FCC Part 15E
Measurement and Test Report

For

Shenzhen Gauss Technology Co., Ltd

6th-7th Floor, 3th Building, 2th South District, Honghualing Industry Park, Liuxian Avenue 1213, Xili Town, Nanshan, Shenzhen, P. R China

FCC ID: 2AN2I-005

FCC Rule(s):	FCC Part 15E
Product Description:	Wireless Video Transmission System
Tested Model:	Cosmo600
Report No.:	STR18078340I
Sample Receipt Date:	2018-07-27
Tested Date:	2018-07-28 to 2018-08-13
Issued Date:	2018-08-15
Tested By:	Mike Shi / Engineer
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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Shenzhen Gauss Technology Co., Ltd
Address of applicant:	6th-7th Floor, 3th Building, 2th South District, Honghualing Industry Park, Liuxian Avenue 1213, Xili Town, Nanshan, Shenzhen, P. R China
Manufacturer:	Shenzhen Gauss Technology Co., Ltd
Address of manufacturer:	6th-7th Floor, 3th Building, 2th South District, Honghualing Industry Park, Liuxian Avenue 1213, Xili Town, Nanshan, Shenzhen, P. R China

General Description of EUT	
Product Name:	Wireless Video Transmission System
Trade Name:	/
Model No.:	Cosmo600
Adding Model(s):	Cosmo1500
Rated Voltage:	DC7-36V
Power Adapter Model:	/
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model Cosmo600 but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Wi-Fi(5G/5.8G)	
Support Standards:	802.11n(HT40)
Frequency Range:	5190-5230MHz, 5745-5825MHz
RF Output Power:	15.09dBm (Conducted)
Type of Modulation:	OFDM, 16-QAM
Data Rate:	6-54Mbps, up to 600Mbps
Channel Separation:	5MHz
Type of Antenna:	External Antenna
Antenna Gain:	Antenna Type 1: 5dBi Antenna Type 2: 2.57dBi
Wi-Fi(5G/5.8G) Only support 802.11n(HT40) mode	

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.407: General technical requirements.
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
KDB789033 D02 v02r01:GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, KDB789033 D02 v02r01
The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.4 Table for parameters of Test Software setting

The test utility software used during testing was “RPTA1-71W.M4300.01.GD.2015Sep1”. During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Mode	Test Frequency (MHz)									
Mode	NCB: 40MHz									
	5190	5230	5270	5310	5510	5550	5670	5710	5755	5795
802.11n-HT40 MCS0	10	10	/	/	/	/	/	/	10	10

1.5 EUT Operating during test

EUT was programmed to be in continuously transmitting mode. During the test, EUT operation to normal function and programs under WIN XP were executed.

1.6 Test Facility

FCC – Registration No.: 125990

Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.7 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	802.11n-HT40	5190MHz,5230MHz, 5745MHz,5785MHz, 5825 MHz
Note: All test modes (different data rate and different modulation) are performed, but only the worst case is recorded in this report.		

Test Conditions	
Temperature:	22~25 °C
Relative humidity	50~55 %.
ATM Pressure:	1019 mbar

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Battery	Shenzhen HongBo Power Technology Co.,LTD	/	/

1.8 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Power Spectral Density	Conducted	±1.8dB
Conducted Spurious Emission	Conducted	±2.17dB
Conducted Emissions	Conducted	9-150kHz ±3.74dB
		0.15-30MHz ±3.34dB
Transmitter Spurious Emissions	Radiated	30-200MHz ±4.52dB
		0.2-1GHz ±5.56dB
		1-6GHz ±3.84dB
		6-18GHz ±3.92dB

1.9 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2018-05-22	2019-05-21
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2018-05-22	2019-05-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2018-05-22	2019-05-21
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2018-05-22	2019-05-21
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2018-05-22	2019-05-21
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-08	2020-06-07
SEMT-1042	Horn Antenna	ETS	3117	00086197	2017-06-08	2020-06-07
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2017-06-08	2020-06-07
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-08	2020-06-07
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2018-05-22	2019-05-21
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2018-05-22	2019-05-21
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2018-05-22	2019-05-21
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2017-08-15	2018-08-14
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2018-05-22	2019-05-21
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2018-05-22	2019-05-21
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2018-05-22	2019-05-21
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2018-05-22	2019-05-21
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2018-05-22	2019-05-21
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2018-05-22	2019-05-21
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2018-03-19	2019-03-18
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2018-03-19	2019-03-18
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2018-03-19	2019-03-18
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2018-03-19	2019-03-18
SEMT-C005	Cable	Zheng DI	1M0RFC	/	2018-03-19	2019-03-18
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2018-03-19	2019-03-18

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.203; § 15.405	Antenna Requirement	Compliant
§ 15.207; § 15.407(b)(6)	Conducted Emission	N/A
§ 15.407(a)(1),(2)	Power Spectral Density	Compliant
§ 15.407(e)	Emission Bandwidth and Occupied Bandwidth	Compliant
§ 15.407(a)(1),(2)	Maximum Conducted Output Power	Compliant
§ 15.407(b)(1),(2),(3)	Conducted Spurious Emission	Compliant
§ 15.205; § 15.407(b)(1),(2),(3)	Radiated Emission	Compliant
§ 15.407(g)	Frequency Stability	Compliant
§ 15.407(h)	Dynamic Frequency Selection (DFS)	N/A

N/A: not applicable

3. RF Exposure

3.1 Standard Applicable

According to § 1.1307 and § 2.1093, the mobile transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the RF Exposure Report.

4. Antenna Requirement

4.1 Standard Applicable

According to FCC Part 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

4.2 Evaluation Information

This product has a SMA-reverse antenna, fulfill the requirement of this section.

5. Power Spectral Density

5.1 Standard Applicable

Section 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

5.2 Test Procedure

According to 789033 D02 v01r02 section F, the following is the measurement procedure.
For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and

integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.l.a).
b) Set VBW ≥ 3 RBW.
c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

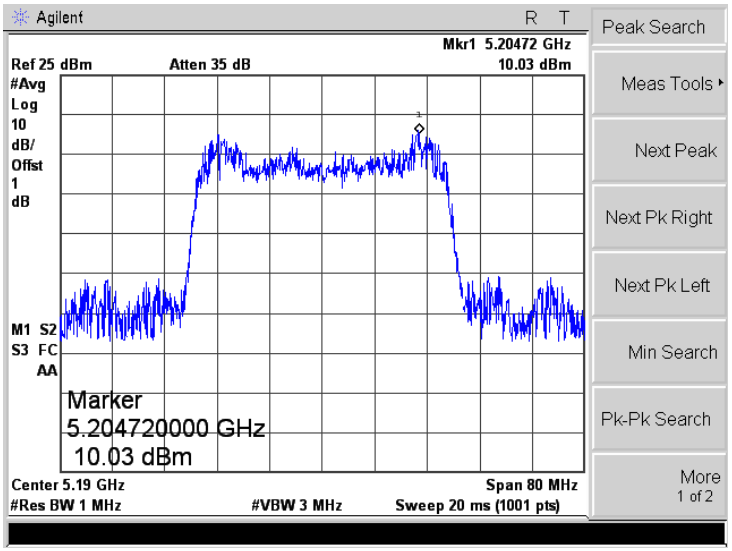
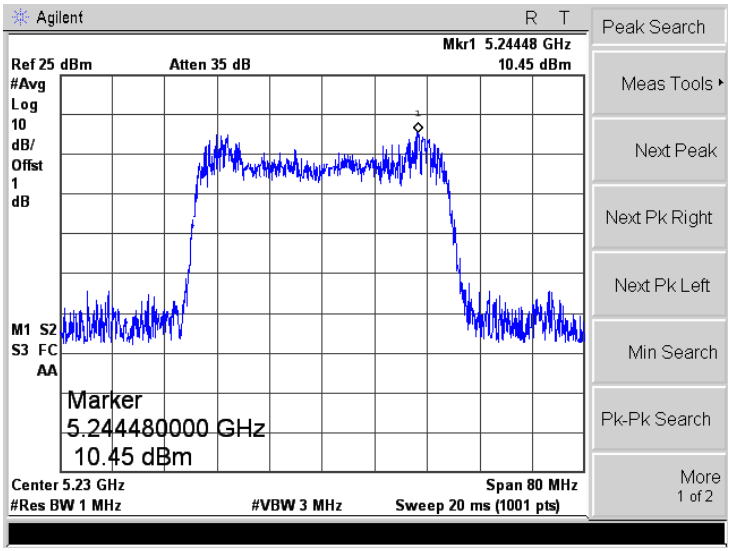
Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

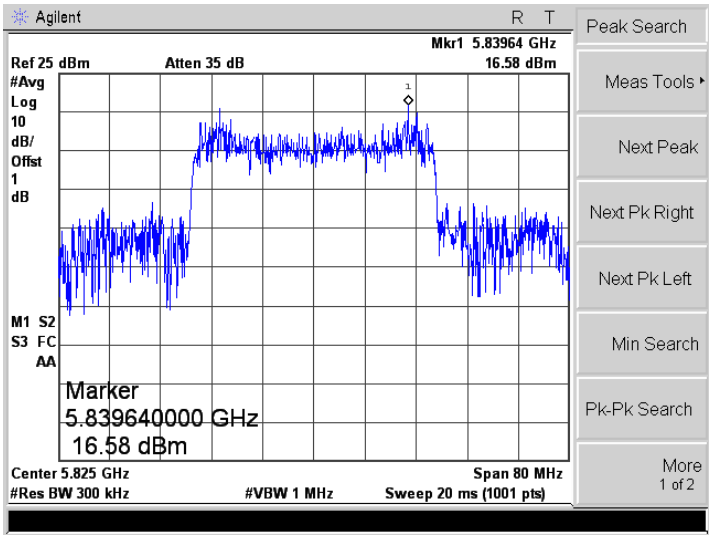
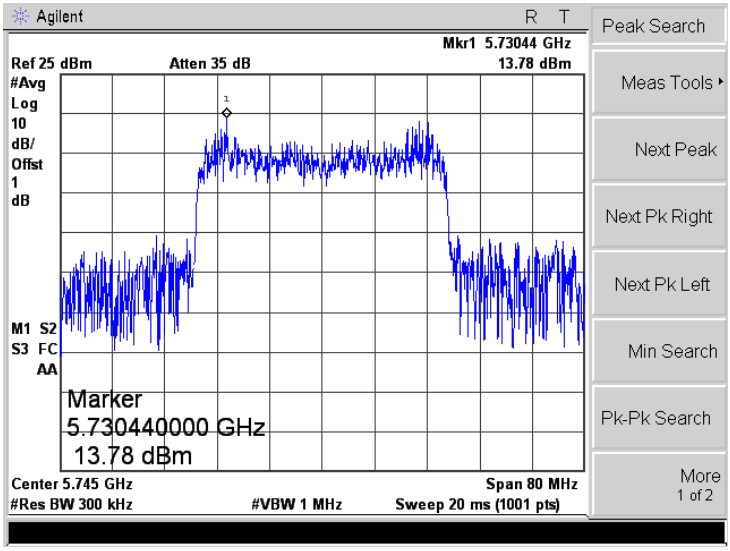
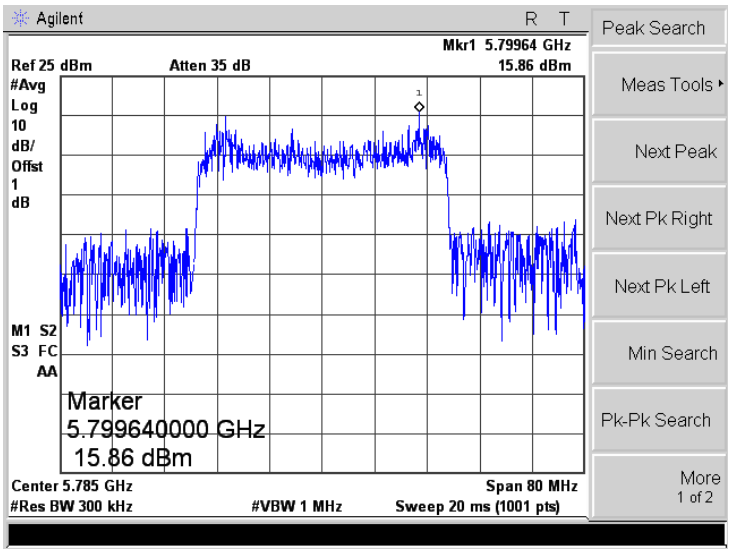
5.3 Summary of Test Results/Plots

U-NII-1:5150-5250MHz			**802.11n-HT40**	
Test Channel MHz	Power Spectral Density dBm/MHz			Limit dBm/MHz
	ANT 0	ANT 1	Total	
5190	10.03	14.09	15.53	17
5230	10.45	15.63	16.78	17

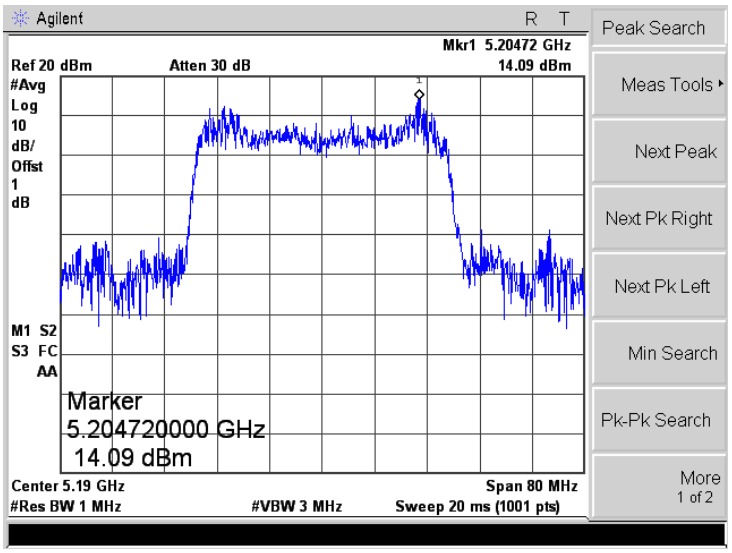
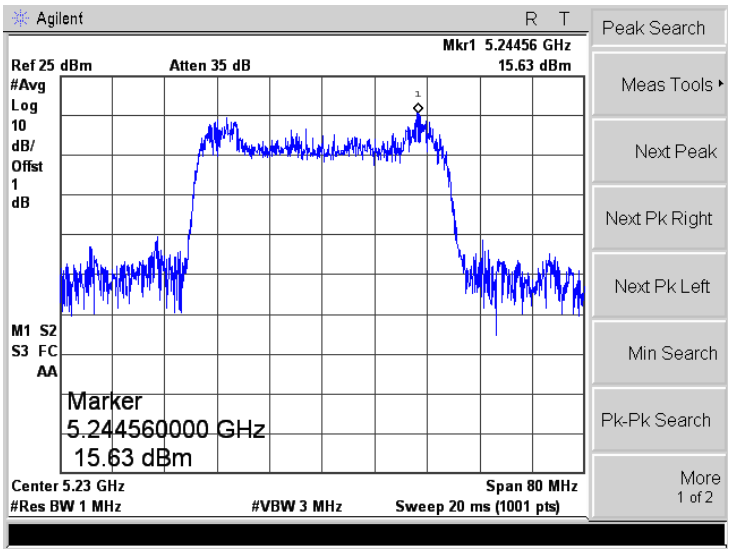
U-NII-3: 5725-5850MHz				**802.11n-HT40**				
Test Channel	Power Spectral Density*							
	ANT 0			ANT 1			Total	Limit
	dBm/300kHz	Factor	dBm/500kHz	dBm/300kHz	Factor	dBm/500kHz	dBm/500kHz	dBm/500kHz
5745	16.58	2.22	18.80	12.86	2.22	15.08	20.34	30
5785	13.78	2.22	16.00	12.68	2.22	14.90	18.50	30
5825	15.86	2.22	18.08	14.20	2.22	16.42	20.34	30
*Note: Maximum PSD=PSD(dBm/510kHz)+10log(500kHz/300kHz)=2.22								

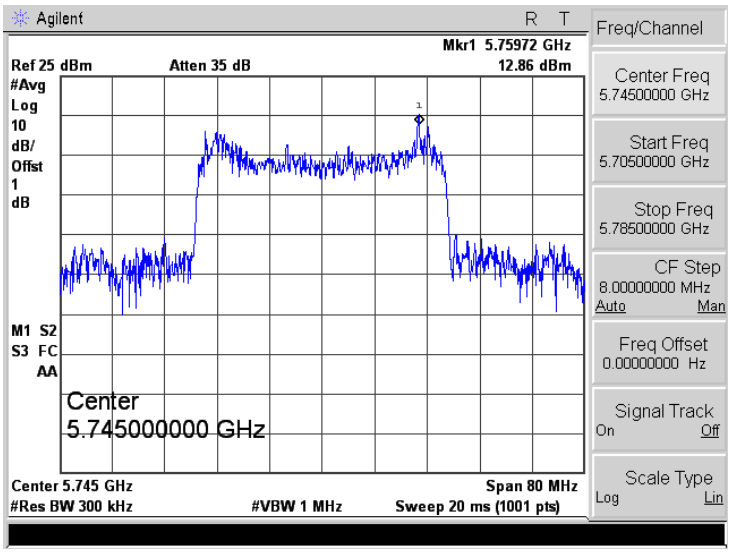
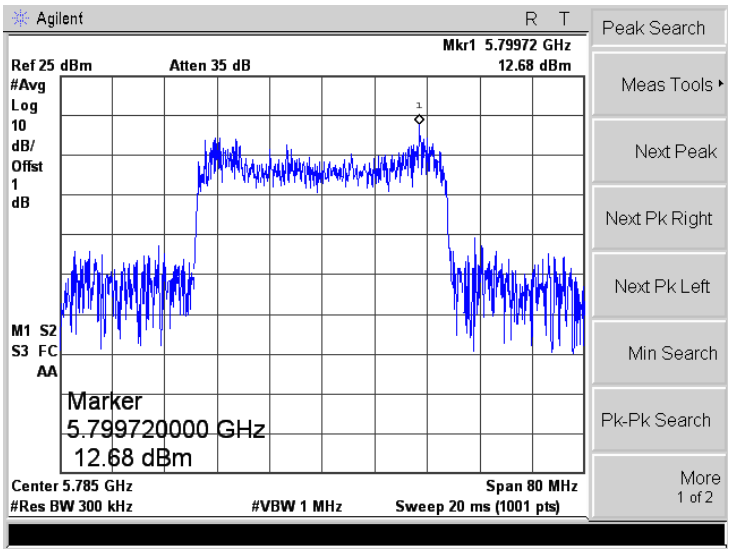
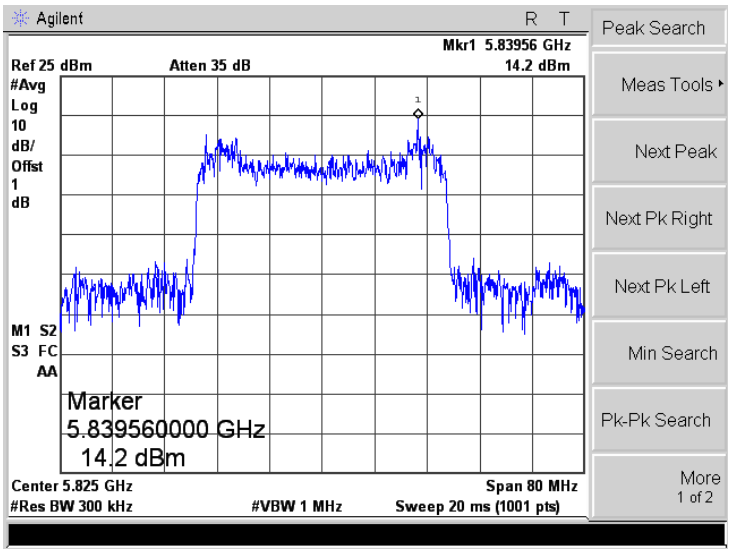
ANT0:

Mode:	**802.11n-HT40**
5190MHz	
5230MHz	

Mode:	802.11n-HT40
5745MHz	
5785MHz	
5825MHz	

ANT1

Mode:	**802.11n-HT40**
5190MHz	
5230MHz	

Mode:	802.11n-HT40
5745MHz	
5785MHz	
5825MHz	

6. Emission Bandwidth and Occupied Bandwidth

6.1 Standard Applicable

According to 15.407 (a) and (e)

(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

6.2 Test Procedure

According to 789033 D02 v01r02 section C&D, the following is the measurement procedure.

1. Emission Bandwidth (EBW)
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

D. 99 Percent Occupied Bandwidth

The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section II.G.3.d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the EBW to 789033 D02 v01r02 General UNII Test Procedures New Rules v01 define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.

2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1 % to 5 % of the OBW

4. Set VBW ≥ 3 • RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

6. Use the 99 % power bandwidth function of the instrument (if available).

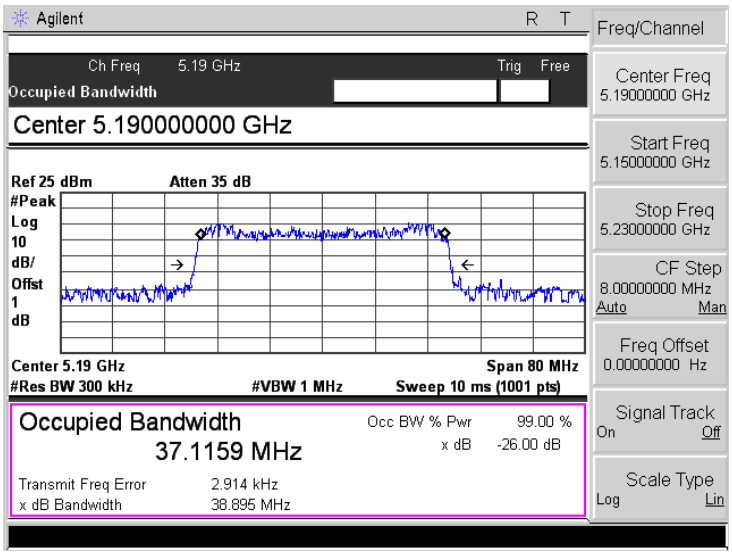
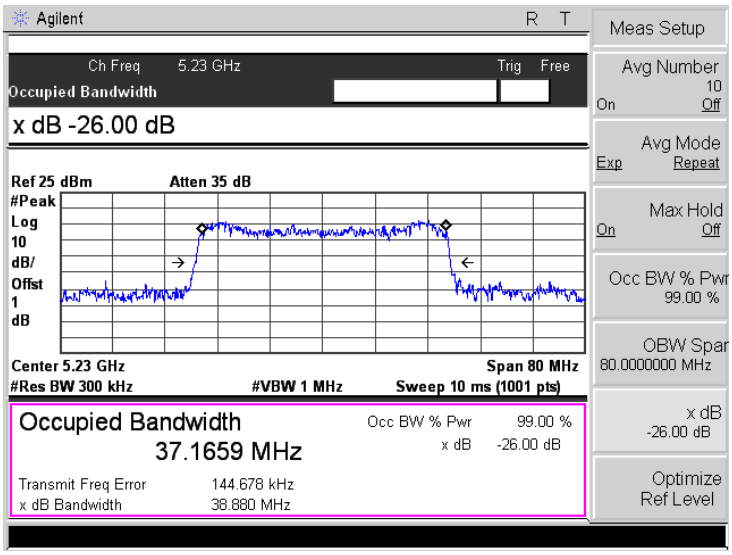
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

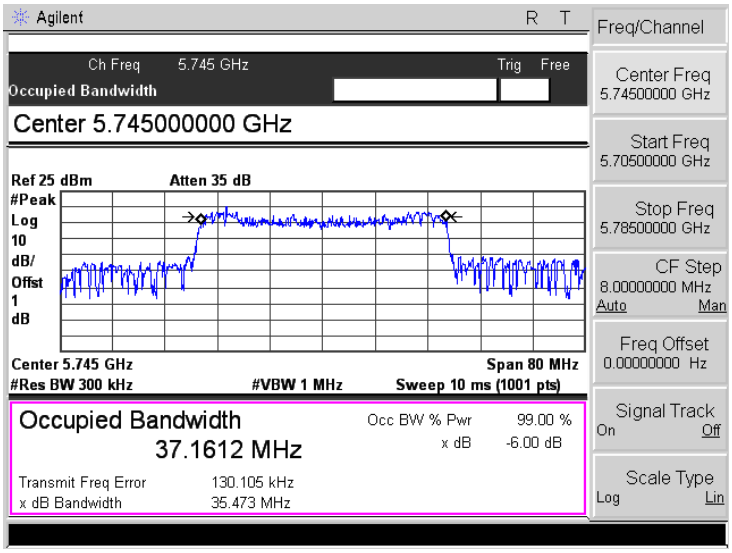
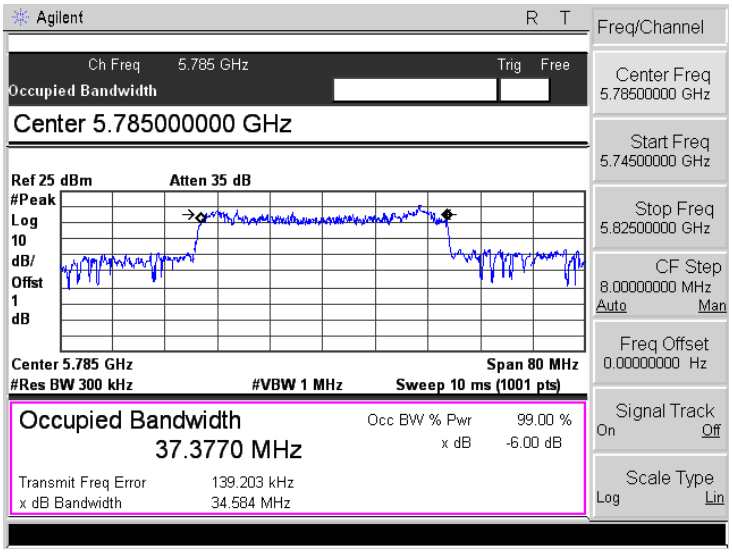
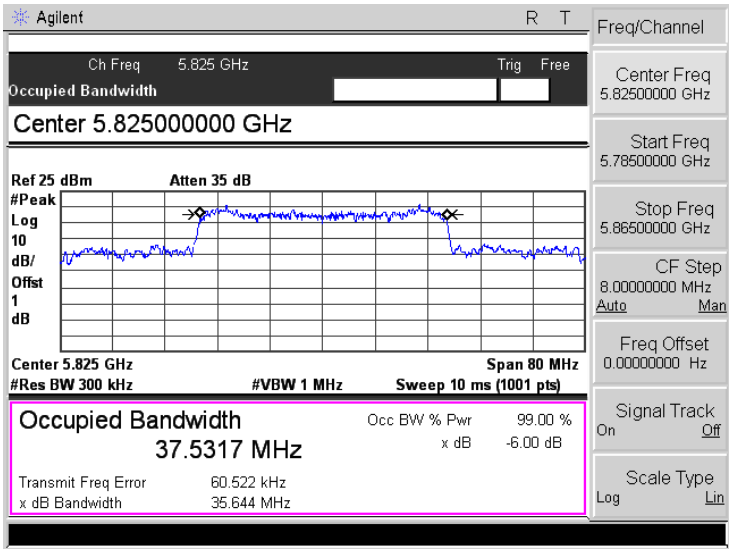
6.3 Summary of Test Results/Plots

U-NII-1:5150-5250MHz				
Test Mode	**Test Channel MHz**	**26 dB Bandwidth MHz**	**99% Bandwidth MHz**	**Limit MHz**
ANT0	5190	38.895	37.1159	Pass
	5230	38.880	37.1659	Pass
ANT1	5190	38.496	37.2662	Pass
	5230	38.660	36.8275	Pass

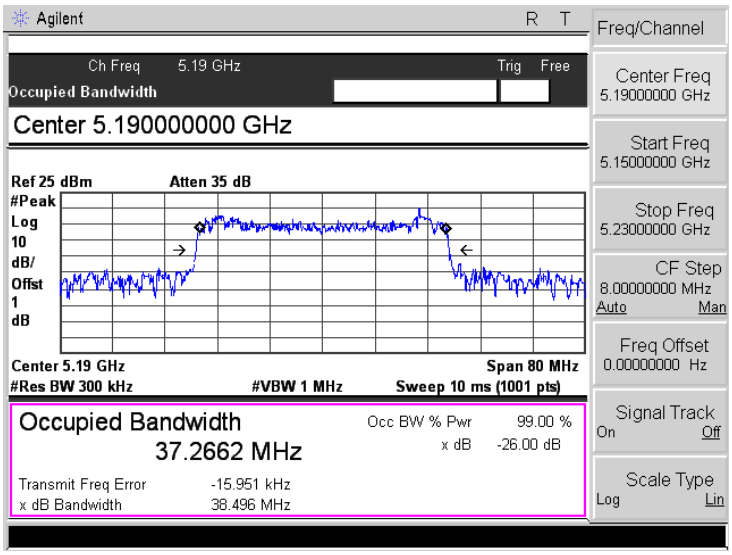
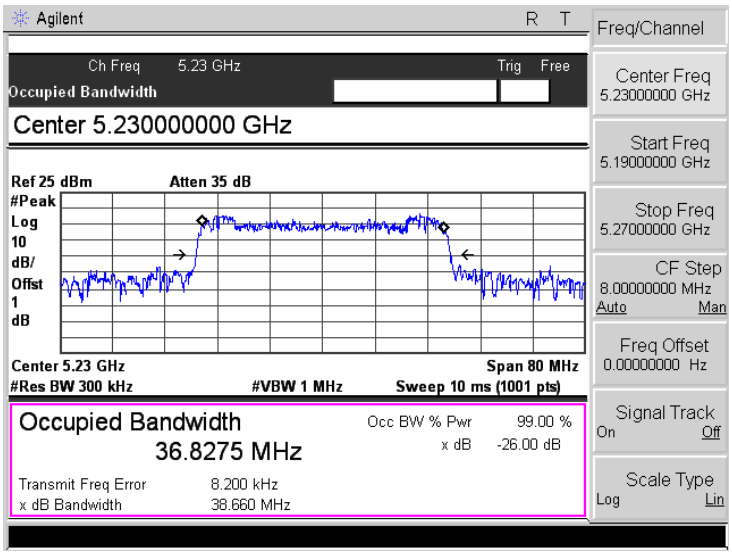
U-NII-3:5725-5850MHz				
Test Mode	**Test Channel MHz**	**6 dB Bandwidth MHz**	**99% Bandwidth MHz**	**Limit MHz**
ANT0	5745	35.473	37.1612	≥500
	5785	34.584	37.3770	≥500
	5825	35.644	37.5317	≥500
ANT1	5745	34.210	37.3456	≥500
	5785	34.059	37.4112	≥500
	5825	32.632	37.2145	≥500

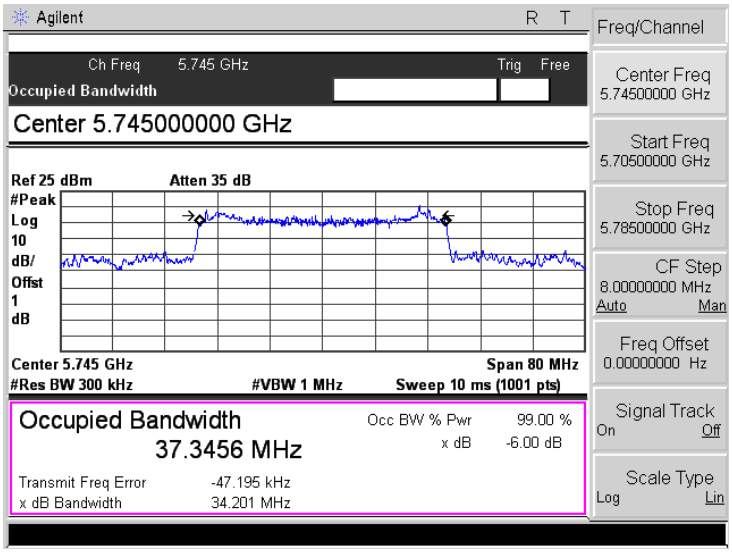
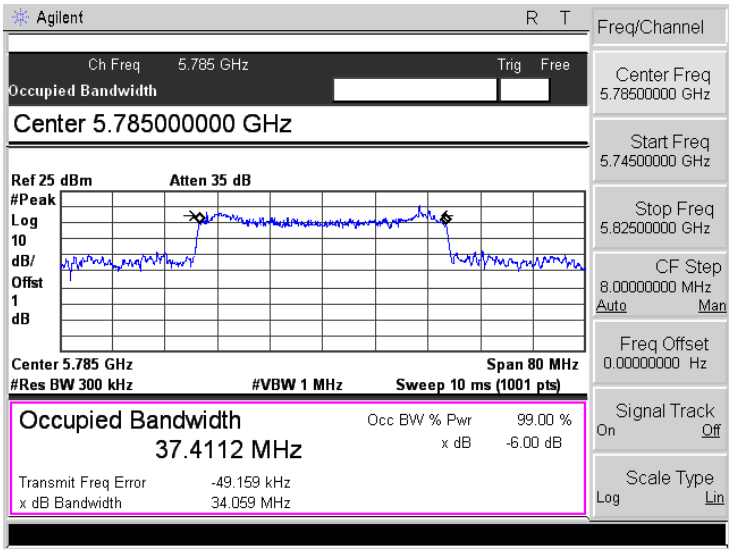
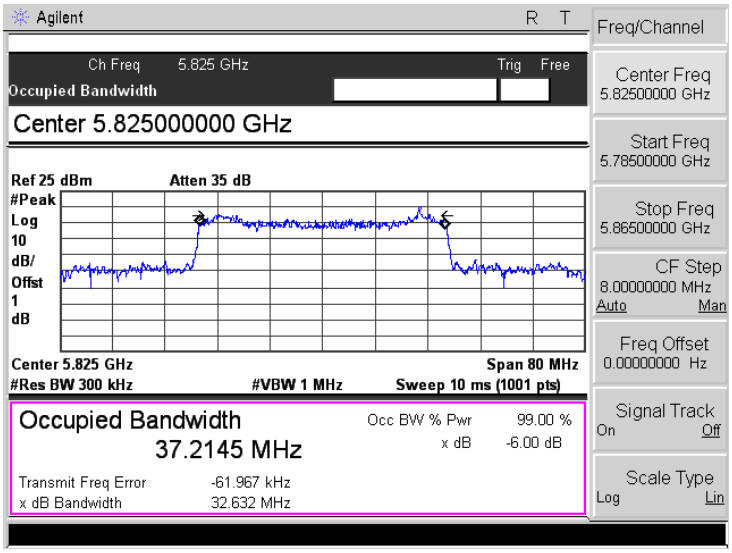
ANT0

Mode:	**802.11n-HT40**
5190MHz	
5230MHz	

Mode:	802.11n-HT40
5745MHz	
5785MHz	
5825MHz	

ANT1

Mode:	**802.11n-HT40**
5190MHz	
5230MHz	

Mode:	802.11n-HT40
5745MHz	
5785MHz	
5825	

7. Maximum Conducted Output Power

7.1 Standard Applicable

According to 15.407(a) Power limits:

(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

7.2 Test Procedure

According to KDB789033 D02 v01r02 section E, the following is the measurement procedure.

(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.

(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

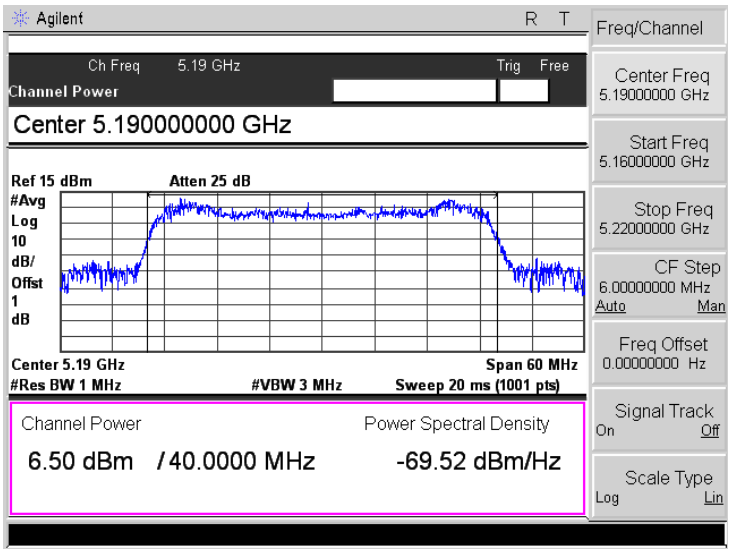
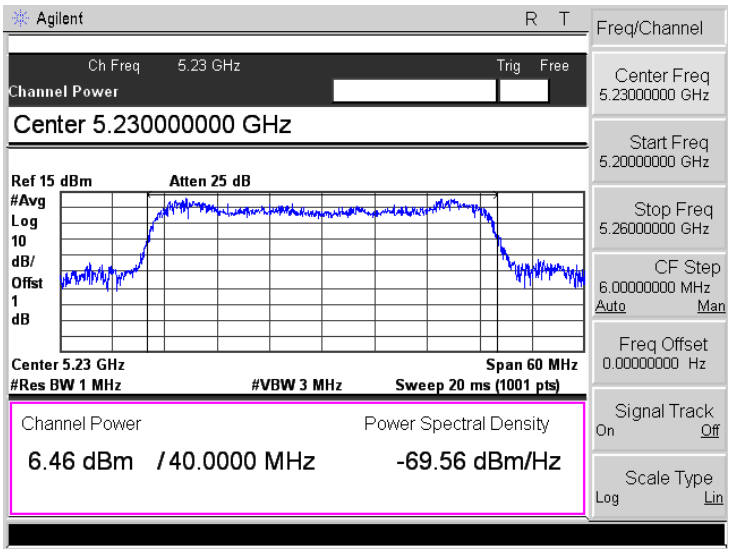
(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

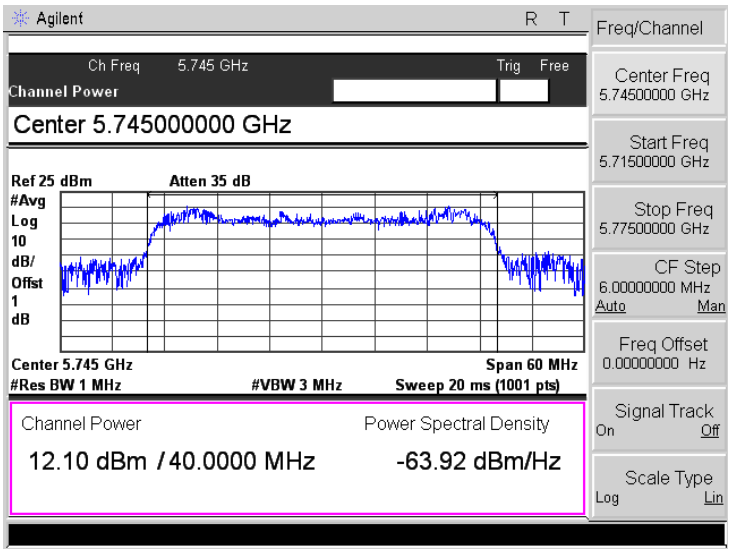
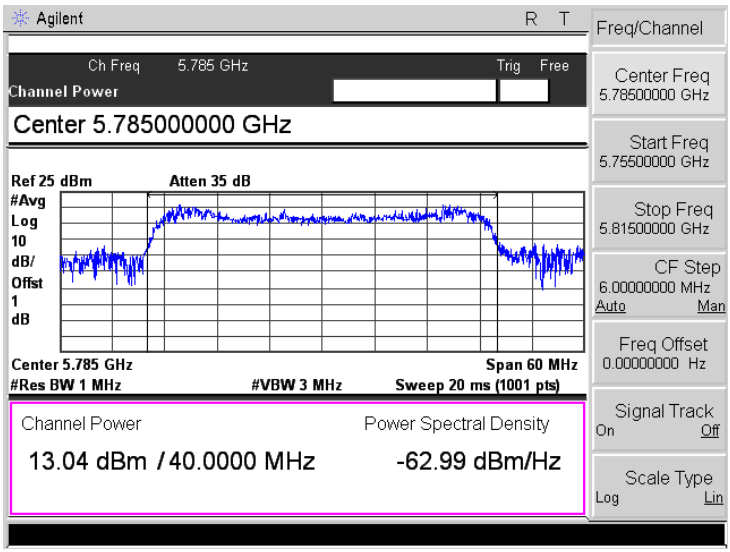
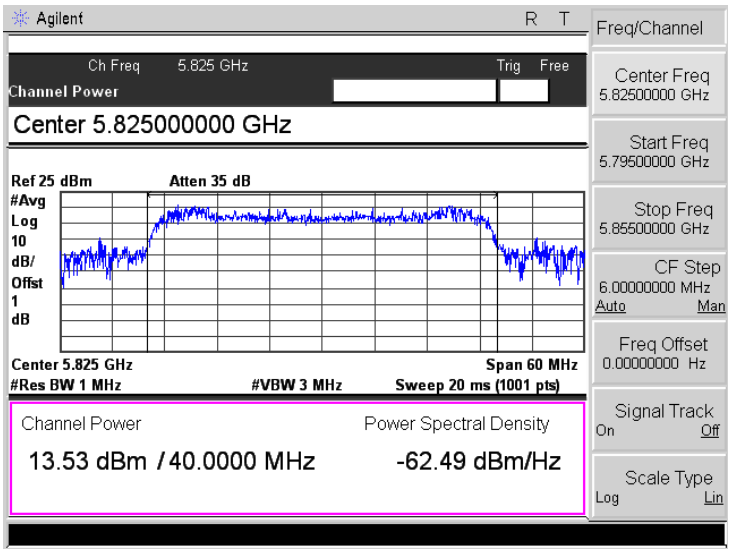
7.3 Summary of Test Results/Plots

U-NII-1:5150-5250MHz						
Frequency MHz	ANT0		ANT1		Total	Limit mW
	Output Power dBm	Output Power mW	Output Power dBm	Output Power mW	Output Power mW	
5190	6.50	4.47	10.07	10.16	14.63	250
5230	6.46	4.43	10.13	10.30	14.73	250

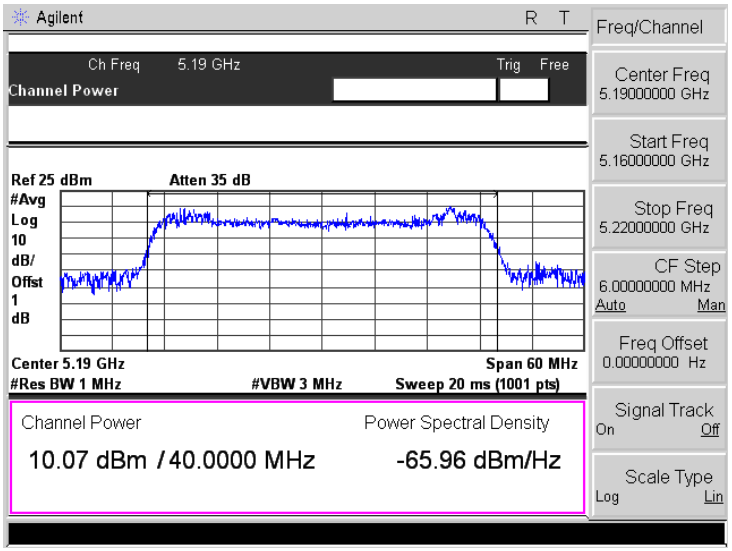
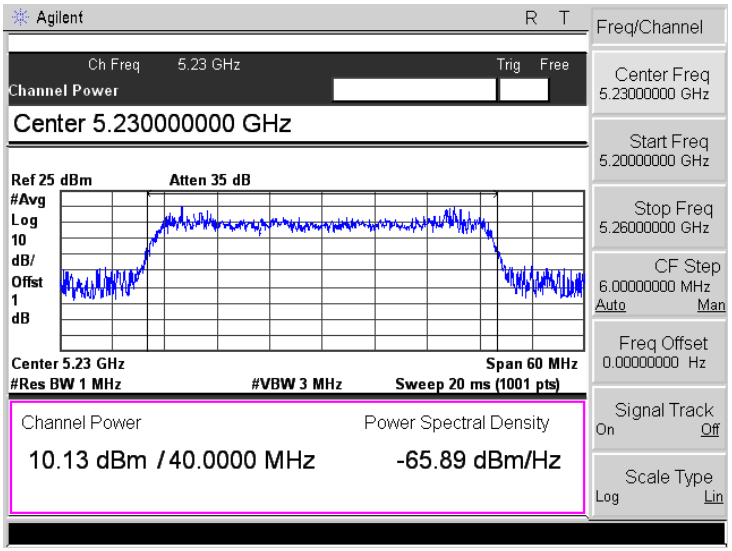
U-NII-3:5725-5850MHz						
Frequency MHz	ANT0		ANT1		Total	
	Output Power dBm	Output Power mW	Output Power dBm	Output Power mW	Output Power mW	Limit mW
5745	12.10	16.22	10.45	11.09	27.31	1000
5785	13.04	20.14	9.90	9.77	29.91	1000
5825	13.53	22.54	9.87	9.71	32.25	1000

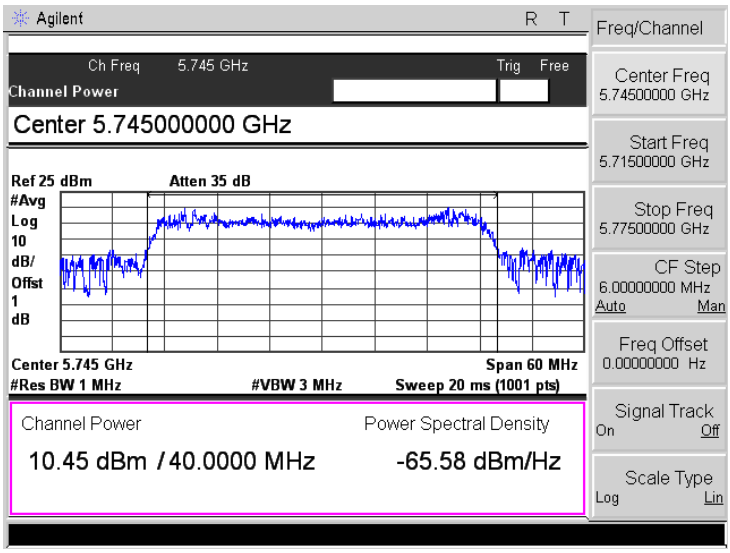
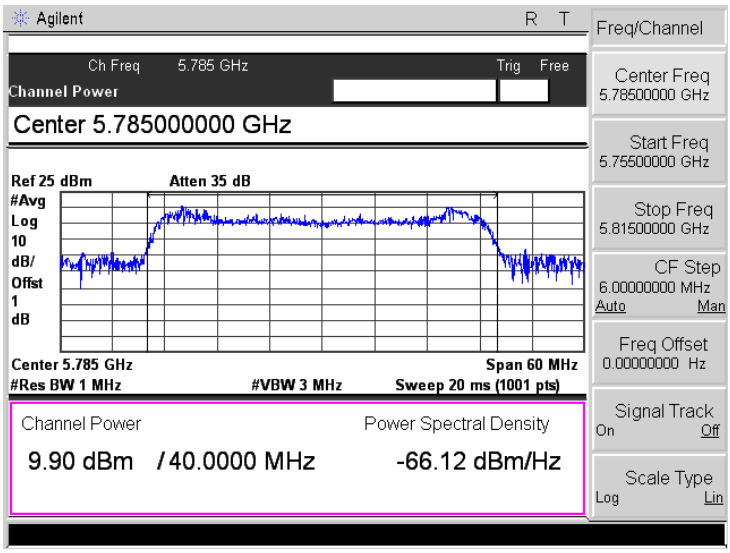
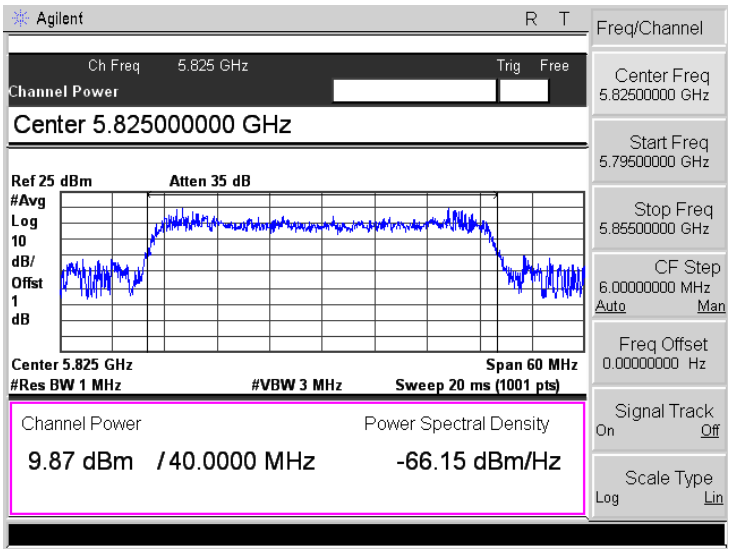
ANT0

Mode:	**802.11n-HT40**
5190MHz	
5230MHz	

Mode:	802.11n-HT40
5745MHz	
5785MHz	
5825MHz	

ANT1

Mode:	**802.11n-HT40**
5190MHz	
5230MHz	

Mode:	802.11n-HT40
5745MHz	
5785MHz	
5825MHz	

8. Radiated Spurious Emissions

8.1 Standard Applicable

According to §15.407(b)(6), Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
According to §15.407(b)(7), The provisions of §15.205 apply to intentional radiators operating under this section.
789033 D02 v02r01 General UNII Test Procedures New Rules v02
If radiated measurements are performed, field strength is then converted to EIRP as follows:

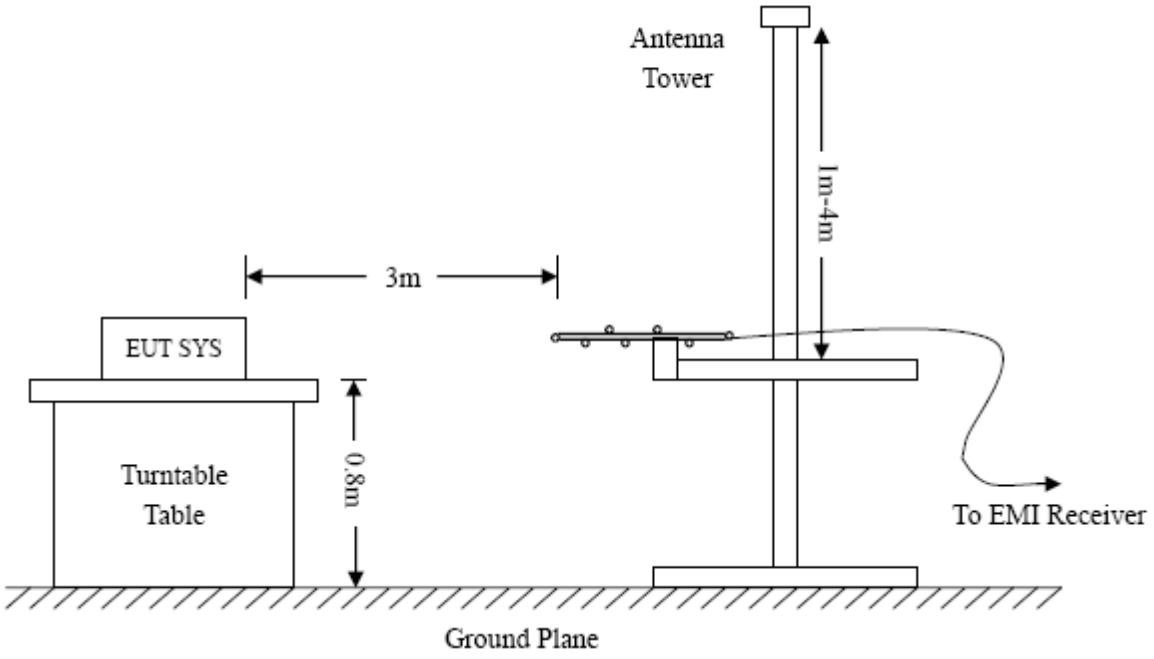
EIRP = ((E*d)^2) / 30

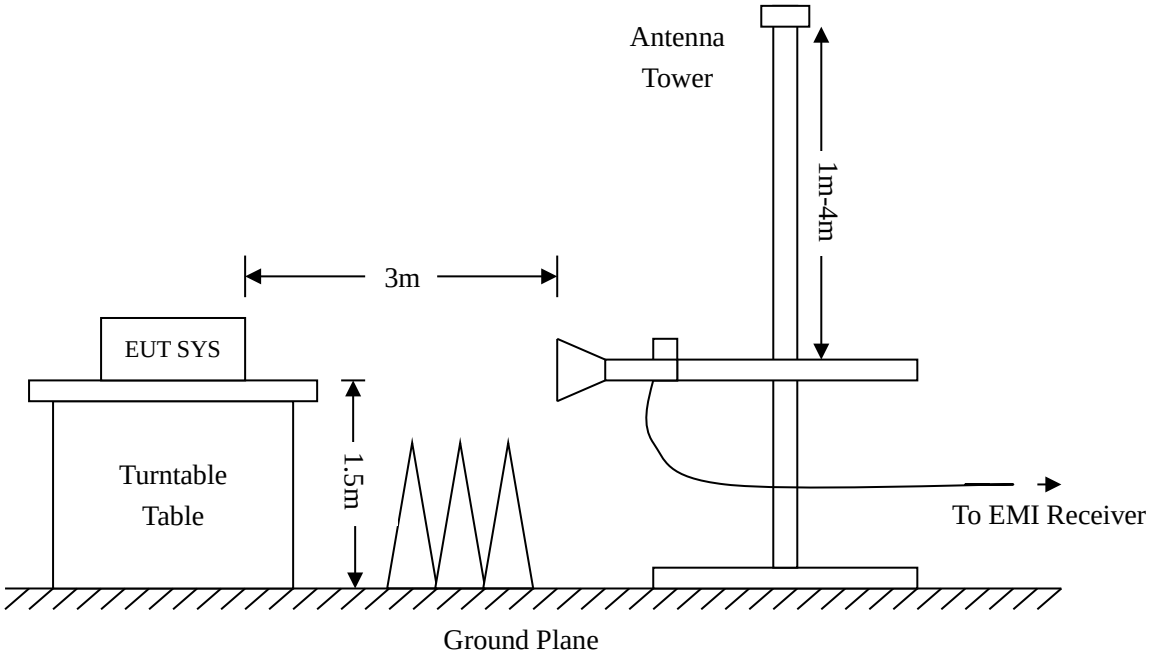
where:

- E is the field strength in V/m;
- d is the measurement distance in meters;
- EIRP is the equivalent isotropically radiated power in watts.

8.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.407(b)(6) and FCC Part 15.209 Limit..
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.





8.3 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:
RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:
RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

8.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

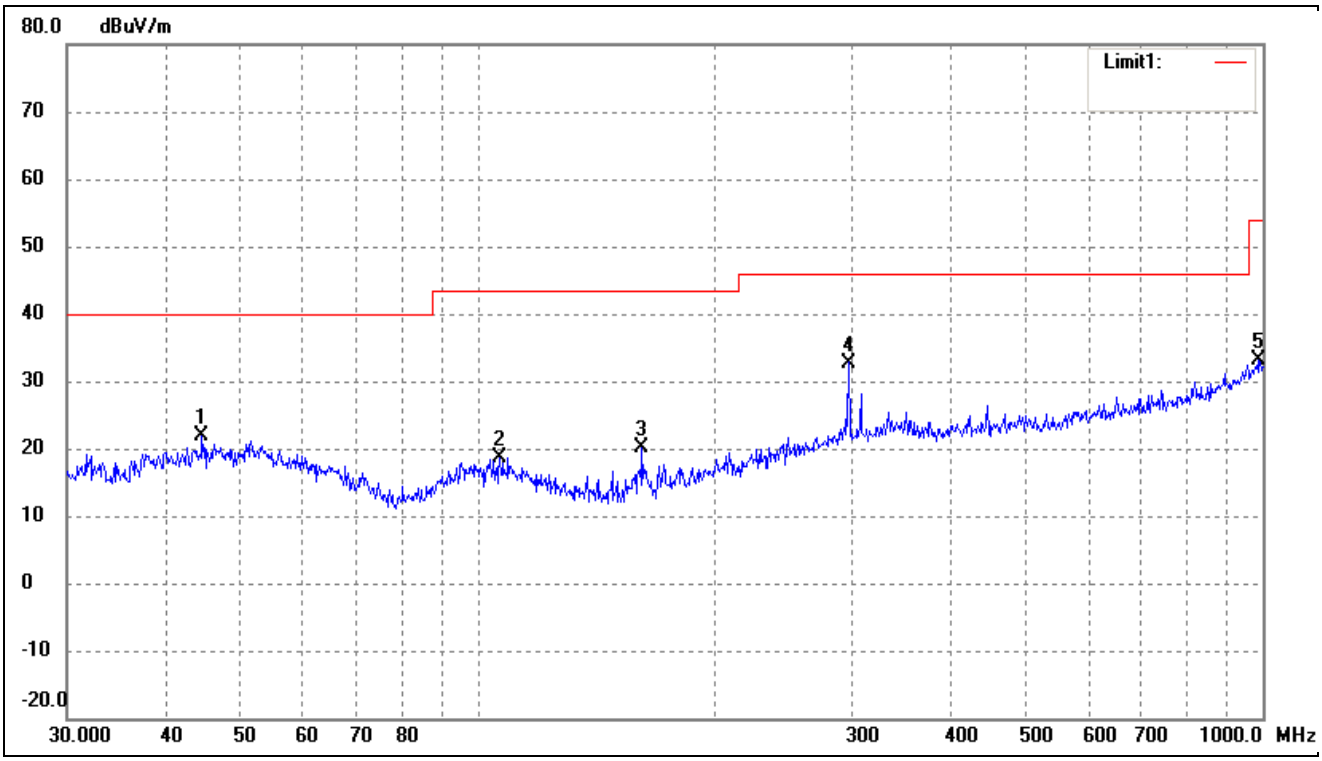
8.5 Summary of Test Results/Plots

Note: *1. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

2. Testing is carried out with frequency rang 9kHz to 40GHz, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be recorded in the test report.

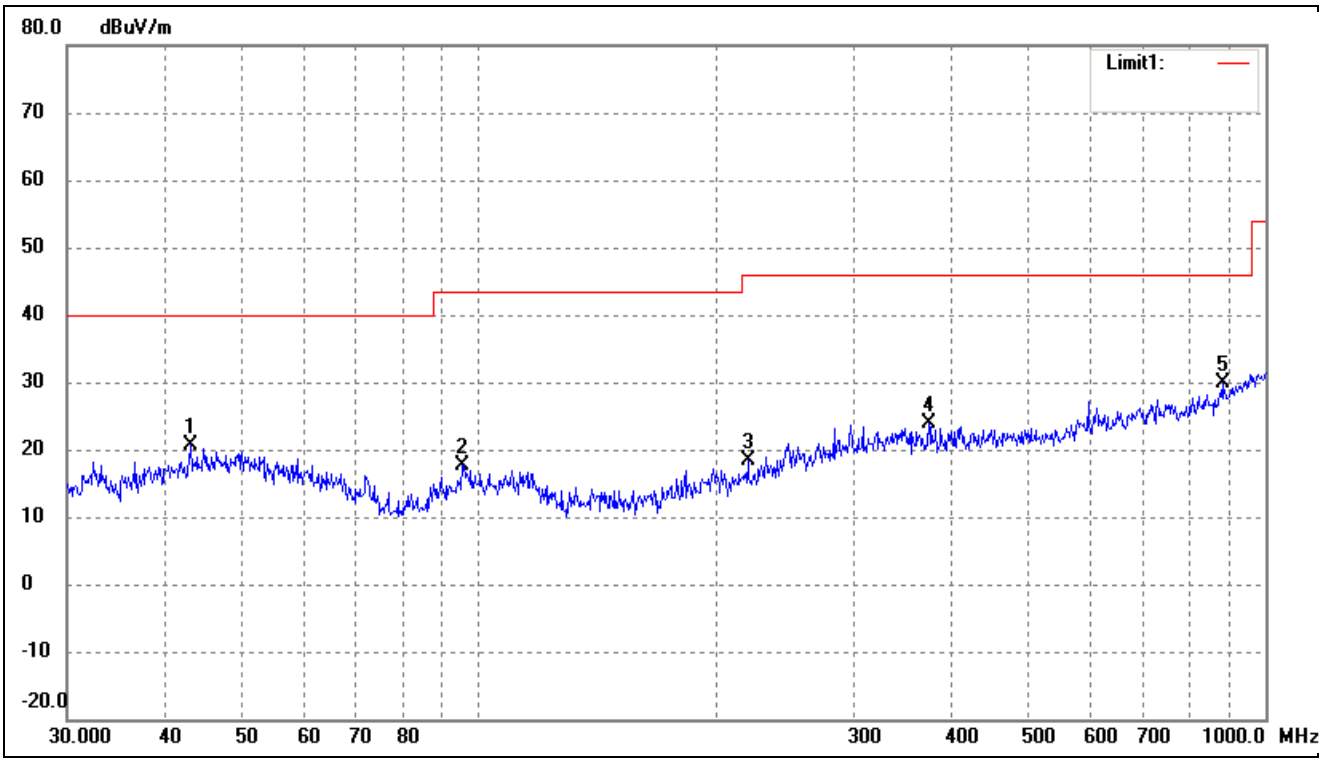
- Spurious Emission From 30 MHz to 1 GHz
- Worst case at MIMO
- Antenna Type 1

Test Channel	5190MHz	Polarity:	Horizontal



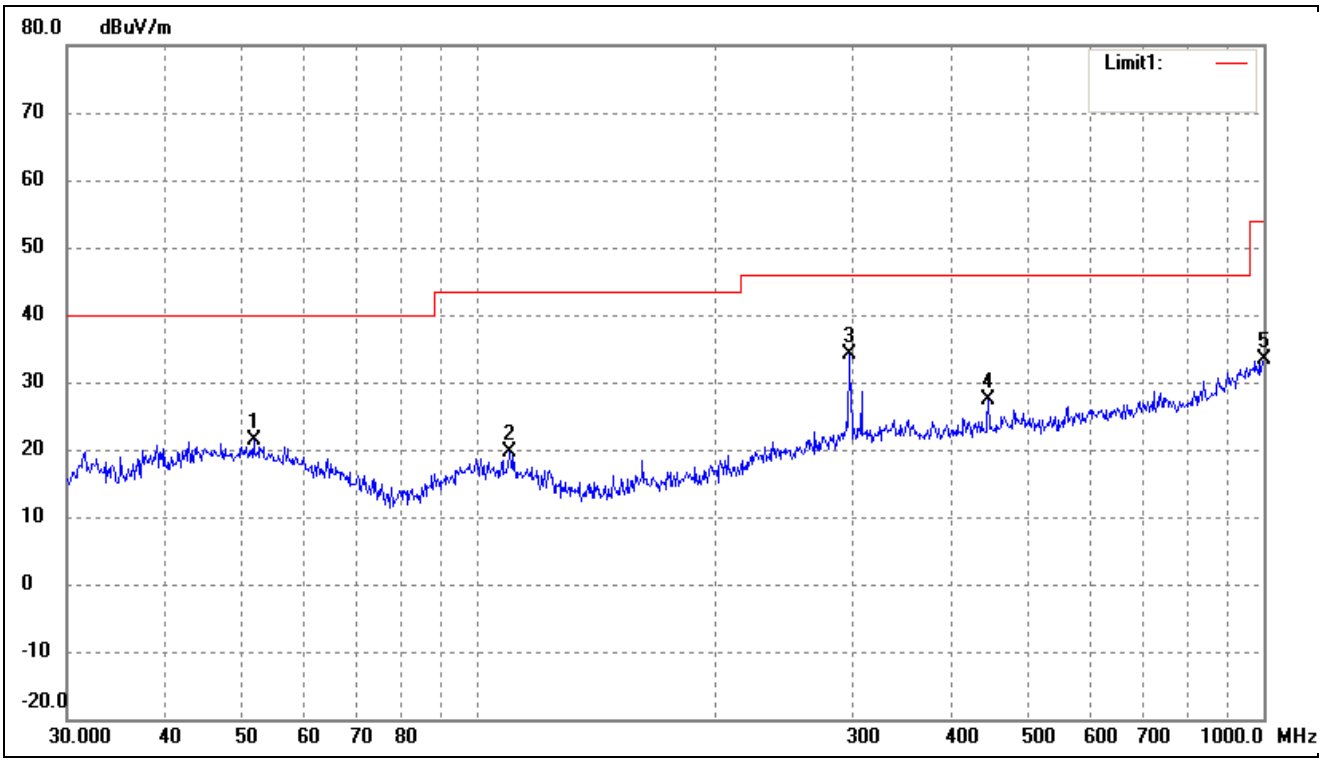
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	44.5868	34.78	-13.00	21.78	40.00	-18.22	233	100	peak
2	106.7587	32.69	-14.00	18.69	43.50	-24.81	253	100	peak
3	162.0414	36.04	-15.92	20.12	43.50	-23.38	71	100	peak
4	297.2241	40.22	-7.47	32.75	46.00	-13.25	121	100	peak
5	986.0717	29.40	3.82	33.22	54.00	-20.78	295	100	peak

Test Channel	5190MHz	Polarity:	Vertical



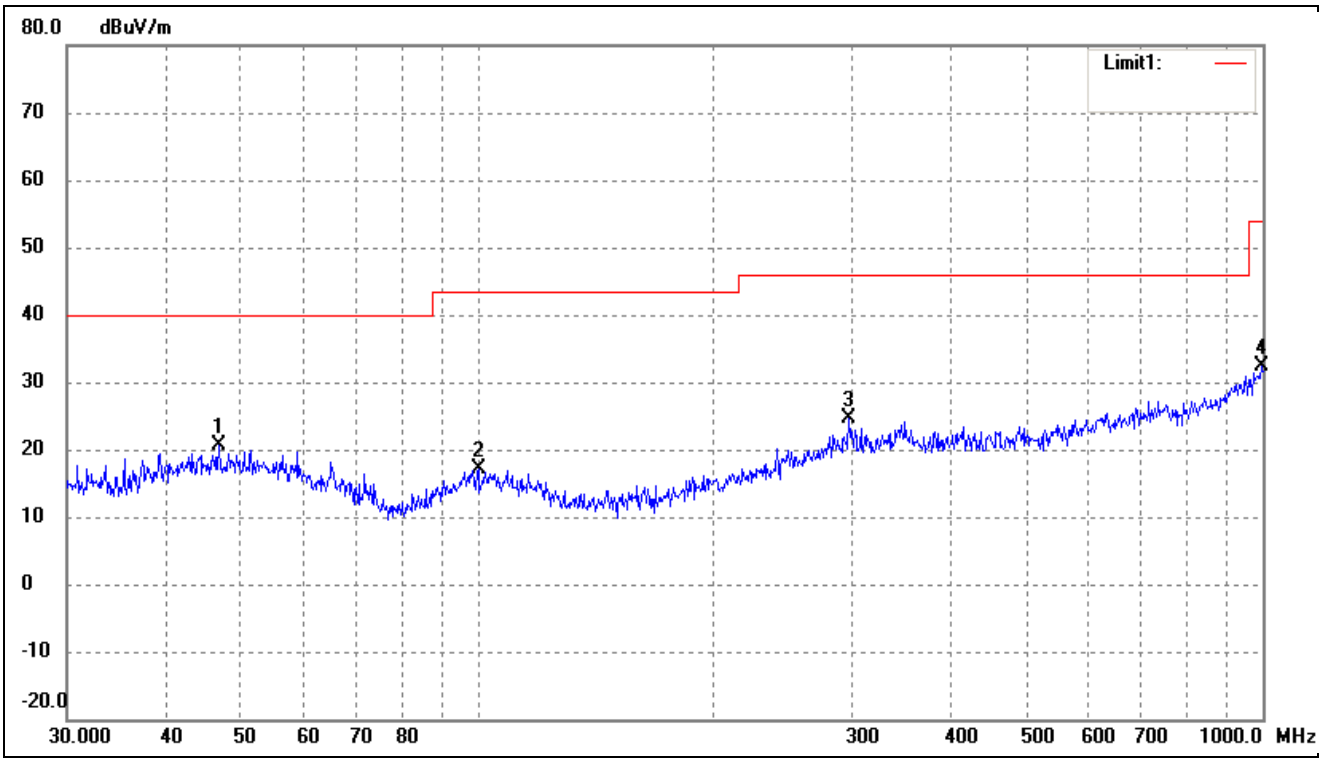
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	43.0505	33.89	-13.16	20.73	40.00	-19.27	128	100	peak
2	95.4270	32.87	-15.14	17.73	43.50	-25.77	108	100	peak
3	219.8449	29.64	-11.32	18.32	46.00	-27.68	74	100	peak
4	373.3112	30.87	-6.89	23.98	46.00	-22.02	100	100	peak
5	881.4067	29.30	0.62	29.92	46.00	-16.08	140	100	peak

Test Channel	5230MHz	Polarity:	Horizontal



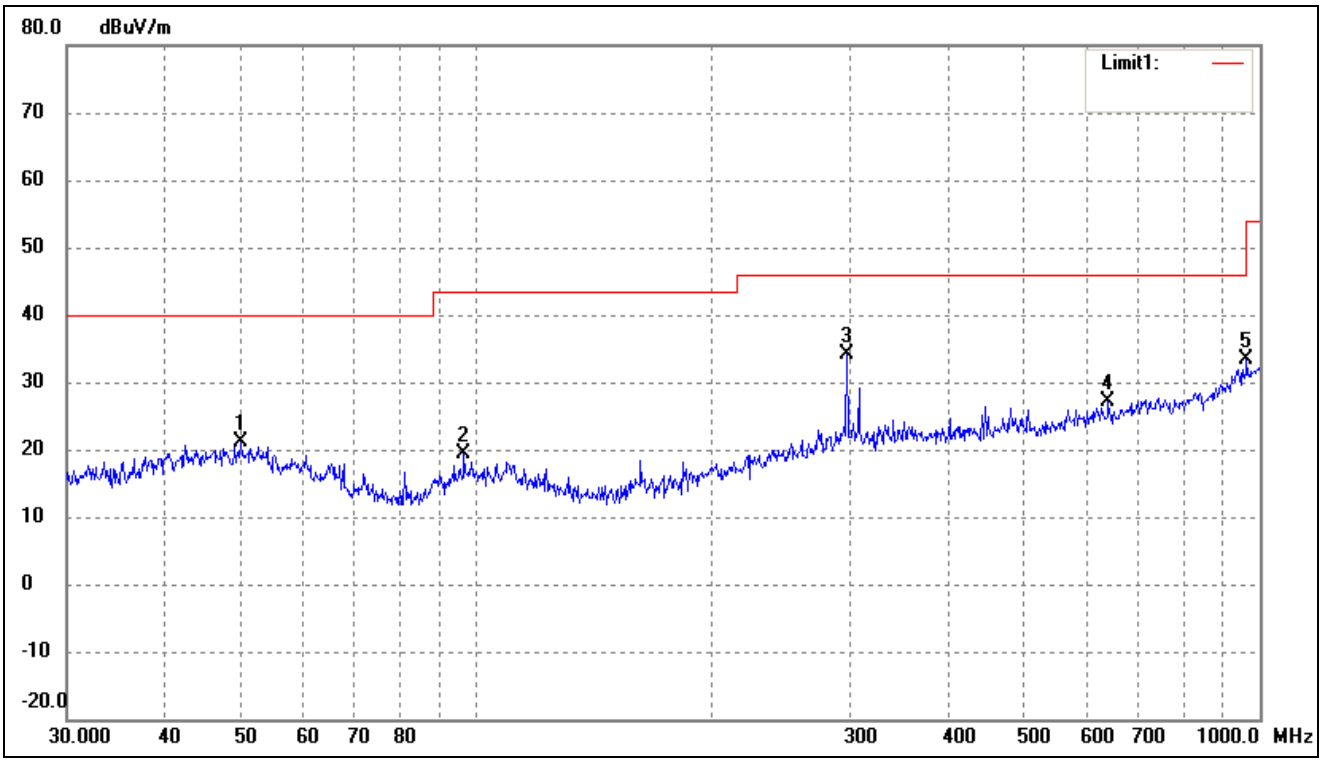
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	51.8430	34.29	-12.81	21.48	40.00	-18.52	90	100	peak
2	109.7960	33.56	-13.92	19.64	43.50	-23.86	171	100	peak
3	297.2241	41.70	-7.47	34.23	46.00	-11.77	75	100	peak
4	446.4141	33.73	-6.44	27.29	46.00	-18.71	147	100	peak
5	1000.0000	29.31	4.04	33.35	54.00	-20.65	354	100	peak

Test Channel	5230MHz	Polarity:	Vertical



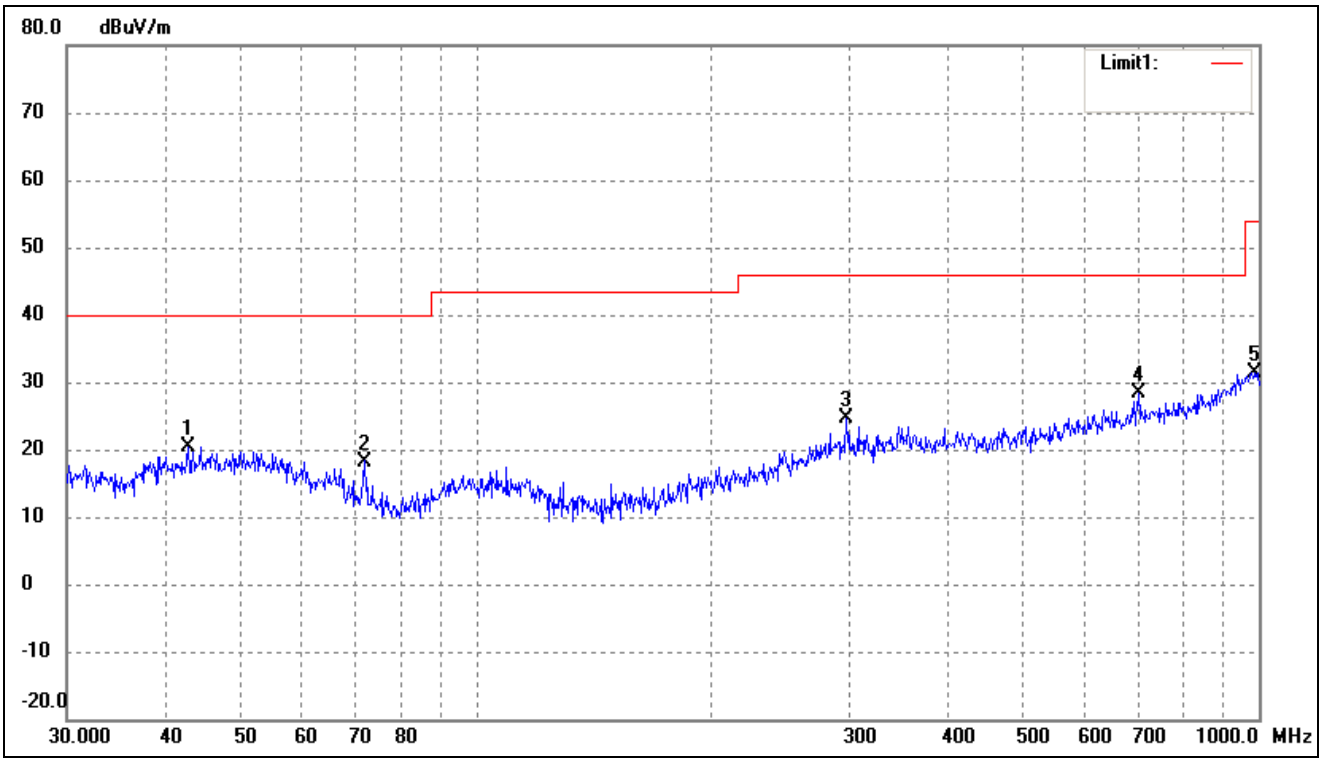
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	46.8303	33.43	-12.85	20.58	40.00	-19.42	317	100	peak
2	100.2286	31.54	-14.45	17.09	43.50	-26.41	323	100	peak
3	297.2241	32.03	-7.47	24.56	46.00	-21.44	55	100	peak
4	996.4996	28.38	3.98	32.36	54.00	-21.64	181	100	peak

Test Channel	5745MHz	Polarity:	Horizontal



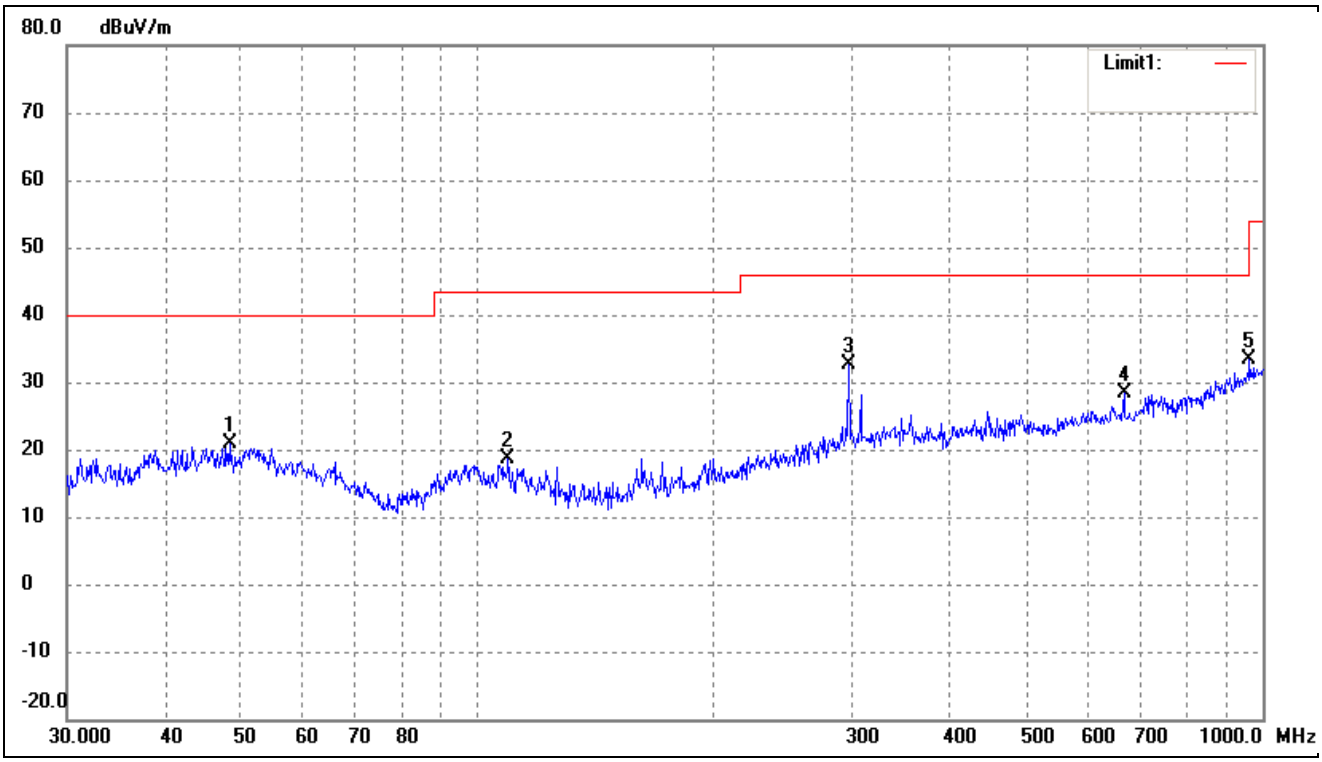
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	50.0566	34.07	-12.93	21.14	40.00	-18.86	110	100	peak
2	96.4362	34.41	-14.99	19.42	43.50	-24.08	341	100	peak
3	297.2241	41.48	-7.47	34.01	46.00	-11.99	74	100	peak
4	640.6110	30.61	-3.52	27.09	46.00	-18.91	246	100	peak
5	962.1623	30.24	3.14	33.38	54.00	-20.62	199	100	peak

Test Channel	5745MHz	Polarity:	Vertical



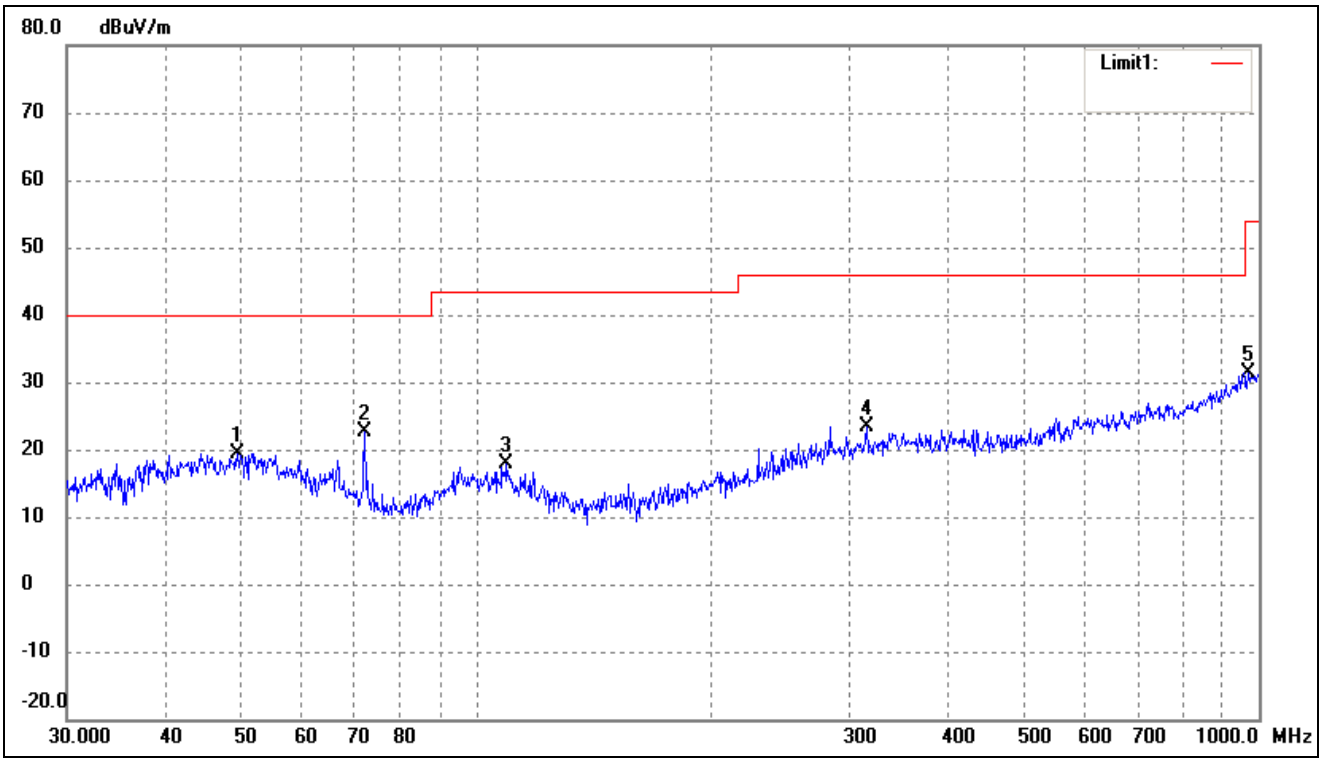
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	42.8998	33.66	-13.18	20.48	40.00	-19.52	331	100	peak
2	72.0843	36.03	-17.78	18.25	40.00	-21.75	217	100	peak
3	297.2241	32.04	-7.47	24.57	46.00	-21.43	69	100	peak
4	701.7610	30.98	-2.59	28.39	46.00	-17.61	332	100	peak
5	986.0717	27.65	3.82	31.47	54.00	-22.53	182	100	peak

Test Channel	5825MHz	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	48.3318	33.61	-12.79	20.82	40.00	-19.18	175	100	peak
2	109.4116	32.48	-13.93	18.55	43.50	-24.95	116	100	peak
3	297.2241	40.19	-7.47	32.72	46.00	-13.28	74	100	peak
4	665.8035	31.44	-3.18	28.26	46.00	-17.74	264	100	peak
5	962.1623	30.17	3.14	33.31	54.00	-20.69	93	100	peak

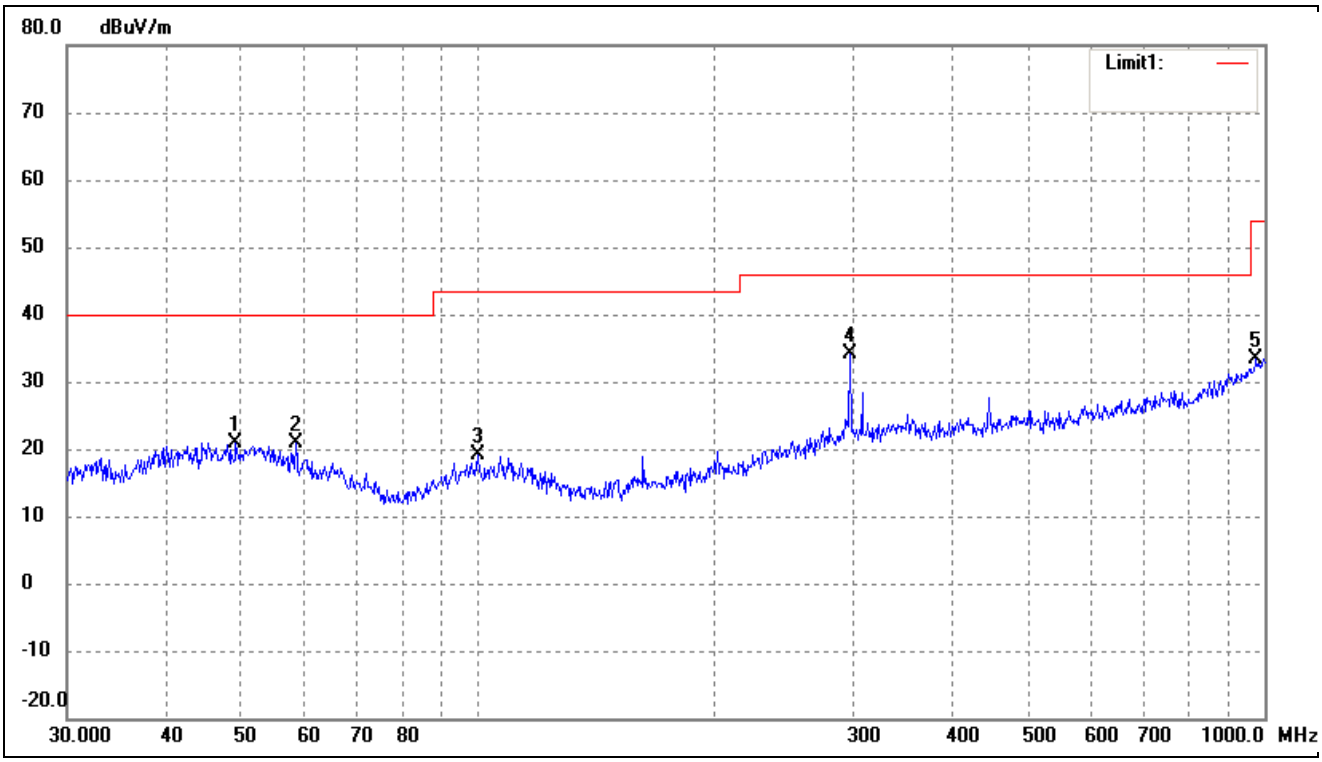
Test Channel	5825MHz	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	49.5328	32.33	-12.89	19.44	40.00	-20.56	251	100	peak
2	72.0843	40.43	-17.78	22.65	40.00	-17.35	282	100	peak
3	109.4116	31.78	-13.93	17.85	43.50	-25.65	92	100	peak
4	315.4808	30.61	-7.15	23.46	46.00	-22.54	289	100	peak
5	968.9338	28.21	3.25	31.46	54.00	-22.54	110	100	peak

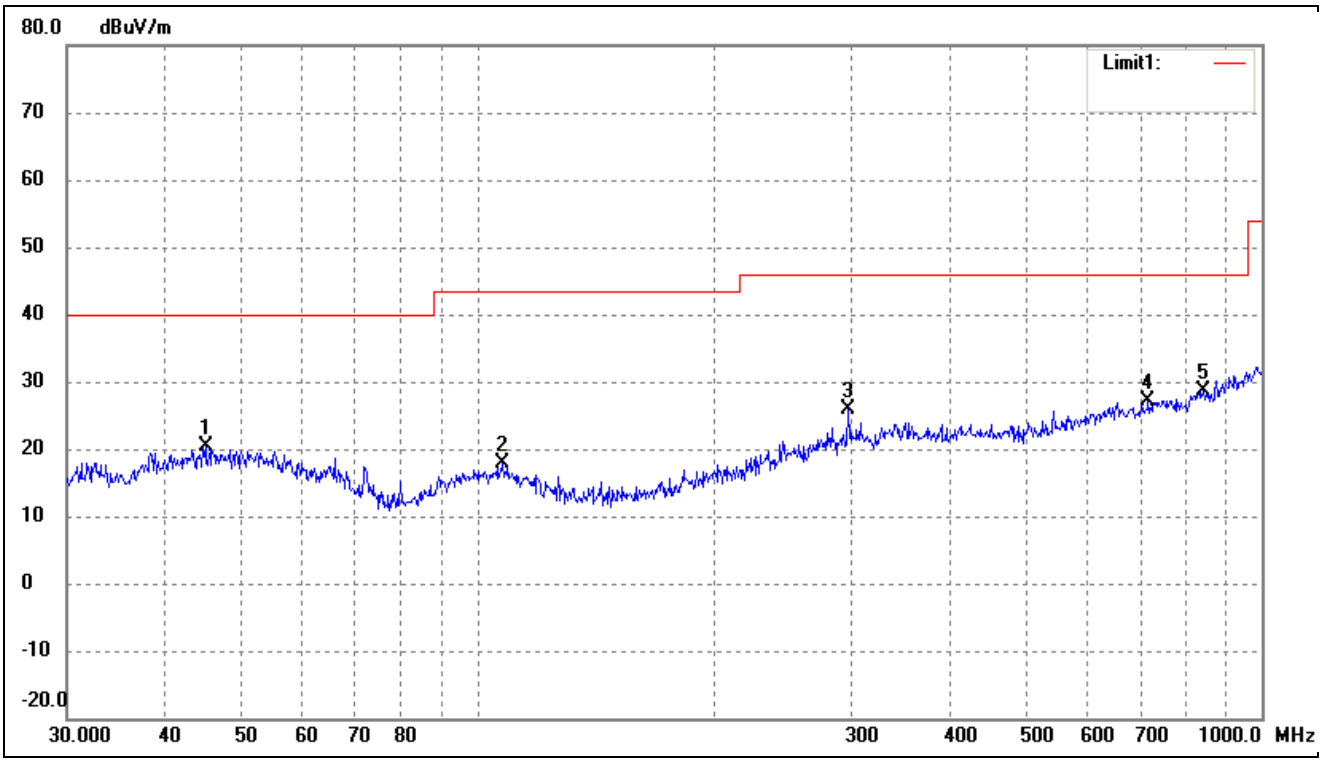
➢ Antenna Type 2

Test Channel	5190MHz	Polarity:	Horizontal



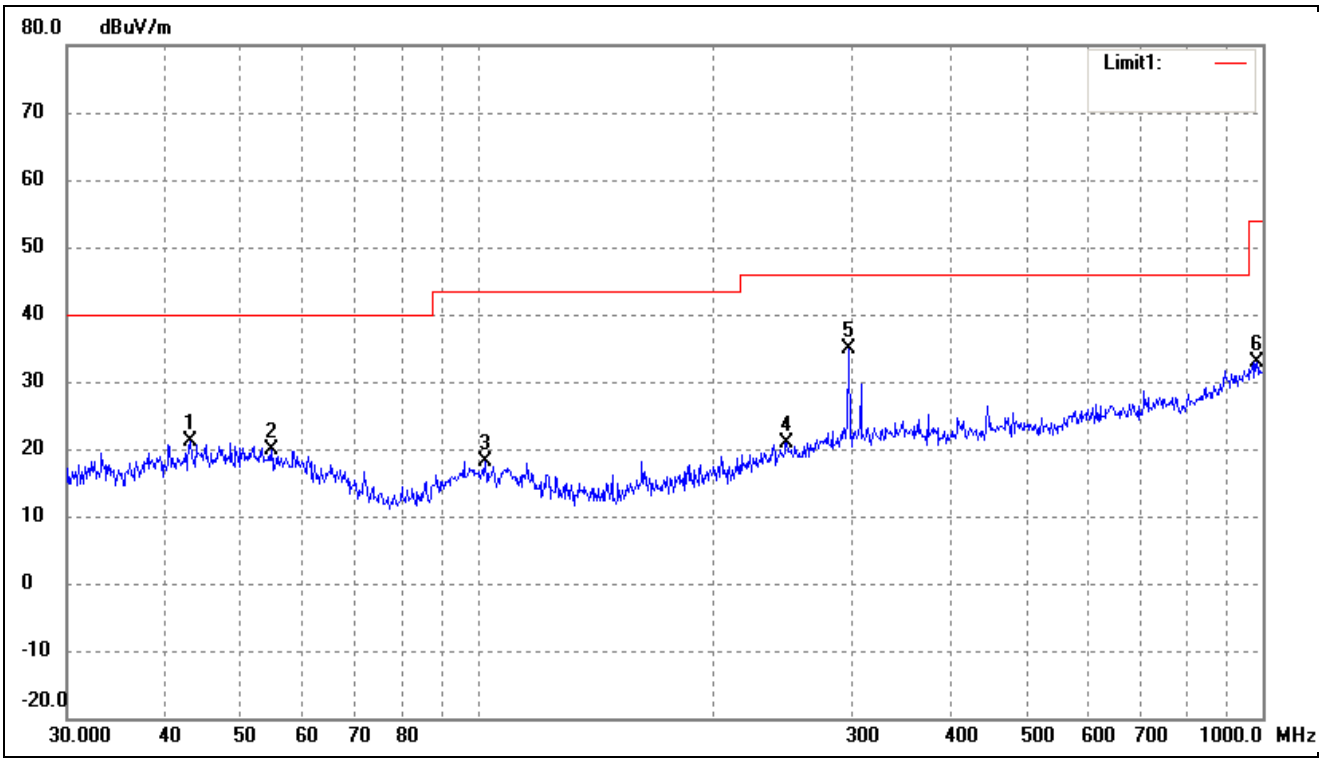
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	49.1866	33.74	-12.86	20.88	40.00	-19.12	62	100	peak
2	58.6126	35.19	-14.33	20.86	40.00	-19.14	126	100	peak
3	99.8777	33.61	-14.48	19.13	43.50	-24.37	86	100	peak
4	297.2241	41.62	-7.47	34.15	46.00	-11.85	286	100	peak
5	975.7529	29.77	3.53	33.30	54.00	-20.70	99	100	peak

Test Channel	5190MHz	Polarity:	Vertical



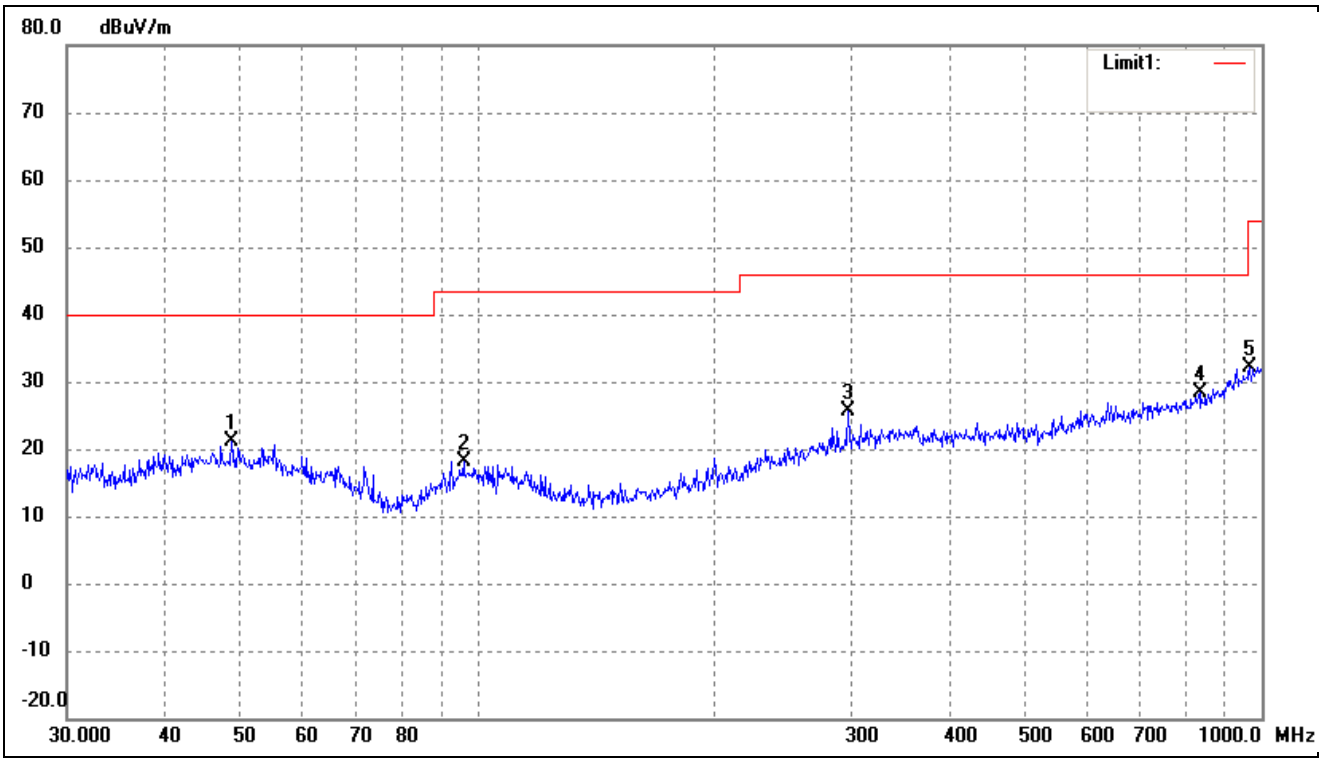
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	45.0583	33.36	-12.97	20.39	40.00	-19.61	94	100	peak
2	107.8877	31.75	-13.97	17.78	43.50	-25.72	100	100	peak
3	297.2241	33.27	-7.47	25.80	46.00	-20.20	51	100	peak
4	716.6820	29.48	-2.40	27.08	46.00	-18.92	127	100	peak
5	842.1296	28.88	-0.33	28.55	46.00	-17.45	119	100	peak

Test Channel	5230MHz	Polarity:	Horizontal



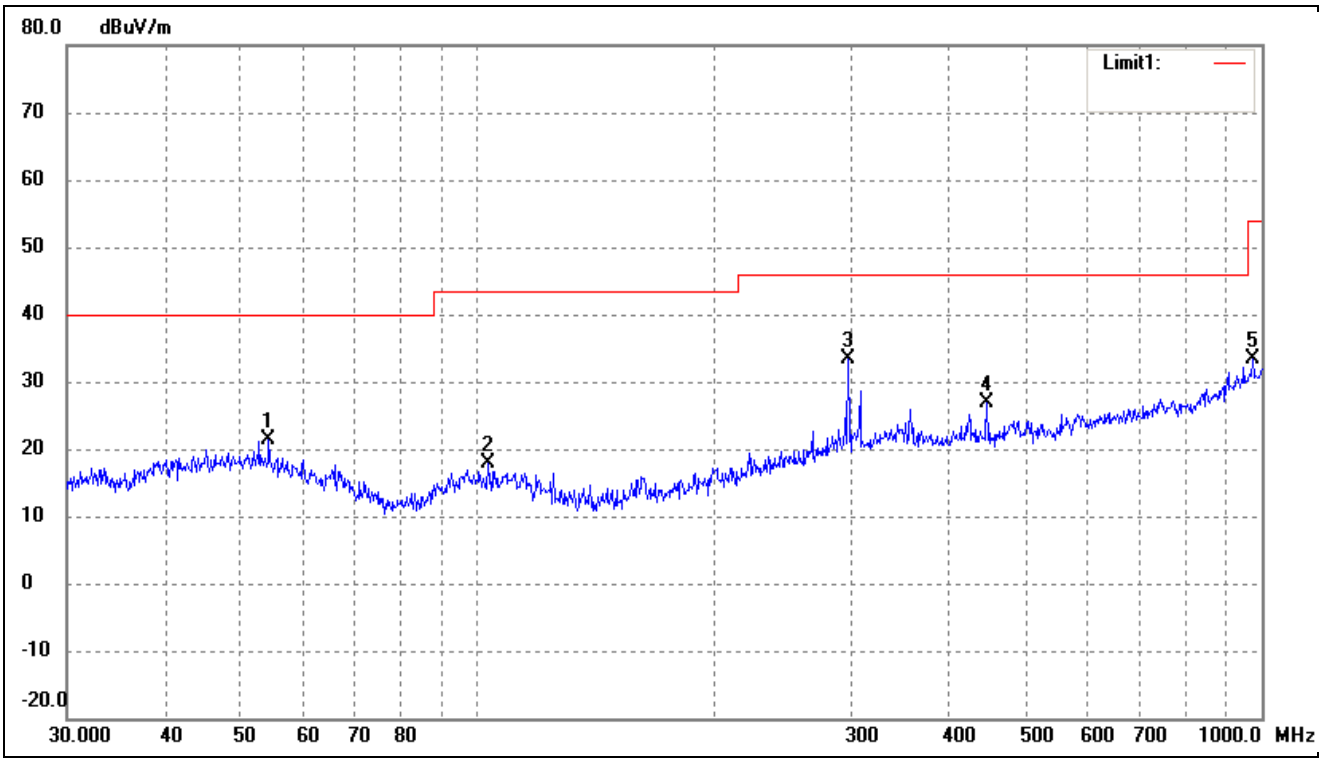
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	43.0505	34.25	-13.16	21.09	40.00	-18.91	246	100	peak
2	54.6429	33.10	-13.12	19.98	40.00	-20.02	291	100	peak
3	102.3597	32.46	-14.26	18.20	43.50	-25.30	88	100	peak
4	247.6819	30.81	-9.82	20.99	46.00	-25.01	248	100	peak
5	297.2241	42.38	-7.47	34.91	46.00	-11.09	140	100	peak
6	982.6200	29.20	3.77	32.97	54.00	-21.03	158	100	peak

Test Channel	5230MHz	Polarity:	Vertical



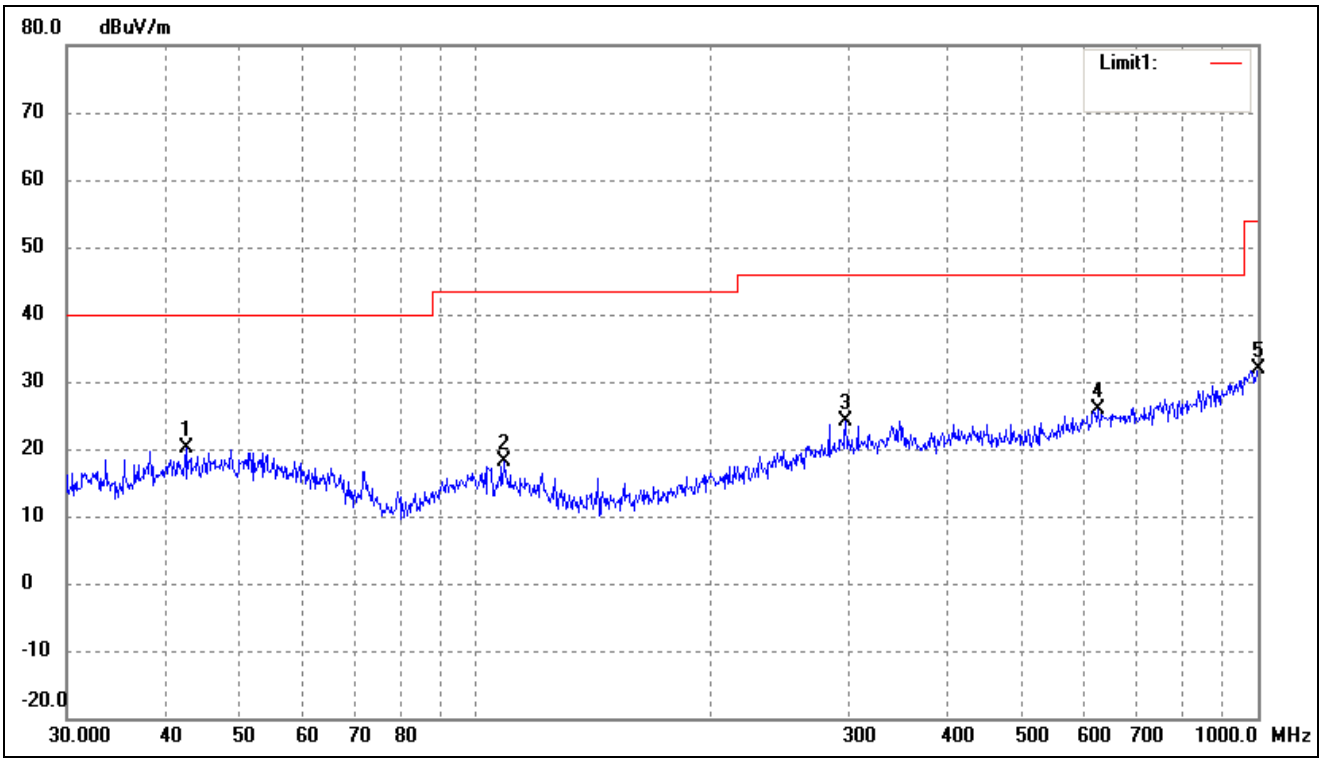
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	48.6719	33.84	-12.82	21.02	40.00	-18.98	69	100	peak
2	96.0986	33.23	-15.04	18.19	43.50	-25.31	158	100	peak
3	297.2241	33.18	-7.47	25.71	46.00	-20.29	117	100	peak
4	833.3171	28.96	-0.59	28.37	46.00	-17.63	91	100	peak
5	965.5421	29.05	3.20	32.25	54.00	-21.75	320	100	peak

Test Channel	5745MHz	Polarity:	Horizontal



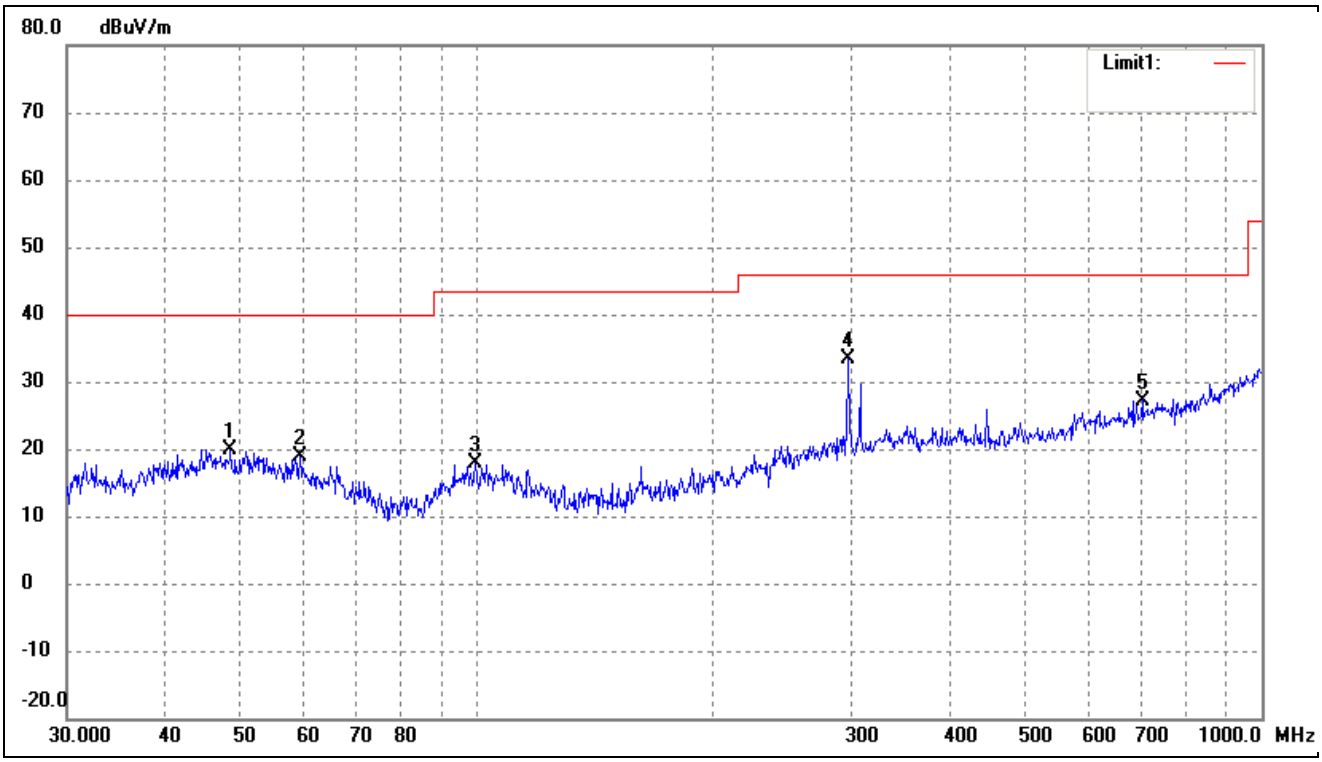
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	54.2610	34.43	-13.05	21.38	40.00	-18.62	186	100	peak
2	103.0800	32.13	-14.21	17.92	43.50	-25.58	126	100	peak
3	297.2241	40.83	-7.47	33.36	46.00	-12.64	92	100	peak
4	446.4141	33.42	-6.44	26.98	46.00	-19.02	92	100	peak
5	975.7529	29.78	3.53	33.31	54.00	-20.69	227	100	peak

Test Channel	5745MHz	Polarity:	Vertical



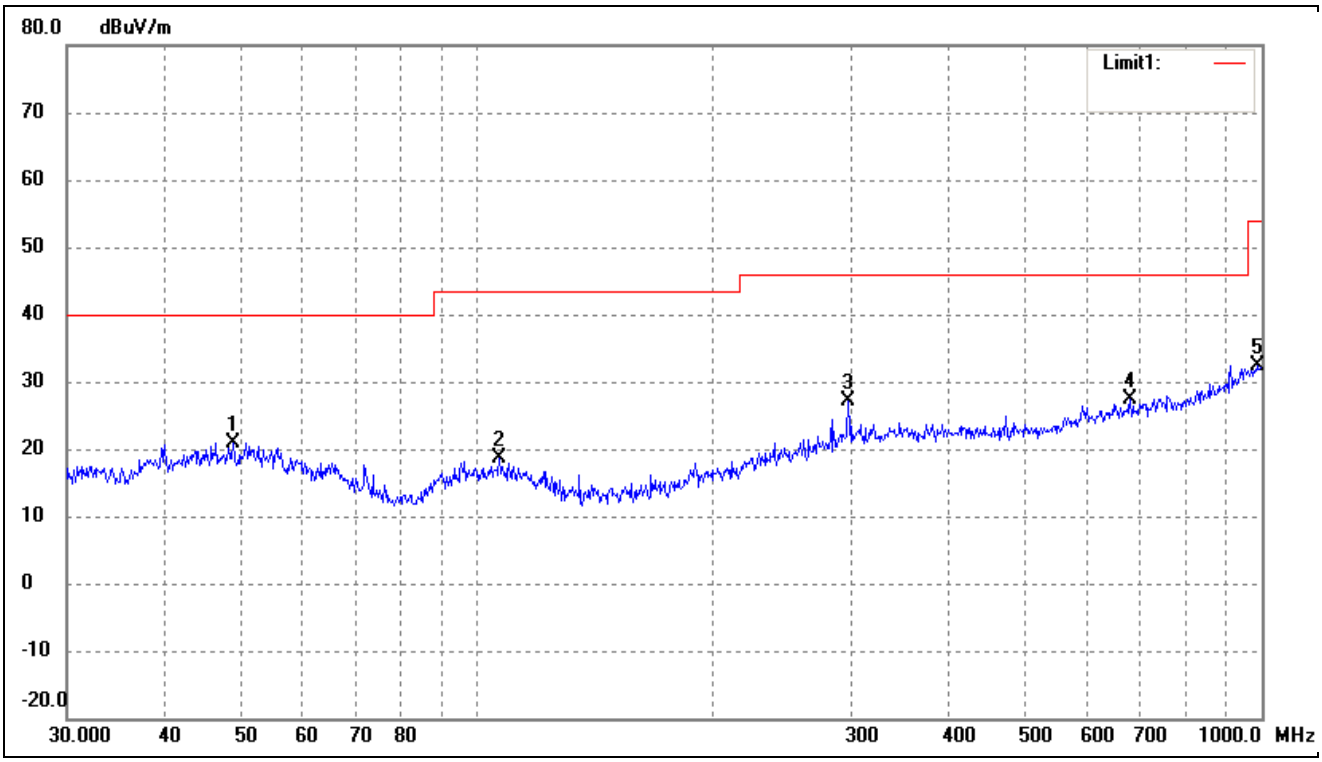
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	42.6000	33.40	-13.22	20.18	40.00	-19.82	50	100	peak
2	108.6470	32.09	-13.95	18.14	43.50	-25.36	96	100	peak
3	297.2241	31.59	-7.47	24.12	46.00	-21.88	124	100	peak
4	625.0780	29.65	-3.76	25.89	46.00	-20.11	137	100	peak
5	1000.0000	27.91	4.04	31.95	54.00	-22.05	279	100	peak

Test Channel	5825MHz	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	48.5016	32.71	-12.81	19.90	40.00	-20.10	236	100	peak
2	59.4405	33.28	-14.50	18.78	40.00	-21.22	140	100	peak
3	99.5281	32.34	-14.53	17.81	43.50	-25.69	70	100	peak
4	297.2241	40.74	-7.47	33.27	46.00	-12.73	145	100	peak
5	704.2261	29.81	-2.56	27.25	46.00	-18.75	157	100	peak

Test Channel	5825MHz	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	48.8429	33.78	-12.83	20.95	40.00	-19.05	64	100	peak
2	106.7587	32.64	-14.00	18.64	43.50	-24.86	158	100	peak
3	297.2241	34.52	-7.47	27.05	46.00	-18.95	90	100	peak
4	679.9600	30.22	-2.93	27.29	46.00	-18.71	338	100	peak
5	986.0717	28.53	3.82	32.35	54.00	-21.65	85	100	peak

- Spurious Emission above 1GHz
- Worst case at MIMO
- Antenna Type 1
- Harmonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5180MHz)										
10380	PK	51.7	360	V	40.7	8.9	39.6	62.9	74	-11.1
10380	PK	49.2	360	H	40.7	8.9	39.6	57.9	74	-16.1
10380	AV	37.0	360	V	40.7	8.9	39.6	46.7	54	-7.3
10380	AV	36.0	360	H	40.7	8.9	39.6	45.2	54	-8.8
High Channel (5230MHz)										
10460	PK	52.8	360	V	40.7	10.5	39.6	65.0	74	-9.0
10460	PK	52.0	360	H	40.7	10.5	39.6	64.5	74	-9.5
10460	AV	36.8	360	V	40.7	10.5	39.6	49.7	54	-4.3
10460	AV	35.1	360	H	40.7	10.5	39.6	47.1	54	-6.9

- Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5150	-44.22	-27
Highest	Above 5350	-45.12	-27
Note: the data just list the worst cases			

- For the frequency band 5.725-5.850GHz
- Harmonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5725MHz)										
11490	PK	49.3	155	V	38.9	11.2	40.1	58.4	74	-15.6
11490	PK	51.0	171	H	38.9	11.2	40.1	61.6	74	-12.4
11490	AV	37.3	151	V	38.9	11.2	40.1	46.8	54	-7.2
11490	AV	38.9	216	H	38.9	11.2	40.1	49.4	54	-4.6
High Channel (5825MHz)										
11650	PK	48.9	158	V	38.9	11.5	40.1	59.4	74	-14.6
11650	PK	49.4	308	H	38.9	11.5	40.1	58.8	74	-15.2
11650	AV	37.4	285	V	38.9	11.5	40.1	47.4	54	-6.6
11650	AV	40.6	246	H	38.9	11.5	40.1	51.3	54	-2.7

- Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5715	-39.65	-27
	5715 to 5725	-27.24	-17
Highest	5850 to 5860	-28.31	-17
	Above 5860	-36.56	-27
Note: the data just list the worst cases			

Antenna Type 2

➢ Harmonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5180MHz)										
10380	PK	52.6	360	V	40.7	8.9	39.6	62.5	74	-11.5
10380	PK	48.8	360	H	40.7	8.9	39.6	59.1	74	-14.9
10380	AV	36.7	360	V	40.7	8.9	39.6	46.4	54	-7.6
10380	AV	37.4	360	H	40.7	8.9	39.6	48.9	54	-5.1
High Channel (5230MHz)										
10460	PK	53.4	360	V	40.7	10.5	39.6	64.4	74	-9.6
10460	PK	52.4	360	H	40.7	10.5	39.6	63.1	74	-10.9
10460	AV	38.0	360	V	40.7	10.5	39.6	48.2	54	-5.8
10460	AV	34.9	360	H	40.7	10.5	39.6	46.5	54	-7.5

➢ Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5150	-45.20	-27
Highest	Above 5350	-44.91	-27
Note: the data just list the worst cases			

- For the frequency band 5.725-5.850GHz
- Harmonics And Spurious Emissions

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5725MHz)										
11490	PK	50.8	125	V	38.9	11.2	40.1	61.7	74	-12.3
11490	PK	51.7	138	H	38.9	11.2	40.1	60.6	74	-13.4
11490	AV	38.4	221	V	38.9	11.2	40.1	47.4	54	-6.6
11490	AV	39.5	105	H	38.9	11.2	40.1	50.8	54	-3.2
High Channel (5825MHz)										
11650	PK	49.1	62	V	38.9	11.5	40.1	60.8	74	-13.2
11650	PK	50.1	250	H	38.9	11.5	40.1	61.1	74	-12.9
11650	AV	37.8	221	V	38.9	11.5	40.1	48.3	54	-5.7
11650	AV	40.4	158	H	38.9	11.5	40.1	50.4	54	-3.6

- Out of Band edge

Test CH.	**Test Segment**	**Result**	**Limit**
	MHz	**dBm/MHz**	**dBm/MHz**
Lowest	Below 5715	-35.85	-27
	5715 to 5725	-26.12	-17
Highest	5850 to 5860	-27.52	-17
	Above 5860	-36.88	-27
Note: the data just list the worst cases			

9. Frequency Stability

9.1 Standard Applicable

According to §15.407(g), 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.

9.2 Test Procedure

According to §2.1055, the following test procedure was performed.
The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.
The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode

9.3 Summary of Test Results/Plots

U-NII-1:5150-5250MHz worst case at frequency 5190MHz				
Voltage(%)	Power(VDC)	TEMP(°C)	Freq.Dev(Hz)	Deviation
100%	14.8V	-30	124	0.0240
100%		-20	128	0.0247
100%		-10	156	0.0301
100%		0	135	0.0260
100%		+10	135	0.0260
100%		+20	160	0.0308
100%		+30	127	0.0245
100%		+40	175	0.0337
100%		+50	147	0.0284
Low Battery power	7	+20	124	0.0240
High Battery power	36	+20	128	0.0247

U-NII-1:5725-5850MHz worst case at frequency 5745MHz				
Voltage(%)	Power(VDC)	TEMP(°C)	Freq.Dev(Hz)	Deviation
100%	14.8V	-30	127	0.0222
100%		-20	149	0.0259
100%		-10	182	0.0317
100%		0	143	0.0249
100%		+10	154	0.0267
100%		+20	156	0.0271
100%		+30	126	0.0219
100%		+40	156	0.0272
100%		+50	160	0.0279
Low Battery power	7	+20	127	0.0222
High Battery power	36	+20	149	0.0259

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