



NVLAP LAB CODE 200707-0



FCC PART 15.249

MEASUREMENT AND TEST REPORT

For

Shenzhen Gospell Smarthome Electronic Co., Ltd.

5Floor/Block 2, Vision (SZ) Park, Hi-Tech Industrial Park,

Shenzhen, Guangdong, P.R. of China

FCC ID: TW5GB8802-GB8803

Report Type: Original Report	Product Type: Wireless Inspection Camera
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Report Number:	<u>RSZ09091501</u>
Report Date:	<u>2009-11-02</u>
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Shenzhen). This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, NIST, or any agency of the Federal Government.

* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk “*”

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Gospel Smarhome Electronic Co., Ltd.* 's product, model *GB8802, GB8803 (FCC ID: TW5GB8802-GB8803)*, or the "EUT" as referred to in this report is a *Wireless Inspection Camera* which measures approximately: 115 cm L x 13.8 cm W x 4.2 cm H for GB8802, 115 cm L x 13.8 cm W x 4.2 cm H for GB8803, rated input voltage: DC 1.5V × 4 battery.

**Note: The series products, model GB8802, GB8803, we select GB8803 to test, the difference of these models is in model name and the cannulation of cameras, there is no electrical change has been made to the equipment, which was explained in the attached Declaration Letter.*

** All measurement and test data in this report was gathered from production sample serial number: 0909022 (Assigned by BACL, Shenzhen). The EUT was received on 2009-09-15.*

Objective

This Type approval report is prepared on behalf of *Shenzhen Gospel Smarhome Electronic Co., Ltd.* 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 Submittals.

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 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 in 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 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).



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 for testing in a typical fashion (as normally used by a typical user).

Equipment Modifications

No modifications were made to the unit tested.

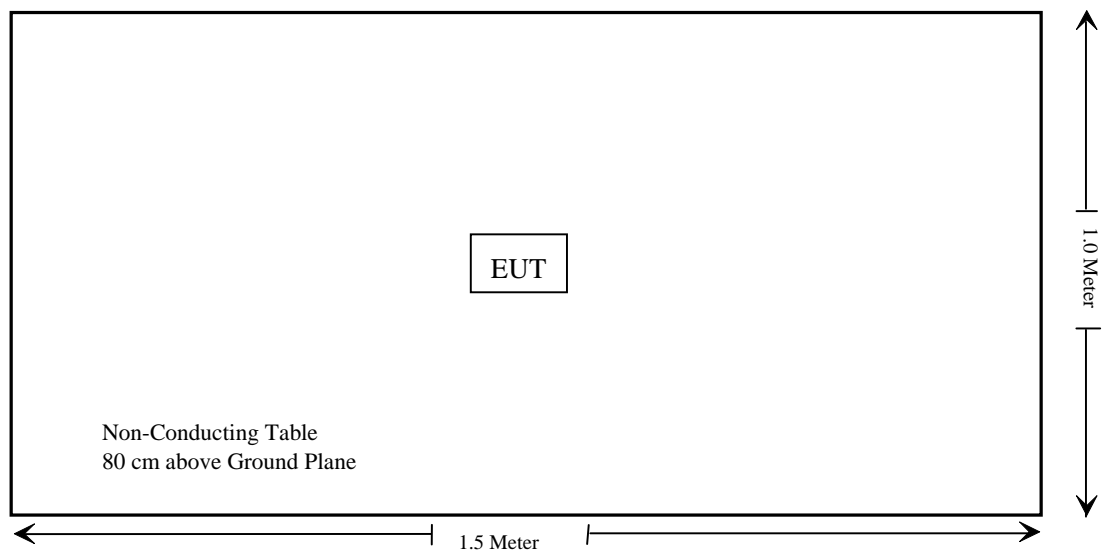
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Gospel	3.5" TFT-LCD	GB7307	N/A	N/A

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 15.203	Antenna Requirement	Compliant
§ 15.207(a)	Conduction Emissions	N/A
§ 15.205(a), § 15.209(a), 15.249(a), § 15.249(c), § 15.35	Radiated Emissions	Compliant*
§ 15.249(d)	Out of Band Emissions	Compliant
§ 15.215(c)	20dB Bandwidth	Compliant

Note: N/A: The EUT is powered by battery.

* Within measurement uncertainty.

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 integral antenna on PCB, which in accordance to section 15.203, is considered sufficient to comply with the provisions of this section, the maximum antenna gain is 1dBi.

Result: Compliant.

Please refer to the EUT photos.

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

As per §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 §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 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 ± 4.0 dB.

Test Equipment Setup

The spectrum analyzer or receiver is set as:

Below 1000 MHz:

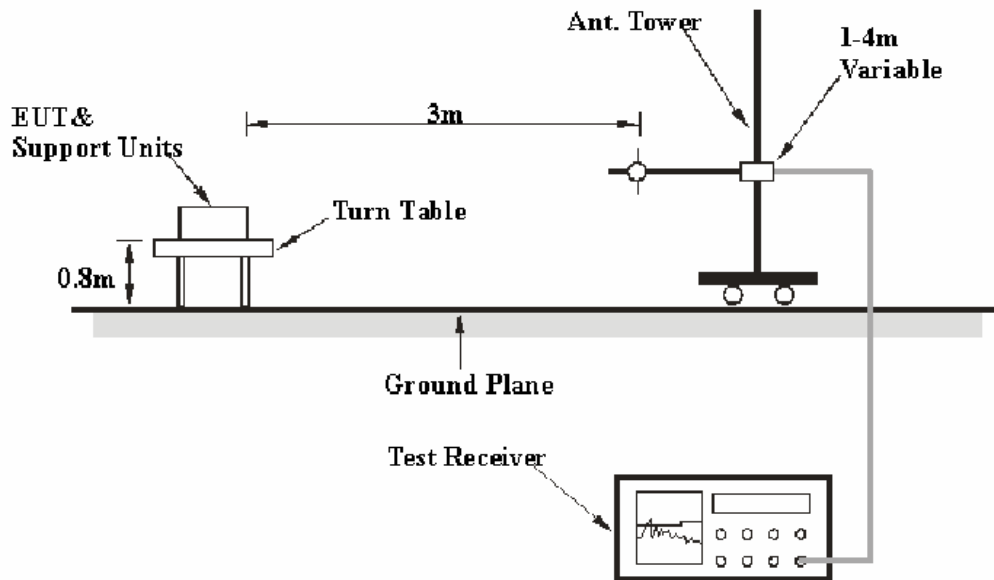
RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

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 B, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.249 limits.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2009-08-02	2010-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2008-11-07	2009-11-06
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2009-05-05	2010-05-04
HP	Amplifier	8449B	3008A00277	2009-09-12	2010-09-11
Sunol Sciences	Horn Antenna	DRH-118	A052604	2009-05-05	2010-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2009-07-08	2010-07-07

* **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 EUT, and all support equipment power cords 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.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 mete, 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 Results Summary

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

Below 1GHz:

8.1 dB at 192.000000 MHz in the **Horizontal** polarization, for model GB8803.

3.3 dB at 312.017500 MHz in the **Horizontal** polarization, for model GB8802.

Above 1GHz:

Low Channel: 2.84 dB at 4828 MHz in the **Vertical** polarization, for model GB8803.

Middle Channel: 2.61 dB at 4864 MHz in the **Vertical** polarization, for model GB8803.

High Channel: 5.19 dB at 2468 MHz in the **Horizontal** polarization, for model GB8803.

Low Channel: 2.84 dB at 4828 MHz in the **Vertical** polarization, for model GB8802.

Middle Channel: 2.61 dB at 4864 MHz in the **Vertical** polarization, for model GB8802.

High Channel: 5.19 dB at 2468 MHz in the **Horizontal** polarization, for model GB8802.

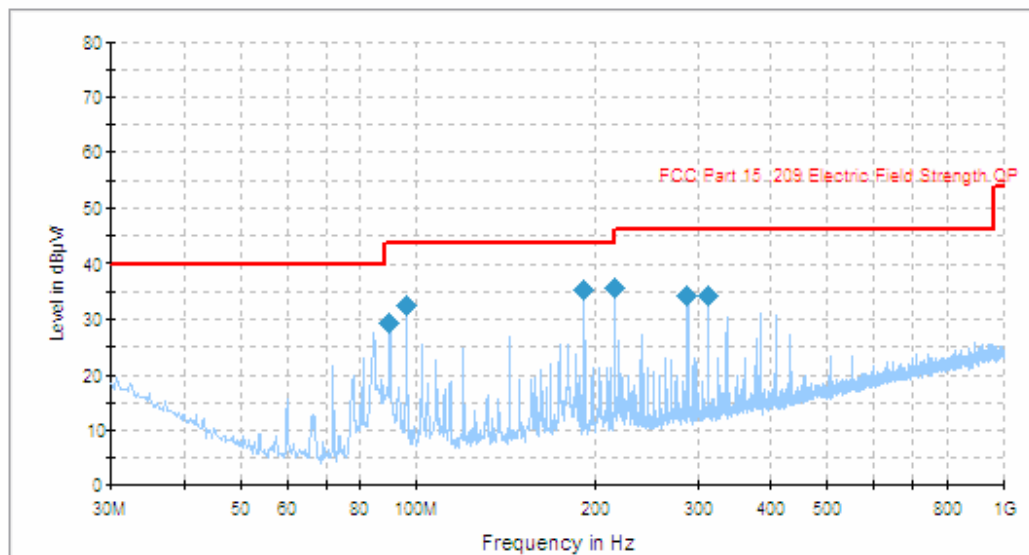
Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa

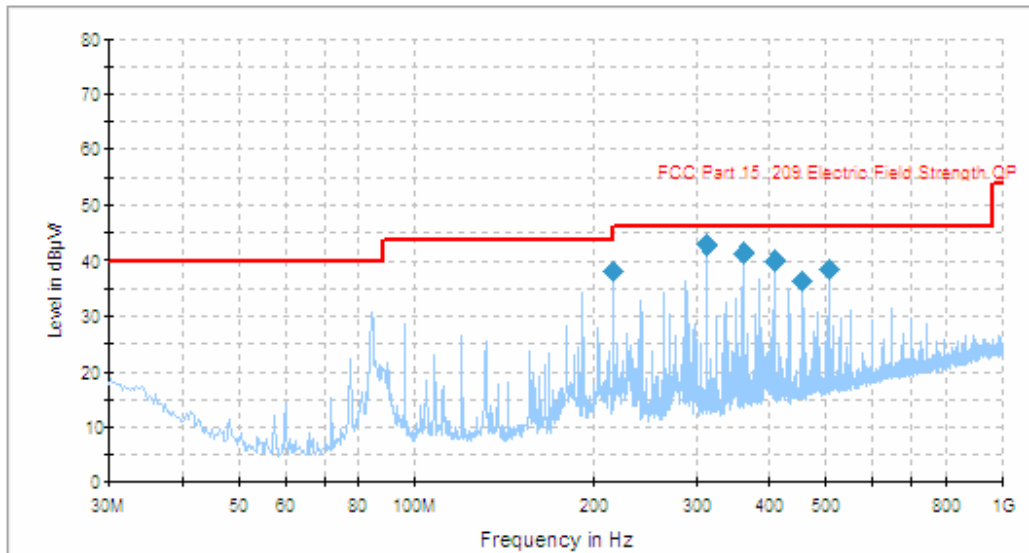
The testing was performed by Bruce Zhang on 2009-09-24.

30-1000 MHz:

Test Mode: Transmitting

Model: GB8803

Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBμV/m)	Margin (dB)
192.000000	35.4	171.0	H	102.0	-17.9	43.5	8.1
216.025500	35.8	111.0	H	115.0	-17.2	46.0	10.2
96.023500	32.7	201.0	H	122.0	-21.0	43.5	10.8
312.027500	34.3	101.0	H	264.0	-3.7	46.0	11.7
288.020000	34.2	176.0	H	168.0	-3.9	46.0	11.8
89.897500	29.3	127.0	V	312.0	-3.5	43.5	14.2

Model: GB8802

Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBμV/m)	Margin (dB)
312.017500	42.7	100.0	H	210.0	-13.9	46.0	3.3*
359.999750	41.2	100.0	H	244.0	-12.9	46.0	4.8
215.996000	38.1	155.0	H	267.0	-17.2	43.5	5.4
408.027250	39.9	100.0	H	251.0	-12.3	46.0	6.1
504.023000	38.7	174.0	H	139.0	-10.8	46.0	7.3
455.999750	36.5	100.0	H	262.0	-11.2	46.0	9.5

* Within measurement uncertainty.

Above 1 GHz:**Model: GB8803**

Freq. (MHz)	S.A. Reading (dBμV/m)	Detector PK/AV	Direction Degree	Test Antenna			Cable Loss (dB)	Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC 15.249 & 15.209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2414 MHz)												
4828	38.48	AV	174	1.2	V	34.7	8.79	30.81	51.16	54	2.84*	harmonic
4828	32.97	AV	249	1.4	H	34.6	8.79	30.81	45.55	54	8.45	harmonic
4828	51.62	PK	174	1.6	V	34.7	8.79	30.81	64.30	74	9.70	harmonic
2414	78.34	AV	94	1.64	V	29.1	5.69	30.43	82.70	94	11.30	Fund.
2414	76.47	AV	30	1.4	H	28.9	5.69	30.43	80.63	94	13.37	Fund.
4828	46.91	PK	249	1.0	H	34.6	8.79	30.81	59.49	74	14.51	harmonic
2389.5	31.17	AV	36	1.6	H	28.9	5.69	30.43	35.33	54	18.67	Spurious
2389.4	30.96	AV	94	1.64	V	29.1	5.69	30.43	35.32	54	18.68	Spurious
2389.4	48.70	PK	94	1.64	V	29.1	5.69	30.43	53.06	74	20.94	Spurious
2389.5	48.39	PK	36	1.6	H	28.9	5.69	30.43	52.55	74	21.45	Spurious
2414	87.30	PK	94	1.64	V	29.1	5.69	30.43	91.66	114	22.34	Fund.
2414	85.57	PK	30	1.3	H	28.9	5.69	30.43	89.73	114	24.27	Fund.
Middle Channel (2432 MHz)												
4864	38.71	AV	171	1.4	V	34.7	8.79	30.81	51.39	54	2.61*	harmonic
4864	32.79	AV	230	1.6	H	34.6	8.79	30.81	45.37	54	8.63	harmonic
2432	80.70	AV	334	1.6	H	28.9	5.69	30.43	84.86	94	9.14	Fund.
4864	50.96	PK	171	1.4	V	34.7	8.79	30.81	63.64	74	10.36	harmonic
2432	77.44	AV	124	1.66	V	29.1	5.69	30.43	81.8	94	12.2	Fund.
4864	46.62	PK	230	1.3	H	34.6	8.79	30.81	59.2	74	14.8	harmonic
2432	91.39	PK	334	1.2	H	28.9	5.69	30.43	95.55	114	18.45	Fund.
2432	88.16	PK	124	1.66	V	29.1	5.69	30.43	92.52	114	21.48	Fund.
High Channel (2468 MHz)												
2468	84.65	AV	250	1.68	H	28.9	5.69	30.43	88.81	94	5.19	Fund.
2468	82.70	AV	254	1.57	V	29.1	5.69	30.43	87.06	94	6.94	Fund.
4936	30.83	AV	233	1.2	H	34.6	8.79	30.81	43.41	54	10.59	harmonic
4936	30.66	AV	180	1.2	V	34.7	8.79	30.81	43.34	54	10.66	harmonic
4936	45.73	PK	233	1.4	H	34.6	8.79	30.81	58.31	74	15.69	harmonic
4936	44.97	PK	180	1.4	V	34.7	8.79	30.81	57.65	74	16.35	harmonic
2490	33.49	AV	258	1.4	H	28.9	5.69	30.58	37.5	54	16.5	Spurious
2490	32.99	AV	0	1.1	V	29.1	5.69	30.58	37.2	54	16.8	Spurious
2468	91.78	PK	250	1.6	H	28.9	5.69	30.43	95.94	114	18.06	Fund.
2490	51.90	PK	258	1.4	H	28.9	5.69	30.58	55.91	74	18.09	Spurious
2468	90.55	PK	254	1.57	V	29.1	5.69	30.43	94.91	114	19.09	Fund.
2490	50.28	PK	0	1.1	V	29.1	5.69	30.58	54.49	74	19.51	Spurious

Model: GB8802

Freq. (MHz)	S.A. Reading (dBμV/m)	Detector PK/AV	Direction Degree	Test Antenna			Cable Loss (dB)	Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC 15.249 & 15.209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2414 MHz)												
4828	38.48	AV	174	1.2	V	34.7	8.79	30.81	51.16	54	2.84*	harmonic
4828	32.97	AV	249	1.2	H	34.6	8.79	30.81	45.55	54	8.45	harmonic
4828	51.62	PK	174	1.3	V	34.7	8.79	30.81	64.3	74	9.7	harmonic
2414	78.34	AV	94	1.64	V	29.1	5.69	30.43	82.7	94	11.3	Fund.
2414	76.47	AV	30	1.5	H	28.9	5.69	30.43	80.63	94	13.37	Fund.
4828	46.91	PK	249	1.3	H	34.6	8.79	30.81	59.49	74	14.51	harmonic
2389.5	31.17	AV	36	1.6	H	28.9	5.69	30.43	35.33	54	18.67	Spurious
2389.4	30.96	AV	94	1.64	V	29.1	5.69	30.43	35.32	54	18.68	Spurious
2389.4	48.70	PK	94	1.64	V	29.1	5.69	30.43	53.06	74	20.94	Spurious
2389.5	48.39	PK	36	1.5	H	28.9	5.69	30.43	52.55	74	21.45	Spurious
2414	87.30	PK	94	1.64	V	29.1	5.69	30.43	91.66	114	22.34	Fund.
2414	85.57	PK	30	1.6	H	28.9	5.69	30.43	89.73	114	24.27	Fund.
Middle Channel (2432 MHz)												
4864	38.71	AV	171	1.8	V	34.7	8.79	30.81	51.39	54	2.61*	harmonic
4864	32.79	AV	230	1.2	H	34.6	8.79	30.81	45.37	54	8.63	harmonic
2432	80.70	AV	334	1.6	H	28.9	5.69	30.43	84.86	94	9.14	Fund.
4864	50.96	PK	171	1.6	V	34.7	8.79	30.81	63.64	74	10.36	harmonic
2432	77.44	AV	124	1.66	V	29.1	5.69	30.43	81.8	94	12.2	Fund.
4864	46.62	PK	230	1.5	H	34.6	8.79	30.81	59.2	74	14.8	harmonic
2432	91.39	PK	334	1.4	H	28.9	5.69	30.43	95.55	114	18.45	Fund.
2432	88.16	PK	124	1.5	V	29.1	5.69	30.43	92.52	114	21.48	Fund.
High Channel (2468 MHz)												
2468	84.65	AV	250	1.68	H	28.9	5.69	30.43	88.81	94	5.19	Fund.
2468	82.70	AV	254	1.57	V	29.1	5.69	30.43	87.06	94	6.94	Fund.
4936	30.83	AV	233	1.0	H	34.6	8.79	30.81	43.41	54	10.59	harmonic
4936	30.66	AV	180	1.0	V	34.7	8.79	30.81	43.34	54	10.66	harmonic
4936	45.73	PK	233	1.2	H	34.6	8.79	30.81	58.31	74	15.69	harmonic
4936	44.97	PK	180	1.4	V	34.7	8.79	30.81	57.65	74	16.35	harmonic
2490	33.49	AV	258	1.4	H	28.9	5.69	30.58	37.5	54	16.5	Spurious
2490	32.99	AV	0	1.1	V	29.1	5.69	30.58	37.2	54	16.8	Spurious
2468	91.78	PK	250	1.68	H	28.9	5.69	30.43	95.94	114	18.06	Fund.
2490	51.90	PK	258	1.4	H	28.9	5.69	30.58	55.91	74	18.09	Spurious
2468	90.55	PK	254	1.57	V	29.1	5.69	30.43	94.91	114	19.09	Fund.
2490	50.28	PK	0	1.1	V	29.1	5.69	30.58	54.49	74	19.51	Spurious

FCC §15.249(d) – OUT OF BAND EMISSIONS

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

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 mete, 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 at the band edge. The receiving antenna should be changed the polarization both of horizontal and vertical.

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

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 ± 4.0 dB.

Test Equipment Setup

The spectrum analyzer or receiver is set as:

Above 1000MHz:

Peak: RBW = 1MHz / VBW = 3MHz / Sweep = Auto

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2008-11-07	2009-11-06
HP	Amplifier	8449B	3008A00277	2009-09-12	2010-09-11
Sunol Sciences	Horn Antenna	DRH-118	A052604	2009-05-05	2010-05-04

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) Corp. 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:	100.2 kPa

**The testing was performed by Bruce Zhang on 2009-09-23.*

Test Result: Compliant

Please refer to the following table and plots.

Test Mode: Transmitting (GB8803)

Frequency (MHz)	S.A. Reading (dBμV/m)	Detector PK/AV	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC 15.209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Out of left side band (2390~2400 MHz)											
2389.5	31.17	AV	36	1.6	H	28.9	5.69	30.43	35.33	54	18.67
2389.4	30.96	AV	94	1.64	V	29.1	5.69	30.43	35.32	54	18.68
2389.4	48.70	PK	94	1.64	V	29.1	5.69	30.43	53.06	74	20.94
2389.5	48.39	PK	36	1.6	H	28.9	5.69	30.43	52.55	74	21.45
Out of right side band (2483.5~2500 MHz)											
2490	33.49	AV	258	1.4	H	28.9	5.69	30.58	37.5	54	16.5
2490	32.99	AV	0	1.1	V	29.1	5.69	30.58	37.2	54	16.8
2490	51.90	PK	258	1.4	H	28.9	5.69	30.58	55.91	74	18.09
2490	50.28	PK	0	1.1	V	29.1	5.69	30.58	54.49	74	19.51

Test Mode: Transmitting (GB8802)

Frequency (MHz)	S.A. Reading (dBμV/m)	Detector PK/AV	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC 15.209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Out of left side band (2390~2400 MHz)											
2389.5	31.17	AV	36	1.6	H	28.9	5.69	30.43	35.33	54	18.67
2389.4	30.96	AV	94	1.64	V	29.1	5.69	30.43	35.32	54	18.68
2389.4	48.70	PK	94	1.64	V	29.1	5.69	30.43	53.06	74	20.94
2389.5	48.39	PK	36	1.6	H	28.9	5.69	30.43	52.55	74	21.45
Out of right side band (2483.5~2500 MHz)											
2490	33.49	AV	258	1.4	H	28.9	5.69	30.58	37.5	54	16.5
2490	32.99	AV	0	1.1	V	29.1	5.69	30.58	37.2	54	16.8
2490	51.90	PK	258	1.4	H	28.9	5.69	30.58	55.91	74	18.09
2490	50.28	PK	0	1.1	V	29.1	5.69	30.58	54.49	74	19.51

FCC §15.215(c) – 20 dB EMISSION BANDWIDTH

Standard Applicable

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2008-11-07	2009-11-06
HP	Amplifier	8449B	3008A00277	2009-09-12	2010-09-11
Sunol Sciences	Horn Antenna	DRH-118	A052604	2009-05-05	2010-05-04

* **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

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 it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that indicated 20dB bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

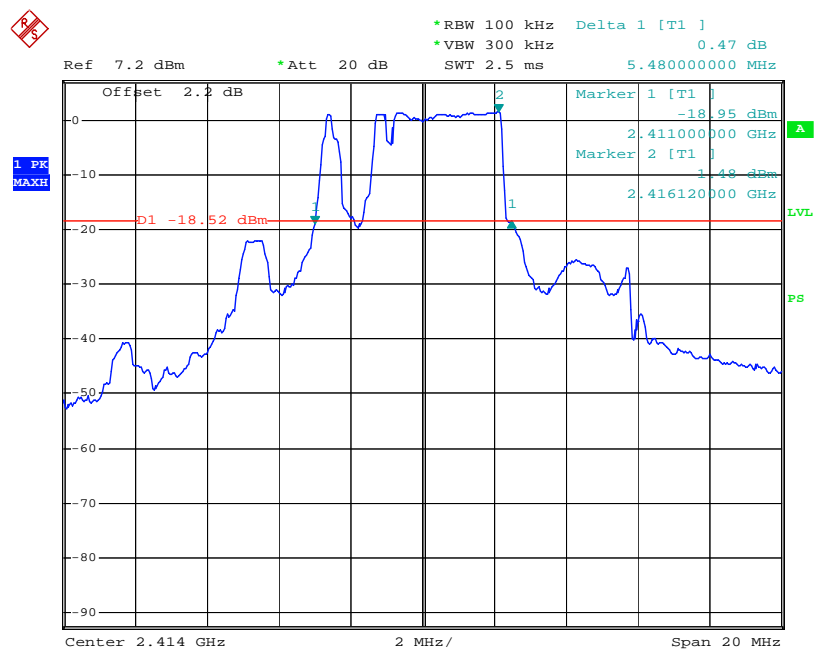
The testing was performed by Bruce Zhang on 2009-09-29.

Test Mode: Transmitting

Pleas refer to the following table and plots.

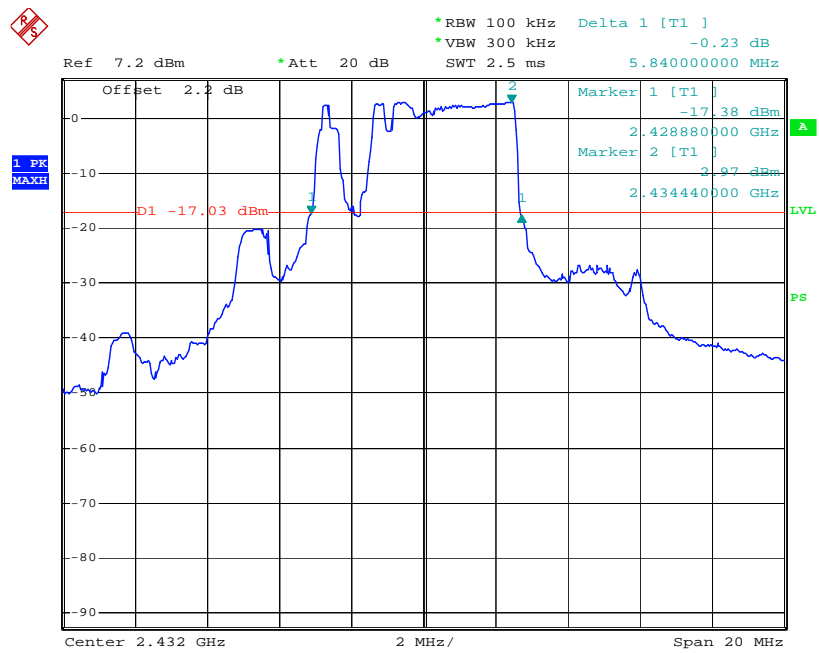
Channel Frequency (MHz)	20 dB Emission Bandwidth (MHz)
2414	5.48
2432	5.84
2468	5.72

Low Channel



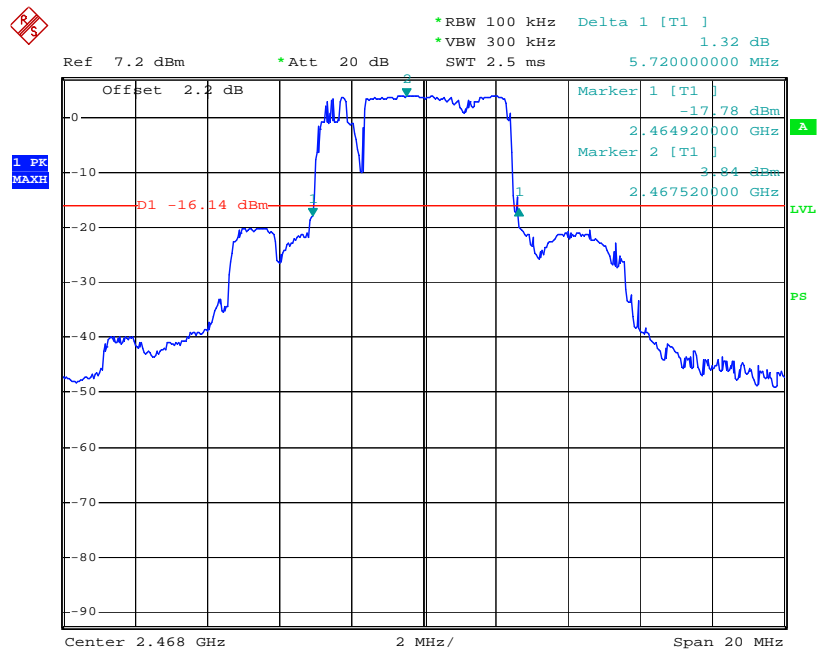
Date: 29.SEP.2009 14:48:44

Middle Channel



Date: 29.SEP.2009 14:43:50

High Channel



Date: 29.SEP.2009 15:06:58