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Report No.: SZEM170900938304  
Page: 1 of 30

## **TEST REPORT**

**Application No.:** SZEM1709009383CR(GZEM1708005147CR)  
**Applicant:** birde Pty Ltd  
**Address of Applicant:** PO BOX 265 St Leonards 1590 Australia  
**Manufacturer:** birde Pty Ltd  
**Address of Manufacturer:** PO BOX 265 St Leonards 1590 Australia  
**Factory:** Foshan Sun Cupid Electronics FTY Ltd.  
**Address of Factory:** Block 7, No. 127, Zhangcha 1st Rd, Changcheng District, Foshan City, Guangdong, China.

**Equipment Under Test (EUT):**  
**EUT Name:** Portable Media console for Children  
**Model No.:** BC800  
**FCC ID:** FCC ID: 2ANOV-BC01  
**Standards:** 47 CFR Part 15, Subpart C 15.225  
**Date of Receipt:** 2017-09-05  
**Date of Test:** 2017-09-14 to 2017-09-22  
**Date of Issue:** 2017-09-29

<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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<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2017-09-29		Original

<b>Authorized for issue by:</b>				
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		Vincent Chen /Project Engineer		
		<i>Eric Fu</i>		
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		Eric Fu /Reviewer		



## 2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.225	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Disturbance at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Emission Mask	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4	47 CFR Part 15, Subpart C 15.225(a)&(b)&(C)	Pass
Radiated Emissions (9kHz-30MHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass
Frequency tolerance	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.225(e)	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.225	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:	13.56MHz
Antenna type:	Loop Antenna
Power supply:	DC 3.7V from Rechargeable lithium battery

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Foshan Sun Cupid Electronics FTY Ltd.	IN-CA-09	NA
wireless charge base	Foshan Sun Cupid Electronics FTY Ltd.	BB800	NA
USB cable	Foshan Sun Cupid Electronics FTY Ltd.	NA	NA
NFC card	Foshan Sun Cupid Electronics FTY Ltd.	NA	NA

### 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

<b>Conducted Emissions at AC Power Line (150kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2017-05-10	2018-05-10
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
LISN	Rohde & Schwarz	ENV216	SEM007-01	2016-10-09	2017-10-09
LISN	ETS-LINDGREN	3816/2	SEM007-02	2017-04-14	2018-04-13
8-Wire ISN CAT 6	SCHWARZBECK MESS- ELEKTRONIK	NTFM 8158	EMC2123	2017-06-23	2018-06-22
CAT5 8158 ISN 8Wire	SCHWARZBECK MESS- ELEKTRONIK	CAT5 8158	EMC2124	2017-06-23	2018-06-22
8-Wire ISN CAT 3	SCHWARZBECK MESS- ELEKTRONIK	CAT3 8158	EMC2126	2017-06-23	2018-06-22
Coaxial Cable	SGS	N/A	SEM024-01	2017-07-13	2018-07-12

<b>Radiated Emissions(9kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2017-05-10	2018-05-10
Measurement Software	AUDIX	e3 V8.2014- 6-27	N/A	N/A	N/A
EMI Test Receiver (9kHz-3GHz)	Rohde & Schwarz	ESCI	SEM004-01	2017-04-14	2018-04-13
Trilog-Broadband Antenna(30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-17	2016-01-26	2019-01-26
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-03	2017-06-05	2018-06-04
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Coaxial Cable	SGS	N/A	SEM024-01	2017-07-13	2018-07-12

<b>Radiated Emissions(30MHz-1GHz)</b>					
<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal. Date (yyyy-mm-dd)</b>	<b>Cal. Due date (yyyy- mm-dd)</b>
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-05-10	2018-05-10



MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2017-03-05	2020-03-05
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-13
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2017-07-13	2018-07-12

<b>Frequency tolerance</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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
Coaxial Cable	SGS	N/A	SEM031-01	2017-07-13	2018-07-12

<b>20dB Bandwidth</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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
Coaxial Cable	SGS	N/A	SEM031-01	2017-07-13	2018-07-12

<b>General used equipment</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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	2017-04-18	2018-04-18





## 6 Radio Spectrum Technical Requirement

### 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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an 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.

## 7 Radio Spectrum Matter Test Results

### 7.1 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:

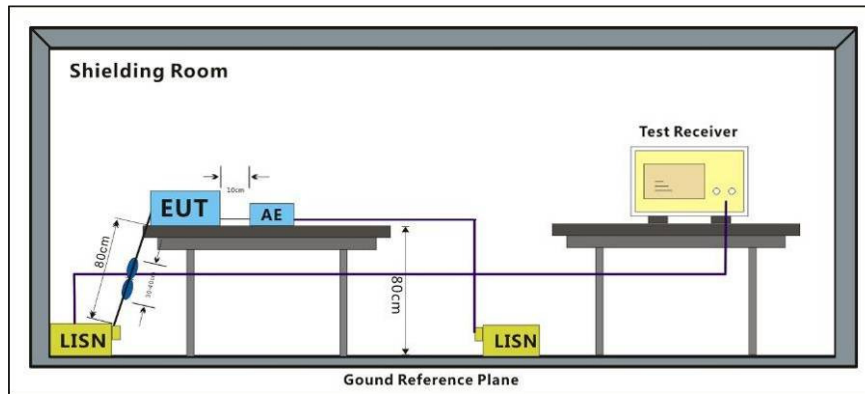
Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

#### 7.1.1 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(NFC)

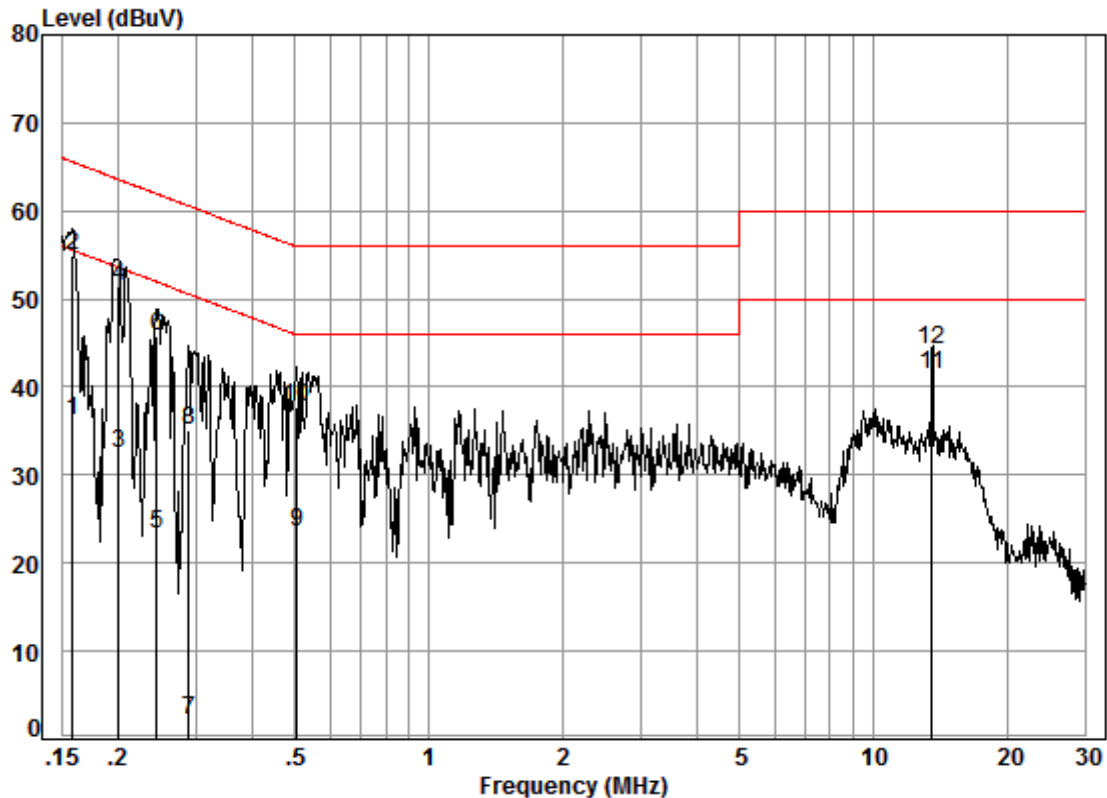
#### 7.1.2 Test Setup Diagram



### **7.1.3 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  $50\text{ohm}/50\mu\text{H} + 5\text{ohm}$  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

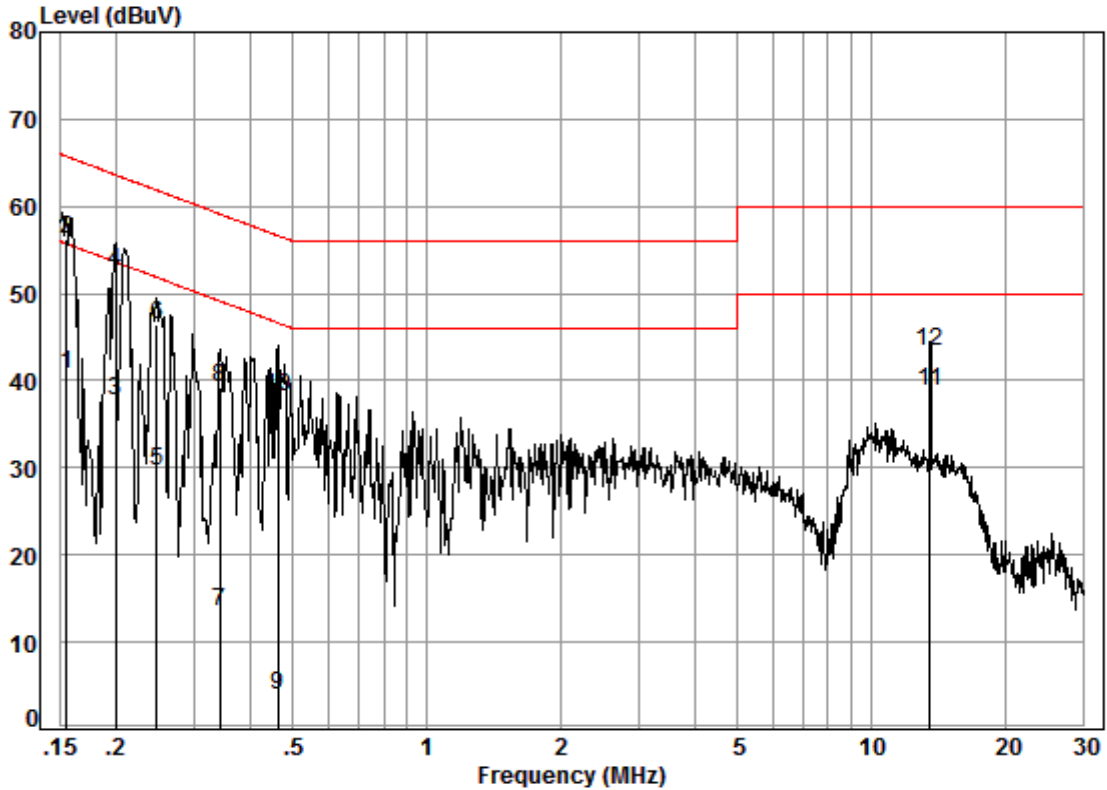
Condition: Line

Job No. : 09383CR

Test mode: e

	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.16	0.02	9.64	26.53	55.56	-19.37	Average
2	0.16	0.02	9.64	45.25	65.56	-10.65	QP
3	0.20	0.02	9.63	22.85	53.58	-21.08	Average
4	0.20	0.02	9.63	41.82	63.58	-12.11	QP
5	0.24	0.01	9.63	13.69	51.95	-28.62	Average
6	0.24	0.01	9.63	36.09	61.95	-16.22	QP
7	0.29	0.01	9.63	-7.44	50.59	-48.39	Average
8	0.29	0.01	9.63	25.43	60.59	-25.52	QP
9	0.50	0.01	9.63	13.88	46.00	-22.48	Average
10	0.50	0.01	9.63	27.98	56.00	-18.38	QP
11	13.56	0.01	9.94	31.48	50.00	-8.57	Average
12	13.56	0.01	9.94	34.35	60.00	-15.70	QP

Mode:e; Line:Neutral Line



Site : Shielding Room  
Condition: Neutral  
Job No. : 09383CR  
Test mode: e

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15	0.02	9.64	31.20	40.86	55.74	-14.88	Average
2	0.15	0.02	9.64	46.62	56.28	65.74	-9.46	QP
3	0.20	0.02	9.63	28.04	37.69	53.62	-15.93	Average
4	0.20	0.02	9.63	42.83	52.48	63.62	-11.14	QP
5	0.25	0.01	9.63	19.94	29.58	51.86	-22.28	Average
6	0.25	0.01	9.63	36.73	46.37	61.86	-15.49	QP
7	0.34	0.01	9.63	3.83	13.47	49.13	-35.66	Average
8	0.34	0.01	9.63	29.50	39.14	59.13	-19.99	QP
9	0.46	0.01	9.63	-5.75	3.89	46.63	-42.74	Average
10	0.46	0.01	9.63	28.47	38.11	56.63	-18.52	QP
11	13.56	0.01	9.94	28.90	38.85	50.00	-11.15	Average
12	13.56	0.01	9.94	33.53	43.48	60.00	-16.52	QP

## 7.2 Emission Mask

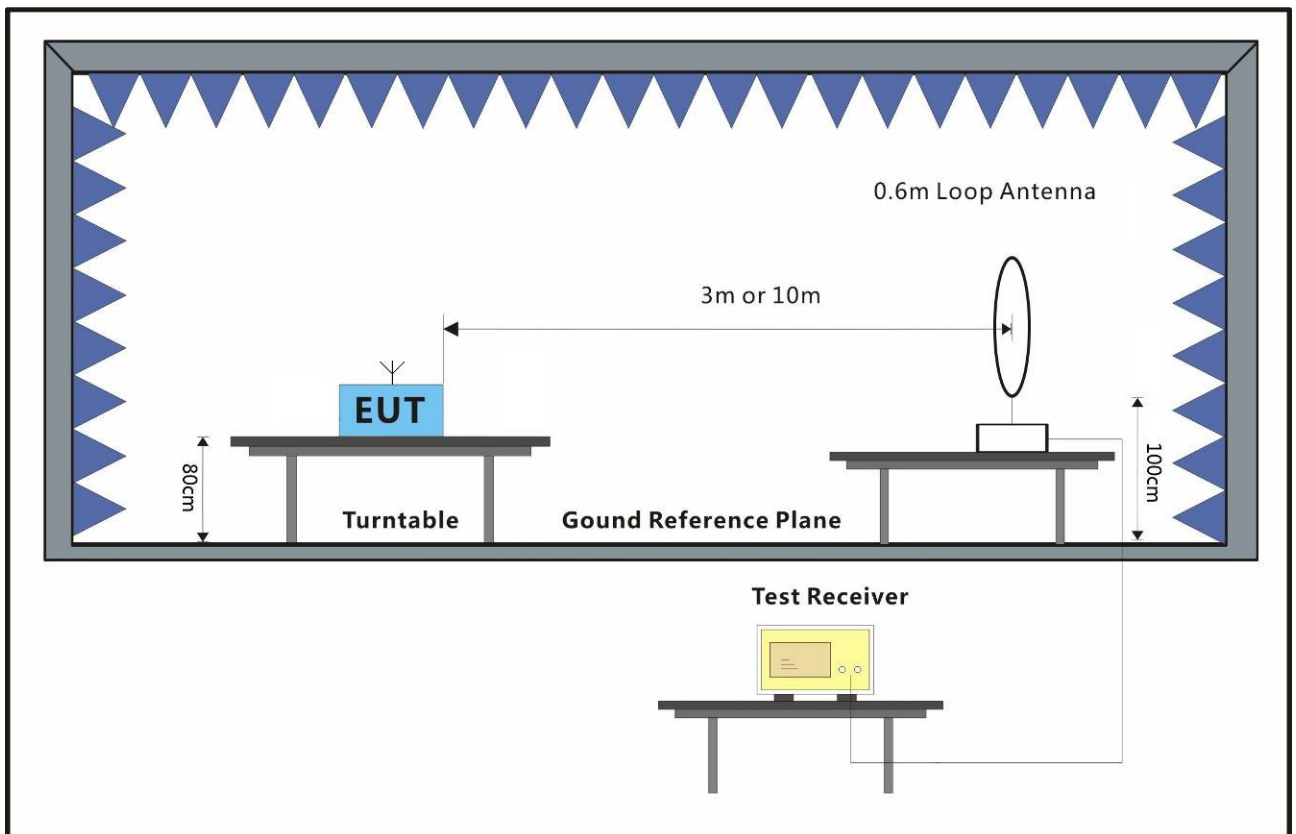
Test Requirement 47 CFR Part 15, Subpart C 15.225(a)&(b)&(C )  
 Test Method: ANSI C63.10 (2013) Section 6.4  
 Measurement Distance: 10m  
 Limit:

- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15.848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- (d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

### 7.2.1 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(NFC)

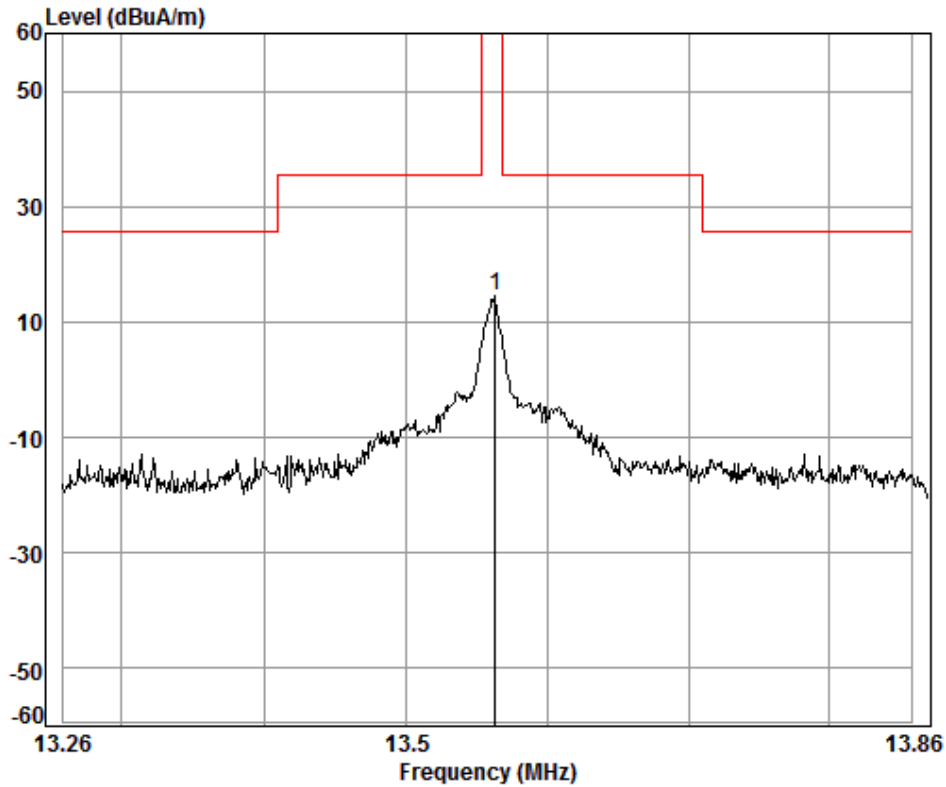
### 7.2.2 Test Setup Diagram





### **7.2.3 Measurement Procedure and Data**

For testing performed with the loop antenna, the bottom of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.



Condition: 10m  
Job No. : 09383CR  
Test Mode: TX

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuA	dBuA/m	dBuA/m	dB
1 pp	13.56	0.57	10.47	32.50	36.08	14.62	69.10	-54.48





**Below 30MHz**

The test was performed at a 10m test site.

The level at 30m test distance is below:

The factor calculated by the following equation:

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left( \frac{d_{\text{limit}}}{d_{\text{measure}}} \right)$$

where

- $FS_{\text{limit}}$  is the calculation of field strength at the limit distance, expressed in dB $\mu$ V/m
- $FS_{\text{max}}$  is the measured field strength, expressed in dB $\mu$ V/m
- $d_{\text{measure}}$  is the distance of the measurement point from the EUT
- $d_{\text{limit}}$  is the reference distance or the distance of the  $\lambda/2\pi$  point

Frequency (MHz)	Level @ 10m (dB $\mu$ A/m)	Level @ 10m (dB $\mu$ V/m)	Limit @ 30m (dB $\mu$ V/m)	Factor (dB)	Level @ 30m (dB $\mu$ V/m)	Margin (dB)
13.56	14.62	66.12	84.00	19.08	47.04	-36.96



### 7.3 Radiated Emissions(9kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.225(d) & 15.209  
Test Method: ANSI C63.10 (2013) Section 6.4&6.5  
Measurement Distance: 10m  
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

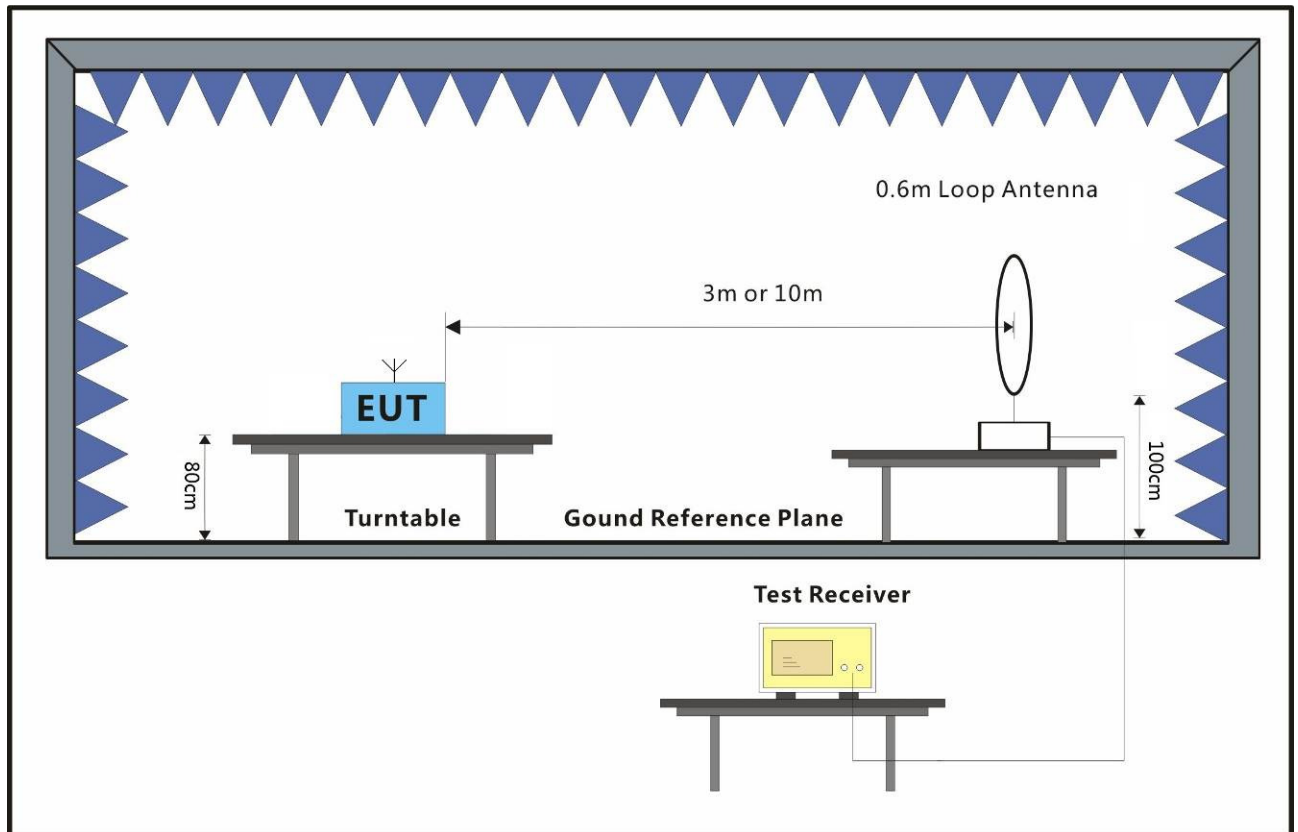
### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C      Humidity: 54 % RH      Atmospheric Pressure: 1015 mbar

Test mode: e:TX mode\_Keep the EUT in transmitting mode(NFC)

### 7.3.2 Test Setup Diagram

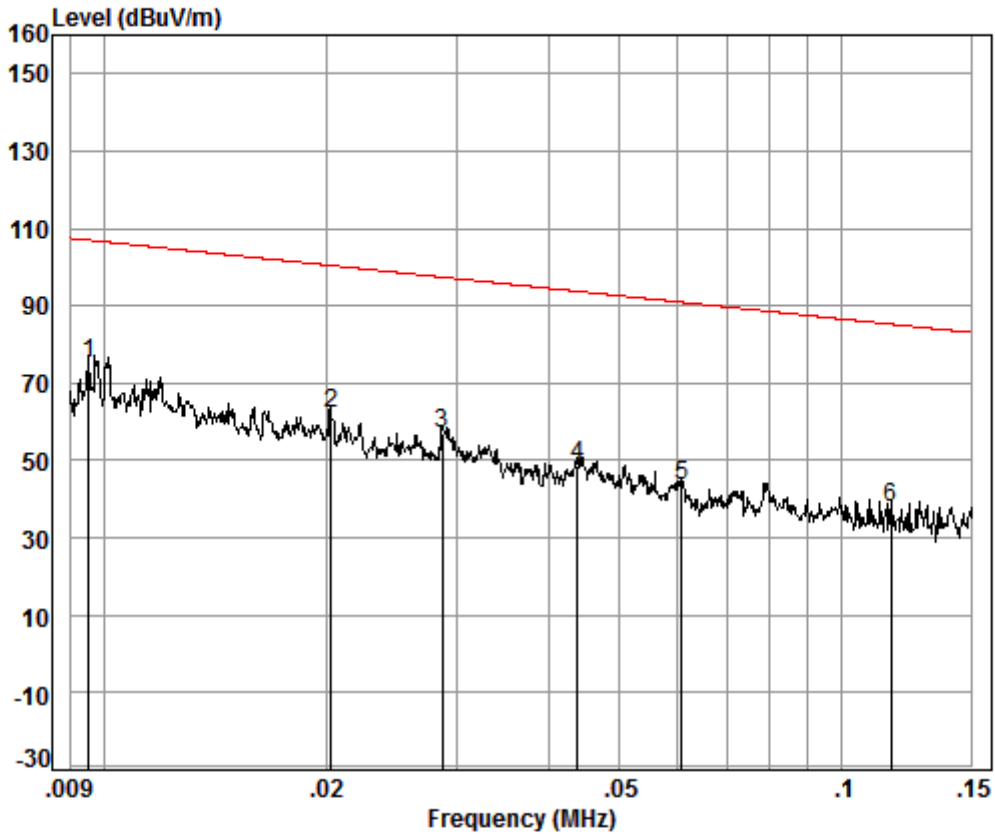


### 7.3.3 Measurement Procedure and Data

For testing performed with the loop antenna, the bottom of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.



Mode e

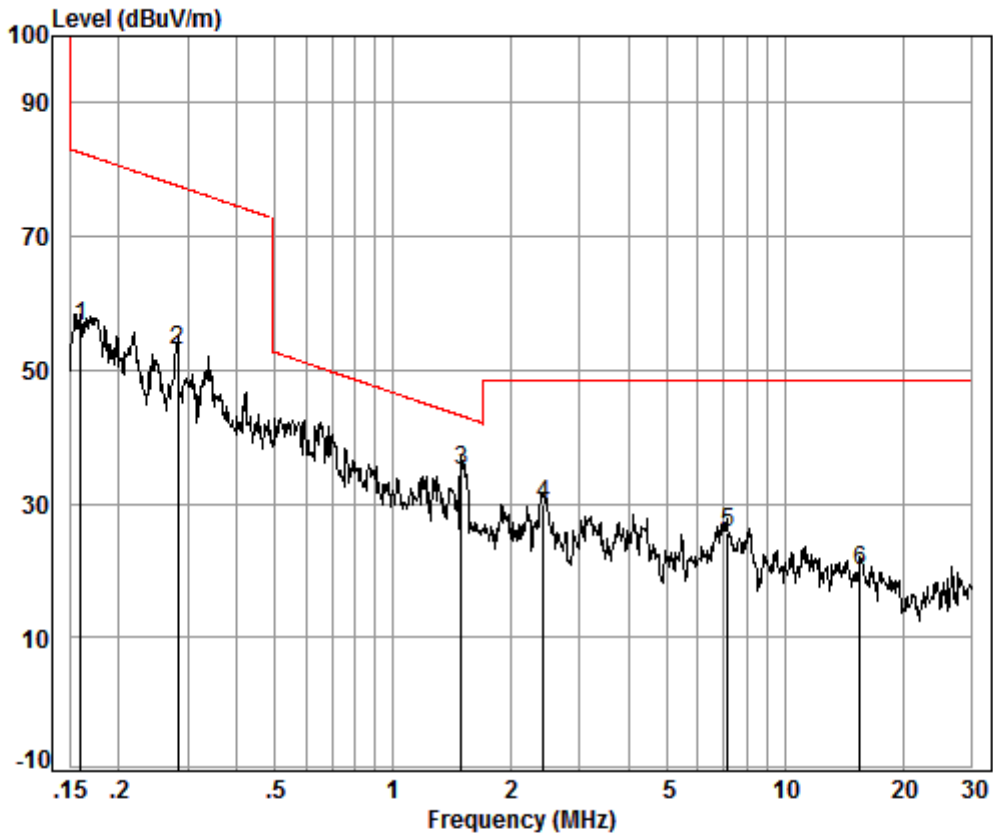


Condition: 10m  
Job No. : 09383CR  
Test Mode: e

	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 pp	0.01	0.29	19.63	32.29	87.61	75.24	107.01	-31.77
2	0.02	0.22	14.96	32.49	79.30	61.99	100.44	-38.45
3	0.03	0.18	13.97	32.50	75.36	57.01	97.41	-40.40
4	0.04	0.14	12.77	32.51	68.46	48.86	93.75	-44.89
5	0.06	0.10	12.26	32.51	63.65	43.50	90.94	-47.44
6	0.12	0.06	11.89	32.51	58.43	37.87	85.27	-47.40



Mode e:



Condition: 10m  
Job No. : 09383CR  
Test Mode: e

	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	0.16	0.07	11.74	32.50	77.12	56.43	82.52	-26.09
2	0.28	0.09	11.95	32.52	73.45	52.97	77.60	-24.63
3 pp	1.50	0.29	12.06	32.46	55.06	34.95	43.14	-8.19
4	2.42	0.36	12.15	32.47	49.75	29.79	48.50	-18.71
5	7.14	0.46	11.28	32.48	46.39	25.65	48.50	-22.85
6	15.55	0.61	10.29	32.51	41.68	20.07	48.50	-28.43



**Below 30MHz**

The test was performed at a 10m test site.

The level at 30m/300m test distance is below:

The factor calculated by the following equation:

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left( \frac{d_{\text{limit}}}{d_{\text{measure}}} \right)$$

where

- $FS_{\text{limit}}$  is the calculation of field strength at the limit distance, expressed in dB $\mu$ V/m
- $FS_{\text{max}}$  is the measured field strength, expressed in dB $\mu$ V/m
- $d_{\text{measure}}$  is the distance of the measurement point from the EUT
- $d_{\text{limit}}$  is the reference distance or the distance of the  $\lambda/2\pi$  point

Frequency (MHz)	Level @ 10m (dB $\mu$ V/m)	Limit @ 300m (dB $\mu$ V/m)	Limit @ 30m (dB $\mu$ V/m)	Factor (dB)	Level @ 300m (dB $\mu$ V/m)	Level @ 30m (dB $\mu$ V/m)	Margin (dB)
0.01	75.24	47.60	-	59.08	16.16	-	-31.44
0.02	61.99	41.60	-	59.08	2.91	-	-38.69
0.03	57.01	38.10	-	59.08	-2.07	-	-40.17
0.04	48.86	35.60	-	59.08	-10.22	-	-45.82
0.06	43.5	32.00	-	59.08	-15.58	-	-47.58
0.12	37.87	26.00	-	59.08	-21.21	-	-47.21
0.16	56.43	23.52	-	59.08	-2.65	-	-26.17
0.28	52.97	18.66	-	59.08	-6.11	-	-24.77
1.5	34.95	-	24.08	19.08	-	15.87	-8.21
2.42	29.79	-	29.54	19.08	-	10.71	-18.84
7.14	25.65	-	29.54	19.08	-	6.57	-22.98
15.55	20.07	-	29.54	19.08	-	0.99	-28.56

### 7.4 Radiated Emissions(30MHz-1GHz)

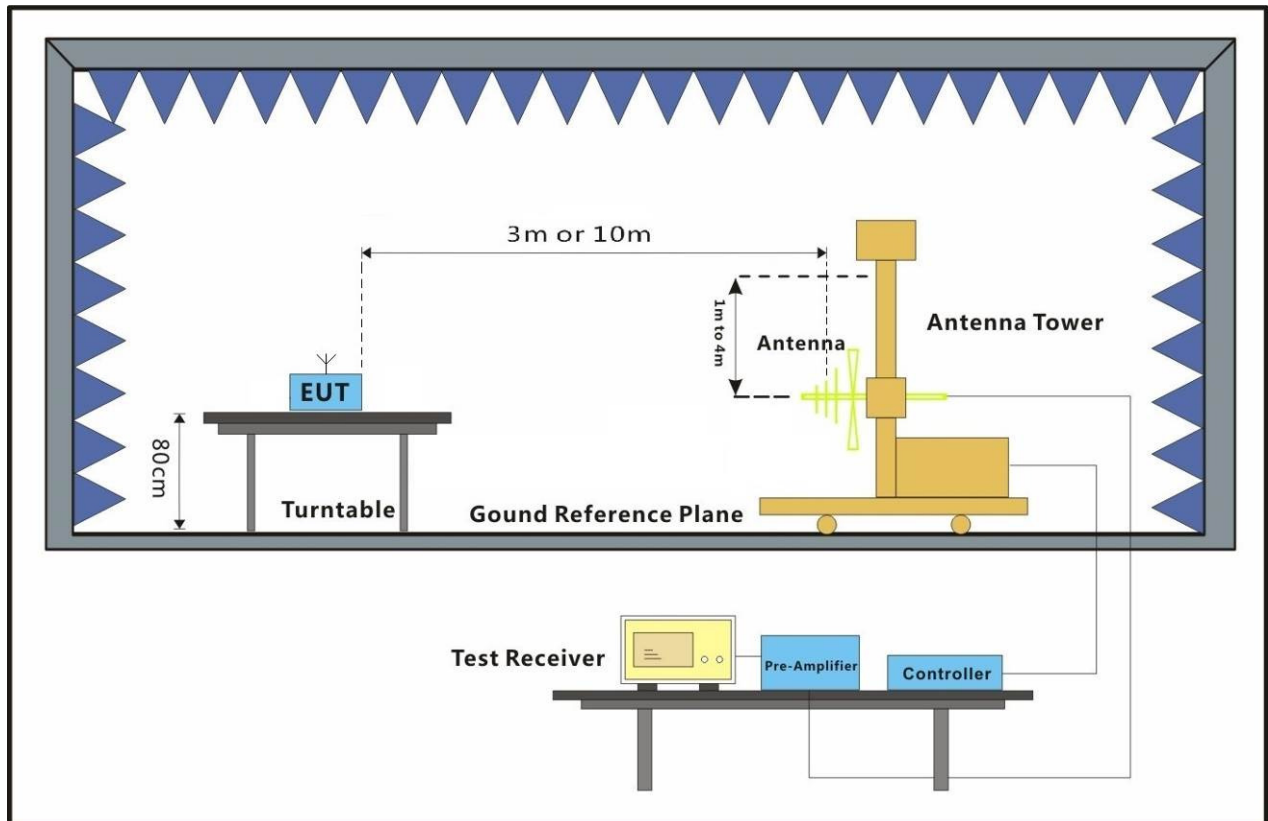
Test Requirement 47 CFR Part 15, Subpart C 15.225(d) & 15.209  
 Test Method: ANSI C63.10 (2013) Section 6.4&6.5  
 Measurement Distance: 3m  
 Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3

#### 7.4.1 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(NFC)

#### 7.4.2 Test Setup Diagram





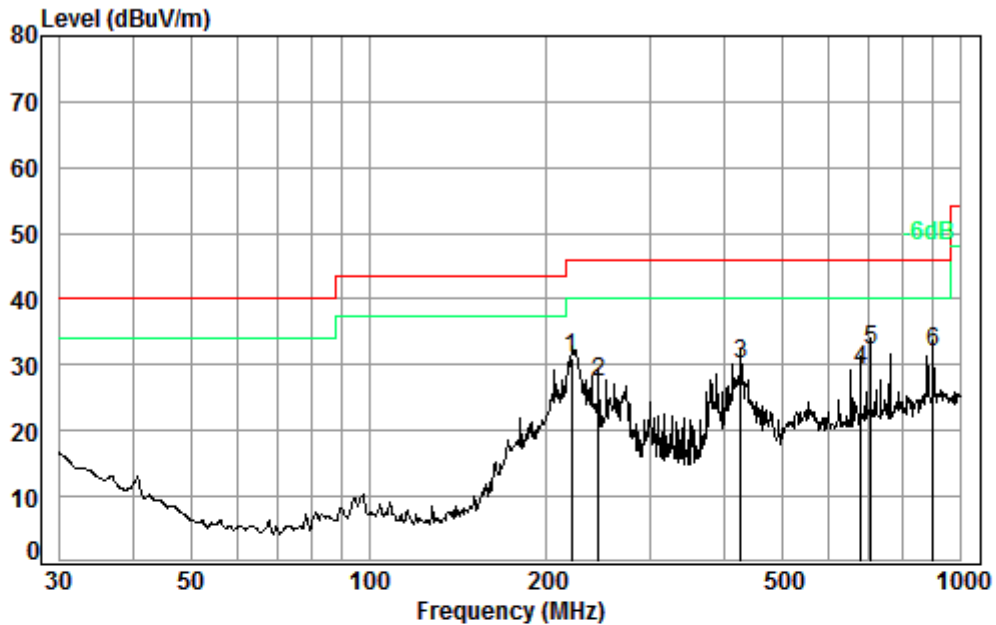
### **7.4.3 Measurement Procedure and Data**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.





Radiated Emission below 1GHz		
30MHz~1GHz (QP)		
Test mode:	Transmitting mode	Horizontal



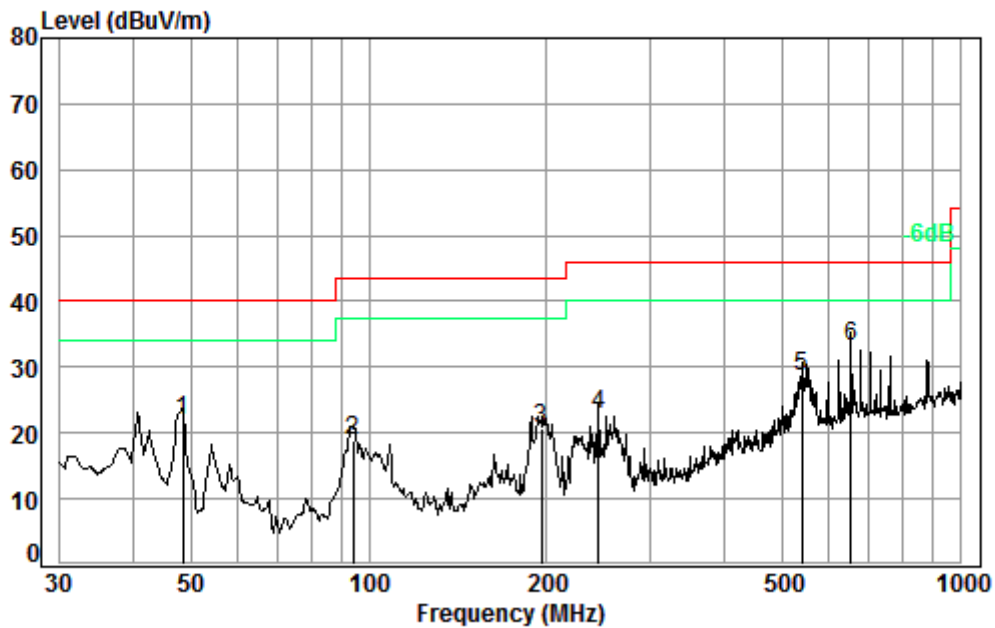
Condition: 3m HORIZONTAL

Job No. : 09383CR

Test mode: e

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	219.84	1.52	11.23	27.53	45.76	30.98	46.00	-15.02
2	244.23	1.65	12.12	27.53	41.04	27.28	46.00	-18.72
3	425.03	2.31	16.40	27.77	39.24	30.18	46.00	-15.82
4	677.58	2.86	21.42	27.58	32.62	29.32	46.00	-16.68
5 pp	704.23	2.92	21.60	27.54	35.11	32.09	46.00	-13.91
6	897.00	3.59	23.18	27.09	32.13	31.81	46.00	-14.19

Test mode:	Transmitting mode	Vertical
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Condition: 3m VERTICAL

Job No. : 09383CR

Test mode: e

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	48.50	0.77	9.36	27.60	39.28	40.00	-18.19
2	94.10	1.14	8.86	27.51	36.37	43.50	-24.64
3	195.82	1.39	10.16	27.53	36.60	43.50	-22.88
4	244.23	1.65	12.12	27.53	36.43	46.00	-23.33
5	539.48	2.64	18.73	27.81	35.05	46.00	-17.39
6 pp	651.94	2.81	20.66	27.62	37.36	46.00	-12.79

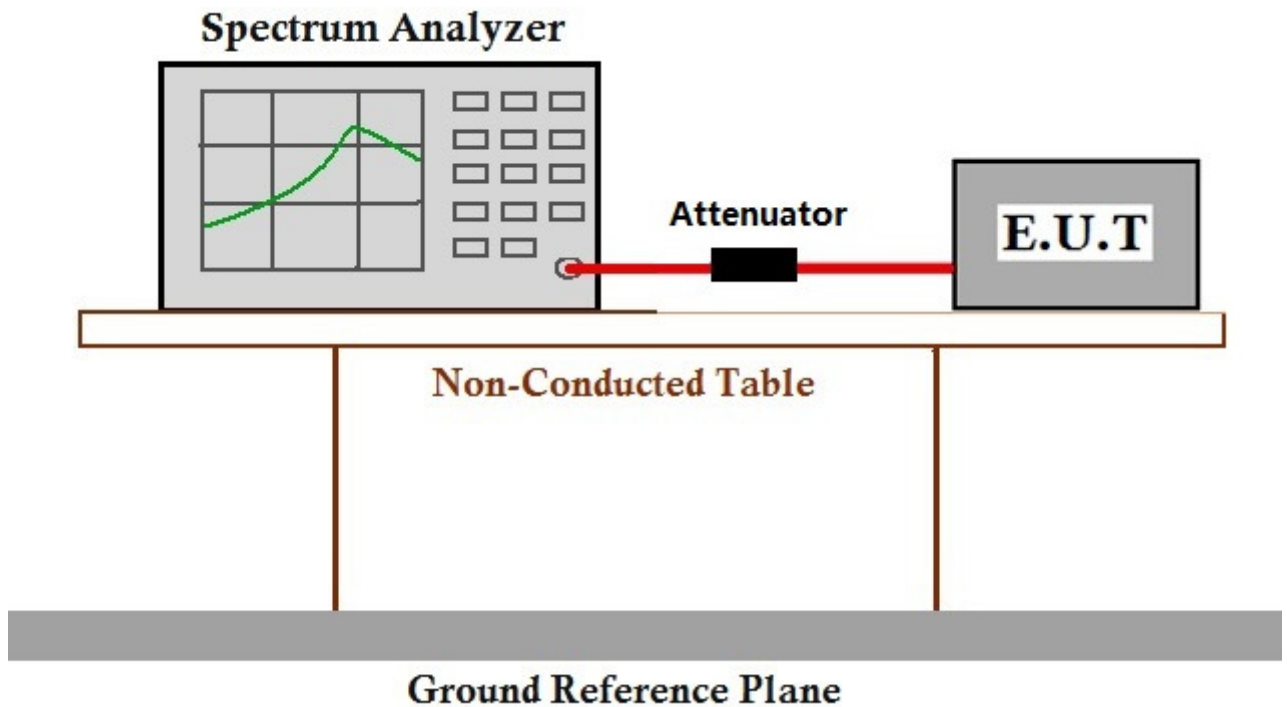
### 7.5 Frequency tolerance

Test Requirement 47 CFR Part 15, Subpart C 15.225(e)  
 Test Method: ANSI C63.10 (2013) Section 6.8  
 Limit: 1.356kHz

#### 7.5.1 E.U.T. Operation

Operating Environment:  
 Temperature: 24 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar  
 Test mode: e:TX mode\_Keep the EUT in transmitting mode(NFC)

#### 7.5.2 Test Setup Diagram



#### 7.5.3 Measurement Data



Declared Frequency (MHz)	13.56MHz	
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Temperature (°C)	Voltage(VDC)	Measurement Frequency(MHz)	Frequency Tolerance (%)	Limit (%)	Result
50	3.7	13.5597	-0.0022	±0.01	Pass
40		13.5594	-0.0044		Pass
30		13.5595	-0.0037		Pass
20		13.5596	-0.0029		Pass
10		13.5596	-0.0029		Pass
0		13.5600	0		Pass
-10		13.5599	-0.0007		Pass
-20		13.5595	-0.0037		Pass
20		4.07	13.5598		-0.0015
	3.33	13.5595	-0.0037	Pass	

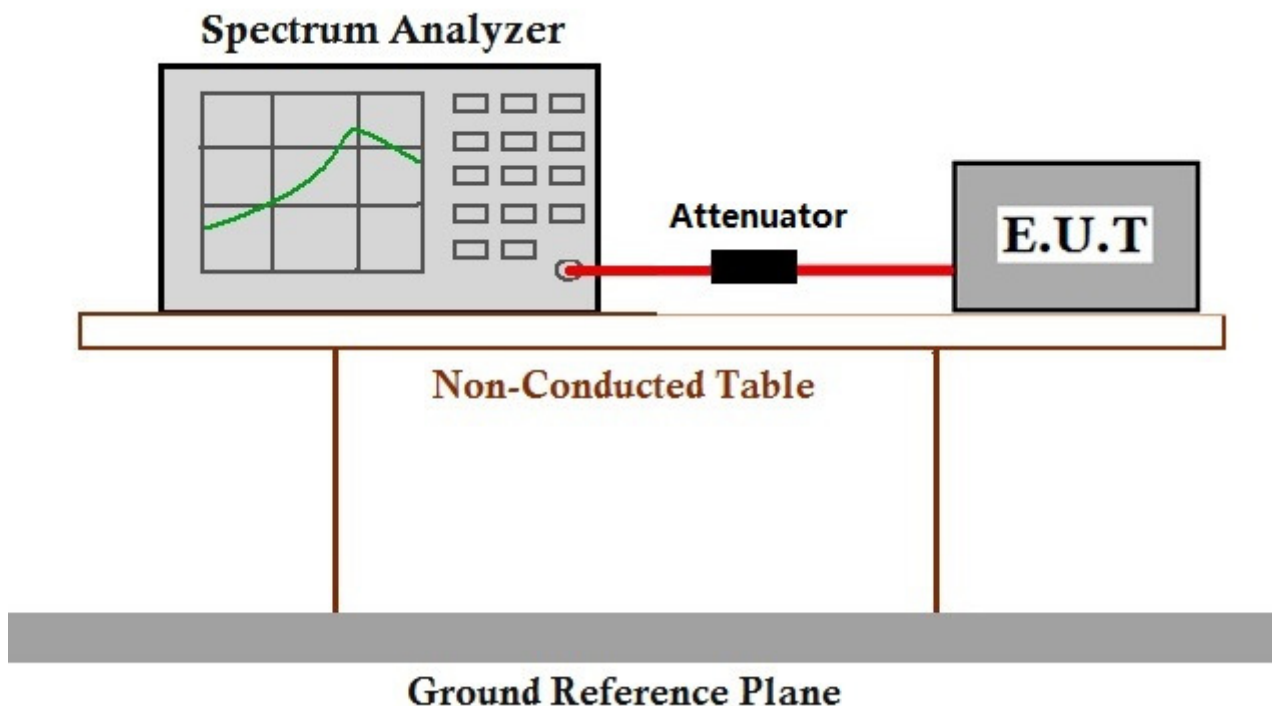
## 7.6 20dB Bandwidth

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

### 7.6.1 E.U.T. Operation

Operating Environment:  
 Temperature: 24 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar  
 Test mode: c:TX mode\_Keep the EUT in transmitting mode(NFC)

### 7.6.2 Test Setup Diagram



### 7.6.3 Measurement Data

