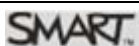





# FCC Test Report

FCC EVALUATION REPORT FOR VERIFICATION	
Project Reference No.	150932
Product	Bluetooth Dongle
Brand Name	
Model	WC6D-D01
Alternate Model	N/A
Tested according to	FCC Rules and Regulations Part 15 Subpart B Class B 2008, ANSI C63.4-2009

Tested in period	2010-06-19 to 2010-06-22	
Issued date	2010-07-30	
Name and address of the Test House	 Nemko Shanghai Ltd. 9A No. 528 Ruiqing Road, PuDong New Area, Shanghai, China P.C. Phone : +86 21 5072 0988 Fax : +86 21 5072 0950	
Tested by		2010-07-30
	<b>Susan Zhou</b>	<b>date</b>
Verified by		2010-07-30
	<b>Daria Liu</b>	<b>date</b>

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## 1. Client Information

### 1.1 Applicant

Company Name: **SMART Technologies ULC**  
Company Address: **3636 Research Road NW Calgary, Alberta, Canada**

### 1.2 Manufacturer


Company Name: **Qingdao Haier Intelligent Electronics Co., Ltd.**  
Company Address: **No.99 Chongqing south Road, Qingdao, China**

### 1.3 Scope

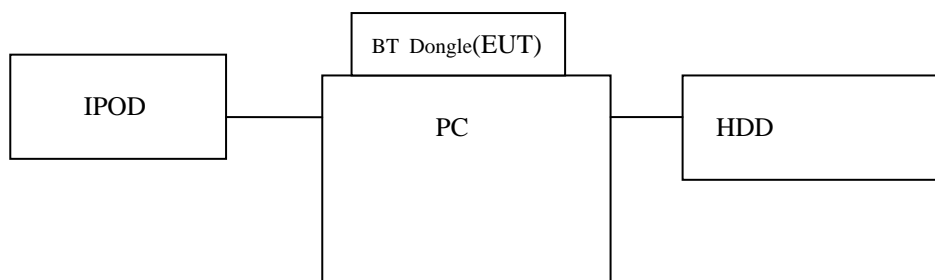
- Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC part 15.

## 2. Equipment under Test (EUT)

### 2.1 Identification of EUT

Category: **Bluetooth Dongle**  
Model Name: **WC6D-D01**  
Alternate model: N/A  
Brand name:   
Technical data (Rating, etc.): **Input: USB in from PC (DC 5V)**

### 2.2 Setup drawing



### 2.3 Additional Information Related to Testing

Test mode:

TM1:

USB in from PC (DC 5V) Rx and communicate with PC

Remark: only list worse result in the report

## 3. General Test Conditions

### 3.1 Location

These measurement tests were conducted at Audix Technology (Shenzhen) Co., Ltd.  
No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China

3m Anechoic Chamber : Jun. 13, 2006 File on Federal Communication Commission

Registration Number: 90454

Note: all test are witnessed by NEMKO engineer

### 3.2 Operating Environment

All tests and measurements were performed in a shielded enclosure or a controlled environment suitable for the tests conducted. The climatic conditions in the test area are automatically controlled and recorded continuously.

Parameters	Recording during test	Accepted deviation
Ambient temperature	20-25°C	15 – 35 °C
Relative humidity	45-55%	30 - 60%
Atmospheric pressure	101.2 kPa -101.3kPa	86-106kPa

### 3.3 Operating During Test

- AC 120V 60Hz for PC .
- EUT connect to PC, Rx and communicate with PC.

### 3.4 Test Equipment

The test equipments used in testing are calibrated on a regular basis. For most of the testing equipments accredited calibration is conducted once a year. For certain equipment the calibration interval is longer. Between the calibrations all test equipment are controlled and verified on a regular basis. The test equipments used are defined in each test section of this report.

#### AE Equipment:

VGA Cable : Shielded, Detachable, 1.8m(Bonded two ferrite cores)

DVI Cable : Shielded, Detachable, 1.8m(Bonded two ferrite cores)

Power Cord : Unshielded, Detachable, 1.8m (3pins)

1:PERSONAL COMPUTER

EMC CODE : Test PC P

M/N : Studio 540

S/N : 124XK2X

Manufacturer : DELL

Power cord : Unshielded, Detachabled, 1.8m

FCC : DoC

BSMI ID : R33002

Display Card HD3450(VGA+DVI+HDMI)

2: IPOD

M/N : C9079A

Manufacturer : Apple

USB Cable : Shielded, Detachabled, 1m

FCC : DoC

3: HDD

EMC CODE : ACS-EMC-HDD01

M/N : F12-UF

S/N : A0100215-5390018

Manufacturer : Terasys



Data Cable : Shielded, Detachable, 1.8m  
FCC ID : By DoC  
BSMI ID : 4912A022

4.Adapter  
M/N : LA65NS1-00  
Manufacturer : DELL  
Power cord : Unshielded, Detachable, 1.8m  
FCC : DoC

#### 4. Measurement Uncertainty

The Measurement Uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 with the confidence level of 95 %.

No.	Item	Uncertainty	Remark
1	Conducted Emission Test	1.22dB	
2	Radiated Emission Test	3.14dB	3m chamber

## 5. Conducted Emission (150 KHz to 30 MHz)

### 5.1 Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network. This provided a 50-ohm coupling impedance for the EUT (Please refer to the test setup photographs). The other peripheral devices power cord connected to the power mains through another line impedance stabilization network.

Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2009 on conducted Emission test.

The bandwidth of test receiver is set at 9kHz. The frequency range from 150kHz to 30MHz is checked. The test result are reported as below.

### 5.2 Measurement Equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	EMI Test Receiver	2010.05.07	ESHS10	844077/020	R&S
<input checked="" type="checkbox"/>	LISN	2010.05.10	ESH2-Z5	834066/011	R&S
<input checked="" type="checkbox"/>	LISN	2010.05.10	3825/2	9006-1660	EMCO
<input checked="" type="checkbox"/>	Terminator	2010.05.10	50Ω	No.1	Hubersuhner
<input checked="" type="checkbox"/>	RF cable	2009.07.08	3D-2W	LISN Cable1#	Fujikura
<input checked="" type="checkbox"/>	Coaxial switch	2009.07.08	MP59B	M55367	Anritsu
<input checked="" type="checkbox"/>	Pulse Limiter	2009.07.08	ESH3-Z2	100340	R&S

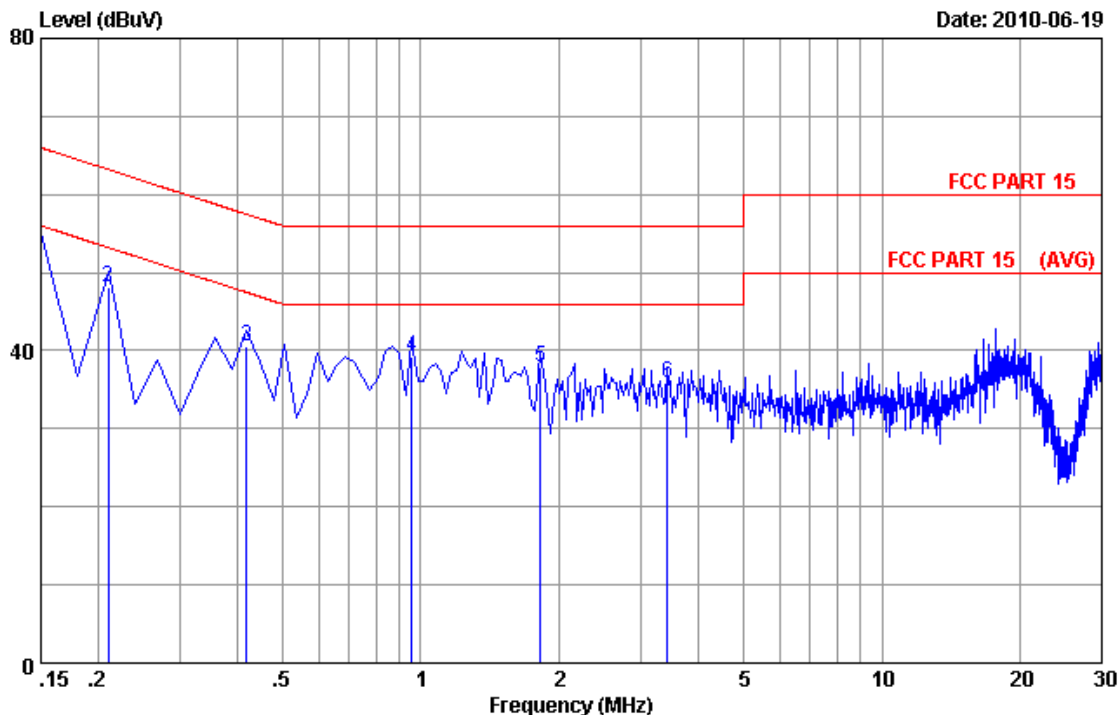
### 5.3 Test Result

Connect mode	Power Line	Test Data	Test Result
TM1	Line	Diagram 001	Pass
	Neutral	Diagram 002	Pass

#### NOTES:

1. Measurements using CISPR quasi-peak mode & average mode.
2. All modes of operation were investigated and the worst -case emission are reported. See attached Plots.
3. Emission level = LISN Factor + Cable Loss + Reading
4. LINE: L1 =Line, N = Neutral
5. The limit for Class B device is on the FCC Part section 15.107(a).
- 6: If PK value is lower than AV limit then no reading value listed in report .If QP value is Lower than AV limit ,then AV value don't listed in report.

5.3.1 Diagram 001



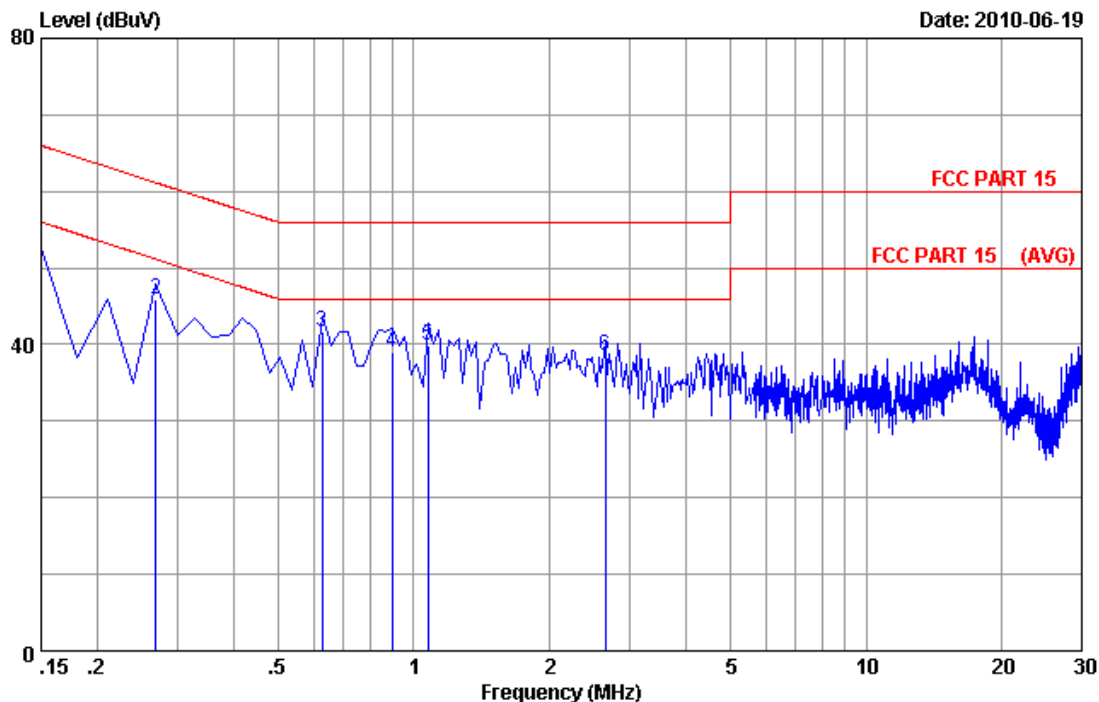
Site no : Audix No.1 Conduction Data no : 3  
 Dis./Ant. : \*\* 2010 ESH2-Z5 LINE  
 Limit : FCC PART 15  
 Env. / Ins. : 23°C/54% Engineer : Paul Tian

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.23	9.88	42.82	52.93	66.00	13.07	QP
2	0.20970	0.22	9.88	38.02	48.12	63.22	15.10	QP
3	0.41865	0.24	9.88	30.45	40.57	57.47	16.90	QP
4	0.95595	0.22	9.89	29.19	39.30	56.00	16.70	QP
5	1.822	0.25	9.90	27.77	37.92	56.00	18.08	QP
6	3.434	0.26	9.93	25.74	35.93	56.00	20.07	QP

Remarks: 1. Emission Level=LISN Factor+Cable Loss+Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



### 5.3.2 Diagram 002



Site no : Audix No.1 Conduction Data no : 4  
 Dis./Ant. : \*\* 2010 ESH2-25 NEUTRAL  
 Limit : FCC PART 15  
 Env. / Ins. : 23\*C/54% Engineer : Paul Tian

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.21	9.88	39.50	49.59	66.00	16.41	QP
2	0.26940	0.21	9.88	35.84	45.93	61.14	15.21	QP
3	0.62760	0.23	9.88	31.55	41.66	56.00	14.34	QP
4	0.89625	0.25	9.89	28.92	39.06	56.00	16.94	QP
5	1.075	0.25	9.89	29.74	39.88	56.00	16.12	QP
6	2.657	0.26	9.93	28.35	38.54	56.00	17.46	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

## 6. Radiated Electromagnetic Disturbances

### 6.1 Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m or 10m from the EUT on an adjustable mast.

The EUT were rotated 0 to 360 degree and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. The test result are reported as below.

For below 1GHz

RBW=120 kHz; VBW=300KHz. The frequency range from 30MHz to 1000MHz is checked.

For above 1GHz

RBW=1MHz ; VBW=1MHz, PK detector for peak emissions measurement above 1GHz

RBW=1MHz ; VBW=10Hz, PK detector for average emissions measure above 1GHz

### 6.2 Measurement Equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	3m Chamber	Dec.05,2009	N/A	N/A	AUDIX
<input checked="" type="checkbox"/>	EMC Spectrum	May.08,2010	E7405A	MY42000131	Agilent
<input checked="" type="checkbox"/>	EMC Spectrum	Oct.24,2009	E7405A	MY45116588	Agilent
<input checked="" type="checkbox"/>	Test Receiver	Oct 24,2009	ESCI	100842	R & S
<input checked="" type="checkbox"/>	Pre-Amplifier	May.08,2010	8447D	2944A10684	Agilent
<input checked="" type="checkbox"/>	Pre-Amplifier	May.08,2010	8447D	2944A07794	Agilent
<input checked="" type="checkbox"/>	Bilog Antenna	Feb.12,2010	CBL6112D	25238	Schaffner
<input checked="" type="checkbox"/>	Bilog Antenna	Feb.12,2010	CBL6112D	25237	Schaffner
<input checked="" type="checkbox"/>	RF Cable	May.08,2010	8D-FB	3m Chamber No.1	MIYAZAKI
<input checked="" type="checkbox"/>	RF Cable	May.08,2010	8D-FB	3m Chamber No.2	MIYAZAKI
<input checked="" type="checkbox"/>	Coaxial Switch	May.08,2010	MP59B	6200766906	Anritsu
<input checked="" type="checkbox"/>	Coaxial Switch	May.08,2010	MP59B	6200766907	Anritsu
<input checked="" type="checkbox"/>	Coaxial Switch	May.08,2010	MP59B	M74389	Anritsu
<input checked="" type="checkbox"/>	Horn Antenna	May.08,2010	3115	9607-4877	EMCO
<input checked="" type="checkbox"/>	Horn Antenna	May.08,2010	3115	9510-4580	EMCO
<input checked="" type="checkbox"/>	Amp	May.08,2010	8449B	3008A00863	HP
<input checked="" type="checkbox"/>	Signal Generator	May.08,2010	83732B	6K00003262	HP

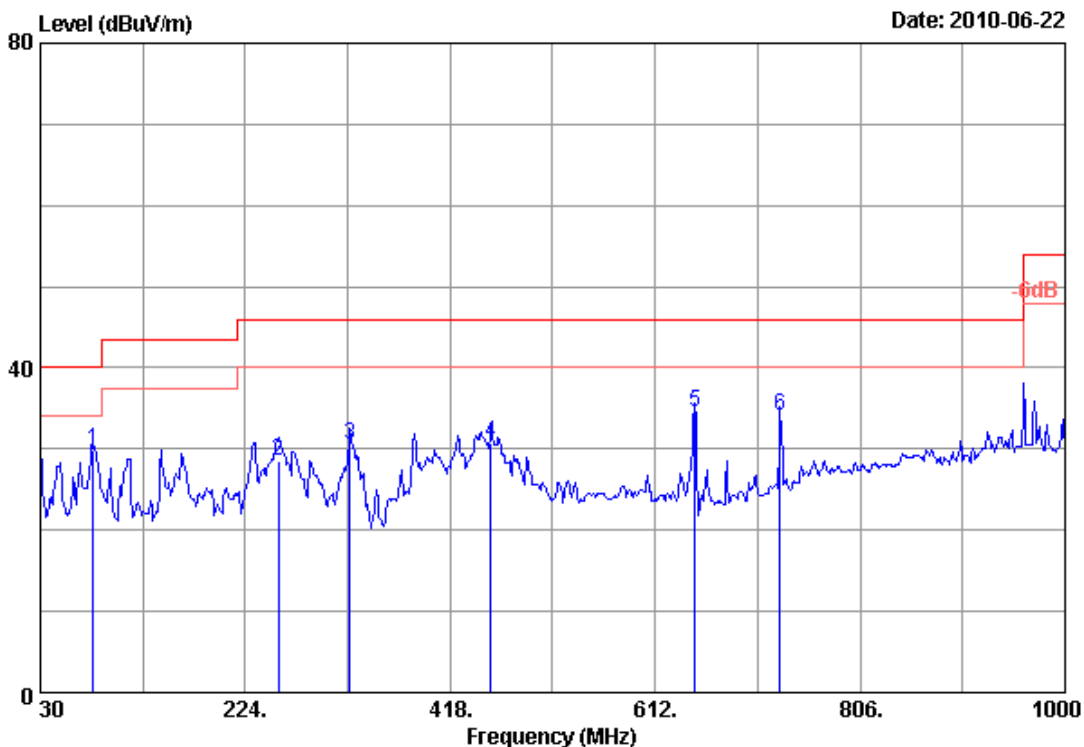
### 6.3 Test Result

Connect mode	Antenna Polarity	Test Data	Test Result
TM1 (below 1GHz) 3m test distance	Horizontal	Diagram 003	Pass
	Vertical	Diagram 004	Pass
TM1 (above 1GHz) 3m test distance	Horizontal	Diagram 005	Pass
	Vertical	Diagram 006	Pass

NOTES:

- 1.All modes were measured and the worst case emission was reported.
- 2.Measurements using CISPR quasi-peak mode for below 1GHz.
- 3.The limit for Class B device is on the FCC Part section 15.109(a).
4. For Above 1GHz , if Pk value is lower than AV limit , then AV reading is not listed in report .

6.3.1 Diagram 003



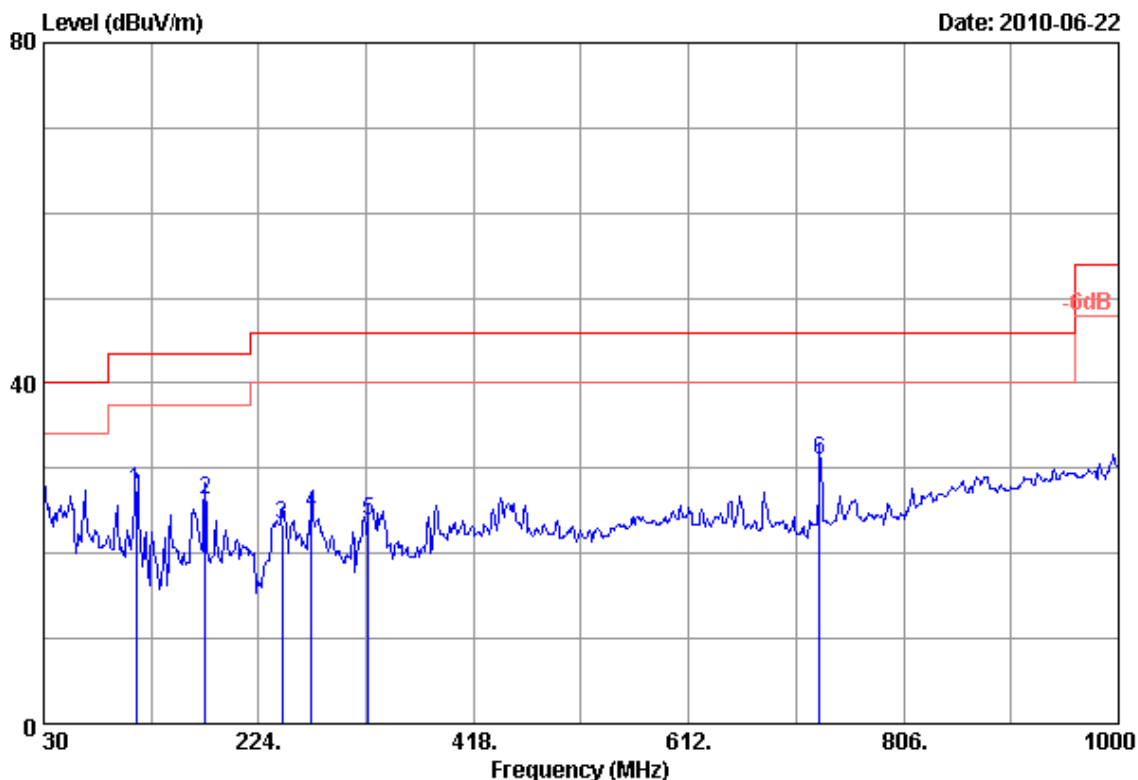
Site no. : 3m Chamber  
Dis. / Ant. : 3m 2010 CBL6111C  
Limit : FCC part15B  
Env. / Ins. : 24\*C/56%

Data no. : 7  
Ant. pol. : HORIZONTAL  
Engineer : Leo-Li

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	80.440	7.80	0.99	21.08	29.87	40.00	10.13	QP
2	255.040	13.30	2.20	13.00	28.50	46.00	17.50	QP
3	322.940	14.26	2.58	13.63	30.47	46.00	15.53	QP
4	456.800	17.07	3.27	10.39	30.73	46.00	15.27	QP
5	649.830	20.40	4.31	9.91	34.62	46.00	11.38	QP
6	730.340	21.30	4.62	8.27	34.19	46.00	11.81	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

### 6.3.2 Diagram 004

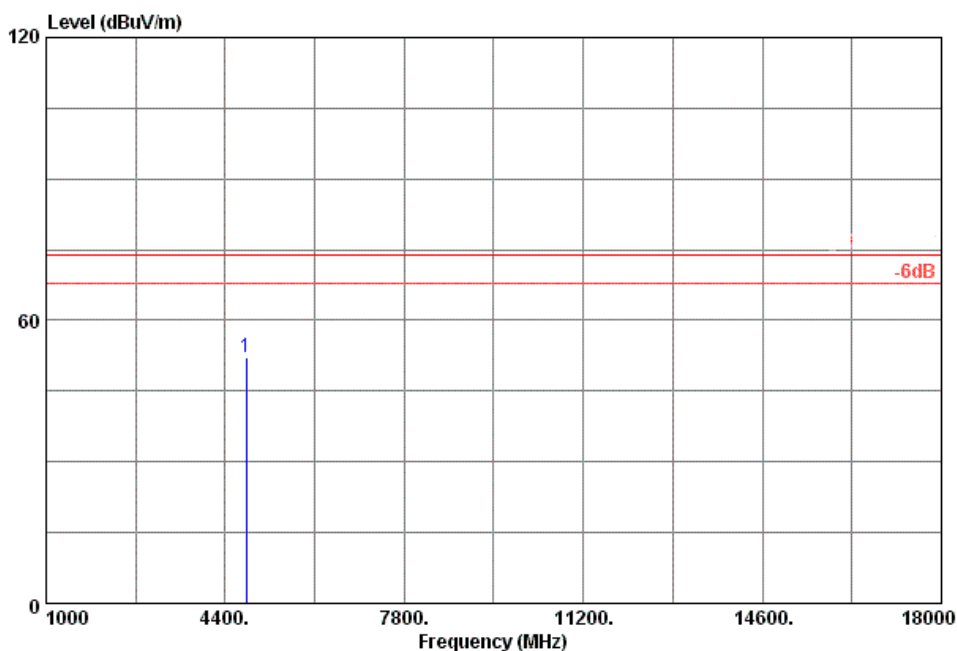
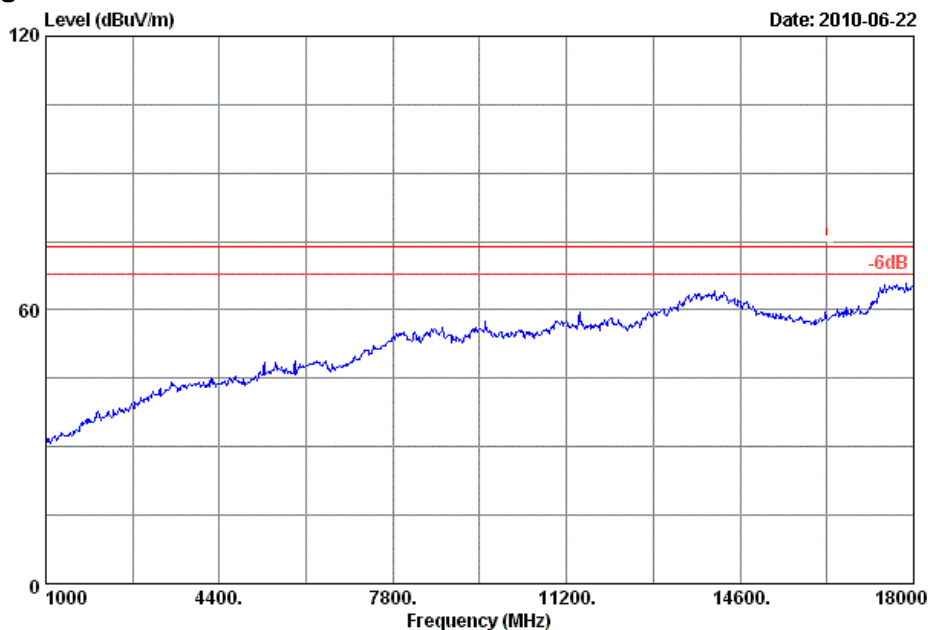


Site no.	: 3m Chamber	Data no.	: 8
Dis. / Ant.	: 3m 2010 CBL6111C	Ant. pol.	: VERTICAL
Limit	: FCC part15B		
Env. / Ins.	: 24*C/56%	Engineer	: Leo-Li

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	113.420	11.60	1.13	14.60	27.33	43.50	16.17	QP
2	175.500	9.65	1.44	15.16	26.25	43.50	17.25	QP
3	245.340	12.20	2.13	9.16	23.49	46.00	22.51	QP
4	271.530	13.27	2.30	9.23	24.80	46.00	21.20	QP
5	322.940	14.26	2.58	7.11	23.95	46.00	22.05	QP
6	730.340	21.30	4.62	5.05	30.97	46.00	15.03	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

### 6.3.3 Diagram 005



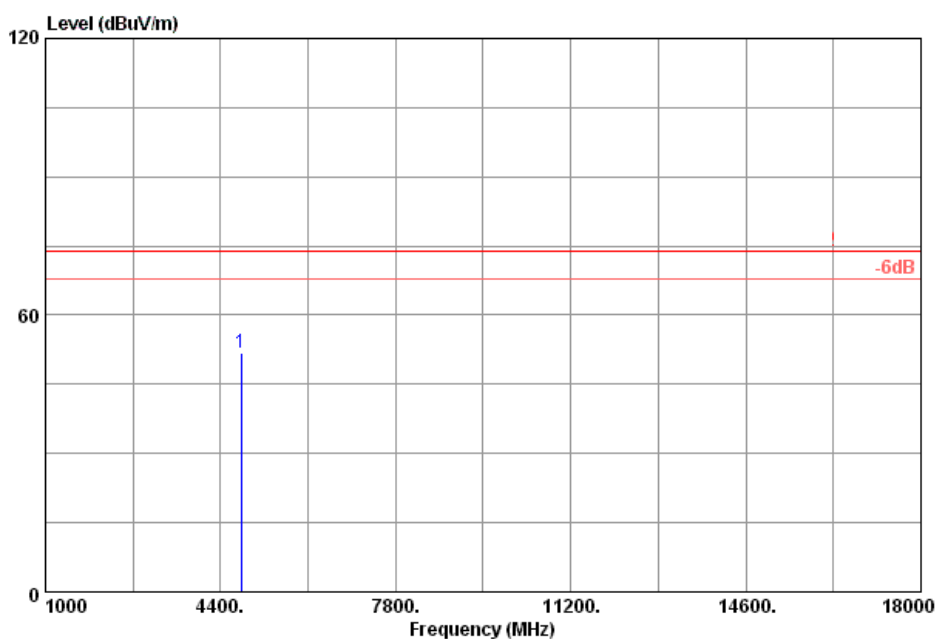
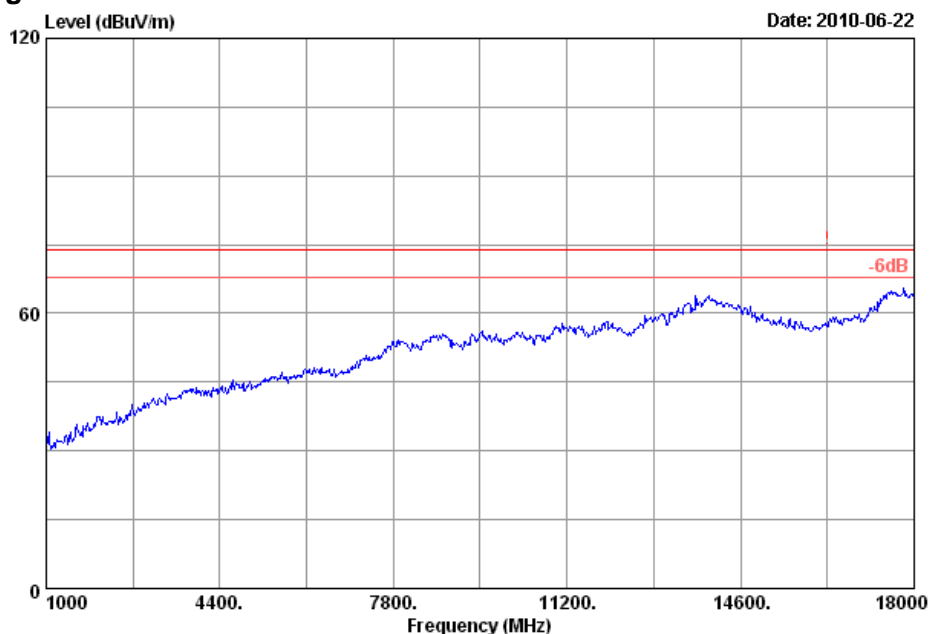
Site no. : 3m Chamber	Data no. : 30
Dis. / Ant. : 3m 3115(0911)	Ant. pol. : HORIZONTAL
Limit : FCC part15B	
Env. / Ins. : 23*C/54%	Engineer : Leo-Li

	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4804.000	34.30	12.35	35.37	40.98	52.26	74.00	21.74	Peak

Remarks:

- Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
- The emission levels that are 20dB below the official limit are not reported.

### 6.3.4 Diagram 006



Site no.	: 3m Chamber	Data no.	: 28
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC part15B PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Leo-Li
EUT	:		

	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4804.000	34.30	12.35	35.37	40.69	51.97	74.00	22.03	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



FCCID : QCIWC6D  
Reference No.: 150932

## Appendix A Sample Label

### Labelling Requirements

The sample label shown shall be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

\*\*\* The following paragraph specified in the user manual.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

\*\*\*\*\*END OF REPORT\*\*\*\*\*