



REPORT No. : XM190700036W01

# TEST REPORT

**MANUFACTURER** : Hot Pepper, Inc.

**PRODUCT NAME** : 4G Feature Phone

**MODEL NAME** : HPP-LF2

**BRAND NAME** : Hot Pepper

**FCC ID** : 2APD4-A90L

**STANDARD(S)** : 47 CFR Part 15 Subpart C

**RECEIPT DATE** : 2019-08-21

**TEST DATE** : 2019-08-21 to 2020-01-20

**ISSUE DATE** : 2020-01-20

Edited by :

*Lai Huihuang*

Lai Huihuang (Test engineer)

Review by:

*Elvis*

Elvis Wang (Auditor)

Approved by:

*Anne Liu*

Anne Liu ( Supervisor )

**NOTE:** 1.The report is invalid when there is no the approver signature and the special stamp for test report. 2.The test report shall not be reproduced except in full without prior written permission of the company. 3.The report copy is invalid when there is no the special stamp for test report. 4.The altered report is invalid. 5.The entrust test is responsibility for the received sample only



## DIRECTORY

<b>1. Technical Information</b> .....	<b>3</b>
<b>1.1. Applicant and Manufacturer Information</b> .....	<b>3</b>
<b>1.2. Equipment Under Test (EUT) Description</b> .....	<b>3</b>
<b>1.3. Test Standards and Results</b> .....	<b>5</b>
<b>1.4. Environmental Conditions</b> .....	<b>5</b>
<b>2. 47 CFR Part 15C Requirements</b> .....	<b>6</b>
<b>2.1. Antenna requirement</b> .....	<b>6</b>
<b>2.2. Peak Output Power</b> .....	<b>7</b>
<b>2.3. 6dB Bandwidth</b> .....	<b>10</b>
<b>2.4. Conducted Spurious Emissions and Band Edge</b> .....	<b>13</b>
<b>2.5. Power spectral density (PSD)</b> .....	<b>19</b>
<b>2.6. Restricted Frequency Bands</b> .....	<b>22</b>
<b>2.7. Conducted Emission</b> .....	<b>37</b>
<b>2.8. Radiated Emission</b> .....	<b>41</b>
<b>Annex A Test Uncertainty</b> .....	<b>99</b>
<b>Annex B Testing Laboratory Information</b> .....	<b>100</b>

Change History		
Version	Date	Reason for change
1.0	2020-01-20	First edition



# 1. Technical Information

**Note:** Provide by applicant.

## 1.1. Applicant and Manufacturer Information

<b>Applicant:</b>	Hot Pepper, Inc.
<b>Applicant Address:</b>	5151 California Ave., Suite 100, Irvine 92617, USA
<b>Manufacturer:</b>	Hot Pepper, Inc.
<b>Manufacturer Address:</b>	5151 California Ave., Suite 100, Irvine 92617, USA

## 1.2. Equipment Under Test (EUT) Description

<b>Product Name:</b>	4G Feature Phone	
<b>Serial No:</b>	(N/A, marked #1 by test site)	
<b>Hardware Version:</b>	A90L_MAINBOARD_P1	
<b>Software Version:</b>	HPP-LF2-V1.0.3-190809	
<b>Modulation Type:</b>	GFSK	
<b>Operating Frequency Range:</b>	2402MHz - 2480MHz (40 channels, at intervals of 2MHz);	
<b>Bluetooth Version:</b>	Bluetooth 4.2 LE	
<b>Antenna Type:</b>	PIFA Antenna	
<b>Antenna Gain:</b>	0.3dBi	
<b>Accessory Information:</b>	Battery	
	Manufacturer:	Shenzhen HUATIANTONG TECHNOLOGY CO.LTD
	Brand Name:	Hot Pepper
	Model No.:	HPP-LF2
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	1700mAh
	Rated Voltage:	3.80V
	Charge Limit:	4.35V
	AC Adapter	
	Manufacturer:	Shenzhen Tianyin Electronics Co.,Ltd.
	Brand Name:	Hot Pepper
	Model No.:	TPA-46B050100UU
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V ~ 50/60Hz 0.2A



REPORT No. : XM190700036W01

	Rated Output:	5V=1.0A
--	---------------	---------

**Note 1:** The EUT contains Bluetooth Module operating at 2.4GHz ISM band; the frequencies is  $F(\text{MHz})=2402+2*n$  ( $0 \leq n \leq 39$ ). The lowest, middle, highest channel numbers of the Bluetooth Module used and tested in this report are separately 0 (2402MHz), 19 (2440MHz) and 39 (2480MHz).

**Note 2:** The EUT connected to the serial port of the computer 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 (Bluetooth, 2.4GHz ISM band radiators) 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	Aug 28 2019 Nov 02 2019	Lai Huihuang	PASS
3	15.247(a)	Bandwidth	Aug 21 2019	Lai Huihuang	PASS
4	15.247(d)	Conducted Spurious Emission and Band Edge	Jan 20 2020	Lai Huihuang	PASS
5	15.247(e)	Power spectral density (PSD)	Aug 21 2019 Nov 02 2019	Lai Huihuang	PASS
6	15.247(d)	Restricted Frequency Bands	Sep 6 2019	Yaming Luo	PASS
7	15.207	Conducted Emission	Sep 6 2019	Yaming Luo	PASS
8	15.209, 15.247(d)	Radiated Emission	Sep 6 2019	Yaming Luo	PASS

**Note:** The tests were performed according to the method of measurements prescribed in ANSIC63.10-2013 and KDB558074 a.D01 15.247 Meas Guidance v05r02

## 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

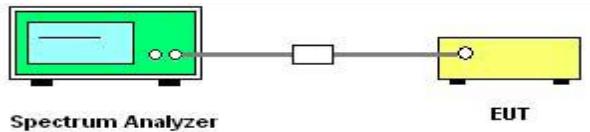
### 2.2.1. Requirement

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.

### 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 1MHz
- c) Set VBW to 3MHz
- d) Set span to 3MHz
- 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	
0	2402	4.87	0.003	30	1	PASS
19	2440	4.38	0.002			PASS
39	2480	4.13	0.002			PASS

### B. Test Plots:



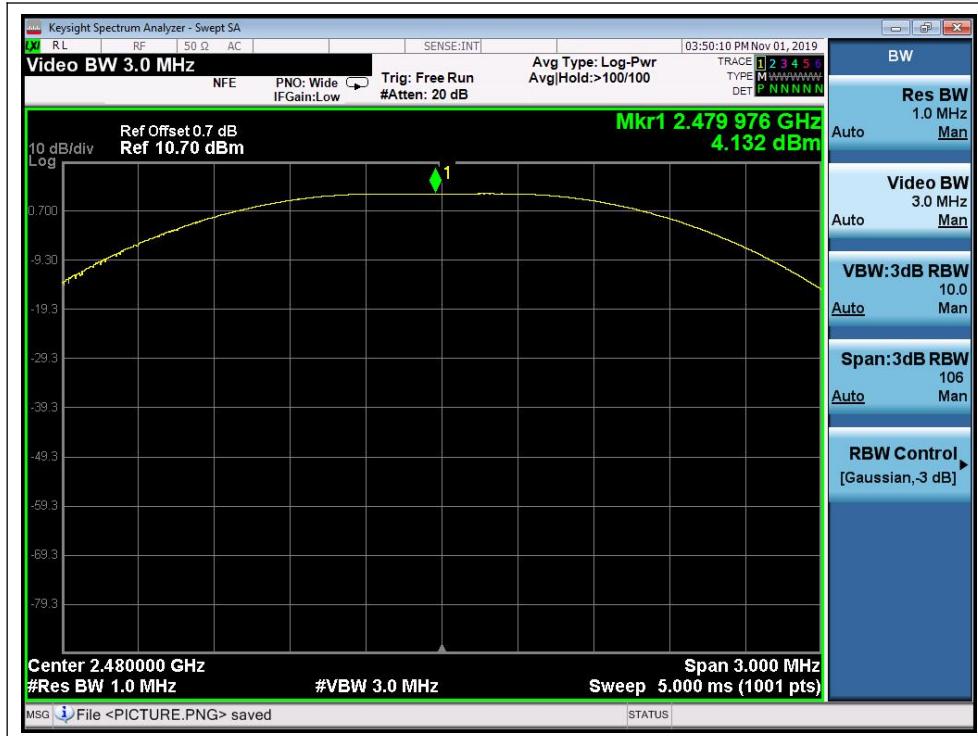
(Channel 0, 2402MHz)



REPORT No. : XM190700036W01



(Channel 19, 2440MHz)



(Channel 39, 2480MHz)

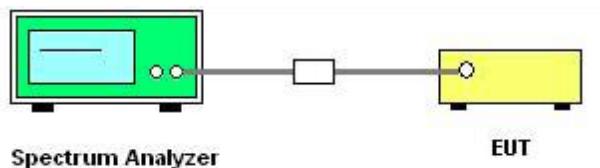
## 2.3. 6dB Bandwidth

### 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.

### 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 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 dB.

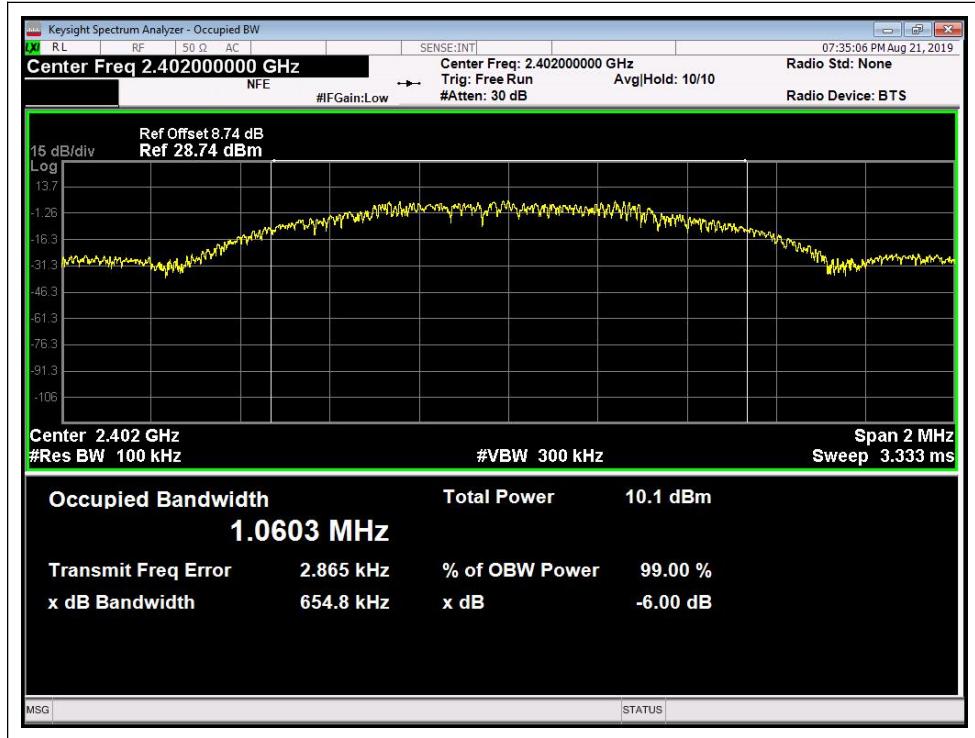
#### 2.3.4. Test Result

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	0.654	$\geq$ 500	PASS
19	2440	0.670	$\geq$ 500	PASS
39	2480	0.654	$\geq$ 500	PASS

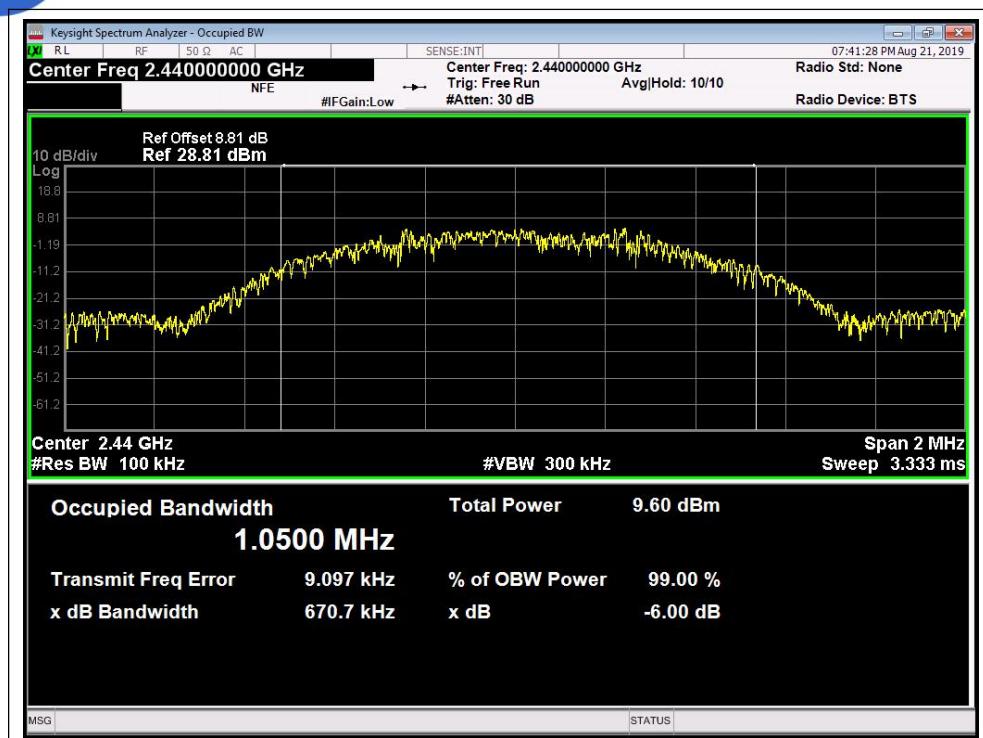
##### B. Test Plots:



(Channel 0: 2402MHz)



REPORT No. : XM190700036W01



(Channel 19: 2440 MHz)



(Channel 39: 2480MHz)

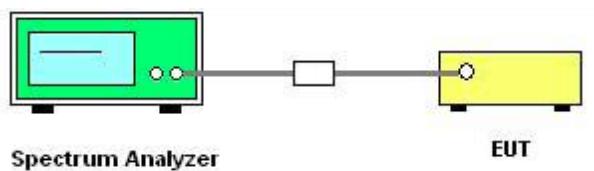
## 2.4. Conducted Spurious Emissions and Band Edge

### 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.

### 2.4.3. Test Result

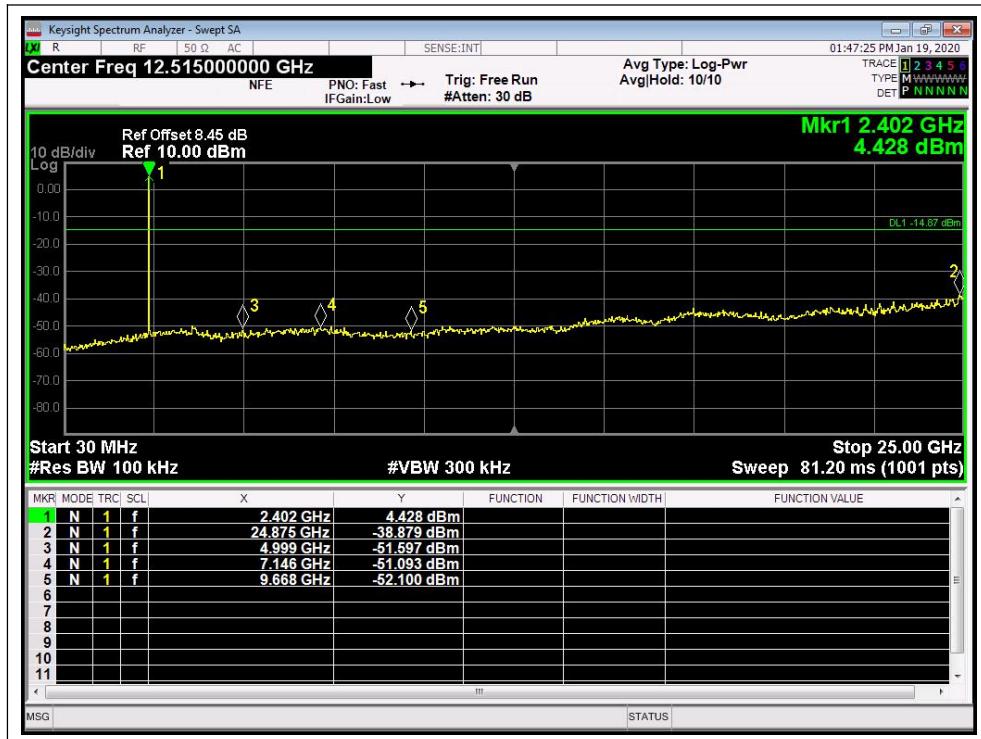
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions.

**A. Test Plots:**

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



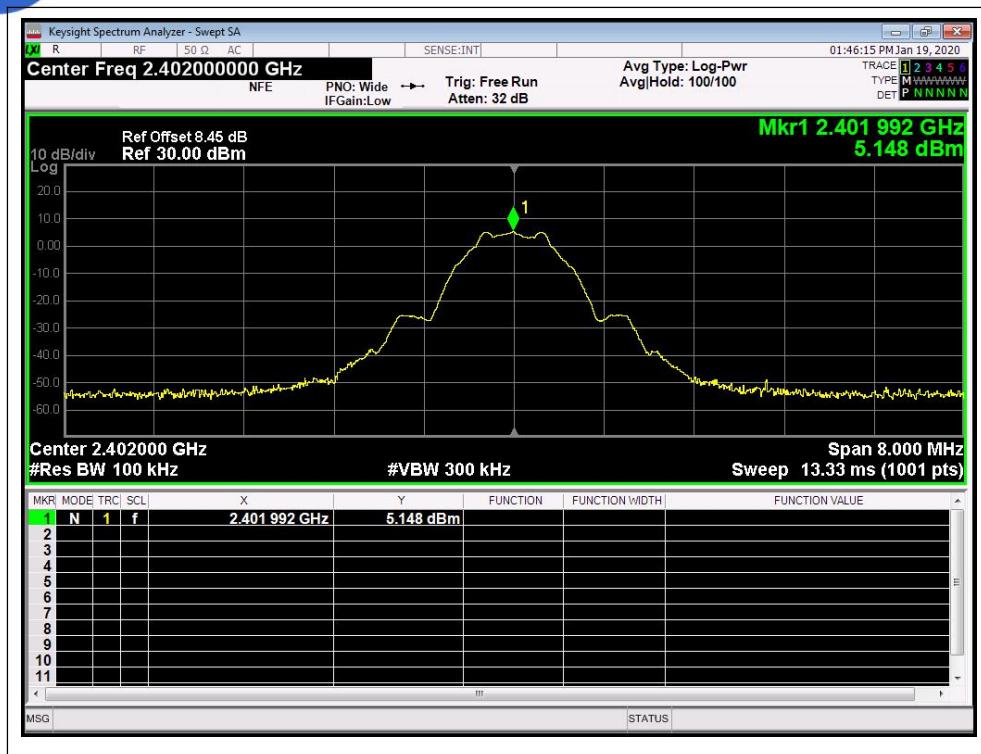
(Channel = 0, Conducted Spurious Emissions, carrier power)



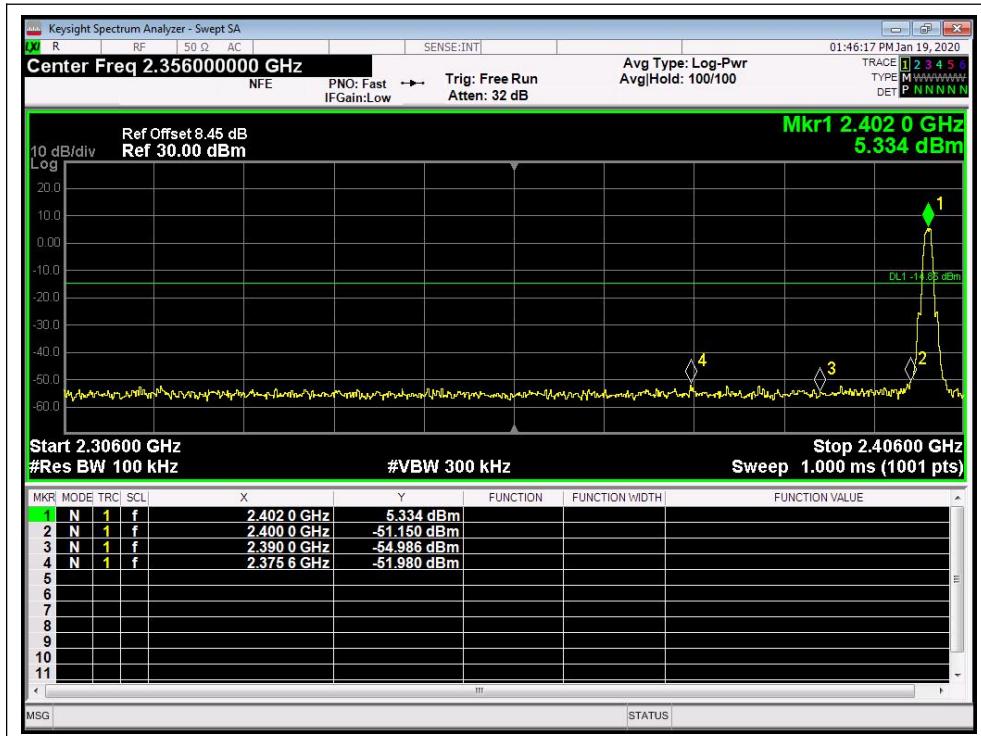
(Channel = 0, 30MHz to 25GHz)



REPORT No. : XM190700036W01



(Band Edge, Channel = 0 carrier power)



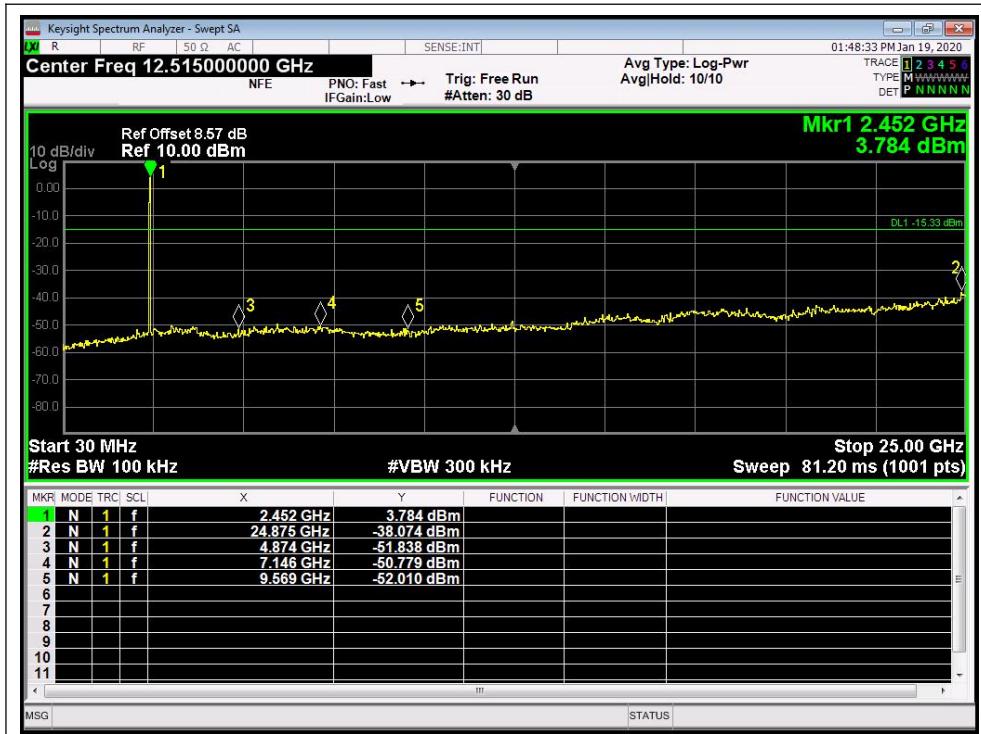
(Band Edge, Channel = 0)



REPORT No. : XM190700036W01



(Channel = 19, Conducted Spurious Emissions, carrier power)



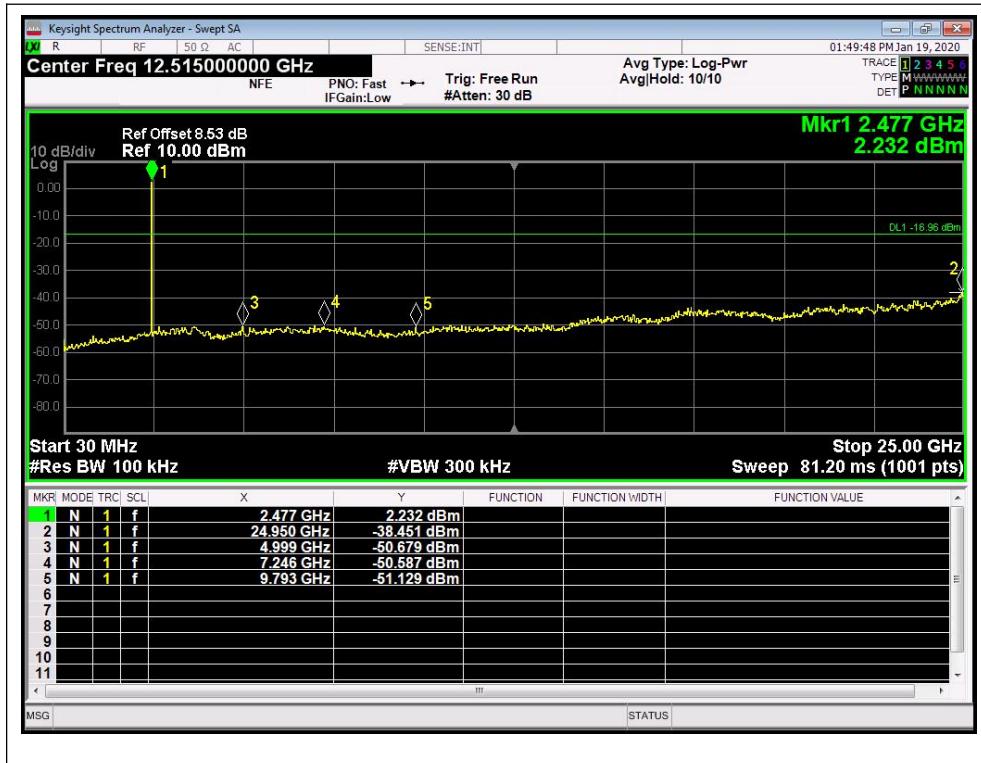
(Channel = 19, 30MHz to 25GHz)



REPORT No. : XM190700036W01



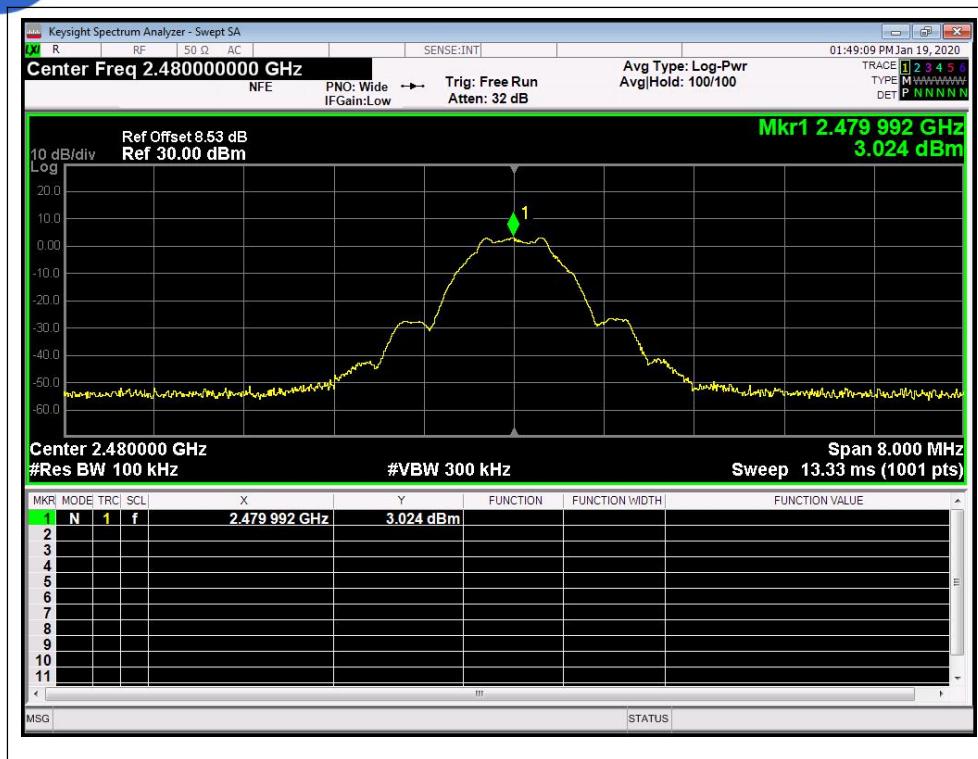
(Channel = 39, Conducted Spurious Emissions, carrier power)



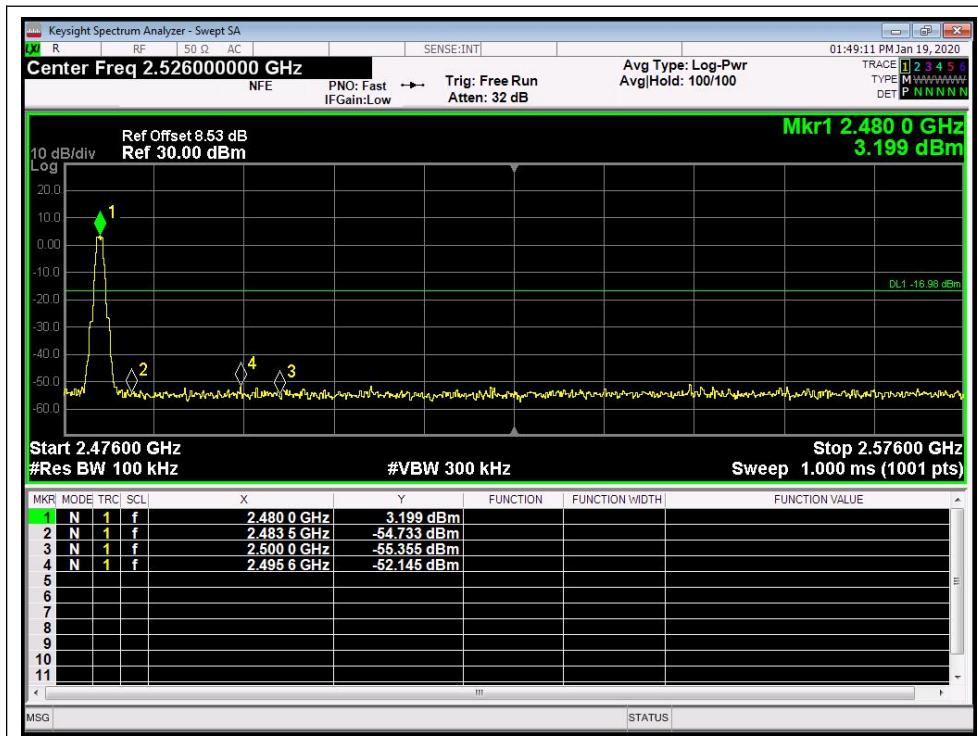
(Channel = 39, 30MHz to 25GHz)



REPORT No. : XM190700036W01



(Band Edge, Channel = 39 carrier power)



(Band Edge, Channel = 39)

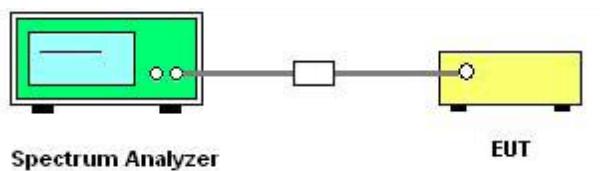
## 2.5. Power spectral density (PSD)

### 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.

### 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

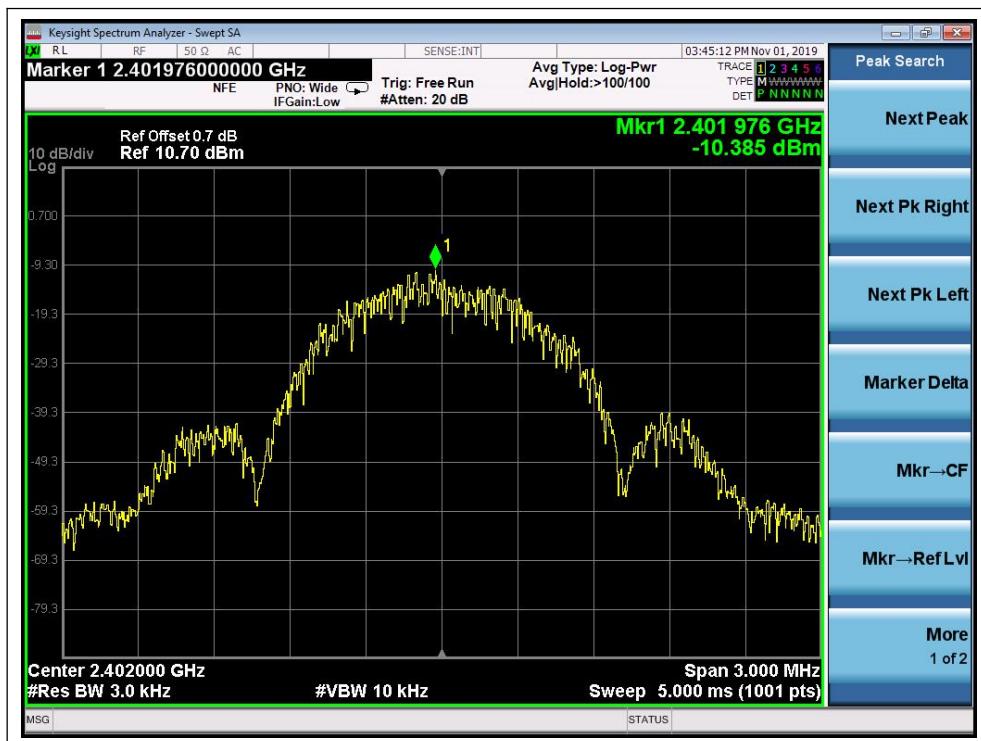
The lowest, middle and highest channels are tested.

### A. Test Verdict:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
0	2402	-10.385	8	PASS
19	2440	-10.832	8	PASS
39	2480	-11.058	8	PASS

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

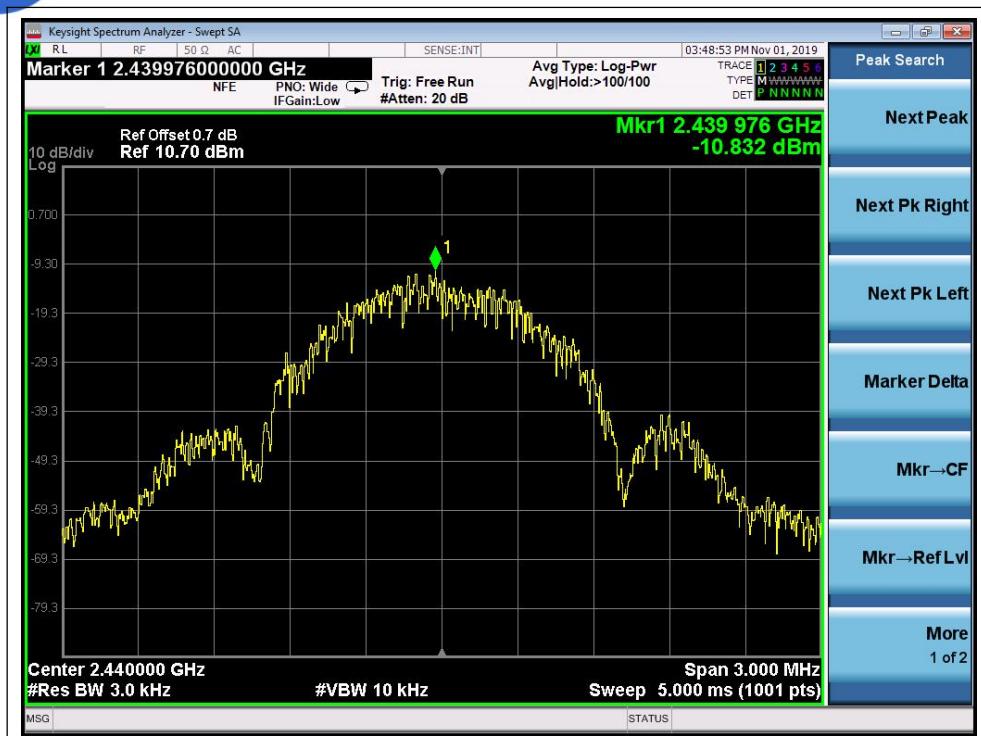
### B. Test Plots:



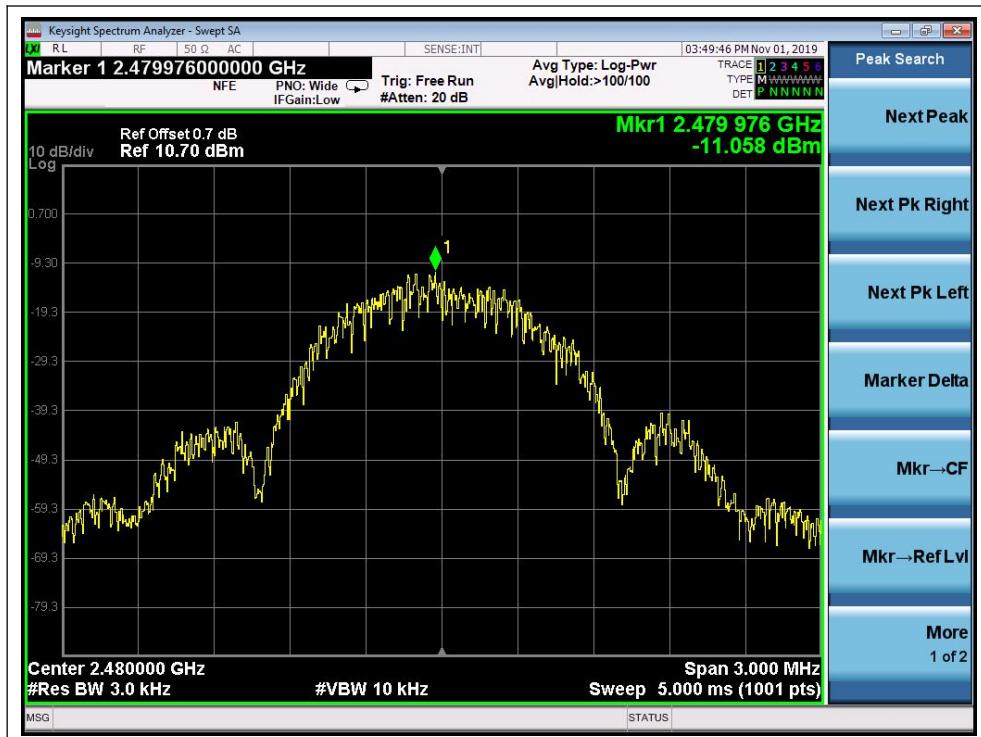
(Channel = 0, 2402MHz)



REPORT No. : XM190700036W01



(Channel = 19, 2440MHz)



(Channel = 39, 2480MHz)

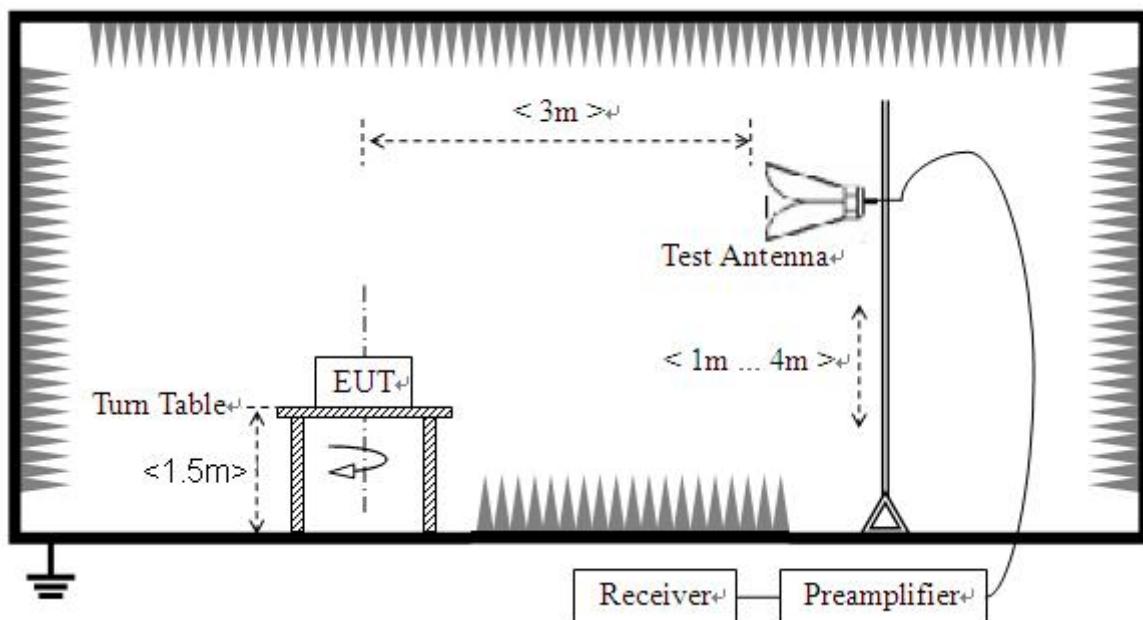
## 2.6. Restricted Frequency Bands

### 2.6.1. Requirement<sup>i</sup>

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 was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.



- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasipeak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle  $< 98\%$ ) or 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

## B. Equipments List:

Please refer ANNEX B.



### 2.6.3. Test Result

The lowest and highest channels are tested to verify 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

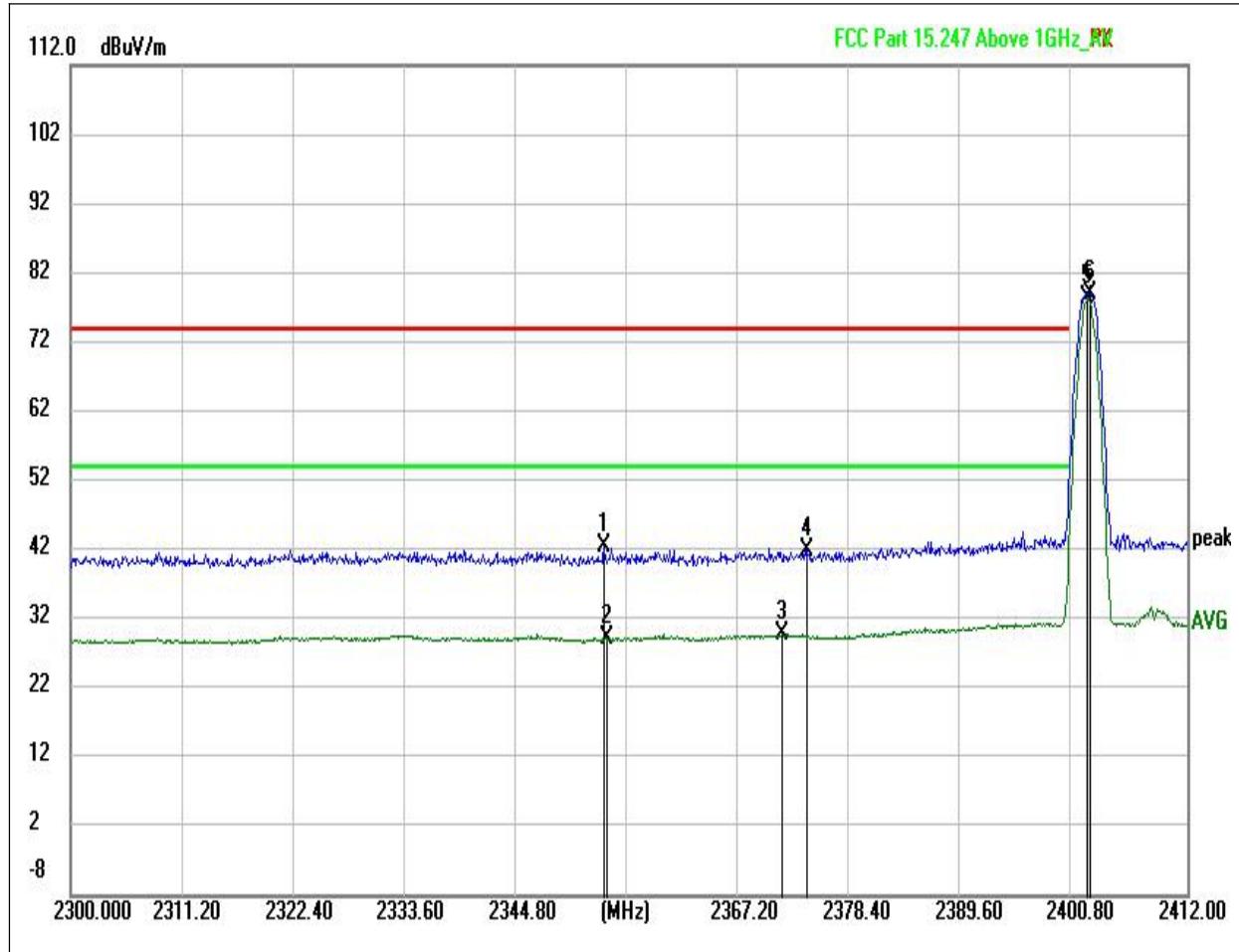
$G_{\text{preamp}}$ : Preamplifier Gain

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



REPORT No. : XM190700036W01

## Test Plots:

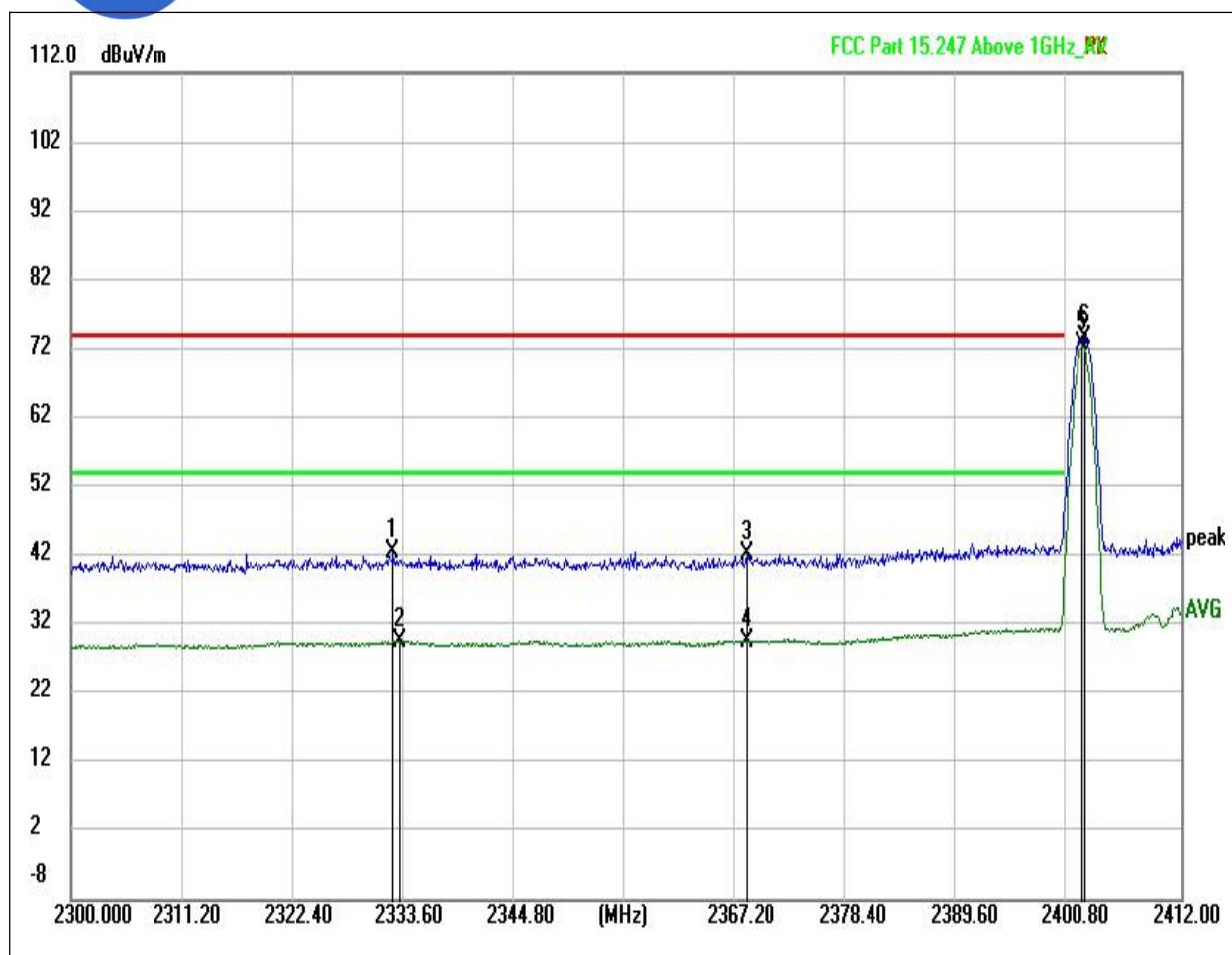


(BLE 1M PHY\_2402MHz, Antenna Horizontal)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2353.536	42.41	---	74.00	31.59	H	7.66
2353.760	---	29.38	54.00	24.62	H	7.66
2371.344	---	29.94	54.00	24.06	H	7.32
2373.920	41.93	---	74.00	32.07	H	7.28
2402.032	---	78.33	---	---	H	8.69
2402.256	79.01	---	---	---	H	8.69

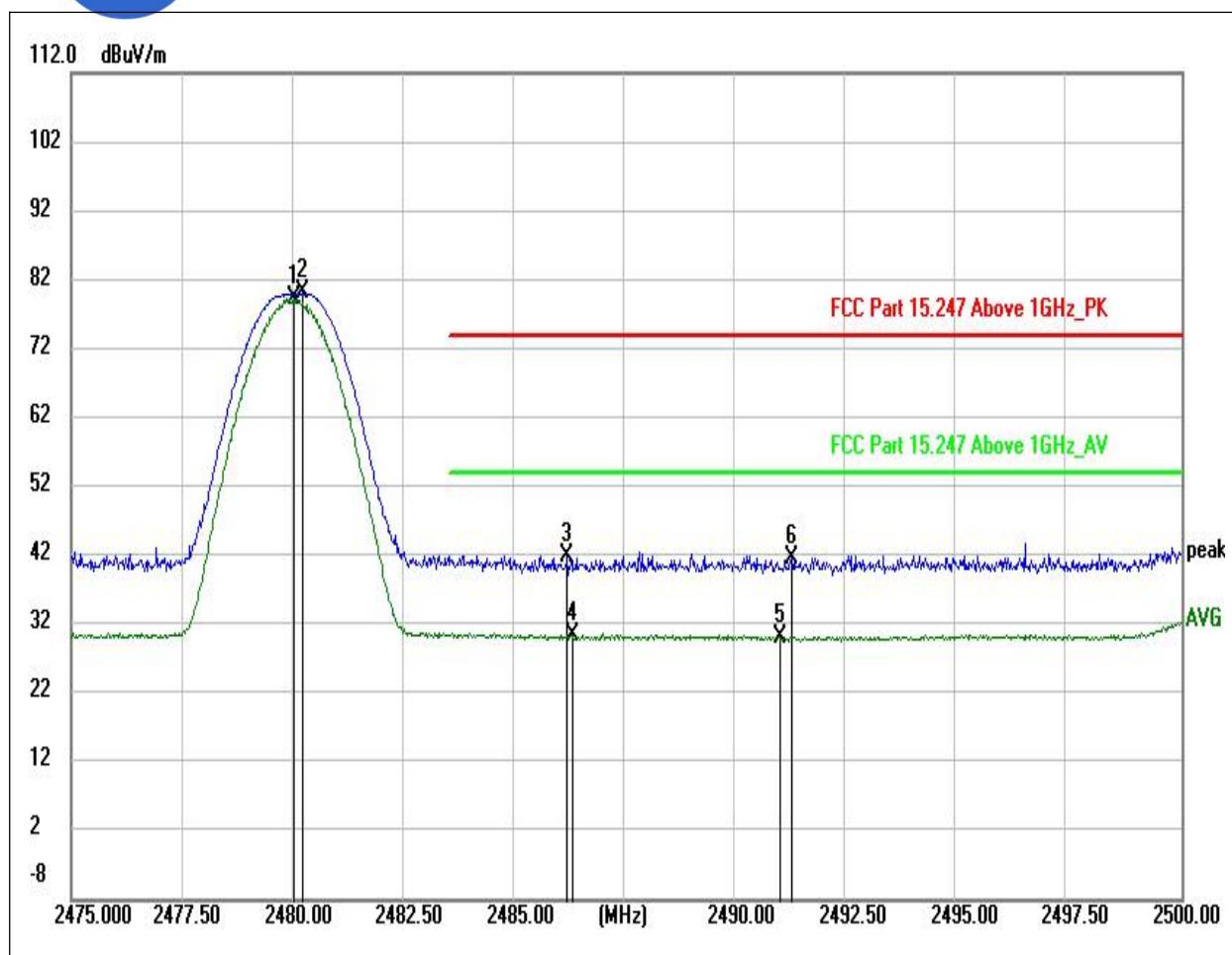


REPORT No. : XM190700036W01



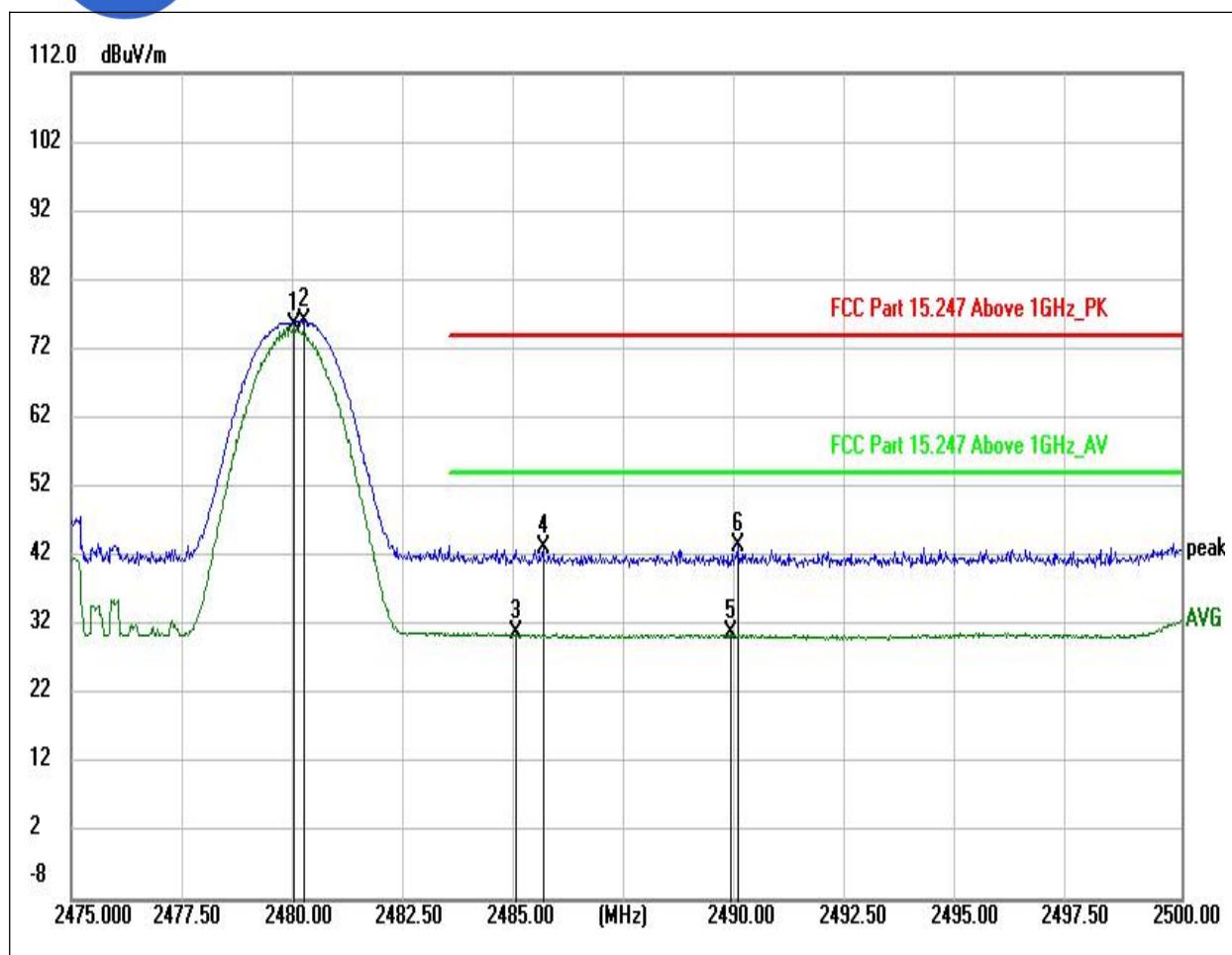
(LE 1M PHY\_2402MHz, Antenna Vertical)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2332.480	42.56	---	74	31.44	V	7.40
2333.152	---	29.6	54	24.4	V	7.41
2368.096	42.08	---	74	31.92	V	7.39
2368.208	---	29.68	54	24.32	V	7.38
2402.032	---	72.73	---	---	V	8.69
2402.256	73.45	---	---	---	V	8.69



(LE 1M PHY\_2480MHz, Antenna Horizontal)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2480.000	---	79.32	---	---	H	8.26
2480.225	80.05	---	---	---	H	8.27
2486.175	42.03	---	74	31.97	H	8.35
2486.275	---	30.56	54	23.44	H	8.35
2490.950	---	30.19	54	23.81	H	8.35
2491.225	41.49	---	74	32.51	H	8.35

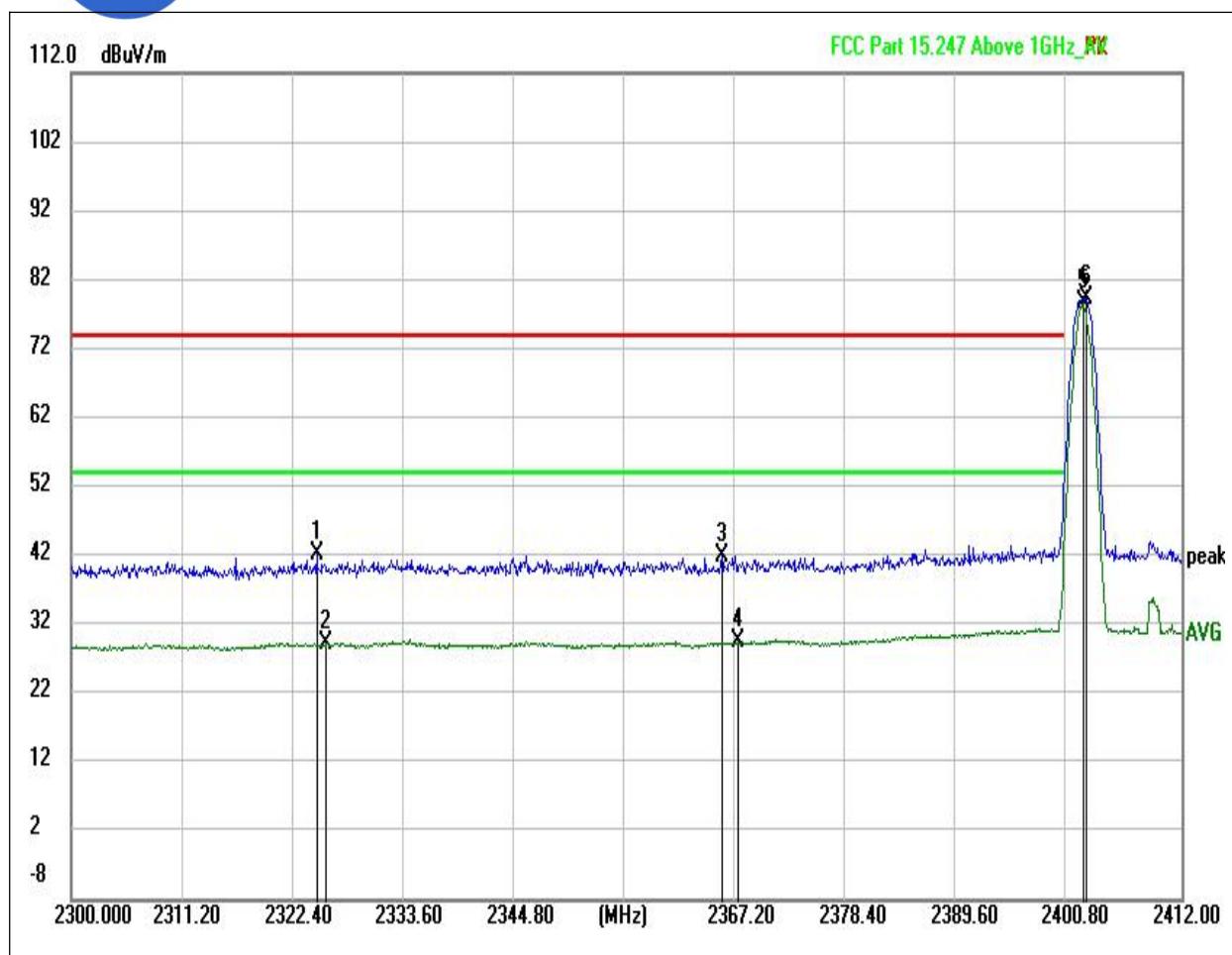


(LE 1M PHY\_2480MHz, Antenna Vertical)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2480.000	---	75.23	---	---	V	8.26
2480.250	75.96	---	---	---	V	8.27
2485.000	---	30.66	54.00	23.34	V	8.37
2485.625	43.05	---	74.00	30.95	V	8.36
2489.850	---	30.61	54.00	23.39	V	8.35
2490.000	43.37	---	74.00	30.63	V	8.35



REPORT No. : XM190700036W01

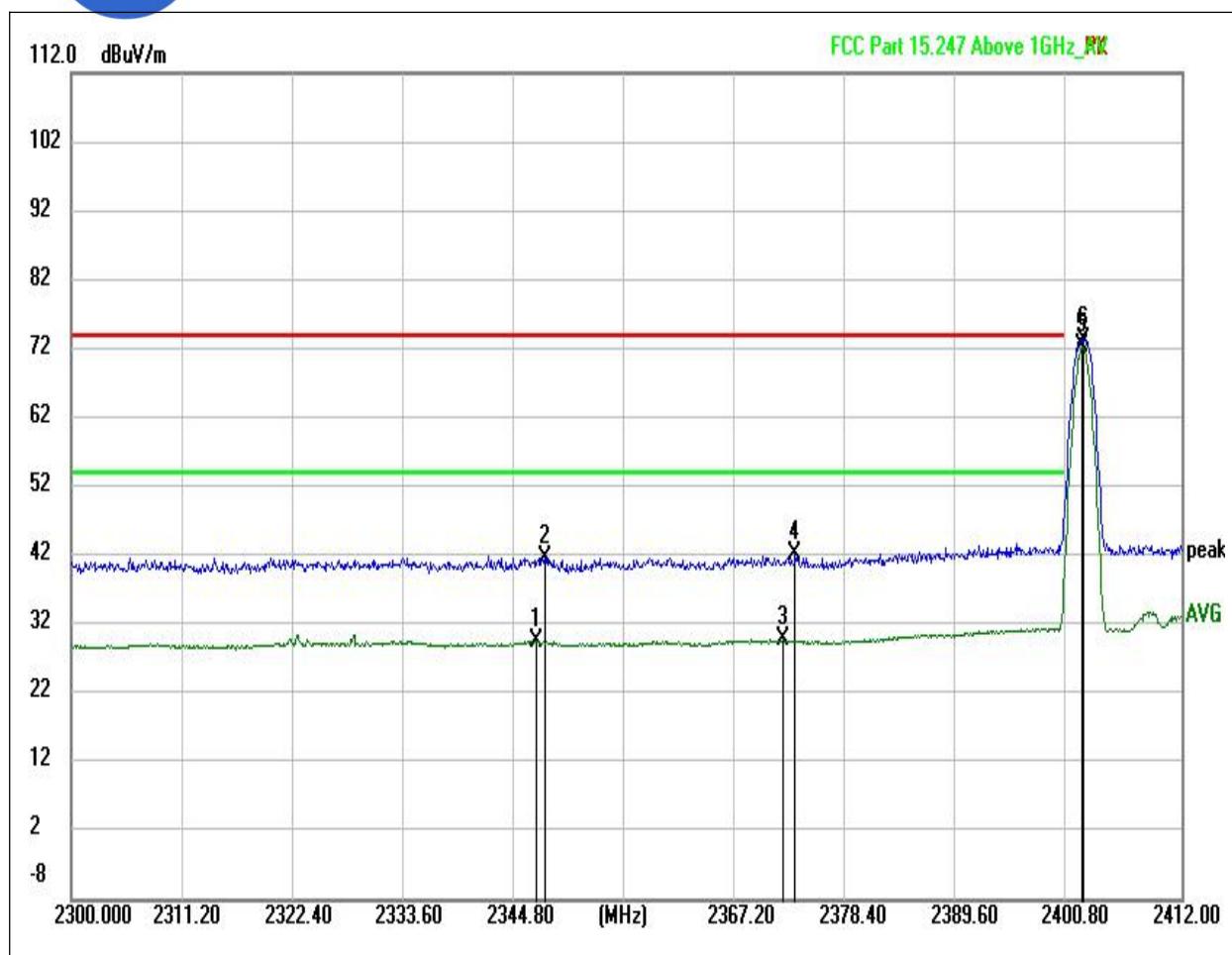


(LE 2M PHY\_2402MHz, Antenna Horizontal)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2324.752	42.22	---	74.00	31.78	H	7.22
2325.648	---	29.23	54.00	24.77	H	7.26
2365.632	41.88	---	74.00	32.12	H	7.43
2367.200	---	29.40	54.00	24.60	H	7.40
2402.144	---	78.56	---	---	H	8.69
2402.368	79.27	---	---	---	H	8.69

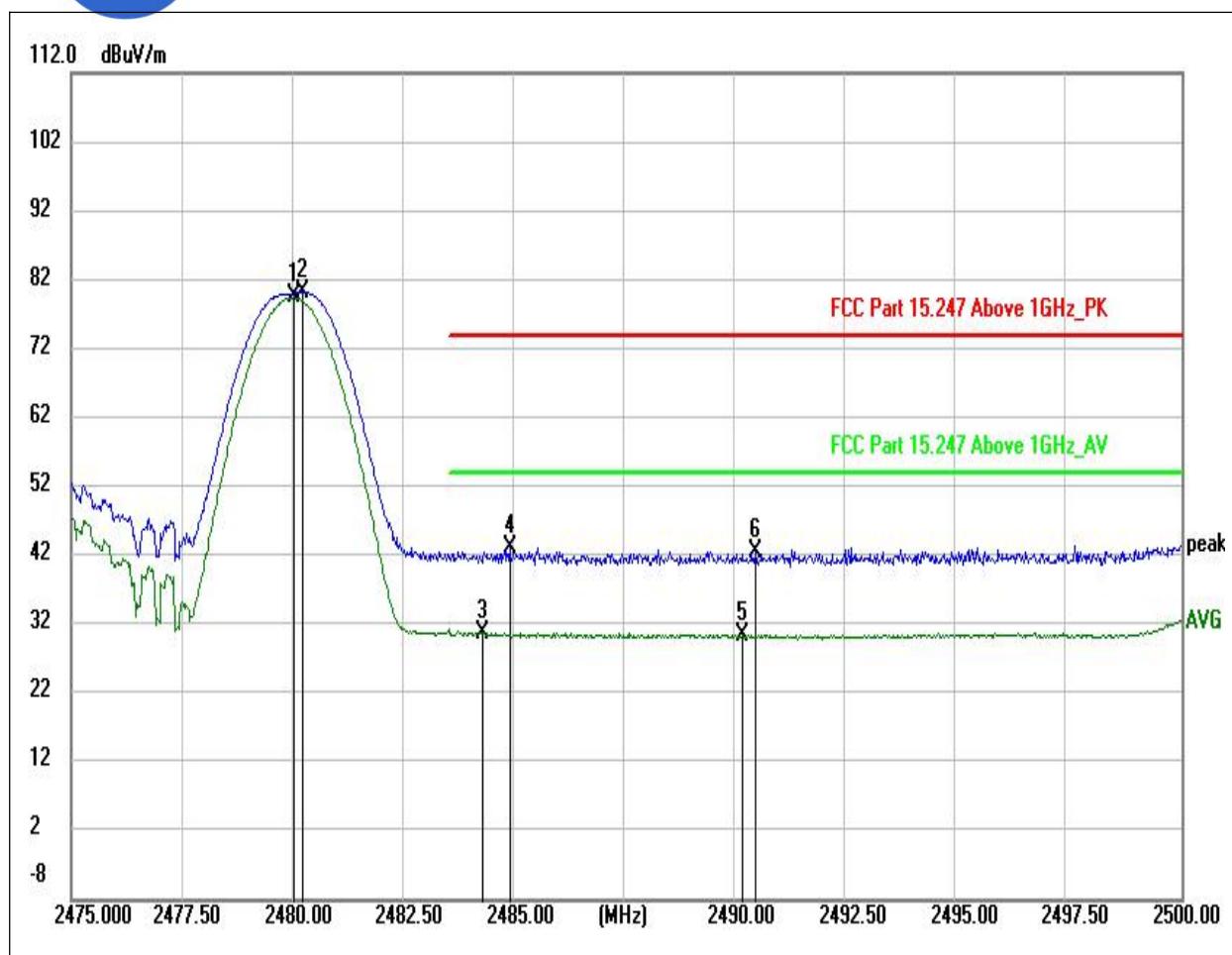


REPORT No. : XM190700036W01



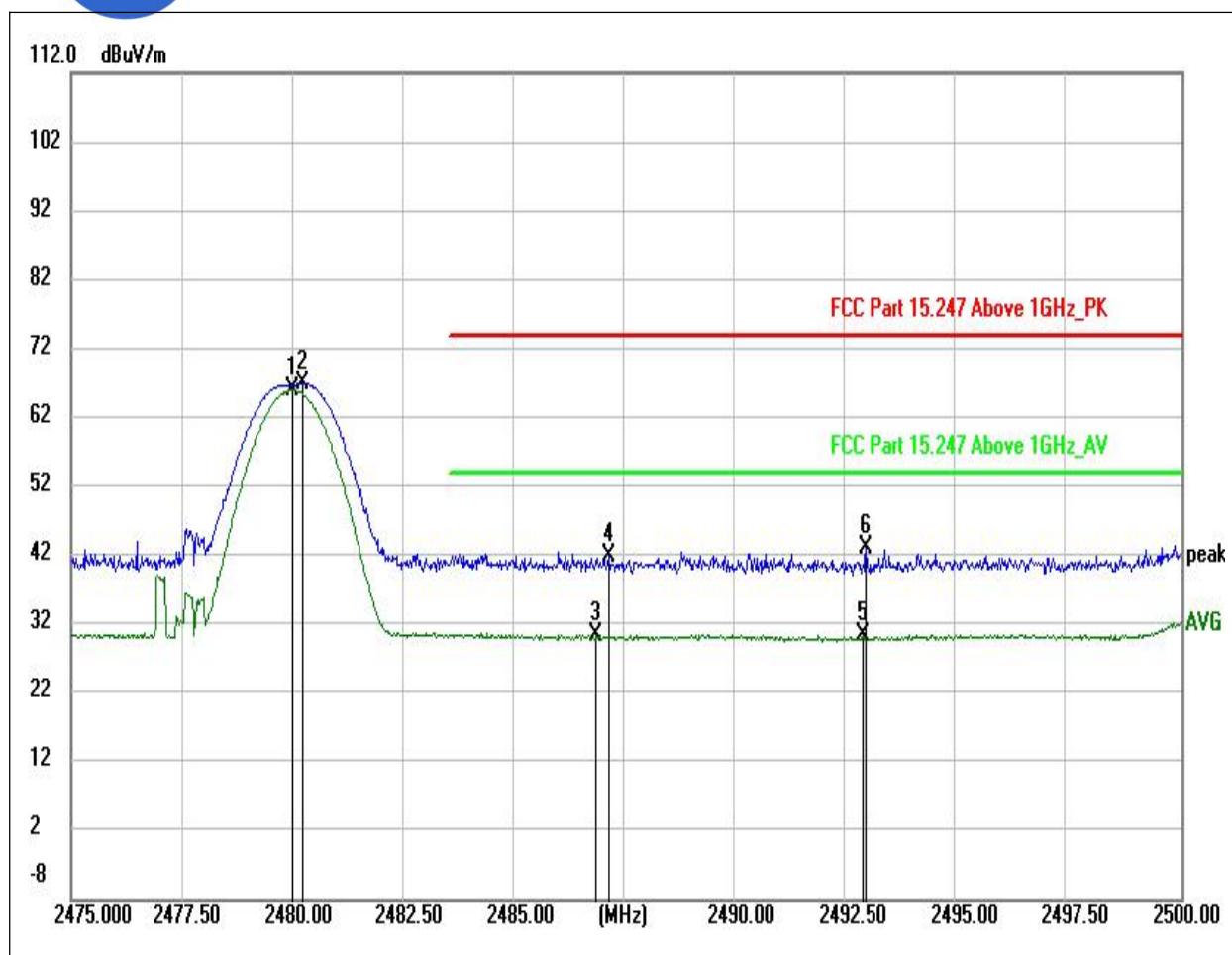
(LE 2M PHY\_2402MHz, Antenna Vertical)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2346.928	---	29.66	54.00	24.34	V	7.67
2347.824	41.72	---	74.00	32.28	V	7.68
2371.792	---	29.70	54.00	24.30	V	7.31
2373.024	42.06	---	74.00	31.94	V	7.29
2401.920	---	72.36	---	---	V	8.69
2402.144	73.23	---	---	---	V	8.69



(LE 2M PHY\_2480MHz, Antenna Horizontal)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2480.000	---	79.45	---	---	H	8.26
2480.225	80.18	---	---	---	H	8.27
2484.275	---	30.87	54.00	23.13	H	8.36
2484.875	43.01	---	74.00	30.99	H	8.36
2490.125	---	30.48	54.00	23.52	H	8.35
2490.400	42.36	---	74.00	31.64	H	8.34

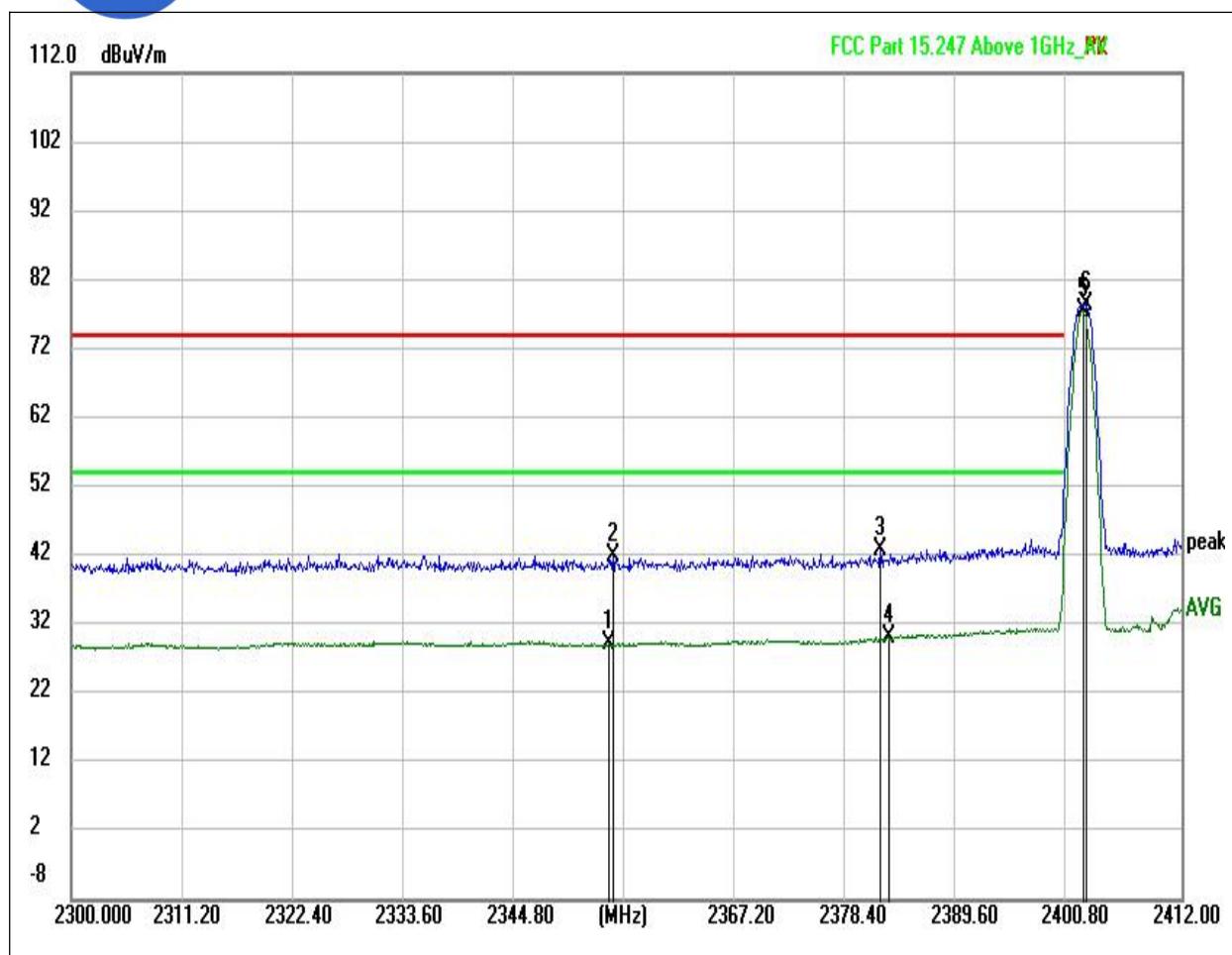


(LE 2M PHY\_2480MHz, Antenna Vertical)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2479.975	---	65.96	---	---	V	8.26
2480.225	66.88	---	---	---	V	8.27
2486.825	---	30.50	54.00	23.50	V	8.36
2487.100	41.75	---	74.00	32.25	V	8.36
2492.825	---	30.41	54.00	23.59	V	8.34
2492.900	43.19	---	74.00	30.81	V	8.34



REPORT No. : XM190700036W01

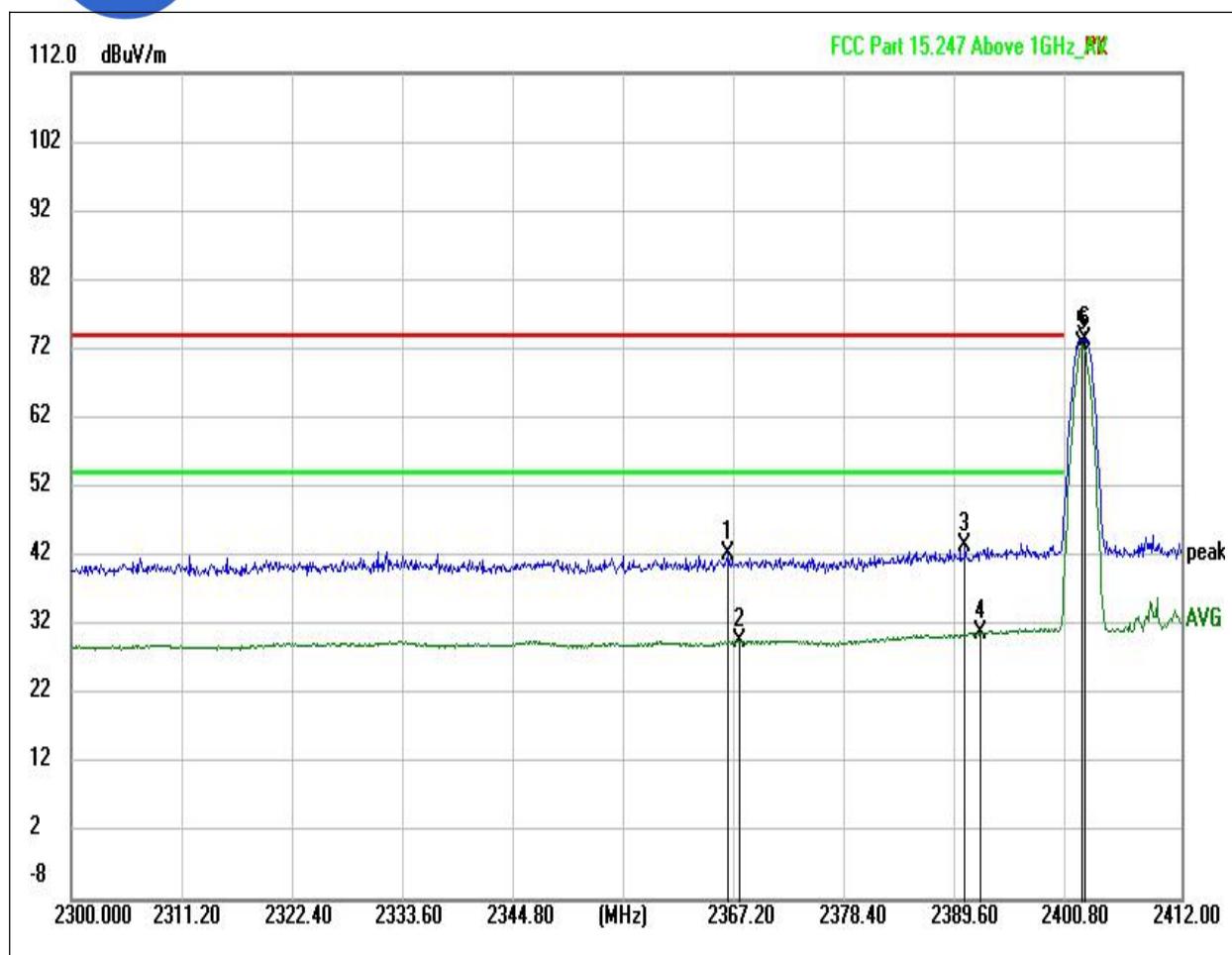


(LE Code\_2402MHz, Antenna Horizontal)

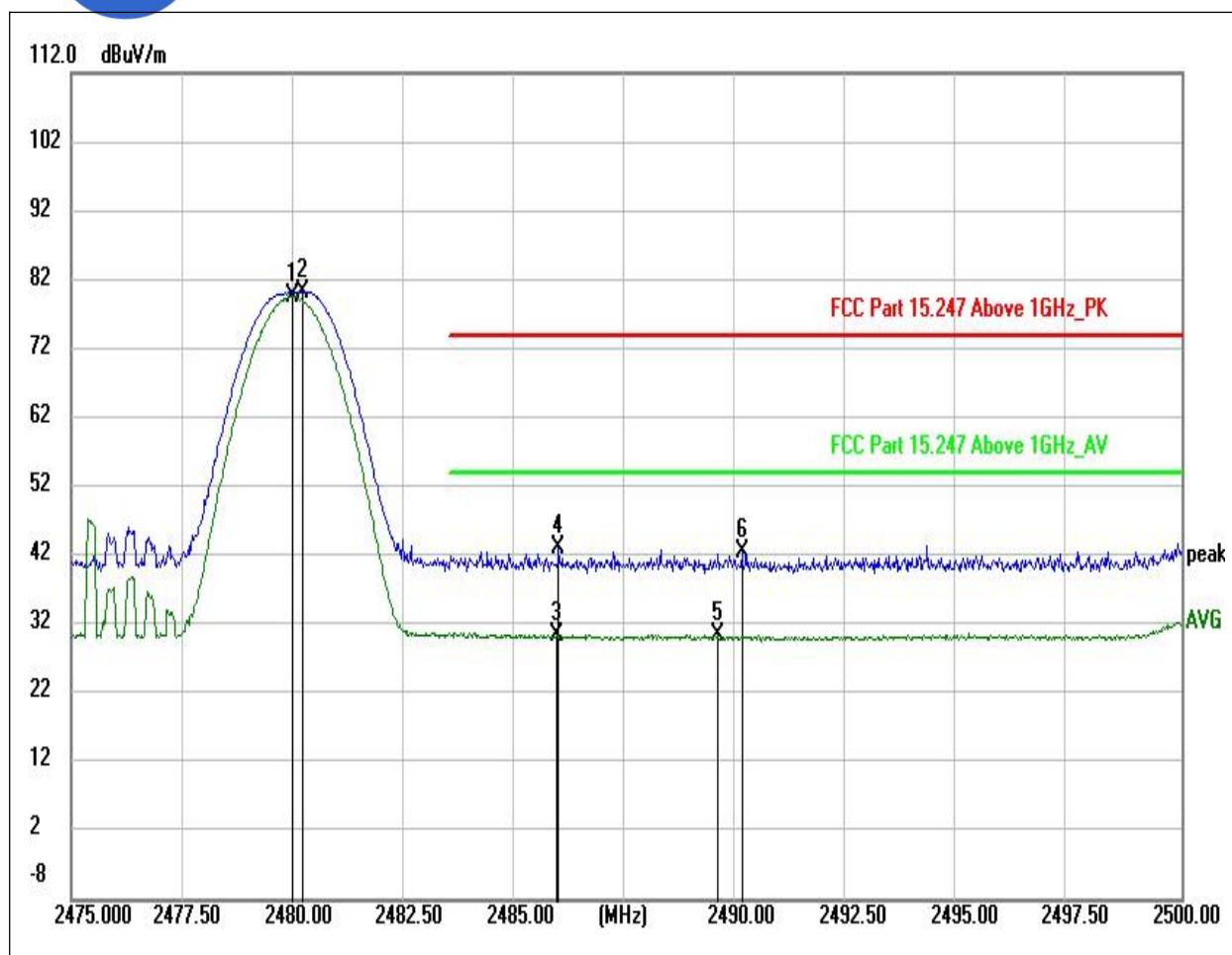
Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2354.208	---	29.16	54.00	24.84	H	7.65
2354.656	41.85	---	74.00	32.15	H	7.64
2381.648	42.66	---	74.00	31.34	H	7.41
2382.432	---	30.05	54.00	23.95	H	7.46
2402.144	---	77.62	---	---	H	8.69
2402.368	78.37	---	---	---	H	8.69



REPORT No. : XM190700036W01



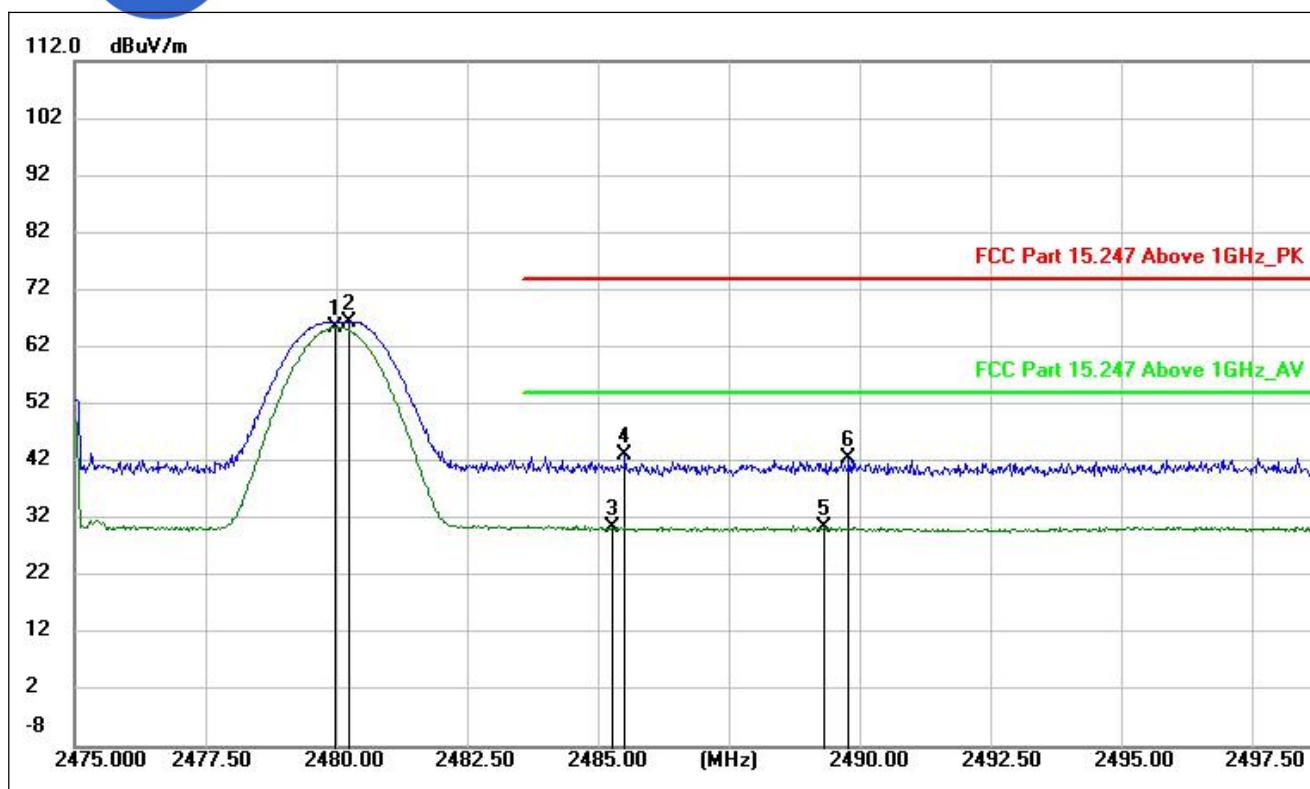
Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2366.304	42.06	---	74.00	31.94	V	7.42
2367.424	---	29.58	54.00	24.42	V	7.39
2390.160	43.54	---	74.00	30.46	V	8.00
2391.728	---	30.84	54.00	23.16	V	8.11
2402.032	---	72.63	---	---	V	8.69
2402.256	73.37	---	---	---	V	8.69



Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2479.975	---	79.59	---	---	H	8.26
2480.225	80.33	---	---	---	H	8.27
2485.925	---	30.44	54.00	23.56	H	8.36
2485.975	42.96	---	74.00	31.04	H	8.36
2489.575	---	30.37	54.00	23.63	H	8.35
2490.100	42.64	---	74.00	31.36	H	8.35



REPORT No. : XM190700036W01



(LE Code\_2480MHz, Antenna Vertical)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2479.950	---	65.53	---	---	V	8.26
2480.200	66.47	---	---	---	V	8.27
2485.200	---	30.48	54.00	23.52	V	8.36
2485.450	43.11	---	74.00	30.89	V	8.36
2489.225	---	30.53	54.00	23.47	V	8.35
2489.700	42.44	---	74.00	31.56	V	8.35

## 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).

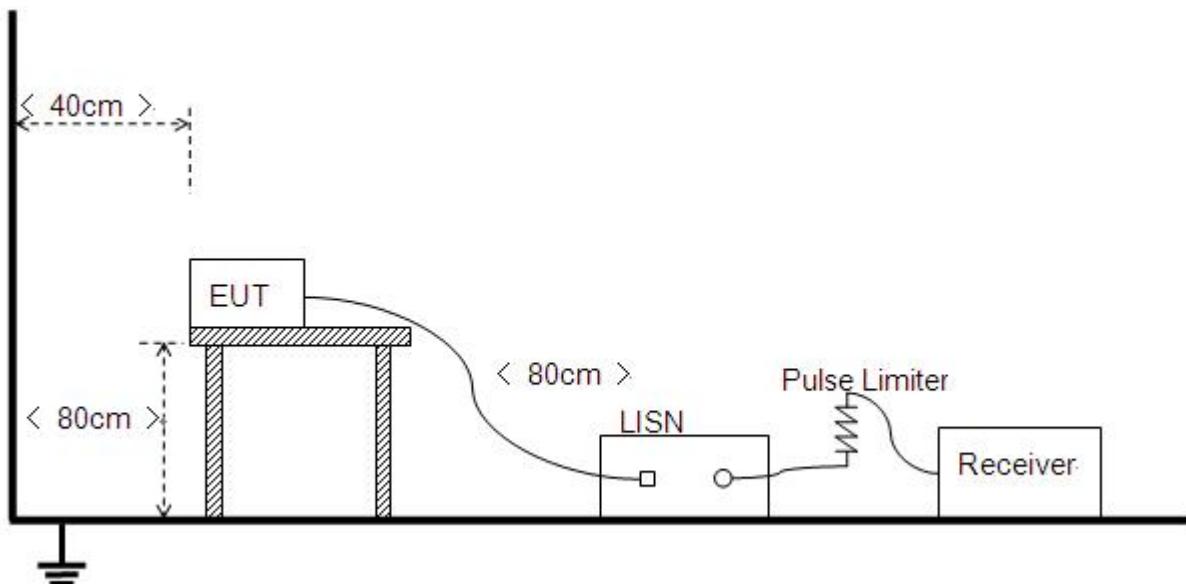
Frequency range (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

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 A(1.5).

**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.

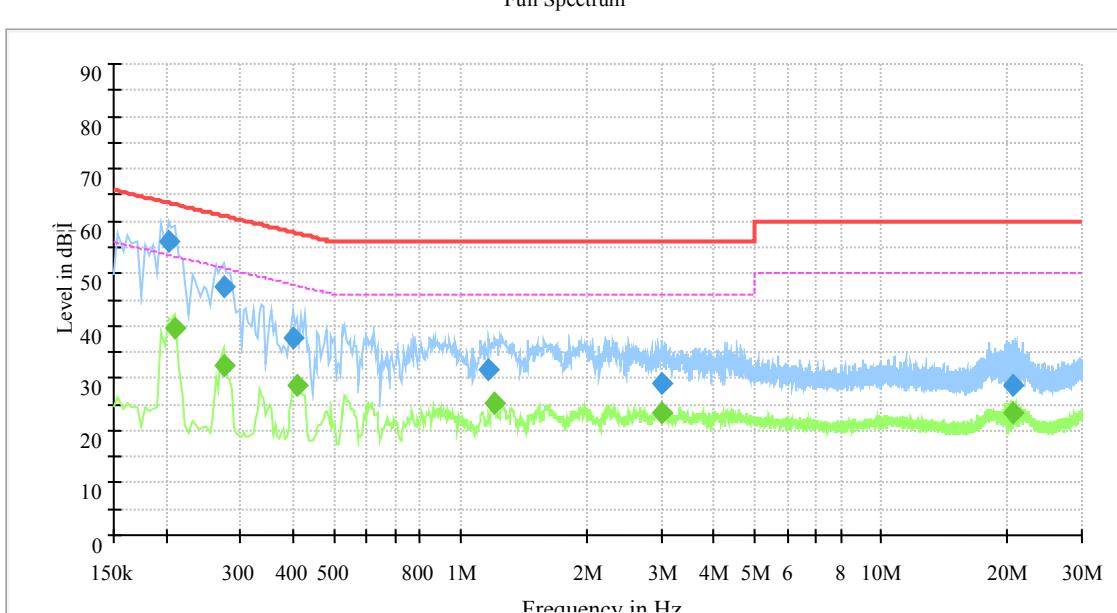
**Note:** Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

**A. Test setup:**

The EUT configuration of the emission tests is EUT + Link.

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

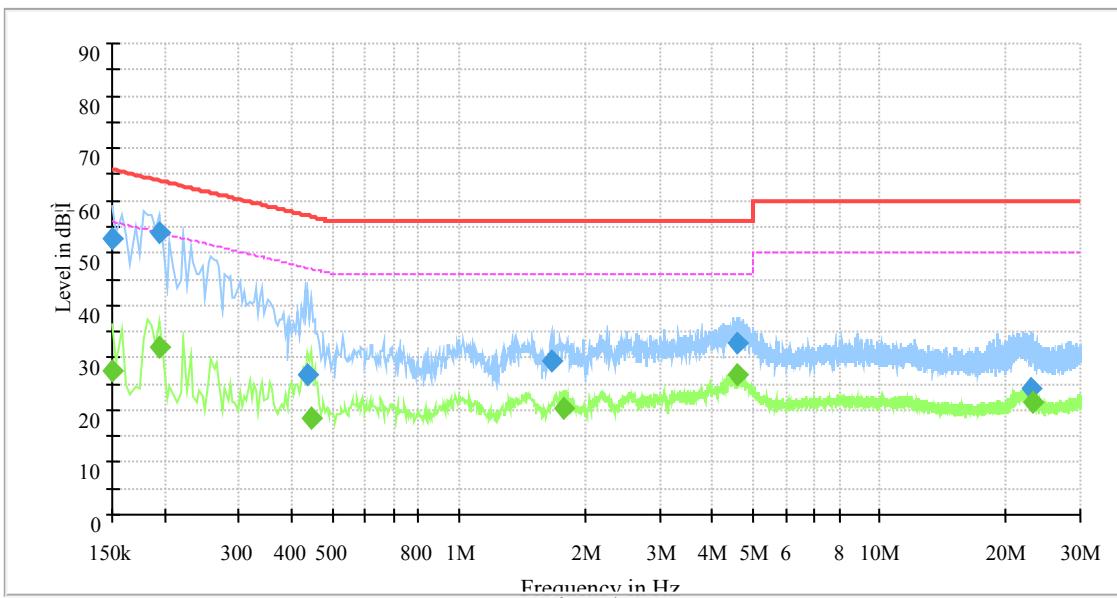
## B. Test Plots:



(Plot A: L Phase)

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Corr. (dB)
0.202000	56.23	---	63.53	7.30	L	10.2
0.210000	---	39.44	53.21	13.76	L	10.2
0.274000	---	32.53	51.00	18.47	L	10.2
0.274000	47.34	---	61.00	13.66	L	10.2
0.402000	37.75	---	57.81	20.06	L	10.2
0.410000	---	28.64	47.65	19.01	L	10.2
1.170000	31.74	---	56.00	24.26	L	10.3
1.202000	---	25.10	46.00	20.90	L	10.3
3.014000	29.04	---	56.00	26.96	L	10.4
3.014000	---	23.24	46.00	22.76	L	10.4
20.574000	---	23.21	50.00	26.79	L	10.7
20.574000	28.66	---	60.00	31.34	L	10.7

Full Spectrum



(Plot A: N Phase)

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Corr. (dB)
0.150000	---	27.39	56.00	28.61	N	10.2
0.150000	52.59	---	66.00	13.41	N	10.2
0.194000	---	32.07	53.86	21.79	N	10.2
0.194000	53.96	---	63.86	9.90	N	10.2
0.438000	26.80	---	57.10	30.30	N	10.2
0.446000	---	18.34	46.95	28.61	N	10.2
1.658000	29.45	---	56.00	26.55	N	10.3
1.770000	---	20.16	46.00	25.84	N	10.3
4.602000	32.93	---	56.00	23.07	N	10.4
4.602000	---	26.67	46.00	19.33	N	10.4
22.910000	24.22	---	60.00	35.78	N	10.6
23.078000	---	21.46	50.00	28.54	N	10.6



## 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 ( $\mu$ V/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:

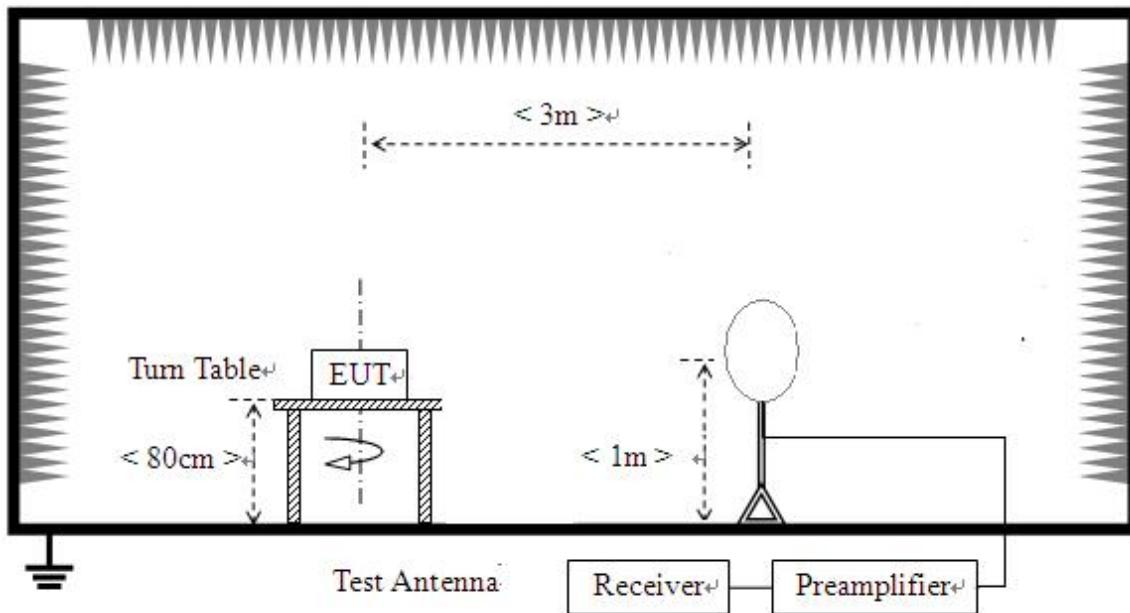
1. For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
2. For above 1000MHz, limit field strength 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)

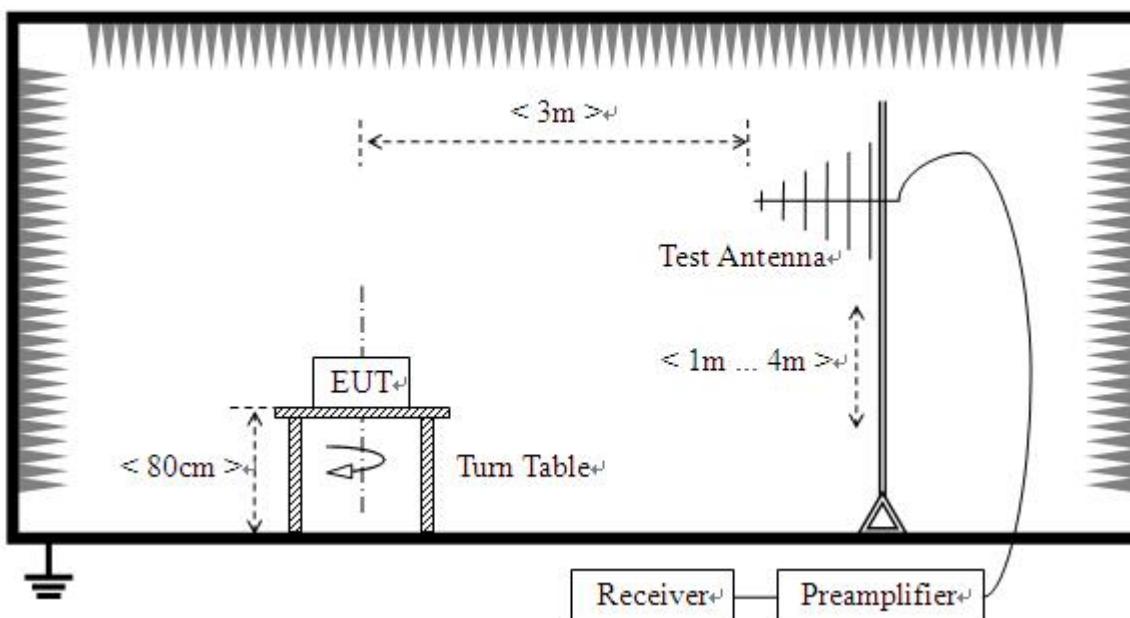
## 2.8.2. Test Description

### A. Test Setup:

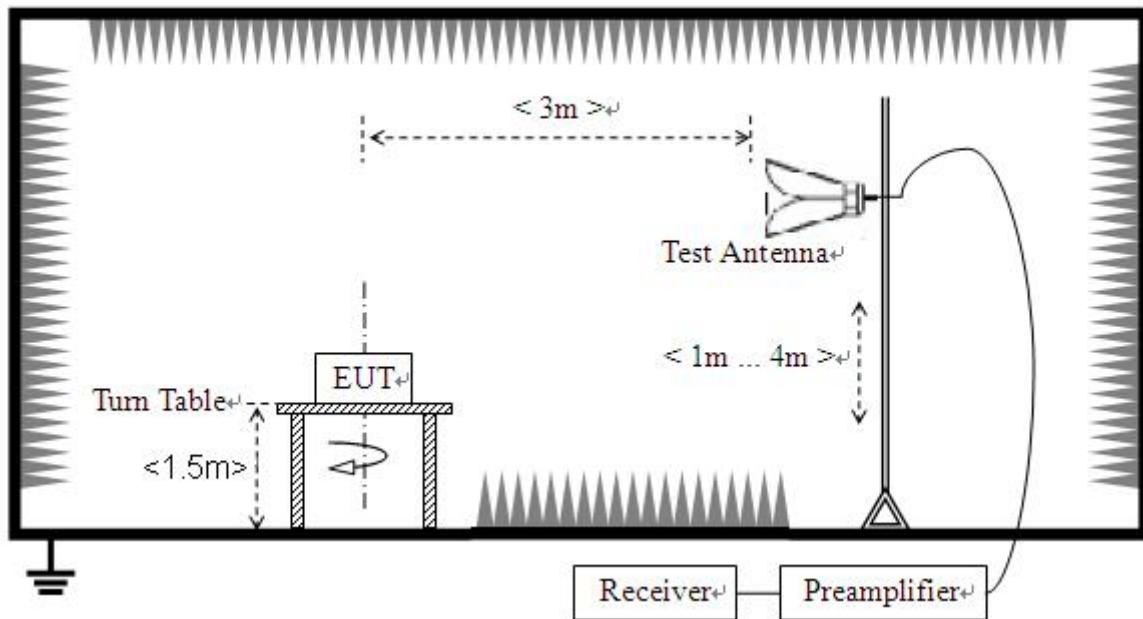
- 1) For radiated emissions from 9kHz to 30MHz



- 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.

**For Radiated emission below 30MHz:**

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with



Maximum Hold Mode.

**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

**For Radiated emission above 30MHz:**

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasipeak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

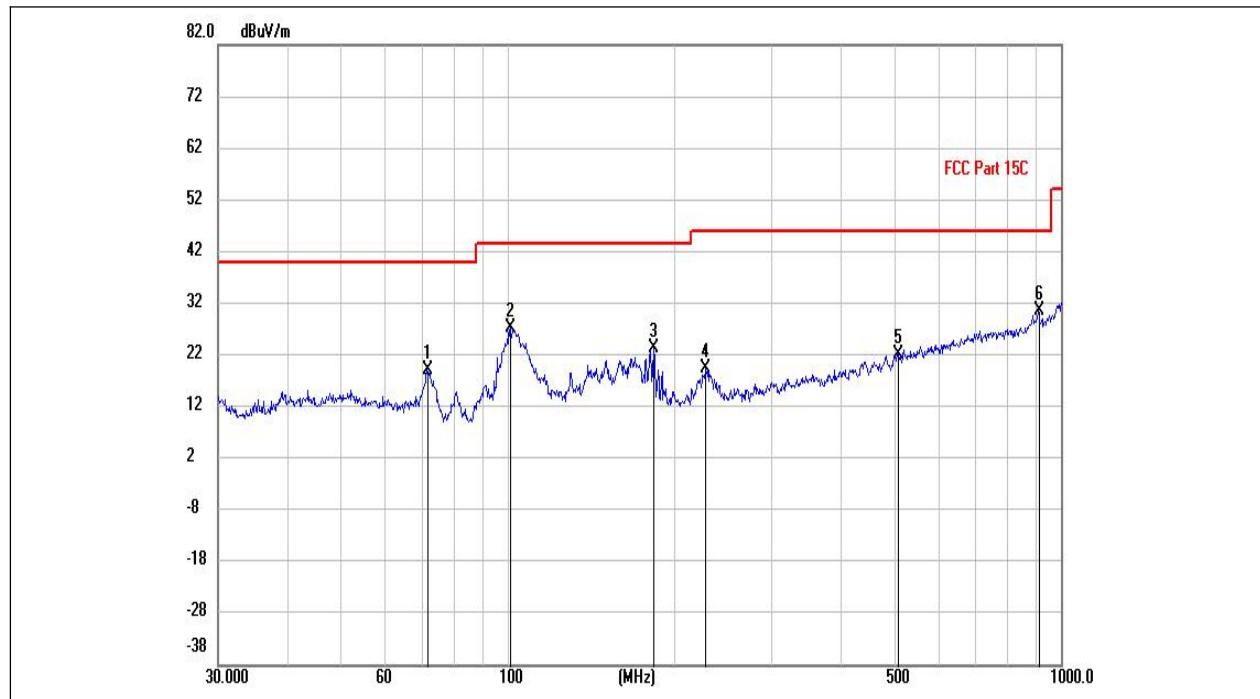
**B. Equipments List:**

Please refer ANNEX B.

### 2.8.3. Test Result

**Note1:** 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.

**Note2:** For the frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 10dB lower than the limit was not recorded.

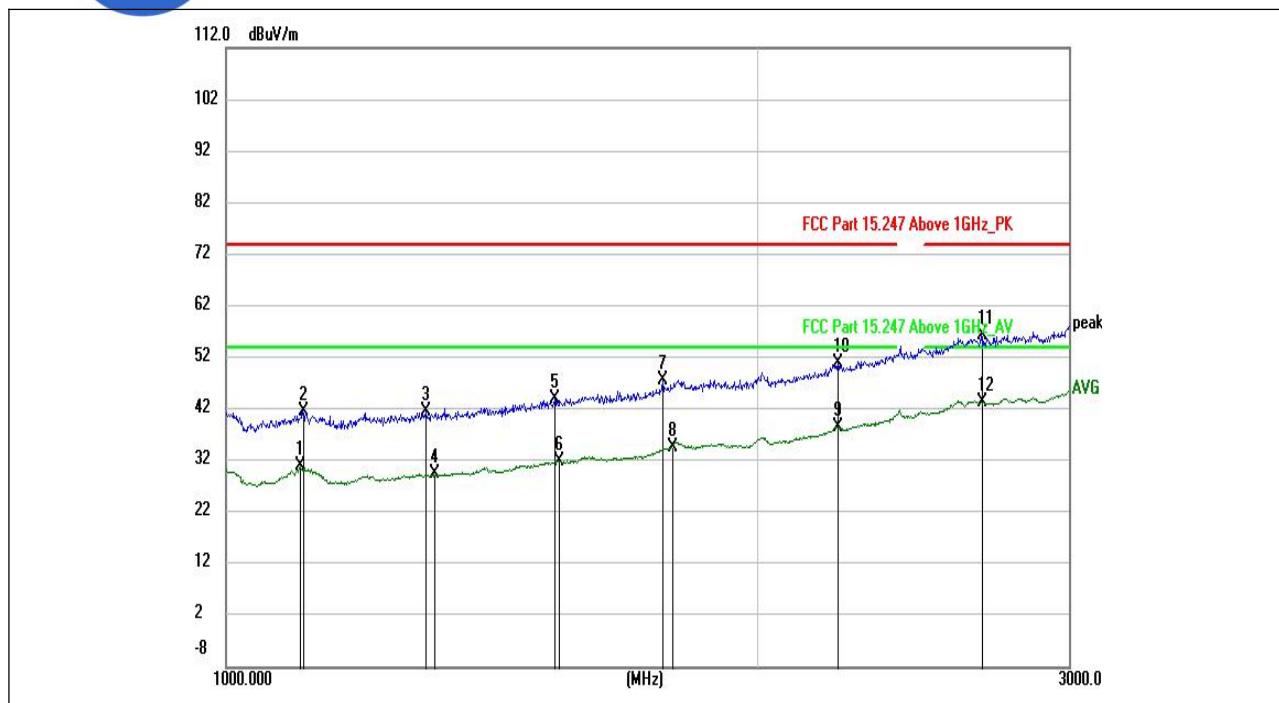


(LE 1M PHY\_2402MHz, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
71.5806	19.27	40.00	20.73	H	10.89
101.2885	27.21	43.50	16.29	H	14.92
183.8440	23.44	43.50	20.06	H	12.29
228.4904	19.55	46.00	26.45	H	14.32
506.4791	22.09	46.00	23.91	H	22.00
909.6667	30.45	46.00	15.55	H	28.04

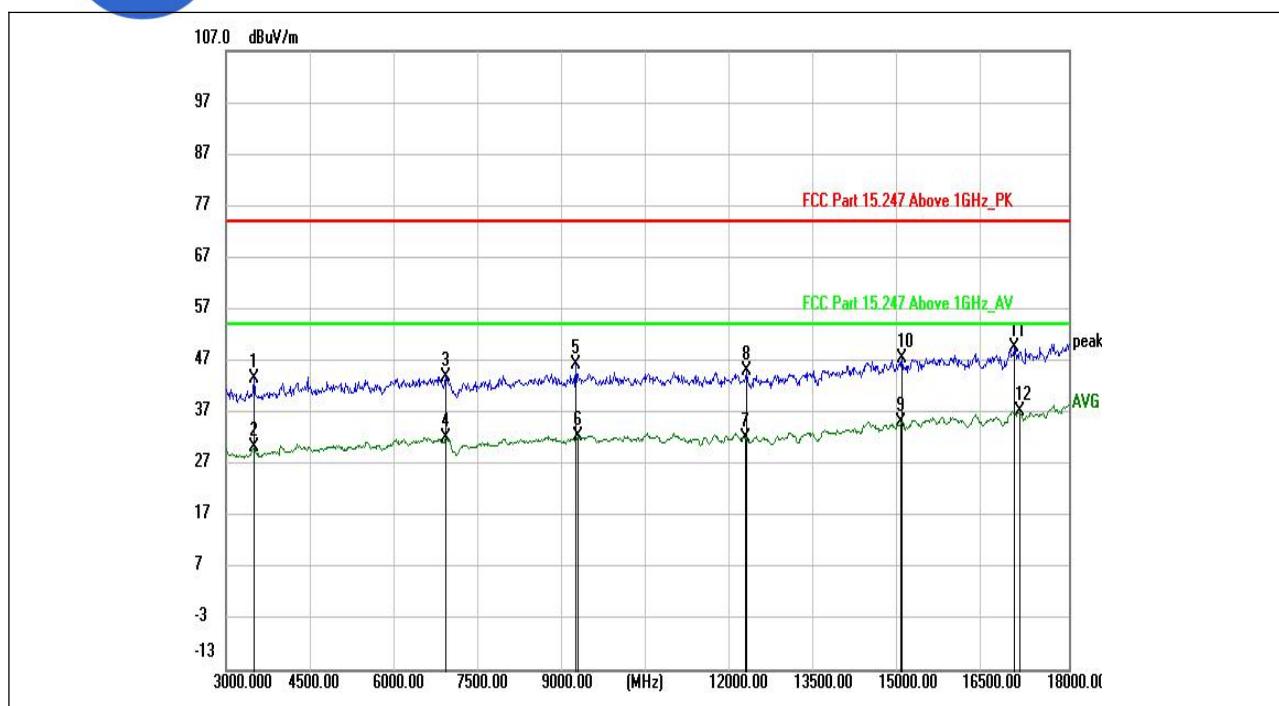


REPORT No. : XM190700036W01



(LE 1M PHY \_2402MHz, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1101.505	---	30.91	54.00	23.09	H	29.06
1105.142	41.55	---	74.00	32.45	H	29.03
1297.411	41.65	---	74.00	32.35	H	30.69
1311.744	---	29.54	54.00	24.46	H	30.78
1534.890	44.05	---	74.00	29.95	H	33.05
1543.345	---	32.10	54.00	21.90	H	33.24
1766.643	47.58	---	74.00	26.42	H	35.02
1788.122	---	34.72	54.00	19.28	H	35.67
2217.752	---	38.55	54.00	15.45	H	39.14
2220.189	50.85	---	74.00	23.15	H	39.11
2676.090	56.23	---	74.00	17.77	H	43.01
2676.090	---	43.32	54.00	10.68	H	43.01

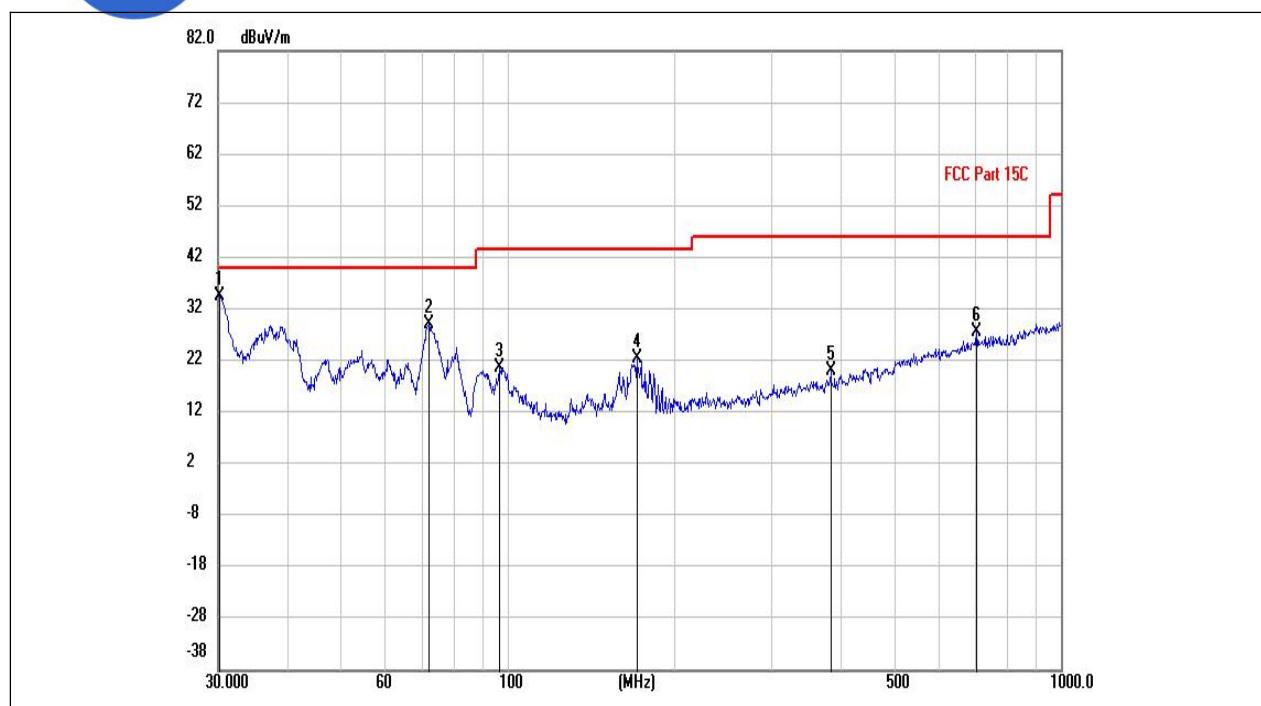


(LE 1M PHY \_2402MHz, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
3495.000	43.66	---	74.00	30.34	H	-7.09
3495.000	---	30.33	54.00	23.67	H	-7.09
6915.000	43.81	---	74.00	30.19	H	-0.82
6915.000	---	31.97	54.00	22.03	H	-0.82
9225.000	46.17	---	74.00	27.83	H	1.85
9255.000	---	32.29	54.00	21.71	H	2.39
12240.000	---	32.18	54.00	21.82	H	4.04
12270.000	45.07	---	74.00	28.93	H	4.04
15015.000	---	35.09	54.00	18.91	H	10.79
15030.000	47.36	---	74.00	26.64	H	10.67
17025.000	49.45	---	74.00	24.55	H	11.36
17130.000	---	37.16	54.00	16.84	H	12.20



REPORT No. : XM190700036W01

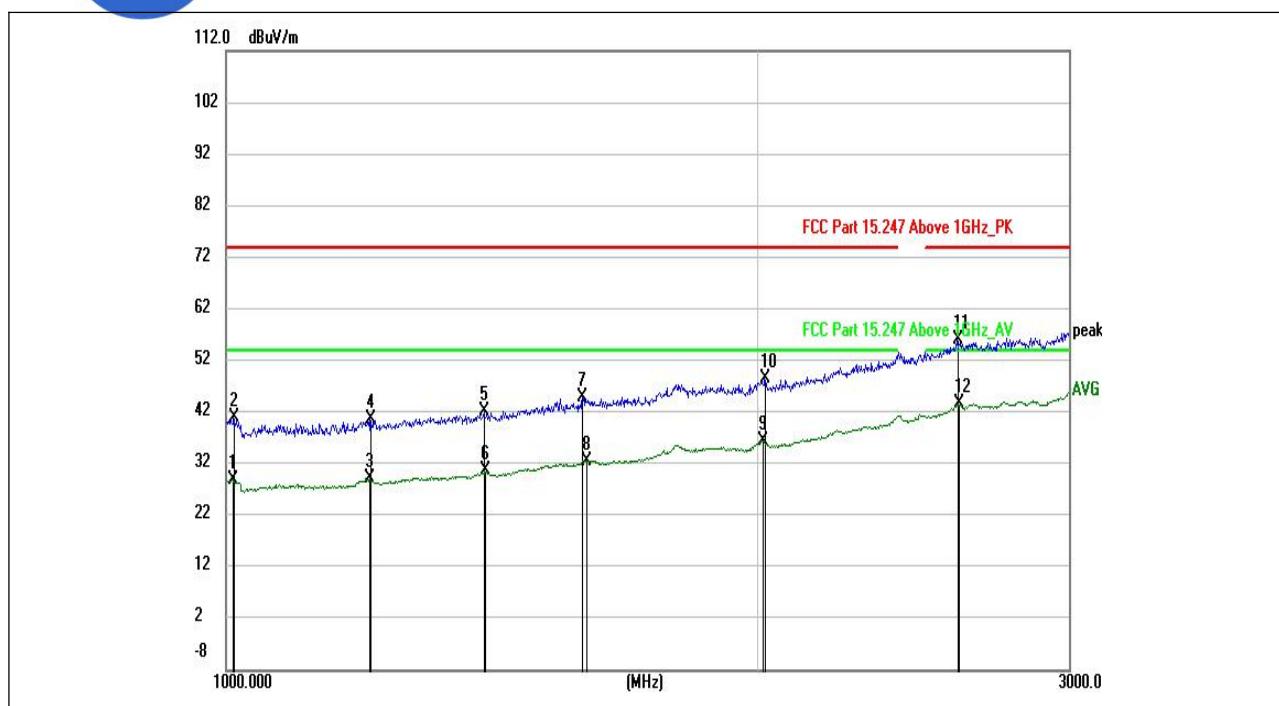


(LE 1M PHY \_2402MHz, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.1054	34.39	40.00	5.61	V	13.71
72.0843	29.00	40.00	11.00	V	10.55
96.7749	20.74	43.50	22.76	V	13.35
171.3926	22.31	43.50	21.19	V	12.11
383.9318	19.91	46.00	26.09	V	18.74
704.2261	27.68	46.00	18.32	V	24.90

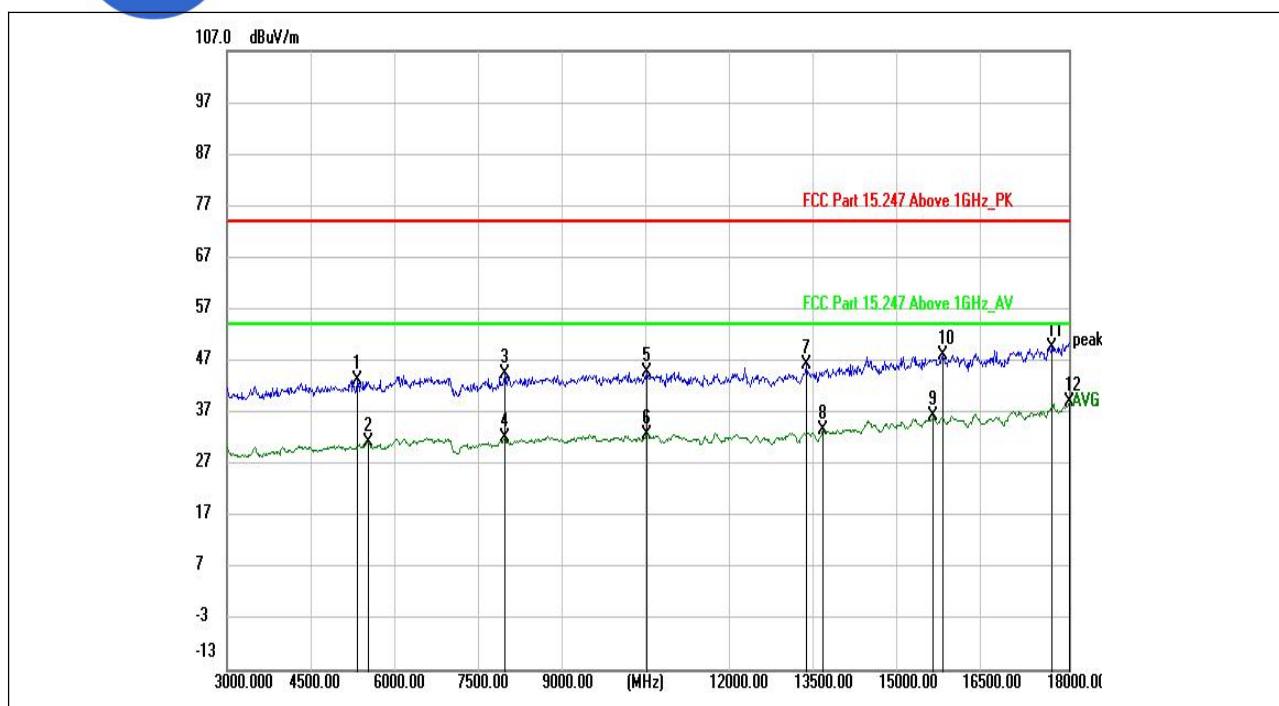


REPORT No. : XM190700036W01



(LE 1M PHY \_2402MHz, Antenna Vertical , 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1008.828	---	28.83	54.00	25.17	V	28.39
1009.937	40.92	---	74.00	33.08	V	28.33
1205.343	---	29.27	54.00	24.73	V	30.43
1206.668	40.76	---	74.00	33.24	V	30.37
1399.584	42.25	---	74.00	31.75	V	31.99
1401.123	---	30.63	54.00	23.37	V	31.96
1591.557	44.96	---	74.00	29.04	V	33.84
1598.567	---	32.70	54.00	21.30	V	34.17
2011.172	---	36.40	54.00	17.60	V	36.99
2017.811	48.54	---	74.00	25.46	V	36.63
2592.174	55.93	---	74.00	18.07	V	43.19
2597.876	---	43.58	54.00	10.42	V	43.56

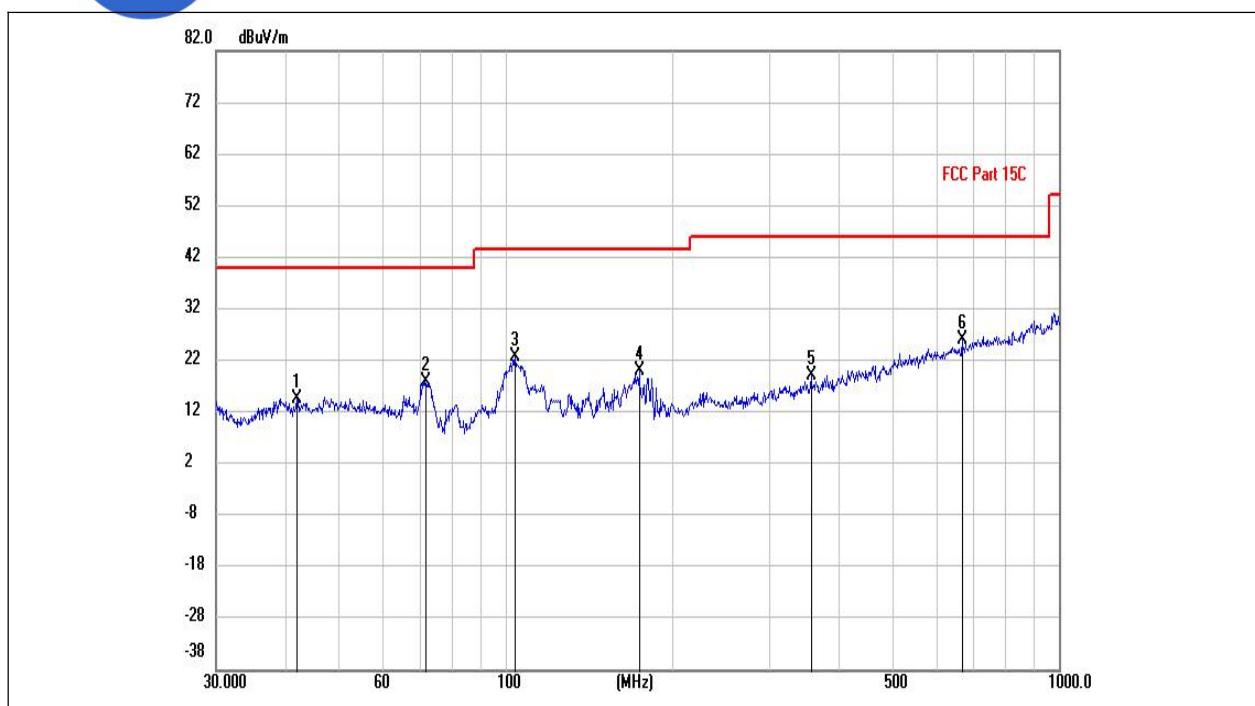


(LE 1M PHY \_2402MHz, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5325.000	43.29	---	74.00	30.71	V	-2.79
5520.000	---	31.23	54.00	22.77	V	-1.98
7950.000	44.30	---	74.00	29.70	V	1.44
7950.000	---	31.96	54.00	22.04	V	1.44
10485.000	44.64	---	74.00	29.36	V	3.37
10485.000	---	32.76	54.00	21.24	V	3.37
13320.000	46.13	---	74.00	27.87	V	6.03
13620.000	---	33.52	54.00	20.48	V	6.73
15585.000	---	36.25	54.00	17.75	V	10.35
15750.000	47.99	---	74.00	26.01	V	10.94
17700.000	49.62	---	74.00	24.38	V	14.28
18000.000	---	38.90	54.00	15.10	V	15.80

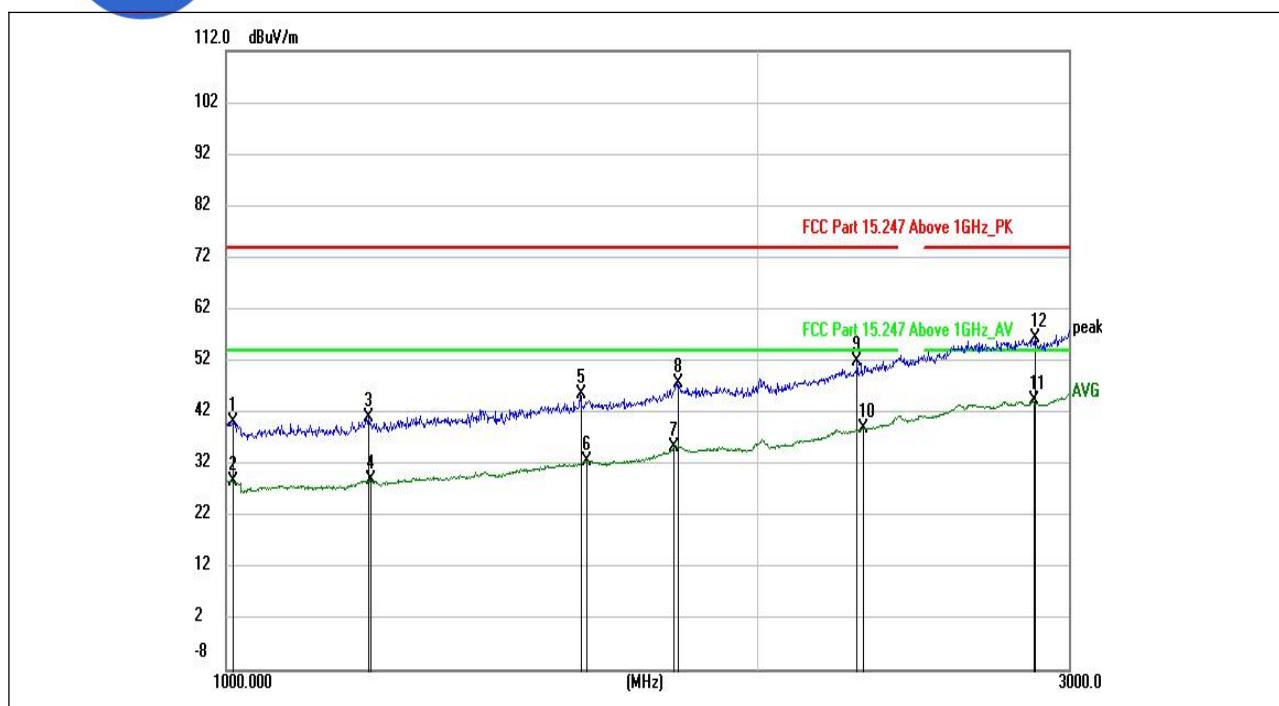


REPORT No. : XM190700036W01



(LE 1M PHY \_2440MHz, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
42.0066	14.48	40.00	25.52	H	15.09
71.5806	17.98	40.00	22.02	H	10.89
104.1701	22.77	43.50	20.73	H	14.28
174.4241	19.91	43.50	23.59	H	11.54
356.6758	19.00	46.00	27.00	H	18.31
668.1423	26.01	46.00	19.99	H	24.44

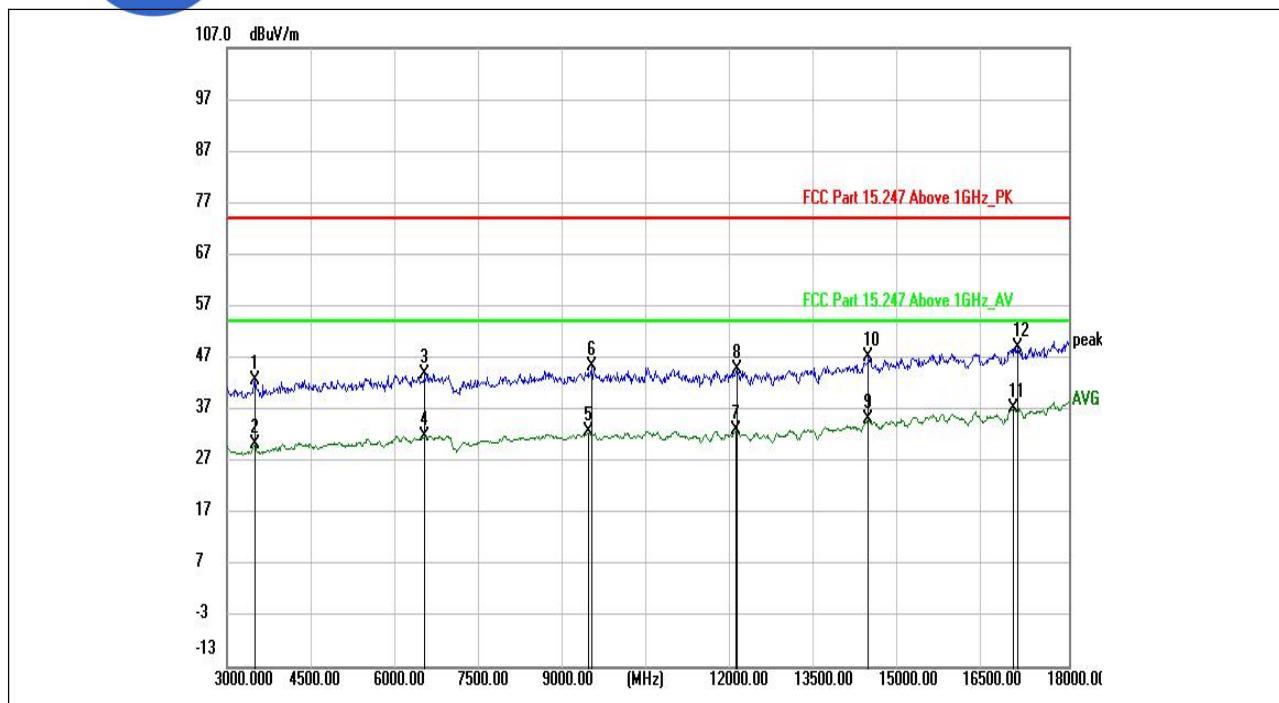


(LE 1M PHY \_2440MHz, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1008.828	39.96	---	74.00	34.04	H	28.39
1008.828	---	28.64	54.00	25.36	H	28.39
1204.019	40.94	---	74.00	33.06	H	30.50
1207.994	---	28.86	54.00	25.14	H	30.31
1586.321	45.66	---	74.00	28.34	H	33.60
1598.567	---	32.59	54.00	21.41	H	34.17
1794.025	---	35.36	54.00	18.64	H	36.28
1799.948	47.66	---	74.00	26.34	H	36.78
2277.004	51.97	---	74.00	22.03	H	39.30
2292.063	---	38.89	54.00	15.11	H	39.60
2864.720	---	44.37	54.00	9.63	H	44.20
2871.021	56.39	---	74.00	17.61	H	44.22



REPORT No. : XM190700036W01

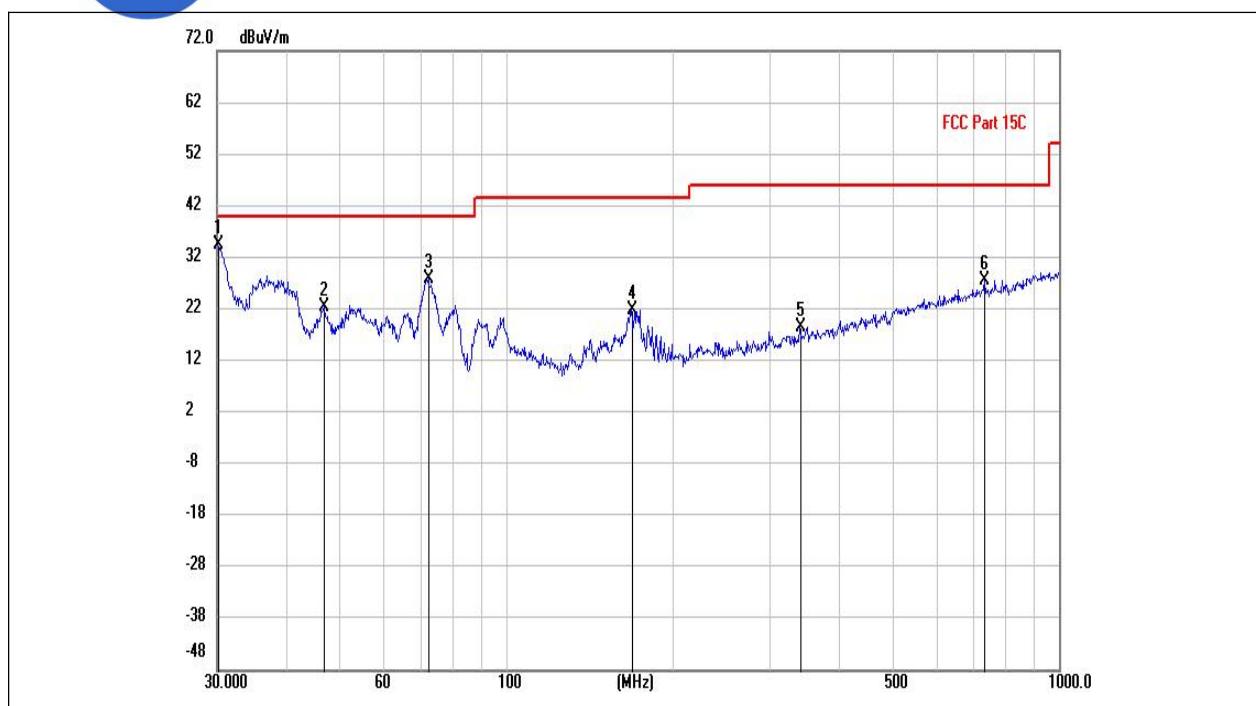


(LE 1M PHY \_2440MHz, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
3495.000	42.77	---	74.00	31.23	H	-7.09
3495.000	---	30.20	54.00	23.80	H	-7.09
6525.000	43.93	---	74.00	30.07	H	-1.37
6525.000	---	31.88	54.00	22.12	H	-1.37
9450.000	---	32.53	54.00	21.47	H	1.88
9495.000	45.33	---	74.00	28.67	H	1.53
12060.000	---	32.93	54.00	21.07	H	4.30
12090.000	44.83	---	74.00	29.17	H	4.05
14415.000	---	35.15	54.00	18.85	H	9.30
14430.000	47.27	---	74.00	26.73	H	9.12
17010.000	---	37.16	54.00	16.84	H	11.22
17085.000	48.98	---	74.00	25.02	H	11.64

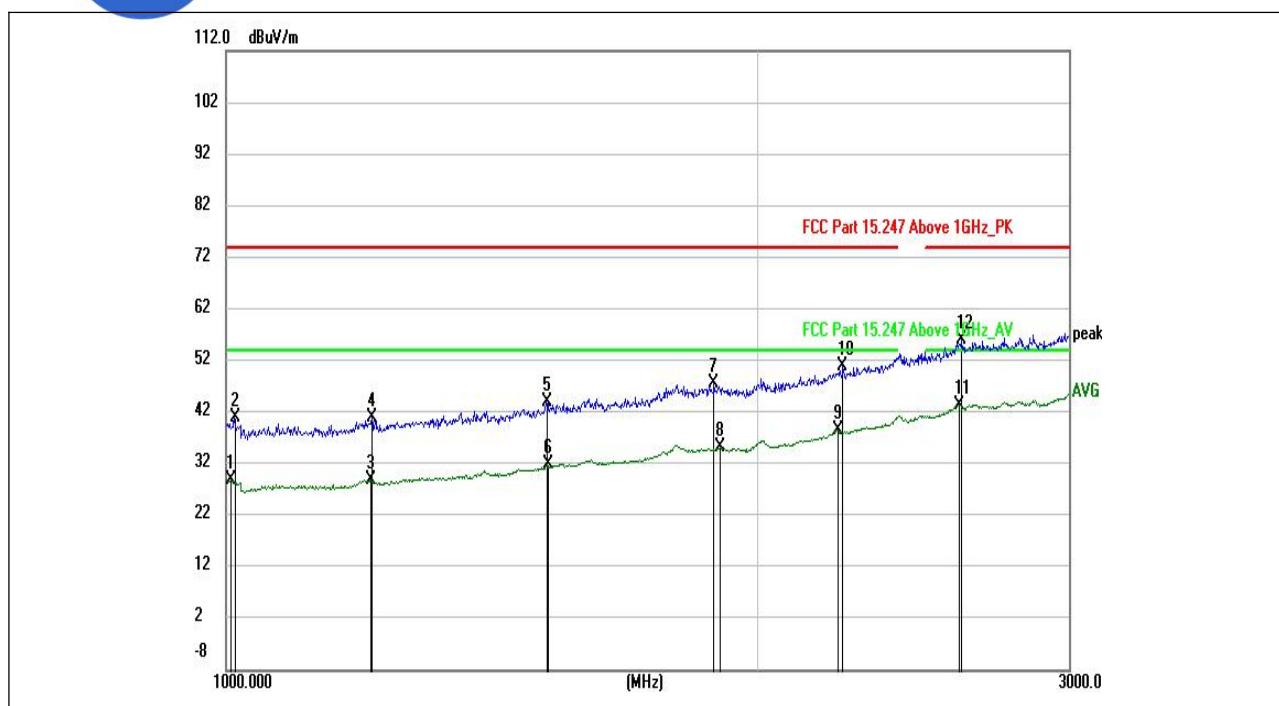


REPORT No. : XM190700036W01



(LE 1M PHY \_2440MHz, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.1054	34.40	40.00	5.60	V	13.71
46.8303	22.46	40.00	17.54	V	15.48
72.3376	27.95	40.00	12.05	V	10.48
168.4138	21.75	43.50	21.75	V	12.07
339.5888	18.56	46.00	27.44	V	18.21
734.4913	27.66	46.00	18.34	V	25.66

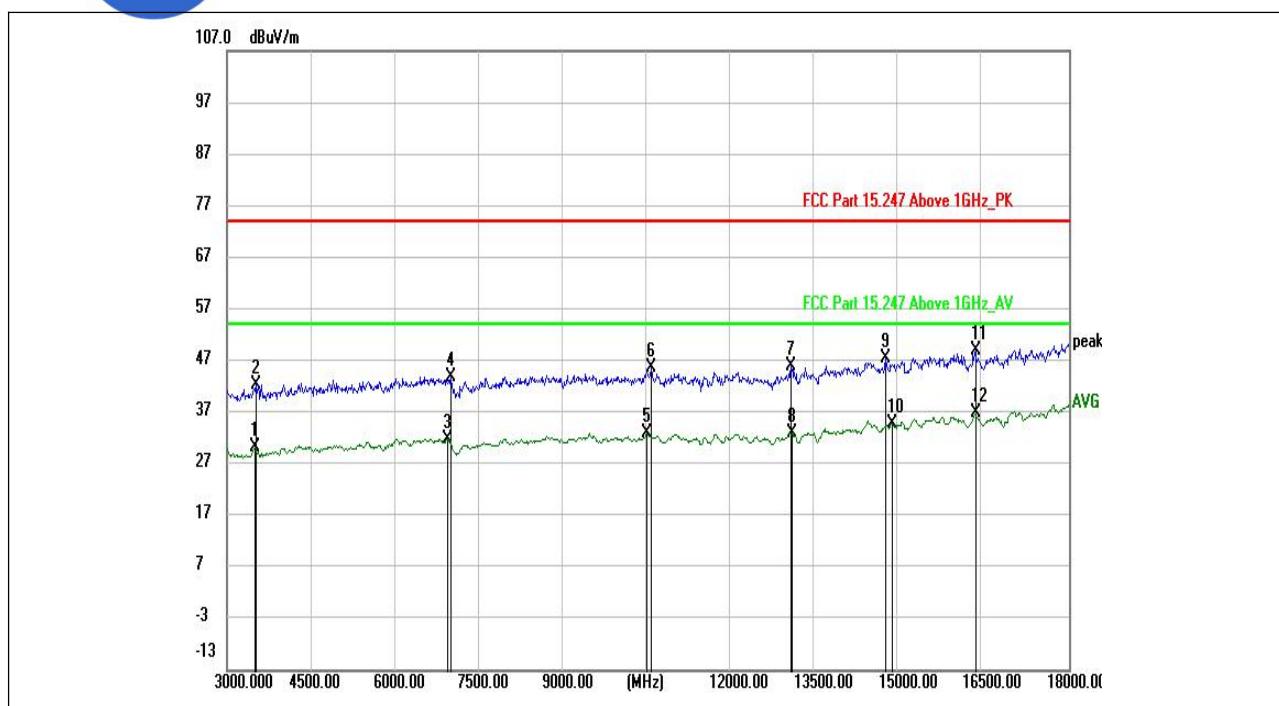


(LE 1M PHY \_2440MHz, Antenna Vertical , 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1006.613	---	28.97	54.00	25.03	V	28.46
1011.047	41.02	---	74.00	32.98	V	28.27
1207.994	---	28.98	54.00	25.02	V	30.31
1209.322	40.90	---	74.00	33.10	V	30.25
1518.120	43.92	---	74.00	30.08	V	32.90
1519.789	---	31.89	54.00	22.11	V	32.91
1889.092	47.75	---	74.00	26.25	V	35.88
1903.676	---	35.23	54.00	18.77	V	36.07
2220.189	---	38.49	54.00	15.51	V	39.11
2234.872	50.86	---	74.00	23.14	V	38.85
2597.876	---	43.55	54.00	10.45	V	43.56
2609.317	55.97	---	74.00	18.03	V	43.18



REPORT No. : XM190700036W01

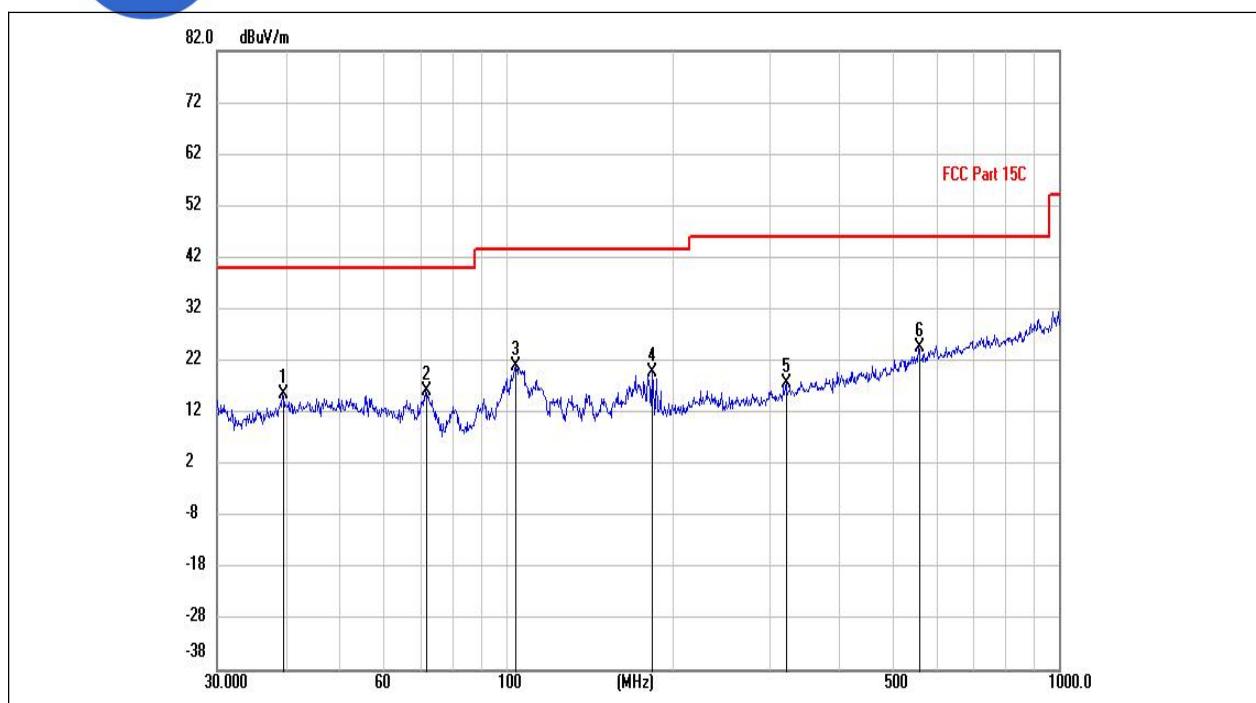


(LE 1M PHY \_2440MHz, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
3495.000	---	30.20	54.00	23.80	V	-4.48
3510.000	42.38	---	74.00	31.62	V	-4.71
6930.000	---	31.69	54.00	22.31	V	-0.61
6990.000	43.98	---	74.00	30.02	V	-0.71
10485.000	---	32.83	54.00	21.17	V	3.37
10560.000	45.76	---	74.00	28.24	V	3.13
13050.000	45.98	---	74.00	28.02	V	6.40
13065.000	---	32.95	54.00	21.05	V	6.45
14730.000	47.37	---	74.00	26.63	V	9.37
14850.000	---	34.74	54.00	19.26	V	9.01
16335.000	49.05	---	74.00	24.95	V	11.70
16335.000	---	36.76	54.00	17.24	V	11.70

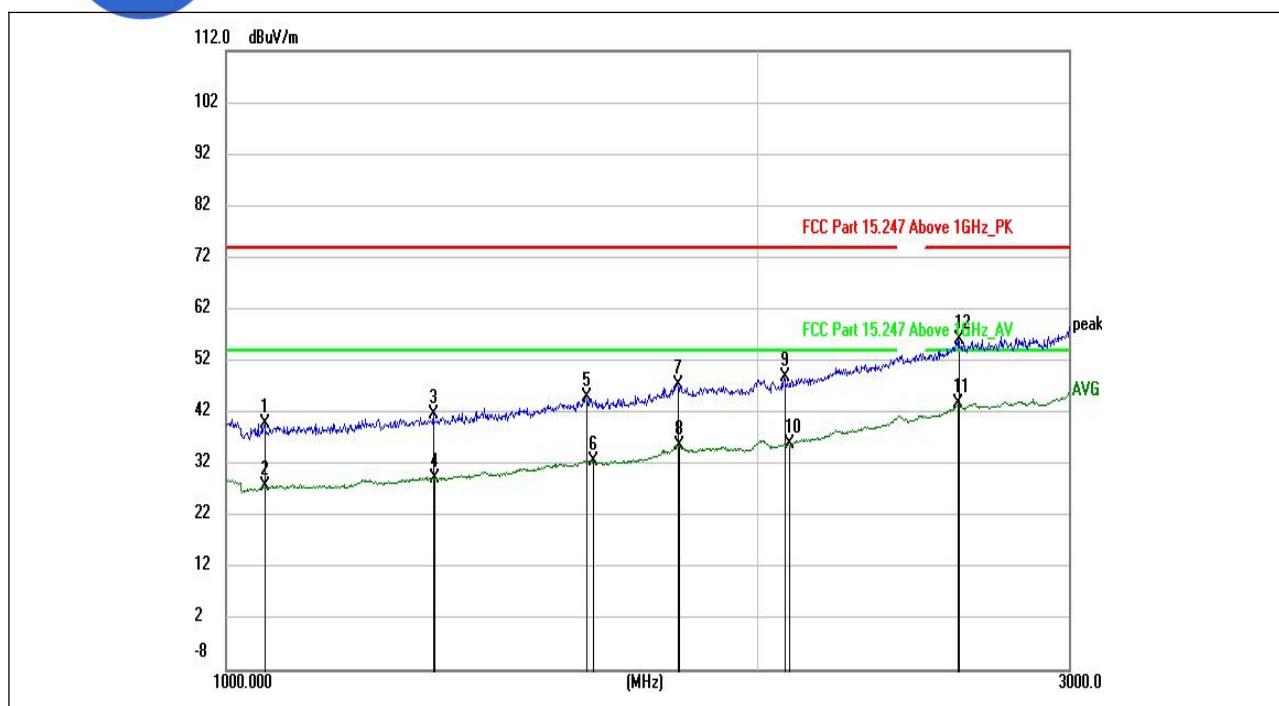


REPORT No. : XM190700036W01



(LE 1M PHY \_2480MHz, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
39.4372	15.50	40.00	24.50	H	14.85
71.5806	16.02	40.00	23.98	H	10.89
104.1701	21.04	43.50	22.46	H	14.28
183.844	19.60	43.50	23.90	H	12.29
321.0608	17.60	46.00	28.40	H	17.88
556.7744	24.55	46.00	21.45	H	22.67

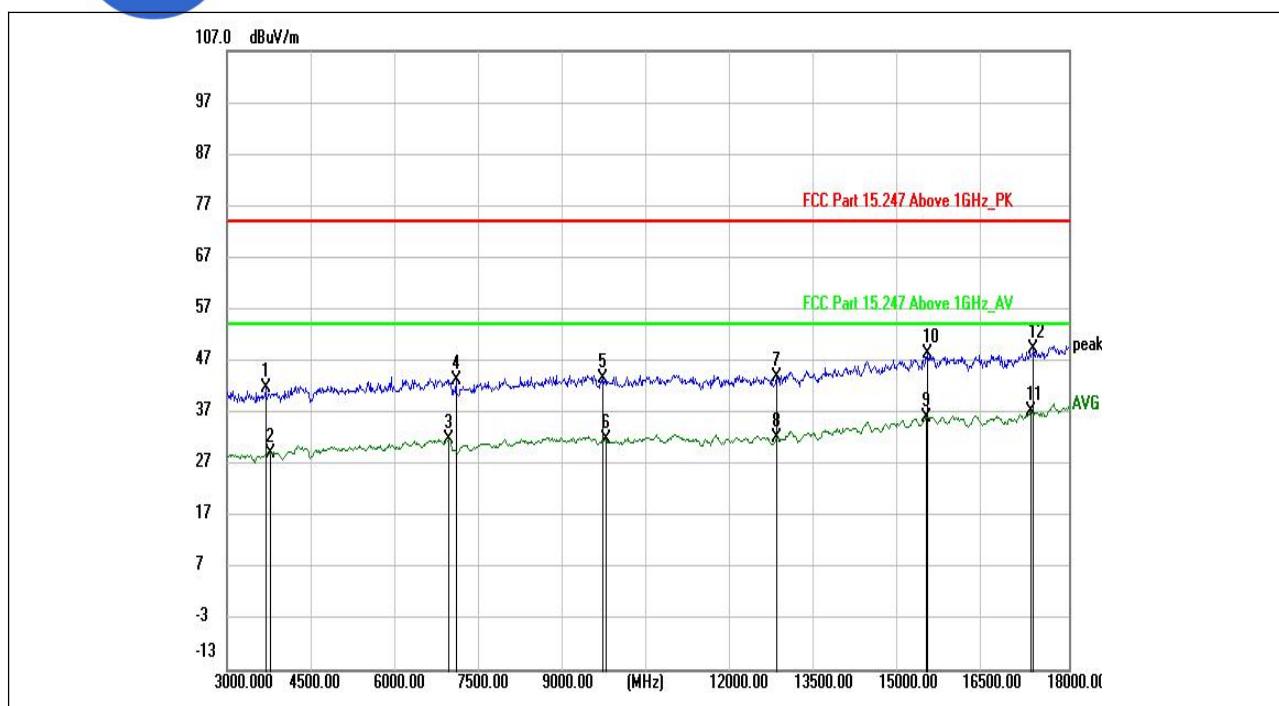


(LE 1M PHY \_2480MHz, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1051.835	39.84	---	74.00	34.16	H	28.73
1052.991	---	27.59	54.00	26.41	H	28.73
1310.303	41.47	---	74.00	32.53	H	30.78
1311.744	---	29.28	54.00	24.72	H	30.78
1598.567	44.77	---	74.00	29.23	H	34.17
1614.451	---	32.62	54.00	21.38	H	33.74
1799.948	47.27	---	74.00	26.73	H	36.78
1803.907	---	35.64	54.00	18.36	H	36.52
2069.447	48.96	---	74.00	25.04	H	36.62
2080.846	---	35.91	54.00	18.09	H	36.63
2595.023	---	43.67	54.00	10.33	H	43.36
2597.876	55.99	---	74.00	18.01	H	43.56



REPORT No. : XM190700036W01

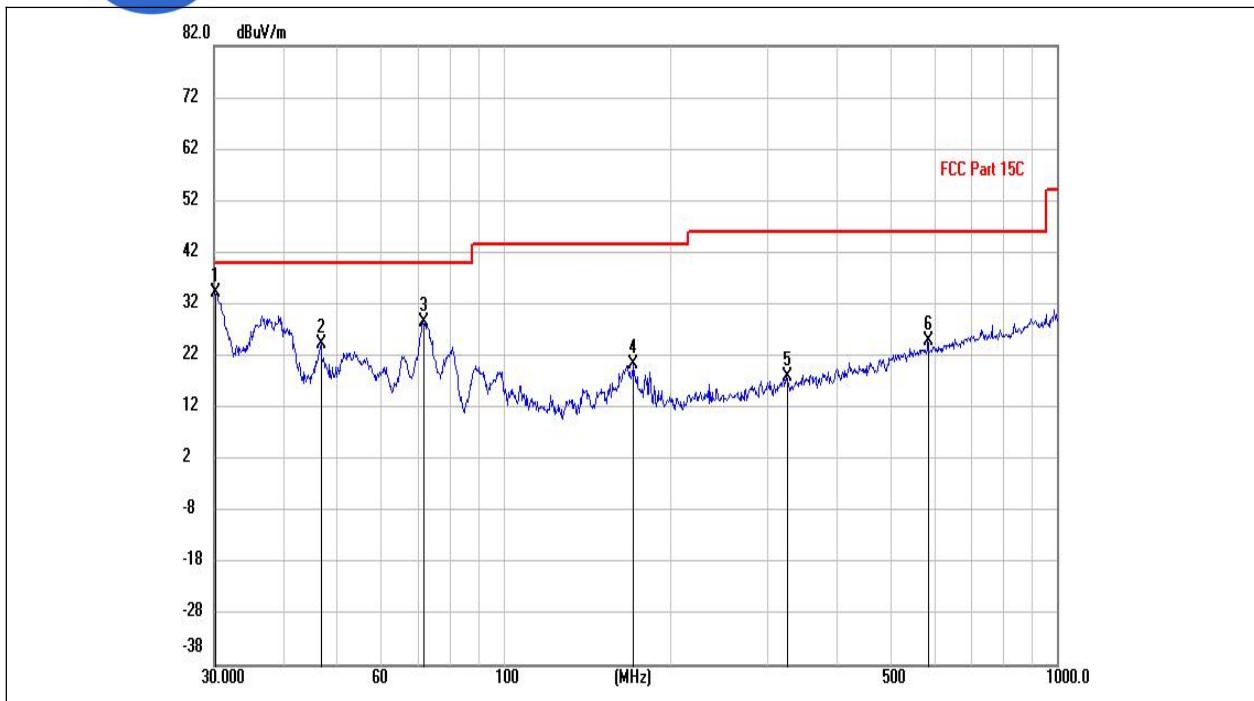


(LE 1M PHY \_2480MHz, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
3690.000	41.65	---	74.00	32.35	H	-5.31
3765.000	---	29.04	54.00	24.96	H	-5.00
6945.000	---	31.72	54.00	22.28	H	-0.52
7080.000	43.36	---	74.00	30.64	H	-0.78
9690.000	43.58	---	74.00	30.42	H	1.72
9750.000	---	31.68	54.00	22.32	H	1.98
12795.000	43.71	---	74.00	30.29	H	4.95
12795.000	---	32.13	54.00	21.87	H	4.95
15465.000	---	36.11	54.00	17.89	H	11.00
15480.000	48.43	---	74.00	25.57	H	11.11
17325.000	---	37.31	54.00	16.69	H	13.15
17370.000	49.24	---	74.00	24.76	H	13.32



REPORT No. : XM190700036W01

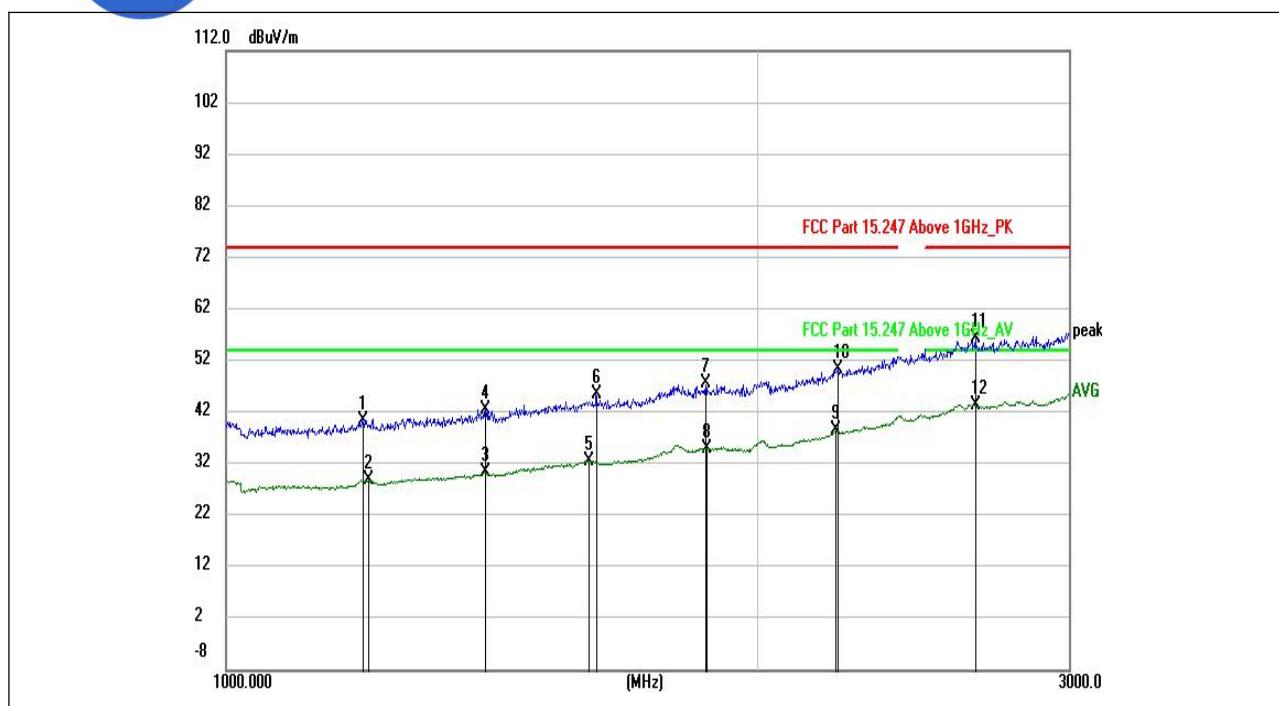


(LE 1M PHY \_2480MHz, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.1054	34.09	40.00	5.91	V	13.71
46.8303	24.38	40.00	15.62	V	15.48
71.5806	28.51	40.00	11.49	V	10.89
171.3926	20.20	43.50	23.30	V	12.11
324.4561	17.79	46.00	28.21	V	17.68
584.7895	24.72	46.00	21.28	V	23.10

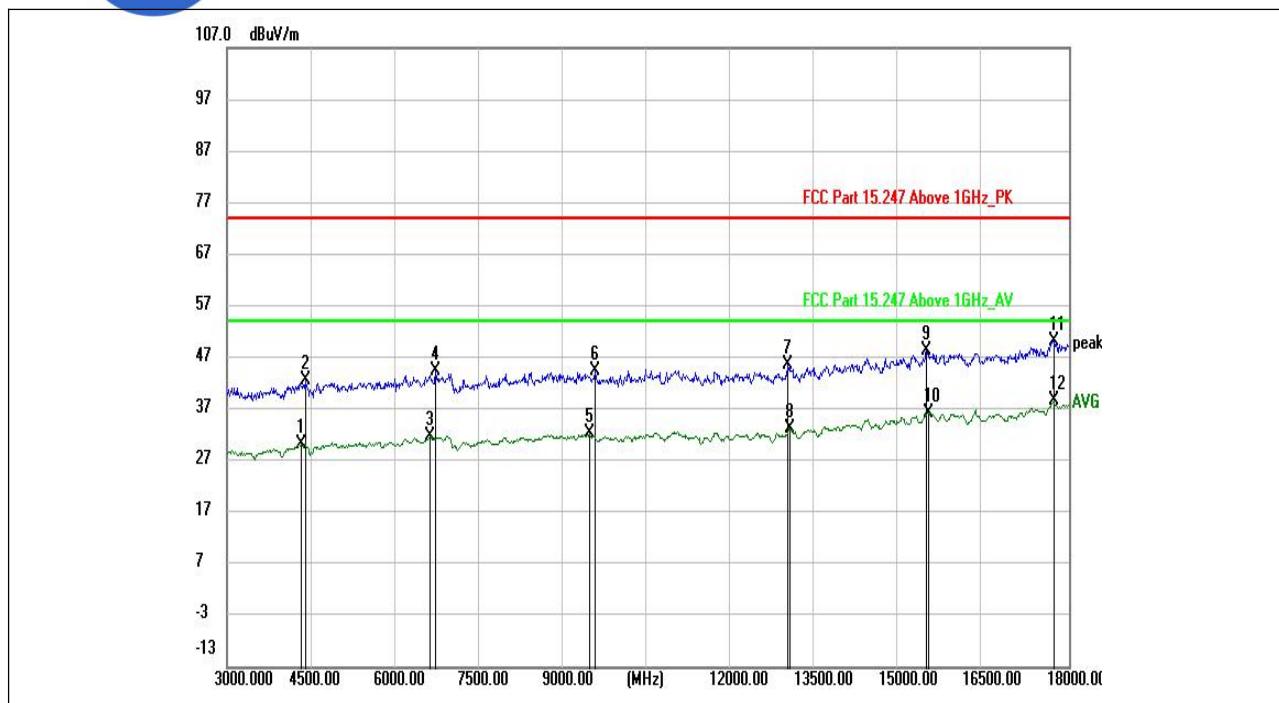


REPORT No. : XM190700036W01



(LE 1M PHY \_2480MHz, Antenna Vertical , 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1194.796	40.54	---	74.00	33.46	V	30.33
1204.019	---	28.99	54.00	25.01	V	30.50
1401.123	---	30.51	54.00	23.49	V	31.96
1402.663	42.55	---	74.00	31.45	V	31.90
1605.607	---	32.62	54.00	21.38	V	34.04
1619.781	45.41	---	74.00	28.59	V	33.55
1868.452	47.48	---	74.00	26.52	V	35.86
1870.506	---	35.06	54.00	18.94	V	35.88
2212.884	---	38.51	54.00	15.49	V	39.15
2220.189	50.45	---	74.00	23.55	V	39.11
2655.589	56.33	---	74.00	17.67	V	43.25
2655.589	---	43.53	54.00	10.47	V	43.25

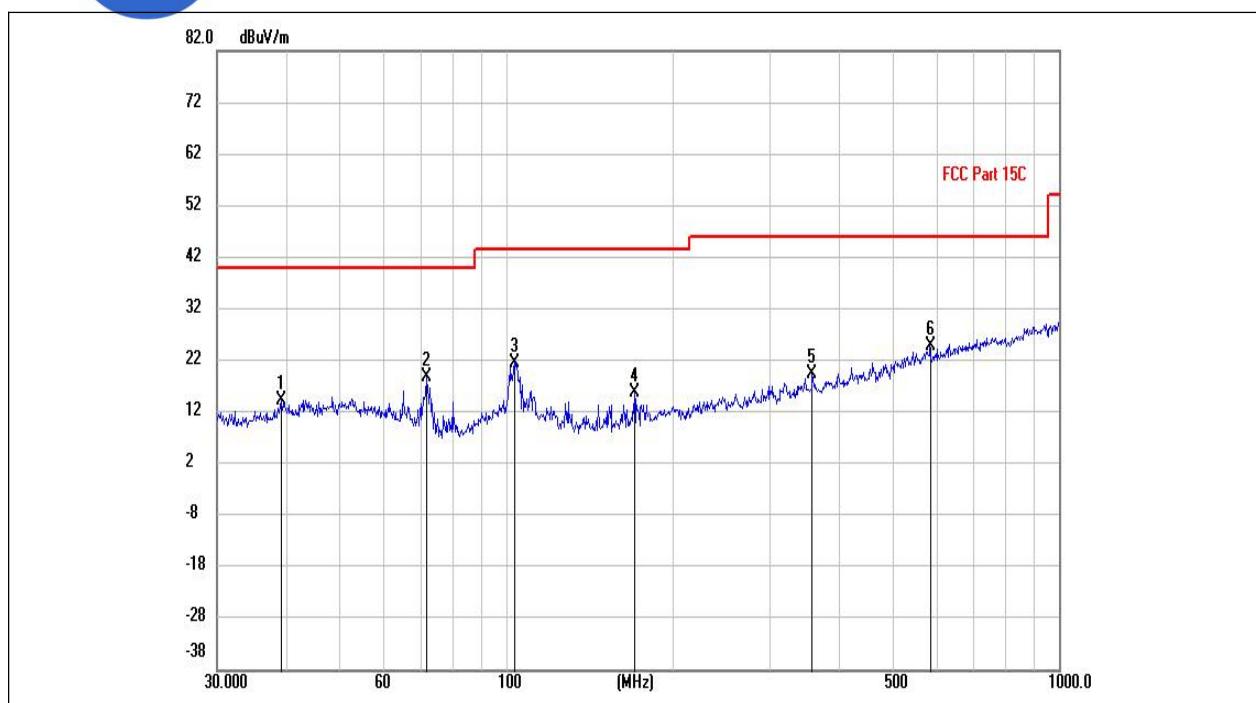


(LE 1M PHY \_2480MHz, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
4320.000	---	30.41	54.00	-23.59	V	-3.42
4395.000	42.63	---	74.00	-31.37	V	-3.57
6615.000	---	31.66	54.00	-22.34	V	-0.81
6720.000	44.55	---	74.00	-29.45	V	-1.01
9465.000	---	32.28	54.00	-21.72	V	2.03
9555.000	44.35	---	74.00	-29.65	V	2.51
12990.000	45.50	---	74.00	-28.50	V	5.62
13020.000	---	33.18	54.00	-20.82	V	5.97
15465.000	48.31	---	74.00	-25.69	V	10.42
15495.000	---	36.20	54.00	-17.80	V	10.36
17730.000	50.16	---	74.00	-23.84	V	14.93
17730.000	---	38.60	54.00	-15.40	V	14.93



REPORT No. : XM190700036W01

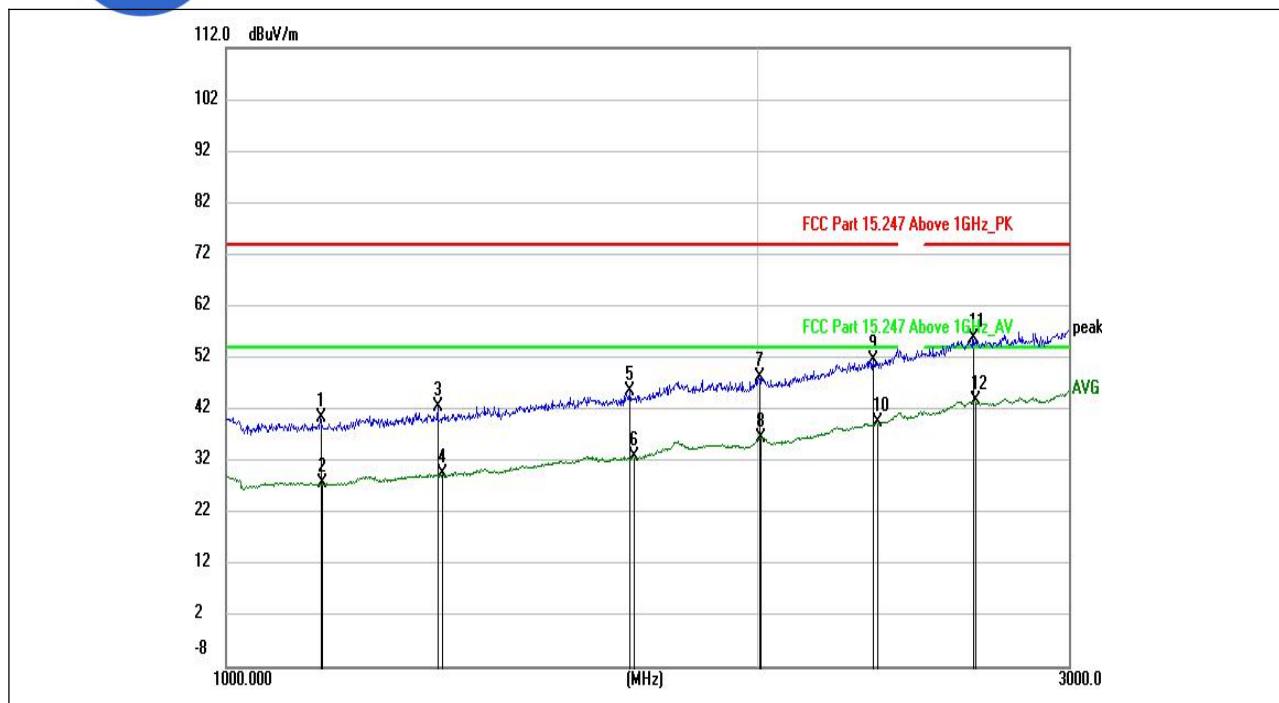


(LE 2M PHY\_2402MHz, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
39.2991	14.42	40.00	25.58	H	14.64
71.8320	18.79	40.00	21.21	H	10.69
103.4421	21.66	43.50	21.84	H	14.37
170.7926	15.71	43.50	27.79	H	12.28
357.9287	19.30	46.00	26.70	H	18.42
584.7895	24.77	46.00	21.23	H	23.10



REPORT No. : XM190700036W01

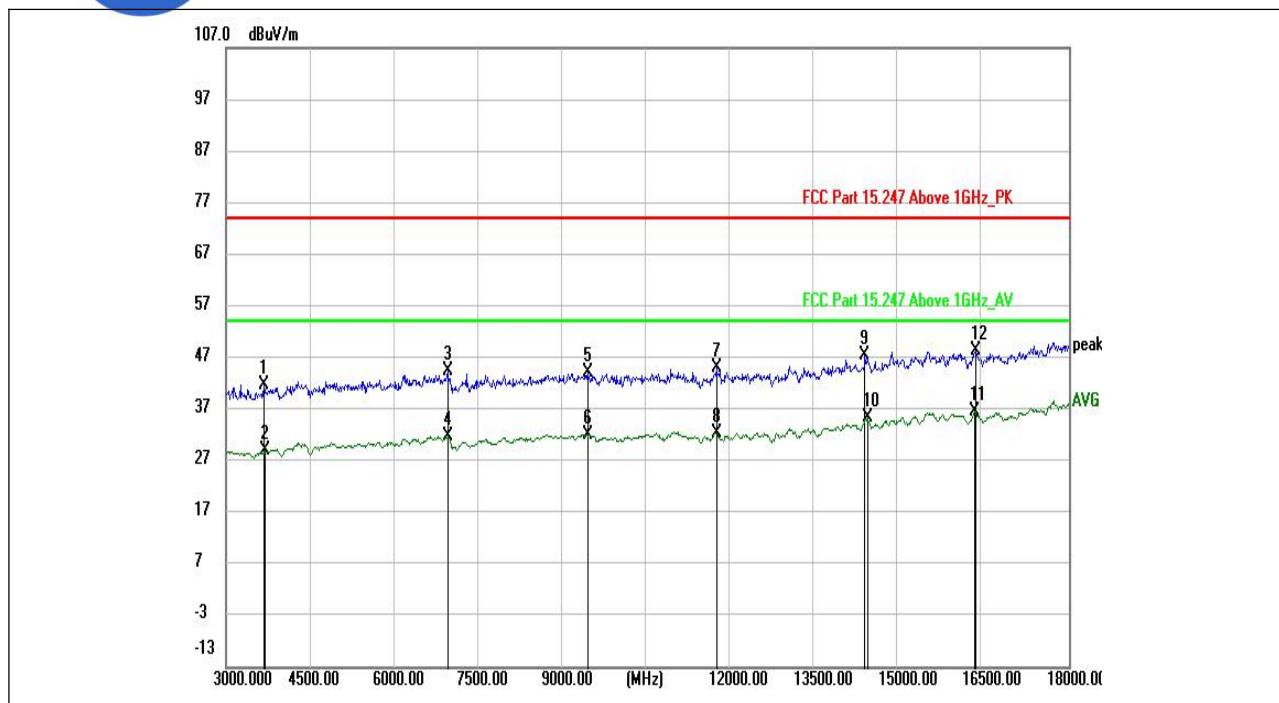


(LE 2M PHY \_2402MHz, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1130.935	40.30	---	74.00	33.70	H	28.97
1134.668	---	27.71	54.00	26.29	H	29.02
1317.521	42.37	---	74.00	31.63	H	30.78
1326.234	---	29.44	54.00	24.56	H	30.76
1692.548	45.65	---	74.00	28.35	H	33.83
1700.003	---	32.77	54.00	21.23	H	33.87
2002.353	48.37	---	74.00	25.63	H	37.26
2006.757	---	36.55	54.00	17.45	H	37.23
2325.033	51.61	---	74.00	22.39	H	39.70
2335.273	---	39.35	54.00	14.65	H	39.78
2646.851	55.80	---	74.00	18.20	H	43.33
2652.673	---	43.57	54.00	10.43	H	43.29



REPORT No. : XM190700036W01

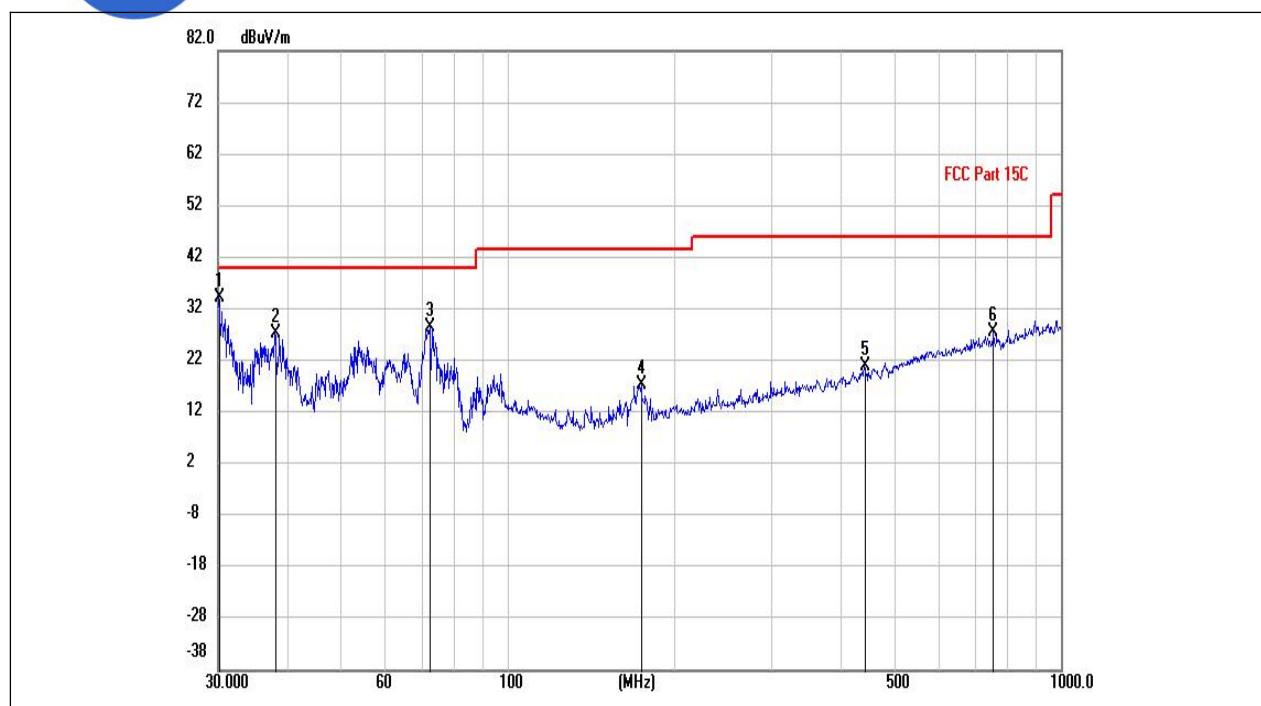


(LE 2M PHY \_2402MHz, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
3675.000	41.70	---	74.00	32.30	H	-5.39
3690.000	---	29.09	54.00	24.91	H	-5.31
6945.000	44.54	---	74.00	29.46	H	-0.52
6945.000	---	31.66	54.00	22.34	H	-0.52
9435.000	44.04	---	74.00	29.96	H	1.98
9435.000	---	32.18	54.00	21.82	H	1.98
11730.000	44.91	---	74.00	29.09	H	3.95
11730.000	---	32.47	54.00	21.53	H	3.95
14370.000	47.35	---	74.00	26.65	H	9.35
14415.000	---	35.38	54.00	18.62	H	9.30
16320.000	---	36.69	54.00	17.31	H	11.74
16350.000	48.32	---	74.00	25.68	H	11.52

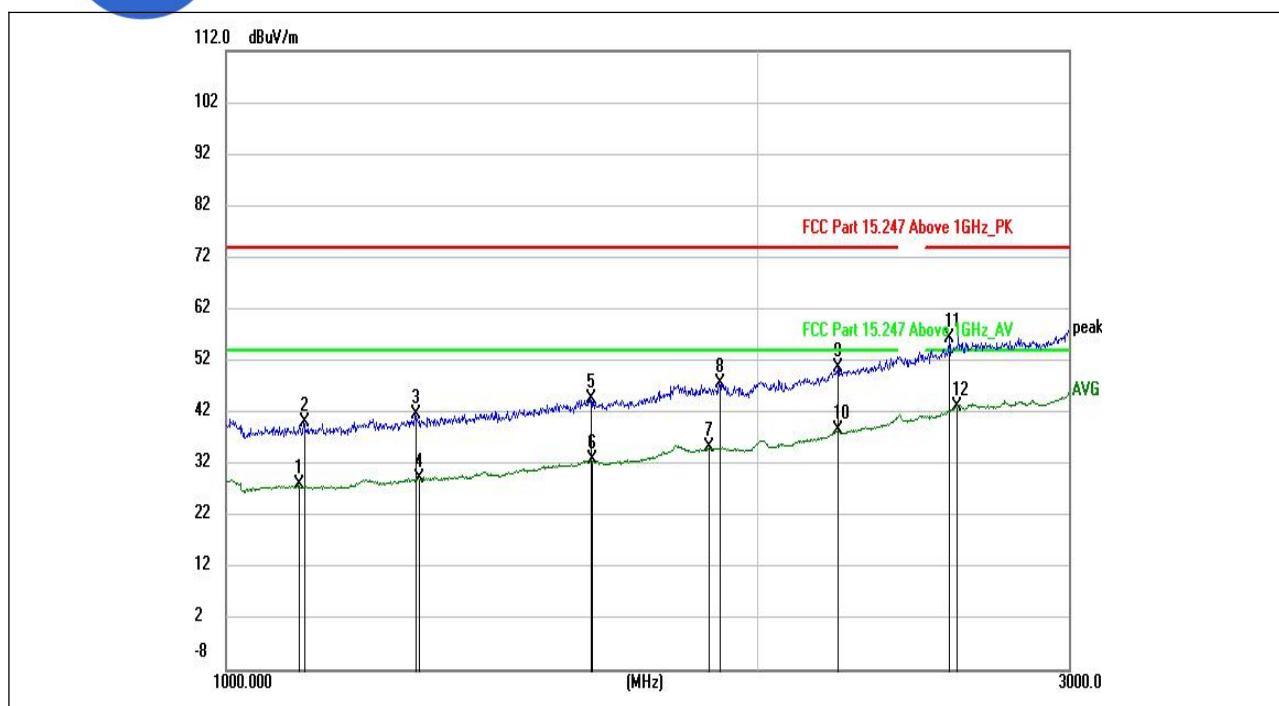


REPORT No. : XM190700036W01



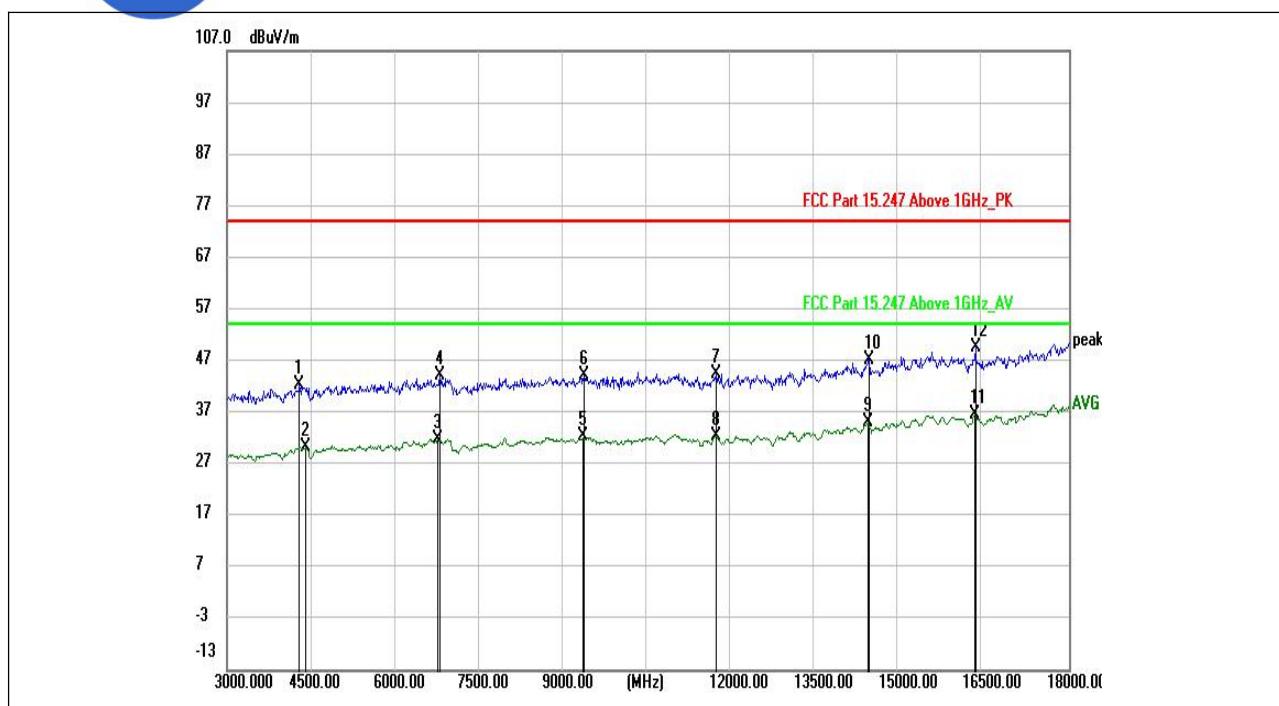
(LE 2M PHY \_2402MHz, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.1054	34.11	40.00	5.89	V	13.71
37.9450	27.21	40.00	12.79	V	13.96
72.3376	28.52	40.00	11.48	V	10.48
174.4241	17.43	43.50	26.07	V	11.54
441.7426	20.98	46.00	25.02	V	20.34
755.3873	27.72	46.00	18.28	V	26.07



(LE 2M PHY \_2402MHz, Antenna Vertical , 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1099.088	---	28.00	54.00	26.00	V	29.07
1106.357	40.11	---	74.00	33.89	V	29.02
1279.014	41.55	---	74.00	32.45	V	30.65
1284.647	---	29.18	54.00	24.82	V	30.66
1607.372	44.47	---	74.00	29.53	V	33.98
1609.139	---	32.88	54.00	21.12	V	33.92
1876.681	---	35.20	54.00	18.80	V	35.88
1901.586	47.58	---	74.00	26.42	V	36.05
2220.189	50.76	---	74.00	23.24	V	39.11
2220.189	---	38.60	54.00	15.40	V	39.11
2566.670	56.32	---	74.00	17.68	V	42.29
2589.328	---	43.10	54.00	10.90	V	43.01

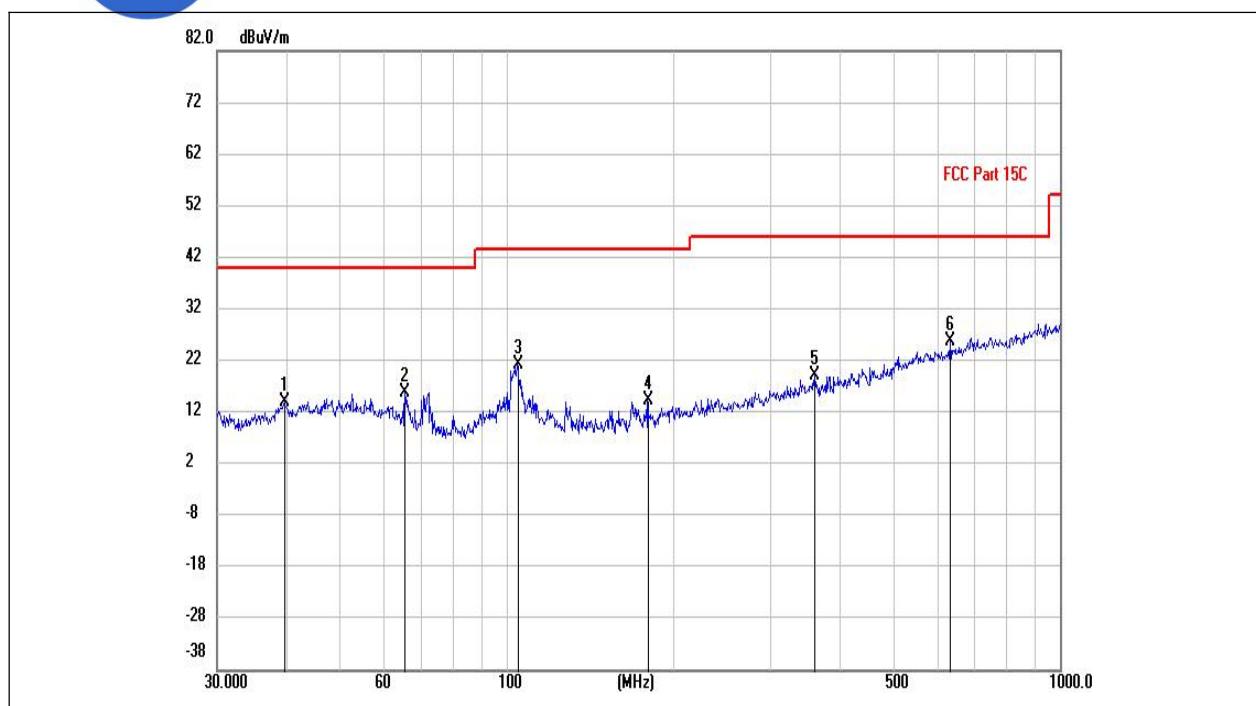


(LE 2M PHY \_2402MHz, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
4290.000	42.20	---	74.00	31.80	V	-3.37
4395.000	---	30.32	54.00	23.68	V	-3.57
6750.000	---	31.65	54.00	22.35	V	-1.14
6795.000	44.20	---	74.00	29.80	V	-1.09
9345.000	---	32.23	54.00	21.77	V	1.75
9360.000	44.17	---	74.00	29.83	V	1.84
11715.000	44.58	---	74.00	29.42	V	3.99
11715.000	---	32.47	54.00	21.53	V	3.99
14415.000	---	35.00	54.00	19.00	V	9.48
14445.000	47.11	---	74.00	26.89	V	9.27
16320.000	---	36.45	54.00	17.55	V	11.74
16335.000	49.66	---	74.00	24.34	V	11.70

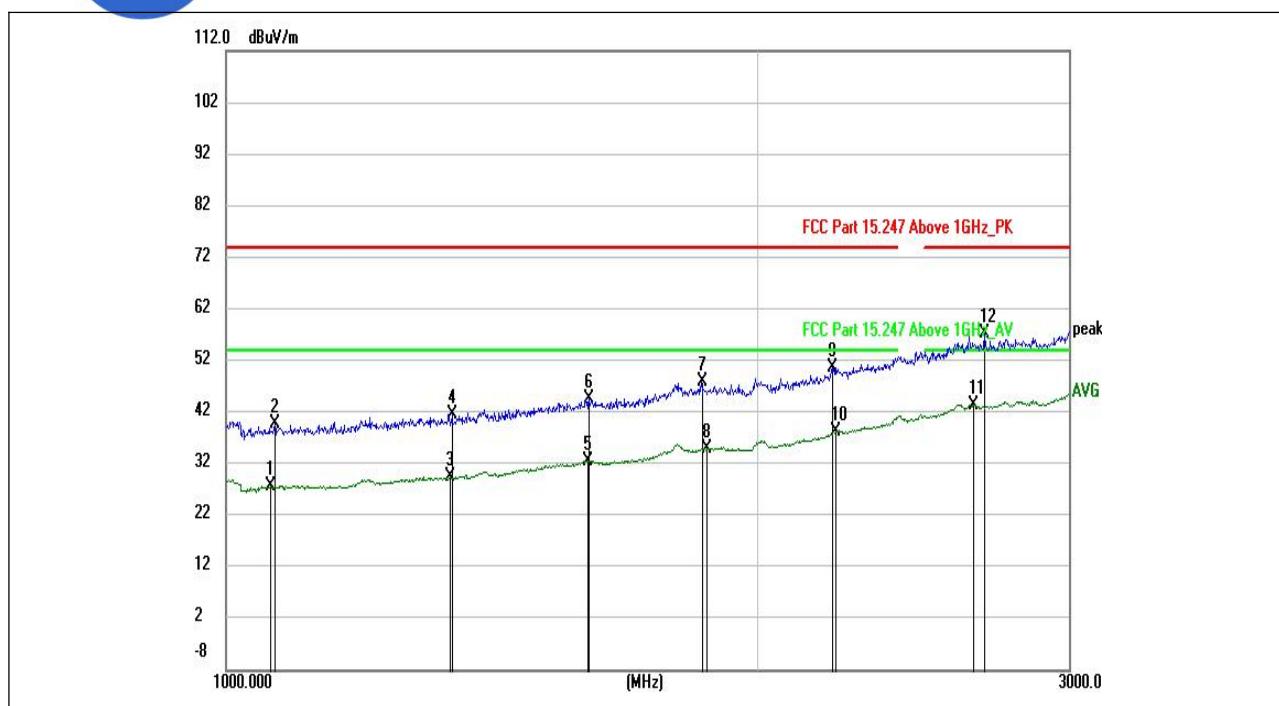


REPORT No. : XM190700036W01



(LE 2M PHY \_2440MHz, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
39.7147	13.88	40.00	26.12	H	15.27
65.5727	15.79	40.00	24.21	H	13.22
104.5361	21.18	43.50	22.32	H	14.22
180.0165	14.41	43.50	29.09	H	12.80
360.4477	19.20	46.00	26.80	H	18.55
633.9073	25.89	46.00	20.11	H	24.01

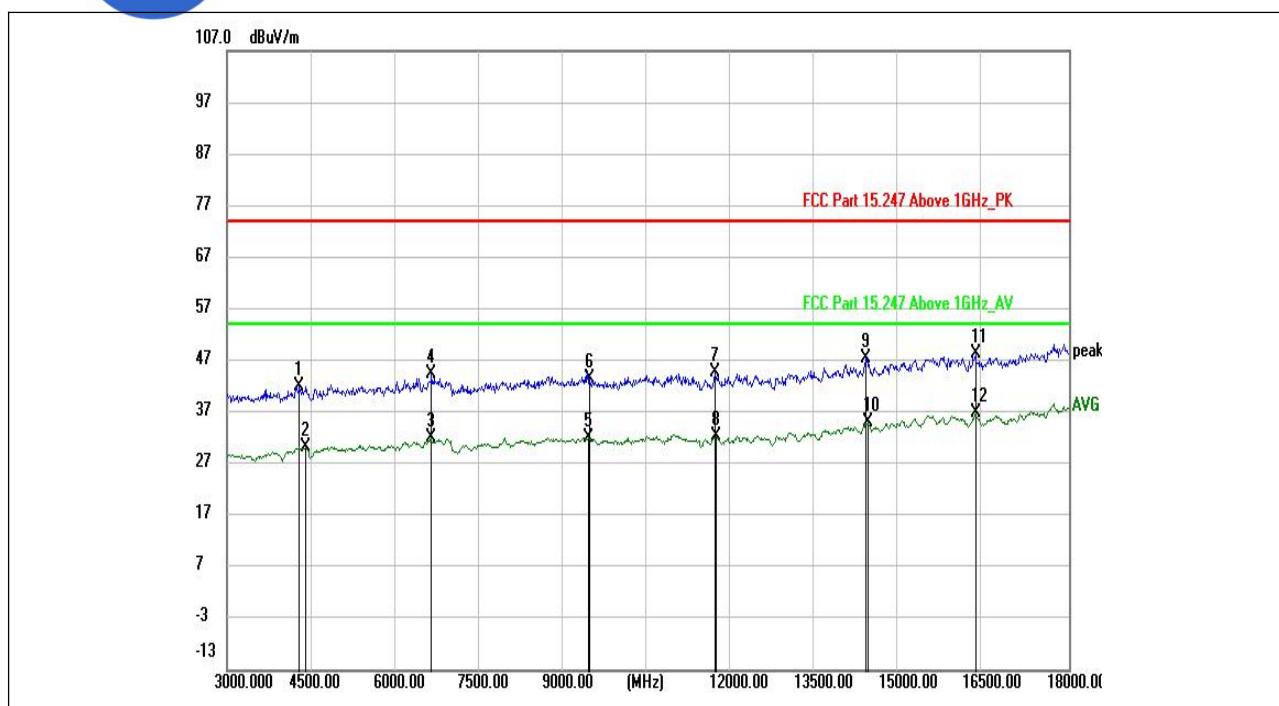


(LE 2M PHY \_2440MHz, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1059.955	---	27.71	54.00	26.29	H	28.73
1065.793	39.86	---	74.00	34.14	H	28.91
1339.412	---	29.41	54.00	24.59	H	30.88
1342.358	41.66	---	74.00	32.34	H	30.94
1603.844	---	32.68	54.00	21.32	H	34.10
1605.607	44.73	---	74.00	29.27	H	34.04
1858.217	47.90	---	74.00	26.10	H	35.74
1872.562	---	34.99	54.00	19.01	H	35.88
2203.181	50.75	---	74.00	23.25	H	38.76
2212.884	---	38.21	54.00	15.79	H	39.15
2649.760	---	43.49	54.00	10.51	H	43.32
2687.875	57.19	---	74.00	16.81	H	43.08



REPORT No. : XM190700036W01

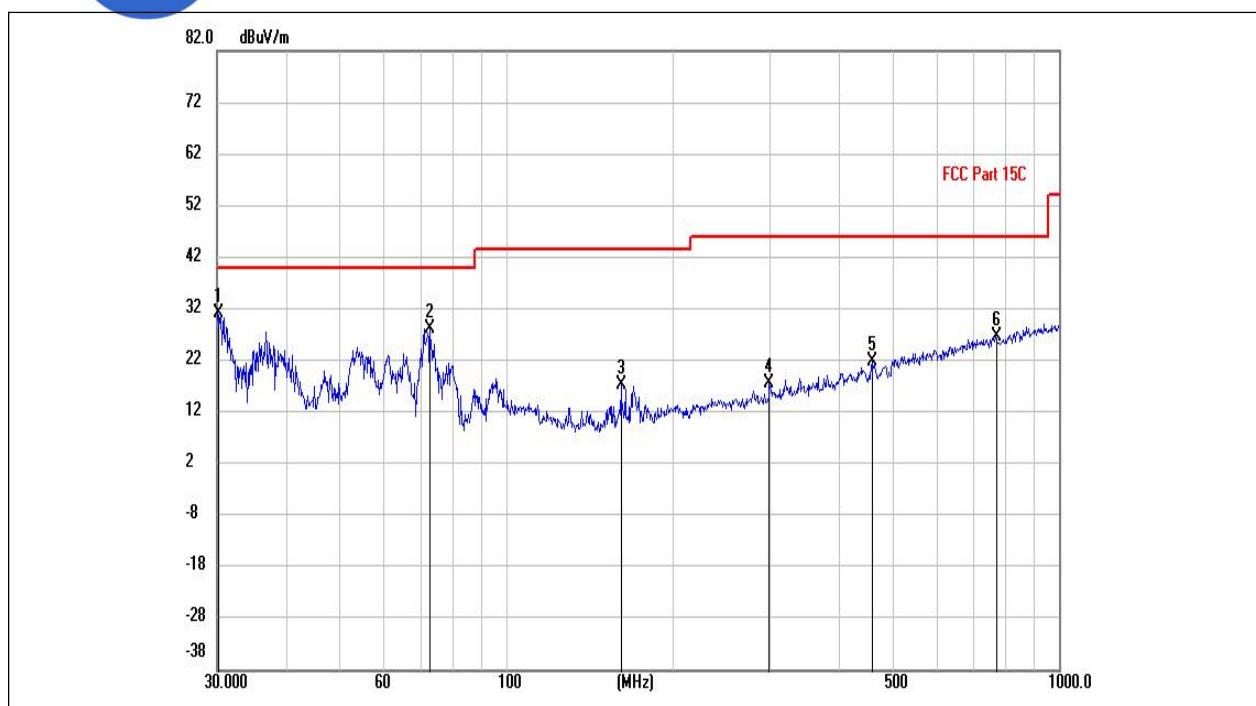


(LE 2M PHY \_2440MHz, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
4290.000	41.95	---	74.00	32.05	H	-3.37
4395.000	---	30.21	54.00	23.79	H	-3.57
6630.000	---	31.96	54.00	22.04	H	-0.60
6645.000	44.53	---	74.00	29.47	H	-0.38
9435.000	---	32.13	54.00	21.87	H	1.98
9465.000	43.40	---	74.00	30.60	H	1.77
11700.000	44.78	---	74.00	29.22	H	4.01
11715.000	---	32.32	54.00	21.68	H	3.99
14385.000	47.52	---	74.00	26.48	H	9.38
14415.000	---	35.19	54.00	18.81	H	9.30
16335.000	48.24	---	74.00	25.76	H	11.70
16335.000	---	36.77	54.00	17.23	H	11.70



REPORT No. : XM190700036W01

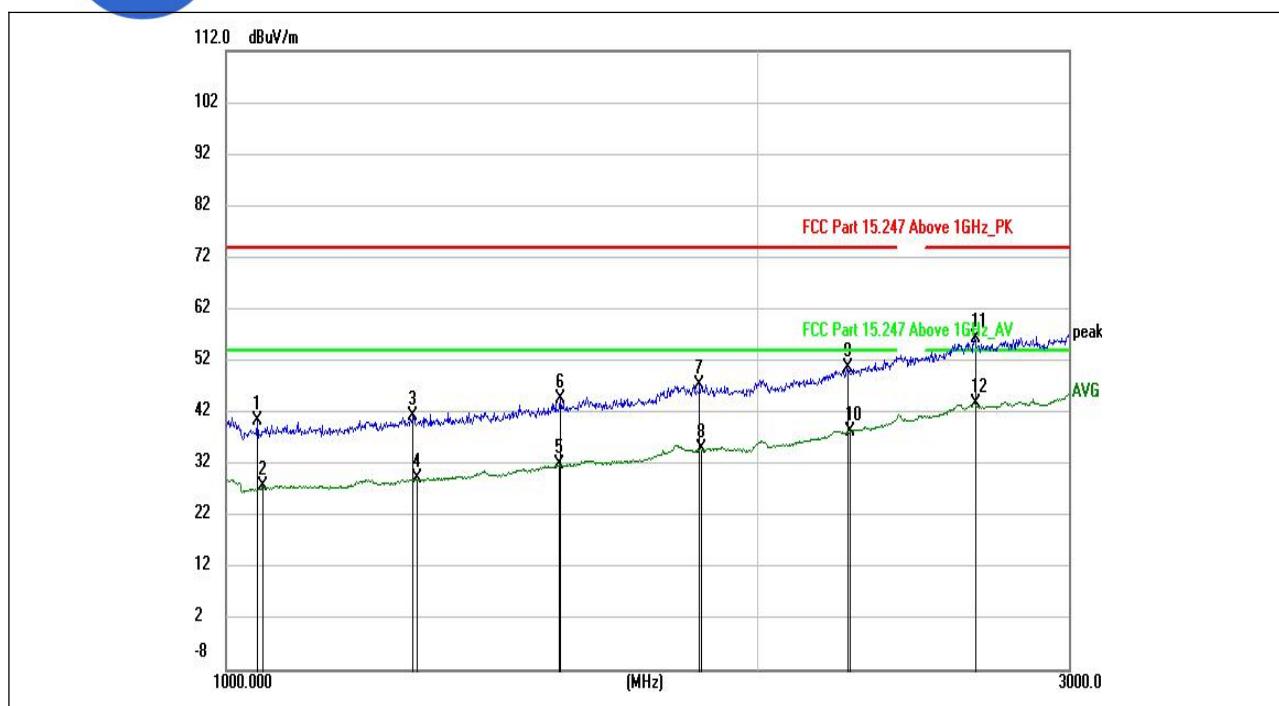


(LE 2M PHY \_2440MHz, Antenna Vertical, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.1054	31.26	40.00	8.74	V	13.71
72.8466	28.20	40.00	11.80	V	10.35
161.4742	17.27	43.50	26.23	V	11.95
299.3158	17.53	46.00	28.47	V	17.28
460.7271	21.76	46.00	24.24	V	21.08
768.7482	26.69	46.00	19.31	V	26.17

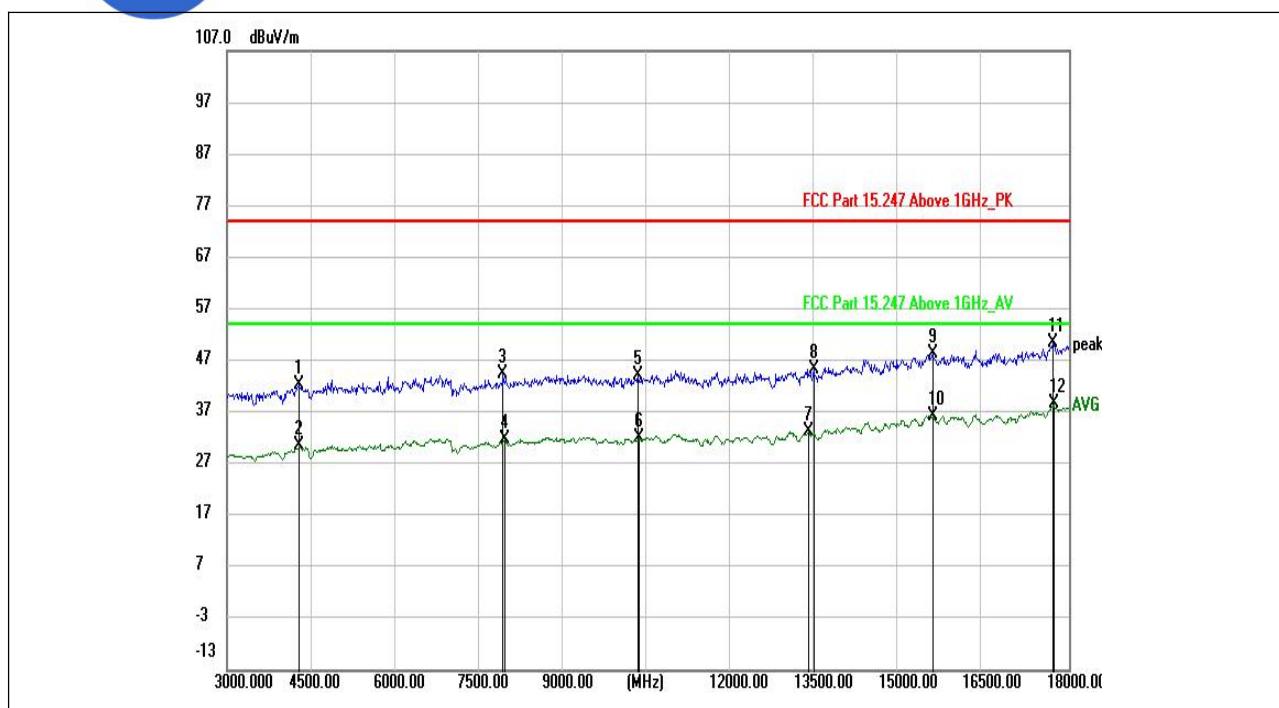


REPORT No. : XM190700036W01



(LE 2M PHY \_2440MHz, Antenna Vertical , 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1041.486	40.27	---	74.00	33.73	V	28.41
1049.526	---	27.66	54.00	26.34	V	28.73
1276.206	41.18	---	74.00	32.82	V	30.59
1281.827	---	29.29	54.00	24.71	V	30.67
1543.345	---	31.97	54.00	22.03	V	33.24
1546.739	44.47	---	74.00	29.53	V	33.30
1854.138	47.47	---	74.00	26.53	V	35.67
1856.177	---	34.95	54.00	19.05	V	35.71
2247.183	50.53	---	74.00	23.47	V	38.96
2257.079	---	38.41	54.00	15.59	V	39.09
2652.673	56.35	---	74.00	17.65	V	43.29
2652.673	---	43.62	54.00	10.38	V	43.29

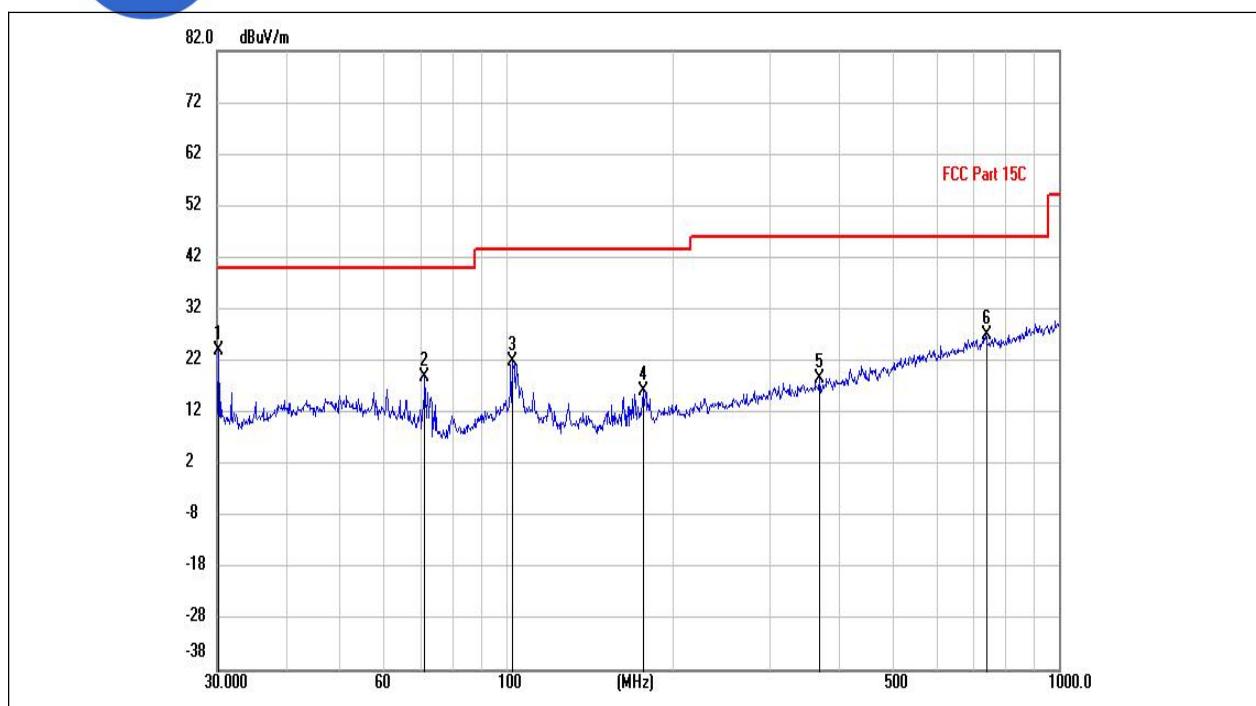


(LE 2M PHY \_2440MHz, Antenna Vertical, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
4275.000	42.41	---	74.00	31.59	V	-3.39
4290.000	---	30.65	54.00	23.35	V	-3.37
7920.000	44.29	---	74.00	29.71	V	0.84
7950.000	---	31.78	54.00	22.22	V	1.44
10320.000	44.18	---	74.00	29.82	V	2.03
10350.000	---	32.01	54.00	21.99	V	2.19
13365.000	---	33.17	54.00	20.83	V	6.50
13455.000	45.49	---	74.00	28.51	V	6.52
15570.000	48.46	---	74.00	25.54	V	10.45
15585.000	---	36.23	54.00	17.77	V	10.35
17715.000	50.39	---	74.00	23.61	V	14.60
17730.000	---	38.69	54.00	15.31	V	14.93

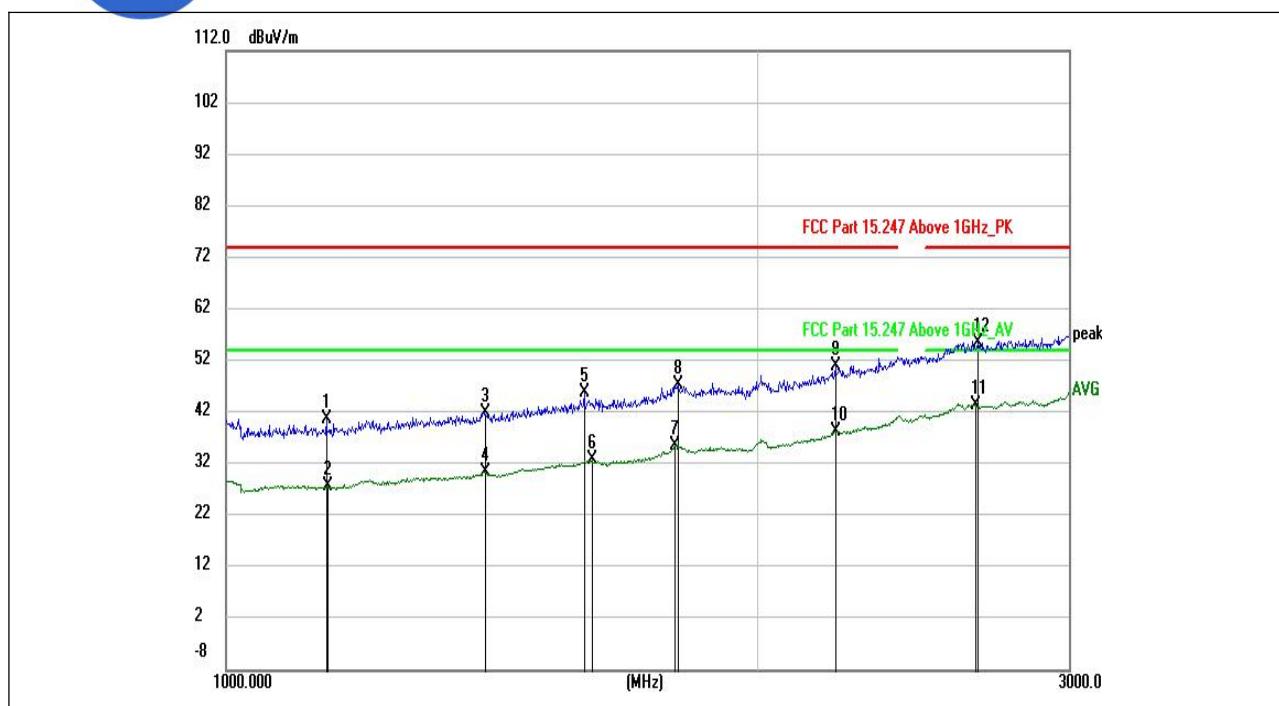


REPORT No. : XM190700036W01



(LE 2M PHY \_2480MHz, Antenna Horizontal, 30MHz to 1GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.2111	24.05	40.00	15.95	H	13.52
71.3300	18.76	40.00	21.24	H	11.08
102.7192	21.76	43.50	21.74	H	14.51
176.8878	16.25	43.50	27.25	H	11.93
369.4047	18.57	46.00	27.43	H	17.65
737.0714	27.07	46.00	18.93	H	25.73

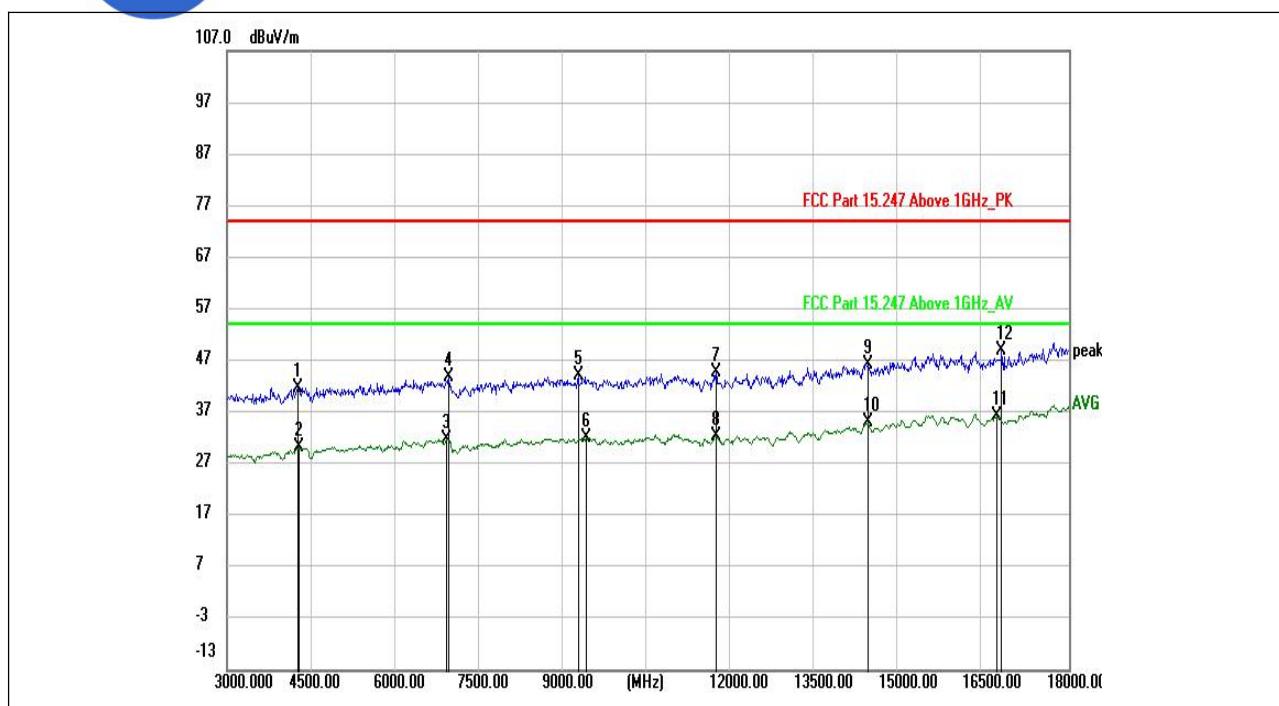


(LE 2M PHY \_2480MHz, Antenna Horizontal, 1GHz to 3GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1139.666	40.68	---	74.00	33.32	H	29.00
1142.172	---	27.68	54.00	26.32	H	28.98
1401.123	41.93	---	74.00	32.07	H	31.96
1401.123	---	30.53	54.00	23.47	H	31.96
1595.058	45.74	---	74.00	28.26	H	34.01
1610.908	---	32.84	54.00	21.16	H	33.86
1795.997	---	35.71	54.00	18.29	H	36.48
1801.926	47.31	---	74.00	26.69	H	36.65
2212.884	50.93	---	74.00	23.07	H	39.15
2212.884	---	38.39	54.00	15.61	H	39.15
2652.673	---	43.42	54.00	10.58	H	43.29
2664.355	55.55	---	74.00	18.45	H	43.13



REPORT No. : XM190700036W01



(LE 2M PHY \_2480MHz, Antenna Horizontal, 3GHz to 18GHz)

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB/m)
4260.000	41.81	---	74.00	32.19	H	-3.57
4275.000	---	30.15	54.00	23.85	H	-3.39
6915.000	---	31.80	54.00	22.20	H	-0.82
6945.000	43.83	---	74.00	30.17	H	-0.52
9255.000	44.01	---	74.00	29.99	H	2.39
9405.000	---	32.11	54.00	21.89	H	2.02
11715.000	44.74	---	74.00	29.26	H	3.99
11715.000	---	32.40	54.00	21.60	H	3.99
14415.000	46.16	---	74.00	27.84	H	9.30
14415.000	---	35.20	54.00	18.80	H	9.30
16710.000	---	36.17	54.00	17.83	H	11.78
16800.000	48.92	---	74.00	25.08	H	11.25