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Registration number: 556682

Report No.: SZEMO09080456301
Page: 1 of 19

TEST REPORT

Application No.:

SZEMO090804563RF

Applicant:

AAMP of Flordia, dba AAMP of America

Manufacturer/ Factory:

Shenzhen Adition Audio Science & Technology Co., Ltd.

Address of Applicant:

13160 56th Court, Clearwater, Florida

Address of Manufacturer/ Factory:

Ming Zuo Industry Park, Lou Village, Gong Ming Town, Bao'an District, Shenzhen, China

FCC ID:

XBD-FM7

Fundamental Frequency :

88.1MHz-107.9MHz

Channel step:

200KHz

Equipment Under Test (EUT):

Name: iSimple FM

Model No.: ISFM71, FM7♣

Trade mark: iSimple

♣ Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

Standards:

FCC PART 15, SUBPART C (Section 15.239)

Date of Receipt:

06 August 2009

Date of Test:

06 to 17 August 2009

Date of Issue:

18 August 2009

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Lo
Laboratory Manager

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.

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2 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Radiated Emission (30MHz to 2GHz)	FCC PART 15 : 2008	Section 15.239/15.33	PASS
Conducted Emissions	FCC PART 15:2008	Section 15.107	PASS
Occupied Bandwidth	FCC PART 15 : 2008	Section 15.239(a)	PASS

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

Remark:

Item No.: ISFM71, FM7

Only the item ISFM71 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above items.

3 Contents

	Page
1 COVER PAGE.....	1
2 TEST SUMMARY	2
3 CONTENTS	3
4 GENERAL INFORMATION.....	4
4.1 DETAILS OF E.U.T	4
4.2 DESCRIPTION OF SUPPORT UNITS.....	4
4.3 STANDARDS APPLICABLE FOR TESTING	4
4.4 TEST LOCATION	4
4.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER.....	5
4.6 TEST FACILITY.....	5
5 TEST RESULTS	6
5.1 TEST INSTRUMENTS.....	6
5.2 E.U.T. OPERATION.....	7
5.3 TEST PROCEDURE & MEASUREMENT DATA.....	7
5.3.1 <i>Conducted Emissions</i>	7
5.3.2 <i>Radiated Emissions</i>	10
5.3.3 <i>Occupied Bandwidth</i>	16-19

4 General Information

4.1 Details of E.U.T

Name: iSimple FM
Model No.: ISFM71, FM7
Power Supply: IPod supply
Power Cord: N/A
Channel Frequency:

Channel Number	Frequency (MHz)						
1	88.1	26	93.1	51	98.1	76	103.1
2	88.3	27	93.3	52	98.3	77	103.3
3	88.5	28	93.5	53	98.5	78	103.5
4	88.7	29	93.7	54	98.7	79	103.7
5	88.9	30	93.9	55	98.9	80	103.9
6	89.1	31	94.1	56	99.1	81	104.1
7	89.3	32	94.3	57	99.3	82	104.3
8	89.5	33	94.5	58	99.5	83	104.5
9	89.7	34	94.7	59	99.7	84	104.7
10	89.9	35	94.9	60	99.9	85	104.9
11	90.1	36	95.1	61	100.1	86	105.1
12	90.3	37	95.3	62	100.3	87	105.3
13	90.5	38	95.5	63	100.5	88	105.5
14	90.7	39	95.7	64	100.7	89	105.7
15	90.9	40	95.9	65	100.9	90	105.9
16	91.1	41	96.1	66	101.1	91	106.1
17	91.3	42	96.3	67	101.3	92	106.3
18	91.5	43	96.5	68	101.5	93	106.5
19	91.7	44	96.7	69	101.7	94	106.7
20	91.9	45	96.9	70	101.9	95	106.9
21	92.1	46	97.1	71	102.1	96	107.1
22	92.3	47	97.3	72	102.3	97	107.3
23	92.5	48	97.5	73	102.5	98	107.5
24	92.7	49	97.7	74	102.7	99	107.7
25	92.9	50	97.9	75	102.9	100	107.9

4.2 Description of Support Units

The EUT was tested as an independent unit: a FM transmitter

4.3 Standards Applicable for Testing

The customer requested FCC tests for a FM transmitter

The standard used was FCC PART 15, SUBPART C: 2008 section 15.239.

4.4 Test Location

All tests were performed at:

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No tests were sub-contracted.

4.5 Other Information Requested by the Customer

None.

4.6 TEST Facility

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

- **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.

5 Test Results

5.1 Test Instruments

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	16-06-2009	15-06-2010
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	18-06-2009	17-06-2010
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	18-06-2009	17-06-2010
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	18-06-2009	17-06-2010
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	18-06-2009	17-06-2010
11	Band filter	Amindeon	82346	SEL0094	18-06-2009	17-06-2010
12	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2009	14-06-2010

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A
2	LISN	ETS-LINDGREN	3816/2	SEL0021	18-06-2009	17-06-2010
3	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	21-02-2009	21-02-2010
4	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	21-02-2009	21-02-2010
5	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	21-02-2009	21-02-2010
6	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	18-06-2009	17-06-2010
7	Coaxial Cable	SGS	N/A	SEL0024	18-06-2009	17-06-2010

5.2 E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C

Humidity: 52 % RH

Atmospheric Pressure: 1010 mbar

Remark: FM Transmitter modulation with signal of symphony.

Used maximum input audio level 399mVrms.

5.3 Test Procedure & Measurement Data

5.3.1 Conducted Emissions

Test Requirement: FCC Part15 C Section 15.207

Test Method: ANSI C63.4:2003

Frequency Range: 150KHz to 30MHz

Class / Severity: Class B

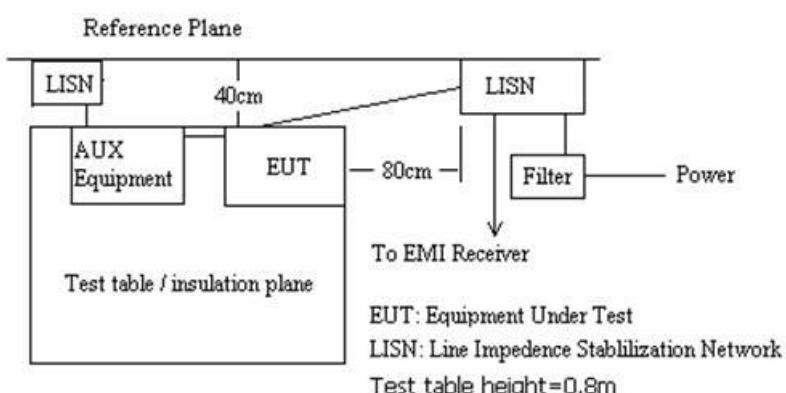
Detector: RBW=9KHz VBW=30KHz

Operating Environment:

Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1015 Mbar

EUT Operation: Test in charger mode.

Plan View of Test Setup



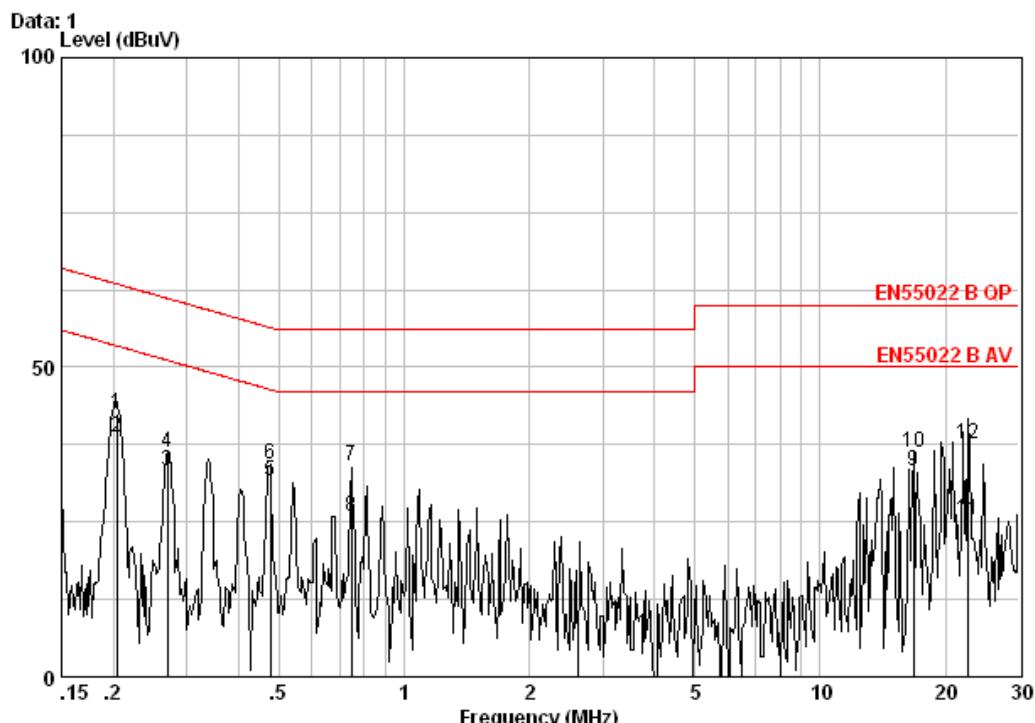
5.3.1.1 Measurement Data

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.

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

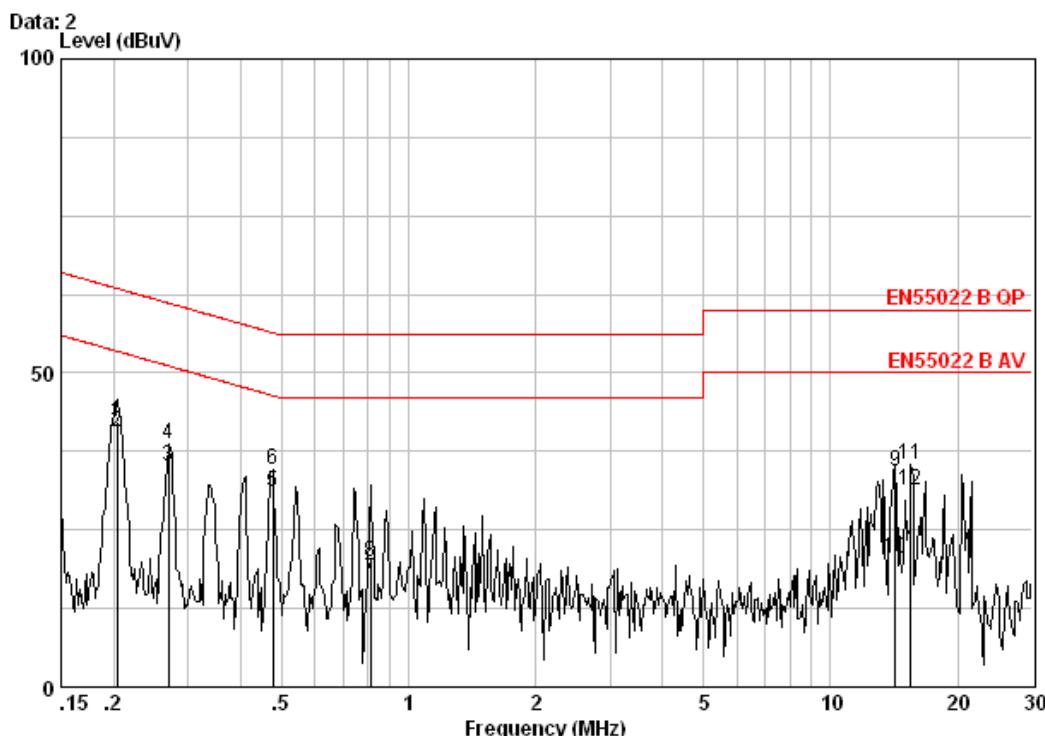
Live Line



Site : Shielding Room
Condition : EN55022 B QP CE LINE
EUT : FM Transmitter
Test No. : 4563RF
Mode : Charger mode

Freq	Cable	LISN	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Line	Limit
1	0.20396	0.04	-0.04	42.40	42.40	63.45 -21.05 QP
2	0.20396	0.04	-0.04	38.70	38.70	53.45 -14.75 Average
3	0.27009	0.05	-0.04	33.16	33.16	51.12 -17.95 Average
4	0.27009	0.05	-0.04	36.14	36.14	61.12 -24.97 QP
5	0.47612	0.06	-0.04	31.56	31.58	46.41 -14.83 Average
6	0.47612	0.06	-0.04	34.35	34.37	56.41 -22.04 QP
7	0.74690	0.06	-0.05	34.10	34.12	46.00 -11.88 Average
8	0.74690	0.06	-0.05	25.90	25.92	56.00 -30.08 QP
9	16.750	0.26	-0.55	33.59	33.29	50.00 -16.71 Average
10	16.750	0.26	-0.55	36.40	36.11	60.00 -23.89 QP
11	22.660	0.28	-0.71	25.90	25.47	50.00 -24.53 Average
12	22.660	0.28	-0.71	38.10	37.67	60.00 -22.33 QP

Neutral Line



Site : Shielding Room
Condition : EN55022 B QP CE NEUTRAL
EUT : FM Transmitter
Test No. : 4563RF
Mode : Charger mode

Freq	Cable	LISN	Read	Limit	Over	Remark
	Loss	Factor	Level			
	MHz	dB	dB	dBuV	dBuV	dB
1	0.20396	0.04	-0.04	42.10	42.10	63.45 -21.35 QP
2	0.20396	0.04	-0.04	40.50	40.50	53.45 -12.95 Average
3	0.27009	0.05	-0.04	35.16	35.17	51.12 -15.95 Average
4	0.27009	0.05	-0.04	38.60	38.61	61.12 -22.51 QP
5	0.47612	0.06	-0.04	30.99	31.01	46.41 -15.40 Average
6	0.47612	0.06	-0.04	34.56	34.58	56.41 -21.83 QP
7	0.81300	0.07	-0.04	17.20	17.23	46.00 -28.77 Average
8	0.81300	0.07	-0.04	20.00	20.03	56.00 -35.97 QP
9	14.210	0.25	-0.44	34.40	34.21	60.00 -25.79 QP
10	14.210	0.25	-0.44	20.70	20.51	50.00 -29.49 Average
11	15.470	0.25	-0.48	35.54	35.31	60.00 -24.69 QP
12	15.470	0.25	-0.48	31.55	31.32	50.00 -18.68 Average

5.3.2 Radiated Emissions

Test Requirement:	FCC Part15 C Section 15.239, 15.33
Test Method:	ANSI C63.4: 2003
Measurement Distance:	3m (Semi-Anechoic Chamber)
Test mode:	
Transmit with un-modulation	Keep the EUT in transmitting mode with un-modulation.
Transmit with modulation	FM Transmitter modulation with signal of symphony. Used maximum input audio level 399mVrms.
Test procedure:	Pre-scan the Transmit with un-modulation, Transmit with modulation mode, and found the worse case which it is transmit with modulation.
Test Frequency:	The lowest channel: 88.1MHz The middle channel: 98.1MHz The highest channel: 107.9MHz
Frequency range:	30 MHz – 2GHz

Receiver setup:

Frequency(MHz)	Detector	Limit (dB μ V/m) at 3m	RBW/VBW (kHz)
88.1 Fundamental Frequency	Peak	68	100/300
	Average	48	
98.1 Fundamental Frequency	Peak	68	100/300
	Average	48	
107.9 Fundamental Frequency	Peak	68	1000/1000
	Average	48	
30-88	Quasi-peak	40	1000/1000
88-216		43.5	
216-960		46	
960-1000		54	
Above 1000	Peak	74	1000/1000
Above 1000	Average	54	

Requirements:

According to FCC 15.239 requirements:

(b) The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

(c) The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in Section 15.209.

The limit for average field strength dB μ V/m for the fundamental frequency = 48.0 dB μ V/m.

And the limit for peak field strength dB μ V/m for the fundamental frequency = 68.0 dB μ V/m

Test Procedure:

The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 2GHz. 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.

The FM transmitter (plug) pulled straight up 6cm to the terminal bump. Pre-scan tests were performed in X, Y, Z axis positioning

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

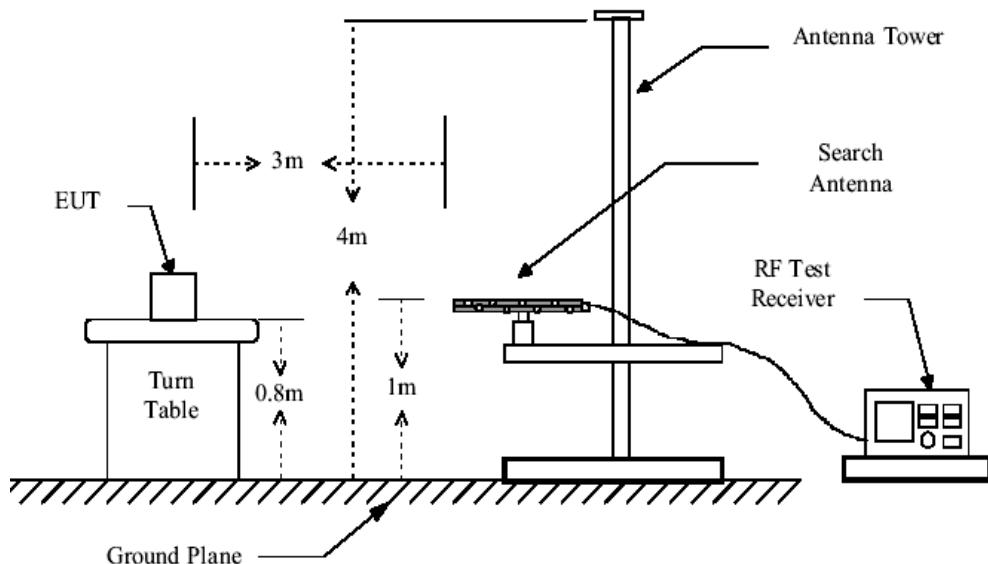
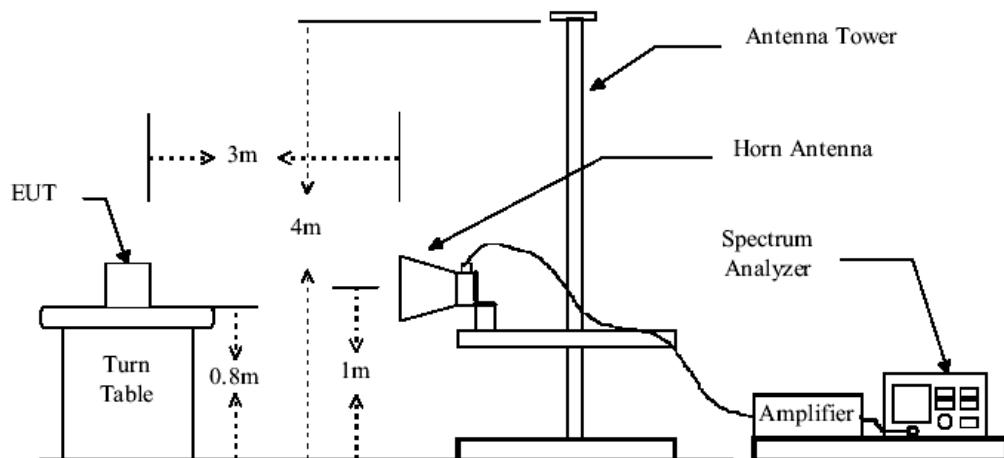
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

An initial pre-scan was performed in the 3m chamber using the spectrum analyzer 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.

Pre-Scan data:

Axis	X Data(peak)	Y Data(peak)	Z Data(peak)
88.1MHz	39.99dB _{uv} /m	32.38dB _{uv} /m	30.25dB _{uv} /m

Configuration of Measurement:**Below 1GHz****Above 1GHz**

The following test results were performed on the EUT

1. Fundamental emission

Peak Detector

Test Frequency (MHz)	Peak (dB μ V/m)		Limits (dB μ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
88.1	42.99	30.29	68.00	25.01	37.71
98.1	36.28	43.80	68.00	31.72	24.20
107.9	18.81	45.14	68.00	49.19	22.86

Average Detector

Test Frequency (MHz)	Average (dB μ V/m)		Limits (dB μ V/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
88.1	40.92	26.22	48.00	7.08	21.78
98.1	32.25	41.01	48.00	15.75	6.99
107.9	14.75	41.14	48.00	33.25	6.86

2. Harmonics & Spurious Emissions

Lowest channel: 88.1MHz

Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dB μ V)	Quasi- peak Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)
175.500	1.36	9.71	27.29	39.04	22.82	43.50	-20.68
431.580	2.34	16.52	27.51	41.87	33.22	46.00	-12.78
537.310	2.64	18.72	27.67	38.62	32.31	46.00	-13.69
703.180	2.91	21.60	27.27	40.69	37.93	46.00	-8.07
792.420	3.18	22.07	26.96	38.23	36.52	46.00	-9.48

Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dB μ V)	Quasi- peak Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)
175.500	1.36	9.71	27.29	37.91	21.69	43.50	-21.81
249.220	1.67	12.27	26.92	38.35	25.37	46.00	-20.63
261.830	1.73	12.55	26.87	39.64	27.05	46.00	-18.95
431.580	2.34	16.52	27.51	32.16	23.51	46.00	-22.49
792.420	3.18	22.07	26.96	34.89	33.18	46.00	-12.82

Middle channel: 98.1MHz
Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
431.580	2.34	16.52	27.51	31.26	22.61	46.00	-23.39
537.310	2.64	18.72	27.67	31.94	25.63	46.00	-20.37
684.750	2.87	21.48	27.33	35.45	32.47	46.00	-13.53
781.750	3.15	22.02	27.00	37.45	35.62	46.00	-10.38
893.300	3.57	23.14	26.46	36.79	37.04	46.00	-8.96

Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
194.900	1.39	10.15	27.18	41.30	25.66	43.50	-17.84
322.940	1.98	14.76	26.90	36.29	26.13	46.00	-19.87
537.310	2.64	18.72	27.67	36.68	30.37	46.00	-15.63
684.750	2.87	21.48	27.33	39.91	36.93	46.00	-9.07
784.405	3.16	22.03	26.99	40.51	38.71	46.00	-7.29

Highest channel: 107.9MHz
Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
249.220	1.67	12.27	26.92	31.17	18.19	46.00	-27.81
431.580	2.34	16.52	27.51	34.05	25.40	46.00	-20.60
537.310	2.64	18.72	27.67	33.23	26.92	46.00	-19.08
631.400	2.77	20.52	27.51	29.73	25.51	46.00	-20.49
738.100	3.02	21.66	27.15	31.84	29.37	46.00	-16.63

Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
249.220	1.67	12.27	26.92	38.48	25.50	46.00	-20.50
322.940	1.98	14.76	26.90	35.40	25.24	46.00	-20.76
537.310	2.64	18.72	27.67	36.14	29.83	46.00	-16.17
645.950	2.79	20.59	27.46	34.66	30.58	46.00	-15.42
916.580	3.62	23.26	26.43	34.07	34.52	46.00	-11.48

Test EUT in charger mode with iPod, connect EUT and PC**Vertical**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
48.430	0.78	8.47	28.11	46.26	27.40	40.00	-12.60
106.630	1.22	8.77	27.81	45.88	28.06	43.50	-15.44
296.750	1.88	13.76	26.73	43.86	32.77	46.00	-13.23
322.940	1.98	14.76	26.90	42.01	31.85	46.00	-14.15
537.310	2.64	18.72	27.67	43.57	37.26	46.00	-8.74

Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Quasi-peak Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
106.630	1.22	8.77	27.81	48.09	30.27	43.50	-13.23
172.590	1.36	9.61	27.31	42.17	25.83	43.50	-17.67
288.020	1.85	13.40	26.76	44.71	33.20	46.00	-12.80
296.750	1.88	13.76	26.73	44.00	32.91	46.00	-13.09
429.640	2.33	16.49	27.50	42.44	33.76	46.00	-12.24

TEST RESULTS: The unit does meet the FCC Part 15C Section 15.239 requirements.

5.3.3 Occupied Bandwidth

Test Requirement:	FCC Part15 C
Test Method:	ANSI C63.4: 2003
Requirements:	15.239 (a) Emissions from the intentional radiator shall be confined within a band 200 kHz wide centred on the operating frequency. The 200 kHz band shall lie wholly on the frequency.
Receiver setup:	RBW=10KHz, VBW=30KHz, Span=500KHz, Sweep time=auto.
Test Frequency:	The lowest channel=88.1MHz The middle channel=98.1MHz The highest channel=107.9MHz
Transmit with modulation	FM Transmitter modulation with signal of symphony. Used maximum input audio level 399mVrms.
Limit:	200KHz
Method of measurement:	1>. A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken. 2>. FM Transmitter modulation with signal of symphony. Used maximum input audio level 399mVrms.

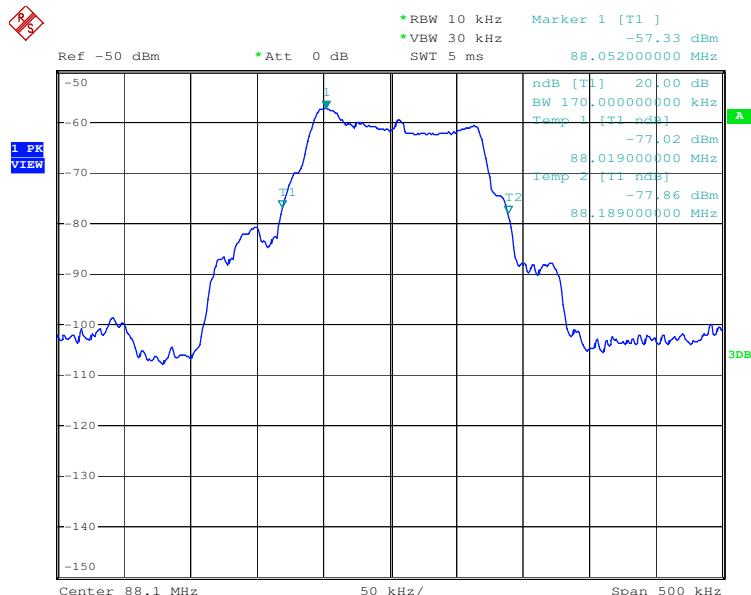
Test data:

Channel Frequency (MHz)	20dB bandwidth (KHz)	26dB bandwidth (KHz)
88.1	170	179
98.1	171	178
107.9	163	177

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

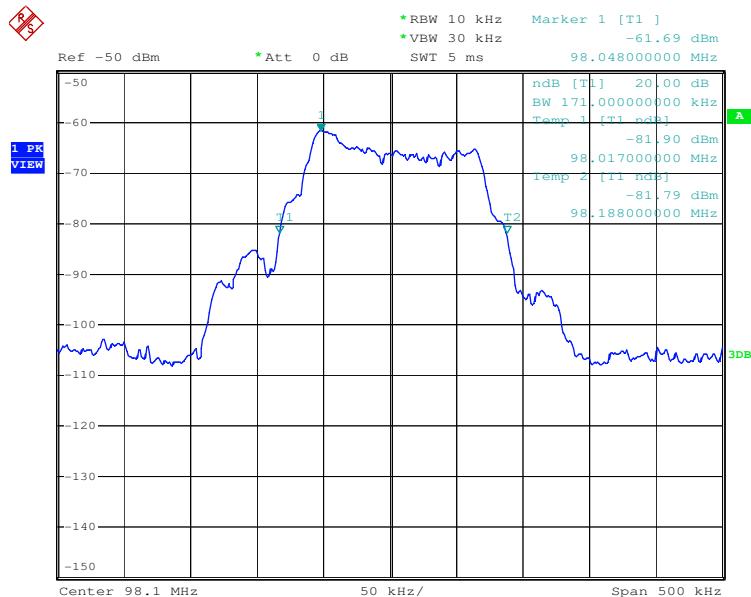
20dB Bandwidth

Lowest channel: 88.1MHz



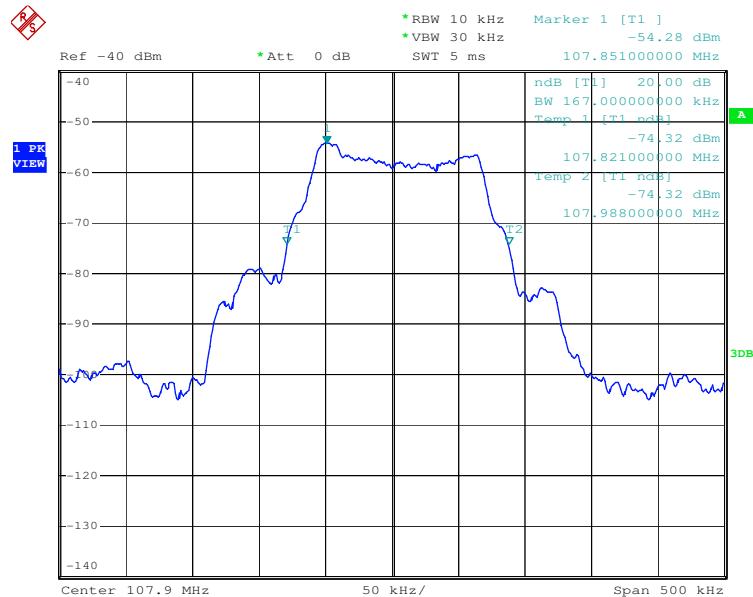
Date: 14.AUG.2009 08:10:40

Middle channel: 98.1MHz



Date: 14.AUG.2009 08:18:46

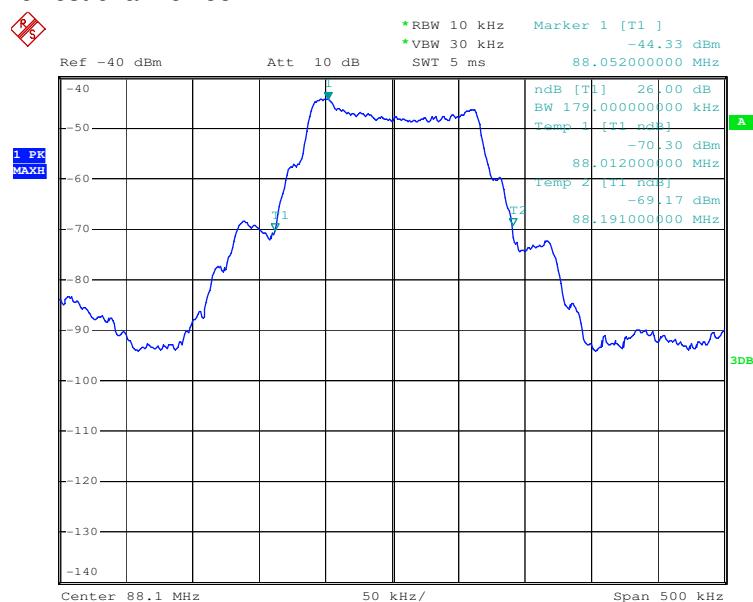
Highest channel: 107.9MHz



Date: 14.AUG.2009 08:22:05

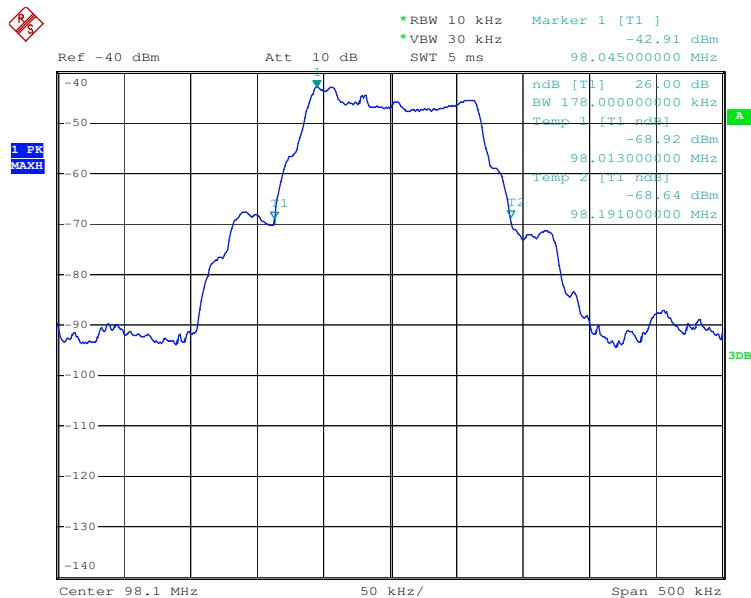
26dB Bandwidth

Lowest channel: 88.1MHz



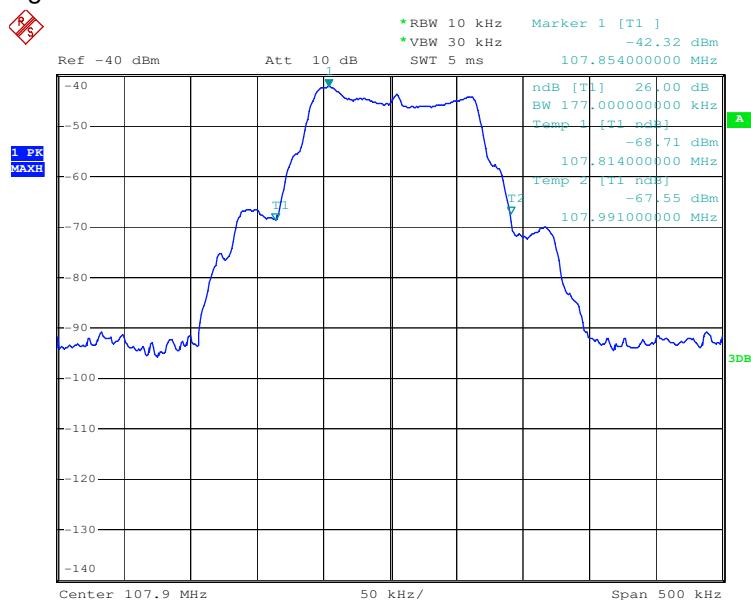
Date: 7.SEP.2009 07:35:10

Middle channel: 98.1MHz



Date: 7.SEP.2009 07:35:50

Highest channel: 107.9MHz



Date: 7.SEP.2009 07:36:36