

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

Test Standard	FCC Part 15.247
FCC ID	2AKZA-PICOIMX7
Product name	WiFi+Bluetooth 4.0(HS) System on Module
Brand Name	TechNexion
Model Name	PICO-IMX7
Test Result	Pass

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.(Tainan Laboratory)



Approved by:

A handwritten signature in black ink, appearing to read "Jeter Wu".

Jeter Wu
Assistant Manager

Tested by:

A handwritten signature in black ink, appearing to read "Ed Chiang".

Ed Chiang
Engineer

Revision History

Rev.	Issue Date	Revisions	Revised By
00	September 20, 2017	Initial Issue	Vicki Huang
01	October 24, 2017	Added Radiation bandedge and spurious emission remark in P.27	Vicki Huang

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	TechNexion Ltd. 16f-5, No.736, Zhongzheng Road, Zhonghe Dist., New Taipei City, 23511 Taiwan ROC
Equipment	WiFi+Bluetooth 4.0(HS) System on Module
Model No.	PICO-IMX7
Model Discrepancy	N/A
Received Date	August 25, 2017
Date of Test	September 1 ~ 19, 2017
Output Power (W)	BLE : 0.0047 (EIRP : 0.0058)
Power Supply	Power form AC Adapter via cable

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 and RSS-GEN Table A1 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 type="checkbox"/> PCB <input checked="" type="checkbox"/> Dipole <input type="checkbox"/> Coils
Antenna Gain	Gain: 3dBi

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.8, Jiucengling, Xinhua Dist., Tainan City 712, Taiwan (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	Eric Lee	
Radiation	Ed Chiang	
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

RF Conducted Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
BNC Coaxial Cable	CCS	BNC50	11	01/13/2017	01/12/2018
EMI Test Receiver	R&S	ESCS 30	100348	12/12/2016	12/11/2017
LISN	SCHWARZBECK	NNLK8130	8130124	11/08/2016	11/07/2017
LISN	FCC	FCC-LISN-50-32-2	08009	05/08/2017	05/07/2018
Pulse Limiter	R&S	ESH3-Z2	100116	01/13/2017	01/12/2018
BNC Coaxial Cable	CCS	BNC50	11	01/13/2017	01/12/2018
3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Active Loop Antenna	ETS-LINDREN	6502	8905-2356	07/20/2017	07/19/2019
Amplifier	HP	8447F	2443A01671	01/18/2017	01/17/2018
Bi-Log Antenna	Sunol	JB1	A070506-2	07/22/2017	07/21/2018
Cable	HUBER+SUHNER	SUCOFLEX 104PEA	SN25737 /4PEA	01/18/2017	01/17/2018
Double Ridged Guide Horn Antenna	ETS-LINDGREN	3116	00078900	03/20/2017	03/19/2019
EMI Test Receiver	R&S	ESCS 30	100294	12/02/2016	12/01/2017
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY54430216	05/09/2017	05/08/2018
Horn Antenna	Com-Power	AH-118	071032	02/09/2017	02/08/2018
Pre-Amplifier	EMCI	EMC012645	980098	01/17/2017	01/16/2018

AC Conducted Emissions Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
BNC Coaxial Cable	CCS	BNC50	11	01/13/2017	01/12/2018
EMI Test Receiver	R&S	ESCS 30	100348	12/12/2016	12/11/2017
Four BALACED PAIR ISN	FCC	F-071115-1057-1-09	111130	11/16/2016	11/15/2017
LISN	SCHWARZBECK	NNLK8130	8130124	11/08/2016	11/07/2017
LISN	FCC	FCC-LISN-50-32-2	08009	05/08/2017	05/07/2018
Pulse Limiter	R&S	ESH3-Z2	100116	01/13/2017	01/12/2018

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
	N/A				

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 v03r05, RSS-247 Issue 2 and RSS-GEN Issue 4

2. TEST SUMMERY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	-	1.2	Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	4.1	AC Conducted Emission	Pass
15.247(a)(2)	RSS-247(5.2)(a)	4.2	6 dB Bandwidth	Pass
-	RSS-GEN 6.6	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)	RSS-247(5.4)(d)	4.3	Output Power Measurement	Pass
15.247(e)	RSS-247(5.2)(b)	4.4	Power Spectral Density	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Band Edge	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Emission	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.6	Radiation Band Edge	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.6	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	BT4.0 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

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Voltage/Hz	120V/60Hz
Test Mode	Mode 1: EUT power by AC adapter via power cable.
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Voltage/Hz	120V/60Hz
Test Mode	Mode 1: EUT power by AC adapter via power cable.
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 type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input checked="" type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)
Worst Polarity	<input type="checkbox"/> Horizontal <input checked="" type="checkbox"/> Vertical

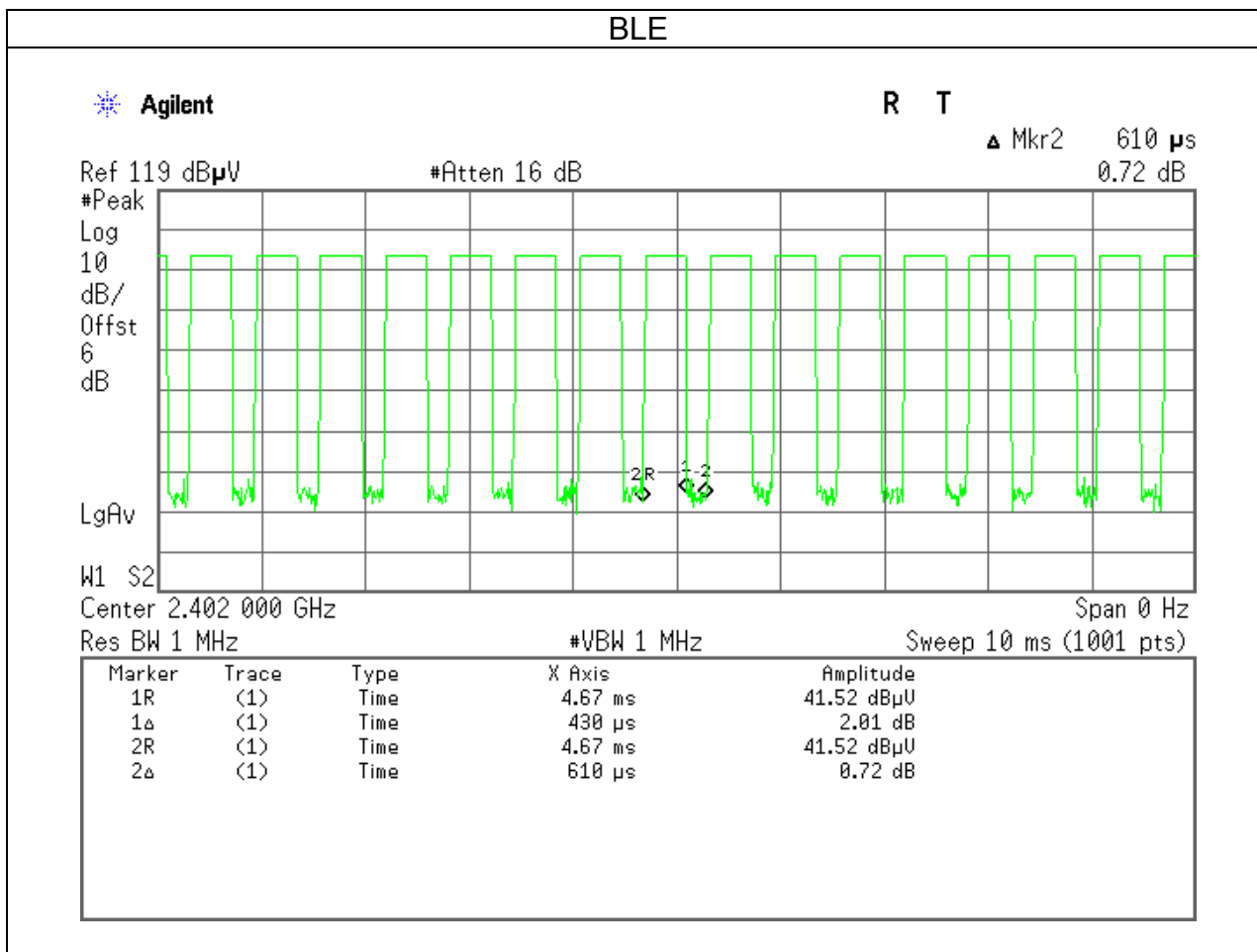
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Voltage/Hz	120V/60Hz
Test Mode	Mode 1: EUT power by AC adapter via power cable.
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> 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(Z-Plane and Vertical) were recorded in this report*
- 3. For below 1G, AC power line conducted emission and 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 ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)
BLE	0.4300	0.6100	70.49%	1.52



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a) and RSS-GEN section 8.8,

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

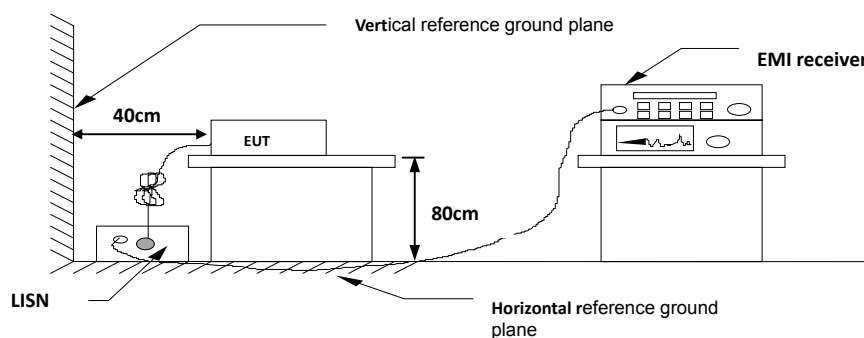
* Decreases with the logarithm of the frequency.

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

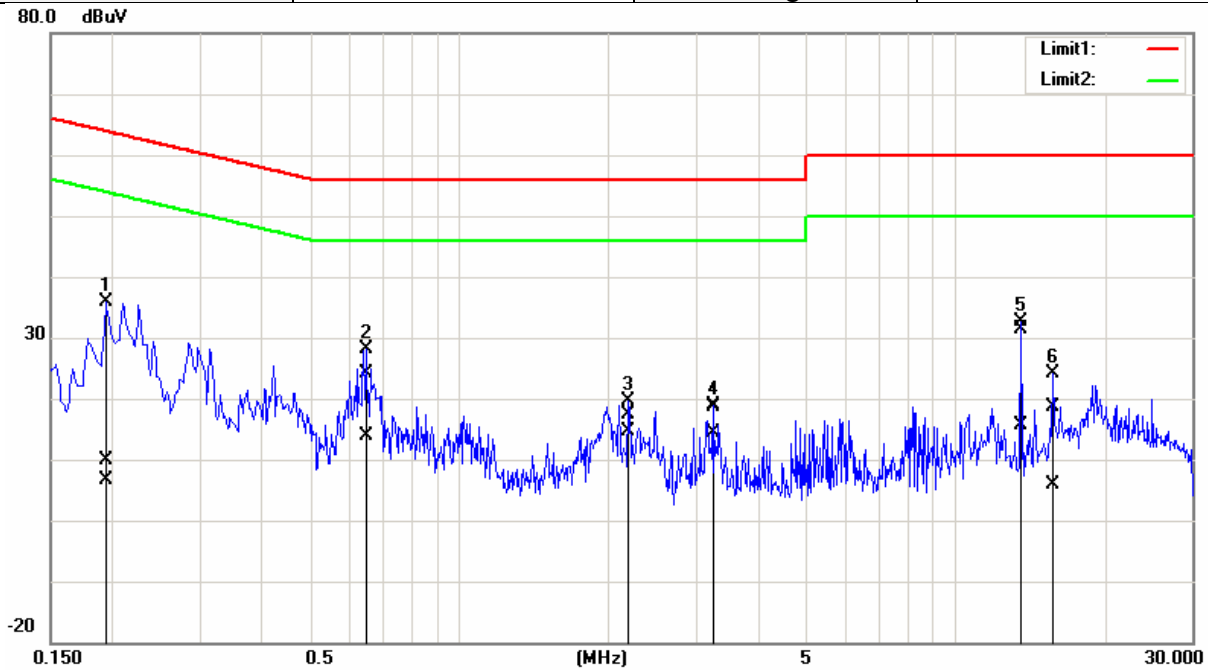


4.1.4 Test Result

Pass

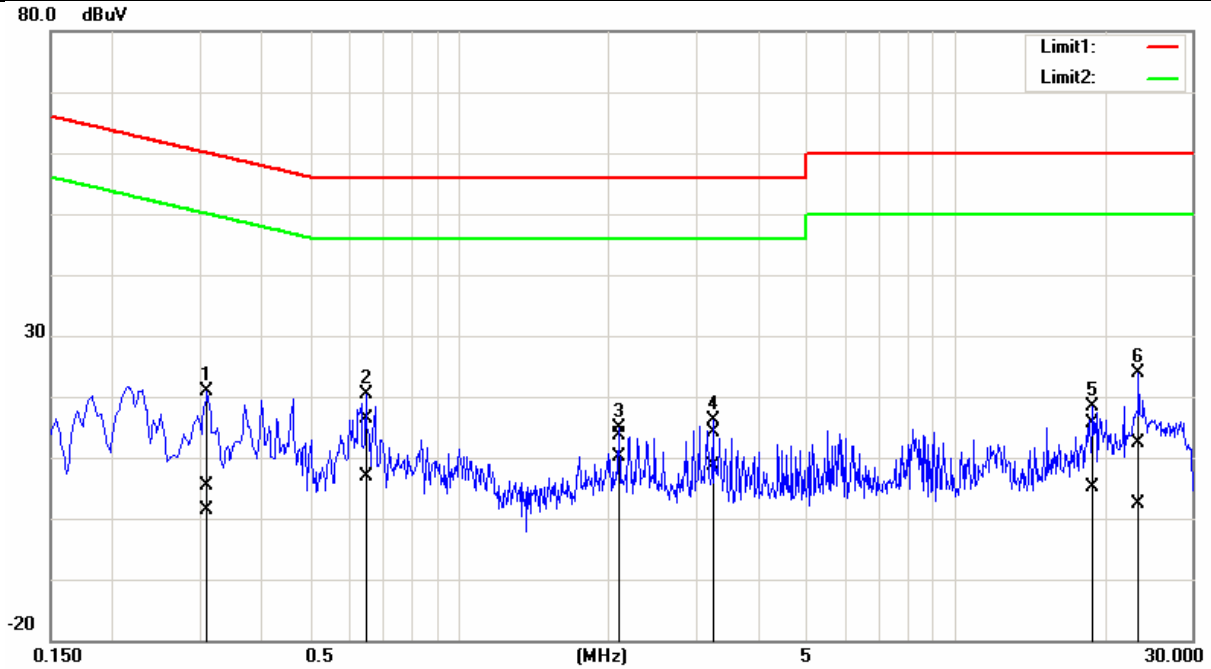
Test Data

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	2017/9/19
Phase:	Line	Test Engineer	Eric Lee



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)
1	0.1940	9.81	6.46	0.05	9.86	6.51	63.86	53.86	-54.00
2	0.6500	24.08	13.92	0.06	24.14	13.98	56.00	46.00	-31.86
3	2.1980	17.26	14.44	0.09	17.35	14.53	56.00	46.00	-38.65
4	3.2540	18.51	14.18	0.12	18.63	14.30	56.00	46.00	-37.37
5	13.5620	31.33	15.49	0.12	31.45	15.61	60.00	50.00	-28.55
6	15.7940	18.33	5.55	0.25	18.58	5.80	60.00	50.00	-41.42

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	2017/9/19
Phase:	Neutral	Test Engineer	Eric Lee



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)
1	0.3100	5.36	1.25	0.13	5.49	1.38	59.97	49.97	-54.48
2	0.6500	16.32	6.78	0.14	16.46	6.92	56.00	46.00	-39.54
3	2.1060	13.52	9.98	0.17	13.69	10.15	56.00	46.00	-42.31
4	3.2580	14.03	8.36	0.20	14.23	8.56	56.00	46.00	-41.77
5	18.9420	15.19	4.72	0.47	15.66	5.19	60.00	50.00	-44.34
6	23.4980	11.91	1.95	0.55	12.46	2.50	60.00	50.00	-47.54

4.2 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

4.2.1 Test Limit

According to §15.247(a)(2) and RSS-247 section 5.2(a)

6 dB Bandwidth :

Limit	Shall be at least 500kHz
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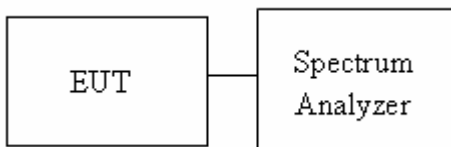
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, 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 6 dB Bandwidth and 99% Bandwidth.
4. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

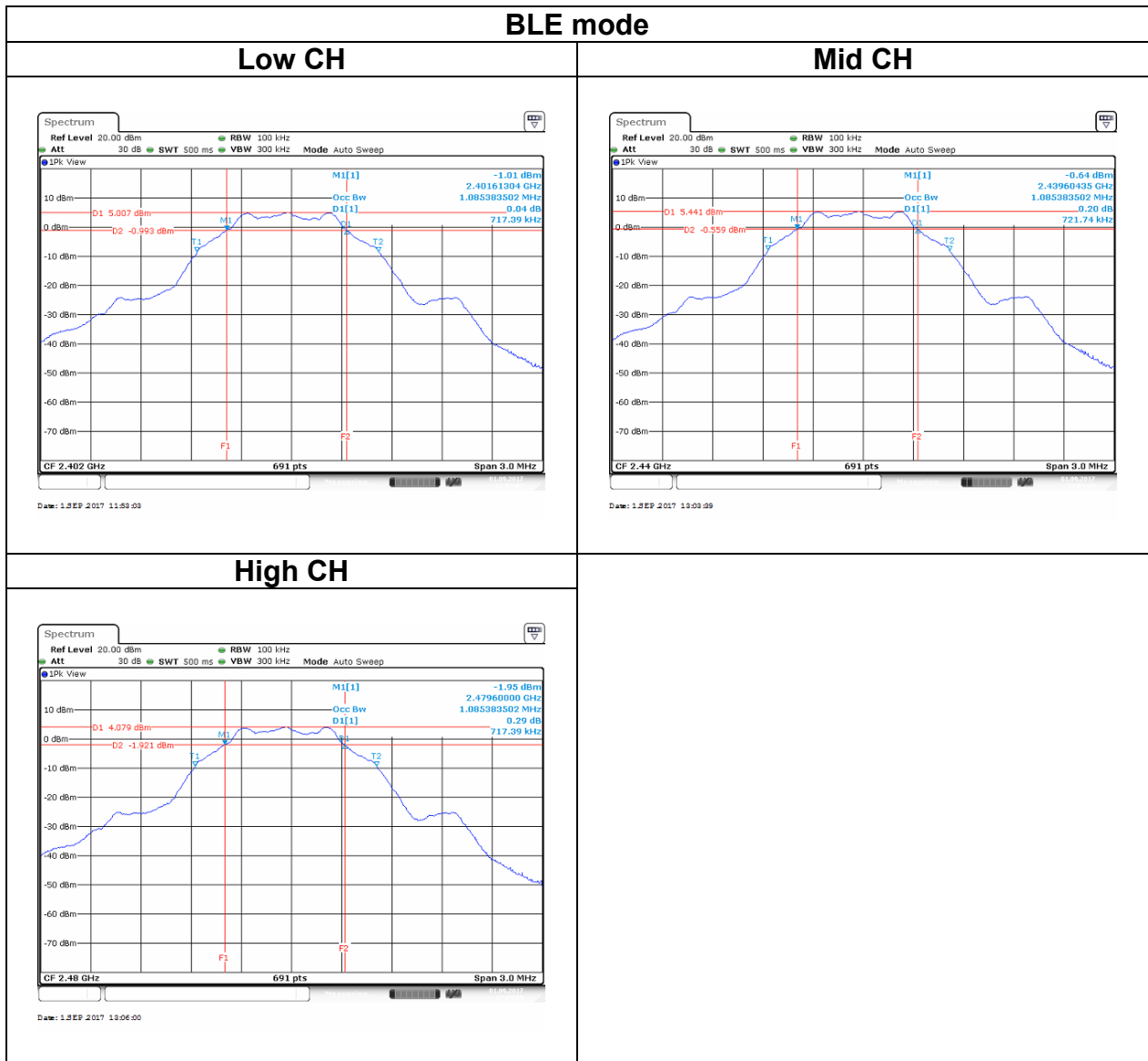
4.2.3 Test Setup



4.2.4 Test Result

Test mode: BLE mode / 2402-2480 MHz				
Channel	Frequency (MHz)	OBW(99%) (MHz)	6dB BW (MHz)	6dB limit (kHz)
Low	2402	1.0853	0.7173	>500
Mid	2440	1.0853	0.7217	
High	2480	1.0853	0.7173	

Test Data



4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b) and RSS-247 section 5.4(d)

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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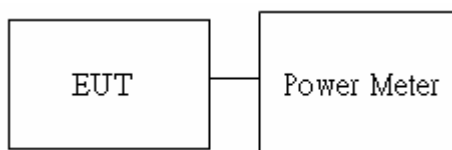
Average output power : For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, 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)	EIRP PK Power (dBm)	PK Power (W)	EIRP PK Power (W)	FCC/IC Limit (dBm)
BLE Data rate: 1Mbps	0	2402	6.26	7.15	0.0042	0.0052	30
	19	2440	6.76	7.65	0.0047	0.0058	
	39	2480	5.44	6.33	0.0035	0.0043	

Average output power :

BLE Mode			
Config.	CH	Freq. (MHz)	AV Power (dBm)
BLE Data rate: 1Mbps	0	2402	4.12
	19	2440	4.70
	39	2480	3.41

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e) and RSS-247 section 5.2(b)

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.

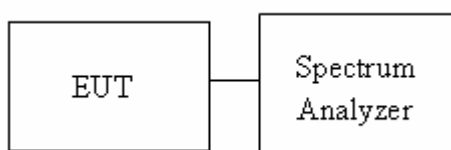
Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi [Limit = 8 – (DG – 6)] <input type="checkbox"/> Point-to-point operation :
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4.4.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, 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.

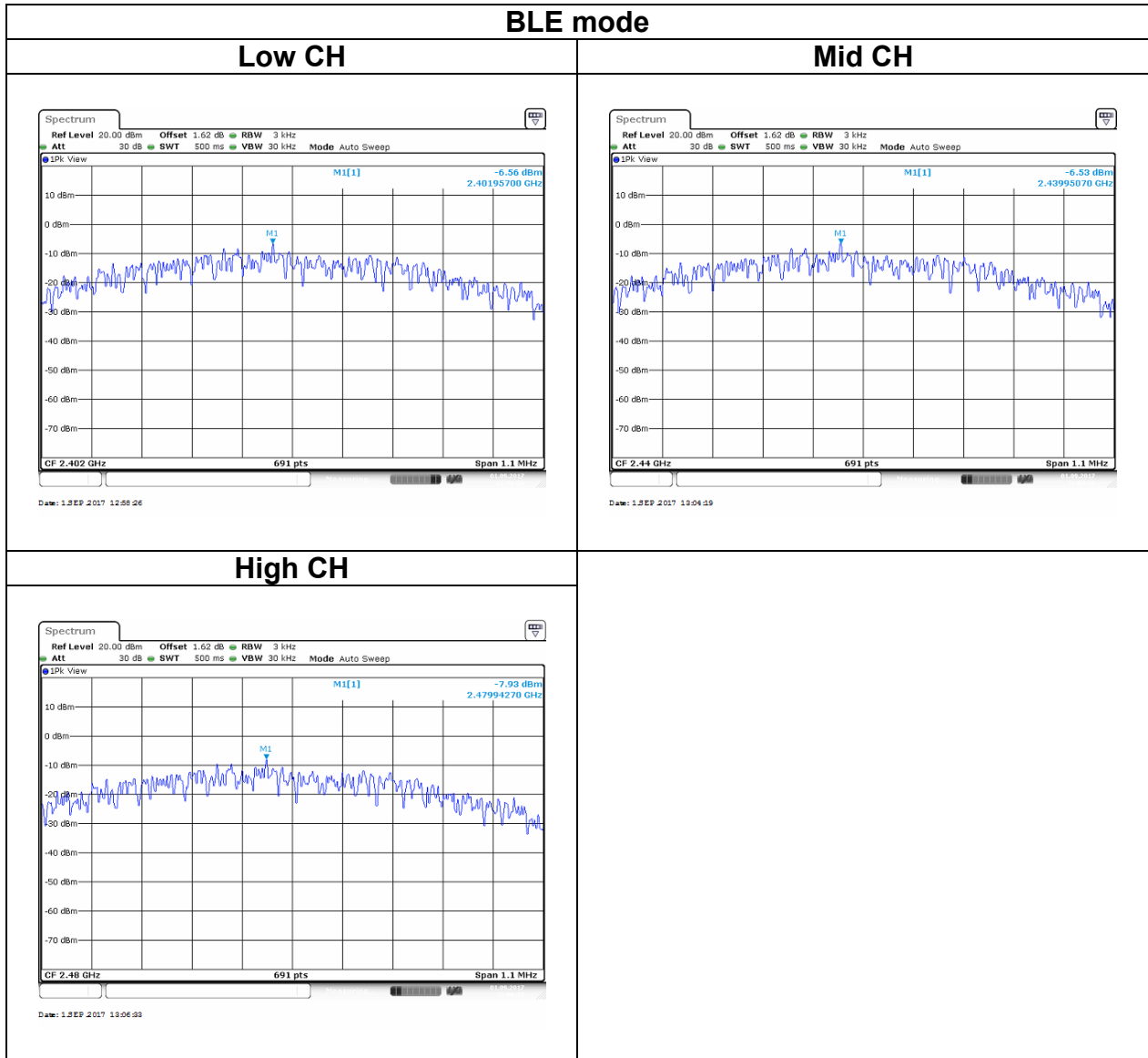
4.4.3 Test Setup



4.4.4 Test Result

Test mode: BLE mode / 2402-2480 MHz			
Channel	Frequency (MHz)	PSD (dBm)	IC/FCC limit (dBm)
Low	2402	-6.56	8
Mid	2440	-6.53	
High	2480	-7.93	

Test Data



4.5 CONDUCTED BAND EDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d) and RSS-247 section 5.5

In any 100 kHz bandwidth outside the authorized frequency band,

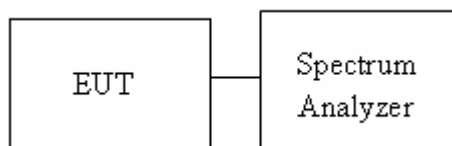
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, Section 11.

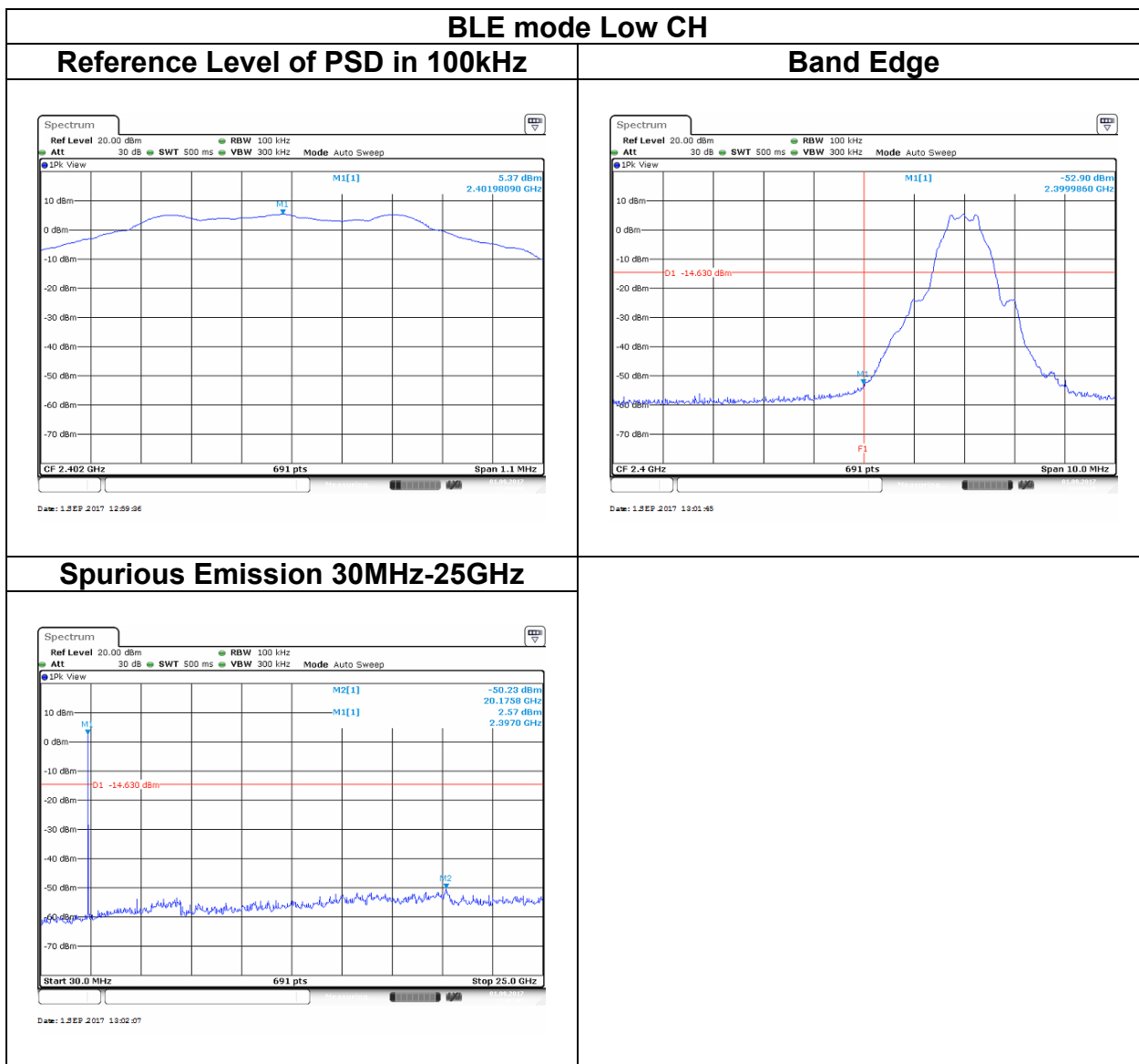
1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to 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.

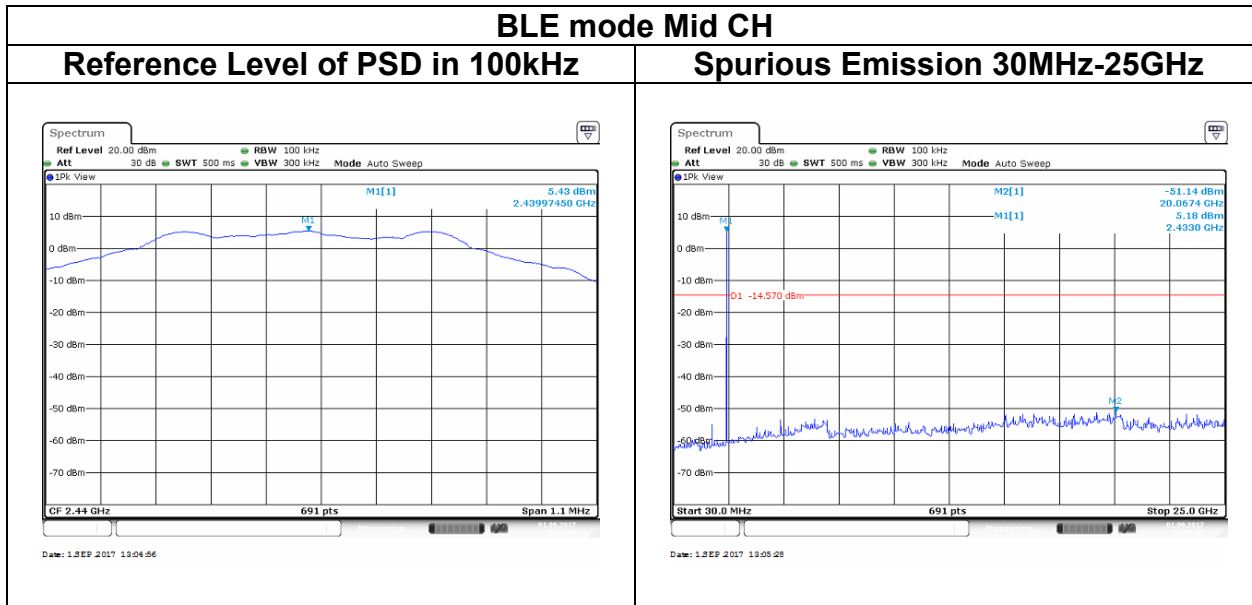
4.5.3 Test Setup

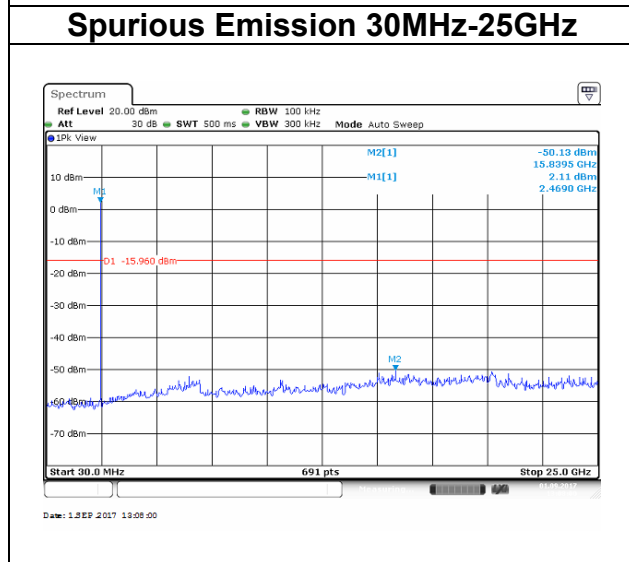
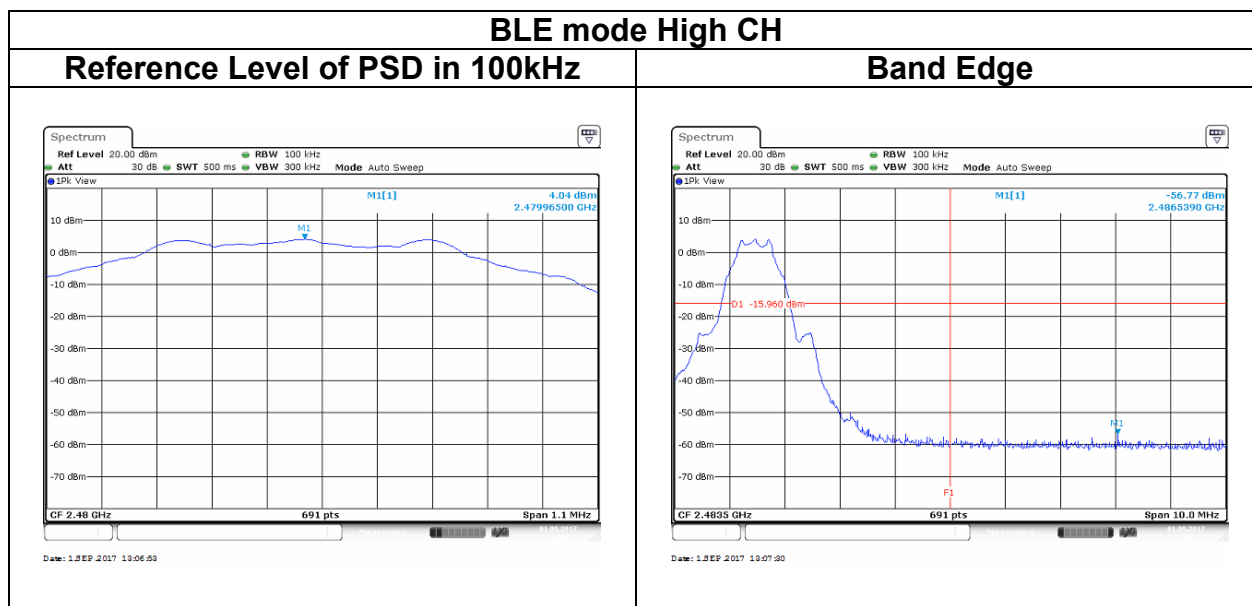


4.5.4 Test Result

Test Data







4.6 RADIATION BANDEGE AND SPURIOUS EMISSION

4.6.1 Test Limit

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

IC according to RSS-247 section 5.5, RSS-Gen, Section 8.9 and 8.10

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 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.

4.6.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, 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 30MHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

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.

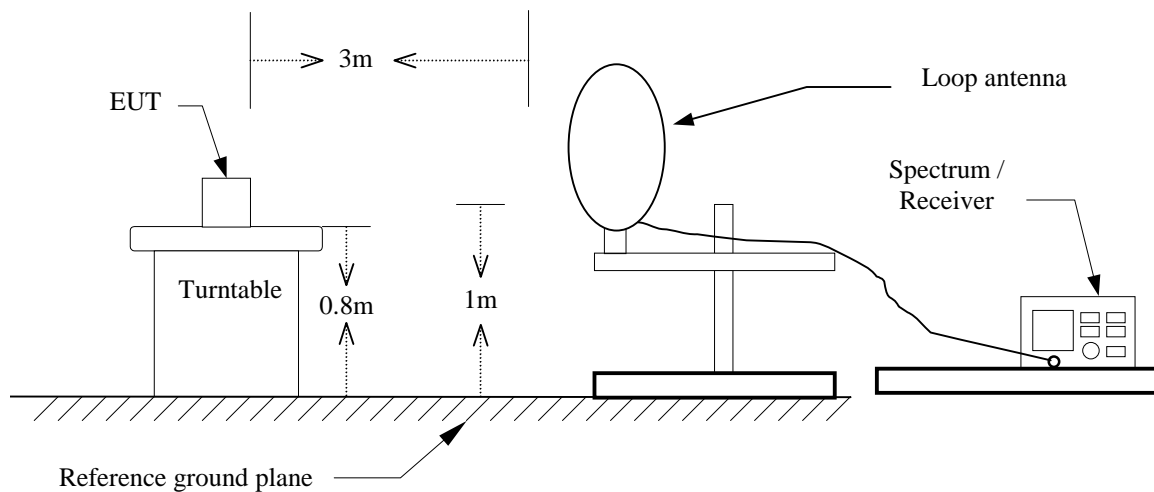
4. The SA setting following :

- (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.

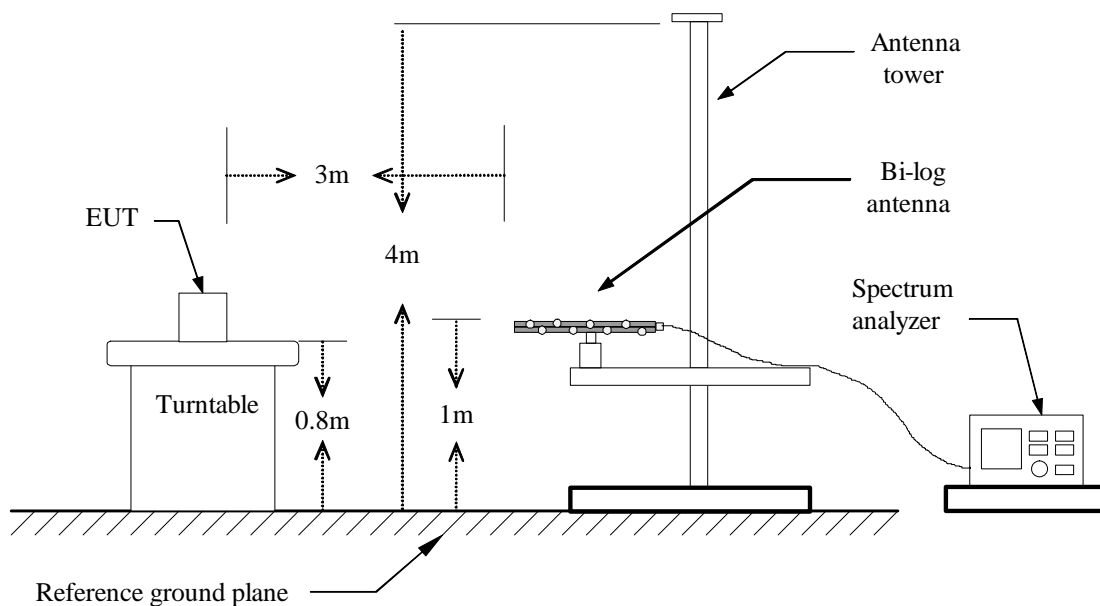
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
BLE	70%	0.4300	2.326	2.4K

4.6.3 Test Setup

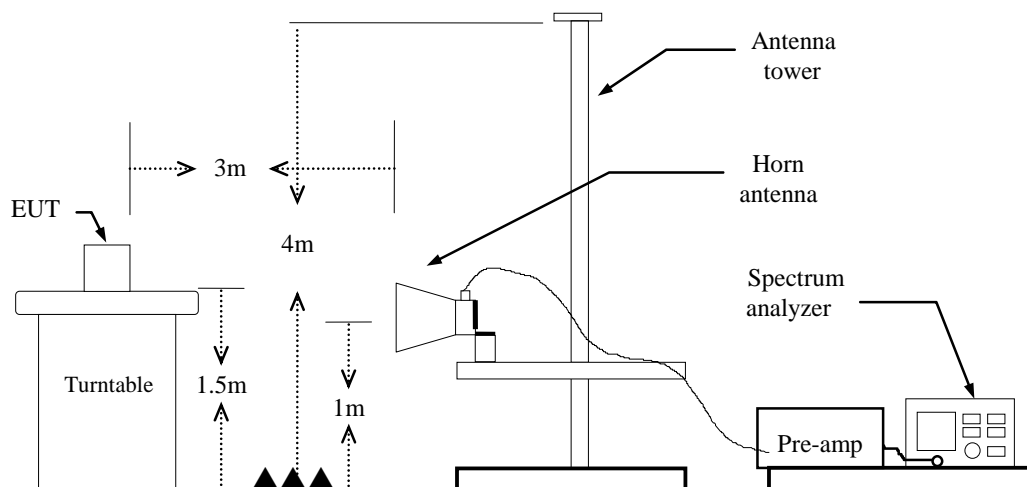
9kHz ~ 30MHz



30MHz ~ 1GHz



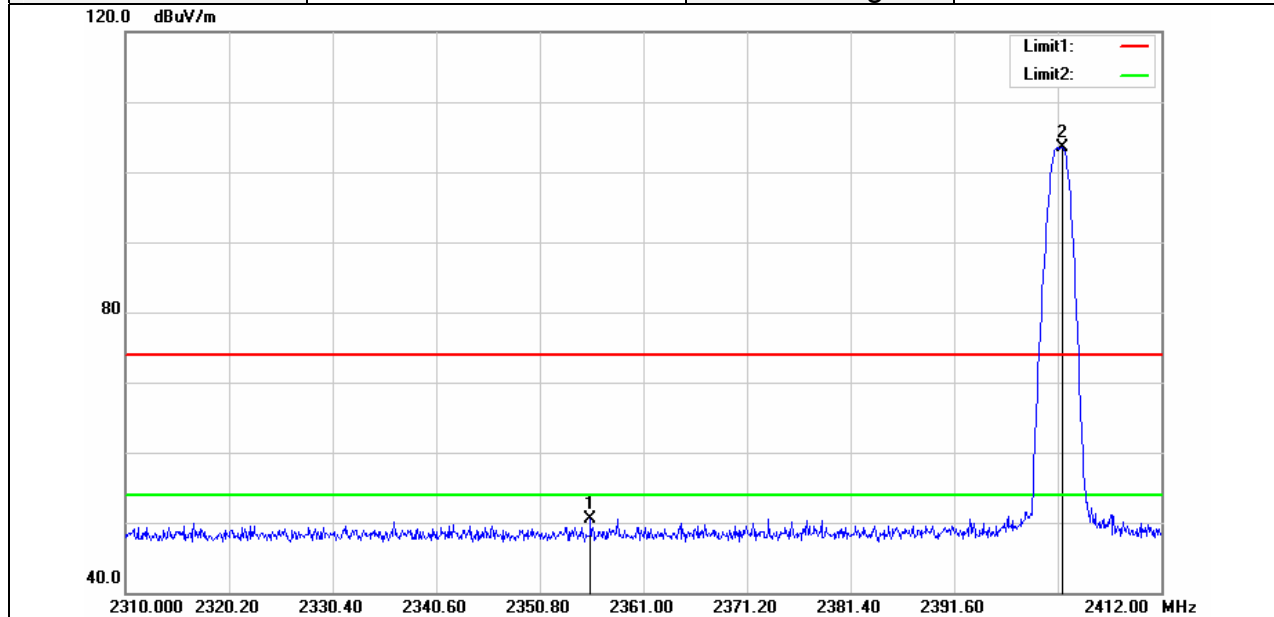
Above 1 GHz



4.6.4 Test Result

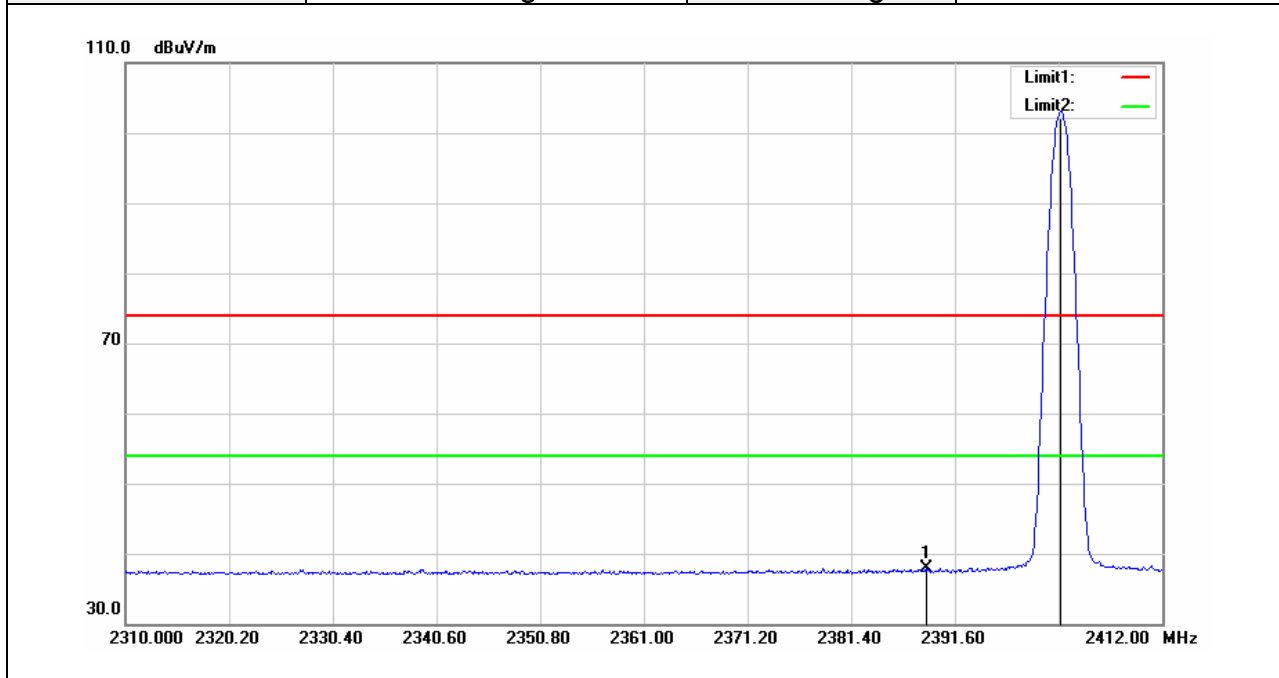
Band Edge Test Data

Test Mode:	BLE Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	September 11, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Peak	Test Voltage:	120Vac / 60Hz



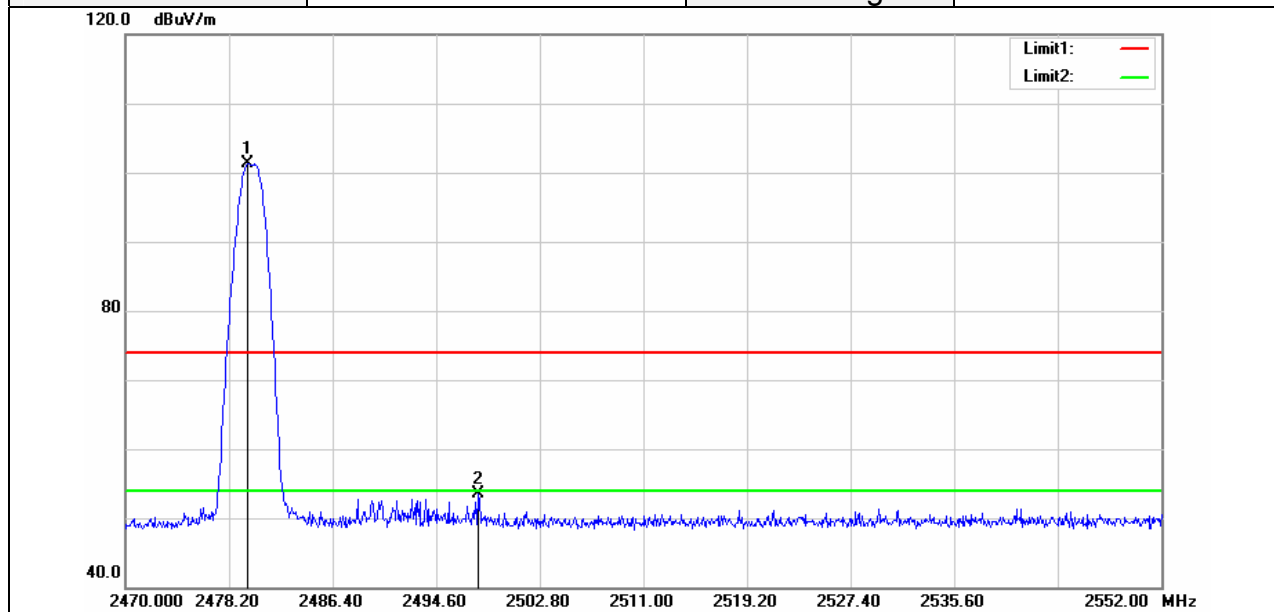
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2355.798	50.37	0.18	50.55	74.00	-23.45	peak
2	2402.208	103.21	0.29	103.50	--	--	peak

Test Mode:	BLE Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	September 11, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Average	Test Voltage:	120Vac / 60Hz



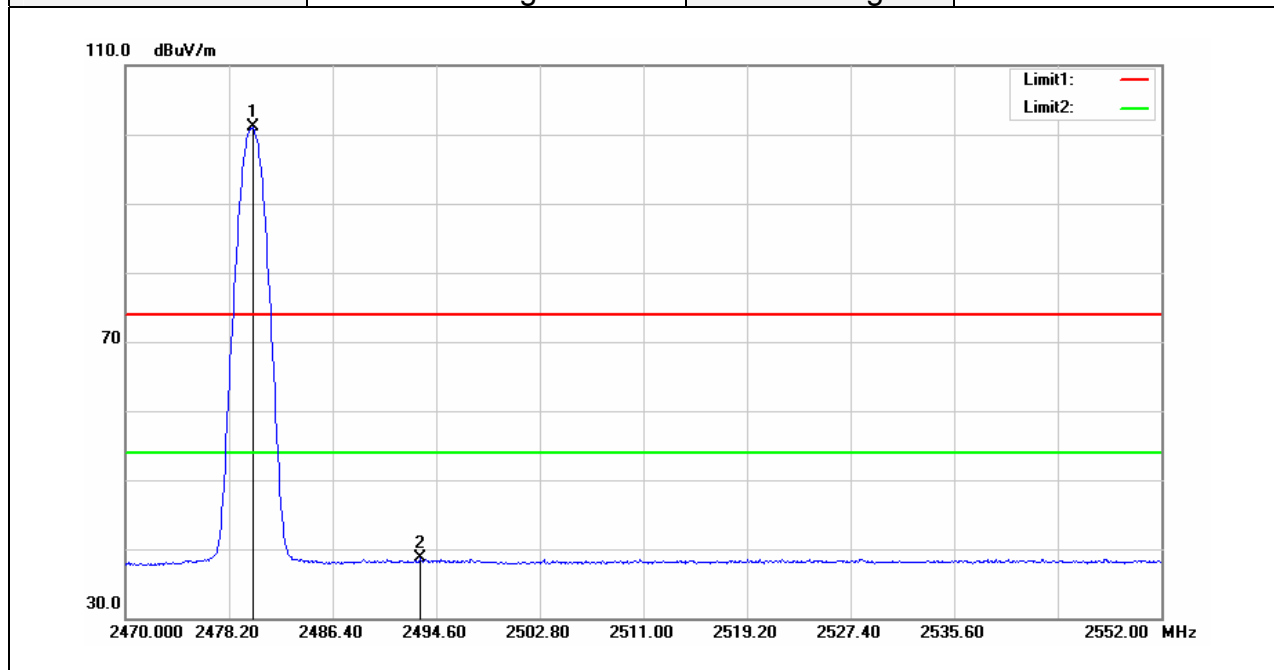
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.744	37.58	0.26	37.84	54.00	-16.16	AVG
2	2402.004	102.74	0.29	103.03	--	--	AVG

Test Mode:	BLE High CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	September 11, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Peak	Test Voltage:	120Vac / 60Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2479.676	100.72	0.50	101.22	--	--	peak
2	2497.880	52.87	0.55	53.42	74.00	-20.58	peak

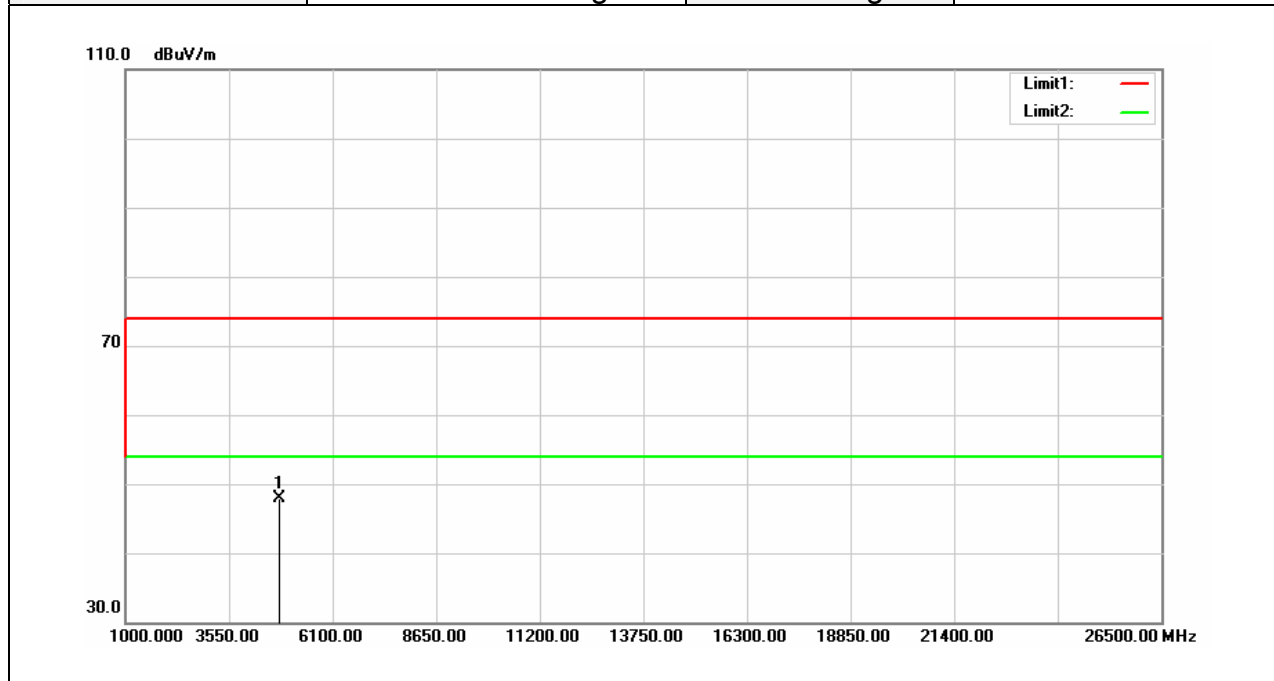
Test Mode:	BLE High CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	September 11, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Average	Test Voltage:	120Vac / 60Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.086	100.51	0.50	101.01	--	--	AVG
2	2493.370	38.10	0.53	38.63	54.00	-15.37	AVG

Above 1G Test Data

Test Mode:	BLE Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	September 11, 2017
Polarize	Vertical	Test Engineer	Ed Chiang
Detector	Peak and Average	Test Voltage:	120Vac / 60Hz

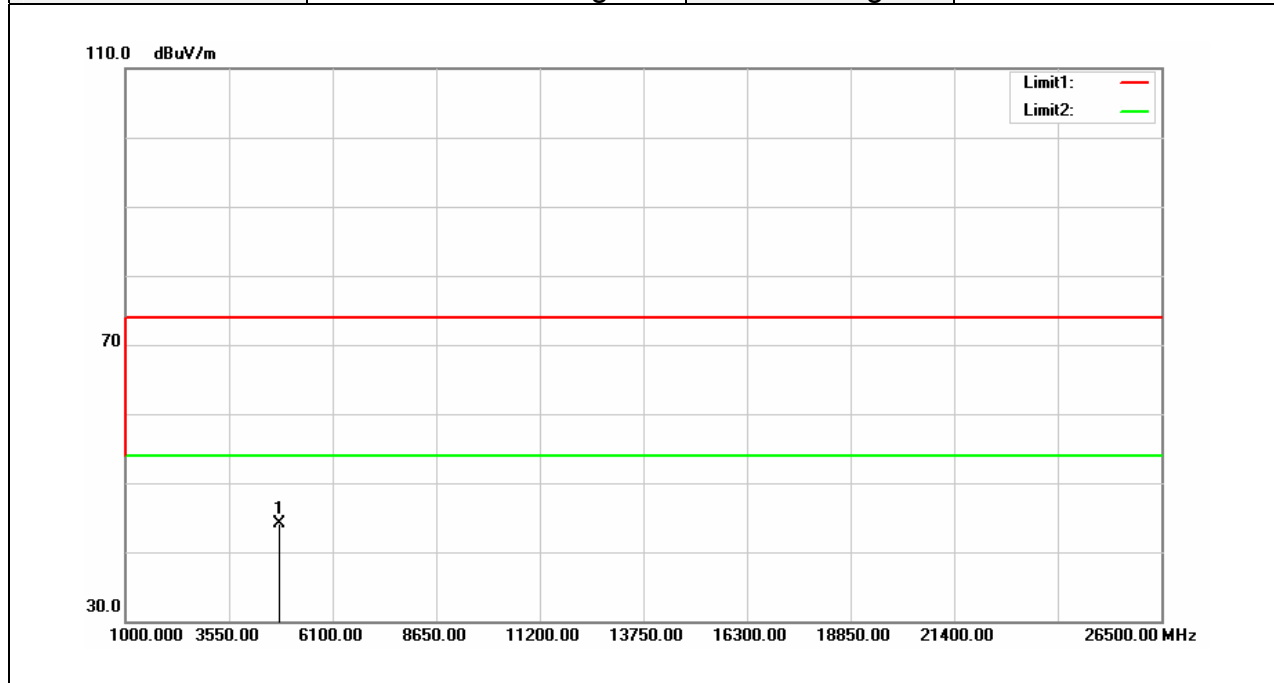


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.000	39.82	8.13	47.95	74.00	-26.05	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	September 11, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Peak and Average	Test Voltage:	120Vac / 60Hz

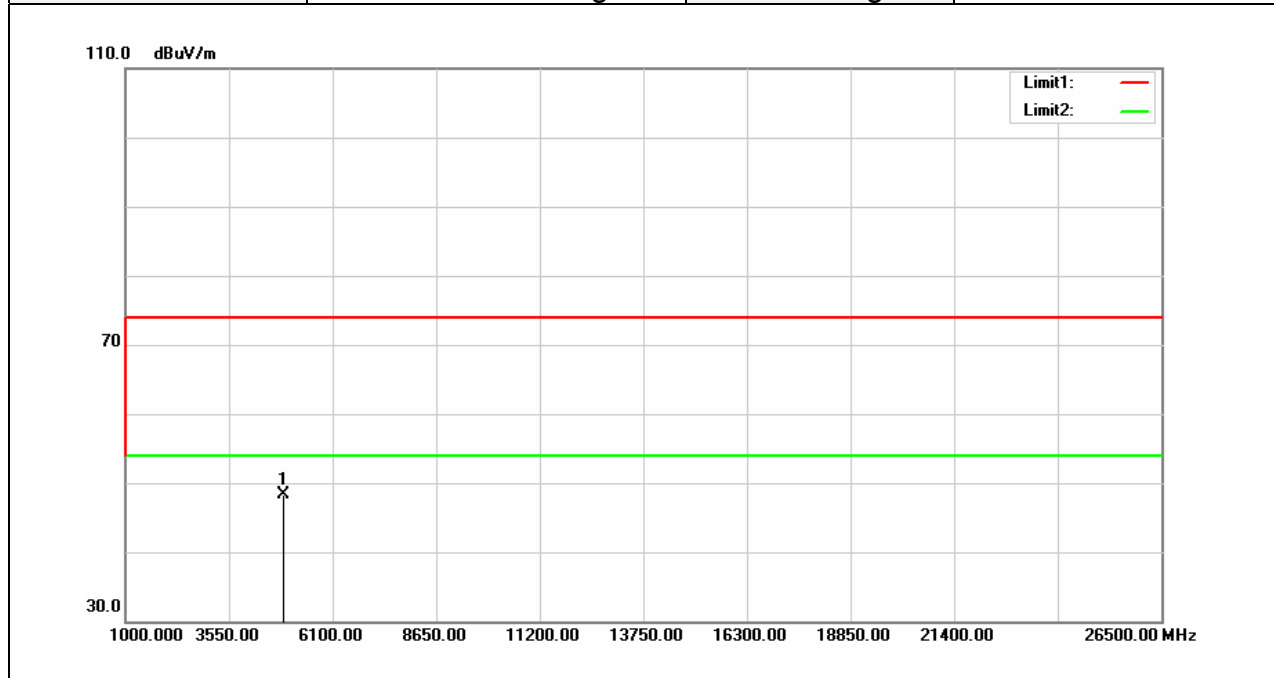


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.000	35.92	8.13	44.05	74.00	-29.95	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	September 11, 2017
Polarize	Vertical	Test Engineer	Ed Chiang
Detector	Peak and Average	Test Voltage:	120Vac / 60Hz

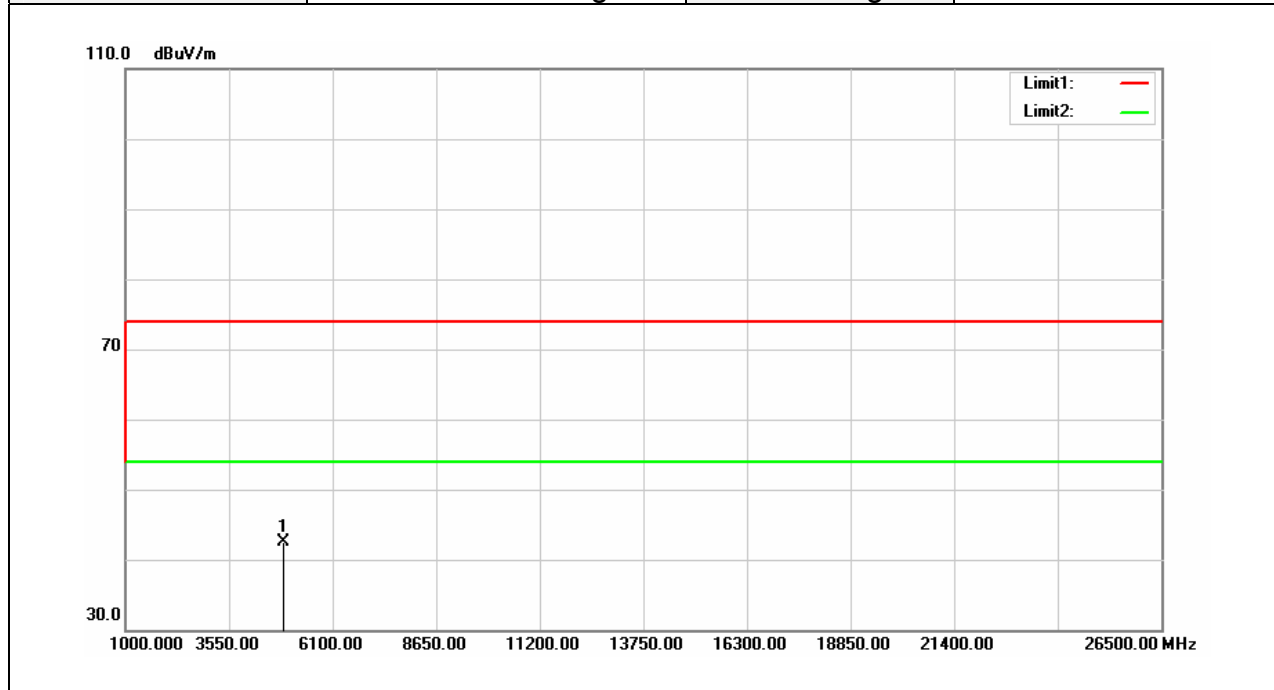


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4880.000	39.86	8.38	48.24	74.00	-25.76	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	September 11, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Peak and Average	Test Voltage:	120Vac / 60Hz

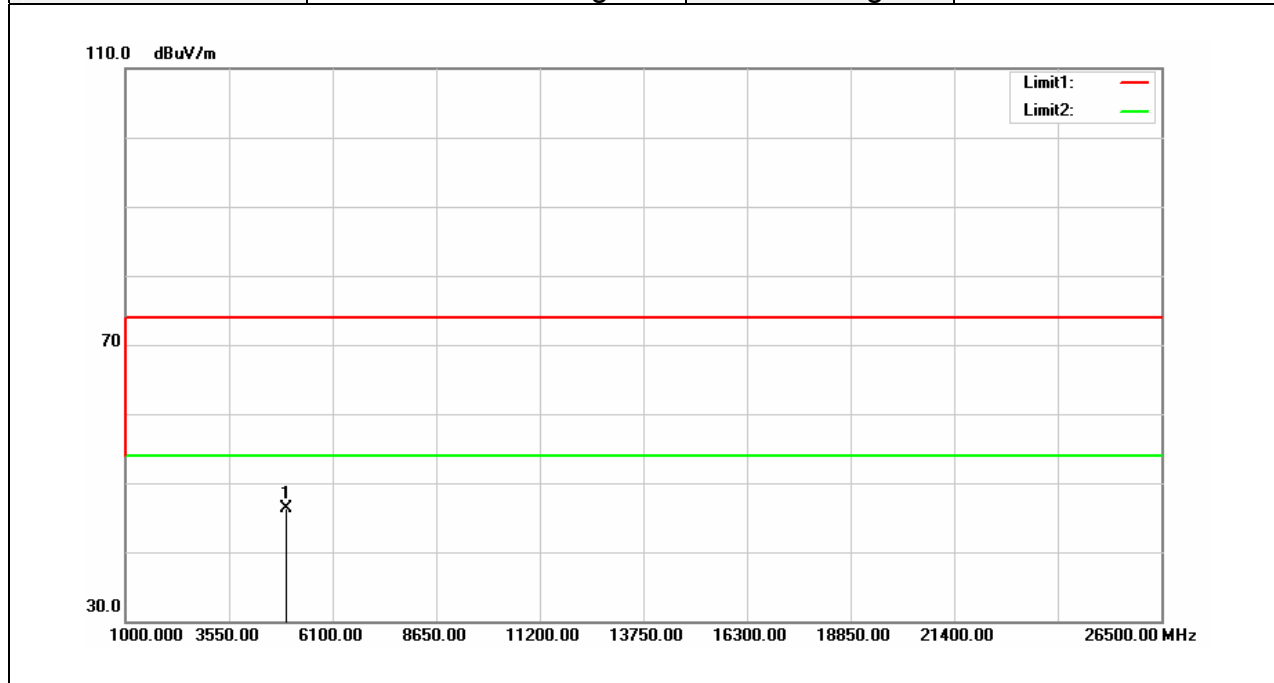


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4880.000	34.18	8.38	42.56	74.00	-31.44	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	September 11, 2017
Polarize	Vertical	Test Engineer	Ed Chiang
Detector	Peak and Average	Test Voltage:	120Vac / 60Hz

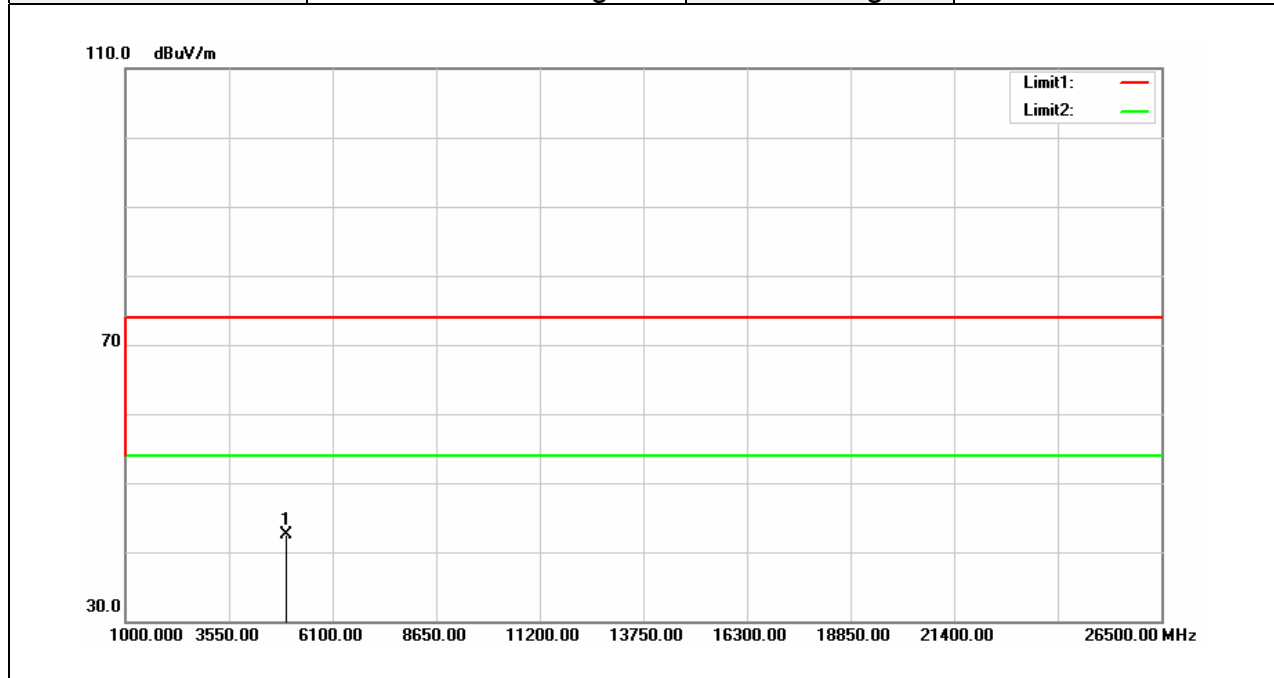


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.000	37.57	8.65	46.22	74.00	-27.78	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	September 11, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Peak and Average	Test Voltage:	120Vac / 60Hz



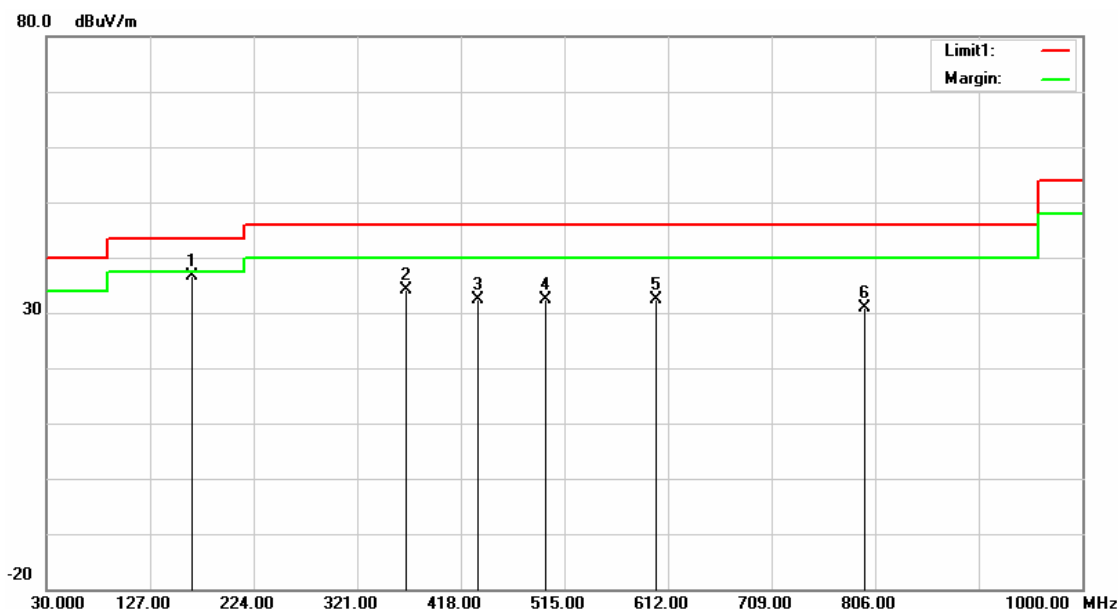
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.000	33.78	8.65	42.43	74.00	-31.57	peak
N/A						

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

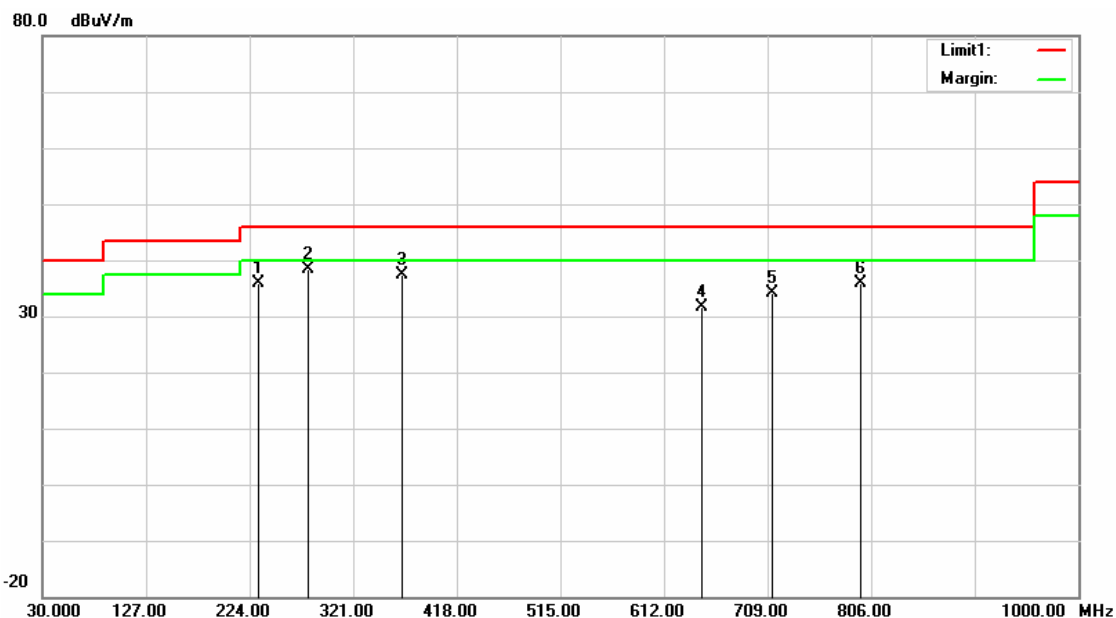
Test Mode:	BT Mode	Temp/Hum	24(°C)/ 33%RH
Test Item	30MHz-1GHz	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed Chiang
Detector	Peak and Qusi-peak	Test Voltage:	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
166.7700	52.92	-16.36	36.56	43.50	-6.94	peak
366.5900	46.58	-12.45	34.13	46.00	-11.87	peak
433.5200	42.50	-10.19	32.31	46.00	-13.69	peak
497.5400	40.85	-8.55	32.30	46.00	-13.70	peak
600.3600	39.24	-6.92	32.32	46.00	-13.68	peak
796.3000	34.41	-3.44	30.97	46.00	-15.03	peak

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

Test Mode:	BT Mode	Temp/Hum	24(°C)/ 33%RH
Test Item	30MHz-1GHz	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed Chiang
Detector	Peak and Qusi-peak	Test Voltage:	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
232.7300	52.41	-16.57	35.84	46.00	-10.16	peak
278.3200	52.63	-14.37	38.26	46.00	-7.74	peak
366.5900	49.80	-12.45	37.35	46.00	-8.65	peak
647.8900	37.36	-5.61	31.75	46.00	-14.25	peak
713.8500	38.96	-4.72	34.24	46.00	-11.76	peak
796.3000	39.42	-3.44	35.98	46.00	-10.02	peak

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