FCC Test Report

Report No.: AGC055111001-3F1

FCC ID	:	A6XUHF-4100
PRODUCT DESIGNATION	:	Wireless Receiver
BRAND NAME	:	GEMINI
MODEL NAME	:	UHF-4100
CLIENT	:	GCI Technologies Corporation
DATE OF ISSUE	:	Dec.29, 2011
STANDARD(S)	:	FCC Part 15 Rules

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

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1. GENERAL INFORMATION

Applicant:	GCI Technologies Corporation 280 Raritan Center Parkway, Edison, New Jersey 08837 USA
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 Receiver
Brand name:	GEMINI
Model Name:	UHF-4100
Frequency Range:	682.15MHz-697MHz
FCC ID:	A6XUHF-4100
Type of Test:	FCC Class B
Measurement Procedure:	ANSI C63.4: 2003
File Number:	AGC055111001-3F1
Date of test:	Dec.21 to Dec.29, 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.

Tested By: Angela Li

Angela Li Dec.29, 2011

Reviewed By:

Forrest Lei Dec.29, 2011

Authorized By:

Solger Zhang Dec.29, 2011

2. PRODUCT INFORMATION

Housing Type: Plastic

Rating Voltage: AC100-240V,50-60Hz

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

I/O Port of EUT			
I/O Port Type	**Q'TY**	**Cable**	**Tested with**
AF output port	1	0	1
Balanced XLR output port	1	0	0
DC input port	1	0	1

3. TEST FACILITY

Site:	Attestation of Global Compliance Co., Ltd.
Location:	1F, No.2 Building, Huafeng No.1 Technical Industrial Park, Sanwei, Xixiang, Baoan District, Shenzhen, China
Description:	There is one 3m semi-anechoic chamber for final test, the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.
Site Filing:	Accredited by FCC, June 28, 2010 The Certificate 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.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For radiated emission test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

4. TEST EQUIPMENT LIST

Equipment used during the tests:

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4440A	N/A	06/27/2011	06/26/2012
TEST RECEIVER	R&S	ESCI	N/A	06/27/2011	06/26/2012
ANTENNA	A.H.	SAS-521-4	N/A	06/27/2011	06/26/2012
Power Splitter 11636A	Agilent	N/A	N/A	06/27/2011	06/26/2012
LISN	R&S	ESH3-Z5	N/A	06/27/2011	06/26/2012

The calibrations of the measuring instruments, including any accessories that may affect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

5. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Speaker	WEL-DON	T-805	N/A	--	--

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

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

6. 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:

Mode 1: standby
Mode 2: receiving

7 FCC LINE CONDUCTED EMISSION TEST

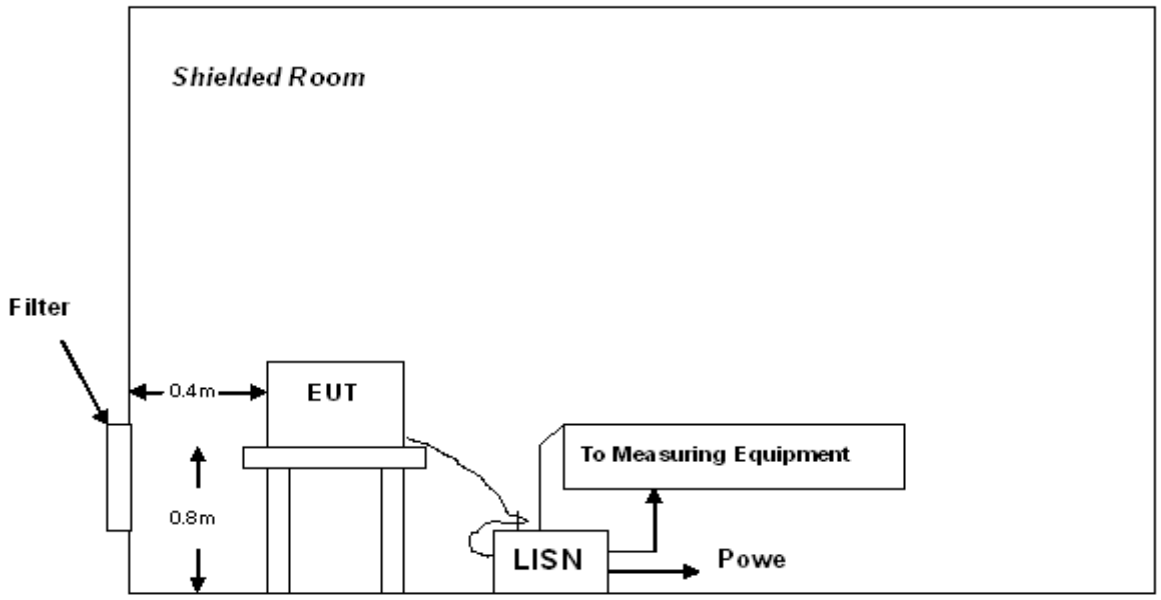
7.1 LIMITS OF LINE CONDUCTED EMISSION TEST

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

7.2 BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



A: Powered through filter

7.3 PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

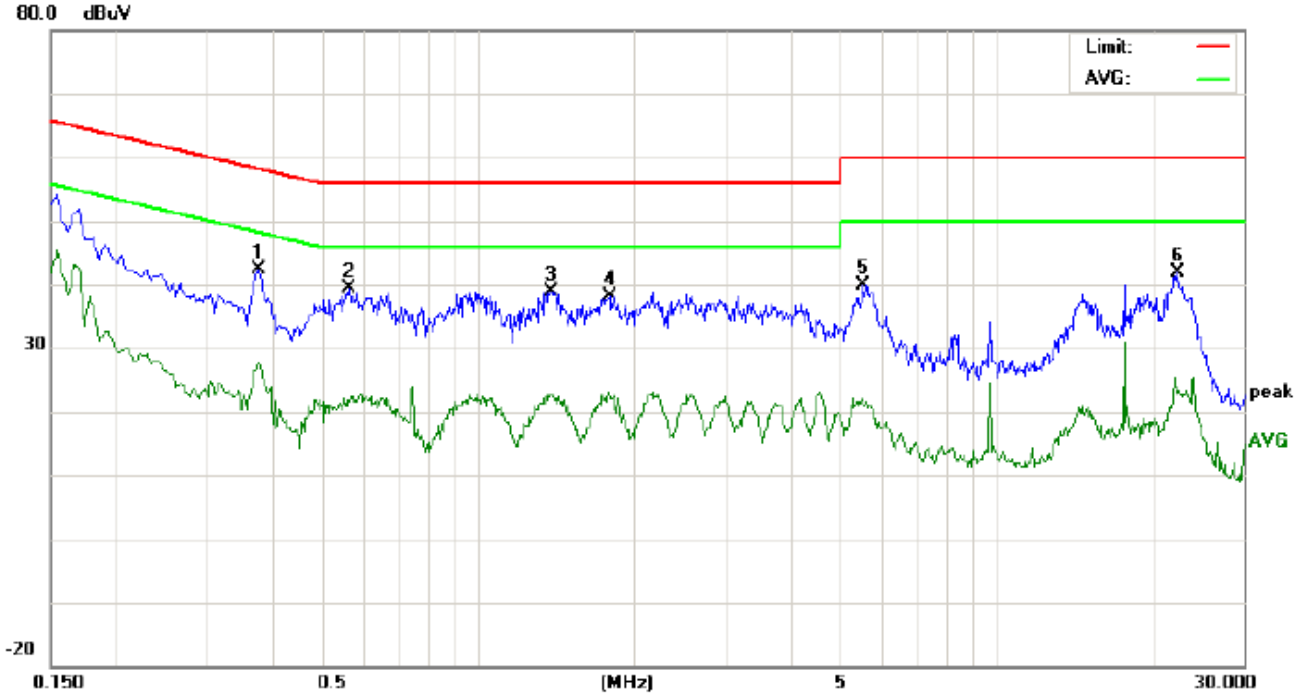
1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground 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/60Hz by power supply . All support equipments received AC120V/60Hz power from a LISN, if any.
5) The 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) The following test mode(s) were scanned during the preliminary test:

7.4 FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1) EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. 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.

7.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

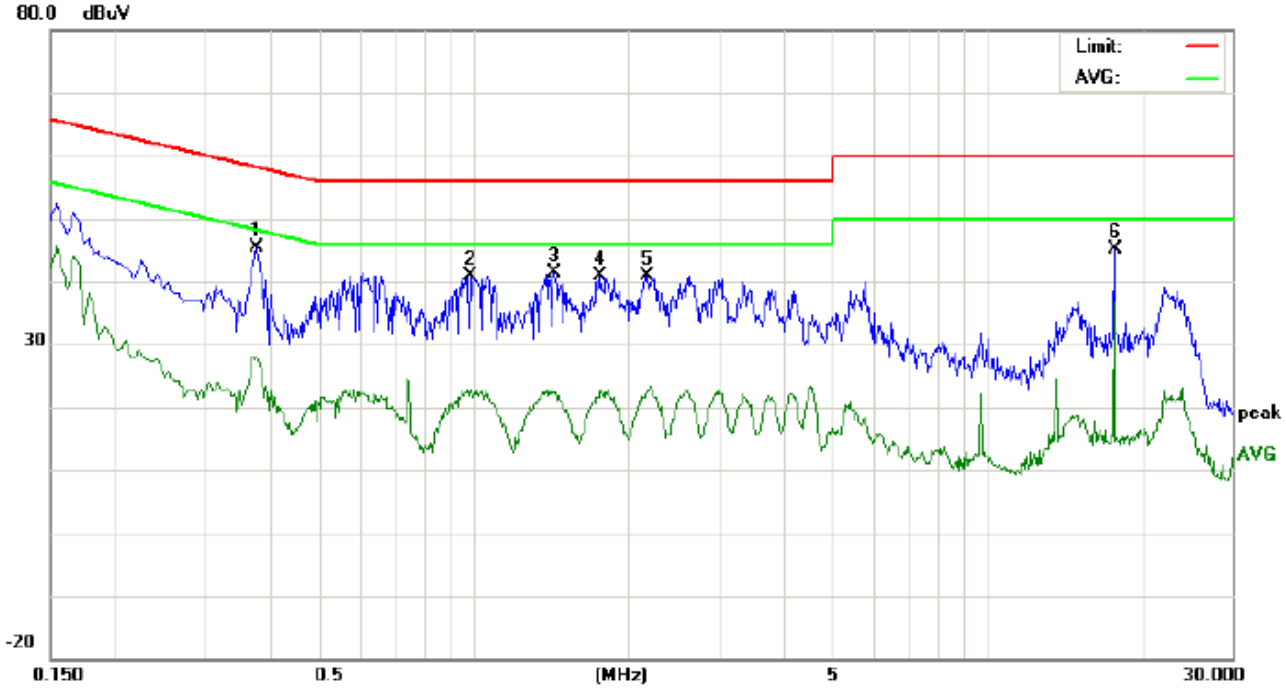
TEST RESULT OF LINE CONDUCTED EMISSION TEST –LINE LINE



Site: Conduction
Phase: L1
Temperature: 26
Limit: FCC Class B Conduction(QP)
Power: AC 120V/60Hz
Humidity: 60 %
EUT: Wireless Receiver
M/N: UHF-4100
Mode: Receiving
Note:

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	0.3780	31.97		17.35	10.32	42.29		27.67	58.32	48.32	-16.03	-20.65	P	
2	0.5658	29.00		11.36	10.34	39.34		21.70	56.00	46.00	-16.66	-24.30	P	
3	1.3820	28.42		12.46	10.38	38.80		22.84	56.00	46.00	-17.20	-23.16	P	
4	1.7980	27.79		11.74	10.28	38.07		22.02	56.00	46.00	-17.93	-23.98	P	
5	5.5100	29.52		11.08	10.25	39.77		21.33	60.00	50.00	-20.23	-28.67	P	
6	22.4020	31.84		13.37	10.12	41.96		23.49	60.00	50.00	-18.04	-26.51	P	

TEST RESULT OF LINE CONDUCTED EMISSION TEST-NEUTRAL LINE



Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: Wireless Receiver
M/N: UHF-4100
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	0.3780	35.06		17.59	10.32	45.38		27.91	58.32	48.32	-12.94	-20.41	P	
2	0.9860	30.52		12.51	10.38	40.90		22.89	56.00	46.00	-15.10	-23.11	P	
3	1.4340	30.94		12.02	10.38	41.32		22.40	56.00	46.00	-14.68	-23.60	P	
4	1.7660	30.56		12.23	10.29	40.85		22.52	56.00	46.00	-15.15	-23.48	P	
5	2.1860	30.60		12.38	10.30	40.90		22.68	56.00	46.00	-15.10	-23.32	P	
6	17.7099	35.07		26.45	10.12	45.19		36.57	60.00	50.00	-14.81	-13.43	P	

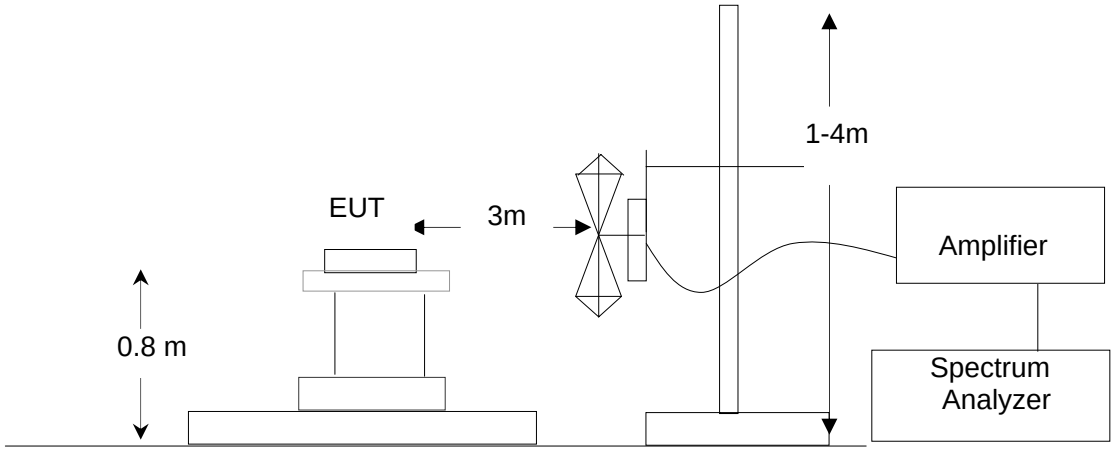
8. FCC RADIATED EMISSION TEST

8.1. LIMITS OF RADIATED EMISSION TEST

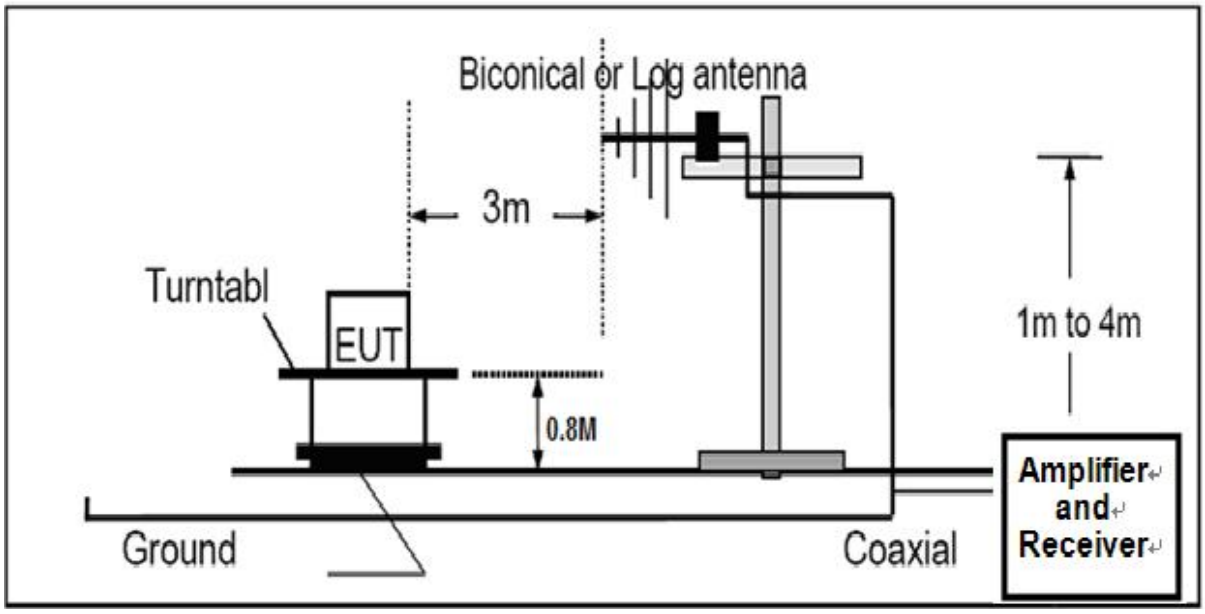
Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

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

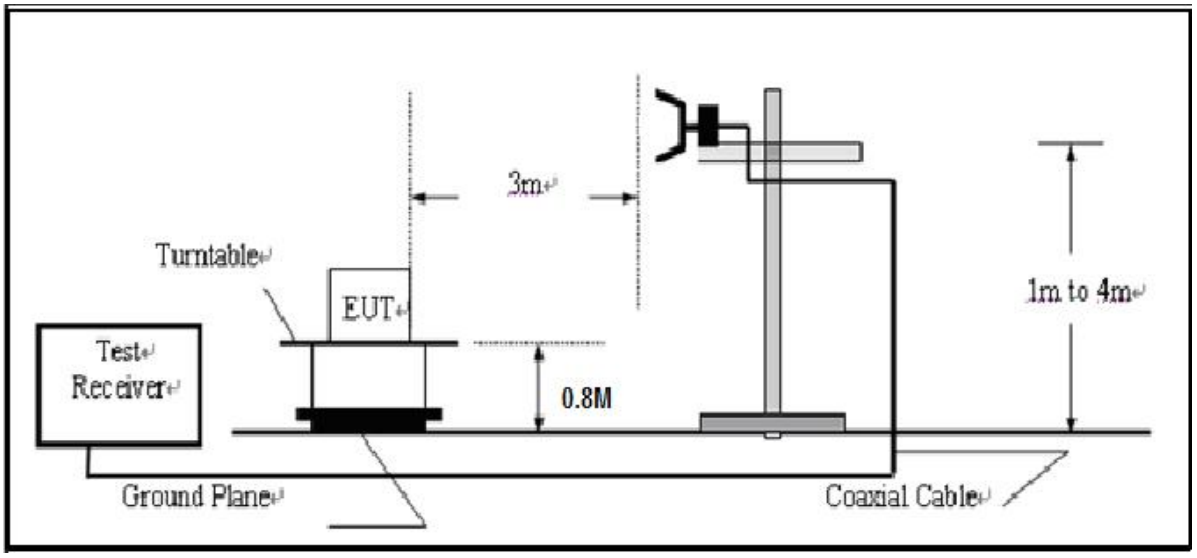
8.2 BLOCK DIAGRAM OF RADIATED EMISSION TEST



BELLOW 1GHz



ABOVE 1GHz



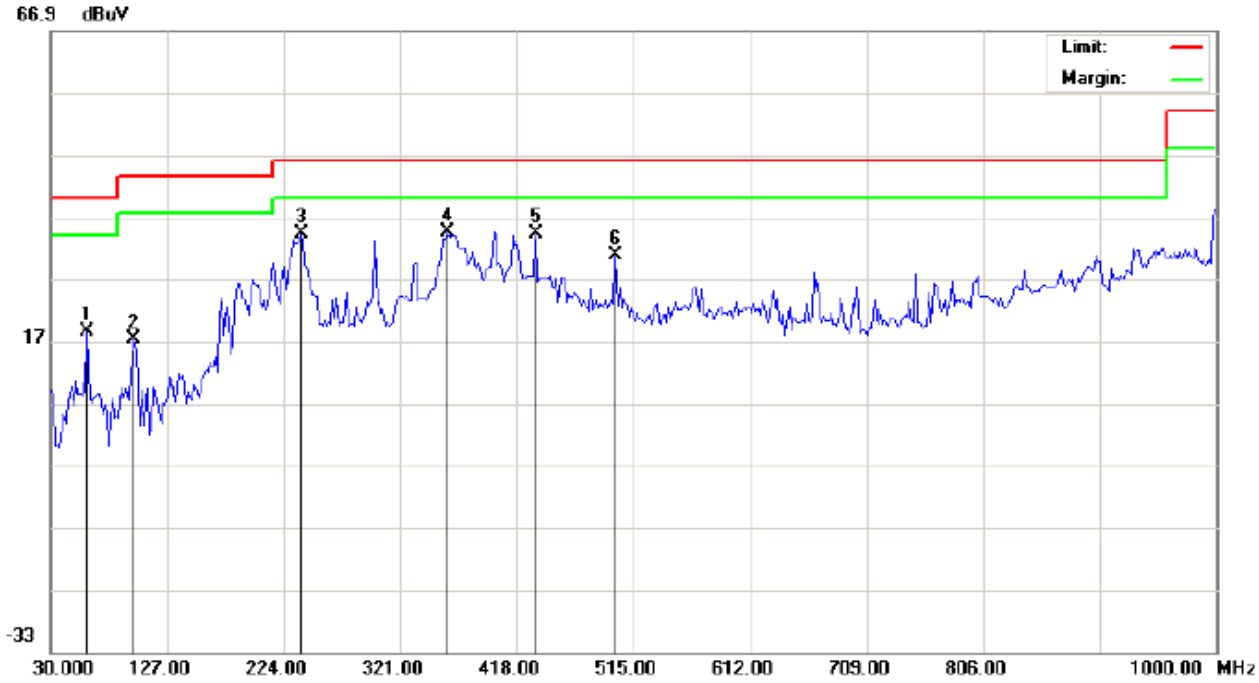
8.3 PROCEDURE OF RADIATED EMISSION TEST

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 received AC120V/60Hz power supply. All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
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 5GHz. 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.
9) The test data of the worst case condition(s) was reported on the Summary Data page.

8.4 TEST RESULT OF RADIATED EMISSION TEST

BELLOW 1GHZ

HORIZONTAL



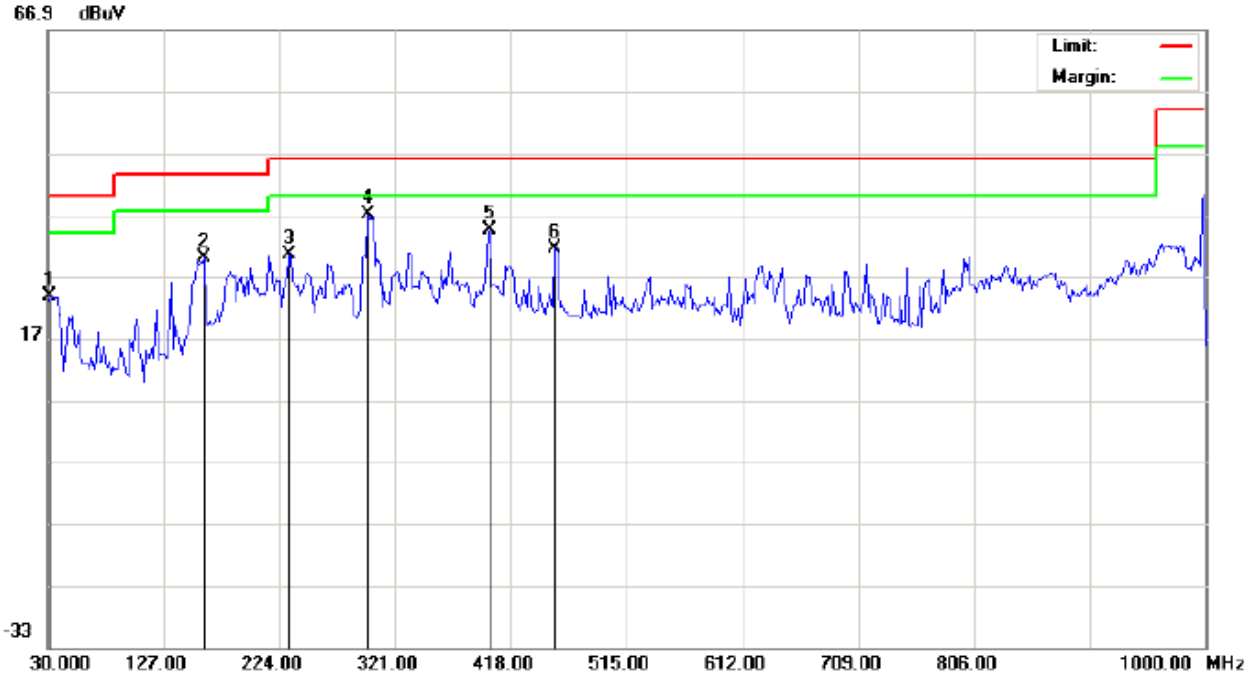
Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Wireless Receiver
M/N: UHF-4100
Mode: mode one
Note:

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	dBuV	dBuV	dB		cm	degree	
1		60.7167	-0.37	18.96	18.59	40.00	-21.41	peak			
2		99.5167	1.93	15.31	17.24	43.50	-26.26	peak			
3		238.5500	17.40	16.98	34.38	46.00	-11.62	peak			
4	*	359.8000	15.30	19.11	34.41	46.00	-11.59	peak			
5		434.1666	12.81	21.47	34.28	46.00	-11.72	peak			
6		500.4499	7.77	22.90	30.67	46.00	-15.33	peak			

VERTICAL



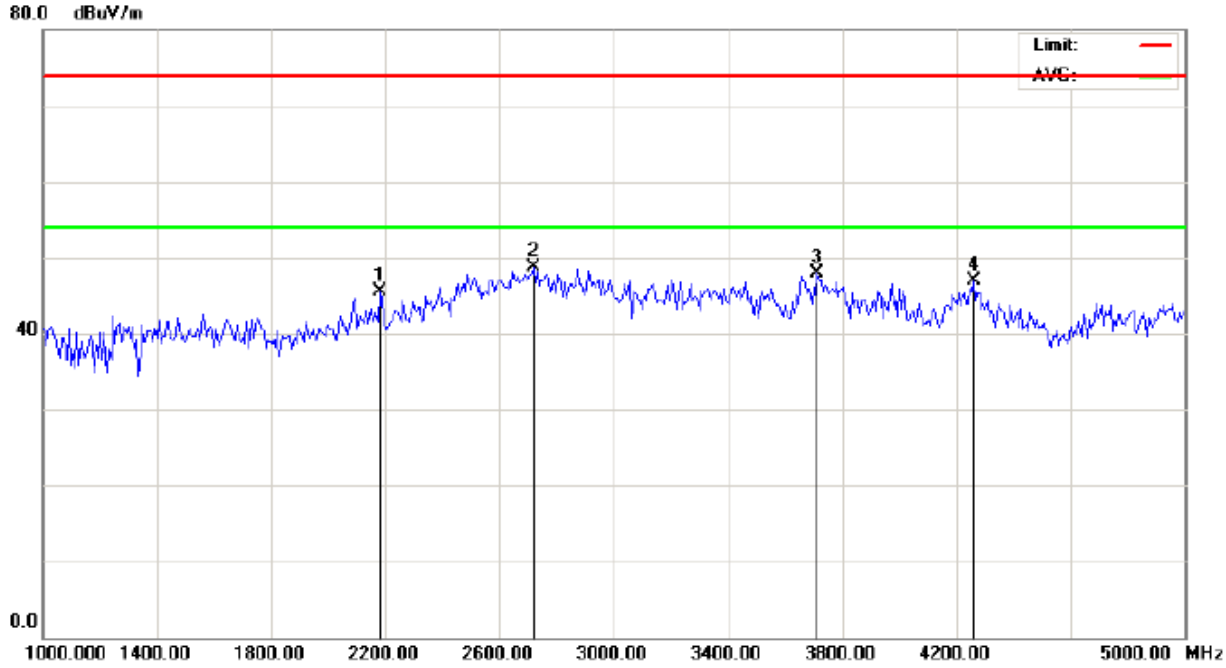
Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Wireless Receiver
M/N: UHF-4100
Mode: mode one
Note:

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	dBuV	dBuV	dB		cm	degree	
1		31.6167	14.62	9.25	23.87	40.00	-16.13	peak			
2		160.9499	16.64	13.51	30.15	43.50	-13.35	peak			
3		232.0833	14.59	15.86	30.45	46.00	-15.55	peak			
4	*	298.3666	19.98	17.02	37.00	46.00	-9.00	peak			
5		400.2167	13.68	20.84	34.52	46.00	-11.48	peak			
6		455.1831	10.01	21.51	31.52	46.00	-14.48	peak			

ABOVE 1GHz

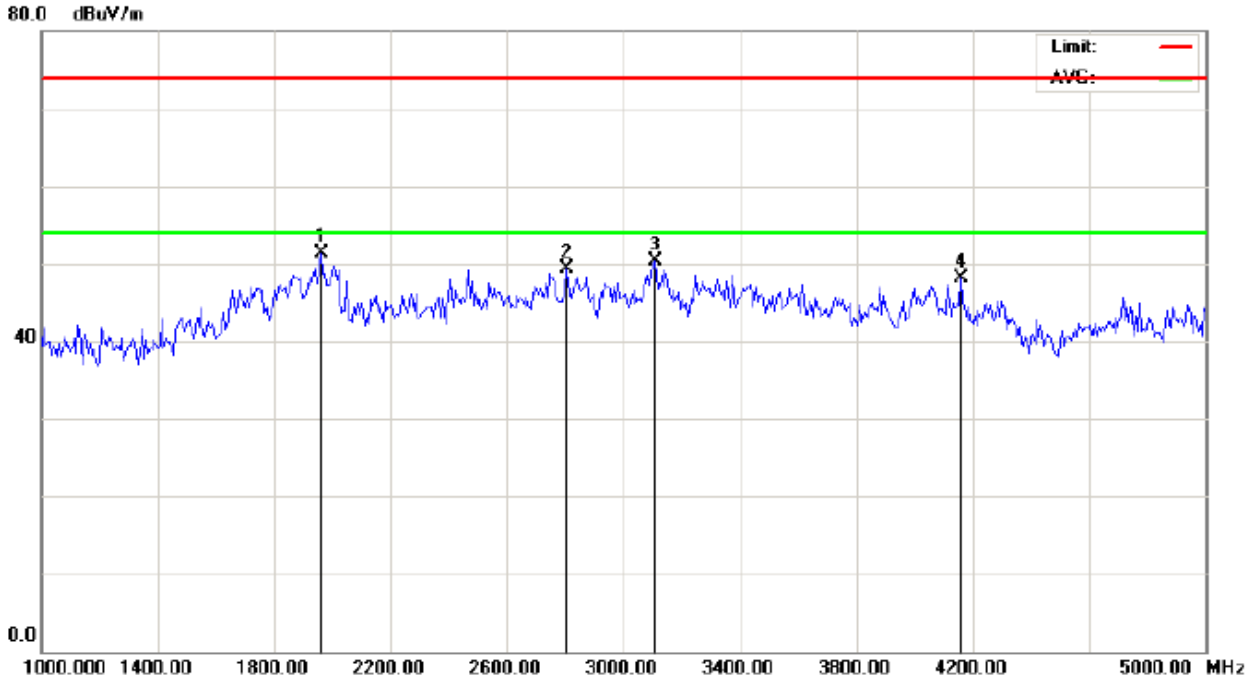


Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Wireless Receiver
M/N: UHF-4100
Mode: mode one
Note:

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		2180.000	35.44	10.08	45.52	74.00	-28.48	peak			
2	*	2720.000	37.75	10.96	48.71	74.00	-25.29	peak			
3		3713.333	34.52	13.42	47.94	74.00	-26.06	peak			
4		4260.000	36.00	10.87	46.87	74.00	-27.13	peak			



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Wireless Receiver
M/N: UHF-4100
Mode: mode one
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	*	1960.000	41.84	9.46	51.30	74.00	-22.70	peak			
2		2806.667	38.10	11.17	49.27	74.00	-24.73	peak			
3		3106.667	38.65	11.74	50.39	74.00	-23.61	peak			
4		4160.000	35.53	12.53	48.06	74.00	-25.94	peak			

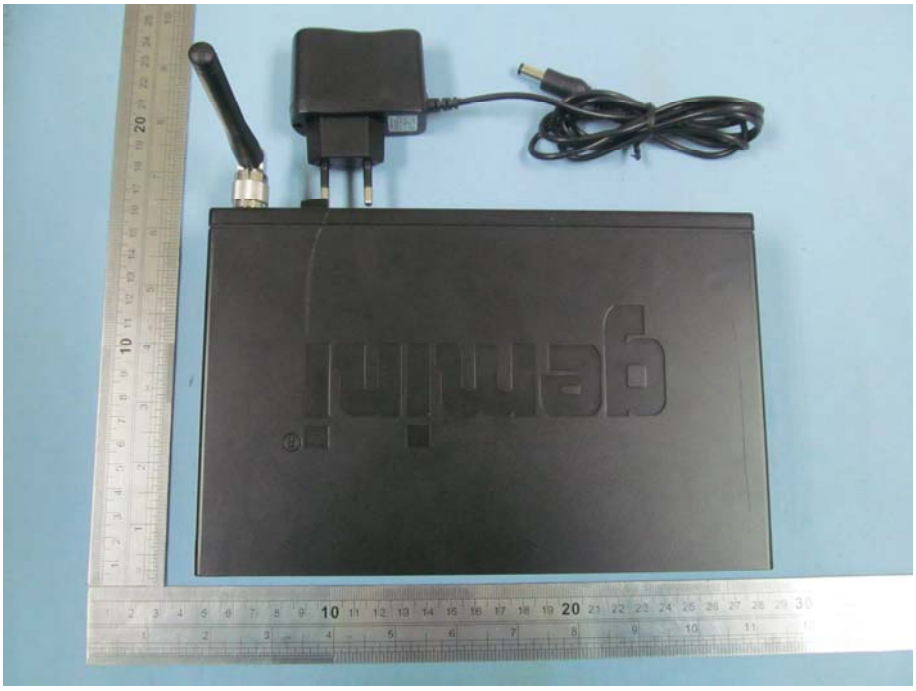
APPENDIX 1
PHOTOGRAPHS OF TEST SETUP

CONDUCTED EMISSION TEST SETUP

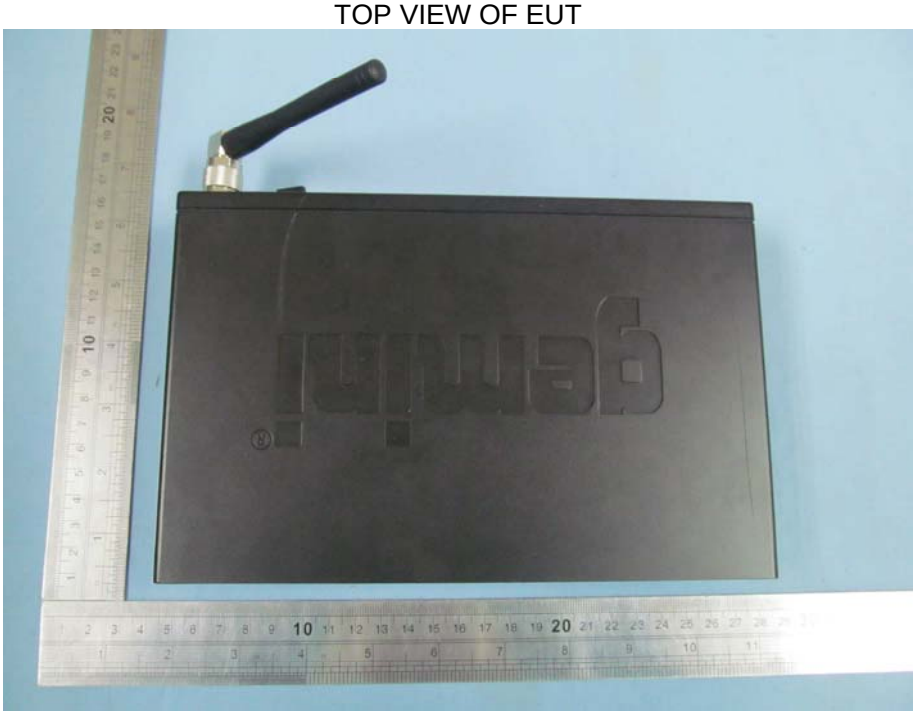
RADIATED EMISSION TEST SETUP

APPENDIX 2
PHOTOGRAPHS OF EUT

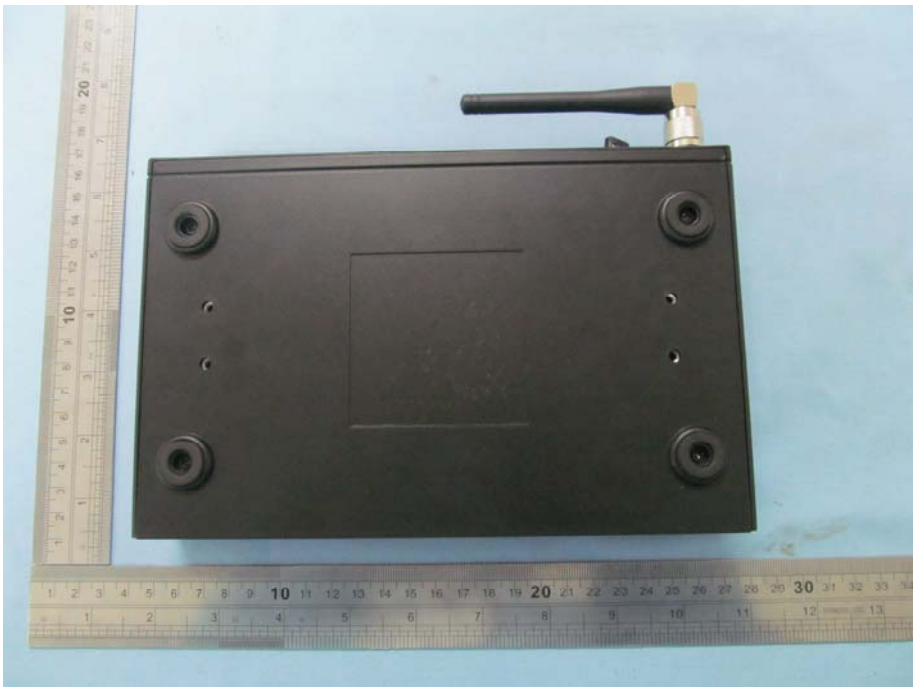
TOTAL VIEW OF EUT



TOP VIEW OF EUT



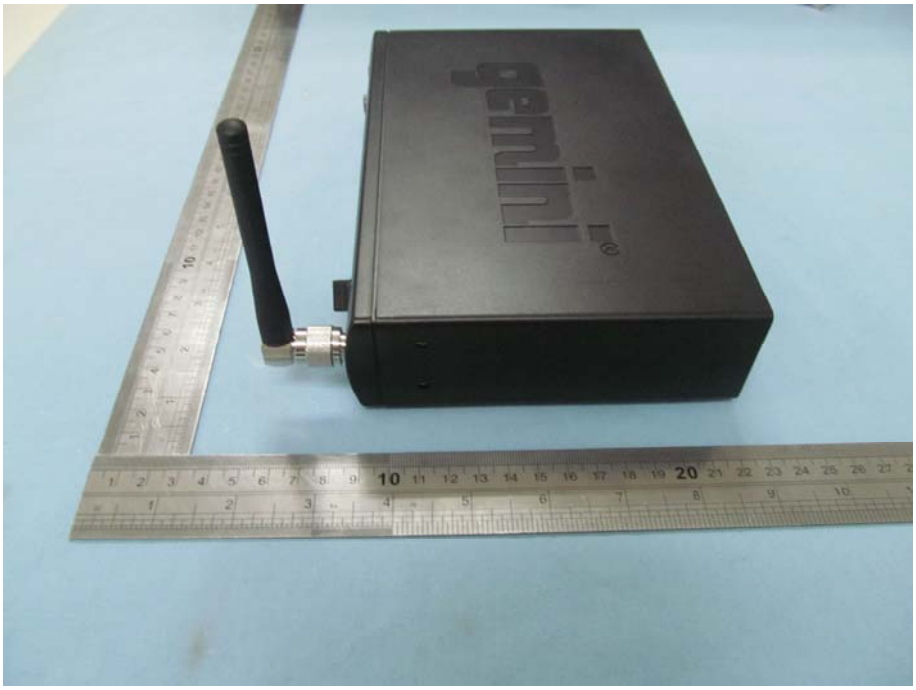
BOTTOM VIEW OF EUT



FRONT VIEW OF EUT

BACK VIEW OF EUT

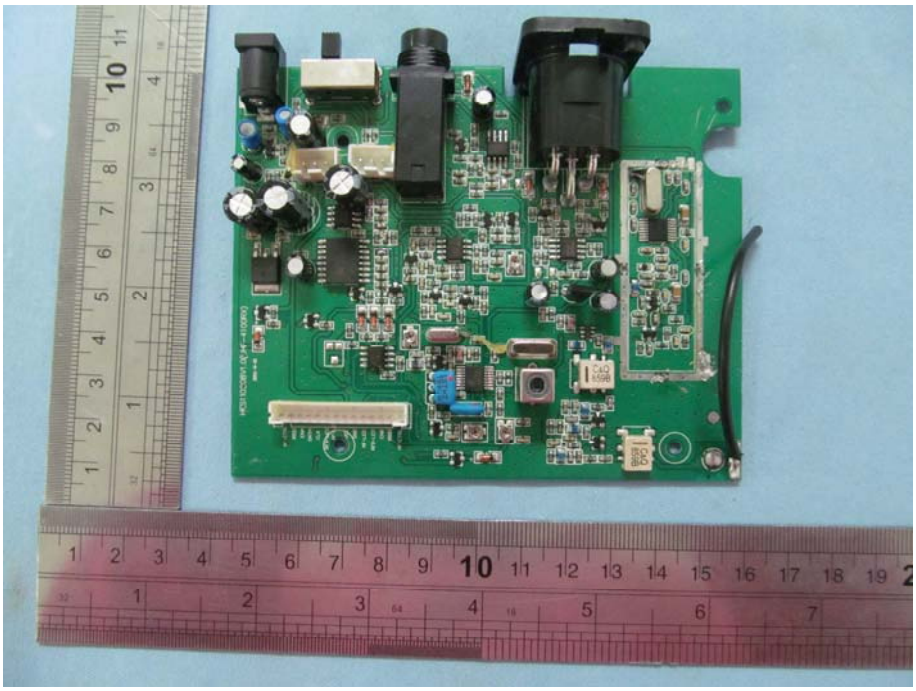
LEFT VIEW OF EUT



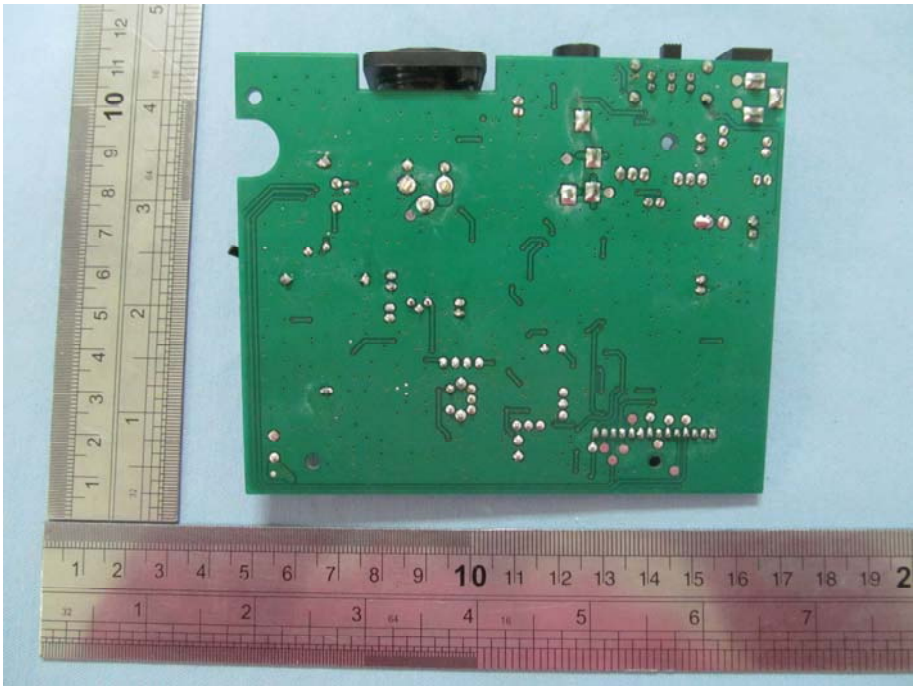
RIGHT VIEW OF EUT

OPEN VIEW OF EUT

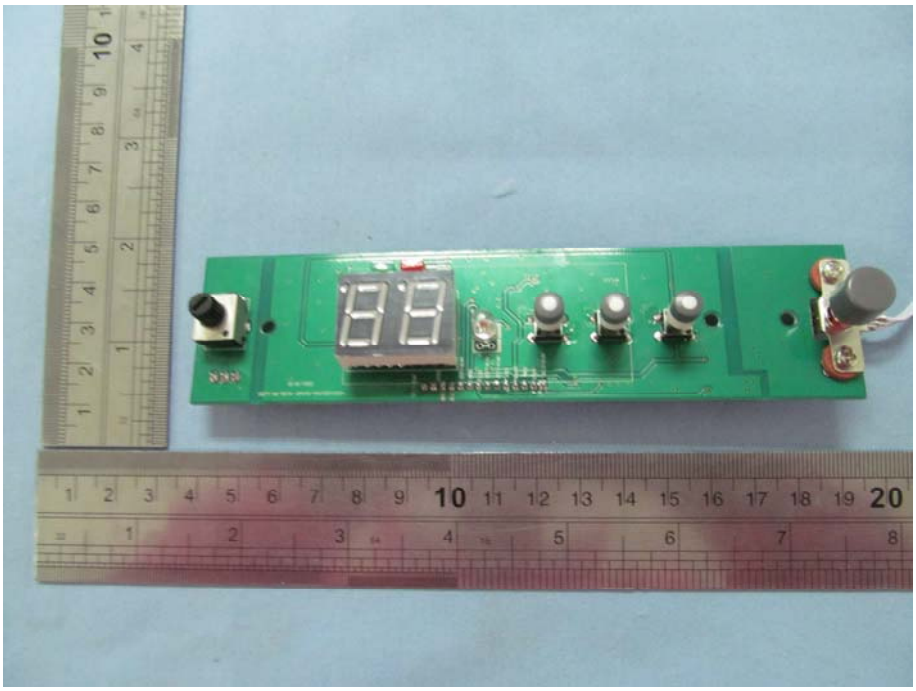
INTERNAL VIEW OF EUT-1



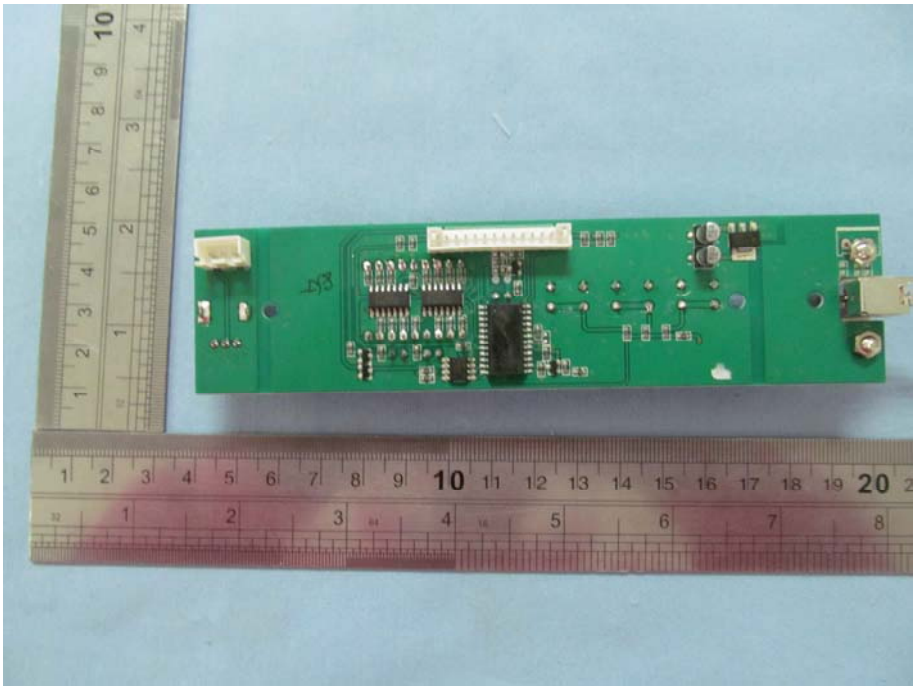
INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



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