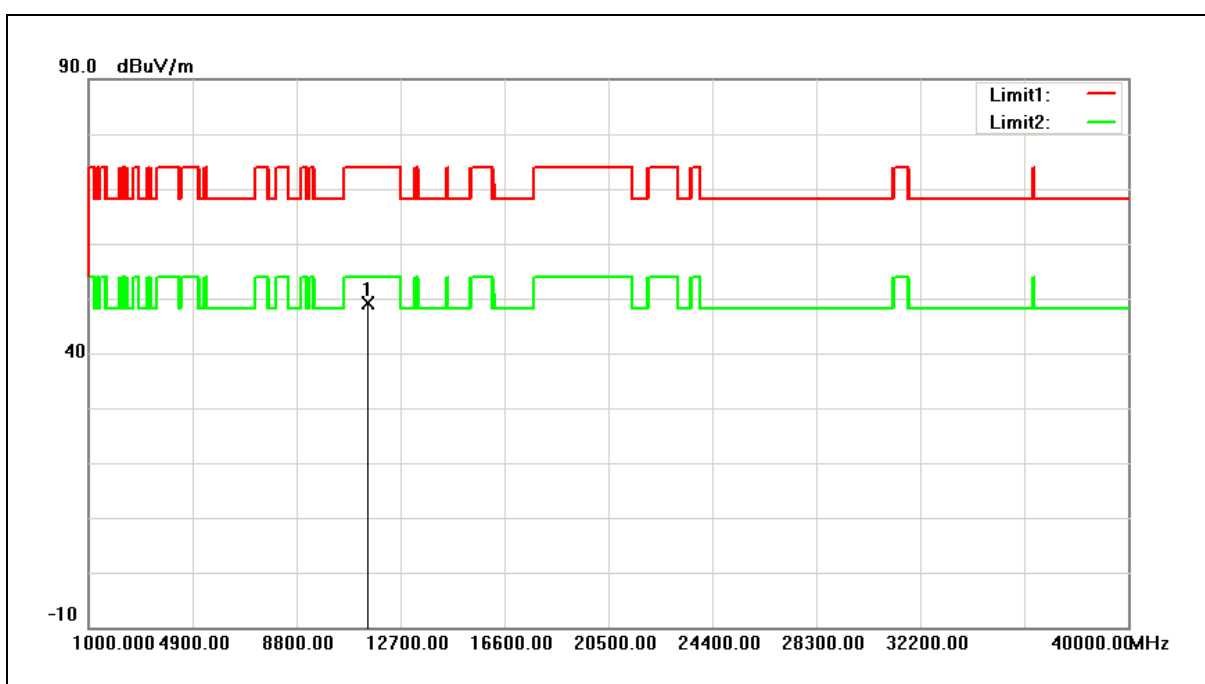
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	41.32	6.40	47.72	68.20	-20.48	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Horizontal		



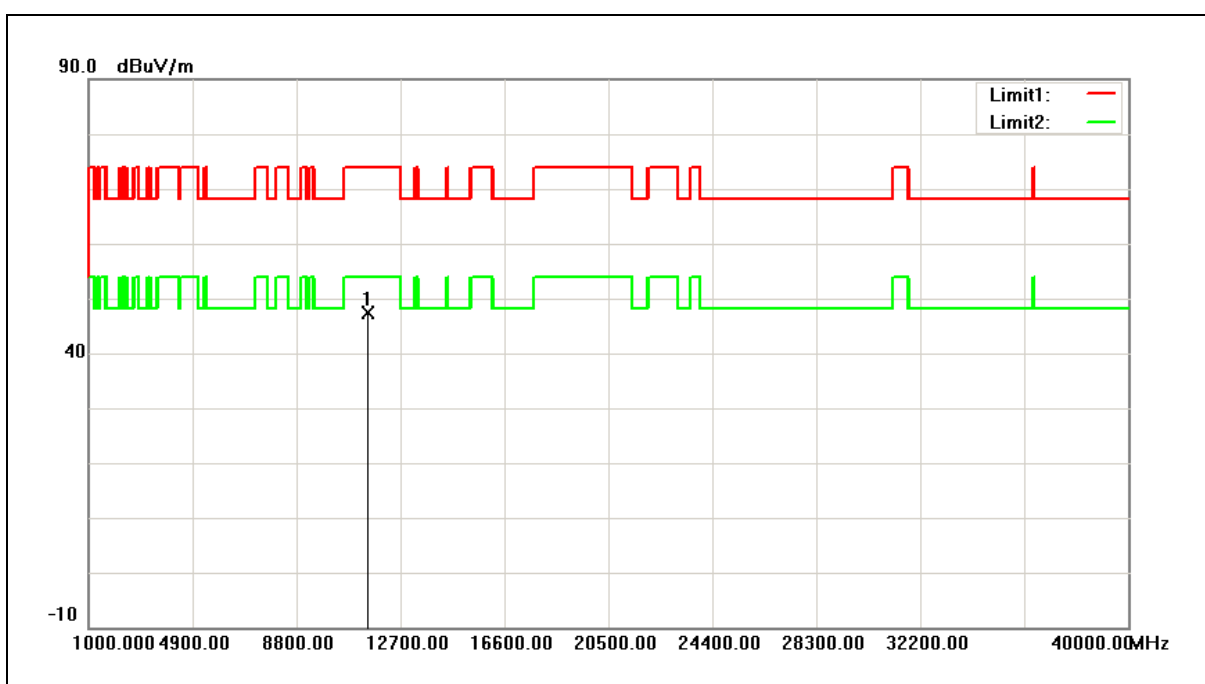
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	41.81	7.35	49.16	74.00	-24.84	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Vertical		



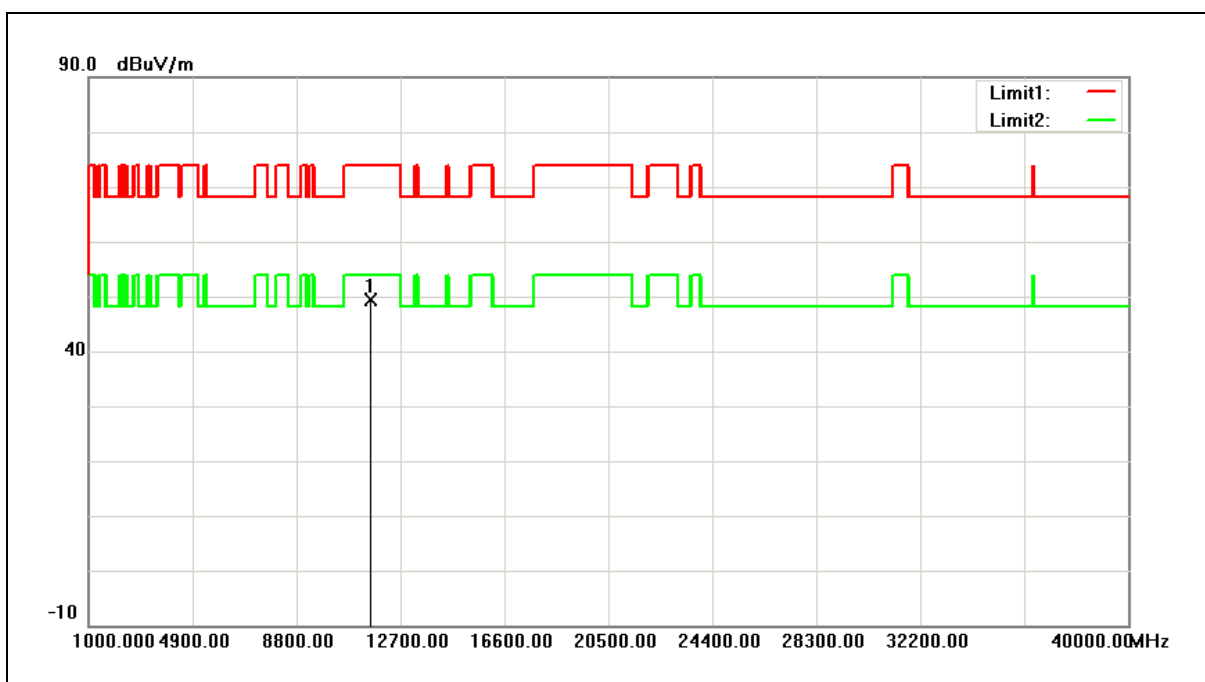
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	39.95	7.35	47.30	74.00	-26.70	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/31/2017
Ant.Polar.:	Horizontal		



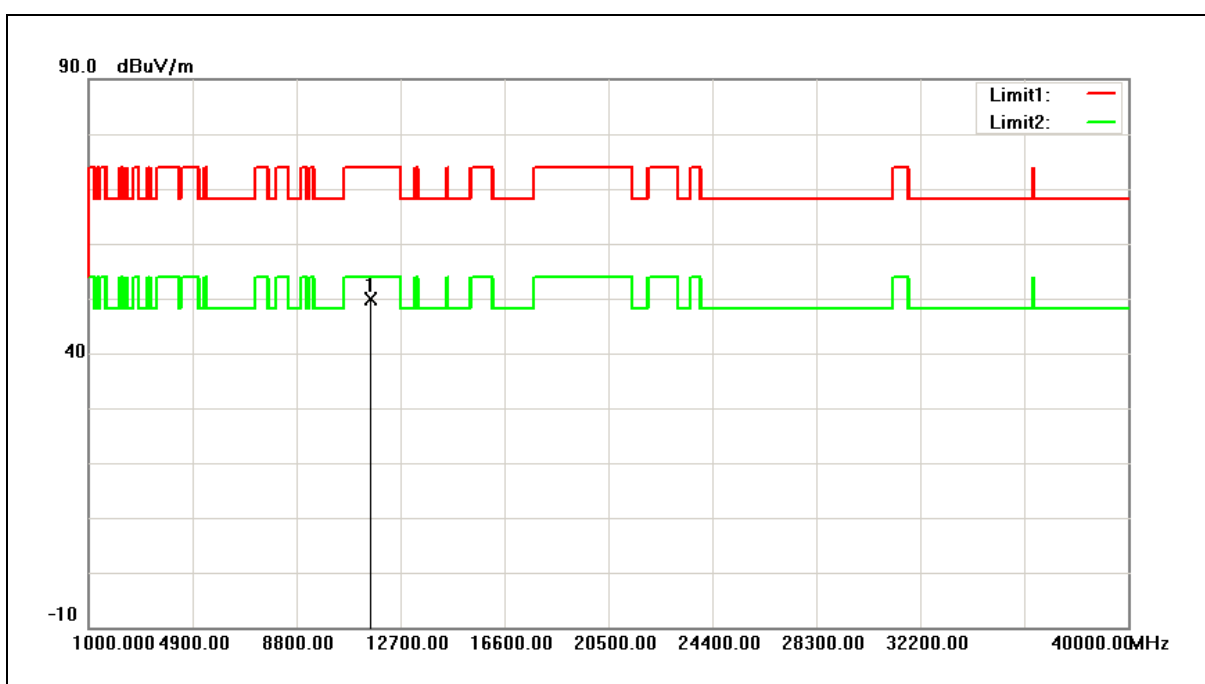
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	45.54	3.96	49.50	74.00	-24.50	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/31/2017
Ant.Polar.:	Vertical		



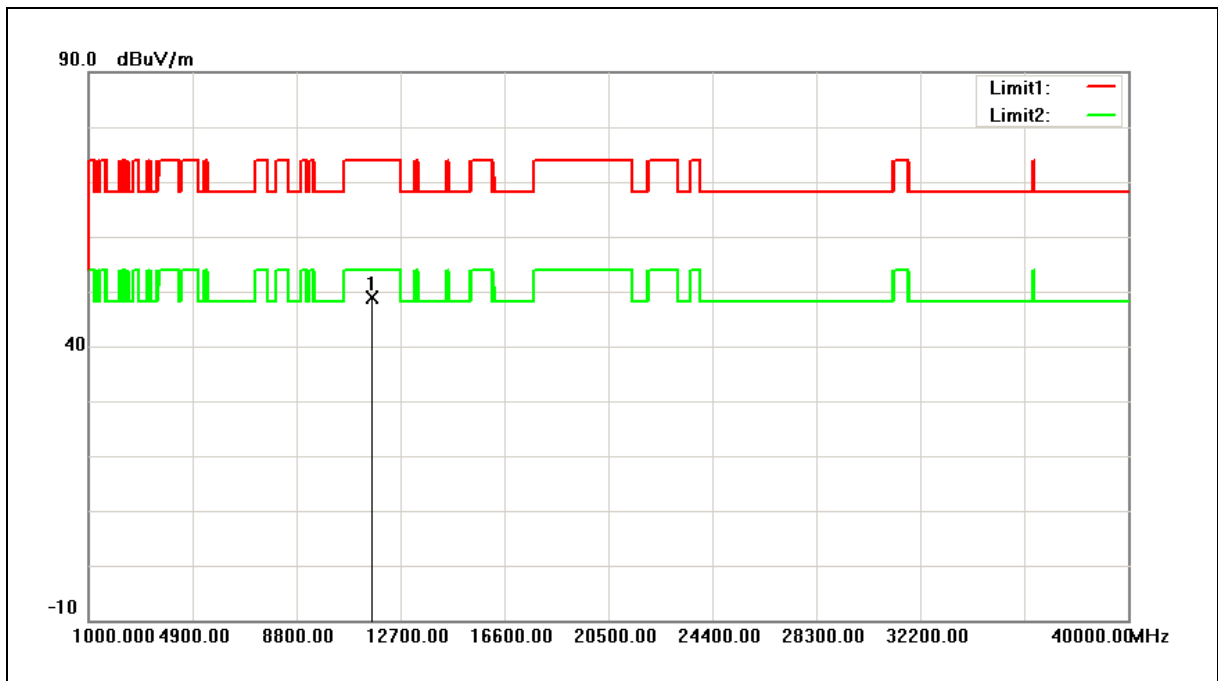
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	45.93	3.96	49.89	74.00	-24.11	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Horizontal		



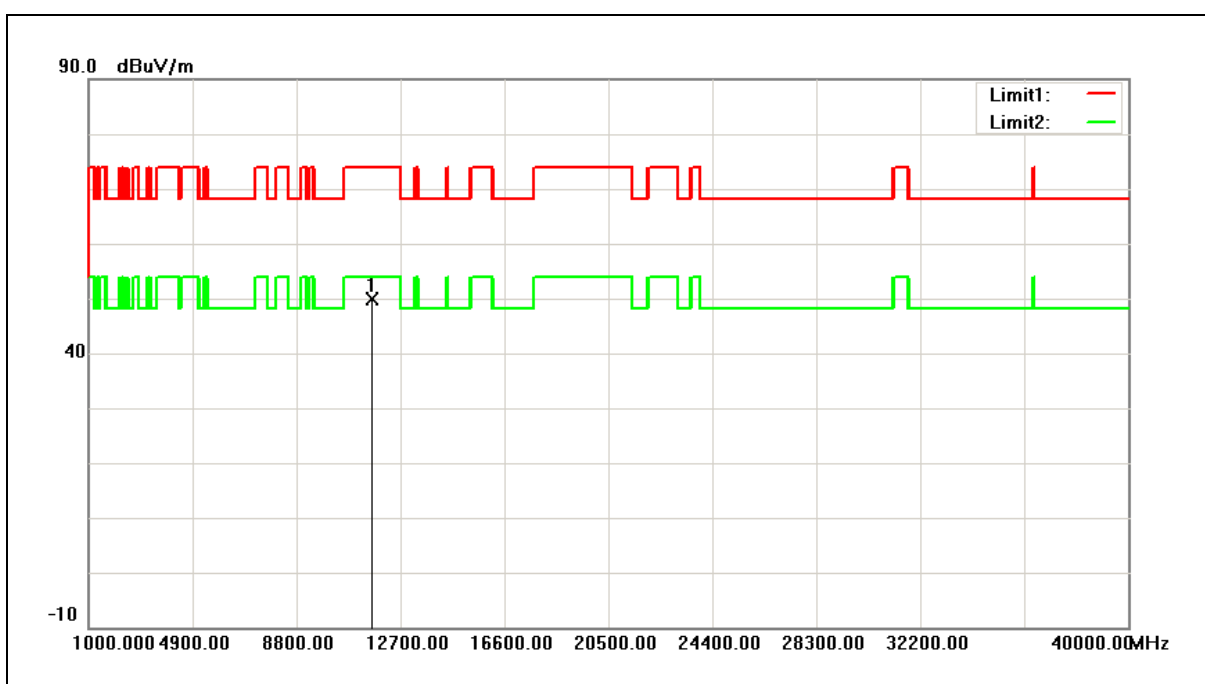
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	41.63	7.17	48.80	74.00	-25.20	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/06/2017
Ant.Polar.:	Vertical		



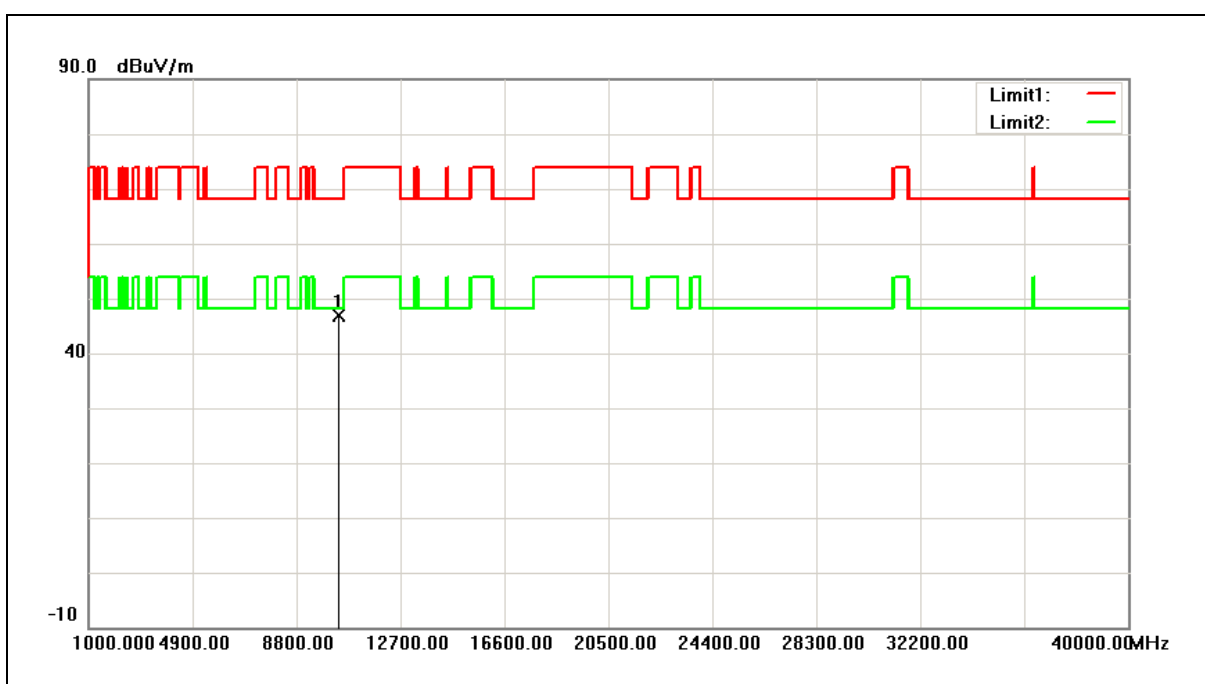
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	42.61	7.17	49.78	74.00	-24.22	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Horizontal		



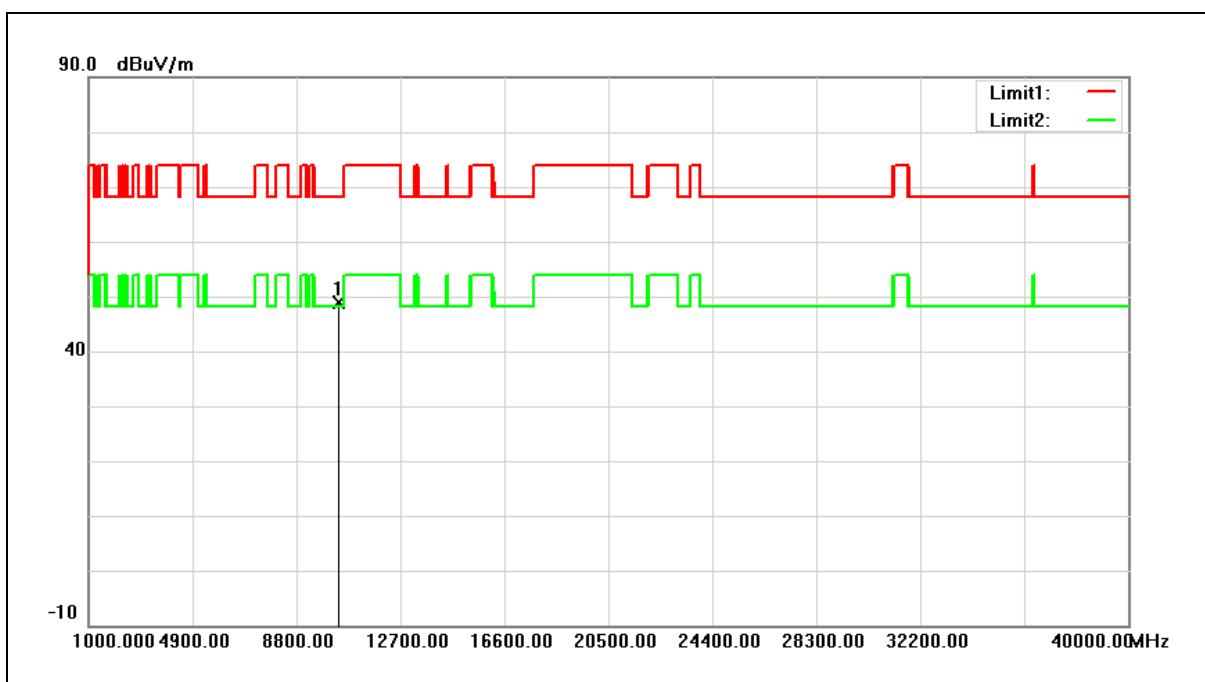
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	40.74	6.13	46.87	68.20	-21.33	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Vertical		



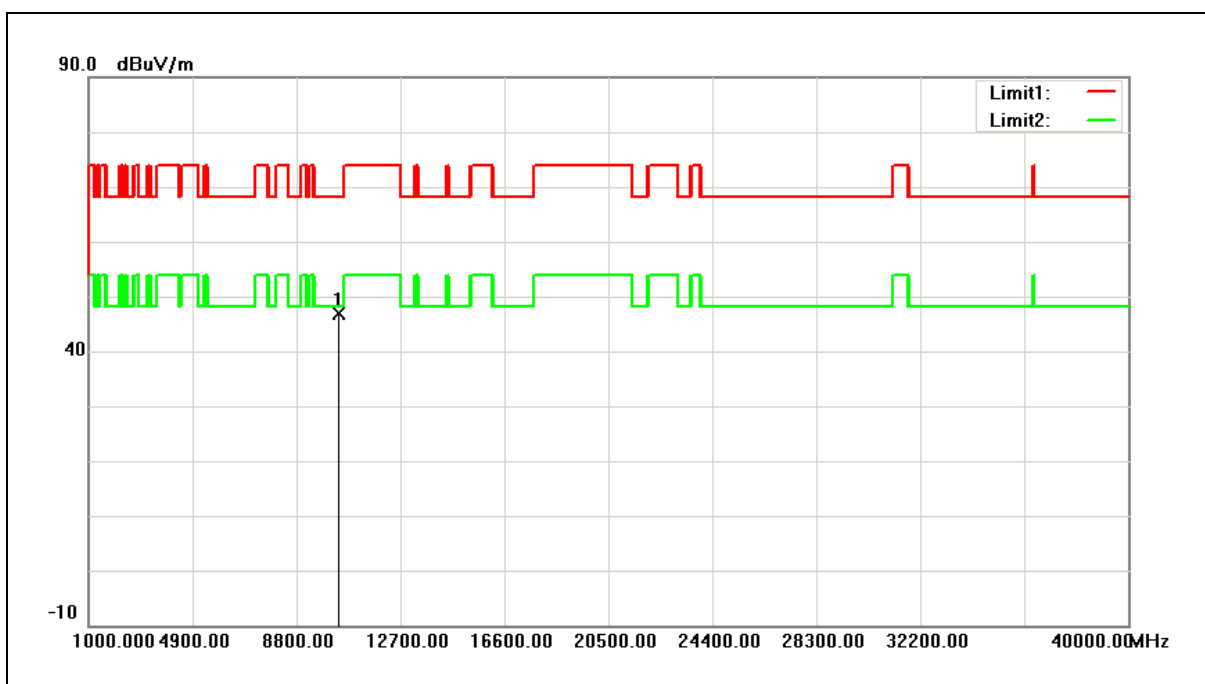
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	42.65	6.13	48.78	68.20	-19.42	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5200MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Horizontal		



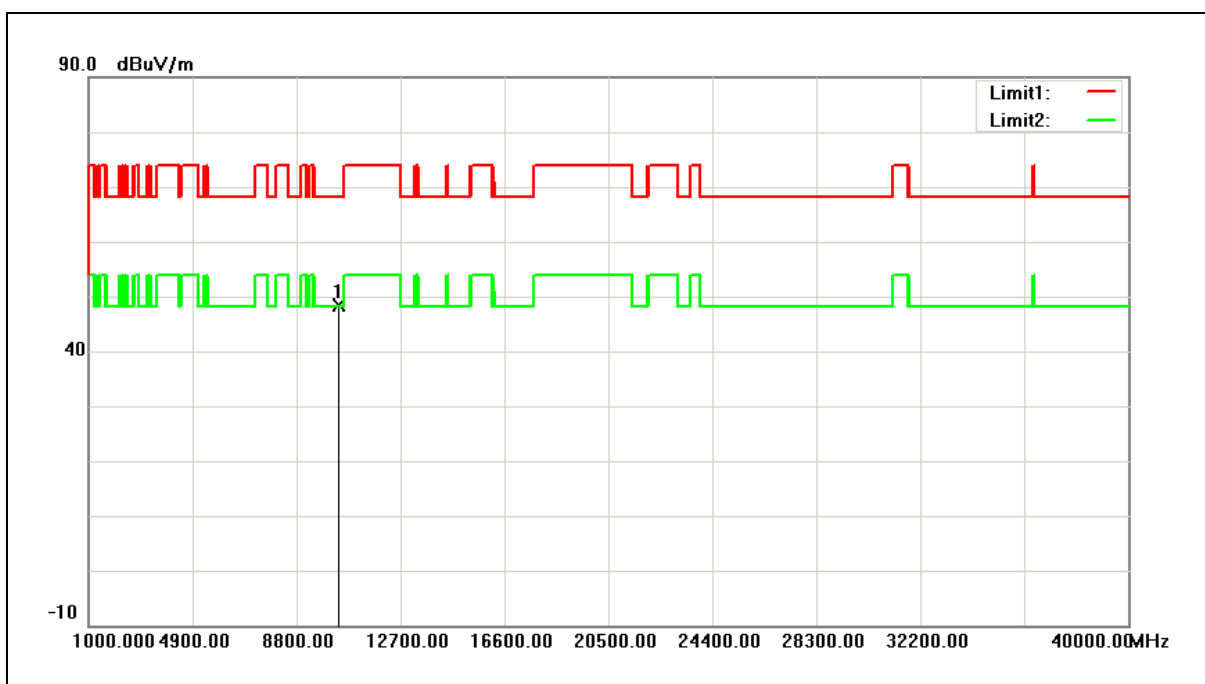
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	40.55	6.22	46.77	68.20	-21.43	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5200MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Vertical		



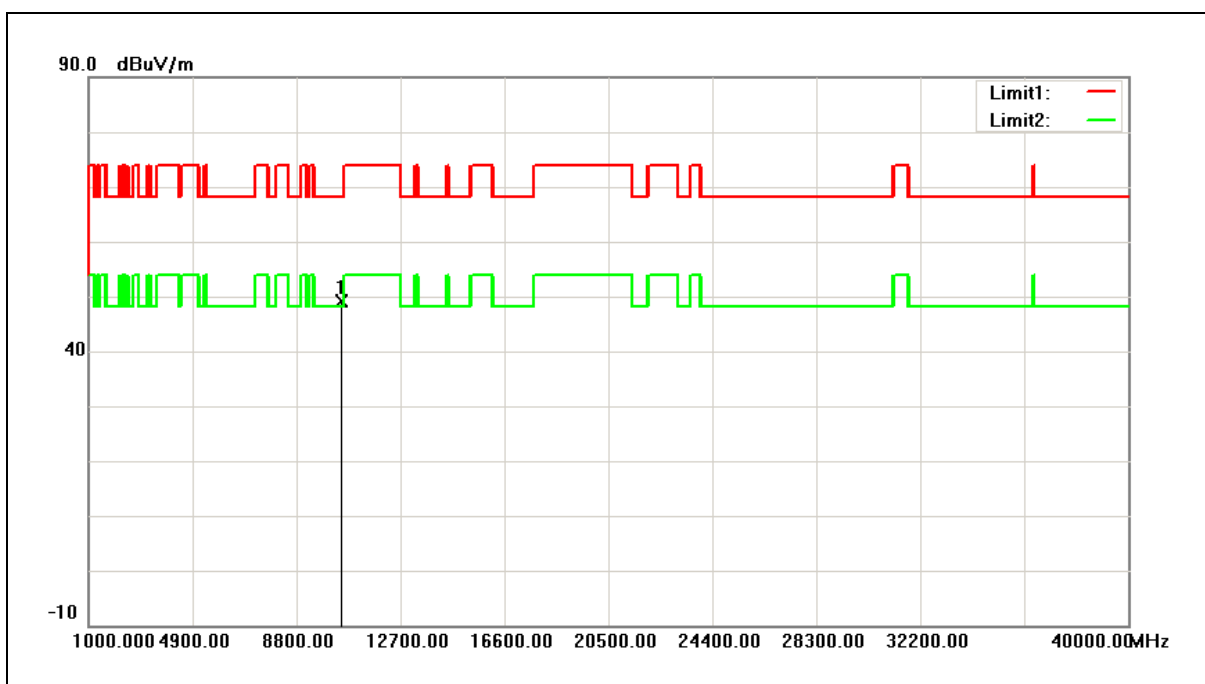
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	42.22	6.22	48.44	68.20	-19.76	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Horizontal		



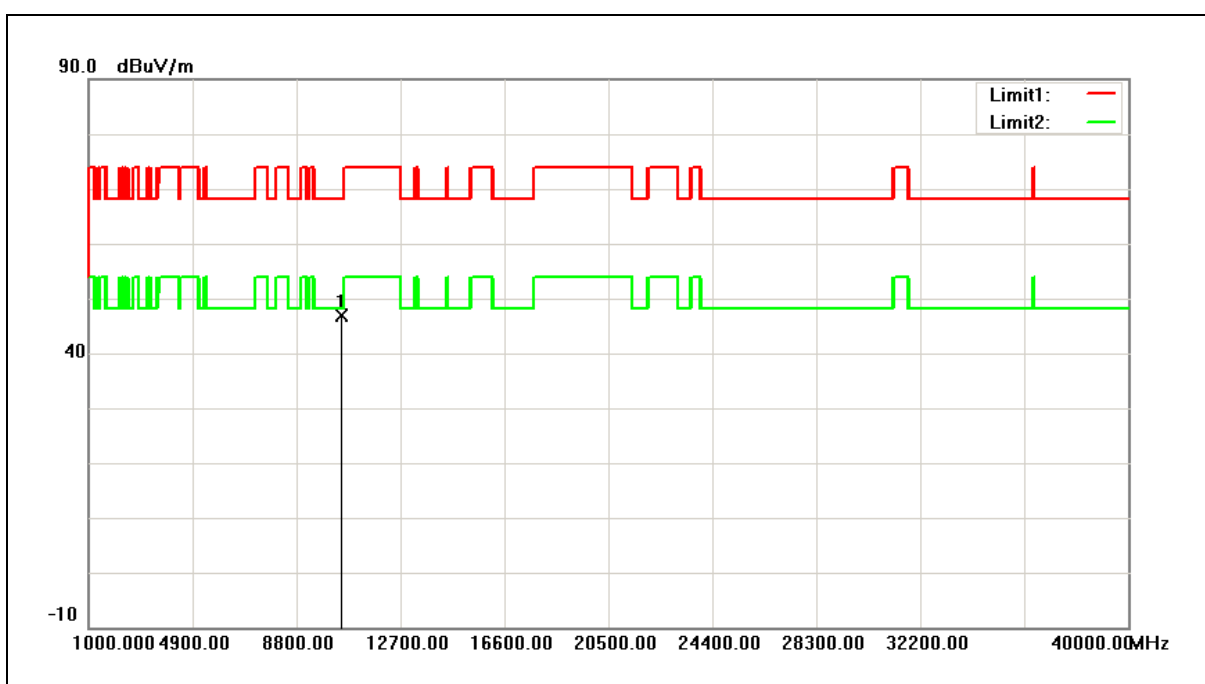
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	42.73	6.40	49.13	68.20	-19.07	peak

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 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Vertical		



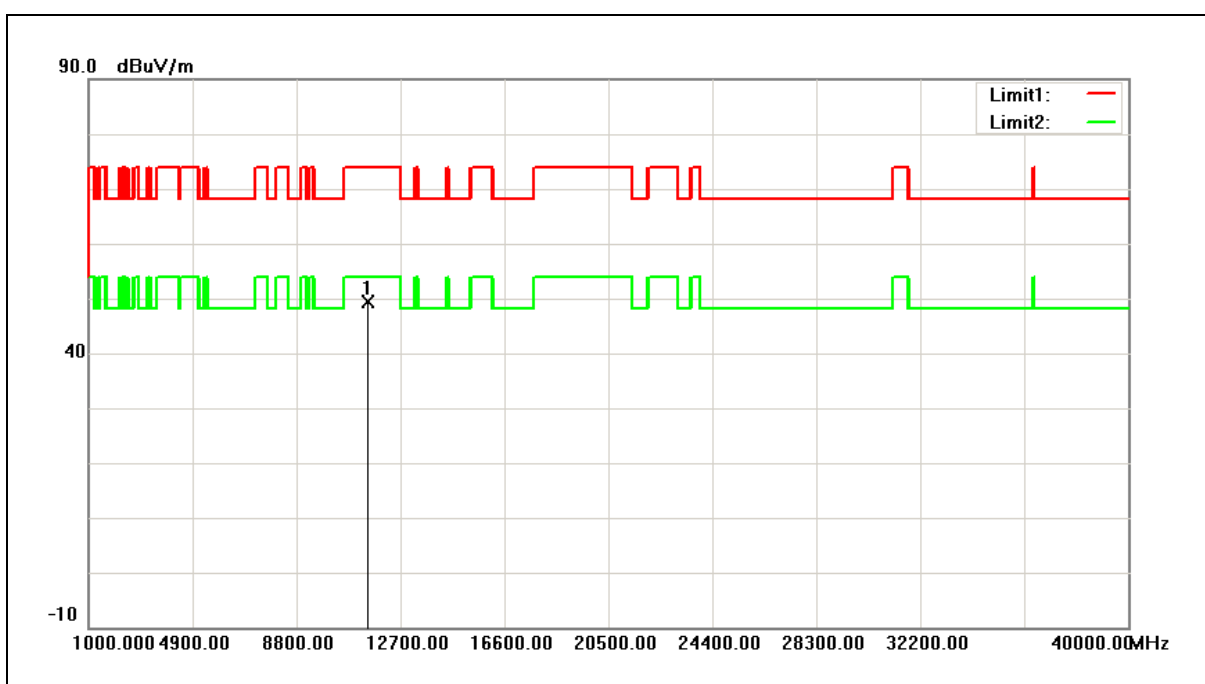
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	40.42	6.40	46.82	68.20	-21.38	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Horizontal		



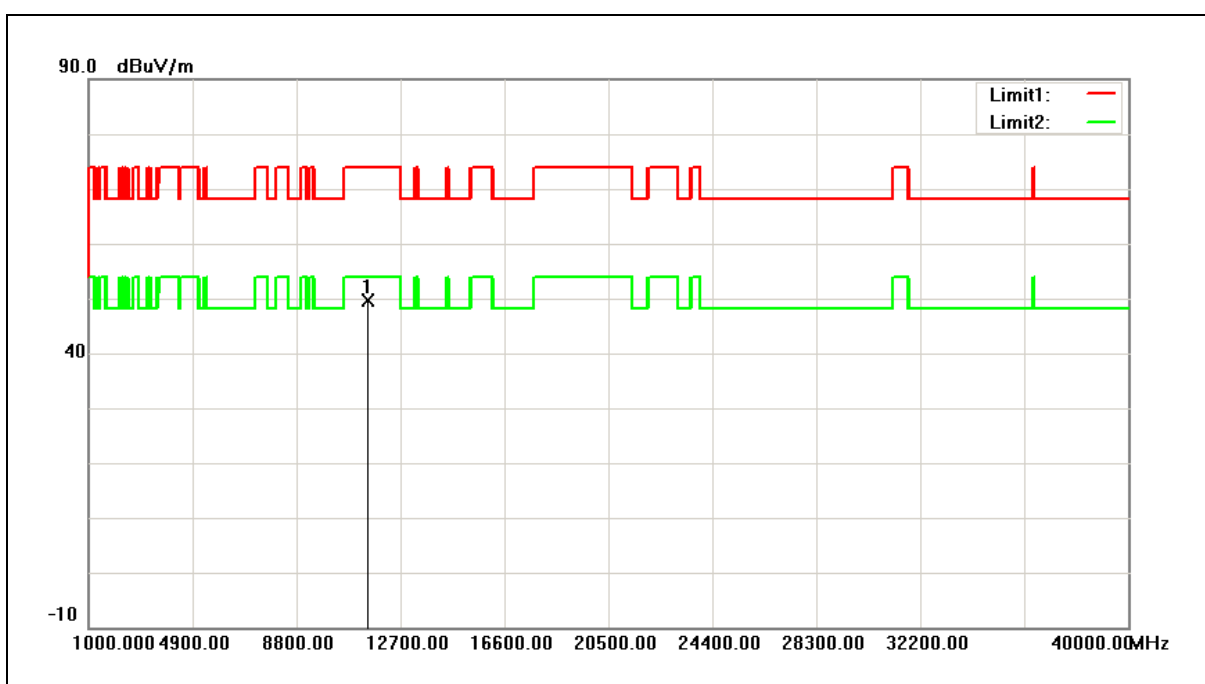
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	41.95	7.35	49.30	74.00	-24.70	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Vertical		



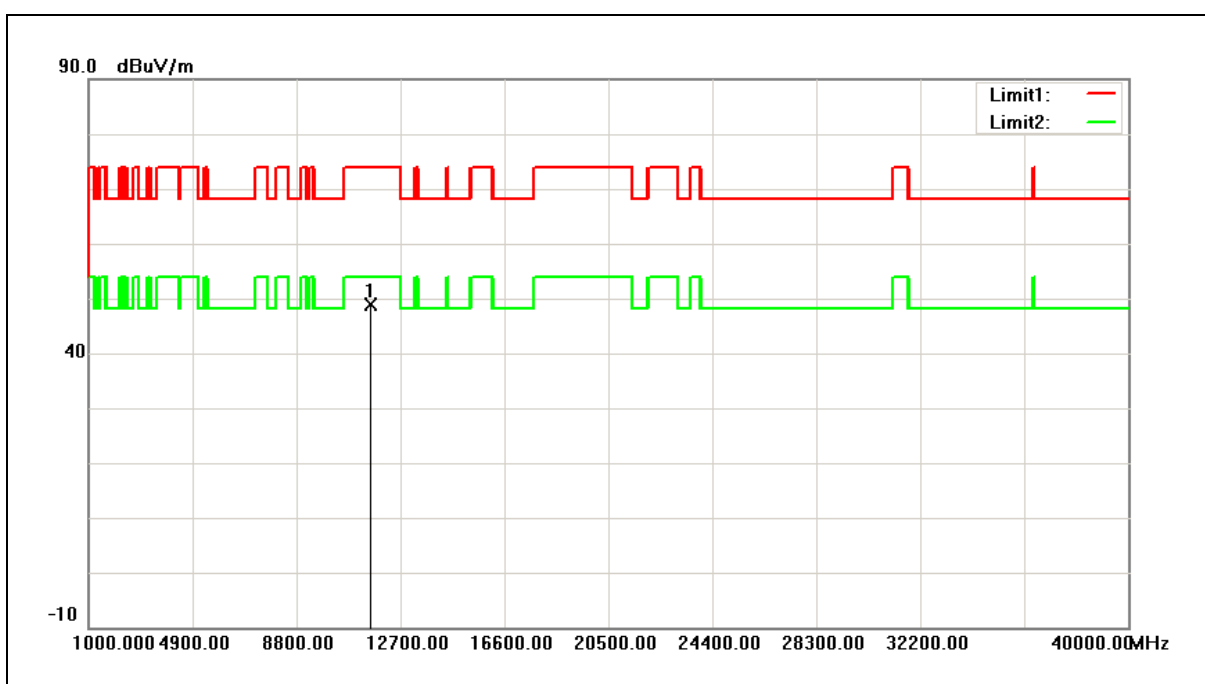
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	42.34	7.35	49.69	74.00	-24.31	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/31/2017
Ant.Polar.:	Horizontal		



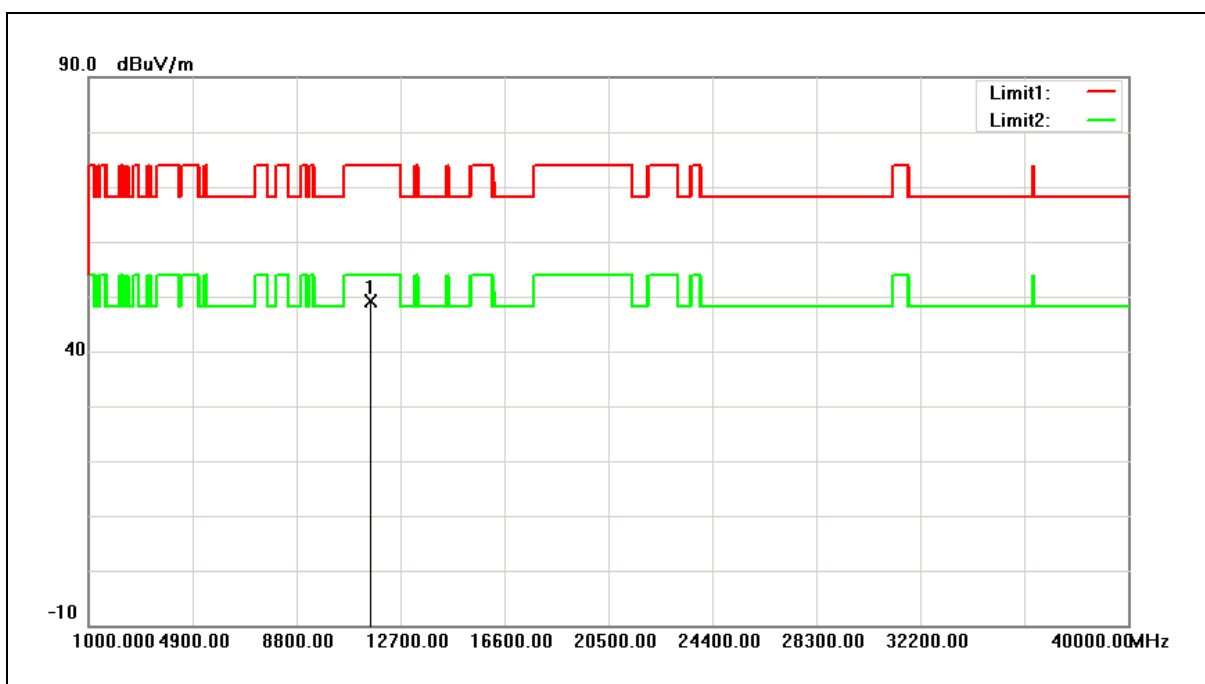
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	44.80	3.96	48.76	74.00	-25.24	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/31/2017
Ant.Polar.:	Vertical		



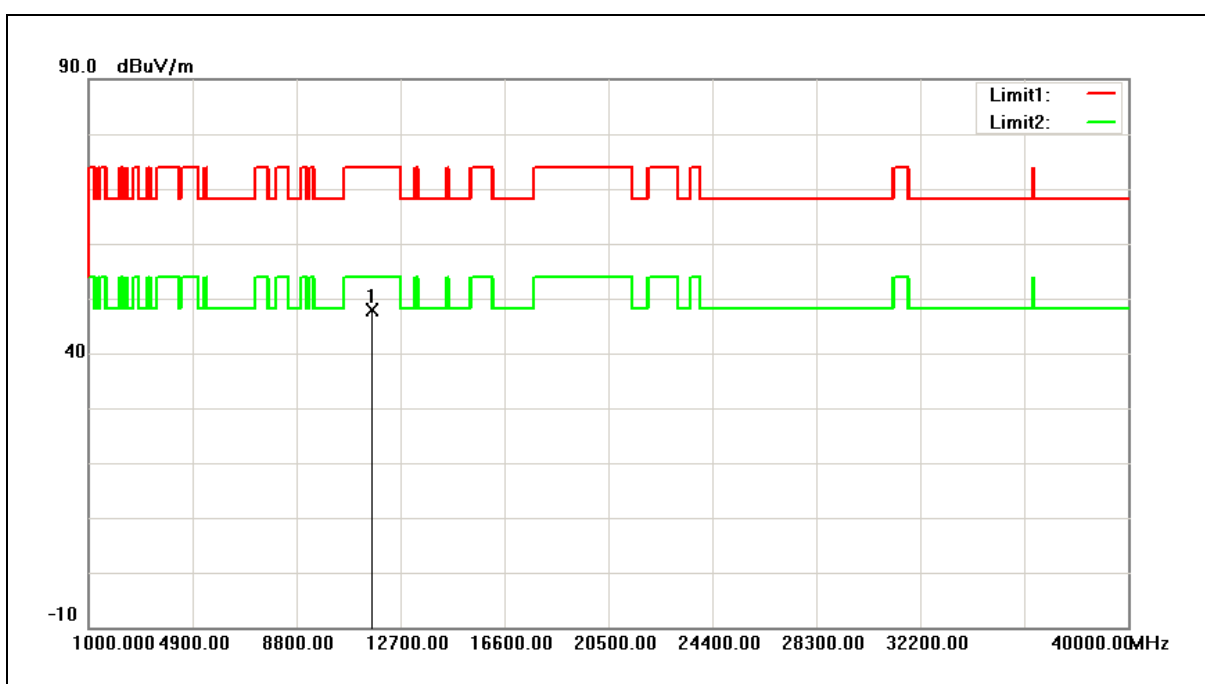
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	45.15	3.96	49.11	74.00	-24.89	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	40.78	7.17	47.95	74.00	-26.05	peak

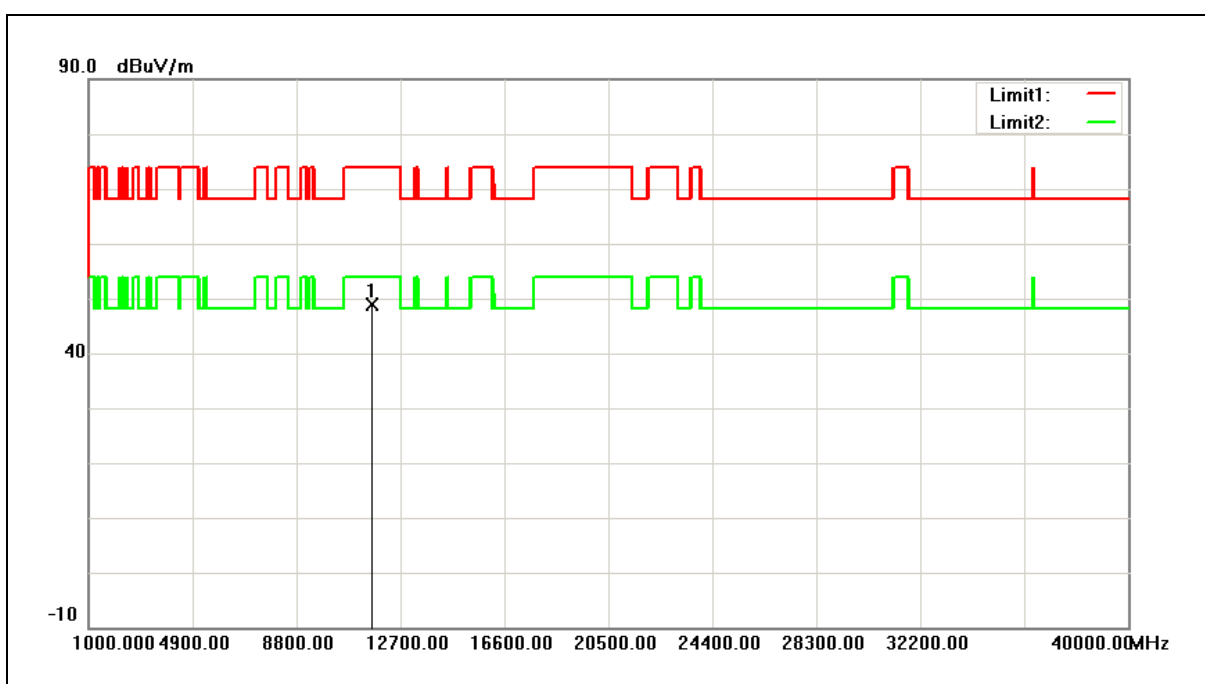
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

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



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/06/2017
Ant.Polar.:	Vertical		



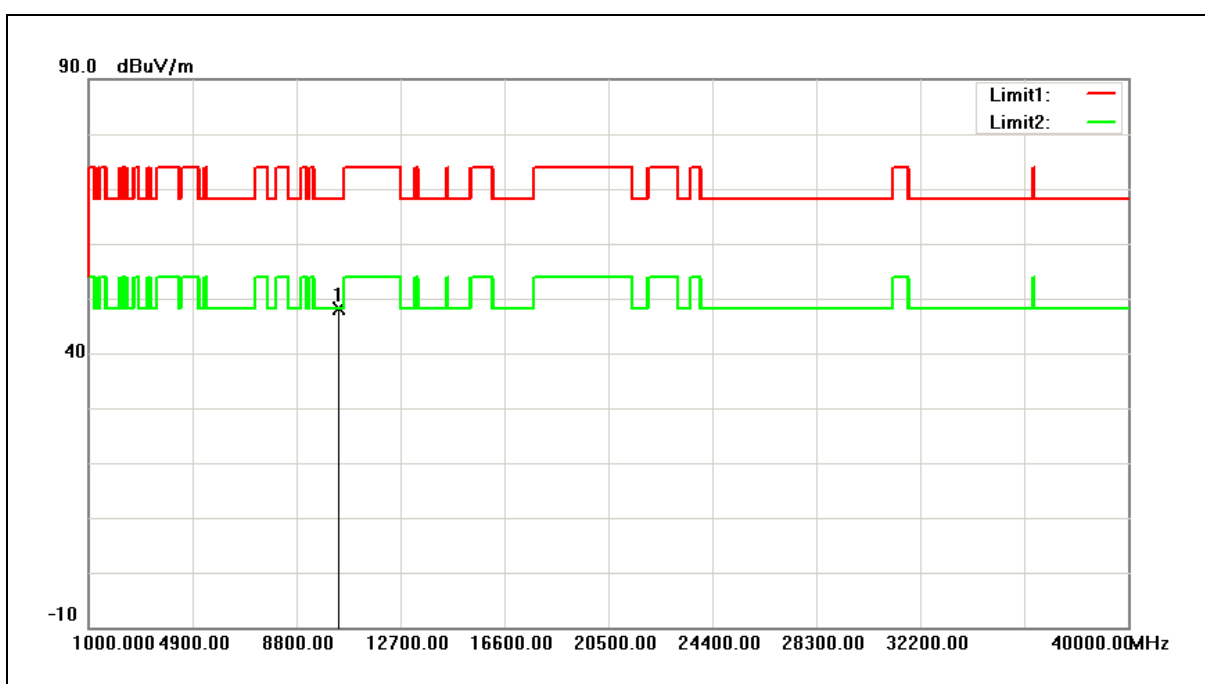
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	41.68	7.17	48.85	74.00	-25.15	peak

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 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5190MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Horizontal		



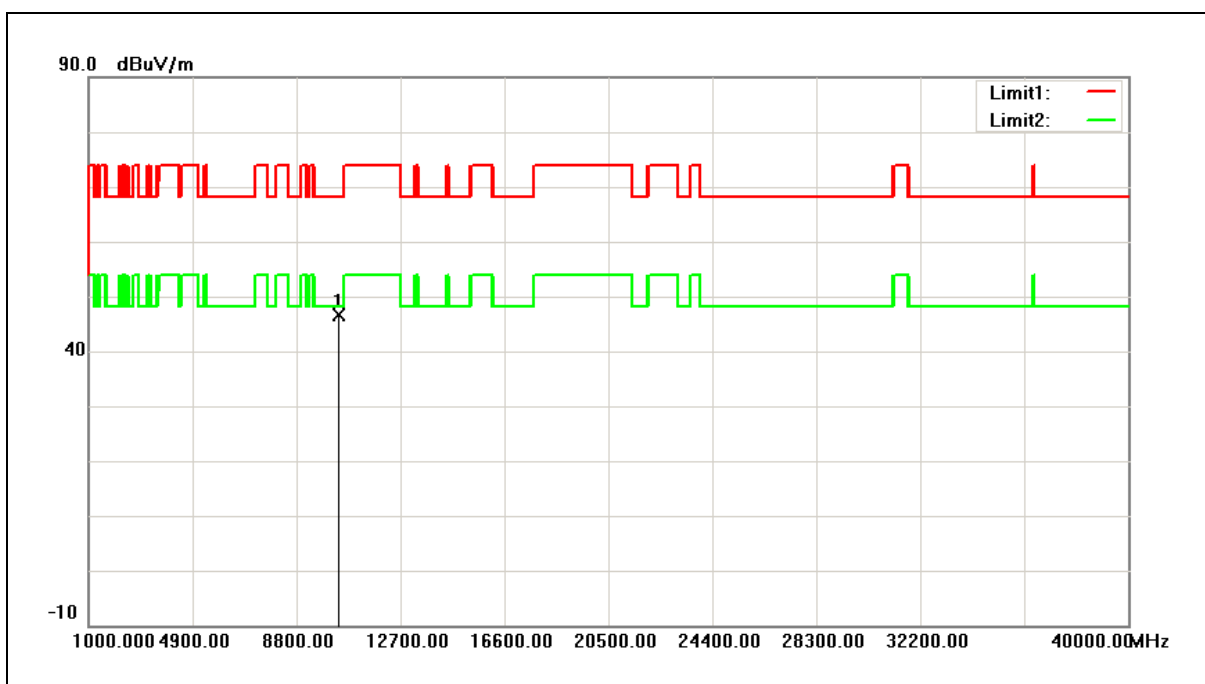
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10380.000	42.07	6.16	48.23	68.20	-19.97	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5190MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Vertical		



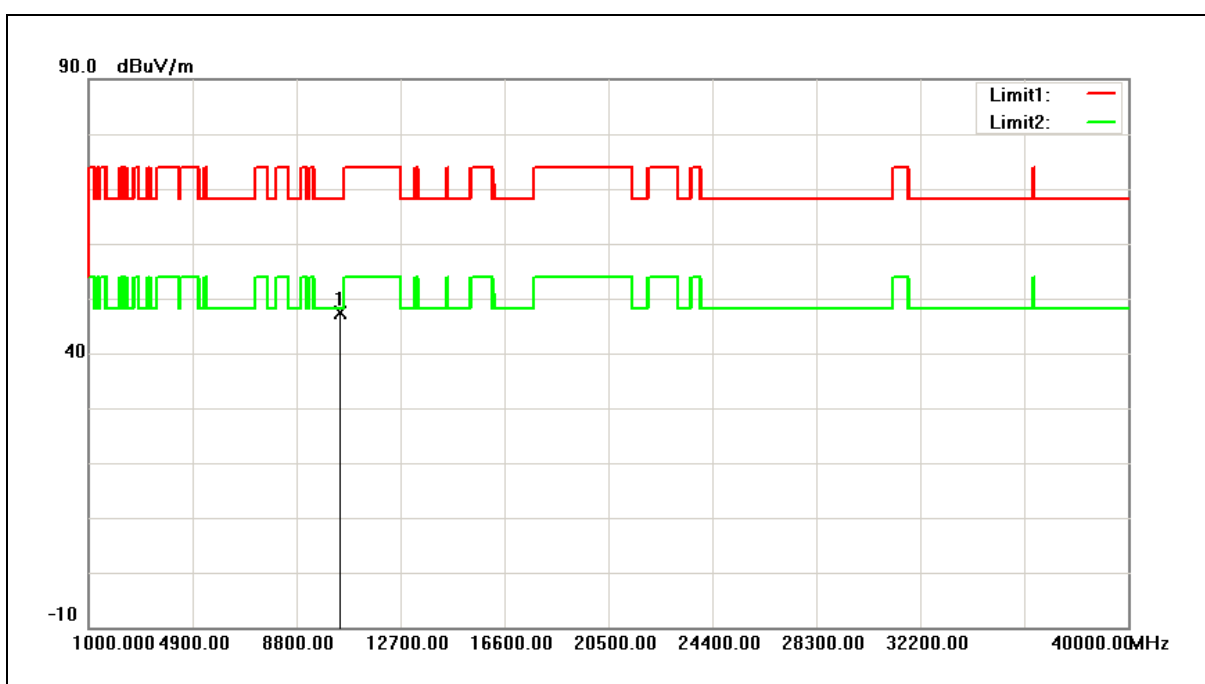
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10380.000	40.50	6.16	46.66	68.20	-21.54	peak

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 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5230MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Horizontal		



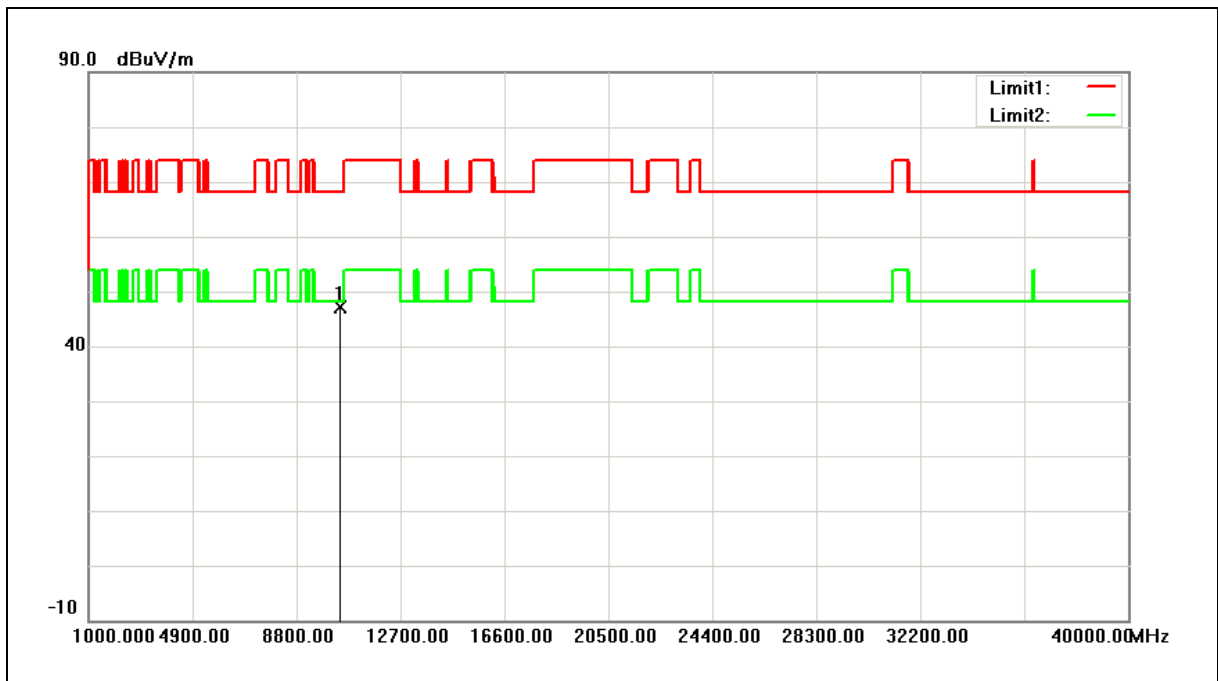
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10460.000	41.00	6.35	47.35	68.20	-20.85	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5230MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Vertical		



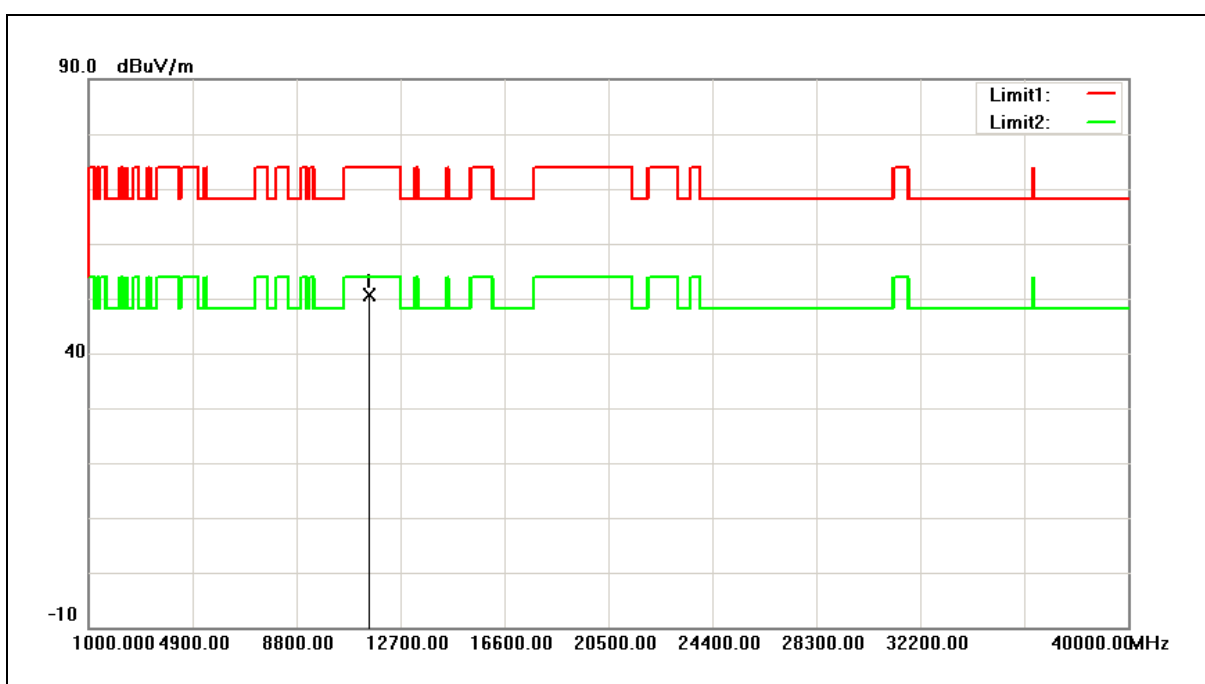
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10460.000	40.89	6.35	47.24	68.20	-20.96	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5755MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Horizontal		



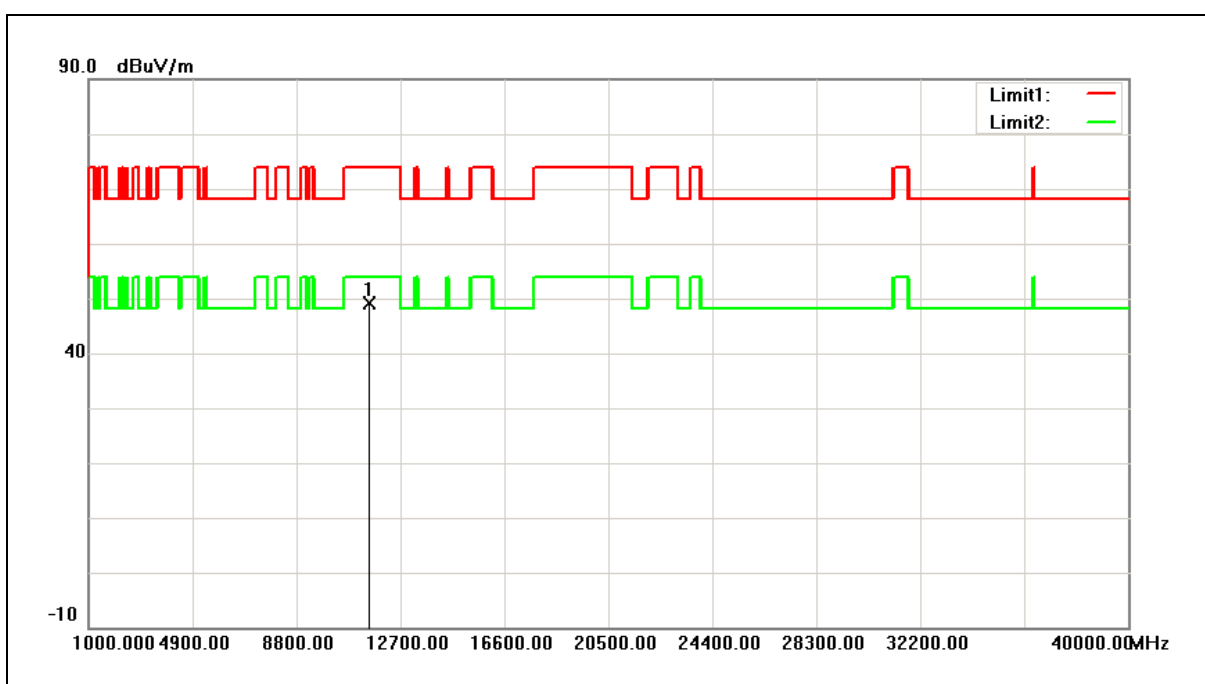
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	43.36	7.34	50.70	74.00	-23.30	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5755MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Vertical		



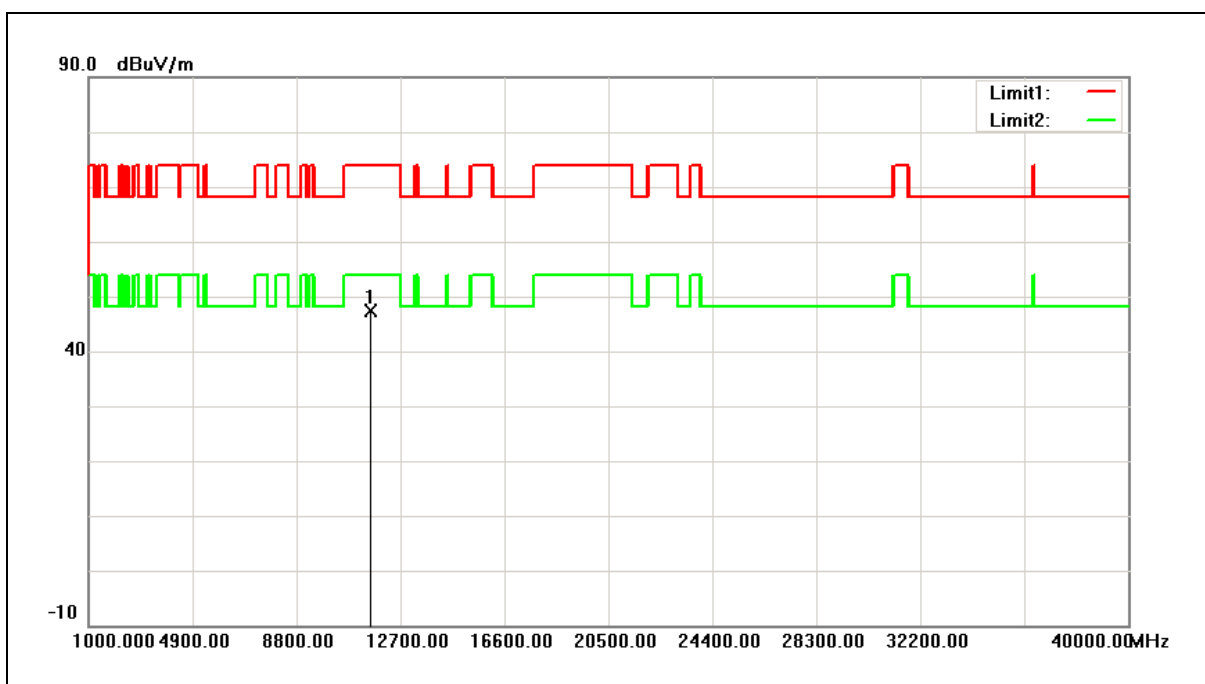
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	41.88	7.34	49.22	74.00	-24.78	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5795MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Horizontal		



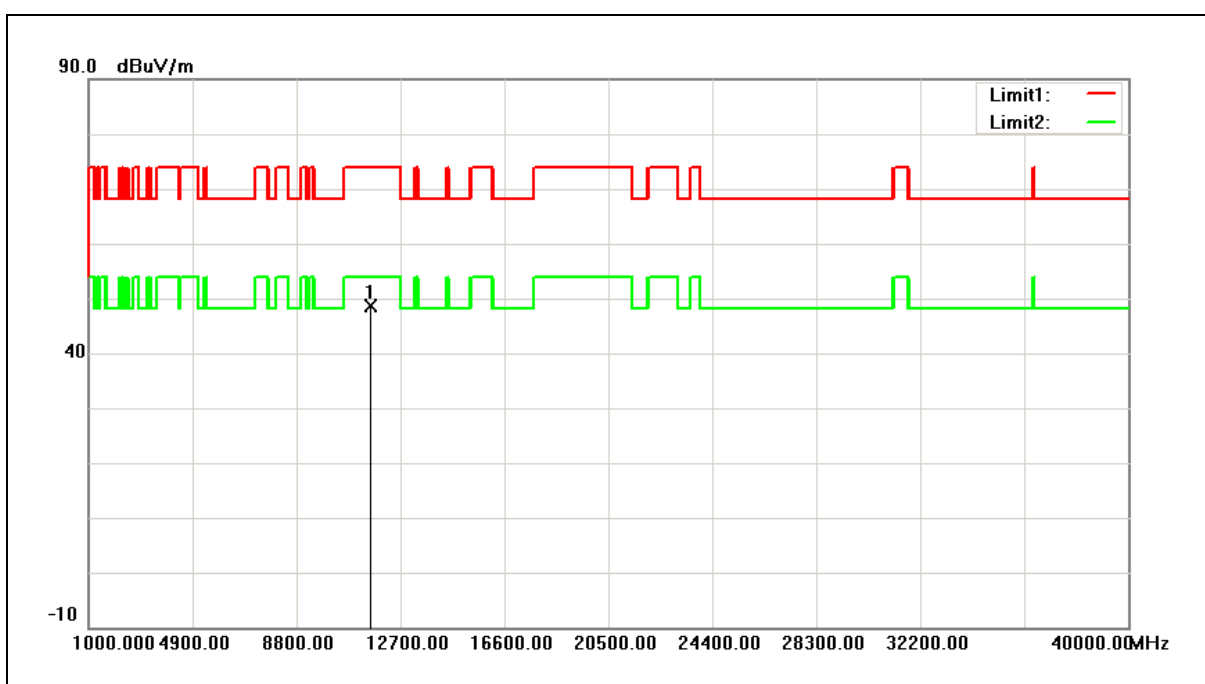
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	40.19	7.25	47.44	74.00	-26.56	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5795MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/06/2017
Ant.Polar.:	Vertical		



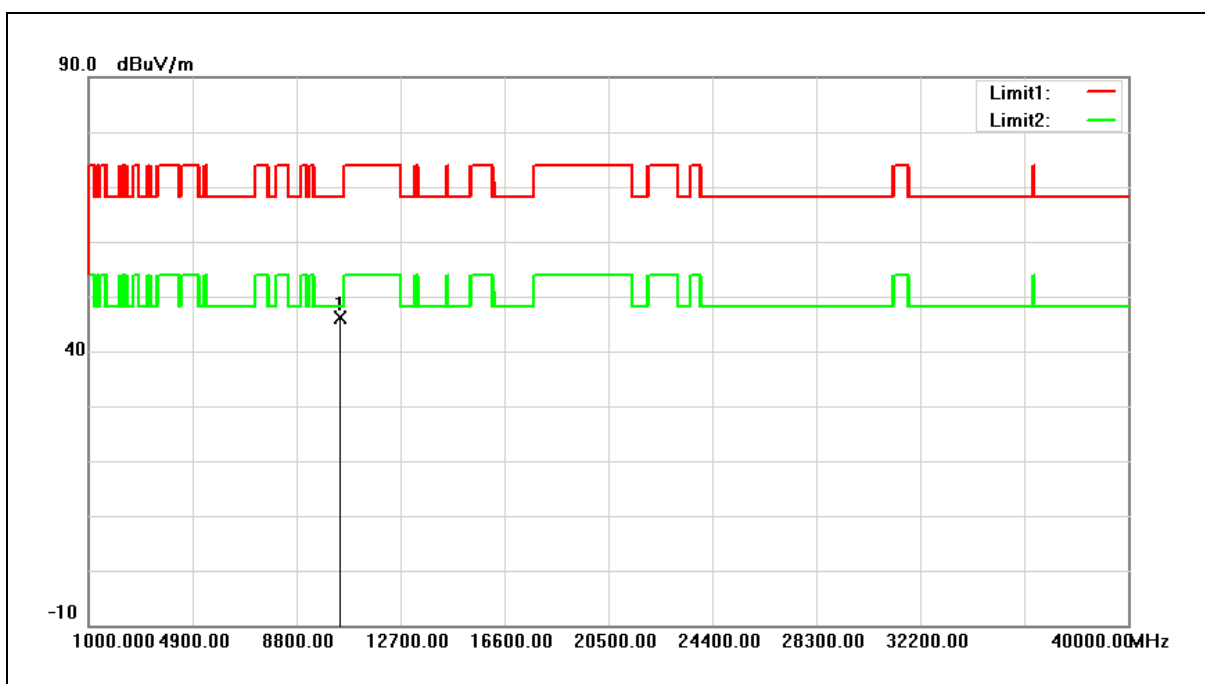
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	41.33	7.25	48.58	74.00	-25.42	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/06/2017
Ant.Polar.:	Horizontal		



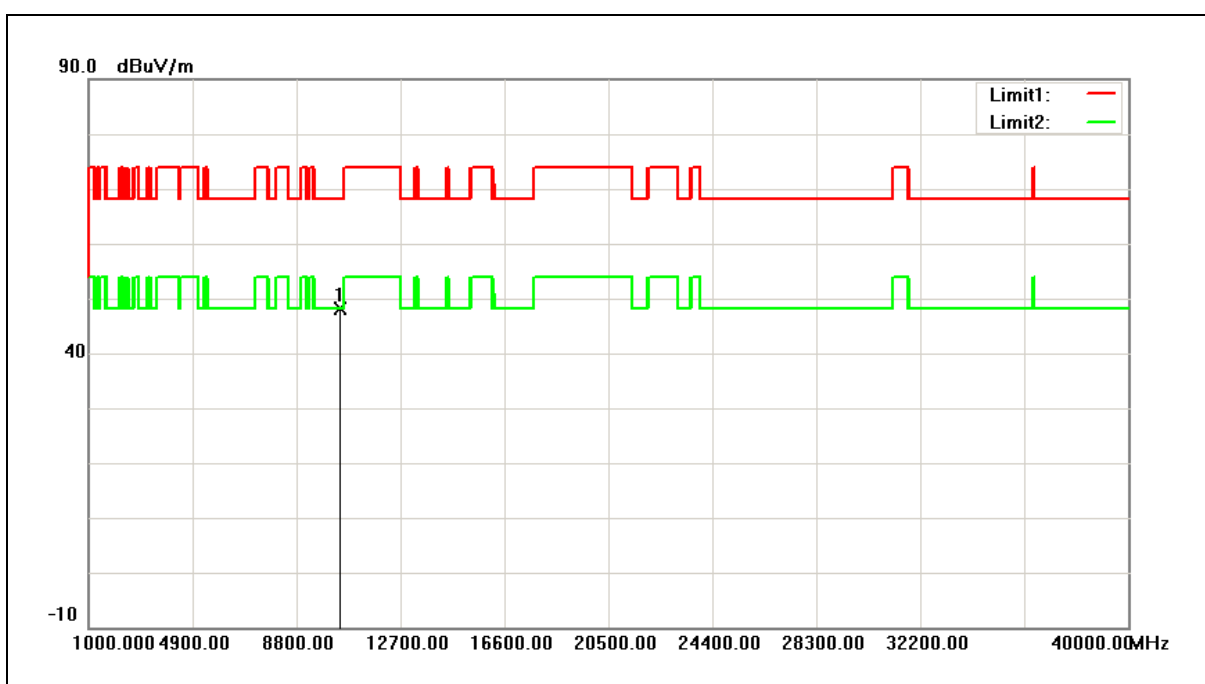
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10420.000	39.97	6.26	46.23	68.20	-21.97	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/06/2017
Ant.Polar.:	Vertical		



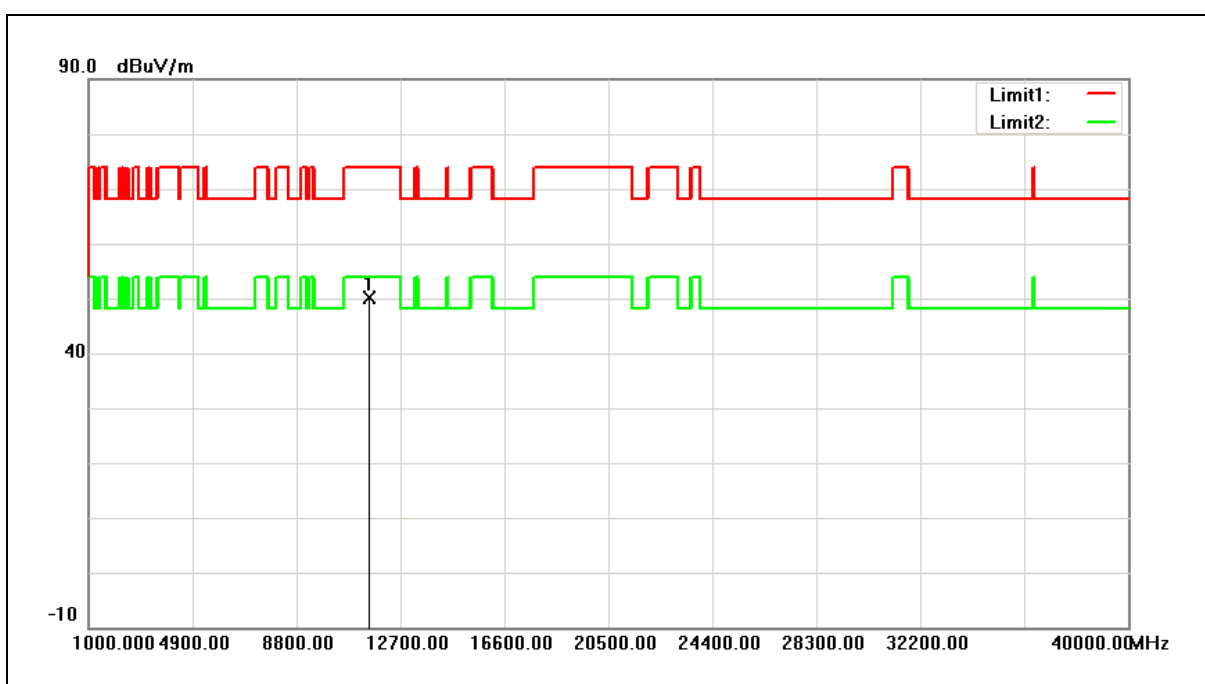
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10420.000	41.77	6.26	48.03	68.20	-20.17	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/06/2017
Ant.Polar.:	Horizontal		



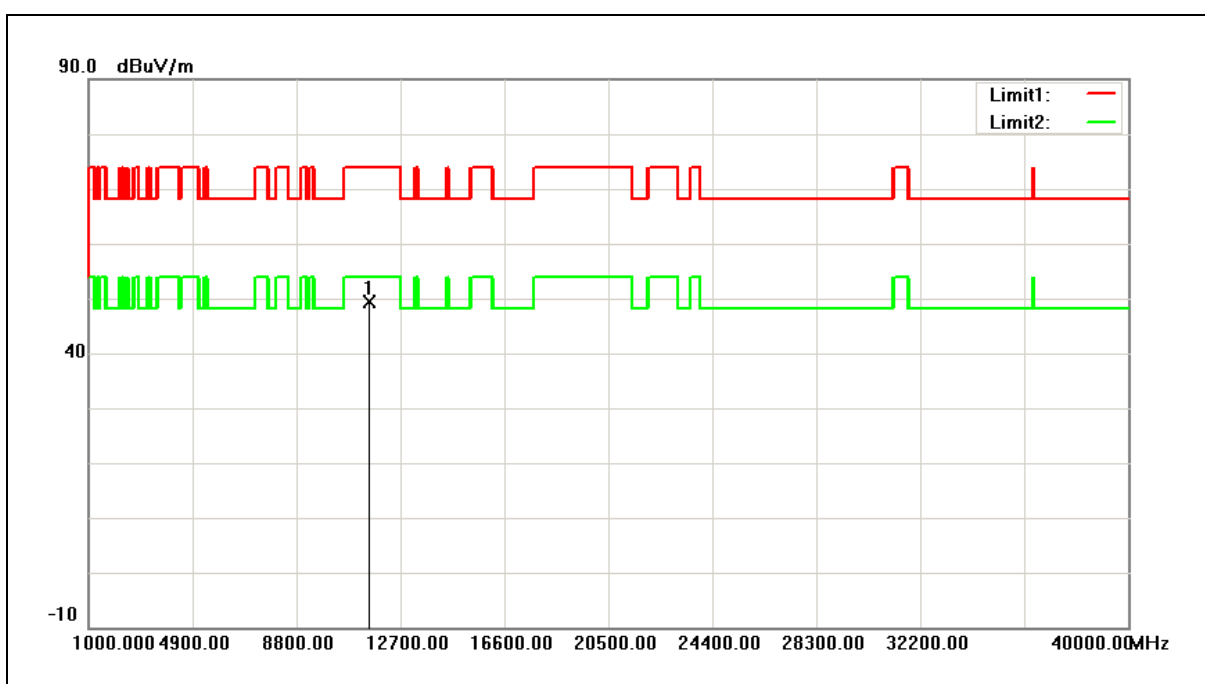
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11550.000	42.88	7.29	50.17	74.00	-23.83	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/06/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11550.000	41.99	7.29	49.28	74.00	-24.72	peak

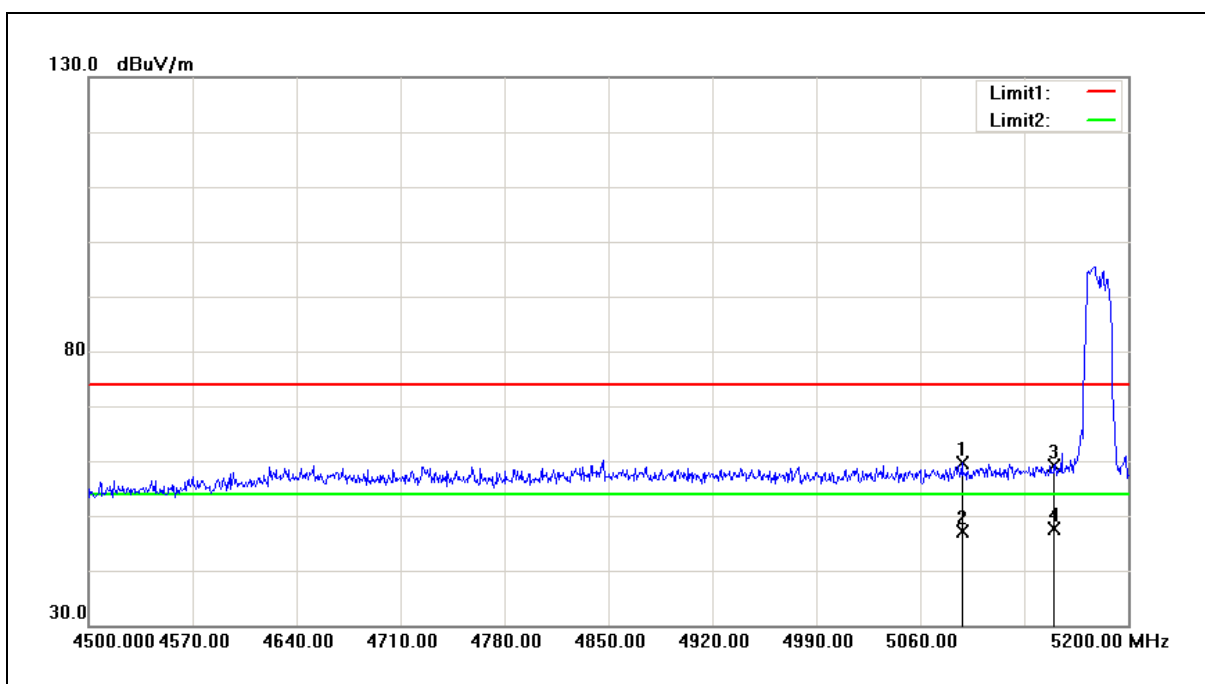
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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.

Band Edge

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Horizontal		



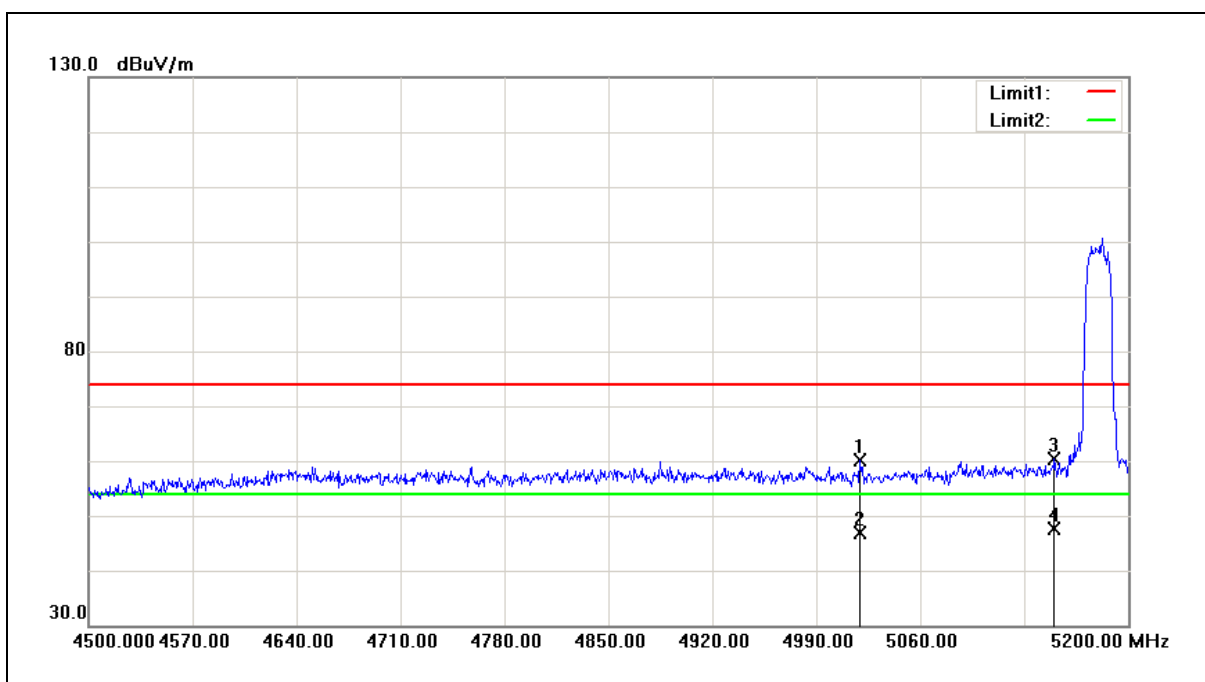
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5088.000	50.74	8.93	59.67	74.00	-14.33	peak
2	5088.000	38.28	8.93	47.21	54.00	-6.79	AVG
3	5150.000	50.04	8.97	59.01	74.00	-14.99	peak
4	5150.000	38.55	8.97	47.52	54.00	-6.48	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Vertical		



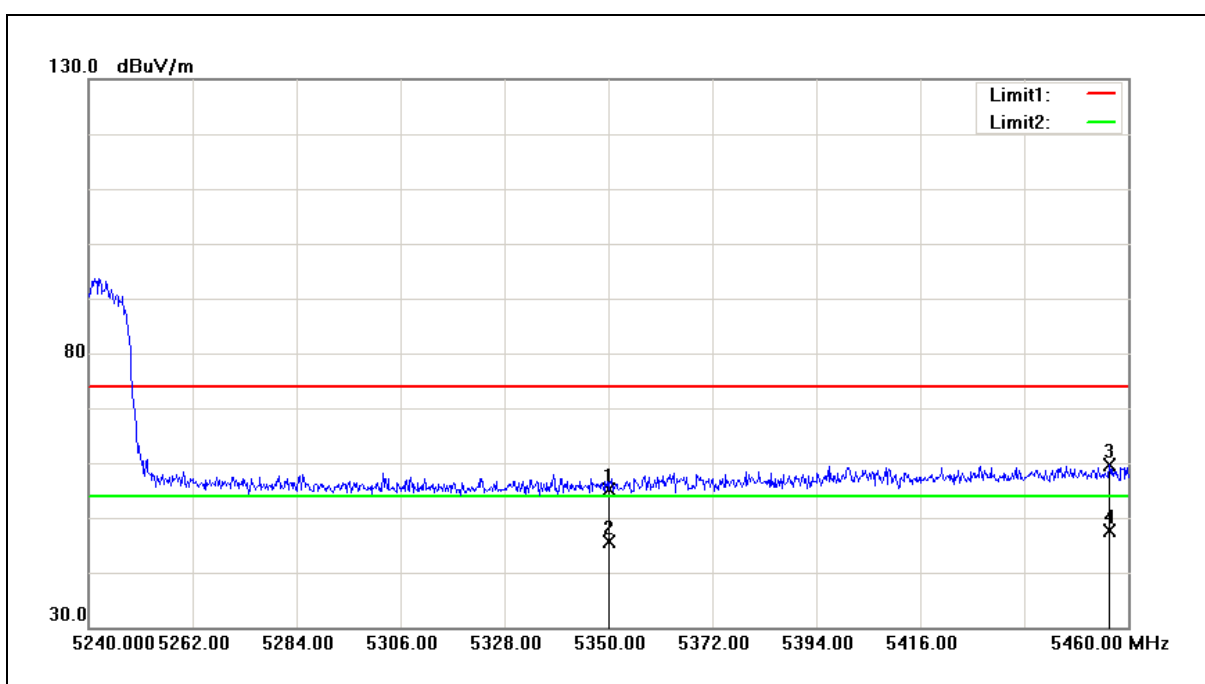
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5019.400	51.24	8.88	60.12	74.00	-13.88	peak
2	5019.400	38.03	8.88	46.91	54.00	-7.09	AVG
3	5150.000	51.48	8.97	60.45	74.00	-13.55	peak
4	5150.000	38.60	8.97	47.57	54.00	-6.43	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Horizontal		



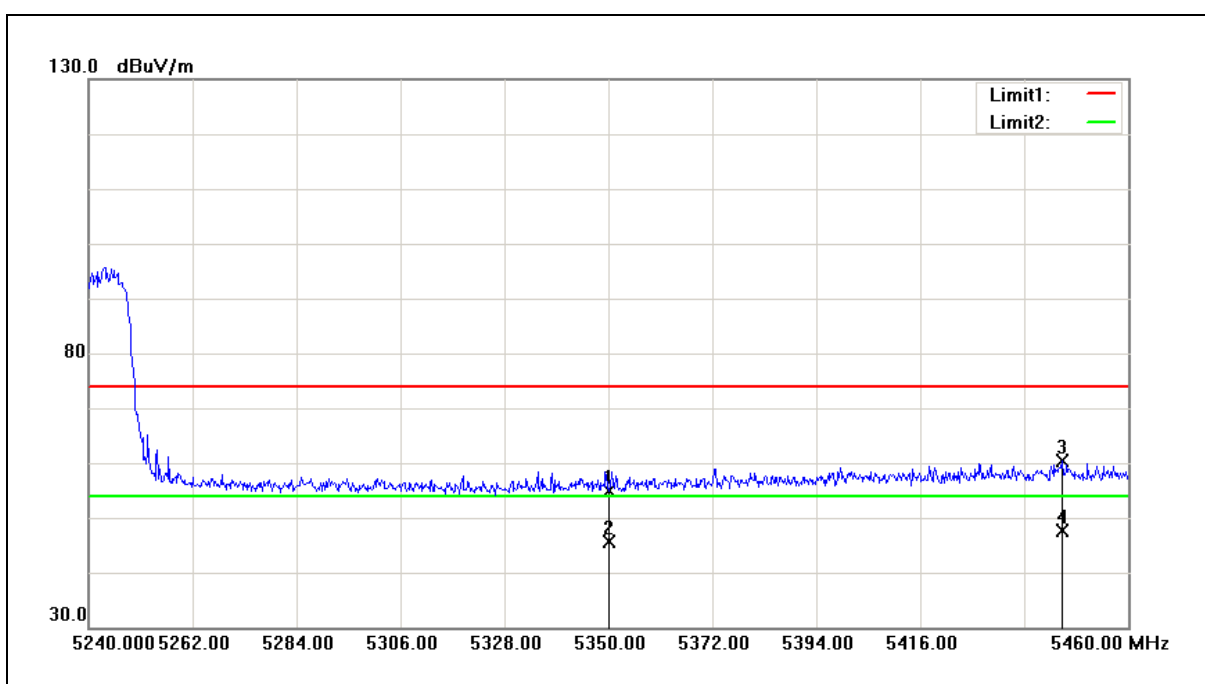
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	46.13	9.08	55.21	74.00	-18.79	peak
2	5350.000	36.49	9.08	45.57	54.00	-8.43	AVG
3	5456.040	50.42	9.15	59.57	74.00	-14.43	peak
4	5456.040	38.53	9.15	47.68	54.00	-6.32	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Vertical		



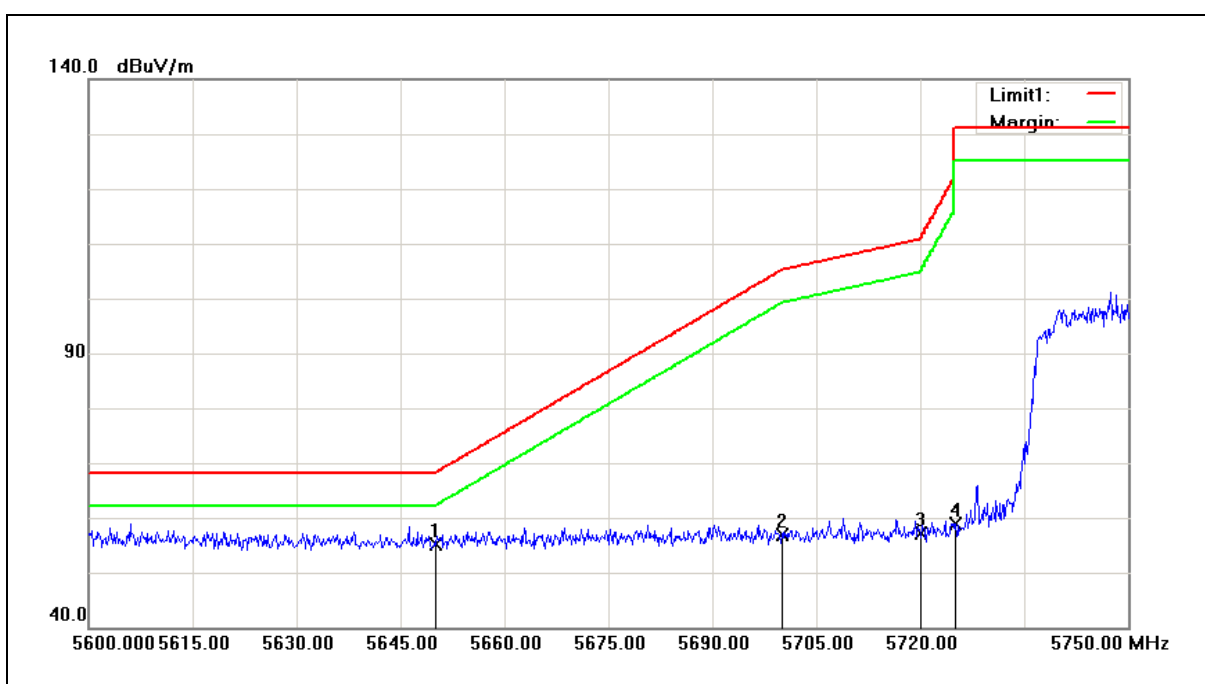
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	45.84	9.08	54.92	74.00	-19.08	peak
2	5350.000	36.56	9.08	45.64	54.00	-8.36	AVG
3	5446.140	51.20	9.15	60.35	74.00	-13.65	peak
4	5446.140	38.53	9.15	47.68	54.00	-6.32	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Horizontal		



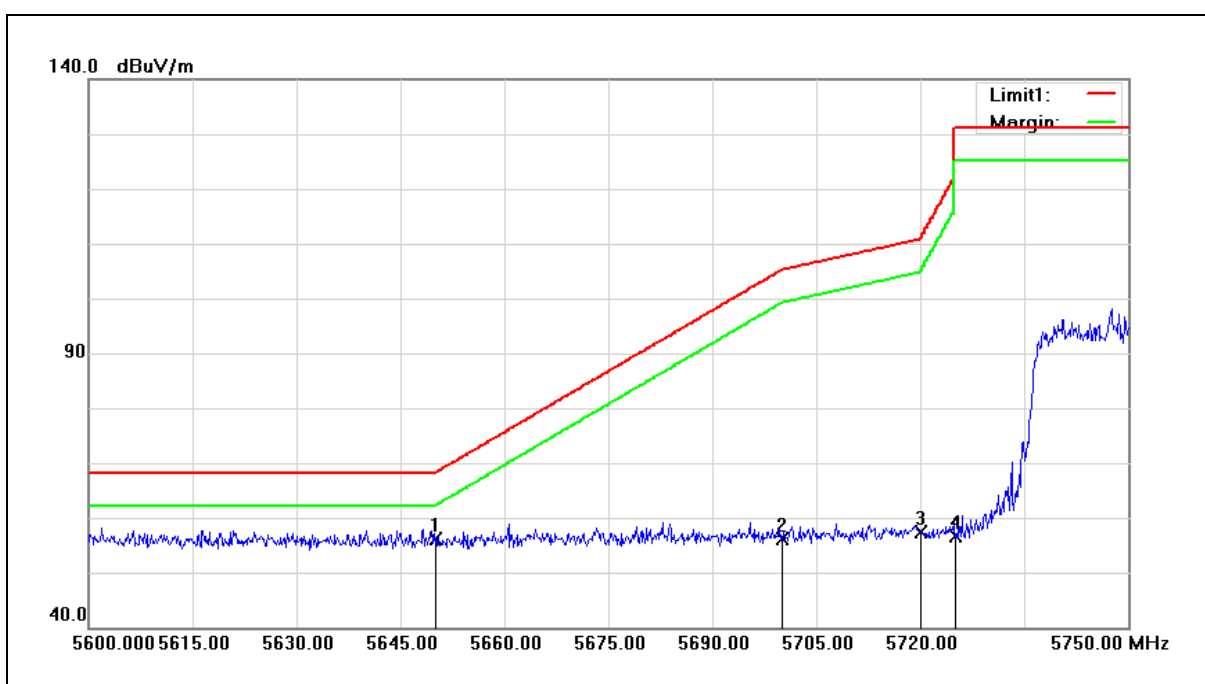
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	45.64	9.53	55.17	68.20	-13.03	peak
2	5700.000	47.32	9.64	56.96	105.20	-48.24	peak
3	5720.000	47.51	9.69	57.20	110.80	-53.60	peak
4	5725.000	49.28	9.70	58.98	122.20	-63.22	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Vertical		



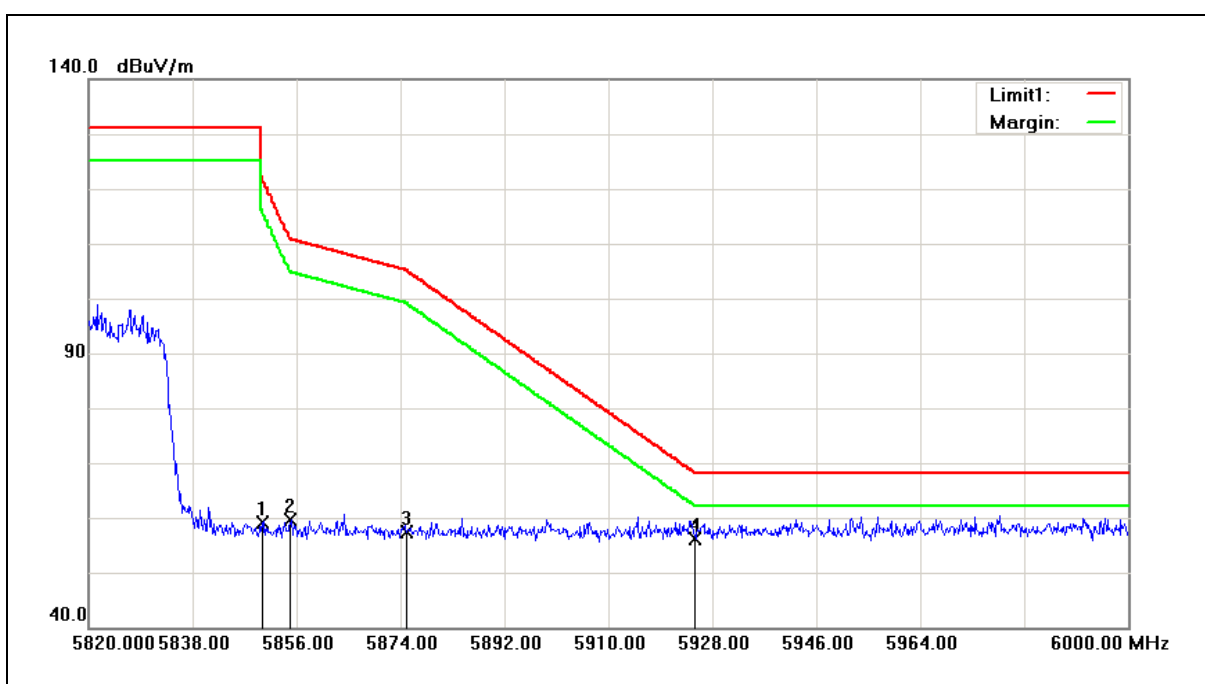
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	46.53	9.53	56.06	68.20	-12.14	peak
2	5700.000	46.38	9.64	56.02	105.20	-49.18	peak
3	5720.000	47.69	9.69	57.38	110.80	-53.42	peak
4	5725.000	47.04	9.70	56.74	122.20	-65.46	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Horizontal		



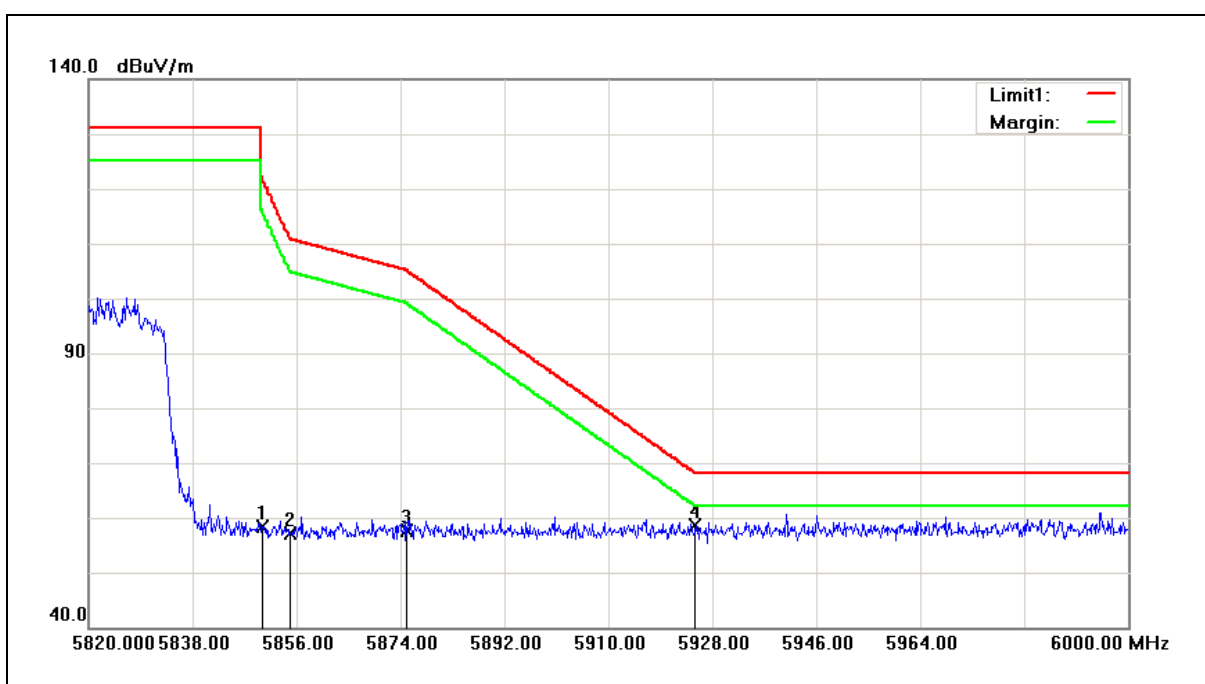
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	49.12	9.98	59.10	122.20	-63.10	peak
2	5855.000	49.53	9.99	59.52	110.80	-51.28	peak
3	5875.000	47.42	10.04	57.46	105.20	-47.74	peak
4	5925.000	46.05	10.16	56.21	68.20	-11.99	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/05/2017
Ant.Polar.:	Vertical		



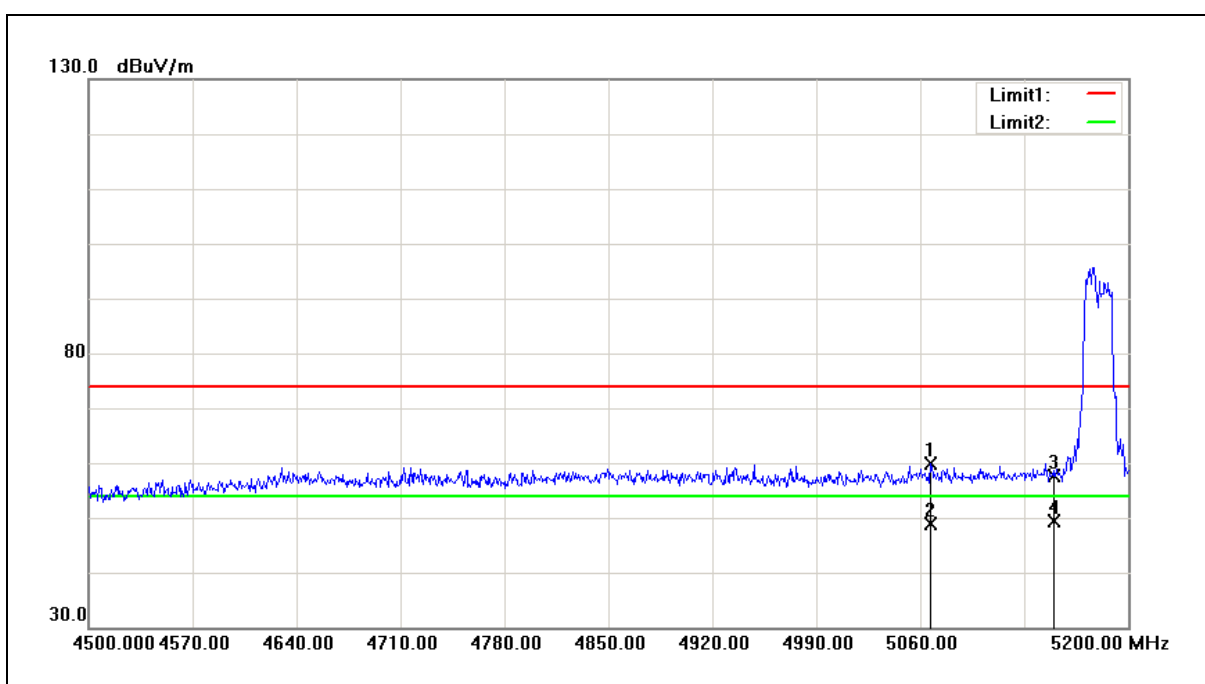
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	48.35	9.98	58.33	122.20	-63.87	peak
2	5855.000	47.21	9.99	57.20	110.80	-53.60	peak
3	5875.000	47.68	10.04	57.72	105.20	-47.48	peak
4	5925.000	48.45	10.16	58.61	68.20	-9.59	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Horizontal		



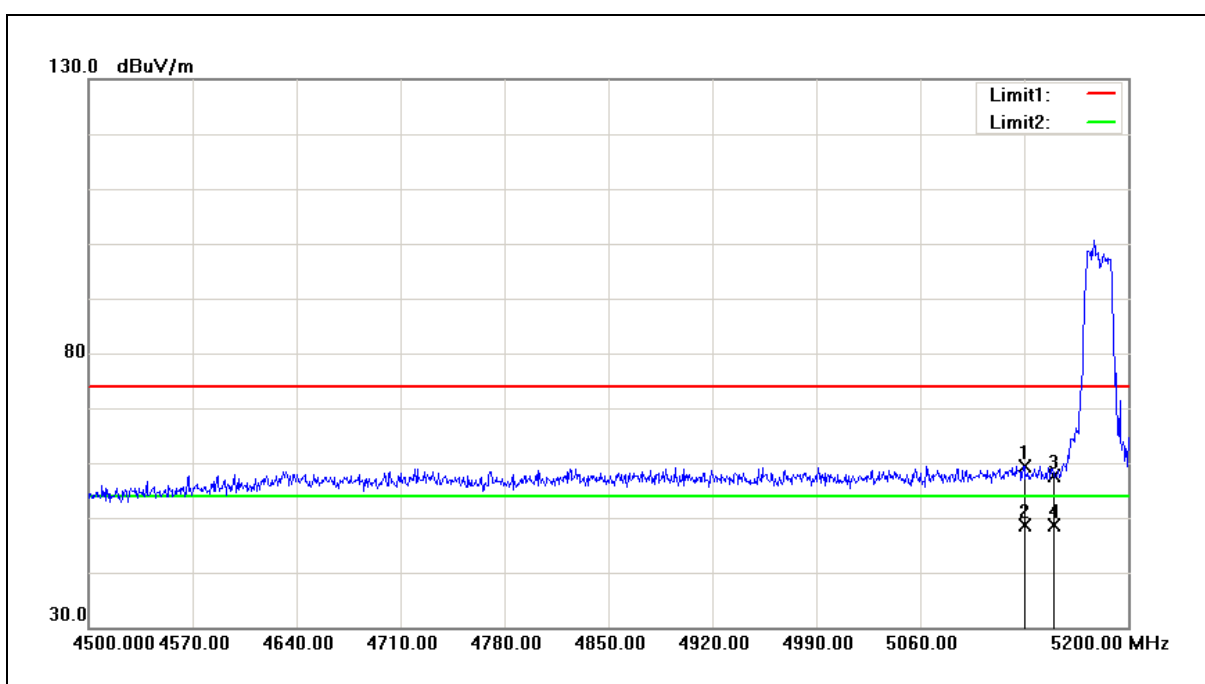
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5067.000	50.97	8.91	59.88	74.00	-14.12	peak
2	5067.000	39.95	8.91	48.86	54.00	-5.14	AVG
3	5150.000	48.69	8.97	57.66	74.00	-16.34	peak
4	5150.000	40.33	8.97	49.30	54.00	-4.70	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5180MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Vertical		



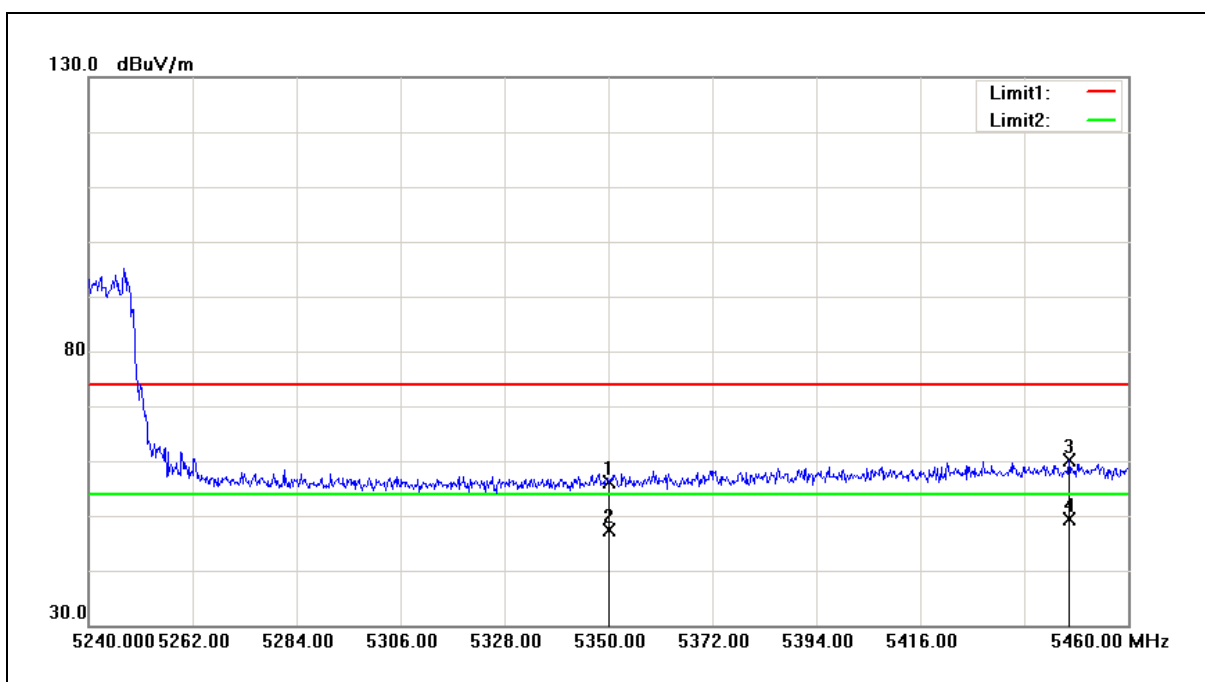
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5130.000	50.55	8.95	59.50	74.00	-14.50	peak
2	5130.000	39.64	8.95	48.59	54.00	-5.41	AVG
3	5150.000	48.56	8.97	57.53	74.00	-16.47	peak
4	5150.000	39.67	8.97	48.64	54.00	-5.36	AVG

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 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Horizontal		



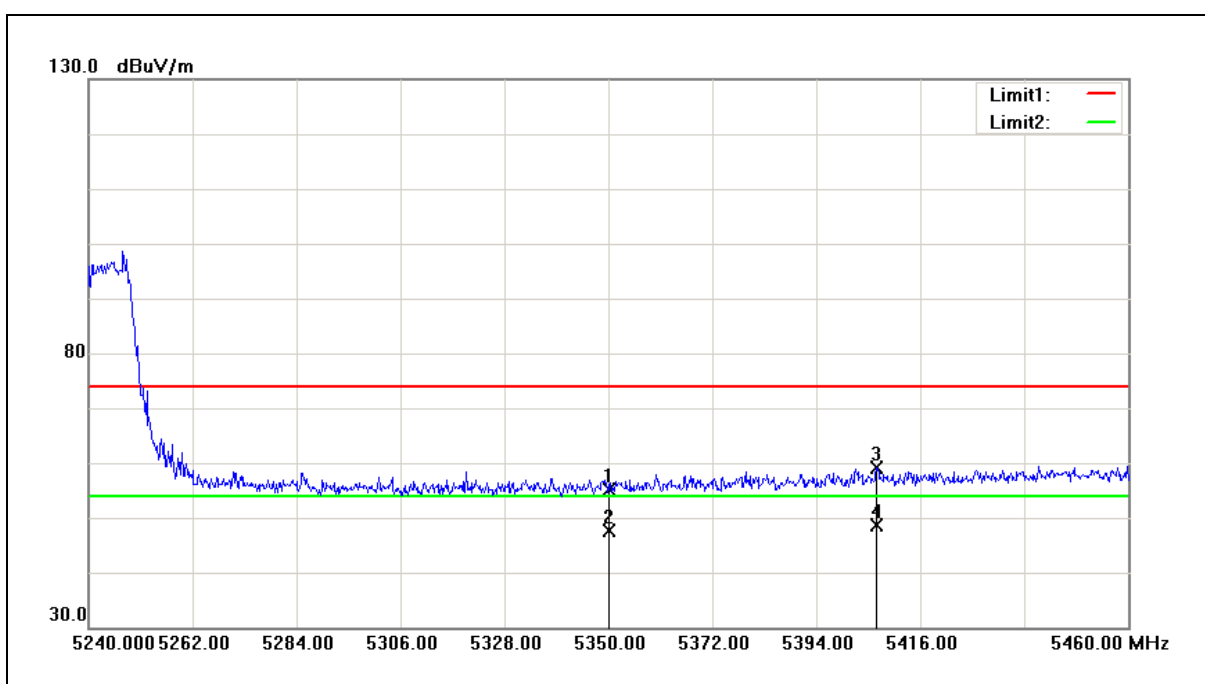
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	47.09	9.08	56.17	74.00	-17.83	peak
2	5350.000	38.41	9.08	47.49	54.00	-6.51	AVG
3	5447.460	51.08	9.15	60.23	74.00	-13.77	peak
4	5447.460	40.23	9.15	49.38	54.00	-4.62	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Vertical		



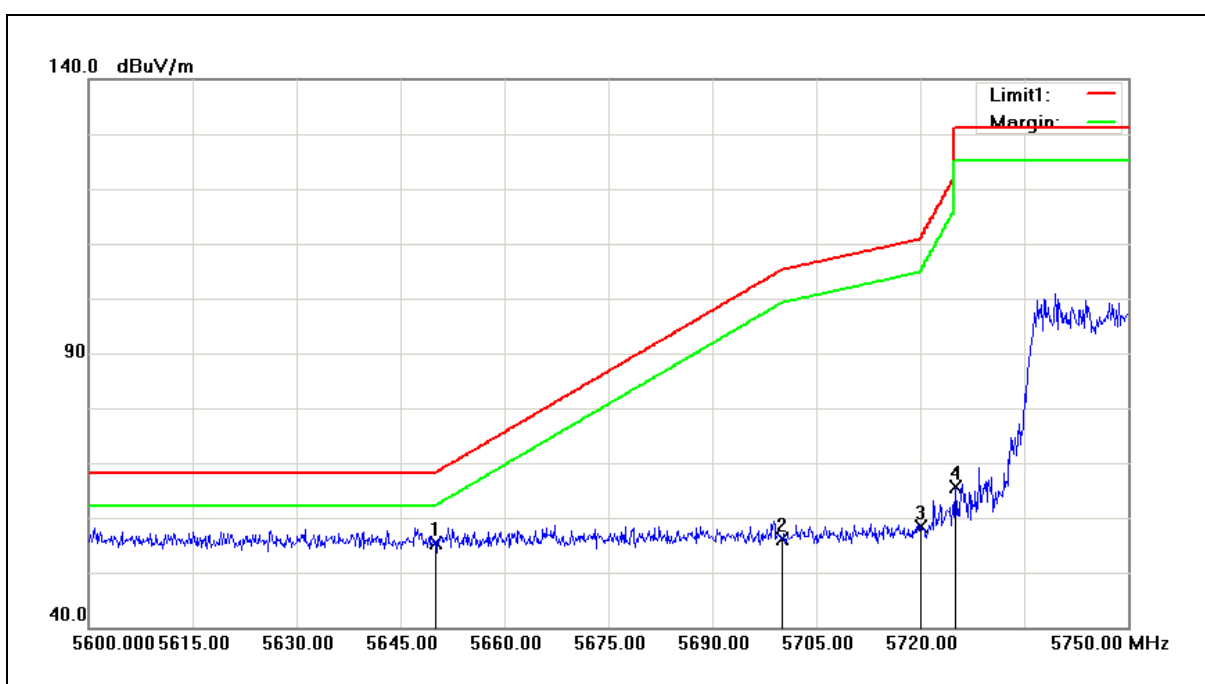
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	46.15	9.08	55.23	74.00	-18.77	peak
2	5350.000	38.58	9.08	47.66	54.00	-6.34	AVG
3	5406.760	50.06	9.12	59.18	74.00	-14.82	peak
4	5406.760	39.49	9.12	48.61	54.00	-5.39	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Horizontal		



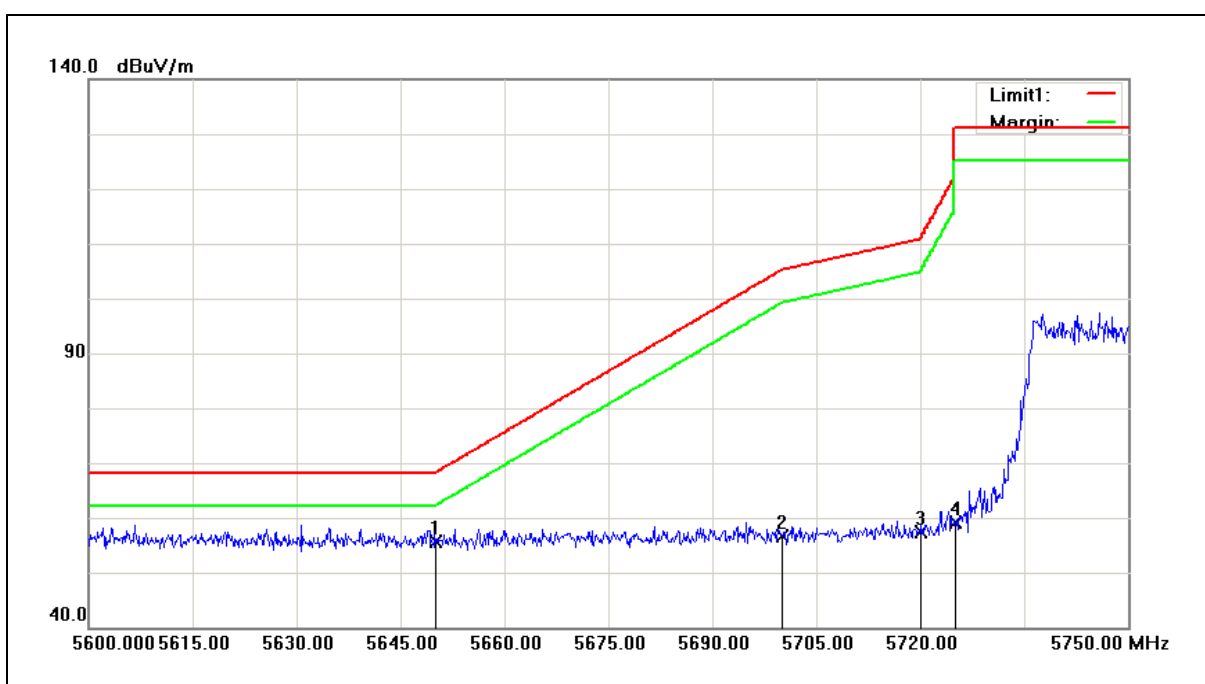
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	45.87	9.53	55.40	68.20	-12.80	peak
2	5700.000	46.37	9.64	56.01	105.20	-49.19	peak
3	5720.000	48.74	9.69	58.43	110.80	-52.37	peak
4	5725.000	55.86	9.70	65.56	122.20	-56.64	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Vertical		



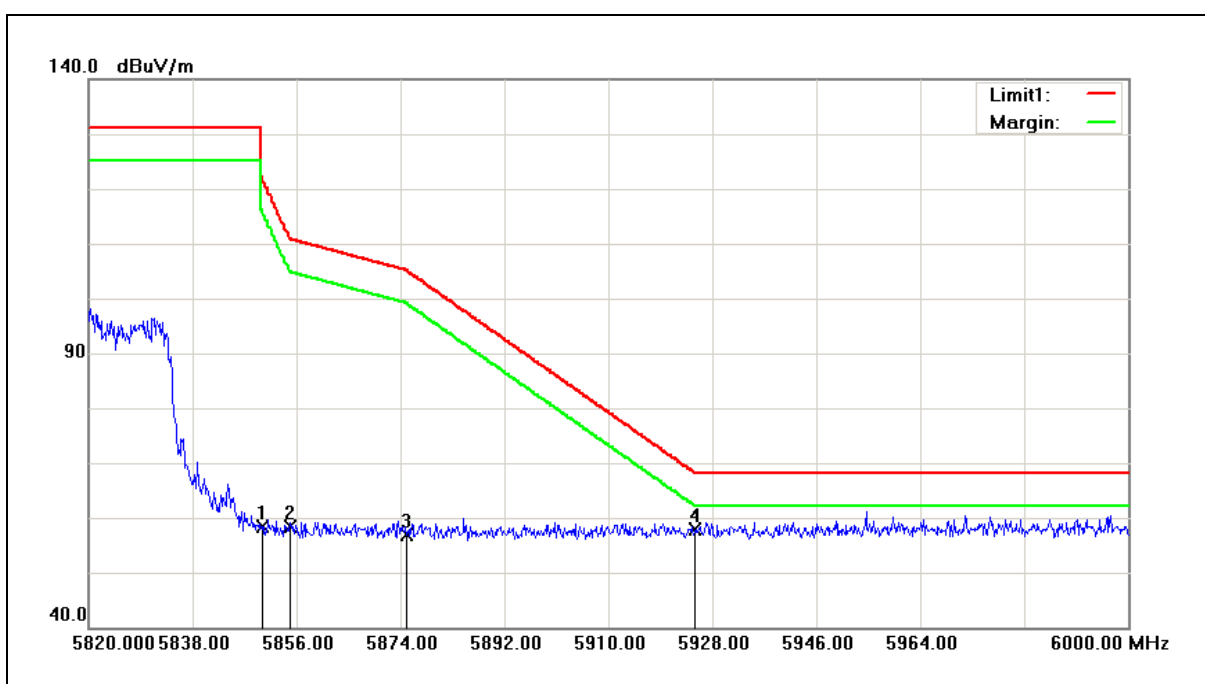
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	46.15	9.53	55.68	68.20	-12.52	peak
2	5700.000	47.09	9.64	56.73	105.20	-48.47	peak
3	5720.000	47.70	9.69	57.39	110.80	-53.41	peak
4	5725.000	49.36	9.70	59.06	122.20	-63.14	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Horizontal		



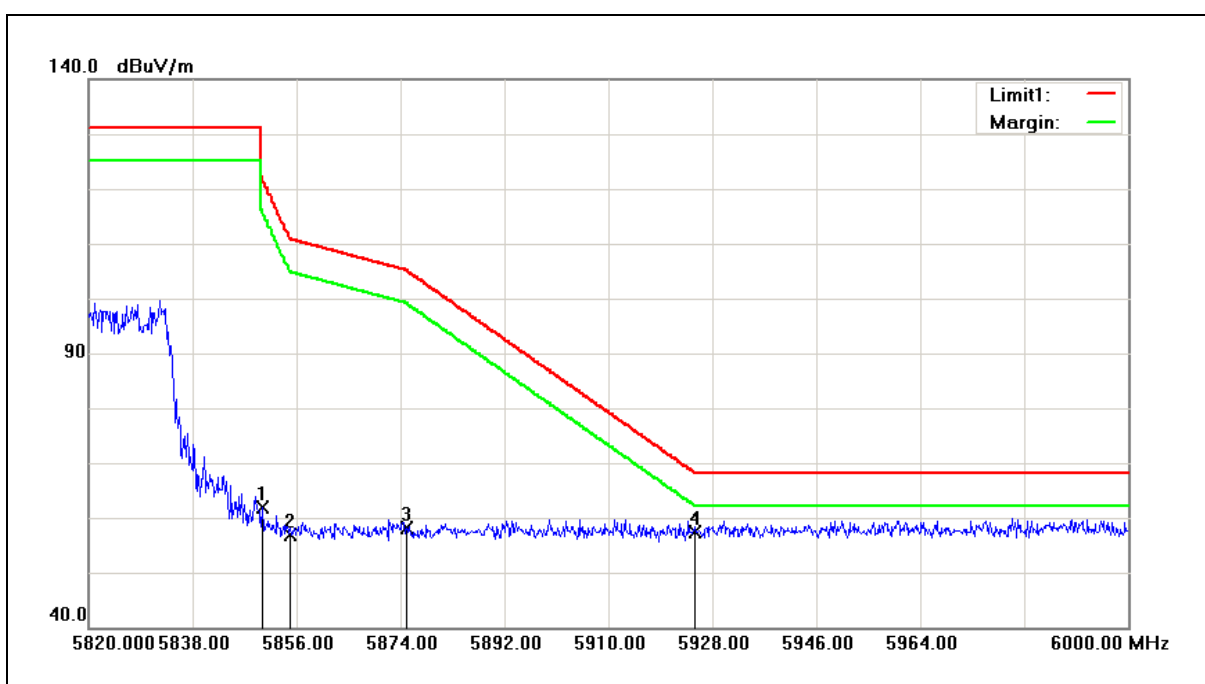
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	48.48	9.98	58.46	122.20	-63.74	peak
2	5855.000	48.47	9.99	58.46	110.80	-52.34	peak
3	5875.000	46.73	10.04	56.77	105.20	-48.43	peak
4	5925.000	47.82	10.16	57.98	68.20	-10.22	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/05/2017
Ant.Polar.:	Vertical		



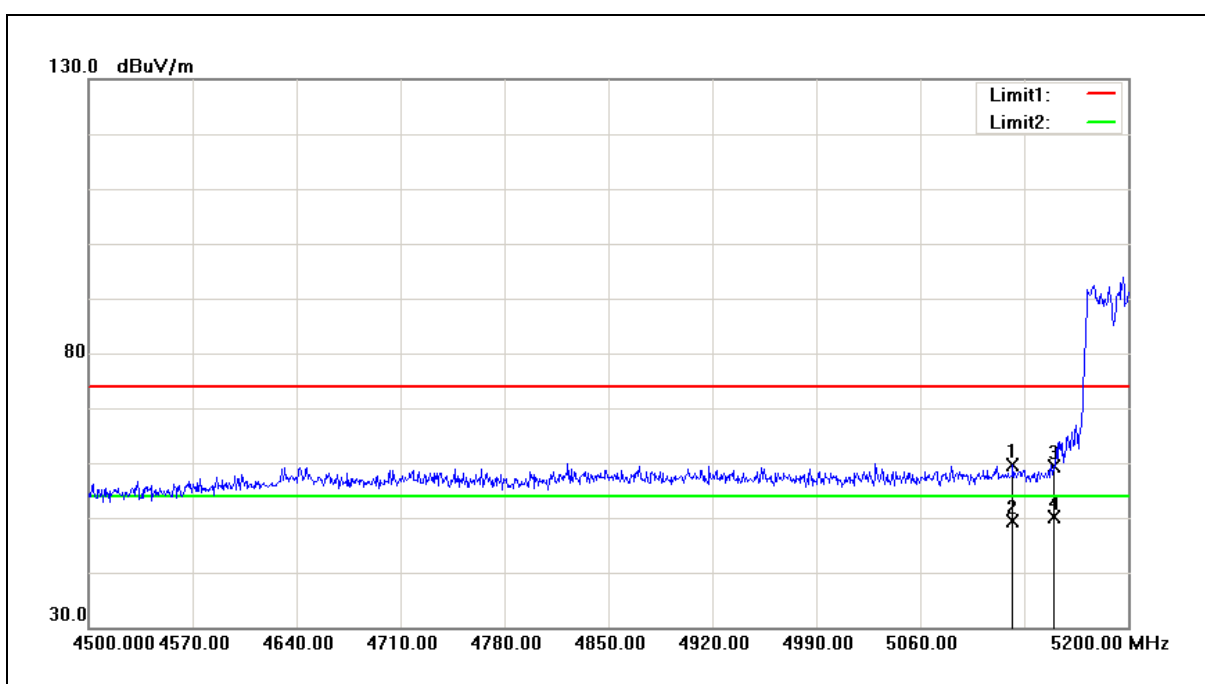
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	51.93	9.98	61.91	122.20	-60.29	peak
2	5855.000	47.01	9.99	57.00	110.80	-53.80	peak
3	5875.000	48.20	10.04	58.24	105.20	-46.96	peak
4	5925.000	47.25	10.16	57.41	68.20	-10.79	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5190MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Horizontal		



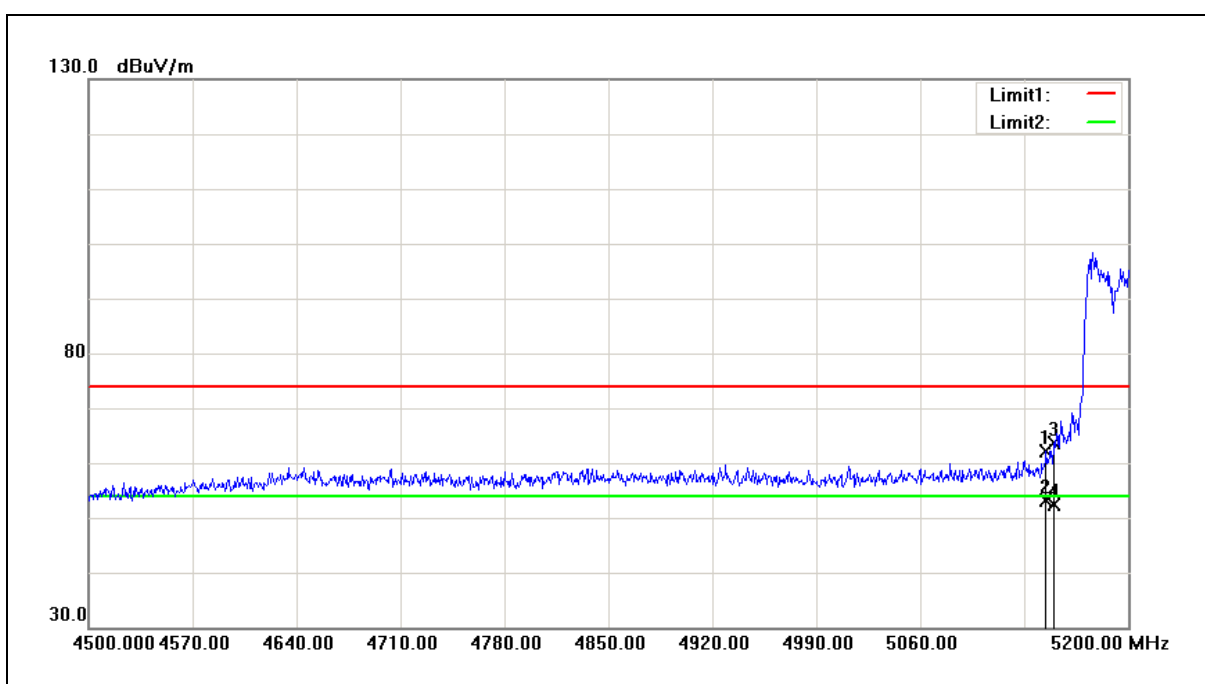
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5122.300	50.77	8.94	59.71	74.00	-14.29	peak
2	5122.300	40.44	8.94	49.38	54.00	-4.62	AVG
3	5150.000	50.30	8.97	59.27	74.00	-14.73	peak
4	5150.000	41.28	8.97	50.25	54.00	-3.75	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5190MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Vertical		



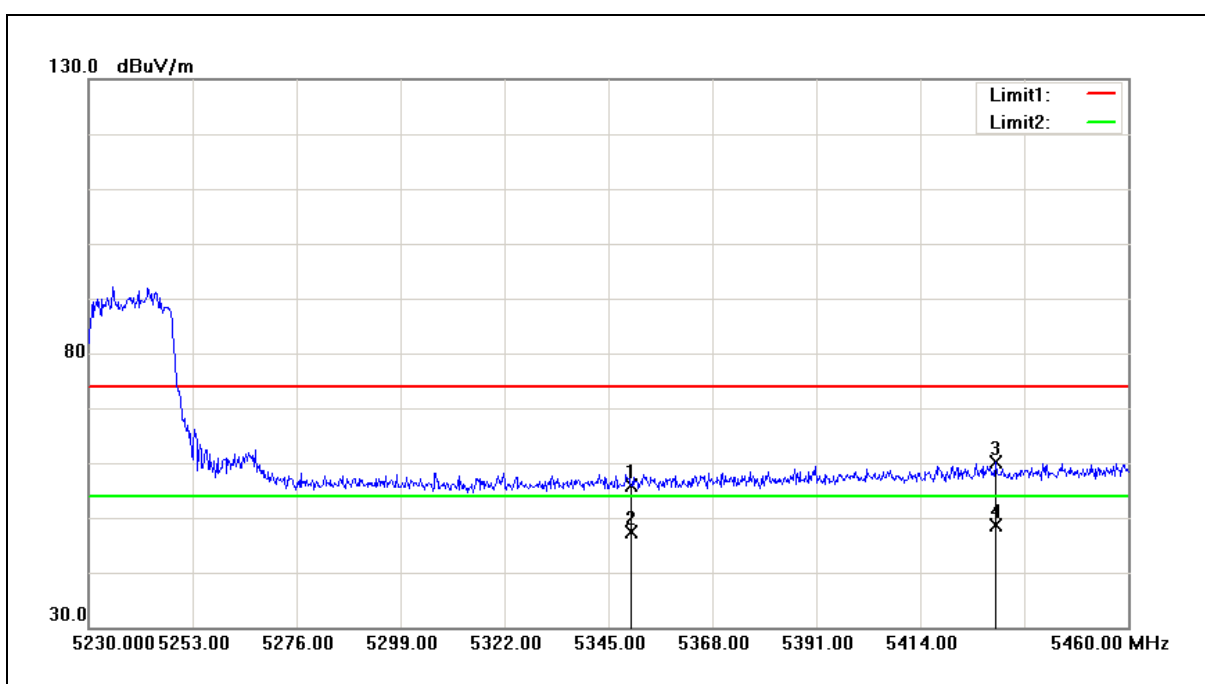
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5144.700	53.27	8.97	62.24	74.00	-11.76	peak
2	5144.700	44.27	8.97	53.24	54.00	-0.76	AVG
3	5150.000	54.62	8.97	63.59	74.00	-10.41	peak
4	5150.000	43.41	8.97	52.38	54.00	-1.62	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5230MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Horizontal		



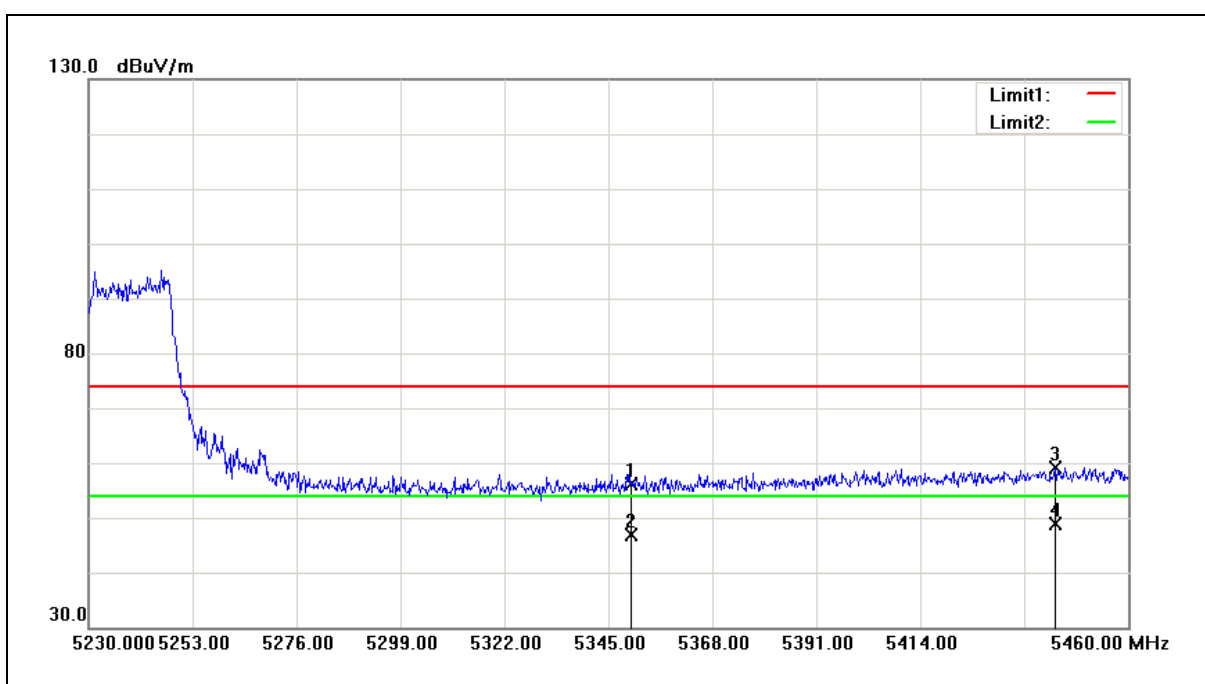
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	46.76	9.08	55.84	74.00	-18.16	peak
2	5350.000	38.23	9.08	47.31	54.00	-6.69	AVG
3	5430.790	50.91	9.14	60.05	74.00	-13.95	peak
4	5430.790	39.50	9.14	48.64	54.00	-5.36	AVG

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 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5230MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Vertical		



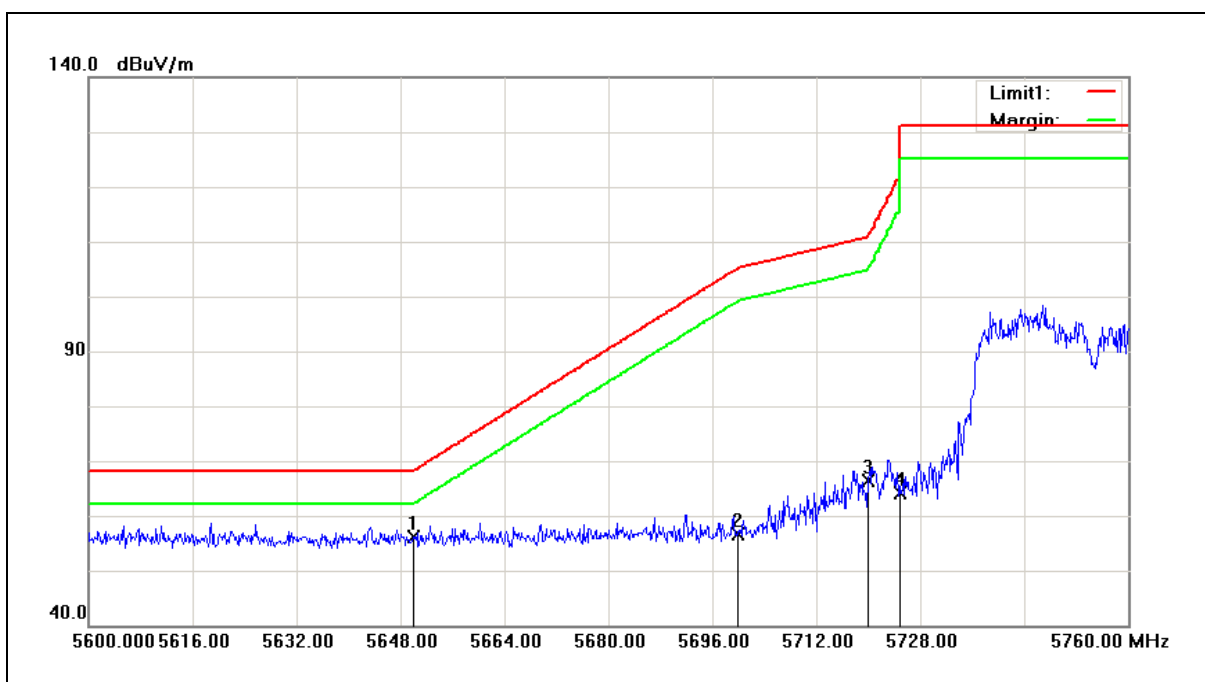
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	46.95	9.08	56.03	74.00	-17.97	peak
2	5350.000	37.68	9.08	46.76	54.00	-7.24	AVG
3	5443.900	49.96	9.15	59.11	74.00	-14.89	peak
4	5443.900	39.69	9.15	48.84	54.00	-5.16	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5755MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Horizontal		



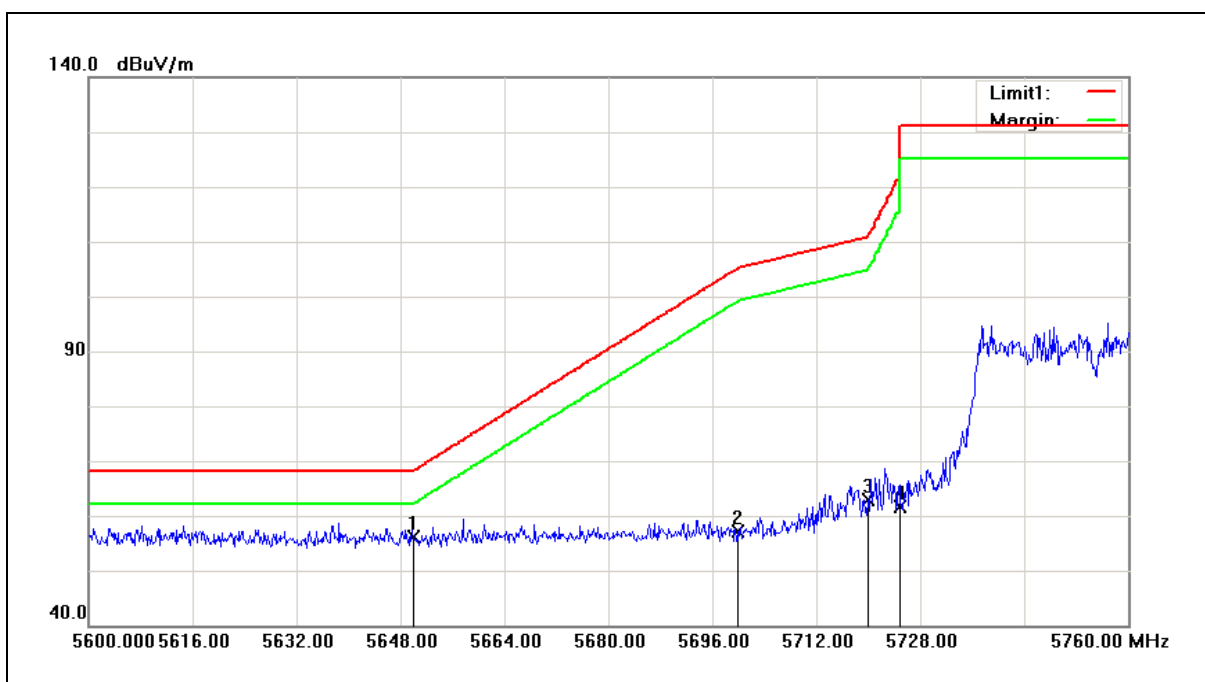
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	46.65	9.53	56.18	68.20	-12.02	peak
2	5700.000	47.02	9.64	56.66	105.20	-48.54	peak
3	5720.000	56.58	9.69	66.27	110.80	-44.53	peak
4	5725.000	54.50	9.70	64.20	122.20	-58.00	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5755MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Vertical		



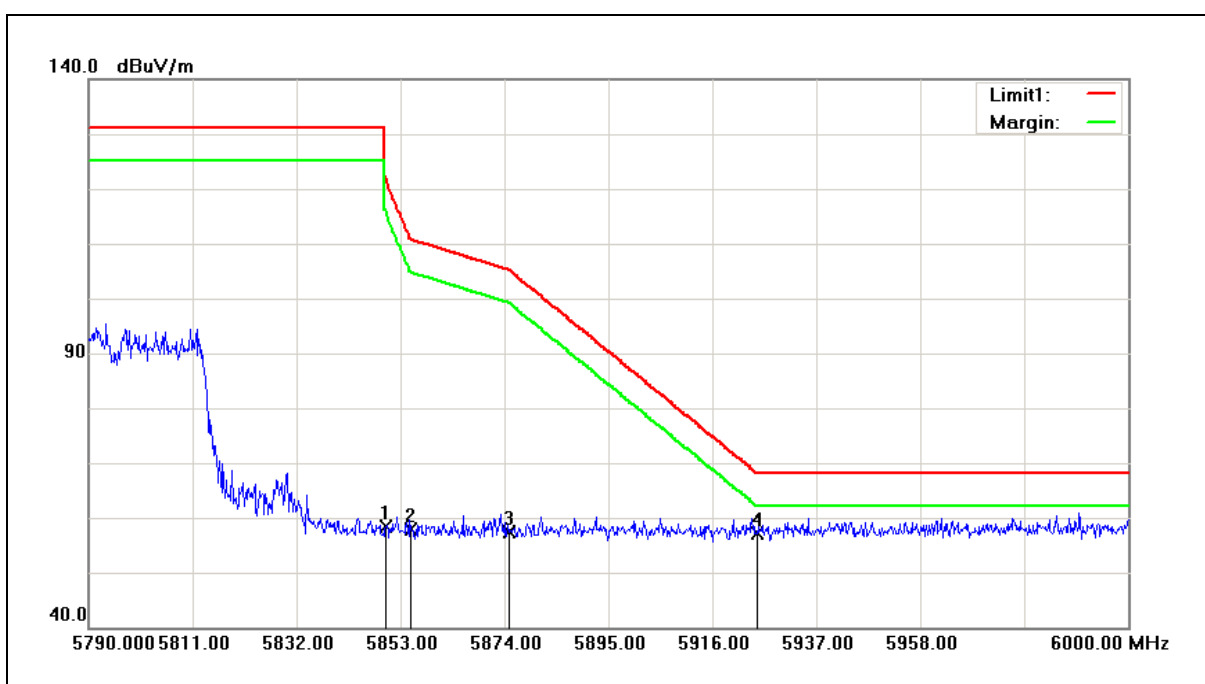
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	46.57	9.53	56.10	68.20	-12.10	peak
2	5700.000	47.44	9.64	57.08	105.20	-48.12	peak
3	5720.000	53.27	9.69	62.96	110.80	-47.84	peak
4	5725.000	52.04	9.70	61.74	122.20	-60.46	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5795MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Horizontal		



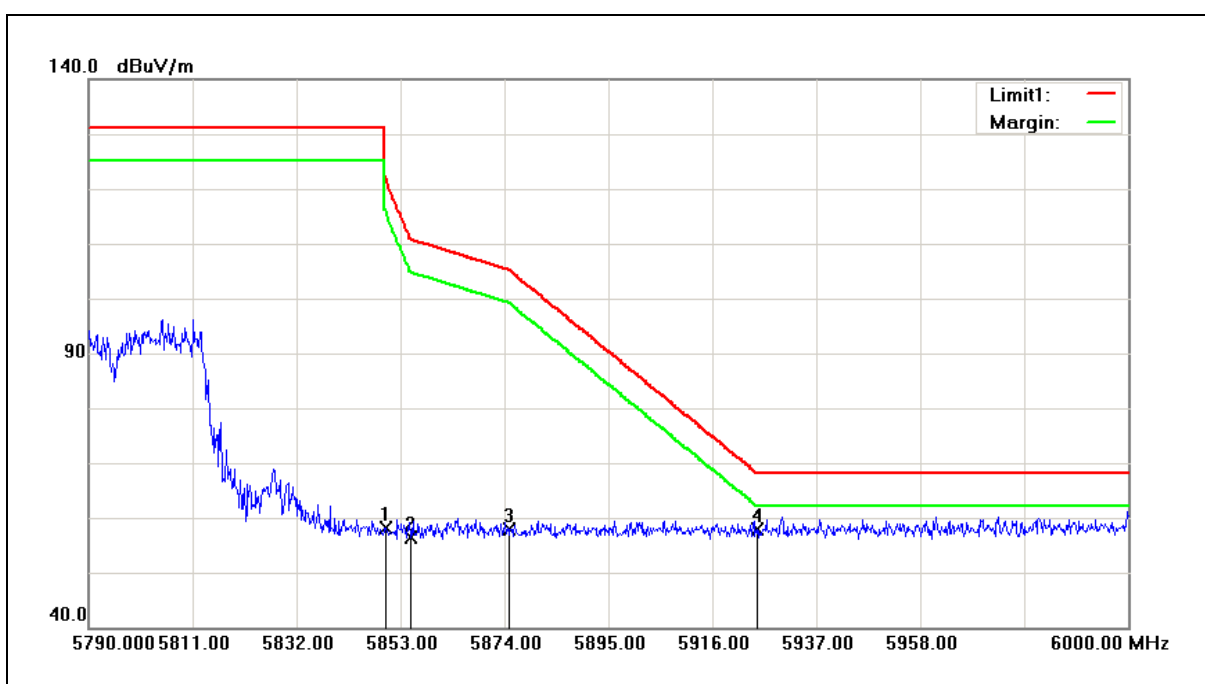
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	48.51	9.98	58.49	122.20	-63.71	peak
2	5855.000	47.89	9.99	57.88	110.80	-52.92	peak
3	5875.000	47.43	10.04	57.47	105.20	-47.73	peak
4	5925.000	46.94	10.16	57.10	68.20	-11.10	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5795MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/05/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	48.15	9.98	58.13	122.20	-64.07	peak
2	5855.000	46.45	9.99	56.44	110.80	-54.36	peak
3	5875.000	47.73	10.04	57.77	105.20	-47.43	peak
4	5925.000	47.83	10.16	57.99	68.20	-10.21	peak

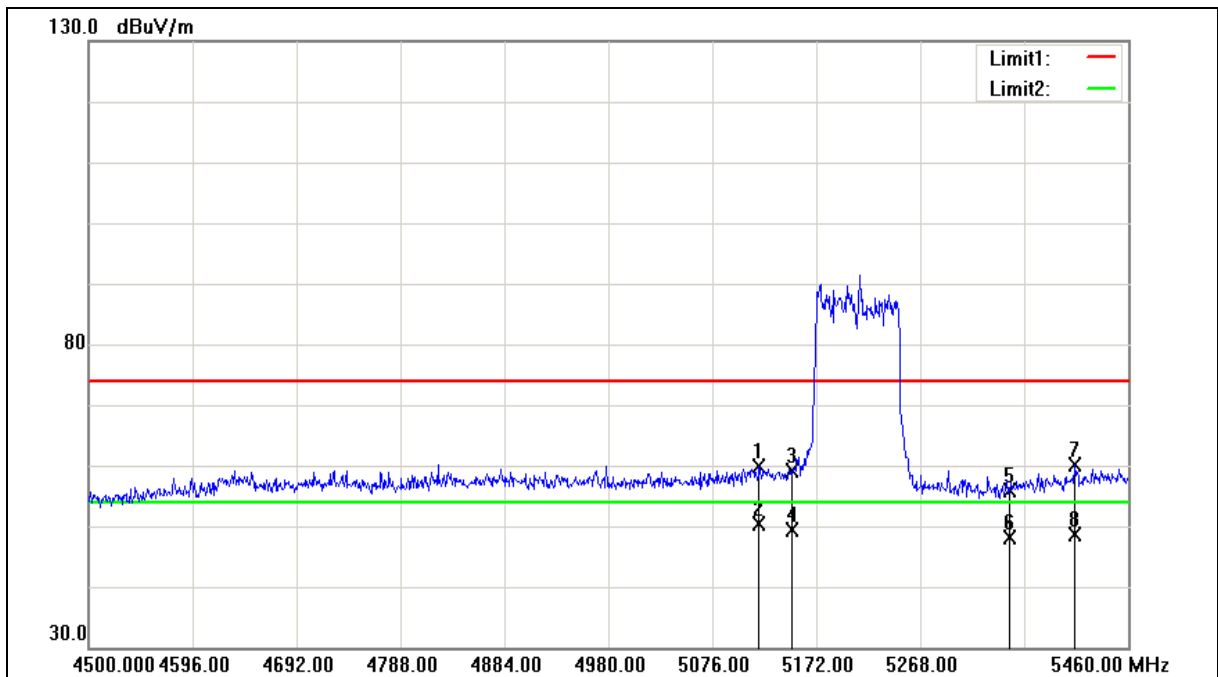
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Horizontal		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5119.200	50.84	8.94	59.78	74.00	-14.22	peak
2	5119.200	41.49	8.94	50.43	54.00	-3.57	AVG
3	5150.000	50.28	8.97	59.25	74.00	-14.75	peak
4	5150.000	40.39	8.97	49.36	54.00	-4.64	AVG
5	5350.000	46.83	9.08	55.91	74.00	-18.09	peak
6	5350.000	39.14	9.08	48.22	54.00	-5.78	AVG
7	5411.040	51.07	9.12	60.19	74.00	-13.81	peak
8	5411.040	39.50	9.12	48.62	54.00	-5.38	AVG

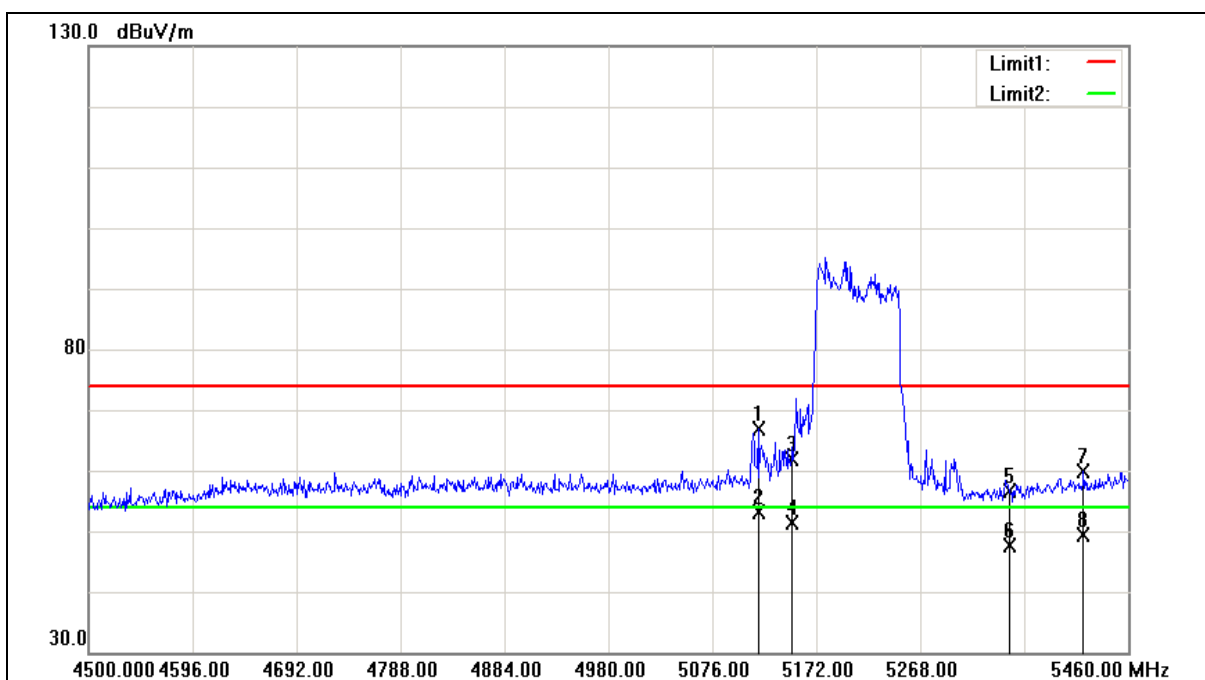
Note:1. Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

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



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Vertical		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5118.240	57.88	8.94	66.82	74.00	-7.18	peak
2	5118.240	44.26	8.94	53.20	54.00	-0.80	AVG
3	5150.000	52.91	8.97	61.88	74.00	-12.12	peak
4	5150.000	42.53	8.97	51.50	54.00	-2.50	AVG
5	5350.000	47.60	9.08	56.68	74.00	-17.32	peak
6	5350.000	38.46	9.08	47.54	54.00	-6.46	AVG
7	5418.720	50.65	9.14	59.79	74.00	-14.21	peak
8	5418.720	40.15	9.14	49.29	54.00	-4.71	AVG

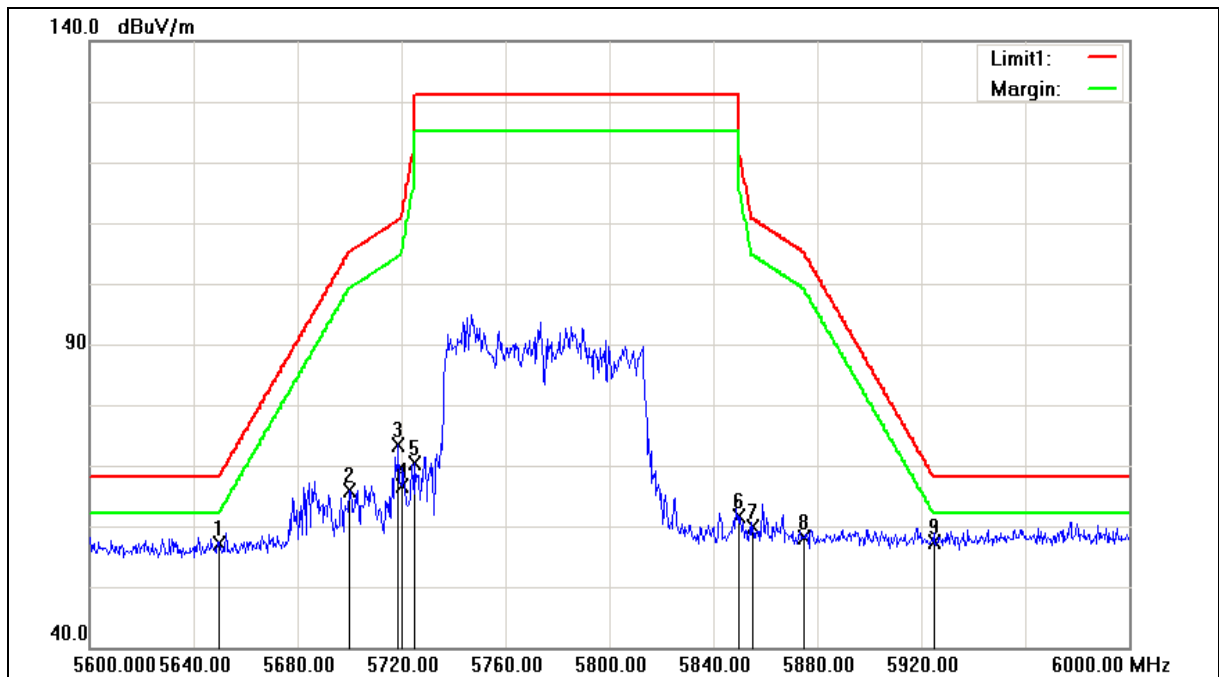
Note:1. Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Horizontal		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Horizontal		

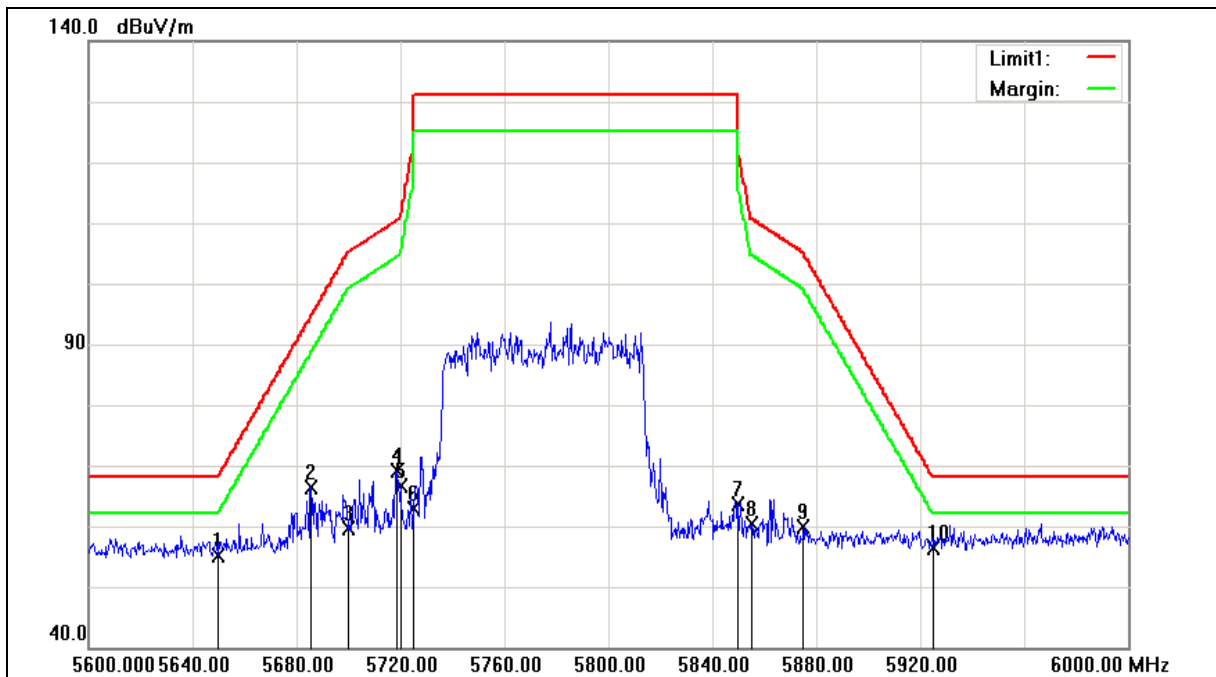
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	47.63	9.53	57.16	68.20	-11.04	peak
2	5700.000	56.28	9.64	65.92	105.20	-39.28	peak
3	5718.800	63.79	9.68	73.47	110.46	-36.99	peak
4	5720.000	56.94	9.69	66.63	110.80	-44.17	peak
5	5725.000	60.70	9.70	70.40	122.20	-51.80	peak
6	5850.000	51.59	9.98	61.57	122.20	-60.63	peak
7	5855.000	49.80	9.99	59.79	110.80	-51.01	peak
8	5875.000	48.12	10.04	58.16	105.20	-47.04	peak
9	5925.000	47.11	10.16	57.27	68.20	-10.93	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Vertical		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/05/2017
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	45.52	9.53	55.05	68.20	-13.15	peak
2	5685.600	56.68	9.61	66.29	94.54	-28.25	peak
3	5700.000	49.91	9.64	59.55	105.20	-45.65	peak
4	5718.400	59.42	9.68	69.10	110.35	-41.25	peak
5	5720.000	56.97	9.69	66.66	110.80	-44.14	peak
6	5725.000	53.21	9.70	62.91	122.20	-59.29	peak
7	5850.000	53.67	9.98	63.65	122.20	-58.55	peak
8	5855.000	50.42	9.99	60.41	110.80	-50.39	peak
9	5875.000	49.72	10.04	59.76	105.20	-45.44	peak
10	5925.000	46.18	10.16	56.34	68.20	-11.86	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.

4.4. Maximum Conducted Output Power

■ Limit

Frequency Range (MHz)	FCC Maximum Conducted Output Power Limit
	Master
5.150 ~ 5.250 GHz	The lesser of 1W (30dBm)
5.725 ~ 5.850 GHz	The lesser of 1W (30dBm)

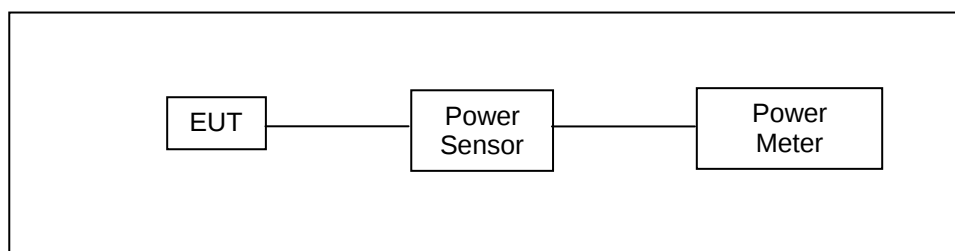
According FCC KDB 662911 D01 v02r01 – for power measurements on IEEE802.11 devices,

* MIMO mode : Directional Gain = $10 \cdot \log\{[10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20}]^2 / NANT\} = 8.01 \text{ dBi} > 6 \text{ dBi}$

MIMO mode power limit shall be reduced = $30 - 2.01 = 27.99 \text{ dBm}$ (5.150 ~ 5.250 GHz)

MIMO mode power limit shall be reduced = $30 - 2.01 = 27.99 \text{ dBm}$ (5.725 ~ 5.850 GHz)

■ Test Setup



■ Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
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	02/22/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

■ Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01r04, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices

Section (E) Maximum Conducted Output Power

3. Measurement using a Power Meter (PM)

b) Method PM-G (Measurement using a gated RF average power meter)



Test Result

Test Item		Maximum Conducted Output Power						
Test Mode		Mode 2: IEEE 802.11a Continuous TX mode						
Frequency (MHz)	Data Rate	ANT-0		ANT-1		ANT-0+1		FCC Limit (dBm)
		Max. Outup Power						
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5180	6M	8.93	0.008	8.98	0.008	11.97	0.016	≤ 27.99
5200		8.53	0.007	8.89	0.008	11.72	0.015	
5220		8.57	0.007	8.85	0.008	11.72	0.015	
5240		8.34	0.007	8.86	0.008	11.62	0.015	
5745		8.38	0.007	8.92	0.008	11.67	0.015	≤ 27.99
5765		8.41	0.007	8.71	0.007	11.57	0.014	
5785		8.54	0.007	8.74	0.007	11.65	0.015	
5805		8.56	0.007	8.81	0.008	11.70	0.015	
5825		8.38	0.007	8.81	0.008	11.61	0.014	
5180	54M	8.80	0.008	8.87	0.008	11.85	0.015	≤ 27.99
5200		8.43	0.007	8.77	0.008	11.61	0.014	
5220		8.51	0.007	8.81	0.008	11.67	0.015	
5240		8.28	0.007	8.80	0.008	11.56	0.014	
5745		8.31	0.007	8.84	0.008	11.59	0.014	≤ 27.99
5765		8.36	0.007	8.64	0.007	11.51	0.014	
5785		8.50	0.007	8.67	0.007	11.60	0.014	
5805		8.48	0.007	8.73	0.007	11.62	0.015	
5825		8.34	0.007	8.74	0.007	11.55	0.014	



Test Item		Maximum Conducted Output Power						
Test Mode		Mode 3: IEEE 802.11ac 20MHz Continuous TX mode						
Frequency (MHz)	Data Rate	ANT-0		ANT-1		ANT-0+1		FCC Limit (dBm)
		Max. Outup Power						
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5180	13M	8.34	0.007	8.83	0.008	11.60	0.014	≤ 27.99
5200		8.41	0.007	8.80	0.008	11.62	0.015	
5220		8.70	0.007	8.88	0.008	11.80	0.015	
5240		8.13	0.007	8.90	0.008	11.54	0.014	
5745		8.20	0.007	8.88	0.008	11.56	0.014	≤ 27.99
5765		8.40	0.007	8.81	0.008	11.62	0.015	
5785		8.37	0.007	8.92	0.008	11.66	0.015	
5805		8.32	0.007	8.87	0.008	11.61	0.015	
5825		8.29	0.007	8.72	0.007	11.52	0.014	
5180	173.4M	8.30	0.007	8.75	0.007	11.54	0.014	≤ 27.99
5200		8.31	0.007	8.69	0.007	11.51	0.014	
5220		8.59	0.007	8.79	0.008	11.70	0.015	
5240		8.10	0.006	8.84	0.008	11.50	0.014	
5745		8.11	0.006	8.80	0.008	11.48	0.014	≤ 27.99
5765		8.33	0.007	8.70	0.007	11.53	0.014	
5785		8.30	0.007	8.83	0.008	11.58	0.014	
5805		8.28	0.007	8.81	0.008	11.56	0.014	
5825		8.23	0.007	8.66	0.007	11.46	0.014	



Test Item		Maximum Conducted Output Power						
Test Mode		Mode 4: IEEE 802.11ac 40MHz Continuous TX mode						
Frequency (MHz)	Data Rate	ANT-0		ANT-1		ANT-0+1		FCC Limit (dBm)
		Max. Outup Power						
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5190	27M	8.84	0.008	8.36	0.007	11.62	0.015	≤ 27.99
5230		8.78	0.008	8.23	0.007	11.52	0.014	
5755		8.76	0.008	8.58	0.007	11.68	0.015	≤ 27.99
5795		8.83	0.008	8.34	0.007	11.60	0.014	
5190	400M	8.80	0.008	8.30	0.007	11.57	0.014	≤ 27.99
5230		8.73	0.007	8.11	0.006	11.44	0.014	
5755		8.74	0.007	8.49	0.007	11.63	0.015	≤ 27.99
5755		8.77	0.008	8.28	0.007	11.54	0.014	

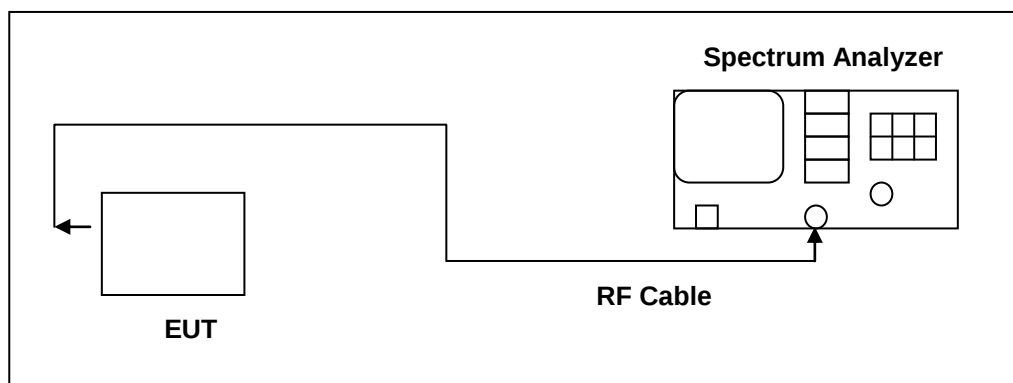
Test Item		Maximum Conducted Output Power						
Test Mode		Mode 5: IEEE 802.11ac 80MHz Continuous TX mode						
Frequency (MHz)	Data Rate	ANT-0		ANT-1		ANT-0+1		FCC Limit (dBm)
		Max. Outup Power						
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5210	58.6M	8.54	0.007	8.78	0.008	11.67	0.015	≤ 27.99
5775		8.50	0.007	8.87	0.008	11.70	0.015	≤ 27.99
5210	866.6M	8.50	0.007	8.71	0.007	11.62	0.015	≤ 27.99
5775		8.44	0.007	8.80	0.008	11.63	0.015	≤ 27.99

4.5. 26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement

■ Limit

N/A

■ Test Setup



■ Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/22/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

■ Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01r04, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	>26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

Test Result

Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement			
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode			
Frequency (MHz)	Ant-0	Ant-1	Ant-0	Ant-1
	26dB Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5180	18.760	19.070	16.260	16.297
5200	19.520	19.820	16.282	16.295
5240	18.890	19.170	16.281	16.279

Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement			
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode			
Frequency (MHz)	Ant-0	Ant-1	Ant-0	Ant-1
	26dB Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5180	20.660	20.190	17.386	17.389
5200	20.600	20.170	17.399	17.424
5240	20.620	20.230	17.396	17.404

Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement			
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode			
Frequency (MHz)	Ant-0	Ant-1	Ant-0	Ant-1
	26dB Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5190	45.110	47.630	35.972	35.979
5230	42.350	44.050	35.950	35.963

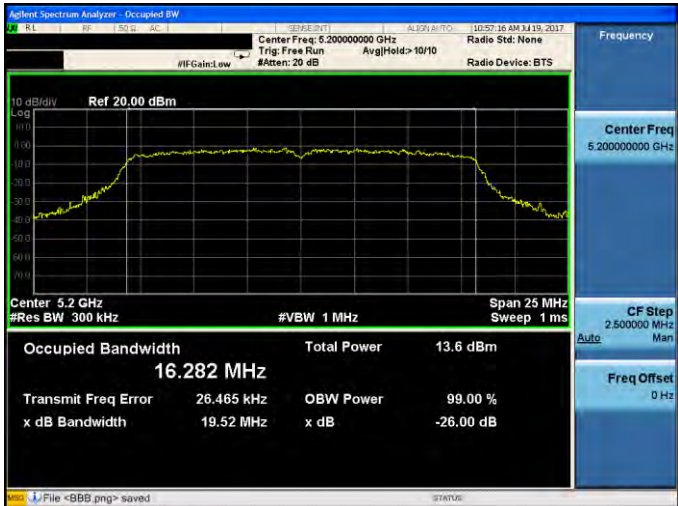
Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement			
Test Mode	Mode 5: IEEE 802.11ac 80MHz Continuous TX mode			
Frequency (MHz)	Ant-0	Ant-1	Ant-0	Ant-1
	26dB Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5210	82.830	80.720	74.915	74.979

Note: The 99% occupied bandwidth not crossed 5250MHz.



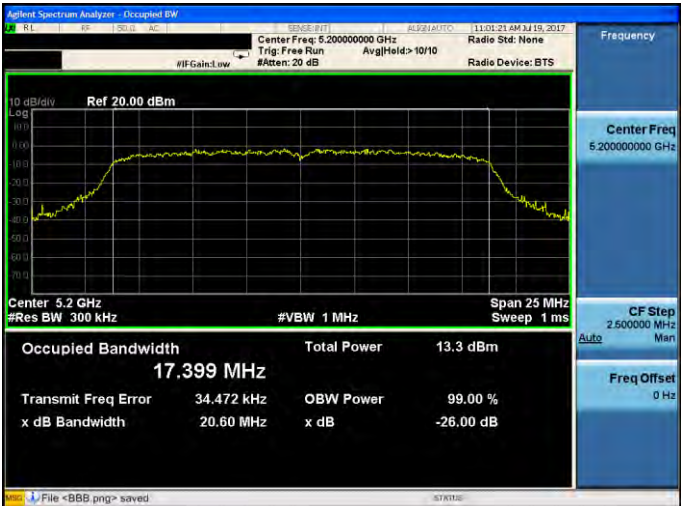
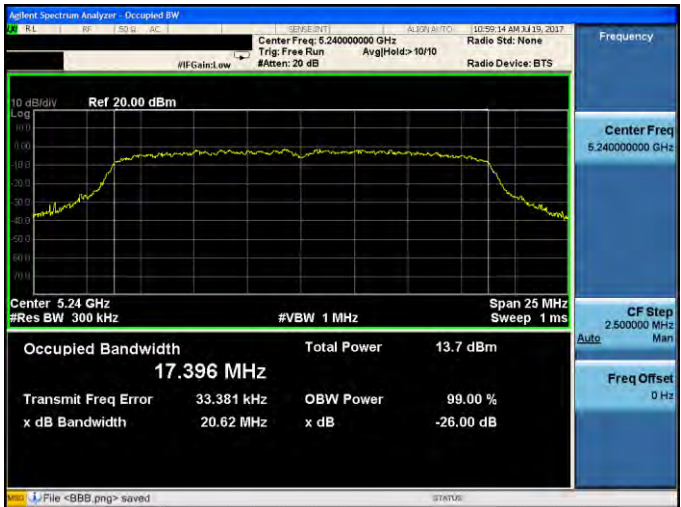
■ Test Graphs

Mode 2: IEEE 802.11a Continuous TX mode_ Ant-0

5180 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.180000000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.18 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.260 MHz Total Power 13.9 dBm Transmit Freq Error 24.330 kHz OBW Power 99.00 % x dB Bandwidth 18.76 MHz x dB -26.00 dB File <SBB.png> saved
5200 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.200000000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.2 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.282 MHz Total Power 13.6 dBm Transmit Freq Error 26.465 kHz OBW Power 99.00 % x dB Bandwidth 19.52 MHz x dB -26.00 dB File <SBB.png> saved
5240 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.240000000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.24 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.281 MHz Total Power 13.5 dBm Transmit Freq Error 26.441 kHz OBW Power 99.00 % x dB Bandwidth 18.89 MHz x dB -26.00 dB File <SBB.png> saved



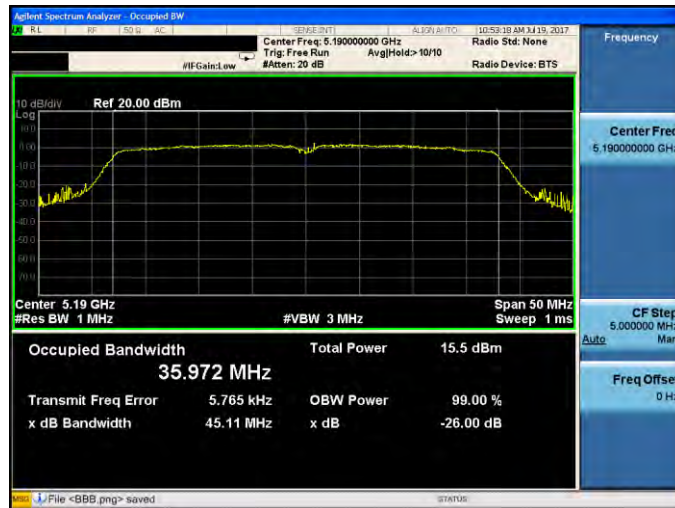
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ ANT-0

5180 MHz	
5200 MHz	
5240 MHz	



Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ ANT-0

5190 MHz



5230 MHz



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ ANT-0

5210 MHz



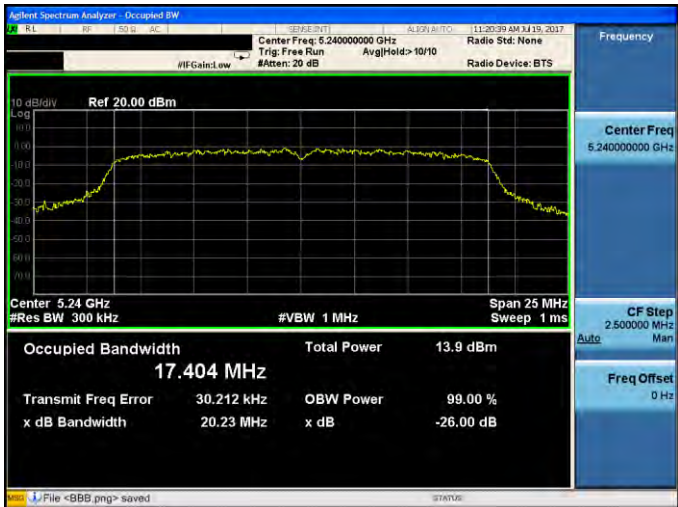


Mode 2: IEEE 802.11a Continuous TX mode_ Ant-1

5180 MHz	Center 5.18 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.297 MHz Total Power 14.1 dBm Transmit Freq Error 27.497 kHz OBW Power 99.00 % x dB Bandwidth 19.07 MHz x dB -26.00 dB Center Freq 5.18000000 GHz CF Step 2.500000 MHz Freq Offset 0 Hz File <SBS.png> saved
5200 MHz	Center 5.2 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.295 MHz Total Power 13.9 dBm Transmit Freq Error 28.490 kHz OBW Power 99.00 % x dB Bandwidth 19.82 MHz x dB -26.00 dB Center Freq 5.20000000 GHz CF Step 2.500000 MHz Freq Offset 0 Hz File <SBS.png> saved
5240 MHz	Center 5.24 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.279 MHz Total Power 14.4 dBm Transmit Freq Error 29.528 kHz OBW Power 99.00 % x dB Bandwidth 19.17 MHz x dB -26.00 dB Center Freq 5.24000000 GHz CF Step 2.500000 MHz Freq Offset 0 Hz File <SBS.png> saved



Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ ANT-1

5180 MHz	
5200 MHz	
5240 MHz	



Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ ANT-1

5190 MHz



5230 MHz



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ ANT-1

5210 MHz



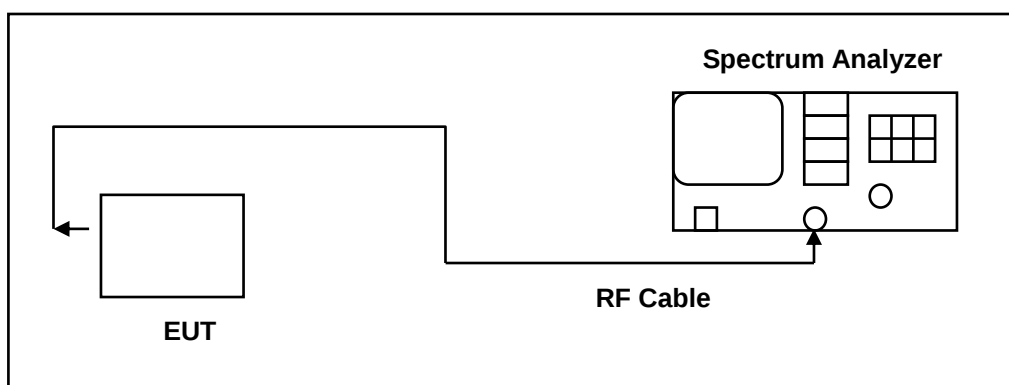
4.6. 6dB RF Bandwidth Measurement

■ Limit

6dB RF Bandwidth

Systems using digital modulation techniques may operate in the 5725~5850MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

■ Test Setup



■ Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

■ Test Procedure

6dB RF Bandwidth

The EUT tested to UNII test procedure of KDB789033 D02 v01r04 for compliance to FCC 47CFR 15.407 requirements.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW 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.

Test Result

Test Item	6dB RF Bandwidth		
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode		
Frequency (MHz)	6dB Bandwidth (kHz)		Limit (kHz)
	ANT-0	ANT-1	
5745	15160	15100	> 500
5785	15160	15130	> 500
5825	15520	15090	> 500

Test Item	6dB RF Bandwidth		
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode		
Frequency (MHz)	6dB Bandwidth (kHz)		Limit (kHz)
	ANT-0	ANT-1	
5745	14470	15040	> 500
5785	15390	15110	> 500
5825	15110	15120	> 500

Test Item	6dB RF Bandwidth		
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode		
Frequency (MHz)	6dB Bandwidth (kHz)		Limit (kHz)
	ANT-0	ANT-1	
5755	32900	35120	> 500
5795	34110	33860	> 500

Test Item	6dB RF Bandwidth		
Test Mode	Mode 5: IEEE 802.11ac 80MHz Continuous TX mode		
Frequency (MHz)	6dB Bandwidth (kHz)		Limit (kHz)
	ANT-0	ANT-1	
5775	75150	75100	> 500



■ Test Graphs

Mode 2: IEEE 802.11a Continuous TX mode_ANT-0

5745 MHz	
5785 MHz	
5825 MHz	

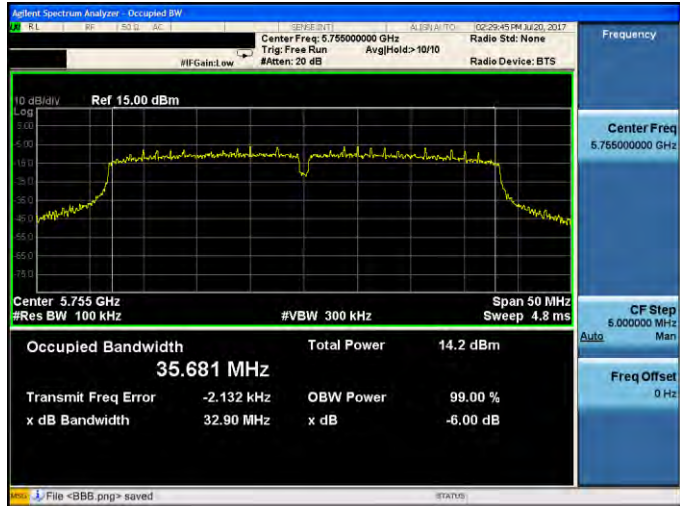


Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-0

5745 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.74500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref 15.00 dBm Center: 5.745 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.415 MHz Total Power: 13.4 dBm Transmit Freq Error: 25.692 kHz OBW Power: 99.00 % x dB Bandwidth: 14.47 MHz x dB: -6.00 dB File <BBB.png> saved
5785 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.78500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref 15.00 dBm Center: 5.785 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.419 MHz Total Power: 13.1 dBm Transmit Freq Error: 13.337 kHz OBW Power: 99.00 % x dB Bandwidth: 15.39 MHz x dB: -6.00 dB File <BBB.png> saved
5825 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 5.82500000 GHz Trig: Free Run Avg/Hold: 10/10 Radio Std: None Radio Device: BTS Ref 15.00 dBm Center: 5.825 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms Occupied Bandwidth: 17.404 MHz Total Power: 13.2 dBm Transmit Freq Error: 26.767 kHz OBW Power: 99.00 % x dB Bandwidth: 15.11 MHz x dB: -6.00 dB File <BBB.png> saved



Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-0

5755 MHz	
5795 MHz	

Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-0

5775 MHz	
----------	--



Mode 2: IEEE 802.11a Continuous TX mode_ANT-1

5745 MHz



5785 MHz



5825 MHz





Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-1

5745 MHz



5785 MHz

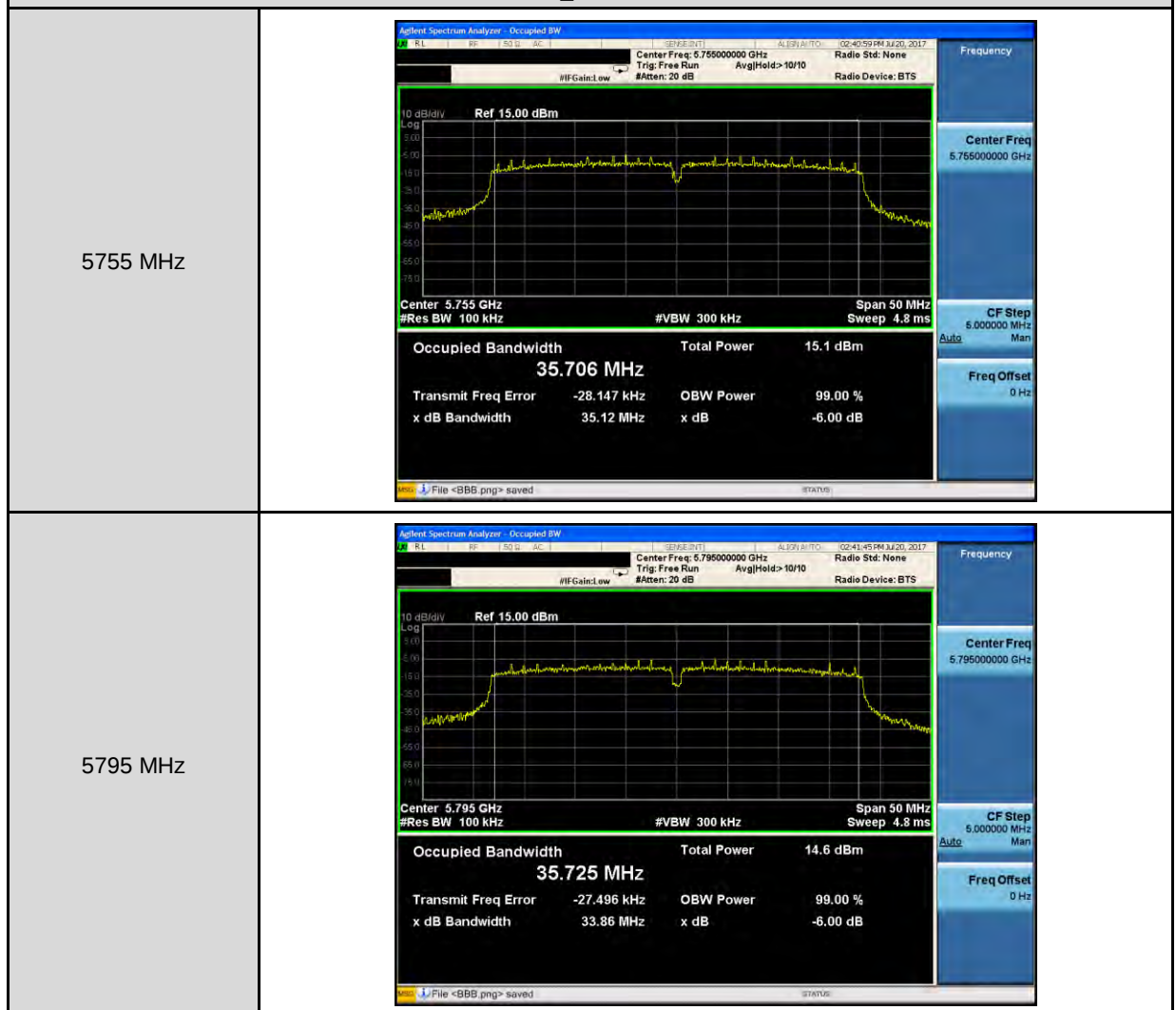


5825 MHz

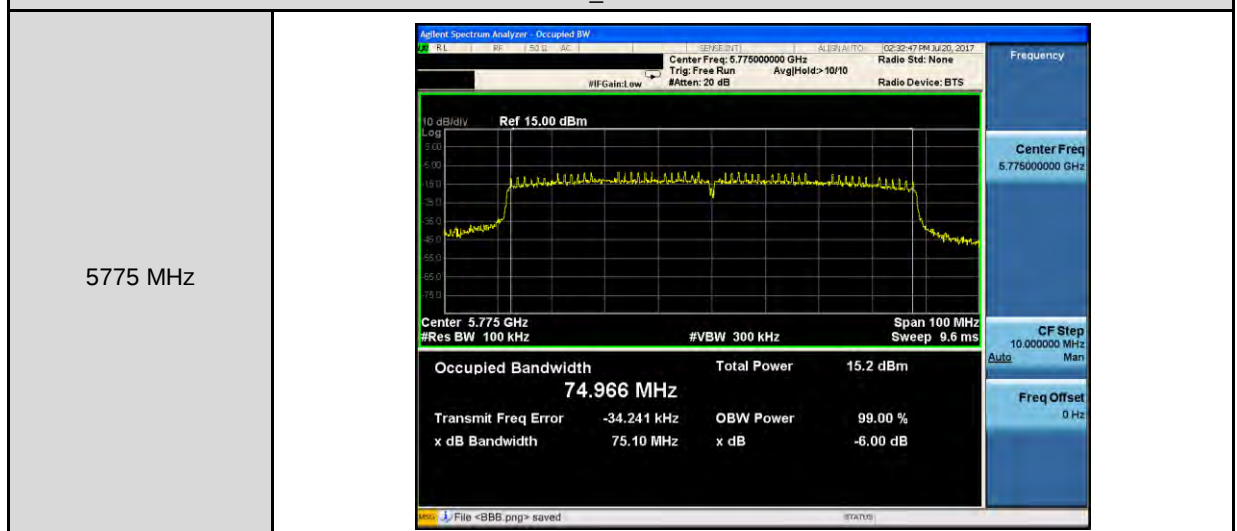




Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-1



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-1



4.7. Peak Power Spectral Density Measurement

■ Limit

Conducted power spectral density

Frequency Range (MHz)	FCC Limit
	Master
5.150 ~ 5.250 GHz	17 dBm/MHz
5.725 ~ 5.850 GHz	30 dBm/500KHz

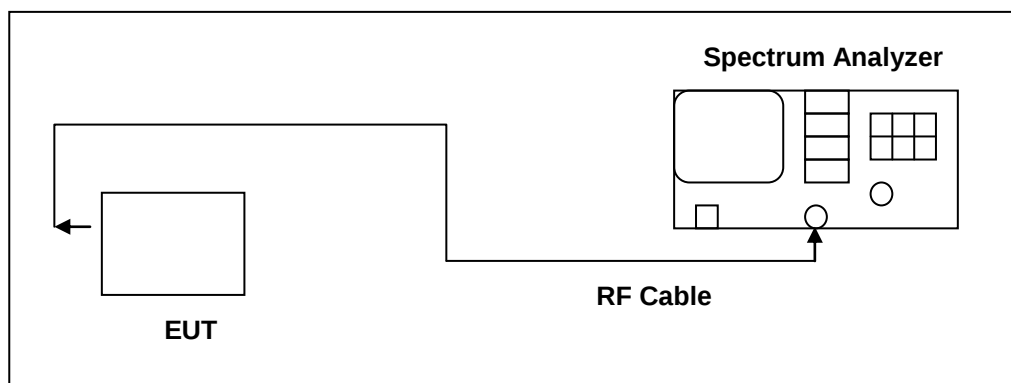
According FCC KDB 662911 D01 v02r01 – for power spectral density measurements on IEEE802.11 devices,

* MIMO mode : Directional Gain = $10 \cdot \log\{[10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20}]^2 / N_{ANT}\}$ = 8.01 dBi > 6dBi

MIMO mode power limit shall be reduced = 17 - 2.01 = 14.99 dBm/MHz (5.150 ~ 5.250 GHz)

MIMO mode power limit shall be reduced = 30 - 2.01 = 27.99 dBm/500KHz (5.725 ~ 5.850 GHz)

■ Test Setup



■ Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

**■ Test Procedure**

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01r04, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1 MHz (5725 ~ 5850MHz use 100 kHz)
VBW	3 MHz (5725 ~ 5850MHz use 300 kHz)
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/100\text{kHz})$ to the measured result.	

Test Result

Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	-3.760	0.142	-3.618	< 14.99
5200	-3.671	0.142	-3.529	
5240	-3.523	0.142	-3.381	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	-3.070	0.142	-2.928	< 14.99
5200	-3.250	0.142	-3.108	
5240	-3.040	0.142	-2.898	
Frequency (MHz)	ANT-0+1			Limit (dBm/MHz)
	Calculated (dBm/MHz)			
5180	-0.249			< 14.99
5200	-0.303			
5240	-0.122			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-11.89	0.142	-4.76	< 27.99
5785	-12.47	0.142	-5.33	
5825	-12.77	0.142	-5.64	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-11.66	0.142	-4.53	< 27.99
5785	-12.17	0.142	-5.03	
5825	-12.17	0.142	-5.04	
Frequency (MHz)	ANT-0+1			Limit (dBm/500KHz)
	Calculated (dBm/500KHz)			
5745	-1.63			< 27.99
5785	-2.17			
5825	-2.32			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20MHz link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	-3.892	0.175	-3.717	< 14.99
5200	-4.089	0.175	-3.914	
5240	-3.950	0.175	-3.775	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	-3.408	0.175	-3.233	< 14.99
5200	-3.588	0.175	-3.413	
5240	-3.563	0.175	-3.388	
Frequency (MHz)	ANT-0+1			Limit (dBm/MHz)
	Calculated (dBm/MHz)			
5180	-0.458			< 14.99
5200	-0.646			
5240	-0.567			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20MHz link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-12.86	0.175	-5.70	< 27.99
5785	-12.95	0.175	-5.79	
5825	-12.92	0.175	-5.76	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-12.30	0.175	-5.14	< 27.99
5785	-12.48	0.175	-5.32	
5825	-12.60	0.175	-5.43	
Frequency (MHz)	ANT-0+1			Limit (dBm/500KHz)
	Calculated (dBm/500KHz)			
5745	-2.40			< 27.99
5785	-2.54			
5825	-2.58			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-6.540	0.344	-6.196	< 14.99
5230	-6.560	0.344	-6.216	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-6.288	0.344	-5.944	< 14.99
5230	-6.207	0.344	-5.863	
Frequency (MHz)	ANT-0+1			Limit (dBm/MHz)
	Calculated (dBm/MHz)			
5190	-3.058			< 14.99
5230	-3.025			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	-15.28	0.344	-7.95	< 27.99
5795	-15.47	0.344	-8.14	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	-14.69	0.344	-7.36	< 27.99
5795	-15.34	0.344	-8.00	
Frequency (MHz)	ANT-0+1			
	Calculated (dBm/500KHz)			Limit (dBm/500KHz)
5755	-4.63			< 27.99
5795	-5.06			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-10.270	0.631	-9.639	< 14.99
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-10.127	0.631	-9.496	< 14.99
Frequency (MHz)	ANT-0+1			Limit (dBm/MHz)
	Calculated (dBm/MHz)			
5210	-6.557			< 14.99

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz link mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-18.90	0.631	-11.28	< 27.99
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-18.51	0.631	-10.89	< 27.99
Frequency (MHz)	ANT-0+1			Limit (dBm/MHz)
	Calculated (dBm/500KHz)			
5775	-8.07			< 27.99

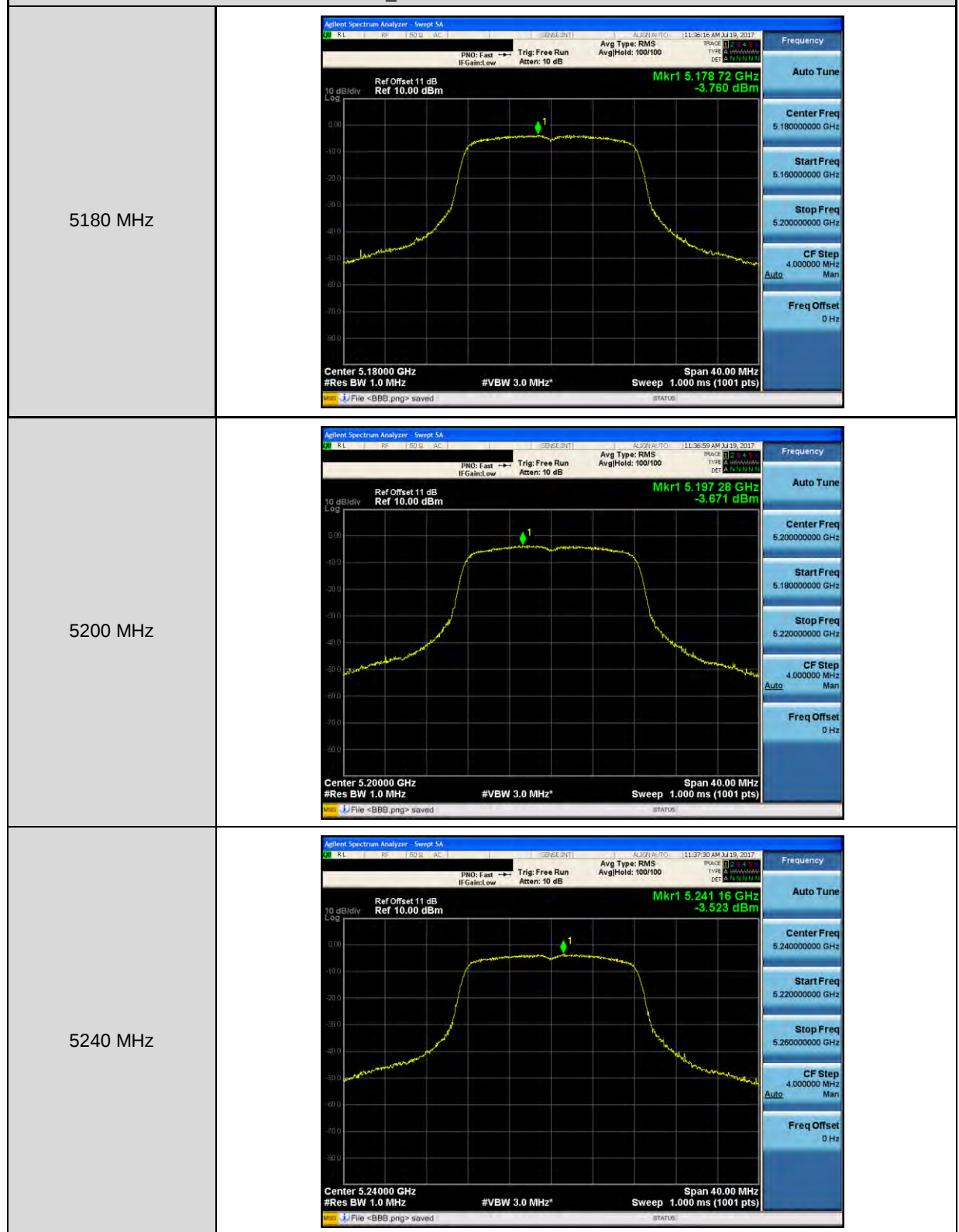
Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



■ Test Graphs

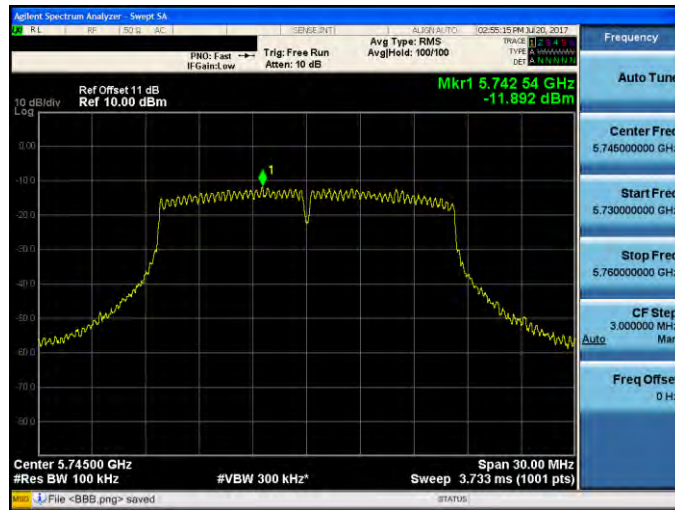
Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0



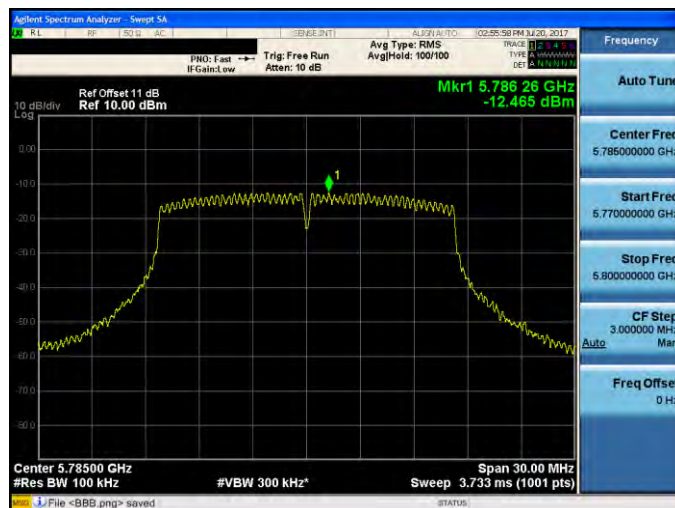


Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0

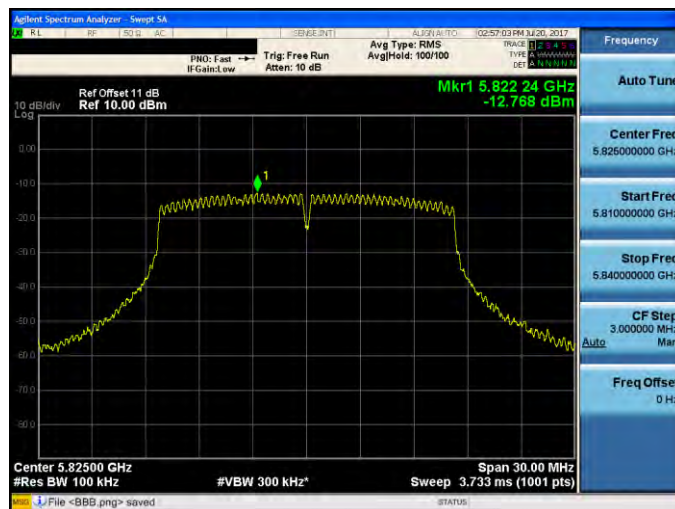
5745 MHz



5785 MHz

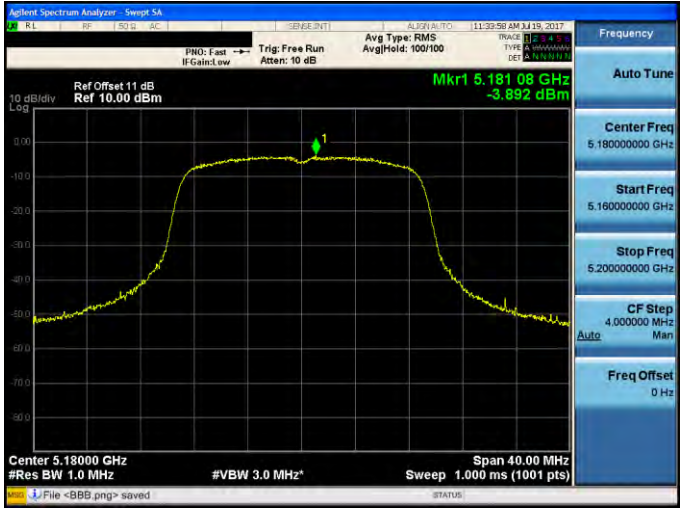
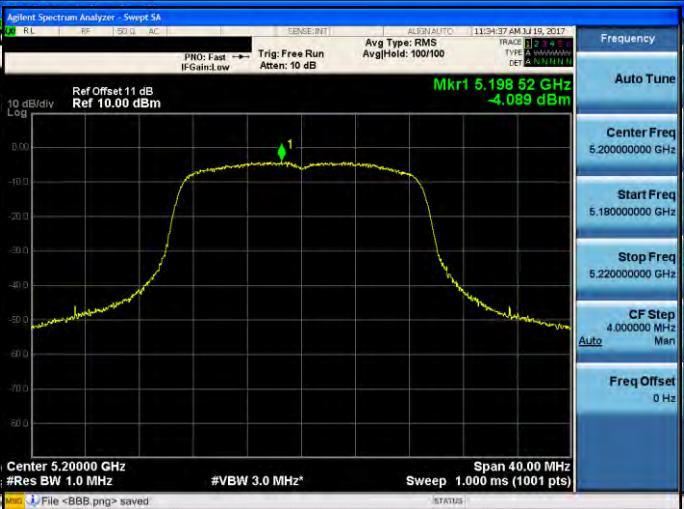
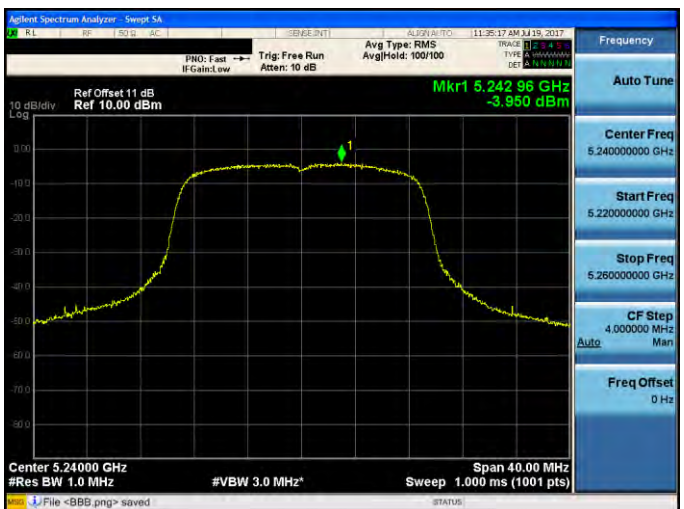


5825 MHz



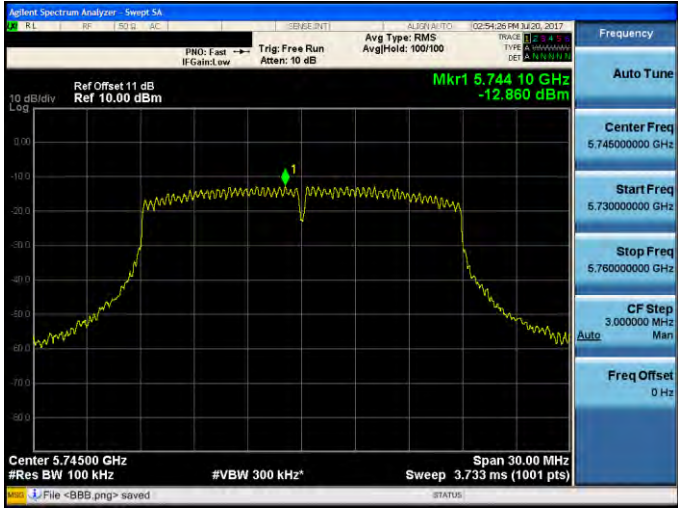
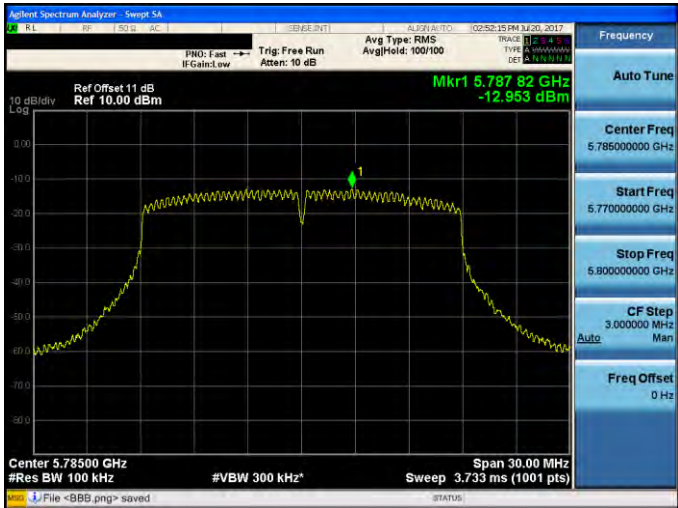
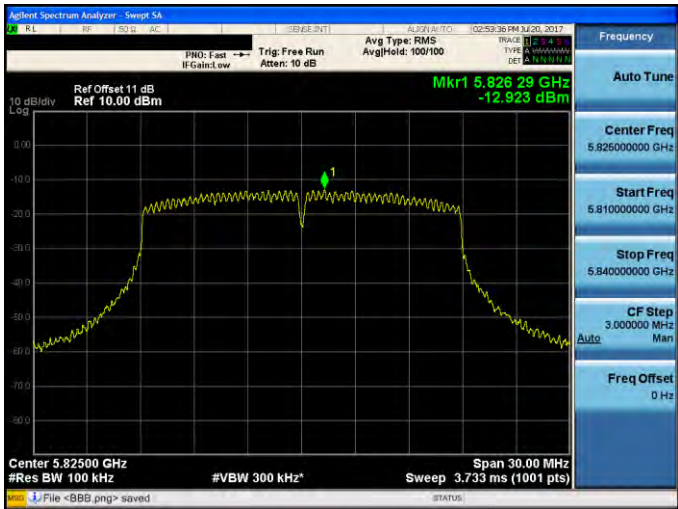


Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-0

5180 MHz	
5200 MHz	
5240 MHz	

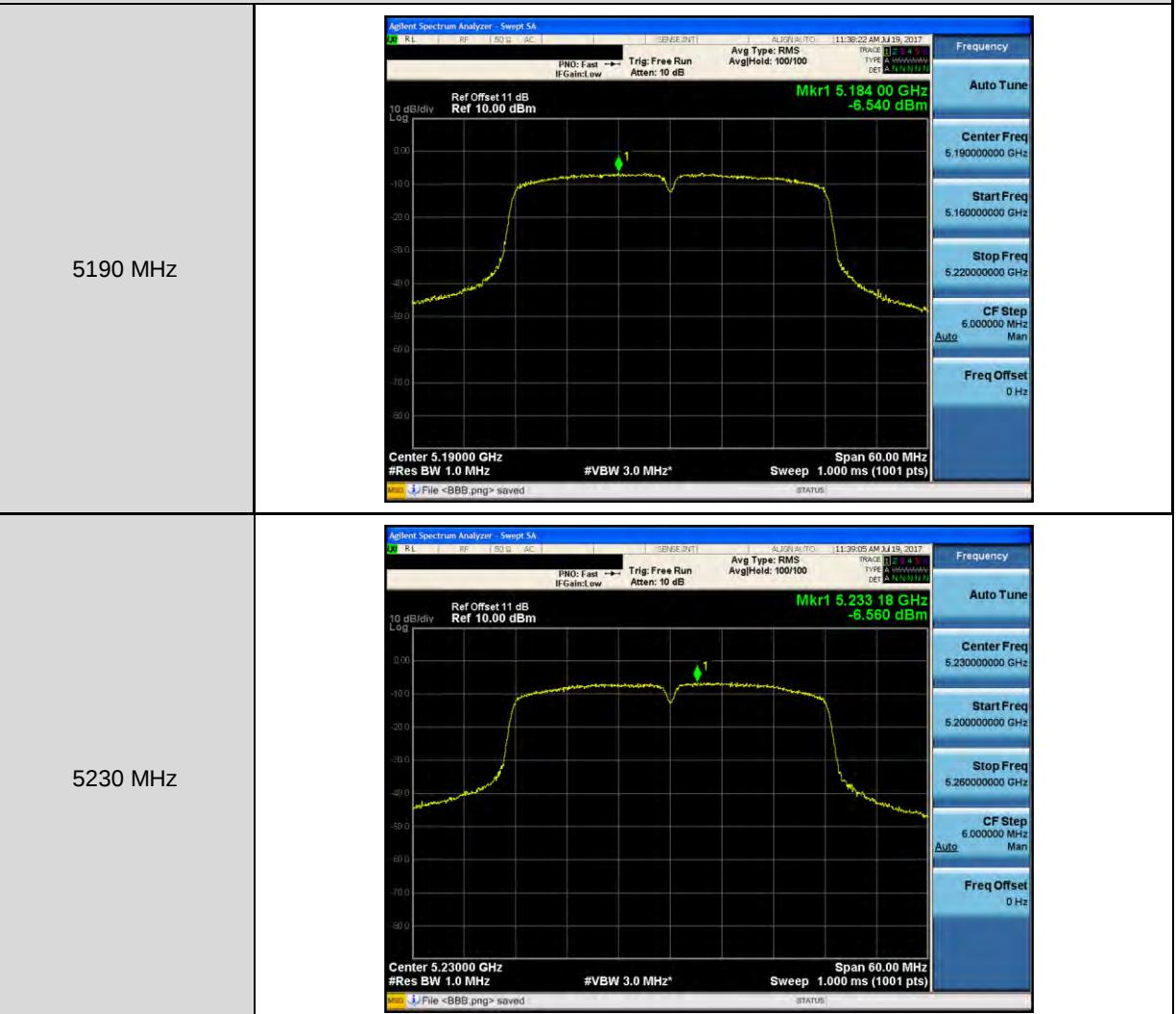


Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-0

5745 MHz	
5785 MHz	
5825 MHz	

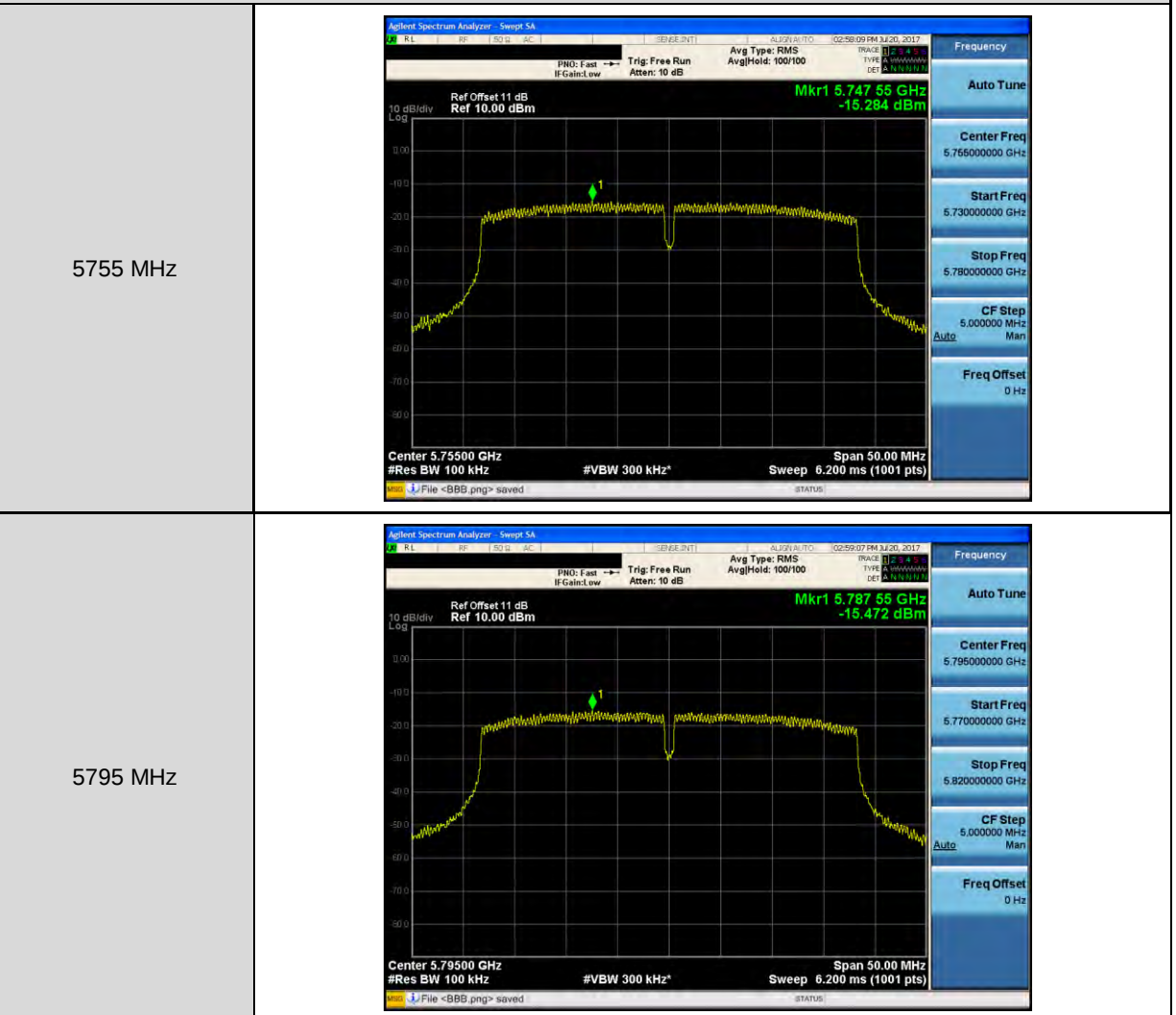


Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ ANT-0





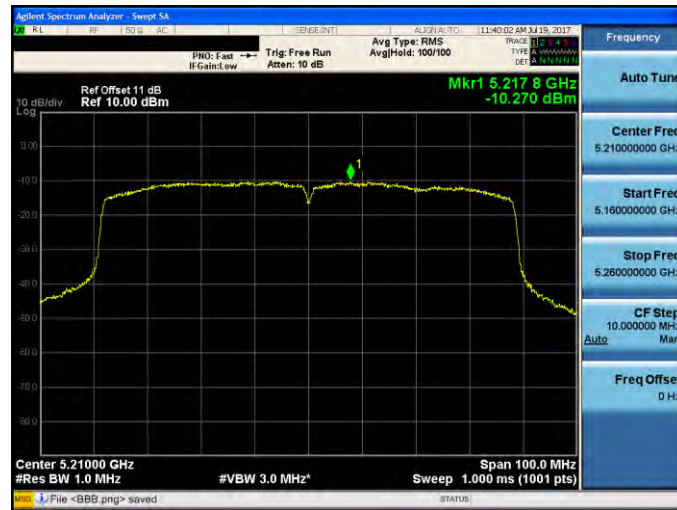
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ ANT-0





Mode 5: IEEE 802.11ac 80MHz Continuous TX mode _ANT-0

5210 MHz



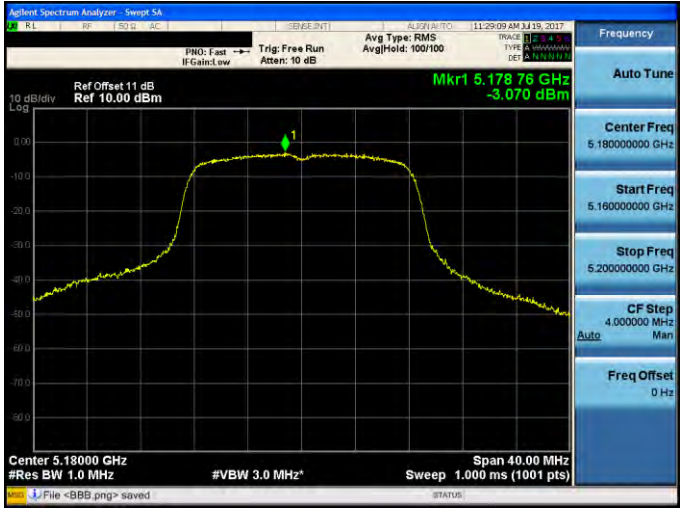
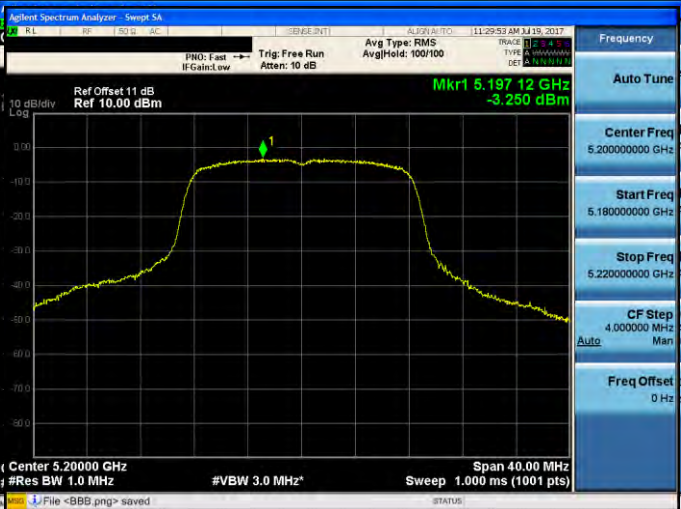
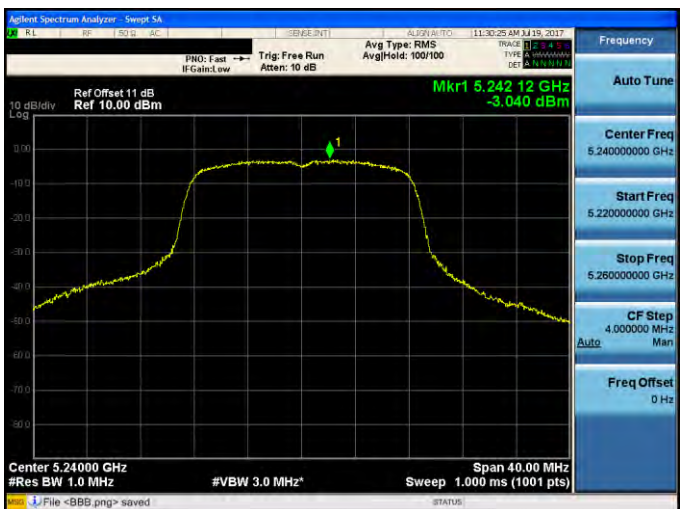
Mode 5: IEEE 802.11ac 80MHz Continuous TX mode _ANT-0

5775 MHz



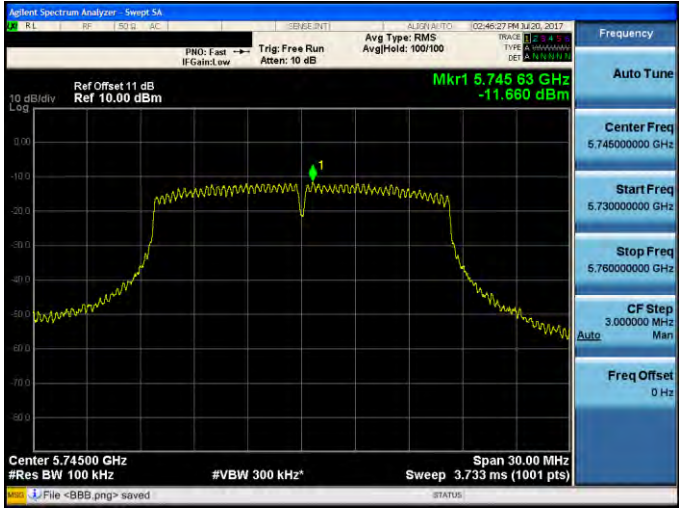
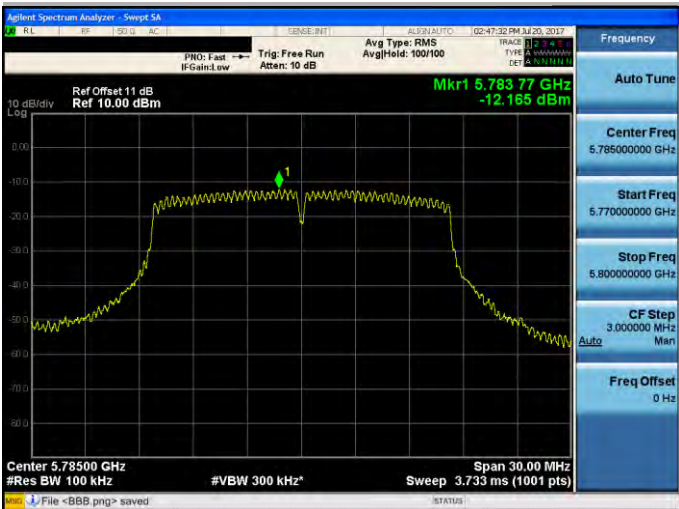
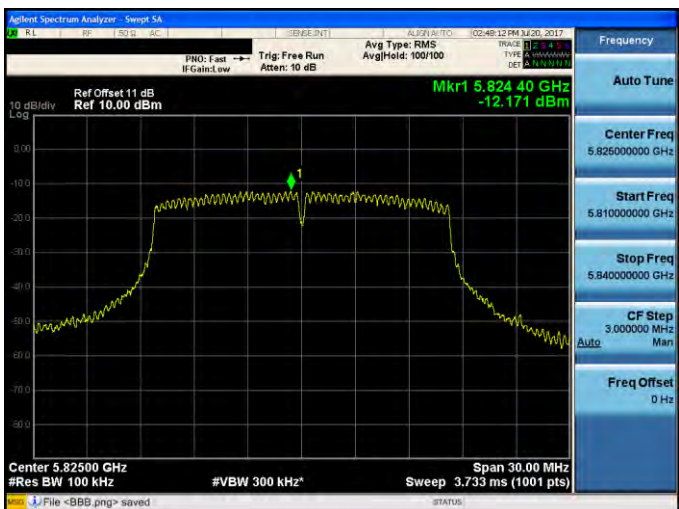


Mode 2: IEEE 802.11a Continuous TX mode_ ANT-1

5180 MHz	
5200 MHz	
5240 MHz	



Mode 2: IEEE 802.11a Continuous TX mode_ ANT-1

5745 MHz	
5785 MHz	
5825 MHz	

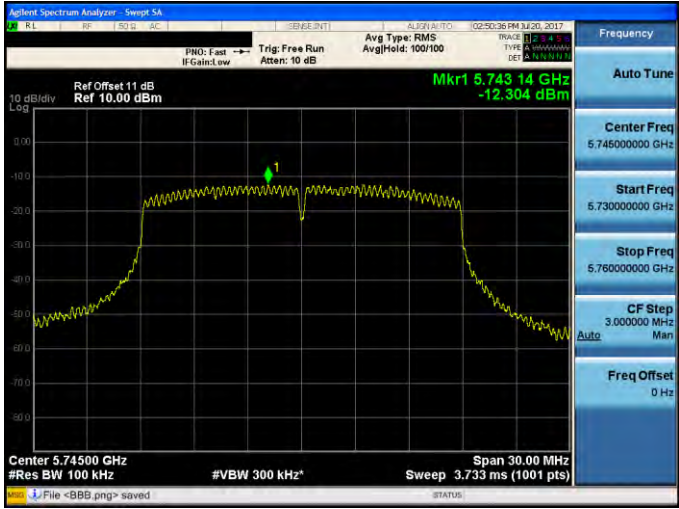
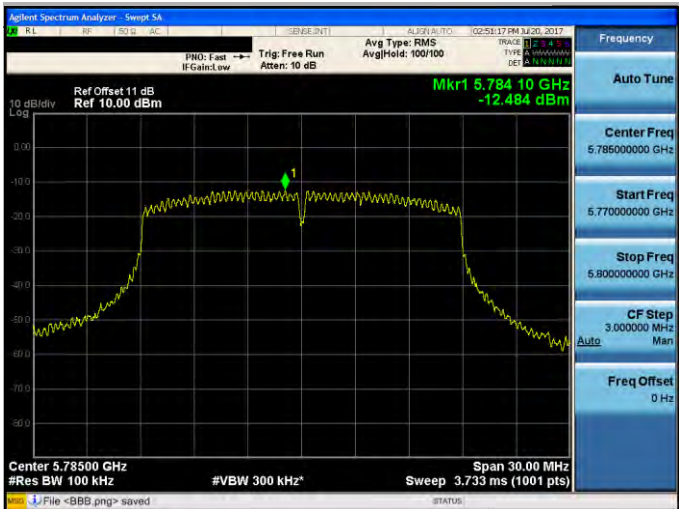
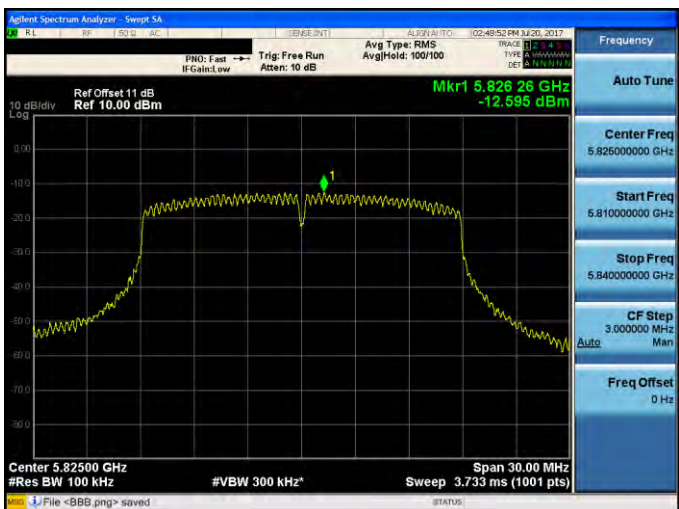


Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-1

5180 MHz	 Ref Offset 11 dB Ref 10.00 dBm Mkr1 5.178 80 GHz -3.408 dBm Center 5.18000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts) File <888.png> saved
5200 MHz	 Ref Offset 11 dB Ref 10.00 dBm Mkr1 5.202 76 GHz -3.588 dBm Center 5.20000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts) File <888.png> saved
5240 MHz	 Ref Offset 11 dB Ref 10.00 dBm Mkr1 5.241 56 GHz -3.563 dBm Center 5.24000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts) File <888.png> saved



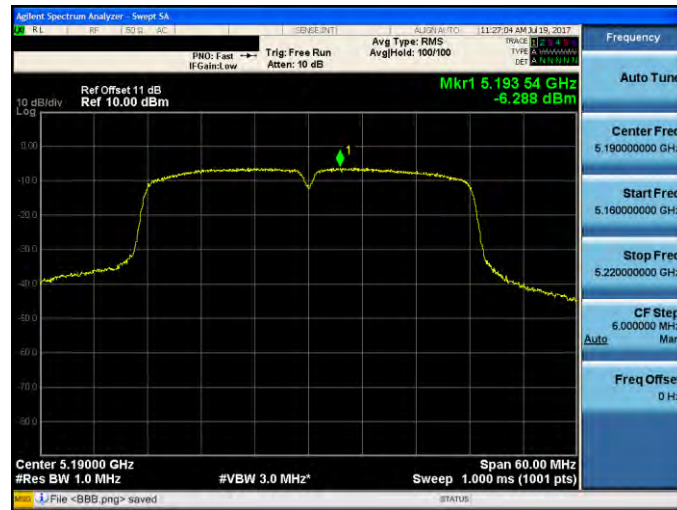
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-1

5745 MHz	 Agilent Spectrum Analyzer - Sweep 5A Ref Offset 11 dB Ref 10.00 dBm Mkr1 5.743 14 GHz -12.304 dBm Center 5.74500 GHz #Res BW 100 kHz #VBW 300 kHz* Sweep 3.733 ms (1001 pts) Span 30.00 MHz File <888.png> saved STATUS Frequency Auto Tune Center Freq 5.745000000 GHz Start Freq 5.730000000 GHz Stop Freq 5.760000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
5785 MHz	 Agilent Spectrum Analyzer - Sweep 5A Ref Offset 11 dB Ref 10.00 dBm Mkr1 5.784 10 GHz -12.484 dBm Center 5.78500 GHz #Res BW 100 kHz #VBW 300 kHz* Sweep 3.733 ms (1001 pts) Span 30.00 MHz File <888.png> saved STATUS Frequency Auto Tune Center Freq 5.785000000 GHz Start Freq 5.770000000 GHz Stop Freq 5.800000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
5825 MHz	 Agilent Spectrum Analyzer - Sweep 5A Ref Offset 11 dB Ref 10.00 dBm Mkr1 5.826 26 GHz -12.595 dBm Center 5.82500 GHz #Res BW 100 kHz #VBW 300 kHz* Sweep 3.733 ms (1001 pts) Span 30.00 MHz File <888.png> saved STATUS Frequency Auto Tune Center Freq 5.825000000 GHz Start Freq 5.810000000 GHz Stop Freq 5.840000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

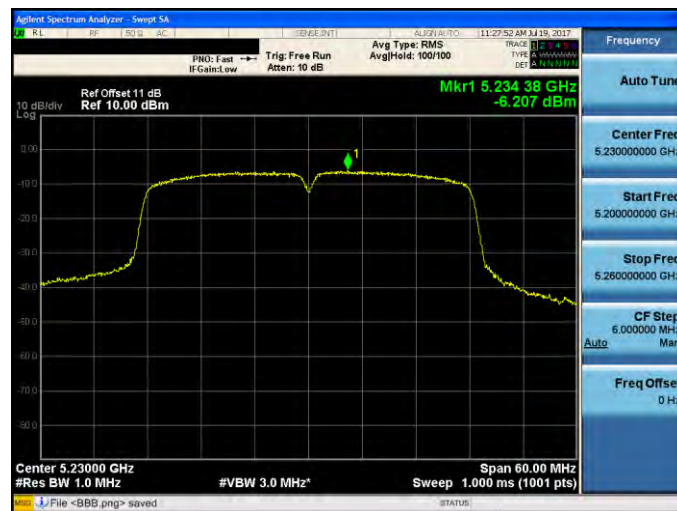


Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ ANT-1

5190 MHz

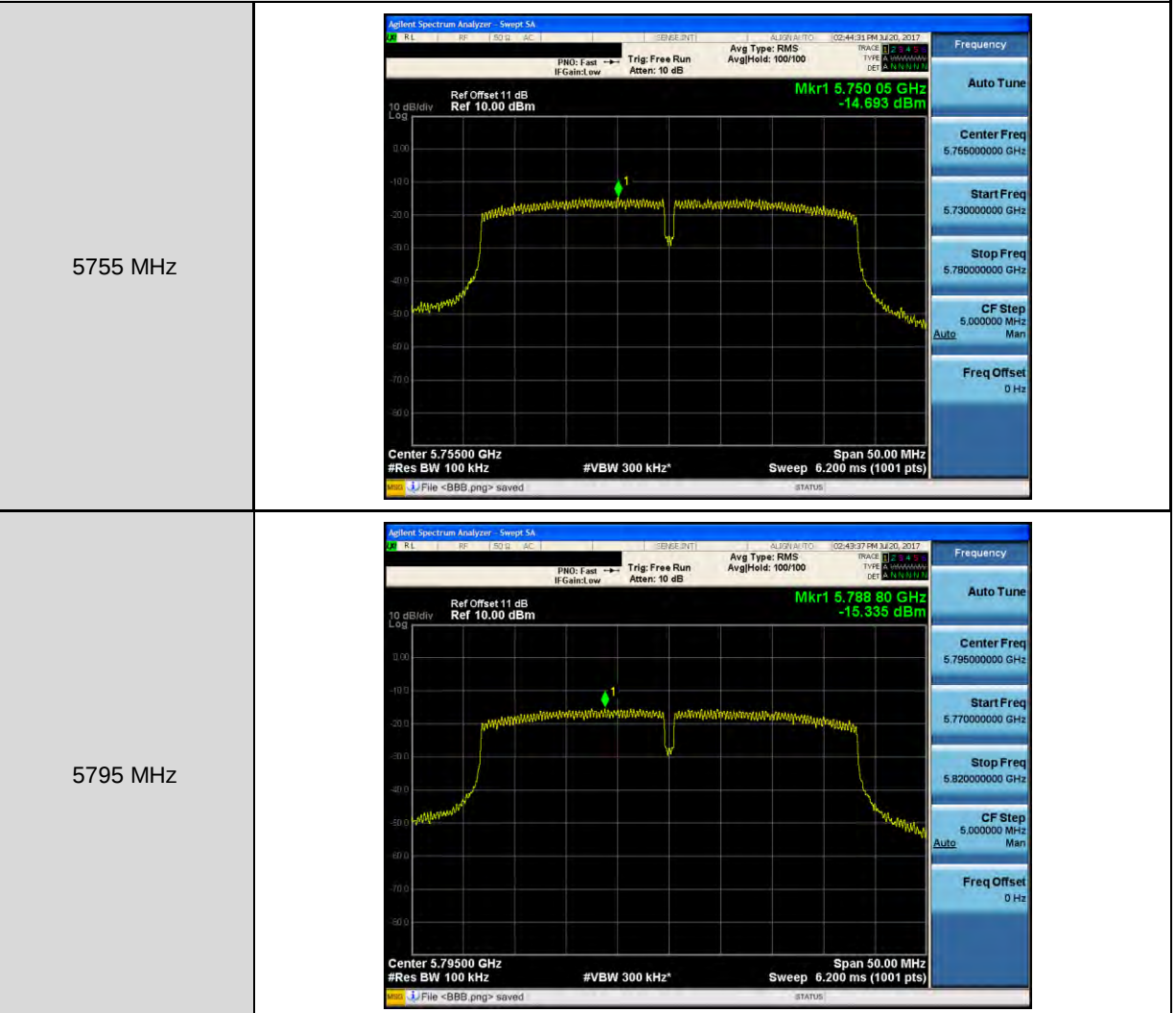


5230 MHz





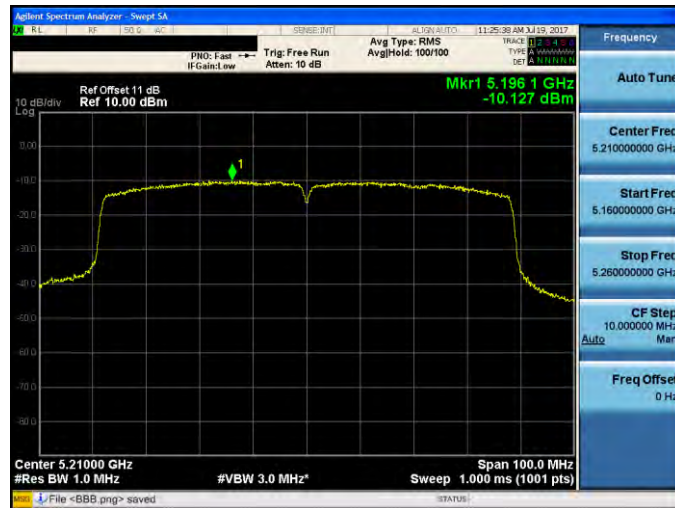
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ ANT-1





Mode 5: IEEE 802.11ac 80MHz Continuous TX mode _ANT-1

5210 MHz



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode _ANT-1

5775 MHz

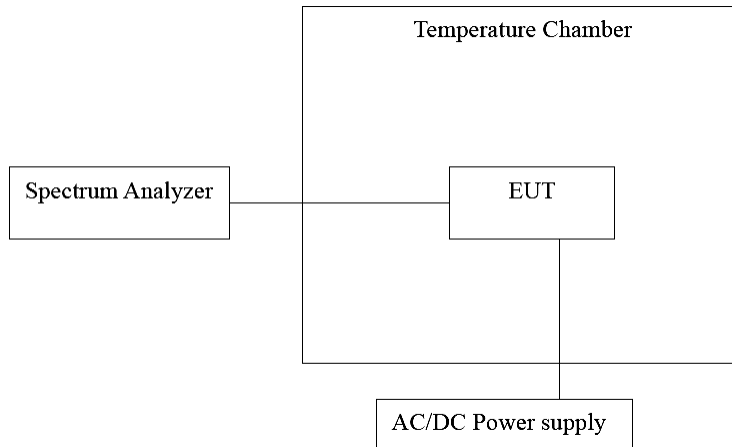


4.8. Frequency Stability Measurement

■ Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

■ Test Setup



■ Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	08/08/2016	1 year
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	04/17/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

■ Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.



■ Test Result

Temperature Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vdc)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	0	3.85	5200.0029	2900	0.558	Pass
	10		5200.0136	13600	2.615	Pass
	20		5200.0246	24600	4.731	Pass
	30		5200.0336	33600	6.462	Pass
	40		5200.0461	46100	8.865	Pass
	50		5200.0619	61900	11.904	Pass
5785 MHz	0	3.85	5785.01	10000	1.729	Pass
	10		5785.02	20000	3.457	Pass
	20		5785.029	29000	5.013	Pass
	30		5785.0415	41500	7.174	Pass
	40		5785.0573	57300	9.905	Pass
	50		5785.065	65000	11.236	Pass

Voltage Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vdc)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	20	5.75	5200.0269	26900	5.173	Pass
		5.00	5200.039	39000	7.500	Pass
		4.25	5200.0509	50900	9.788	Pass
5785 MHz	20	5.75	5785.0268	26800	4.633	Pass
		5.00	5785.031	31000	5.359	Pass
		4.25	5785.0503	50300	8.695	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.



4.9. Antenna Requirement

■ 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 15.407 (a), 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.

■ Antenna Connector Construction

See section 2 – antenna information.

■ Directional Gain Calculated

Directional Gain = $10 \cdot \log\{[10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20}]^2 / NANT\}$ = 8.01 dBi > 6dBi

Operate Freq. Band		Directional Gain (dBi)
IEEE 802.11a	U-NII Band I	8.01
	U-NII Band III	8.01
IEEE 802.11ac 20MHz	U-NII Band I	8.01
	U-NII Band III	8.01
IEEE 802.11ac 40MHz	U-NII Band I	8.01
	U-NII Band III	8.01
IEEE 802.11ac 80MHz	U-NII Band I	8.01
	U-NII Band III	8.01