

**Test Report** No. 2018447/EE Date: 22 June, 2009 Page 1 of 34

#### CREATIVE TECHNOLOGY LTD.

31 International Business Park Creative Resource Singapore 609921

The following samples were submitted and identified by the client as:

Sound Blaster Wireless Headphone

SGS Job No. : 3108130

FCC ID : IBAAVPSB1220

Item No. : SB1220

AC adapter: : Input: AC 100-240 50/60Hz

Output: DC 5V 1000mA

Power supply: : DC 3.7V lithium battery

Date sample received : See page 2

Testing period : See page 2

Test Standard : FCC PART 15, SUBPART C :( Section 15.247)

Test result : Refer to the next page(s)

Conclusion : The submitted samples complied with the above test standard.

Signed for and on behalf of SGS Hong Kong Ltd.

Mok Chi Yin

Senior Technical Manager

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### **General Information**

Date of receipt of test item.......... 26 May 2009 No. of samples ..: 6

Date(s) of performance of test....: 31 May 2009 to 08 June 2009

**Client information** 

Applicant CREATIVE TECHNOLOGY LTD.

Address of Applicant 31 International Business Park, Creative Resource, Singapore 609921

Manufacturer...... Countrymate Technology Ltd.

Address of Manufacturer: 5/F., Block E, Hing Yip Factory Bldg., 31, Hing Yip St., Kwun Tong, Kln.,

H.K.

Factory Concord Electronic(Huizhou) Factory.

Address of Factory: 21, Ping An Road, Shuikou, Huicheng District, Huizhou, Guangdong,

China. 516005

**Details of EUT** 

Type of test object ...... Sound Blaster Wireless Headphone

AC adapter ...... Input: AC 100-240 50/60Hz

Output: DC 5V 1000mA

Power supply ...... DC 3.7V lithium battery

**Description of Support Units** 

None.

### Standards Applicable for Testing

The customer requested FCC tests for Wireless Headphone

The standard used was FCC PART 15, SUBPART C section 15.247and ANSI C63.4:2003 & KDB558074.

### **Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

All tests were sub-contracted to Shenzhen EMC Lab.

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### **Test Facility**

The test facility is recognized, certified, or accredited by the following organizations

SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

### • CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

#### VCCI

The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.

Date of Registration: September 29, 2008. Valid until September 28, 2011.

#### FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, June 27, 2008.

### Industry Canada (IC)

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

### **Deviation from Standards**

None.

### **Abnormalities from Standard Conditions**

None.

### Other information requested by client

None

**Remark:** The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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### **TEST RESULTS**

### **Test summary**

The customer requested FCC	The customer requested FCC tests for Baby monitor.									
Test	Test Requirement	Standard Paragraph	Result							
Conducted Emission (150KHz to 30MHz)	FCC PART 15	Section 15.207	PASS							
Radiated Emission (30MHz to 25GHz)	ECC PART 15		PASS							
Maximum Peak Output Power	FCC PART 15	Section 15.247 (b)	PASS							
Occupied Bandwidth	FCC PART 15	Section 15.247 (b)	PASS							
Band Edges Measurement	FCC PART 15	Section 15.247 (c)	PASS							
Power Spectral Density Measurement	FCC PART 15	Section 15.247 (d)	PASS							

### Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement: FCC Part15 B
Test Method: ANSI C63.4

Test Date:

Frequency Range: 150KHz to 30MHz

Class / Severity: Class B

Detector: Peak for pre-scan (9kHz Resolution Bandwidth)

Quasi-Peak if maximized peak within 6dB of Quasi-Peak limit

### E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 55 % RH Atmospheric Pressure: 1015 Mbar

EUT Operation: Charging mode Keep the EUT in charging mode by AC adapter

### **Measurement Data**

An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

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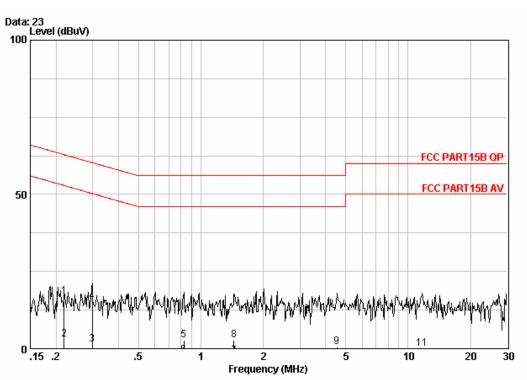


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The following Quasi-Peak and Average measurements were performed on the EUT Live Line:



Site : Shielding Room

Condition : FCC PART15B QP CE LINE EUT : Sound Blaster Wireless Headphone

Job No. : 2648RF Test mode : CHARGE

> Cable LISN Limit Over Freq Line Limit Remark MHz dΒ dBdBuV dBuV dBuV dB 1 0.21851 0.04 -0.04 16.96 16.96 62.88 -45.91 QP 2 0.21851 0.04 -0.04 3.04 3.04 52.88 -49.84 AVERAGE -0.04 50.28 -48.98 AVERAGE 3 0.29869 0.05 1.30 1.30 -0.04 60.28 -44.92 QP 4 0.29869 0.05 15.36 15.36 5 0.82608 0.07 -0.05 2.68 2.71 56.00 -53.29 QP 0.82608 -0.05 -2.22 -2.20 46.00 -48.20 AVERAGE 6 0.07 7 1.441 0.10 -0.06 -2.56 -2.52 46.00 -48.52 AVERAGE 8 1.441 0.10 -0.06 2.55 2.60 56.00 -53.40 QP 9 0.16 -0.10 0.60 0.67 4.525 56.00 -55.33 QP 10 4.525 0.16 -0.10 -4.52 -4.46 46.00 -50.46 AVERAGE -0.37 0.20 0.06 11 11.683 0.23 60.00 -59.94 QP 12 11.683 0.23 -0.37 -5.35 -5.50 50.00 -55.50 AVERAGE

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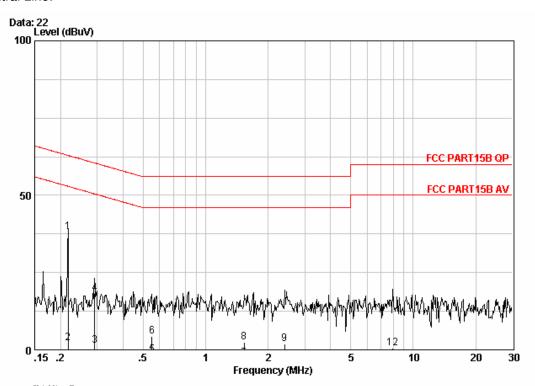


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### Neutral Line:



Site : Shielding Room

Condition : FCC PART1SB QP CE NEUTRAL EUT : Sound Blaster Wireless Headphone Job No. : 2648RF

Job No. : 2648RF Test mode : CHARGE

		Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	@	0.21735	0.04	-0.04	38.05	38.05	62.92	-24.87	QP
2		0.21735	0.04	-0.04	2.20	2.20	52.92	-50.72	AVERAGE
3		0.29243	0.05	-0.04	1.23	1.24	50.46	-49.21	AVERAGE
4	@	0.29243	0.05	-0.04	18.21	18.22	60.46	-42.24	QP
5		0.55226	0.06	-0.04	-1.63	-1.61	46.00	-47.61	AVERAGE
6		0.55226	0.06	-0.04	4.32	4.34	56.00	-51.66	QP
7		1.535	0.10	-0.05	-2.76	-2.71	46.00	-48.71	AVERAGE
8		1.535	0.10	-0.05	2.47	2.51	56.00	-53.49	QP
9		2.396	0.13	-0.07	1.73	1.79	56.00	-54.21	QP
10		2.396	0.13	-0.07	-3.80	-3.74	46.00	-49.74	AVERAGE
11		7.977	0.20	-0.21	-4.66	-4.67	50.00	-54.67	AVERAGE
12		7.977	0.20	-0.21	0.58	0.57	60.00	-59.43	QP

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#### **Radiated Emissions**

Test Requirement: FCC 15.209 and 15.205

Test Method: ANSI C63.4:2003 & KDB558074 Measurement Distance 3m (Semi-Anechoic Chamber)

Receiver setup: 30MHz-1000MHz: Quasi-peak RBW=100KHz, VBW=300KHz

Above 1GHz: PK RBW=1MHz, VBW=3MHz

Average RBW=1MHz, VBW=10Hz

Limit:  $40.0 \text{ dB}\mu\text{V/m}$  between 30MHz & 88MHz

 $43.5~dB\mu V/m$  between 88MHz~&~216MHz  $46.0~dB\mu V/m$  between 216MHz~&~960MHz

above 960MHz: Average value Limit 54.0 dB $\mu$ V/m

Peak value Limit 74.0 dBμV/m.

### **E.U.T. Operation**

Operating Environment:

Temperature: 22.0 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar

Status: Audio in mode Keep the EUT in playing music by AUX in port.

Wireless receive Keep the EUT in receiving the wireless music.

mode

Charging mode Keep the EUT in charging mode by AC adapter.

#### **Measurement Data**

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

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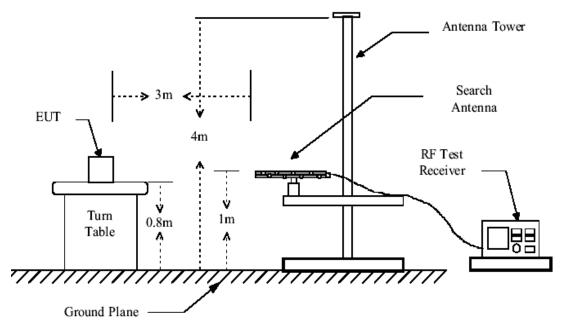


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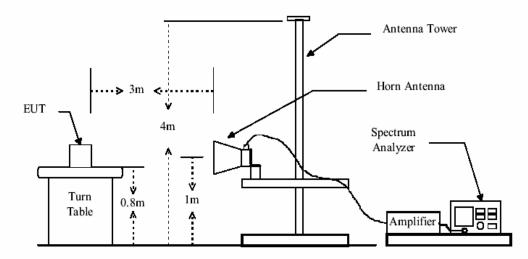
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# Test Configuration: Below 1GHz



### **Above 1GHz**



**Test Procedure:** The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 25GHz.When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported

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### **Radiate Emission Below 1GHz**

### Audio in mode

### Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
393.750	2.18	16.22	27.37	36.19	27.22	46.00	-18.78
409.270	2.24	16.34	27.44	40.09	31.23	46.00	-14.77
424.790	2.31	16.40	27.49	50.07	41.29	46.00	-4.71
440.310	2.37	16.71	27.54	43.11	34.65	46.00	-11.35
466.500	2.48	17.48	27.62	35.27	27.61	46.00	-18.39
831.220	3.33	22.40	26.77	31.91	30.87	46.00	-15.13

#### Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
322.940	1.98	14.76	26.90	49.52	39.36	46.00	-6.64
377.260	2.14	16.03	27.27	49.93	40.83	46.00	-5.17
416.060	2.27	16.36	27.46	50.29	41.46	46.00	-4.54
448.070	2.40	16.84	27.56	50.10	41.78	46.00	-4.22
466.500	2.48	17.48	27.62	49.43	41.77	46.00	-4.23
485.900	2.55	17.80	27.67	46.67	39.35	46.00	-6.65

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#### Wireless receive mode

### Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
649.830	2.80	20.60	27.44	43.21	39.17	46.00	-6.83
673.110	2.85	21.40	27.37	42.74	39.62	46.00	-6.38
699.300	2.90	21.60	27.28	42.24	39.46	46.00	-6.54
889.420	3.56	23.11	26.48	41.55	41.74	46.00	-4.26
920.460	3.62	23.29	26.43	41.59	42.07	46.00	-3.93
944.710	3.65	23.30	26.43	39.94	40.46	46.00	-5.54

#### Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
160.950	1.34	9.59	27.38	34.19	17.74	43.50	-25.76
397.630	2.19	16.27	27.39	34.70	25.77	46.00	-20.23
673.110	2.85	21.40	27.37	37.29	34.17	46.00	-11.83
723.550	2.98	21.60	27.20	36.94	34.32	46.00	-11.68
797.270	3.19	22.09	26.95	39.66	37.99	46.00	-8.01
889.420	3.56	23.11	26.48	36.67	36.86	46.00	-9.14

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### **Charging mode**

### Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
32.910	0.60	13.91	28.16	36.31	22.66	40.00	-17.34
36.790	0.60	12.30	28.12	36.64	21.42	40.00	-18.58
78.500	1.05	7.59	28.00	37.64	18.28	40.00	-21.72
94.020	1.14	8.87	27.92	35.43	17.52	43.50	-25.98
117.300	1.25	8.08	27.71	37.48	19.10	43.50	-24.40
149.310	1.32	8.91	27.46	38.08	20.85	43.50	-22.65

#### Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
33.880	0.60	13.47	28.15	29.42	15.34	40.00	-24.66
62.980	0.80	7.11	28.03	30.82	10.70	40.00	-29.30
114.390	1.24	8.30	27.74	33.18	14.98	43.50	-28.52
156.100	1.33	9.39	27.41	34.44	17.75	43.50	-25.75
288.020	1.85	13.40	26.76	30.02	18.51	46.00	-27.49
536.340	2.64	18.68	27.67	31.09	24.74	46.00	-21.26

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### Transmitter emission above 1GHz

### The lowest channel

Peak measurement

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2400	4.97	32.25	44.75	64.93	57.40	74.00	-16.60	Vertical
4824	6.62	34.04	45.40	57.02	52.28	74.00	-21.72	Vertical
7236	7.62	36.25	44.48	53.47	52.86	74.00	-21.14	Vertical
9648	8.55	37.01	42.17	47.08	50.47	74.00	-23.53	Vertical
12060	10.12	38.82	43.40	50.16	55.70	74.00	-18.30	Vertical
2400	4.97	32.25	44.75	66.57	59.04	74.00	-14.96	Horizontal
4824	6.62	34.04	45.40	56.31	51.57	74.00	-22.43	Horizontal
7236	7.62	36.25	44.48	52.21	51.60	74.00	-22.40	Horizontal
9648	8.55	37.01	42.17	52.58	55.97	74.00	-18.03	Horizontal
12060	10.12	38.82	43.40	49.71	55.25	74.00	-18.75	Horizontal

Average measurement

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2400	4.97	32.25	44.75	52.56	45.03	54.00	-8.97	Vertical
4824	6.62	34.04	45.40	44.41	39.67	54.00	-14.33	Vertical
7236	7.62	36.25	44.48	39.17	38.56	54.00	-15.44	Vertical
9648	8.55	37.01	42.17	38.83	42.22	54.00	-11.78	Vertical
12060	10.12	38.82	43.40	38.88	44.42	54.00	-9.58	Vertical
2400	4.97	32.25	44.75	52.27	44.74	54.00	-9.26	Horizontal
4824	6.62	34.04	45.40	41.68	36.94	54.00	-17.06	Horizontal
7236	7.62	36.25	44.48	40.14	39.53	54.00	-14.47	Horizontal
9648	8.55	37.01	42.17	38.96	42.35	54.00	-11.65	Horizontal
12060	10.12	38.82	43.40	40.59	46.13	54.00	-7.87	Horizontal

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### Middle channel

Peak measurement

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2411	4.99	32.25	44.76	60.84	53.32	74.00	-20.68	Vertical
2480	5.08	32.29	44.77	60.22	52.82	74.00	-21.18	Vertical
4876	6.64	34.02	45.42	58.61	53.85	74.00	-20.15	Vertical
7314	7.59	36.14	44.41	55.89	55.21	74.00	-18.79	Vertical
9752	8.64	37.10	42.08	50.06	53.72	74.00	-20.28	Vertical
12190	10.16	38.91	43.55	52.86	58.38	74.00	-15.62	Vertical
2411	4.99	32.25	44.76	60.34	52.82	74.00	-21.18	Horizontal
2483	5.08	32.29	44.77	57.88	50.48	74.00	-23.52	Horizontal
4876	6.64	34.02	45.42	57.95	53.19	74.00	-20.81	Horizontal
7314	7.59	36.14	44.41	55.88	55.20	74.00	-18.80	Horizontal
9752	8.64	37.10	42.08	52.01	55.67	74.00	-18.33	Horizontal
12190	10.16	38.91	43.55	47.55	53.07	74.00	-20.93	Horizontal

Average measurement

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2411	4.99	32.25	44.76	50.40	42.88	54.00	-11.12	Vertical
2480	5.08	32.29	44.77	46.61	39.21	54.00	-14.79	Vertical
4876	6.64	34.02	45.42	46.72	41.96	54.00	-12.04	Vertical
7314	7.59	36.14	44.41	44.07	43.39	54.00	-10.61	Vertical
9752	8.64	37.10	42.08	41.89	45.55	54.00	-8.45	Vertical
12190	10.16	38.91	43.55	41.65	47.17	54.00	-6.83	Vertical
2411	4.99	32.25	44.76	48.57	41.05	54.00	-12.95	Horizontal
2483	5.08	32.29	44.77	46.57	39.17	54.00	-14.83	Horizontal
4876	6.64	34.02	45.42	45.46	40.70	54.00	-13.30	Horizontal
7314	7.59	36.14	44.41	45.15	44.47	54.00	-9.53	Horizontal
9752	8.64	37.10	42.08	40.88	44.54	54.00	-9.46	Horizontal
12190	10.16	38.91	43.55	40.59	46.11	54.00	-7.89	Horizontal

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### The highest channel

Peak measurement

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2479	5.08	32.29	44.77	64.57	57.17	74.00	-16.83	Vertical
2483.5	5.10	32.31	44.79	63.17	55.79	74.00	-18.21	Vertical
4928	6.66	34.01	45.43	58.49	53.73	74.00	-20.27	Vertical
7392	7.55	35.99	44.32	55.24	54.46	74.00	-19.54	Vertical
9856	8.72	37.19	41.98	52.10	56.03	74.00	-17.97	Vertical
12320	10.20	38.99	43.72	52.48	57.95	74.00	-16.05	Vertical
2400	4.97	32.25	44.75	60.17	52.64	74.00	-21.36	Horizontal
2480	5.08	32.29	44.77	63.48	56.08	74.00	-17.92	Horizontal
2483.5	5.10	32.31	44.79	62.65	55.27	74.00	-18.73	Horizontal
4928	6.66	34.01	45.43	57.48	52.72	74.00	-21.28	Horizontal
7392	7.55	35.99	44.32	54.16	53.38	74.00	-20.62	Horizontal
9856	8.72	37.19	41.98	51.09	55.02	74.00	-18.98	Horizontal
12320	10.20	38.99	43.72	51.84	57.31	74.00	-16.69	Horizontal

Average measurement

Average mea	verage measurement							
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV/m) Limit Line (dBuV/m)		Over Limit (dB)	Remark	
2479	5.08	32.29	44.77	51.50	44.10	54.00	-9.90	Vertical
2483.5	5.10	32.31	44.79	51.48	43.18	54.00	-10.82	Vertical
4928	6.66	34.01	45.43	47.07	42.31	54.00	-11.69	Vertical
7392	7.55	35.99	44.32	43.62	42.84	54.00	-11.16	Vertical
9856	8.72	37.19	41.98	39.42	43.35	54.00	-10.65	Vertical
12320	10.20	38.99	43.72	39.60	45.07	54.00	-8.93	Vertical
2400	4.97	32.25	44.75	46.11	38.58	54.00	-15.42	Horizontal
2480	5.08	32.29	44.77	50.47	42.57	54.00	-11.43	Horizontal
2483.5	5.10	32.31	44.79	48.95	41.57	54.00	-12.43	Horizontal
4928	6.66	34.01	45.43	44.85	40.09	54.00	-13.91	Horizontal
7392	7.55	35.99	44.32	43.55	42.77	54.00	-11.23	Horizontal
9856	8.72	37.19	41.98	40.35	44.28	54.00	-9.72	Horizontal
12320	10.20	38.99	43.72	41.58	47.05	54.00	-6.95	Horizontal

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#### Remark:

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor.

### Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section. only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110  10.495 - 0.505 2.1735 - 2.1905 4.125 - 4.128 4.17725 - 4.17775 4.20725 - 4.20775 6.215 - 6.218 6.26775 - 6.26825 6.31175 - 6.31225 8.291 - 8.294 8.362 - 8.366 8.37625 - 8.38675 8.41425 - 8.41475 12.29 - 12.293 12.51975 - 12.52025 13.36 - 13.41	16.42 - 16.423 16.69475 - 16.69525 16.80425 - 16.80475 25.5 - 25.67 37.5 - 38.25 73 - 74.6 74.8 - 75.2 108 - 121.94 123 - 138 149.9 - 150.05 156.52475 - 156.52525 156.7 - 156.9 162.0125 - 167.17 167.72 - 173.2 240 - 285 322 - 335.4	399.9 - 410 608 - 614 960 - 1240 1300 - 1427 1435 - 1626.5 1645.5 - 1646.5 1660 - 1710 1718.8 - 1722.2 2200 - 2300 2310 - 2390 2483.5 - 2500 2655 - 2900 3260 - 3267 3332 - 3339 3345.8 - 3358 3600 - 4400	4.5 - 5.15 5.35 - 5.46 7.25 - 7.75 8.025 - 8.5 9.0 - 9.2 9.3 - 9.5 10.6 - 12.7 13.25 - 13.4 14.47 - 14.5 15.35 - 16.2 17.7 - 21.4 22.01 - 23.12 23.6 - 24.0 31.2 - 31.8 36.43 - 36.5

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### **Maximum Peak Output Power**

Test Requirement: FCC Part 15.247

Test Method: ANSI C63.4:2003 & KDB558074

Regulation 15.247 (b) The Limit of Maximum Peak Output Power

Measurement is 1W (30dBm).

Test mode: Compliance test in the worse case: the lowest channel, middle

channel and the highest channel

### Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 1MHz. VBW = 1MHz. Sweep = auto; Detector Function = Peak.

3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

#### **Test Result:**

Fundamental Frequency (MHz)	PK Power (dBm)	Limit (dBm)	PASS/FAIL
2412MHz	19.32	30.0	Pass
2438MHz	18.60	30.0	Pass
2464MHz	17.92	30.0	Pass

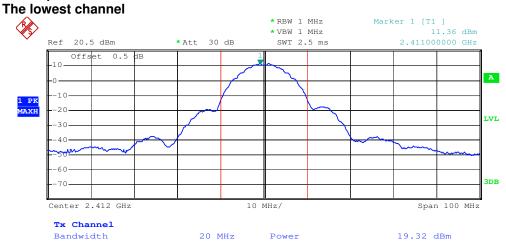
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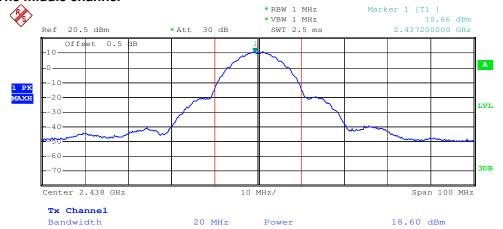
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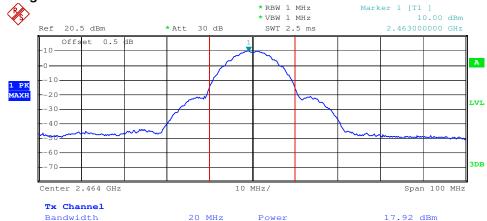
# Test result plot as follows:



### The middle channel



### The highest channel



### TEST RESULTS: The unit does meet the FCC requirements.

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### **Occupied Bandwidth**

Test Requirement: FCC Part 15 C

Test Method: ANSI C63.4:2003 & KDB558074

Requirements: Regulation 15.247 (b) (2) Systems using digital modulation techniques

may operate in the 2400 - 2483.5 MHz band. The minimum 6 dB

bandwidth shall be at least 500 kHz.

The EUT was setup to ANSI C63.4, 2003, tested to DTS test procedure

of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247

requirements.

The Transmitter output of EUT was connected to the spectrum analyzer. The minimum 6 dB bandwidth shall be at least 500 kHz. The setting of spectrum analyzer is as follows;

Equipment Mode	Spectrum Analyzer		
Detector Function	Peak Mode		
RBW	100KHz		
VBW	300KHz		

### Test result:

	Fundamental Frequency (MHz)	6 dB bandwidth(MHz)	LIMIT(KHz)	PASS/FAIL
	2412MHz	9.9	500	Pass
	2438MHz	9.9	500	Pass
ĺ	2464MHz	9.8	500	Pass

The unit does meet the FCC requirements. Please refer the graph as below:

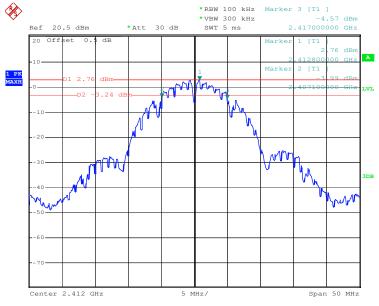
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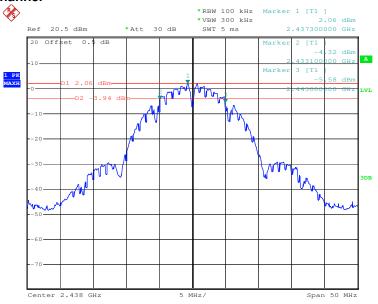
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#### The lowest channel



Date: 1.JUN.2009 09:46:25

### The middle channel



Date: 1.JUN.2009 10:25:31

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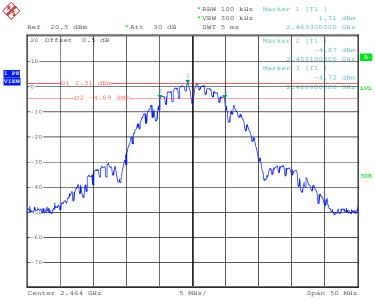
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### The highest channel



Date: 1.JUN.2009 10:38:01

The unit does meet the FCC requirements.

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### **Band Edges Requirement**

Test Requirement: FCC Part 15 C

Test Method: ANSI C63.4:2003 & KDB558074

Operation within the band 2400 - 2483.5 MHz

Procedure: The EUT was setup to ANSI C63.4, 2003, tested to DTS test procedure of Oct

2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Spectrum: 30 MHz - 1000 MHz: RBW=100KHz, VBW=300KHz

above 1GHz Peak RBW=100KHz, VBW=300KHz

Requirements: Section 15.247 (d) 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 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. 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)).

The graph as below represents the emissions take for this device.

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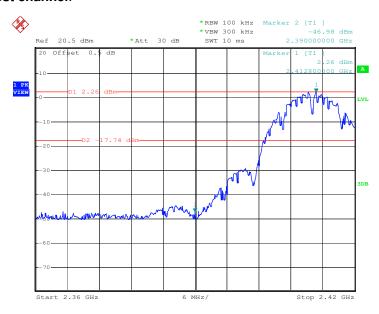


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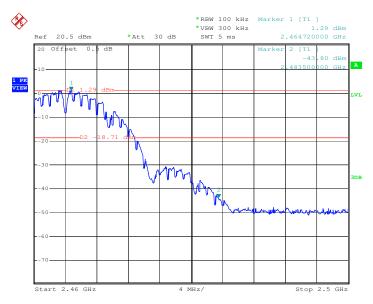
Date: 22 June, 2009

#### The lowest channel:



Date: 1.JUN.2009 10:07:14

### **The Highest Channel**



Date: 1.JUN.2009 10:44:16

### The unit does meet the FCC requirements.

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### **Power Spectral Density**

Test Requirement: FCC Part 15 C

Test Method: ANSI C63.4:2003 & KDB558074

Regulation 15.247 (d) For direct sequence systems, the peak power spectral

density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous

transmission

Procedures: The EUT was set transmitting continuously and force selection of output power

level and channel number. We had observed that the peak levels aren't greater than +8dBm limit. The EUT was setup to ANSI C63.4, 2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247

requirements.

Spectrum: RBW=3KHz, VBW=10KHz Sweep time=100S

Span=300KHz

#### **Test Result:**

Fundamental Frequency (GHz)	RF Power level in 3KHz RBW (dBm)	Maximum Limit (dBm)	Pass/Fail
2412MHz	1.00	8.0	Pass
2438MHz	0.34	8.0	Pass
2464MHz	-0.16	8.0	Pass

The EUT meets the requirements of this section. Please refer to graph as below:

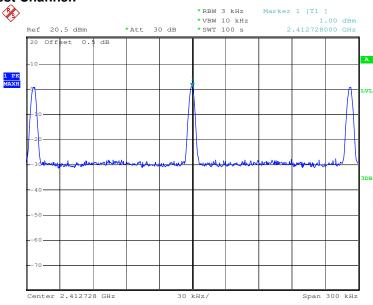
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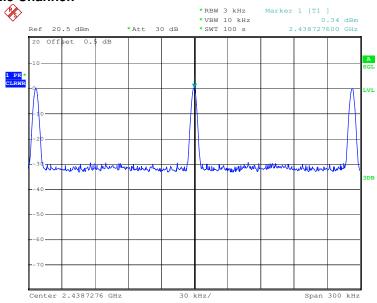
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### The Lowest Channel:



Date: 1.JUN.2009 10:05:03

### The Middle Channel:



Date: 1.JUN.2009 10:33:22

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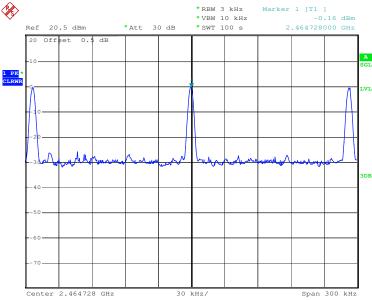


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### The Highest Channel:



Date: 1.JUN.2009 10:48:58

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### **Test instrument**

	Conducted Emission							
Item	Test Equipment	Manufacturer	Model No.	Inventory	Cal.Date	Cal.Due date		
				No.	(dd-mm-yy)	(dd-mm-yy)		
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A		
2	LISN	ETS-LINDGREN	3816/2	SEL0021	18-06-2008	17-06-2009		
3	ISN	Rohde & Schwarz	ENY 22 1109	EMC0114	18-06-2008	17-06-2009		
4	ISN	Rohde & Schwarz	ENY 41 1110	EMC0115	18-06-2008	17-06-2009		
_	EMI Test	Dalada A Oala a a	FCCI	SEL 0000	10.06.0000	17.06.0000		
5	Receiver	Rohde & Schwarz	ESCI	SEL0022	18-06-2008	17-06-2009		
6	Coaxial Cable	SGS	N/A	SEL0024	18-06-2008	17-06-2009		

	RE in Chamber							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)		
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2009		
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2008	11-12-2009		
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A		
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2008	17-06-2009		
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2008	11-08-2009		
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2008	17-06-2009		
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2008	11-08-2009		
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	12-08-2008	11-08-2009		
9	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2008	17-06-2009		
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33- 18002650-30- 8P-44	SEL0080	18-06-2008	17-06-2009		
11	Band filter	Amindeon	82346	SEL0094	18-06-2008	17-06-2009		
12	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2008	14-06-2009		

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### **Photographs**

### **Conducted Emission Test Setup**



### **Radiated Emission Test Setup**



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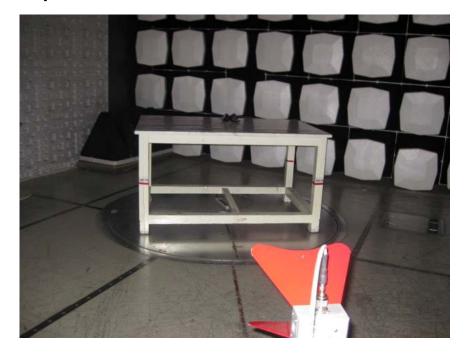
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### **EUT Constructional Details**





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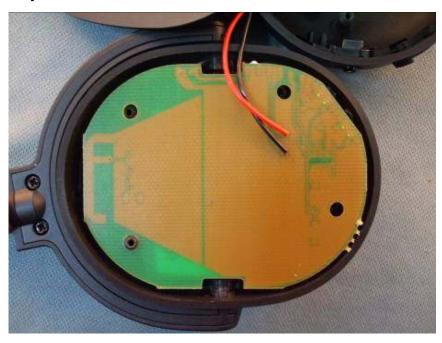
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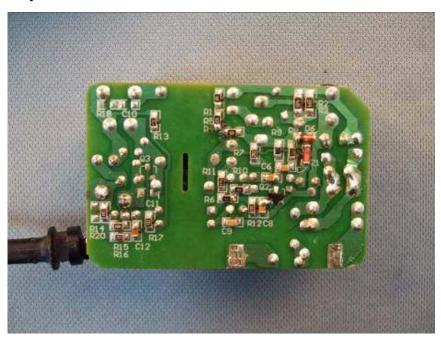
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