FCC Test Report

APPLICANT	:	Kodiak Networks Inc
EQUIPMENT	:	Carbonado –Wifi Device
BRAND NAME	:	Carbonado
MODEL NAME	:	UA400
MARKETING NAME	:	Carbonado
FCC ID	:	RTKU400
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Feb. 21, 2013 and completely tested on Mar. 13, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC322101	Rev. 01	Initial issue of report	Mar. 15, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	7.2.4	AC Conducted Emission	< 15.107 limits < RSS-Gen table 2 limits	PASS	Under limit 3.82 dB at 0.770 MHz
3.2	15.109	7.2.3.2	Radiated Emission	< 15.109 limits or < RSS-Gen table 1 limits (Section 6)	PASS	Under limit 4.13 dB at 107.600 MHz for Quasi-Peak

1. General Description

1.1. Applicant

Kodiak Networks Inc
1501 10th St #130 Plano, TX 75074, United States

1.2. Manufacturer

Shenzhen Power Idea Technology Limited
1401A, Section B,Bin hai zhi Chuang tower, Wen xin 5 Road,Nan Shan, Shen Zhen city, PRC

1.3. Feature of Equipment Under Test

Product Feature	
Equipment	Carbonado –Wifi Device
Brand Name	Carbonado
Model Name	UA400
Marketing Name	Carbonado
FCC ID	RTKU400
EUT supports Radios application	WLAN 11bgn/Bluetooth
HW Version	P920_MB_V0.3
SW Version	Android 2.3.7
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx Frequency	802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency Range	802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Antenna Type	WLAN : Monopole Antenna Bluetooth : Monopole Antenna
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth BDR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK

1.5. Test Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO01-KS	03CH01-KS	149928/4086E-1

1.6. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003
- IC RSS-Gen Issue 3

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 KHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

Item	EUT Configuration	Test Condition		
		EMI AC	EMI RE<1G	EMI RE≥1G
1.	Charging Mode (EUT with adapter)	☒	☒	Note 1
2.	Data application transferred mode (EUT with PC)	☒	☒	☒

Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

Note 1: Testing for this mode is not required or not the worst case.

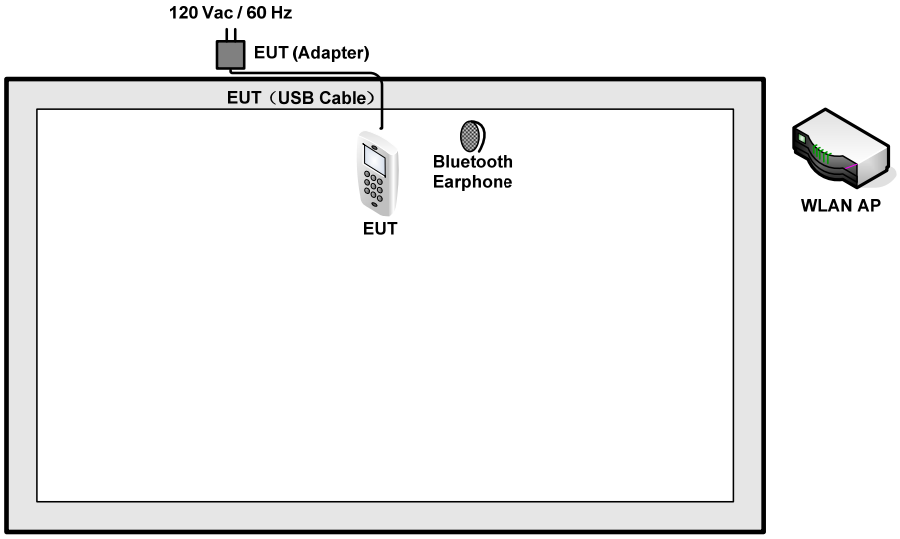
Remark: For signal above 1GHz, the worst case was test item 2.

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	Mode 1: Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4<Fig. 1> Mode 2: Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) <Fig. 2>
Radiated Emissions < 1GHz	1/2	Mode 1: Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4<Fig. 1> Mode 2: Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) <Fig. 2>
Radiated Emissions ≥ 1GHz	2	Mode 1: Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) <Fig. 2>

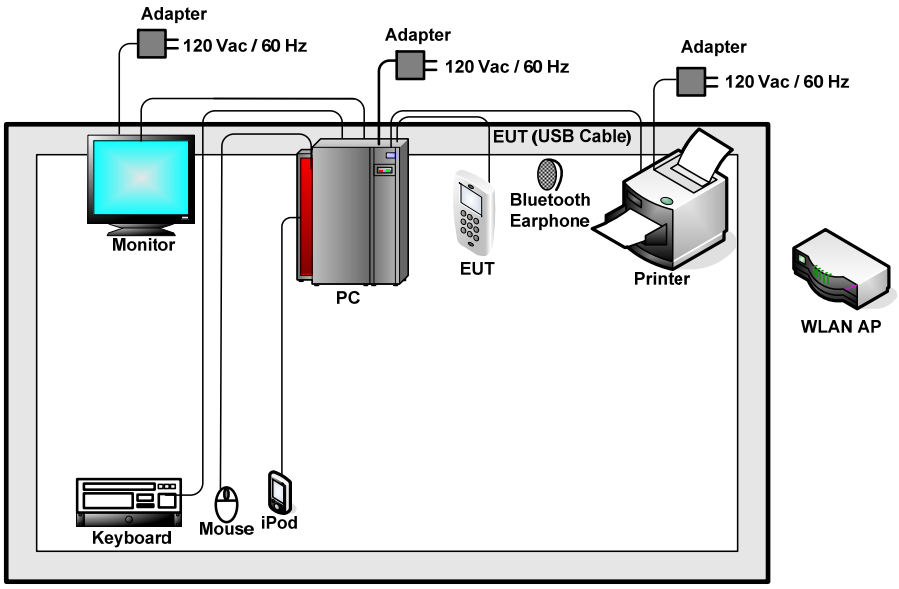
Remark:

1. The worst case of AC Conducted Emission is mode 1; the test data of this mode was reported.
2. The USB Link mode of AC Conducted Emission is mode 2; the test data of this mode was reported.
3. The worst case of Radiated Emissions is mode 2; only the test data of this mode was reported.
4. Data Link with PC means data application transferred mode between EUT and PC.

2.2. Connection Diagram of Test System



<Fig. 1>



<Fig. 2>

2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
2.	PC	Dell	MT320	FCC DoC	N/A	Unshielded, 1.8 m
3.	PC	Dell	DCSM	FCC DoC	N/A	Unshielded, 1.8 m
4.	Monitor	Dell	E1910Hc	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
5.	(USB) Keyboard	Dell	SK-8115	FCC DoC	Shielded, 1.8 m with core	N/A
6.	(USB) Mouse	Dell	MO56UC	FCC DoC	Shielded, 1.8 m	N/A
7.	(USB) Mouse	Dell	N231	FCC DoC	Shielded, 1.8 m	N/A
8.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
9.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	N/A	N/A
10.	Printer	HP	Laser Jet 1018	FCC DoC	Shielded, 1.8 m	Unshielded, 1.8 m
11.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	N/A

2.4. Test Software

The EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Execute the program, “Winthrax” under WIN7 installed in PC for files transfer with EUT via USB cable.
2. Execute “Windows Media Player” to play MPEG4 files.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

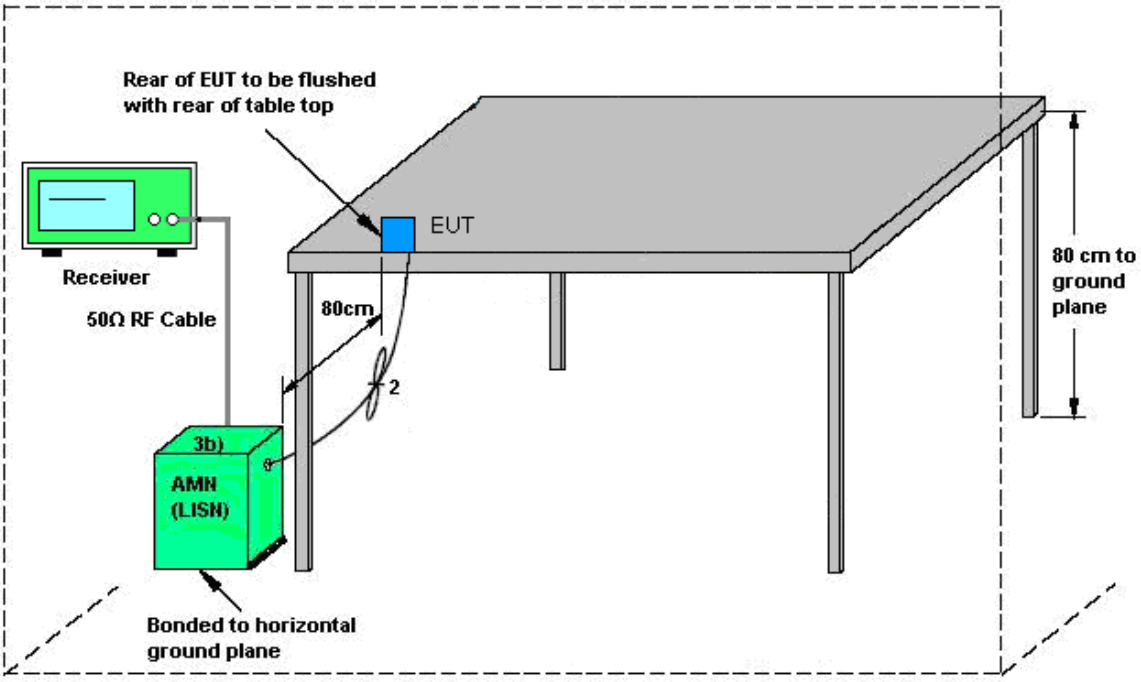
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 KHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

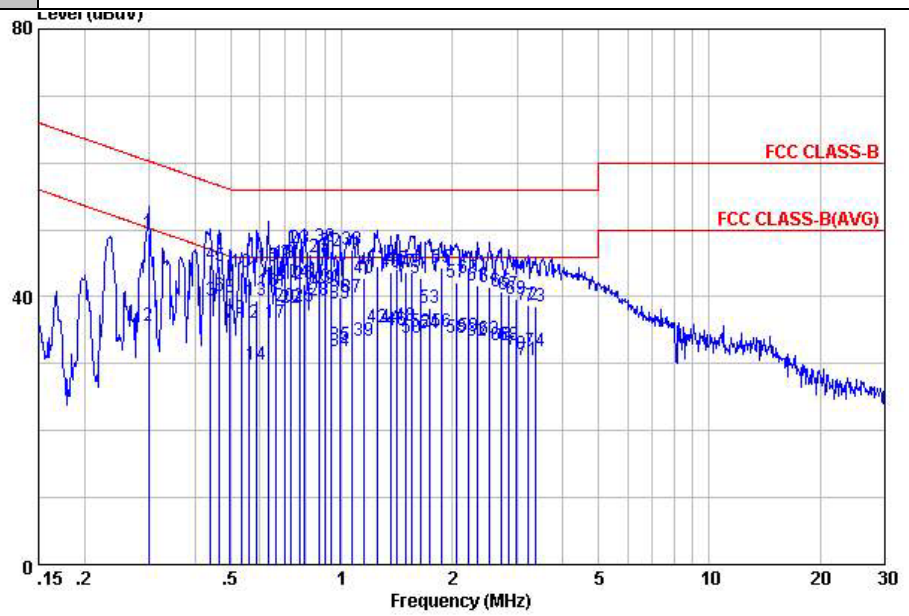
3.1.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



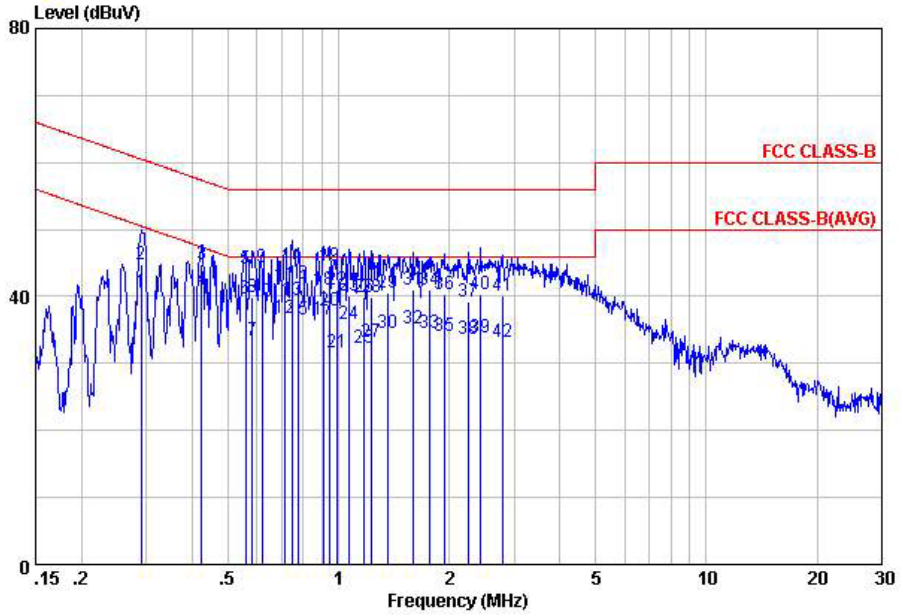
Site : C001-KS
Condition: FCC CLASS-B LISN-111230 LINE
Project : (FC) 322101
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.30	49.47	-10.81	60.28	39.30	-0.07	10.24	QP
2	0.30	35.77	-14.51	50.28	25.60	-0.07	10.24	Average
3	0.44	39.37	-7.70	47.07	29.20	-0.08	10.25	Average
4	0.44	44.77	-12.30	57.07	34.60	-0.08	10.25	QP
5	0.47	44.47	-12.11	56.58	34.30	-0.08	10.25	QP
6	0.47	40.17	-6.41	46.58	30.00	-0.08	10.25	Average
7	0.50	36.17	-9.88	46.05	26.00	-0.08	10.25	Average
8	0.50	39.97	-16.08	56.05	29.80	-0.08	10.25	QP
9	0.53	36.77	-9.23	46.00	26.59	-0.08	10.26	Average
10	0.53	43.57	-12.43	56.00	33.39	-0.08	10.26	QP
11	0.56	42.88	-13.12	56.00	32.70	-0.08	10.26	QP
12	0.56	36.18	-9.82	46.00	26.00	-0.08	10.26	Average
13	0.59	39.48	-16.52	56.00	29.30	-0.08	10.26	QP
14	0.59	29.88	-16.12	46.00	19.70	-0.08	10.26	Average
15	0.63	44.68	-11.32	56.00	34.51	-0.09	10.26	QP
16	0.63	40.88	-5.12	46.00	30.71	-0.09	10.26	Average
17	0.66	36.08	-9.92	46.00	25.90	-0.09	10.27	Average
18	0.66	41.78	-14.22	56.00	31.60	-0.09	10.27	QP
19	0.70	45.08	-10.92	56.00	34.90	-0.09	10.27	QP
20	0.70	38.58	-7.42	46.00	28.40	-0.09	10.27	Average
21	0.73	44.98	-11.02	56.00	34.80	-0.09	10.27	QP
22	0.73	38.38	-7.62	46.00	28.20	-0.09	10.27	Average
23	0.77	47.28	-8.72	56.00	37.10	-0.09	10.27	QP
24	0.77	42.18	-3.82	46.00	32.00	-0.09	10.27	Average
25	0.79	38.58	-7.42	46.00	28.39	-0.09	10.28	Average
26	0.79	41.98	-14.02	56.00	31.79	-0.09	10.28	QP
27	0.87	45.98	-10.02	56.00	35.80	-0.10	10.28	QP

Test Mode :	Mode 1	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
28	0.87	39.48	-6.52	46.00	29.30	-0.10	10.28	Average
29	0.90	41.18	-4.82	46.00	31.00	-0.10	10.28	Average
30	0.90	47.38	-8.62	56.00	37.20	-0.10	10.28	QP
31	0.93	41.48	-4.52	46.00	31.30	-0.10	10.28	Average
32	0.93	46.78	-9.22	56.00	36.60	-0.10	10.28	QP
33	0.98	38.98	-17.02	56.00	28.80	-0.10	10.28	QP
34	0.98	31.78	-14.22	46.00	21.60	-0.10	10.28	Average
35	0.99	32.78	-13.22	46.00	22.60	-0.10	10.28	Average
36	0.99	39.78	-16.22	56.00	29.60	-0.10	10.28	QP
37	1.07	39.98	-6.02	46.00	29.80	-0.10	10.28	Average
38	1.07	47.08	-8.92	56.00	36.90	-0.10	10.28	QP
39	1.15	33.48	-12.52	46.00	23.30	-0.10	10.28	Average
40	1.15	42.88	-13.12	56.00	32.70	-0.10	10.28	QP
41	1.25	44.58	-11.42	56.00	34.40	-0.10	10.28	QP
42	1.25	35.38	-10.62	46.00	25.20	-0.10	10.28	Average
43	1.36	43.78	-12.22	56.00	33.59	-0.10	10.29	QP
44	1.36	35.38	-10.62	46.00	25.19	-0.10	10.29	Average
45	1.42	44.08	-11.92	56.00	33.90	-0.11	10.29	QP
46	1.42	35.08	-10.92	46.00	24.90	-0.11	10.29	Average
47	1.49	43.69	-12.31	56.00	33.51	-0.11	10.29	QP
48	1.49	35.69	-10.31	46.00	25.51	-0.11	10.29	Average
49	1.55	43.79	-12.21	56.00	33.61	-0.11	10.29	QP
50	1.55	33.79	-12.21	46.00	23.61	-0.11	10.29	Average
51	1.64	42.79	-13.21	56.00	32.60	-0.11	10.30	QP
52	1.64	34.79	-11.21	46.00	24.60	-0.11	10.30	Average
53	1.73	38.39	-17.61	56.00	28.20	-0.11	10.30	QP
54	1.73	34.49	-11.51	46.00	24.30	-0.11	10.30	Average
55	1.87	44.29	-11.71	56.00	34.10	-0.11	10.30	QP
56	1.87	34.69	-11.31	46.00	24.50	-0.11	10.30	Average
57	2.05	42.19	-13.81	56.00	32.00	-0.11	10.30	QP
58	2.05	33.79	-12.21	46.00	23.60	-0.11	10.30	Average
59	2.21	33.99	-12.01	46.00	23.80	-0.11	10.30	Average
60	2.21	42.79	-13.21	56.00	32.60	-0.11	10.30	QP
61	2.35	41.59	-14.41	56.00	31.40	-0.11	10.30	QP
62	2.35	33.49	-12.51	46.00	23.30	-0.11	10.30	Average
63	2.53	33.69	-12.31	46.00	23.49	-0.11	10.31	Average
64	2.53	41.49	-14.51	56.00	31.29	-0.11	10.31	QP
65	2.71	40.80	-15.20	56.00	30.60	-0.11	10.31	QP
66	2.71	32.80	-13.20	46.00	22.60	-0.11	10.31	Average
67	2.84	40.40	-15.60	56.00	30.20	-0.12	10.32	QP
68	2.84	32.70	-13.30	46.00	22.50	-0.12	10.32	Average
69	2.98	39.70	-16.30	56.00	29.50	-0.12	10.32	QP
70	2.98	31.40	-14.60	46.00	21.20	-0.12	10.32	Average
71	3.22	30.60	-15.40	46.00	20.40	-0.12	10.32	Average
72	3.22	38.80	-17.20	56.00	28.60	-0.12	10.32	QP
73	3.38	38.60	-17.40	56.00	28.39	-0.12	10.33	QP
74	3.38	31.80	-14.20	46.00	21.59	-0.12	10.33	Average

Test Mode :	Mode 1	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



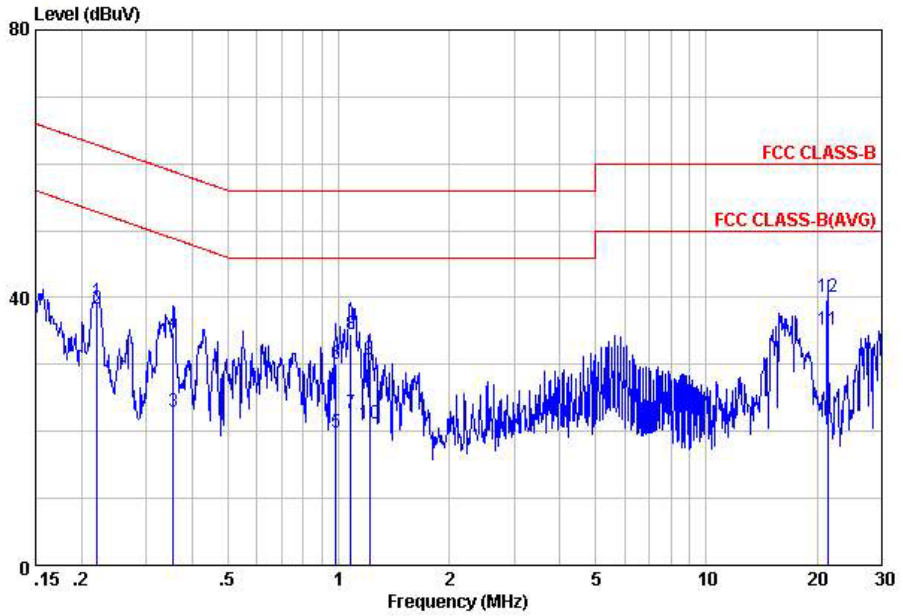
Site : C001-KS
Condition: FCC CLASS-B LISN-111230 NEUTRAL
Project : (FC) 322101
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.29	40.46	-10.04	50.50	30.29	-0.07	10.24	Average
2	0.29	44.76	-15.74	60.50	34.59	-0.07	10.24	QP
3	0.42	44.77	-12.60	57.37	34.60	-0.08	10.25	QP
4	0.42	41.07	-6.30	47.37	30.90	-0.08	10.25	Average
5	0.56	44.08	-11.92	56.00	33.90	-0.08	10.26	QP
6	0.56	39.58	-6.42	46.00	29.40	-0.08	10.26	Average
7	0.58	33.48	-12.52	46.00	23.30	-0.08	10.26	Average
8	0.58	39.98	-16.02	56.00	29.80	-0.08	10.26	QP
9	0.62	44.38	-11.62	56.00	34.20	-0.08	10.26	QP
10	0.62	39.28	-6.72	46.00	29.10	-0.08	10.26	Average
11	0.72	41.69	-14.31	56.00	31.50	-0.08	10.27	QP
12	0.72	36.79	-9.21	46.00	26.60	-0.08	10.27	Average
13	0.75	39.39	-6.61	46.00	29.20	-0.08	10.27	Average
14	0.75	44.49	-11.51	56.00	34.30	-0.08	10.27	QP
15	0.78	36.59	-9.41	46.00	26.40	-0.08	10.27	Average
16	0.78	41.79	-14.21	56.00	31.60	-0.08	10.27	QP
17	0.91	36.59	-9.41	46.00	26.40	-0.09	10.28	Average
18	0.91	40.99	-15.01	56.00	30.80	-0.09	10.28	QP
19	0.95	44.49	-11.51	56.00	34.30	-0.09	10.28	QP
20	0.95	37.99	-8.01	46.00	27.80	-0.09	10.28	Average
21	0.99	31.59	-14.41	46.00	21.40	-0.09	10.28	Average
22	0.99	40.99	-15.01	56.00	30.80	-0.09	10.28	QP
23	1.07	40.19	-15.81	56.00	30.00	-0.09	10.28	QP
24	1.07	35.89	-10.11	46.00	25.70	-0.09	10.28	Average
25	1.17	32.39	-13.61	46.00	22.20	-0.09	10.28	Average
26	1.17	39.89	-16.11	56.00	29.70	-0.09	10.28	QP
27	1.23	33.19	-12.81	46.00	23.00	-0.09	10.28	Average

Test Mode :	Mode 1	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
28	1.23	39.89	-16.11	56.00	29.70	-0.09	10.28	QP
29	1.37	40.59	-15.41	56.00	30.40	-0.10	10.29	QP
30	1.37	34.59	-11.41	46.00	24.40	-0.10	10.29	Average
31	1.59	41.09	-14.91	56.00	30.89	-0.10	10.30	QP
32	1.59	35.19	-10.81	46.00	24.99	-0.10	10.30	Average
33	1.77	34.49	-11.51	46.00	24.30	-0.11	10.30	Average
34	1.77	41.09	-14.91	56.00	30.90	-0.11	10.30	QP
35	1.94	33.99	-12.01	46.00	23.80	-0.11	10.30	Average
36	1.94	40.29	-15.71	56.00	30.10	-0.11	10.30	QP
37	2.26	39.29	-16.71	56.00	29.10	-0.11	10.30	QP
38	2.26	33.69	-12.31	46.00	23.50	-0.11	10.30	Average
39	2.43	33.79	-12.21	46.00	23.59	-0.11	10.31	Average
40	2.43	40.29	-15.71	56.00	30.09	-0.11	10.31	QP
41	2.79	40.20	-15.80	56.00	30.01	-0.12	10.31	QP
42	2.79	33.10	-12.90	46.00	22.91	-0.12	10.31	Average

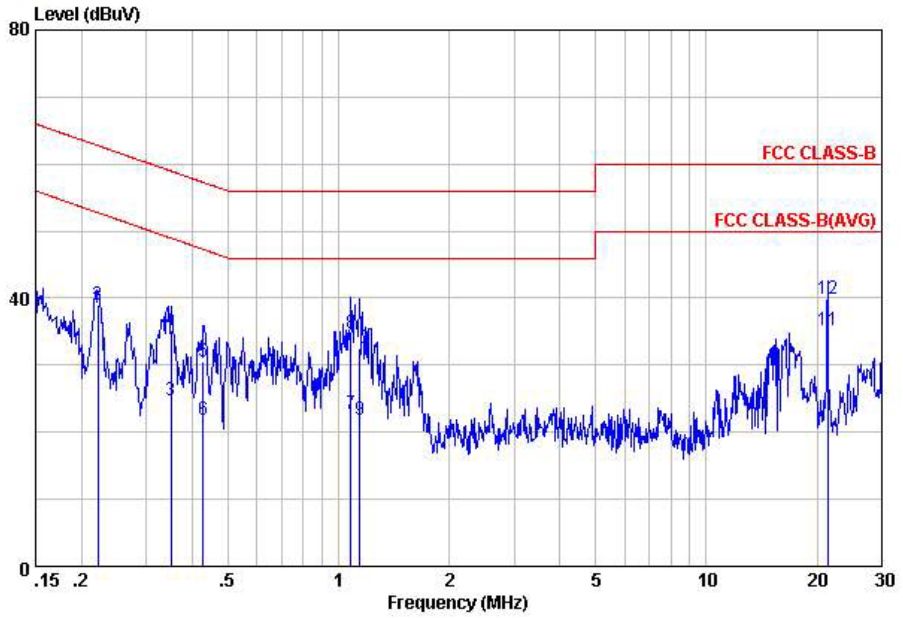
Test Mode :	Mode 2	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC CLASS-B LISN-111230 LINE
Project : (FC) 322101
mode : Mode 2

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.22	39.35	-23.44	62.79	29.20	-0.07	10.22	QP
2	0.22	38.35	-14.44	52.79	28.20	-0.07	10.22	Average
3	0.36	22.87	-25.96	48.83	12.70	-0.08	10.25	Average
4	0.36	34.87	-23.96	58.83	24.70	-0.08	10.25	QP
5	0.98	19.88	-26.12	46.00	9.70	-0.10	10.28	Average
6	0.98	29.98	-26.02	56.00	19.80	-0.10	10.28	QP
7	1.08	22.78	-23.22	46.00	12.60	-0.10	10.28	Average
8	1.08	34.58	-21.42	56.00	24.40	-0.10	10.28	QP
9	1.22	30.68	-25.32	56.00	20.50	-0.10	10.28	QP
10	1.22	21.08	-24.92	46.00	10.90	-0.10	10.28	Average
11	21.37	35.20	-14.80	50.00	24.60	0.09	10.51	Average
12	21.37	40.10	-19.90	60.00	29.50	0.09	10.51	QP

Test Mode :	Mode 2	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC CLASS-B LISN-111230 NEUTRAL
Project : (FC) 322101
mode : Mode 2

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.22	38.65	-14.09	52.74	28.50	-0.07	10.22	Average
2	0.22	39.05	-23.69	62.74	28.90	-0.07	10.22	QP
3	0.35	24.77	-24.19	48.96	14.60	-0.08	10.25	Average
4	0.35	35.17	-23.79	58.96	25.00	-0.08	10.25	QP
5	0.43	30.57	-26.72	57.29	20.40	-0.08	10.25	QP
6	0.43	21.77	-25.52	47.29	11.60	-0.08	10.25	Average
7	1.08	22.79	-23.21	46.00	12.60	-0.09	10.28	Average
8	1.08	34.69	-21.31	56.00	24.50	-0.09	10.28	QP
9	1.14	21.89	-24.11	46.00	11.70	-0.09	10.28	Average
10	1.14	32.59	-23.41	56.00	22.40	-0.09	10.28	QP
11	21.37	35.18	-14.82	50.00	24.60	0.07	10.51	Average
12	21.37	39.98	-20.02	60.00	29.40	0.07	10.51	QP

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

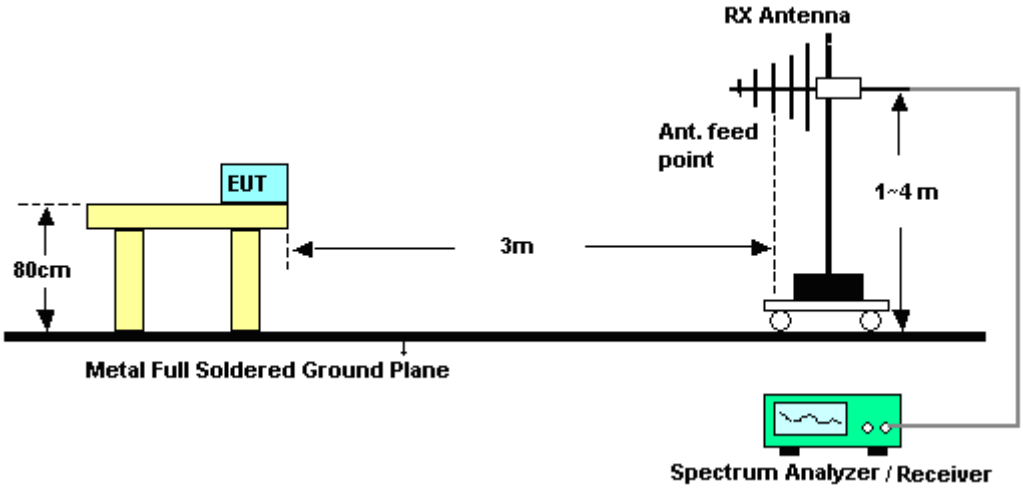
See list of measuring instruments of this test report.

3.2.3. Test Procedures

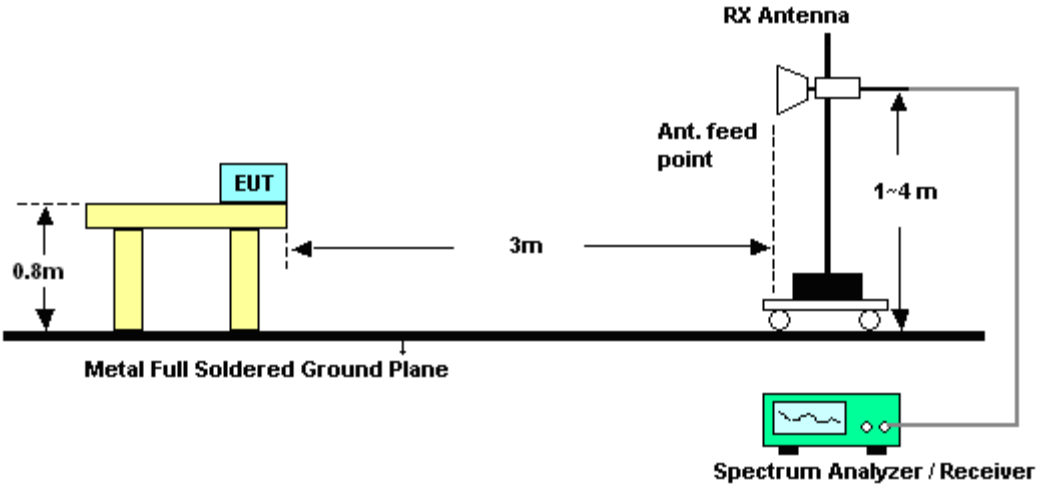
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBuV/m) = 20 log Emission level (uV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor= Level

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

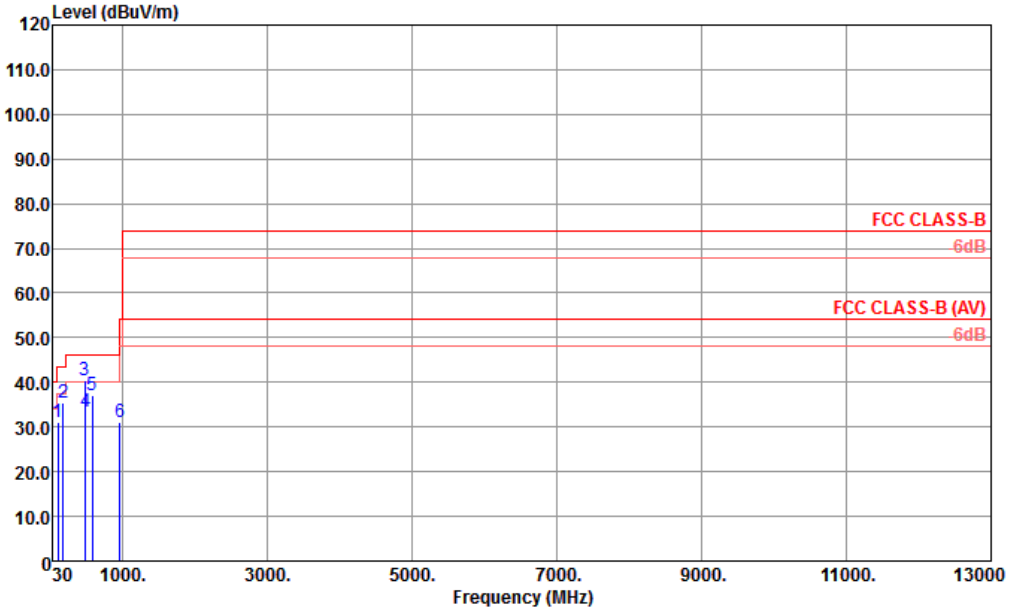


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

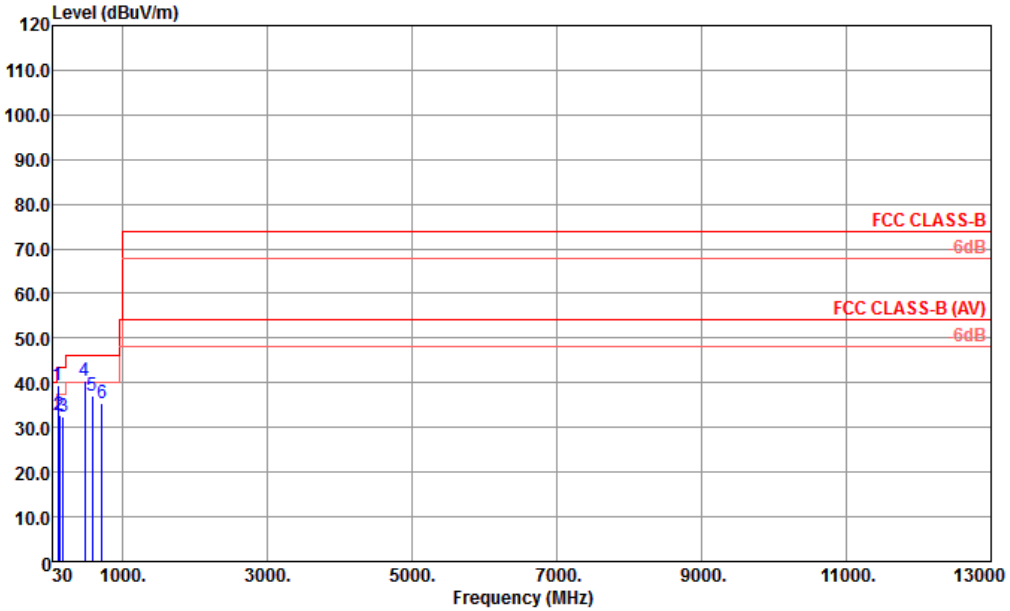
Test Mode :	Mode 2	**Temperature :**	21~22℃
Test Engineer :	Steven Hao	**Relative Humidity :**	41~43%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC)		



Site : 03CH01-KS
Condition : FCC CLASS-B 3m LF_ANT-100803 HORIZONTAL
Project : (FC) 322101
Mode : Mode 2

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		105.66	31.08	-12.42	43.50	52.83	11.27	0.58	33.60	---	---	Peak
2		175.50	35.49	-8.01	43.50	59.53	8.75	0.77	33.56	---	---	Peak
3	!	480.08	40.40	-5.60	46.00	55.42	16.86	1.27	33.15	132	206	Peak
4		490.75	33.42	-12.58	46.00	48.20	17.05	1.30	33.13	---	---	Peak
5		579.99	37.00	-9.00	46.00	50.05	18.55	1.36	32.96	---	---	Peak
6		960.23	31.21	-22.79	54.00	41.10	20.78	1.76	32.43	---	---	Peak

Test Mode :	Mode 2	**Temperature :**	21~22℃
Test Engineer :	Steven Hao	**Relative Humidity :**	41~43%
Test Distance :	3m	**Polarization :**	Vertical
Function Type :	Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC)		



Site : 03CH01-KS
Condition : FCC CLASS-B 3m LF_ANT-100803 VERTICAL
Project : (FC) 322101
Mode : Mode 2

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	!	107.60	39.37	-4.13	43.50	60.86	11.53	0.58	33.60	100	0	QP
2		128.94	32.90	-10.60	43.50	54.11	11.70	0.67	33.58	---	---	Peak
3		176.47	32.43	-11.07	43.50	56.54	8.68	0.77	33.56	---	---	Peak
4	!	480.08	40.55	-5.45	46.00	55.57	16.86	1.27	33.15	---	---	Peak
5		579.99	37.01	-8.99	46.00	50.06	18.55	1.36	32.96	---	---	Peak
6		720.64	35.28	-10.72	46.00	47.05	19.53	1.53	32.83	---	---	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 01, 2012	Mar. 13, 2013	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 29, 2012	Mar. 13, 2013	Dec. 28, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 29, 2012	Mar. 13, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 15, 2012	Mar. 13, 2013	Nov. 14, 2013	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 08, 2012	Mar. 13, 2013	Nov. 07, 2013	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	100400	9kHz~30GHz	Jun. 01, 2012	Mar. 13, 2013	May 31, 2013	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2012	Mar. 13, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2013	Mar. 13, 2013	Jan. 05, 2014	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	Jun. 01, 2012	Mar. 13, 2013	May 31, 2013	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 29, 2012	Mar. 13, 2013	Dec. 28, 2013	Radiation (03CH01-KS)

5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.26

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.72

Appendix A. Photographs of EUT

Please refer to Sporton report number EP322101 as below.