Report No.: SZEM191102033602
Page: 1 of 32

TEST REPORT

Application No.:	SZEM1911020336CR
Applicant:	Clare Controls
Address of Applicant:	7519 Pennsylvania Av Suite 104, Sarasota, Florida, 34243, United States
Manufacturer:	Clare Controls
Address of Manufacturer:	7519 Pennsylvania Av Suite 104, Sarasota, Florida, 34243, United States
Factory:	SYBER SENSE IOT COMPANY LIMITED
Address of Factory:	3/F, Building A, Hanhaida High-tech Park, Datian Yang C District, Shiwei Community, Matian Street, Guangming New District, Shenzhen, China.
Equipment Under Test (EUT):	
EUT Name:	Wireless Security and Smart Home Panel
Model No.:	CLR-C1-PNL1
Trade mark:	ClareOne
FCC ID:	2AC9I-C1-PNL1
Standard(s) :	47 CFR Part 15, Subpart C 15.231
Date of Receipt:	2019-11-19
Date of Test:	2019-11-19 to 2019-11-26
Date of Issue:	2019-11-27
Test Result:	**Pass***

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

Keny Xu
EMC Laboratory Manager

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center, EEC Laboratory.
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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2019-11-27		Original

Authorized for issue by:				
				
		Harry Wu /Project Engineer		
				
		Eric Fu /Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart C 15.231	N/A	47 CFR Part 15, Subpart C 15.203	Pass

N/A: Not applicable

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.231(c)	Pass
Dwell Time (15.231(a))	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 7.8.4	47 CFR Part 15, Subpart C 15.231(a)	Pass
Field Strength of the Fundamental Signal (15.231(b))	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 6.5	47 CFR Part 15, Subpart C 15.231(b)	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.231(b)	Pass

N/A: Not applicable

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4 General Information

4.1 Details of E.U.T.

	Power Supply:	Rechargeable Battery: DC3.8V, 19.76Wh Or AC/DC Adapter, Model: SW-120250 Input: AC100-240V, 50/60Hz, 0.68A Max. Output: DC 12.0V, 2.5A
	Cable:	DC Cable: 180cm, Unshielded
	Operation Frequency:	433.95MHz
	Modulation Type:	ASK
	Number of Channels:	1
	Antenna Type:	Integral Antenna
	Antenna Gain:	-0.93dBi

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 10^{-8}
2	Duty cycle	± 0.37%
3	Occupied Bandwidth	± 3%
4	Conduction emission	± 3.0dB (150kHz to 30MHz)
5	RF conducted power	± 0.75dB
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 (Below 1GHz)
		± 4.8dB (Above 1GHz)
9	Temperature test	± 1℃
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:

• 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 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Emissions 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	2019-06-13	2022-06-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2019-07-11	2020-07-10
LISN	Rohde & Schwarz	ENV216	SEM007-01	2019-09-24	2020-09-23
LISN	ETS-LINDGREN	3816/2	SEM007-02	2019-04-01	2020-03-31
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2019-04-01	2020-03-31

20dB Bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2019-09-24	2020-09-23
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2019-07-11	2020-07-10
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2019-09-24	2020-09-23
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019-09-24	2020-09-23
Electric and Magnetic Field Analyzer	Narda	NBM-550/EHP-50F	EMC2143	2018-02-07	2020-02-06
Electric Field Probe (100KHz-3GHz)	WANDEL & GOLTERMANN	EMR-20	EMC0907	2019-05-21	2020-05-20
EMF Tester	Narda	ELT-400	SZE039-4	2019-07-08	2020-07-07

Dwell Time (15.231(a))					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2019-09-24	2020-09-23
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2019-07-11	2020-07-10
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2019-09-24	2020-09-23
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019-09-24	2020-09-23
Electric and Magnetic Field Analyzer	Narda	NBM-550/EHP-50F	EMC2143	2018-02-07	2020-02-06

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Electric Field Probe (100KHz-3GHz)	WANDEL & GOLTERMANN	EMR-20	EMC0907	2019-05-21	2020-05-20
EMF Tester	Narda	ELT-400	SZE039-4	2019-07-08	2020-07-07

Field Strength of the Fundamental Signal (15.231(b))					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2019-07-11	2020-07-10
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2019-09-24	2020-09-23
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2019-04-01	2020-03-31

Radiated Spurious Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2019-07-11	2020-07-10
EXA Spectrum Analyzer	AgilentTechnologies Inc	N9010A	SEM004-12	2019-04-12	2020-04-11
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna (15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23
Pre-amplifier(18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2019-04-01	2020-03-31
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2019-04-01	2020-03-31
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21

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Radiated Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2019-07-11	2020-07-10
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2019-09-24	2020-09-23
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2019-04-01	2020-03-31

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	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2019-04-04	2020-04-03

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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. The best case gain of the antenna is -0.93dBi.

Antenna location: Refer to Appendix(Internal photos)

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions 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 of emission(MHz)	Conducted limit(dBμV)	
	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.		

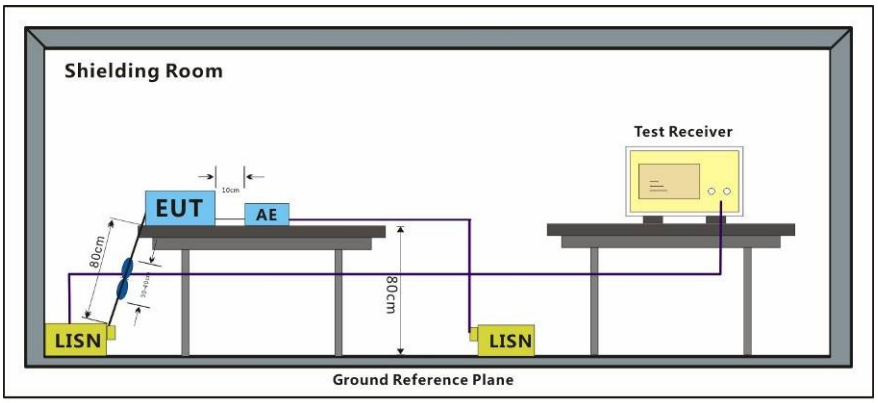
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 20.7 °C Humidity: 57.3 % RH Atmospheric Pressure: 1015 mbar

Test mode b:Charge + TX mode(433.95MHz)_Keep the EUT in charging and transmitting with modulation mode.

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 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.

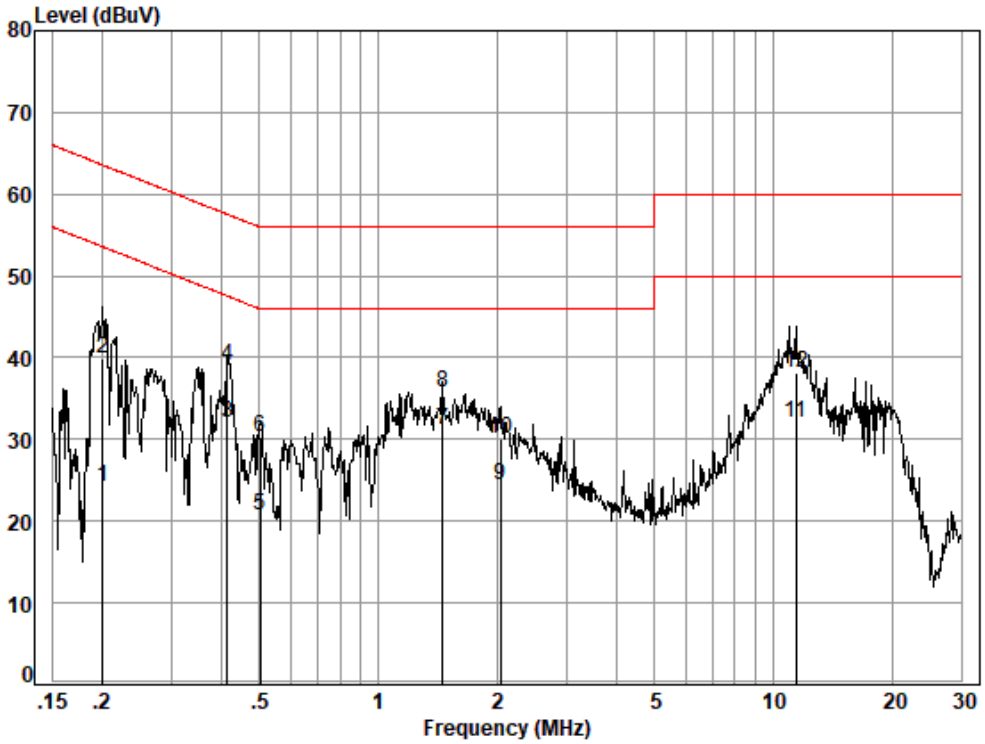
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

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.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

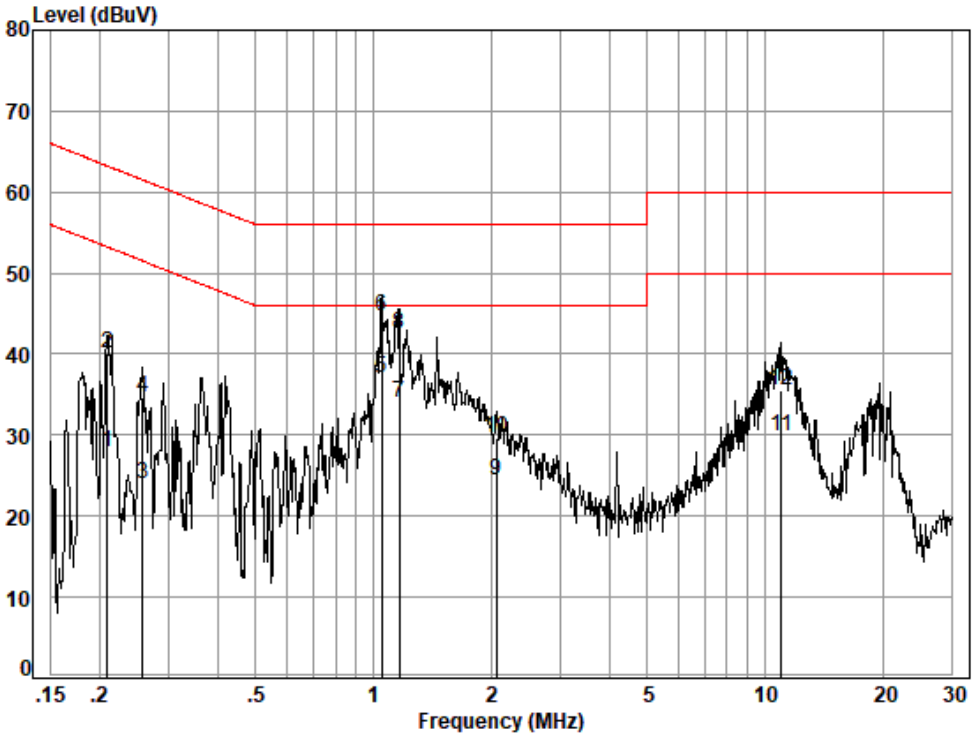
Mode:b; Line:Live Line



Site : Shielding Room
Condition: Line
Job No. : 20336CR
Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20	0.02	9.51	14.62	24.15	53.58	-29.43	Average
2	0.20	0.02	9.51	30.39	39.92	63.58	-23.66	QP
3	0.41	0.05	9.58	22.49	32.12	47.55	-15.43	Average
4	0.41	0.05	9.58	29.43	39.06	57.55	-18.49	QP
5	0.50	0.06	9.59	11.13	20.78	46.00	-25.22	Average
6	0.50	0.06	9.59	20.59	30.24	56.00	-25.76	QP
7	1.46	0.13	9.64	21.45	31.22	46.00	-14.78	Average
8	1.46	0.13	9.64	25.98	35.75	56.00	-20.25	QP
9	2.04	0.16	9.64	14.69	24.49	46.00	-21.51	Average
10	2.04	0.16	9.64	20.19	29.99	56.00	-26.01	QP
11	11.44	0.18	9.83	22.06	32.07	50.00	-17.93	Average
12	11.44	0.18	9.83	28.05	38.06	60.00	-21.94	QP

Mode:b; Line:Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 20336CR
Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.21	0.02	9.45	18.39	27.86	53.23	-25.37	Average
2	0.21	0.02	9.45	30.74	40.21	63.23	-23.02	QP
3	0.26	0.03	9.47	14.55	24.05	51.51	-27.46	Average
4	0.26	0.03	9.47	25.18	34.68	61.51	-26.83	QP
5	1.05	0.09	9.66	27.23	36.98	46.00	-9.02	Average
6	1.05	0.09	9.66	35.00	44.75	56.00	-11.25	QP
7	1.17	0.10	9.67	24.32	34.09	46.00	-11.91	Average
8	1.17	0.10	9.67	32.65	42.42	56.00	-13.58	QP
9	2.07	0.16	9.70	14.53	24.39	46.00	-21.61	Average
10	2.07	0.16	9.70	19.89	29.75	56.00	-26.25	QP
11	11.02	0.18	9.91	19.67	29.76	50.00	-20.24	Average
12	11.02	0.18	9.91	25.44	35.53	60.00	-24.47	QP

7.2 20dB Bandwidth

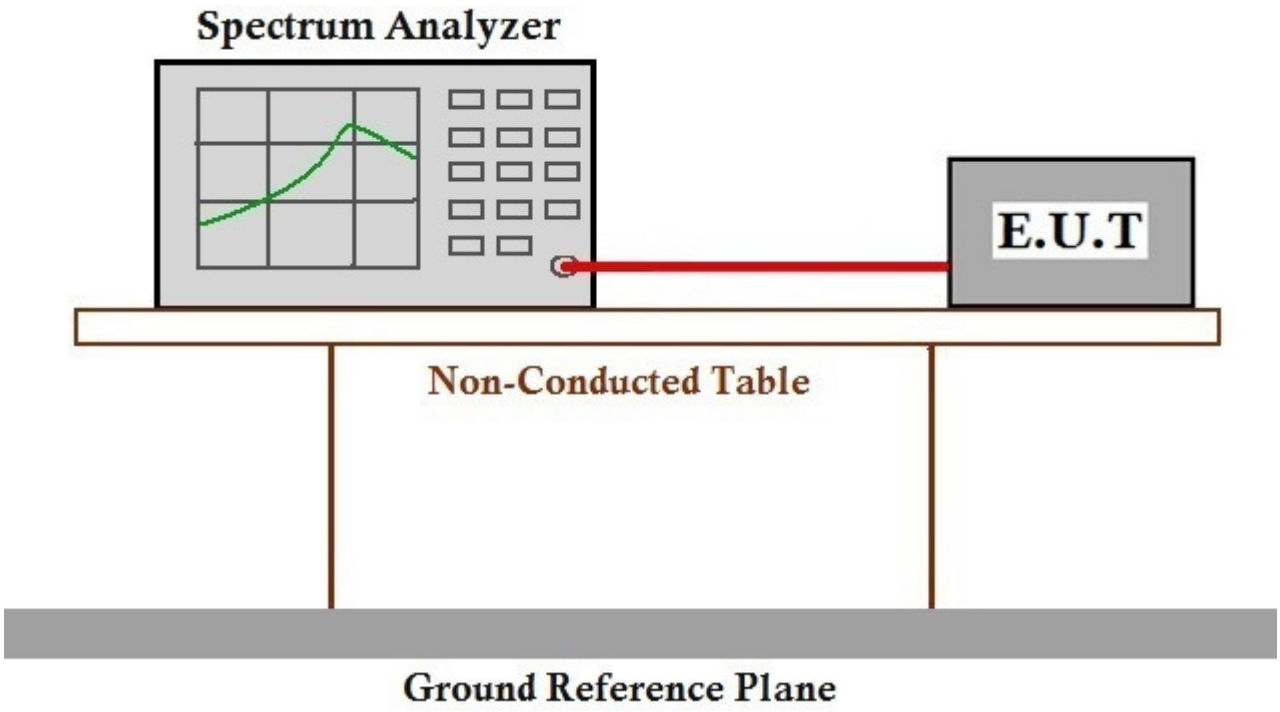
Test Requirement 47 CFR Part 15, Subpart C 15.231(c)
Test Method: ANSI C63.10 (2013) Section 6.9
Limit:

Frequency range(MHz)	Limit
70-900	No wider than 0.25% of the center frequency
Above 900	No wider than 0.5% of the center frequency

7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 21.6 °C Humidity: 43.9 % RH Atmospheric Pressure: 1015 mbar
Test mode a:TX mode(433.95MHz)_Keep the EUT in transmitting with modulation mode.

7.2.2 Test Setup Diagram

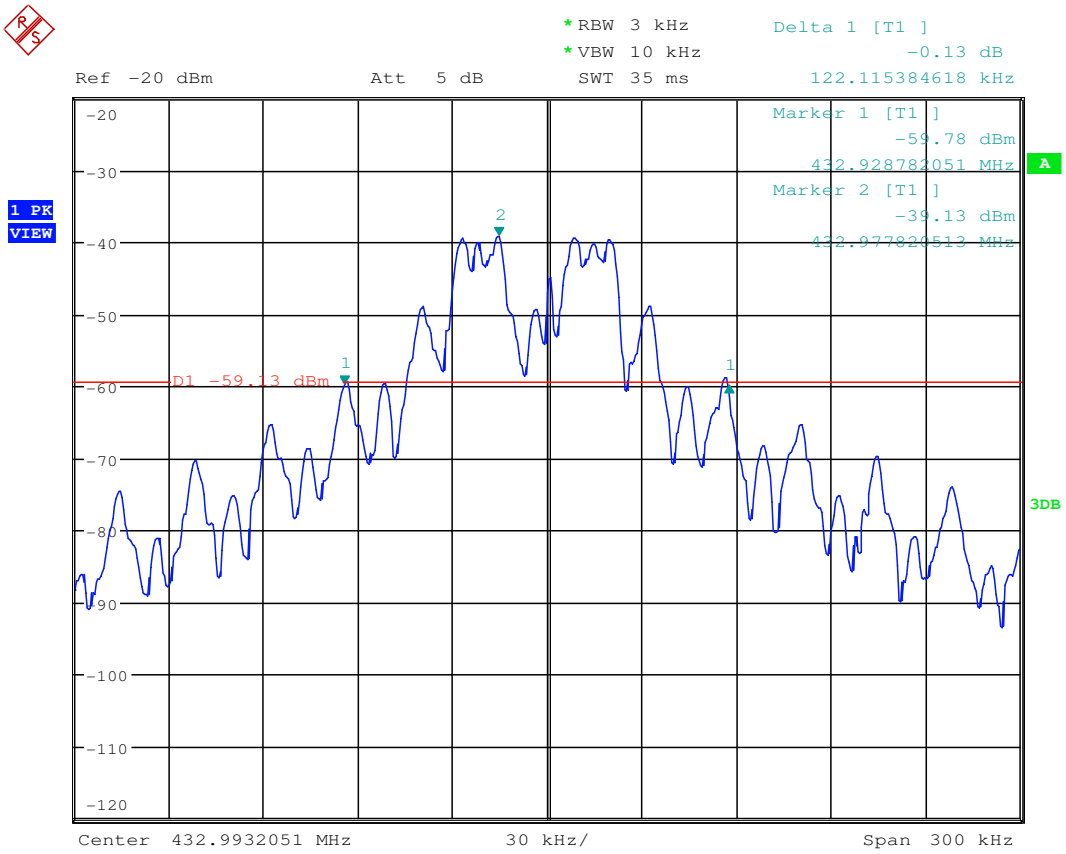


7.2.3 Measurement Procedure and Data

Transmitter mode

Test channel	20dB Bandwidth (KHz)	Limit (KHz)	Results
433.95MHz	122.12	1084.88	Pass

Mode:a



7.3 Dwell Time (15.231(a))

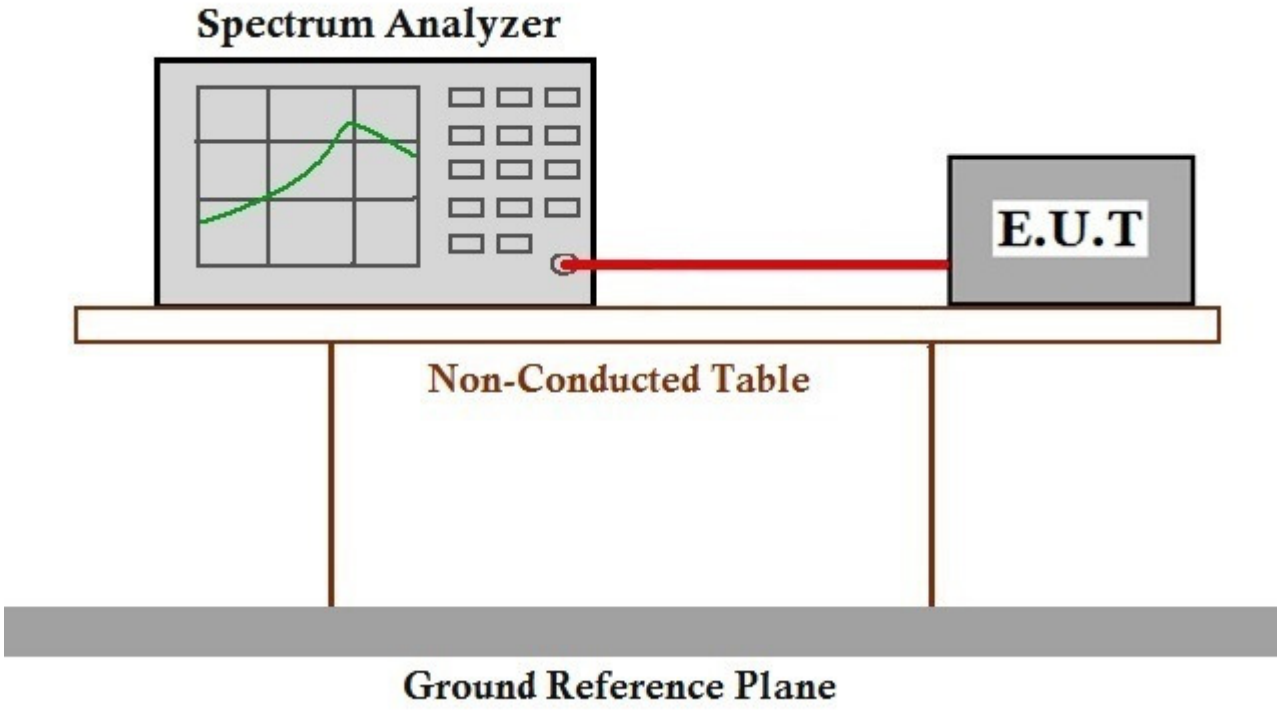
Test Requirement 47 CFR Part 15, Subpart C 15.231(a)
Test Method: ANSI C63.10 (2013) Section 7.8.4
Limit:

Device type	Limit
Manually operated transmitter	The switch automatically deactivate the transmitter within not more than 5 seconds of being released
Automatically actived transmitter	Cease transmission within 5 seconds after activation
Periodic transmissions to determine system integrity of transmitters used in security or safety applications	The total transmission time does not exceed 2 seconds per hour

7.3.1 E.U.T. Operation

Operating Environment:
Temperature: 21.6 °C Humidity: 43.9 % RH Atmospheric Pressure: 1015 mbar
Test mode a:TX mode(433.95MHz)_Keep the EUT in transmitting with modulation mode.

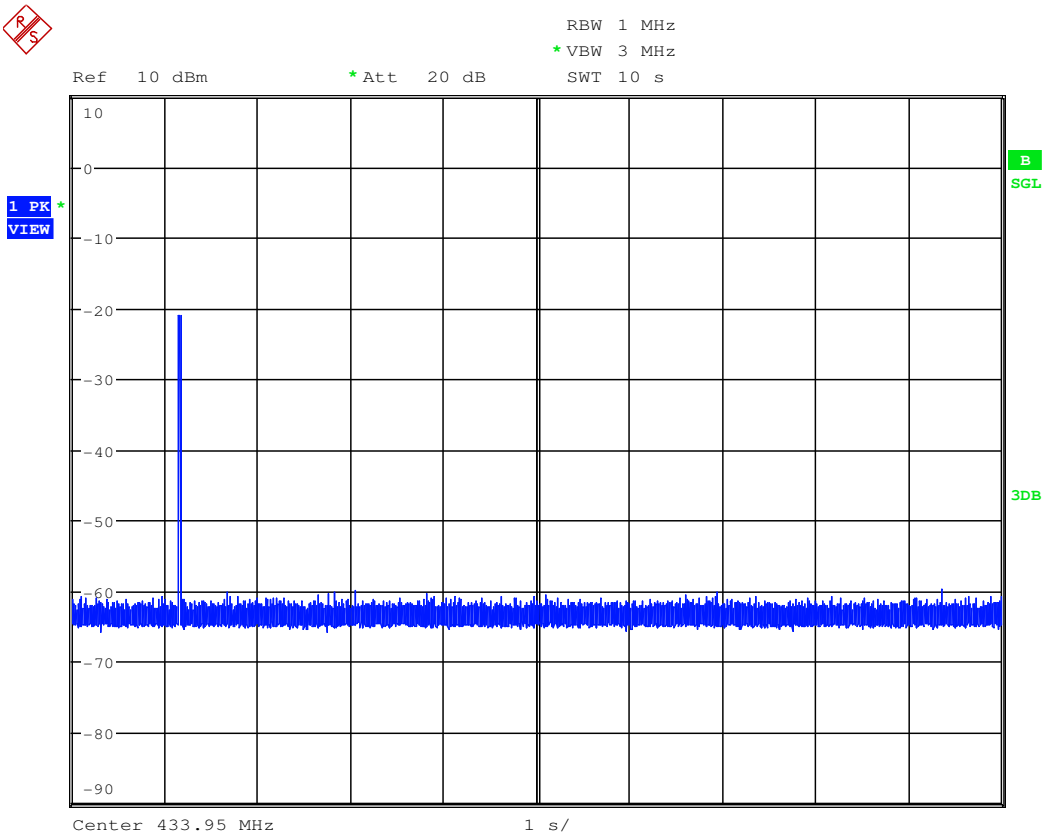
7.3.2 Test Setup Diagram

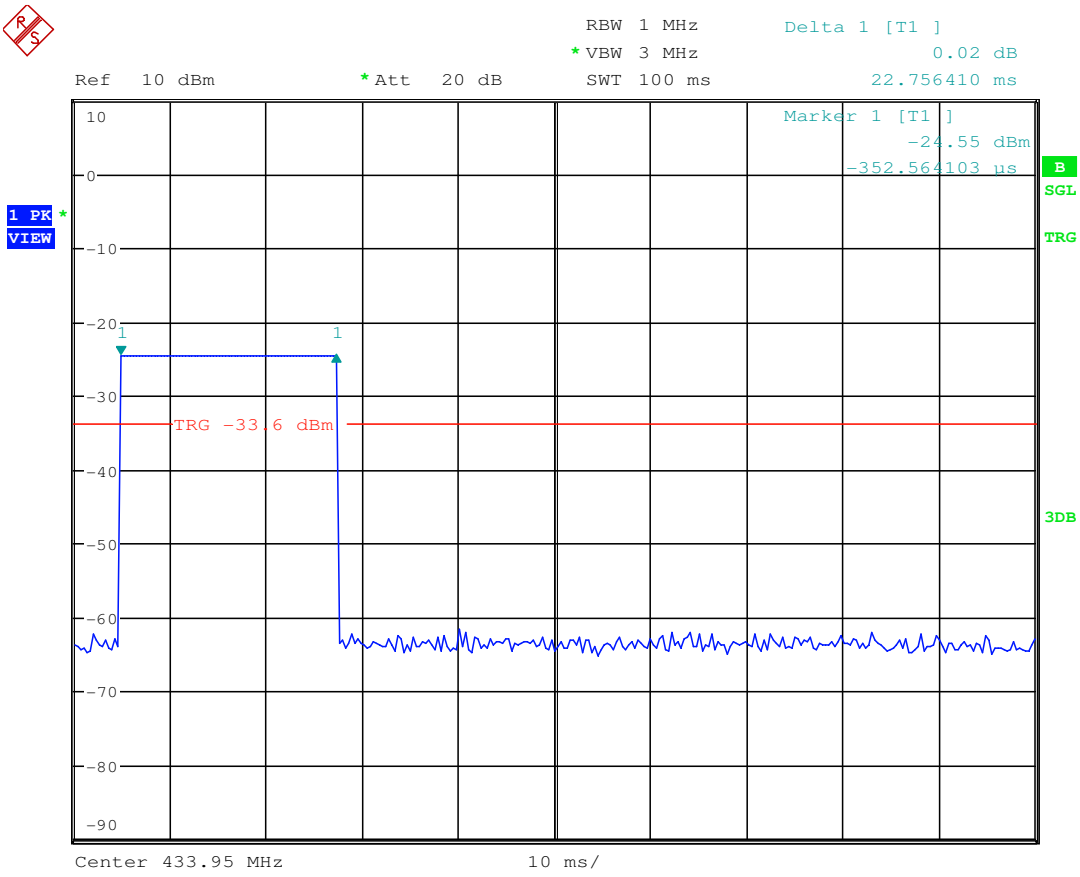


7.3.3 Measurement Procedure and Data

Test item	Limit (MHz)	Results
Transmitting time:22.76ms	⩽5S	Pass

Mode:a





7.4 Field Strength of the Fundamental Signal (15.231(b))

Test Requirement 47 CFR Part 15, Subpart C 15.231(b)
Test Method: ANSI C63.10 (2013) Section 6.5
Measurement Distance: 3m
Limit:

Fundamental frequency(MHz)	Field strength of fundamental(microvolts/meter)	Field strength of spurious emissions(microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750	125 to 375
174-260	3750	375
260-470	3750 to 12500	375 to 1250
Above 470	12500	1250
Remark: the emission limit is based on measurement instrumentation employing an average detector at a distance of 3 meters. The frequencies above 1000MHz 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.		

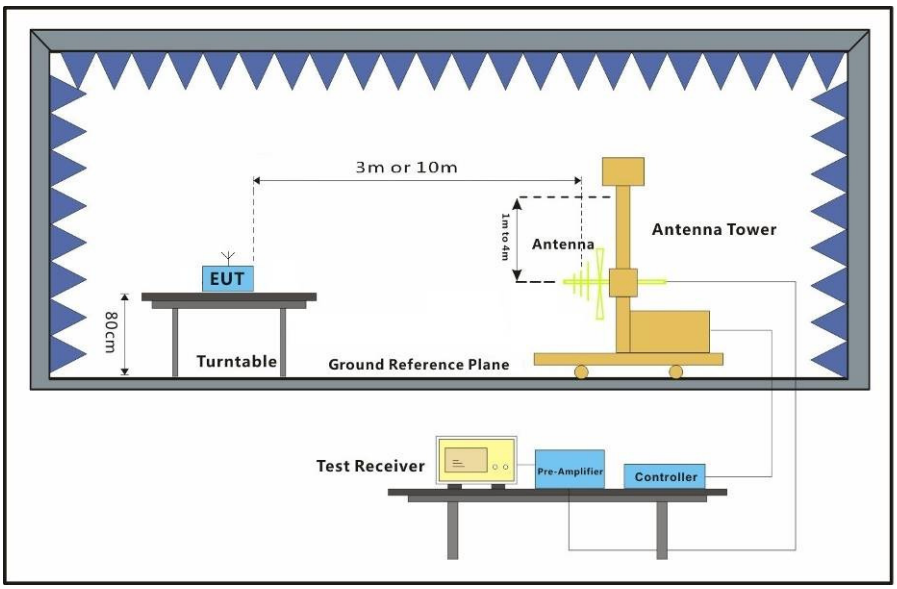
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar

Pretest these modes to find the worst case:	a:TX mode(433.95MHz)_Keep the EUT in transmitting with modulation mode. b:Charge + TX mode(433.95MHz)_Keep the EUT in charging and transmitting with modulation mode.
The worst case for final test:	b:Charge + TX mode(433.95MHz)_Keep the EUT in charging and transmitting with modulation mode.

7.4.2 Test Setup Diagram



7.4.3 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. 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.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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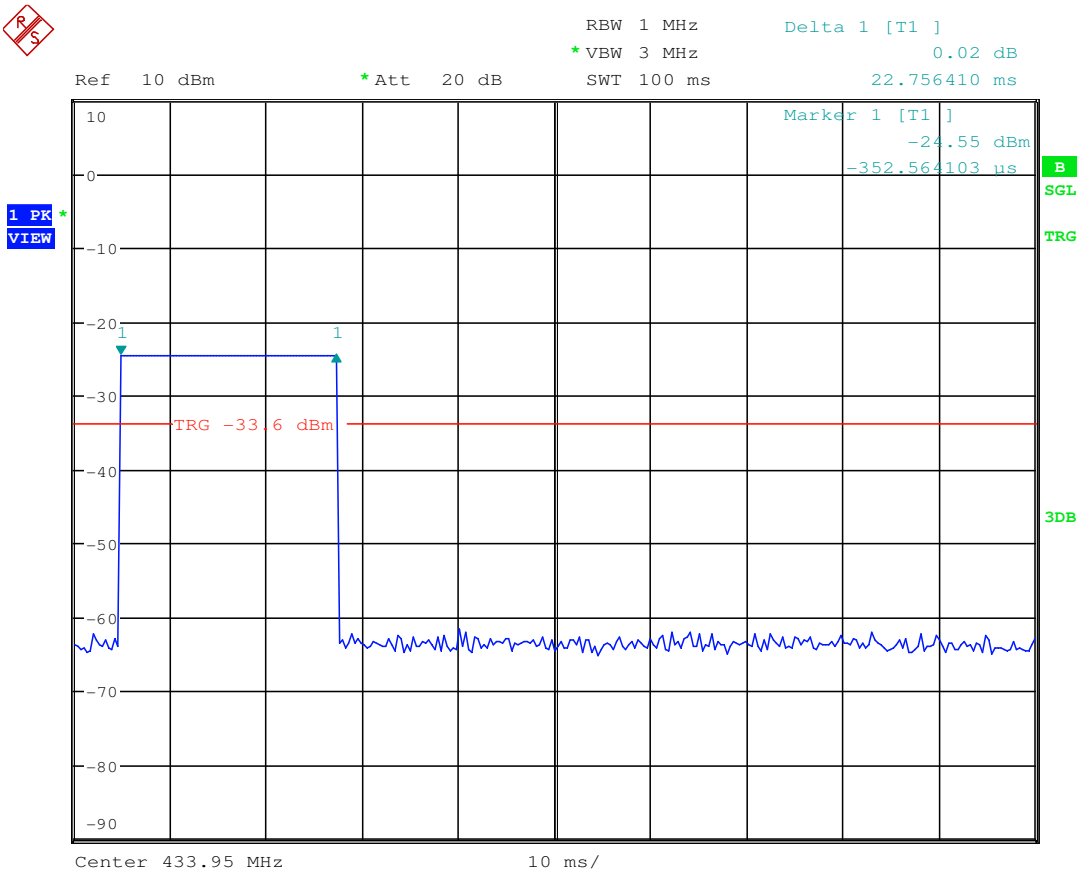
Average value:	
Calculate Formula:	Average value=Peak value + PDCF
	PDCF=20 log(Duty cycle)= 20 log[(22.756)/100]=-12.86dB
	Duty cycle= T on time / T period
Test data:	Ton time =22.756ms
	T period =100ms



Peak value:								
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
433.95	2.35	23.2	27.57	94.89	92.87	100.83	-7.96	Horizontal
433.95	2.35	23.2	27.57	88.97	86.95	100.83	-13.88	Vertical

Average Value:					
Frequency (MHz)	PCDF(dB)	Average Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
433.95	-12.86	80.01	80.83	-0.82	Horizontal
433.95		73.99	80.83	-6.84	Vertical

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7.5 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.231(b)
Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.		

7.5.1 E.U.T. Operation

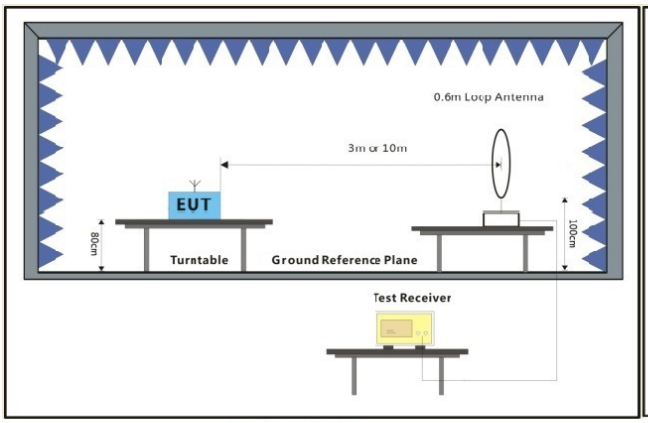
Operating Environment:

Temperature: 21.1 °C Humidity: 53.7 % RH Atmospheric Pressure: 1015 mbar

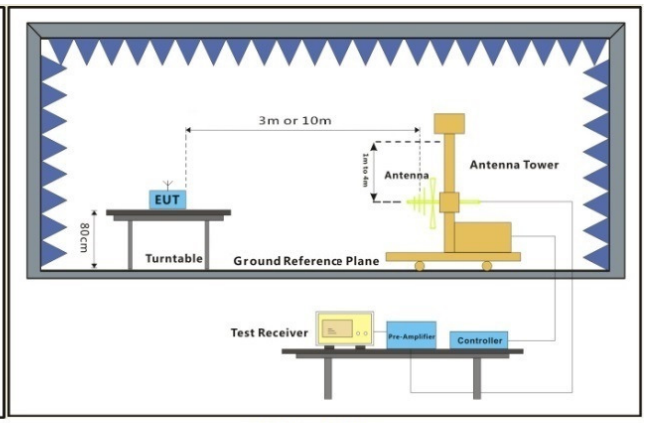
Pretest these modes to find the worst case: a:TX mode(433.95MHz)_Keep the EUT in transmitting with modulation mode.
b:Charge + TX mode(433.95MHz)_Keep the EUT in charging and transmitting with modulation mode.

The worst case for final test: b:Charge + TX mode(433.95MHz)_Keep the EUT in charging and transmitting with modulation mode.

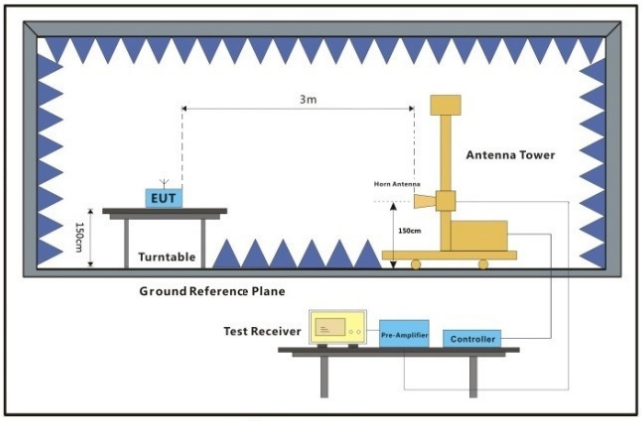
7.5.2 Test Setup Diagram



Below 30MHz



30MHz-1GHz



Above 1GHz

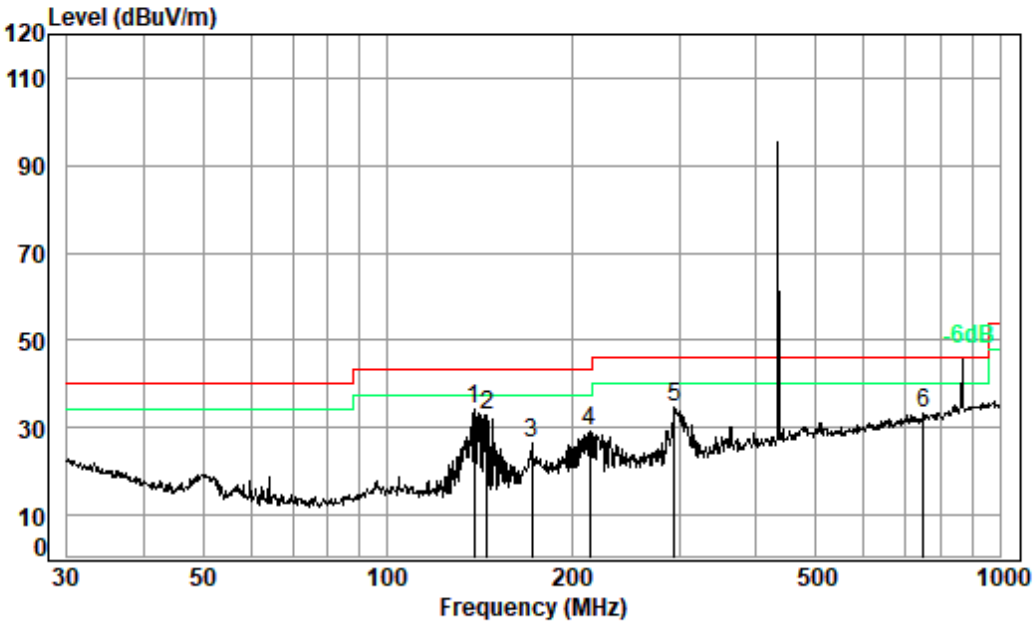
7.5.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center 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.

Below 1GHz

QP value:

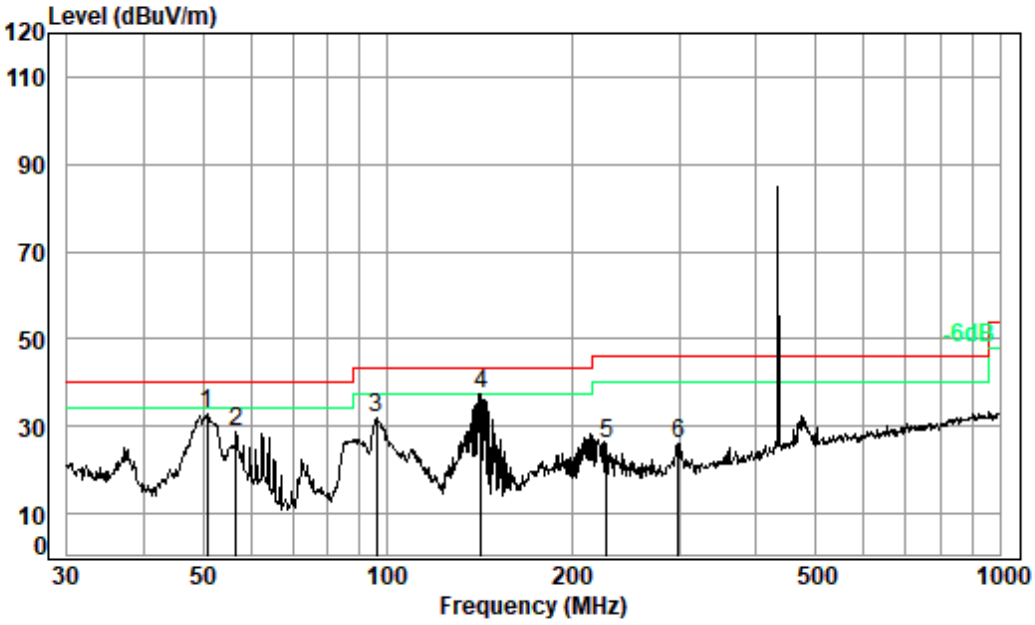
Mode:b; Polarization: Horizontal



Condition: 3m HORIZONTAL
Job No. : 20336CR
Test mode: b

	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	138.39	1.29	13.65	27.42	46.60	34.12	43.50	-9.38
2	145.35	1.31	14.21	27.38	44.78	32.92	43.50	-10.58
3	171.99	1.36	15.75	27.27	36.43	26.27	43.50	-17.23
4	213.76	1.48	16.99	27.12	38.05	29.40	43.50	-14.10
5	294.11	1.87	19.37	26.90	40.52	34.86	46.00	-11.14
6	750.11	3.06	28.21	27.82	29.63	33.08	46.00	-12.92

Mode:b; Polarization:Vertical



Condition: 3m VERTICAL
Job No. : 20336CR
Test mode: b

	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	50.76	0.80	14.12	27.69	45.48	32.71	40.00	-7.29
2	56.59	0.80	13.52	27.68	42.15	28.79	40.00	-11.21
3	96.10	1.16	13.66	27.64	44.70	31.88	43.50	-11.62
4 pp	142.32	1.30	13.92	27.40	49.81	37.63	43.50	-5.87
5	228.49	1.56	17.90	27.08	33.54	25.92	46.00	-20.08
6	298.27	1.89	19.53	26.89	31.40	25.93	46.00	-20.07

Peak value:								
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
867.9	3.48	29.37	27.43	41.32	46.74	80.83	-34.09	Horizontal
867.9	3.48	29.37	27.43	27.20	32.62	80.83	-44.21	Vertical

Average Value:					
Frequency (MHz)	PCDF(dB)	Average Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
867.9	-12.86	33.88	60.83	-26.95	Horizontal
867.9		19.76	60.83	-41.07	Vertical

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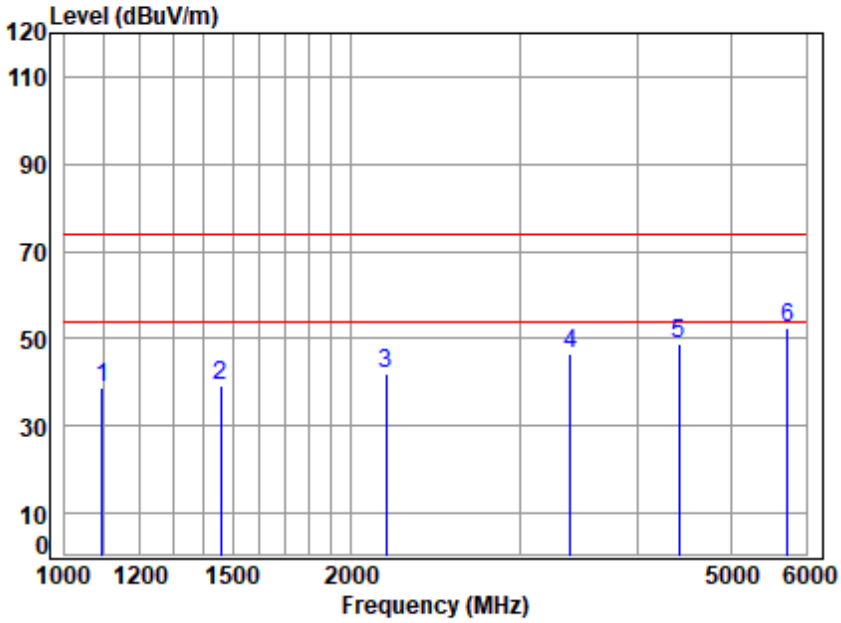
Above 1GHz
Mode:b; Polarization:Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 20336CR
Mode : b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1095.685	3.98	24.10	40.19	50.99	38.88	74.00	-35.12	Peak
2	1459.452	5.35	25.65	40.48	48.79	39.31	74.00	-34.69	Peak
3	2176.294	5.17	28.14	40.88	49.33	41.76	74.00	-32.24	Peak
4	3393.901	6.36	31.54	41.61	50.17	46.46	74.00	-27.54	Peak
5	4408.687	7.46	33.44	42.48	50.50	48.92	74.00	-25.08	Peak
6	5737.167	9.68	34.84	42.40	50.32	52.44	74.00	-21.56	Peak

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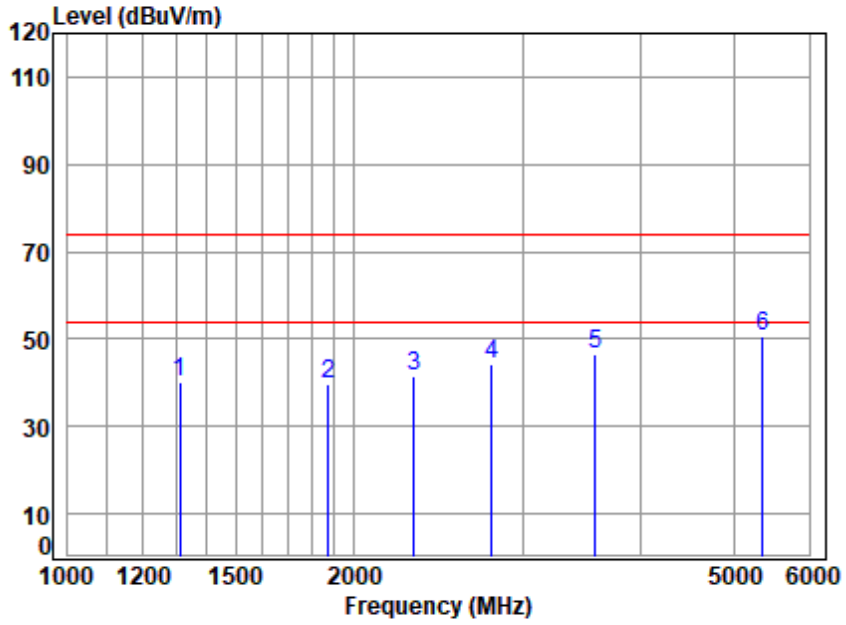
Mode:b; Polarization:Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 20336CR
Mode : b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1310.693	4.84	25.07	40.37	50.39	39.93	74.00	-34.07	Peak
2	1878.924	5.03	27.37	40.73	48.09	39.76	74.00	-34.24	Peak
3	2308.855	5.36	28.38	40.94	48.71	41.51	74.00	-32.49	Peak
4	2786.779	5.83	30.01	41.13	49.45	44.16	74.00	-29.84	Peak
5	3574.914	6.54	31.86	41.78	49.91	46.53	74.00	-27.47	Peak
6	5369.154	8.66	34.50	42.64	50.34	50.86	74.00	-23.14	Peak

8 Photographs

8.1 Test Setup

Please refer to setup photos.

8.2 EUT Constructional Details (EUT Photos)

Please refer to external and internal photos for details.

- End of the Report -