Lab Code: 200707-0

Bay Area Compliance Lab Corp.

FCC PART 15.247

EMI MEASUREMENT AND TEST REPORT

For

COMSYSTEMS (IWC GROUP)

3888 Mannix Dr.#318,Naples, FL, 34114,USA

FCC ID: UQKCOM10108090601

October 30, 2006

This Report Concerns:	**Equipment Type:**
☒ Original Report	Wireless Earphone For Motorcycle Helmet (Passenger)

Test Engineer:	Deny Xiong
Report No.:	RSZ06101101
Test Date:	October 24-26, 2006
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Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratory Corp. (Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP or any agency of the U.S. Government.

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *COMSYSTEMS (IWC GROUP)*'s product, model number: COM101 or the "EUT" as referred to in this report is a *Wireless Earphone For Motorcycle* Helmet (Passenger), which measures approximately: 8.2 cm L x 5.2 cm W x 2.5 cm H, rated input voltage: Battery 3.7V.

** The test data gathered are from production sample, serial number: 0610005. Provided by the manufacturer, we receive the EUT on 2006-10-11.*

Objective

This Type approval report is prepared on behalf of *COMSYSTEMS (IWC GROUP)* 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, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

No related submittal(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 Laboratory 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 Laboratory 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 518038, P.R.China.

Test site at Bay Area Compliance Laboratory Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179 and Industrial Canada registration test site No.: 5500A. 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 Laboratory 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/ts/htdocs/210/214/scopes/2007070.htm

External I/O Cable

Cable Description	Length (M)	From/Port	To
MIC cable	0.2	EUT	MIC
Speaker cable	0.4	EUT	Speaker

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

The exercise software is Bluetest.

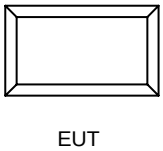
Special Accessories

The special Accessories were provided by Bay Area Compliance Laboratory Corp. (Shenzhen).

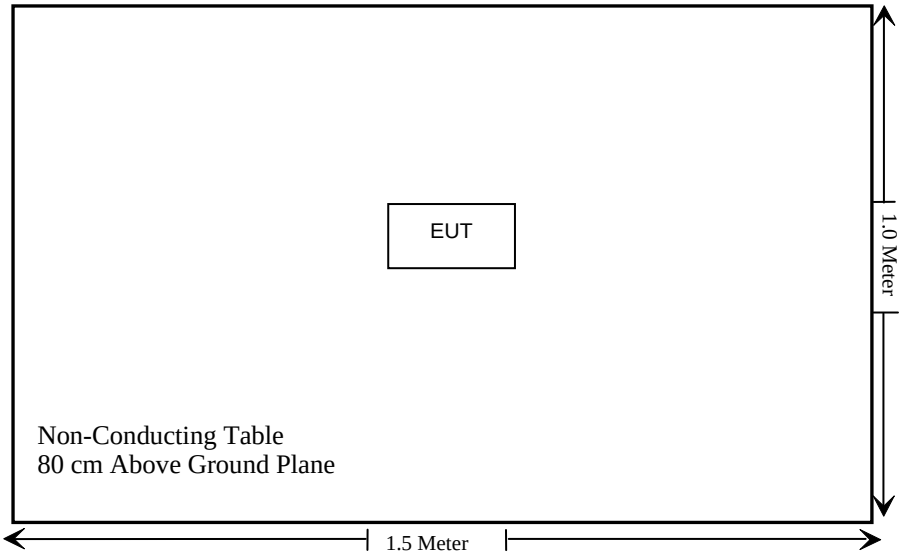
Equipment Modifications

Bay Area Compliance Laboratory Corp. (Shenzhen) has not done any modification on the EUT.

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247 (b)	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.205	Restricted Band	Compliant
§15.205, §15.209, §15.247(d)	Radiated Emission	Compliant
§15.247 (a)(1)	20 dB Bandwidth	Compliant
§15.247(a)(1)	Channel Separation Test	Compliant
§15.247(a)(1)(iii)	Dwell Time	Compliant
§15.247(a)(1)(iii)	Hopping Channel Number	Compliant
§15.247(b)(1)	Peak Output Power	Compliant
§15.247(d)	Band edges testing	Compliant

§15.247(b) - RF EXPOSURE

Limit

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 TCB exclusion list, the power of the EUT is 0.33mw which is lower than the low threshold (25 mw), it is not required for SAR evaluation.

Result: Compliance.

§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.

And according to § 15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi 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 a permanently attached antenna which, in accordance to the above sections, is considered sufficient to comply with the provisions of these sections. Please see EUT photo for details.

Result: Compliance.

§15.205, §15.209, §15.247 - RADIATED EMISSION

Applicable Standard

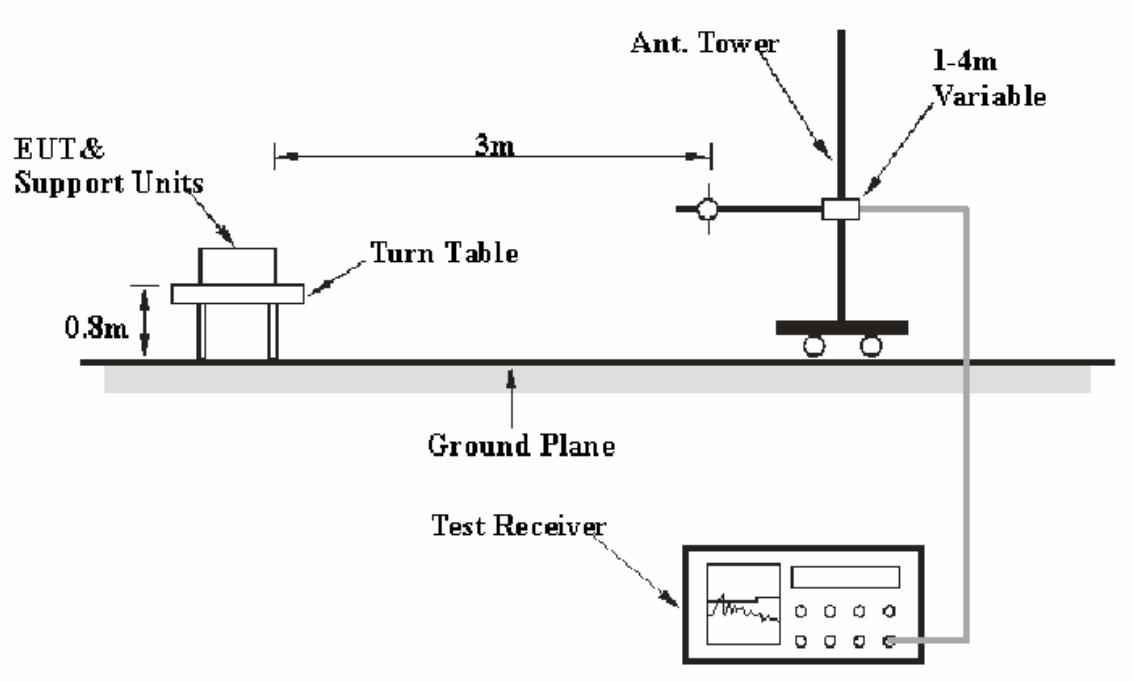
According to FCC §15.247 (d)

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 Compliance Laboratory Corp. (Shenzhen) is ±4.0 dB.

EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.247 limits.

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
A.H. System	Horn Antenna	SAS-200/571	135	2006-4-28	2007-4-28
HP	Amplifier	HP8447D	2944A09795	2006-8-17	2007-8-17
HP	Preamplifier	8449B	3008A00277	2006-8-17	2007-8-17
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2005-11-10	2006-11-10
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	2006-8-17	2007-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2006-4-28	2007-4-28

*** 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

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

Corrected Amplitude & Margin Calculation

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

Corr. Ampl. = Meter Reading + Antenna Loss + 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 maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. - Limit

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:

-10.96 dB at **4810 MHz** in the **Vertical** polarization: Low Channel
-10.30 dB at **9760 MHz** in the **Horizontal** polarization: Middle Channel
-10.12 dB at **4958 MHz** in the **Vertical** polarization: High Channel
13.5 dB at **768.015150MHz** in the **Horizontal** polarization: 30MHz-1000MHz

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	52%
ATM Pressure:	1009mbar

The testing was performed by Deny Xiong on 2006-10-24.

Test Mode: Transmitting (Low Channel)

Frequency	Meter Reading	Detector	Direction	Height	Polar	Antenna Factor	Cable loss	Amplifier Gain	Corr. Ampl.	FCC Part 15.247 / 15.209		
MHz	dBuV/m	PK/QP/AV	Degree	Meter	H / V	dB/m	dB	dB	dBuV/m	Limit dBuV/m	Margin dB	Remarks
Low Channel												
2405	91.83	PK	20	1.2	H	27.4	3.61	35.0	87.84			Fundamental
2405	54.7	AV	263	1.4	H	27.4	3.61	35.0	50.71			Fundamental
2405	90.03	PK	18	1.6	V	27.4	3.61	35.0	86.04			Fundamental
2405	53.33	AV	45	1.0	V	27.4	3.61	35.0	49.34			Fundamental
4810	60.5	PK	250	1.0	V	31.3	4.64	33.4	63.04	74	-10.96	Harmonic
9620	33.33	AV	158	1.3	V	37.6	5.35	34.1	42.18	54	-11.82	Harmonic
9620	33.28	AV	238	1.5	H	37.6	5.35	34.1	42.13	54	-11.87	Harmonic
7215	35.0	AV	90	1.2	V	35.4	4.51	33.7	41.21	54	-12.79	Harmonic
7215	34.83	AV	261	1.0	H	35.4	4.51	33.7	41.04	54	-12.96	Harmonic
4810	36.17	AV	180	1.6	V	31.3	4.64	33.4	38.71	54	-15.29	Harmonic
4810	34.23	AV	270	1.6	H	31.3	4.64	33.4	36.77	54	-17.23	Harmonic
9620	46.33	PK	158	1.3	V	37.6	5.35	34.1	55.18	74	-18.82	Harmonic
7215	48.83	PK	180	1.0	V	35.4	4.51	33.7	55.04	74	-18.96	Harmonic
4810	52.0	PK	49	1.2	H	31.3	4.64	33.4	54.54	74	-19.46	Harmonic
9620	45.17	PK	158	1.6	H	37.6	5.35	34.1	54.02	74	-19.98	Harmonic
7215	47.0	PK	180	1.3	H	35.4	4.51	33.7	53.21	74	-20.79	Harmonic

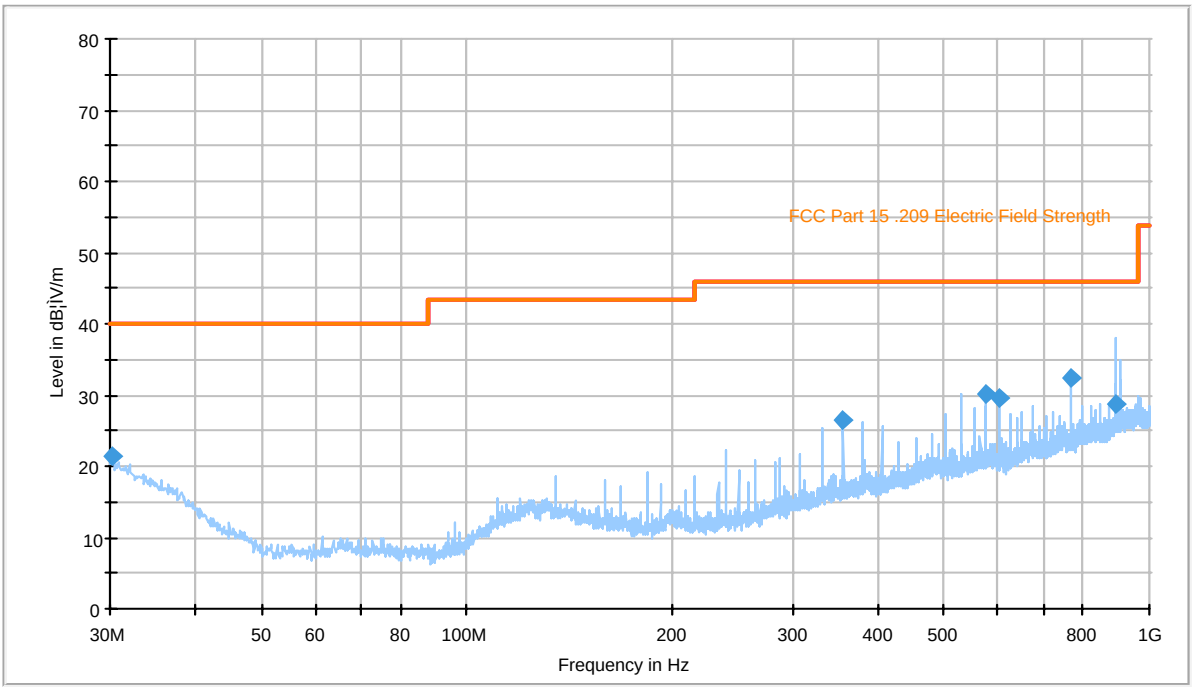
Test Mode: Transmitting: (Middle Channel)

Frequency	Meter Reading	Detector	Direction	Height	Polar	Antenna Factor	Cable loss	Amplifier Gain	Corr. Ampl.	FCC Part 15.247 / 15.209		
MHz	dBuV/m	PK/QP/AV	Degree	Meter	H / V	dB/m	dB	dB	dBuV/m	Limit dBuV/m	Margin dB	Remarks
Middle Channel												
2440	93.17	PK	197	1.6	H	27.4	3.61	35.0	89.18			Fundamental
2440	54.33	AV	197	1.6	H	27.4	3.61	35.0	50.34			Fundamental
2440	92.17	PK	182	1.2	V	27.4	3.61	35.0	88.18			Fundamental
2440	53.8	AV	182	1.2	V	27.4	3.61	35.0	49.81			Fundamental
9760	33.83	AV	256	1.5	H	38.2	5.77	34.1	43.7	54	-10.30	Harmonic
9760	33.67	AV	130	1.3	V	38.2	5.77	34.1	43.54	54	-10.46	Harmonic
7320	36.7	AV	90	1.2	V	35.3	4.75	33.7	43.05	54	-10.95	Harmonic
7320	35.83	AV	45	1.0	H	35.3	4.75	33.7	42.18	54	-11.82	Harmonic
4880	57.83	PK	109	1.2	H	31.3	4.64	33.4	60.37	74	-13.63	Harmonic
4880	36.5	AV	180	1.6	V	31.3	4.64	33.4	39.04	54	-14.96	Harmonic
4880	35.67	AV	109	1.2	H	31.3	4.64	33.4	38.21	54	-15.79	Harmonic
9760	46.5	PK	130	1.3	V	38.2	5.77	34.1	56.37	74	-17.63	Harmonic
7320	49.5	PK	90	1.2	V	35.3	4.75	33.7	55.85	74	-18.15	Harmonic
7320	47.83	PK	180	1.0	H	35.3	4.75	33.7	54.18	74	-19.82	Harmonic
9760	44.17	PK	256	1.5	H	38.2	5.77	34.1	54.04	74	-19.96	Harmonic
4880	61.5	PK	45	1.0	V	31.3	4.64	33.4	64.04	74	-9.96	Harmonic

Test Mode: Transmitting (High Channel)

Frequency	Meter Reading	Detector	Direction	Height	Polar	Antenna Factor	Cable loss	Amplifier Gain	Corr. Ampl.	FCC Part 15.247 / 15.209		
MHz	dBuV/m	PK/QP/AV	Degree	Meter	H / V	dB/m	dB	dB	dBuV/m	Limit dBuV/m	Margin dB	Remarks
High Channel												
2479	92.4	PK	197	1.6	H	27.4	3.61	35.0	88.41			Fundamental
2479	53.73	AV	197	1.6	H	27.4	3.61	35.0	49.74			Fundamental
2479	90.9	PK	182	1.2	V	27.4	3.61	35.0	86.91			Fundamental
2479	53.9	AV	182	1.2	V	27.4	3.61	35.0	49.91			Fundamental
4958	60.73	PK	45	1.0	V	32.0	4.55	33.4	63.88	74	-10.12	Harmonic
9916	34.57	AV	259	1.2	V	38.0	5.23	34.1	43.7	54	-10.30	Harmonic
7437	36.07	AV	90	1.2	V	35.3	4.75	33.7	42.42	54	-11.58	Harmonic
7437	35.9	AV	45	1.0	H	35.3	4.75	33.7	42.25	54	-11.75	Harmonic
4958	36.23	AV	180	1.6	V	32.0	4.55	33.4	39.38	54	-14.62	Harmonic
4958	34.9	AV	109	1.2	H	32.0	4.55	33.4	38.05	54	-15.95	Harmonic
4958	53.07	PK	109	1.2	H	32.0	4.55	33.4	56.22	74	-17.78	Harmonic
9916	46.07	PK	259	1.2	V	38.0	5.23	34.1	55.2	74	-18.80	Harmonic
9916	45.9	PK	147	1.6	H	38.0	5.23	34.1	55.03	74	-18.97	Harmonic
7437	47.73	PK	90	1.2	V	35.3	4.75	33.7	54.08	74	-19.92	Harmonic
7437	47.57	PK	180	1.0	H	35.3	4.75	33.7	53.92	74	-20.08	Harmonic
9916	35.52	AV	147	1.6	H	38.0	5.23	34.1	44.65	54	-9.35	Harmonic

Test Mode: Transmitting (30MHz-1000MHz)



Frequency (MHz)	Quasi Peak (dBµ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµ V/m)
30.302194	21.3	316.0	H	239.0	-5.5	-18.7	40.0
356.348700	26.5	101.0	H	0.0	-9.3	-19.5	46.0
577.541525	30.1	171.0	H	347.0	-5.5	-15.9	46.0
602.127925	29.6	161.0	H	159.0	-5.5	-16.4	46.0
768.015150	32.5	101.0	H	2.0	-2.5	-13.5	46.0
890.250675	28.6	333.0	H	35.0	-0.2	-17.4	46.0

§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	2006-8-17	2007-8-17

*** 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

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.

Limit

FCC Part 15, Subpart C Section 15.247(a) (1). Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB Bandwidth of the hopping channel, whichever is greater.

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

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

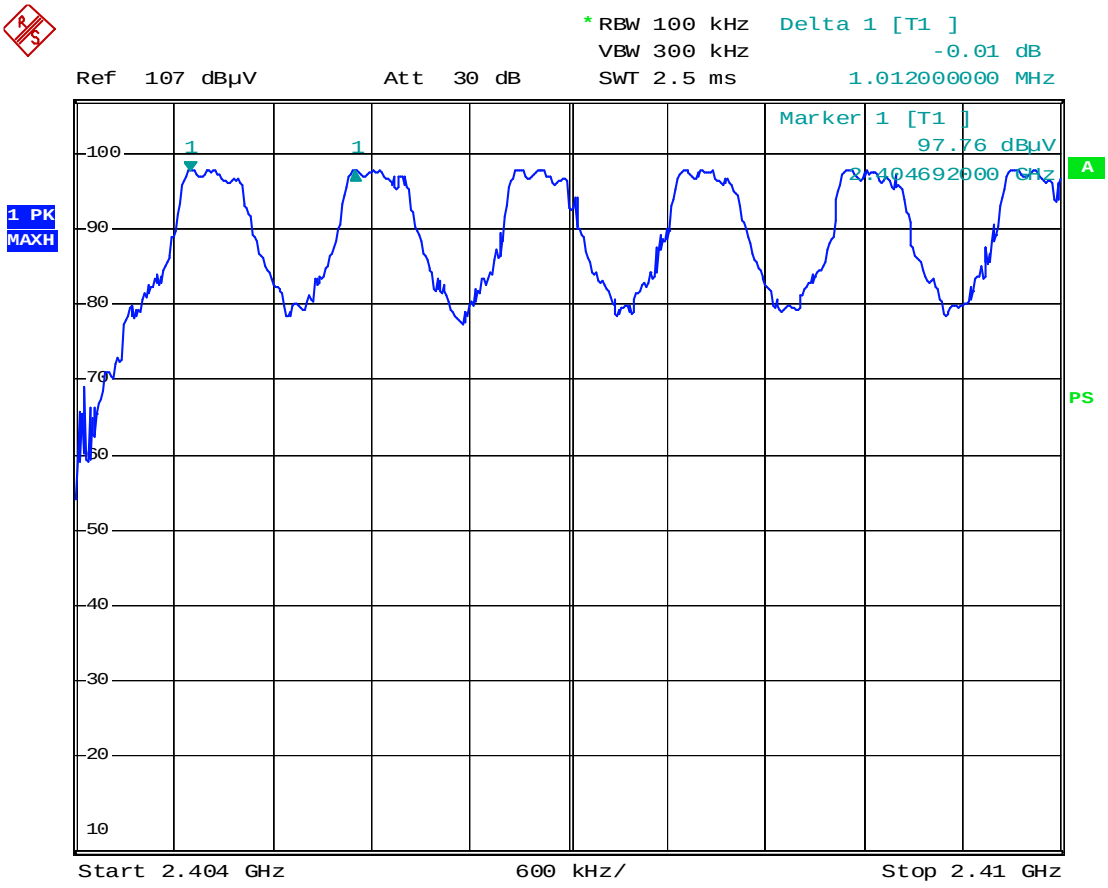
The testing was performed by Deny Xiong on 2006-10-25.

Test Result: Pass

Test mode: Transmitting

Channel	Channel Frequency (MHz)	Channel Separation (KHz)	Limit (kHz)	Result
Low Channel	2405	1012	746.67	Pass
Adjacency Channel	2406			
Mid Channel	2440	1008	746.67	Pass
Adjacency Channel	2441			
High Channel	2479	2016	746.67	Pass
Adjacency Channel	2477			

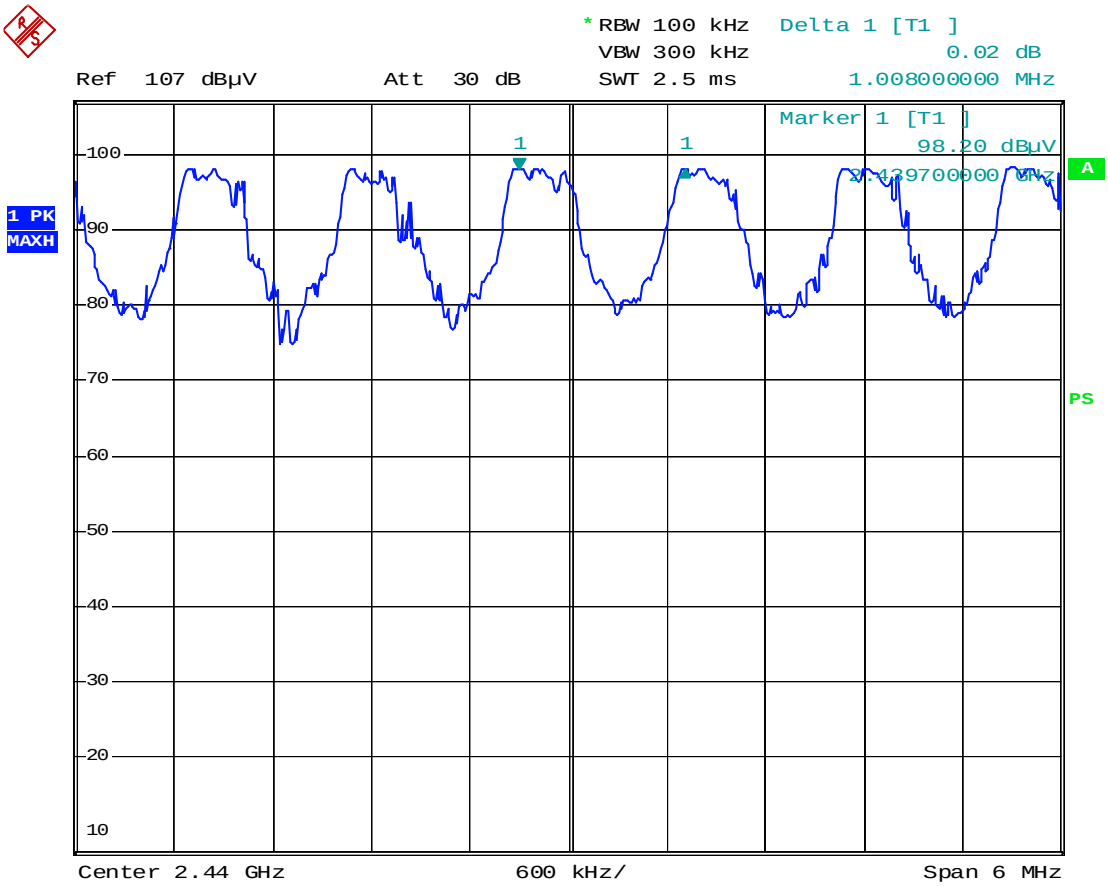
Low channel:



M/N:COM101 channel separation low channel

Date: 25.OCT.2006 11:07:06

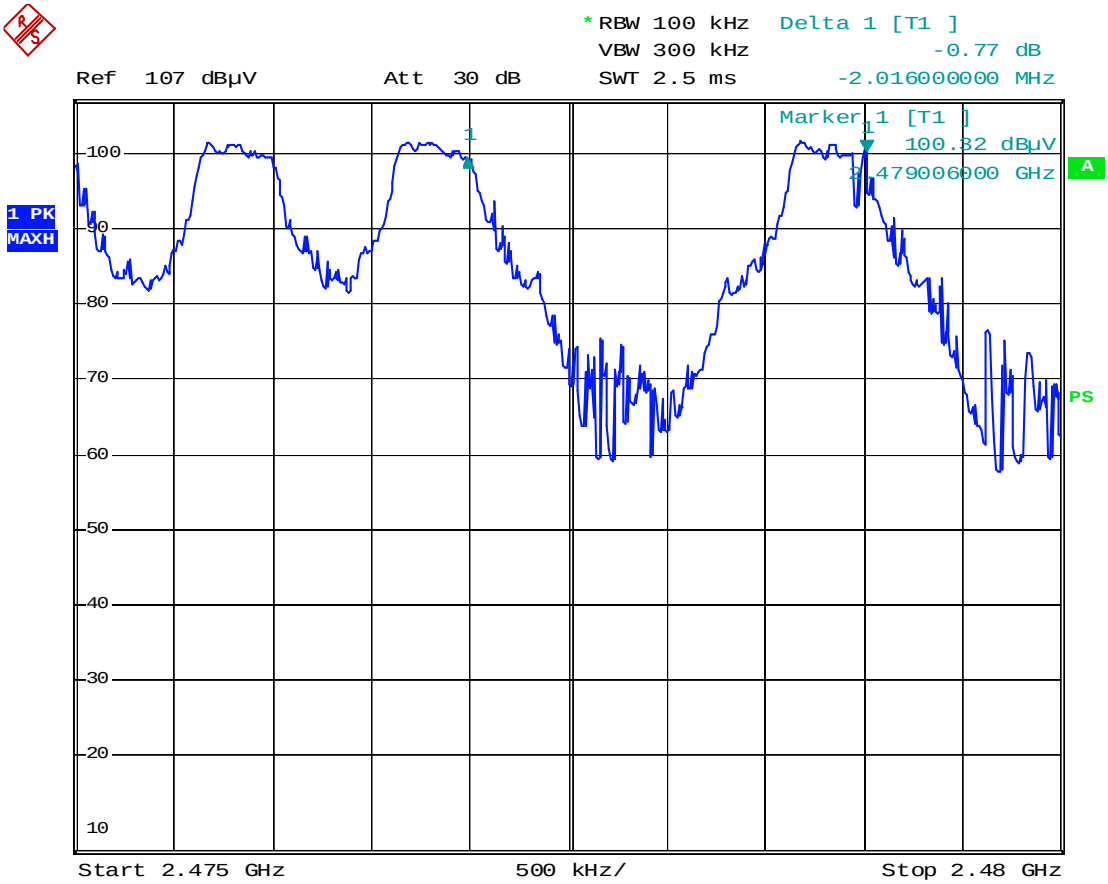
Middle channel



M/N:COM101 channel separation middle channel

Date: 25.OCT.2006 11:09:41

High channel



M/N:COM101 channel separation high channel

Date: 25.OCT.2006 11:18:09

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

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.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	2006-8-17	2007-8-17

*** 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

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:	53%
ATM Pressure:	1009mbar

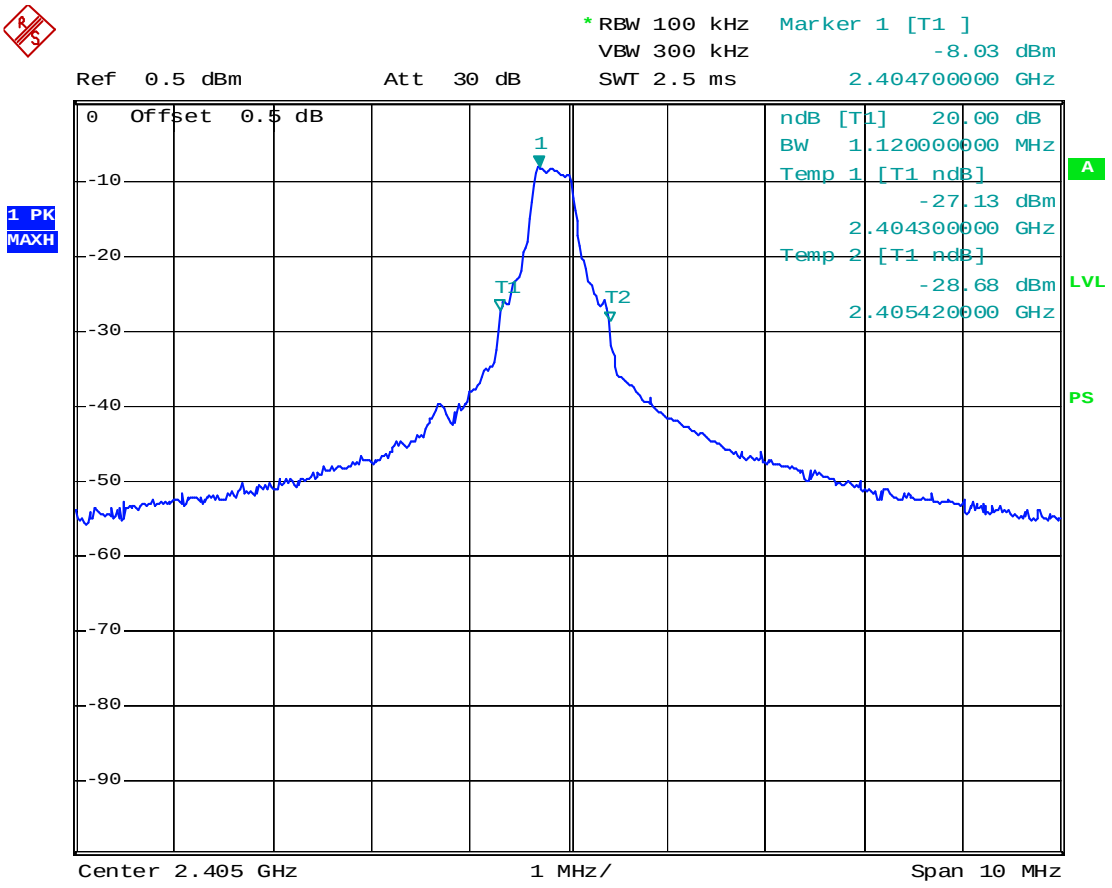
The testing was performed by Deny Xiong on 2006-10-24, 2006-10-25.

Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Result
Low Channel	2405	1120	Pass
Middle Channel	2440	1120	Pass
High Channel	2479	1120	Pass

Test Result: Pass

Test Mode: Transmitting

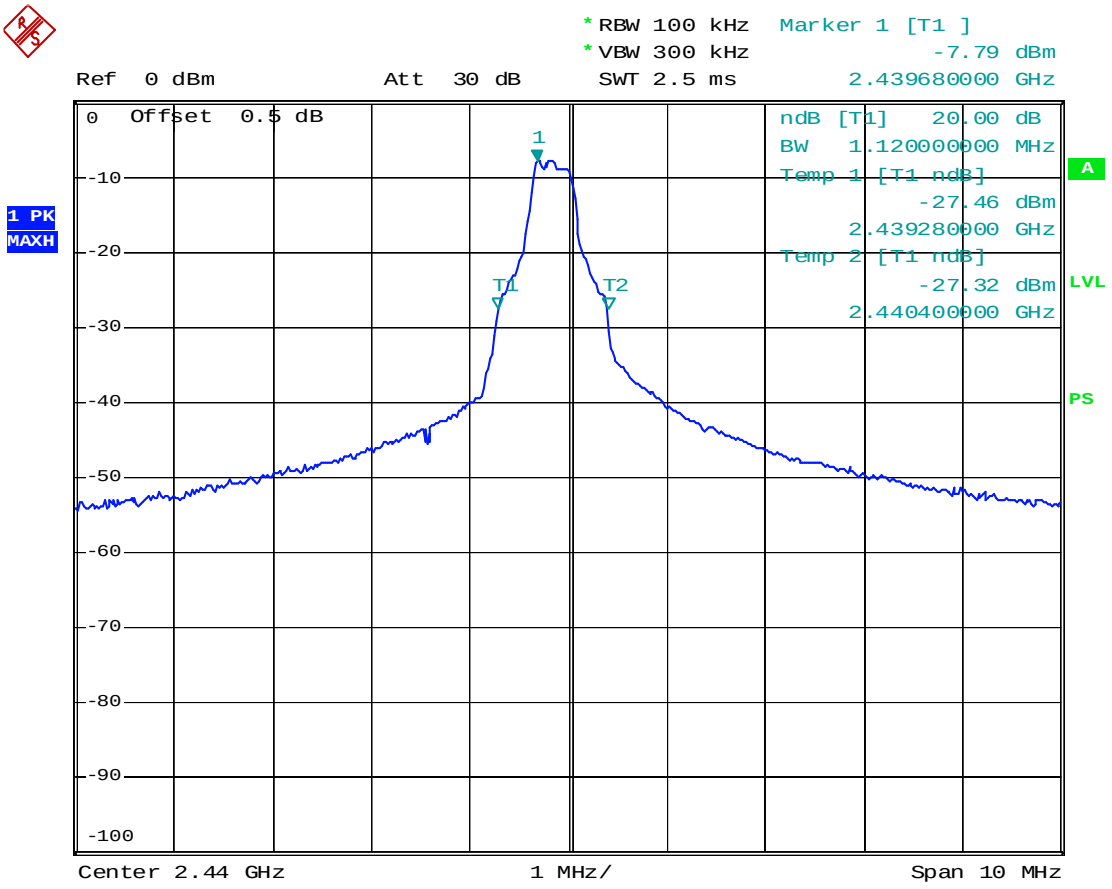
Low channel



M/N:COM101 20dB Bandwidth low channel

Date: 24.OCT.2006 15:22:37

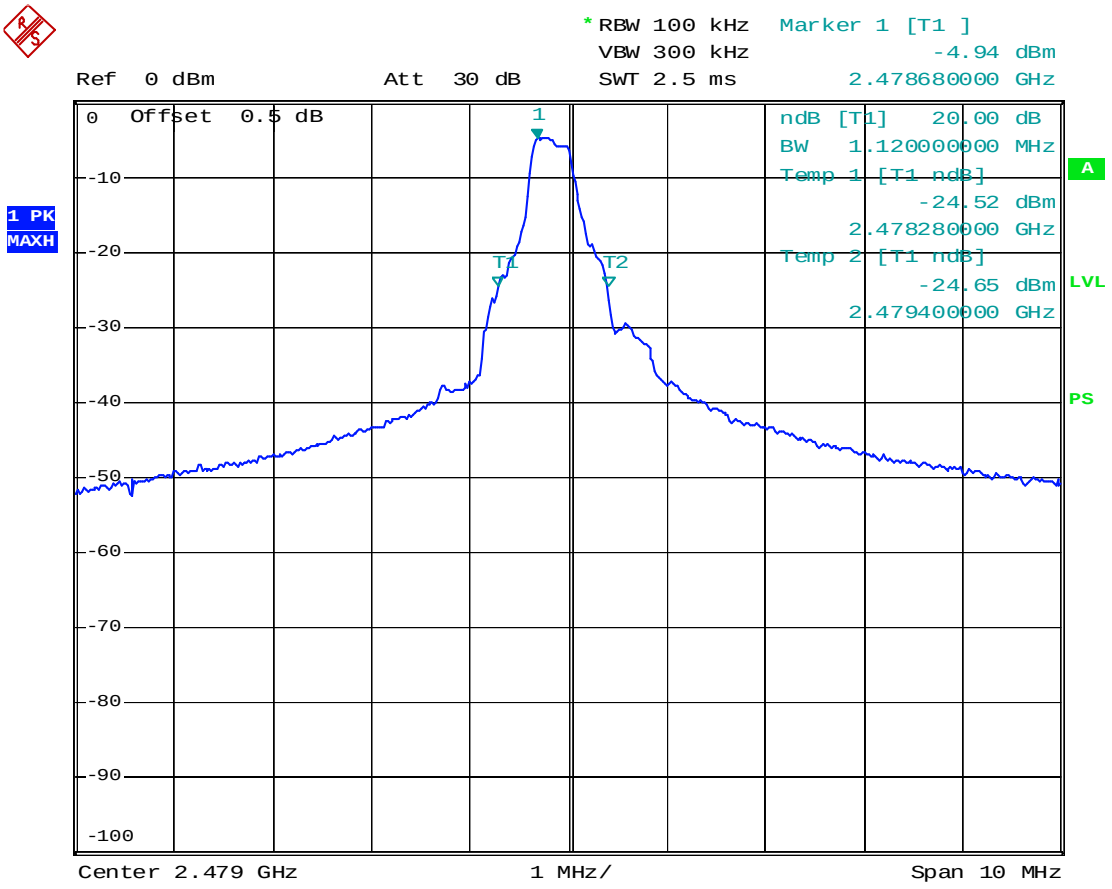
Middle channel



M/N:COM101 20dB Bandwidth middle channel

Date: 25.OCT.2006 10:12:29

High channel



M/N:COM101 20dB bandwidth high channel

Date: 25.OCT.2006 10:33:15

§15.247(a) (1) (iii) -HOPPING CHANNEL Number

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	2006-8-17	2007-8-17

*** 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

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:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

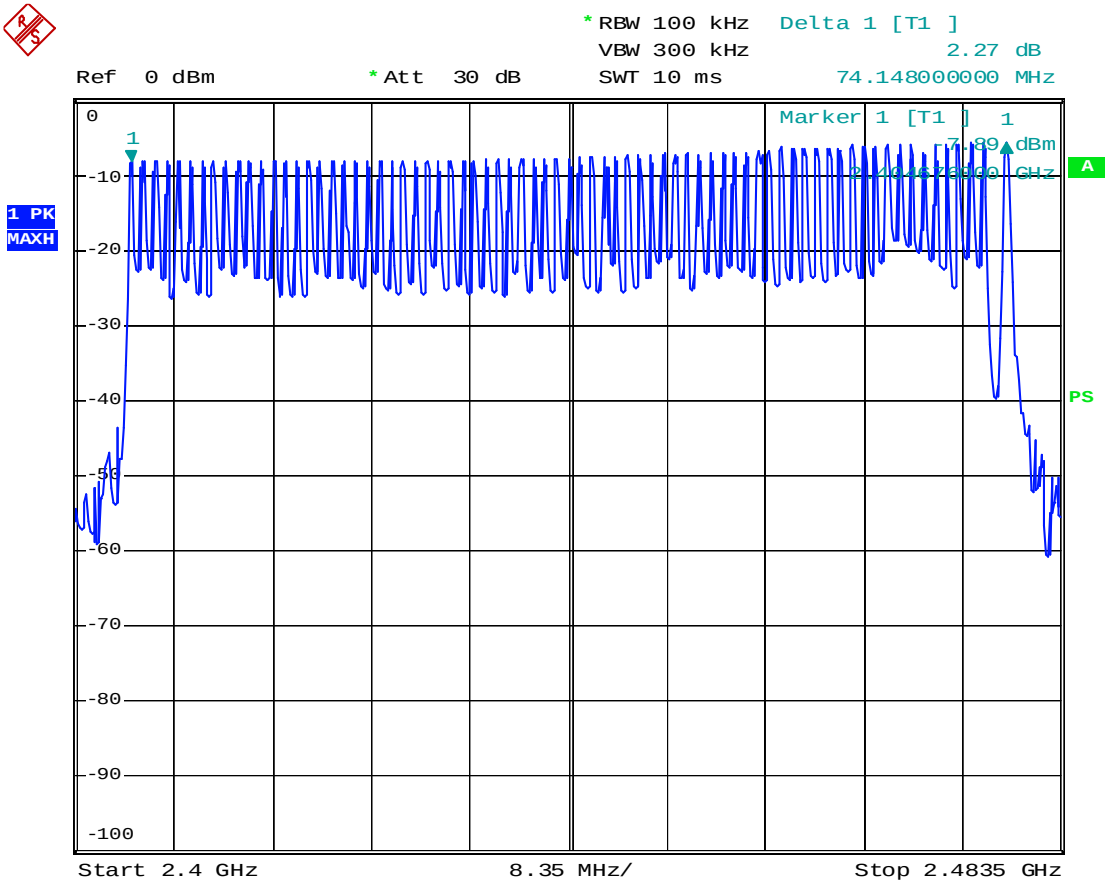
The testing was performed by Deny Xiong on 2006-10-26.

Test Result: Pass

Frequency Range	Number of Hopping Channel	Limit
2400 to 2483.5 MHz	74	>15

Please refer to the plot hereinafter.

Test mode: Transmitting



M/N:COM101 Quantity of hopping channel

Date: 26.OCT.2006 11:48:46

§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	2006-8-17	2007-8-17

*** 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

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 False was get from single sweep. In addition, the time of single Pluses was tested.

Limit

FCC Part 15, Subpart C Section 15.247.

FREQUENCY RANGE (MHz)	LIMIT (ms)		
	20dB bandwidth <250kHz (50 Channel)	20dB bandwidth >250kHz (50 Channel)	20dB bandwidth <1 MHz (74 Channel)
902-928	N/A	N/A	N/A
2400-2483.5	N/A	N/A	29.6s
5725-5850	N/A	N/A	N/A

Dwell Time= time slot length * hope rate/ number of hopping channels * 29.6s
Hop rate=1600/s

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Deny Xiong on 2006-10-25.

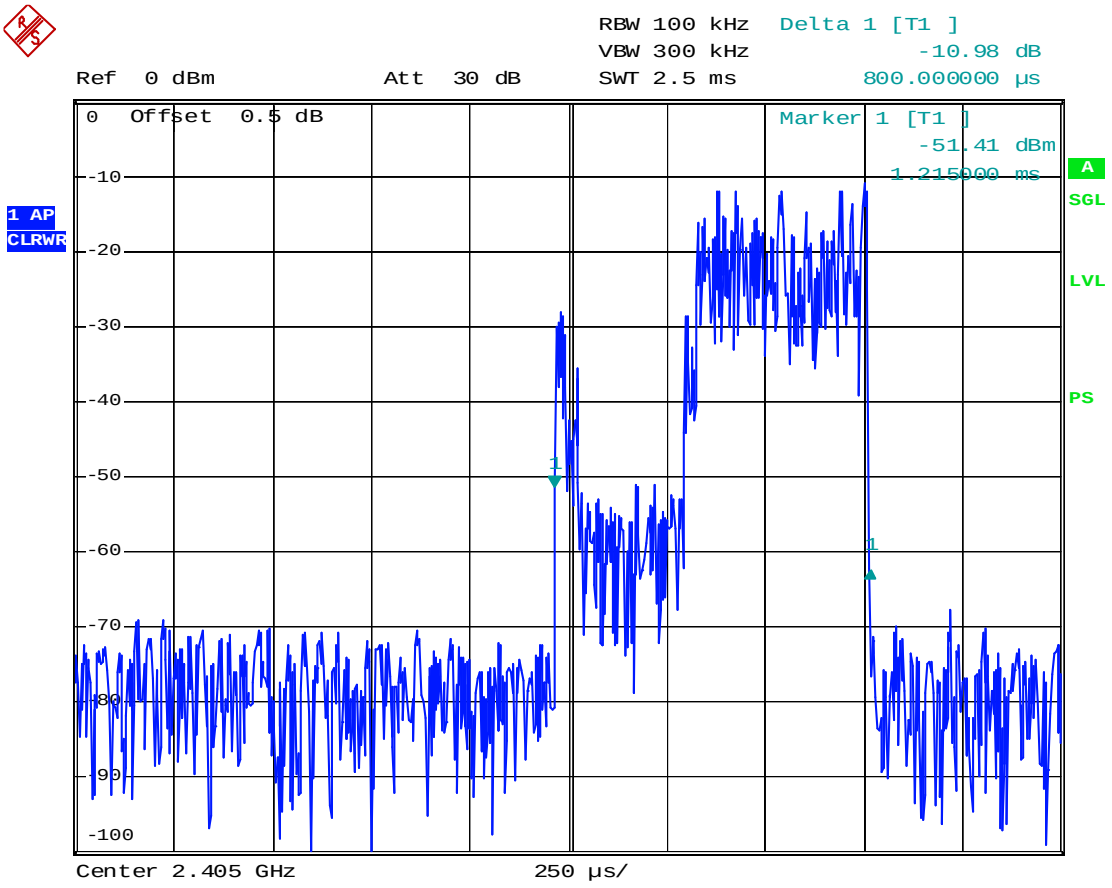
Test Result: Pass

Test mode: Transmitting

Channel	Pulse wide (msec)	Number of Hopping channel in 0.4x No. CH period	Dwell time (sec)	Limit (sec)	Result
Low Channel	0.8	80	0.064	0.4	Pass
Mid Channel	0.8	80	0.064	0.4	Pass
High Channel	0.8	80	0.064	0.4	Pass

Low channel

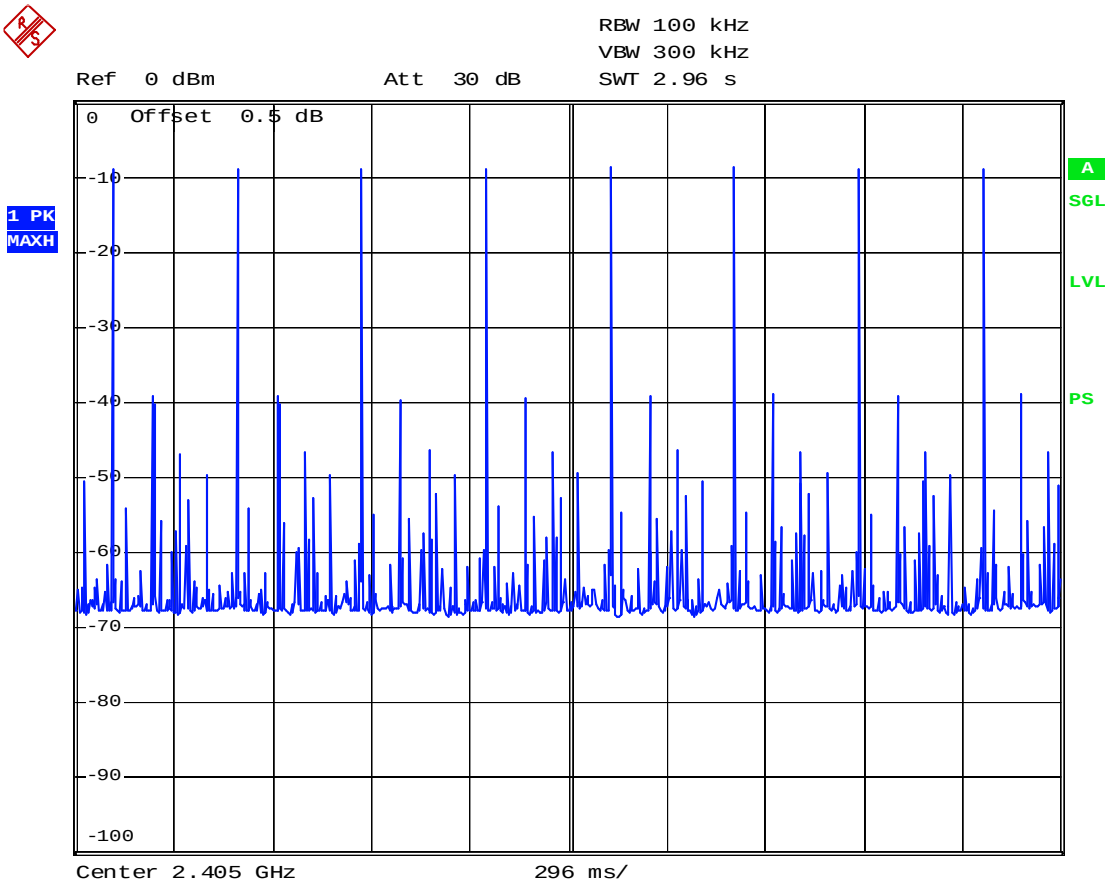
Pulse of Low Channel:



M/N:COM101 pulse of low channel

Date: 25.OCT.2006 10:24:08

No. Pulse of Low Channel:

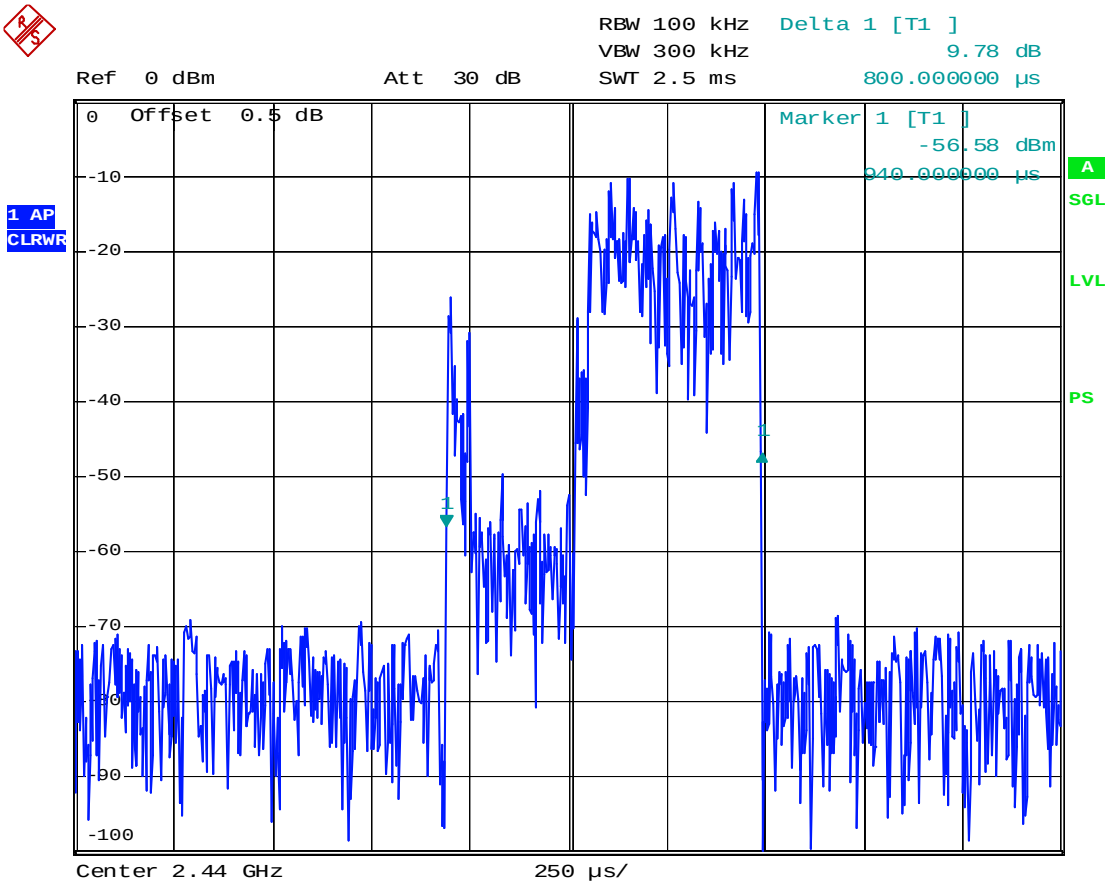


M/N:COM101 No of pulse of channel low channel

Date: 25.OCT.2006 15:05:49

Middle channel

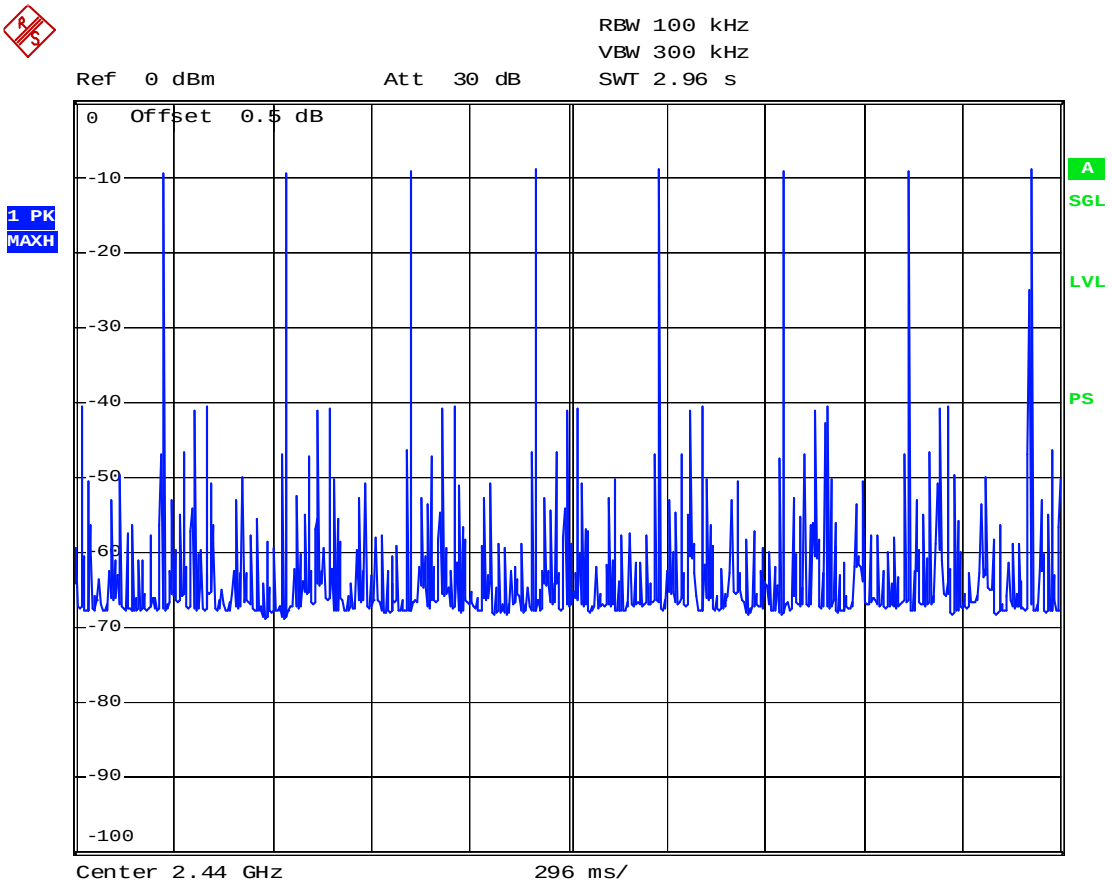
Pulse of Middle Channel:



M/N:COM101 pulse of middle channel

Date: 25.OCT.2006 10:21:24

No Pulse of Middle Channel:

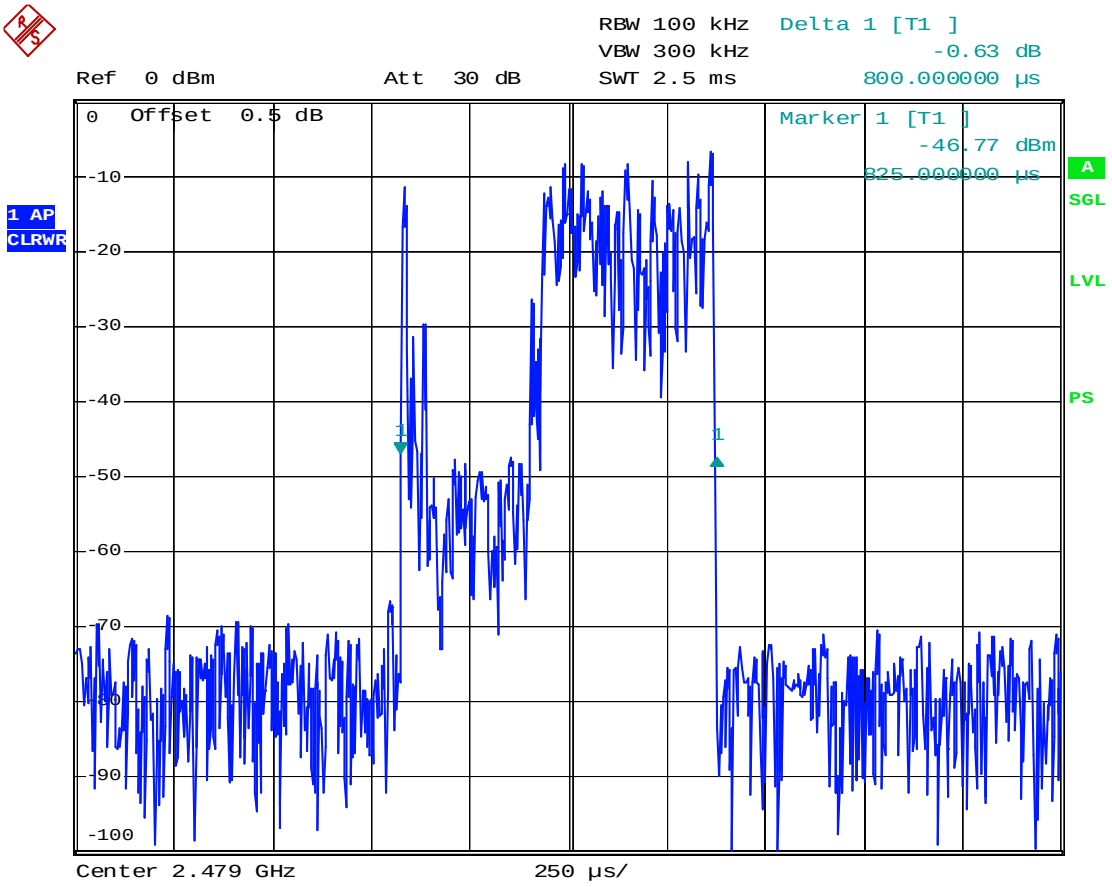


M/N:COM101 No of pulse of channel middle channel

Date: 25.OCT.2006 15:05:25

High channel

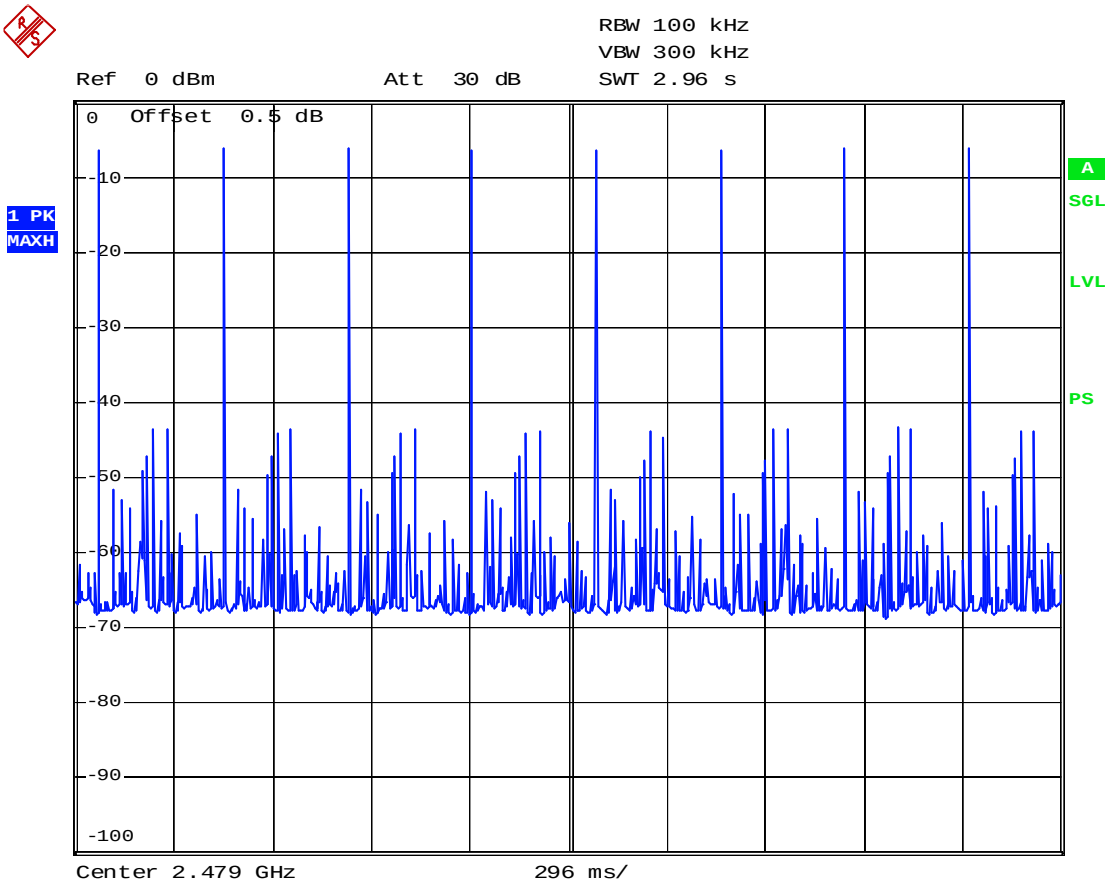
Pulse of High Channel:



M/N:COM101 pulse of high channel

Date: 25.OCT.2006 10:28:14

No Pulse of High Channel:



M/N:COM101 No of pulse of channel High channel

Date: 25.OCT.2006 15:04:51

§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.

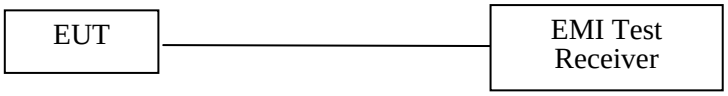
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	2006-8-17	2007-8-17

*** 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

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 a EMI Test Receiver.
3. Add a correction factor to the display.



Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

The testing was performed by Deny Xiong on 2006-10-24, 2006-10-25.

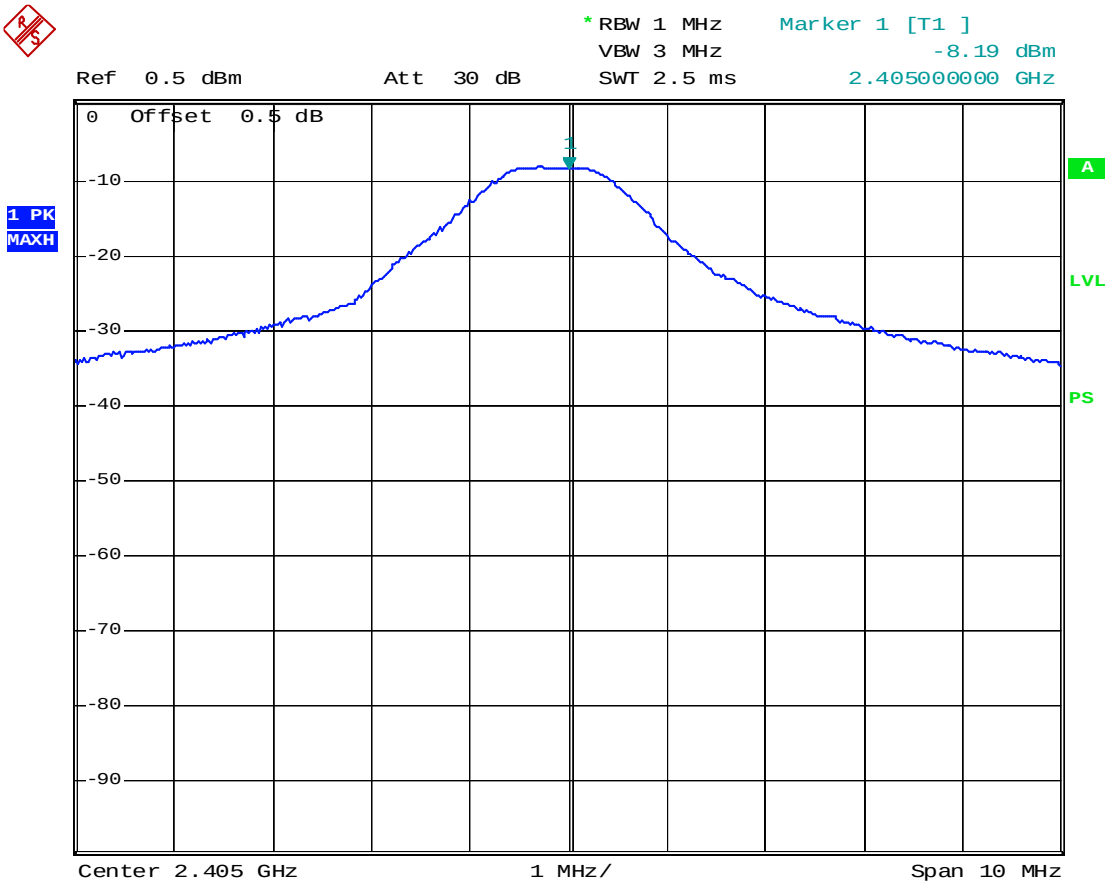
Test mode: Transmitting

Channel	Channel Frequency (MHz)	Power Output		Limit (w)
		(dBm)	(w)	
Low Channel	2405	-8.19	0.00015	0.125
Middle Channel	2440	-7.46	0.00018	0.125
High Channel	2479	-4.80	0.00033	0.125

Test Result: Pass

Please refer to the following plots.

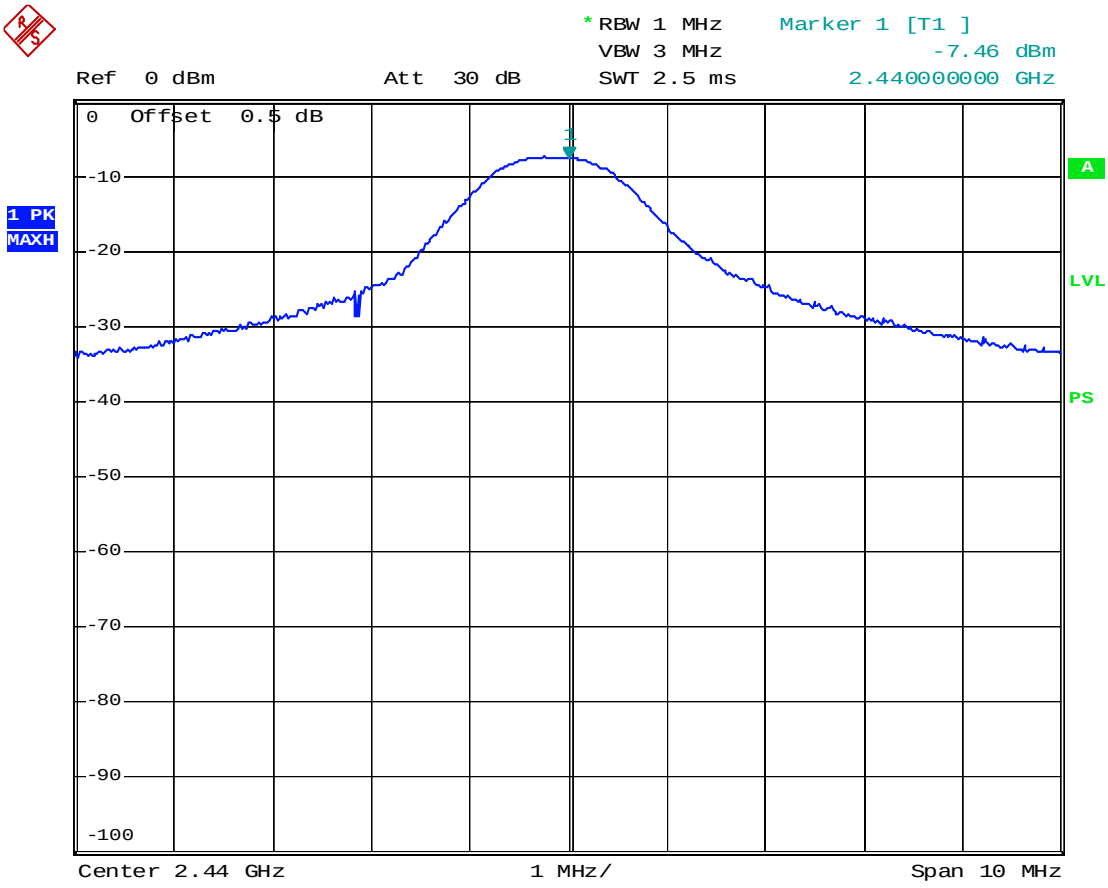
Low channel



M/N:COM101 Output power low channel

Date: 24.OCT.2006 15:14:34

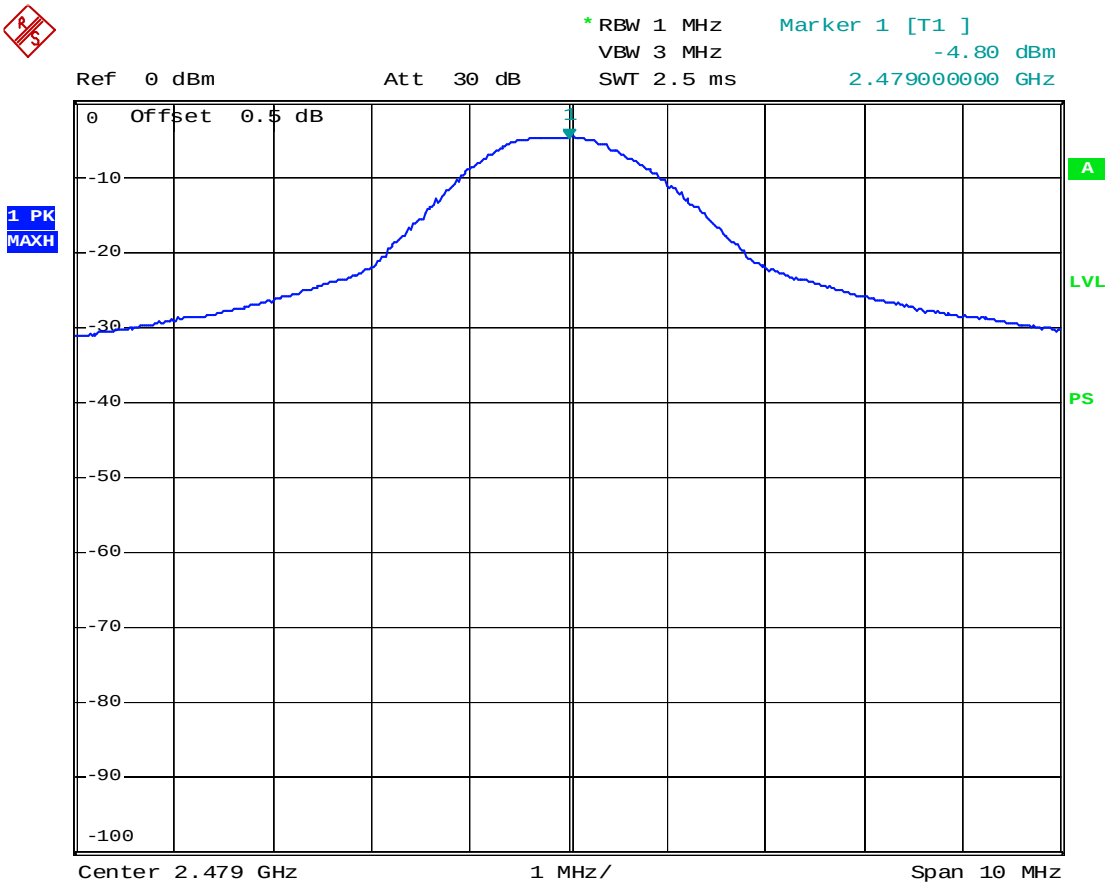
Middle channel



M/N:COM101 output power middle channel

Date: 25.OCT.2006 10:15:33

High channel



M/N:COM101 output power high channel

Date: 25.OCT.2006 10:31:15

§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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	2006-8-17	2007-8-17

*** 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

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 both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz 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:	18 °C
Relative Humidity:	53 %
ATM Pressure:	1009mbar

The testing was performed by Deny Xiong on 2006-10-25.

Test Mode: Transmitting

Frequency (MHz)	Reading (dBuV/m)	Antenna Factor (dB/m)	Cable loss (dB)	Amplifier (dB)	Correct Amplitude (dBuV/m)	Limit (dBuV/m)	Margin
2399.9	52.3	27.4	3.61	35.0	48.31	54	-5.69
2483.6	51.4	27.4	3.61	35.0	47.41	54	-6.59

Test Result: Pass