

TEST REPORT

Applicant:	Circus World Displays Ltd.
Address of Applicant:	4080 Montrose Road, Niagara Falls, Ontario, Canada, L2H, 1J9
Manufacturer:	First Audio Manufacturing (HK) Ltd.
Address of Manufacturer:	3/F., Block A, Wing Kut Industrial Bldg., 608 Castle Peak Rd., Kowloon, Hong Kong
Product name:	High Performance Bluetooth Music System
Model:	Fi30
Rating(s):	120Vac, 60Hz, 40W
Trademark:	FLUANCE
FCC register number:	935596
IC register number:	8368A-1
Standards:	FCC Part15 subpart B: 2010 ICES(Interference-Causing Equipment Standard)-003 Issue 5 August 2012
Data of Receipt:	2013-08-26
Date of Test:	2013-08-27~2013-09-03
Date of Issue:	2013-09-04
Test Result	Pass*

* In the configuration tested, the test item complied with the standards specified above.

Authorized for issue by:**Test by:**

Sep.04.2013 Jummy Qiu

Project Engineer

Date

Name/Position

Signature

Reviewed by:

Sep.04.2013

Pauler Li

Project Manager

Date

Name/Position

Signature

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Testing Laboratory information:

Testing Laboratory Name : I-Test Laboratory
Address : 1-2 floor, South Block, Building A2 , No 3 Keyan Lu, Science City,
Guangzhou, Guangdong Province, P.R. China
Testing location : Same as above
Tel..... : 0086-20-32209330
Fax : 0086-20-62824387
E-mail : itl@i-testlab.com

Possible test case verdicts:

- test case does not apply to the test object... : N/A
- test object does meet the requirement..... : P (Pass)
- test object does not meet the requirement . : F (Fail)

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report would be invalid test report without all the signatures of testing technician and approver.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

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Test Summary:

The following standards have been applied to ensure the product conforms with the protection requirements of the council directive FCC part 15B/ ICES-003.

Electromagnetic Emissions				
Test Item	Test Standard	Test Method	Class/Severity	Result
Conducted Emission(0.15-30MHz)	FCC part 15.107/ ICES-003	ANSI C63.4:2009/ ICES-003	Class B	PASS
Radiated Emission(30-1000MHz)	FCC part 15.109/ ICES-003	ANSI C63.4:2009/ ICES-003	Class B	PASS

Test Location

ALL the tests were performed in GuangZhou ITL Co., Ltd. Which is located at 1-2 floor, South Block, Building A2 , No 3 Keyan Lu, Science City, Guangzhou, Guangdong Province, P.R. China

Tel: 0086-20-32209330, Fax: 0086-20-62824387

No test is subcontracted

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Section 1 General Information and Equipment Used

1.1 Client Information

Applicant: Circus World Displays Ltd.
 Address of Applicant: 4080 Montrose Road, Niagara Falls, Ontario, Canada, L2H, 1J9

1.2 EUT General and Technical Descriptions

EUT Name: High Performance Bluetooth Music System
 EUT Model: Fi30
 EUT Trademark: FLUANCE
 Input Voltage: 120V ~
 Frequency: 60Hz
 Input Power/Current: 40W
 Output rated: /
 Power Cable Description: /
 Other Cables Description: /
 I/O Ports: /
 Function(s) Description: /
 Accessories information: /

1.3 Support Equipment(s) and Test Configuration

1.3.1 Details of Support Equipment(s)

Description	Manufacturer	Model No.	Connection	Working state
OSCILLATOR	KENWOOD	AG-203A	/	Normal

1.3.2 Working State of EUT

Power Supply of EUT: 120V~/60Hz
 EUT Status: Test the EUT in Aux in mode.

1.3.3 Block Diagram of Test Configuration

/

1.4 Equipment Used during Test

Conducted Emission					
Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
EMI Test receiver	R&S	ESCI	ITL-102	2013/06/19	2014/06/19
Two-line v-network	R&S	ENV216	ITL-103	2013/06/19	2014/06/19
Shielded Room	ETS•Lindgren	8*4*3	ITL-101	2012/03/23	2015/03/22

Radiated Emission					
Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Semi-Anechoic chamber	ETS•Lindgren	FACT3 2.0	ITL-100	2013/06/17	2014/06/17
EMI Test receiver	R&S	ESVS10	ITL-111	2013/02/01	2014/02/01
EXA Spectrum Analyzer	Agilent Technologies	N9010A	ITL-114	2013/02/01	2014/02/01
Biconilog Antenna	ETS•Lindgren	3142D	ITL-105	2013/02/11	2014/02/11

Section 2 Emission Test Results

2.1 Conducted Emission at Mains Terminals, 150 kHz to 30MHz

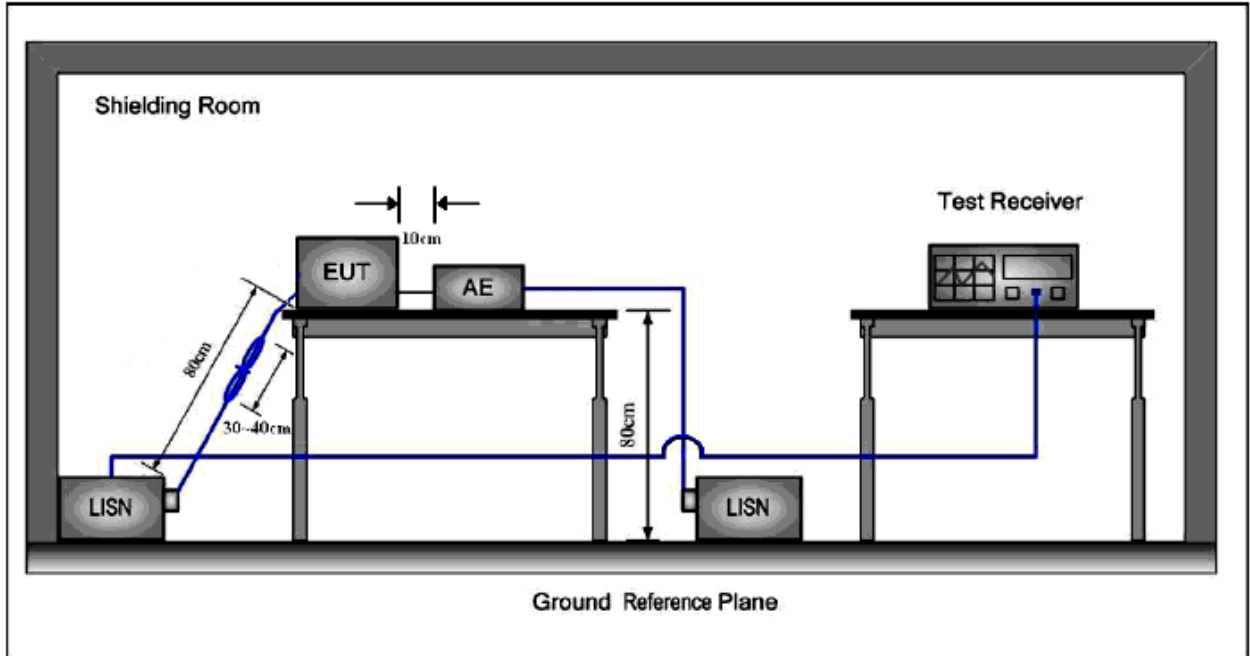
Test Requirement:	FCC part 15.107/ ICES-003
Test Method:	ANSI C63.4:2009/ ICES-003
Test Voltage:	120V AC, 60Hz
Test Date:	2013-08-28
Frequency Range:	150 kHz to 30MHz
Detector:	Peak for pre-scan Quasi-Peak and Average at frequency with maximum peak (9 kHz resolution bandwidth)
Uncertainty:	2Uc (V) = 2.3dB
Class / Limit:	Class B

Frequency range MHz	Class B Limits dB (µV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 :The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		
NOTE 2: The lower limit is applicable at the transition frequency.		

2.1.1 E.U.T. Operation

Operating Environment:		
Temperature: 24.0 °C	Humidity: 49 % RH	Atmospheric Pressure: 101 kPa
EUT Operation: Test the EUT in Aux in mode.		

2.1.2 Test Setup and Procedure



1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to nominal power supply through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H}+5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

2.1.3 Measurement Data

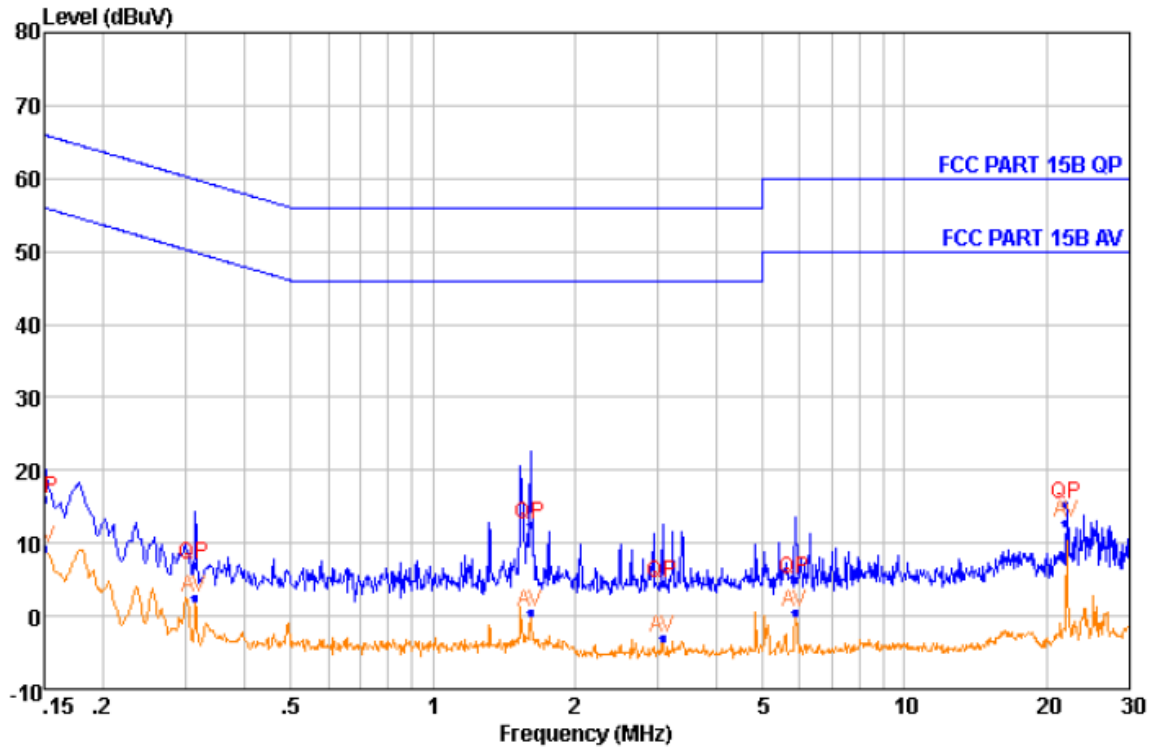
Pre-scan was performed with peak detected on both live and neutral cable. Quasi-peak & average measurements were performed at the frequencies which maximum peak emission level was detected. Please see the attached Quasi-peak and Average test results.

Model: Fi30

Live Line:

Peak Scan:

Level (dBμV)



Quasi-peak and Average measurement

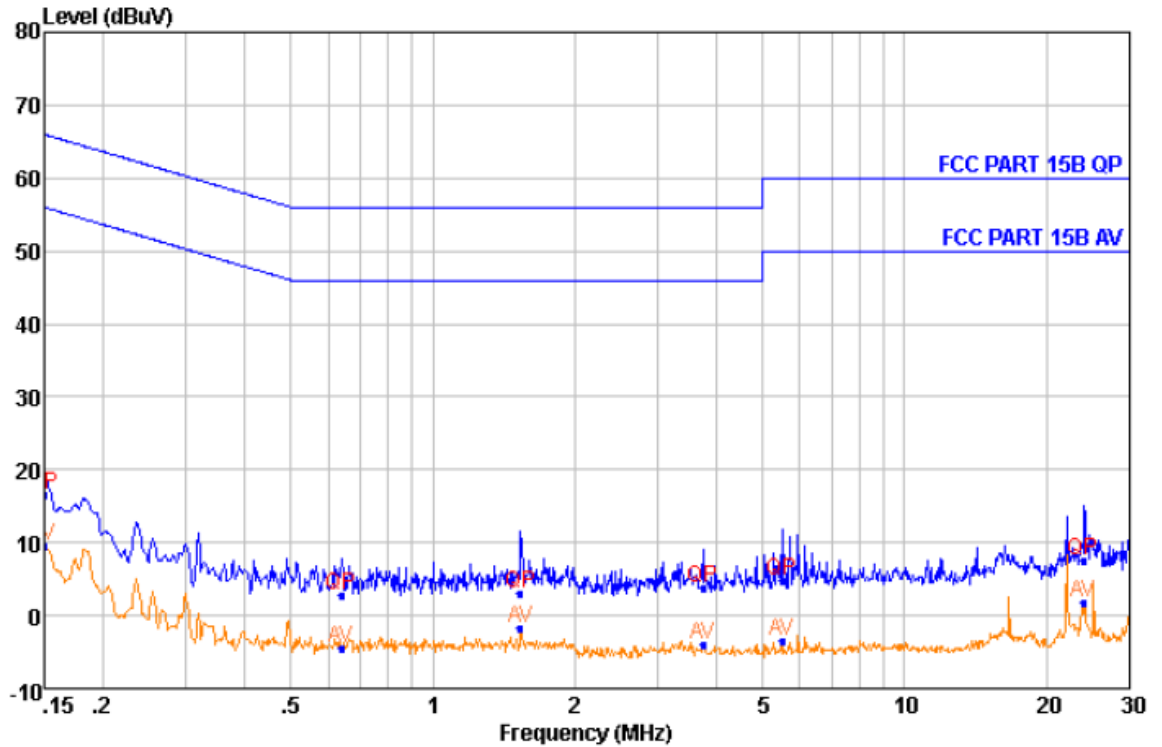
NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Margin dB
1	0.150	16.02	QP	9.70	0.20	66.00	-49.98
2	0.150	9.20	Average	9.70	0.20	56.00	-46.80
3	0.313	7.06	QP	9.67	0.24	59.90	-52.84
4	0.313	2.56	Average	9.67	0.24	49.90	-47.34
5	1.607	12.63	QP	9.66	0.33	56.00	-43.37
6	1.607	0.48	Average	9.66	0.33	46.00	-45.52
7	3.068	4.54	QP	9.63	0.37	56.00	-51.46
8	3.068	-2.90	Average	9.63	0.37	46.00	-48.90
9	5.857	4.96	QP	9.65	0.41	60.00	-55.04
10	5.857	0.41	Average	9.65	0.41	50.00	-49.59
11	22.007	15.29	QP	9.68	0.48	60.00	-44.71
12	22.007	12.84	Average	9.68	0.48	50.00	-37.16

Note: 1. Margin = Limit Line - Level
2. Level = Read level + LISN Factor + Cable Loss

Neutral Line:

Peak Scan:

Level (dB μ V)



Quasi-peak and Average measurement

NO.	Freq MHz	Level dBUV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBUV	Margin dB
1	0.150	16.68	QP	9.71	0.20	66.00	-49.32
2	0.150	9.59	Average	9.71	0.20	56.00	-46.41
3	0.639	2.83	QP	9.63	0.28	56.00	-53.17
4	0.639	-4.41	Average	9.63	0.28	46.00	-50.41
5	1.532	3.03	QP	9.62	0.33	56.00	-52.97
6	1.532	-1.83	Average	9.62	0.33	46.00	-47.83
7	3.733	3.72	QP	9.62	0.38	56.00	-52.28
8	3.733	-3.90	Average	9.62	0.38	46.00	-49.90
9	5.495	4.69	QP	9.62	0.40	60.00	-55.31
10	5.495	-3.60	Average	9.62	0.40	50.00	-53.60
11	23.966	7.49	QP	9.63	0.49	60.00	-52.51
12	23.966	1.74	Average	9.63	0.49	50.00	-48.26

Note: 1. Margin = Limit Line - Level
2. Level = Read level + LISN Factor + Cable Loss

2.2 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	FCC part 15.109/ ICES-003
Test Method:	ANSI C63.4:2009/ ICES-003
Test Voltage:	120V AC, 60Hz
Test Date:	2013-09-02
Frequency Range:	30MHz to 1GHz
Measurement Distance	3m
Detector:	Peak for pre-scan Quasi-Peak if maximised peak within 6dB of limit (120 kHz resolution bandwidth)
Uncertainty:	$2U_c (V) = 3.35\text{dB}$
Class / Limit:	Class B

Frequency range MHz	Quasi-peak limits dB ($\mu\text{V/m}$)
30 to 88	40
88 to 216	43.5
216 to 960	46
960 to 1000	54
At transitional frequencies the lower limit applies	

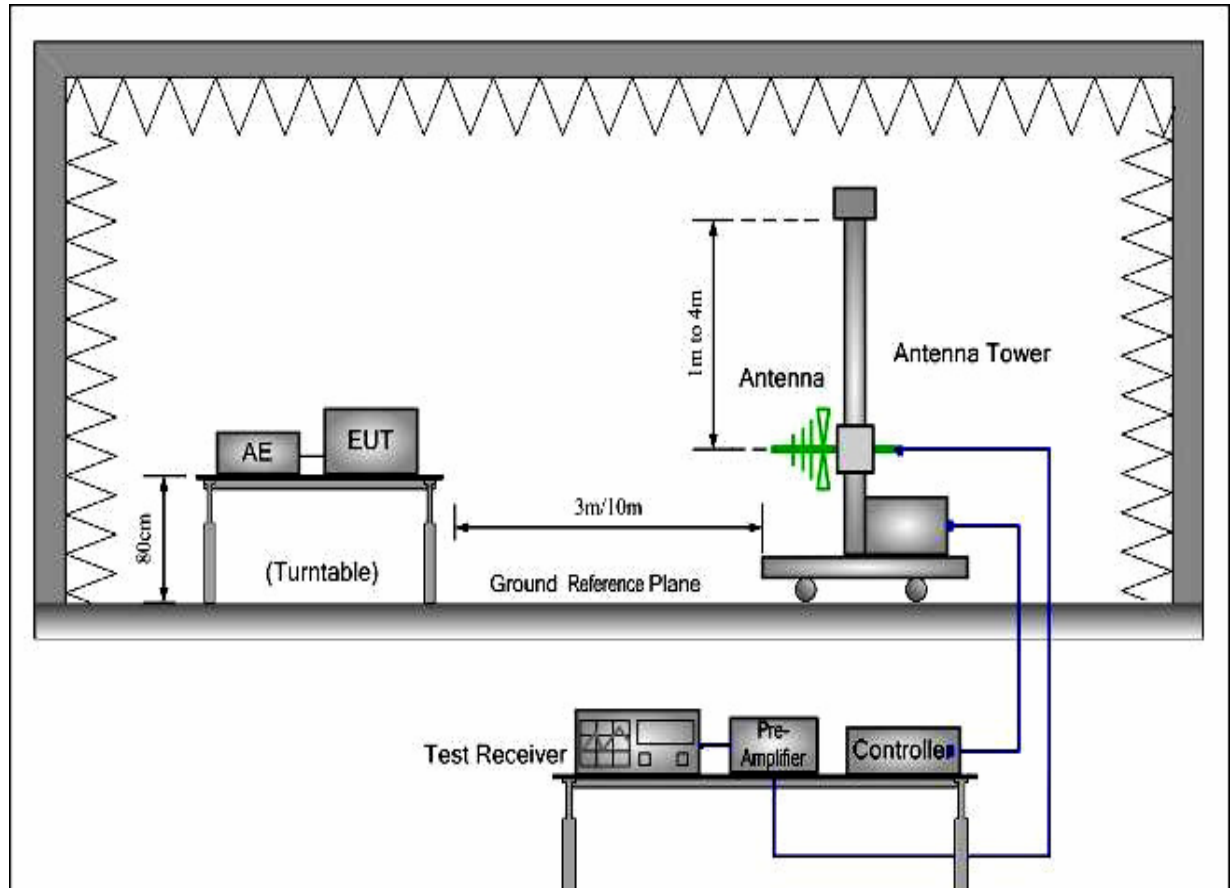
2.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 49 % RH Atmospheric Pressure: 101 kPa

EUT Operation: Test the EUT in Aux in mode.

2.2.2 Test Setup and Procedure



1. The radiated emissions test was conducted in a semi-anechoic chamber.
2. Biconical and log periodic antenna was used for the frequency range from 30MHz to 1GHz
3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
5. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360° , and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

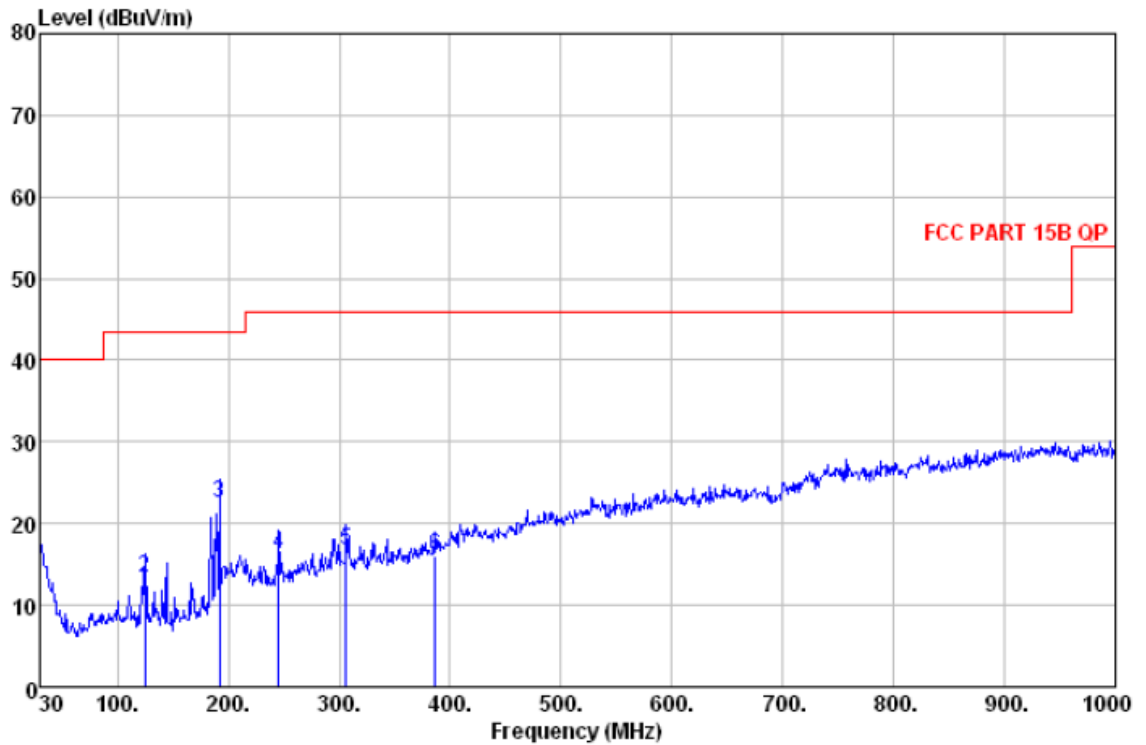
2.2.3 Measurement Data

Model: Fi30

Horizontal:

Peak scan

Level (dBµV/m)

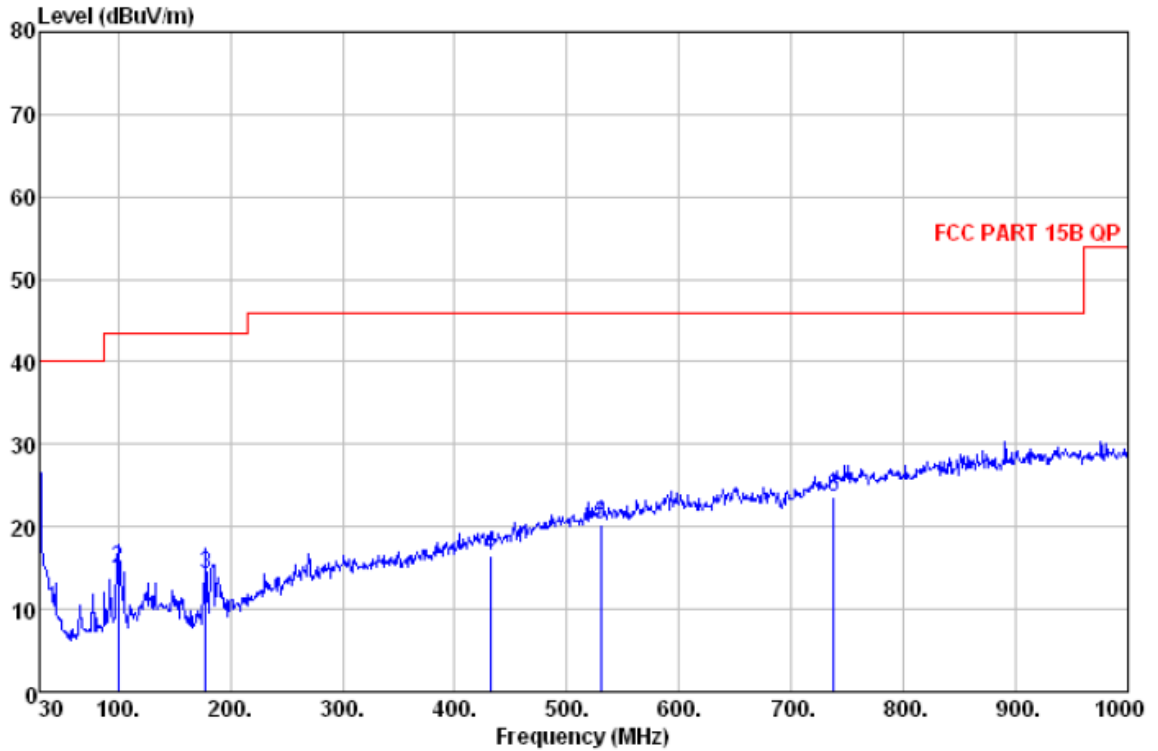


Quasi-peak measurement

No.	Freq MHz	Level dBµV/m	Remark	Antenna Factor dB/m	Cable Loss dB	Limit Line dBµV/m	Margin dB	A/pos cm	T/pos deg
1	30.000	14.83	QP	17.90	0.63	40.00	-25.17	100	8
2	125.060	13.35	QP	7.70	1.33	43.50	-30.15	100	87
3	191.990	22.50	QP	8.66	1.67	43.50	-21.00	100	77
4	245.340	16.27	QP	11.24	1.91	46.00	-29.73	200	63
5	306.450	16.78	QP	13.67	2.15	46.00	-29.22	200	32
6	386.960	16.01	QP	15.51	2.40	46.00	-29.99	200	123

Level=Read Level + Antenna Factor + Cable Loss

Vertical:
 Peak scan
 Level (dBμV/m)



Quasi-peak measurement

No.	Freq MHz	Level dBμV/m	Remark	Antenna Factor dB/m	Cable Loss dB	Limit Line dBμV/m	Margin dB	A/pos cm	T/pos deg
1	30.000	23.99	QP	17.90	0.63	40.00	-16.01	100	2
2	99.840	14.87	QP	8.69	1.17	43.50	-28.63	100	15
3	178.410	14.31	QP	8.27	1.60	43.50	-29.19	100	6
4	431.580	16.43	QP	16.60	2.57	46.00	-29.57	200	223
5	530.520	20.21	QP	19.58	2.86	46.00	-25.79	200	185
6	738.100	23.59	QP	21.73	3.42	46.00	-22.41	200	181

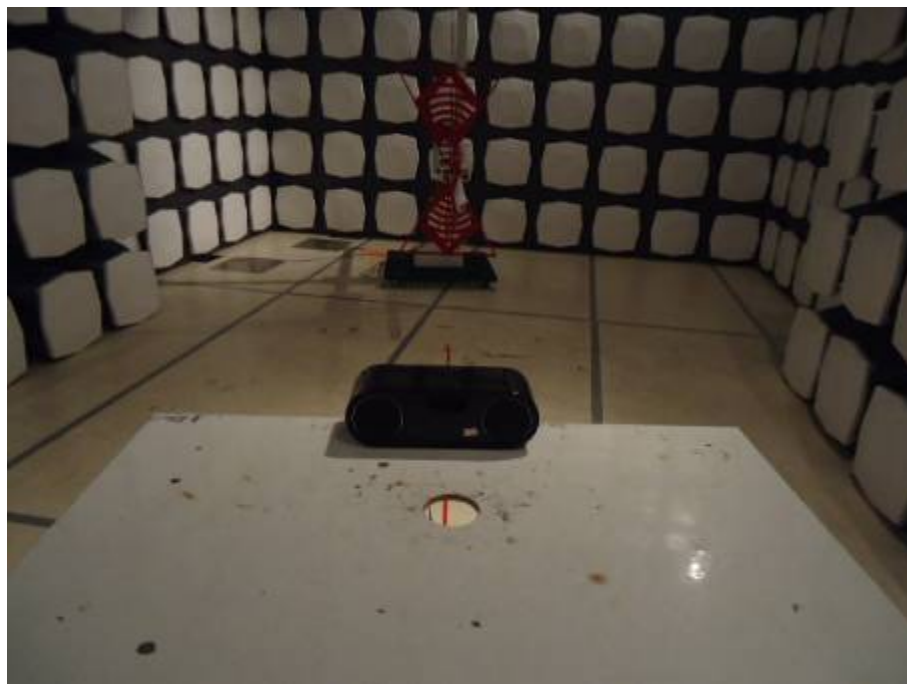
Level=Read Level + Antenna Factor + Cable Loss

Section 3 Photographs

3.1 Conducted Emissions Mains Terminals Test Setup



3.2 Radiated Emissions, 30MHz to 1GHz Test Setup



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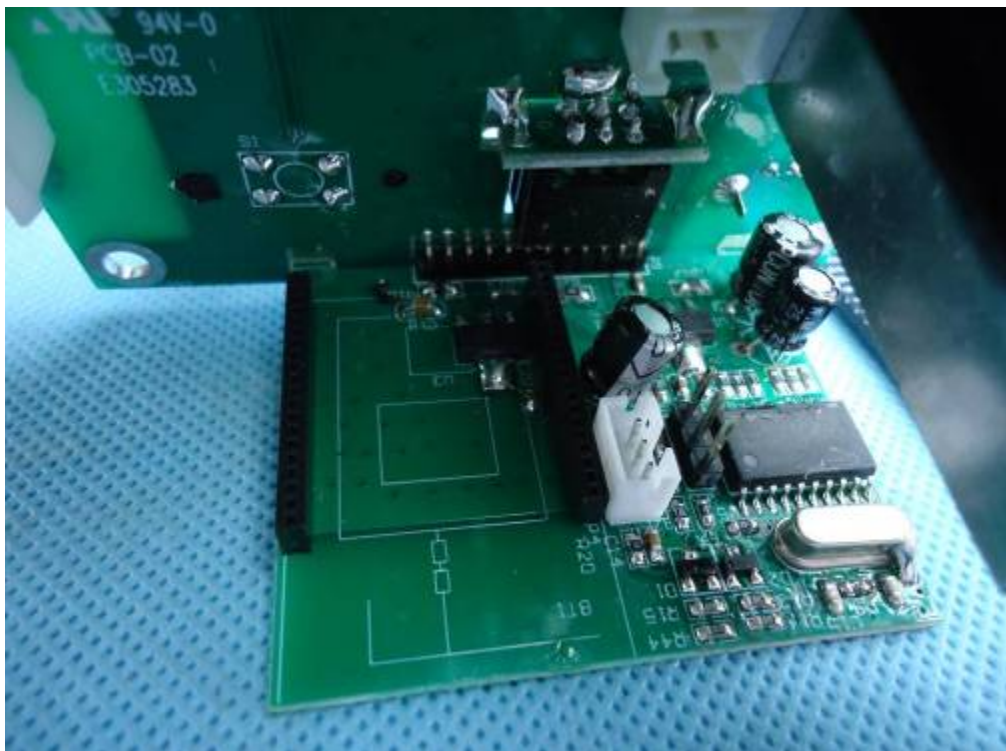
3.3 EUT Constructional Details



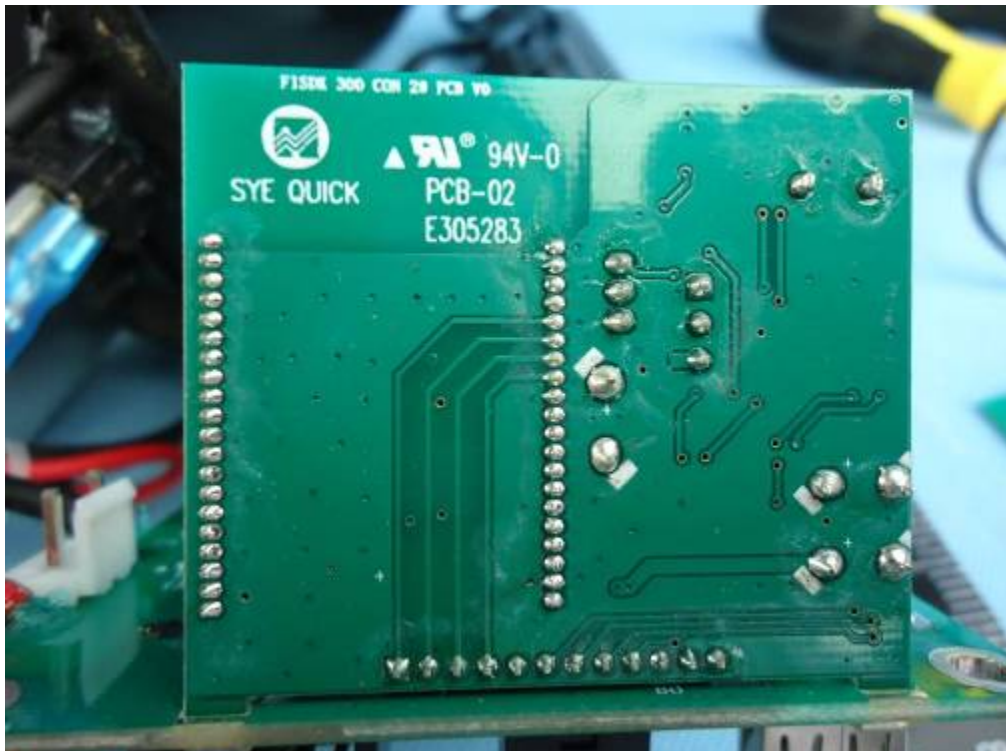
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END OF THE TEST REPORT