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

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TEST REPORT

Application No.:	SZEM1602000659CR
Applicant:	Embest Technology Co., Ltd
Address of Applicant:	Tower B 4/F, Shanshui Building, Nanshan Yungu Innovation Industry Park, Liuxian Ave, No,1183, Nanshan District, Shenzhen, Guangdong, China
Manufacturer:	Embest Technology Co., Ltd
Address of Manufacturer:	Tower B 4/F, Shanshui Building, Nanshan Yungu Innovation Industry Park, Liuxian Ave, No,1183, Nanshan District, Shenzhen, Guangdong, China
Factory:	Embest Technology Co., Ltd
Address of Factory:	Tower B 4/F, Shanshui Building, Nanshan Yungu Innovation Industry Park, Liuxian Ave, No,1183, Nanshan District, Shenzhen, Guangdong, China
Equipment Under Test (EUT):	
EUT Name:	MCIMX7SABRE
Model No.:	MCIMX7SABRE
FCC ID:	2AFLY-MCIMX7SABRE
Standards:	47 CFR PART 15,Subpart B:2015
Date of Receipt:	2016-03-10
Date of Test:	2016-03-14 to 2016-03-28
Date of Issue:	2016-04-16
Test Result :	**PASS***

* 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.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

2 Test Summary

Item	Standard	Method	Class	Result
Conducted Disturbance at Mains Terminals (150kHz-30MHz)	47 CFR PART 15,Subpart B:2015	ANSI C63.4:2014	Class B	Pass
Radiated Disturbance (30MHz-1GHz)	47 CFR PART 15,Subpart B:2015	ANSI C63.4:2014	Class B	Pass
Radiated Disturbance (above 1GHz)	47 CFR PART 15,Subpart B:2015	ANSI C63.4:2014	Class B	Pass

The highest frequency of the internal sources of the EUT	Upper frequency of measurement Range
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply: MODEL:WT0504000
INPUT: AC 100-240V, 50/60Hz
OUTPUT: DC 5V, 4A

Cable: USB cable: unshielded, 80cm
DC line: shielded, 110cm

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
PC	Lenovo	6234	REF. No.:SEA1902
LCD-Displaying	Lenovo	L17711pC	REF. No.:SEA2502
Keyboard	Lenovo	KU-0225	REF. No.:SEA2302
Mouse	Lenovo	MO28UOA	REF. No.:SEA2402
Router	NETGEAR	DGN2200	REF. No.:SEA2200
Printer	HP	HP laser Jet 1010	N/A

4.3 Standards Applicable for Testing

Table 1 : Tests Carried Out Under 47 CFR PART 15,Subpart B:2015

Method	Item	Status
ANSI C63.4:2014	Conducted Disturbance at Mains Terminals (150kHz-30MHz)	√
ANSI C63.4:2014	Radiated Disturbance(30MHz-1GHz)	√
ANSI C63.4:2014	Radiated Disturbance(above 1GHz)	√

× Indicates that the test is not applicable
√ Indicates that the test is applicable

4.4 Test Location

All tests were performed at:

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

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)

The 3m Semi-anechoic chambers and the 10m Semi-anechoic chambers 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-2, 4620C-3.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Disturbance at Mains Terminals(150kHz-30MHz)						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	Shielding Room	ChangZhou ZhongYu	GB-88	SEL0042	2015-05-13	2016-05-13
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2015-10-09	2016-10-09
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2015-05-13	2016-05-13
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2015-05-13	2016-05-13
5	Coaxial Cable	SGS	N/A	SEL0025	2015-05-13	2016-05-13

Radiated Disturbance(30MHz-1GHz)						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2015-05-13	2016-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEL0312	2015-10-09	2016-10-09
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2015-05-13	2016-05-13
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	2014-11-01	2017-11-01
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2015-05-13	2016-05-13

Radiated Disturbance(above 1GHz)						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEL0198	2015-05-13	2016-05-13
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2015-05-13	2016-05-13
3	EMI Test software	AUDIX	E3	SEL0201	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0202	2015-05-13	2016-05-13
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2014-11-15	2017-11-15
6	Amplifier (0.1-1300MHz)	HP	8447D	SEL0153	2015-10-09	2016-10-09
7	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEL0311	2015-06-14	2018-06-14
8	Low Noise Amplifier	Black Diamond Series	BDLNA-0118-352810	SEL0319	2015-10-09	2016-10-09
9	Band filter	Amindeon	Asi 3314	SEL0094	2015-05-13	2016-05-13

General used equipment						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	Humidity/Temperature Indicator	Shang Hai Meteorological Industry Factory	ZJ1-2B	SEL0101	2015-10-12	2016-10-12
2	Humidity/Temperature Indicator	Shang Hai Meteorological Industry Factory	ZJ1-2B	SEL0102	2015-10-12	2016-10-12
3	Humidity/Temperature Indicator	Shang Hai Meteorological Industry Factory	ZJ1-2B	SEL0103	2015-10-12	2016-10-12
4	Barometer	Chang Chun Meteorological Industry Factory	DYM3	SEL0088	2015-05-13	2016-05-13

6 Emission Test Results

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

Test Requirement:	47 CFR PART 15,Subpart B:2015
Test Method:	ANSI C63.4:2014
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

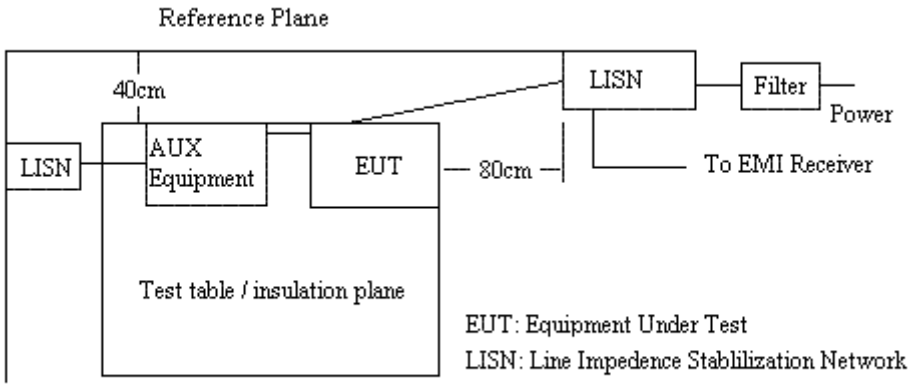
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 54 % RH Atmospheric Pressure: 1025 mbar

Test mode a:Normal Working(without wireless function)

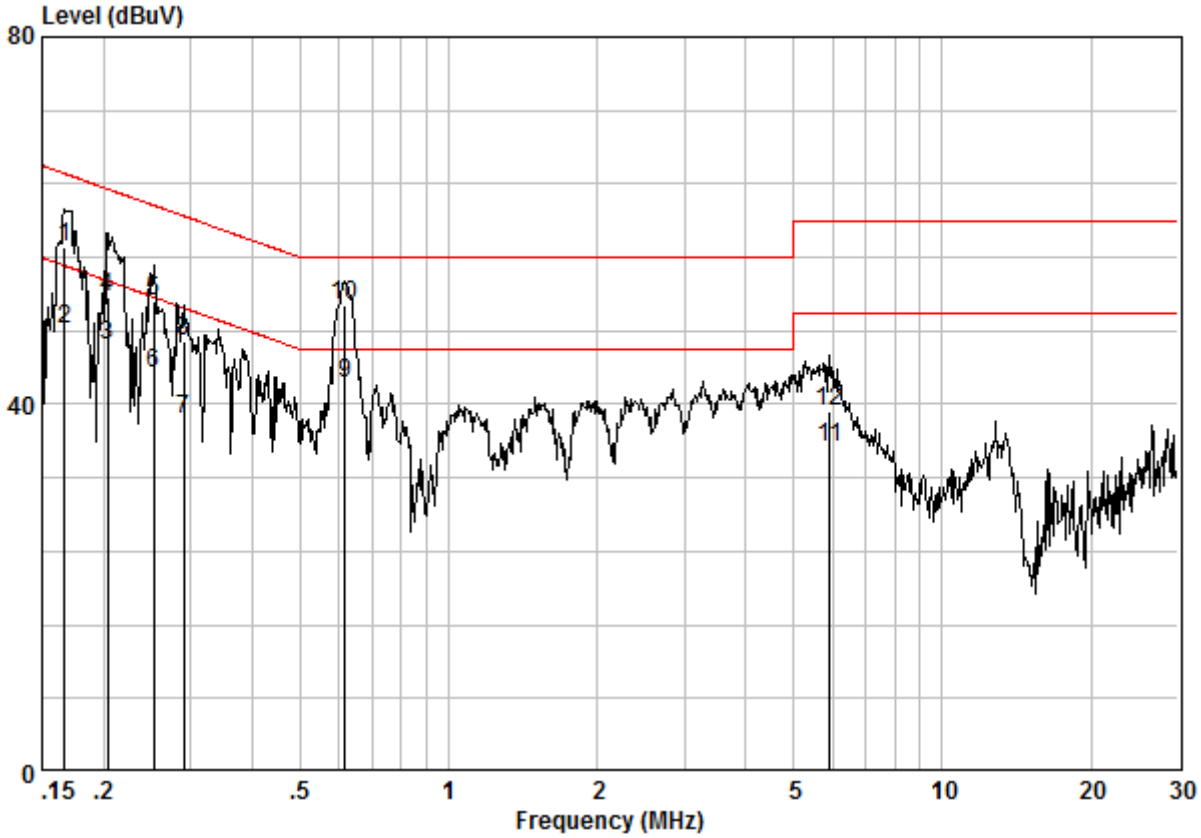
6.1.2 Test Setup



6.1.3 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.

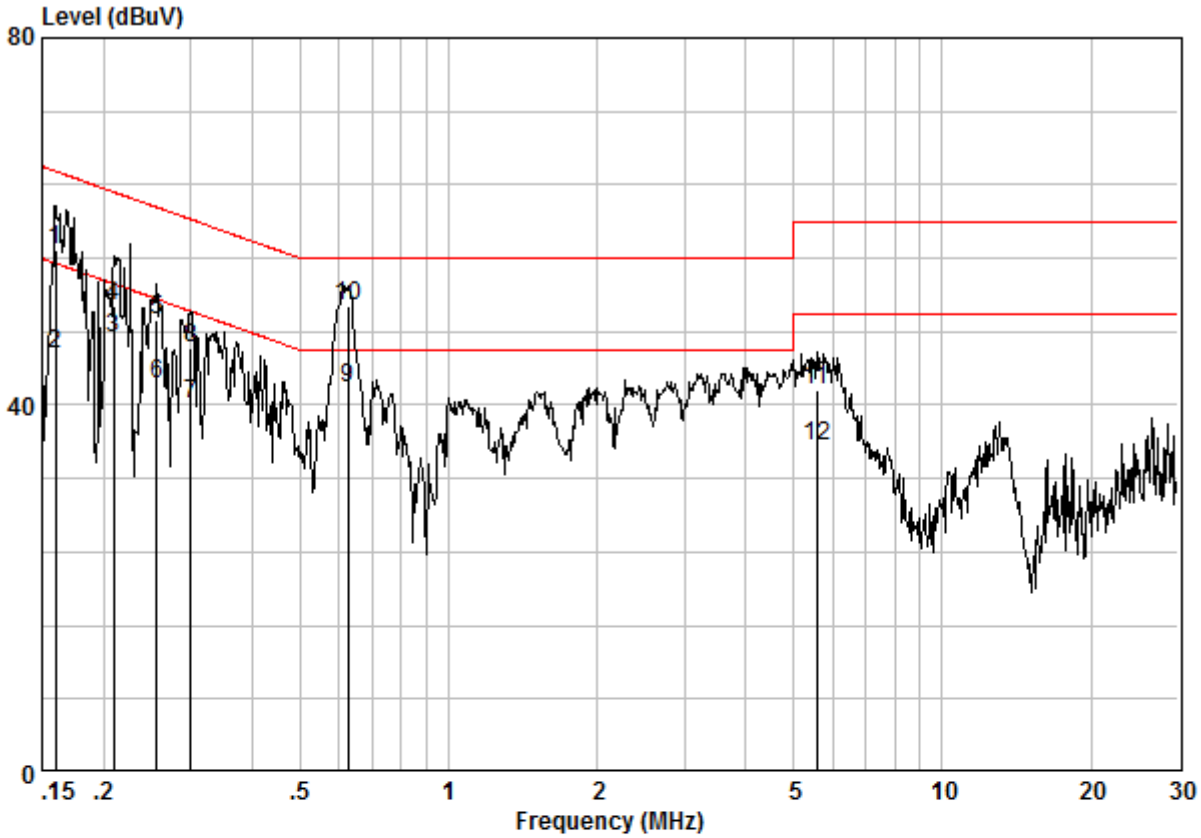
Mode:a;Line:Live Line



Site : Shielding Room
Condition : CE LINE
Job No. : 0659CR
Test Mode : a

		Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.16677	0.02	9.60	47.50	57.12	65.12	-8.00	QP
2		0.16677	0.02	9.60	38.60	48.22	55.12	-6.90	Average
3		0.20396	0.02	9.60	36.80	46.42	53.45	-7.03	Average
4		0.20396	0.02	9.60	42.10	51.72	63.45	-11.73	QP
5		0.25211	0.02	9.60	41.61	51.23	61.69	-10.46	QP
6		0.25211	0.02	9.60	33.67	43.28	51.69	-8.40	Average
7		0.29088	0.01	9.59	28.81	38.41	50.50	-12.08	Average
8		0.29088	0.01	9.59	37.19	46.79	60.50	-13.71	QP
9	@	0.61726	0.02	9.61	32.60	42.23	46.00	-3.77	Average
10		0.61726	0.02	9.61	41.10	50.73	56.00	-5.27	QP
11		5.929	0.01	9.67	25.66	35.34	50.00	-14.67	Average
12		5.929	0.01	9.67	29.59	39.27	60.00	-20.73	QP

Mode:a;Line:Neutral Line



Site : Shielding Room
Condition : CE NEUTRAL
Job No. : 0659CR
Test Mode : a

		Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.15985	0.02	9.61	47.30	56.93	65.47	-8.54	QP
2		0.15985	0.02	9.61	35.90	45.53	55.47	-9.94	Average
3		0.20944	0.02	9.62	37.70	47.34	53.23	-5.89	Average
4		0.20944	0.02	9.62	41.20	50.84	63.23	-12.39	QP
5		0.25615	0.02	9.61	39.62	49.24	61.56	-12.31	QP
6		0.25615	0.02	9.61	32.62	42.24	51.56	-9.31	Average
7		0.30028	0.01	9.62	30.54	40.17	50.24	-10.06	Average
8		0.30028	0.01	9.62	36.54	46.17	60.24	-14.06	QP
9	@	0.62383	0.02	9.63	32.10	41.75	46.00	-4.25	Average
10		0.62383	0.02	9.63	41.20	50.85	56.00	-5.15	QP
11		5.564	0.01	9.73	31.97	41.71	60.00	-18.29	QP
12		5.564	0.01	9.73	25.74	35.48	50.00	-14.52	Average

6.2 Radiated Disturbance(30MHz-1GHz)

Test Requirement:	47 CFR PART 15,Subpart B:2015
Test Method:	ANSI C63.4:2014
Frequency Range:	30MHz to 1GHz
Limit:	
30MHz -88MHz	40(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46(dBμV/m) quasi-peak
960MHz-1000MHz	54(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.2.1 E.U.T. Operation

Operating Environment:

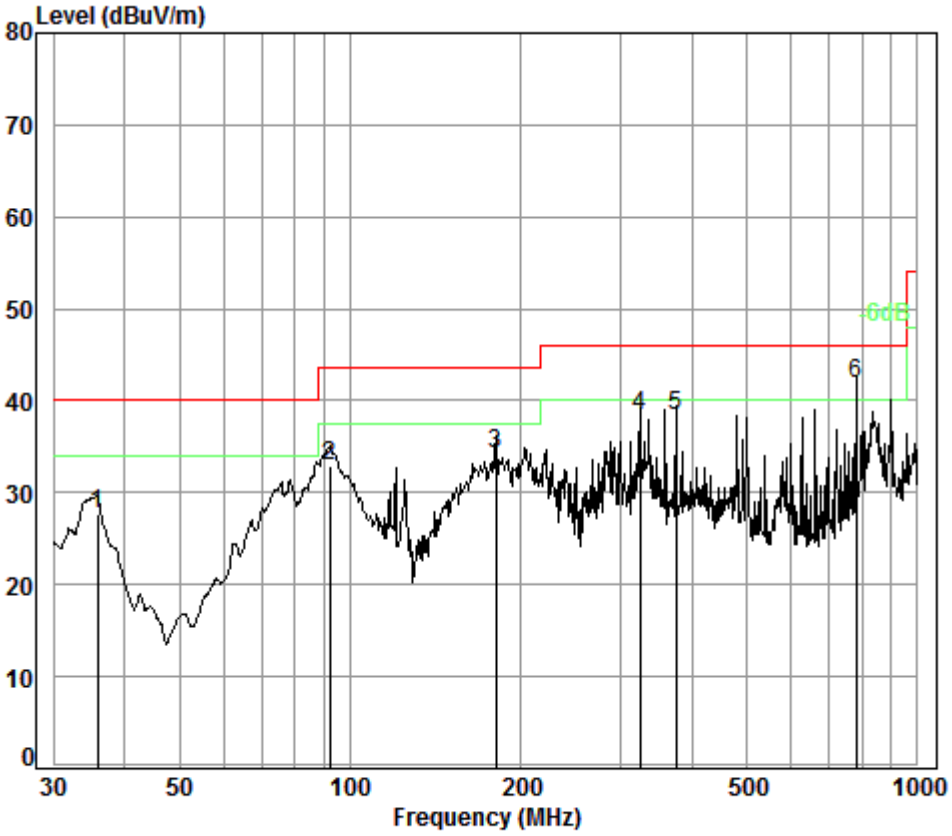
Temperature: 23.0 °C Humidity: 54 % RH Atmospheric Pressure: 1025 mbar

Test mode a: Normal Working(without wireless function)

6.2.2 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.

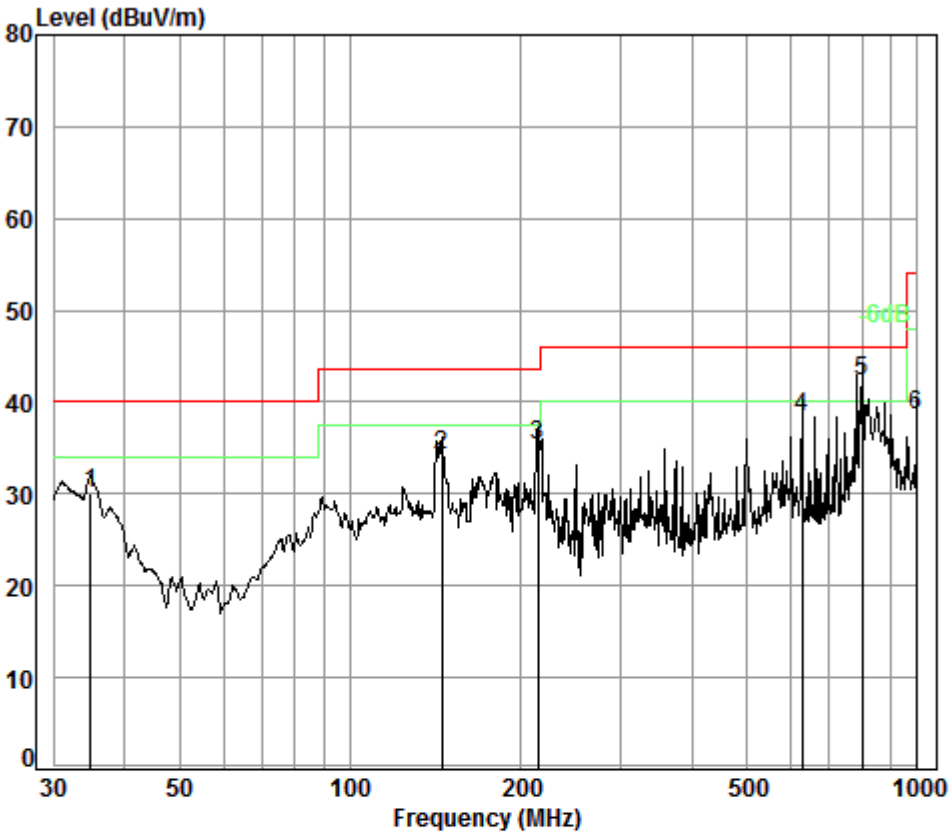
Mode:a;Polarization:Horizontal



Condition: 3m HORIZONTAL
Job No. : 0659CR
Test mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	35.87	0.60	15.39	27.33	38.99	27.65	40.00	-12.35
2	92.14	1.12	8.87	27.21	50.21	32.99	43.50	-10.51
3	180.65	1.37	9.91	26.77	49.62	34.13	43.50	-9.37
4	324.46	1.98	14.77	26.58	48.15	38.32	46.00	-7.68
5	375.94	2.13	15.92	26.97	47.32	38.40	46.00	-7.60
6 pp	779.61	3.14	21.92	27.32	44.09	41.83	46.00	-4.17

Mode:a;Polarization:Vertical



Condition: 3m VERTICAL
Job No. : 0659CR
Test mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	34.88	0.60	15.96	27.34	40.90	30.12	40.00	-9.88
2	145.35	1.31	8.89	26.93	50.95	34.22	43.50	-9.28
3	214.51	1.49	10.91	26.65	49.63	35.38	43.50	-8.12
4	625.08	2.75	20.30	27.51	42.73	38.27	46.00	-7.73
5 pp	798.98	3.20	22.00	27.30	44.38	42.28	46.00	-3.72
6	996.50	3.70	24.04	26.33	37.08	38.49	54.00	-15.51

6.3 Radiated Disturbance(above 1GHz)

Test Requirement:	47 CFR PART 15,Subpart B:2015
Test Method:	ANSI C63.4:2014
Frequency Range:	Above 1GHz
Limit:	
Above 1GHz	74(dBμV/m) peak, 54(dBμV/m) average
Detector:	Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

Operating Environment:

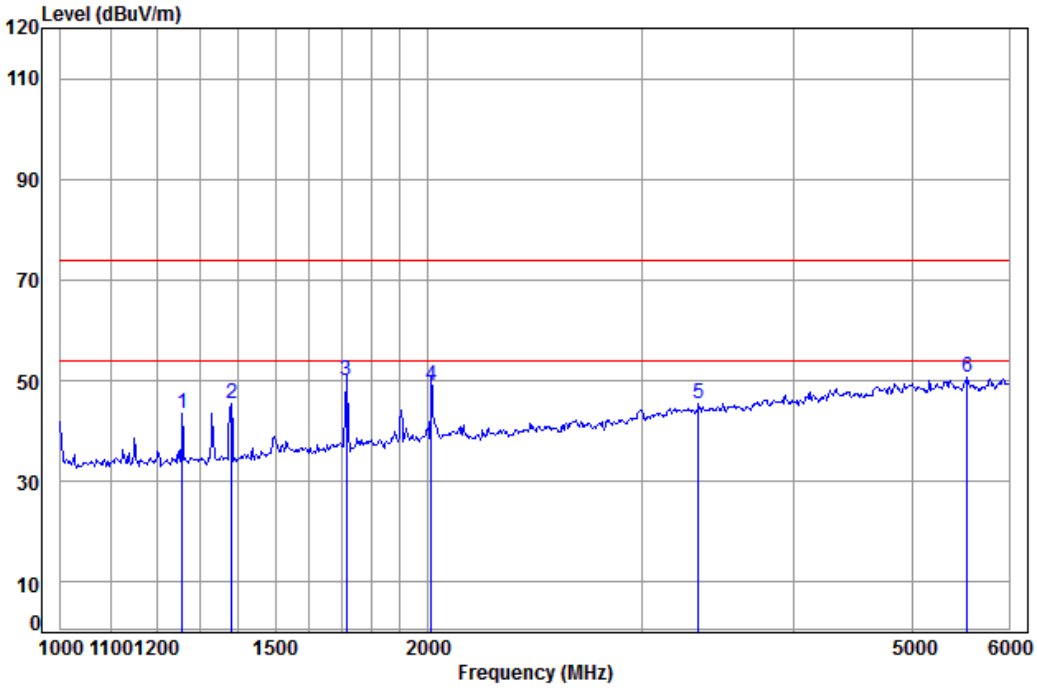
Temperature: 22.0 °C Humidity: 56 % RH Atmospheric Pressure: 1025 mbar

Test mode a: Normal Working(without wireless function)

6.3.2 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.

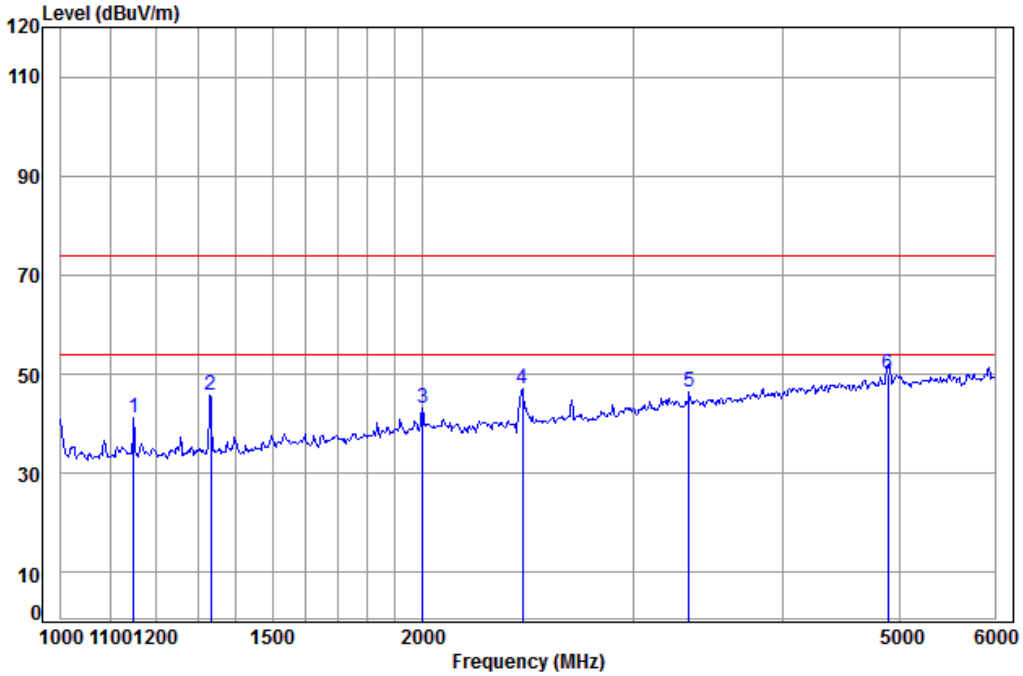
Mode:a;Polarization:Horizontal



Condition: 3m Horizontal
Job No: : 0659CR
Mode: : a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1257.78	4.16	24.38	37.98	52.86	43.42	54.00	-10.58
2	1380.60	4.32	24.75	38.00	54.42	45.49	54.00	-8.51
3	1714.84	4.72	26.49	38.05	56.93	50.09	54.00	-3.91
4	2014.92	5.02	28.28	38.09	53.79	49.00	54.00	-5.00
5	3339.61	6.19	31.80	38.30	45.84	45.53	54.00	-8.47
6 pp	5545.14	8.30	34.33	38.89	46.88	50.62	54.00	-3.38

Mode:a;Polarization:Vertical



Condition: 3m Vertical
Job No: : 0659CR
Mode: : a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1150.00	4.00	24.18	37.96	50.92	41.14	54.00	-12.86
2	1332.00	4.26	24.61	38.00	54.93	45.80	54.00	-8.20
3	2000.53	5.01	28.30	38.09	47.85	43.07	54.00	-10.93
4	2423.30	5.36	28.71	38.11	51.21	47.17	54.00	-6.83
5	3339.61	6.19	31.80	38.30	46.64	46.33	54.00	-7.67
6 pp	4891.50	7.85	34.19	38.77	46.86	50.13	54.00	-3.87

7 Photographs

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

7.2 Radiated Disturbance(30MHz-1GHz) Test Setup

7.3 Radiated Disturbance(above 1GHz) Test Setup

7.4 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1602000659CR.