FCC Test Report

(Co-Located)

Report No.:	RF161004D09E-2
FCC ID:	HFS-C401U
Test Model:	C401U
Received Date:	Jan. 12, 2018
Test Date:	Mar. 07 ~ Mar. 08, 2018
Issued Date:	Mar. 08, 2018
Applicant:	QUANTA COMPUTER INC.
Address:	188, WEN HUA 2ND RD., GUISHAN DIST., TAO YUAN CITY 33377, TAIWAN
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration/ Designation Number:	788550 / TW0003

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The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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Release Control Record

Issue No.	Description	Date Issued
RF161004D09E-2	Original release	Mar. 08, 2018

1 Certificate of Conformity

Product:	Clover Flex
Brand:	clover
Test Model:	C401U
Sample Status:	Engineering sample
Applicant:	QUANTA COMPUTER INC.
Test Date:	Mar. 07 ~ Mar. 08, 2018
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407) 47 CFR FCC Part 15, Subpart C (Section 15.225) 47 CFR FCC Part 15, Subpart C (Section 15.215) FCC Part 24, Subpart E FCC Part 27, Subpart L, H 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 : _____ , **Date:** Mar. 08, 2018

Pettie Chen / Senior Specialist

Approved by : _____ , **Date:** Mar. 08, 2018

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) 47 CFR FCC Part 15, Subpart C (Section 15.225) 47 CFR FCC Part 15, Subpart C (Section 15.215) FCC Part 24, Subpart E FCC Part 27, Subpart L, H 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 -0.9dB at 2390.0MHz.
15.225 (a)	The field strength of any emissions within the band 13.553-13.567 MHz	Pass	Meet the requirement of limit. Minimum passing margin is -43.00dB at 13.56MHz.
15.225 (d)	The field strength of any emissions appearing outside of the 13.110-14.010 MHz band	Pass	Meet the requirement of limit. Minimum passing margin is -26.20dB at 3.56MHz.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -9.6dB at 1880.00MHz.
2.1051 27.53(c) 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -6.6dB at 1747.50MHz.

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	3.86 dB
	200MHz ~1000MHz	3.87 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	Clover Flex	
Brand	clover	
Test Model	C401U	
HVIN	C401ULTE	
Status of EUT	Engineering sample	
Power Supply Rating	7.6 Vdc (Battery) 12Vdc (Adapter)	
Modulation Type	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
	Bluetooth EDR	GFSK, π/4-DQPSK, 8DPSK
	Bluetooth LE	GFSK
	NFC	ASK
	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 (2.4GHz): up to 72.2Mbps 802.11n (5GHz): up to 150Mbps
	Bluetooth EDR	1/2/3Mbps
	Bluetooth LE	1Mbps
Operating Frequency	WLAN	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5180 ~ 5240MHz, 5745 ~ 5825MHz
	Bluetooth EDR	2402 ~ 2480MHz
	Bluetooth LE	2402 ~ 2480MHz
	NFC	13.56MHz

Operating Frequency	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
		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
Number of Channel	WLAN	2412 ~ 2462MHz: 11 for 802.11b, 802.11g, 802.11n (HT20) 5180 ~ 5240MHz: 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)		
	Bluetooth EDR	79		
	Bluetooth LE	40		
	NFC	1		
Output Power	WLAN	2412 ~ 2462MHz: 83.946mW 5180 ~ 5240MHz: 39.537mW 5745 ~ 5825MHz: 38.459mW		
	Bluetooth EDR	8.356mW		
	Bluetooth LE	2.239mW		
Antenna Type	Refer to note			
Antenna Connector	Refer to note			
Accessory Device	Charging Dock (Brand: Clover, Model: K400) Microhub (Brand: Clover, Model: H400)			
Data Cable Supplied	0.8m shielded Type-C cable without core			

Note:

1. The EUT provides 1 completed transmitter and 1 receiver.

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX

2. The EUT consumes power from the following battery and adapter.

Battery	
Brand	LG Chem, Ltd.
Model	MPPCLOYJ4
Rating	7.6Vdc, 2170mAh (Typ)

Adapter	
Brand	clover
Model	FSP040-RHBN2 A
Input Power	100-240Vac~,1.5A,50-60Hz
Output Power	12.0Vdc / 3.33A
Power Line	1.2m shielded DC cable with one core

3. The EUT uses following antennas.

WLAN & Bluetooth					
Ant. Type	Connecter	Antenna Gain (dBi)			
		Frequency (GHz)			
		2.4	5.150	5.470	5.850
PIFA	NA	-2.5	4.0	4.4	3.4
NFC					
Ant. Type	Loop Antenna				

Antenna	Vendor	Antenna Type	Antenna Connector	Frequency Range (MHz)	Antenna Gain (dBi)
Antenna 1 (Main)	Amphenol	PIFA	NA	LTE Band 2	-2.05
				LTE Band 4	-3.58
				LTE Band 12	-4.49
Antenna 1 (Aux.)	Amphenol		IPEX MHF4	LTE Band 2	Rx only
				LTE Band 4	Rx only
				LTE Band 12	Rx only
Antenna 2 (Main)	Luxshare-ICT	PIFA	NA	LTE Band 2	-1.8
				LTE Band 4	-2.7
				LTE Band 12	-2.2
Antenna 2 (Aux.)	Luxshare-ICT		IPEX MHF4	LTE Band 2	Rx only
				LTE Band 4	Rx only
				LTE Band 12	Rx only

*Antenna 2 was the worst for the final test.
**Antennas of WLAN 2.4GHz Band & WWAN are different.

4. 2.4GHz and 5GHz technology cannot transmit at same time.
5. Spurious emission of the simultaneous operation (WLAN+WWAN+NFC or BT+WWAN+NFC) has been evaluated and no non-compliance was found.

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		

For 5180 ~ 5240MHz

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

For 5745 ~ 5825MHz:

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

For Bluetooth EDR:

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		

For 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

For NFC

1 channel is provided to this EUT

Channel	Freq. (MHz)
1	13.56

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO		DESCRIPTION
	RE≥1G	RE<1G	
-	√	√	-

Where **RE≥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
-	802.11g + LTE Band 2 + NFC	2412 ~ 2462	1 to 11	1 + 18900 + 1	BPSK
		1857.5 ~ 1902.5	18675 to 19125		BPSK
		13.56	1		ASK
-	802.11g + LTE Band 4 + NFC	2412 ~ 2462	1 to 11	1 + 20325 + 1	BPSK
		1717.5 ~ 1747.5	20025 to 20325		BPSK
		13.56	1		ASK
-	802.11n (HT20) + LTE Band 2 + NFC	5180 ~ 5240, 5745 ~ 5825	36 to 48, 149 to 165	157 + 18900 + 1	BPSK
		1857.5 ~ 1902.5	18675 to 19125		BPSK
		13.56	1		ASK
-	802.11n (HT20) + LTE Band 4 + NFC	5180 ~ 5240, 5745 ~ 5825	36 to 48, 149 to 165	157 + 20325 + 1	BPSK
		1717.5 ~ 1747.5	20025 to 20325		BPSK
		13.56	1		ASK
-	BT EDR + LTE Band 2 + NFC	2402 ~ 2480	0 to 78	39 + 18900 + 1	GFSK
		1857.5 ~ 1902.5	18675 to 19125		BPSK
		13.56	1		ASK
-	BT EDR + LTE Band 4 + NFC	2402 ~ 2480	0 to 78	39 + 20325 + 1	GFSK
		1717.5 ~ 1747.5	20025 to 20325		BPSK
		13.56	1		ASK

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
-	802.11g + LTE Band 2 + NFC	2412 ~ 2462	1 to 11	1 + 18900 + 1	BPSK
		1857.5 ~ 1902.5	18675 to 19125		BPSK
		13.56	1		ASK
-	802.11g + LTE Band 4 + NFC	2412 ~ 2462	1 to 11	1 + 20325 + 1	BPSK
		1717.5 ~ 1747.5	20025 to 20325		BPSK
		13.56	1		ASK
-	802.11n (HT20) + LTE Band 2 + NFC	5180 ~ 5240, 5745 ~ 5825	36 to 48, 149 to 165	157 + 18900 + 1	BPSK
		1857.5 ~ 1902.5	18675 to 19125		BPSK
		13.56	1		ASK
-	802.11n (HT20) + LTE Band 4 + NFC	5180 ~ 5240, 5745 ~ 5825	36 to 48, 149 to 165	157 + 20325 + 1	BPSK
		1717.5 ~ 1747.5	20025 to 20325		BPSK
		13.56	1		ASK
-	BT EDR + LTE Band 2 + NFC	2402 ~ 2480	0 to 78	39 + 18900 + 1	GFSK
		1857.5 ~ 1902.5	18675 to 19125		BPSK
		13.56	1		ASK
-	BT EDR + LTE Band 4 + NFC	2402 ~ 2480	0 to 78	39 + 20325 + 1	GFSK
		1717.5 ~ 1747.5	20025 to 20325		BPSK
		13.56	1		ASK

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	20deg. C, 66%RH	120Vac, 60Hz	Luis Lee
RE<1G	22deg. C, 69%RH	120Vac, 60Hz	Jones Chang Adair Peng

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.

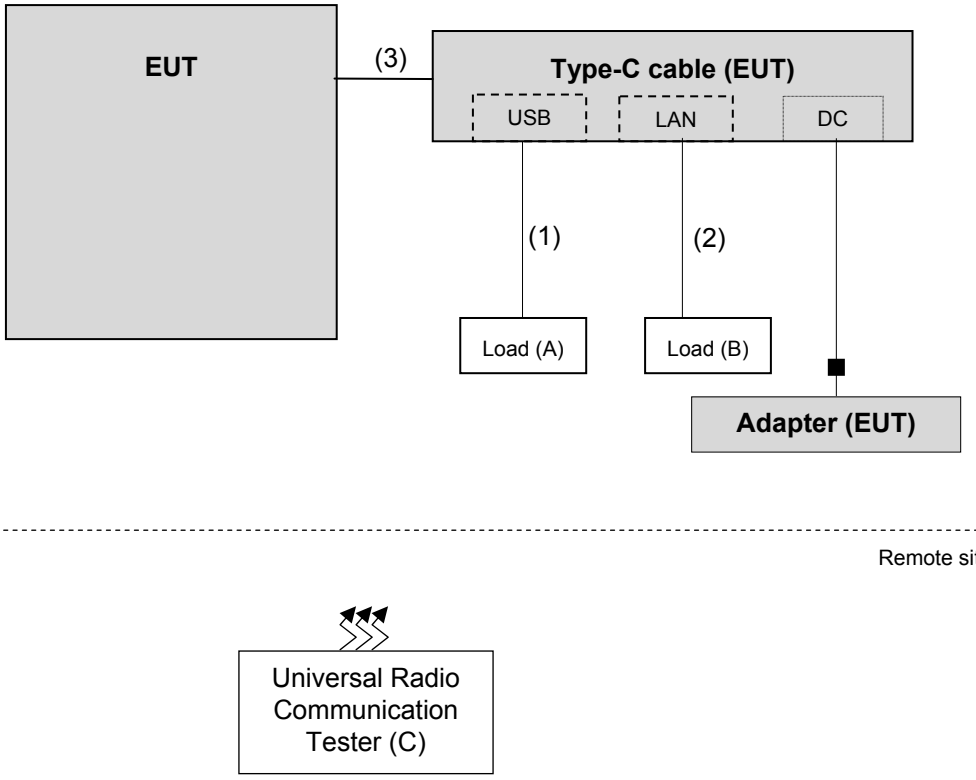
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	N/A	N/A	N/A	N/A	-
B.	Load	N/A	N/A	N/A	N/A	-
C.	Universal Radio Communication Tester	R&S	CMU200	123112	NA	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	1.8	N	0	-
2.	LAN cable	1	1.8	N	0	-
3.	Type-C cable	1	0.8	Y	0	Accessory of EUT

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)
47 CFR FCC Part 15, Subpart C (Section 15.225)
47 CFR FCC Part 15, Subpart C (Section 15.215)
FCC Part 24, Subpart E
FCC Part 27, Subpart L, H
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

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK:74 (dBμV/m)</td><td>AV:54 (dBμV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK:-27 (dBm/MHz)</td><td rowspan="3">PK:68.2(dBμV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK:-27 (dBm/MHz) *1
PK:10 (dBm/MHz) *2
PK:15.6 (dBm/MHz) *3
PK:27 (dBm/MHz) *4</td><td>PK: 68.2(dBμV/m) *1
PK:105.2 (dBμV/m) *2
PK: 110.8(dBμV/m) *3
PK:122.2 (dBμV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 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.</td></tr>
</table>

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

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/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 02, 2017	May 01, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 05, 2017	Apr. 04, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
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
26GHz ~ 40GHz Amplifier Agilent	8449B	3008A1960	Aug. 08, 2017	Aug. 07, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 07, 2017	Jun. 06, 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 3.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
5. The IC Site Registration No. is IC 7450F-3.

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. Both X and Y axes 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:

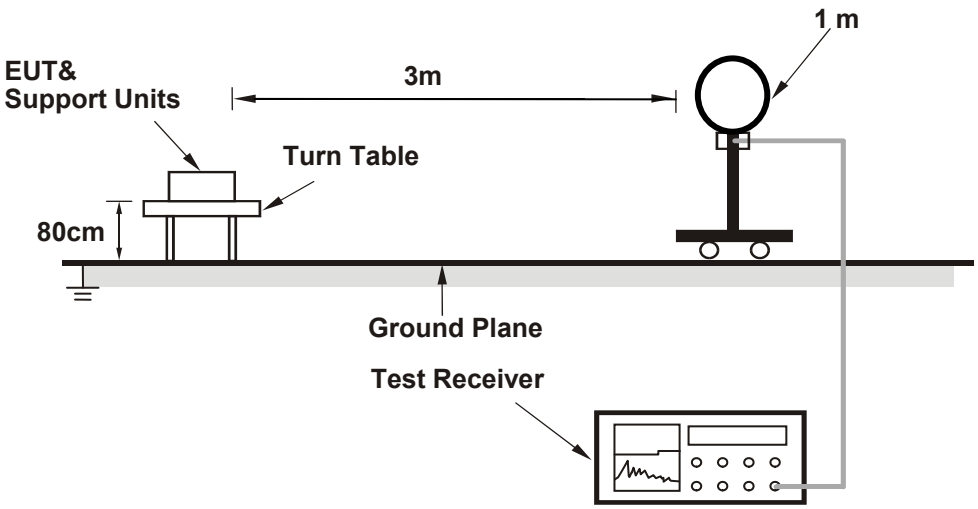
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 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

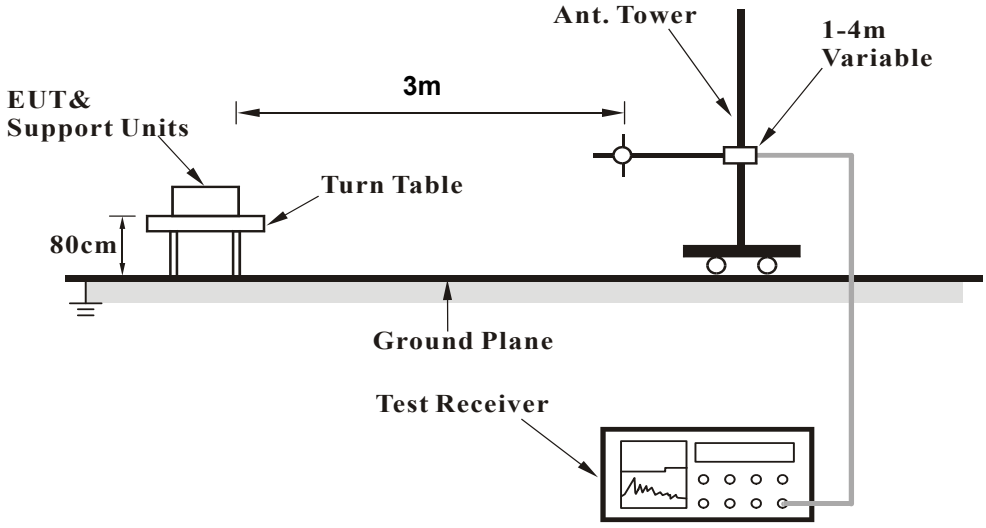
No deviation.

4.1.5 Test Setup

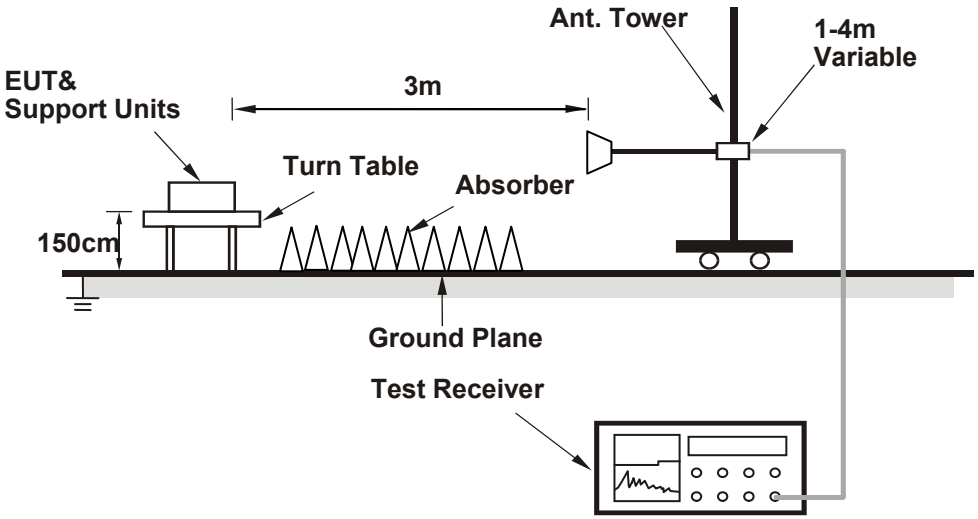
For Radiated emission below 30MHz



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:

802.11g + LTE Band 2 + NFC

CHANNEL	CH 1 + CH 18900 + CH 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	2390.00	69.4 PK	74.0	-4.6	1.62 H	340	36.0	33.4
2	**2390.00**	**53.1 AV**	**54.0**	**-0.9**	**1.62 H**	**340**	**19.7**	**33.4**
3	*2412.00	100.3 PK			1.84 H	293	66.9	33.4
4	*2412.00	89.4 AV			1.84 H	293	56.0	33.4
5	4824.00	46.5 PK	74.0	-27.5	1.64 H	188	42.9	3.6
6	4824.00	33.8 AV	54.0	-20.2	1.64 H	188	30.2	3.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	2390.00	66.3 PK	74.0	-7.7	1.99 V	48	32.9	33.4
2	2390.00	48.6 AV	54.0	-5.4	1.99 V	48	15.2	33.4
3	*2412.00	97.2 PK			1.94 V	263	63.8	33.4
4	*2412.00	86.7 AV			1.94 V	263	53.3	33.4
5	4824.00	46.4 PK	74.0	-27.6	1.75 V	339	42.8	3.6
6	4824.00	33.3 AV	54.0	-20.7	1.75 V	339	29.7	3.6

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 1 + CH 18900 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1880.00	-19.8	19.5	1.1	20.6	33.0	-12.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1880.00	-16.5	21.9	1.1	23.0	33.0	-10.0

CHANNEL		CH 1 + CH 18900 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-47.2	-41.4	7.1	-34.3	-13.0	-21.3
2	5640.00	-57.2	-44.9	6.7	-38.2	-13.0	-25.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-58.7	-52.8	7.1	-45.7	-13.0	-32.7
2	5640.00	-52.2	-41.9	6.7	-35.2	-13.0	-22.2

CHANNEL	CH 1 + CH 18900 + CH 1

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	13.56	80.90	124.00	-43.10	1.00	357	60.40	20.5
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	13.56	77.70	124.00	-46.30	1.00	251	57.2	20.5

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	3.74	37.4	69.5	-32.1	1.00	316	17.0	20.4
2	4.40	37.2	69.5	-32.3	1.00	315	16.7	20.5
3	10.05	33.2	69.5	-36.3	1.00	216	12.7	20.5
4	15.58	34.8	69.5	-34.7	1.00	223	14.2	20.6
5	21.23	34.7	69.5	-34.8	1.00	294	14.3	20.4
6	25.07	33.4	69.5	-36.1	1.00	178	12.8	20.6
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	3.56	42.2	69.5	-27.3	1.00	127	21.8	20.4
2	4.40	39.1	69.5	-30.4	1.00	177	18.6	20.5
3	8.78	32.9	69.5	-36.6	1.00	207	12.5	20.4
4	15.46	36.0	69.5	-33.5	1.00	32	15.5	20.5
5	17.44	36.4	69.5	-33.1	1.00	41	15.9	20.5
6	22.13	36.2	69.5	-33.3	1.00	186	15.7	20.5

802.11g + LTE Band 4 + NFC

CHANNEL	CH 1 + CH 20325 + CH 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	2390.00	69.1 PK	74.0	-4.9	1.64 H	342	35.7	33.4
2	2390.00	53.0 AV	54.0	-1.0	1.64 H	342	19.6	33.4
3	*2412.00	100.4 PK			1.69 H	291	67.0	33.4
4	*2412.00	89.9 AV			1.69 H	291	56.5	33.4
5	4824.00	47.2 PK	74.0	-26.8	1.85 H	215	43.6	3.6
6	4824.00	34.8 AV	54.0	-19.2	1.85 H	215	31.2	3.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	2390.00	67.1 PK	74.0	-6.9	2.00 V	39	33.7	33.4
2	2390.00	49.4 AV	54.0	-4.6	2.00 V	39	16.0	33.4
3	*2412.00	97.8 PK			2.17 V	284	64.4	33.4
4	*2412.00	87.5 AV			2.17 V	284	54.1	33.4
5	4824.00	47.0 PK	74.0	-27.0	1.51 V	339	43.4	3.6
6	4824.00	33.5 AV	54.0	-20.5	1.51 V	339	29.9	3.6

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	CH 1 + CH 20325 + CH 1						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-17.8	19.8	1.1	20.9	30.0	-9.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-16.2	22.1	1.1	23.2	30.0	-6.8

CHANNEL	CH 1 + CH 20325 + CH 1						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-57.9	-55.4	7.2	-48.2	-13.0	-35.2
2	5242.50	-63.0	-53.7	6.6	-47.1	-13.0	-34.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-56.8	-54.2	7.2	-47.0	-13.0	-34.0
2	5242.50	-60.9	-52.6	6.6	-46.0	-13.0	-33.0

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

CHANNEL	CH 1 + CH 20325 + CH 1

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	13.56	80.70	124.00	-43.30	1.00	351	60.20	20.50
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	13.56	77.50	124.00	-46.50	1.00	261	57.0	20.5

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	3.56	41.8	69.5	-27.7	1.00	88	21.4	20.4
2	4.40	38.9	69.5	-30.6	1.00	221	18.4	20.5
3	12.57	34.5	69.5	-35.0	1.00	338	14.0	20.5
4	17.26	34.6	69.5	-34.9	1.00	19	14.0	20.6
5	21.10	34.6	69.5	-34.9	1.00	176	14.2	20.4
6	26.15	32.0	69.5	-37.5	1.00	251	11.3	20.7
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	**3.56**	**43.3**	**69.5**	**-26.2**	**1.00**	**33**	**22.9**	**20.4**
2	4.46	39.1	69.5	-30.4	1.00	73	18.6	20.5
3	8.96	33.9	69.5	-35.6	1.00	11	13.5	20.4
4	15.34	35.2	69.5	-34.3	1.00	232	14.7	20.5
5	17.44	37.0	69.5	-32.5	1.00	299	16.5	20.5
6	25.07	35.4	69.5	-34.1	1.00	275	14.8	20.6

802.11n (HT20) + LTE Band 2 + NFC

CHANNEL	CH 157 + CH 18900 + CH 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	#5613.60	56.3 PK	68.2	-11.9	1.37 H	251	52.8	3.5
2	*5785.00	111.6 PK			1.37 H	251	69.2	42.4
3	*5785.00	100.5 AV			1.37 H	251	58.1	42.4
4	#5935.20	57.3 PK	68.2	-10.9	1.37 H	251	52.8	4.5
5	11570.00	62.5 PK	74.0	-11.5	2.85 H	302	46.5	16.0
6	11570.00	48.5 AV	54.0	-5.5	2.85 H	302	32.5	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	#5623.20	58.9 PK	68.2	-9.3	2.11 V	94	55.4	3.5
2	*5785.00	101.9 PK			2.11 V	94	59.5	42.4
3	*5785.00	89.9 AV			2.11 V	94	47.5	42.4
4	#5936.80	58.8 PK	68.2	-9.4	2.11 V	94	54.3	4.5
5	11570.00	62.8 PK	74.0	-11.2	2.28 V	195	46.8	16.0
6	11570.00	49.8 AV	54.0	-4.2	2.28 V	195	33.8	16.0

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 157 + CH 18900 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1880.00	-19.9	19.4	1.1	20.5	33.0	-12.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**1880.00**	**-16.1**	**22.3**	**1.1**	**23.4**	**33.0**	**-9.6**

CHANNEL		CH 157 + CH 18900 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-48.1	-42.3	7.1	-35.2	-13.0	-22.2
2	5640.00	-57.3	-45.0	6.7	-38.3	-13.0	-25.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-58.6	-52.7	7.1	-45.6	-13.0	-32.6
2	5640.00	-51.1	-40.8	6.7	-34.1	-13.0	-21.1

CHANNEL	CH 157 + CH 18900 + CH 1

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	**13.56**	**81.00**	**124.00**	**-43.00**	**1.00**	**349**	**60.50**	**20.50**

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	13.56	77.90	124.00	-46.10	1.00	259	57.40	20.50

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	3.56	41.5	69.5	-28.0	1.00	161	21.1	20.4
2	4.40	39.0	69.5	-30.5	1.00	349	18.5	20.5
3	9.08	33.5	69.5	-36.0	1.00	216	13.1	20.4
4	14.97	34.5	69.5	-35.0	1.00	296	14.0	20.5
5	17.44	34.7	69.5	-34.8	1.00	247	14.2	20.5
6	22.13	35.0	69.5	-34.5	1.00	156	14.5	20.5

Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	3.56	42.6	69.5	-26.9	1.00	293	22.2	20.4
2	4.40	39.3	69.5	-30.2	1.00	160	18.8	20.5
3	9.32	34.1	69.5	-35.4	1.00	59	13.7	20.4
4	17.62	35.6	69.5	-33.9	1.00	33	15.1	20.5
5	22.13	35.9	69.5	-33.6	1.00	352	15.4	20.5
6	25.07	35.6	69.5	-33.9	1.00	129	15.0	20.6

802.11n (HT20) + LTE Band 4 + NFC

CHANNEL	CH 157 + CH 20325 + CH 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	#5644.80	56.0 PK	68.2	-12.2	1.26 H	269	52.6	3.4
2	*5785.00	111.1 PK			1.26 H	269	68.7	42.4
3	*5785.00	100.1 AV			1.26 H	269	57.7	42.4
4	#5985.60	57.6 PK	68.2	-10.6	1.26 H	269	53.0	4.6
5	11570.00	61.7 PK	74.0	-12.3	2.38 H	274	45.7	16.0
6	11570.00	48.6 AV	54.0	-5.4	2.38 H	274	32.6	16.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	55.6 PK	68.2	-12.6	2.16 V	59	52.2	3.4
2	*5785.00	101.4 PK			2.16 V	59	59.0	42.4
3	*5785.00	89.6 AV			2.16 V	59	47.2	42.4
4	#5949.60	57.5 PK	68.2	-10.7	2.16 V	59	52.9	4.6
5	11570.00	62.5 PK	74.0	-11.5	2.01 V	182	46.5	16.0
6	11570.00	49.3 AV	54.0	-4.7	2.01 V	182	33.3	16.0

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 157 + CH 20325 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-18.4	19.2	1.1	20.3	30.0	-9.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**1747.50**	**-16.0**	**22.3**	**1.1**	**23.4**	**30.0**	**-6.6**

CHANNEL		CH 157 + CH 20325 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-58.0	-53.4	7.2	-46.2	-13.0	-33.2
2	5242.50	-68.3	-56.9	6.6	-50.3	-13.0	-37.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-62.4	-57.7	7.2	-50.5	-13.0	-37.5
2	5242.50	-58.4	-48.0	6.6	-41.4	-13.0	-28.4

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

CHANNEL	CH 157 + CH 20325 + CH 1

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	13.56	80.80	124.00	-43.20	1.00	355	60.30	20.50
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	13.56	78.00	124.00	-46.00	1.00	263	57.50	20.50

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	3.56	41.1	69.5	-28.4	1.00	211	20.7	20.4
2	4.40	38.7	69.5	-30.8	1.00	82	18.2	20.5
3	13.11	33.2	69.5	-36.3	1.00	239	12.7	20.5
4	17.44	35.6	69.5	-33.9	1.00	9	15.1	20.5
5	21.23	33.8	69.5	-35.7	1.00	234	13.4	20.4
6	25.07	32.8	69.5	-36.7	1.00	13	12.2	20.6
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	3.56	42.1	69.5	-27.4	1.00	17	21.7	20.4
2	4.40	39.4	69.5	-30.1	1.00	73	18.9	20.5
3	11.13	33.1	69.5	-36.4	1.00	5	12.6	20.5
4	17.44	35.2	69.5	-34.3	1.00	216	14.7	20.5
5	22.13	37.1	69.5	-32.4	1.00	29	16.6	20.5
6	25.07	34.8	69.5	-34.7	1.00	62	14.2	20.6

BT EDR + LTE Band 2 + NFC

CHANNEL	CH 39 + CH 18900 + CH 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	*2441.00	99.2 PK			2.44 H	105	67.9	31.3
2	*2441.00	69.1 AV			2.44 H	105	37.8	31.3
3	4882.00	49.4 PK	74.0	-24.6	1.16 H	222	44.8	4.6
4	4882.00	19.3 AV	54.0	-34.7	1.16 H	222	14.7	4.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	*2441.00	97.8 PK			1.00 V	177	66.5	31.3
2	*2441.00	67.7 AV			1.00 V	177	36.4	31.3
3	4882.00	49.5 PK	74.0	-24.5	1.14 V	108	44.9	4.6
4	4882.00	19.4 AV	54.0	-34.6	1.14 V	108	14.8	4.6

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL		CH 39 + CH 18900 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1880.00	-19.6	19.7	1.1	20.8	33.0	-12.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1880.00	-16.3	22.1	1.1	23.2	33.0	-9.8

CHANNEL		CH 39 + CH 18900 + CH 1					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-48.0	-42.2	7.1	-35.1	-13.0	-22.1
2	5640.00	-57.0	-44.7	6.7	-38.0	-13.0	-25.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-59.0	-53.1	7.1	-46.0	-13.0	-33.0
2	5640.00	-52.1	-41.8	6.7	-35.1	-13.0	-22.1

CHANNEL	CH 39 + CH 18900 + CH 1

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	13.56	80.60	124.00	-43.40	1.00	352	60.10	20.50
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	13.56	77.50	124.00	-46.50	1.00	267	57.00	20.50

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	3.56	41.8	69.5	-27.7	1.00	135	21.4	20.4
2	4.46	36.6	69.5	-32.9	1.00	16	16.1	20.5
3	11.19	33.0	69.5	-36.5	1.00	166	12.5	20.5
4	17.56	35.2	69.5	-34.3	1.00	329	14.7	20.5
5	21.16	36.0	69.5	-33.5	1.00	72	15.6	20.4
6	26.45	32.5	69.5	-37.0	1.00	178	11.8	20.7
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	3.56	42.2	69.5	-27.3	1.00	168	21.8	20.4
2	4.40	39.6	69.5	-29.9	1.00	14	19.1	20.5
3	9.20	33.5	69.5	-36.0	1.00	232	13.1	20.4
4	17.44	36.5	69.5	-33.0	1.00	23	16.0	20.5
5	22.13	35.8	69.5	-33.7	1.00	311	15.3	20.5
6	25.07	35.3	69.5	-34.2	1.00	210	14.7	20.6

BT EDR + LTE Band 4 + NFC

CHANNEL	CH 39 + CH 20325 + CH 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	*2441.00	98.9 PK			2.36 H	118	67.6	31.3
2	*2441.00	68.8 AV			2.36 H	118	37.5	31.3
3	4882.00	49.0 PK	74.0	-25.0	1.10 H	211	44.4	4.6
4	4882.00	18.9 AV	54.0	-35.1	1.10 H	211	14.3	4.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	*2441.00	97.6 PK			1.01 V	160	66.3	31.3
2	*2441.00	67.5 AV			1.01 V	160	36.2	31.3
3	4882.00	49.9 PK	74.0	-24.1	1.09 V	130	45.3	4.6
4	4882.00	19.8 AV	54.0	-34.2	1.09 V	130	15.2	4.6

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
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	CH 39 + CH 20325 + CH 1						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-17.9	19.7	1.1	20.8	30.0	-9.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-16.3	22.0	1.1	23.1	30.0	-6.9

CHANNEL	CH 39 + CH 20325 + CH 1						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-50.7	-46.1	7.2	-38.9	-13.0	-25.9
2	5242.50	-60.1	-48.7	6.6	-42.1	-13.0	-29.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-61.6	-56.9	7.2	-49.7	-13.0	-36.7
2	5242.50	-56.2	-45.8	6.6	-39.2	-13.0	-26.2

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

CHANNEL	CH 39 + CH 20325 + CH 1

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	13.56	80.30	124.00	-43.70	1.00	356	59.8	20.5
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	13.56	77.80	124.00	-46.20	1.00	253	57.3	20.5

Antenna Polarity & Test Distance: Loop Antenna Open At 3m								
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	3.56	41.4	69.5	-28.1	1.00	229	21.0	20.4
2	4.40	39.2	69.5	-30.3	1.00	10	18.7	20.5
3	8.18	32.8	69.5	-36.7	1.00	131	12.4	20.4
4	15.21	33.7	69.5	-35.8	1.00	10	13.2	20.5
5	17.44	35.6	69.5	-33.9	1.00	159	15.1	20.5
6	21.16	35.1	69.5	-34.4	1.00	44	14.7	20.4
Antenna Polarity & Test Distance: Loop Antenna Close At 3m								
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	3.56	42.4	69.5	-27.1	1.00	1	22.0	20.4
2	4.40	39.6	69.5	-29.9	1.00	73	19.1	20.5
3	9.93	33.2	69.5	-36.3	1.00	296	12.7	20.5
4	17.44	37.2	69.5	-32.3	1.00	273	16.7	20.5
5	22.13	36.7	69.5	-32.8	1.00	210	16.2	20.5
6	25.07	35.8	69.5	-33.7	1.00	309	15.2	20.6

Below 1GHz data

802.11g + LTE Band 2 + NFC

CHANNEL	CH 1 + CH 18900 + CH 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	57.12	24.7 QP	40.0	-15.3	2.00 H	340	39.1	-14.4
2	158.22	18.8 QP	43.5	-24.7	1.50 H	234	32.6	-13.8
3	241.83	21.4 QP	46.0	-24.6	1.50 H	119	36.3	-14.9
4	405.15	22.0 QP	46.0	-24.0	1.00 H	77	33.1	-11.1
5	747.34	28.6 QP	46.0	-17.4	1.00 H	162	33.4	-4.8
6	935.94	35.8 QP	46.0	-10.2	1.50 H	236	37.9	-2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	30.90	26.2 QP	40.0	-13.8	2.00 V	19	42.2	-16.0
2	160.17	18.1 QP	43.5	-25.4	1.00 V	313	31.9	-13.8
3	241.83	19.9 QP	46.0	-26.1	1.00 V	311	34.8	-14.9
4	512.08	23.7 QP	46.0	-22.3	1.00 V	7	32.8	-9.1
5	729.84	30.3 QP	46.0	-15.7	1.00 V	5	35.5	-5.2
6	935.94	37.0 QP	46.0	-9.0	1.00 V	145	39.1	-2.1

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 1 + CH 18900 + CH 1	FREQUENCY RANGE	30MHz ~ 1GHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	160.24	-62.3	-68.5	0.5	-68.0	-13.0	-55.0
2	239.94	-59.4	-71.7	5.4	-66.3	-13.0	-53.3
3	403.23	-67.4	-73.0	5.2	-67.8	-13.0	-54.8
4	556.79	-65.6	-69.4	4.7	-64.7	-13.0	-51.7
5	729.80	-57.0	-58.2	4.9	-53.3	-13.0	-40.3
6	935.85	-58.6	-53.8	3.9	-49.9	-13.0	-36.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	90.26	-49.0	-56.3	1.1	-55.2	-13.0	-42.2
2	243.83	-63.4	-69.1	5.5	-63.6	-13.0	-50.6
3	556.79	-66.1	-68.8	4.7	-64.1	-13.0	-51.1
4	640.38	-67.3	-65.7	4.7	-61.0	-13.0	-48.0
5	727.86	-66.0	-64.0	4.9	-59.1	-13.0	-46.1
6	935.85	-59.4	-53.7	3.9	-49.8	-13.0	-36.8

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

802.11g + LTE Band 4 + NFC

CHANNEL	CH 1 + CH 20325 + CH 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	57.12	24.9 QP	40.0	-15.1	1.50 H	136	39.3	-14.4
2	78.51	25.4 QP	40.0	-14.6	1.00 H	6	43.2	-17.8
3	160.17	18.5 QP	43.5	-25.0	1.00 H	6	32.3	-13.8
4	241.83	22.0 QP	46.0	-24.0	1.50 H	253	36.9	-14.9
5	729.84	30.2 QP	46.0	-15.8	2.00 H	191	35.4	-5.2
6	935.94	36.5 QP	46.0	-9.5	1.50 H	66	38.6	-2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	30.90	33.2 QP	40.0	-6.8	1.00 V	117	49.2	-16.0
2	78.51	36.7 QP	40.0	-3.3	1.00 V	115	54.5	-17.8
3	109.62	27.4 QP	43.5	-16.1	1.00 V	67	44.7	-17.3
4	158.22	19.5 QP	43.5	-24.0	1.00 V	83	33.3	-13.8
5	747.34	30.2 QP	46.0	-15.8	1.00 V	36	35.0	-4.8
6	935.94	34.4 QP	46.0	-11.6	2.00 V	256	36.5	-2.1

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 1 + CH 20325 + CH 1	FREQUENCY RANGE	30MHz ~ 1GHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	239.94	-58.0	-70.3	5.4	-64.9	-13.0	-51.9
2	409.06	-67.5	-73.0	5.2	-67.8	-13.0	-54.8
3	480.98	-66.5	-71.6	5.0	-66.6	-13.0	-53.6
4	558.74	-65.5	-69.3	4.7	-64.6	-13.0	-51.6
5	722.02	-59.7	-61.0	5.0	-56.0	-13.0	-43.0
6	937.80	-57.2	-52.4	3.9	-48.5	-13.0	-35.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	127.19	-57.5	-63.3	0.0	-63.3	-13.0	-50.3
2	239.94	-63.7	-70.1	5.4	-64.7	-13.0	-51.7
3	636.49	-67.2	-65.7	4.7	-61.0	-13.0	-48.0
4	739.52	-64.2	-62.0	4.8	-57.2	-13.0	-44.2
5	877.54	-66.3	-62.0	3.9	-58.1	-13.0	-45.1
6	935.85	-59.4	-53.7	3.9	-49.8	-13.0	-36.8

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 2 + NFC

CHANNEL	CH 157 + CH 18900 + CH 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	57.12	25.1 QP	40.0	-14.9	2.00 H	60	39.5	-14.4
2	70.73	21.6 QP	40.0	-18.4	1.49 H	351	37.8	-16.2
3	162.11	19.2 QP	43.5	-24.3	1.00 H	5	33.1	-13.9
4	241.83	21.1 QP	46.0	-24.9	1.49 H	327	36.0	-14.9
5	729.84	26.7 QP	46.0	-19.3	1.49 H	63	31.9	-5.2
6	935.94	36.7 QP	46.0	-9.3	1.49 H	139	38.8	-2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	39.62	24.7 QP	40.0	-15.3	1.50 V	218	39.7	-15.0
2	74.62	23.3 QP	40.0	-16.7	1.00 V	154	40.1	-16.8
3	160.17	18.7 QP	43.5	-24.8	1.00 V	245	32.5	-13.8
4	241.83	23.6 QP	46.0	-22.4	2.00 V	191	38.5	-14.9
5	512.08	23.4 QP	46.0	-22.6	1.00 V	36	32.5	-9.1
6	937.88	35.9 QP	46.0	-10.1	1.00 V	265	37.9	-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 157 + CH 18900 + CH 1	FREQUENCY RANGE	30MHz ~ 1GHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	239.94	-59.2	-71.5	5.4	-66.1	-13.0	-53.1
2	401.28	-66.7	-72.3	5.2	-67.1	-13.0	-54.1
3	556.79	-67.0	-70.8	4.7	-66.1	-13.0	-53.1
4	723.97	-59.5	-60.6	4.9	-55.7	-13.0	-42.7
5	747.29	-64.3	-64.8	4.7	-60.1	-13.0	-47.1
6	937.80	-59.5	-54.7	3.9	-50.8	-13.0	-37.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	111.64	-55.2	-63.2	0.4	-62.8	-13.0	-49.8
2	239.94	-62.8	-69.2	5.4	-63.8	-13.0	-50.8
3	560.68	-66.1	-68.7	4.7	-64.0	-13.0	-51.0
4	644.27	-67.0	-65.5	4.8	-60.7	-13.0	-47.7
5	741.46	-60.6	-58.4	4.8	-53.6	-13.0	-40.6
6	935.85	-56.3	-50.6	3.9	-46.7	-13.0	-33.7

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 + NFC

CHANNEL	CH 157 + CH 20325 + CH 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	57.12	24.7 QP	40.0	-15.3	2.01 H	6	39.1	-14.4
2	160.17	30.2 QP	43.5	-13.3	1.01 H	26	44.0	-13.8
3	241.83	21.3 QP	46.0	-24.7	1.01 H	143	36.2	-14.9
4	512.08	23.0 QP	46.0	-23.0	1.50 H	208	32.1	-9.1
5	747.34	32.4 QP	46.0	-13.6	1.01 H	6	37.2	-4.8
6	937.88	36.9 QP	46.0	-9.1	1.01 H	26	38.9	-2.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	37.68	29.8 QP	40.0	-10.2	2.00 V	164	45.1	-15.3
2	72.67	27.1 QP	40.0	-12.9	1.00 V	245	43.6	-16.5
3	158.22	18.7 QP	43.5	-24.8	1.00 V	199	32.5	-13.8
4	241.83	20.3 QP	46.0	-25.7	1.00 V	125	35.2	-14.9
5	747.34	32.2 QP	46.0	-13.8	1.00 V	303	37.0	-4.8
6	937.88	35.3 QP	46.0	-10.7	1.00 V	234	37.3	-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 157 + CH 20325 + CH 1	FREQUENCY RANGE	30MHz ~ 1GHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	80.54	-62.3	-66.7	-1.5	-68.2	-13.0	-55.2
2	239.94	-58.9	-71.2	5.4	-65.8	-13.0	-52.8
3	405.17	-67.4	-73.0	5.2	-67.8	-13.0	-54.8
4	558.74	-66.1	-69.9	4.7	-65.2	-13.0	-52.2
5	722.02	-59.5	-60.8	5.0	-55.8	-13.0	-42.8
6	937.80	-59.2	-54.4	3.9	-50.5	-13.0	-37.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	158.30	-63.2	-65.5	0.3	-65.2	-13.0	-52.2
2	239.94	-63.6	-70.0	5.4	-64.6	-13.0	-51.6
3	558.74	-64.9	-67.6	4.7	-62.9	-13.0	-49.9
4	636.49	-66.9	-65.4	4.7	-60.7	-13.0	-47.7
5	747.29	-64.7	-62.1	4.7	-57.4	-13.0	-44.4
6	937.80	-58.1	-52.4	3.9	-48.5	-13.0	-35.5

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

BT EDR + LTE Band 2 + NFC

CHANNEL	CH 39 + CH 18900 + CH 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	57.12	24.7 QP	40.0	-15.3	1.49 H	3	39.1	-14.4
2	158.22	18.9 QP	43.5	-24.6	1.49 H	5	32.7	-13.8
3	241.83	22.9 QP	46.0	-23.1	2.00 H	272	37.8	-14.9
4	389.59	28.7 QP	46.0	-17.3	1.49 H	5	40.1	-11.4
5	729.84	37.5 QP	46.0	-8.5	1.49 H	5	42.7	-5.2
6	935.94	35.3 QP	46.0	-10.7	1.49 H	81	37.4	-2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	30.90	29.6 QP	40.0	-10.4	2.00 V	146	45.6	-16.0
2	76.56	33.6 QP	40.0	-6.4	1.00 V	173	50.9	-17.3
3	96.01	23.0 QP	43.5	-20.5	1.00 V	107	41.9	-18.9
4	241.83	19.9 QP	46.0	-26.1	1.00 V	226	34.8	-14.9
5	729.84	39.4 QP	46.0	-6.6	1.50 V	160	44.6	-5.2
6	937.88	35.4 QP	46.0	-10.6	1.00 V	95	37.4	-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 39 + CH 18900 + CH 1	FREQUENCY RANGE	30MHz ~ 1GHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	239.94	-57.6	-69.9	5.4	-64.5	-13.0	-51.5
2	405.17	-67.1	-72.7	5.2	-67.5	-13.0	-54.5
3	482.93	-66.2	-71.4	5.0	-66.4	-13.0	-53.4
4	564.57	-66.5	-70.0	4.5	-65.5	-13.0	-52.5
5	720.08	-59.9	-61.2	5.0	-56.2	-13.0	-43.2
6	937.80	-58.5	-53.7	3.9	-49.8	-13.0	-36.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	185.51	-61.9	-68.6	3.6	-65.0	-13.0	-52.0
2	243.83	-64.0	-69.7	5.5	-64.2	-13.0	-51.2
3	640.38	-68.4	-66.8	4.7	-62.1	-13.0	-49.1
4	720.08	-66.7	-64.8	5.0	-59.8	-13.0	-46.8
5	803.67	-68.4	-64.2	4.0	-60.2	-13.0	-47.2
6	937.80	-56.7	-51.0	3.9	-47.1	-13.0	-34.1

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

BT EDR + LTE Band 4 + NFC

CHANNEL	CH 39 + CH 20325 + CH 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
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	30.90	29.6 QP	40.0	-10.4	1.00 H	235	45.6	-16.0
2	57.12	27.7 QP	40.0	-12.3	1.99 H	317	42.1	-14.4
3	278.77	28.6 QP	46.0	-17.4	1.99 H	278	41.8	-13.2
4	729.84	36.4 QP	46.0	-9.6	1.99 H	128	41.6	-5.2
5	916.50	40.3 QP	46.0	-5.7	1.49 H	170	42.4	-2.1
6	935.94	37.2 QP	46.0	-8.8	1.49 H	16	39.3	-2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
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	30.90	30.6 QP	40.0	-9.4	1.00 V	167	46.6	-16.0
2	78.51	24.6 QP	40.0	-15.4	1.49 V	181	42.4	-17.8
3	160.17	19.1 QP	43.5	-24.4	1.49 V	115	32.9	-13.8
4	241.83	21.2 QP	46.0	-24.8	1.49 V	311	36.1	-14.9
5	729.84	34.9 QP	46.0	-11.1	1.00 V	5	40.1	-5.2
6	937.88	37.5 QP	46.0	-8.5	1.99 V	10	39.5	-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

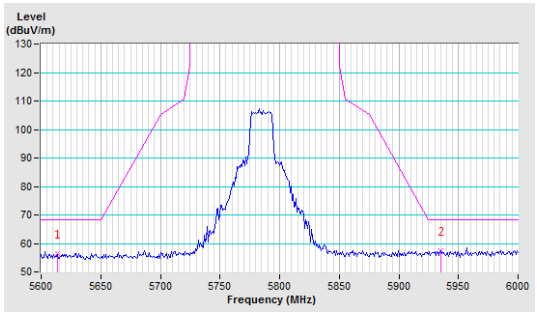
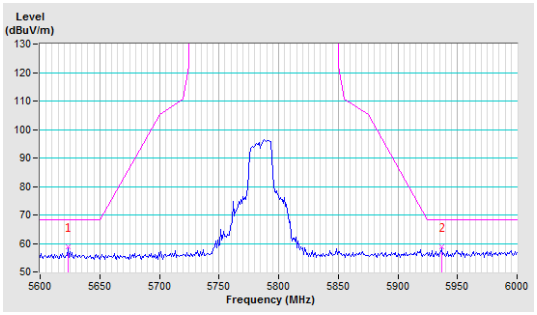
CHANNEL	CH 39 + CH 20325 + CH 1	FREQUENCY RANGE	30MHz ~ 1GHz

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	158.30	-63.8	-69.2	0.3	-68.9	-13.0	-55.9
2	241.88	-60.2	-72.4	5.5	-66.9	-13.0	-53.9
3	405.17	-66.9	-72.5	5.2	-67.3	-13.0	-54.3
4	558.74	-65.8	-69.6	4.7	-64.9	-13.0	-51.9
5	729.80	-57.6	-58.8	4.9	-53.9	-13.0	-40.9
6	937.80	-58.5	-53.7	3.9	-49.8	-13.0	-36.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	160.24	-61.7	-64.5	0.5	-64.0	-13.0	-51.0
2	241.88	-63.8	-69.8	5.5	-64.3	-13.0	-51.3
3	302.14	-63.7	-67.6	5.1	-62.5	-13.0	-49.5
4	642.32	-67.7	-66.1	4.7	-61.4	-13.0	-48.4
5	722.02	-66.8	-64.9	5.0	-59.9	-13.0	-46.9
6	939.74	-57.6	-51.9	3.9	-48.0	-13.0	-35.0

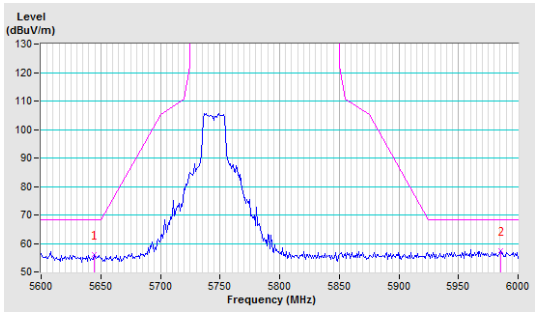
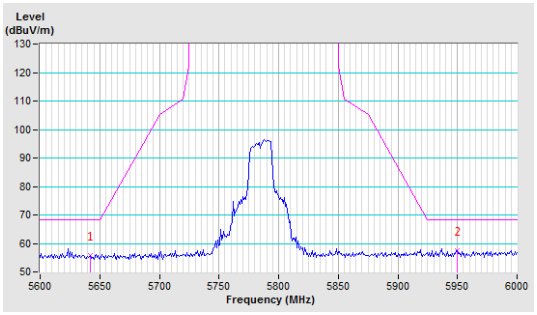
Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

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

802.11n (HT20) + LTE Band 2 + NFC

CH 157 5785 MHz	
Horizontal	**Vertical**
	

802.11n (HT20) + LTE Band 4 + NFC

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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