



Test Report

Product Name	PC USB Headset
Model No.	KL-1
FCC ID	BJM-KL1

Applicant	TATUNG CO.
Address	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.

Date of Receipt	Jan. 23, 2007
Issued Date	May. 11, 2007
Report No.	072L099-RFUSP05V01

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issued Date: May. 11, 2007

Report No.: 072L099-RFUSP05V01



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name	PC USB Headset
Applicant	TATUNG CO.
Address	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.
Manufacturer	TATUNG CO.
Model No.	KL-1
Rated Voltage	AC 120V/60Hz
Working Voltage	3.7V Battery
Trade Name	TATUNG
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2006 CISPR 22: 2005, ANSI C63.4: 2003
Test Result	Complied



Test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Anita Chou
(Senior Engineering Adm. Specialist /
Anita Chou)



Tested By : Tim Sung
(Engineer / Tim Sung)

Approved By : Gene Chang
(President / Gene Chang)



0914

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	5
1.1. EUT Description.....	5
1.2. Operational Description	7
1.3. Tested System Details.....	8
1.4. Configuration of Test System.....	8
1.5. EUT Exercise Software	8
1.6. Test Facility	9
2. Conducted Emission.....	10
2.1. Test Equipment.....	10
2.2. Test Setup	10
2.3. Limits	10
2.4. Test Procedure	11
2.5. Uncertainty	11
2.6. Test Result of Conducted Emission.....	12
3. Peak Power Output	14
3.1. Test Equipment.....	14
3.2. Test Setup	14
3.3. Limit	14
3.4. Uncertainty	14
3.5. Test Result of Peak Power Output.....	15
4. Radiated Emission.....	18
4.1. Test Equipment.....	18
4.2. Test Setup	19
4.3. Limits	20
4.4. Test Procedure	21
4.5. Uncertainty	21
4.6. Test Result of Radiated Emission.....	22
5. Band Edge	28
5.1. Test Equipment.....	28
5.2. Test Setup	28
5.3. Limit	29
5.4. Test Procedure	29
5.5. Uncertainty	29
5.6. Test Result of Band Edge	30
6. Occupied Bandwidth.....	34
6.1. Test Equipment.....	34
6.2. Test Setup	34
6.3. Limits	34
6.4. Uncertainty	34
6.5. Test Result of Occupied Bandwidth	35
7. Power Density	38
7.1. Test Equipment.....	38

7.2.	Test Setup	38
7.3.	Limits	38
7.4.	Uncertainty	38
7.5.	Test Result of Power Density	39
8.	EMI Reduction Method During Compliance Testing	42

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	PC USB Headset
Trade Name	TATUNG
Model No.	KL-1
FCC ID	BJM-KL1
Frequency Range	2405-2479MHz
Number of Channels	38
Channel Separation	2MHz
Data Rate	N/A
Type of Modulation	$\pi/4$ DQPSK (Differential Quadrature Phase Shift Keying)
Antenna Type	Chip Antenna
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	WALSIN	RFANT7635110A1T	2dBi for 2.4 GHz

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 2:	2405 MHz	Channel 3:	2407 MHz	Channel 4:	2409 MHz
Channel 5:	2411 MHz	Channel 6:	2413 MHz	Channel 7:	2415 MHz
Channel 8:	2417 MHz	Channel 9:	2419 MHz	Channel 10:	2421 MHz
Channel 11:	2423 MHz	Channel 12:	2425 MHz	Channel 13:	2427 MHz
Channel 14:	2429 MHz	Channel 15:	2431 MHz	Channel 16:	2433 MHz
Channel 17:	2435 MHz	Channel 18:	2437 MHz	Channel 19:	2439 MHz
Channel 20:	2441 MHz	Channel 21:	2443 MHz	Channel 22:	2445 MHz
Channel 23:	2447 MHz	Channel 24:	2449 MHz	Channel 25:	2451 MHz
Channel 26:	2453 MHz	Channel 27:	2455 MHz	Channel 28:	2457 MHz
Channel 29:	2459 MHz	Channel 30:	2461 MHz	Channel 31:	2463 MHz
Channel 32:	2465 MHz	Channel 33:	2467 MHz	Channel 34:	2469 MHz
Channel 35:	2471 MHz	Channel 36:	2473 MHz	Channel 37:	2475 MHz
Channel 38:	2477 MHz	Channel 39:	2479 MHz		

Note:

1. The EUT is a PC USB Headset with a built-in 2.4GHz transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operational Description

The EUT is a PC USB Headset with a built-in 2.4GHz transceiver. There are 38 channels in 2405 – 2479MHz. The channels are separated by 2MHz. The signals are modulated by $\pi/4$ DQPSK. The antenna type is chip antenna.

Test Mode	Mode 1: Transmitter
-----------	---------------------

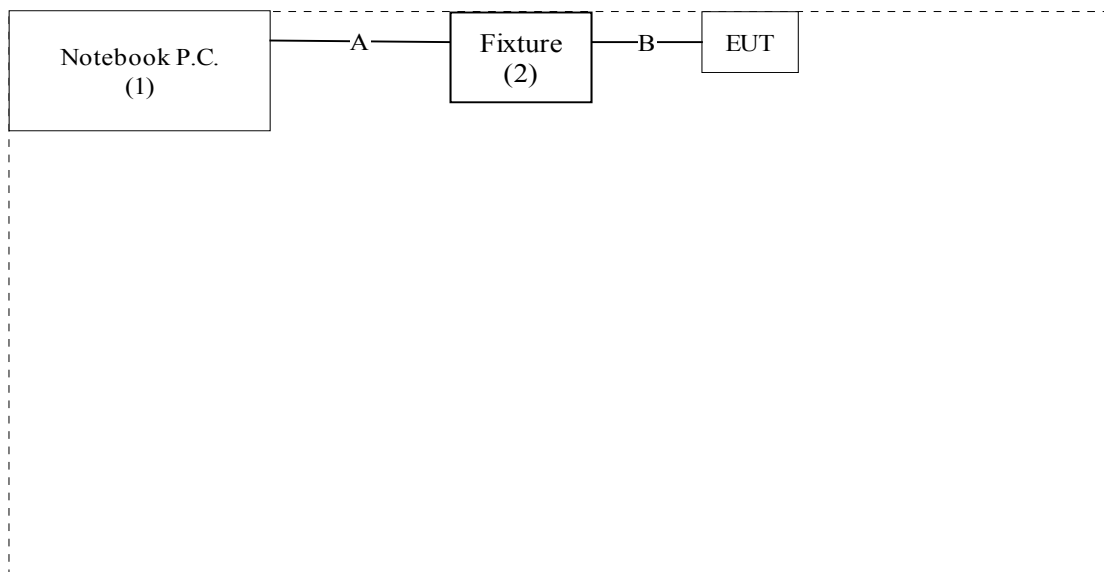
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1.	Notebook PC	DELL	PPT	N/A	DoC	Non-Shielded, 0.8m
2.	Fixture	Aardvark	N/A	N/A	N/A	N/A

	Signal Cable Type	Signal Cable Description
A.	USB Cable	Shielded, 1.8m
B.	Control Cable (10Pin)	Non-shielded, 0.14m

1.4. Configuration of Test System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4.
- (2) Connect the EUT to a notebook via a USB cable.
- (3) Execute AWAflash.exe on the notebook.
- (4) Double-click “AV7102” and select USB as a primary connection interface.
- (5) Setup the test channel.
- (6) Press “Apply” to start the continuous transmission.
- (7) Verify that the EUT works correctly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2



Accreditation on NVLAP
NVLAP Lab Code: 200533-0



Site Name: Quietek Corporation
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com



2. Conducted Emission

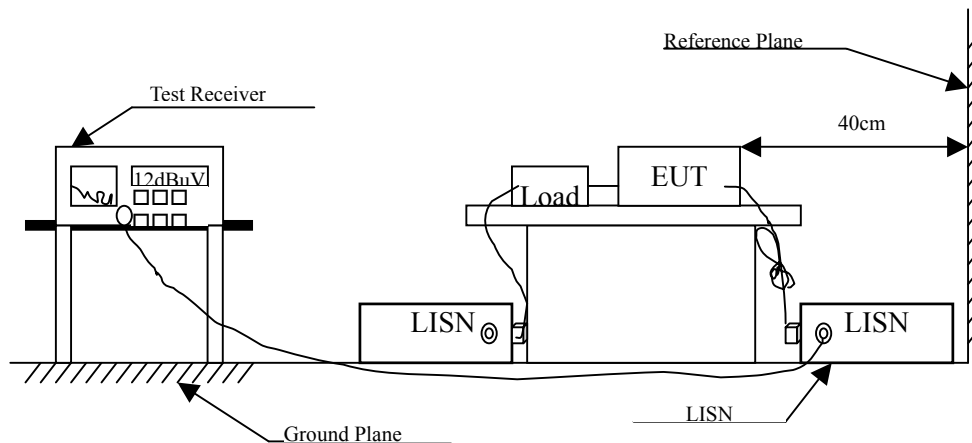
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2007	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2007	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2007	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2007	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56 _(註)	56-46 _(註)
0.50-5.0	56	46
5.0 - 30	60	50

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : PC USB Headset
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.170	0.621	52.990	53.611	-11.818	65.429
0.230	0.440	50.170	50.610	-13.104	63.714
0.340	0.300	49.360	49.660	-10.911	60.571
0.390	0.300	44.860	45.160	-13.983	59.143
0.450	0.300	42.410	42.710	-14.719	57.429
3.365	0.380	45.490	45.870	-10.130	56.000
Average					
0.170	0.621	44.000	44.621	-10.808	55.429
0.230	0.440	36.390	36.830	-16.884	53.714
0.340	0.300	40.330	40.630	-9.941	50.571
0.390	0.300	38.040	38.340	-10.803	49.143
0.450	0.300	35.890	36.190	-11.239	47.429
3.365	0.380	35.080	35.460	-10.540	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : PC USB Headset
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.170	0.300	51.820	52.120	-13.309	65.429
0.230	0.300	49.580	49.880	-13.834	63.714
0.340	0.303	46.370	46.673	-13.898	60.571
0.390	0.310	46.550	46.860	-12.283	59.143
0.450	0.310	39.550	39.860	-17.569	57.429
3.865	0.400	46.910	47.310	-8.690	56.000
Average					
0.170	0.300	44.500	44.800	-10.629	55.429
0.230	0.300	36.520	36.820	-16.894	53.714
0.340	0.303	40.670	40.973	-9.598	50.571
0.390	0.310	38.310	38.620	-10.523	49.143
0.450	0.310	33.700	34.010	-13.419	47.429
3.865	0.400	34.740	35.140	-10.860	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

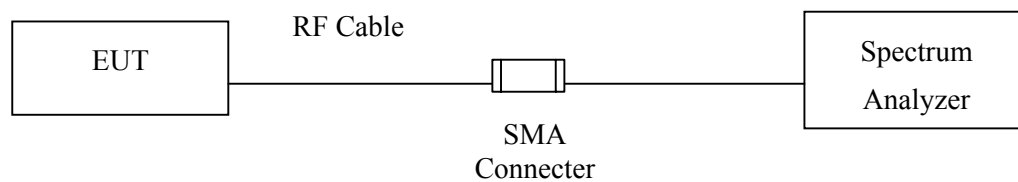
3. Peak Power Output

3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R & S	FSP40 / 100170	Nov., 2006

Note: 1. All equipments are calibrated every one year.
2. Test instruments marked by "X" are used to measure the final test results.

3.2. Test Setup



3.3. Limit

The maximum peak power shall be less 1Watt.

3.4. Uncertainty

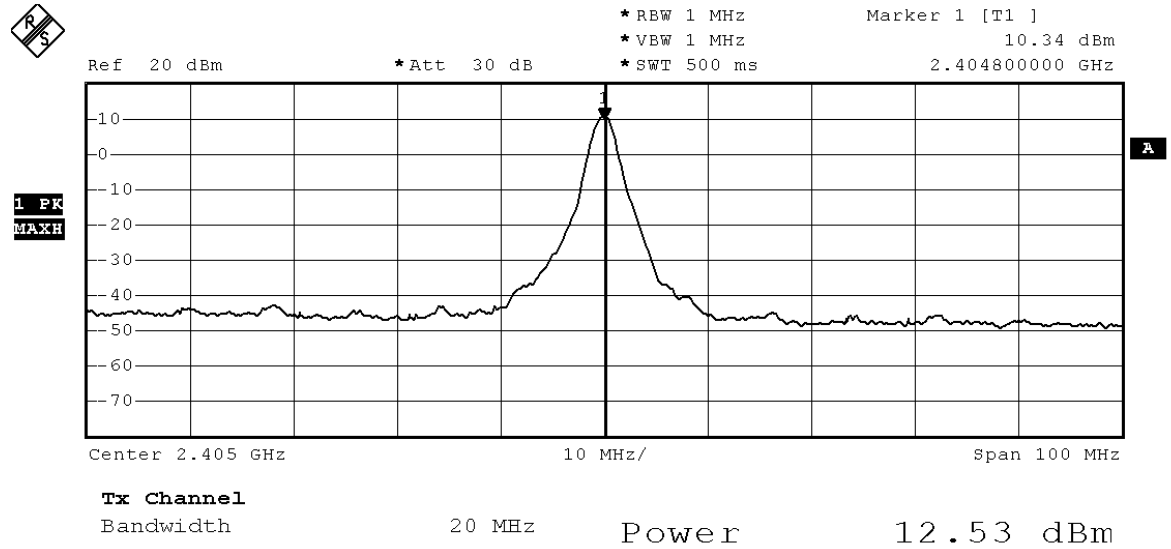
± 1.27 dB

3.5. Test Result of Peak Power Output

Product : PC USB Headset
 Test Item : Peak Power Output
 Test Site : CTR1
 Test Mode : Mode 1: Transmitter

Channel No.	Frequency (MHz)	Channel Power (dBm)	Required Limit	Result
02	2405.00	12.53	1 Watt= 30 dBm	Pass
20	2441.00	10.61	1 Watt= 30 dBm	Pass
39	2479.00	8.84	1 Watt= 30 dBm	Pass

Channel 1



PN1

Date: 26.APR.2007 10:45:23

Channel 19



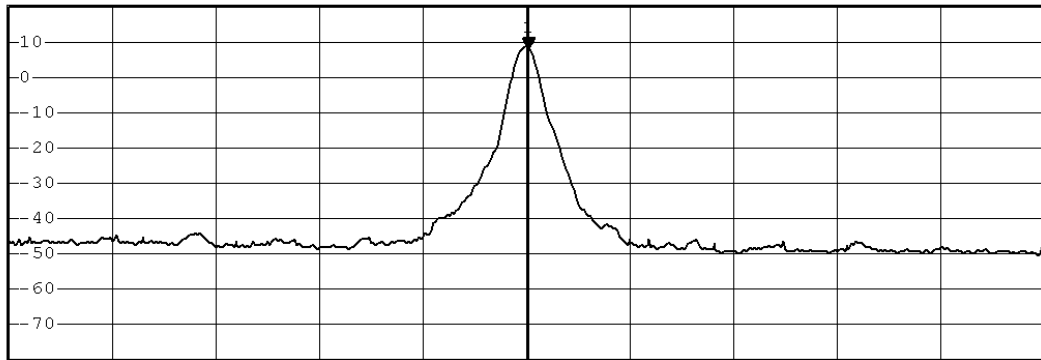
*RBW 1 MHz
*VBW 1 MHz
*SWT 500 ms
Marker 1 [T1]
8.43 dBm
2.441000000 GHz

Ref 20 dBm

*Att 30 dB

2.441000000 GHz

1 PK
MAXH



Center 2.441 GHz

10 MHz/

Span 100 MHz

Tx Channel

Bandwidth

20 MHz

Power

10.61 dBm

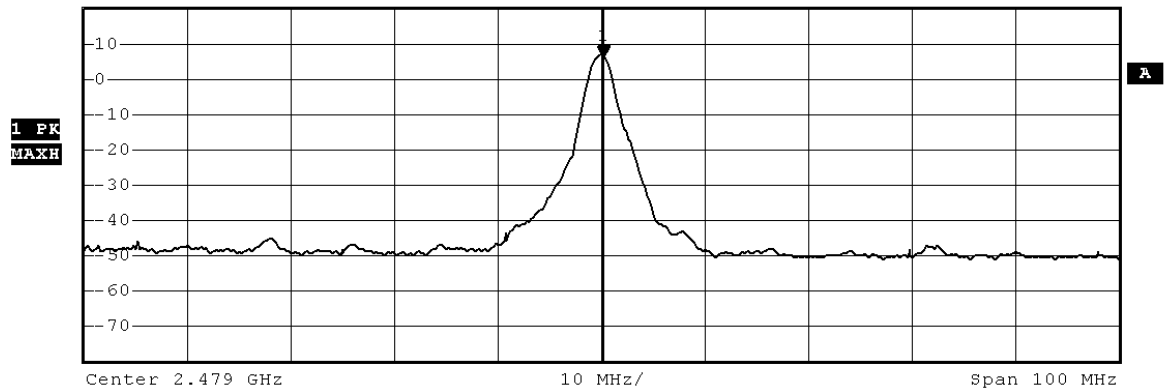
PN1

Date: 26.APR.2007 10:46:10

Channel 38



Ref 20 dBm *Att 30 dB *RBW 1 MHz Marker 1 [T1] 6.67 dBm
 *VBW 1 MHz *SWT 500 ms 2.479000000 GHz



Tx Channel

Bandwidth 20 MHz Power 8.84 dBm

PN1

Date: 26.APR.2007 10:46:45

4. Radiated Emission

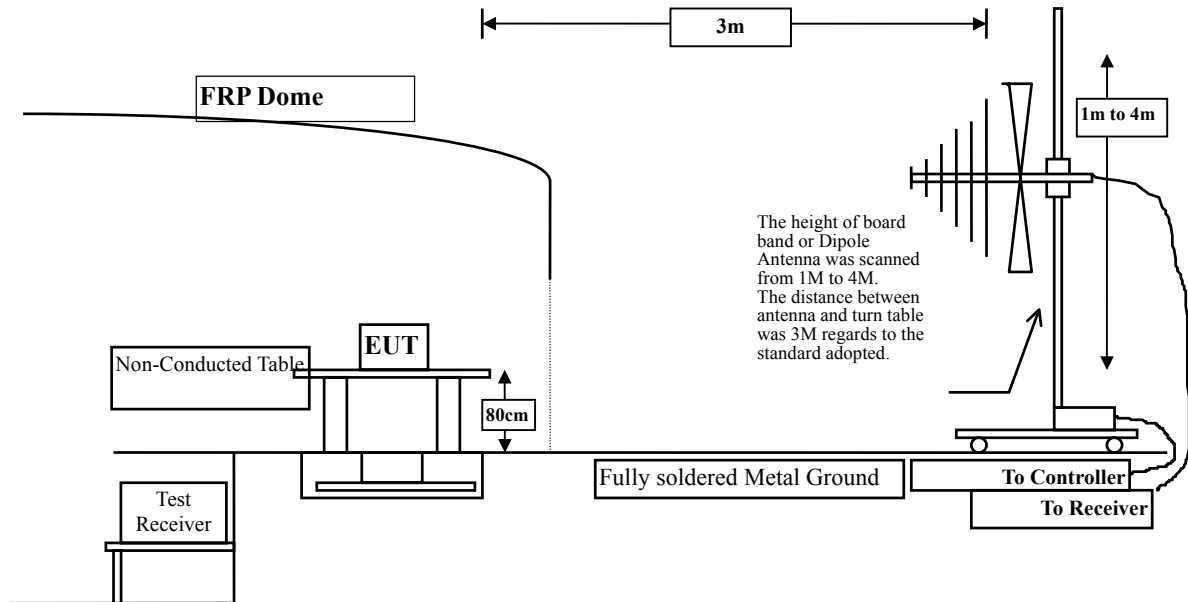
4.1. Test Equipment

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☐ Site # 1		Test Receiver	R & S	ESVS 10 / 834468/003	May, 2007
		Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2007
		Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2007
		Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Sep., 2006
☐ Site # 2		Test Receiver	R & S	ESCS 30 / 836858 / 022	May, 2007
		Spectrum Analyzer	Advantest	R3162 / 100803466	May, 2007
		Pre-Amplifier	Advantest	BB525C/3307A01814	May, 2007
		Bilog Antenna	SCHAFFNER	CBL6112B / 2705	May, 2007
		Horn Antenna	ETS	3115 / 0005-6160	Sep., 2006
		Pre-Amplifier	QTK	QTK-AMP-01/ 0001	May, 2007
☒ Site # 3	X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2007
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2007
	X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2006
	X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2006
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2006
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2007
	X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2006

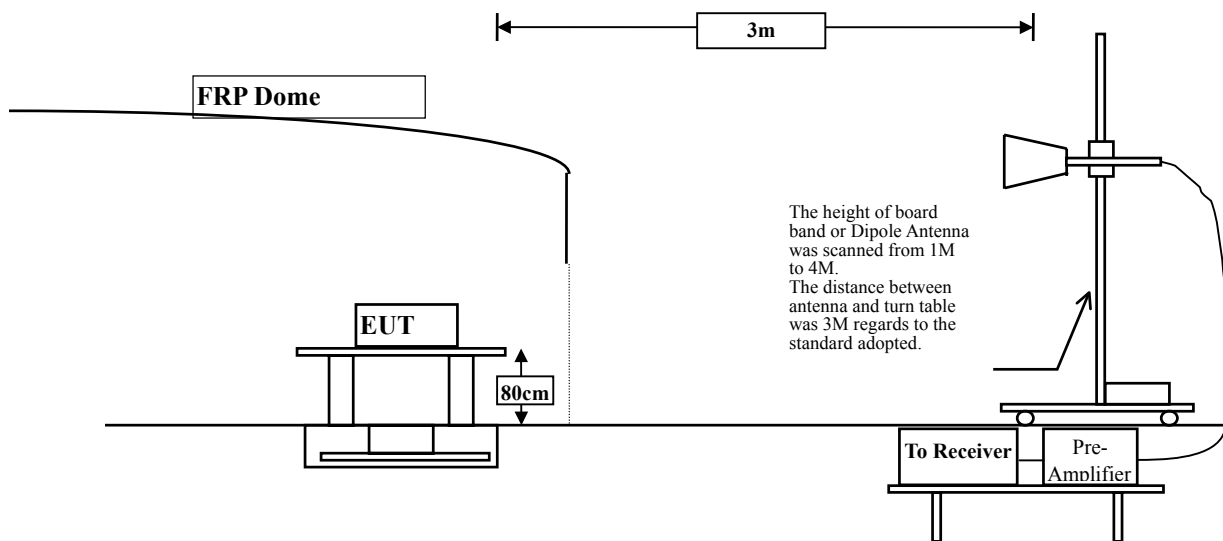
Note: 1. All equipments are calibrated every one year.
2. Test equipments marked by "X" are used to measure the final test results.

4.2. Test Setup

Below 1GHz



Above 1GHz



4.3. Limits

➤ General Radiated Emission Limits

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, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in FCC 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a), must also comply in FCC 15.209(a) (see FCC 15.205(c)).

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

- Remarks:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The frequency range from 30MHz to 10th harmonics is checked.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : PC USB Headset
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2405MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4810.000	3.681	38.455	42.135	-31.865	74.000
7215.000	9.381	38.410	47.791	-26.209	74.000
9620.000	11.834	38.098	49.932	-24.068	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4810.000	3.681	40.404	44.084	-29.916	74.000
7215.000	9.381	38.895	48.276	-25.724	74.000
9620.000	11.834	35.829	47.663	-26.337	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : PC USB Headset
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2441 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

Peak Detector:

4882.000	3.921	37.880	41.801	-32.199	74.000
7323.000	9.657	38.049	47.706	-26.294	74.000
9764.000	11.798	37.442	49.240	-24.760	74.000

Average Detector:

--

Vertical

Peak Detector:

4882.000	3.921	39.383	43.304	-30.696	74.000
7323.000	9.657	39.118	48.775	-25.225	74.000
9764.000	11.798	39.036	50.834	-23.166	74.000

Average Detector:

--

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : PC USB Headset
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2479 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

Peak Detector:

4958.000	4.189	37.923	42.112	-31.888	74.000
7437.000	9.945	37.613	47.558	-26.442	74.000
9916.000	11.854	37.810	49.664	-24.336	74.000

Average Detector:

--

Vertical

Peak Detector:

4958.000	4.189	38.575	42.764	-31.236	74.000
7437.000	9.945	39.449	49.394	-24.606	74.000
9916.000	11.854	38.562	50.416	-23.584	74.000

Average Detector:

--

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : PC USB Headset
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2441 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

Peak Detector:

4882.000	3.921	37.663	41.584	-32.416	74.000
7323.000	9.657	38.334	47.991	-26.009	74.000
9764.000	11.798	37.271	49.069	-24.931	74.000

Average Detector:

--

Vertical

Peak Detector:

4882.000	3.921	39.140	43.061	-30.939	74.000
7323.000	9.657	39.308	48.965	-25.035	74.000
9764.000	11.798	39.083	50.881	-23.119	74.000

Average Detector:

--

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : PC USB Headset
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
544.100	19.945	8.998	28.943	-17.057	46.000
553.800	19.799	7.736	27.535	-18.465	46.000
568.350	19.178	9.266	28.444	-17.556	46.000
575.625	19.517	8.989	28.506	-17.494	46.000
585.325	20.122	8.512	28.633	-17.367	46.000
607.150	20.225	8.703	28.928	-17.072	46.000
Vertical					
73.650	8.038	11.391	19.429	-20.571	40.000
85.775	8.909	10.347	19.256	-20.744	40.000
102.750	11.071	10.431	21.502	-21.998	43.500
257.950	14.277	1.779	16.056	-29.944	46.000
287.050	13.637	2.047	15.684	-30.316	46.000
529.550	19.013	2.630	21.643	-24.357	46.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product : PC USB Headset
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
544.100	18.902	9.772	28.674	-17.326	46.000
553.800	18.781	8.363	27.144	-18.856	46.000
568.350	18.094	10.419	28.513	-17.487	46.000
575.625	18.398	10.241	28.639	-17.361	46.000
585.325	18.957	9.555	28.511	-17.489	46.000
607.150	18.982	9.762	28.744	-17.256	46.000
Vertical					
73.650	7.383	12.245	19.628	-20.372	40.000
85.775	8.466	10.790	19.256	-20.744	40.000
102.750	10.587	10.822	21.409	-22.091	43.500
257.950	13.494	2.861	16.355	-29.645	46.000
287.050	12.753	2.910	15.663	-30.337	46.000
529.550	17.934	3.537	21.471	-24.529	46.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

5. Band Edge

5.1. Test Equipment

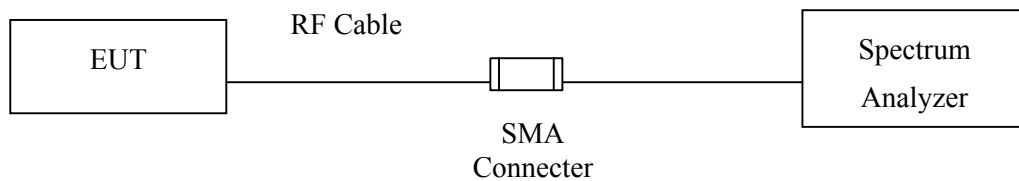
Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI 26 / 838786/004	May, 2007
X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2007
X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2007
X Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2006
X Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2006
X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2006
X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2007
X Pre-Amplifier	HP	8449B / 3008A01123	July, 2006

OATS No.3

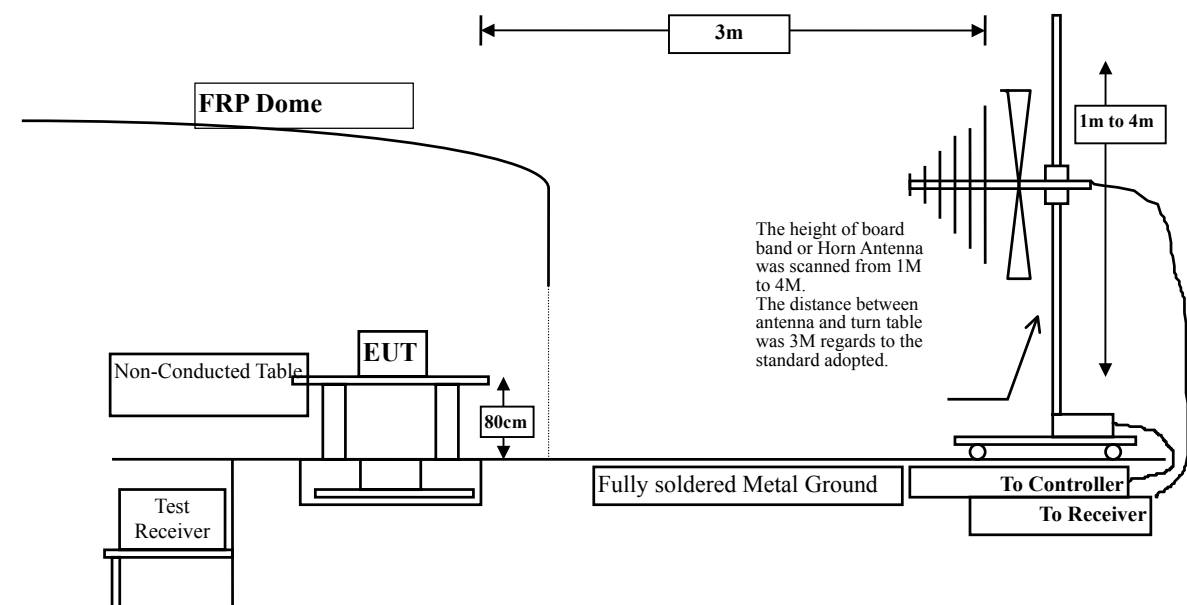
- Note:
1. All equipments are calibrated every one year.
 2. The test equipments marked by "X" are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.3. Limit

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, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in FCC 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a), must also comply in FCC 15.209(a) (see FCC 15.205(c)).

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

5.5. Uncertainty

Conducted is ± 1 MHz

Radiated is ± 3.9 dB

5.6. Test Result of Band Edge

Product : PC USB Headset
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter

RF Radiated Measurement:

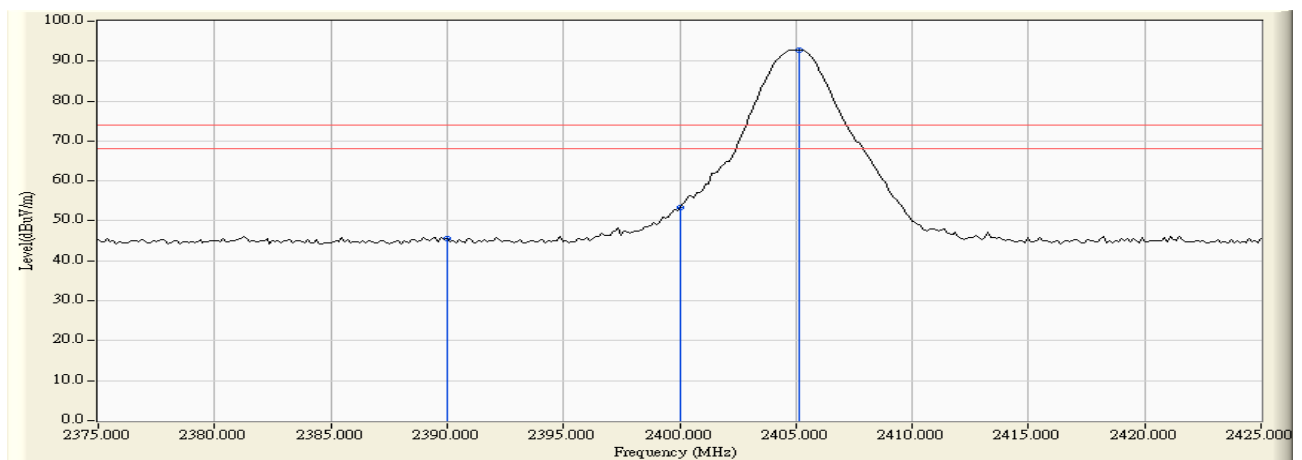
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
2 (Horizontal)	<2400	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
2 (Peak)	2390.000	-2.378	47.830	45.453	74.00	--	Pass
2 (Average)	--	--	--	--	--	54.00	Pass

Figure Channel 1:

Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : PC USB Headset
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter

RF Radiated Measurement:

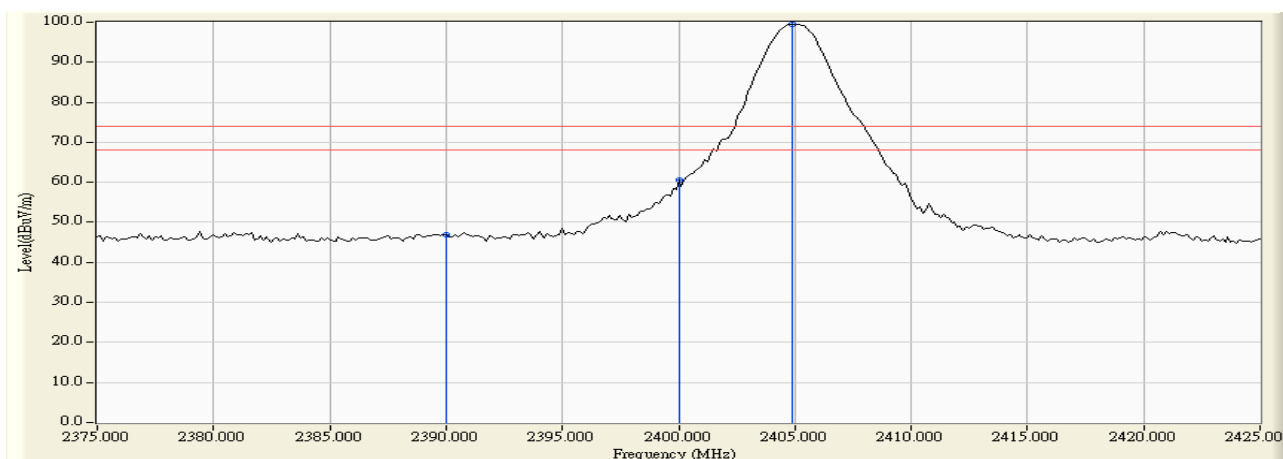
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
2 (Vertical)	<2400	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
2 (Peak)	2390.000	-2.378	49.420	47.043	74.00	--	Pass
2 (Average)	--	--	--	--	--	54.00	Pass

Figure Channel 1:

Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : PC USB Headset
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter

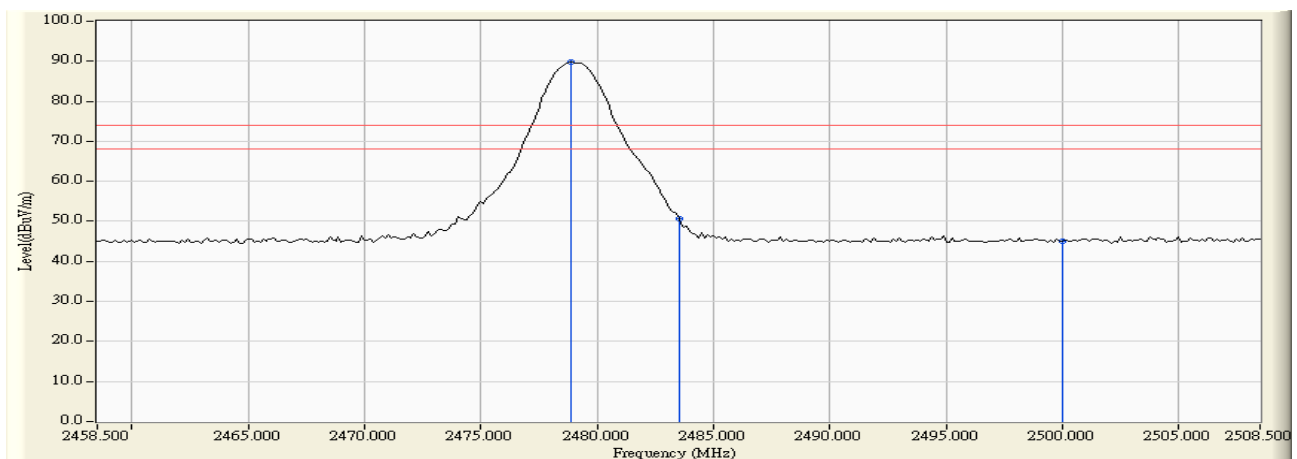
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
39 (Horizontal)	>2483.5	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
39(Peak)	2483.500	-1.937	52.727	50.790	74.00	--	Pass
39(Average)	--	--	--	--	--	54.00	Pass

Figure Channel 38: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : PC USB Headset
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter

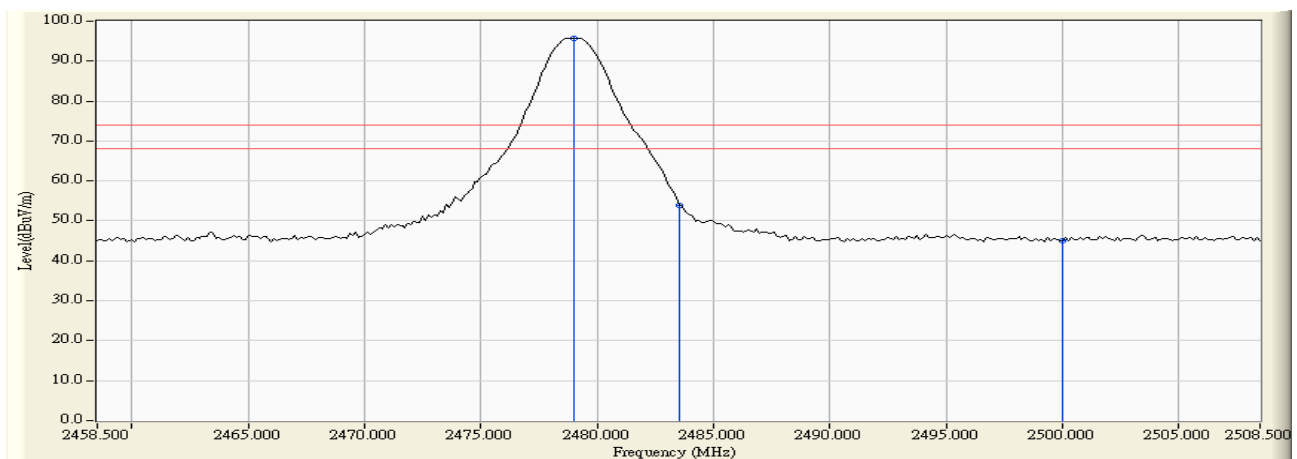
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
39 (Vertical)	>2483.5	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
39(Peak)	2483.500	-1.937	55.741	53.804	74.00	--	Pass
39(Average)	--	--	--	--	--	54.00	Pass

Figure Channel 38: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

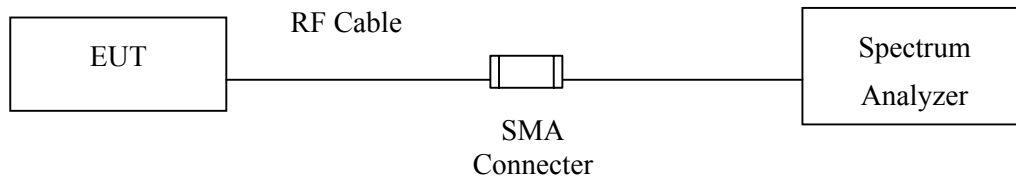
6. Occupied Bandwidth

6.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R & S	FSP40 / 100170	Nov., 2006

Note: 1. All equipments are calibrated every one year.
 2. The test instruments Marked "X" are used to measure the final test results.

6.2. Test Setup



6.3. Limits

N/A

6.4. Uncertainty

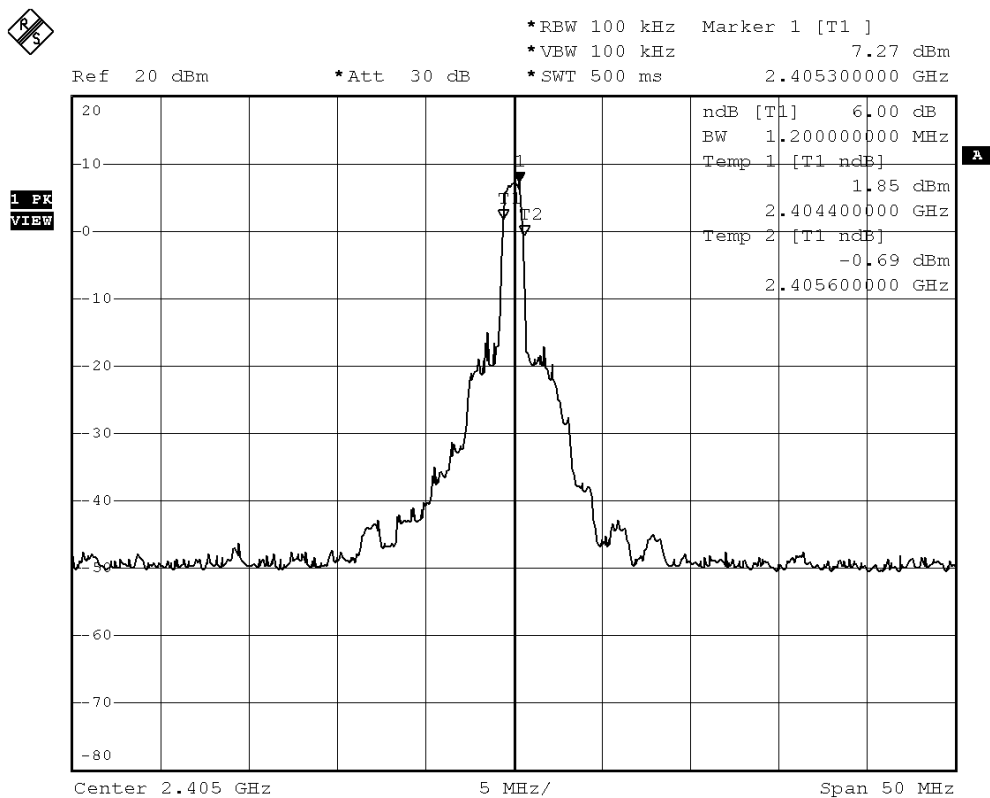
$\pm 150\text{Hz}$

6.5. Test Result of Occupied Bandwidth

Product : PC USB Headset
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2405MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
02	2405.00	1200	>500	Pass

Figure Channel 1:



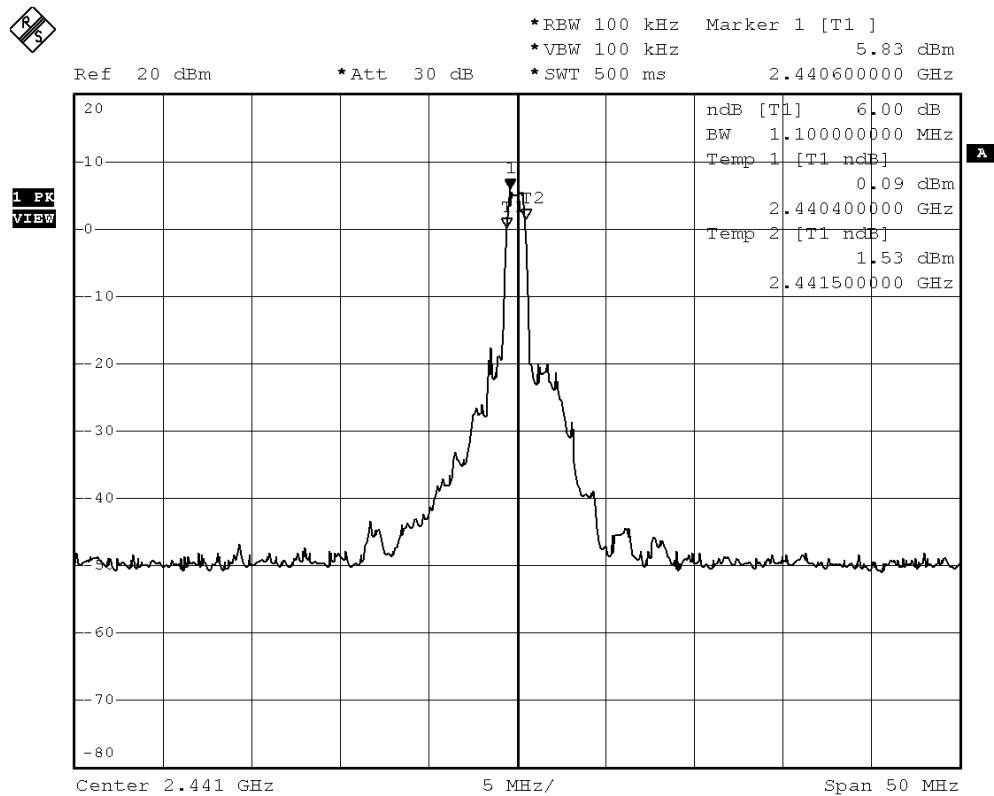
PN1

Date: 26.APR.2007 10:49:19

Product : PC USB Headset
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2441MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
20	2441.00	1100	>500	Pass

Figure Channel 19:



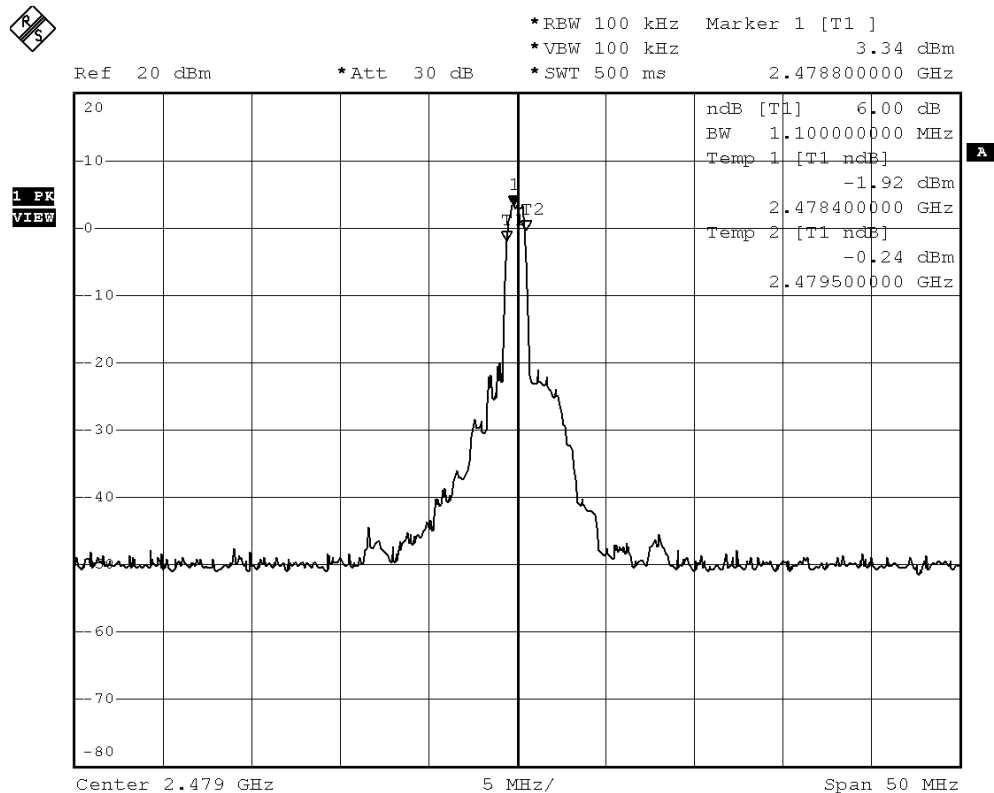
PN1

Date: 26.APR.2007 10:48:38

Product : PC USB Headset
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2479MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2479.00	1100	>500	Pass

Figure Channel 38:



PN1

Date: 26.APR.2007 10:47:52

7. Power Density

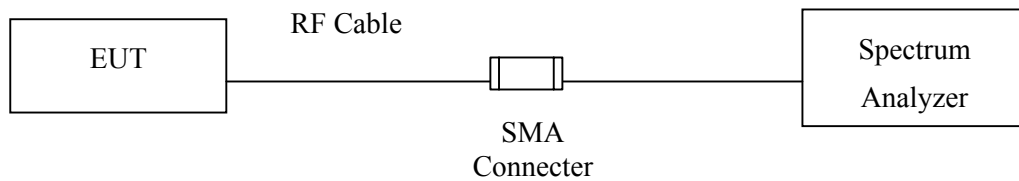
7.1. Test Equipment

The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R & S	FSP40 / 100170	Nov., 2006

Note: 1. All equipments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

7.2. Test Setup



7.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

7.4. Uncertainty

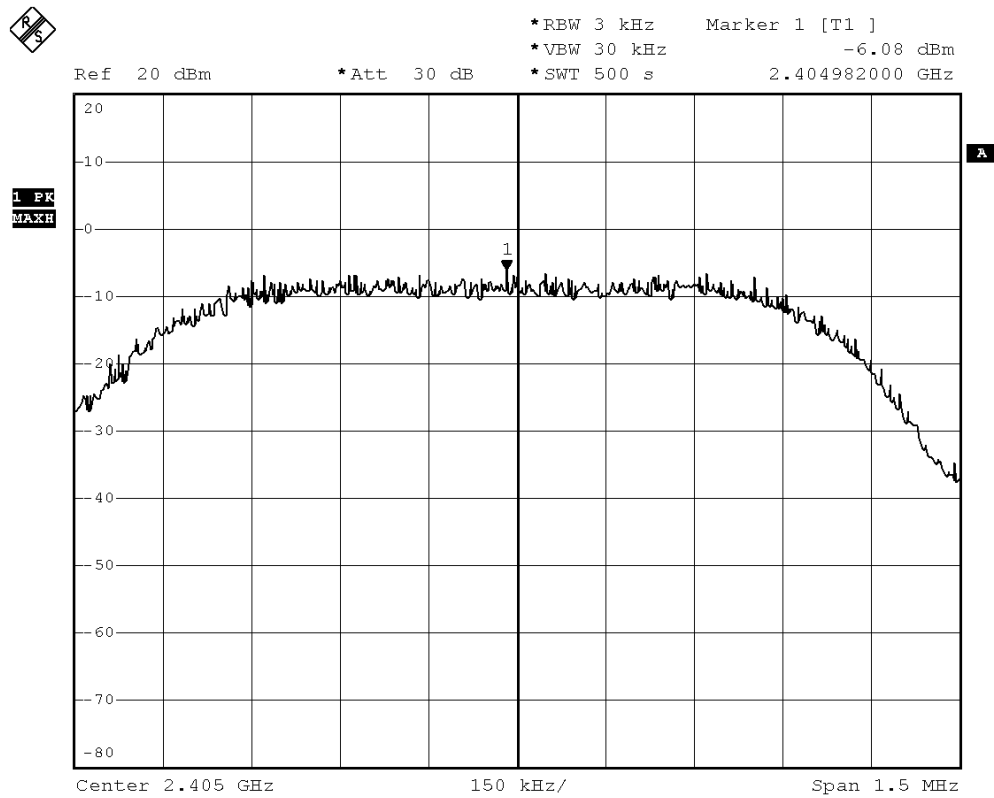
± 1.27 dB

7.5. Test Result of Power Density

Product : PC USB Headset
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2405MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
02	2405.00	-6.08	< 8dBm	Pass

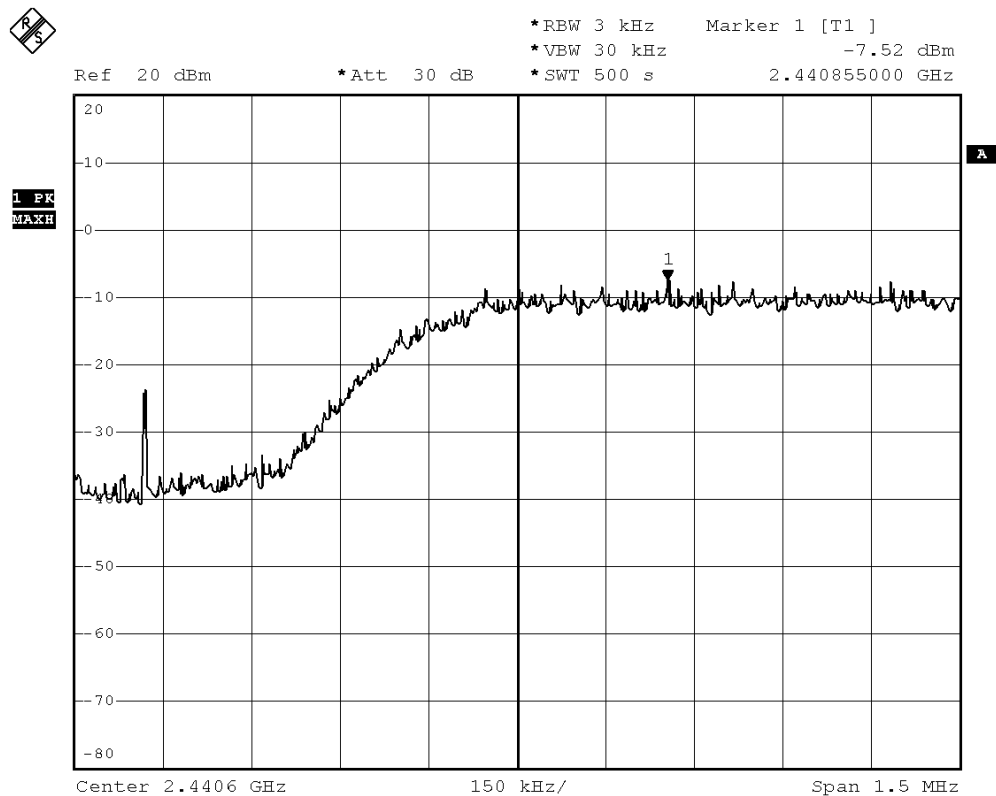
Figure Channel 1:



Product : PC USB Headset
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmitter (2441MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
20	2441.000	-7.52	< 8dBm	Pass

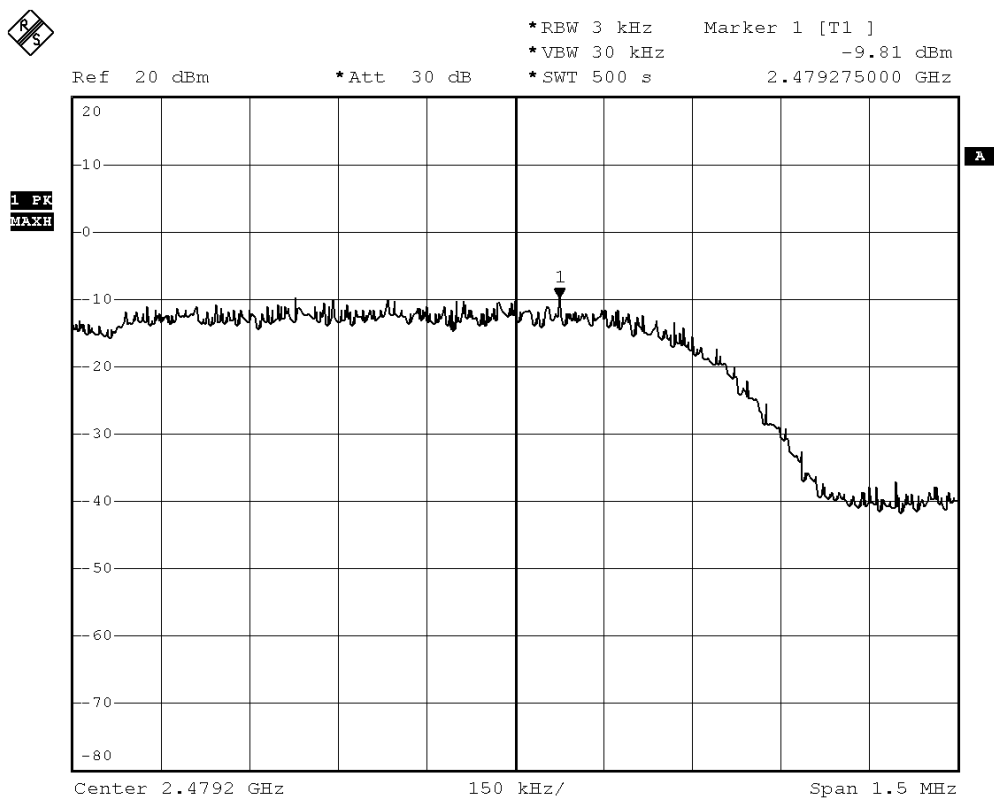
Figure Channel 19:



Product : PC USB Headset
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (2479MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
39	2479.00	-9.81	< 8dBm	Pass

Figure Channel 38:



8. EMI Reduction Method During Compliance Testing

No modification was made during testing.