

FCC TEST REPORT

FCC ID : IKQFMTD8R

Applicant : Scosche Industries Inc

Address of Applicant : 1550 Pacific Ave, Oxnard, California 93033, United States.

Equipment Under Test (EUT) :

Product description : FM TRANSMITTER WITH CHARGER

Model No. : FMTD8R

Modulation : FM

Operation Frequency : 88.1 MHz ~107.9MHz


Standards : FCC 15 Subpart C Paragraph 15.239

Date of Test : Dec.06, 2010

Test Engineer : Olic huang/ Engineer



Reviewed By : Philo zhong/Manager



PERPARED BY:

Waltek Services (Shenzhen) Co., Ltd.

1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen
518105, China

Tel :+86-755-27553488

Fax:+86-755-27553868

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3 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Band Edge	FCC PART 15: 2007	ANSI C63.4: 2003	Note	PASS
Radiated Emission (30MHz to 1GHz)	FCC PART 15: 2007	ANSI C63.4: 2003	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15: 2007	ANSI C63.4: 2003	N/A	N/A

Note : denote that for more details of the EUT , please refer to the relating test items as below .

Remark : the methods of measurement in all the test items were according to ANSI C63.4: 2003.

4 General Information

4.1 Client Information

Applicant: Scosche Industries, Inc.
Address of Applicant: 1550 Pacific Ave, Oxnard, California 93033, United States.

Manufacturer: SHENZHEN SAGE HUMAN ELECTRONICS CO.,LTD
Address of Manufacturer: FLOOR 4,Building A9,QingHu Industry Zone, Silicon Valley Power, LongHua Town, Shenzhen City, China

4.2 General Description of E.U.T.

Product description: FM TRANSMITTER WITH CHARGER
Model No.: FMTD8R

4.3 Details of E.U.T.

Power Supply: DC 12.0V

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a FM TRANSMITTER WITH CHARGER . The FM TRANSMITTER WITH CHARGER tests were done in this report.The standards used were FCC 15 Paragraph 15.205, Paragraph 15.207,Paragraph 15.209 and Paragraph 15.239.

4.6 Test Facility

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

- **FCC – Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. 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 880581, Aug. 03, 2010.

- **IC – Registration No.: IC 7760**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760, July 24, 2008.

4.7 Test Location

All Emissions tests were performed at:-

1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen 518105, Guangdong, China.

5 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY451149 43	W2008001	9k-26.5GHz	Aug- 03-10	Aug- 02-11	Wws200 81596	±1dB
Trilog Broadband Antenne 30-3000 MHz	SCHWARZB ECK MESS- ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug- 03-10	Aug- 02-11		±1dB
Broad-band Horn Antenna	SCHWARZB ECK MESS- ELEKTROM / BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug- 03-10	Aug- 02-11		f<10 GHz: ±1dB 10GHz<f< 18 GHz: ±1.5dB
Broadband Preamplifier	SCHWARZB ECK MESS- ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug- 03-10	Aug- 02-11		±1.2dB
10m Coaxial Cable with N-male Connectors usable up to 25GHz,	SCHWARZB ECK MESS- ELEKTROM / AK 9515 H	-	-	-	Aug- 03-10	Aug- 02-11		-
10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connector	SCHWARZB ECK MESS- ELEKTROM / AK 9513				Aug- 03-10	Aug- 02-11		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSP0/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SC HWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug- 03-10	Aug- 02-11	Wws200 80942	±1dB
EMI Receiver	Beijingkehua n	KH3931		9k-1GHz	Aug- 03-10	Aug- 02-11		
Two-Line V-Network	ROHDE&SC HWARZ/ ESPI	100115	W2005002	50Ω/50μH	Aug- 03-10	Aug- 02-11	Wws200 80941	±10%

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
	ENV216				03-10			
Absorbing Clamp	ROHDE&SC HWARZ/ MDS-21	100205	W2005003	impedance 50 Ω loss : 17 dB	Aug-03-10	Aug-02-11	Wws200 80943	± 1 dB
10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9514				Aug-03-10	Aug-02-11		
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V07451 03095	W2008012	Power: 2000VA Vol-range: 0-300V Freq_range: 10-80Hz	Aug-03-10	Aug-02-11	Wwd200 81185	Voltage distinguish: 0.025% Power_freq distinguish: 0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V07451 03096	W2008013	Vol-range: 0-300V Power_freq: 10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V07451 03094	W2008005	Contact discharge: 500V-10KV Air discharge: 500V-16.5KV	Aug-03-10	Aug-02-11	Wwc200 82400	7.5A current will be changed in $V_m=1.5V$
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range: 9K-1GHz RF voltage: -60 dBm-+10dBm	Aug-03-10	Aug-02-11	Wws200 81890	Power_freq distinguish: 0.1Hz RFelectricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-03-10	Aug-02-11	Wwc200 82396	150K-80MHz: ± 1 dB 80-230MHz: -2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range: 0.15-1000 MHz	Aug-03-10	Aug-02-11	Wwc200 82397	0.3-400 MHz: ± 4 dB Other freq: ± 5 dB

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365			Aug-03-10	Aug-02-11	Wws200 81597	
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V-4.4KV Pulse current: 100A-2.2KA	Aug-03-10	Aug-02-11	Wwc200 82401	voltage: ±10% Pulse current: ±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311			Aug-03-10	Aug-02-11	Wwc200 82398	-
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50µS	Aug-03-10	Aug-02-11	Wwc200 82399	-
AC Power Supply	TONGYUN/ DTDGC-4				Aug-03-10	Aug-02-11	Wws200 80944	-
Exposure Level Tester ELT-400	Narda Safety TEST Solutions/230 4/03	M-0155	w2008022	Test freq range: 1—400kHz	Aug-03-10	Aug-02-11	Wwd200 81191	Test uncertainty : 1—120kHz:±1.83%, 120 kHz-400 kHz: ±4.06%
Magnetic Field Probe 100cm ²	Narda Safety TEST Solutions/230 0/90.10	M-1070	w2008021	Test freq range: 1—400kHz				Test uncertainty : 1Hz-10Hz: ±16.2%, 10Hz - 120kHz:±2.2%, 120 kHz-400 kHz: ±4.7%
Active Loop Antenna Charger 10kHz-30MHz	Beijing Dazhi / ZN30900A	-	-	10kHz-30MHz	Aug-03-10	Aug-02-11		±1dB
Memory product	Kingston	-	-	SN:9EAE4B7 0-0165508	-	-	-	-

6 Conducted Emission Test

Test Requirement:	FCC Part15 Paragraph 15.207
Test Method:	Based on FCC Part15 Paragraph 15.207
Test Date:	-----
Frequency Range:	150kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1 Test Equipment

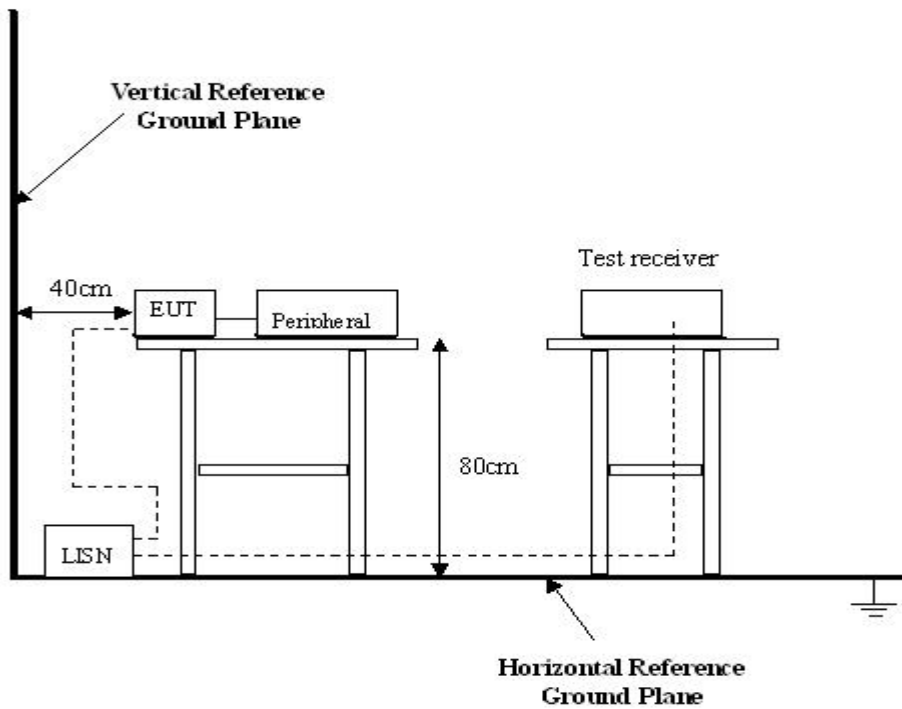
Please refer to Section 5 this report.

6.2 Test Procedure

1. The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.
2. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.
3. Compliance test was performed test in the EUT was connect the adaptor output.

6.3 Conducted Test Setup

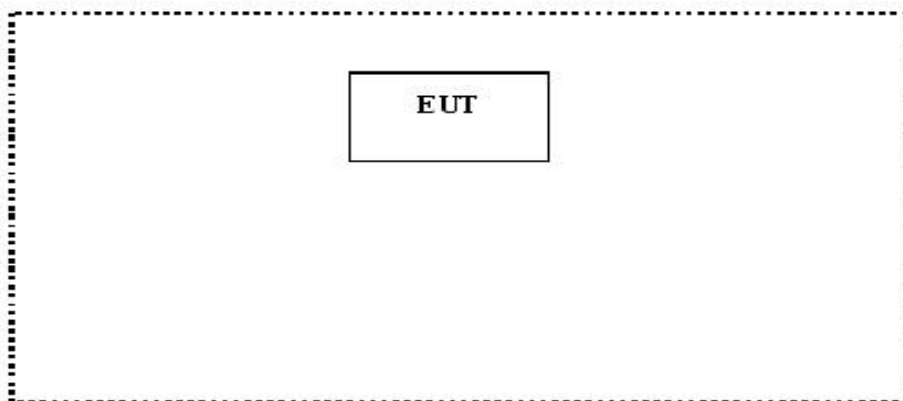
The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.207 limits.



6.4 EUT Operating Condition

Operating condition is according to ANSI C63.4:2003.

- A. Setup the EUT and simulators as shown on follow.
- B. Enable RF signal and confirm EUT active.
- C. Modulate output capacity of EUT up to specification.



6.5 Conducted Emission Limits

66-56 dB μ V between 0.15MHz & 0.5MHz

56 dB μ V between 0.5MHz & 5MHz

60 dB μ V between 5MHz & 30MHz

Note: In the above limits, the tighter limit applies at the band edges.

6.6 Conducted Emission Test Result

Owing to the EUT using DC supply , so this test was not performed.

7 Radiation Emission Test

Test Requirement:	FCC Part15 Paragraph 15.239
Test Method:	Based on ANSI C63.4:2003
Test Date:	Dec.06, 2010
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

7.1 Test Equipment

Please refer to Section 5 this report.

7.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

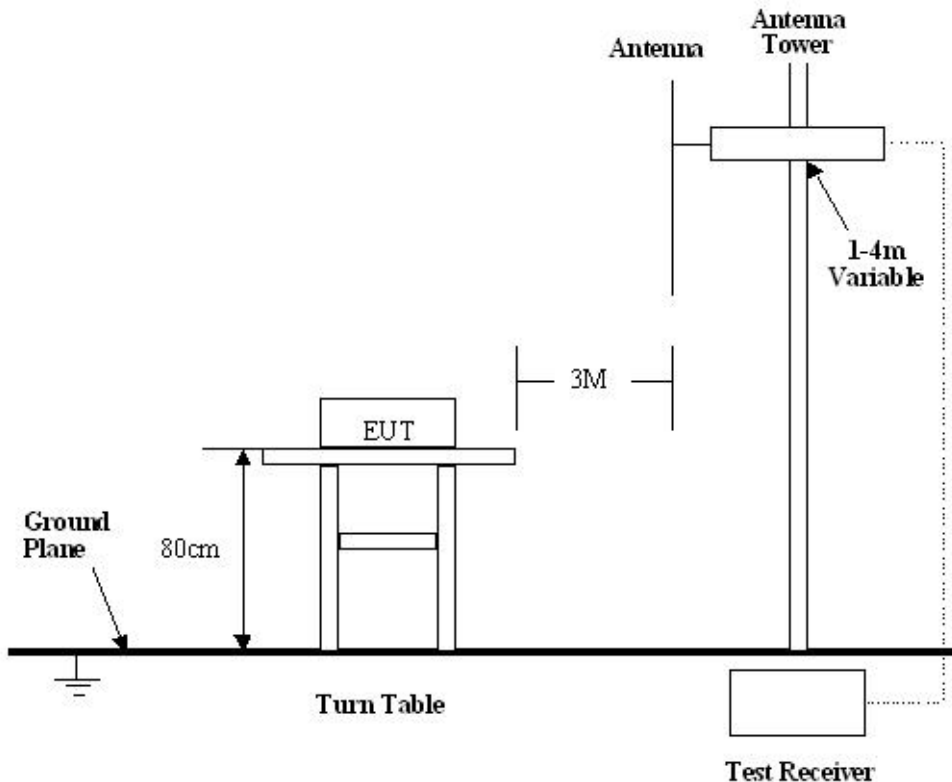
Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at CCS EMC Laboratory is +2.9 dB.

7.3 Test Procedure

1. The DC supply in the equipment under test for radiated emissions test. And the EUT was connected to the MP3 to make the FM TRANSMITTER WITH CHARGER in normal working mode.
2. This is a handheld device, The radiation emission should be tested under 3-axes(X, Y, Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
3. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
4. All data was recorded in the peak and average detection mode.
5. The EUT was under working mode during the final qualification test and the configuration was used to represent the worst case results.
6. The EUT was testing at the frequency points 88.1MHz, 98.1MHz, 107.9 MHz.

7.4 Radiated Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Paragraph 15.209 and Paragraph 15.239 limits.



7.5 Spectrum Analyzer Setup

According to FCC Part15 Paragraph 15.239 Rules, the system was tested to 1000 MHz.

Start Frequency	30 MHz
Stop Frequency	1000 MHz
Sweep Speed	Auto
IF Bandwidth	100 kHz
Video Bandwidth	100KHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	100KHz

7.6 Corrected Amplitude & Margin Calculation

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

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB μ V means the emission is 7dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

7.7 Summary of Test Results

According to the data in section 7.10, the EUT complied with the FCC Part15 Paragraph 15.239 standards.

7.8 EUT Operating Condition

Same as section 6.4 of this report. Compliance test was performed in the transmitter operation Mode.

7.9 Radiated Emissions Limit

A. FCC Part 15 subpart C Paragraph 15.239 Limit

Fundamental Frequency(MHZ)	Field Strength of Fundamental	
	uV/m	dBuV/m
88-108	250	48

- Note:**
- (1) RF Voltage(dBuV)=20 log RF Voltage(uV)
 - (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.
 - (3) The emission limit in this paragraph is based on measurement instrumentation employing an average detector.Measurement using instrumentation with a peak detector function,corresponding to 20dB above the maximum permitted average limit.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209

Frequency(MHZ)	Distance(m)	Field strength(dBuV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:**
- (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.

As shown in 15.35(b),for frequencies above 1000MHz,the field strength limits are based on average detector,however,the peak field strength of any emission shall not exceed the maximum permitted average limits,specified above by more than 20dB under any condition of modulation.

7.10 Radiated Emissions Test Result

Formula of conversion factors:the field strength at 3m was established by adding
 The meter reading of the spectrum analyer (which is set to read in units of dBuV)
 To the antenna correction factor supplied by the antenna manufacturer. The antenna
 Correction factors are stated in terms of dB.The gain of the pressletor was accounted
 For in the spectrum analyser meter reading.

Example:

Freq(MHz) Meter Reading +ACF=FS

33 20dBuV+10.36dB=30.36dBuV/m @3m

Radiated Emission Test Data

- A. Test Item: Radiated Emission Test Data
- Test Voltage: DC 12.0V
- Test Mode: TX ON
- Temperature: 24 °C
- Humidity: 52%RH
- Test Result: PASS
- Remark: the EUT was operating in the continuously transmit mode.

The below is the Fundamental and Harmonic

Frequency (MHz)	Detector	Antenna Polarization	Emission Level (dBuV/m)	FCC 15 Subpart C Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
Low Frequency							
88.10	AV	Vertical	42.25	48.00	5.75	1.0	10
176.20	AV	Vertical	37.20	43.50	8.30	1.1	50
246.30	AV	Vertical	36.00	46.00	8.00	1.1	20
352.40	AV	Vertical	35.36	46.00	10.64	1.1	30
440.50	AV	Vertical	35.02	46.00	10.98	1.2	150
528.60	AV	Vertical	35.01	46.00	10.99	1.0	30
616.70	AV	Vertical	34.85	46.00	11.15	1.1	30
704.80	AV	Vertical	34.00	46.00	12.00	1.2	180
792.90	AV	Vertical	34.00	54.00	12.00	1.0	140
881.00	AV	Vertical	30.99	54.00	23.01	1.2	15

88.10	AV	Horizontal	41.21	48.00	6.79	1.1	15
176.20	AV	Horizontal	38.54	43.50	4.96	1.0	20
246.30	AV	Horizontal	37.60	46.00	8.40	1.0	60
352.40	AV	Horizontal	36.36	46.00	9.64	1.1	140
440.50	AV	Horizontal	36.00	46.00	8.00	1.1	15
528.60	AV	Horizontal	35.36	46.00	10.64	1.0	60
616.70	AV	Horizontal	35.00	46.00	11.00	1.1	10
704.80	AV	Horizontal	36.62	46.00	9.38	1.0	20
792.90	AV	Horizontal	34.65	54.00	9.35	1.2	80
881.00	AV	Horizontal	32.75	54.00	11.25	1.0	0
88.10	PK	Vertical	48.50	68.00	19.50	1.0	0
176.20	PK	Vertical	45.23	63.50	18.27	1.2	10
246.30	PK	Vertical	39.68	66.00	26.32	1.2	120
352.40	PK	Vertical	37.42	66.00	28.58	1.2	120
440.50	PK	Vertical	35.63	66.00	30.37	1.0	180
528.60	PK	Vertical	36.22	66.00	29.78	1.0	0
616.70	PK	Vertical	35.89	66.00	30.11	1.0	120
704.80	PK	Vertical	35.67	66.00	30.33	1.2	0
792.90	PK	Vertical	35.20	74.00	38.80	1.1	50
881.00	PK	Vertical	33.82	74.00	40.18	1.2	140
88.10	PK	Horizontal	47.56	68.00	20.44	1.1	0
176.20	PK	Horizontal	41.26	63.50	32.74	1.2	40
246.30	PK	Horizontal	39.69	66.00	27.31	1.1	100
352.40	PK	Horizontal	38.65	66.00	27.35	1.2	190
440.50	PK	Horizontal	36.84	66.00	29.16	1.0	60
528.60	PK	Horizontal	36.35	66.00	29.65	1.2	60
616.70	PK	Horizontal	34.85	66.00	31.15	1.2	110
704.80	PK	Horizontal	33.57	66.00	32.43	1.1	10
792.90	PK	Horizontal	34.00	74.00	40.00	1.2	0
881.00	PK	Horizontal	34.00	74.00	40.00	1.1	10
Middle Frequency							
98.10	AV	Vertical	43.21	48.00	4.79	1.2	0
196.20	AV	Vertical	40.40	43.50	3.10	1.2	0
294.30	AV	Vertical	39.30	46.00	6.70	1.1	60
392.40	AV	Vertical	39.00	46.00	7.00	1.1	10

490.50	AV	Vertical	38.00	46.00	8.00	1.2	120
588.60	AV	Vertical	38.44	46.00	7.56	1.1	100
686.70	AV	Vertical	36.30	46.00	9.70	1.1	105
784.80	AV	Vertical	35.39	46.00	10.61	1.6	20
882.90	AV	Vertical	32.68	54.00	21.32	1.5	100
980.00	AV	Vertical	29.89	54.00	24.11	1.2	45
98.10	AV	Horizontal	43.66	48.00	4.34	1.4	0
196.20	AV	Horizontal	41.00	43.50	2.50	1.0	10
294.30	AV	Horizontal	39.22	46.00	6.78	1.2	60
392.40	AV	Horizontal	38.36	46.00	7.64	1.0	40
490.50	AV	Horizontal	38.70	46.00	7.30	1.8	135
588.60	AV	Horizontal	38.70	46.00	7.30	1.0	60
686.70	AV	Horizontal	37.70	46.00	8.30	1.3	10
784.80	AV	Horizontal	36.62	46.00	9.38	1.0	90
882.90	AV	Horizontal	34.61	54.00	9.39	1.5	60
980.00	AV	Horizontal	32.76	54.00	11.24	1.0	10
98.10	PK	Vertical	49.63	68.00	18.37	1.2	0
196.20	PK	Vertical	46.00	63.50	17.50	1.1	10
294.30	PK	Vertical	43.00	66.00	23.00	1.2	120
392.40	PK	Vertical	39.99	66.00	26.01	1.3	120
490.50	PK	Vertical	38.63	66.00	27.37	1.0	180
588.60	PK	Vertical	36.22	66.00	29.78	1.5	20
686.70	PK	Vertical	35.89	66.00	30.11	1.0	120
784.80	PK	Vertical	34.66	66.00	31.34	1.2	30
882.90	PK	Vertical	33.00	74.00	41.00	1.1	10
980.00	PK	Vertical	32.02	74.00	41.98	1.2	20
98.10	PK	Horizontal	47.99	68.00	20.01	1.3	10
196.20	PK	Horizontal	41.30	63.50	32.20	1.2	40
294.30	PK	Horizontal	38.25	66.00	27.75	1.5	100
392.40	PK	Horizontal	37.33	66.00	28.67	1.0	90
490.50	PK	Horizontal	36.19	66.00	29.81	1.0	60
588.60	PK	Horizontal	35.63	66.00	30.37	1.1	0
686.70	PK	Horizontal	33.73	66.00	32.27	1.2	10
784.80	PK	Horizontal	33.57	66.00	32.43	1.3	30

882.90	PK	Horizontal	30.01	74.00	43.99	1.3	90
980.00	PK	Horizontal	30.00	74.00	44.00	1.1	20
High Frequency							
107.90	AV	Vertical	42.25	48.00	5.75	1.0	200
215.80	AV	Vertical	40.01	43.50	3.49	1.2	100
323.70	AV	Vertical	39.30	46.00	6.70	1.2	60
431.60	AV	Vertical	40.40	46.00	5.60	1.1	120
539.50	AV	Vertical	40.70	46.00	5.30	1.1	120
647.40	AV	Vertical	38.42	46.00	7.58	1.2	90
755.30	AV	Vertical	36.30	46.00	9.70	1.2	10
863.20	AV	Vertical	35.39	46.00	10.61	1.3	120
971.10	AV	Vertical	32.68	54.00	21.32	1.1	100
1079.0	AV	Vertical	29.89	54.00	24.11	1.2	135
107.90	AV	Horizontal	39.60	48.00	8.40	1.4	100
215.80	AV	Horizontal	38.40	43.50	5.10	1.1	10
323.70	AV	Horizontal	37.60	46.00	8.40	1.4	60
431.60	AV	Horizontal	38.36	46.00	7.64	1.0	40
539.50	AV	Horizontal	38.70	46.00	7.30	1.2	45
647.40	AV	Horizontal	38.70	46.00	7.30	1.0	60
755.30	AV	Horizontal	37.70	46.00	8.30	1.2	10
863.20	AV	Horizontal	36.62	46.00	9.38	1.5	90
971.10	AV	Horizontal	34.61	54.00	9.39	1.5	60
1079.0	AV	Horizontal	32.75	54.00	11.25	1.0	15
107.90	PK	Vertical	47.20	68.00	20.80	1.2	140
215.80	PK	Vertical	46.00	63.50	17.50	1.1	10
323.70	PK	Vertical	38.01	66.00	27.99	1.4	120
431.60	PK	Vertical	37.42	66.00	28.58	1.2	120
539.50	PK	Vertical	35.63	66.00	30.37	1.0	180
647.40	PK	Vertical	36.22	66.00	29.78	1.5	0
755.30	PK	Vertical	35.89	66.00	30.11	1.0	120
863.20	PK	Vertical	38.67	66.00	27.33	1.3	0
971.10	PK	Vertical	38.78	74.00	35.22	1.5	0
1079.0	PK	Vertical	33.02	74.00	40.98	1.2	50
107.90	PK	Horizontal	46.80	68.00	21.20	1.3	0
215.80	PK	Horizontal	41.26	63.50	32.74	1.2	40

323.70	PK	Horizontal	36.25	66.00	27.75	1.1	100
431.60	PK	Horizontal	37.34	66.00	28.66	1.1	30
539.50	PK	Horizontal	33.19	66.00	32.81	1.0	60
647.40	PK	Horizontal	33.62	66.00	32.38	1.1	60
755.30	PK	Horizontal	30.73	66.00	35.27	1.3	110
863.20	PK	Horizontal	33.57	66.00	32.43	1.3	80
971.10	PK	Horizontal	34.15	74.00	39.85	1.1	15
1079.0	PK	Horizontal	36.34	74.00	37.66	1.1	120

8 Antenna Requirement.

According to the FCC 15.239, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product has a permanent fixed antenna, which may be built in, designed as an indispensable part of the equipment., fulfill the requirement of this section.

9 Band Edge

9.1 Test Equipment

Please refer to Section 5 this report.

9.2 Test Procedure

1. The EUT, peripherals were put on the turntable which table size is 1mX1.5m, table high 0.8m. All set up is according to ANSI C63.4:2003.
2. The antenna high were varied from 1m to 4m high to find the maximum emission for each frequency.
3. The field strength of any emissions radiated on any frequency outside of the specified 200KHz band shall not exceed the general radiated emission limits in Section 15.209.
4. The market sample was tested for frequency testing at 88.1 MHz.,98.1 MHz.,107.9 MHz..

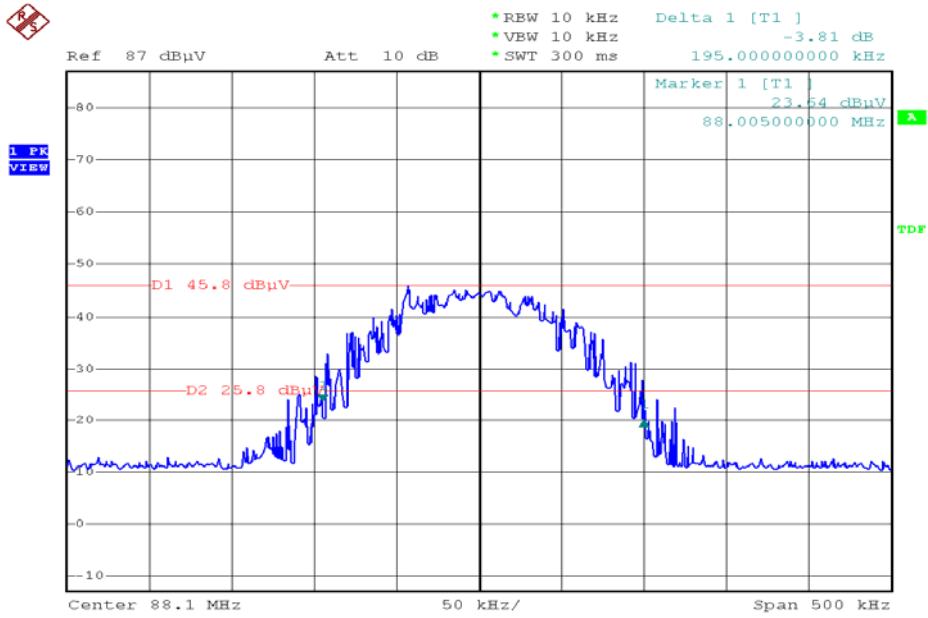
9.3 Band Edge Test Result

Test Item: Band Edge Test
Test Voltage: DC 12.0V
Test Mode: TX ON
Temperature: 24 °C
Humidity: 52%RH

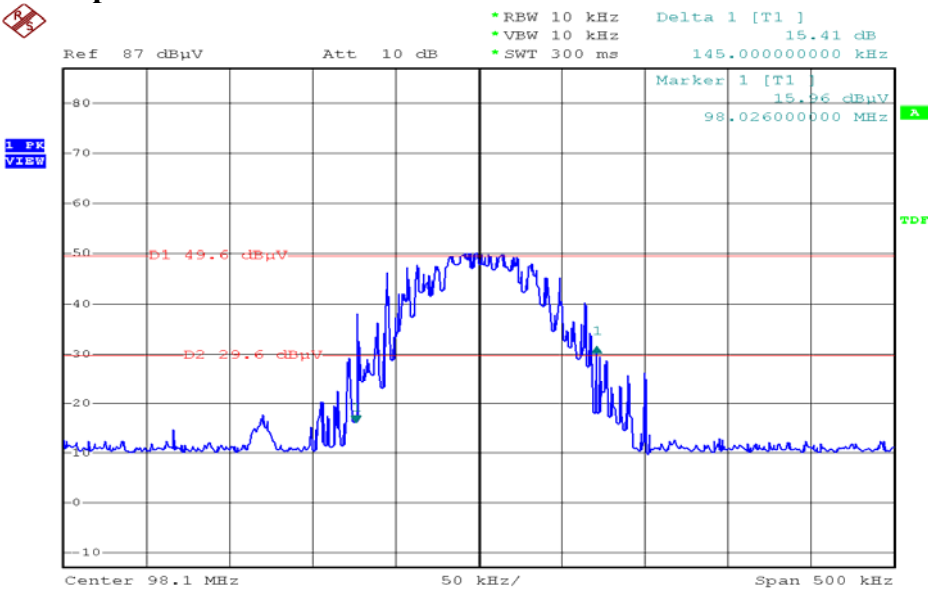
9.4 Test Results

Channel Frequency (MHZ)	20dB bandwidth (KHZ)	Limit (KHZ)
88.1	195	200
98.1	145	200
107.9	155	200

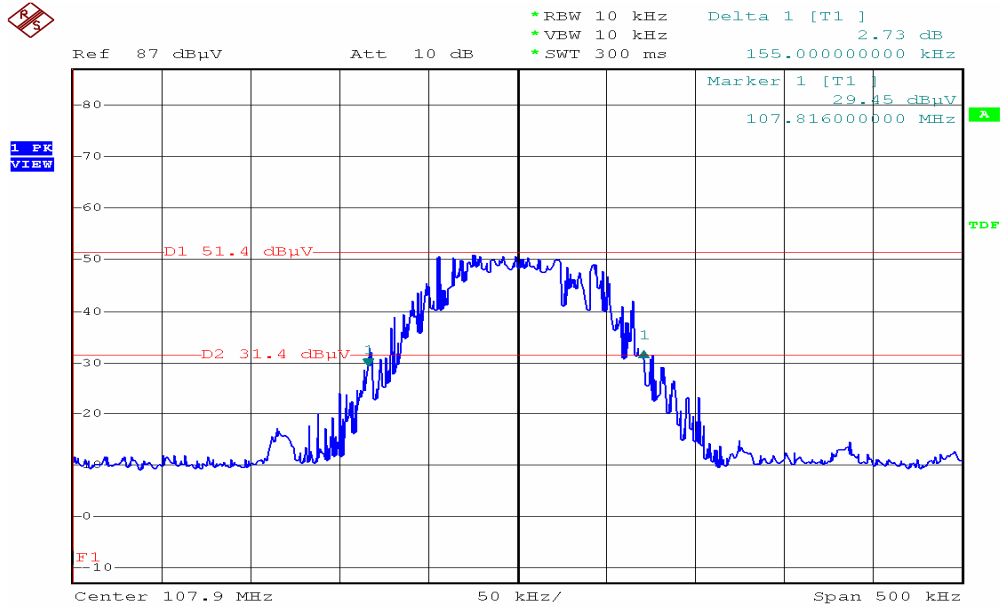
88.1MHz Test plot



98.1MHz Test plot



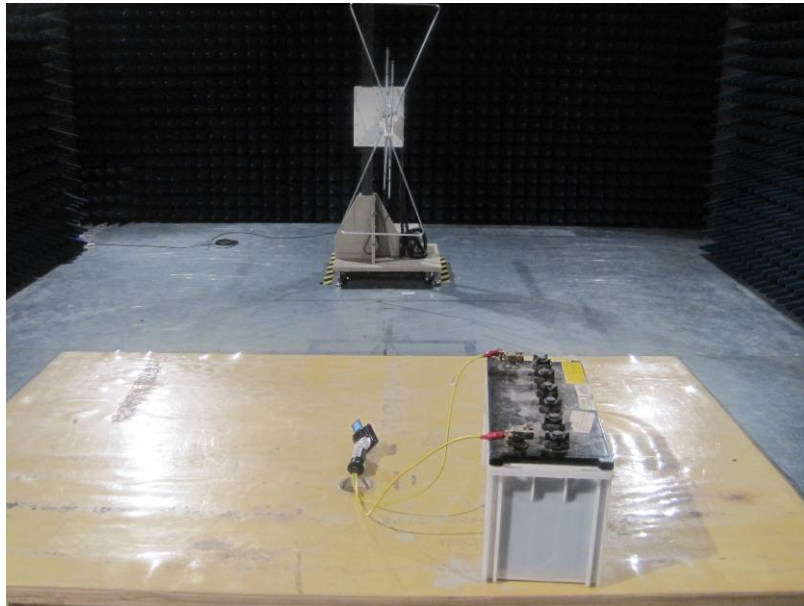
107.9MHZ Test plot



- Note:** (1) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.
- (2) The average measurement was not performed when the peak measured data under the limit of average detection.

10 Photographs of Testing

10.1 Radiation Emission Test View



11 Photographs - Constructional Details

11.1 EUT - Front View



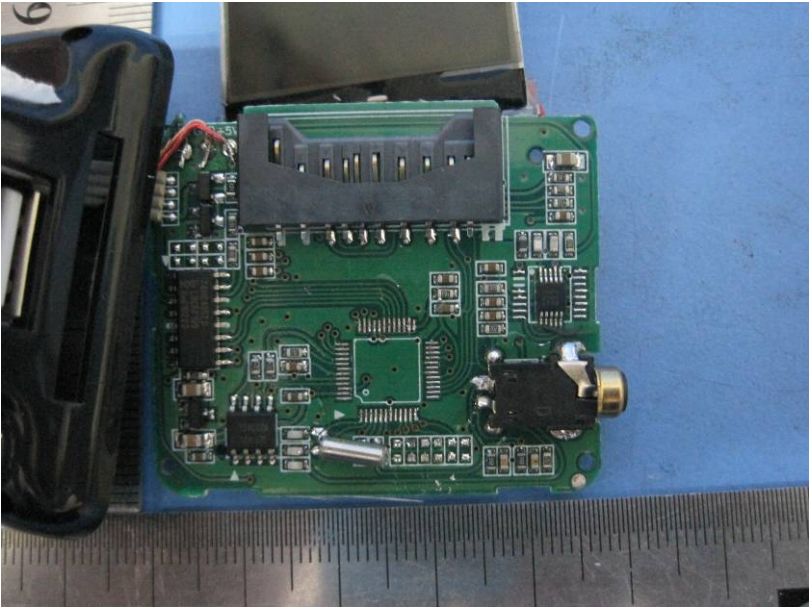
11.2 EUT - Back View



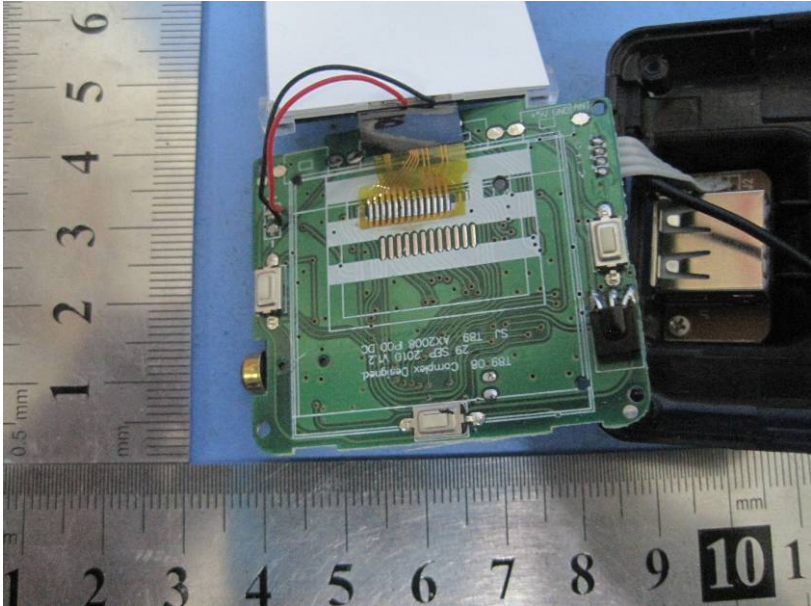
11.3 EUT -Side View



11.4 PCB - Front View



11.5 PCB - Back View



12 FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT
EUT Bottom View/proposed FCC Mark Location

