

## Variant FCC Test Report

**Report No.:** RF151207C04A-1

**FCC ID:** QYL8260NG

**Test Model:** 8260NGW

**Received Date:** Sep. 07, 2018

**Test Date:** Oct. 01, 2018 ~ Oct. 04, 2018

**Issued Date:** Oct. 30, 2018

**Applicant:** Getac Technology Corporation.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

**Test Location:** No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan, R.O.C.

**FCC Registration /**

**Designation Number:** 788550 / TW0003



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## Table of Contents

<b>Release Control Record .....</b>	<b>3</b>
<b>1 Certificate of Conformity .....</b>	<b>4</b>
<b>2 Summary of Test Results.....</b>	<b>5</b>
2.1 Measurement Uncertainty.....	5
2.2 Modification Record .....	5
<b>3 General Information .....</b>	<b>6</b>
3.1 General Description of EUT .....	6
3.2 Description of Test Modes.....	7
3.2.1 Test Mode Applicability and Tested Channel Detail.....	8
3.3 Description of Support Units .....	9
3.3.1 Configuration of System under Test .....	9
3.4 General Description of Applied Standards.....	9
<b>4 Test Types and Results .....</b>	<b>10</b>
4.1 Radiated Emission and Bandedge Measurement .....	10
4.1.1 Limits of Radiated Emission and Bandedge Measurement .....	10
4.1.2 Test Instruments .....	11
4.1.3 Test Procedures.....	12
4.1.4 Deviation from Test Standard .....	12
4.1.5 Test Set Up .....	13
4.1.6 EUT Operating Conditions.....	14
4.1.7 Test Results .....	15
4.2 Conducted Emission Measurement.....	20
4.2.1 Limits of Conducted Emission Measurement .....	20
4.2.2 Test Instruments .....	20
4.2.3 Test Procedures.....	20
4.2.4 Deviation from Test Standard .....	21
4.2.5 Test Setup.....	21
4.2.6 EUT Operating Conditions.....	21
4.2.7 Test Results .....	22
4.3 Conducted Output Power Measurement .....	24
4.3.1 Limits of Conducted Output Power Measurement.....	24
4.3.2 Test Setup.....	24
4.3.3 Test Instruments .....	24
4.3.4 Test Procedures.....	24
4.3.5 Deviation from Test Standard .....	24
4.3.6 EUT Operating Conditions.....	24
4.3.7 Test Results .....	24
<b>5 Pictures of Test Arrangements.....</b>	<b>25</b>
<b>Appendix – Information on the Testing Laboratories .....</b>	<b>26</b>

### Release Control Record

Issue No.	Description	Date Issued
RF151207C04A-1	Original Release	Oct. 30, 2018

## 1 Certificate of Conformity

**Product:** Wireless module

**Brand:** Intel

**Test Model:** 8260NGW

**Sample Status:** Engineering Sample

**Applicant:** Getac Technology Corporation.

**Test Date:** Oct. 01, 2018 ~ Oct. 04, 2018

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)

ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :** Gina Liu, **Date:** Oct. 30, 2018

Gina Liu / Specialist

**Approved by :** Dylan Chiou, **Date:** Oct. 30, 2018

Dylan Chiou / Project Engineer

## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -21.69 dB at 1.22916 MHz.
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -3.1 dB at 2363.06 MHz.
15.247(d)	Band Edge Measurement	N/A	Refer to Note
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6 dB Bandwidth	N/A	Refer to Note
---	Occupied Bandwidth Measurement	N/A	Refer to Note
15.247(b)	Conducted Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

**Note:** Only Conducted Emission, Conducted Power and Radiated Emissions tests were performed for the addendum. Refer to original report for other test data.

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

<b>Product</b>	Wireless module
<b>Brand</b>	Intel
<b>Test Model</b>	8260NGW
<b>Status of EUT</b>	Engineering Sample
<b>Power Supply Rating</b>	5.0 Vdc (host equipment)
<b>Modulation Type</b>	GFSK
<b>Transfer Rate</b>	1 Mbps
<b>Operating Frequency</b>	2402 ~ 2480 MHz
<b>Number of Channel</b>	40
<b>Output Power</b>	9.183 mW
<b>Antenna Type</b>	PIFA antenna with -0.14 dBi gain
<b>Antenna Connector</b>	I-pex
<b>Accessory Device</b>	Refer to Note as below
<b>Data Cable Supplied</b>	Refer to Note as below

Note:

1. This report is issued as a supplementary report to BV CPS report no. RF151207C04-3. The difference compared with original report is adding new WLAN antenna, PCMCIA card slot, new SSD and new adapter. Therefore, only Conducted Emission, Conducted Power and Radiated Emissions tests were verified and recorded in this report.
2. The EUT is authorized for use in specific End-product.

<b>Product</b>	<b>Brand</b>	<b>Model</b>	<b>Description</b>
NB & Tablet	Getac	V110	N/A

3. The End-product contains following accessory devices. (New brand is marked in gray.)

<b>Product</b>	<b>Brand</b>	<b>Model</b>	<b>Description</b>
Adapter 1	Chicony	A12-065N2A	I/P: 100-240Vac, 50/60Hz, 1.7A O/P: 19Vdc, 3.42A 1.7 m shielded with 1 core
Adapter 2	N/A	ADM-9019M	I/P: 100-240Vac, 50/60Hz, 1.5A O/P: 19Vdc, 4.74A 1.75 m shielded without core
Battery	Getac Technology Corp.	BP3S1P2100-S	11.1Vdc, 2100mAh
WLAN/BT Module	Intel	8260NGW	--
Digitizer	KYE	T116 EMR Digitizer	--
LTE Module	Sierra	EM7355	Function: WWAN SW: SWI9X15C_01.05.11.08 HW: 1.1
OS	N/A	N/A	Win10 64bit

4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or User's Manual.

### 3.2 Description of Test Modes

40 channels are provided to this EUT:

Channel	Freq. (MHz)						
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1 GHz

**RE<1G**: Radiated Emission below 1 GHz

**PLC**: Power Line Conducted Emission

**APCM**: Antenna Port Conducted Measurement

**Note:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.

**Note:** “-”means no effect.

#### Radiated Emission Test (Above 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	0, 19, 39	GFSK	1

#### Radiated Emission Test (Below 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	19	GFSK	1

#### Power Line Conducted Emission Test:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	19	GFSK	1

#### Antenna Port Conducted Measurement:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	0, 19, 39	GFSK	1

**Test Condition:**

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisyong Wang
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisyong Wang
APCM	25 deg. C, 65 % RH	5 Vdc	Gavin Wu

**3.3 Description of Support Units**

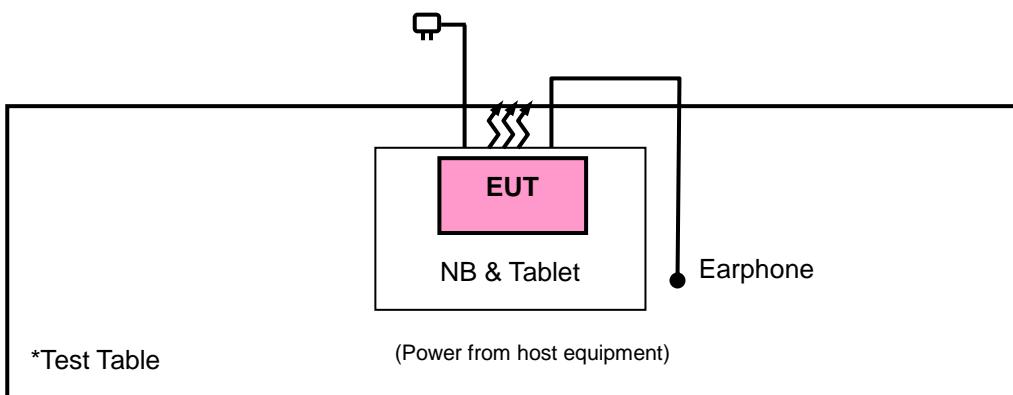
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	NB & Tablet	Getac	V110	N/A	N/A
2.	Earphone	N/A	N/A	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A
2.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).

**3.3.1 Configuration of System under Test**

**3.4 General Description of Applied Standards**

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C (15.247)**
**KDB 558074 D01 15.247 Meas Guidance v05**

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB<sub>uV</sub>/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

#### 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer Agilent	N9010A	MY52220314	Nov. 24, 2017	Nov. 23, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 12, 2017	Nov. 11, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	148	Dec. 13, 2017	Dec. 12, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Dec. 06, 2017	Dec. 05, 2018
Loop Antenna	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
Preamplifier EMCI	EMC001340	980201	Nov. 01, 2017	Oct. 30, 2018
Preamplifier EMCI	EMC 012645	980115	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 330H	980112	Oct. 13, 2017	Oct. 12, 2018
Power Meter Anritsu	ML2495A	1012010	Sep. 05, 2018	Sep. 04, 2019
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2018	Sep. 03, 2019
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8 000&3000	140811+170717	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 20, 2017	Oct. 19, 2018
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 10.

3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1GHz if tested.

4. The IC Site Registration No. is IC7450F-10.

#### 4.1.3 Test Procedures

##### For Radiated Emission below 30 MHz

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

##### Note:

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

##### For Radiated Emission above 30 MHz

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

##### Note:

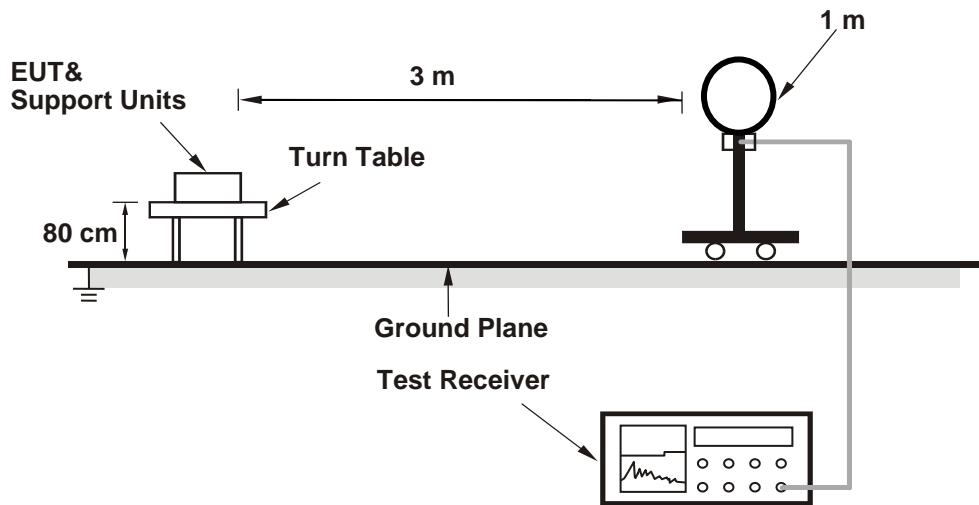
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.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

#### 4.1.4 Deviation from Test Standard

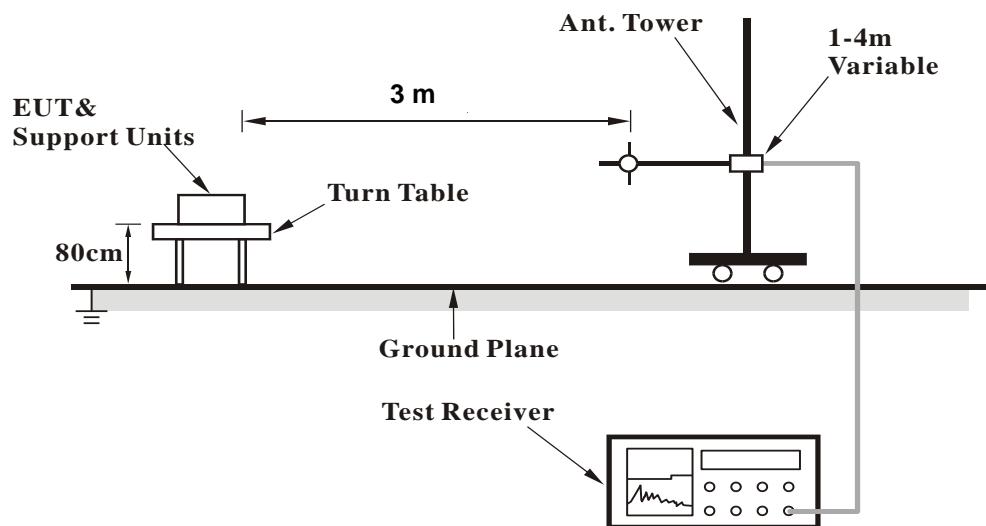
No deviation.

#### 4.1.5 Test Set Up

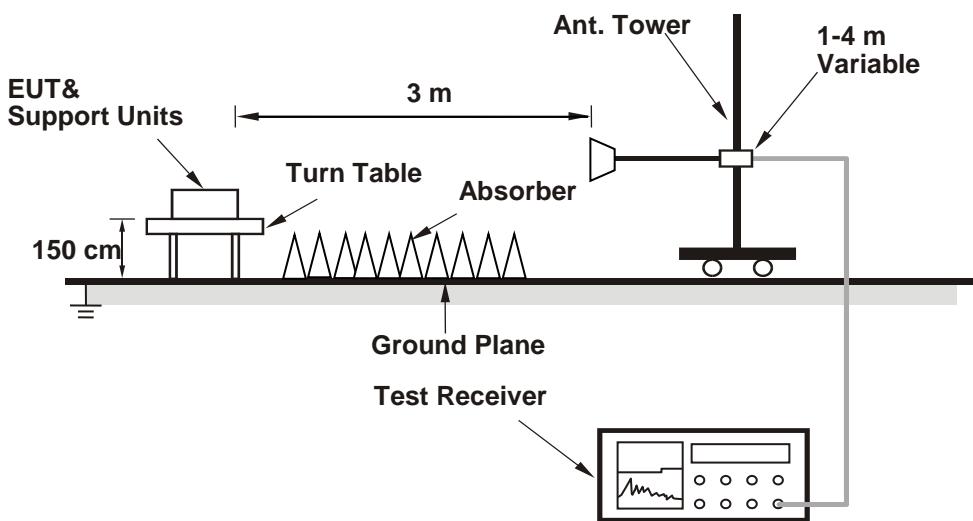
##### <Radiated Emission below 30 MHz>



##### <Radiated Emission 30 MHz to 1 GHz>



**<Radiated Emission above 1 GHz>**



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Set the EUT under transmission condition continuously at specific channel frequency.

#### 4.1.7 Test Results

##### Above 1 GHz Data:

EUT Test Condition		Measurement Detail							
Channel	Channel 0	Frequency Range				1 GHz ~ 25 GHz			
Input Power	120 Vac, 60 Hz	Detector Function				Peak (PK) Average (AV)			
Environmental Conditions	25 deg. C, 65 % RH	Tested By				Jisyong Wang			

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2358.72	37.49	43.65	54	-16.51	27.01	4.32	37.49	174	339	Average
2358.72	47.82	53.98	74	-26.18	27.01	4.32	37.49	174	339	Peak
2402	96.05	102.04			27.16	4.37	37.52	174	339	Average
2402	101.46	107.45			27.16	4.37	37.52	174	339	Peak
4804	40.26	55.23	54	-13.74	31.14	6.79	52.9	152	111	Average
4804	45.19	60.16	74	-28.81	31.14	6.79	52.9	152	111	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2325.4	46.47	52.8	54	-7.53	26.85	4.29	37.47	163	32	Average
2325.4	52.09	58.42	74	-21.91	26.85	4.29	37.47	163	32	Peak
2402	98.76	104.75			27.16	4.37	37.52	163	32	Average
2402	104.43	110.42			27.16	4.37	37.52	163	32	Peak
4804	39.26	54.23	54	-14.74	31.14	6.79	52.9	265	231	Average
4804	44.94	59.91	74	-29.06	31.14	6.79	52.9	265	231	Peak

##### Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 2402 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition			Measurement Detail				
<b>Channel</b>		Channel 19			<b>Frequency Range</b>		1 GHz ~ 25 GHz
<b>Input Power</b>		120 Vac, 60 Hz			<b>Detector Function</b>		Peak (PK) Average (AV)
<b>Environmental Conditions</b>		25 deg. C, 65 % RH			<b>Tested By</b>		Jisyong Wang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2363.62	46.11	52.26	54	-7.89	27.01	4.33	37.49	172	331	Average
2363.62	51.74	57.89	74	-22.26	27.01	4.33	37.49	172	331	Peak
2440	98.03	103.71			27.38	4.4	37.46	172	331	Average
2440	103.38	109.06			27.38	4.4	37.46	172	331	Peak
2485.64	35.65	41.01	54	-18.35	27.53	4.43	37.32	172	331	Average
2485.64	48.5	53.86	74	-25.5	27.53	4.43	37.32	172	331	Peak
4880	40.65	55.4	54	-13.35	31.25	6.86	52.86	152	231	Average
4880	45.73	60.48	74	-28.27	31.25	6.86	52.86	152	231	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2363.06	50.9	57.05	54	-3.1	27.01	4.33	37.49	164	29	Average
2363.06	55.22	61.37	74	-18.78	27.01	4.33	37.49	164	29	Peak
2440	99.01	104.69			27.38	4.4	37.46	164	29	Average
2440	104.01	109.69			27.38	4.4	37.46	164	29	Peak
2498.44	35.59	40.79	54	-18.41	27.61	4.44	37.25	164	29	Average
2498.44	48.47	53.67	74	-25.53	27.61	4.44	37.25	164	29	Peak
4880	39.5	54.25	54	-14.5	31.25	6.86	52.86	265	231	Average
4880	44.38	59.13	74	-29.62	31.25	6.86	52.86	265	231	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 2440 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition			Measurement Detail			
<b>Channel</b>		Channel 39			<b>Frequency Range</b>	1 GHz ~ 25 GHz
<b>Input Power</b>		120 Vac, 60 Hz			<b>Detector Function</b>	Peak (PK) Average (AV)
<b>Environmental Conditions</b>		25 deg. C, 65 % RH			<b>Tested By</b>	Jisyong Wang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	99.27	104.63			27.53	4.43	37.32	172	330	Average
2480	104.31	109.67			27.53	4.43	37.32	172	330	Peak
2484.08	39.84	45.2	54	-14.16	27.53	4.43	37.32	172	330	Average
2484.08	58.42	63.78	74	-15.58	27.53	4.43	37.32	172	330	Peak
4960	40.17	54.79	54	-13.83	31.4	6.9	52.92	152	231	Average
4960	45.28	59.9	74	-28.72	31.4	6.9	52.92	152	231	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	97.61	102.97			27.53	4.43	37.32	160	29	Average
2480	102.64	108			27.53	4.43	37.32	160	29	Peak
2483.52	38.75	44.11	54	-15.25	27.53	4.43	37.32	160	29	Average
2483.52	55.81	61.17	74	-18.19	27.53	4.43	37.32	160	29	Peak
4960	40.77	55.39	54	-13.23	31.4	6.9	52.92	102	265	Average
4960	46.28	60.9	74	-27.72	31.4	6.9	52.92	102	265	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. 2480 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

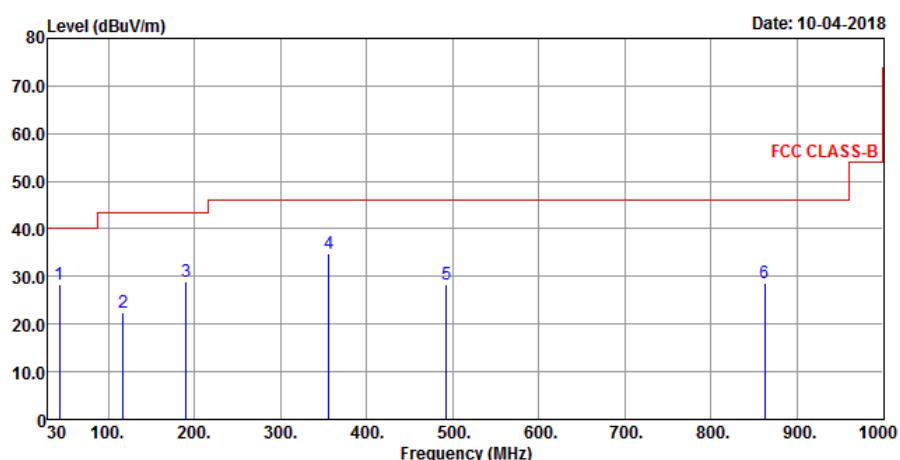
### 9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

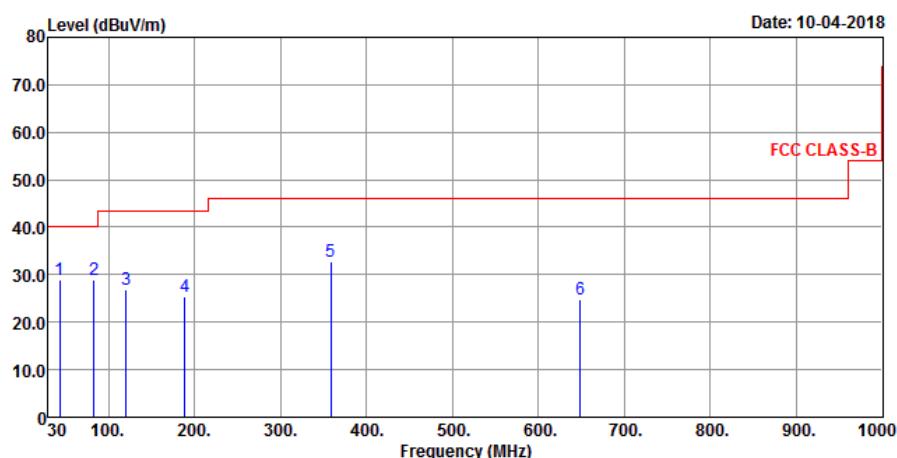
### 30 MHz ~ 1 GHz Worst-Case Data:

EUT Test Condition		Measurement Detail	
Channel	Channel 19	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) QP (Quasi-Peak)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Thomas Wei

#### Horizontal



#### Vertical



Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
43.58	28.26	45.28	40	-11.74	13.59	0.5	31.11	123	319	Peak
117.3	22.54	42.85	43.5	-20.96	10.74	0.83	31.88	148	284	Peak
190.05	28.99	49.44	43.5	-14.51	10.05	1.17	31.67	191	213	Peak
355.92	34.96	50.69	46	-11.04	14.29	1.9	31.92	234	169	Peak
492.69	28.25	40.34	46	-17.75	17.18	2.46	31.73	268	104	Peak
862.26	28.55	33.54	46	-17.45	23.03	3.9	31.92	297	55	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
43.58	28.83	45.85	40	-11.17	13.59	0.5	31.11	288	103	Peak
83.35	28.85	51.64	40	-11.15	8.18	0.68	31.65	254	166	Peak
120.21	27.01	47.05	43.5	-16.49	11.02	0.84	31.9	237	188	Peak
189.08	25.26	45.66	43.5	-18.24	10.12	1.17	31.69	192	230	Peak
358.83	32.89	48.57	46	-13.11	14.36	1.92	31.96	255	264	Peak
648.86	24.86	33.58	46	-21.14	20.2	3.11	32.03	299	321	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
2. The emission levels of other frequencies were very low against the limit.

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.  
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

### 4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
 2. The test was performed in HwaYa Shielded Room 1.  
 3. The VCCI Site Registration No. is C-2040.

### 4.2.3 Test Procedures

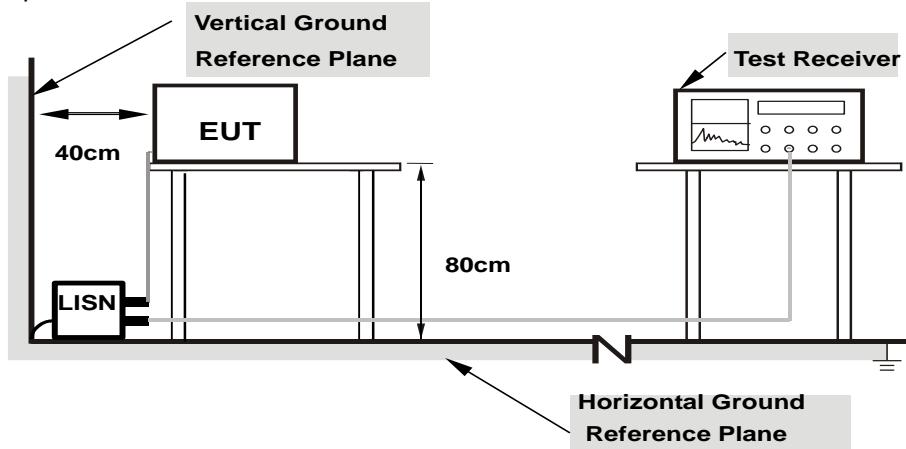
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

**Note:** The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz - 30 MHz.

#### 4.2.4 Deviation from Test Standard

No deviation.

#### 4.2.5 Test Setup



**Note:**

1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

#### 4.2.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.

#### 4.2.7 Test Results

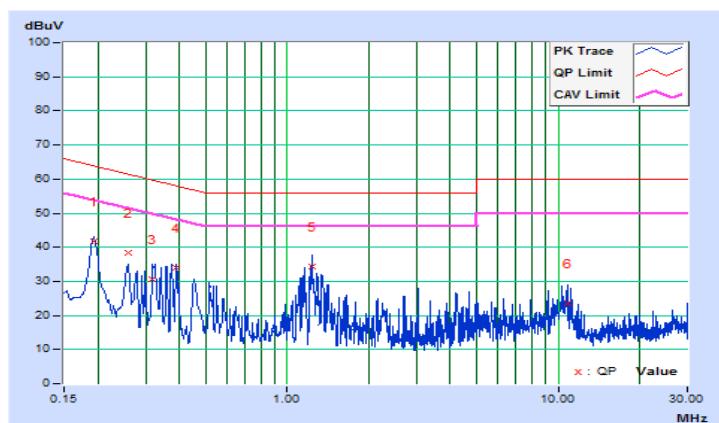
##### CONDUCTED WORST-CASE DATA

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2018/10/1

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19305	9.67	32.20	15.66	41.87	25.33	63.90	53.90	-22.03	-28.57
2	0.25932	9.67	28.78	10.87	38.45	20.54	61.45	51.45	-23.00	-30.91
3	0.31849	9.66	20.87	5.88	30.53	15.54	59.75	49.75	-29.22	-34.21
4	0.38851	9.66	24.36	5.15	34.02	14.81	58.10	48.10	-24.08	-33.29
<b>5</b>	<b>1.22916</b>	<b>9.66</b>	<b>24.65</b>	<b>5.13</b>	<b>34.31</b>	<b>14.79</b>	<b>56.00</b>	<b>46.00</b>	<b>-21.69</b>	<b>-31.21</b>
6	10.86340	9.86	13.85	1.70	23.71	11.56	60.00	50.00	-36.29	-38.44

##### Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

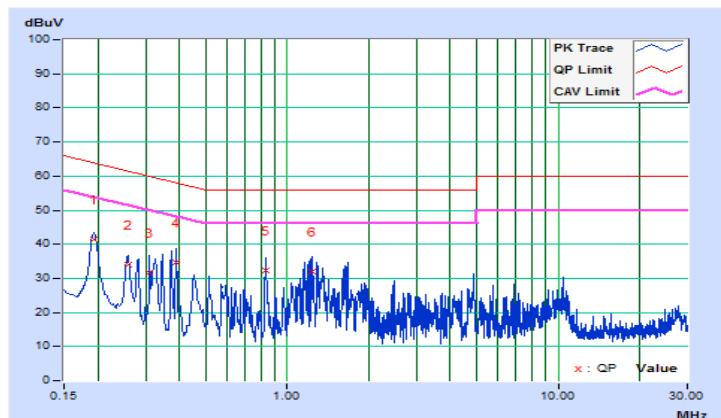


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2018/10/1

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19255	9.67	31.91	15.30	41.58	24.97	63.93	53.93	-22.35	-28.96
2	0.25864	9.67	24.31	10.89	33.98	20.56	61.47	51.47	-27.49	-30.91
3	0.31031	9.67	21.95	2.76	31.62	12.43	59.96	49.96	-28.34	-37.53
4	0.38851	9.67	25.10	4.04	34.77	13.71	58.10	48.10	-23.33	-34.39
5	0.83765	9.66	22.56	7.44	32.22	17.10	56.00	46.00	-23.78	-28.90
6	1.22916	9.66	22.36	8.27	32.02	17.93	56.00	46.00	-23.98	-28.07

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

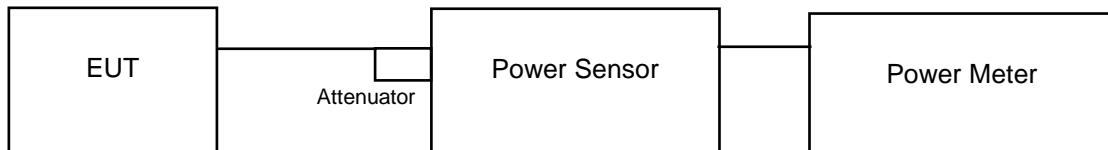


### 4.3 Conducted Output Power Measurement

#### 4.3.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

#### 4.3.2 Test Setup



#### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 Test Procedures

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

#### 4.3.5 Deviation from Test Standard

No deviation.

#### 4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.3.7 Test Results

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
0	2402	9.183	9.63	30	Pass
19	2440	8.851	9.47	30	Pass
39	2480	8.091	9.08	30	Pass

## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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