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, P.R. of China

FCC ID: TW5GA8213

Report Type:	**Equipment Type:**
Original Report	900 MHz Wireless Baby Monitor

Test Engineer:	Herith Shi Herith shi
Report No.:	RSZ08082101
Report Date:	2008-10-06
Reviewed By:	Ray Chen EMC Engineer Ray chen
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Gospell Smarthome Electronic Co. ,Ltd*'s product, model number: *GA8213* the "EUT" as referred to in this report is a *900MHz wireless Baby monitor*, which measures approximately 9.3 cmL x 6.9 cmW x 12.0 cmH, rated input voltage: DC 6V from battery/ DC 8V from adapter.

Adapter Information: Gospell SWITCHING MODE POWER SUPPLY
Model: GP006DE
Input: 100-240V 50/60Hz
Output: 8V

** All measurement and test data in this report was gathered from production sample serial number: 08008046 (Assigned by BACL, Shenzhen). The EUT was received on 2008-08-21.*

Objective

This Type approval report is prepared on behalf of *Shenzhen Gospell Smarthome 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 04, 2004. 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

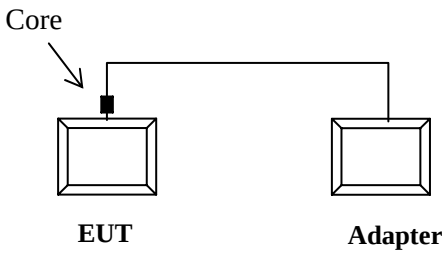
Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

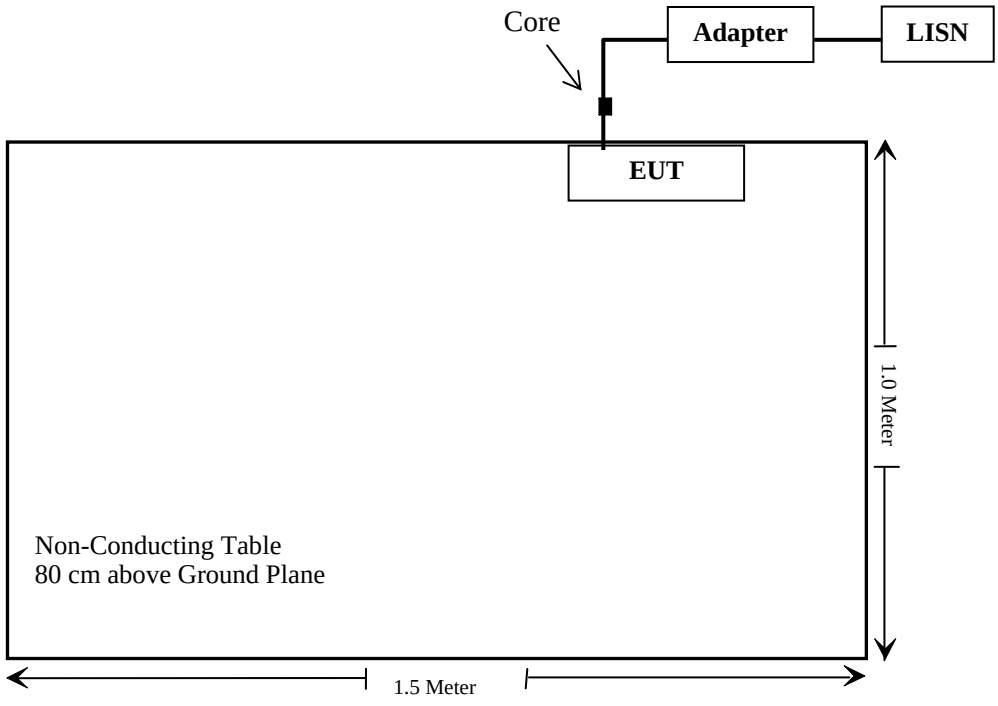
Equipment Modifications

No modifications were made to the unit tested.

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	Compliant
§15.205(a), §15.209(a), 15.249(a), §15.249(c)	Radiated Emissions	Compliant*
§15.249(d)	Out of Band Emissions	Compliant

Note:* Within measurement uncertainty.

§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 antenna is a permanently attached antenna, which in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.

Result: Compliant.

Please refer to the EUT internal photos.

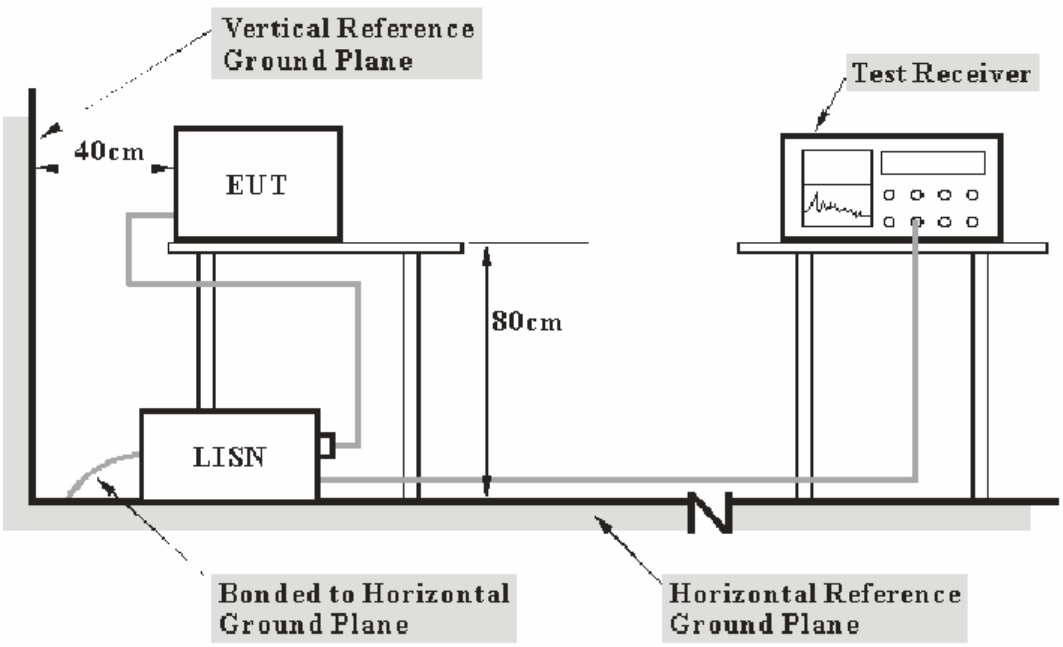
§15.207(a) - CONDUCTED EMISSIONS

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 Laboratories Corp. (Shenzhen) is ±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 external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

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

EMI Test Receiver Setup

The 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	***IFBW***
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	DE25330	2008-03-25	2009-03-25
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2008-03-25	2009-03-25

***** Com-Power's LISN were used as the supporting equipment.
*** 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

During the conducted emission test, the adapter was connected to the outlet of 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(a), with the worst margin reading of:

11.15 dB at **0.4000 MHz** in the **Neutral** conductor mode.

Test Data

Environmental Conditions

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

The testing was performed by Herith Shi on 2008-09-25.

Test Mode: Transmitting

Line Conducted Emissions				FCC Part15.207	
Frequency (MHz)	**Amplitude (dBμV)**	**Detector (QP/AV)**	**Conductor (Hot/Neutral)**	**Limit (dBμV)**	**Margin (dB)**
0.4000	46.70	QP	Neutral	57.85	11.15
0.2050	51.80	QP	Neutral	63.41	11.61
0.4050	45.50	QP	Line	57.75	12.25
2.6300	43.10	QP	Line	56.00	12.90
0.8450	42.80	QP	Line	56.00	13.20
0.2700	47.90	QP	Neutral	61.12	13.22
0.8600	42.40	QP	Neutral	56.00	13.60
0.3300	44.30	QP	Neutral	59.45	15.15
0.3300	43.70	QP	Line	59.45	15.75
0.2000	46.30	QP	Line	63.61	17.31
0.4850	38.70	QP	Neutral	56.25	17.55
0.2700	42.60	QP	Line	61.12	18.52
0.4050	27.90	AV	Neutral	47.75	19.85
0.2050	32.40	AV	Neutral	53.41	21.01
0.2700	29.20	AV	Neutral	51.12	21.92
0.8600	23.50	AV	Neutral	46.00	22.50
0.3300	25.20	AV	Neutral	49.45	24.25
0.4050	23.20	AV	Line	47.75	24.55
0.8450	19.10	AV	Line	46.00	26.90
0.3300	21.70	AV	Line	49.45	27.75
0.2700	23.30	AV	Line	51.12	27.82
0.2000	25.40	AV	Line	53.61	28.21
2.6300	17.40	AV	Line	46.00	28.60
0.4850	16.20	AV	Neutral	46.25	30.05

Plot(s) of Test Data

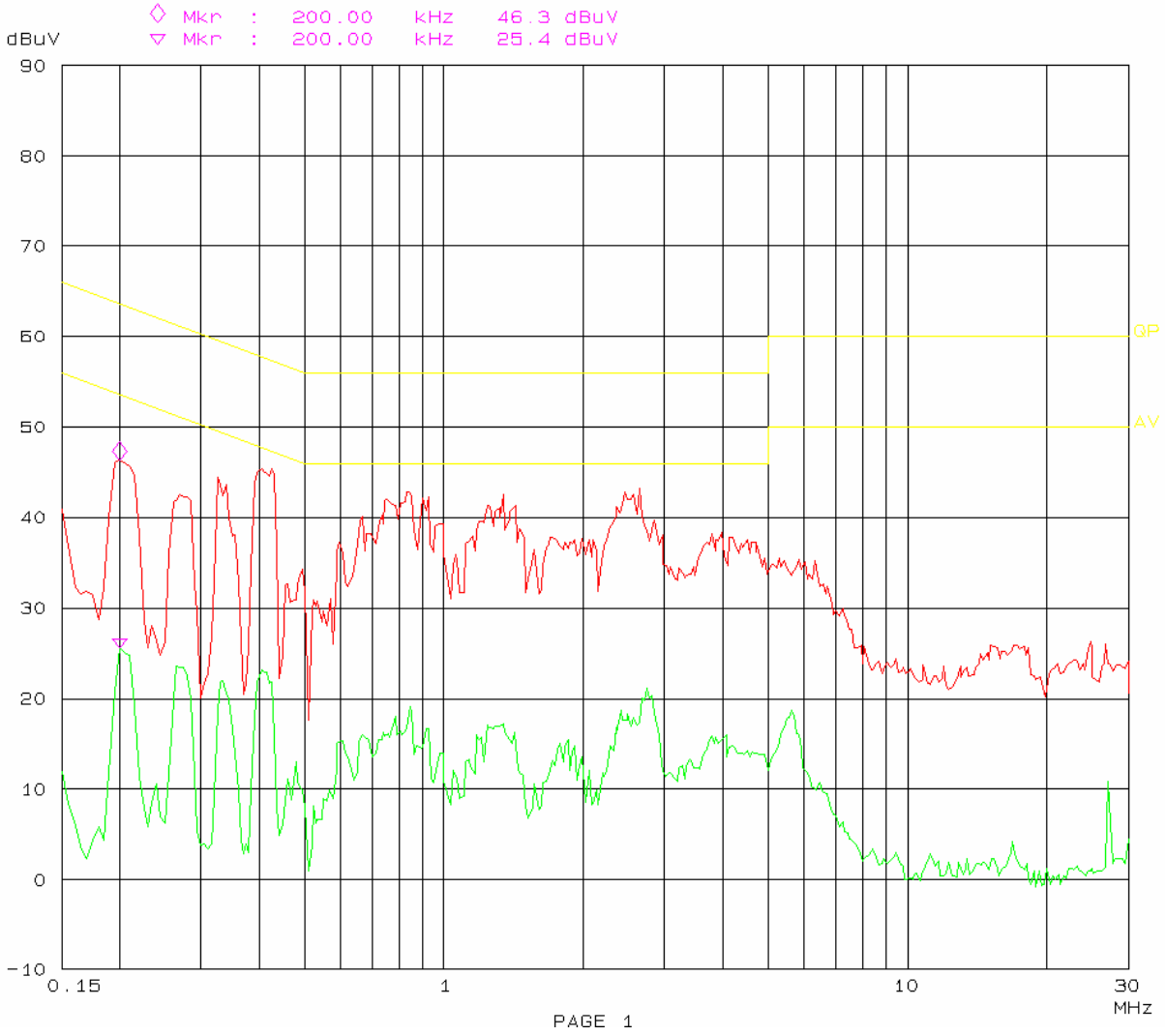
Plot(s) of Test Data is presented hereinafter as reference.

Conducted emission

25. Sep 08 09:16

FCC PART 15

EUT: 900MHz wireles BABY monitor MN;GA8213
Manuf: GOSPELL
Op Cond: Transmitting
Operator: Herith
Test Spec: AC 120V/60HZ L
Comment: Temp:25 Hum:56%

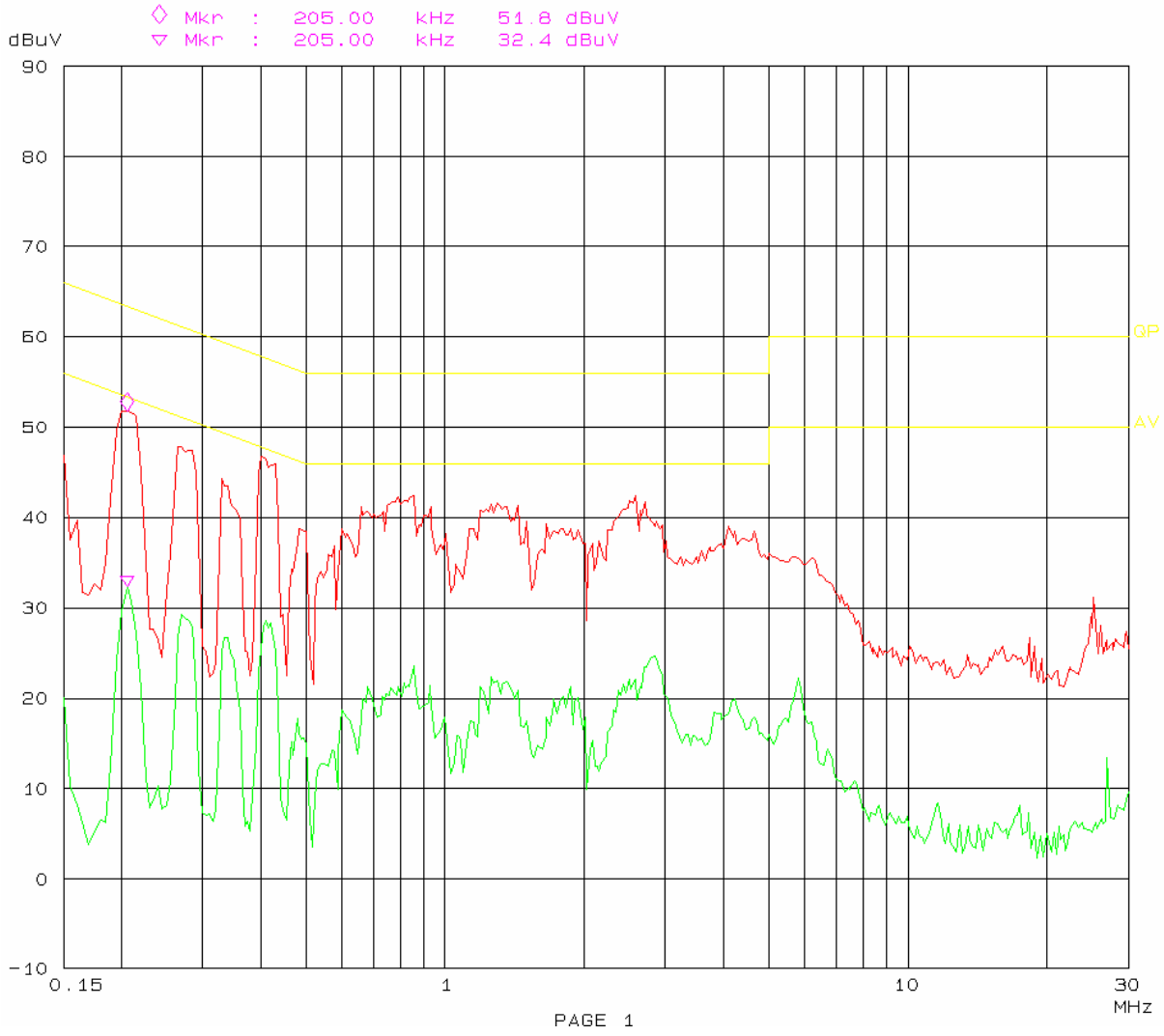


Conducted emission

25. Sep 08 08:51

FCC PART 15

EUT: 900MHz wireles BABY monitor MN;GA8213
Manuf: GOSPELL
Op Cond: Transmitting
Operator: Herith
Test Spec: AC 120V/60HZ N
Comment: Temp:25 Hum:56%



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§15.205(a) §15.209(a) §15.249(a) §15.249(d) - 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:

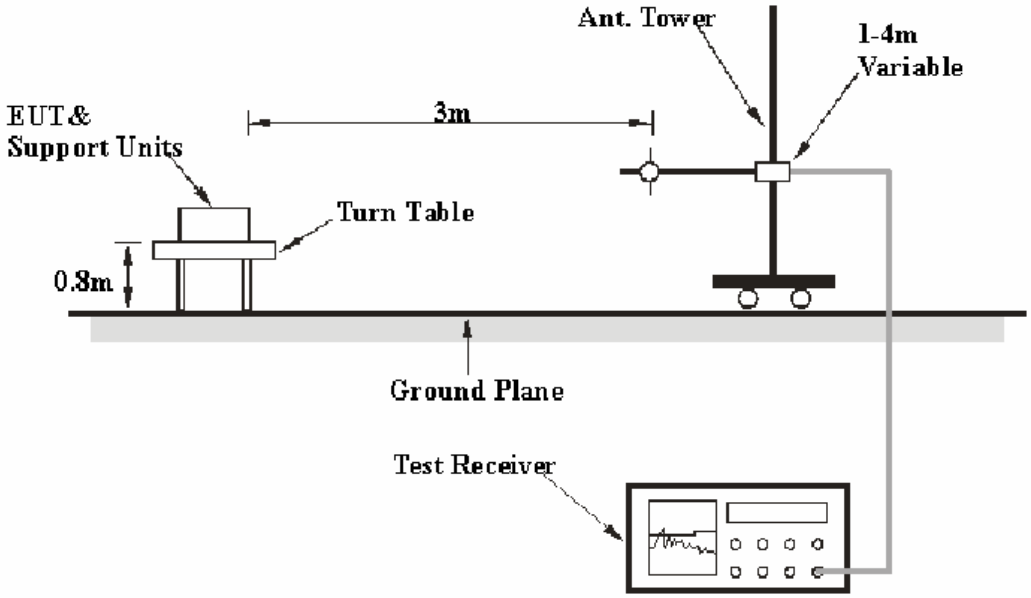
Below 1000MHz:

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

Above 1000MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) 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	2007-11-15	2008-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2008-08-14	2009-08-14
HP	Amplifier	8449B	3008A00277	2007-09-29	2008-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2008-09-25	2009-09-25
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-05-09	2009-05-09

*** 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:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - 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:

Margin = Limit – 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:

Transmitting Mode (Low Channel): 1.8 dB at 188.995050 MHz in the Vertical polarization.
Transmitting Mode (High Channel): 6.6 dB at 188.985000 MHz in the Vertical polarization.

Above 1G:

Transmitting Mode (Low Channel): 12.84 dB at 2724 MHz in the Horizontal polarization.
Transmitting Mode (High Channel): 11.64 dB at 2766 MHz in the Horizontal polarization.

Fundamental

Transmitting Mode (Low Channel): 23.83 dB at 902 MHz in the Vertical polarization.
Transmitting Mode (High Channel): 24.22 dB at 922 MHz in the Vertical polarization.

Test Data

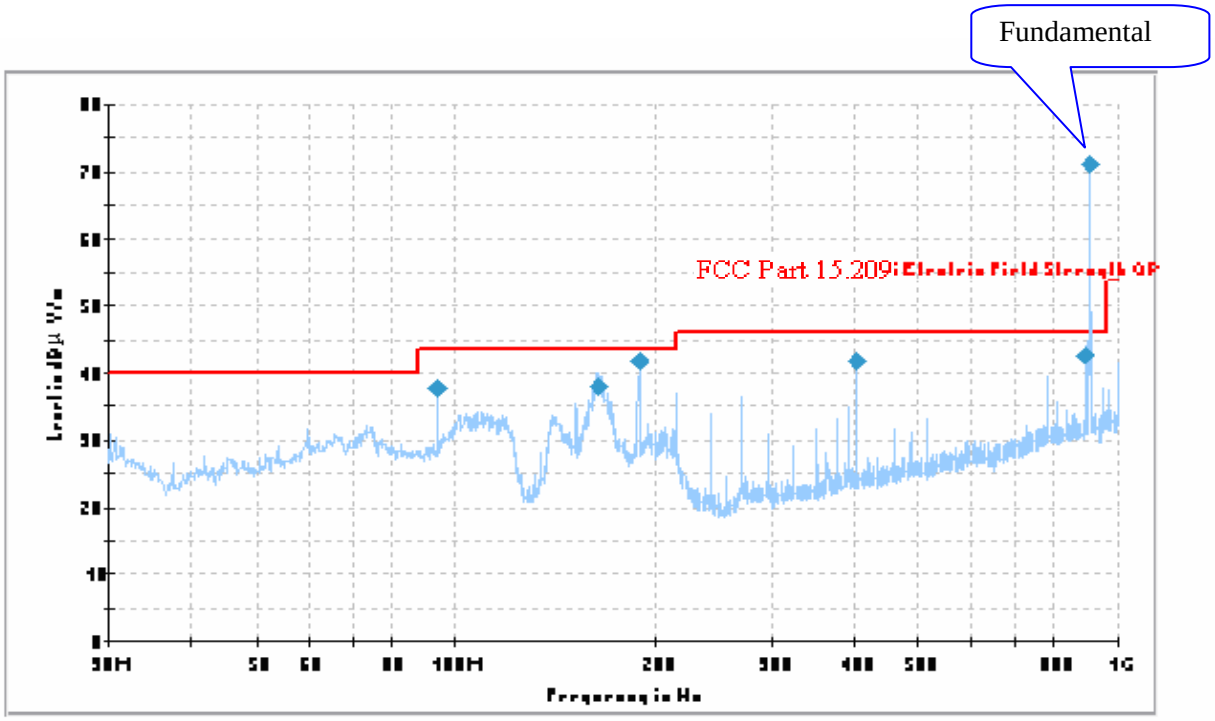
Environmental Conditions

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

The testing was performed by Herith Shi on 2008-09-24.

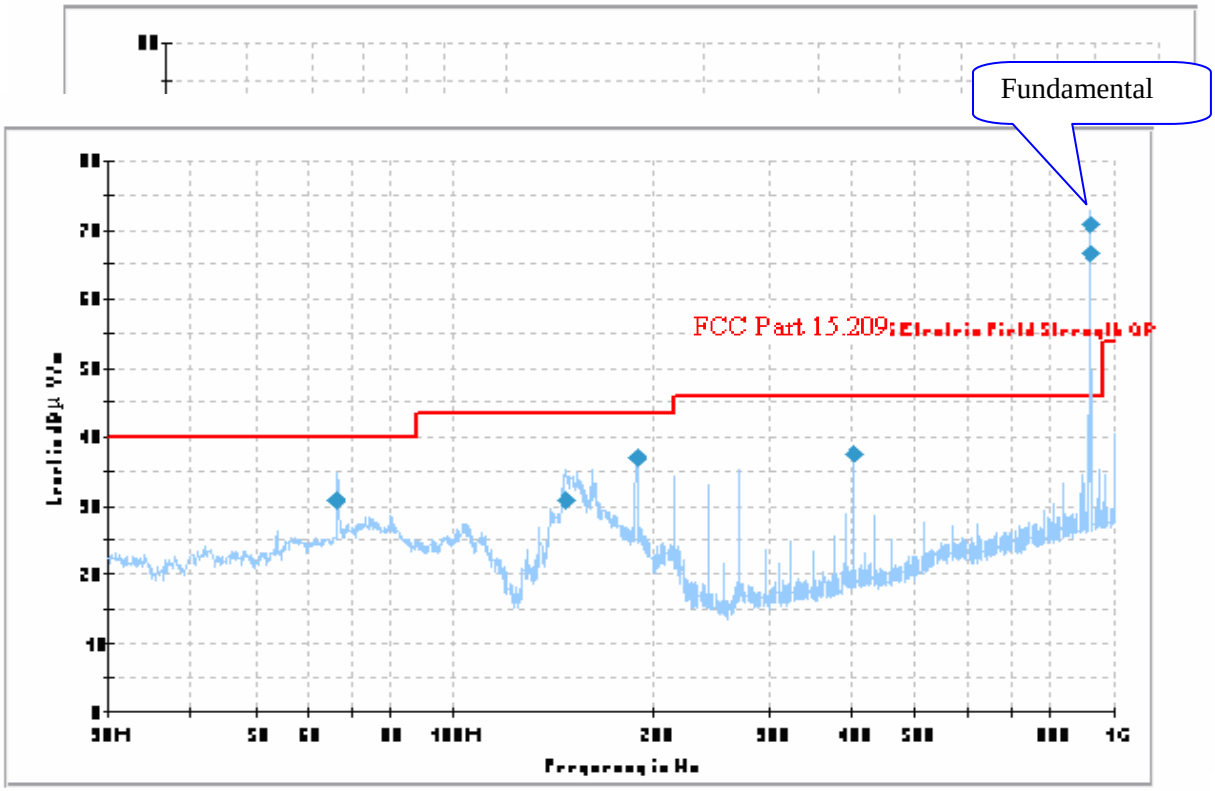
30-1000 MHz:

Test Mode: Transmitting (Low Channel)



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBμV/m)	Margin (dB)
188.995050	41.7	100.0	V	129.0	-17.2	43.5	1.8*
890.268300	42.5	100.0	V	6.0	0.0	46.0	3.5*
405.014100	41.6	136.0	V	124.0	-13.8	46.0	4.4
163.863225	38.1	99.0	V	261.0	-17.0	43.5	5.4
94.141875	37.7	99.0	H	242.0	0.1	43.5	5.8

* Within measurement uncertainty.



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
188.985000	36.9	107.0	V	224.0	-12.6	43.5	6.6
404.987625	37.6	143.0	V	161.0	-7.9	46.0	8.4
66.471600	30.7	106.0	V	226.0	-16.8	40.0	9.3
147.753175	30.6	106.0	V	121.0	-11.6	43.5	12.9

Above 1GHz:

Freq. (MHz)	Meter Reading (dBμV)	Detector PK/QP/AV	Direction Degree	Ant. Height (m)	Ant. Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Part 15.209/ 15.249	
										Limit (dBμV/m)	Margin (dB)
Low Channel											
1816	47.15	PK	145	1.1	V	28.8	5.99	34.20	47.74	74	26.26
1816	37.37	AV	145	1.1	V	28.8	5.99	34.20	37.96	54	16.04
2724	45.69	PK	121	1.5	V	30.9	7.90	33.80	50.69	74	23.31
2724	35.08	AV	121	1.5	V	30.9	7.90	33.80	40.08	54	13.92
3632	46.78	PK	30	1.3	V	32.2	5.77	33.70	51.05	74	22.95
3632	36.66	AV	30	1.3	V	32.2	5.77	33.70	40.93	54	13.07
1816	46.85	PK	70	1.2	H	28.3	5.99	34.20	46.94	74	27.06
1816	36.43	AV	70	1.2	H	28.3	5.99	34.20	36.52	54	17.48
2724	45.68	PK	160	1.6	H	32.1	7.90	33.80	51.88	74	22.12
2724	34.96	AV	160	1.6	H	32.1	7.90	33.80	41.16	54	12.84
3632	44.81	PK	185	1.7	H	33.5	5.77	33.70	50.38	74	23.62
3632	34.77	AV	185	1.7	H	33.5	5.77	33.70	40.34	54	13.66
High Channel											
1844	47.84	PK	180	1.0	V	28.8	5.99	34.20	48.43	74	25.57
1844	37.56	AV	180	1.0	V	28.8	5.99	34.20	38.15	54	15.85
2766	46.46	PK	130	1.5	V	30.9	7.90	33.80	51.46	74	22.54
2766	35.26	AV	130	1.5	V	30.9	7.90	33.80	40.26	54	13.74
3688	45.33	PK	350	1.3	V	32.2	5.77	33.70	49.6	74	24.4
3688	35.43	AV	350	1.3	V	32.2	5.77	33.70	39.7	54	14.3
1844	46.42	PK	170	1.5	H	28.3	5.99	34.20	46.51	74	27.49
1844	36.71	AV	170	1.5	H	28.3	5.99	34.20	36.8	54	17.2
2766	46.08	PK	60	1.6	H	32.1	7.90	33.80	52.28	74	21.72
2766	36.16	AV	60	1.6	H	32.1	7.90	33.80	42.36	54	11.64
3688	45.61	PK	180	1.8	H	33.5	5.77	33.70	51.18	74	22.82
3688	35.45	AV	180	1.8	H	33.5	5.77	33.70	41.02	54	12.98

Fundamental:

Freq. (MHz)	Meter Reading (dBμV)	Detector PK/QP/AV	Direction Degree	Ant. Height (m)	Ant. Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Part 15.249	
										Limit (dBμV/m)	Margin (dB)
Low Channel											
908	71.4	QP	170	1.5	V	20.40	3.92	25.55	70.17	94	23.83
908	69.8	QP	150	1.4	H	20.40	3.92	25.55	68.57	94	25.43
High Channel											
922	70.9	QP	90	1.5	V	20.50	3.96	25.58	69.78	94	24.22
922	68.7	QP	155	1.0	H	20.50	3.96	25.58	67.58	94	26.42

§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.

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2007-11-15	2008-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2008-08-14	2009-08-14
HP	Amplifier	8449B	3008A00277	2007-09-29	2008-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2008-09-25	2009-09-25

*** 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 Herith Shi on 2008-09-25.

Test Mode: Transmitting

Freq. (MHz)	Meter Reading (dBμV)	Detector PK/QP/AV	Direction Degree	Ant. Height (m)	Ant. Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Part 15.209/15.249	
										Limit (dBμV/m)	Margin (dB)
900.04	38.48	QP	80	1.5	H	20.40	3.88	25.46	37.3	46	8.7
928.11	34.86	QP	120	1.2	V	20.60	3.95	25.45	33.96	46	12.04

Note: Above test result is the worse case in all polarity direction (horizontal and vertical).

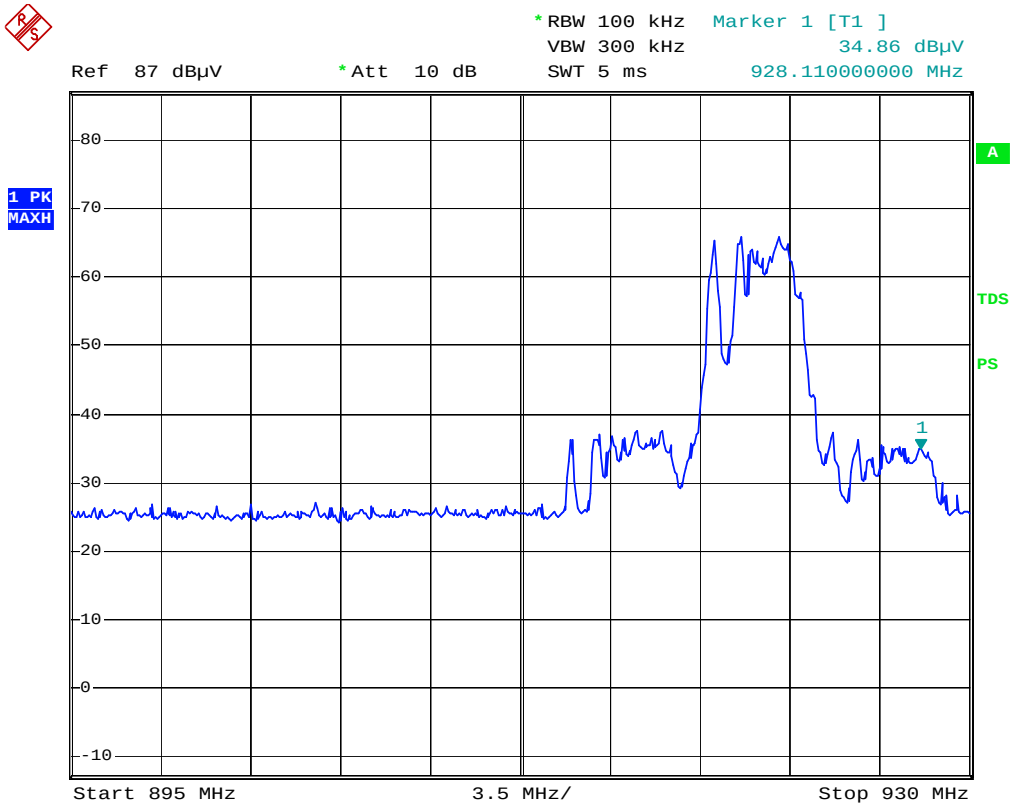
Please refer to below plots.

Low Band Edge

bandedge low channel

Date: 25.SEP.2008 13:29:40

High Band Edge



bandedge high channel

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