NVLAP LAB CODE 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

Xinwei Electronic Co., Ltd., Quanzhou

Wan An Tang Xi Industrial Area. Luo Jiang Quanzhou Fujian, China

FCC ID: UUPHSH31

This Report Concerns:	Equipment Type:
☒ Original Report	Bluetooth Headset

Test Engineer:	Merry Zhao
Report No.:	RSZ 07102201
Test Date:	2007-10-30 to 2007-11-15
Report Date:	2007-12-04
Reviewed By:	EMC Manager: Green Xu
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 *Xinwei Electronic Co.,Ltd., Quanzhou*'s product, model number: *H31, H36, H39* or the "EUT" as referred to in this report is a *Bluetooth Headset*, which measures approximately: 4.0 cm L x 2.0 cm W x 2.3 cm H, rated input voltage: 3.7V Battery and DC 5V adapter.

The series products, model name: *H31, H36, H39* have the same circuit diagram, PCB layout, only appearance is different, so, we select *H31* to test.

AC/DC adapter:
Manufacturer: Mountronix
Model: GFP051T-0505
Input: AC 100-240 V 50/60 Hz 0.2A
Output: DC 5V 0.5A

** All measurement and test data in this report was gathered from production sample serial number: 0710017 (Assigned by BACL, Shenzhen). The EUT was received on 2007-10-22.*

Objective

This Type approval report is prepared on behalf of *Xinwei Electronic Co., Ltd., Quanzhou* 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 Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

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

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

NVLAP LAB CODE 200707-0

The current scope of accreditations can be found at
http://ts.nist.gov/Standards/scopes/2007070.htm

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

EUT Exercise Software

N/A.

Special Accessories

The special accessories were provided by Bay Area Compliance Laboratories Corp. (Shenzhen).

Equipment Modifications

No modifications were made to the unit tested.

Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Motherboard	OWC297	CN-OWC297-70821-566-02BR	DoC
DELL	Power	NPS-250KB D	CN-0H2678-17972-56E8NBM	DoC
Seagate	Hard Disk	ST340014A	5JXK3NAD	DoC
DELL	3.5' Floppy	N/A	CN-0N8893-69802-54Q-02OZ	DoC
Lite-ON	CD-Rom	LTN-489S	N/A	DoC
Intel	Ethernet	PRO 10/100 VE	N/A	DoC
Intel	CPU	Celeron D-2533	N/A	DoC
ProMOS	Memory	V826632K24SATG-C0	0525-K1933700	DoC
DELL	PC	DELL 170L	CN-0TC670-70821-560-F4WQ	DoC

Local Support Equipment List and Details

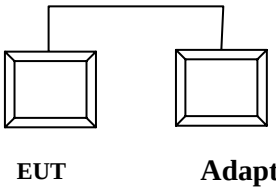
Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Keyboard	SK-8110	CN07N244-71616-56I-1I0O	DoC
DELL	Mouse	M071KC	519046820	DoC
DELL	LCD Monitor	1505FP	Y4287-7168-574-GBSH	DoC

External I/O Cable

Cable Description	Length (M)	From Port	To
Shielded Detachable K/B Cable	1.5	K/B Port /Host	K/B
Shielded Detachable Mouse Cable	1.5	Mouse Port /Host	Mouse
Shielded Detachable VGA Cable	1.5	VGA Port /Host	Monitor
Adapter Cable	1.0	Adapter	EUT

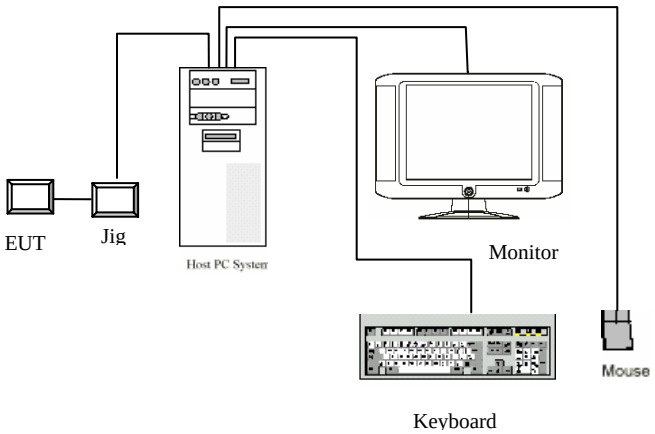
Configuration of Test Setup

For Conducted emissions:

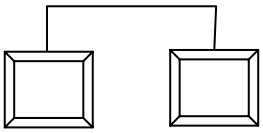


For Radiated emissions:

Transmitting mode:



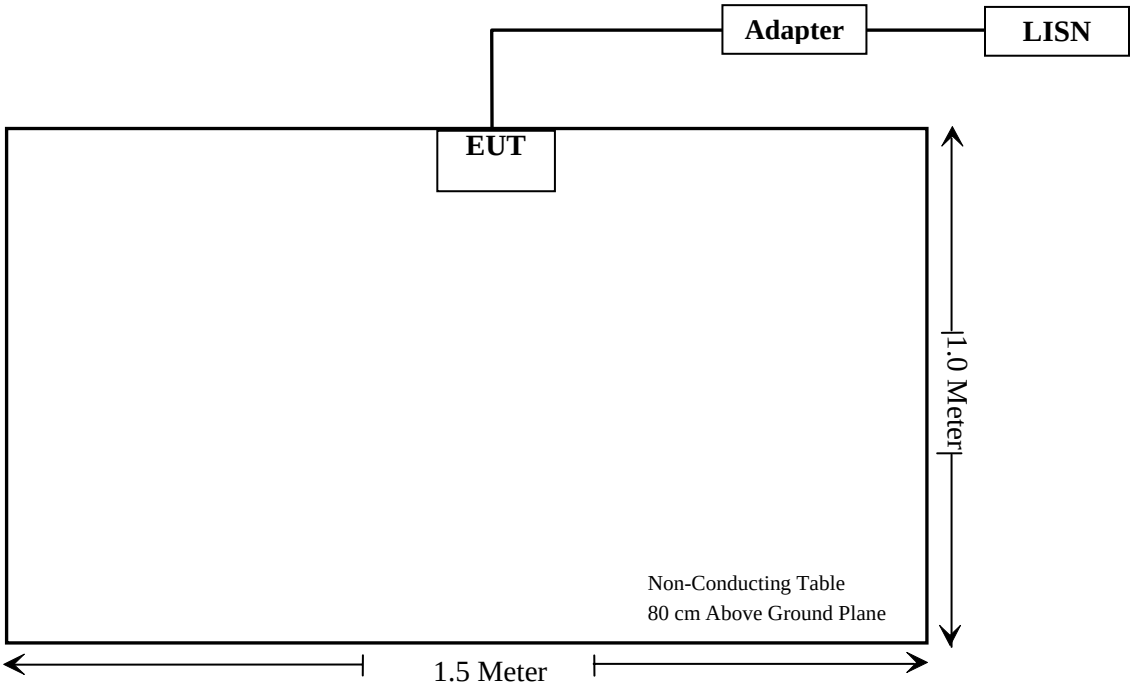
Charging mode:



EUT Adapter

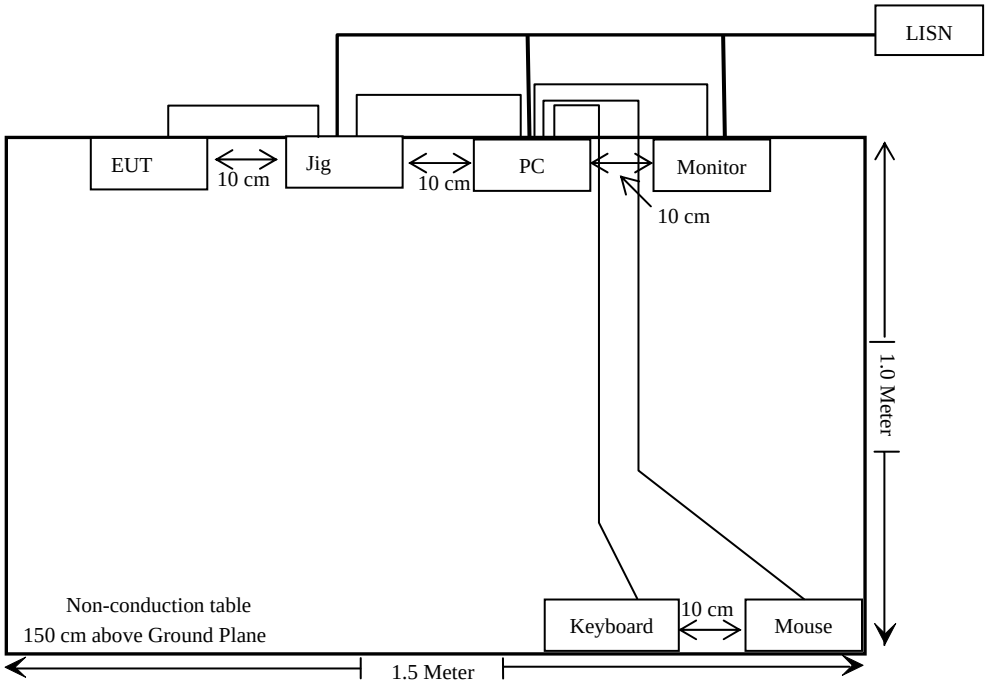
Block Diagram of Test Setup

For Conducted emissions:

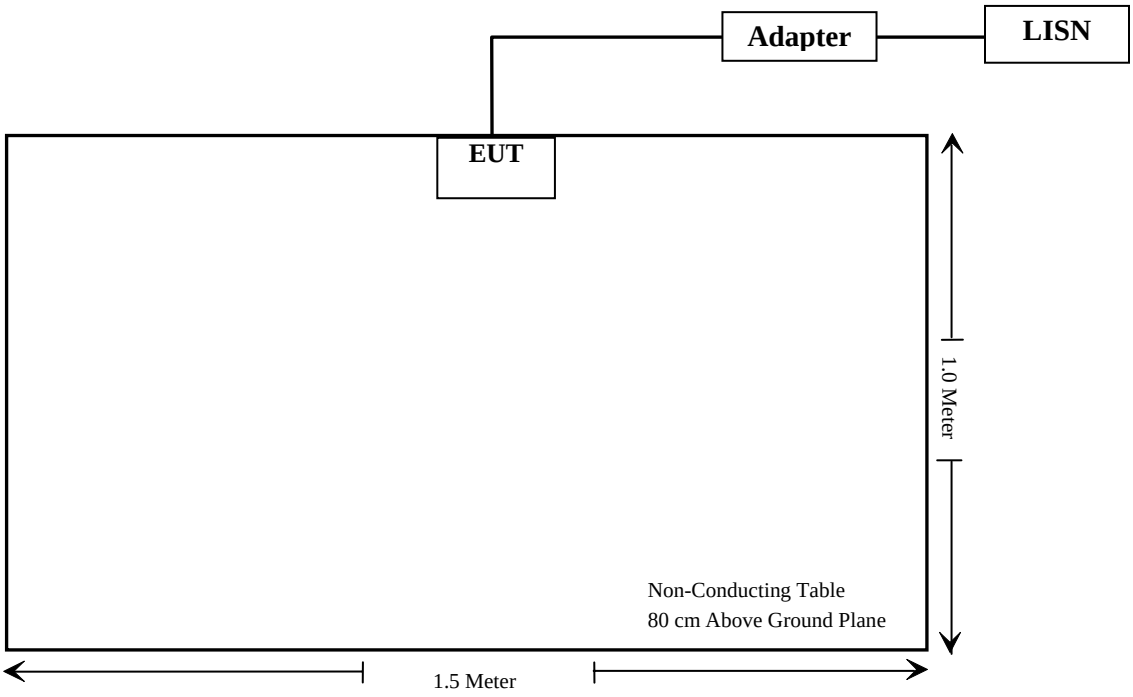


For Radiated emissions:

Transmitting mode:



Charging mode:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.107 (a)	Conducted Emission	Compliant
§15.247 (i) & §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.205	Restricted Band	Compliant
§15.109, §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)	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 testing	Compliant

* *Within measurement uncertainty.*

§15.247 (i) & §2.1093 - RF EXPOSURE

Standard Applicable

According to § 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 FCC Exclusion list, In the following table, f_{GHz} is mid-band frequency in GHz, and d is the distance to a person's body, excluding hands, wrists, feet, and ankles.

Exposure category	low threshold	high threshold
general population	$(60/f_{GHz})$ mW, $d < 2.5$ cm $(120/f_{GHz})$ mW, $d \geq 2.5$ cm	$(900/f_{GHz})$ mW, $d < 20$ cm
occupational	$(375/f_{GHz})$ mW, $d < 2.5$ cm $(900/f_{GHz})$ mW, $d \geq 2.5$ cm	$(2250/f_{GHz})$ mW, $d < 20$ cm

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

Measurement Result:

This is a portable device and the Max peak output power is 1.169 mW<24.6 mW= (60/2.441GHz) mW.

The SAR measurement is not required.

§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.

This product has a integral antenna fulfill the requirement of this section. Antenna gain is less than 2dBi.

Result: Compliant.

Please refer to the EUT internal photos.

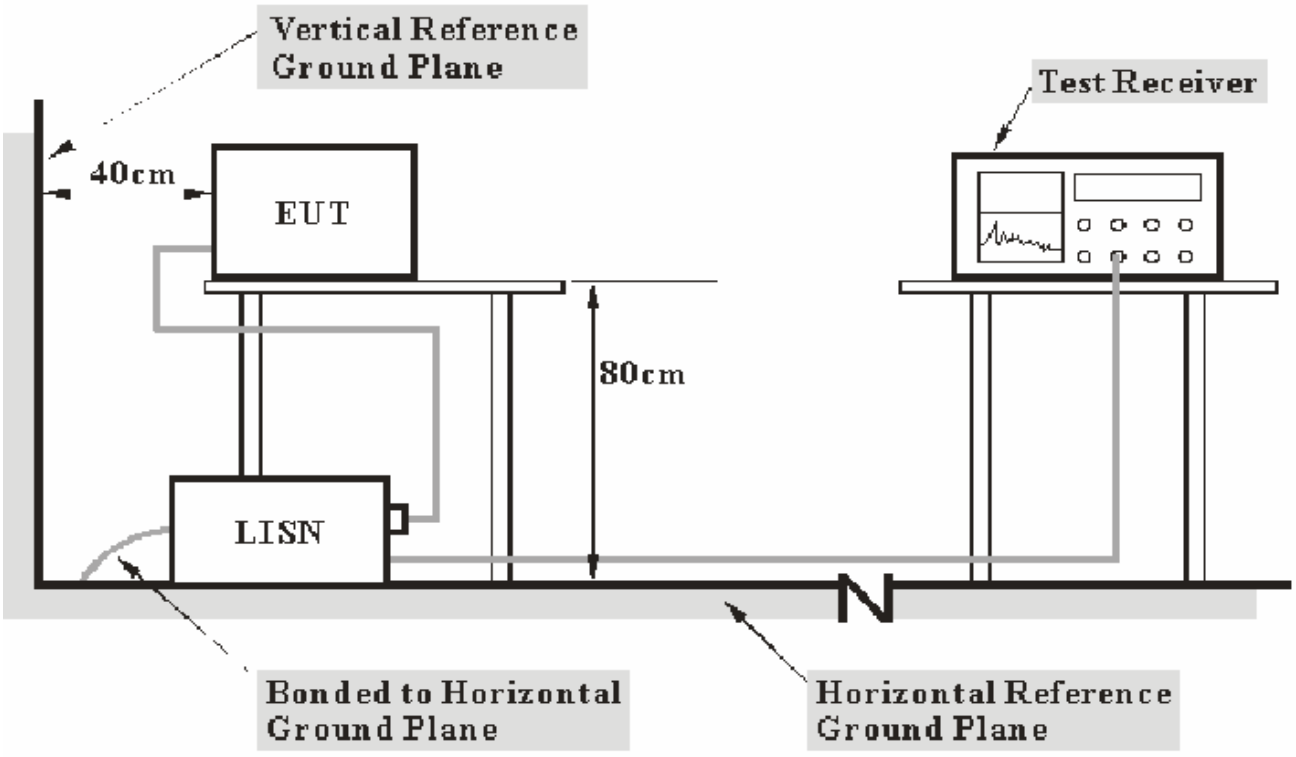
§15.207 (a) - CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±2.4 dB.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15 Class B 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	12008	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2007-10-16	2008-10-16
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2007-03-26	2008-03-26

***** Com-Power's LISN were used as the supporting equipment.
*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the adapter 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:

8.86 dB at **0.350 MHz** in the **Hot** conductor mode.

Test Data

Environmental Conditions

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

The testing was performed by Merry Zhao on 2007-10-31.

Test Mode: Charging

Line Conducted Emissions				FCC PART 15 207	
Frequency (MHz)	**Amplitude (dBμV)**	**Detector (QP/AV)**	**Phase (Hot/Neutral)**	**Limit (dBμV)**	**Margin (dB)**
0.350	50.10	QP	Hot	58.96	8.86
0.410	46.80	QP	Hot	57.65	10.85
0.350	37.30	AV	Hot	48.96	11.66
25.080	47.70	QP	Neutral	60.00	12.30
3.900	43.20	QP	Neutral	56.00	12.80
0.410	34.70	AV	Hot	47.65	12.95
0.640	42.80	QP	Hot	56.00	13.20
0.290	47.00	QP	Hot	60.52	13.52
29.790	46.40	QP	Neutral	60.00	13.60
0.640	31.80	AV	Hot	46.00	14.20
0.580	41.30	QP	Hot	56.00	14.70
1.570	40.90	QP	Hot	56.00	15.10
0.580	29.60	AV	Hot	46.00	16.40
0.410	40.10	QP	Neutral	57.65	17.55
1.570	27.50	AV	Hot	46.00	18.50
0.350	40.30	QP	Neutral	58.96	18.66
0.290	30.00	AV	Hot	50.52	20.52
0.290	39.50	QP	Neutral	60.52	21.02
0.410	21.40	AV	Neutral	47.65	26.25
0.350	20.20	AV	Neutral	48.96	28.76
0.290	20.10	AV	Neutral	50.52	30.42
25.230	18.10	AV	Neutral	50.00	31.90
3.900	7.20	AV	Neutral	46.00	38.80
29.790	7.90	AV	Neutral	50.00	42.10

Plot(s) of Test Data

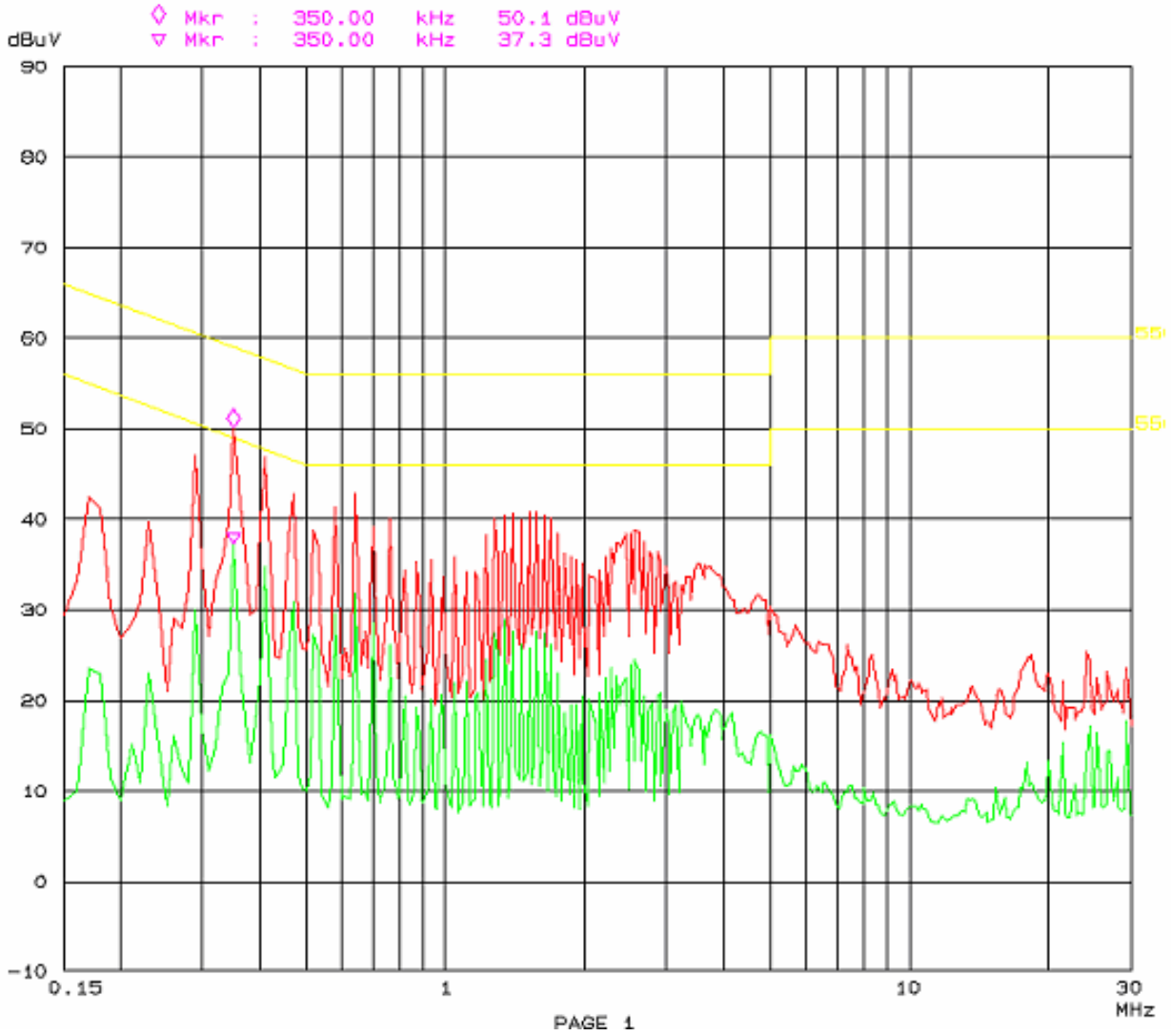
Plot(s) of Test Data is presented hereinafter as reference.

120V AC / 60Hz Hot:

Conducted Emission Test
FCC part 15 B

31. Oct 07 13:16

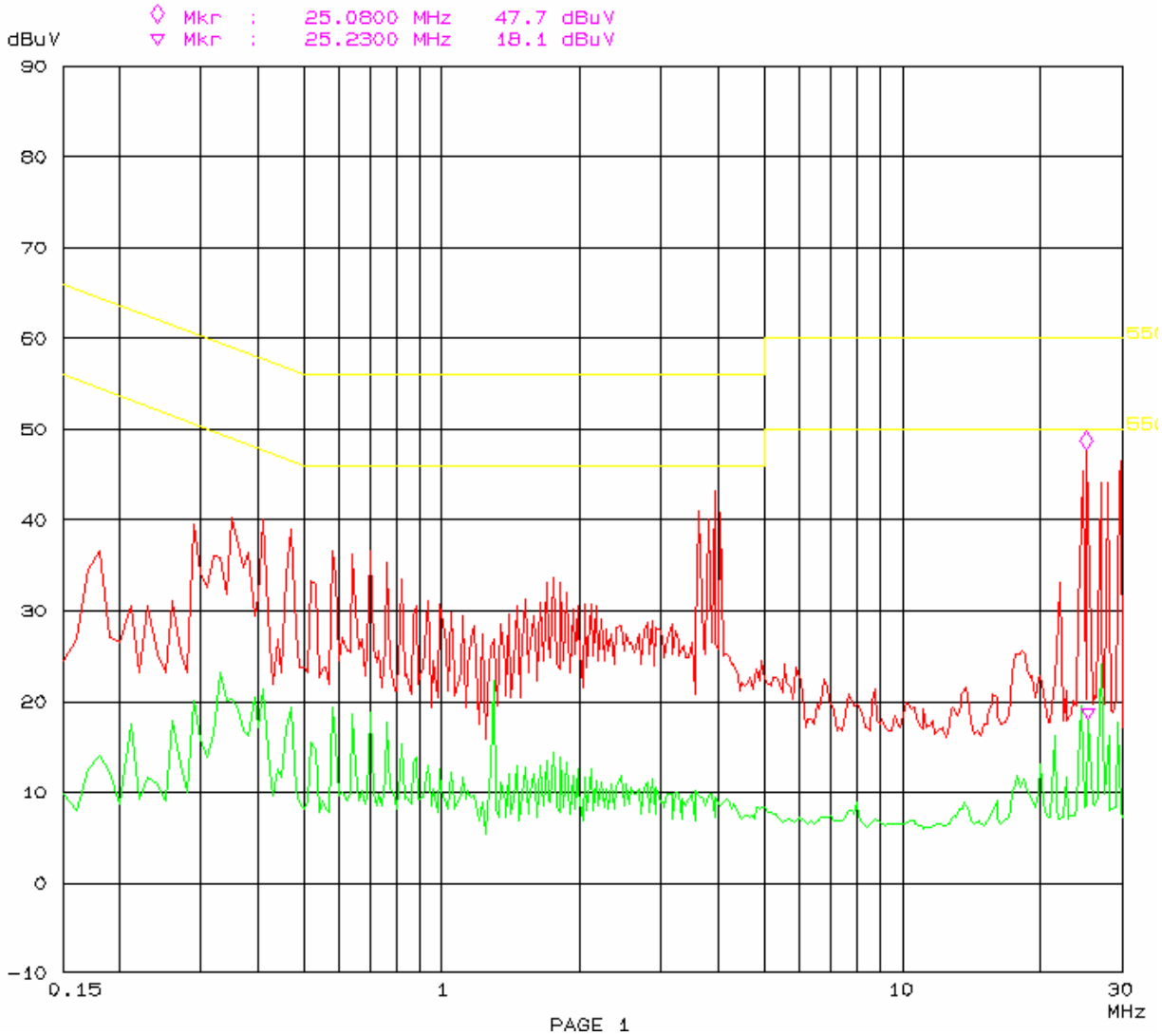
EUT: Bluetooth Headset M/N:H31
Manuf: XinWei
Op Cond: Charging
Operator: Mary
Test Spec: AC120V/60Hz
Comment: temp:25 Humi 56%



120V AC / 60Hz Neutral:

Conducted Emission Test 31. Oct 07 13:31
FCC part 15 B

EUT: Bluetooth Headset M/N:H31
Manuf: XinWei
Op Cond: Charging
Operator: Mary
Test Spec: AC120V/60Hz
Comment: temp:25 Humi 56%



§15.109, §15.205, §15.209, §15.247 - RADIATED EMISSIONS

Applicable Standard

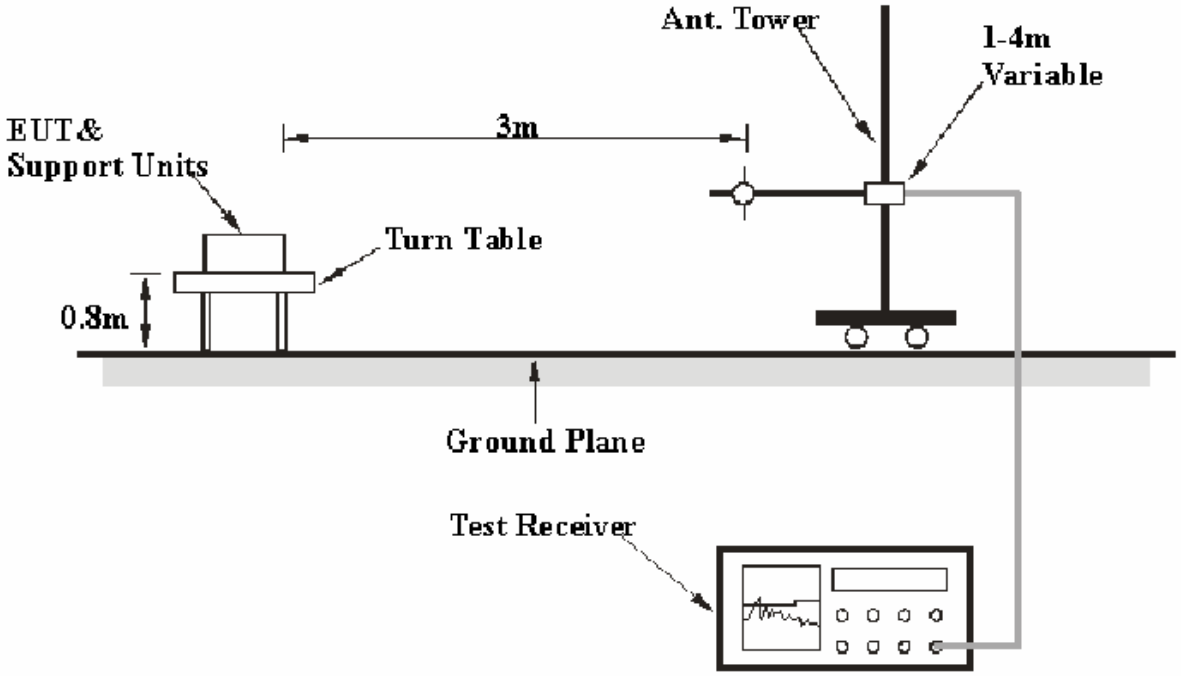
According to FCC §15.247 (d)

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 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 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2007-11-15	2008-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2007-10-16	2008-10-16
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2007-08-14	2008-08-14
HP	Amplifier	8449B	3008A00277	2007-09-29	2008-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-09-25	2008-09-25
Agilent	Spectrum Analyzer	8564E	3943A01781	2007-11-22	2008-11-22

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

Test Procedure

For the radiated emissions test, the adapter 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.

All data was recorded in the PK&AV detection mode.

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = 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 = 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 15.109, 15.205, 15.209, and 15.247, with the worst margin reading of:

Transmitting mode: 30 MHz-1000MHz

2.2 dB at **75.087975 MHz** in the **Vertical** polarization

Transmitting mode: above 1 GHz

2.15 dB at **1601 MHz** in the **Vertical** polarization, **(Low Channel)**
1.73 dB at **1627.8 MHz** in the **Horizontal** polarization, **(Middle Channel)**
1.21 dB at **1653 MHz** in the **Vertical** polarization, **(High Channel)**

Charging mode

1.6 dB at **681.355000 MHz** in the **Horizontcal** polarization

Test Data

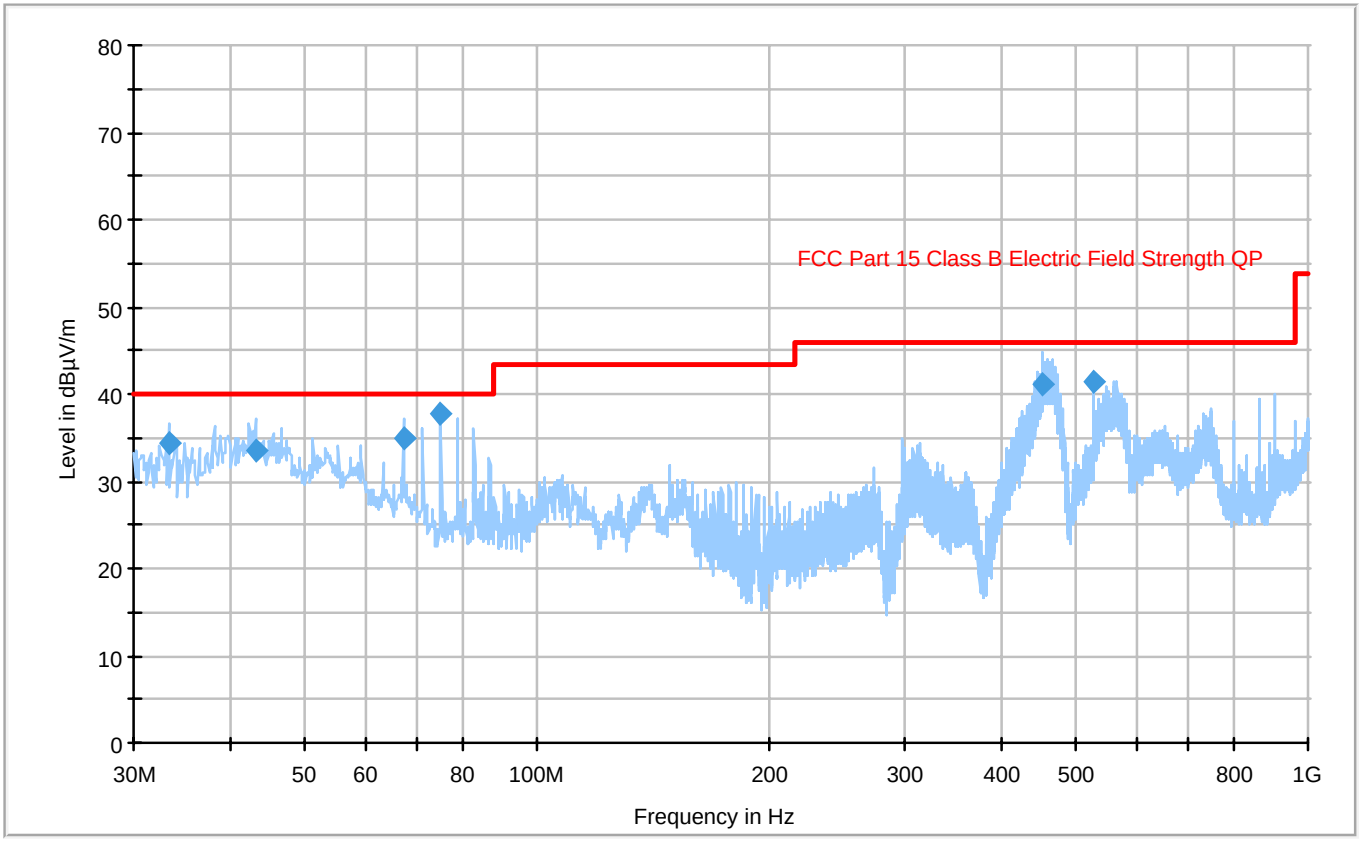
Environmental Conditions

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

The testing was performed by Merry Zhao on 2007-10-30.

Test Mode: Transmitting

30-1000MHz



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
75.087975	37.8	401.0	V	239.0	-17.1	40.0	2.2*
528.067100	41.5	132.0	H	329.0	-5.5	46.0	4.5
453.372300	41.3	236.0	V	102.0	-7.6	46.0	4.7
67.178625	34.8	345.0	H	138.0	-17.1	40.0	5.2
33.318300	34.4	99.0	H	40.0	-6.7	40.0	5.6
43.178700	33.5	99.0	H	80.0	-13.8	40.0	6.5

Above 1GHz

Low Channel

Freq. (MHz)	Meter Reading (dBuV)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Corr. Amp.. (dBuV/m)	FCC Part 15.247/205/209		
				Height (m)	Polar (H/V)	Factor (dB)				Limit (dBuV/m)	Margin (dB)	Remarks
2402	86.05	PK	90	1.0	H	30.6	3.61	35	85.26			Fund.
2402	82.35	AV	45	1.0	H	30.6	3.61	35	81.56			Fund.
2402	86.31	PK	90	1.0	V	30.6	3.61	35	85.52			Fund.
2402	84.75	AV	45	1.0	V	30.6	3.61	35	83.96			Fund.
1601	58.08	AV	180	1.2	V	26.0	2.77	35.0	51.85	54	2.15*	Spurious
1601	54.28	AV	180	1.2	H	26.5	2.77	35.0	48.55	54	5.45	Spurious
1200	49.29	AV	180	1.2	V	24.8	2.50	36.0	40.59	54	13.41	Spurious
4804	30.70	AV	90	1.0	H	36.6	4.64	33.4	38.54	54	15.46	Harmonic
1200	45.85	AV	180	1.2	H	25.6	2.50	36.0	37.95	54	16.05	Spurious
4804	30.97	AV	90	1.0	V	35.4	4.64	33.4	37.61	54	16.39	Harmonic
1601	60.68	PK	45	1.2	V	26.0	2.77	35.0	54.45	74	19.55	Spurious
1601	57.49	PK	45	1.2	H	26.5	2.77	35.0	51.76	74	22.24	Spurious
4804	44.89	PK	180	1.2	V	35.4	4.64	33.4	51.53	74	22.47	Harmonic
4804	43.3	PK	180	1.2	H	36.6	4.64	33.4	51.14	74	22.86	Harmonic
1200	53.79	PK	45	1.2	V	24.8	2.50	36.0	45.09	74	28.91	Spurious
1200	52.83	PK	45	1.2	H	25.6	2.50	36.0	44.93	74	29.07	Spurious

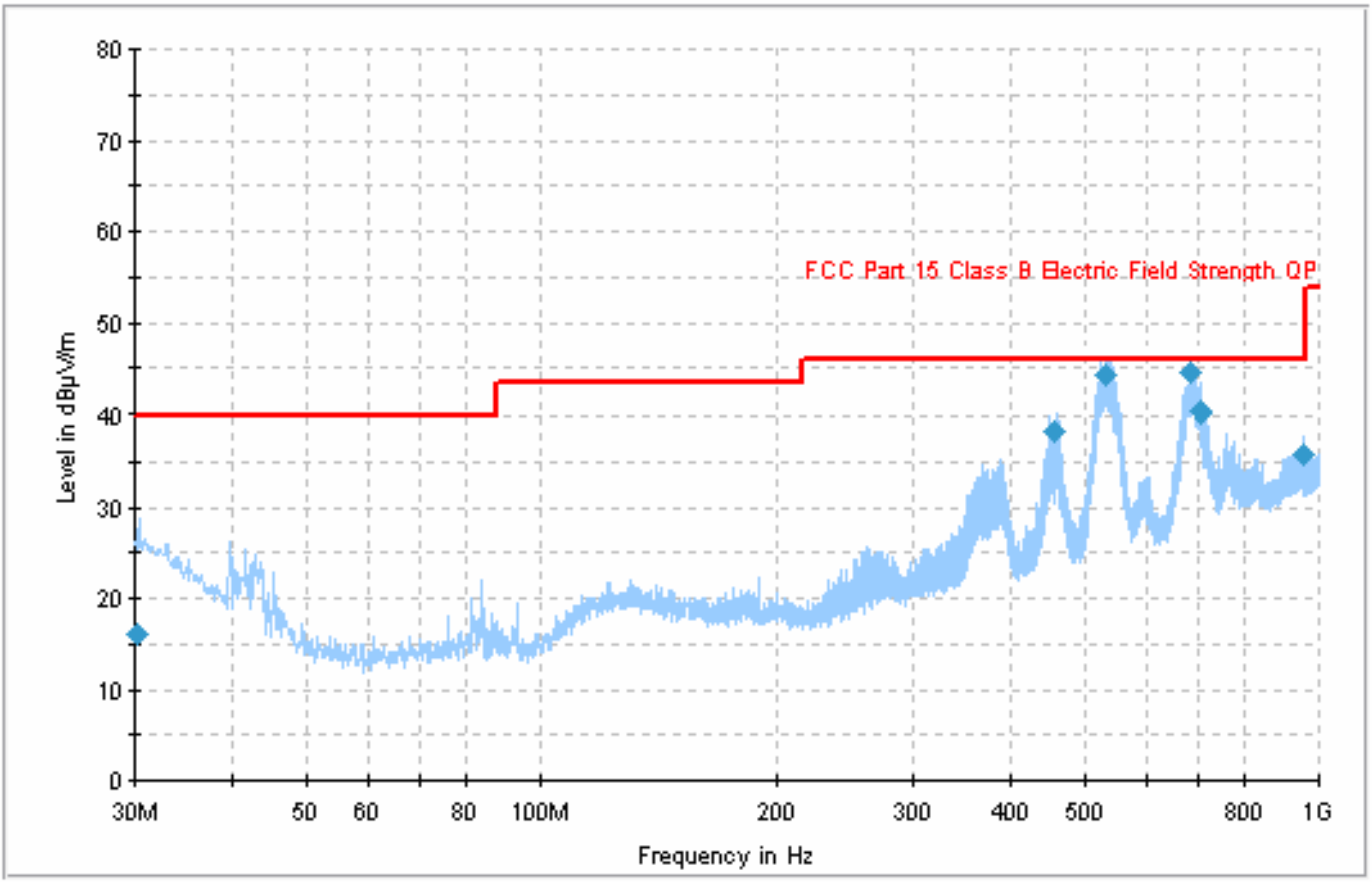
Middle Channel

Freq. (MHz)	Meter Reading (dBuV)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Corr. Amp.. (dBuV/m)	FCC Part 15.247/205/209		
				Height (m)	Polar (H/V)	Factor (dB)				Limit (dBuV/m)	Margin (dB)	Remarks
2441	86.74	PK	60	1.4	V	30.6	3.61	35	85.95			Fund.
2441	84.81	AV	152	1.3	V	30.6	3.61	35	84.02			Fund.
2441	82.82	PK	128	1.5	H	30.6	3.61	35	82.03			Fund.
2441	80.89	AV	156	1.2	H	30.6	3.61	35	80.1			Fund.
1627.8	59.00	AV	85	1.5	H	26.5	2.77	36.0	52.27	54	1.73*	Spurious
1627.8	59.64	AV	135	1.3	V	26.0	2.77	36.0	52.41	54	1.86*	Spurious
1200	48.28	AV	180	1.2	H	25.6	2.50	36.0	40.38	54	13.62	Spurious
1200	47.92	AV	180	1.2	V	24.8	2.50	36.0	39.22	54	14.78	Spurious
4882	30.80	AV	243	1.4	H	36.6	4.64	33.4	38.64	54	15.36	Harmonic
1627.8	64.18	PK	156	1.4	V	26.0	2.77	36.0	56.95	74	16.05	Spurious
4882	30.38	AV	142	1.6	V	35.4	4.64	33.4	37.02	54	16.98	Harmonic
1627.8	60.50	PK	265	1.4	H	26.5	2.77	36.0	53.77	74	20.23	Spurious
4882	44.18	PK	153	1.5	H	36.6	4.64	33.4	52.02	74	21.98	Harmonic
4882	44.92	PK	234	1.8	V	35.4	4.64	33.4	51.56	74	22.44	Harmonic
1200	53.01	PK	45	1.2	H	25.6	2.50	36.0	45.11	74	28.89	Spurious
1200	53.14	PK	45	1.2	V	24.8	2.50	36.0	44.44	74	29.56	Spurious

High Channel

Freq. (MHz)	Meter Reading (dBuV)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Corr. Amp.. (dBuV/m)	FCC Part 15.247/205/209		
				Height (m)	Polar (H/V)	Factor (dB)				Limit (dBuV/m)	Margin (dB)	Remarks
2480	83.74	PK	89	1.5	H	30.6	3.61	35	83.95			Fund.
2480	81.87	AV	65	1.5	H	30.6	3.61	35	81.08			Fund.
2480	85.23	PK	65	1.4	V	30.6	3.61	35	84.44			Fund.
2480	83.00	AV	65	1.6	V	30.6	3.61	35	82.21			Fund.
1653	59.02	AV	210	1.2	V	26.0	2.77	35.0	52.79	54	1.21*	Spurious
1653	58.31	AV	156	1.2	H	26.5	2.77	35.0	52.58	54	1.42*	Spurious
1200.6	48.38	AV	175	1.2	H	25.6	2.50	36.0	40.48	54	13.52	Spurious
1200.6	49.18	AV	324	1.2	V	24.8	2.50	36.0	40.48	54	13.52	Spurious
4960	33.17	AV	142	1.5	V	35.4	4.55	33.4	39.72	54	14.28	Harmonic
4960	30.86	AV	256	1.8	H	36.6	4.55	33.4	38.61	54	15.39	Harmonic
1653	63.08	PK	240	1.4	V	26.0	2.77	35.0	56.85	74	17.15	Spurious
1653	60.87	PK	128	1.5	H	26.5	2.77	35.0	55.14	74	18.86	Spurious
4960	44.12	PK	145	1.4	H	36.6	4.55	33.4	51.87	74	22.13	Harmonic
4960	43.92	PK	142	1.4	V	35.4	4.55	33.4	50.47	74	23.53	Harmonic
1200.6	54.62	PK	150	1.0	H	25.6	2.50	36.0	46.72	74	27.28	Spurious
1200.6	54.60	PK	324	1.3	V	24.8	2.50	36.0	45.9	74	28.1	Spurious

Test Mode: Charging



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
681.355000	44.4	115.0	H	6.0	-2.6	46.0	1.6*
529.329250	44.2	206.0	H	103.0	-5.1	46.0	1.8*
704.192750	40.4	114.0	H	0.0	-2.6	46.0	5.6
457.295125	38.3	99.0	H	123.0	-7.6	46.0	7.7
955.701750	35.7	114.0	H	62.0	1.3	46.0	10.3
30.201285	15.9	401.0	V	227.0	-4.5	40.0	24.1

** Within measurement uncertainty.*

§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	2007-10-16	2008-10-16

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

Test Procedure

1. 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.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Merry Zhao on 2007-11-15.

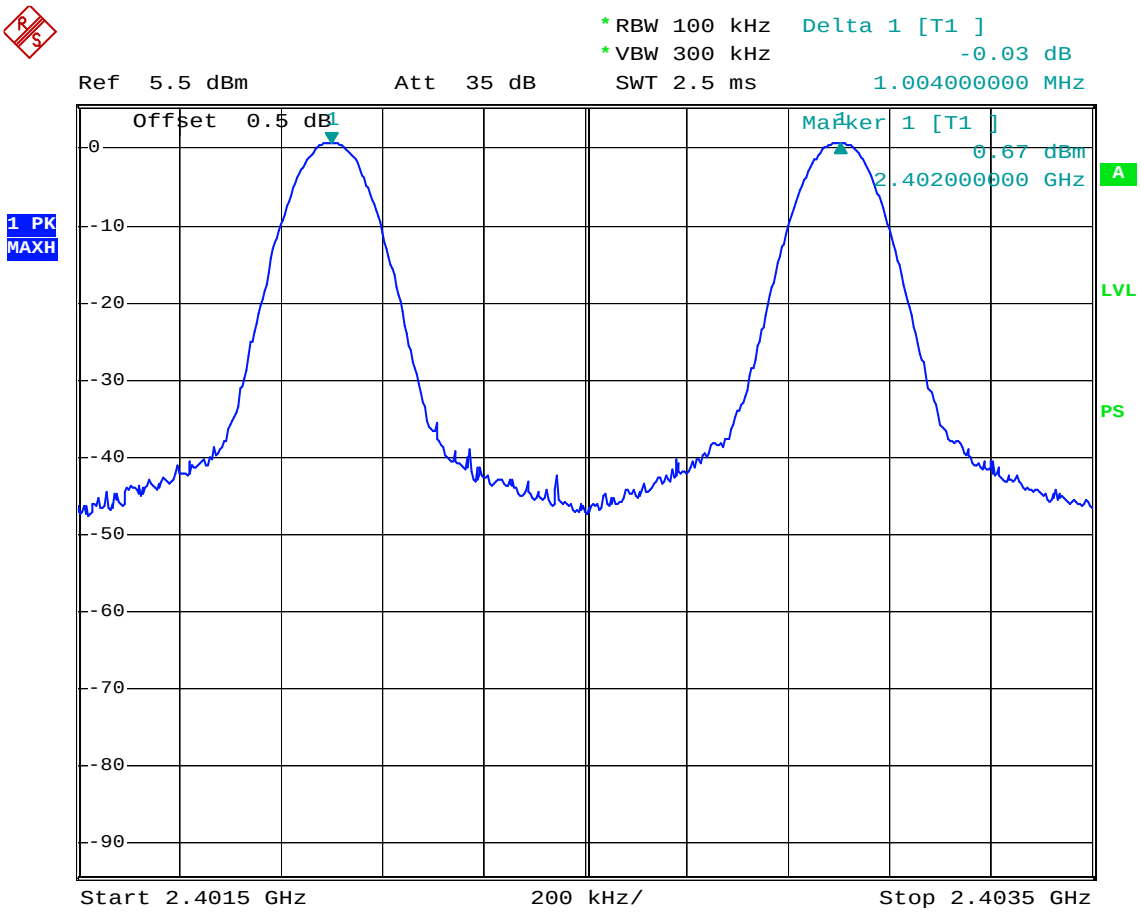
Test Result: Compliant.

Please refer to following table and plots

Test mode: Transmitting

Channel	Channel Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
Low Channel	2402	1.004	181.33	Pass
Adjacent Channel	2403			
Mid Channel	2441	1.004	181.33	Pass
Adjacent Channel	2442			
High Channel	2480	1.008	181.33	Pass
Adjacent Channel	2479			

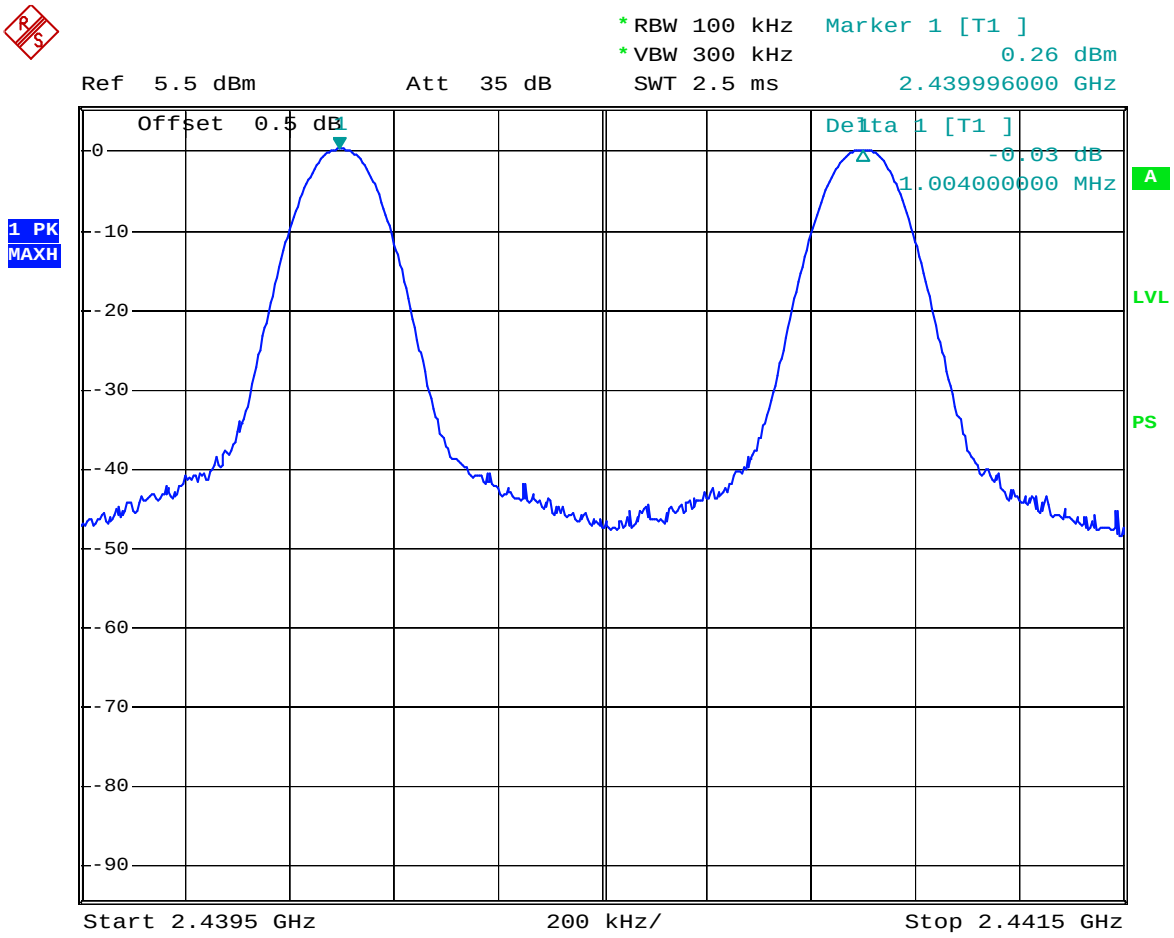
Low Channel



Xinwei H31, channel seperaton, low channel

Date: 15.NOV.2007 17:54:19

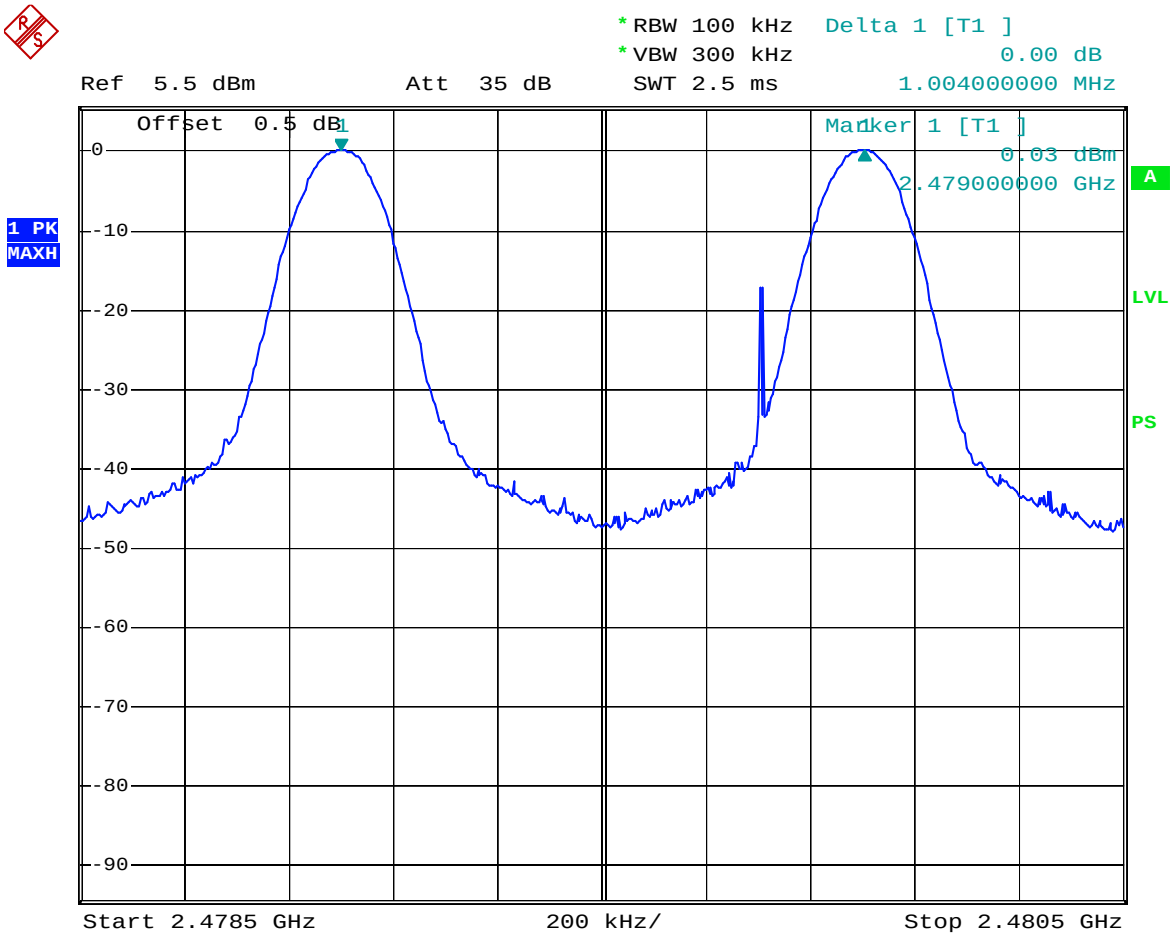
Middle Channel



Xinwei H31, channel seperation, middle channel

Date: 15.NOV.2007 16:01:17

High Channel



Xinwei H31, channel seperation, high channel

Date: 15.NOV.2007 15:57:33

§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	2007-10-16	2008-10-16

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

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 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 Merry Zhao on 2007-10-22.

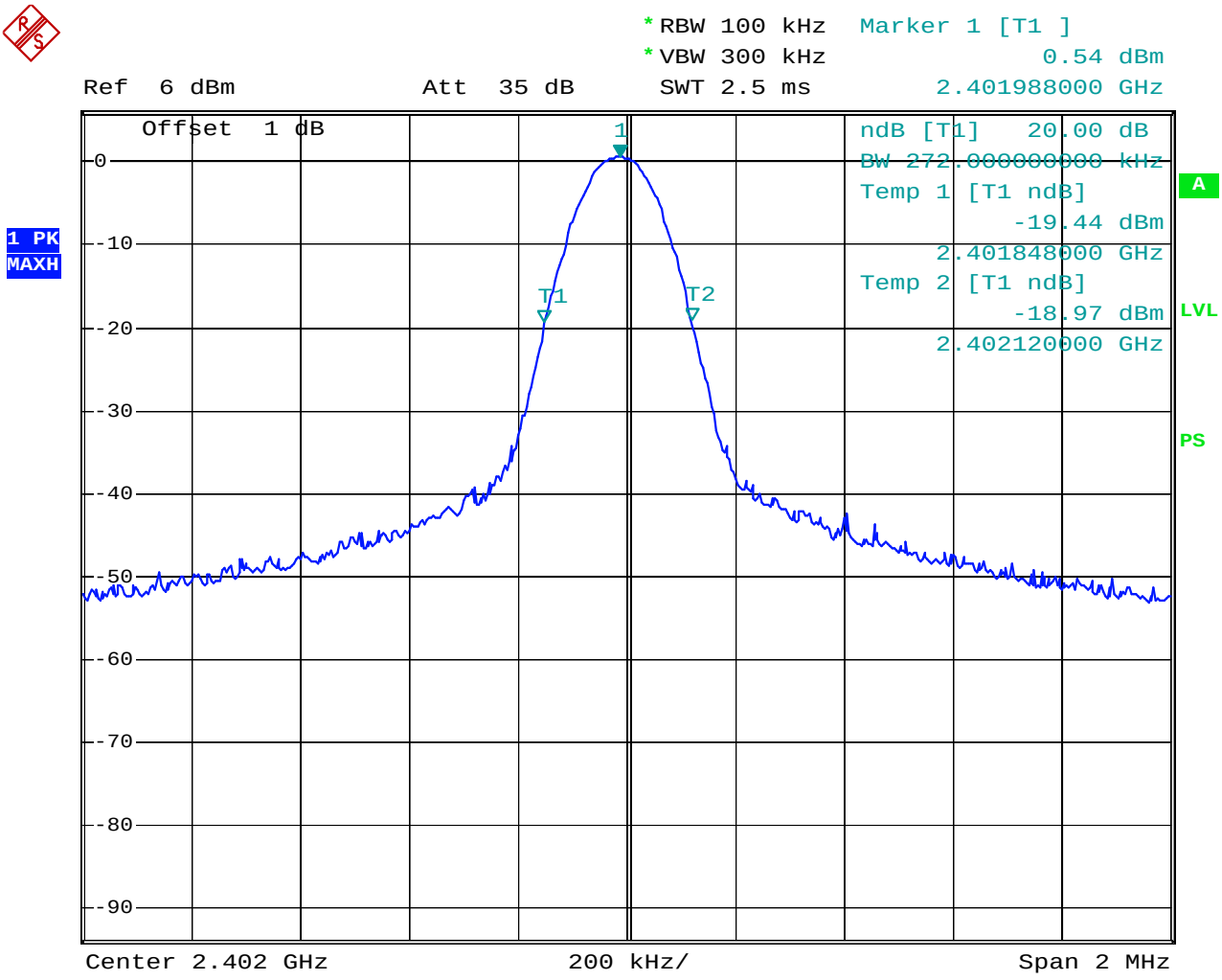
Test Result:

Please refer to following plots

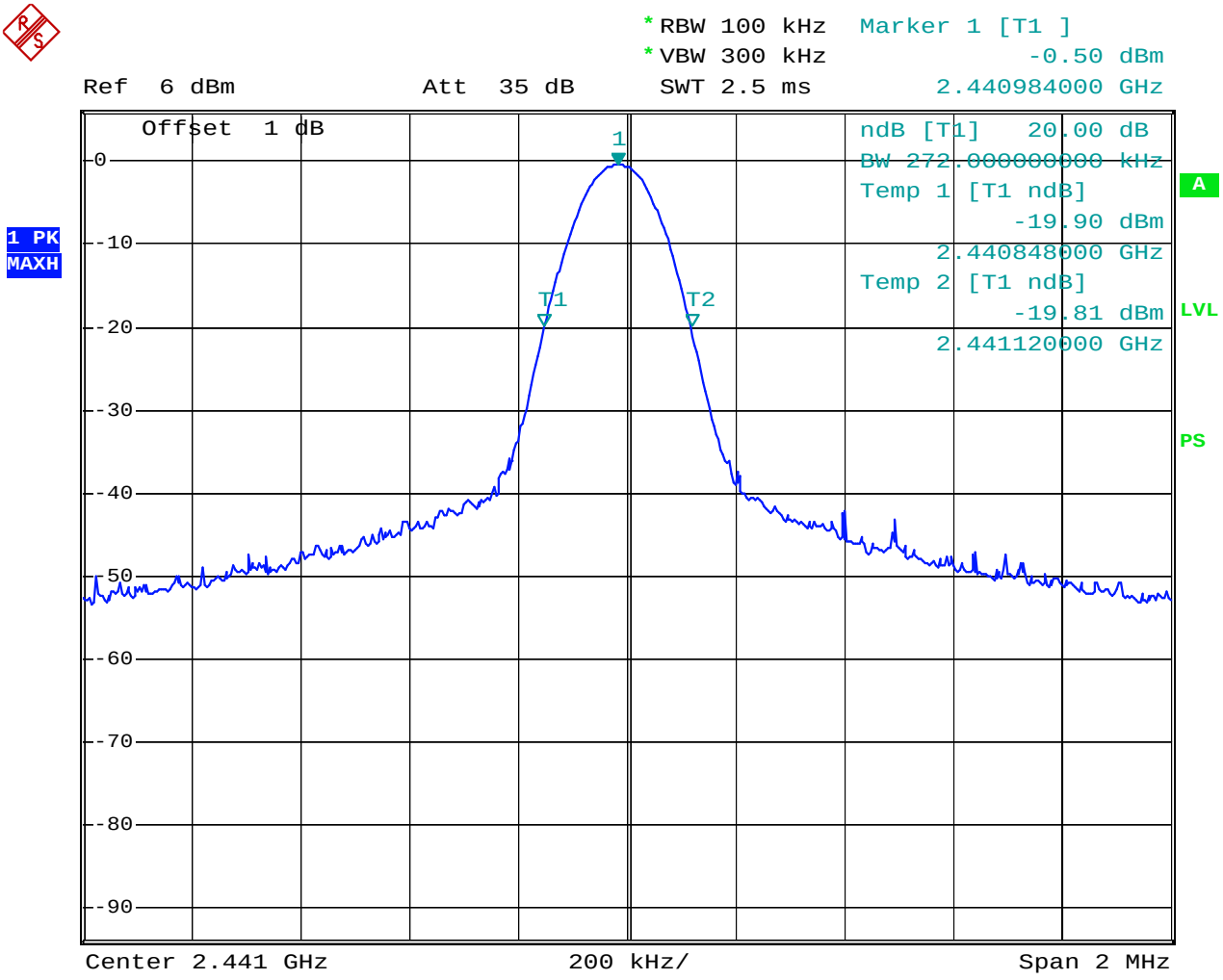
Test Mode: Transmitting

Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)
Low	2402	272
Mid	2441	272
High	2480	272

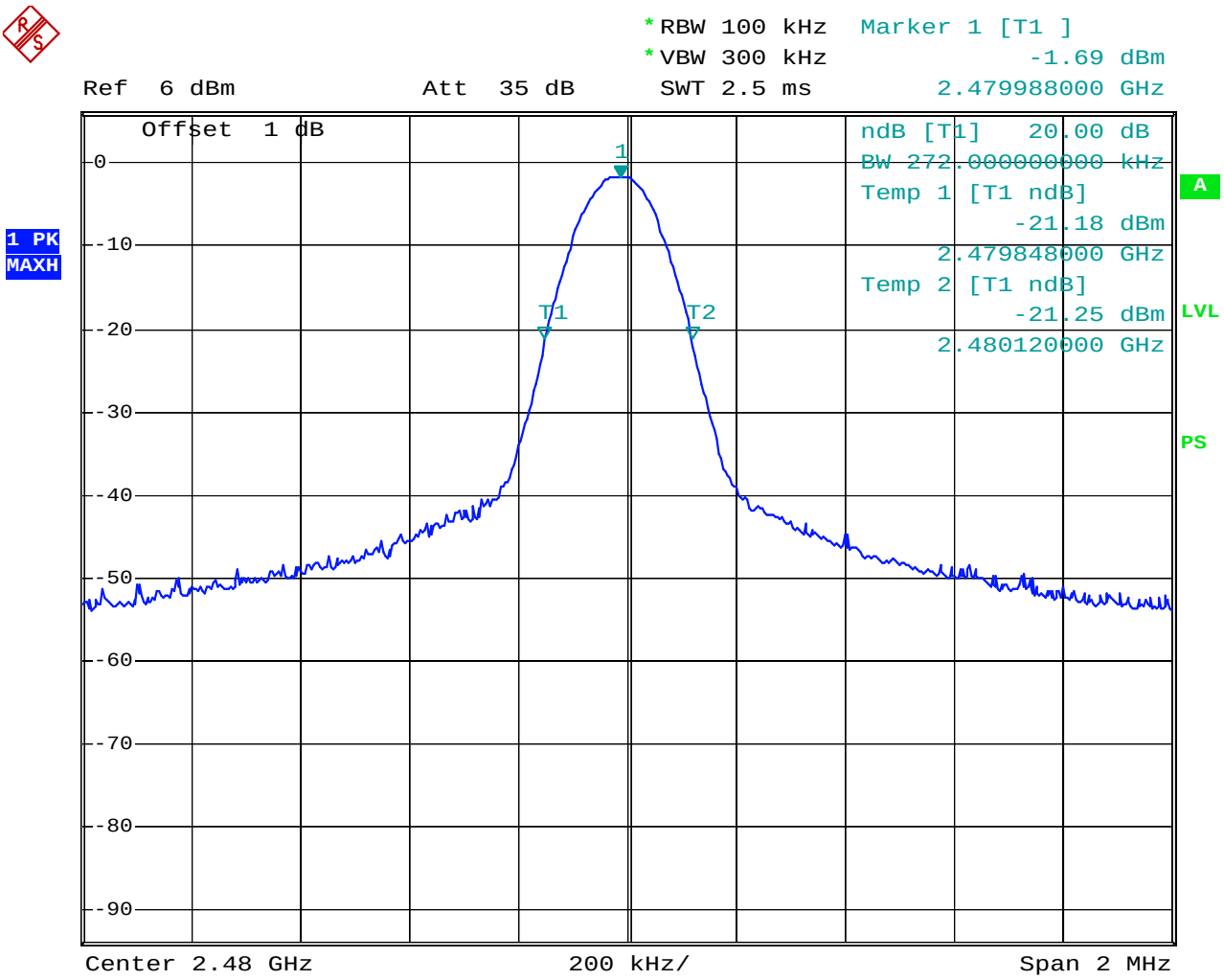
Low Channel



Middle Channel



High Channel



§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	2007-10-16	2008-10-16

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

Test Procedure

1. Check the calibration of the measuring instrument (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

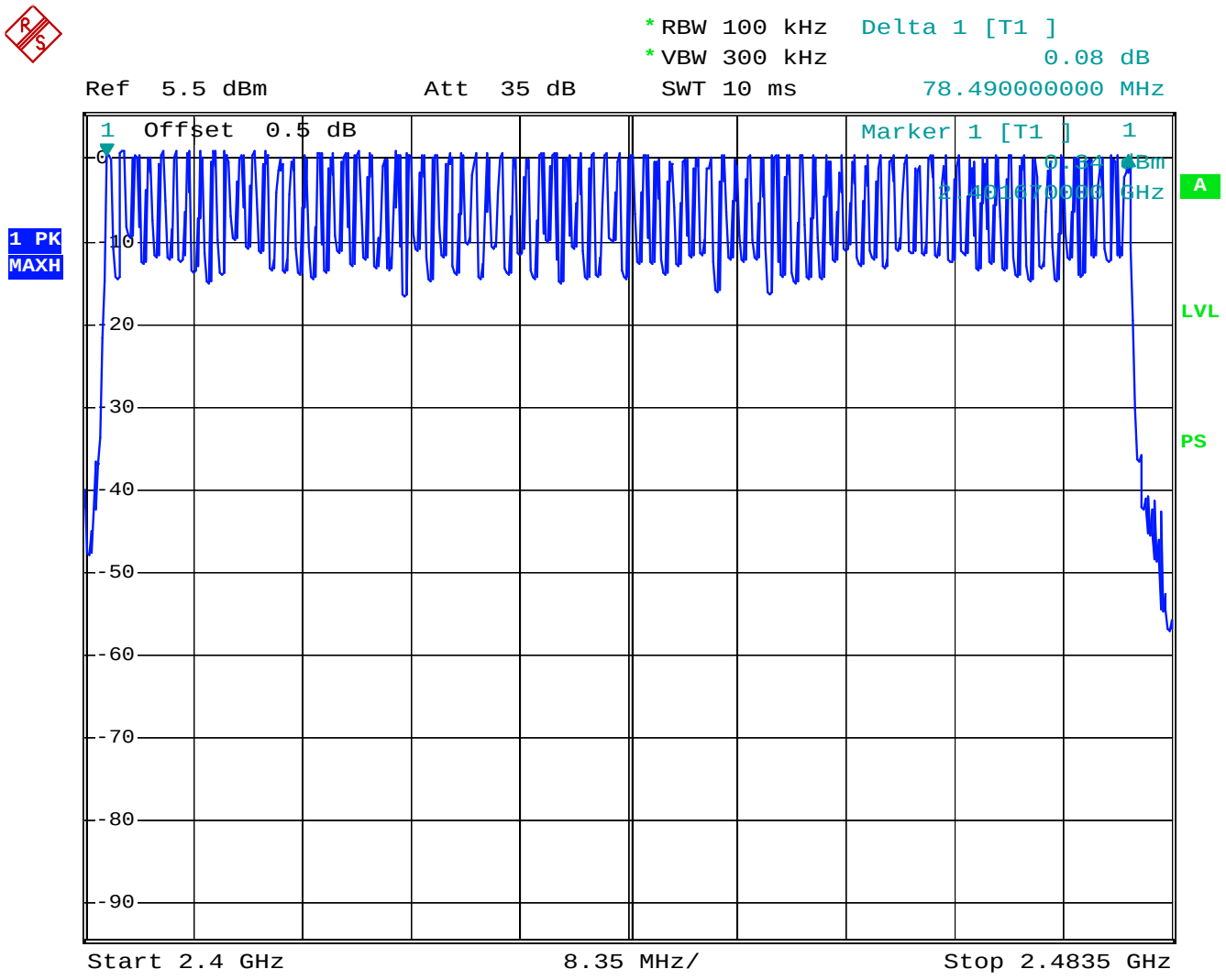
The testing was performed by Merry Zhao on 2007-11-15.

Test mode: Transmitting

Test Result: Compliant.

Please refer to following plot.

Hopping Channel Number



Xinwei H31, hoping channels

Date: 15.NOV.2007 17:25:07

§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	2007-10-16	2008-10-16

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

Test Procedure

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 *[hop rate/2/number of hopping channels]* 31.6s
Hop rate=1600/s

Test Data

Environmental Conditions

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

The testing was performed by Merry Zhao on 2007-11-15.

Test mode: Transmitting

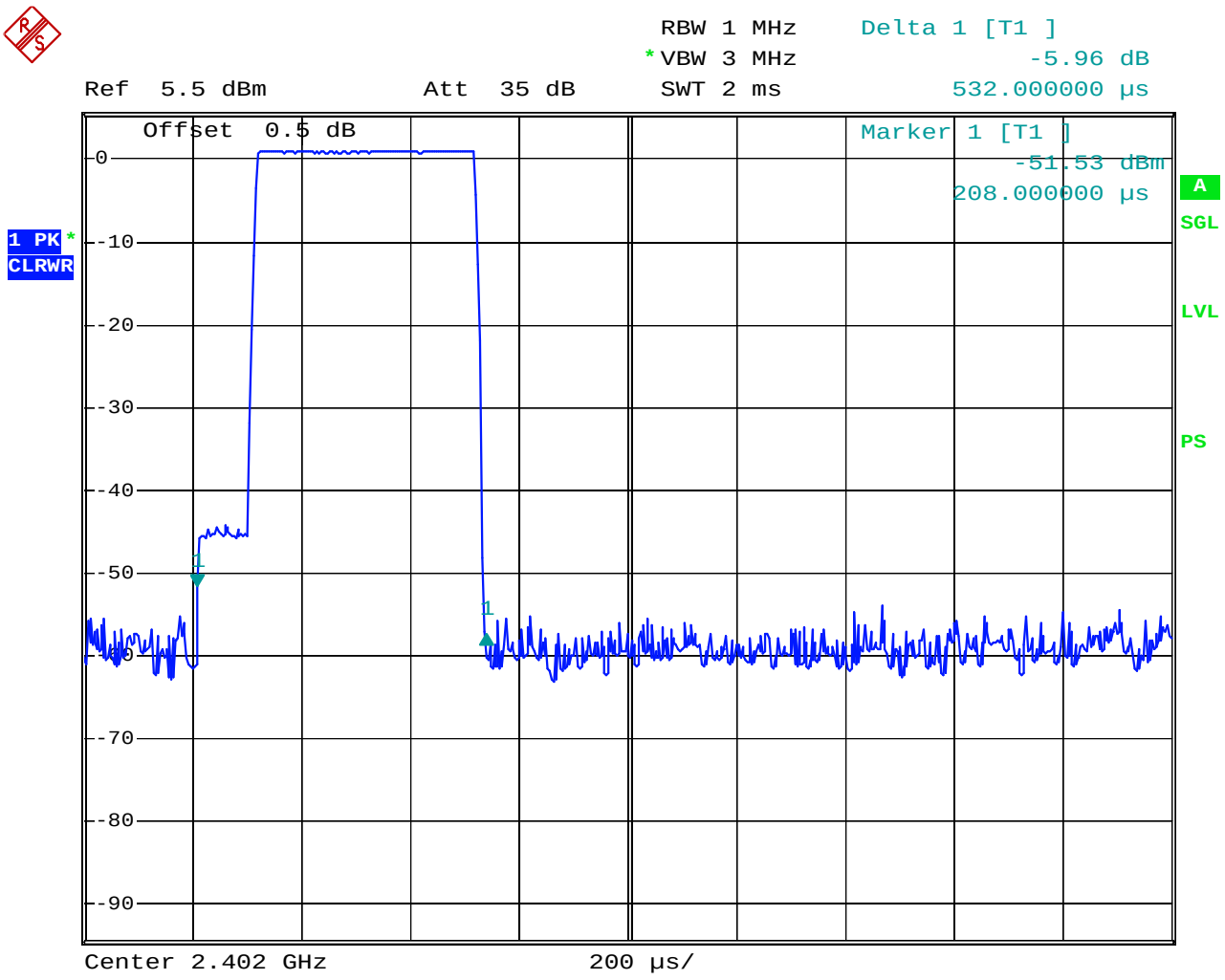
Test Result: Compliant.

Please refer to following table and plots

Channel	Pulse width (msec)	Dwell time (sec)	Limit (sec)	Result
Low	0.532	0.170	0.4	Pass
Mid	0.536	0.171	0.4	Pass
High	0.528	0.169	0.4	Pass

NOTE: Dwell time=Pulse width (ms) × [1600 ÷ 2 ÷ 79] ×31.6 Second

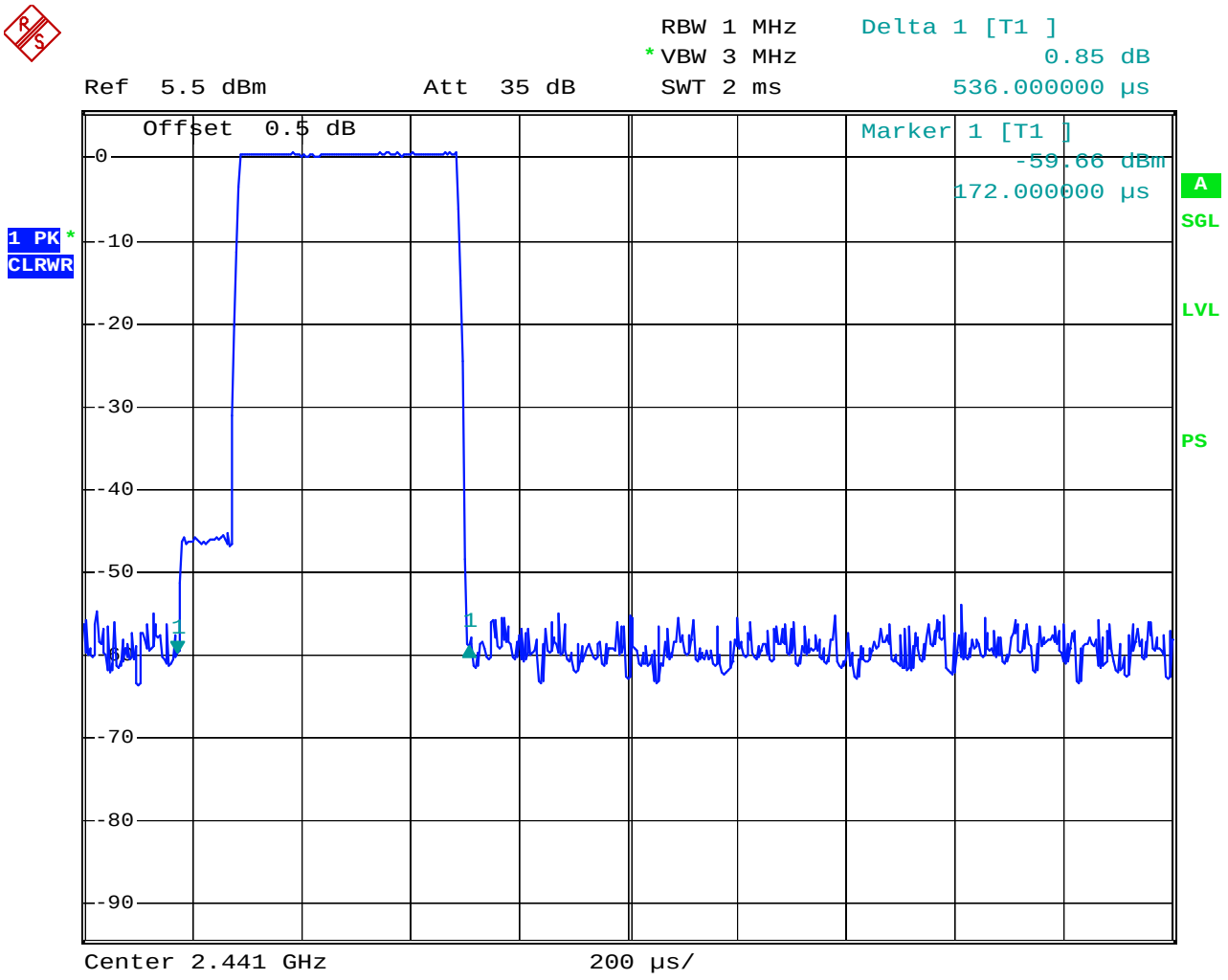
Low Channel



Xinwei H31, dwell time, low channel

Date: 15.NOV.2007 17:33:28

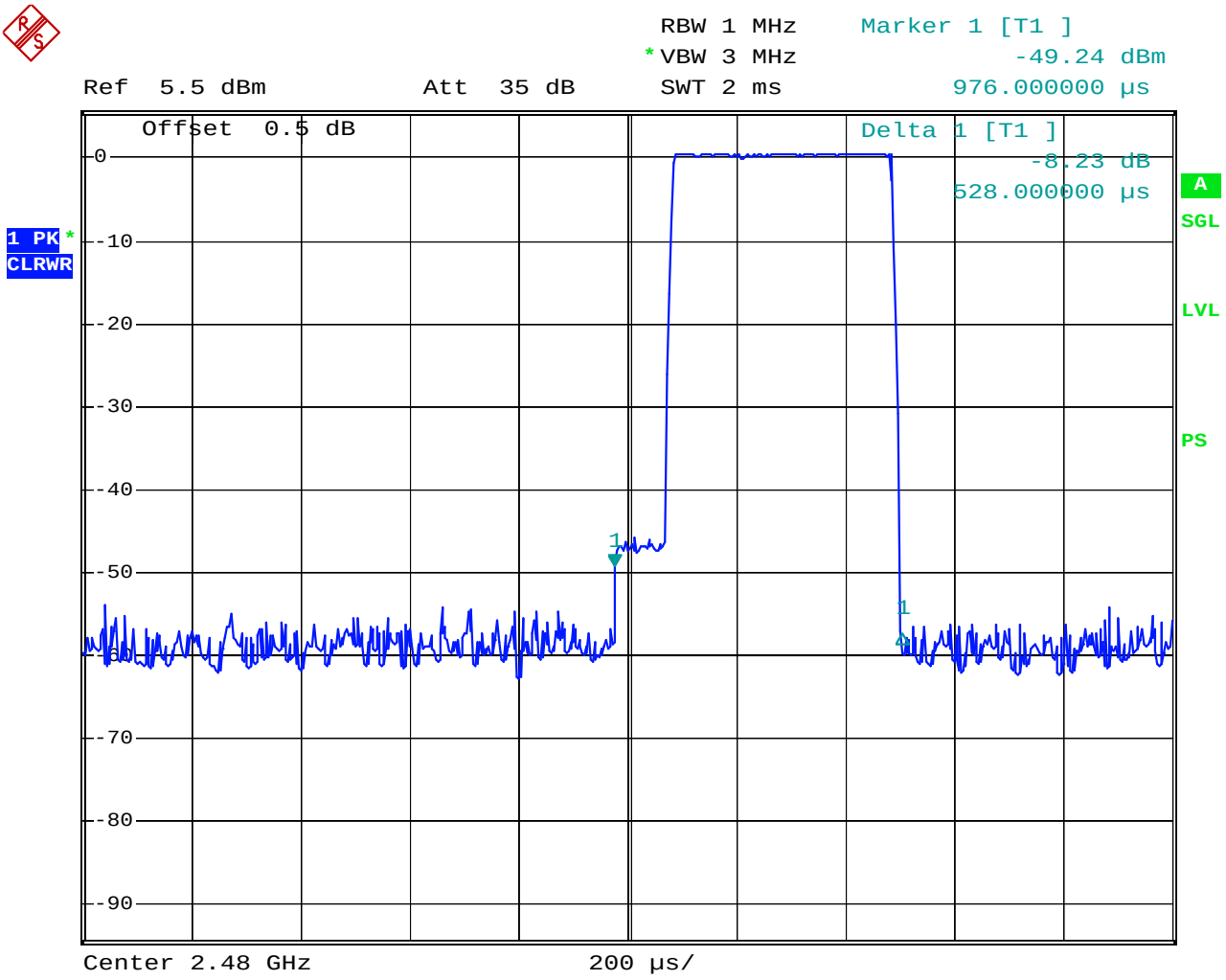
Middle Channel



Xinwei H31, dwell time, middle channel

Date: 15.NOV.2007 17:32:14

High CHannel



Xinwei H31, dwell time, hig channel

Date: 15.NOV.2007 17:35:36

§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.

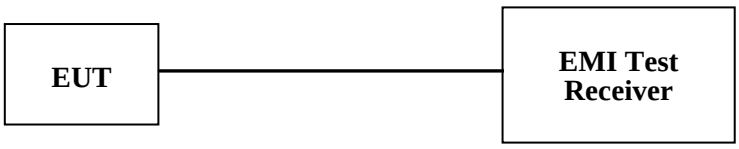
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2007-10-16	2008-10-16

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

Test Procedure

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



Test Data

Environmental Conditions

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

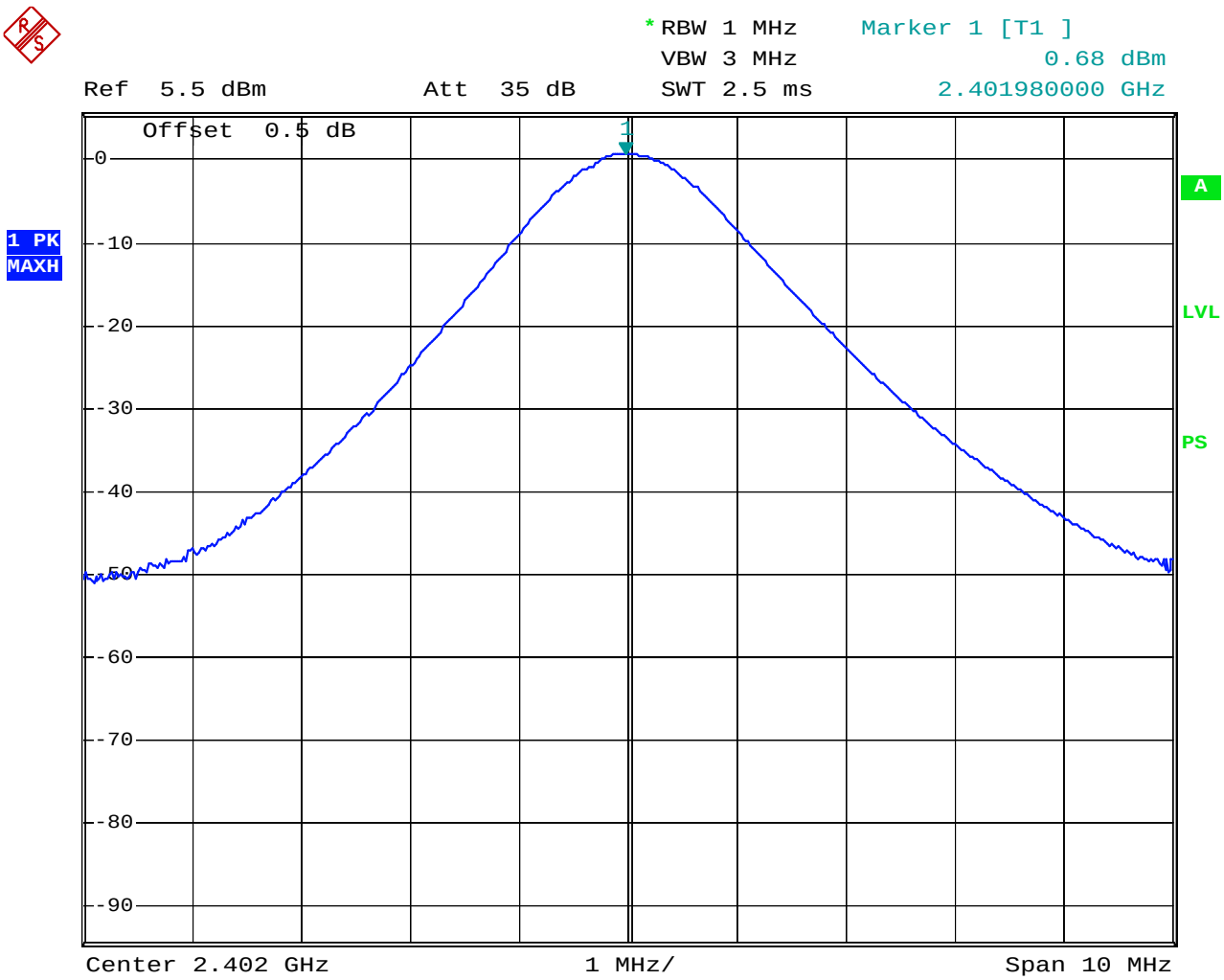
The testing was performed by Merry Zhao on 2007-11-15.

Test Result: Compliant.

Please refer to the following table and plots.

Channel	Channel Frequency (MHz)	Reading Power (dBm)	Power Output (Watt)	Limit (Watt)
Low	2402	0.68	1.169	1
Mid	2441	0.23	1.054	1
High	2480	0.14	1.033	1

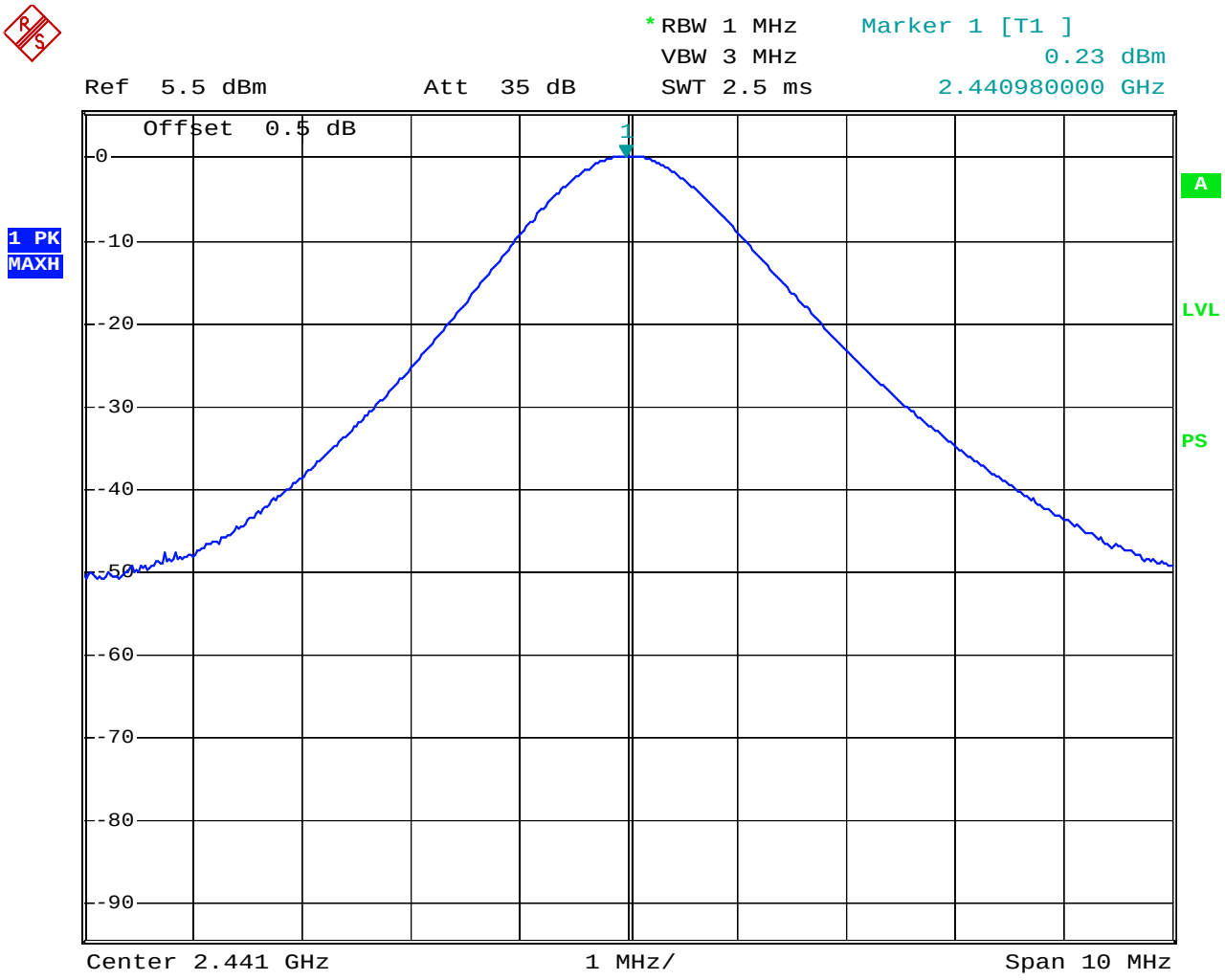
Low Channel



Xinwei H31, peak output power, low channel

Date: 15.NOV.2007 15:40:27

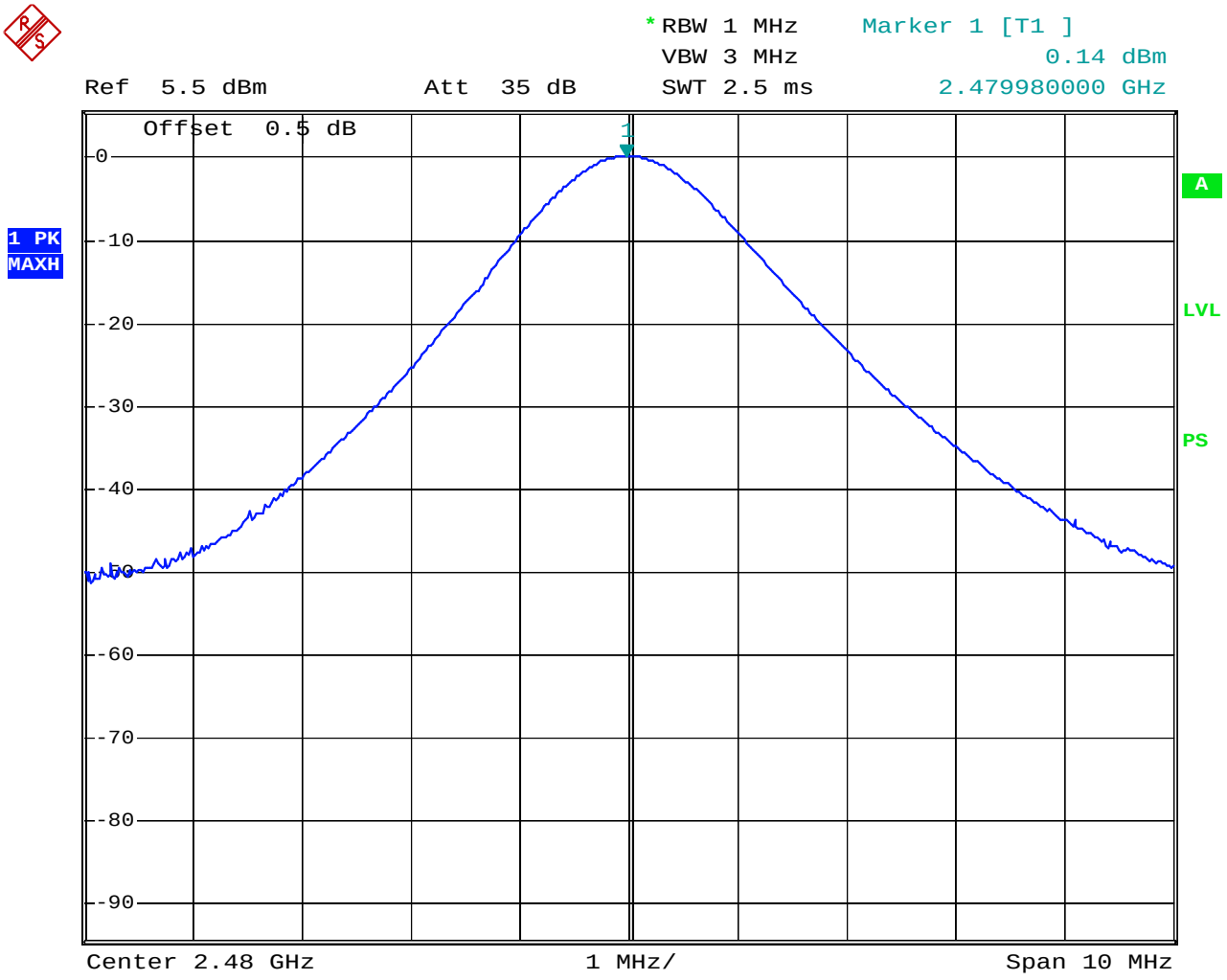
Middle Channel



Xinwei H31, peak output power, middle channel

Date: 15.NOV.2007 15:39:36

High Channel



Xinwei H31, peak output power, high channel

Date: 15.NOV.2007 15:38:16

§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	2007-10-16	2008-10-16

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

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. 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:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009mbar

The testing was performed by Merry Zhao on 2007-10-22.

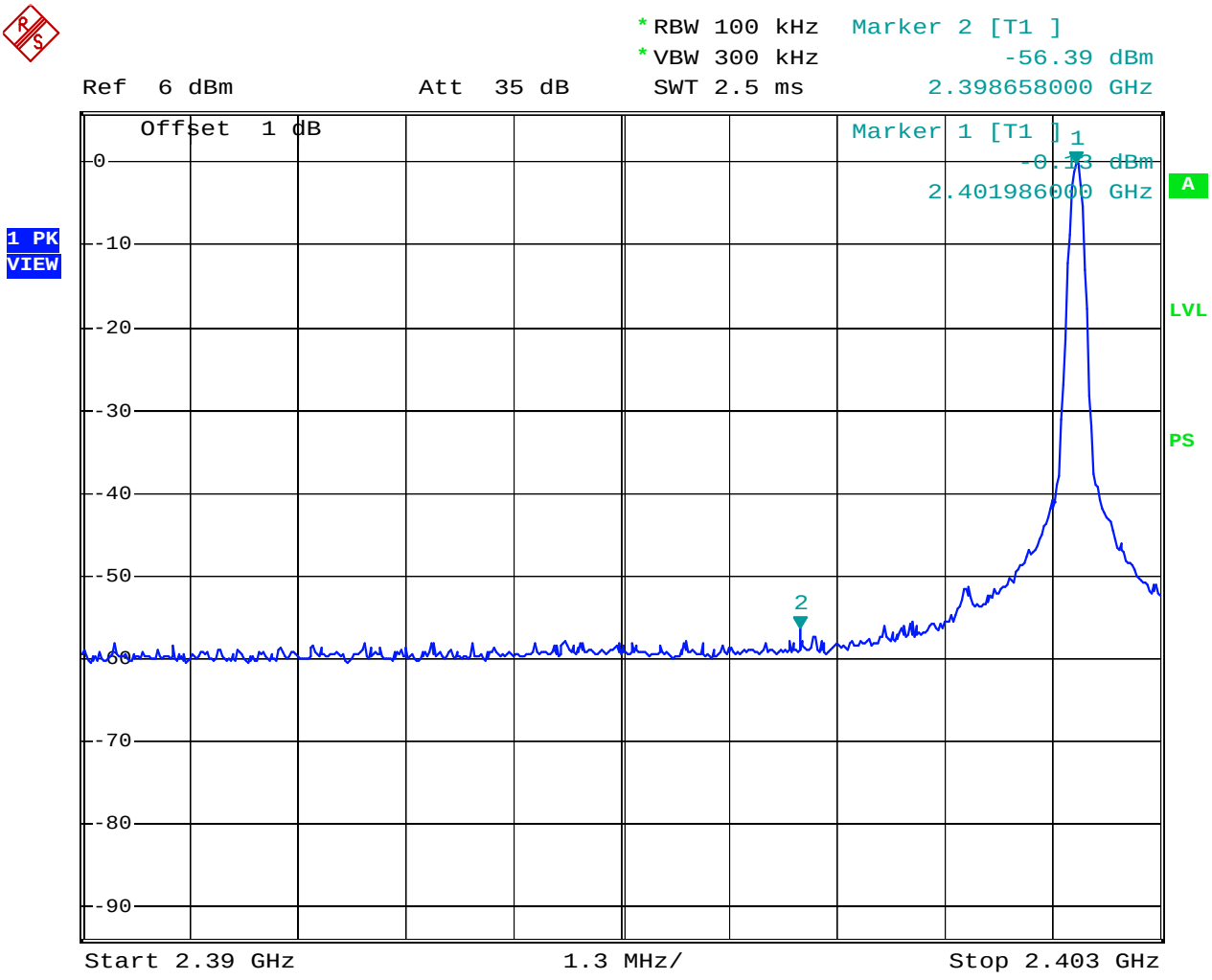
Test Mode: Transmitting

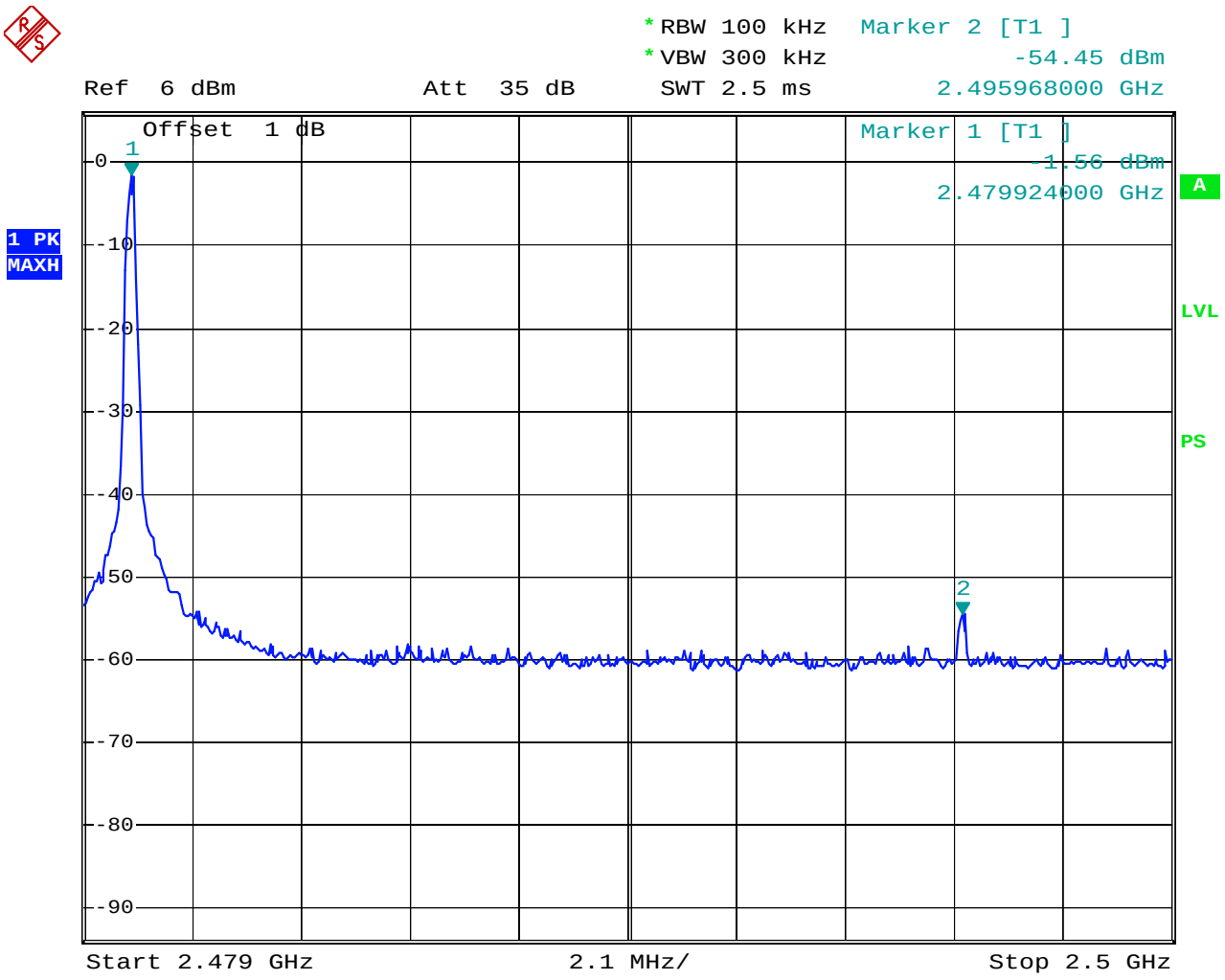
Frequency (MHz)	Attenuation (dBc)	Limit (dBc)
2398.658	56.26	20
2495.968	52.89	20

Note: Attenuation=Peak level - Emission level

Test Result: Pass

Please refer to the following plots





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