


# FCC Radio Test Report

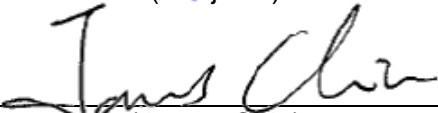
## FCC ID: Q87-RE9000

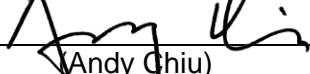
This report concerns (check one):  Original Grant  Class I Change  Class II Change

**Project No.** : 1708107  
**Equipment** : WiFi Tri band repeater  
**Test Model** : RE9000  
**Series Model** : N/A  
**Applicant** : Linksys LLC  
**Address** : 121 Theory Drive, Irvine, CA, 92617, USA

**Date of Receipt** : Aug. 28, 2017  
**Date of Test** : Aug. 28, 2017 ~ Sep. 30, 2017  
**Issued Date** : Sep. 30, 2017  
**Tested by** : BTL Inc.

**Testing Engineer** :   
(Kehji Lin)

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### REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-2-1708107	Original Issue.	Sep. 30, 2017

## 1. CERTIFICATION

Equipment : WiFi Tri band repeater  
Brand Name : Linksys  
Test Model : RE9000  
Series Model : N/A  
Applicant : Linksys LLC  
Manufacturer : U-MEDIA Communications, Inc.  
Address : No. 90, Kuang Fu Nth.Rd., Hsinchu Industrial Park, Hu Kou, Hsinchu, 303,  
Taiwan  
Factory : U-MEDIA Communications, Inc.  
Address : No. 90, Kuang Fu Nth.Rd., Hsinchu Industrial Park, Hu Kou, Hsinchu, 303,  
Taiwan  
Date of Test : Aug. 28, 2017 ~ Sep. 30, 2017  
Test Sample : Engineering Sample  
Standard(s) : FCC Part15, Subpart E(15.407) / ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-2-1708107) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

**Test results included in this report is only for the 5G WIFI UNII-1 & UNII-3 part.**

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart E			
Standard(s) Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.407(a)	26dB Spectrum Bandwidth	PASS	
15.407(a)	Maximum Conducted Output Power	PASS	
15.407(a)	Power Spectral Density	PASS	
15.407(a)	Radiated Emissions	PASS	
15.407(b)	Band Edge Emissions	PASS	
15.407(g)	Frequency Stability	PASS	
15.203	Antenna Requirements	PASS	
15.407(c)	Automatically Discontinue Transmission	PASS	NOTE (2)

**NOTE:**

- (1) "N/A" denotes test is not applicable in this test report.
- (2) During no any information transmission, the EUT can automatically discontinue transmission and becom standby mode for power saving.  
The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

## 2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

### Conducted emission Test:

**C05:** (VCCI RN: C-4742; FCC RN:965108; FCC DN:TW1082)  
No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

### Radiated emission Test (Below 1 GHz):

**CB15:** (FCC RN:674415; FCC DN:TW0659)  
No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

### Radiated emission Test (Above 1 GHz):

**CB15:** (FCC RN:674415; FCC DN:TW0659)  
No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

## 2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2  $U_{\text{cispr}}$  requirement.

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

### A. Conducted emission test:

Test Site	Method	Measurement Frequency Range	U,(dB)
C05	CISPR	150 kHz ~ 30MHz	2.68

### B. Radiated emission test:

Test Site	Method	Measurement Frequency Range	U,(dB)
CB15 (3m)	CISPR	9kHz ~ 150kHz	2.82
		150kHz ~ 30MHz	2.58

Test Site	Method	Measurement Frequency Range	Ant.	U,(dB)
CB15 (3m)	CISPR	30MHz ~ 200MHz	V	4.20
		30MHz ~ 200MHz	H	3.64
		200MHz ~ 1,000MHz	V	4.56
		200MHz ~ 1,000MHz	H	3.90

Test Site	Method	Measurement Frequency Range	Ant.	U,(dB)
CB15 (3m)	CISPR	1GHz ~ 6GHz	V	4.46
		1GHz ~ 6GHz	H	4.40
		6GHz ~ 18GHz	V	3.88
		6GHz ~ 18GHz	H	4.00

Test Site	Method	Measurement Frequency Range	U,(dB)
CB15 (1m)	CISPR	18 ~ 26.5 GHz	4.62
		26.5 ~ 40 GHz	5.12



Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our  $U_{lab}$  values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called  $U_{CISPR}$ , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz: 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz: 5.2 dB

It can be seen that our  $U_{lab}$  values are smaller than  $U_{CISPR}$ .

Note: unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

Equipment	WiFi Tri band repeater	
Brand Name	Linksys	
Model Name	RE9000	
Mode Different	N/A	
Product Description	Operation Frequency	UNII-1: 5150-5250MHz UNII-3: 5725-5850MHz
	Modulation Type	OFDM
	Bit Rate of Transmitter	300Mbps
Output Power	Output Power (Max.)for UNII-1 4TX	802.11a: 23.49dBm 802.11n (20M): 22.90dBm 802.11n (40M): 23.36dBm 802.11ac (20M): 22.96dBm 802.11ac (40M): 22.45dBm 802.11ac (80M): 22.60dBm
	Output Power (Max.)for UNII-3 2TX	802.11a: 22.44dBm 802.11n (20M): 21.67dBm 802.11n (40M): 20.23dBm 802.11ac (20M): 20.54dBm 802.11ac (40M): 19.63dBm 802.11ac (80M): 19.78dBm
Power Source	DC Voltage supplied from external power supply.	
Power Rating	(1) KTEC / KSA-24W-120200HU I/P: 100-240V~50/60Hz, 0.6A O/P: 12V---2.0A (2) UMEC / UP0251M-12PA I/P: 100-240V~50/60Hz, 0.6A O/P: 12V---2A (3) I.T.E. POWER SUPPLY / MU24AY120200-A1 I/P: 100-240V~50/60Hz, 0.7A O/P: 12V---2A	
Products Covered	3 * Adapter: (1) KTEC / KSA-24W-120200HU (2) UMEC / UP0251M-12PA (3) I.T.E. POWER SUPPLY / MU24AY120200-A1	

**Note:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

802.11a 802.11n 20MHz 802.11ac 20MHz		802.11n 40MHz 802.11ac 40MHz		802.11ac 80MHz	
UNII-1		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

802.11a 802.11n 20MHz 802.11ac 20MHz		802.11n 40MHz 802.11ac 40MHz		802.11ac 80MHz	
UNII-3		UNII-3		UNII-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		Note
					Band 1	Band 4	
1	Aristotle	RFA-TR-F90-A-9719	Dipole	iPEX	1.05	3.5	TX/RX
2	Aristotle	RFA-TR-F90-B-9719	Dipole	iPEX	2.85	3.7	TX/RX
3	Aristotle	RFA-05-F90-C-9719	Dipole	iPEX	4.57	-	TX/RX
4	Aristotle	RFA-05-F90-D-9719	Dipole	iPEX	4.52	-	TX/RX

Note:

- (1) The EUT incorporates a MIMO function. Physically, the EUT provides four completed transmitters and receivers (UNII-1: 4T4R, UNII-3: 2T2R), 2.4G and 5G can transmit simultaneously.
- (2) All Ant. 1, Ant. 2, Ant. 3 and Ant. 4 can be used as transmitting/receiving antenna. Ant. 1, Ant. 2, Ant. 3 and Ant. 4 could transmit/receive simultaneously. The Ant. 1+ Ant. 2+ Ant. 3 + Ant. 4 generated the worst case, so it was selected to test and record in the report.

- (3) The EUT(N mode & AC mode) with beamforming function,

The UNII-1 beamforming gain is 0.52 dBi, The UNII-3 beamforming gain is 2.08 dBi. then,

For UNII-1:

For power spectral density:

Directional gain =

$$10 \cdot \log\{[10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT\} = 9.38 \text{ dBi} > 6 \text{ dBi.}$$

$$\text{The reduced power spectral density limits (dBm/MHz)} = 17 - (9.38 - 6) = 13.62$$

For conducted power:

For NANT = 4 < 5,

$$\text{Direction gain (dBi)} = GANT + 0 = 4.57 + 0 = 4.57$$

The Direction gain is less than 6, so conducted power limits will not be reduced.

For UNII-3:

For power spectral density:

Directional gain =

$$10 \cdot \log\{[10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT\} = 6.61 \text{ dBi} > 6 \text{ dBi.}$$

$$\text{The reduced power spectral density limits (dBm/MHz)} = 30 - (6.61 - 6) = 29.39$$

For conducted power:

For NANT = 2 < 5,

$$\text{Direction gain (dBi)} = GANT + 0 = 3.7 + 0 = 3.7$$

The Direction gain is less than 6, so conducted power limits will not be reduced.

4.

Operating Mode TX Mode	UNII-1 4TX	UNII-3 2TX
802.11a	√ (ANT 1 + ANT 2+ ANT 3+ ANT 4)	√ (ANT 1 + ANT 2)
802.11n(20MHz)	√ (ANT 1 + ANT 2+ ANT 3+ ANT 4)	√ (ANT 1 + ANT 2)
802.11n(40MHz)	√ (ANT 1 + ANT 2+ ANT 3+ ANT 4)	√ (ANT 1 + ANT 2)
802.11ac(20MHz)	√ (ANT 1 + ANT 2+ ANT 3+ ANT 4)	√ (ANT 1 + ANT 2)
802.11ac(40MHz)	√ (ANT 1 + ANT 2+ ANT 3+ ANT 4)	√ (ANT 1 + ANT 2)
802.11ac(80MHz)	√ (ANT 1 + ANT 2+ ANT 3+ ANT 4)	√ (ANT 1 + ANT 2)

### 3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC80 Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N40 Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC40 Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC80 Mode / CH155 (UNII-3)
Mode 13	Normal Link

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

<b>For AC Power Line Conducted Emissions Test</b>	
Final Test Mode	Description
Mode 13	Normal Link
<b>For 26dB Spectrum Bandwidth Test</b>	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC80 Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N40 Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC40 Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC80 Mode / CH155 (UNII-3)

<b>For Maximum Conducted Output Power Test</b>	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC80 Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N40 Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC40 Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC80 Mode / CH155 (UNII-3)

<b>For Power Spectral Density Test</b>	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC80 Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N40 Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC40 Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC80 Mode / CH155 (UNII-3)

<b>For Radiated Emissions Test</b>	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC80 Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N40 Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC40 Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC80 Mode / CH155 (UNII-3)

<b>For Band Edge Emissions Test</b>	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC80 Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N40 Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC40 Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC80 Mode / CH155 (UNII-3)

<b>For Frequency Stability Test</b>	
Final Test Mode	Description
Mode 1	TX A Mode / CH36 (UNII-1)
Mode 7	TX A Mode / CH149 (UNII-3)



For Antenna Requirements Test	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N40 Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC40 Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC80 Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N40 Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC40 Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC80 Mode / CH155 (UNII-3)

Note:

- (1) For radiated below 1G test, the 802.11ac mode is found to be the worst case and recorded.
- (2) The EUT was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

### 3.3 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

During testing channel & 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

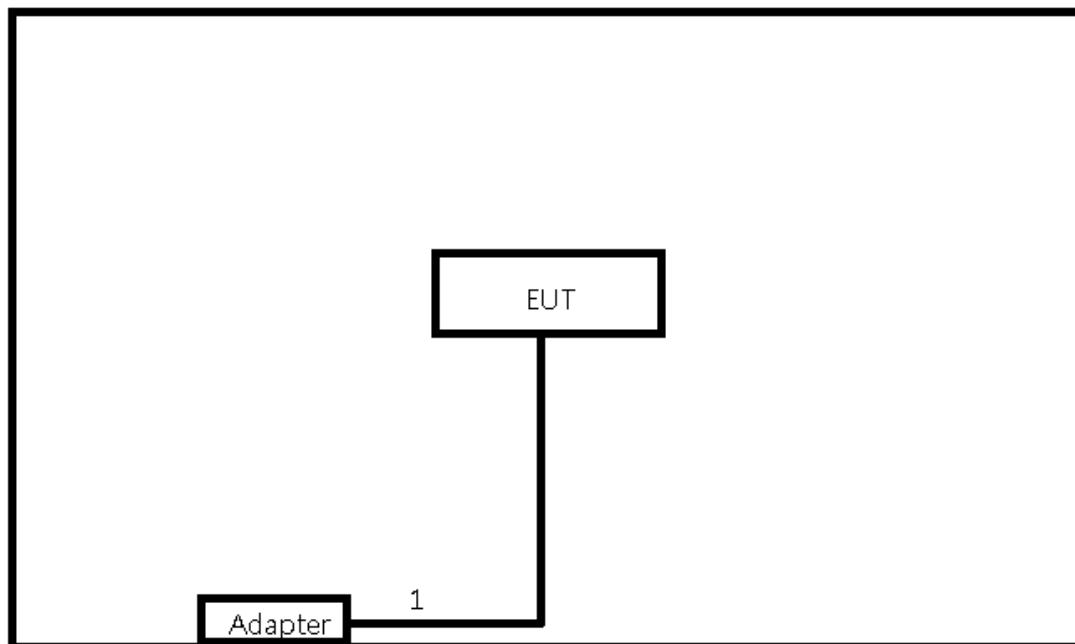
UNII-1			
Test Software Version	MT7615 QA 0.0.1.85 + DOS		
Frequency (MHz)	5180	5200	5240
A Mode	10	10	10
N20 Mode	0E	0E	0F
Frequency (MHz)	5190	5230	
N40 Mode	10	10	

UNII-3			
Test Software Version	MT7615 QA 0.0.1.85 + DOS		
Frequency (MHz)	5745	5785	5825
A Mode	10	10	10
N20 Mode	10	10	10
Frequency (MHz)	5755	5795	
N40 Mode	10	10	

UNII-1			
Test Software Version	MT7615 QA 0.0.1.85 + DOS		
Frequency (MHz)	5180	5200	5240
AC20 Mode	0F	0F	0F
Frequency (MHz)	5190	5230	
AC40 Mode	12	12	
Frequency (MHz)	5210		
AC80 Mode	13		

UNII-3			
Test Software Version	ART		
Frequency (MHz)	5745	5785	5825
AC20 Mode	0F	0F	0F
Frequency (MHz)	5755	5795	
AC40 Mode	10	0F	
Frequency (MHz)	5775		
AC80 Mode	0D		

### 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



### 3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.5m	Power Cable

## 4. EMC EMISSION TEST

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150kHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:  
 Measurement Value = Reading Level + Correct Factor  
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)  
 Margin Level = Measurement Value - Limit Value

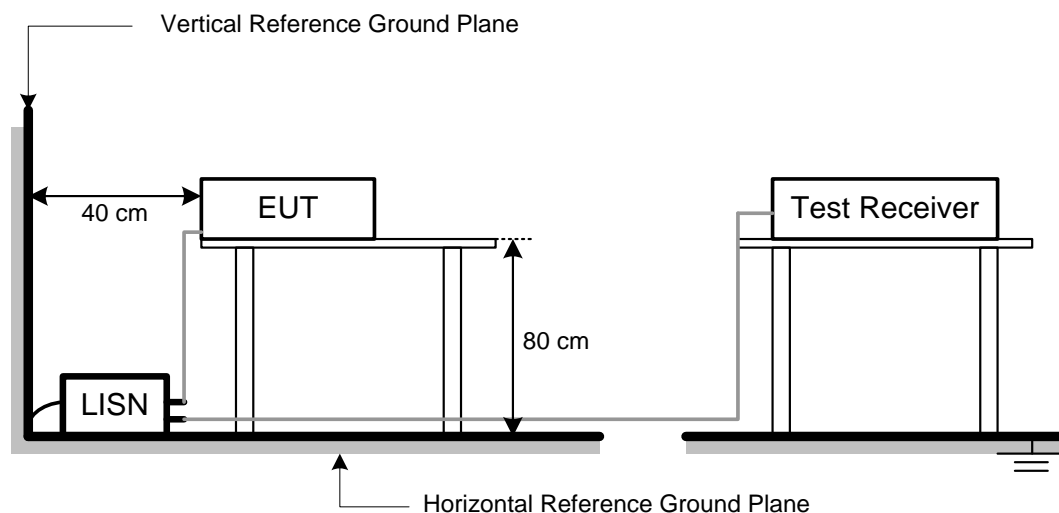
#### 4.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 4.1.3 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.4 TEST SETUP



#### 4.1.5 EUT OPERATING CONDITIONS

The EUT was placed on the test table and programmed in normal function.

#### 4.1.6 EUT TEST CONDITIONS

Temperature: 25°C    Relative Humidity: 55%    Test Voltage: AC 120V/60Hz

#### 4.1.7 TEST RESULTS

Please refer to the Appendix A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of Note. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a "\*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150kHz to 30MHz.

## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 RADIATED EMISSION LIMITS

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

### LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dB $\mu$ V/m)
5150-5250	-27	68.3
5250-5350	-27	68.3
5470-5725	-27	68.3
5725-5850	-27(Note 2)	68.3
	10(Note 2)	105.3
	15.6(Note 2)	110.9
	27(Note 2)	122.3

Note:

1. The following formula is used to convert the equipment isotropic radiated power (eirp) to field

strength:  $E = \frac{1000000\sqrt{30P}}{3}$   $\mu$ V/m, where P is the eirp (Watts)

2. According to FCC 16-24, 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 25MHz 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 27dBm/MHz at the band edge.

#### 4.2.2 TEST PROCEDURE

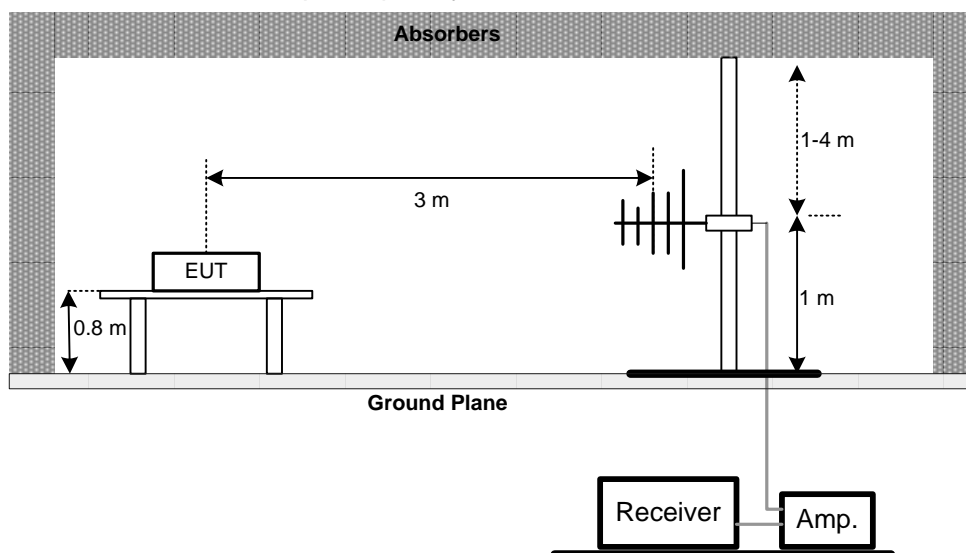
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. (below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. (above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- f. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- g. For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 4.2.3 DEVIATION FROM TEST STANDARD

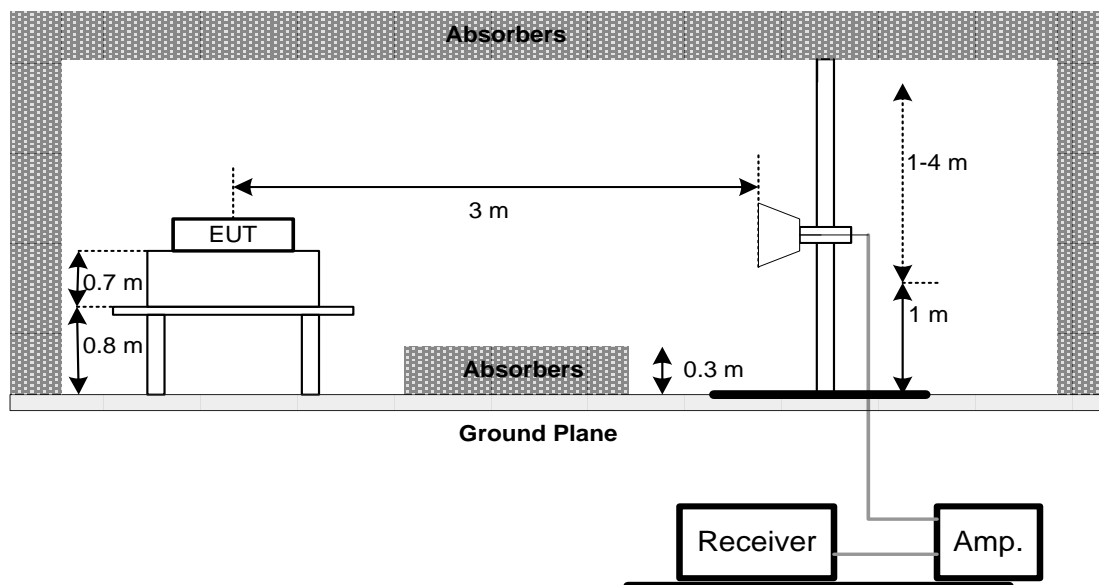
No deviation

#### 4.2.4 TEST SETUP

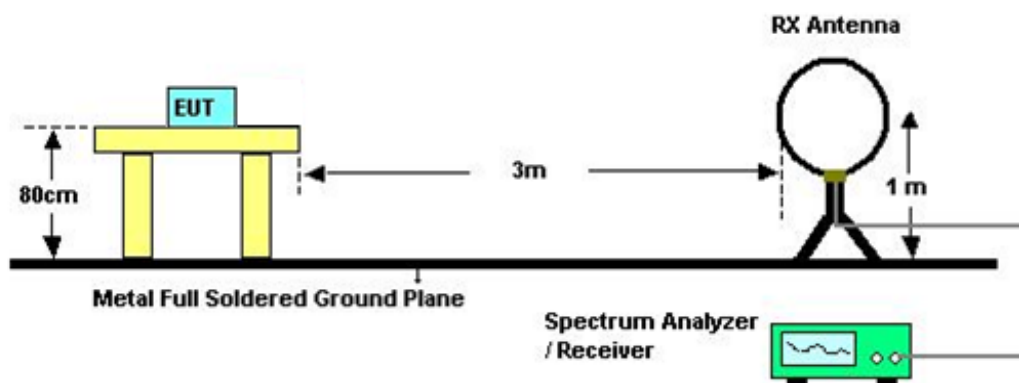
(A) Radiated Emission Test Set-Up Frequency Below 1GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) Radiated emissions below 30MHz



**4.2.5 EUT OPERATING CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

**4.2.6 EUT TEST CONDITIONS**

Temperature: 23°C    Relative Humidity: 70%    Test Voltage: AC 120V/60Hz



#### 4.2.7 TEST RESULTS (9K TO 30MHz)

Please refer to the Appendix B

Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (dB);
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

#### 4.2.8 TEST RESULTS (30 TO 1000 MHz)

Please refer to the Appendix C.

Remark:

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120kHz, SPA setting in RBW=120kHz, VBW =120kHz, Swp. Time = 0.3 sec./MHz ◦
- (2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (3) Measuring frequency range from 30MHz to 1000MHz ◦
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦

#### 4.2.9 TEST RESULTS (ABOVE 1000 MHz)

Please refer to the Appendix D.

Remark:

- (1) Spectrum Setting: 30MHz – 1000MHz , RBW= 100kHz, VBW=100kHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『Note』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axes:  
“X” - denotes Laid on Table, “Y” - denotes Vertical Stand, “Z” - denotes Side Stand
- (7) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (8) No limit: This is fundamental signal, the judgment is not applicable.  
For fundamental signal judgment was referred to Peak output test.

## 5. 26dB SPECTRUM BANDWIDTH

### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Bandwidth	26 dB Bandwidth	5150-5250	PASS
	Minimum 500kHz 6dB Bandwidth	5725-5850	PASS

#### 5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RBW	300 kHz(Bandwidth 20MHz) 1MHz(Bandwidth 40MHz and 80MHz)
VBW	1MHz(Bandwidth 20MHz) 3MHz(Bandwidth 40MHz and 80MHz)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Measured the spectrum width with power higher than 26dB below carrier

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



#### 5.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

**5.1.5 EUT TEST CONDITIONS**

Temperature: 24°C    Relative Humidity: 56%    Test Voltage: AC 120V/60Hz

**5.1.6 TEST RESULTS**

Please refer to the Appendix E.

## 6. MAXIMUM CONDUCTED OUTPUT POWER

### 6.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Conducted Output Power	Fixed:1 Watt (30dBm) Mobile and portable: 250mW (24dBm)	5150-5250	PASS
	1 Watt (30dBm)	5725-5850	PASS
Note: The maximum e.i.r.p at anyelevation angle above 30 degrees as measured from the horizon must not exceed 125mW(21dBm)			

#### 6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- b.

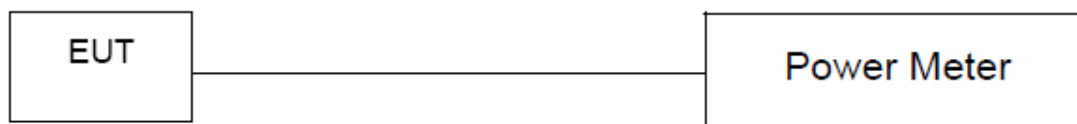
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	= 1MHz.
VBW	$\geq$ 3MHz.
Detector	RMS
Trace	Max Hold
Sweep Time	auto

- c. Test was performed in accordance with method of KDB 789033 D02.

### 6.1.2 DEVIATION FROM STANDARD

No deviation.

### 6.1.3 TEST SETUP



### 6.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 6.1.5 EUT TEST CONDITIONS

Temperature: 24°C    Relative Humidity: 56%    Test Voltage: AC 120V/60Hz

### 6.1.6 TEST RESULTS

Please refer to the Appendix F.

## 7. POWER SPECTRAL DENSITY TEST

### 7.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Power Spectral Density	Other than Mobile and portable:17dBm/MHz Mobile and portable:11dBm/MHz	5150-5250	PASS
	30dBm/500kHz	5725-5850	PASS

#### 7.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	= 1MHz.
VBW	≥ 3MHz.
Detector	RMS
Trace	Max Hold
Sweep Time	Auto

Note:

1. For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v01, section II.F.5., it is acceptable to set RBW at 1MHz and VBW at 3MHz if the spectrum analyzer does not have 500kHz RBW.
2. The value measured with RBW=1MHz is to be added with  $10\log(500\text{kHz}/1\text{MHz})$  which is -3dB. For example, if the measured value is +10dBm using RBW=1MHz (that is +10dBm/MHz), then the converted value will be +7dBm/500kHz.

### 7.1.1 DEVIATION FROM STANDARD

No deviation.

### 7.1.2 TEST SETUP



### 7.1.3 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 7.1.4 EUT TEST CONDITIONS

Temperature: 24°C    Relative Humidity: 56%    Test Voltage: AC 120V/60Hz

### 7.1.5 TEST RESULTS

Please refer to the Appendix G.

## 8. FREQUENCY STABILITY MEASUREMENT

### 8.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Frequency Stability	Specified in the user's manual	5150-5250	PASS
		5725-5850	PASS

#### 8.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

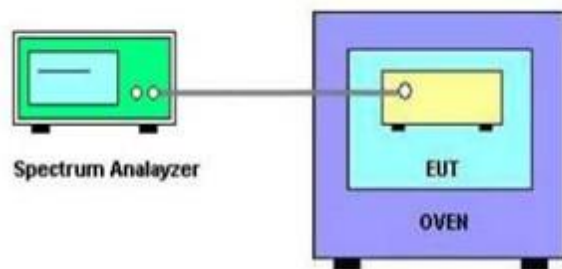
d. User manual temperature is 0°C~40°C.

#### 8.1.2 DEVIATION FROM STANDARD

No deviation.



### 8.1.3 TEST SETUP



### 8.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 8.1.5 EUT TEST CONDITIONS

Temperature: 25°C    Relative Humidity: 55%    Test Voltage: AC 120V/60Hz

### 8.1.6 TEST RESULTS

Please refer to the Appendix H.

## 9. MEASUREMENT INSTRUMENTS LIST

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	TWO-LINE V-NETWORK	R&S	ENV216	101050	Jan. 25, 2018
2	Test Cable	TIMES	CFD300-NL	C02	Jun. 14, 2018
3	EMI Test Receiver	R&S	ESR7	101433	Dec. 09, 2017
4	Measurement Software	EZ	EZ EMC (Version NB-03A)	N/A	N/A
5	Measurement Software	EZ	EZ EMC (Version NB-03A)	N/A	N/A

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Preamplifier	EMCI	012645B	980267	Feb. 28, 2018
2	Preamplifier	EMCI	EMC02325	980217	Dec. 29, 2017
3	Preamplifier	EMCI	EMC2654045	980030	Feb. 14, 2018
4	Test Cable	EMCI	EMC104-SM-SM-8 000	8m	Jan. 04, 2018
5	Test Cable	EMCI	EMC104-SM-SM-8 00	150207	Jan. 04, 2018
6	Test Cable	EMCI	EEMC104-SM-SM- 3000	151205	Jan. 04, 2018
7	MXE EMI Receiver	Agilent	N9038A	MY55420127	Jan. 09, 2018
8	Signal Analyzer	Agilent	N9010A	MY52220990	Feb. 22, 2018
9	Loop Ant	EMCO	6502	42960	Nov. 24, 2017
10	Horn Ant	SCHWARZBE CK	BBHA 9120D	9120D-1342	Feb. 28, 2018
11	Horn Ant	Schwarzbeck	BBHA 9170	187	Dec. 07, 2017
12	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-548	Jan. 16, 2018
13	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0623	Jan. 16, 2018

<b>Spectrum Bandwidth Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 25, 2018

<b>Maximum Conducted Output Power Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Aug. 17, 2017
2	Power Sensor	Anritsu	MA2411B	1126001	Aug. 17, 2017

<b>Antenna Conducted Spurious Emission Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 25, 2018

<b>Power Spectral Density Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 25, 2018

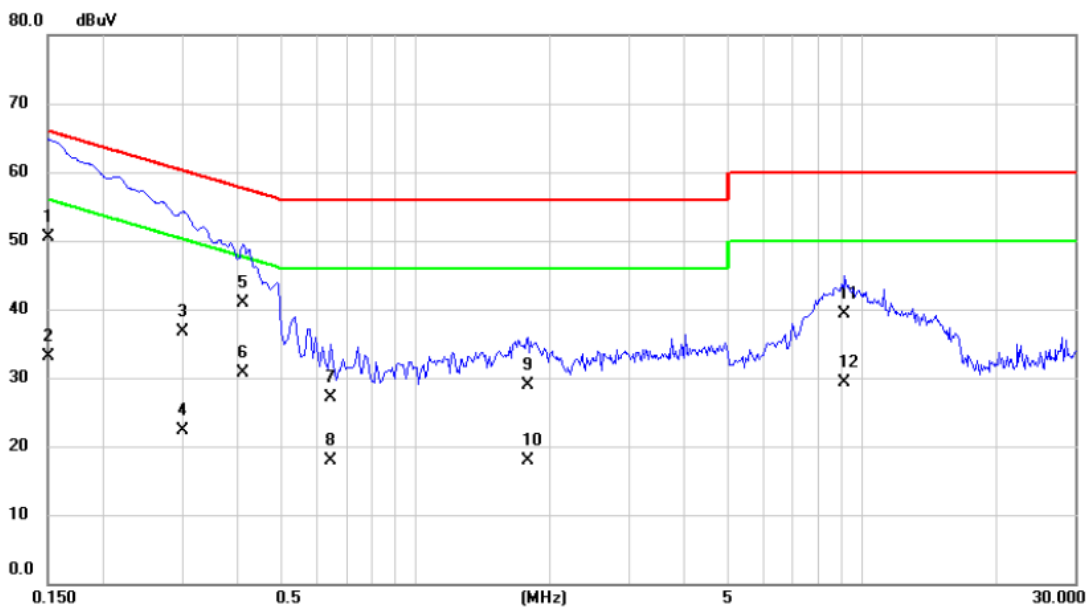
<b>Frequency Stability Measurement</b>					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 25, 2018

Remark: "N/A" denotes no model name, serial no. or calibration specified.  
 All calibration period of equipment list is one year.

## APPENDIX A - CONDUCTED EMISSION

Test Mode: UNII-1/Normal Link

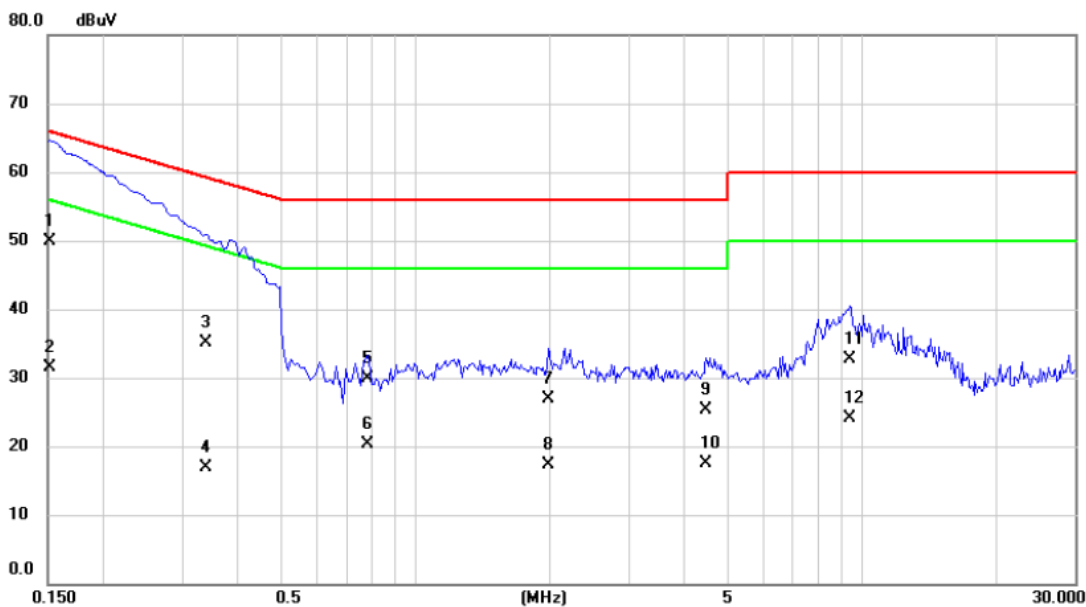
### Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1500	40.80	9.73	50.53	66.00	-15.47	QP	
2		0.1500	23.30	9.73	33.03	56.00	-22.97	AVG	
3		0.3011	27.00	9.73	36.73	60.21	-23.48	QP	
4		0.3011	12.60	9.73	22.33	50.21	-27.88	AVG	
5		0.4117	31.10	9.74	40.84	57.61	-16.77	QP	
6		0.4117	21.00	9.74	30.74	47.61	-16.87	AVG	
7		0.6440	17.30	9.74	27.04	56.00	-28.96	QP	
8		0.6440	8.20	9.74	17.94	46.00	-28.06	AVG	
9		1.7780	19.10	9.77	28.87	56.00	-27.13	QP	
10		1.7780	8.10	9.77	17.87	46.00	-28.13	AVG	
11		9.1500	29.30	9.95	39.25	60.00	-20.75	QP	
12		9.1500	19.30	9.95	29.25	50.00	-20.75	AVG	

Test Mode: UNII-1/Normal Link

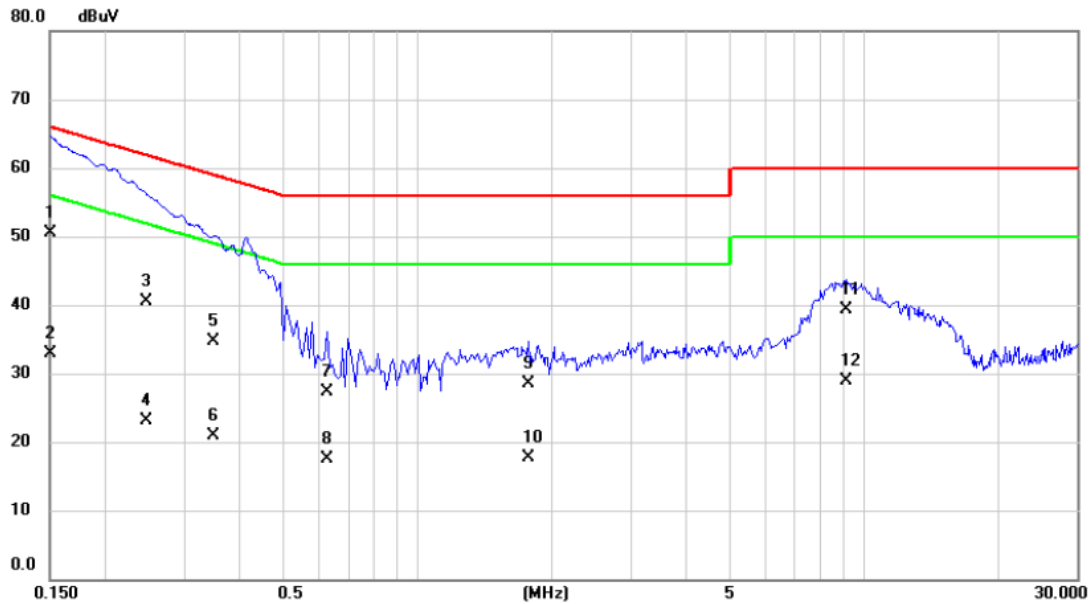
### Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1514	40.30	9.65	49.95	65.92	-15.97	QP	
2		0.1514	21.80	9.65	31.45	55.92	-24.47	AVG	
3		0.3390	25.50	9.67	35.17	59.23	-24.06	QP	
4		0.3390	7.20	9.67	16.87	49.23	-32.36	AVG	
5		0.7790	20.30	9.69	29.99	56.00	-26.01	QP	
6		0.7790	10.60	9.69	20.29	46.00	-25.71	AVG	
7		1.9850	17.10	9.71	26.81	56.00	-29.19	QP	
8		1.9850	7.60	9.71	17.31	46.00	-28.69	AVG	
9		4.4690	15.50	9.77	25.27	56.00	-30.73	QP	
10		4.4690	7.80	9.77	17.57	46.00	-28.43	AVG	
11		9.4000	22.80	9.94	32.74	60.00	-27.26	QP	
12		9.4000	14.20	9.94	24.14	50.00	-25.86	AVG	

Test Mode: UNII-3/Normal Link

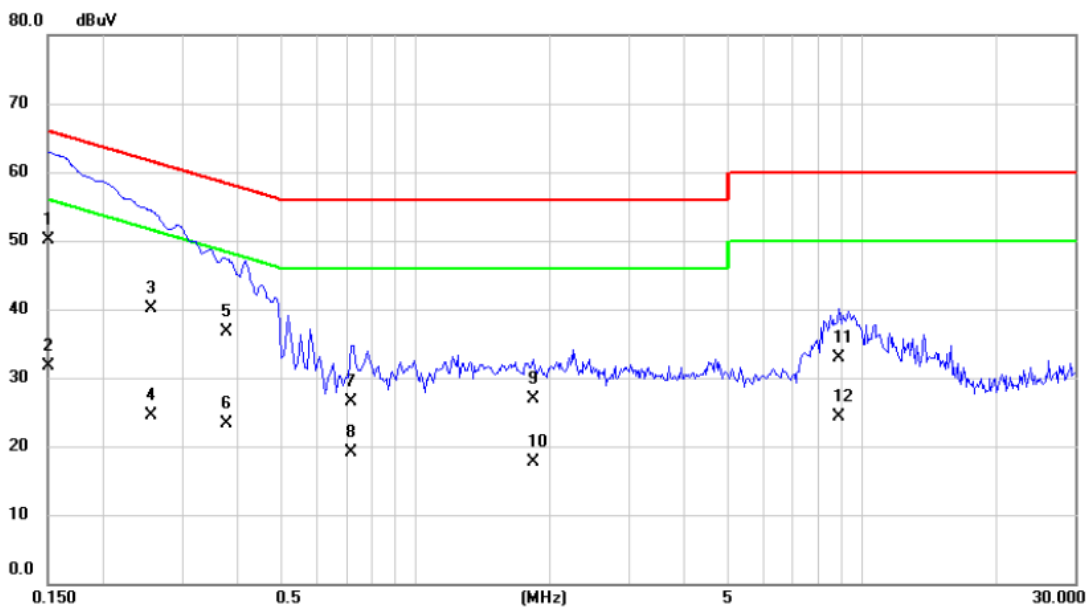
### Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1500	40.70	9.73	50.43	66.00	-15.57	QP	
2		0.1500	23.10	9.73	32.83	56.00	-23.17	AVG	
3		0.2473	30.70	9.72	40.42	61.85	-21.43	QP	
4		0.2473	13.30	9.72	23.02	51.85	-28.83	AVG	
5		0.3495	24.90	9.73	34.63	58.97	-24.34	QP	
6		0.3495	11.10	9.73	20.83	48.97	-28.14	AVG	
7		0.6260	17.60	9.74	27.34	56.00	-28.66	QP	
8		0.6260	7.80	9.74	17.54	46.00	-28.46	AVG	
9		1.7690	18.80	9.77	28.57	56.00	-27.43	QP	
10		1.7690	7.90	9.77	17.67	46.00	-28.33	AVG	
11		9.1000	29.30	9.95	39.25	60.00	-20.75	QP	
12		9.1000	19.00	9.95	28.95	50.00	-21.05	AVG	

Test Mode: UNII-3/Normal Link

### Neutral



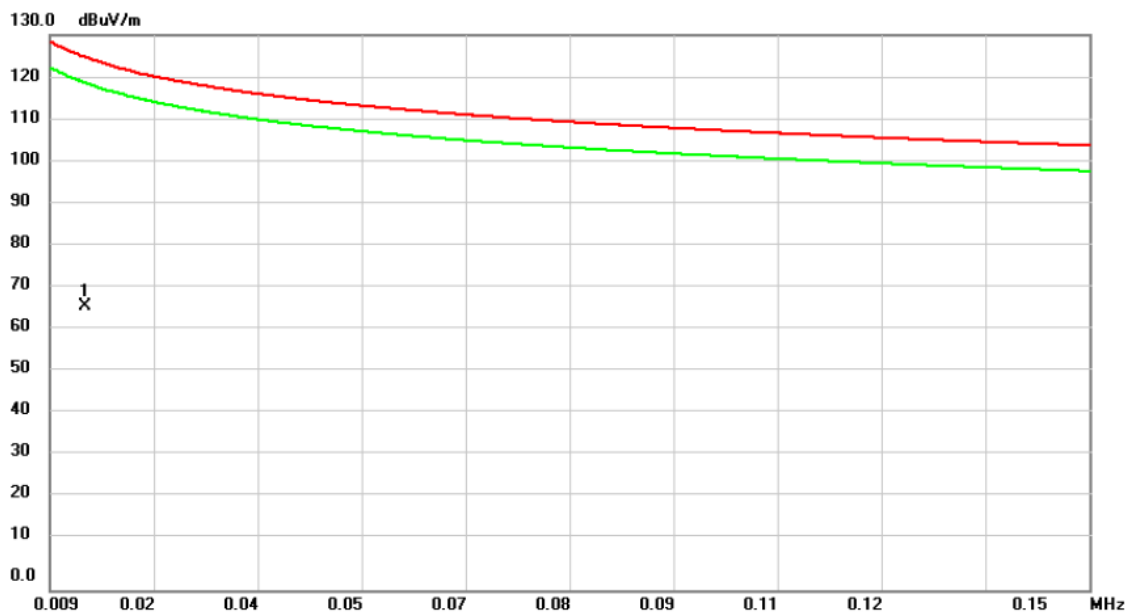
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1500	40.50	9.65	50.15	66.00	-15.85	QP	
2		0.1500	22.10	9.65	31.75	56.00	-24.25	AVG	
3		0.2550	30.40	9.67	40.07	61.59	-21.52	QP	
4		0.2550	14.80	9.67	24.47	51.59	-27.12	AVG	
5		0.3775	27.10	9.67	36.77	58.33	-21.56	QP	
6		0.3775	13.60	9.67	23.27	48.33	-25.06	AVG	
7		0.7160	16.80	9.69	26.49	56.00	-29.51	QP	
8		0.7160	9.40	9.69	19.09	46.00	-26.91	AVG	
9		1.8320	17.20	9.71	26.91	56.00	-29.09	QP	
10		1.8320	8.00	9.71	17.71	46.00	-28.29	AVG	
11		8.9000	22.90	9.92	32.82	60.00	-27.18	QP	
12		8.9000	14.30	9.92	24.22	50.00	-25.78	AVG	



## **APPENDIX B - RADIATED EMISSION (9KHZ TO 30MHZ)**

Test Mode: UNII-1/ TX

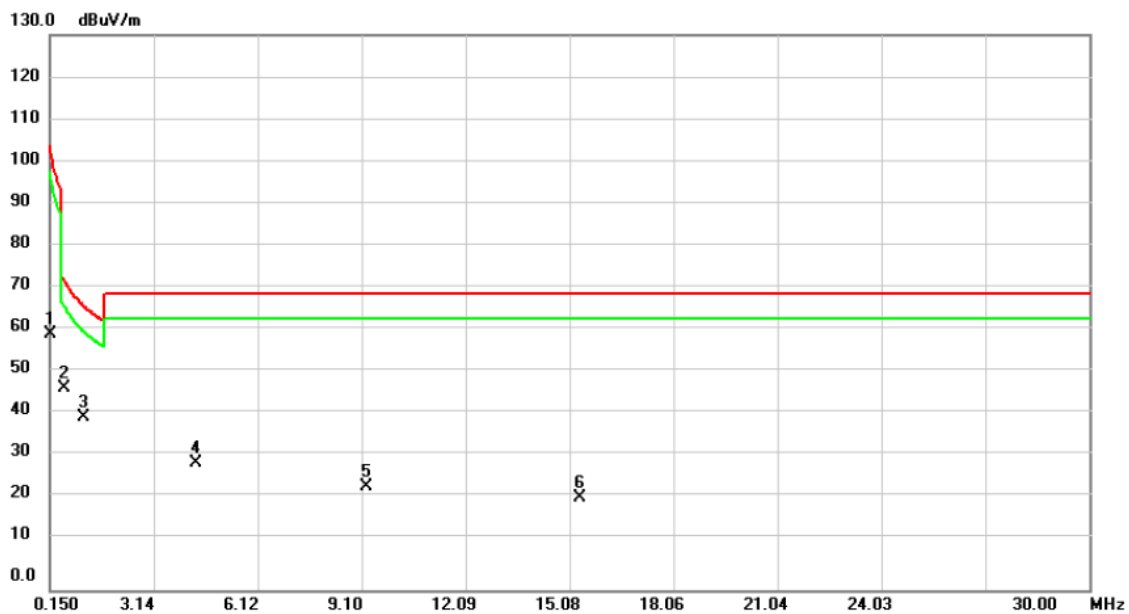
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	0.0137	47.07	19.48	66.55	124.87	-58.32	peak	

Test Mode: UNII-1/ TX

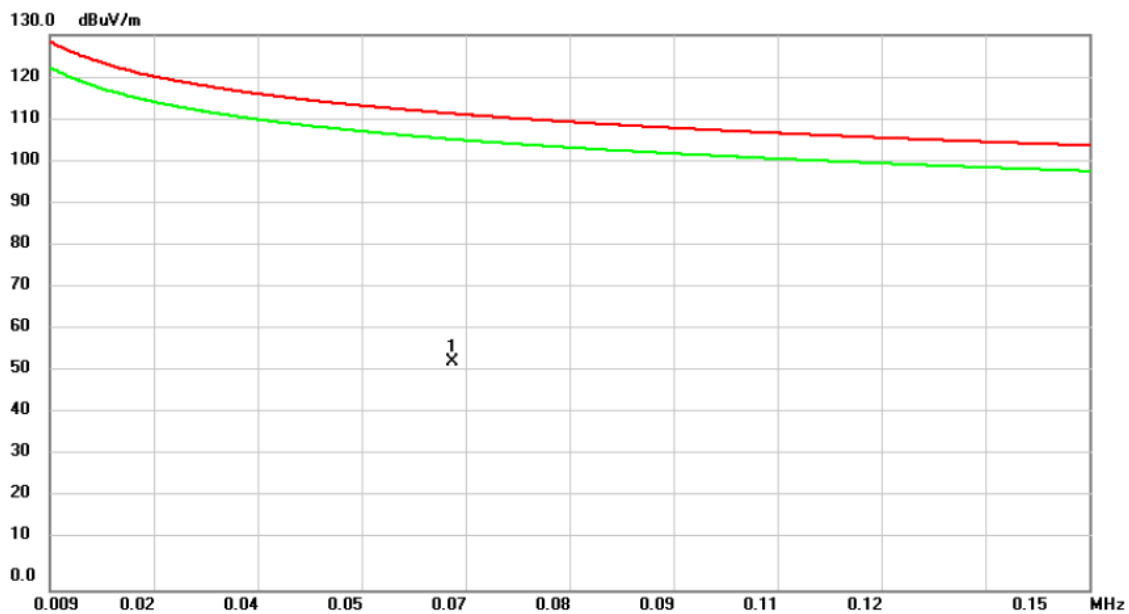
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.1500	47.93	12.03	59.96	104.08	-44.12	peak	
2	*	0.5675	35.40	11.83	47.23	72.52	-25.29	peak	
3		1.1350	28.52	11.94	40.46	66.50	-26.04	peak	
4		4.3290	18.38	11.30	29.68	69.54	-39.86	peak	
5		9.2543	12.76	11.31	24.07	69.54	-45.47	peak	
6		15.3734	10.32	11.14	21.46	69.54	-48.08	peak	

Test Mode: UNII-1/ TX

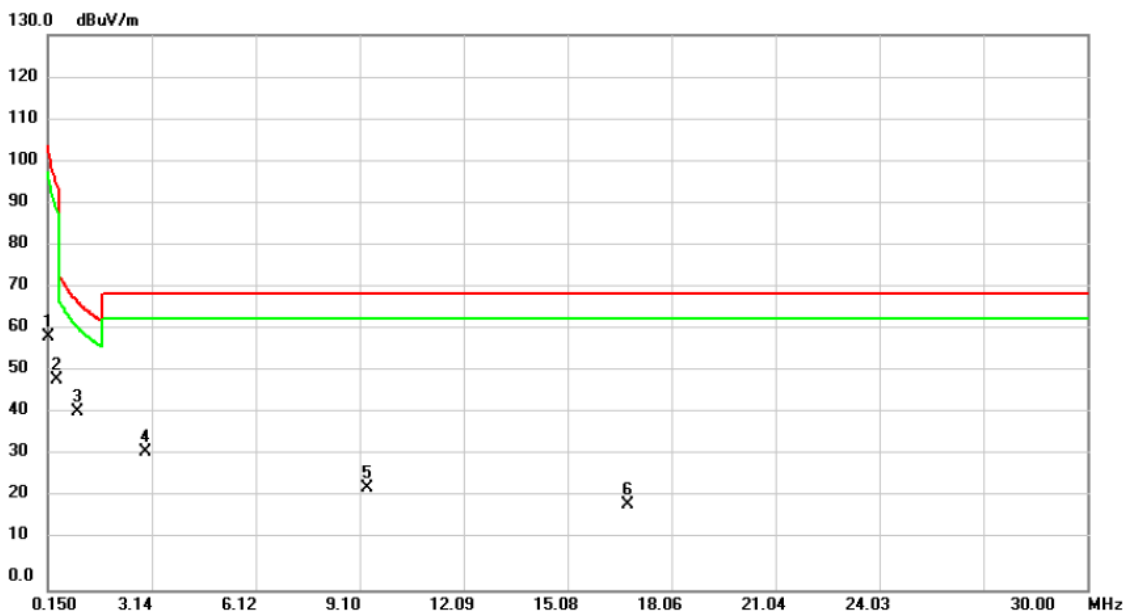
Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	0.0637	40.61	12.75	53.36	111.52	-58.16	peak	

Test Mode: UNII-1/ TX

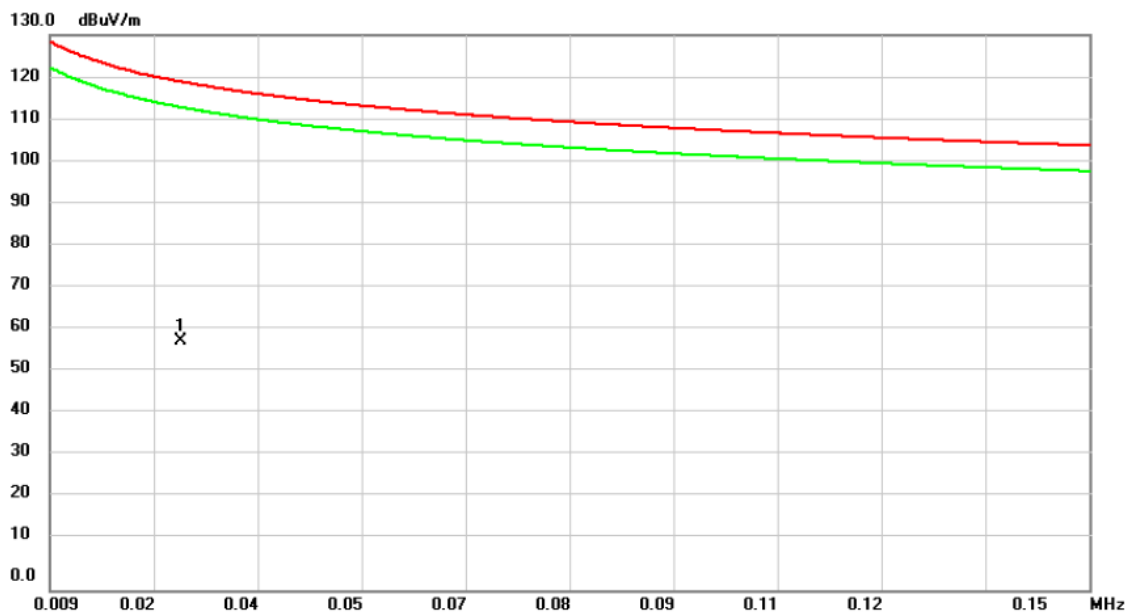
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.1500	47.16	12.03	59.19	104.08	-44.89	peak	
2		0.4187	37.60	11.80	49.40	95.17	-45.77	peak	
3	*	0.9858	29.83	11.99	41.82	67.73	-25.91	peak	
4		2.9560	21.26	11.12	32.38	69.54	-37.16	peak	
5		9.3140	12.42	11.31	23.73	69.54	-45.81	peak	
6		16.8063	8.74	11.10	19.84	69.54	-49.70	peak	

Test Mode: UNII-3/ TX

Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	0.0267	42.42	15.91	58.33	119.07	-60.74	peak	

Test Mode: UNII-3/ TX

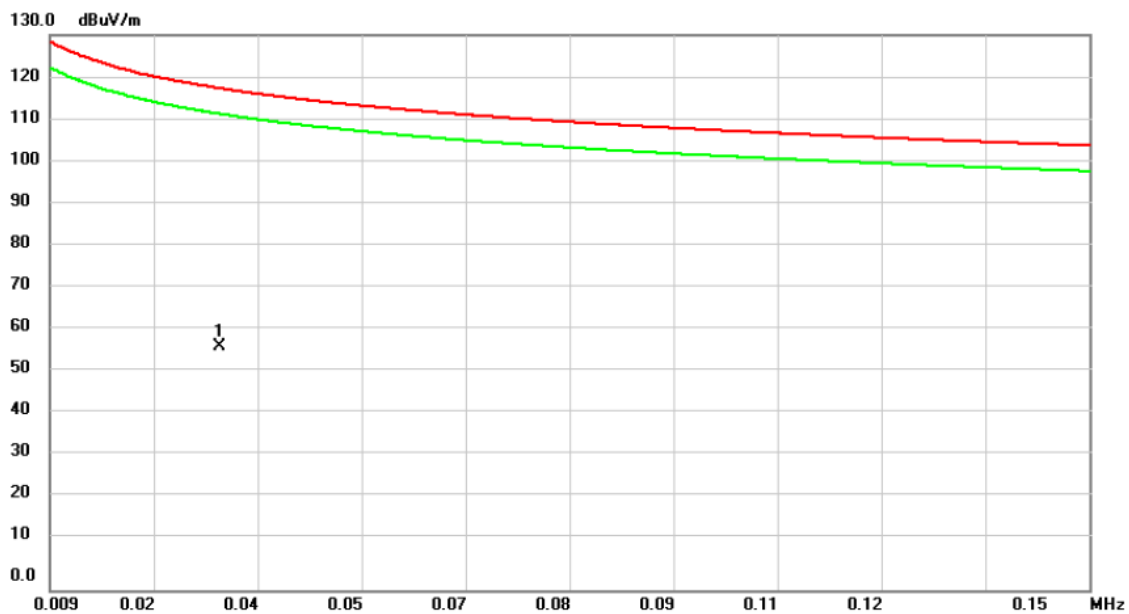
Ant 0°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		0.2296	43.10	11.91	55.01	100.38	-45.37	peak	
2	*	0.7867	32.10	11.91	44.01	69.69	-25.68	peak	
3		1.3042	26.08	11.86	37.94	65.30	-27.36	peak	
4		2.3390	21.84	11.40	33.24	69.54	-36.30	peak	
5		6.7568	13.41	11.36	24.77	69.54	-44.77	peak	
6		17.1446	10.50	11.09	21.59	69.54	-47.95	peak	

Test Mode: UNII-3/ TX

Ant 90°

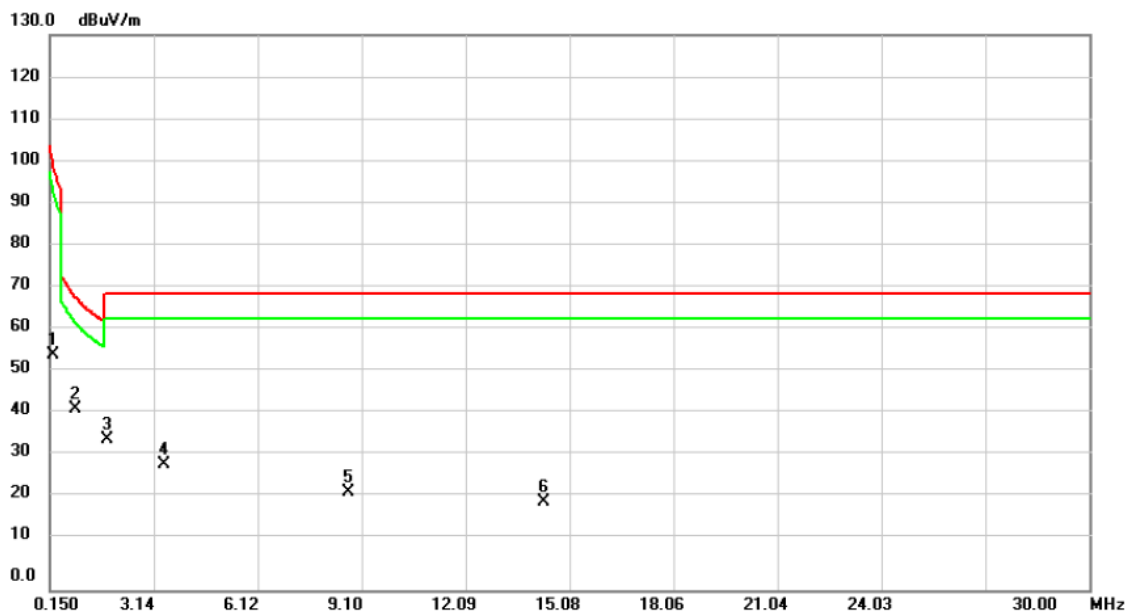


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	0.0321	42.13	14.79	56.92	117.47	-60.55	peak	



Test Mode: UNII-3/ TX

Ant 90°

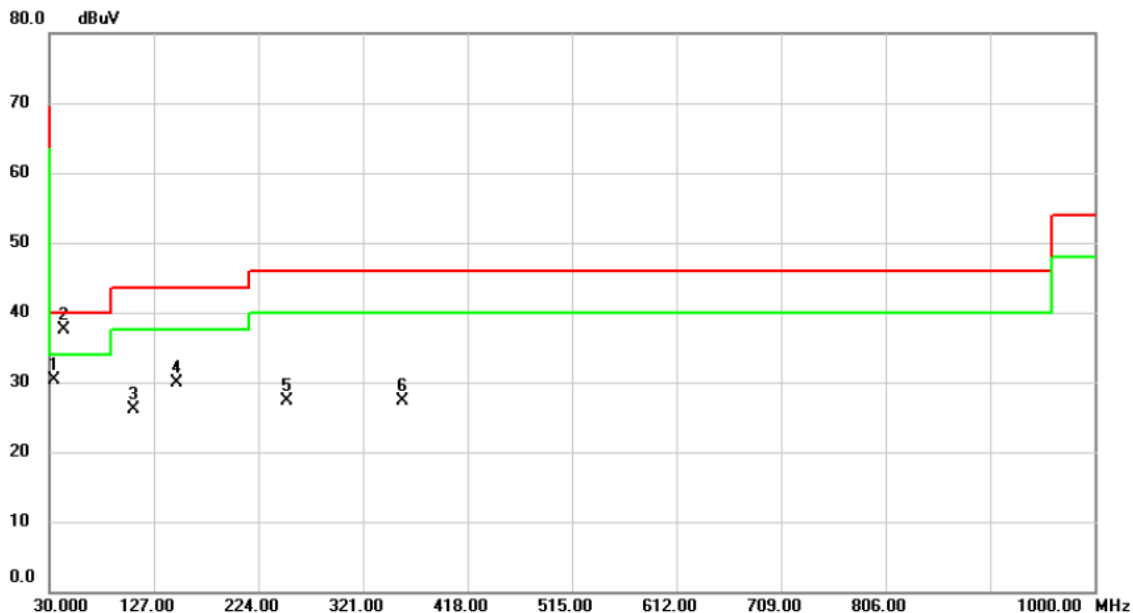


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		0.2296	43.07	11.91	54.98	100.38	-45.40	peak	
2	*	0.8664	30.35	11.95	42.30	68.85	-26.55	peak	
3		1.7818	23.67	11.65	35.32	69.54	-34.22	peak	
4		3.4136	18.39	11.16	29.55	69.54	-39.99	peak	
5		8.7070	11.69	11.33	23.02	69.54	-46.52	peak	
6		14.3188	9.47	11.17	20.64	69.54	-48.90	peak	

## **APPENDIX C - RADIATED EMISSION (30MHZ TO 1000MHZ)**

Test Mode: UNII-1/ TX AC80 Mode 5210MHz

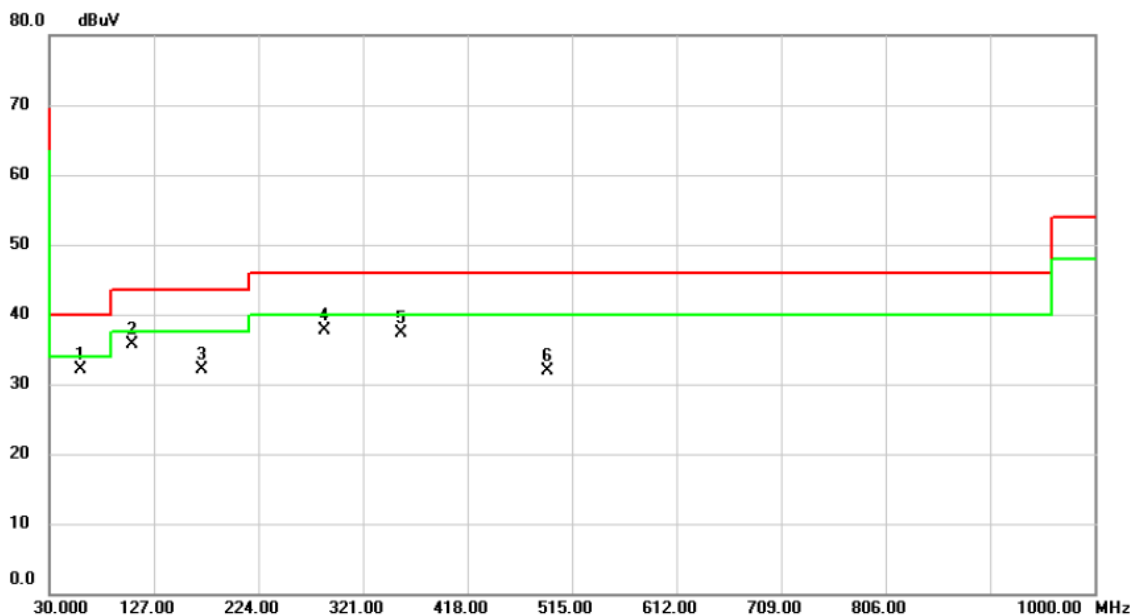
**Vertical**



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		34.8500	39.18	-8.81	30.37	40.00	-9.63	peak	
2	*	43.5800	46.13	-8.56	37.57	40.00	-2.43	peak	
3		108.5700	37.18	-11.00	26.18	43.50	-17.32	peak	
4		148.3400	38.81	-8.99	29.82	43.50	-13.68	peak	
5		250.1900	36.40	-9.07	27.33	46.00	-18.67	peak	
6		357.8600	33.36	-6.04	27.32	46.00	-18.68	peak	

Test Mode: UNII-1/ TX AC80 Mode 5210MHz

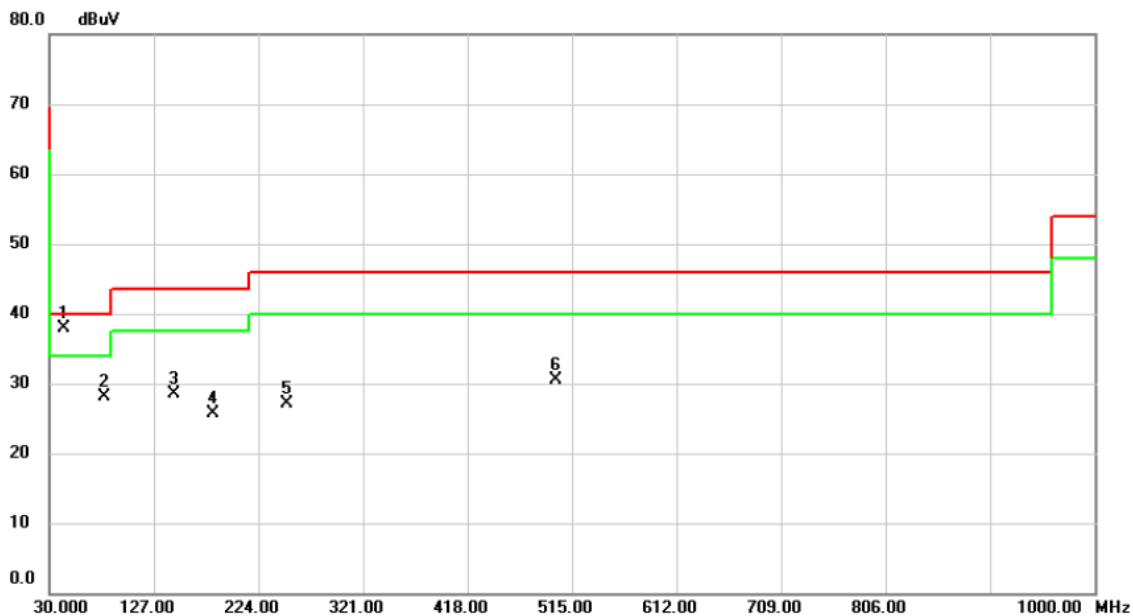
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		59.1000	40.67	-8.57	32.10	40.00	-7.90	peak	
2	*	106.6300	46.98	-11.32	35.66	43.50	-7.84	peak	
3		171.6200	40.90	-8.77	32.13	43.50	-11.37	peak	
4		285.1100	45.57	-7.87	37.70	46.00	-8.30	peak	
5		355.9200	43.47	-6.09	37.38	46.00	-8.62	peak	
6		491.7200	34.71	-2.87	31.84	46.00	-14.16	peak	

Test Mode: UNII-3/ TX AC20 Mode 5745MHz

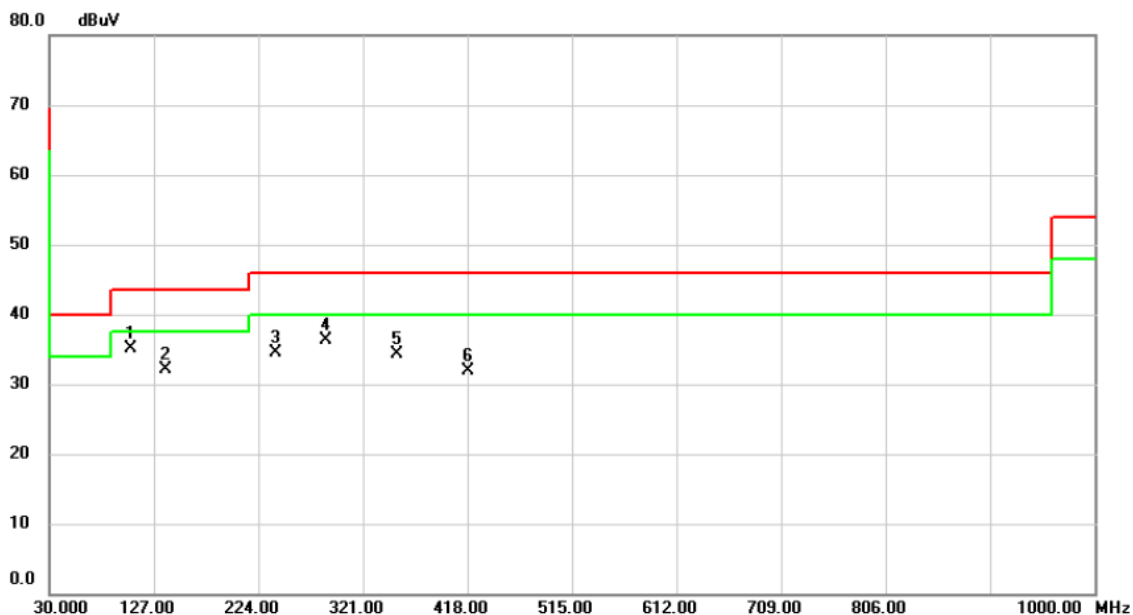
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	43.5800	46.44	-8.56	37.88	40.00	-2.12	peak	
2		81.4100	40.26	-12.06	28.20	40.00	-11.80	peak	
3		145.4300	37.51	-9.05	28.46	43.50	-15.04	peak	
4		182.2900	35.44	-9.78	25.66	43.50	-17.84	peak	
5		250.1900	36.08	-9.07	27.01	46.00	-18.99	peak	
6		500.4500	33.24	-2.72	30.52	46.00	-15.48	peak	

Test Mode: UNII-3/ TX AC20 Mode 5745MHz

### Horizontal

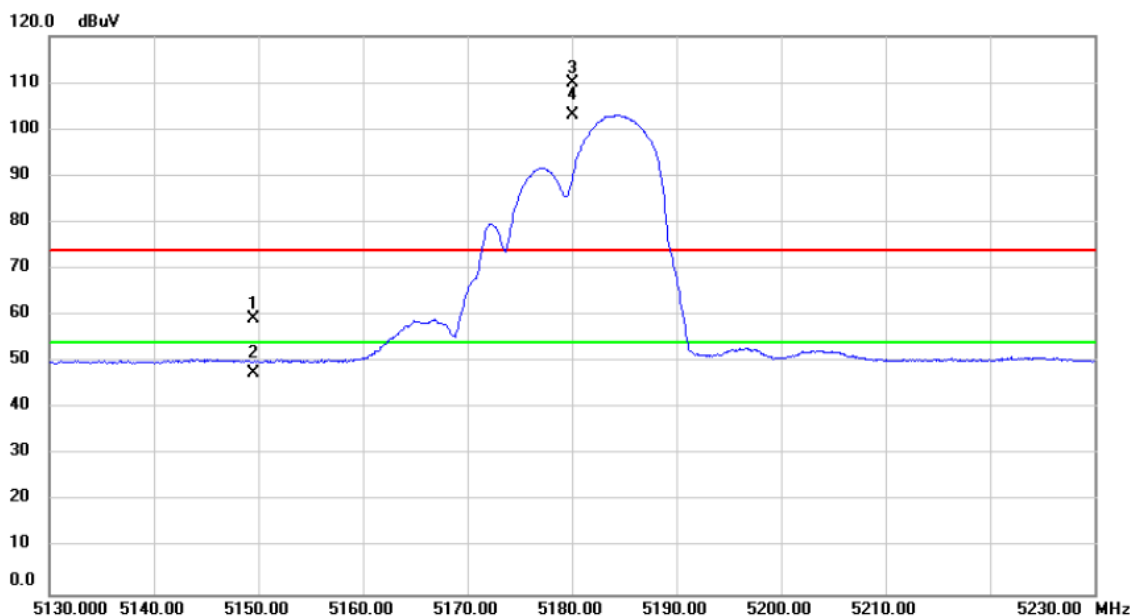


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	105.6600	46.55	-11.47	35.08	43.50	-8.42	peak	
2		138.6400	41.34	-9.21	32.13	43.50	-11.37	peak	
3		239.5200	43.90	-9.42	34.48	46.00	-11.52	peak	
4		287.0500	44.16	-7.81	36.35	46.00	-9.65	peak	
5		353.0100	40.43	-6.16	34.27	46.00	-11.73	peak	
6		418.9700	36.24	-4.41	31.83	46.00	-14.17	peak	

## **APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ)**

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5180MHz

### Vertical

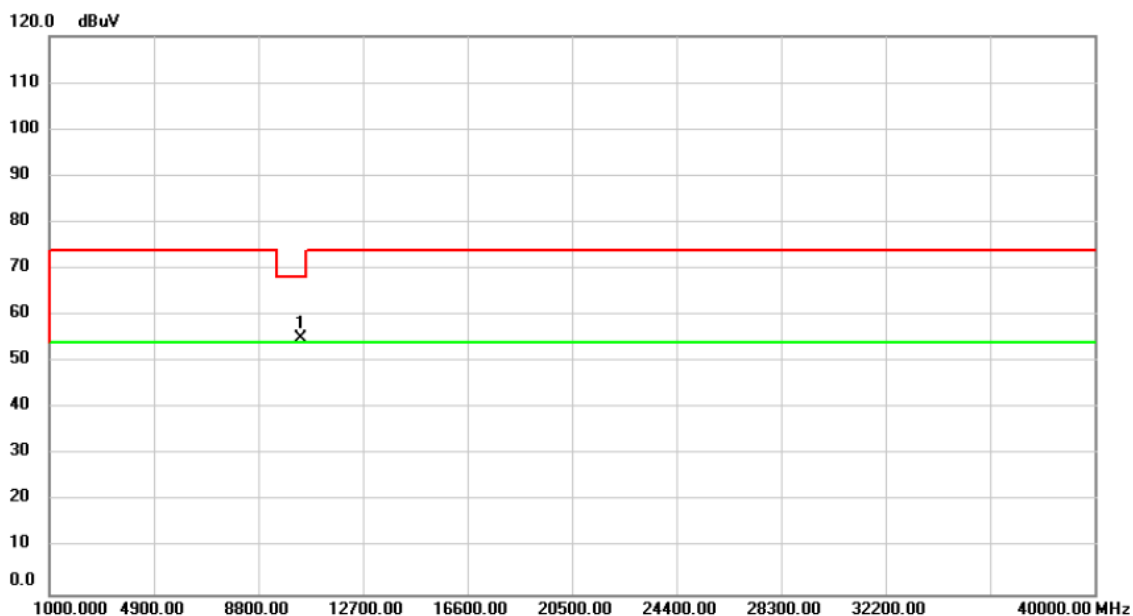


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		5149.540	21.58	37.54	59.12	74.00	-14.88	peak	
2		5149.540	9.99	37.54	47.53	54.00	-6.47	AVG	
3	X	5180.000	72.31	37.58	109.89	74.00	35.89	peak	No Limit
4	*	5180.000	65.38	37.58	102.96	54.00	48.96	AVG	No Limit



Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5180MHz

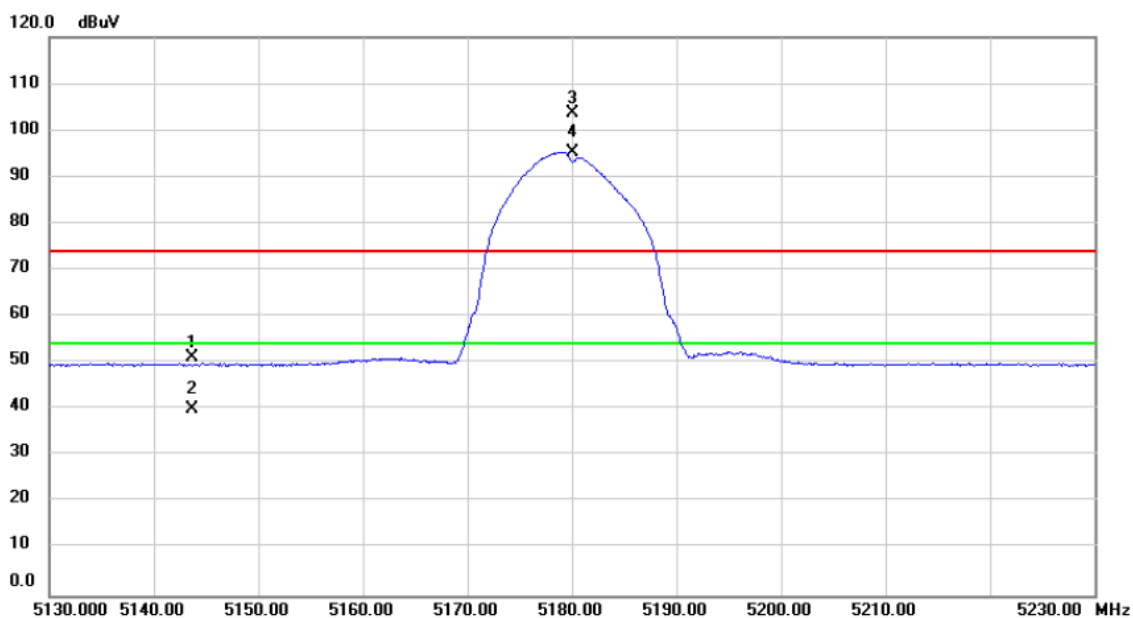
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	10360.00	53.17	1.92	55.09	68.20	-13.11	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5180MHz

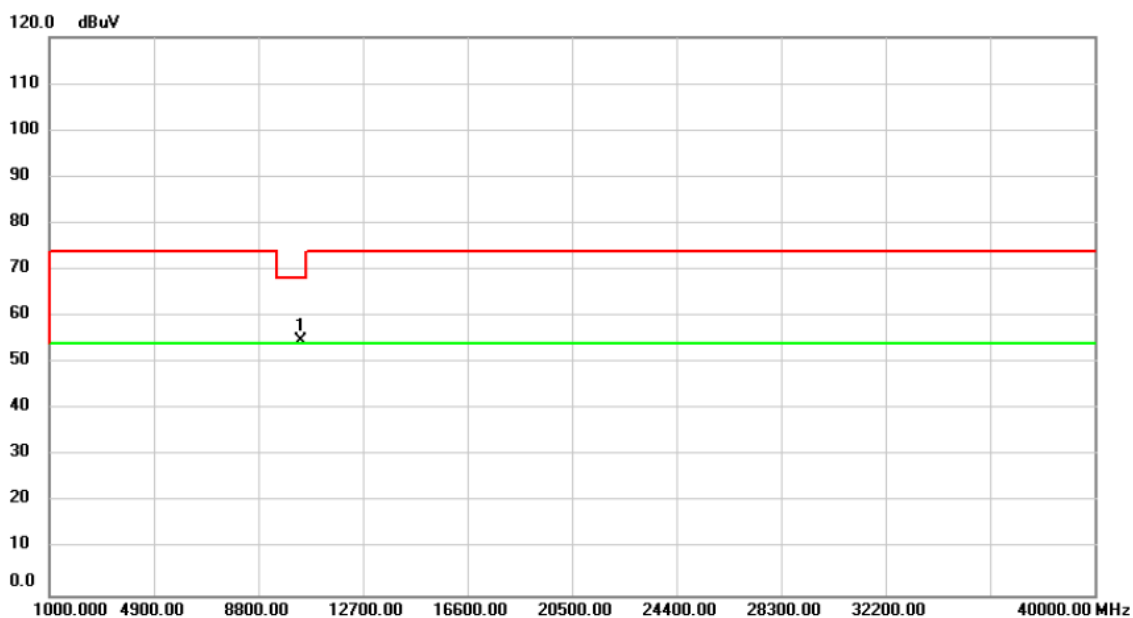
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		5143.720	13.71	37.54	51.25	74.00	-22.75	peak	
2		5143.720	2.59	37.54	40.13	54.00	-13.87	AVG	
3	X	5180.000	66.05	37.58	103.63	74.00	29.63	peak	No Limit
4	*	5180.000	57.80	37.58	95.38	54.00	41.38	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5180MHz

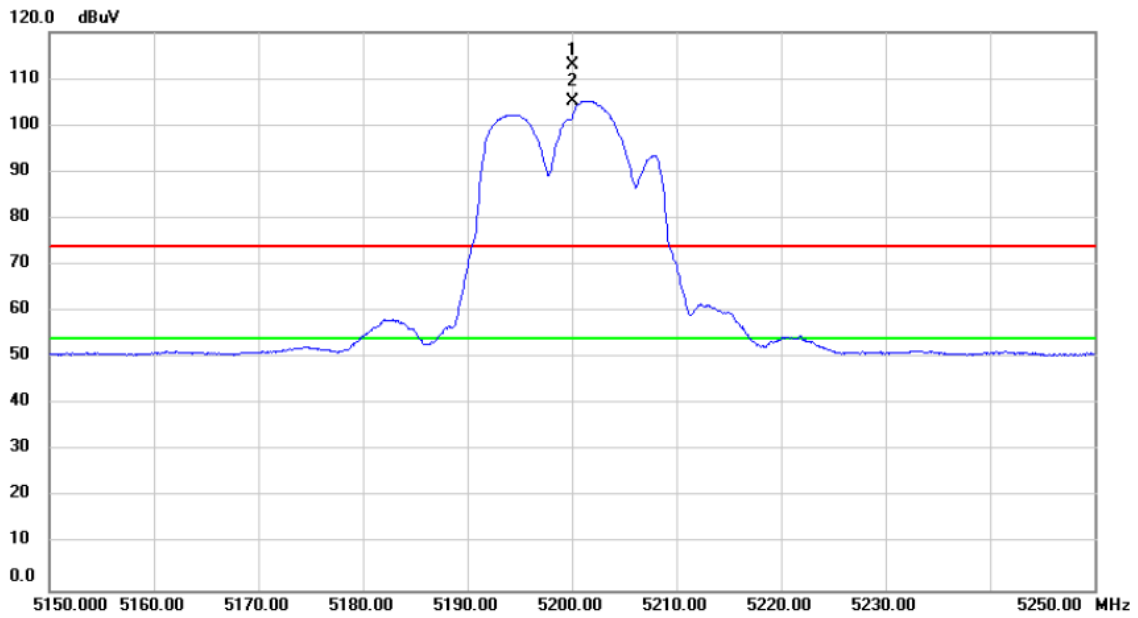
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	10360.00	52.94	1.92	54.86	68.20	-13.34	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5200MHz

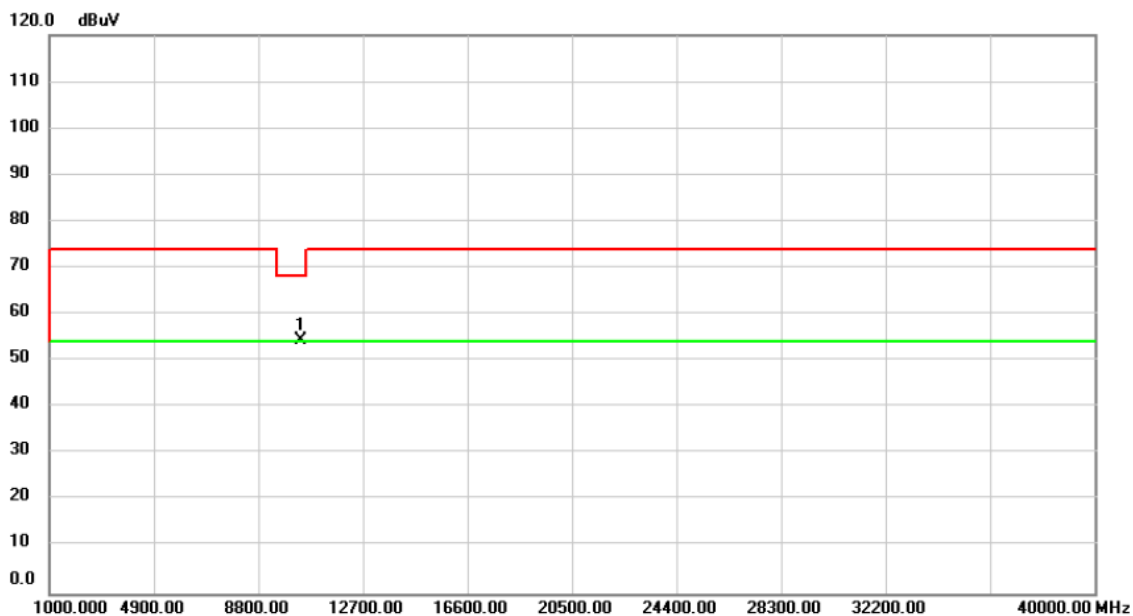
**Vertical**



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5200.000	75.28	37.60	112.88	74.00	38.88	peak	No Limit
2	*	5200.000	67.64	37.60	105.24	54.00	51.24	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5200MHz

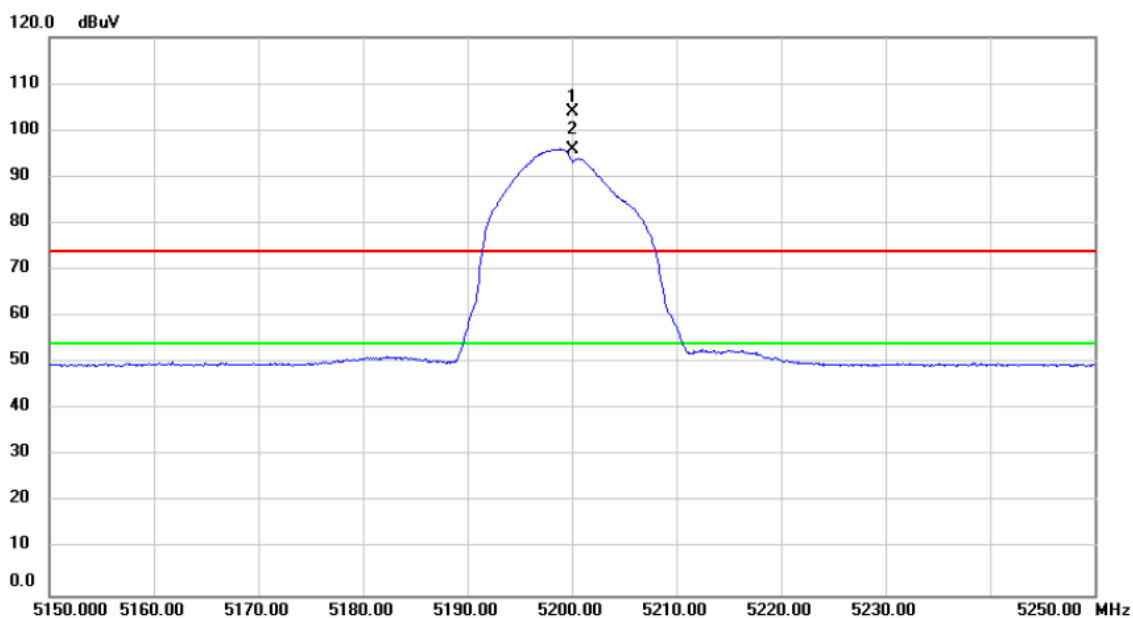
**Vertical**



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	10400.00	52.46	1.95	54.41	68.20	-13.79	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5200MHz

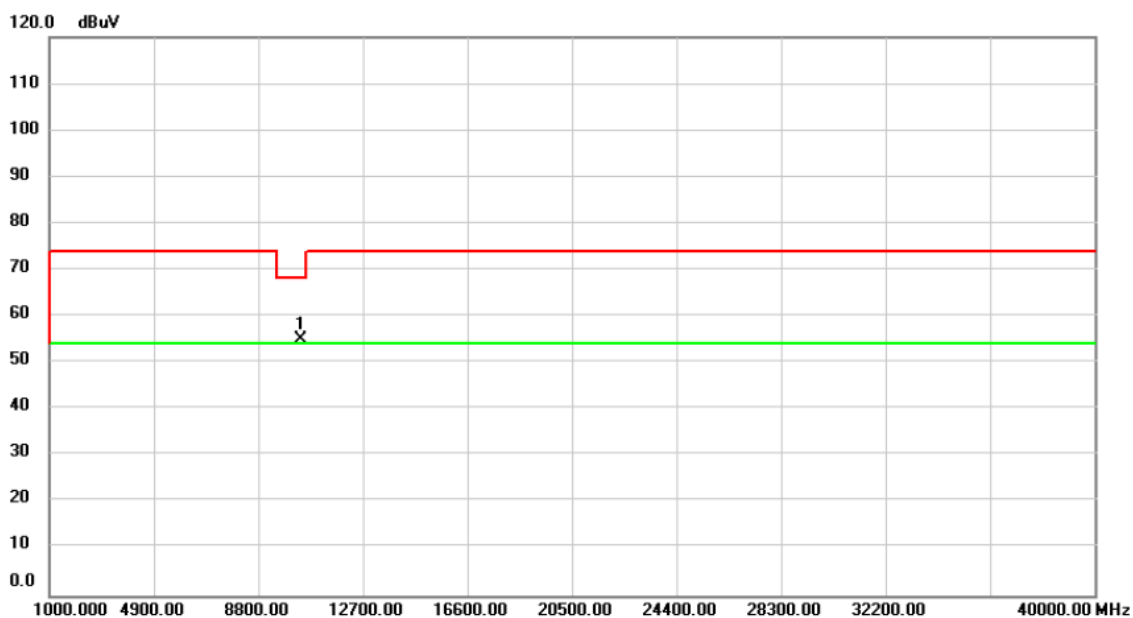
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5200.000	66.35	37.60	103.95	74.00	29.95	peak	No Limit
2	*	5200.000	58.40	37.60	96.00	54.00	42.00	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5200MHz

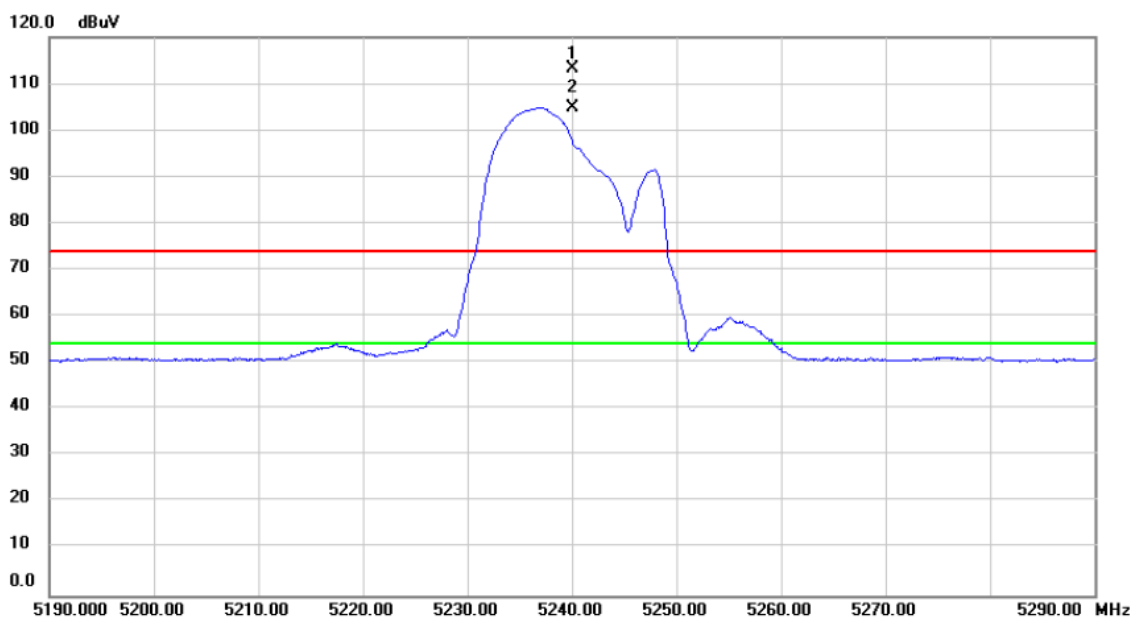
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	10400.00	53.08	1.95	55.03	68.20	-13.17	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5240MHz

### Vertical

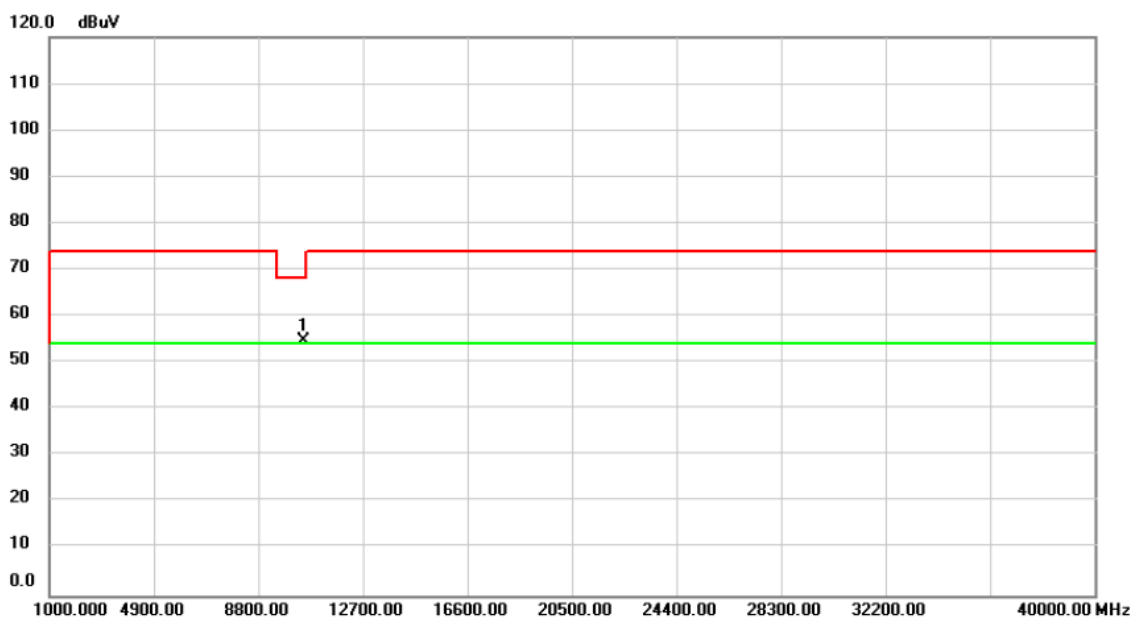


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5240.000	75.52	37.64	113.16	74.00	39.16	peak	No Limit
2	*	5240.000	67.21	37.64	104.85	54.00	50.85	AVG	No Limit



Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5240MHz

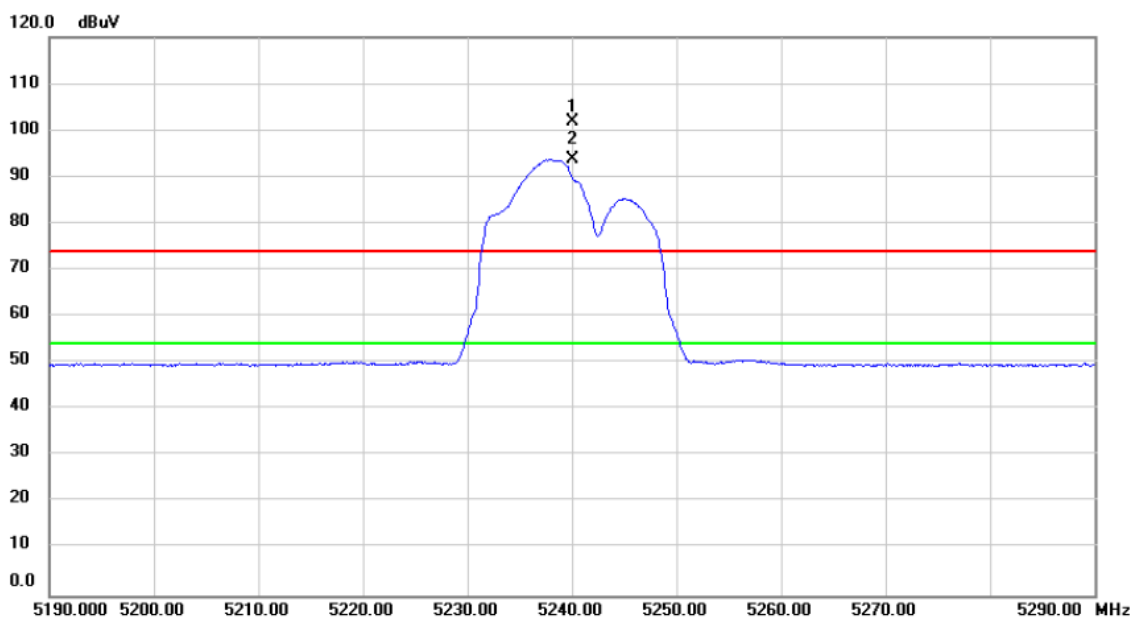
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	10480.00	52.89	1.96	54.85	68.20	-13.35	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5240MHz

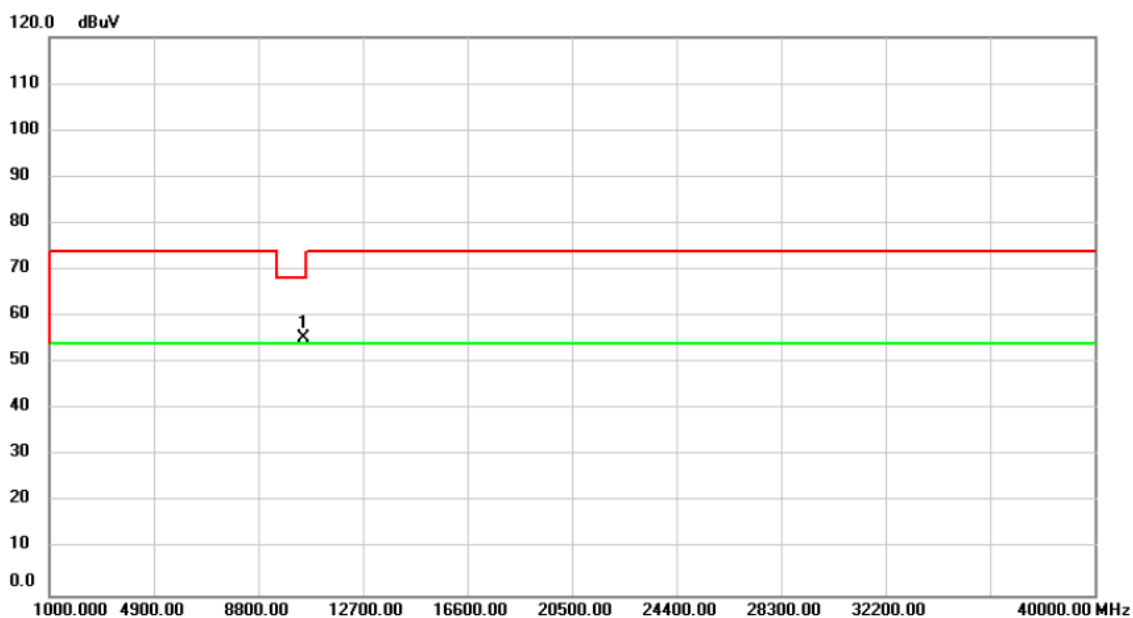
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5240.000	64.07	37.64	101.71	74.00	27.71	peak	No Limit
2	*	5240.000	56.06	37.64	93.70	54.00	39.70	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX A Mode 5240MHz

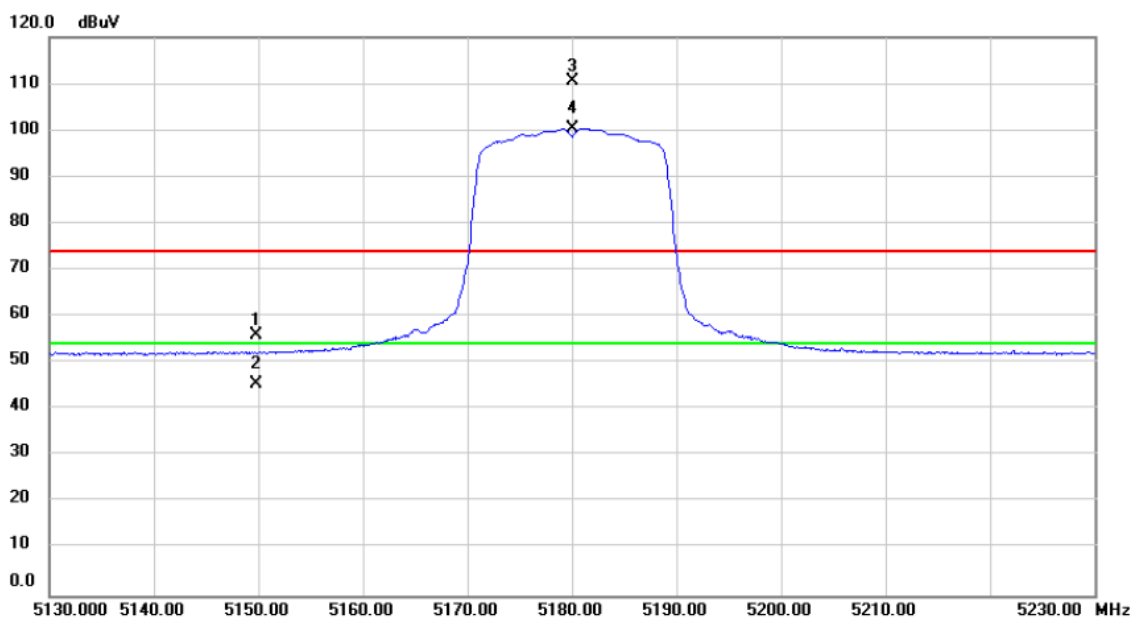
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	10480.00	53.47	1.96	55.43	68.20	-12.77	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5180MHz

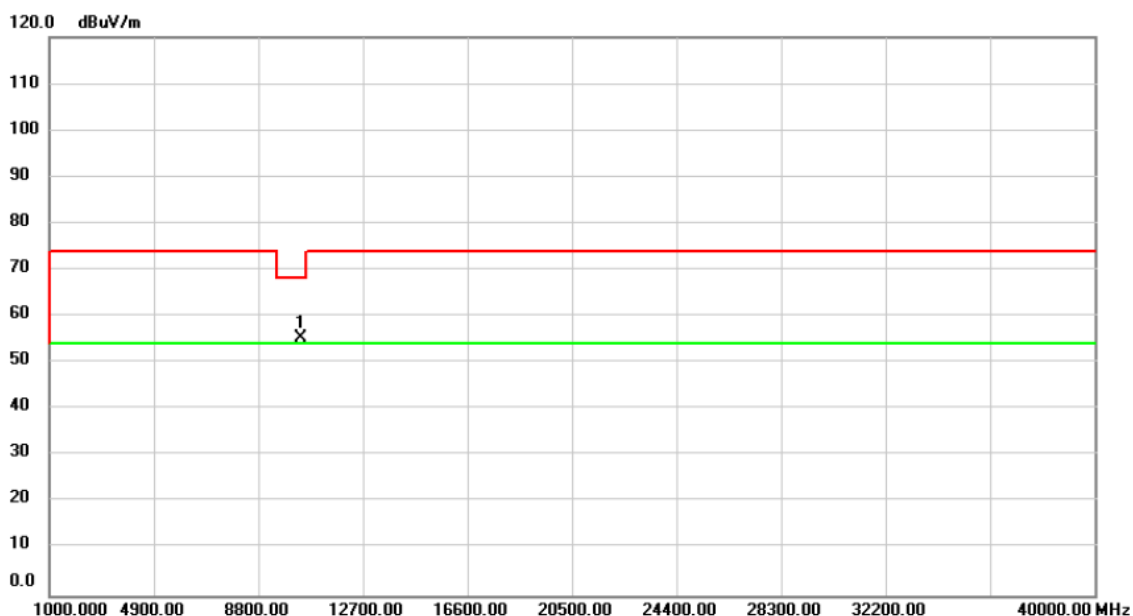
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		5149.800	18.53	37.54	56.07	74.00	-17.93	peak	
2		5149.800	7.85	37.54	45.39	54.00	-8.61	AVG	
3	X	5180.000	73.06	37.58	110.64	74.00	36.64	peak	No Limit
4	*	5180.000	62.90	37.58	100.48	54.00	46.48	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5180MHz

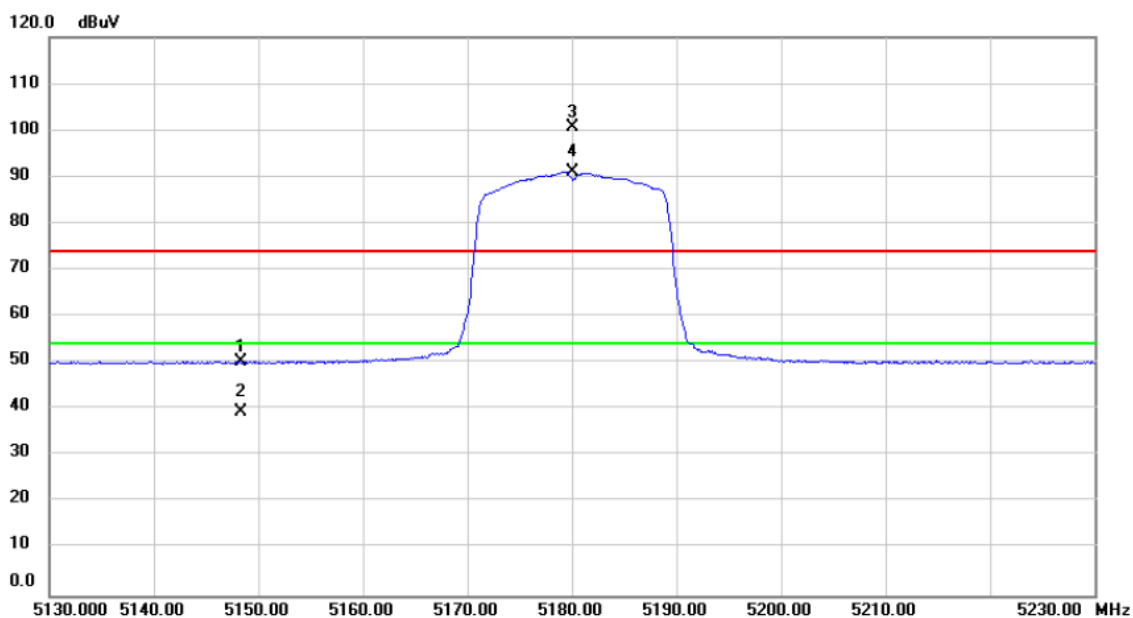
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	10360.00	53.48	1.92	55.40	68.20	-12.80	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5180MHz

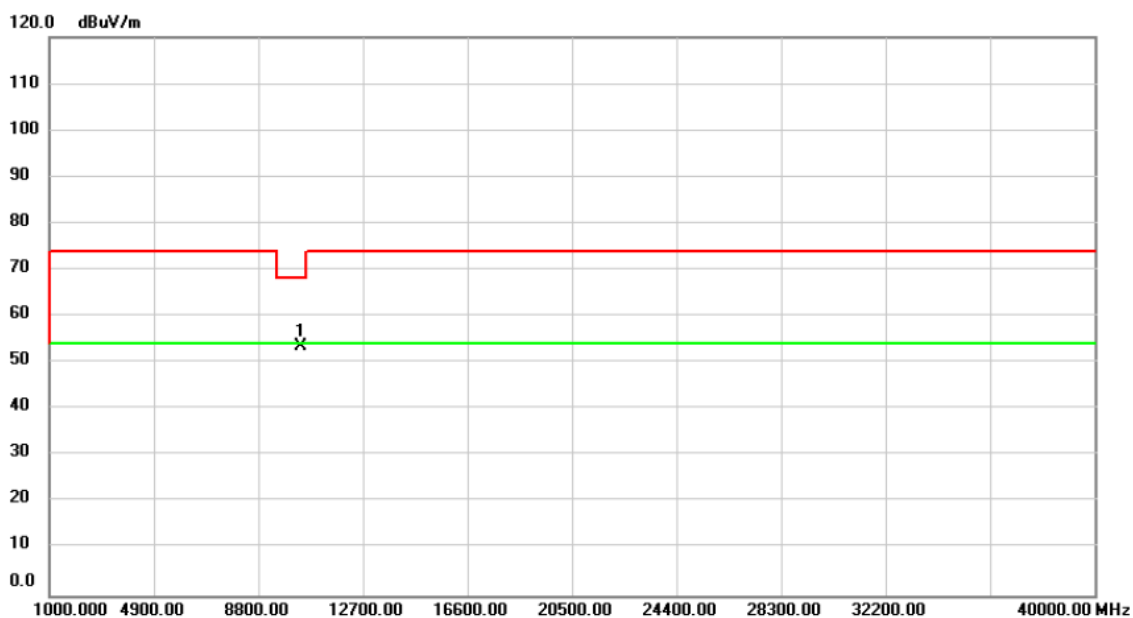
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		5148.330	12.86	37.54	50.40	74.00	-23.60	peak	
2		5148.330	1.83	37.54	39.37	54.00	-14.63	AVG	
3	X	5180.000	63.10	37.58	100.68	74.00	26.68	peak	No Limit
4	*	5180.000	53.48	37.58	91.06	54.00	37.06	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5180MHz

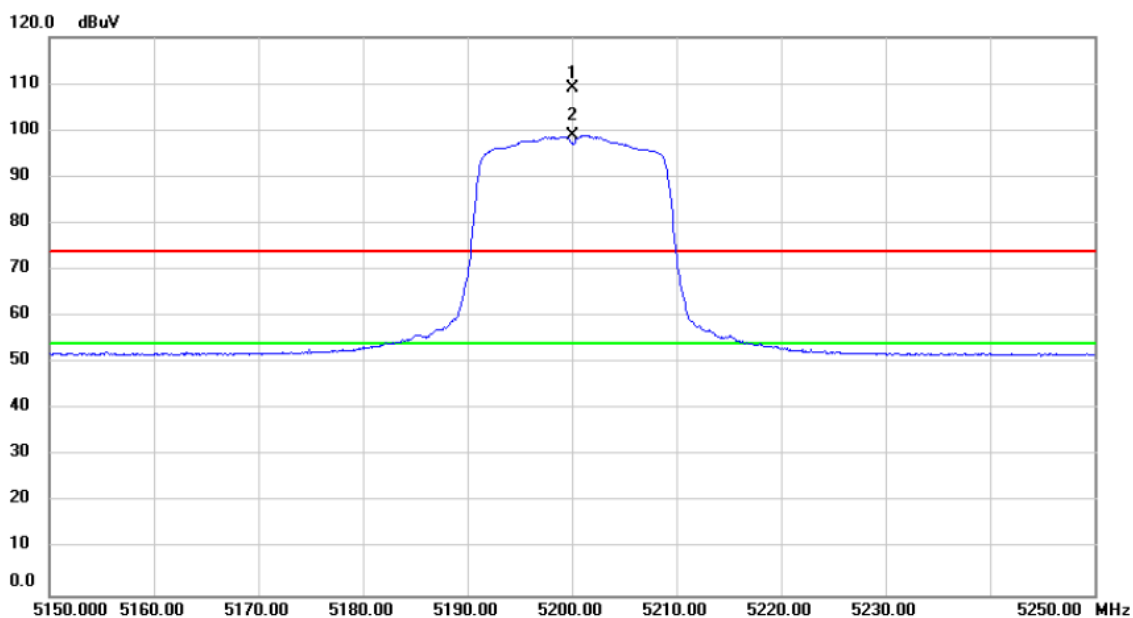
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	10360.00	51.67	1.92	53.59	68.20	-14.61	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5200MHz

### Vertical

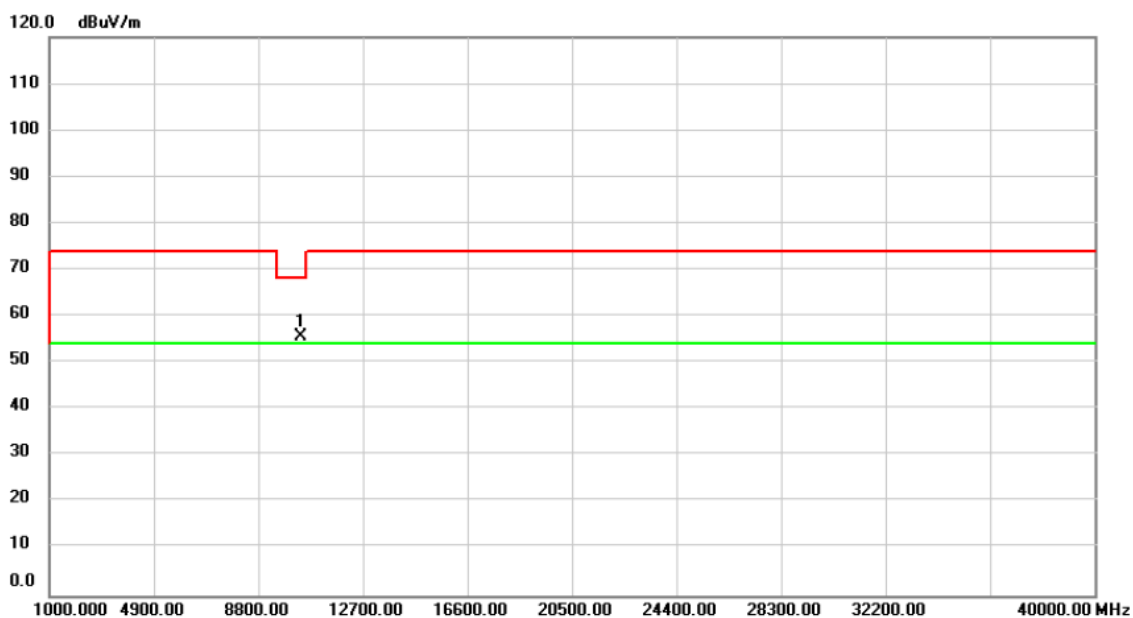


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5200.000	71.46	37.60	109.06	74.00	35.06	peak	No Limit
2	*	5200.000	61.31	37.60	98.91	54.00	44.91	AVG	No Limit



Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5200MHz

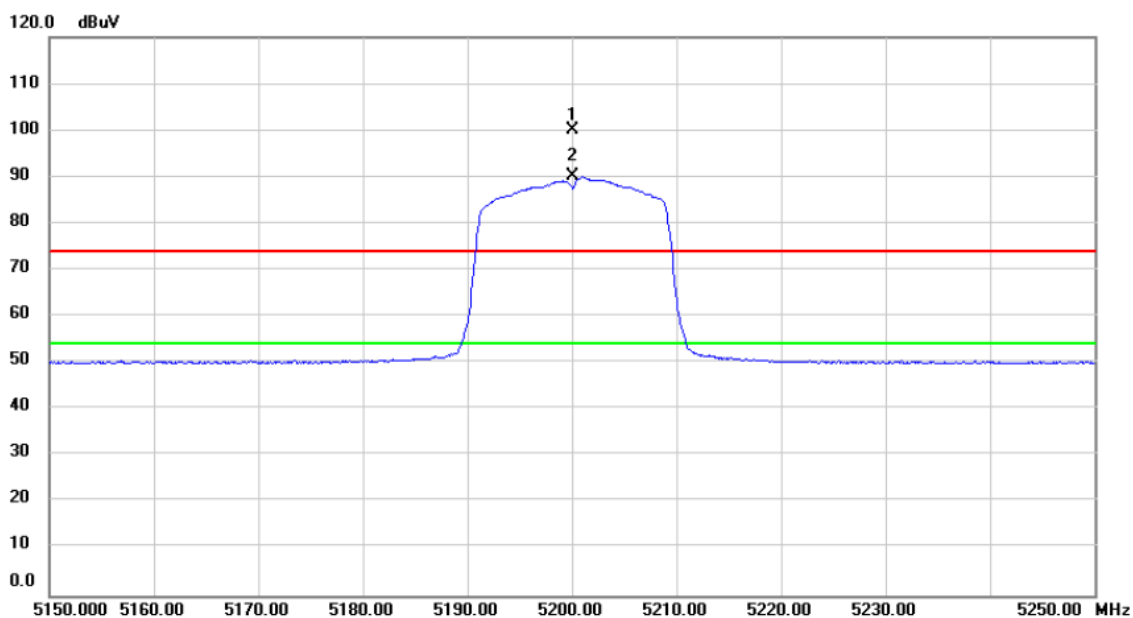
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	10400.00	53.57	1.95	55.52	68.20	-12.68	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5200MHz

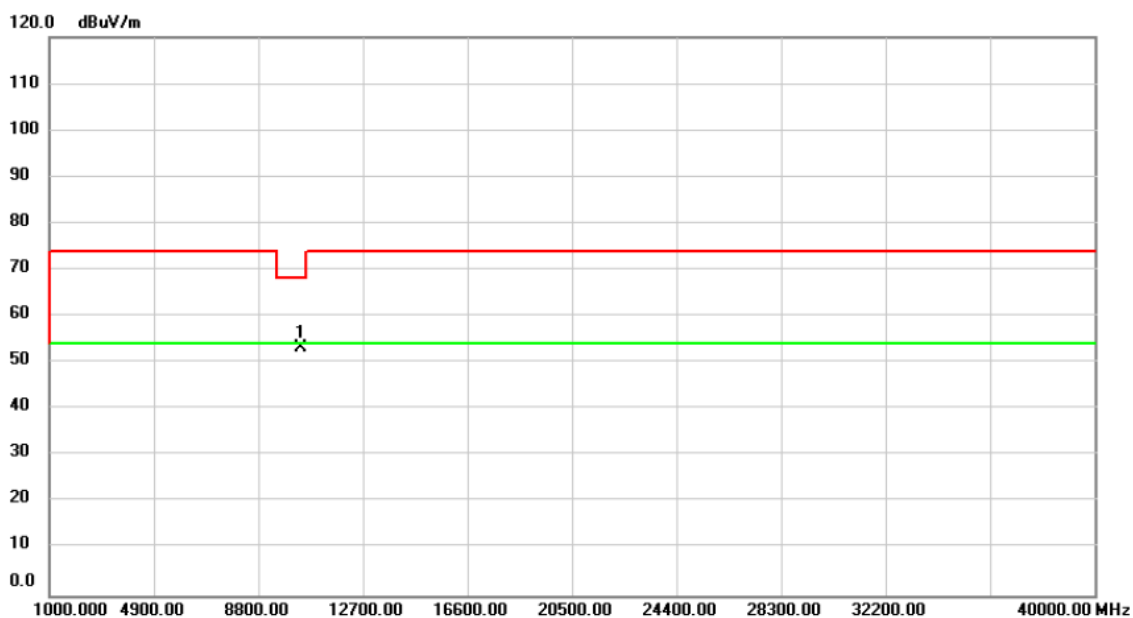
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5200.000	62.56	37.60	100.16	74.00	26.16	peak	No Limit
2	*	5200.000	52.42	37.60	90.02	54.00	36.02	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5200MHz

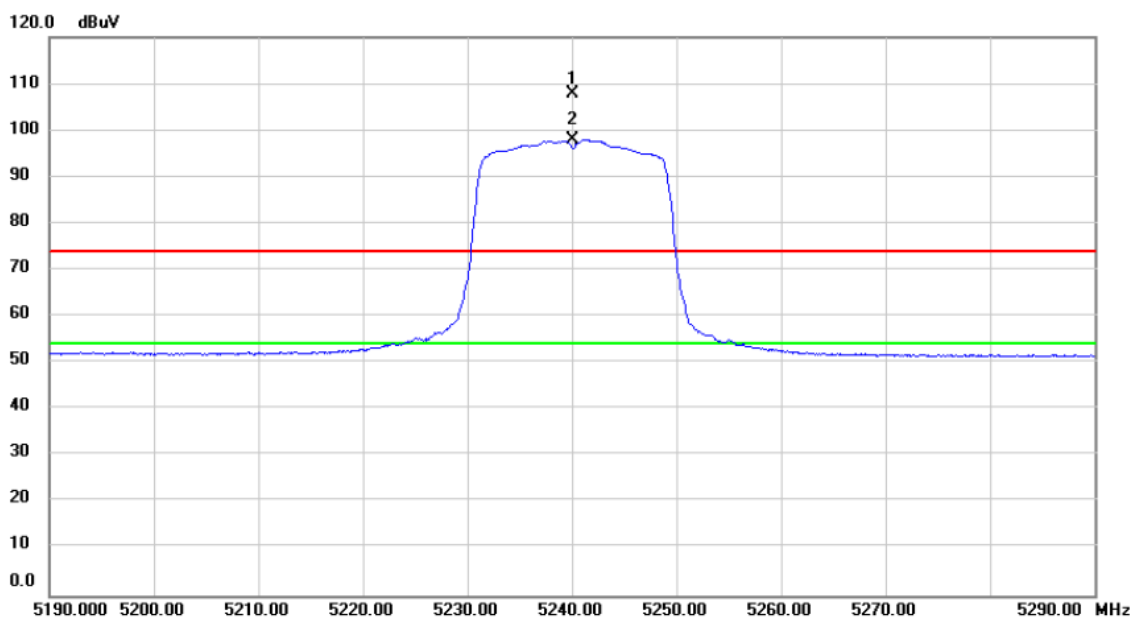
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	10400.00	51.23	1.95	53.18	68.20	-15.02	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5240MHz

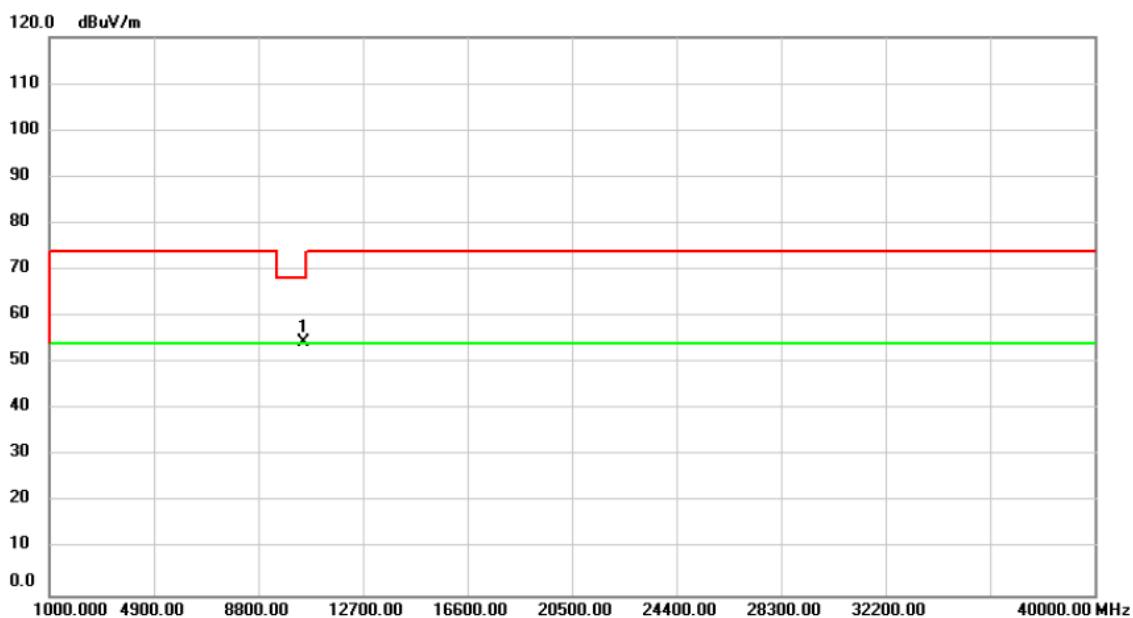
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5240.000	70.35	37.64	107.99	74.00	33.99	peak	No Limit
2	*	5240.000	60.43	37.64	98.07	54.00	44.07	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5240MHz

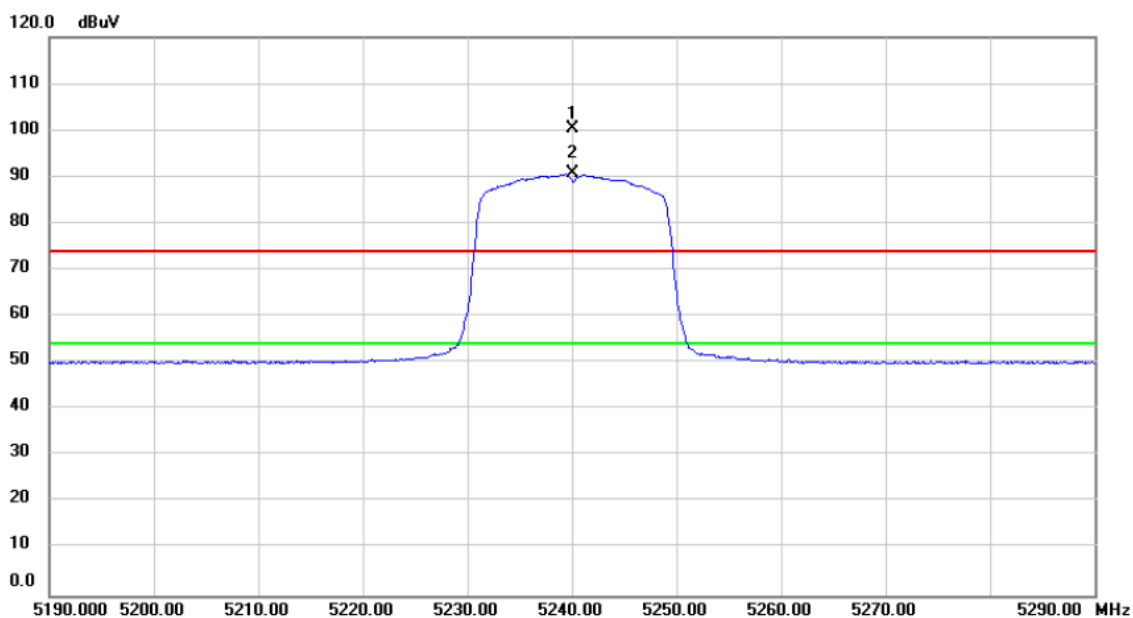
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	10480.00	52.45	1.96	54.41	68.20	-13.79	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5240MHz

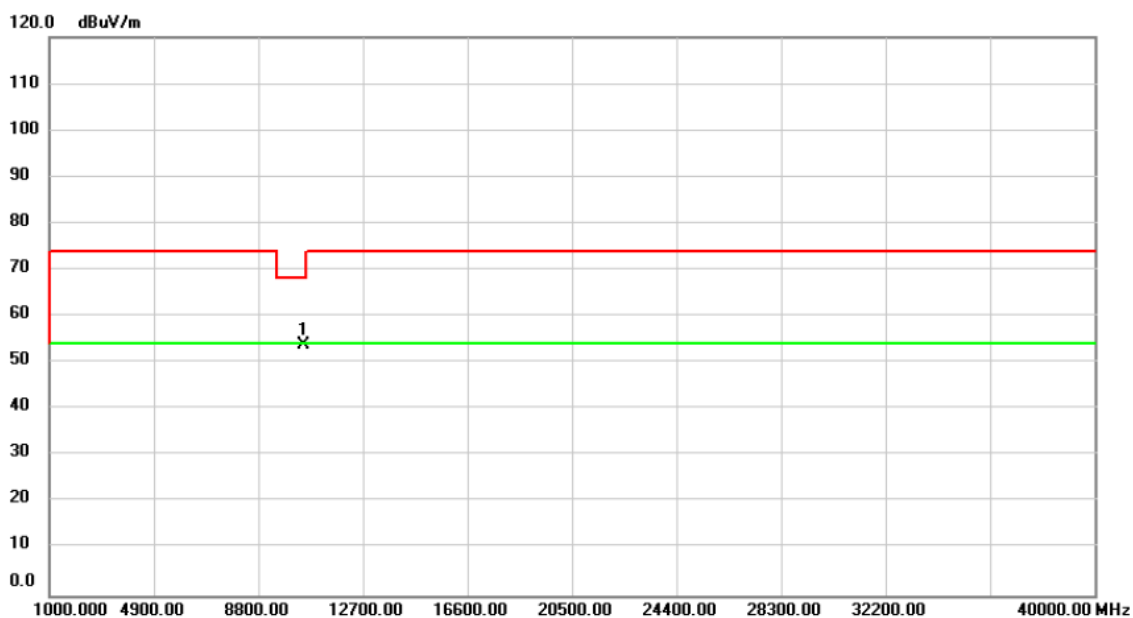
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	X	5240.000	62.83	37.64	100.47	74.00	26.47	peak	No Limit
2	*	5240.000	52.97	37.64	90.61	54.00	36.61	AVG	No Limit

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N20 Mode 5240MHz

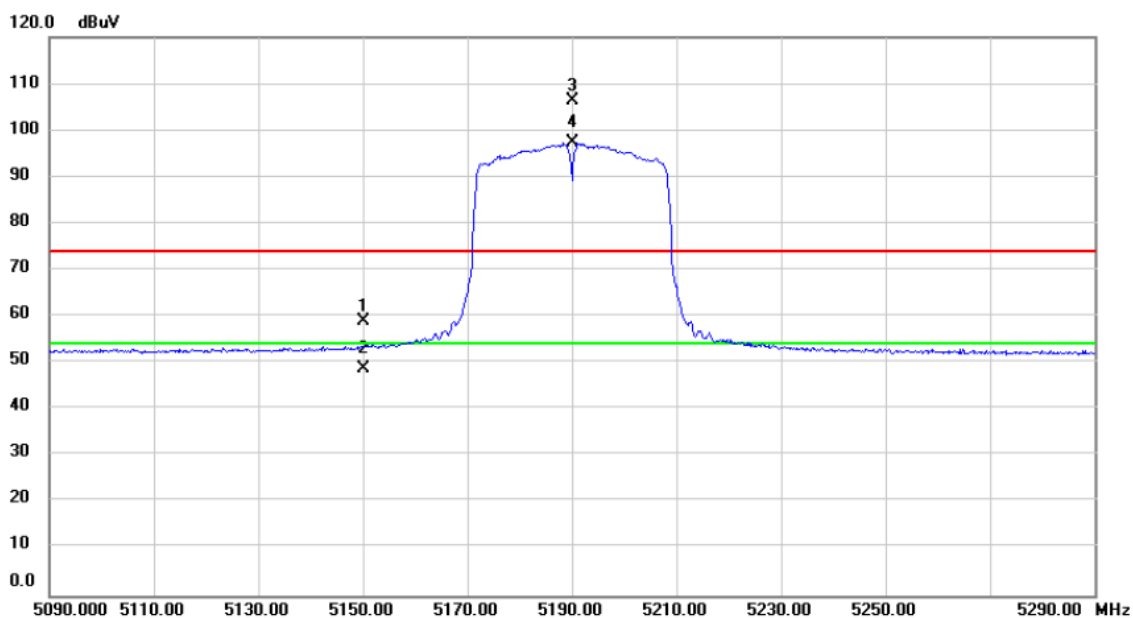
### Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	10480.00	51.82	1.96	53.78	68.20	-14.42	peak	

Orthogonal Axis:	X
Test Mode:	UNII-1/ TX N40 Mode 5190MHz

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		5150.000	21.36	37.54	58.90	74.00	-15.10	peak	
2		5150.000	11.36	37.54	48.90	54.00	-5.10	AVG	
3	X	5190.000	68.89	37.58	106.47	74.00	32.47	peak	No Limit
4	*	5190.000	59.65	37.58	97.23	54.00	43.23	AVG	No Limit