



Test Report

Product Name	Wireless Sound Bar (SB1-20W)
Model No.	SB1-GDT
FCC ID.	BJM-SB1GDT

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

Date of Receipt	Mar. 31, 2009
Issued Date	Apr. 14, 2009
Report No.	094066R-RFUSP07V01
Version	V1.0

The Test Results relate only to the samples tested.

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Test Report Certification

Issued Date: Apr. 14, 2009

Report No. : 094066R-RFUSP07V01



Product Name	Wireless Sound Bar (SB1-20W)
Applicant	TATUNG CO.
Address	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.
Manufacturer	TATUNG CO.
Model No.	SB1-GDT
FCC ID.	BJM-SB1GDT
Rated Voltage	AC 120V/60Hz
Working Voltage	AC 100-240V, 50-60Hz
Trade Name	GE
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2007
	ANSI C63.4: 2003
Test Result	Complied



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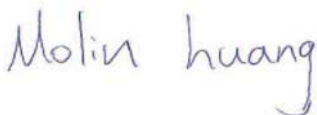
Documented By :



(Engineering Adm. Specialist /
Rita Huang)



Tested By :



(Engineer / Molin Huang)



Approved By :



(Manager / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless Sound Bar (SB1-20W)
Trade Name	GE
FCC ID.	BJM-SB1GDT
Model No.	SB1-GDT
Frequency Range	2405 – 2477MHz
Type of Modulation	$\pi/4$ DQPSK (Differential Quadrature Phase Shift Keying)
Number of Channels	37
Channel Control	Auto
Antenna Type	Chip
Antenna Gain	Refer to the table “Antenna List”
Power Adapter (1)	MFR: FSP, M/N:FSP05-AAC Input: AC 100-240V,50-60Hz,1.5A Output: DC 19V, 3.42A Cable Out: Non-Shielded,1.75m with one ferrite core bonded. Power cord: Non-Shielded, 1.75m
Power Adapter (2)	MFR: HIPRO, M/N:HP-A0652R2B Input: AC 100-240V,50-60Hz, 1.7A Output: DC 19V, 3.42A Cable Out: Non-Shielded,1.75m with one ferrite core bonded. Power cord: Non-Shielded, 1.6m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	JOHANSON	2450AT18A100	Chip Antenna	0.5dBi in 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				

Note:

1. The EUT is a Wireless Sound Bar (SB1-20W) with a built-in 2.4GHz transceiver
2. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

EMI Test Mode	Mode 1: Transmitter - Adapter 1 (FSP)
	Mode 2: Transmitter - Adapter 2 (HIPRO)

1.2. Operation Description

The EUT is a Wireless Sound Bar (SB1-20W) with a built-in 2.4GHz transceiver. The EUT operation frequency is 2.405GHz-2.477GHz. The signals modulated by $\pi/4$ DQPSK (Differential Quadrature Phase Shift Keying) are transmitted from the Chip Antenna of the EUT.

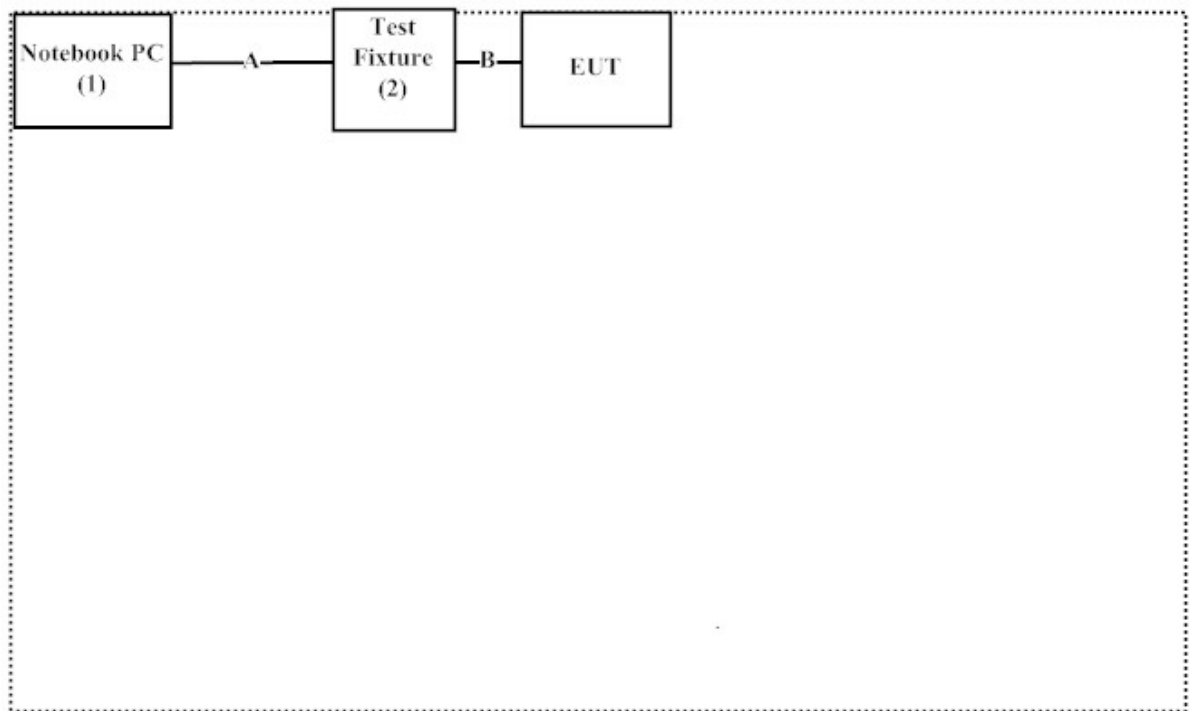
1.3. Tested System Details

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.	Power Cord
1.	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
2.	Test Fixture	TATUNG	N/A	N/A	N/A

	Signal Cable Type	Signal Cable Description
A	USB Cable	Shielded, 1.8m with one ferrite core bonded
B	Controller Cable	Non-Shielded, 0.1m

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.
- (3) Execute “AMD2Debug.exe(V1.37.001)” on the notebook.
- (4) Setup the test channel.
- (5) Presses “Apply” to start the continuous transmit.
- (6) 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

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195



Accreditation on NVLAP
NVLAP Lab Code: 200533-0



Site Name: Quietek Corporation

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FCC Accreditation Number: TW1014



2. Conducted Emission

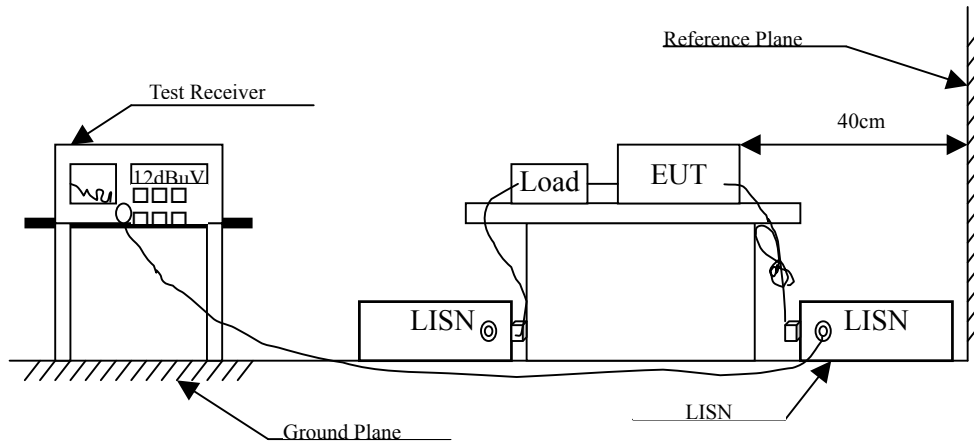
2.1. Test Equipment

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, 2008	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2008	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2008	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2008	
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	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

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 investigated 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 : Wireless Sound Bar (SB1-20W)
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.201	9.824	27.660	37.484	-27.059	64.543
0.255	9.830	17.350	27.180	-35.820	63.000
0.330	9.830	22.040	31.870	-28.987	60.857
0.392	9.820	18.430	28.250	-30.836	59.086
0.463	9.820	16.500	26.320	-30.737	57.057
18.490	10.200	9.250	19.450	-40.550	60.000
Average					
0.201	9.824	11.260	21.084	-33.459	54.543
0.255	9.830	4.190	14.020	-38.980	53.000
0.330	9.830	7.690	17.520	-33.337	50.857
0.392	9.820	6.310	16.130	-32.956	49.086
0.463	9.820	4.320	14.140	-32.917	47.057
18.490	10.200	2.950	13.150	-36.850	50.000

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 : Wireless Sound Bar (SB1-20W)
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.189	9.860	20.770	30.630	-34.256	64.886
0.209	9.860	14.650	24.510	-39.804	64.314
0.263	9.855	26.590	36.445	-26.326	62.771
0.334	9.850	17.010	26.860	-33.883	60.743
0.466	9.830	8.370	18.200	-38.771	56.971
0.529	9.830	8.400	18.230	-37.770	56.000
Average					
0.189	9.860	4.660	14.520	-40.366	54.886
0.209	9.860	-0.290	9.570	-44.744	54.314
0.263	9.855	8.910	18.765	-34.006	52.771
0.334	9.850	2.360	12.210	-38.533	50.743
0.466	9.830	-0.260	9.570	-37.401	46.971
0.529	9.830	0.000	9.830	-36.170	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 : Wireless Sound Bar (SB1-20W)
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmitter - Adapter 2 (HIPRO) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.166	9.746	23.950	33.695	-31.848	65.543
0.220	9.693	18.860	28.553	-35.447	64.000
0.279	9.657	17.200	26.857	-35.457	62.314
0.533	9.640	24.670	34.310	-21.690	56.000
0.673	9.630	19.930	29.560	-26.440	56.000
1.252	9.670	14.440	24.110	-31.890	56.000
Average					
0.166	9.746	12.630	22.375	-33.168	55.543
0.220	9.693	11.810	21.503	-32.497	54.000
0.279	9.657	13.630	23.287	-29.027	52.314
0.533	9.640	16.460	26.100	-19.900	46.000
0.673	9.630	9.820	19.450	-26.550	46.000
1.252	9.670	7.830	17.500	-28.500	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 : Wireless Sound Bar (SB1-20W)
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmitter - Adapter 2 (HIPRO) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.193	9.721	22.780	32.501	-32.270	64.771
0.236	9.692	20.140	29.832	-33.711	63.543
0.474	9.640	19.470	29.110	-27.633	56.743
0.525	9.640	25.760	35.400	-20.600	56.000
0.685	9.650	16.390	26.040	-29.960	56.000
1.283	9.670	12.460	22.130	-33.870	56.000
Average					
0.193	9.721	11.390	21.111	-33.660	54.771
0.236	9.692	20.090	29.782	-23.761	53.543
0.474	9.640	15.980	25.620	-21.123	46.743
0.525	9.640	18.440	28.080	-17.920	46.000
0.685	9.650	7.230	16.880	-29.120	46.000
1.283	9.670	4.080	13.750	-32.250	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. Radiated Emission

3.1. Test Equipment

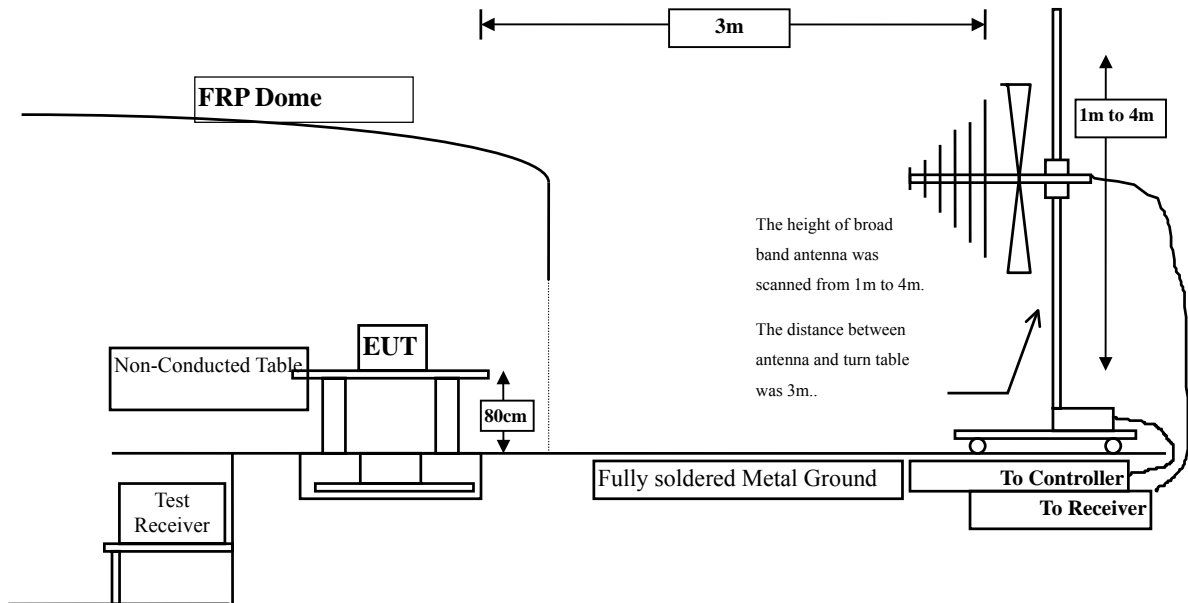
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
<input checked="" type="checkbox"/> Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2008
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

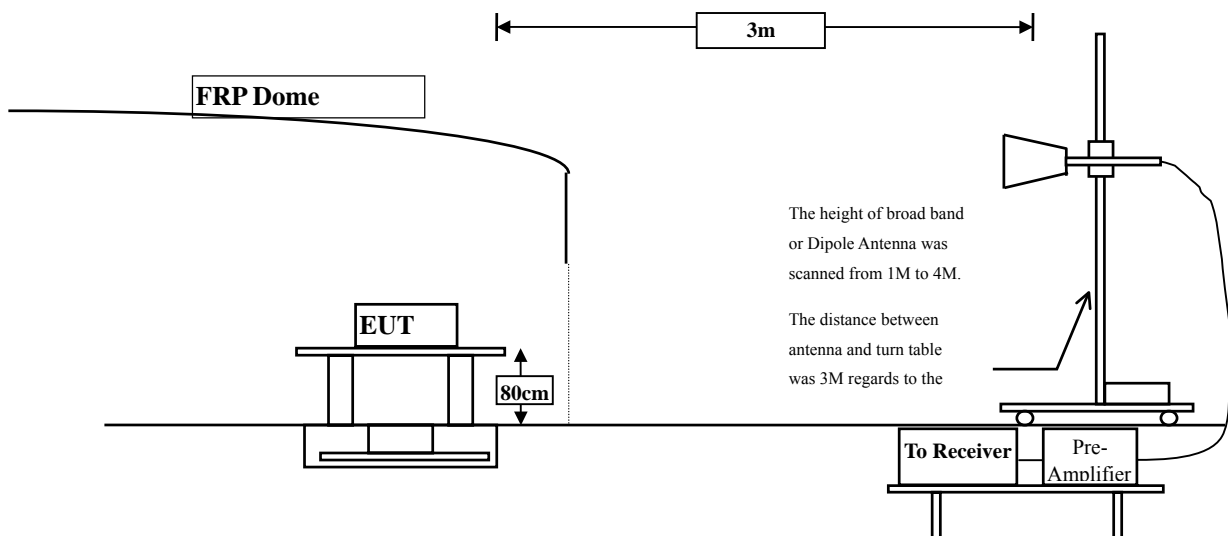
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.3. Limits

➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBuV/m @3m)	(uV/m @3m)	(dBuV/m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

Remarks : 1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

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/m) = 20 log RF Voltage (uV/m)
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.

3.4. 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 resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The frequency range from 30MHz to 10th harmonics is checked.

3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Fundamental Radiated Emission
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2405 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 02					
2405.000	-1.561	93.101	91.540	-22.460	114.000
Average Detector					
Channel 02					
2405.000	2.970	83.230	86.201	-7.799	94.000
Vertical					
Peak Detector					
Channel 02					
2405.000	-2.335	90.475	88.140	-25.860	114.000
Average Detector					
Channel 02					
2405.000	1.968	83.780	85.748	-8.252	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Fundamental Radiated Emission
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2441 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 20					
2441.000	-1.362	92.280	90.918	-23.082	114.000
Average Detector					
Channel 20					
2441.000	2.979	83.140	86.119	-7.881	94.000
Vertical					
Peak Detector					
Channel 20					
2441.000	-1.928	86.600	84.672	-29.328	114.000
Average Detector					
Channel 20					
2441.000	2.184	83.120	85.303	-8.697	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Fundamental Radiated Emission
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2477 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 38					
2477.000	-1.061	89.231	88.170	-25.830	114.000
Average Detector					
Channel 38					
2477.000	3.071	83.300	86.372	-7.628	94.000
Vertical					
Peak Detector					
Channel 38					
2477.000	-1.394	85.175	83.781	-30.219	114.000
Average Detector					
Channel 38					
2477.000	2.507	83.010	85.517	-8.483	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2405 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m
Horizontal					
Peak Detector:					
4810.000	3.582	44.600	48.183	-25.817	74.000
7215.000	8.012	41.000	49.012	-24.988	74.000
9620.000	13.134	40.550	53.684	-20.316	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4810.000	3.567	45.070	48.637	-25.363	74.000
7215.000	8.994	40.730	49.724	-24.276	74.000
9620.000	13.717	39.880	53.597	-20.403	74.000
Average Detector					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; 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 : Wireless Sound Bar (SB1-20W)
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2441 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m
Horizontal					
Peak Detector:					
4882.000	3.072	40.770	43.842	-30.158	74.000
7323.000	7.263	41.590	48.852	-25.148	74.000
9764.000	13.376	39.660	53.036	-20.964	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4882.000	3.608	41.390	44.998	-29.002	74.000
7323.000	8.052	40.540	48.592	-25.408	74.000
9764.000	13.421	40.500	53.921	-20.079	74.000
Average Detector					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; 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 : Wireless Sound Bar (SB1-20W)
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2477 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m
Horizontal					
Peak Detector:					
4954.000	3.692	41.720	45.412	-28.588	74.000
7431.000	7.109	40.600	47.709	-26.291	74.000
9908.000	13.598	39.660	53.258	-20.742	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4954.000	4.777	40.690	45.467	-28.533	74.000
7431.000	7.665	39.720	47.385	-26.615	74.000
9908.000	13.650	40.140	53.790	-20.210	74.000
Average Detector					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; 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 : Wireless Sound Bar (SB1-20W)
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2441 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
148.340	-7.965	44.494	36.529	-6.971	43.500
383.080	1.209	36.301	37.510	-8.490	46.000
400.540	0.868	38.030	38.898	-7.102	46.000
580.960	3.240	32.997	36.237	-9.763	46.000
875.840	5.520	29.358	34.878	-11.122	46.000
961.200	6.610	25.603	32.213	-21.787	54.000
Vertical					
30.000	-3.090	31.421	28.331	-11.669	40.000
97.900	-6.572	41.883	35.312	-8.188	43.500
499.480	-0.379	35.085	34.706	-11.294	46.000
567.380	-2.630	37.246	34.616	-11.384	46.000
749.740	1.813	32.472	34.285	-11.715	46.000
875.840	0.220	33.286	33.506	-12.494	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Wireless Sound Bar (SB1-20W)
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter - Adapter 2 (HIPRO) (2441 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
501.420	1.837	26.292	28.129	-17.871	46.000
693.480	3.434	24.474	27.908	-18.092	46.000
784.660	5.292	24.319	29.611	-16.389	46.000
903.000	5.669	24.717	30.386	-15.614	46.000
955.380	6.390	22.853	29.243	-16.757	46.000
982.540	7.493	22.481	29.974	-24.026	54.000
Vertical					
94.020	-6.725	39.789	33.063	-10.437	43.500
181.320	-2.070	31.423	29.353	-14.147	43.500
243.400	-6.101	32.488	26.387	-19.613	46.000
342.340	-1.080	28.641	27.561	-18.439	46.000
734.220	-1.049	28.453	27.404	-18.596	46.000
796.300	2.400	25.444	27.844	-18.156	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

4. Band Edge

4.1. Test Equipment

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2008
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2008
X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2008
X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2008
X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2008

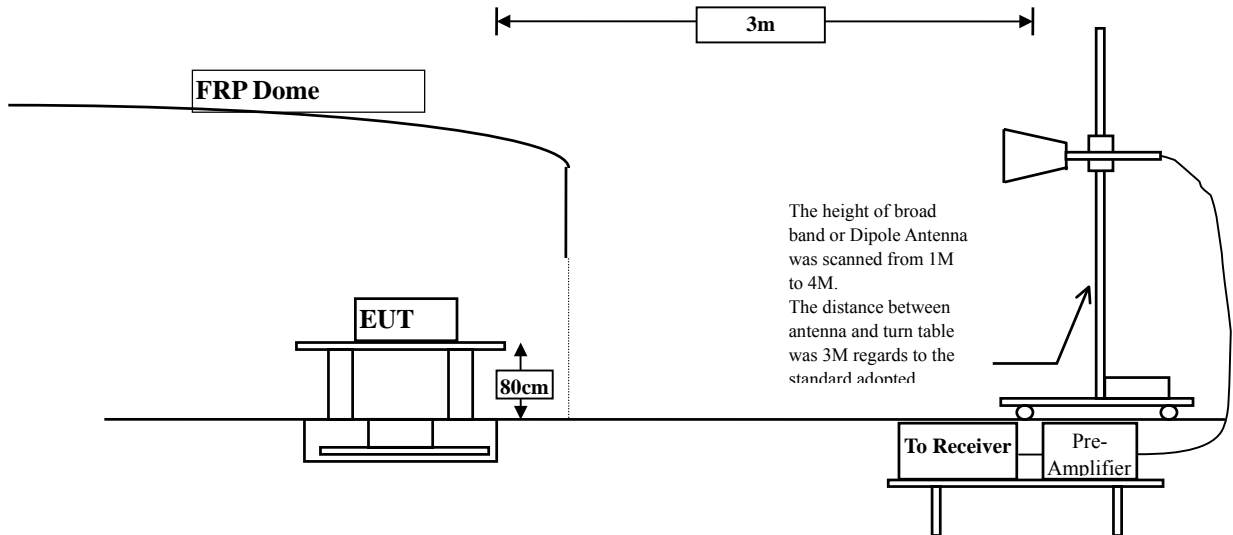
OATS No.3

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

4.2. Test Setup

RF Radiated Measurement:

Above 1GHz



4.3. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 50 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

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 bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

4.5. Uncertainty

Conducted is ± 1.27 dB

Radiated is ± 3.9 dB.

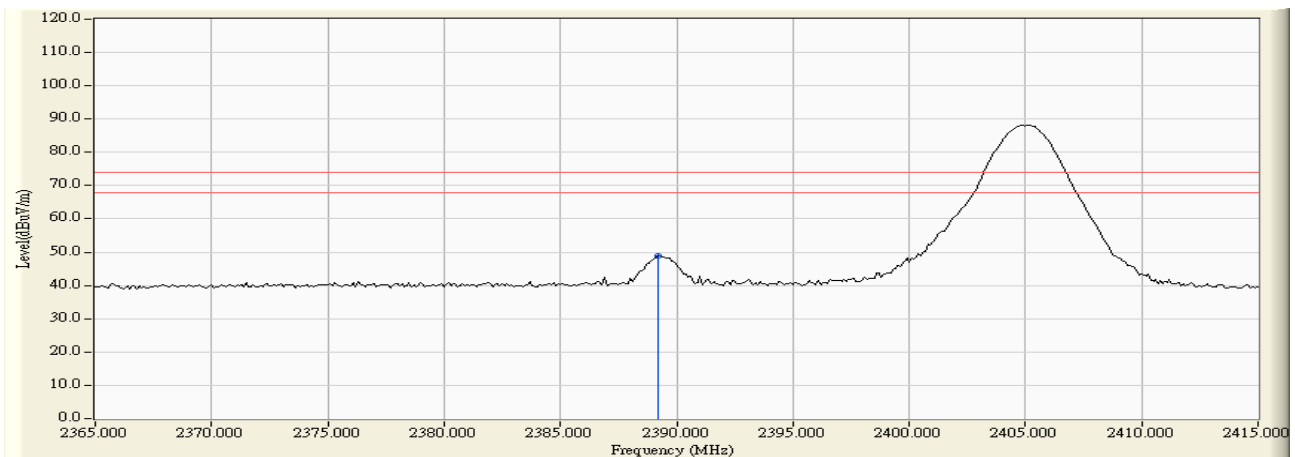
4.6. Test Result of Band Edge

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2405 MHz)

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
02(Peak)	2389.200	-1.615	46.028	44.413	74.000	54.000	Pass
02(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 02: Horizontal (Peak)



Note:

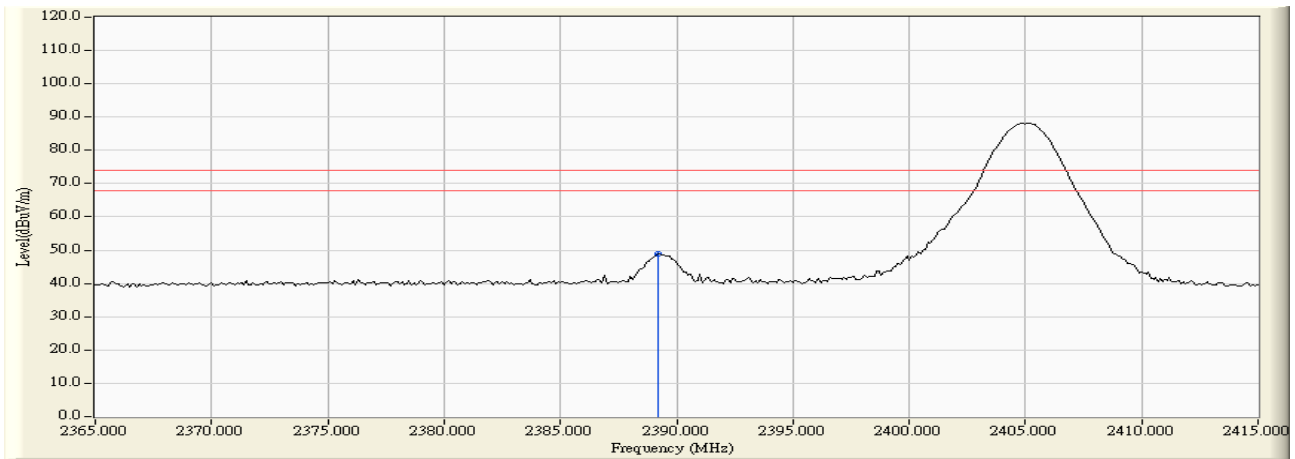
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2405 MHz)

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
02(Peak)	2389.200	-2.382	51.137	48.755	74.000	54.000	Pass
02(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 02: Vertical (Peak)



Note:

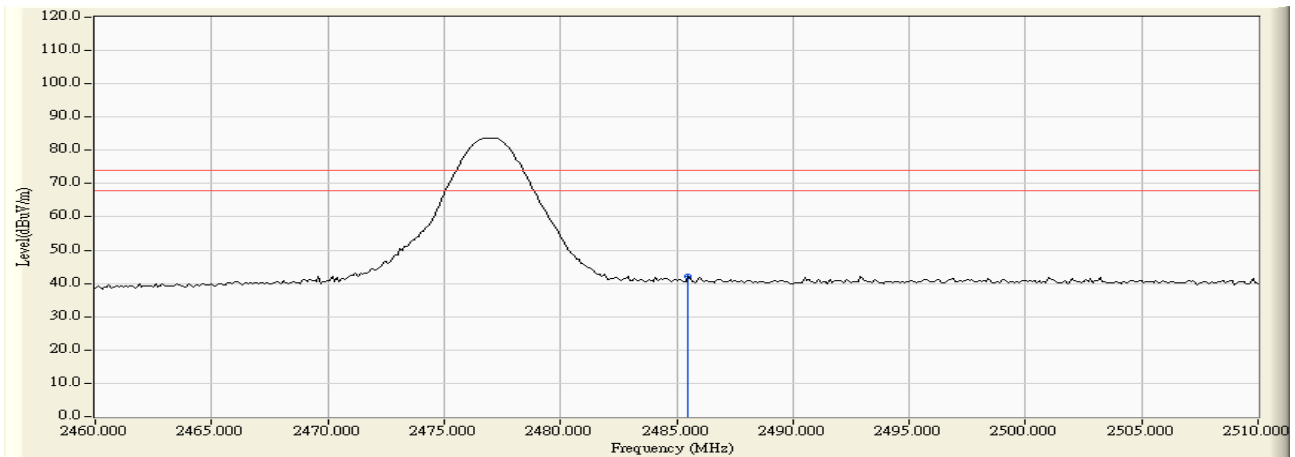
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2477 MHz)

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
38(Peak)	2483.500	-1.022	42.841	41.819	74.000	54.000	Pass
38(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 38: Horizontal (Peak)



Note:

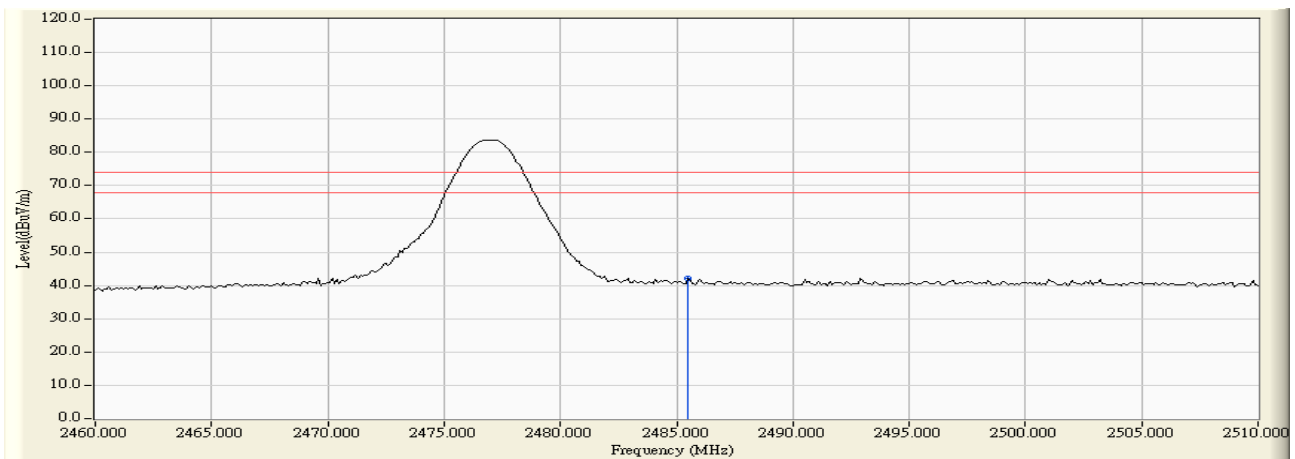
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Sound Bar (SB1-20W)
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - Adapter 1 (FSP) (2477 MHz)

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
38(Peak)	2485.500	-1.287	43.492	42.205	74.000	54.000	Pass
38(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 38: Vertical (Peak)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

5. EMI Reduction Method During Compliance Testing

No modification was made during testing.