



No. 1 Workshop, M-10, Middle section, Science & Technology Park,  
 Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053  
 Fax: +86 (0) 755 2671 0594  
 Email: ee.shenzhen@sgs.com

Report No.: SZEM170300172001  
 Page: 1 of 15

## **TEST REPORT**

**Application No.:** SZEM1703001720CR  
**Applicant:** Flashbay Electronics  
**Address of Applicant:** Bldg b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road He Ping, Village, FuYong Town, ShenZhen  
**Manufacturer:** Flashbay Electronics  
**Address of Manufacturer:** Bldg b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road, He Ping Village, FuYong Town, ShenZhen  
**Factory:** Flashbay Electronics  
**Address of Factory:** Bldg b & C Xi Feng Cheng IND Zone, No.2 FuYuan Road He Ping, Village, FuYong Town, ShenZhen  
**Equipment Under Test (EUT):**  
**EUT Name:** Bluetooth Headphone  
**Model No.:** ARC  
**Standards:** AS/NZS CISPR 32:2013  
**Date of Receipt:** 2017-03-16  
**Date of Test:** 2017-03-22 to 2017-04-05  
**Date of Issue:** 2017-04-11

<b>Test Result :</b>	<b>Pass*</b>
----------------------	--------------

\* In the configuration tested, the EUT complied with the standards specified above.





Jack Zhang  
 EMC Laboratory 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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



<b>Revision Record</b>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2017-04-11		Original

<b>Authorized for issue by:</b>			
<b>Tested By</b>			2017-04-05
	<hr/>		<hr/>
	<b>Peter Geng /Project Engineer</b>		<b>Date</b>
<b>Checked By</b>			2017-04-11
	<hr/>		<hr/>
	<b>Eric Fu /Reviewer</b>		<b>Date</b>



## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Disturbance (30MHz-1GHz)	AS/NZS CISPR 32:2013	AS/NZS CISPR 32:2013	Class B	Pass
Conducted Disturbance at Mains Terminals (150kHz-30MHz)	AS/NZS CISPR 32:2013	AS/NZS CISPR 32:2013	Class B	Pass

InternalSource	UpperFrequency
Below 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5 times the highest frequency or 6 GHz, whichever is less



### 3 Contents

	Page
<b>1 COVER PAGE .....</b>	<b>1</b>
<b>2 TEST SUMMARY .....</b>	<b>3</b>
<b>3 CONTENTS .....</b>	<b>4</b>
<b>4 GENERAL INFORMATION .....</b>	<b>5</b>
4.1 DETAILS OF E.U.T. ....	5
4.2 DESCRIPTION OF SUPPORT UNITS .....	5
4.3 MEASUREMENT UNCERTAINTY .....	5
4.4 TEST LOCATION .....	6
4.5 TEST FACILITY.....	6
4.6 DEVIATION FROM STANDARDS.....	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS.....	6
<b>5 EQUIPMENT LIST .....</b>	<b>7</b>
<b>6 EMISSION TEST RESULTS.....</b>	<b>8</b>
6.1 RADIATED DISTURBANCE(30MHZ-1GHZ).....	8
6.1.1 <i>E.U.T. Operation</i> .....	8
6.1.2 <i>Test Setup Diagram</i> .....	8
6.1.3 <i>Measurement Data</i> .....	8
6.2 CONDUCTED DISTURBANCE AT MAINS TERMINALS(150kHz-30MHz) .....	11
6.2.1 <i>E.U.T. Operation</i> .....	11
6.2.2 <i>Test Setup Diagram</i> .....	11
6.2.3 <i>Measurement Data</i> .....	11
<b>7 PHOTOGRAPHS.....</b>	<b>14</b>
7.1 RADIATED DISTURBANCE(30MHZ-1GHZ) TEST SETUP.....	14
7.2 CONDUCTED DISTURBANCE AT MAINS TERMINALS(150kHz-30MHz) TEST SETUP .....	14
7.3 EUT CONSTRUCTIONAL DETAILS.....	15

## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 3.7V rechargeable battery
Test voltage	AC 230V/50Hz
Cable:	AUX IN line: 120cm, unshielded USB charging line: 80cm, unshielded
Internal source	16MHz

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
iPhone 4	Apple	A1349	C37HL4GXDP0N
Adapter	Apple	A1357 W010A051	REF. No.SEA0500

### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction emission	3.0dB (150kHz to 30MHz)
2	Radiated emission	4.5dB (30MHz-1GHz )
3	Temperature test	1 °C
4	Humidity test	3%

#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### 4.5 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

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.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen 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 No.: 556682.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None



## 5 Equipment List

Radiated Disturbance(30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2016-05-13	2017-05-13
EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESR	SEM004-03	2016-04-25	2017-04-25
Trilog-Broadband Antenna (30M-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-29
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-03	2016-07-06	2017-07-06

Conducted Disturbance at Mains Terminals(150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2016-05-13	2017-05-13
LISN	Rohde & Schwarz	ENV216	SEM007-01	2016-10-09	2017-10-09
LISN	ETS-LINDGREN	3816/2	SEM007-02	2016-04-25	2017-04-25
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2016-04-25	2017-04-25

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2016-05-18	2017-05-18

## 6 Emission Test Results

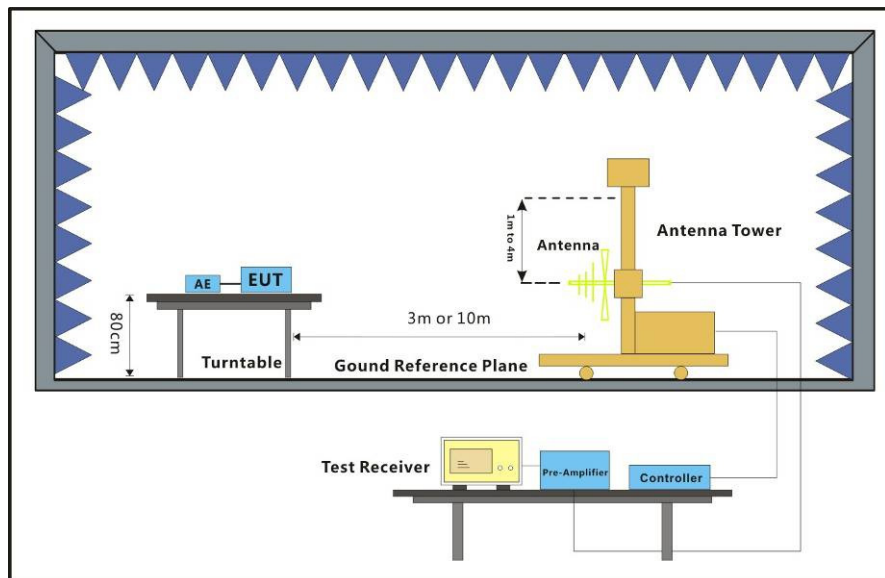
### 6.1 Radiated Disturbance(30MHz-1GHz)

Test Requirement:	AS/NZS CISPR 32:2013
Test Method:	AS/NZS CISPR 32:2013
Frequency Range:	30MHz to 1GHz
Measurement Distance:	10m
Limit:	
30MHz-230MHz	30 dB( $\mu$ V/m) quasi-peak
230MHz-1GHz	37 dB( $\mu$ V/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

#### 6.1.1 E.U.T. Operation

Operating Environment:			
Temperature:	24.0 °C	Humidity:	54 % RH
		Atmospheric Pressure:	1015 mbar
Pretest these mode to find the worst case:	c:AUX Input_Sound:1kHz Sine Wave		
	d: Charging mode		
The worst case for final test:	d: Charging mode		

#### 6.1.2 Test Setup Diagram

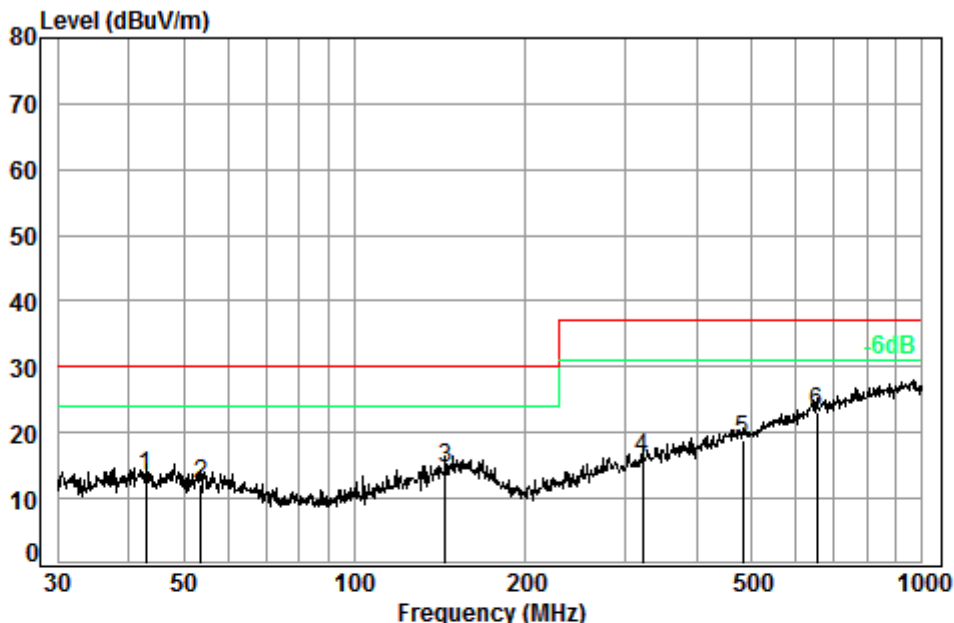


#### 6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



Mode:d; Polarization:Horizontal



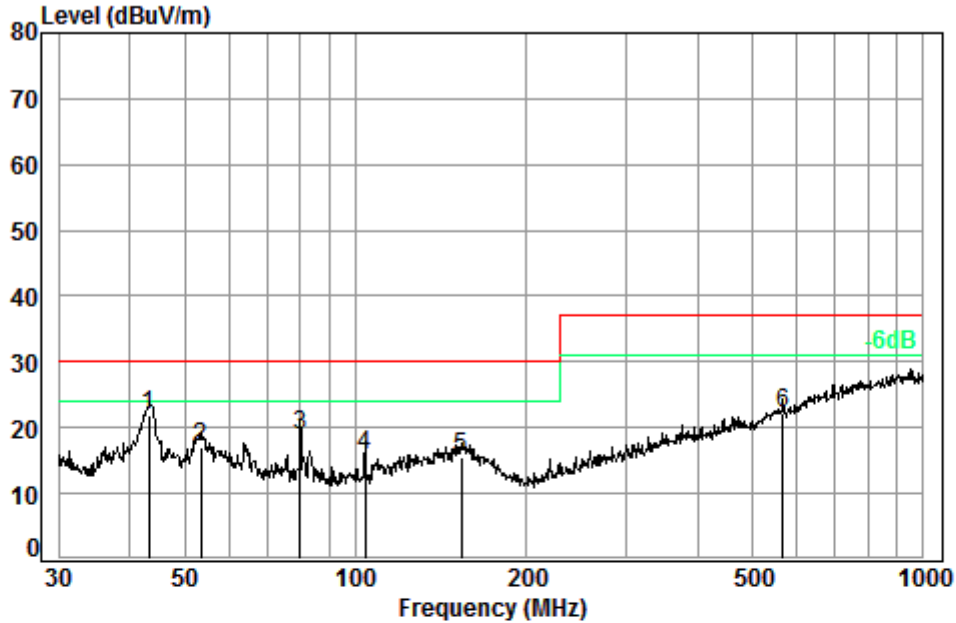
Condition: 10m HORIZONTAL

Job No. : 01720CR

Test Mode: d

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	42.90	6.80	13.07	32.99	26.46	13.34	30.00	-16.66
2	53.69	6.97	12.48	32.98	25.75	12.22	30.00	-17.78
3	144.84	7.43	13.08	32.75	26.69	14.45	30.00	-15.55
4	322.19	8.11	13.29	32.60	27.18	15.98	37.00	-21.02
5	483.91	8.52	16.57	32.60	26.25	18.74	37.00	-18.26
6 pp	651.94	9.03	19.56	32.60	27.16	23.15	37.00	-13.85

Mode:d; Polarization:Vertical



Condition: 10m VERTICAL

Job No. : 01720CR

Test Mode: d

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	43.35	6.80	13.03	32.99	34.91	21.75	30.00	-8.25
2	53.51	6.97	12.49	32.98	30.57	17.05	30.00	-12.95
3	79.80	7.10	8.57	32.87	36.04	18.84	30.00	-11.16
4	104.17	7.22	9.81	32.79	31.63	15.87	30.00	-14.13
5	153.74	7.47	13.40	32.74	27.37	15.50	30.00	-14.50
6	566.62	8.82	18.03	32.60	28.03	22.28	37.00	-14.72

## 6.2 Conducted Disturbance at Mains Terminals(150kHz-30MHz)

Test Requirement:	AS/NZS CISPR 32:2013
Test Method:	AS/NZS CISPR 32:2013
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

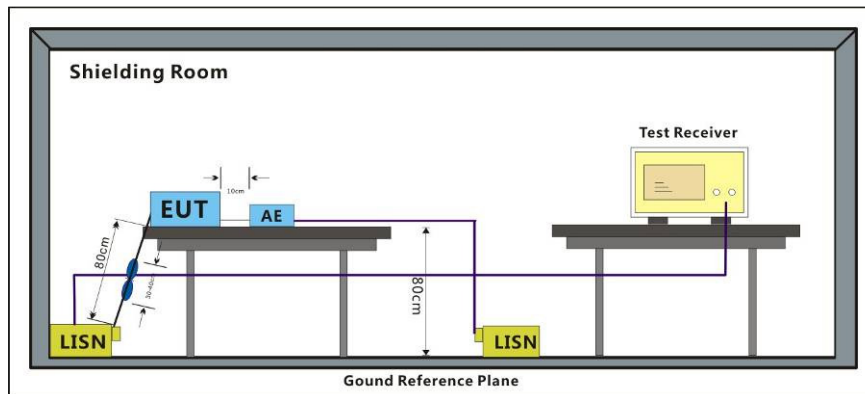
### 6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C      Humidity: 55 % RH      Atmospheric Pressure: 1015 mbar

Test mode: d: Charging mode

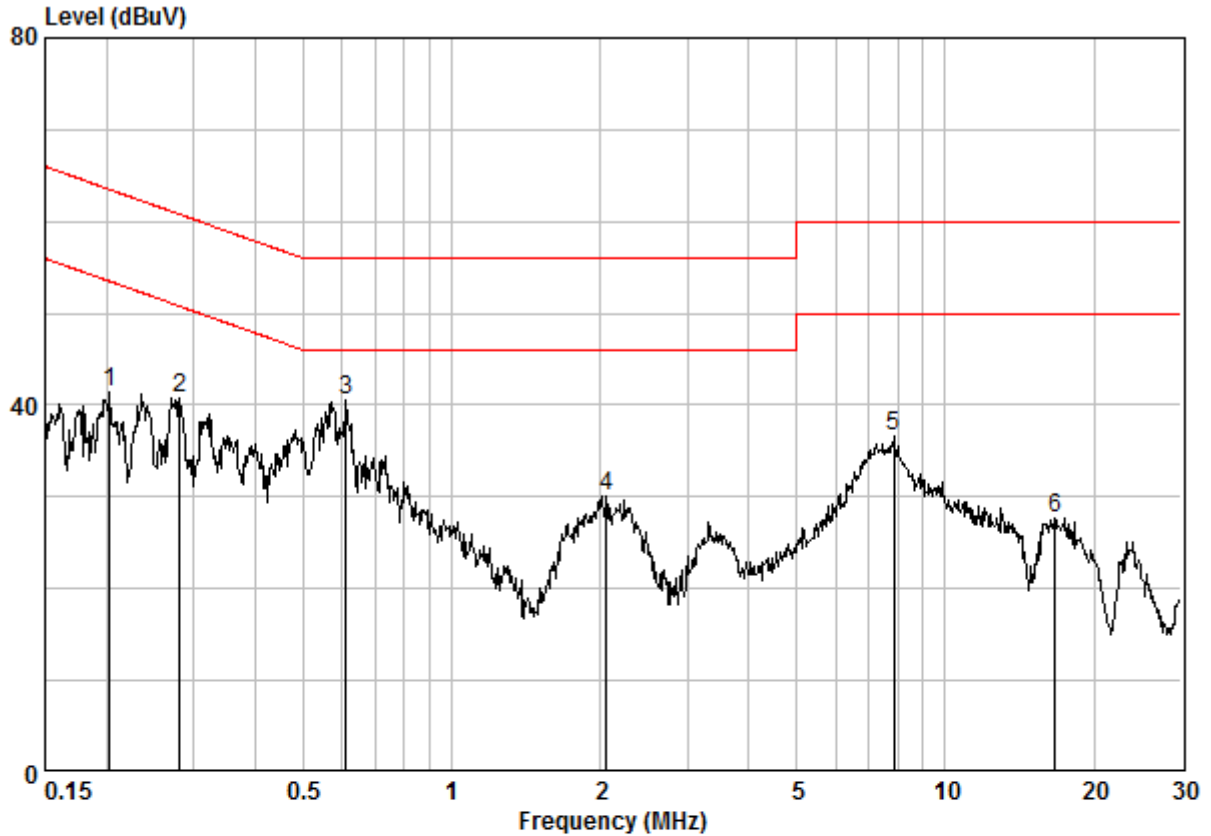
### 6.2.2 Test Setup Diagram



### 6.2.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

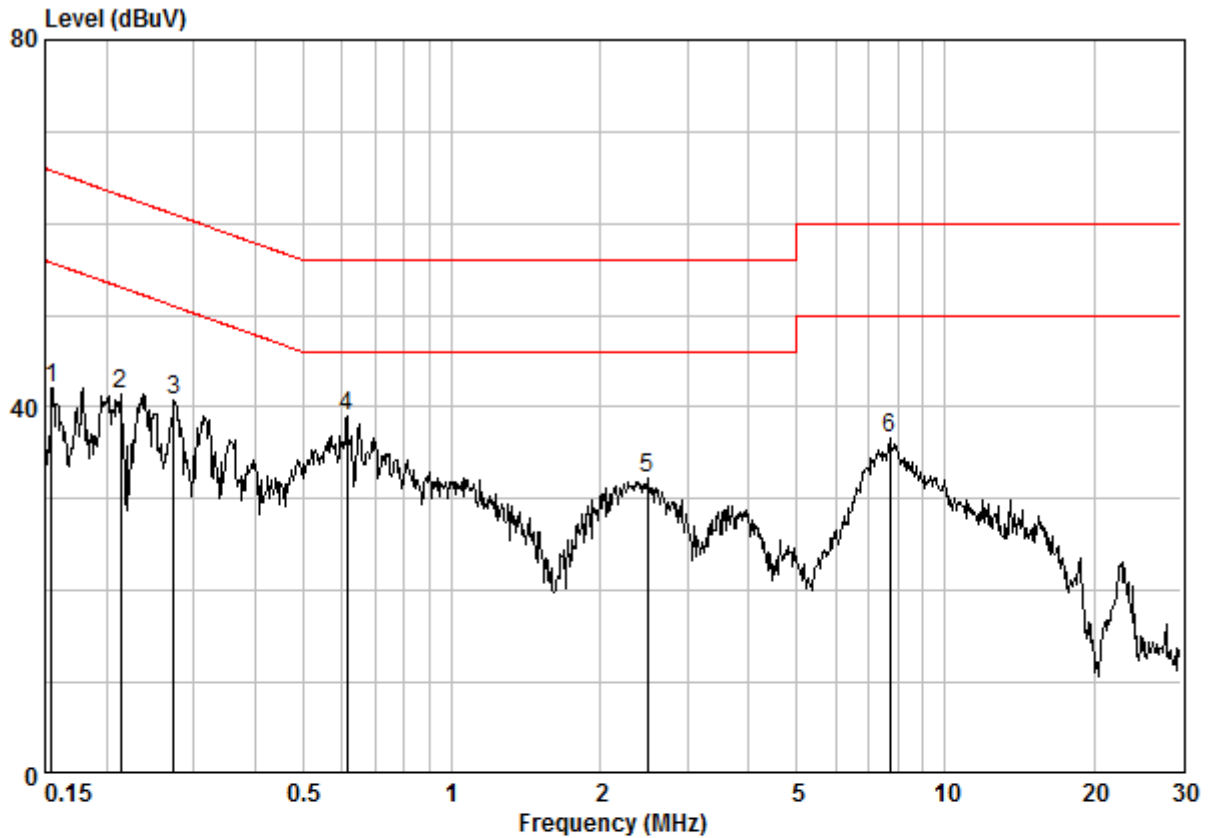
Mode:d; Line:Live Line



Site : Shielding Room  
 Condition : CE LINE  
 Job No. : 01720CR  
 Mode : d

	Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20289	0.02	9.64	31.69	41.35	53.49	-12.15	Peak
2	0.28178	0.02	9.64	31.21	40.87	50.76	-9.90	Peak
3 @	0.61075	0.02	9.65	30.78	40.45	46.00	-5.55	Peak
4	2.055	0.03	9.67	20.44	30.14	46.00	-15.86	Peak
5	7.852	0.10	9.81	26.80	36.71	50.00	-13.29	Peak
6	16.661	0.16	10.03	17.57	27.76	50.00	-22.24	Peak

Mode:d; Line:Neutral Line



Site : Shielding Room  
Condition : CE NEUTRAL  
Job No. : 01720CR  
Mode : d

	Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15485	0.02	9.64	32.43	42.09	55.74	-13.65	Peak
2	0.21392	0.02	9.63	31.83	41.48	53.05	-11.57	Peak
3	0.27297	0.02	9.63	31.01	40.66	51.03	-10.37	Peak
4	0.61400	0.02	9.63	29.34	38.99	46.00	-7.01	Peak
5	2.487	0.03	9.66	22.59	32.28	46.00	-13.72	Peak
6	7.728	0.10	9.79	26.65	36.53	50.00	-13.47	Peak

## 7 Photographs

### 7.1 Radiated Disturbance(30MHz-1GHz) Test Setup



### 7.2 Conducted Disturbance at Mains Terminals(150kHz-30MHz) Test Setup





### **7.3 EUT Constructional Details**

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1703001720CR.