



NVLAP LAB CODE 200707-0



## FCC PART 15.247

### MEASUREMENT AND TEST REPORT

For

**Tobii Technology AB**

Karlsrovägen 2D, 18253 Danderyd, Sweden

**FCC ID: W5MTOBIIC15**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Tobii C15
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\* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk “\*” (Rev.2)

## TABLE OF CONTENTS

<b>GENERAL INFORMATION.....</b>	<b>4</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	4
OBJECTIVE .....	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY .....	4
TEST FACILITY .....	4
<b>SYSTEM TEST CONFIGURATION.....</b>	<b>6</b>
DESCRIPTION OF TEST CONFIGURATION .....	6
EQUIPMENT MODIFICATIONS .....	6
EUT EXERCISE SOFTWARE .....	6
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS .....	6
EXTERNAL I/O CABLE.....	6
CONFIGURATION OF TEST SETUP .....	7
BLOCK DIAGRAM OF TEST SETUP .....	7
<b>SUMMARY OF TEST RESULTS.....</b>	<b>8</b>
<b>FCC §15.247 (i) &amp; §2.1093 - RF EXPOSURE.....</b>	<b>9</b>
APPLICABLE STANDARD .....	9
<b>FCC §15.203 – ANTENNA REQUIREMENT.....</b>	<b>10</b>
APPLICABLE STANDARD .....	10
ANTENNA CONNECTOR CONSTRUCTION .....	10
<b>FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS .....</b>	<b>11</b>
APPLICABLE STANDARD .....	11
MEASUREMENT UNCERTAINTY .....	11
EUT SETUP .....	11
EMI TEST RECEIVER SETUP.....	12
TEST EQUIPMENT LIST AND DETAILS.....	12
TEST PROCEDURE .....	12
TEST RESULTS SUMMARY .....	12
TEST DATA .....	12
<b>FCC §15.205, §15.209 &amp; §15.247(d) – RADIATED SPURIOUS EMISSIONS.....</b>	<b>15</b>
APPLICABLE STANDARD .....	15
MEASUREMENT UNCERTAINTY .....	15
EUT SETUP .....	15
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP .....	16
TEST EQUIPMENT LIST AND DETAILS.....	16
TEST PROCEDURE .....	16
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	16
TEST RESULTS SUMMARY .....	17
TEST DATA .....	17
<b>FCC §15.247(a) (1) - CHANNEL SEPARATION TEST .....</b>	<b>21</b>
APPLICABLE STANDARD .....	21
TEST DATA .....	21
<b>FCC §15.247(a) (1) – 20 dB BANDWIDTH TESTING.....</b>	<b>22</b>
APPLICABLE STANDARD .....	22

TEST DATA .....	22
<b>FCC §15.247(a)(1)(iii) - QUANTITY OF HOPPING CHANNEL TEST .....</b>	<b>23</b>
APPLICABLE STANDARD .....	23
TEST DATA .....	23
<b>FCC §15.247(a)(1)(iii) -TIME OF OCCUPANCY (DWELL TIME).....</b>	<b>24</b>
APPLICABLE STANDARD .....	24
TEST DATA .....	24
<b>FCC §15.247(b)(1) - PEAK OUTPUT POWER MEASUREMENT.....</b>	<b>25</b>
APPLICABLE STANDARD .....	25
TEST DATA .....	25
<b>FCC §15.247(d) - BAND EDGES TESTING .....</b>	<b>26</b>
APPLICABLE STANDARD .....	26
TEST DATA .....	26

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

The *Tobii Technology AB*'s product, model number: *T-C15-R1.0A-V0* (*FCC ID: W5MTOBIIC15*) or the "EUT" as referred to in this report is a *Tobii C15*, which measures approximately: 37 cm (L) x 30 cm (W) x 4 cm (H), rated input voltage: DC 24 V adapter or DC 14.8 V battery.

Adapter information: AC Power Adapter

Manufacturer: Powerbox

Model: EXM 80 5121;

Input: 100-240VAC, 1.7A, 50-60 Hz;

Output: 24VDC, 2.9A

*All measurement and test data in this report was gathered from production sample serial number: 1006060 (Assigned by BACL, Shenzhen). The EUT was received on 2010-06-25.*

### Objective

This Type approval report is prepared on behalf of *Tobii Technology AB* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

### Related Submittal(s)/Grant(s)

FCC Part 22H and 24E, FCC Part 15.247(WiFi) and FCC Part 15B submission with FCC ID: W5MTOBIIC15.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

### Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3<sup>rd</sup> Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 21, 2007. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



NVLAP LAB CODE 200707-0

The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in an engineering mode configurated by the manufacture).

### Equipment Modifications

No modification was made to the unit tested.

### EUT Exercise Software

N/A.

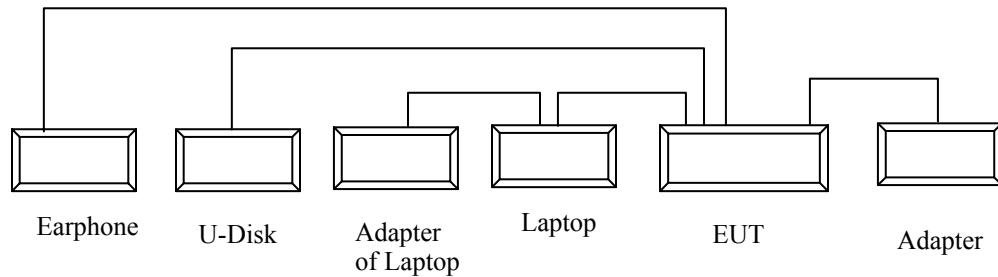
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
PHILIPS	Earphone	SBCHP250	N/A	DOC
DELL	Keyboard	L100	CNORH656658907BL04TY	DOC
N/A	U-Disk	N/A	N/A	N/A
Compaq	Laptop	PP2040	N/A	N/A

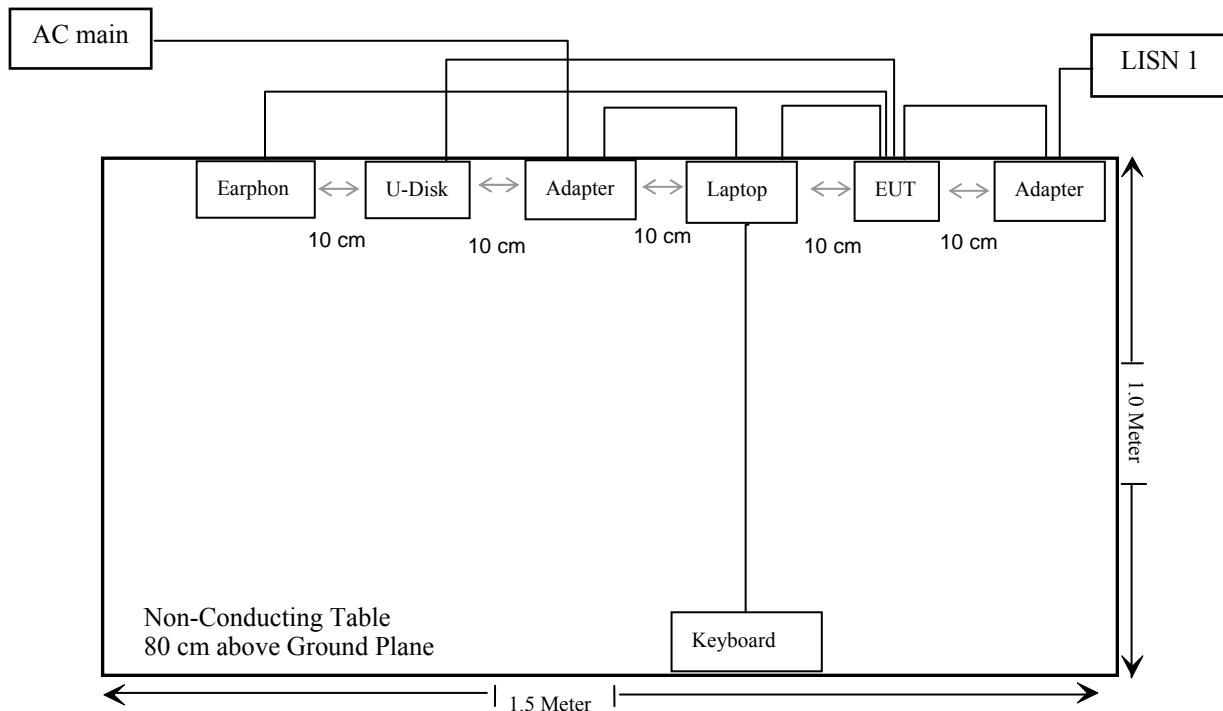
### External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded Detachable RJ45 Cable	1.5	Laptop	EUT

## Configuration of Test Setup



## Block Diagram of Test Setup



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## SUMMARY OF TEST RESULTS

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FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1) & §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance*
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Spurious Emissions	Compliance
§15.247 (a)(1)	20 dB Bandwidth	Compliance*
§15.247(a)(1)	Channel Separation Test	Compliance*
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance*
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliance*
§15.247(b)(1)	Peak Output Power Measurement	Compliance*
§15.247(d)	Band edges	Compliance*

Note: \*Please refer to FCC ID: RUJ-QBTM400 granted on 2008-12-23 report number. RF941229L01B, which was issued by Bureau Veritas Consumer Products Services (H. K) Ltd., Taoyuan Branch issued on 2008-12-16.

## FCC §15.247 (i) & §2.1093 - RF EXPOSURE

### Applicable Standard

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D01 Mobile Portable RF Exposure v03r03, no SAR required if power is lower than the flowing threshold:

When routine evaluation is required for SAR and the output power is  $\leq 60/f(\text{GHz})$  mW, the test reduction and test exclusion procedures given herein, or in KDB 616217 or KDB 648474, are applicable.

When the output power of a simultaneous transmitting antenna is  $\leq 60/f(\text{GHz})$  mW and it is either  $\geq 5$  cm from all other simultaneous transmitting antennas or it is deployed on the display screen at  $\geq 5$  cm from users and nearby persons, the contributions of such antennas to the overall exposure potential of the laptop computer is generally small. SAR evaluation for these types of simultaneous transmission configurations is unnecessary. For simultaneous transmitting antennas with outputs  $> 60/f$ , the separation distances between these antennas are used to assess the overall exposure potential. The number and types of tests required for each simultaneous transmitting antenna to show compliance are based on the defined antenna configurations.

### Measurement Result:

Conducted  $P_{\text{Max}} = 2.34$  dBm, the antenna Gain = -4.6 dBi, the Maximum EIRP = -2.26 dBm (i.e. 0.59 mw)

SAR exempted threshold:  $60/f_{\text{GHz}} = 60/2.441 = 24.58$  mW

$P_{\text{Max}} < 60/f_{\text{GHz}}$

The distance among the BT, WiFi and GSM antenna are more than 5 cm.

SAR evaluation can be exempted due to the maximum output power is less than the threshold.

## FCC §15.203 – ANTENNA REQUIREMENT

### Applicable Standard

According to FCC §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### Antenna Connector Construction

The EUT used an integral antenna; the total gain is -4.6 dBi, which in accordance to section 15.203 please refer to the internal photos.

**Result:** Compliance.

## FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

### Applicable Standard

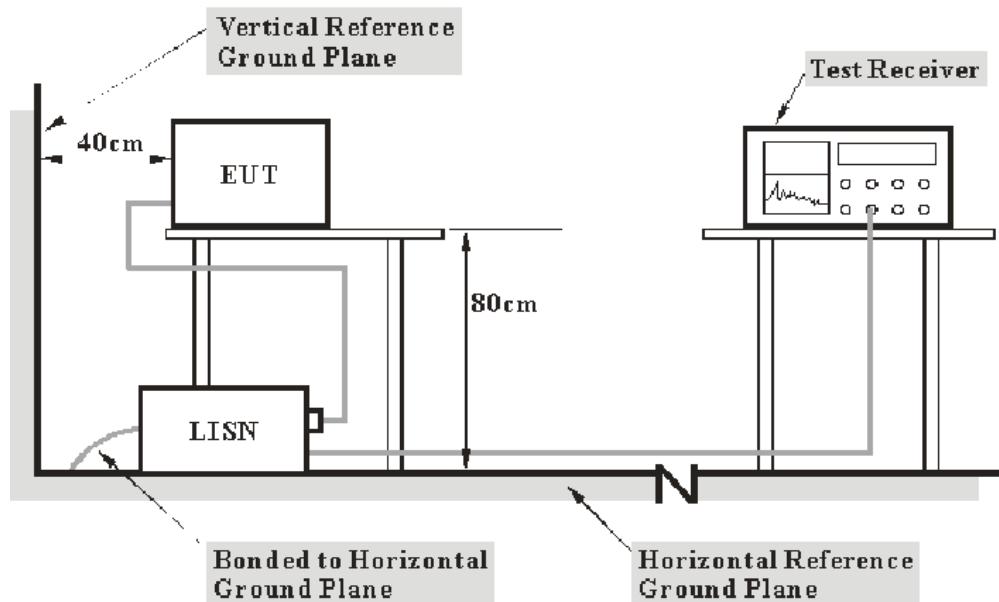
FCC§15.207

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is  $\pm 2.4$  dB.

### EUT Setup



**Note:**

1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<b>Frequency Range</b>	<b>IF B/W</b>
150 kHz – 30 MHz	9 kHz

## Test Equipment List and Details

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2010-03-03	2011-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2010-03-09	2011-03-08

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

During the conducted emission test, the adapter was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the [FCC Part 15.207](#), with the worst margin reading of:

**15.63 dB at 0.250 MHz** in the **Neutral** conductor mode

## Test Data

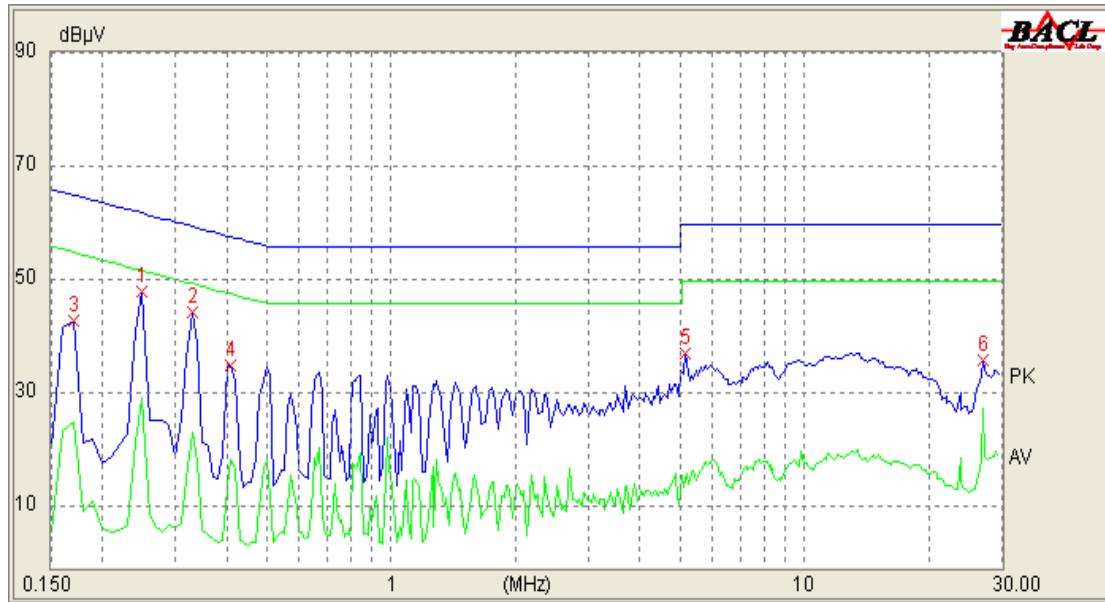
### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Tim Zhang on 2010-07-12.*

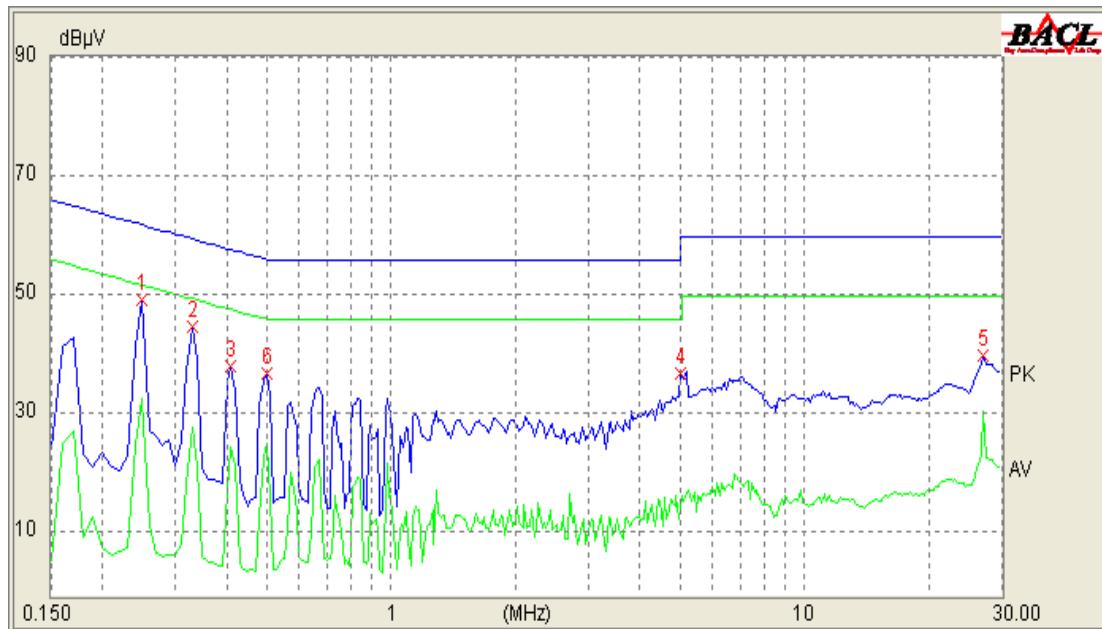
*Test Mode: Bluetooth Transmitting with full load.*

## AC 120 V/60 Hz, Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Correction Factor (dB)	Cord. Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector (PK/QP/Ave)
0.250	10.10	44.81	61.82	17.01	QP
0.330	10.10	41.79	59.51	17.72	QP
27.120	10.30	27.89	50.00	22.11	Ave
0.250	10.10	29.46	51.82	22.36	Ave
0.410	10.10	32.82	57.75	24.93	QP
0.170	10.10	39.70	65.01	25.31	QP
0.330	10.10	23.63	49.51	25.88	Ave
0.410	10.10	18.70	47.75	29.05	Ave
0.170	10.10	25.38	55.01	29.63	Ave
5.170	10.20	28.35	60.00	31.65	QP
27.120	10.30	27.44	60.00	32.56	QP
5.210	10.20	16.25	50.00	33.75	Ave

## AC 120 V/60 Hz, Neutral:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Correction Factor (dB)	Cord. Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector (PK/QP/Ave)
0.250	10.10	46.19	61.82	15.63	QP
0.330	10.10	42.24	59.51	17.27	QP
0.250	10.10	32.87	51.82	18.95	Ave
27.120	10.30	30.71	50.00	19.29	Ave
0.500	10.10	25.36	46.00	20.64	Ave
0.330	10.10	27.96	49.51	21.55	Ave
0.500	10.10	33.68	56.00	22.32	QP
0.410	10.10	35.04	57.75	22.71	QP
0.410	10.10	24.70	47.75	23.05	Ave
27.120	10.30	34.47	60.00	25.53	QP
5.030	10.20	28.88	56.00	27.12	QP
5.080	10.20	16.72	46.00	29.28	Ave

## FCC §15.205, §15.209 & §15.247(d) – RADIATED SPURIOUS EMISSIONS

### Applicable Standard

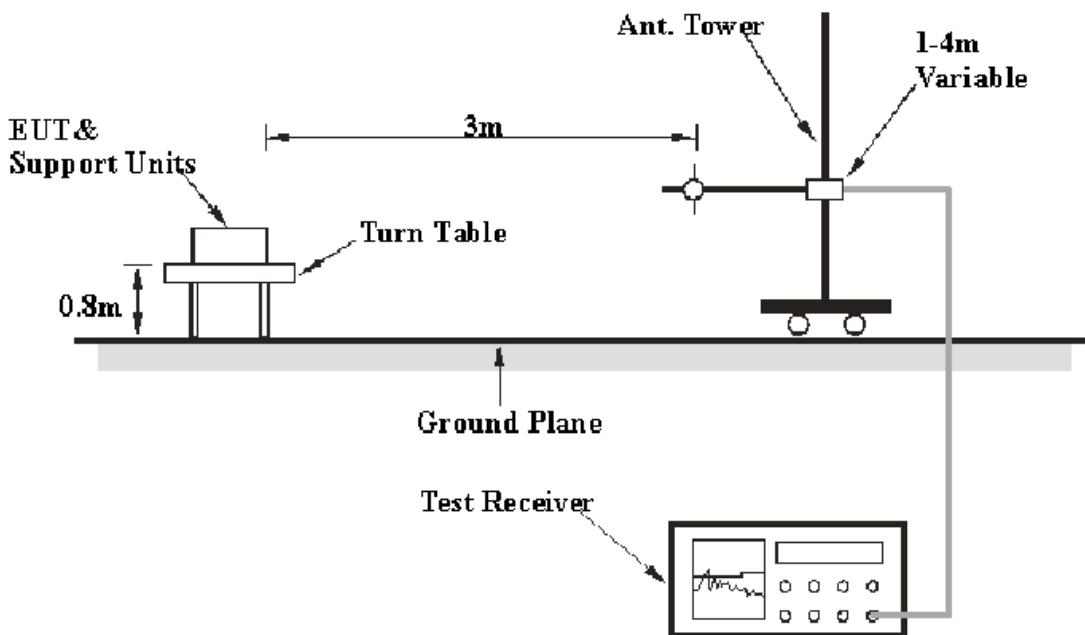
FCC §15.205; §15.209; §15.247(d)

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is  $\pm 4.0$  dB.

### EUT Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

<b>Frequency Range</b>	<b>RBW</b>	<b>Video B/W</b>	<b>Detector</b>
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	AV

## Test Equipment List and Details

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
HP	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-24
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2010-03-11	2011-03-11
HP	Amplifier	2VA-213+	T-E27H	2010-03-08	2011-03-08
Sunol Sciences	Horn Antenna	DRH-118	A052604	2010-05-05	2011-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-08

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

For the radiated emissions test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz and peak and Average detection modes for frequencies above 1 GHz.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, and section 15.205, 15.209 and 15.247, with the worst margin reading of:

### Below 1 GHz:

**2.4 dB at 32.786000 MHz** in the **Vertical** polarization

### Above 1 GHz:

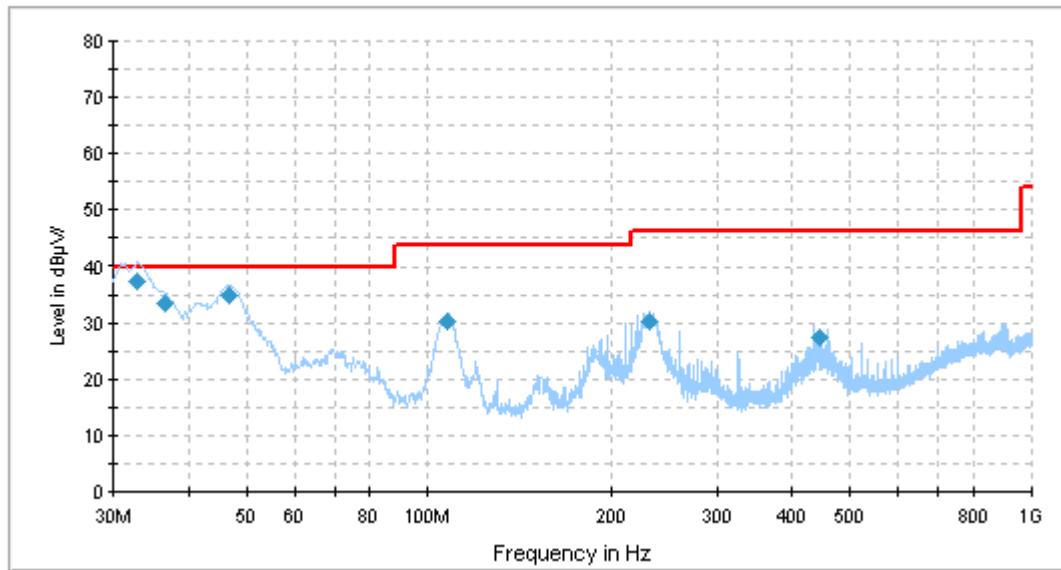
**3.1 dB at 4960 MHz** in the **Horizontal** polarization (High Channel)

## Test Data

### Environmental Conditions

<b>Temperature:</b>	25 ° C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Tim Zhang on 2010-08-19.*

**Below 1 GHz:**

Frequency (MHz)	Corrected Amplitude (dB $\mu$ V/m)	Test Antenna		Turntable Position (degree)	Correction Factor (dB)	Limit (dB $\mu$ V/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
32.786000	37.6	101.0	V	290.0	-19.3	40.0	2.4*
46.785750	35.0	100.0	V	356.0	-18.3	40.0	5.0
36.485250	33.5	101.0	V	284.0	-19.0	40.0	6.5
231.275000	30.2	230.0	H	120.0	-12.5	46.0	15.8
443.520000	27.6	128.0	H	29.0	-8.9	46.0	18.4
107.855000	30.3	101.0	V	129.0	-15.3	43.5	21.2

\*Within measurement uncertainty.

**Above 1 GHz:**

Frequency (MHz)	S.A. Reading (dB $\mu$ V)	Detector (PK/QP/Ave)	Direction (Degree)	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB $\mu$ V/m)	Part 15.247/15.209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB $\mu$ V/m)	Margin (dB)
<b>Low Channel (2402 MHz)</b>											
4804	36.59	Ave	240	2.0	H	36.0	4.30	26.77	50.12	54	3.88*
4804	34.67	Ave	2	2.4	V	34.6	4.30	26.77	46.80	54	7.20
5679.4	31.47	Ave	360	1.9	H	36.8	4.58	26.70	46.15	54	7.85
5679.4	31.52	Ave	260	1.8	V	36.0	4.58	26.70	45.40	54	8.60
4804	48.07	PK	240	2.0	H	36.0	4.30	26.77	61.60	74	12.40
4804	46.23	PK	2	2.4	V	34.6	4.30	26.77	58.36	74	15.64
5679.4	42.24	PK	360	1.9	H	36.8	4.58	26.70	56.92	74	17.08
5679.4	42.96	PK	260	1.8	V	36.0	4.58	26.70	56.84	74	17.16
1602	33.43	Ave	276	2.0	V	26.9	2.35	26.63	36.05	54	17.95
1602	32.64	Ave	160	1.8	H	26.8	2.35	26.63	35.16	54	18.84
1602	43.49	PK	276	2.0	V	26.9	2.35	26.63	46.11	74	27.89
1602	43.01	PK	160	1.8	H	26.8	2.35	26.63	45.53	74	28.47
<b>Middle Channel (2441 MHz)</b>											
4882	36.16	Ave	0	2.0	H	36.0	4.35	26.78	49.73	54	4.27
4882	35.02	Ave	180	1.9	V	34.8	4.35	26.78	47.39	54	6.61
4882	47.15	PK	0	2.0	H	36.0	4.35	26.78	60.72	74	13.28
4882	46.68	PK	180	1.9	V	34.8	4.35	26.78	59.05	74	14.95
1602	34.69	Ave	130	2.0	V	26.9	2.35	26.63	37.31	54	16.69
1602	33.76	Ave	141	1.9	H	26.8	2.35	26.63	36.28	54	17.72
1602	45.63	PK	130	2.0	V	26.9	2.35	26.63	48.25	74	25.75
1602	43.92	PK	141	1.9	H	26.8	2.35	26.63	46.44	74	27.56
<b>High Channel (2480 MHz)</b>											
4960	36.86	Ave	250	2.1	H	36.4	4.39	26.75	50.90	54	3.10*
4960	36.23	Ave	160	1.9	V	35.2	4.39	26.75	49.07	54	4.93
5679.4	33.08	Ave	275	1.78	V	36.0	4.58	26.70	46.96	54	7.04
5679.4	32.24	Ave	350	1.7	H	36.8	4.58	26.70	46.92	54	7.08
4960	47.43	PK	250	2.1	H	36.4	4.39	26.75	61.47	74	12.53
4960	47.86	PK	160	1.9	V	35.2	4.39	26.75	60.7	74	13.3
1602	36.76	Ave	0	1.9	V	26.9	2.35	26.63	39.38	54	14.62
1602	35.13	Ave	180	2.0	H	26.8	2.35	26.63	37.65	54	16.35
5679.4	41.63	PK	350	1.7	H	36.8	4.58	26.70	56.31	74	17.69
5679.4	42.26	PK	275	1.78	V	36.0	4.58	26.70	56.14	74	17.86
1602	44.98	PK	0	1.9	V	26.9	2.35	26.63	47.60	74	26.40
1602	44.26	PK	180	2.0	H	26.8	2.35	26.63	46.78	74	27.22

## Spurious Emissions in the Restrict Bands:

Frequency (MHz)	S.A. Reading (dB $\mu$ V)	Detector (PK/QP/Ave)	Direction (Degree)	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB $\mu$ V/m)	Part 15.247/209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB $\mu$ V/m)	Margin (dB)
2387.45	31.93	Ave	250	1.0	V	30.4	3.01	26.84	38.50	54	15.50
2484.89	31.46	Ave	360	1.0	H	30.6	3.11	26.85	38.32	54	15.68
2484.89	31.42	Ave	324	1.0	V	30.6	3.11	26.85	38.28	54	15.72
2387.45	30.12	Ave	29	1.0	H	30.4	3.01	26.84	36.69	54	17.31
2484.89	45.69	PK	103	1.0	H	30.6	3.11	26.85	52.55	74	21.45
2484.89	44.56	PK	28	1.2	V	30.6	3.11	26.85	51.42	74	22.58
2387.45	44.78	PK	30	1.2	V	30.4	3.01	26.84	51.35	74	22.65
2387.45	44.56	PK	206	1.2	H	30.4	3.01	26.84	51.13	74	22.87

**FCC §15.247(a) (1) - CHANNEL SEPARATION TEST****Applicable Standard**

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

**Test Data**

Please refer to FCC ID: RUJ-QBTM400 granted on 2008-12-23 report number. RF941229L01B.

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**FCC §15.247(a) (1) – 20 dB BANDWIDTH TESTING**

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**Applicable Standard**

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW.

**Test Data**

Please refer to FCC ID: RUJ-QBTM400 granted on 2008-12-23 report number. RF941229L01B.

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**FCC §15.247(a)(1)(iii) - QUANTITY OF HOPPING CHANNEL TEST**

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**Applicable Standard**

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

**Test Data**

Please refer to FCC ID: RUJ-QBTM400 granted on 2008-12-23 report number. RF941229L01B.

**FCC §15.247(a)(1)(iii) -TIME OF OCCUPANCY (DWELL TIME)****Applicable Standard**

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

**Test Data**

Please refer to FCC ID: RUJ-QBTM400 granted on 2008-12-23 report number. RF941229L01B.

**FCC §15.247(b)(1) - PEAK OUTPUT POWER MEASUREMENT****Applicable Standard**

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

**Test Data**

Please refer to FCC ID: RUJ-QBTM400 granted on 2008-12-23 report number. RF941229L01B.

## **FCC §15.247(d) - BAND EDGES TESTING**

### **Applicable Standard**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### **Test Data**

Please refer to FCC ID: RUJ-QBTM400 granted on 2008-12-23 report number. RF941229L01B.

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