



Lab Code: 200707-0



FCC PART 15.249

TEST REPORT

For

Jazwares Inc

1067 Shotgun Road, Sunrise, FL 33326, USA

FCC ID: YNIJAZWARES15295C

Report Type: Original Report	Product Type: STAR WARS-Dongle
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Report Number:	RSZ120420814-00
Report Date:	2012-04-28
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* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk “★” (Rev.2)

TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY	3
TEST FACILITY	3
SYSTEM TEST CONFIGURATION.....	5
JUSTIFICATION	5
EQUIPMENT MODIFICATIONS	5
LOCAL SUPPORT EQUIPMENT.....	5
EXTERNAL I/O CABLE.....	5
CONFIGURATION OF TEST SETUP	6
SUMMARY OF TEST RESULTS.....	7
FCC§15.203 - ANTENNA REQUIREMENT.....	8
APPLICABLE STANDARD	8
ANTENNA CONNECTOR CONSTRUCTION	8
§15.207 (A) – AC LINE CONDUCTED EMISSIONS.....	9
APPLICABLE STANDARD	9
MEASUREMENT UNCERTAINTY.....	9
EUT SETUP.....	9
EMI TEST RECEIVER SETUP.....	10
TEST PROCEDURE	10
TEST EQUIPMENT LIST AND DETAILS.....	10
TEST RESULTS SUMMARY	10
TEST DATA	10
FCC§15.205, §15.209&§15.249- RADIATED EMISSIONS	13
APPLICABLE STANDARD	13
MEASUREMENT UNCERTAINTY.....	13
TEST EQUIPMENT SETUP	13
EUT SETUP	14
TEST PROCEDURE	14
CORRECTED AMPLITUDE & MARGIN CALCULATION	14
TEST EQUIPMENT LIST AND DETAILS.....	15
TEST RESULTS SUMMARY	15
TEST DATA	15
FCC§15.249(D) - OUT OF BAND EMISSION (50DB ATTENUATION)	18
APPLICABLE STANDARD	18
TEST PROCEDURE	18
TEST EQUIPMENT LIST AND DETAILS.....	18
TEST DATA	18

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Jazwares Inc* 's product, model number:15295B (FCC ID: YNIJAZWARES15295C) or the "EUT" in this report is a *STAR WARS-Dongle*, which was measured approximately: 2.0 cm (L) x 1.5 cm (W) x 0.6 cm (H), rated input voltage: DC 5V form USB interface of computer.

All measurement and test data in this report was gathered from production sample serial number: 1204814 (Assigned by BACL, Shenzhen). The EUT was received on 2012-04-20.

Objective

This type approval report is prepared on behalf of *Jazwares Inc* in accordance with Part 2-Subpart J, and 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 15.249 rules.

Related Submittal(s)/Grant(s)

No related submittal(s)

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, 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 radiated and conducted emissions measurement was performed at 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 on the 6/F, the 3rd 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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

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 an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



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

SYSTEM TEST CONFIGURATION

Justification

The system was configured in a testing mode which provided by manufacturer.

Equipment Modifications

No modifications were made to the unit tested.

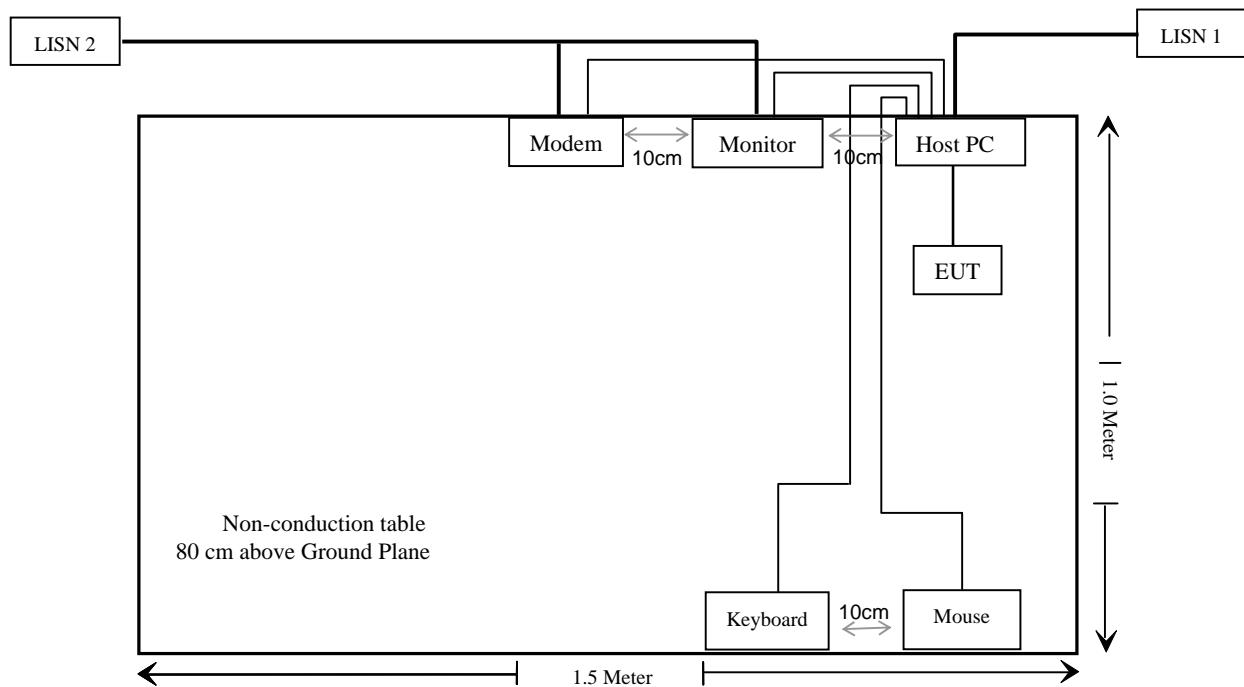
Local Support Equipment

Manufacturer	Description	Model	Serial Number
DELL	PC	DELL 170L	CN-0TC670-70821-560-F4WQ
DELL	LCD Monitor	1505FP	CN-OY4287-71618-574-GBSH
DELL	Mouse	MOC5UO	G1900NKD
DELL	Keyboard	L100	CNORH656658907BL05DC
SAST	Modem	AEM-2100	0293

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Detachable K/B Cable	1.5	Host PC	K/B
Unshielded Detachable USB Cable	1.5	Host PC	Mouse
Unshielded Detachable VGA Cable	1.5	Host PC	Monitor
Shielded Detachable Serial Cable	1.2	Host PC	Modem
Shielded Detachable USB Cable	0.5	Host PC	EUT

Configuration of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	Conduction Emissions	Compliance
15.205, §15.209, §15.249	Radiated Emissions	Compliance
§15.249(d)	Outside of Band Emission (50dB attenuation)	Compliance

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

Antenna Connector Construction

The EUT has an integrated PCB antenna arrangement, which was permanently attached and the maximum gain was 0 dBi, fulfill the requirement of this section. Please refer to the internal photos.

Result: Compliant.

§15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

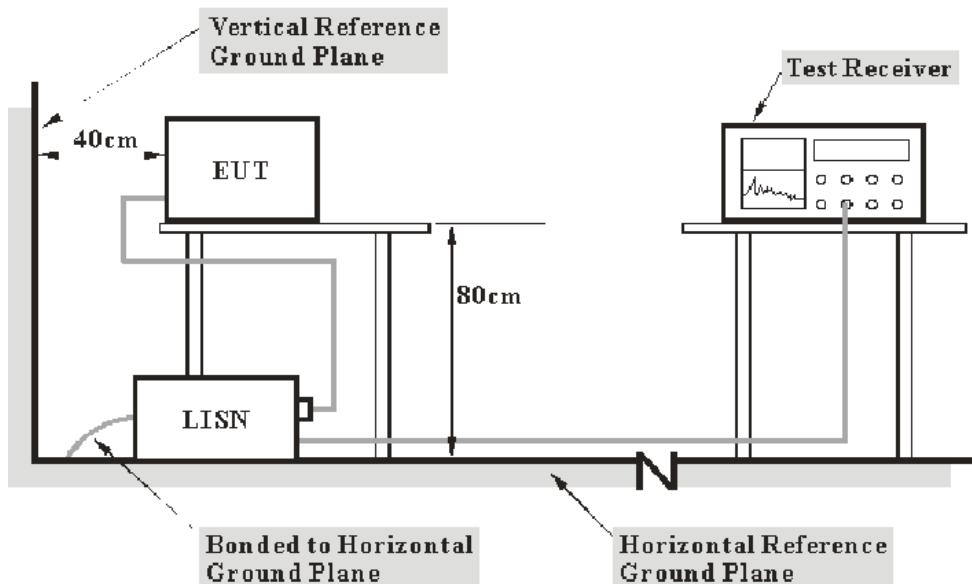
CFR47 §15.207

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 CISPR-16-4-4, 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 2.4 dB (k=2, 95% level of confidence).

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 C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 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 host PC 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:

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

Test Procedure

During the conducted emission test, the host PC was connected to the outlet of the first LISN, the modem and monitor were connected to the second 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2011-07-23	2012-07-22
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-11-17	2012-11-16
Rohde & Schwarz	Pulse limiter	ESH3Z2	DE25985	2011-07-08	2012-07-07

* **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 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:

8.07 dB at 18.080 MHz in the Line conductor mode

Test Data

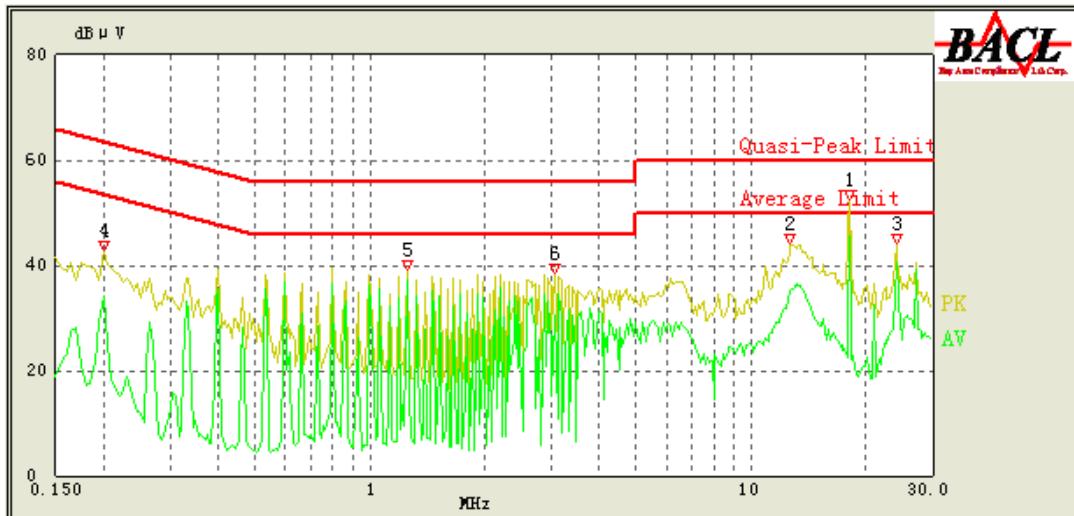
Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

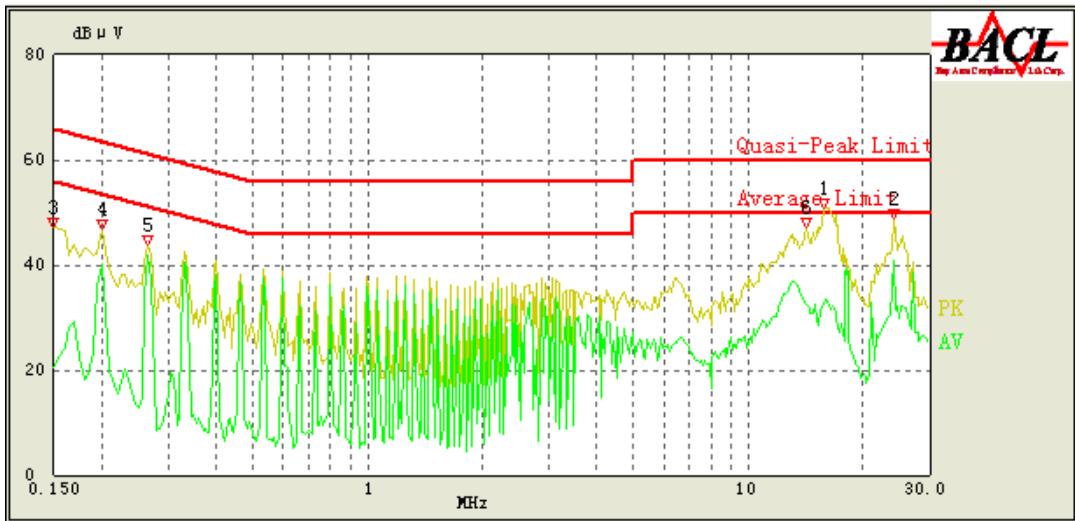
The testing was performed by Brown Lu on 2012-04-23.

Test Mode: Transmitting

AC 120 V, 60 Hz, Line:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Cord. Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Remark (PK/QP/Ave.)
18.080	42.07	10.10	50.00	8.07	Ave.
18.080	51.27	10.10	60.00	8.73	QP
1.260	37.11	10.10	46.00	8.89	Ave.
24.110	40.56	10.10	50.00	9.44	Ave.
12.685	35.24	10.10	50.00	14.76	Ave.
3.055	30.60	10.10	46.00	15.40	Ave.
1.260	38.84	10.10	56.00	17.16	QP
24.110	41.64	10.10	60.00	18.36	QP
12.685	40.12	10.10	60.00	19.88	QP
0.200	34.07	10.10	54.57	20.50	Ave.
3.055	35.16	10.10	56.00	20.84	QP
0.200	36.38	10.10	64.57	28.19	QP

AC 120V, 60 Hz, Neutral:

Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Cord. Result (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Remark (PK/QP/Ave.)
24.110	40.84	10.10	50.00	9.16	Ave.
0.265	41.91	10.10	52.71	10.80	Ave.
0.200	40.19	10.10	54.57	14.38	Ave.
14.145	32.63	10.10	50.00	17.37	Ave.
24.110	42.02	10.10	60.00	17.98	QP
15.685	31.89	10.10	50.00	18.11	Ave.
0.265	43.88	10.10	62.71	18.83	QP
15.880	39.50	10.10	60.00	20.50	QP
0.200	41.89	10.10	64.57	22.68	QP
14.280	36.58	10.10	60.00	23.42	QP
0.150	37.55	10.10	66.00	28.45	QP
0.150	20.38	10.10	56.00	35.62	Ave.

FCC§15.205, §15.209&§15.249- RADIATED EMISSIONS**Applicable Standard**

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

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 CISPR 16-4-4, 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 4.0 dB. (k=2, 95% level of confidence).

Test Equipment Setup

The spectrum analyzer or receiver is set as:

Below 1000MHz:

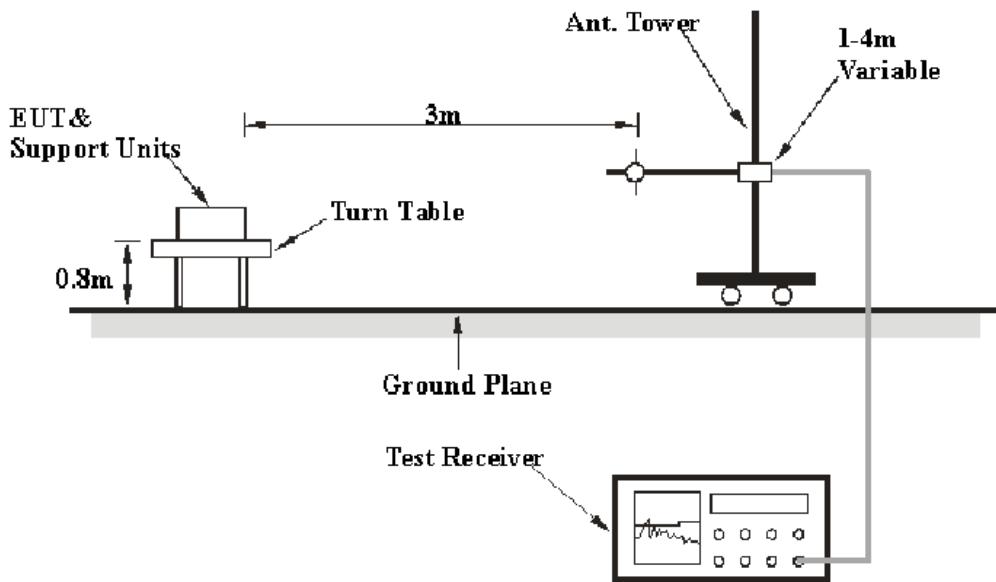
RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000MHz:

Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto

Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

EUT Setup



The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209/15.205 and FCC 15.249 limits.

Test Procedure

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

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

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 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2011-11-24	2012-11-23
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2011-11-17	2012-11-16
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2012-03-17	2013-03-16
Mini-Circuits	Amplifier	ZVA-213+	2011-11-24	2012-03-08	2013-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2012-12-01
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Electro-Mechanics	Horn antenna	3116	9510-2270	2011-10-14	2012-10-13

* **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 Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209 & 15.205 & 15.249, with the worst margin reading of:

5.40 dB at 375.04 MHz in the Vertical polarization

Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.2 kPa

The testing was performed by Brown Lu on 2012-04-23.

Test Mode: Transmitting

1) 30 ~25 GHz:

Freq. (MHz)	S.A. Reading (dB μ V)	Detector PK/QP/Ave.	Direction Degree	Height (m)	Polar H/V	Ant. Loss (dB)	Cable loss (dB)	Amp. Gain (dB)	Corrected Amplitude (dB μ V/m)	FCC 15.209/ FCC 15.249/ FCC 15.205		
										Limit (dB μ V/m)	Margin (dB)	Comment
Low Channel(2408 MHz)												
375.04	50.68	QP	0	1.4	V	13.4	1.62	25.6	40.10	46	5.90	spurious
400.03	49.92	QP	15	1.3	V	13.8	1.68	25.9	39.50	46	6.50	spurious
31.95	34.71	QP	2	1.0	V	20.4	0.29	25.8	29.60	40	10.40	spurious
2408	73.16	Ave.	65	1.2	H	28.9	3.03	26.5	78.59	94	15.41	Fund.
7224	20.16	Ave.	260	1.0	H	36.8	5.22	26.5	35.68	54	18.32	harmonic
2326.7	28.93	Ave.	94	1.4	H	28.8	2.98	26.5	34.21	54	19.79	spurious
4816	19.21	Ave.	130	1.4	V	35.0	4.36	26.5	32.07	54	21.93	harmonic
3526.7	24.87	Ave.	110	1.3	H	28.9	3.60	26.5	30.87	54	23.13	spurious
2389.4	21.31	Ave.	312	1.1	H	28.9	3.03	26.5	26.74	54	27.26	spurious
2396.3	20.64	Ave.	345	1.2	H	28.9	3.03	26.5	26.07	54	27.93	spurious
7224	30.49	PK	260	1.0	H	36.8	5.22	26.5	46.01	74	27.99	harmonic
4816	33.14	PK	130	1.4	V	35.0	4.36	26.5	46.00	74	28.00	harmonic
2389.4	35.11	PK	312	1.1	H	28.9	3.03	26.5	40.54	74	33.46	spurious
2408	74.38	PK	65	1.2	H	28.9	3.03	26.5	79.81	114	34.19	Fund.
3526.7	32.71	PK	110	1.3	H	28.9	3.60	26.5	38.71	74	35.29	spurious
2396.3	32.16	PK	345	1.2	H	28.9	3.03	26.5	37.59	74	36.41	spurious
2326.7	30.56	PK	94	1.4	H	28.8	2.98	26.5	35.84	74	38.16	spurious
Middle Channel(2440 MHz)												
375.04	50.88	QP	0	1.4	V	13.4	1.62	25.6	40.30	46	5.70	spurious
400.03	49.72	QP	15	1.3	V	13.8	1.68	25.9	39.30	46	6.70	spurious
31.95	34.51	QP	2	1.0	V	20.4	0.29	25.8	29.40	40	10.60	spurious
2440	73.45	Ave.	35	1.4	V	28.9	3.11	26.5	78.96	94	15.04	Fund.
7320	20.71	Ave.	169	1.2	H	36.8	5.09	26.5	36.10	54	17.90	harmonic
4880	20.92	Ave.	312	1.1	V	35.0	4.36	26.5	33.78	54	20.22	harmonic
3495.8	23.97	Ave.	356	1.2	H	31.0	3.51	26.5	31.98	54	22.02	spurious
7320	32.14	PK	169	1.2	H	36.8	5.09	26.5	47.53	74	26.47	harmonic
4880	33.76	PK	312	1.1	V	35.0	4.36	26.5	46.62	74	27.38	harmonic
2336.9	19.65	Ave.	135	1.4	H	28.8	2.98	26.5	24.93	54	29.07	spurious
2493.3	18.96	Ave.	231	1.5	H	28.9	3.11	26.5	24.47	54	29.53	spurious
2310.8	18.32	Ave.	36	1.0	V	28.8	2.98	26.5	23.60	54	30.40	spurious
3495.8	34.86	PK	356	1.2	H	31.0	3.51	26.5	42.87	74	31.13	spurious
2440	74.1	PK	35	1.4	V	28.9	3.11	26.5	79.61	114	34.39	Fund.
2493.3	33.12	PK	231	1.5	H	28.9	3.11	26.5	38.63	74	35.37	spurious
2336.9	31.89	PK	135	1.4	H	28.8	2.98	26.5	37.17	74	36.83	spurious
2310.8	31.12	PK	36	1.0	V	28.8	2.98	26.5	36.40	74	37.60	spurious
High Channel (2474 MHz)												
375.04	51.18	QP	0	1.4	V	13.4	1.62	25.6	40.60	46	5.40	spurious
400.03	49.82	QP	15	1.3	V	13.8	1.68	25.9	39.40	46	6.60	spurious
31.95	34.61	QP	2	1.0	V	20.4	0.29	25.8	29.50	40	10.50	spurious
2474	73.57	Ave.	135	1.4	V	28.9	3.11	26.5	79.08	94	14.92	Fund.
7422	21.44	Ave.	187	1.4	H	36.8	5.20	26.5	36.94	54	17.06	harmonic
4948	20.10	Ave.	97	1.2	H	35.0	4.40	26.5	33.00	54	21.00	harmonic
3567.3	21.12	Ave.	63	1.5	H	31.5	3.60	26.5	29.72	54	24.28	spurious

7422	31.58	PK	187	1.4	H	36.8	5.20	26.5	47.08	74	26.92	harmonic
4948	33.05	PK	97	1.2	H	35.0	4.40	26.5	45.95	74	28.05	harmonic
2486.2	20.34	Ave.	125	1.0	V	28.9	3.11	26.5	25.85	54	28.15	spurious
2497.4	20.18	Ave.	320	1.3	V	28.9	3.11	26.5	25.69	54	28.31	spurious
2493.7	19.36	Ave.	55	1.3	H	28.9	3.11	26.5	24.87	54	29.13	spurious
3567.3	32.45	PK	63	1.5	H	31.5	3.60	26.5	41.05	74	32.95	spurious
2486.2	35.44	PK	125	1.0	V	28.9	3.11	26.5	40.95	74	33.05	spurious
2474	74.30	PK	135	1.4	V	28.9	3.11	26.5	79.81	114	34.19	Fund.
2497.4	34.01	PK	320	1.3	V	28.9	3.11	26.5	39.52	74	34.48	spurious
2493.7	30.58	PK	55	1.3	H	28.9	3.11	26.5	36.09	74	37.91	spurious

FCC§15.249(d) - OUT OF BAND EMISSION (50dB ATTENUATION)

Applicable Standard

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2011-11-17	2012-11-16

* **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 Data

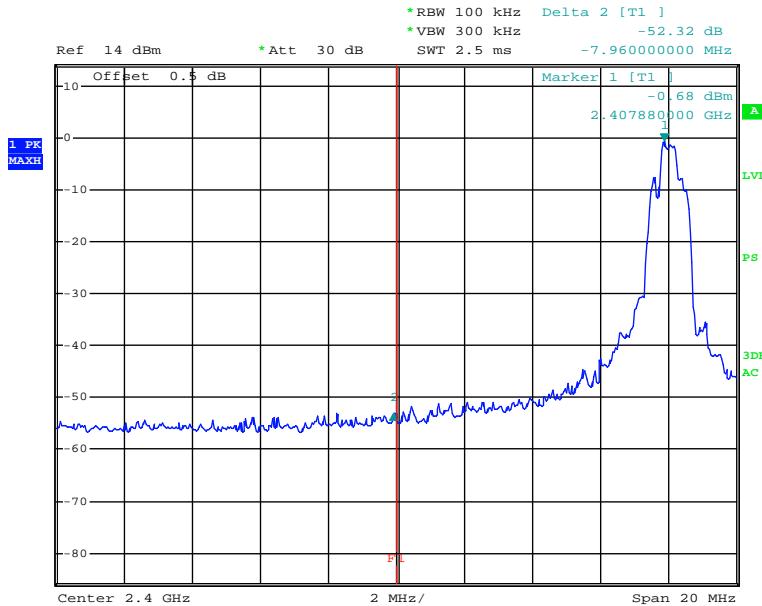
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9kPa

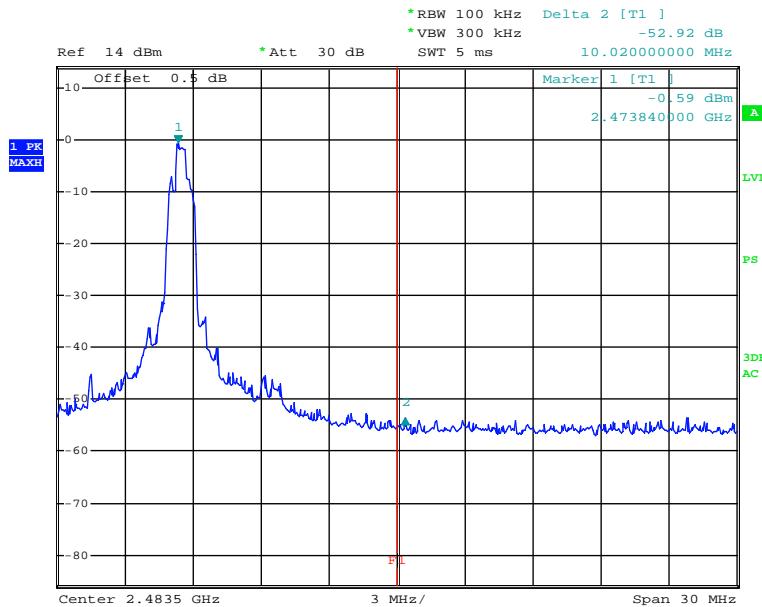
* The testing was performed by Brown Lu on 2012-04-28.

Test Result: Compliance. Please refer to the following table and plots:

Frequency (MHz)	Delta Peak to Band Emission (dBc)	Delta Limit (dBc)
2339.720	52.32	50
2483.860	52.92	50

Band Edge: Left Side

Date: 28.APR.2012 20:20:06

Band Edge: Right Side

Date: 28.APR.2012 20:24:21

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