



Report No.: RZA2010-1143RF15C-BT



## Part 15C

# TEST REPORT

Product Name modu W

FCC ID WQKW1000

Model modu W

Client modu LTD.

TA Technology (Shanghai) Co., Ltd.



## GENERAL SUMMARY

<b>Product Name</b>	modu W	<b>Model</b>	modu W
<b>FCC ID</b>	WQKW1000	<b>Report No.</b>	RZA2010-1143RF15C-BT
<b>Client</b>	modu LTD.		
<b>Manufacturer</b>	YuHua TelTech(Shanghai) Co., Ltd.		
<b>Reference Standard(s)</b>	<p><b>FCC CFR47 Part 15C (2009-12)</b> Radio Frequency Devices</p> <p><b>15.205</b> Restricted bands of operation;</p> <p><b>15.207</b> Conducted limits;</p> <p><b>15.209</b> Radiated emission limits; general requirements;</p> <p><b>15.247</b> Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz.</p> <p><b>ANSI C63.4</b> Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz. (2003)</p> <p><b>DA00-705</b> Filing and Frequency Measurement Guidelines For Frequency Hopping Spread Spectrum System.(2000)</p>		
<b>Conclusion</b>	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 2 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: <b>Pass</b></p> <p>(Stamp)</p> <p>Date of issue: August 14<sup>th</sup>, 2010</p>		
<b>Comment</b>	The test result only responds to the measured sample.		

Approved by 杨伟中  
Yang Weizhong

Revised by 徐凯  
Xu Kai

Performed by 杜瑞伟  
Du Ruwei

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## **1. General Information**

### **1.1. Notes of the test report**

**TA Technology (Shanghai) Co., Ltd.** guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at **TA Technology (Shanghai) Co., Ltd.** at the time of execution of the test.

**TA Technology (Shanghai) Co., Ltd.** is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone does not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

### **1.2. Testing laboratory**

Company: TA Technology (Shanghai) Co., Ltd.  
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong  
City: Shanghai  
Post code: 201201  
Country: P. R. China  
Contact: Yang Weizhong  
Telephone: +86-021-50791141/2/3  
Fax: +86-021-50791141/2/3-8000  
Website: <http://www.ta-shanghai.com>  
E-mail: [yangweizhong@ta-shanghai.com](mailto:yangweizhong@ta-shanghai.com)

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### **1.3. Applicant Information**

Company: modu LTD.  
Address: Atir-Yeda 17  
City: Kefar-Saba  
Postal Code: 44643  
Country: Israel  
Contact: Guy Badichi  
Telephone: 972-54-9222168  
Fax: 972-9-8648383

### **1.4. Manufacturer Information**

Company: YuHua TelTech(Shanghai) Co., Ltd.  
Address: 4F/2,District B,No.1000 Jinhai Road,Pudong,Shanghai,  
City: Shanghai  
Postal Code: /  
Country: P.R.China  
Telephone: 021-51156088-1707  
Fax: 021-51156099

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## 1.5. Information of EUT

### General information

Name of EUT:	modu W	
IMEI or SN:	A0303001E0000121	
Device Operating Configurations:		
Mode	Basic Rate	Enhanced Data Rate(EDR)
Modulation	GFSK	8DQPSK
Packet Type:(Maximum Payload)	DH5	3DH5
Max Conducted Power	1.219dBm	
Antenna Type:	Internal Antenna	
Power Supply:	Battery or Adapter	
Rated Power Supply Voltage:	3.7V	
Extreme Voltage:	Minimum: 3.45V Maximum: 4.2V	
Extreme Temperature:	Lowest: -20°C Highest: +55°C	
Operating Frequency Range(s)	2400 ~ 2483.5 MHz	
Hardware Version:	MUW-T	
Software Version:	MUW-V	

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**Auxiliary equipment details**

**AE1: Battery**

Model: US293350  
Manufacturer: Formosa  
S/N: /

**AE2: Adapter**

Model: DCH3-050US-0002  
Manufacturer: Emerson  
S/N: /

**AE2: Earphone(Black)**

Model: SL-600  
Manufacturer: Fujikon  
S/N: /

**AE3: Earphone(White)**

Model: WS-EC-638  
Manufacturer: WELLSONIC  
S/N: /

Equipment Under Test (EUT) is modu W with internal antenna. The EUT supports Bluetooth.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

## **1.6. Test Date**

The test is performed from July 27, 2010 to August 14, 2010.

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## **2. Test Information**

### **2.1. Summary of test results**

<b>Number</b>	<b>Summary of measurements of results</b>	<b>Clause in FCC rules</b>	<b>Verdict</b>
1	Peak Power Output -Conducted	15.247(b)(1)	PASS
2	Occupied Bandwidth (20dB)	15.247(a)(1)	PASS
3	Frequency Separation	15.247(a)(1)	PASS
4	Time of Occupancy (Dwell Time)	15.247(a)(1)(iii)	PASS
5	Band Edge Compliance	15.247(d)	PASS
6	Spurious Radiated Emissions in the restricted band	15.247(d),15.205,15.209	PASS
7	Number of Hopping Frequency	15.247(a)(1)(iii)	PASS
8	Spurious RF Conducted Emissions	15.247(d)	PASS
9	Radiates Emission	15.247(d),15.205,15.209	PASS
10	AC Power Line Conducted Emission	15.207	PASS

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## **2.2. Peak Power Output –Conducted**

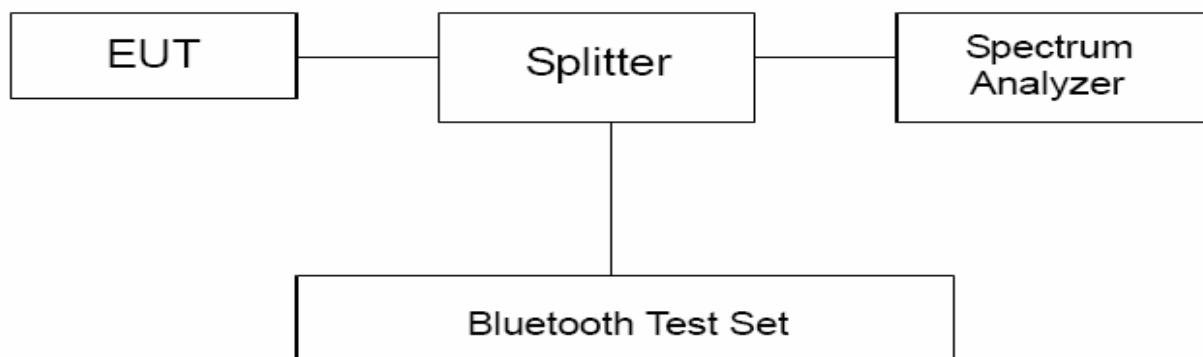
### **Ambient condition**

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### **Methods of Measurement**

During the process of the testing, The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The EUT is controlled by the Bluetooth test set to ensure max power transmission with proper modulation. The peak detector is used.RBW is set to 1MHz,VBW is set to 3MHz.These measurements have been tested at following channels: 0, 39, and 78.

### **Test Setup**



### **Limits**

Rule Part 15.247 (b) (1)specifies that " For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts."

Peak Output Power	≤ 1W (30dBm)
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### **Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U= 0.44$  dB.

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### Test Results

Channel	Frequency (MHz)	Peak Output Power (dBm)		Conclusion
		DH5	3DH5	
0	2402	0.732	-0.840	PASS
39	2441	1.219	-0.309	PASS
78	2480	1.096	-0.346	PASS

### DH5



Carrier frequency (MHz): 2402

Channel No.:0

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Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

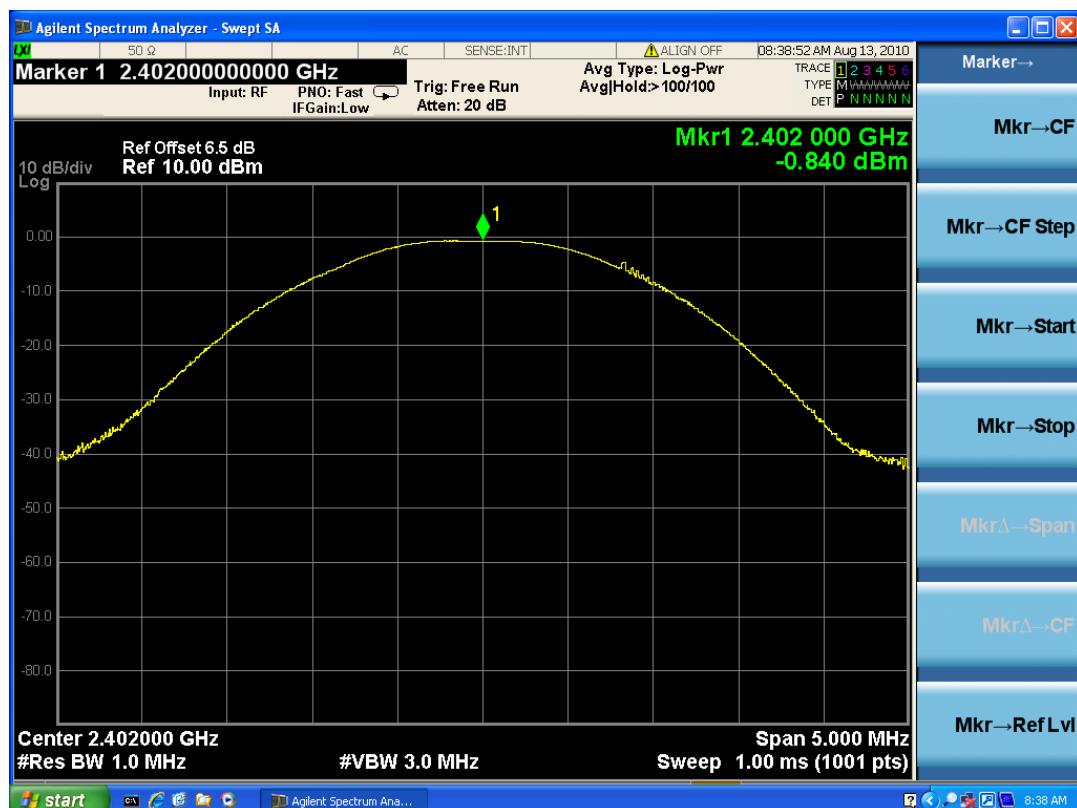
Channel No.:78

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**3DH5**



Carrier frequency (MHz): 2402  
 Channel No.:0



Carrier frequency (MHz): 2441  
 Channel No.:39

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## 2.3. Occupied Bandwidth (20dB)

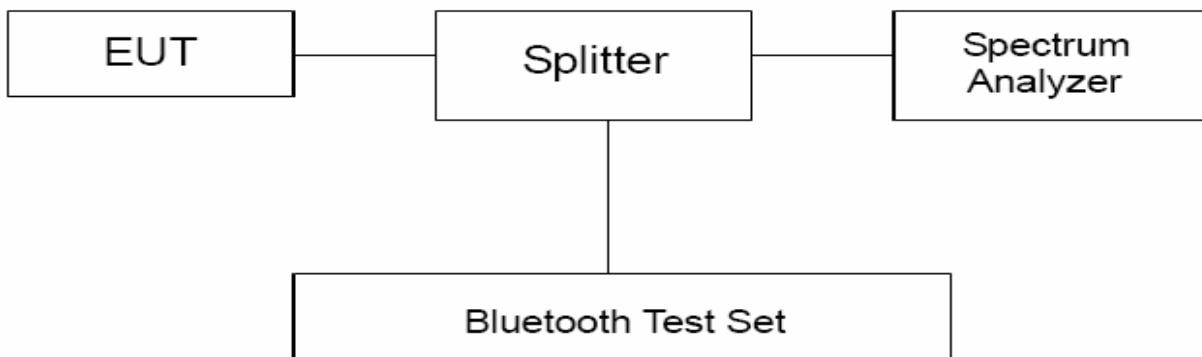
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 10kHz and VBW is set to 30kHz on spectrum analyzer. -20dB occupied bandwidths are recorded.

### Test Setup



### Limits

No specific occupied bandwidth requirements in part 15.247(a) (1).

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U = 936$  Hz.

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**Test Results**

DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	861.22
39	2441	863.43
78	2480	862.36



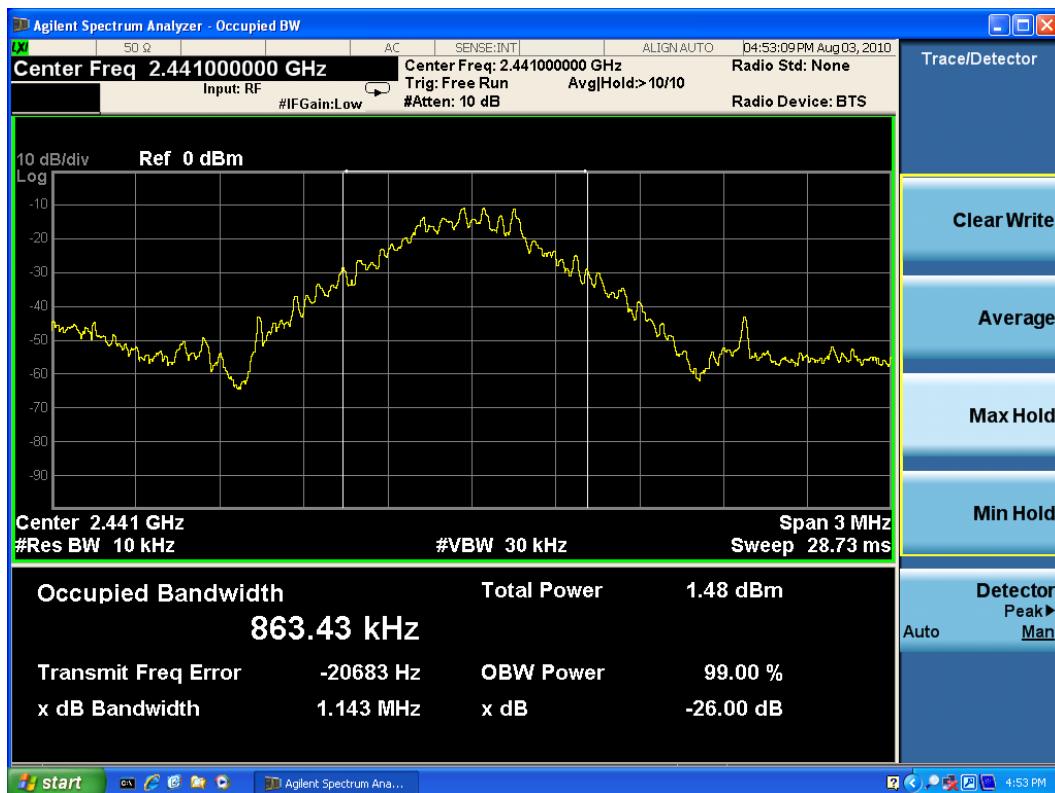
Carrier frequency (MHz): 2402

Channel No.:0

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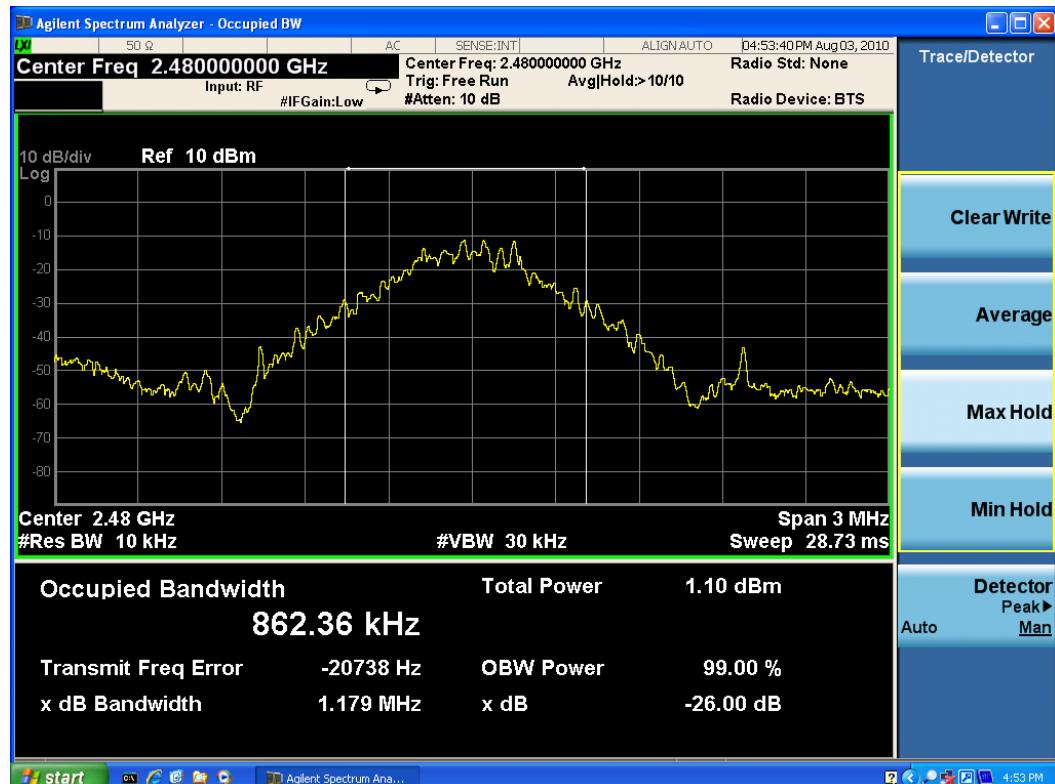
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Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

Channel No.:78

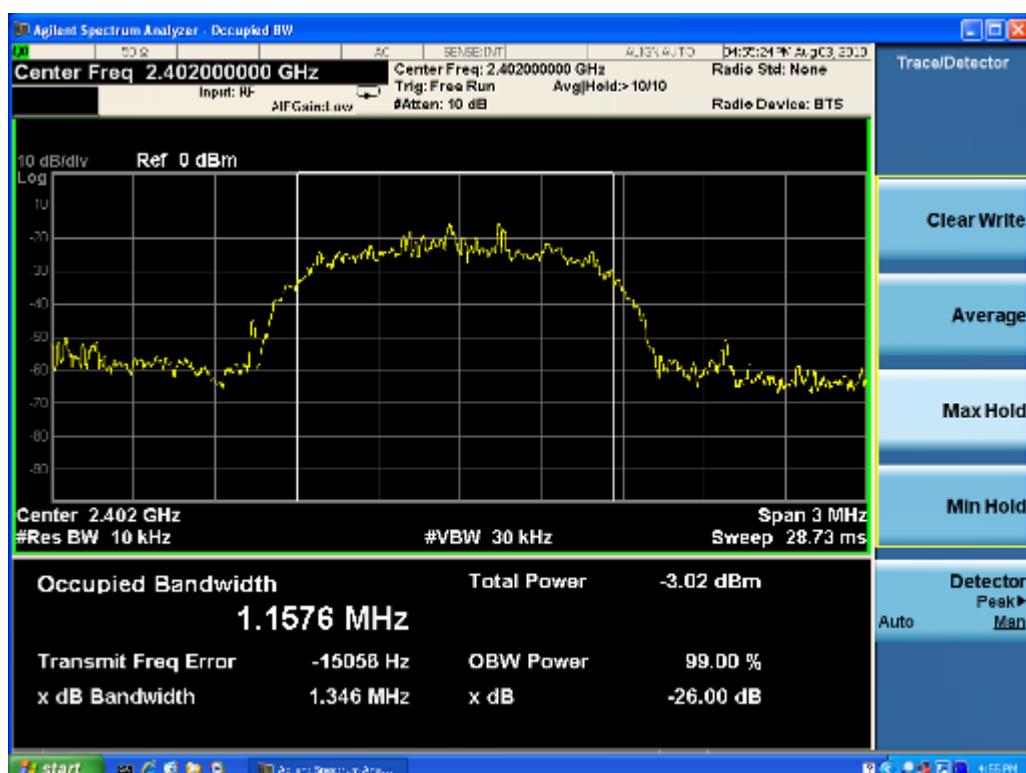
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3DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	1157.6
39	2441	1148.9
78	2480	1150.5



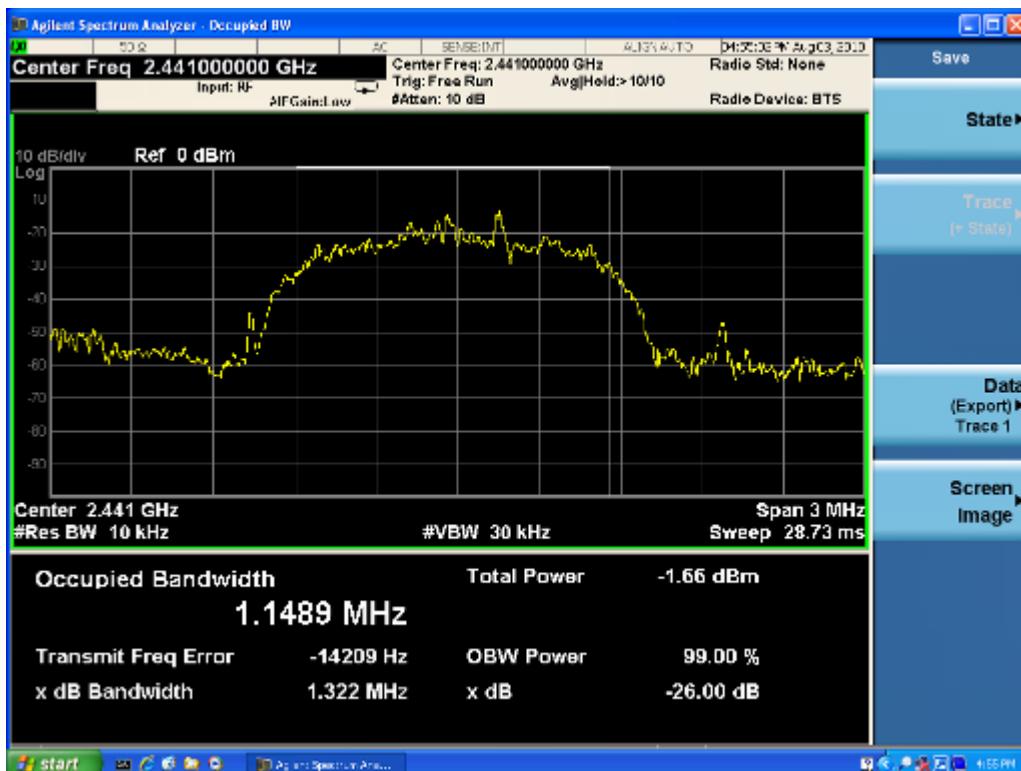
Carrier frequency (MHz): 2402

Channel No.:0

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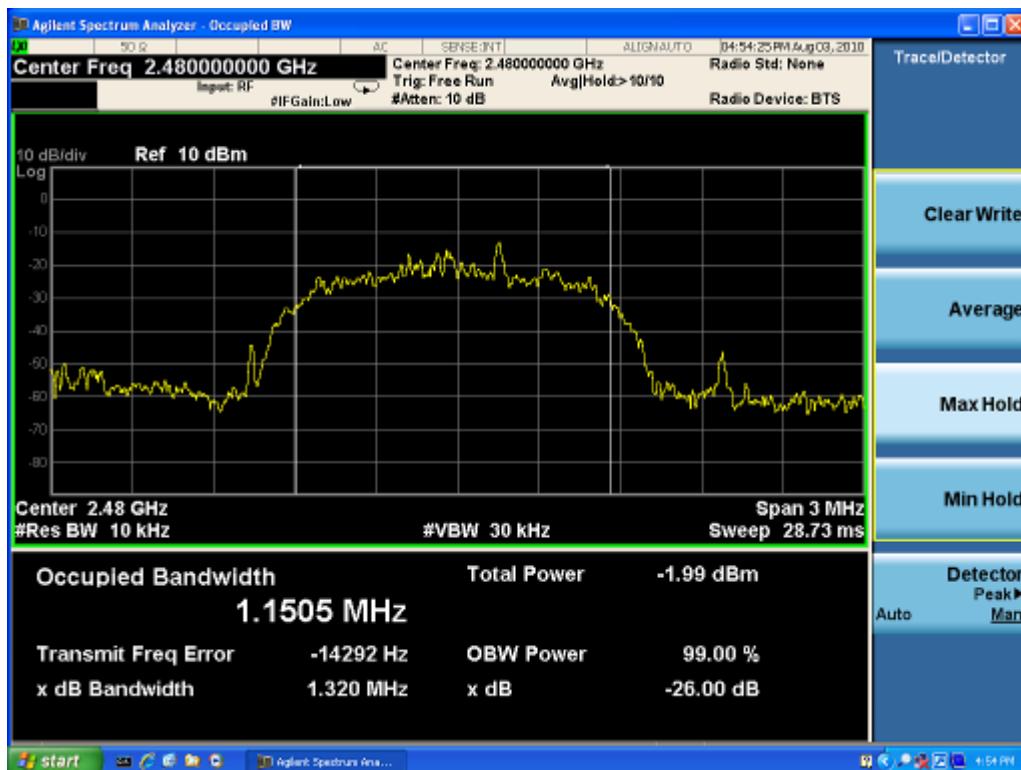
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Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

Channel No.:78

## 2.4. Frequency Separation

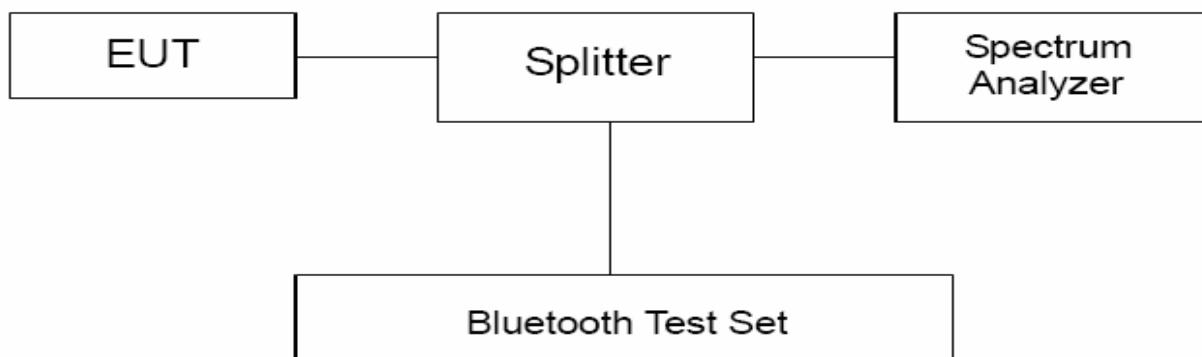
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the spurious emissions measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 300kHz and VBW is set to 3MHz on spectrum analyzer. Set EUT on Hopping on mode.

### Test setup



### Limits

Rule Part 15.247(a)(1) specifies that “Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.”

Note: The value of two-thirds of 20 dB bandwidth is always greater than 25 kHz.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U = 936$  Hz.

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**Test Results:**

**DH5**

Carrier frequency (MHz)	Carrier frequency separation(kHz)	Limit(kHz)	Conclusion
2402	1002	574.15	PASS
2441	1002	575.62	PASS
2480	1062	574.91	PASS



Carrier frequency (MHz): 2402

Channel No.:0

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Carrier frequency (MHz): 2480  
Channel No.:78

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**3DH5**

Carrier frequency (MHz)	Carrier frequency separation(kHz)	Limit(kHz)	Conclusion
2402	1008	771.73	PASS
2441	1020	765.93	PASS
2480	1068	766.67	PASS



Carrier frequency (MHz): 2402

Channel No.:0

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Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

Channel No.:78

## 2.5. Time of Occupancy (Dwell Time)

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

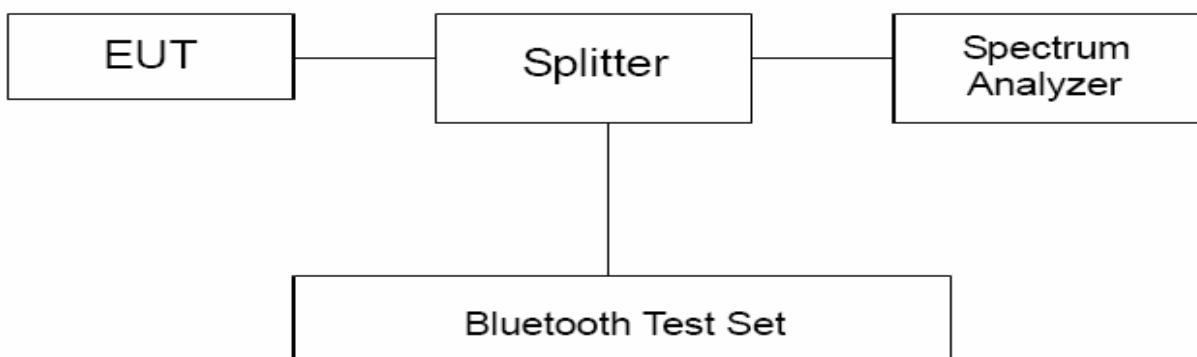
### Methods of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the dwell time measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 1MHz and VBW is set to 3MHz on spectrum analyzer .The time slot length is measured of three different packet types, which are available in the Bluetooth technology. Those are DH1, DH3 and DH5 packets. The dwell time is calculated by:

Dwell time = time slot length \* hop rate \* 0.4s with:

- hop rate=1600 \* 1/s for DH1 packet =1600
- hop rate=1600/3 \* 1/s for DH3 packet =533.33
- hop rate=1600/5 \* 1/s for DH5 packet =320

### Test Setup



### Limits

Rule Part 22.913(a) specifies that " Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.."

Dwell time	$\leq 400\text{ms}$
------------	---------------------

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U_{DH1} = 0.64\text{ms}$ ,  $U_{DH3} = 0.80\text{ms}$ ,  $U_{DH5} = 0.70\text{ms}$ .

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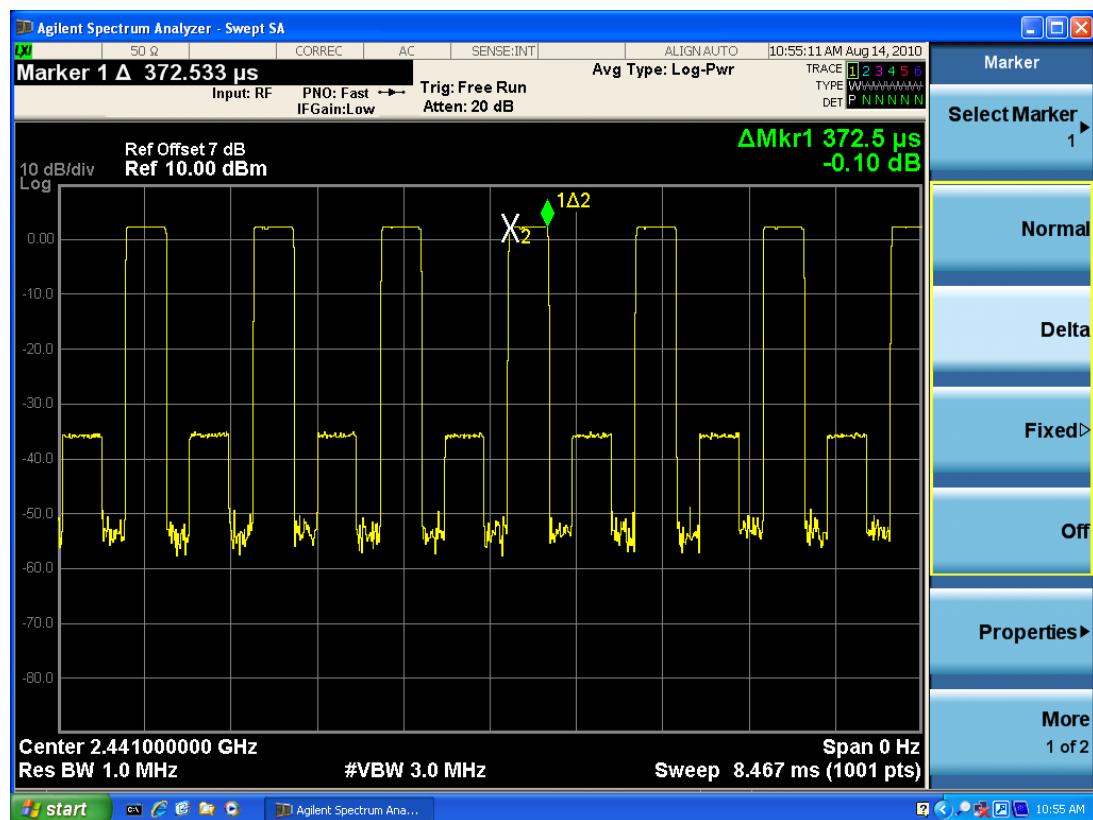
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**Test Results:**

CH 39

Packet type	hop rate (1/s)	Time slot length(ms)	Dwell time (ms)	Limit (ms)	Conclusion
DH1	1600	0.3725	238.4	400	PASS
DH3	533.33	1.617	344.96	400	PASS
DH5	320	2.89	369.92	400	PASS
3DH1	1600	0.3725	238.4	400	PASS
3DH3	533.33	1.617	344.96	400	PASS
3DH5	320	2.86	366.08	400	PASS

Note: Dwell time = time slot length \* hop rate \* 0.4s



Carrier frequency (MHz): 2441,DH1

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Carrier frequency (MHz): 2441,DH3

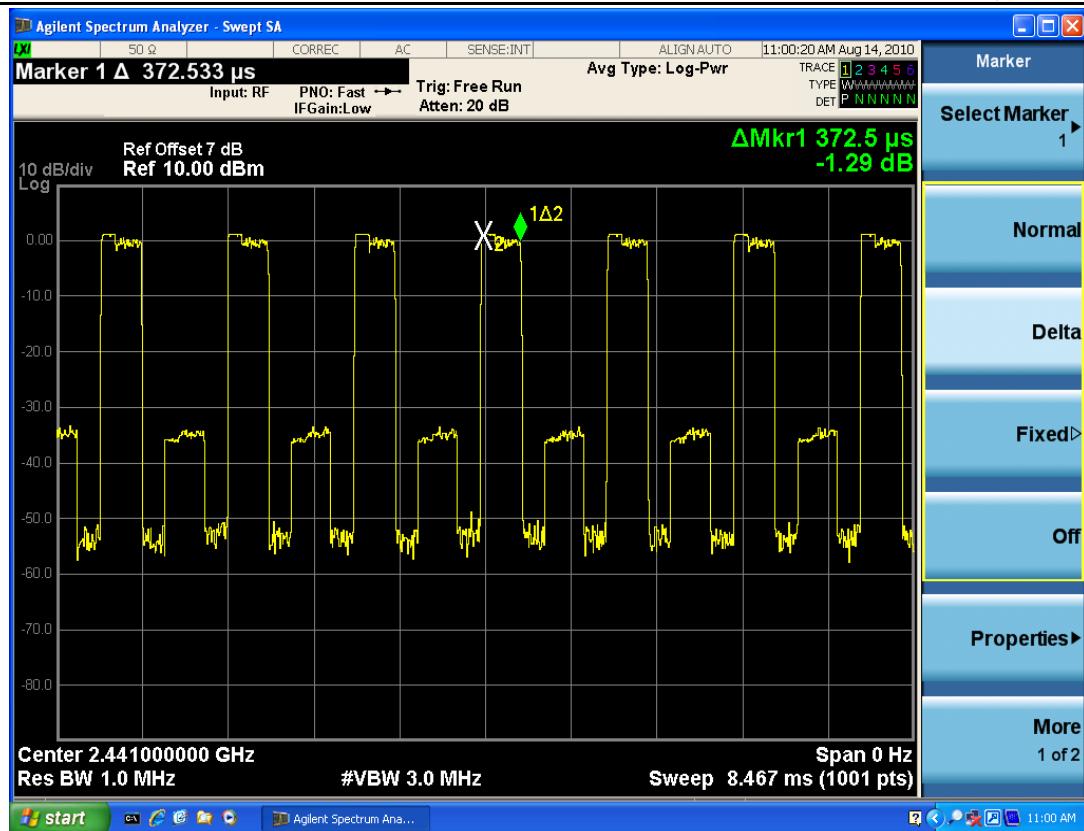


Carrier frequency (MHz): 2441,DH5

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Carrier frequency (MHz): 2441,3DH1

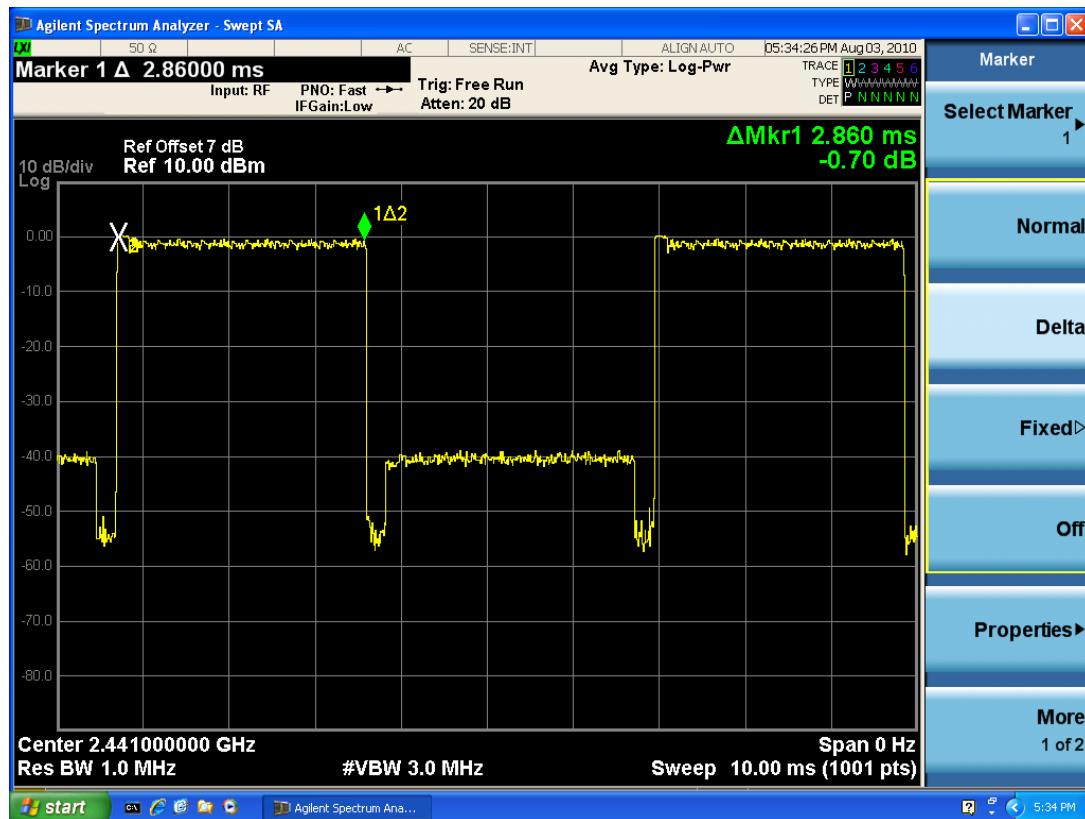


Carrier frequency (MHz): 2441,3DH3

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Carrier frequency (MHz): 2441,3DH5

## 2.6. Band Edge Compliance

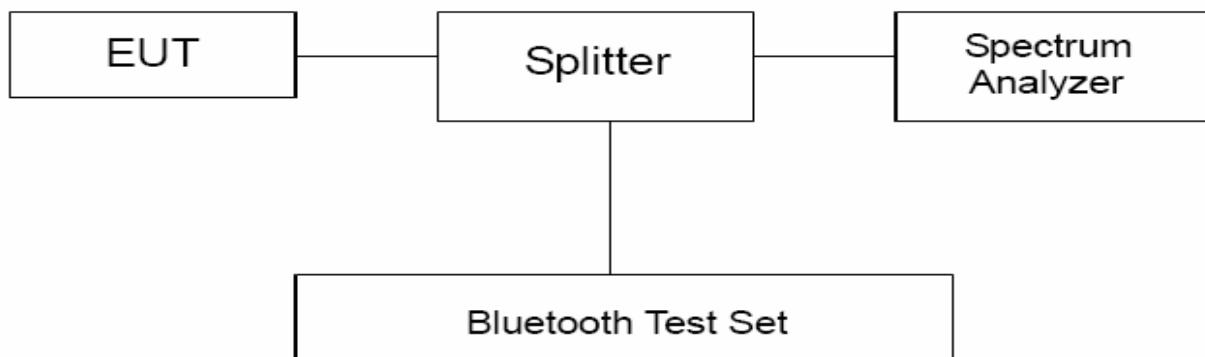
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the spurious emissions measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The band edge of the lowest and highest channels were measured. The peak detector is used. RBW is set to 1MHz and VBW is set to 3MHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages. EUT test for Hopping On mode and Hopping Off mode.

### Test Setup



### Limits

Rule Part 15.247(d) specifies that “In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.”

Limit	≥20 dB
-------	--------

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

Frequency	Uncertainty
2GHz-3GHz	1.407 dB

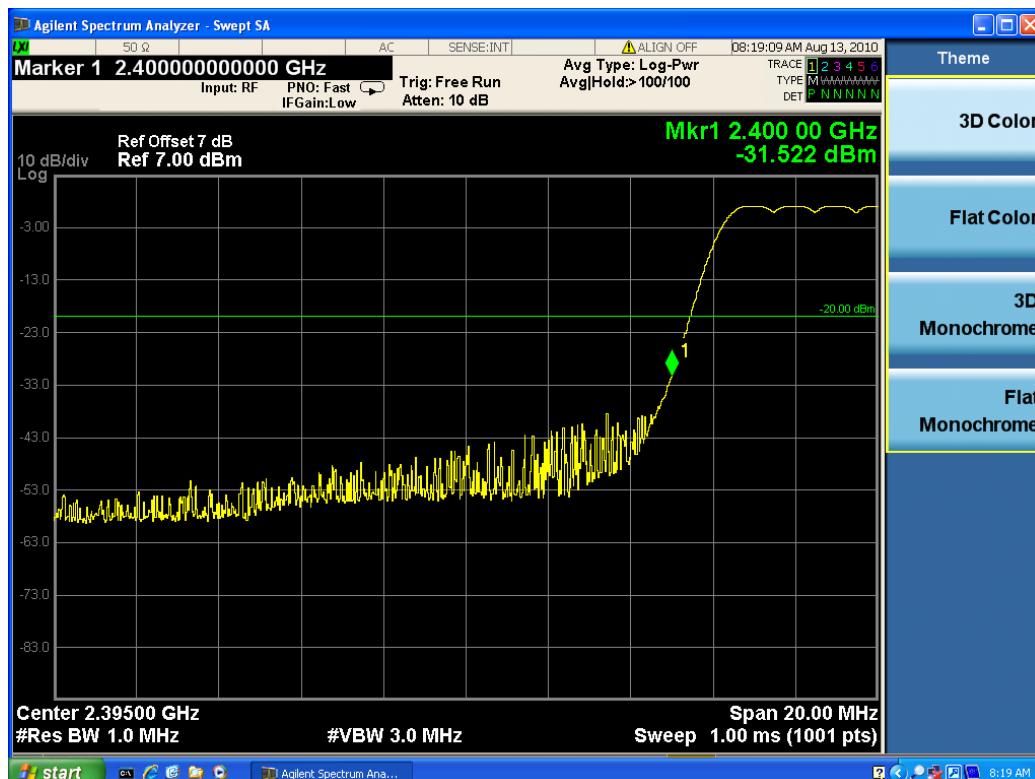
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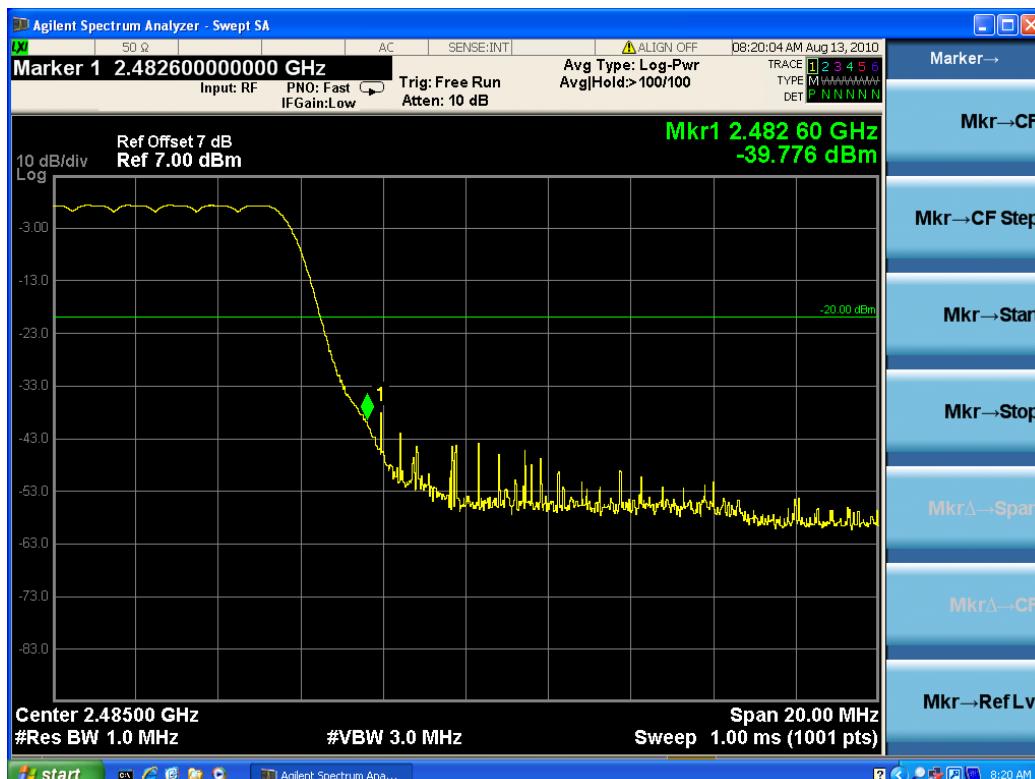
**Test Results: PASS**

**Hopping On-DH5-**



Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2480

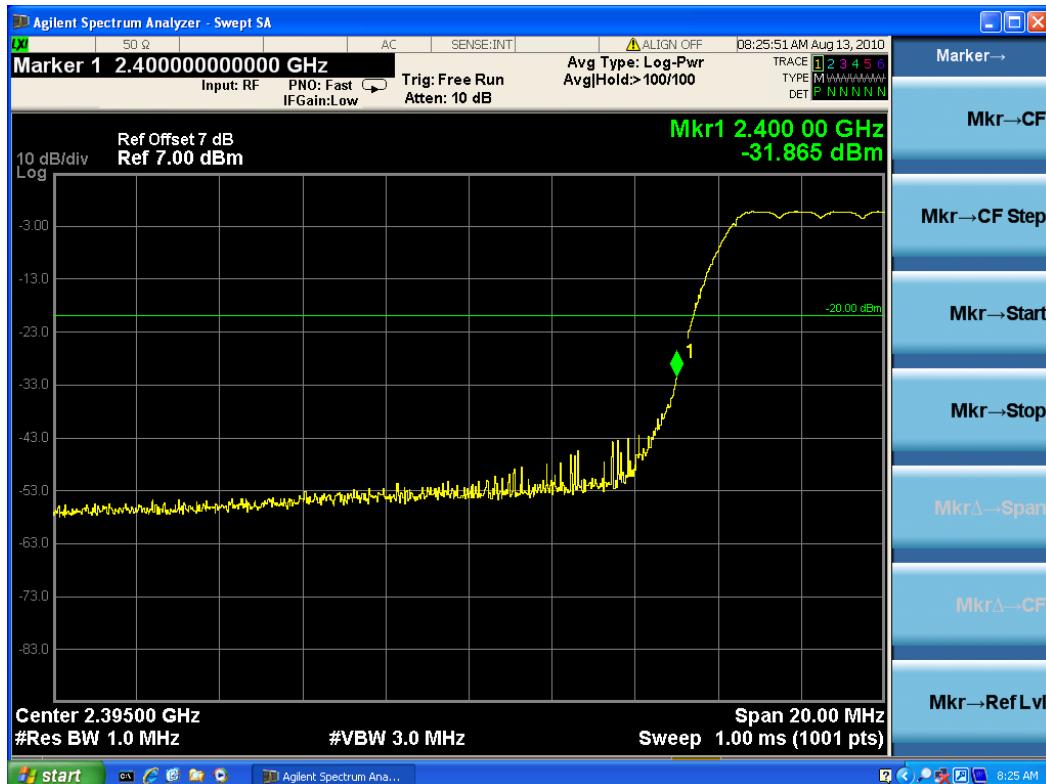
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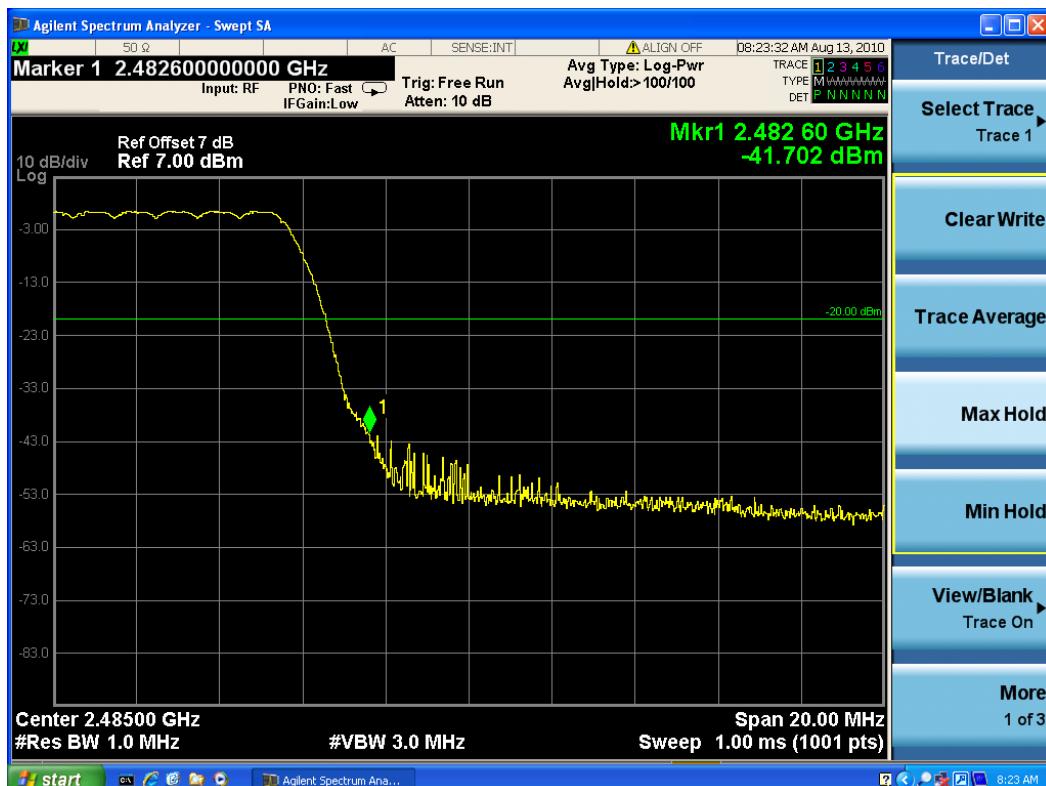
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### Hopping On-3DH5



Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2480

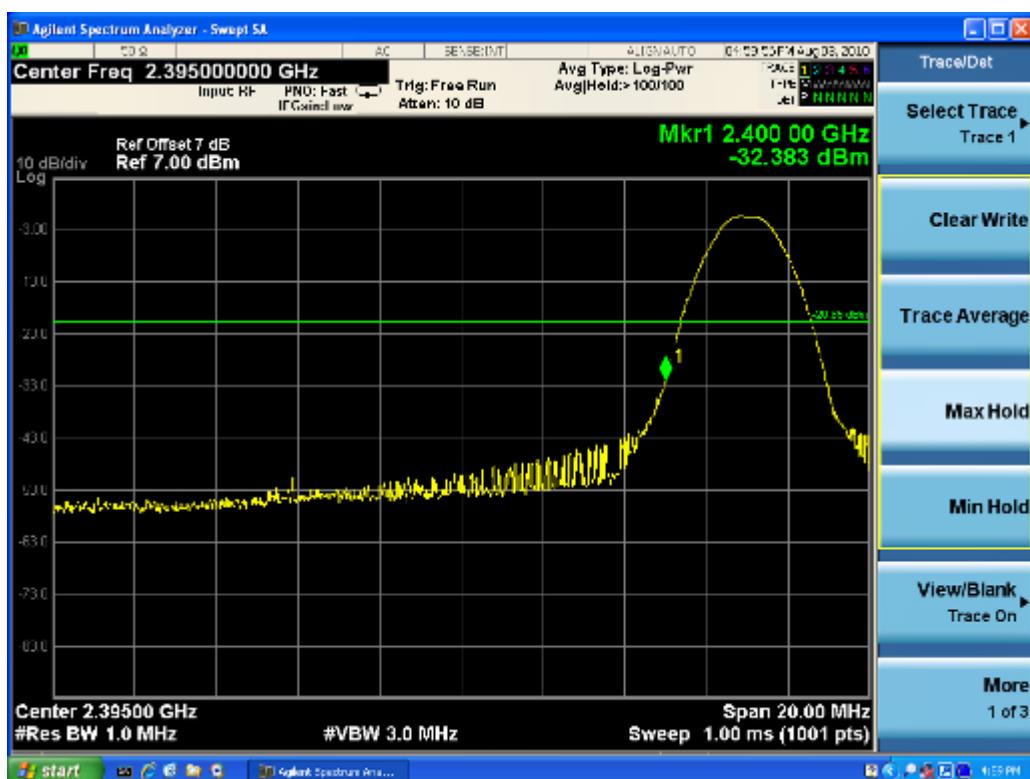
Channel No.:78

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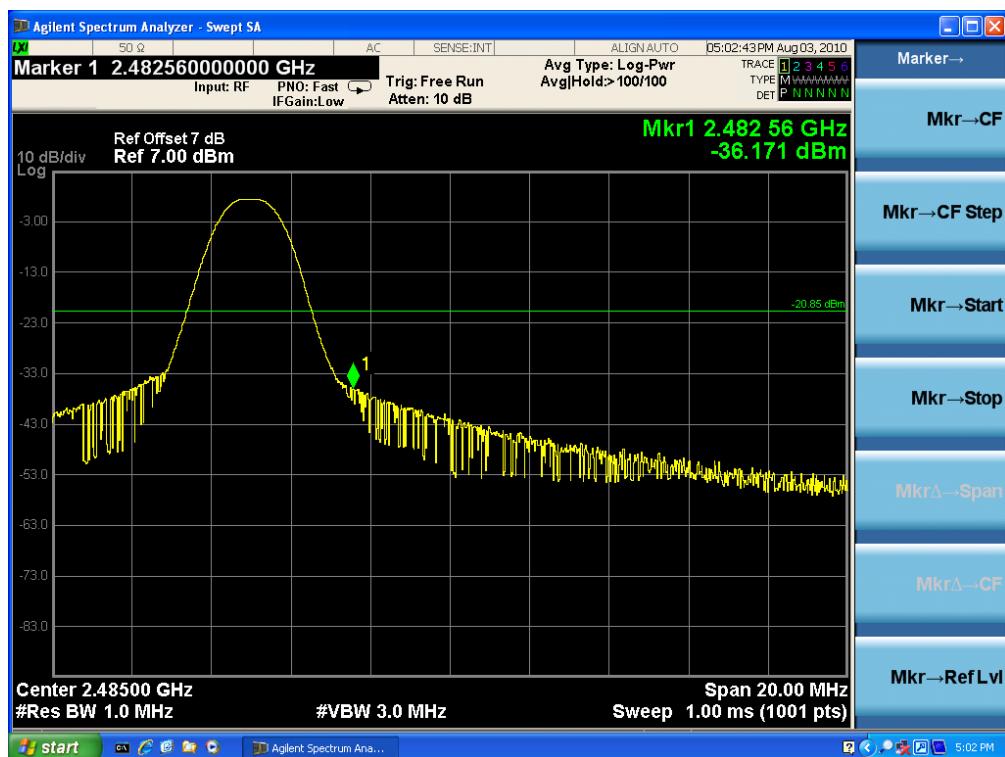
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**Hopping Off-DH5-**



Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2480

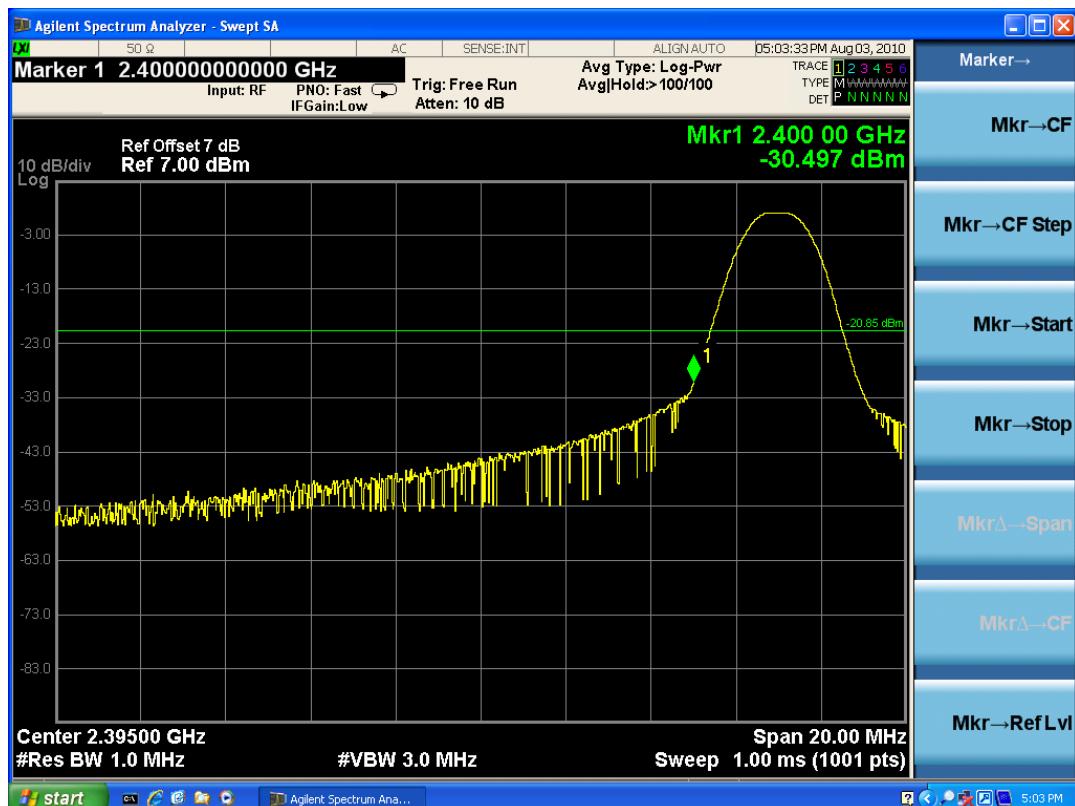
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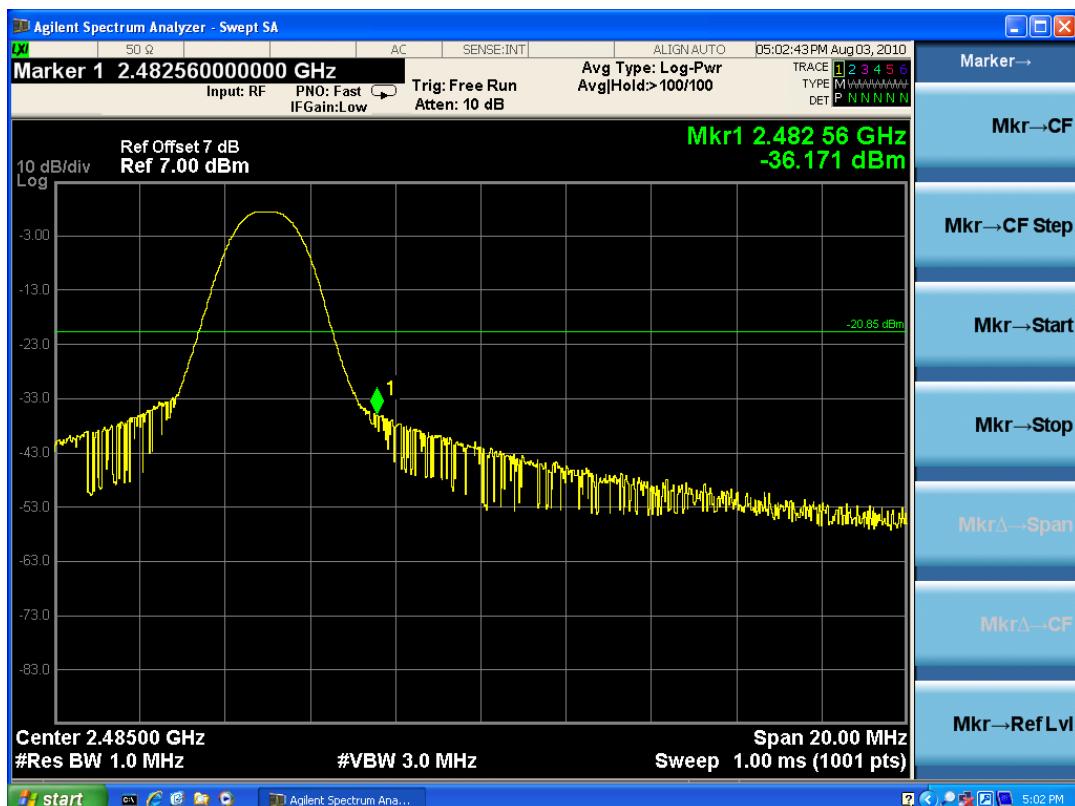
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**Hopping Off-3DH5**



Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2480

Channel No.:78

## 2.7. Spurious Radiated Emissions in the Restricted Band

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

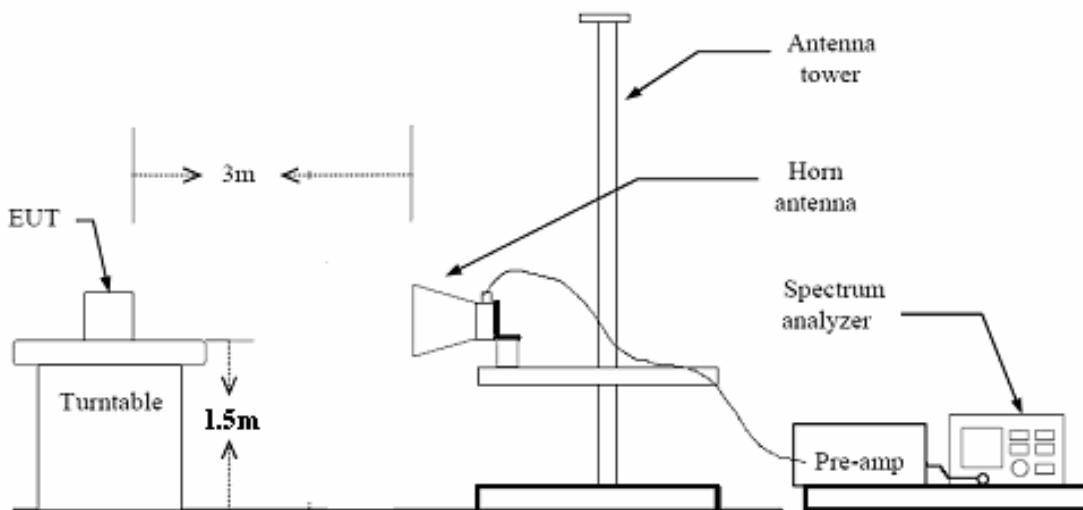
- (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
- (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

This setting method can refer to **DA00-705**.

EUT in X-axis orientation is the worst case, the test is only for this case.

The test is in transmit mode.

### Test setup



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## Limits

Rule Part 15.247(d) specifies that “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) (see § 15.205(c)).”

### Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

### §15.35(b)

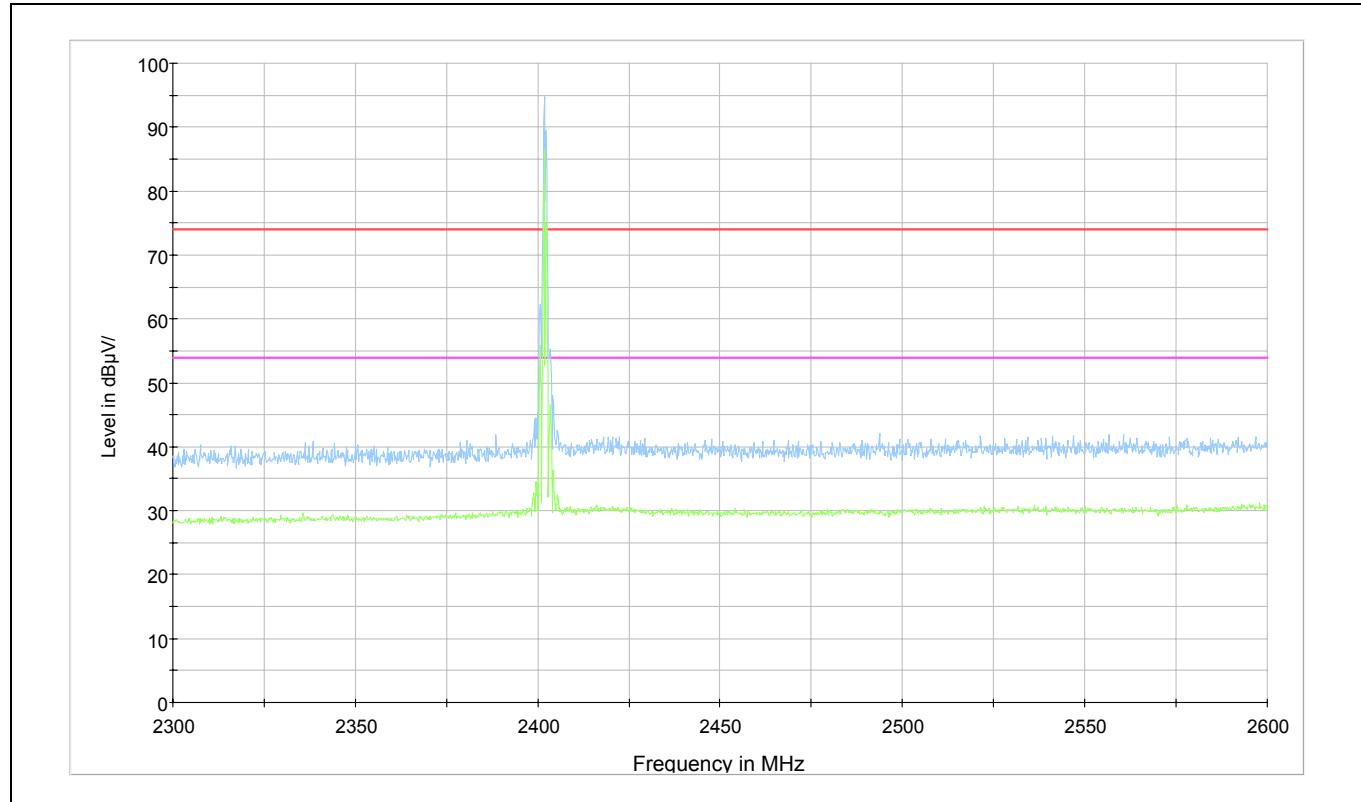
There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

## Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U=3.92$  dB.

**Test Results:**

**Basic Rate- Channel 0**



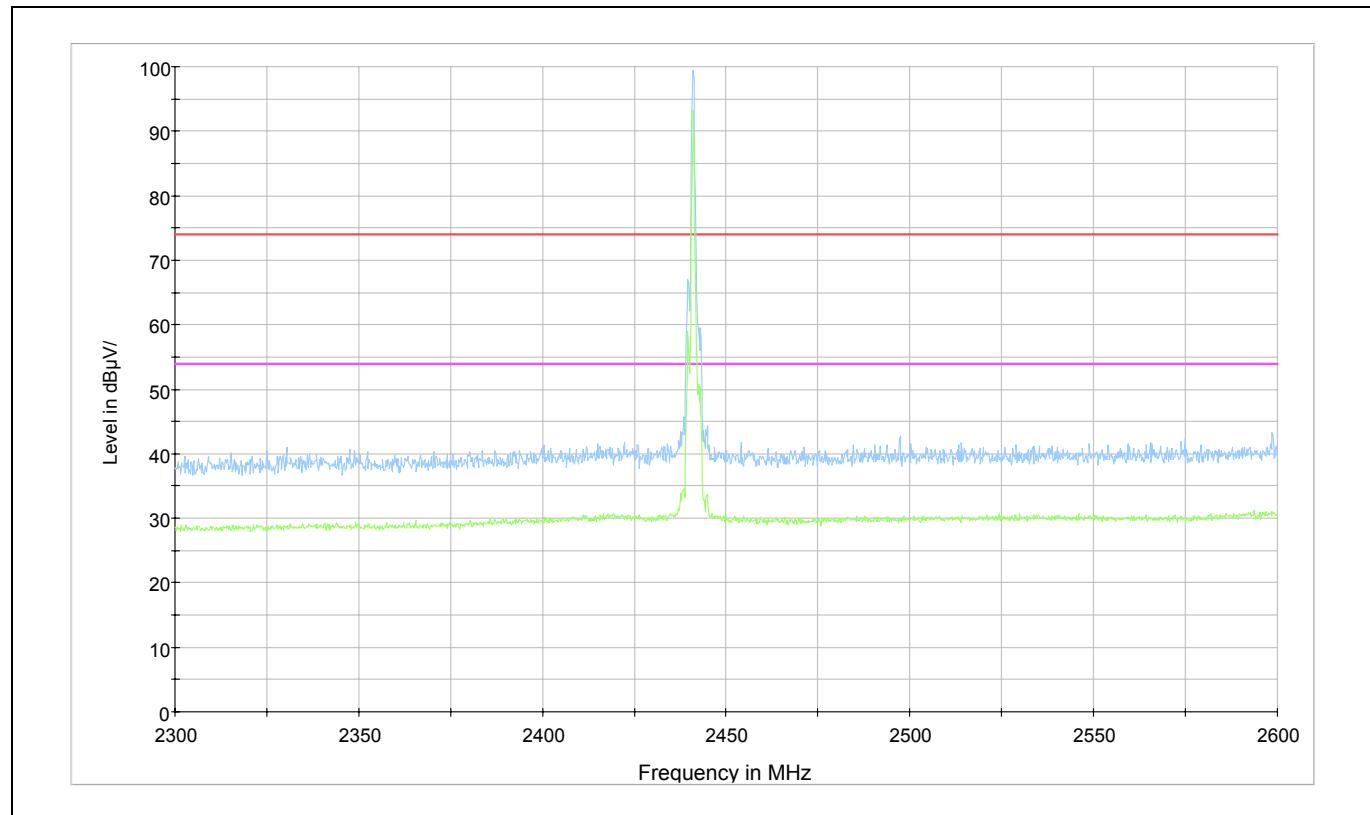
Note: The signal beyond the limit is carrier

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**Basic Rate- Channel 39**



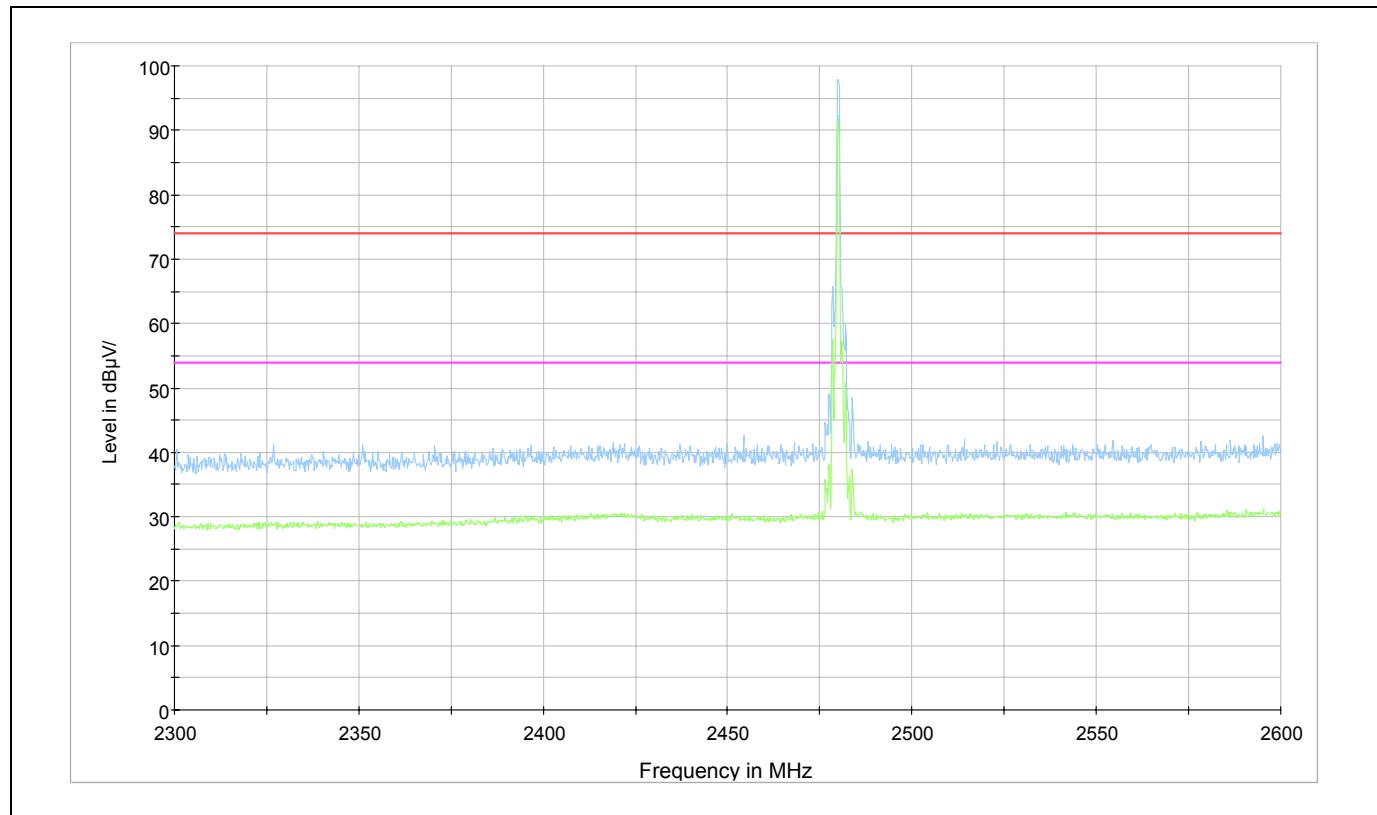
Note: The signal beyond the limit is carrier

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**Basic Rate- Channel 78**



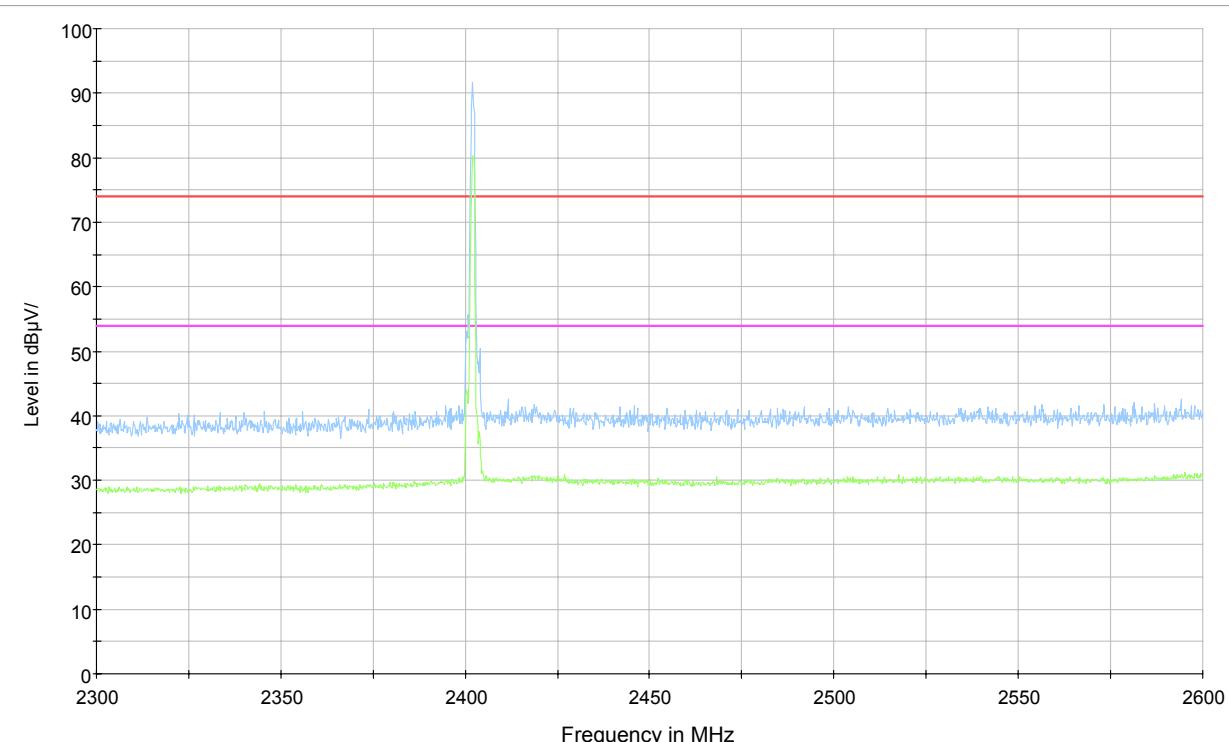
Note: The signal beyond the limit is carrier

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**EDR- Channel 0**



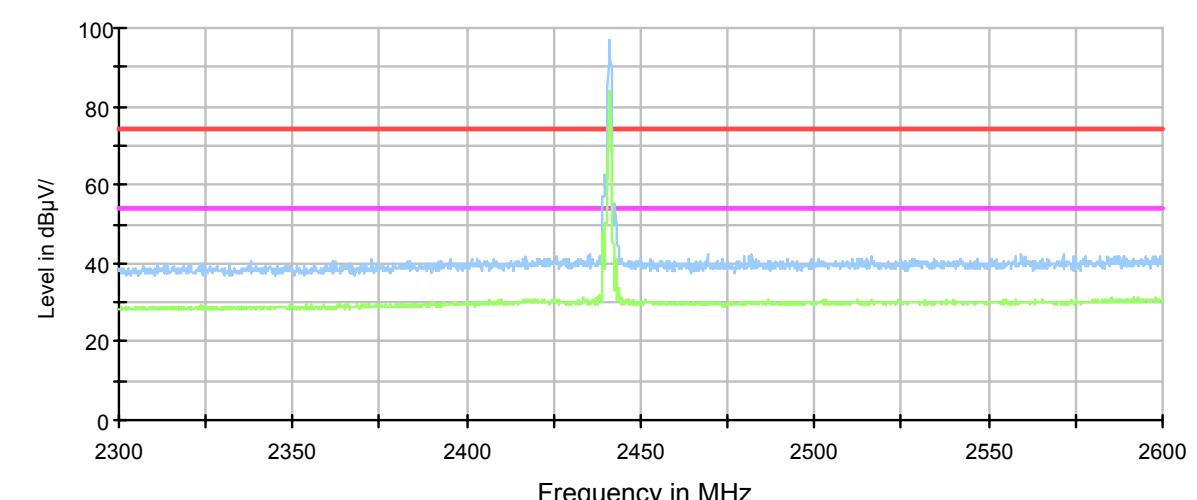
Note: The signal beyond the limit is carrier

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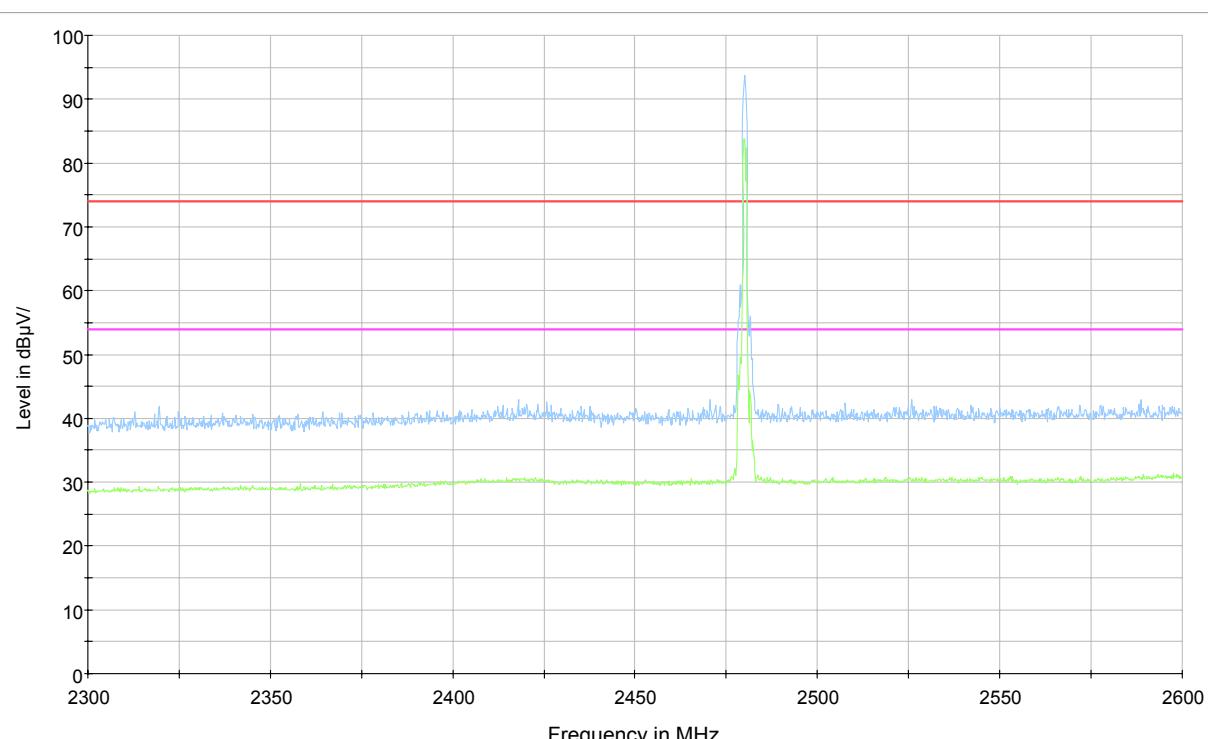
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**EDR- Channel 39**



Note: The signal beyond the limit is carrier

**EDR- Channel 78**



Note: The signal beyond the limit is carrier

## 2.8. Number of hopping Frequency

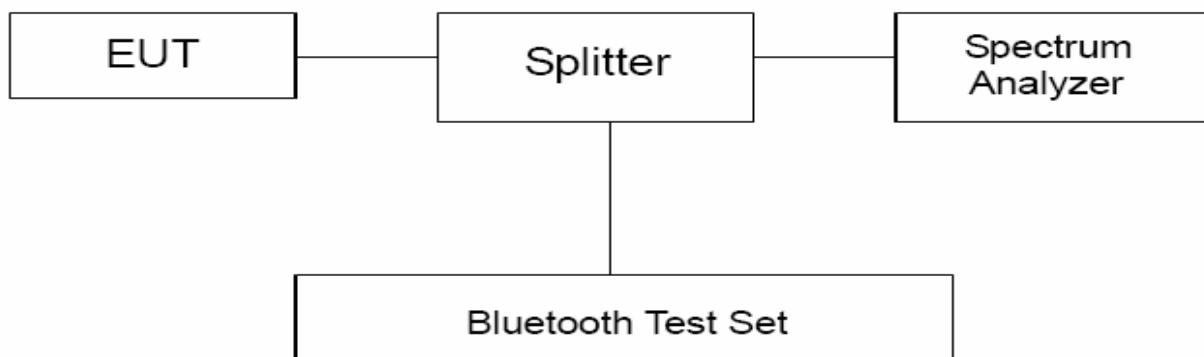
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the spurious emissions measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 300kHz and VBW is set to 3MHz on spectrum analyzer. Set EUT on Hopping on mode.

### Test setup



### Limits

Rule Part 15.247(a) (1) (iii) specifies that "Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels..".

Limits	$\geq 75$ channels
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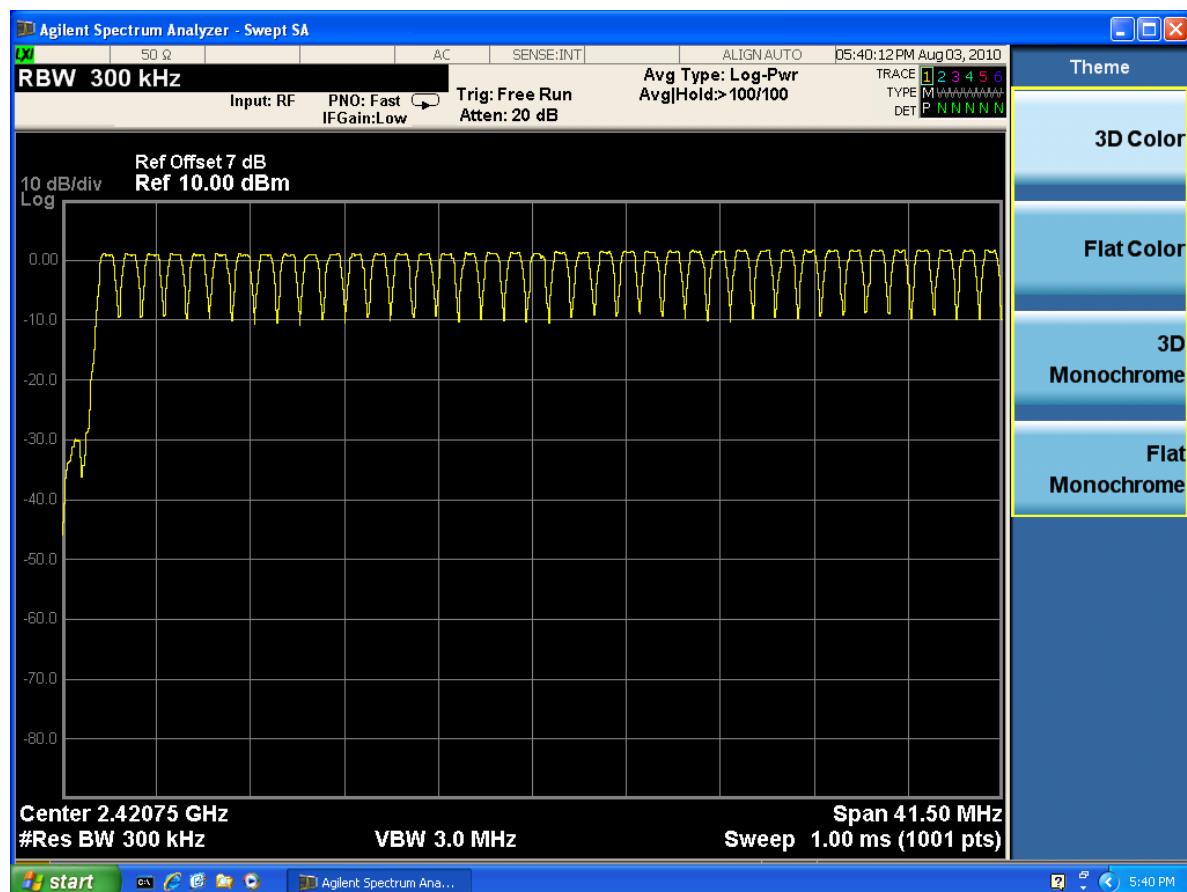
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**Test Results:**

DH5

Number of hopping channels	conclusion
79	PASS



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2441 MHz – 2483.5 MHz

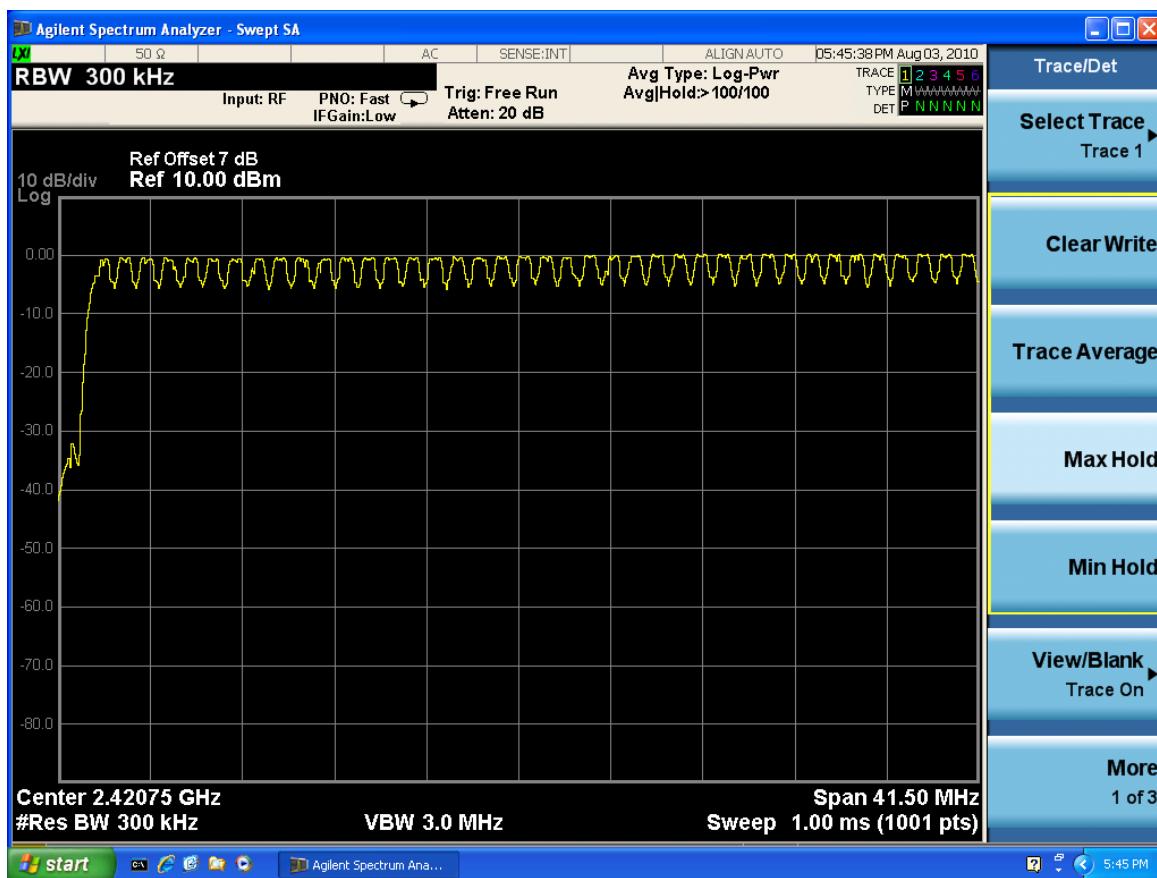
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**3DH5**

Number of hopping channels	conclusion
79	PASS

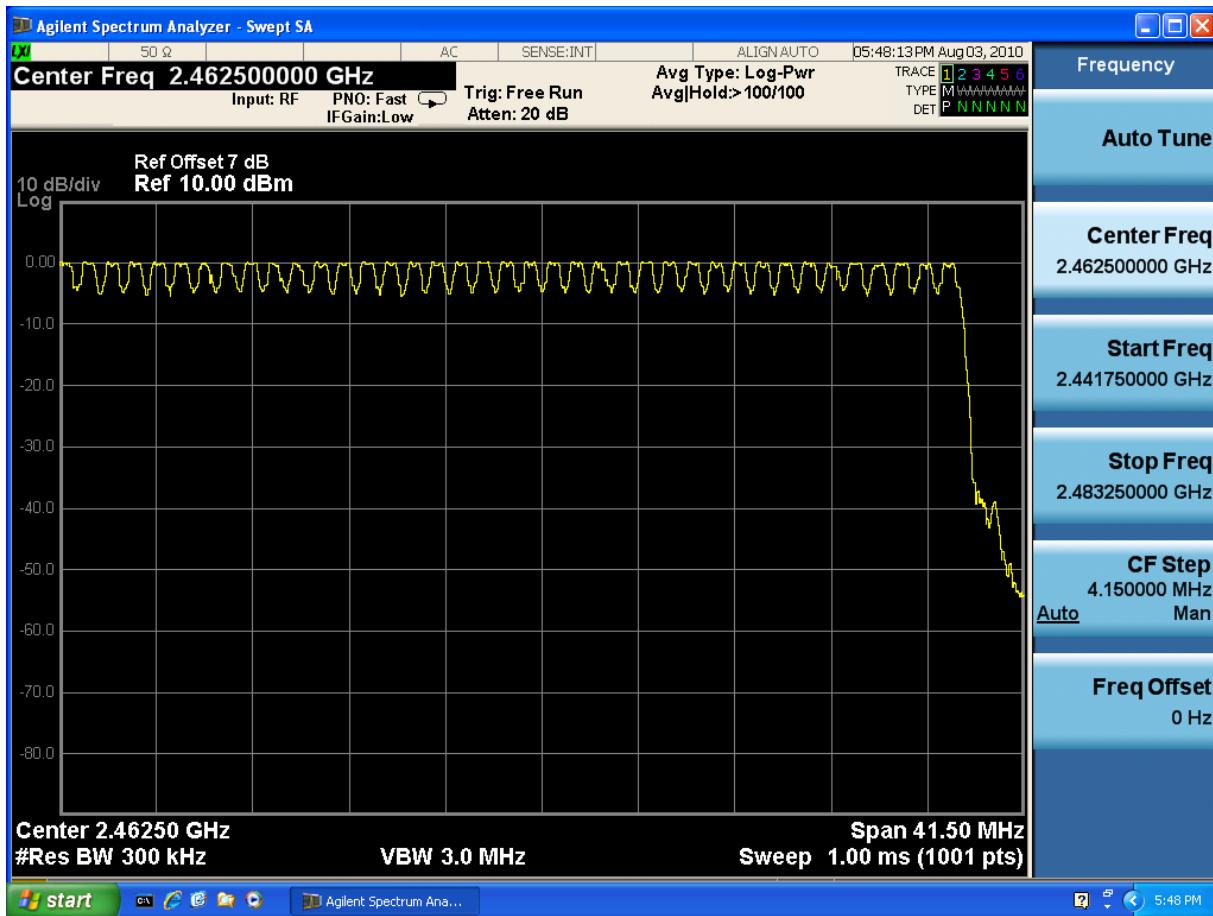


2400 MHz – 2441 MHz

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2441 MHz – 2483.5 MHz

## 2.9. Spurious RF Conducted Emissions

### Ambient condition

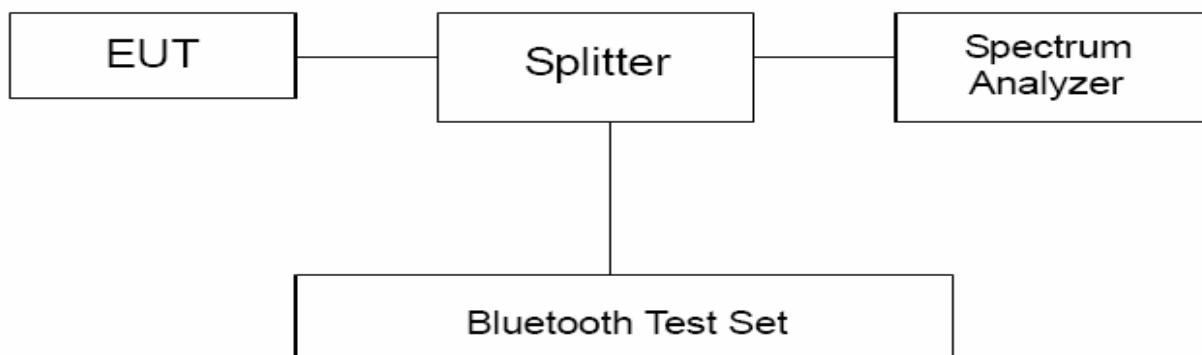
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The spectrum analyzer scans from 30MHz to 26GHz. The peak detector is used. RBW and VBW are set to 100 kHz, Sweep is set to ATUO.

The test is in transmit mode.

### Test setup



### Limits

Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.”

Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
Basic Rate	2402	0.732	≤-19.268
	2441	1.219	≤-18.781
	2480	1.096	≤-18.904
EDR	2402	-0.840	≤-20.840
	2441	-0.309	≤-20.309
	2480	-0.346	≤-20.346

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**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

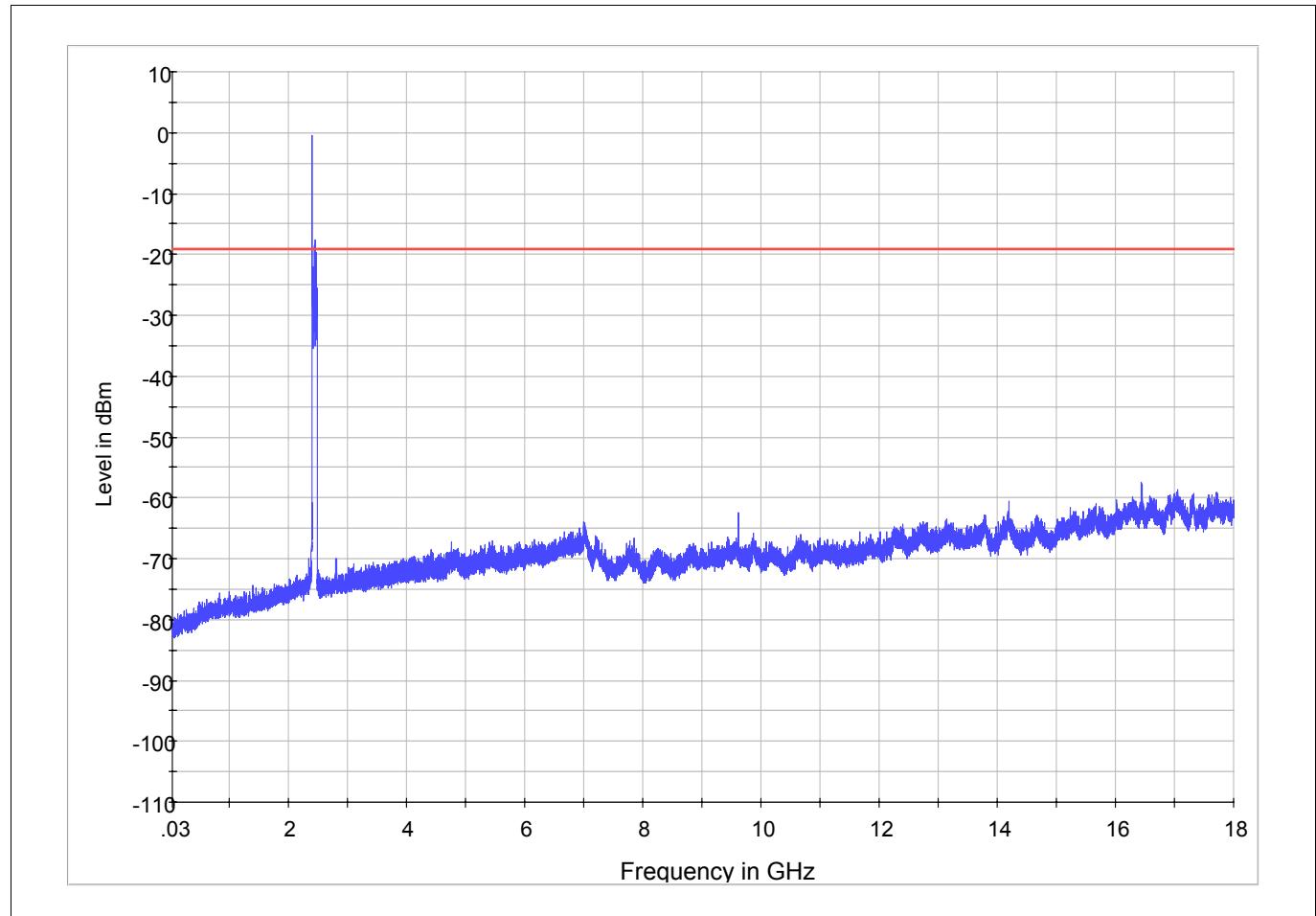
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**Test Results:**

**Basic Rate-CH0:**

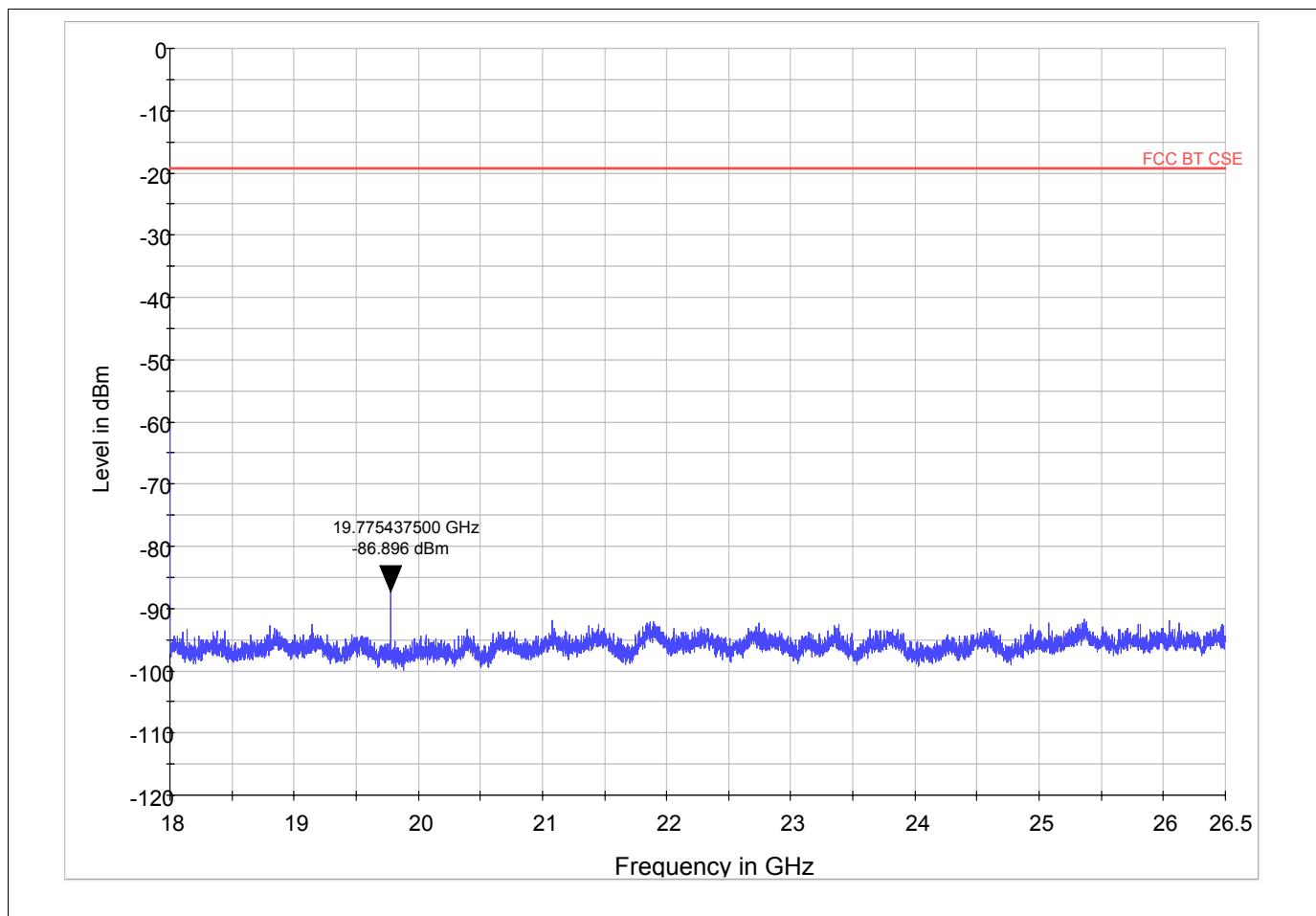


Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2402  
Spurious RF conducted emissions from 30MHz to 18GHz

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Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.0 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4804	Nf	-19.21
3	7206	Nf	-19.21
4	9608	Nf	-19.21
5	12010	Nf	-19.21
6	14412	Nf	-19.21
7	16814	Nf	-19.21
8	19775.4375	-86.896	-19.21
9	21618	Nf	-19.21
10	24020	Nf	-19.21

Nf: noise floor

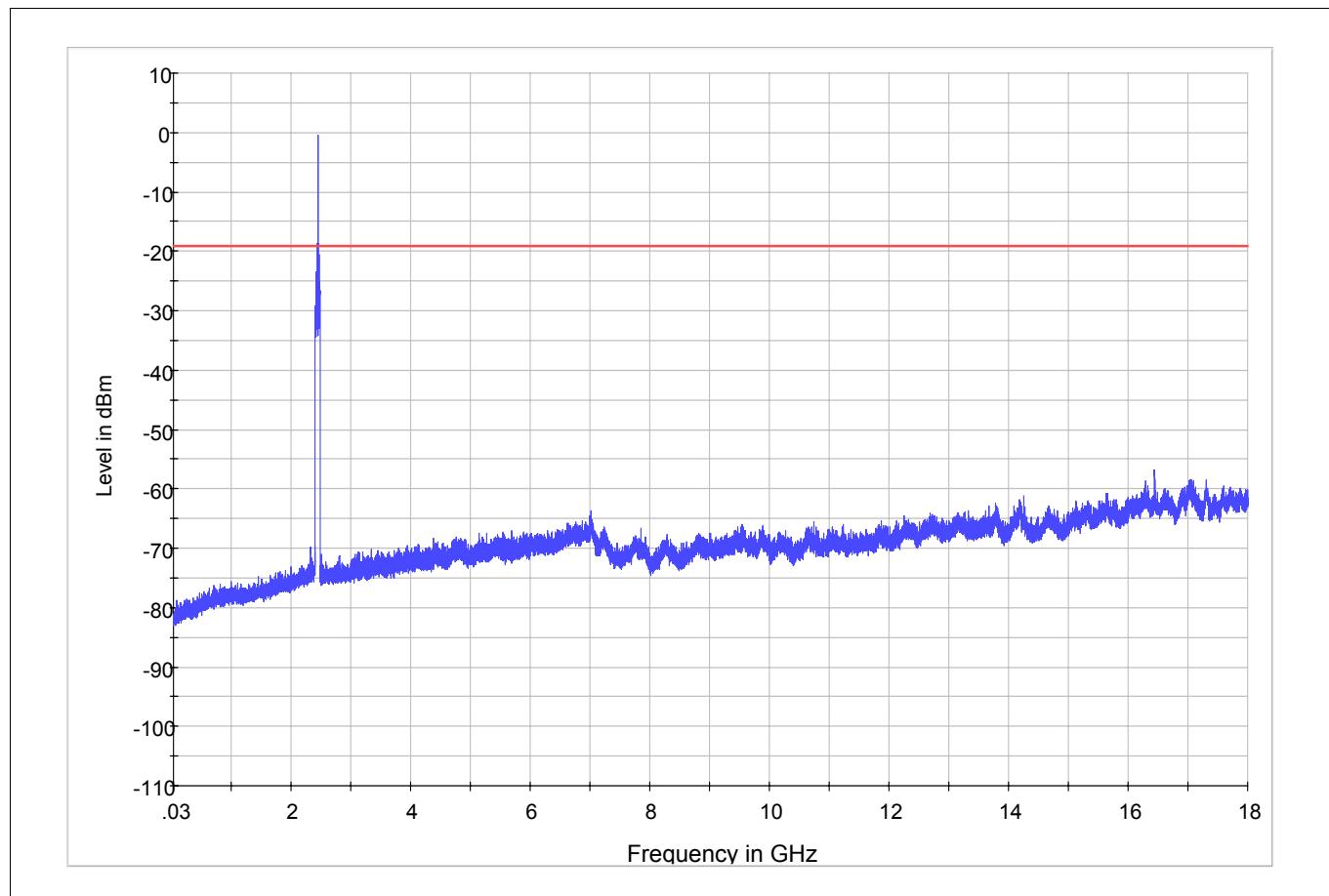
Note: The other Spurious RF conducted emissions level is no more than noise floor.

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**Basic Rate-CH39:**

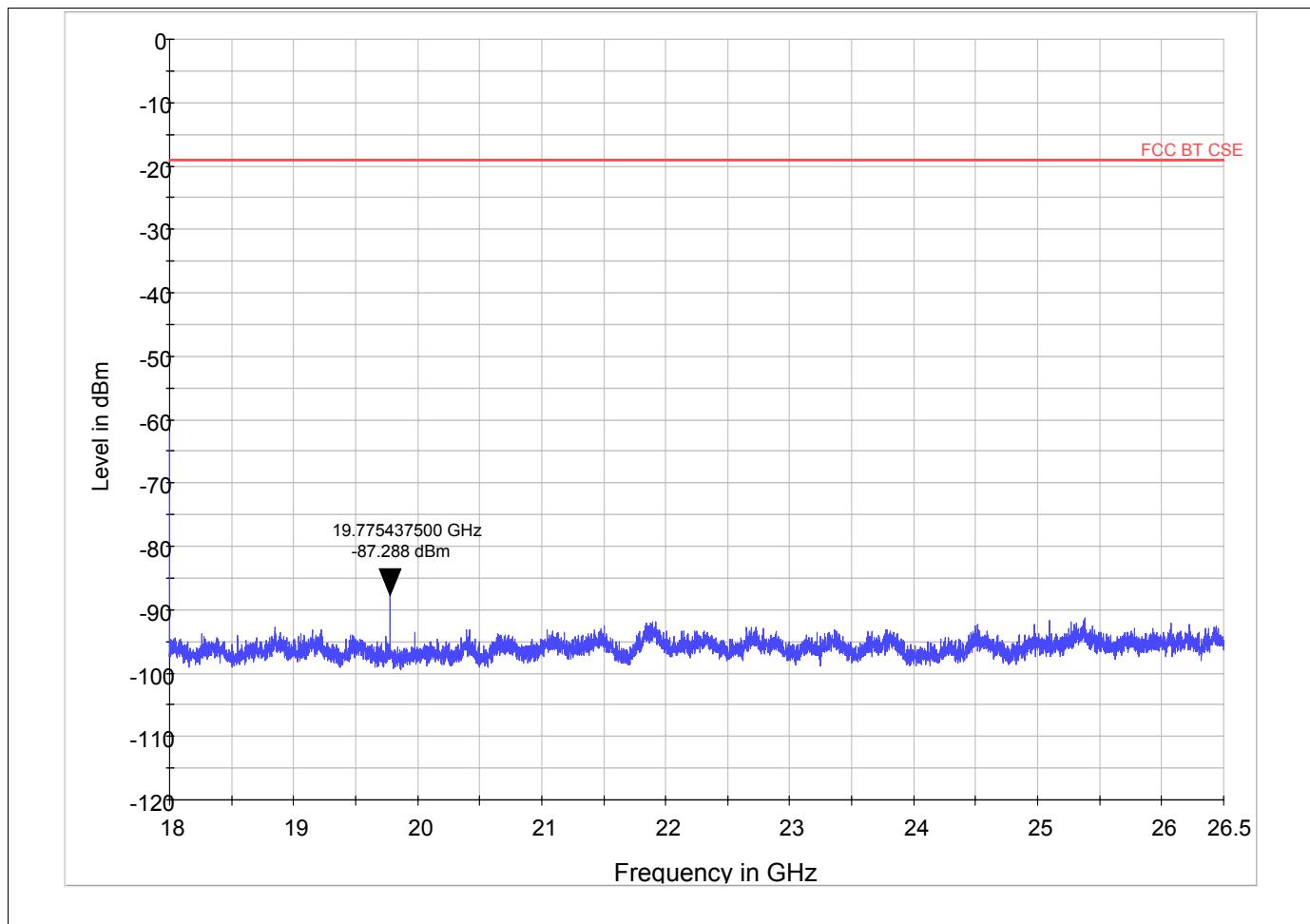


Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2441  
Spurious RF conducted emissions from 30MHz to 18GHz

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Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.39 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4882	Nf	-19.01
3	7323	Nf	-19.01
4	9764	Nf	-19.01
5	12205	Nf	-19.01
6	14646	Nf	-19.01
7	17087	Nf	-19.01
8	19775.4375	-87.288	-19.01
9	21969	Nf	-19.01
10	24410	Nf	-19.01

Nf: noise floor

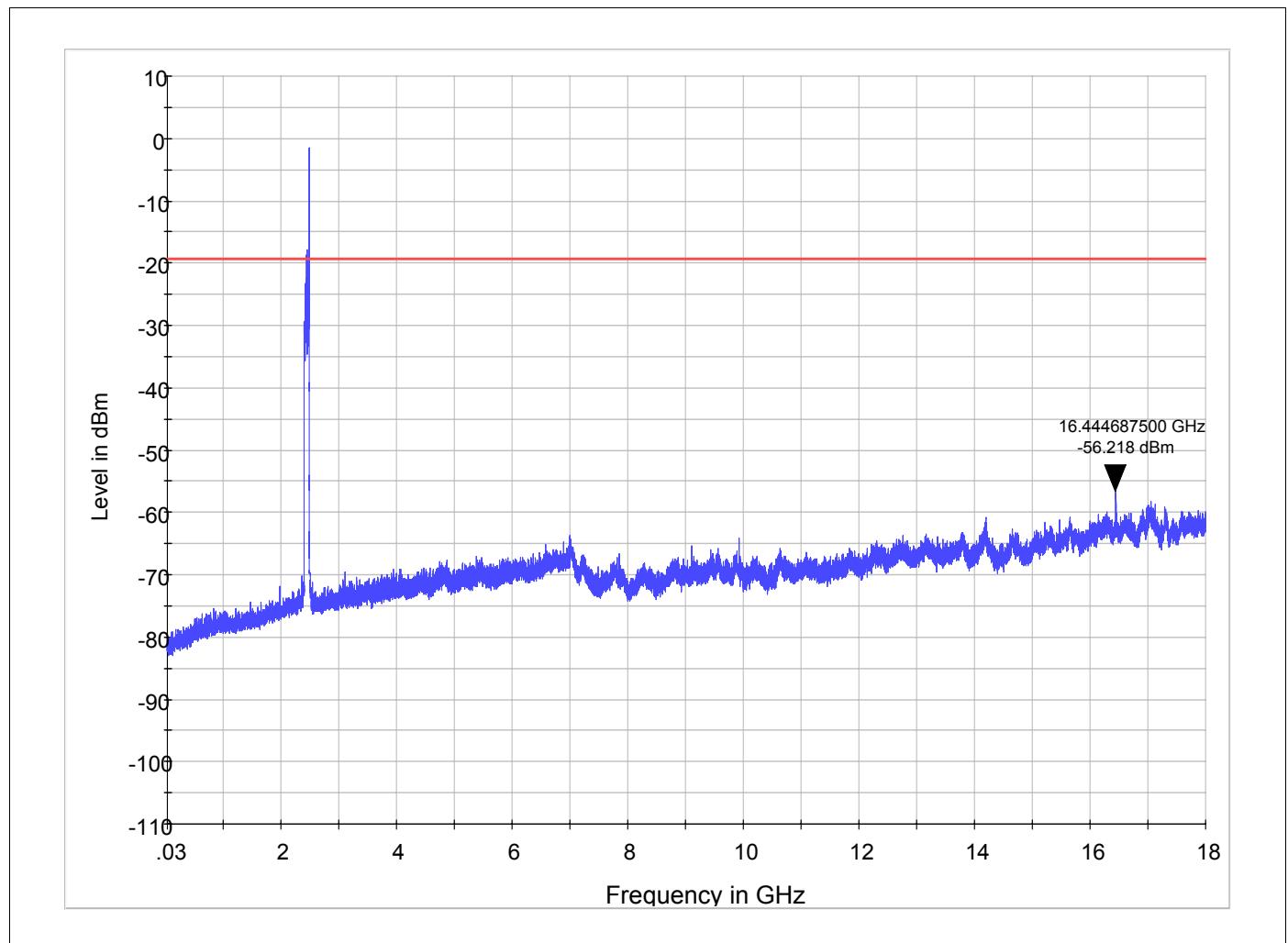
Note: The other Spurious RF conducted emissions level is no more than noise floor.

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**Basic Rate-CH78:**

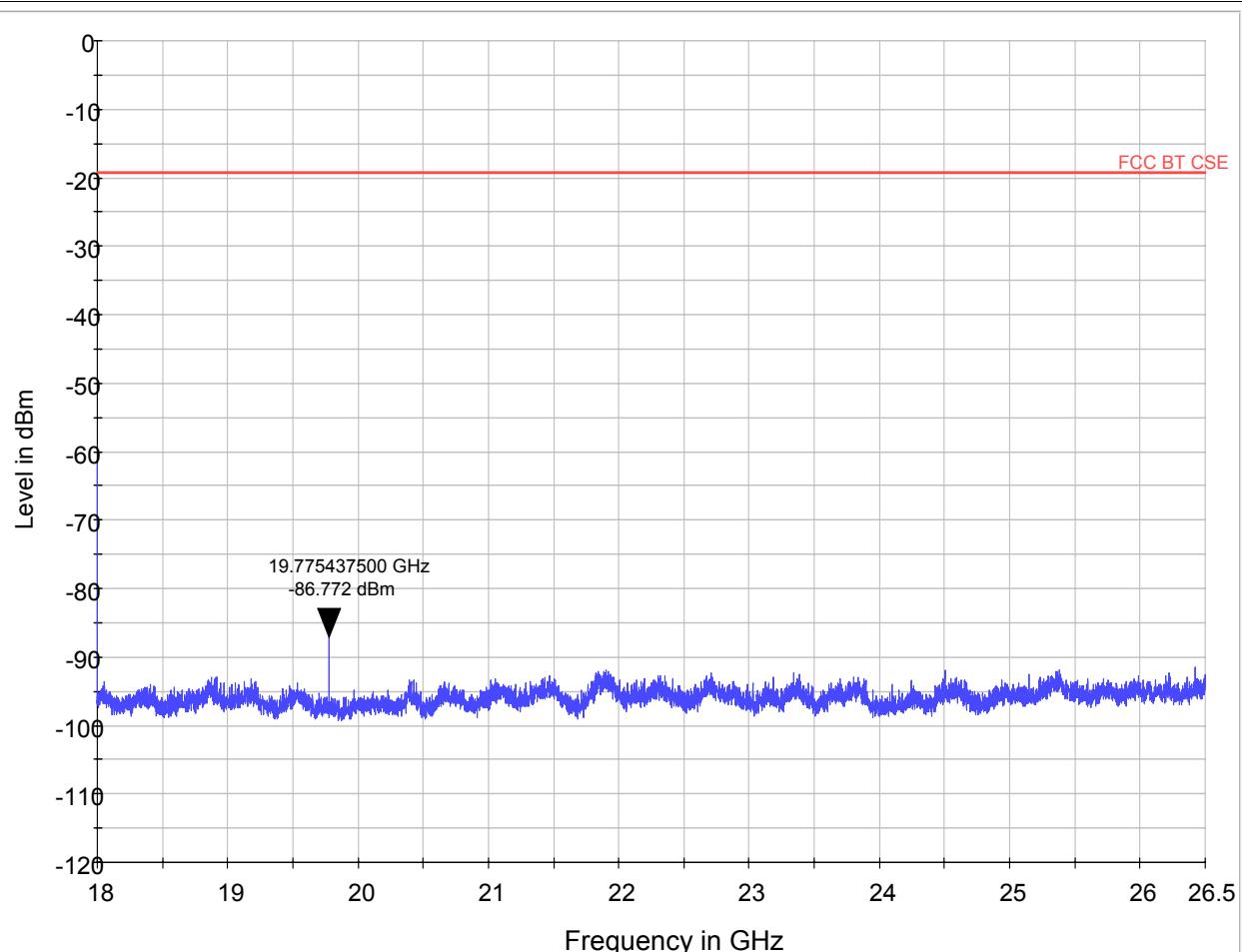


Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2480  
Spurious RF conducted emissions from 30MHz to 18GHz

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Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.78 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4960	Nf	-19.24
3	7440	Nf	-19.24
4	9920	Nf	-19.24
5	12400	Nf	-19.24
6	14880	Nf	-19.24
7	16444.6875	-56.218	-19.24
8	19775.4375	-86.772	-19.24
9	22320	Nf	-19.24
10	24800	Nf	-19.24

Nf: noise floor

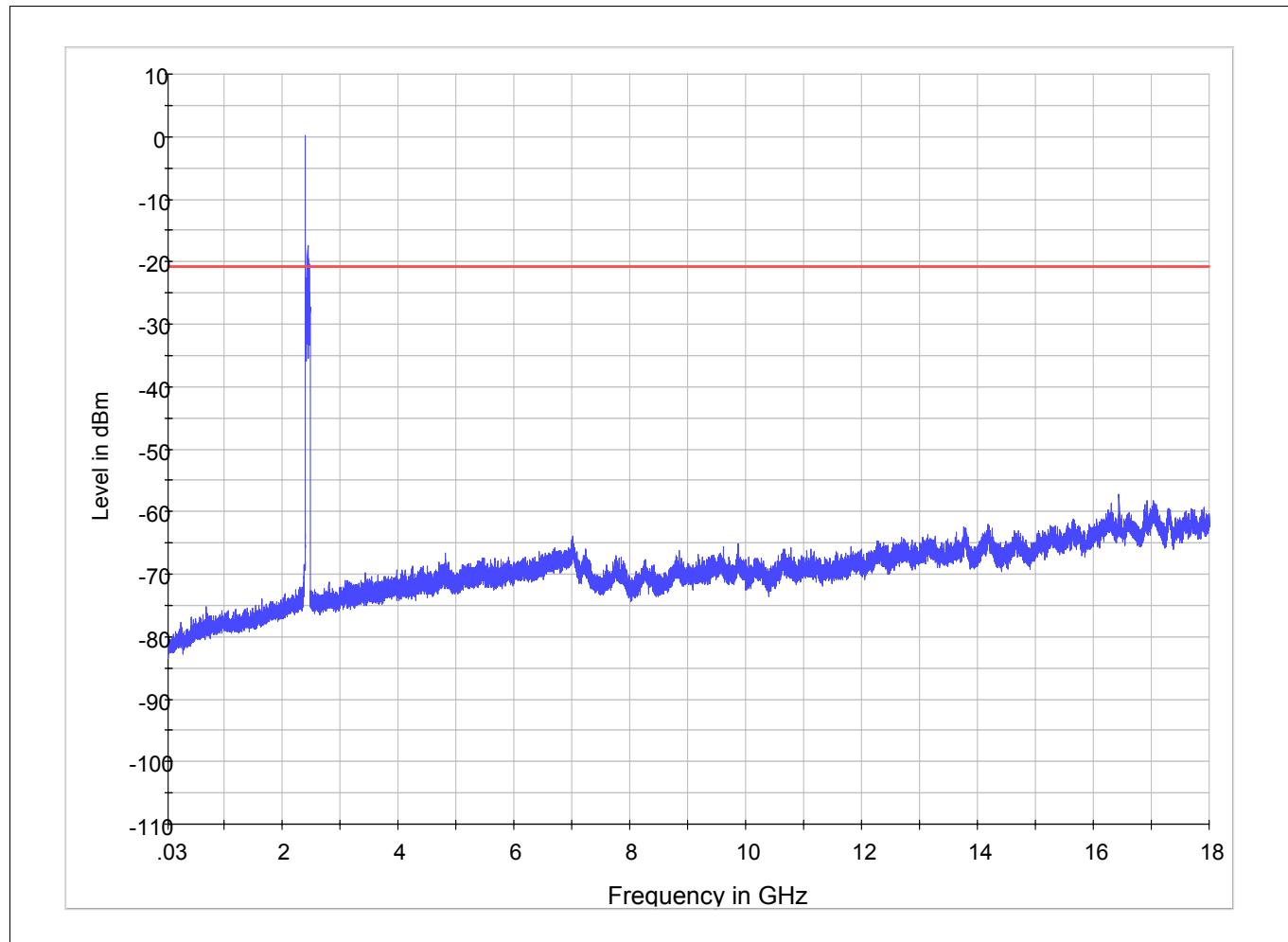
Note: The other Spurious RF conducted emissions level is no more than noise floor.

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**EDR-CH0:**

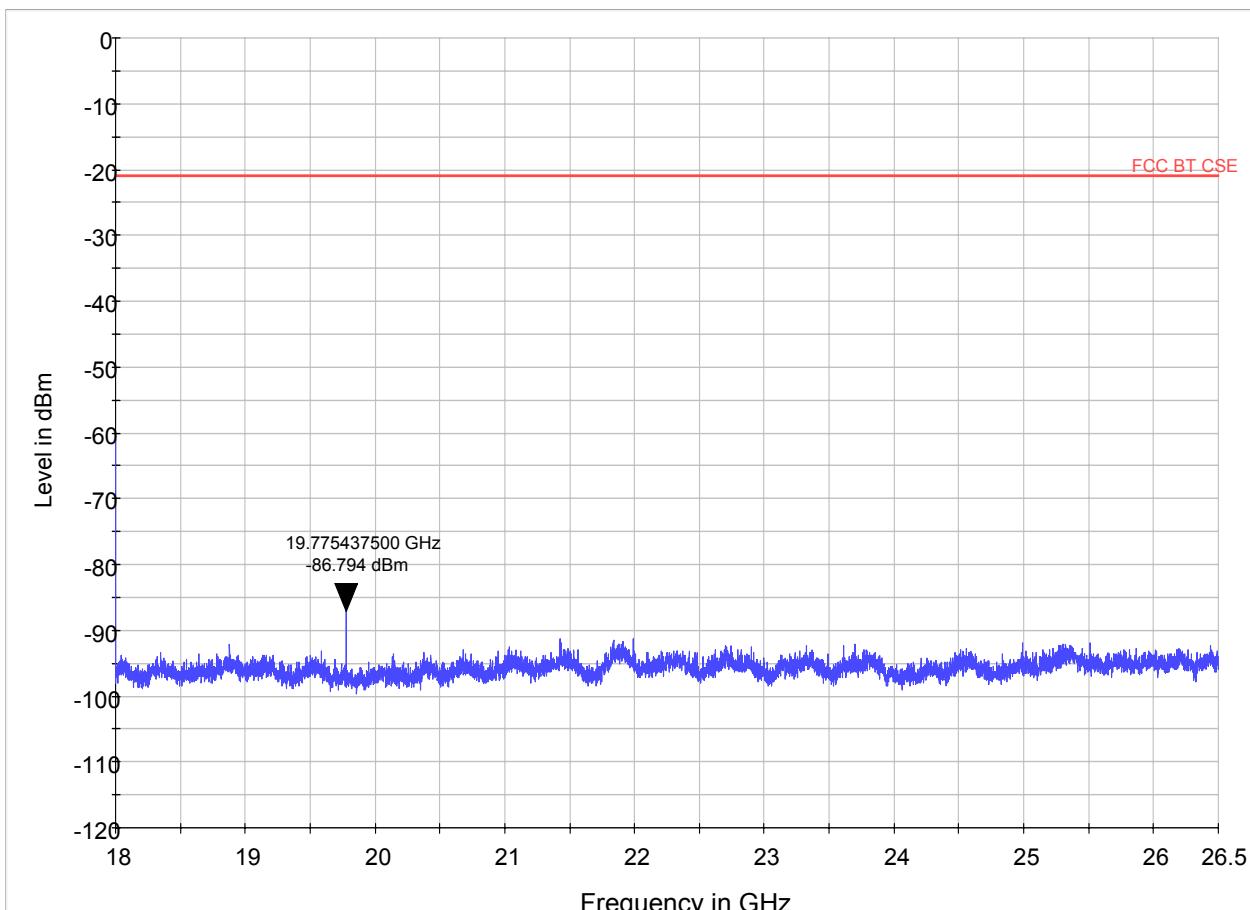


Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2402  
Spurious RF conducted emissions from 30MHz to 18GHz

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Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.0 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4804	Nf	-20.85
3	7206	Nf	-20.85
4	9608	Nf	-20.85
5	12010	Nf	-20.85
6	14412	Nf	-20.85
7	16814	Nf	-20.85
8	19775.4375	-86.794	-20.85
9	21618	Nf	-20.85
10	24020	Nf	-20.85

Nf: noise floor

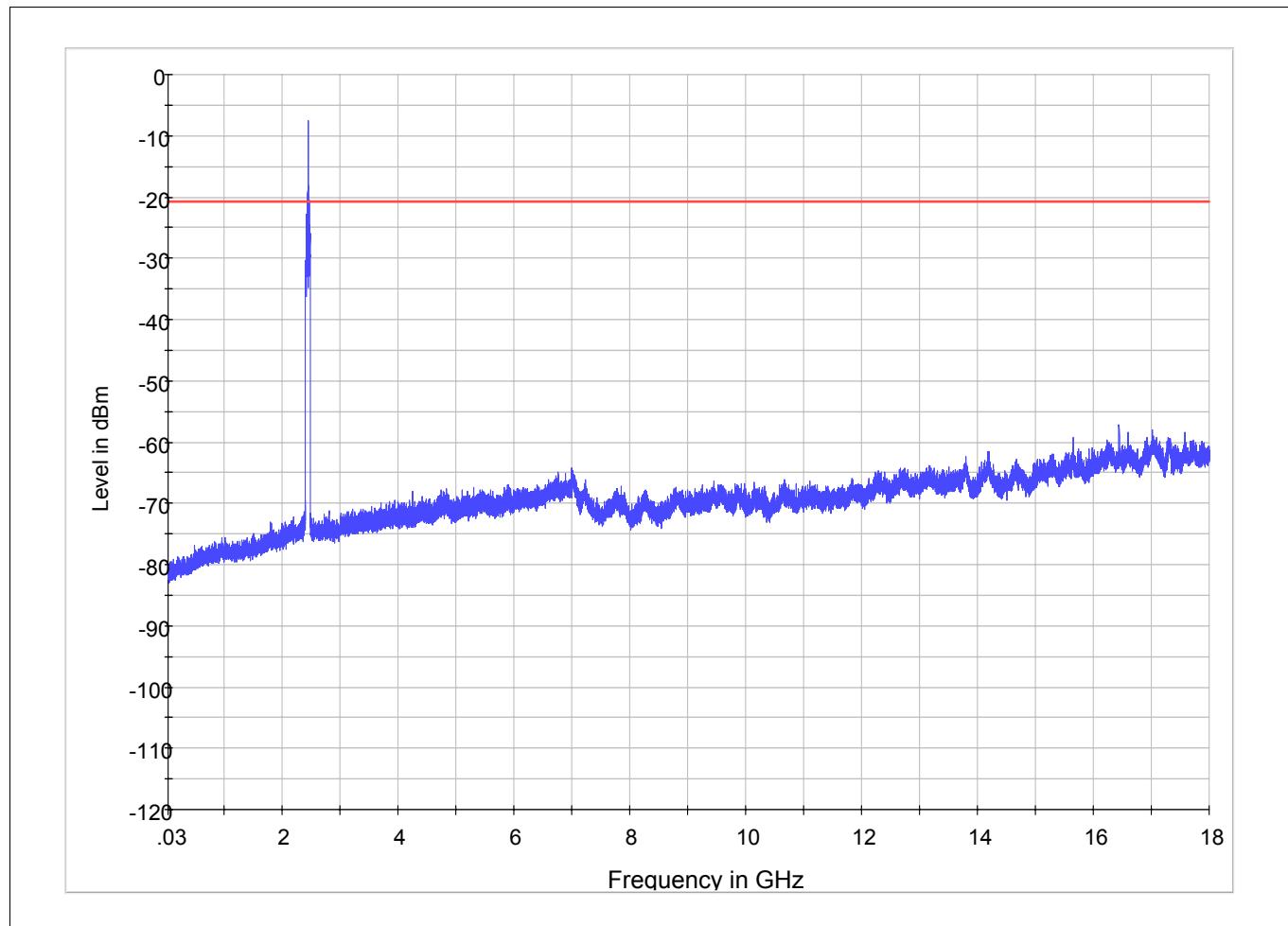
Note: The other Spurious RF conducted emissions level is no more than noise floor.

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**EDR-CH39:**

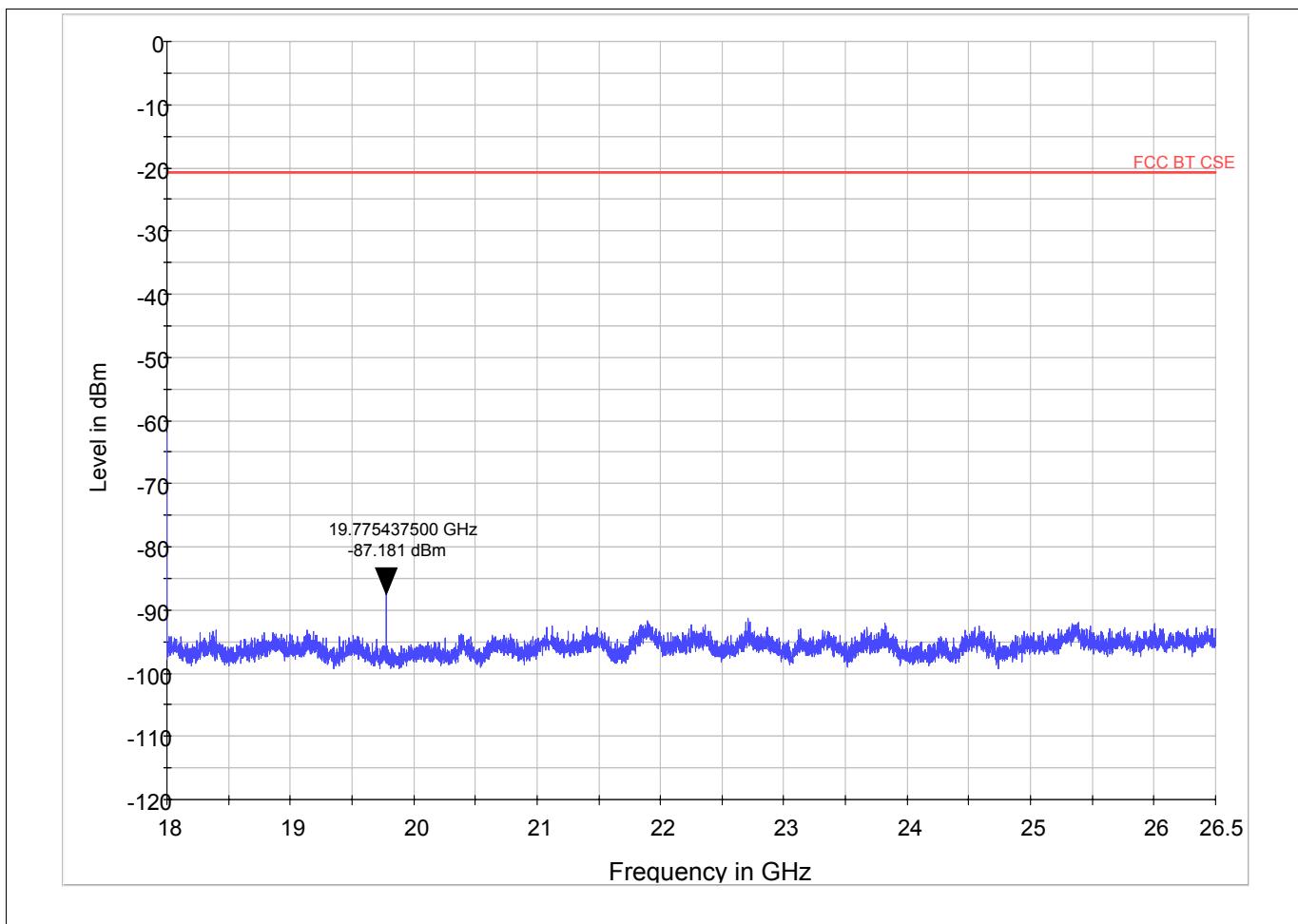


Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2441  
Spurious RF conducted emissions from 30MHz to 18GHz

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Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.39 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4882	Nf	-20.64
3	7323	Nf	-20.64
4	9764	Nf	-20.64
5	12205	Nf	-20.64
6	14646	Nf	-20.64
7	17087	Nf	-20.64
8	19775.4375	-87.181	-20.64
9	21969	Nf	-20.64
10	24410	Nf	-20.64

Nf: noise floor

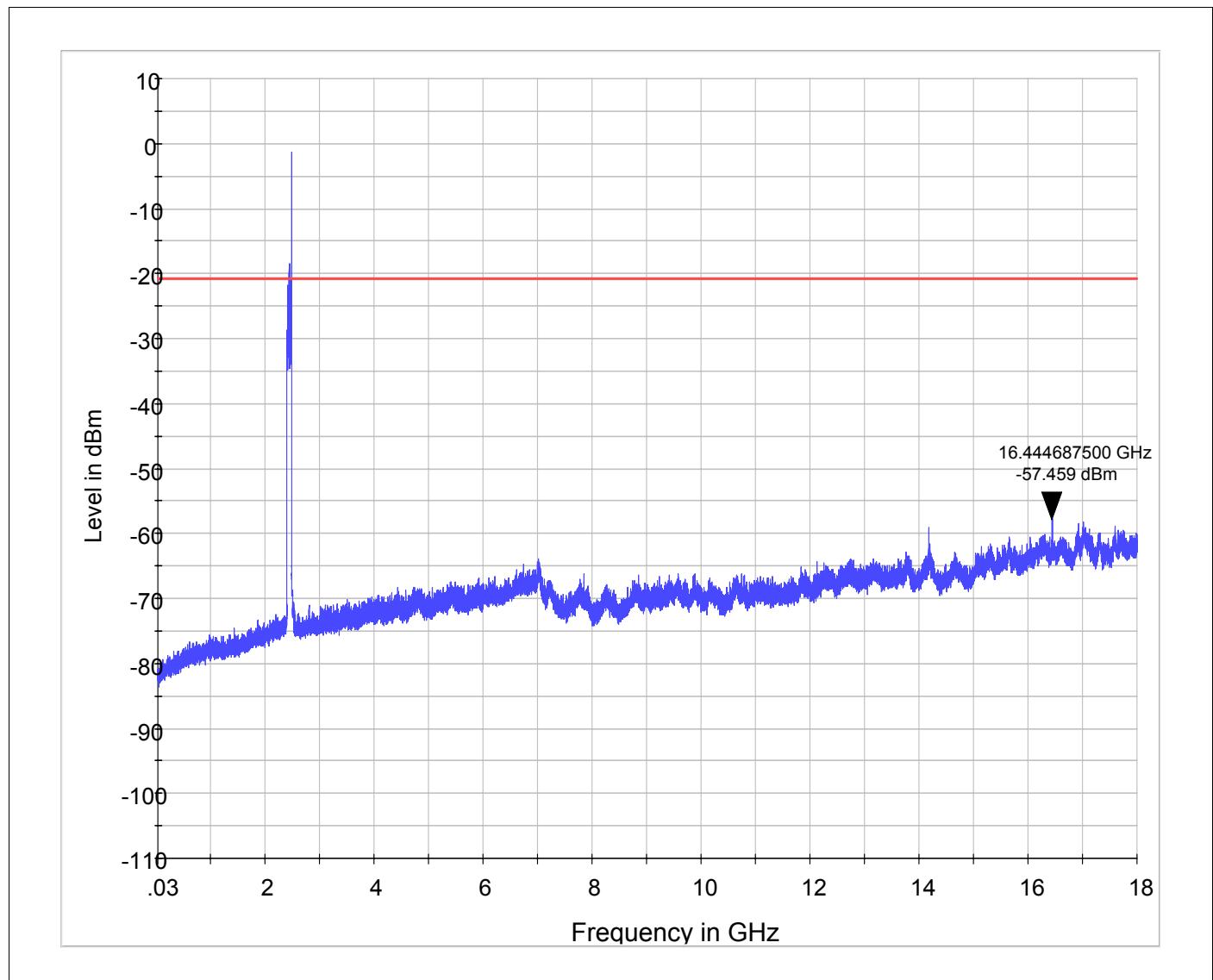
Note: The other Spurious RF conducted emissions level is no more than noise floor.

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**EDR-CH78:**

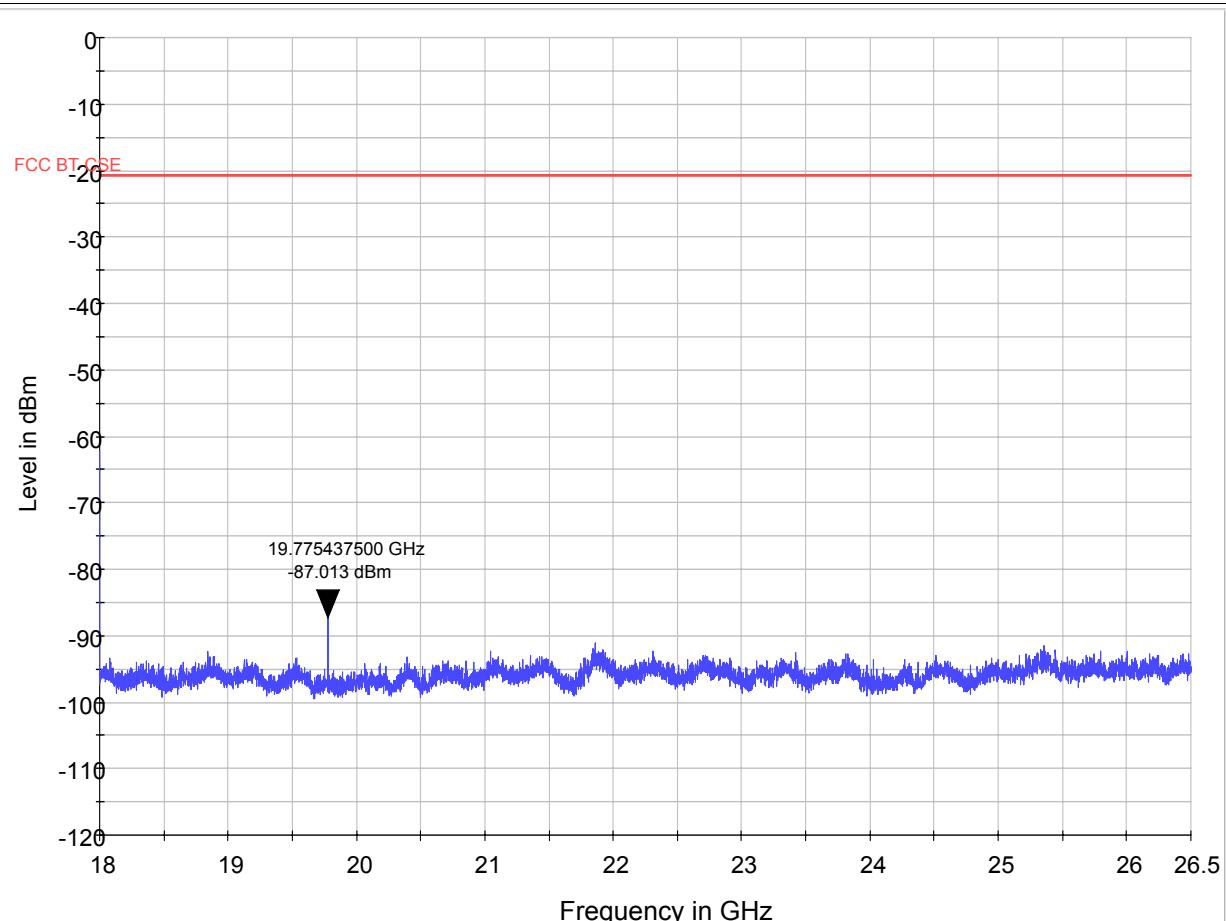


Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2480  
Spurious RF conducted emissions from 30MHz to 18GHz

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Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.78 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4960	Nf	-20.72
3	7440	Nf	-20.72
4	9920	Nf	-20.72
5	12400	Nf	-20.72
6	14880	Nf	-20.72
7	17360	Nf	-20.72
8	19775.4375	-87.013	-20.72
9	22320	Nf	-20.72
10	24800	Nf	-20.72

Nf: noise floor

Note: The other Spurious RF conducted emissions level is no more than noise floor.

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## 2.10. Radiates Emission

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	102.5kPa

### Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.4-2003. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration. Sweep the whole frequency band through the range from 30MHz to 26GHz during the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

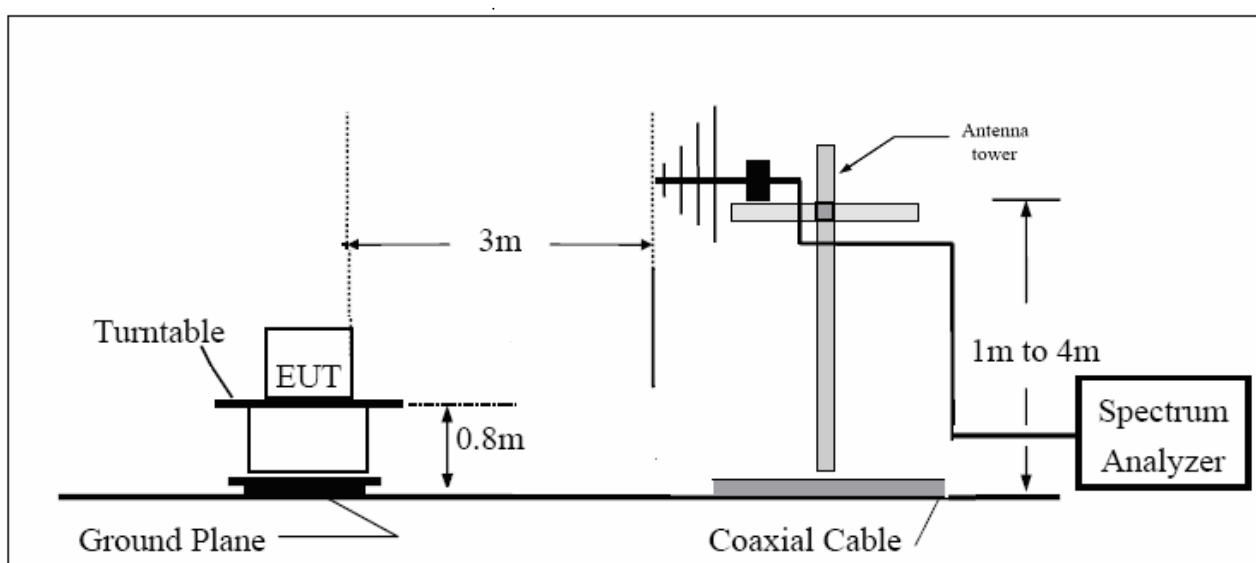
(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

The test is in transmit mode.

### Test setup

#### Below 1GHz

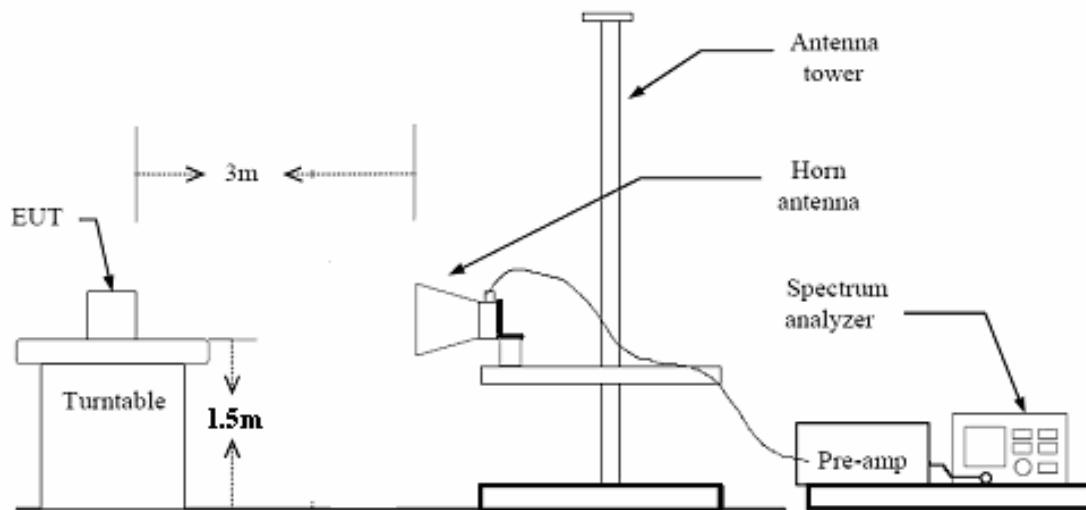


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### Above 1GHz



### Limits

Rule Part 15.247(d) specifies that “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) (see § 15.205(c)).”

#### Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

#### §15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U=3.92$  dB.

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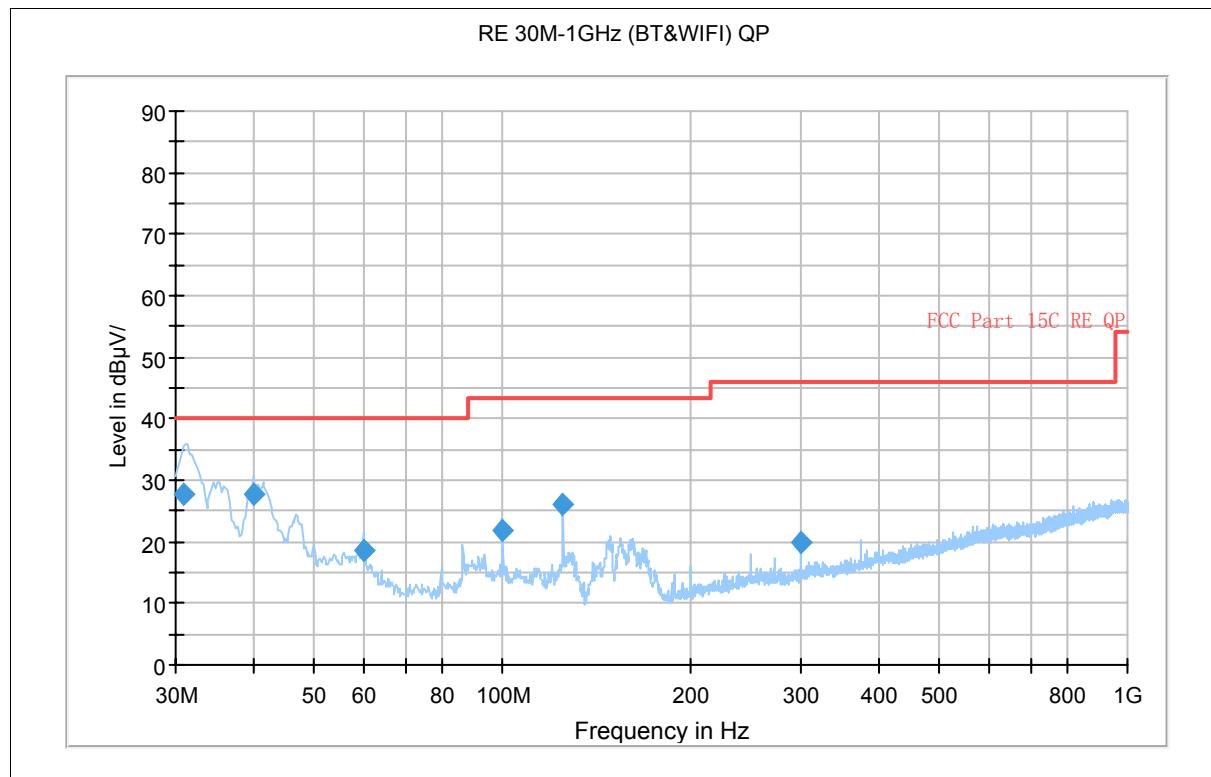
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**Test result**

**EUT with Black Earphone**

Basic Rate-Channel 0



Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
31.012500	27.6	125.0	V	0.0	12.4	40.0
40.022500	27.9	125.0	V	0.0	12.1	40.0
59.987500	18.6	100.0	V	225.0	21.4	40.0
100.000000	22.0	100.0	V	293.0	21.5	43.5
125.017500	25.9	100.0	V	2.0	17.6	43.5
300.022500	20.0	100.0	V	203.0	26.0	46.0

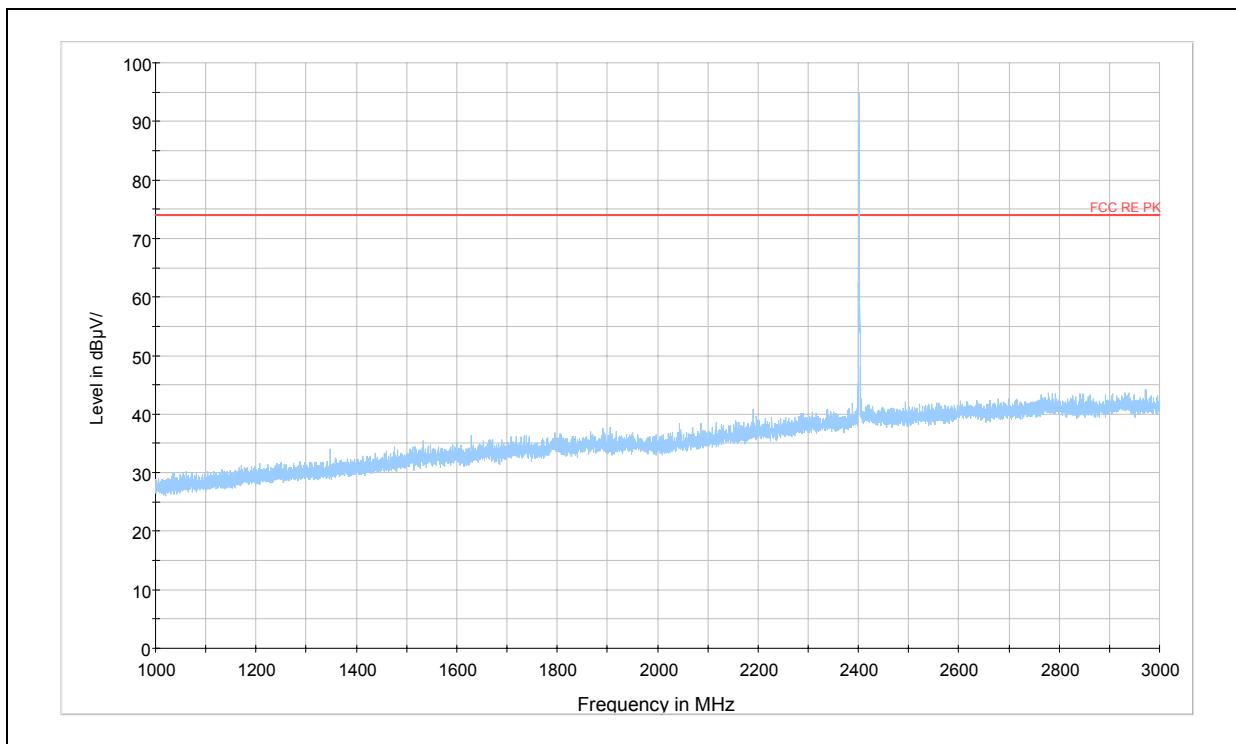
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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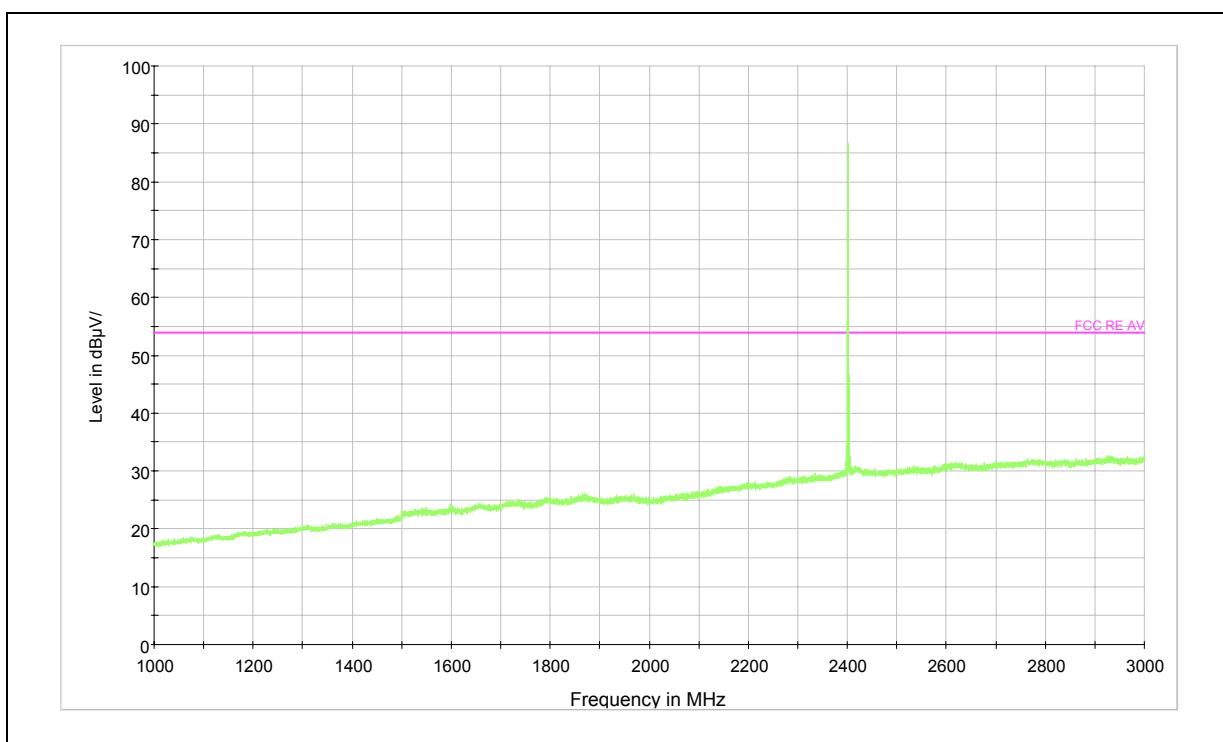
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

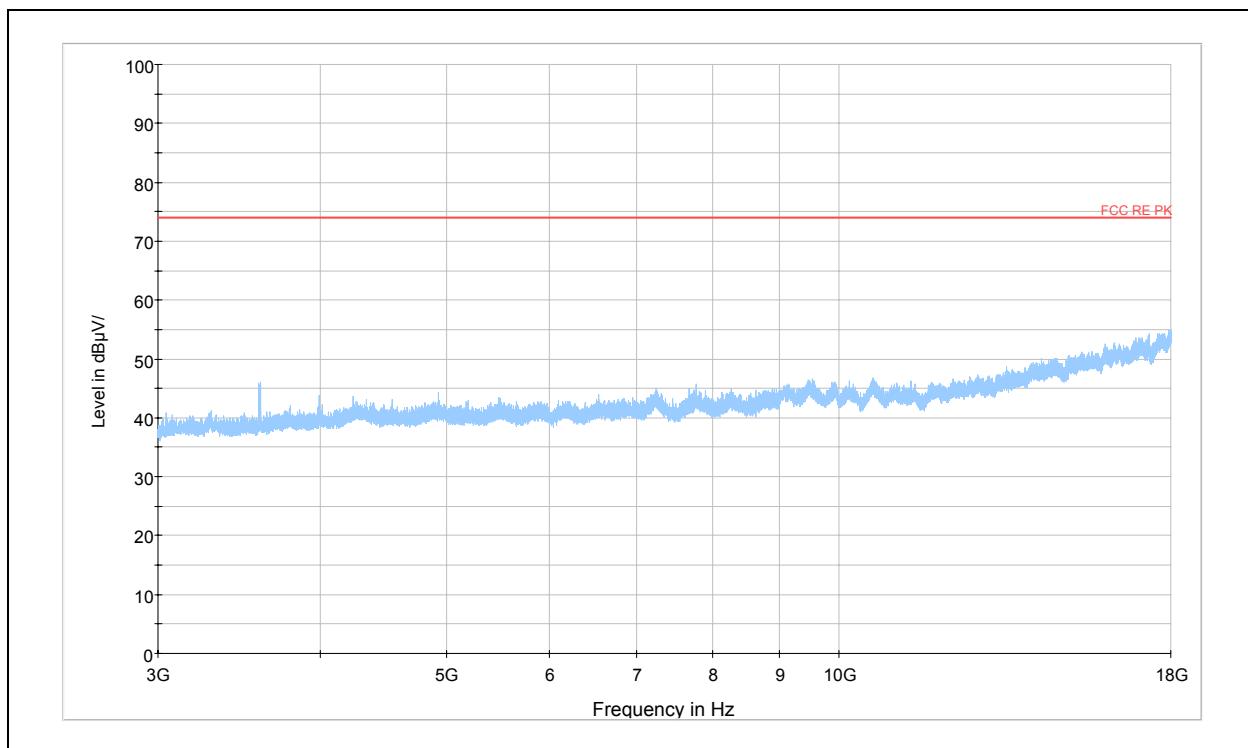
Radiates Emission from 1GHz to 3GHz

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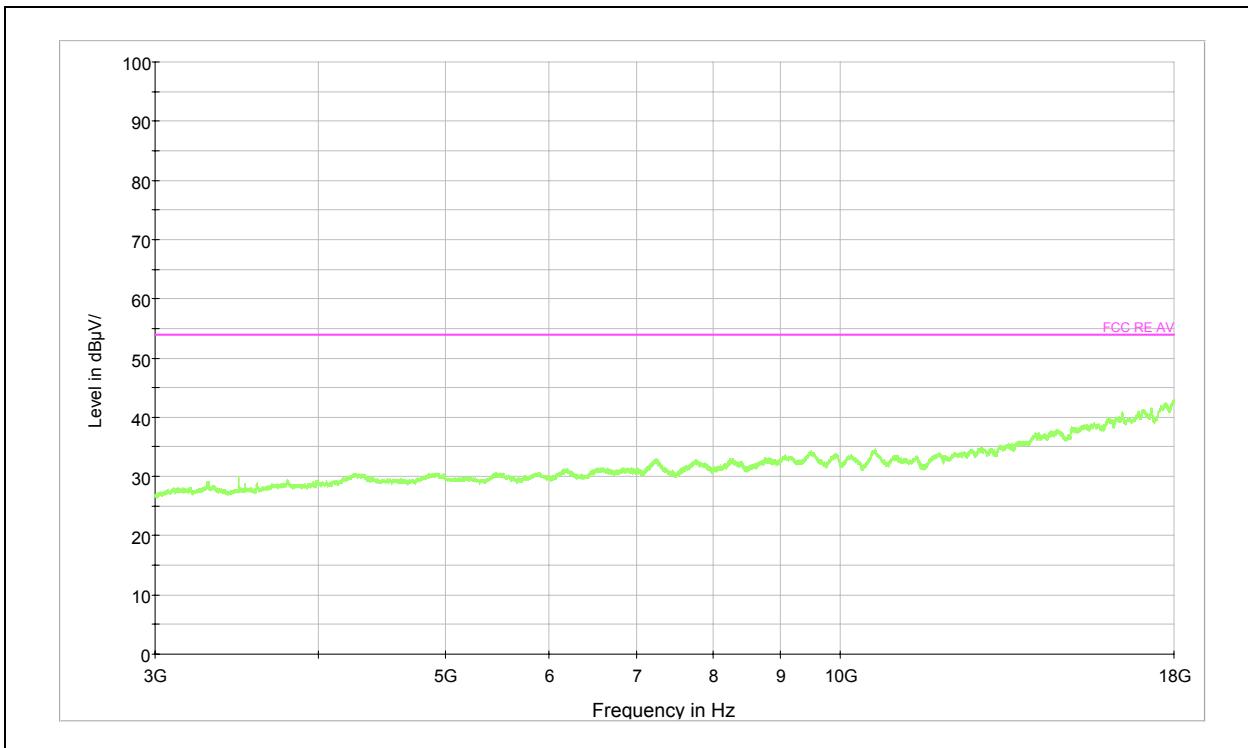
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



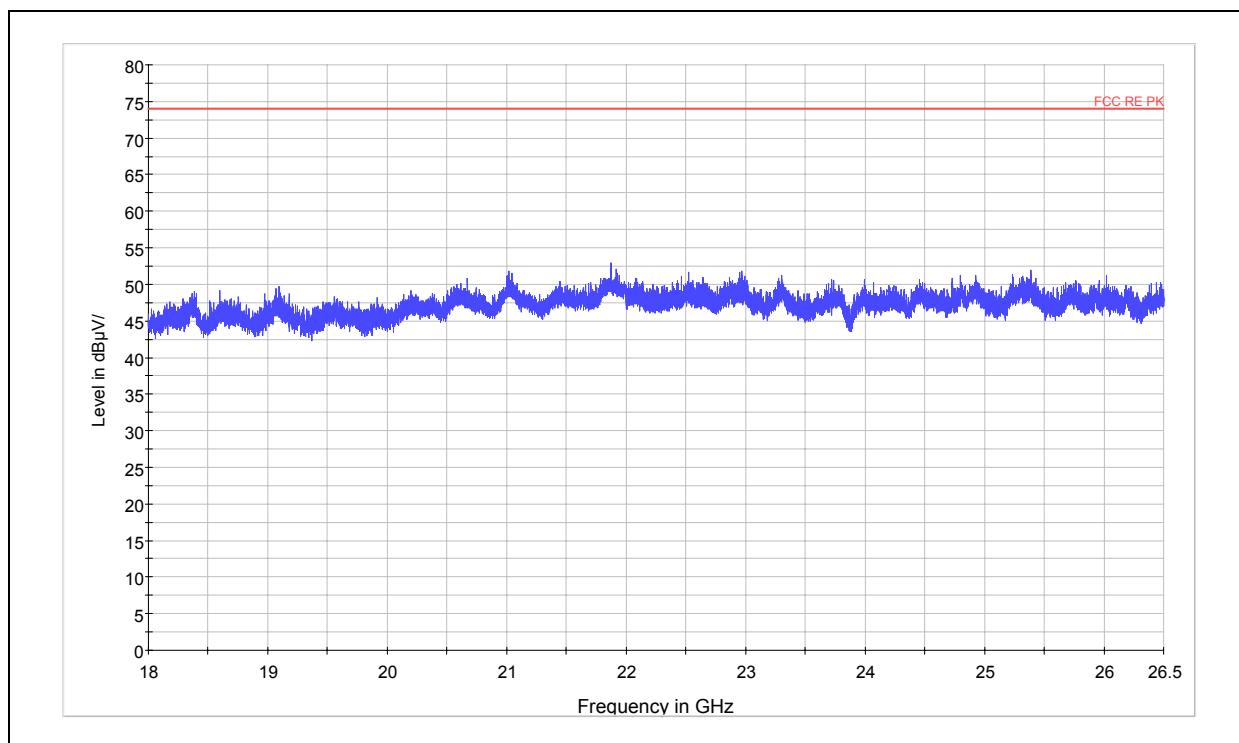
Radiates Emission from 3GHz to 18GHz

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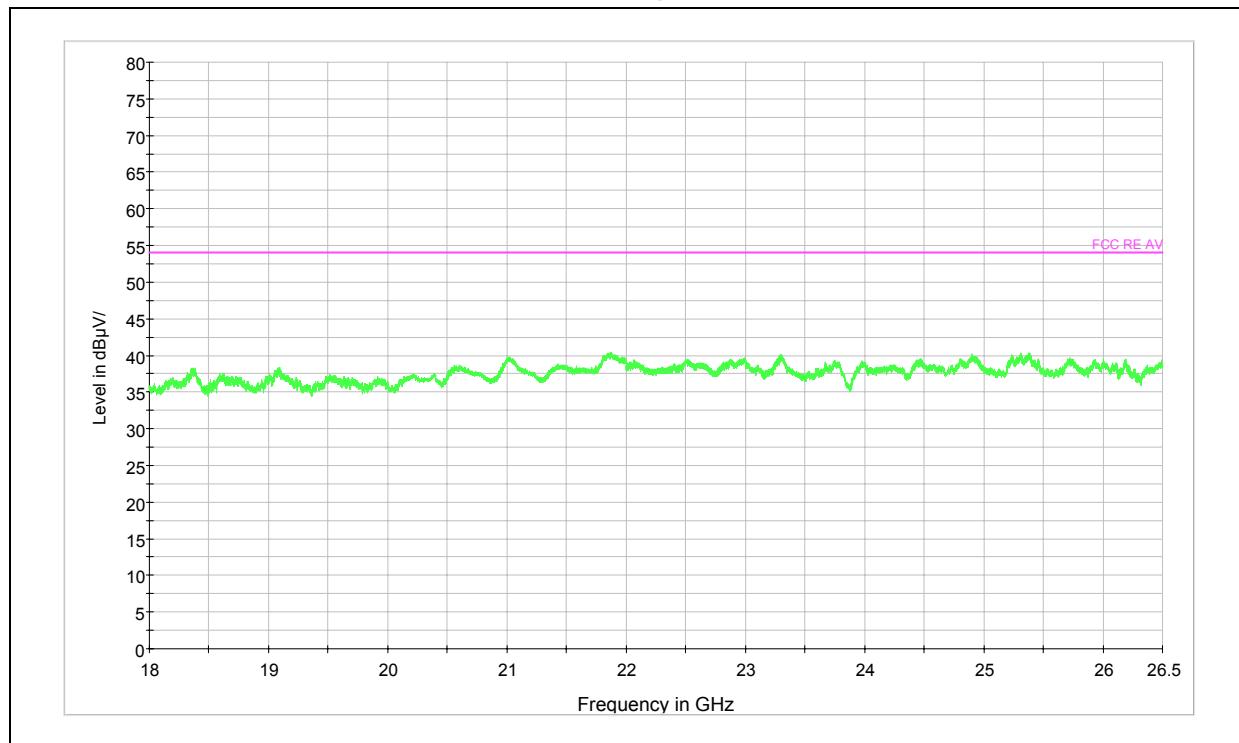
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



Radiates Emission from 18GHz to 26.5GHz

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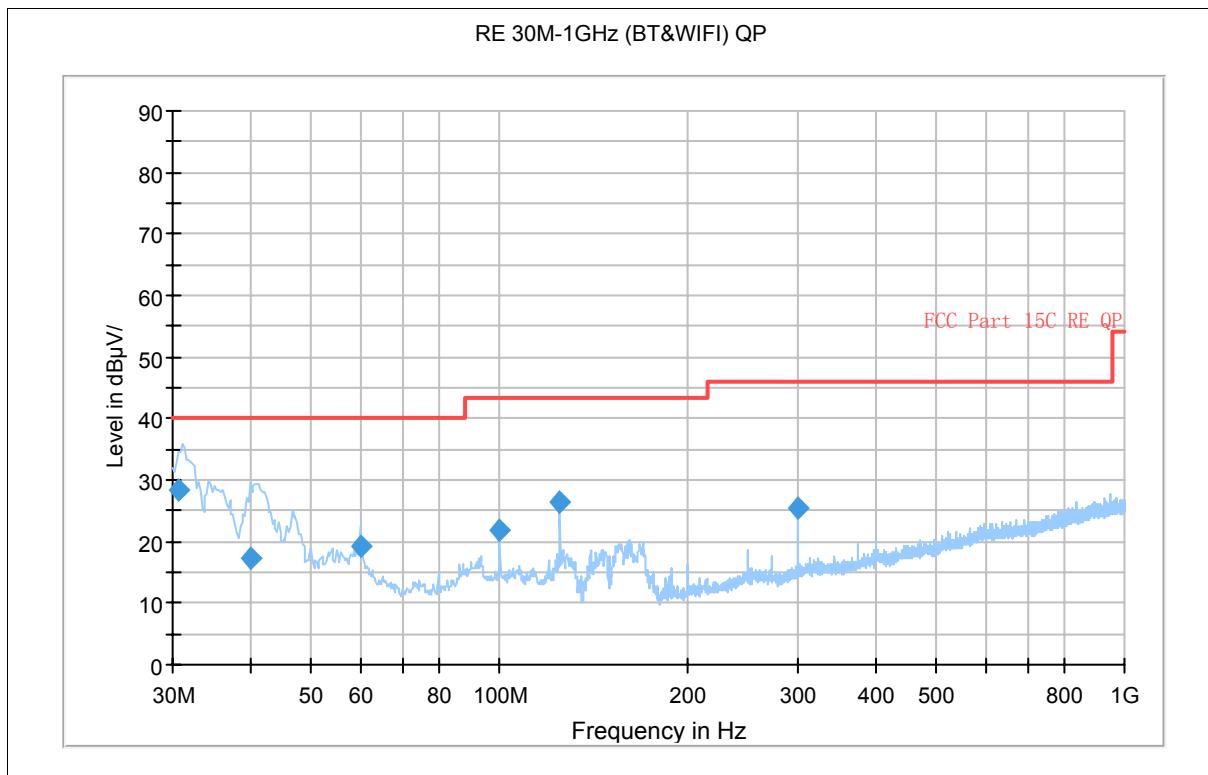
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Basic Rate-Channel 39



Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
30.652500	28.4	100.0	V	315.0	11.6	40.0
40.022500	17.2	125.0	H	272.0	22.8	40.0
59.987500	19.2	100.0	V	315.0	20.8	40.0
100.000000	21.7	116.0	V	113.0	21.8	43.5
125.017500	26.4	100.0	V	17.0	17.1	43.5
300.022500	25.6	100.0	H	310.0	20.4	46.0

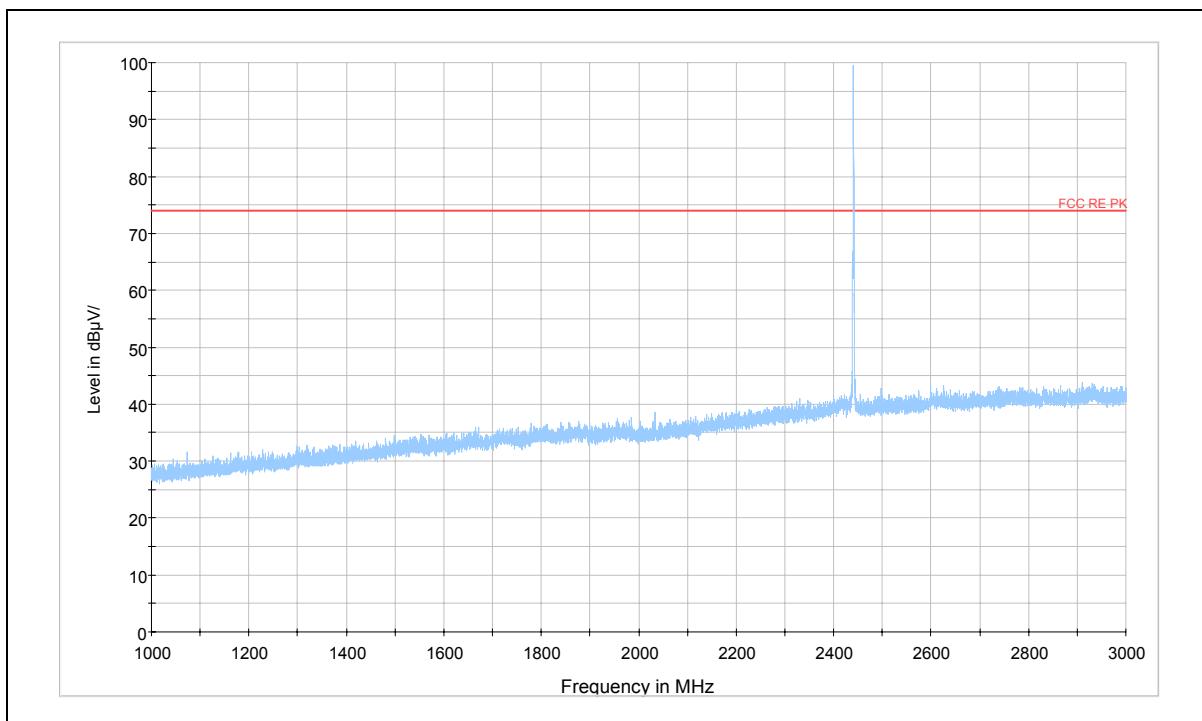
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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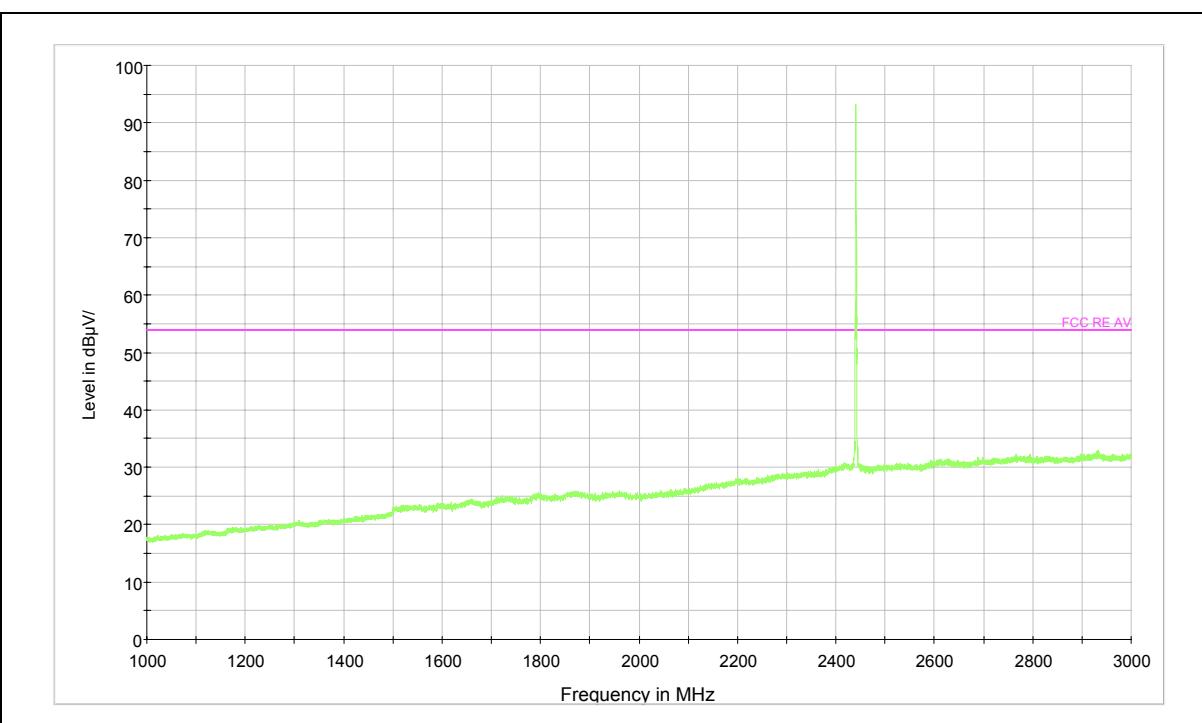
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

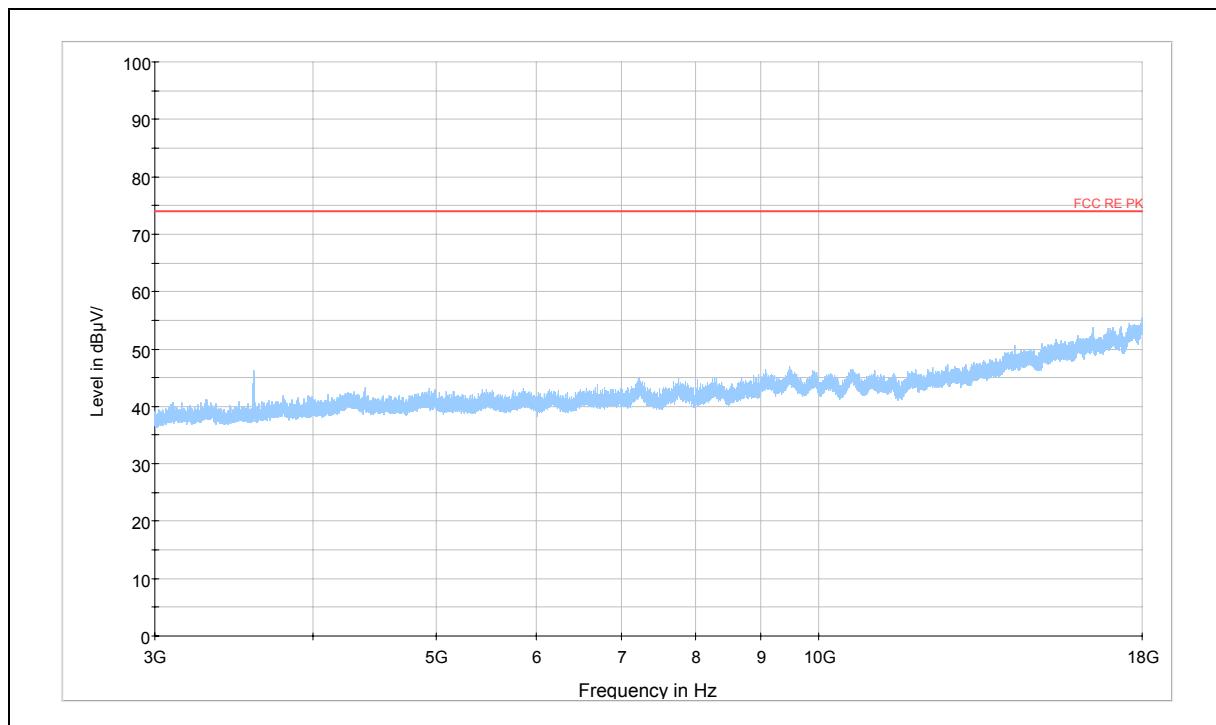
Radiates Emission from 1GHz to 3GHz

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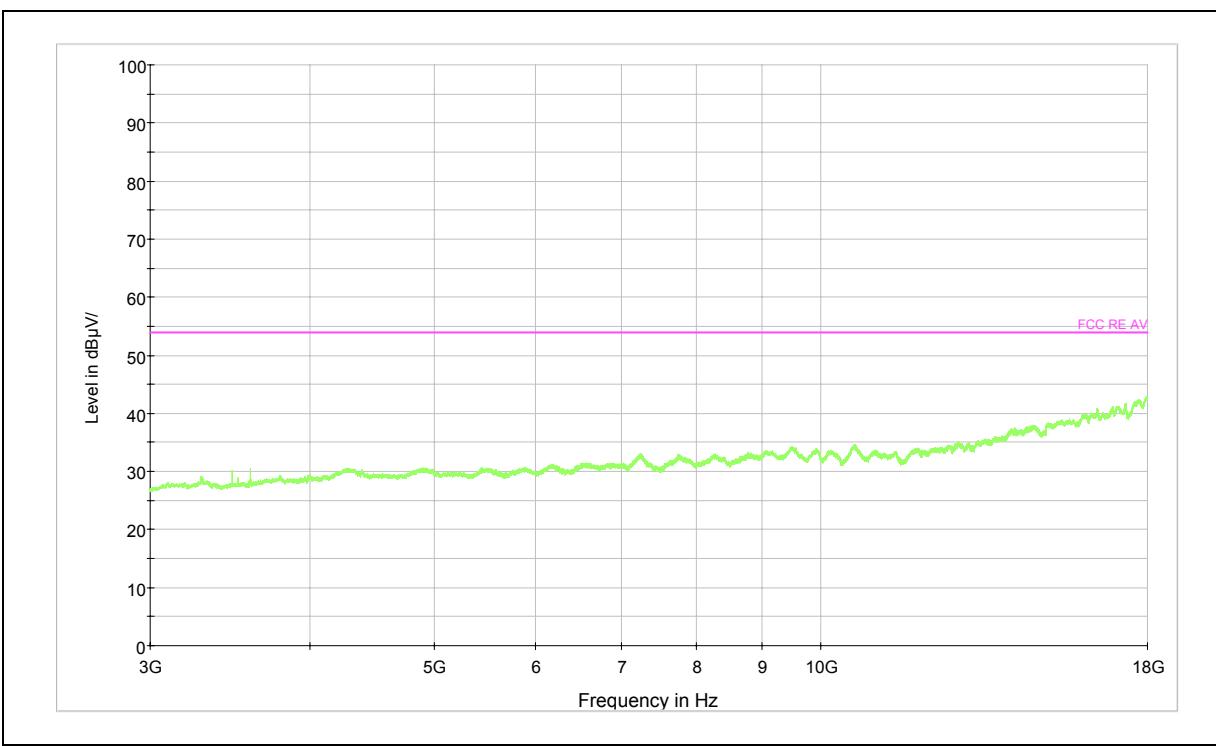
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



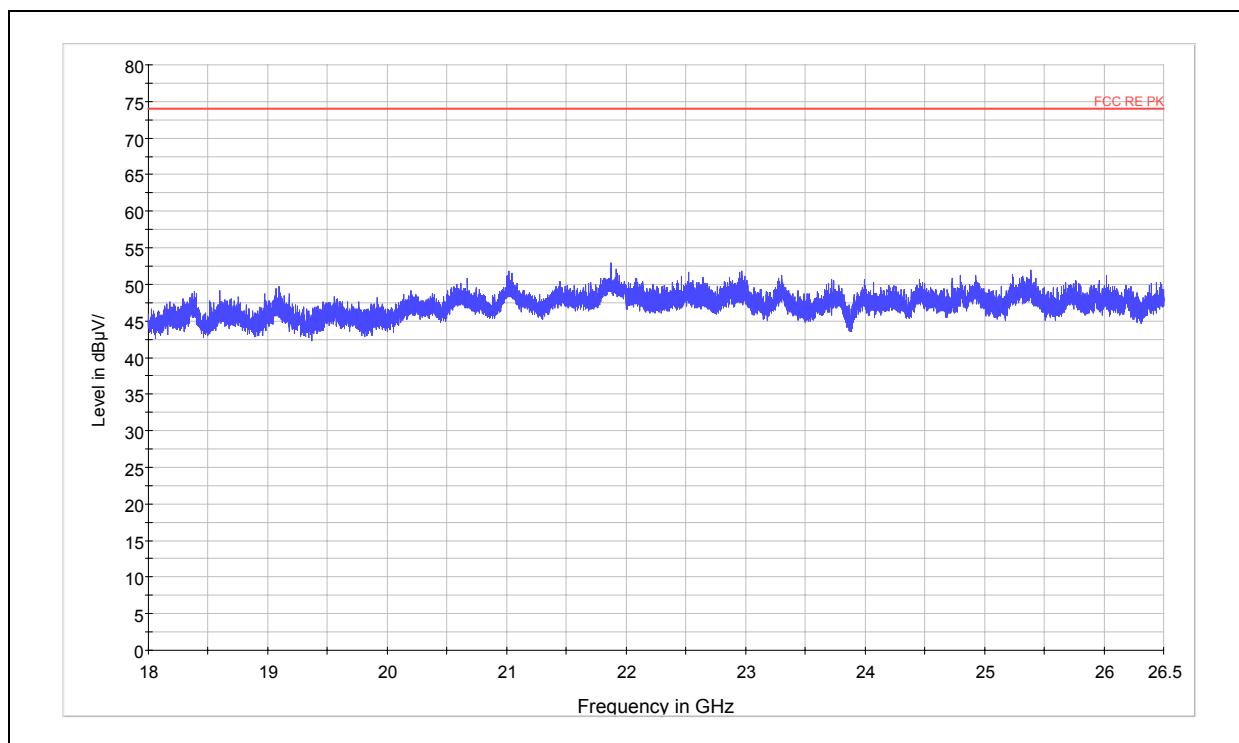
Radiates Emission from 3GHz to 18GHz

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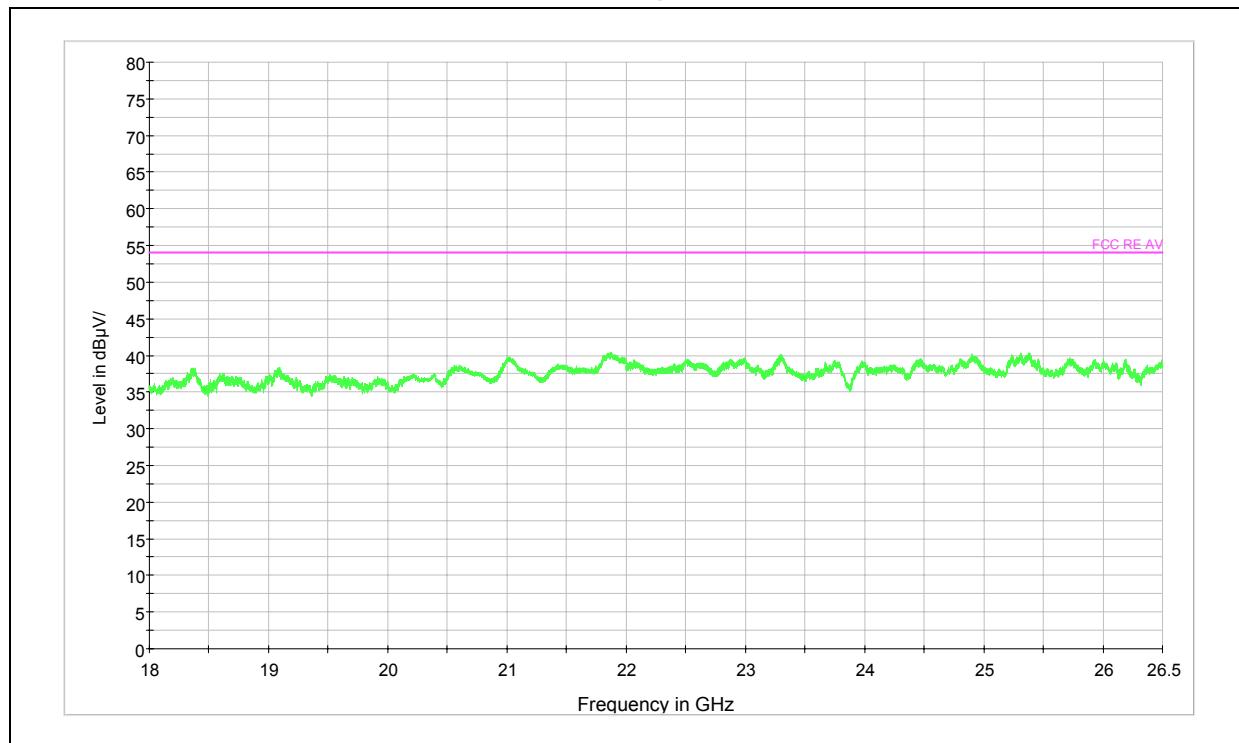
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



Radiates Emission from 18GHz to 26.5GHz

# TA Technology (Shanghai) Co., Ltd.

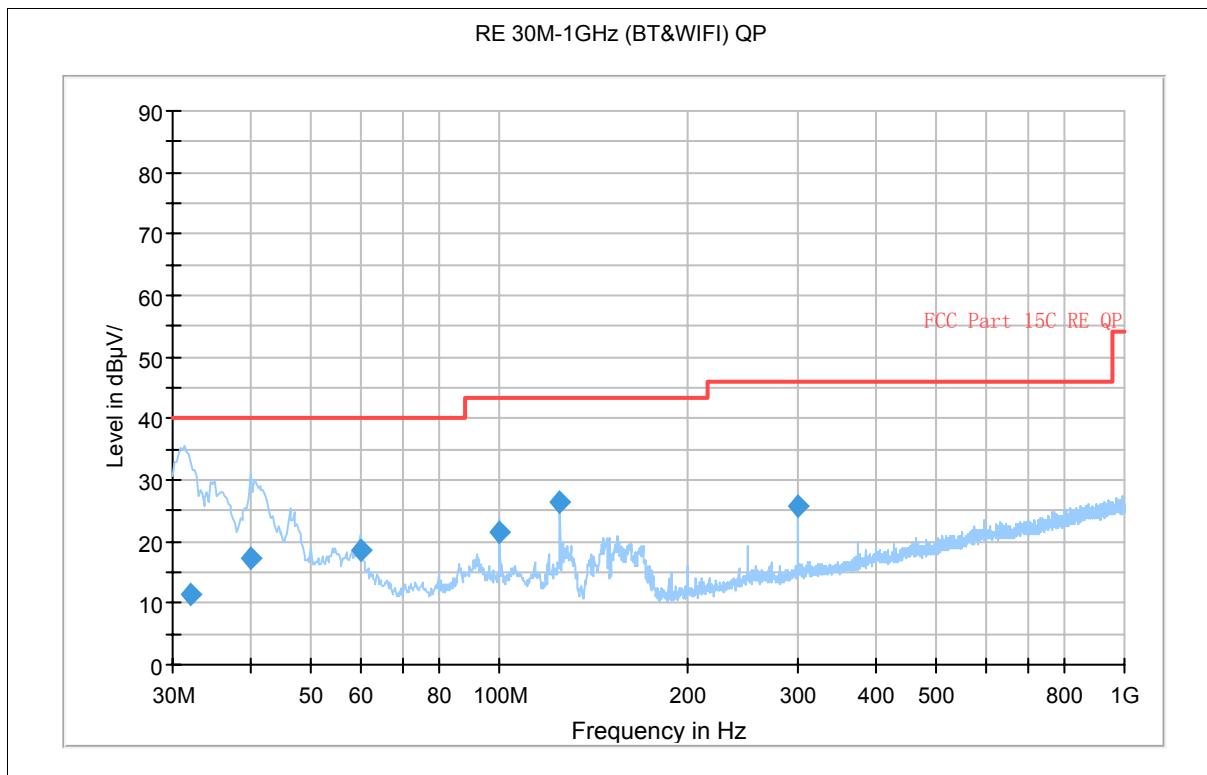
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### Basic Rate-Channel 78



Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
32.055000	11.3	116.0	H	285.0	28.7	40.0
40.022500	17.3	125.0	H	270.0	22.7	40.0
59.987500	18.5	116.0	V	225.0	21.5	40.0
100.000000	21.4	116.0	V	2.0	22.1	43.5
125.020000	26.3	100.0	V	4.0	17.2	43.5
300.022500	25.8	100.0	H	308.0	20.2	46.0

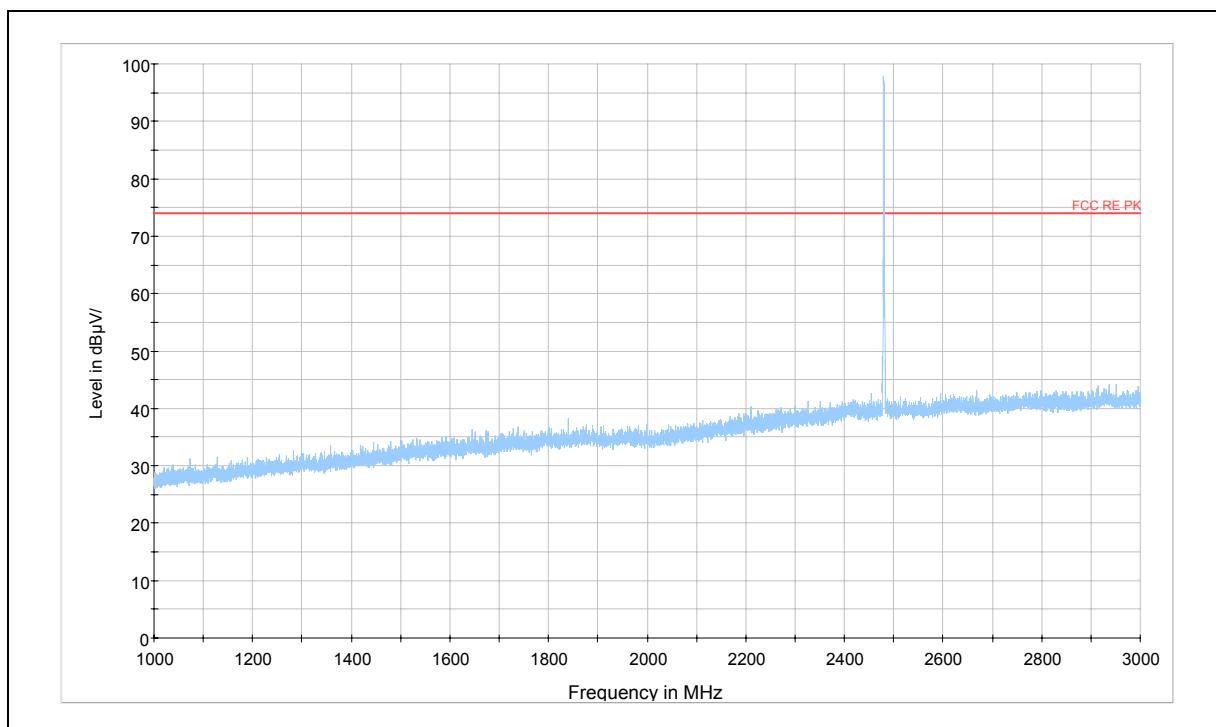
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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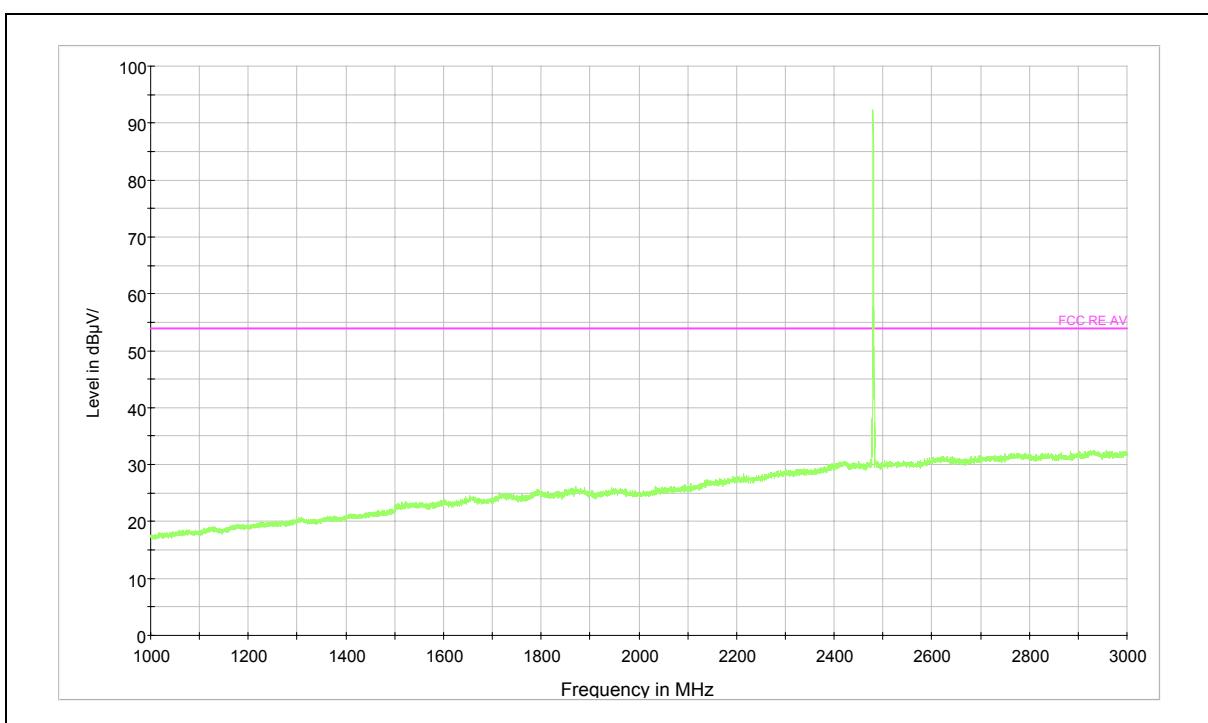
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**Peak**



Note: The signal beyond the limit is carrier.  
Radiates Emission from 1GHz to 3GHz

**Average**



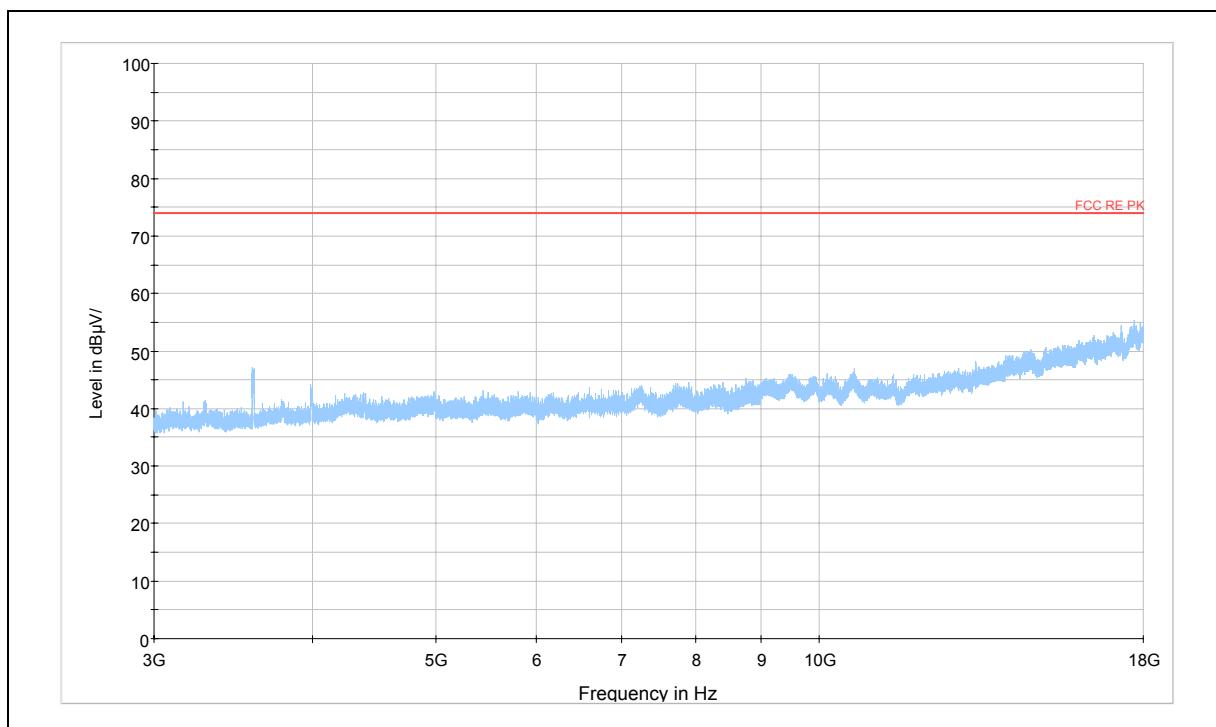
Note: The signal beyond the limit is carrier.  
Radiates Emission from 1GHz to 3GHz

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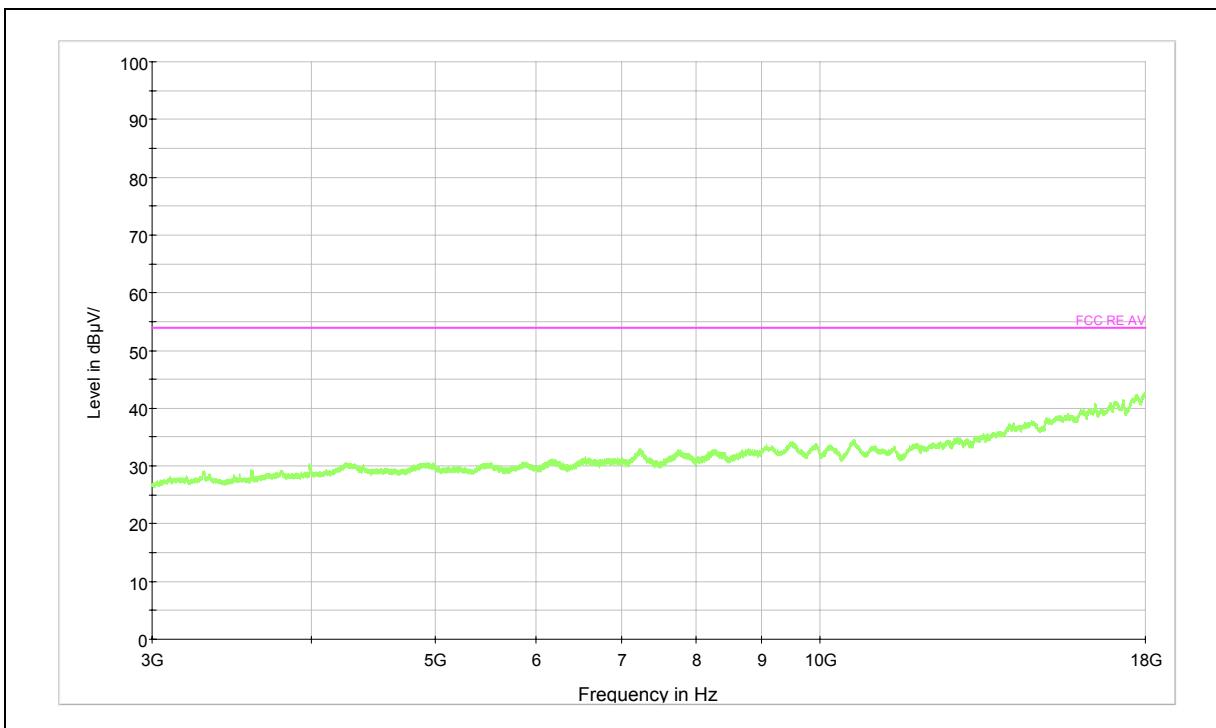
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



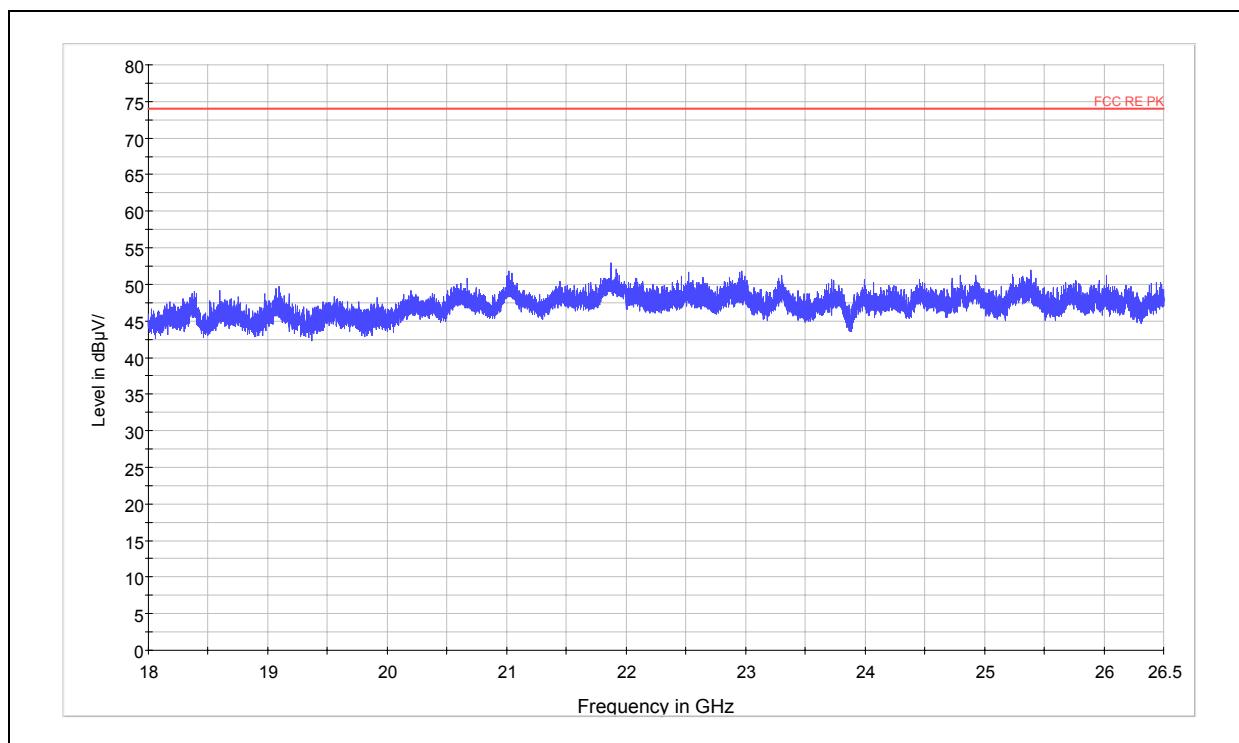
Radiates Emission from 3GHz to 18GHz

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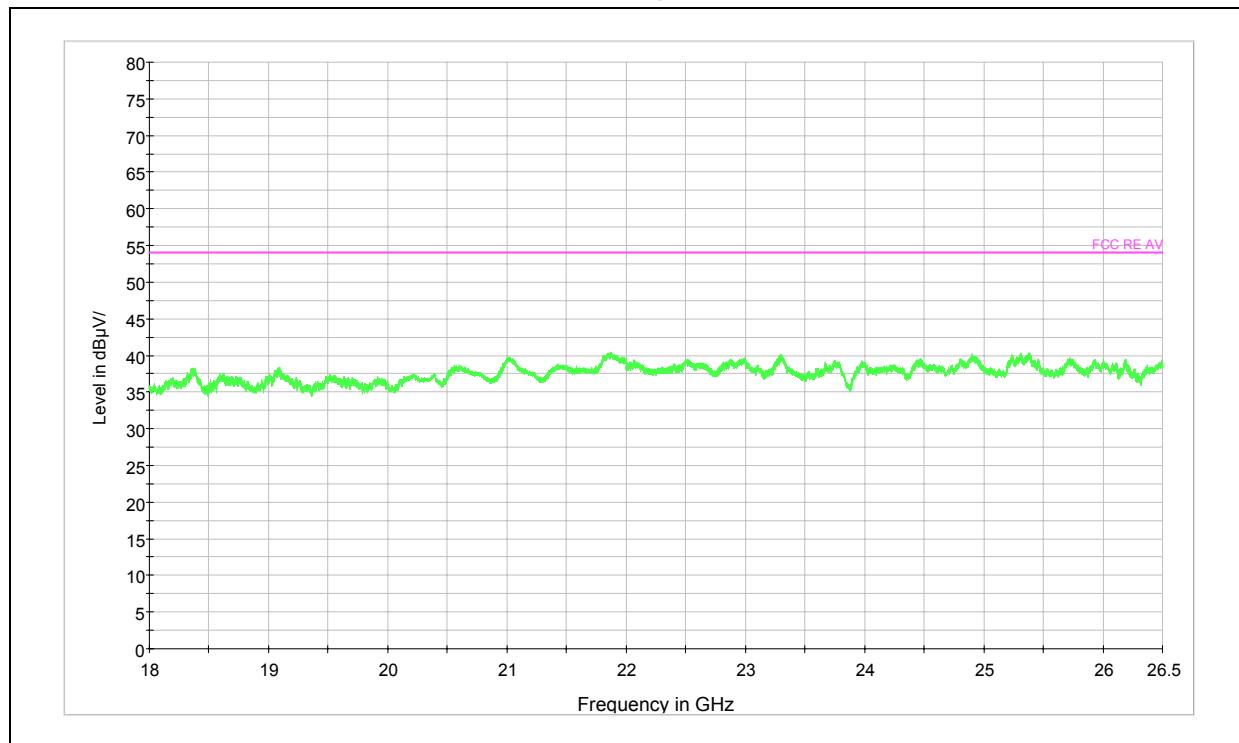
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



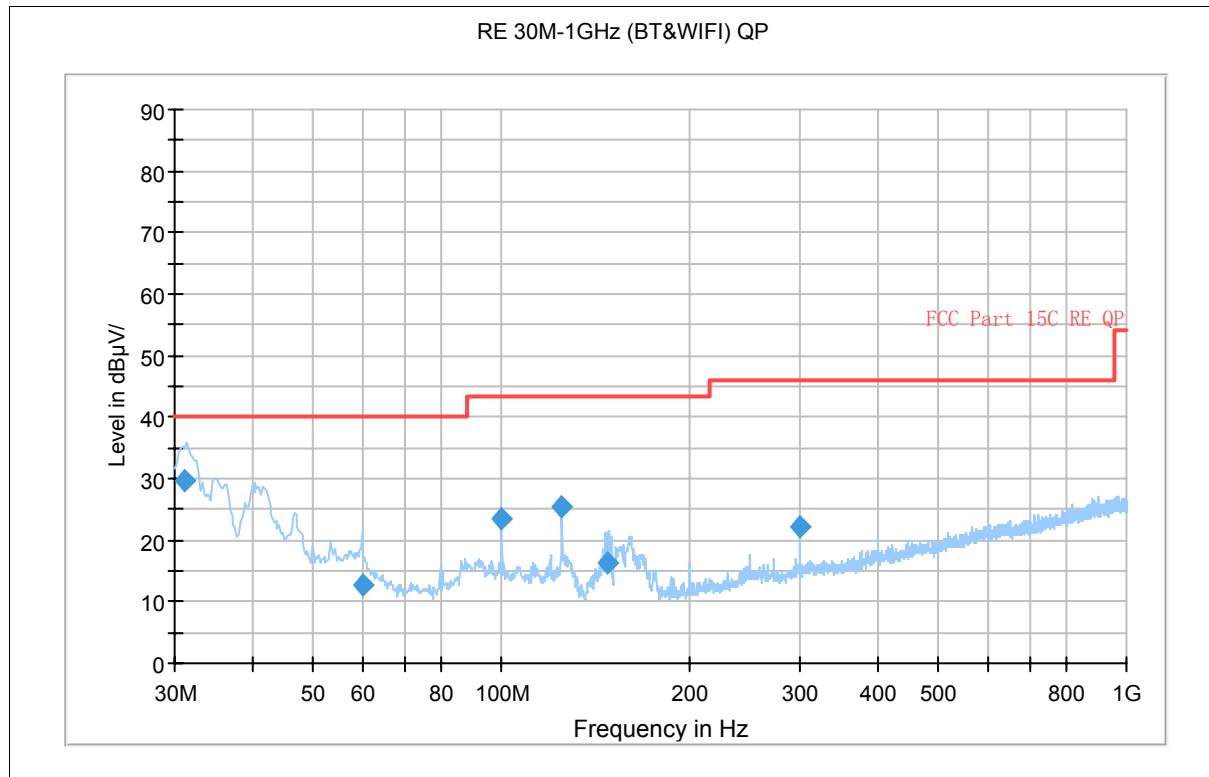
Radiates Emission from 18GHz to 26.5GHz

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EDR-Channel 0



Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
31.015000	29.5	116.0	V	2.0	10.5	40.0
59.987500	12.6	125.0	H	315.0	27.4	40.0
100.000000	23.4	116.0	V	315.0	20.1	43.5
125.017500	25.4	100.0	V	315.0	18.1	43.5
148.255000	16.3	100.0	V	46.0	27.2	43.5
300.022500	22.0	100.0	H	311.0	24.0	46.0

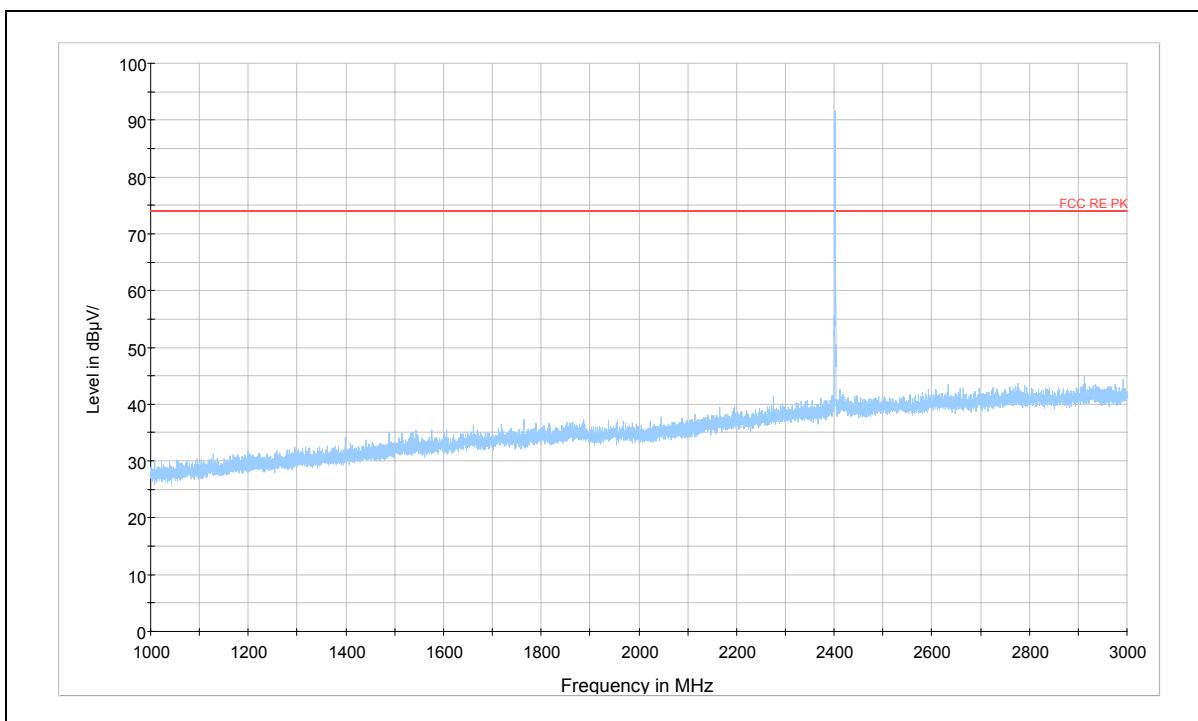
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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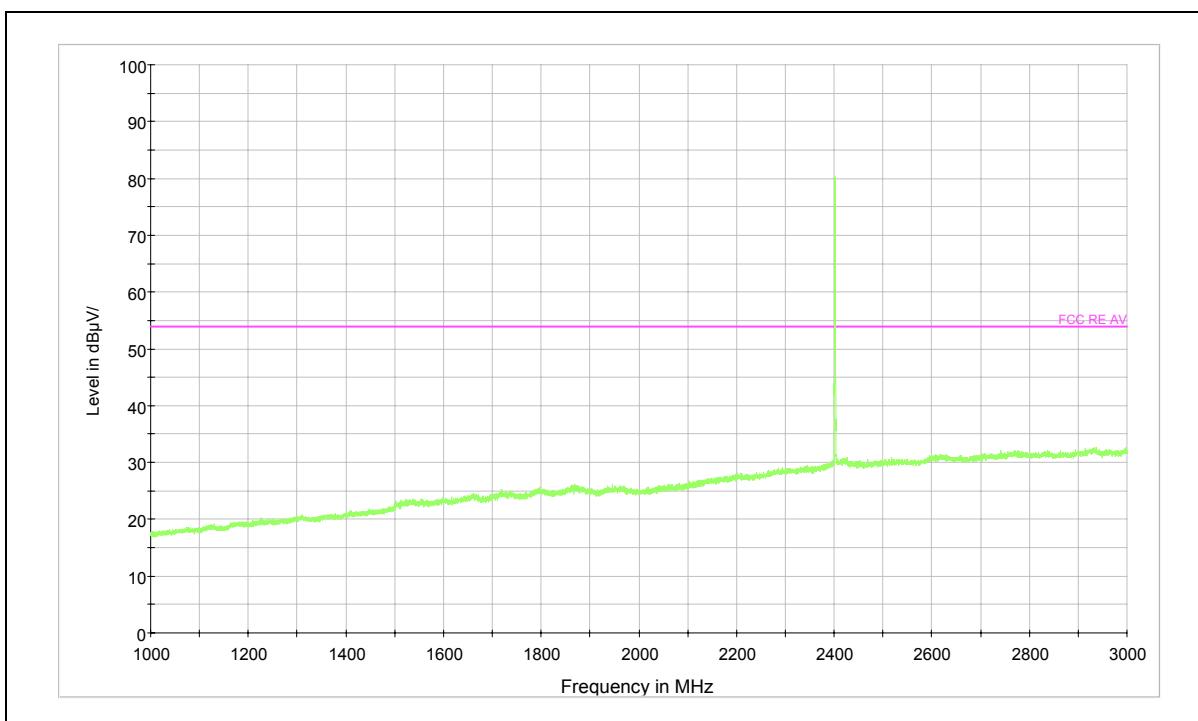
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

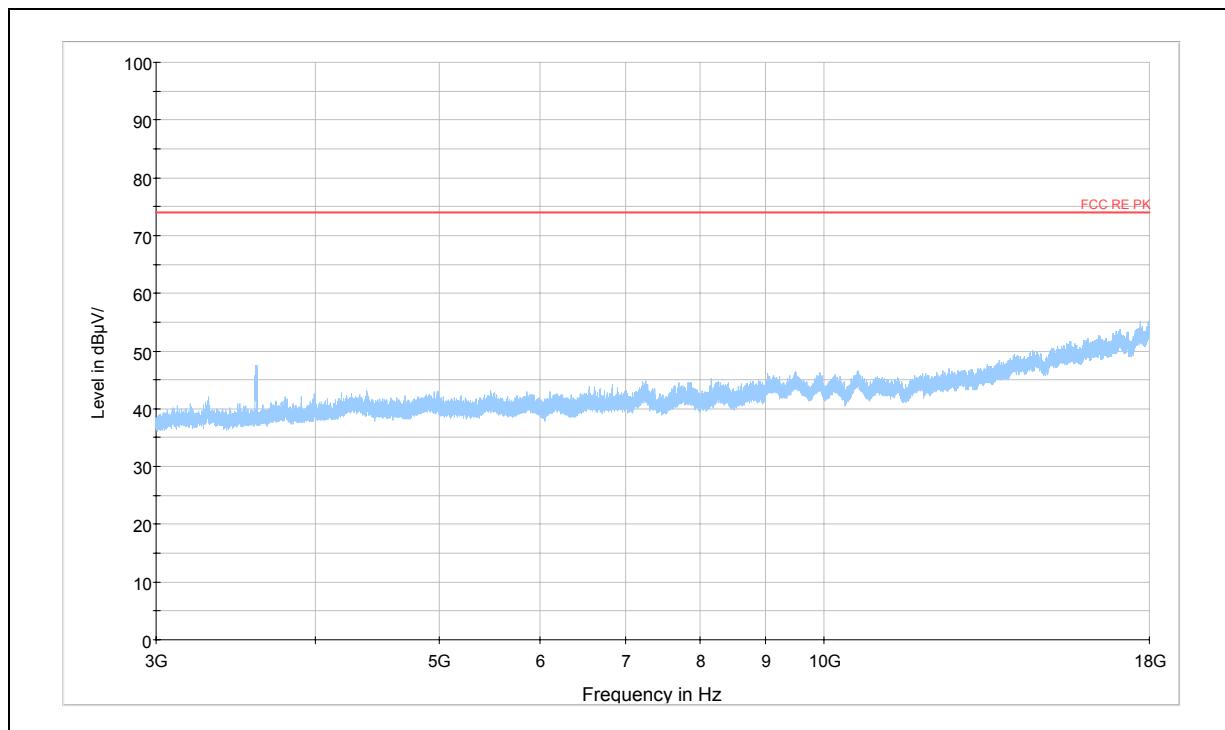
Radiates Emission from 1GHz to 3GHz

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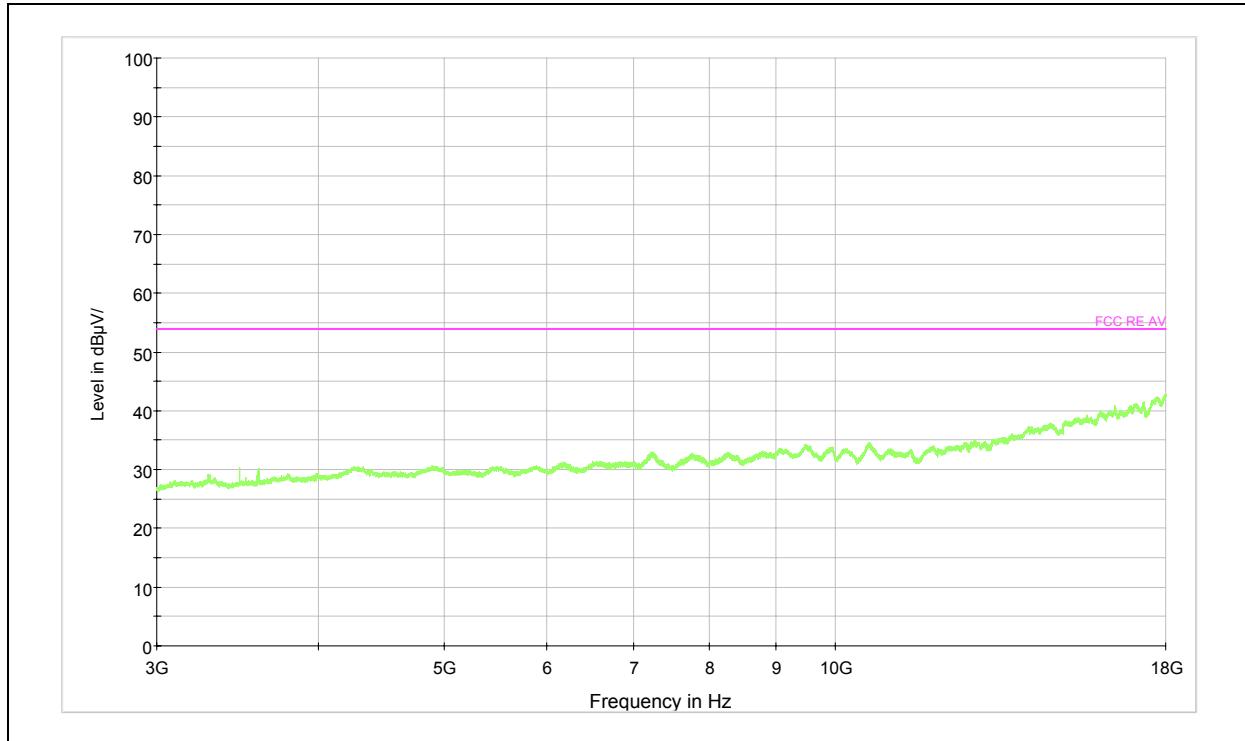
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



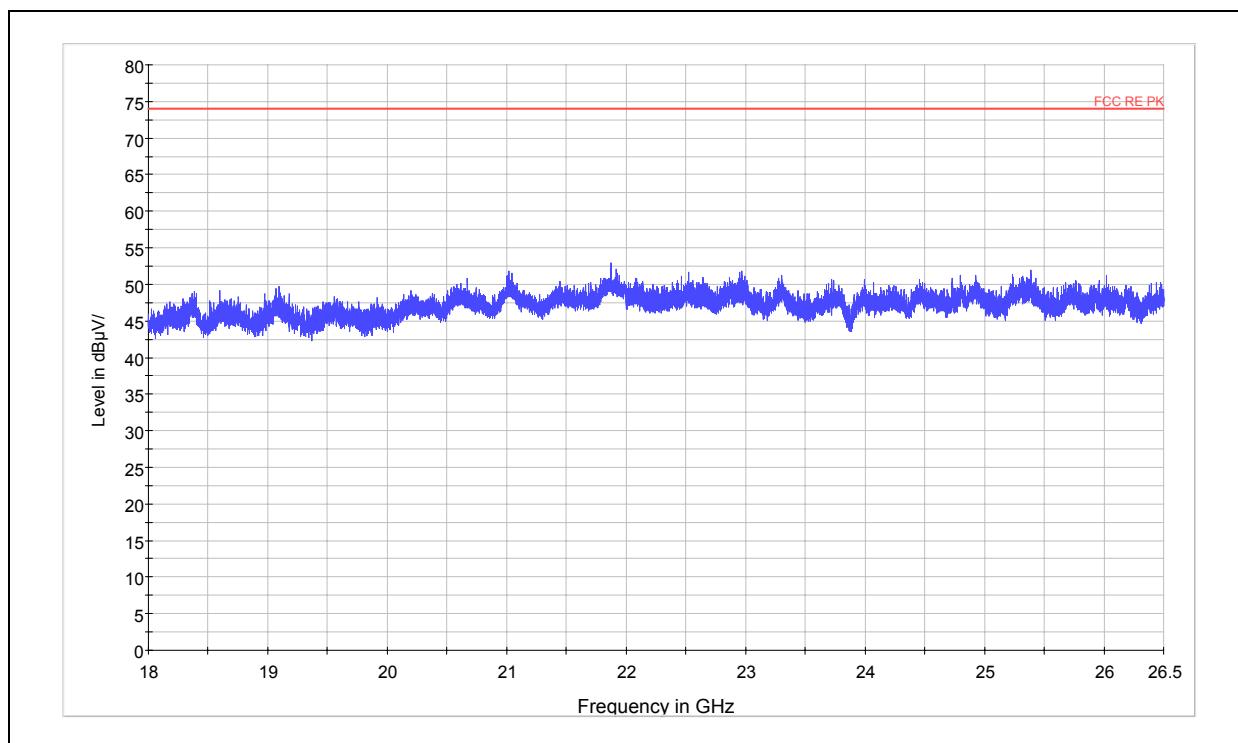
Radiates Emission from 3GHz to 18GHz

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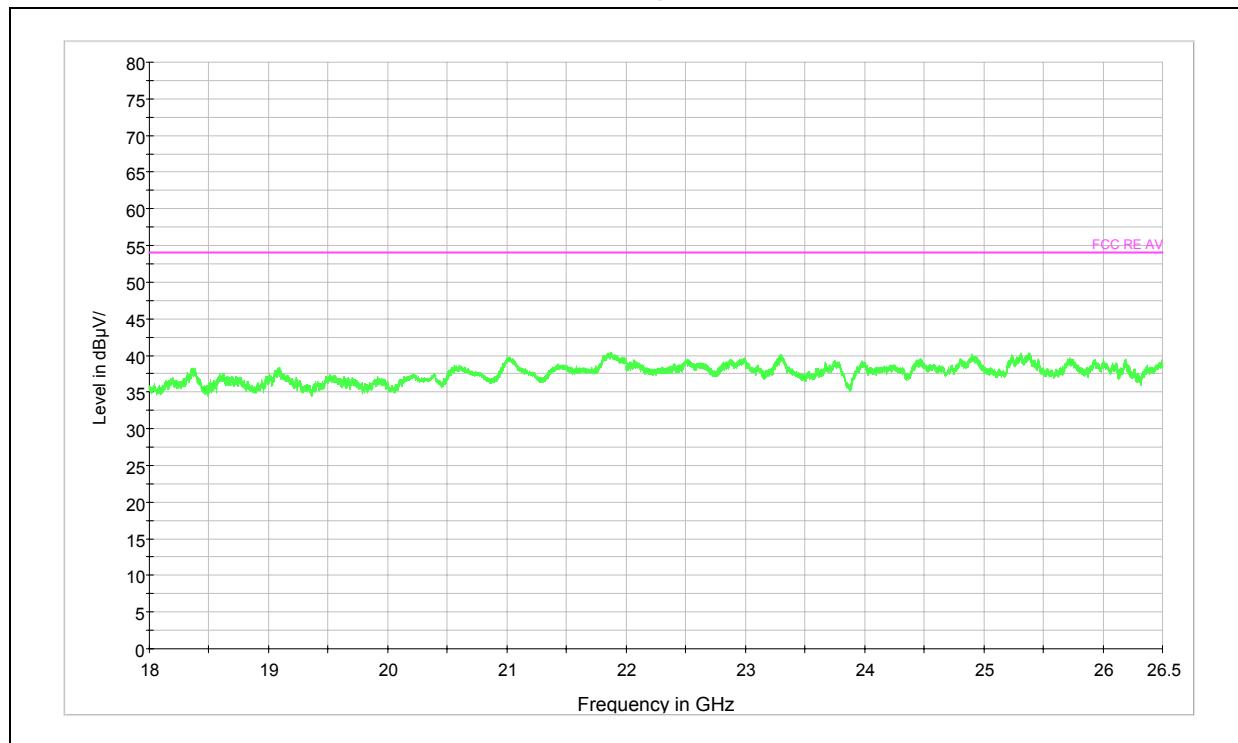
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



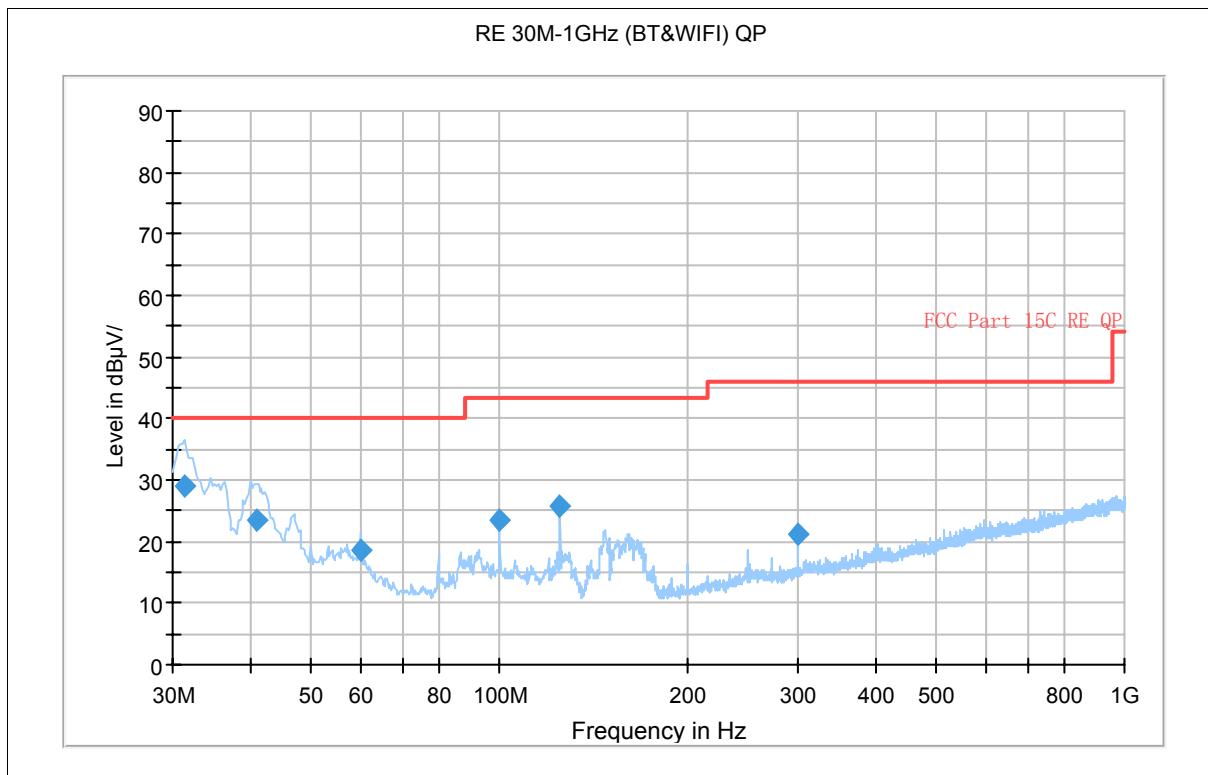
Radiates Emission from 18GHz to 26.5GHz

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EDR-Channel 39



Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBuV/m)
31.255000	28.9	100.0	V	0.0	11.1	40.0
40.830000	23.6	100.0	V	263.0	16.4	40.0
59.987500	18.6	100.0	V	225.0	21.4	40.0
100.000000	23.4	100.0	V	308.0	20.1	43.5
125.017500	25.8	100.0	V	329.0	17.7	43.5
300.022500	21.3	100.0	H	311.0	24.7	46.0

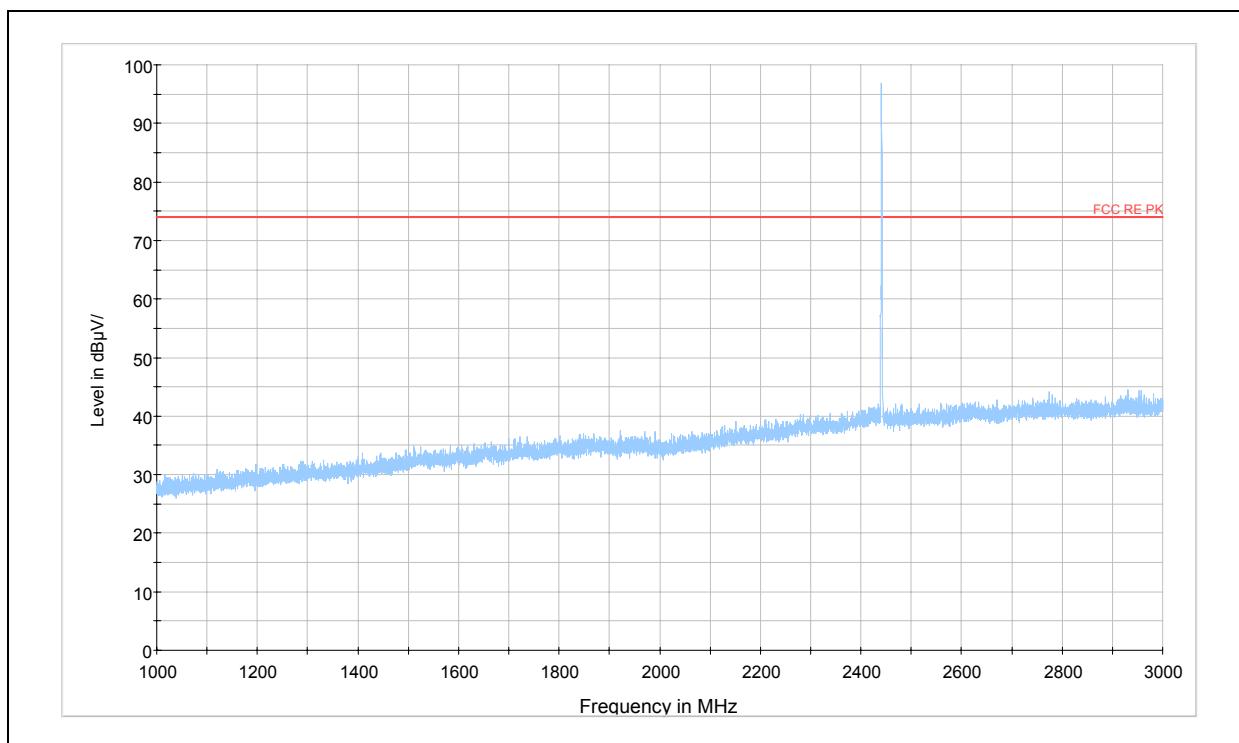
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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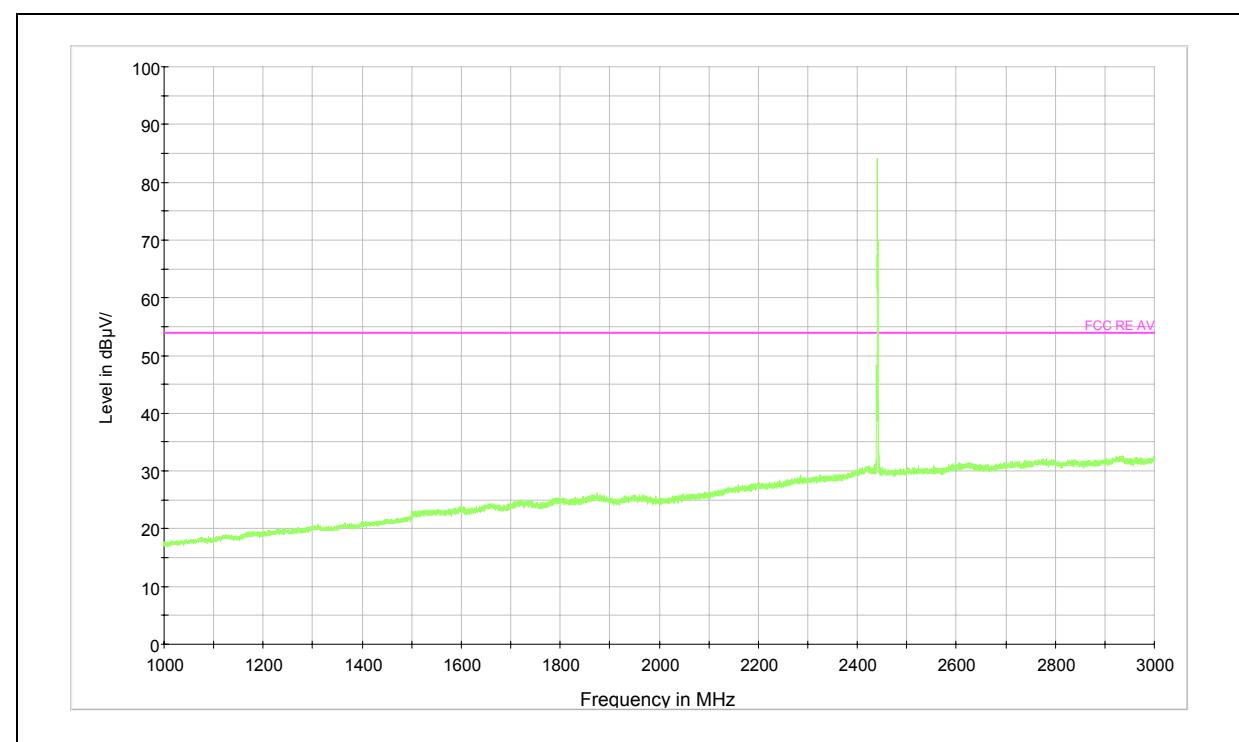
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

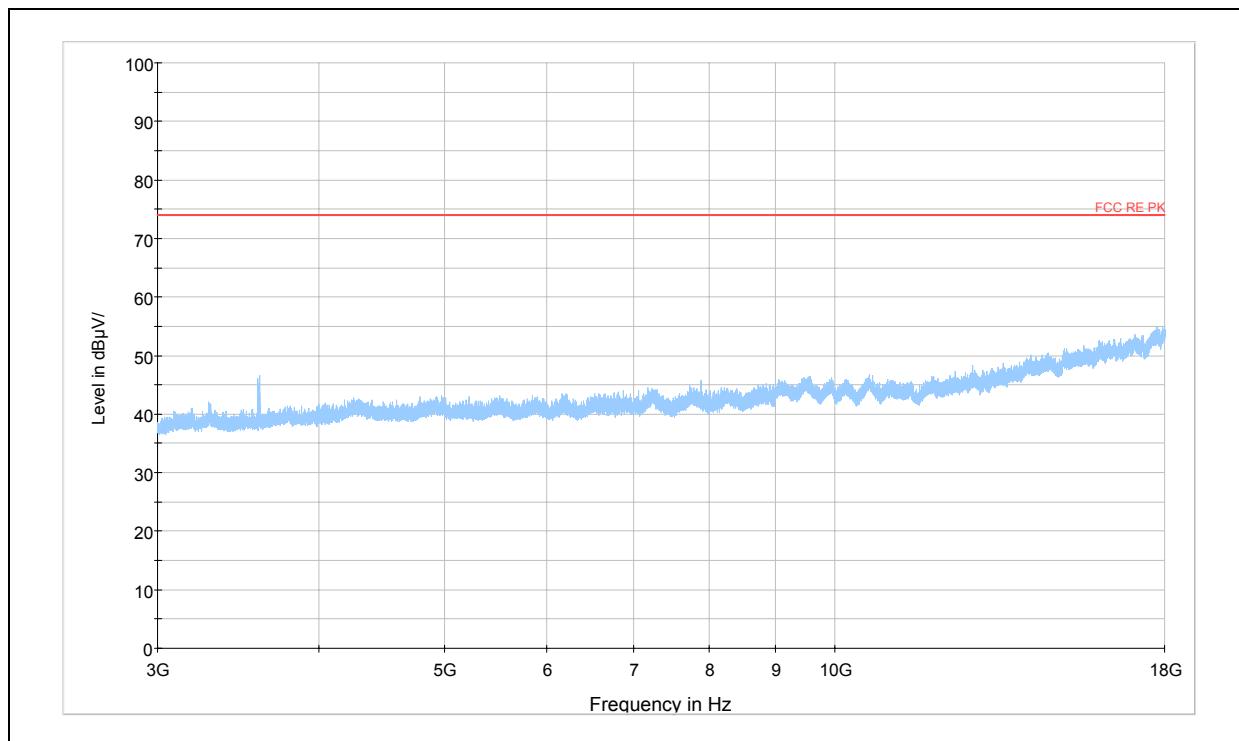
Radiates Emission from 1GHz to 3GHz

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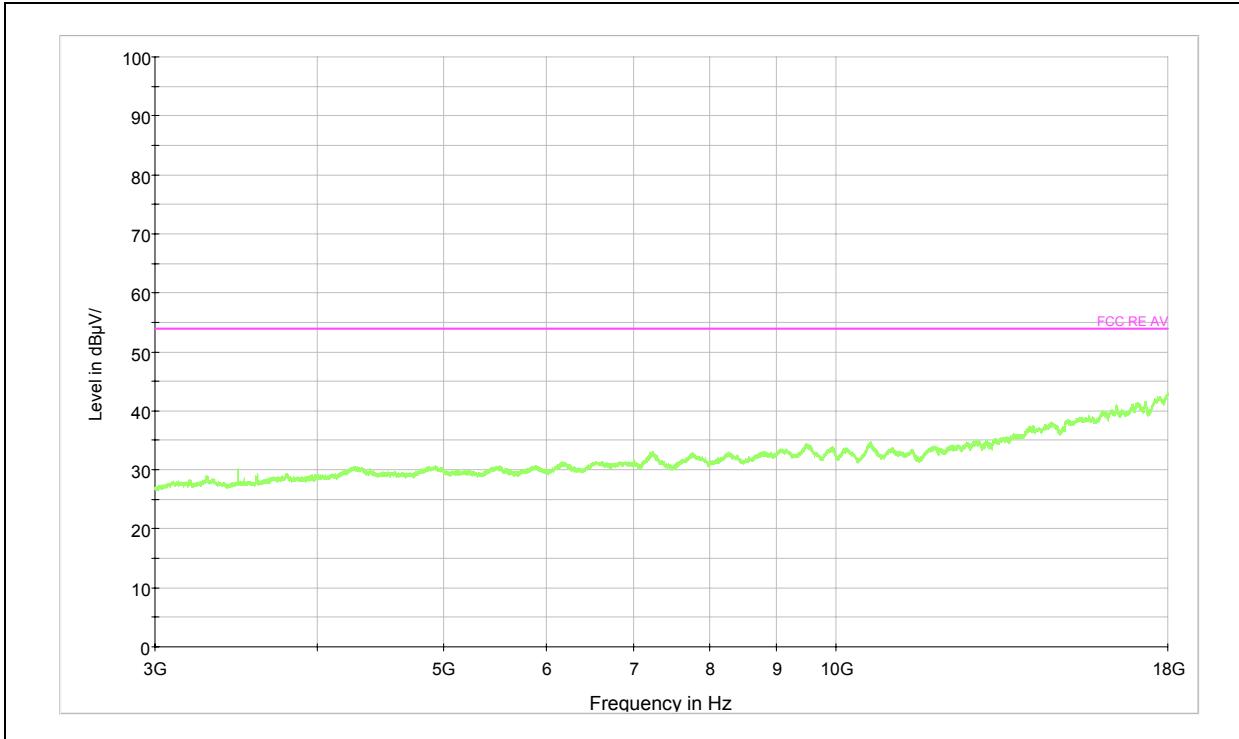
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



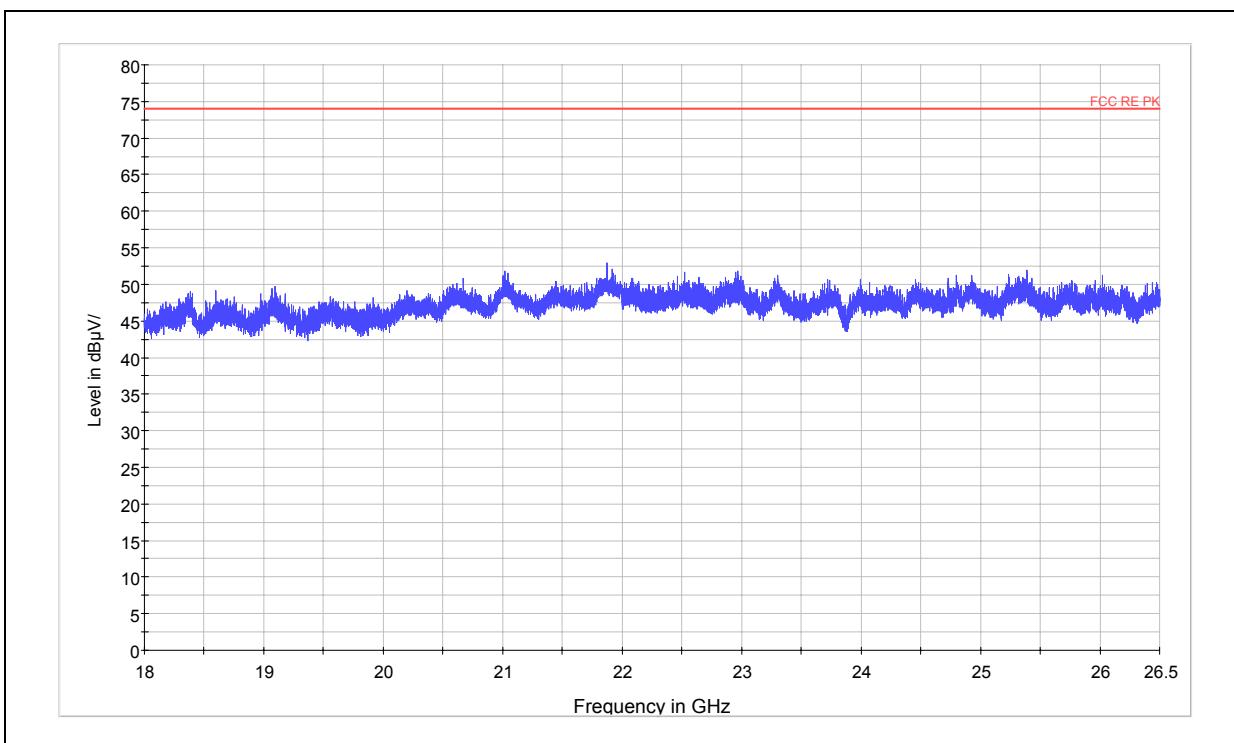
Radiates Emission from 3GHz to 18GHz

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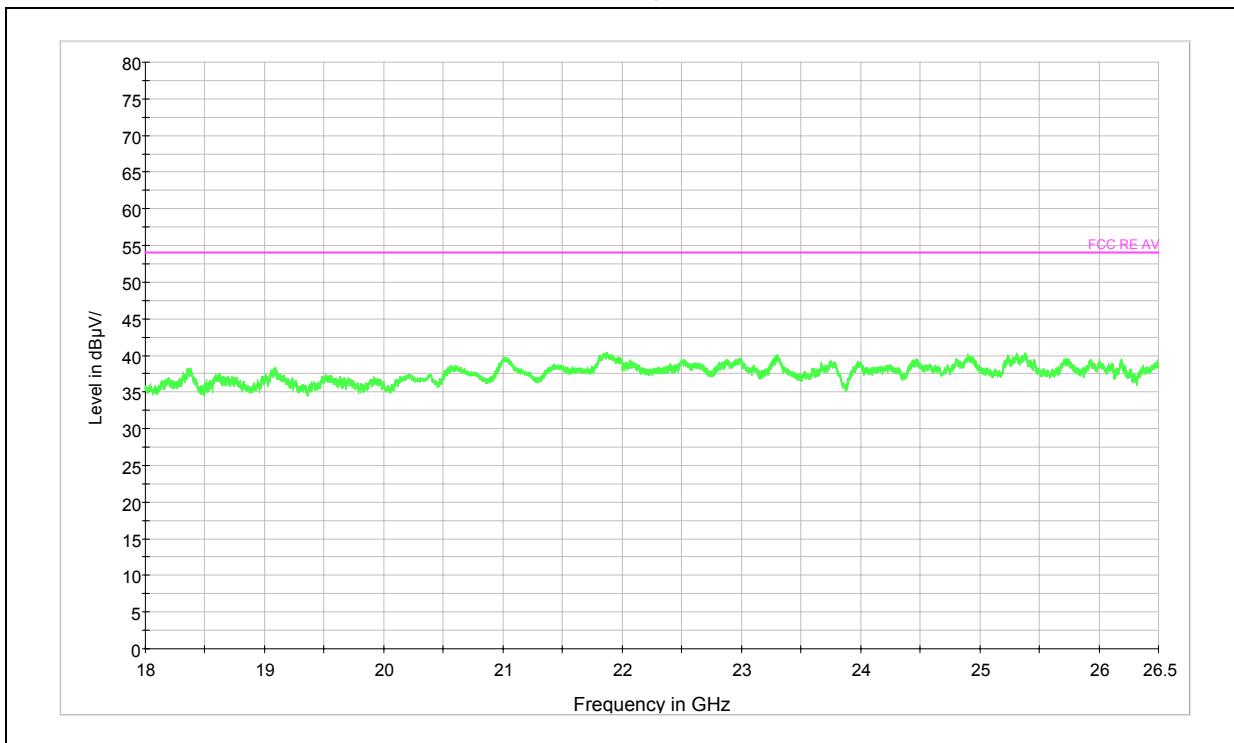
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



Radiates Emission from 18GHz to 26.5GHz

# TA Technology (Shanghai) Co., Ltd.

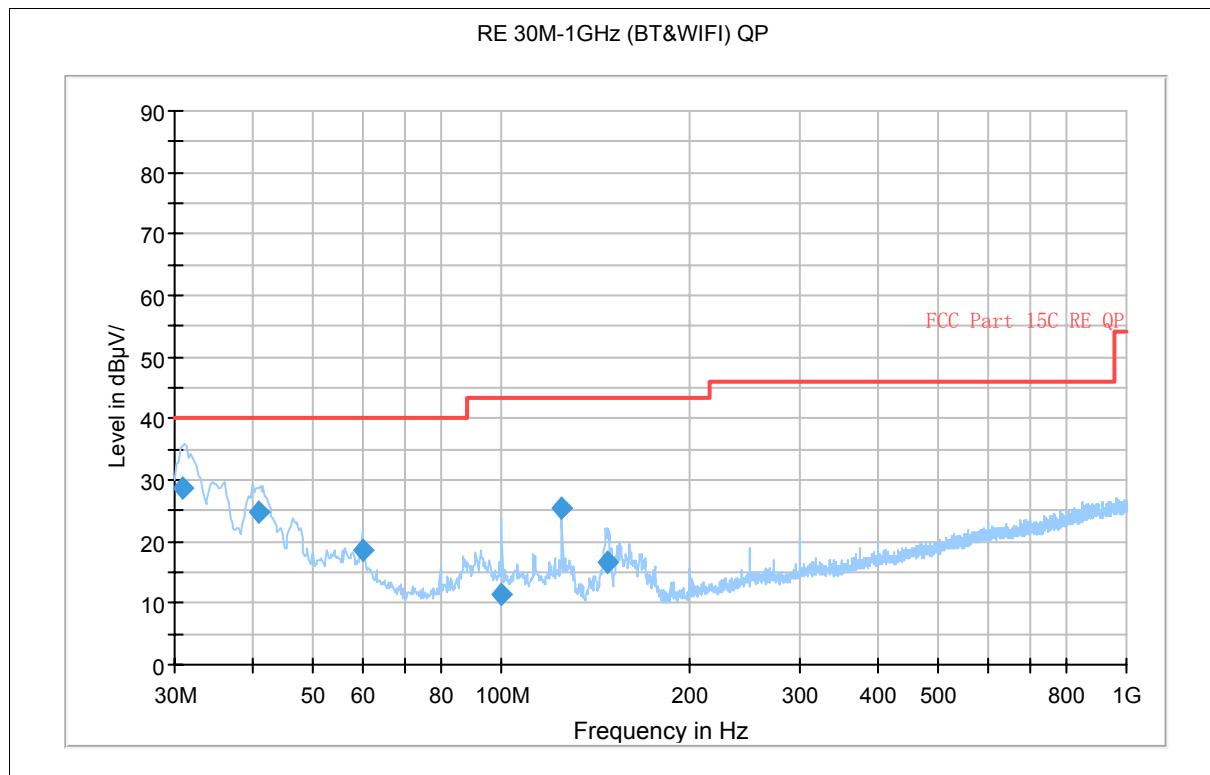
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EDR-Channel 78



Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
30.812500	28.8	116.0	V	0.0	11.2	40.0
41.032500	24.8	100.0	V	284.0	15.2	40.0
59.987500	18.7	100.0	V	299.0	21.3	40.0
100.000000	11.3	125.0	H	315.0	32.2	43.5
125.017500	25.4	100.0	V	315.0	18.1	43.5
147.852500	16.5	100.0	V	46.0	27.0	43.5

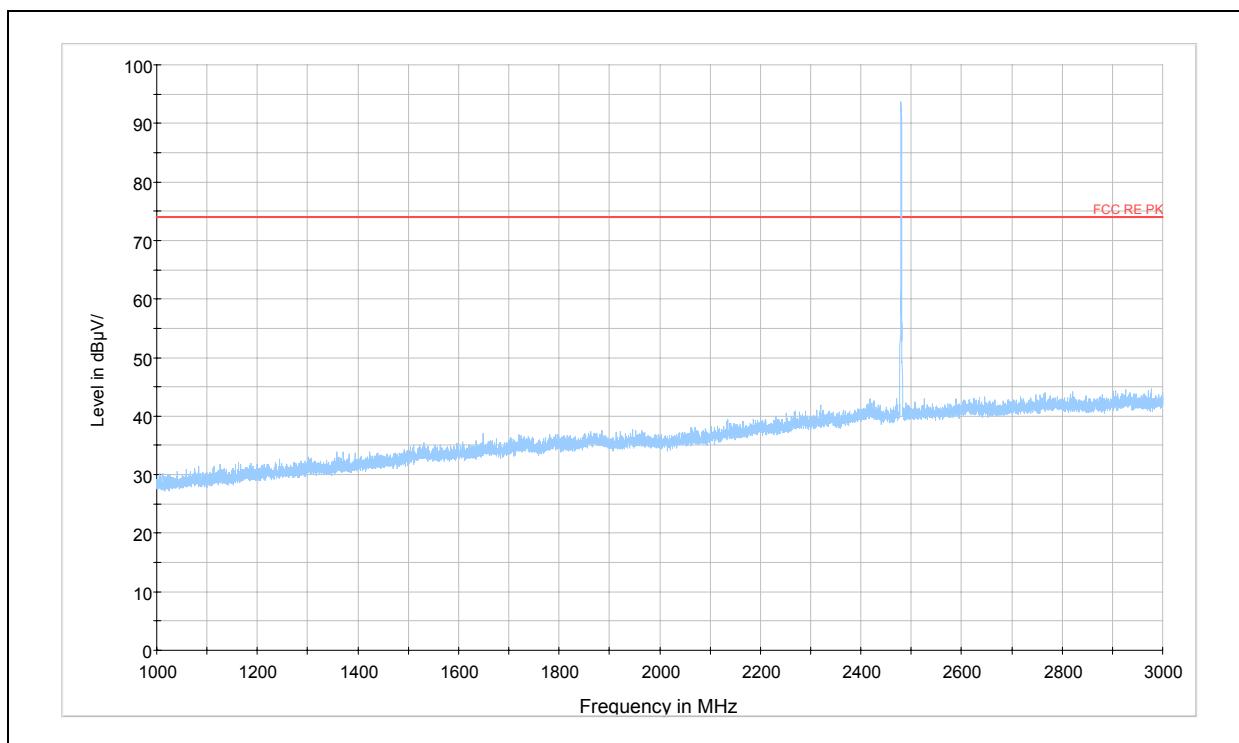
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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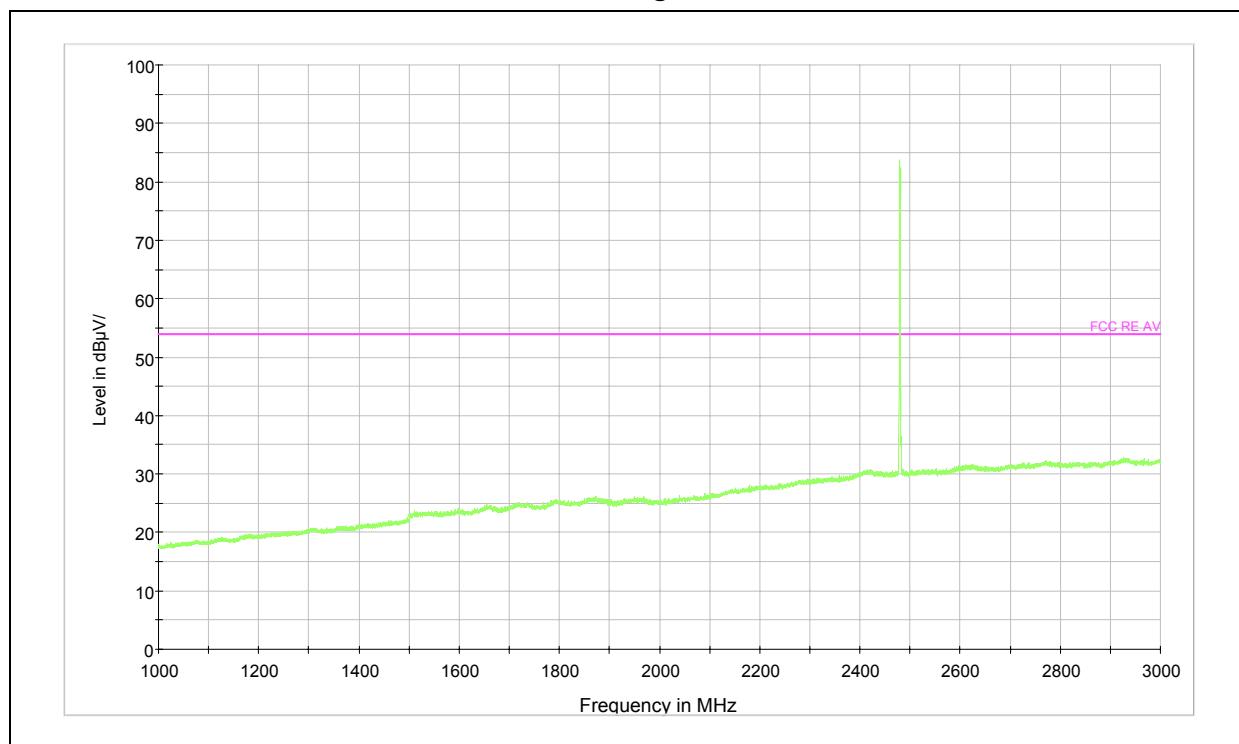
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

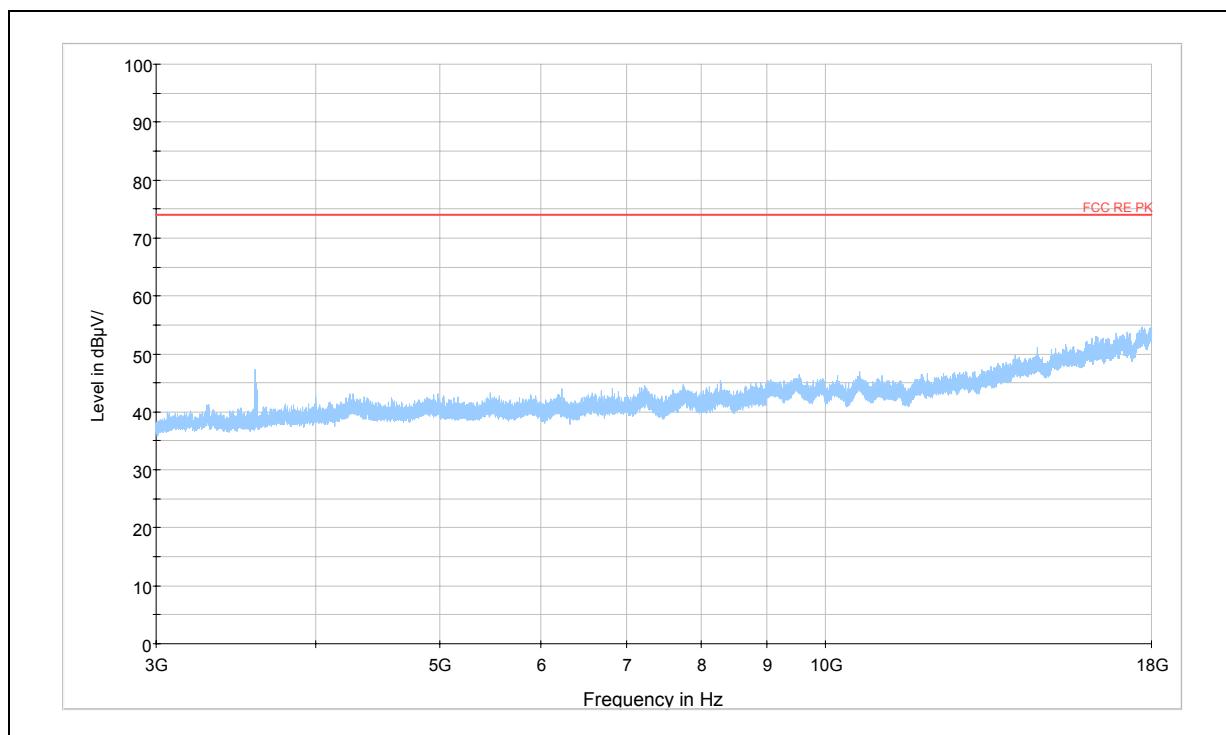
Radiates Emission from 1GHz to 3GHz

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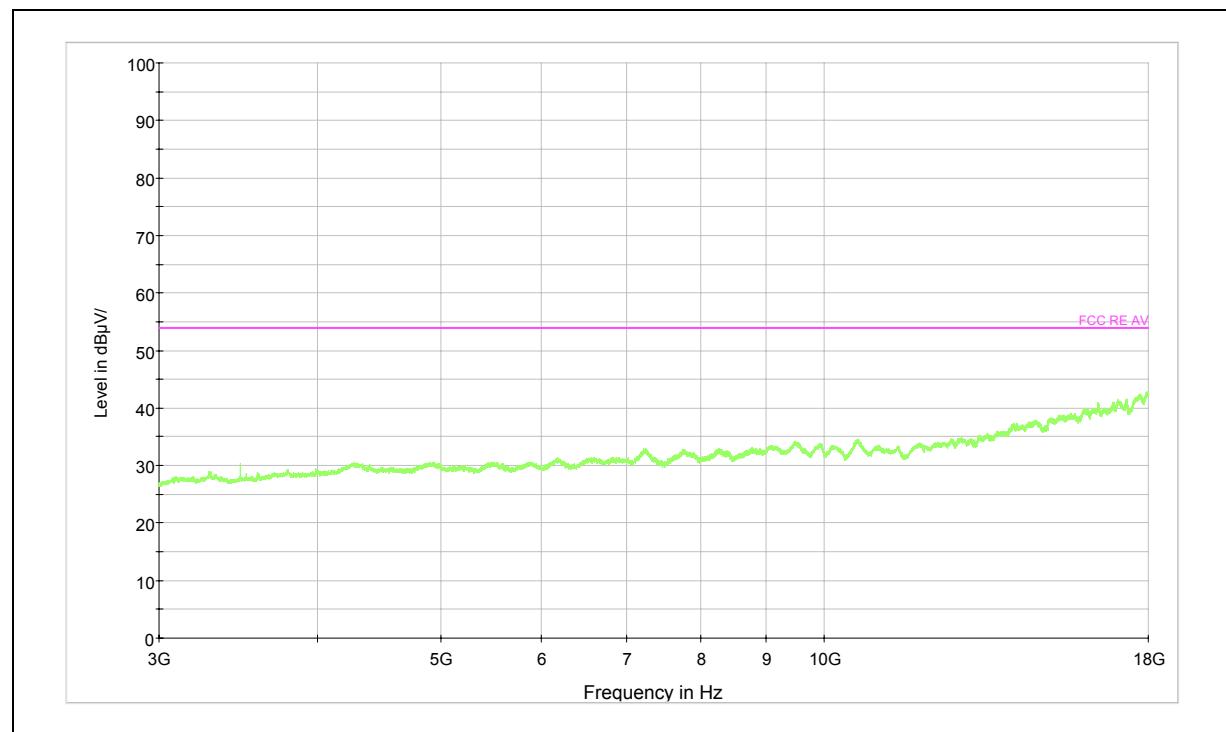
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



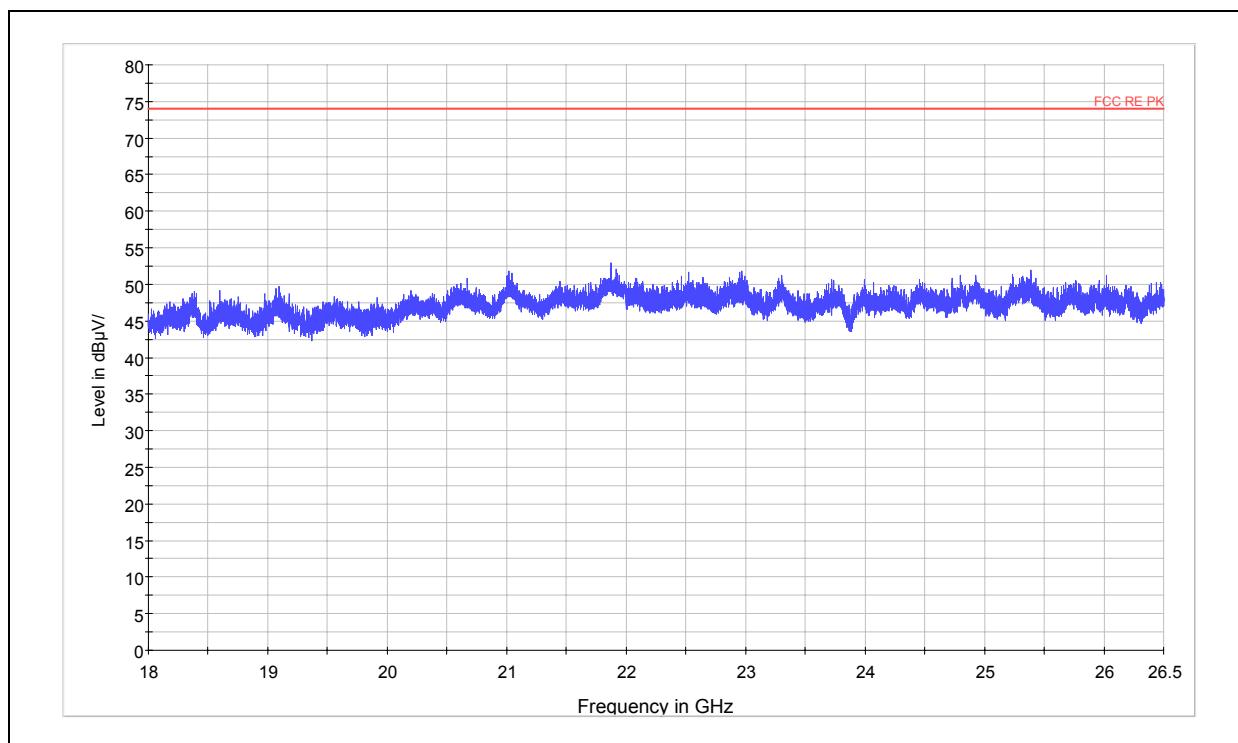
Radiates Emission from 3GHz to 18GHz

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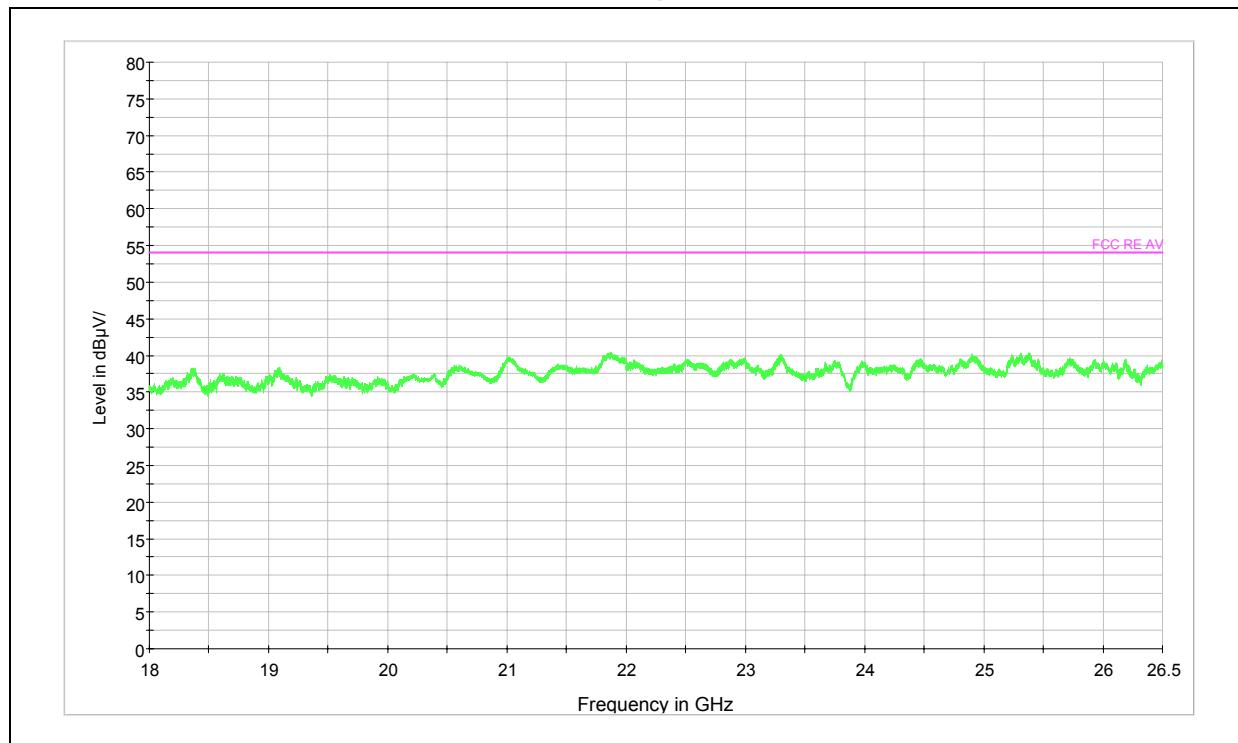
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



Radiates Emission from 18GHz to 26.5GHz

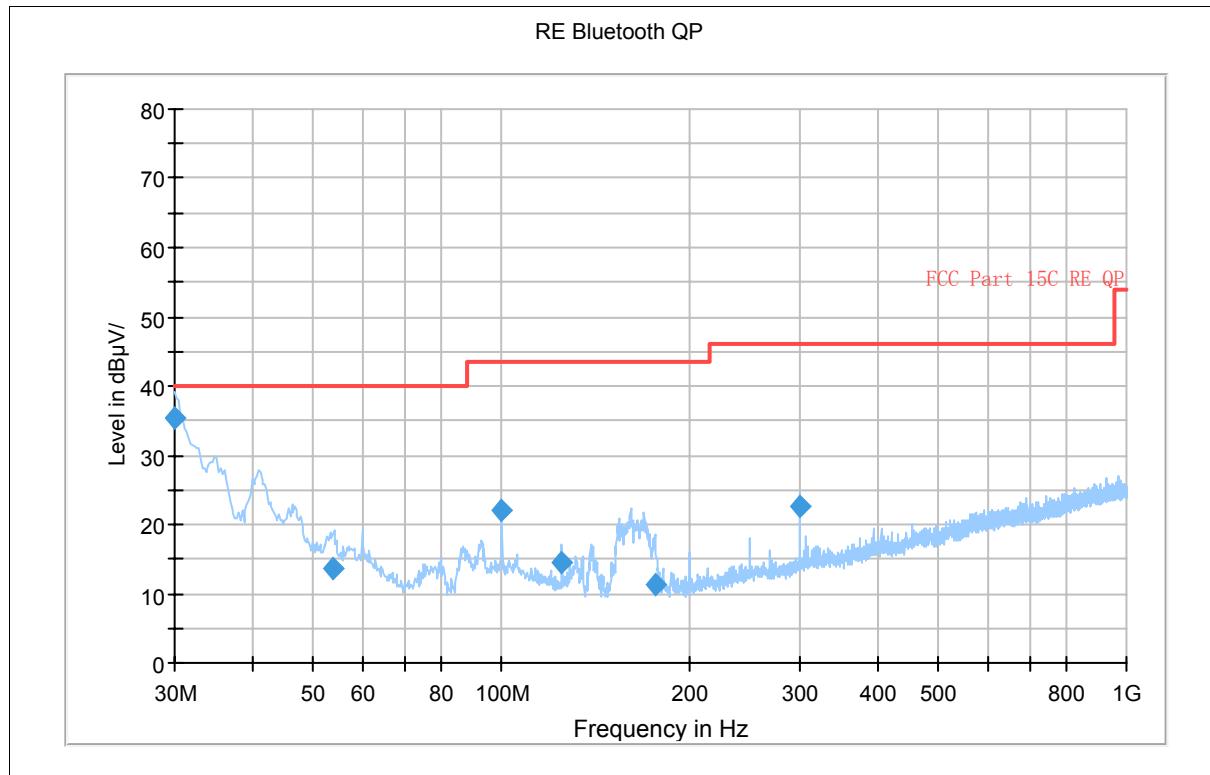
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**EUT with White Earphone**

Basic Rate-Channel 0



Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
30.000000	35.5	100.0	V	49.0	4.5	40.0
53.767500	13.5	100.0	V	137.0	26.5	40.0
100.000000	22.0	100.0	V	45.0	18.0	40.0
125.020000	14.4	100.0	V	0.0	25.6	40.0
176.025000	11.4	100.0	V	2.0	28.6	40.0
300.022500	22.7	100.0	V	4.0	24.3	47.0

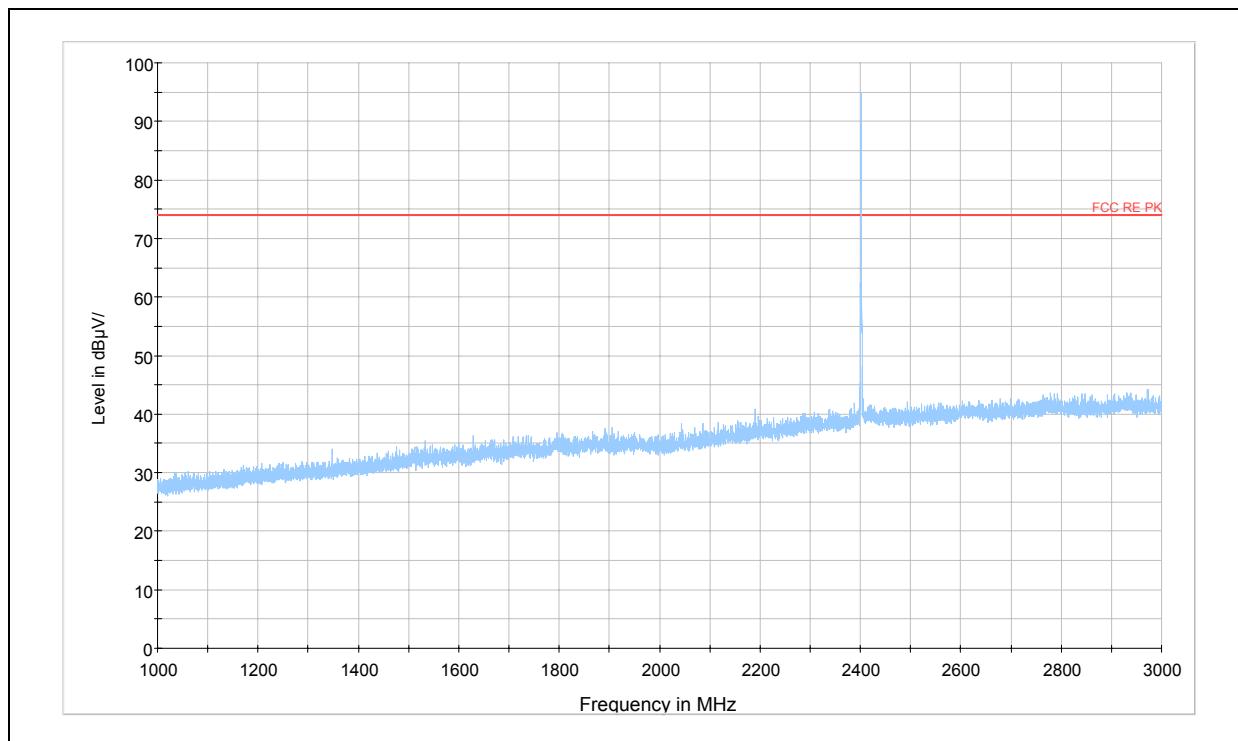
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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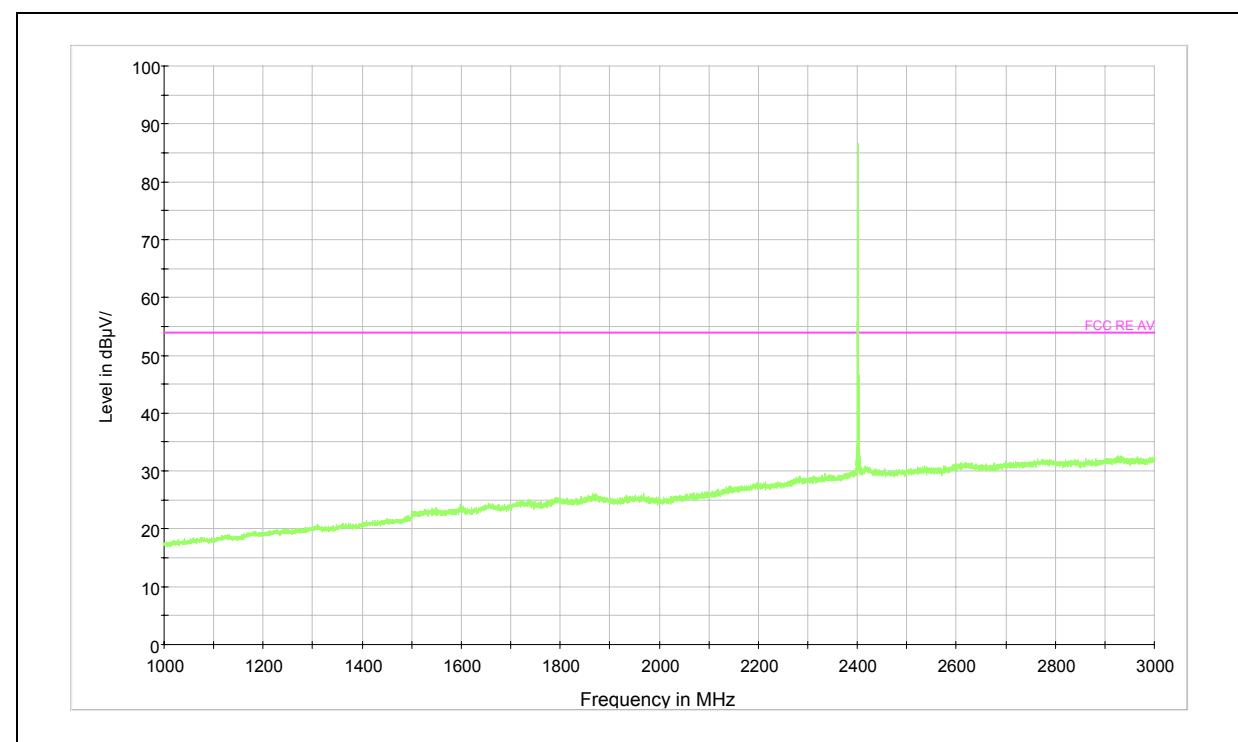
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

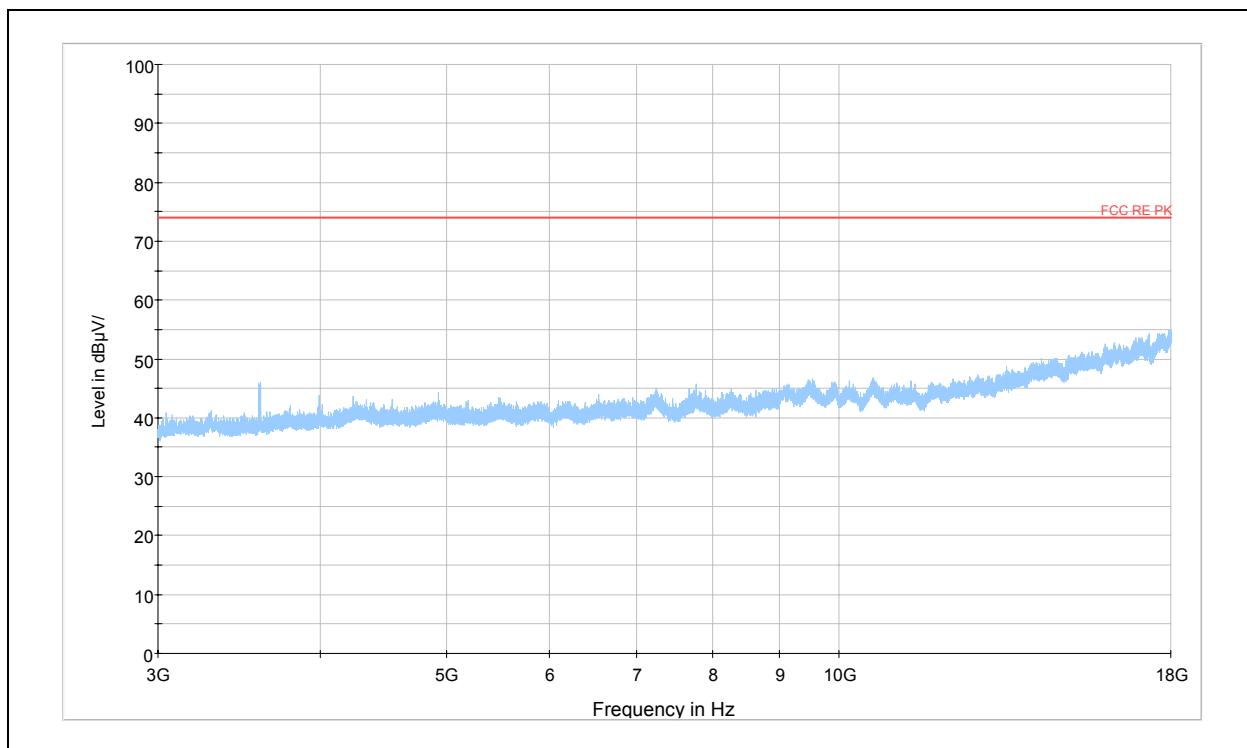
Radiates Emission from 1GHz to 3GHz

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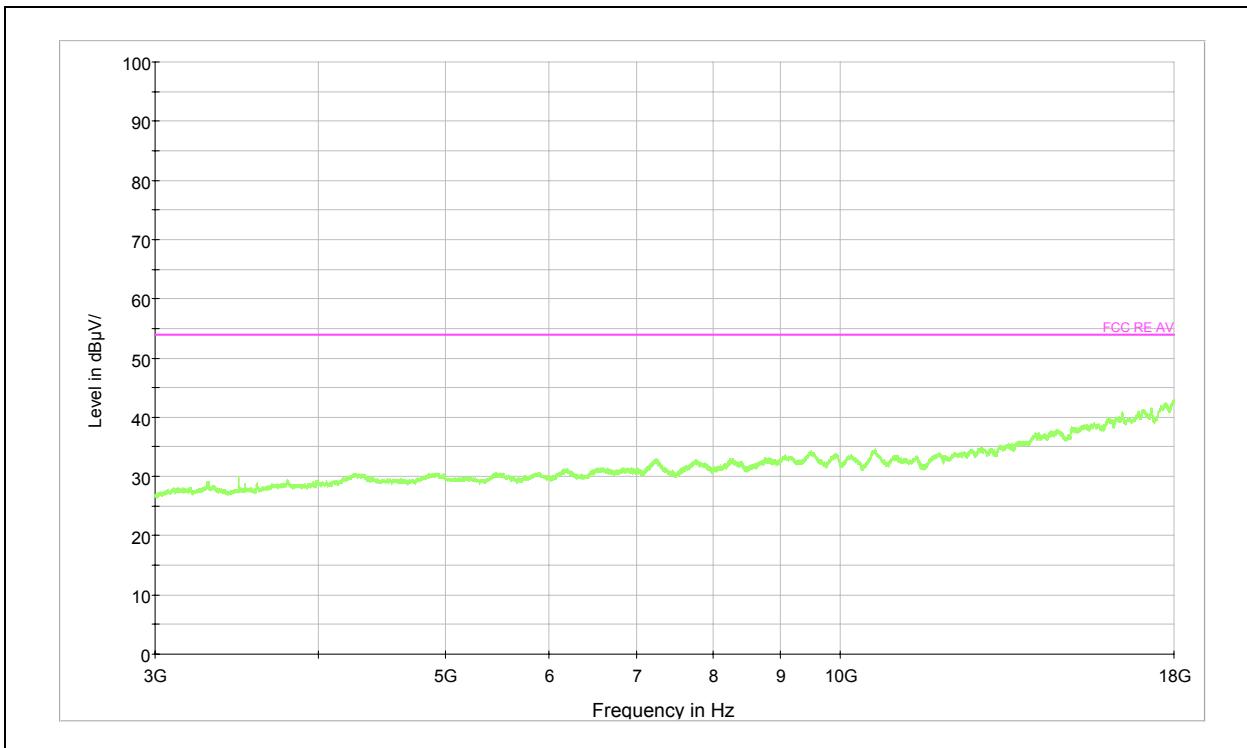
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



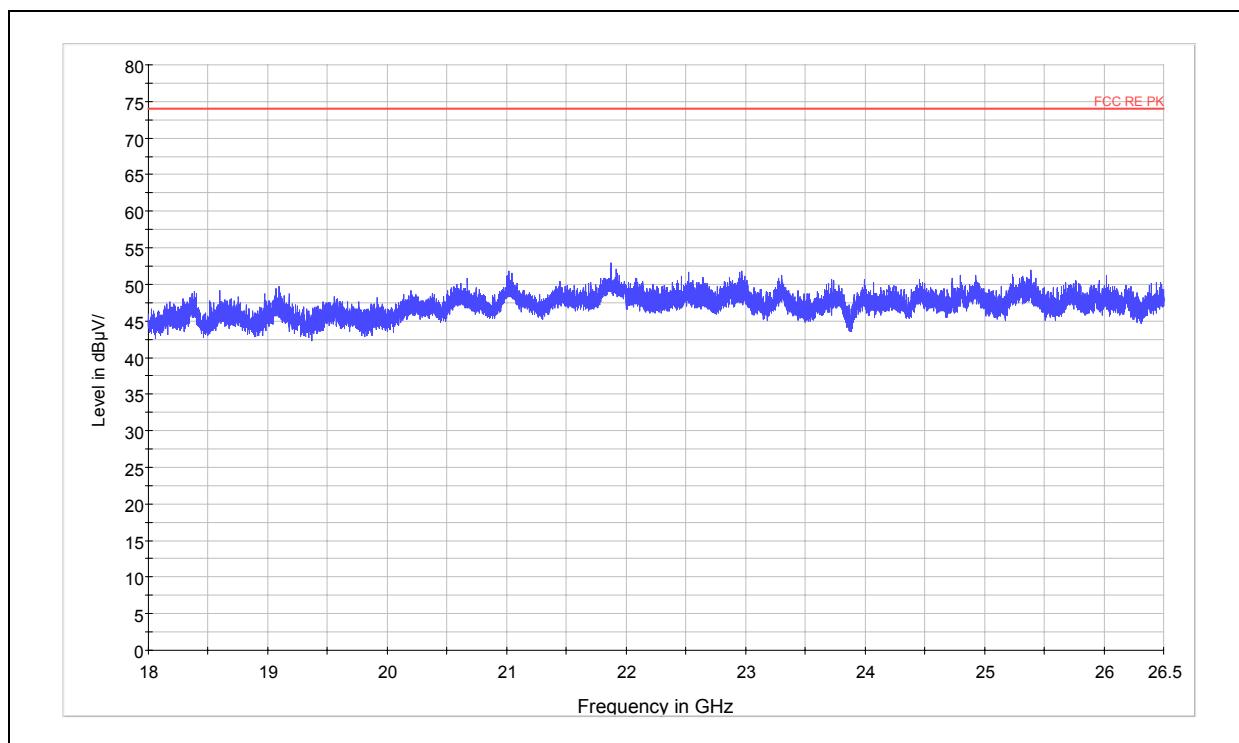
Radiates Emission from 3GHz to 18GHz

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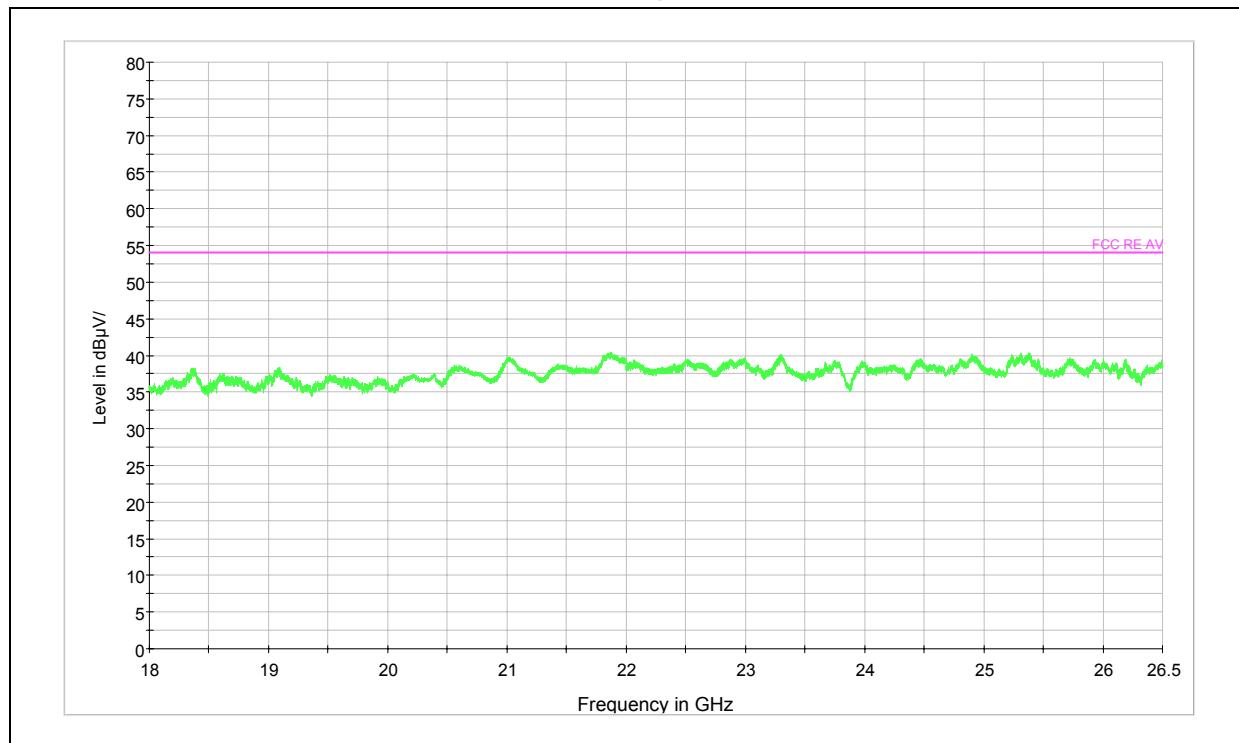
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



Radiates Emission from 18GHz to 26.5GHz

# TA Technology (Shanghai) Co., Ltd.

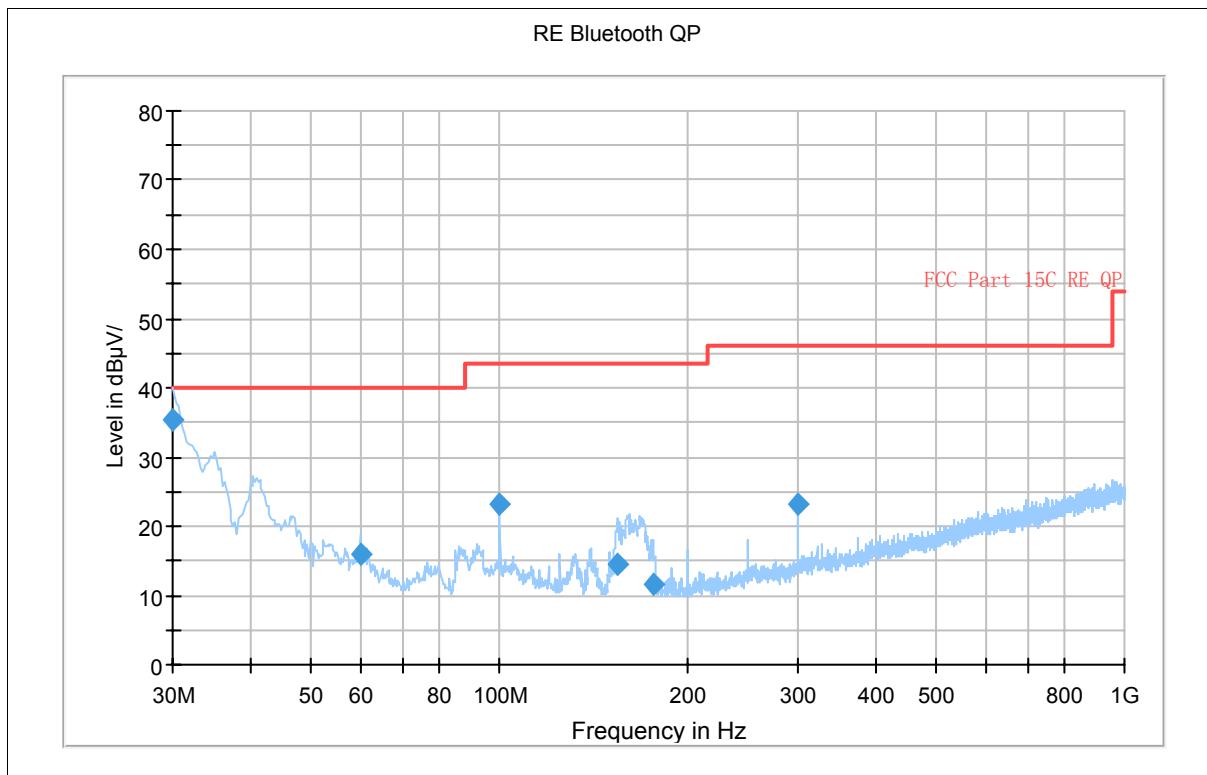
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### Basic Rate-Channel 39



Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
30.000000	35.3	100.0	V	24.0	4.7	40.0
59.987500	16.0	125.0	V	45.0	24.0	40.0
100.000000	23.1	100.0	V	46.0	16.9	40.0
155.002500	14.6	100.0	V	0.0	25.4	40.0
175.825000	11.5	100.0	V	2.0	28.5	40.0
300.022500	23.1	100.0	V	2.0	23.9	47.0

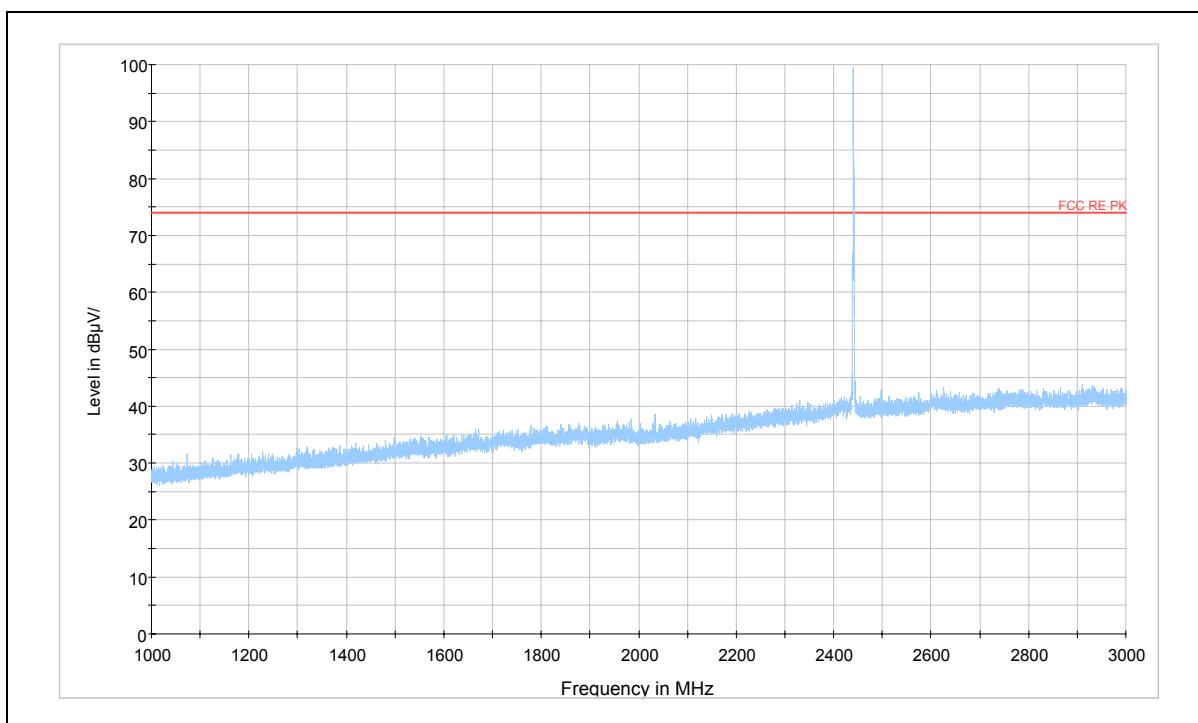
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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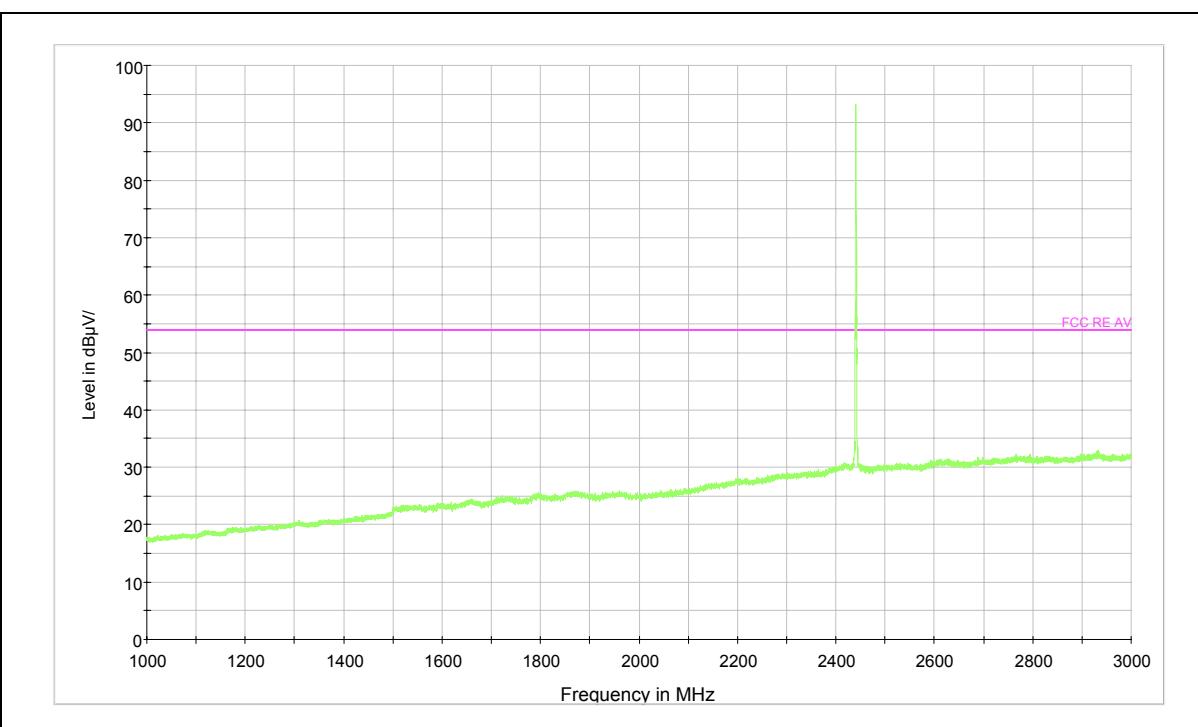
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**Peak**



Note: The signal beyond the limit is carrier.  
Radiates Emission from 1GHz to 3GHz

**Average**



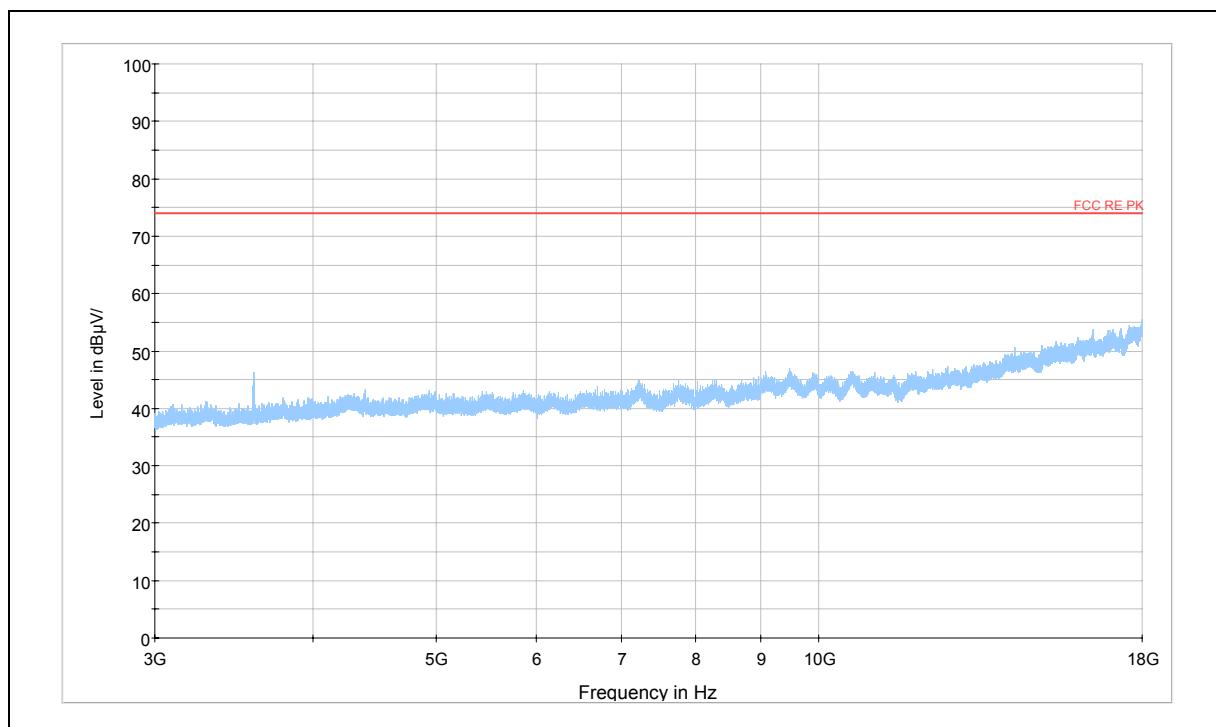
Note: The signal beyond the limit is carrier.  
Radiates Emission from 1GHz to 3GHz

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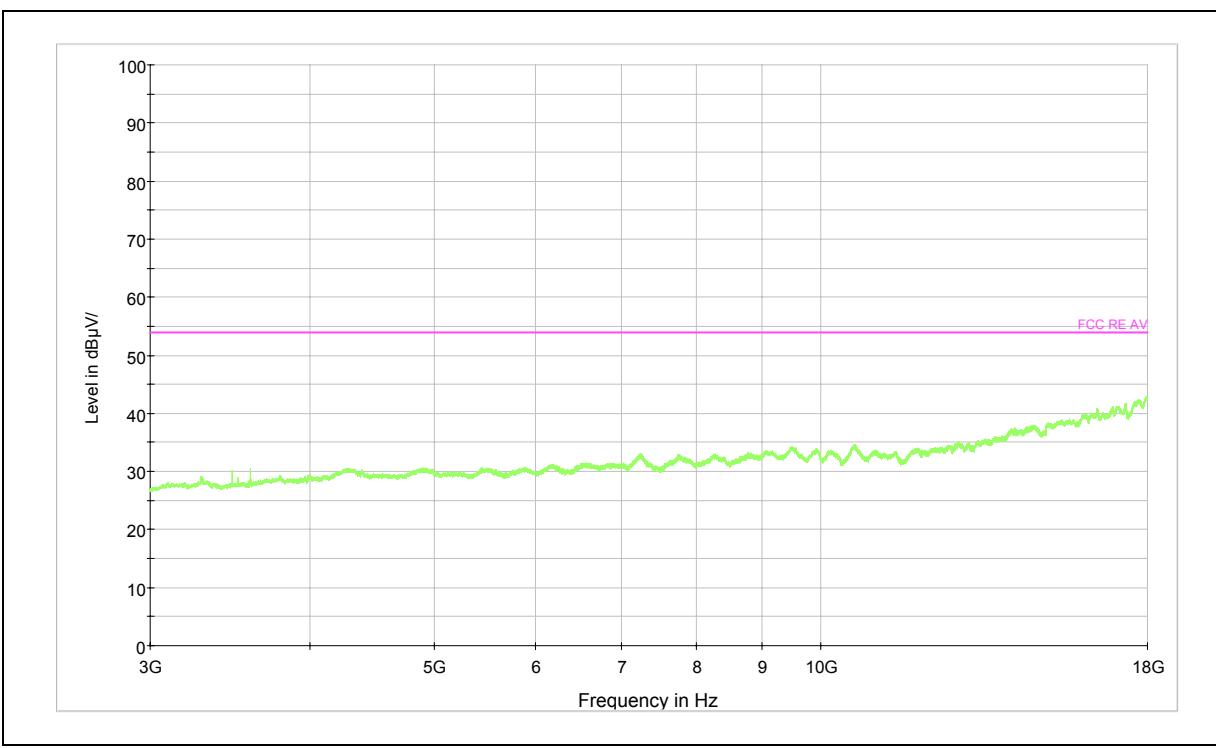
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



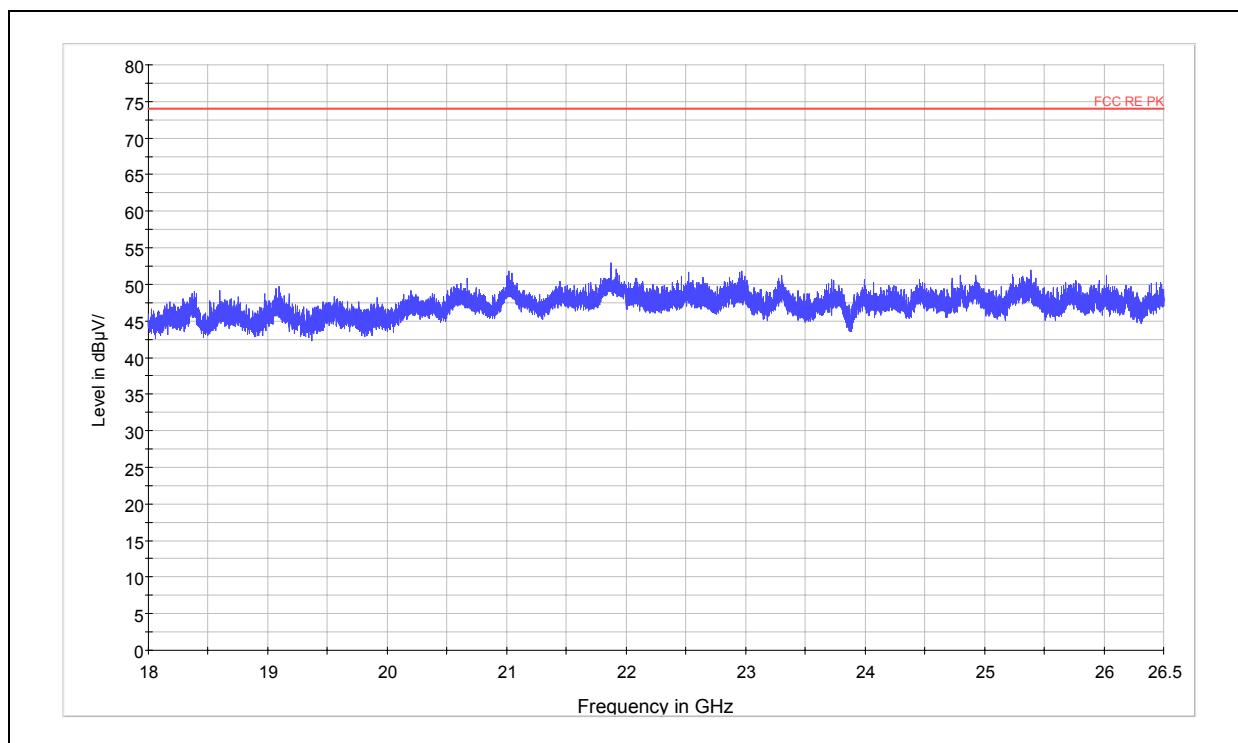
Radiates Emission from 3GHz to 18GHz

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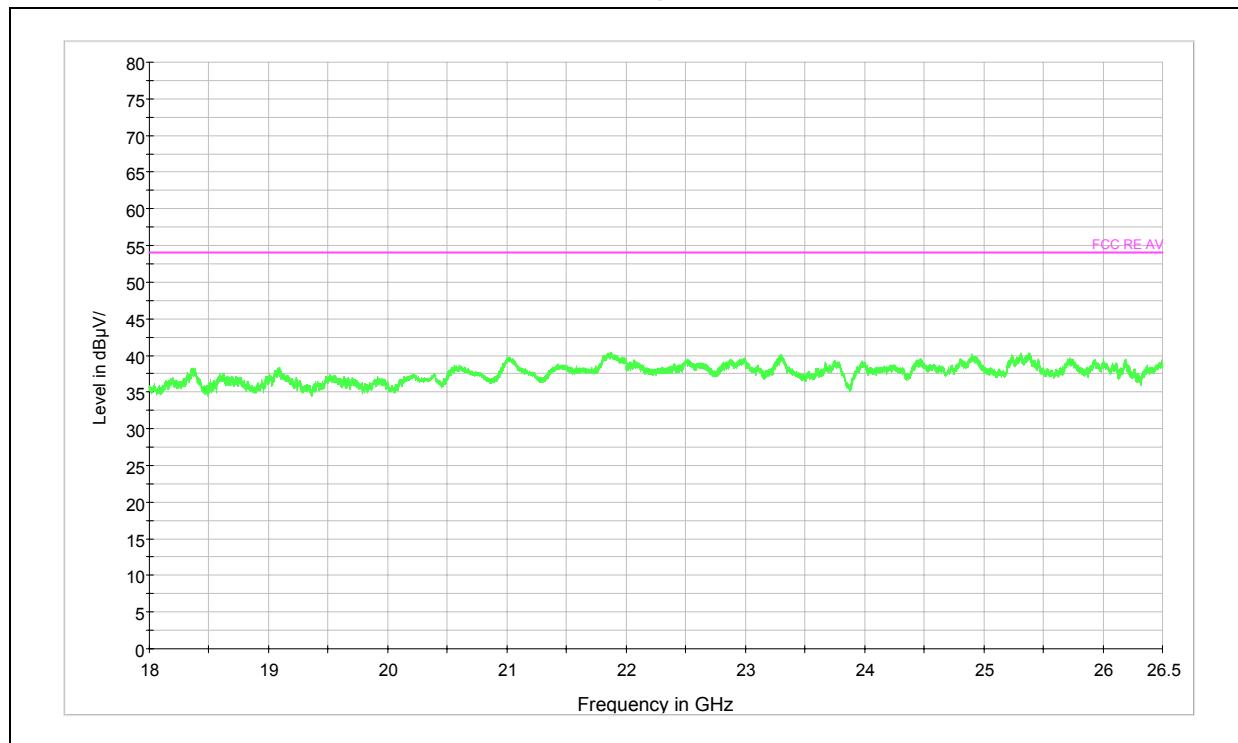
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



Radiates Emission from 18GHz to 26.5GHz

# TA Technology (Shanghai) Co., Ltd.

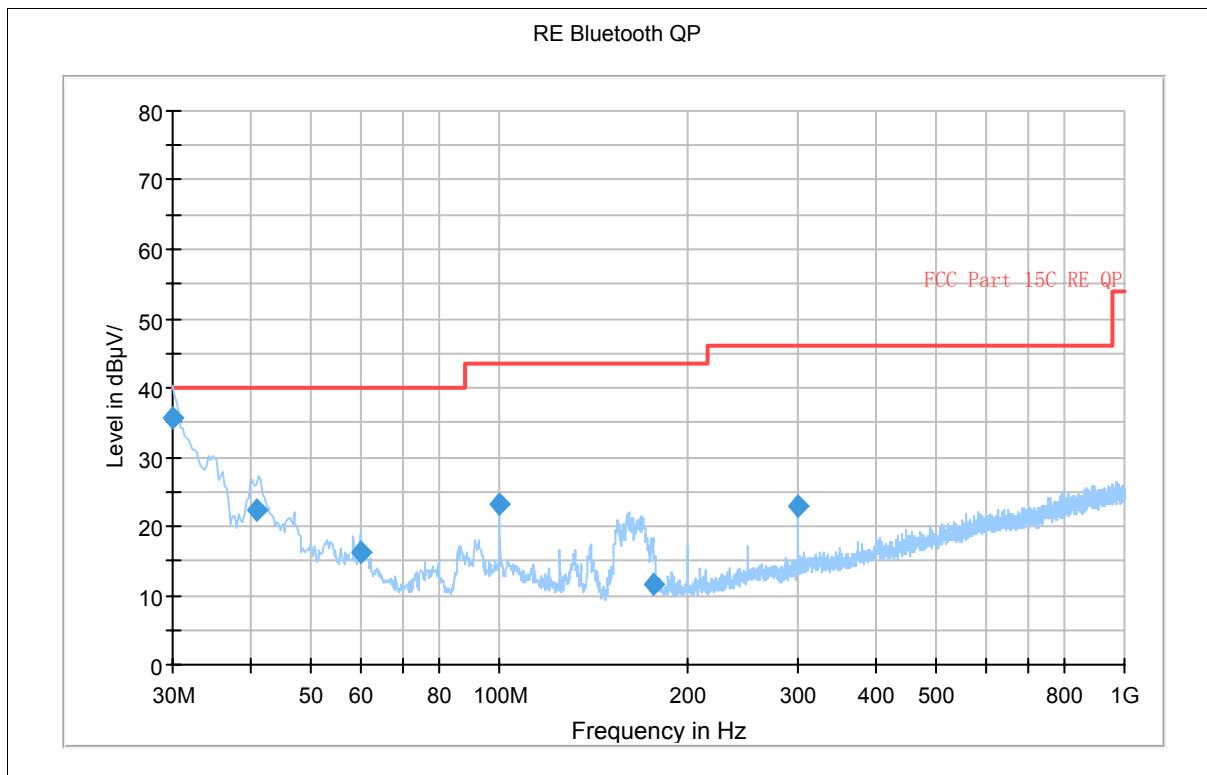
## Test Report

Registration Num:428261

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### Basic Rate-Channel 78



Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
30.000000	35.6	100.0	V	53.0	4.4	40.0
40.995000	22.4	100.0	V	135.0	17.6	40.0
59.987500	16.3	125.0	V	135.0	23.7	40.0
100.000000	23.2	100.0	V	39.0	16.8	40.0
175.787500	11.6	100.0	V	2.0	28.4	40.0
300.022500	23.0	100.0	V	2.0	24.0	47.0

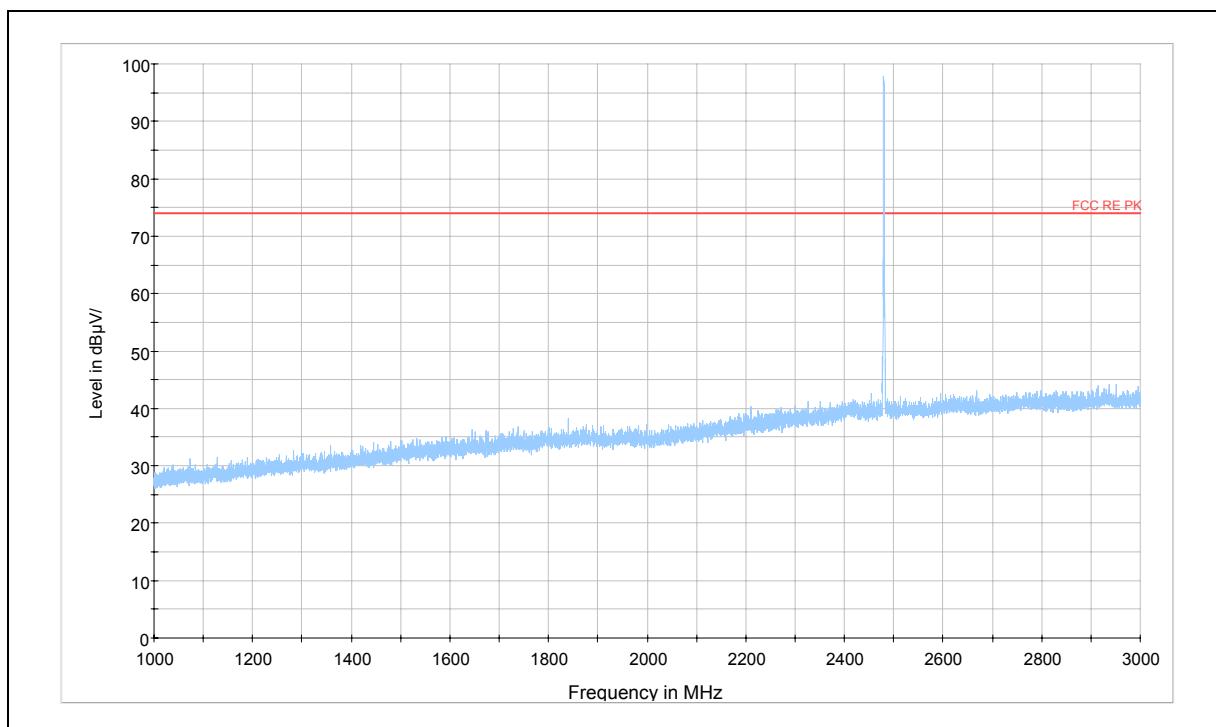
Note: All emissions level measured above 1GHz was more than 10dB below the limit

**TA Technology (Shanghai) Co., Ltd.**  
**Test Report**  
**Registration Num:428261**

Report No.: RZA2010-1143RF15C-BT

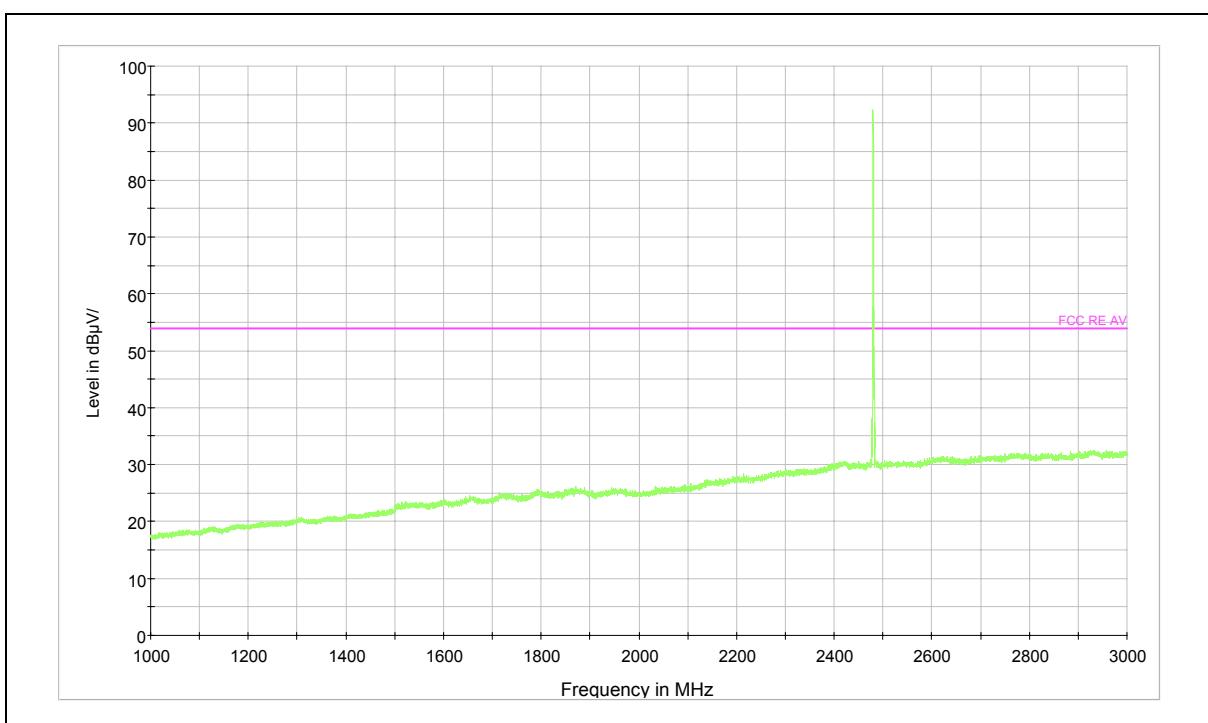
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**Peak**



Note: The signal beyond the limit is carrier.  
Radiates Emission from 1GHz to 3GHz

**Average**



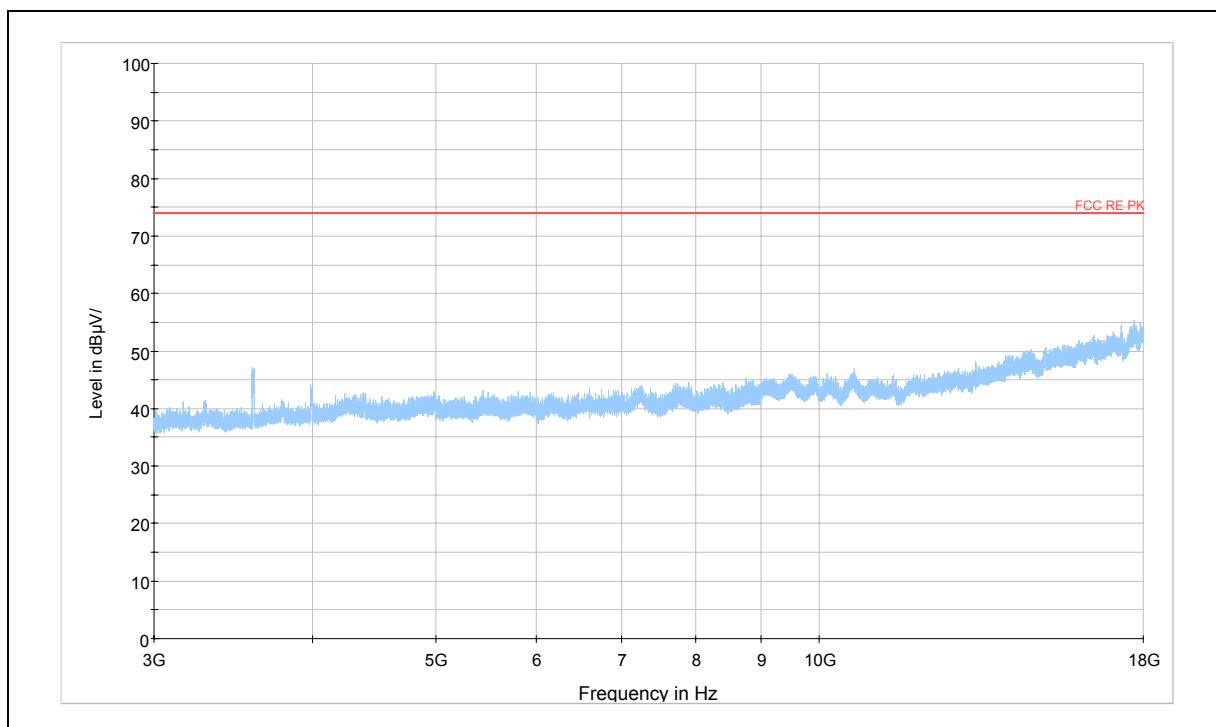
Note: The signal beyond the limit is carrier.  
Radiates Emission from 1GHz to 3GHz

**TA Technology (Shanghai) Co., Ltd.**  
**Test Report**  
**Registration Num:428261**

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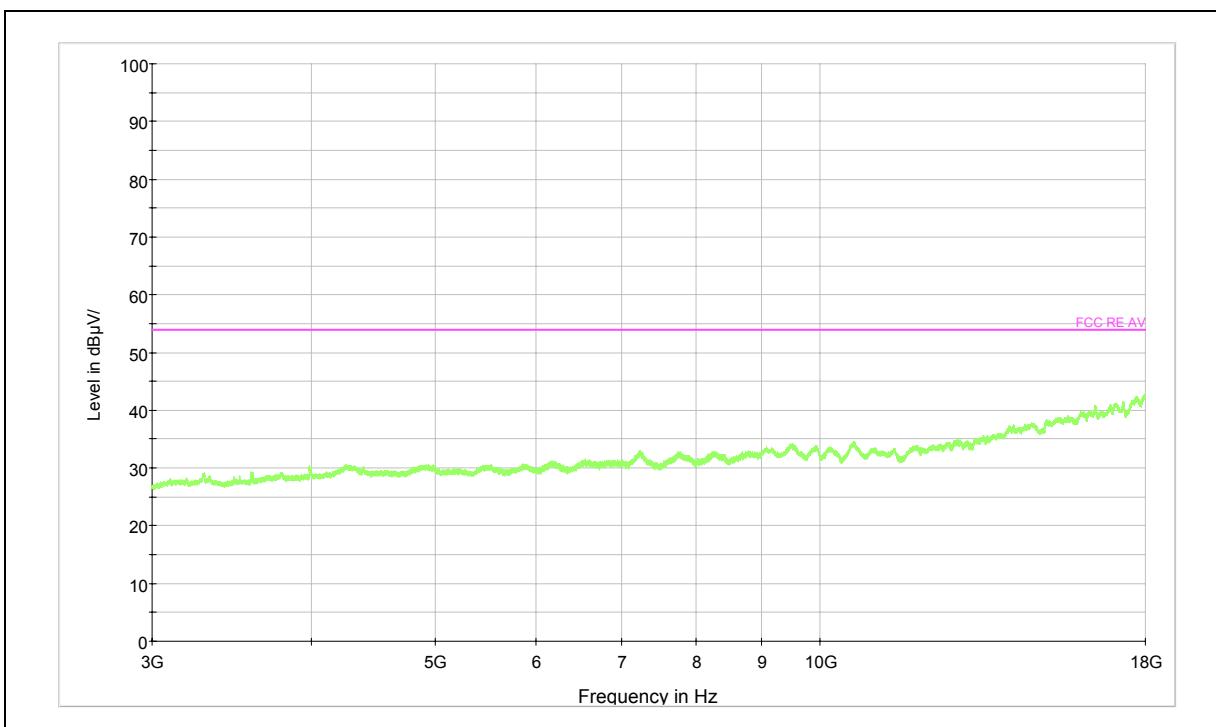
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



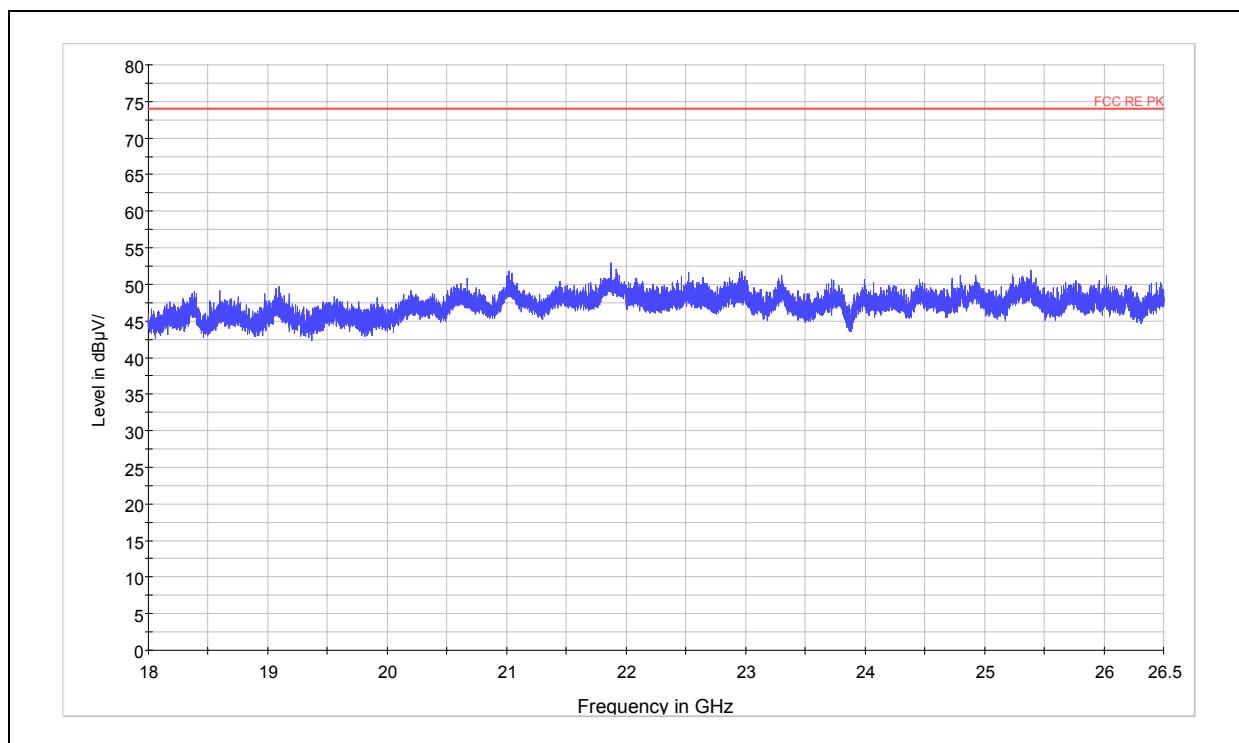
Radiates Emission from 3GHz to 18GHz

**TA Technology (Shanghai) Co., Ltd.**  
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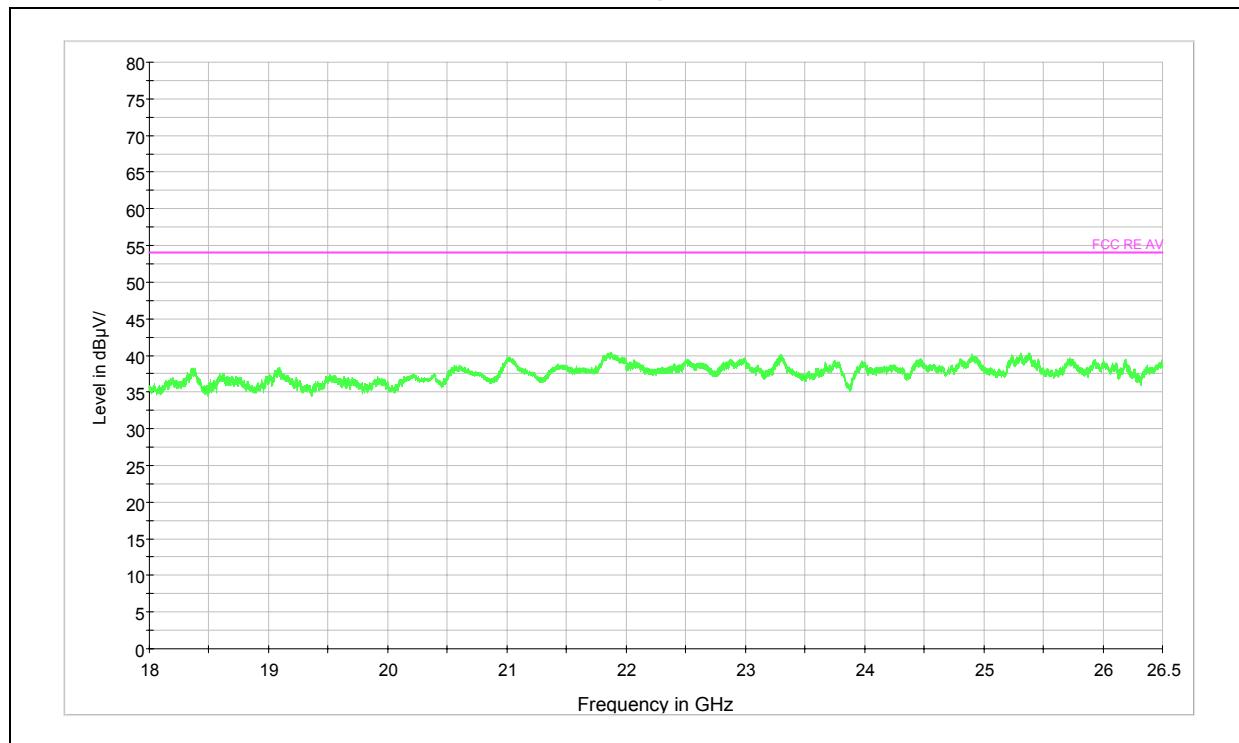
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



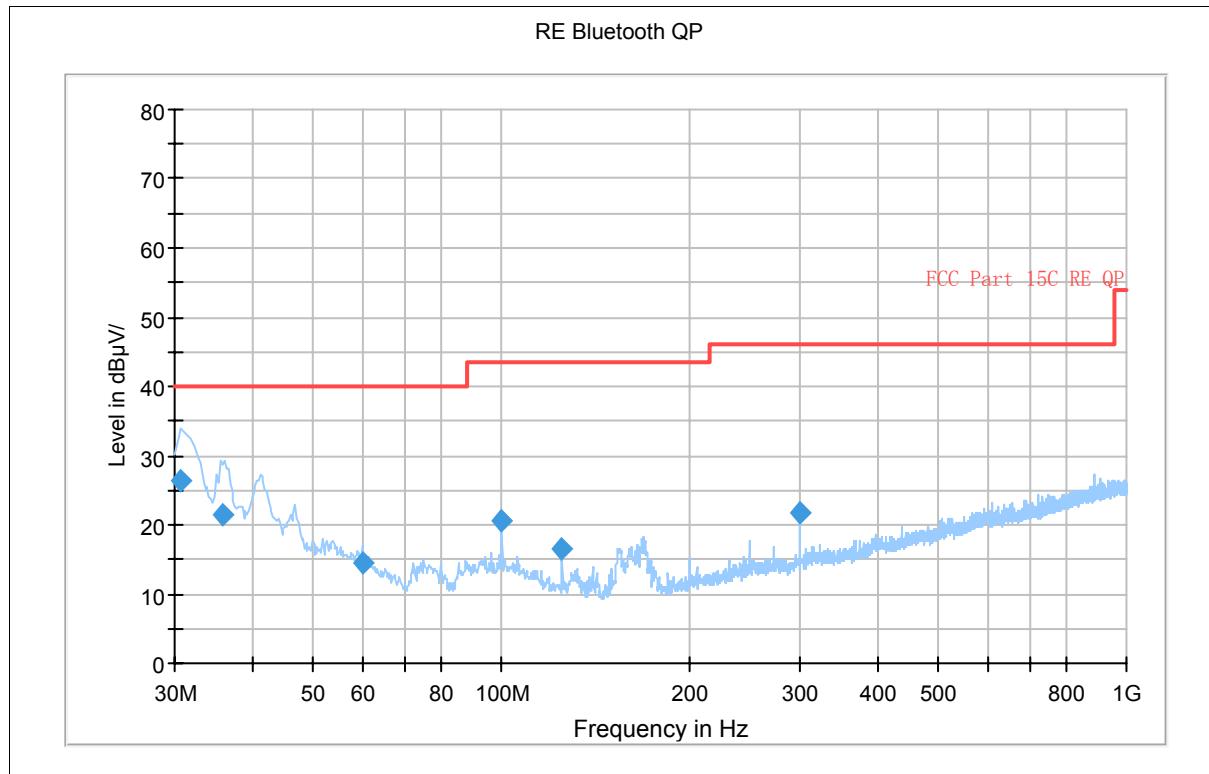
Radiates Emission from 18GHz to 26.5GHz

**TA Technology (Shanghai) Co., Ltd.**  
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EDR-Channel 0



Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dB $\mu$ V/m)
30.767500	26.3	200.0	V	2.0	13.7	40.0
35.817500	21.5	191.0	V	22.0	18.5	40.0
59.987500	14.6	175.0	V	174.0	25.4	40.0
100.000000	20.5	175.0	V	271.0	19.5	40.0
125.020000	16.4	175.0	V	315.0	23.6	40.0
300.022500	21.7	175.0	V	0.0	25.3	47.0

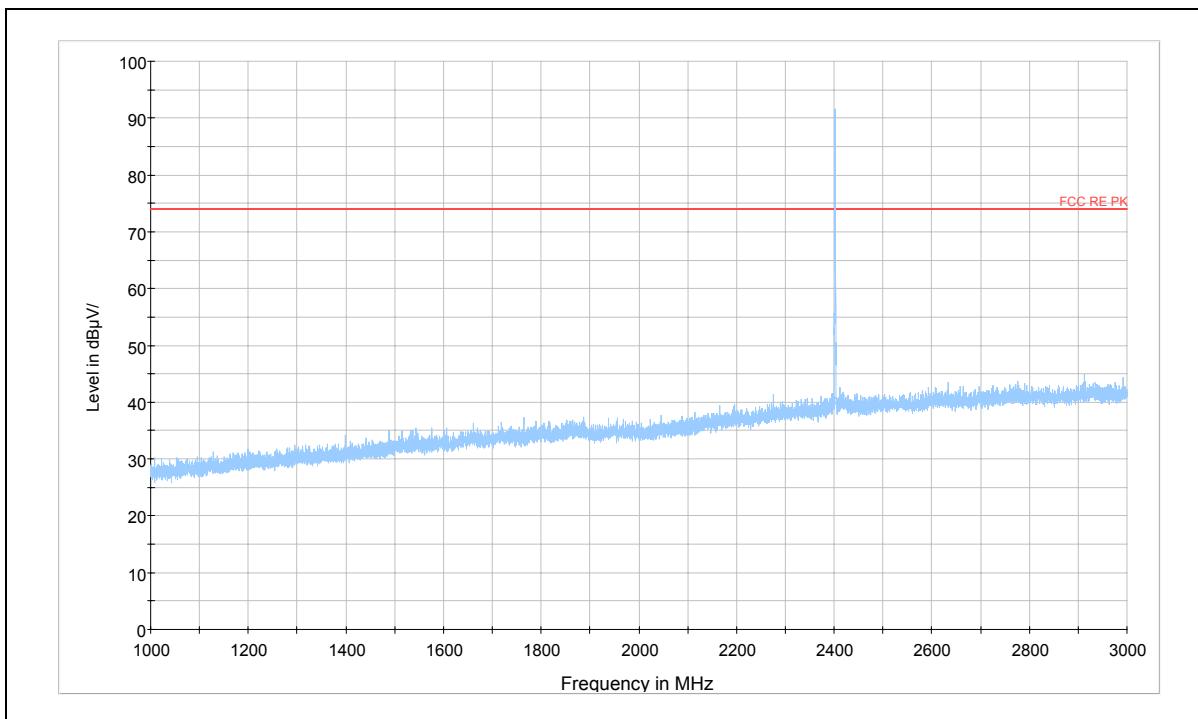
Note: All emissions level measured above 1GHz was more than 10dB below the limit

**TA Technology (Shanghai) Co., Ltd.**  
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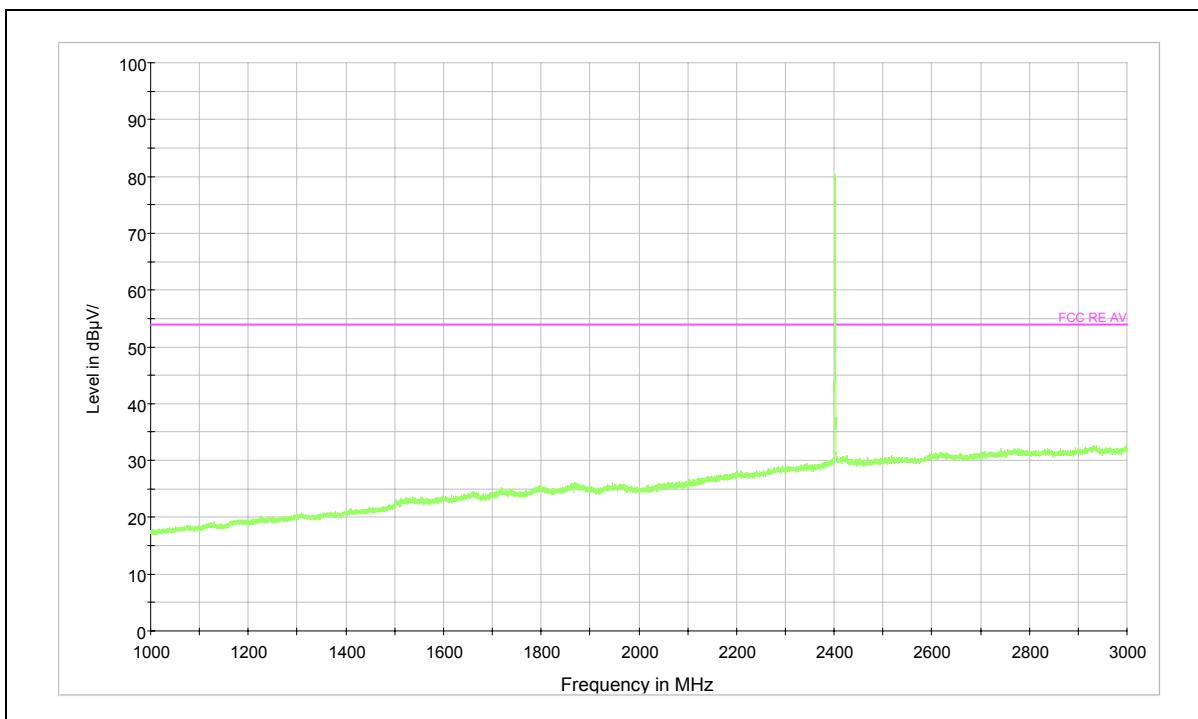
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

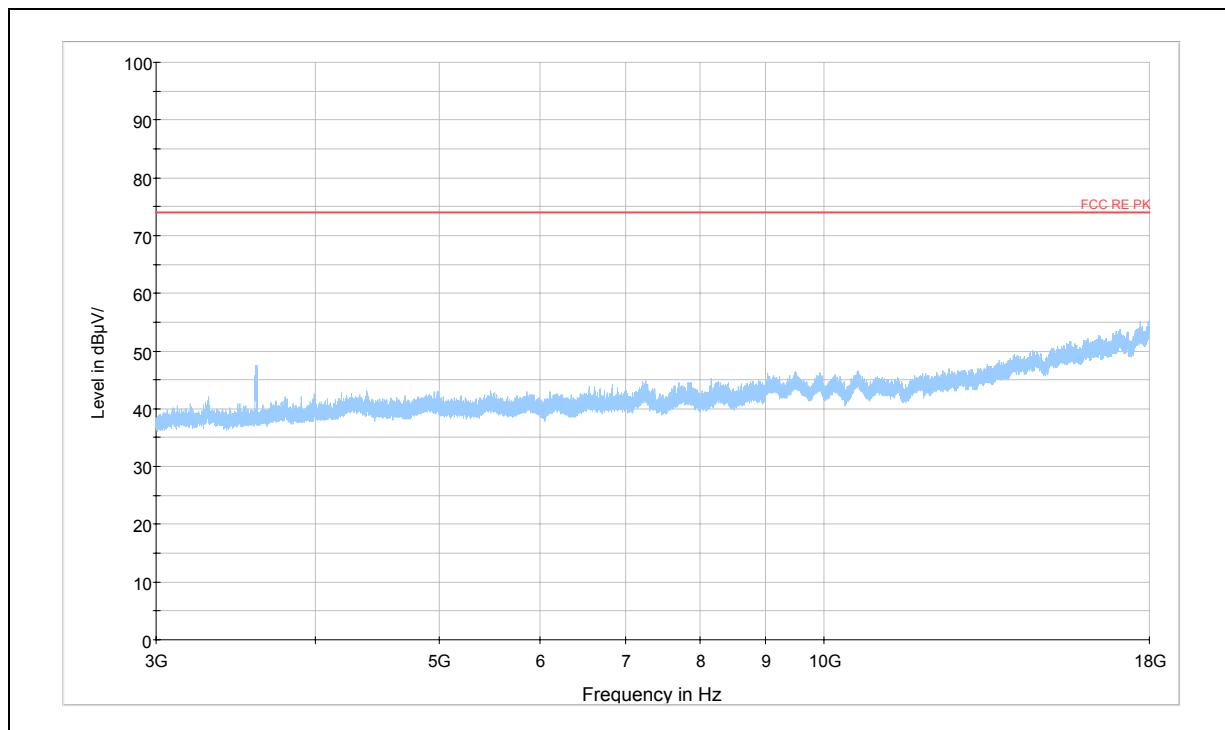
Radiates Emission from 1GHz to 3GHz

**TA Technology (Shanghai) Co., Ltd.**  
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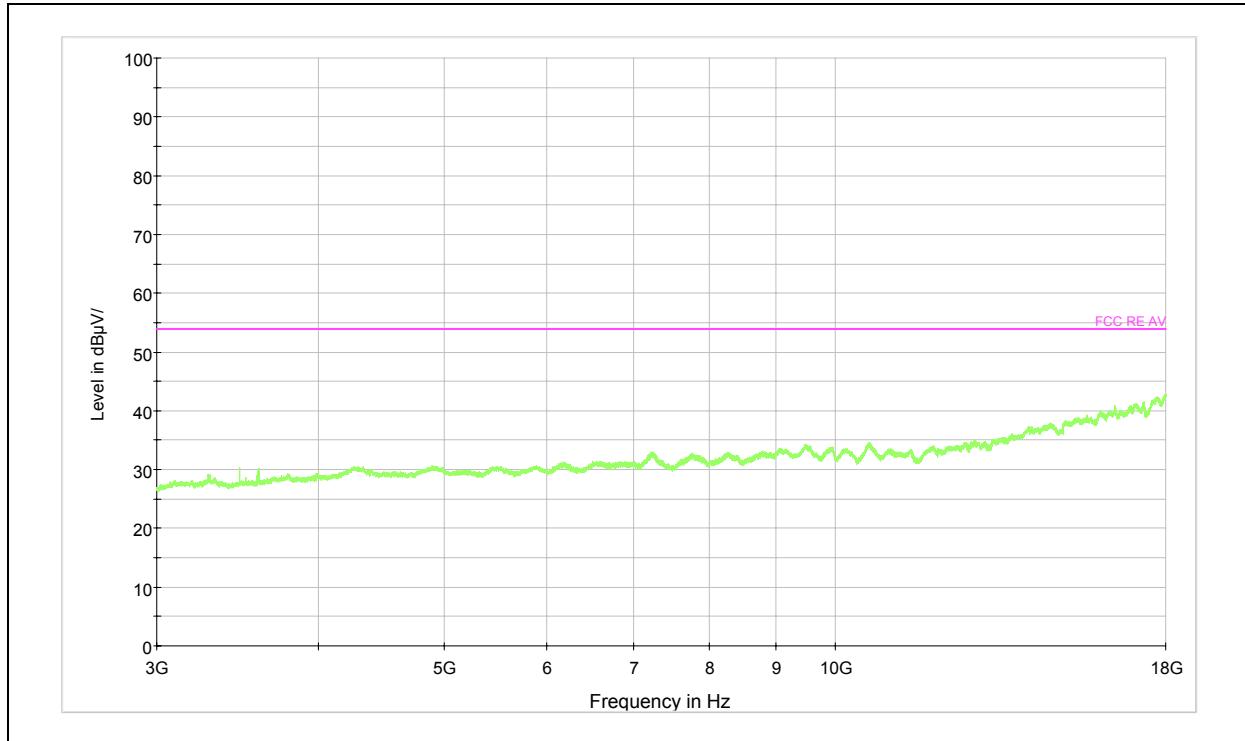
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



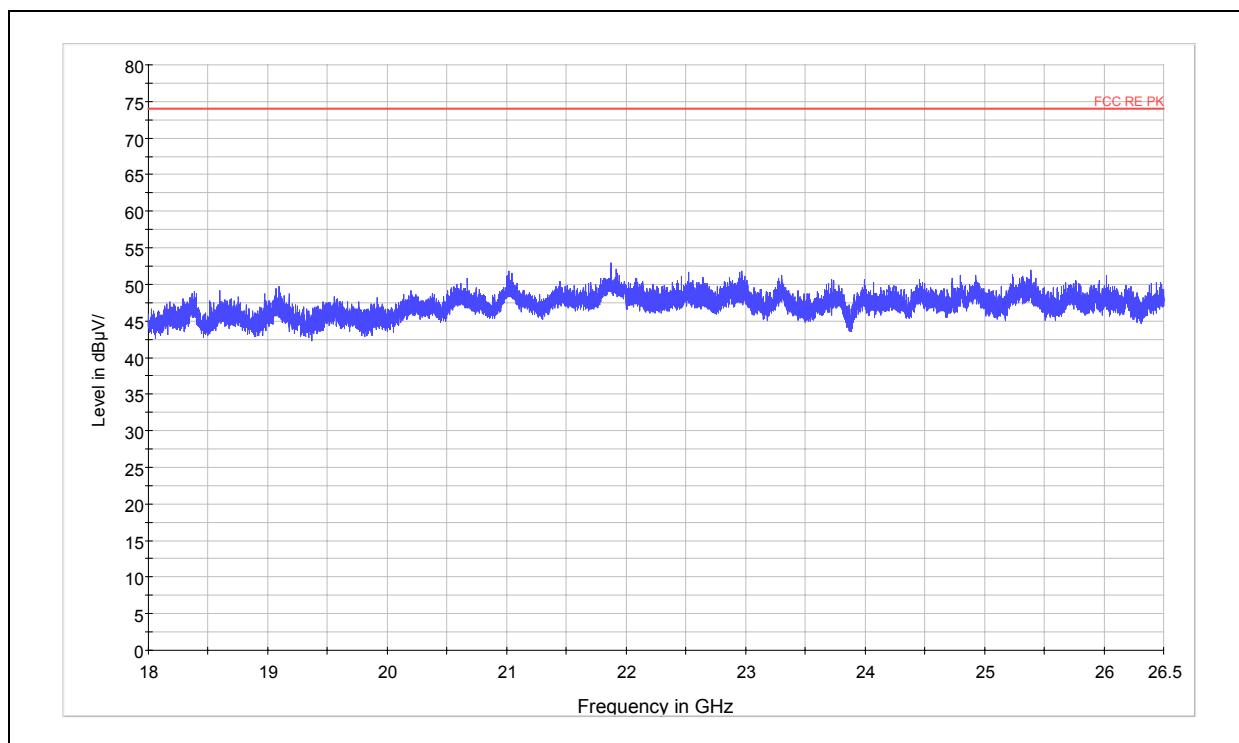
Radiates Emission from 3GHz to 18GHz

**TA Technology (Shanghai) Co., Ltd.**  
**Test Report**  
Registration Num:428261

Report No.: RZA2010-1143RF15C-BT

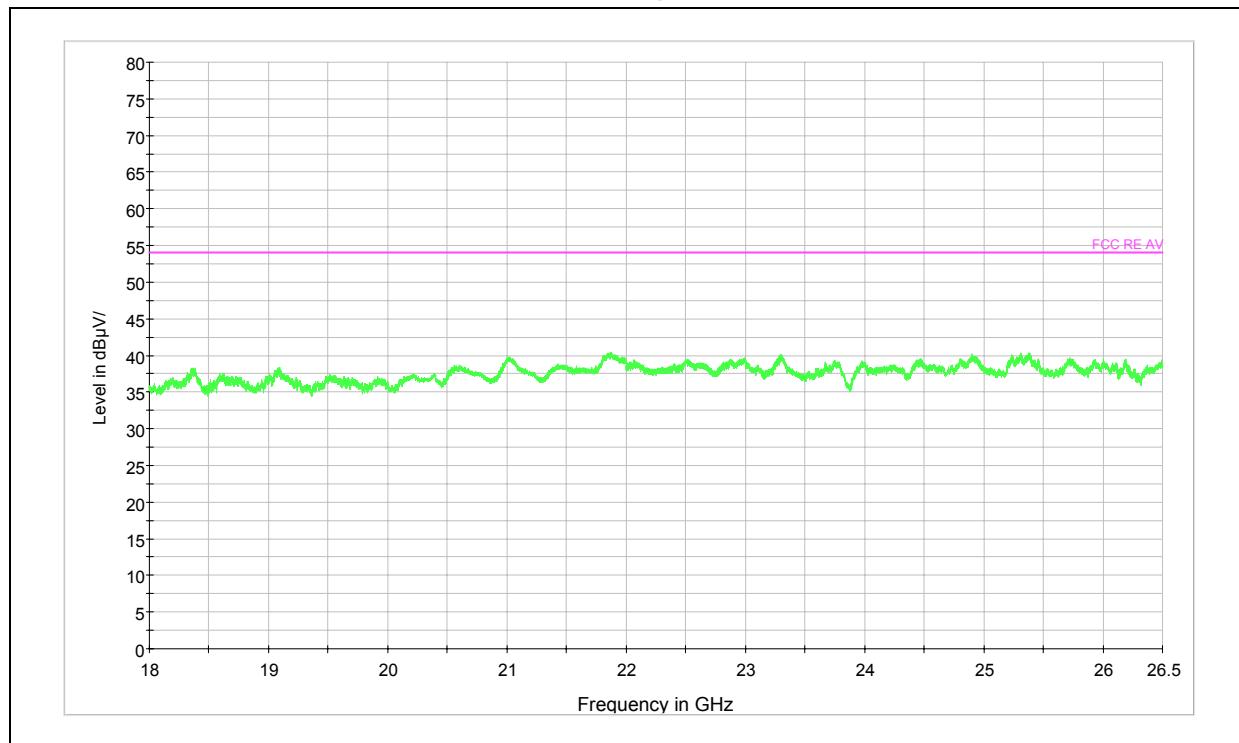
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



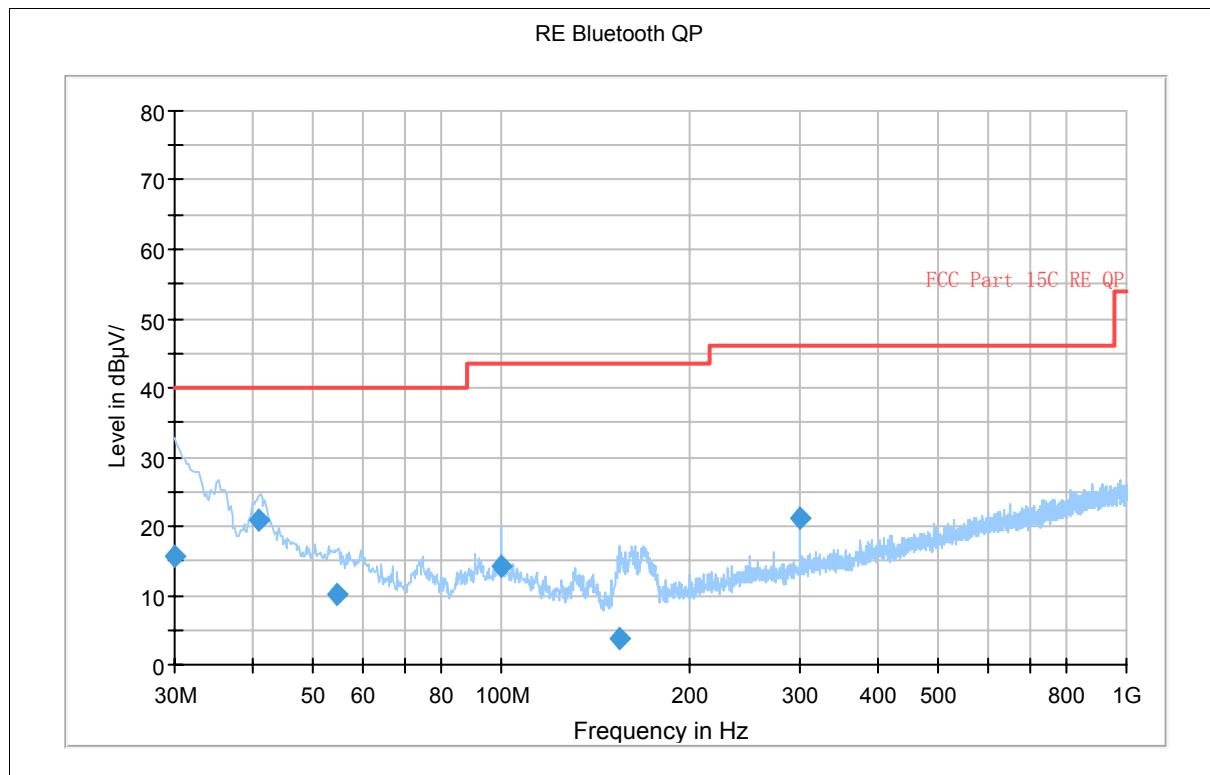
Radiates Emission from 18GHz to 26.5GHz

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EDR-Channel 39



Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBuV/m)
30.040000	15.6	225.0	H	45.0	24.4	40.0
40.995000	21.0	175.0	V	45.0	19.0	40.0
54.377500	10.1	225.0	H	45.0	29.9	40.0
100.000000	14.3	225.0	H	39.0	25.7	40.0
154.570000	3.6	175.0	H	2.0	36.4	40.0
300.022500	21.1	175.0	H	36.0	25.9	47.0

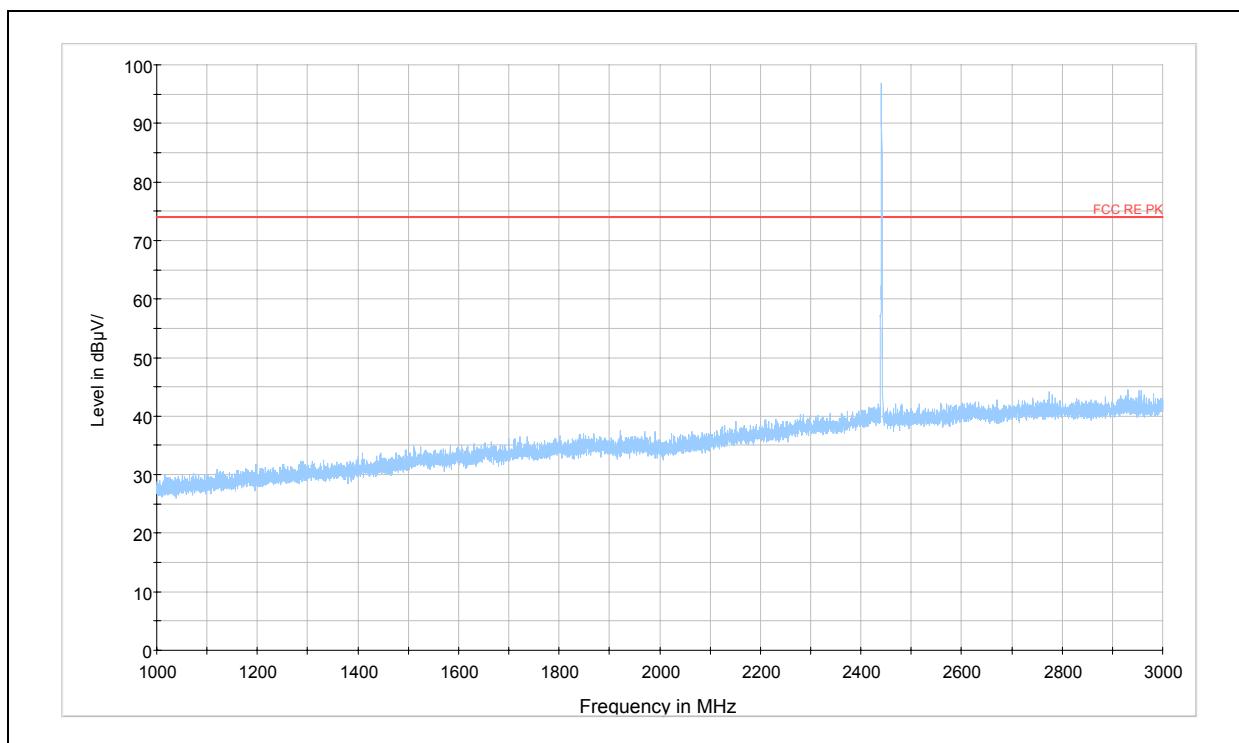
Note: All emissions level measured above 1GHz was more than 10dB below the limit

**TA Technology (Shanghai) Co., Ltd.**  
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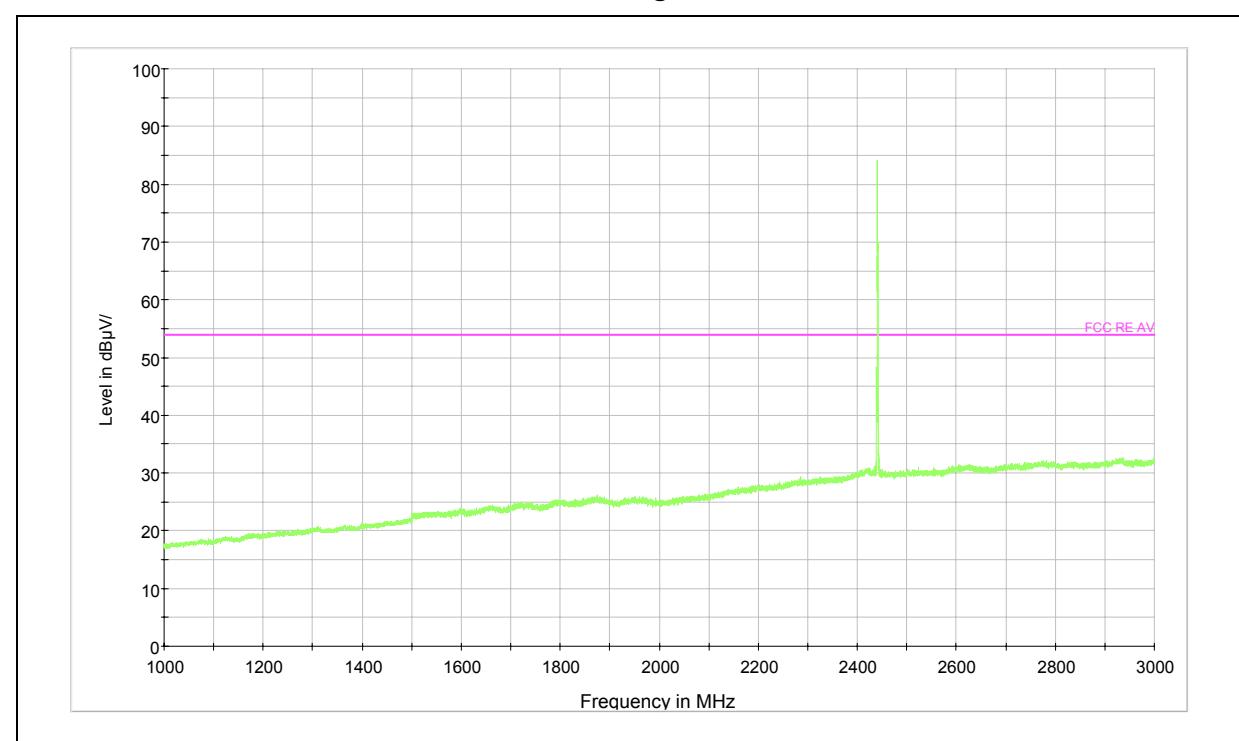
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

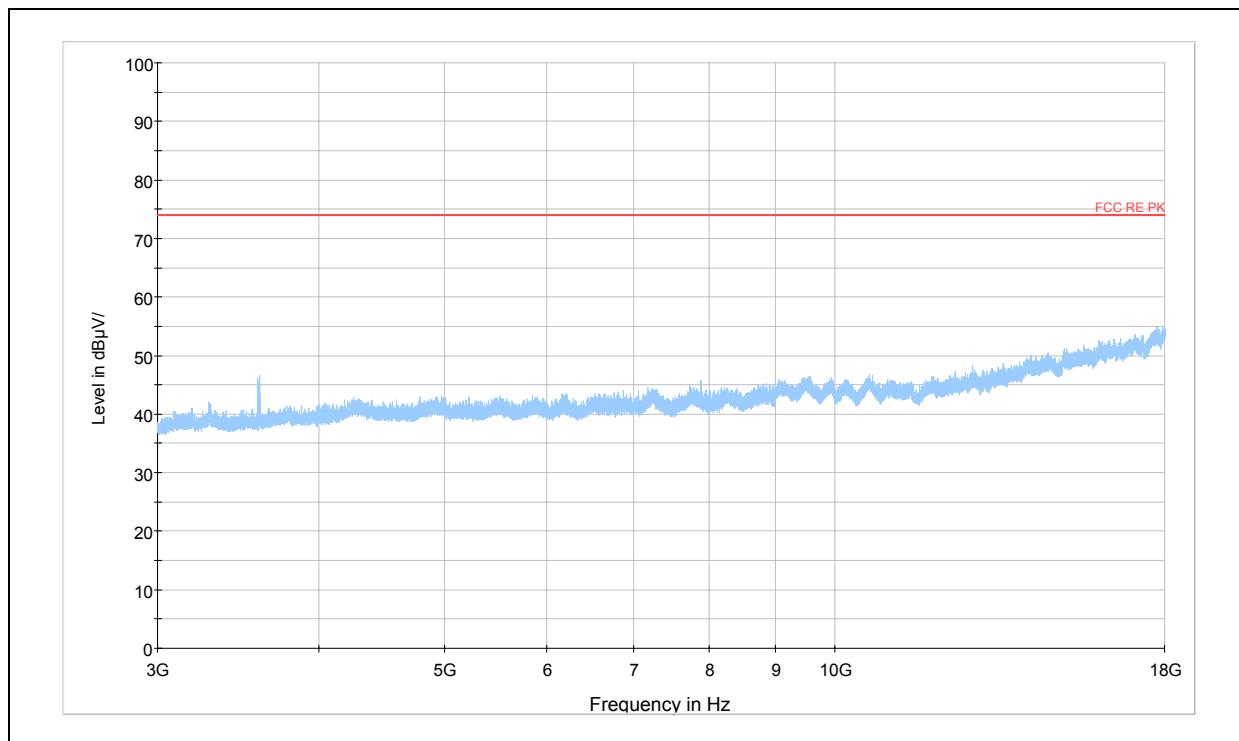
Radiates Emission from 1GHz to 3GHz

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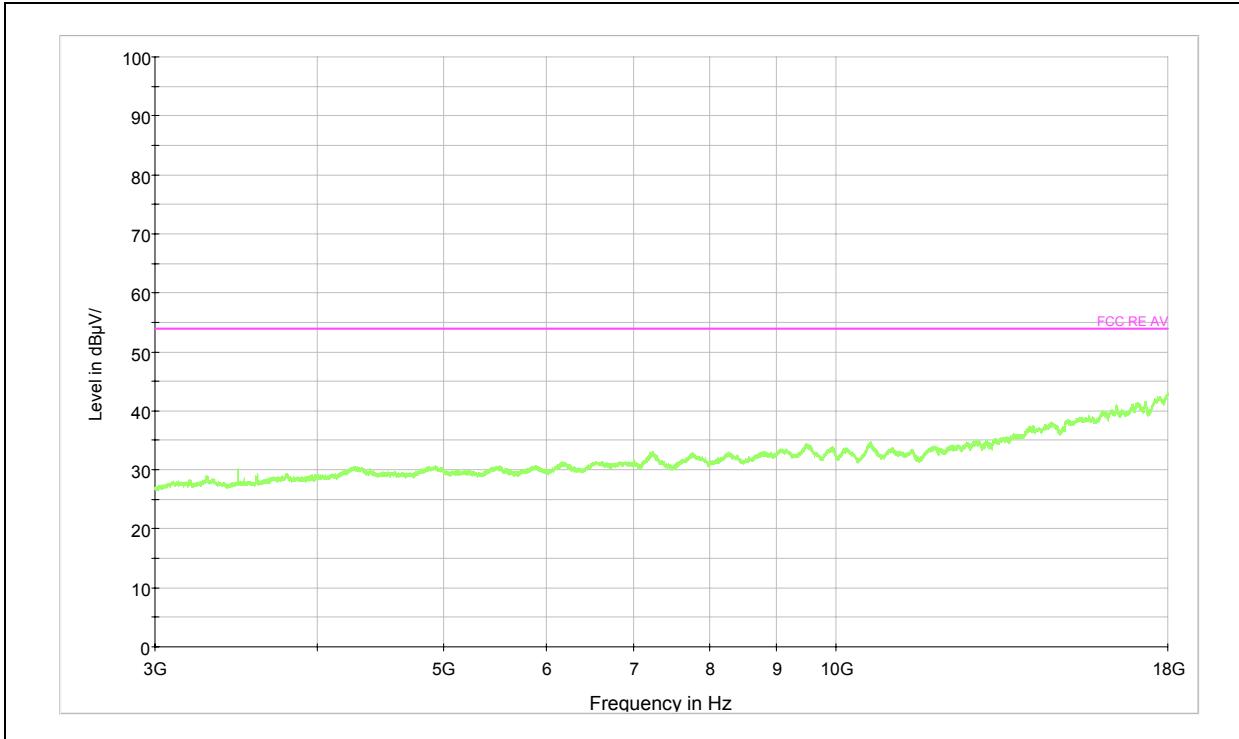
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



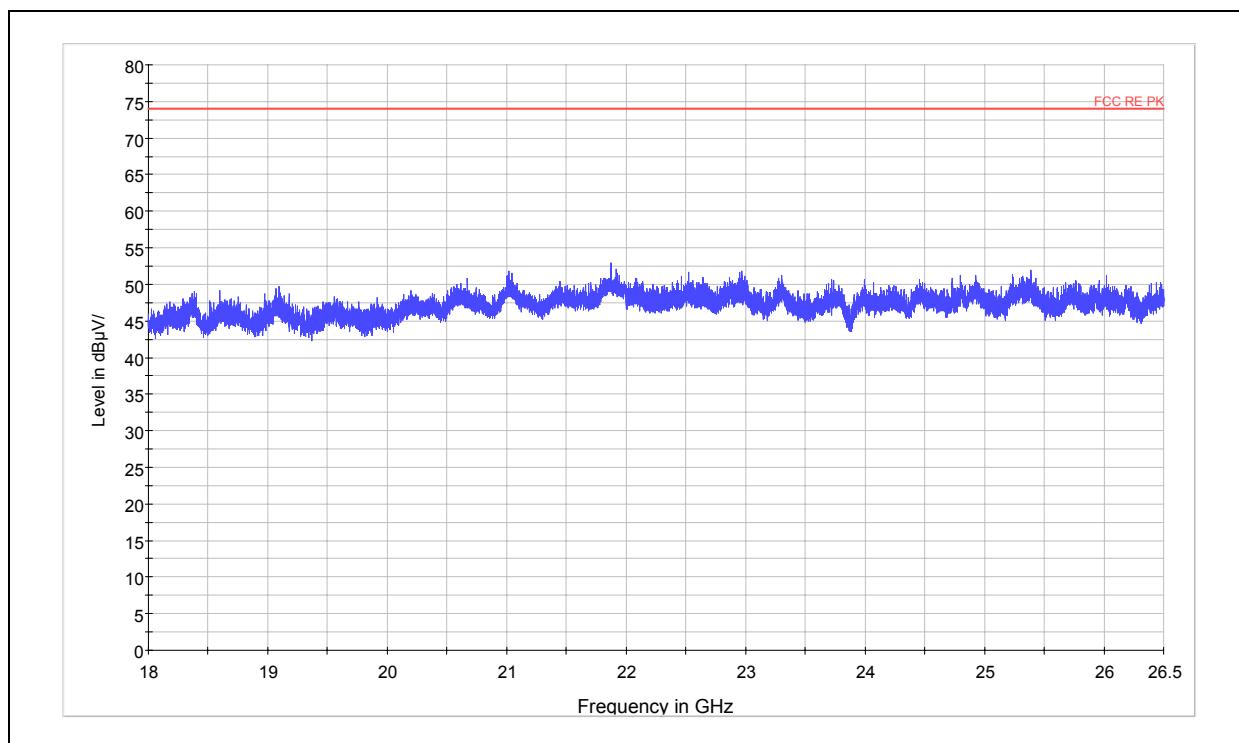
Radiates Emission from 3GHz to 18GHz

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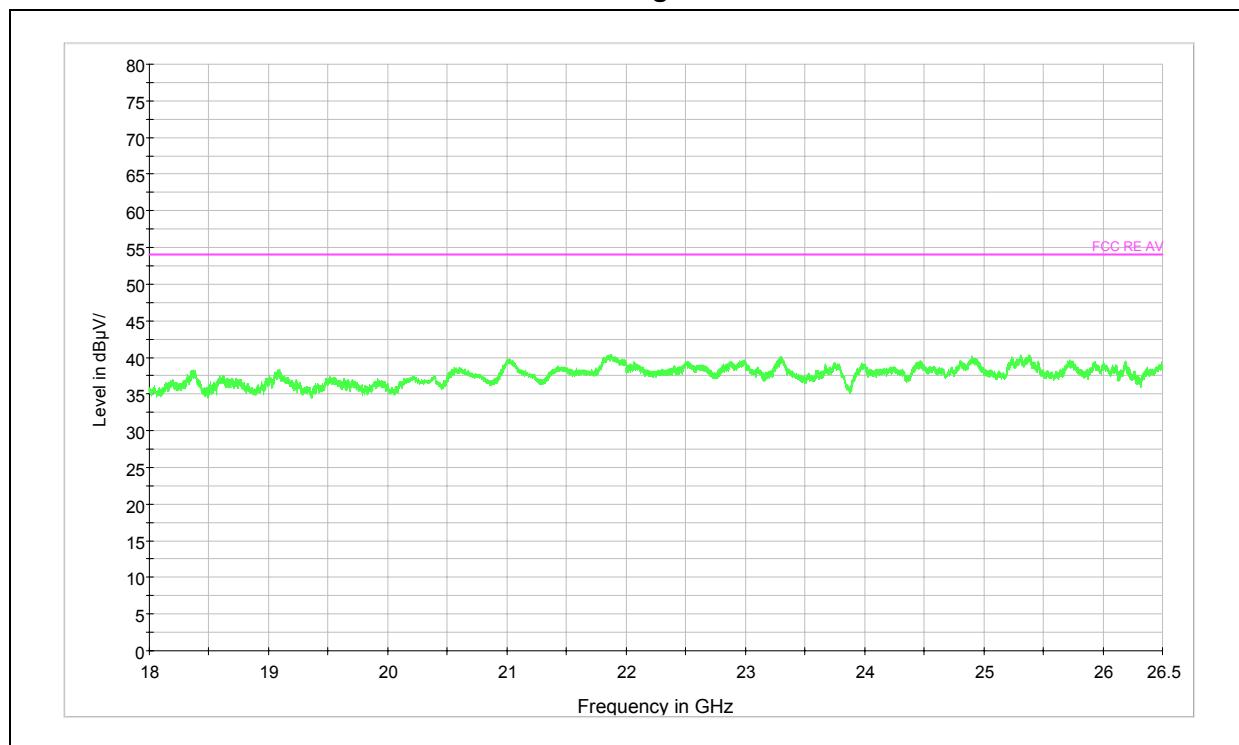
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



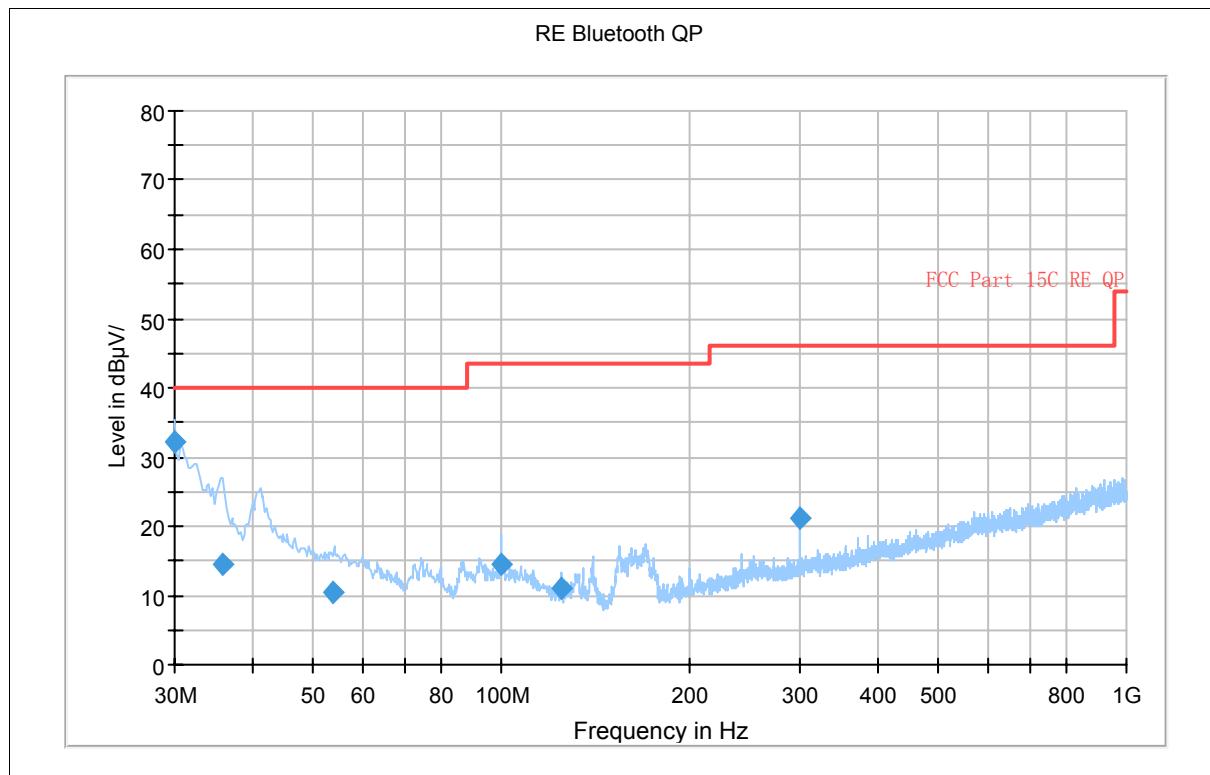
Radiates Emission from 18GHz to 26.5GHz

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EDR-Channel 78



Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBuV/m)
30.040000	32.1	175.0	V	0.0	7.9	40.0
35.937500	14.5	191.0	H	16.0	25.5	40.0
53.847500	10.3	225.0	H	45.0	29.7	40.0
100.000000	14.5	225.0	H	39.0	25.5	40.0
125.020000	11.1	175.0	H	2.0	28.9	40.0
300.022500	21.2	175.0	H	27.0	25.8	47.0

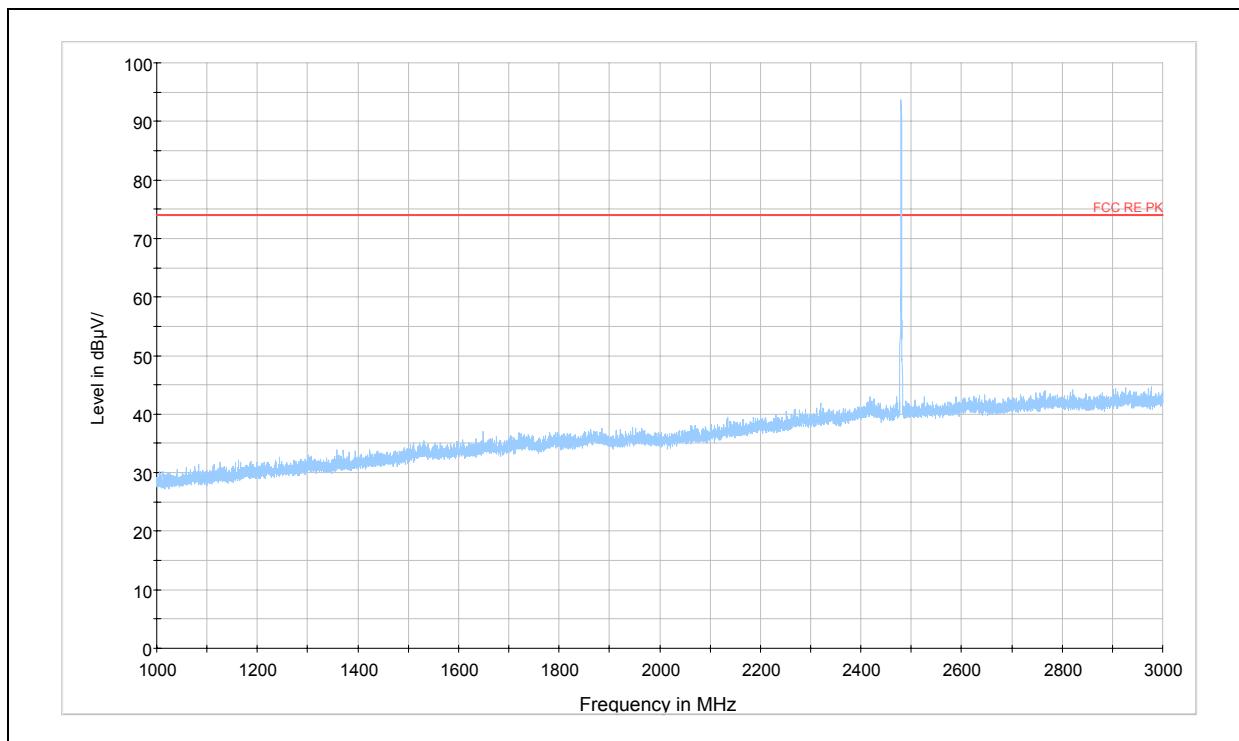
Note: All emissions level measured above 1GHz was more than 10dB below the limit

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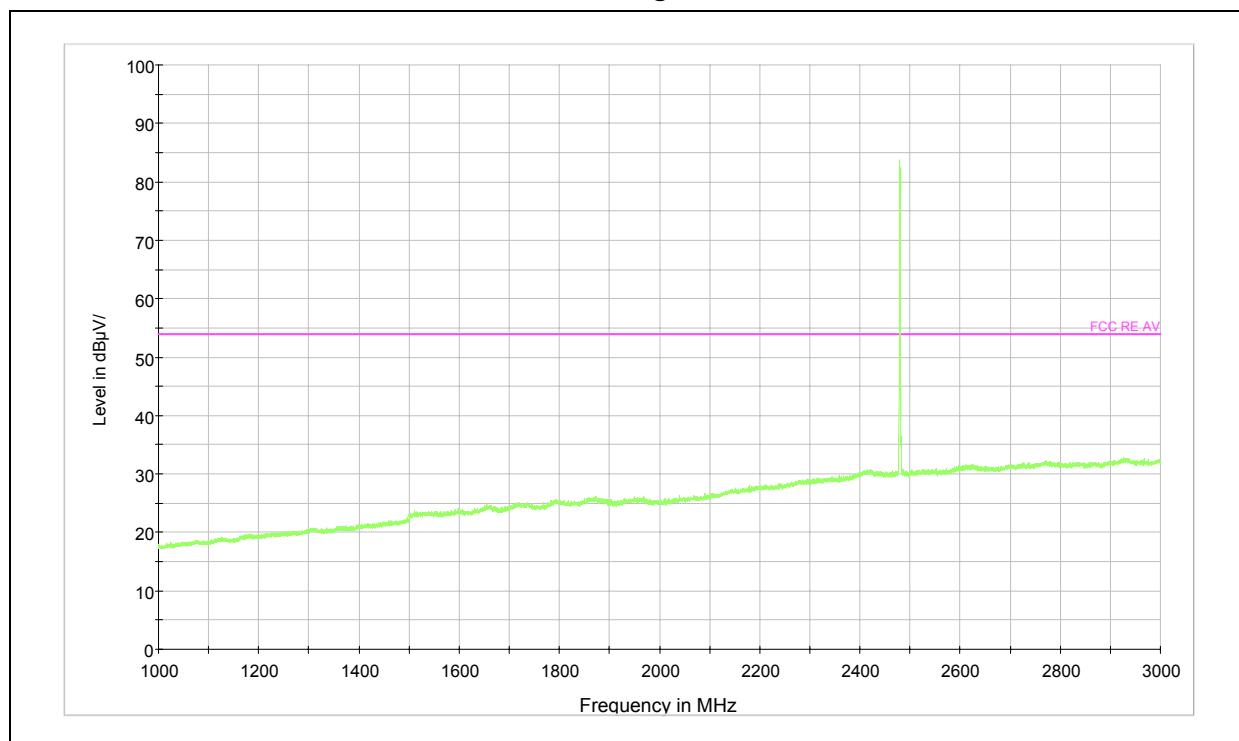
**Peak**



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz

**Average**



Note: The signal beyond the limit is carrier.

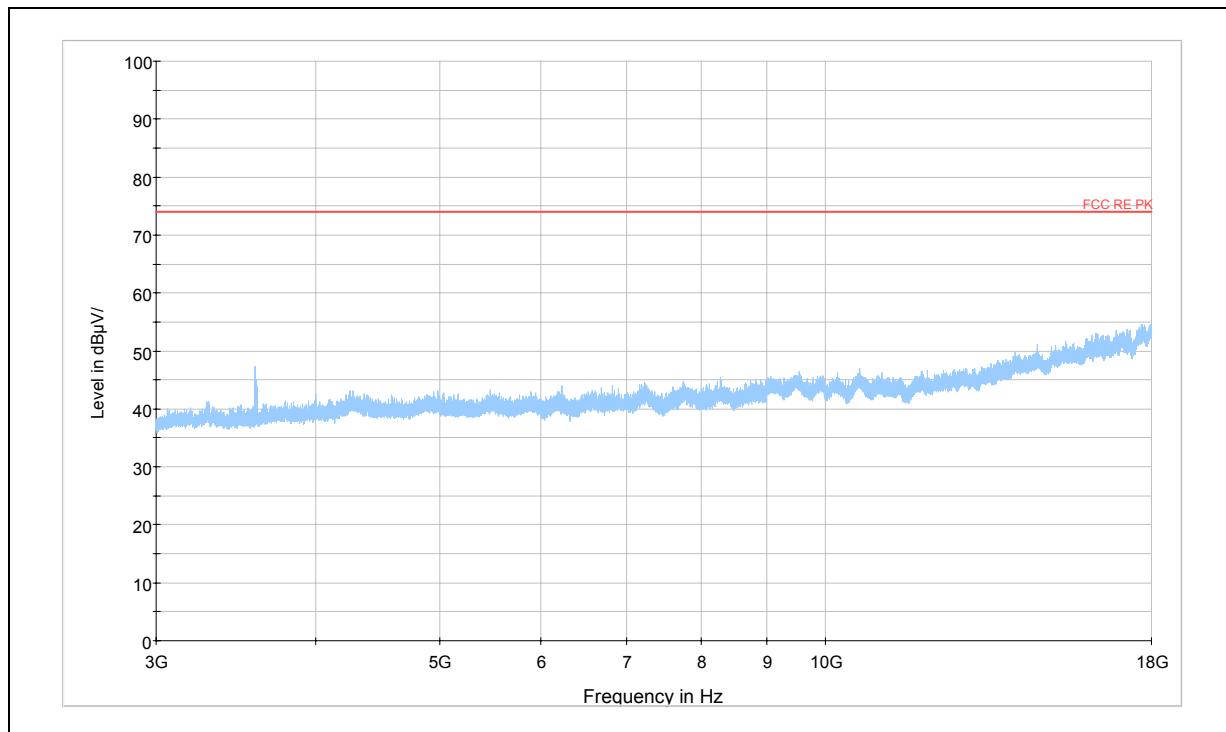
Radiates Emission from 1GHz to 3GHz

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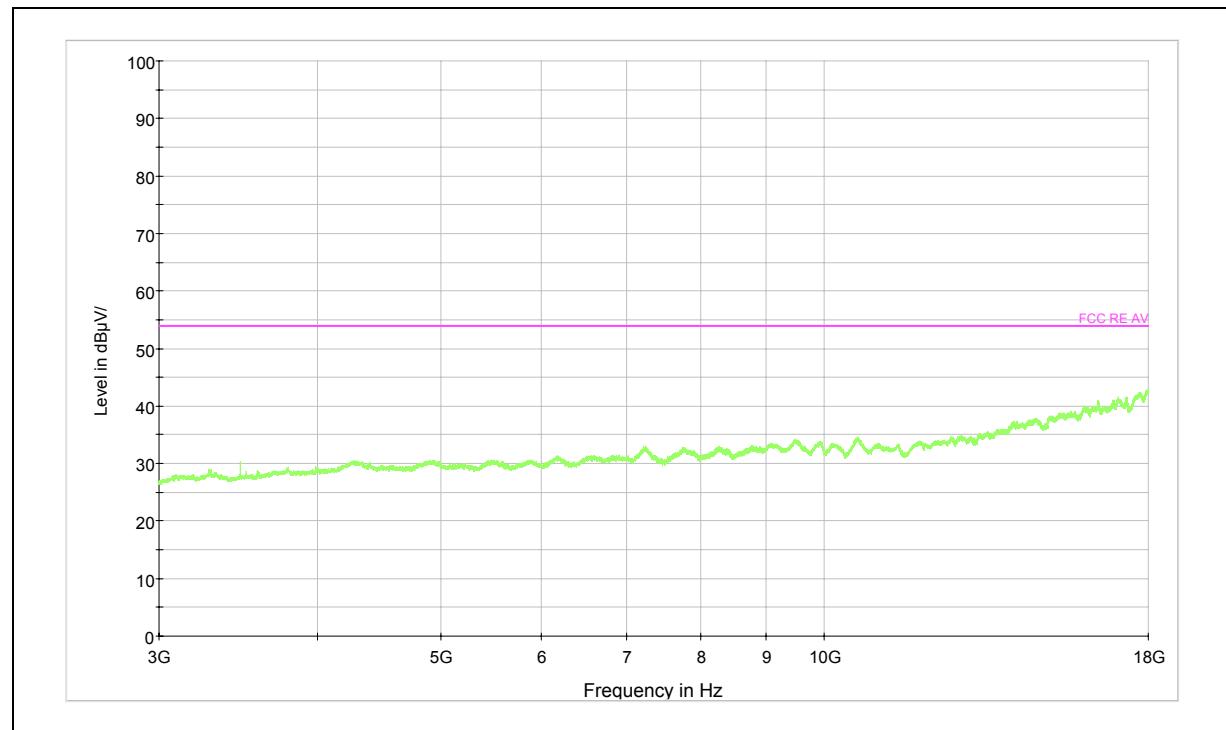
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**Peak**



Radiates Emission from 3GHz to 18GHz

**Average**



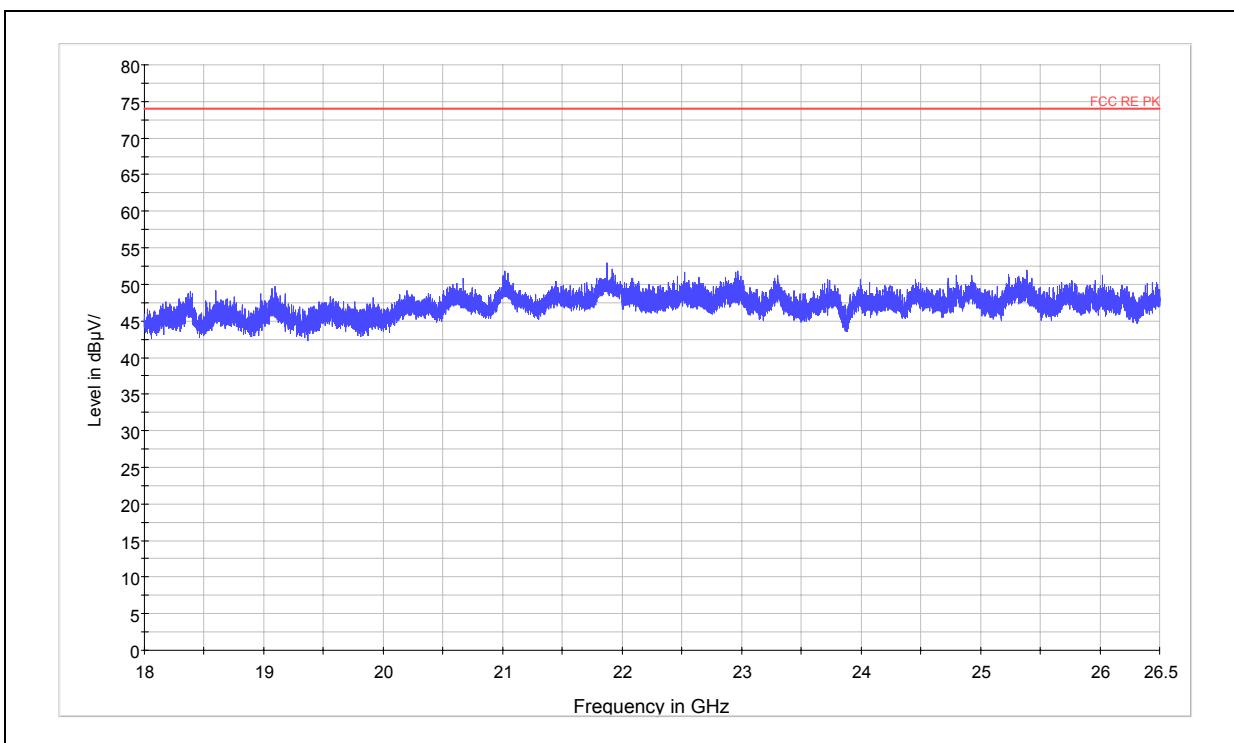
Radiates Emission from 3GHz to 18GHz

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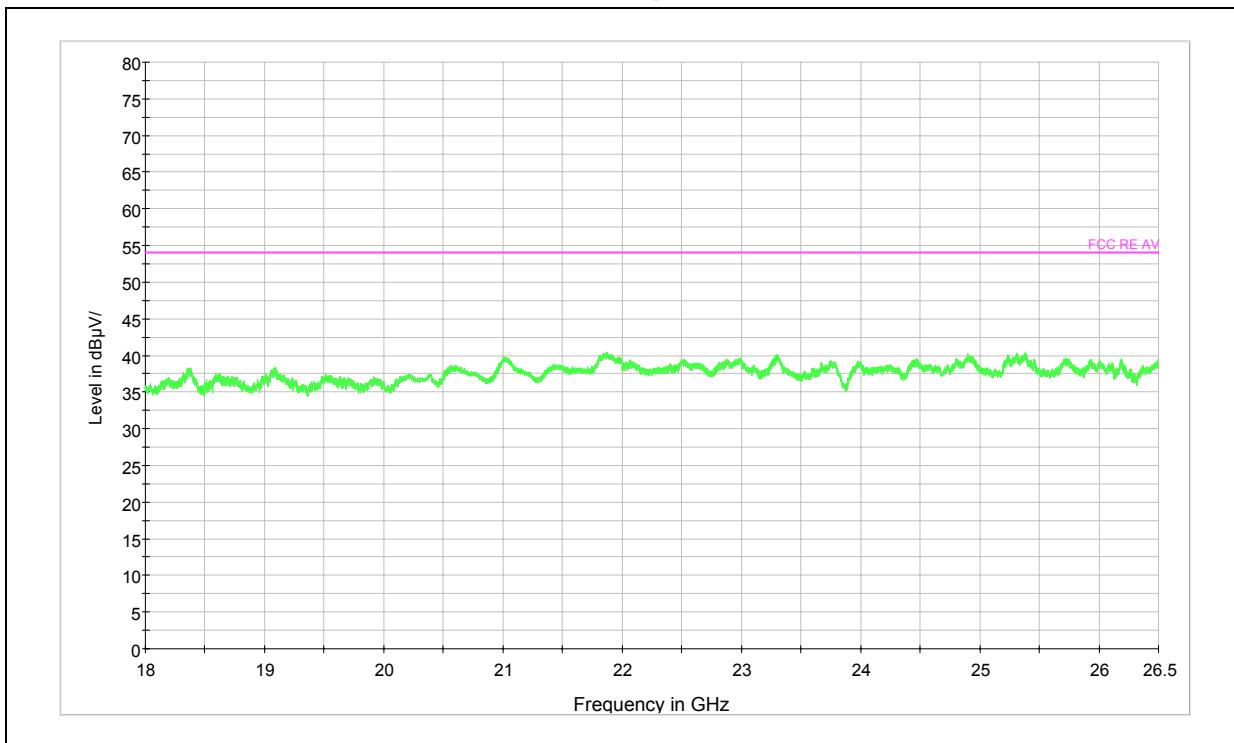
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**Peak**



Radiates Emission from 18GHz to 26.5GHz

**Average**



Radiates Emission from 18GHz to 26.5GHz

## 2.11. Conducted Emission

### Ambient condition

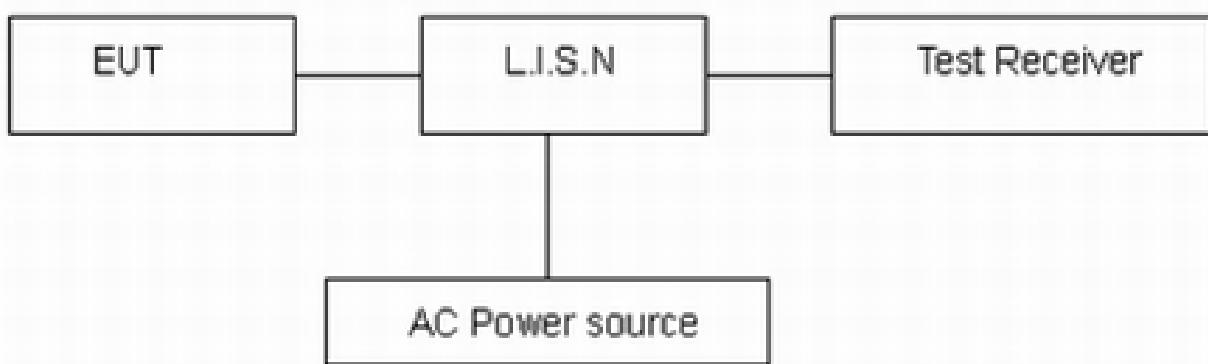
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2003. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

The test is in transmit mode.

### Test Setup



Note: AC Power source is used to change the voltage from 220V/50Hz to 110V/60Hz.

### Limits

Frequency (MHz)	Conducted Limits(dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50

\*: Decreases with the logarithm of the frequency.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U = 2.69$  dB.

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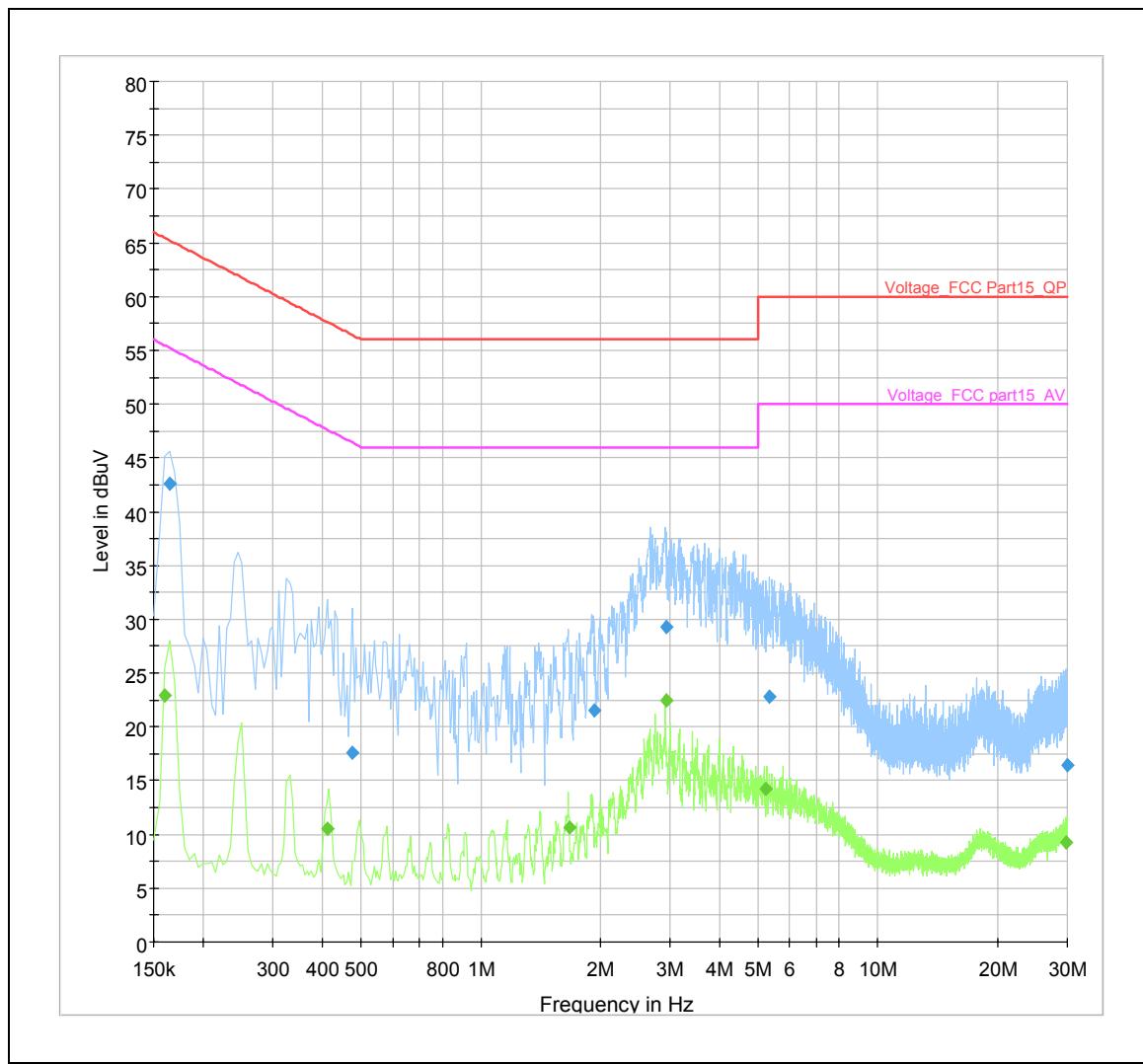
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**Test Results:**

**EUT with Black Earphone**

Basic Rate-CH0

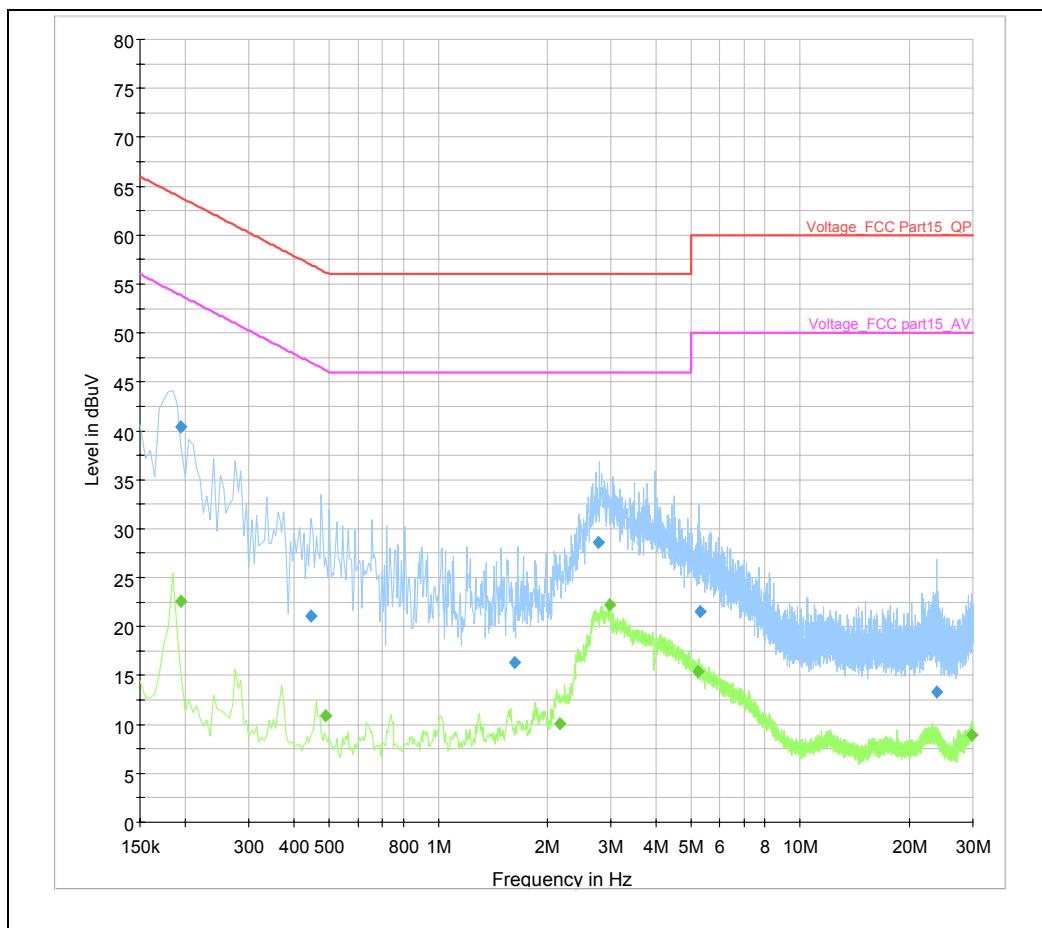


L Line

**TA Technology (Shanghai) Co., Ltd.**  
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N Line  
 Conducted Emission from 150 KHz to 30 MHz

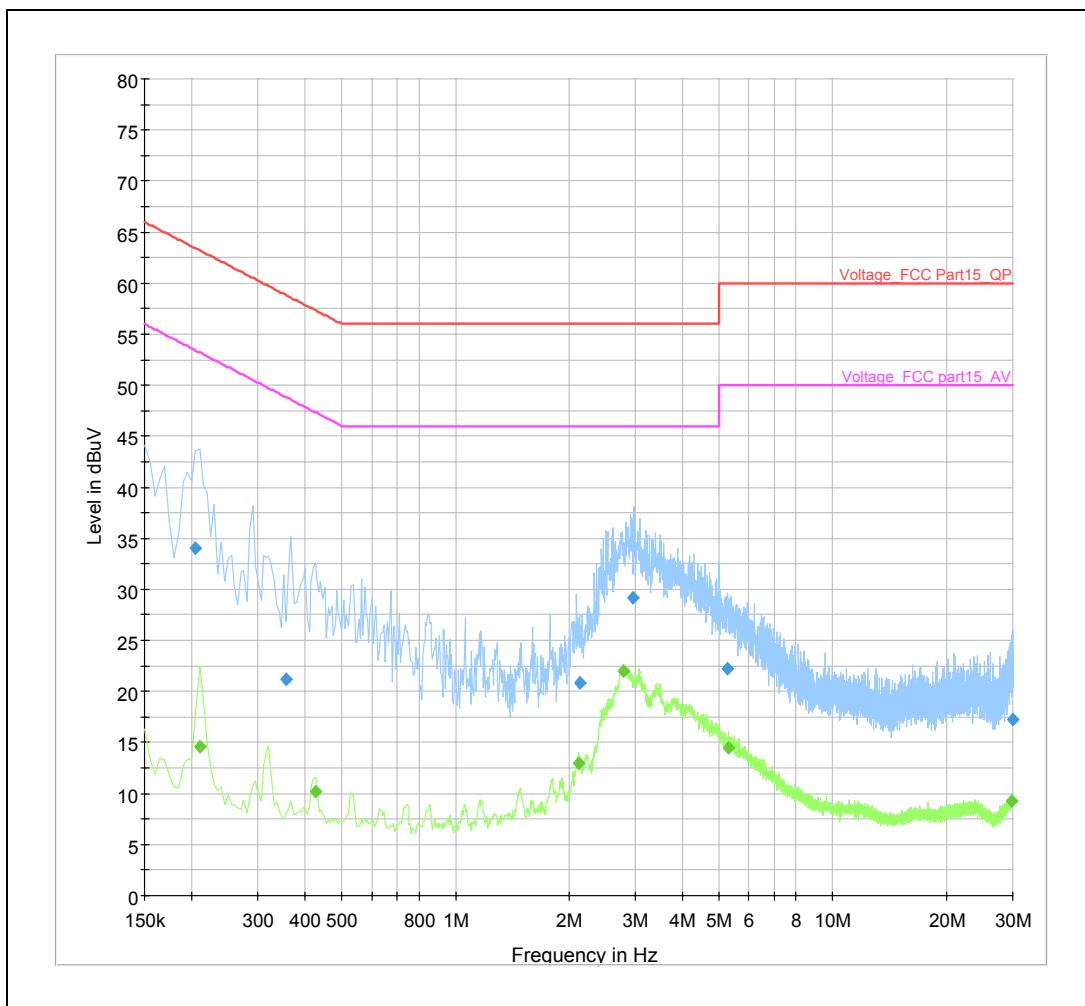
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.41	Average	L	10.6	47.6	37.0
0.49	Average	N	10.9	46.2	35.3
1.67	Average	L	10.6	46	35.4
2.16	Average	N	10.0	46	36
29.76	Average	N	9.0	50	41.0
29.87	Average	L	9.2	50	40.8
0.445	Quasi-peak	N	21.1	57	35.9
1.62	Quasi-peak	N	16.4	56	39.6
1.93	Quasi-peak	L	21.6	56	34.4
5.3	Quasi-peak	N	21.6	60	38.4
23.865	Quasi-peak	N	13.3	60	46.7
29.905	Quasi-peak	L	16.4	60	43.6

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Basic Rate-CH39

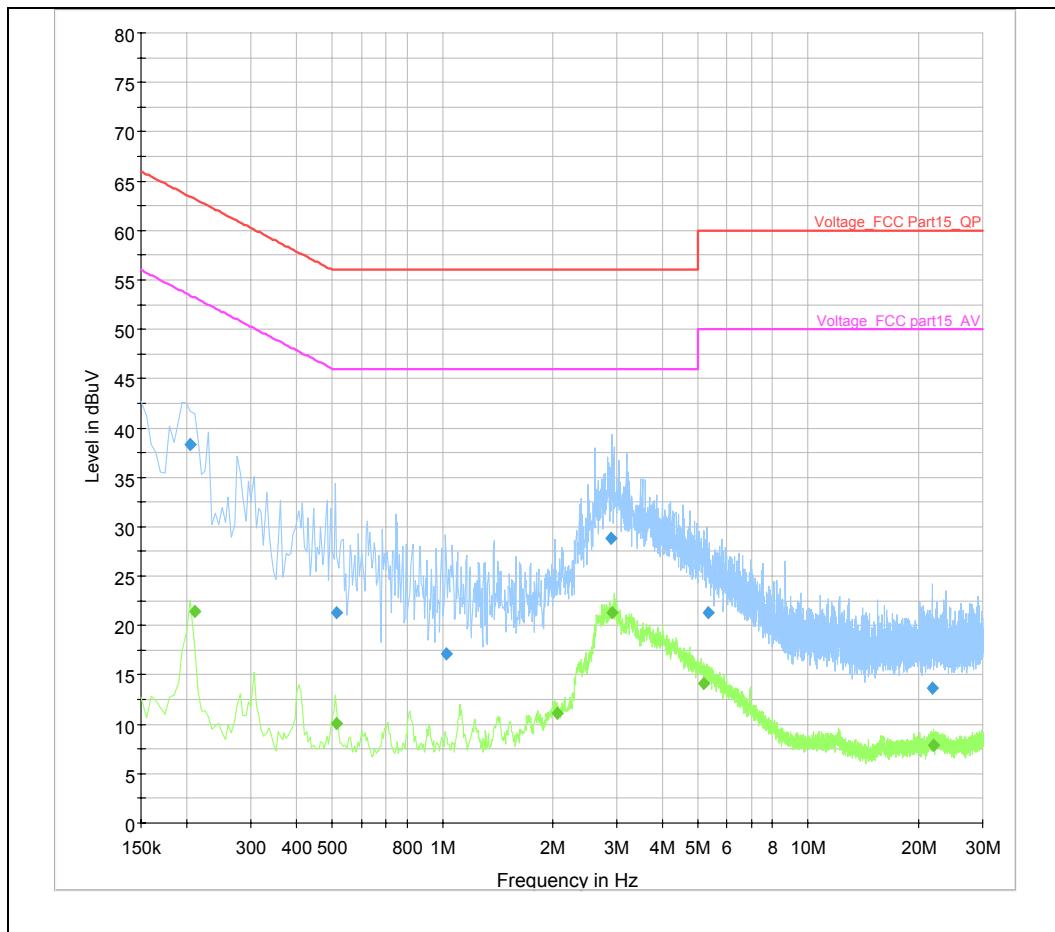


L Line

**TA Technology (Shanghai) Co., Ltd.**  
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N Line  
Conducted Emission from 150 KHz to 30 MHz

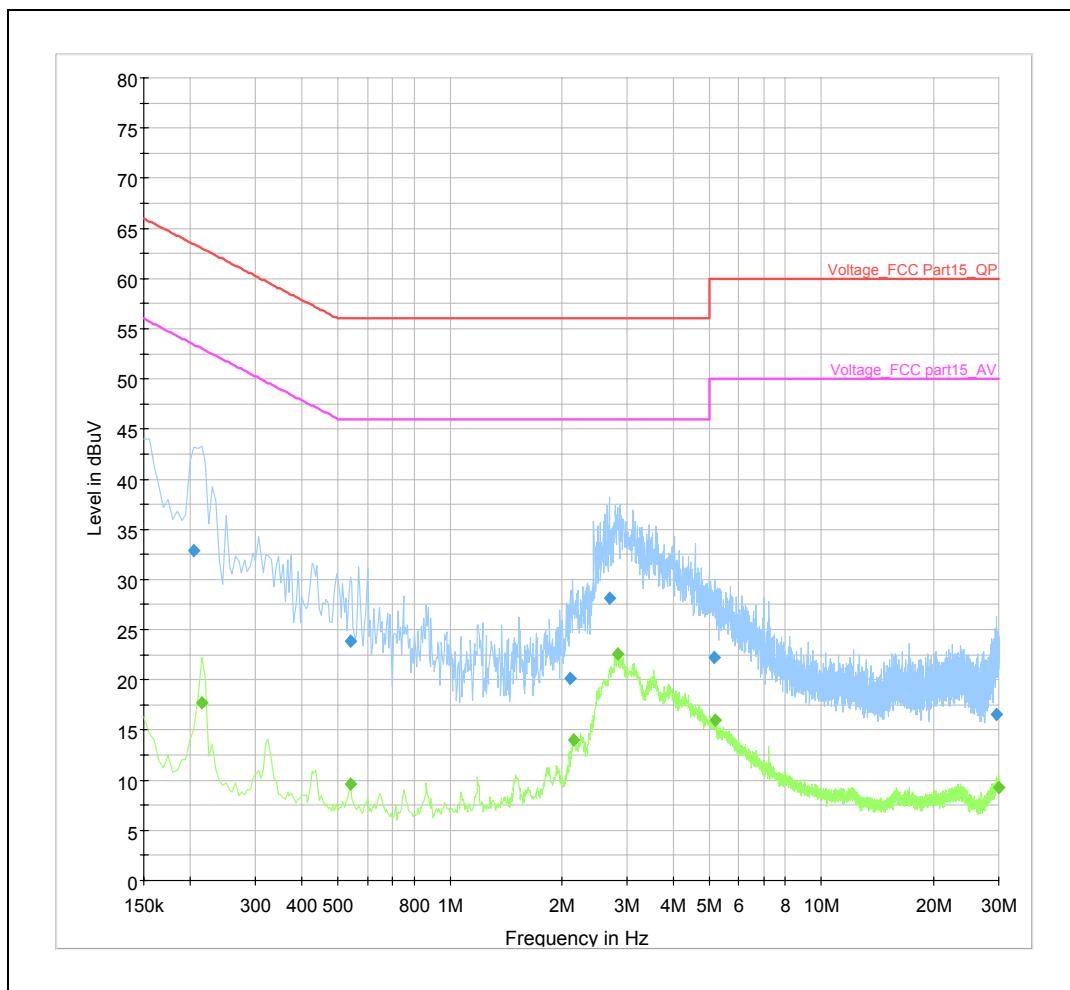
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.425	Average	L	10.2	47.3	37.1
0.515	Average	N	10.1	46	35.9
2.06	Average	N	11.1	46	34.9
2.125	Average	L	13.0	46	33
21.955	Average	N	7.9	50	42.1
29.855	Average	L	9.3	50	40.7
0.355	Quasi-peak	L	21.2	58.8	37.6
1.025	Quasi-peak	N	17.2	56	38.8
2.14	Quasi-peak	L	20.8	56	35.2
5.33	Quasi-peak	N	21.3	60	38.7
21.85	Quasi-peak	N	13.7	60	46.3
29.97	Quasi-peak	L	17.3	60	42.7

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Basic Rate-CH78

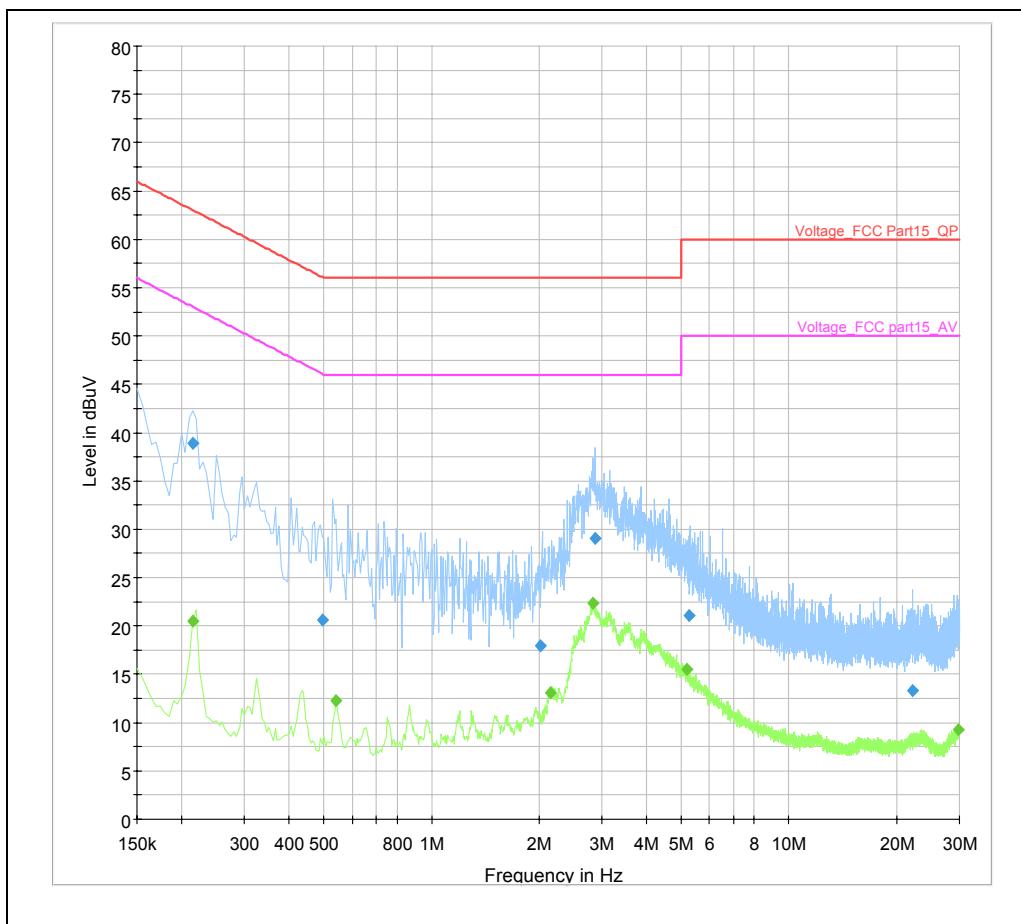


L Line

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N Line  
Conducted Emission from 150 KHz to 30 MHz

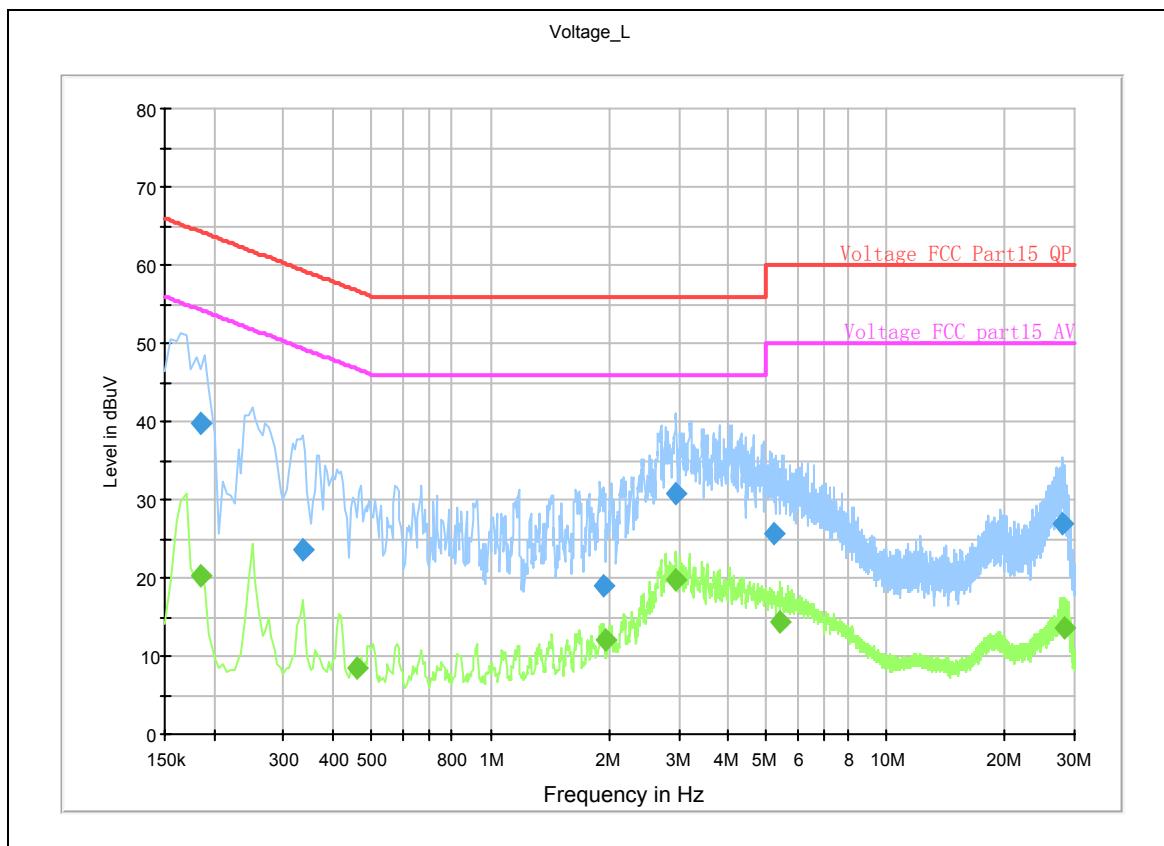
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.54	Average	L	9.6	46	36.4
0.54	Average	N	12.2	46	33.8
2.145	Average	N	13.1	46	32.9
2.155	Average	L	14	46	32
29.865	Average	N	9.3	50	40.7
29.895	Average	L	9.3	50	40.7
0.495	Quasi-peak	N	20.6	56.1	35.5
2.02	Quasi-peak	N	18.0	56	38
2.10	Quasi-peak	L	20.1	56	35.9
5.255	Quasi-peak	N	21.0	60	39
22.235	Quasi-peak	N	13.3	60	46.7
29.665	Quasi-peak	L	16.6	60	43.4

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EDR-CH0

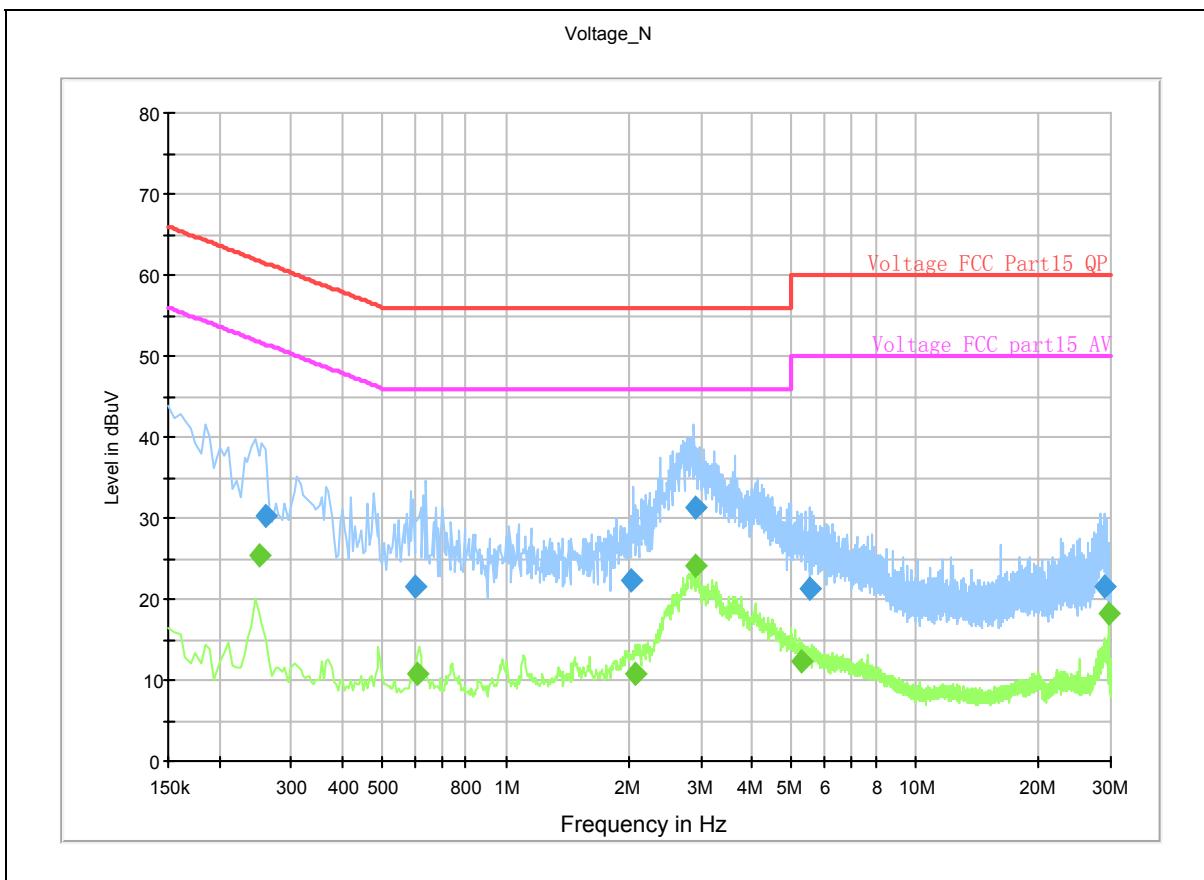


L Line

**TA Technology (Shanghai) Co., Ltd.**  
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N Line

Conducted Emission from 150 KHz to 30 MHz

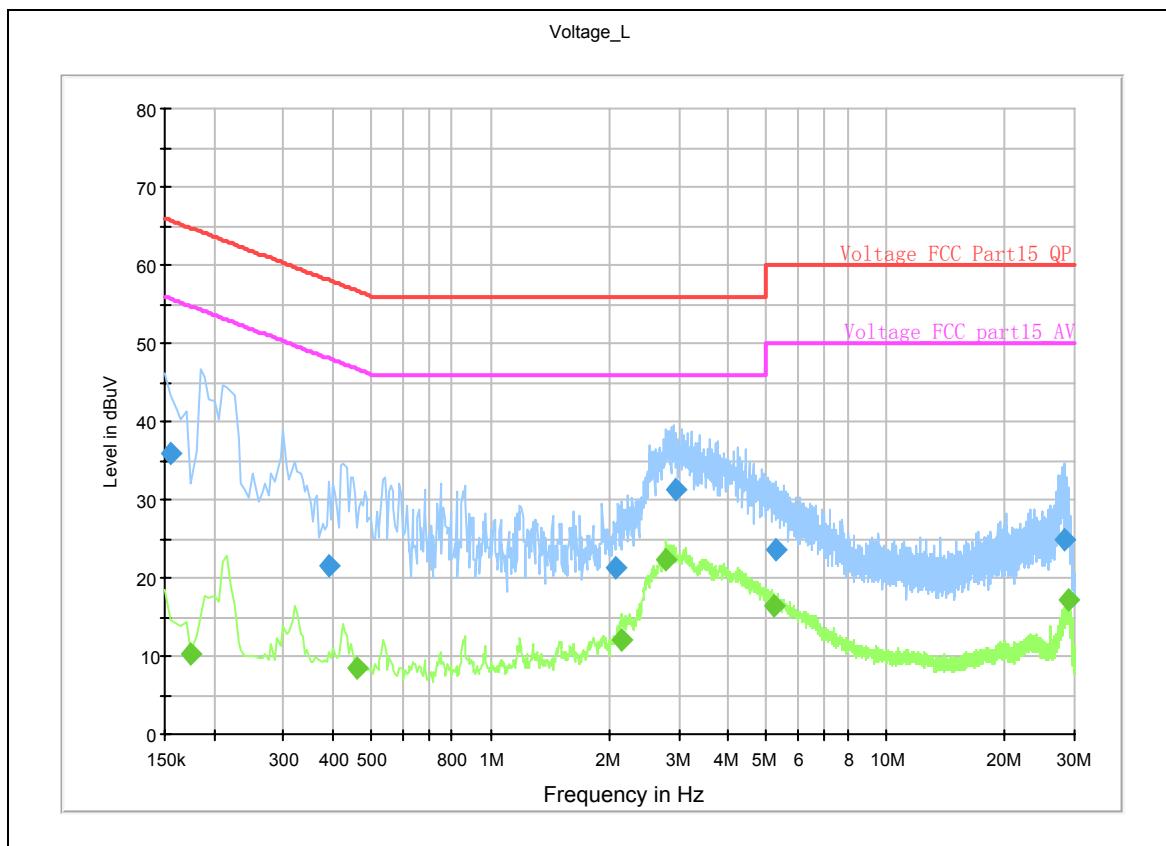
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.46	Average	L	8.5	46.7	38.2
0.61	Average	N	10.8	46	35.2
1.955	Average	L	12.1	46	33.9
2.07	Average	N	10.8	46	35.2
5.26	Average	N	12.4	50	37.6
28.26	Average	L	13.6	50	36.4
0.335	Quasi-peak	L	23.7	59.3	35.6
0.6	Quasi-peak	N	21.5	56	34.5
1.925	Quasi-peak	L	18.9	56	37.1
2.015	Quasi-peak	N	22.4	56	33.6
5.505	Quasi-peak	N	21.3	60	38.7
28.8	Quasi-peak	N	21.4	60	38.6

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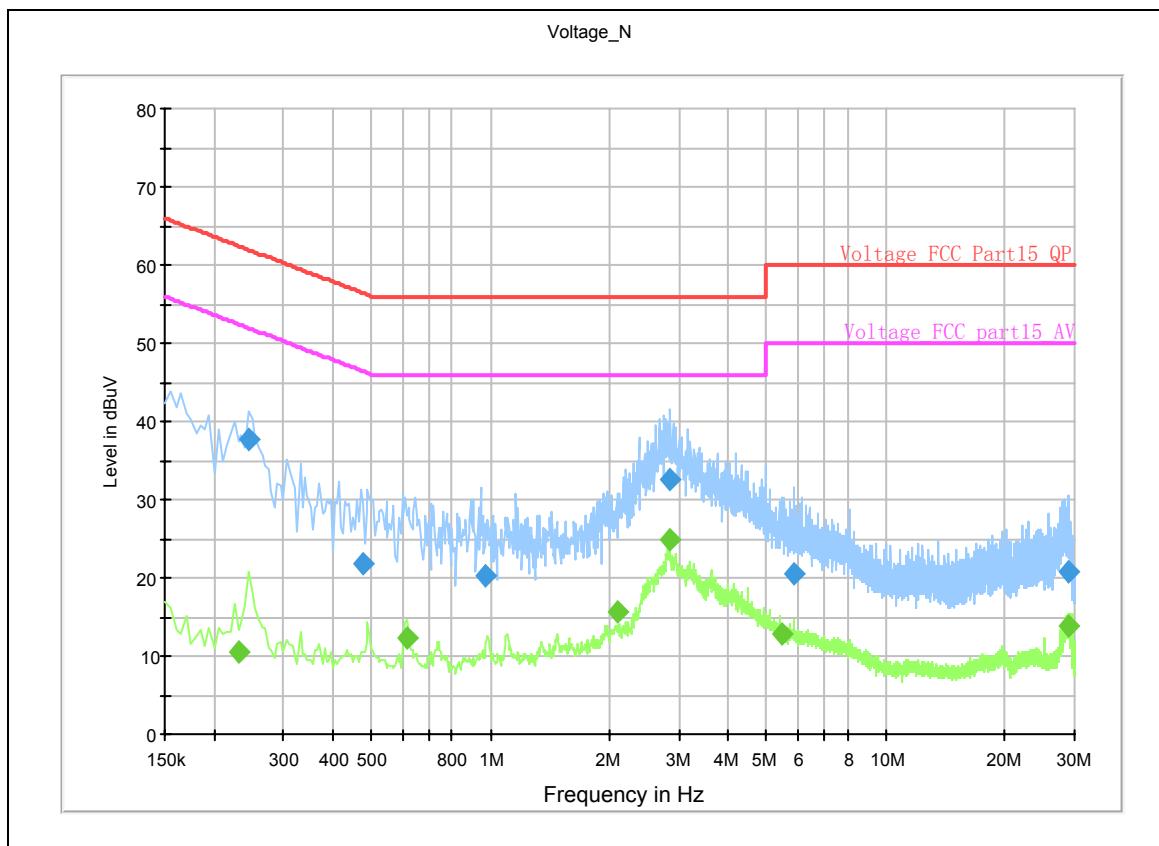
EDR-CH39



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**N Line**  
Conducted Emission from 150 KHz to 30 MHz

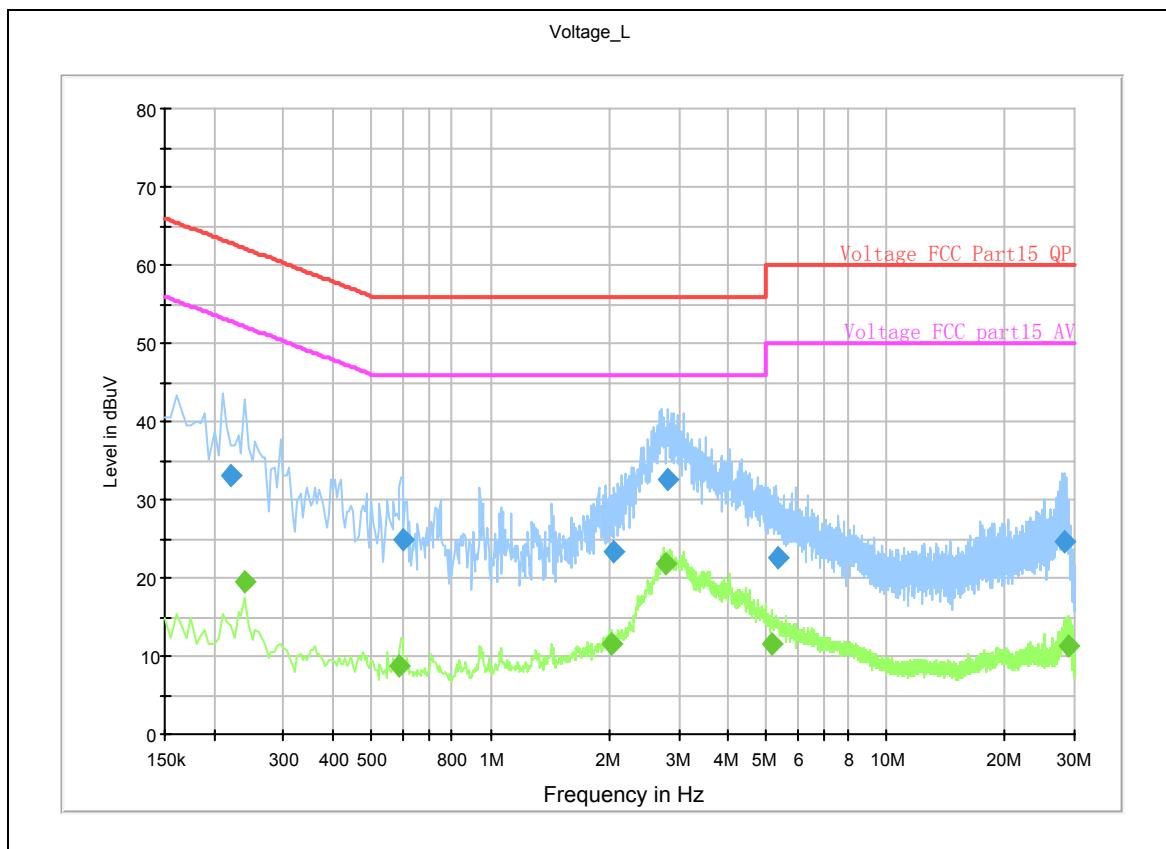
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.175	Average	L	10.2	54.7	44.5
0.23	Average	N	10.6	52.4	41.8
0.46	Average	L	8.4	46.7	38.3
0.615	Average	N	12.2	46	33.8
2.135	Average	L	12.1	46	33.9
5.435	Average	N	12.7	50	37.3
0.39	Quasi-peak	L	21.5	58.1	36.6
0.475	Quasi-peak	N	21.8	56.4	34.6
0.965	Quasi-peak	N	20.3	56	35.7
2.08	Quasi-peak	L	21.4	56	34.6
5.885	Quasi-peak	N	20.5	60	39.5
28.83	Quasi-peak	N	20.9	60	39.1

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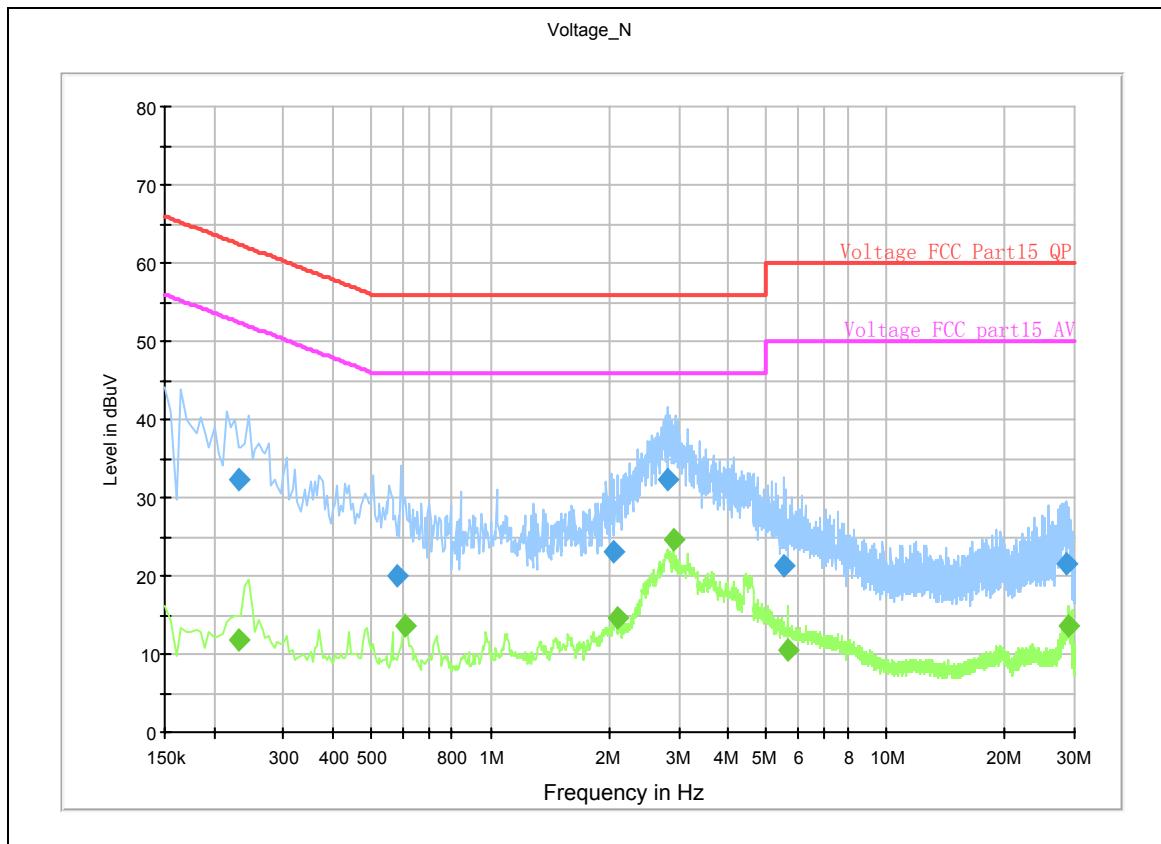
# TA Technology (Shanghai) Co., Ltd.

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**N Line**

Conducted Emission from 150 KHz to 30 MHz

Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.23	Average	N	11.8	52.4	40.6
0.59	Average	L	8.8	46	37.2
2.03	Average	L	11.5	46	34.5
5.18	Average	L	11.5	50	38.5
5.68	Average	N	10.6	50	39.4
28.985	Average	L	11.3	50	38.7
0.58	Quasi-peak	N	19.9	56	36.1
2.05	Quasi-peak	N	23.1	56	32.9
2.06	Quasi-peak	L	23.4	56	32.6
5.305	Quasi-peak	L	22.6	60	37.4
5.555	Quasi-peak	N	21.4	60	38.6
28.57	Quasi-peak	N	21.6	60	38.4

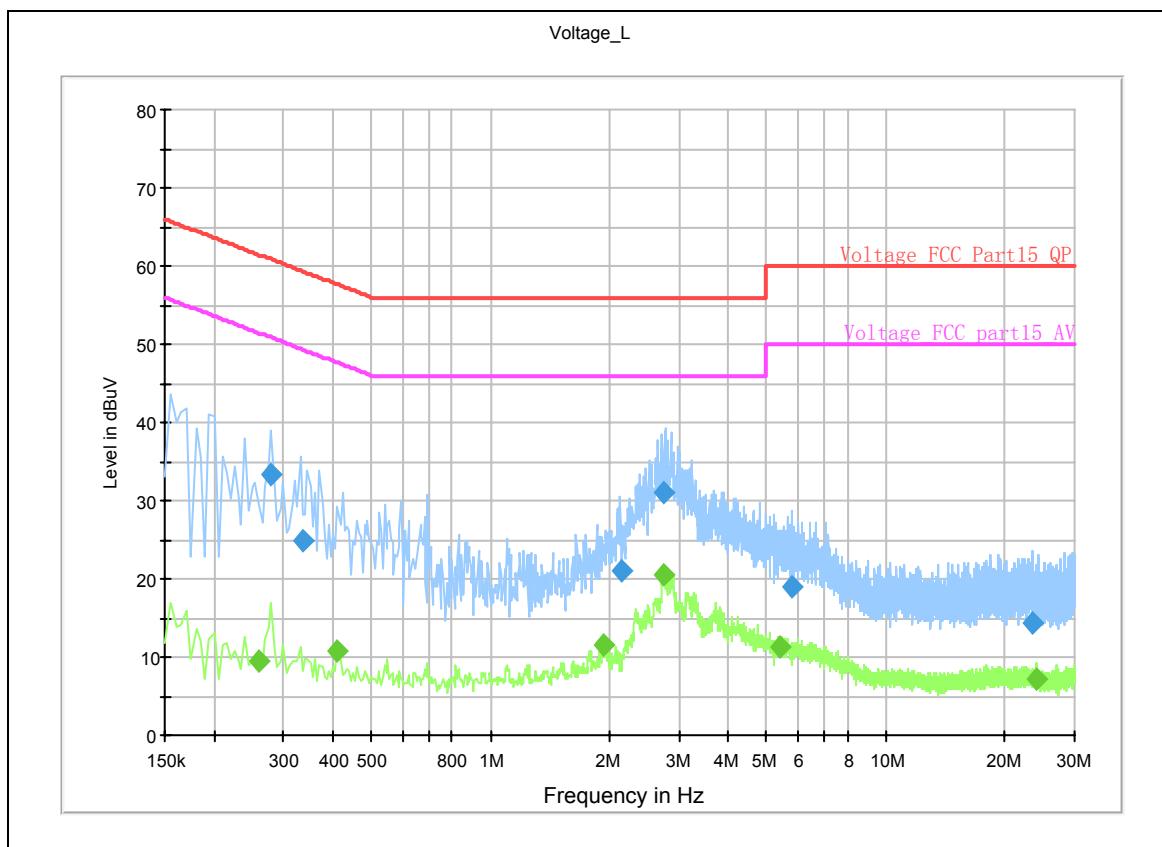
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**EUT with White Earphone**

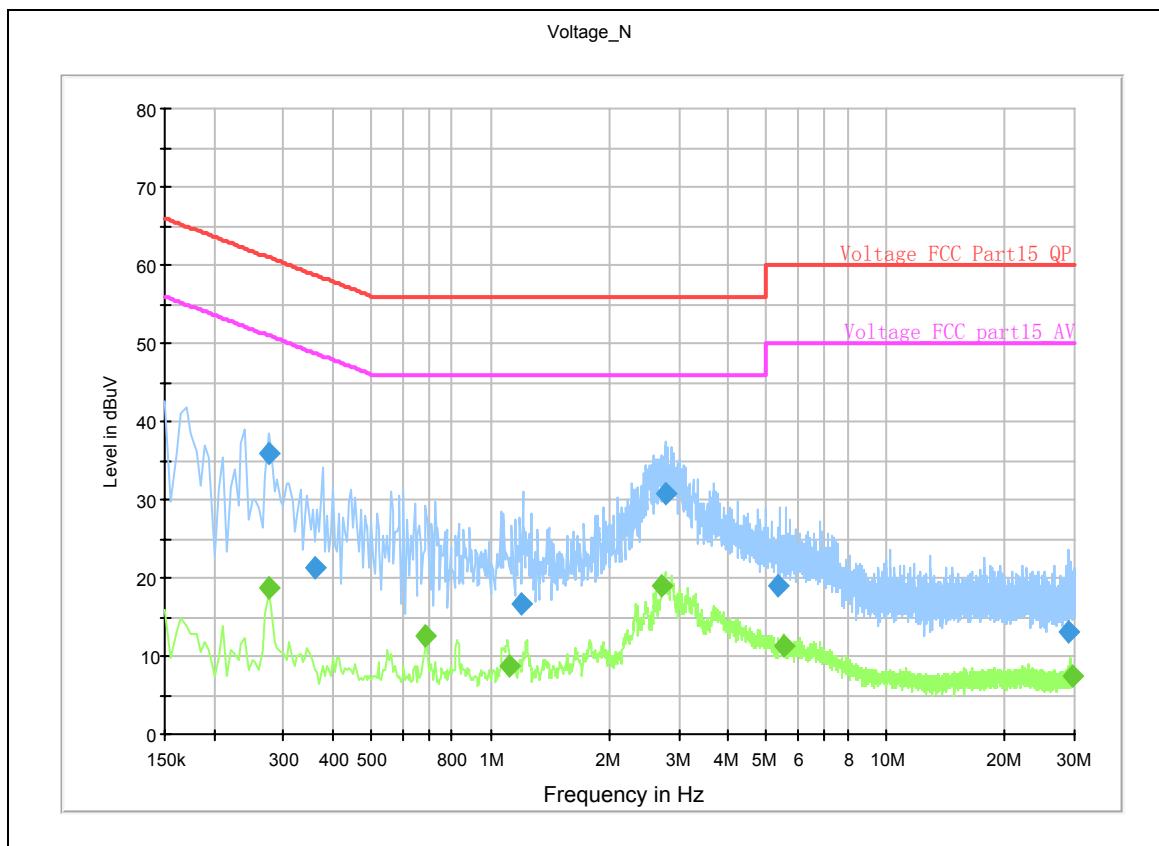
Basic Rate-CH0



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N Line

Conducted Emission from 150 KHz to 30 MHz

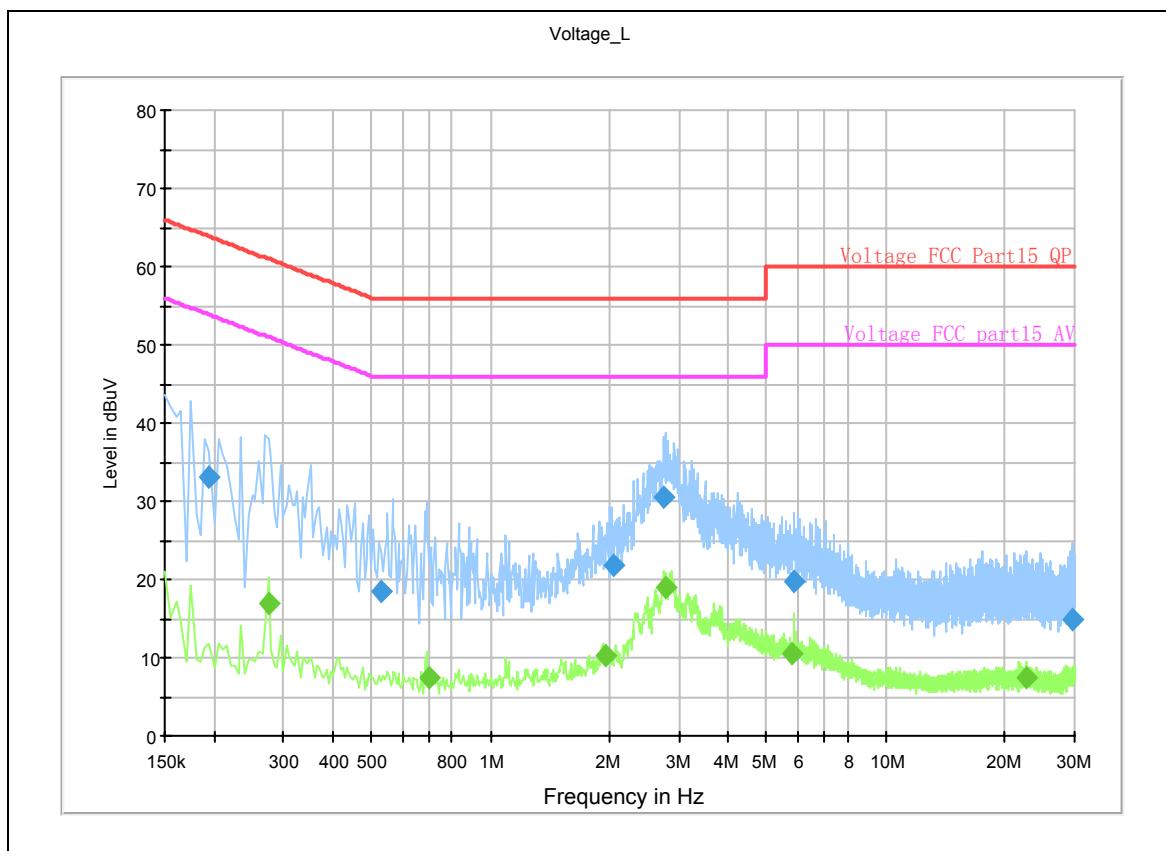
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.275	Average	N	18.6	51	32.4
0.685	Average	N	12.6	46	33.4
1.925	Average	L	11.6	46	34.4
2.72	Average	N	19.1	46	26.9
2.745	Average	L	20.4	46	25.6
5.42	Average	L	11.3	50	38.7
0.275	Quasi-peak	N	35.8	61	25.2
0.28	Quasi-peak	L	33.4	60.8	27.4
0.335	Quasi-peak	L	24.8	59.3	34.5
0.36	Quasi-peak	N	21.4	58.7	37.3
2.735	Quasi-peak	L	31	56	25
2.765	Quasi-peak	N	30.7	56	25.3

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Basic Rate-CH39

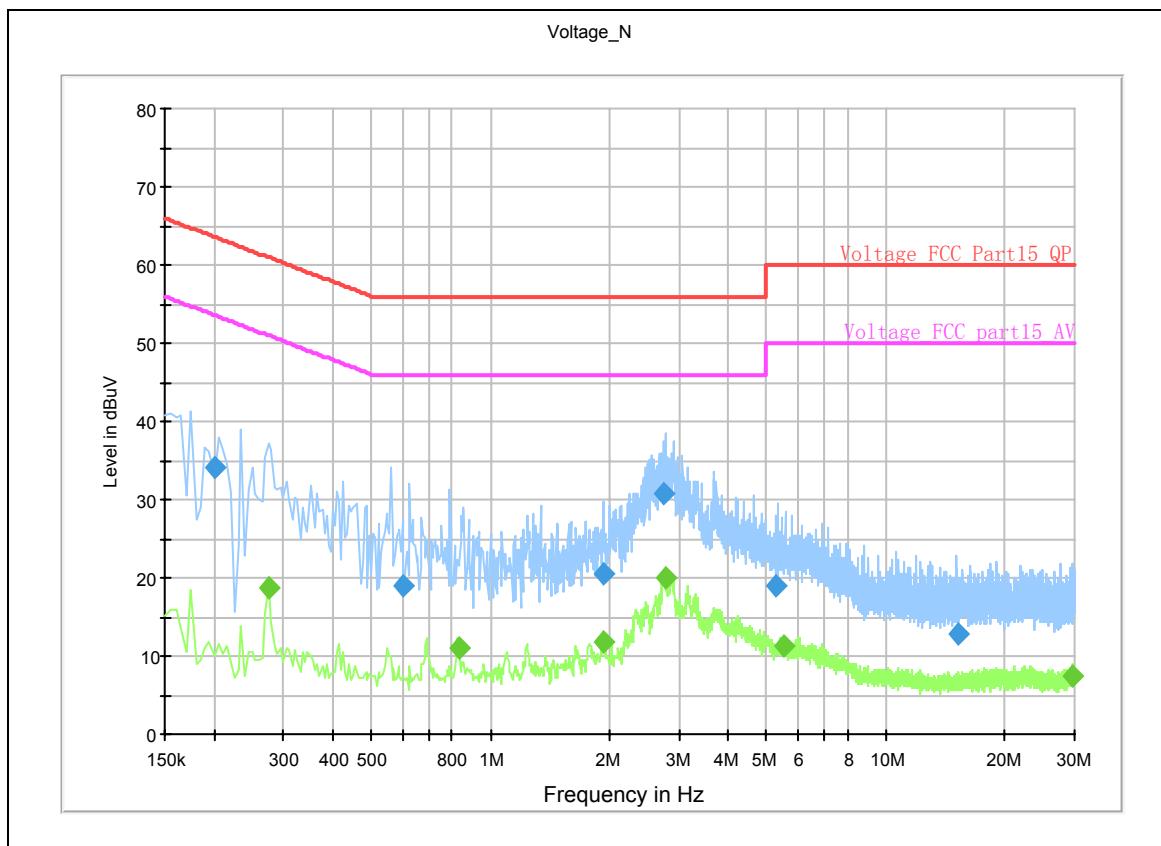


L Line

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**N Line**  
Conducted Emission from 150 KHz to 30 MHz

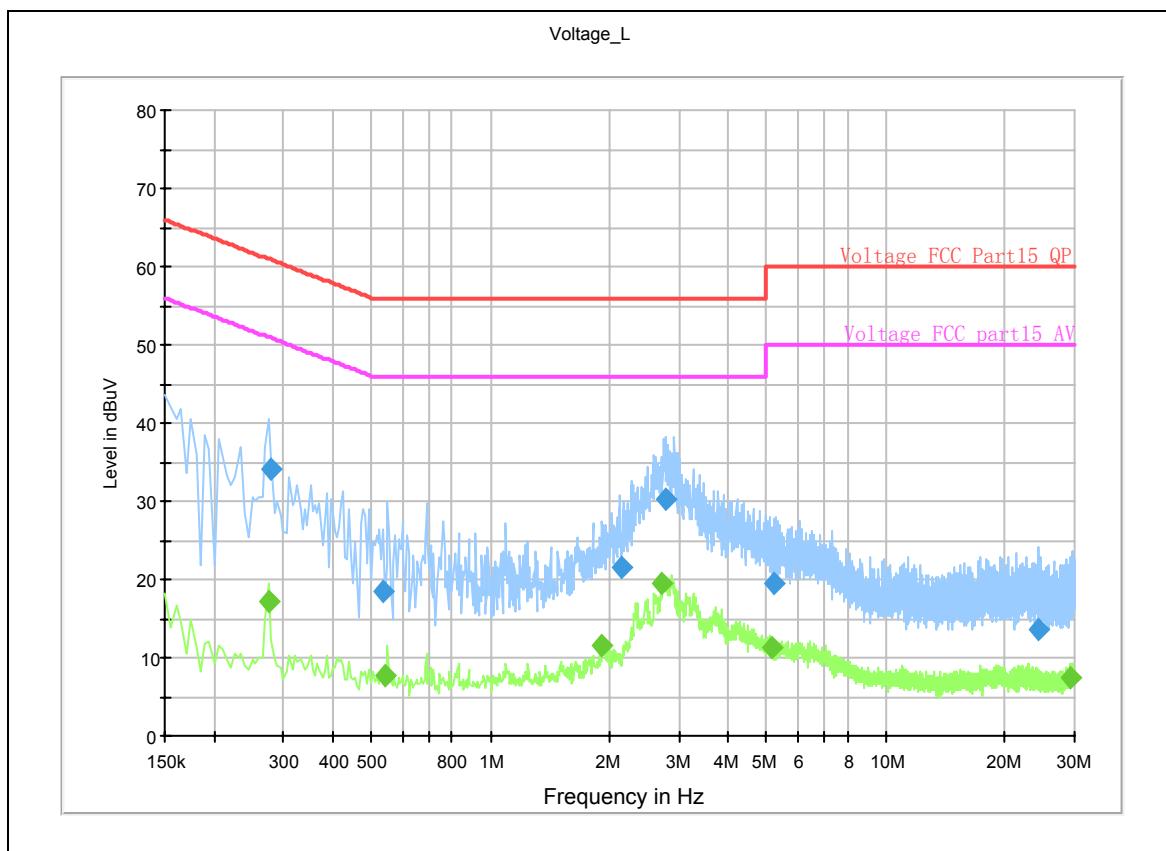
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.275	Average	N	18.6	51	32.4
0.275	Average	L	17	51	34
1.925	Average	N	11.8	46	34.2
2.76	Average	N	20.1	46	25.9
2.79	Average	L	19.1	46	26.9
5.53	Average	N	11.3	50	38.7
0.195	Quasi-peak	L	33.2	63.8	30.6
0.2	Quasi-peak	N	34.2	63.6	29.4
1.925	Quasi-peak	N	20.6	56	35.4
2.06	Quasi-peak	L	21.7	56	34.3
2.73	Quasi-peak	L	30.5	56	25.5
2.735	Quasi-peak	N	30.7	56	25.3

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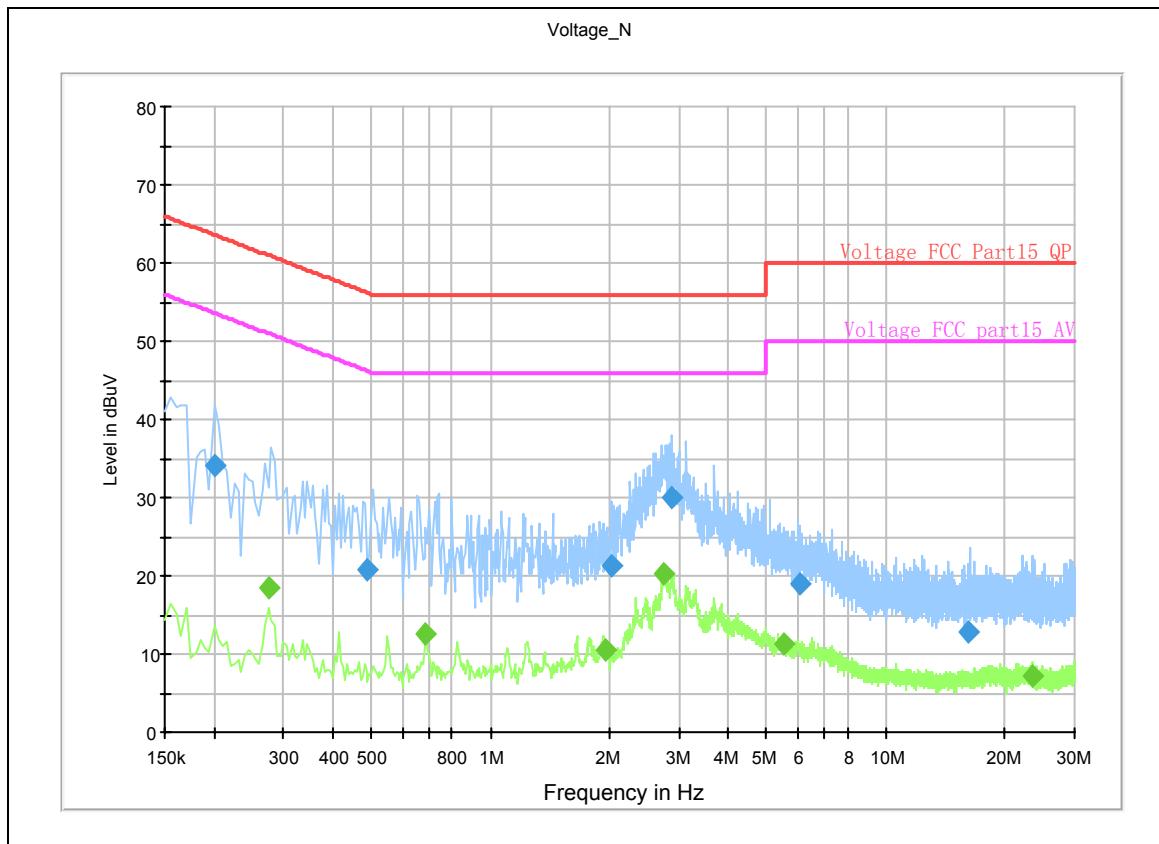
Basic Rate-CH78



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**N Line**  
Conducted Emission from 150 KHz to 30 MHz

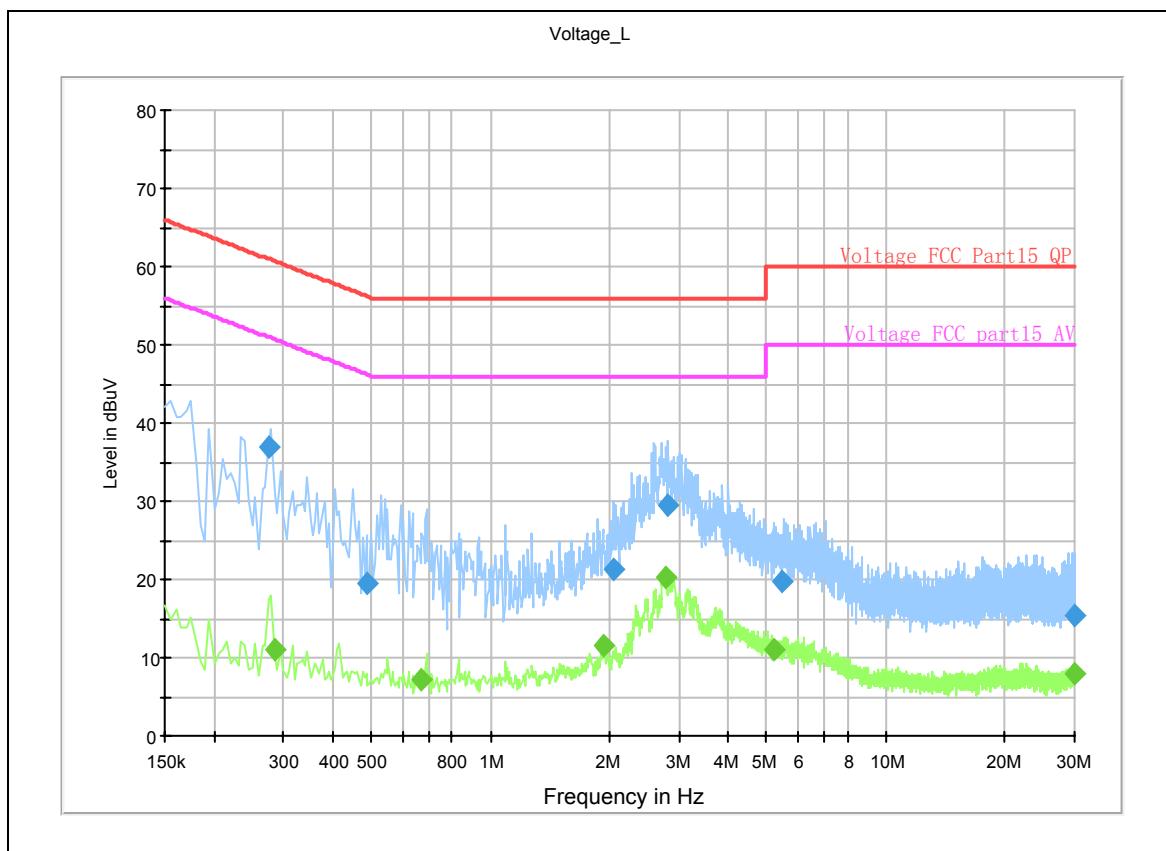
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.275	Average	N	18.6	51	32.4
0.275	Average	L	17.2	51	33.8
0.685	Average	N	12.6	46	33.4
1.92	Average	L	11.5	46	34.5
2.725	Average	L	19.4	46	26.6
2.745	Average	N	20.4	46	25.6
0.2	Quasi-peak	N	34.1	63.6	29.5
0.28	Quasi-peak	L	34	60.8	26.8
2.025	Quasi-peak	N	21.2	56	34.8
2.155	Quasi-peak	L	21.6	56	34.4
2.785	Quasi-peak	L	30.2	56	25.8
2.87	Quasi-peak	N	29.9	56	26.1

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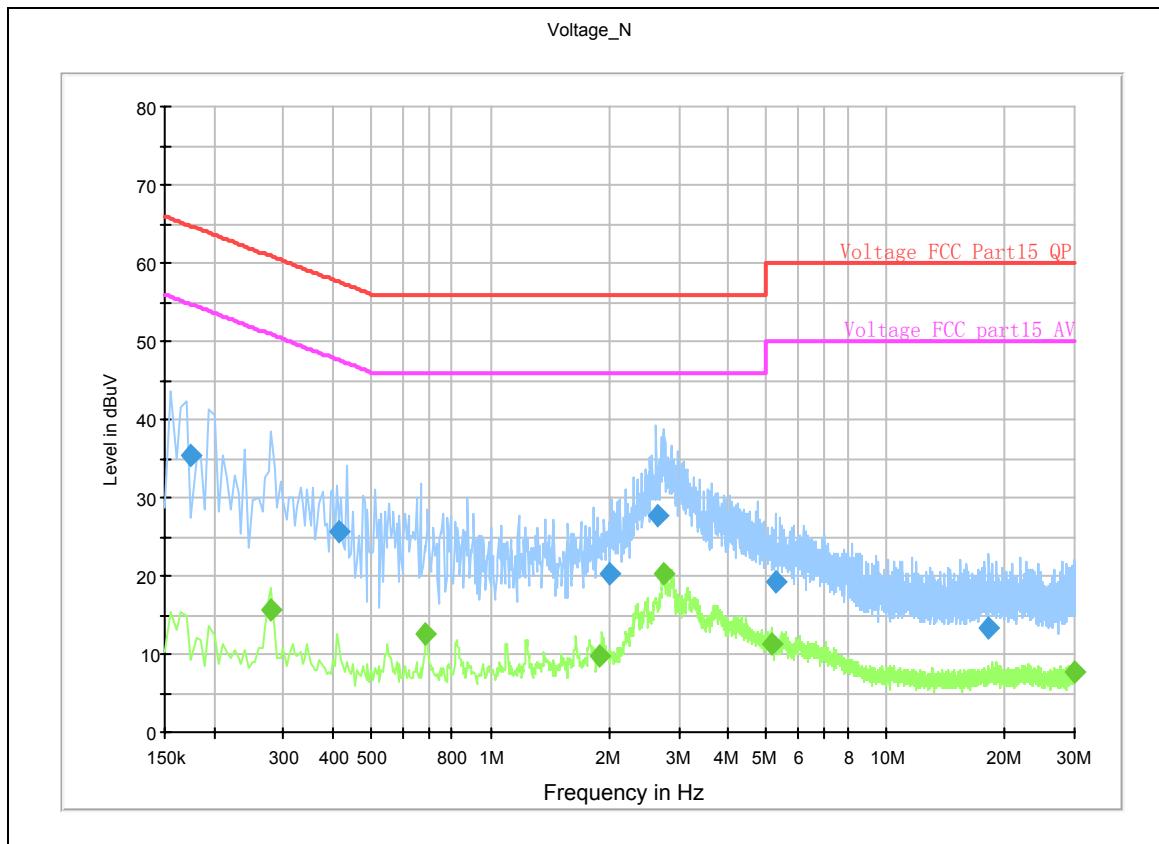
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### N Line

Conducted Emission from 150 KHz to 30 MHz

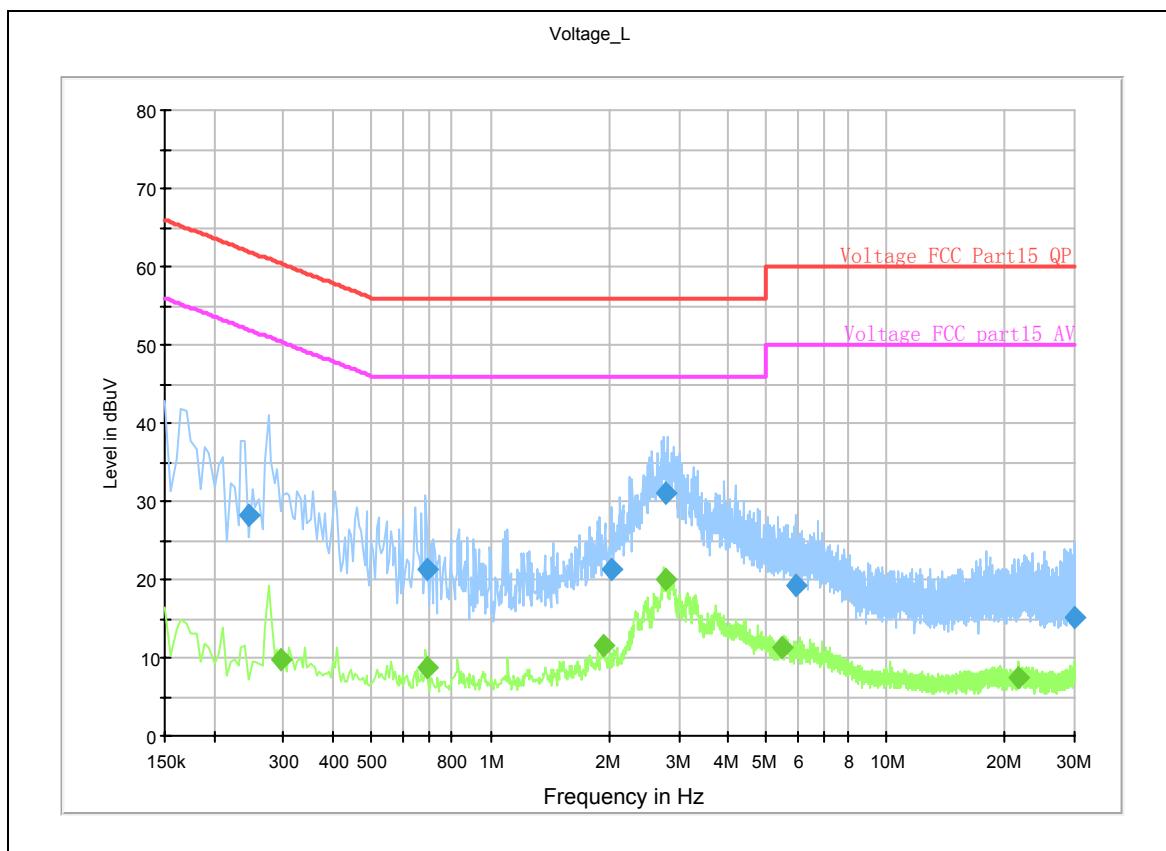
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.28	Average	N	15.7	50.8	35.1
0.685	Average	N	12.7	46	33.3
1.925	Average	L	11.6	46	34.4
2.74	Average	N	20.2	46	25.8
2.76	Average	L	20.3	46	25.7
5.165	Average	N	11.3	50	38.8
0.175	Quasi-peak	N	35.4	64.7	29.3
0.275	Quasi-peak	L	37	61	24
0.415	Quasi-peak	N	25.5	57.5	32
2.055	Quasi-peak	L	21.3	56	34.7
2.66	Quasi-peak	N	27.7	56	28.3
2.795	Quasi-peak	L	29.6	56	26.4

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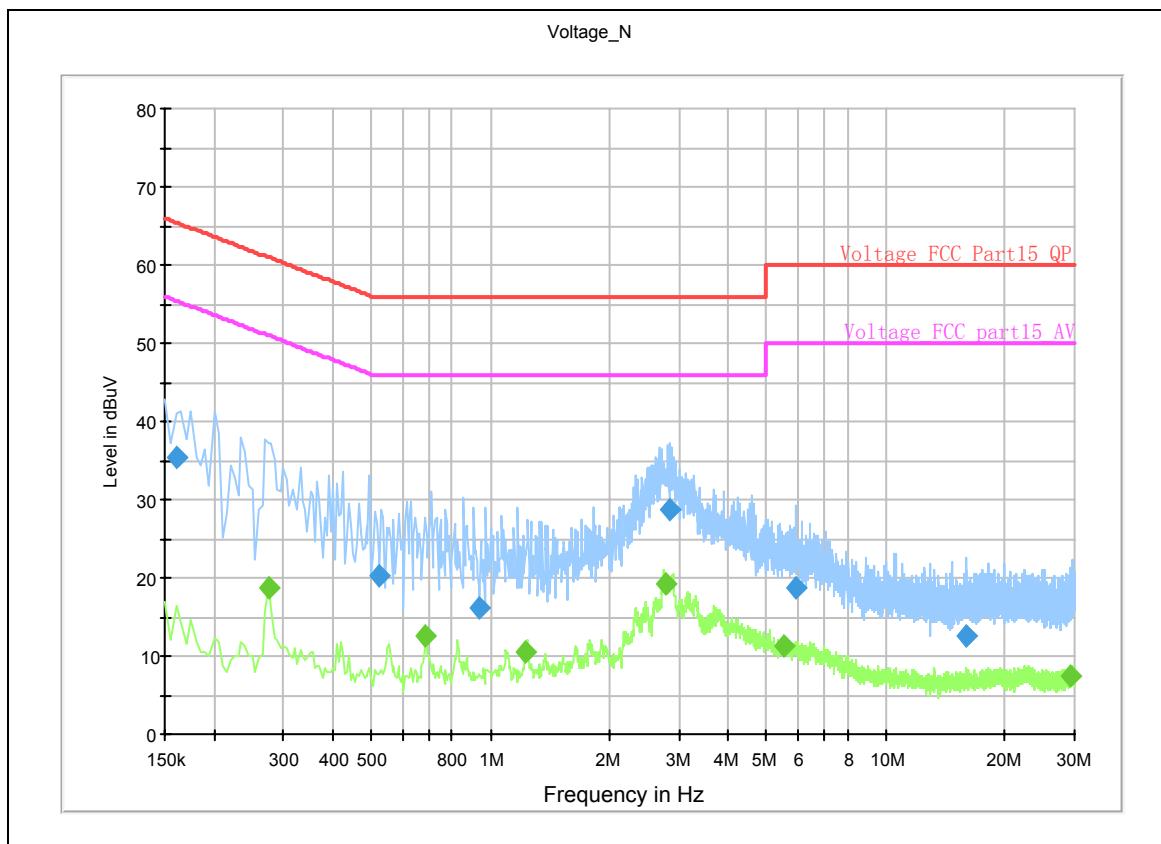
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**N Line**  
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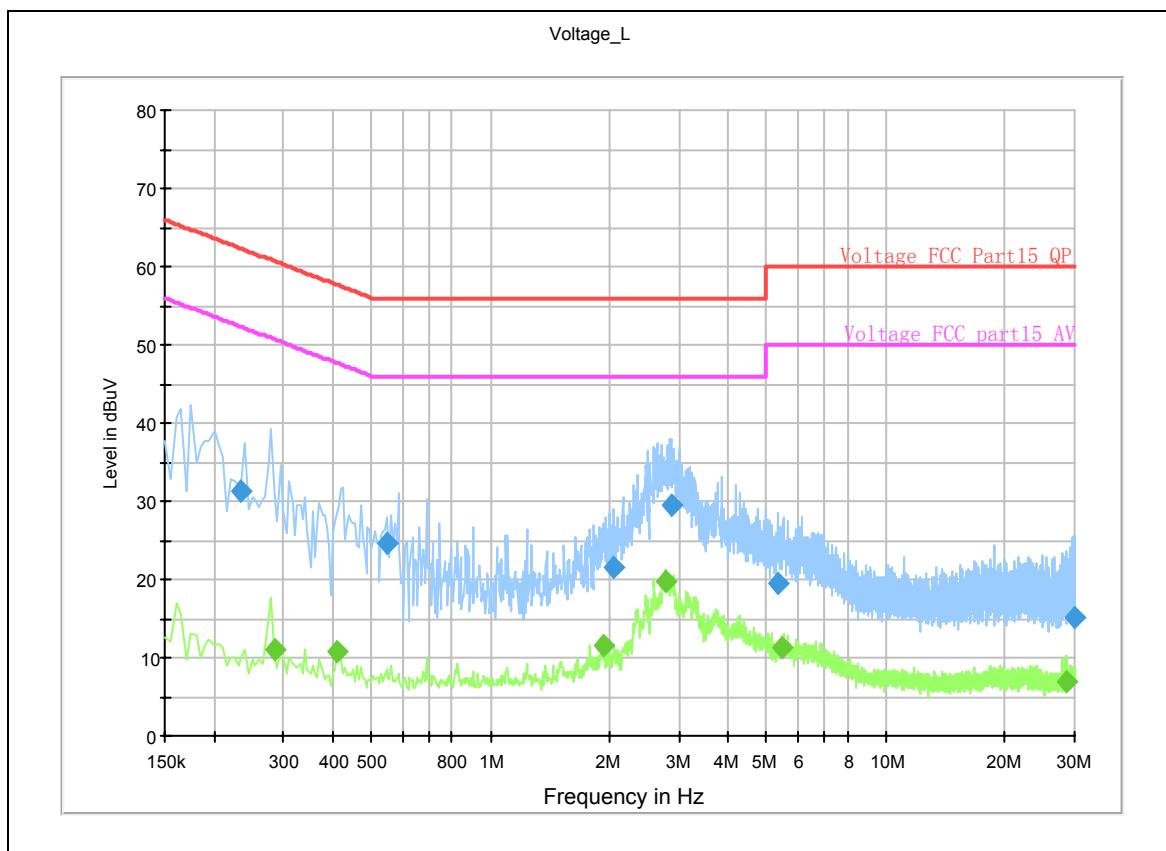
Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.275	Average	N	18.6	51	32.4
0.685	Average	N	12.6	46	33.4
1.93	Average	L	11.5	46	34.5
2.765	Average	L	20	46	26
2.78	Average	N	19.3	46	26.7
5.51	Average	N	11.4	50	38.6
0.16	Quasi-peak	N	35.5	65.5	30
0.245	Quasi-peak	L	28.2	61.9	33.7
0.695	Quasi-peak	L	21.3	56	34.7
2.025	Quasi-peak	L	21.4	56	34.6
2.775	Quasi-peak	L	31.1	56	24.9
2.855	Quasi-peak	N	28.7	56	27.3

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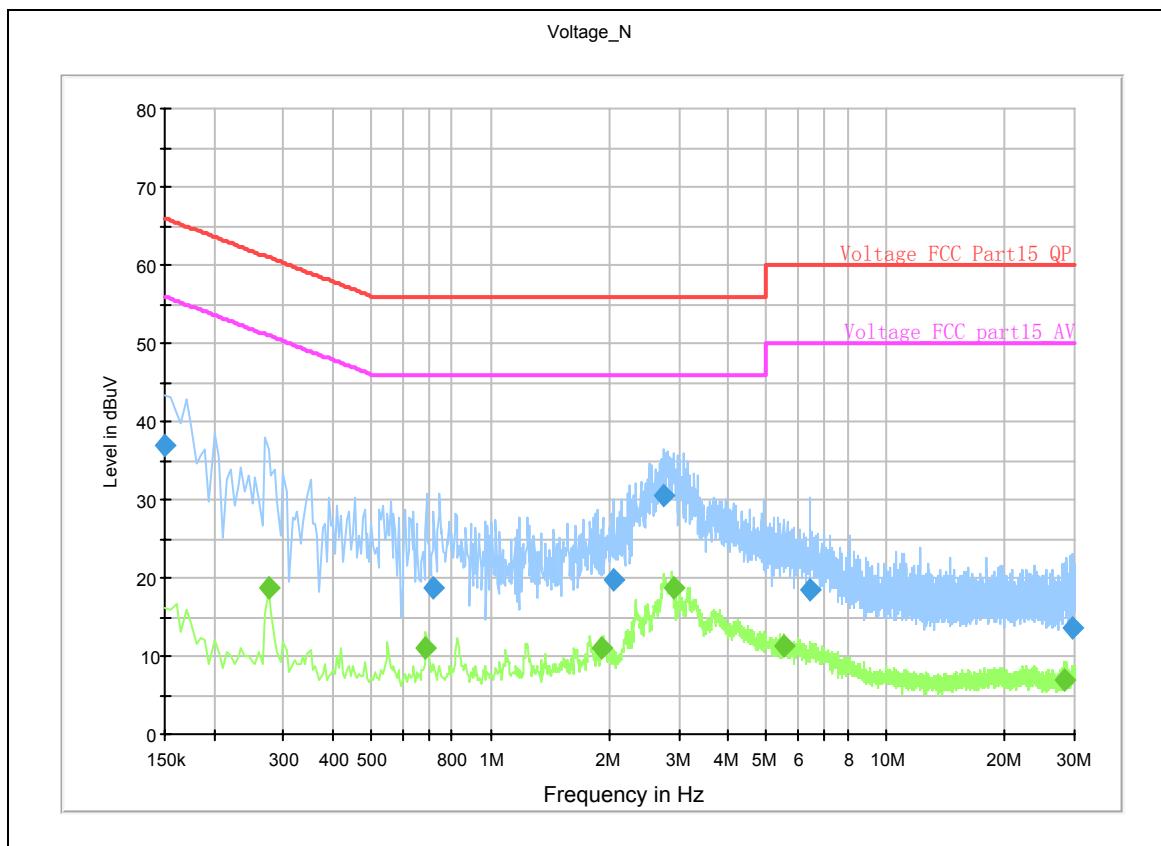
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**N Line**  
Conducted Emission from 150 KHz to 30 MHz

Frequency (MHz)	Detector	Line	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)
0.275	Average	N	18.7	51	32.3
1.925	Average	L	11.6	46	34.4
2.775	Average	L	19.7	46	26.3
2.91	Average	N	18.6	46	27.4
5.47	Average	L	11.3	50	38.7
5.5	Average	N	11.4	50	38.6
0.15	Quasi-peak	N	37	66	29
0.235	Quasi-peak	L	31.3	62.3	31
0.55	Quasi-peak	L	24.6	56	31.4
2.06	Quasi-peak	L	21.4	56	34.6
2.755	Quasi-peak	N	30.6	56	25.4
2.86	Quasi-peak	L	29.4	56	26.6

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**3. Main Test Instruments**

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	BT Base Station Simulator	CBT	R&S	100271	2009-11-26	One year
02	Signal Analyzer	FSV	R&S	100815	2010-06-28	One year
03	Signal generator	SMR27	R&S	100365	2010-07-01	One year
04	Spectrum Analyzer	E4445A	Agilent	MY46181146	2010-06-07	One year
05	EMI Test Receiver	ESCI	R&S	100948	2010-07-01	One year
06	Trilog Antenna	VULB 9163	SCHWARZBECK	9163-201	2010-06-29	Two years
07	Horn Antenna	HF907	R&S	100126	2009-07-02	Two years
08	AC Power Source	AFC-11005G	APC	F309040118	2009-08-03	Three years
09	Power Splitter	11667A	Agilent	52960	NA	NA
10	Semi-Anechoic Chamber	9.6*6.7*6.6m	ETS-Lindgren	NA	NA	NA
11	EMI test software	ES-K1	R&S	NA	NA	NA

**\*\*\*\*\*END OF REPORT BODY\*\*\*\*\***