



NVLAP LAB CODE 200707-0



FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

INNCOM International, Inc

277 West Main Street Niantic, CT 06357, USA

FCC ID: GTC025010

Report Type: Original Report	Product Type: PC-502.2
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Report Number: <u>RSZ09112001</u>	
Report Date: <u>2009-12-30</u>	
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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)

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *INNCOM International, Inc*'s product, model number: *01-5010.2(FCC ID: GTC025010)* or the "EUT" as referred to in this report is a *PC-502.2*. The EUT is measured approximately 7.2 cm L x 4.5 cm W x 2.0 cm H. rated input voltage: DC 12V provided by E528.3G thermostat.

Operating frequency range: 2.405~2.475GHz

RF frequency of channel: $FC = 2405 + 5 (k-11)$ MHz, $k=11, 12, \dots, 25$ ($k=$ channel),

Number of channel:15

Modulation mode: DSSS

Maximum Of Transmit power: 10dBm

Data Rate: 250kbps.

**All measurement and test data in this report was gathered from production sample serial number: 0911047 (Assigned by BACL, Shenzhen). The EUT was received on 2009-11-20.*

Objective

This Type approval report is prepared on behalf of *INNCOM International, Inc* 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)

No related submitted(s).

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 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

Description of Test Configuration

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

EUT Exercise Software

N/A.

Equipment Modifications

No modification was made to the unit tested.

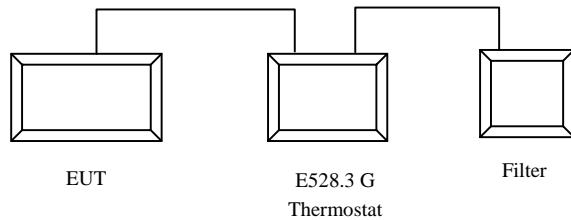
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
INNCOM	Digital Thermostat (E528.3G)	e4-8	N/A	N/A

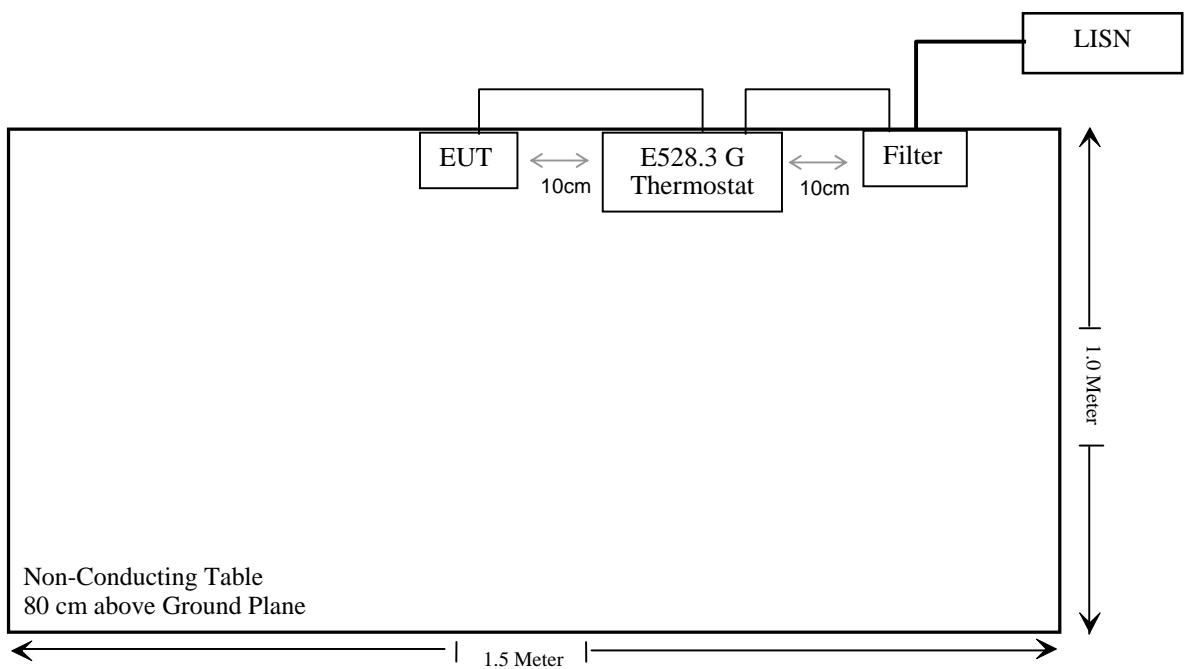
External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Detachable power Cable	0.30	E528.3G Thermostat	EUT
Unshielded Detachable power Cable	1.50	E528.3G Thermostat	AC Mains

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b)(1), §2.1091	Maximum Permissible exposure (MPE)	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a),	Conducted Emissions	Compliant
§15.247(d)	Spurious Emissions at Antenna Port	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions & Restricted Bands	Compliant
§15.247 (a)(2)	6 dB Bandwidth	Compliant
§15.247(b)(3)	Maximum Peak Output Power	Compliant
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Standard Applicable

According to subpart 15.247 (i) and subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mw/cm ²)	Averaging Time (Minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

Test Data

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where:

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally **numeric** gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Maximum peak output power at antenna input terminal: 8.38 (dBm)

Maximum peak output power at antenna input terminal: 6.89 (mW)

Predication distance: >20 (cm)

Predication frequency: 2475 (MHz)

Antenna Gain (typical): 1.0 (dBi)

Maximum Antenna Gain: 1.26 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.0017 (mW/cm²)

MPE limit for general population exposure at predication frequency: 1.0 (mW/cm²)

Result:

The predicted power density level at 20 cm is 0.0017 mw/cm², which is below the uncontrolled exposure limit of 1.0 mw/cm², The EUT is used at least 20 cm away from user's body. It is determined as mobile equipment and complies with the MPE limit.

FCC §15.203 - ANTENNA REQUIREMENT

Standard Applicable

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 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 has an integral antenna (component) on PCB, which complies with the Part 15.203. The antenna gain is 1.0 dBi. Please see EUT photo for details.

Result: Compliant.

FCC §15.207 (a) - CONDUCTED EMISSIONS

Applicable Standard

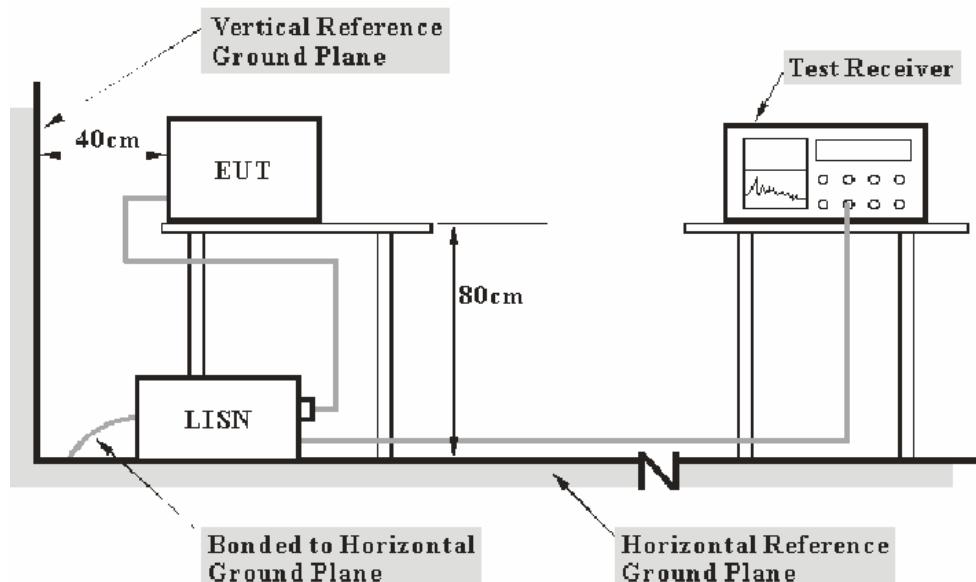
CFR47 §15.207

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 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 ± 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 filter 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2009-04-28	2010-04-27
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2009-04-28	2010-04-27

* **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 filter 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:

4.65 dB at 0.410 MHz in the **Line** conductor mode
7.41 dB at 0.170 MHz in the **Neutral** conductor mode

Test Data

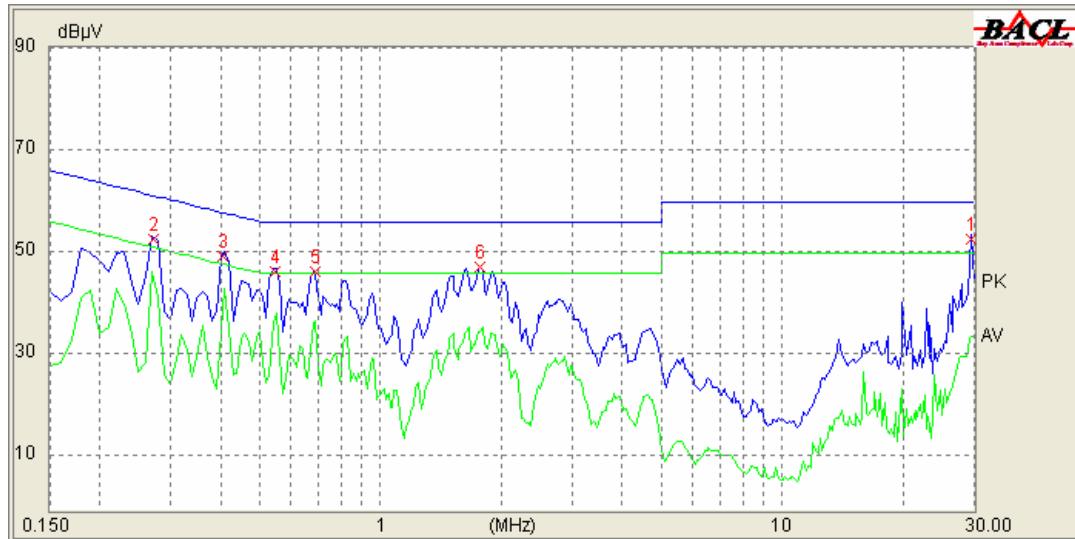
Environmental Conditions

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

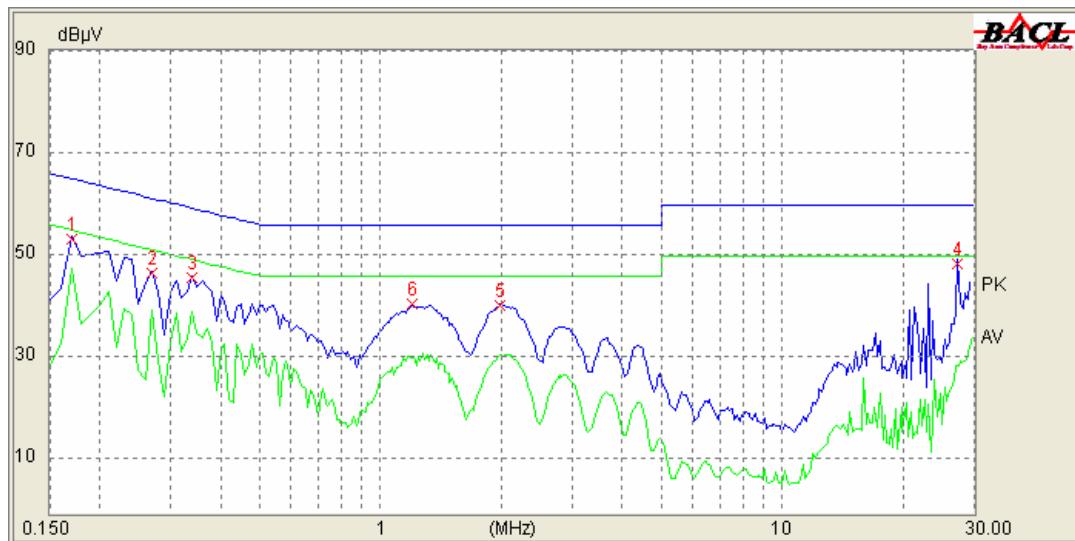
The testing was performed by Cookies Bu on 2009-12-25.

Test Mode: Transmitting

Line:



Conducted Emission			FCC Part 15.207		
Frequency (MHz)	Correct Factor (dB)	Cord. Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Remark
0.410	10.10	43.10	47.75	4.65	AV
0.270	10.10	46.38	51.16	4.78	AV
0.540	10.10	36.54	46.00	9.46	AV
0.680	10.10	36.36	46.00	9.64	AV
1.760	10.10	34.74	46.00	11.26	AV
29.410	10.30	33.46	50.00	16.54	AV
0.270	10.10	44.55	61.16	16.61	QP
0.540	10.10	37.62	56.00	18.38	QP
0.410	10.10	38.25	57.75	19.50	QP
29.550	10.30	37.41	60.00	22.59	QP
1.760	10.10	31.61	56.00	24.39	QP
0.680	10.10	31.27	56.00	24.73	QP

Neutral:

Conducted Emission			FCC Part 15.207		
Frequency (MHz)	Correct Factor (dB)	Cord. Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Remark
0.170	10.10	47.60	55.01	7.41	AV
0.340	10.10	39.01	49.29	10.28	AV
0.270	10.10	39.36	51.16	11.80	AV
0.170	10.10	51.04	65.01	13.97	QP
1.960	10.10	30.60	46.00	15.40	AV
0.270	10.10	45.32	61.16	15.84	QP
1.200	10.10	30.10	46.00	15.90	AV
0.340	10.10	42.55	59.29	16.74	QP
1.200	10.10	36.96	56.00	19.04	QP
1.970	10.10	36.53	56.00	19.47	QP
27.530	10.30	28.79	50.00	21.21	AV
27.420	10.30	32.80	60.00	27.20	QP

FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

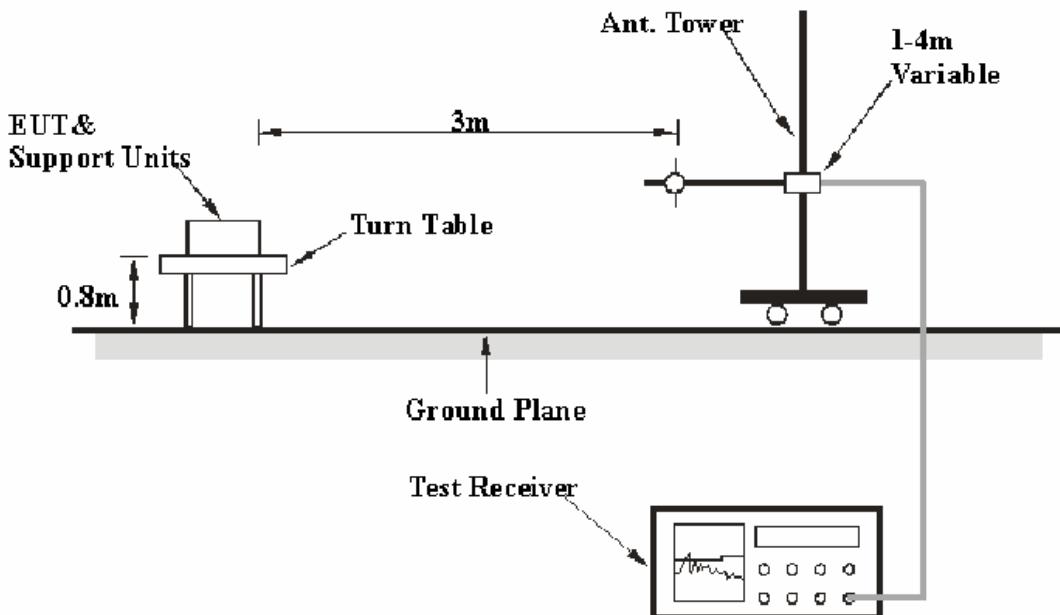
FCC §15.247 (d); §15.209; §15.205;

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.

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:

Frequency Range	RBW	Video B/W
30MHz – 1000 MHz	100 kHz	300 kHz
1000 MHz – 25 GHz	1 MHz	3 MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2009-08-02	2010-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-07	2010-11-06
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2009-03-11	2010-03-11
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	2010-07-08

*** 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, the host PC and monitor were 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-1GHz and peak and Average detection modes for frequencies above 1GHz.

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 recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.109, 15.209 and 15.247, with the worst margin reading of:

30 -1000 MHz:

6.1 dB at 907.122500 MHz in the **Horizontal** polarization

Above 1 GHz:

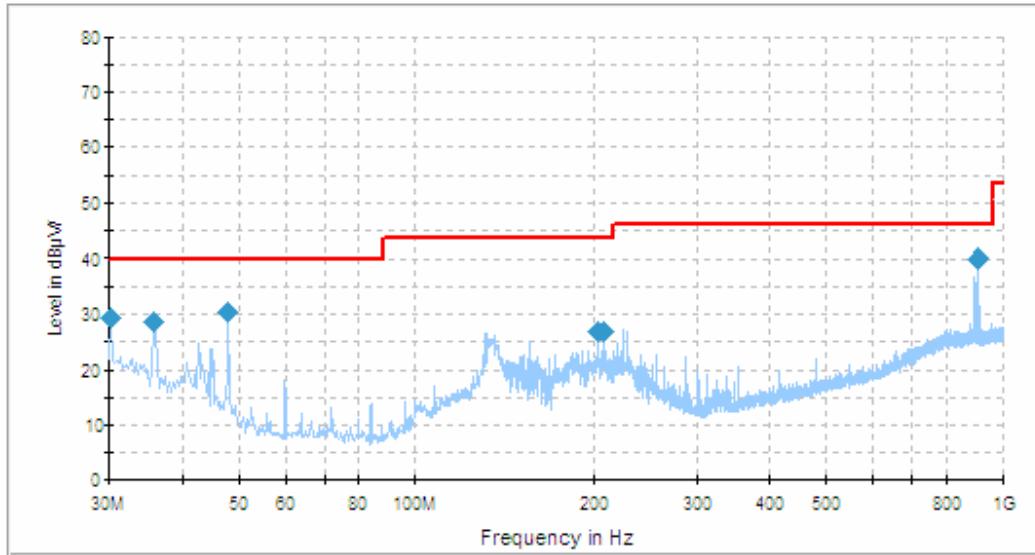
2.85 dB at 4810 MHz in the **Horizontal** polarization, Low Channel
8.32 dB at 4880 MHz in the **Horizontal** polarization, Middle Channel
6.31 dB at 4950 MHz in the **Horizontal** polarization, High Channel

Test Data

Environmental Conditions

Temperature:	24 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Cookies Bu on 2009-11-30 to 2009-12-18.

30-1000 MHz:*Test Mode: Transmitting*

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dB μ V/m)	Margin (dB)
907.122500	39.9	401.0	H	316.0	-0.6	46.0	6.1
47.945000	30.3	100.0	V	0.0	-17.9	40.0	9.7
30.242500	29.3	100.0	H	337.0	-6.1	40.0	10.7
35.820000	28.6	100.0	V	135.0	-10.4	40.0	11.4
203.872500	27.0	198.0	H	325.0	-14.8	43.5	16.5
207.995000	26.8	198.0	H	325.0	-15.2	43.5	16.7

Above 1 GHz:

Indicated		Detector (PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dB μ V/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Comment
Low Channel (2405 MHz)												
4810	40.99	AV	215	1.5	H	36.30	7.56	33.70	51.15	54	2.85*	Harmonic
2387.67	43.29	AV	132	1.0	H	30.90	7.90	33.90	48.19	54	5.81	Spurious
2389.67	43.28	AV	177	1.0	H	30.90	7.90	33.90	48.18	54	5.82	Spurious
2387.27	42.42	AV	182	1.2	H	30.90	7.90	33.90	47.32	54	6.68	Spurious
4810	36.67	AV	200	1.5	V	35.00	7.56	33.70	45.53	54	8.47	Harmonic
2310.32	40.85	AV	75	1.4	V	30.30	7.90	33.90	45.15	54	8.85	Spurious
2773.54	40.01	AV	329	1.1	V	30.90	7.90	33.80	45.01	54	8.99	Spurious
1152.26	41.13	AV	110	1.3	H	25.90	5.37	34.80	37.6	54	16.4	Spurious
4810	47.19	PK	215	1.5	H	36.30	7.56	33.70	57.35	74	16.65	Harmonic
2389.67	50.46	PK	177	1.0	H	30.90	7.90	33.90	55.36	74	18.64	Spurious
2389.67	50.46	PK	132	1.0	H	30.90	7.90	33.90	55.36	74	18.64	Spurious
2387.27	49.36	PK	182	1.2	H	30.90	7.90	33.90	54.26	74	19.74	Spurious
4810	43.77	PK	200	1.5	V	35.00	7.56	33.70	52.63	74	21.37	Harmonic
2773.54	47.12	PK	329	1.1	V	30.90	7.90	33.80	52.12	74	21.88	Spurious
2310.32	47.64	PK	75	1.4	V	30.30	7.90	33.90	51.94	74	22.06	Spurious
1152.26	48.34	PK	110	1.3	H	25.90	5.37	34.80	44.81	74	29.19	Spurious
Middle Channel (2440 MHz)												
4880	38.12	AV	177	1.8	H	36.30	7.56	36.30	45.68	54	8.32	Harmonic
4880	36.57	AV	360	1.9	V	35.00	7.56	33.70	45.43	54	8.57	Harmonic
2934.86	39.87	AV	0	1.0	V	31.00	8.07	33.80	45.14	54	8.86	Spurious
2570.14	39.36	AV	120	1.5	H	31.50	8.09	33.90	45.05	54	8.95	Spurious
2577.15	39.89	AV	322	1.0	V	30.60	8.09	33.90	44.68	54	9.32	Spurious
2731.46	36.24	AV	183	1.5	H	32.10	7.90	33.80	42.44	54	11.56	Spurious
4880	45.36	PK	177	1.8	H	36.30	7.56	36.30	52.92	74	21.08	Harmonic
4880	43.87	PK	360	1.9	V	35.00	7.56	33.70	52.73	74	21.27	Harmonic
2570.14	46.94	PK	120	1.5	H	31.50	8.09	33.90	52.63	74	21.37	Spurious
2934.86	46.78	PK	0	1.0	V	31.00	8.07	33.80	52.05	74	21.95	Spurious
2577.15	47.08	PK	322	1.0	V	30.60	8.09	33.90	51.87	74	22.13	Spurious
2731.46	43.43	PK	183	1.5	H	32.10	7.90	33.80	49.63	74	24.37	Spurious

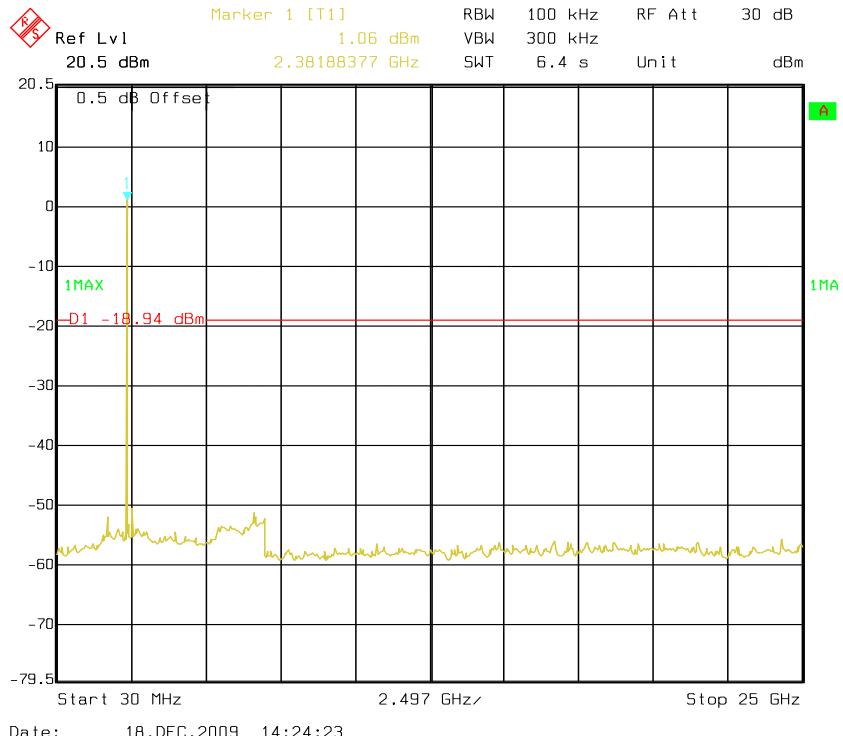
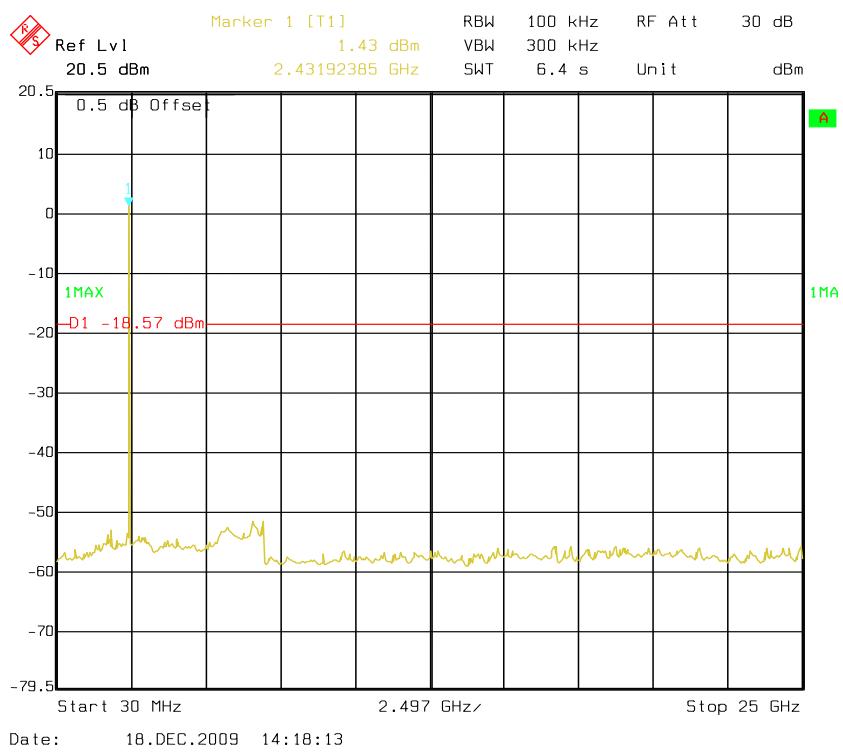
* Within measurement uncertainty.

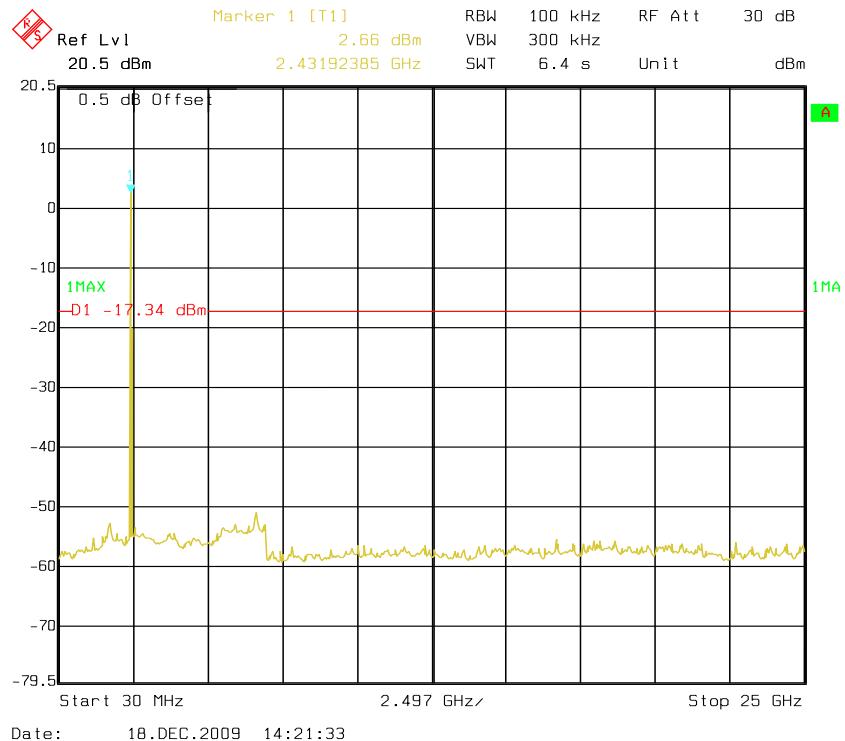
Indicated		Detector (PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dB μ V/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Comment
HighChannel (2475 MHz)												
4950	37.53	AV	173	1.5	H	36.30	7.56	33.70	47.69	54	6.31	Harmonic
3180.36	40.12	AV	91	1.3	H	32.90	8.07	33.80	47.29	54	6.71	Spurious
3159.31	39.87	AV	342	1.0	V	32.90	8.09	33.80	47.06	54	6.94	Spurious
2955.91	40.02	AV	360	1.7	H	32.60	8.07	33.80	46.89	54	7.11	Spurious
2486.17	41.25	AV	223	1.3	H	30.90	30.90	33.90	46.15	54	7.85	Spurious
4950	36.98	AV	70	1.2	V	35.00	7.56	33.70	45.84	54	8.16	Harmonic
2489.48	40.02	AV	152	1.0	V	30.30	7.90	33.90	44.32	54	9.68	Spurious
3180.36	47.80	PK	91	1.3	H	32.90	8.07	33.80	54.97	74	19.03	Spurious
4950	44.70	PK	173	1.5	H	36.30	7.56	33.70	54.86	74	19.14	Harmonic
2955.91	47.26	PK	360	1.7	H	32.60	8.07	33.80	54.13	74	19.87	Spurious
3159.31	46.91	PK	342	1.0	V	32.90	8.09	33.80	54.1	74	19.9	Spurious
2486.17	48.56	PK	223	1.3	H	30.90	30.90	33.90	53.46	74	20.54	Spurious
4950	44.18	PK	70	1.2	V	35.00	7.56	33.70	53.04	74	20.96	Harmonic
2489.48	47.26	PK	152	1.0	V	30.30	7.90	33.90	51.56	74	22.44	Spurious

Antenna Port Conducted Spurious Emissions

Channel Frequency (MHz)	Data Rate (kbps)	Delta Value (dBc)	Limit (dBc)	Ref. Plot	Result
2405	250	*	20	PLOT1	PASS
2440	250	*	20	PLOT2	PASS
2475	250	*	20	PLOT3	PASS

Please refer to the following plots.

Low Channel**Middle Channel**

High Channel

FCC §15.247(a) (2) – 6 dB BANDWIDTH TESTING

Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

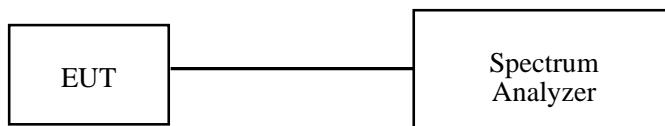
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-23

* **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 were attenuated 6 dB from the reference level. Record the frequency difference as the emission 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

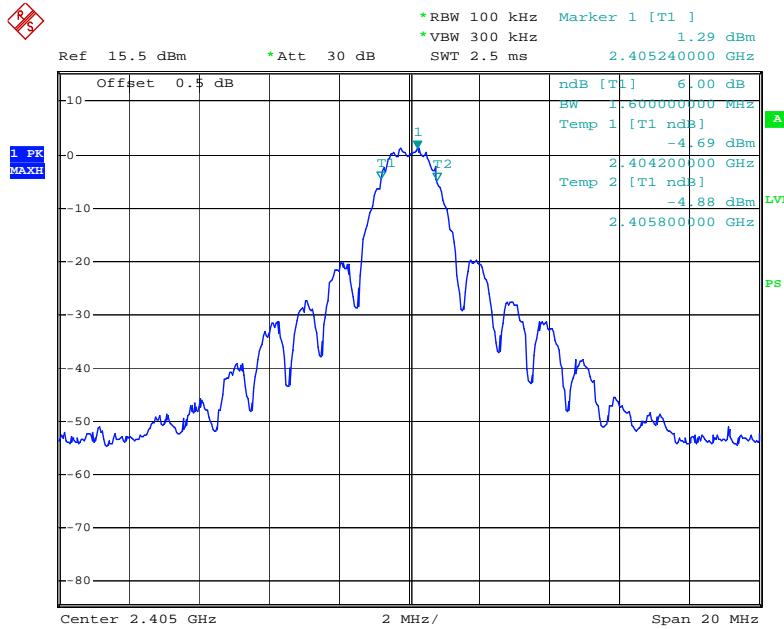
The testing was performed by Cookies Bu on 2009-12-18.

Test Result: Pass.

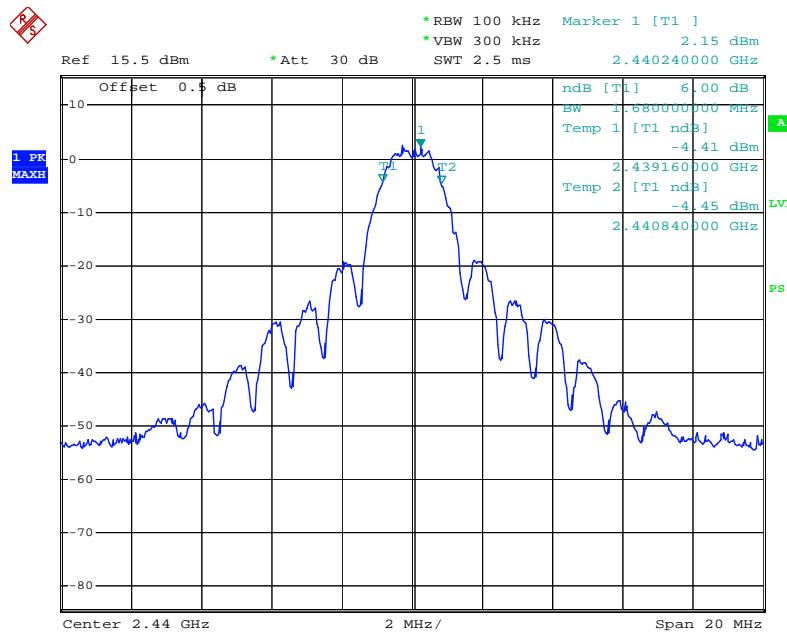
Please refer to the following tables and plots.

Channel	Channel Frequency (MHz)	Data Rate (kbps)	Measured 6 dB Bandwidth (MHz)	FCC Part 15.247 Limit (kHz)
Low	2405	250	1.60	> 500
Middle	2440	250	1.68	> 500
High	2475	250	1.60	> 500

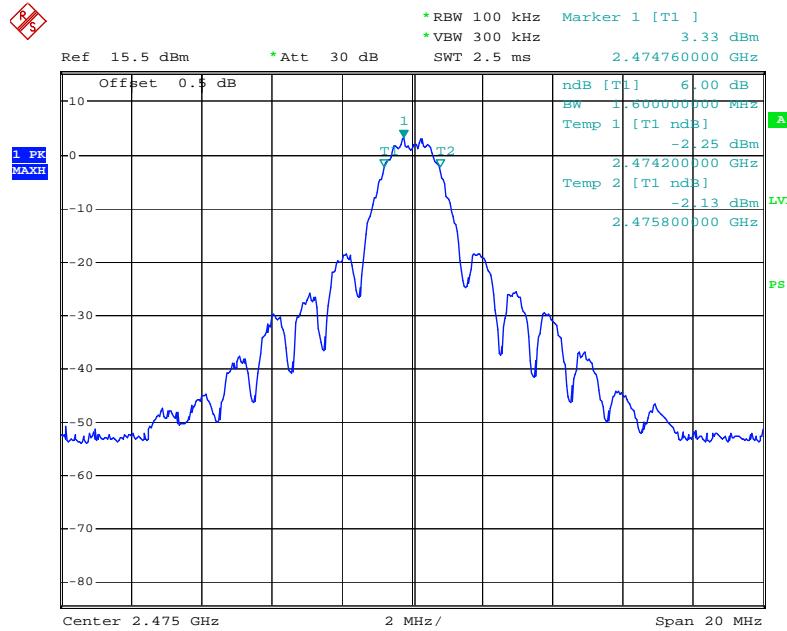
Low Channel



Date: 18.DEC.2009 17:20:31

Middle Channel

Date: 18.DEC.2009 17:21:20

High Channel

Date: 18.DEC.2009 17:19:57

FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

Applicable Standard

According to §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

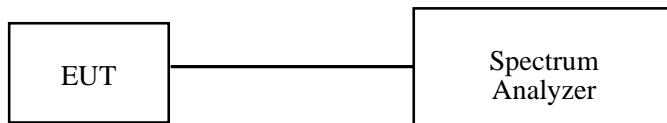
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-23

*** 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. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
3. Add a correction factor to the display.



Test Data

Environmental Conditions

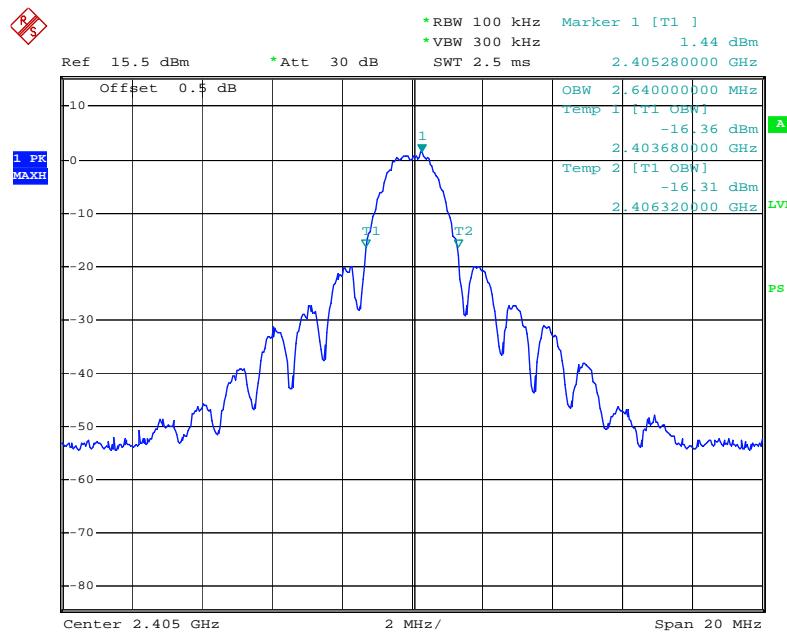
Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Cookies Bu on 2009-12-18.

Test Mode: Transmitting

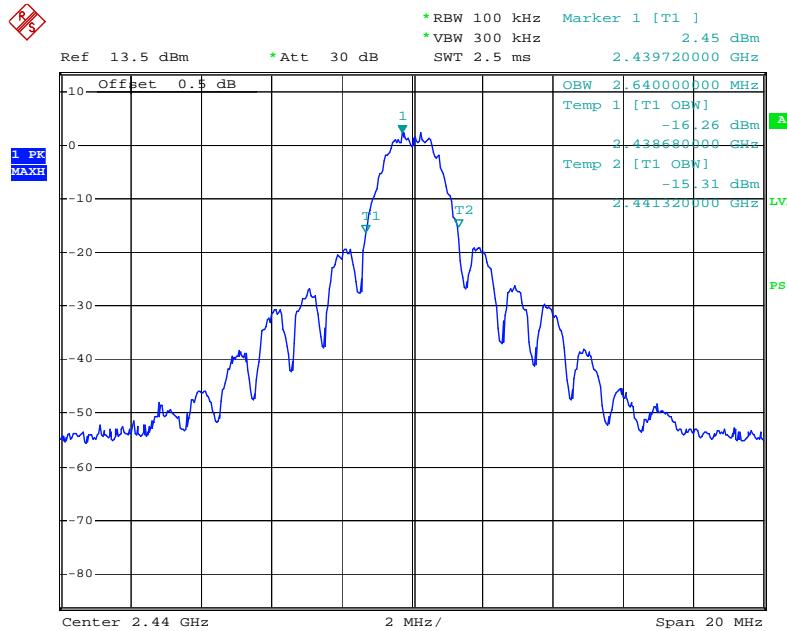
Channel	Channel Frequency (MHz)	Data Rate (kbps)	Output Power (dBm)	Limit (dBm)
Low	2405	250	6.71	30
Middle	2440	250	7.51	30
High	2475	250	8.38	30

99% Occupied Bandwidth, Low Channel



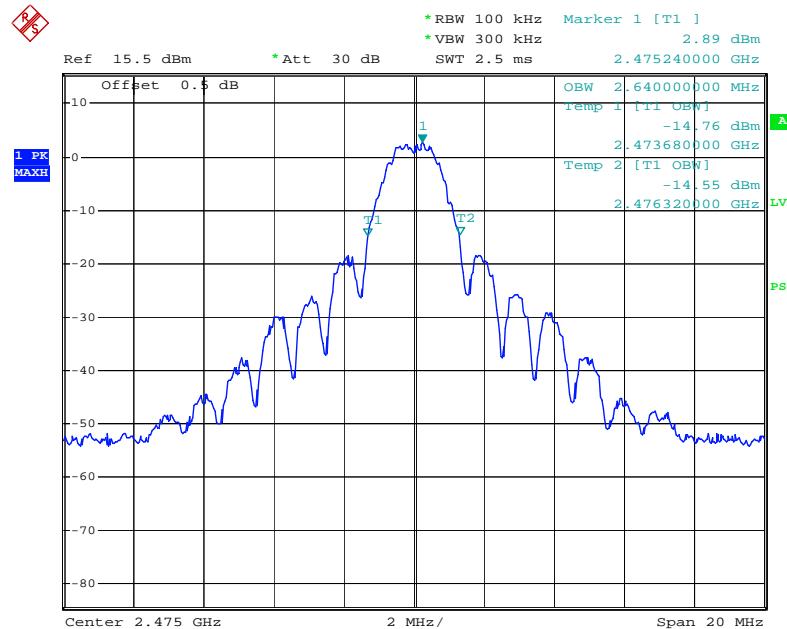
Date: 18.DEC.2009 15:51:59

99% Occupied Bandwith, Middle Channel

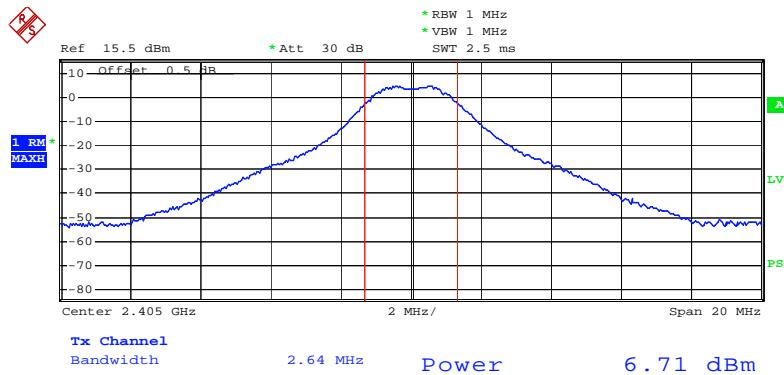


Date: 18.DEC.2009 15:08:53

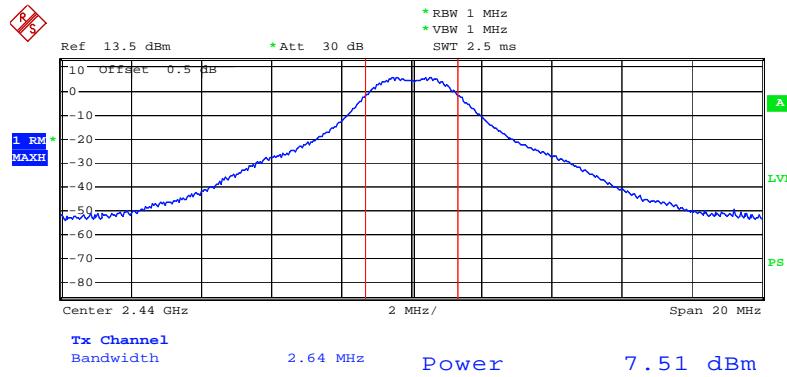
99% Occupied Bandwith, High Channel



Date: 18.DEC.2009 15:15:48

RF Output Power, Low Channel

Date: 18.DEC.2009 15:50:22

RF Output Power, Middle Channel

Date: 18.DEC.2009 15:12:56

RF Output Power, High Channel

Date: 18.DEC.2009 15:48:13

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-23

* **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 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 1 MHz and VBW of spectrum analyzer to 1 MHz 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 Data

Environmental Conditions

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

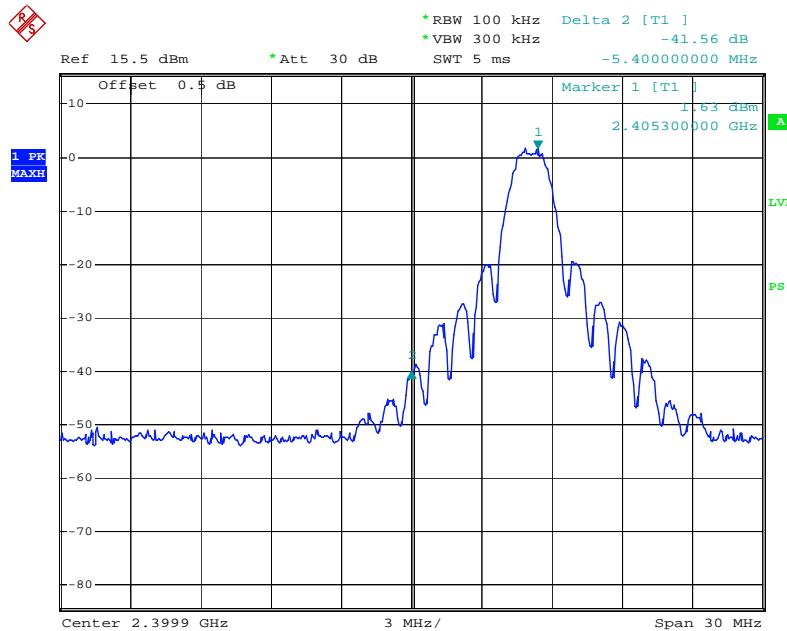
The testing was performed by Cookies Bu on 2009-12--18.

Test Result: *Compliant.*

Channel	Delta Value (dBc)	Limit (dBc)	Result
Low Channel	41.56	20	Pass
High Channel	55.22	20	Pass

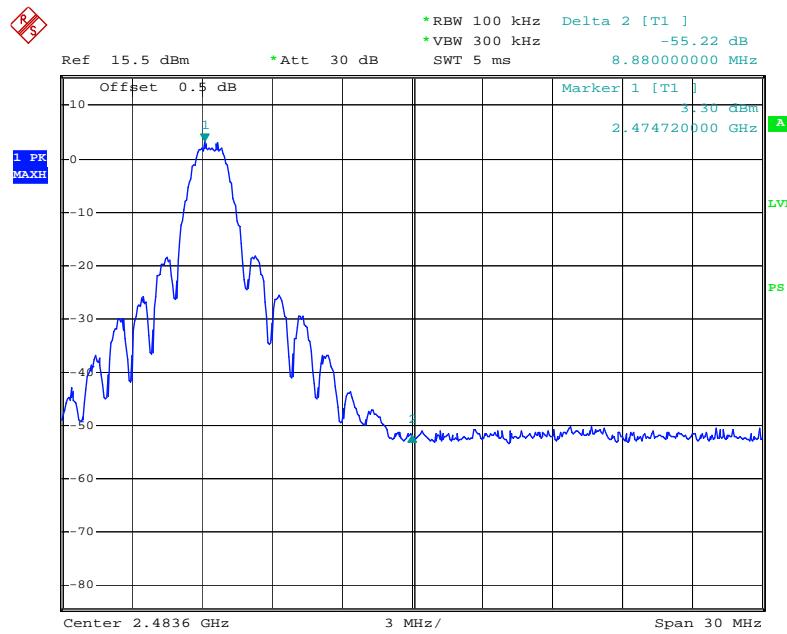
Please refer to following plots.

Band Edge, Left Side



Date: 18.DEC.2009 15:57:01

Band Edge, Right Side



Date: 18.DEC.2009 15:59:47

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2009-11-24	2010-11-23

* **Statement of Traceability:** Bay Area Compliance Lab 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 was set 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. Adjust the center frequency of SA on any frequency be measured and set SA to 1.5MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

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

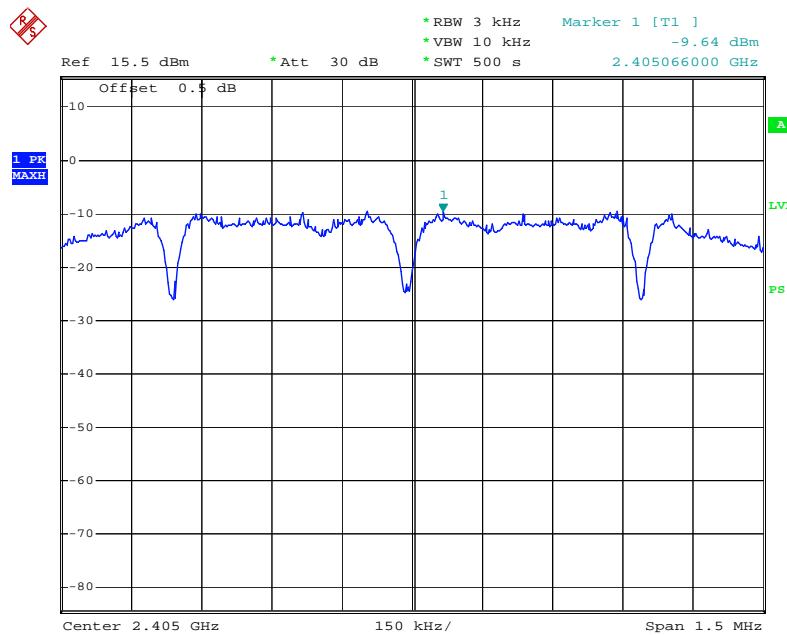
The testing was performed by Cookies Bu on 2009-12-18.

Test Mode: Transmitting

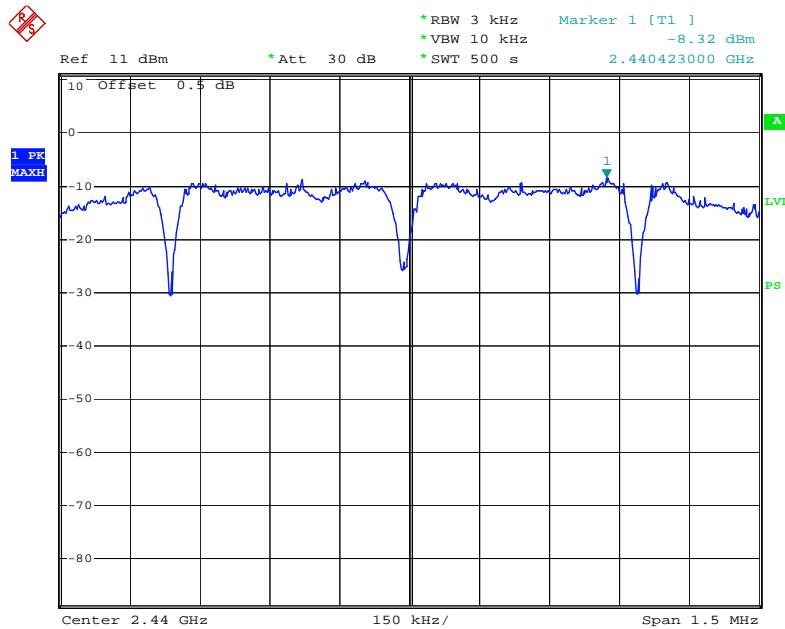
Test Result: Pass

Channel	Frequency (MHz)	Data Rate (kbps)	Power Spectral Density (dBm/3kHz)	Part 15.247 Limit (dBm/3kHz)	Result
Low	2405	250	-9.64	8	Pass
Middle	2440	250	-8.32	8	Pass
High	2475	250	-7.91	8	Pass

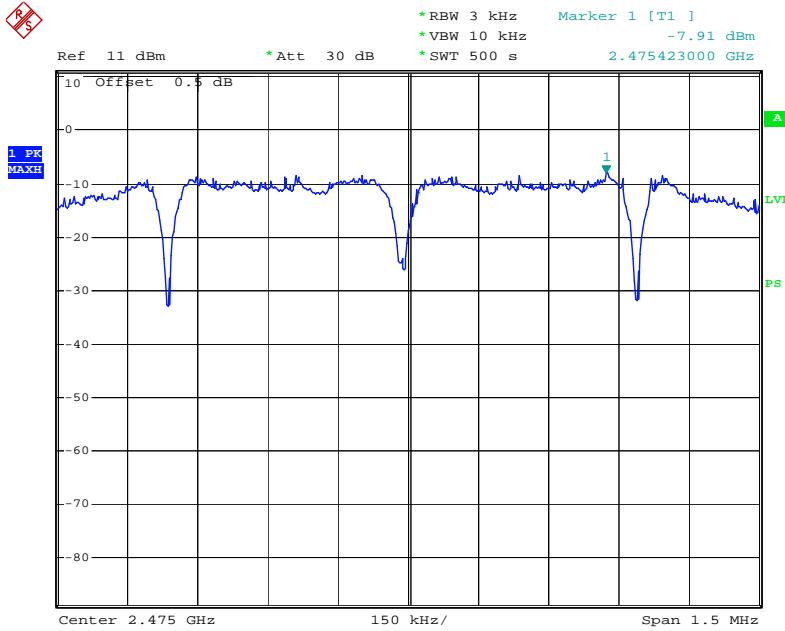
Power Spectral Density, Low Channel



Date: 18.DEC.2009 16:39:21

Power Spectral Density, Middle Channel

Date: 18.DEC.2009 16:58:22

Power Spectral Density, High Channel

Date: 18.DEC.2009 17:18:50

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