


# TEST REPORT

**Application No.:** SZEM2004002376CR  
**Applicant:** Guangzhou Bresser Optical Instruments Co., Ltd.  
**Address of Applicant:** No.12 Kangda RD., DongCheng Zone, Yunpu Industrial District, Huangpu, Guangzhou, China  
**Manufacturer:** GUANGZHOU JINGHUA PRECISION OPTICS CO., LTD  
**Address of Manufacturer:** Kangda Rd. 12, Yunpu Ind. Area, Huangpu, Guangzhou, PRC  
**Factory:** GUANGZHOU JINGHUA PRECISION OPTICS CO., LTD  
**Address of Factory:** Kangda Rd. 12, Yunpu Ind. Area, Huangpu, Guangzhou, PRC  
**Equipment Under Test (EUT):**  
**EUT Name:** Outdoor sensor  
**Model No.:** ST100X  
**Trade Mark:**   
**FCC ID:** 2AE3NST100X  
**Standard(s) :** 47 CFR Part 15, Subpart C 15.231  
**Date of Receipt:** 2020-04-09  
**Date of Test:** 2020-04-13 to 2020-04-16  
**Date of Issue:** 2020-04-23

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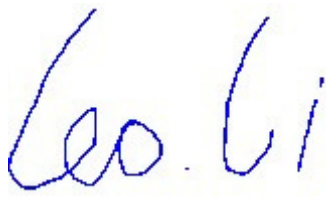

\* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu  
EMC Laboratory Manager



<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2020-04-23		Original

<b>Authorized for issue by:</b>			
			
		<hr/> <b>Leo Li /Project Engineer</b>	
			
		<hr/> <b>Eric Fu /Reviewer</b>	



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## 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
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(e))	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 7.8.4	47 CFR Part 15, Subpart C 15.231(e)	Pass
Duty Cycle	47 CFR Part 15, Subpart C 15.231	ANSI C63.10:2013	47 CFR Part 15C Section 15.35 (c)	Pass
Field Strength of the Fundamental Signal (15.231(e))	47 CFR Part 15, Subpart C 15.231	ANSI C63.10 (2013) Section 6.5	47 CFR Part 15, Subpart C 15.231(e)	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(e)	Pass

N/A: Not applicable



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## 4 General Information

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

Power Supply:	3V DC (1.5Vx2"AA" Size Batteries)
Test Voltage:	DC 3V
Operation Frequency:	433.92MHz
Modulation Type:	ASK
Number of Channels:	1
Antenna Gain:	1dBi MAX
Antenna Type:	Wire Antenna

### 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	$\pm 7.25 \times 10^{-8}$
2	Duty cycle	$\pm 0.37\%$
3	Occupied Bandwidth	$\pm 3\%$
4	Dwell time	$\pm 0.37\%$
5	RF Radiated power	$\pm 4.5\text{dB}$ (Below 1GHz)
		$\pm 4.8\text{dB}$ (Above 1GHz)
6	Radiated Spurious emission test	$\pm 4.5\text{dB}$ (Below 1GHz)
		$\pm 4.8\text{dB}$ (Above 1GHz)
7	Temperature test	$\pm 1^\circ\text{C}$
8	Humidity test	$\pm 3\%$
9	Supply voltages	$\pm 1.5\%$
10	Time	$\pm 3\%$



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#### 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



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## 5 Equipment List

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	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
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	EHP-50F	SEM022-05	2019-11-28	2020-11-27
Electric Field Probe	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(e))					
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	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
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	EHP-50F	SEM022-05	2019-11-28	2020-11-27
Electric Field Probe	WANDEL & GOLTERMANN	EMR-20	EMC0907	2019-05-21	2020-05-20
EMF Tester	Narda	ELT-400	SZE039-4	2019-07-08	2020-07-07



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<b>Field Strength of the Fundamental Signal (15.231(b))</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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

<b>Radiated Emissions (30MHz-1GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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

<b>Radiated Spurious Emissions(Above 1GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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



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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

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	2020-04-07	2021-04-06



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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 0dBi.

Antenna location: Refer to Appendix(Internal photos)



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## 7 Radio Spectrum Matter Test Results

### 7.1 20dB Bandwidth

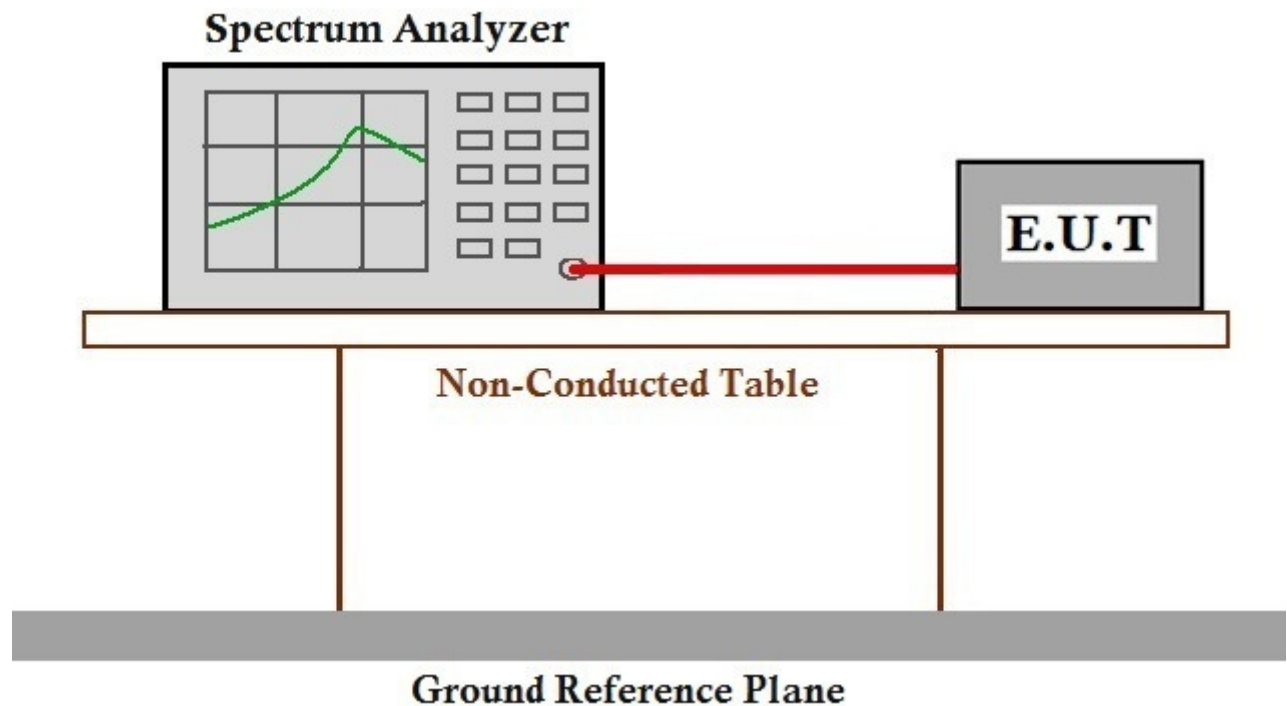
Test Requirement 47 CFR Part 15, Subpart C 15.231(c)  
 Test Method: ANSI C63.10 (2013) Section 6.9  
 Limit:

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

#### 7.1.1 E.U.T. Operation

Operating Environment:  
 Temperature: 28.3 °C Humidity: 40.1 % RH Atmospheric Pressure: 1015 mbar  
 Test mode a:TX mode\_Keep the EUT in transmitting with modulation mode.

#### 7.1.2 Test Setup Diagram



#### 7.1.3 Measurement Procedure and Data

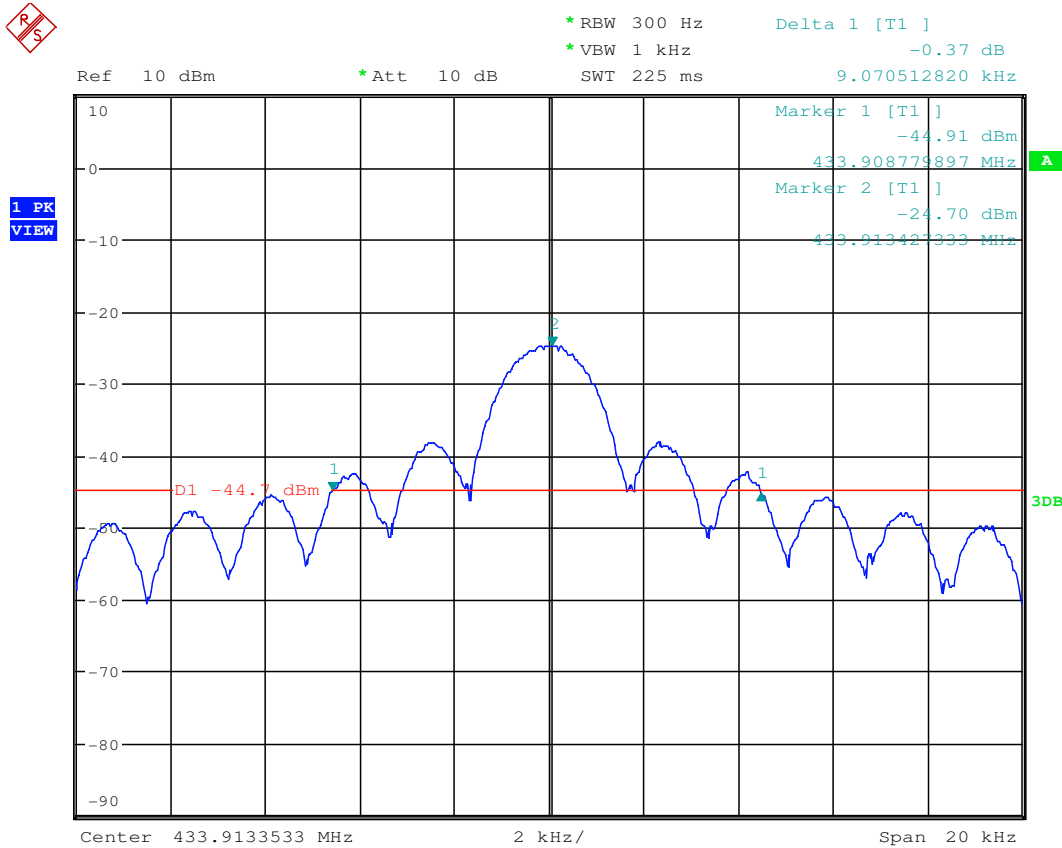


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Transmitter mode

Test channel	20dB Bandwidth (KHz)	Limit (KHz)	Results
433.92MHz	9.07	1084.88	Pass

Mode:a



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## 7.2 Dwell Time (15.231(e))

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

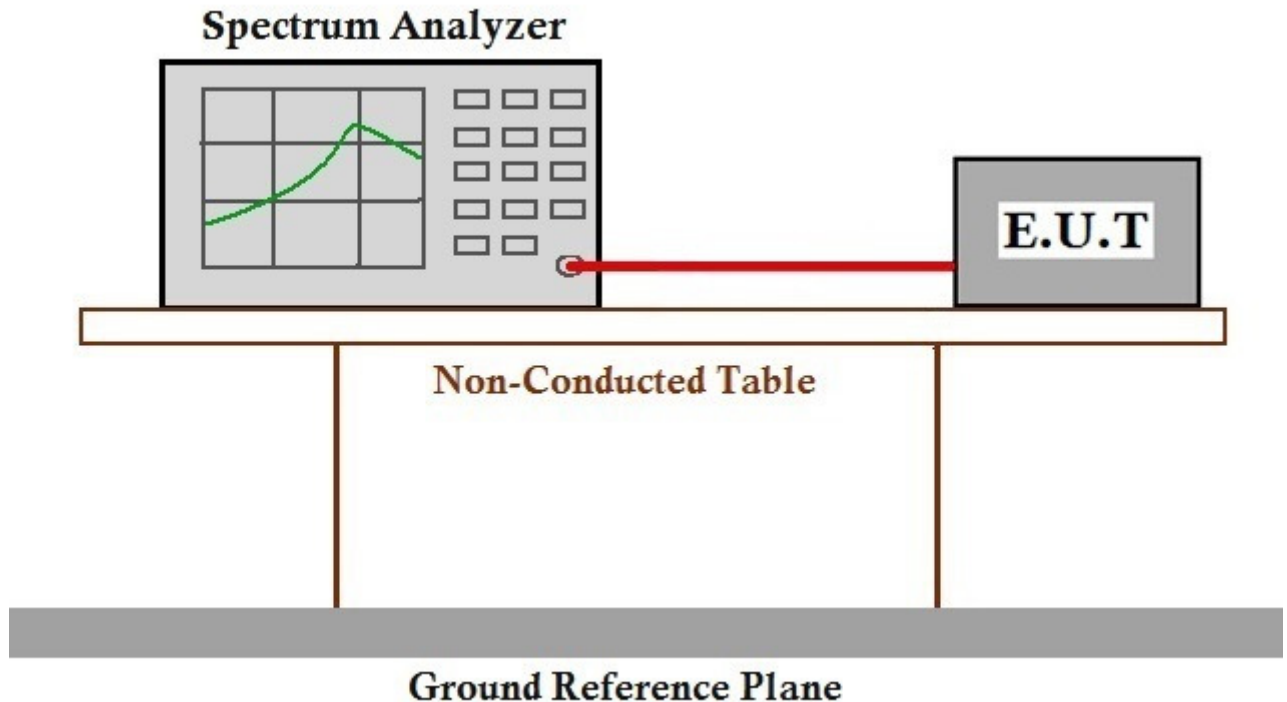
Device type	Limit
Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) 15.231 and may be employed for any type of operation, including operation prohibited in paragraph (a) 15.231	The duration of each transmission $\leq 1S$
	Silent period $>30$ times the duration of the transmission and $\geq 10S$

### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 28.3 °C Humidity: 40.1 % RH Atmospheric Pressure: 1015 mbar  
 Test mode a:TX mode\_Keep the EUT in transmitting with modulation mode.

### 7.2.2 Test Setup Diagram



### 7.2.3 Measurement Procedure and Data



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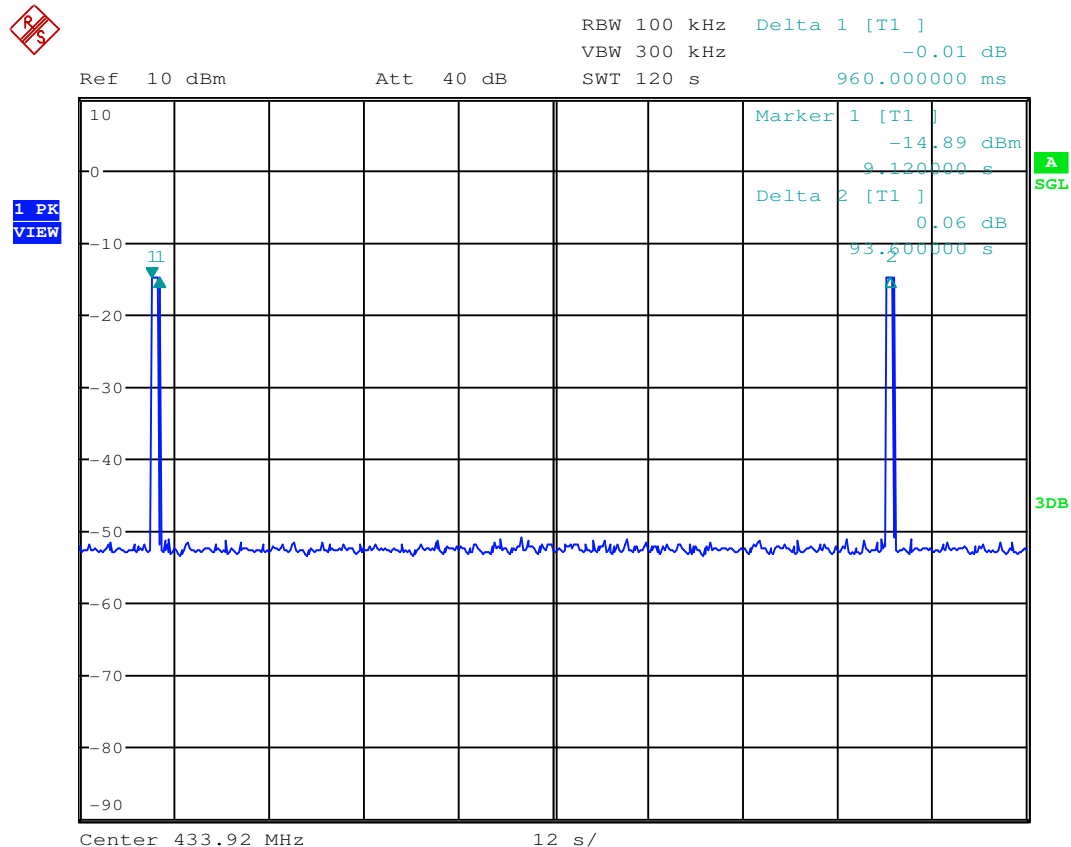
**Remark:**

There are three switches on the back of the EUT, each of which controls different launch intervals.

Switch	Launch interval
1	93.60s
2	97.20s
3	101.28s

Switch	Test item	Limit	Results
1	Transmitting time: 960.00ms	≤1S	Pass
2	Transmitting time: 960.00ms	≤1S	Pass
3	Transmitting time: 960.00ms	≤1S	Pass

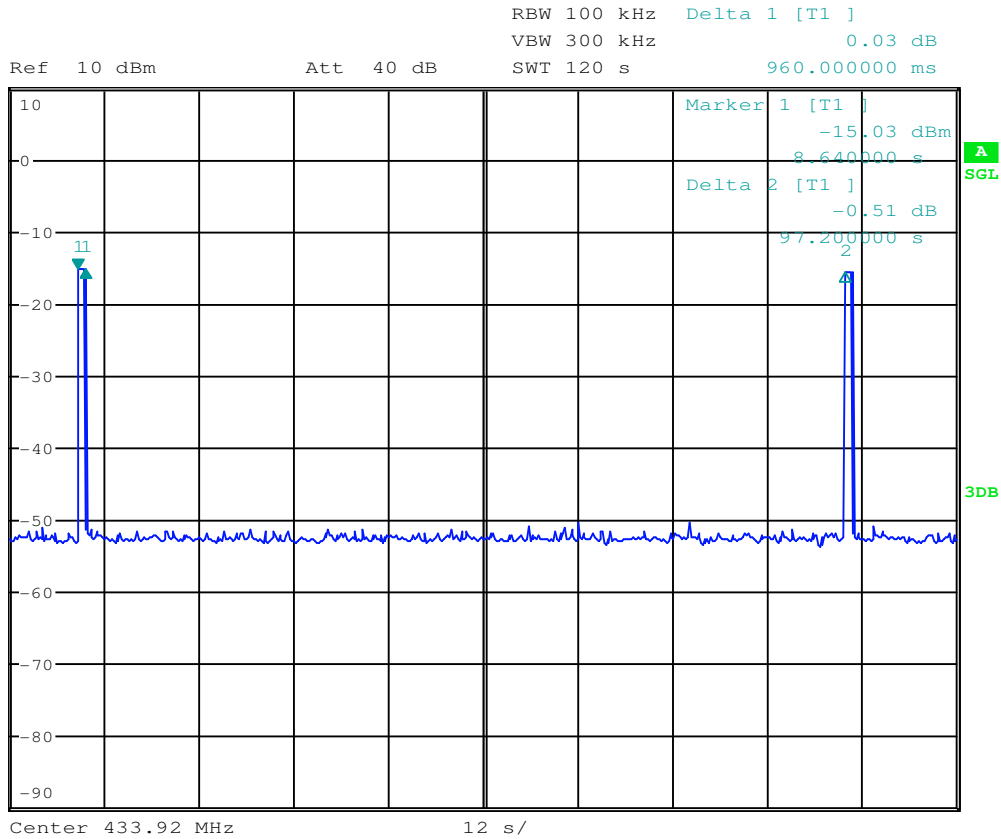
**For Switch 1:**



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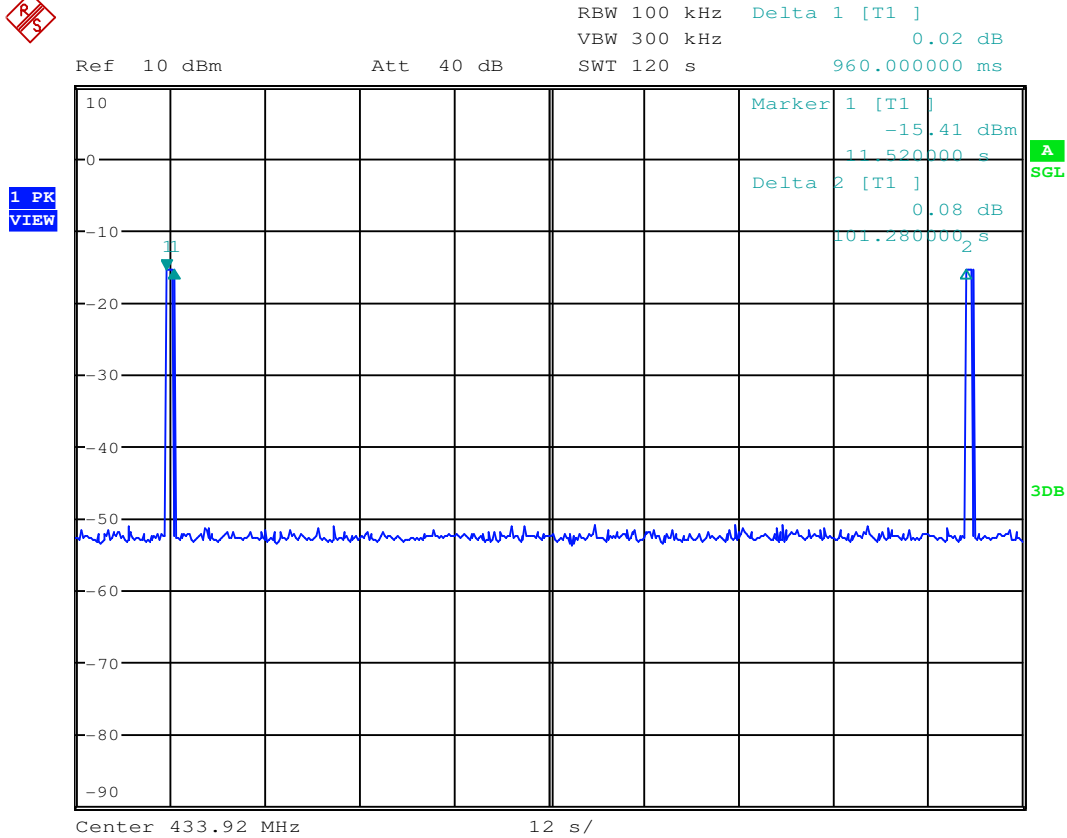
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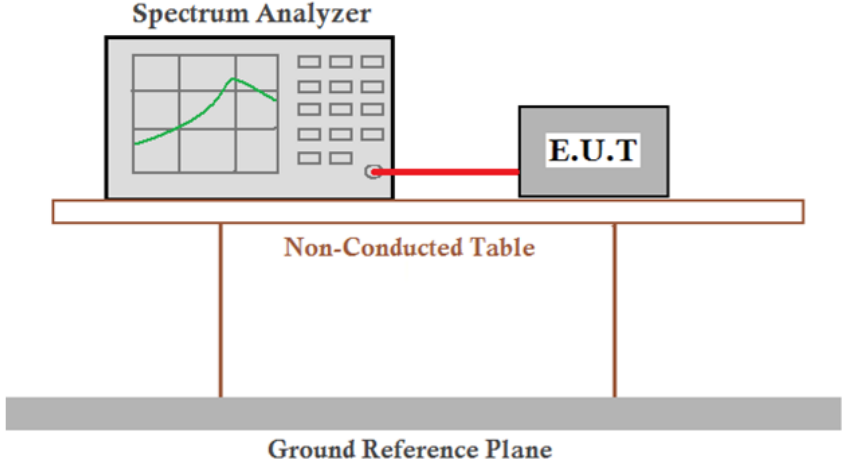
For Switch 3:



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### 7.3 Duty Cycle

Test Requirement:	47 CFR Part 15C Section 15.35 (c)
Test Method:	ANSI C63.10:2013
Test Setup:	
Limit:	N/A
Test Mode:	Transmitting mode
Instruments Used:	Refer to section 5 for details
Test Results:	Pass

#### 7.3.1 Measurement Procedure and Data

Remark:

There are three switches on the back of the EUT, each of which controls different launch intervals.

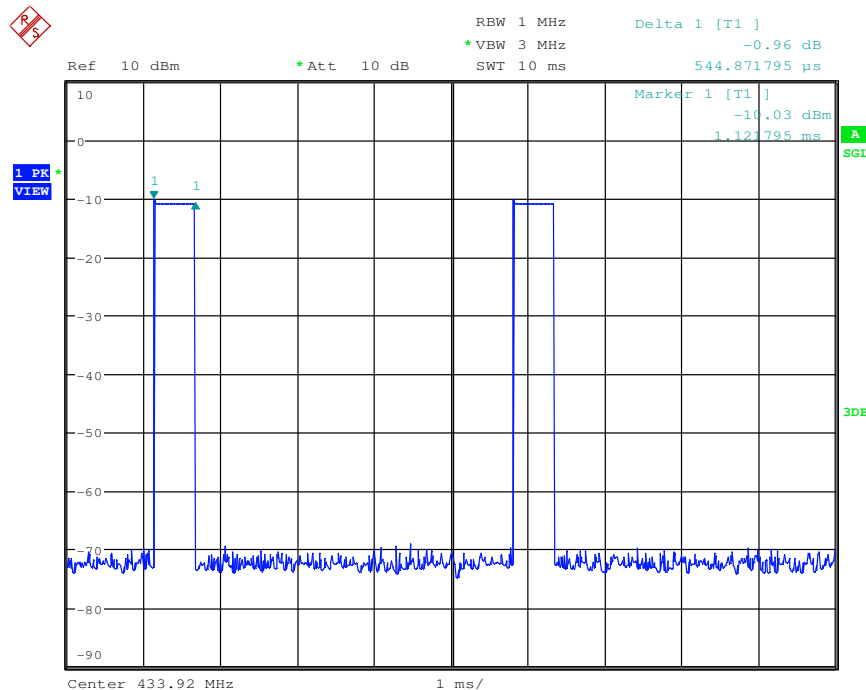
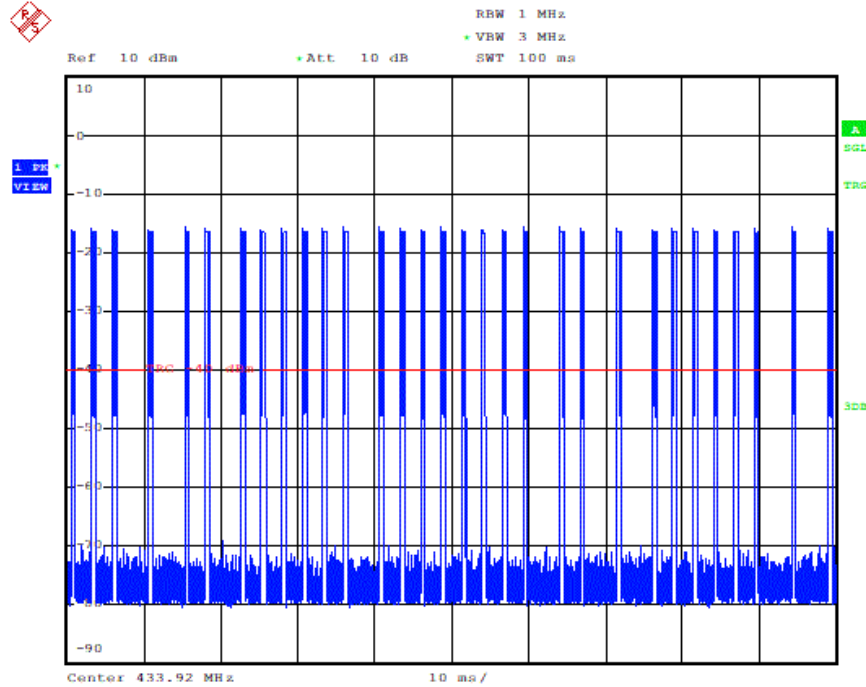
Switch	Launch interval
1	93.60s
2	97.20s
3	101.28s

Switch	Duty cycle	Limit	Results
1	$0.5449\text{ms} \times 31 = 16.8919\text{ms}$	N/A	Pass
2	$0.5449\text{ms} \times 28 = 15.2572\text{ms}$	N/A	Pass
3	$0.5449\text{ms} \times 29 = 15.8021\text{ms}$	N/A	Pass



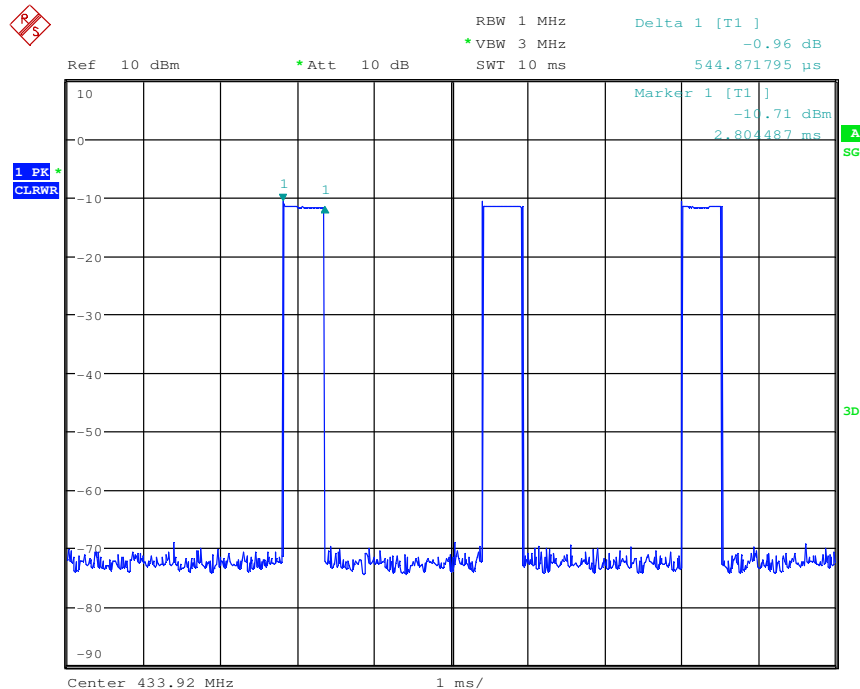
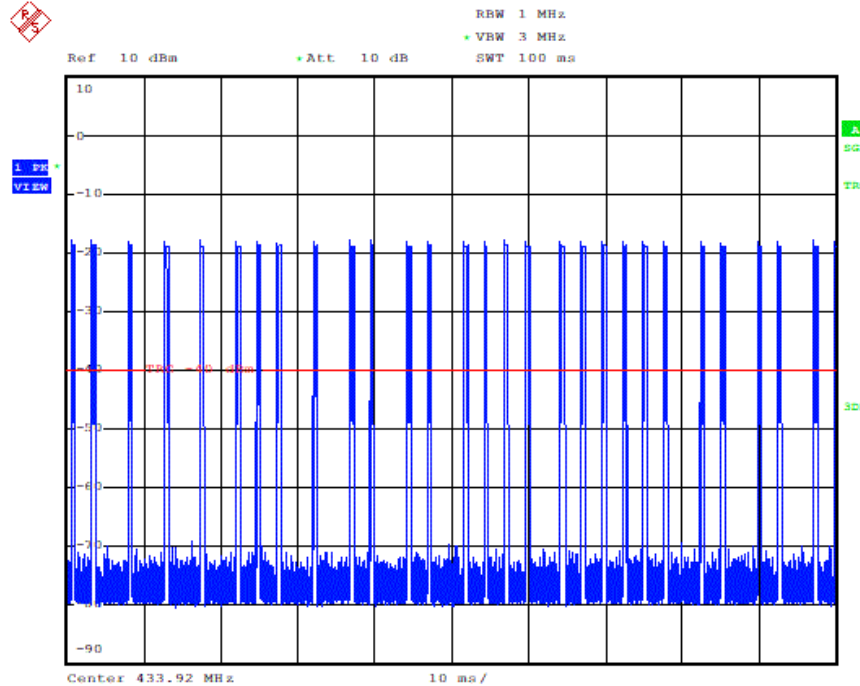
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For Switch 1:



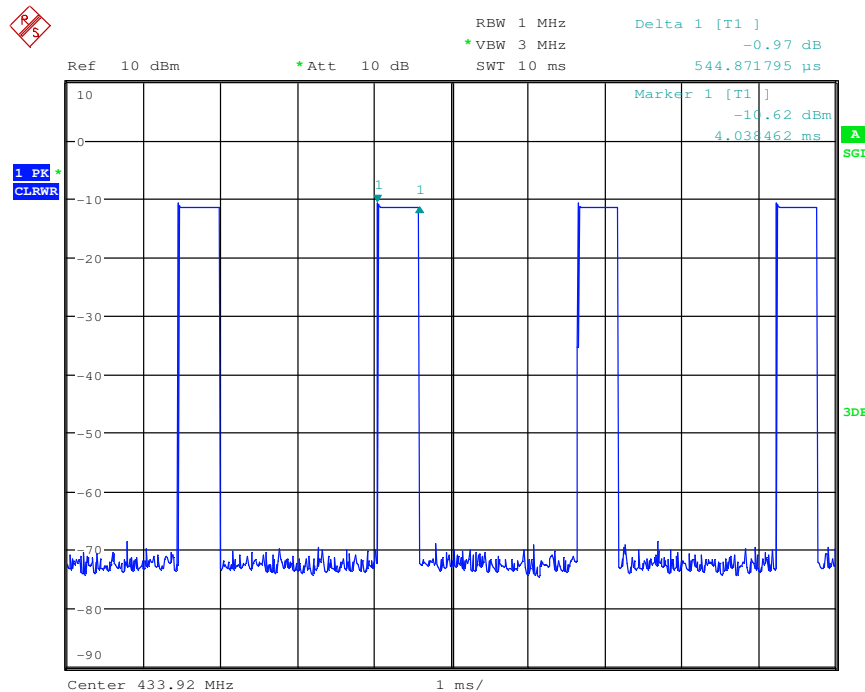
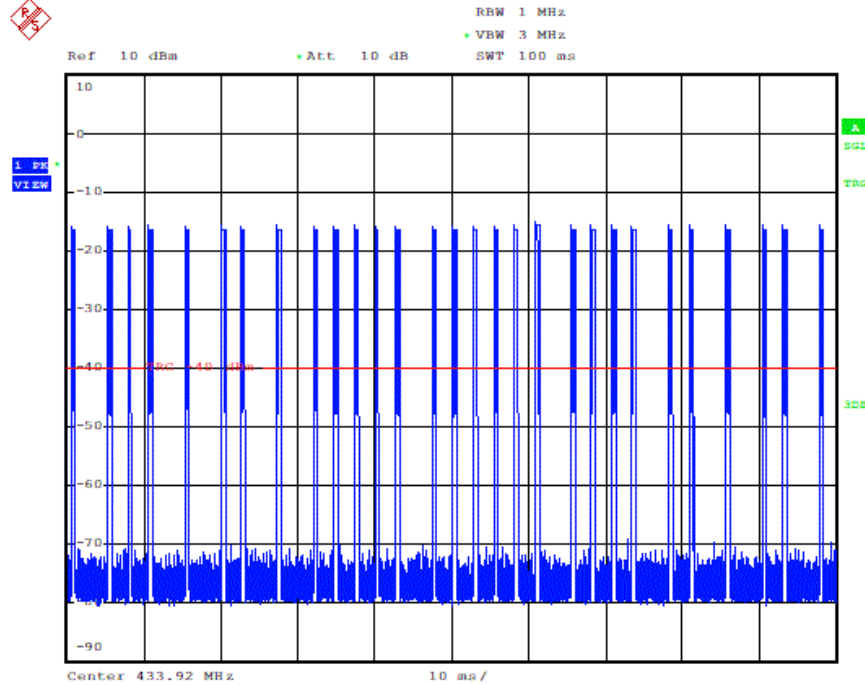
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### 7.4 Field Strength of the Fundamental Signal (15.231(e))

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

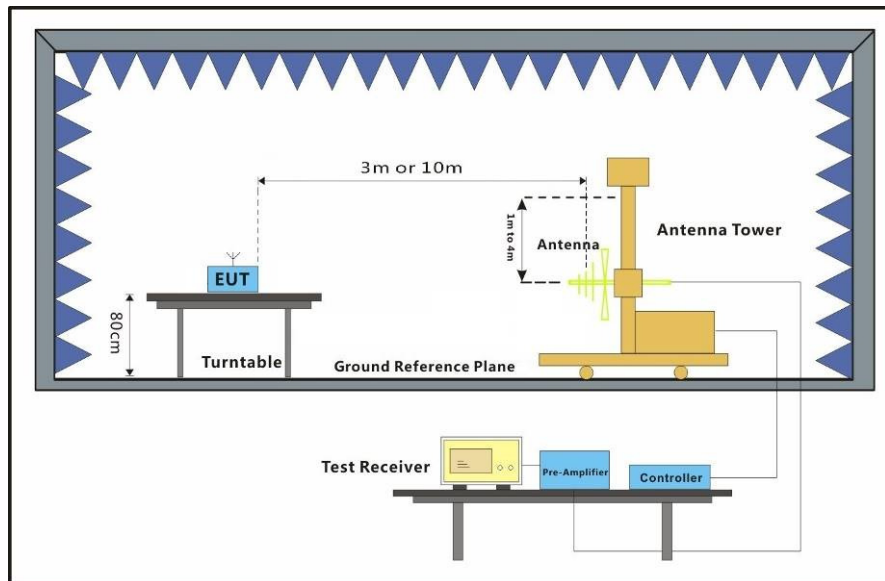
Fundamental frequency(MHz)	Field strength of fundamental(microvolts/meter)	Field strength of spurious emissions(microvolts/meter)
40.66-40.70	1000	100
70-130	500	50
130-174	500 to 1500	50 to 150
174-260	1500	150
260-470	1500 to 5000	150 to 500
Above 470	5000	500

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: 25 °C Humidity: 51 % RH Atmospheric Pressure: 1015 mbar  
 Test mode a:TX mode\_Keep the EUT in transmitting with modulation mode.

#### 7.4.2 Test Setup Diagram



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**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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For Switch 1:

Average value:	
Calculate Formula:	Average value=Peak value + PDCF
	PDCF=20 log(Duty cycle)= 20 log[(16.8919)/100]=-15.45dB
	Duty cycle= T on time / T period
Test data:	Ton time =31*0.5449=16.8919ms
	T period =100ms

For Switch 2:

Average value:	
Calculate Formula:	Average value=Peak value + PDCF
	PDCF=20 log(Duty cycle)= 20 log[(15.2572)/100]=-16.33dB
	Duty cycle= T on time / T period
Test data:	Ton time =28*0.5449=15.2572ms
	T period =100ms

For Switch 3 :

Average value:	
Calculate Formula:	Average value=Peak value + PDCF
	PDCF=20 log(Duty cycle)= 20 log[(15.8021)/100]=-16.03dB
	Duty cycle= T on time / T period
Test data:	Ton time =29*0.5449=15.8021ms
	T period =100ms

In conclusion, the switch 1 mode is the worst case. All the test is conducted in switch 1 mode.

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
433.92	2.35	23.21	27.57	82.63	80.62	92.87	-12.25	Horizontal
433.92	2.35	23.2	27.57	77.22	75.20	92.87	-17.67	Vertical
Average Value:								
Frequency (MHz)	PCDF(dB)	Average Level (dBuV/m)		Limit Line (dBuV/m)	Over Limit (dB)		Polarization	
433.92	-15.45	65.17		72.87	-7.70		Horizontal	
433.92		59.75		72.87	-13.12		Vertical	



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### 7.5 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.231(e)  
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.

Fundamental frequency(MHz)	Field strength of fundamental(microvolts/meter)	Field strength of spurious emissions(microvolts/meter)
40.66-40.70	1000	100
70-130	500	50
130-174	500 to 1500	50 to 150
174-260	1500	150
260-470	1500 to 5000	150 to 500
Above 470	5000	500

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.



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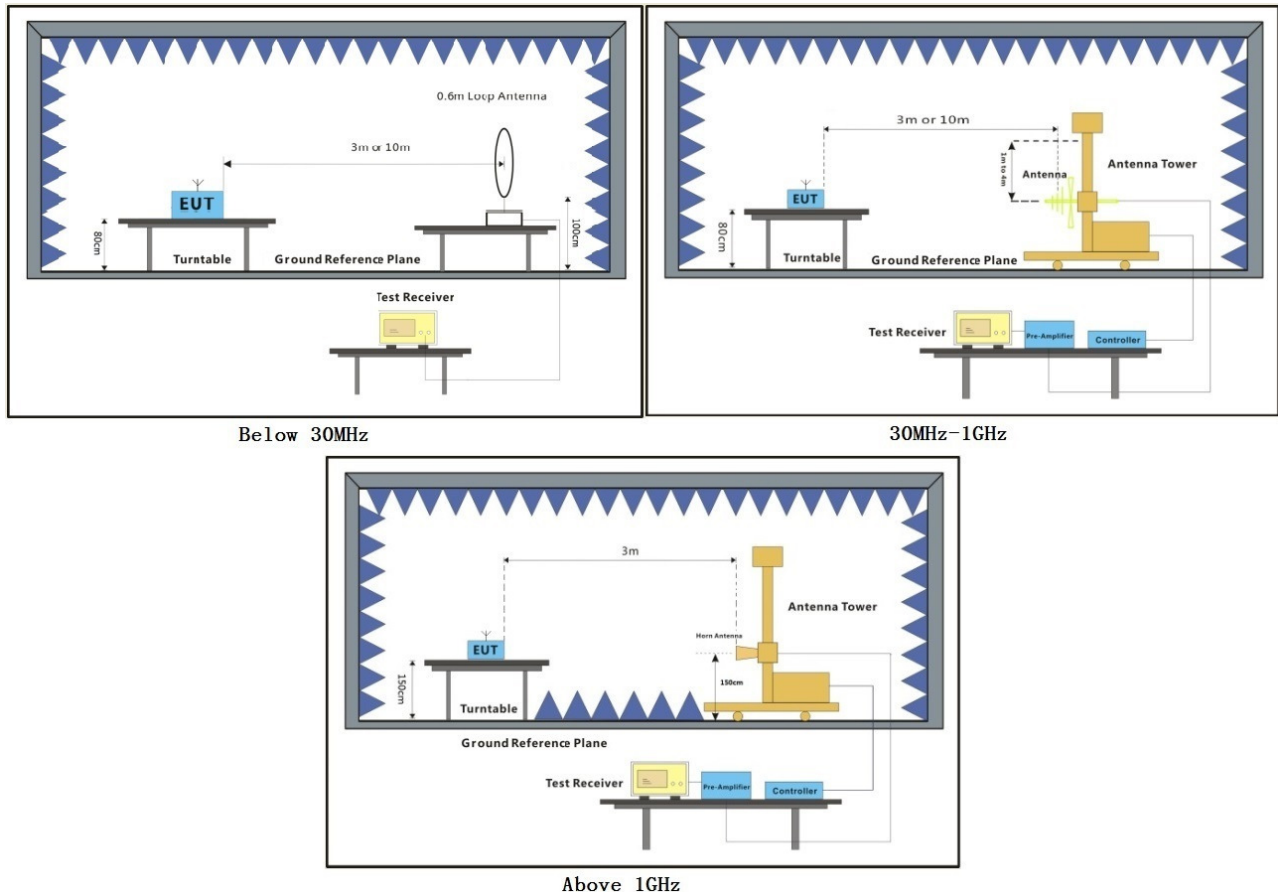


### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 45 % RH Atmospheric Pressure: 1015 mbar  
Test mode a:TX mode\_Keep the EUT in transmitting with modulation mode.

### 7.5.2 Test Setup Diagram



### 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.



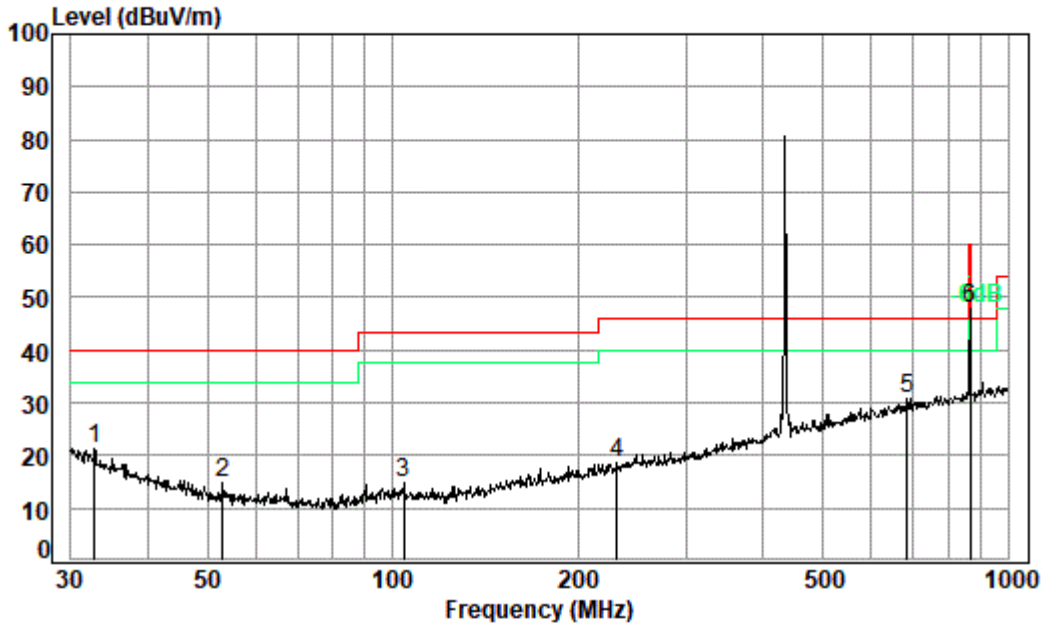
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**Below 1GHz**

QP value:

Mode:a; Polarization:Horizontal



Condition: 3m HORIZONTAL  
Job No. : 02376CR  
Test mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	32.75	0.60	20.98	27.72	27.26	21.12	40.00	-18.88	Peak
2	52.95	0.80	13.89	27.69	27.65	14.65	40.00	-25.35	Peak
3	104.17	1.21	13.80	27.61	27.58	14.98	43.50	-28.52	Peak
4	231.72	1.58	18.15	27.07	26.08	18.74	46.00	-27.26	Peak
5	684.75	2.87	27.71	27.96	28.28	30.90	46.00	-15.10	Peak
6 PP	867.84	3.49	29.41	27.42	42.61	48.09	72.87	-24.78	Peak

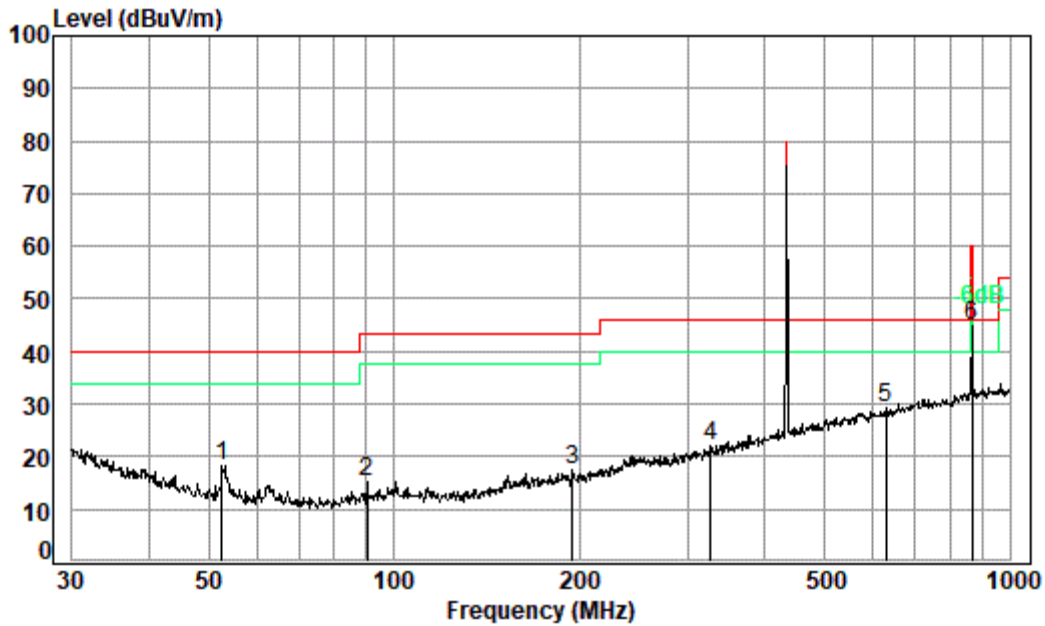
Average Value:

Frequency (MHz)	PCDF(dB)	Average Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Polarization
867.84	-15.45	32.64	52.87	-20.23	Horizontal



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Mode:a; Polarization:Vertical



Condition: 3m VERTICAL  
Job No. : 02376CR  
Test mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	52.58	0.80	13.92	27.69	31.15	18.18	40.00	-21.82	Peak
2	90.54	1.10	13.15	27.65	28.75	15.35	43.50	-28.15	Peak
3	195.14	1.39	16.36	27.18	26.83	17.40	43.50	-26.10	Peak
4	326.74	1.99	20.43	27.05	26.79	22.16	46.00	-23.84	Peak
5	629.48	2.76	27.00	28.09	27.70	29.37	46.00	-16.63	Peak
6 PP	867.84	3.49	29.41	27.42	39.37	44.85	72.87	-28.02	Peak

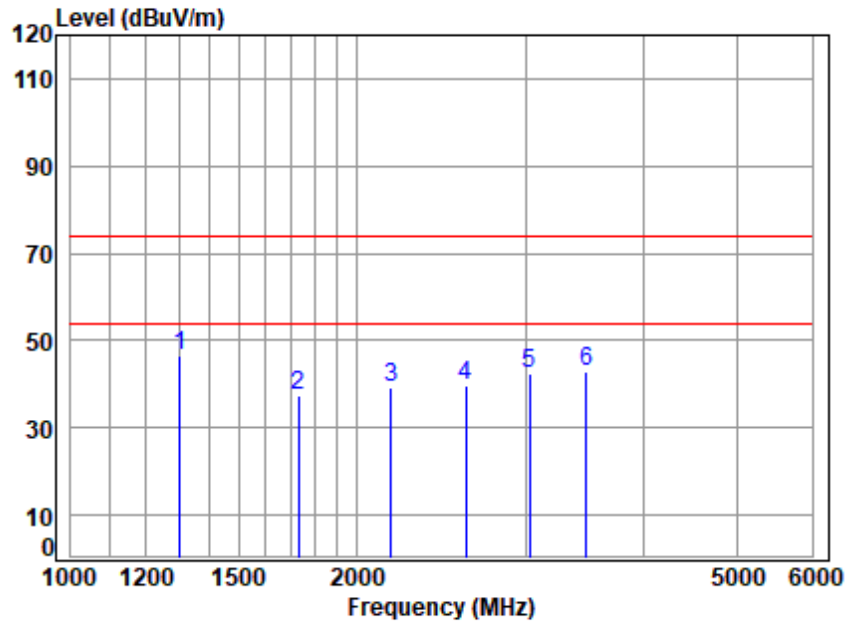
Average Value:

Frequency (MHz)	PCDF(dB)	Average Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
867.84	-15.45	29.40	52.87	-23.47	Vertical



**Above 1GHz**

Mode:a; Polarization:Horizontal



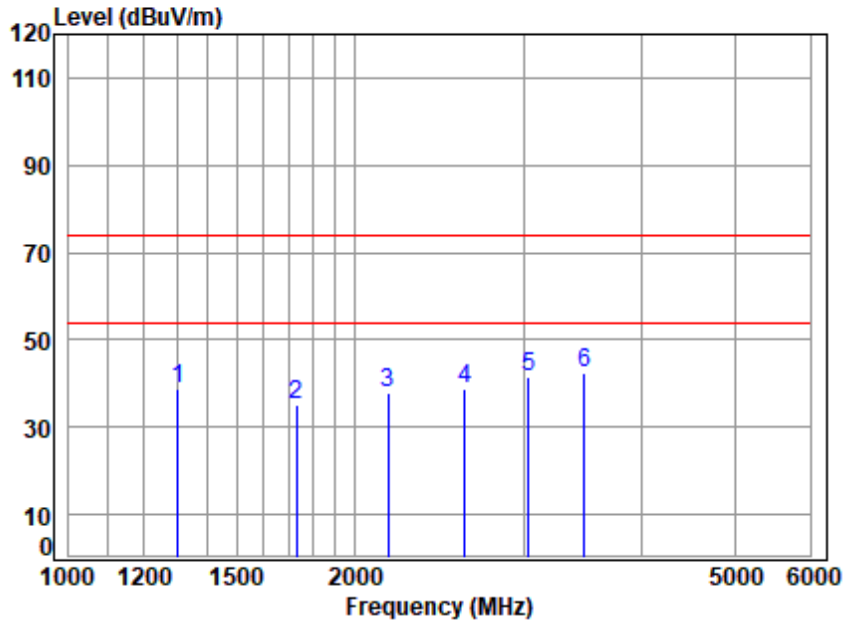
Site : chamber  
Condition: 3m HORIZONTAL  
Job No : 02376CR  
Mode : 433M TX SE  
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1301.332	2.89	25.03	40.36	59.01	46.57	74.00	-27.43	Peak
2	1733.375	3.11	26.81	40.65	47.92	37.19	74.00	-36.81	Peak
3	2168.510	3.59	28.13	40.88	48.34	39.18	74.00	-34.82	Peak
4	2598.691	4.10	29.17	41.06	47.26	39.47	74.00	-34.53	Peak
5	3031.626	4.54	30.95	41.23	48.28	42.54	74.00	-31.46	Peak
6	3473.883	5.48	31.66	41.69	47.62	43.07	74.00	-30.93	Peak



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Mode:a; Polarization:Vertical



Site : chamber  
Condition: 3m VERTICAL  
Job No : 02376CR  
Mode : 433M TX SE  
Note :

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2.89	25.03	40.36	51.39	38.95	74.00	-35.05	Peak
2	3.11	26.81	40.65	45.83	35.10	74.00	-38.90	Peak
3	3.62	28.12	40.87	47.02	37.89	74.00	-36.11	Peak
4	4.11	29.19	41.06	46.36	38.60	74.00	-35.40	Peak
5	4.58	30.96	41.24	47.01	41.31	74.00	-32.69	Peak
6	5.48	31.66	41.69	47.20	42.65	74.00	-31.35	Peak



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## 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 -

