FCC PART 15.247

TEST REPORT

For

SHANGHAI MERIT TECHNOLOGY CORP.

No 1058, TaoGan Road, Sheshan Town, Songjiang District, Shanghai, China.

FCC ID: XJ6MT-180S

Report Type:	**Product Type:**
Original Report	4CH 2.4GHz FHSS RADIO SYSTEM（Transmitter unit）

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Report Number:	RSH140806052-00A
Report Date:	2014-08-19
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *SHANGHAI MERIT TECHNOLOGY CORP.*'s product, model number: *MT-180S (FCC ID: XJ6MT-180S) or* ("EUT") in this report is a transmitter unit of *4CH 2.4GHz FHSS RADIO SYSTEM*, which was measured approximately: 18.0 cm (L) x 15.0 cm (H) x 8.0 cm (W), rated input voltage: DC 6V from 4*AA battery.

** All measurement and test data in this report was gathered from production sample serial number: 140806052-1 (Assigned by BACL, Dongguan). The EUT was received on 2014-08-07.*

Objective

This report is prepared on behalf of *SHANGHAI MERIT TECHNOLOGY CORP.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the EUT 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 submittal.

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. (Dongguan). 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. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) 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 February 02, 2012. 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.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in engineering mode which was configured under maximum power output and switched the channels by keys.

16 channels are provided for testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2403	5	2410	9	2430	13	2451
2	2404	6	2411	10	2435	14	2458
3	2405	7	2416	11	2437	15	2465
4	2408	8	2423	12	2444	16	2480

EUT was tested with Channel 2403MHz, 2444MHz and 2480MHz.

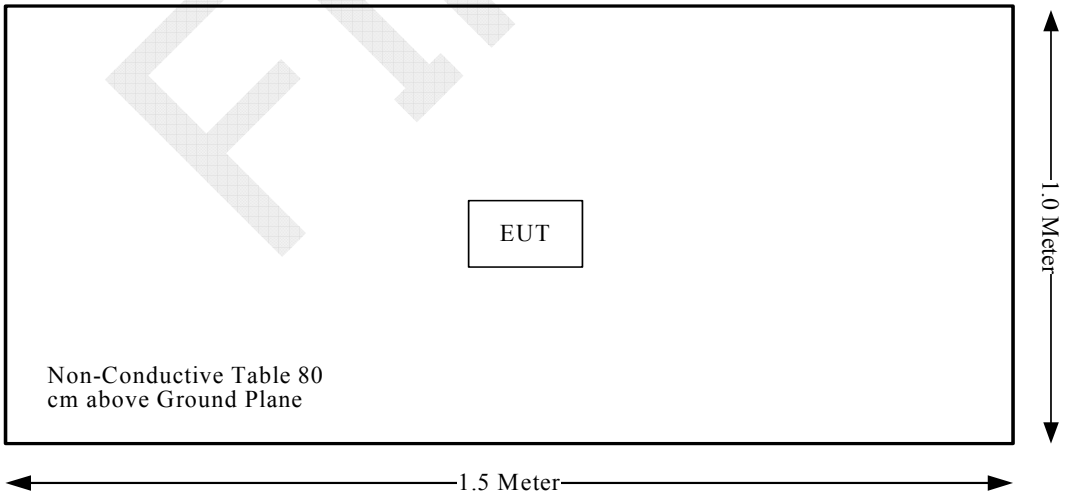
EUT Exercise Software

No EUT exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307,§2.1093	RF Exposure	Compliace
§15.203	Antenna Requirement	Compliance
§15.207 (a)	Conducted Emissions	Not applicable
§15.205, §15.209, §15.247(d)	Radiated Emissions	Compliance
§15.247 (a)(1)	20 dB Bandwidth	Compliance
§15.247(a)(1)	Channel Separation Test	Compliance
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliance
§15.247(b)(1)	Peak Output Power Measurement	Compliance
§15.247(d)	Band Edges	Compliance

Not applicable: The EUT is battery operated equipment.

FCC §15.247 (i) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

According to §15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v05r02:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

The maximum conducted output power= 11.40 dBm (13.80 mW) at 2403 MHz
[(max. power of channel, mW)/(min. test separation distance, mm)] [√f(GHz)]
= 13.80/5*(√2.403) = 4.278 < 7.5

So the stand-alone SAR evaluation is not necessary.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 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

This product used an integral antenna arrangement, which were permanently attached and the antenna gain is 2.02 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} of Table 2, then:
- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} of Table 1, then:
- compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

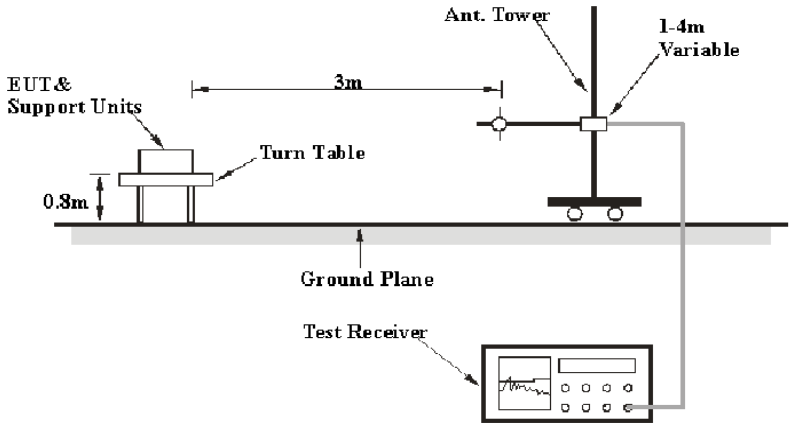
Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:
30M~200MHz: 5.0 dB
200M~1GHz: 6.2 dB
1G~6GHz: 4.45 dB
6G~18GHz: 5.23 dB

Table 2 – Values of U_{cispr}

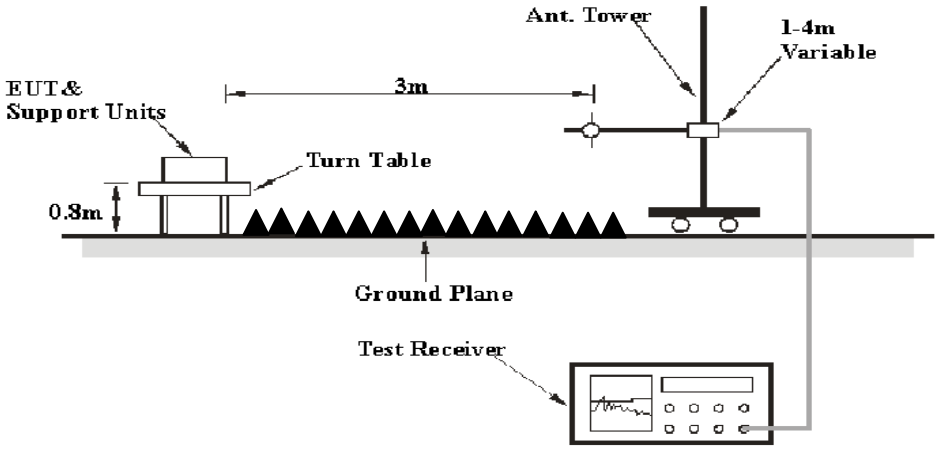
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters 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.

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	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

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 - 1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2014-05-09	2015-05-09
Sunol Sciences	Antenna	JB3	A060611-1	2011-09-06	2014-09-05
HP	Amplifier	8447E	2434A02181	2013-09-06	2014-09-06
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09
ETS LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2015-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2014-02-19	2015-02-19
R&S	Spectrum Analyzer	FSP 38	100478	2014-05-09	2015-05-09
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2013-09-06	2014-09-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

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

0.55 dB at **4806 MHz** in the **Horizontal** polarization

Test Data

Environmental Conditions

Temperature:	28.6~29.8 °C
Relative Humidity:	54~57 %
ATM Pressure:	99.8~100.2 kPa

The testing was performed by Ares Liu from 2014-08-18 to 2014-08-19.

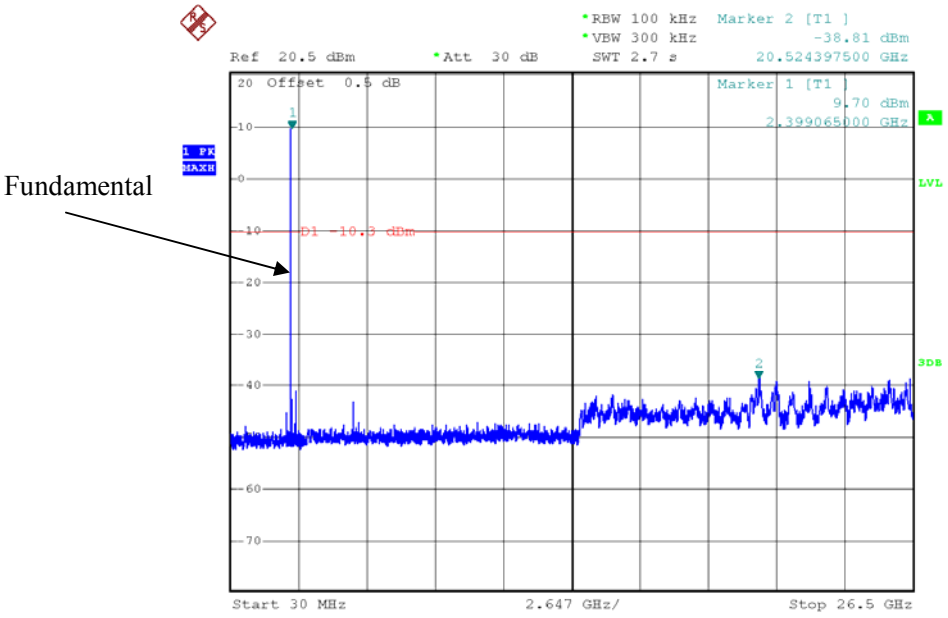
Test Mode: Transmitting

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2403 MHz									
2403	107.17	PK	H	25.65	4.42	27.32	109.92	N/A	N/A
2403	98.24	AV	H	25.65	4.42	27.32	100.99	N/A	N/A
2403	98.79	PK	V	25.65	4.42	27.32	101.54	N/A	N/A
2403	89.63	AV	V	25.65	4.42	27.32	92.38	N/A	N/A
2390	60.54	PK	H	25.61	4.39	27.32	63.22	74.00	10.78
2390	50.14	AV	H	25.61	4.39	27.32	52.82	54.00	1.18*
4806	58.45	PK	H	30.60	5.98	27.41	67.62	74.00	6.38
4806	44.28	AV	H	30.60	5.98	27.41	53.45	54.00	0.55*
7209	45.74	PK	H	34.10	7.45	25.91	61.38	74.00	12.62
7209	31.59	AV	H	34.10	7.45	25.91	47.23	54.00	6.77
9612	37.48	PK	H	35.97	8.80	27.54	54.71	74.00	19.29
9612	25.24	AV	H	35.97	8.80	27.54	42.47	54.00	11.53
1265	41.35	PK	H	22.99	2.87	26.87	40.34	74.00	33.66
1265	27.96	AV	H	22.99	2.87	26.87	26.95	54.00	27.05
346.5	36.7	QP	V	15.04	2.23	21.64	32.33	46.00	13.67
Middle Channel: 2444 MHz									
2444	108.42	PK	H	25.75	4.40	27.34	111.23	N/A	N/A
2444	99.53	AV	H	25.75	4.40	27.34	102.34	N/A	N/A
2444	100.03	PK	V	25.75	4.40	27.34	102.84	N/A	N/A
2444	90.67	AV	V	25.75	4.40	27.34	93.48	N/A	N/A
4888	55.36	PK	H	30.81	6.08	27.42	64.83	74.00	9.17
4888	42.19	AV	H	30.81	6.08	27.42	51.66	54.00	2.34*
7332	46.28	PK	H	34.40	7.52	25.88	62.32	74.00	11.68
7332	32.36	AV	H	34.40	7.52	25.88	48.40	54.00	5.60
9776	39.69	PK	H	36.36	8.84	27.17	57.72	74.00	16.28
9776	27.08	AV	H	36.36	8.84	27.17	45.11	54.00	8.89
1285	39.17	PK	H	23.04	2.89	26.89	38.21	74.00	35.79
1285	25.67	AV	H	23.04	2.89	26.89	24.71	54.00	29.29
346.5	37.1	QP	V	15.04	2.23	21.64	32.73	46.00	13.27
High Channel: 2480 MHz									
2480	104.37	PK	H	25.85	4.48	27.36	107.34	N/A	N/A
2480	95.22	AV	H	25.85	4.48	27.36	98.19	N/A	N/A
2480	94.78	PK	V	25.85	4.48	27.36	97.75	N/A	N/A
2480	85.44	AV	V	25.85	4.48	27.36	88.41	N/A	N/A
2483.5	57.63	PK	H	25.86	4.49	27.36	60.62	74.00	13.38
2483.5	46.97	AV	H	25.86	4.49	27.36	49.96	54.00	4.04*
4960	53.64	PK	H	31.00	5.90	27.43	63.11	74.00	10.89
4960	40.27	AV	H	31.00	5.90	27.43	49.74	54.00	4.26*
7440	44.55	PK	H	34.66	7.58	25.97	60.82	74.00	13.18
7440	29.63	AV	H	34.66	7.58	25.97	45.90	54.00	8.10
9920	36.18	PK	H	36.71	8.87	26.66	55.10	74.00	18.90
9920	24.42	AV	H	36.71	8.87	26.66	43.34	54.00	10.66
1324.6	37.16	PK	H	23.14	2.97	26.93	36.34	74.00	37.66
1324.6	24.32	AV	H	23.14	2.97	26.93	23.50	54.00	30.50
346.5	36.8	QP	V	15.04	2.23	21.64	32.43	46.00	13.57

*Within measurement uncertainty!

Conducted Spurious Emissions at Antenna Port

Low Channel



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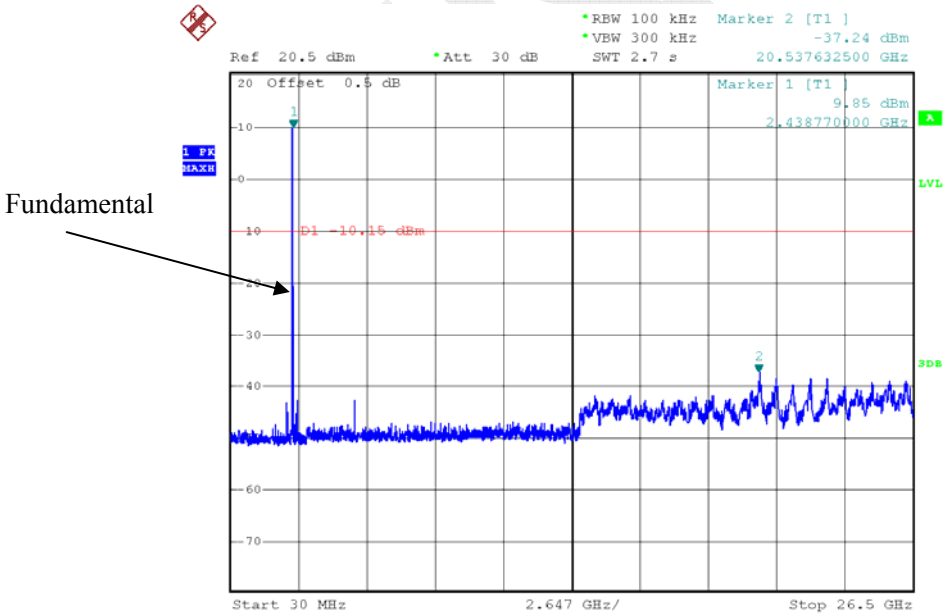
Middle Channel



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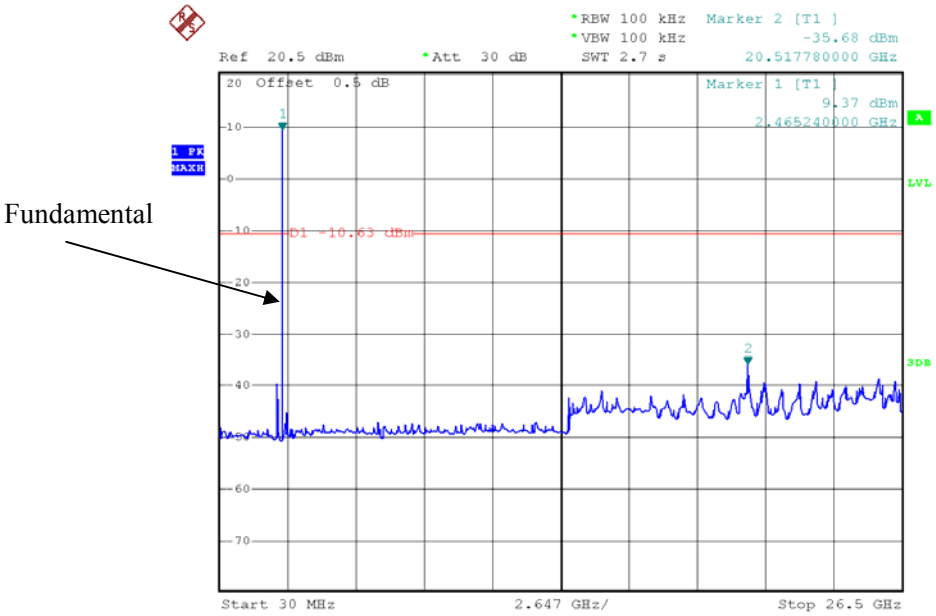
High Channel



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FCC §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 2400-2483.50 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
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

1. Set the EUT in transmitting mode, spectrum bandwidth was set to appropriate value, maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another trace
3. Measure the channel separation.

Test Data

Environmental Conditions

Temperature:	30.3 °C
Relative Humidity:	64 %
ATM Pressure:	99.8 kPa

The testing was performed by Ares Liu on 2014-08-18.

Test Result: Compliant.

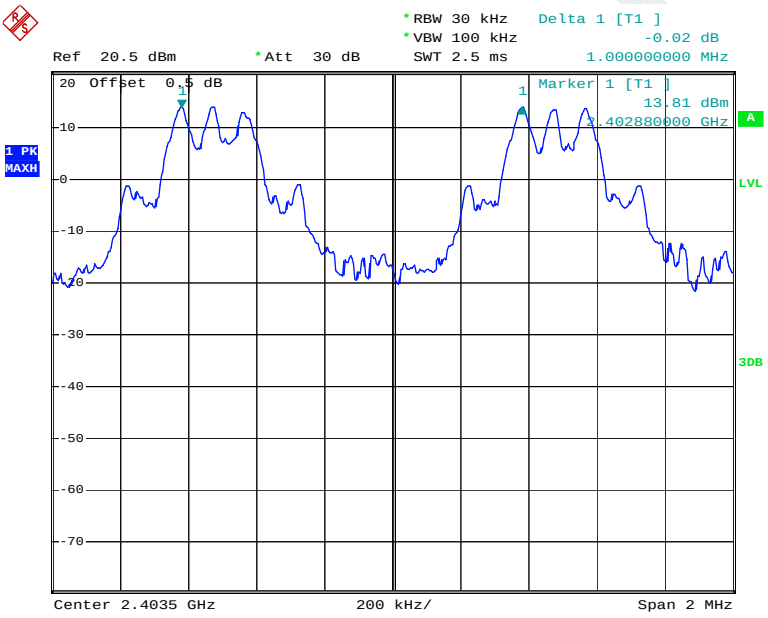
Please refer to following tables and plots

Test Mode: Transmitting

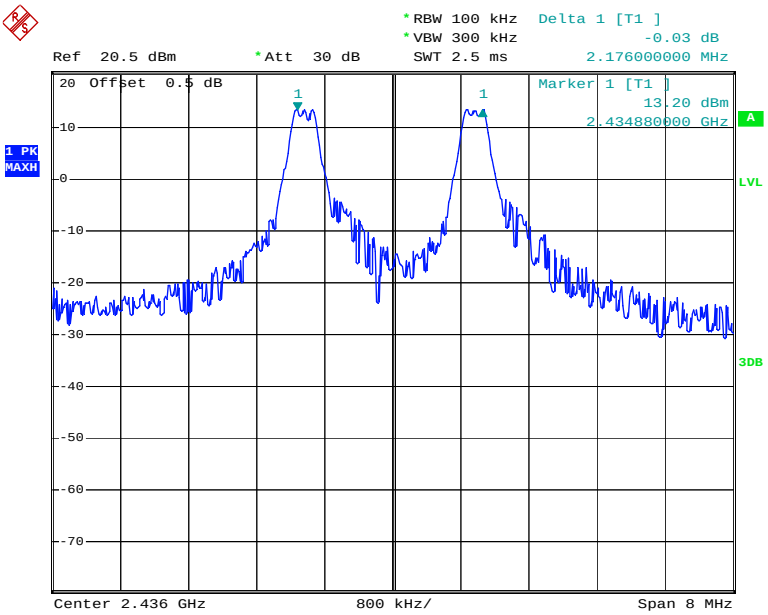
Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
1	2403	1.000	0.232	Pass
2	2404			
10	2435	2.176	0.232	Pass
11	2437			
11	2437	7.200	0.232	Pass
12	2444			
15	2465	15.06	0.232	Pass
16	2480			

Note: Limit= (2/3) of 20 dB bandwidth

Channel 1& Channel 2



Channel 10& Channel 11



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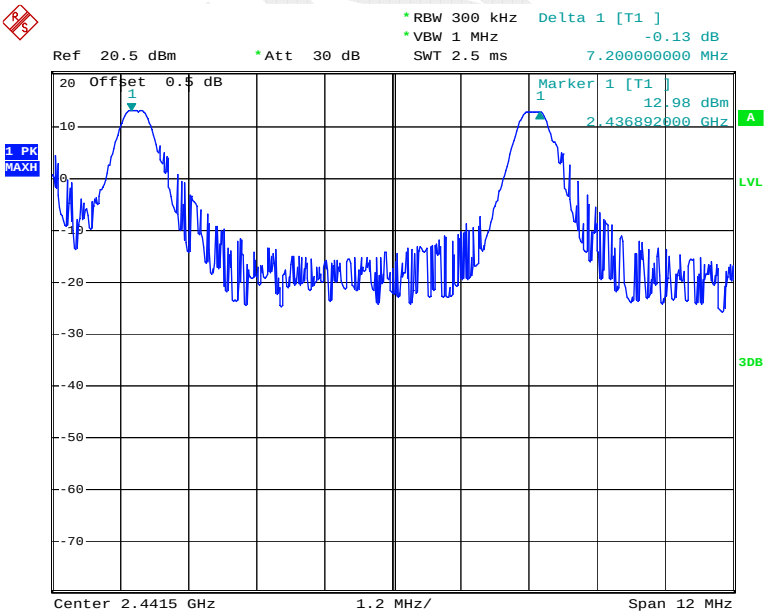
Channel 11& Channel 12



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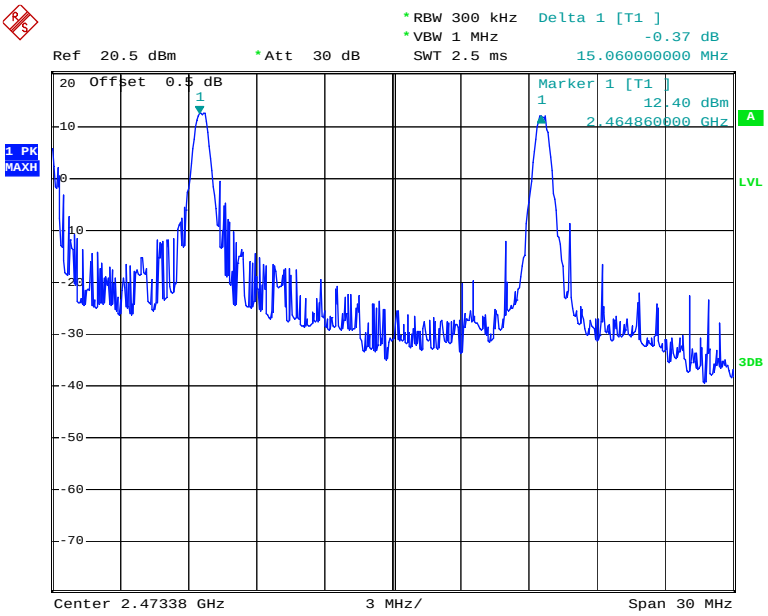
Channel 15& Channel 16



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FCC §15.247(a) (1) – 20 dB 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 125 mW.

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 on the test table without connection to measurement instrument. Turn on the EUT. 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.3 °C
Relative Humidity:	64 %
ATM Pressure:	99.8 kPa

The testing was performed by Ares Liu on 2014-08-18.

Test Result: Compliant.

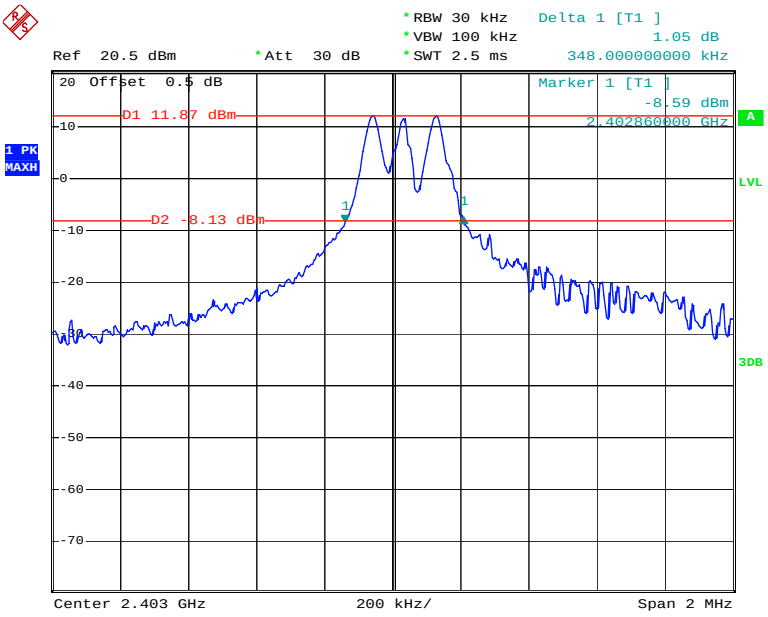
Please refer to following tables and plots

Test Mode: Transmitting

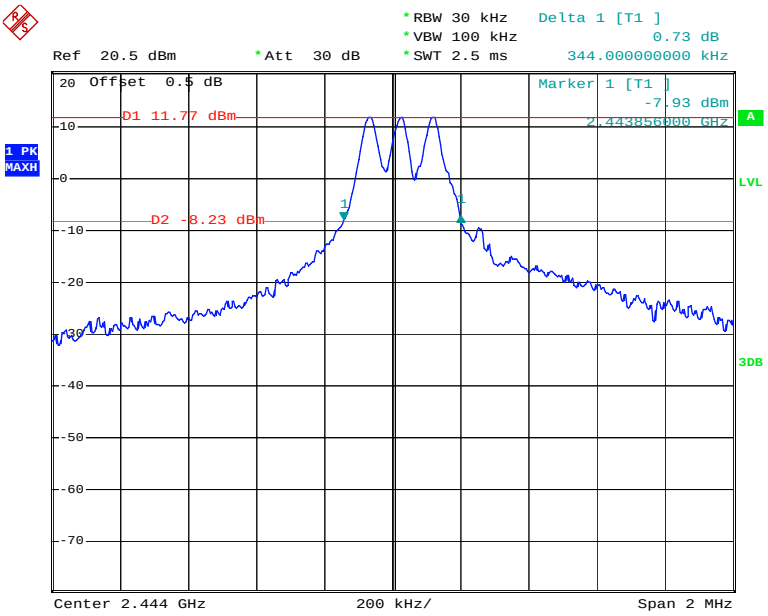
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2403	0.348
Middle	2444	0.344
High	2480	0.344

Please refer to the following plots.

Low Channel

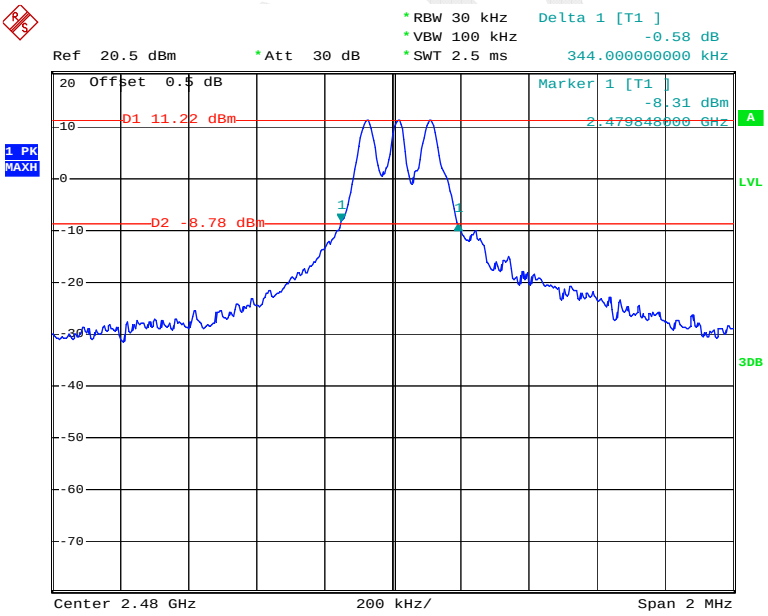


Middle Channel



Date: 18.AUG.2014 21:29:42

High Channel



Date: 18.AUG.2014 21:32:17

FCC §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 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 hopping mode from first channel to last.
3. By using the Max-Hold function record the Quantity of the channel.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.3 °C
Relative Humidity:	64 %
ATM Pressure:	99.8 kPa

The testing was performed by Ares Liu on 2014-08-18.

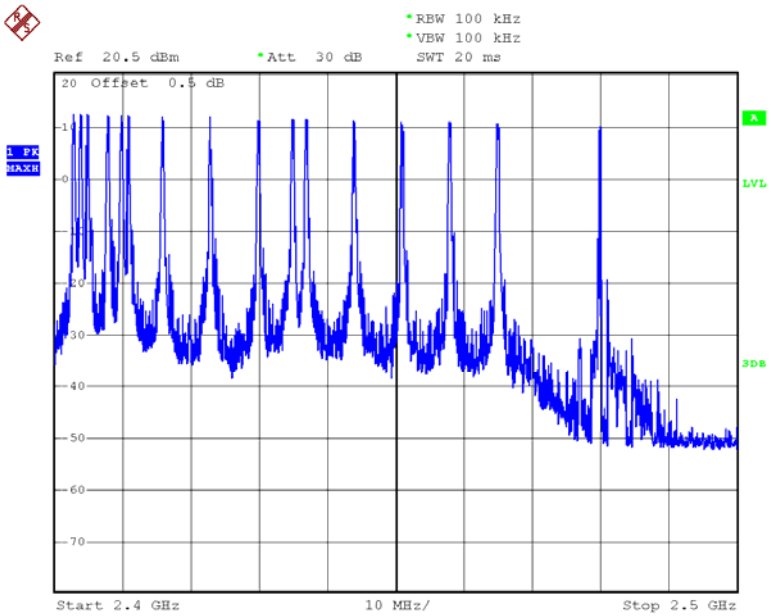
Test Result: Compliant.

Please refer to following tables and plots

Test Mode: Transmitting

Frequency Range (MHz)	Number of Hopping Channel	Limit
2400-2483.5	16	≥15

Number of Hopping Channels



Date: 18.AUG.2014 16:48:43

FCC §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 Procedure

The EUT was worked in channel hopping; Spectrum SPAN was set as 0. Sweep was set as 0.4 * 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 * hope rate/ number of hopping channels *hopping NO. * 0.4s

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.3 °C
Relative Humidity:	64 %
ATM Pressure:	99.8 kPa

The testing was performed by Ares Liu on 2014-09-02.

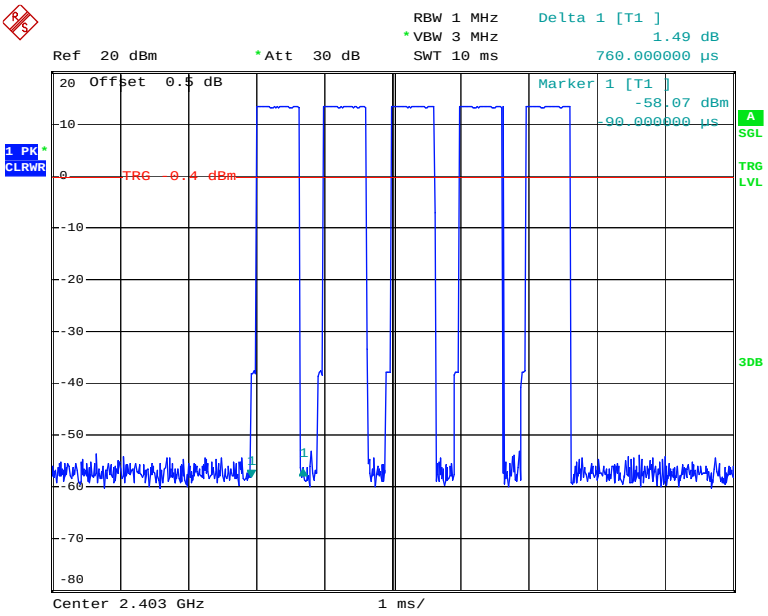
Test Mode: Transmitting

Test Result: Compliant. Please refer to following tables and plots

Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
Low	3.80	0.085	0.4	Pass
Middle	3.80	0.085	0.4	Pass
High	3.80	0.085	0.4	Pass
Dwell Time(s)= time slot length(s)*56/16*16* 0.4				

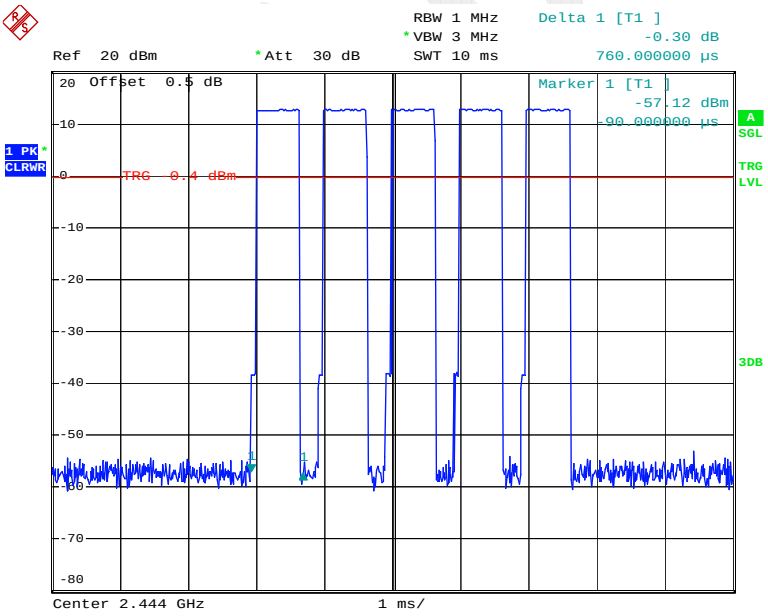
Note: The EUT hopping 56 times per second, which was declared by manufacturer.

Low Channel



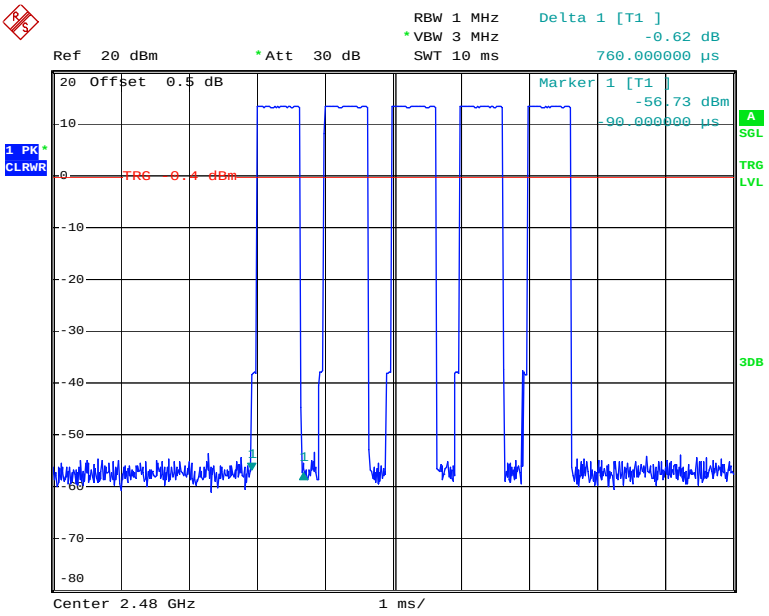
Date: 2.SEP.2014 13:04:52

Middle Channel



Date: 2.SEP.2014 13:05:26

High Channel



Date: 2.SEP.2014 13:06:12

FCC §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 Procedure

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 test equipment.
3. Add a correction factor to the display.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.3 °C
Relative Humidity:	64 %
ATM Pressure:	99.8 kPa

The testing was performed by Ares Liu on 2014-08-18.

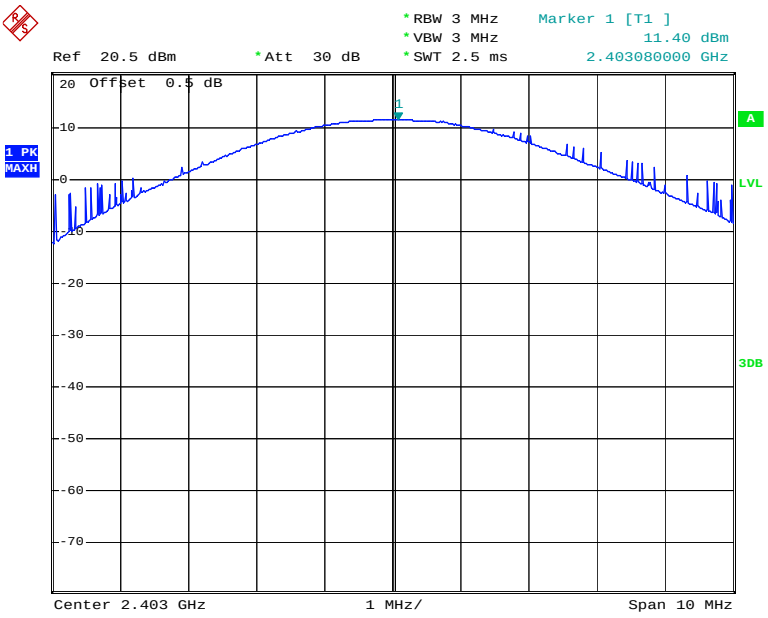
Test Result: Compliant.

Test Mode: Transmitting

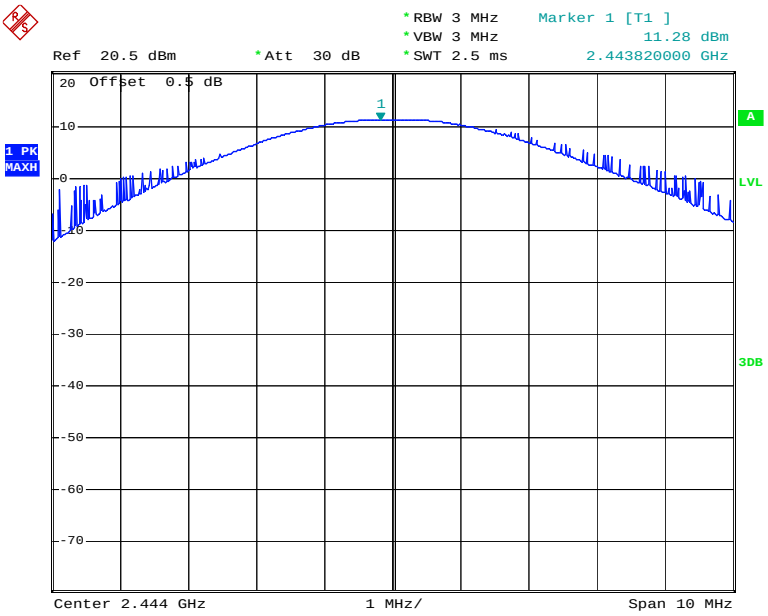
Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
Low	2403	11.40	21
Middle	2444	11.28	21
High	2480	10.70	21

Note: The data above was tested in conducted mode.

Peak Output Power, Low Channel

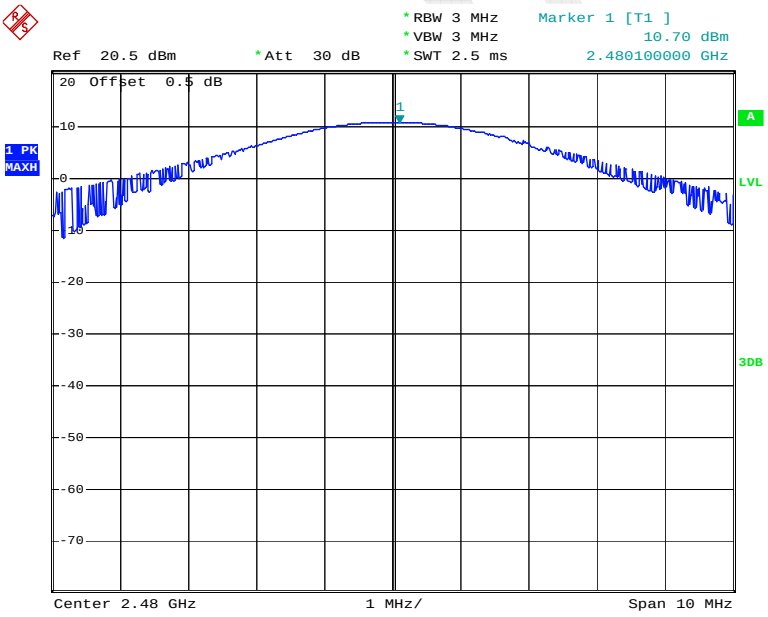


Peak Output Power, Middle Channel



Date: 18.AUG.2014 21:26:01

Peak Output Power, High Channel



Date: 18.AUG.2014 21:18:32

FCC §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 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 Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then 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 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

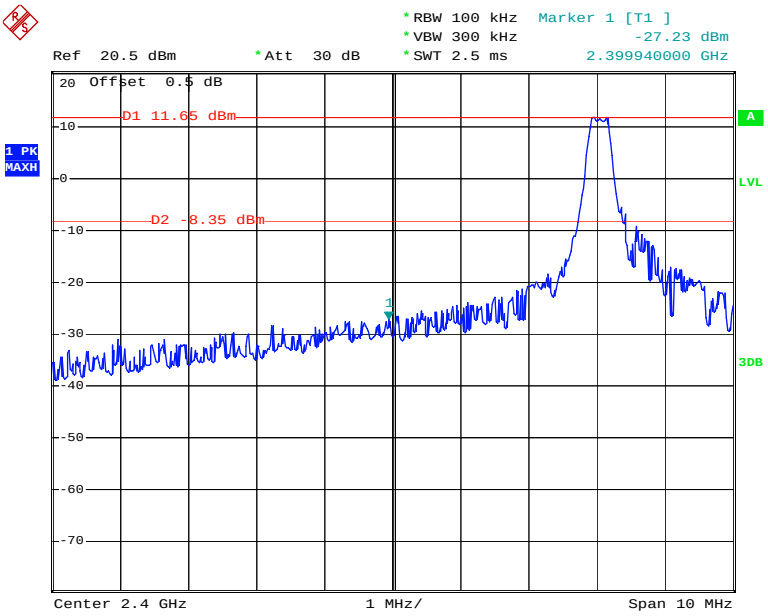
Environmental Conditions

Temperature:	30.3 °C
Relative Humidity:	64 %
ATM Pressure:	99.8 kPa

The testing was performed by Ares Liu on 2014-08-18.

Test Result: Compliant.

Band Edge, Left Side



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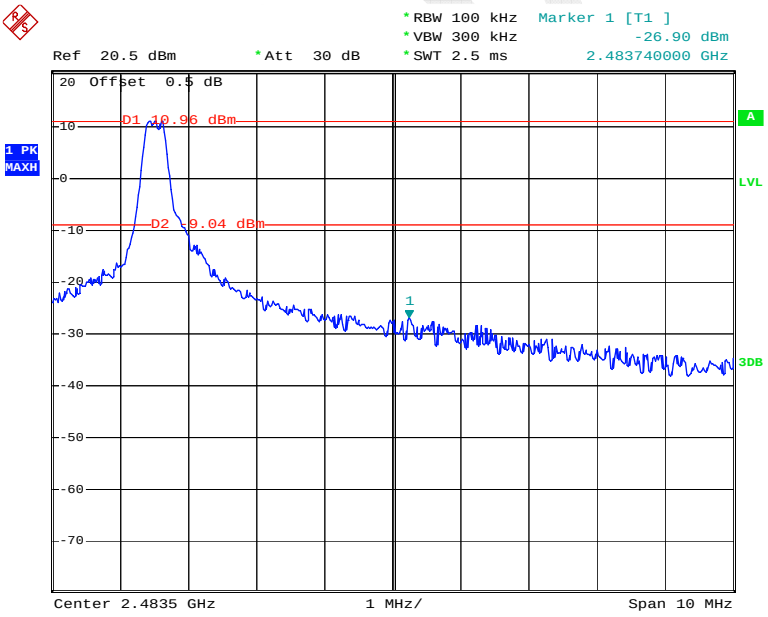
Band Edge, Right Side



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