



## **TEST REPORT**

**Date:** 2015-04-17

**Report No.:** 60.870.15.004.02F

**Applicant:** Hull Base International Ltd.  
Rm 1101, 11/F, New Lee Wah Ctr, 88 Tokwawan Road,  
Tokwawan, Hong Kong

**Description of Samples:** Model name: 2.4GHz Wireless Monitoring System (Monitor)  
Model no.: H102M  
FCCID: XGGH102M15

**Date Samples Received:** 2015-03-25

**Date Tested:** 2015-03-26 to 2015-04-16

**Investigation Requested:** FCC Part 15 Subpart C, Section 15.247

**Conclusions:** The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

**Remarks:** ---

Checked by:

Approved by:

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Ray Cheung  
Project Engineer  
Wireless & Telecom Department

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Zhi John  
Project Manager  
Wireless & Telecom Department



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**Appendix A**

Photos of Test Setup

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External EUT Photos

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Internal EUT Photos



## **1.0 General Details**

### **1.1 Test Laboratory**

TUV SUD Certification and Testing (China) Co., Ltd.  
Building 12 & 13, Zhiheng Wisdomland Business Park,  
Nantou Checkpoint Road 2, Shenzhen, 518052, China.  
Registration Number: 502708

Tested by:

A handwritten signature in blue ink, appearing to read 'Ray', written over a horizontal line.

Ray Cheung

### **1.2 Applicant Details**

#### **Applicant**

##### **Hull base International Ltd.**

Room 1101, 11/F, New Lee Wah Ctr., 88 Tokwawan Road,  
Tokwawan, Hong Kong

#### **Manufacturer**

##### **Hull base International Ltd.**

Room 1101, 11/F, New Lee Wah Ctr., 88 Tokwawan Road,  
Tokwawan, Hong Kong



### 1.3 Equipment Under Test [EUT]

#### Description of EUT

Product Description:	2.4GHz Wireless Monitoring System (Monitor)
Model No.:	H102M
FCCID:	XGGH102M15
Rating:	DC5.0V, 1000mA powered by AC/DC power adaptor
Operated Frequency:	2405 – 2475.5 MHz
No. of Operated Channel:	48
Accessories and Auxiliary Equipments:	AC/DC Switching Adaptor
Antenna Type:	Integral
Manufacture of Antenna:	Hull base International Ltd.
Antenna Gain:	0 dBi
Antenna Model:	N/A

#### General Operation of EUT

The Equipment Under Test (EUT) is a Monitor of Wireless Monitoring System, which include of a FHSS Module.

#### FHSS Operation Principle:

This module is controlled by microchip to generate Pseudorandom Frequency Hopping Sequence, this module support 48 hopping channels. Refer to section 4.5 of this report to have more detail of Pseudorandom Hopping Algorithm.

### 1.4 Related Submittal(s) Grants

This is a signal application subjected to Certificate Authorization.



## 2.0 Technical Details

### 2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15:2012 and ANSI C63.4: 2009

### 2.2 Test Standards and Results Summary Tables

Test Condition	Test Requirement	Test Result	
		Pass	N/A
Number of Frequency Hopping	Section 15.247 ( a1 )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20dB Bandwidth Measurement	Section 15.247 ( a1 )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hopping Channel Carrier Frequency Separation	Section 15.247 ( a1 )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Average Time of Occupancy	Section 15.247 ( a1 )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pseudorandom Hopping Algorithm	Section 15.247 ( a1 )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Band Edge Measurement	Section 15.247	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Maximum Output Power	Section 15.247 ( b1 )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Out of Band Emission	Section 15.247 ( d )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission in Restricted Band	Section 15.247 ( d )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conducted Emission on AC Mains	Section 15.207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Antenna Requirement	Section 15.203	<input checked="" type="checkbox"/> See note 1	<input type="checkbox"/>

Note 1 : The EUT uses a permanently attached antenna, which in accordance to Section 15.203, is considered sufficient to comply with the provisions of this section.

Remark: N/A - Not Applicable



### **3.0 Test Methodology**

#### **3.1 Radiated Emission**

The sample was placed 0.8m above the ground plane on a standard emission test site \*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

#### **3.2 Field Strength Calculation**

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

$FS = R + \text{System Factor}$

$\text{System Factor} = AF + CF + FA - PA$

Where FS = Net Field Strength in dBuV/m at 3 meters.

R = Reading of Spectrum Analyzer / Test Receiver in dBuV.

AF = Antenna Factor in dB.

CF = Cable Attenuation Factor in dB.

FA = Filter Attenuation Factor in dB.

PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

#### **3.3 Conducted Emissions**

The test was performed in accordance with ANSI C63.4: 2009, with the following: initial measurements were performed in peak and average detection modes on the live line of personal computer, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

## 4.0 Test Results

### 4.1 Number of Hopping Frequency

Test Requirement:	FCC part 15 section 15.247 (a1)(iii)
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

**Result: PASS**

#### Measured Result :

Operating Channel Frequency in sequence (MHz):

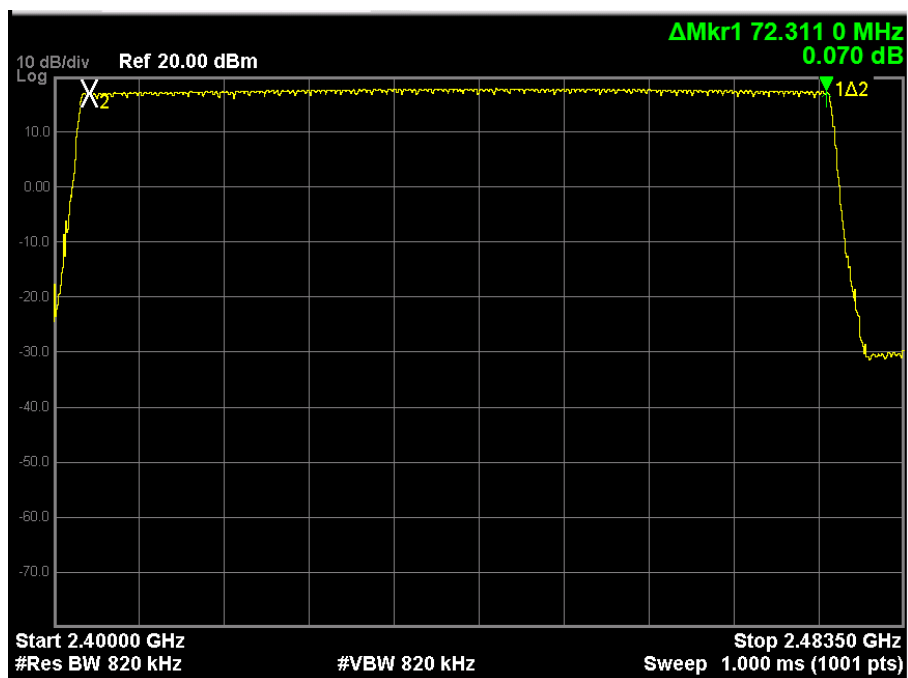
CH1=2405MHz	CH2=2406.5MHz	CH3=2408MHz
CH4=2409.5MHz	CH5=2411MHz	CH6=2412.5MHz
CH7=2414MHz	CH8=2415.5MHz	CH9=2417MHz
CH10=2418.5MHz	CH11=2420MHz	CH12=2420MHz
CH13=2421.5MHz	CH14=2424.5MHz	CH15=2426MHz
CH16=2427.5MHz	CH17=2429MHz	CH18=2430.5MHz
CH19=2432MHz	CH20=2433.5MHz	CH21=2435MHz
CH22=2436.5MHz	CH23=2438MHz	CH24=2439.5MHz
CH25=2441MHz	CH26=2442.5MHz	CH27=2444MHz
CH28=2445.5MHz	CH29=2447MHz	CH30=2448.5MHz
CH31=2450MHz	CH32=2451.5MHz	CH33=2453MHz
CH34=2454.5MHz	CH35=2456MHz	CH36=2457.5MHz
CH37=2459MHz	CH38=2460.5MHz	CH39=2462MHz
CH40=2463.5MHz	CH41=2465MHz	CH42=2466.5MHz
CH43=2468MHz	CH44=2469.5MHz	CH45=2471MHz
CH46=2472.5MHz	CH47=2474MHz	CH48=2475.5MHz
CH1=2405MHz	CH2=2406.5MHz	CH3=2408MHz
CH4=2409.5MHz	CH5=2411MHz	CH6=2412.5MHz
CH7=2414MHz	CH8=2415.5MHz	CH9=2417MHz
CH10=2418.5MHz	CH11=2420MHz	CH12=2420MHz
CH13=2421.5MHz	CH14=2424.5MHz	CH15=2426MHz
CH16=2427.5MHz	CH17=2429MHz	CH18=2430.5MHz
CH19=2432MHz	CH20=2433.5MHz	CH21=2435MHz
CH22=2436.5MHz	CH23=2438MHz	CH24=2439.5MHz
CH25=2441MHz	CH26=2442.5MHz	CH27=2444MHz
CH28=2445.5MHz	CH29=2447MHz	CH30=2448.5MHz
CH31=2450MHz	CH32=2451.5MHz	CH33=2453MHz
CH34=2454.5MHz	CH35=2456MHz	CH36=2457.5MHz
CH37=2459MHz	CH38=2460.5MHz	CH39=2462MHz
CH40=2463.5MHz	CH41=2465MHz	CH42=2466.5MHz
CH43=2468MHz	CH44=2469.5MHz	CH45=2471MHz
CH46=2472.5MHz	CH47=2474MHz	CH48=2475.5MHz



**Limit for Number of Hopping Channel [ Section 15.247 (a1)(iii) ]**

At least 15 non-overlapping channels of each sequence for 2400-2483.5MHz.

Result data graph shows the number of operation channels:



#### 4.2 20dB Bandwidth Measurement

Test Requirement:	FCC part 15 section 15.247 (a1)
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

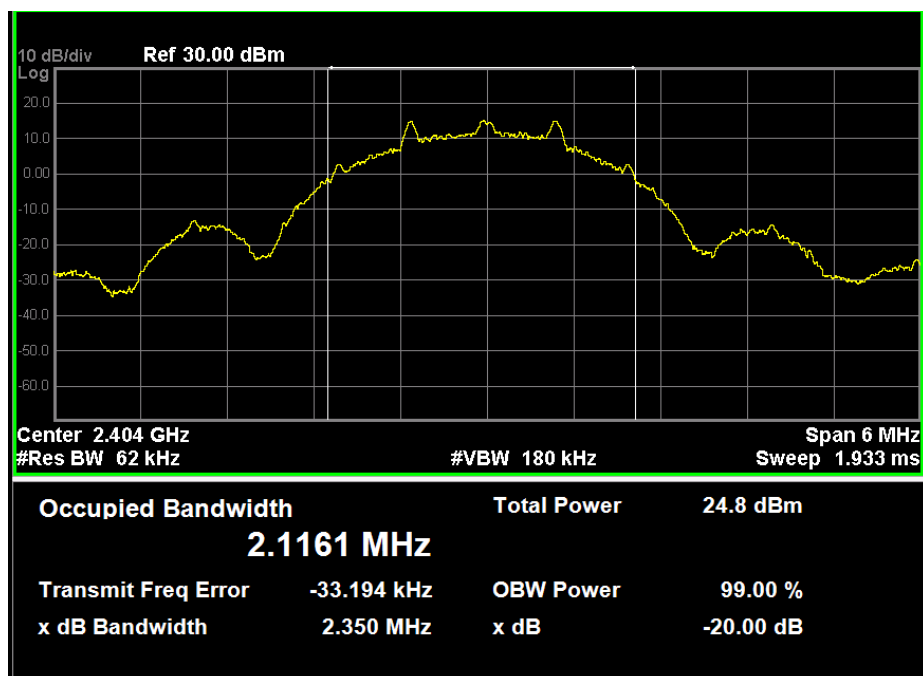
#### Test Setup:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

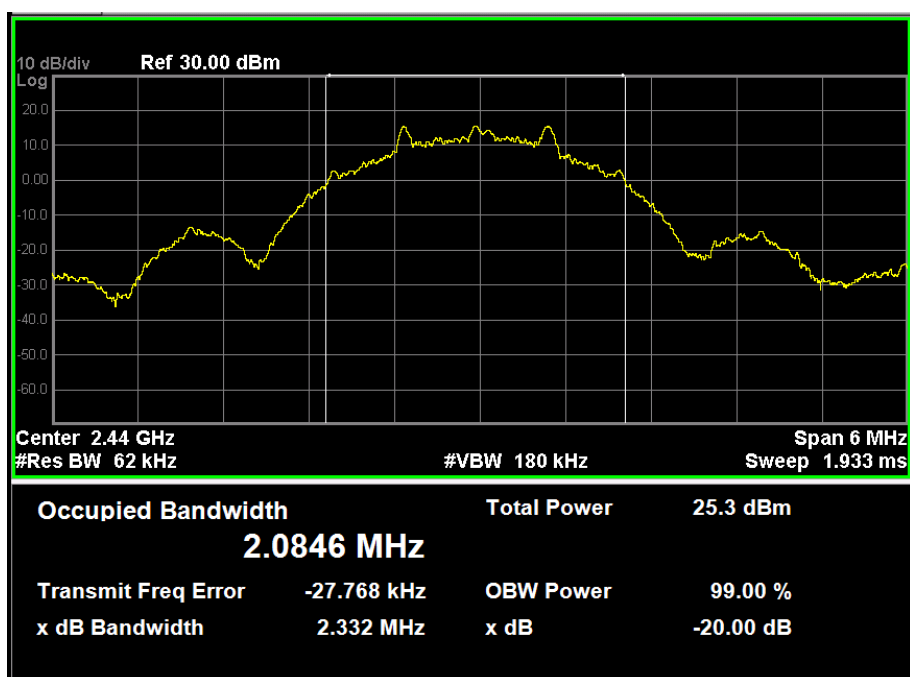
Channel	Measured frequency (MHz)	20dB Bandwidth (MHz)
Lowest	2405.0	2.350
Middle	2439.5	2.332
Highest	2475.5	2.370

This result is used for checking the hopping channel carrier frequencies separation.

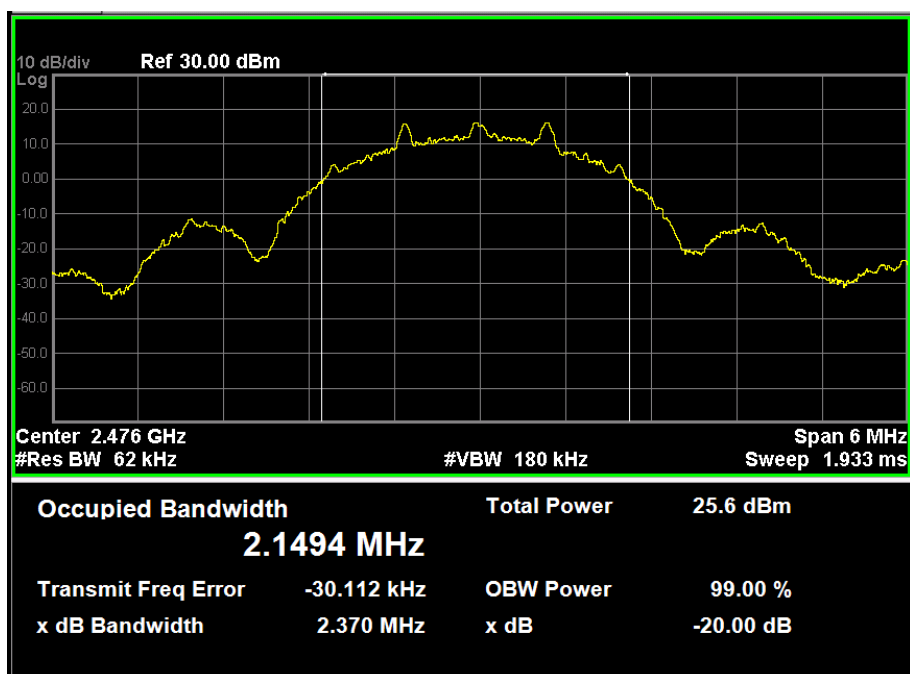
Result data graph shows 20 dB bandwidth, CF = 2405.0MHz, BW = 2.350MHz



Result data graph shows 20 dB bandwidth, CF = 2439.5MHz, BW = 2.332MHz



Result data graph shows 20 dB bandwidth, CF = 2475.5MHz, BW = 2.370MHz



#### 4.3 Hopping Channel Carrier Frequency Separation

Test Requirement:	FCC part 15 section 15.247 (a1)
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

**Result: PASS**

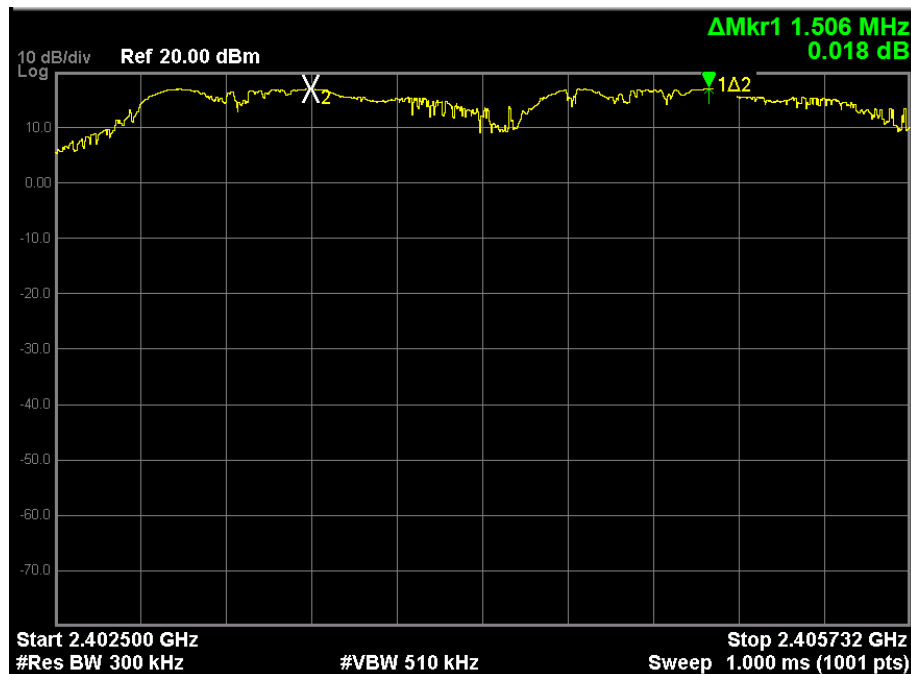
##### Measured Result :

Refer to the delta marker, the worst frequency separation between two adjacent channels is 1.5 MHz, therefore, the requirement of channel separated by a minimum of 25kHz of the hopping channel is applied.

##### Limits for Hopping Channel Separation [ Section 15.247 (a1) ]:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

Result data graph shows the channel separation:





#### 4.4 Average Time of Channel Occupancy

Test Requirement:	FCC part 15 section 15.247 (a1)(iii)
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode.
Detector Function:	Zero span, Sweep time 1s

**Result : PASS**

#### Measured Result :

Each transmission only 48 channels will be used.

Observe time = 48 channels  $\times$  0.4s = 19.2s

There are 20 pulses within 1 s

And one set of pulses = 0.857ms

Therefore, the average channel occupancy times (ms)

= 0.857ms  $\times$  20  $\times$  (19.2s / 1 s)

So, total transmitting time is 0.343s. (<0.4s).

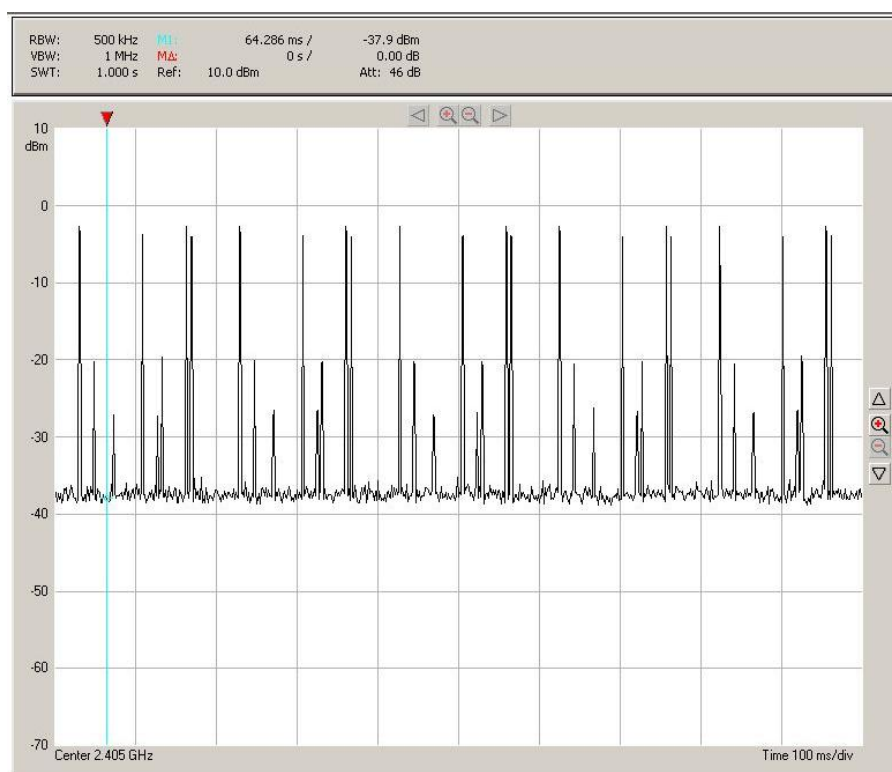
#### Limits for Average Time of Occupancy [ Section 15.247 (a1)(iii) ]:

The average time of occupancy on any channel shall not be greater than 0.4 second within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Result data graph shows total 48 channels are used.

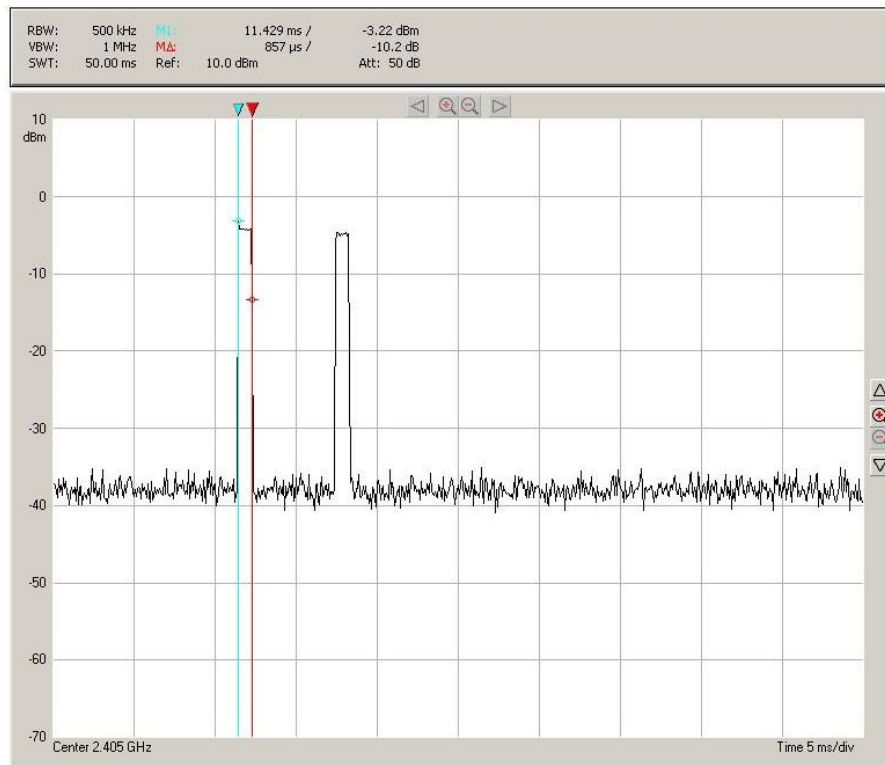


Result data graph shows total 20 pulses with 1s.





Result data graph zooms into detail, one pulse period is 857us.



#### 4.5 Pseudorandom Hopping Algorithm

##### Pseudorandom Frequency Hopping

H102M uses FHSS technology the frequency range of the system is operating from 2405MHz to 2475.5MHz. There are totally 48 channels with 1.5MHz channel separation. A single data frame is transmitted on each frequency location before skipping to the next hopping frequency in the list.

CH1=2405MHz	CH2=2406.5MHz	CH3=2408MHz
CH4=2409.5MHz	CH5=2411MHz	CH6=2412.5MHz
CH7=2414MHz	CH8=2415.5MHz	CH9=2417MHz
CH10=2418.5MHz	CH11=2420MHz	CH12=2420MHz
CH13=2421.5MHz	CH14=2424.5MHz	CH15=2426MHz
CH16=2427.5MHz	CH17=2429MHz	CH18=2430.5MHz
CH19=2432MHz	CH20=2433.5MHz	CH21=2435MHz
CH22=2436.5MHz	CH23=2438MHz	CH24=2439.5MHz
CH25=2441MHz	CH26=2442.5MHz	CH27=2444MHz
CH28=2445.5MHz	CH29=2447MHz	CH30=2448.5MHz
CH31=2450MHz	CH32=2451.5MHz	CH33=2453MHz
CH34=2454.5MHz	CH35=2456MHz	CH36=2457.5MHz
CH37=2459MHz	CH38=2460.5MHz	CH39=2462MHz
CH40=2463.5MHz	CH41=2465MHz	CH42=2466.5MHz
CH43=2468MHz	CH44=2469.5MHz	CH45=2471MHz
CH46=2472.5MHz	CH47=2474MHz	CH48=2475.5MHz
CH1=2405MHz	CH2=2406.5MHz	CH3=2408MHz
CH4=2409.5MHz	CH5=2411MHz	CH6=2412.5MHz
CH7=2414MHz	CH8=2415.5MHz	CH9=2417MHz
CH10=2418.5MHz	CH11=2420MHz	CH12=2420MHz
CH13=2421.5MHz	CH14=2424.5MHz	CH15=2426MHz
CH16=2427.5MHz	CH17=2429MHz	CH18=2430.5MHz
CH19=2432MHz	CH20=2433.5MHz	CH21=2435MHz
CH22=2436.5MHz	CH23=2438MHz	CH24=2439.5MHz
CH25=2441MHz	CH26=2442.5MHz	CH27=2444MHz
CH28=2445.5MHz	CH29=2447MHz	CH30=2448.5MHz
CH31=2450MHz	CH32=2451.5MHz	CH33=2453MHz
CH34=2454.5MHz	CH35=2456MHz	CH36=2457.5MHz
CH37=2459MHz	CH38=2460.5MHz	CH39=2462MHz
CH40=2463.5MHz	CH41=2465MHz	CH42=2466.5MHz
CH43=2468MHz	CH44=2469.5MHz	CH45=2471MHz
CH46=2472.5MHz	CH47=2474MHz	CH48=2475.5MHz

##### Requirement for Pseudorandom Hopping Algorithm [ Section 15.247 (a1) ]:

The channel frequencies shall be selected from a pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on average by the transmitter.



#### 4.6 Band Edge Measurement

Test Requirement:	FCC part 15 section 15.247
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

**Result: PASS**

#### Measured Result :

Refer to the figure, it shows the frequency of lower band edge and upper band edge separately.

#### Limits of Band Edge for Carrier Frequencies Operated within the Bands [ Section 15.247 ]:

The carrier frequencies should operate within 2400-2483.5MHz.

Result data graph shows the frequency of lowest channel.



Result data graph shows the frequency of highest channel.



#### 4.7 Maximum Output Power

Test Requirement:	FCC part 15 section 15.247 (a1)
Test Method:	ANSI C63.4:2009
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode.
Detector Function:	Peak
Measurement BW:	RBW 1MHz ; VBW 1MHz

#### Test Setup:



**Result : PASS**

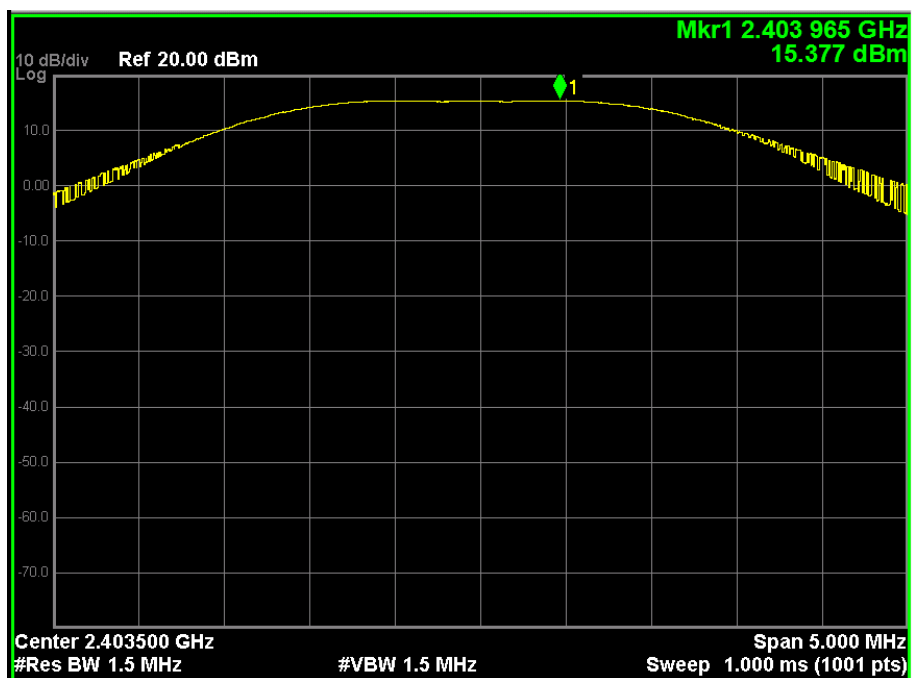
Frequency (MHz)	Peak Output Power		Limit	
	(dBm)	(W)	(dBm)	(W)
Lowest Channel : 2405.0	15.377	0.035	21	0.125
Middle Channel : 2439.5	15.867	0.039	21	0.125
Highest Channel : 2475.5	16.429	0.044	21	0.125

#### Limits for Maximum Output Power [ Section 15.247 (a1)(iii) ]:

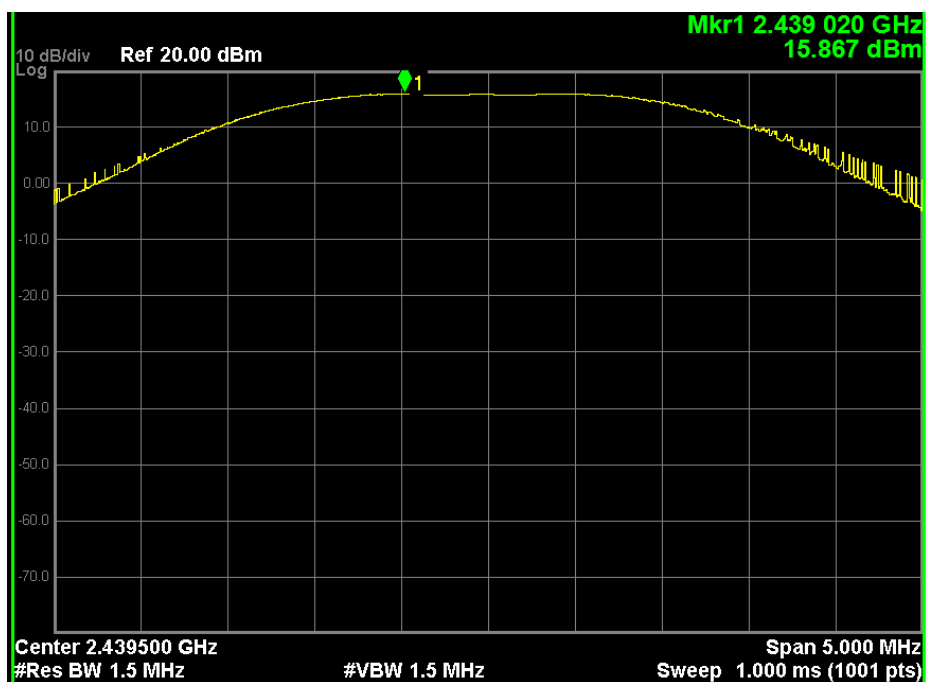
For frequency hopping systems employing at least 75 hopping channels: 1 Watt

For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watts

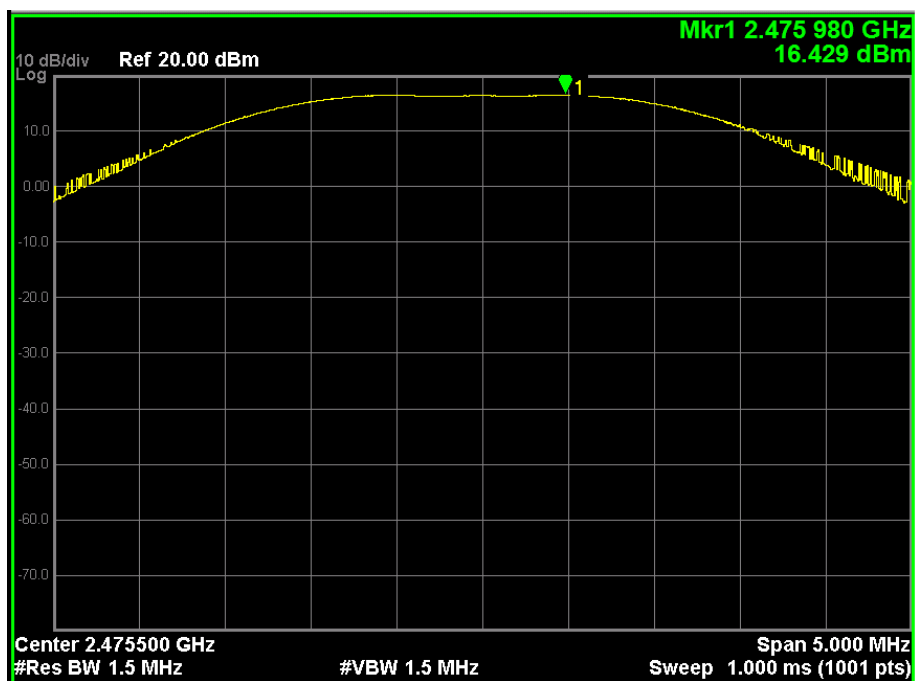
Result data graph shows the frequency of lowest channel



Result data graph shows the frequency of middle channel



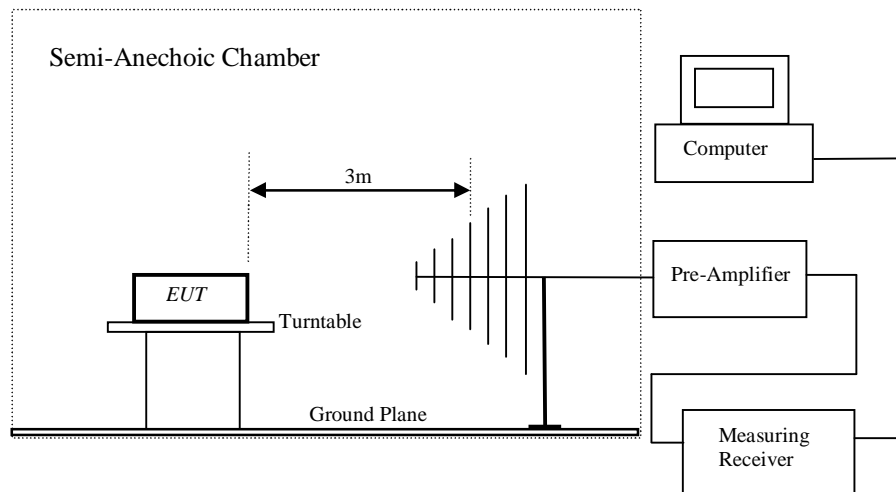
Result data graph shows the frequency of highest channel



#### 4.8 Out of Band Emissions and Emissions in Restricted Bands

Test Requirement:	FCC part 15 section 15.247 (d )
Test Method:	ANSI C63.4:2009
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode.
Detector Function:	Peak
Measurement BW:	RBW 100KHz ; VBW 300KHz

#### Test Setup:





**Result : PASS**

#### **Out of Frequency Band Emissions:**

For out of band emissions that are close to or exceed 20dB attenuation requirement, and emission falls into restricted band, radiated emission was performed in order to show compliance with the general radiated emission requirement.

#### **Result Summary:**

Refer to the emission data graph, result shows that the significant emissions detected are with more than 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

#### **Limits for Out of Frequency Band Emission [ 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 20 dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. Attenuation below the general limits specified in Section 15.209(a) is not required.

#### **Limit for Radiated Emission Falling in Restricted Bands [ Section 15.209 ]:**

Frequency (MHz)	Field Strength [ $\mu\text{V/m}$ ]	Field Strength [dB $\mu\text{V/m}$ ]
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

Radiated emissions, which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209.

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result : PASS

All Emission and Emissions Fall into Restricted Band were recorded as below:

Radiated Emissions							
	Emissions Frequency	E-Field Polarity	Reading	System Factor	Field strength at 3m	Limit	Delta to Limit
	MHz		dBuV/m	dB	dBuV/m	dBuV/m	dBuV/m
<b>Lowest Channel</b>							
PK	4808.33	V	44.54	7.70	52.24	74.00	-21.76
PK	4816.67	H	40.70	7.72	48.42	74.00	-25.58
<b>Middle Channel</b>							
PK	4875.00	V	46.19	7.87	54.06	74.00	-19.94
PK	4891.67	H	46.10	7.92	54.02	74.00	-19.98
<b>Highest Channel</b>							
PK	4941.67	V	42.62	8.05	50.67	74.00	-23.33
PK	4958.33	H	45.07	8.09	53.16	74.00	-20.84

Frequency MHz	Polarization	Reading dB(uV)	Factor dB	Level dB(uV/m)	Limit dB(uV/m)	Margin dB	Detector
58.615	V	14.3	13.8	28.1	40.0	-11.9	QP
191.990	V	21.8	12.1	33.9	43.5	-9.6	QP
260.375	V	15.1	13.6	28.7	46.0	-17.3	QP
480.080	V	14.3	19.3	33.6	46.0	-12.4	QP
661.470	V	12.3	22.8	35.1	46.0	-10.9	QP
672.140	V	11.8	23.1	34.9	46.0	-11.1	QP
191.990	H	22.0	12.1	34.1	43.5	-9.4	QP
384.050	H	17.4	17.3	34.7	46.0	-11.3	QP
416.060	H	16.2	17.8	34.0	46.0	-12.0	QP
480.080	H	15.6	19.3	34.9	46.0	-11.1	QP
661.470	H	14.1	22.8	36.9	46.0	-9.1	QP
672.140	H	16.8	23.1	39.9	46.0	-6.1	QP

Refer to Figures shows the worst case channel's emission data graph from 30MHz-26GHz.

Calculated measurement uncertainty:  $\pm 3.8\text{dB}$



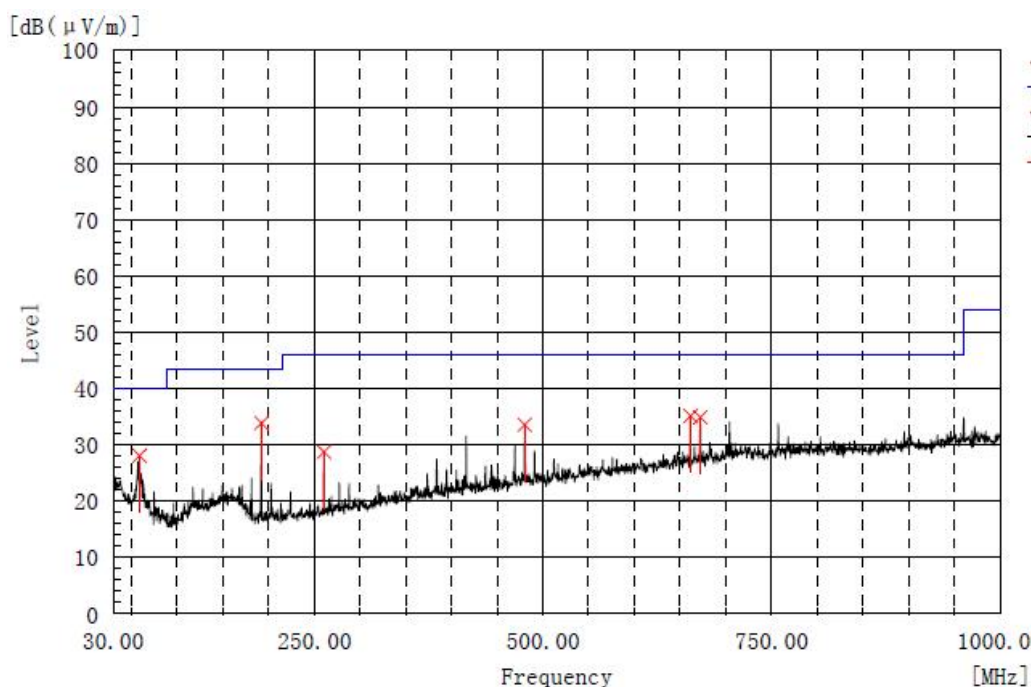


**Result Summary:**

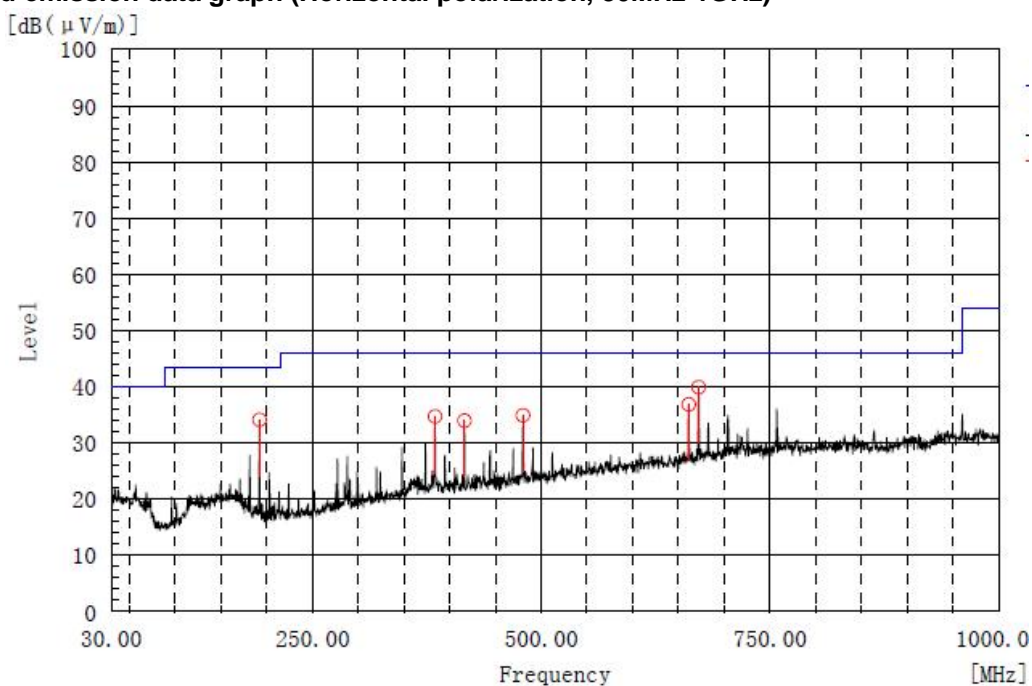
- 1) Communication mode: All other emissions are more than 20dB below FCC part 15.209 limit.
- 2) No further spurious emissions found between 30 MHz and lowest internal used/generated frequency and from 30MHz to 1GHz.

**Remarks:**

1. " \* " Radiated emissions which fall in the restricted bands as defined in Section 15.205(a).
2. Emission level with more than 20dB below the FCC required limit is not mentioned in table.
3. Delta to Limit = Field strength (dB $\mu$ V/m) – Limit (dB $\mu$ V/m).
4. Calculated measurement uncertainty: 1GHz -18GHz: 5.1dB

**Radiated emission data graph (Vertical polarization, 30MHz-1GHz)**

Remark: Only background noise was measured from 1GHz-26GHz excluding the operation frequency relational.

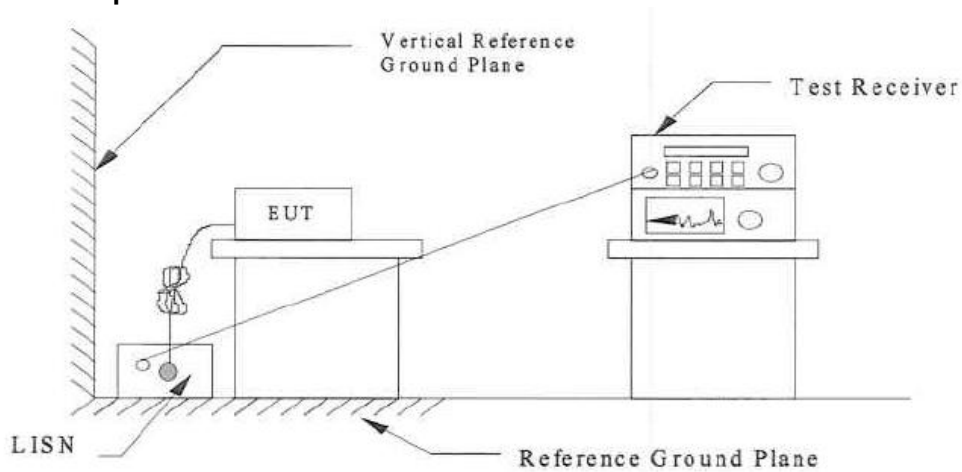
**Radiated emission data graph (Horizontal polarization, 30MHz-1GHz)**

Remark: Only background noise was measured from 1GHz-26GHz excluding the operation frequency relational.

#### 4.9 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC part 15 Section 15.207 Class B
Test Method:	ANSI C63.4:2009
Test Date:	2015-04-08
Mode of Operation:	Transmitting mode
Detector Function:	CISPR Quasi Peak
Measurement BW:	100 kHz
Worst Case Channel:	1

#### Test Setup:



**Results: PASS**

- Refer Figures and tables for the result.

#### Limits for Conducted Emission [ Section 15.207]:

Frequency Range [MHz]	Quasi-Peak Limit [dB $\mu$ V]	Average Limit [dB $\mu$ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

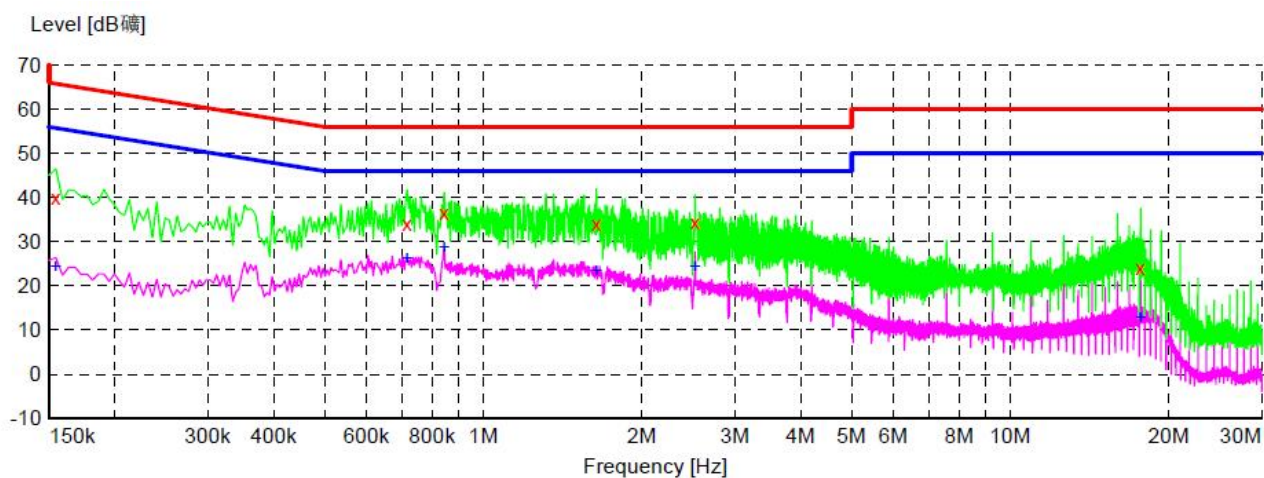
\* Decreases with the logarithm of the frequency.

#### Remarks:

Calculated measurement uncertainty:  $\pm 2.8$ dB

The result shown the worst case of the connection.

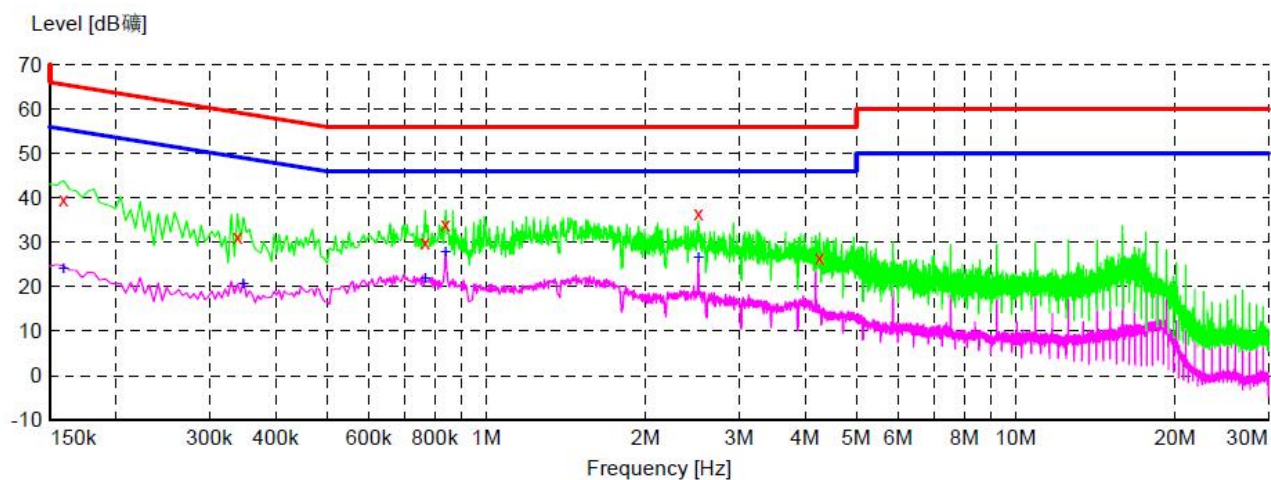
Result data graph shows the conducted emission (Live).



Frequency	Level	Transd	Limit	Margin	Detector	Line
MHz	dB $\mu$ V	dB	dB $\mu$ V	dB		
0.154500	39.90	3.6	66	25.9	QP	L1
0.717000	34.20	3.7	56	21.8	QP	L1
0.843000	36.50	3.7	56	19.5	QP	L1
1.639500	34.10	3.7	56	21.9	QP	L1
2.521500	34.40	3.7	56	21.6	QP	L1
17.664000	24.00	4.1	60	36.0	QP	L1

Frequency	Level	Transd	Limit	Margin	Detector	Line
MHz	dB $\mu$ V	dB	dB $\mu$ V	dB		
0.154500	24.50	3.6	56	31.3	AV	L1
0.717000	26.20	3.7	46	19.8	AV	L1
0.843000	28.90	3.7	46	17.1	AV	L1
1.639500	23.50	3.7	46	22.5	AV	L1
2.521500	24.40	3.7	46	21.6	AV	L1
17.664000	13.00	4.1	50	37.0	AV	L1

Result data graph shows the conducted emission (Neutral).



Frequency	Level	Transd	Limit	Margin	Detector	Line
MHz	dBμV	dB	dBμV	dB		
0.159000	39.60	3.6	66	25.9	QP	N
0.339000	31.30	3.6	59	27.9	QP	N
0.766500	30.10	3.7	56	25.9	QP	N
0.838500	34.10	3.7	56	21.9	QP	N
2.517000	36.40	3.7	56	19.6	QP	N
4.263000	26.60	3.8	56	29.4	QP	N

Frequency	Level	Transd	Limit	Margin	Detector	Line
MHz	dBμV	dB	dBμV	dB		
0.159000	24.20	3.6	56	31.3	AV	N
0.348000	20.50	3.6	49	28.5	AV	N
0.766500	21.90	3.7	46	24.1	AV	N
0.838500	27.70	3.7	46	18.3	AV	N
2.517000	26.60	3.7	46	19.4	AV	N



## 5.0 List of Measurement Equipment

### Radiated Emission and Bandwidth Emissions

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2015-8-17
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2017-8-17
Horn Antenna	Rohde & Schwarz	HF907	102294	2017-8-17
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2015-8-17
Spectrum Analyzer	Agilent	E7405A	MY45111421	2015-8-19
3m Semi-anechoic chamber	TDK	9X6X6	----	2019-5-29

### Conducted Emissions

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2015-8-17
LISN	Rohde & Schwarz	ENV4200	100249	2015-8-17
LISN	Rohde & Schwarz	ENV216	100326	2015-8-17

N/A Not Applicable or Not Available