Variant FCC Test Report

Report No.:	RF180621C33F
FCC ID:	UK7-DW9
Test Model:	DW9D1 (Refer section 3.1 for more details)
Received Date:	Sep. 25, 2019
Test Date:	Oct. 09 ~ Oct. 15, 2019
Issued Date:	Oct. 18, 2019
Applicant:	Fossil Group, Inc.
Address:	901 S. Central Expressway, Richardson, TX 75080, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF180621C33F	Original Release	Oct. 18, 2019

1 Certificate of Conformity

Product:	Smart Watch
Test Model:	DW9D1 (Refer to section 3.1 for more details)
Sample Status:	Identical Prototype
Applicant:	Fossil Group, Inc.
Test Date:	Oct. 09 ~ Oct. 15, 2019
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10:2013

This report is issued as a supplementary report to BV CPS report no.: RF180621C33E. This report shall be used by combining with its original report.

Prepared by : Gina Liu , **Date:** Oct. 18, 2019

Gina Liu / Specialist

Approved by : , **Date:** Oct. 18, 2019

Dylan Chiou / Project Engineer

2 Summary of Test Results

<Bluetooth LE>

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.207	AC Power Conducted Emission	N/A	Refer to Note
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -6.34 dB at 945.68 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	N/A	Refer to Note
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

<WLAN>

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.207	AC Power Conducted Emission	N/A	Refer to Note
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.49 dB at 2483.5 MHz.
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	N/A	Refer to Note
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

Note:

1. Only Radiated Emissions was performed for this report. Refer to original report for other test data.
2. 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) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	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

Product	Smart Watch	
Test Model	DW9D1	
Status of EUT	Identical Prototype	
Power Supply Rating	5.0 Vdc (adapter or host equipment) 3.85 Vdc (Li-ion battery)	
Modulation Type	Bluetooth LE	GFSK
	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Transfer Rate	Bluetooth LE	1 Mbps
	WLAN	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 72.2 Mbps
Operating Frequency	Bluetooth LE	2402 ~ 2480 MHz
	WLAN	2412 ~ 2472 MHz
Number of Channel	Bluetooth LE	40
	WLAN	13 for 802.11b, 802.11g, 802.11n (HT20)
Antenna Type	Loop antenna	
Antenna Connector	N/A	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

1. This report is issued as a supplementary report to BV CPS report no. RF180621C33E. The difference compared with original report is adding models (DW9D1), appearance design / antenna gain / brand. Therefore, only Radiated Emissions was verified worst channel and recorded in this report.
2. All models are listed as below. (New brand is marked in gray.)

Sample	Model	Antenna Gain (dBi)		Description
		2.4G / BT	GPS	
1	DW9F1	-9.7	-7.15	The models have the same layout, circuit, and components, but different appearance, antenna gain and brand.
2	DW9F2	-8.26	-5.26	
3	DW9B1	-5.88	-4.02	
4	DW9M1	-6.71	-4.17	
5	DW9K1	-8.62	-4.20	
6	DW9P1	-7.35	-4.23	
7	**DW9D1**	**-7.82**	**-5.47**	

3. The EUT provide one completed transmitter and one receiver.

Modulation Mode	Tx Function
802.11b	1TX
802.11g	1TX
802.11n (HT20)	1TX
BT LE	1TX

4. Confirmed output power has been verified as original filing before starting the C2PC testing.
5. The EUT accessories list refers to user manual.
6. 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

<Bluetooth LE>

40 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	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

<WLAN>

13 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442		

3.2.1 Test Mode Applicability and Tested Channel Detail

<Bluetooth LE>

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

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

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-"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	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	39	GFSK	1

<WLAN>

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

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

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-"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	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11n (HT20)	1 to 13	13	OFDM	BPSK	6.5

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	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11n (HT20)	1 to 13	13	OFDM	BPSK	6.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim Chen, Getaz Yang
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim Chen

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.

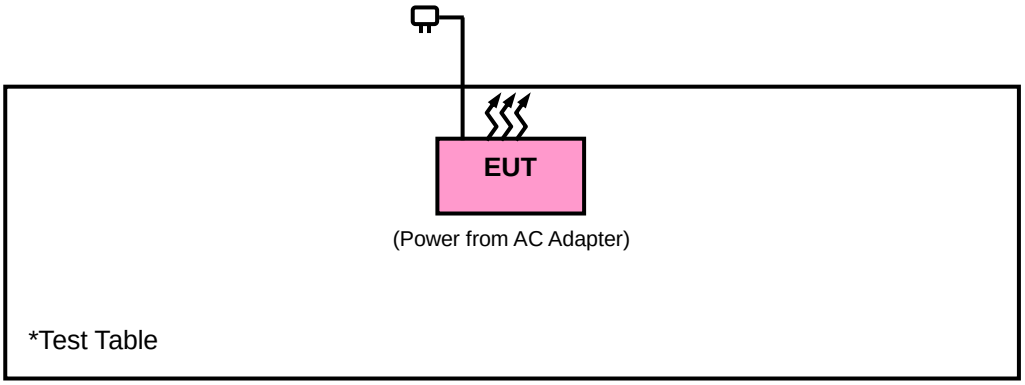
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	Adapter	SALCOMP	TC U250	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	1m shielded cable

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 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:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/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. 18, 2019	Mar. 17, 2020
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 13, 2018	Dec. 12, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 15, 2019	Apr. 14, 2020
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	148	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Nov. 23, 2018	Nov. 22, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
Loop Antenna	HLA 6121	45745	Jul. 01, 2019	Jun. 30, 2020
Preamplifier EMCI	EMC001340	980201	Oct. 12, 2018	Oct. 11, 2019
			Oct. 14, 2019	Oct. 13, 2020
Preamplifier EMCI	EMC 012645	980115	Oct. 08, 2019	Oct. 07, 2020
Preamplifier EMCI	EMC 184045	980116	Oct. 08, 2019	Oct. 07, 2020
Preamplifier EMCI	EMC 330H	980112	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8000&3000	140811+170717	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 08, 2019	Oct. 07, 2020
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.

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.
2. There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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:

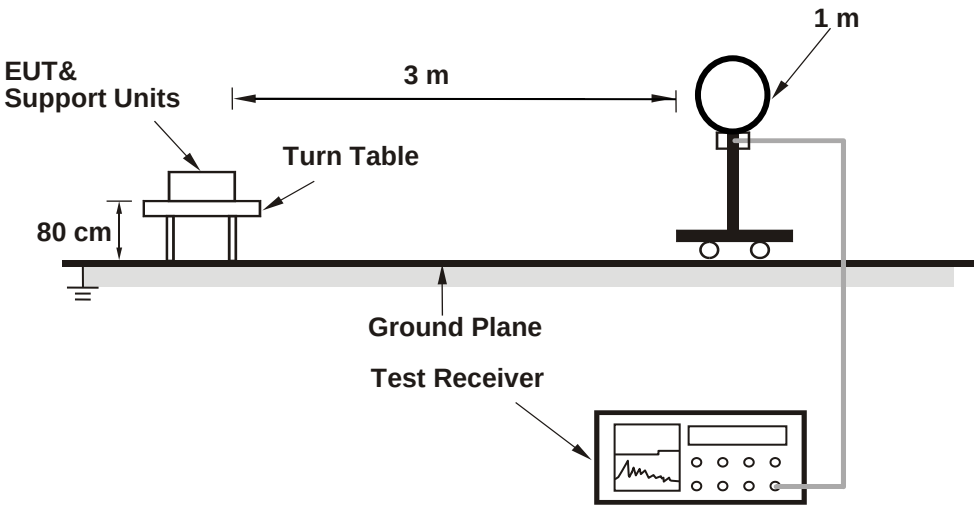
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz. (RBW = 1 MHz, VBW = 3 kHz for BT LE; 11n (HT20): RBW = 1 MHz, VBW = 1 kHz for WLAN)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

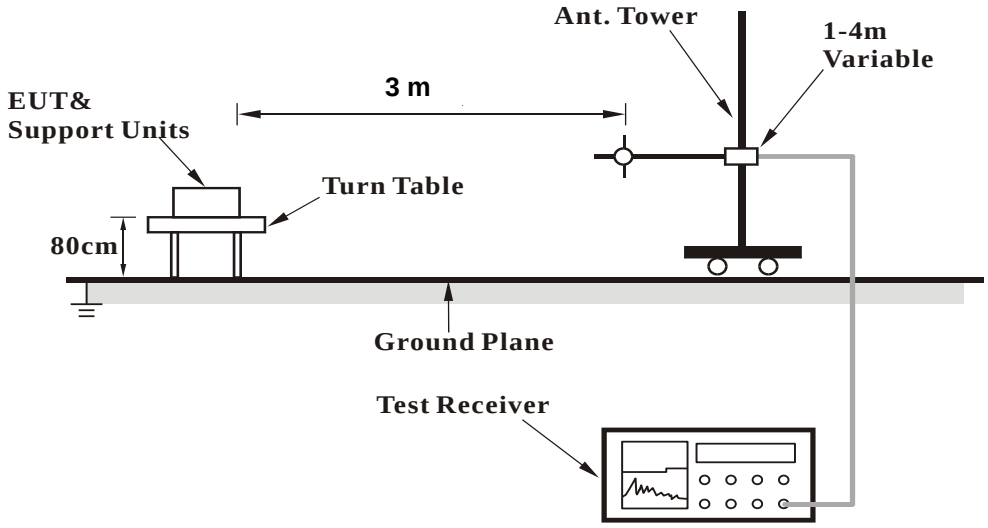
No deviation.

4.1.5 Test Set Up

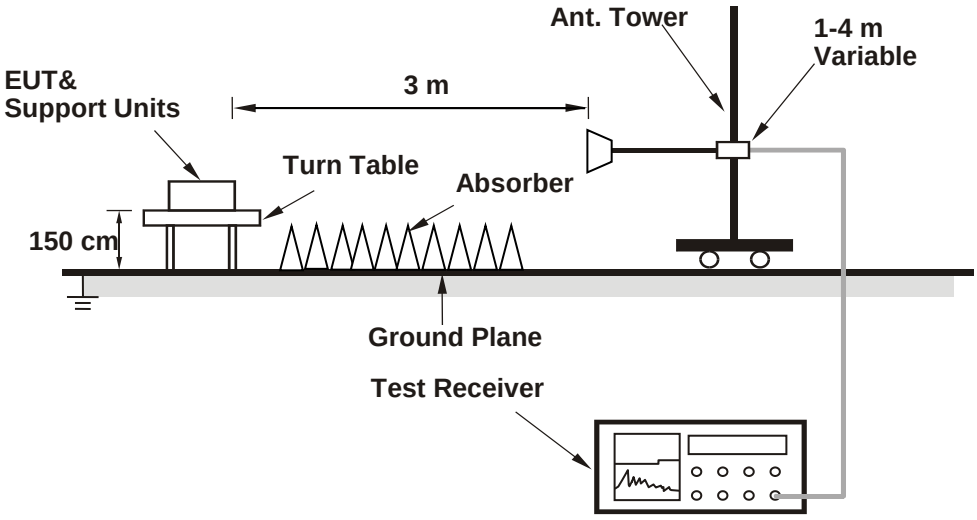
<Radiated Emission below 30 MHz>



<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

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

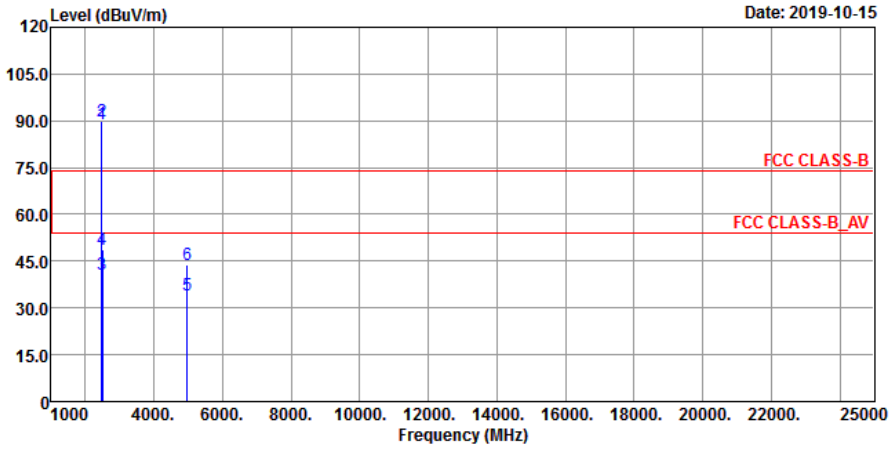
4.1.7 Test Results

ABOVE 1GHz DATA

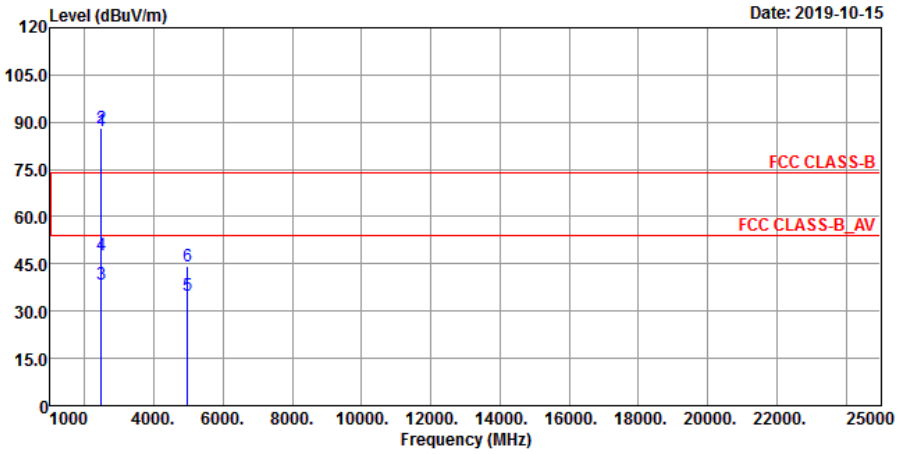
BT_LE-GFSK

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**	Getaz Yang

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**
2480	88.94	56.47	32.47			142	360	Average
2480	89.78	57.31	32.47			142	360	Peak
2484.88	41.11	45.96	-4.85	54	-12.89	142	360	Average
2484.88	48.91	53.76	-4.85	74	-25.09	142	360	Peak
4960	33.96	47.85	-13.89	54	-20.04	198	251	Average
4960	43.83	57.72	-13.89	74	-30.17	198	251	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	87.36	54.89	32.47			148	220	Average
2480	88.14	55.67	32.47			148	220	Peak
2483.64	38.5	43.35	-4.85	54	-15.5	148	220	Average
2483.64	47.69	52.54	-4.85	74	-26.31	148	220	Peak
4960	34.93	48.82	-13.89	54	-19.07	115	21	Average
4960	44.44	58.33	-13.89	74	-29.56	115	21	Peak

Remarks:

1. Emission Level = Read Level + 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.

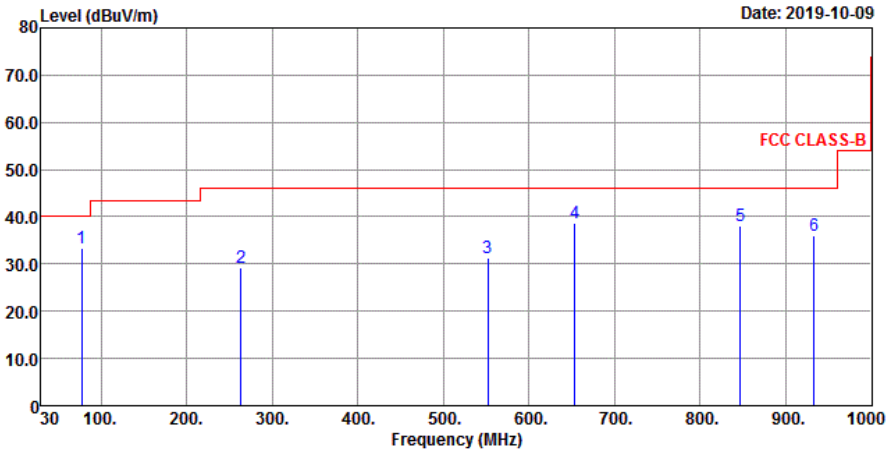
9 kHz ~ 30 MHz Data:

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

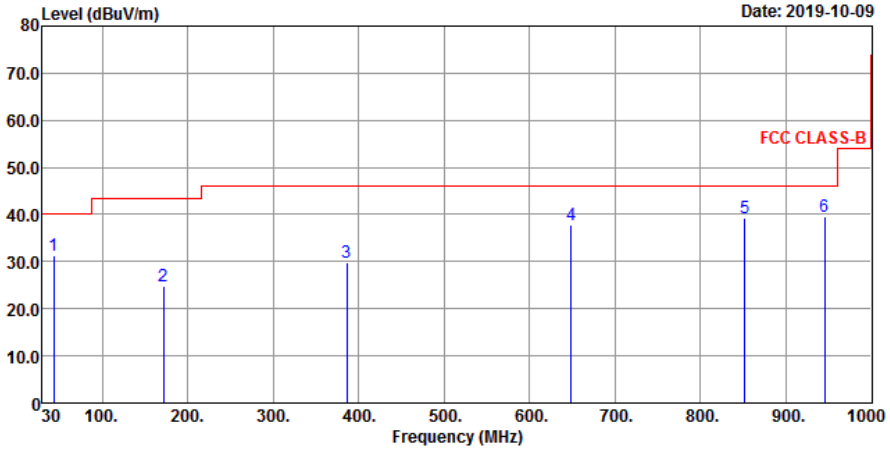
30 MHz ~ 1 GHz Worst-Case Data:

EUT Test Condition		Measurement Detail	
Channel	Channel 39	**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**	Tim Chen

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**
77.53	33.49	54.73	-21.24	40	-6.51	116	121	Peak
263.77	29.21	46.35	-17.14	46	-16.79	133	306	Peak
551.86	31.21	41.85	-10.64	46	-14.79	125	206	Peak
653.71	38.74	46.69	-7.95	46	-7.26	117	49	Peak
846.74	38.03	42.21	-4.18	46	-7.97	103	139	Peak
933.07	36.03	38.85	-2.82	46	-9.97	118	221	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**
43.58	31.38	48.33	-16.95	40	-8.62	136	251	Peak
171.62	24.66	42.45	-17.79	43.5	-18.84	177	151	Peak
385.99	29.68	44.25	-14.57	46	-16.32	136	299	Peak
648.86	37.74	45.98	-8.24	46	-8.26	108	132	Peak
851.59	39.13	43.28	-4.15	46	-6.87	101	56	Peak
945.68	39.66	42.41	-2.75	46	-6.34	114	307	Peak

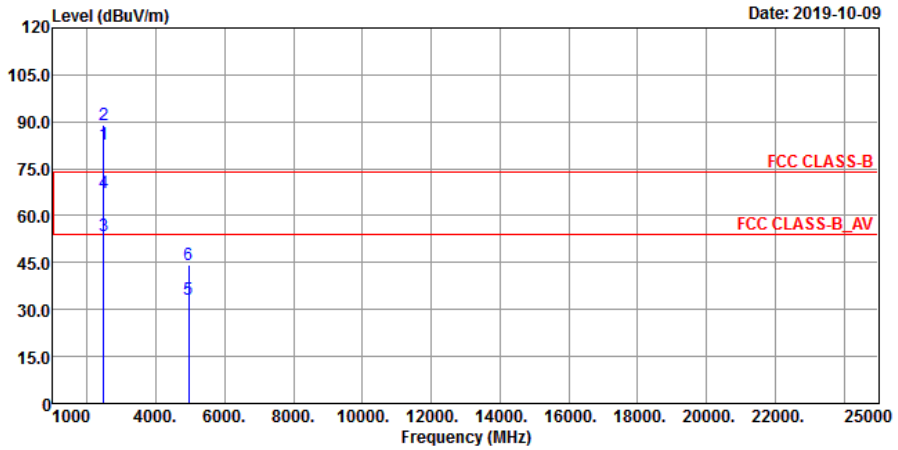
Remarks:

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

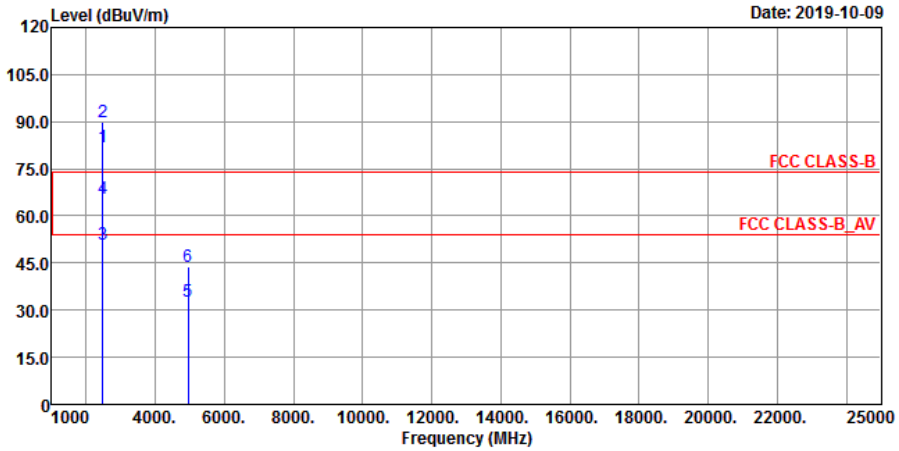
WLAN_802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 13	**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**	Tim Chen

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**
2472	82.78	87.63	-4.85			201	360	Average
2472	89	93.85	-4.85			201	360	Peak
2483.5	53.51	58.36	-4.85	54	-0.49	201	360	Average
2483.5	67.52	72.37	-4.85	74	-6.48	201	360	Peak
4944	33.18	47.13	-13.95	54	-20.82	175	234	Average
4944	44.43	58.38	-13.95	74	-29.57	175	234	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**
2472	82.08	86.93	-4.85			107	197	Average
2472	89.84	94.69	-4.85			107	197	Peak
2483.5	51.09	55.94	-4.85	54	-2.91	107	197	Average
2483.5	65.38	70.23	-4.85	74	-8.62	107	197	Peak
4944	32.58	46.53	-13.95	54	-21.42	102	67	Average
4944	43.79	57.74	-13.95	74	-30.21	102	67	Peak

Remarks:

1. Emission Level = Read Level + Factor
   Margin value = Emission level – Limit value
2. 2472 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

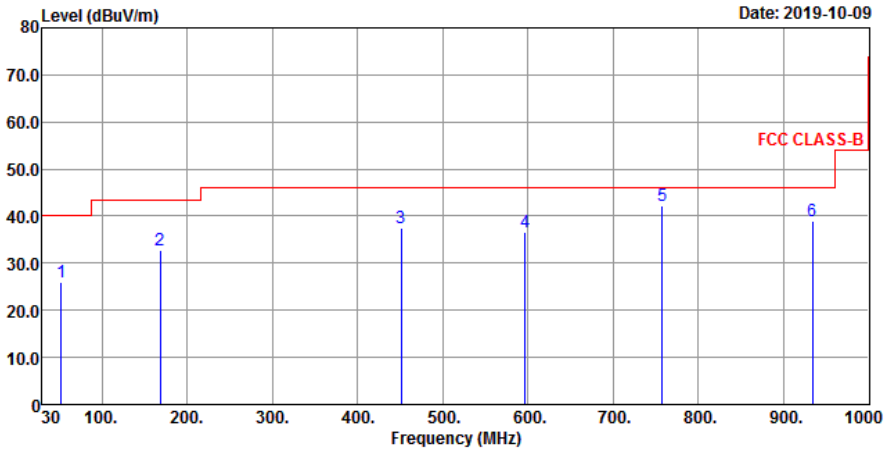
9 kHz ~ 30 MHz Data:

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

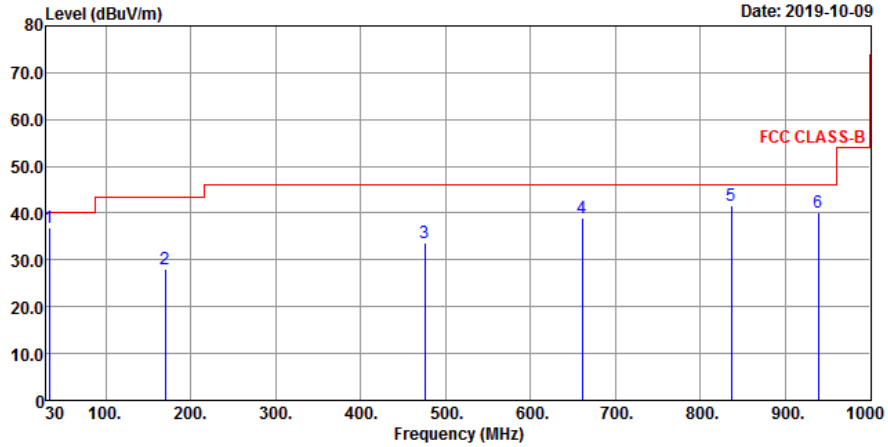
30 MHz ~ 1 GHz Worst-Case Data:

EUT Test Condition		Measurement Detail	
Channel	Channel 13	**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**	Tim Chen

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**
52.31	26.05	43.72	-17.67	40	-13.95	134	158	Peak
168.71	32.71	50.19	-17.48	43.5	-10.79	105	148	Peak
450.98	37.54	49.84	-12.3	46	-8.46	211	162	Peak
596.48	36.46	44.84	-8.38	46	-9.54	194	311	Peak
757.5	42.26	47.12	-4.86	46	-3.74	182	277	Peak
934.04	38.83	41.63	-2.8	46	-7.17	202	81	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**
33.88	33.6	50.55	-16.95	40	-6.4	103	158	Peak
169.68	27.97	45.59	-17.62	43.5	-15.53	114	109	Peak
475.23	33.78	45.82	-12.04	46	-12.22	102	98	Peak
660.5	39.02	46.67	-7.65	46	-6.98	113	307	Peak
836.07	41.69	46.01	-4.32	46	-4.31	114	192	Peak
938.89	40.15	42.93	-2.78	46	-5.85	108	266	Peak

Remarks:

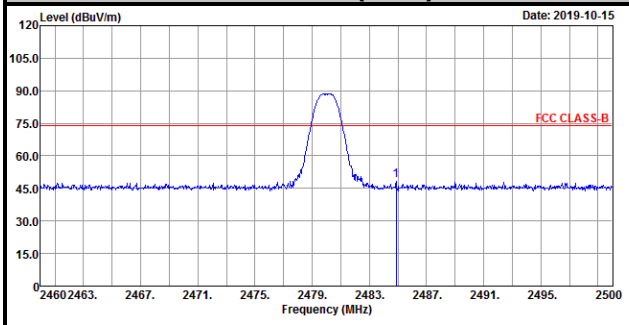
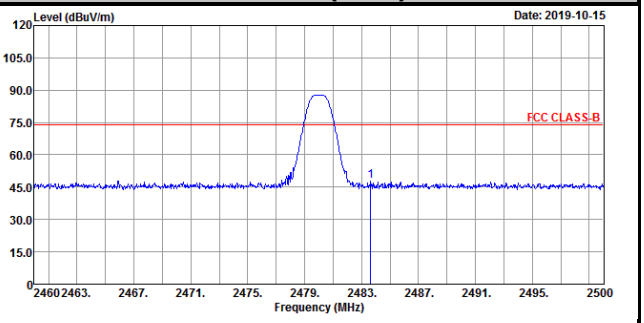
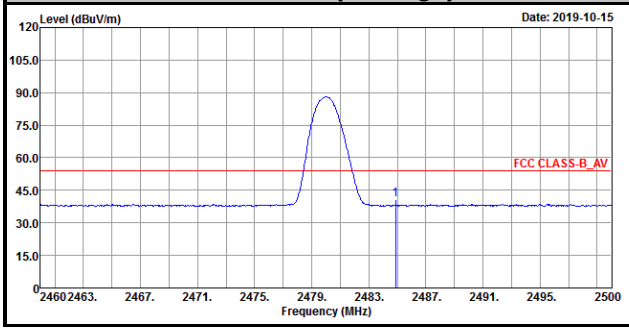
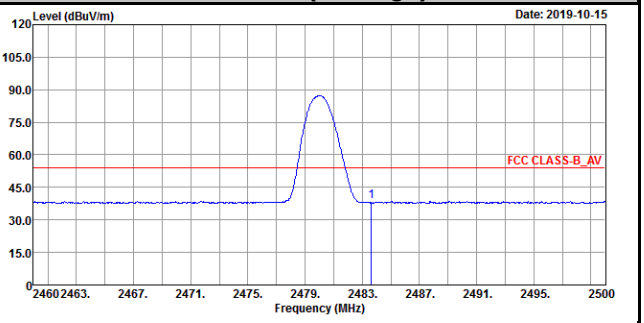
1. Emission Level = Read Level + Factor
   Margin value = Emission level – Limit value
2. The emission levels of other frequencies were very low against the limit.

5 Pictures of Test Arrangements

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

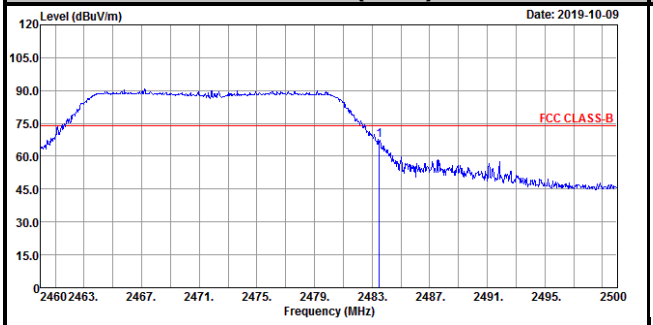
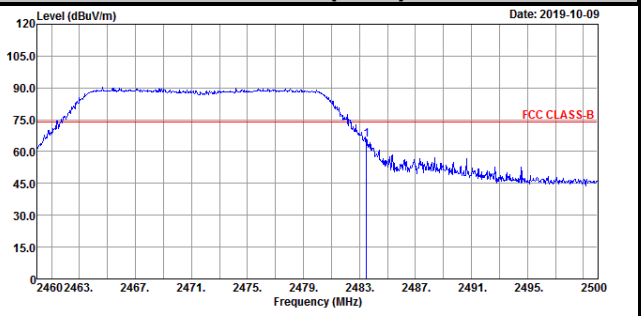
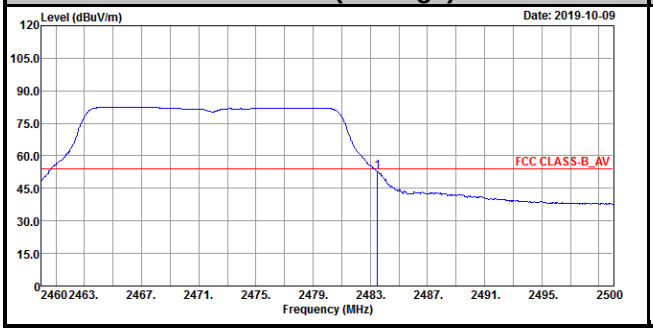
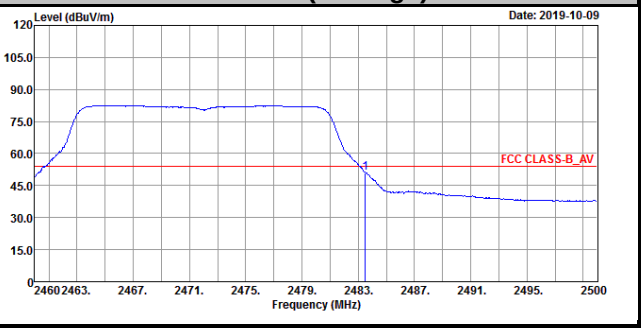
Annex A- Band-edge measurement

<Bluetooth LE>

Ch 39	
Horizontal (Peak)	Vertical (Peak)
	
Horizontal (Average)	Vertical (Average)
	

<WLAN>

802.11n (HT20)

Ch 13	
Horizontal (Peak)	Vertical (Peak)
	
Horizontal (Average)	Vertical (Average)
	

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.

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

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Fax: 886-2-26051924

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Fax: 886-3-6668323

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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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