

## Partial FCC Test Report

**Report No.:** RF190807C14-3

**FCC ID:** I4L-BM25SD

**Test Model:** MS-5776-A-H

**Received Date:** Aug. 07, 2019

**Test Date:** Sep. 04 ~ Sep. 05, 2019

**Issued Date:** Sep. 12, 2019

**Applicant:** Micro Star International Co., Ltd.

**Address:** No. 69, Li-De Street, Jung He City, Taipei Hsien, R.O.C. TAIWAN

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

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Taiwan

**FCC Registration /** 788550 / TW0003

**Designation Number:** 427177 / TW0011



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### Release Control Record

Issue No.	Description	Date Issued
RF190807C14-3	Original Release	Sep. 12, 2019

## 1 Certificate of Conformity

**Product:** Edge Computing Gateway

**Brand:** Conexio

**Test Model:** MS-5776-A-H

**Sample Status:** Mass Product

**Applicant:** Micro Star International Co., Ltd.

**Test Date:** Sep. 04 ~ Sep. 05, 2019

**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 : Lena Wang , Date: Sep. 12, 2019  
Lena Wang / Specialist

Approved by : Dylan Chiou , Date: Sep. 12, 2019  
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	N/A	Without AC power of the EUT
15.247(a)(1)(iii)	Number of Hopping Frequency Used	N/A	Refer to Note
15.247(a)(1)(iii)	Dwell Time on Each Channel	N/A	Refer to Note
15.247(a)(1)	1. Hopping Channel Separation 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	N/A	Refer to Note
15.247(a)(1)	Maximum Peak Output Power	N/A	Refer to Note
---	Occupied Bandwidth Measurement	N/A	Refer to Note
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -11.31 dB at 4960 MHz.
15.247(d)	Band Edge Measurement	N/A	Refer to Note
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

### Note:

1. This report is a partial report. Therefore, only test item of Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RF180518C15-1 for module (Brand: MSI, Model: BM25)
2. If the Frequency Hopping System operating in 2400-2483.5 MHz band and the output power less than 125 mW. The hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of hopping channel whichever is greater.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 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	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

<b>Product</b>	Edge Computing Gateway
<b>Brand</b>	Conexio
<b>Test Model</b>	MS-5776-A-H
<b>Status of EUT</b>	Mass Product
<b>Power Supply Rating</b>	12.0 Vdc (DC Power Supply)
<b>Modulation Type</b>	GFSK, $\pi/4$ -DQPSK, 8DPSK
<b>Transfer Rate</b>	1/2/3 Mbps
<b>Operating Frequency</b>	2402 ~ 2480 MHz
<b>Number of Channel</b>	79
<b>Antenna Type</b>	Couple antenna with 0.78 dBi gain
<b>Antenna Connector</b>	SMA
<b>Accessory Device</b>	Refer to Note as below
<b>Data Cable Supplied</b>	N/A

Note:

1. 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

79 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To		Description
	RE $\geq$ 1G	RE<1G	
-	√	√	-

Where **RE $\geq$ 1G**: Radiated Emission above 1 GHz **RE<1G**: Radiated Emission below 1 GHz

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 Technology	Modulation Type	Packet Type
-	0 to 78	0, 39, 78	FHSS	GFSK	DH5
	0 to 78	0, 39, 78	FHSS	8DPSK	3DH5

#### **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 Technology	Modulation Type	Packet Type
-	0 to 78	78	FHSS	8DPSK	3DH5

#### **Test Condition:**

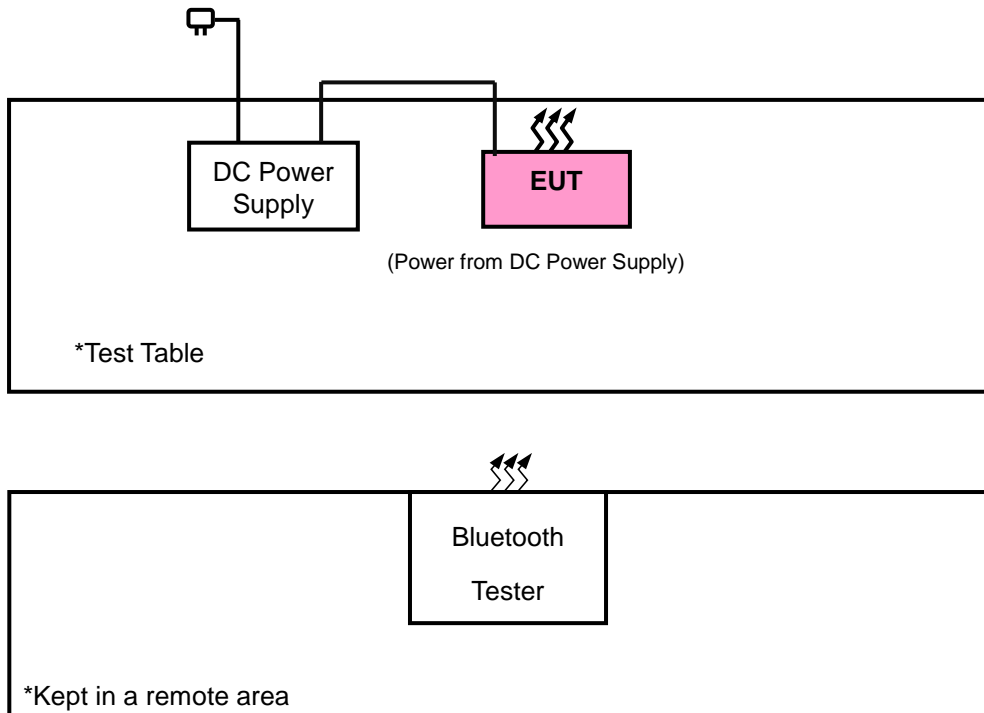
Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee



### 3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

#### 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 v05r02**

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:**

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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 Technologies	N9038A	MY52260177	Aug. 26, 2019	Aug. 25, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSW26	102023	Oct. 11, 2018	Oct. 10, 2019
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 27, 2018	Nov. 26, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
Bluetooth Tester	CBT	100980	Jul. 14, 2019	Jul. 13, 2020
Loop Antenna	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
Preamplifier Agilent	310N	187226	Jun. 18, 2019	Jun. 17, 2020
Preamplifier Agilent	83017A	MY39501357	Jun. 18, 2019	Jun. 17, 2020
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 18, 2019	Jun. 17, 2020
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 18, 2019	Jun. 17, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
DC Power Supply Topward	33010D	807748	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 HsinTien Chamber 1.

#### 4.1.3 Test Procedures

##### **For Radiated Emission below 30 MHz**

- 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.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- Both Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- 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.
- The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

##### **Note:**

- 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**

- 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.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- 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.
- 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:**

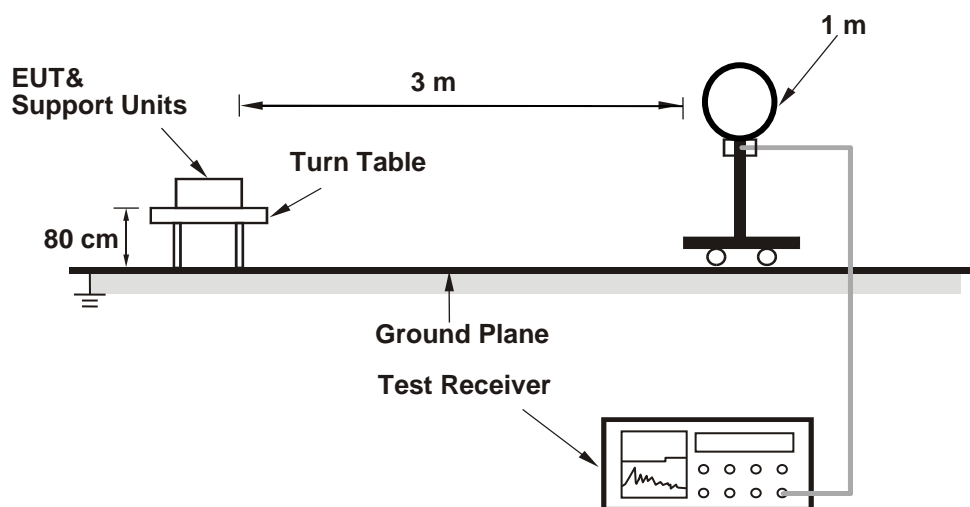
- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
- 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 = 10 Hz)
- All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

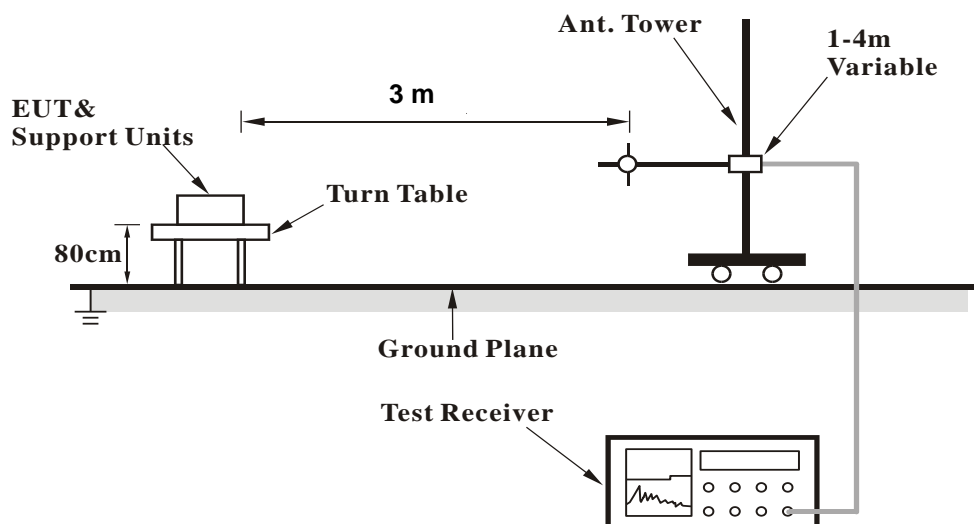
No deviation.

#### 4.1.5 Test Set Up

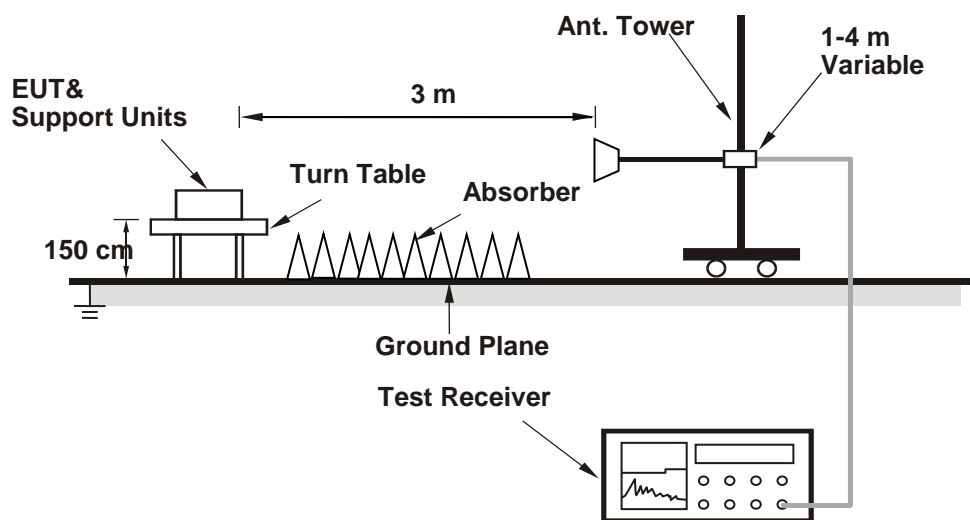
##### <Radiated Emission below 30 MHz>



##### <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

Set the EUT under transmission condition continuously at specific channel frequency.

#### 4.1.7 Test Results

#### Above 1 GHz Data: GFSK

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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2386.34	41.41	36.92	4.49	54	-12.59	290	21	Average
2386.34	51.52	47.03	4.49	74	-22.48	290	21	Peak
2402	98.23	93.71	4.52			290	21	Average
2402	100.68	96.16	4.52			290	21	Peak
4804	42.27	31.92	10.35	54	-11.73	128	134	Average
4804	48.32	37.97	10.35	74	-25.68	128	134	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2385.21	41.35	36.88	4.47	54	-12.65	190	335	Average
2385.21	52.21	47.74	4.47	74	-21.79	190	335	Peak
2402	94.82	90.3	4.52			190	335	Average
2402	97.45	92.93	4.52			190	335	Peak
4804	42.1	31.75	10.35	54	-11.9	124	115	Average
4804	48.48	38.13	10.35	74	-25.52	124	115	Peak

#### Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 39	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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2370.39	41.14	36.69	4.45	54	-12.86	290	21	Average
2370.39	51.82	47.37	4.45	74	-22.18	290	21	Peak
2441	97.61	93.03	4.58			290	21	Average
2441	100.33	95.75	4.58			290	21	Peak
2487.4	41.17	36.51	4.66	54	-12.83	290	21	Average
2487.4	51.69	47.03	4.66	74	-22.31	290	21	Peak
4882	42.58	32.37	10.21	54	-11.42	193	287	Average
4882	48.94	38.73	10.21	74	-25.06	193	287	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2380.84	40.26	35.79	4.47	54	-13.74	190	335	Average
2380.84	51.39	46.92	4.47	74	-22.61	190	335	Peak
2441	92.94	88.36	4.58			190	335	Average
2441	95.22	90.64	4.58			190	335	Peak
2492.16	41.17	36.5	4.67	54	-12.83	190	335	Average
2492.16	51.38	46.71	4.67	74	-22.62	190	335	Peak
4882	42.38	32.17	10.21	54	-11.62	182	113	Average
4882	48.27	38.06	10.21	74	-25.73	182	113	Peak

Remarks:

1. Emission Level = Read Level + Factor  
Margin value = Emission level – Limit value
2. 2441 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.



EUT Test Condition		Measurement Detail	
Channel	Channel 78	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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	98.46	93.82	4.64			290	31	Average
2480	100.61	95.97	4.64			290	31	Peak
2489.67	41.17	36.49	4.68	54	-12.83	290	31	Average
2489.67	52.36	47.68	4.68	74	-21.64	290	31	Peak
4960	42.58	32.22	10.36	54	-11.42	106	127	Average
4960	48.47	38.11	10.36	74	-25.53	106	127	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	93.03	88.39	4.64			190	335	Average
2480	95.62	90.98	4.64			190	335	Peak
2485.06	41.36	36.7	4.66	54	-12.64	190	335	Average
2485.06	51.72	47.06	4.66	74	-22.28	190	335	Peak
4960	42.65	32.29	10.36	54	-11.35	164	107	Average
4960	49.03	38.67	10.36	74	-24.97	164	107	Peak

Remarks:

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

## 8DPSK

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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2387.04	41.24	36.75	4.49	54	-12.76	290	21	Average
2387.04	51.64	47.15	4.49	74	-22.36	290	21	Peak
2402	97.11	92.59	4.52			290	21	Average
2402	99.64	95.12	4.52			290	21	Peak
4804	42.18	31.83	10.35	54	-11.82	128	134	Average
4804	48.53	38.18	10.35	74	-25.47	128	134	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.43	41.17	36.68	4.49	54	-12.83	190	335	Average
2389.43	51.41	46.92	4.49	74	-22.59	190	335	Peak
2402	93.59	89.07	4.52			190	335	Average
2402	96.27	91.75	4.52			190	335	Peak
4804	42.6	32.25	10.35	54	-11.4	124	115	Average
4804	48.71	38.36	10.35	74	-25.29	124	115	Peak

### Remarks:

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

EUT Test Condition		Measurement Detail	
Channel	Channel 39	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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2368.43	41.29	36.86	4.43	54	-12.71	290	21	Average
2368.43	52.04	47.61	4.43	74	-21.96	290	21	Peak
2441	96.48	91.9	4.58			290	21	Average
2441	99.16	94.58	4.58			290	21	Peak
2492.37	41.36	36.69	4.67	54	-12.64	290	21	Average
2492.37	51.37	46.7	4.67	74	-22.63	290	21	Peak
4882	42.39	32.18	10.21	54	-11.61	193	287	Average
4882	48.71	38.5	10.21	74	-25.29	193	287	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2372.28	41.55	37.1	4.45	54	-12.45	190	335	Average
2372.28	51.67	47.22	4.45	74	-22.33	190	335	Peak
2441	91.86	87.28	4.58			190	335	Average
2441	94.37	89.79	4.58			190	335	Peak
2485.29	41.36	36.7	4.66	54	-12.64	190	335	Average
2485.29	51.63	46.97	4.66	74	-22.37	190	335	Peak
4882	42.35	32.14	10.21	54	-11.65	182	113	Average
4882	48.69	38.48	10.21	74	-25.31	182	113	Peak

Remarks:

1. Emission Level = Read Level + Factor  
Margin value = Emission level – Limit value
2. 2441 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 78	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	Karl Lee

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	97.13	92.49	4.64			290	31	Average
2480	99.56	94.92	4.64			290	31	Peak
2487.35	41.56	36.9	4.66	54	-12.44	290	31	Average
2487.35	52.11	47.45	4.66	74	-21.89	290	31	Peak
4960	42.69	32.33	10.36	54	-11.31	106	127	Average
4960	48.71	38.35	10.36	74	-25.29	106	127	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	91.76	87.12	4.64			190	335	Average
2480	94.54	89.9	4.64			190	335	Peak
2484.27	41.53	36.87	4.66	54	-12.47	190	335	Average
2484.27	52.22	47.56	4.66	74	-21.78	190	335	Peak
4960	42.36	32	10.36	54	-11.64	164	107	Average
4960	48.75	38.39	10.36	74	-25.25	164	107	Peak

Remarks:

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

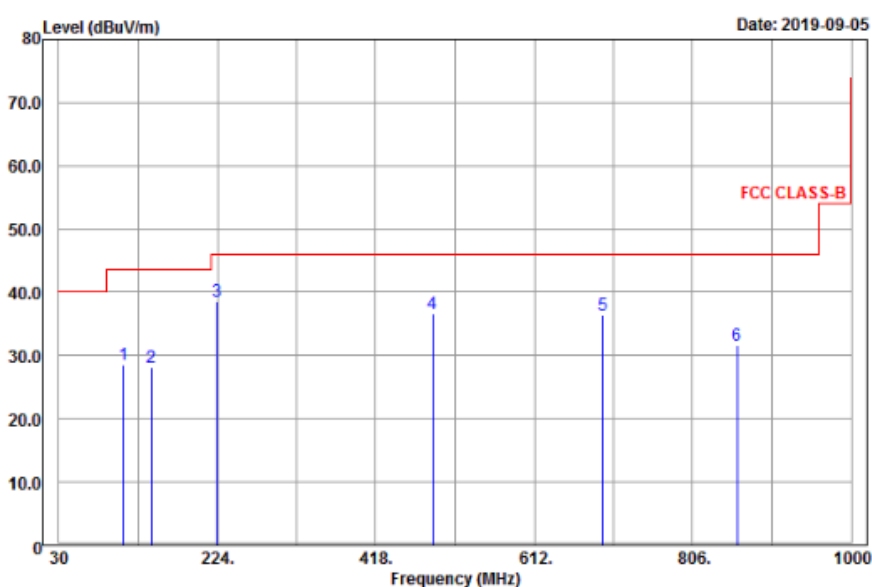
### 9 kHz ~ 30 MHz Data:

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

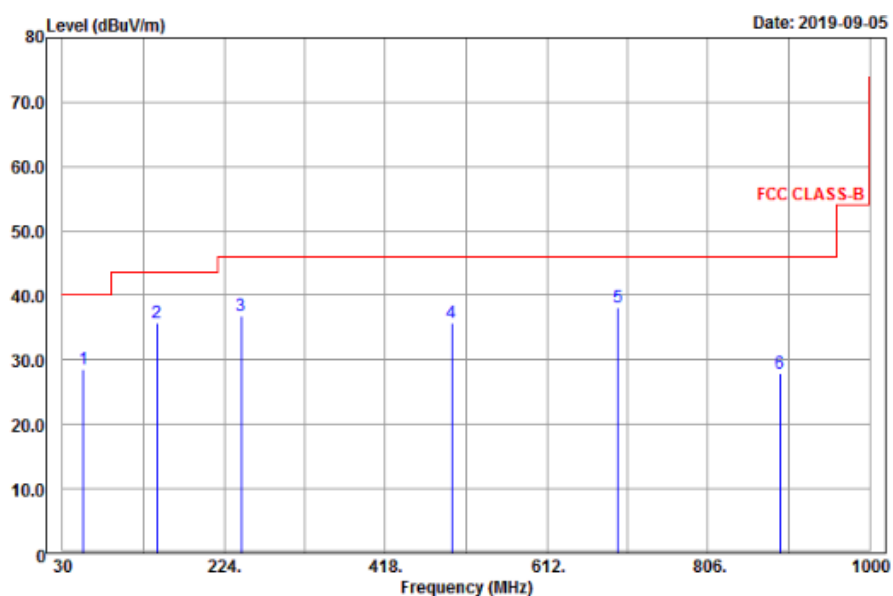
### 30 MHz ~ 1 GHz Worst-Case Data:

EUT Test Condition		Measurement Detail	
Channel	Channel 78	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

### Horizontal



### Vertical



**Antenna Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
108.84	28.56	46.02	-17.46	43.5	-14.94	162	105	Peak
143.67	28.22	49.25	-21.03	43.5	-15.28	173	306	Peak
223.59	38.62	56.28	-17.66	46	-7.38	134	118	Peak
487.6	36.62	49.19	-12.57	46	-9.38	167	135	Peak
696.2	36.47	45.73	-9.26	46	-9.53	125	184	Peak
860.7	31.6	38.16	-6.56	46	-14.4	105	199	Peak

**Antenna Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
54.84	28.49	43.98	-15.49	40	-11.51	109	233	Peak
143.67	35.77	56.8	-21.03	43.5	-7.73	164	125	Peak
244.92	36.74	53.67	-16.93	46	-9.26	134	178	Peak
498.1	35.76	48.09	-12.33	46	-10.24	178	161	Peak
697.6	38.18	47.43	-9.25	46	-7.82	150	28	Peak
892.2	27.96	33.99	-6.03	46	-18.04	139	357	Peak

Remarks:

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

## 5 Pictures of Test Arrangements

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

## Appendix – Information of 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.

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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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