

FCC Test Report

(Co-Located)

Report No.: RF180914C09 R1

Test Model: FW-7551SEC

Series Model: FW-7551SExxxxxxx (where x can be 0-9, A-Z, a-z, any alphanumeric character or blank) (Refer to item 3.1 for more detail)

Received Date: Sep. 14, 2018

Test Date: Oct. 26, 2018

Issued Date: Jan. 08, 2019

Applicant: Compex Systems Pte Ltd

Address: No. 9 Harrison Road, Harrison Industrial Building #05-01, Singapore 369651

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

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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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Release Control Record

Issue No.	Description	Date Issued
RF180914C09	Original release	Nov. 06, 2018
RF180914C09 R1	Revised WLAN antenna connector type	Jan. 08, 2019

1 Certificate of Conformity

Product: Network Appliance Platform

Brand: Lanner

Test Model: FW-7551SEC

Series Model: FW-7551SExxxxxx (where x can be 0-9, A-Z, a-z, any alphanumeric character or blank) (Refer to item 3.1 for more detail)

Sample Status: Engineering sample

Applicant: Compex Systems Pte Ltd

Test Date: Oct. 26, 2018

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

47 CFR FCC Part 15, Subpart E (Section 15.407)

FCC Part 22, Subpart H

FCC Part 24, Subpart E

FCC Part 27, Subpart C

ANSI 63.26-2015

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 : Pettie Chen, **Date:** Jan. 08, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Jan. 08, 2019
Bruce Chen / Project Engineer

2 Summary of Test Results

Applied Standard	47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407) FCC Part 22, Subpart H FCC Part 24, Subpart E FCC Part 27, Subpart C ANSI 63.26-2015 ANSI C63.10-2013		
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d) 15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -4.1dB at 363.65MHz.
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -20.6dB at 831.50MHz.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -5.6dB at 1907.50MHz.
2.1051 27.53(c) 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -2.9dB at 1732.50MHz.

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	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Network Appliance Platform			
Brand	Lanner			
Test Model	FW-7551SEC			
Series Model	FW-7551SExxxxxxx (where x can be 0-9, A-Z, a-z, any alphanumeric character or blank)			
Model Difference	Refer to Note			
Status of EUT	Engineering sample			
Power Supply Rating	12Vdc from adapter			
Modulation Type	WLAN	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM		
	WCDMA	BPSK, QPSK		
	LTE	QPSK, 16QAM		
Modulation Technology	WLAN	DSSS, OFDM		
Transfer Rate	WLAN	802.11b:11/5.5/2/1Mbps 802.11a/g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps		
Operating Frequency	WLAN	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5180~5240MHz, 5260~5320MHz, 5500~5700MHz, 5745~5825MHz		
	WCDMA	WCDMA Band 2	1852.4MHz ~ 1907.6MHz	
		WCDMA Band 4	1712.4MHz ~ 1752.6MHz	
		WCDMA Band 5	826.4MHz ~ 846.6MHz	
	LTE	LTE Band 2	Channel Bandwidth 1.4MHz	1850.7MHz ~ 1909.3MHz
			Channel Bandwidth 3MHz	1851.5MHz ~ 1908.5MHz
			Channel Bandwidth 5MHz	1852.5MHz ~ 1907.5MHz
			Channel Bandwidth 10MHz	1855.0MHz ~ 1905.0MHz
			Channel Bandwidth 15MHz	1857.5MHz ~ 1902.5MHz
			Channel Bandwidth 20MHz	1860.0MHz ~ 1900.0MHz
		LTE Band 4	Channel Bandwidth 1.4MHz	1710.7MHz ~ 1754.3MHz
			Channel Bandwidth 3MHz	1711.5MHz ~ 1753.5MHz
			Channel Bandwidth 5MHz	1712.5MHz ~ 1752.5MHz
			Channel Bandwidth 10MHz	1715.0MHz ~ 1750.0MHz
			Channel Bandwidth 15MHz	1717.5MHz ~ 1747.5MHz
			Channel Bandwidth 20MHz	1720.0MHz ~ 1745.0MHz

Operating Frequency	LTE	LTE Band 5	Channel Bandwidth 1.4MHz	824.7MHz ~ 848.3MHz
			Channel Bandwidth 3MHz	825.5MHz ~ 847.5MHz
			Channel Bandwidth 5MHz	826.5MHz ~ 846.5MHz
			Channel Bandwidth 10MHz	829.0MHz ~ 844.0MHz
		LTE Band 7	Channel Bandwidth 5MHz	2622.5MHz ~ 2687.5MHz
			Channel Bandwidth 10MHz	2625.0MHz ~ 2685.0MHz
			Channel Bandwidth 15MHz	2627.5MHz ~ 2682.5MHz
			Channel Bandwidth 20MHz	2630.0MHz ~ 2680.0MHz
		LTE Band 12	Channel Bandwidth 1.4MHz	699.7MHz ~ 715.3MHz
			Channel Bandwidth 3MHz	700.5MHz ~ 714.5MHz
			Channel Bandwidth 5MHz	701.5MHz ~ 713.5MHz
			Channel Bandwidth 10MHz	704.0MHz ~ 711.0MHz
		LTE Band 13	Channel Bandwidth 5MHz	779.5MHz ~ 784.5MHz
			Channel Bandwidth 10MHz	782.0MHz
		LTE Band 25	Channel Bandwidth 1.4MHz	1850.7MHz ~ 1914.3MHz
			Channel Bandwidth 3MHz	1851.5MHz ~ 1913.5MHz
			Channel Bandwidth 5MHz	1852.5MHz ~ 1912.5MHz
			Channel Bandwidth 10MHz	1855.0MHz ~ 1910.0MHz
			Channel Bandwidth 15MHz	1857.5MHz ~ 1907.5MHz
			Channel Bandwidth 20MHz	1860.0MHz ~ 1905.0MHz
		LTE Band 26	Channel Bandwidth 1.4MHz	824.7MHz ~ 848.3MHz
			Channel Bandwidth 3MHz	825.5MHz ~ 847.5MHz
			Channel Bandwidth 5MHz	826.5MHz ~ 846.5MHz
			Channel Bandwidth 10MHz	829.0MHz ~ 844.0MHz
			Channel Bandwidth 15MHz	831.5MHz ~ 841.5MHz
		LTE Band 30	Channel Bandwidth 5MHz	2307.5MHz ~ 2312.5MHz
			Channel Bandwidth 10MHz	2310.0MHz
		LTE Band 41	Channel Bandwidth 5MHz	2537.5MHz ~ 2652.5MHz
			Channel Bandwidth 10MHz	2540.0MHz ~ 2650.0MHz
			Channel Bandwidth 15MHz	2542.5MHz ~ 2647.5MHz
			Channel Bandwidth 20MHz	2545.0MHz ~ 2645.0MHz

Number of Channel	WLAN	2412 ~ 2462MHz: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5260~5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500~5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Antenna Type	Refer to note	
Antenna Connector	Refer to note	
Accessory Device	Adapter	
Data Cable Supplied	NA	

Note:

1. All models are listed as below.

Brand	Model	Description
Lanner	FW-7551SExxxxxx	1. where x can be 0-9, A-Z, a-z, any alphanumeric character or blank 2. For marketing purpose
		Type A 1. RAM:APACER 8G EEC PC3-12800 CL11*2 2. CPU: Intel C2758 2.4G 3. Hard Disk: (1) WD WD5000LPX 500G (2) innodisk M.2(S42) 3ME4 32G 4. WIFI module: Brand: COMPLEX Model: WLE600VX 7AA 5. LTE module: Brand: Sierra Model: EM7455 6. Accessory: (1) Console cable*1 (1.8m non-shielded) (2) Transceiver 10G*2 (3) Fiber cable*1 (2.95m non-shielded)
Lanner	FW-7551SExxxxxx	Type B 1. RAM:APACER 8G EEC PC3-12800 CL11*2 2. CPU: Intel C2558 2.4G 3. Hard Disk: (1) WD WD5000LPX 500G (2) innodisk M.2(S42) 3ME4 32G 4. WIFI module: Brand: COMPLEX Model: WLE600VX 7AA 5. LTE module: Brand: Sierra Model: EM7455 6. Accessory: (1) Console cable*1 (1.8m non-shielded)

*The model of the FW-7551SEC (Type A) was chosen for final test.

2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX

3. The EUT consumes power from the following adapter.

Adapter	
Brand	FSP GROUP INC.
Model	FSP060-DIBAN2
Input Power	100-240Vac~, 1.5A, 50-60Hz
Output Power	12.0Vdc / 5.0A MAX
Power Line	1.15m non-shielded power cable with one core

4. The EUT uses following antennas.

WLAN Antenna											
Ant. Type	Dipole										
Connector	SMA Male R										
Frequency (GHz)	2.4	2.45	2.5	5.15	5.25	5.35	5.47	5.6	5.725	5.785	5.85
Antenna Gain (dBi)	1.26	1.6	1.45	1.29	1.6	1.53	1.79	1.48	1.19	1.42	1.94

WWAN Antenna											
Ant. Type	Dipole										
Connector	SMA Male										
Frequency (GHz)	0.698	0.704	0.746	0.757	0.787	0.824	0.836	0.849	0.869	0.880	0.894
Antenna Gain (dBi)	1.37	1.49	0.93	1.61	1.66	2.98	2.46	3.20	2.11	1.22	0.53
Frequency (GHz)	0.900	0.915	0.925	0.940	0.960	1.560	1.565	1.570	1.575	1.580	1.585
Antenna Gain (dBi)	0.56	0.70	1.25	1.13	1.40	1.91	2.19	2.73	2.89	2.43	2.31
Frequency (GHz)	1.590	1.602	1.710	1.732	1.750	1.755	1.785	1.800	1.840	1.850	1.880
Antenna Gain (dBi)	2.53	2.13	1.04	1.25	1.40	1.62	1.36	1.39	0.55	0.51	0.65
Frequency (GHz)	1.910	1.920	1.930	1.950	1.960	1.980	1.990	2.110	2.132	2.140	2.155
Antenna Gain (dBi)	1.56	1.92	2.53	2.96	2.69	2.75	2.50	2.48	3.02	2.38	2.59
Frequency (GHz)	2.170	2.305	2.345	2.390	2.500	2.535	2.570	2.620	2.655	2.690	
Antenna Gain (dBi)	2.30	1.75	2.27	2.20	0.86	-0.27	0.23	0.23	0.44	-0.28	

5. 2.4GHz and 5GHz technology cannot transmit at same time.
6. Spurious emission of the simultaneous operation (WLAN 2.4GHz Band+WWAN or WLAN 5.0GHz Band+WWAN) has been evaluated and no non-compliance was found.
7. For WLAN: Base on WLAN module report (Model: WLE600VX, FCC ID: TK4WLE600VX),
For WWAN: Base on WWAN module report (Model: EM7455, FCC ID: N7NEM7455)

3.2 Description of Test Modes

For WLAN:

For 2.4GHz

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

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

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210 MHz

5260~5320MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290 MHz

5500~5700MHz:

11 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO		DESCRIPTION
	RE $\geq$ 1G	RE<1G	
-	√	√	Power from adapter

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

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

Radiated Emission Test (Above 1GHz):

- ☒ 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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
-	802.11n (HT20) + LTE Band 4	2412 ~ 2462	1 to 11	6 + 20175	BPSK
		1717.5 ~ 1747.5	20025 to 20325		QPSK
-	802.11n (HT20) + LTE Band 4	5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825	36 to 48, 52 to 64, 100 to 140, 149 to 165	157 + 20175	BPSK
		1717.5 ~ 1747.5	20025 to 20325		QPSK
-	802.11n (HT20) + LTE Band 25	2412 ~ 2462	1 to 11	6 + 26615	BPSK
		1857.5 ~ 1907.5	26115 to 26615		QPSK
-	802.11n (HT20) + LTE Band 25	5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825	36 to 48, 52 to 64, 100 to 140, 149 to 165	157 + 26615	BPSK
		1857.5 ~ 1907.5	26115 to 26615		QPSK
-	802.11n (HT20) + LTE Band 26	2412 ~ 2462	1 to 11	6 + 26865	BPSK
		831.5 ~ 841.5	18675 to 19125		QPSK
-	802.11n (HT20) + LTE Band 26	5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825	36 to 48, 52 to 64, 100 to 140, 149 to 165	157 + 26865	BPSK
		831.5 ~ 841.5	26865 to 26965		QPSK

Radiated Emission Test (Below 1GHz):

- ☒ 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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
-	802.11n (HT20) + LTE Band 4	2412 ~ 2462	1 to 11	6 + 20175	BPSK
		1717.5 ~ 1747.5	20025 to 20325		QPSK
-	802.11n (HT20) + LTE Band 4	5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825	36 to 48, 52 to 64, 100 to 140, 149 to 165	157 + 20175	BPSK
		1717.5 ~ 1747.5	20025 to 20325		QPSK
-	802.11n (HT20) + LTE Band 25	2412 ~ 2462	1 to 11	6 + 26615	BPSK
		1857.5 ~ 1907.5	26115 to 26615		QPSK
-	802.11n (HT20) + LTE Band 25	5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825	36 to 48, 52 to 64, 100 to 140, 149 to 165	157 + 26615	BPSK
		1857.5 ~ 1907.5	26115 to 26615		QPSK
-	802.11n (HT20) + LTE Band 26	2412 ~ 2462	1 to 11	6 + 26865	BPSK
		831.5 ~ 841.5	18675 to 19125		QPSK
-	802.11n (HT20) + LTE Band 26	5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825	36 to 48, 52 to 64, 100 to 140, 149 to 165	157 + 26865	BPSK
		831.5 ~ 841.5	26865 to 26965		QPSK

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 70%RH	120Vac, 60Hz	Luis Lee
RE $<$ 1G	25deg. C, 70%RH	120Vac, 60Hz	Luis Lee

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.

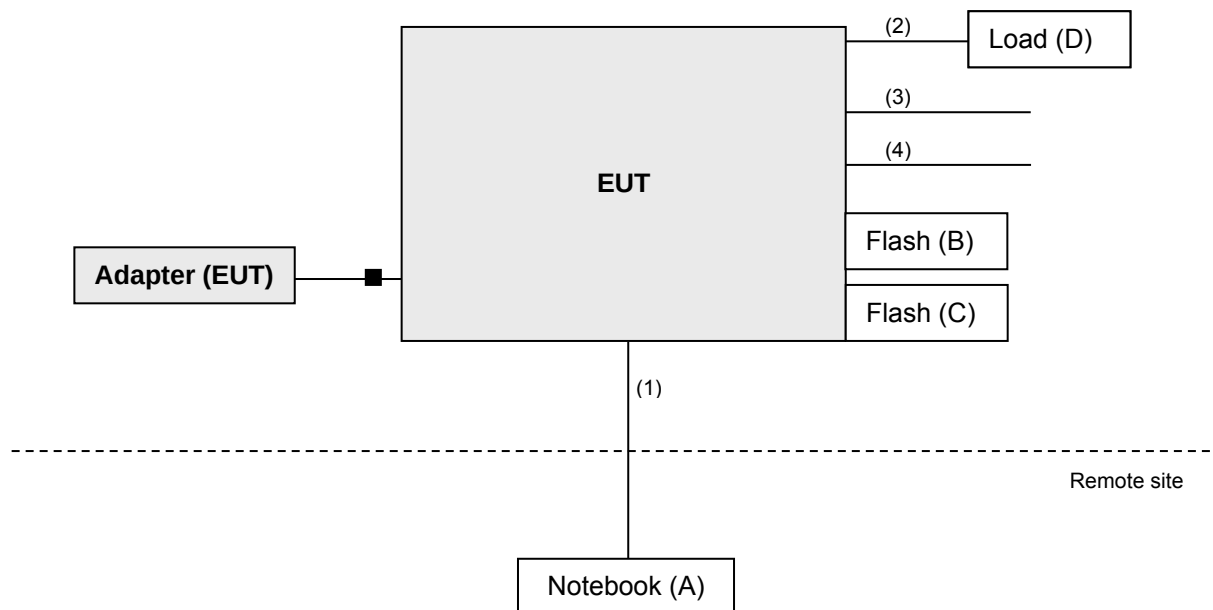
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Flash	HP	v250W	01	NA	-
C.	Flash	HP	v250W	01	NA	-
D.	Load	NA	NA	NA	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	6	N	0	-
2.	LAN cable	6	1.6	N	0	-
3.	Fiber cable	2	2.95	N	0	Provided by client
4.	RS232 cable	1	1.8	N	0	-

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

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

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

47 CFR FCC Part 15, Subpart E (Section 15.407)

FCC Part 22, Subpart H

FCC Part 24, Subpart E

FCC Part 27, Subpart C

ANSI 63.26-2015

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 20dB 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 1000MHz, 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 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBuV/m)	AV:54 (dBuV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	☒ 15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dBuV/m) ^{*1} PK:105.2 (dBuV/m) ^{*2} PK: 110.8(dBuV/m) ^{*3} PK:122.2 (dBuV/m) ^{*4}
	☐ 15.407(b)(4)(ii)	Emission limits in section 15.247(d)	

^{*1} beyond 75 MHz or more above of the band edge.

^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts).}$$

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 29, 2018	May 28, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2017	Nov. 13, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
Radio Communication Analyzer	MT8820C	6201010284	Dec. 28, 2017	Dec. 27, 2018

- 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 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is 7450F-4.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- 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 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) 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 detect 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:

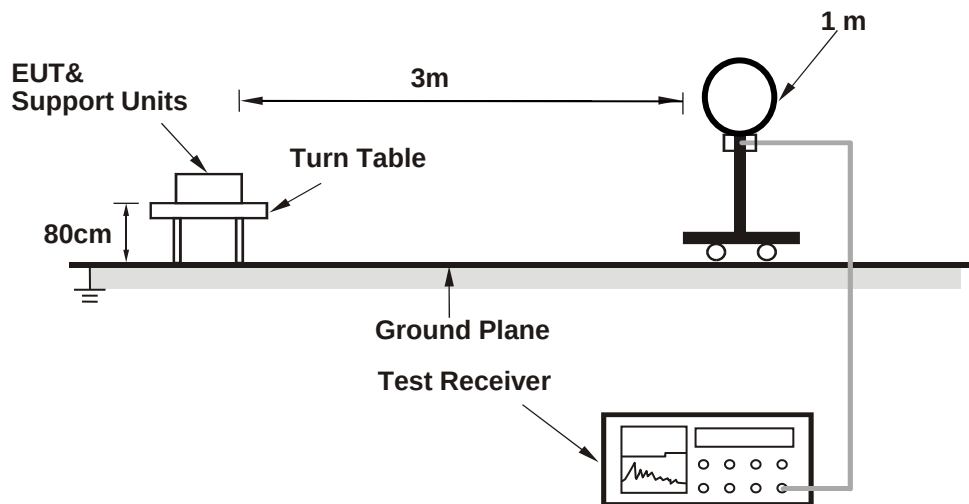
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

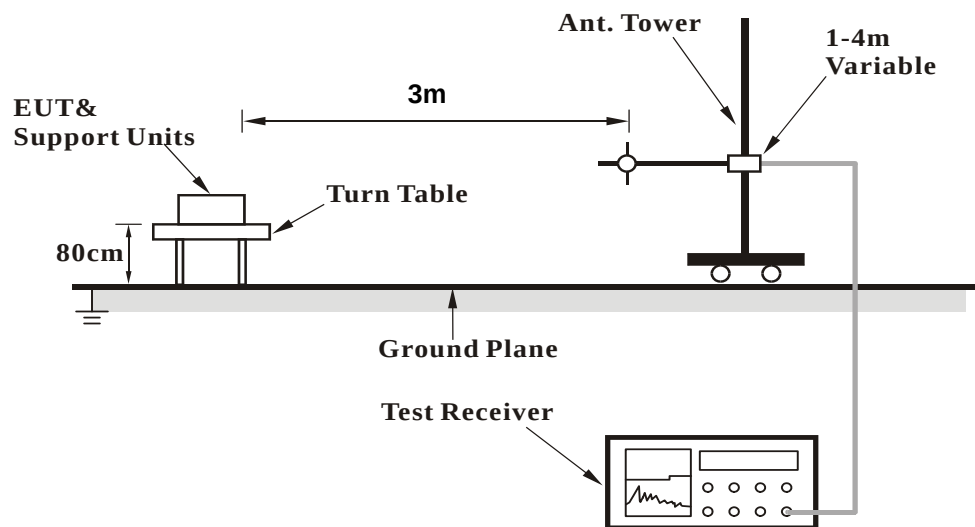
No deviation.

4.1.5 Test Setup

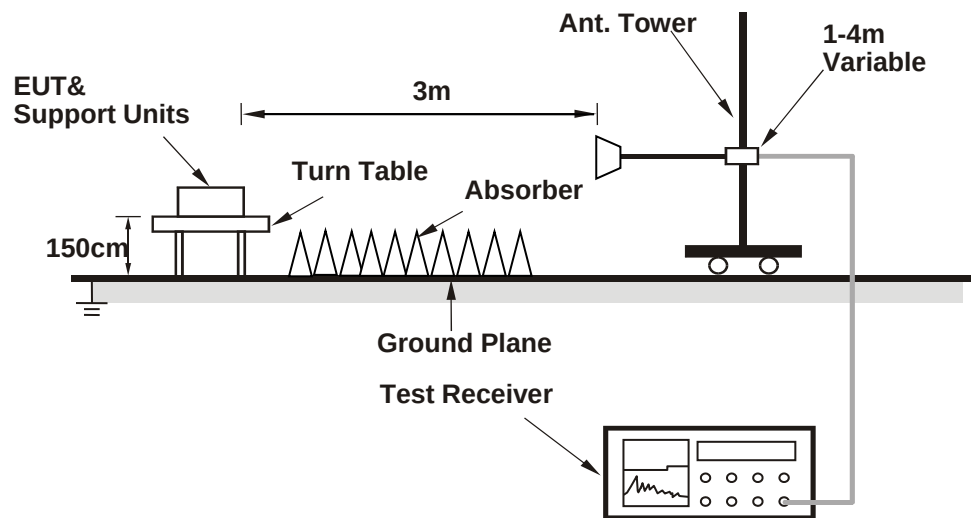
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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 1GHz Data:

802.11n (HT20) + LTE Band 4

CHANNEL	CH 6 + CH 20175	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.5 PK			1.59 H	238	70.1	33.4
2	*2437.00	100.6 AV			1.59 H	238	67.2	33.4
3	4874.00	48.9 PK	74.0	-25.1	1.69 H	211	36.5	12.4
4	4874.00	36.7 AV	54.0	-17.3	1.69 H	211	24.3	12.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.4 PK			1.03 V	225	83.0	33.4
2	*2437.00	106.8 AV			1.03 V	225	73.4	33.4
3	4874.00	57.1 PK	74.0	-16.9	1.69 V	178	44.7	12.4
4	4874.00	43.1 AV	54.0	-10.9	1.69 V	178	30.7	12.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 6 + CH 20175					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-17.3	21.4	1.0	22.4	30.0	-7.6
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-13.1	26.1	1.0	27.1	30.0	-2.9

CHANNEL		CH 6 + CH 20175					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-66.2	-61.3	7.1	-54.2	-13.0	-41.2
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-49.9	-43.1	7.1	-36.0	-13.0	-23.0

802.11n (HT20) + LTE Band 4

CHANNEL	CH 157 + CH 20175	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5611.20	58.1 PK	68.2	-10.1	2.69 H	225	45.5	12.6
2	*5785.00	107.5 PK			2.69 H	225	65.0	42.5
3	*5785.00	97.3 AV			2.69 H	225	54.8	42.5
4	#5988.00	60.3 PK	68.2	-7.9	2.69 H	225	46.6	13.7
5	11570.00	61.0 PK	74.0	-13.0	1.49 H	287	37.8	23.2
6	11570.00	48.3 AV	54.0	-5.7	1.49 H	287	25.1	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5604.00	60.6 PK	68.2	-7.6	1.03 V	188	48.0	12.6
2	*5785.00	118.9 PK			1.03 V	188	76.4	42.5
3	*5785.00	108.5 AV			1.03 V	188	66.0	42.5
4	#5941.60	60.4 PK	68.2	-7.8	1.03 V	188	46.8	13.6
5	11570.00	62.0 PK	74.0	-12.0	1.80 V	215	38.8	23.2
6	11570.00	48.7 AV	54.0	-5.3	1.80 V	215	25.5	23.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 157 + CH 20175					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-17.7	21.0	1.0	22.0	30.0	-8.0
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-13.4	25.8	1.0	26.8	30.0	-3.2

CHANNEL		CH 157 + CH 20175					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-66.5	-61.6	7.1	-54.5	-13.0	-41.5
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-49.9	-43.1	7.1	-36.0	-13.0	-23.0

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

802.11n (HT20) + LTE Band 25

CHANNEL	CH 6 + CH 26615	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.2 PK			1.71 H	236	76.8	33.4
2	*2437.00	101.3 AV			1.71 H	236	67.9	33.4
3	4874.00	43.2 PK	74.0	-30.8	1.77 H	195	30.8	12.4
4	4874.00	30.6 AV	54.0	-23.4	1.77 H	195	18.2	12.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.9 PK			1.24 V	229	82.5	33.4
2	*2437.00	106.8 AV			1.24 V	229	73.4	33.4
3	4974.00	57.2 PK	74.0	-16.8	1.62 V	195	44.4	12.8
4	4974.00	42.8 AV	54.0	-11.2	1.62 V	195	30.0	12.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 6 + CH 26615					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1907.50	-18.4	22.0	1.1	23.1	33.0	-9.9
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1907.50	-12.4	26.0	1.1	27.1	33.0	-5.9

CHANNEL		CH 6 + CH 26615					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.00	-67.1	-60.3	7.1	-53.2	-13.0	-40.2
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.00	-64.4	-56.7	7.1	-49.6	-13.0	-36.6

802.11n (HT20) + LTE Band 25

CHANNEL	CH 157 + CH 26615	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5642.40	58.5 PK	68.2	-9.7	2.72 H	217	46.0	12.5
2	*5785.00	107.8 PK			2.72 H	217	65.3	42.5
3	*5785.00	97.7 AV			2.72 H	217	55.2	42.5
4	#5932.00	61.2 PK	68.2	-7.0	2.72 H	217	47.6	13.6
5	11570.00	61.8 PK	74.0	-12.2	1.40 H	307	38.6	23.2
6	11570.00	48.6 AV	54.0	-5.4	1.40 H	307	25.4	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5640.00	60.7 PK	68.2	-7.5	1.00 V	183	48.2	12.5
2	*5785.00	118.8 PK			1.00 V	183	76.3	42.5
3	*5785.00	108.9 AV			1.00 V	183	66.4	42.5
4	#5987.20	61.0 PK	68.2	-7.2	1.00 V	183	47.3	13.7
5	11570.00	62.2 PK	74.0	-11.8	1.72 V	239	39.0	23.2
6	11570.00	48.9 AV	54.0	-5.1	1.72 V	239	25.7	23.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 157 + CH 26615					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1907.50	-18.8	21.6	1.1	22.7	33.0	-10.3
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1907.50	-12.1	26.3	1.1	27.4	33.0	-5.6

CHANNEL		CH 157 + CH 26615					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.00	-67.4	-60.6	7.1	-53.5	-13.0	-40.5
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.00	-64.9	-57.2	7.1	-50.1	-13.0	-37.1

802.11n (HT20) + LTE Band 26

CHANNEL	CH 6 + CH 26865	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.9 PK			1.50 H	243	77.5	33.4
2	*2437.00	100.8 AV			1.50 H	243	67.4	33.4
3	4874.00	48.6 PK	74.0	-25.4	1.79 H	215	36.2	12.4
4	4874.00	36.7 AV	54.0	-17.3	1.79 H	215	24.3	12.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.7 PK			1.40 V	236	83.3	33.4
2	*2437.00	107.6 AV			1.40 V	236	74.2	33.4
3	4874.00	57.8 PK	74.0	-16.2	1.66 V	159	45.4	12.4
4	4874.00	43.9 AV	54.0	-10.1	1.66 V	159	31.5	12.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 6 + CH 26865					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-13.2	17.8	0.1	17.9	38.5	-20.6
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-15.1	16.5	0.1	16.6	38.5	-21.9

CHANNEL		CH 6 + CH 26865					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1663.00	-59.0	-62.2	5.6	-56.6	-13.0	-43.6
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1663.00	-59.5	-60.5	5.6	-54.9	-13.0	-41.9

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

802.11n (HT20) + LTE Band 26

CHANNEL	CH 157 + CH 26865	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5639.20	58.4 PK	68.2	-9.8	2.65 H	188	45.9	12.5
2	*5785.00	108.1 PK			2.65 H	188	65.6	42.5
3	*5785.00	96.8 AV			2.65 H	188	54.3	42.5
4	#5960.00	59.8 PK	68.2	-8.4	2.65 H	188	46.0	13.8
5	11570.00	61.4 PK	74.0	-12.6	1.32 H	273	38.2	23.2
6	11570.00	47.9 AV	54.0	-6.1	1.32 H	273	24.7	23.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5618.40	60.5 PK	68.2	-7.7	1.20 V	163	47.9	12.6
2	*5785.00	119.1 PK			1.20 V	163	76.6	42.5
3	*5785.00	108.8 AV			1.20 V	163	66.3	42.5
4	#5952.00	60.0 PK	68.2	-8.2	1.20 V	163	46.3	13.7
5	11570.00	61.8 PK	74.0	-12.2	1.79 V	223	38.6	23.2
6	11570.00	48.5 AV	54.0	-5.5	1.79 V	223	25.3	23.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 157 + CH 26865					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-13.5	17.5	0.1	17.6	38.5	-20.9
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-15.4	16.3	0.1	16.4	38.5	-22.1

CHANNEL		CH 157 + CH 26865					
Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1663.00	-59.4	-62.6	5.6	-57.0	-13.0	-44.0
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1663.00	-59.8	-60.8	5.6	-55.2	-13.0	-42.2

Below 1GHz data
802.11n (HT20) + LTE Band 4

CHANNEL	CH 6 + CH 20175	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.75	27.7 QP	43.5	-15.8	1.50 H	63	41.1	-13.4
2	274.39	38.0 QP	46.0	-8.0	2.00 H	116	46.5	-8.5
3	363.65	35.7 QP	46.0	-10.3	1.00 H	84	42.8	-7.1
4	563.51	35.7 QP	46.0	-10.3	1.00 H	226	39.5	-3.8
5	802.18	40.6 QP	46.0	-5.4	1.50 H	230	38.6	2.0
6	936.07	35.1 QP	46.0	-10.9	1.00 H	1	31.1	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	53.18	19.2 QP	40.0	-20.8	1.00 V	170	27.9	-8.7
2	130.80	17.3 QP	43.5	-26.2	1.50 V	334	27.3	-10.0
3	317.08	24.0 QP	46.0	-22.0	1.00 V	201	31.5	-7.5
4	454.85	22.4 QP	46.0	-23.6	1.00 V	292	27.9	-5.5
5	565.45	23.9 QP	46.0	-22.1	1.50 V	274	27.6	-3.7
6	837.11	29.1 QP	46.0	-16.9	1.00 V	264	26.5	2.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	CH 6 + CH 20175	FREQUENCY RANGE	30MHz ~ 1GHz
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Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	70.74	-52.9	-54.5	-4.7	-59.2	-13.0	-46.2
2	194.90	-47.5	-61.4	4.9	-56.5	-13.0	-43.5
3	324.88	-57.0	-66.0	5.2	-60.8	-13.0	-47.8
4	495.60	-62.1	-68.3	4.9	-63.4	-13.0	-50.4
5	660.50	-71.0	-74.4	4.9	-69.5	-13.0	-56.5
6	918.52	-78.7	-75.8	4.0	-71.8	-13.0	-58.8
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	35.82	-43.3	-40.4	-11.4	-51.8	-13.0	-38.8
2	97.90	-47.0	-53.6	1.0	-52.6	-13.0	-39.6
3	208.48	-52.4	-59.1	5.4	-53.7	-13.0	-40.7
4	363.68	-56.2	-62.7	5.2	-57.5	-13.0	-44.5
5	563.50	-62.6	-65.3	4.5	-60.8	-13.0	-47.8
6	875.84	-64.8	-62.3	3.9	-58.4	-13.0	-45.4

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

802.11n (HT20) + LTE Band 4

CHANNEL	CH 157 + CH 20175	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.75	39.3 QP	43.5	-4.2	1.00 H	8	52.7	-13.4
2	196.77	39.0 QP	43.5	-4.5	1.00 H	176	50.8	-11.8
3	363.65	41.9 QP	46.0	-4.1	1.00 H	162	49.0	-7.1
4	563.51	40.3 QP	46.0	-5.7	1.50 H	199	44.1	-3.8
5	802.18	41.3 QP	46.0	-4.7	1.00 H	178	39.3	2.0
6	877.85	40.2 QP	46.0	-5.8	1.50 H	135	37.1	3.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	157.97	19.6 QP	43.5	-23.9	1.00 V	160	28.1	-8.5
2	231.70	21.2 QP	46.0	-24.8	1.00 V	101	32.4	-11.2
3	352.01	29.5 QP	46.0	-16.5	1.00 V	56	36.7	-7.2
4	571.27	24.9 QP	46.0	-21.1	1.00 V	137	28.3	-3.4
5	800.24	34.2 QP	46.0	-11.8	1.00 V	223	32.3	1.9
6	974.87	31.0 QP	54.0	-23.0	1.00 V	226	26.3	4.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	CH 157 + CH 20175	FREQUENCY RANGE	30MHz ~ 1GHz
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Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	107.60	-50.1	-58.3	0.5	-57.8	-13.0	-44.8
2	189.08	-52.1	-64.9	4.1	-60.8	-13.0	-47.8
3	276.38	-53.7	-64.1	5.3	-58.8	-13.0	-45.8
4	363.68	-55.8	-63.7	5.2	-58.5	-13.0	-45.5
5	563.50	-63.1	-67.9	4.5	-63.4	-13.0	-50.4
6	873.90	-63.9	-61.5	3.9	-57.6	-13.0	-44.6
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 27)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	152.22	-59.7	-61.0	0.0	-61.0	-13.0	-48.0
2	224.00	-60.0	-66.8	5.4	-61.4	-13.0	-48.4
3	295.78	-58.2	-64.1	5.1	-59.0	-13.0	-46.0
4	324.88	-61.2	-67.5	5.2	-62.3	-13.0	-49.3
5	600.36	-68.0	-68.7	4.4	-64.3	-13.0	-51.3
6	934.04	-72.3	-67.5	3.9	-63.6	-13.0	-50.6

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

802.11n (HT20) + LTE Band 25

CHANNEL	CH 6 + CH 26615	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	138.56	28.1 QP	43.5	-15.4	1.00 H	194	37.6	-9.5
2	165.73	28.0 QP	43.5	-15.5	1.00 H	192	36.8	-8.8
3	297.68	32.6 QP	46.0	-13.4	1.00 H	78	40.7	-8.1
4	324.84	35.0 QP	46.0	-11.0	1.50 H	1	42.3	-7.3
5	645.01	31.1 QP	46.0	-14.9	1.00 H	8	32.5	-1.4
6	839.05	33.3 QP	46.0	-12.7	1.00 H	8	30.7	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	47.36	22.0 QP	40.0	-18.0	1.50 V	247	30.7	-8.7
2	126.92	21.6 QP	43.5	-21.9	1.50 V	163	32.1	-10.5
3	231.70	25.6 QP	46.0	-20.4	1.00 V	333	36.8	-11.2
4	336.48	28.3 QP	46.0	-17.7	1.50 V	13	35.6	-7.3
5	507.24	23.3 QP	46.0	-22.7	1.00 V	333	28.0	-4.7
6	901.14	30.9 QP	46.0	-15.1	1.50 V	149	27.1	3.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	CH 6 + CH 26615	FREQUENCY RANGE	30MHz ~ 1GHz
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Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	70.74	-57.1	-58.7	-4.7	-63.4	-13.0	-50.4
2	173.56	-53.9	-63.4	2.1	-61.3	-13.0	-48.3
3	264.74	-59.1	-69.6	5.3	-64.3	-13.0	-51.3
4	348.16	-60.6	-69.1	5.2	-63.9	-13.0	-50.9
5	429.64	-64.6	-71.3	5.2	-66.1	-13.0	-53.1
6	802.12	-69.3	-68.0	4.0	-64.0	-13.0	-51.0
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	43.58	-47.1	-43.0	-10.3	-53.3	-13.0	-40.3
2	97.90	-47.6	-54.2	1.0	-53.2	-13.0	-40.2
3	194.90	-52.3	-61.1	4.9	-56.2	-13.0	-43.2
4	363.68	-56.4	-62.9	5.2	-57.7	-13.0	-44.7
5	563.50	-65.0	-67.7	4.5	-63.2	-13.0	-50.2
6	879.72	-69.1	-66.5	3.9	-62.6	-13.0	-49.6

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

802.11n (HT20) + LTE Band 25

CHANNEL	CH 157 + CH 26615	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	163.79	27.0 QP	43.5	-16.5	1.01 H	180	35.8	-8.8
2	307.38	32.5 QP	46.0	-13.5	1.50 H	178	40.3	-7.8
3	429.62	32.7 QP	46.0	-13.3	1.01 H	332	38.5	-5.8
4	660.53	30.0 QP	46.0	-16.0	1.01 H	39	31.2	-1.2
5	839.05	35.2 QP	46.0	-10.8	1.50 H	12	32.6	2.6
6	936.07	36.5 QP	46.0	-9.5	1.01 H	186	32.5	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.75	38.9 QP	43.5	-4.6	1.01 V	1	52.3	-13.4
2	196.77	37.8 QP	43.5	-5.7	1.01 V	146	49.6	-11.8
3	363.65	41.7 QP	46.0	-4.3	1.01 V	164	48.8	-7.1
4	563.51	41.8 QP	46.0	-4.2	1.49 V	203	45.6	-3.8
5	802.18	41.8 QP	46.0	-4.2	1.01 V	203	39.8	2.0
6	875.91	41.1 QP	46.0	-4.9	1.49 V	128	38.0	3.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	CH 157 + CH 26615	FREQUENCY RANGE	30MHz ~ 1GHz
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Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	103.72	-50.9	-59.4	0.7	-58.7	-13.0	-45.7
2	233.70	-50.8	-64.7	5.4	-59.3	-13.0	-46.3
3	276.38	-54.4	-64.8	5.3	-59.5	-13.0	-46.5
4	363.68	-55.2	-63.1	5.2	-57.9	-13.0	-44.9
5	563.50	-63.0	-67.8	4.5	-63.3	-13.0	-50.3
6	873.90	-64.8	-62.4	3.9	-58.5	-13.0	-45.5
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 24)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	148.34	-60.4	-62.1	-0.2	-62.3	-13.0	-49.3
2	191.02	-58.3	-65.9	4.3	-61.6	-13.0	-48.6
3	299.66	-59.9	-65.6	5.1	-60.5	-13.0	-47.5
4	348.16	-62.8	-69.4	5.2	-64.2	-13.0	-51.2
5	600.36	-69.2	-69.9	4.4	-65.5	-13.0	-52.5
6	800.18	-71.4	-69.1	4.0	-65.1	-13.0	-52.1

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

802.11n (HT20) + LTE Band 26

CHANNEL	CH 6 + CH 26865	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.42	22.6 QP	40.0	-17.4	1.01 H	201	31.5	-8.9
2	282.15	20.9 QP	46.0	-25.1	1.01 H	32	29.2	-8.3
3	383.05	22.0 QP	46.0	-24.0	1.01 H	68	28.7	-6.7
4	528.58	28.2 QP	46.0	-17.8	1.01 H	14	32.6	-4.4
5	712.92	27.3 QP	46.0	-18.7	1.01 H	289	27.4	-0.1
6	854.57	28.9 QP	46.0	-17.1	1.49 H	234	26.1	2.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.42	31.9 QP	40.0	-8.1	1.00 V	280	40.8	-8.9
2	99.75	37.7 QP	43.5	-5.8	1.00 V	359	51.1	-13.4
3	196.77	37.0 QP	43.5	-6.5	1.00 V	198	48.8	-11.8
4	363.65	39.6 QP	46.0	-6.4	1.00 V	277	46.7	-7.1
5	563.51	41.4 QP	46.0	-4.6	1.49 V	198	45.2	-3.8
6	802.18	41.4 QP	46.0	-4.6	1.00 V	198	39.4	2.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	CH 6 + CH 26865	FREQUENCY RANGE	30MHz ~ 1GHz
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Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	109.54	-53.4	-63.8	0.5	-63.3	-13.0	-50.3
2	235.64	-54.0	-70.0	5.4	-64.6	-13.0	-51.6
3	324.88	-60.3	-71.5	5.2	-66.3	-13.0	-53.3
4	495.60	-62.6	-71.0	4.9	-66.1	-13.0	-53.1
5	846.74	-69.5	-70.2	4.0	-66.2	-13.0	-53.2
6	935.98	-65.8	-64.9	3.9	-61.0	-13.0	-48.0
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	97.90	-53.4	-62.1	1.0	-61.1	-13.0	-48.1
2	194.90	-54.8	-65.7	4.9	-60.8	-13.0	-47.8
3	363.68	-57.3	-66.0	5.2	-60.8	-13.0	-47.8
4	563.50	-61.9	-66.8	4.5	-62.3	-13.0	-49.3
5	800.18	-63.9	-63.8	4.0	-59.8	-13.0	-46.8
6	879.72	-62.1	-61.7	3.9	-57.8	-13.0	-44.8

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

802.11n (HT20) + LTE Band 26

CHANNEL	CH 157 + CH 26865	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	84.23	23.7 QP	40.0	-16.3	1.49 H	164	37.5	-13.8
2	113.34	24.2 QP	43.5	-19.3	1.00 H	234	35.8	-11.6
3	287.97	25.7 QP	46.0	-20.3	1.00 H	199	33.9	-8.2
4	478.13	26.3 QP	46.0	-19.7	1.00 H	333	31.4	-5.1
5	687.70	30.9 QP	46.0	-15.1	1.49 H	13	31.6	-0.7
6	811.88	32.4 QP	46.0	-13.6	1.49 H	13	30.2	2.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	165.73	26.8 QP	43.5	-16.7	1.00 V	209	35.6	-8.8
2	251.11	28.2 QP	46.0	-17.8	1.00 V	15	37.8	-9.6
3	324.84	35.3 QP	46.0	-10.7	1.49 V	6	42.6	-7.3
4	429.62	32.6 QP	46.0	-13.4	1.00 V	358	38.4	-5.8
5	759.49	33.4 QP	46.0	-12.6	1.00 V	198	32.0	1.4
6	936.07	36.6 QP	46.0	-9.4	1.00 V	183	32.6	4.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	CH 157 + CH 26865	FREQUENCY RANGE	30MHz ~ 1GHz
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Antenna Polarity & Test Distance: Horizontal at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	154.16	-61.4	-68.2	0.1	-68.1	-13.0	-55.1
2	274.44	-60.1	-72.9	5.3	-67.6	-13.0	-54.6
3	363.68	-59.0	-69.1	5.2	-63.9	-13.0	-50.9
4	600.36	-63.4	-69.5	4.4	-65.1	-13.0	-52.1
5	877.78	-58.8	-58.6	3.9	-54.7	-13.0	-41.7
6	935.98	-67.5	-66.5	3.9	-62.6	-13.0	-49.6
Antenna Polarity & Test Distance: Vertical at 3 m (For FCC Part 22)							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	224.00	-65.0	-74.0	5.4	-68.6	-13.0	-55.6
2	299.66	-64.0	-71.8	5.1	-66.7	-13.0	-53.7
3	324.88	-64.0	-72.5	5.2	-67.3	-13.0	-54.3
4	563.50	-65.6	-70.4	4.5	-65.9	-13.0	-52.9
5	800.18	-67.0	-66.8	4.0	-62.8	-13.0	-49.8
6	899.12	-71.4	-70.3	3.9	-66.4	-13.0	-53.4

Remarks:

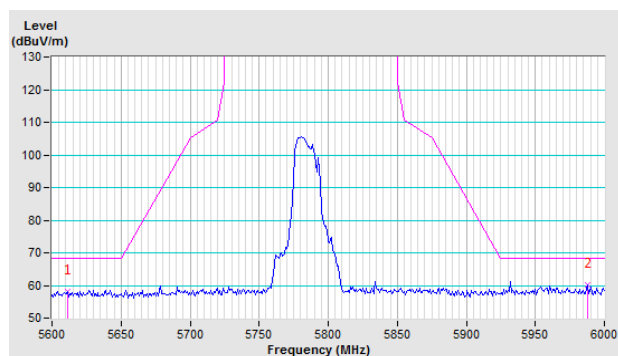
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Annex A- Radiated out of Band Emission (OOBE) Measurement (For U-NII-3 band)

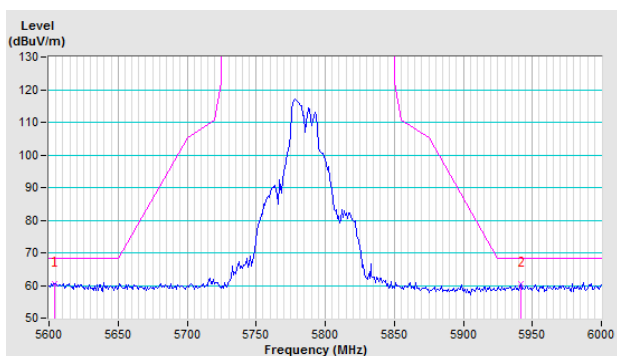
802.11n (HT20) + LTE Band 4

CH 157 5785 MHz

Horizontal



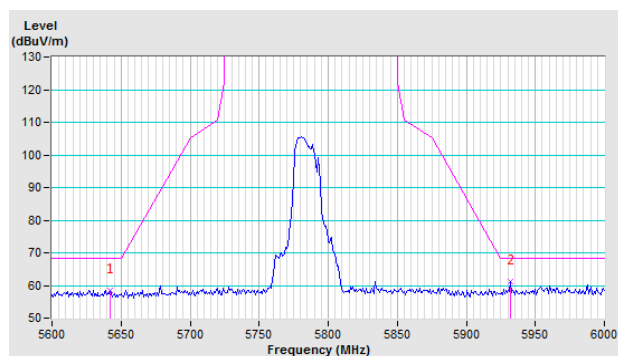
Vertical



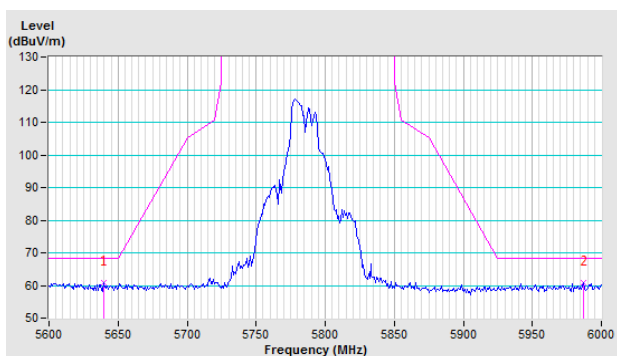
802.11n (HT20) + LTE Band 25

CH 157 5785 MHz

Horizontal



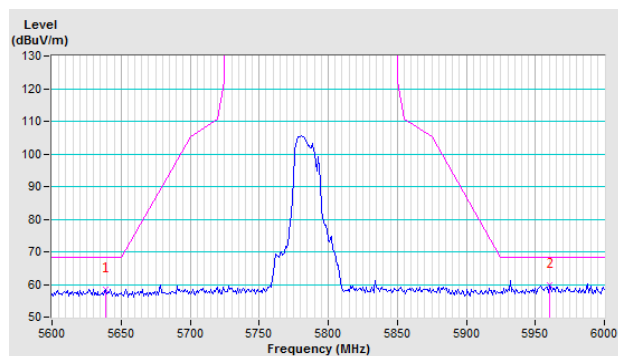
Vertical



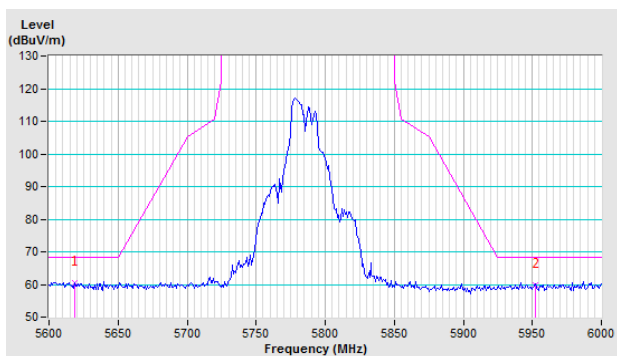
802.11n (HT20) + LTE Band 26

CH 157 5785 MHz

Horizontal



Vertical



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 accredited and approved 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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