



# TEST REPORT

**MANUFACTURER** : Easy-Measure Co.,Ltd.  
**PRODUCT NAME** : Radio Module  
**MODEL NAME** : EXN-RF24-01N  
**BRAND NAME** : N/A  
**FCC ID** : Z3D00EXN024W001A  
**STANDARD(S)** : 47 CFR Part 15 Subpart C  
**TEST DATE** : 2018-10-24 to 2018-10-25  
**ISSUE DATE** : 2018-11-04

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Approved by: *Anneliu*  
AnneLiu ( Supervisor )

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Change History		
Issue	Date	Reason for change
1.0	2018-11-04	First edition



# 1. Technical Information

**Note:** Provide by applicant.

## 1.1. Applicant and Manufacturer Information

<b>Applicant:</b>	Easy-Measure Co.,Ltd.
<b>Applicant Address:</b>	2-6-3 Kogane,Kokurakita-ku,Kitakyushyu-shi,Fukuoka-ken, 802-0071,Japan
<b>Manufacturer:</b>	Easy-Measure Co.,Ltd.
<b>Manufacturer Address:</b>	2-6-3 Kogane,Kokurakita-ku,Kitakyushyu-shi,Fukuoka-ken, 802-0071,Japan

## 1.2. Equipment Under Test (EUT) Description

<b>Product Name:</b>	Radio Module
<b>Serial No:</b>	(N/A, marked #1 by test site)
<b>Hardware Version:</b>	EXN-RF24-01N-P1-1
<b>Software Version:</b>	FW002
<b>Equipment type:</b>	Non-specific SRD
<b>Modulation Type:</b>	GFSK
<b>Operating Frequency Range:</b>	The frequency range used is 2402MHz - 2480MHz (79 channels, at intervals of 1MHz);
<b>Antenna Type:</b>	1/4 Wire antenna
<b>Antenna Gain:</b>	2 dBi

**Note 1:** The EUT contains Non-specific SRD Module operating at 2.4GHz ISM band; the frequencies is  $F(\text{MHz})=2401+n$  ( $1 \leq n \leq 79$ ). The lowest, middle, highest channel numbers of the Non-specific SRD Module used and tested in this report are separately 1 (2402MHz), 41 (2442MHz) and 79 (2480MHz).

**Note 2:** The EUT connected to the Test jig with a serial communication cable, we use the dedicated software to control the EUT continuous transmission.

**Note 3:** For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



### 1.3. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 15 (10-1-15 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result
1	15.203	Antenna Requirement	N/A	N/A	PASS
2	15.247(b)	Peak Output Power	Oct 24, 2018	Lion Xiao	PASS
3	15.247(a)	Bandwidth	Oct 24, 2018	Lion Xiao	PASS
4	15.247(d)	Conducted Spurious Emission and Band Edge	Oct 24, 2018	Lion Xiao	PASS
5	15.247(e)	Power spectral density (PSD)	Oct 24, 2018	Lion Xiao	PASS
6	15.247(d)	Restricted Frequency Bands	Oct 25, 2018	Jinxin Huang	PASS
7	15.207	Conducted Emission	Oct 25, 2018	Jinxin Huang	PASS
8	15.209, 15.247(d)	Radiated Emission	Oct 25, 2018	Jinxin Huang	PASS

**Note:** The tests were performed according to the method of measurements prescribed in ANSIC63.10-2013 and KDB558074 D01 v04 (04/05/2017).

### 1.4. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106



## 2. 47 CFR Part 15C Requirements

### 2.1. Antenna requirement

#### 2.1.1. Applicable Standard

According to FCC 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.

#### 2.1.2. Result: Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

## 2.2. Peak Output Power

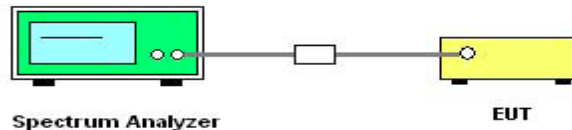
### 2.2.1. Requirement

According to FCC section 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: The maximum peak conducted output power of the intentional radiator shall not exceed 1 Watt.

### 2.2.2. Test Description

The measured output power was calculated by the reading of the spectrum analyzer and calibration.

#### A. Test Setup:



The EUT (Equipment under the test) is coupled to the Spectrum analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in Spectrum analyzer.

#### B. Equipments List:

Please refer ANNEX B (4).

### 2.2.3. Test procedure

The measured output power was calculated by the reading of the spectrum analyzer and calibration. Following is the test procedure for Peak Output Power test on the spectrum analyzer:

- a) Set analyzer center frequency to channel center frequency.
- b) Set the RBW to 3MHz
- c) Set VBW to 8MHz
- d) Set span to 10MHz
- e) Sweep time to auto couple.
- f) Detector = peak.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use peak marker function to determine the peak amplitude level.



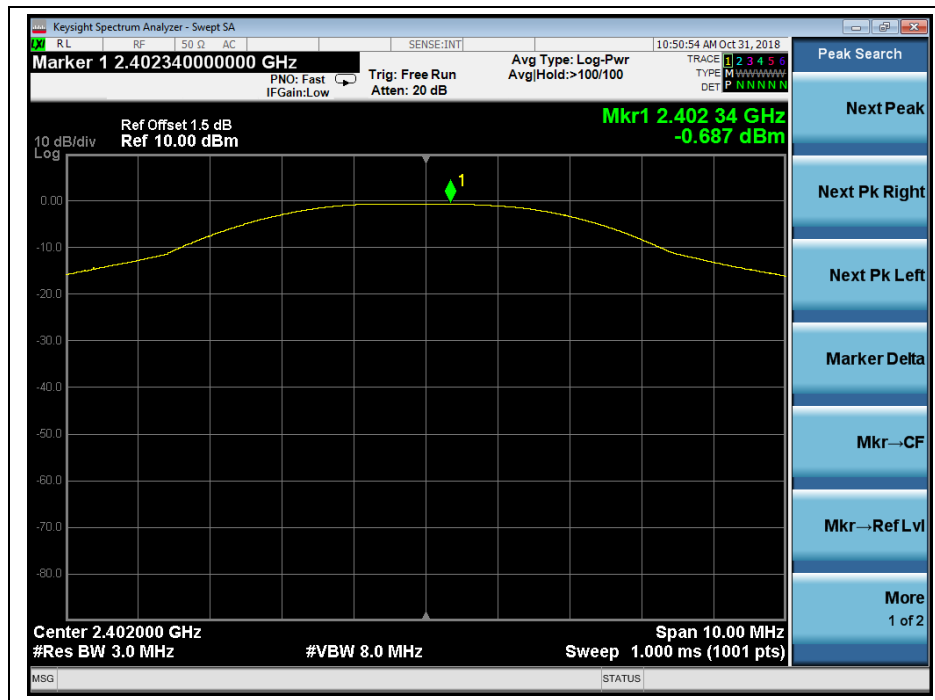
**2.2.4. Test Result**

The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

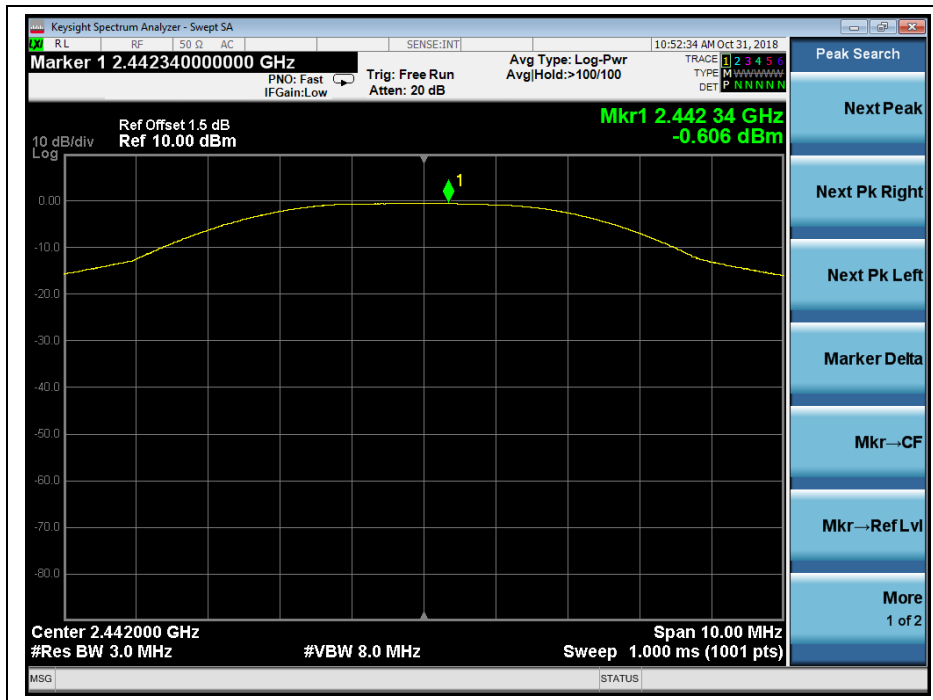
**A. Test Verdict:**

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2402	-0.687	0.00085	30	1	Pass
41	2442	-0.606	0.00087			Pass
79	2480	0.023	0.00101			Pass

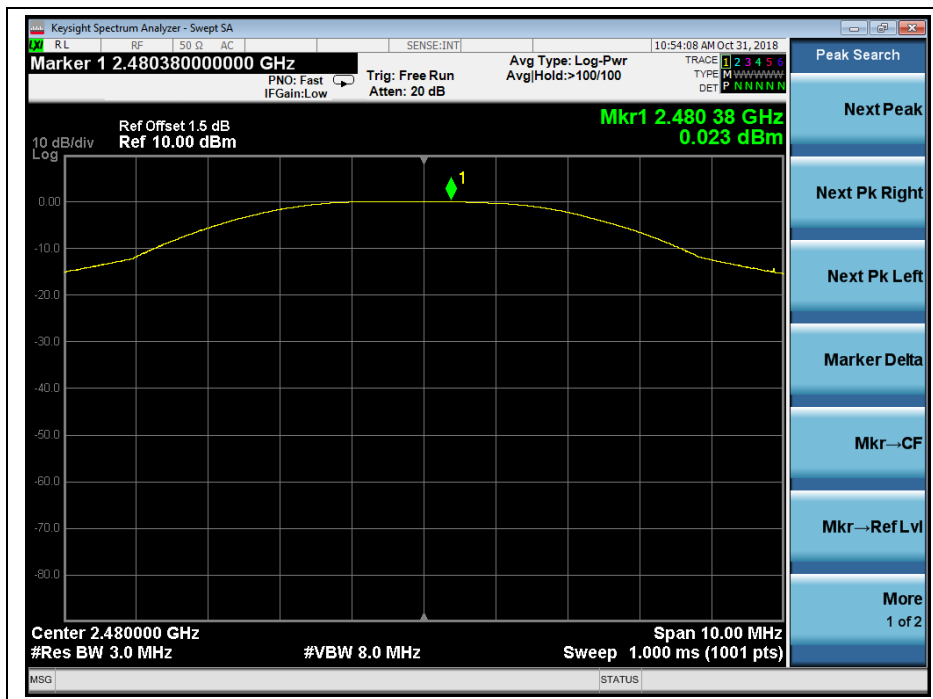
**B. Test Plots:**



(Channel 1, 2402MHz)



(Channel 41 , 2442MHz)



(Channel 79, 2480MHz)



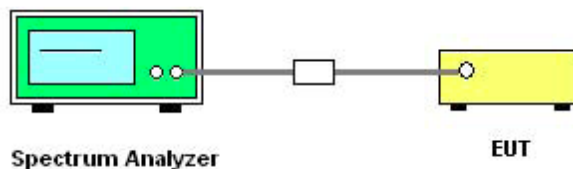
## 2.3. 6dB Bandwidth

### 2.3.1. Requirement

According to FCC section 15.247(a) (2), Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### 2.3.2. Test Description

#### A. Test Set:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

#### B. Equipments List:

Please refer ANNEX B(4).

### 2.3.3. Test procedure

The steps for the first option are as follows:

- (1) Set analyzer center frequency to channel center frequency.
  - a) Set RBW = 100 kHz.
  - b) Set the VBW=300 kHz.
  - 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.

(2) The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e.,  $RBW = 100\text{ kHz}, VBW \geq 3 \times RBW$ , and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be  $\geq 6\text{ dB}$ .

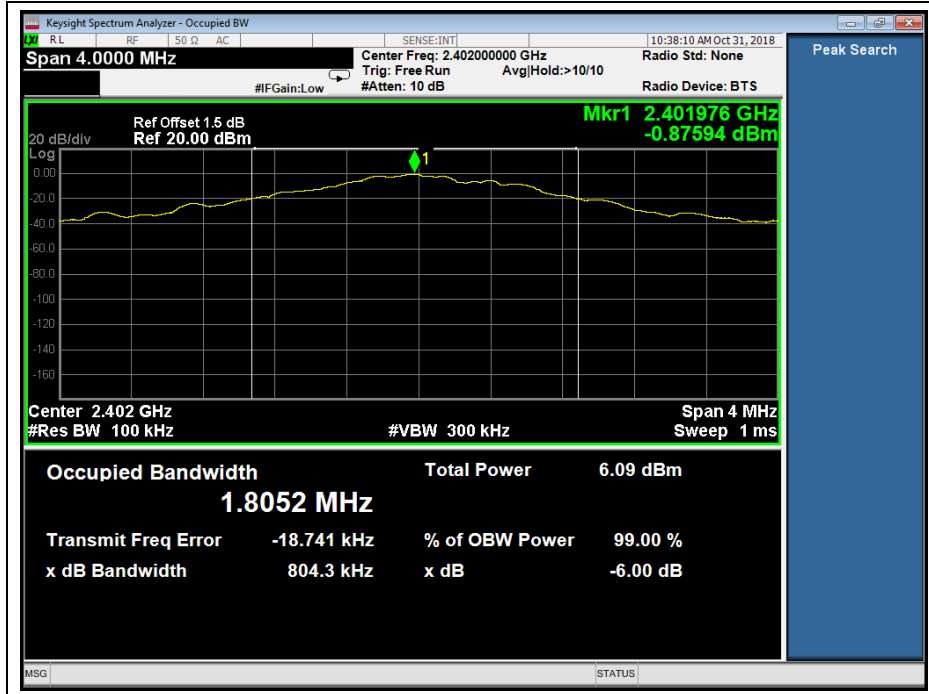
**2.3.4. Test Result**

The lowest, middle and highest channels are selected to perform testing to record the 6 dB bandwidth of the module.

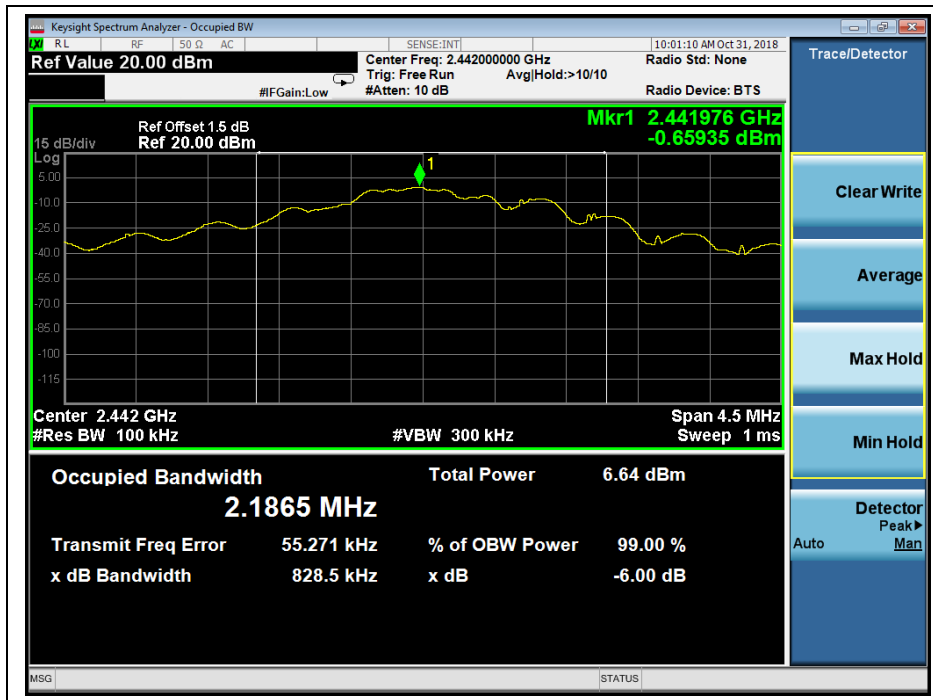
**A. Test Verdict:**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
0	2402	0.804	$\geq 500$	Pass
41	2442	0.829	$\geq 500$	Pass
79	2480	0.818	$\geq 500$	Pass

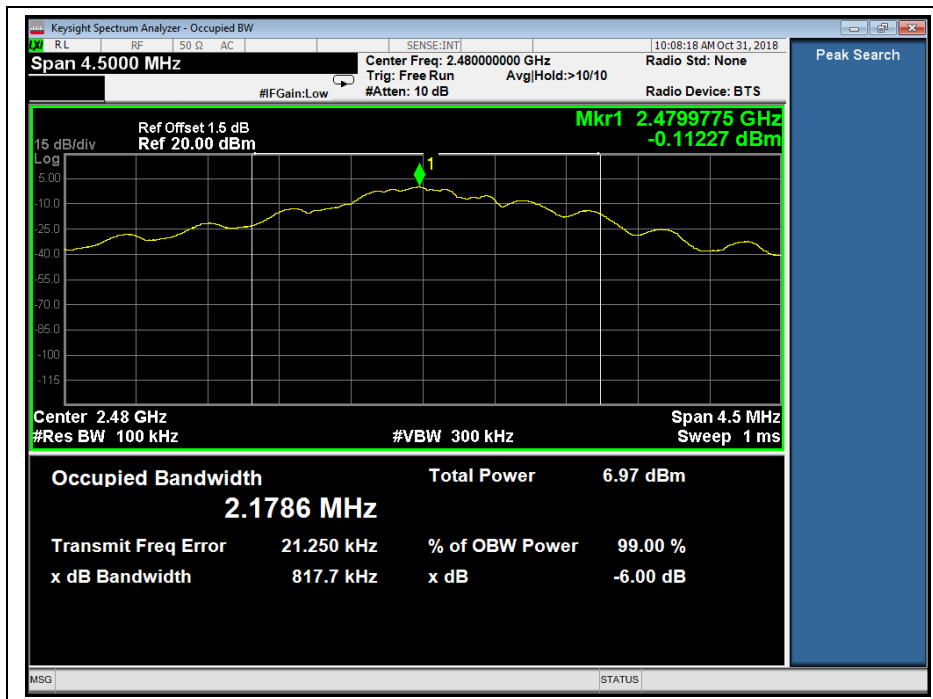
**B. Test Plots:**



(Channel 1: 2402MHz)



(Channel 41: 2442 MHz)



(Channel 79: 2480MHz)

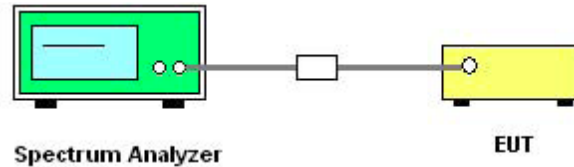
## 2.4. Conducted Spurious Emissions and Band Edge

### 2.4.1. Requirement

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

### 2.4.2. Test Description

#### A. Test Set:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

#### B. Equipments List:

Please refer ANNEX B (4).

### 2.4.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions.

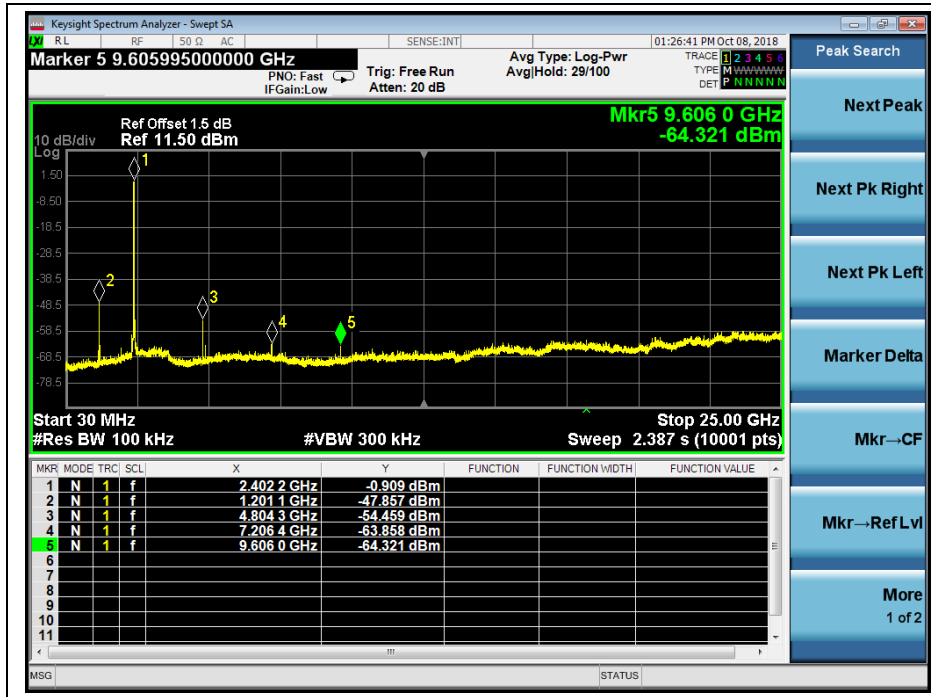
#### A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2402	-47.86	-0.91	-20.91	Pass
41	2442	-47.51	-0.98	-20.98	Pass
79	2480	-43.83	-0.32	-20.32	Pass



**B. Test Plots:**

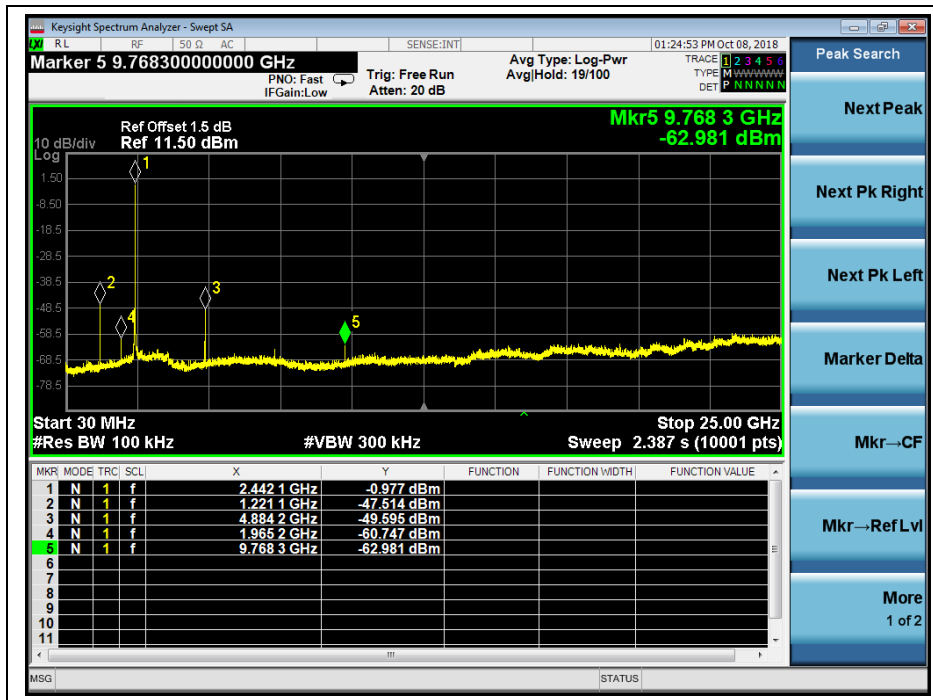
**Note:** the power of the Module transmitting frequency should be ignored.



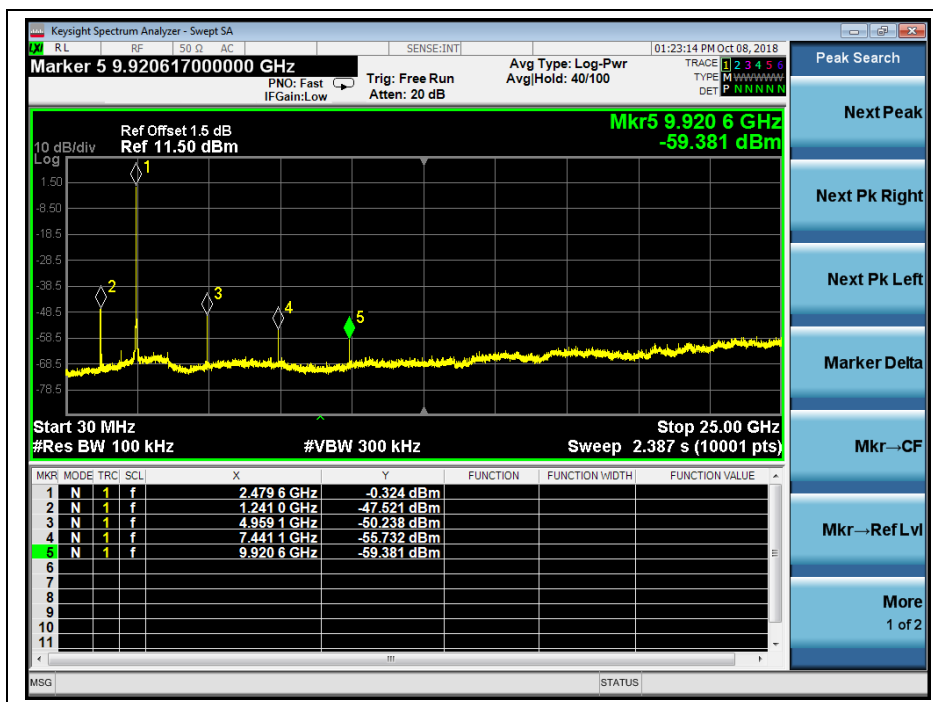
(Channel = 1, 30MHz to 25GHz)



(Band Edge, Channel = 1)



(Channel = 41, 30MHz to 25GHz)



(Channel = 79, 30MHz to 25GHz)



(Band Edge, Channel = 79)

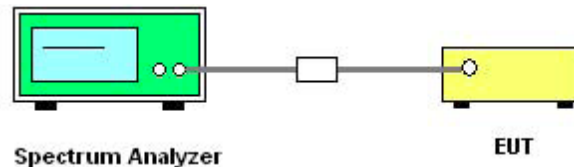
## 2.5. Power spectral density (PSD)

### 2.5.1. Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 2.5.2. Test Description

#### A. Test Set:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

#### B. Equipments List:

Please refer ANNEX B (4).

### 2.5.3. Test procedure

The measured power spectral density was calculated by the reading of the spectrum analyzer and calibration. Following is the test procedure for PSD test:

- a) Set analyzer center frequency to channel center frequency.
- b) Set the span to 1.5 times DTS
- c) Set the RBW to 3 kHz
- d) Set the VBW to 10 kHz
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.



**2.5.4. Test Result**

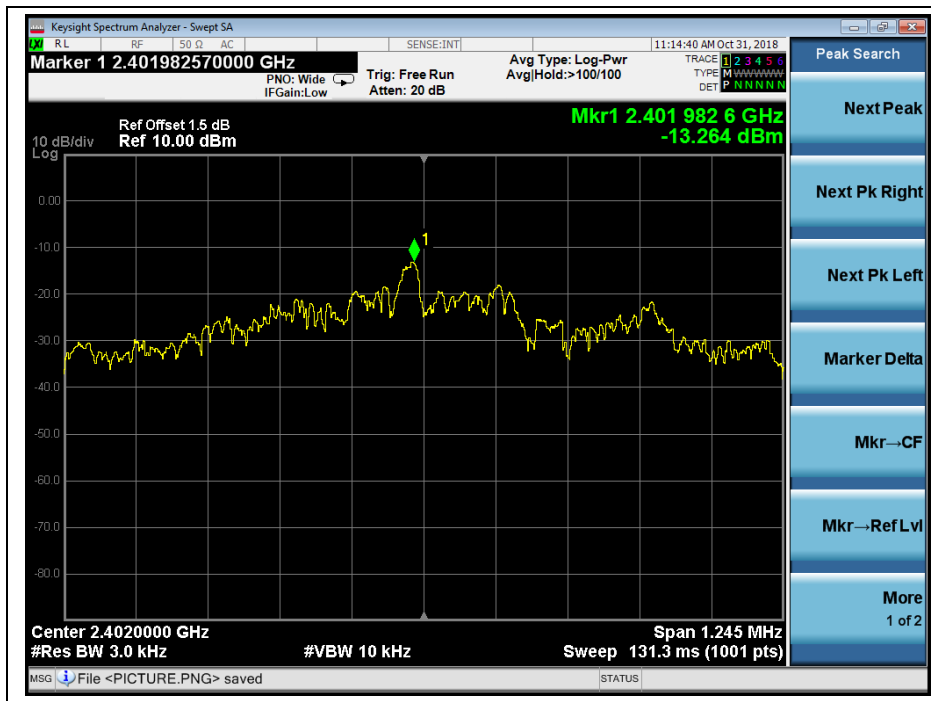
The lowest, middle and highest channels are tested.

**A. Test Verdict:**

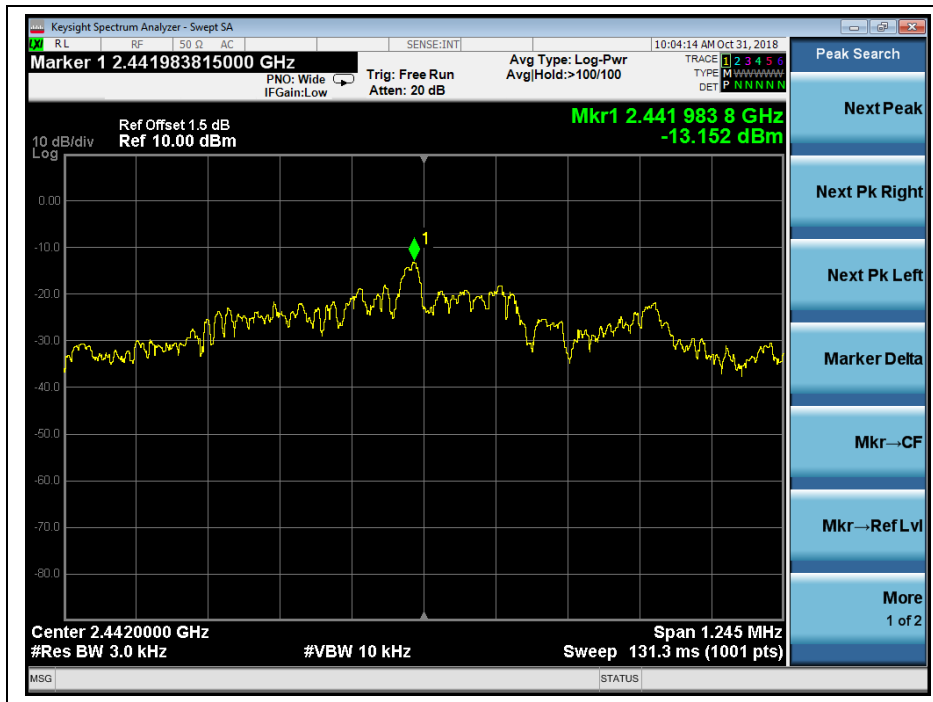
Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2402	-13.264	8	Pass
41	2442	-13.152	8	Pass
79	2480	-13.099	8	Pass

Measurement uncertainty:  $\pm 1.3\text{dB}$

**B. Test Plots:**



(Channel = 1, 2402MHz)



(Channel = 41, 2442MHz)



(Channel = 79, 2480MHz)

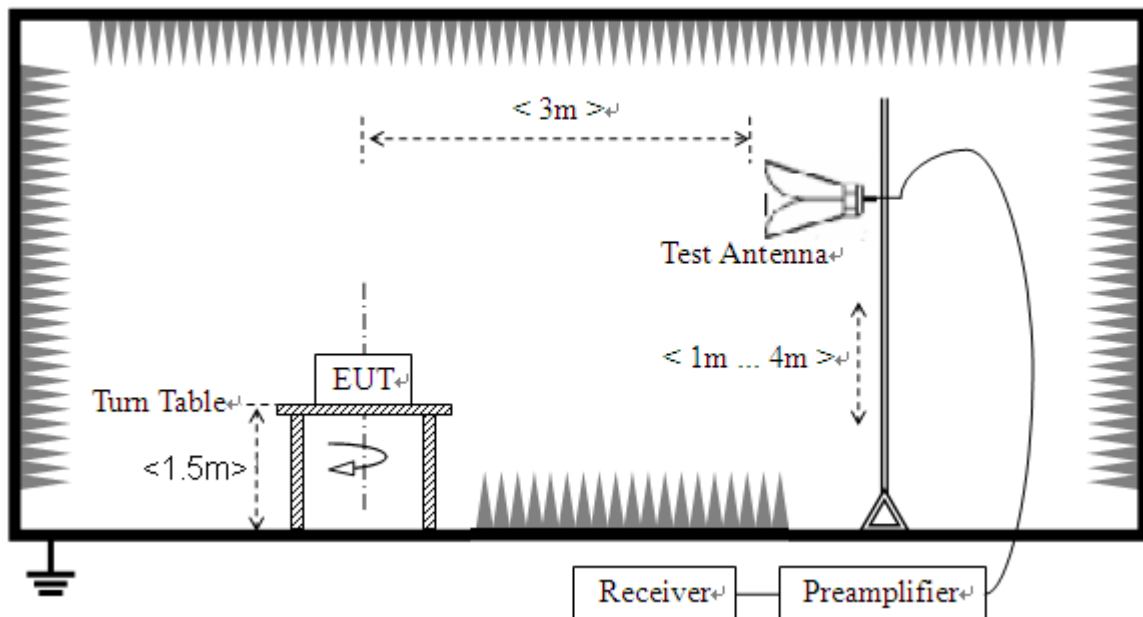
## 2.6. Restricted Frequency Bands

### 2.6.1. Requirement

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

### 2.6.2. Test Description

#### A. Test Setup



The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

For the Test Antenna:

Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.

**B. Equipments List:**

Please refer ANNEX B(4).

**2.6.3. Test Result**

The lowest and highest channels are tested to verify the Restricted Frequency Bands.

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

$A_T$ : Total correction Factor except Antenna

$U_R$ : Receiver Reading

$G_{\text{preamp}}$ : Preamplifier Gain

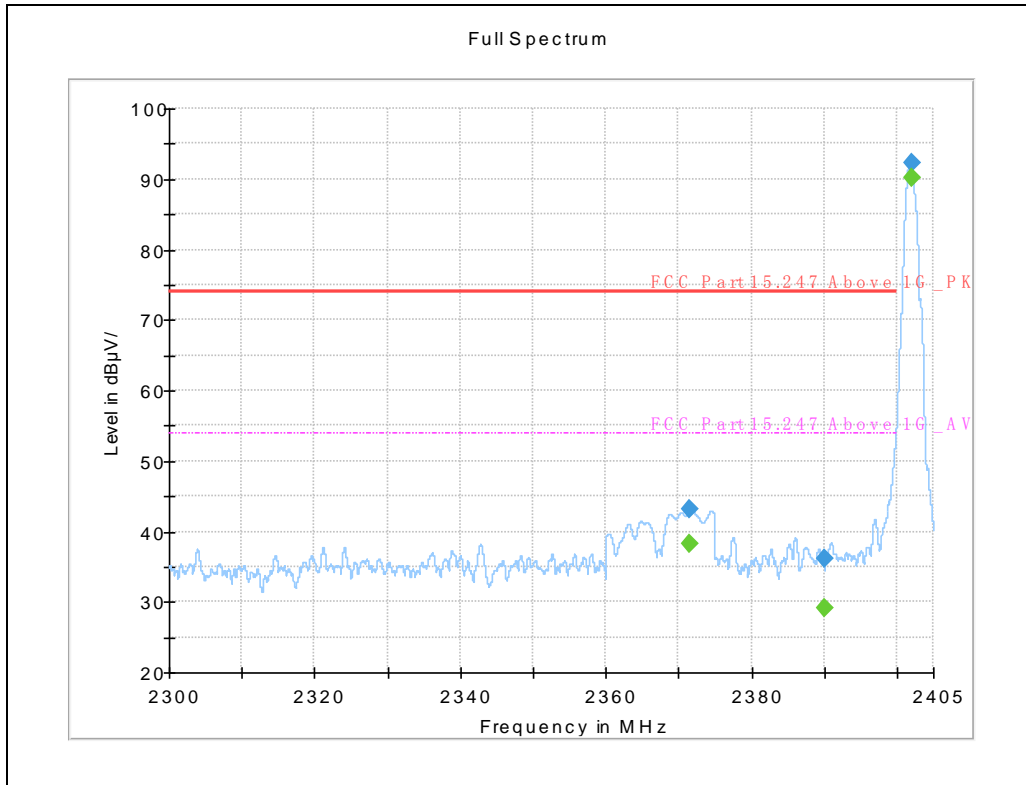
$A_{\text{Factor}}$ : Antenna Factor at 3m

Note: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

**A. Test Verdict:**

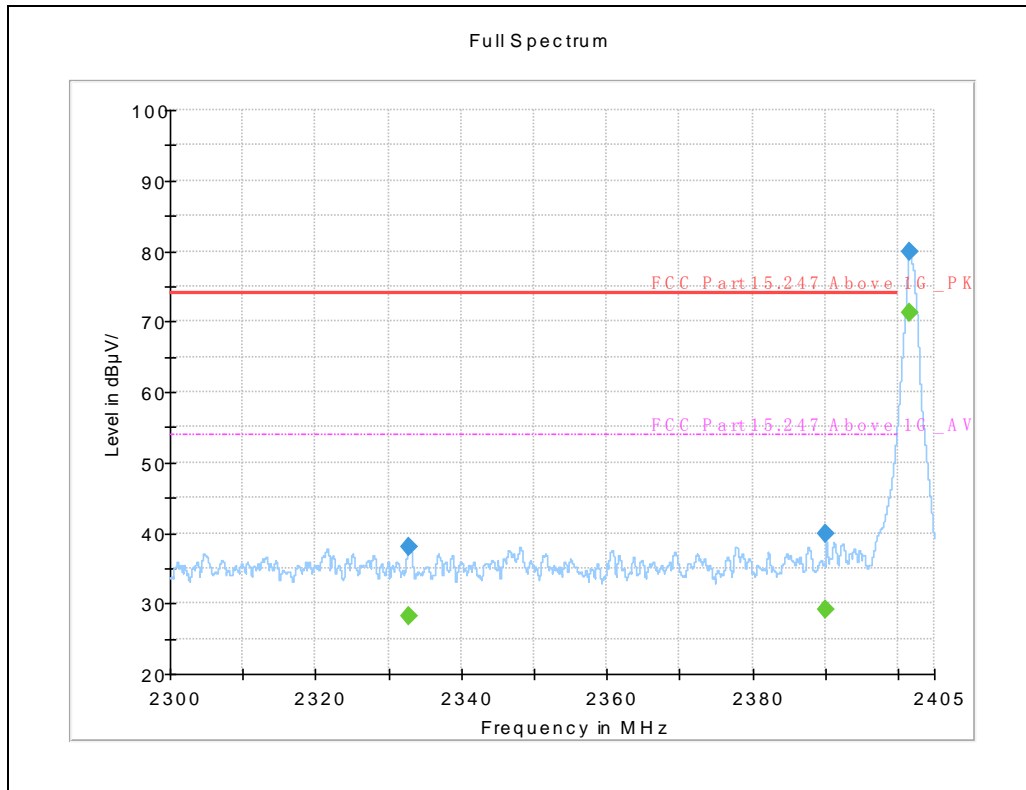
Channel	Detector	Limit (dB $\mu$ V/m)	Antenna	Verdict
	PK/ AV			
1	PK	74	Horizontal	Pass
1	AV	54	Horizontal	Pass
1	PK	74	Vertical	Pass
1	AV	54	Vertical	Pass
79	PK	74	Horizontal	Pass
79	AV	54	Horizontal	Pass
79	PK	74	Vertical	Pass
79	AV	54	Vertical	Pass

**B. Test Plots:**



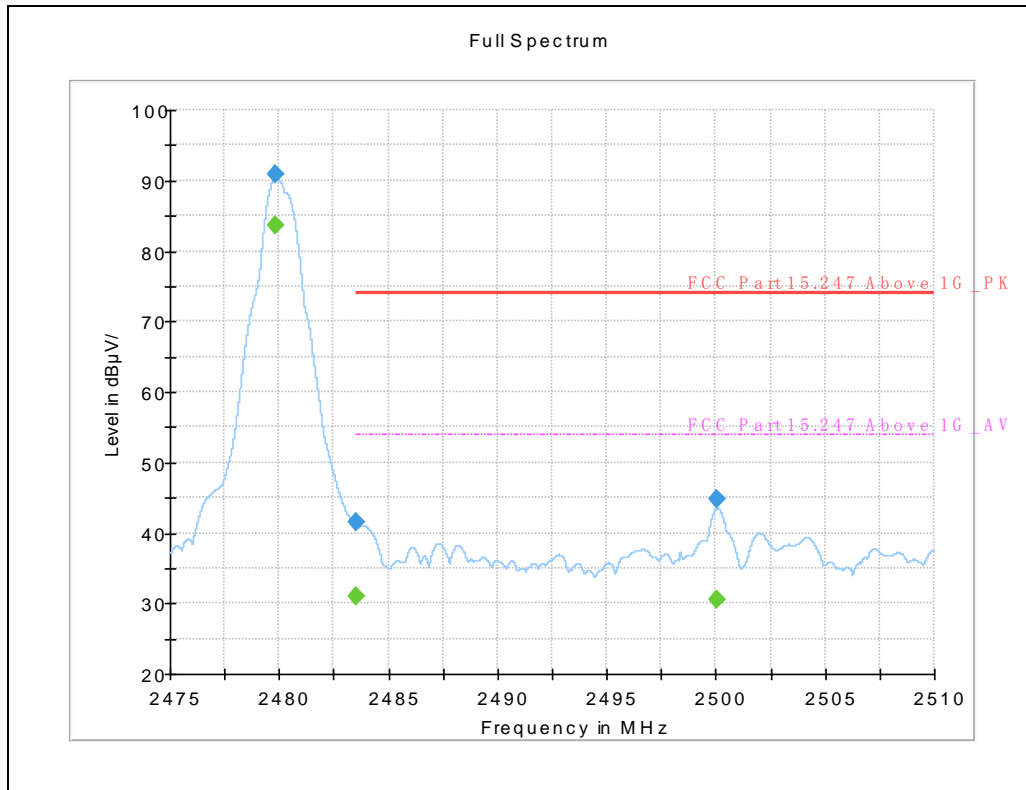
(Channel = 1, 2402MHz\_ Antenna Horizontal)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
2371.6041	43.21	---	74.00	30.79	H	7.3
2371.6041	---	38.22	54.00	25.78	H	7.3
2390.0025	---	29.05	54.00	24.95	H	8.0
2390.0025	36.09	---	74.00	37.91	H	8.0
2402.0133	---	90.23	---	---	H	8.7
2402.0133	92.34	---	---	---	H	8.7



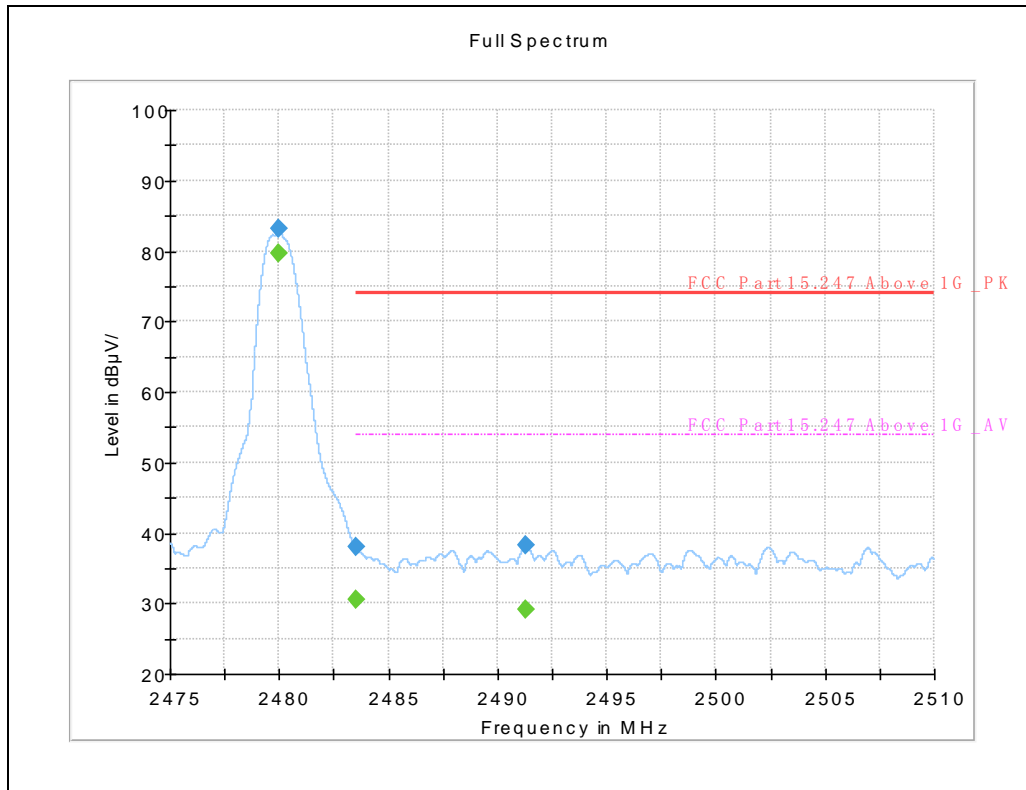
(Channel = 1, 2402MHz\_ Antenna Vertical)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
2332.8708	38.09	---	74.00	35.91	V	7.4
2332.8708	---	28.25	54.00	25.75	V	7.4
2390.0083	39.96	---	74.00	34.04	V	8.0
2390.0083	---	29.07	54.00	24.93	V	8.0
2401.6516	---	71.26	---	---	V	8.7
2401.6516	79.88	---	---	---	V	8.7



(Channel = 79, 2480MHz\_ Antenna Horizontal)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
2479.7950	90.80	---	---	---	H	8.2
2479.7950	---	83.59	---	---	H	8.2
2483.5011	41.54	---	74.00	32.46	H	8.3
2483.5011	---	31.11	54.00	22.89	H	8.3
2500.0269	---	30.51	54.00	23.49	H	8.4
2500.0269	44.74	---	74.00	29.26	H	8.4



(Channel = 79, 2480MHz\_ Antenna Vertical)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
2479.9875	83.16	---	---	---	V	8.2
2479.9875	---	79.62	---	---	V	8.2
2483.5011	---	30.43	54.00	23.57	V	8.3
2483.5011	37.91	---	74.00	36.09	V	8.3
2491.2672	38.34	---	74.00	35.66	V	8.4
2491.2672	---	29.15	54.00	24.85	V	8.4



## 2.7. Conducted Emission

### 2.7.1. Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 $\Omega$  line impedance stabilization network (LISN).

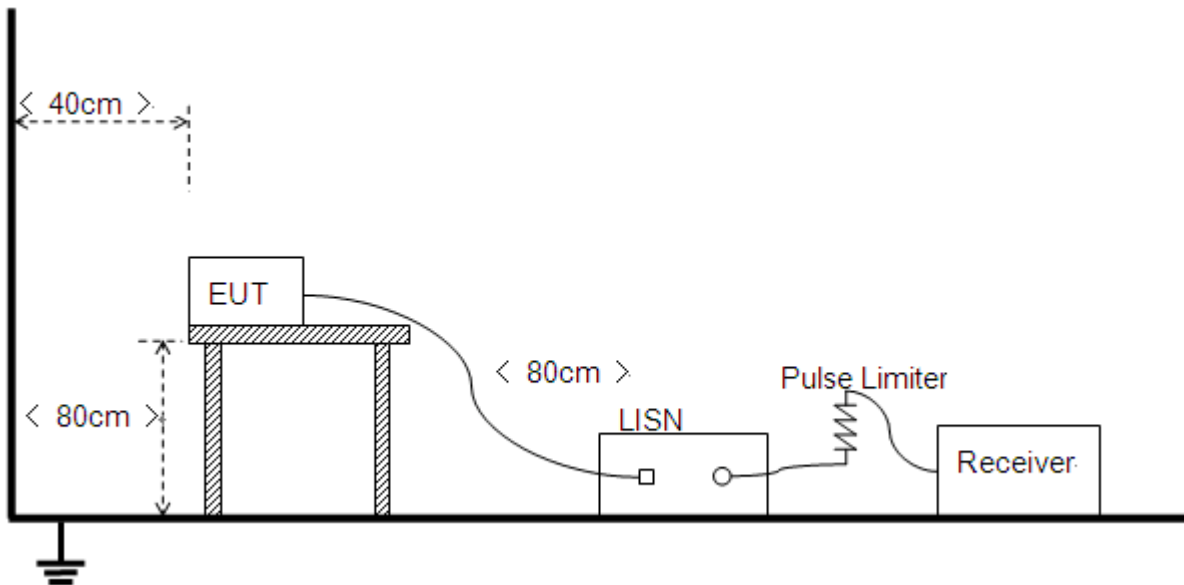
Frequency range (MHz)	Conducted Limit (dB $\mu$ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- (a) The lower limit shall apply at the band edges.
- (b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

### 2.7.2. Test Description

#### A. Test Setup:



The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10: 2013.

#### B. Equipments List:



Please refer ANNEX B(4).

### 2.7.3. Test Result

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

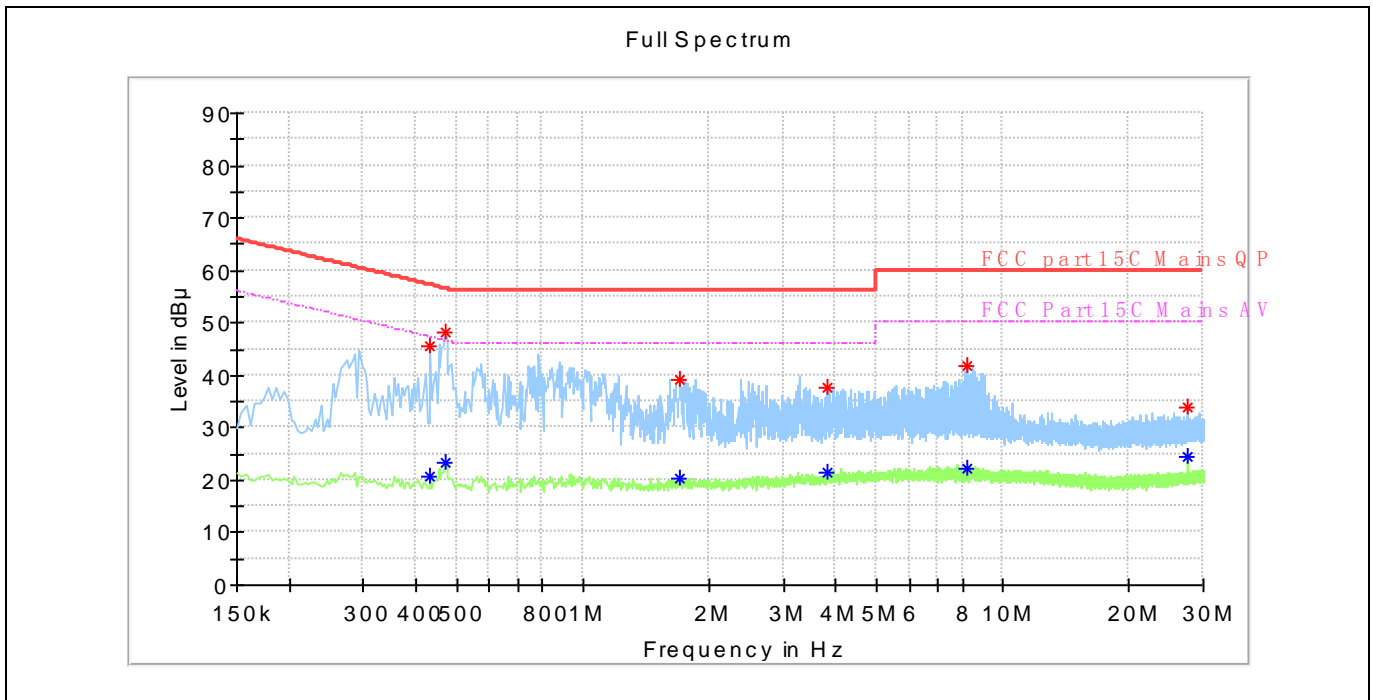
**Note:** Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

#### A. Test setup:

The EUT configuration of the emission tests is EUT + Test jig + adapter

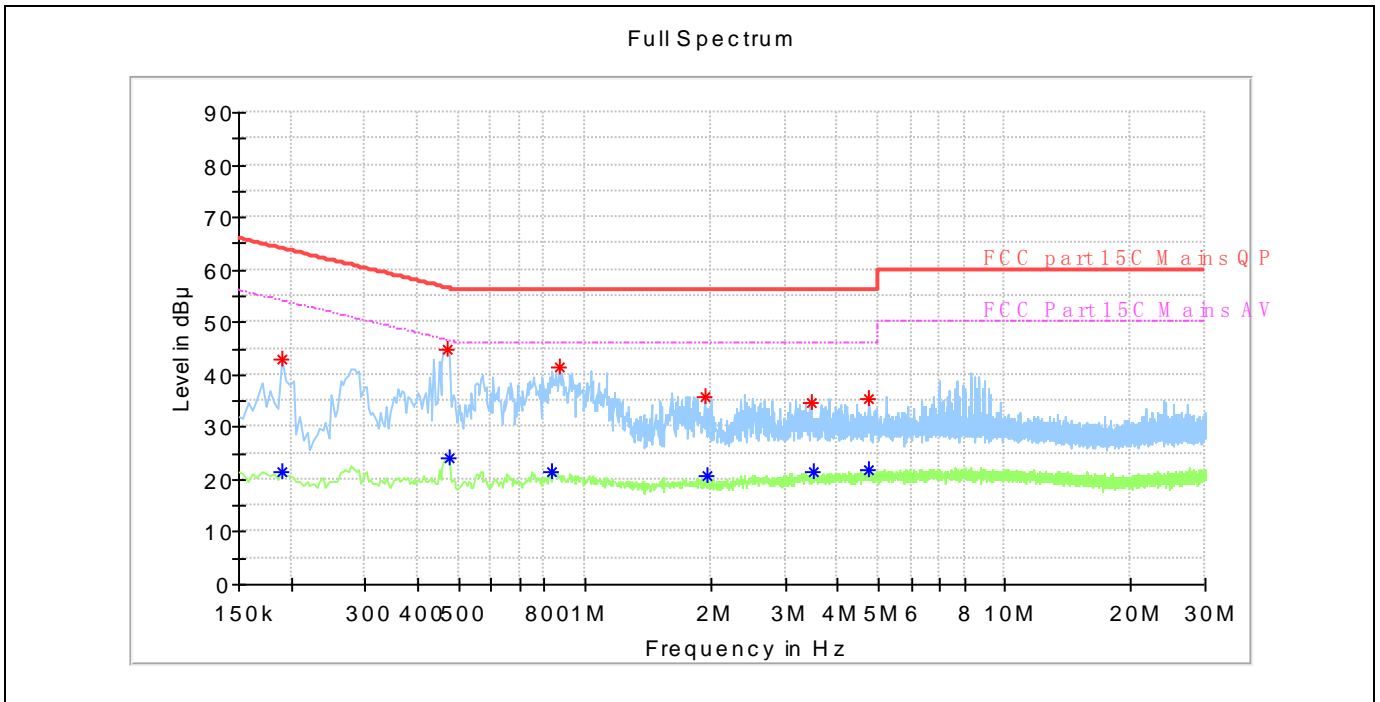
**Note:** The test voltage is AC 120V/60Hz.

**B. Test Plots:**



(Plot A: L Phase)

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.434000	---	20.63	47.18	26.54	L1	10.2
0.434000	45.70	---	57.18	11.48	L1	10.2
0.470000	---	23.47	46.51	23.04	L1	10.2
0.470000	48.33	---	56.51	8.19	L1	10.2
1.698000	---	20.25	46.00	25.75	L1	10.3
1.702000	39.29	---	56.00	16.71	L1	10.3
3.802000	---	21.37	46.00	24.63	L1	10.4
3.810000	37.62	---	56.00	18.38	L1	10.4
8.222000	---	22.37	50.00	27.63	L1	10.6
8.254000	41.76	---	60.00	18.24	L1	10.6
27.582000	---	24.58	50.00	25.42	L1	10.6
27.582000	33.74	---	60.00	26.26	L1	10.6



(Plot B: N Phase)

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.190000	---	21.52	54.04	32.52	N	10.2
0.190000	42.93	---	64.04	21.11	N	10.2
0.470000	44.85	---	56.51	11.67	N	10.2
0.478000	---	23.97	46.37	22.40	N	10.2
0.838000	---	21.60	46.00	24.40	N	10.3
0.870000	41.25	---	56.00	14.75	N	10.3
1.926000	35.68	---	56.00	20.32	N	10.3
1.946000	---	20.60	46.00	25.40	N	10.3
3.462000	34.66	---	56.00	21.34	N	10.4
3.514000	---	21.44	46.00	24.56	N	10.4
4.762000	35.25	---	56.00	20.75	N	10.4
4.762000	---	21.74	46.00	24.26	N	10.4



## 2.8. Radiated Emission

### 2.8.1. Requirement

According to FCC section 15.247(d), radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ( $\mu\text{V}/\text{m}$ )	Measurement Distance (m)
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

Note:

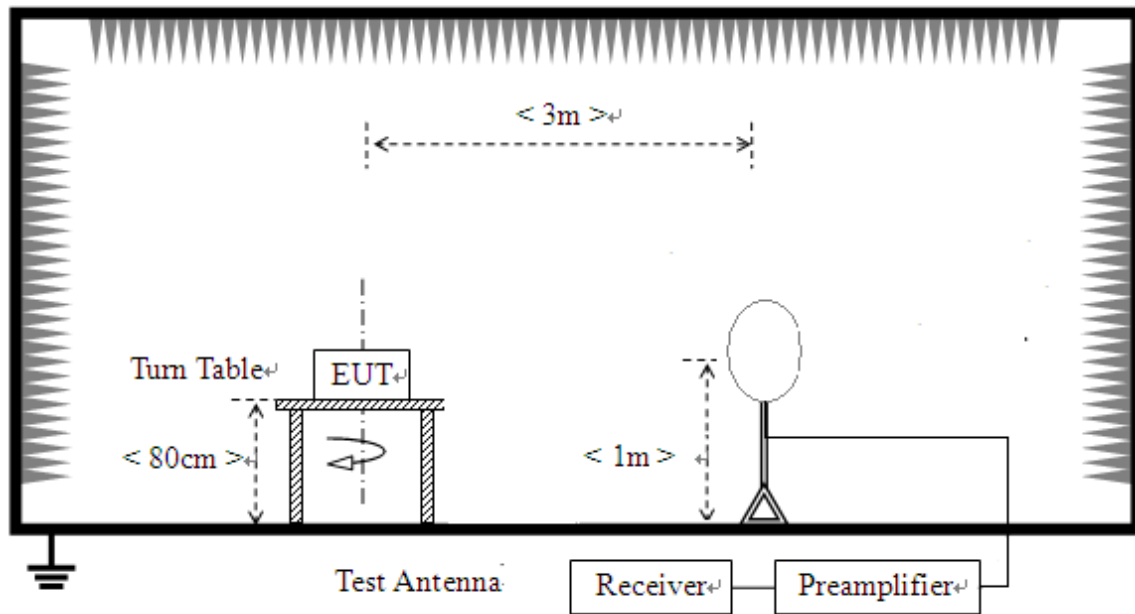
1. For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
2. For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK)

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table)

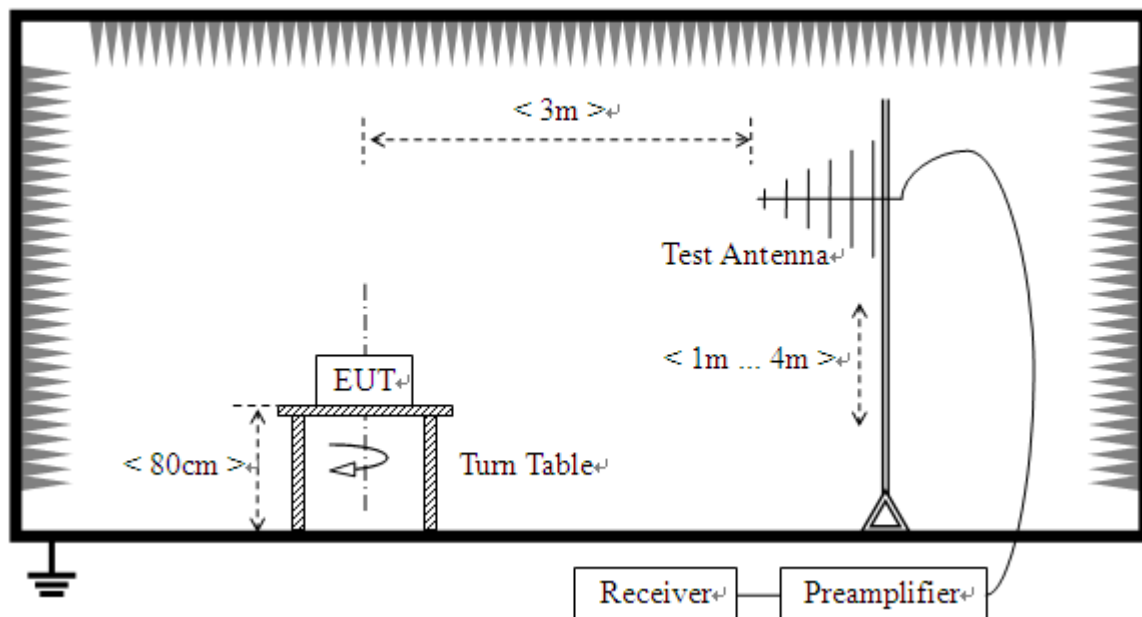
### 2.8.2. Test Description

#### A. Test Setup:

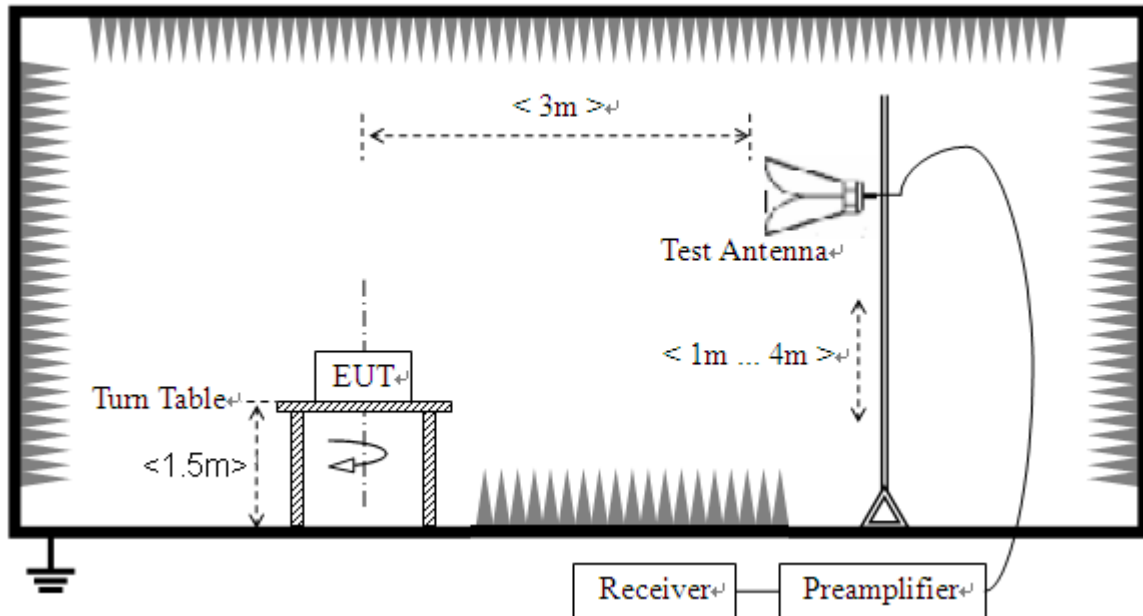
- 1) For radiated emissions from 9kHz to 30MHz



- 2) For radiated emissions from 30MHz to 1GHz



## 3) For radiated emissions above 1GHz



The RF absorbing material used on the reference ground plane and on the turntable have a maximum height (thickness) of 30 cm (12 in) and have a minimum-rated attenuation of 20 dB at all frequencies from 1 GHz to 18 GHz. Test site have a minimum area of the ground plane covered with RF absorbing material as specified in Figure 6 of ANSI C63.4: 2014.

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.10:2013. For radiated emissions below or equal to 1GHz, The EUT was set-up on insulator 80cm above the Ground Plane, For radiated emissions above 1GHz, The EUT was set-up on insulator 150cm above the Ground Plane. The set-up and test methods were according to ANSI C63.10:2013.

The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

For the Test Antenna:

- (a) In the frequency range of 9kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- (b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Place the test antenna at 3m away from area of the EUT, while keeping the test antenna aimed at the source of emissions at each frequency of significant



emissions, with polarization oriented for maximum response. The test antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final test antenna elevation shall be that which maximizes the emissions. The test antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The emission levels at both horizontal and vertical polarizations should be tested.

## B. Equipments List:

Please refer ANNEX B(4).

### 2.8.3. Test Result

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak limit, it is unnecessary to perform a quasi-peak measurement.

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

$A_T$ : Total correction Factor except Antenna

$U_R$ : Receiver Reading

$G_{\text{preamp}}$ : Preamplifier Gain

$A_{\text{Factor}}$ : Antenna Factor at 3m

During the test, the total correction Factor  $A_T$  and  $A_{\text{Factor}}$  were built in test software.

**Note1:** All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

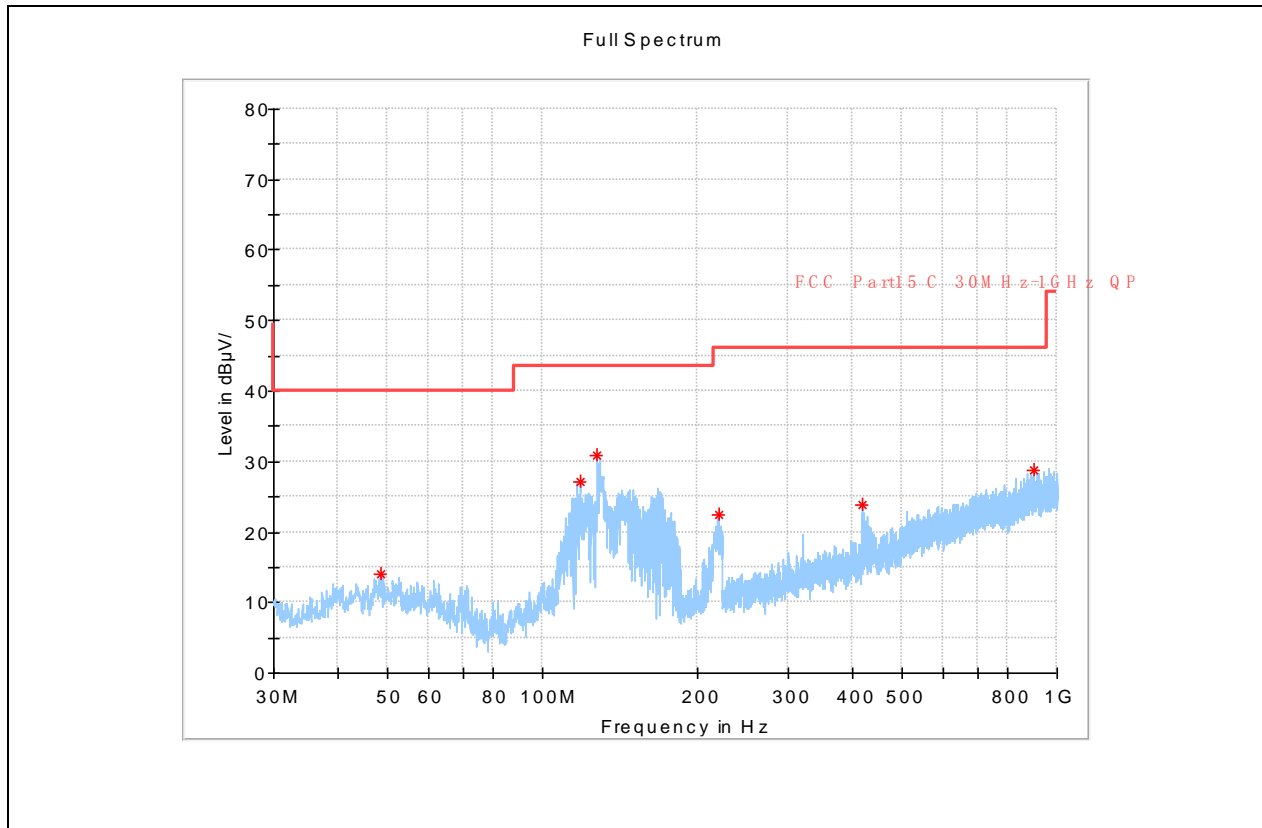
**Note2:** For the frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

**Note3:** For the frequency, which started from 25GHz to 40GHz, was pre-scanned and the result which was 10dB lower than the limit was not recorded.



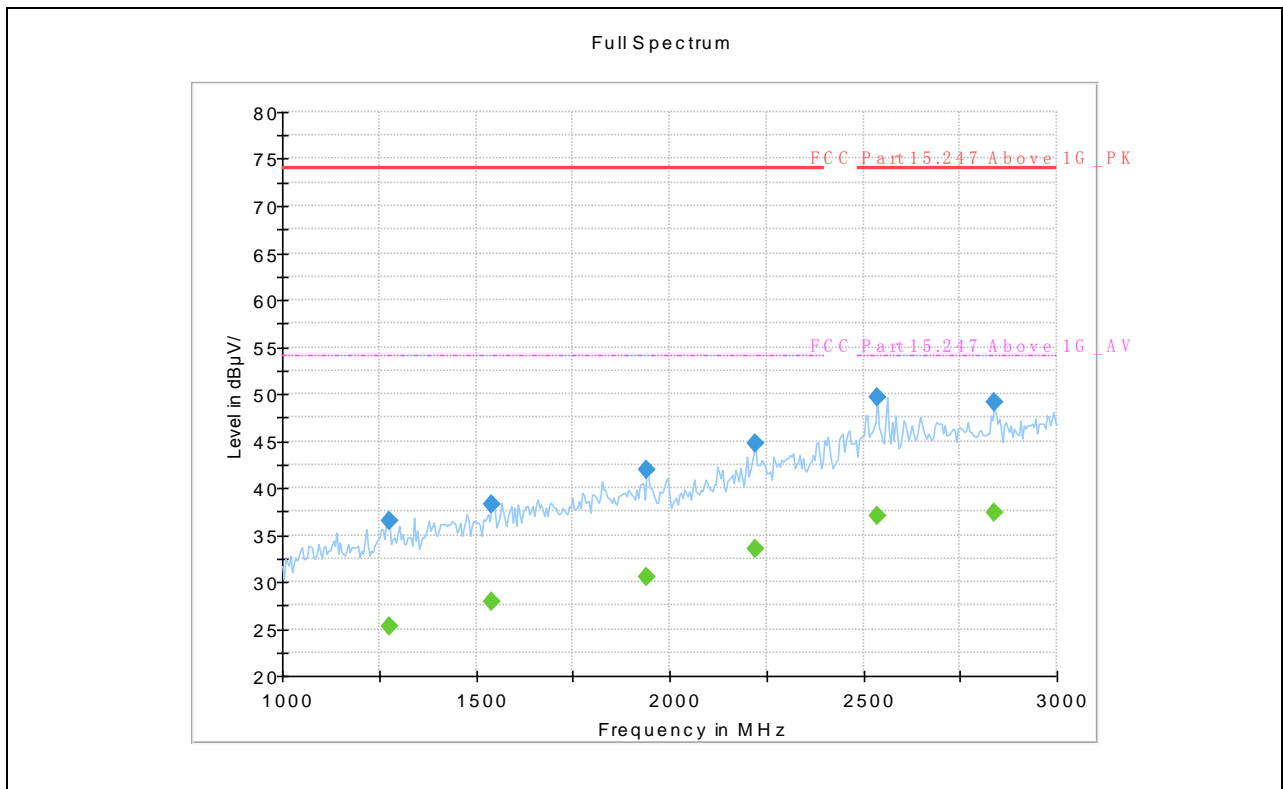
**A. Test Plots for the Whole Measurement Frequency Range:**

Plots for Channel = 1



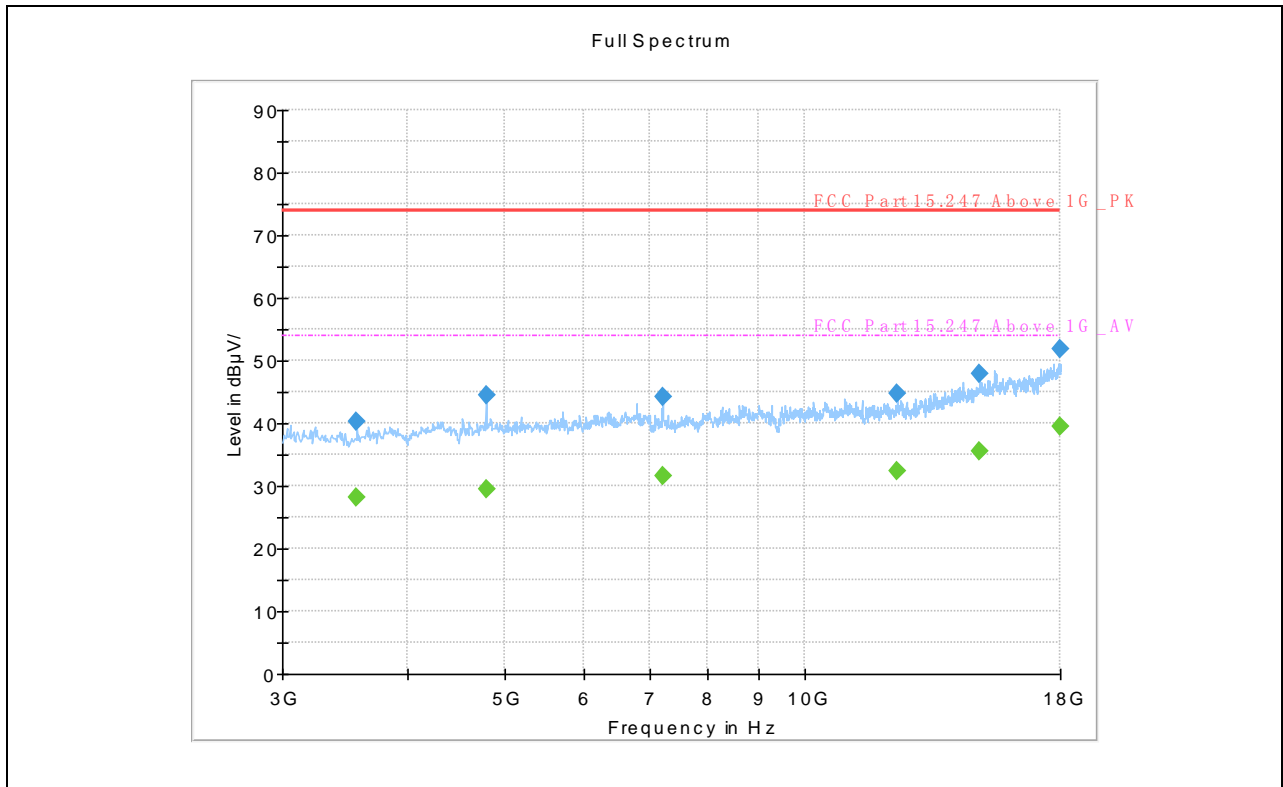
(Channel 1, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Corr. (dB/m)
48.645556	14.12	---	40.00	25.88	---	H	15.5
118.16222	27.20	---	43.50	16.30	---	H	13.1
127.70055	30.87	---	43.50	12.63	---	H	11.6
219.36555	22.37	---	46.00	23.63	---	H	14.6
418.64666	23.93	---	46.00	22.07	---	H	20.1
901.491111	28.66	---	46.00	17.34	---	H	28.1



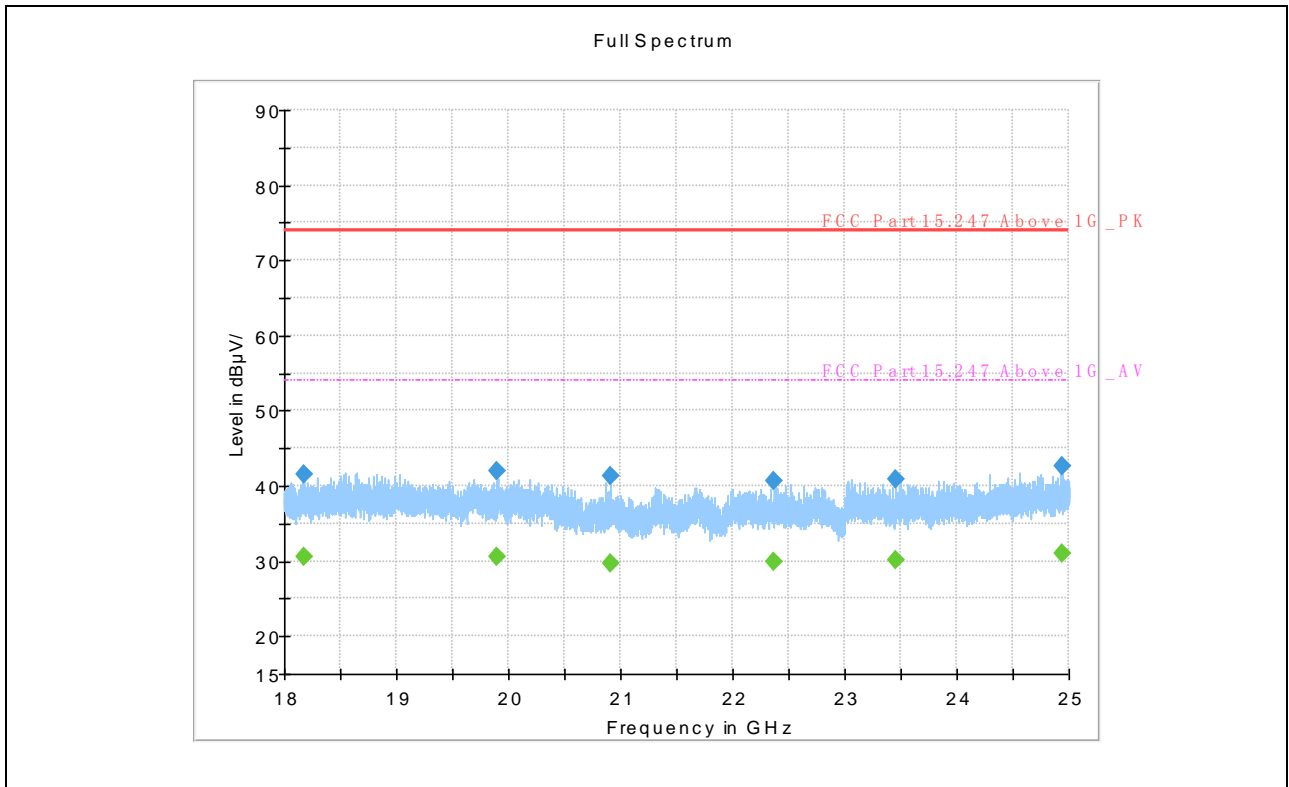
(Channel 1, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Corr. (dB/m)
1275.0000	---	25.23	54.00	28.77	1000.000	H	-0.2
1275.0000	36.51	---	74.00	37.49	1000.000	H	-0.2
1540.0000	---	27.83	54.00	26.17	1000.000	H	2.8
1540.0000	38.16	---	74.00	35.84	1000.000	H	2.8
1940.0000	41.94	---	74.00	32.06	1000.000	H	6.6
1940.0000	---	30.61	54.00	23.39	1000.000	H	6.6
2220.0000	---	33.50	54.00	20.50	1000.000	H	9.6
2220.0000	44.73	---	74.00	29.27	1000.000	H	9.6
2535.0000	---	36.96	54.00	17.04	1000.000	H	14.2
2535.0000	49.68	---	74.00	24.32	1000.000	H	14.2
2840.0000	49.15	---	74.00	24.85	1000.000	H	15.5
2840.0000	---	37.44	54.00	16.56	1000.000	H	15.5



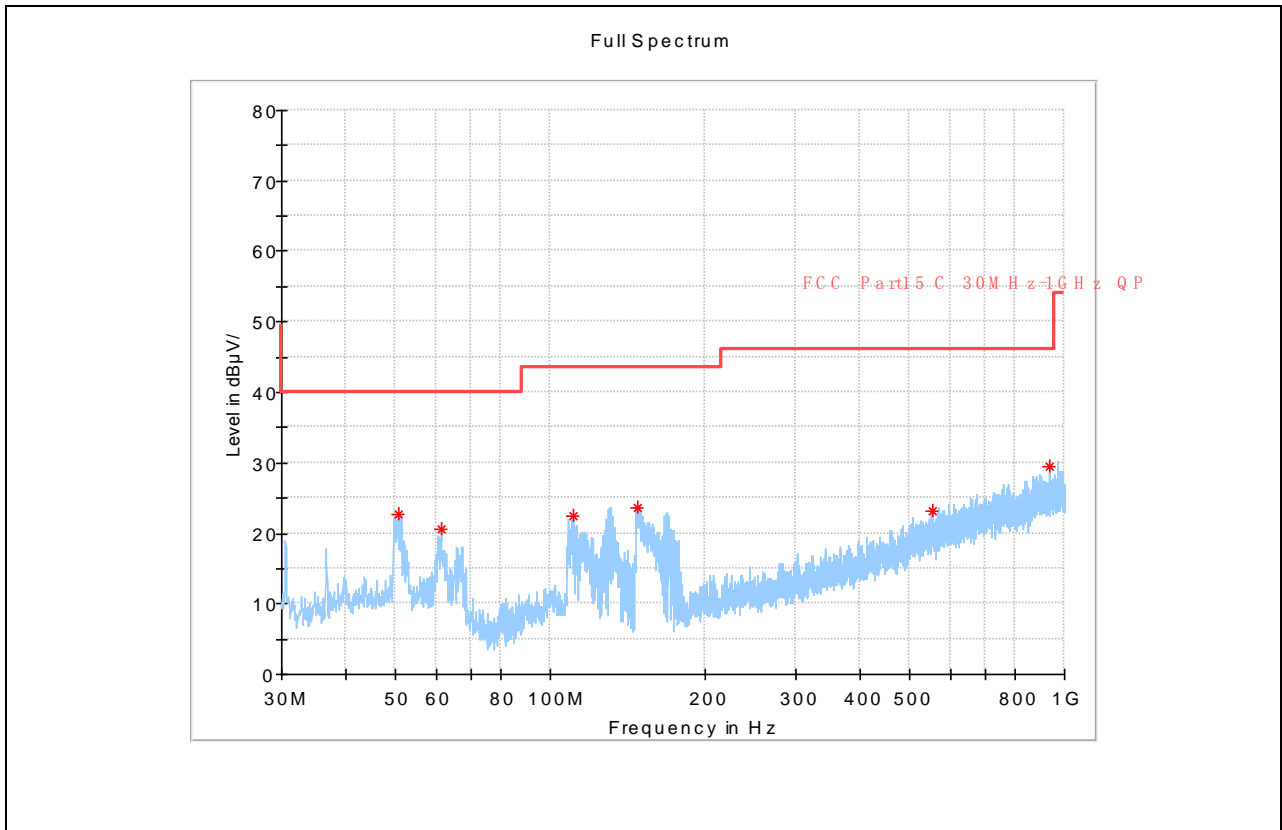
(Channel 1, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
3562.50000	40.19	---	74.00	33.81	H	-5.7
3562.50000	---	28.04	54.00	25.96	H	-5.7
4800.00000	44.36	---	74.00	29.64	H	-3.4
4800.00000	---	29.46	54.00	24.54	H	-3.4
7207.50000	44.27	---	74.00	29.73	H	-0.4
7207.50000	---	31.49	54.00	22.51	H	-0.4
12382.5000	---	32.48	54.00	21.52	H	4.4
12382.5000	44.81	---	74.00	29.19	H	4.4
14932.5000	47.89	---	74.00	26.11	H	9.5
14932.5000	---	35.56	54.00	18.44	H	9.5
17992.5000	---	39.53	54.00	14.47	H	15.0
17992.5000	51.78	---	74.00	22.22	H	15.0



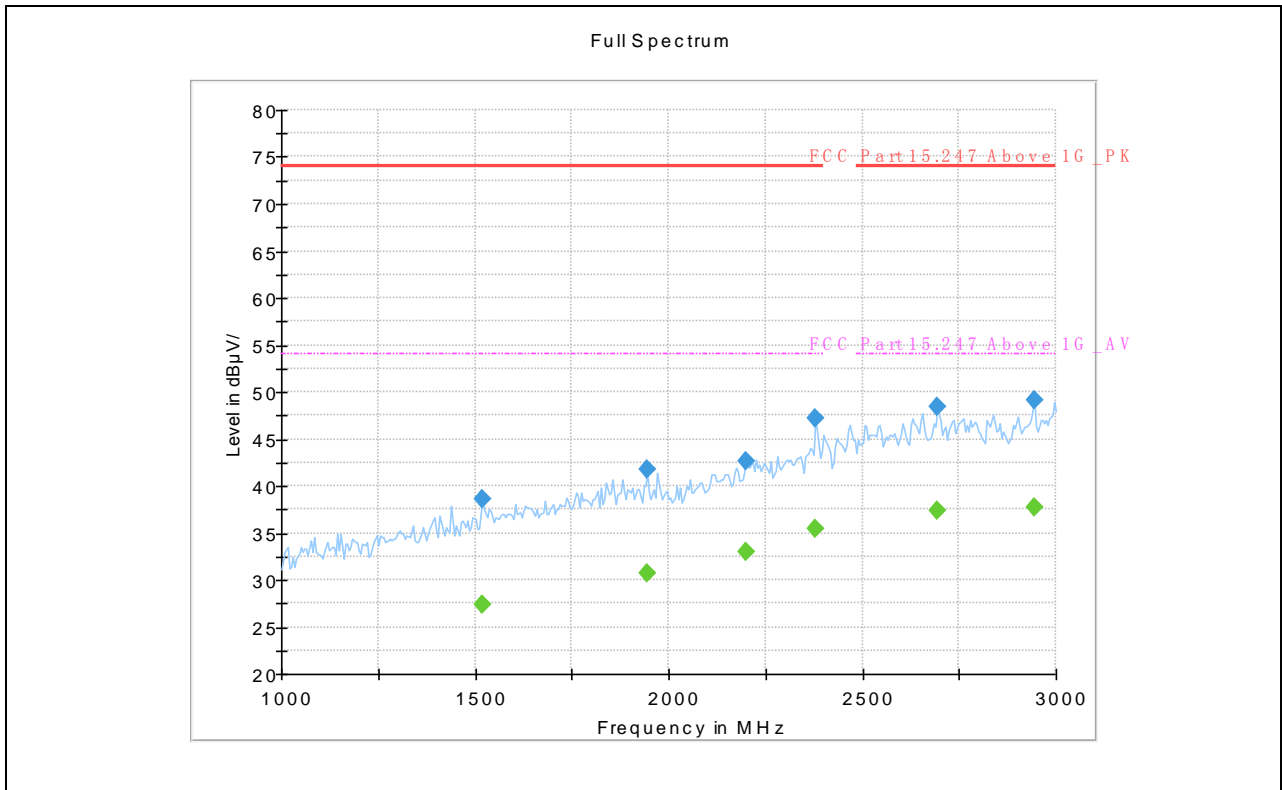
(Channel 1, Antenna Horizontal, 18GHz to 25GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
18173.83333	41.47	---	74.00	32.53	H	-5.5
18173.83333	---	30.48	54.00	23.52	H	-5.5
19904.38888	---	30.50	54.00	23.50	H	-5.0
19904.38888	41.92	---	74.00	32.08	H	-5.0
20906.55555	---	29.68	54.00	24.32	H	-5.1
20906.55555	41.21	---	74.00	32.79	H	-5.1
22374.22222	40.72	---	74.00	33.28	H	-4.9
22374.22222	---	29.87	54.00	24.13	H	-4.9
23462.72222	40.90	---	74.00	33.10	H	-4.9
23462.72222	---	30.14	54.00	23.86	H	-4.9
24940.50000	42.60	---	74.00	31.40	H	-4.8
24940.50000	---	31.08	54.00	22.92	H	-4.8



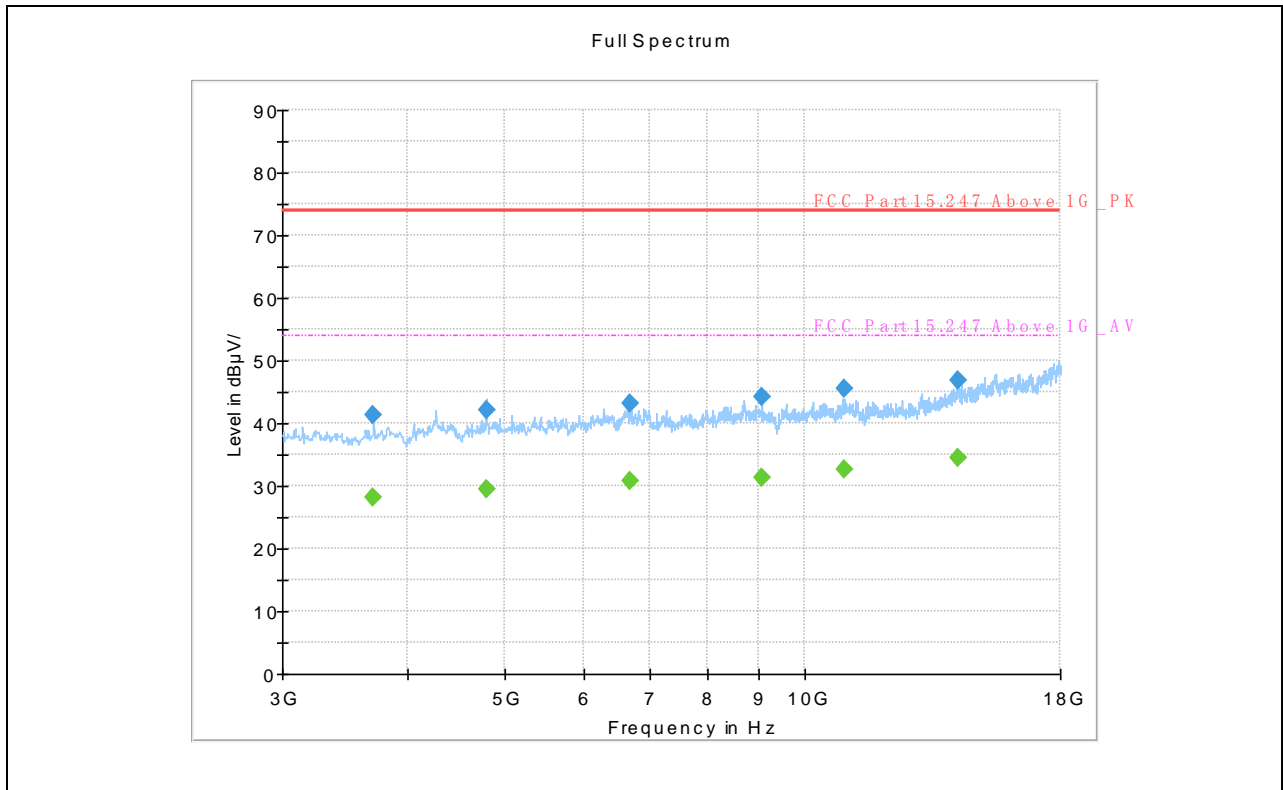
(Channel 1, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
50.531667	22.63	---	40.00	17.37	V	16.0
61.309444	20.52	---	40.00	19.48	V	14.0
111.156667	22.49	---	43.50	21.01	V	14.4
148.232222	23.60	---	43.50	19.90	V	11.1
555.093333	23.13	---	46.00	22.87	V	22.7
935.495000	29.52	---	46.00	16.48	V	28.2



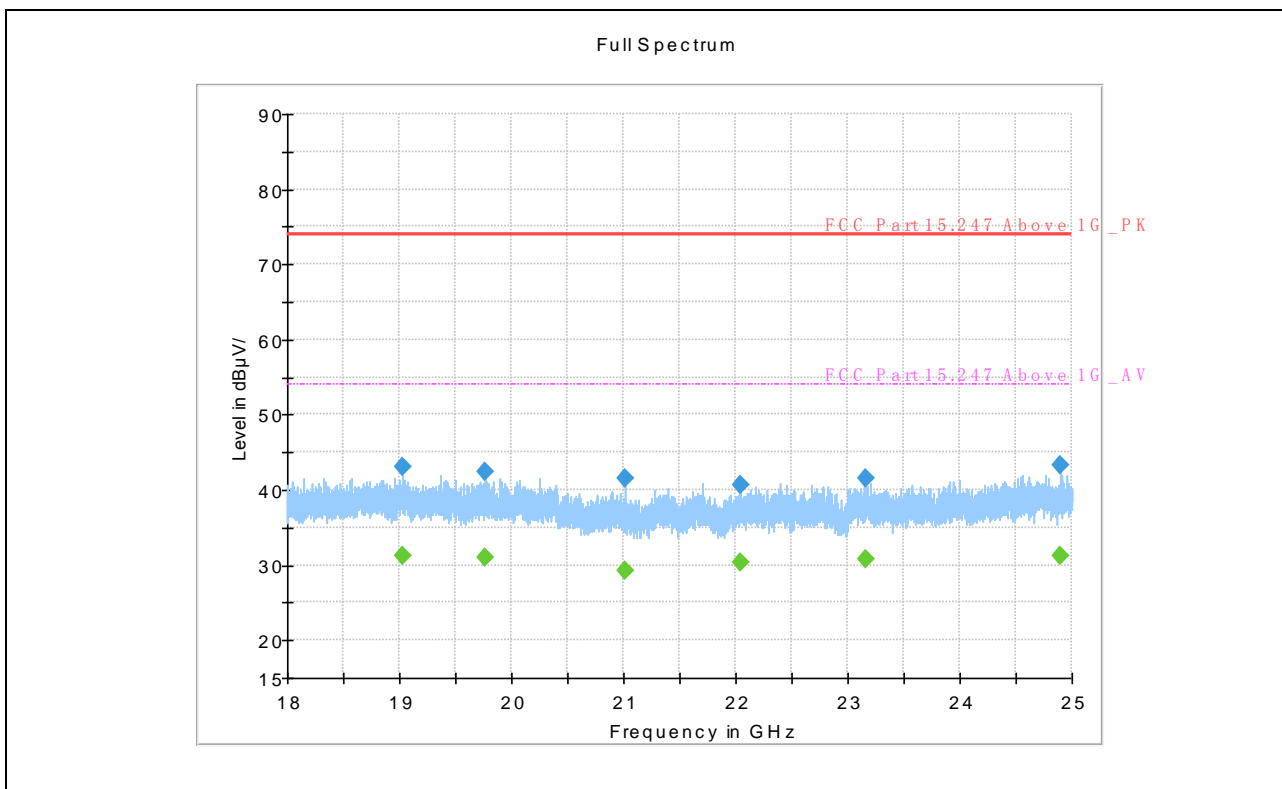
(Channel 1, Antenna Vertical, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
1520.000000	---	27.28	54.00	26.72	V	2.2
1520.000000	38.60	---	74.00	35.40	V	2.2
1945.000000	41.78	---	74.00	32.22	V	6.8
1945.000000	---	30.77	54.00	23.23	V	6.8
2200.000000	---	32.95	54.00	21.05	V	9.3
2200.000000	42.65	---	74.00	31.35	V	9.3
2380.000000	---	35.51	54.00	18.49	V	12.0
2380.000000	47.28	---	74.00	26.72	V	12.0
2695.000000	48.44	---	74.00	25.56	V	14.8
2695.000000	---	37.28	54.00	16.72	V	14.8
2945.000000	---	37.67	54.00	16.33	V	15.7
2945.000000	49.13	---	74.00	24.87	V	15.7



(Channel 1, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
3697.500000	---	28.13	54.00	25.87	V	-5.3
3697.500000	41.26	---	74.00	32.74	V	-5.3
4800.000000	---	29.42	54.00	24.58	V	-3.4
4800.000000	42.03	---	74.00	31.97	V	-3.4
6690.000000	43.05	---	74.00	30.95	V	-0.8
6690.000000	---	30.68	54.00	23.32	V	-0.8
9060.000000	---	31.23	54.00	22.77	V	1.3
9060.000000	44.17	---	74.00	29.83	V	1.3
10965.00000	---	32.67	54.00	21.33	V	3.3
10965.00000	45.51	---	74.00	28.49	V	3.3
14220.00000	46.91	---	74.00	27.09	V	8.3
14220.00000	---	34.50	54.00	19.50	V	8.3

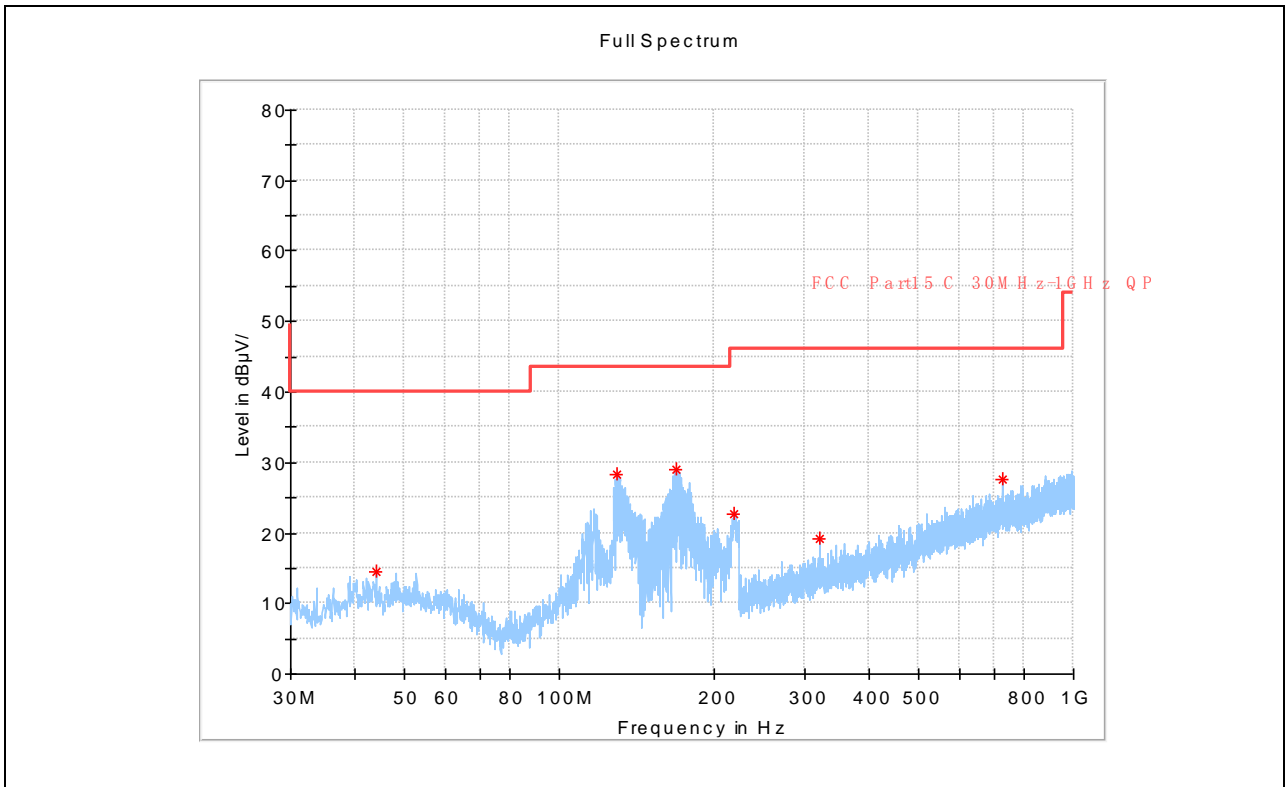


(Channel 1, Antenna Vertical, 18GHz to 25GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
19034.44444	---	31.22	54.00	22.78	V	-5.4
19034.44444	42.98	---	74.00	31.02	V	-5.4
19762.44444	---	31.06	54.00	22.94	V	-5.2
19762.44444	42.42	---	74.00	31.58	V	-5.2
21009.22222	41.52	---	74.00	32.48	V	-5.1
21009.22222	---	29.26	54.00	24.74	V	-5.1
22043.27777	40.71	---	74.00	33.29	V	-5.1
22043.27777	---	30.26	54.00	23.74	V	-5.1
23167.55555	41.48	---	74.00	32.52	V	-5.0
23167.55555	---	30.71	54.00	23.29	V	-5.0
24900.44444	43.18	---	74.00	30.82	V	-4.8
24900.44444	---	31.15	54.00	22.85	V	-4.8

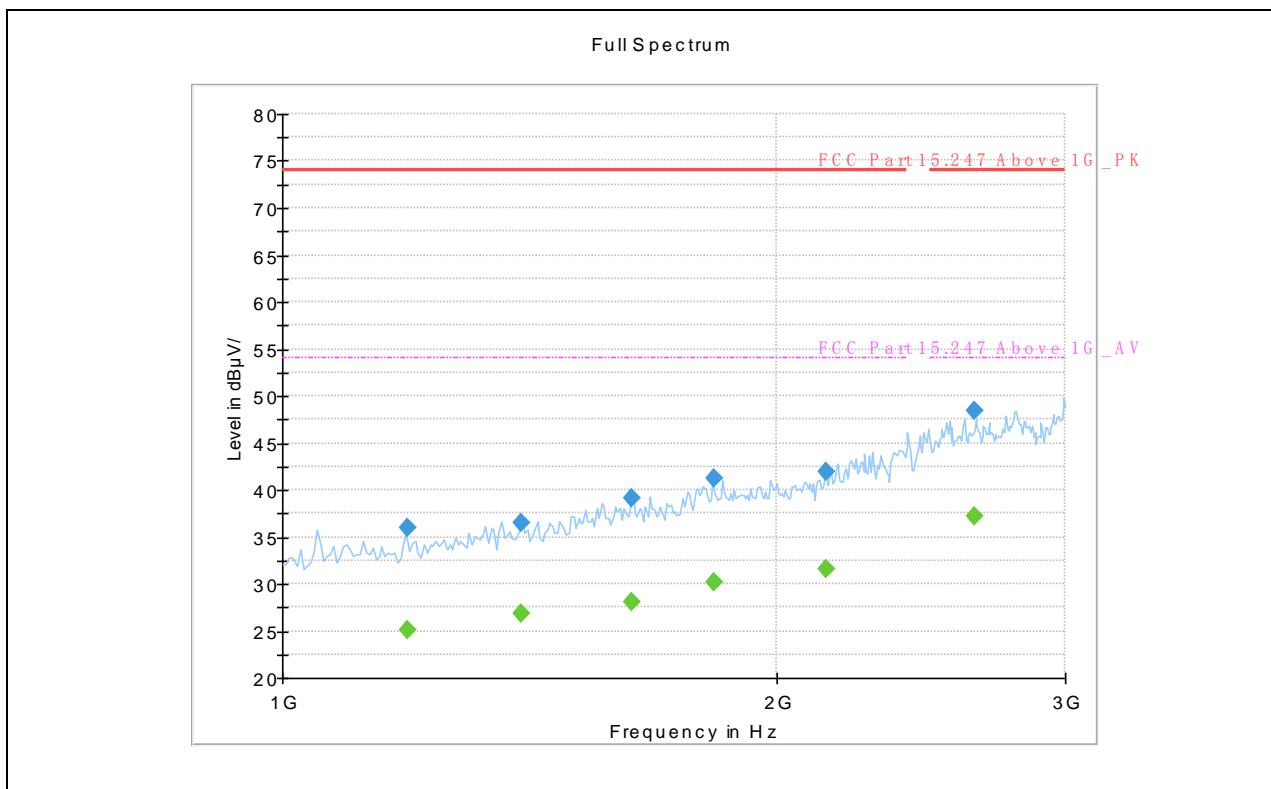


Plot for Channel = 41



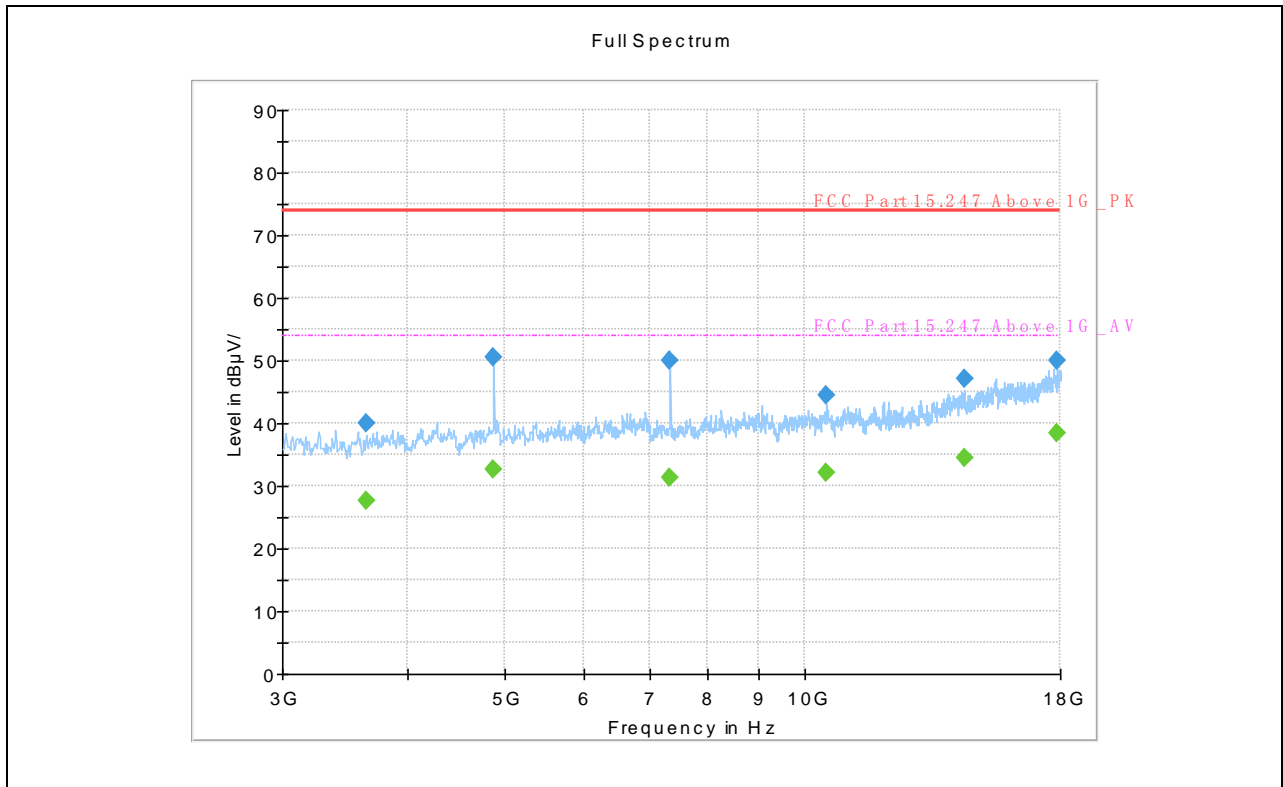
(Channel 41, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
44.011111	14.57	---	40.00	25.43	H	15.3
129.856111	28.34	---	43.50	15.16	H	12.3
169.410556	29.11	---	43.50	14.39	H	12.3
218.665000	22.65	---	46.00	23.35	H	14.4
319.706667	19.08	---	46.00	26.92	H	17.9
729.154444	27.52	---	46.00	18.48	H	25.3



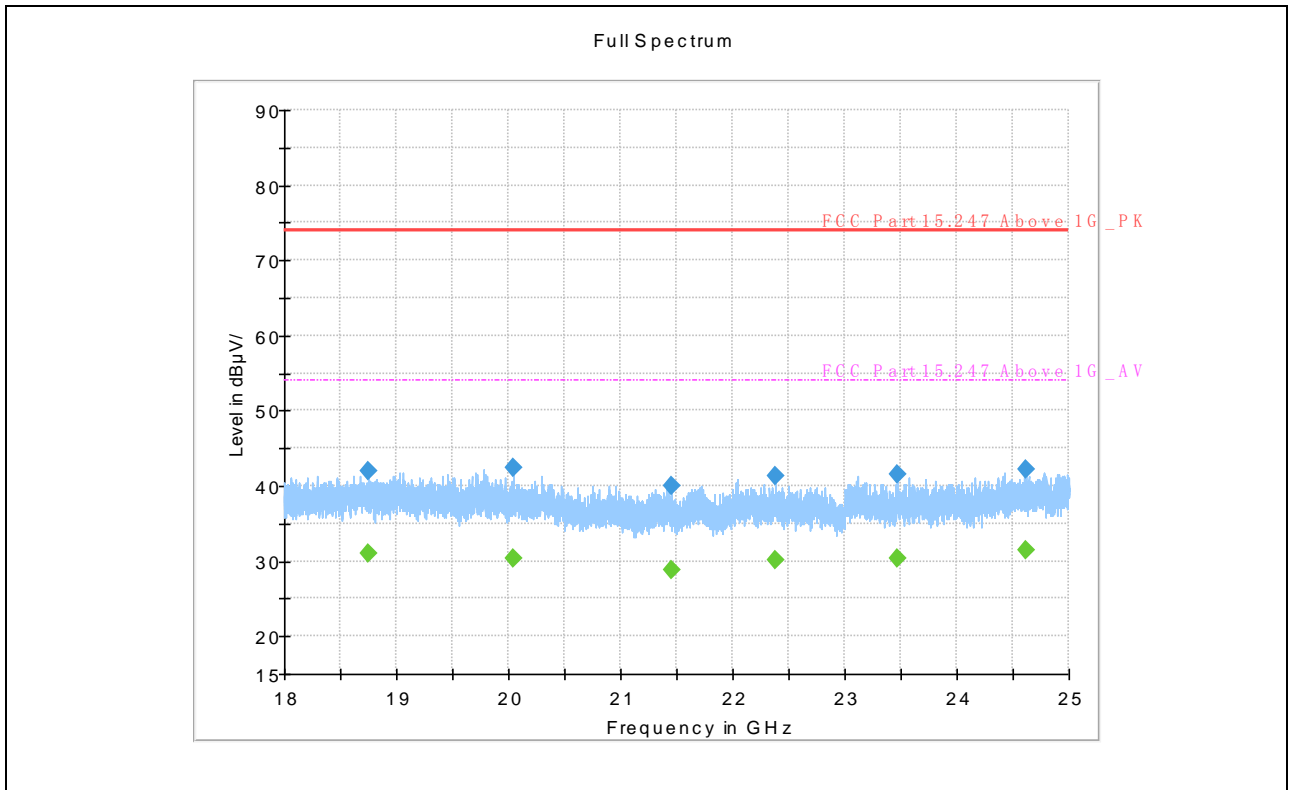
(Channel 41, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
1191.800000	---	25.09	54.00	28.91	H	-0.7
1191.800000	36.03	---	74.00	37.97	H	-0.7
1397.400000	36.56	---	74.00	37.44	H	1.6
1397.400000	---	26.80	54.00	27.20	H	1.6
1633.200000	---	28.00	54.00	26.00	H	3.4
1633.200000	39.19	---	74.00	34.81	H	3.4
1831.800000	41.29	---	74.00	32.71	H	6.0
1831.800000	---	30.14	54.00	23.86	H	6.0
2146.000000	41.87	---	74.00	32.13	H	8.2
2146.000000	---	31.56	54.00	22.44	H	8.2
2644.000000	48.49	---	74.00	25.51	H	15.5
2644.000000	---	37.15	54.00	16.85	H	15.5



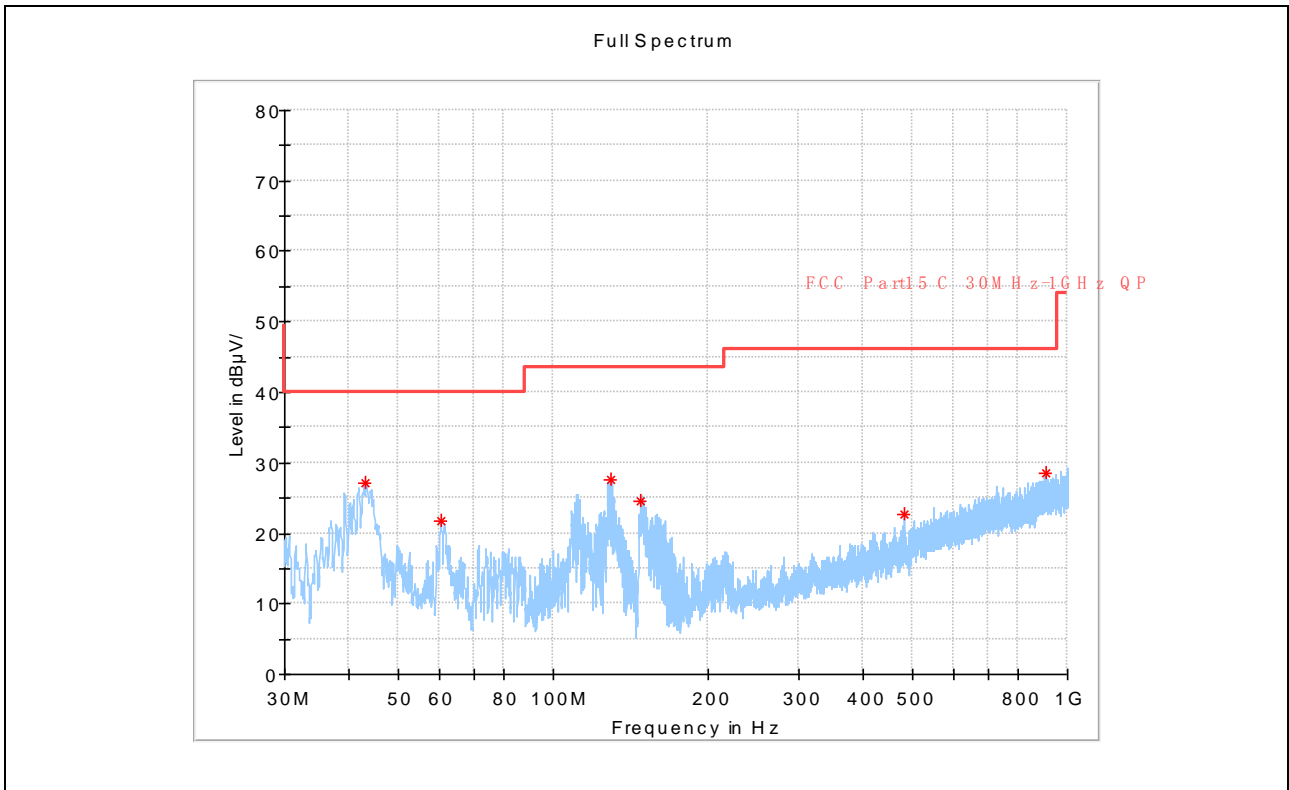
(Channel 41, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
3637.500000	39.95	---	74.00	34.05	H	-5.7
3637.500000	---	27.60	54.00	26.40	H	-5.7
4882.500000	---	32.63	54.00	21.37	H	-2.8
4882.500000	50.63	---	74.00	23.37	H	-2.8
7327.500000	50.01	---	74.00	23.99	H	-0.2
7327.500000	---	31.36	54.00	22.64	H	-0.2
10515.000000	44.36	---	74.00	29.64	H	2.6
10515.000000	---	32.10	54.00	21.90	H	2.6
14445.000000	47.08	---	74.00	26.92	H	8.7
14445.000000	---	34.58	54.00	19.42	H	8.7
17895.000000	---	38.54	54.00	15.46	H	14.6
17895.000000	50.00	---	74.00	20.00	H	14.6



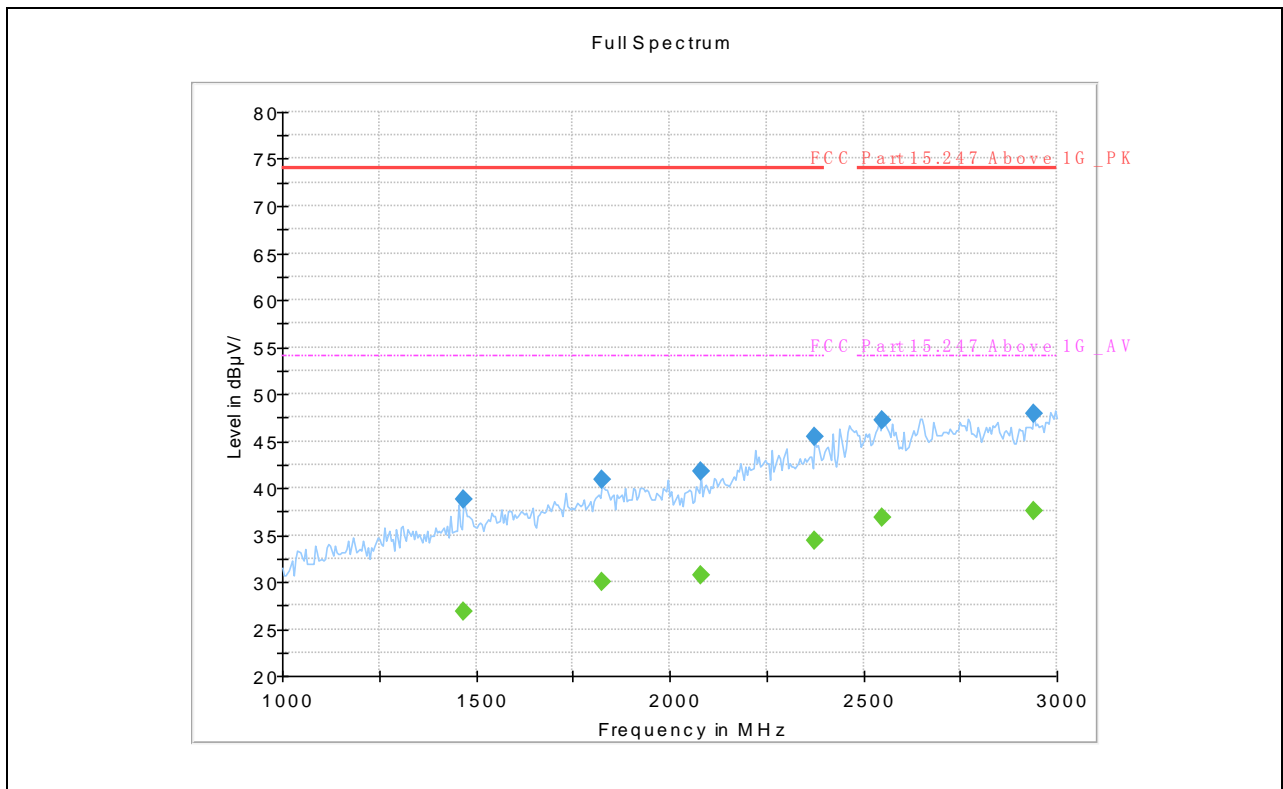
(Channel 41, Antenna Horizontal, 18GHz to 25GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
18747.83333	---	30.95	54.00	23.05	H	-5.3
18747.83333	42.06	---	74.00	31.94	H	-5.3
20039.33333	---	30.39	54.00	23.61	H	-5.0
20039.33333	42.35	---	74.00	31.65	H	-5.0
21449.83333	40.08	---	74.00	33.92	H	-5.0
21449.83333	---	28.92	54.00	25.08	H	-5.0
22384.33333	---	30.14	54.00	23.86	H	-4.9
22384.33333	41.34	---	74.00	32.66	H	-4.9
23463.88888	---	30.39	54.00	23.61	H	-4.9
23463.88888	41.47	---	74.00	32.53	H	-4.9
24622.00000	42.25	---	74.00	31.75	H	-4.7
24622.00000	---	31.43	54.00	22.57	H	-4.7



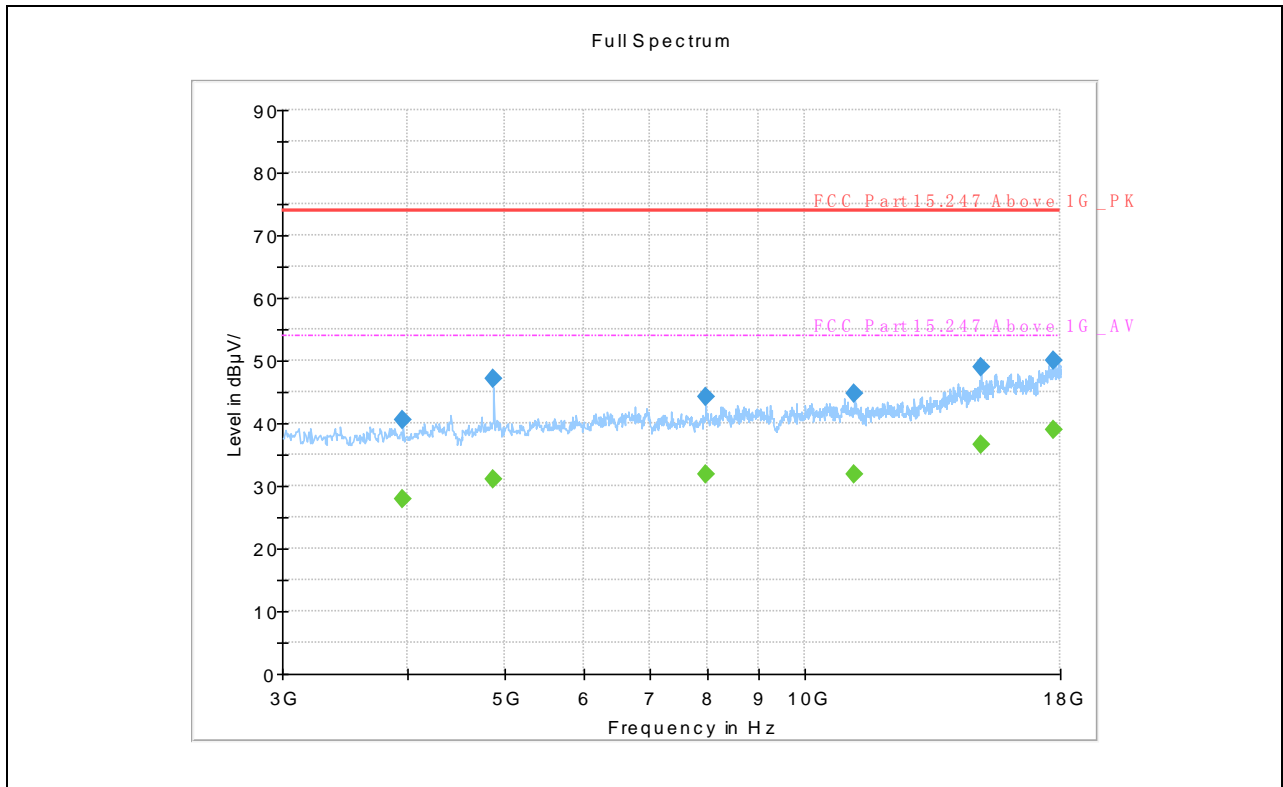
(Channel 41, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
43.202778	27.21	---	40.00	12.79	V	15.3
60.447222	21.74	---	40.00	18.26	V	14.6
129.856111	27.53	---	43.50	15.97	V	12.3
147.639444	24.66	---	43.50	18.84	V	10.9
482.774444	22.80	---	46.00	23.20	V	21.2
910.490556	28.64	---	46.00	17.36	V	28.0



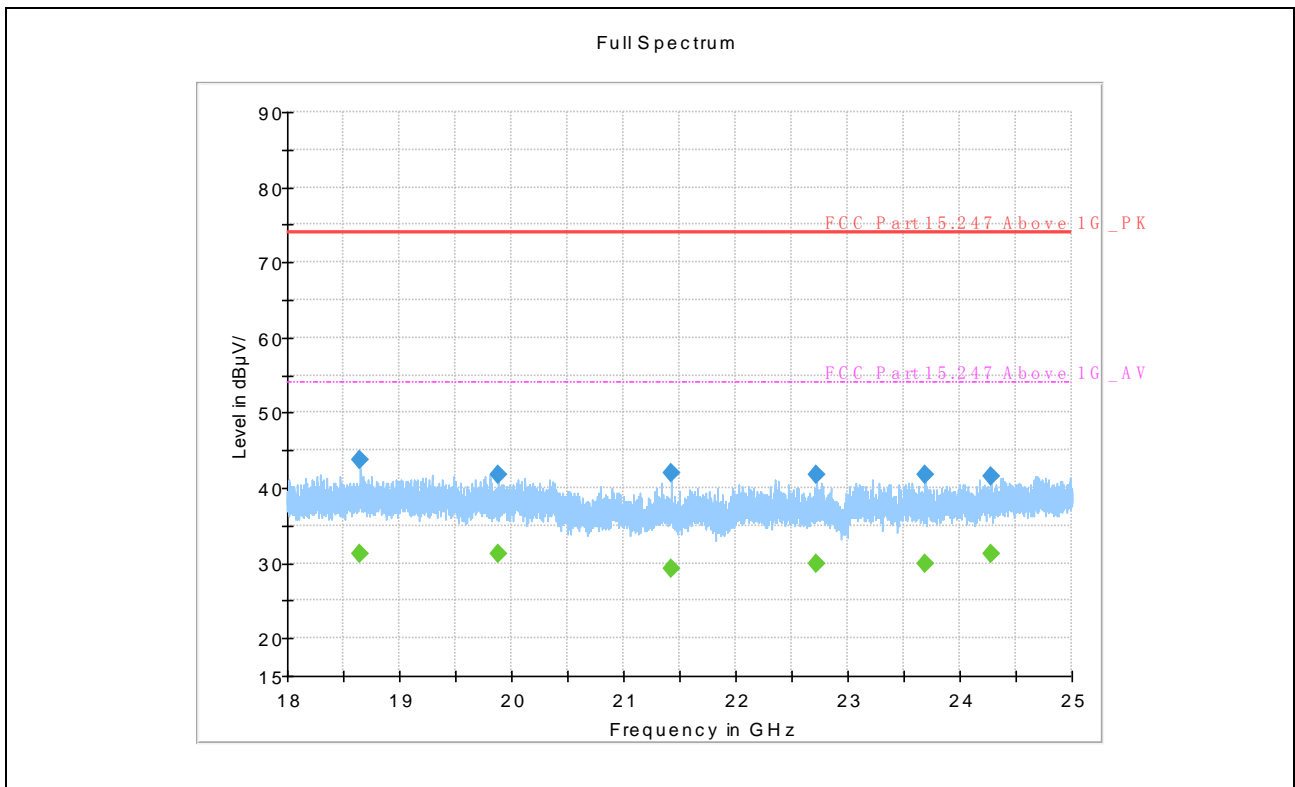
(Channel 41, Antenna Vertical, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
1470.000000	---	26.87	54.00	27.13	V	1.7
1470.000000	38.71	---	74.00	35.29	V	1.7
1825.000000	---	30.06	54.00	23.94	V	5.7
1825.000000	40.95	---	74.00	33.05	V	5.7
2080.000000	---	30.73	54.00	23.27	V	7.3
2080.000000	41.75	---	74.00	32.25	V	7.3
2375.000000	---	34.38	54.00	19.62	V	11.9
2375.000000	45.49	---	74.00	28.51	V	11.9
2550.000000	---	36.86	54.00	17.14	V	14.4
2550.000000	47.21	---	74.00	26.79	V	14.4
2940.000000	---	37.62	54.00	16.38	V	15.7
2940.000000	47.92	---	74.00	26.08	V	15.7



(Channel 41, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
3960.000000	40.45	---	74.00	33.55	V	-5.4
3960.000000	---	27.90	54.00	26.10	V	-5.4
4882.500000	---	31.00	54.00	23.00	V	-2.8
4882.500000	47.19	---	74.00	26.81	V	-2.8
7957.500000	---	31.84	54.00	22.16	V	1.4
7957.500000	44.28	---	74.00	29.72	V	1.4
11220.000000	44.64	---	74.00	29.36	V	3.1
11220.000000	---	31.97	54.00	22.03	V	3.1
15000.000000	48.99	---	74.00	25.01	V	10.6
15000.000000	---	36.48	54.00	17.52	V	10.6
17722.500000	50.11	---	74.00	23.89	V	14.7
17722.500000	---	38.82	54.00	15.18	V	14.7

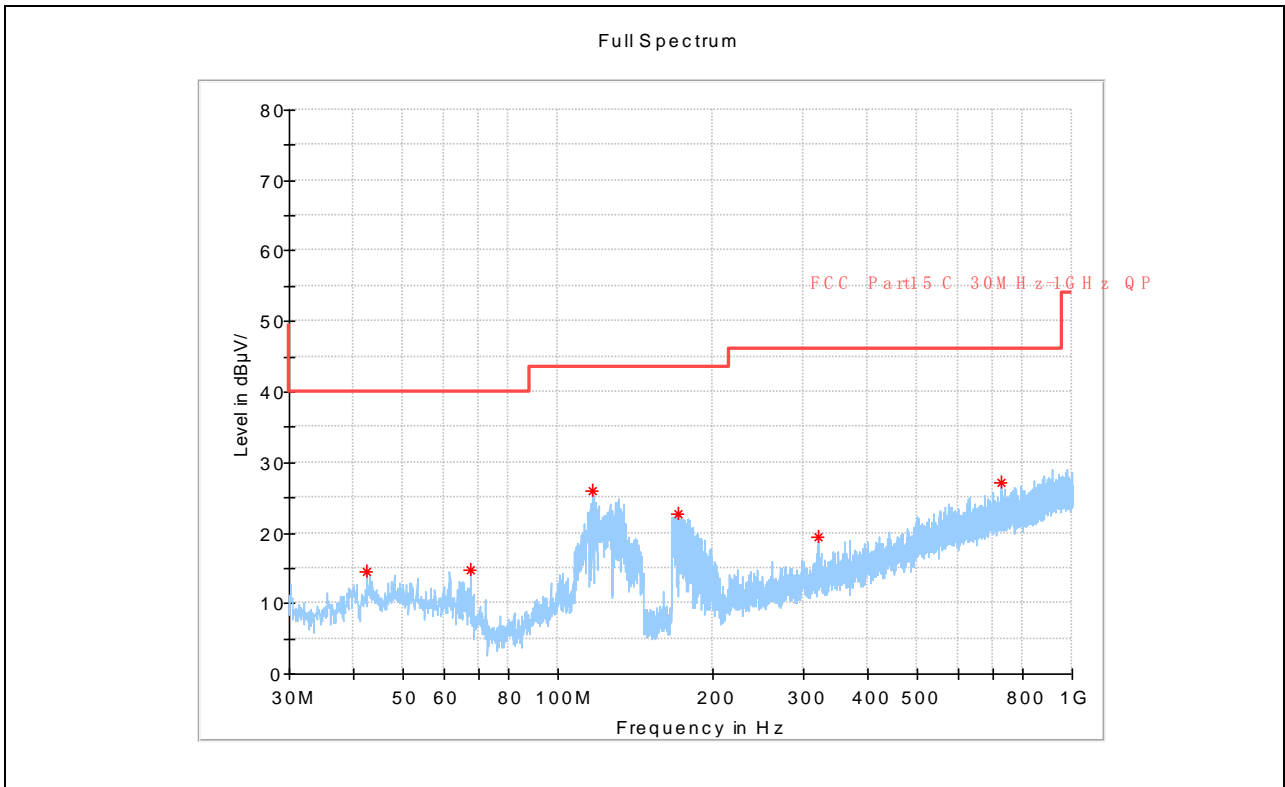


(Channel 41, Antenna Vertical, 18GHz to 25GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
18654.111111	43.67	---	74.00	30.33	V	-5.3
18654.111111	---	31.22	54.00	22.78	V	-5.3
19877.555555	---	31.12	54.00	22.88	V	-5.1
19877.555555	41.83	---	74.00	32.17	V	-5.1
21422.222222	---	29.34	54.00	24.66	V	-5.0
21422.222222	41.93	---	74.00	32.07	V	-5.0
22716.444444	---	30.00	54.00	24.00	V	-4.9
22716.444444	41.75	---	74.00	32.25	V	-4.9
23684.388888	41.78	---	74.00	32.22	V	-5.0
23684.388888	---	29.89	54.00	24.11	V	-5.0
24279.000000	---	31.23	54.00	22.77	V	-4.6
24279.000000	41.46	---	74.00	32.54	V	-4.6

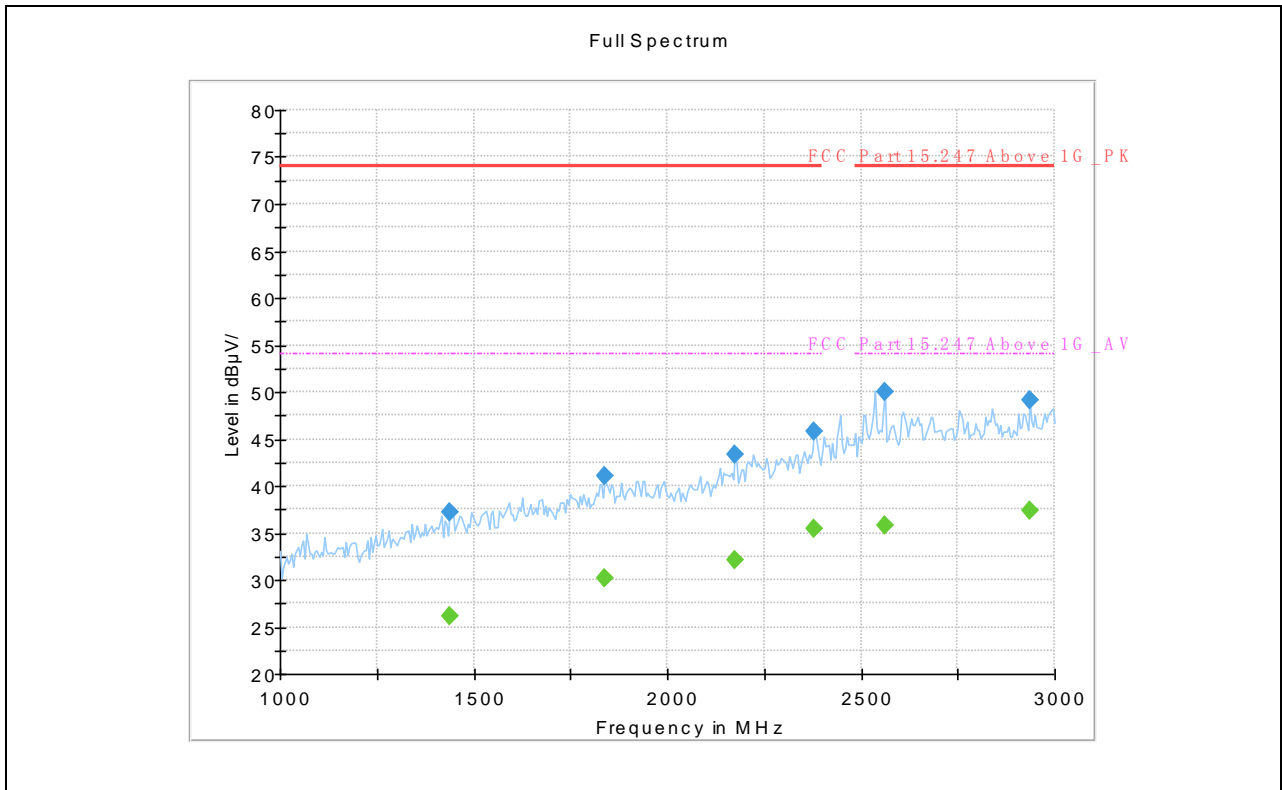


Plot for Channel = 79



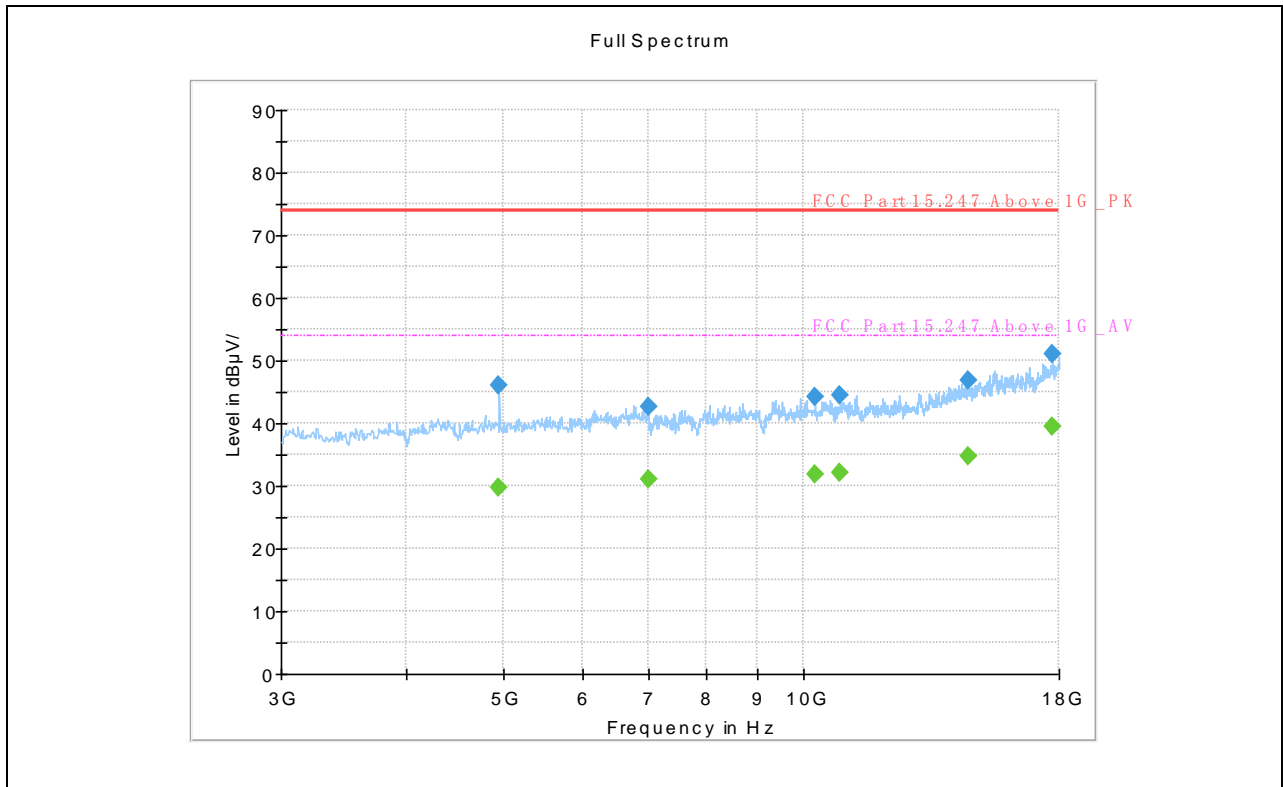
(Channel 79, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
42.502222	14.46	---	40.00	25.54	H	15.2
67.506667	14.71	---	40.00	25.29	H	12.6
116.868889	25.97	---	43.50	17.53	H	13.1
170.757778	22.79	---	43.50	20.71	H	12.3
319.760556	19.52	---	46.00	26.48	H	18.0
728.615556	27.21	---	46.00	18.79	H	25.3



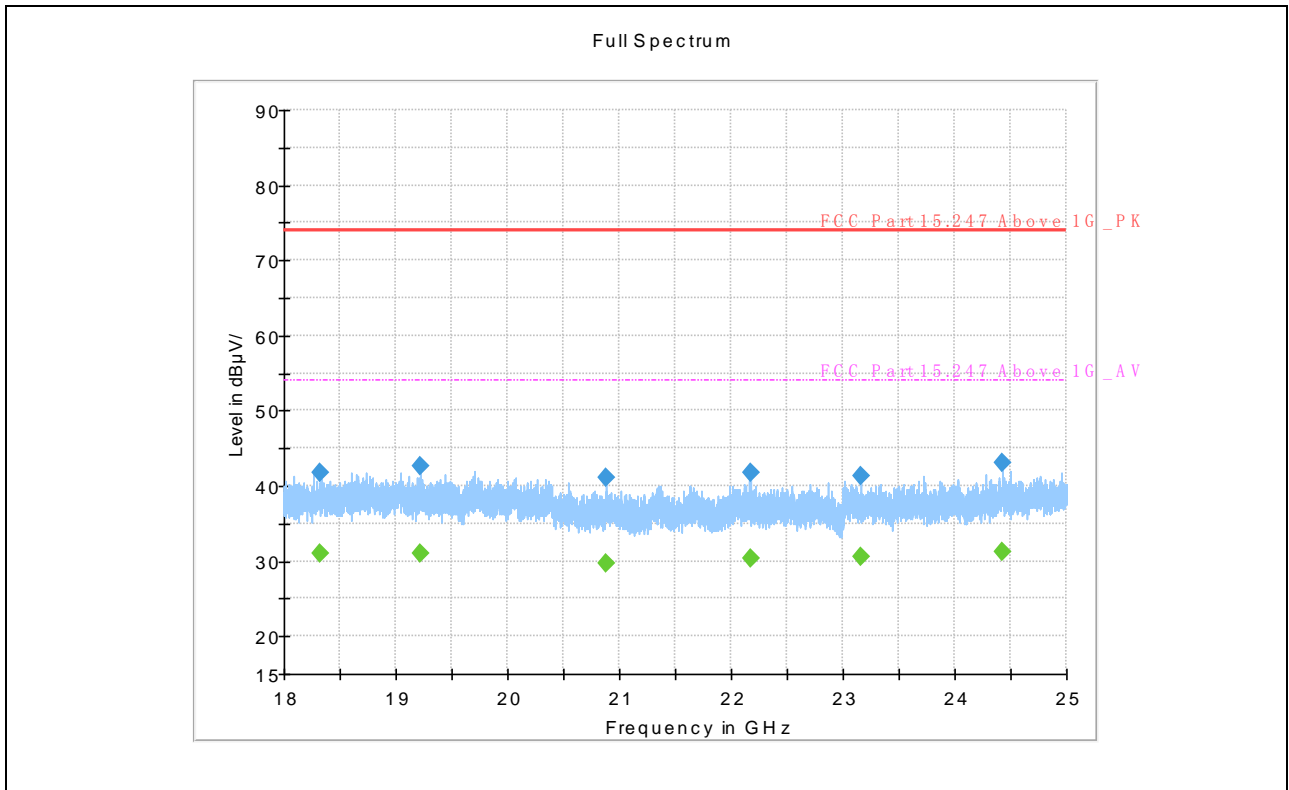
(Channel 79, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
1440.000000	---	26.11	54.00	27.89	H	1.0
1440.000000	37.20	---	74.00	36.80	H	1.0
1840.000000	---	30.09	54.00	23.91	H	5.9
1840.000000	41.09	---	74.00	32.91	H	5.9
2175.000000	---	32.15	54.00	21.85	H	8.8
2175.000000	43.25	---	74.00	30.75	H	8.8
2380.000000	45.87	---	74.00	28.13	H	12.0
2380.000000	---	35.52	54.00	18.48	H	12.0
2560.000000	---	35.79	54.00	18.21	H	14.0
2560.000000	50.06	---	74.00	23.94	H	14.0
2935.000000	49.17	---	74.00	24.83	H	15.7
2935.000000	---	37.45	54.00	16.55	H	15.7



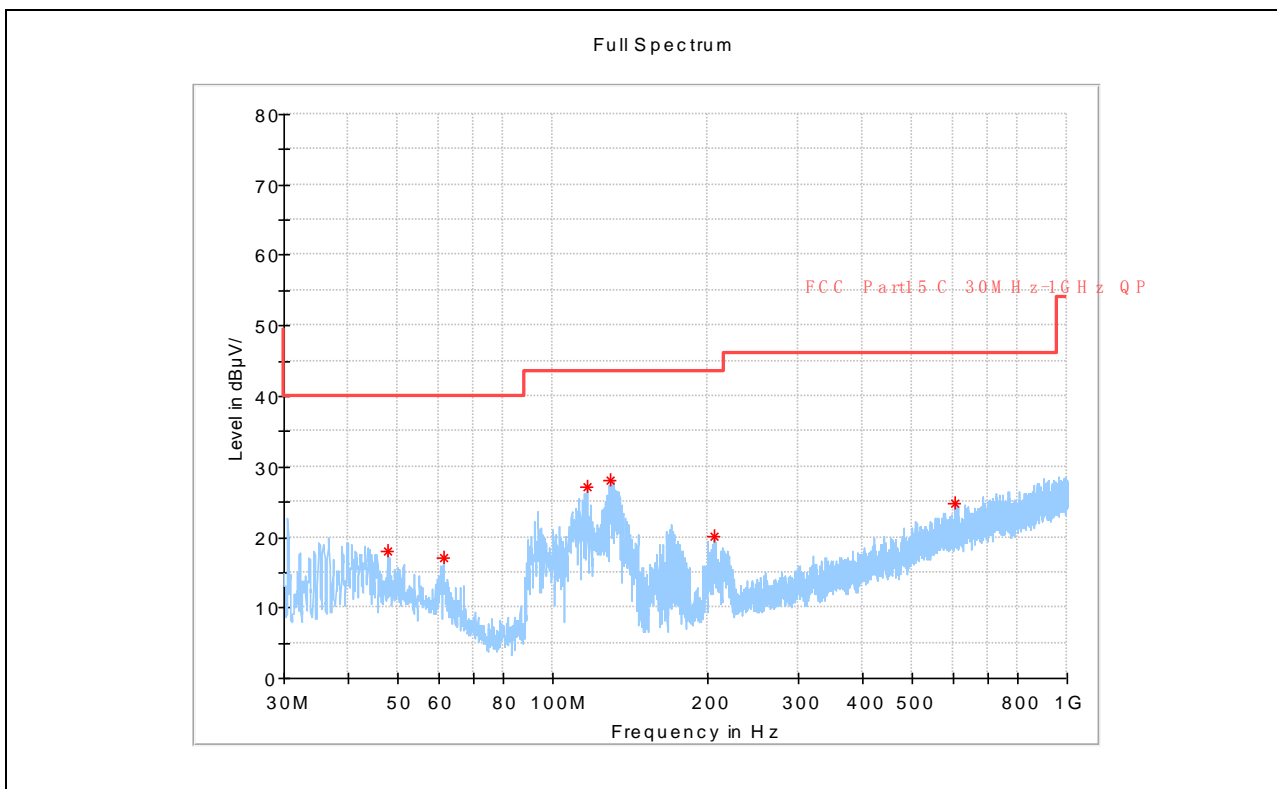
(Channel 79, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
4957.500000	---	29.71	54.00	24.29	H	-3.0
4957.500000	46.14	---	74.00	27.86	H	-3.0
6997.500000	42.70	---	74.00	31.30	H	-0.8
6997.500000	---	31.13	54.00	22.87	H	-0.8
10267.500000	---	31.92	54.00	22.08	H	2.3
10267.500000	44.27	---	74.00	29.73	H	2.3
10882.500000	---	32.09	54.00	21.91	H	3.1
10882.500000	44.58	---	74.00	29.42	H	3.1
14617.500000	46.74	---	74.00	27.26	H	8.6
14617.500000	---	34.70	54.00	19.30	H	8.6
17715.000000	---	39.45	54.00	14.55	H	14.6
17715.000000	51.06	---	74.00	22.94	H	14.6



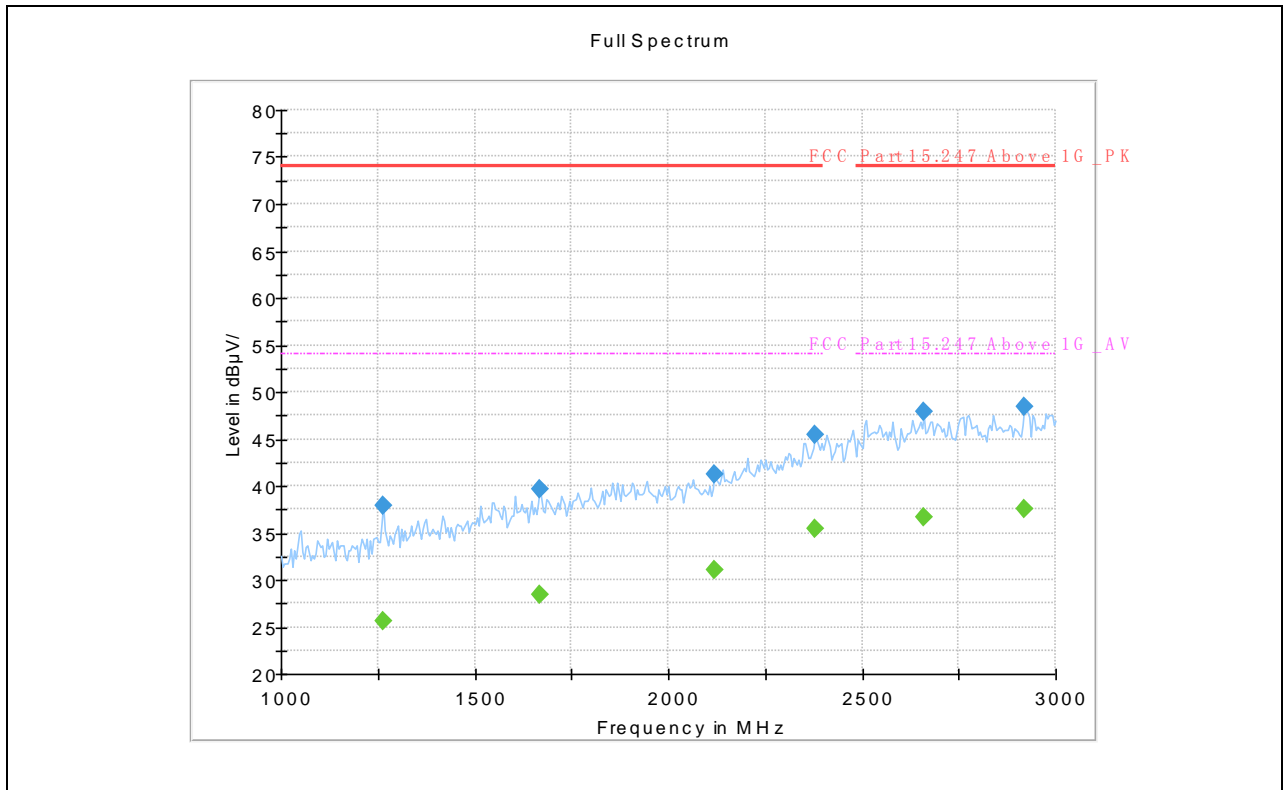
(Channel 79, Antenna Horizontal, 18GHz to 25GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
18324.33333	---	30.90	54.00	23.10	H	-5.4
18324.33333	41.83	---	74.00	32.17	H	-5.4
19223.83333	---	30.99	54.00	23.01	H	-5.4
19223.83333	42.70	---	74.00	31.30	H	-5.4
20883.61111	41.19	---	74.00	32.81	H	-5.1
20883.61111	---	29.68	54.00	24.32	H	-5.1
22170.83333	41.66	---	74.00	32.34	H	-5.1
22170.83333	---	30.28	54.00	23.72	H	-5.1
23167.94444	41.33	---	74.00	32.67	H	-5.0
23167.94444	---	30.58	54.00	23.42	H	-5.0
24431.83333	43.17	---	74.00	30.83	H	-4.6
24431.83333	---	31.21	54.00	22.79	H	-4.6



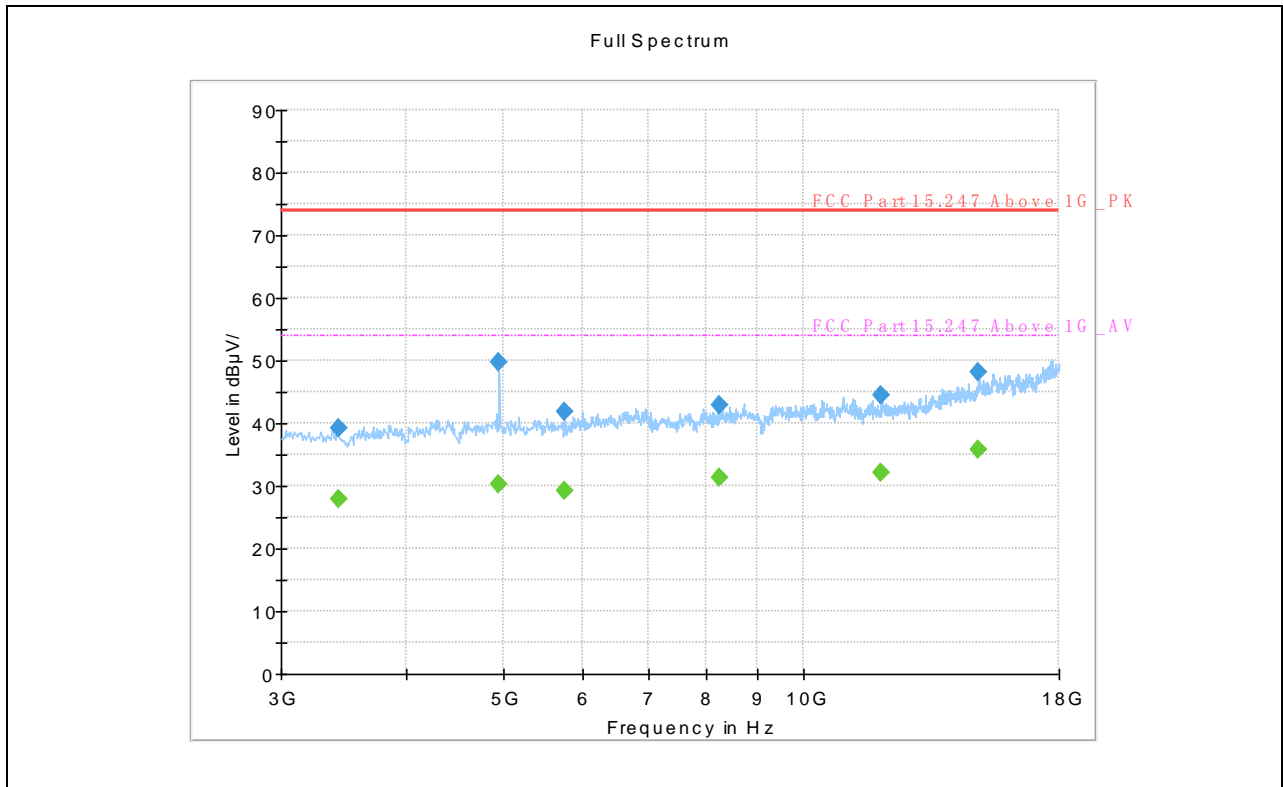
(Channel 79, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
47.675556	18.11	---	40.00	21.89	V	15.5
61.363333	16.97	---	40.00	23.03	V	14.0
116.868889	27.02	---	43.50	16.48	V	13.1
129.856111	28.03	---	43.50	15.47	V	12.3
206.540000	20.21	---	43.50	23.29	V	13.5
605.856667	24.77	---	46.00	21.23	V	23.5



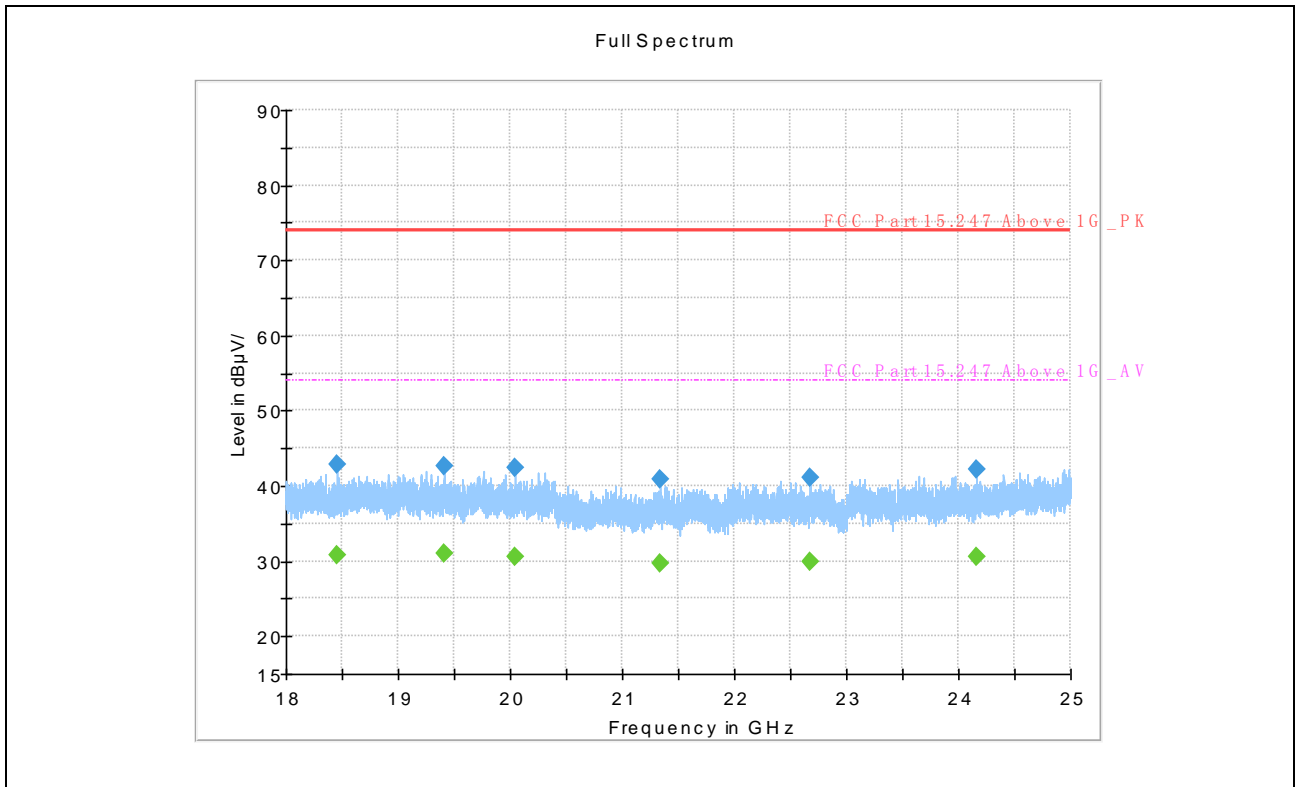
(Channel 79, Antenna Vertical, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
1265.000000	37.85	---	74.00	36.15	V	1.7
1265.000000	---	25.61	54.00	28.39	V	1.7
1670.000000	---	28.40	54.00	25.60	V	5.7
1670.000000	39.60	---	74.00	34.40	V	5.7
2120.000000	41.23	---	74.00	32.77	V	7.3
2120.000000	---	31.04	54.00	22.96	V	7.3
2380.000000	45.40	---	74.00	28.60	V	11.9
2380.000000	---	35.50	54.00	18.50	V	11.9
2660.000000	---	36.69	54.00	17.31	V	14.4
2660.000000	47.93	---	74.00	26.07	V	14.4
2920.000000	48.50	---	74.00	25.50	V	15.7
2920.000000	---	37.56	54.00	16.44	V	15.7



(Channel 79, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
3420.000000	39.09	---	74.00	34.91	V	-5.9
3420.000000	---	27.98	54.00	26.02	V	-5.9
4957.500000	---	30.21	54.00	23.79	V	-3.0
4957.500000	49.78	---	74.00	24.22	V	-3.0
5767.500000	---	29.26	54.00	24.74	V	-2.7
5767.500000	41.78	---	74.00	32.22	V	-2.7
8242.500000	42.77	---	74.00	31.23	V	1.3
8242.500000	---	31.31	54.00	22.69	V	1.3
11962.500000	44.41	---	74.00	29.59	V	3.8
11962.500000	---	32.23	54.00	21.77	V	3.8
14970.000000	48.11	---	74.00	25.89	V	10.0
14970.000000	---	35.85	54.00	18.15	V	10.0



(Channel 79, Antenna Vertical, 18GHz to 25GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
18449.94444	42.94	---	74.00	31.06	V	-5.3
18449.94444	---	30.78	54.00	23.22	V	-5.3
19408.94444	---	31.03	54.00	22.97	V	-5.4
19408.94444	42.71	---	74.00	31.29	V	-5.4
20047.50000	42.38	---	74.00	31.62	V	-5.0
20047.50000	---	30.53	54.00	23.47	V	-5.0
21331.61111	---	29.73	54.00	24.27	V	-4.9
21331.61111	40.83	---	74.00	33.17	V	-4.9
22677.55555	41.08	---	74.00	32.92	V	-4.9
22677.55555	---	29.92	54.00	24.08	V	-4.9
24168.55555	42.26	---	74.00	31.74	V	-4.6
24168.55555	---	30.65	54.00	23.35	V	-4.6





## Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Peak Output Power	$\pm 2.22\text{dB}$
Power spectral density (PSD)	$\pm 2.22\text{dB}$
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	$\pm 2.77\text{ dB}$
Restricted Frequency Bands	$\pm 5\%$
Radiated Emission	$\pm 3.1\text{dB}$
Conducted Emission	$\pm 1.8\text{dB}$

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$



## Annex B Testing Laboratory Information

### 1. Identification of the Responsible Testing Laboratory

<b>Company Name:</b>	Kehu-Morlab Test Laboratory
<b>Address:</b>	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian), P.R. China
<b>Responsible Test Lab Manager:</b>	Mr. Di Dehai
<b>Telephone:</b>	+86-592-5612050
<b>Facsimile:</b>	+86-592-5612095

### 2. Identification of the Responsible Testing Location

<b>Name:</b>	Kehu-Morlab Test Laboratory
<b>Address:</b>	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian), P.R. China

### 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian), P.R. China.

The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1249.

### 4. Test Equipments Utilized

#### 4.1 Conducted Test Equipments

ECIT Eagle RF test system						
No	Equipment Name	Serial No.	Model No.	Manufacturer	Cal.Date	Cal.Due Date
1	MXA Signal Analyzer	MY53421845	N9020A	Keysight	2017.11.30	2018.11.29
2	RF cable (30MHz-26.5GHz)	RF01	N/A	Morlab	N/A	N/A
3	Coaxial cable	RF02	N/A	Morlab	N/A	N/A
4	SMA connector	RF03	N/A	Xingbo	N/A	N/A

**Software Version: Eagle 2.0**

**4.2 Conducted Emission Test Equipments**

No.	Equipment Name	Serial No.	Model No.	Manufacturer	Cal.Date	Cal.Due Date
1	EMI Receiver	102174	ESR3	ESR3	2017.11.27	2018.11.26
2	LISN	101338	ENV432	ENV432	2017.11.27	2018.11.26
3	Pulse Limiter (10dB)	317	VTSD 9561 F	VTSD 9561 F	2017.11.27	2018.11.26
4	Coaxial cable(BNC) (30MHz-3GHz)	EMC01	N/A	Morlab	N/A	N/A

**4.3 Auxiliary Test Equipment**

No.	Equipment Name	Serial No.	Model No.	Manufacturer	Cal.Date	Cal. Due Date
1	AC Adapter	N/A	LTE05UW -S1-BS	L.T.E	N/A	N/A
2	Test jig	N/A	EXN-RF2 1-01 tool p6	Easy-Measure Co.,Ltd.	N/A	N/A

**4.4 List of Software Used**

No.	Model	Version Number	Producer	Test Item
1	EMC32	V10.00.00	Rode&Schwarz	RE
2	EMC32	V10.20.01	Rode&Schwarz	CE

**4.5 Radiated Test Equipments**

RSE Test System						
No.	Equipment Name	Serial No.	Model No.	Manufacturer	Cal. Date	Cal.Due Date
1	Anechoic Chamber	N/A	9m*6m*6m	ETS-Lindgren	2017.11.27	2018.11.26
2	Signal Analyzer	101294	FSV40	R&S	2017.12.01	2018.11.30
3	Active Ring Antenna	FMZB 1513 #269	FMZB 1513	Schwarzbeck	2017.11.26	2018.11.25
4	Linear Log Periodic Broad Band Antenna	949	VULB 9163	Schwarzbeck	2017.12.03	2018.12.2
5	Ultra-Wideband Horn Antenna	102615	HF907	R&S	2017.12.03	2018.12.2



6	Steatite Antennas	17868	QSH-SL-1 8-26-S-20	Seibersdorf	2018.01.18	2019.01.17
7	RF Switch and Control Platform	N/A	RSC	CDSI	N/A	N/A
8	Coaxial cable (N male) (9kHz -3GHz)	EMC02	N/A	Morlab	N/A	N/A
9	Coaxial cable (N male) (9kHz -3GHz)	EMC03	N/A	Morlab	N/A	N/A
10	Coaxial cable (N male) (1GHz-26.5GHz)	EMC04	N/A	Morlab	N/A	N/A
11	Coaxial cable (N male) (1GHz-26.5GHz)	EMC05	N/A	Morlab	N/A	N/A
12	Pre-amplifier (1GHz-18GHz)	8810011	PAP-1G18	CDSI	2017.11.27	2018.11.26
13	Pre-amplifier (18GHz-40GHz)	17021-17024	PAP-1840	CDSI	2018.07.05	2019.07.04

\_\_\_\_\_ END OF REPORT \_\_\_\_\_