



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

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Report No.: SZEM170300179204  
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## **TEST REPORT**

**Application No.:** SZEM1703001792CR  
**Applicant:** ADMOBILIZE LLC  
**Address of Applicant:** 1680 Michigan Avenue Suite 918, Miami Beach, Florida, United States  
**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:** MATRIX Creator  
**Model No.:** MATRIX.C1.US  
**FCC ID:** 2ALM5-MTXC1  
**Standards:** 47 CFR Part 15, Subpart C 15.249  
**Date of Receipt:** 2017-03-15  
**Date of Test:** 2017-03-17 to 2017-04-18  
**Date of Issue:** 2017-04-27

<b>Test Result :</b>	<b>Pass*</b>
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\* 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.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2017-04-27		Original

Authorized for issue by:			
Tested By			
	Moon Zhang /Project Engineer	2017-04-18	Date
Checked By			
	Eric Fu /Reviewer	2017-04-27	Date



## 2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.203	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Disturbance at AC Power Line(150kHz-30MHz)	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Field Strength of the Fundamental Signal(15.249(a))	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass
Restricted Band Around Fundamental Frequency	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass



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## 4 General Information

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

Operation Frequency:	908.4MHz, 916MHz
Modulation:	GFSK
Antenna Type:	Chip Antenna
Antenna Gain:	1.2dBi
Power supply:	Input: DC 5V

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Apple	A1357 W010A051	REF. No.SEA0500
Micro USB Cable	PHILIPS	SWR2101	REF. No.SEA0700
Raspberry Pi	Raspberry Pi Foundation	Raspberry Pi 3	--

### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25 x 10 <sup>-8</sup>
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	RF Radiated power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
8	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
9	Temperature test	1 °C
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	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

Conducted Disturbance at AC Power Line(150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ZhongYu Electron	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	2017-04-14	2018-04-14
8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2016-09-28	2017-09-28
4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2016-09-28	2017-09-28
2 Line ISN	Fischer Custom	FCC-TLISN-T2-02	EMC0122	2016-09-28	2017-09-28

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09

Radiated Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2016-05-13	2017-05-13
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24



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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 Radio Spectrum Matter Test Results

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

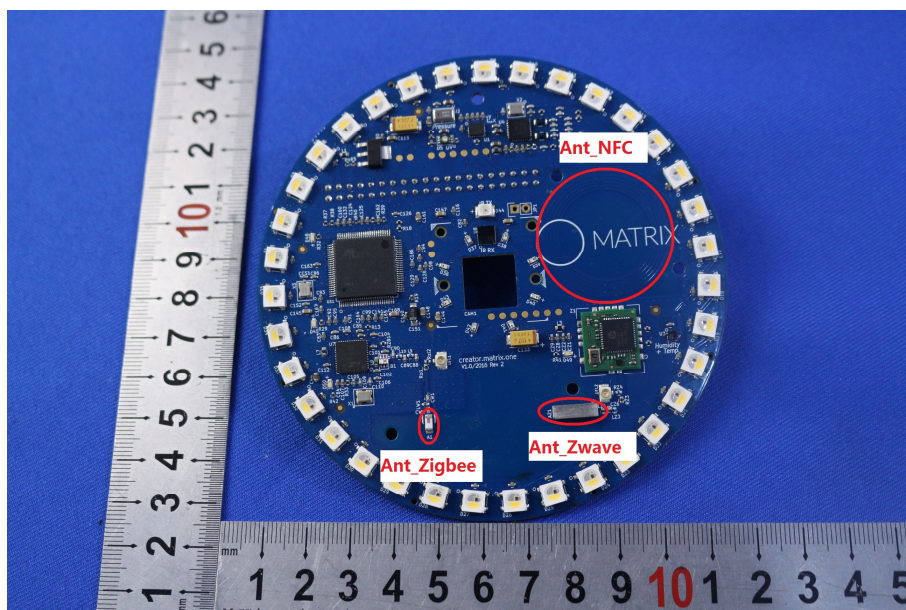
#### 6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.2dBi.





## 6.2 Conducted Disturbance at AC Power Line(150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

### 6.2.1 E.U.T. Operation

Operating Environment:

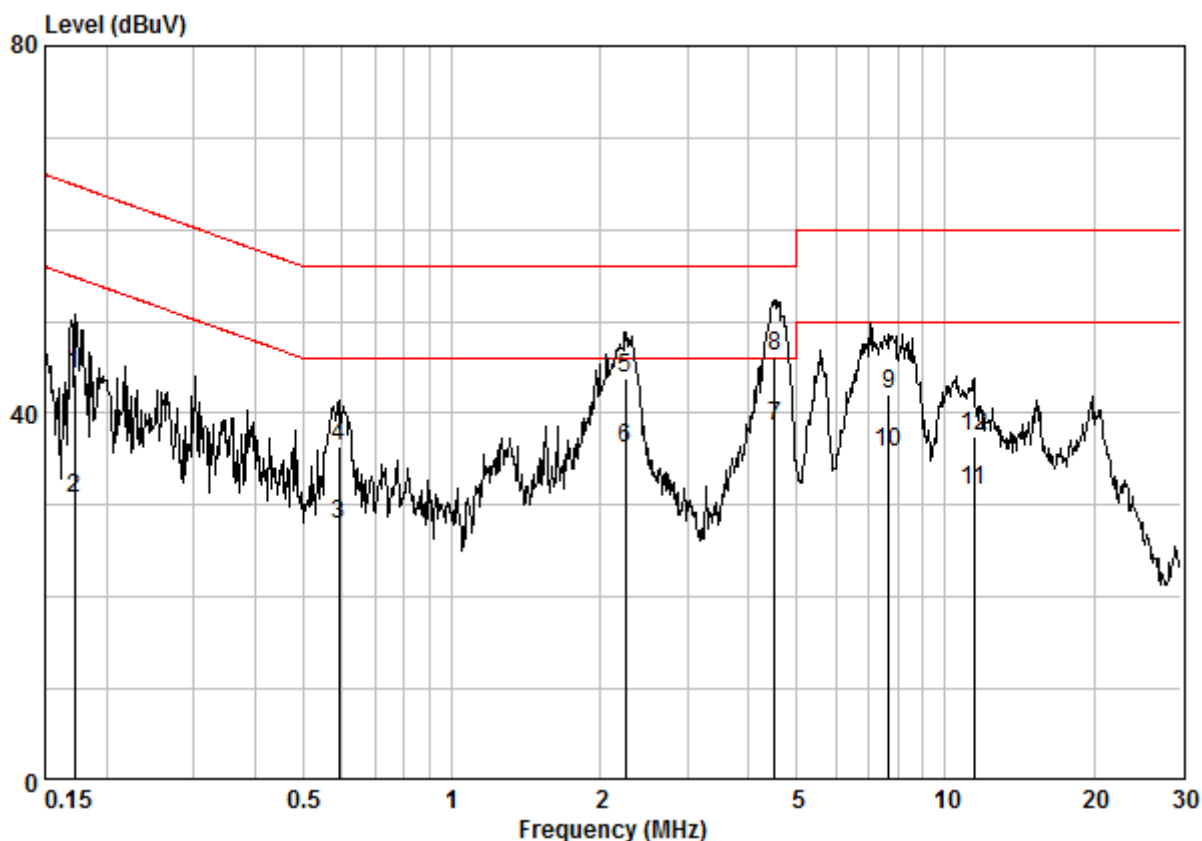
Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar

Test mode: e:TX mode\_Keep the EUT in transmitting mode(Z-WARE)

### 6.2.2 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm 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,
- 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 LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

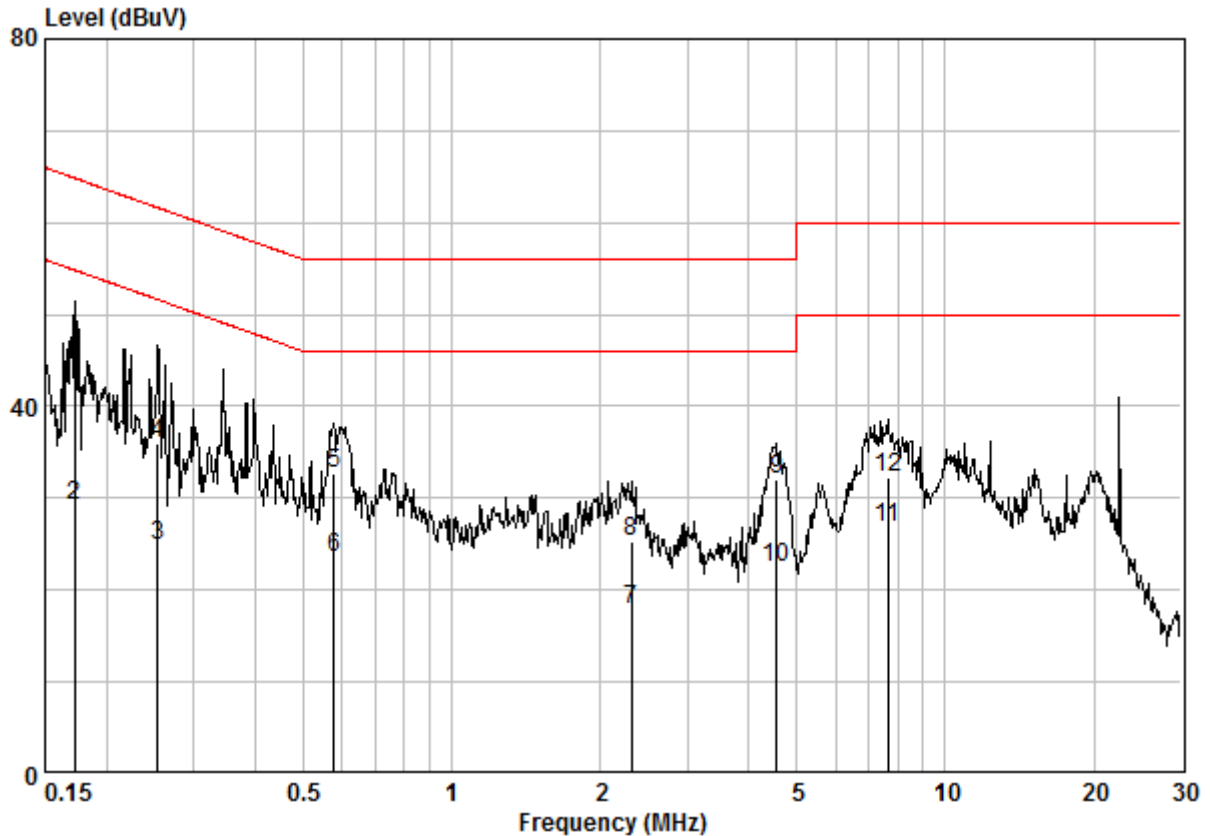
Mode:e; Line:Live Line



Site : Shielding Room  
Condition : CE LINE  
Job No. : 01792CR  
Test Mode : e

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17215	0.02	9.64	34.67	44.33	64.86	-20.52	QP
2	0.17215	0.02	9.64	20.99	30.65	54.86	-24.21	AVERAGE
3	0.59164	0.02	9.65	18.27	27.94	46.00	-18.06	AVERAGE
4	0.59164	0.02	9.65	26.64	36.31	56.00	-19.69	QP
5	2.249	0.03	9.68	34.20	43.91	56.00	-12.09	QP
6	2.249	0.03	9.68	26.46	36.16	46.00	-9.84	AVERAGE
7 @	4.501	0.02	9.73	28.78	38.52	46.00	-7.48	AVERAGE
8	4.501	0.02	9.73	36.42	46.17	56.00	-9.83	QP
9	7.687	0.09	9.81	32.09	41.99	60.00	-18.01	QP
10	7.687	0.09	9.81	25.82	35.72	50.00	-14.28	AVERAGE
11	11.438	0.15	9.89	21.50	31.53	50.00	-18.47	AVERAGE
12	11.438	0.15	9.89	27.48	37.51	60.00	-22.49	QP

Mode:e; Line:Neutral Line



Site : Shielding Room  
Condition : CE NEUTRAL  
Job No. : 01792CR  
Test Mode : e

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17215	0.02	9.63	33.93	43.58	64.86	-21.27	QP
2	0.17215	0.02	9.63	19.45	29.10	54.86	-25.75	AVERAGE
3	0.25345	0.02	9.63	15.20	24.85	51.64	-26.79	AVERAGE
4	0.25345	0.02	9.63	26.30	35.95	61.64	-25.70	QP
5	0.57617	0.02	9.63	23.12	32.77	56.00	-23.23	QP
6	0.57617	0.02	9.63	13.98	23.63	46.00	-22.37	AVERAGE
7	2.309	0.03	9.66	8.26	17.95	46.00	-28.05	AVERAGE
8	2.309	0.03	9.66	15.52	25.21	56.00	-30.79	QP
9	4.549	0.02	9.71	22.30	32.02	56.00	-23.98	QP
10	4.549	0.02	9.71	12.72	22.45	46.00	-23.55	AVERAGE
11	7.646	0.09	9.79	16.94	26.82	50.00	-23.18	AVERAGE
12	7.646	0.09	9.79	22.41	32.29	60.00	-27.71	QP



### 6.3 Field Strength of the Fundamental Signal(15.249(a))

Test Requirement 47 CFR Part 15, Subpart C 15.249(a)  
Test Method: ANSI C63.10 (2013) Section 6.5&6.6  
Measurement Distance: 3m  
Limit:

Frequency	Limit (dBuV/m @3m)	Remark
902MHz-928MHz	94.0	Quasi-Peak

#### 6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar  
Test mode: e:TX mode\_Keep the EUT in transmitting mode(Z-WARE)

#### 6.3.2 Measurement Procedure and Data

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel,the middle channel,the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- Repeat above procedures until all frequencies measured was complete.



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Mode : e

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
908.4	3.61	23.23	26.75	85.77	85.86	94.00	-8.14	Horizontal
908.4	3.61	23.23	26.75	80.70	80.79	94.00	-13.21	Vertical
916.0	3.62	23.26	26.71	83.37	83.54	94.00	-10.46	Horizontal
916.0	3.62	23.26	26.71	81.28	81.45	94.00	-12.55	Vertical





## 6.4 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)

Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	-	300
0.490-1.705	24000/F(kHz)	-	-	30
1.705-30	30	-	-	30
30-88	100	40.0	QP	3
88-216	150	43.5	QP	3
216-960	200	46.0	QP	3
960-1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3

### 6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 53 % RH Atmospheric Pressure: 1015 mbar

Test mode: e:TX mode\_Keep the EUT in transmitting mode(Z-WARE)

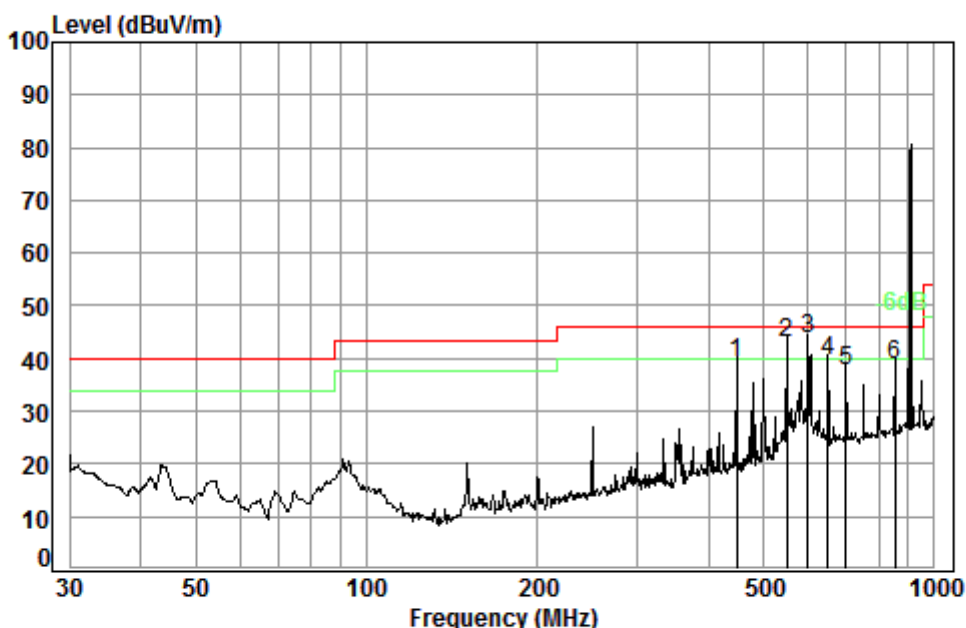
### 6.4.2 Measurement Procedure and Data

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel,the middle channel,the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- Repeat above procedures until all frequencies measured was complete.



Emissions Below 1GHz:

Test frequency:	908.4MHz	Remark:	Peak	Vertical
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Condition: 3m VERTICAL

Job No. : 01792CR

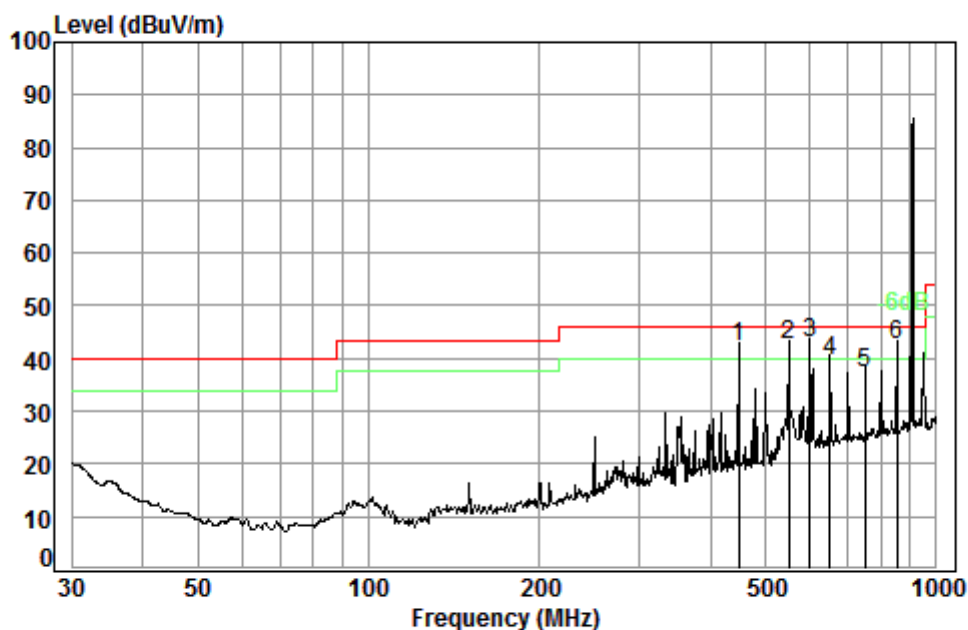
Test mode: TX-908.4MHz

	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	449.56	2.41	16.89	27.44	47.45	39.31	46.00	-6.69
2	549.02	2.65	18.88	27.62	49.13	43.04	46.00	-2.96
3 pp	599.32	2.70	19.78	27.54	48.61	43.55	46.00	-2.45
4	649.66	2.80	20.60	27.47	43.63	39.56	46.00	-6.44
5	699.30	2.90	21.59	27.41	40.58	37.66	46.00	-8.34
6	851.04	3.41	22.42	27.02	39.96	38.77	46.00	-7.23





Test frequency:	908.4MHz	Remark:	Peak	Horizontal
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Condition: 3m HORIZONTAL

Job No. : 01792CR

Test mode: TX-908.4MHz

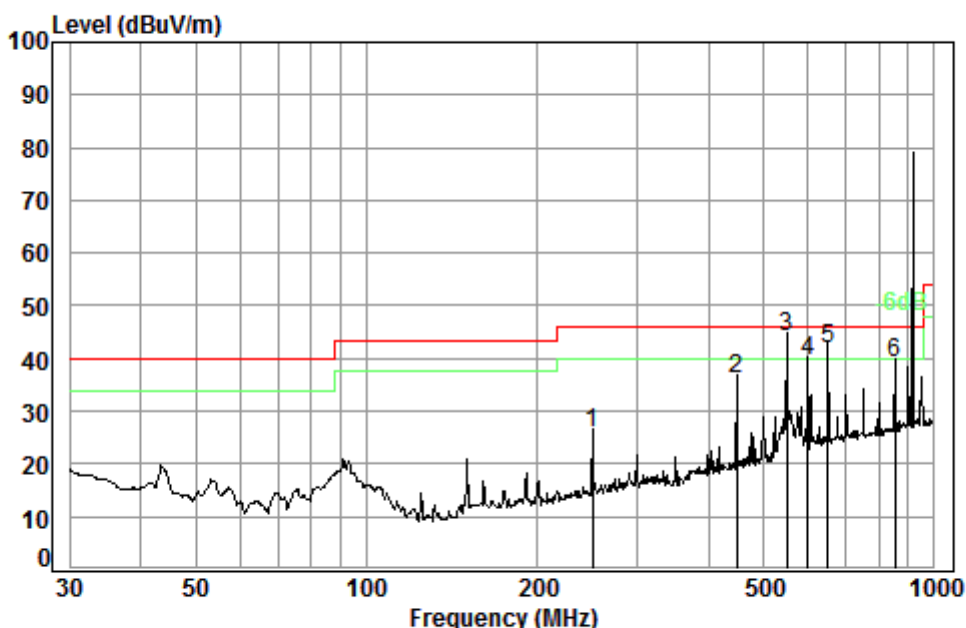
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	449.56	2.41	16.89	27.44	50.27	42.13	46.00	-3.87
2	549.02	2.65	18.88	27.62	48.60	42.51	46.00	-3.49
3 pp	599.32	2.70	19.78	27.54	47.97	42.91	46.00	-3.09
4	649.66	2.80	20.60	27.47	43.66	39.59	46.00	-6.41
5	750.11	3.06	21.70	27.35	39.90	37.31	46.00	-8.69
6	851.04	3.41	22.42	27.02	43.65	42.46	46.00	-3.54



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Test frequency:	916MHz	Remark:	Peak	Vertical
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Condition: 3m VERTICAL

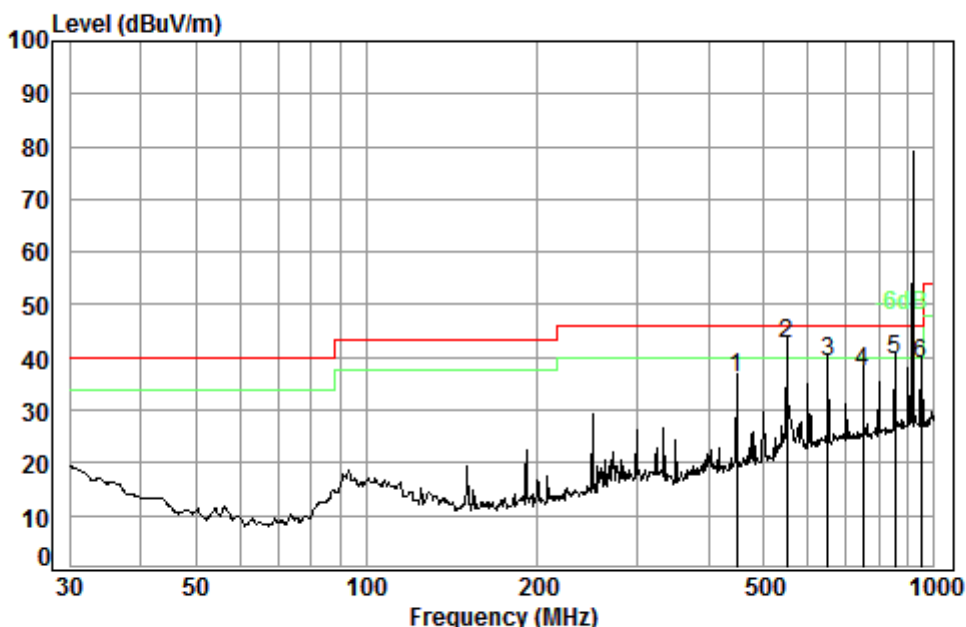
Job No. : 01792CR

Test mode: TX-916MHz

	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	250.30	1.68	12.31	26.54	38.34	25.79	46.00	-20.21
2	449.56	2.41	16.89	27.44	44.15	36.01	46.00	-9.99
3 pp	549.02	2.65	18.88	27.62	50.03	43.94	46.00	-2.06
4	599.32	2.70	19.78	27.54	44.46	39.40	46.00	-6.60
5	649.66	2.80	20.60	27.47	45.85	41.78	46.00	-4.22
6	851.04	3.41	22.42	27.02	40.25	39.06	46.00	-6.94



Test frequency:	916MHz	Remark:	Peak	Horizontal
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Condition: 3m HORIZONTAL

Job No. : 01792CR

Test mode: TX-916MHz

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	449.56	2.41	16.89	27.44	44.17	36.03	46.00
2	549.02	2.65	18.88	27.62	48.71	42.62	46.00
3	649.66	2.80	20.60	27.47	43.28	39.21	46.00
4	750.11	3.06	21.70	27.35	40.01	37.42	46.00
5	851.04	3.41	22.42	27.02	40.75	39.56	46.00
6	948.76	3.65	23.30	26.54	38.55	38.96	46.00



**Emission Above 1GHz:**

Test mode:		Transmitting	Test Frequency:		908.4MHz	Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
1816.800	27.130	4.83	38.02	48.94	42.88	74.00	-31.12	Vertical
2725.200	30.290	5.66	37.93	54.74	52.76	74.00	-21.24	Vertical
3633.600	32.590	6.41	37.96	44.92	45.96	74.00	-28.04	Vertical
4542.000	33.680	7.34	38.27	44.93	47.68	74.00	-26.32	Vertical
5450.400	34.990	8.97	37.94	45.52	51.54	74.00	-22.46	Vertical
9084.000	36.750	10.72	35.36	41.30	53.41	74.00	-20.59	Horizontal
1816.800	27.130	4.83	38.02	48.81	42.75	74.00	-31.25	Horizontal
2725.200	30.290	5.66	37.93	55.08	53.10	74.00	-20.90	Horizontal
3633.600	32.590	6.41	37.96	43.80	44.84	74.00	-29.16	Horizontal
4542.000	33.680	7.34	38.27	44.99	47.74	74.00	-26.26	Horizontal

Test mode:		Transmitting	Test Frequency:	916MHz		Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
1832.000	27.190	4.85	38.02	48.89	42.91	74.00	-31.09	Vertical
2748.000	30.390	5.68	37.93	55.86	54.00	74.00	-20.00	Vertical
3664.000	32.680	6.44	37.97	45.12	46.27	74.00	-27.73	Vertical
4580.000	33.750	7.40	38.29	45.65	48.51	74.00	-25.49	Vertical
6412.000	35.030	9.01	37.89	44.41	50.56	74.00	-23.44	Vertical
9160.000	36.890	10.77	35.32	41.20	53.54	74.00	-20.46	Horizontal
1832.000	27.190	4.85	38.02	48.62	42.64	74.00	-31.36	Horizontal
2748.000	30.390	5.68	37.93	55.73	53.87	74.00	-20.13	Horizontal
3664.000	32.680	6.44	37.97	45.07	46.22	74.00	-27.78	Horizontal
5496.000	34.400	8.25	38.40	45.04	49.29	74.00	-24.71	Horizontal

**Note:**

- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:  
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$
- As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



## 6.5 Restricted Band Around Fundamental Frequency

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6

Measurement Distance: 3m

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
Above 1GHz	74.0	Peak Value
Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.		



#### **6.5.1 E.U.T. Operation**

Operating Environment:

Temperature: 23 °C Humidity: 53 % RH Atmospheric Pressure: 1015 mbar

Test mode: e:TX mode\_Keep the EUT in transmitting mode(Z-WARE)

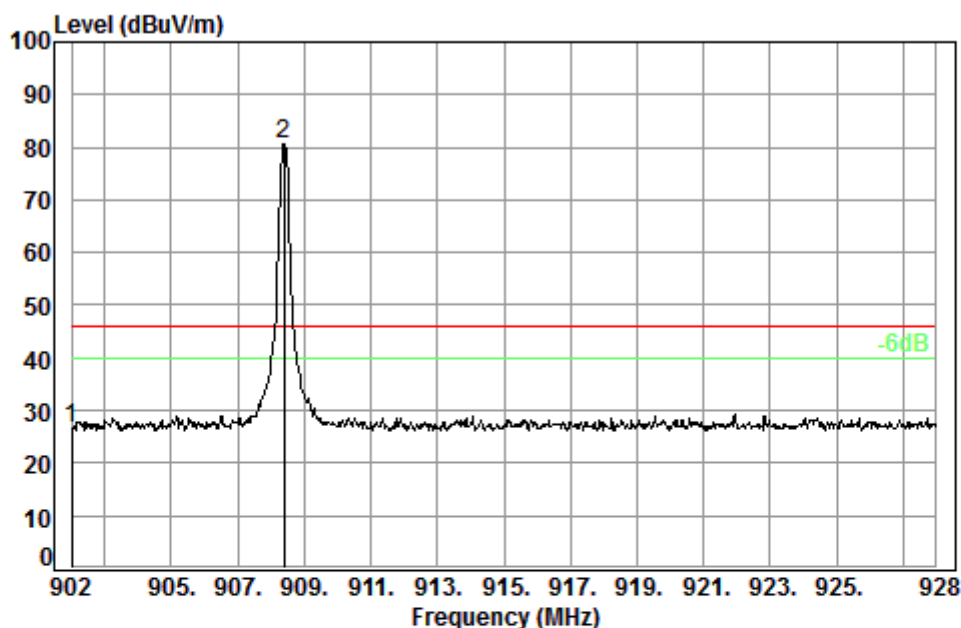
#### **6.5.2 Measurement Procedure and Data**

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel,the middle channel,the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.



Test plot as follows:

Test frequency:	908.4MHz	Remark:	Peak	Vertical
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Condition: 3m VERTICAL

Job No. : 01792CR

Test mode: TX-908.4MHz

	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	902.00	3.60	23.21	26.75	26.69	26.75	46.00	-19.25
2 pp	908.40	3.61	23.23	26.75	80.70	80.79	46.00	34.79
3	928.00	3.63	23.30	26.64	26.47	26.76	46.00	-19.24

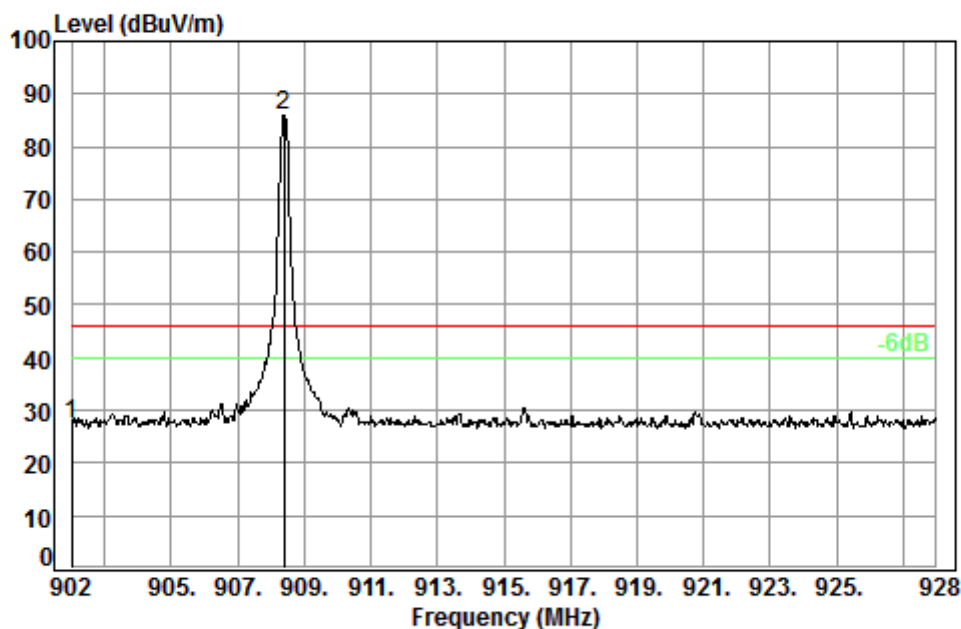


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Test frequency:	908.4MHz	Remark:	Peak	Horizontal
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Condition: 3m HORIZONTAL

Job No. : 01792CR

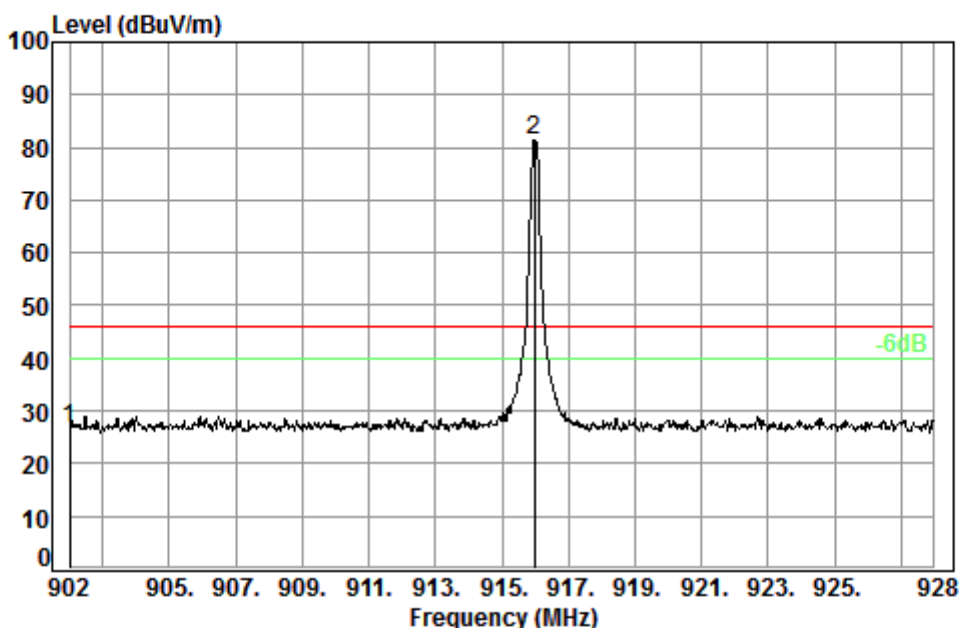
Test mode: TX-908.4MHz

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	902.00	3.60	23.21	26.75	27.50	27.56	46.00 -18.44
2 pp	908.40	3.61	23.23	26.75	85.77	85.86	46.00 39.86
3	928.00	3.63	23.30	26.64	27.39	27.68	46.00 -18.32





Test frequency:	916MHz	Remark:	Peak	Vertical
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Condition: 3m VERTICAL

Job No. : 01792CR

Test mode: TX-916MHz

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	902.00	3.60	23.21	26.75	26.47	26.53	46.00	-19.47
2 pp	915.99	3.62	23.26	26.71	81.28	81.45	46.00	35.45
3	928.00	3.63	23.30	26.64	27.59	27.88	46.00	-18.12

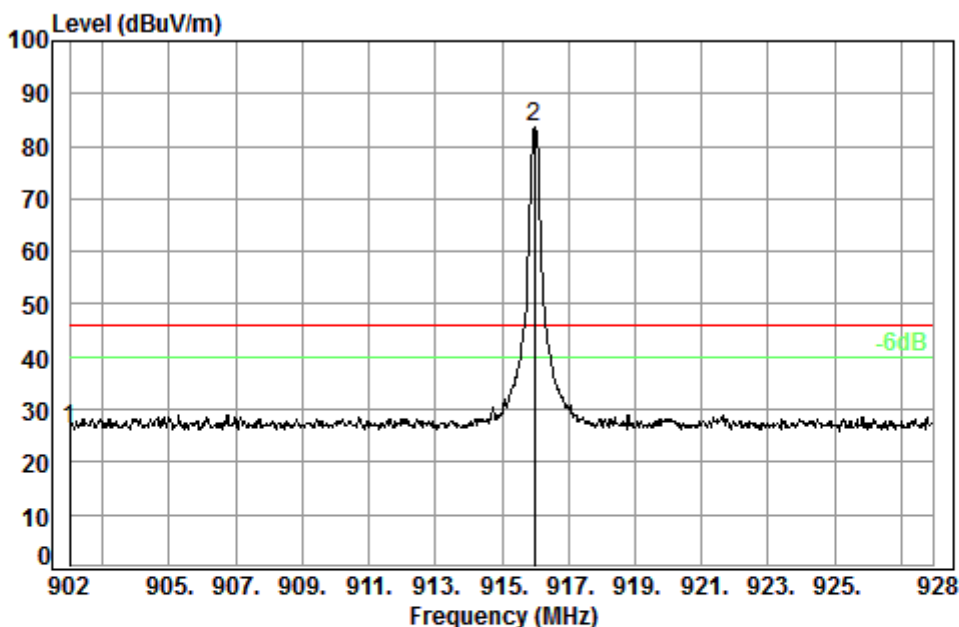


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Test frequency:	916MHz	Remark:	Peak	Horizontal
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Condition: 3m HORIZONTAL

Job No. : 01792CR

Test mode: TX-916MHz

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m
1	902.00	3.60	23.21	26.75	26.28	26.34	46.00
2 pp	915.99	3.62	23.26	26.71	83.37	83.54	46.00
3	928.00	3.63	23.30	26.64	27.62	27.91	46.00

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor



## **6.6 20dB Bandwidth**

Test Requirement 47 CFR Part 15, Subpart C 15.215  
Test Method: ANSI C63.10 (2013) Section 6.9  
Limit: N/A

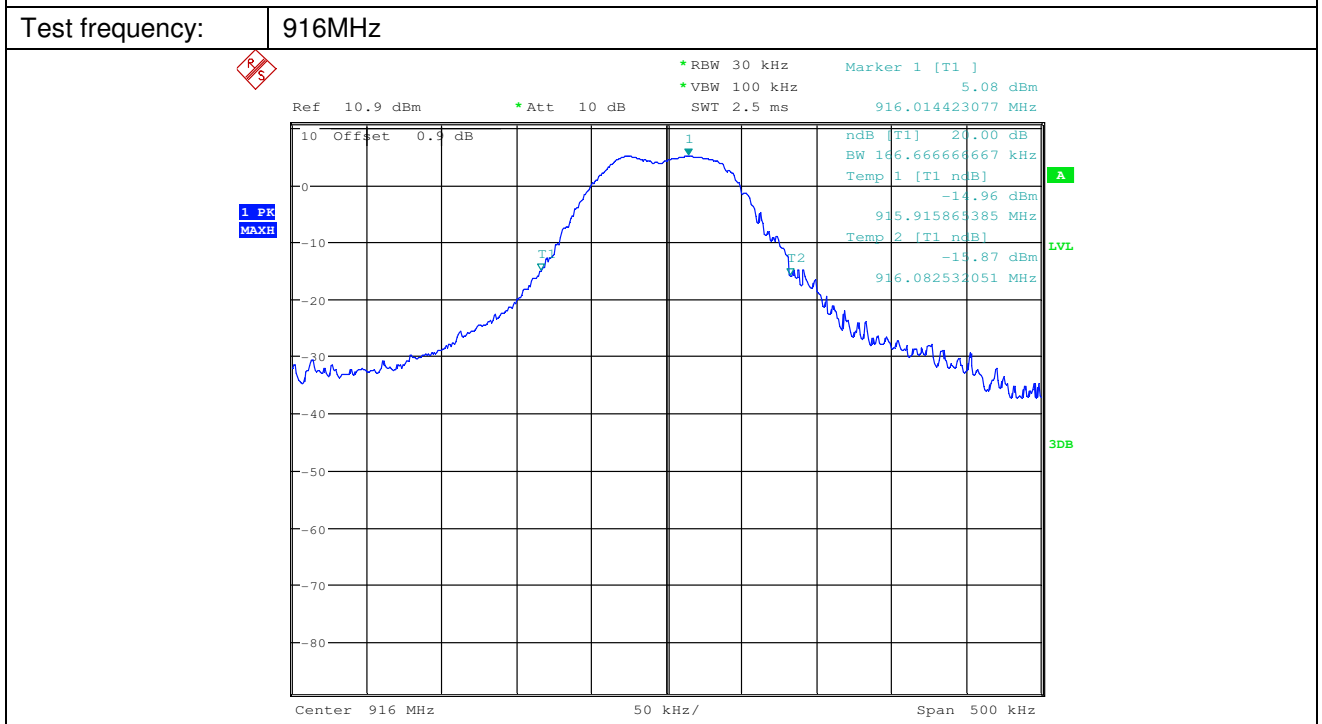
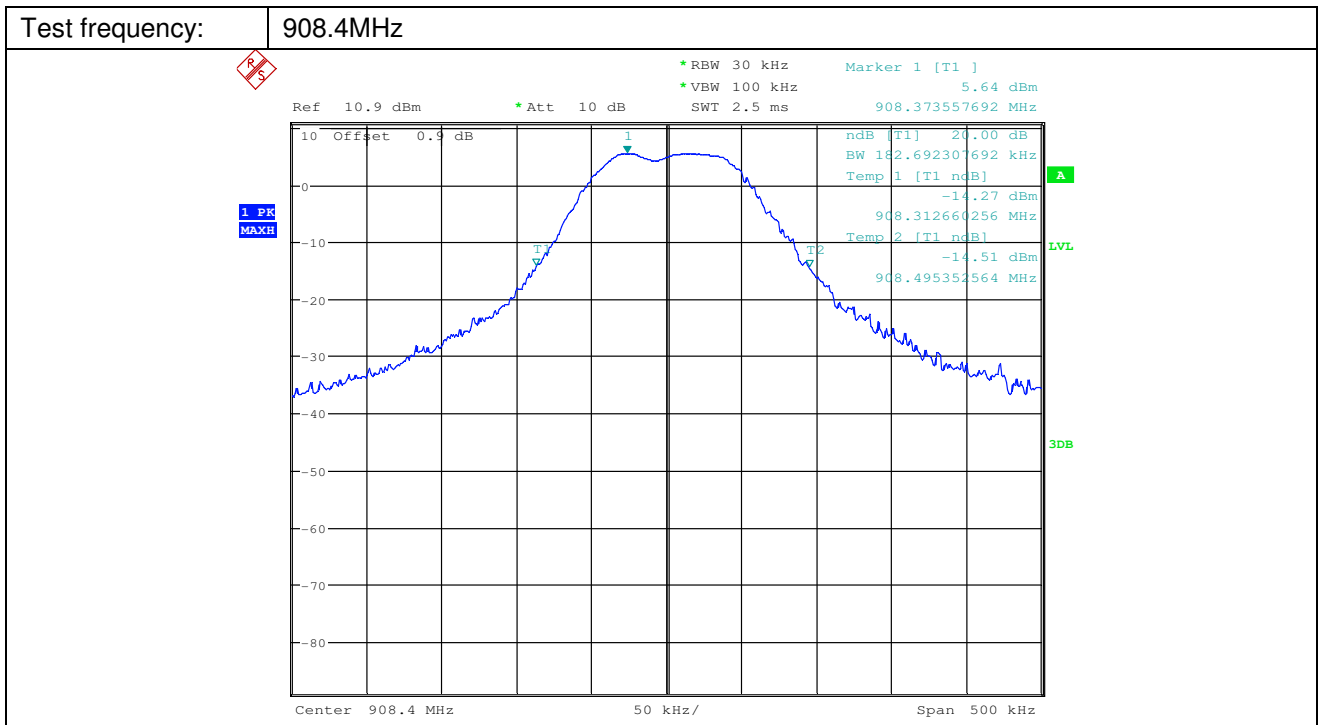
### **6.6.1 E.U.T. Operation**

Operating Environment:

Temperature: 23 °C Humidity: 56 % RH Atmospheric Pressure: 1020 mbar

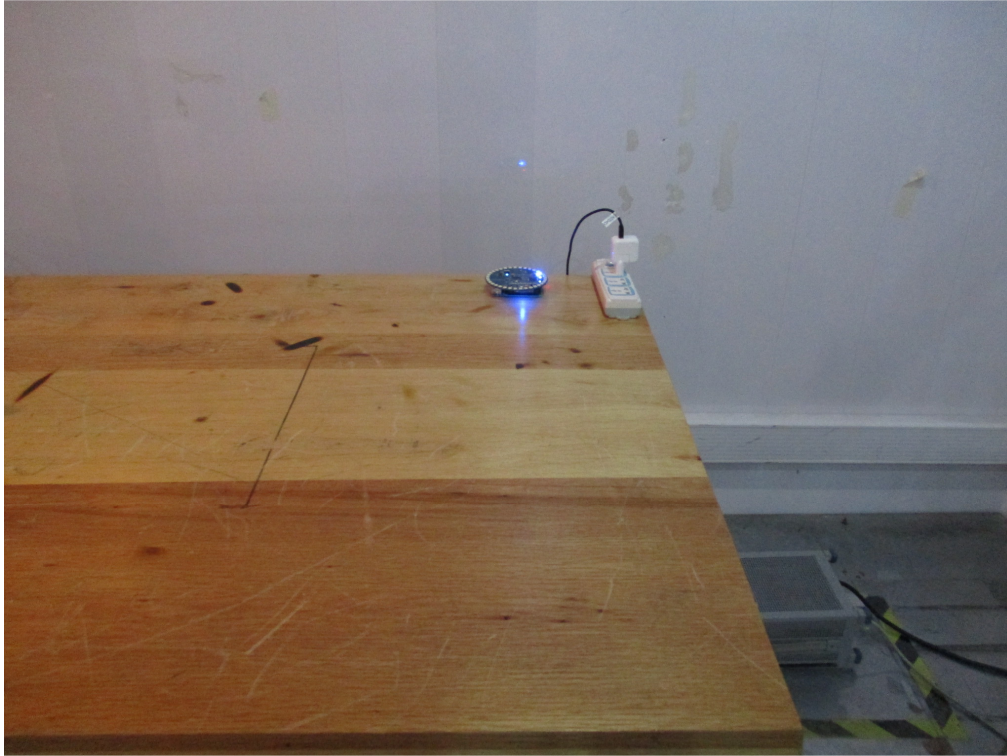
Test mode: e:TX mode\_Keep the EUT in transmitting mode(Z-WARE)

### **6.6.2 Measurement Data**

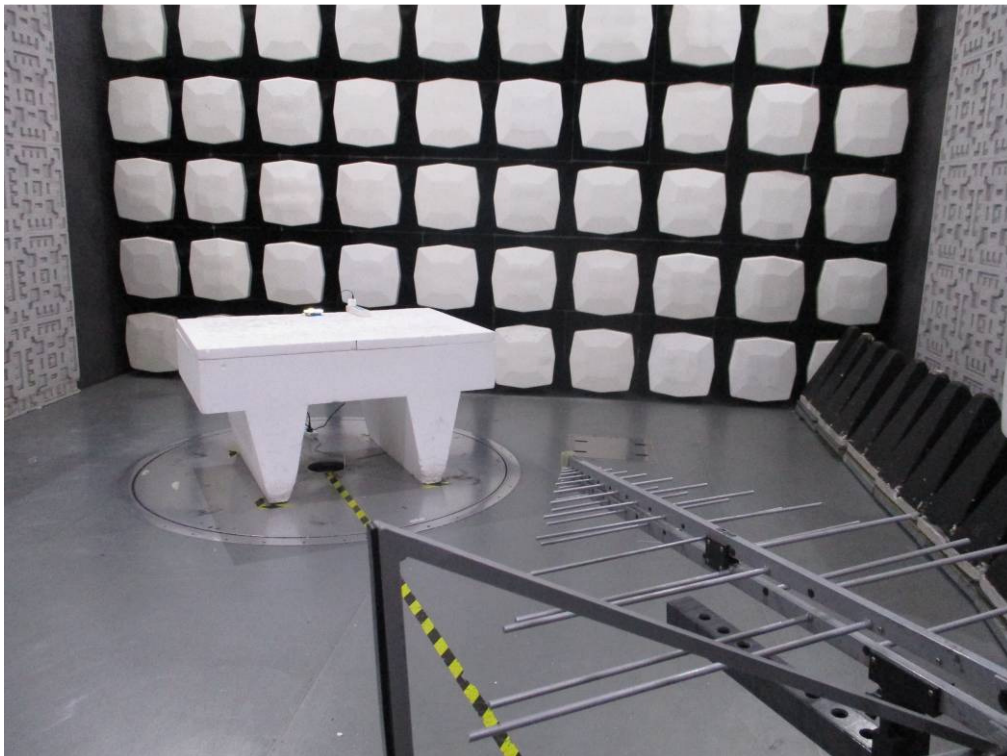


## 7 Photographs

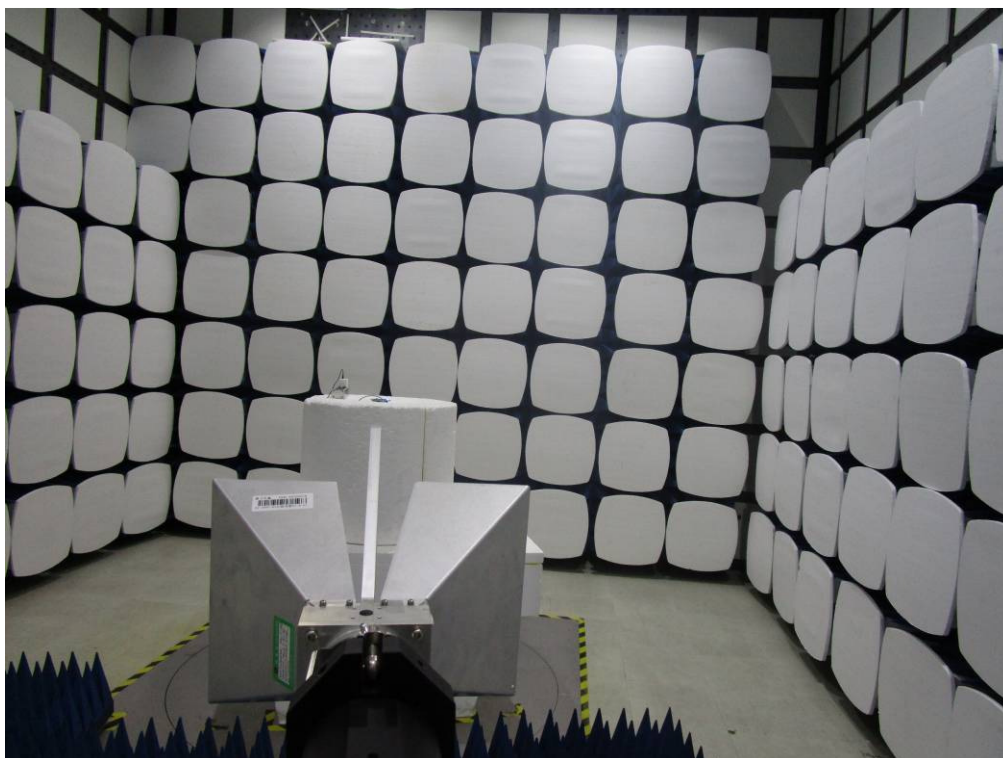
### 7.1 Conducted Disturbance at AC Power Line(150kHz-30MHz) Test Setup



### 7.2 Radiated Emissions Test Setup







### 7.3 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1703001792CR.