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FCC PART 74 SUBPART H TEST REPORT

FCC ID: W9Q-FD-100A

Report Reference No.....:	**VITE1003012R**
Compiled by (position+printed name+signature)..:	File administrators Tracy Qi
Supervised by (position+printed name+signature)..:	Test Engineer Tracy Qi
Approved by (position+printed name+signature)..:	Manager Andy Zhang
Date of issue.....:	Mar 23, 2010
Testing Laboratory Name .....:	**Shenzhen VITE Technology Co., Ltd**
Address.....:	Suite 2123, Building 4, Hongfa Centre, Central Area Baoan, Baoan District, Shenzhen, Guangdong, 518101, P.R. China
Applicant's name.....:	**First Audio Manufacturing (Hong Kong) Ltd.**
Address.....:	Flat 1-4. 3/F., Block A, Wing Kut Industrial Building 608 Catle Peak Road, Kowloon, Hong Kong
Test specification:	
Standard .....:	**FCC PART 74H, 2008**
TRF Originator.....:	Shenzhen VITE Technology Co., Ltd
Master TRF.....:	Dated 2009-03

Test item description ..... :	Wireless Microphone
Trade Mark .....:	DJ-Tech
Model/Type reference.....:	FD-100A
Listed Models .....:	/
Modulation……..:	FM
Emission Type……..:	9K4F3E
Power Supply……..:	DC 9 V
Maximum Transmitter Power(ERP)…:	0.00005W
Operating Frequency Range…..……:	186.5 MHz
Result.....:	**Positive**

T E S T R E P O R T

Test Report No. :	VITE1003012R	Mar 23, 2010 Date of issue

Equipment under Test	:	Wireless Microphone
Model /Type	:	FD-100A
Listed Models	:	/
Applicant	:	First Audio Manufacturing (Hong Kong) Ltd.
Address	:	Flat 1-4. 3/F., Block A, Wing Kut Industrial Building 608 Catle Peak Road, Kowloon, Hong Kong
Manufacture	:	First Audio Manufacturing(Guang Zhou)Ltd.
Address	:	Tanbu Fidek Industrial Zone,Huadu District,Guangzhou City, China

Test Result according to the standards on page 4:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

FCC PART 74—EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBU-TIONAL SERVICES

TIA/EIA 603: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample : Mar 11, 2010

Testing commenced on : Mar 12, 2010

Testing concluded on : Mar 22, 2010

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : o 120V / 60 Hz o 115V / 60Hz
o 12 V DC o 24 V DC
● Other (specified in blank below)

DC 9V from battery

2.3. Short description of the Equipment under Test (EUT)

Wireless Microphone

For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.4. EUT operation mode

The EUT has been tested under typical operating condition.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

o - supplied by the manufacturer

o - supplied by the lab

o Power Cable	Length (m) :	/
	Shield :	/
	Detachable :	/
o Multimeter	Manufacturer :	/
	Model No. :	/

2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **W9Q-FD-100A** filing to comply with the FCC Part 74 subpart H Rules.

2.7. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Bontek Compliance Testing Laboratory Ltd
1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

The sites are constructed in conformance with the requirements
of ANSI C63.7, ANSI C63.4 (2003) and CISPR Publication 22.

3.2. Test Facility

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

FCC-Registration No.: 338263

Bontek Compliance Testing Laboratory 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 338263, March 24, 2008.

IC Registration No.: 7631A

The 3m alternate test site of Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on March, 2008.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System

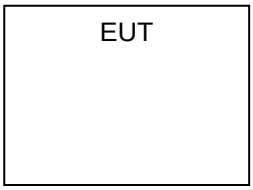


Table 2-1 Equipment Used in Tested System

No.	Product	Manufacturer	Model No.	Serial No.	

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Bontek Compliance Testing Laboratory Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Bontek laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6. Equipments Used during the Test

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2009/04
2	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2009/04
3	RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	2009/04
4	TURNTABLE	ETS	2088	2149	2009/04
5	ANTENNA MAST	ETS	2075	2346	2009/04
6	EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	N/A	2009/04

3.7. General Technical Requirements and Summary of Test Results

The EUT has been tested according to the following specifications:

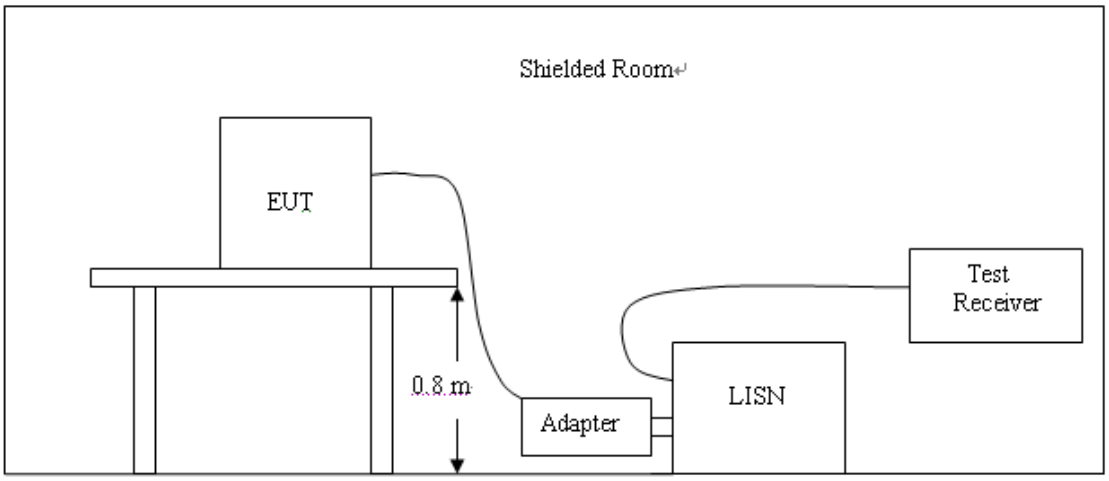
Standard	Test Items	Application	Requirement	Result
Section 74.861 (e)	Disturbance Voltage at The Mains Terminals	N/A, without AC power supply	Refer to Section 15.207	Compliant
	Maximum Transmitter Power	√	less than 50mW	Compliant
	Peak Frequency Deviation	√	less than 75 KHz	Compliant
	Frequency Tolerance	√	less than 0.005%	Compliant
	Occupied Bandwidth	√	less than 200KHz	Compliant
	Unwanted Radiation	√	Refer to Section 74.861(e)-6	Compliant

√ Indicates that the test is applicable

4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
2 Support equipment, if needed, was placed as per ANSI C63.4.
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4 The EUT received DC9 V power from the battery.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

TEST RESULTS

Owing to the DC operation of EUT, this test item is not performed.

4.2. Occupied Bandwidth and Emission Mask

PROVISIONS APPLICABLE

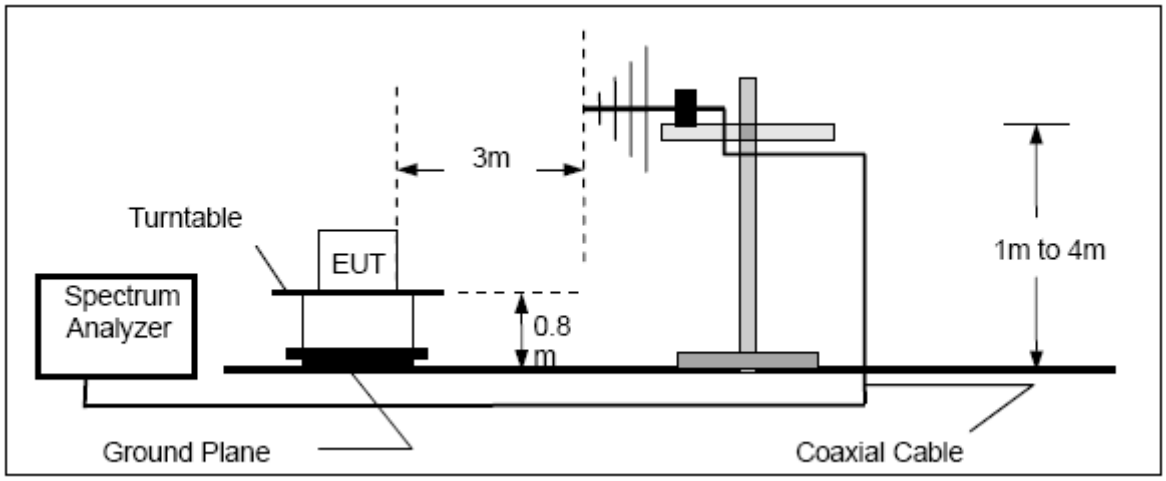
According to FCC 2.1049 (c) (1), for radiotelephone transmitter, other than single sideband or independent sideband transmitter, when modulated by a 2.5 kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. According to §74.861(e)(5), the operating bandwidth shall not exceed 200 kHz.

MEASUREMENT PROCEDURE

According to TIA-603 for additional Test Set-Up procedures, the occupied bandwidth of emission was measured with a Spectrum Analyzer connected to the antenna terminal while EUT was operating in 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. Then mark the –26dB Bandwidth and record it.

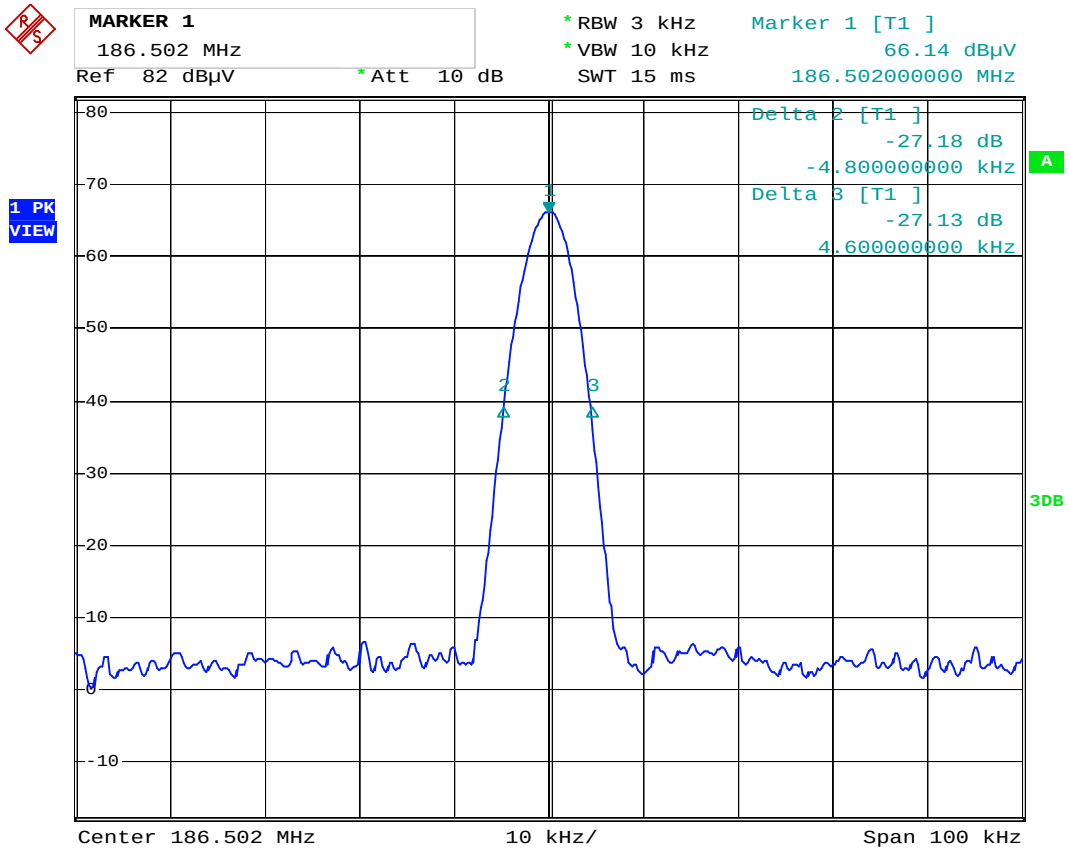
1). The EUT was placed on a turn table which is 0.8m above ground plane.
2). Set EUT as normal operation
3). Set SPA Center Frequency = fundamental frequency , RBW=3 KHz,VBW= 10 KHz, Span =100 KHz.
4). Set SPA Max hold. Mark peak, -26dB.

TEST SETUP BLOCK DIAGRAM



TEST RESULTS:

The graph as below, represents the emissions take for this device. Occupied Bandwidth: 9.4 KHz.



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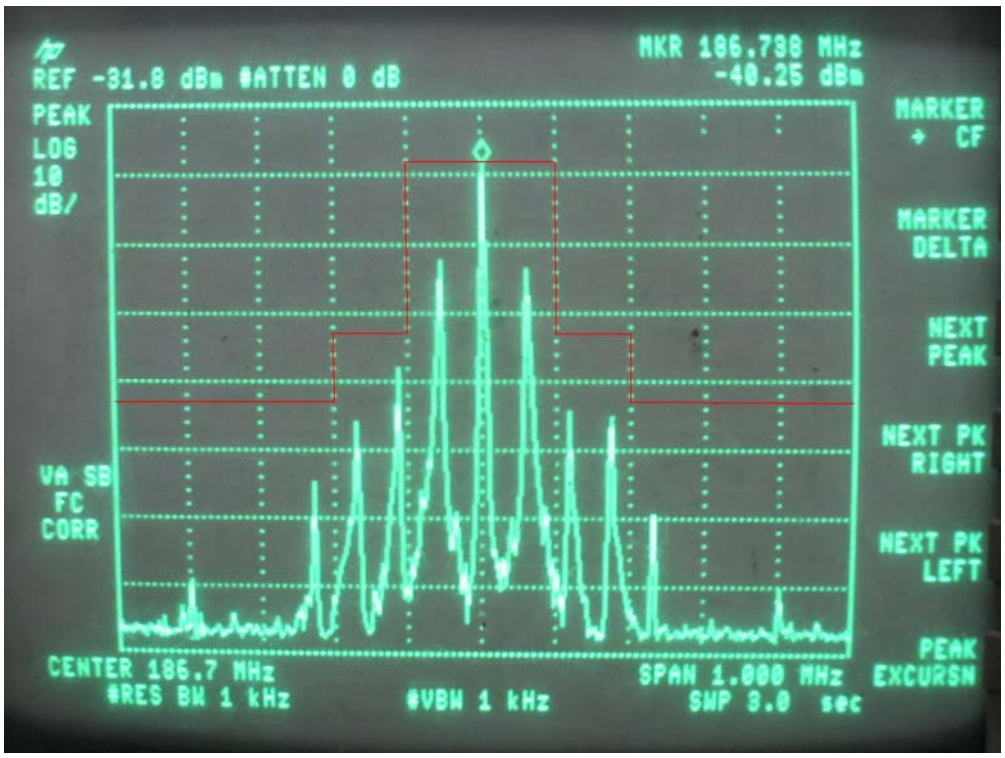
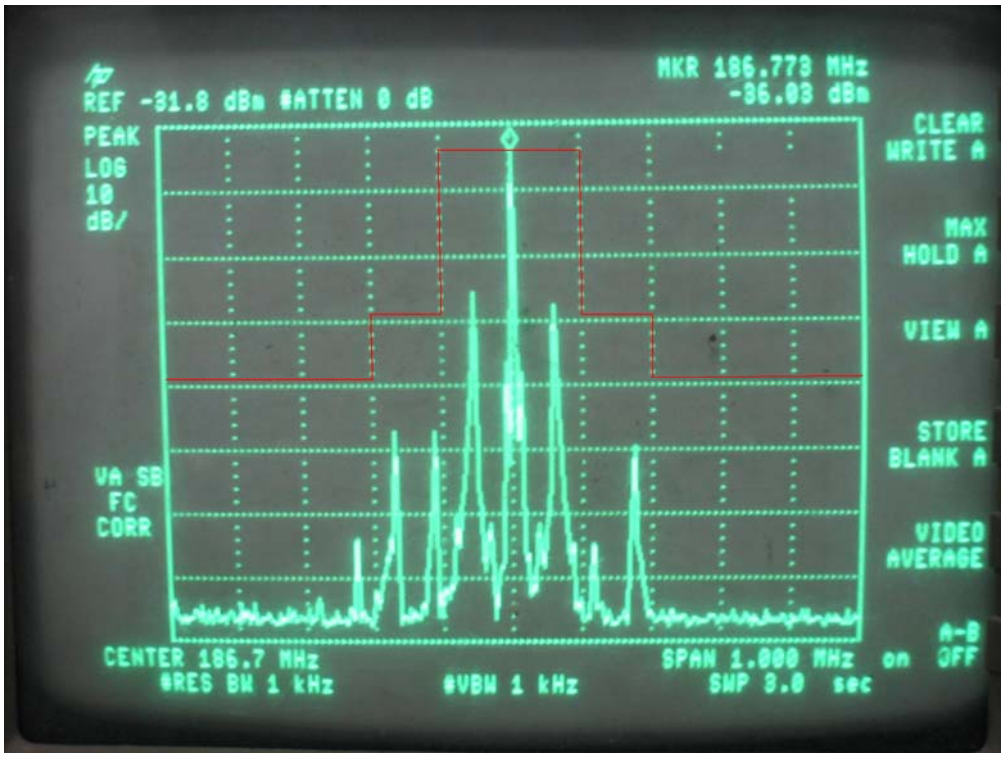
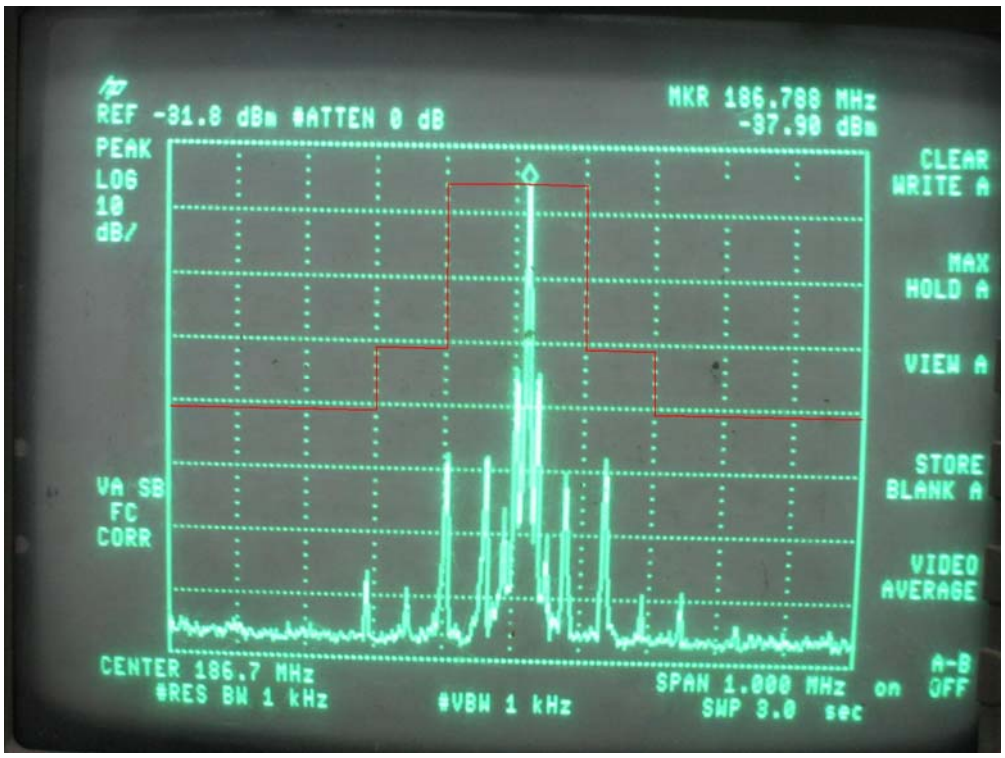
Emission Mask: input with 5 kHz AF, 50% modulation + 16dB.



Emission Mask: input with 10 kHz AF, 50% modulation + 16dB.



Emission Mask: input with 15 kHz AF, 50% modulation + 16dB.



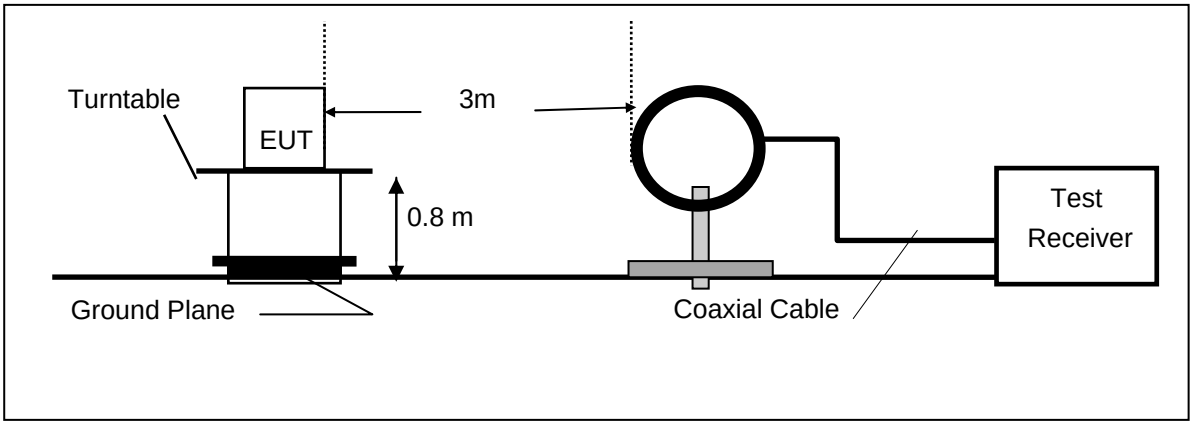
4.3. Radiated Spurious Emission Test

PROVISIONS APPLICABLE

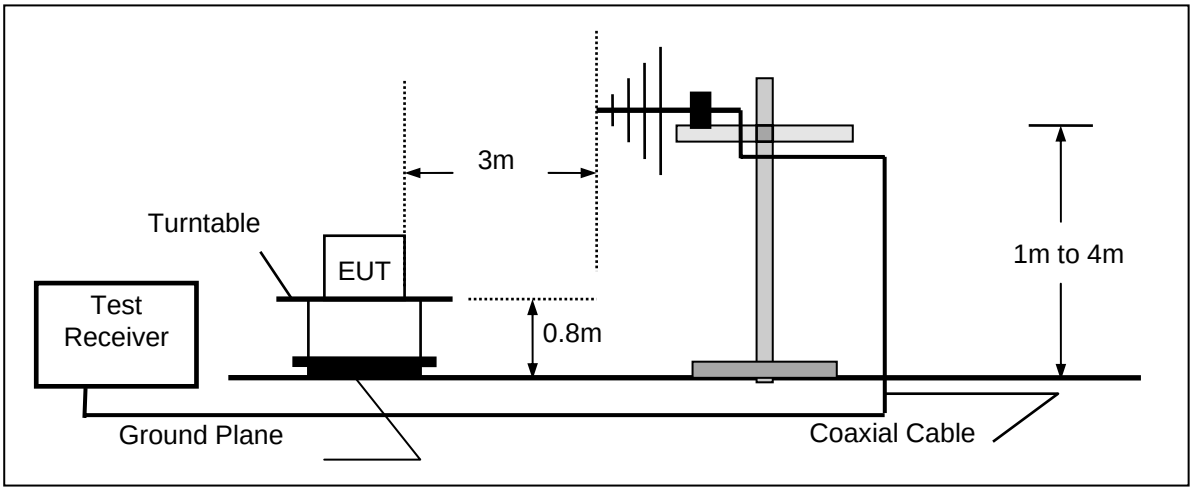
According to FCC Part 74 Section 74.861(e) – 1: The power of the measured unmodulated carrier power at the output of the transmitter power amplifier may not exceed 50mW

TEST CONFIGURATION

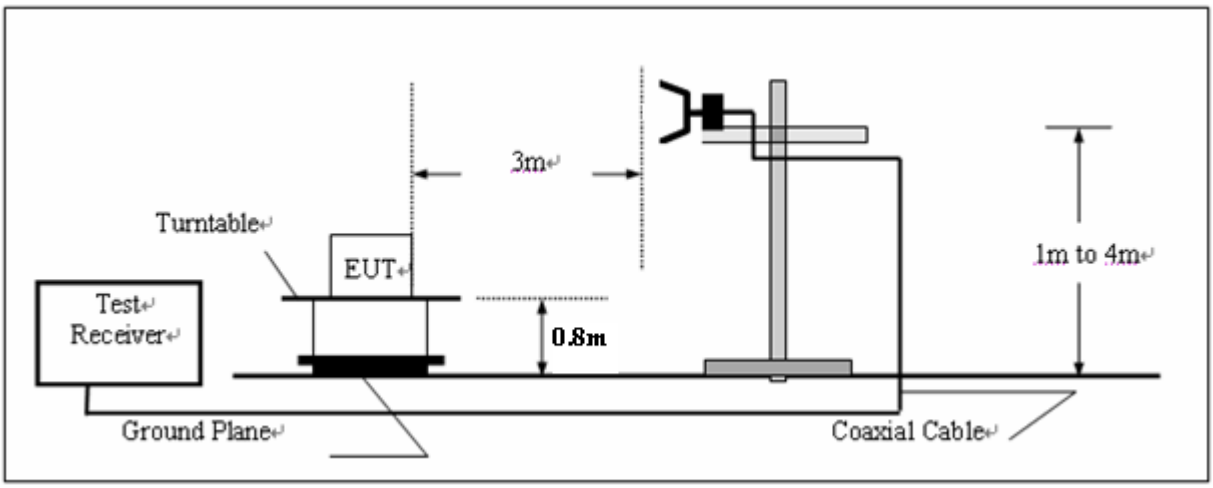
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.

2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.

3). The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as in dicated on the report. The detector selection is based on how close the emission level was approaching the limit.

4). The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

5). The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.

6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

7). The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.

8). The maximum signal level detected by the measuring receiver shall be noted.

9). The measurement shall be repeated with the test antenna set to horizontal polarization.

10). Replace the antenna with a proper Antenna (substitution antenna).

11). The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.

12). The substitution antenna shall be connected to a calibrated signal generator.

13). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

14). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

15). The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

16). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

17). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization

TEST RESULTS

Frequency (MHz)	Reading level (dBm)	Antenna Polarization	Transd (dB)	ERP (dBm)	Limit (W/dBm)
186.50	-28.6	H	15.6	-13.00	0.05/17
186.50	-46.1	V	15.6	-30.50	0.05/17

Radiated spurious emissions:

Frequency (MHz)	Reading level (dBm)	Antenna Polarization	Transd (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
373.00	***	H		--	-13	
***	--	H			-13	
373.00	***	V		--	-13	
***	--	V			-13	

***Note:**

***** means that the emission level is too low to be measured or at least 20 dB down than the limit.**

4.4. Modulation Characteristics

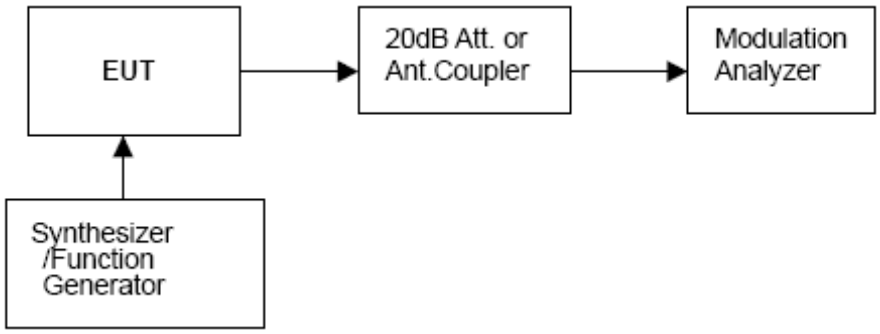
PROVISIONS APPLICABLE

a).According to CFR 47 section 2.1047(a), for Voice Modulation Communication Equipment, the frequency response of the audio modulation circuit over a range of 100 to 5000Hz shall be measured.
b). According to CFR 47 section 74.861(e)-3, any form of modulation may be used. A maximum deviation of ± 75 KHz is permitted when frequency modulation is employed.

MEASUREMENT METHOD

Modulation Limit
1). Configure the EUT as shown in figure 1, adjust the audio input for60% of rated system deviation at 1KHz using this level as a reference (0dB) and vary the input level from –20 to +20dB. Record the frequency deviation obtained as a function of the input level.
2). Repeat step 1 with input frequency changing to 300, 1000, 3000 and 14000Hz in sequence.

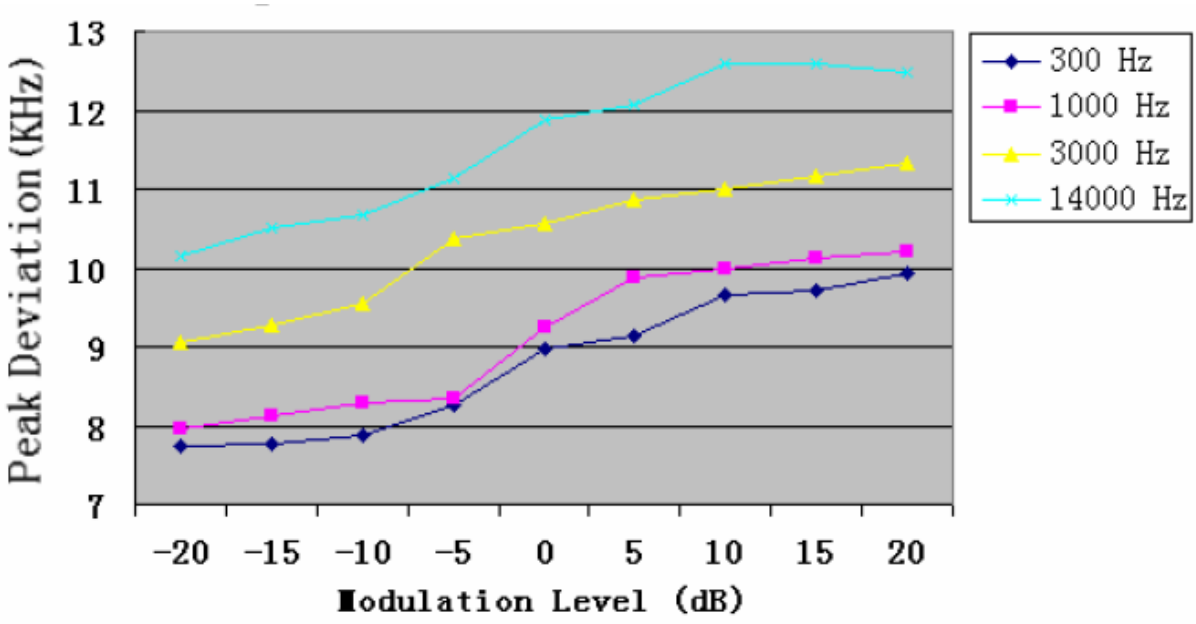
Audio Frequency Response
1). Configure the EUT as shown in figure 1.
2). Adjust the audio input for 20% of rated system deviation at 1 KHz using this level as a reference (0dB).
3). Vary the Audio frequency from 100 Hz to 30 KHz and record the frequency deviation.
4) Audio Frequency Response =20log10 (Deviation of test frequency/Deviation of 1 KHz reference).



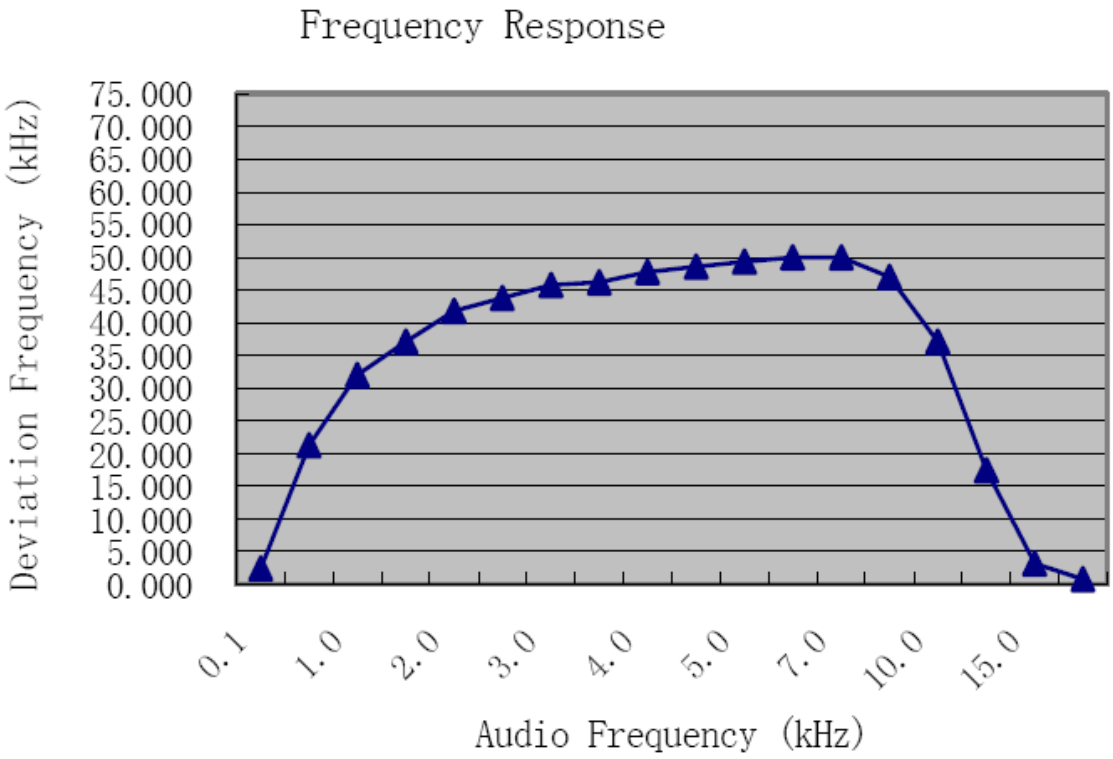
TEST RESULTS:

a). Modulation Limit:

Modulation Level (dB)	Peak Freq. Deviation At 300 Hz (KHz)	Peak Freq. Deviation At 1000 Hz (KHz)	Peak Freq. Deviation At 3000 Hz (KHz)	Peak Freq. Deviation At 14000 Hz (KHz)
-20	7.739	7.961	9.059	10.143
-15	7.764	8.125	9.284	10.522
-10	7.894	8.277	9.549	10.671
-5	8.252	8.345	10.384	11.149
0	8.975	9.249	10.562	11.876
+5	9.136	9.867	10.877	12.082
+10	9.647	9.978	11.007	12.602
+15	9.715	10.114	11.174	12.690
+20	9.942	10.216	11.334	12.489



b). Audio Frequency Response:



4.5. Frequency Stability Measurement

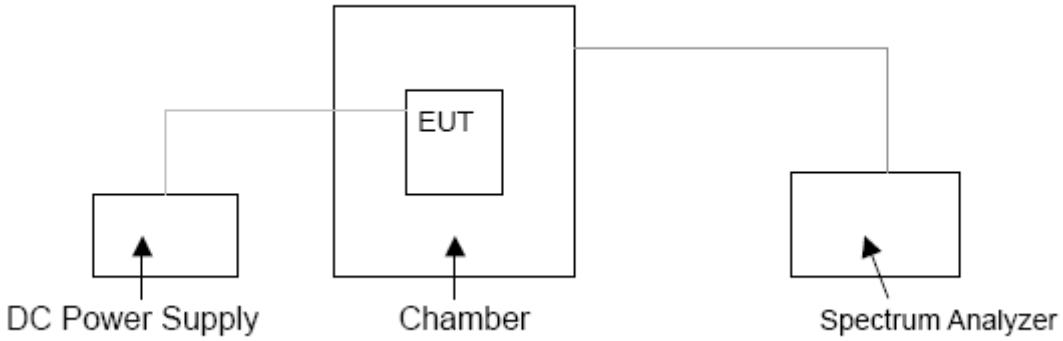
PROVISIONS APPLICABLE

a). According to FCC Part 2 Section 2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30℃ to +50℃ centigrade.
b). According to FCC Part 2 Section 2.1055 (a)(2), for battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
c). According to FCC Part 74 Section 74.861(e)-4, the frequency tolerance must be maintained within 0.005%.

MEASUREMENT PROCEDURE

1). Setup the configuration per figure 1 for frequencies measurement inside an environment chamber, Install new battery in the EUT.
2). Turn on EUT and set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1KHz and Video Resolution Bandwidth to 1KHz and Frequency Span to 50KHz. Record this frequency as reference frequency.
3). Set the temperature of chamber to 50℃. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.
4). Repeat step 2 with a 10℃ decreased per stage until the lowest temperature -30℃ is measured, record all measured frequencies on each temperature step.

TEST SETUP BLOCK DIAGRAM



TEST RESULTS:

a. Frequency stability versus input voltage (battery operation end point voltage is 6.1 V)

Reference Frequency (MHz)	Frequency Measured at end point	Frequency Deviation (%)	Limit (%)
186.50000	186.50244	0.0013	0.005

b. Frequency stability versus ambient temperature

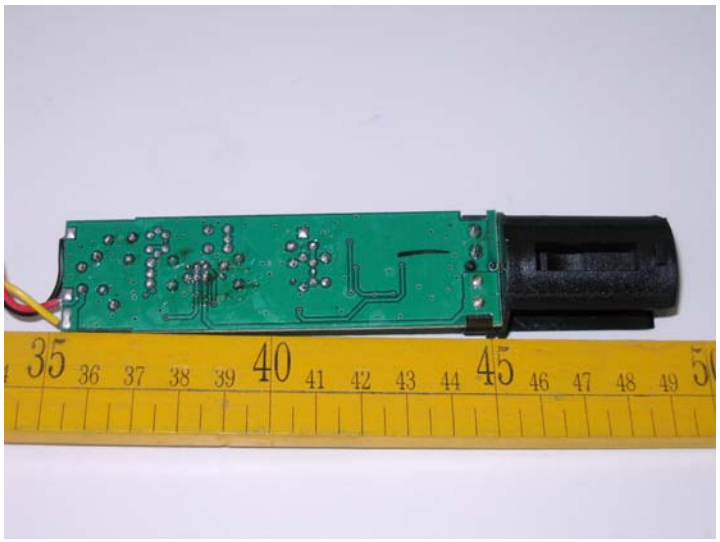
Reference Frequency: 186.50000 MHz			Limit: 0.005%
Environment Temperature (℃)	Power Supply (DC)	Frequency deviation measured with time Elapse (10 minutes)	
		(MHz)	%
50	9.0V	186.50440	0.0024
40	9.0V	186.50330	0.0018
30	9.0V	186.50320	0.0017
20	9.0V	186.50000	0.0000
10	9.0V	186.50320	0.0017
0	9.0V	186.50430	0.0023
-10	9.0V	186.50440	0.0024
-20	9.0V	186.50545	0.0029
-30	9.0V	186.50545	0.0029

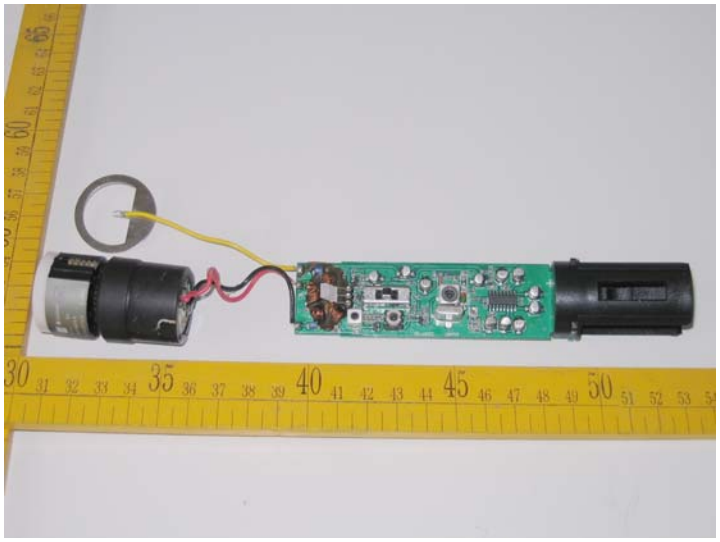
5. Test Setup Photos of the EUT

6. External and Internal Photos of the EUT

External Photos

Internal Photos





.....End of Report.....