

# RADIO TEST REPORT

## FCC 47 CFR PART 15 SUBPART C

<b>Test Standard</b>	<b>FCC Part 15.247</b>
<b>FCC ID</b>	<b>W5Y-G2-SY-CON2</b>
<b>Product name</b>	<b>Guardian Split System</b>
<b>Brand Name</b>	<b>Guardian</b>
<b>Model No.</b>	<b>G2-SY-CON2-1001272, G2-SY-CON2-1001484</b>
<b>Test Result</b>	<b>Pass</b>

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc.( Wugu Laboratory)



Approved by:

A handwritten signature in black ink, appearing to read "Sam Chuang", written over a horizontal line.

Sam Chuang  
Manager

Tested by:

A handwritten signature in black ink, appearing to read "Jerry Chuang", written over a horizontal line.

Jerry Chuang  
Engineer

## **Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	March 7, 2018	Initial Issue	ALL	Allison Chen
01	March 30, 2018	1. Revised test mode in section 3.2. 2. Revised Operation mode. 3. Removed "RSS-GEN Table A1" in remark. 4. Added Duty cycle and duty factor calculation formula. 5. Removed test data for OBW 99%. 6. Added "-End of test report-".	P.5, P.10, P.11, P.12, P.14, P.39	Allison Chen

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## 1. GENERAL INFORMATION

### 1.1 EUT INFORMATION

Applicant	Seeing Machines Level 1, 11 Lonsdale Street, Braddon 2612 Australia
Manufacturer	ADLINK TECHNOLOGY INC. 9F, No. 166, Jian Yi Rd., Zhonghe Dist., New Taipei City, 235 Taiwan
Equipment	Guardian Split System
Model No.	G2-SY-CON2-1001272, G2-SY-CON2-1001484
Model Discrepancy	G2-SY-CON2-1001272→ Guardian Split System has FFC Function G2-SY-CON2-1001484→ Guardian Split System doesn't have FFC Function
Trade Name	Guardian
Received Date	January 18, 2018
Date of Test	January 30 ~ March 5, 2018
Output Power (W)	BLE : 0.0153
Power Supply	Powered from DC supply: DC 12V and 24V.

## 1.2 EUT CHANNEL INFORMATION

Frequency Range	2402MHz-2480MHz
Modulation Type	GFSK for BLE-1Mbps
Number of channel	40 Channels

**Remark:**

Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
<input type="checkbox"/> 1 MHz or less	1	Middle
<input type="checkbox"/> 1 MHz to 10 MHz	2	1 near top and 1 near bottom
<input checked="" type="checkbox"/> More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

## 1.3 ANTENNA INFORMATION

Antenna Type	<input type="checkbox"/> PIFA <input checked="" type="checkbox"/> FPC <input type="checkbox"/> Dipole <input type="checkbox"/> Coils
Antenna Gain	Gain: 2.56dBi

## 1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 1.4003
RF output power, conducted	+/- 1.1372
Power density, conducted	+/- 1.4003
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683
3M Semi Anechoic Chamber / 40G~60G	+/- 1.8509
3M Semi Anechoic Chamber / 60G~75G	+/- 1.9869
3M Semi Anechoic Chamber / 75G~110G	+/- 2.9651
3M Semi Anechoic Chamber / 110G~170G	+/- 2.7807
3M Semi Anechoic Chamber / 170G~220G	+/- 3.6437
3M Semi Anechoic Chamber / 220G~325G	+/- 4.2982

**Remark:**

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

## 1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at  
No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	-	
Radiation	Jerry Chuang	
RF Conducted	Eric Lee	

**Remark:** The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

## 1.6 INSTRUMENT CALIBRATION

Wugu 966 Chamber A					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Bilog Antenna	Sunol Sciences	JB3	A030105	06/20/2017	06/19/2018
Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/25/2017	08/24/2018
Pre-Amplifier	EMEC	EM330	60609	06/07/2017	06/06/2018
Spectrum Analyzer	Agilent	E4446A	US42510252	11/27/2017	11/26/2018
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Wideband Radio Communication Tester	R&S	CMW 500	116875	04/25/2017	04/24/2018
Pre-Amplifier	HP	8449B	3008A00965	06/27/2017	06/26/2018
Filter	N/A	2400-2500	N/A	N/A	N/A
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	07/31/2017	07/30/2018

RF Conducted Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Power Meter	Anritsu	ML2495A	1012009	07/03/2017	07/02/2018
Power Sensor	Anritsu	MA2411B	917072	07/03/2017	07/02/2018
Spectrum Analyzer	R&S	FSV 40	101073	10/02/2017	10/01/2018
Directional Coupler	Agilent	87301D	MY44350252	07/25/2017	07/24/2018
SUCOFLEX Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Divider	Solvang Technology	2-18GHz 4Way	STI08-0015	07/26/2017	07/25/2018
Wideband Radio Communication Tester	R&S	CMW500	116875	04/25/2017	04/24/2018

**Remark:** Each piece of equipment is scheduled for calibration once a year.

## 1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
	N/A				

Support Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	DC Power Source	GWINSTEK	SPS-3610	N/A	N/A
2	NB(H)	Acer	Aspire 4320 series	N/A	QDS-BRCM1018
3	NB(D)	ASUS	A8J	N/A	PD9WM3945ABG

## 1.8 Test methodology and applied standards

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, KDB 558074 D01 v04.



## 2. TEST SUMMERY

FCC Standard Section	Report Section	Test Item	Result
15.203	1.2	Antenna Requirement	Pass
15.207(a)	4.1	AC Conducted Emission	-
15.247(a)(2)	4.2	6 dB Bandwidth	Pass
15.247(b)	4.3	Output Power Measurement	Pass
15.247(e)	4.4	Power Spectral Density	Pass
15.247(d)	4.5	Conducted Band Edge	Pass
15.247(d)	4.5	Conducted Emission	Pass
15.247(d)	4.6	Radiation Band Edge	Pass
15.247(d)	4.6	Radiation Spurious Emission	Pass

### 3. DESCRIPTION OF TEST MODES

#### 3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	BT4.1 Mode (1Mbps)
Test Channel Frequencies	1.Lowest Channel : 2402MHz 2.Middle Channel : 2440MHz 3.Highest Channel : 2480MHz

*Remark:*

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

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### 3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Voltage/Hz	DC 12V and DC 24V
Test Mode	Mode 1: EUT power by power supply_24V. Mode 2: EUT power by power supply_12V.
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input checked="" type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)
Worst Polarity	<input type="checkbox"/> Horizontal <input checked="" type="checkbox"/> Vertical

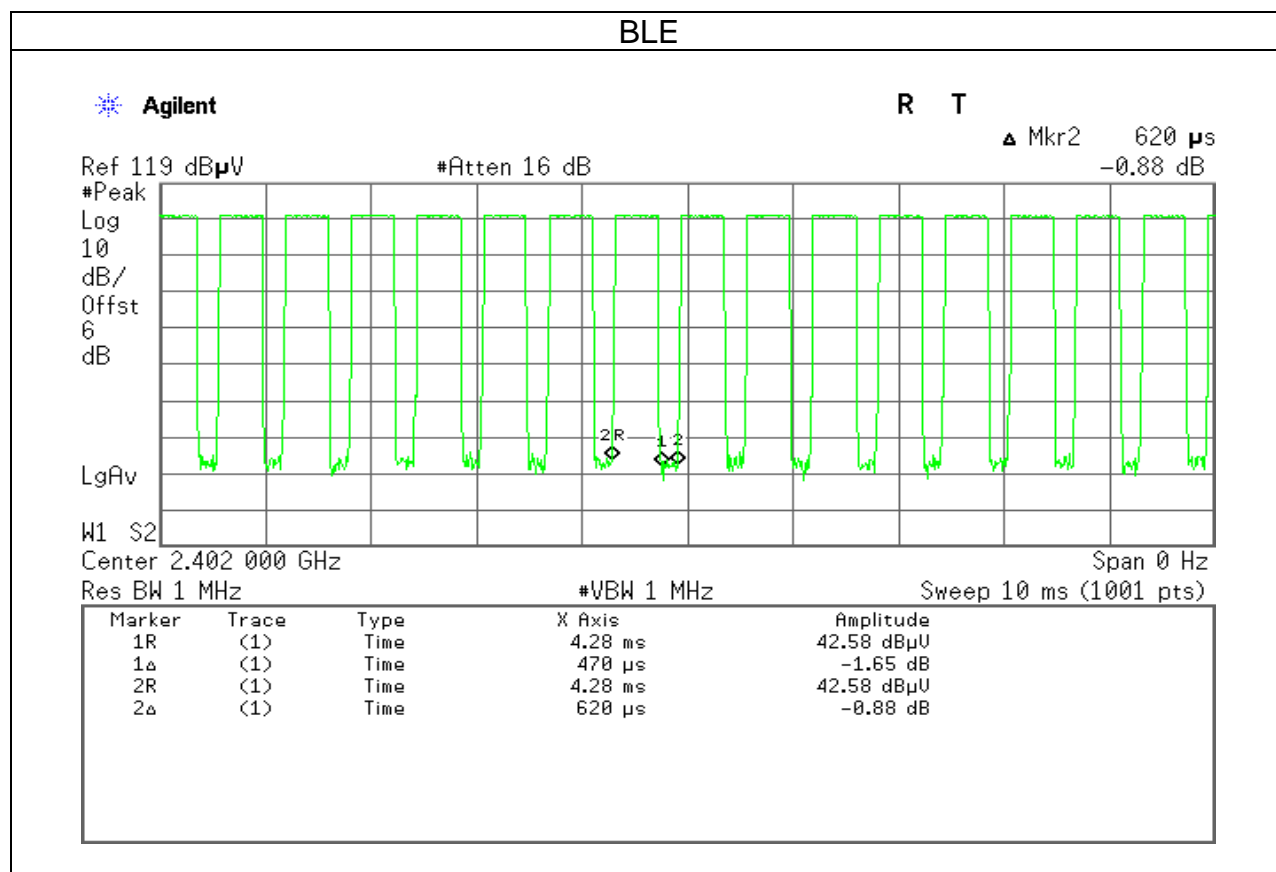
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Voltage/Hz	DC 12V and DC 24V
Test Mode	Mode 1: EUT power by power supply_24V. Mode 2: EUT power by power supply_12V.
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

**Remark:**

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case(Y-Plane and Vertical) were recorded in this report
3. For below 1G, radiation emission were performed the EUT transmit at the highest output power channel as worse case.

### 3.3 EUT DUTY CYCLE

Duty Cycle				
Configuration	TX <sub>ON</sub> (ms)	TX <sub>ALL</sub> (ms)	Duty Cycle (%)	Duty Factor(dB)
BLE	0.4700	0.6200	75.81%	1.20



**Remark:**

1. Duty Cycle (%) =  $TX_{ON} \div TX_{ALL} * 100$
2. Duty Factor(dB) =  $10 * \log (1 \div \text{Duty Cycle})$

## 4. TEST RESULT

### 4.1 AC POWER LINE CONDUCTED EMISSION

#### 4.1.1 Test Limit

According to §15.207(a),

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

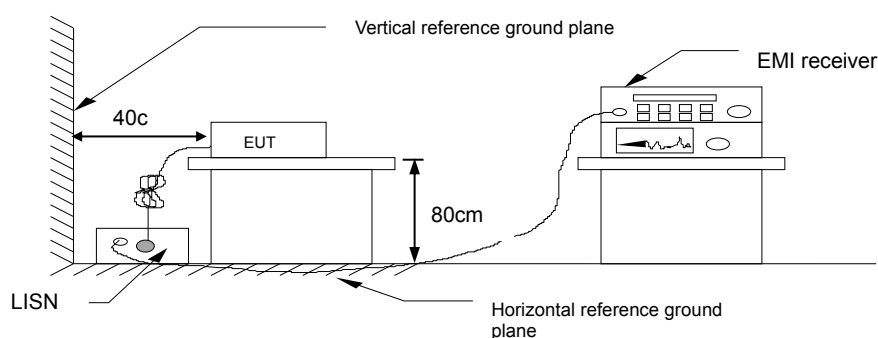
\* Decreases with the logarithm of the frequency.

#### 4.1.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

#### 4.1.3 Test Setup



#### 4.1.4 Test Result

*Not applicable, because EUT not connect to AC Main Source direct.*

## 4.2 6DB BANDWIDTH

### 4.2.1 Test Limit

According to §15.247(a)(2),

#### 6 dB Bandwidth :

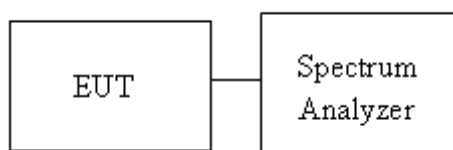
Limit	Shall be at least 500kHz
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### 4.2.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, section 8.1 and ANSI 63.10:2013 clause 6.9.2 & 6.9.3.

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 100KHz , VBW = 300KHz and Detector = Peak, to measurement 6dB Bandwidth.
4. Measure and record the result of 6 dB Bandwidth in the test report.

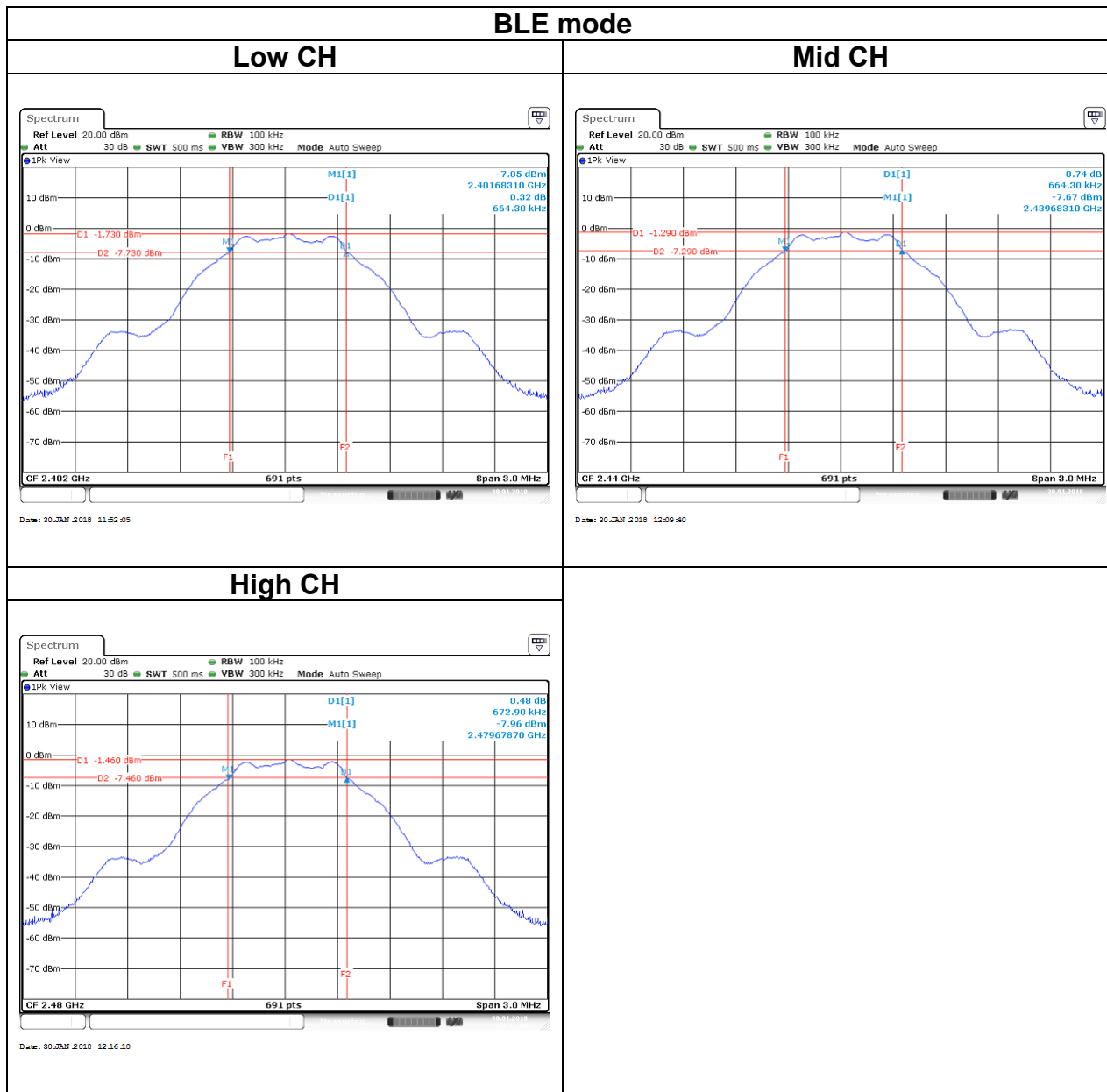
### 4.2.3 Test Setup



### 4.2.4 Test Result

Test mode: BLE mode / 2402-2480 MHz			
Channel	Frequency (MHz)	6dB BW (MHz)	6dB limit (kHz)
Low	2402	0.6643	>500
Mid	2440	0.6643	
High	2480	0.6729	

## Test Data



## 4.3 OUTPUT POWER MEASUREMENT

### 4.3.1 Test Limit

According to §15.247(b).

#### Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi [ Limit = 30 – (DG – 6) ] <input type="checkbox"/> Point-to-point operation
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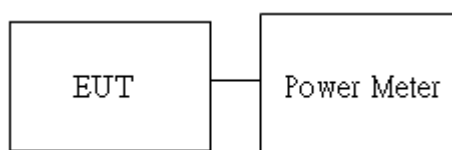
Average output power : For reporting purposes only.

### 4.3.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, section 9.1.2.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

### 4.3.3 Test Setup





#### 4.3.4 Test Result

##### Peak output power :

BLE Mode					
Config.	CH	Freq. (MHz)	PK Power (dBm)	PK Power (W)	FCC Limit (dBm)
BLE Data rate: 1Mbps	0	2402	11.83	0.0152	30
	19	2440	11.86	0.0153	
	39	2480	11.68	0.0147	

##### Average output power :

BLE Mode			
Config.	CH	Freq. (MHz)	AV Power (dBm)
BLE Data rate: 1Mbps	0	2402	11.14
	19	2440	11.25
	39	2480	11.05

## 4.4 POWER SPECTRAL DENSITY

### 4.4.1 Test Limit

According to §15.247(e),

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

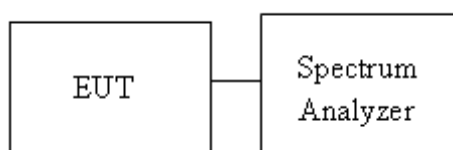
Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi [ Limit = 8 – (DG – 6) ] <input type="checkbox"/> Point-to-point operation :
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### 4.4.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, Section 10.2

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 30kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

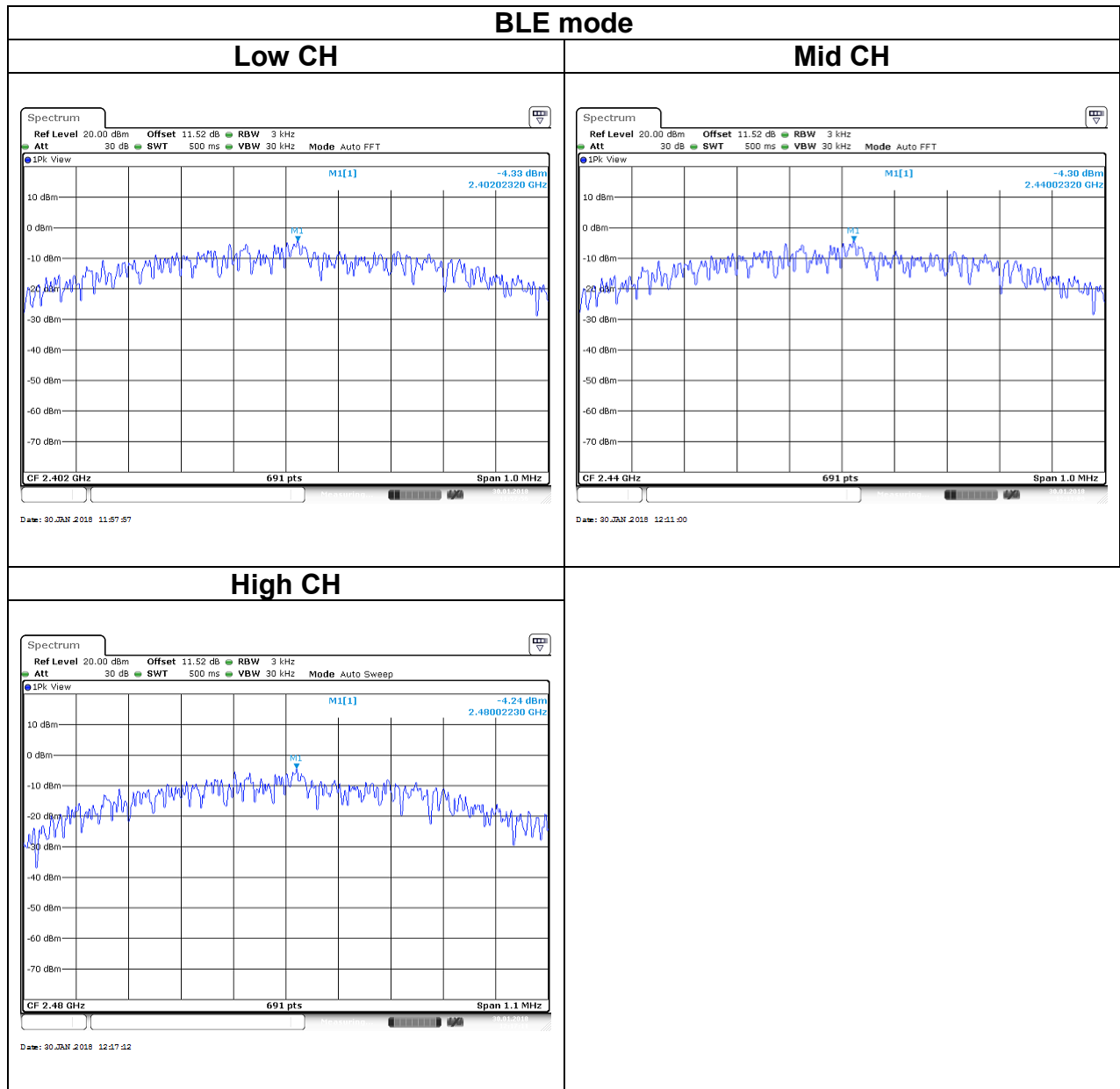
### 4.4.3 Test Setup



### 4.4.4 Test Result

Test mode: BLE mode / 2402-2480 MHz			
Channel	Frequency (MHz)	PSD (dBm)	FCC limit (dBm)
Low	2402	-4.33	8
Mid	2440	-4.30	
High	2480	-4.24	

## Test Data



## **4.5 CONDUCTED BAND EDGE AND SPURIOUS EMISSION**

### **4.5.1 Test Limit**

According to §15.247(d),

In any 100 kHz bandwidth outside the authorized frequency band,

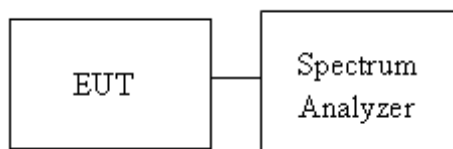
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### **4.5.2 Test Procedure**

Test method Refer as KDB 558074 D01 v04, Section 11.

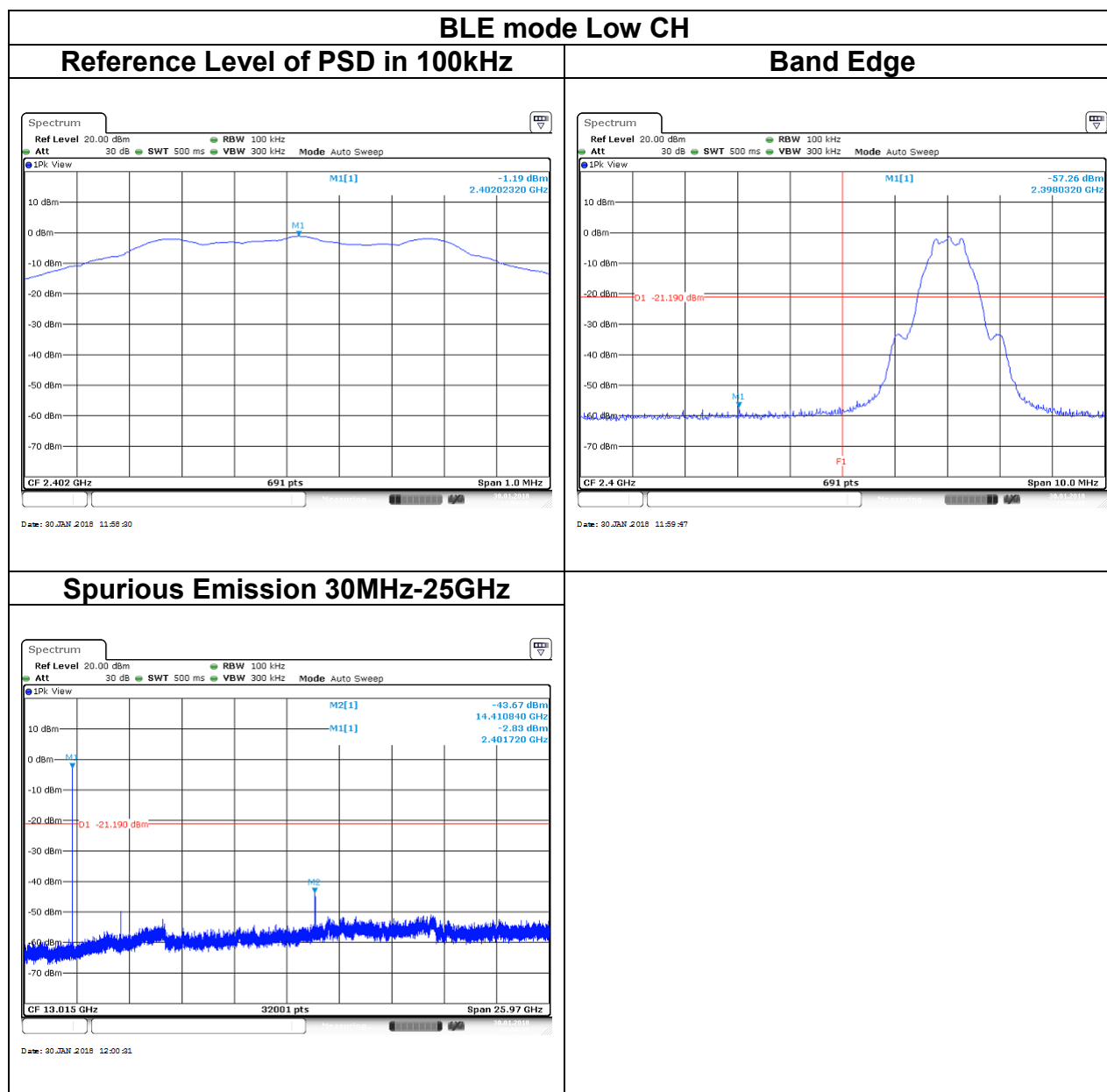
1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

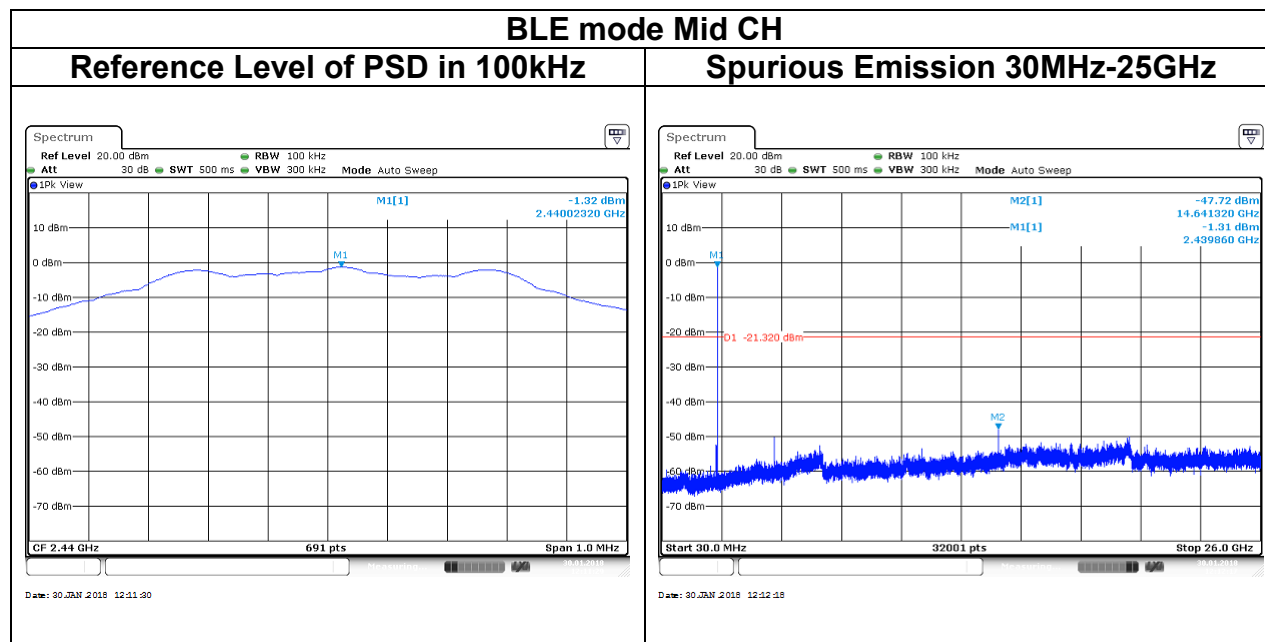
### **4.5.3 Test Setup**

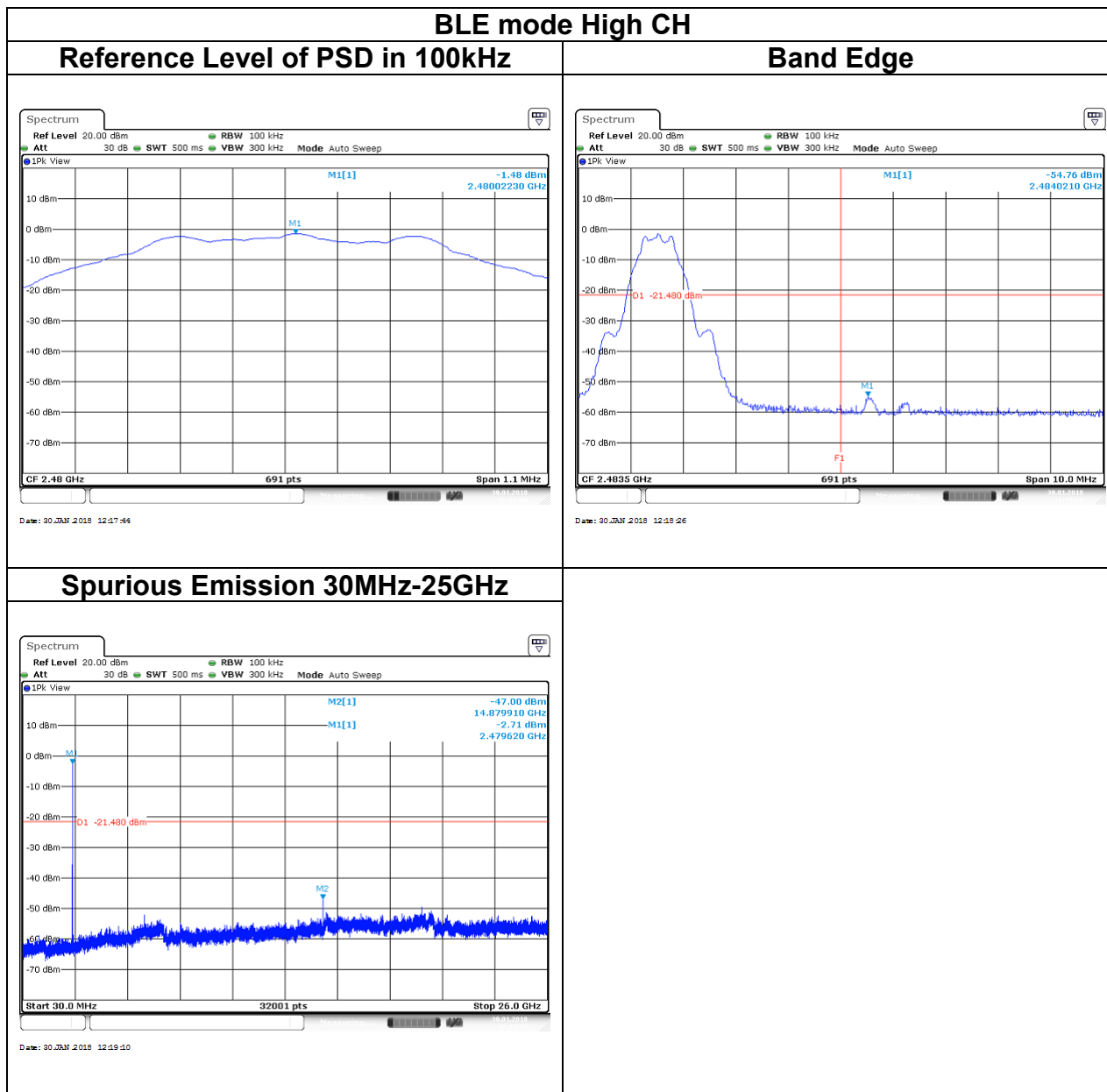


## 4.5.4 Test Result

### Test Data







## 4.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

### 4.6.1 Test Limit

FCC according to §15.247(d), §15.209 and §15.205,

In any 100 kHz bandwidth outside the authorized frequency band, all harmonic and spurious must be least 20 dB below the highest emission level with the authorized frequency band. Radiation emission which fall in the restricted bands must also follow the FCC section 15.209 as below limit in table.

#### Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

#### Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

#### Remark:

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606.



## 4.6.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, Section 12.1.

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10, and the EUT set in a continuous mode.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.
3. Span shall wide enough to full capture the emission measured. The SA from 9KHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.
4. No emission found between lowest internal used/generated frequency to 30MHz (9KHz~30MHz)

Remark:

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606.

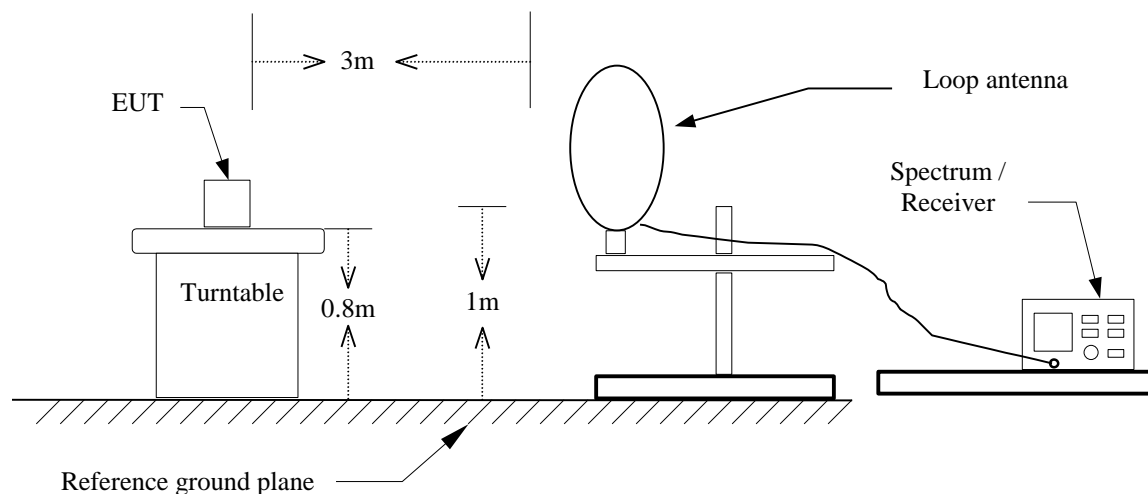
5. The SA setting following :

- (1) Below 1G : RBW = 100kHz, VBW  $\geq$  3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
- (2) Above 1G :
  - (2.1) For Peak measurement : RBW = 1MHz, VBW  $\geq$  3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
  - (2.2) For Average measurement : RBW = 1MHz, VBW
    - If Duty Cycle  $\geq$  98%, VBW=10Hz.
    - If Duty Cycle < 98%, VBW=1/T.

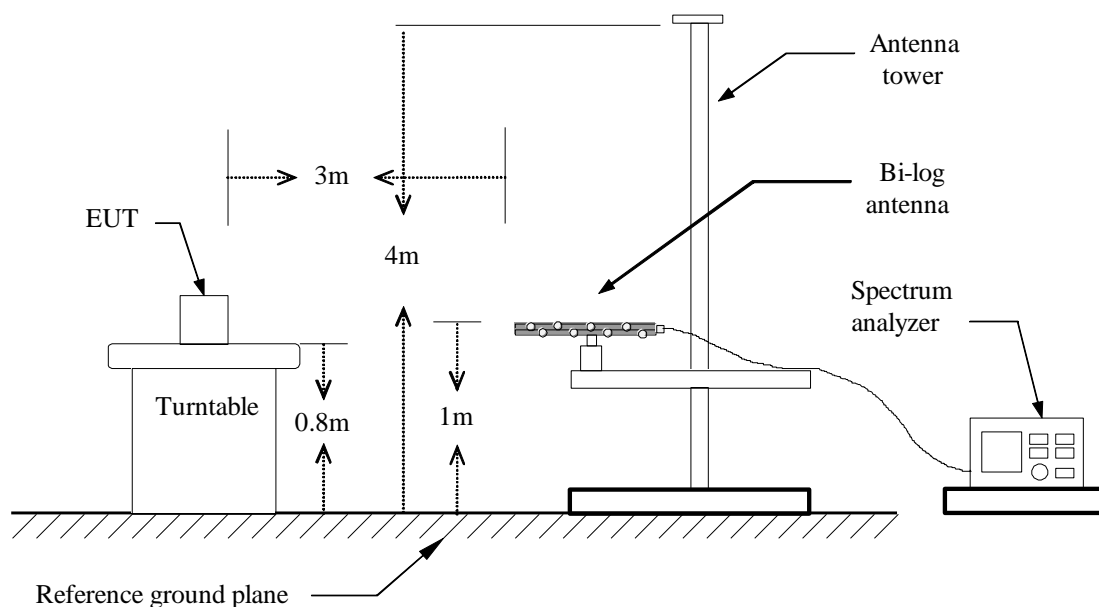
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
BLE	76%	0.4700	2.128	2.2KHz

### 4.6.3 Test Setup

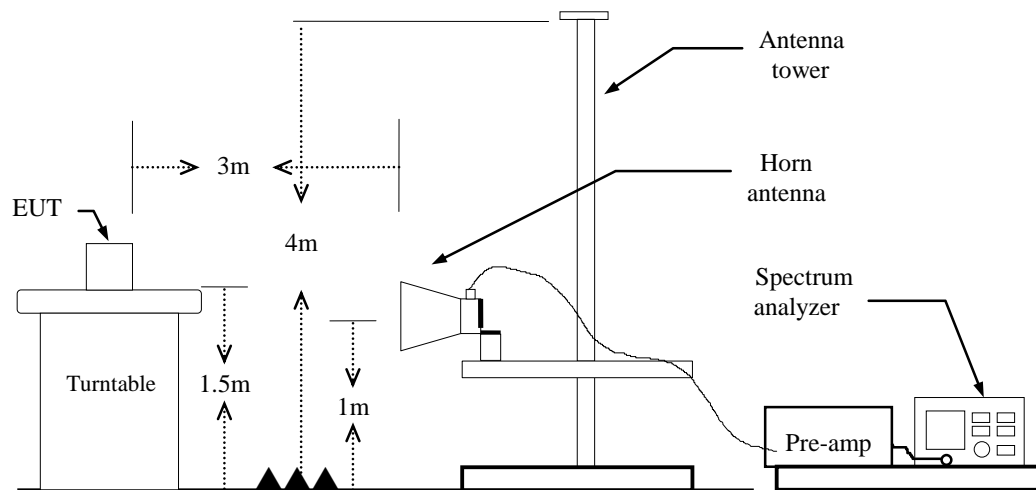
#### 9kHz ~ 30MHz



#### 30MHz ~ 1GHz



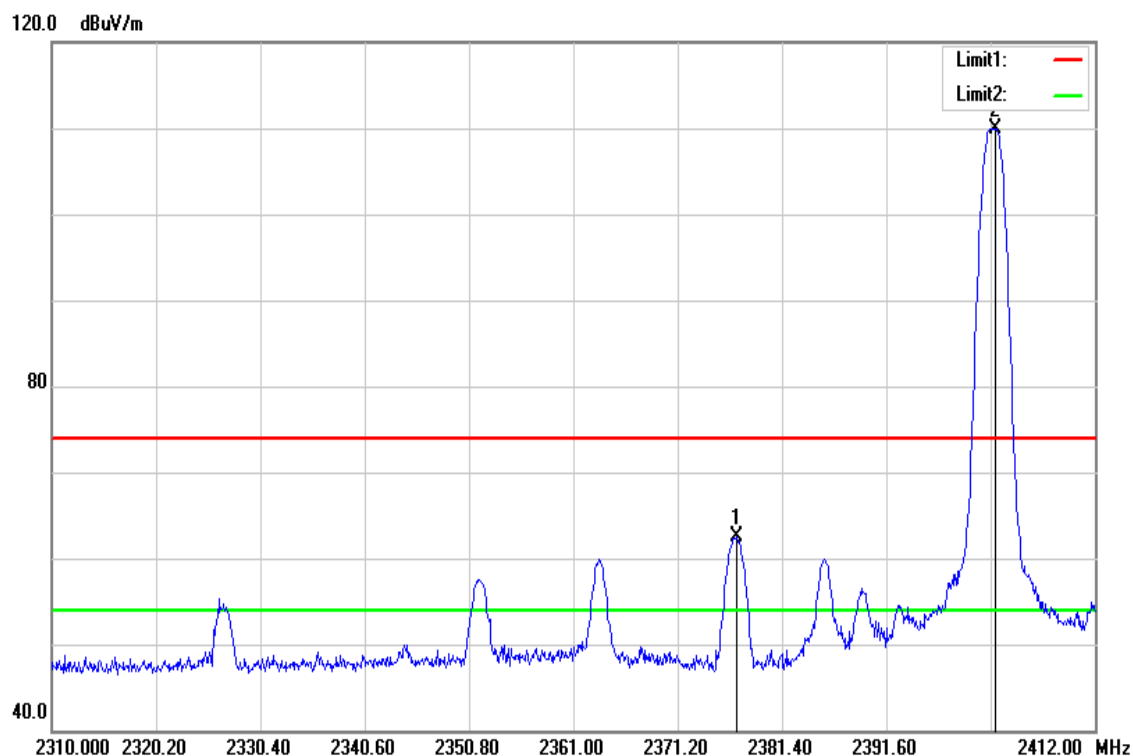
**Above 1 GHz**



## 4.6.4 Test Result

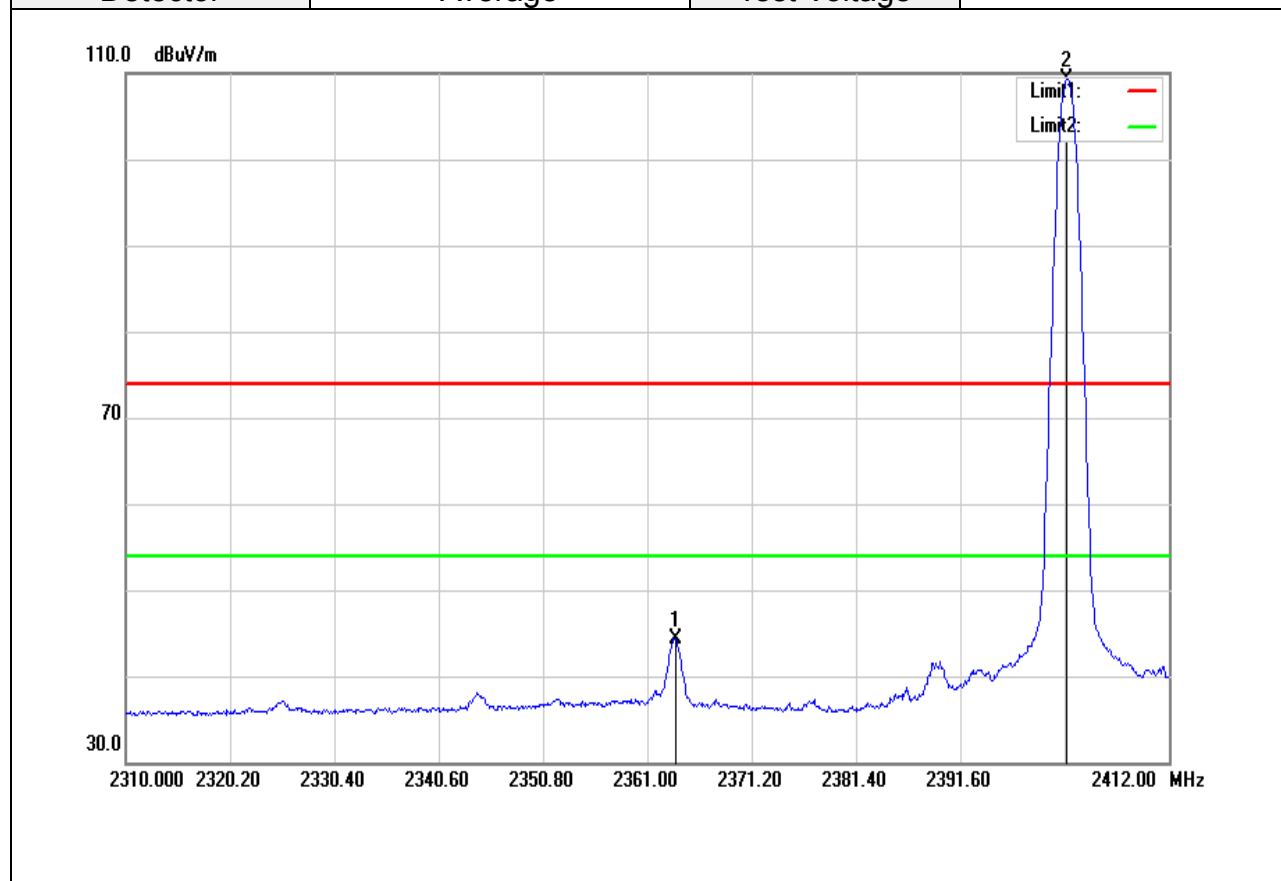
**Band Edge Test Data**

Test Mode:	BLE Low CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Band Edge	Test Date	January 31, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	---



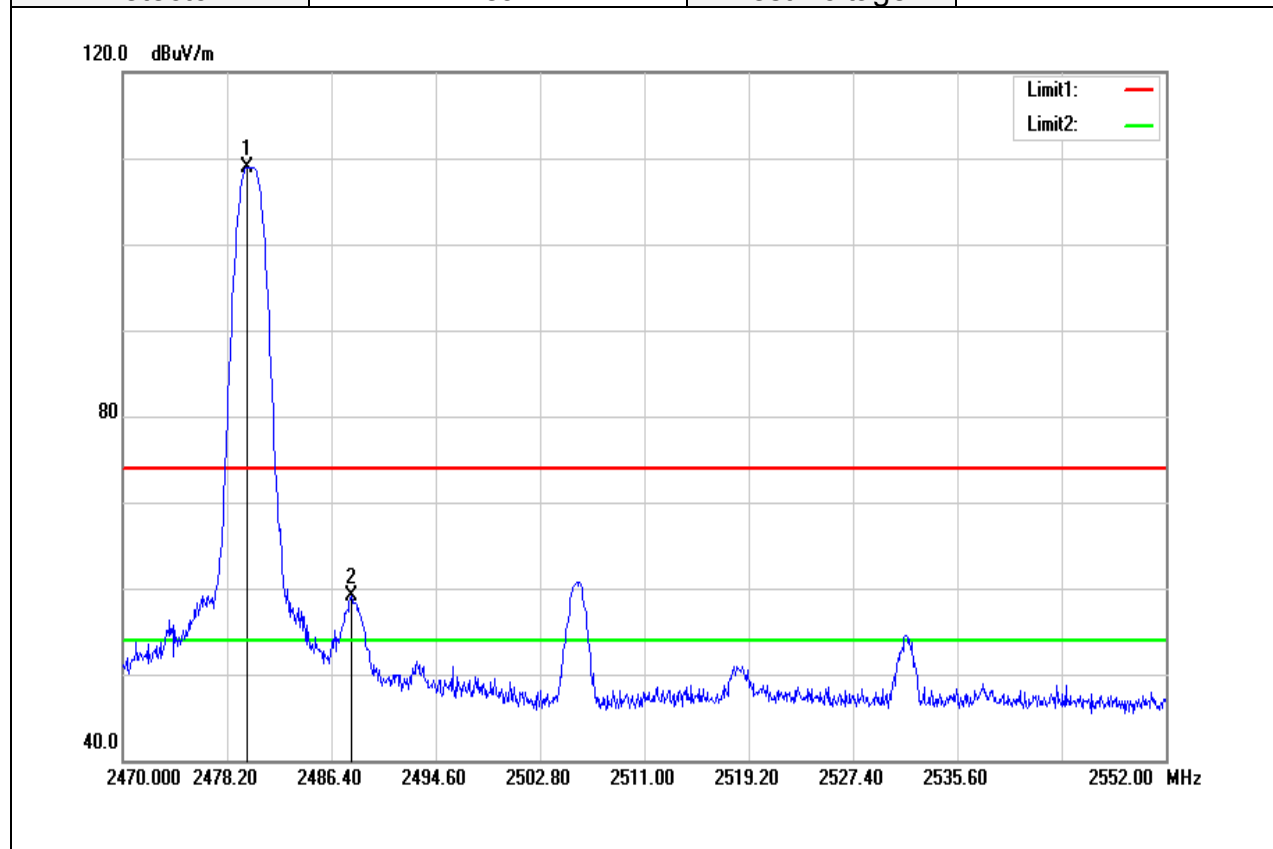
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2376.912	65.58	-3.02	62.56	74.00	-11.44	peak
2	2402.310	112.94	-2.95	109.99	-	-	peak

Test Mode:	BLE Low CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Band Edge	Test Date	January 31, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	---



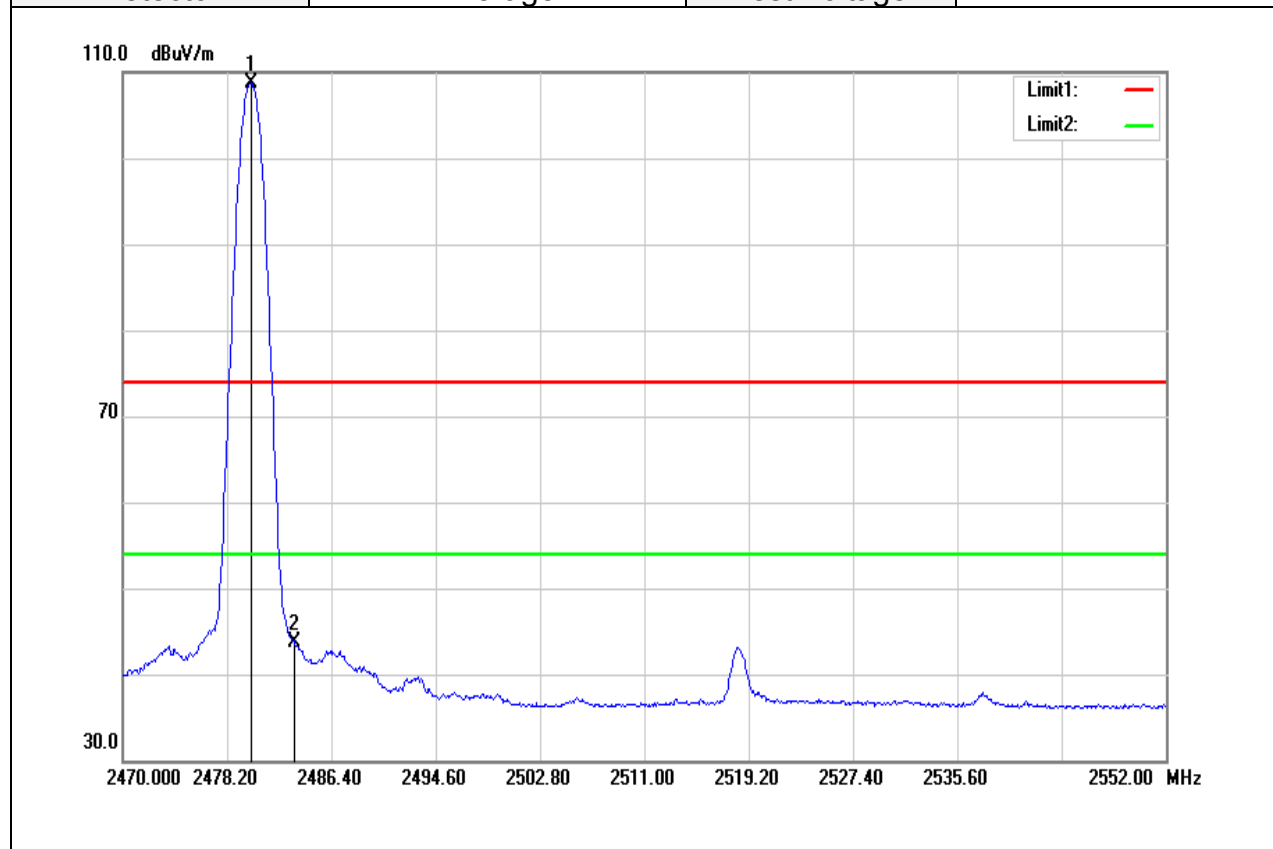
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2363.754	47.40	-3.07	44.33	54.00	-9.67	AVG
2	2402.004	112.18	-2.95	109.23	-	-	AVG

Test Mode:	BLE High CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Band Edge	Test Date	January 31, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	---



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2479.758	111.65	-2.70	108.95	-	-	peak
2	2487.958	61.76	-2.67	59.09	74.00	-14.91	peak

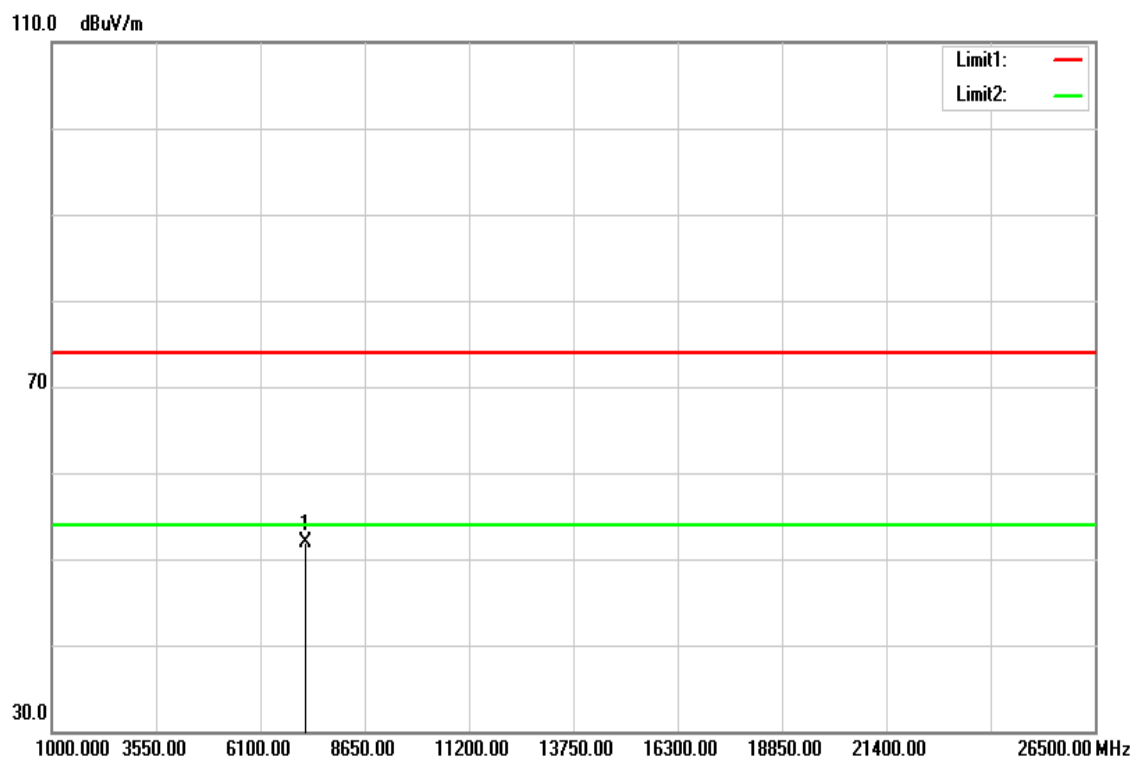
Test Mode:	BLE High CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Band Edge	Test Date	January 31, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	---



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.086	111.40	-2.70	108.70	-	-	AVG
2	2483.530	46.47	-2.69	43.78	54.00	-10.22	AVG

**Above 1G Test Data**

Test Mode:	BLE Low CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Harmonic	Test Date	March 5, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	---



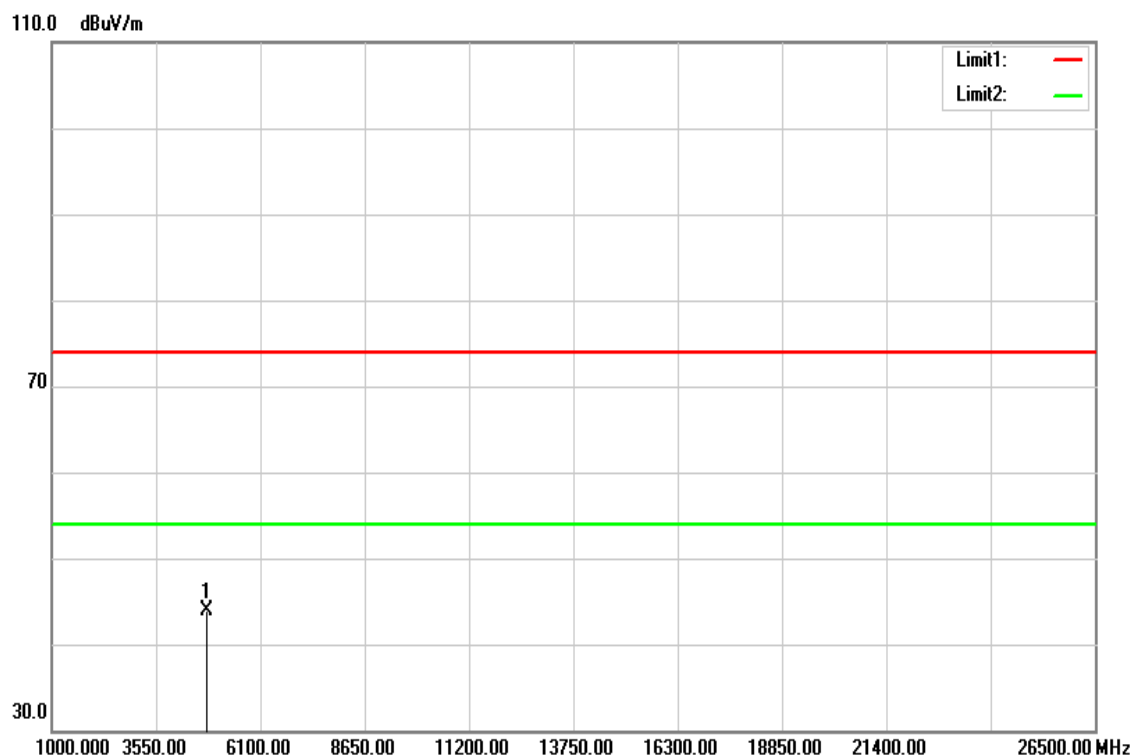
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7207.000	41.52	10.39	51.91	74.00	-22.09	peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode:	BLE Low CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Harmonic	Test Date	March 5, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	---

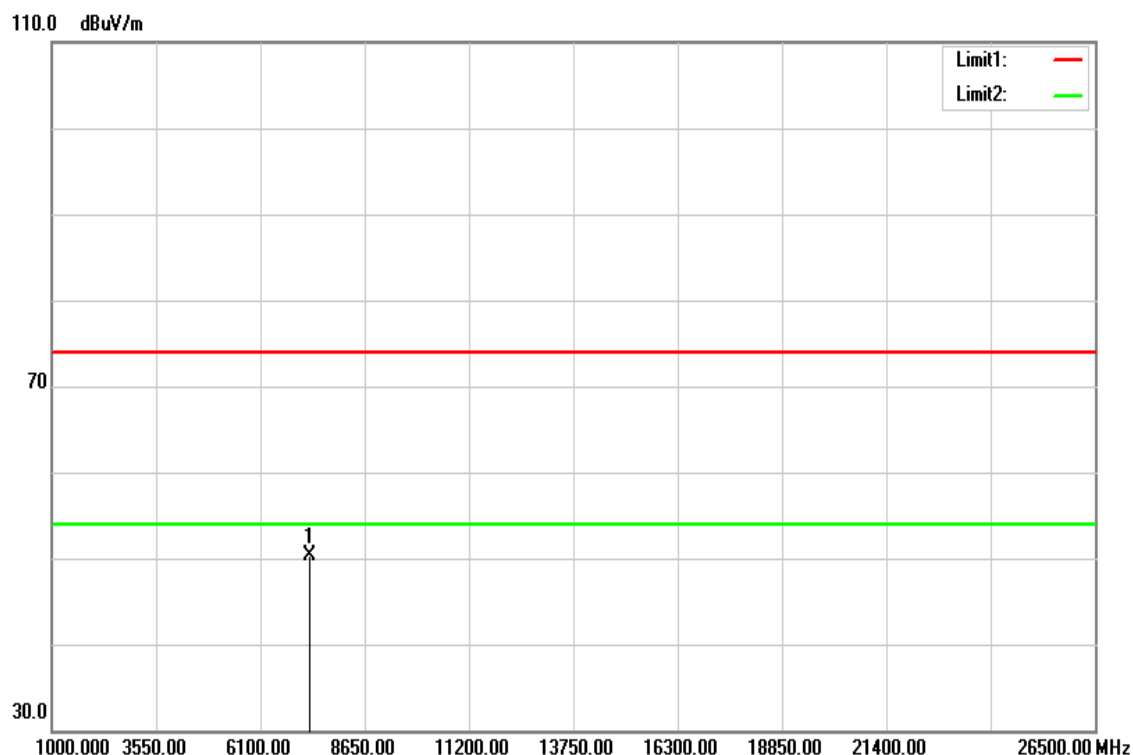


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.000	39.51	4.34	43.85	74.00	-30.15	peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode:	BLE Mid CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Harmonic	Test Date	March 5, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	---

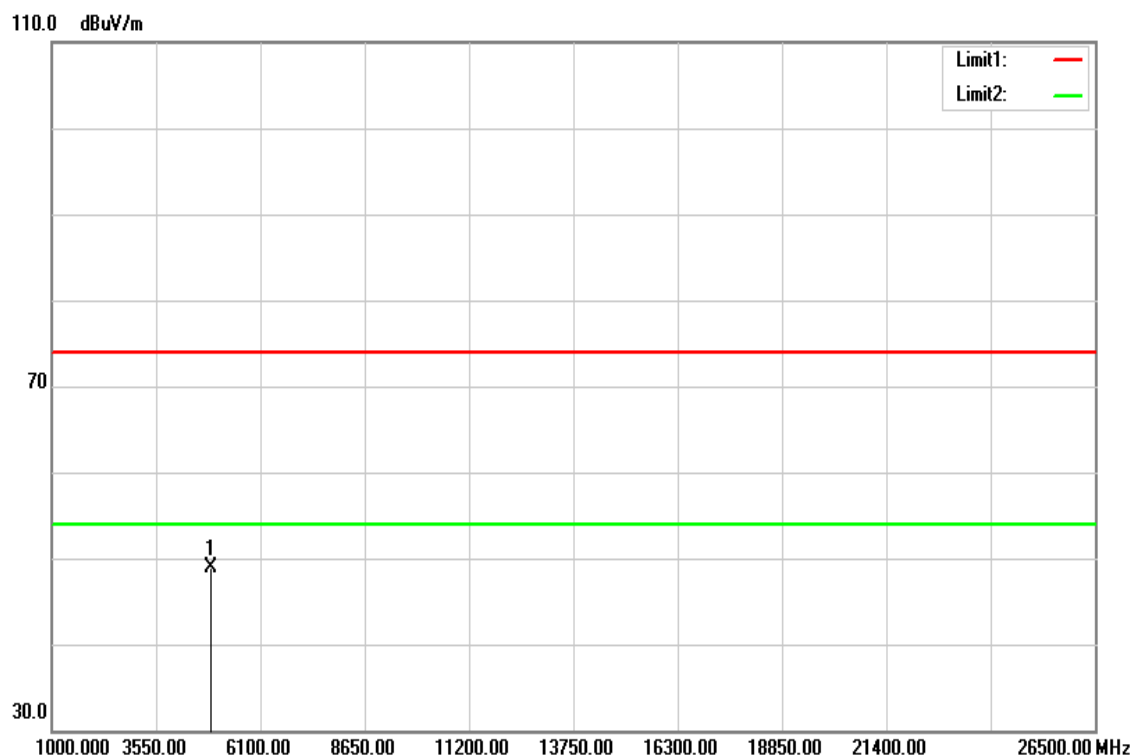


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7319.000	39.95	10.45	50.40	74.00	-23.60	peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode:	BLE Mid CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Harmonic	Test Date	March 5, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	---

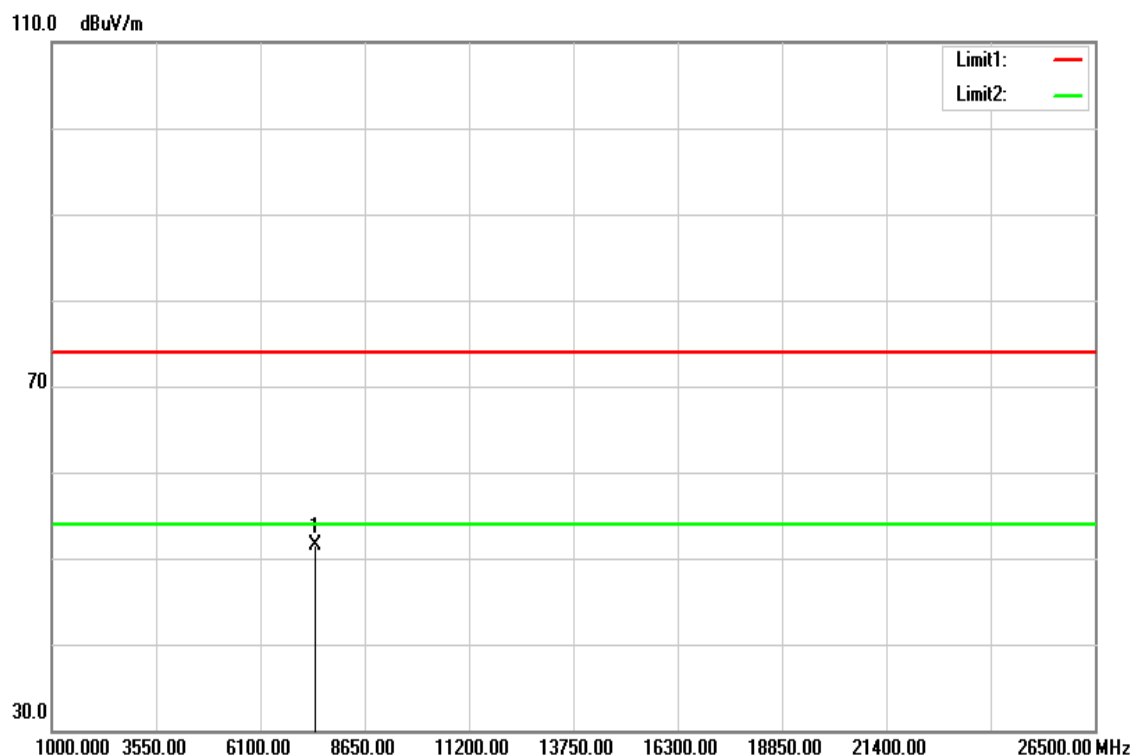


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4880.000	44.48	4.48	48.96	74.00	-25.04	peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode:	BLE High CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Harmonic	Test Date	March 5, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	---

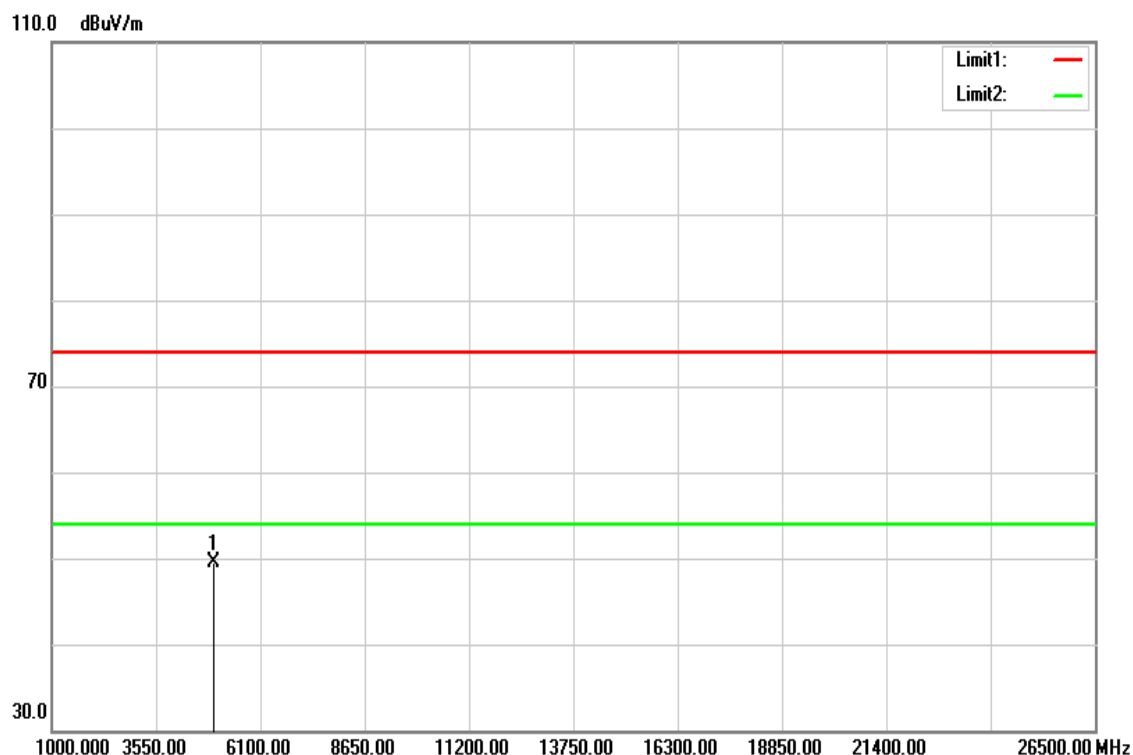


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7438.000	41.00	10.51	51.51	74.00	-22.49	peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode:	BLE High CH	Temp/Hum	22(°C)/ 34%RH
Test Item	Harmonic	Test Date	March 5, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	---



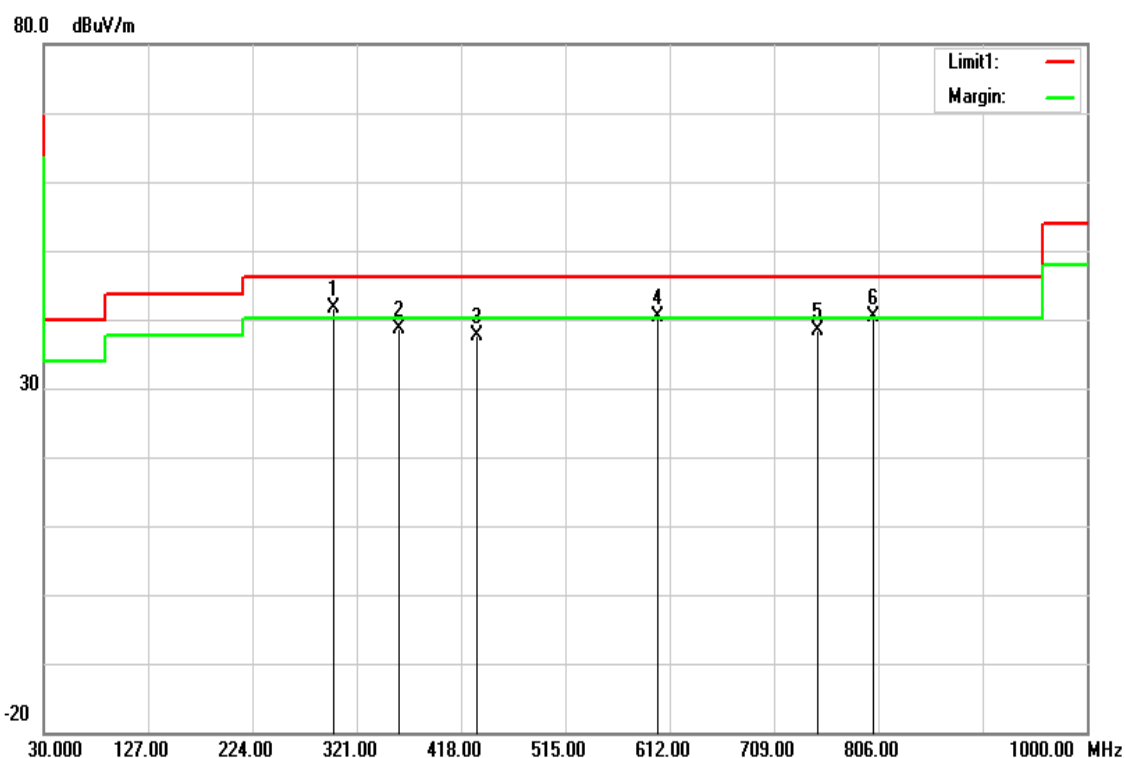
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.000	44.93	4.61	49.54	74.00	-24.46	peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

**Below 1G Test Data**

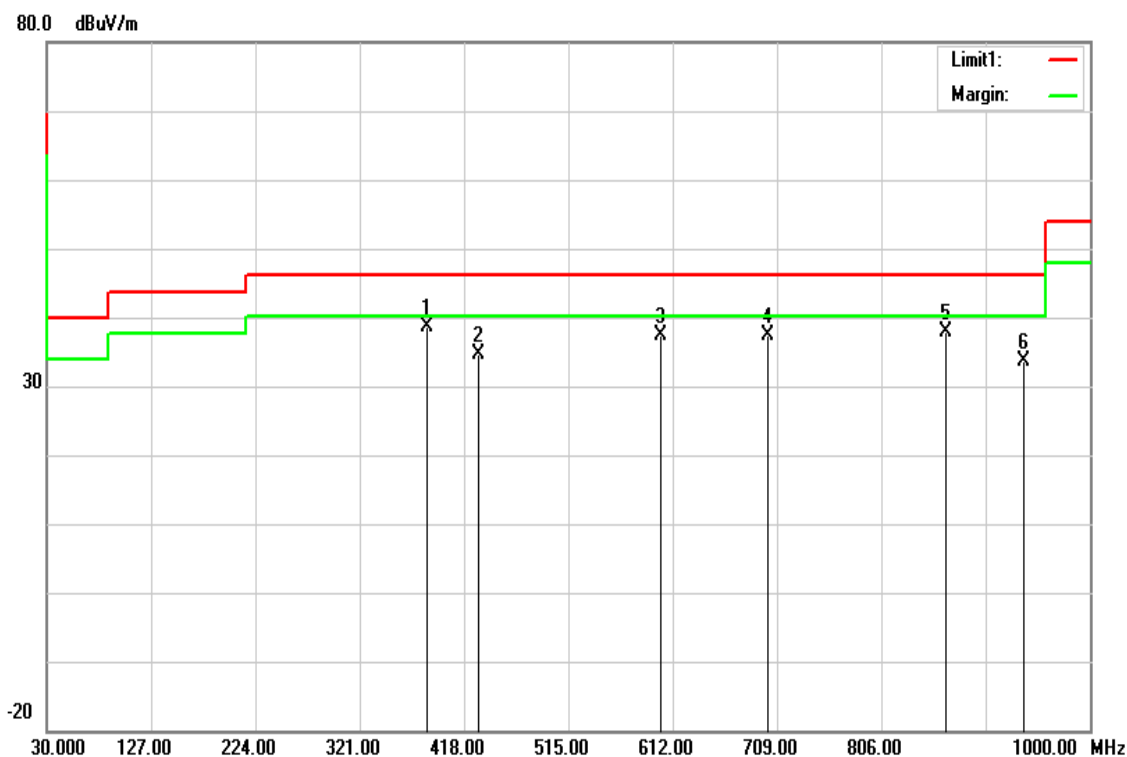
Test Mode:	BT Mode	Temp/Hum	22(°C)/ 34%RH
Test Item	30MHz-1GHz	Test Date	February 22, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Quasi-peak	Test Voltage:	DC 24V



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
299.6600	55.70	-14.07	41.63	46.02	-4.39	QP
359.8000	51.22	-12.67	38.55	46.02	-7.47	QP
432.5500	47.78	-10.22	37.56	46.02	-8.46	peak
600.3600	47.28	-6.92	40.36	46.02	-5.66	QP
749.7400	42.63	-4.29	38.34	46.02	-7.68	peak
801.1500	43.73	-3.37	40.36	46.02	-5.66	QP

**Note:** No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

Test Mode:	BT Mode	Temp/Hum	22(°C)/ 34%RH
Test Item	30MHz-1GHz	Test Date	February 22, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Quasi-peak	Test Voltage:	DC 24V



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
384.0500	50.43	-11.90	38.53	46.02	-7.49	peak
431.5800	44.97	-10.25	34.72	46.02	-11.30	peak
600.3600	44.36	-6.92	37.44	46.02	-8.58	peak
700.2700	42.23	-4.89	37.34	46.02	-8.68	peak
866.1400	40.53	-2.59	37.94	46.02	-8.08	peak
937.9200	34.91	-1.39	33.52	46.02	-12.50	peak

**Note:** No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

- End of test report -