NVLAP LAB CODE 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

Summer Infant, Inc.

582 Great Road North Smithfield, Rhode Island 02896, United States

FCC ID: PZK280T
Model: 280T

Report Type:	**Product Type:**
Original Report	Slim & Secure Handheld Color Video Monitor

Test Engineer:	Kvass Yang
Report Number:	RSZ09062903
Report Date:	2009-07-13
Reviewed By:	Merry Zhao EMC Engineer
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 *Summer Infant, Inc.'s* product, model number: *280T (FCC ID: PZK280T) o*r the "EUT" as referred to in this report is a *Slim&Secure Handheld color video monitor,* which measures approximately: 9.0 cm L x 9.0 cm W x 15.4 cm H, rated input voltage: 7.5 VDC from adapter

Adapter information:
Model: AD150750500;
Input: AC 120V/60Hz 250 mA;
Output: DC 7.5V 500 mA.

**All measurement and test data in this report was gathered from production sample serial number: 0906094 (Assigned by BACL, Shenzhen). The EUT was received on 2009-06-29.*

Objective

This Type approval report is prepared on behalf of *Summer Infant, 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 Compliant with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

Receiver unit submission with FCC ID: PZK280R.

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 Compliant 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 Compliant 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 Compliant 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 Compliant 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).

Equipment Modifications

No modifications were made to the EUT.

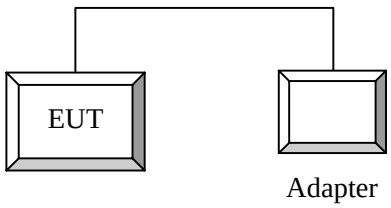
Lacal Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Summer	Slim & Secure Handheld color video monitor	280R	N/A	Verification

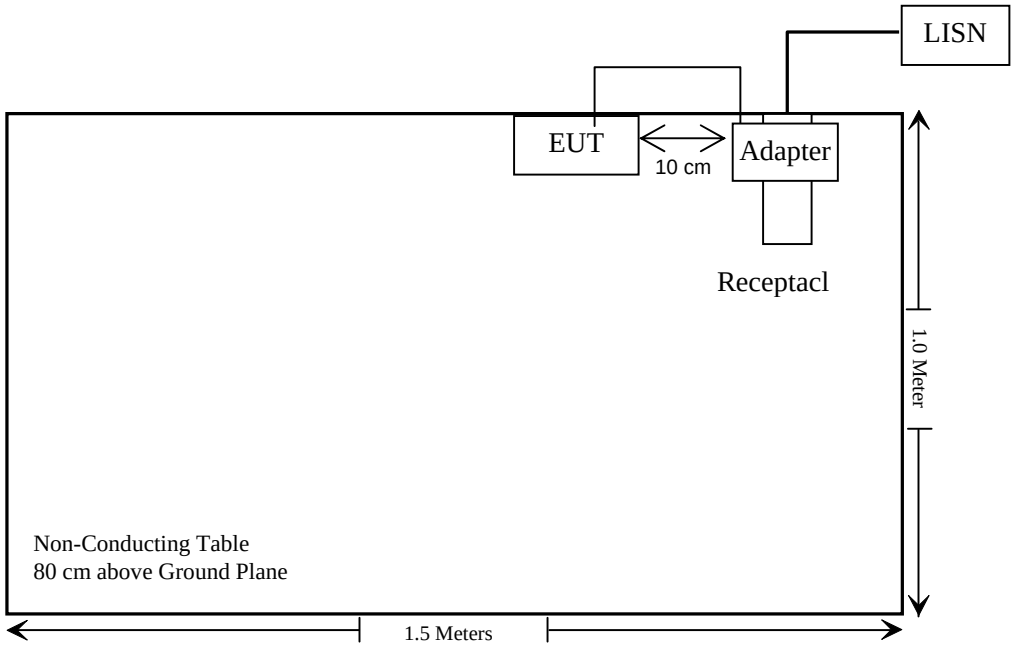
External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Undetachable Power Cable	3.6	EUT	Adapter

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i) & §2.1091	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Radiated Emissions	Compliant*
§15.247 (a)(1)	20 dB Bandwidth	Compliant
§15.247(a)(1)	Channel Separation Test	Compliant
§15.247(a)(1)(iii)	Time of occupancy (Dwell Time)	Compliant
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliant
§15.247(b)(1)	Peak Output Power Measurement	Compliant
§15.247(d)	Band Edges	Compliant

**Within Measurement Uncertainty*

§15.247 (i) & §2.1091 - RF EXPOSURE

Applicable Standard

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

According to §1.1310 and §2.1091 RF exposure is calculated.

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

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm_2)
P = output power to antenna
G= Antenna Gain
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Maximum peak output power at antenna input terminal (dBm):	5.91
Maximum peak output power at antenna input terminal (mW):	3.90
Prediction distance (cm):	20.0
Prediction frequency (MHz):	2408.625
Antenna Gain, typical (dBi):	0
Maximum Antenna Gain (numeric):	1.0
The worst case is power density at predication frequency at 20 cm (mW/cm^2):	0. 000776
MPE limit for general population exposure at prediction frequency (mW/cm^2):	1.0

Conclusion:

The highest power density level at 20 cm is 0.000776 mW/cm^2, which is below the uncontrolled exposure limit of 1.0 mW/cm^2 at 2408.625 MHz, the 20 cm safety distance has been addressed in the user manual.

CFR47 §15.203 - ANTENNA REQUIREMENT

Standard Applicable

According to CFR47 § 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 use of a standard antenna jack or electrical connector is prohibited.

Antenna Connector Construction

The EUT has a Itergral antenna. The maximum gain is 0 dBi; please refer to the internal photos.

Result: Compliant.

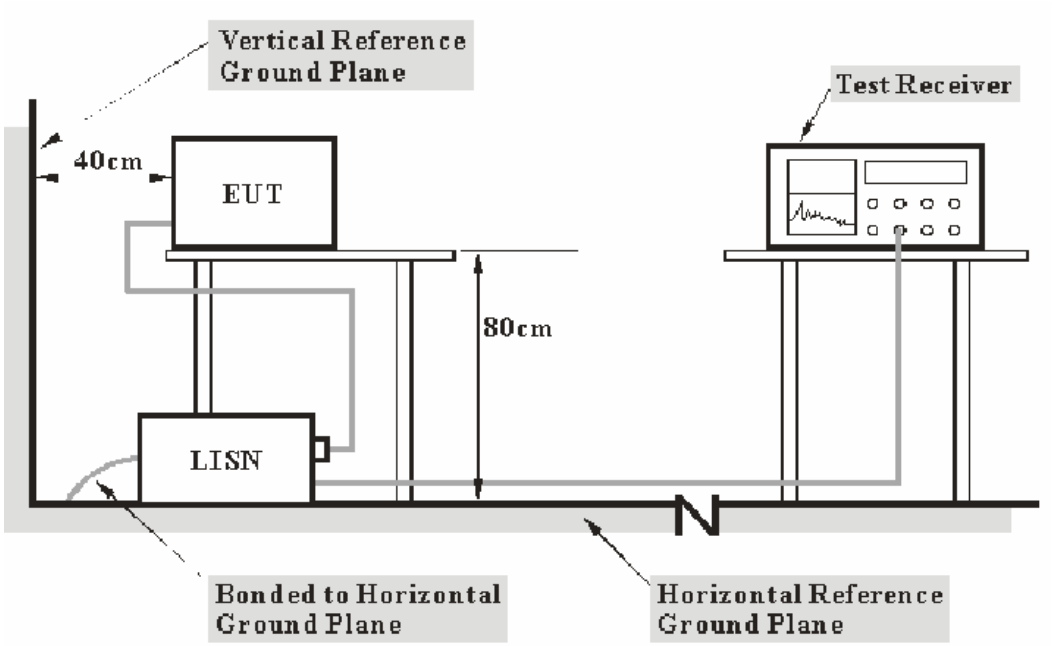
§15.207 (a) - CONDUCTED EMISSIONS

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 Compliant 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 spacing between the peripherals was 10 cm.

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

EMI Test Receiver Setup

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

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

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
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	830245/006	2009-04-28	2010-04-28
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2009-04-28	2010-04-28

***** Com-Power's LISN were used as the supporting equipment.
*** Statement of Traceability:** Bay Area Compliant 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, with the worst margin reading of:

3.60 dB at **0.155 MHz** in the **Line** conductor mode

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	54 %
ATM Pressure:	100.0 kPa

The testing was performed by Kvass Yang on 2009-07-11

Test Mode: Operation

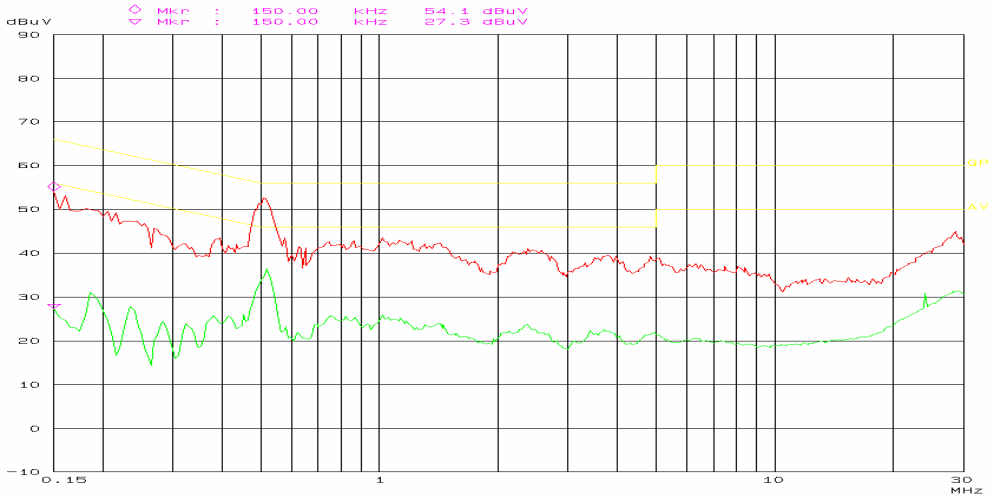
Line Conducted Emissions				FCC Part 15.207	
Frequency (MHz)	**Amplitude (dBµV)**	**Detector (QP/AV)**	**Conductor (Line/Neutral)**	**Limit (dBµV)**	**Margin (dB)**
0.515	52.40	QP	Line	56.00	3.60
0.185	60.00	QP	Line	64.30	4.30
0.515	50.20	QP	Neutral	56.00	5.80
0.150	58.50	QP	Neutral	66.00	7.50
0.180	56.50	QP	Neutral	64.50	8.00
0.515	36.40	AV	Line	46.00	9.60
0.150	54.10	QP	Line	66.00	11.90
1.020	43.50	QP	Line	56.00	12.50
0.515	32.80	AV	Neutral	46.00	13.20
1.000	41.00	QP	Neutral	56.00	15.00
28.785	44.90	QP	Line	60.00	15.10
28.160	44.20	QP	Neutral	60.00	15.80
28.440	32.00	AV	Neutral	50.00	18.00
28.455	31.00	AV	Line	50.00	19.00
1.020	25.90	AV	Line	46.00	20.10
1.000	25.60	AV	Neutral	46.00	20.40
8.115	37.60	QP	Neutral	60.00	22.40
6.335	37.60	QP	Line	60.00	22.40
0.180	31.90	AV	Neutral	54.50	22.60
0.185	31.10	AV	Line	54.30	23.20
0.150	27.30	AV	Line	56.00	28.70
8.115	21.10	AV	Neutral	50.00	28.90
6.355	20.60	AV	Line	50.00	29.40
0.150	26.50	AV	Neutral	56.00	29.50

Plot(s) of Test Data

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

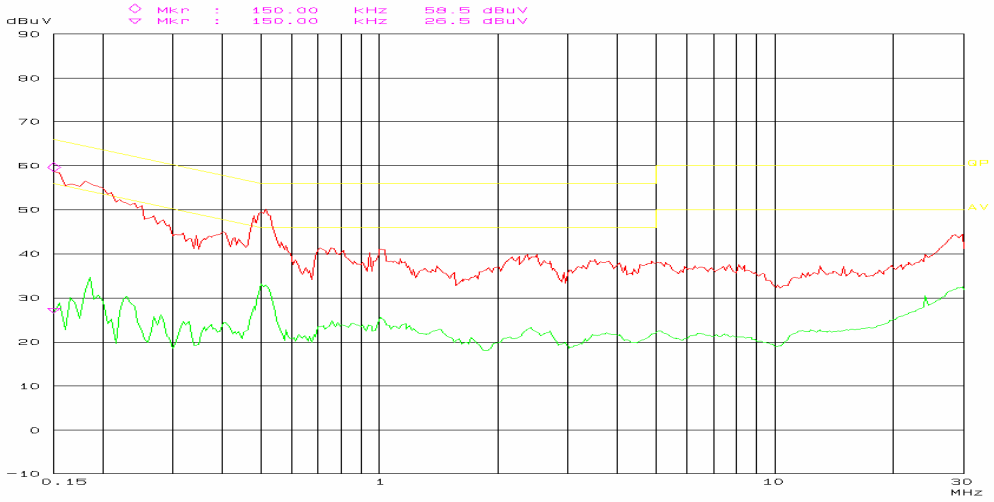
Conducted Emission
FCC Part 15

EUT:	Slim&Secure Handheldcolor video monitor
Manuf:	Summer Infant Inc M/N: 280T
Op Cond:	Operation
Operator:	kvass
Test Spec:	AC 120V/60Hz L
Comment:	Temp: 25 Hum: 54%
	BACL



Conducted Emission
FCC Part 15

EUT:	Slim&Secure Handheldcolor video monitor
Manuf:	Summer Infant Inc M/N: 280T
Op Cond:	Operation
Operator:	kvass
Test Spec:	AC 120V/60Hz N
Comment:	Temp: 25 Hum: 54%
	BACL



CFR47 §15.205, §15.209, §15.247 - RADIATED EMISSIONS

Applicable Standard

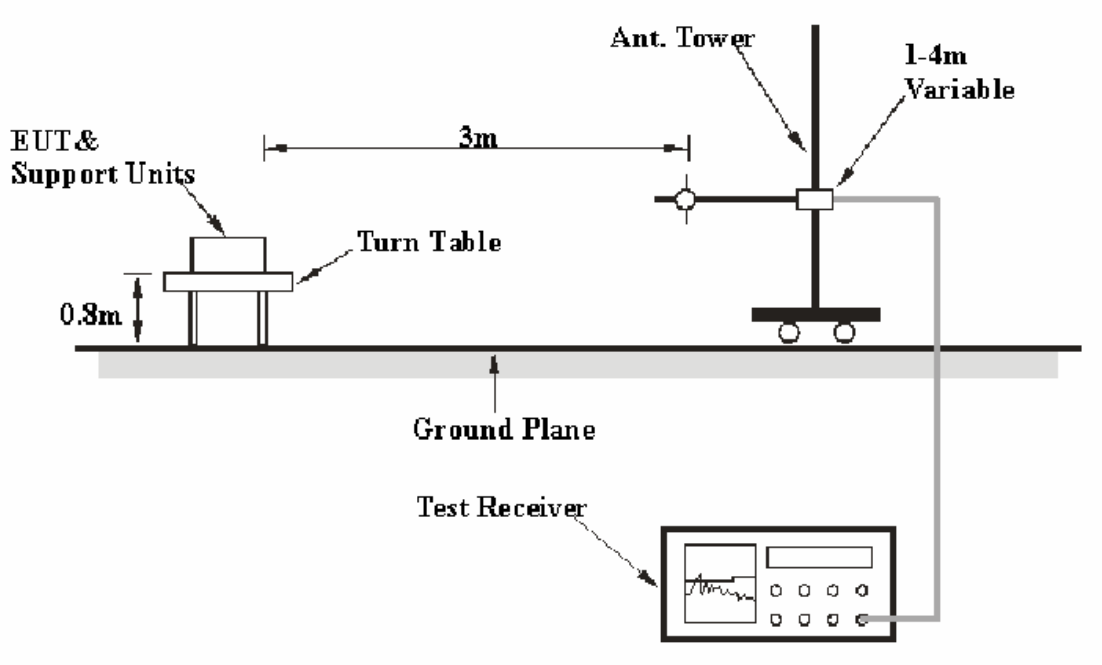
CFR47 §15.205; §15.209; §15.247 (d).

Measurement Uncertainty

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

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliant 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 15.109, 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 120VAC/60Hz power supply.

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***
30 MHz – 1000 MHz	100 kHz	300 kHz
1000 MHz – 25 GHz:	Peak: 1 MHz	3 MHz
	Average: 1MHz	10Hz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2008-08-02	2009-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2009-03-11	2010-03-11
HP	Amplifier	8449B	3008A00277	2008-09-12	2009-09-11
Sunol Sciences	Horn Antenna	DRH-118	A052604	2009-05-05	2010-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-08-28	2009-08-27

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

Test Procedure

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

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

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

Corrected Amplitude & Margin Calculation

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

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

The "**Margin**" column of the following data tables indicates the degree of Compliant with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit for Class B. The equation for margin calculation is as follows:

Margin = Limit – 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, 15.209, and 15.247, with the worst margin reading of:

Below 1 GHz:

0.6 dB at **240.023675 MHz** in the **Horizontal** polarization

Above 1 GHz:

2.49 dB at **7225.875 MHz** in the **Horizontal** polarization **(Low Channel)**
5.26 dB at **9756.000 MHz** in the **Horizontal** polarization **(Middle Channel)**
3.87 dB at **9877.500 MHz** in the **Horizontal** polarization **(High Channel)**

Test Data

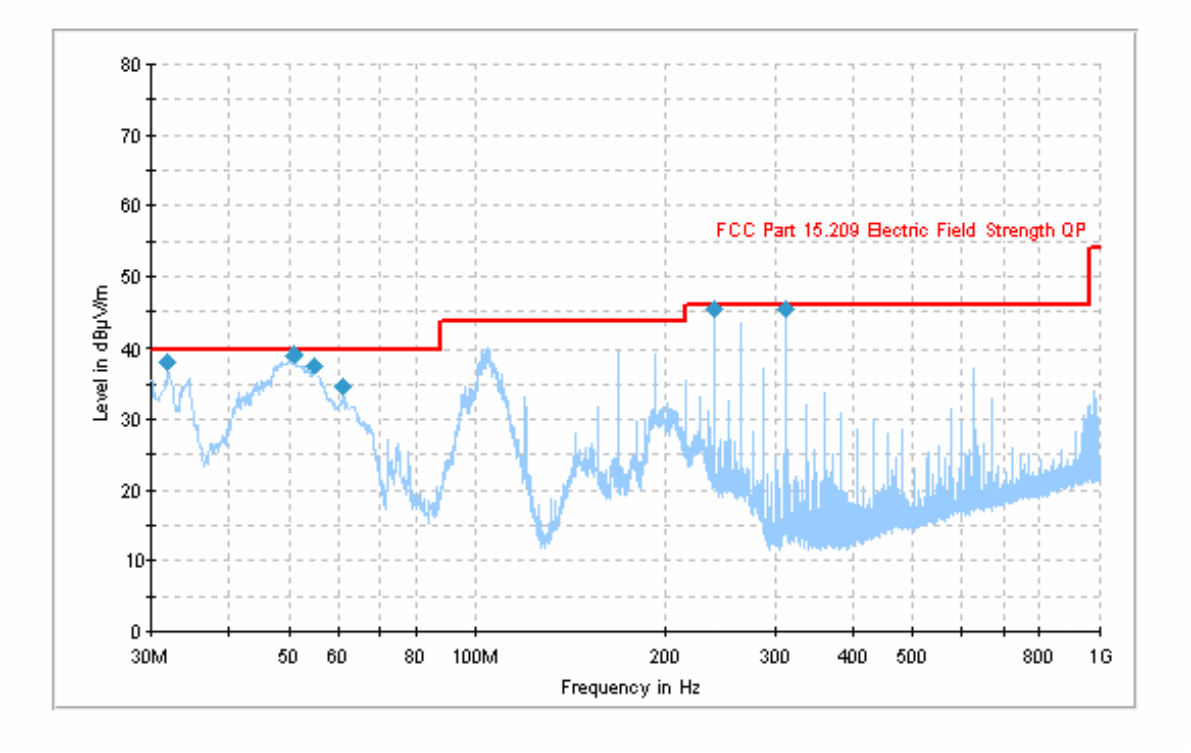
Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	54 %
ATM Pressure:	100.0 kPa

The testing was performed by Kvass Yang on 2009-07-09.

Test Mode: Transmitting

Below 1 GHz:



Frequency (MHz)	Corrected Amp. (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
240.023675	45.4	144.0	H	166.0	-16.1	46.0	0.6*
312.027950	45.2	107.0	H	65.0	-13.9	46.0	0.8*
50.941275	38.9	111.0	V	25.0	-20.4	40.0	1.1*
31.985625	38.2	108.0	H	12.0	-9.9	40.0	1.8*
54.976025	37.6	111.0	V	25.0	-21.3	40.0	2.4*
60.869025	34.7	151.0	V	13.0	-21.7	40.0	5.3

**Within Measurement Uncertainty*

Test Mode: Transmitting (Above 1GHz)

Freq. (MHz)	S.A. Reading (dBµV)	Detector PK/QP/AV	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Corr. Amp. (dBuV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	Remarks
Frequency in Low Channel (2408.625 MHz)												
7225.875	36.76	AV	268	1.6	H	39.2	9.15	33.6	51.51	54	2.49*	harmonic
9634.500	33.49	AV	360	1.6	V	40.1	10.79	34.0	50.38	54	3.62*	harmonic
9634.500	31.56	AV	149	1.8	H	41.4	10.79	34.0	49.75	54	4.25	harmonic
4817.250	37.73	AV	270	1.6	H	36.3	7.56	33.7	47.89	54	6.11	harmonic
7225.875	31.58	AV	263	1.8	V	38.0	9.15	33.6	45.13	54	8.87	harmonic
4817.250	34.24	AV	180	1.6	V	35.0	7.56	33.7	43.10	54	10.90	harmonic
9634.500	46.01	PK	358	1.3	V	40.1	10.79	34.0	62.90	74	11.10	harmonic
9634.500	44.27	PK	230	1.8	H	41.4	10.79	34.0	62.46	74	11.54	harmonic
7225.875	45.73	PK	168	1.6	H	39.2	9.15	33.6	60.48	74	13.52	harmonic
7225.875	46.10	PK	268	1.6	V	38.0	9.15	33.6	59.65	74	14.35	harmonic
4817.250	48.90	PK	49	1.2	H	36.3	7.56	33.7	59.06	74	14.94	harmonic
4817.250	50.08	PK	250	1.0	V	35.0	7.56	33.7	58.94	74	15.06	harmonic
Frequency in Middle Channel (2439 MHz)												
9756.000	30.54	AV	270	1.6	H	41.4	10.8	34.0	47.52	54	5.26	harmonic
9756.000	30.52	AV	180	1.6	V	40.2	10.8	34.0	47.2	54	6.48	harmonic
7317.000	32.45	AV	261	1.0	H	39.2	9.15	33.6	47.07	54	6.80	harmonic
7317.000	33.52	AV	90	1.2	V	38.0	9.15	33.6	46.20	54	6.93	harmonic
4878.000	36.04	AV	270	1.6	H	36.3	7.56	33.7	45.87	54	7.80	harmonic
4878.000	37.01	AV	273	1.8	V	35.0	7.56	33.7	61.75	54	8.13	harmonic
9756.000	44.97	PK	250	1.0	V	40.2	10.8	34.0	60.28	74	12.03	harmonic
9756.000	43.55	PK	49	1.2	H	41.4	10.8	34.0	61.97	74	12.25	harmonic
7317.000	45.53	PK	180	1.3	H	39.2	9.15	33.6	58.71	74	13.72	harmonic
4878.000	49.51	PK	49	1.2	H	36.3	7.56	33.7	57.19	74	14.33	harmonic
7317.000	45.16	PK	180	1.0	V	38.0	9.15	33.6	59.67	74	15.29	harmonic
4878.000	48.33	PK	273	1.8	V	35.0	7.56	33.7	47.52	74	16.81	harmonic
Frequency in High Channel (2469.375 MHz)												
9877.500	31.48	AV	149	1.8	H	41.5	10.95	33.8	50.13	54	3.87*	harmonic
9877.500	31.46	AV	360	1.6	V	40.3	10.95	33.8	48.91	54	5.09	harmonic
7408.125	33.39	AV	268	1.6	H	39.4	9.17	33.6	48.36	54	5.64	harmonic
7408.125	34.01	AV	263	1.8	V	38.1	9.17	33.6	47.68	54	6.32	harmonic
4938.750	36.53	AV	270	1.6	H	36.4	7.8	33.7	47.03	54	6.97	harmonic
4938.750	37.50	AV	180	1.6	V	35.2	7.8	33.7	46.80	54	7.20	harmonic
9877.500	45.39	PK	358	1.3	V	40.3	10.95	33.8	62.84	74	11.16	harmonic
9877.500	44.04	PK	250	1.4	H	41.5	10.95	33.8	62.69	74	11.31	harmonic
7408.125	45.95	PK	168	1.3	H	39.4	9.17	33.6	60.92	74	13.08	harmonic
4938.750	50.24	PK	49	1.6	H	36.4	7.8	33.7	60.74	74	13.26	harmonic
7408.125	45.58	PK	268	1.5	V	38.1	9.17	33.6	59.25	74	14.75	harmonic
4938.750	49.06	PK	250	1.4	V	35.2	7.8	33.7	58.36	74	15.64	harmonic

Spurious emissions in Restrict Band

Freq. (MHz)	S.A. Reading (dBµV/m)	Detector PK/QP/AV	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.247/209	
				Height (m)	Height (m)	Height (m)				Limit (dBµV/m)	Margin (dB)
2389.24	41.61	AV	350	1.80	H	30.50	7.65	33.90	45.86	54	8.14
2389.25	41.39	AV	125	1.70	H	30.54	7.63	33.90	45.66	54	8.34
2484.74	40.49	AV	138	1.50	V	30.52	8.01	33.90	45.12	54	8.88
2486.32	40.27	AV	232	1.68	V	30.51	8.04	33.90	44.92	54	9.08
2484.74	46.39	PK	138	1.50	V	30.52	8.01	33.90	51.02	74	22.98
2486.32	46.22	PK	120	1.70	V	30.51	8.04	33.90	50.87	74	23.13
2389.24	44.92	PK	350	1.80	H	30.50	7.65	33.90	49.17	74	24.83
2389.25	44.75	PK	232	1.68	H	30.54	7.63	33.90	49.02	74	24.98

**Within Measurement Uncertainty*

CFR47 §15.247(a) (1)-CHANNEL SEPARATION TEST

Applicable Standard

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06

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

Test Procedure

1. Set the EUT in transmitting mode, spectrum Bandwidth was set at 100 kHz, maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another truce
3. Measure the channel separation.

Frequency Range (MHz)	Limit (kHz)
902-928	>25kHz or the 20 dB bandwidth
2400-2483.5	>25kHz or two-thirds of the 20dB bandwidth
5725-5850	>25kHz or the 20dB bandwidth

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.8 kPa

The testing was performed by Kvass Yang on 2009-07-14.

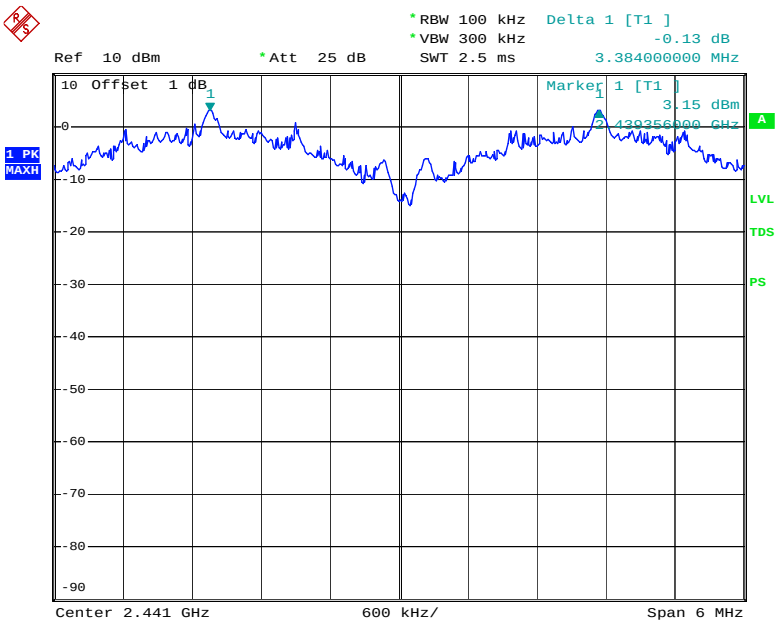
Test Mode: Transmitting

Channel	Channel Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
Low Channel	2408.625	3.384	2.253	Pass
Adjacent Channel	2412.000			
Mid Channel	2439.000	3.384	2.267	Pass
Adjacent Channel	2442.375			
High Channel	2469.375	3.384	2.293	Pass
Adjacent Channel	2466.000			

Test Result: Compliant.

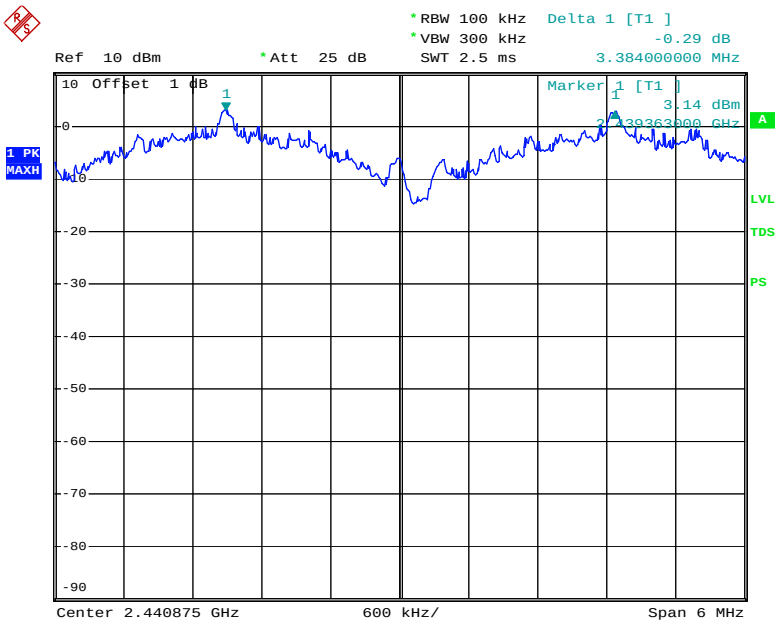
Please refer to following plots

Low Channel



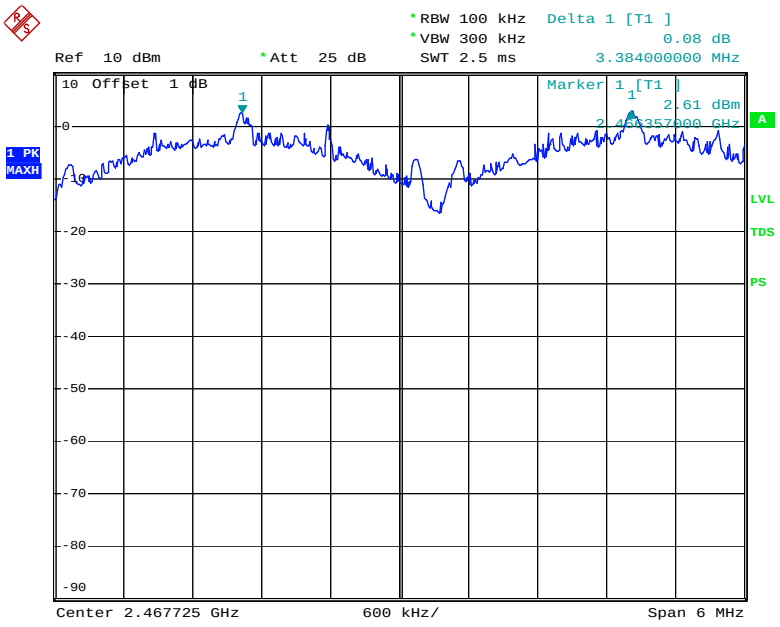
Date: 14.JUL.2009 06:58:29

Middle Channel



Date: 14.JUL.2009 06:59:38

High Channel



Date: 14.JUL.2009 07:01:08

CFR47 §15.247(a) (1) – 20dB BANDWIDTH TESTING

Applicable Standard

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06

*** Statement of Traceability:** Bay Area Compliant 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 20 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:	100.8 kPa

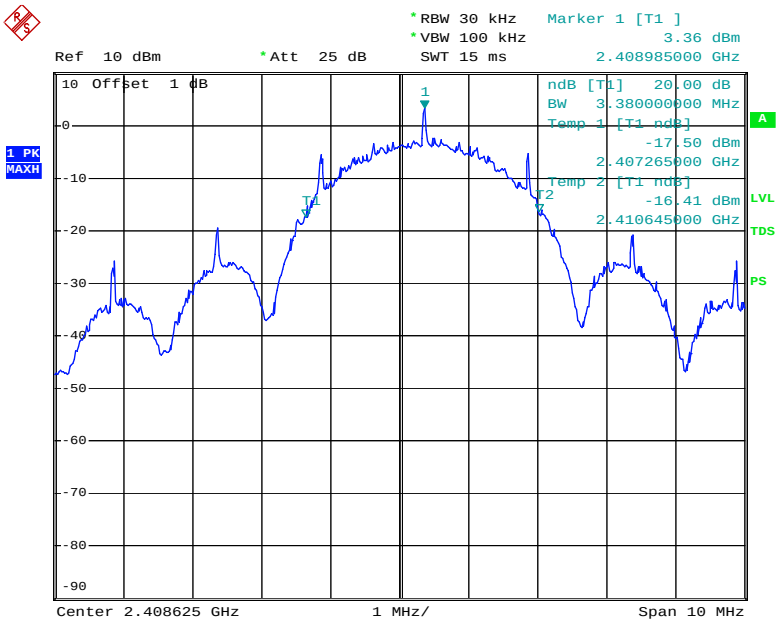
The testing was performed by Kvass Yang on 2009-07-14.

Test Mode: Transmitting

Channel	Channel Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2408.625	3.380
Middle	2439.000	3.400
High	2469.375	3.440

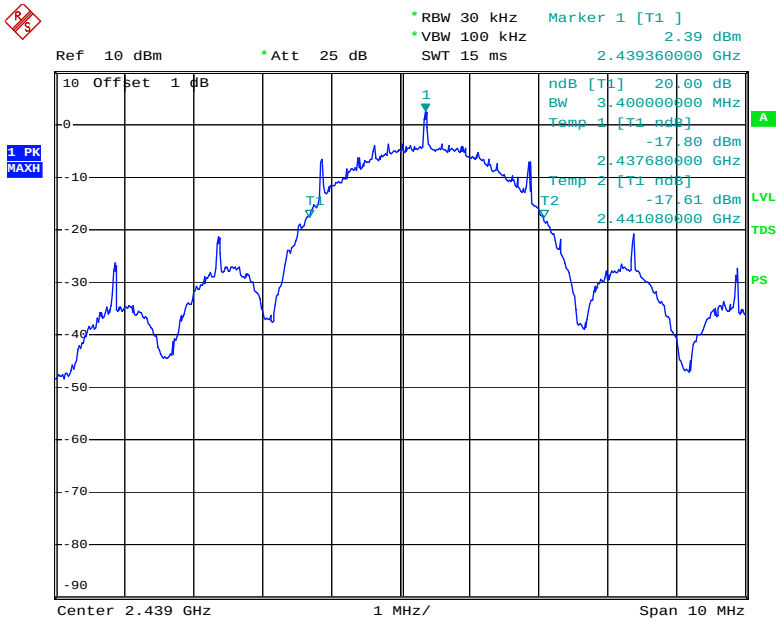
Test Result: Please refer to following plots

Low Channel



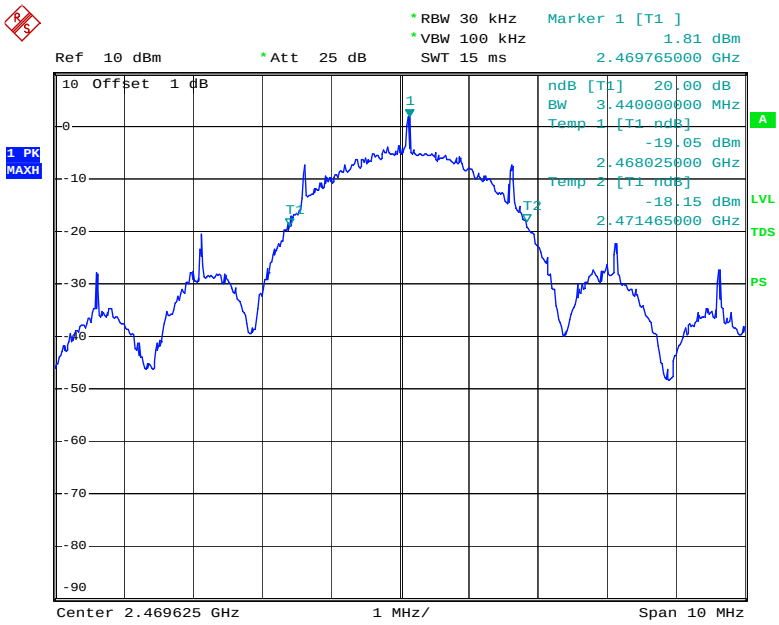
Date: 14.JUL.2009 07:03:50

Middle Channel



Date: 14.JUL.2009 07:05:35

High Channel



Date: 14.JUL.2009 07:06:30

CFR47 §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06

*** Statement of Traceability:** Bay Area Compliant 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 (SA) using either an internal calibrator or a known signal from an external generator.
2. Set the EUT in transmitting mode from first channel to last.
3. By using the Max-Hold function record the Quantity of the channel.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.8 kPa

The testing was performed by Kvass Yang on 2009-07-09.

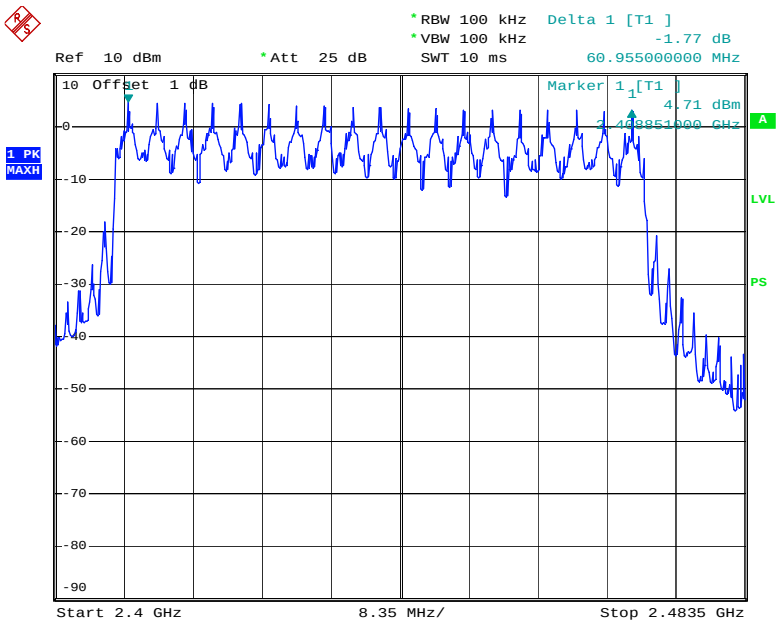
Test Mode: Transmitting

Test Result: Compliant.

Please refer to following plot

Hopping Channel Frequency Range (MHz)	Number of Hopping Channel (CH)	Limit (CH)
2400-2483.5	19	≥15

Number of Hopping Channels



Date: 9.JUL.2009 04:10:14

CFR47 §15.247(a) (1) (iii) -TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06

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

Test Procedure

The EUT was worked in channel hopping; Spectrum SPAN was set as 0. Sweep was set as 0.4 X channel no. (s), the quantity of pulse was get from single sweep. In addition, the time of single pulses was tested.

Dwell Time= time slot length * 1200/2/ number of hopping channels * (0.4*19)s
Hop rate=1200hops/Second

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.8 kPa

The testing was performed by Kvass Yang on 2009-07-14.

Test Mode: Transmitting

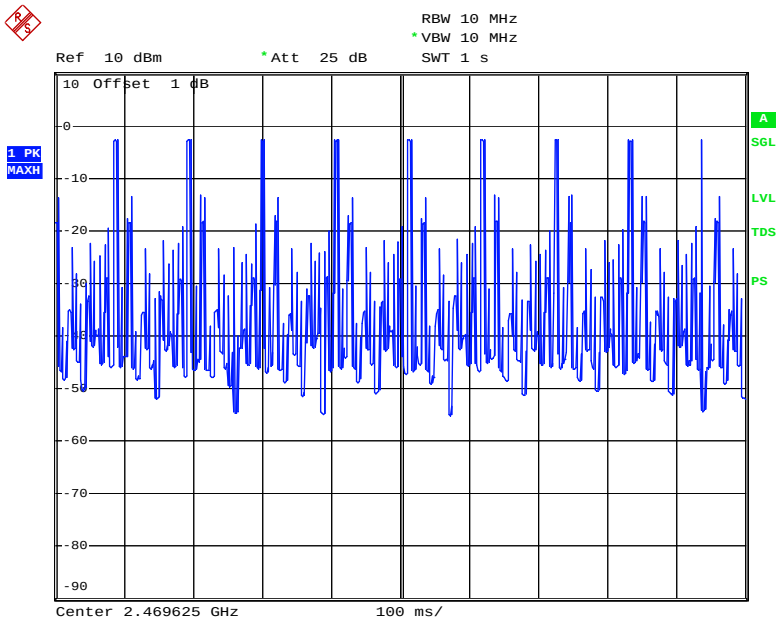
Channel	Pulse width (ms)	Dwell time (s)	Limit (s)	Result
Low	0.480	0.1536	0.4	Pass
Middle	0.468	0.1498	0.4	Pass
High	0.436	0.1395	0.4	Pass

Note: Dwell time =pulse time *1200/2/19*(19*0.4) seconds

Test Result: Compliant.

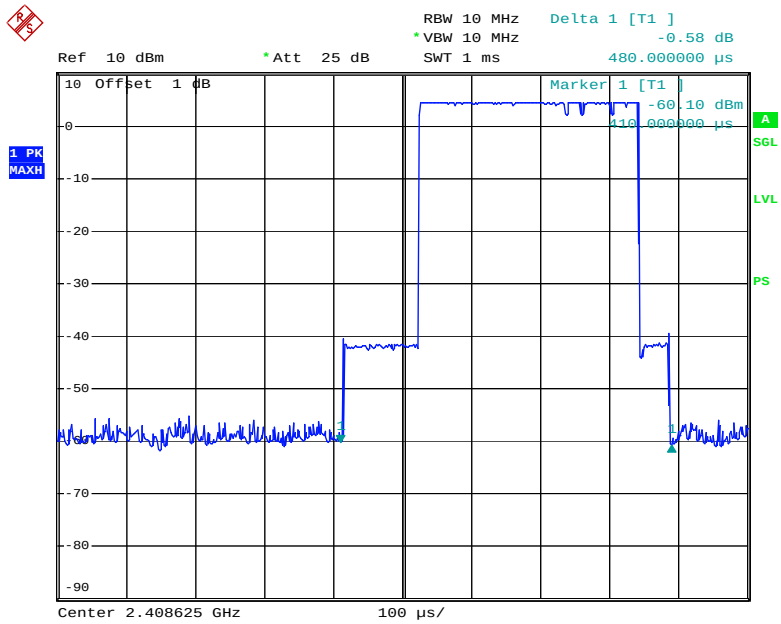
Please refer to following tables and plots

Hopping Rate



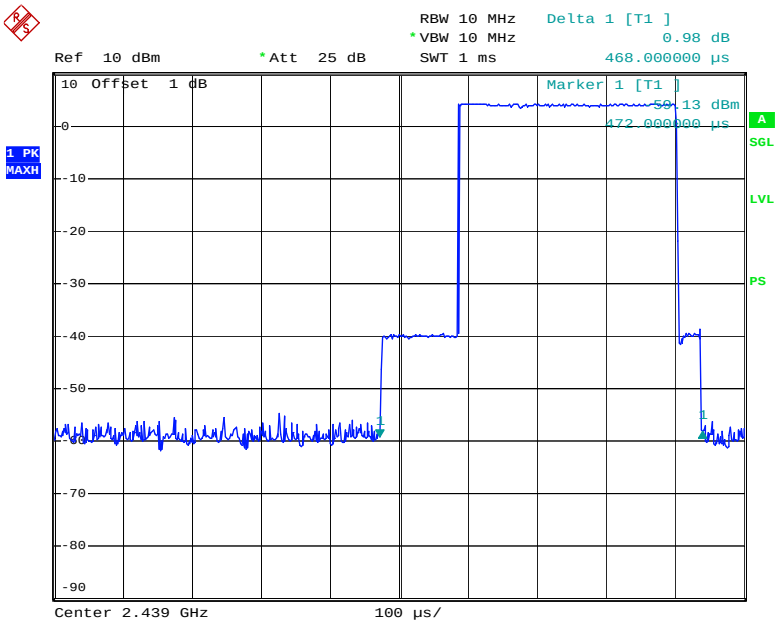
Date: 14.JUL.2009 07:09:15

Low Channel



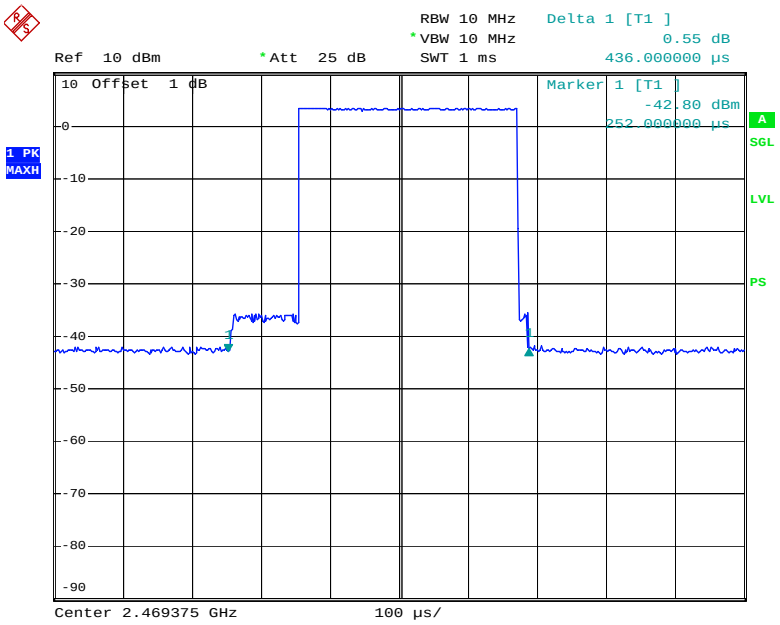
Date: 9.JUL.2009 05:16:56

Middle Channel



Date: 9.JUL.2009 05:15:54

High Channel



Date: 9.JUL.2009 05:17:43

CFR47 §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06

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

Test Procedure

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

1. Place the EUT on a bench and set 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.

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

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.8 kPa

The testing was performed by Kvass Yang on 2009-07-09.

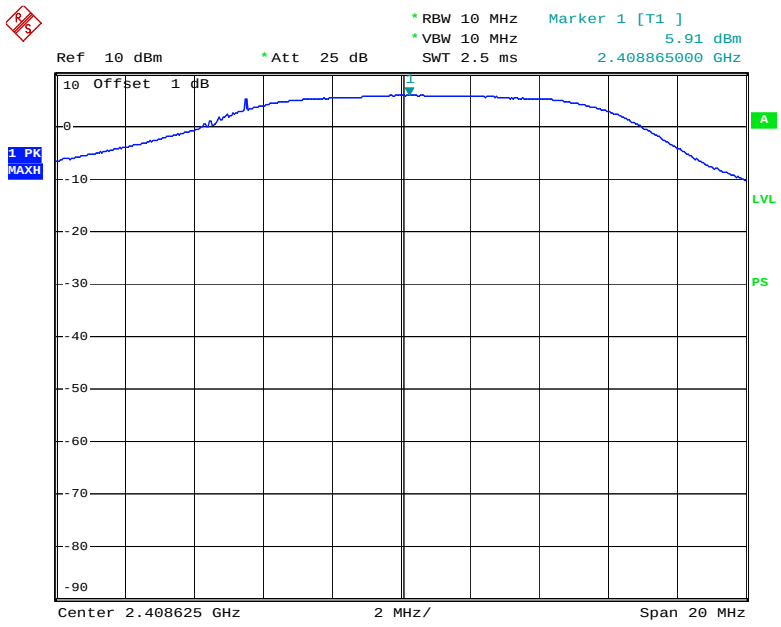
Test Mode: Transmitting

Test Result: Compliant.

Please refer to following tables and plots

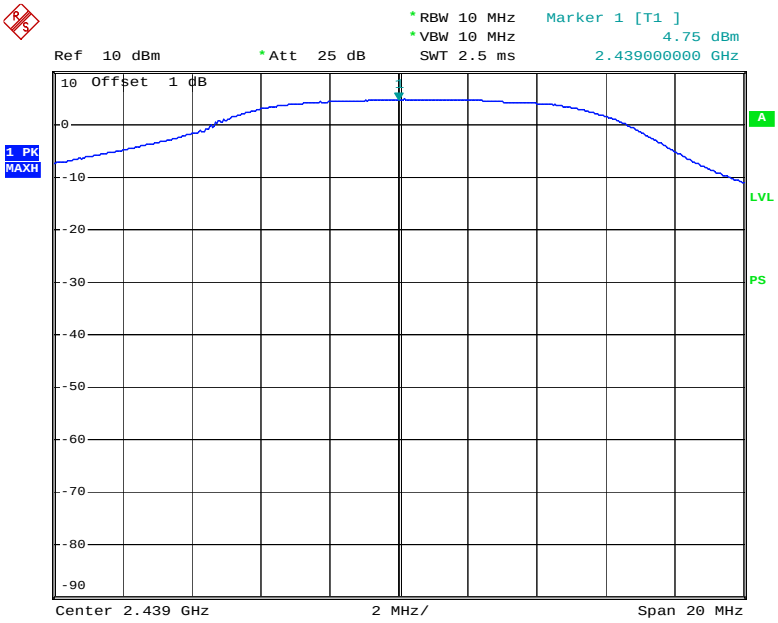
Channel	Channel Frequency (MHz)	Power Output		Limit (mW)
		(dBm)	(mW)	
Low	2408.625	5.91	3.90	125
Mid	2439.000	4.75	2.99	125
High	2469.375	4.17	2.61	125

Low Channel



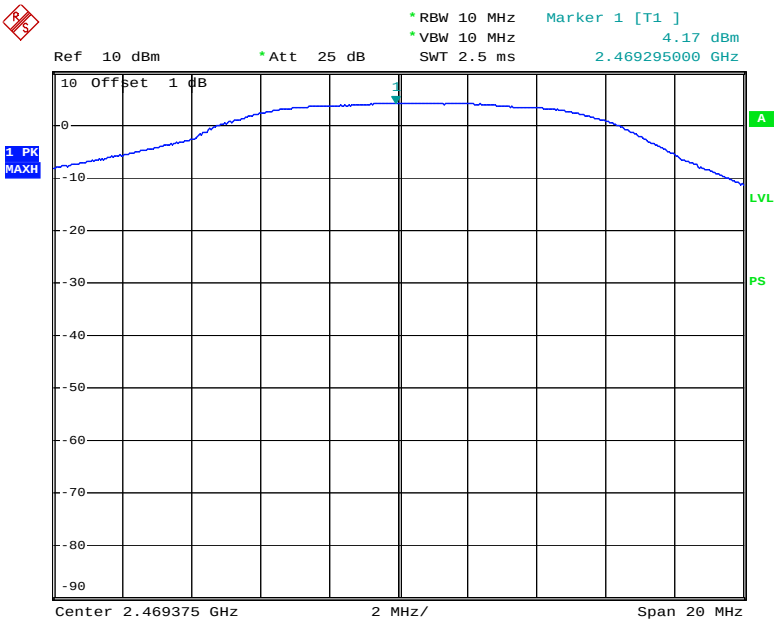
Date: 9.JUL.2009 04:22:30

Middle Channel



Date: 9.JUL.2009 04:43:25

High Channel



Date: 9.JUL.2009 05:04:03

CFR47 §15.247(d) - BAND EDGES TESTING

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates Compliant 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	2008-11-07	2009-11-06

*** Statement of Traceability:** Bay Area Compliant 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. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz.
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:	100.8 kPa

The testing was performed by Kvass Yang on 2009-07-09.

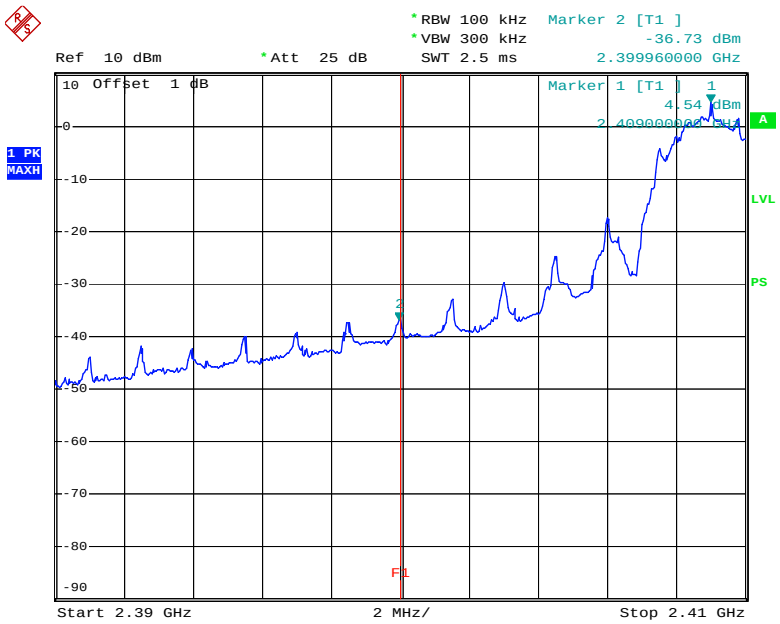
Test Result: Compliant.

Please refer to following plot.

Test Mode: Transmitting

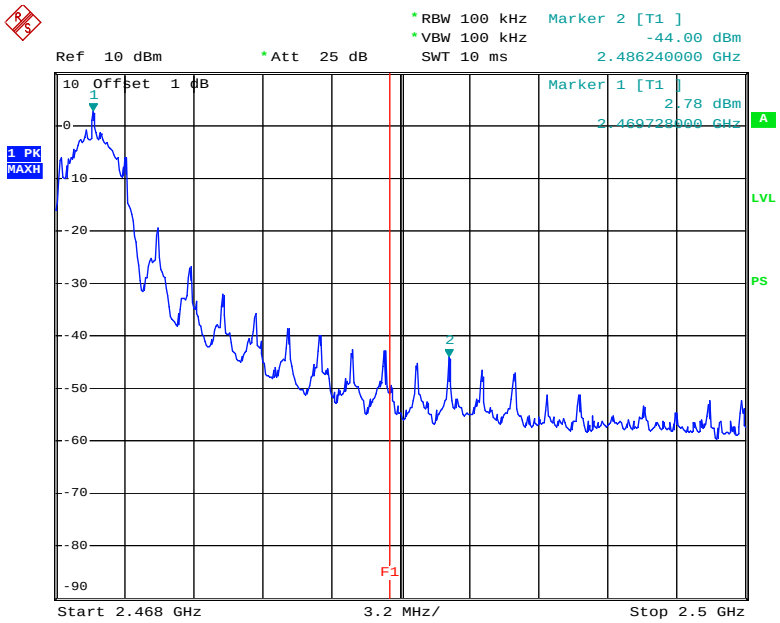
Frequency (MHz)	Delta Peak to band emission (dBc)	Limit (dBc)
2399.960	41.27	20
2486.240	46.78	20

Band Edge Left Side



Date: 9.JUL.2009 04:38:12

Band Edge Right Side



Date: 9.JUL.2009 05:09:10

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