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**Guangzhou Branch**

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Report No.: GZEM150400140701  
Page: 1 of 28  
FCC ID: IKQFMT4R

## TEST REPORT

<b>Application No.:</b>	GZEM1504001407CR
<b>Applicant:</b>	Scosche Industries Inc
<b>Manufacturer:</b>	Zhongshan K-mate General Electronics Co.,Ltd
<b>FCC ID:</b>	IKQFMT4R
<b>Product Description:</b>	TUNE FREE FM Transmitter
<b>Model No.:</b>	FMT4R, FMT4RG, FMT4S, FMT4SR, FMT4RT ♣
<b>♣</b>	Please refer to section 3 of this report for further details.
<b>Trade Mark:</b>	SCOSCHE
<b>Standards:</b>	CFR 47 FCC PART 15 Subpart C: 2014 section 15.239
<b>Date of Receipt:</b>	2015-04-03
<b>Date of Test:</b>	2015-04-06 to 2014-04-20
<b>Date of Issue:</b>	2015-06-08
<b>Test Result :</b>	<b>Pass*</b>

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 3 of this report for further detail.



Authorized Signature:

**Jerry Chan**  
**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.

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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## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2015-06-08		Original

<b>Authorized for issue by:</b>			
<b>Tested By</b>			2015-04-06 to 2014-04-20 <hr/> <b>Date</b>
<b>Prepared By</b>			2015-04-30 <hr/> <b>Date</b>
<b>Checked By</b>			2015-05-08 <hr/> <b>Date</b>

### 3 Test Summary

Test	Test Requirement	Test method	Result
Antenna Requirement	FCC PART 15 C section 15.239 and Section 15.203	FCC PART 15 C section 15.239 and Section 15.203	PASS
Occupied Bandwidth	FCC PART 15 C section 15.239 (a)	ANSI C63.10: Clause 6.9.1	PASS
Field Strength of Fundamental	FCC PART 15 C section 15.239(b)	ANSI C63.10: Clause 8.5	PASS
Field Strength of Unwanted Emissions	FCC PART 15 C section 15.239(c)	ANSI C63.10: Clause 6.4, 6.5 and 6.6	PASS**
Band Edges Measurement	FCC PART 15 C section 15.239 (c)	ANSI C63.10: Clause 6.10.5.2	PASS

**Remark:**

EUT: In this whole report EUT means Equipment Under Test.  
 N/A: not applicable. Refer to the relative section for the details.  
 EUT: In this whole report EUT means Equipment Under Test.  
 Tx: In this whole report Tx (or tx) means Transmitter.  
 Rx: In this whole report Rx (or rx) means Receiver.  
 RF: In this whole report RF means Radio Frequency.  
 ANSI C63.10: the detail version is ANSI C63.10:2009 in the whole report.  
 DA 00-705 was used as a guideline in preparing this Test Report.

**\* Model No.:** FMT4R, FMT4RG, FMT4S, FMT4SR, FMT4RT

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the color.  
 Therefore only one model FMT4R was tested in this report.



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## 5 General Information

### 5.1 Client Information

Applicant: Scosche Industries Inc  
Address of Applicant: 1550 Pacific Avenue, Oxnard, CA 93033, United States  
Manufacturer: Zhongshan K-mate General Electronics Co., Ltd  
Address of Manufacturer: NO.2 ,5th Xinsheng Street, Gangkou Town, Zhongshan City, Guangdong, China

### 5.2 General Description of E.U.T.

Product Description: TUNE FREE FM Transmitter  
Model No.: FMT4R

### 5.3 Details of E.U.T.

Operating Frequency 88.1 MHz to107.9 MHz  
Type of Modulation: FM  
Number of Channels 20 Channels  
Antenna Type Integral  
Antenna gain: 0.5 dBi  
Function: Transmit audio signal.  
Power Supply: Working voltage: DC 3.0V=2x1.5V “AAA” battery  
Adapter: N/A  
Aux cord: 0.1m wires unscreened aux in cable

### 5.4 Description of Support Units

The EUT has been tested with corresponding accessories as below:

Supplied by SGS:

Description	Manufacturer	Model No.	SN/Certificate NO
iPad	Apple	MB292CH	V5036GTBZ38

### 5.5 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

### 5.6 Abnormalities from Standard Conditions

None.



## **5.7 Other Information Requested by the Customer**

None.

## **5.8 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

## 5.9 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

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.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **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 (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

SGS-CSTC Standards Technical Services 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 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC 61010-1:2006-10 and Rules procedure IEC 61010-2:2006-10, and the relevant IEC 61010-2:2006-10 Scheme Operational documents.



## 6 Equipment List

RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal. Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-12-5	2015-12-5
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2015-03-02	2016-03-02
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2015-04-07	2016-04-07
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2014-04-19	2016-04-19
EMC2025	Trilog Broadband Antenna 30-1000MHZ	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3372	2014-07-14	2017-07-14
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2013-08-31	2016-08-31
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2014-05-04	2017-05-04
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2013-08-31	2016-08-31
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2012-07-01	2015-07-01
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2015-03-02	2016-03-02
EMC2065	Amplifier	HP	8447F	N/A	2014-08-25	2015-08-25
EMC0075	310N Amplifier	Sonoma	310N	272683	2015-03-02	2016-03-02
EMC0523	Active Loop Antenna	EMCO	6502	42963	2014-03-03	2016-03-03
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONI	BBHA 9170	9170-375	2014-05-26	2017-05-26
EMC2079	High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	009	2015-03-02	2016-03-02
EMC2069	2.4GHz filter	Micro-Tronics	BRM 50702	149	2015-03-02	2016-03-02
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2014-05-03	2016-05-03

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal. Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2014-09-15	2015-09-15
EMC0007	DMM	Fluke	73	70671122	2014-09-15	2015-09-15



## 7 Test Results

### 7.1 E.U.T. test conditions

<b>Test Voltage:</b>	DC 3.0V
<b>Temperature:</b>	20.0 -25.0 °C
<b>Humidity:</b>	38-50 % RH
<b>Atmospheric Pressure:</b>	1000 -1010 mbar

**Test frequencies and frequency range:** According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

#### Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

#### Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

EUT channels and frequencies list:

<b>Channel</b>	<b>Frequency (MHz)</b>
0	88.1
1	88.3
2	88.5
3	88.7
4	88.9
5	90.1
6	90.3
7	90.5
8	90.7
9	90.9
10	106.1
11	106.3
12	106.5
13	106.7
14	106.9
15	107.1
16	107.3
17	107.5
18	107.7
19	107.9

Test frequencies are the lowest channel: 0 channel(88.1 MHz), middle channel: 9 channel(90.9MHz) and highest channel: 19 channel(107.9MHz)

## 7.2 Antenna Requirement

### Standard requirement

15.203 requirement:

For intentional device. According to 15.203, 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.

### EUT Antenna

The antenna is integrated on the main PCB and no consideration of replacement. The maximum gain of the antenna is 0.5 dBi.



**Test result: The unit does meet the FCC requirements.**

### 7.3 Occupied Bandwidth

**Test Requirement:** FCC Part 15 C section 15.239

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200kHz band shall lie wholly within the frequency range of 88-108MHz

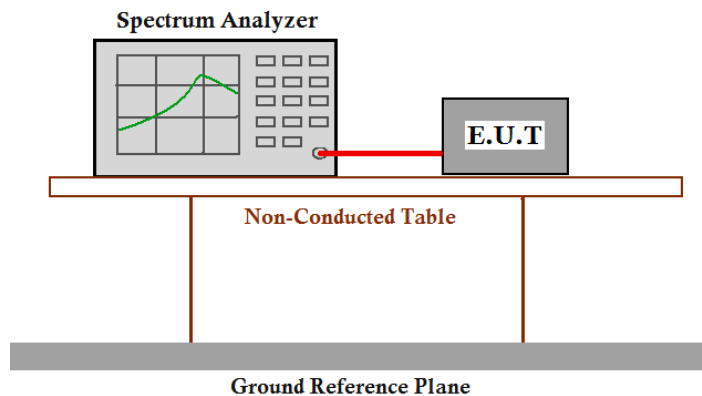
**Test Method:** ANSI C63.10: Clause 6.9.1

**Test Status:** Test the EUT in continuous transmitting mode at the lowest (88.1 MHz), middle (90.9 MHz) and highest (107.9 MHz) channel

**Test Signal:** 2.5 kHz sine wave at level 16 dB higher than that required to produce a frequency deviation of 75 kHz.

Sine wave level to produce frequency deviation of 75 kHz: 120mV=42dBmV, so the used sine wave level is 58dBmV.

**Test Configuration:**



**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: Span = approximately 2 to 3 times the 20dB bandwidth, centring on a fixed channel;
3. Set the spectrum analyzer: RBW  $\geq$  1% of the 20dB bandwidth VBW  $\geq$  RBW. Sweep = auto; Detector Function = Peak. Trace = Max Hold.
4. Mark the peak frequency and -20 dB points bandwidth.

**Test result:**

Test Channel	Bandwidth 20dB(KHz)	FL (MHz) or FH (MHz)	Lower Limit (MHz)	Higher Limit (MHz)
Lowest	85.371	88.063	> 88.0	N/A
Middle	82.565	N/A	N/A	N/A



**SGS-CSTC Standards Technical Services Co., Ltd.**  
**Guangzhou Branch**

Report No.: GZEM150400140701

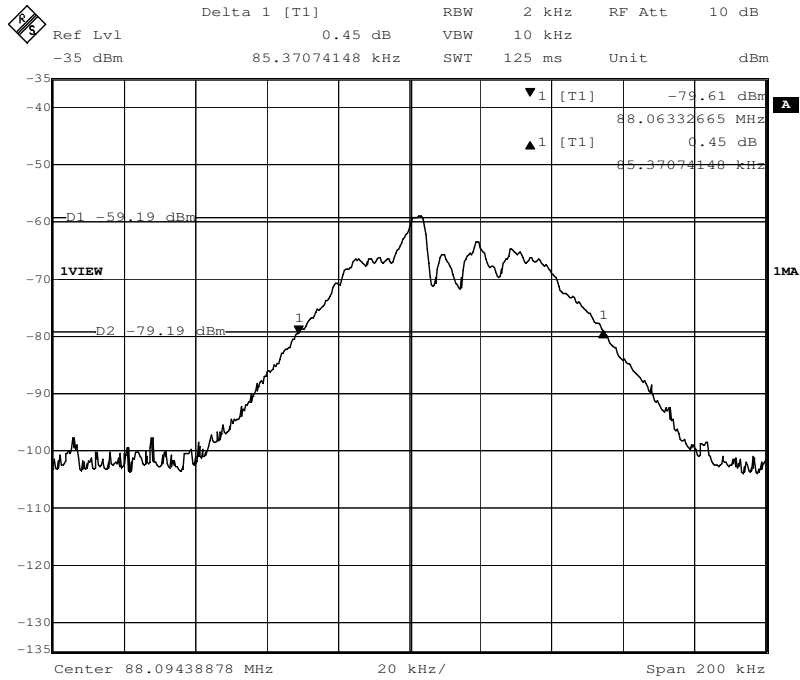
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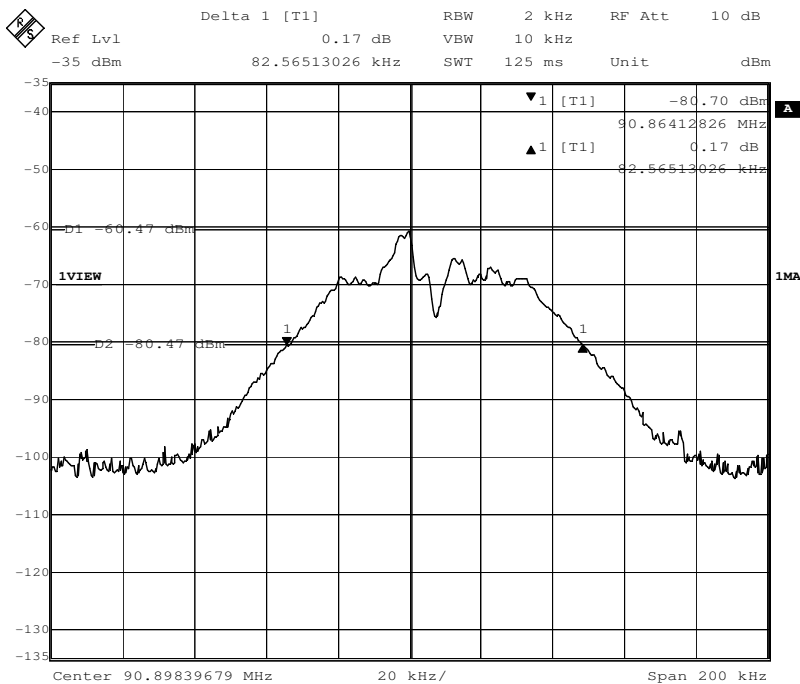
Highest	86.573	107.949	N/A	< 108.0
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**Result plot as follows:**

**Lowest Channel(88.1MHz):**

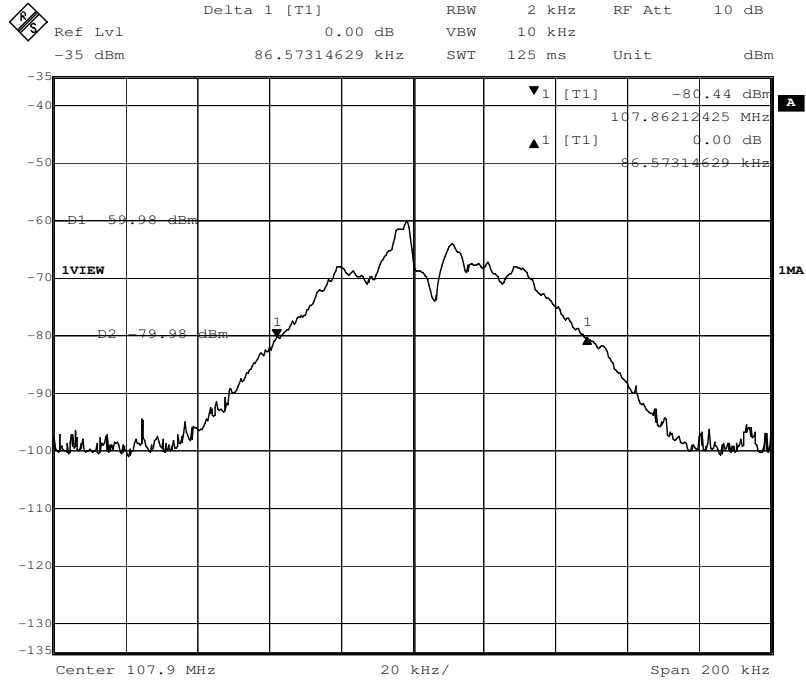


**Middle Channel(90.9MHz):**





Highest Channel(107.9MHz):





### 7.4 Field Strength of Fundamental & Radiated Spurious Emissions & Band Edge

<b>Test Requirement:</b>	FCC Part15 C section 15.239&209(a)
<b>Test Method:</b>	ANSI C63.10: Clause 6.4, 6.5 and 6.6
<b>Measurement Distance:</b>	3 m (Semi-Anechoic Chamber)
<b>Test Status:</b>	Test in transmitting mode.
<b>Test Signal:</b>	2.5 kHz sine wave at level 16 dB higher than that required to produce a frequency deviation of 75 kHz. Sine wave level to produce frequency deviation of 75 kHz: 120mV=42dBmV, so the used sine wave level is 58dBmV.

**Requirements:**

The field strength of emissions from intentional radiators operated under Section15.239 shall not exceed the following:	
Frequency Band (MHz)	Fundamental Emissions Lim it (dBuV/m ) at 3m
88~ 108	48 (Average)
88~ 108	68 (Peak)

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emissions limit in section 15.209(a)		
Frequencies (MHz)	Field Strength ( micorvolts /meter)	Measurement Distance (meters)
0.009~ 0.490	2400/F(KHz)	300
0.490~ 1.705	24000/F(KHz)	30
1.705~ 30.0	30	30
30~ 88	100	3
88~ 216	150	3
216~ 960	200	3
Above 960	500	3

Band edge emissions outside of the frequency bands shown in below table.	
Outside frequency band edge	Limit (dBuV/m)at 3m
Below 88MHz	40.0(QP)
Above 108MHz	43.5(QP)



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**Test Procedure:**

1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2) 30 MHz to 1 GHz emissions:

For testing performed with the bi-log type antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3) 1 GHz to 40 GHz emissions:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.

For testing performed with the horn antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

**Detector** For PK value:

: RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

For AV value:

For harmonic emissions:

Average = Peak value + 20log (Duty cycle),

For other unwanted emissions:

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW = 10Hz

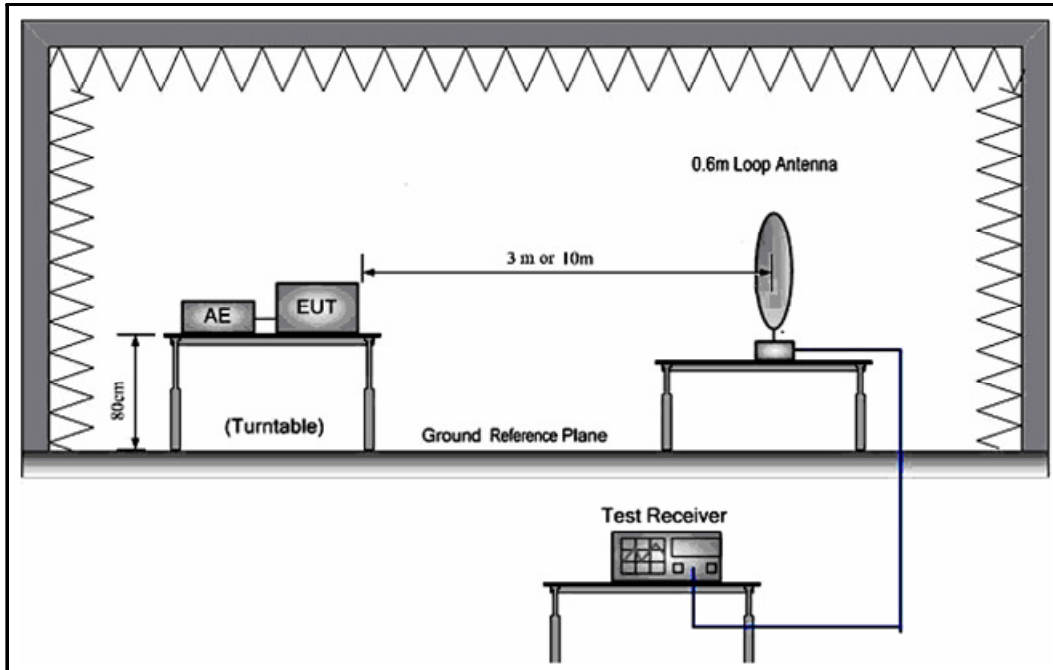
Sweep = auto

Detector function = peak

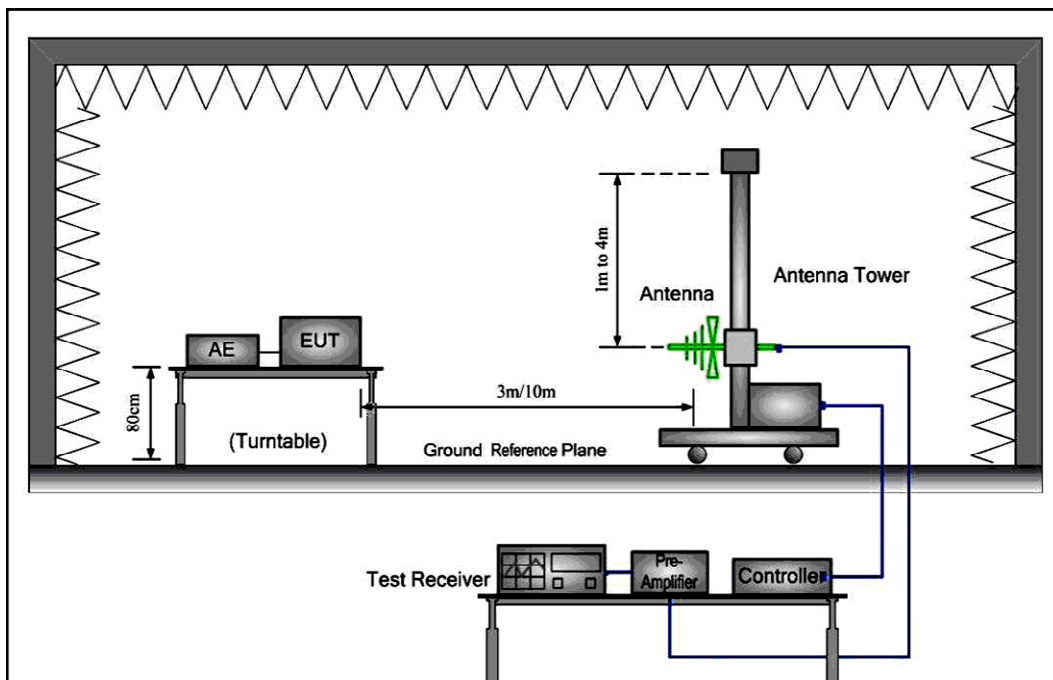
Trace = max hold

**Test Configuration:**

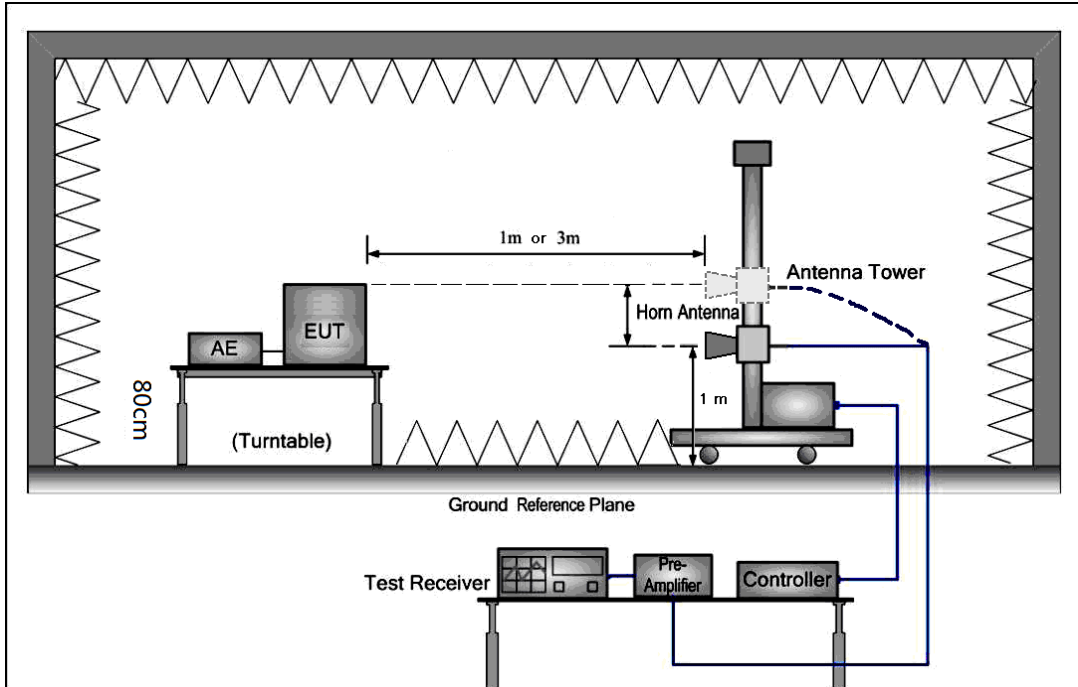
- 1) 9 kHz to 30 MHz emissions:



- 2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 2 GHz emissions:



**other emissions:**

The receive was scanned from the lowest frequency generated within the EUT to 5 GHz. 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. The worst case emissions were reported.

An initial pre-scan was performed in the 3 m 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.

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

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Peramplifier Factor}.$$

The following test results were performed on the EUT.

Since the peak emission level is lower than the average limit, the average emission level does not need to show.

Test the EUT in transmitting mode.:

**7.4.1 Fundamental emission:**

**Antenna polarization: Horizontal:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
88.10	50.11	9.05	1.30	31.00	29.46	68.0	-38.54	Peak
88.10	-	-	-	-	-	48.0	-	Average

**Antenna polarization: Vertical**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
88.10	44.13	9.05	1.30	31.00	23.48	68.0	-44.52	Peak
88.10	-	-	-	-	-	48.0	-	Average

**Antenna polarization: Horizontal:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
90.90	47.77	9.40	1.31	31.00	27.48	68.0	-40.52	Peak
90.90	-	-	-	-	-	48.0	-	Average

**Antenna polarization: Vertical**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
90.90	45.19	9.40	1.31	31.00	24.82	68.0	-43.18	Peak
90.90	-	-	-	-	-	48.0	-	Average

**Antenna polarization: Horizontal:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
107.90	46.19	10.88	1.42	31.01	27.48	68.0	-40.52	Peak
107.90	-	-	-	-	-	48.0	-	Average

**Antenna polarization: Vertical**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
107.90	47.44	10.88	1.42	31.01	28.73	68.0	-39.27	Peak
107.90	-	-	-	-	-	48.0	-	Average



### 7.4.2 Harmonic and other spurious emissions

#### Test the lowest Channel in transmitting status

9 kHz~30 MHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

#### 88.10 MHz Vertical:

Peak scan

Level (dB $\mu$ V/m)

Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
41.860	27.64	12.73	1.01	31.01	10.37	40.00	-29.63	QP
60.069	25.26	12.67	1.10	31.00	8.03	40.00	-31.97	QP
88.100	44.13	9.05	1.30	31.00	23.48	43.50	-20.02	Peak
144.335	28.89	13.59	1.59	31.05	13.02	43.50	-30.48	QP
276.124	28.97	12.72	2.33	31.01	13.01	46.00	-32.99	QP
447.982	30.23	16.33	2.94	30.96	18.54	46.00	-27.46	QP
684.745	27.99	19.93	3.47	30.90	20.49	46.00	-25.51	QP



**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
41.277	23.78	12.72	1.01	31.01	6.50	40.00	-33.50	QP
59.025	20.99	12.63	1.10	31.00	3.72	40.00	-36.28	QP
88.100	50.11	9.05	1.30	31.00	29.46	43.50	-14.04	Peak
145.351	22.78	13.67	1.59	31.06	6.98	43.50	-36.52	QP
269.428	23.87	12.52	2.31	31.02	7.68	46.00	-38.32	QP
419.108	25.10	15.67	2.83	30.92	12.68	46.00	-33.32	QP
636.134	24.89	19.36	3.27	30.90	16.62	46.00	-29.38	QP



**Test the middle Channel in transmitting status**

9 kHz~30 MHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

**90.9MHz Vertical:**

Peak scan

Level (dB $\mu$ V/m)

Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
53.693	31.36	12.44	1.10	31.00	13.90	40.00	-26.10	QP
90.220	45.19	9.33	1.30	31.00	24.82	43.50	-18.68	Peak
144.842	30.52	13.63	1.59	31.06	14.68	43.50	-28.82	QP
171.393	31.58	13.23	1.81	31.09	15.53	43.50	-27.97	QP
245.090	31.10	11.81	2.10	31.05	13.96	46.00	-32.04	QP
281.995	31.18	12.85	2.35	31.01	15.37	46.00	-30.63	QP
489.027	31.90	16.97	3.08	30.99	20.96	46.00	-25.04	QP



**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
56.792	30.40	12.48	1.10	31.00	12.98	40.00	-27.02	QP
90.900	47.77	9.40	1.31	31.00	27.48	43.50	-16.02	Peak
139.851	28.03	13.36	1.55	31.05	11.89	43.50	-31.61	QP
187.096	28.21	11.44	1.87	31.09	10.43	43.50	-33.07	QP
281.995	29.50	12.85	2.35	31.01	13.69	46.00	-32.31	QP
359.186	30.15	14.37	2.67	30.93	16.26	46.00	-29.74	QP
477.169	30.12	16.85	3.06	30.98	19.05	46.00	-26.95	QP





**Test the highest Channel in transmitting status**

9 kHz~30 MHz Field Strength of Unwanted Emissions .Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

**107.9MHz Vertical:**

Peak scan

Level (dBµV/m)

Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBµV	dB/m	dB	dB	dBµV/m	dBµV/m	dB	
52.945	28.10	12.46	1.10	31.00	10.66	40.00	-29.34	QP
65.114	28.59	12.34	1.15	31.00	11.08	40.00	-28.92	QP
107.134	47.44	10.88	1.42	31.01	28.73	43.50	-14.77	Peak
160.909	27.17	13.84	1.75	31.08	11.68	43.50	-31.82	QP
242.525	29.24	11.77	2.08	31.05	12.04	46.00	-33.96	QP
345.595	30.59	14.16	2.56	30.94	16.37	46.00	-29.63	QP
494.199	29.66	17.01	3.09	31.00	18.76	46.00	-27.24	QP



**Horizontal:**

Peak scan

Level (dB $\mu$ V/m)

Quasi-peak measurement

Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
66.266	28.80	12.05	1.16	31.00	11.01	40.00	-28.99	QP
107.134	46.19	10.88	1.42	31.01	27.48	43.50	-16.02	Peak
152.130	28.24	13.90	1.68	31.07	12.75	43.50	-30.75	QP
207.123	27.16	10.50	1.92	31.09	8.49	43.50	-35.01	QP
317.701	30.09	13.60	2.44	30.98	15.15	46.00	-30.85	QP
468.876	31.16	16.66	3.04	30.98	19.88	46.00	-26.12	QP
675.208	29.16	19.82	3.45	30.90	21.53	46.00	-24.47	QP



1~2 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

**Antenna polarization: Horizontal**

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Remark
1222.743	25.15	5.63	38.37	26.56	18.97	54	Average
1222.743	25.15	5.63	38.37	30.32	22.73	74	Peak

**Antenna polarization: Vertical**

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Remark
1381.656	25.42	5.94	38.34	27.02	20.04	54	Average
1381.656	25.42	5.94	38.34	30.88	19.90	74	Peak



### 7.4.3 Band Edge

QP Measurement:							
Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
88.0	9.05	1.3	31	25.00	4.35	40.00	V
108.0	10.88	1.42	31.01	28.59	10.23	43.50	V
88.0	9.05	1.3	31	26.45	5.8	40.00	H
108.0	10.88	1.42	31.01	28.33	9.62	43.50	H

Remark:

- 1). 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 Loss – Preamplifier Factor.
- 2). As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
- 3). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

**Test result: The unit does meet the FCC requirements.**

**--End of Report--**