

FCC 47 CFR PART 15 SUBPART E

Applicant : Tobii AB
Product Type : Tobii Dynavox I-110
Trade Name : tobii dynavox
Model Number : I-110
Test Specification : FCC 47 CFR PART 15 SUBPART E
ANSI C63.10:2013
Receive Date : Feb. 24, 2017
Test Period : Apr. 06 ~ Apr. 21, 2017
Issue Date : May 08, 2017

Issue by

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

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	May 08, 2017	Initial Issue	Nina Lin

Verification of Compliance

Issued Date: May 08, 2017

Applicant : Tobii AB
Product Type : Tobii Dynavox I-110
Trade Name : tobii dynavox
Model Number : I-110
FCC ID : W5M-TDI110
EUT Rated Voltage : DC 15V, 2.4A
Test Voltage : 120 Vac / 60 Hz
Applicable Standard : FCC 47 CFR PART 15 SUBPART E
ANSI C63.10:2013

Test Result : Complied

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

A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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

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1 General Information

1.1. Summary of Test Result

Standard	Item	Result	Remark
FCC			
15.407(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	Tobii AB Karlsrovagen 2D, 18253 Danderyd, Sweden		
Manufacturer (1)	Tobii AB Karlsrovagen 2D, 18253 Danderyd, Sweden		
Manufacturer (2)	ONYX Healthcare Inc. 2F., No.135, Ln. 235, Baoqiao Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)		
Product Type	Tobii Dynavox I-110		
Trade Name	tobii dynavox		
Model Number	I-110		
FCC ID	W5M-TDI110		
Operate Frequency	Frequency Band		Frequency Range (MHz)
	IEEE 802.11a	U-NII Band I	5180 – 5240
		U-NII Band II-A	5260 – 5320
		U-NII Band II-C	5500 – 5700
		U-NII Band III	5745 – 5825
	IEEE 802.11n 5GHz 20 MHz	U-NII Band I	5180 – 5240
		U-NII Band II-A	5260 – 5320
		U-NII Band II-C	5500 – 5700
		U-NII Band III	5745 – 5825
	IEEE 802.11n 5GHz 40 MHz	U-NII Band I	5190 – 5230
		U-NII Band II-A	5270 – 5310
		U-NII Band II-C	5510 – 5670
		U-NII Band III	5755 – 5795
Modulation Type	OFDM		
Equipment Type	Client devices		
Antenna information	Model		Max. Gain (dBi)
	RFA-02-AP379-70B-150		PIFA Antenna 5.96
Antenna Delivery	Reference section 3.1		
Frequency stability specification	± 20 ppm		

Frequency Band		RF Output Power (W)
IEEE 802.11a	U-NII Band I	0.017
	U-NII Band II-A	0.014
	U-NII Band II-C	0.011
	U-NII Band III	0.011
IEEE 802.11n 5GHz 20 MHz	U-NII Band I	0.011
	U-NII Band II-A	0.012
	U-NII Band II-C	0.009
	U-NII Band III	0.009
IEEE 802.11n 5GHz 40 MHz	U-NII Band I	0.018
	U-NII Band II-A	0.019
	U-NII Band II-C	0.012
	U-NII Band III	0.011

3 Test Methodology

3.1. Mode of Operation

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

Test Mode
Mode 1: Continuous TX mode
Mode 2: IEEE 802.11a Link Mode
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode
Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode

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

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

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

Test Mode	ANT-0
Mode 2	V
Mode 3	V
Mode 4	V

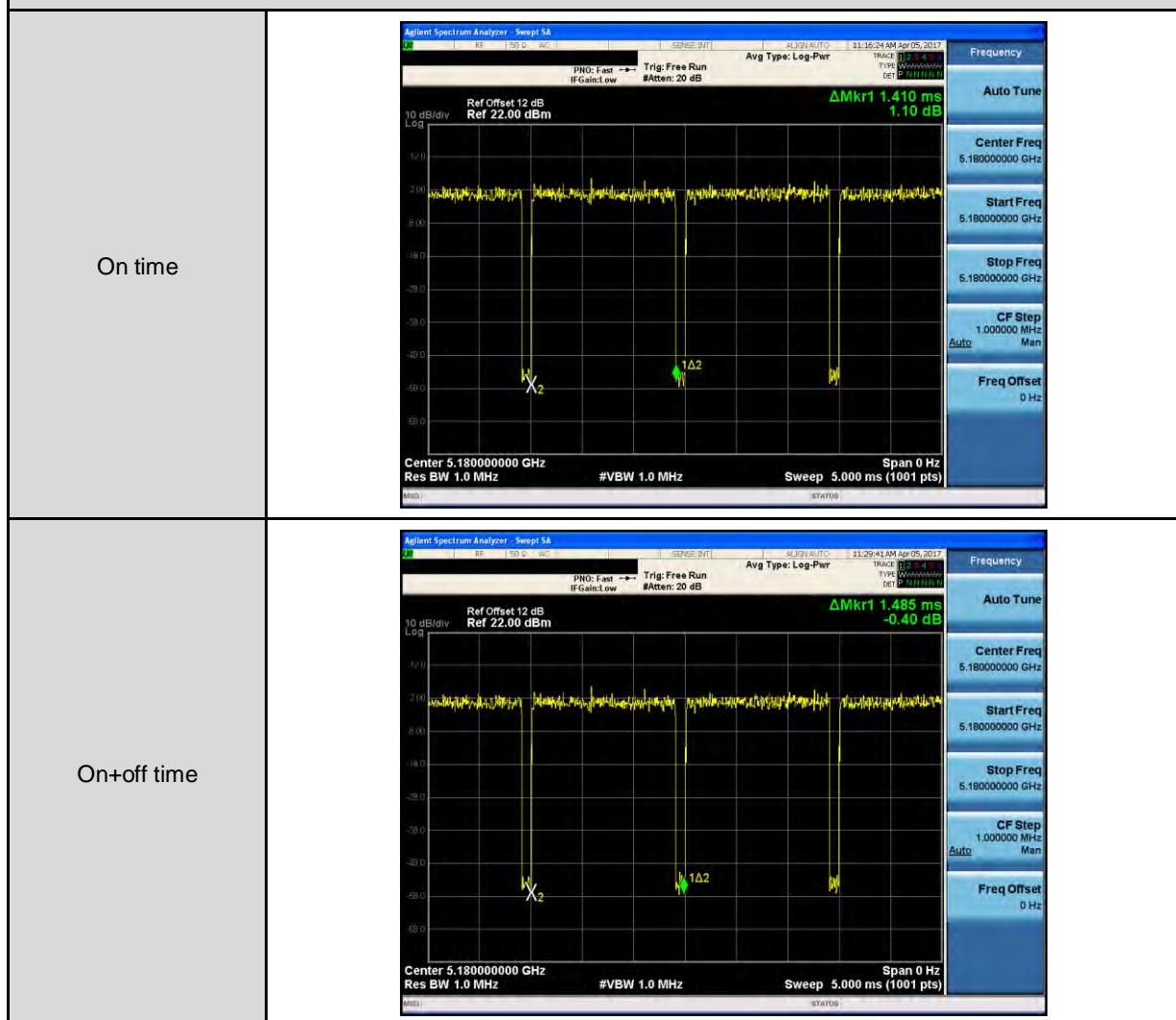
Test Mode		Antenna Delivery	Test Channel	Data Rate 800GI (ns)
Mode 2	U-NII Band I	1TX / 1RX	36, 40, 48	6
	U-NII Band II-A		52, 56, 64	
	U-NII Band II-C		100, 112, 140	
	U-NII Band III		149, 157, 165	
Mode 3	U-NII Band I	1TX / 1RX	36, 40, 44, 48	6.5
	U-NII Band II-A		52, 56, 64	
	U-NII Band II-C		100, 112, 140	
	U-NII Band III		149, 157, 165	
Mode 4	U-NII Band I	1TX / 1RX	38, 46	13.5
	U-NII Band II-A		52, 62	
	U-NII Band II-C		102, 110, 134	
	U-NII Band III		151, 159	

Duty cycle

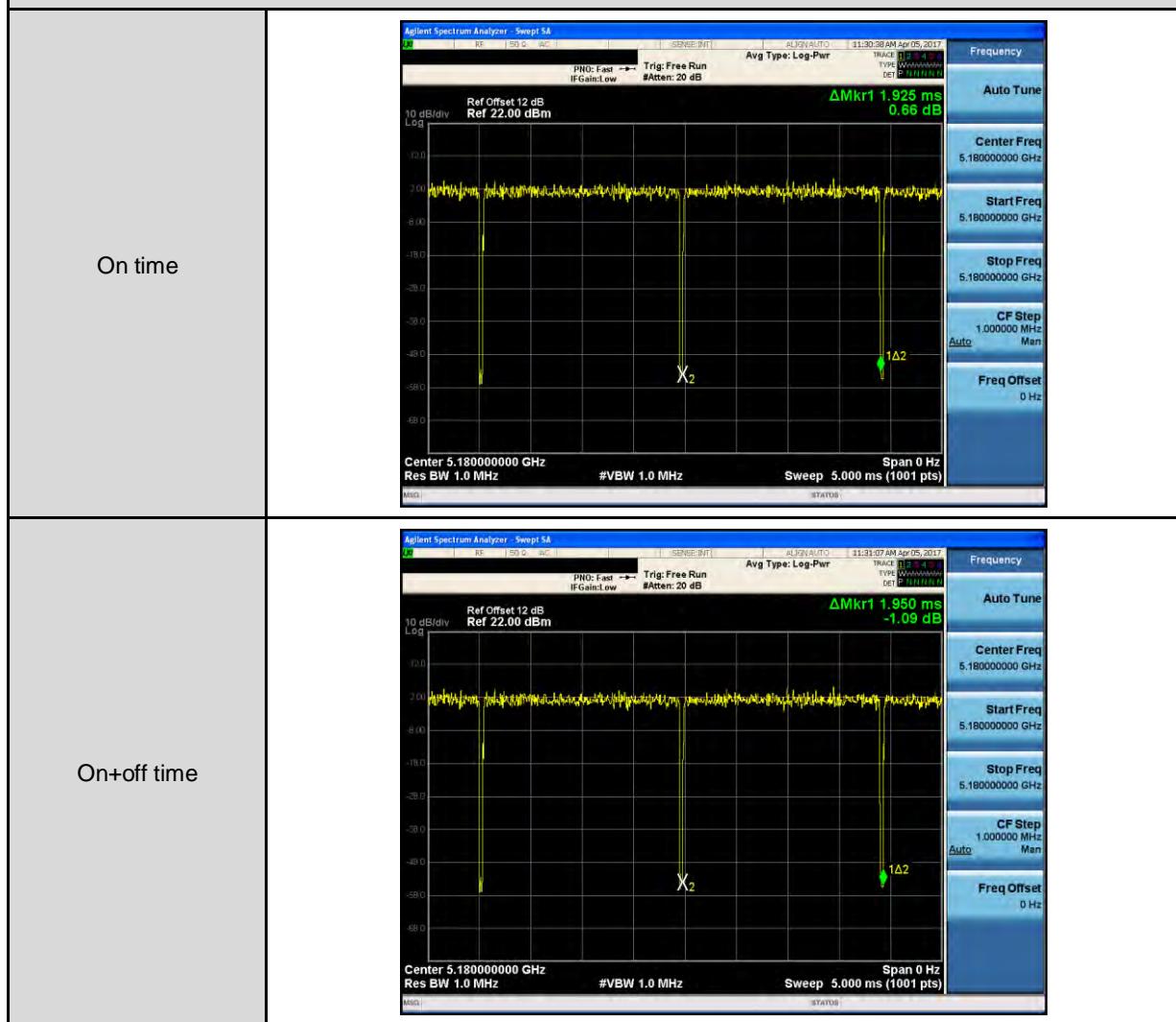
Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 2: IEEE 802.11a Link Mode	5180.0	1.410	1.485	0.949	0.225	0.709
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode	5180.0	1.925	1.950	0.987	0.056	0.010
Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode	5190.0	0.945	1.020	0.926	0.332	1.058

Duty Cycle Graphs

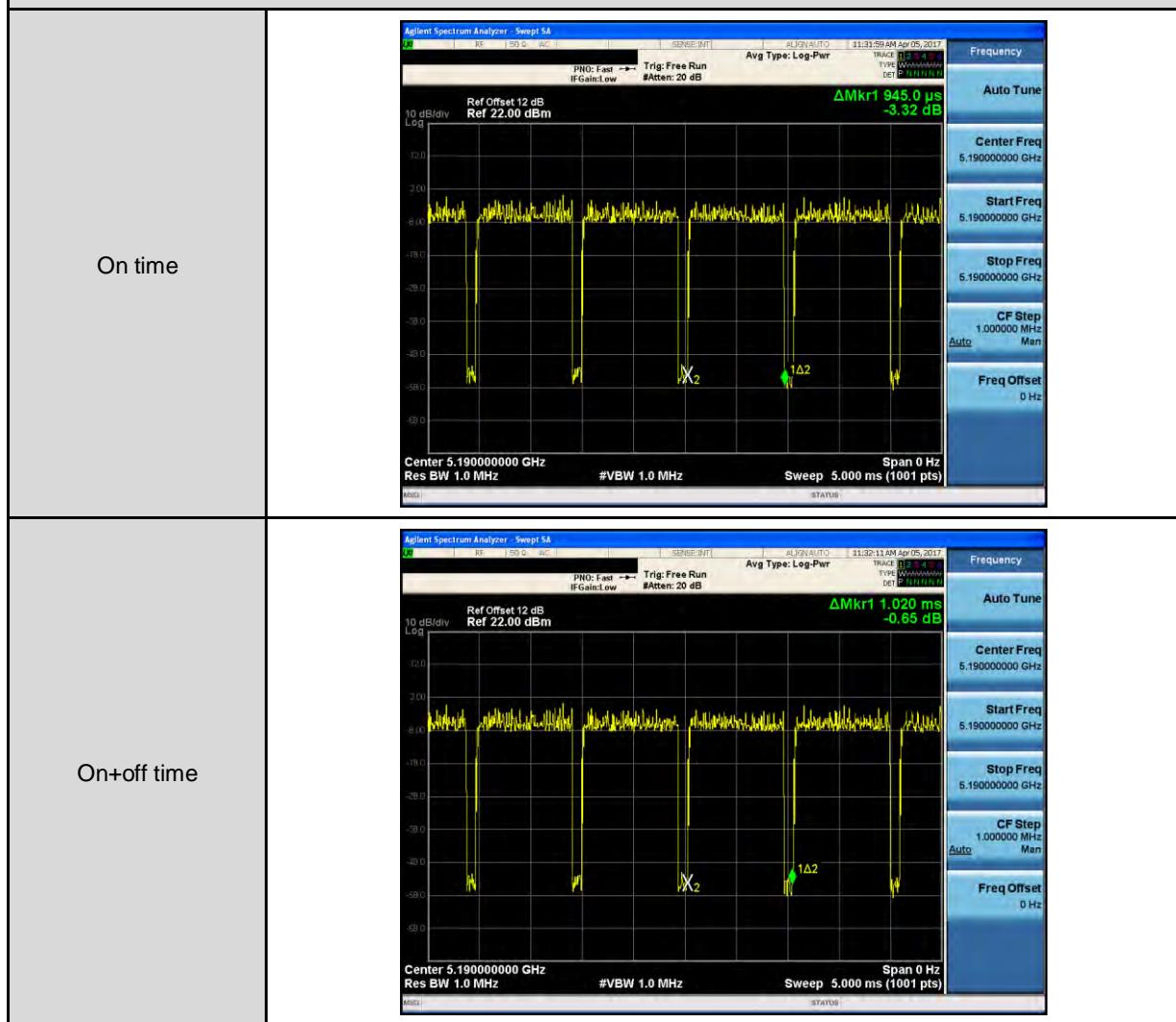
Mode 2: IEEE 802.11a Link Mode



Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode



Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode



3.2. EUT Exercise Software

The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement.

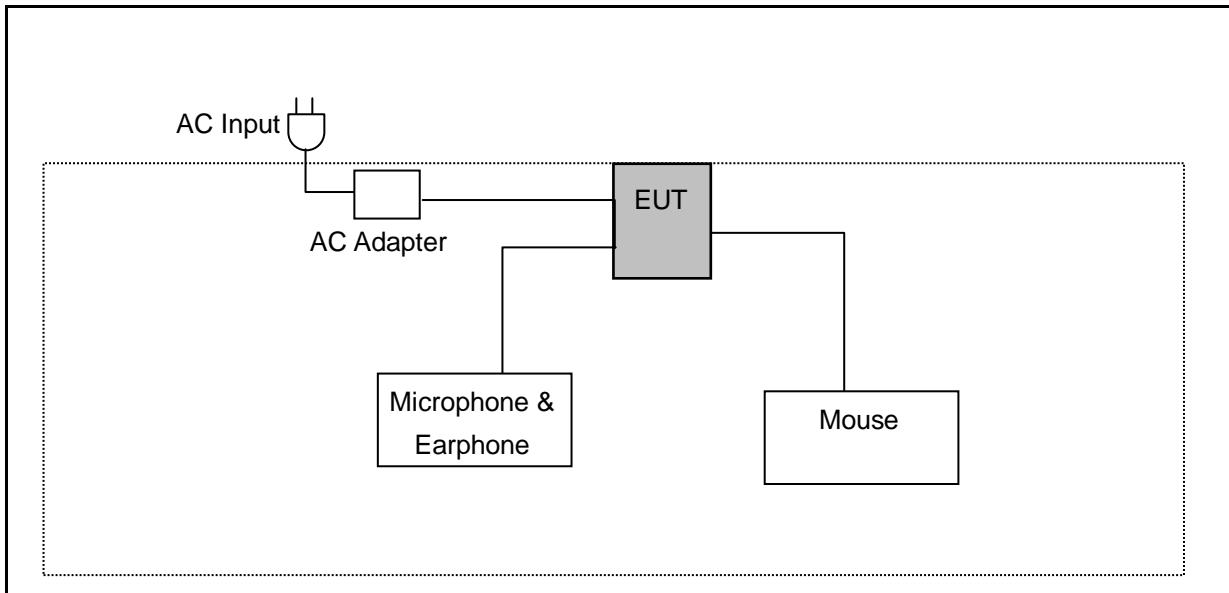
According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

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

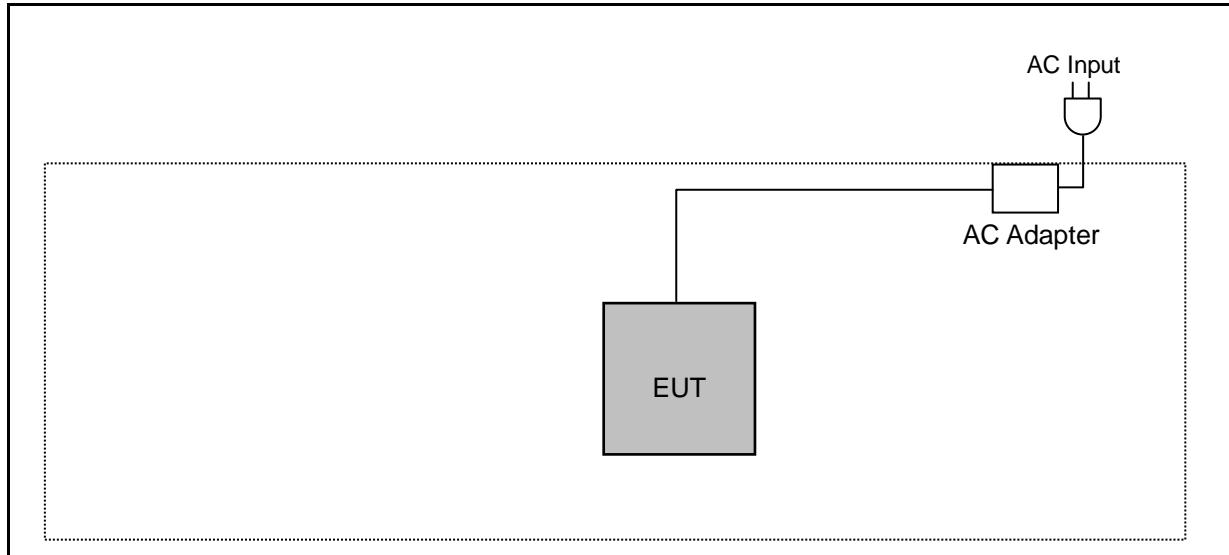
Measurement Software	
1	EZ-EMC Ver. ATL-03A1-1
2	EZ-EMC Ver ATL-ITC-3A1-1

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

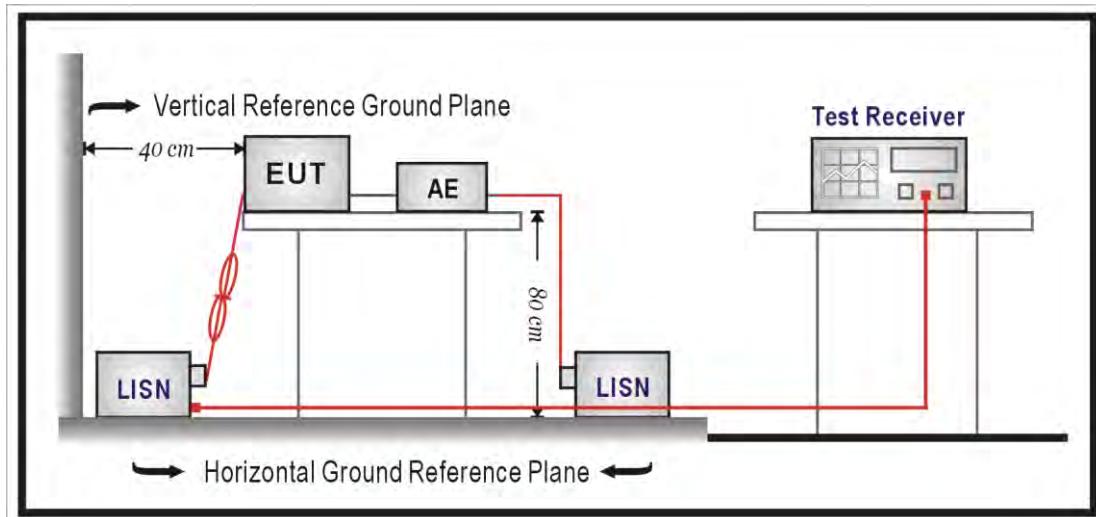
Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

■ Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	05/31/2016	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	05/31/2016	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 $50\Omega // 50\mu H$ coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a $50\Omega // 50\mu H$ coupling impedance with 50Ω 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.

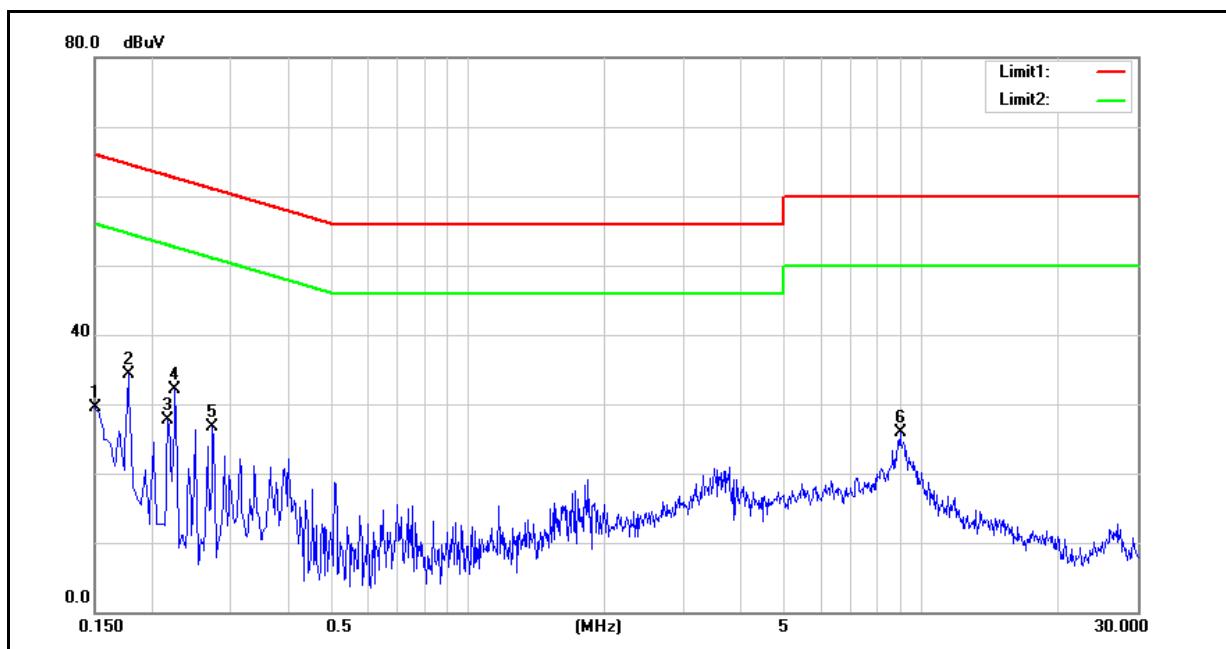
Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a resolution bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1, as applicable, including the average limit and the quasi-peak limit when using respectively, an average 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 50Ω ports of the LISN shall be resistively terminated into 50Ω 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: 04/21/2017			
Description:			

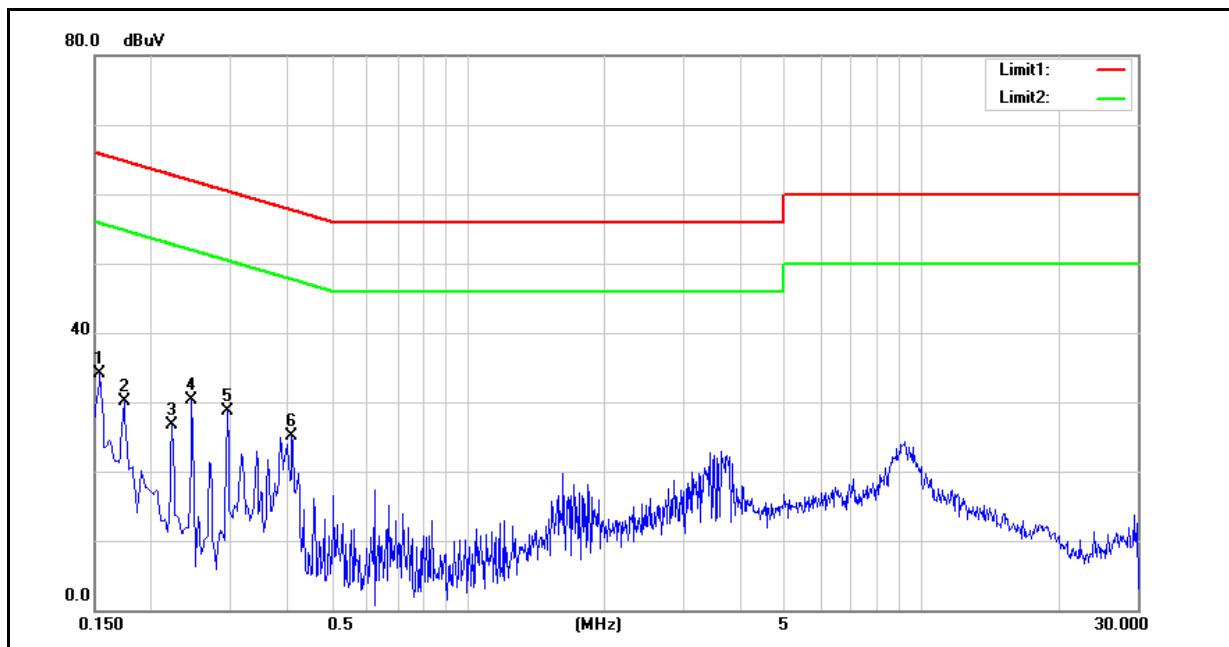


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1500	30.98	18.02	0.03	31.01	18.05	66.00	56.00	-34.99	-37.95	Pass
2	0.1780	27.12	12.37	0.03	27.15	12.40	64.58	54.58	-37.43	-42.18	Pass
3	0.2180	21.64	6.77	0.03	21.67	6.80	62.89	52.89	-41.22	-46.09	Pass
4	0.2260	22.37	6.28	0.03	22.40	6.31	62.60	52.60	-40.20	-46.29	Pass
5	0.2740	17.55	2.06	0.04	17.59	2.10	61.00	51.00	-43.41	-48.90	Pass
6	8.9660	19.66	12.33	0.24	19.90	12.57	60.00	50.00	-40.10	-37.43	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: 04/21/2017			
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	32.65	18.36	0.03	32.68	18.39	65.78	55.78	-33.10	-37.39	Pass
2	0.1740	29.43	15.57	0.03	29.46	15.60	64.77	54.77	-35.31	-39.17	Pass
3	0.2220	22.21	8.40	0.03	22.24	8.43	62.74	52.74	-40.50	-44.31	Pass
4	0.2460	20.55	6.82	0.03	20.58	6.85	61.89	51.89	-41.31	-45.04	Pass
5	0.2940	18.76	7.91	0.04	18.80	7.95	60.41	50.41	-41.61	-42.46	Pass
6	0.4100	21.77	15.07	0.04	21.81	15.11	57.65	47.65	-35.84	-32.54	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 (dB_uV/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.

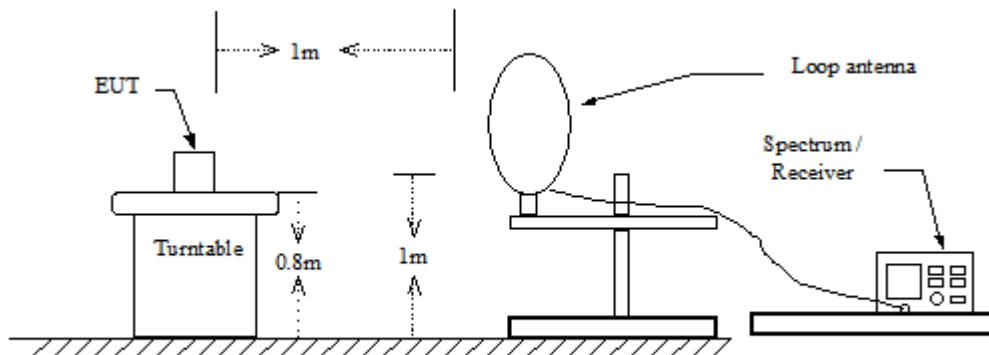
■ Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
RF Pre-selector	Agilent	N9039A	MY46520256	06/22/2016	1 year
Spectrum Analyzer	Agilent	E4446A	MY46180578	06/22/2016	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	06/06/2016	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-14000	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-600	140301	02/20/2017	1 year
Test Site	ATL	TE01	888001	08/29/2016	1 year

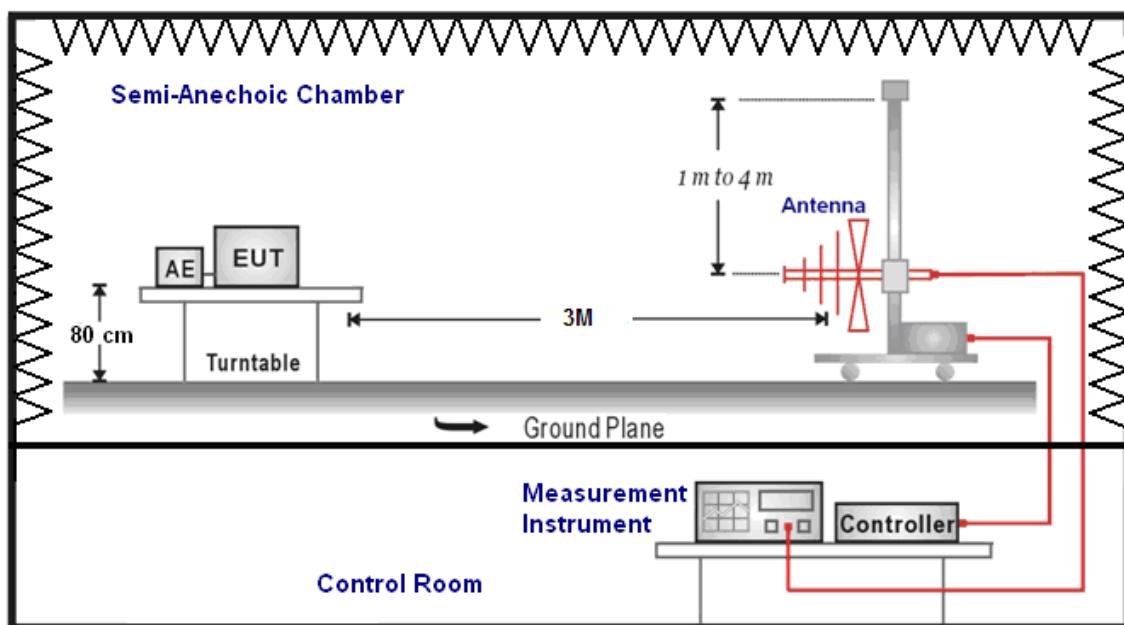
Note: N.C.R. = No Calibration Request.

■ Setup

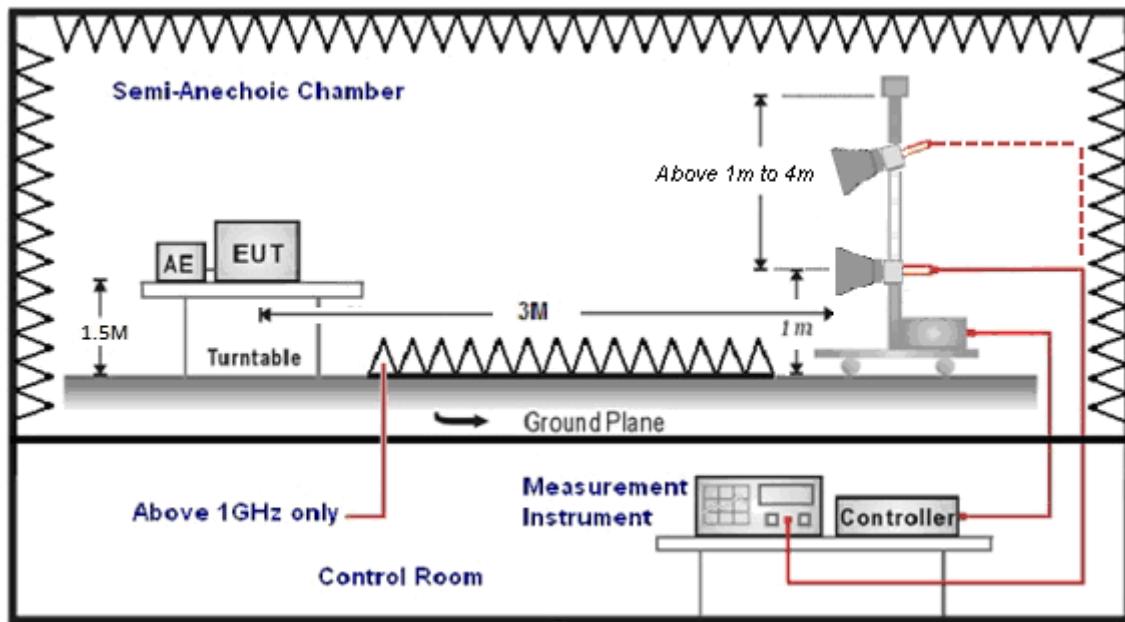
9kHz ~ 30MHz



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 tree 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 (dB_{uV}) 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 colts per meter (dB_{BuV/m}).

The actual field intensity in 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.

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

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

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

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:	Radiated Emission			Power:	AC 120V/60Hz		
Test Mode:	Mode 1			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
						Date: 04/19/2017	
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
201.0000	45.59	-7.80	37.79	43.50	-5.71	QP	H
288.0000	39.77	-3.75	36.02	46.00	-9.98	QP	H
576.5000	37.07	2.23	39.30	46.00	-6.70	QP	H
650.0000	38.45	3.90	42.35	46.00	-3.65	QP	H
698.0000	38.66	4.62	43.28	46.00	-2.72	QP	H
746.5000	36.91	5.93	42.84	46.00	-3.16	QP	H
214.0000	45.15	-7.55	37.60	43.50	-5.90	QP	V
375.5000	38.70	-2.18	36.52	46.00	-9.48	QP	V
553.5000	36.63	1.56	38.19	46.00	-7.81	QP	V
656.0000	37.32	3.99	41.31	46.00	-4.69	QP	V
704.5000	32.78	4.78	37.56	46.00	-8.44	QP	V
800.0000	33.58	6.68	40.26	46.00	-5.74	QP	V

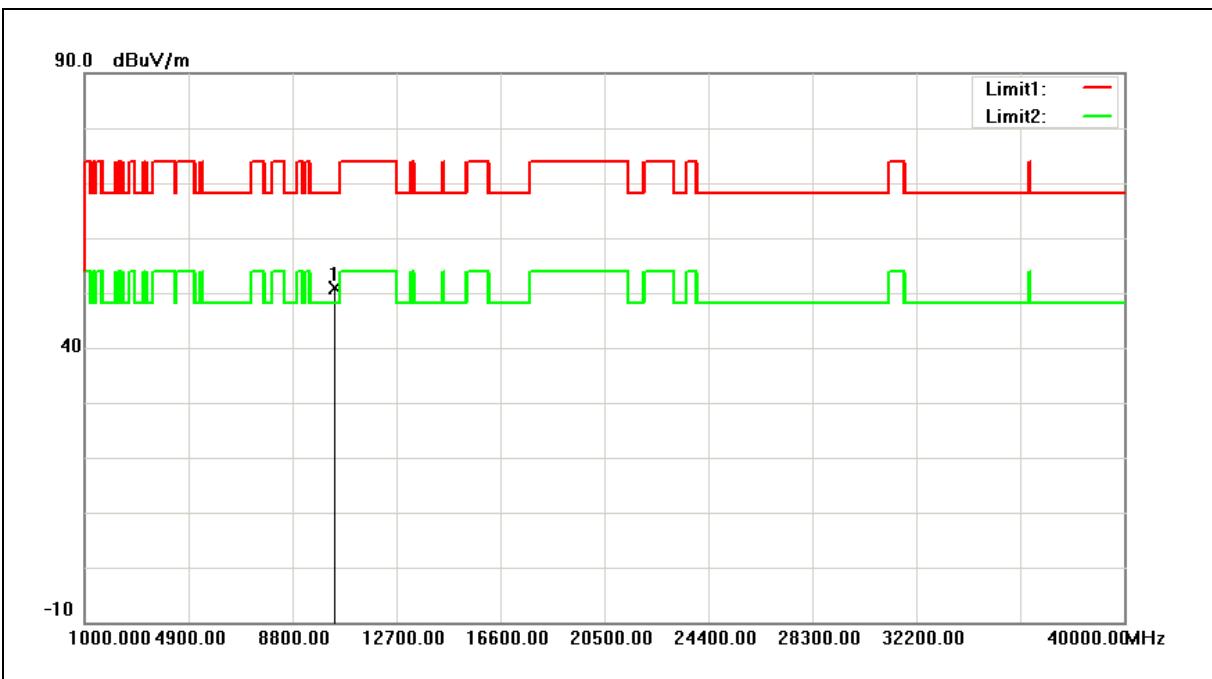
Note: 1. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

2. Result = Correction factor + Reading

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

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:	04/18/2017
Ant.Polar.:	Horizontal		



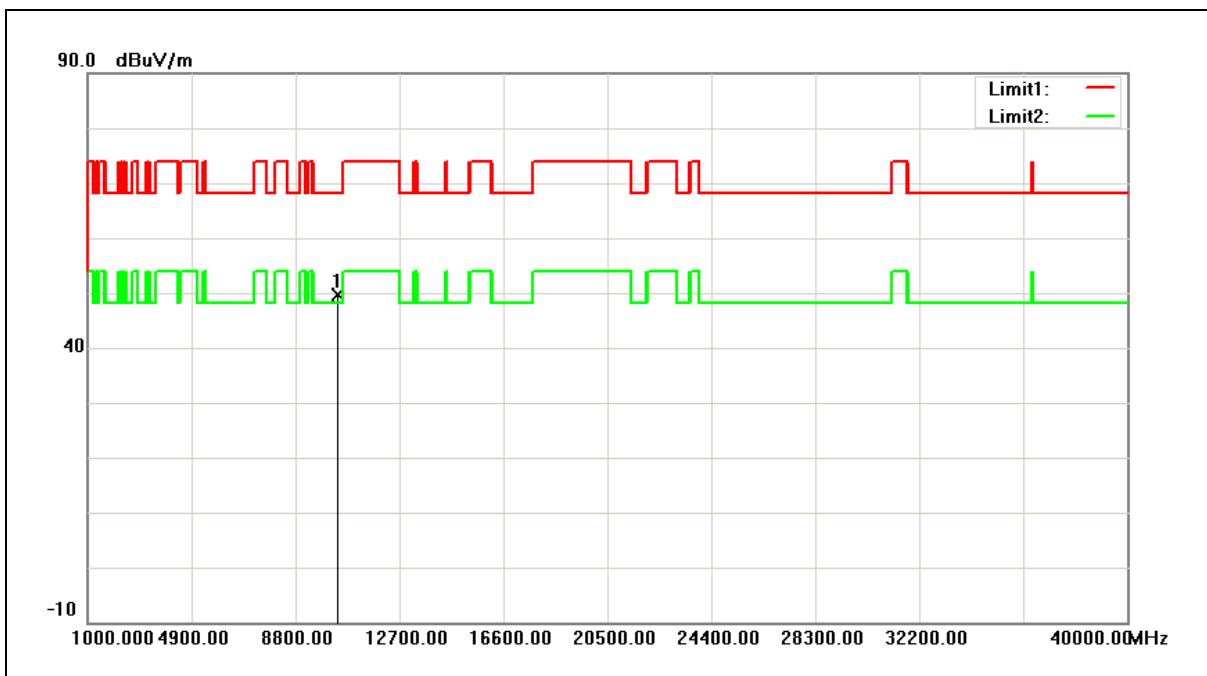
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	45.51	5.36	50.87	68.20	-17.33	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



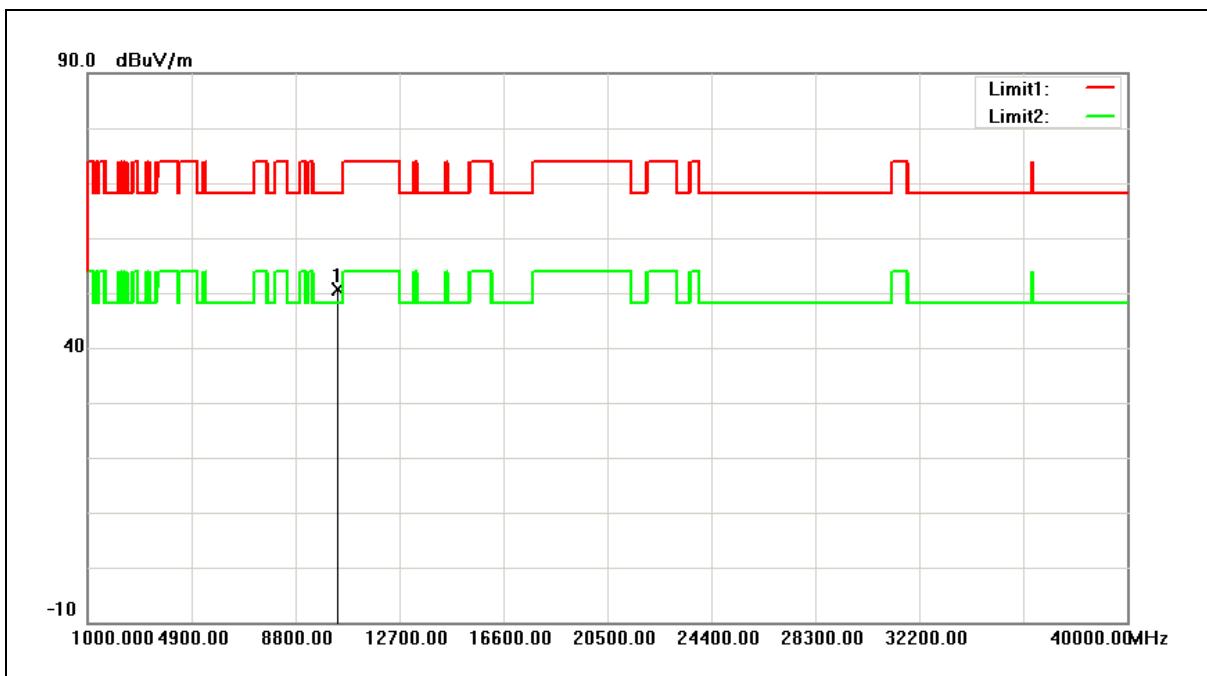
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	44.26	5.36	49.62	68.20	-18.58	peak

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:	04/18/2017
Ant.Polar.:	Horizontal		



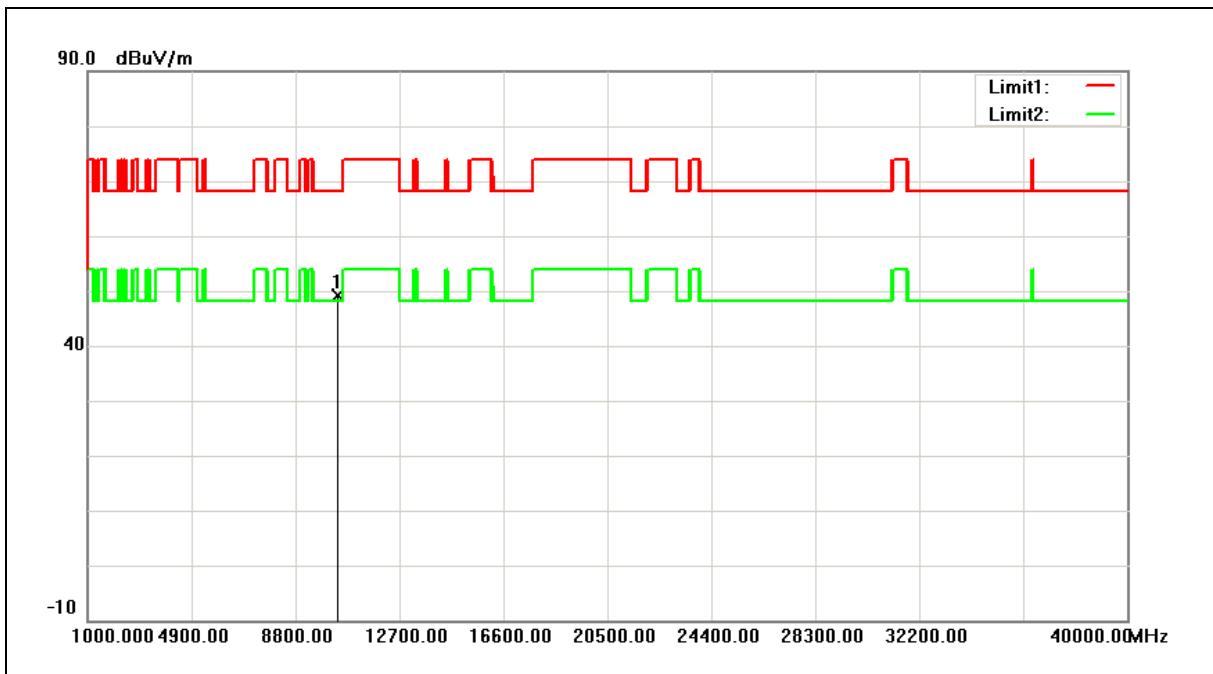
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	45.11	5.45	50.56	68.20	-17.64	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



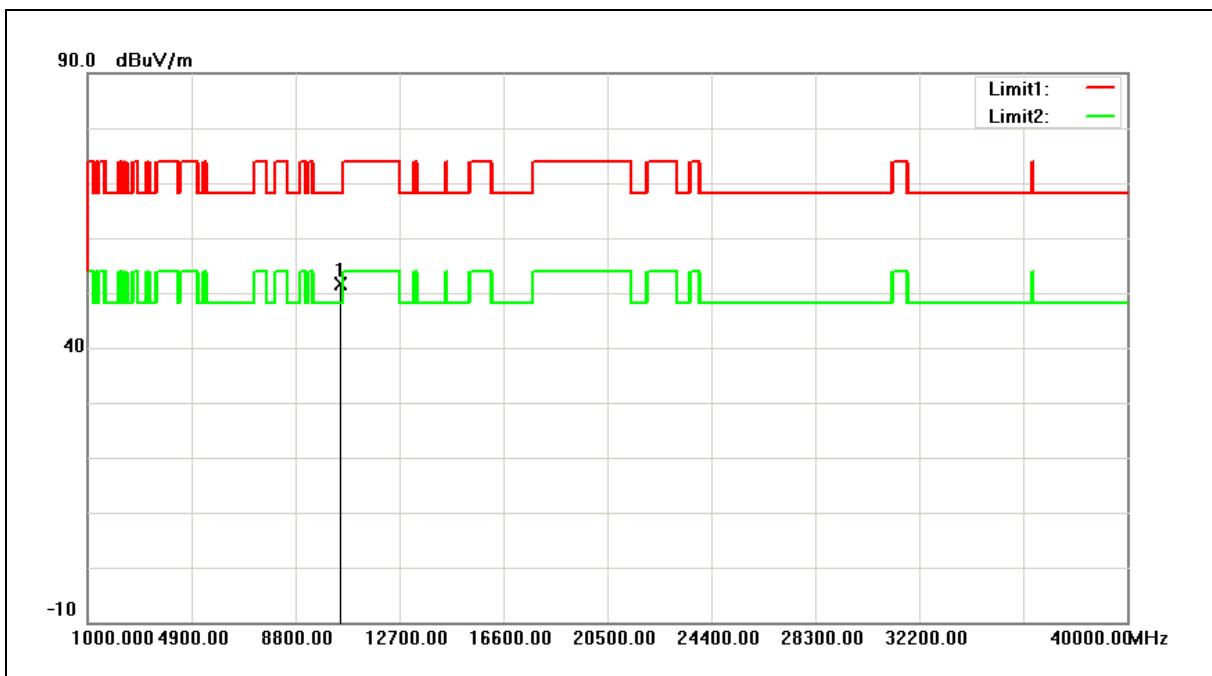
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	43.79	5.45	49.24	68.20	-18.96	peak

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:	5240MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Horizontal		



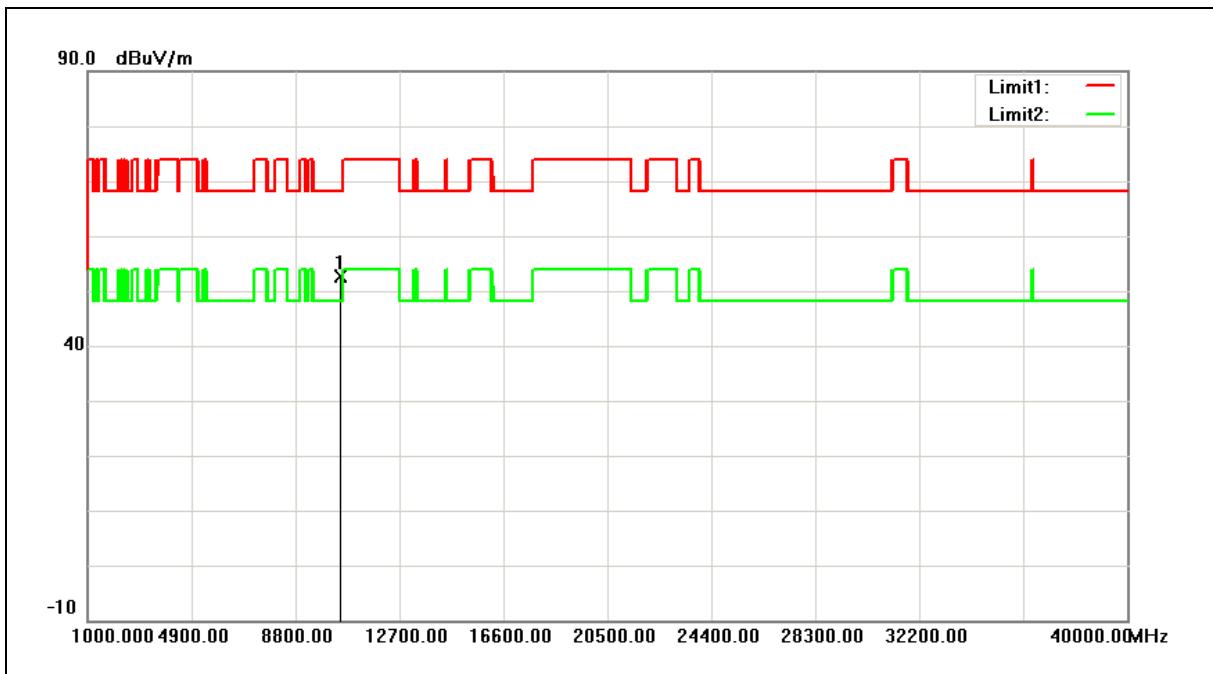
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	46.02	5.63	51.65	68.20	-16.55	peak

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:	04/18/2017
Ant.Polar.:	Vertical		



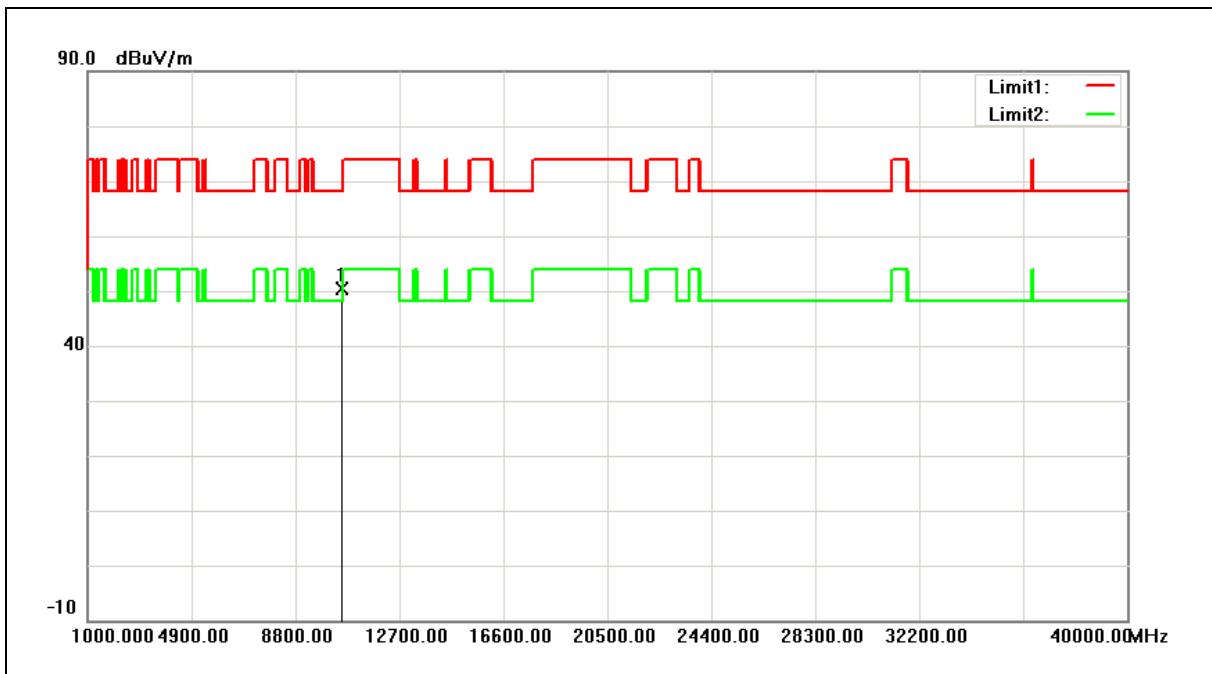
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	47.12	5.63	52.75	68.20	-15.45	peak

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:	5260MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Horizontal		



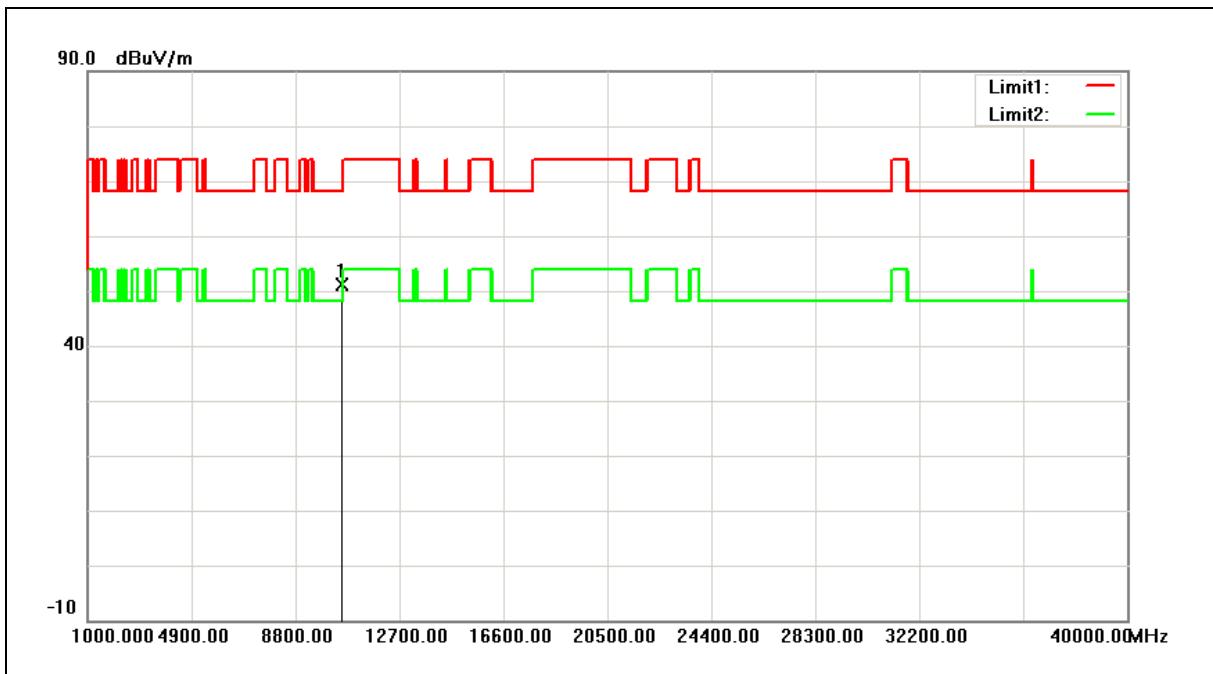
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10520.000	44.62	5.71	50.33	68.20	-17.87	peak

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:	5260MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Vertical		



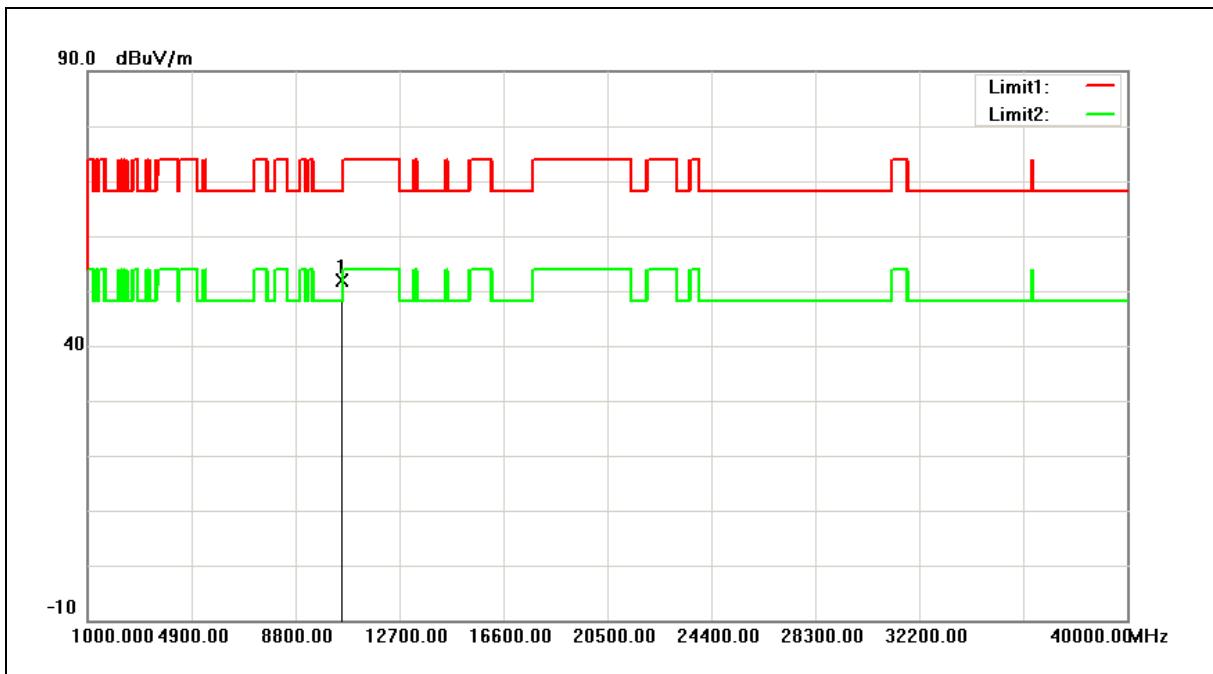
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10520.000	45.44	5.71	51.15	68.20	-17.05	peak

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:	5280MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Horizontal		



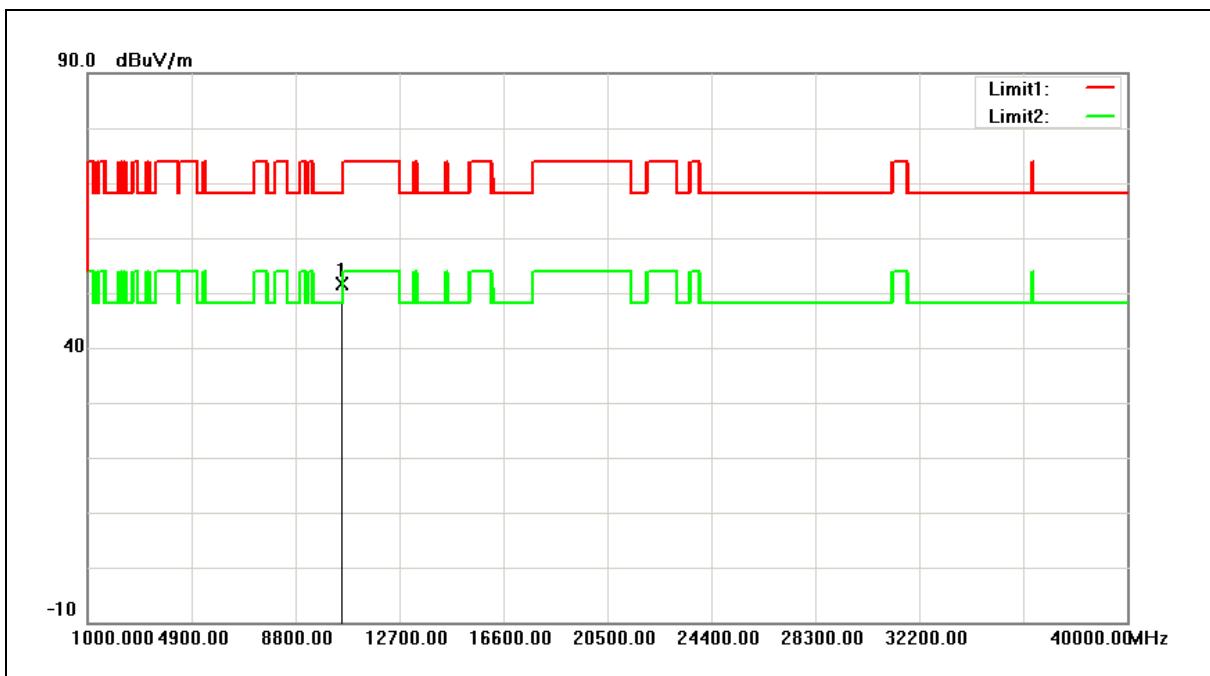
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10560.000	46.00	5.76	51.76	68.20	-16.44	peak

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

2.Correct 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:	5280MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Vertical		



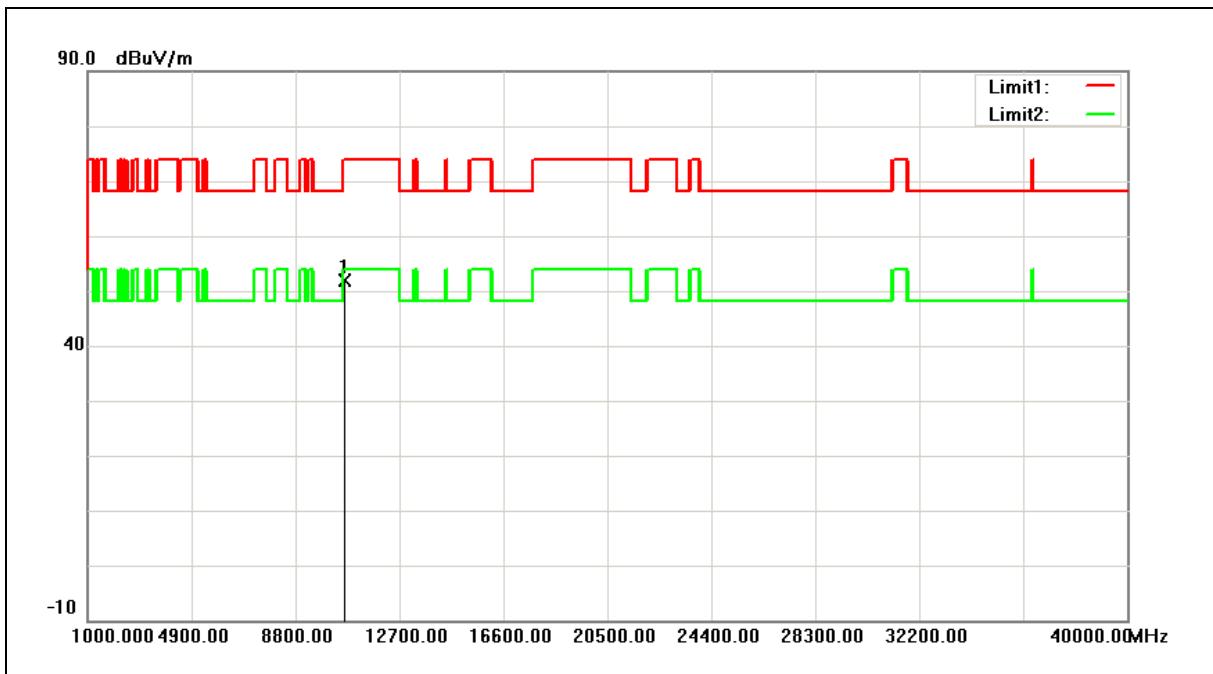
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10560.000	45.82	5.76	51.58	68.20	-16.62	peak

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:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Horizontal		



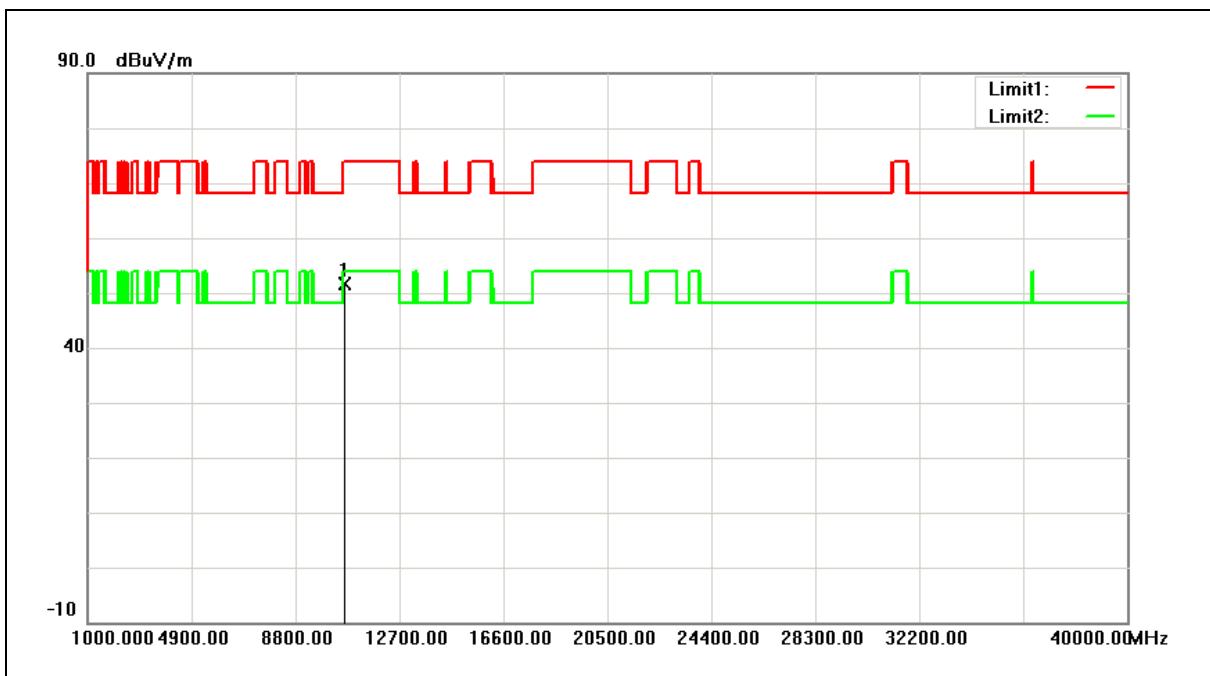
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10640.000	45.93	5.86	51.79	74.00	-22.21	peak

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

2.Correct 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:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Vertical		



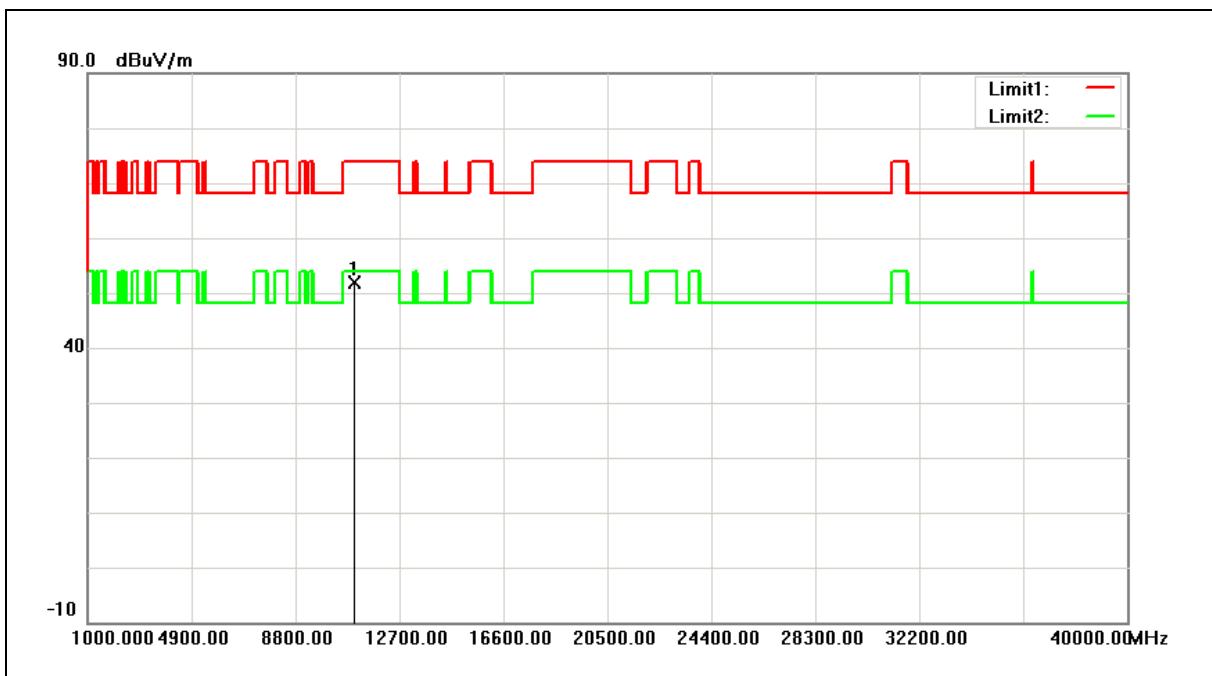
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10640.000	45.66	5.86	51.52	74.00	-22.48	peak

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

2.Correct 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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Horizontal		



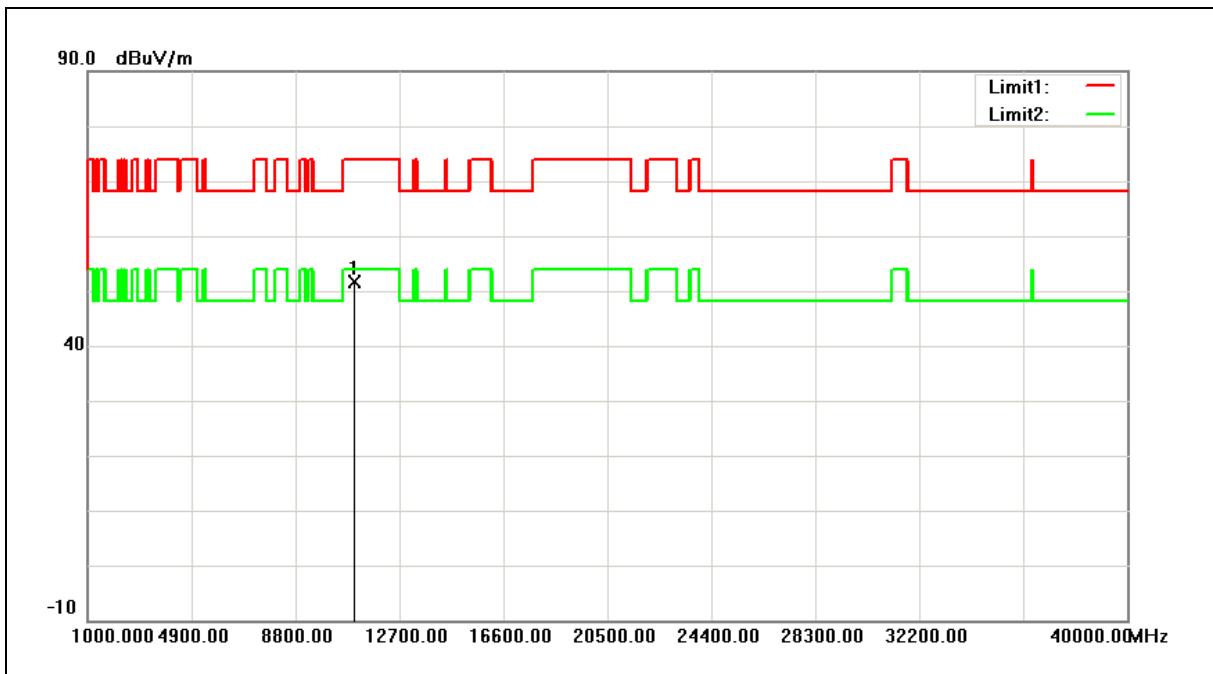
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11000.000	45.66	6.30	51.96	74.00	-22.04	peak

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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Vertical		



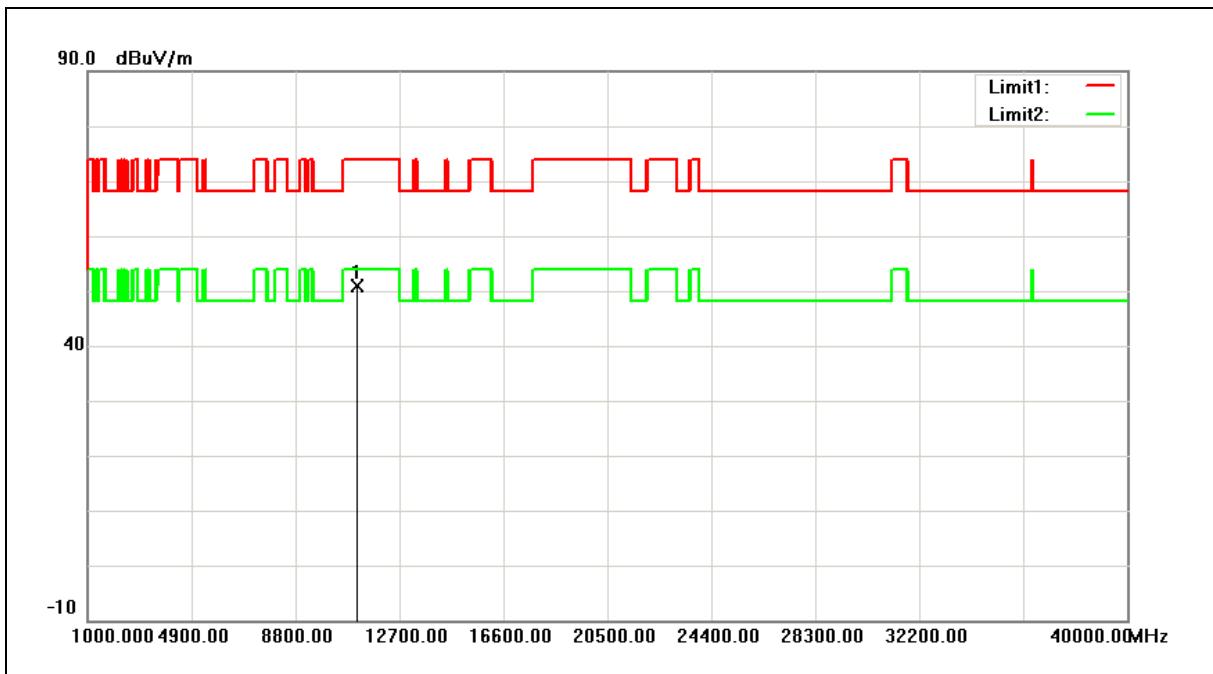
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11000.000	45.32	6.30	51.62	74.00	-22.38	peak

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

2.Correct 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:	5560MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Horizontal		



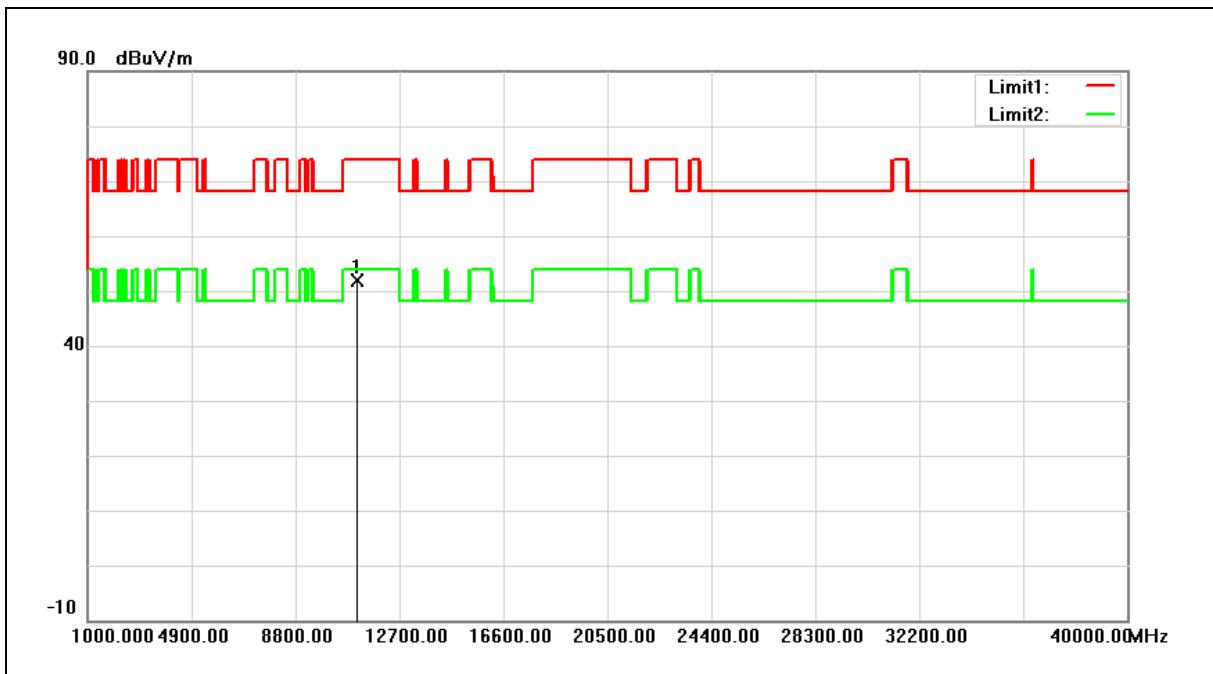
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11120.000	44.53	6.38	50.91	74.00	-23.09	peak

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:	5560MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Vertical		



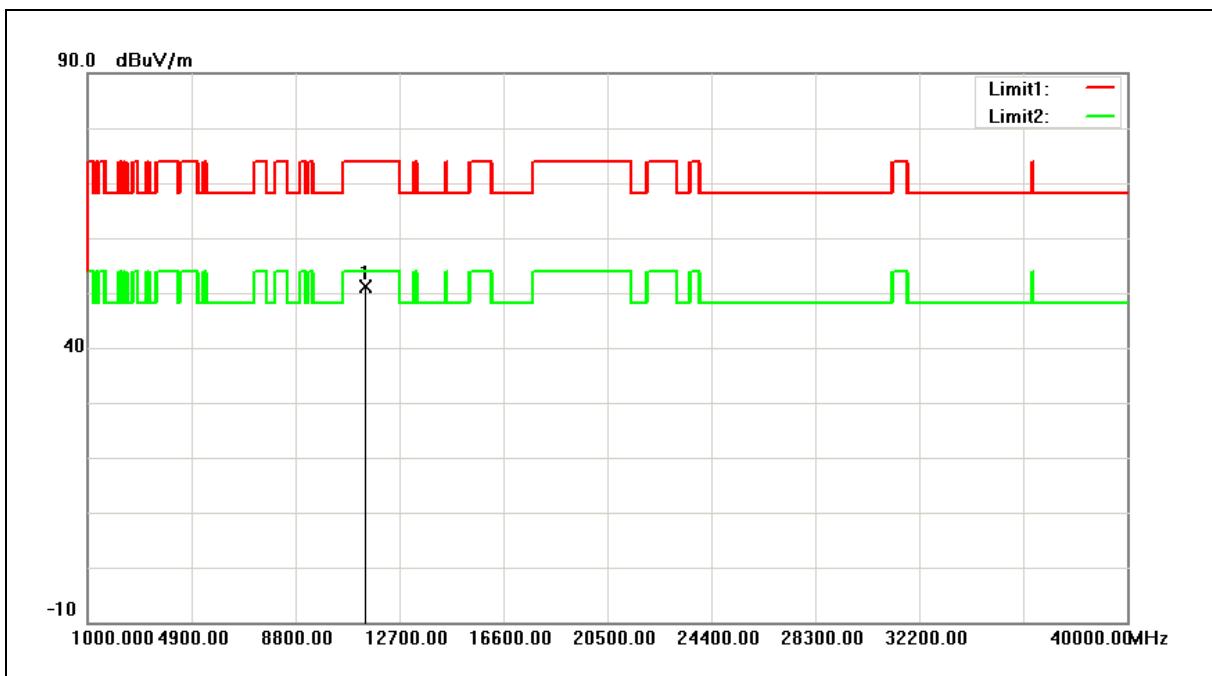
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11120.000	45.55	6.38	51.93	74.00	-22.07	peak

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

2.Correct 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:	5700MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Horizontal		



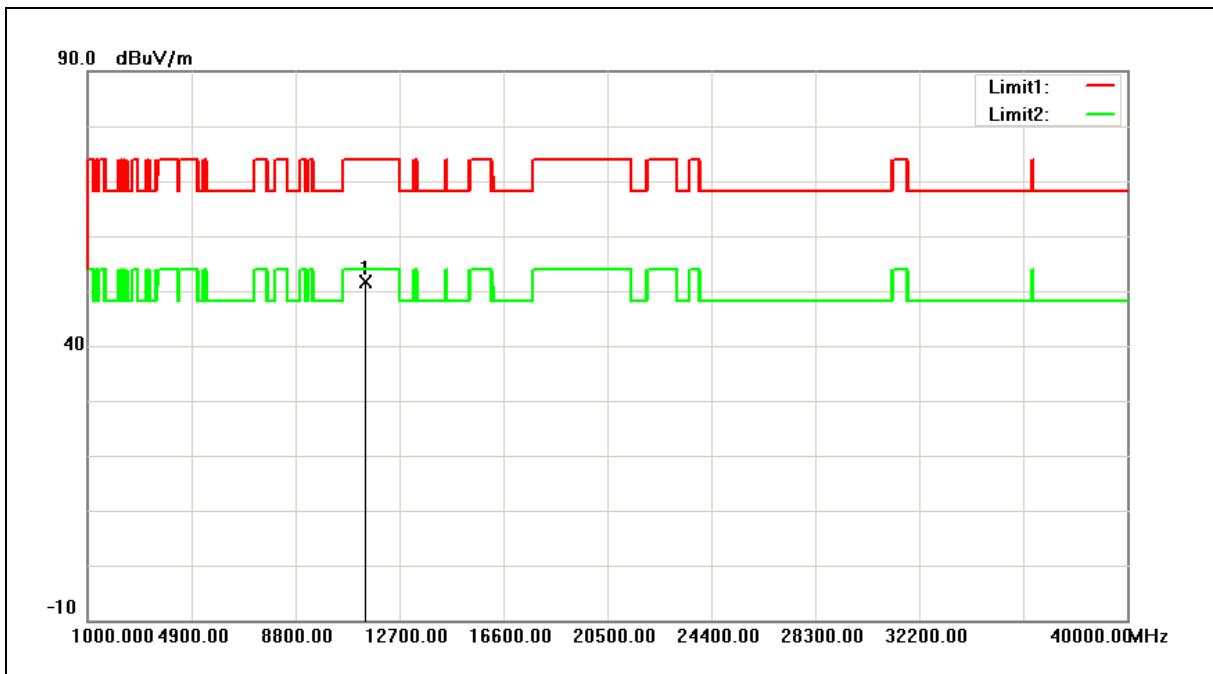
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11400.000	44.65	6.55	51.20	74.00	-22.80	peak

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

2.Correct 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:	5700MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/18/2017
Ant.Polar.:	Vertical		



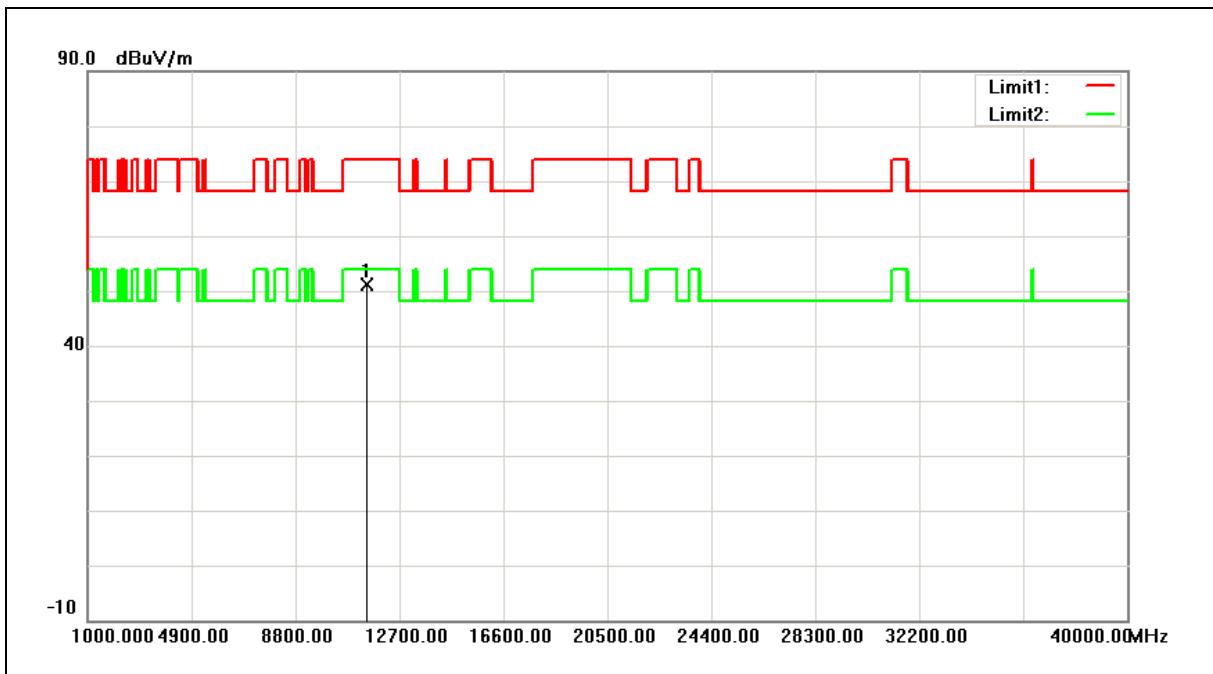
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11400.000	45.19	6.55	51.74	74.00	-22.26	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



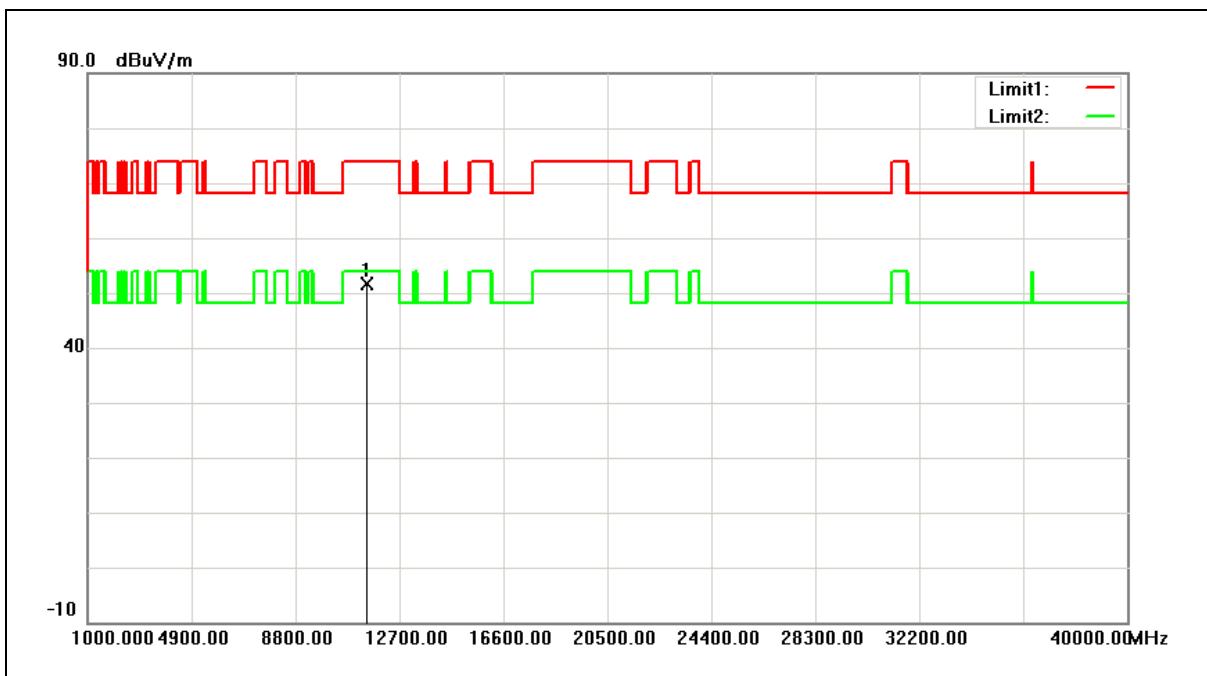
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	44.49	6.61	51.10	74.00	-22.90	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



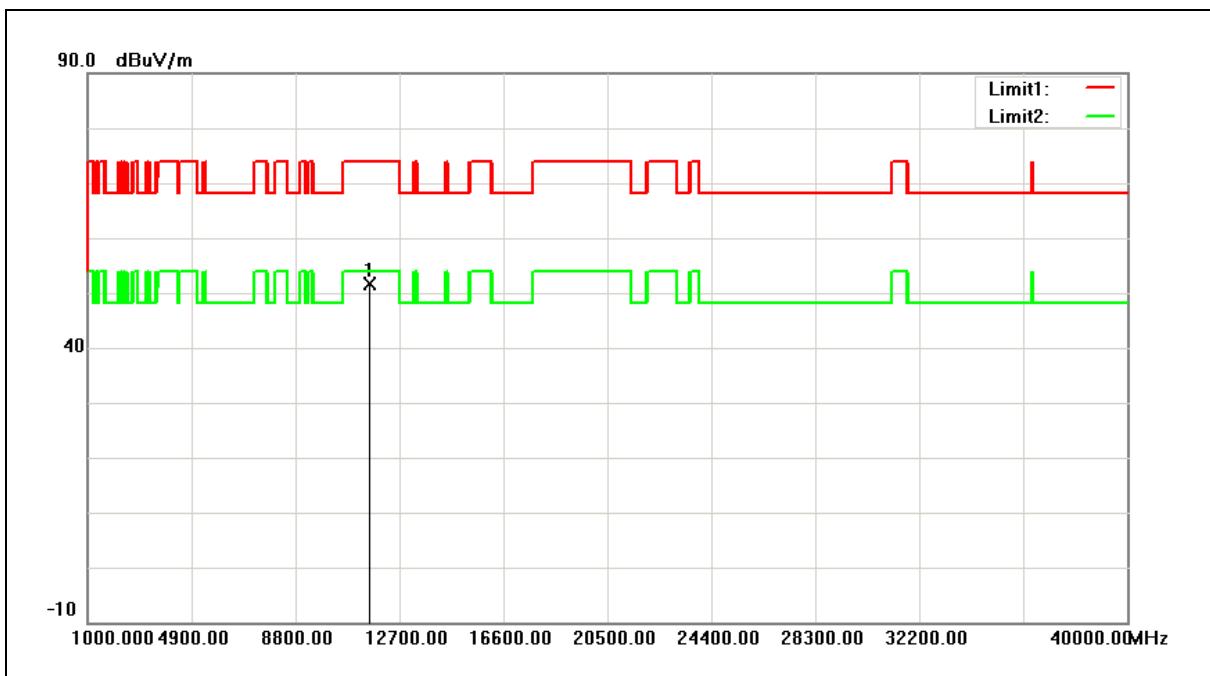
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	45.07	6.61	51.68	74.00	-22.32	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



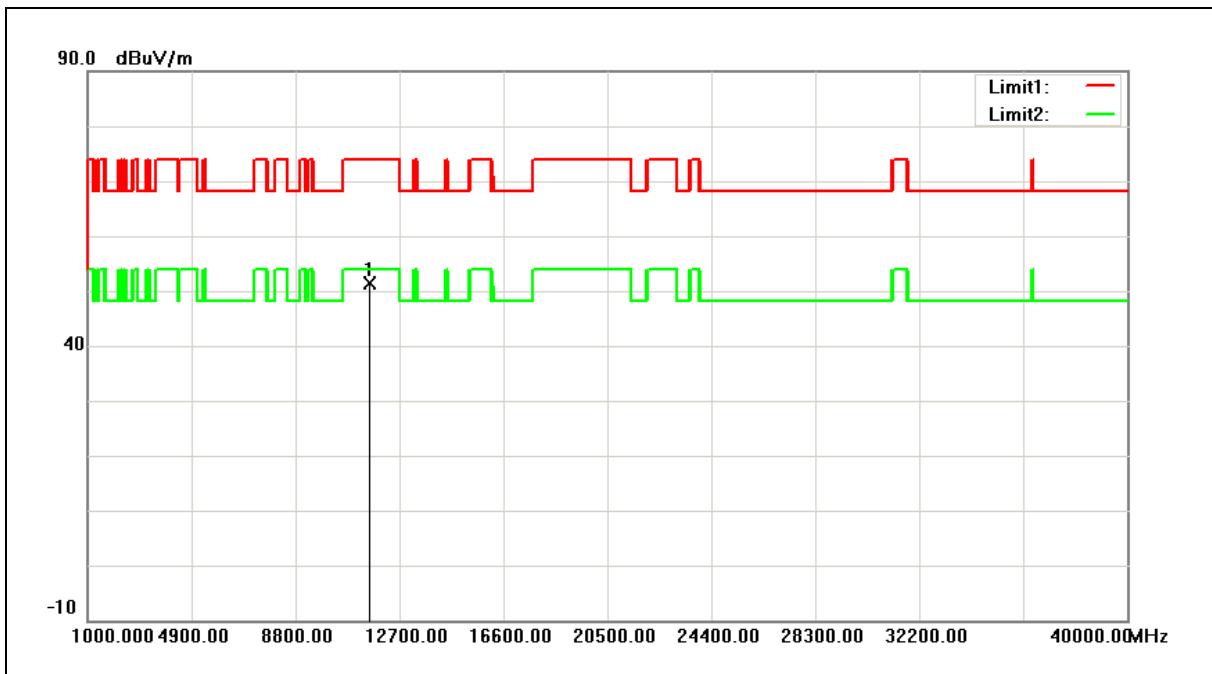
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	44.77	6.80	51.57	74.00	-22.43	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



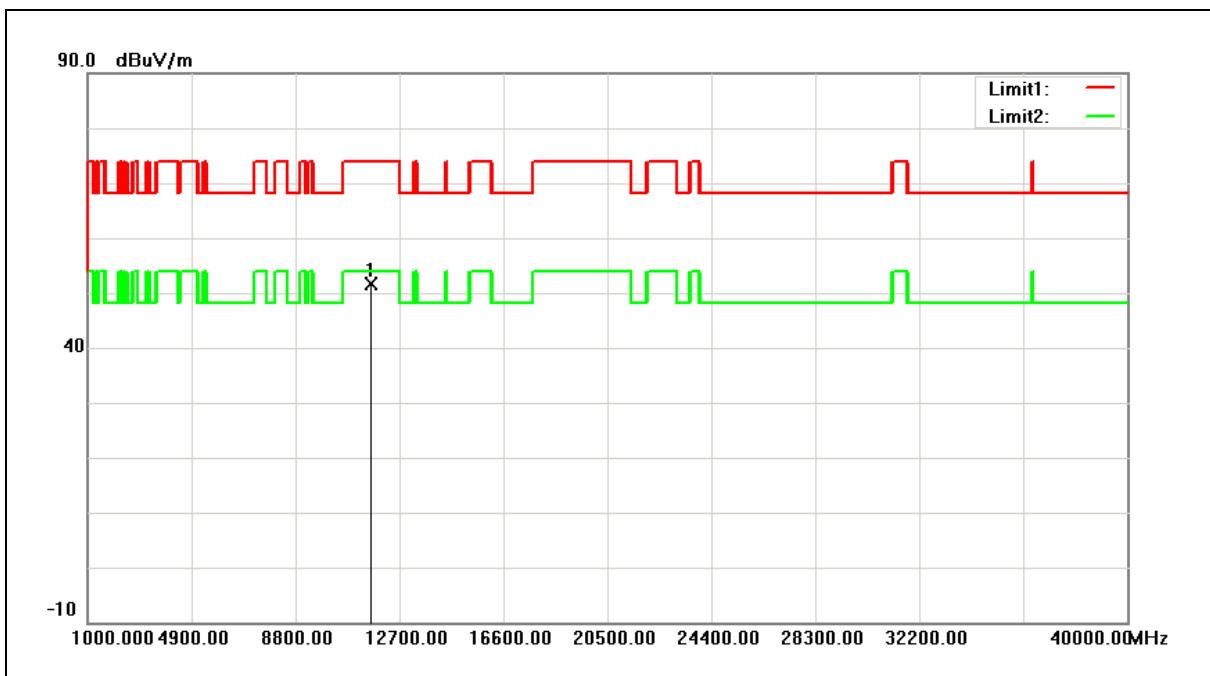
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	44.61	6.80	51.41	74.00	-22.59	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



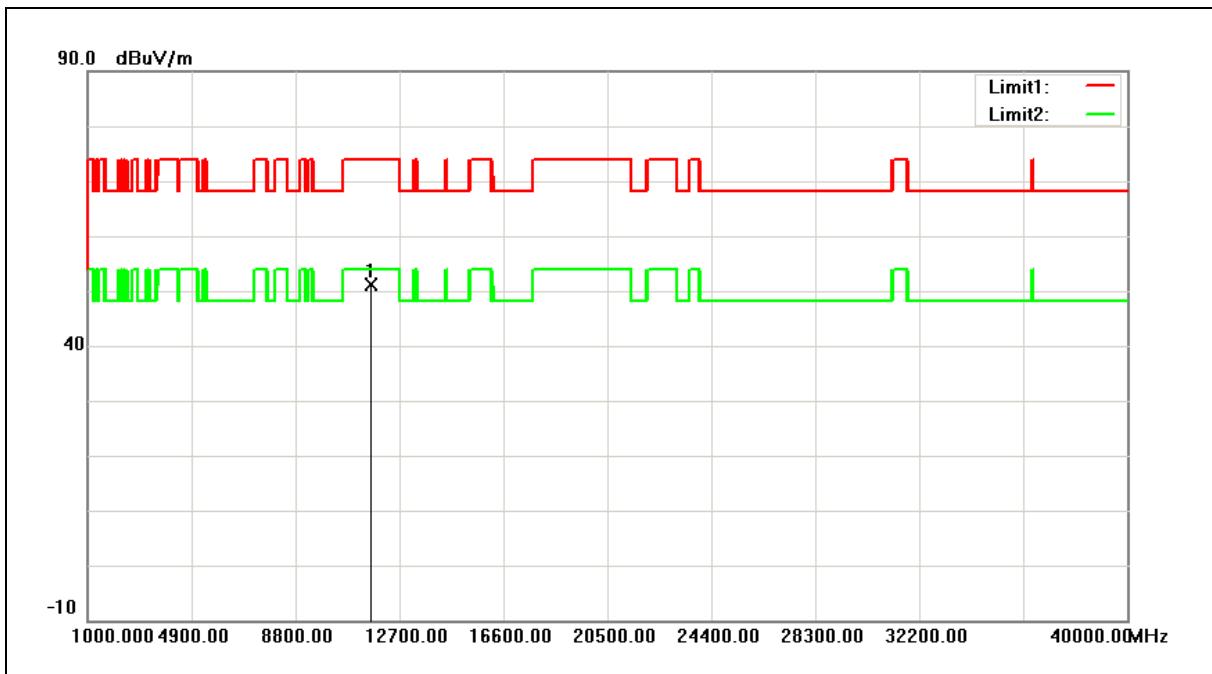
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	44.74	7.01	51.75	74.00	-22.25	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



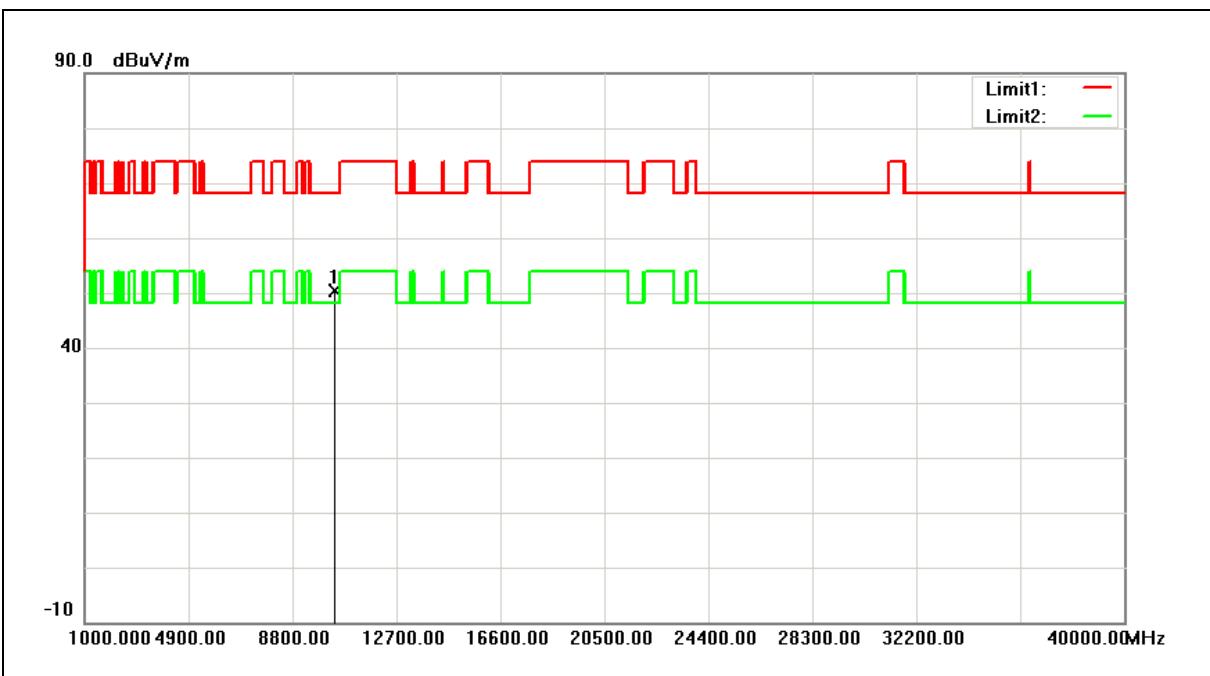
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	44.05	7.01	51.06	74.00	-22.94	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



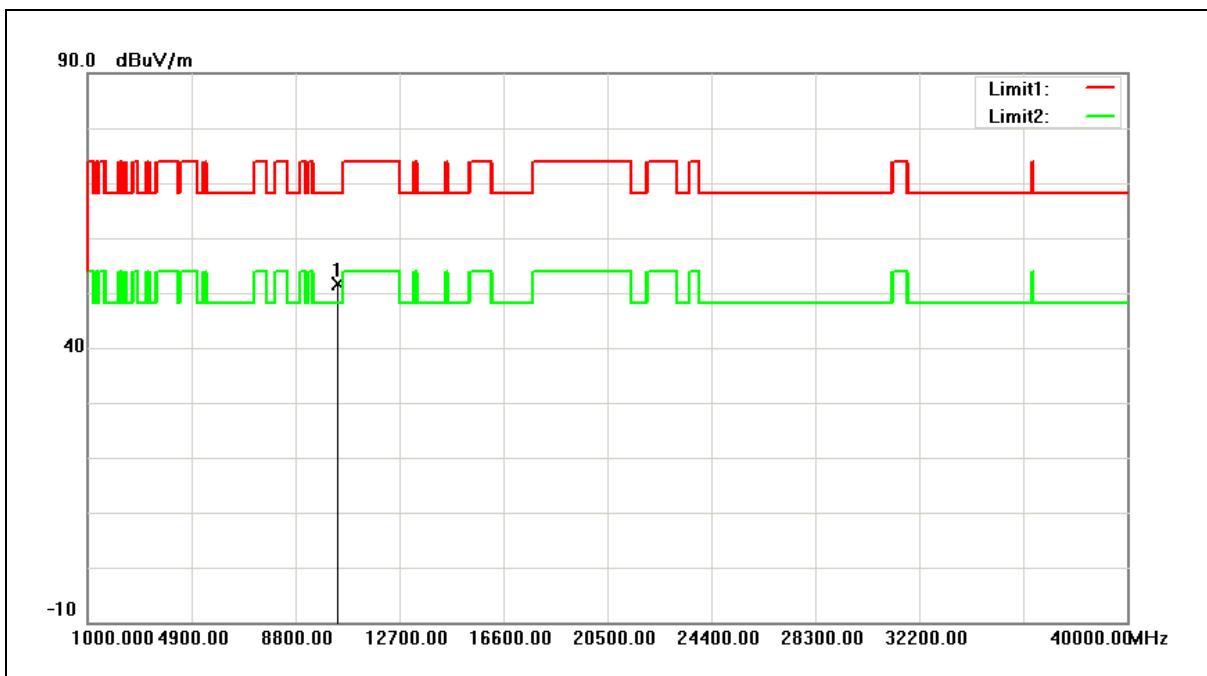
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	45.10	5.36	50.46	68.20	-17.74	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



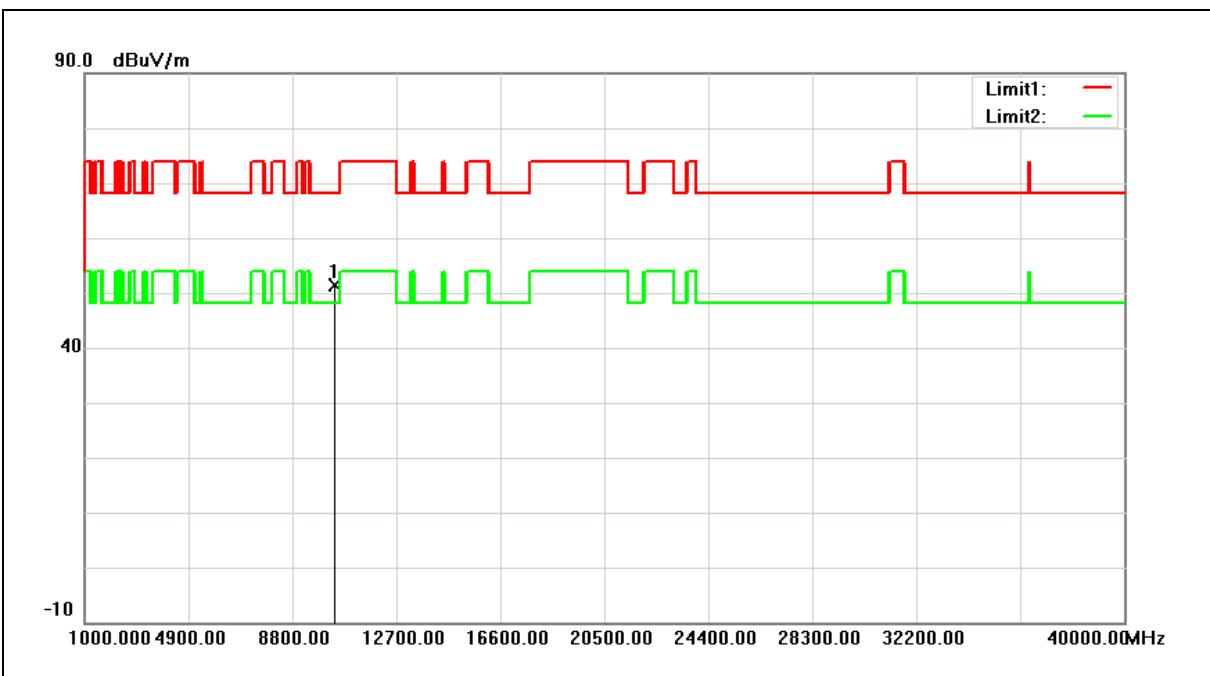
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10360.000	46.15	5.36	51.51	68.20	-16.69	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



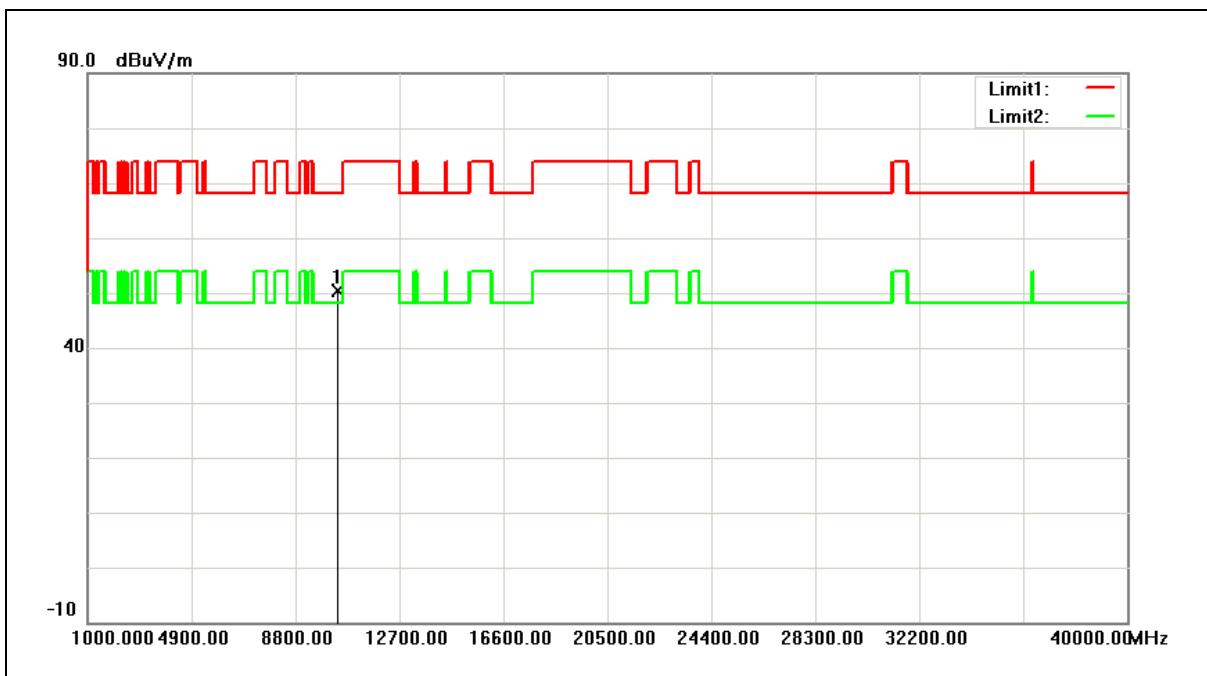
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	45.89	5.45	51.34	68.20	-16.86	peak

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.

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:	04/18/2017
Ant.Polar.:	Vertical		



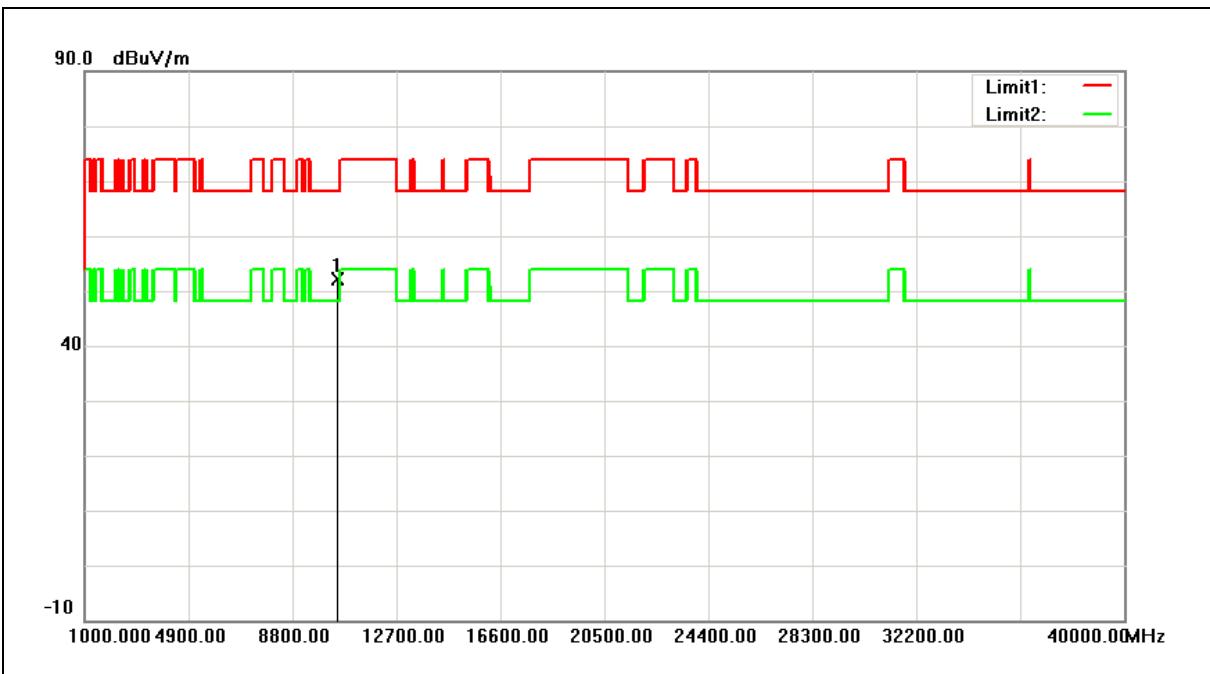
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	44.87	5.45	50.32	68.20	-17.88	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



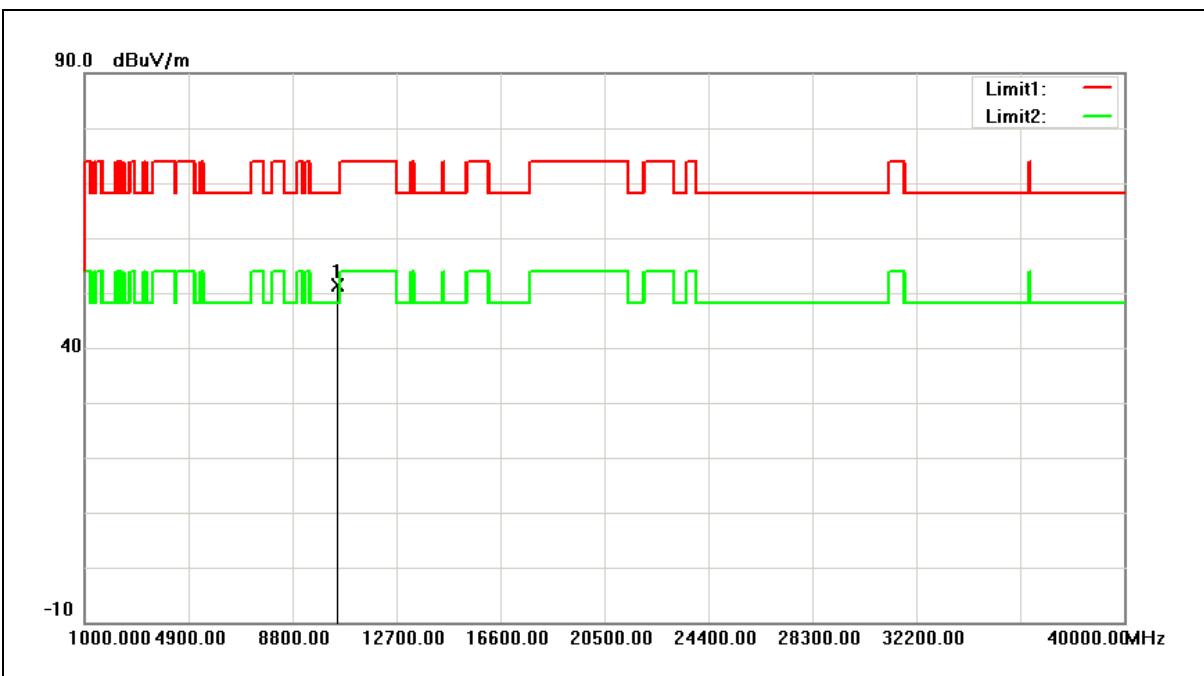
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	46.45	5.63	52.08	68.20	-16.12	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



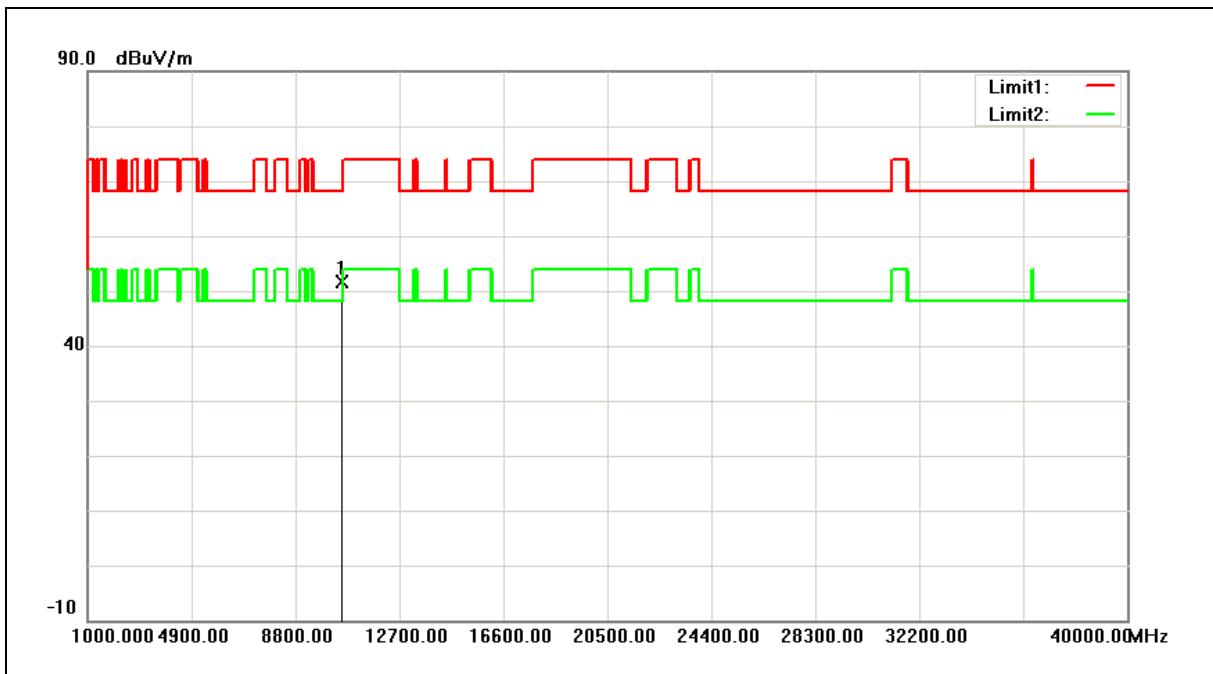
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10480.000	45.81	5.63	51.44	68.20	-16.76	peak

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:	5260MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Horizontal		



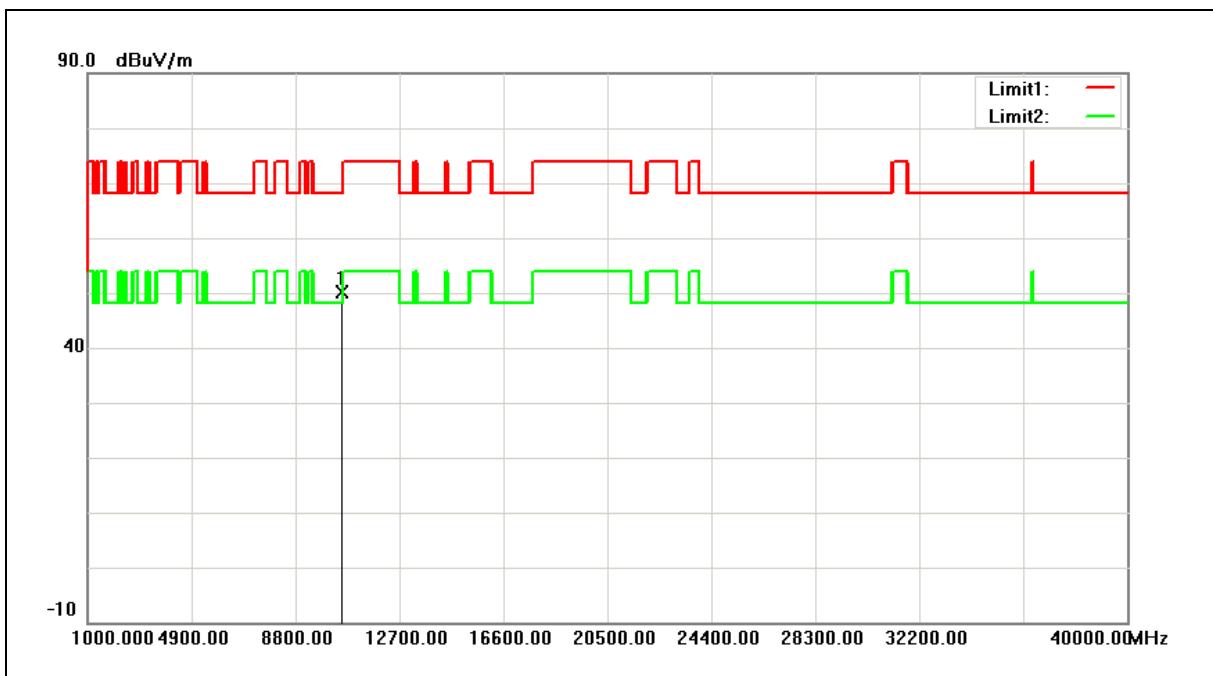
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10520.000	45.95	5.71	51.66	68.20	-16.54	peak

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

2.Correct 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:	5260MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Vertical		



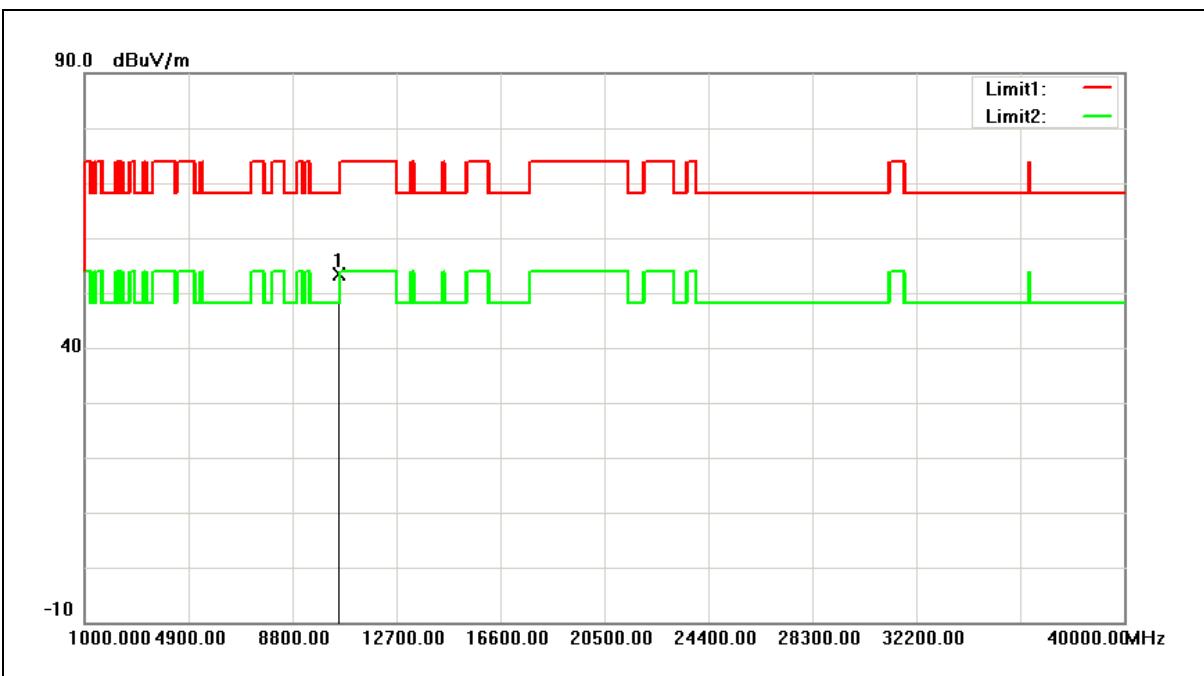
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10520.000	44.36	5.71	50.07	68.20	-18.13	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5280MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Horizontal		



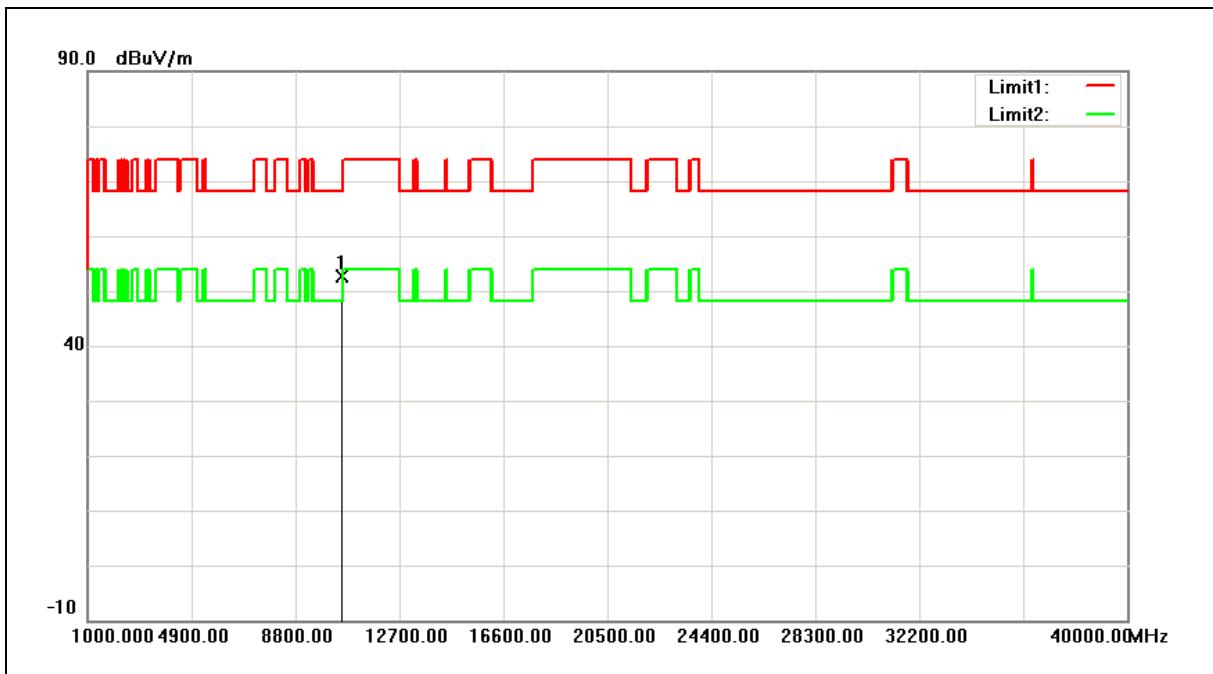
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10560.000	47.73	5.76	53.49	68.20	-14.71	peak

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

2.Correct 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:	5280MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Vertical		



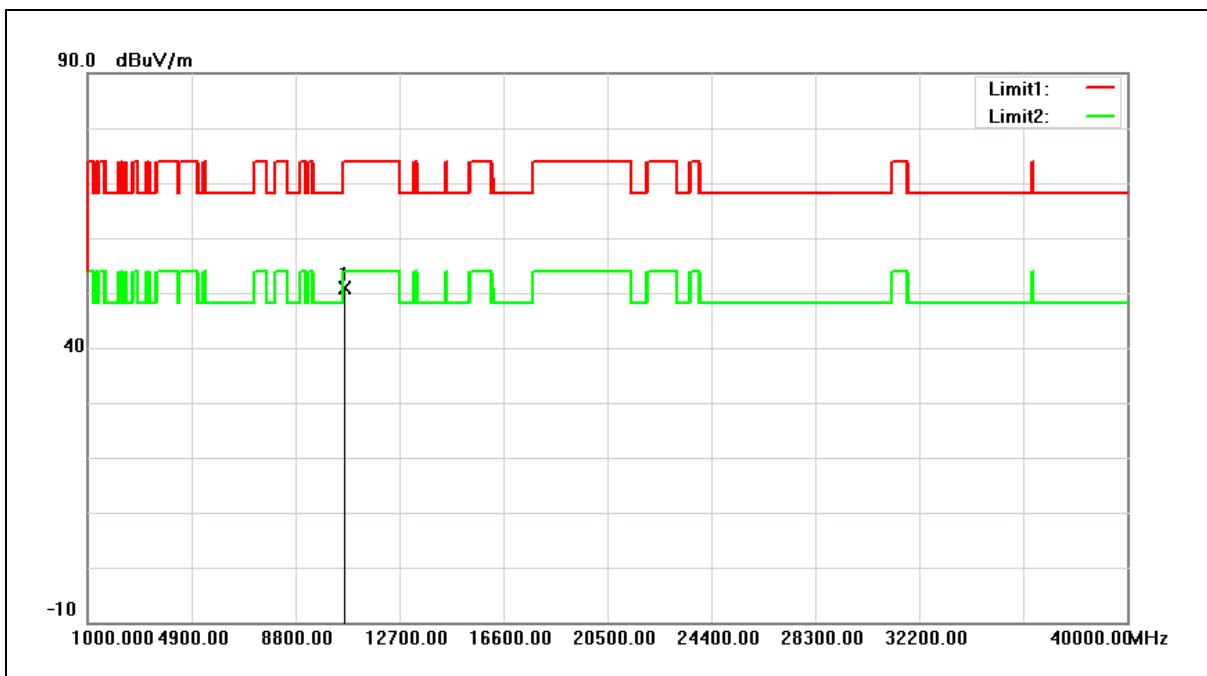
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10560.000	46.90	5.76	52.66	68.20	-15.54	peak

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

2.Correct 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:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Horizontal		



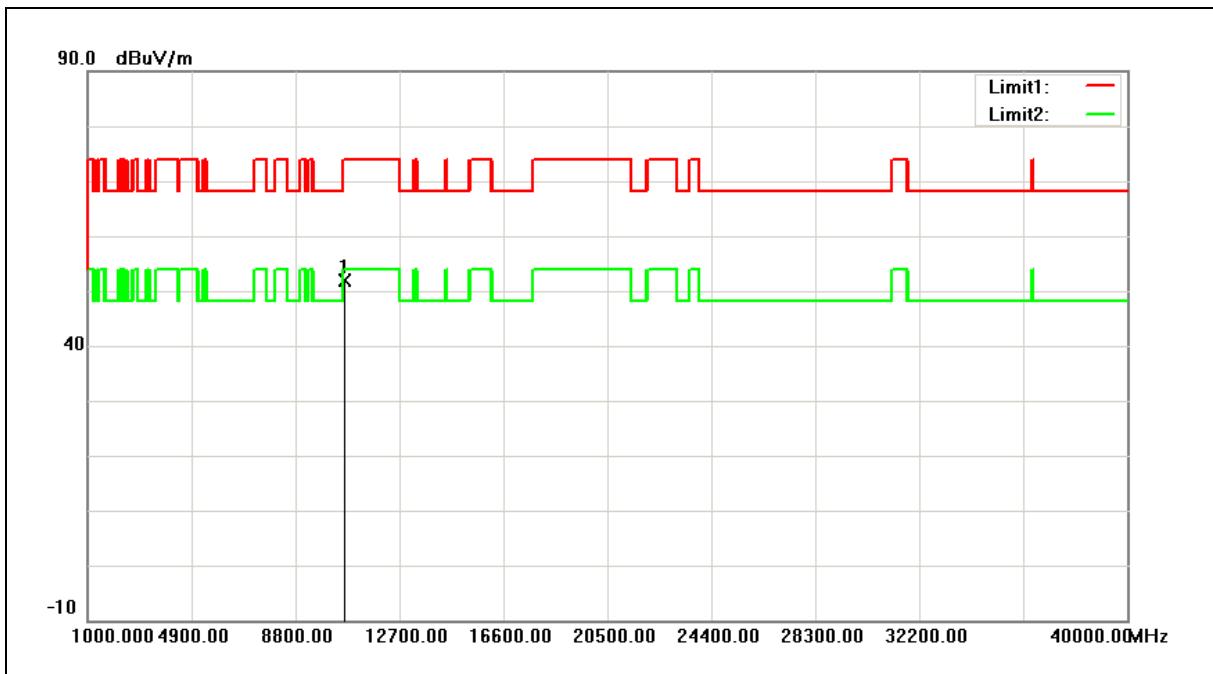
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10640.000	45.10	5.86	50.96	74.00	-23.04	peak

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

2.Correct 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:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Vertical		



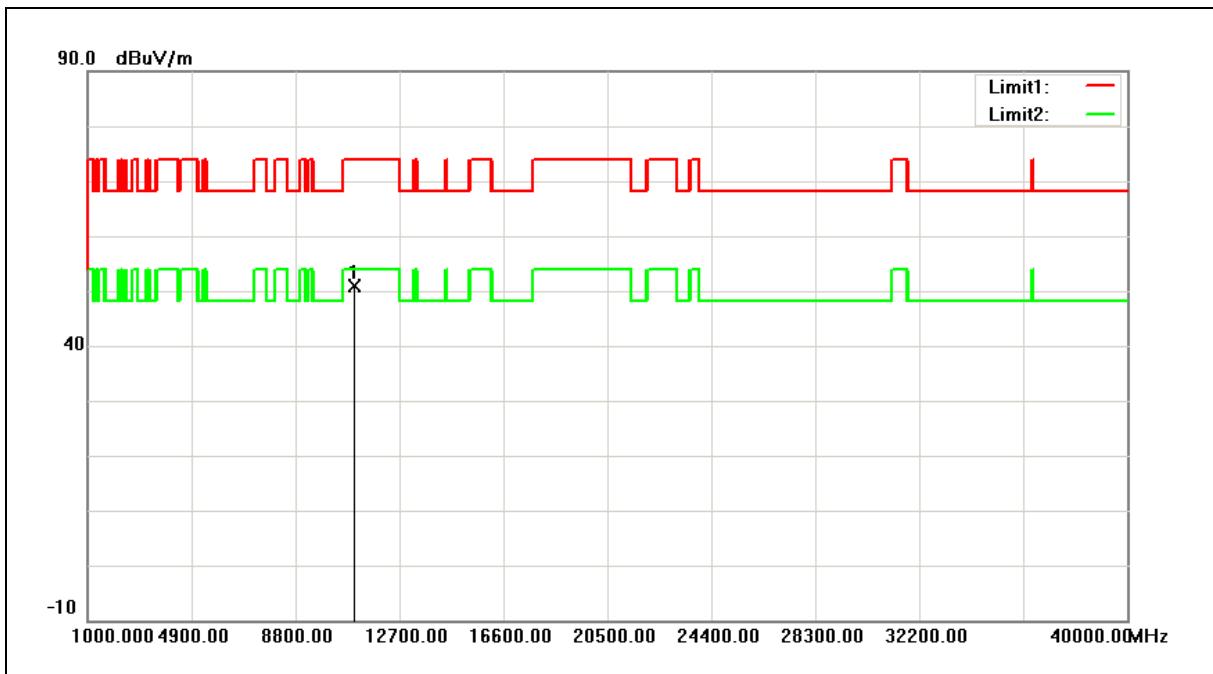
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10640.000	45.94	5.86	51.80	74.00	-22.20	peak

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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Horizontal		



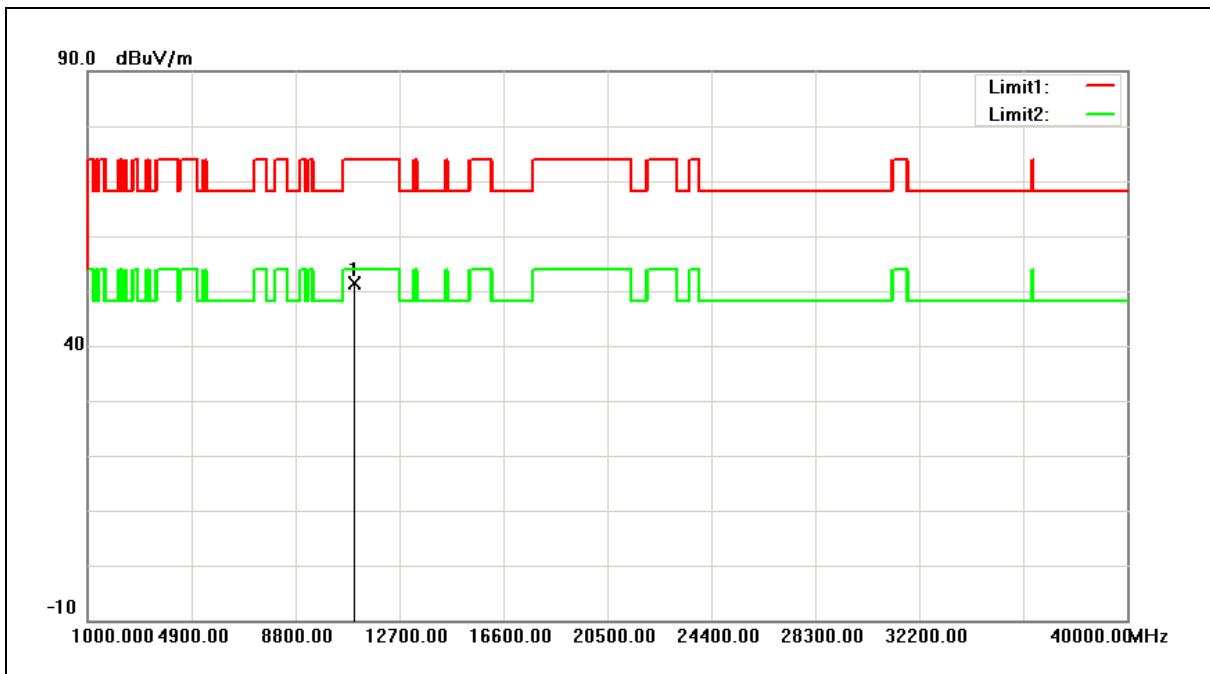
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11000.000	44.49	6.30	50.79	74.00	-23.21	peak

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

2.Correct 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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Vertical		



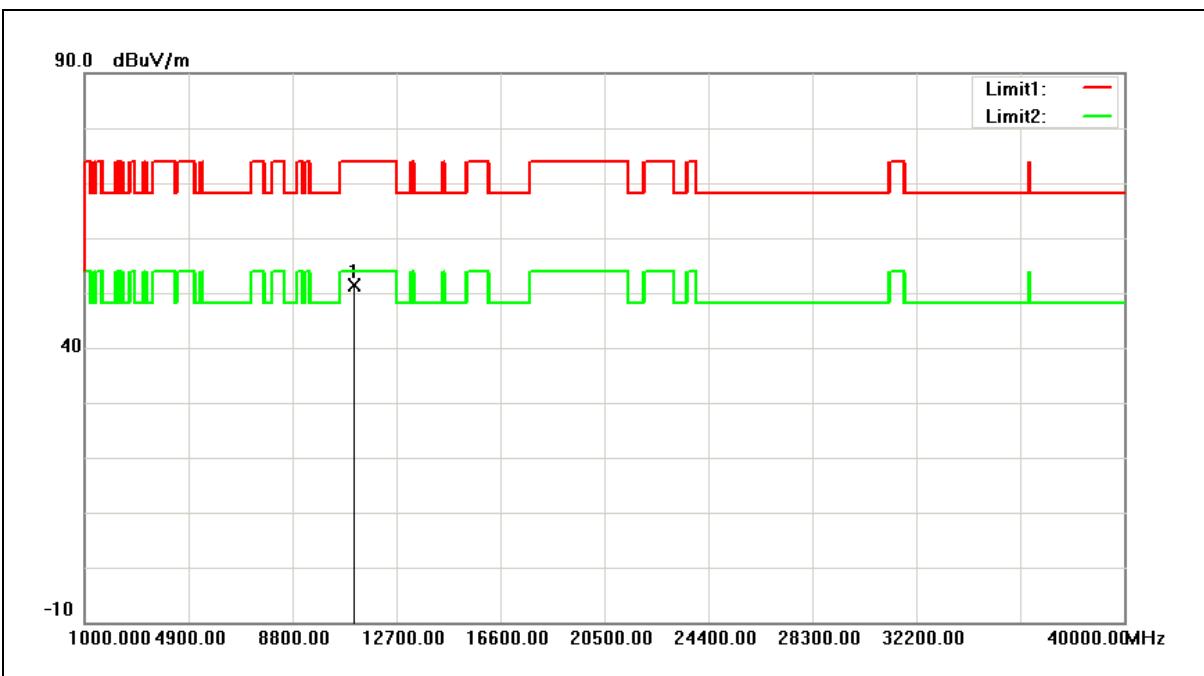
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11000.000	45.08	6.30	51.38	74.00	-22.62	peak

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

2.Correct 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:	5560MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Horizontal		



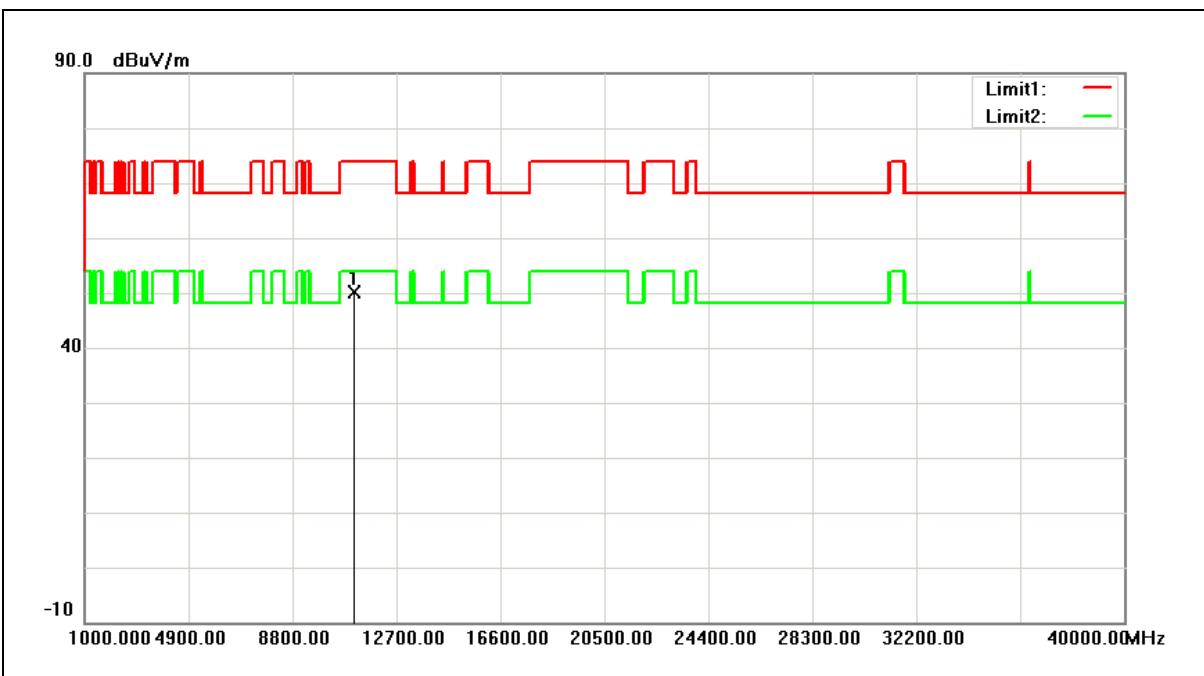
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11120.000	45.04	6.38	51.42	74.00	-22.58	peak

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

2.Correct 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:	5560MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Vertical		



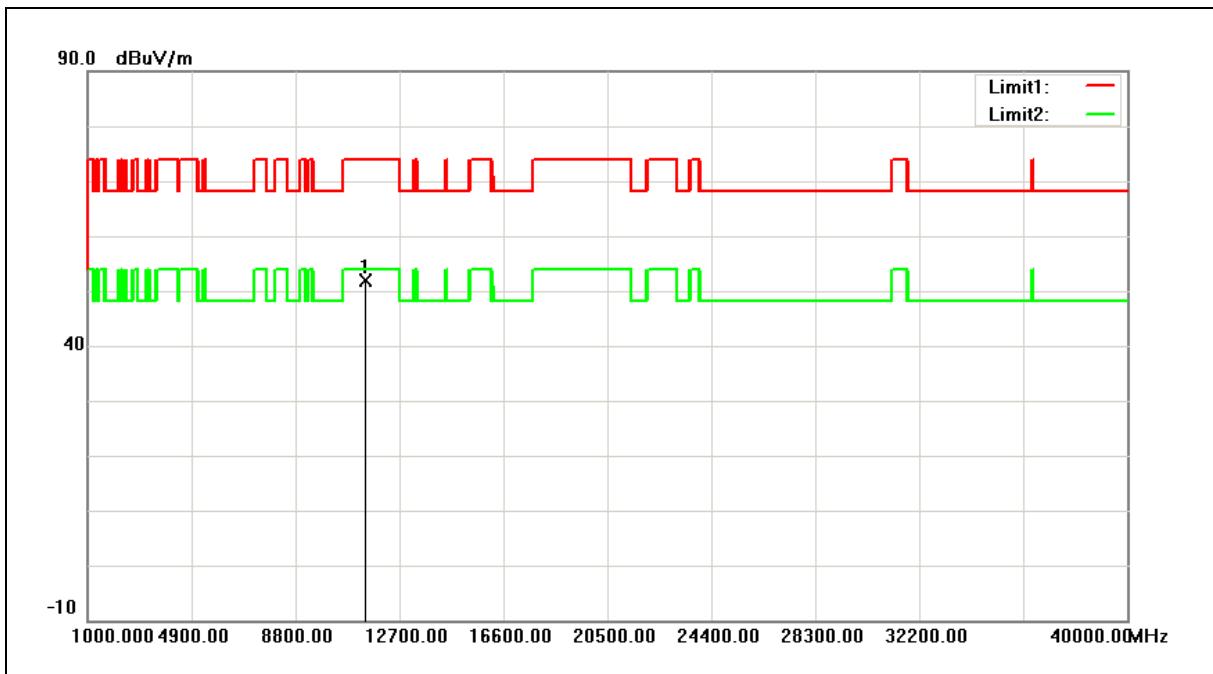
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11120.000	43.81	6.38	50.19	74.00	-23.81	peak

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:	5700MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Horizontal		



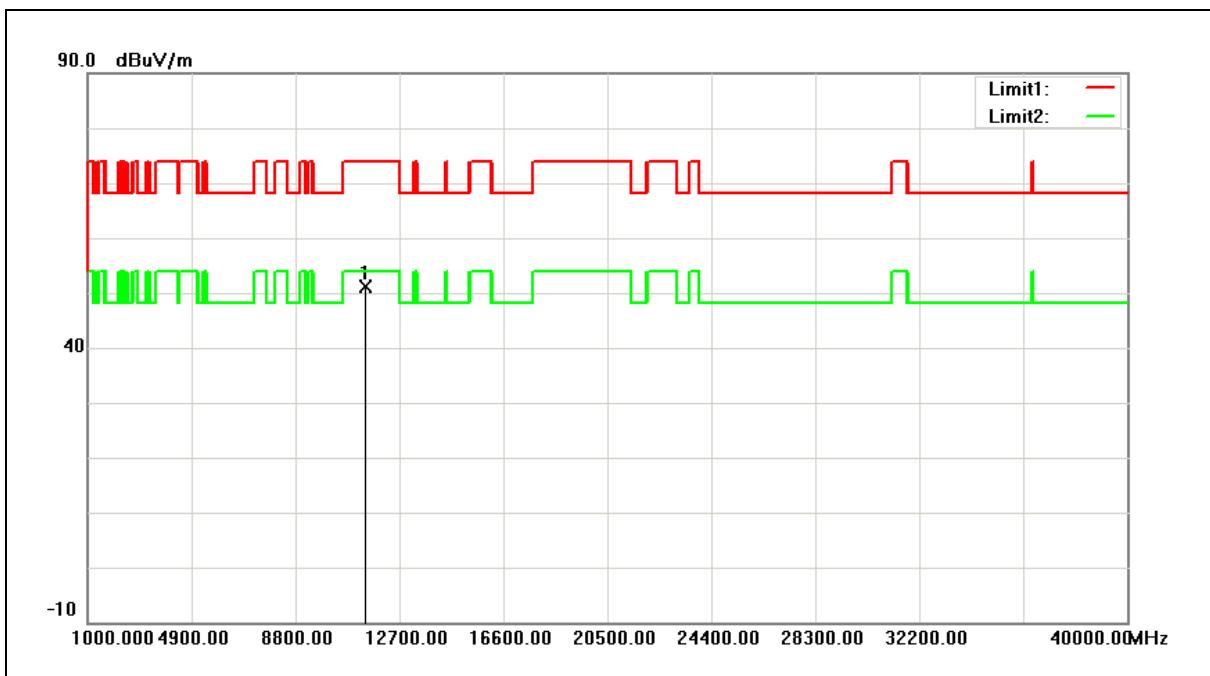
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11400.000	45.39	6.55	51.94	74.00	-22.06	peak

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

2.Correct 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:	5700MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/18/2017
Ant.Polar.:	Vertical		



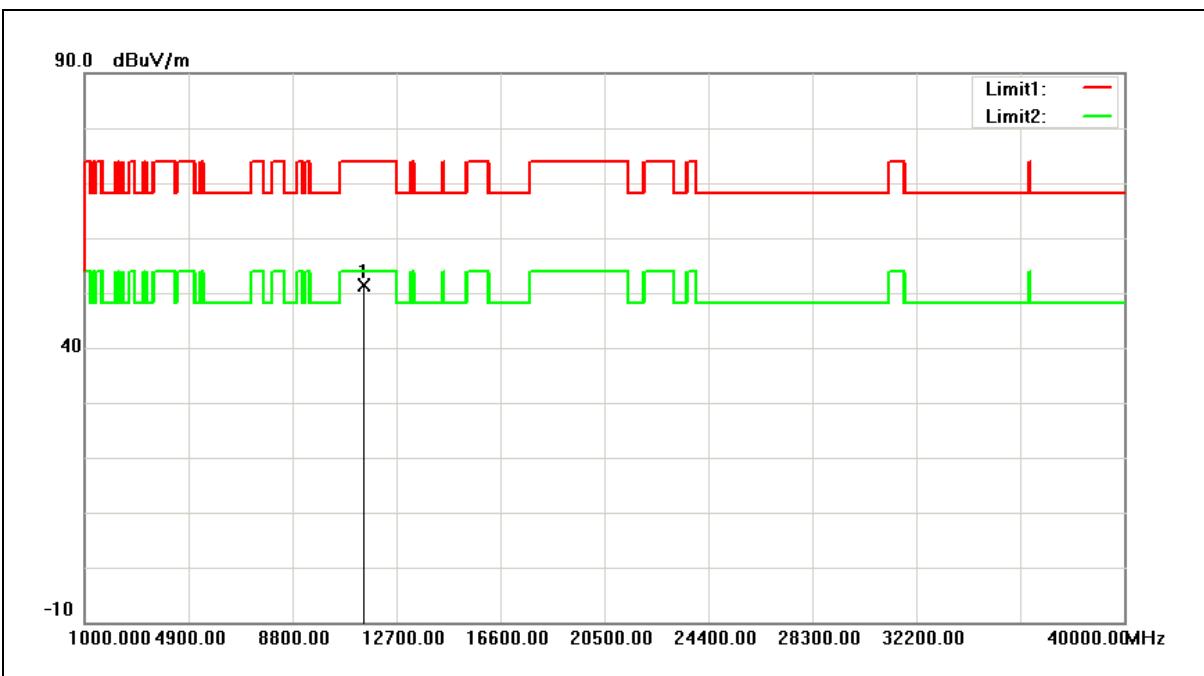
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11400.000	44.67	6.55	51.22	74.00	-22.78	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



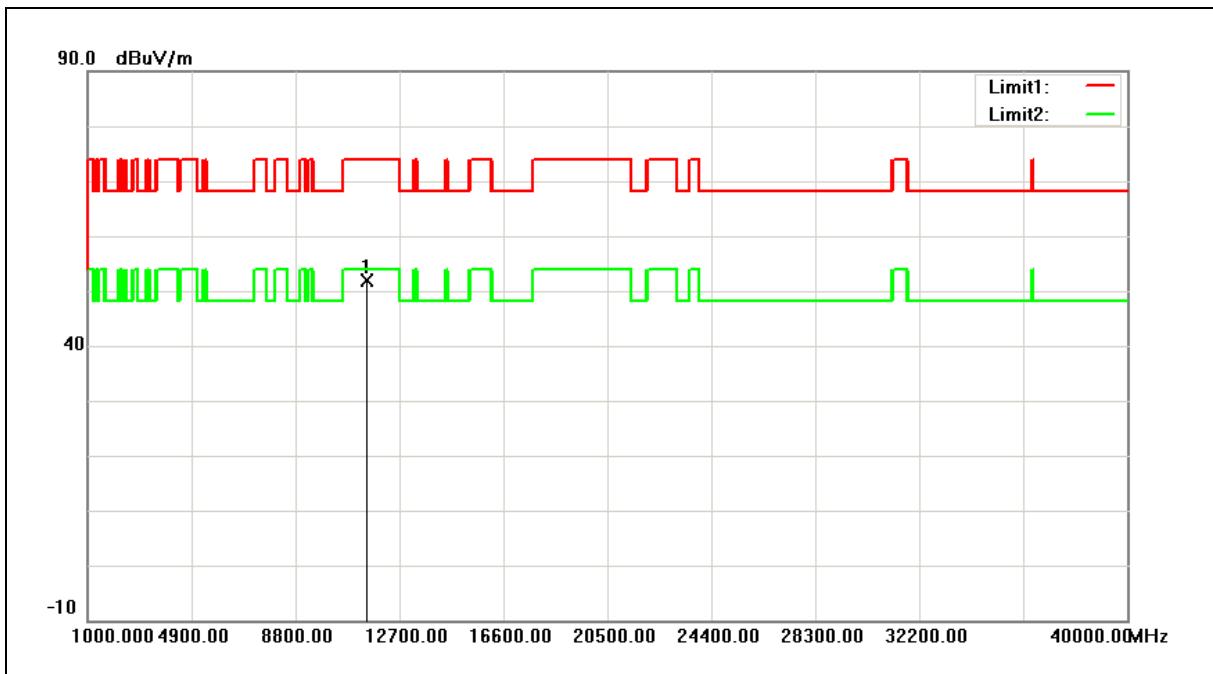
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	44.80	6.61	51.41	74.00	-22.59	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



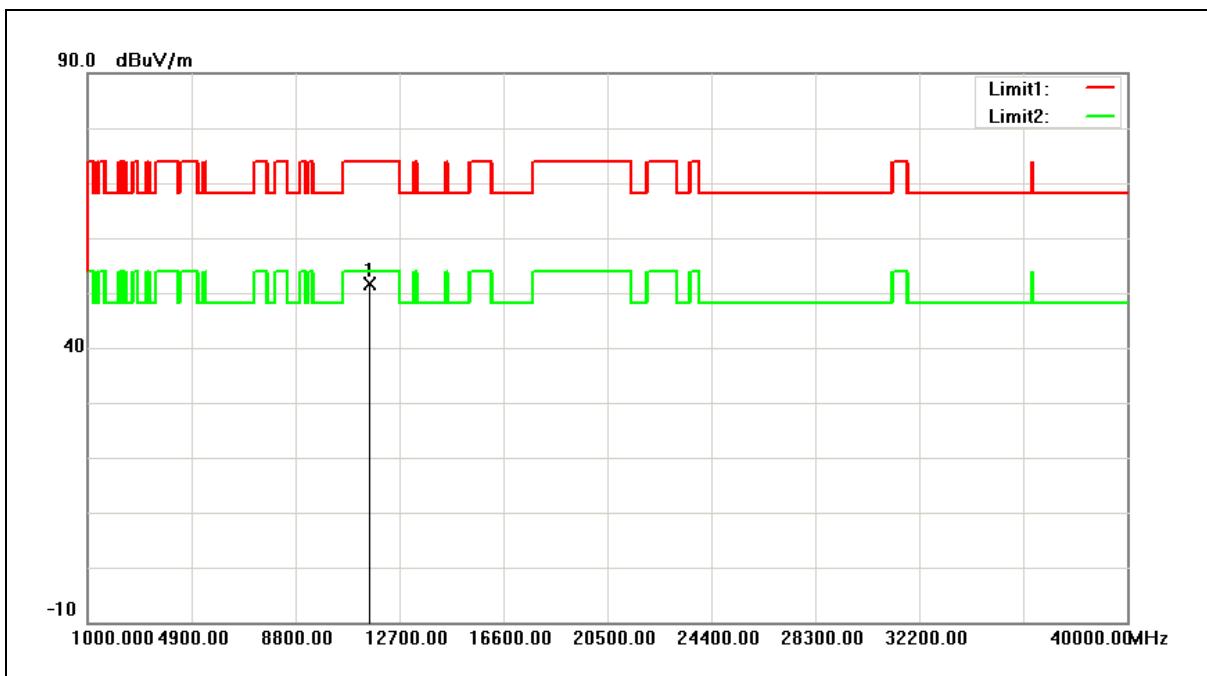
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	45.18	6.61	51.79	74.00	-22.21	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Horizontal		



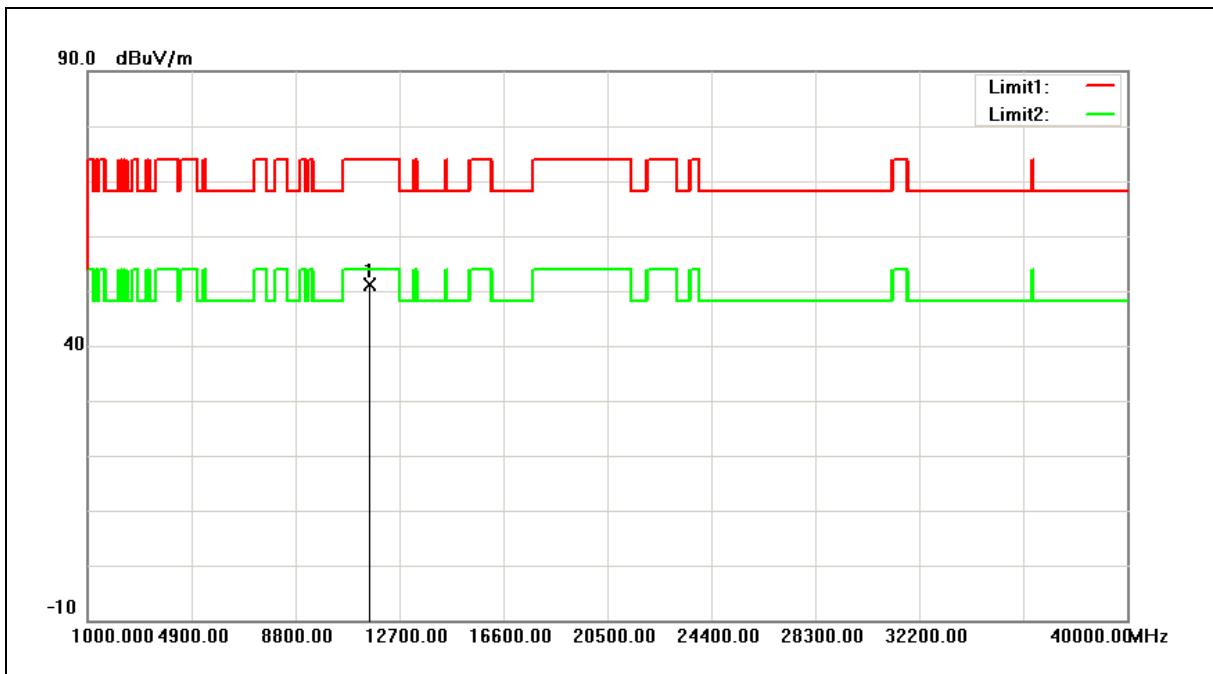
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	44.77	6.80	51.57	74.00	-22.43	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



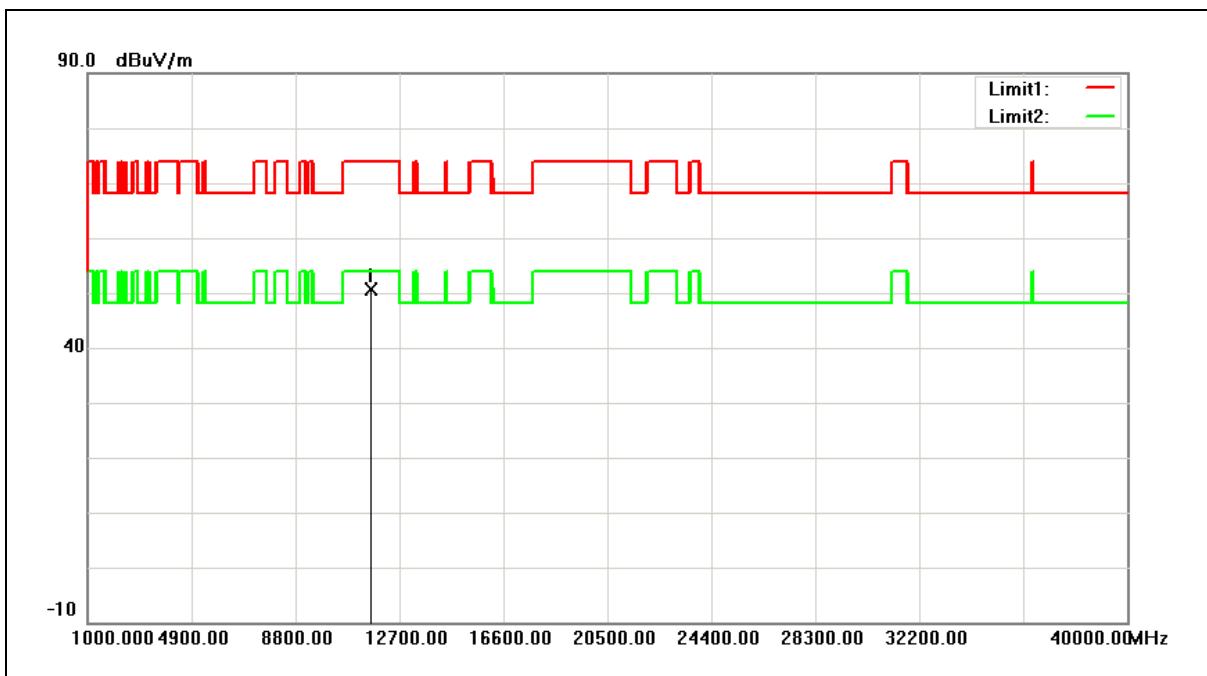
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11570.000	44.33	6.80	51.13	74.00	-22.87	peak

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:	04/18/2017
Ant.Polar.:	Horizontal		



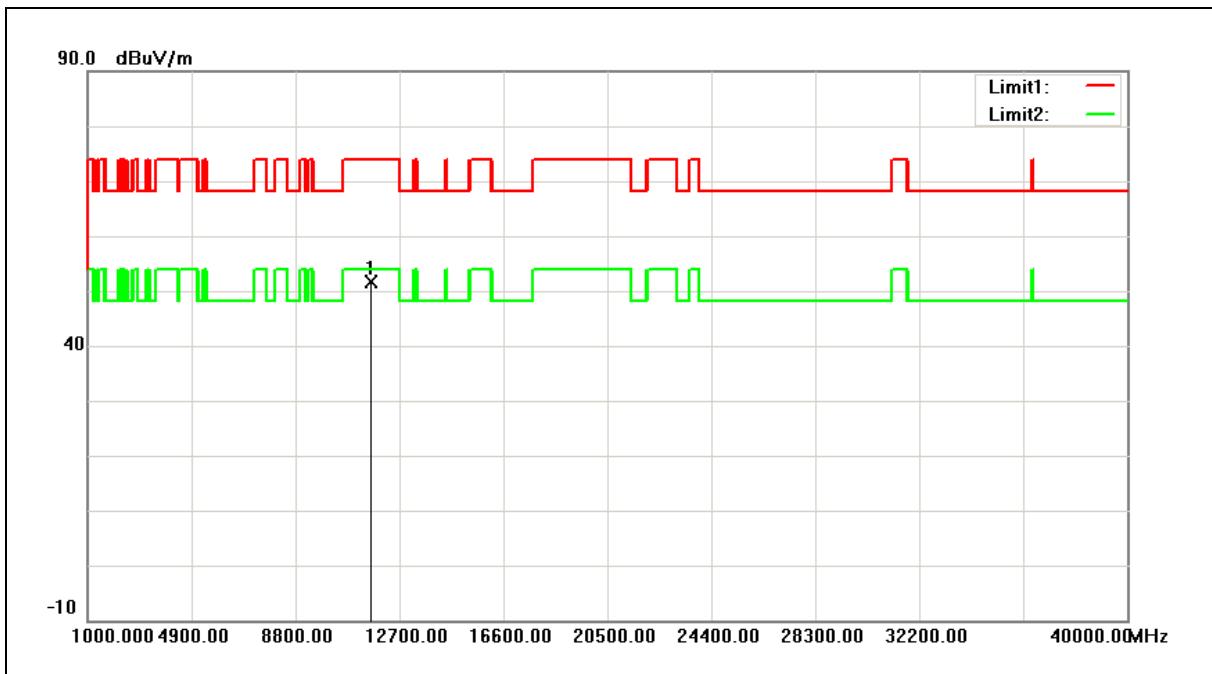
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	43.52	7.01	50.53	74.00	-23.47	peak

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

2.Correct 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:	04/18/2017
Ant.Polar.:	Vertical		



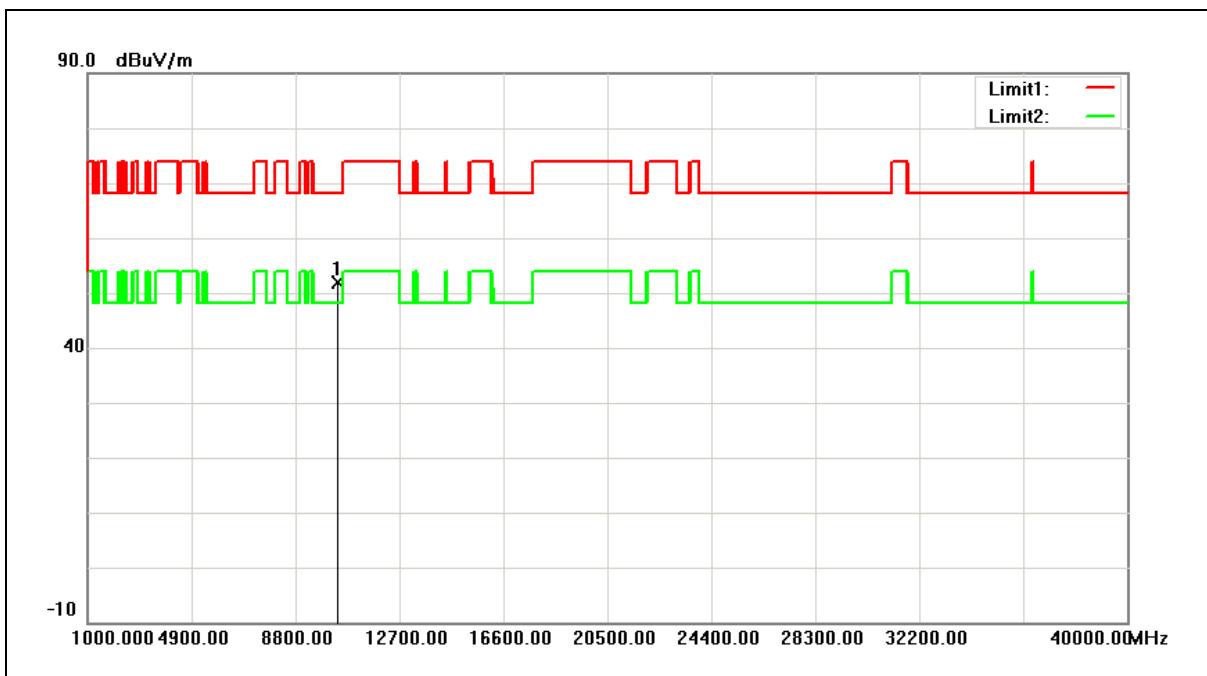
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11650.000	44.66	7.01	51.67	74.00	-22.33	peak

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

2.Correct 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:	04/19/2017
Ant.Polar.:	Horizontal		



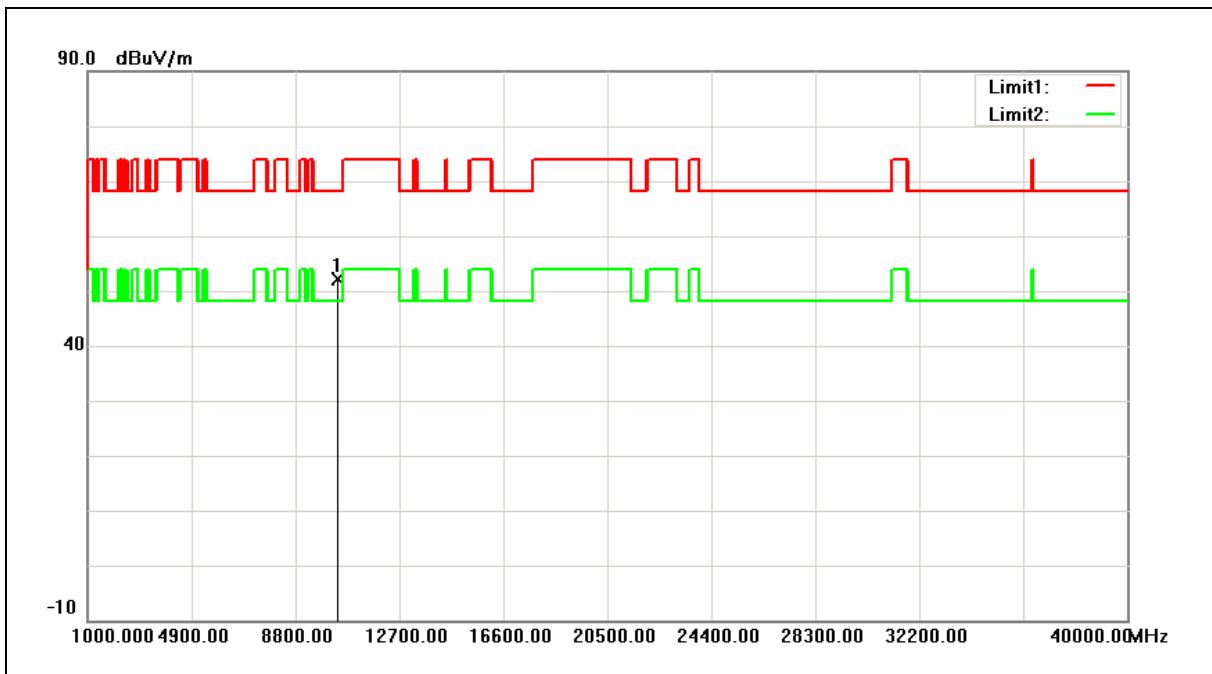
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10380.000	46.38	5.39	51.77	68.20	-16.43	peak

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

2.Correct 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:	04/19/2017
Ant.Polar.:	Vertical		



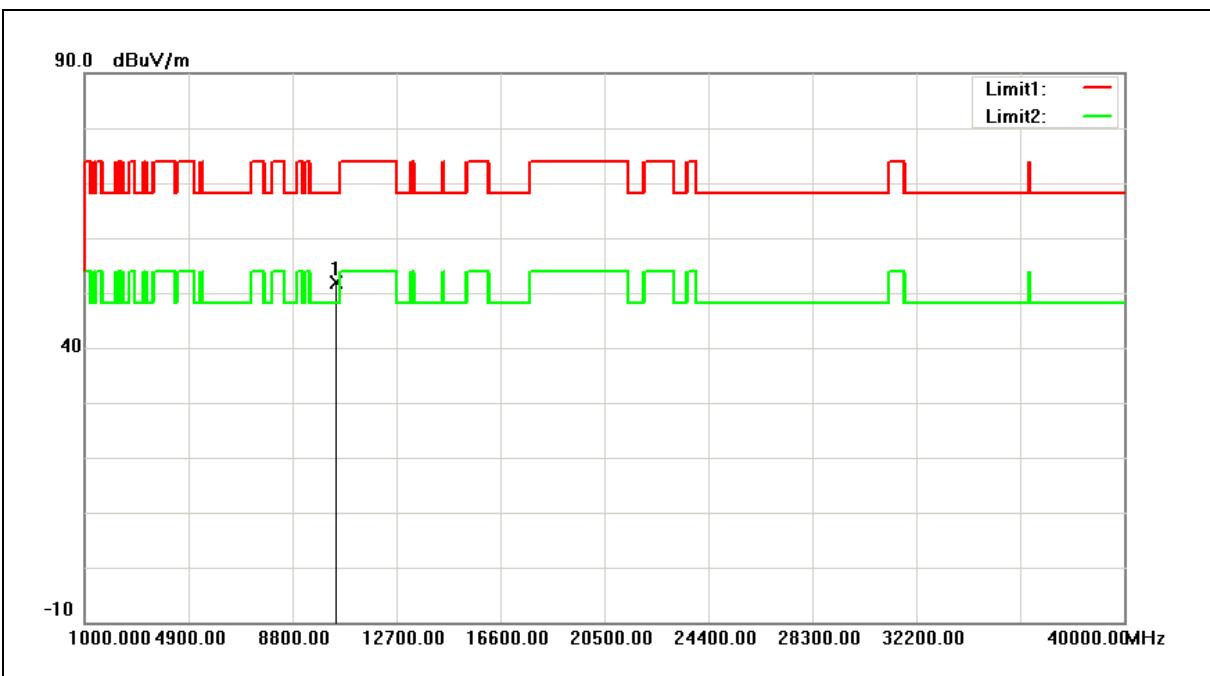
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10380.000	46.78	5.39	52.17	68.20	-16.03	peak

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

2.Correct 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:	04/19/2017
Ant.Polar.:	Horizontal		



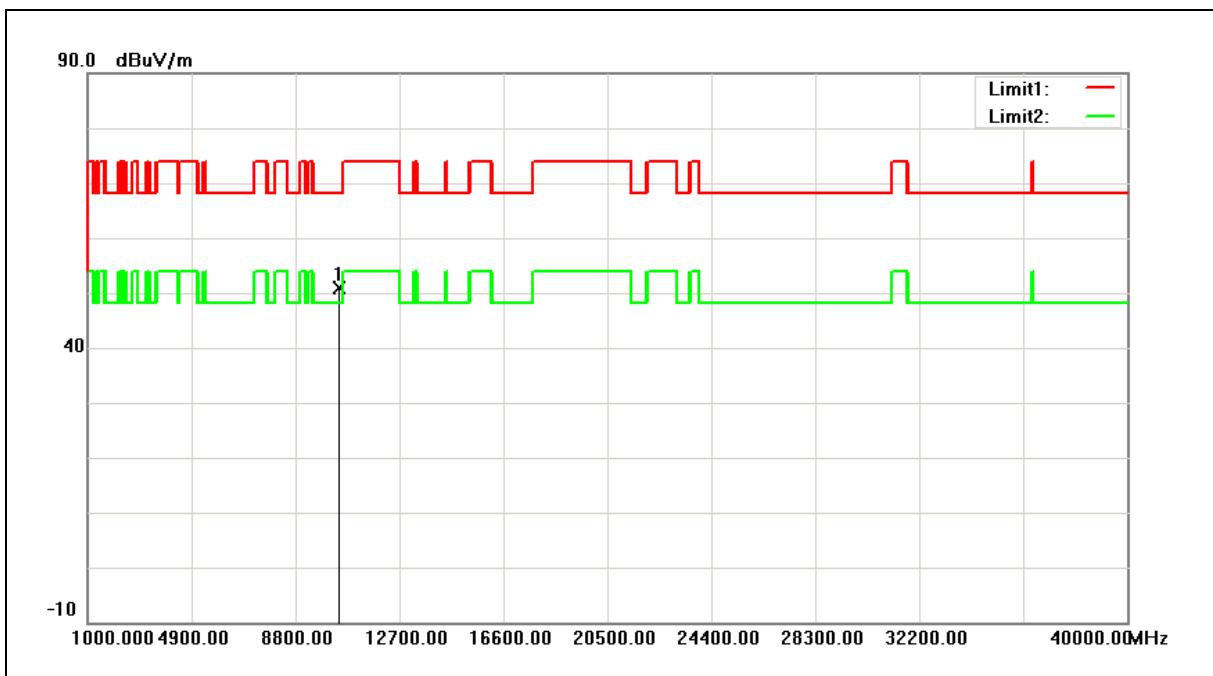
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10460.000	46.40	5.59	51.99	68.20	-16.21	peak

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:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5230MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Vertical		



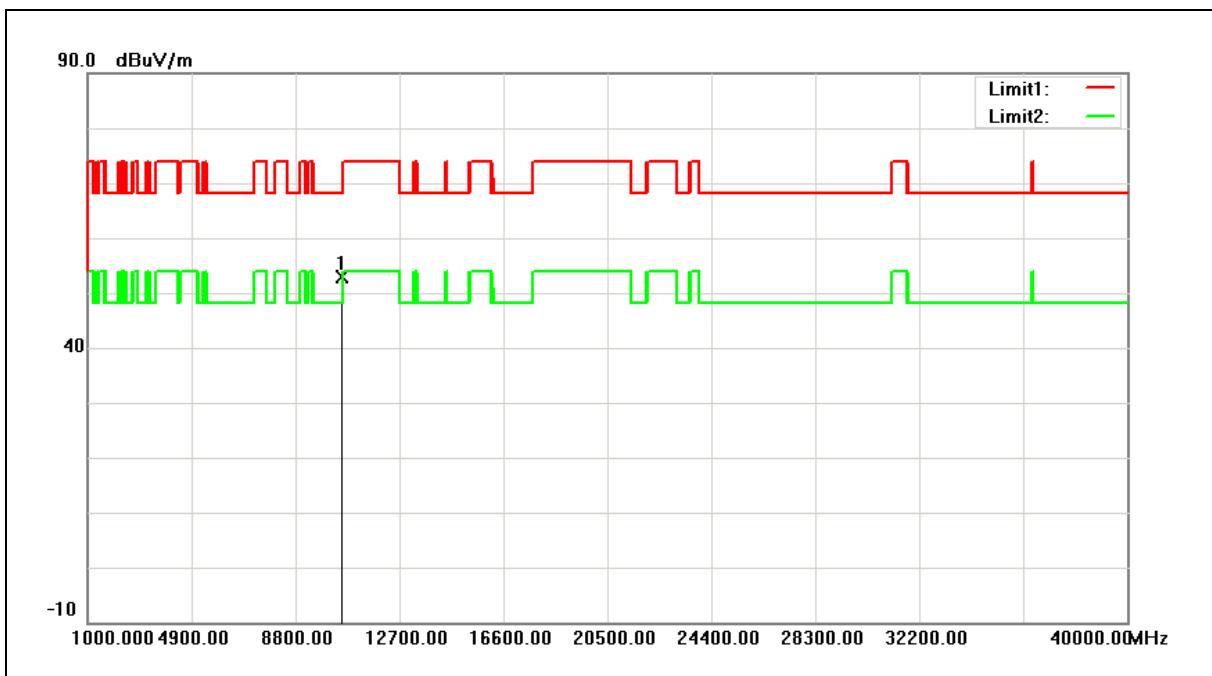
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10460.000	45.20	5.59	50.79	68.20	-17.41	peak

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:	5270MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Horizontal		



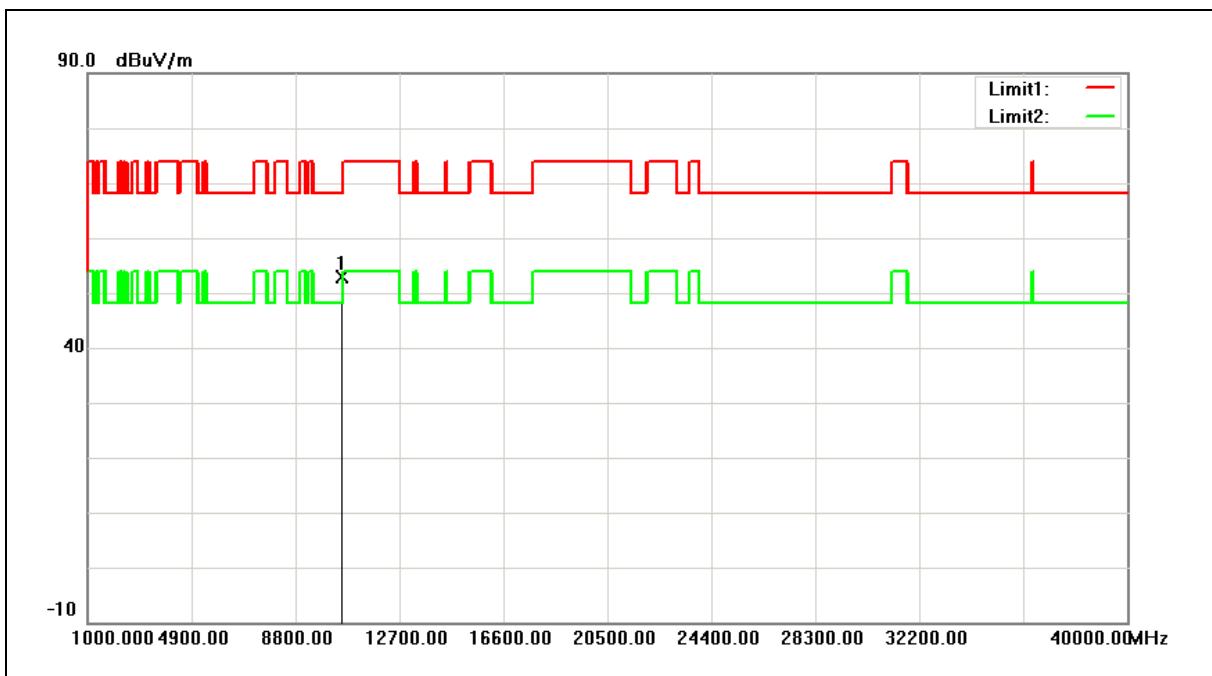
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10540.000	47.17	5.73	52.90	68.20	-15.30	peak

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

2.Correct 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:	5270MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Vertical		



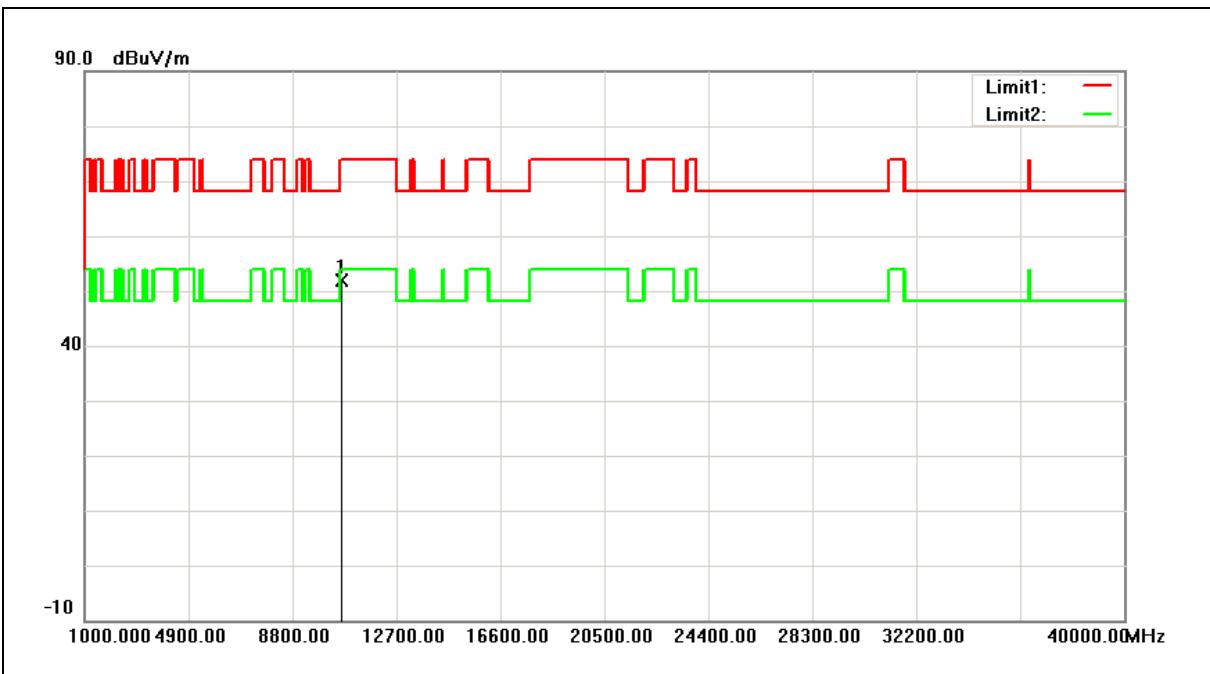
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10540.000	47.13	5.73	52.86	68.20	-15.34	peak

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

2.Correct 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:	5310MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Horizontal		



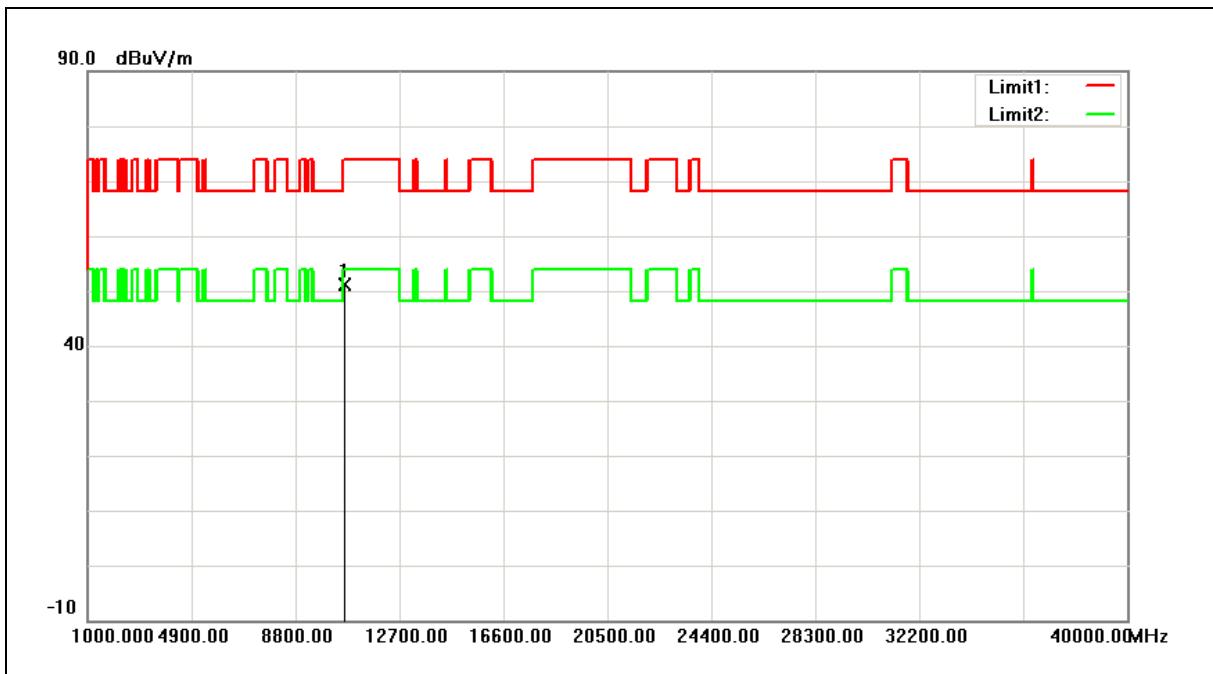
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10620.000	46.06	5.82	51.88	74.00	-22.12	peak

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

2.Correct 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:	5310MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Vertical		



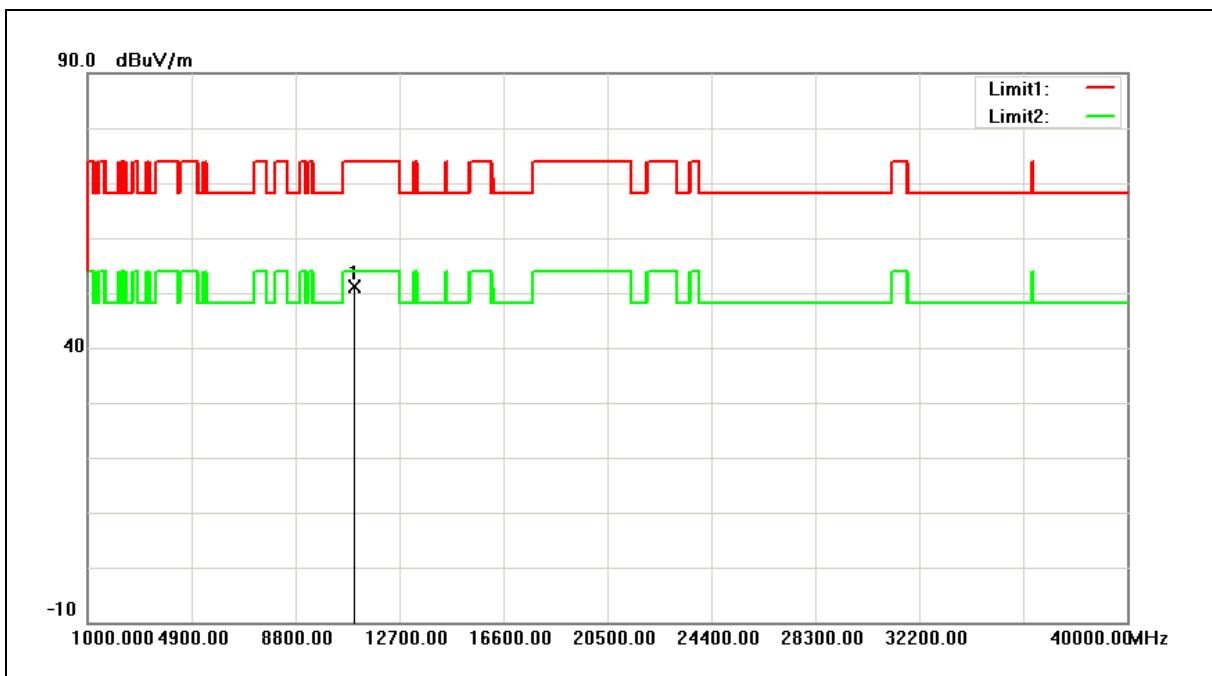
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10620.000	45.41	5.82	51.23	74.00	-22.77	peak

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:	5510MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Horizontal		



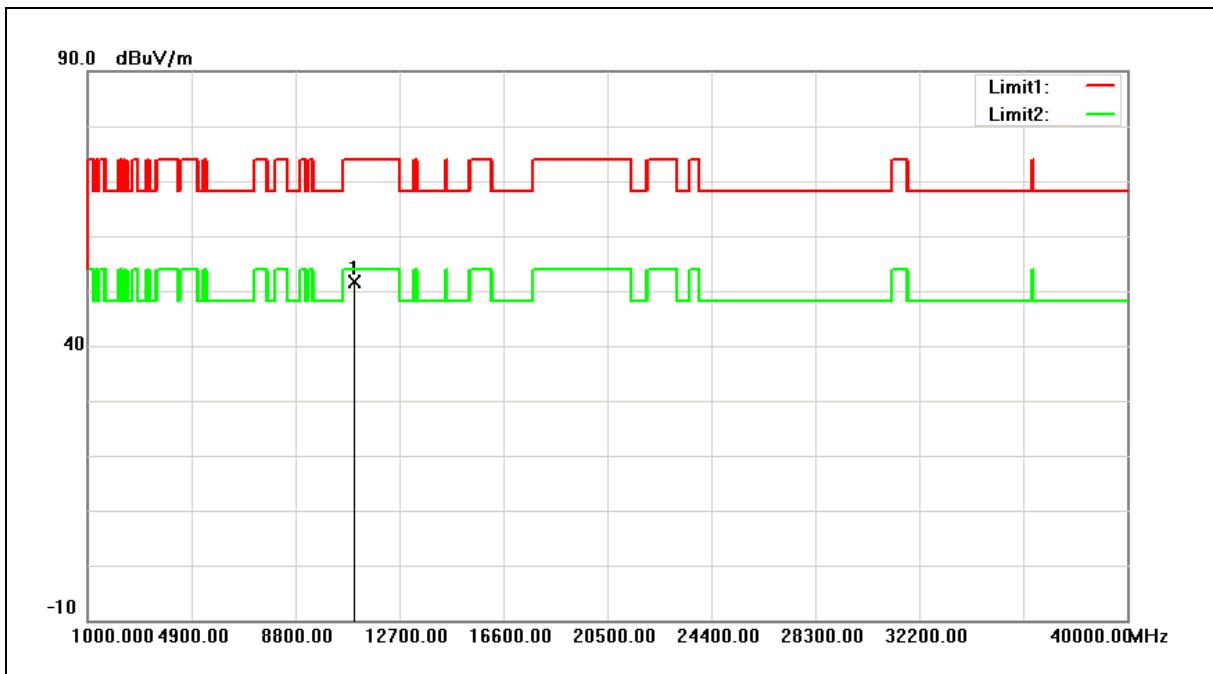
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11020.000	44.85	6.32	51.17	74.00	-22.83	peak

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

2.Correct 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:	5510MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Vertical		



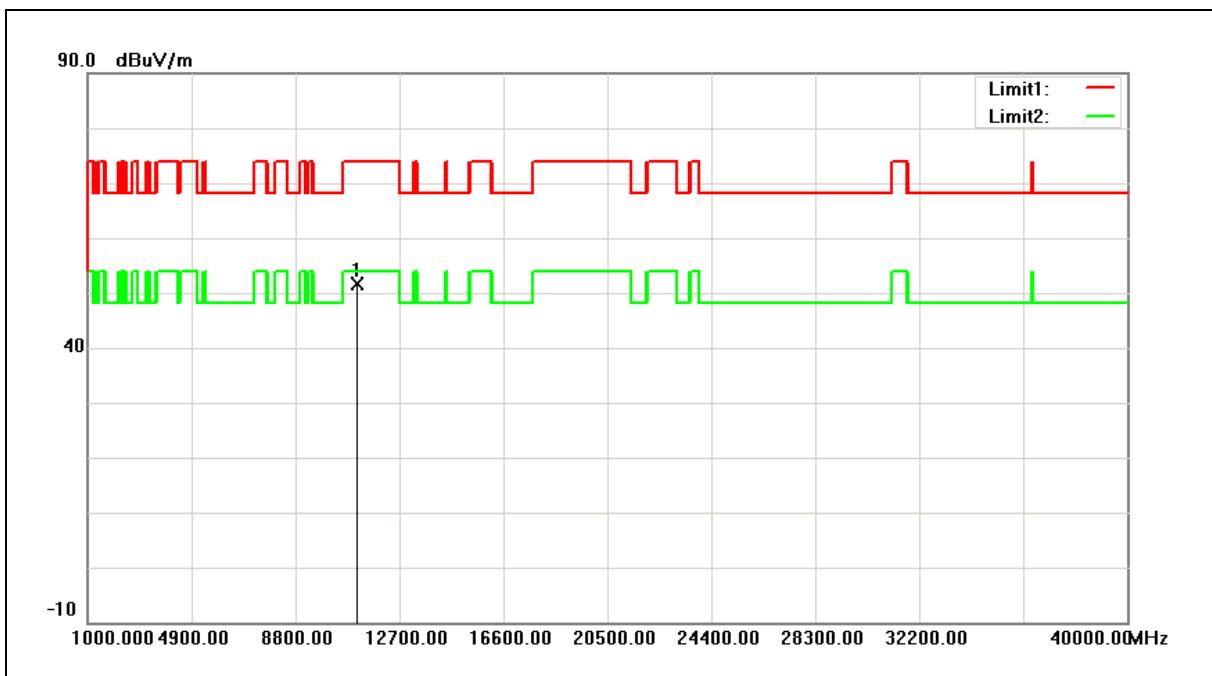
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11020.000	45.33	6.32	51.65	74.00	-22.35	peak

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:	5550MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Horizontal		



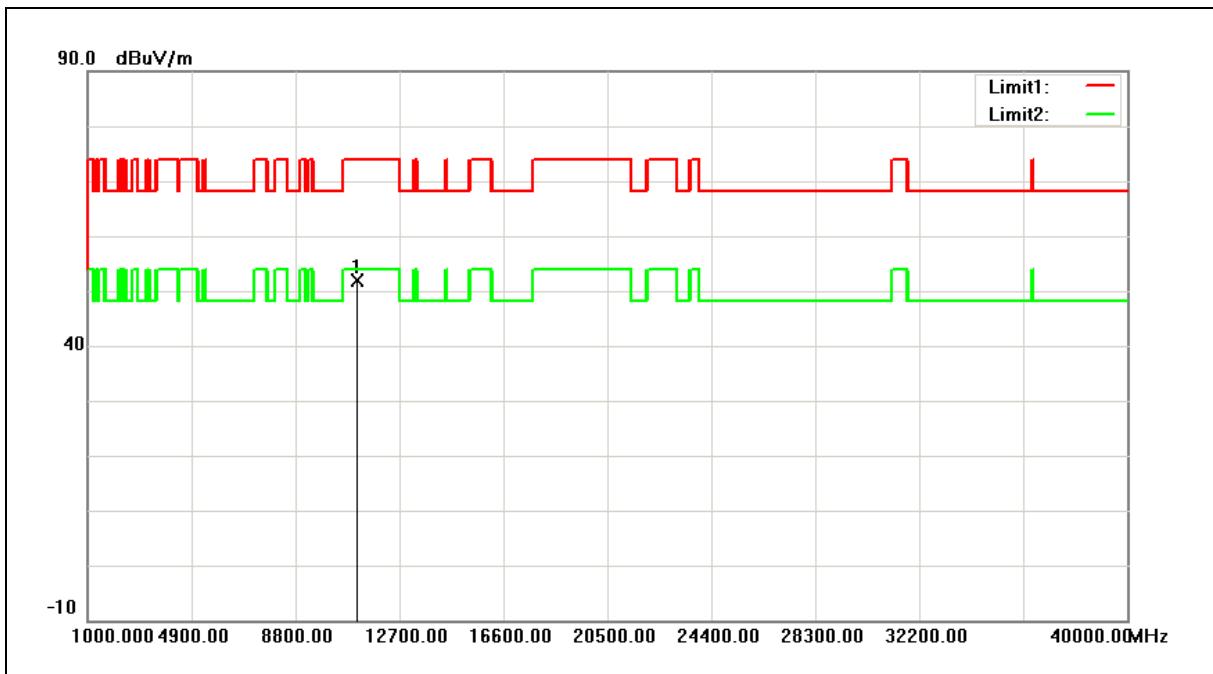
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11100.000	45.38	6.36	51.74	74.00	-22.26	peak

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

2.Correct 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:	5550MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Vertical		



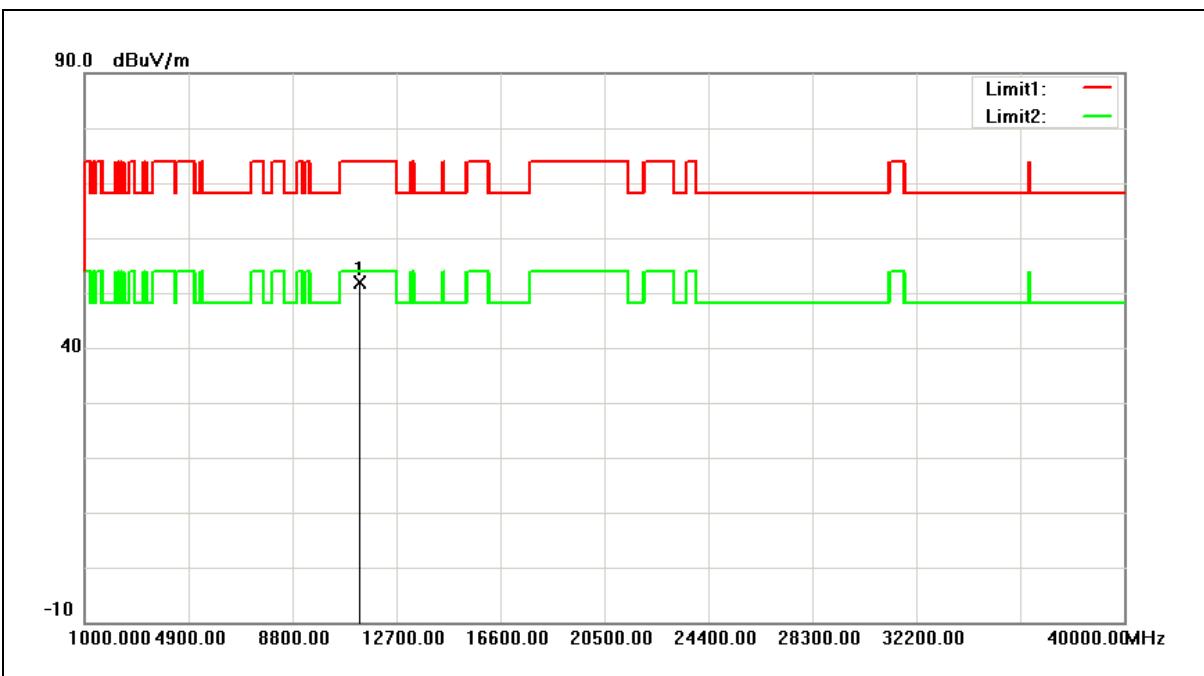
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11100.000	45.62	6.36	51.98	74.00	-22.02	peak

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

2.Correct 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:	5670MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Horizontal		



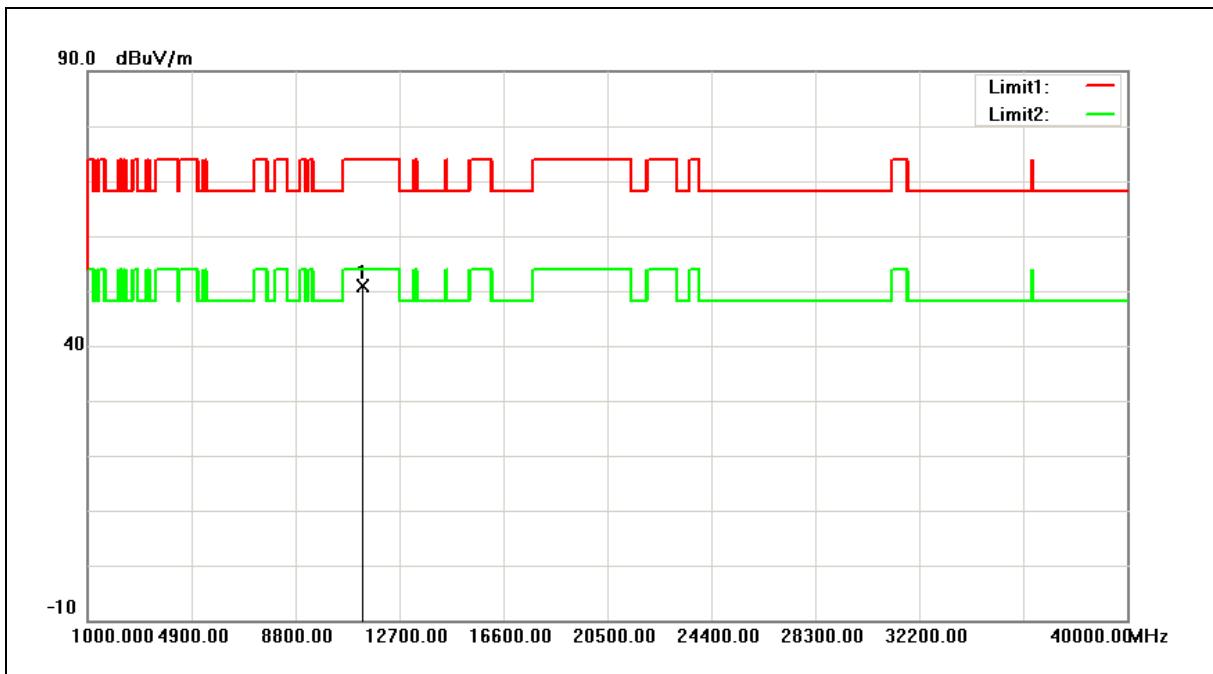
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11340.000	45.32	6.52	51.84	74.00	-22.16	peak

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

2.Correct 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:	5670MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Vertical		



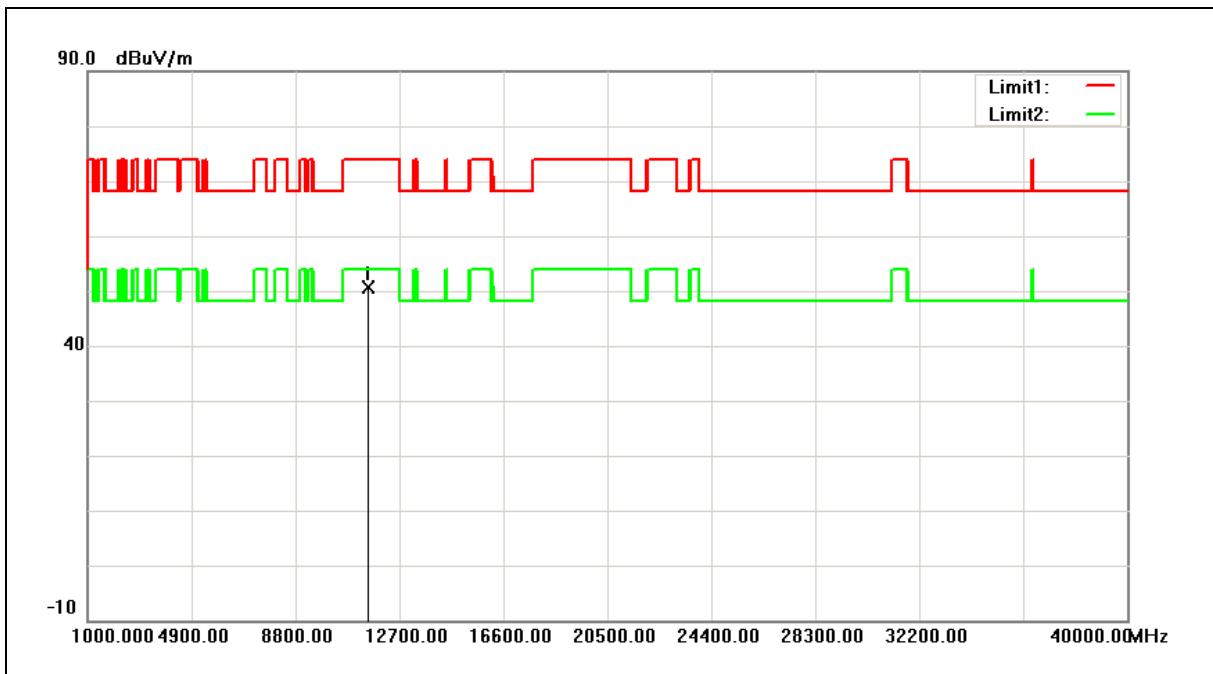
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11340.000	44.35	6.52	50.87	74.00	-23.13	peak

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	5755MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Horizontal		



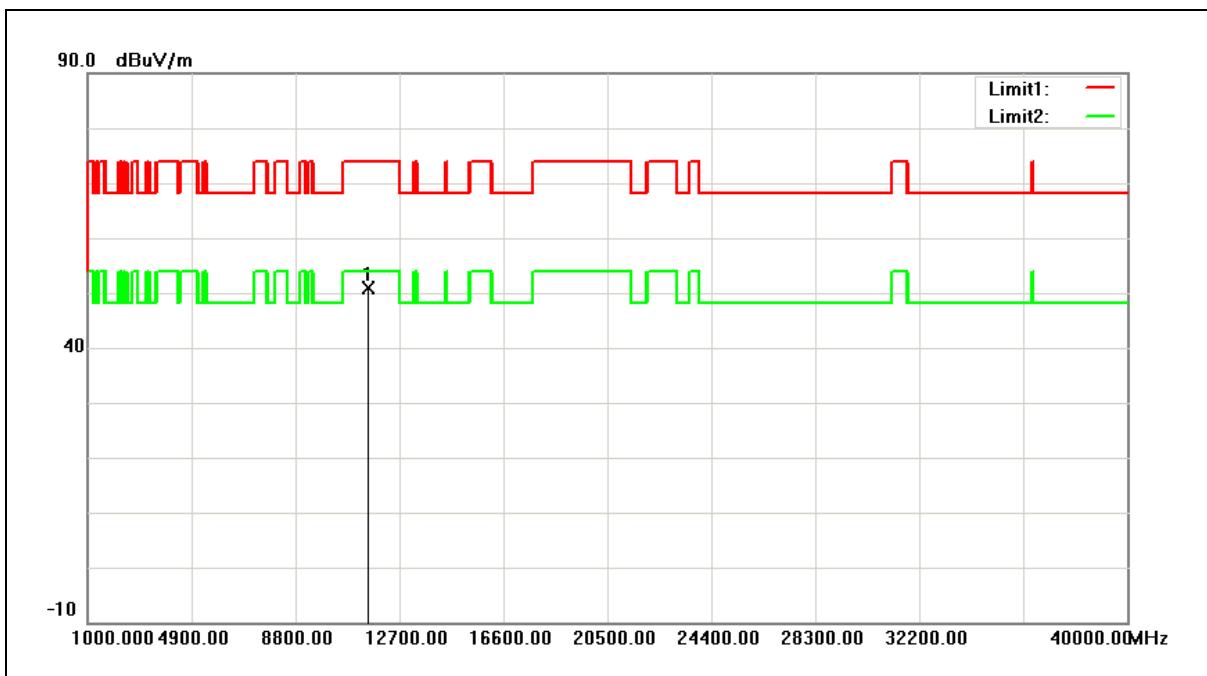
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	44.09	6.64	50.73	74.00	-23.27	peak

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:	5755MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/19/2017
Ant.Polar.:	Vertical		



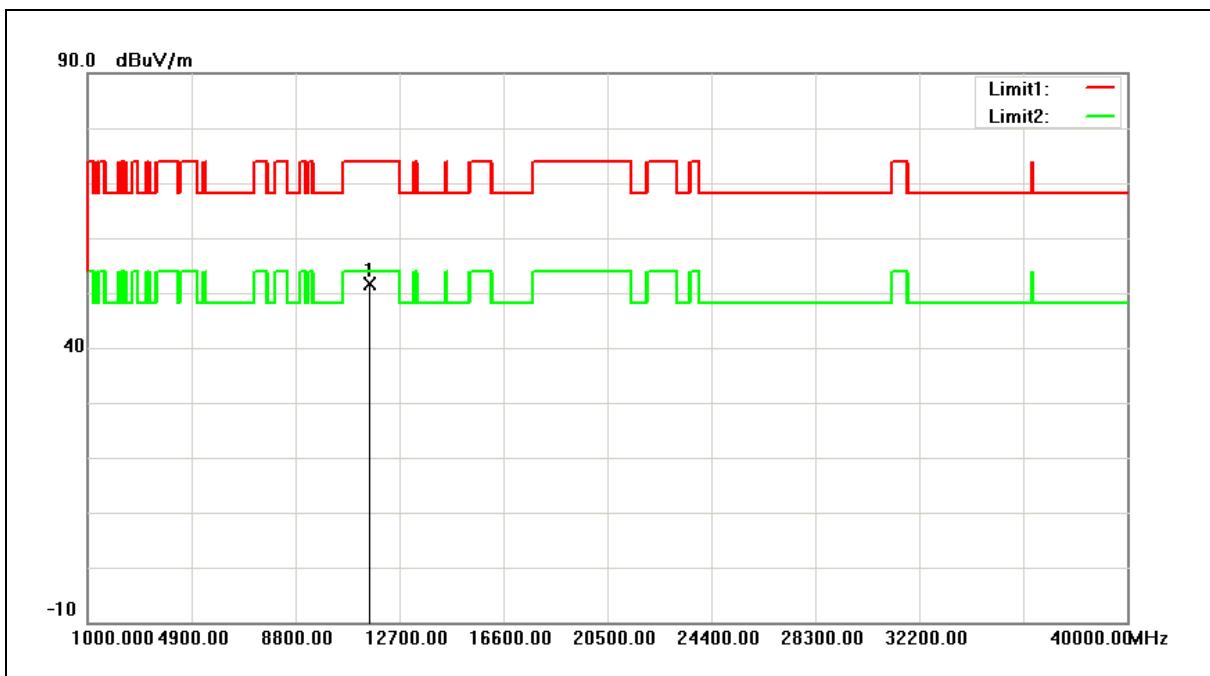
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11510.000	44.16	6.64	50.80	74.00	-23.20	peak

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

2.Correct 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:	04/19/2017
Ant.Polar.:	Horizontal		



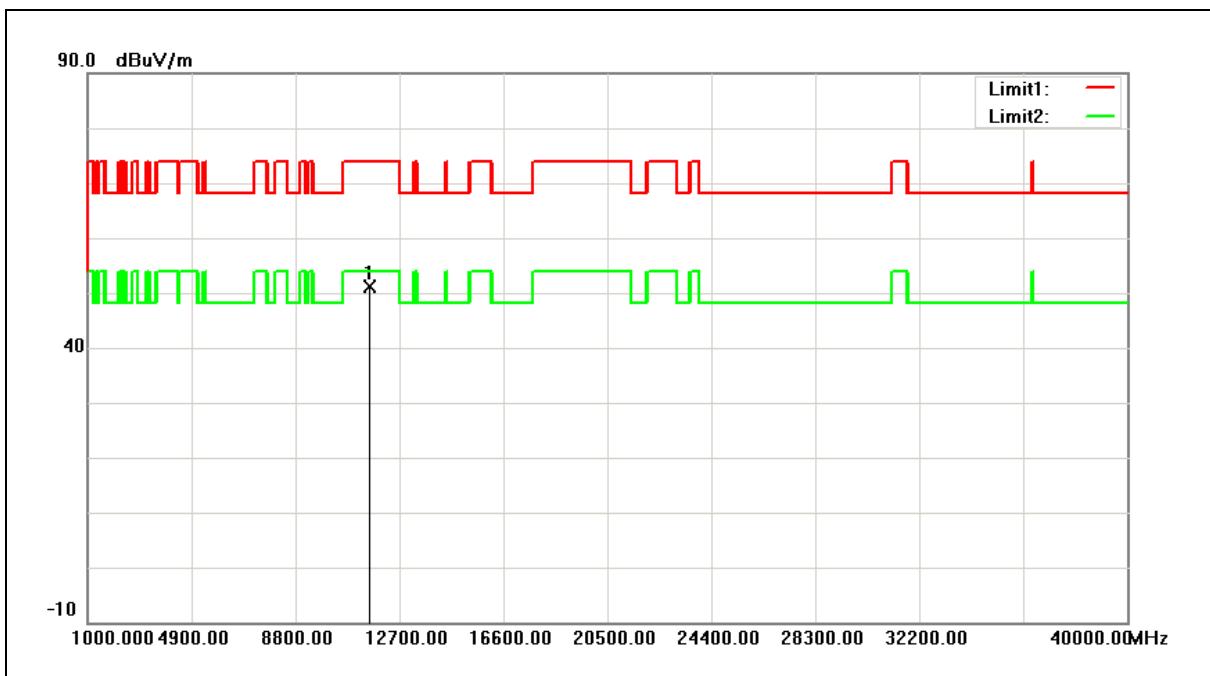
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	44.68	6.86	51.54	74.00	-22.46	peak

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

2.Correct 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:	04/19/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11590.000	44.20	6.86	51.06	74.00	-22.94	peak

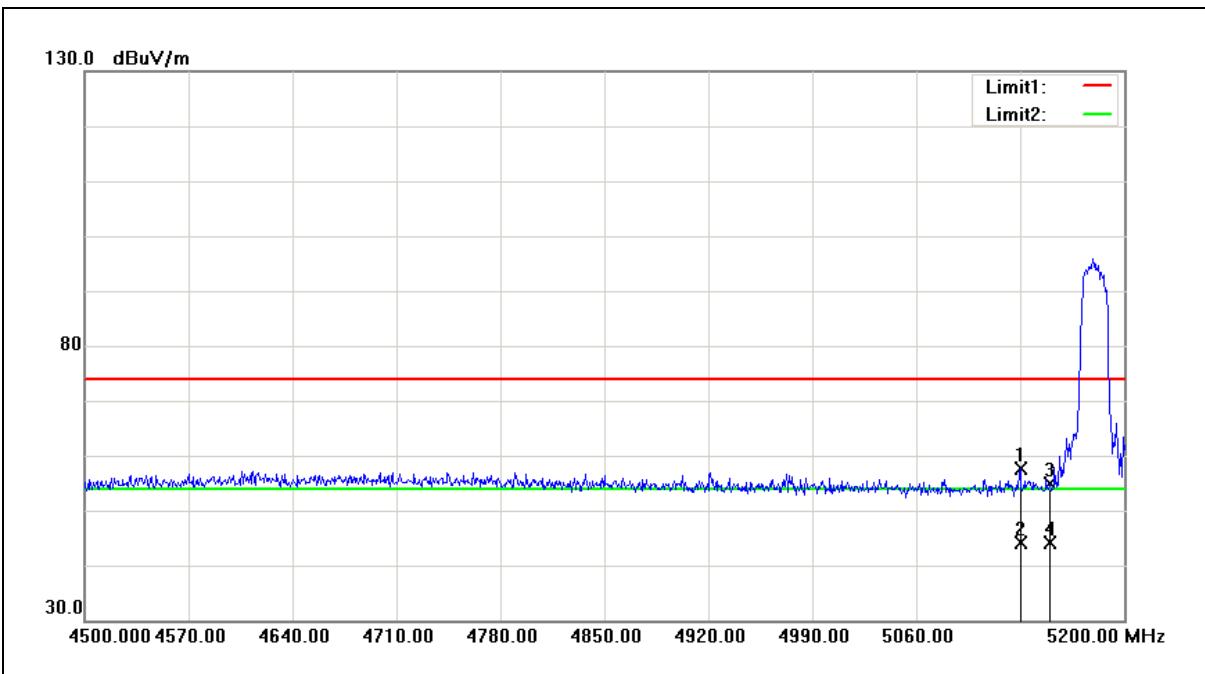
Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correct 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:	04/17/2017
Ant.Polar.:	Horizontal		



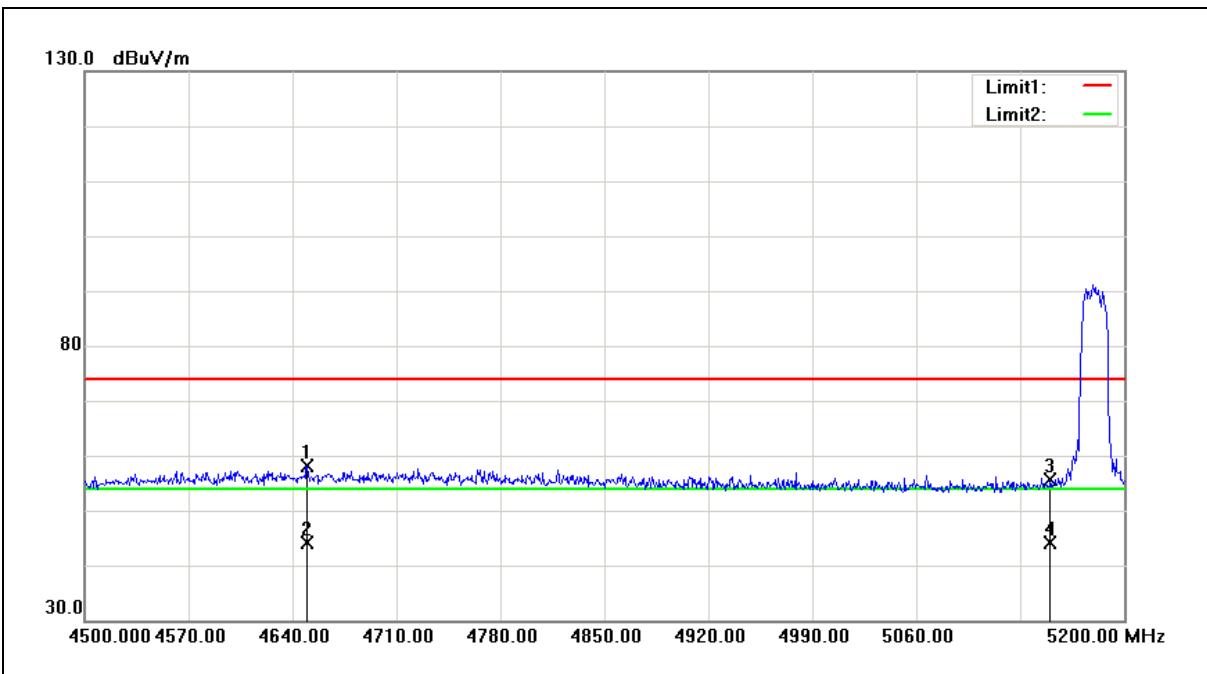
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5130.000	49.29	8.23	57.52	74.00	-16.48	peak
2	5130.000	35.85	8.23	44.08	54.00	-9.92	AVG
3	5150.000	46.64	8.25	54.89	74.00	-19.11	peak
4	5150.000	35.90	8.25	44.15	54.00	-9.85	AVG

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:	04/17/2017
Ant.Polar.:	Vertical		



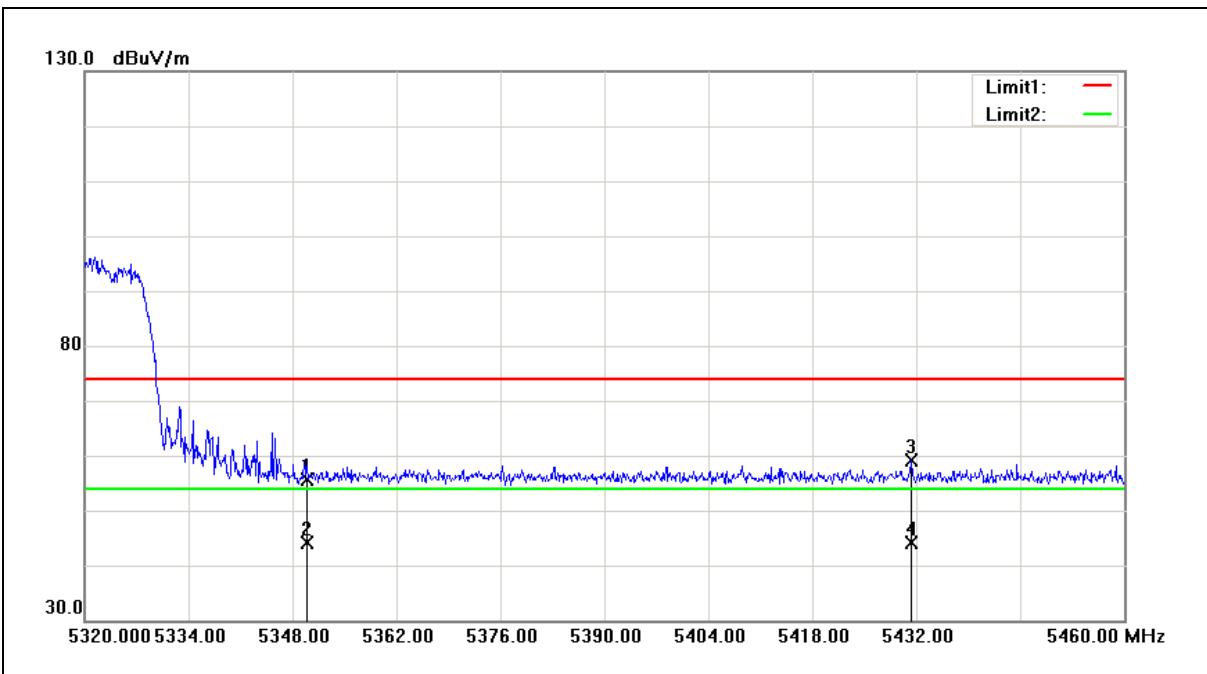
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4649.800	51.14	6.89	58.03	74.00	-15.97	peak
2	4649.800	37.24	6.89	44.13	54.00	-9.87	AVG
3	5150.000	47.36	8.25	55.61	74.00	-18.39	peak
4	5150.000	35.77	8.25	44.02	54.00	-9.98	AVG

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:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/17/2017
Ant.Polar.:	Horizontal		



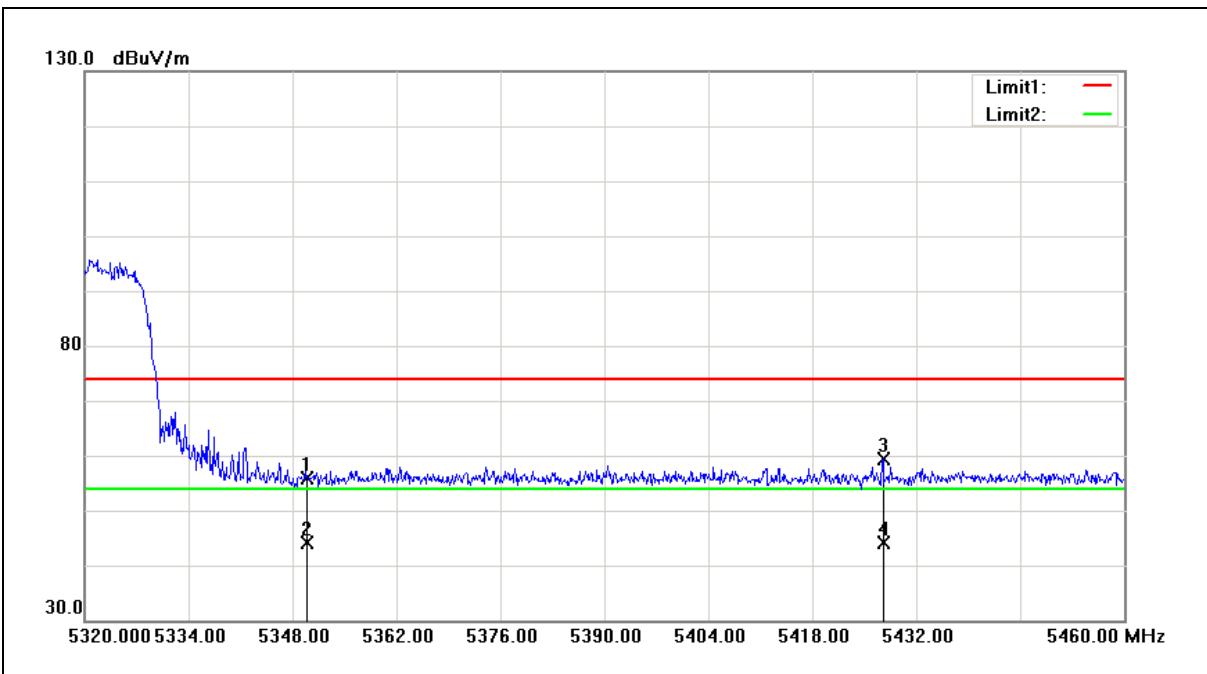
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	47.29	8.41	55.70	74.00	-18.30	peak
2	5350.000	35.75	8.41	44.16	54.00	-9.84	AVG
3	5431.300	50.72	8.49	59.21	74.00	-14.79	peak
4	5431.300	35.61	8.49	44.10	54.00	-9.90	AVG

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

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

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

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/17/2017
Ant.Polar.:	Vertical		



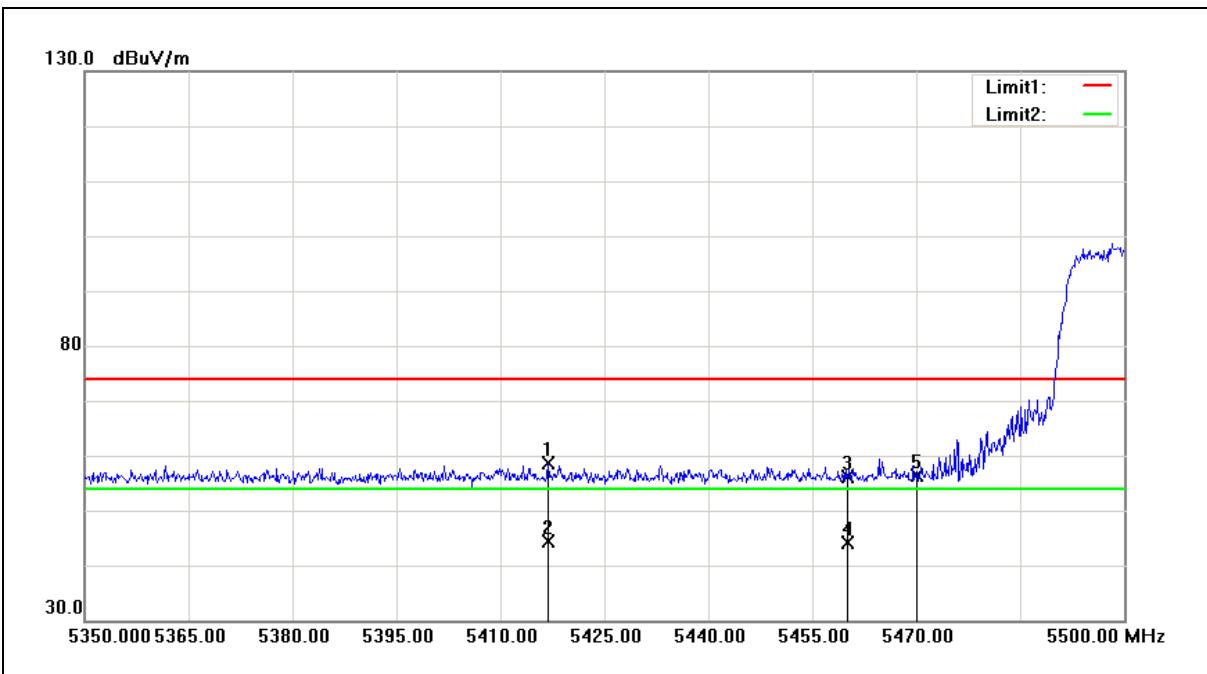
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	47.57	8.41	55.98	74.00	-18.02	peak
2	5350.000	35.82	8.41	44.23	54.00	-9.77	AVG
3	5427.520	50.91	8.49	59.40	74.00	-14.60	peak
4	5427.520	35.66	8.49	44.15	54.00	-9.85	AVG

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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/17/2017
Ant.Polar.:	Horizontal		



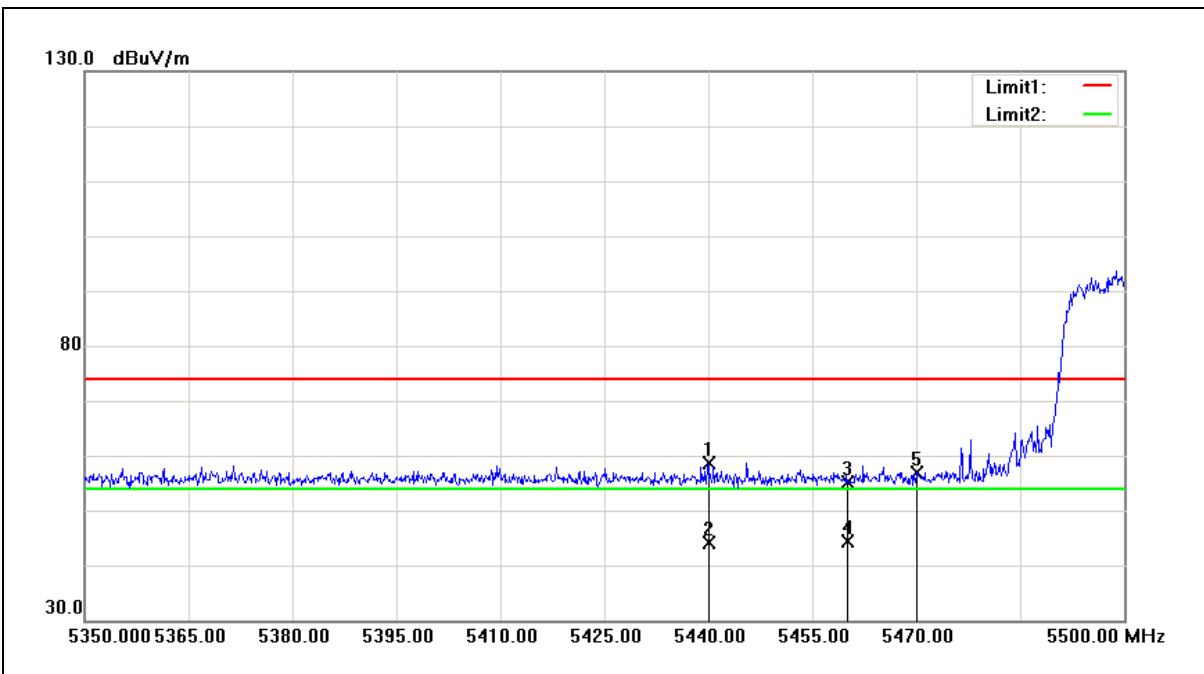
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5416.900	50.03	8.48	58.51	74.00	-15.49	peak
2	5416.900	35.83	8.48	44.31	54.00	-9.69	AVG
3	5460.000	47.55	8.51	56.06	74.00	-17.94	peak
4	5460.000	35.74	8.51	44.25	54.00	-9.75	AVG
5	5470.000	47.76	8.53	56.29	68.20	-11.91	peak

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

2.Correct 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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	04/17/2017
Ant.Polar.:	Vertical		



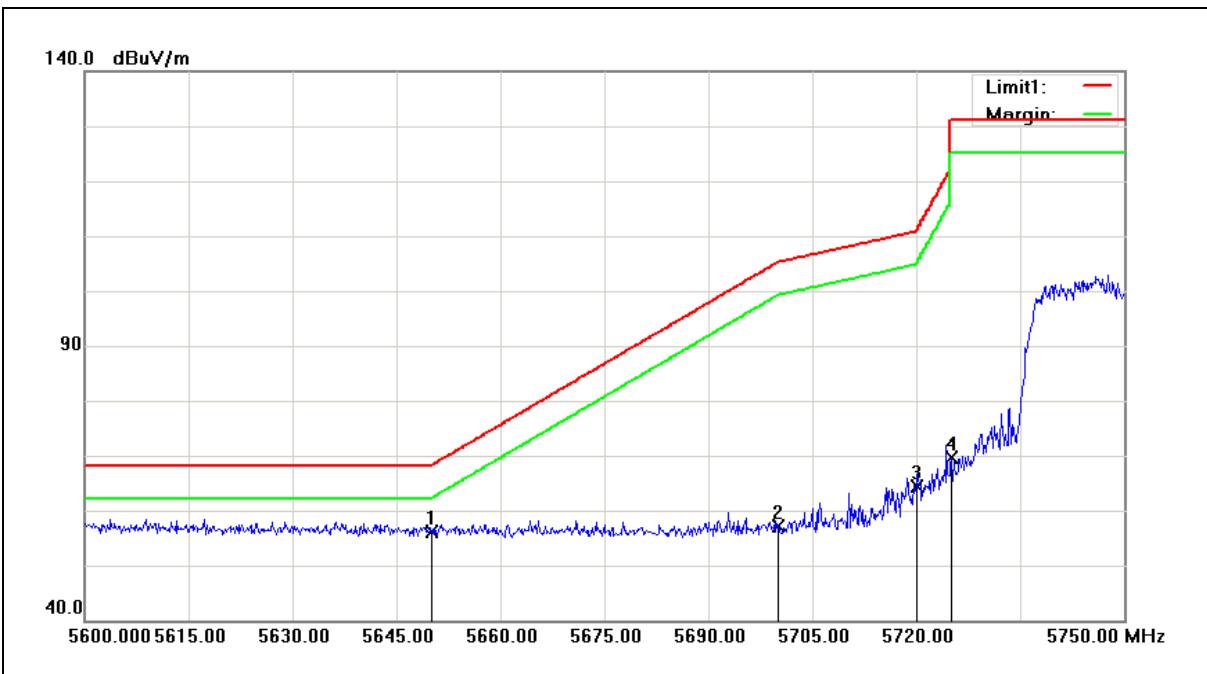
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5440.000	50.10	8.50	58.60	74.00	-15.40	peak
2	5440.000	35.72	8.50	44.22	54.00	-9.78	AVG
3	5460.000	46.56	8.51	55.07	74.00	-18.93	peak
4	5460.000	35.87	8.51	44.38	54.00	-9.62	AVG
5	5470.000	48.33	8.53	56.86	68.20	-11.34	peak

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

2.Correct 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:	04/17/2017
Ant.Polar.:	Horizontal		



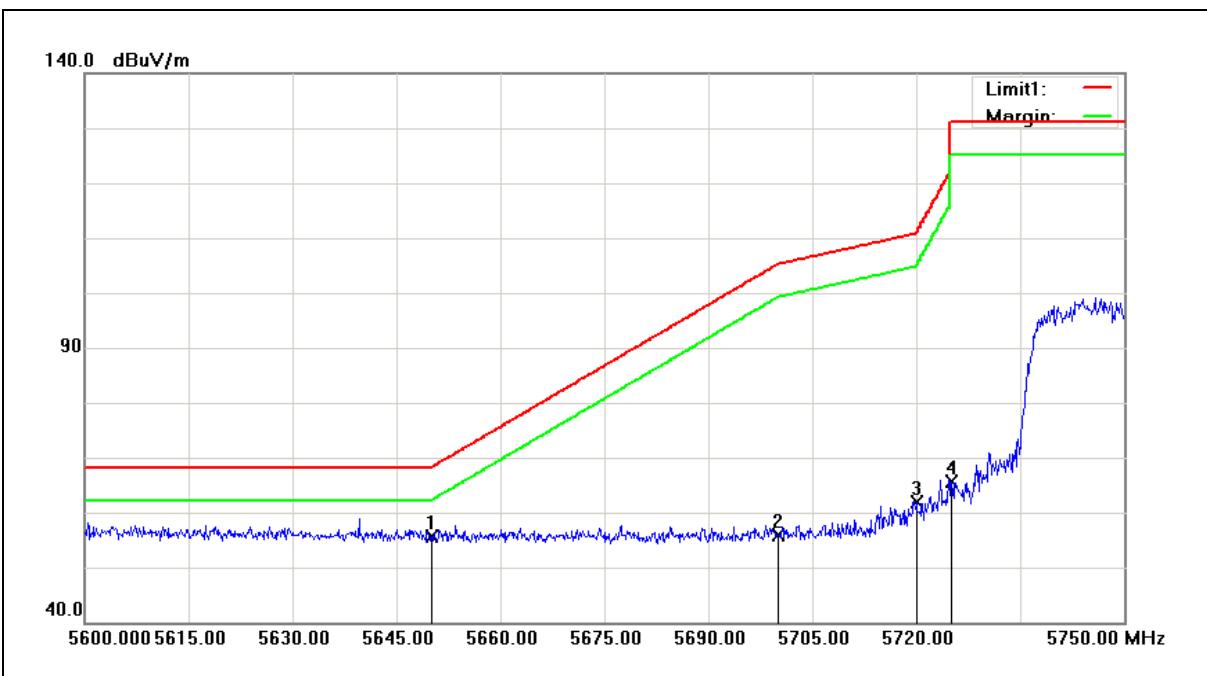
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	47.09	8.93	56.02	68.20	-12.18	peak
2	5700.000	47.98	9.05	57.03	105.20	-48.17	peak
3	5720.000	55.27	9.09	64.36	110.80	-46.44	peak
4	5725.000	60.42	9.11	69.53	122.20	-52.67	peak

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:	04/17/2017
Ant.Polar.:	Vertical		



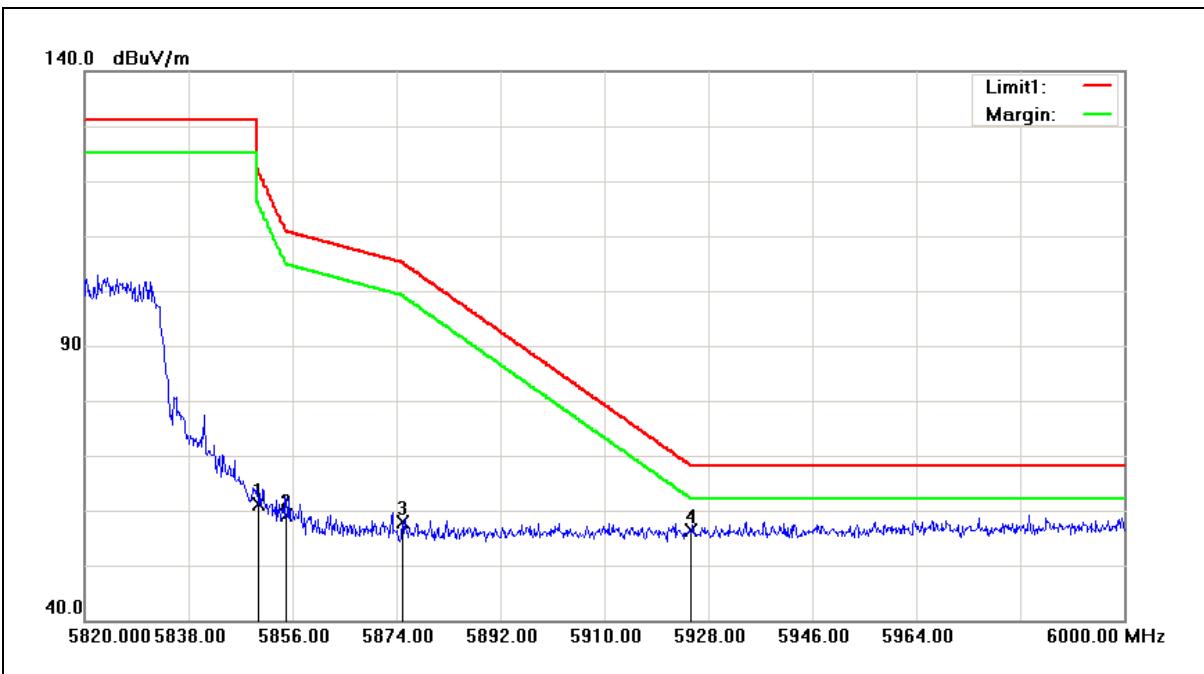
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	46.64	8.93	55.57	68.20	-12.63	peak
2	5700.000	46.86	9.05	55.91	105.20	-49.29	peak
3	5720.000	52.75	9.09	61.84	110.80	-48.96	peak
4	5725.000	56.54	9.11	65.65	122.20	-56.55	peak

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:	04/17/2017
Ant.Polar.:	Horizontal		



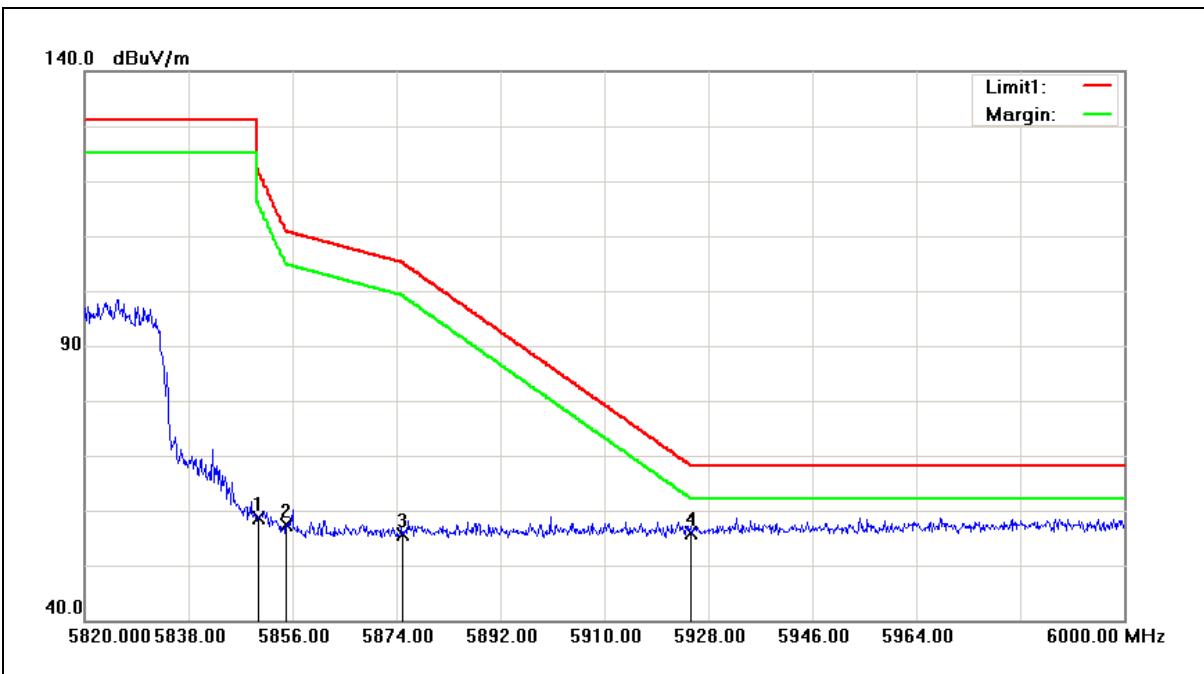
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	51.80	9.41	61.21	122.20	-60.99	peak
2	5855.000	49.61	9.43	59.04	110.80	-51.76	peak
3	5875.000	48.32	9.48	57.80	105.20	-47.40	peak
4	5925.000	46.77	9.61	56.38	68.20	-11.82	peak

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:	04/17/2017
Ant.Polar.:	Vertical		



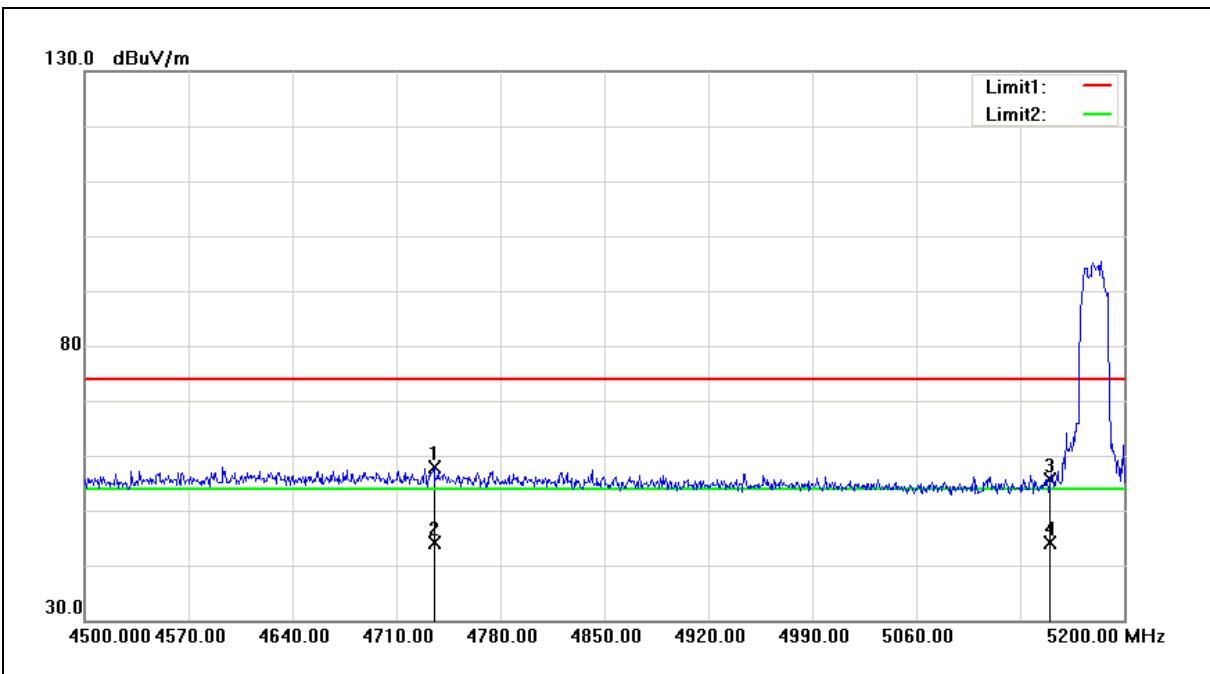
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	49.31	9.41	58.72	122.20	-63.48	peak
2	5855.000	47.95	9.43	57.38	110.80	-53.42	peak
3	5875.000	46.04	9.48	55.52	105.20	-49.68	peak
4	5925.000	46.22	9.61	55.83	68.20	-12.37	peak

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:	04/17/2017
Ant.Polar.:	Horizontal		



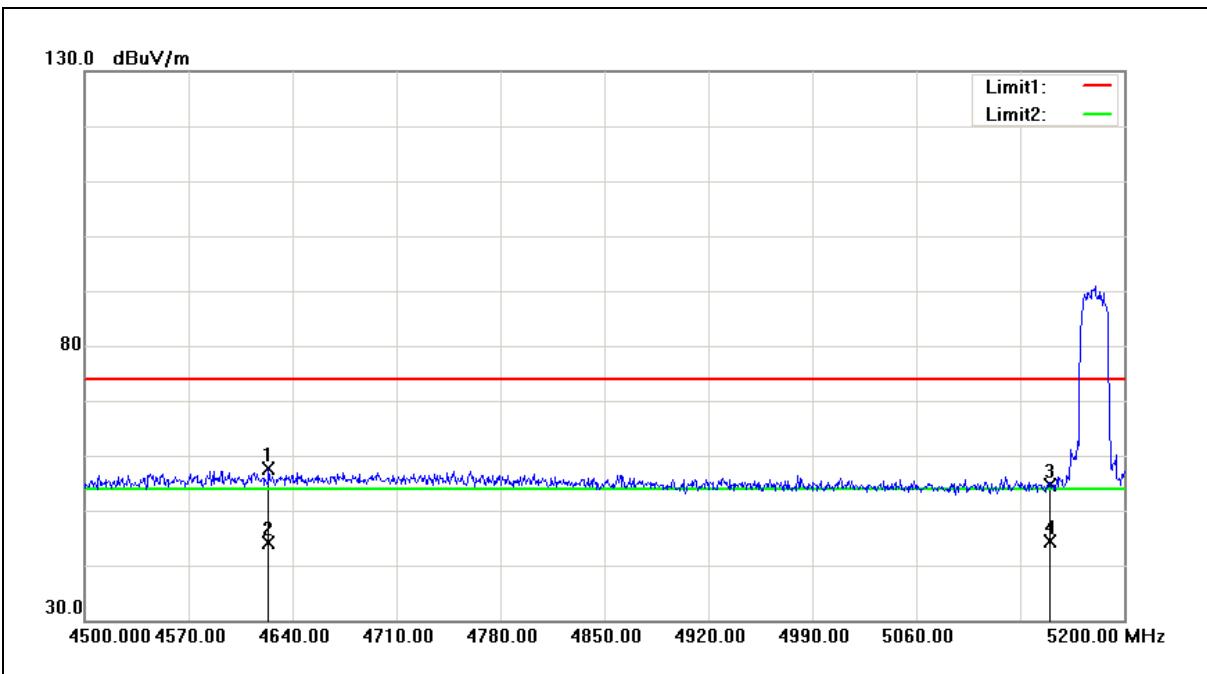
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4735.200	50.63	7.18	57.81	74.00	-16.19	peak
2	4735.200	36.92	7.18	44.10	54.00	-9.90	AVG
3	5150.000	47.38	8.25	55.63	74.00	-18.37	peak
4	5150.000	35.94	8.25	44.19	54.00	-9.81	AVG

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:	04/17/2017
Ant.Polar.:	Vertical		



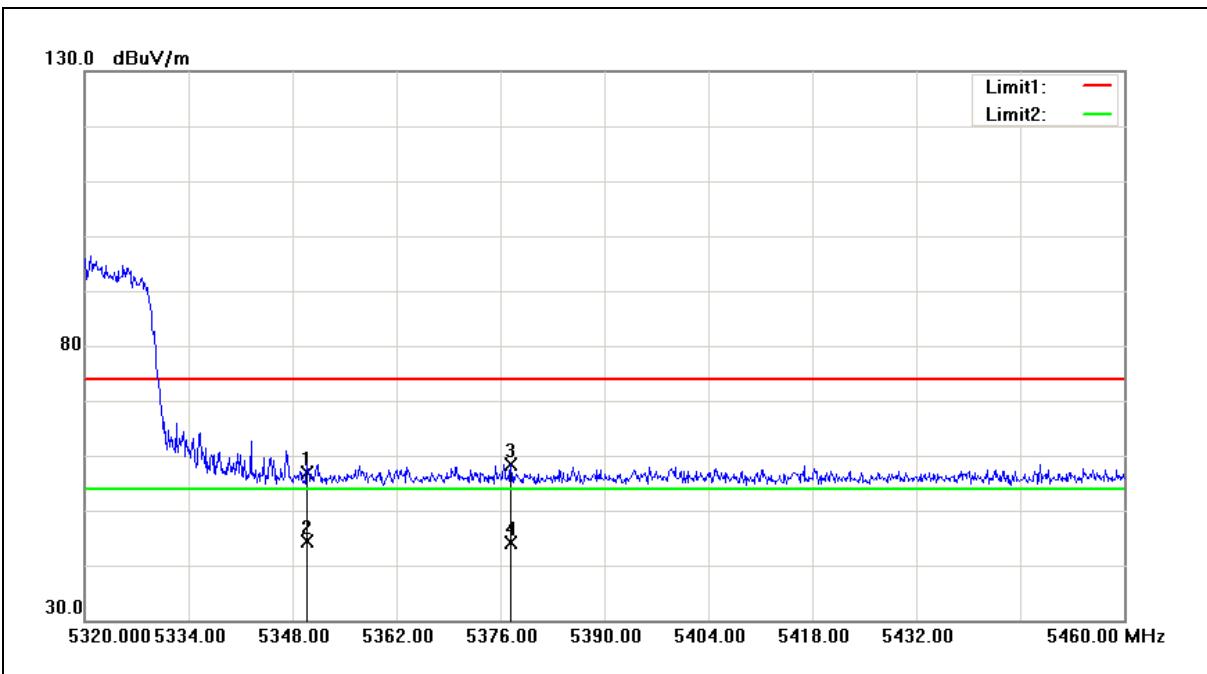
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4623.900	50.78	6.80	57.58	74.00	-16.42	peak
2	4623.900	37.41	6.80	44.21	54.00	-9.79	AVG
3	5150.000	46.41	8.25	54.66	74.00	-19.34	peak
4	5150.000	36.03	8.25	44.28	54.00	-9.72	AVG

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:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/17/2017
Ant.Polar.:	Horizontal		



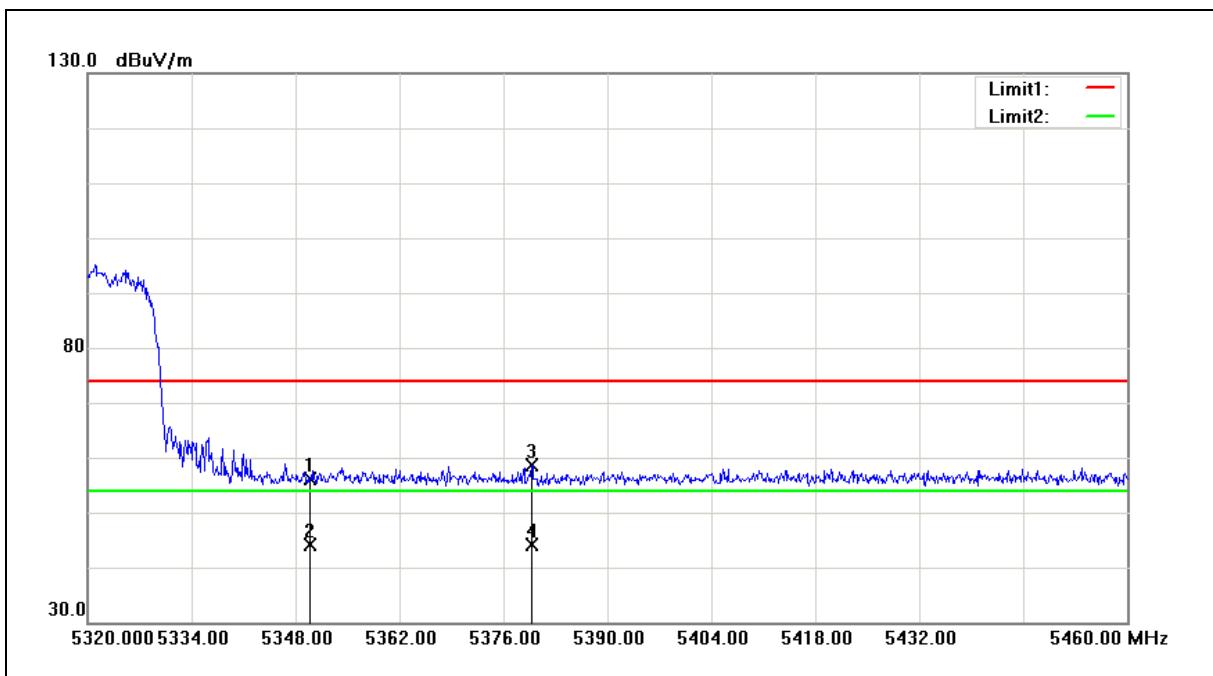
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	48.50	8.41	56.91	74.00	-17.09	peak
2	5350.000	35.85	8.41	44.26	54.00	-9.74	AVG
3	5377.400	50.04	8.45	58.49	74.00	-15.51	peak
4	5377.400	35.77	8.45	44.22	54.00	-9.78	AVG

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:	5320MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/17/2017
Ant.Polar.:	Vertical		



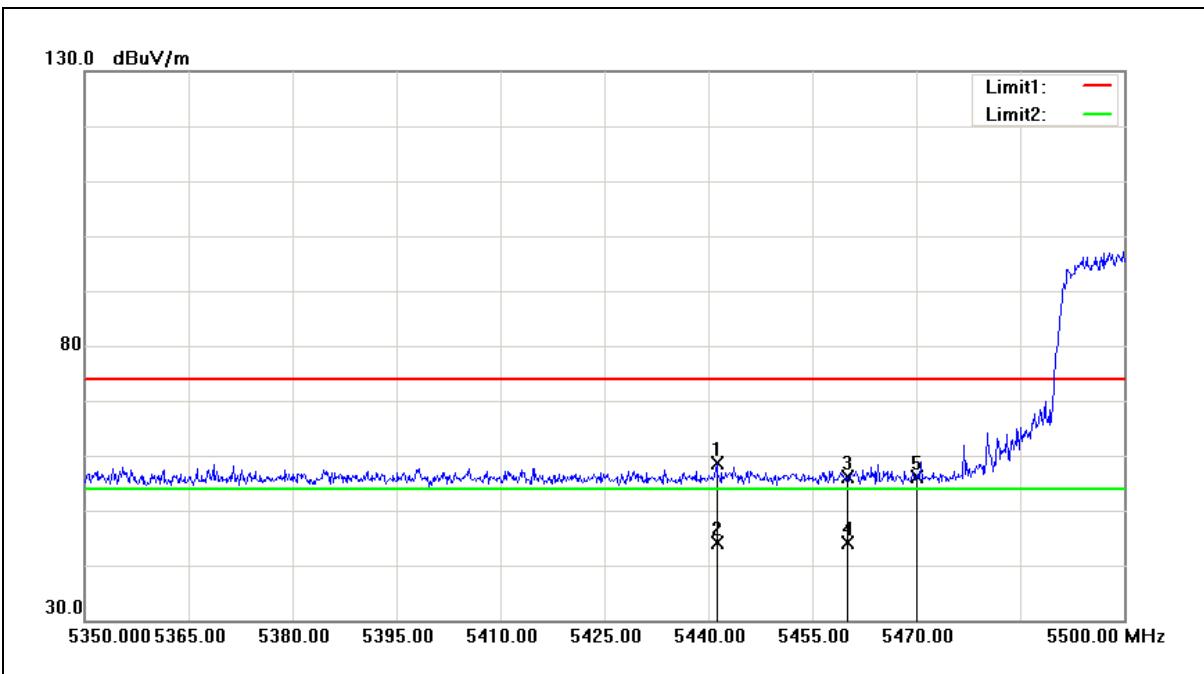
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	47.79	8.41	56.20	74.00	-17.80	peak
2	5350.000	35.83	8.41	44.24	54.00	-9.76	AVG
3	5379.780	50.06	8.45	58.51	74.00	-15.49	peak
4	5379.780	35.75	8.45	44.20	54.00	-9.80	AVG

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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/17/2017
Ant.Polar.:	Horizontal		



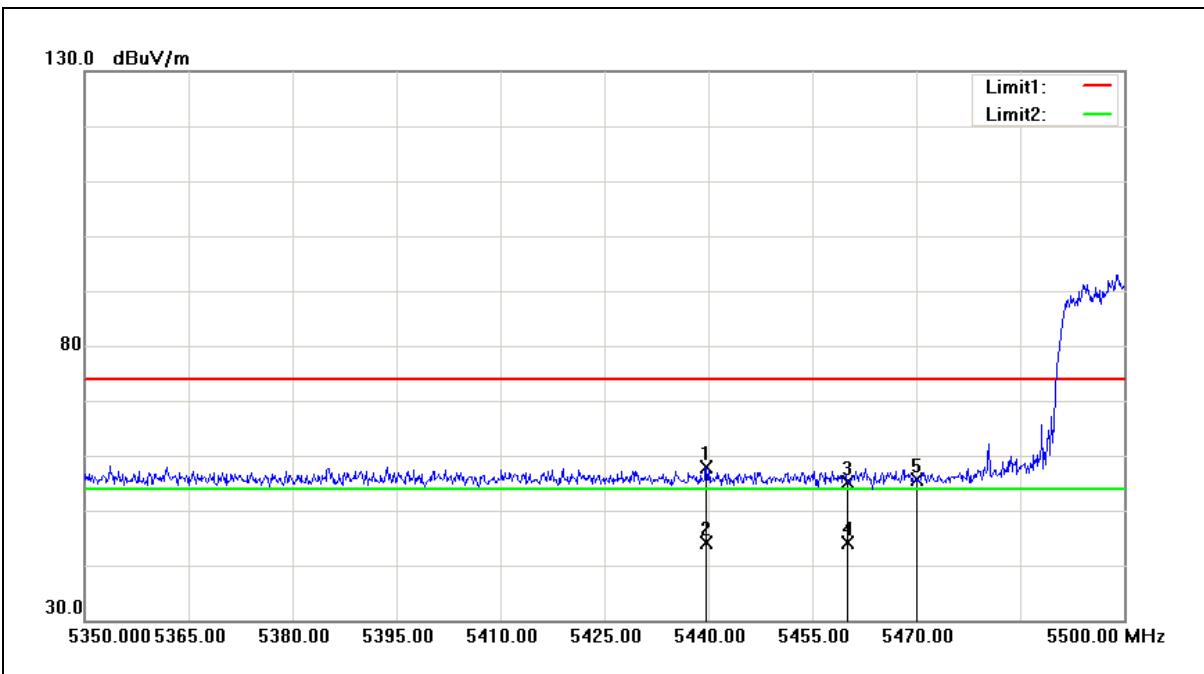
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5441.200	50.14	8.50	58.64	74.00	-15.36	peak
2	5441.200	35.64	8.50	44.14	54.00	-9.86	AVG
3	5460.000	47.53	8.51	56.04	74.00	-17.96	peak
4	5460.000	35.54	8.51	44.05	54.00	-9.95	AVG
5	5470.000	47.68	8.53	56.21	68.20	-11.99	peak

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

2.Correct 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:	5500MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	04/17/2017
Ant.Polar.:	Vertical		



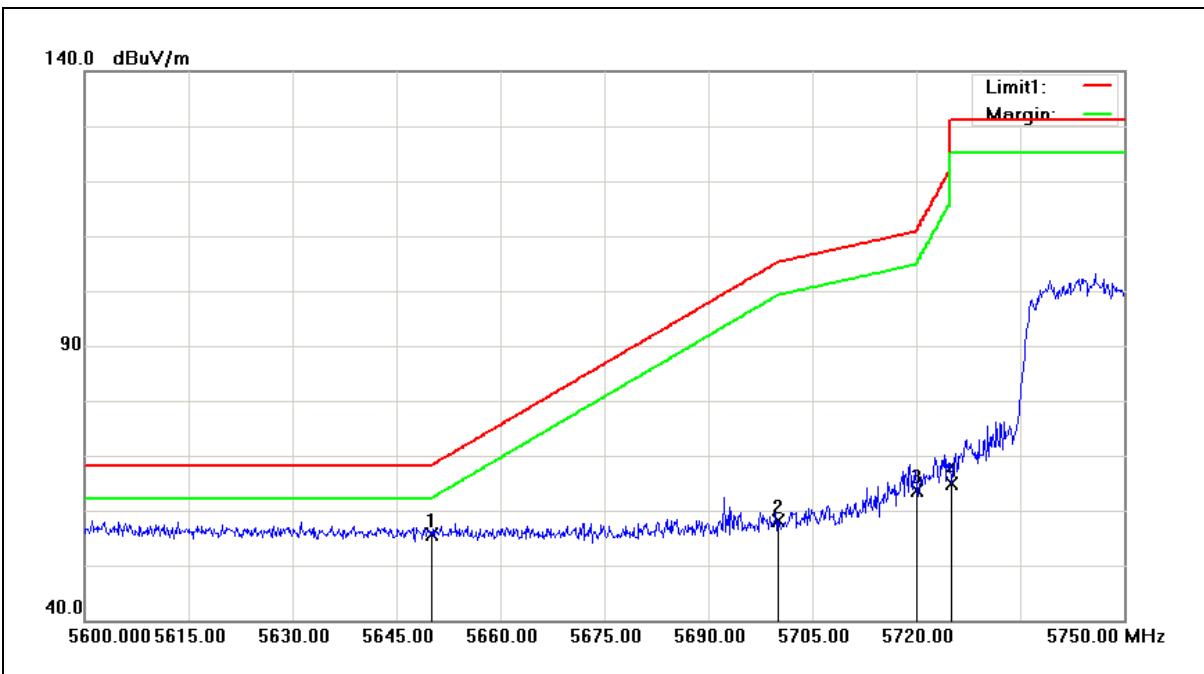
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5439.700	49.28	8.50	57.78	74.00	-16.22	peak
2	5439.700	35.66	8.50	44.16	54.00	-9.84	AVG
3	5460.000	46.70	8.51	55.21	74.00	-18.79	peak
4	5460.000	35.64	8.51	44.15	54.00	-9.85	AVG
5	5470.000	47.19	8.53	55.72	68.20	-12.48	peak

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

2.Correct 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:	04/17/2017
Ant.Polar.:	Horizontal		



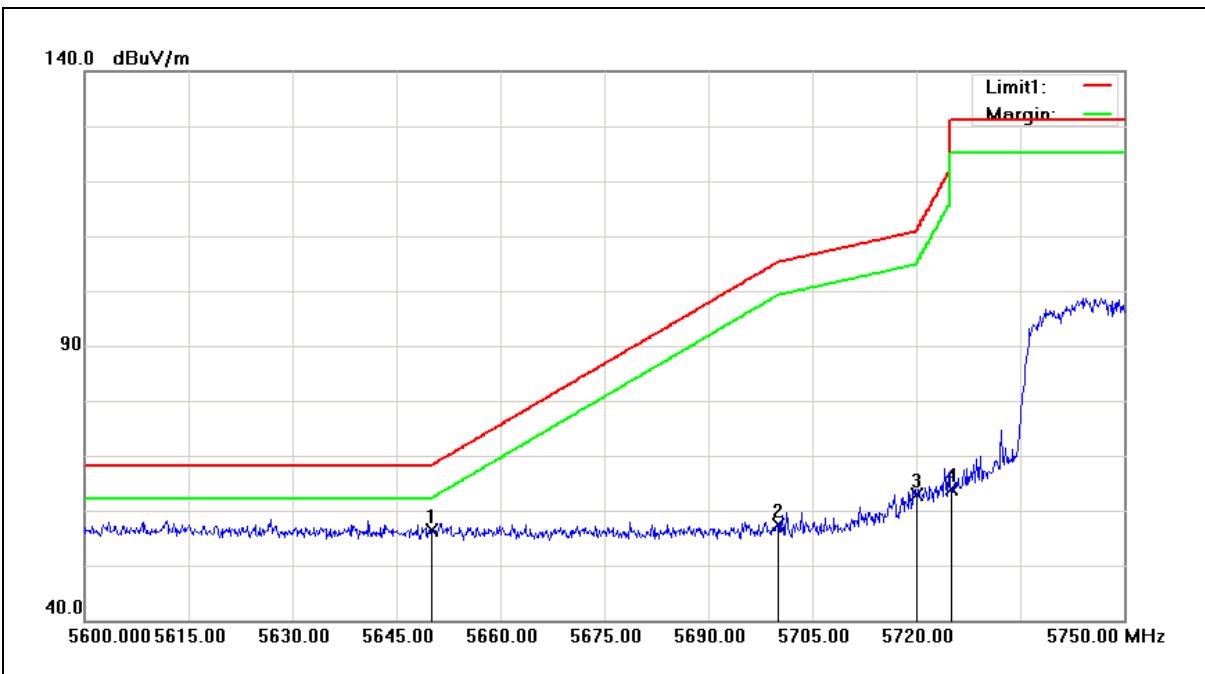
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	46.75	8.93	55.68	68.20	-12.52	peak
2	5700.000	49.12	9.05	58.17	105.20	-47.03	peak
3	5720.000	54.58	9.09	63.67	110.80	-47.13	peak
4	5725.000	55.84	9.11	64.95	122.20	-57.25	peak

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:	04/17/2017
Ant.Polar.:	Vertical		



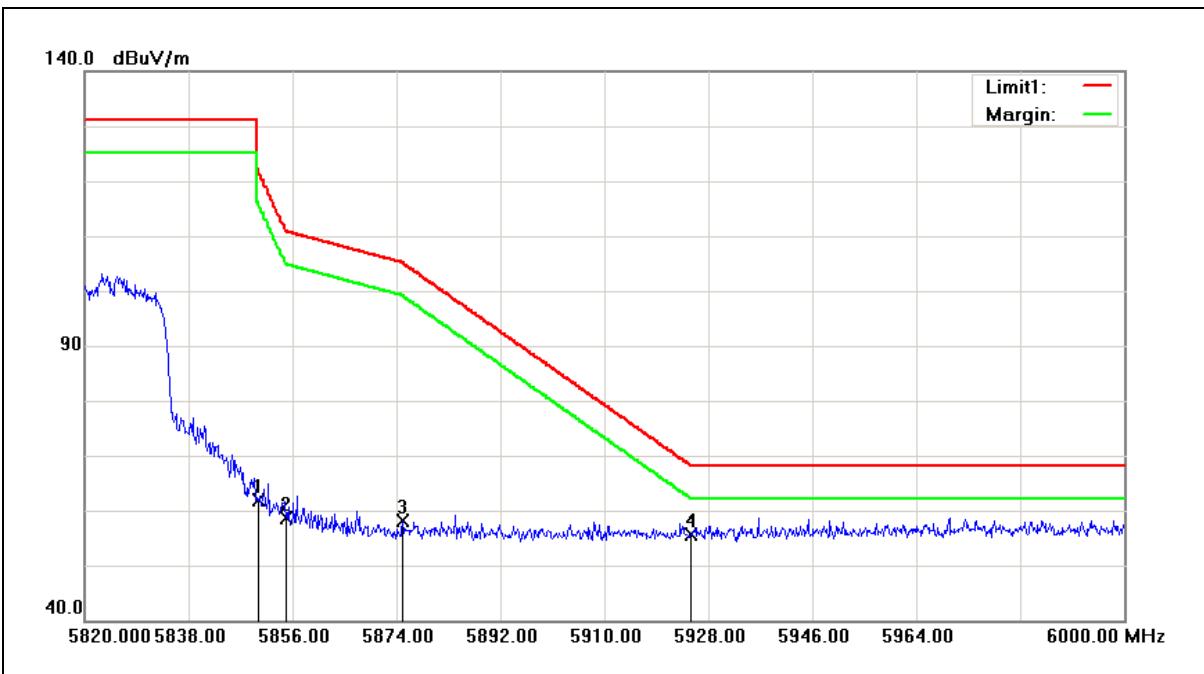
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	47.37	8.93	56.30	68.20	-11.90	peak
2	5700.000	48.36	9.05	57.41	105.20	-47.79	peak
3	5720.000	53.88	9.09	62.97	110.80	-47.83	peak
4	5725.000	54.72	9.11	63.83	122.20	-58.37	peak

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:	04/17/2017
Ant.Polar.:	Horizontal		



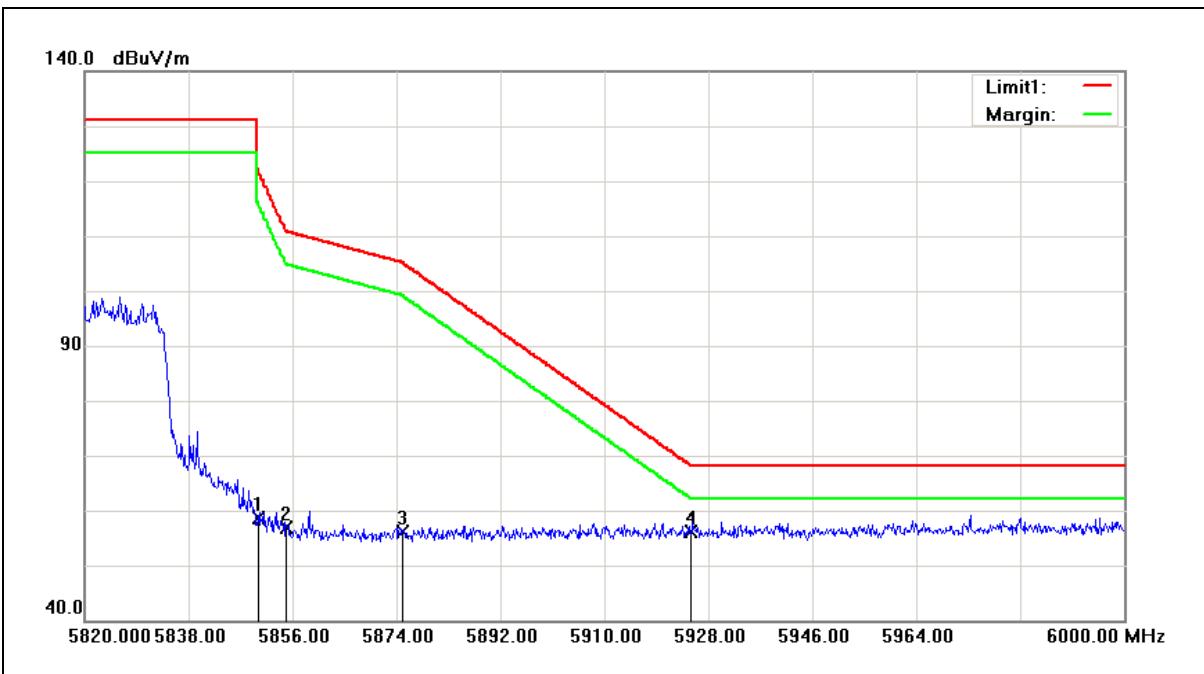
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	52.52	9.41	61.93	122.20	-60.27	peak
2	5855.000	49.11	9.43	58.54	110.80	-52.26	peak
3	5875.000	48.72	9.48	58.20	105.20	-47.00	peak
4	5925.000	45.97	9.61	55.58	68.20	-12.62	peak

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:	04/17/2017
Ant.Polar.:	Vertical		



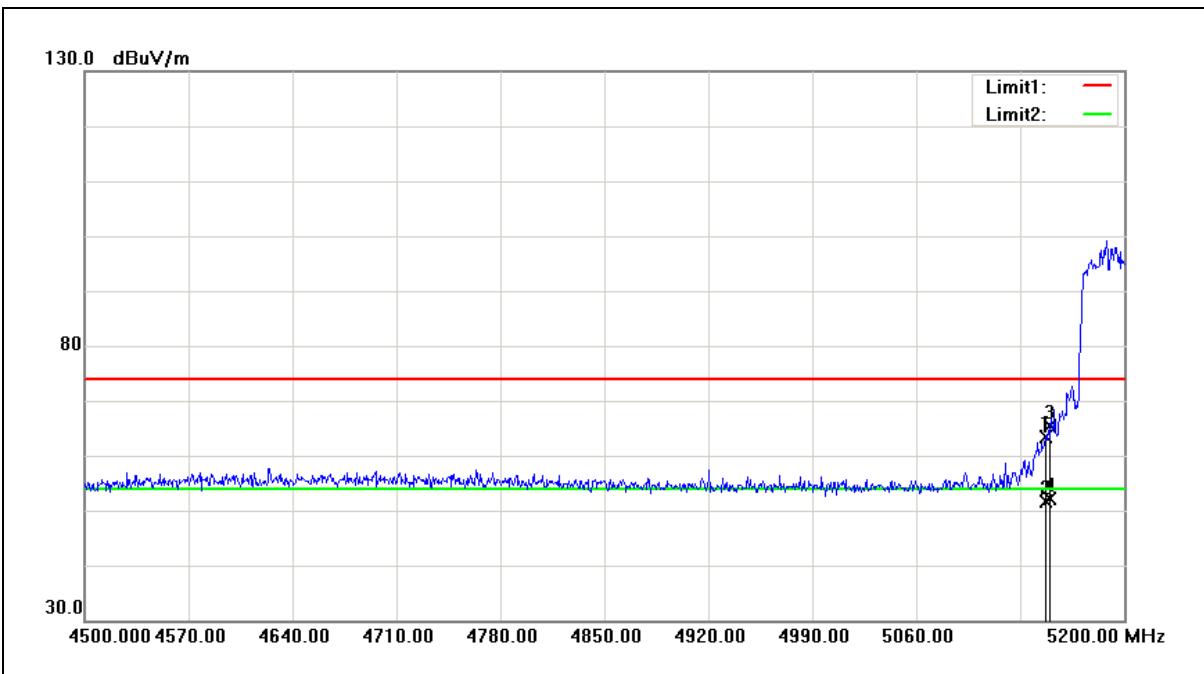
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	49.20	9.41	58.61	122.20	-63.59	peak
2	5855.000	47.41	9.43	56.84	110.80	-53.96	peak
3	5875.000	46.54	9.48	56.02	105.20	-49.18	peak
4	5925.000	46.60	9.61	56.21	68.20	-11.99	peak

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:	5190MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/17/2017
Ant.Polar.:	Horizontal		



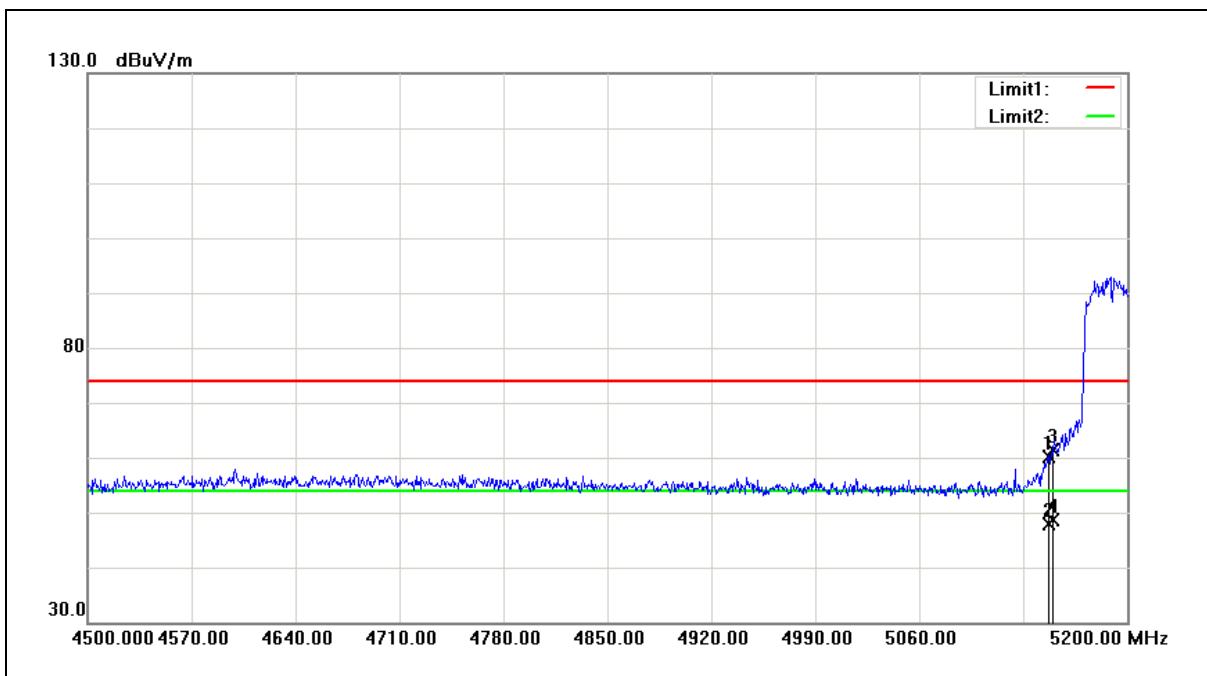
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5146.800	55.17	8.24	63.41	74.00	-10.59	peak
2	5146.800	43.31	8.24	51.55	54.00	-2.45	AVG
3	5150.000	57.10	8.25	65.35	74.00	-8.65	peak
4	5150.000	43.96	8.25	52.21	54.00	-1.79	AVG

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:	04/17/2017
Ant.Polar.:	Vertical		



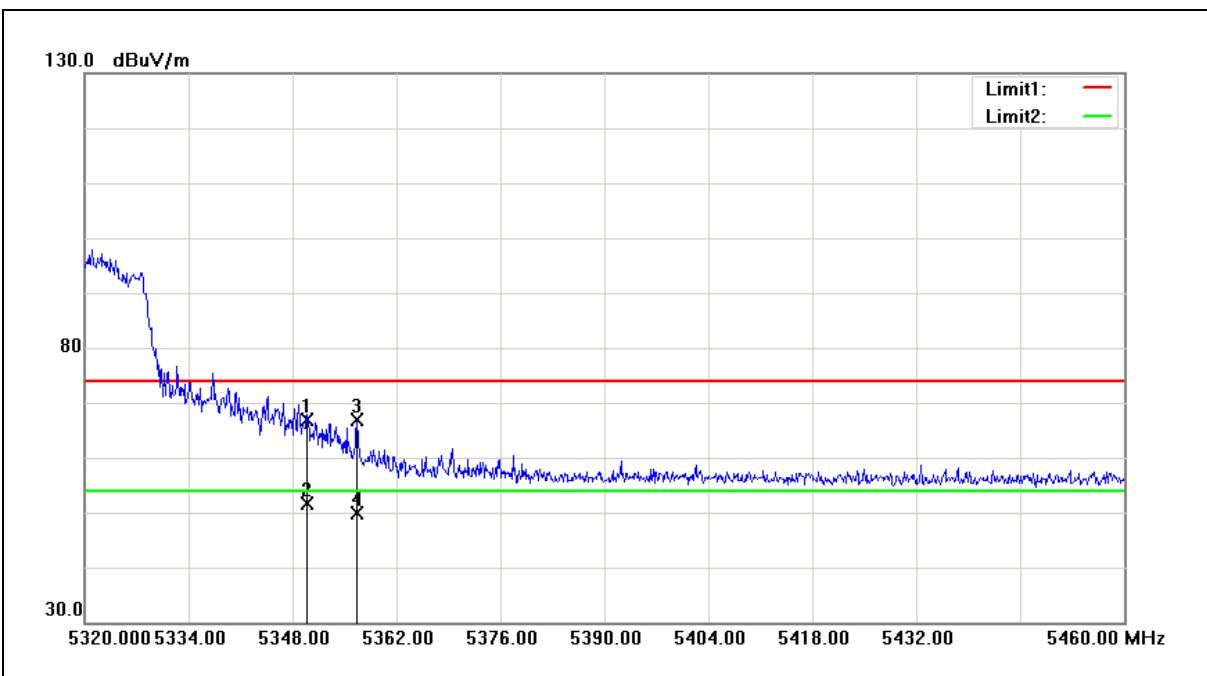
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5146.800	52.01	8.24	60.25	74.00	-13.75	peak
2	5146.800	39.68	8.24	47.92	54.00	-6.08	AVG
3	5150.000	53.12	8.25	61.37	74.00	-12.63	peak
4	5150.000	40.46	8.25	48.71	54.00	-5.29	AVG

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:	5310MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/17/2017
Ant.Polar.:	Horizontal		



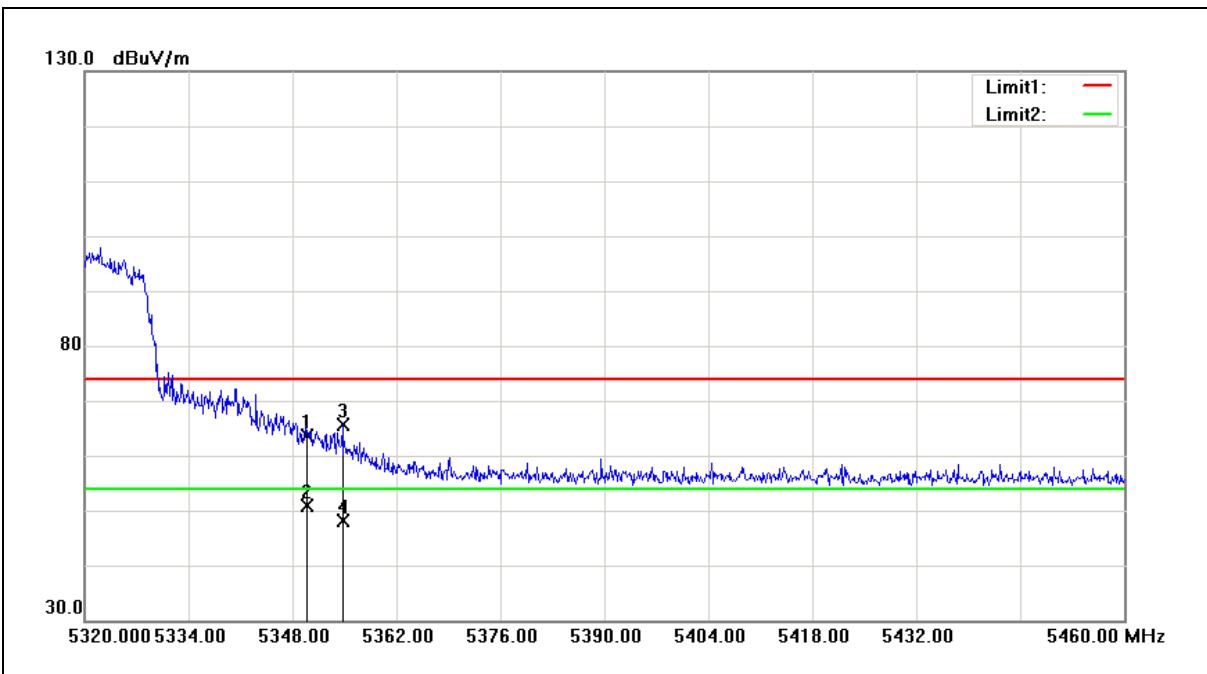
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	58.35	8.41	66.76	74.00	-7.24	peak
2	5350.000	43.28	8.41	51.69	54.00	-2.31	AVG
3	5356.680	58.39	8.42	66.81	74.00	-7.19	peak
4	5356.680	41.40	8.42	49.82	54.00	-4.18	AVG

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:	5310MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/17/2017
Ant.Polar.:	Vertical		



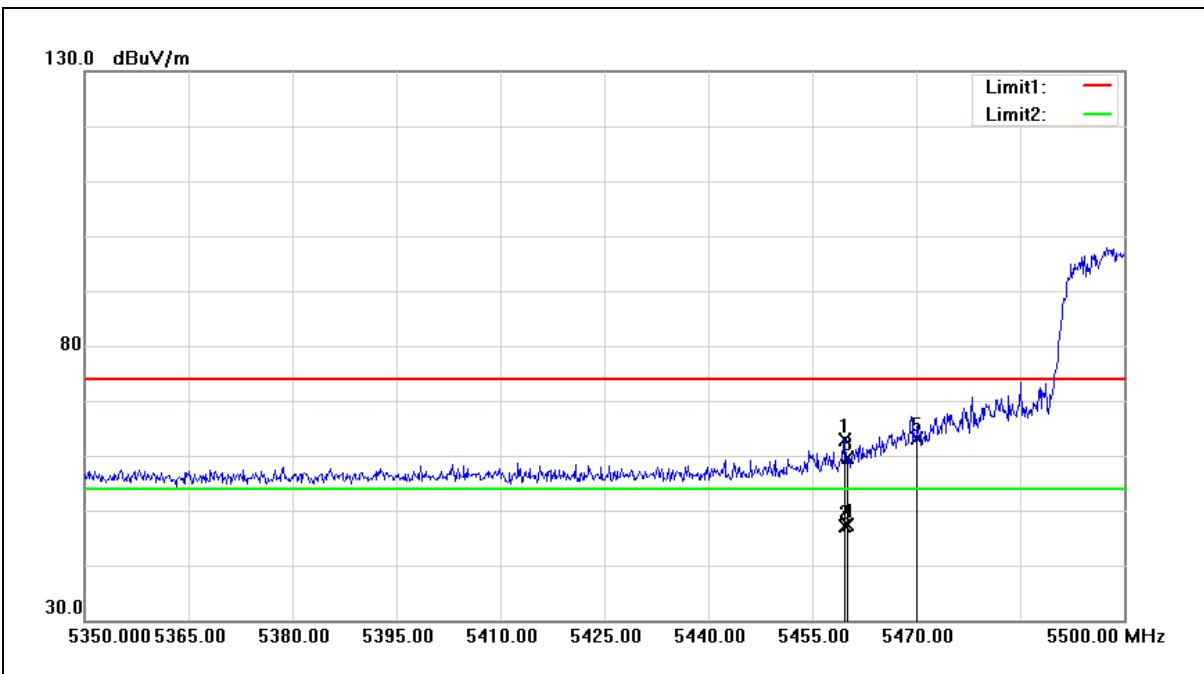
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	55.23	8.41	63.64	74.00	-10.36	peak
2	5350.000	42.56	8.41	50.97	54.00	-3.03	AVG
3	5354.720	57.15	8.42	65.57	74.00	-8.43	peak
4	5354.720	39.70	8.42	48.12	54.00	-5.88	AVG

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:	5510MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/17/2017
Ant.Polar.:	Horizontal		



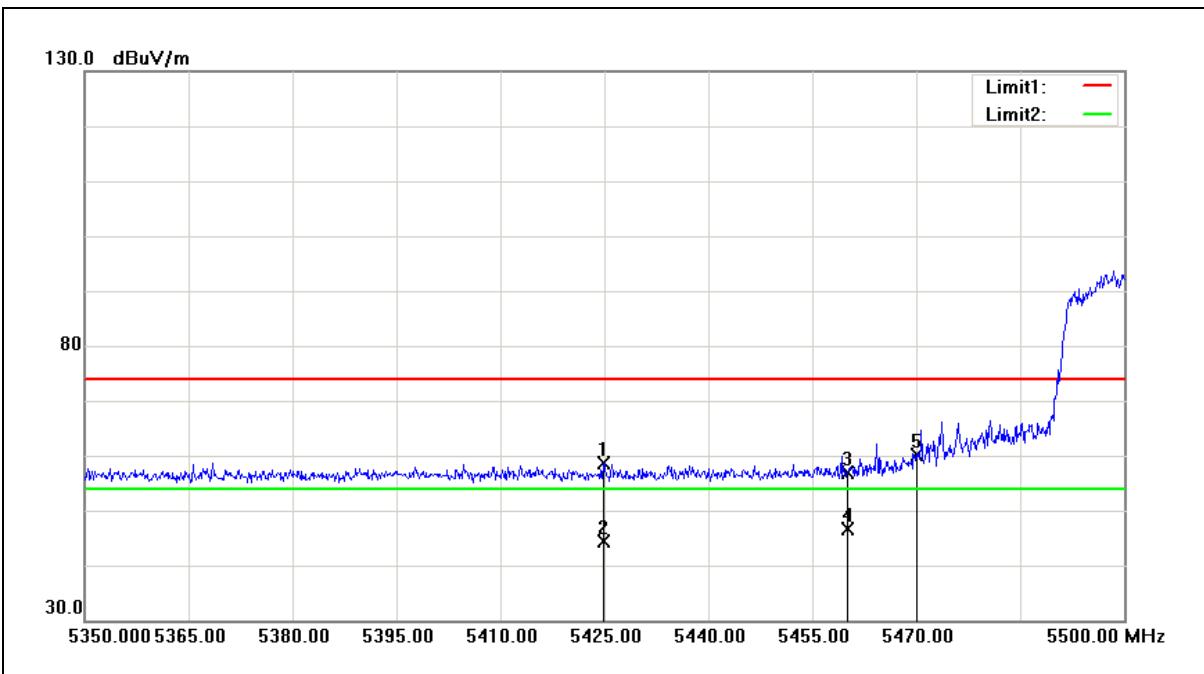
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5459.650	54.26	8.51	62.77	74.00	-11.23	peak
2	5459.650	38.60	8.51	47.11	54.00	-6.89	AVG
3	5460.000	51.22	8.51	59.73	74.00	-14.27	peak
4	5460.000	38.81	8.51	47.32	54.00	-6.68	AVG
5	5470.000	54.68	8.53	63.21	68.20	-4.99	peak

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

2.Correct 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:	5510MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/17/2017
Ant.Polar.:	Vertical		



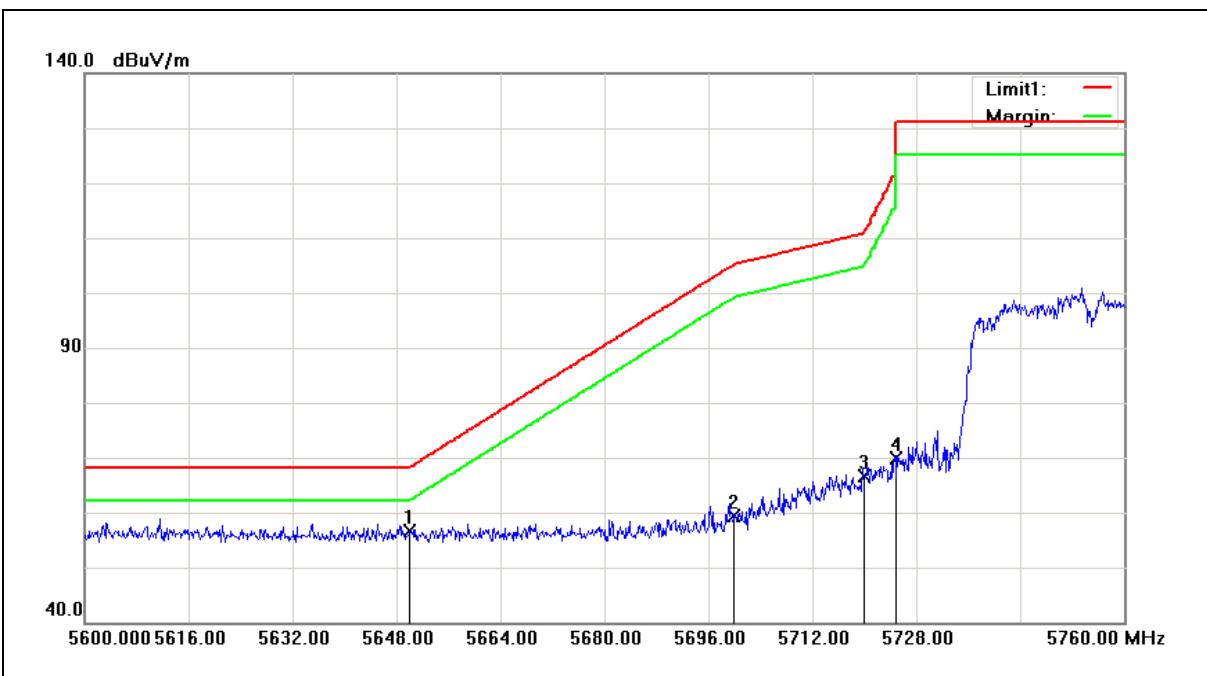
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5424.850	50.06	8.49	58.55	74.00	-15.45	peak
2	5424.850	35.89	8.49	44.38	54.00	-9.62	AVG
3	5460.000	48.41	8.51	56.92	74.00	-17.08	peak
4	5460.000	38.21	8.51	46.72	54.00	-7.28	AVG
5	5470.000	51.48	8.53	60.01	68.20	-8.19	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:	04/17/2017
Ant.Polar.:	Horizontal		



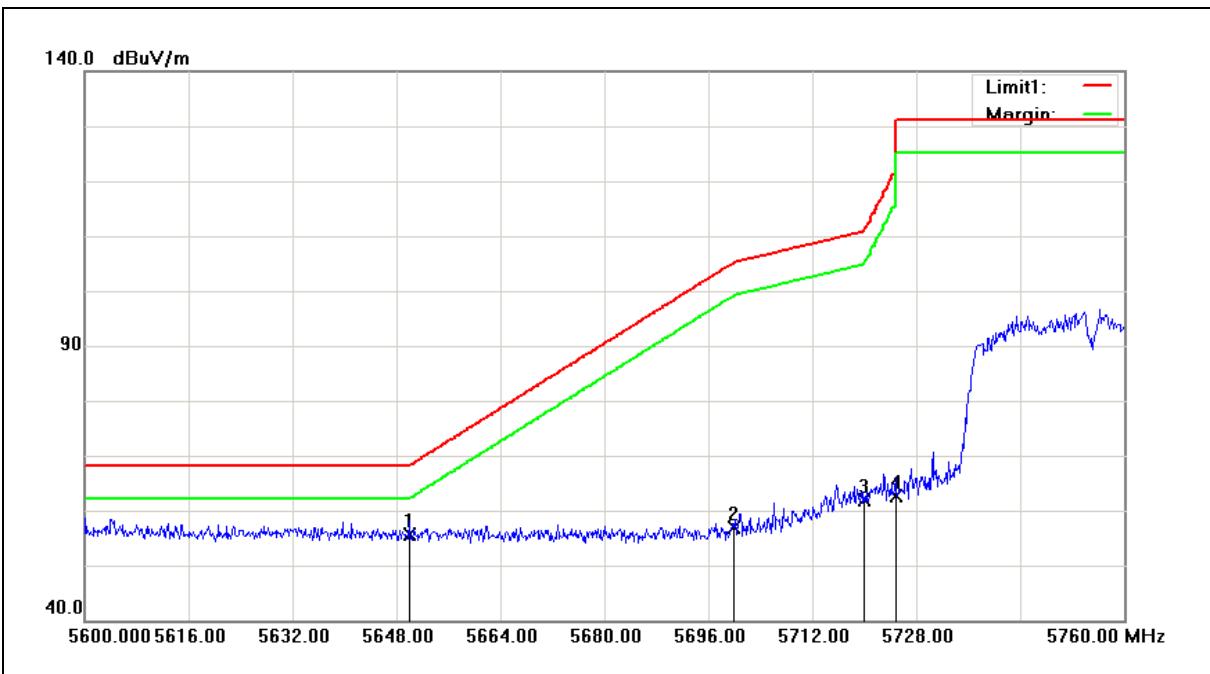
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	47.70	8.93	56.63	68.20	-11.57	peak
2	5700.000	50.24	9.05	59.29	105.20	-45.91	peak
3	5720.000	57.44	9.09	66.53	110.80	-44.27	peak
4	5725.000	60.72	9.11	69.83	122.20	-52.37	peak

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:	04/17/2017
Ant.Polar.:	Vertical		



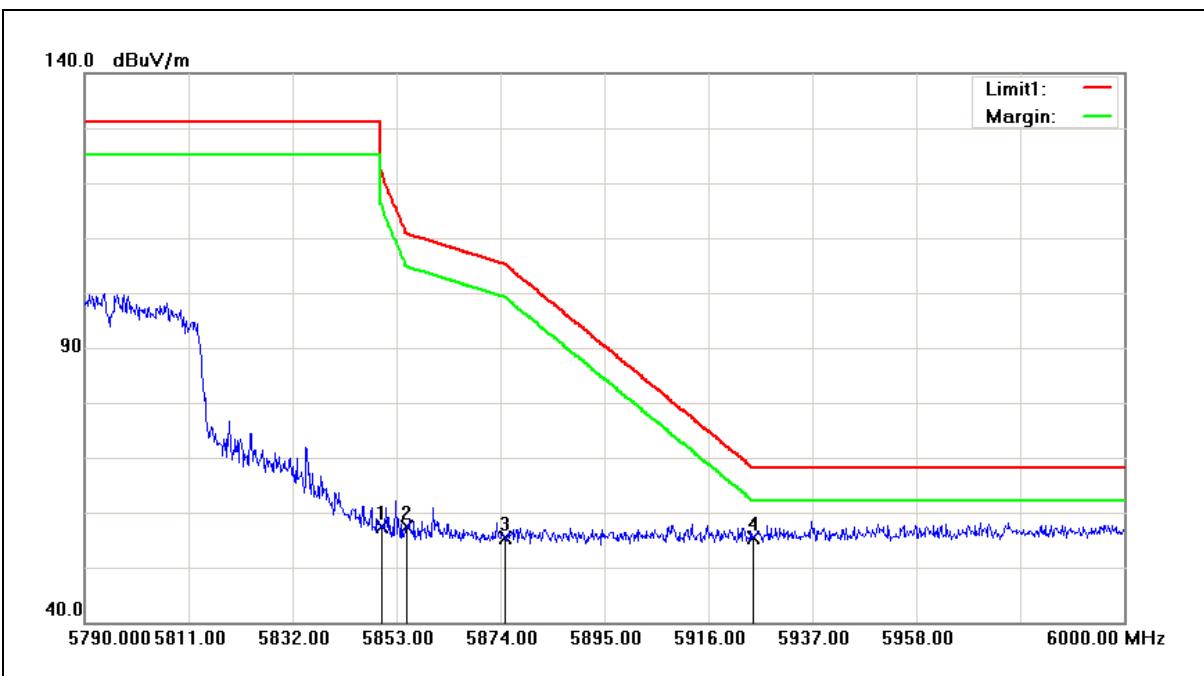
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	46.73	8.93	55.66	68.20	-12.54	peak
2	5700.000	47.92	9.05	56.97	105.20	-48.23	peak
3	5720.000	52.74	9.09	61.83	110.80	-48.97	peak
4	5725.000	53.44	9.11	62.55	122.20	-59.65	peak

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:	04/17/2017
Ant.Polar.:	Horizontal		



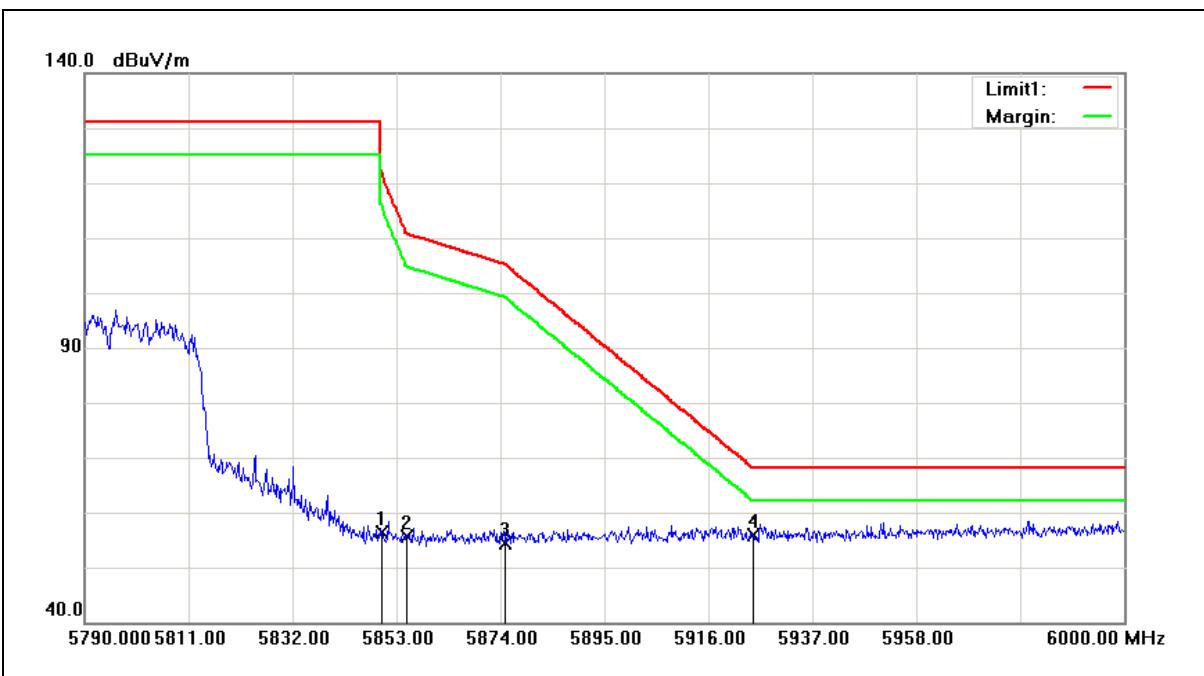
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	48.04	9.41	57.45	122.20	-64.75	peak
2	5855.000	48.06	9.43	57.49	110.80	-53.31	peak
3	5875.000	46.00	9.48	55.48	105.20	-49.72	peak
4	5925.000	45.74	9.61	55.35	68.20	-12.85	peak

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:	Band edge	Power:	AC 120V/60Hz
Frequency:	5795MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	04/17/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	47.00	9.41	56.41	122.20	-65.79	peak
2	5855.000	46.31	9.43	55.74	110.80	-55.06	peak
3	5875.000	44.92	9.48	54.40	105.20	-50.80	peak
4	5925.000	46.26	9.61	55.87	68.20	-12.33	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.

4.4. Maximum Conducted Output Power Measurement

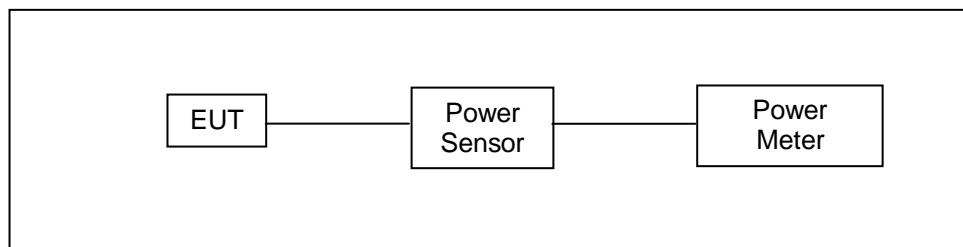
■ Limit

Frequency Range (MHz)	FCC Maximum Conducted Output Power Limit
	Client
5.150 ~ 5.250 GHz	The lesser of 250mW (24dBm)
5.250 ~ 5.350 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.470 ~ 5.725 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.725 ~ 5.850 GHz	The lesser of 1W (30dBm)

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

* SISO mode : Max. Gain = 5.96 dBi < 6dBi

■ 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-1 500	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 v01r02, 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 Link Mode			
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)	
		Max. Output Power			
		(dBm)	(W)		
5180	6M	12.28	0.017	≤ 24	
5200		12.13	0.016		
5220		12.15	0.016		
5240		12.12	0.016		
5260		11.08	0.013		
5280		11.09	0.013		
5300		11.26	0.013		
5320		11.31	0.014		
5500		10.51	0.011		
5520		10.40	0.011		
5540		10.29	0.011		
5560		10.23	0.011		
5580		10.14	0.010		
5600		10.09	0.010		
5620		9.88	0.010	≤ 30	
5640		9.91	0.010		
5660		9.69	0.009		
5680		9.40	0.009		
5700		9.32	0.009		
5745		9.88	0.010		
5765		10.00	0.010		
5785		10.07	0.010		
5805		10.24	0.011		
5825		10.37	0.011		

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

Test Item		Maximum Conducted Output Power		
Test Mode		Mode 2: IEEE 802.11a Link Mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5180	54M	12.23	0.017	≤ 24
5200		12.07	0.016	
5220		12.06	0.016	
5240		12.10	0.016	
5260		11.05	0.013	
5280		11.04	0.013	
5300		11.25	0.013	
5320		11.27	0.013	
5500		10.48	0.011	
5520		10.38	0.011	
5540		10.20	0.010	
5560		10.16	0.010	
5580		10.10	0.010	
5600		10.04	0.010	
5620		9.84	0.010	≤ 30
5640		9.83	0.010	
5660		9.60	0.009	
5680		9.38	0.009	
5700		9.31	0.009	
5745		9.84	0.010	
5765		9.93	0.010	
5785		10.02	0.010	
5805		10.15	0.010	
5825		10.30	0.011	

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

Test Item		Maximum Conducted Output Power		
Test Mode		Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5180	6.5M	10.55	0.011	≤ 24
5200		10.49	0.011	
5220		10.58	0.011	
5240		10.48	0.011	
5260		10.42	0.011	
5280		10.63	0.012	
5300		10.74	0.012	
5320		10.68	0.012	
5500		9.44	0.009	
5520		9.45	0.009	
5540		9.32	0.009	
5560		9.18	0.008	
5580		9.27	0.008	
5600		9.05	0.008	
5620		9.01	0.008	≤ 30
5640		8.88	0.008	
5660		8.75	0.007	
5680		8.73	0.007	
5700		8.52	0.007	
5745		9.12	0.008	
5765		9.17	0.008	
5785		9.29	0.008	
5805		9.30	0.009	
5825		9.44	0.009	

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

Test Item		Maximum Conducted Output Power		
Test Mode		Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5180	72.2M	10.51	0.011	≤ 24
5200		10.47	0.011	
5220		10.53	0.011	
5240		10.46	0.011	
5260		10.39	0.011	
5280		10.60	0.011	
5300		10.73	0.012	
5320		10.62	0.012	
5500		9.40	0.009	
5520		9.38	0.009	
5540		9.30	0.009	
5560		9.14	0.008	
5580		9.24	0.008	
5600		9.04	0.008	
5620		9.00	0.008	≤ 30
5640		8.84	0.008	
5660		8.72	0.007	
5680		8.70	0.007	
5700		8.44	0.007	
5745		9.03	0.008	
5765		9.11	0.008	
5785		9.24	0.008	
5805		9.26	0.008	
5825		9.36	0.009	

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

Test Item		Maximum Conducted Output Power		
Test Mode		Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5190	13.5M	12.22	0.017	≤ 24
5230		12.47	0.018	
5755		12.61	0.018	
5795		12.71	0.019	
5270		9.74	0.009	
5310		9.79	0.010	
5510		9.74	0.009	
5550		10.69	0.012	
5590		9.63	0.009	
5630		10.16	0.010	
5670		10.32	0.011	
5755		12.22	0.017	≤ 30
5795		12.47	0.018	
5190	150M	12.21	0.017	≤ 24
5230		12.40	0.017	
5755		12.51	0.018	
5795		12.65	0.018	
5270		9.72	0.009	
5310		9.69	0.009	
5510		9.72	0.009	
5550		10.60	0.011	
5590		9.60	0.009	
5630		10.15	0.010	
5670		10.27	0.011	
5755		12.21	0.017	≤ 30
5795		12.40	0.017	

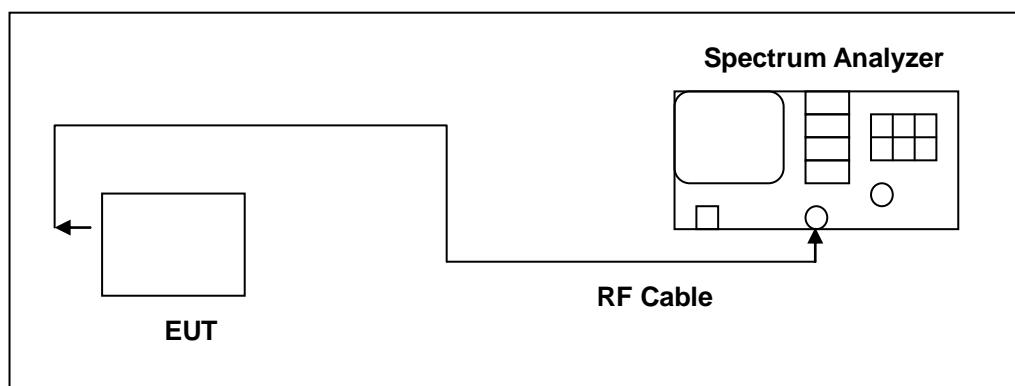
Note: The relevant measured result has the offset with cable loss already.

4.5. 26dB RF 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-1 500	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 v01r02, 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 Measurement
Test Mode	Mode 2: IEEE 802.11a Link Mode
Frequency (MHz)	ANT-0 26dB Bandwidth (MHz)
5180	22.720
5200	23.550
5240	23.430
5260	22.540
5280	22.520
5320	23.080
5500	21.070
5560	21.380
5700	21.010

Test Item	26dB RF Bandwidth Measurement
Test Mode	Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode
Frequency (MHz)	ANT-0 26dB Bandwidth (MHz)
5180	24.130
5200	24.410
5240	23.530
5260	22.050
5280	24.600
5320	23.780
5500	21.990
5560	20.860
5700	21.580

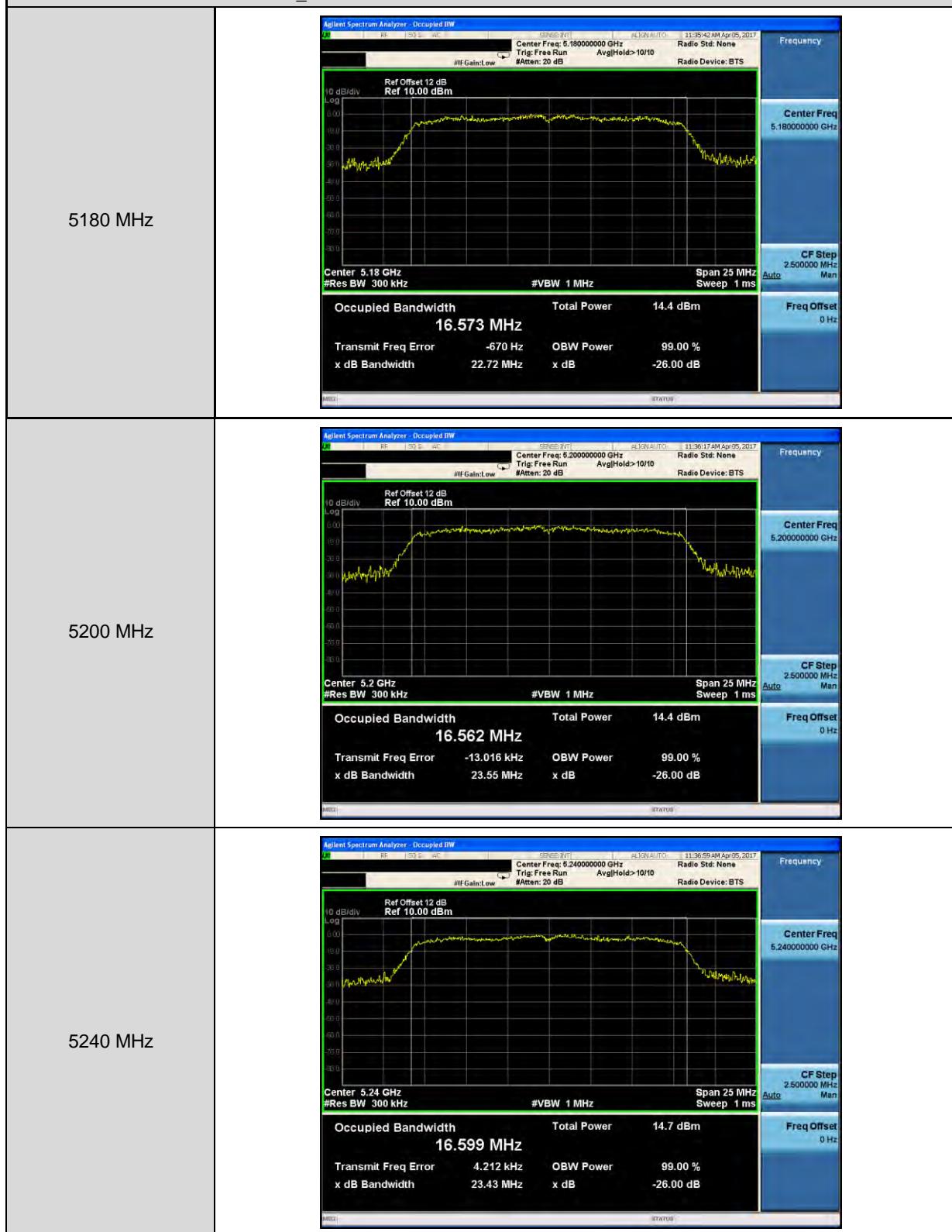
Note: The 99% occupied bandwidth not crossed 5250MHz.

Test Item	26dB RF Bandwidth Measurement
Test Mode	Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode
Frequency (MHz)	ANT-0
	26dB Bandwidth (MHz)
5190	47.180
5230	48.170
5270	48.910
5310	47.430
5510	43.140
5550	45.040
5670	42.870

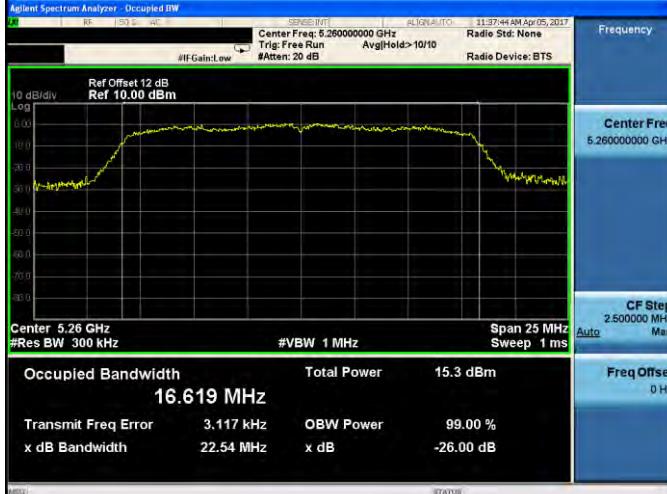
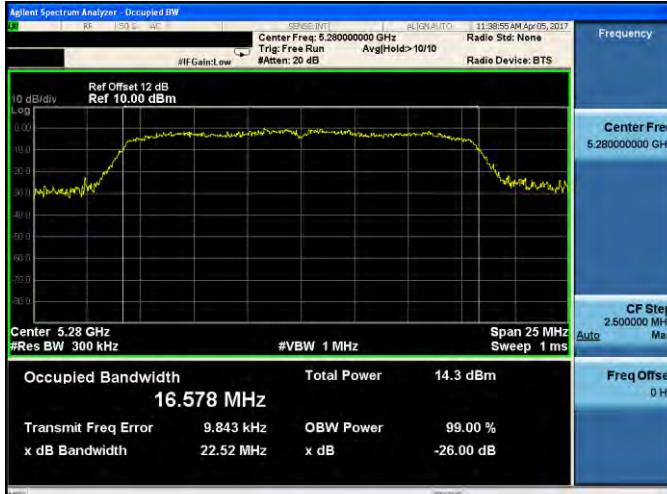
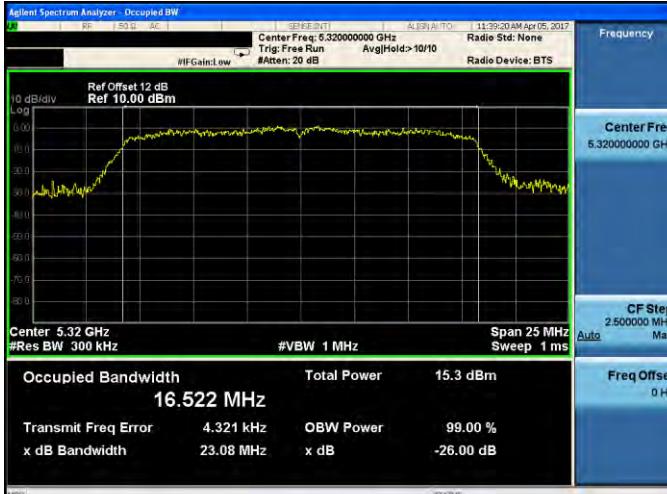
Note: The 99% occupied bandwidth not crossed 5250MHz.

■ Test Graphs

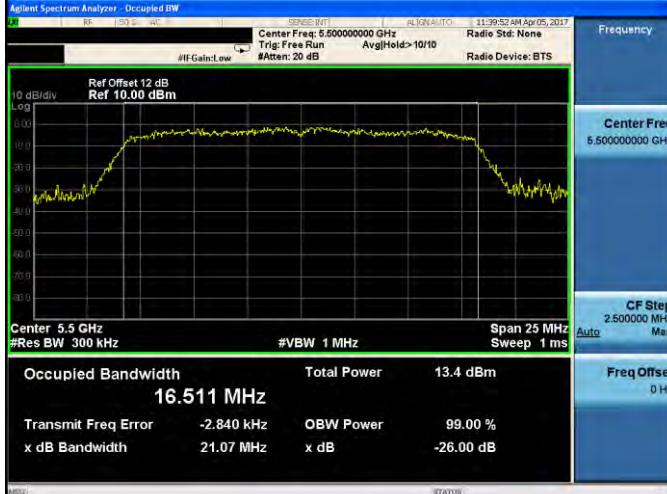
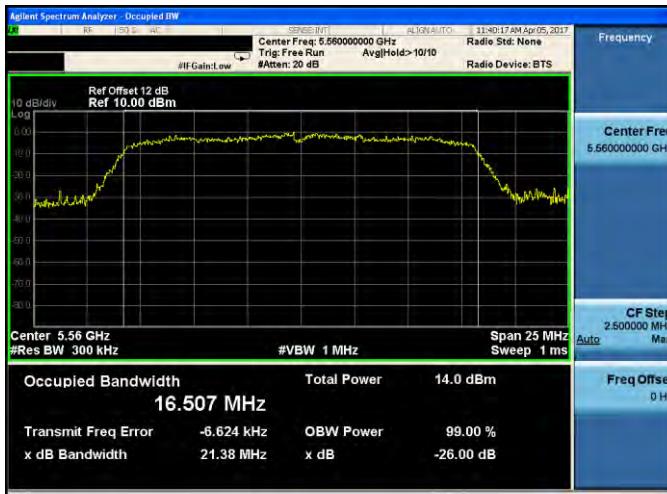
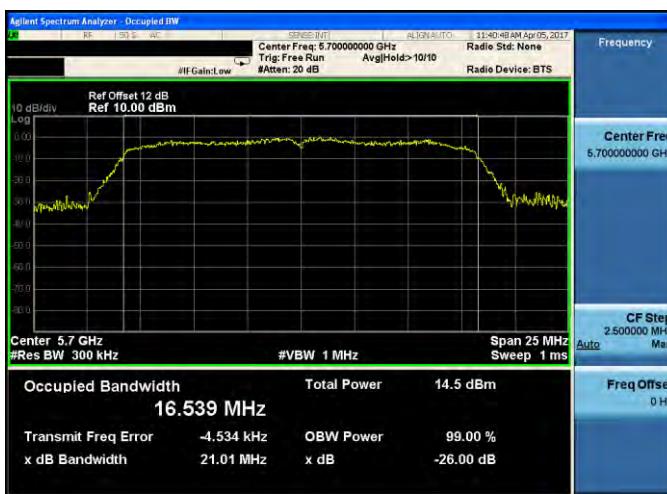
Mode 2: IEEE 802.11a Link Mode_ ANT-0



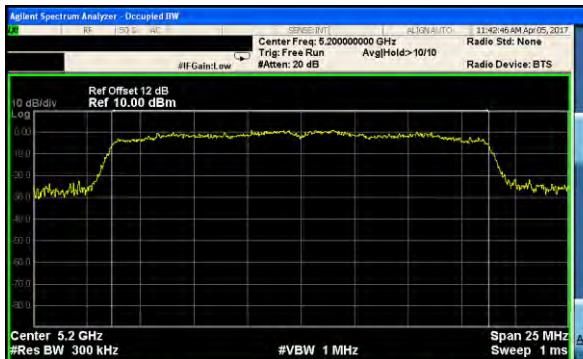
Mode 2: IEEE 802.11a Link Mode_ ANT-0

5260 MHz	 <p>Occupied Bandwidth 16.619 MHz Transmit Freq Error 3.117 kHz x dB Bandwidth 22.54 MHz</p> <p>Total Power 15.3 dBm OBW Power 99.00 % x dB -26.00 dB</p>
5280 MHz	 <p>Occupied Bandwidth 16.578 MHz Transmit Freq Error 9.843 kHz x dB Bandwidth 22.52 MHz</p> <p>Total Power 14.3 dBm OBW Power 99.00 % x dB -26.00 dB</p>
5320 MHz	 <p>Occupied Bandwidth 16.522 MHz Transmit Freq Error 4.321 kHz x dB Bandwidth 23.08 MHz</p> <p>Total Power 15.3 dBm OBW Power 99.00 % x dB -26.00 dB</p>

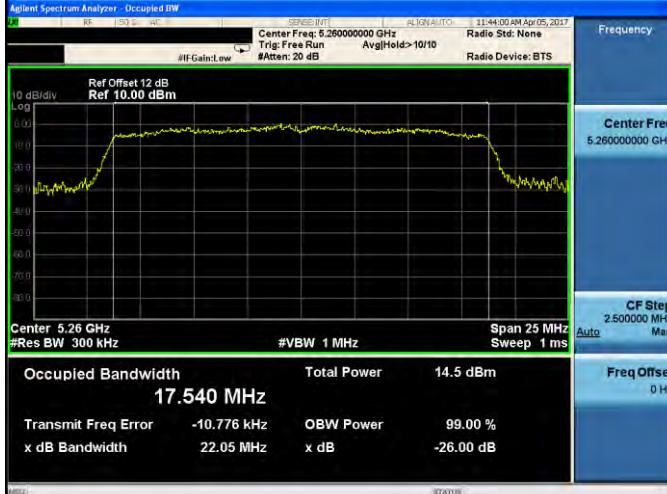
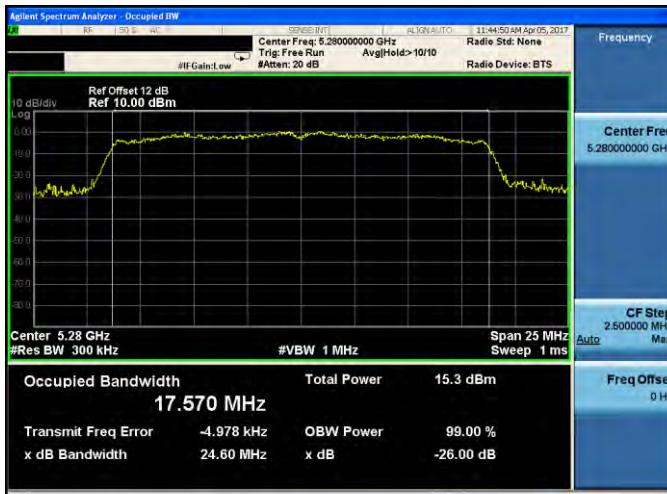
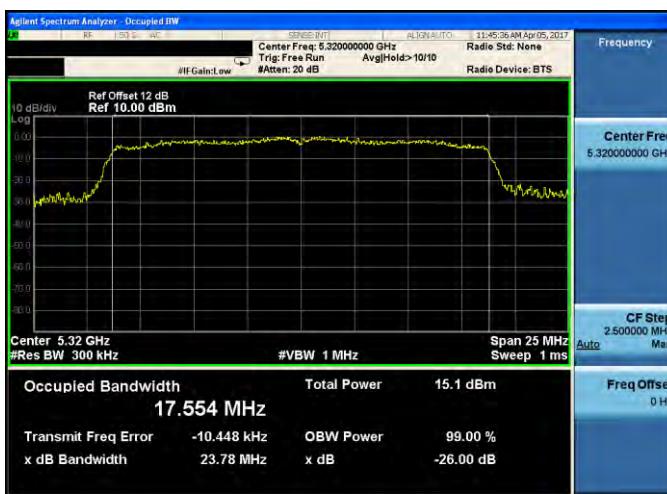
Mode 2: IEEE 802.11a Link Mode_ ANT-0

5500 MHz	 <p>16.511 MHz</p> <table border="1"> <tr> <td>Occupied Bandwidth x dB Bandwidth</td> <td>16.511 MHz 21.07 MHz</td> <td>Total Power OBW Power</td> <td>13.4 dBm 99.00 %</td> </tr> <tr> <td>Transmit Freq Error x dB</td> <td>-2.840 kHz -26.00 dB</td> <td>Freq Offset</td> <td>0 Hz</td> </tr> </table>	Occupied Bandwidth x dB Bandwidth	16.511 MHz 21.07 MHz	Total Power OBW Power	13.4 dBm 99.00 %	Transmit Freq Error x dB	-2.840 kHz -26.00 dB	Freq Offset	0 Hz
Occupied Bandwidth x dB Bandwidth	16.511 MHz 21.07 MHz	Total Power OBW Power	13.4 dBm 99.00 %						
Transmit Freq Error x dB	-2.840 kHz -26.00 dB	Freq Offset	0 Hz						
5560 MHz	 <p>16.507 MHz</p> <table border="1"> <tr> <td>Occupied Bandwidth x dB Bandwidth</td> <td>16.507 MHz 21.38 MHz</td> <td>Total Power OBW Power</td> <td>14.0 dBm 99.00 %</td> </tr> <tr> <td>Transmit Freq Error x dB</td> <td>-6.624 kHz -26.00 dB</td> <td>Freq Offset</td> <td>0 Hz</td> </tr> </table>	Occupied Bandwidth x dB Bandwidth	16.507 MHz 21.38 MHz	Total Power OBW Power	14.0 dBm 99.00 %	Transmit Freq Error x dB	-6.624 kHz -26.00 dB	Freq Offset	0 Hz
Occupied Bandwidth x dB Bandwidth	16.507 MHz 21.38 MHz	Total Power OBW Power	14.0 dBm 99.00 %						
Transmit Freq Error x dB	-6.624 kHz -26.00 dB	Freq Offset	0 Hz						
5700 MHz	 <p>16.539 MHz</p> <table border="1"> <tr> <td>Occupied Bandwidth x dB Bandwidth</td> <td>16.539 MHz 21.01 MHz</td> <td>Total Power OBW Power</td> <td>14.5 dBm 99.00 %</td> </tr> <tr> <td>Transmit Freq Error x dB</td> <td>-4.534 kHz -26.00 dB</td> <td>Freq Offset</td> <td>0 Hz</td> </tr> </table>	Occupied Bandwidth x dB Bandwidth	16.539 MHz 21.01 MHz	Total Power OBW Power	14.5 dBm 99.00 %	Transmit Freq Error x dB	-4.534 kHz -26.00 dB	Freq Offset	0 Hz
Occupied Bandwidth x dB Bandwidth	16.539 MHz 21.01 MHz	Total Power OBW Power	14.5 dBm 99.00 %						
Transmit Freq Error x dB	-4.534 kHz -26.00 dB	Freq Offset	0 Hz						

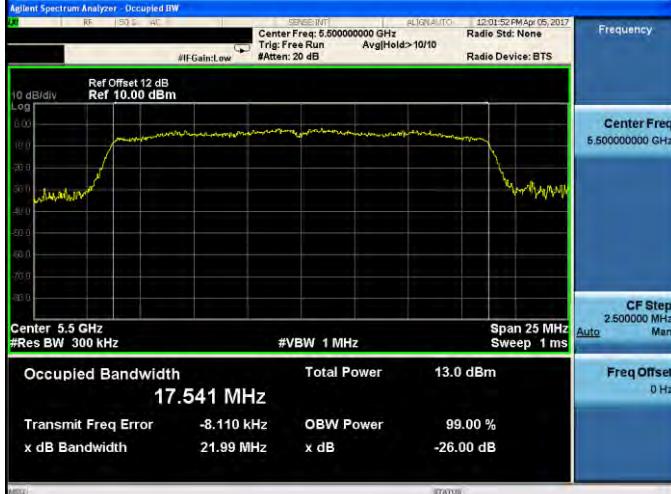
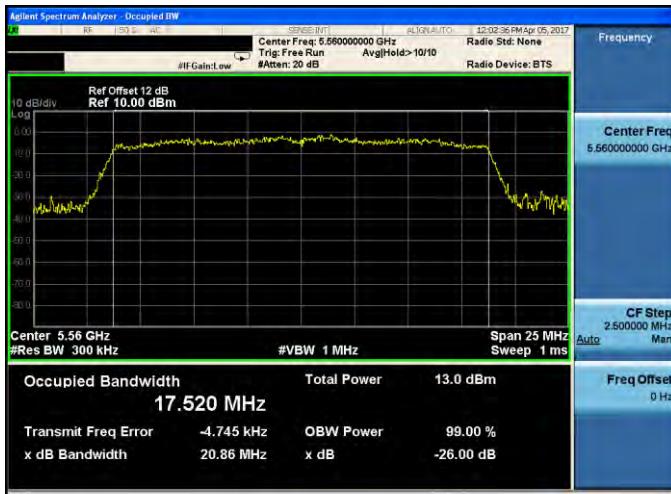
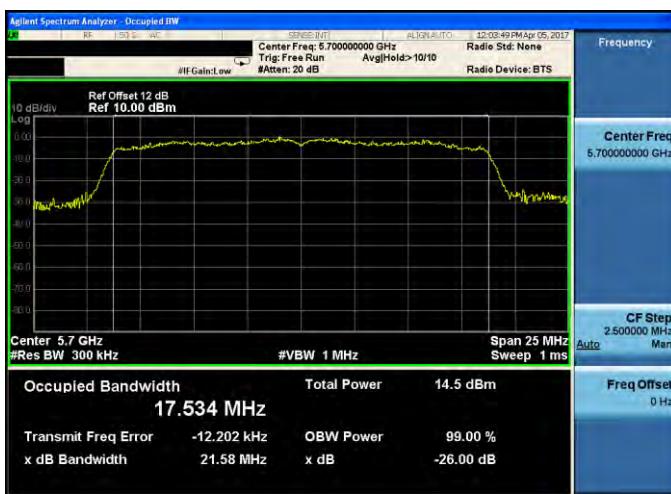
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ ANT0

5180 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.180000000 GHz Radio Std: None Trig: Free Run Avg/Hold>10/10 Radio Device: BTS #IF Gain:Low #Aver: 20 dB</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.18 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms</p> <table border="1"> <tr><td>Occupied Bandwidth</td><td>Total Power</td><td>15.5 dBm</td></tr> <tr><td colspan="2">17.578 MHz</td><td></td></tr> <tr><td>Transmit Freq Error</td><td>-16.247 kHz</td><td>OBW Power</td><td>99.00 %</td></tr> <tr><td>x dB Bandwidth</td><td>24.13 MHz</td><td>x dB</td><td>-26.00 dB</td></tr> </table> <p>Frequency</p> <p>Center Freq 5.180000000 GHz</p> <p>CF Step 2.500000 MHz Man</p> <p>Freq Offset 0 Hz</p>	Occupied Bandwidth	Total Power	15.5 dBm	17.578 MHz			Transmit Freq Error	-16.247 kHz	OBW Power	99.00 %	x dB Bandwidth	24.13 MHz	x dB	-26.00 dB
Occupied Bandwidth	Total Power	15.5 dBm													
17.578 MHz															
Transmit Freq Error	-16.247 kHz	OBW Power	99.00 %												
x dB Bandwidth	24.13 MHz	x dB	-26.00 dB												
5200 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.200000000 GHz Radio Std: None Trig: Free Run Avg/Hold>10/10 Radio Device: BTS #IF Gain:Low #Aver: 20 dB</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.2 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms</p> <table border="1"> <tr><td>Occupied Bandwidth</td><td>Total Power</td><td>15.8 dBm</td></tr> <tr><td colspan="2">17.563 MHz</td><td></td></tr> <tr><td>Transmit Freq Error</td><td>-19.788 kHz</td><td>OBW Power</td><td>99.00 %</td></tr> <tr><td>x dB Bandwidth</td><td>24.41 MHz</td><td>x dB</td><td>-26.00 dB</td></tr> </table> <p>Frequency</p> <p>Center Freq 5.200000000 GHz</p> <p>CF Step 2.500000 MHz Man</p> <p>Freq Offset 0 Hz</p>	Occupied Bandwidth	Total Power	15.8 dBm	17.563 MHz			Transmit Freq Error	-19.788 kHz	OBW Power	99.00 %	x dB Bandwidth	24.41 MHz	x dB	-26.00 dB
Occupied Bandwidth	Total Power	15.8 dBm													
17.563 MHz															
Transmit Freq Error	-19.788 kHz	OBW Power	99.00 %												
x dB Bandwidth	24.41 MHz	x dB	-26.00 dB												
5240 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.240000000 GHz Radio Std: None Trig: Free Run Avg/Hold>10/10 Radio Device: BTS #IF Gain:Low #Aver: 20 dB</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.24 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms</p> <table border="1"> <tr><td>Occupied Bandwidth</td><td>Total Power</td><td>14.6 dBm</td></tr> <tr><td colspan="2">17.572 MHz</td><td></td></tr> <tr><td>Transmit Freq Error</td><td>-15.318 kHz</td><td>OBW Power</td><td>99.00 %</td></tr> <tr><td>x dB Bandwidth</td><td>23.53 MHz</td><td>x dB</td><td>-26.00 dB</td></tr> </table> <p>Frequency</p> <p>Center Freq 5.240000000 GHz</p> <p>CF Step 2.500000 MHz Man</p> <p>Freq Offset 0 Hz</p>	Occupied Bandwidth	Total Power	14.6 dBm	17.572 MHz			Transmit Freq Error	-15.318 kHz	OBW Power	99.00 %	x dB Bandwidth	23.53 MHz	x dB	-26.00 dB
Occupied Bandwidth	Total Power	14.6 dBm													
17.572 MHz															
Transmit Freq Error	-15.318 kHz	OBW Power	99.00 %												
x dB Bandwidth	23.53 MHz	x dB	-26.00 dB												

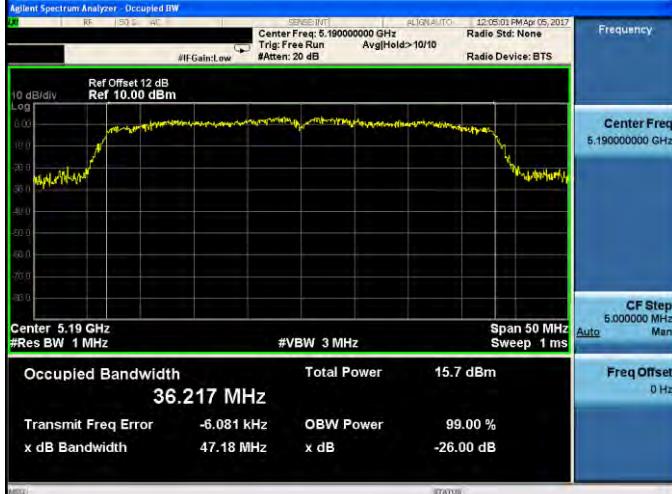
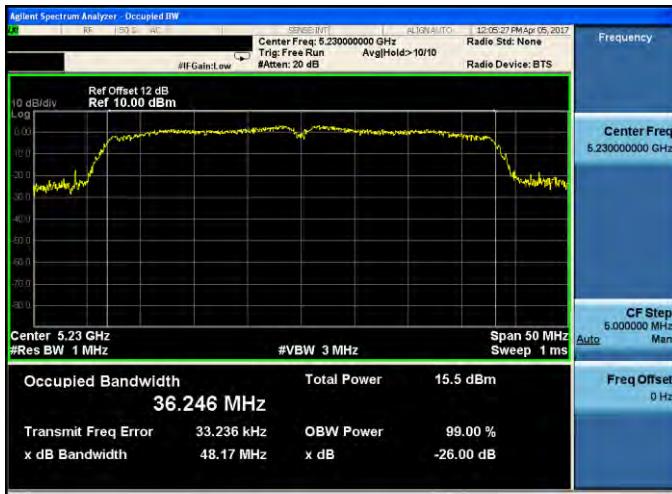
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ ANT0

5260 MHz	 <p>Occupied Bandwidth 17.540 MHz Transmit Freq Error -10.776 kHz x dB Bandwidth 22.05 MHz</p> <p>Total Power 14.5 dBm OBW Power 99.00 % x dB -26.00 dB</p>
5280 MHz	 <p>Occupied Bandwidth 17.570 MHz Transmit Freq Error -4.978 kHz x dB Bandwidth 24.60 MHz</p> <p>Total Power 15.3 dBm OBW Power 99.00 % x dB -26.00 dB</p>
5320 MHz	 <p>Occupied Bandwidth 17.554 MHz Transmit Freq Error -10.448 kHz x dB Bandwidth 23.78 MHz</p> <p>Total Power 15.1 dBm OBW Power 99.00 % x dB -26.00 dB</p>

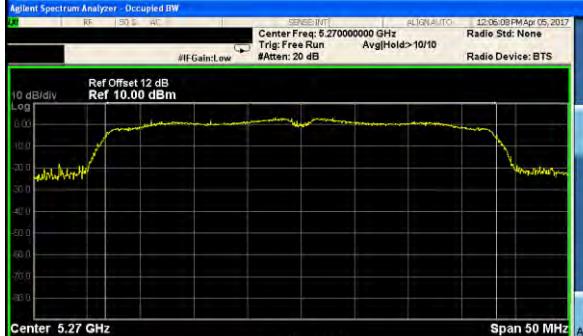
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ ANT0

5500 MHz	 <p>Occupied Bandwidth 17.541 MHz</p> <p>Transmit Freq Error -8.110 kHz x dB Bandwidth 21.99 MHz</p> <p>Total Power 13.0 dBm OBW Power 99.00 % x dB -26.00 dB</p>
5560 MHz	 <p>Occupied Bandwidth 17.520 MHz</p> <p>Transmit Freq Error -4.745 kHz x dB Bandwidth 20.86 MHz</p> <p>Total Power 13.0 dBm OBW Power 99.00 % x dB -26.00 dB</p>
5700 MHz	 <p>Occupied Bandwidth 17.534 MHz</p> <p>Transmit Freq Error -12.202 kHz x dB Bandwidth 21.58 MHz</p> <p>Total Power 14.5 dBm OBW Power 99.00 % x dB -26.00 dB</p>

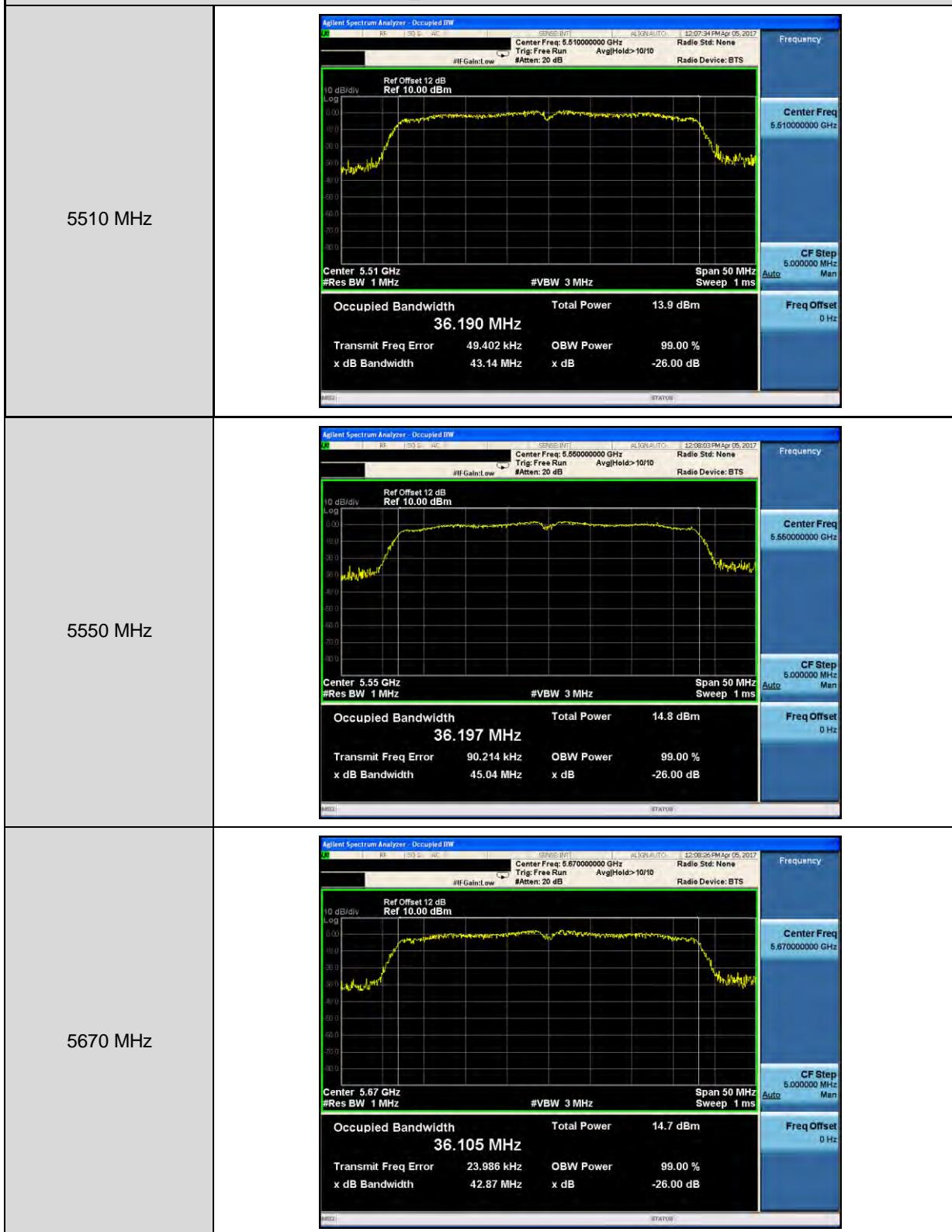
Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ ANT0

5190 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.190000000 GHz Radio Std: None Trig: Free Run Avg/Hold>10/10 Radio Device: BTS #IF Gain:Low #Aver: 20 dB</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.19 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <table border="1"> <tr><td>Occupied Bandwidth</td><td>Total Power</td><td>15.7 dBm</td></tr> <tr><td colspan="2">36.217 MHz</td><td></td></tr> <tr><td>Transmit Freq Error</td><td>-6.081 kHz</td><td>OBW Power</td><td>99.00 %</td></tr> <tr><td>x dB Bandwidth</td><td>47.18 MHz</td><td>x dB</td><td>-26.00 dB</td></tr> </table> <p>Frequency Center Freq 5.190000000 GHz CF Step 5.000000 MHz Man Freq Offset 0 Hz</p>	Occupied Bandwidth	Total Power	15.7 dBm	36.217 MHz			Transmit Freq Error	-6.081 kHz	OBW Power	99.00 %	x dB Bandwidth	47.18 MHz	x dB	-26.00 dB
Occupied Bandwidth	Total Power	15.7 dBm													
36.217 MHz															
Transmit Freq Error	-6.081 kHz	OBW Power	99.00 %												
x dB Bandwidth	47.18 MHz	x dB	-26.00 dB												
5230 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.230000000 GHz Radio Std: None Trig: Free Run Avg/Hold>10/10 Radio Device: BTS #IF Gain:Low #Aver: 20 dB</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.23 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <table border="1"> <tr><td>Occupied Bandwidth</td><td>Total Power</td><td>15.5 dBm</td></tr> <tr><td colspan="2">36.246 MHz</td><td></td></tr> <tr><td>Transmit Freq Error</td><td>33.236 kHz</td><td>OBW Power</td><td>99.00 %</td></tr> <tr><td>x dB Bandwidth</td><td>48.17 MHz</td><td>x dB</td><td>-26.00 dB</td></tr> </table> <p>Frequency Center Freq 5.230000000 GHz CF Step 5.000000 MHz Man Freq Offset 0 Hz</p>	Occupied Bandwidth	Total Power	15.5 dBm	36.246 MHz			Transmit Freq Error	33.236 kHz	OBW Power	99.00 %	x dB Bandwidth	48.17 MHz	x dB	-26.00 dB
Occupied Bandwidth	Total Power	15.5 dBm													
36.246 MHz															
Transmit Freq Error	33.236 kHz	OBW Power	99.00 %												
x dB Bandwidth	48.17 MHz	x dB	-26.00 dB												

Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ ANT0

5270 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.270000000 GHz Radio Std: None Trig: Free Run Avg/Hold>10/10 Radio Device: BTS #IF Gain:Low #Aver: 20 dB</p> <p>10 dB/div Log</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>Center 5.27 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <table border="1"> <tr><td>Occupied Bandwidth</td><td>Total Power</td><td>15.7 dBm</td></tr> <tr><td colspan="2">36.411 MHz</td><td></td></tr> <tr><td>Transmit Freq Error</td><td>10.446 kHz</td><td>OBW Power</td><td>99.00 %</td></tr> <tr><td>x dB Bandwidth</td><td>48.91 MHz</td><td>x dB</td><td>-26.00 dB</td></tr> </table> <p>Freq Offset 0 Hz</p>	Occupied Bandwidth	Total Power	15.7 dBm	36.411 MHz			Transmit Freq Error	10.446 kHz	OBW Power	99.00 %	x dB Bandwidth	48.91 MHz	x dB	-26.00 dB
Occupied Bandwidth	Total Power	15.7 dBm													
36.411 MHz															
Transmit Freq Error	10.446 kHz	OBW Power	99.00 %												
x dB Bandwidth	48.91 MHz	x dB	-26.00 dB												
5310 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.310000000 GHz Radio Std: None Trig: Free Run Avg/Hold>10/10 Radio Device: BTS #IF Gain:Low #Aver: 20 dB</p> <p>10 dB/div Log</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>Center 5.31 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <table border="1"> <tr><td>Occupied Bandwidth</td><td>Total Power</td><td>14.7 dBm</td></tr> <tr><td colspan="2">36.305 MHz</td><td></td></tr> <tr><td>Transmit Freq Error</td><td>54.286 kHz</td><td>OBW Power</td><td>99.00 %</td></tr> <tr><td>x dB Bandwidth</td><td>47.43 MHz</td><td>x dB</td><td>-26.00 dB</td></tr> </table> <p>Freq Offset 0 Hz</p>	Occupied Bandwidth	Total Power	14.7 dBm	36.305 MHz			Transmit Freq Error	54.286 kHz	OBW Power	99.00 %	x dB Bandwidth	47.43 MHz	x dB	-26.00 dB
Occupied Bandwidth	Total Power	14.7 dBm													
36.305 MHz															
Transmit Freq Error	54.286 kHz	OBW Power	99.00 %												
x dB Bandwidth	47.43 MHz	x dB	-26.00 dB												

Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ ANT0



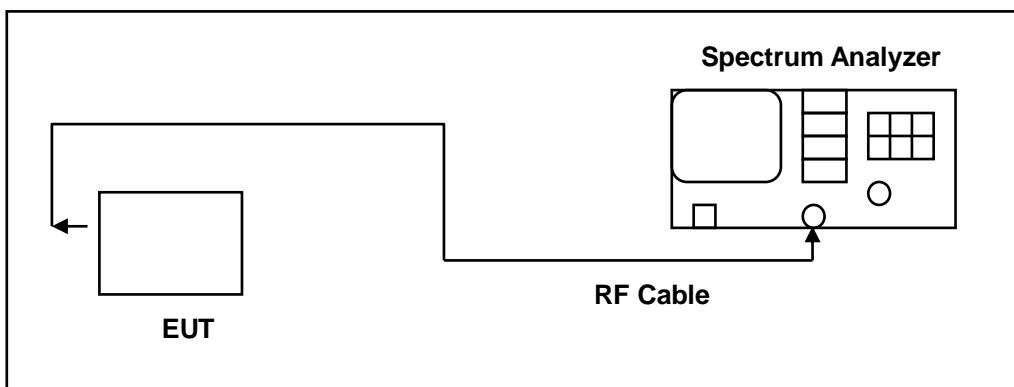
4.6. 6dB RF Bandwidth Measurement

■ 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 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

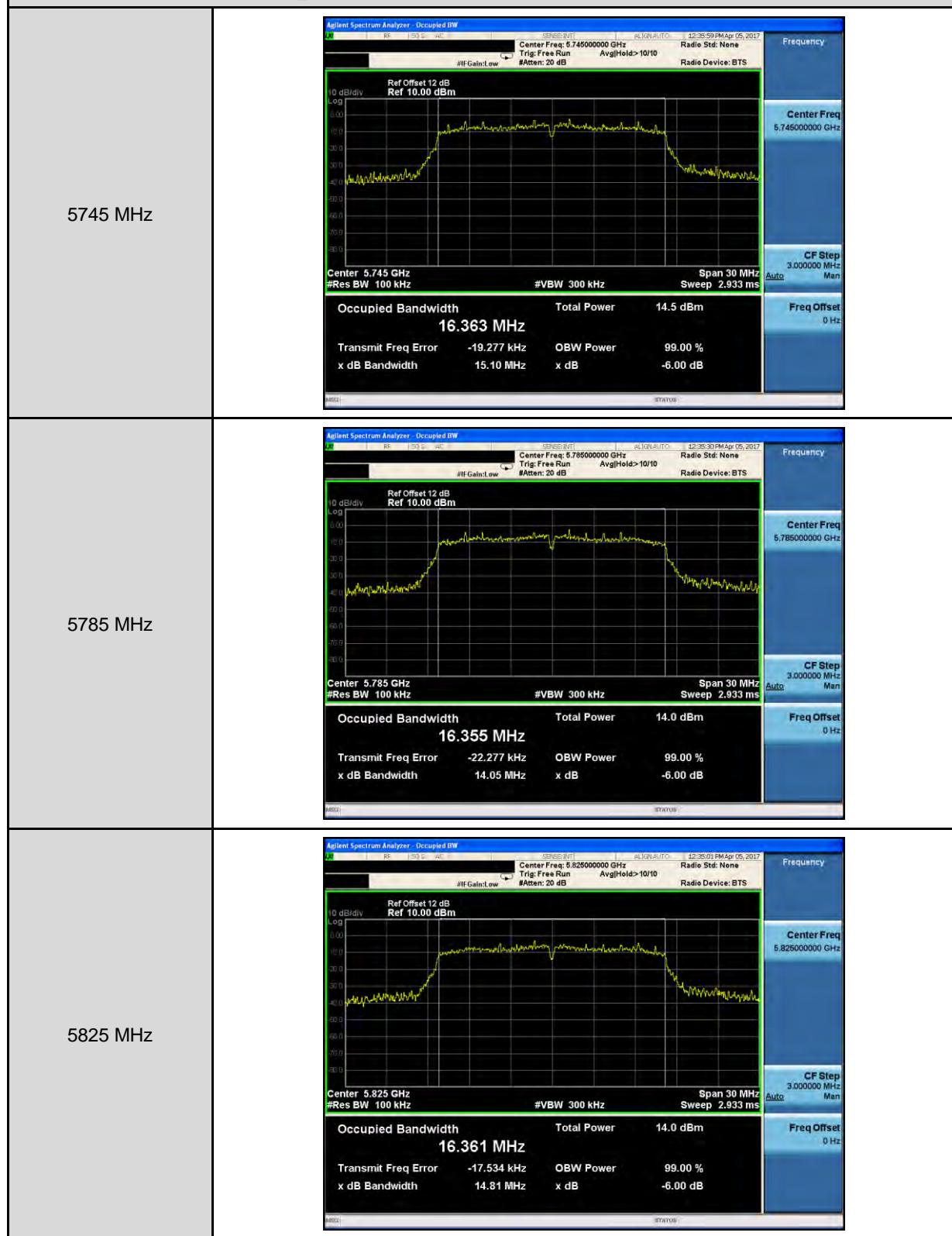
Test Item	6dB RF Bandwidth	
Test Mode	Mode 2: IEEE 802.11a Link Mode	
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
	ANT-0	
5745	15100	> 500
5785	14050	> 500
5825	14810	> 500

Test Item	6dB RF Bandwidth	
Test Mode	Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode	
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
	ANT-0	
5745	16070	> 500
5785	15100	> 500
5825	14770	> 500

Test Item	6dB RF Bandwidth	
Test Mode	Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode	
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
	ANT-0	
5755	33910	> 500
5795	35110	> 500

■ Test Graphs

Mode 2: IEEE 802.11a Link Mode_ANT-0



Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ANT-0

<p>5745 MHz</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.745000000 GHz ALIGN:AUTO 12:33:05 PM Apr 05, 2017 #IFGain:Low Trig: Free Run Avg Hold:>10/10 Radio Std: None #Atten: 20 dB Radio Device: BTS</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.745 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 14.5 dBm 17.528 MHz</p> <p>Transmit Freq Error -24.659 kHz OBW Power 99.00 % x dB Bandwidth 16.07 MHz x dB -6.00 dB</p> <p>CF Step 3.00000 MHz Auto Freq Offset 0 Hz</p>
<p>5785 MHz</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.785000000 GHz ALIGN:AUTO 12:33:51 PM Apr 05, 2017 #IFGain:Low Trig: Free Run Avg Hold:>10/10 Radio Std: None #Atten: 20 dB Radio Device: BTS</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.785 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 14.4 dBm 17.534 MHz</p> <p>Transmit Freq Error -21.703 kHz OBW Power 99.00 % x dB Bandwidth 15.10 MHz x dB -6.00 dB</p> <p>CF Step 3.00000 MHz Auto Freq Offset 0 Hz</p>
<p>5825 MHz</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.825000000 GHz ALIGN:AUTO 12:34:38 PM Apr 05, 2017 #IFGain:Low Trig: Free Run Avg Hold:>10/10 Radio Std: None #Atten: 20 dB Radio Device: BTS</p> <p>Ref Offset 12 dB Ref 10.00 dBm</p> <p>10 dB/div Log</p> <p>Center 5.825 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 14.0 dBm 17.536 MHz</p> <p>Transmit Freq Error -19.099 kHz OBW Power 99.00 % x dB Bandwidth 14.77 MHz x dB -6.00 dB</p> <p>CF Step 3.00000 MHz Auto Freq Offset 0 Hz</p>

Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ANT-0



4.7. Peak Power Spectral Density Measurement

■ Limit

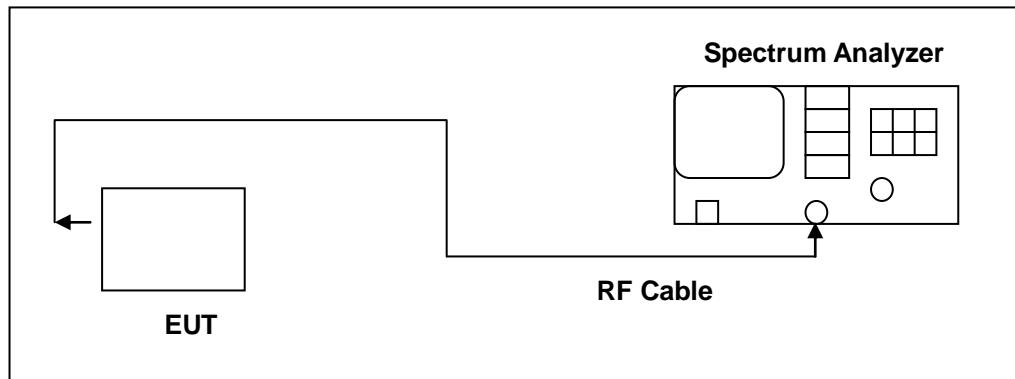
Conducted power spectral density

Frequency Range (MHz)	FCC Limit
	Client
5.150 ~ 5.250 GHz	11 dBm/MHz
5.250 ~ 5.350 GHz	11 dBm/MHz
5.470 ~ 5.725 GHz	11 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,

* SISO mode for ANT-0 : Max. Gain = 5.96 dBi < 6dBi

■ 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 v01r02, 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	-1.843	0.225	-1.618	< 11
5200	-2.029	0.225	-1.804	
5240	-2.547	0.225	-2.322	
5260	-2.815	0.225	-2.590	
5280	-3.047	0.225	-2.822	
5320	-3.411	0.225	-3.186	
5500	-4.013	0.225	-3.788	
5560	-3.517	0.225	-3.292	
5700	-2.852	0.225	-2.627	

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	-11.41	0.225	-4.19	< 30
5785	-11.42	0.225	-4.20	
5825	-11.57	0.225	-4.35	

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

Conversion ratio = $10 \times \log(500k/100k)$

Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode			
Frequency (MHz)	ANT-0			
Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)	< 11
5180	-1.816	0.056	-1.760	
5200	-2.221	0.056	-2.165	
5240	-2.658	0.056	-2.602	
5260	-2.756	0.056	-2.700	
5280	-2.963	0.056	-2.907	
5320	-3.526	0.056	-3.470	
5500	-3.771	0.056	-3.715	
5560	-3.299	0.056	-3.243	
5700	-2.779	0.056	-2.723	

Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode			
Frequency (MHz)	ANT-0			
Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)	< 30
5745	-11.56	0.056	-4.51	
5785	-11.38	0.056	-4.34	
5825	-11.58	0.056	-4.54	

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

Conversion ratio = $10^{\ast}\log(500k/100k)$

Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode			
Frequency (MHz)	ANT-0			
Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)	< 11
5190	-4.655	0.332	-4.323	
5230	-5.021	0.332	-4.689	
5270	-5.657	0.332	-5.325	
5310	-5.599	0.332	-5.267	
5510	-6.172	0.332	-5.840	
5550	-6.127	0.332	-5.795	
5670	-5.548	0.332	-5.216	

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

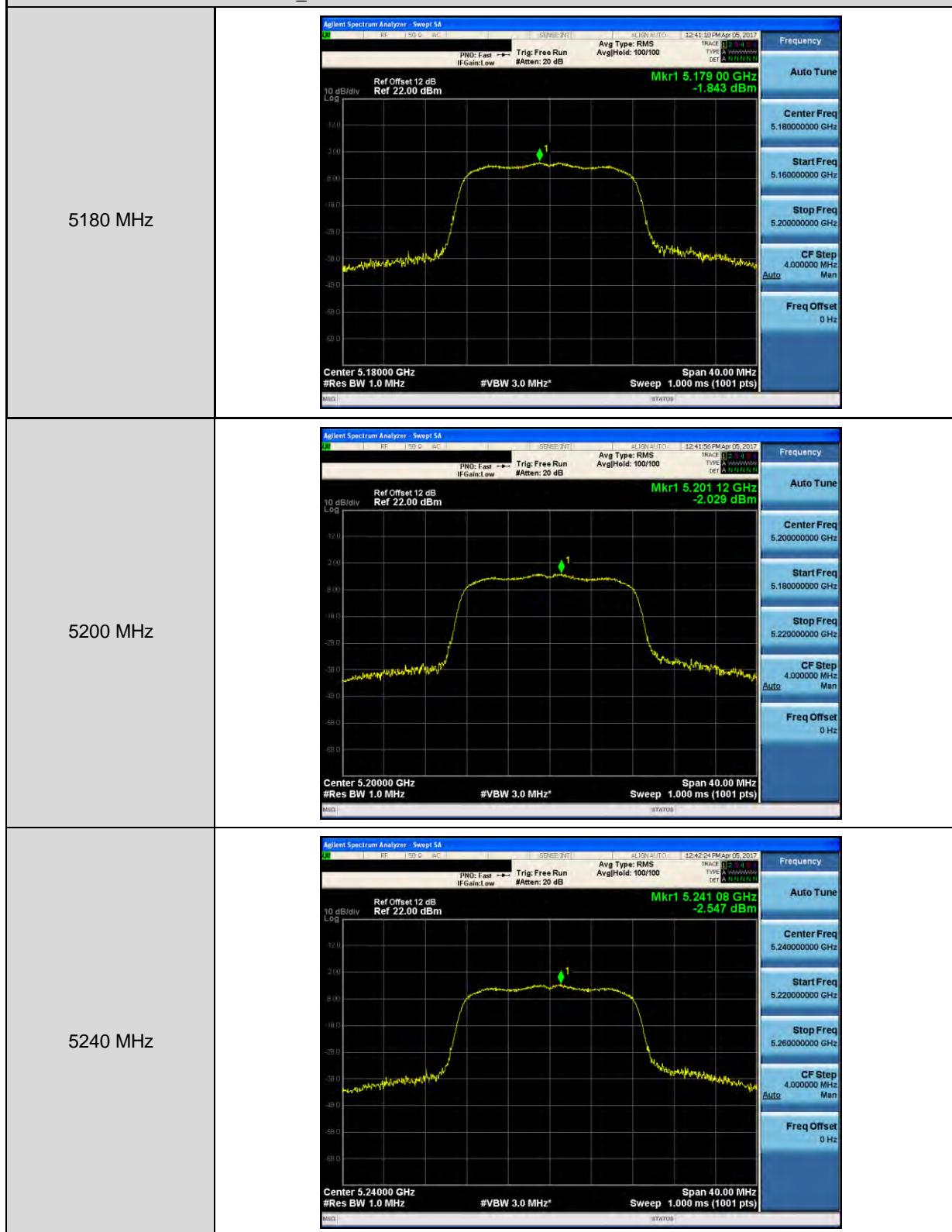
Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode			
Frequency (MHz)	ANT-0			
Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)	< 30
5755	-14.17	0.332	-6.84	
5795	-14.44	0.332	-7.12	

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

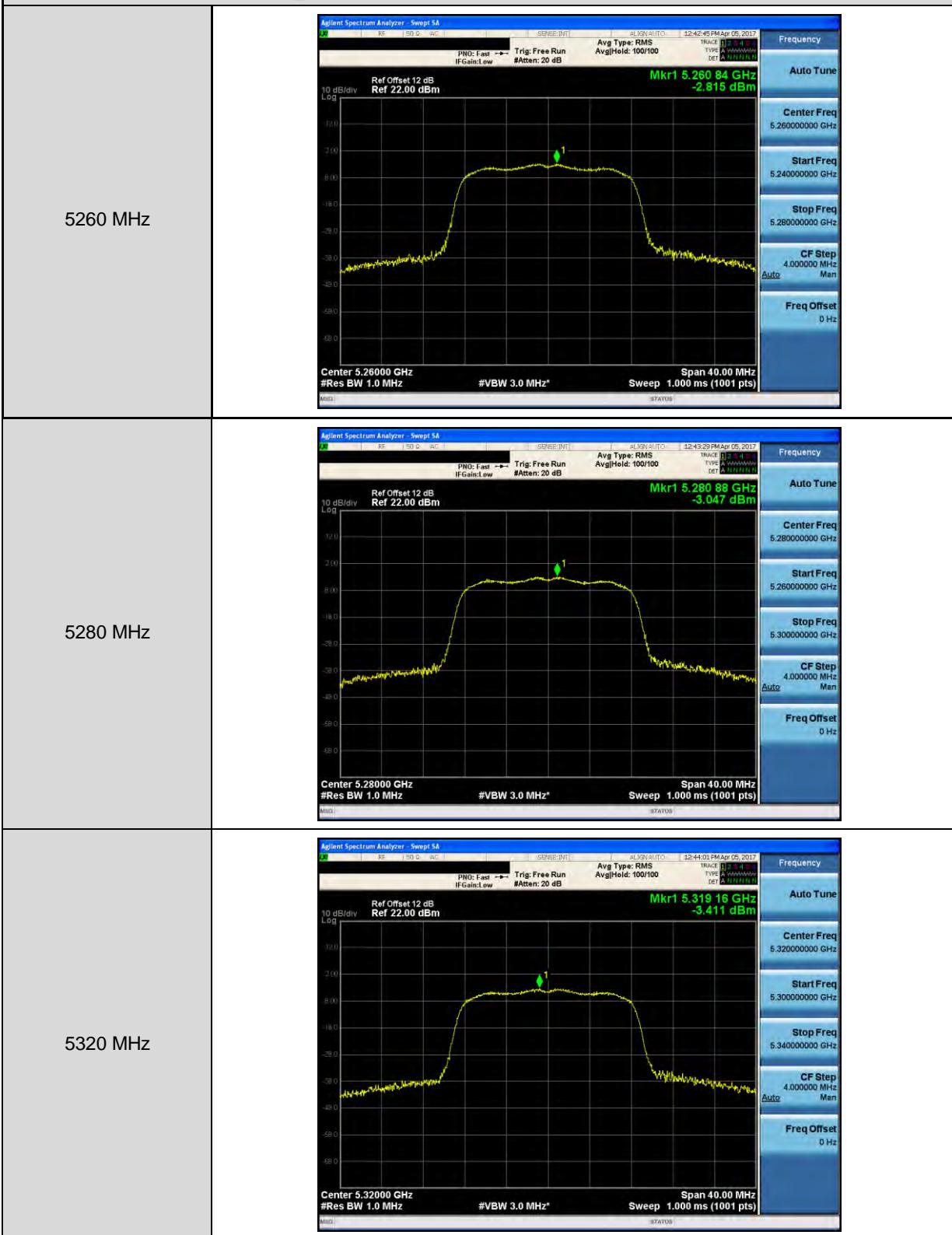
Conversion ratio = $10 \times \log(500k/100k)$

■ Test Graphs

Mode 2: IEEE 802.11a Link Mode_ ANT-0

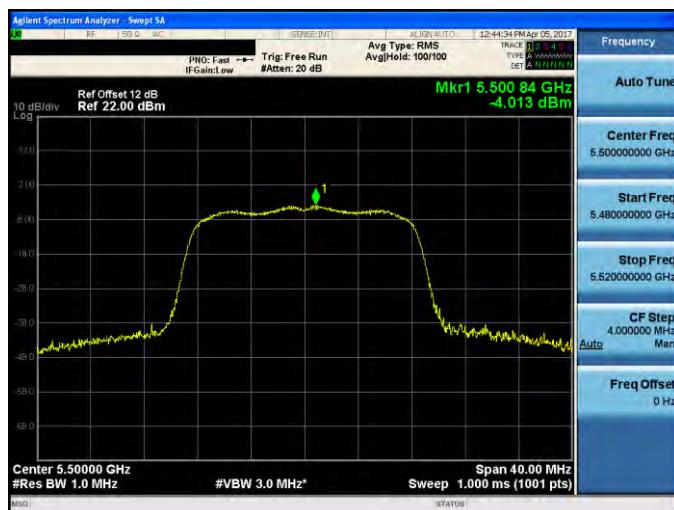


Mode 2: IEEE 802.11a Link Mode_ ANT-0

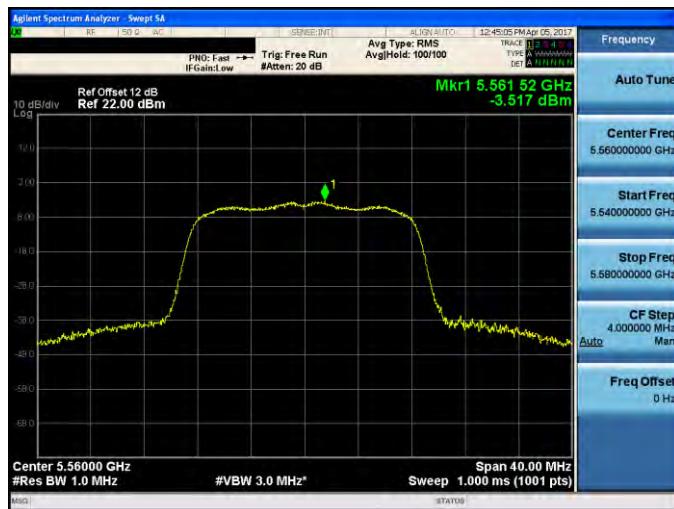


Mode 2: IEEE 802.11a Link Mode_ ANT-0

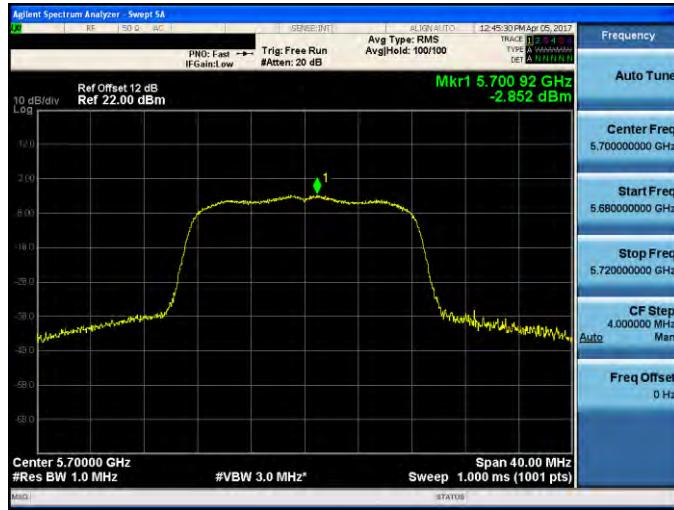
5500 MHz



5560 MHz



5700 MHz

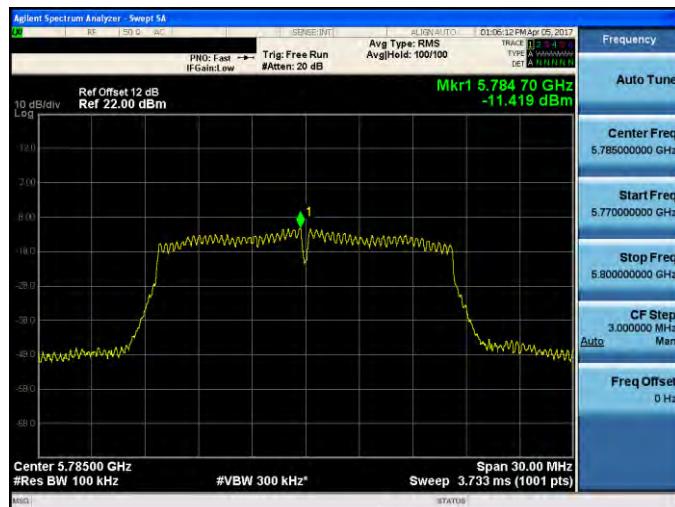


Mode 2: IEEE 802.11a Link Mode_ ANT-0

5745 MHz



5785 MHz



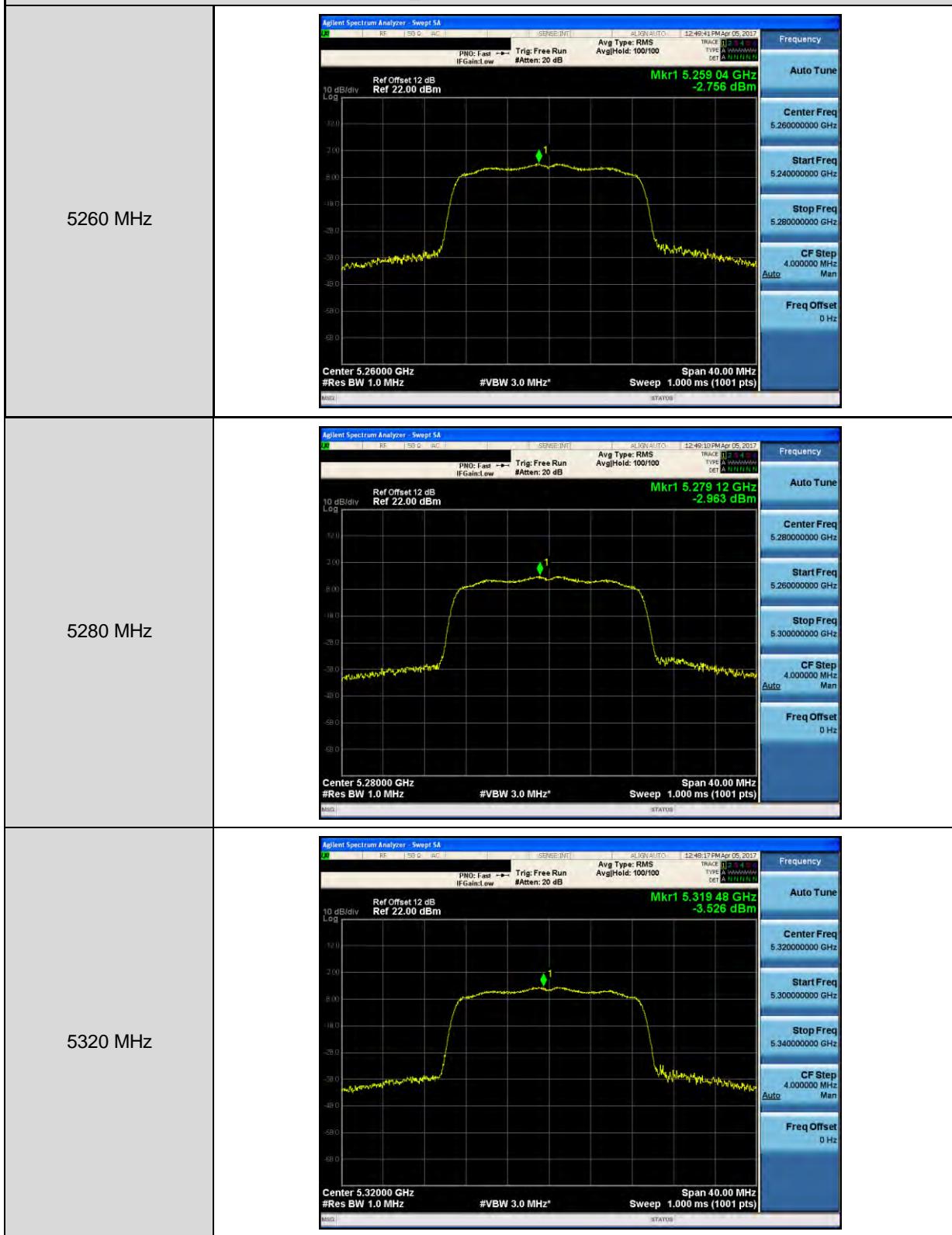
5825 MHz



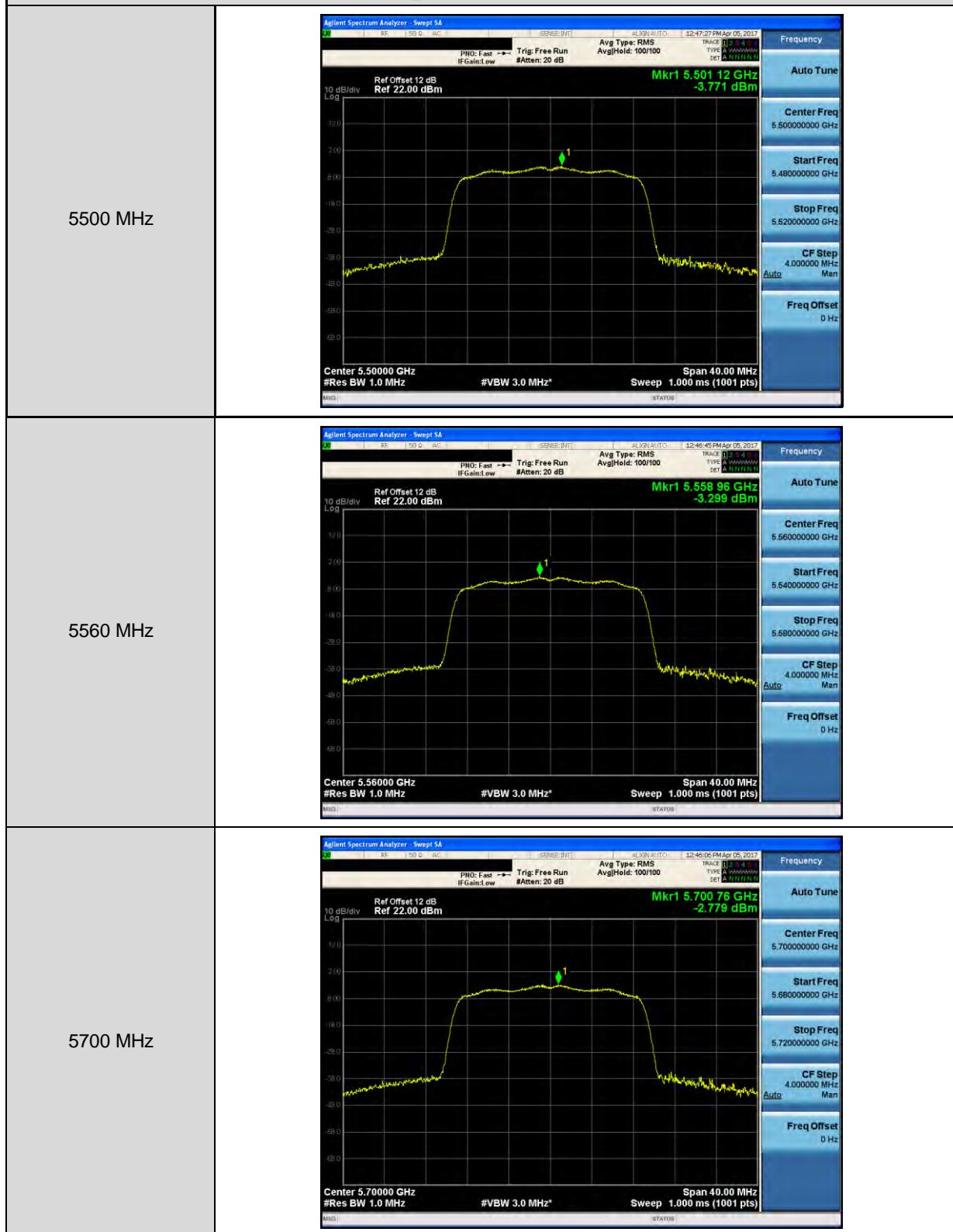
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ ANT0



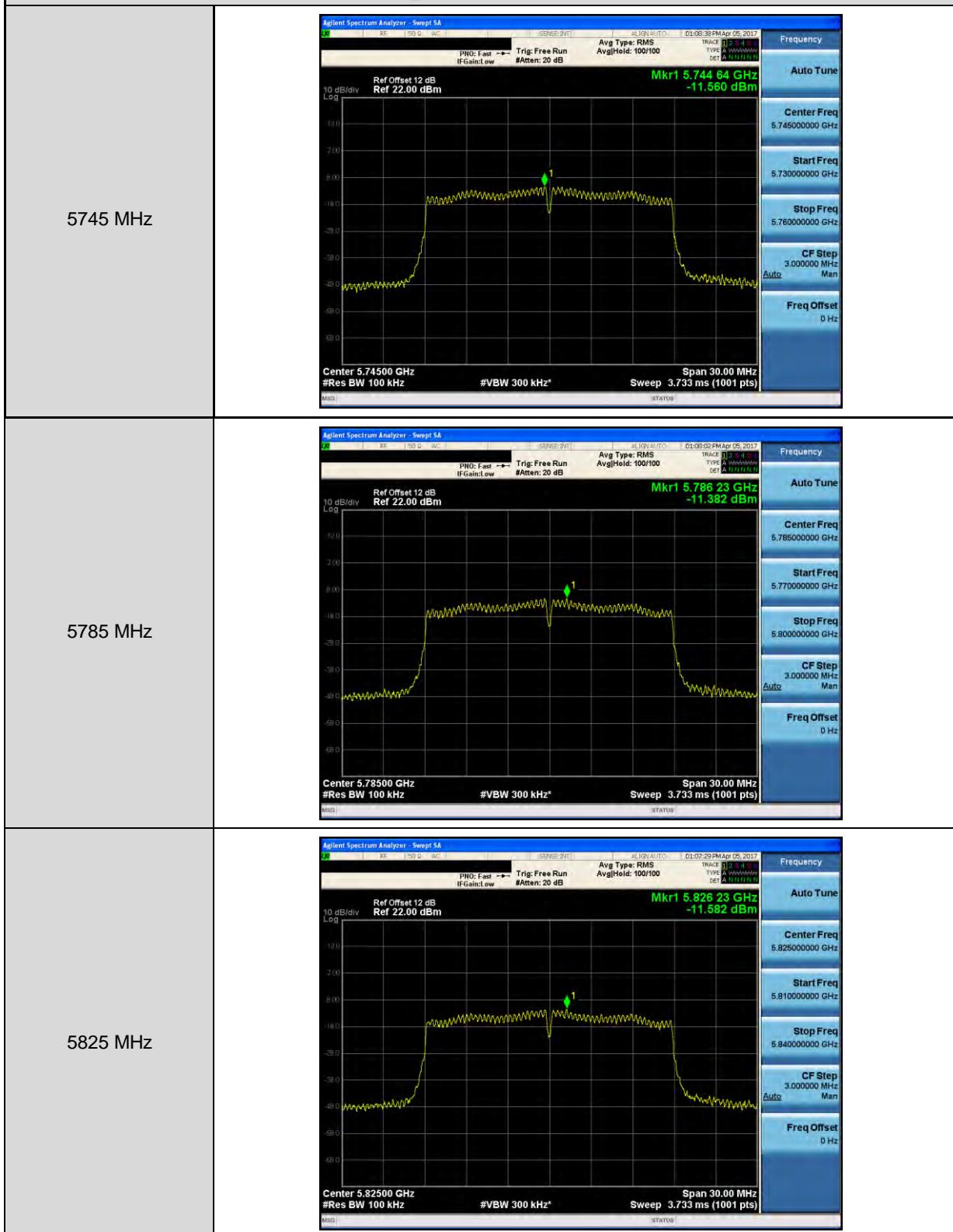
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ ANT0



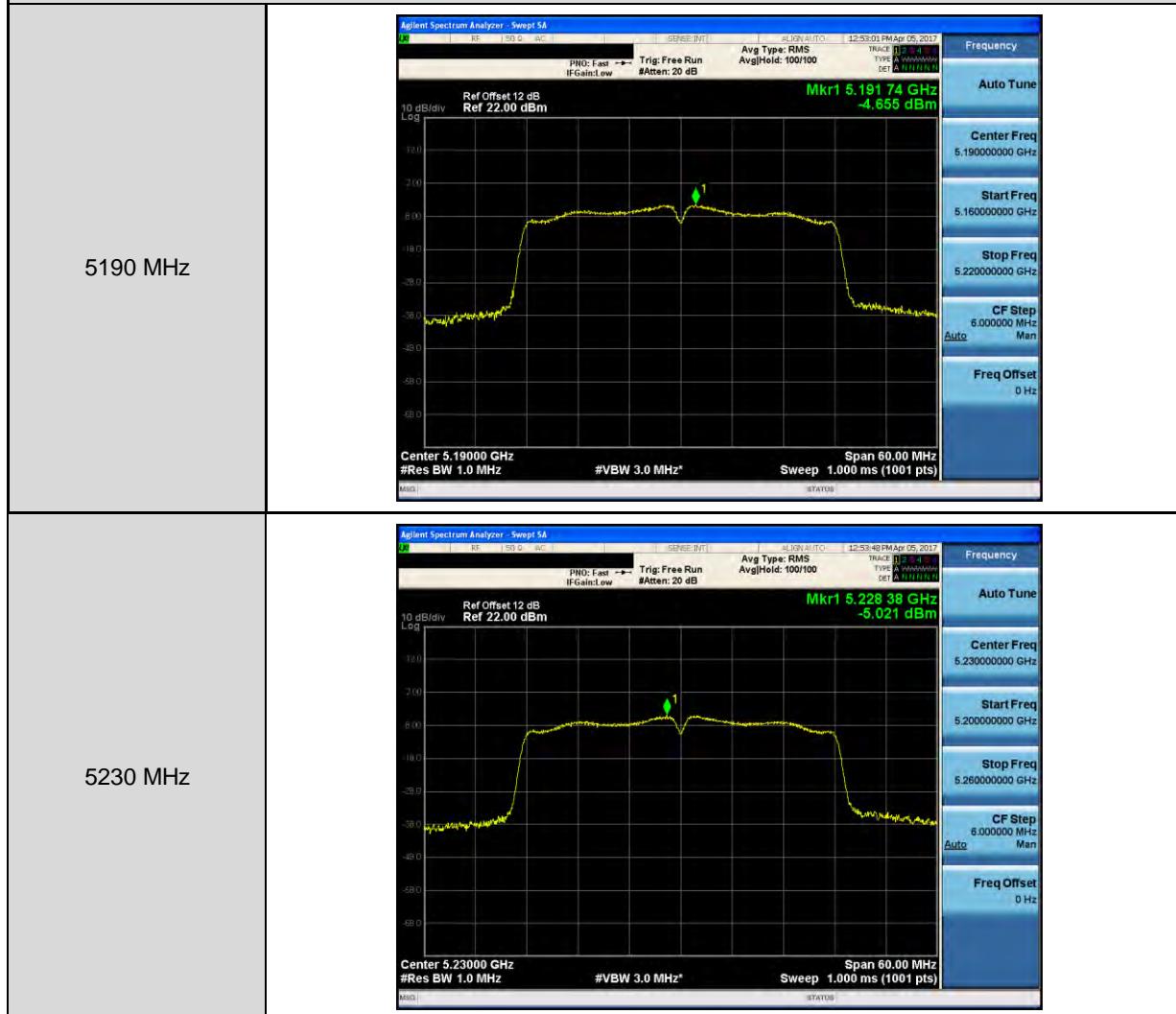
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ ANT0



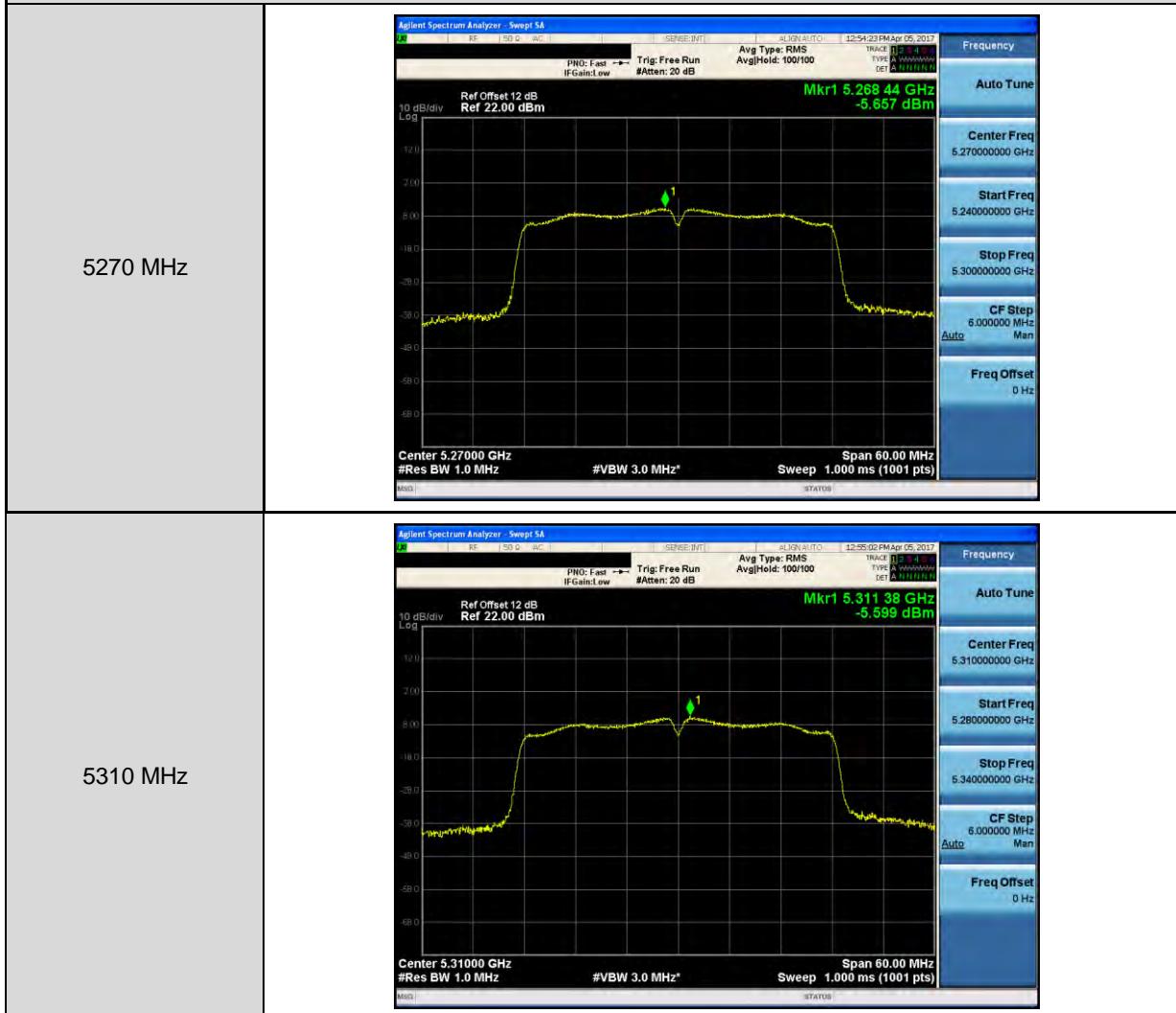
Mode 3: IEEE 802.11n 5GHz 20MHz Link Mode_ ANT0



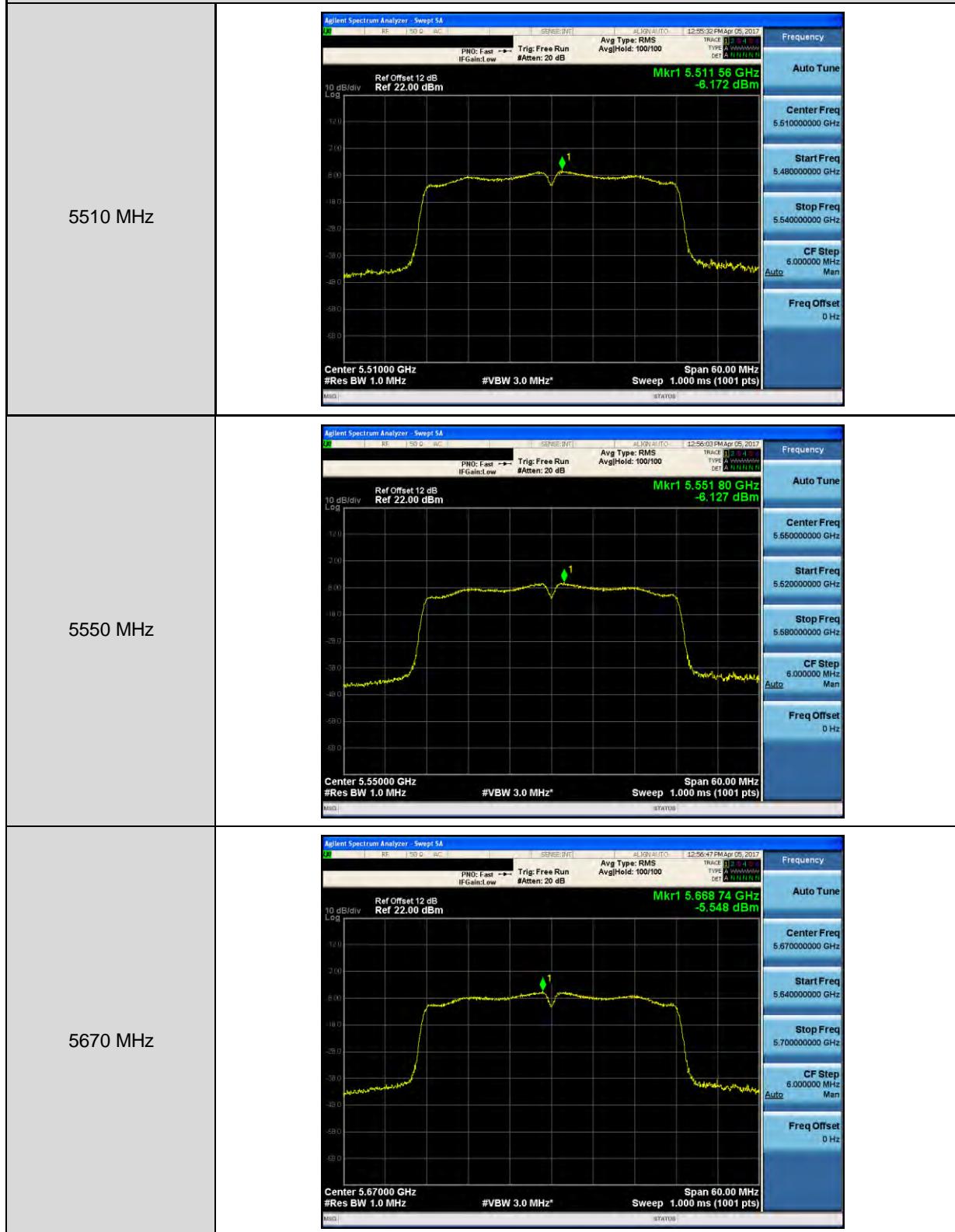
Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ ANT0



Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ ANT0



Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ ANT0



Mode 4: IEEE 802.11n 5GHz 40MHz Link Mode_ ANT-0

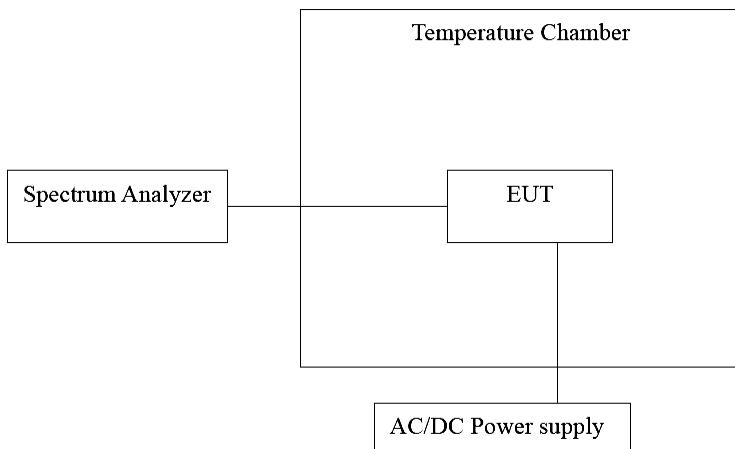


4.8. Frequency Stability Measurement

■ 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 (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	0	120	5199.9787	-21300	-4.096	Pass
	10		5199.9763	-23700	-4.558	Pass
	20		5199.9751	-24900	-4.788	Pass
	30		5199.9736	-26400	-5.077	Pass
	40		5199.9721	-27900	-5.365	Pass
5280 MHz	0	120	5279.9792	-20800	-3.939	Pass
	10		5279.9773	-22700	-4.299	Pass
	20		5279.9751	-24900	-4.716	Pass
	30		5279.9722	-27800	-5.265	Pass
	40		5279.9712	-28800	-5.455	Pass
5560 MHz	0	120	5559.9781	-21900	-3.939	Pass
	10		5559.9767	-23300	-4.191	Pass
	20		5559.9739	-26100	-4.694	Pass
	30		5559.9717	-28300	-5.090	Pass
	40		5559.9701	-29900	-5.378	Pass
5785 MHz	0	120	5784.9753	-24700	-4.270	Pass
	10		5784.9731	-26900	-4.650	Pass
	20		5784.9727	-27300	-4.719	Pass
	30		5784.9702	-29800	-5.151	Pass
	40		5784.9683	-31700	-5.480	Pass

Voltage Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	20	138.00	5199.9752	-24800	-4.769	Pass
		120.00	5199.9751	-24900	-4.788	Pass
		102.00	5199.9751	-24900	-4.788	Pass
5280 MHz	20	138.00	5279.9751	-24900	-4.716	Pass
		120.00	5279.9751	-24900	-4.716	Pass
		102.00	5279.975	-25000	-4.735	Pass
5560 MHz	20	138.00	5559.9741	-25900	-4.658	Pass
		120.00	5559.9739	-26100	-4.694	Pass
		102.00	5559.9738	-26200	-4.712	Pass
5785 MHz	20	138.00	5784.9729	-27100	-4.685	Pass
		120.00	5784.9727	-27300	-4.719	Pass
		102.00	5784.9725	-27500	-4.754	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.