FCC Test Report

Report No.: AGC055110601-4F1

FCC ID	:	ZRIUHF-5200
PRODUCT DESIGNATION	**:**	Wireless Microphone
BRAND NAME	**:**	GEMINI
MODEL NAME	**:**	UHF-5200
CLIENT	**:**	PROAUDIO ELECTRONICS CO.,LIMITED
DATE OF ISSUE	**:**	Jul.20, 2011
STANDARD(S)	**:**	FCC Part 15 Rules

Attestation of ***G***lobal ***C***ompliance Co., Ltd.

TABLE OF CONTENTS

1. VERIFICATION OF COMPLIANCE

Applicant:	PROAUDIO ELECTRONICS CO.,LIMITED
	Office No.3 10/F Witty Commercial Building 1A-1L Tung Choi Street,Mongkok,Kowloon Hong Kong
Manufacturer:	PROAUDIO ELECTRONICS CO.,LIMITED
	Office No.3 10/F Witty Commercial Building 1A-1L Tung Choi Street,Mongkok,Kowloon Hong Kong
Product Designation:	Wireless Microphone
Brand name:	GEMINI,PROAUDIO
Model Name:	UHF-5200,UHF-6200,UHF-8200
Receiving Frequency band:	669.075 MHz to 697.95 MHz
Model difference	All the Same except for model name and brand name
FCC ID:	ZRIUHF-5200
Measurement Procedure:	ANSI C63.4: 2003
File Number:	AGC055110601-4F1
Date of test:	Jul.14~ Jul.18, 2011
Deviation:	None
Condition of Test Sample:	Normal

The above equipment was tested by Attestation Of Global Compliance Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Prepared By: Curoky Chen Jul.20,2011

Checked By: Forrest Lei Jul.20,2011

Authorized By: Solger Zhang Jul.20,2011

2. PRODUCT INFORMATION

Housing Type: Plastic

EUT Rating Voltage: DC 12V by adapter

Adapter Input AC100~240V,50/60Hz

Adapter Output DC12V,500mA

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Q'TY**	**Cable**	**Tested with**
Antenna	2	N/A	2
DC Input	1	N/A	1
AF Out	1	1.1m,unshield	1
BALANCED	2	N/A	N/A

3. TEST FACILITY

Facility Attestation of Global Compliance Co., Ltd.

Location: 1F, No.2 Building, Huafeng No.1 Technical, Industrial Park, Sanwei, Xixiang, Baoan District, Shenzhen, China

Description: The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2003.

Site Filing: The FCC Registration Number is 259865

Instrument Tolerance: All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement.

4. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Speaker	N/A	T31	N/A	N/A	1.3m,unshield

**Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

5. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices.
2. Power on the EUT, the EUT begins to work.
3. Make sure the EUT operates normally during the test.

Test Mode

1 Receiving

6 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.107	Conduction Emission	Compliant
§15.109	Radiated Emission	Compliant

7. FCC LINE CONDUCTED EMISSION TEST

7.1. TEST EQUIPMENT OF LINE CONDUCTED EMISSION TEST

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4440A	N/A	06/27/2011	06/26/2012
EMI Test Receiver	H.P.	8546A	N/A	06/27/2011	06/26/2012
LISN	EMCO	3825/2	N/A	06/27/2011	06/26/2012

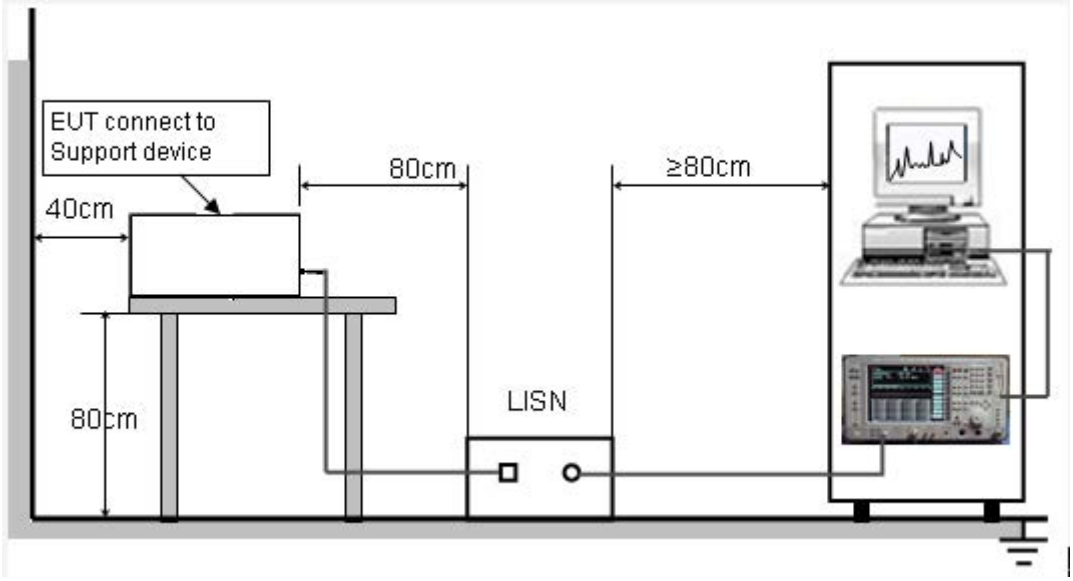
7.2 .LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

**Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

7.3. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



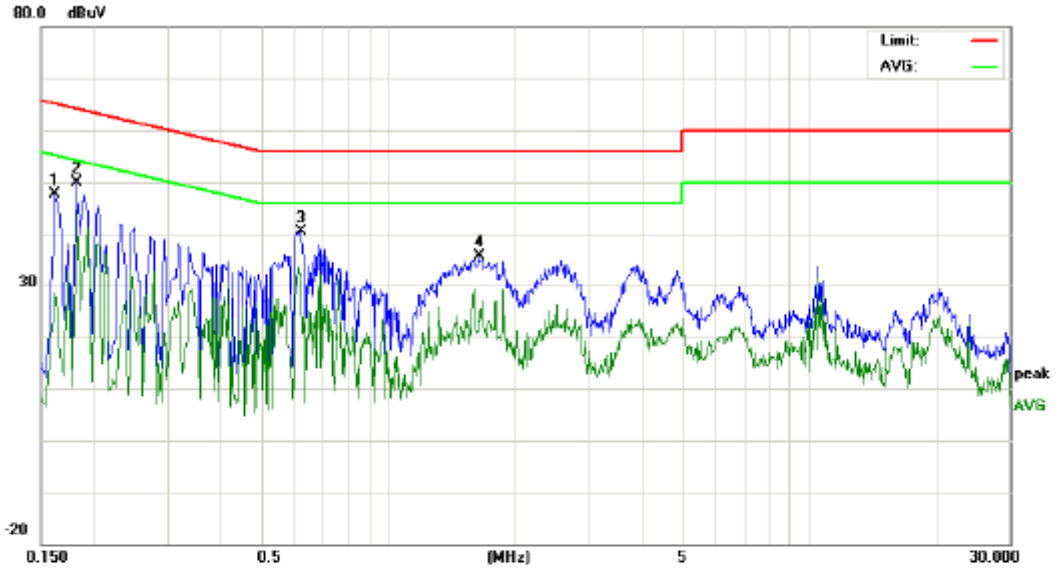
7.4. PROCEDURE OF LINE CONDUCTED EMISSION TEST

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When 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 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
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 AC120V power from LISN. All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
5) 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.
6) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
7) During the above scans, the emissions were maximized by cable manipulation.
8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
9) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

The test data of the worst case condition(s) was reported on the Summary Data page.

7.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION - L



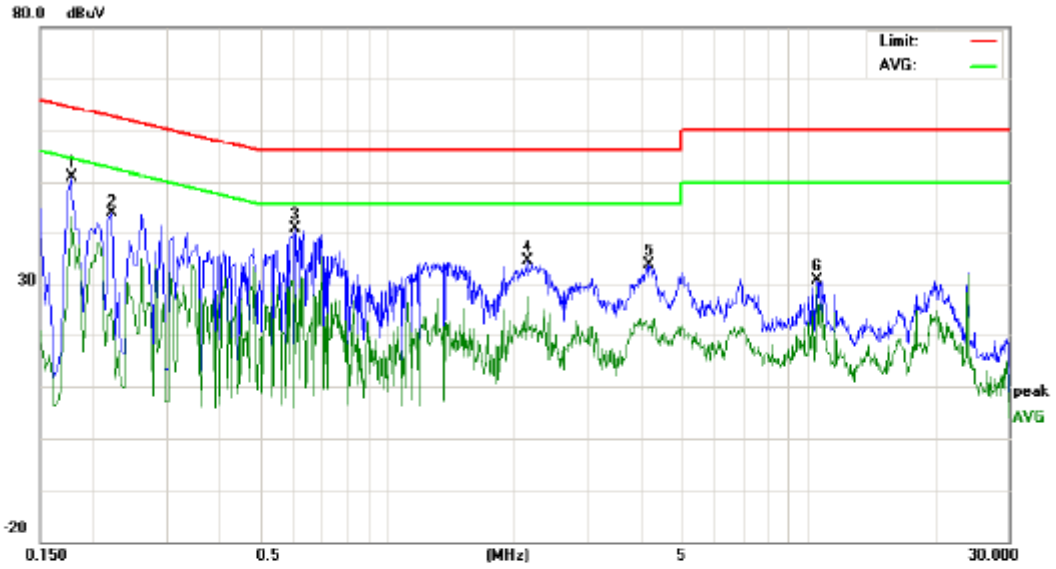
Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: Wireless Microphone
M/N: UHF-5200
Mode: Receiving
Note:

Phase: L1
Power: AC 120V/60Hz

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1620	37.37		18.43	10.17	47.54		28.60	65.36	55.36	-17.82	-26.76	P	
2	0.1819	39.72		34.20	10.20	49.92		44.40	64.39	54.39	-14.47	-9.99	P	
3	0.6220	30.00		21.66	10.32	40.32		31.98	56.00	46.00	-15.68	-14.02	P	
4	1.6460	25.34		14.78	10.33	35.67		25.11	56.00	46.00	-20.33	-20.89	P	

LINE CONDUCTED EMISSION – N



Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: Wireless Microphone(Receiver)
M/N: UHF-5200
Mode: Receiving
Note:

Phase: N
Power: AC 120V/60Hz

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1780	40.72		32.59	10.19	50.91		42.78	64.57	54.57	-13.66	-11.79	P	
2	0.2220	33.49		14.83	10.24	43.73		25.07	62.74	52.74	-19.01	-27.67	P	
3	0.6060	30.42		16.18	10.31	40.73		26.49	56.00	46.00	-15.27	-19.51	P	
4	2.1660	24.08		17.07	10.29	34.37		27.36	56.00	46.00	-21.63	-18.64	P	
5	4.2180	23.42		10.48	10.33	33.75		20.81	56.00	46.00	-22.25	-25.19	P	
6	10.5338	20.41		19.28	10.10	30.51		29.38	60.00	50.00	-29.49	-20.62	P	

8. FCC RADIATED EMISSION TEST

8.1. TEST EQUIPMENT OF RADIATED EMISSION

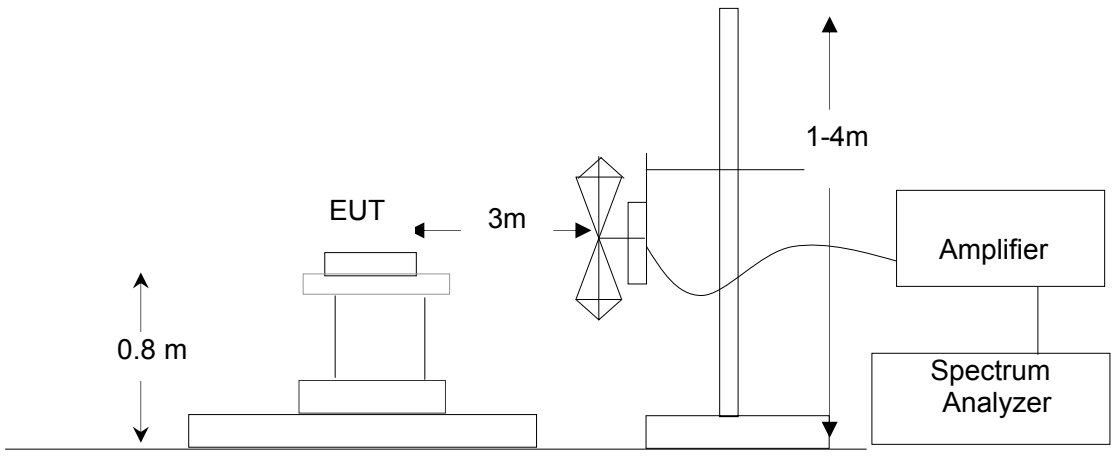
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
SPECTRUM ANALYZER	AGILENT	E4440A	US41421290	06/27/2011	06/26/2012
ANTENNA	A.H.	SAS-521-4	128	06/27/2011	06/26/2012
HORN ANTENNA	EM	EM-AH-10180	N/A	06/27/2011	06/26/2012
AMPLIFIER	EM	EM30180	0607030	06/27/2011	06/26/2012
POSITIONING CONTROLLER	MF	MF-7802	MF780208147	06/27/2011	06/26/2012

8.2. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

**Note: The lower limit shall apply at the transition frequency.

8.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST

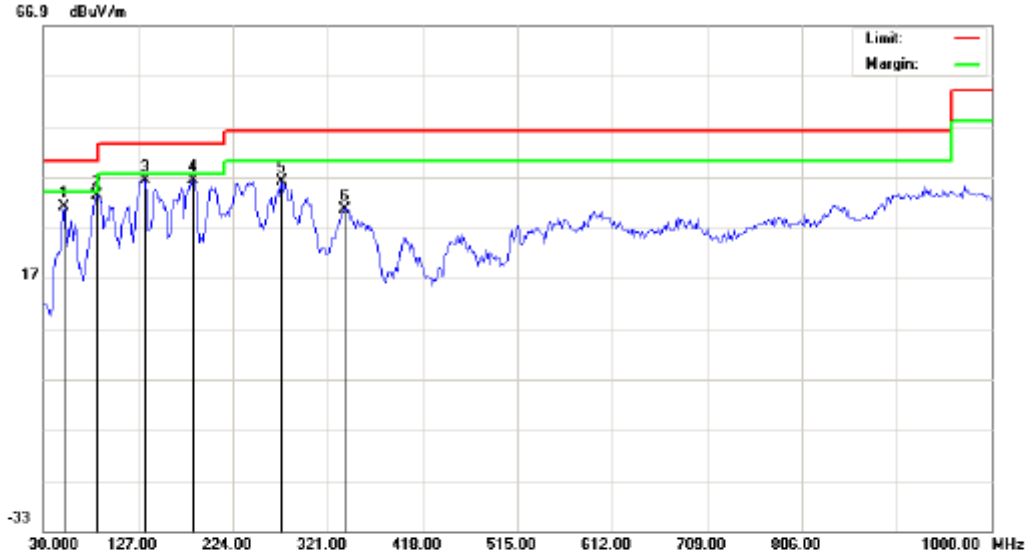


8.4 PROCEDURE OF RADIATED EMISSION TEST

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
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 and All support equipments received AC 120V/60Hz power from socket under the turntable.
5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
7) The test mode(s) were scanned during the test:
8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

8.5 TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission Test –Horizontal -3m



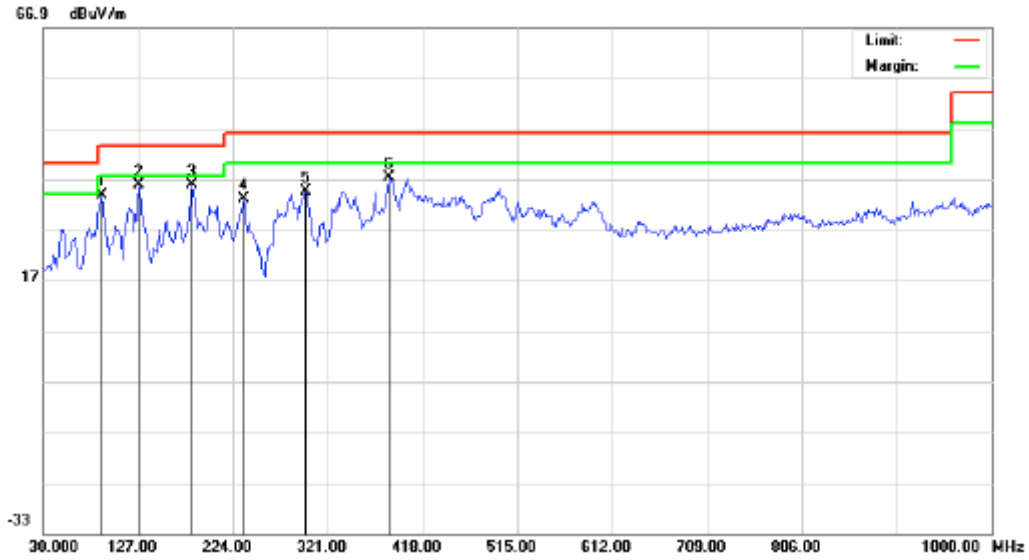
Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Wireless Microphone(Receiver)
M/N: UHF-5200
Mode: Receiving
Note:

Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		51.0167	17.66	13.25	30.91	40.00	-9.09	peak			
2	*	84.9667	22.11	11.25	33.36	40.00	-6.64	peak			
3		133.4667	22.47	13.73	36.20	43.50	-7.30	peak			
4		183.5833	19.58	16.66	36.24	43.50	-7.26	peak			
5		274.1166	18.81	17.21	36.02	46.00	-9.98	peak			
6		338.7832	11.71	18.94	30.65	46.00	-15.35	peak			

Radiated Emission Test –Vertical -3m



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Wireless Microphone(Receiver)
M/N: UHF-5200
Mode: Receiving
Note:

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

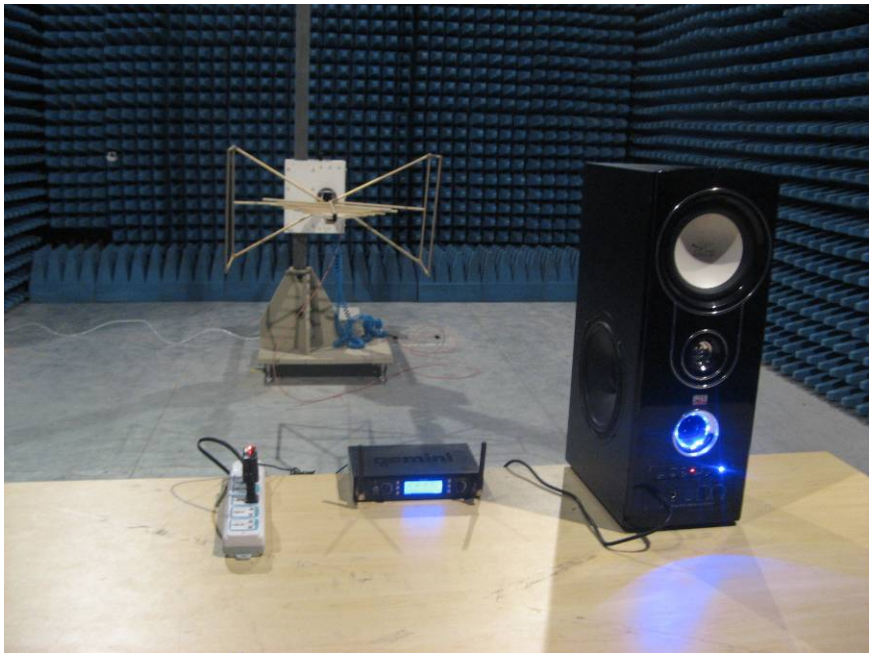
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		89.8165	21.80	12.09	33.89	43.50	-9.81	peak			
2		127.0000	22.09	13.63	35.72	43.50	-7.78	peak			
3	*	181.9667	17.37	18.36	35.73	43.50	-7.77	peak			
4		235.3163	16.64	16.42	33.06	46.00	-12.94	peak			
5		298.3666	17.48	17.02	34.50	46.00	-11.50	peak			
6		384.0500	17.75	19.56	37.31	46.00	-8.69	peak			

Note: From 1GHz to 5GHz,both Horizontal and Vertical, at least have 20dB margin, no recording in the test report.

APPENDIX 1
PHOTOGRAPHS OF TEST SETUP

FCC LINE CONDUCTED EMISSION TEST SETUP

FCC RADIATED EMISSION TEST SETUP

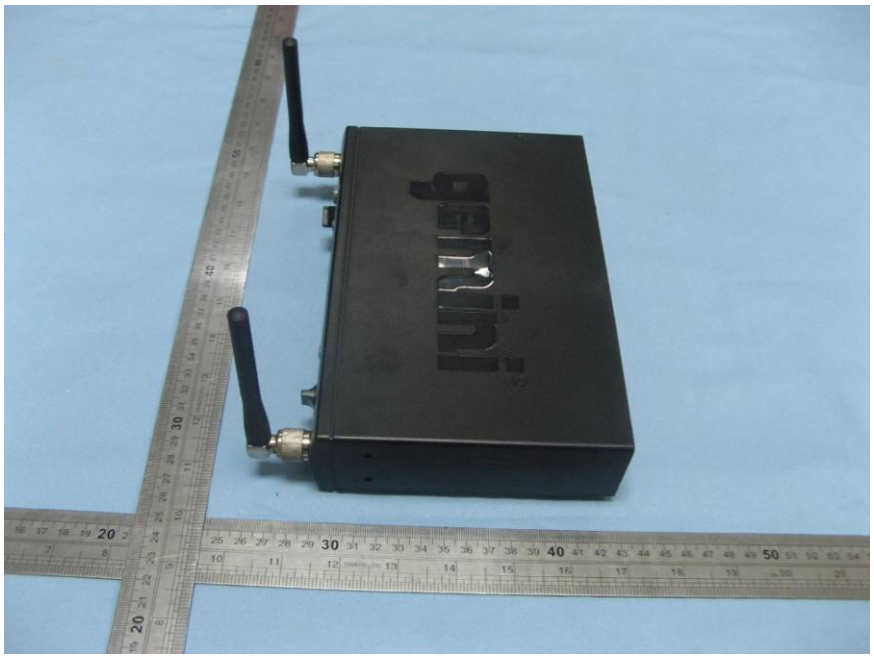


APPENDIX 2
PHOTOGRAPHS OF EUT

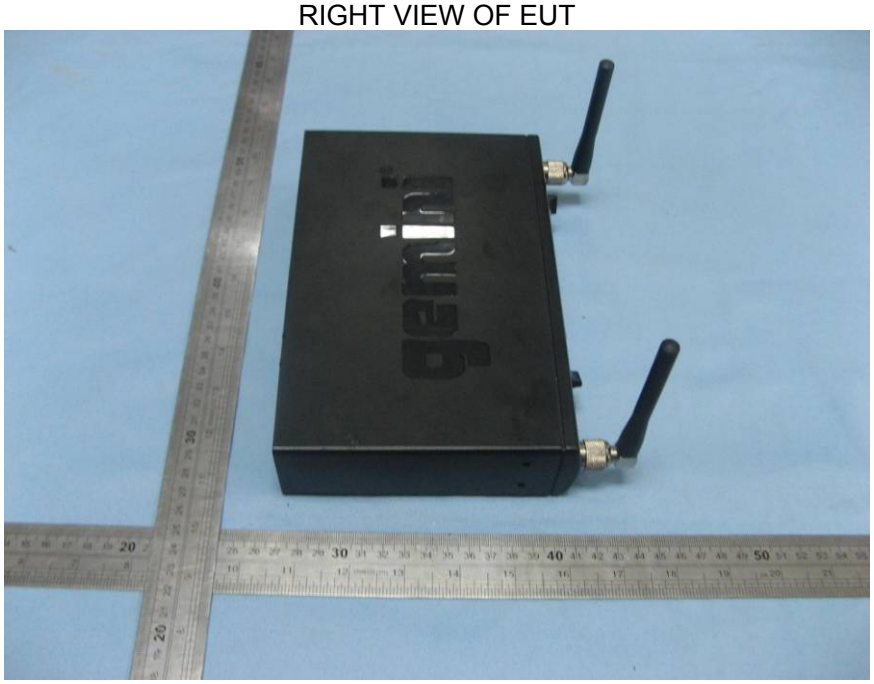
FRONT VIEW OF EUT

BACK VIEW OF EUT

LEFT VIEW OF EUT

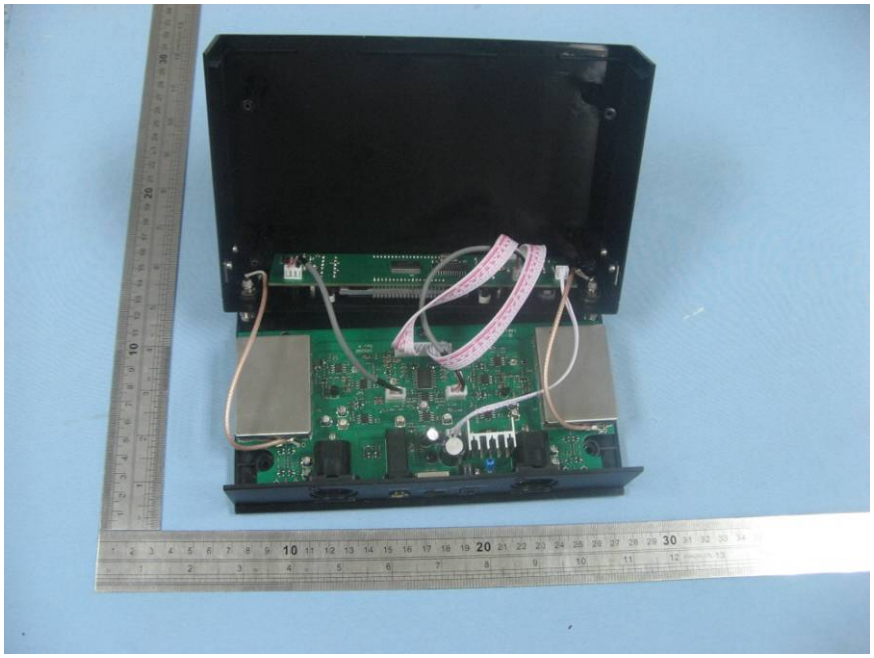


RIGHT VIEW OF EUT

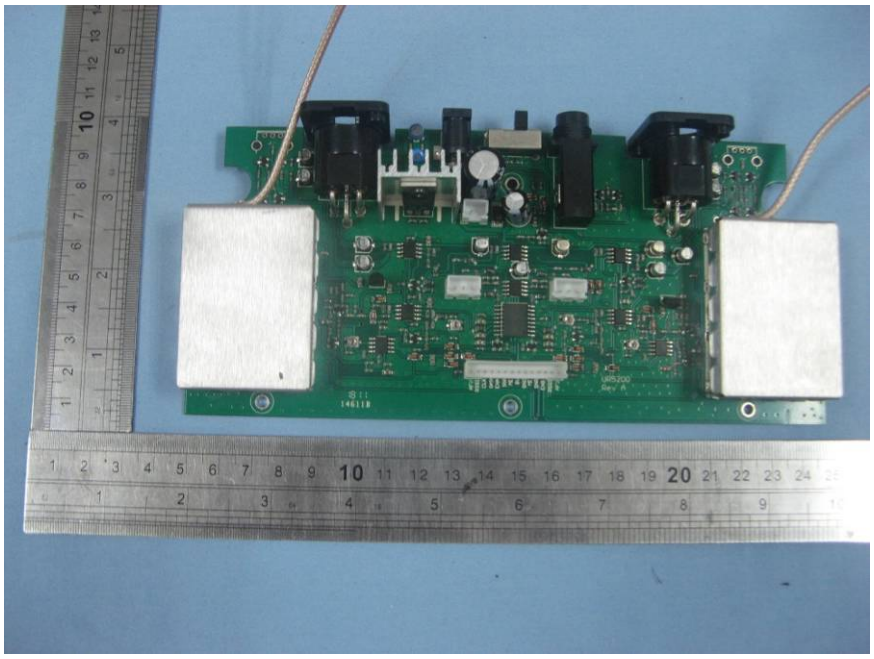


WHOLE VIEW OF EUT

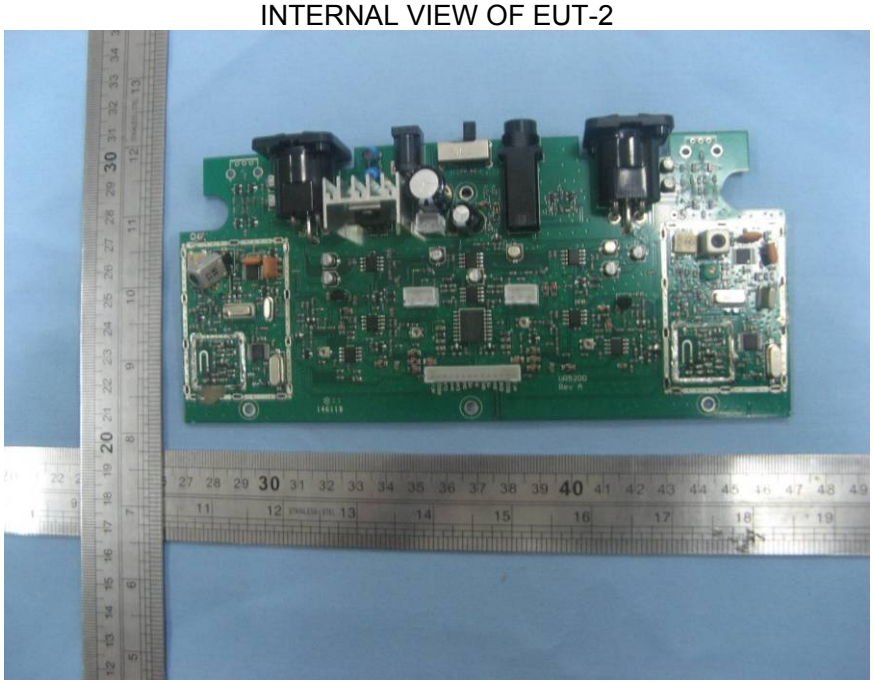
OPEN VIEW OF EUT



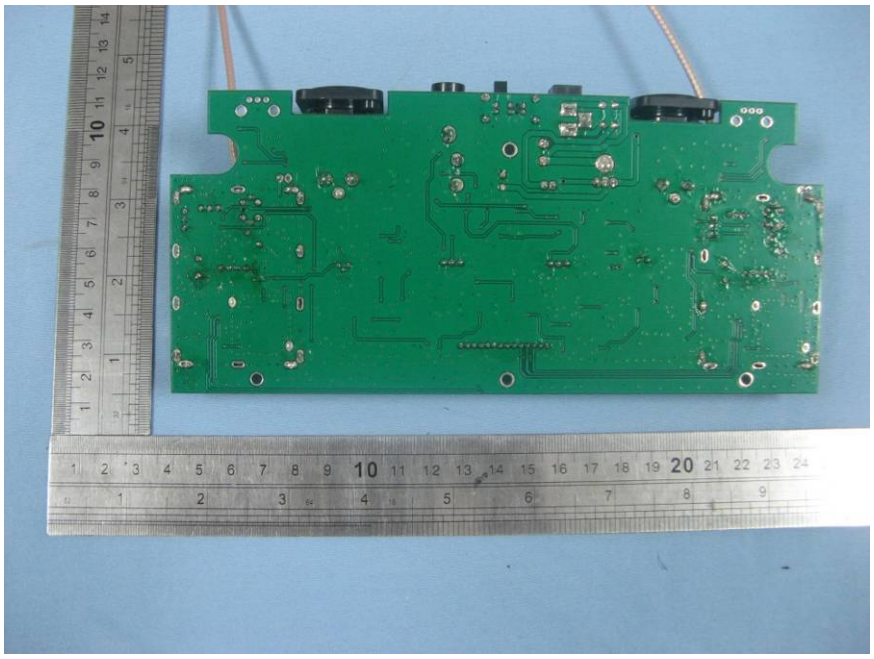
INTERNAL VIEW OF EUT-1



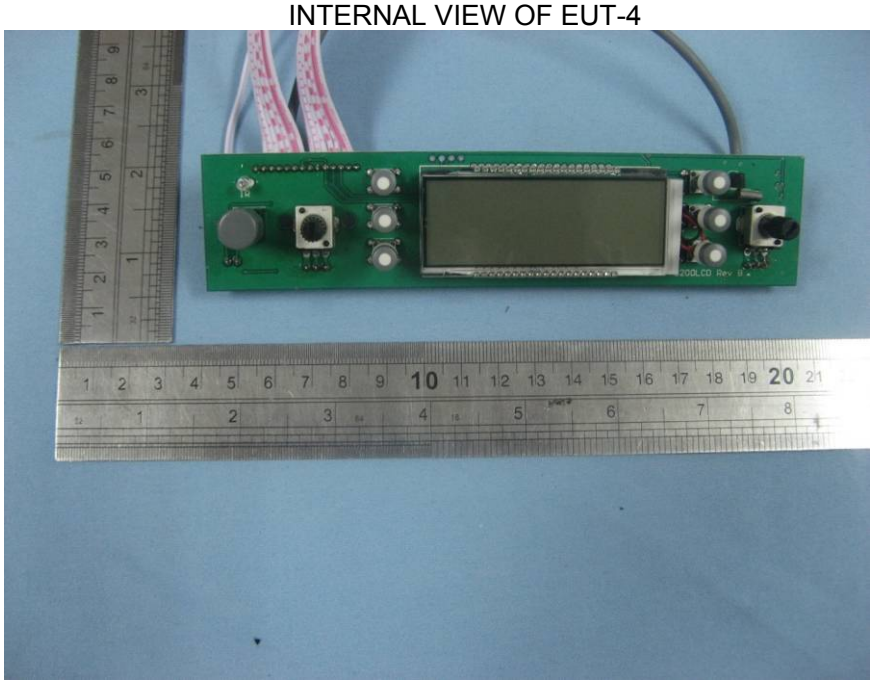
INTERNAL VIEW OF EUT-2



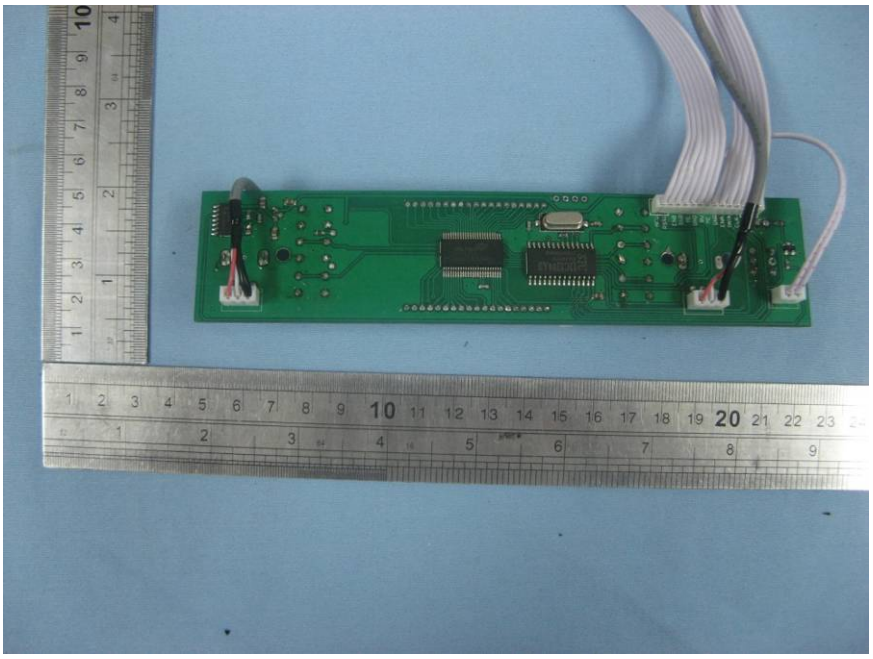
INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



INTERNAL VIEW OF EUT-5



-----END OF REPORT------