NVLAP LAB CODE 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

SCOTOR (Hong Kong) Limited

6F A Building, GongLe Hua Feng Industrial Garden, XiXiang Town,
BaoAn District, ShenZhen, Guangdong, China

FCC ID: VPH8860

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

Test Engineer:	Andy Yan
Report No.:	RSZ07090601
Test Date:	2007-09-22 to 2007-09-24
Report Date:	2007-09-28
Reviewed By:	EMC Manager: Boni Baniqued
Prepared By:	Bay Area Compliance Laboratory 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 *SCOTOR (Hong Kong) Limited*'s product, model number: *8860* or the "EUT" as referred to in this report is a *Bluetooth Earphone*, which measures approximately: 5.5 cm L x 2.2 cm W x 1.7 cm H, rated input voltage: DC 3.7V Battery.

** The test data gathered are from production sample, serial number: 0709003, Provided by the manufacturer, we receive the EUT on 2007-09-06.*

Objective

This Type approval report is prepared on behalf of *SCOTOR (Hong Kong) Limited* 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 radiated and conducted emission measurement 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 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).

NVLAP LAB CODE 200707-0

The current scope of accreditations can be found at
http://ts.nist.gov/ts/htdocs/210/214/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 supplied by Bay Area Compliance Laboratory Corp. (Shenzhen).

Equipment Modifications

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

Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
IBM	PC	ThinkCentre A50	99Y5681	DoC
Logitech	Keyboard	Y-SM48	SY513U68933	DoC
Logitech	Mouse	M-SAW83A	HCA31707689	DoC
IBM	CRT Monitor	6737-66W	23-P3242	BEJT17HD
ProMOS	Memory	V826616J24SATG-C0	BD070964H	DoC
Intel	CPU	Pentium4 2800MHz	N/A	DoC
HP	Laser Jet5L	C3941A	JPTVOB2337	DoC
ECOM	Modem	EM-56DEV	6588D51200013	DoC

Local Support Equipment List and Details

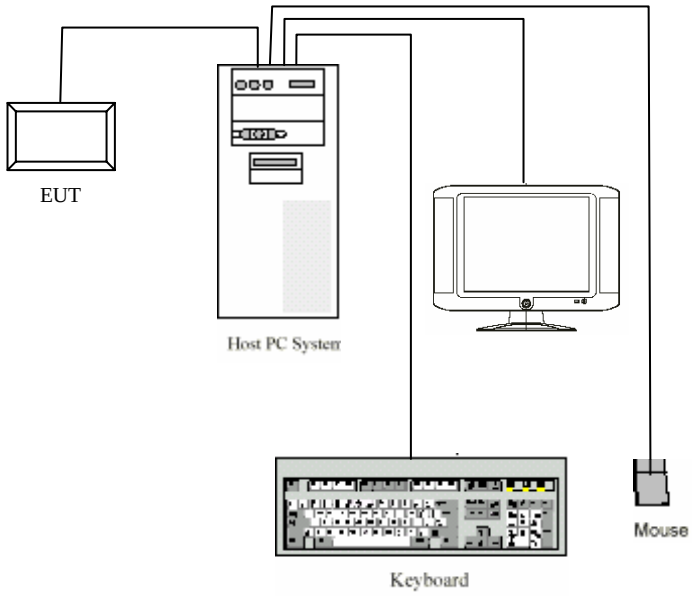
Manufacturer	Description	Model	Serial Number	FCC ID
Intel	Motherboard	D865GKD	11S19R1949ZJ1WCB46J1J4	DoC
IBM	Power	HIPRO-A2307F3T	11S49P2191ZJ1TAR47D1PG	DoC
IBM	Hard Disk	IC35L090AW207-0	VNVC32G3GGS52T	DoC
ALPS	3.5' Floppy	06P5226	11S06P5226ZJ1W25328053	DoC
Hitachi-LG	DVD-Rom	LTN-489S	B4F511412	DoC
Intel	Ethernet	PRO 10/100 VE	N/A	DoC

External I/O Cable

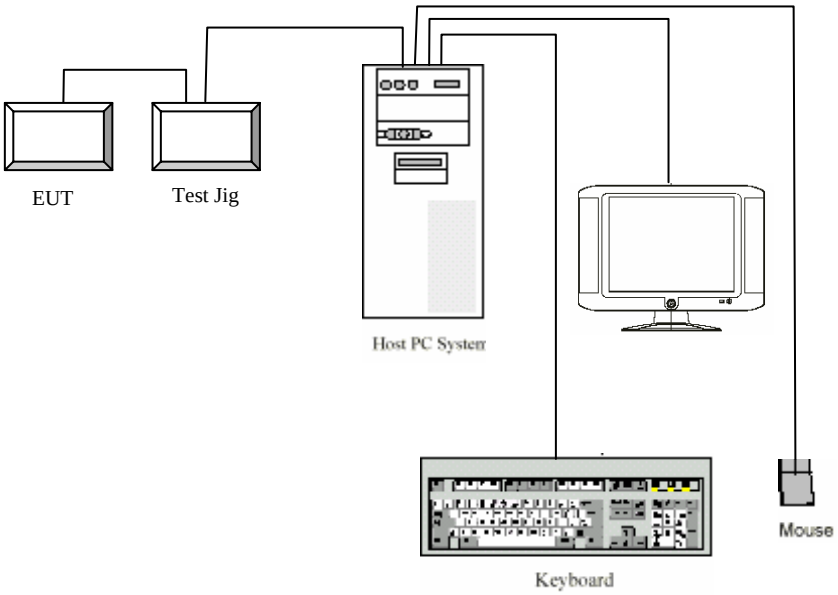
Cable Description	Length (M)	From/Port	To
Shielded Detachable Keyboard Cable	1.50	Keyboard Port / Host	Keyboard
Shielded Detachable Mouse Cable	1.50	Mouse Port / Host	Mouse
Shielded Detachable Printer Cable	1.20	Parallel Port / Host	Printer
Shielded Detachable VGA Cable	1.50	VGA Port / Host	Monitor
Shielded Detachable USB Cable	1.16	EUT	Host PC

Configuration of Test Setup

Charging Mode:

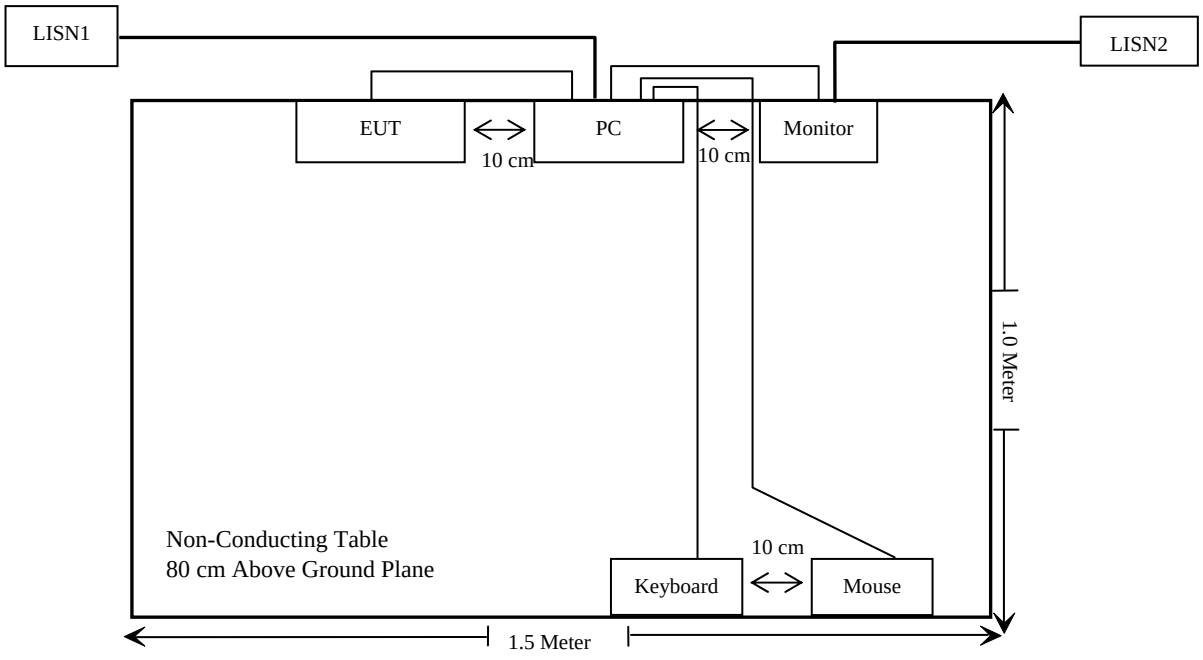


Transmitting Mode:



Block Diagram of Test Setup

Charging Mode:



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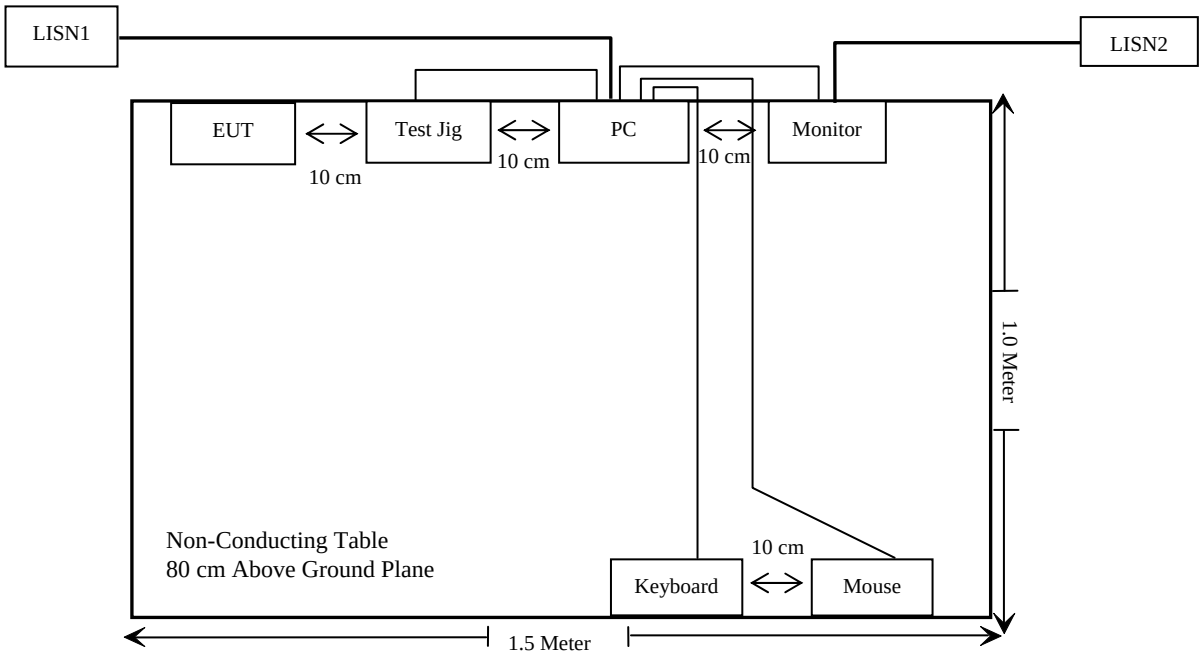


SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247(i) §1.1310 §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	Conducted Emissions	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

§15.247(i) §1.1310 §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, fGHz is mid-band frequency in GHz, and d is the distance to a person'sbody, 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 1.637 mW, which is lower than the low threshold 60/2.441GHz (24.58mW).

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.

Antenna Connector Construction

The EUT has an integral 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: Compliant.

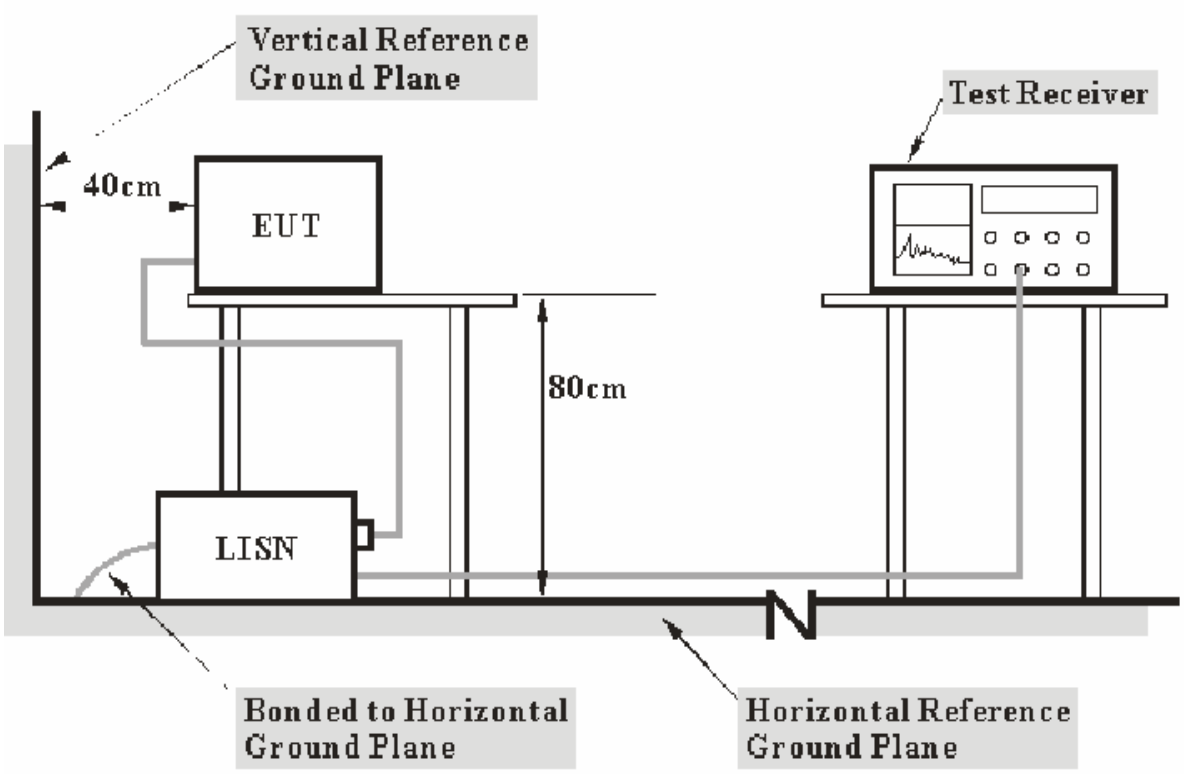
§15.207 (a) - CONDUCTED EMISSIONS

Measurement Uncertainty

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

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

EUT Setup



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

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15 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 host PC was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

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

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

Frequency Range	***IF B/W***
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	DE25330	2007-03-26	2008-03-26
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 Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the host PC was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

9.16 dB at **0.2500 MHz** in the **Neutral** conductor mode.

Test Data

Environmental Conditions

Temperature:	22 ° C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

The testing was performed by Andy Yan on 2007-09-24.

Test Mode: Charging

Line Conducted Emissions				FCC PART 15.207	
Frequency (MHz)	**Amplitude (dBμV)**	**Detector (QP/AV)**	**Phase (Live/Neutral)**	**Limit (dBμV)**	**Margin (dB)**
0.2500	42.60	AV	Neutral	51.76	9.16
14.1200	49.80	QP	Live	60.00	10.20
0.2500	40.40	AV	Live	51.76	11.36
16.6750	45.70	QP	Neutral	60.00	14.30
0.8800	29.70	AV	Live	46.00	16.30
0.2500	45.20	QP	Neutral	61.76	16.56
0.8800	28.50	AV	Neutral	46.00	17.50
0.3800	30.50	AV	Neutral	48.28	17.78
0.8800	38.10	QP	Live	56.00	17.90
1.6350	28.00	AV	Neutral	46.00	18.00
0.2500	43.30	QP	Live	61.76	18.46
0.3750	29.10	AV	Live	48.39	19.29
22.2900	40.30	QP	Live	60.00	19.70
21.9000	39.70	QP	Neutral	60.00	20.30
2.1400	25.60	AV	Live	46.00	20.40
0.8800	35.20	QP	Neutral	56.00	20.80
1.6350	34.90	QP	Neutral	56.00	21.10
16.9700	28.60	AV	Neutral	50.00	21.40
2.1400	32.70	QP	Live	56.00	23.30
14.1800	26.30	AV	Live	50.00	23.70
0.3750	33.80	QP	Live	58.39	24.59
0.3800	33.20	QP	Neutral	58.28	25.08
22.1400	13.50	AV	Live	50.00	36.50
22.0750	13.00	AV	Neutral	50.00	37.00

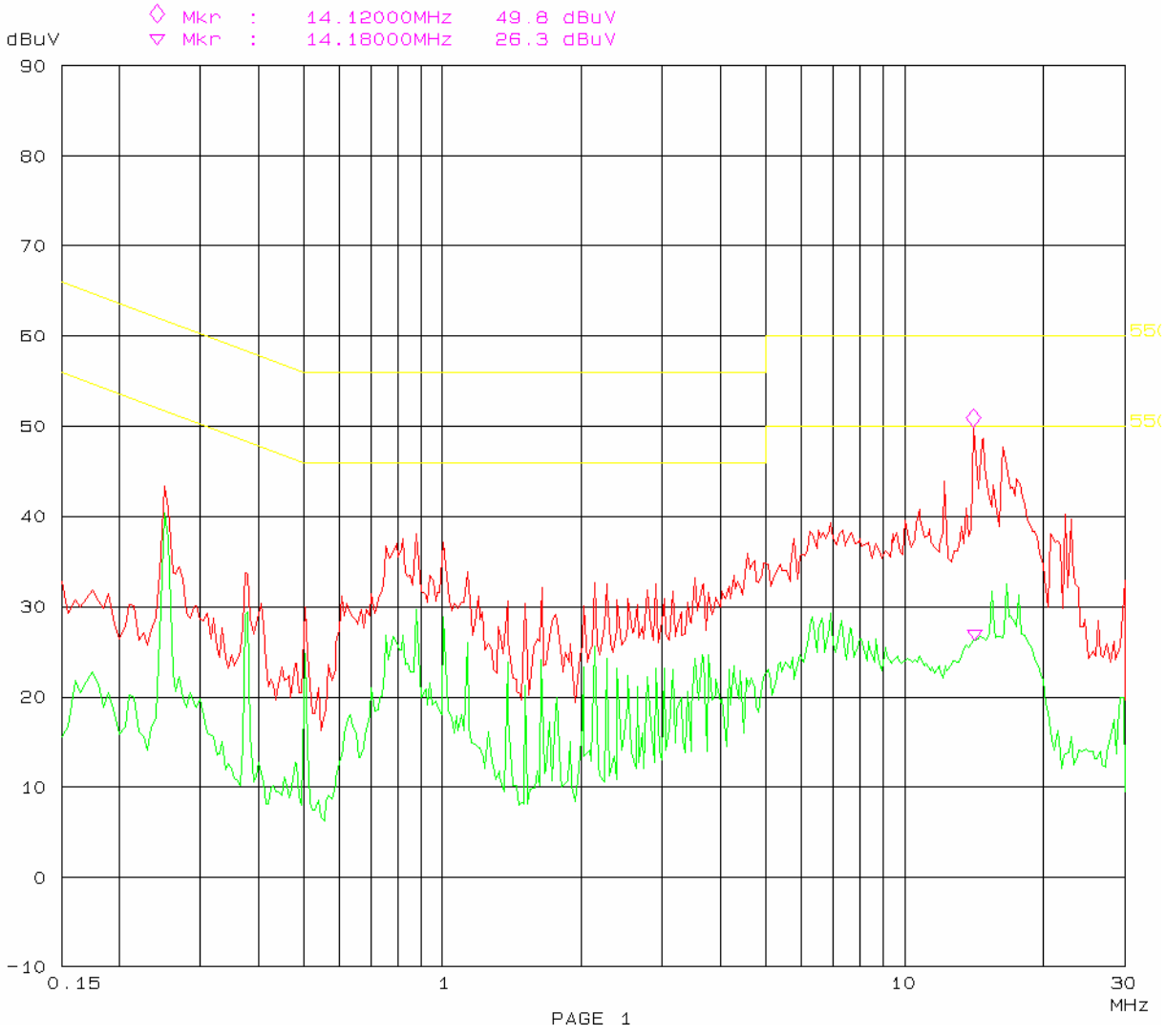
Plot(s) of Test Data

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

Conducted Emission Test

24. Sep 07 15:02

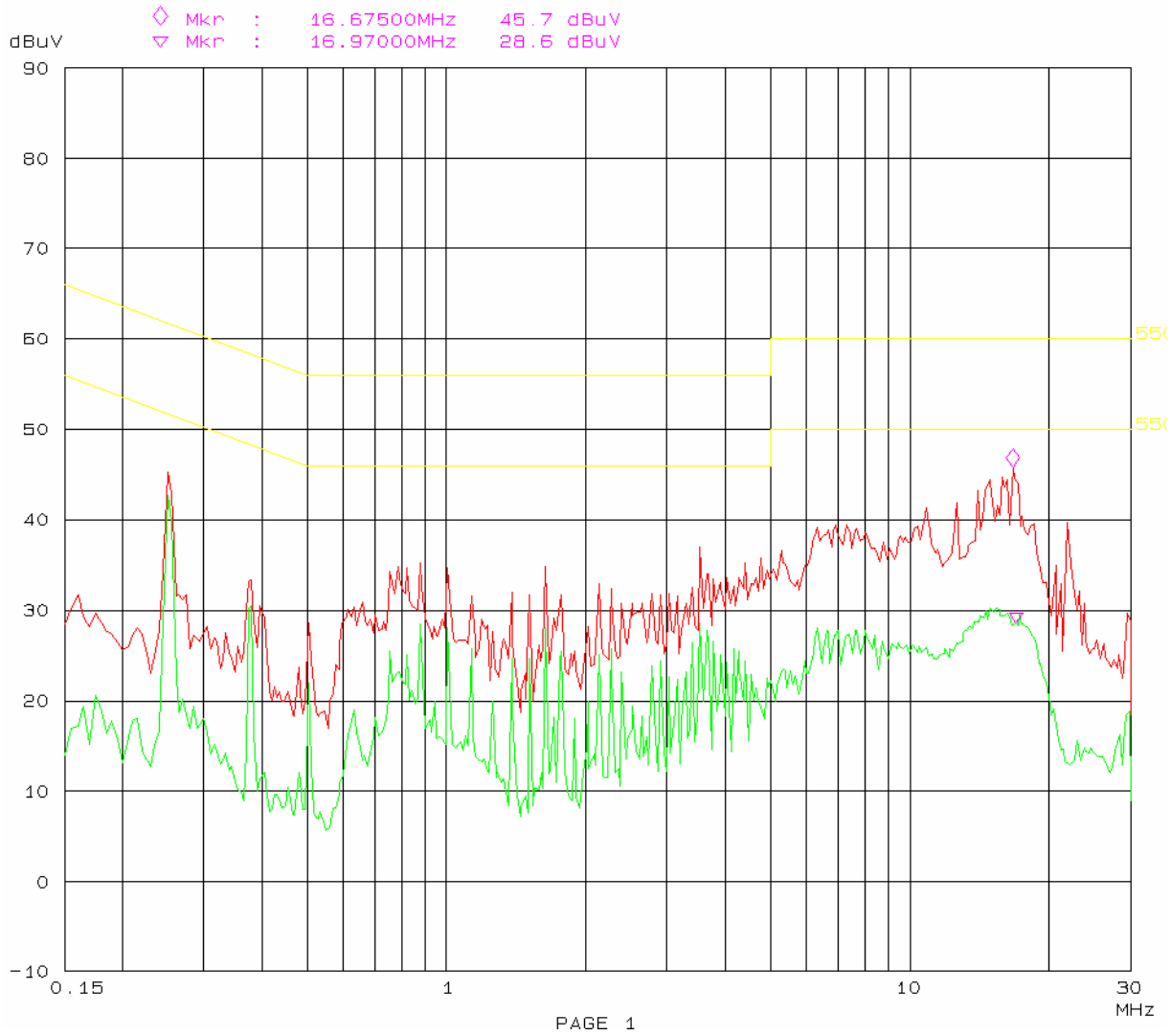
EUT: Bluetooth Earphone
Manuf: SCOTOR
Op Cond: Receiving
Operator: Andy
Test Spec: AC 120V/60Hz L
Comment: Temp: 26 Humi 56%



Conducted Emission Test

24. Sep 07 14:35

EUT:	Bluetooth Earphone
Manuf:	SCOTOR
Op Cond:	Receiving
Operator:	Andy
Test Spec:	AC 120V/60Hz N
Comment:	Temp: 26 Humi 56%



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

Applicable Standard

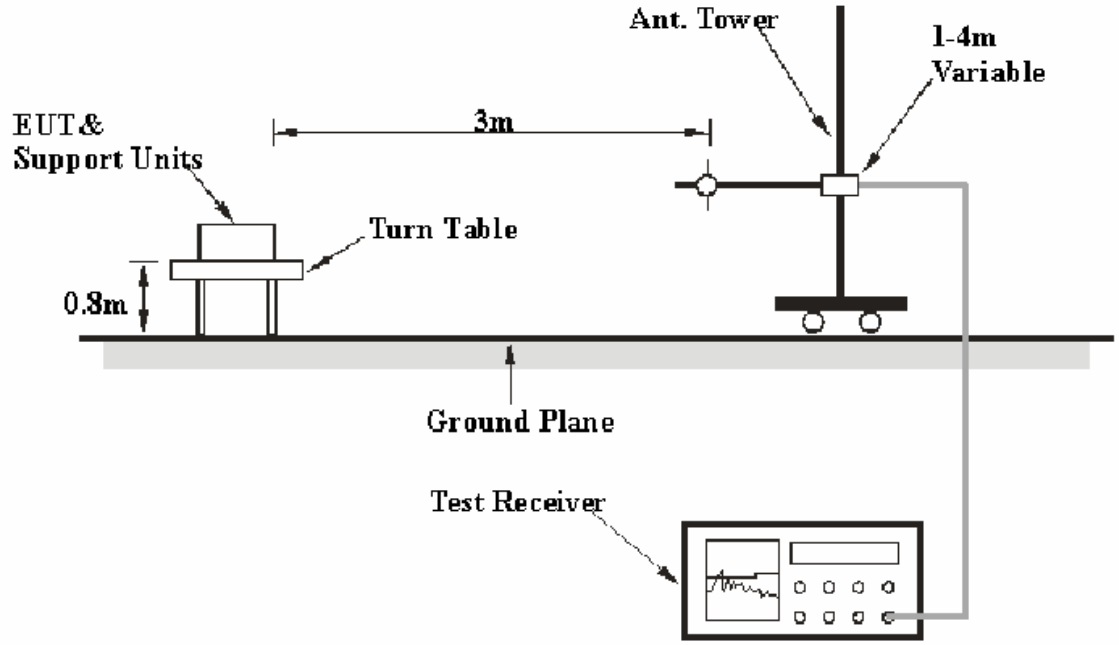
According to FCC §15.247 (d)

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 Laboratory 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 host PC 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	2006-11-15	2007-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2006-09-29	2007-09-29
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2007-08-14	2008-08-14
HP	Amplifier	8449B	3008A00277	2006-09-29	2007-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2006-09-25	2007-09-25
Agilent	Spectrum Analyzer	8564E	3943A01781	2006-11-22	2007-11-22

*** 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

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

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

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

Corrected Amplitude & Margin Calculation

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

Corr. Ampl. = 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 maximum limit. The equation for margin calculation is as follows:

Margin = Limit - Corr. Amp.

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:

Below 1GHz:

11.1 dB at **64.084625 MHz** in the **Vertical** polarization, for Charging Mode.
4.4 dB at **36.872725 MHz** in the **Vertical** polarization, for Transmitting Mode.

Above 1GHz:

0.33 dB at **4804 MHz** in the **Vertical** polarization, for Low Channel.
0.97 dB at **4882 MHz** in the **Vertical** polarization, for Middle Channel.
0.49 dB at **4960 MHz** in the **Vertical** polarization, for High Channel.

Test Data

Environmental Conditions

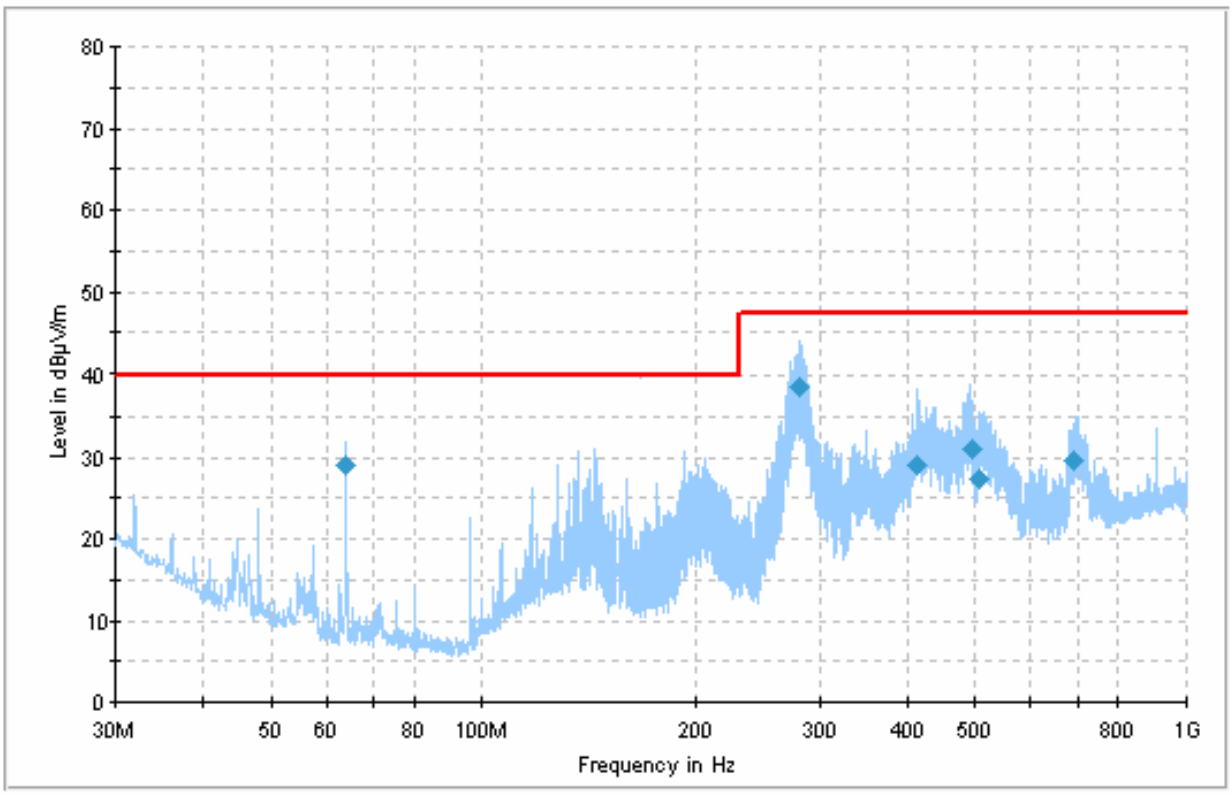
Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.2kPa

The testing was performed by Andy Yan on 2007-09-24.

Result: Compliant.

Please refe to the following tables and plots.

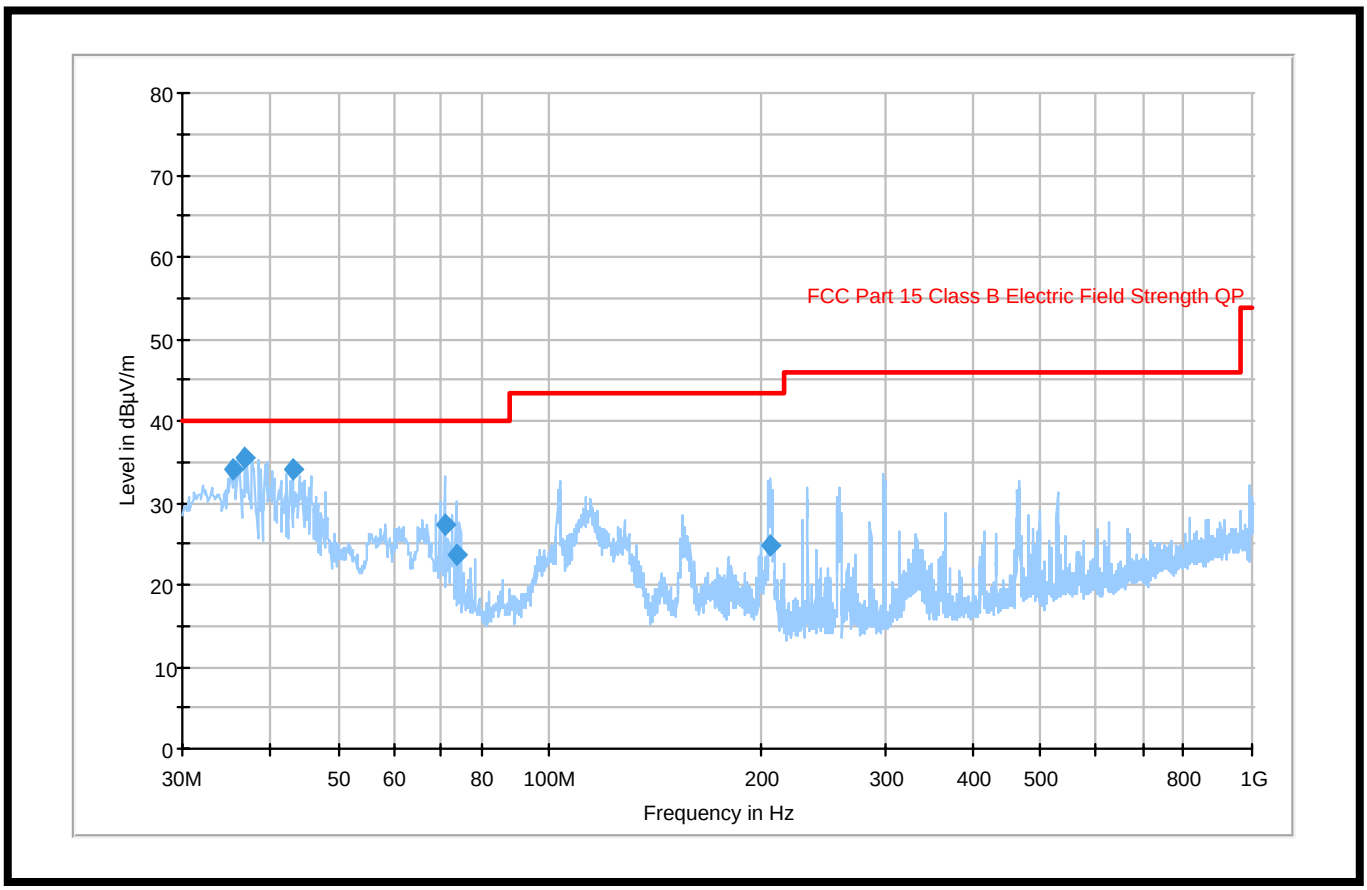
Test Mode: Charging



Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
64.084625	28.9	125.0	V	77.0	-17.7	40.0	11.1
493.542700	31.1	132.0	V	0.0	-6.2	47.0	15.9
693.084200	29.6	130.0	H	355.0	-3.3	47.0	17.4
414.535325	28.9	271.0	H	221.0	-7.0	47.0	18.1
506.020575	27.3	120.0	V	354.0	-6.7	47.0	19.7
280.270850	38.7	114.0	H	77.0	-9.8	47.0	83.0

Test Mode: Transmitting

Below 1 GHz



Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
36.872725	35.6	101.0	V	14.0	-9.6	40.0	4.4
43.121775	34.2	103.0	V	193.0	-14.2	40.0	5.8
35.445050	34.1	129.0	V	262.0	-8.4	40.0	5.9
70.770975	27.2	257.0	H	255.0	-17.5	40.0	12.8
73.609725	23.8	280.0	H	254.0	-17.5	40.0	16.2
206.468025	24.7	101.0	H	271.0	-12.3	43.5	18.8

Above 1GHz:

Freq. (MHz)	Meter Reading (dBuV)	Detector PK/QP/AV	Direction Degree	Height (m)	Polar H / V	Antenna Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Corr. Amp. (dBuV/m)	FCC Part 15.247/209 Limit (dBuV/m)	Margin (dB)	Remarks
Low Channel (2402 MHz)												
2402	90.3	PK	90	1	H	30.6	3.61	35	89.60			Fund.
2402	89.37	AV	45	1.0	H	30.6	3.61	35	88.58			Fund.
2402	92.42	PK	90	1.0	V	30.6	3.61	35	91.63			Fund.
2402	89.79	AV	45	1.0	V	30.6	3.61	35	89.00			Fund.
4804	47.03	AV	90	1.0	V	35.4	4.64	33.4	53.67	54	0.33	Harmonic
4804	41.18	AV	90	1.0	H	36.6	4.64	33.4	49.02	54	4.98	Harmonic
1601	49.92	AV	180	1.2	V	26.0	2.77	35.0	43.69	54	10.31	Spurious
1601	48.99	AV	180	1.2	H	26.5	2.77	35.0	43.26	54	10.74	Spurious
4804	50.96	PK	180	1.2	V	35.4	4.64	33.4	57.60	74	16.4	Harmonic
1601	62.92	PK	45	1.2	V	26.0	2.77	35.0	56.69	74	17.31	Spurious
4804	47.82	PK	180	1.2	H	36.6	4.64	33.4	55.66	74	18.34	Harmonic
1601	60.82	PK	45	1.2	H	26.5	2.77	35.0	55.09	74	18.91	Spurious
Mid Channel (2441 MHz)												
2441	91.04	PK	60	1.4	H	30.6	3.61	35	90.25			Fund.
2441	88.30	AV	152	1.3	H	30.6	3.61	35	87.51			Fund.
2441	91.30	PK	128	1.5	V	30.6	3.61	35	90.51			Fund.
2441	90.19	AV	156	1.2	V	30.6	3.61	35	89.4			Fund.
4882	46.39	AV	243	1.4	V	35.4	4.64	33.4	53.03	54	0.97	Harmonic
4882	41.96	AV	142	1.6	H	36.6	4.64	33.4	49.80	54	4.20	Harmonic
1627.8	49.24	AV	85	1.5	V	26.0	2.77	35.0	43.01	54	10.99	Spurious
4882	55.29	PK	153	1.5	V	35.4	4.64	33.4	61.93	74	12.07	Harmonic
1627.8	46.37	AV	135	1.3	H	26.5	2.77	36.0	39.64	54	14.36	Spurious
1627.8	63.05	PK	265	1.4	V	26.0	2.77	35.0	56.82	74	17.18	Spurious
4882	47.84	PK	234	1.8	H	36.6	4.64	33.4	55.68	74	18.32	Harmonic
1627.8	61.95	PK	156	1.4	H	26.5	2.77	36.0	55.22	74	18.78	Spurious
High Channel (2480 MHz)												
2480	91.84	PK	89	1.5	H	30.6	3.61	35	91.05			Fund.
2480	88.62	AV	65	1.5	H	30.6	3.61	35	87.83			Fund.
2480	92.56	PK	65	1.4	V	30.6	3.61	35	91.77			Fund.
2480	90.89	AV	65	1.6	V	30.6	3.61	35	90.10			Fund.
4960	46.96	AV	142	1.5	V	35.4	4.55	33.4	53.51	54	0.49	Harmonic
4960	41.93	AV	256	1.8	H	36.6	4.55	33.4	49.68	54	4.32	Harmonic
1653.9	50.62	AV	210	1.2	V	26.0	2.77	35.0	44.39	54	9.61	Spurious
1653.9	48.99	AV	156	1.2	H	26.5	2.77	35.0	43.26	54	10.74	Spurious
4960	54.75	PK	142	1.4	V	35.4	4.55	33.4	61.3	74	12.7	Harmonic
1653.9	64.57	PK	240	1.4	V	26.0	2.77	35.0	58.34	74	15.66	Spurious
4960	48.99	PK	145	1.4	H	36.6	4.55	33.4	56.74	74	17.26	Harmonic
1653.9	62.00	PK	128	1.5	H	26.5	2.77	35.0	56.27	74	17.73	Spurious

§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	2006-09-29	2007-09-29

*** 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.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9 kPa

The testing was performed by Andy Yan on 2007-09-22.

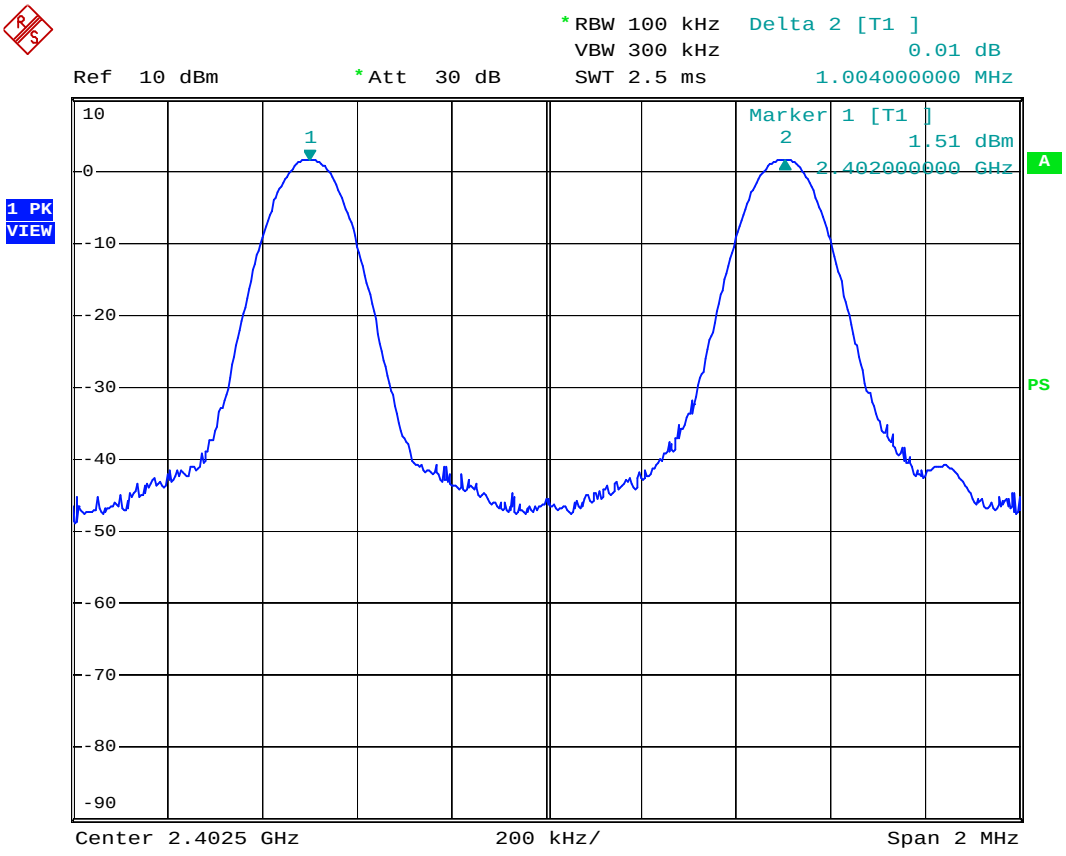
Result: Compliant.

Please refer to the following table and plots.

Test mode: Transmitting

Channel	Channel Frequency (MHz)	Channel Separation (kHz)	Limit (kHz)	Result
Low Channel	2402	1004	184	Pass
Adjacent Channel	2403			
Mid Channel	2441	1004	178.67	Pass
Adjacent Channel	2442			
High Channel	2480	1004	181.33	Pass
Adjacent Channel	2479			

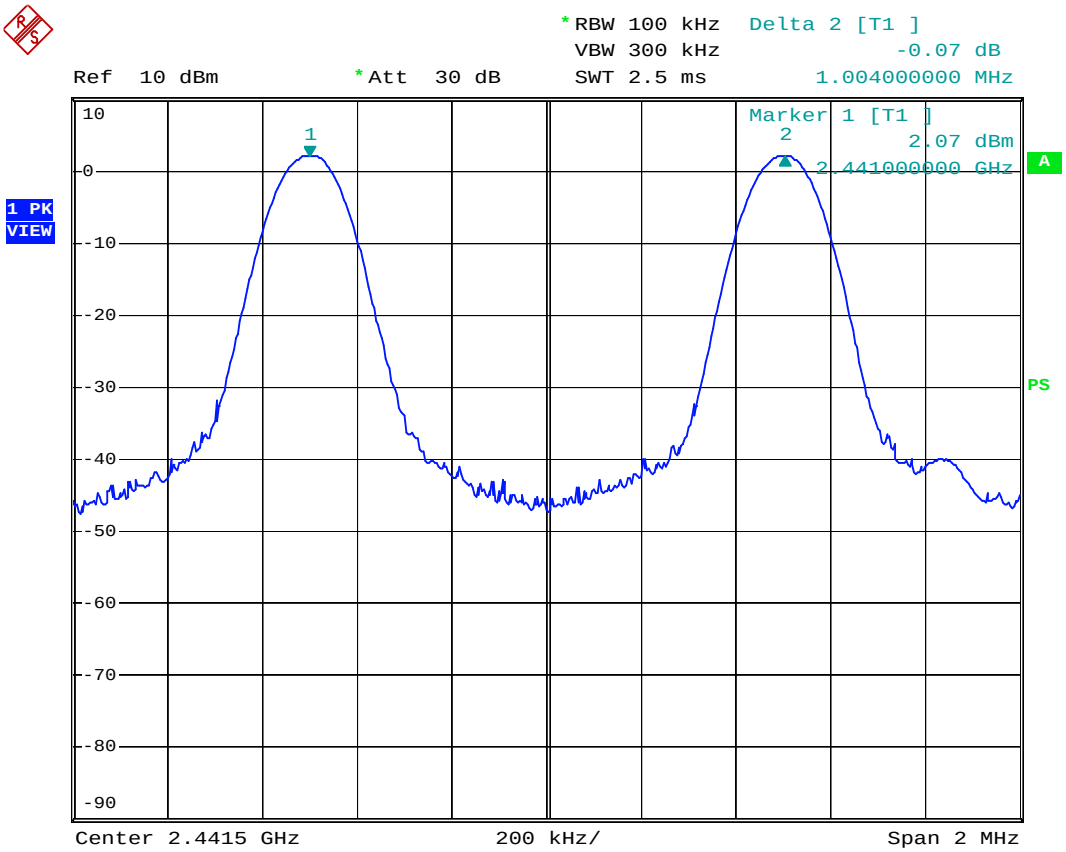
Low channel



SCOTOR Bluetooth Earphone M/N:8860 channel separation -l

Date: 22.SEP.2007 20:54:45

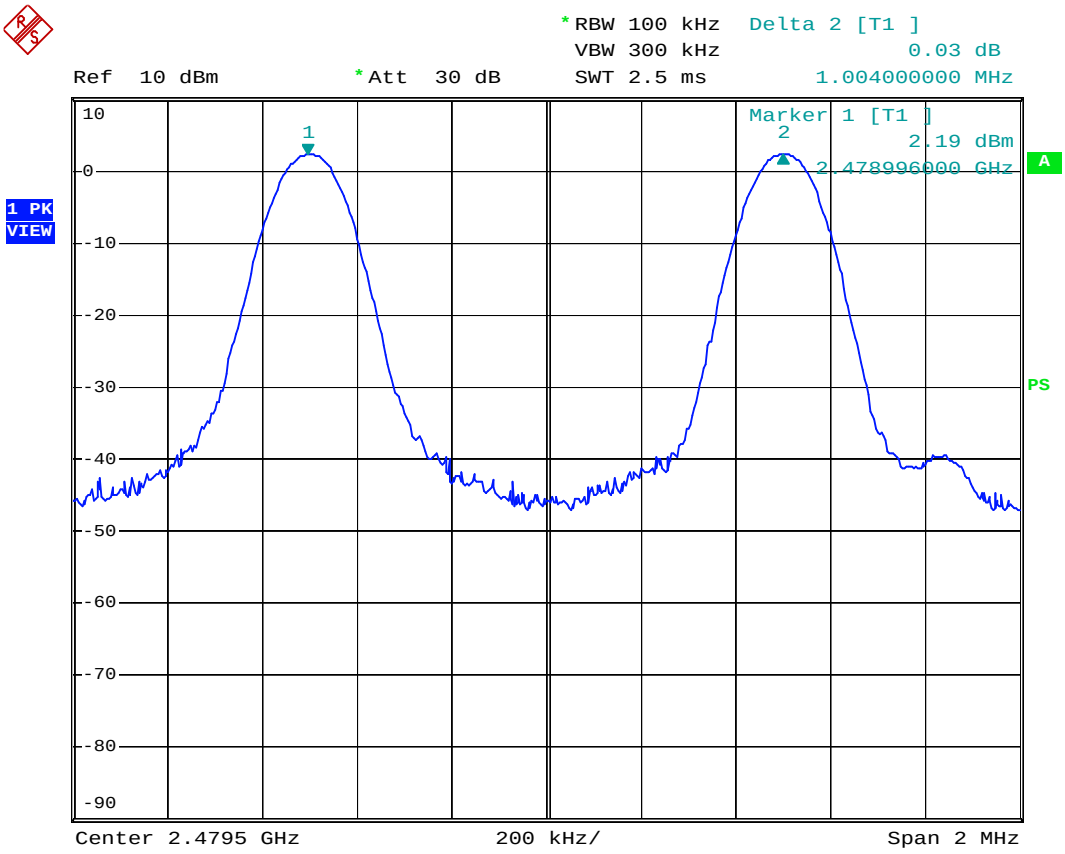
Middle channel



SCOTOR Bluetooth Earphone M/N:8860 channel separation -m

Date: 22.SEP.2007 20:53:03

High channel



SCOTOR Bluetooth Earphone M/N:8860 channel separation -h

Date: 22.SEP.2007 16:40:32

§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	2006-09-29	2007-09-29

*** 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

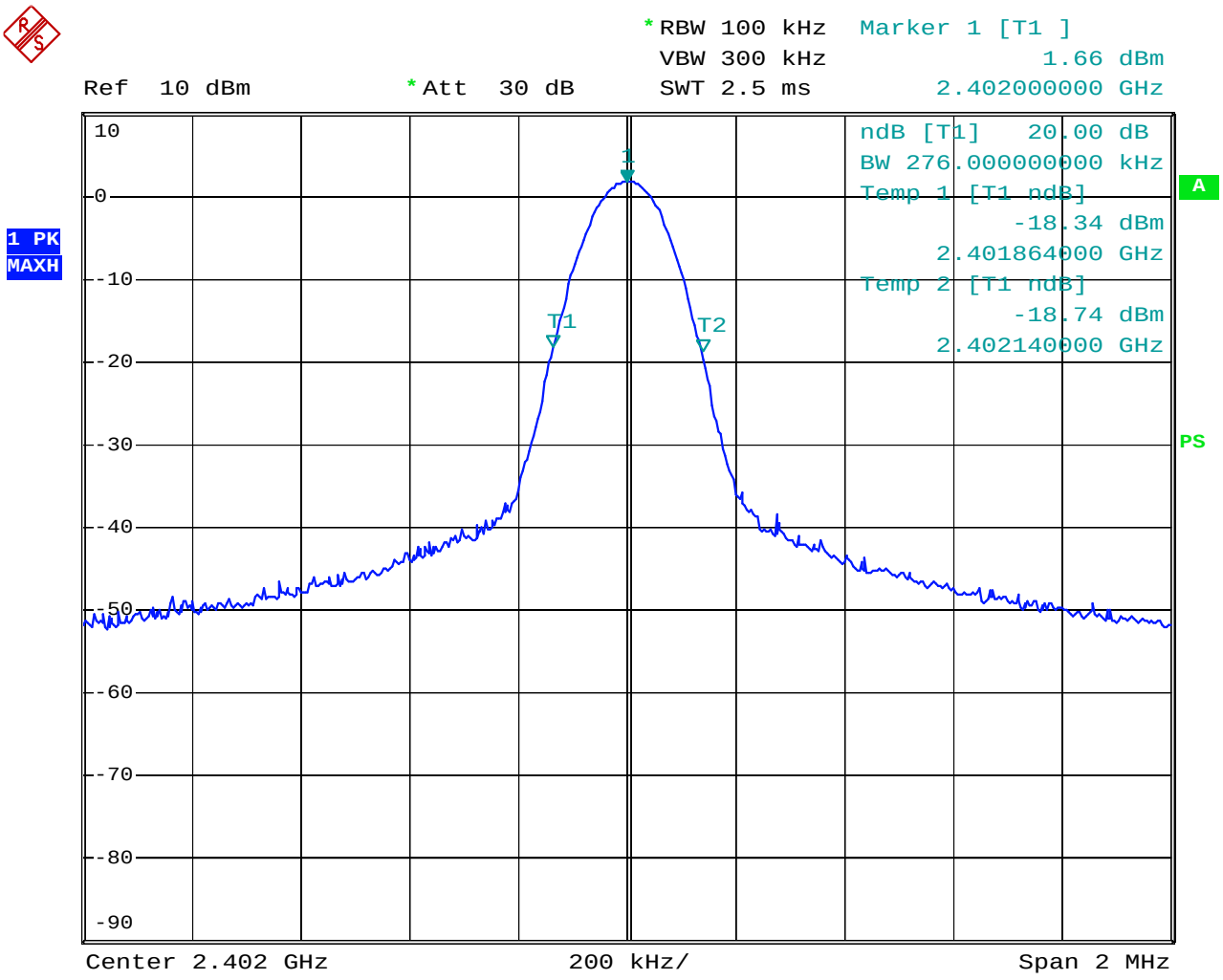
Temperature:	25 ° C
Relative Humidity:	53%
ATM Pressure:	100.9kPa

The testing was performed by Andy Yan on 2007-09-22.

Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)
Low Channel	2402	276
Mid Channel	2441	268
High Channel	2480	272

Please refer to the following plots.

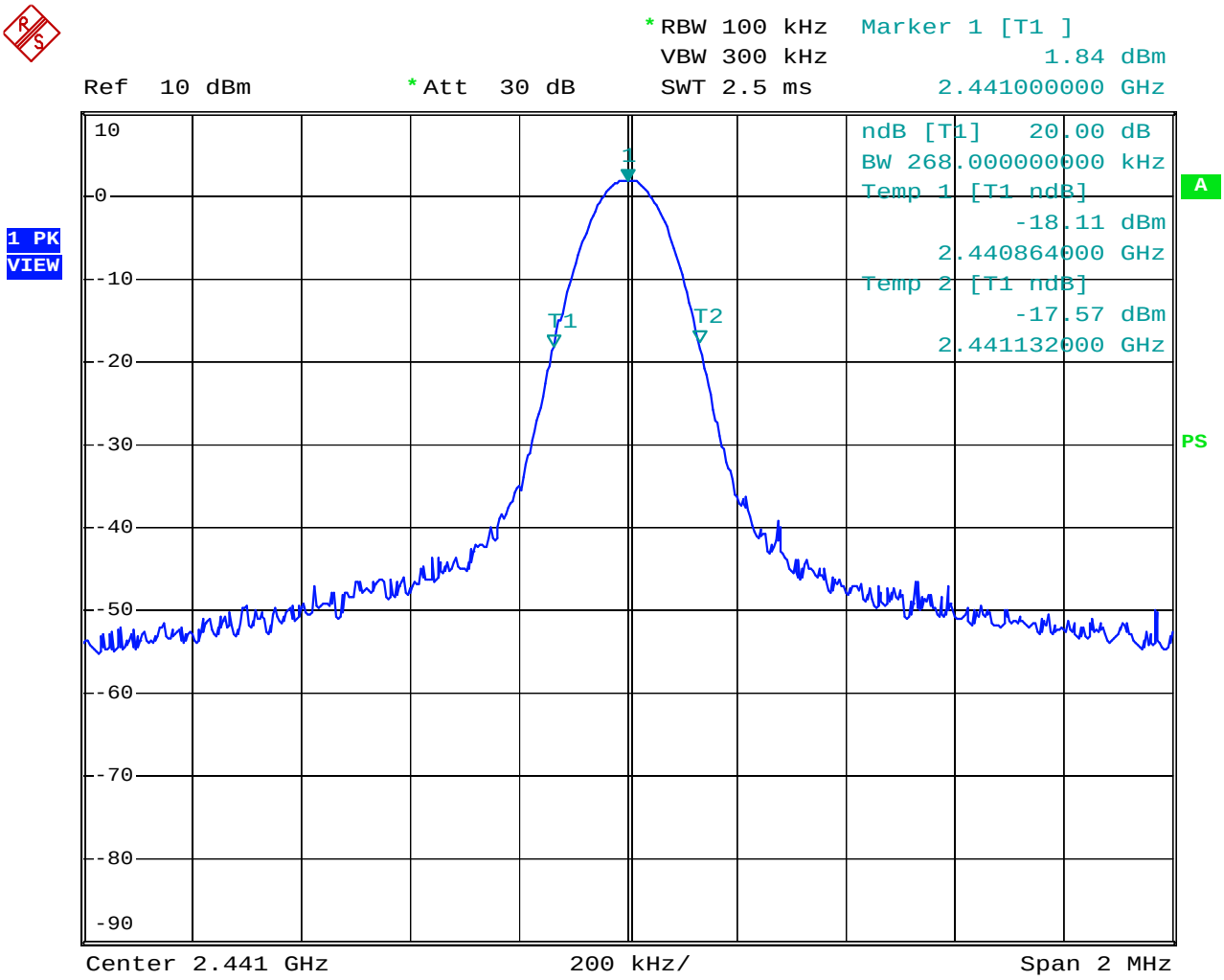
Low channel



SCOTOR Bluetooth Earphone M/N:8860 20dB Bandedge Low channel

Date: 22.SEP.2007 16:25:49

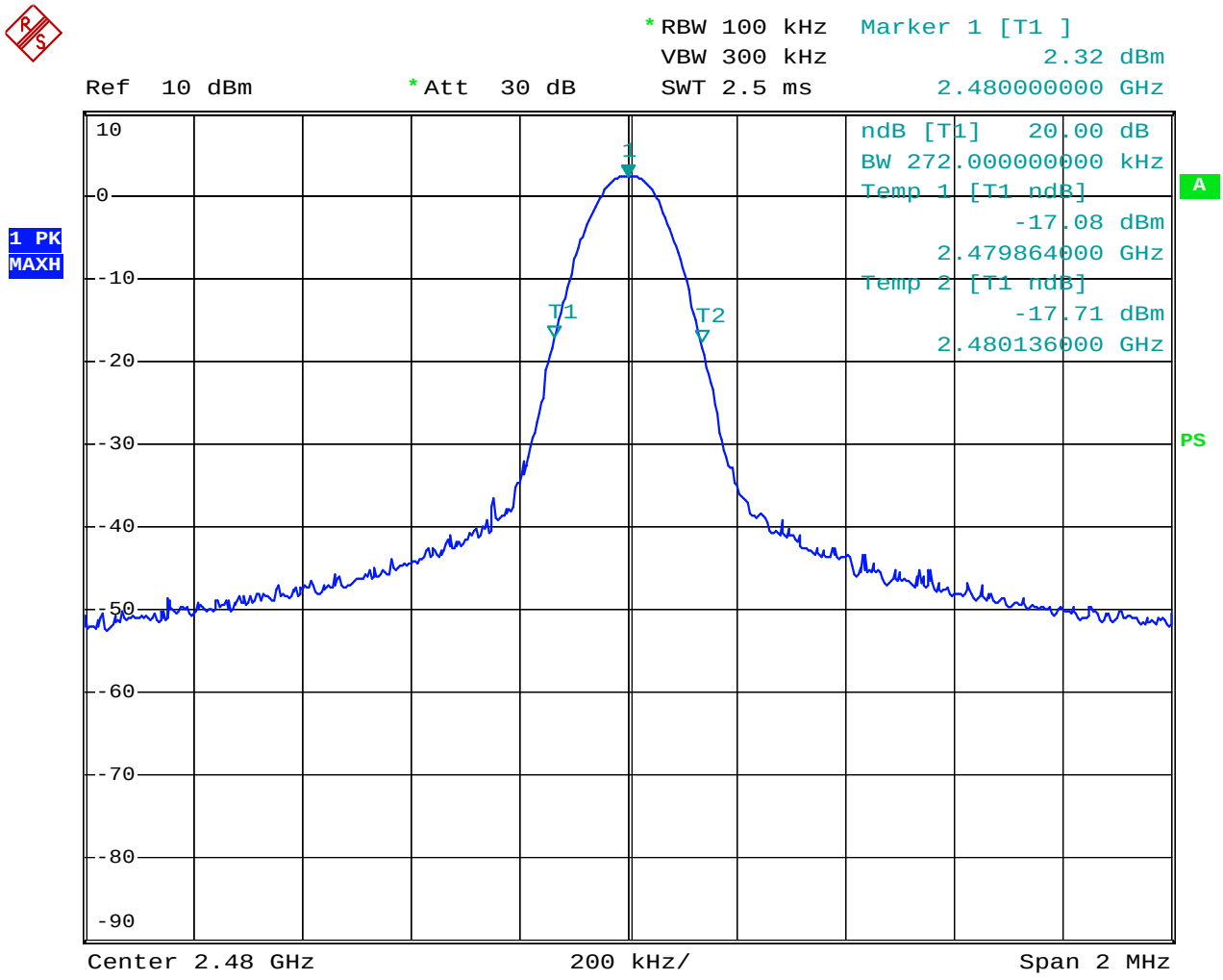
Middle channel



SCOTOR Bluetooth Earphone M/N:8860 20dB Bandedge middle chan
nel

Date: 22.SEP.2007 16:27:56

High channel



SCOTOR Bluetooth Earphone M/N:8860 20dB Bandedge high channe

l

Date: 22.SEP.2007 16:28:44

§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	2006-09-29	2007-09-29

*** 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:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9 kPa

The testing was performed by Andy Yan on 2007-09-22.

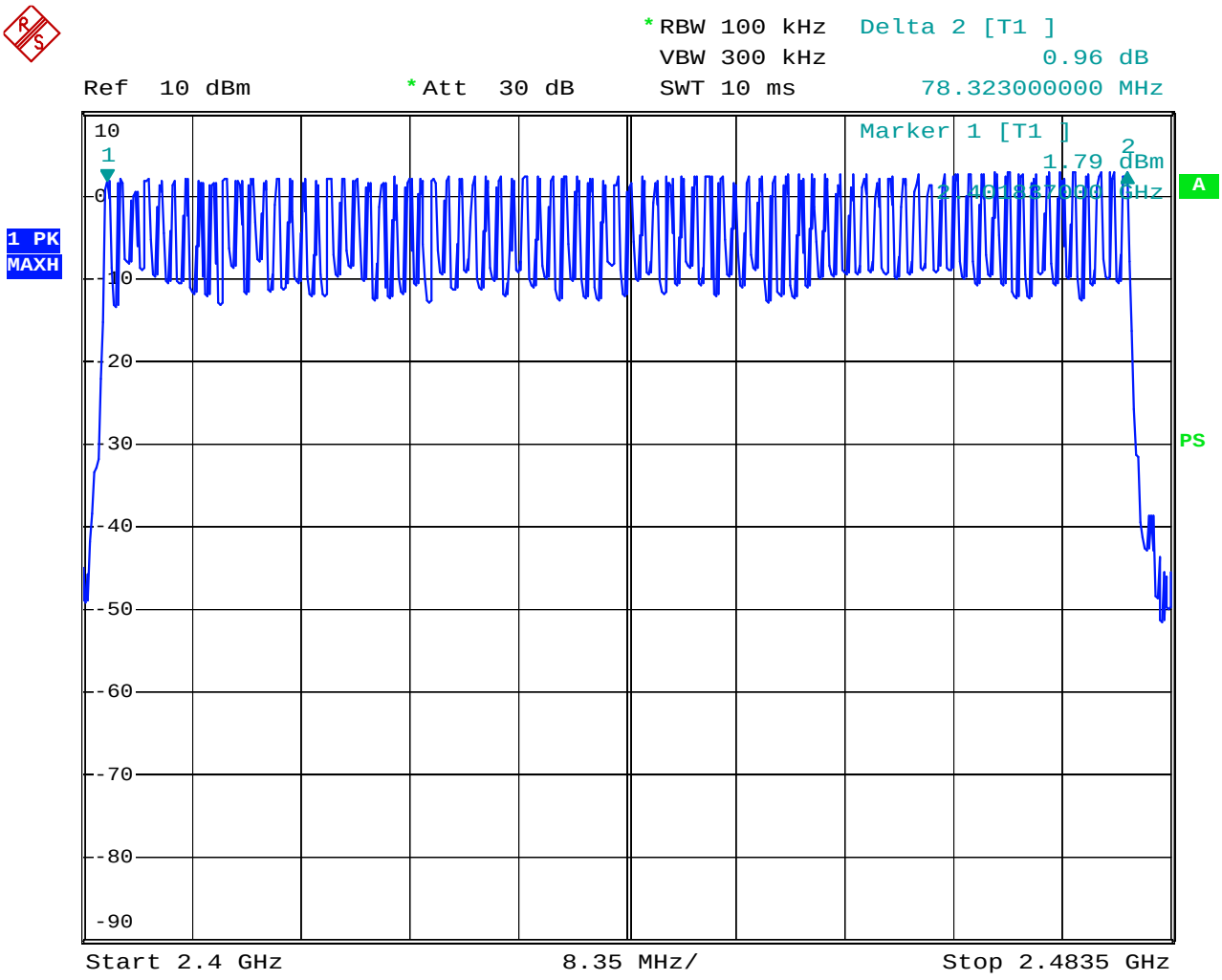
Test mode: Transmitting

Frequency Range (MHz)	Quantity of Hopping Channel	Limit
2402-2480	79	>15

Result: Compliant.

Please refer to the following plot.

Number of Hopping Channels



SCOTOR Bluetooth Earphone M/N:8860 quantity of channels

Date: 22.SEP.2007 21:58:58

§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	2006-09-29	2007-09-29

*** 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 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 * 31.6s
Hop rate=1600/s

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9 kPa

The testing was performed by Andy Yan on 2007-09-22.

Test mode: Transmitting

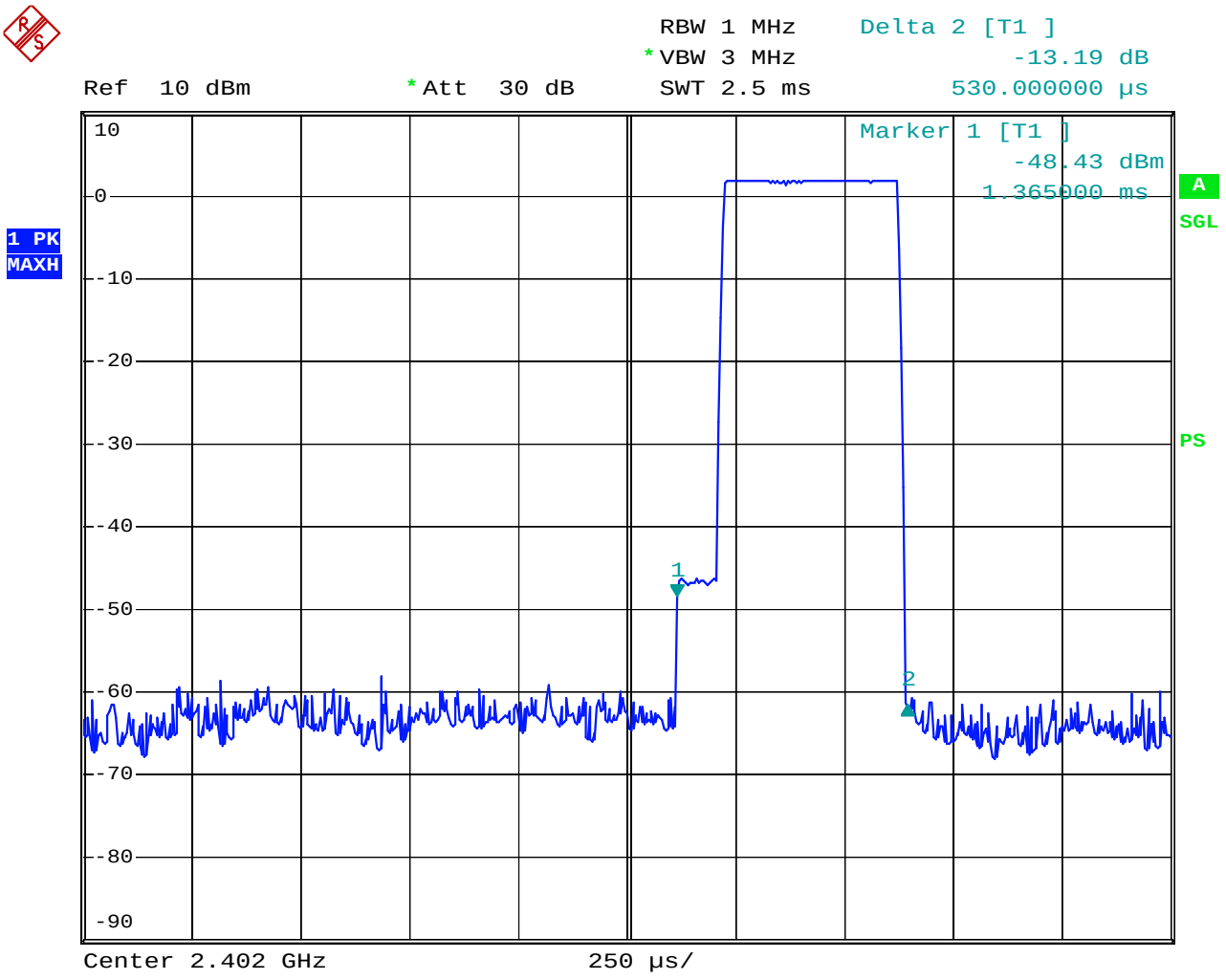
Result: Compliant.

Please refer to the following table and plots.

Dwell time = Pulse time*(1600/2/79)*31.6S

Channel	Pulse wide (msec)	Dwell time (sec)	Limit (sec)	Result
Low Channel	0.53	0.1696	0.4	Compliant
Mid Channel	0.53	0.1696	0.4	Compliant
High Channel	0.53	0.1696	0.4	Compliant

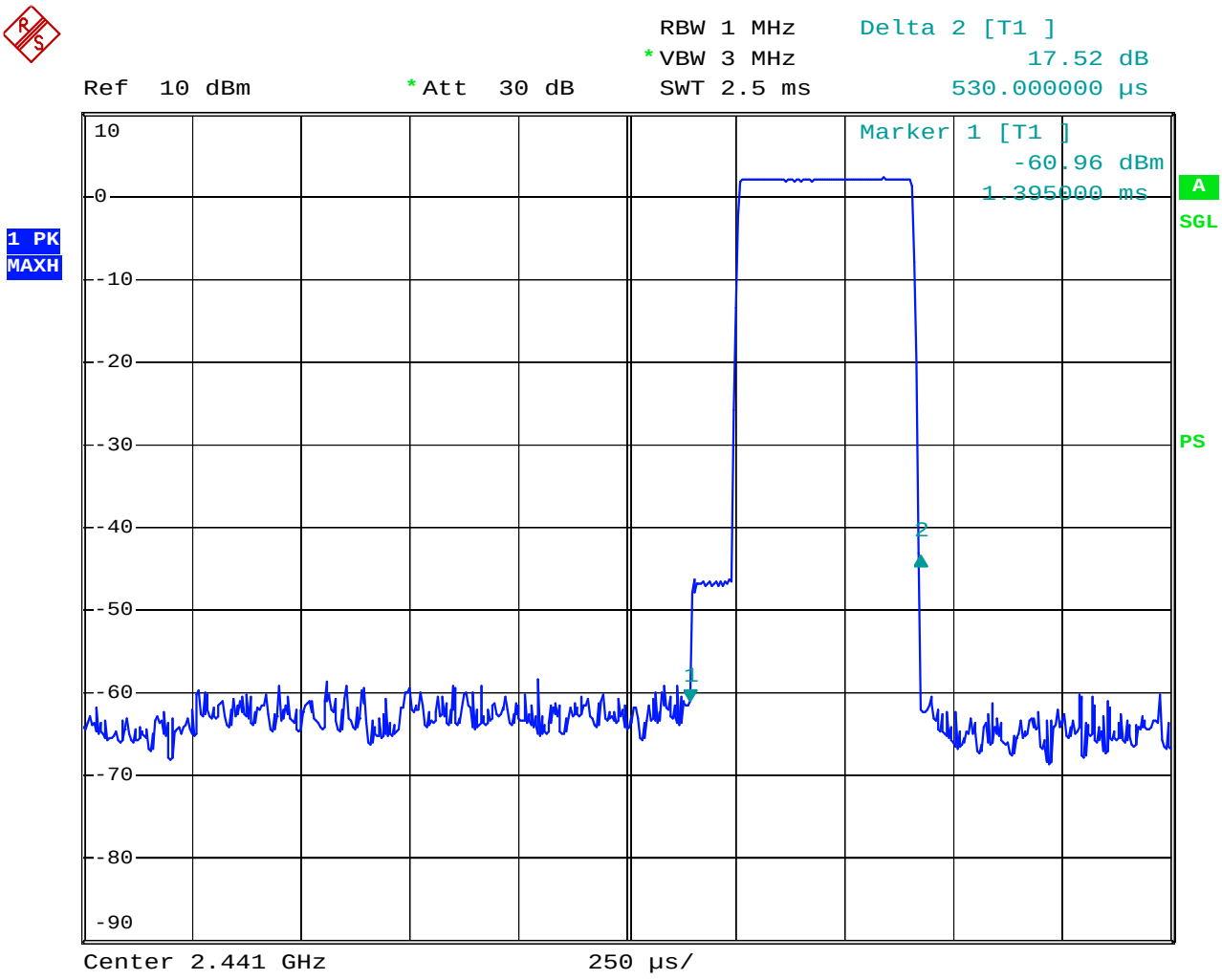
Low channel



SCOTOR Bluetooth Earphone M/N:8860 dwell time - L

Date: 22.SEP.2007 22:46:21

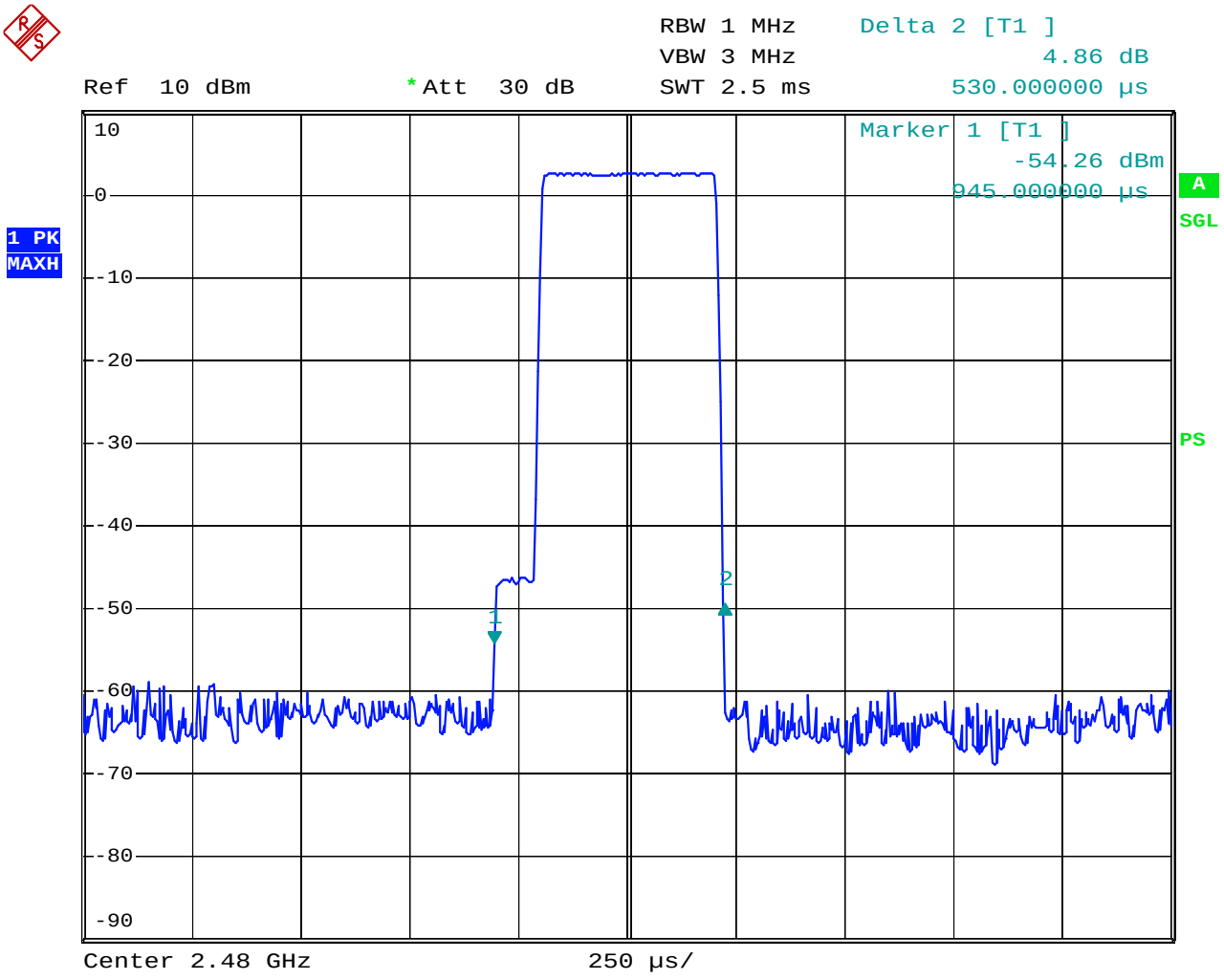
Middle channel



SCOTOR Bluetooth Earphone M/N:8860 dwell time - M

Date: 22.SEP.2007 22:45:23

High channel



SCOTOR Bluetooth Earphone M/N:8860 dwell time - H

Date: 22.SEP.2007 22:10:32

§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.

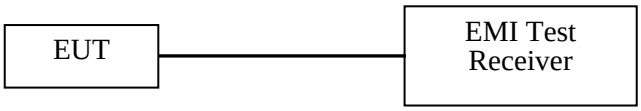
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2006-09-29	2007-09-29

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



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9 kPa

The testing was performed by Andy Yan on 2007-09-22.

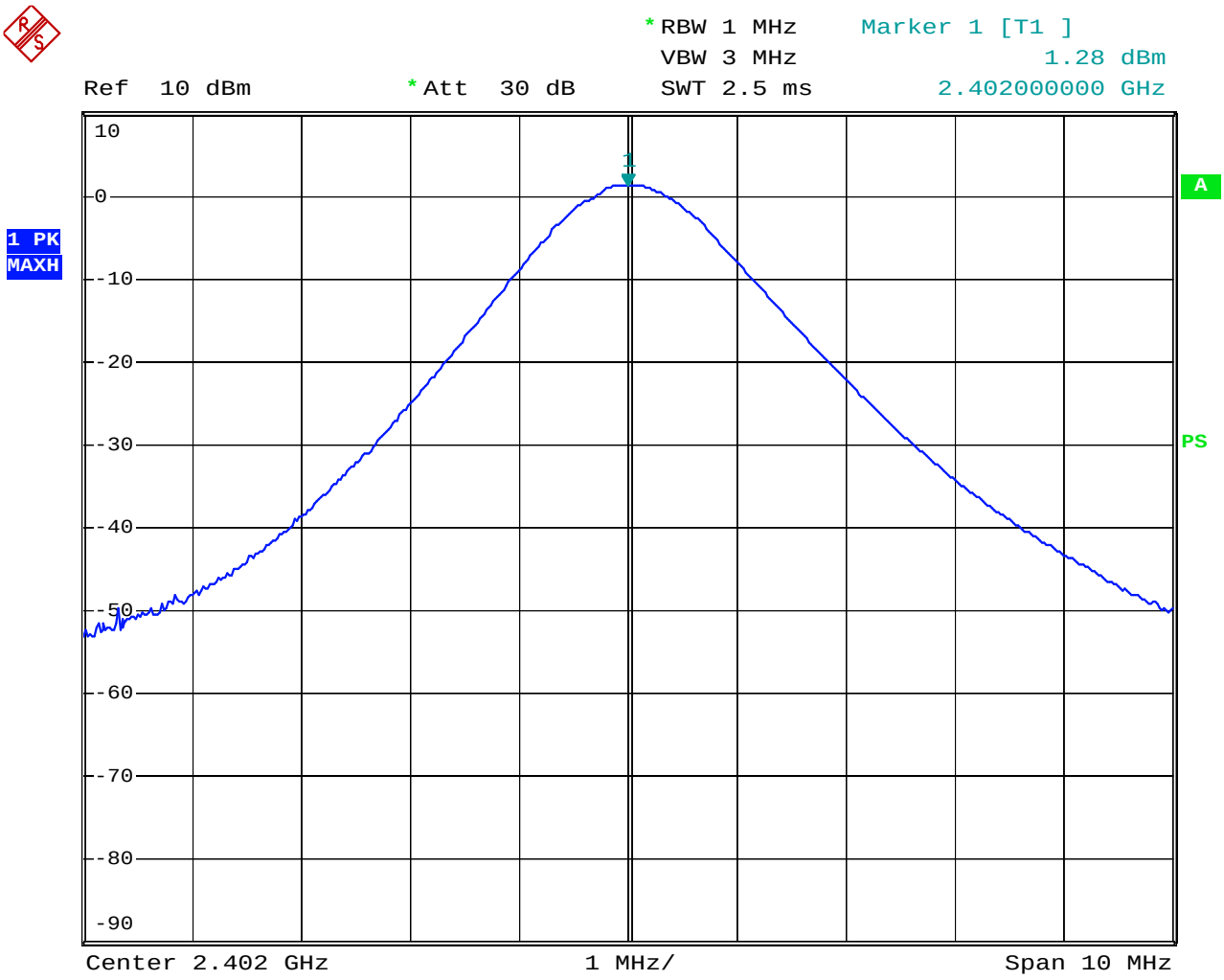
Test mode: Transmitting

Result: Compliant.

Please refer to the following table and plots.

Channel	Channel Frequency (MHz)	Power Output		Limit (mw)
		(dBm)	(mw)	
Low Channel	2402	1.28	1.343	1000
Mid Channel	2441	1.75	1.496	1000
High Channel	2480	2.14	1.637	1000

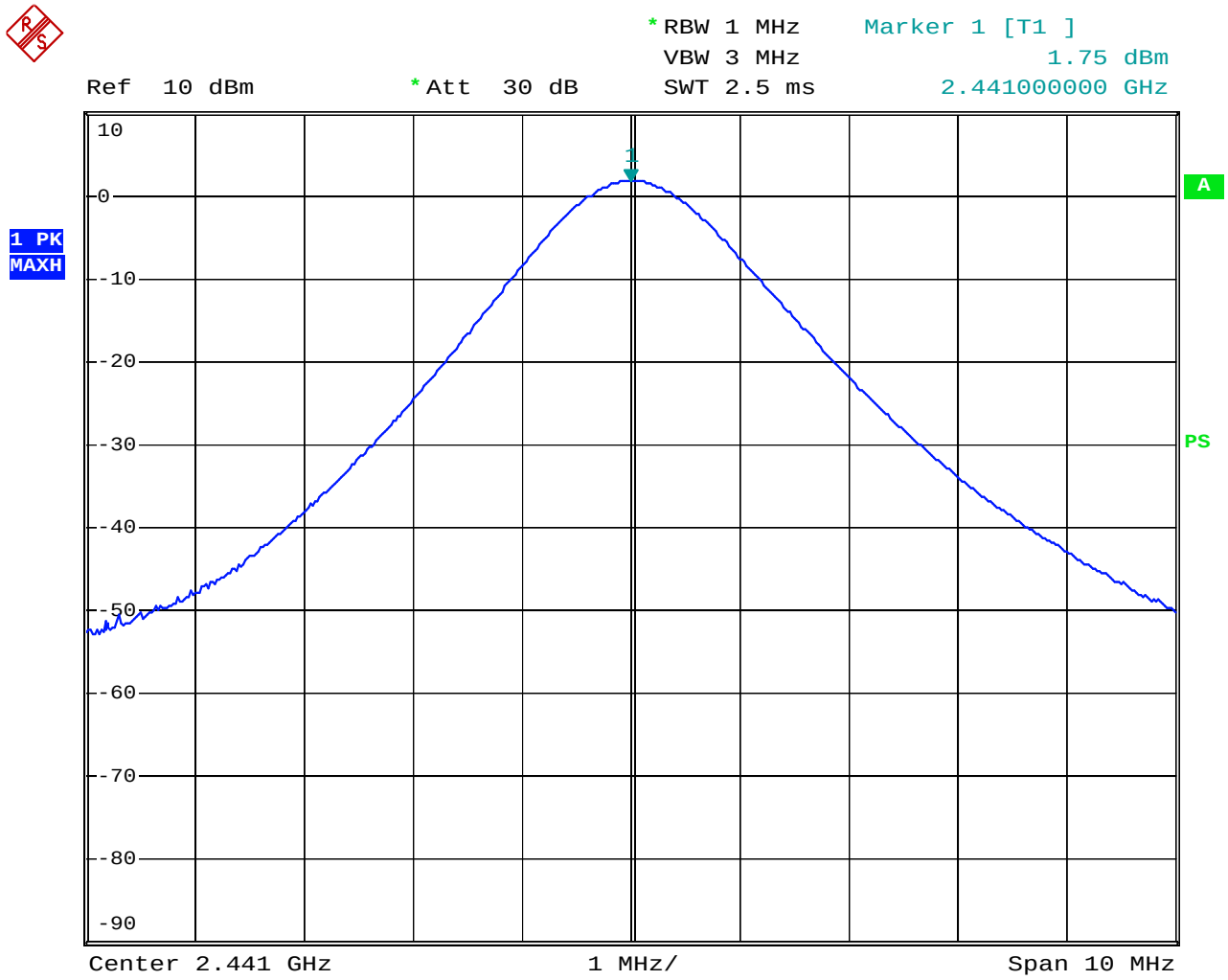
Low channel



SCOTOR Bluetooth Earphone M/N:8860 output power low channel

Date: 22.SEP.2007 16:31:36

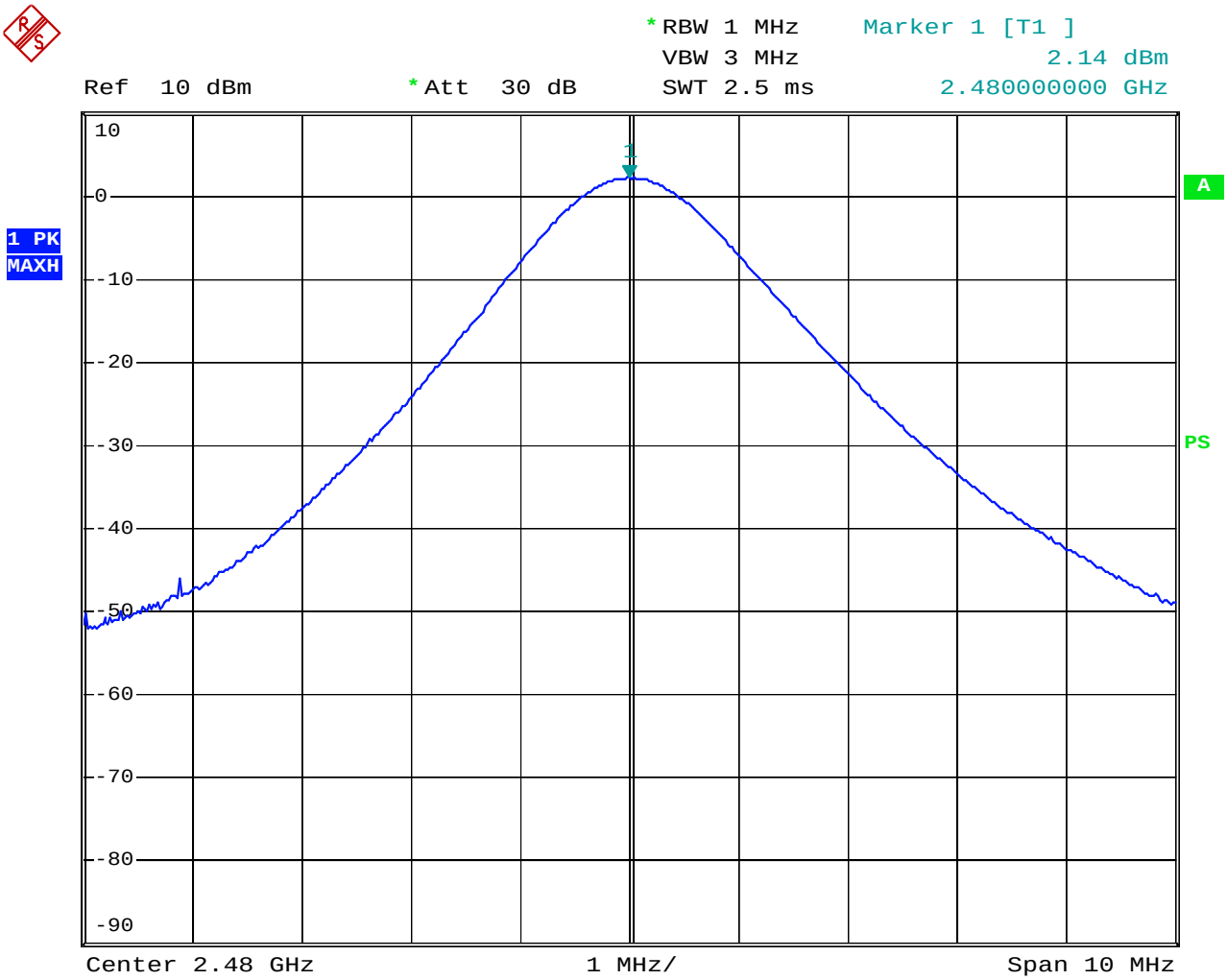
Middle channel



SCOTOR Bluetooth Earphone M/N:8860 output power middle chann
el

Date: 22.SEP.2007 16:30:52

High channel



SCOTOR Bluetooth Earphone M/N:8860 output power high channel

Date: 22.SEP.2007 16:30:08

§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	2006-09-29	2007-09-29

*** 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. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Data

Environmental Conditions

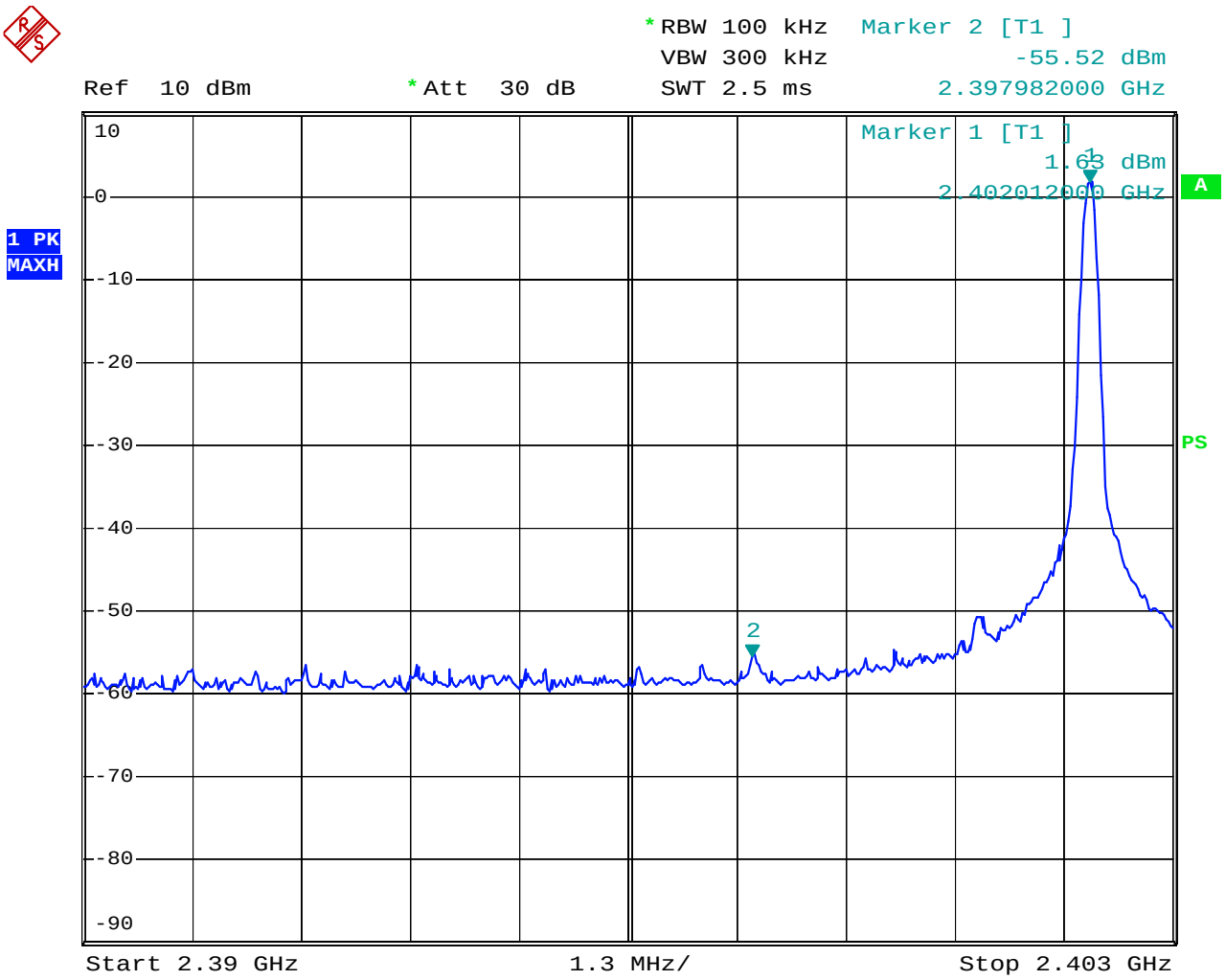
Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.9 kPa

The testing was performed by Andy Yan on 2007-09-22.

Test Mode: Transmitting

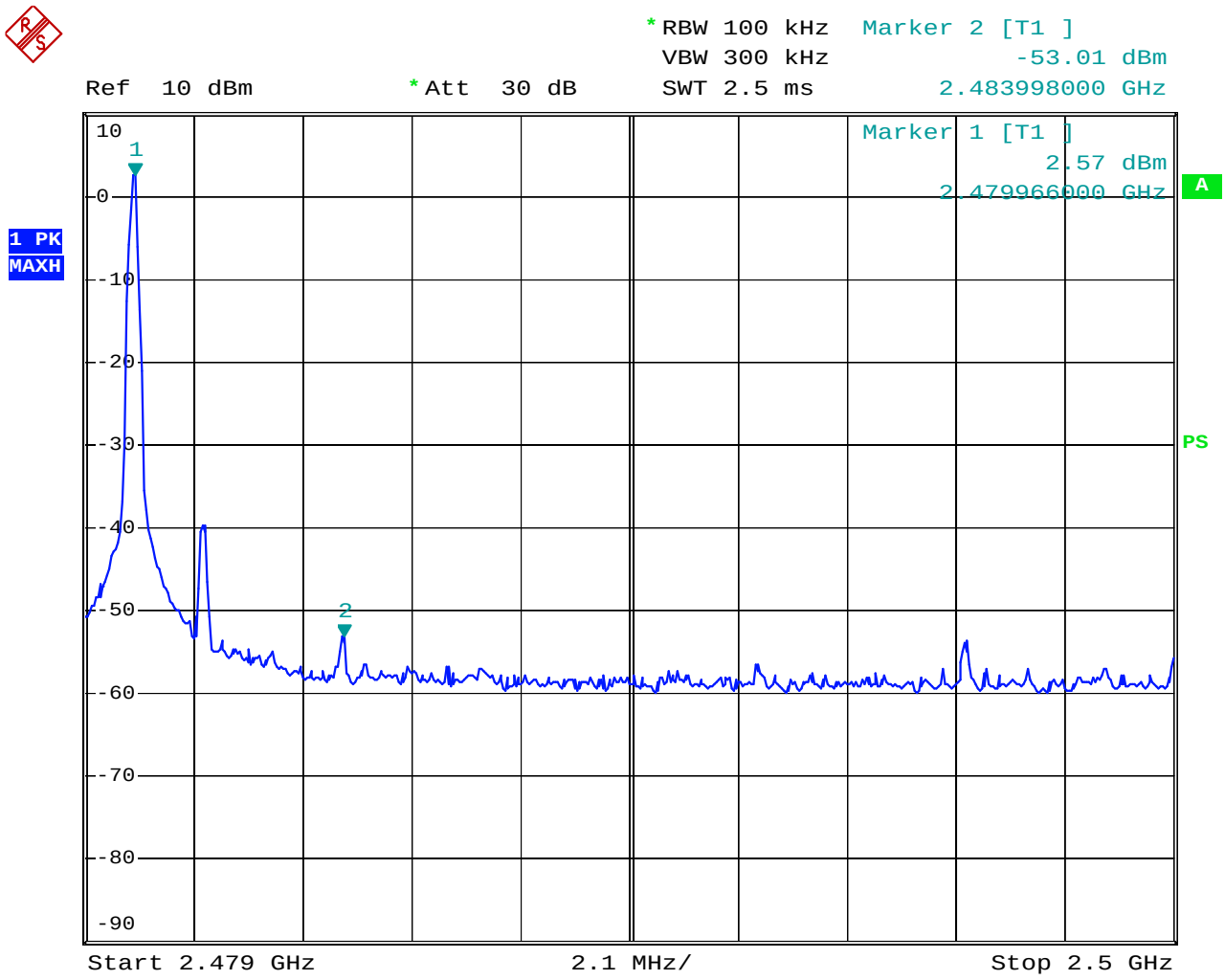
Result: Compliant.

Please refer to the following plots.



SCOTOR Bluetooth Earphone M/N:8860 out of bandedge - left

Date: 22.SEP.2007 21:02:21



SCOTOR Bluetooth Earphone M/N:8860 out of bandedge - right

Date: 22.SEP.2007 21:07:27

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