RF TEST REPORT

For

SensoScientific, Inc.

Product Name: SubG Gateway

Model(s).: SG-G00

Report Reference No.	:	**POCE230727154LRW**
FCC ID	:	**2BAJL-SGG00KOTA**
Applicant's Name	:	SensoScientific, Inc.
Address	:	685 COCHRAN ST STE 200 SIMI VALLEY CA 93065
Testing Laboratory	:	Shenzhen POCE Technology Co., Ltd.
Address	:	102 Building H1 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**47 CFR Part 15.249**
Date of Receipt	:	July 10, 2023
Date of Test	:	July 10, 2023 to August 02, 2023
Data of Issue	:	August 02, 2023
Result	:	**Pass**

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Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	POCE230727154LRW	July 27, 2023

NOTE1:

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.

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHZ, and 24.0-24.25 GHz

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.249		Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.249	ANSI C63.10-2013 section 6.2	47 CFR 15.207(a)	Pass
20db Occupied Bandwidth	47 CFR Part 15.249	ANSI C63.10-2013, section 6.9.2	47 CFR 15.215(c)	Pass
Field strength of fundamental	47 CFR Part 15.249	ANSI C63.10-2013 section 6.5	47 CFR 15.249(a)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6.4	47 CFR 15.249(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.5	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass

Note: 1.N/A -this device(EUT) is not applicable to this testing item
2. RF-conducted test results including cable loss.

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : SensoScientific, Inc.
Address : 685 COCHRAN ST STE 200 SIMI VALLEY CA 93065

Manufacturer : Vietnam IBE Laser Co.,ltd
Address : Lot CN-34 and CN-39, Thuan Thanh II Industrial Park, An Binh Ward and, Mao Dien Commune, Thuan Thanh Town, Bac Ninh Province, Vietnam.

2.2 Description of Device (EUT)

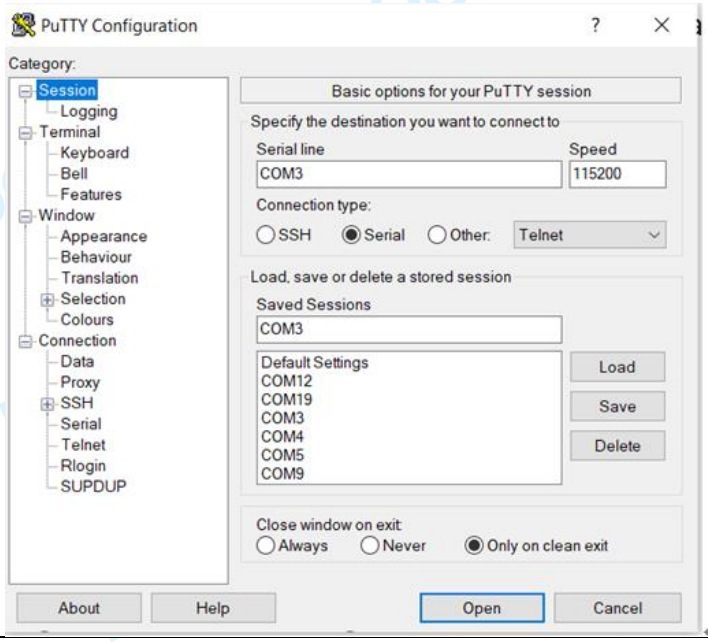
Product Name:	SubG Gateway
Sample number:	230710155
Model/Type reference:	SG-G00
Series Model:	N/A
Model Difference:	N/A
Trade Mark:	SensoScientific
Product Description:	SubG Gateway
HW/SW:	94V-0/V1.0
Operation Frequency:	903MHz – 927MHz
Number of Channels:	25
Modulation Type:	FSK
Antenna Type:	External Antenna
Antenna Gain:	5.33dBi
Power Supply:	DC5.0V-1A
Adapter :	/

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	903MHz	8	910MHz	15	917MHz	22	924MHz
2	904MHz	9	911MHz	16	918MHz	23	925MHz
3	905MHz	10	912MHz	17	919MHz	24	926MHz
4	906MHz	11	913MHz	18	920MHz	25	927MHz
5	907MHz	12	914MHz	19	921MHz	/	/
6	908MHz	13	915MHz	20	922MHz	/	/
7	909MHz	14	916MHz	21	923MHz	/	/

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	**Frequency (MHz)**
Lowest channel	903.00MHz
Middle channel	915.00MHz
Highest channel	927.00MHz

2.3 Description of Test Modes

No	Title	Description
TM1	TX	Keep the EUT works in continuously transmitting mode with FSK modulation.
		☒Special software is used. ☐Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*
		Special software: 

2.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Description	Manufacturer	Model No.	Remark	Certification
1	adapter	huawei	HW-100100C01	Provide by lab	SDOC

2.5 Equipments Used During The Test

Conducted Emission at AC power line					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal. Due Date**
Shielding room	CY	8*4*3	20160102	2023/1/26	2025/1/25
Pulse Limiter	Schwarzbeck	VTSD 9561	561-G071	2023/2/27	2024/2/26
Cable	Schwarzbeck	/	/	2023/2/27	2024/2/26
Test Receiver	Rohde & Schwarz	ESPI	1164.6607K03-102109-MH	2023/6/13	2024/6/12
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2022/12/29	2023/12/28
L.I.S.N	Schwarzbeck	NSLK 8126	NSLK 8126	/	/
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/

EMI Testsoftware	Farad	EZ -EMC	V1.1.42	/	/

Emissions in restricted frequency bands and RF					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Test Receiver	R&S	ESCI	102109	2023/6/13	2024/6/12
Spectrum Analyzer	R&S	FSP30	1321.3008K40-101729-jR	2023/6/14	2024/6/13
966 Chamber	CY	9*6*6	20160101	2023/1/26	2025/1/25
Bore-sighting Antenna rack	PBB	1308503	16033	/	/
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2021/7/5	2024/7/4
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023/5-21	2025/5-20
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023/5/13	2025/5/12
Horn antenna	COM-POWER	AH-1840(40G)	10100008	2023/4/5	2025/4/4
Power APM(LF)	Schwarzbeck	BBV9743	9743-151	2023/6/13	2024/6/12
Power APM(HF)	Schwarzbeck	BBV9718	9718-282	2023/6/13	2024/6/12
Cable(LF)#2	Schwarzbeck	/	/	2023/2/27	2024/2/26
Cable(LF)#1	Schwarzbeck	/	/	2023/2/27	2024/2/26
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2023/2/28	2024/2/27
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2023/2/27	2024/2/26
Power divider	MIDEWEST	PWD-2533	SMA-79	2023/5/11	2026/5/10
signal generator	Keysight	N5181A	MY48180415	2022/12/10	2023/12/9
signal generator	Keysight	N5182A	MY50143455	2022/12/29	2023/12/28
Wideband radio communication tester	R&S	CMW500	113410	2023/6/13	2024/6/12
Spectrum Analyzer	Keysight	N9020A	MY53420323	2022/12/29	2023/12/28
RF Sensor Unit	TACHOY	TR1029-2	000001	/	/
RF Control Unit	TACHOY	TR1029-1	000001	/	/
Position Controller	MF	MF-7802	/	/	/
EMI Testsoftware	Farad	EZ -EMC	V1.1.42	/	/
RF TestSoftware	TACHOY	RTS-01	V2.0.0.0	/	/

2.6 Statement Of The Measurement Uncertainty

Test Item	**Measurement Uncertainty**
Conducted Disturbance (0.15~30MHz)	±3.41dB
Occupied Bandwidth	±3.63%
RF conducted power	±0.733dB
RF power density	±0.234%
Conducted Spurious emissions	±1.98dB
Radiated Emission (Above 1GHz)	±5.46dB
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

2.7 Identification of Testing Laboratory

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342
Registration Number:	778666
A2LA Certificate Number:	6270.01

2.8 Announcement

(1) The test report reference to the report template version v0.
(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
(3) The test report is invalid if there is any evidence and/or falsification.
(4) This document may not be altered or revised in any way unless done so by POCE and all revisions are duly noted in the revisions section.
(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
(6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

3 Evaluation Results (Evaluation)

3.1 Antenna requirement

Test 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 shall be considered sufficient to comply with the provisions of this section.

3.1.1 Conclusion:

4 Radio Spectrum Matter Test Results (RF)

4.1 Conducted Emission at AC power line

Test Requirement:	Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).
Test 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

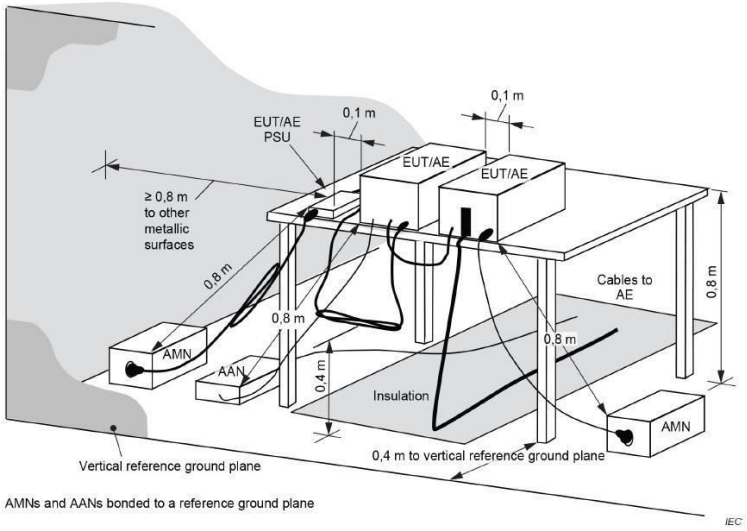
*Decreases with the logarithm of the frequency.

Test Method:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.1.1 E.U.T. Operation:

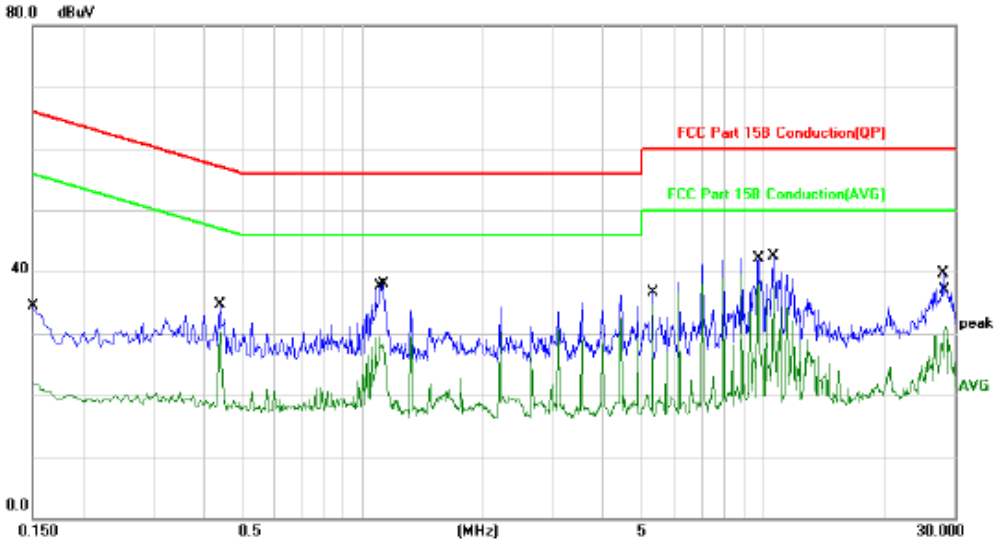
Operating Environment:					
Temperature:	23.5 °C	Humidity:	53.6 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

4.1.2 Test Setup Diagram:



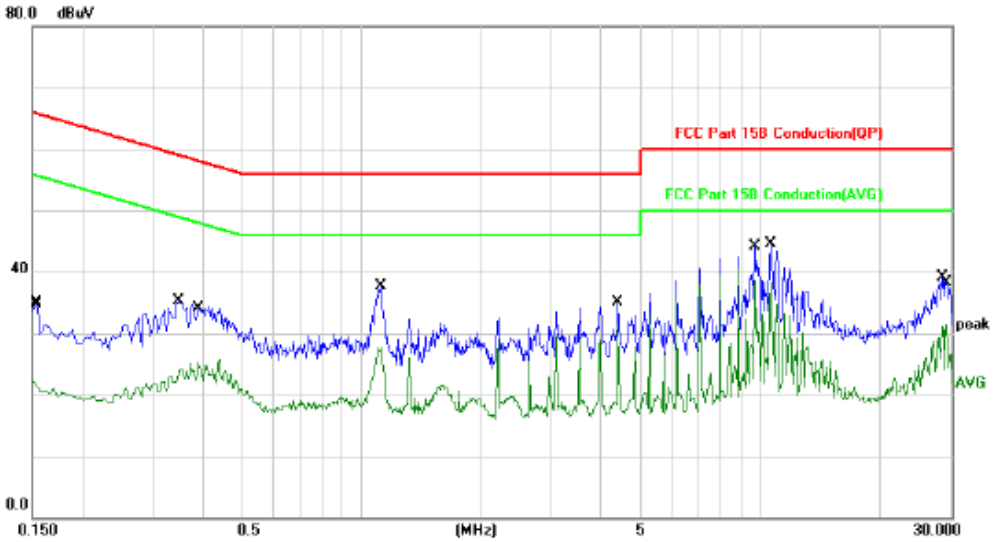
4.1.3 Test Data:

TM1 / Line: Line / Band: 927MHz / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	13.82	20.60	34.42	65.99	-31.57	QP	
2		0.1500	1.44	20.60	22.04	55.99	-33.95	AVG	
3		0.4420	14.01	20.65	34.66	57.02	-22.36	QP	
4		0.4420	9.60	20.65	30.25	47.02	-16.77	AVG	
5		1.1019	8.76	20.72	29.48	46.00	-16.52	AVG	
6		1.1260	17.45	20.73	38.18	56.00	-17.82	QP	
7		5.2940	15.76	21.02	36.78	60.00	-23.22	QP	
8		5.2940	13.71	21.02	34.73	50.00	-15.27	AVG	
9	*	9.7060	16.98	21.63	38.61	50.00	-11.39	AVG	
10		10.5860	20.62	21.79	42.41	60.00	-17.59	QP	
11		28.0060	15.44	24.34	39.78	60.00	-20.22	QP	
12		28.5500	6.60	24.41	31.01	50.00	-18.99	AVG	

TM1 / Line: Neutral / Band: 927MHz / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	1.74	20.60	22.34	55.99	-33.65	AVG	
2		0.1539	14.47	20.61	35.08	65.78	-30.70	QP	
3		0.3500	14.63	20.69	35.32	58.96	-23.64	QP	
4		0.3899	4.64	20.67	25.31	48.06	-22.75	AVG	
5		1.1100	7.01	20.73	27.74	46.00	-18.26	AVG	
6		1.1180	17.00	20.73	37.73	56.00	-18.27	QP	
7		4.4020	14.22	20.89	35.11	56.00	-20.89	QP	
8		4.4020	10.65	20.89	31.54	46.00	-14.46	AVG	
9	*	9.6820	17.05	21.63	38.68	50.00	-11.32	AVG	
10		10.5659	22.77	21.78	44.55	60.00	-15.45	QP	
11		28.5500	14.72	24.41	39.13	60.00	-20.87	QP	
12		29.1060	7.02	24.47	31.49	50.00	-18.51	AVG	

1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor, Over=Limit- Mesurement

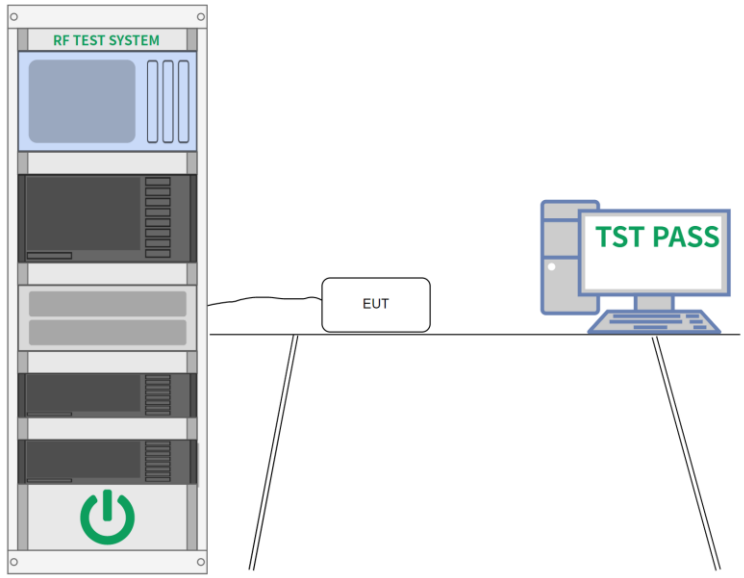
4.2 20dB Occupied Bandwidth

Test Requirement:	Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Limit:	Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	Occupied bandwidth—relative measurement procedure
Procedure:	a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “−xx dB down” requirement; that is, if the requirement calls for measuring the −20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value. f) Set detection mode to peak and trace mode to max hold. g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). h) Determine the “−xx dB down amplitude” using [(reference value) − xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument. i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j). j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “−xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth. k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.5 °C	Humidity:	53.6 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

4.2.2 Test Setup Diagram:



4.2.3 Test Data:

Please Refer to Appendix for Details.

4.3 Field strength of fundamental

Test Requirement:	Except as provided in paragraph (b)of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Test Limit:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

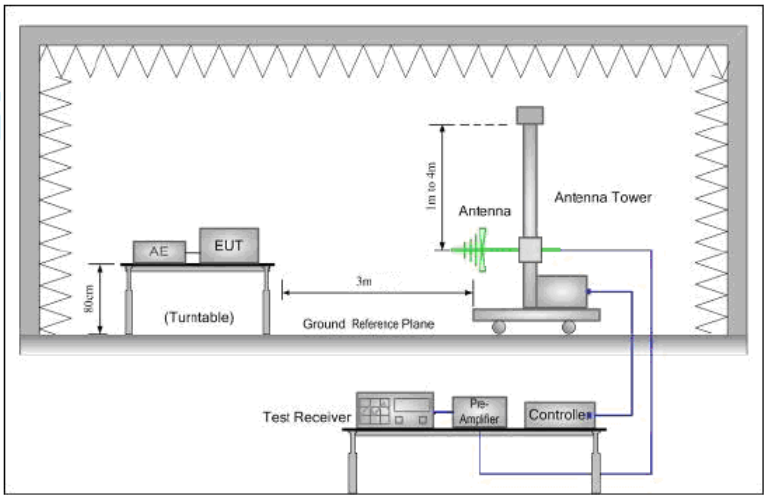
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Test Method:	ANSI C63.10-2013 section 6.5
Procedure:	ANSI C63.10-2013 section 6.5

4.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.5 °C	Humidity:	53.6 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

4.3.2 Test Setup Diagram:



4.3.3 Test Data:

Frequency	Emission Level	Limits	Over	Detector	Polarization
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(PK/AV)	(H/V)
903.00	98.36	114.00	-15.64	PK	H
903.00	83.57	94.00	-10.43	AV	H
903.00	98.30	114.00	-15.70	PK	V
903.00	84.41	94.00	-9.59	AV	V

Frequency	Emission Level	Limits	Over	Detector	Polarization
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(PK/AV)	(H/V)
915.00	98.65	114.00	-15.35	PK	H
915.00	82.64	94.00	-11.36	AV	H
915.00	98.61	114.00	-15.39	PK	V
915.00	83.55	94.00	-10.45	AV	V

Frequency	Emission Level	Limits	Over	Detector	Polarization
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(PK/AV)	(H/V)
927.00	98.82	114.00	-15.18	PK	H
927.00	82.66	94.00	-11.34	AV	H
927.00	98.52	114.00	-15.48	PK	V
927.00	83.71	94.00	-10.29	AV	V

Remark: Over=Limit - Emission Level

4.4 Band edge emissions (Radiated)

Test Requirement:	Emissions 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 § 15.209, whichever is the lesser attenuation.
Test Limit:	Emissions 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 § 15.209, whichever is the lesser attenuation.

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

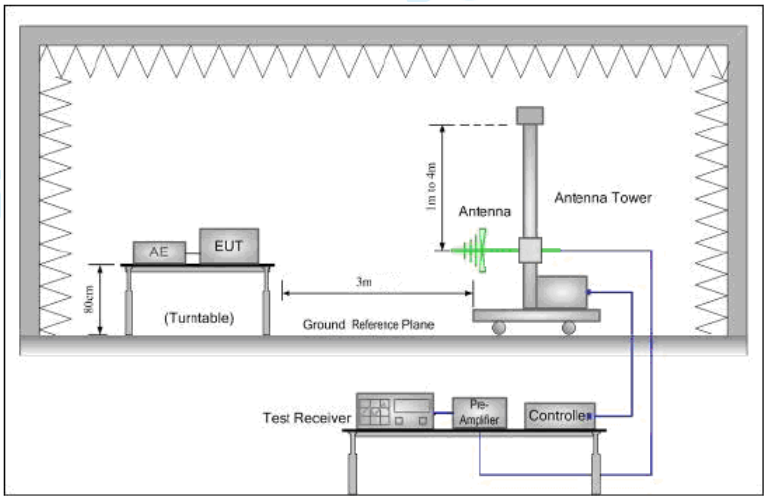
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

Test Method:	ANSI C63.10-2013 section 6.6.4
Procedure:	ANSI C63.10-2013 section 6.6.4

4.4.1 E.U.T. Operation:

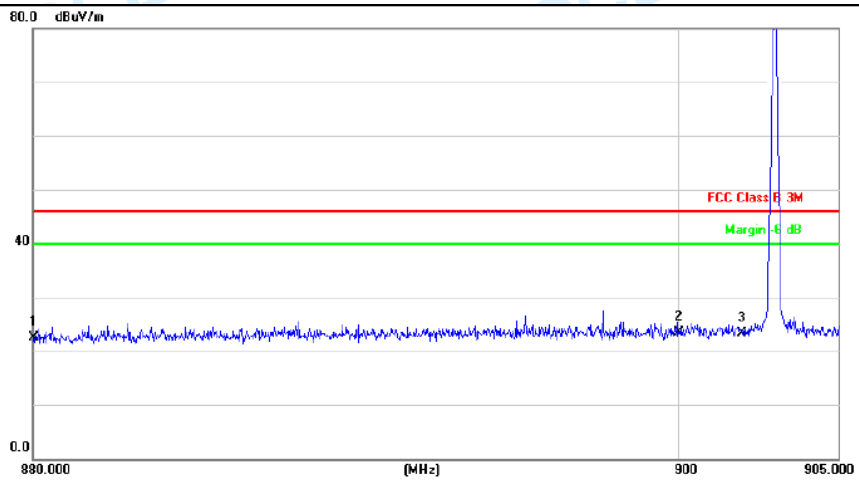
Operating Environment:					
Temperature:	23.5 °C	Humidity:	53.6 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

4.4.2 Test Setup Diagram:



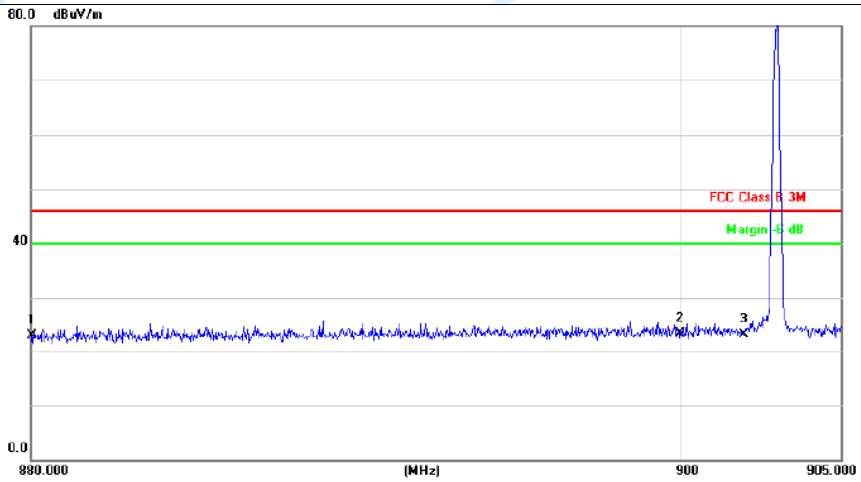
4.4.3 Test Data:

TM1 / Polarization: Horizontal / Band: 903MHz



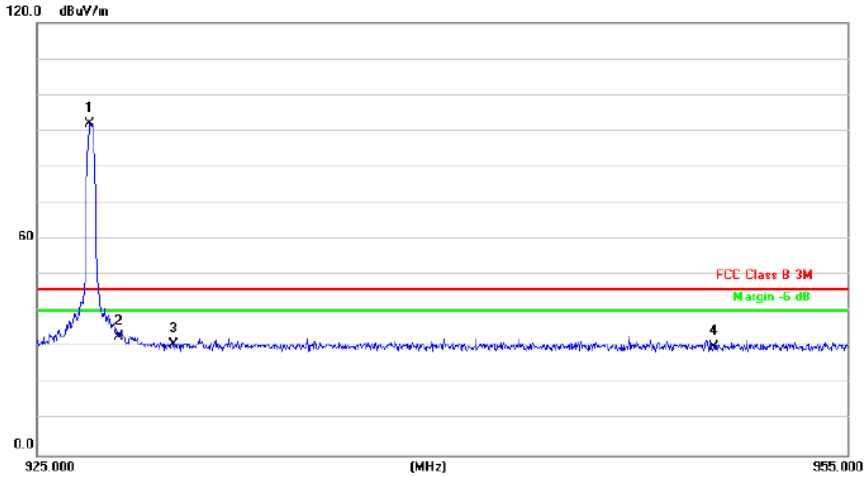
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		880.0000	22.03	0.56	22.59	46.00	-23.41	QP			
2		900.0000	22.07	1.38	23.45	46.00	-22.55	QP			
3		902.0000	21.82	1.41	23.23	46.00	-22.77	QP			

TM1 / Polarization: Vertical / Band: 903MHz



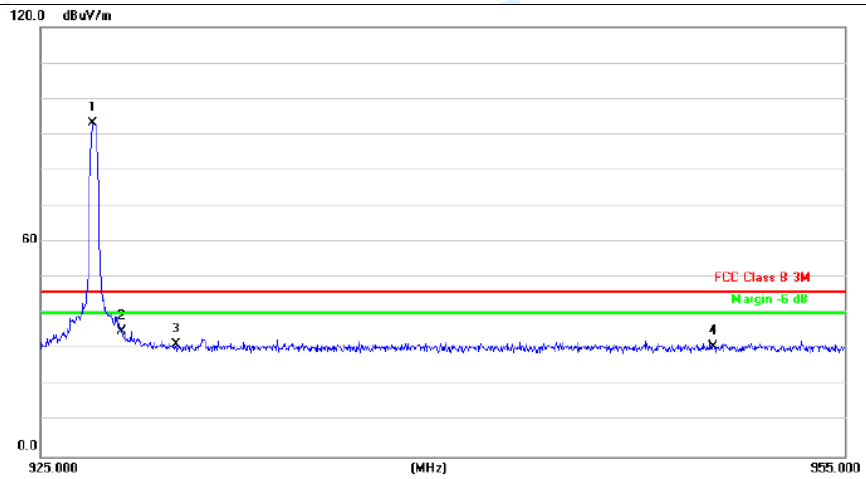
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		880.0000	22.25	0.56	22.81	46.00	-23.19	QP			
2		900.0000	21.96	1.38	23.34	46.00	-22.66	QP			
3		902.0000	21.73	1.41	23.14	46.00	-22.86	QP			

TM1 / Polarization: Horizontal / Band: 927MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	926.9500	84.08	7.75	91.83	46.00	45.83	QP			
2		928.0000	25.08	7.75	32.83	46.00	-13.17	QP			
3		930.0000	23.04	7.75	30.79	46.00	-15.21	QP			
4		950.0000	22.27	7.77	30.04	46.00	-15.96	QP			

TM1 / Polarization: Vertical / Band: 927MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	926.9500	85.31	7.75	93.06	46.00	47.06	QP			
2		928.0000	27.19	7.75	34.94	46.00	-11.06	QP			
3		930.0000	23.69	7.75	31.44	46.00	-14.56	QP			
4		950.0000	23.06	7.77	30.83	46.00	-15.17	QP			

Remark: Over= Measurement Level - Limit
Measurement Level=Test receiver reading + correction factor
Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

4.5 Emissions in restricted frequency bands (below 1GHz)

Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)
Test Limit:	Except as provided in paragraph (b)of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Emissions 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

§ 15.209, whichever is the lesser attenuation.

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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g.,

§§ 15.231 and 15.241.

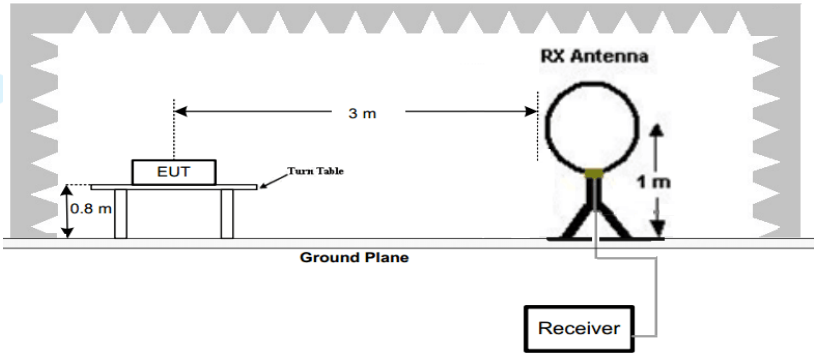
As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a)and (b)of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b)of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

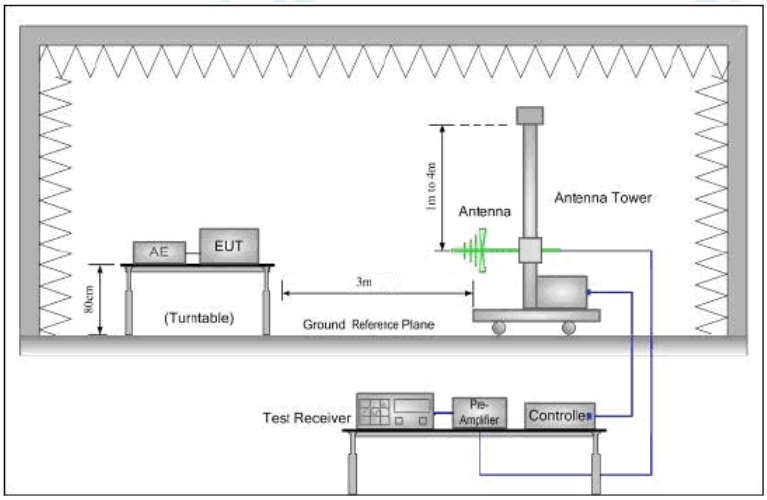
Test Method:	ANSI C63.10-2013 section 6.5
Procedure:	ANSI C63.10-2013 section 6.5

4.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.6 °C	Humidity:	50.3 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

4.5.2 Test Setup Diagram:





4.5.3 Test Data:

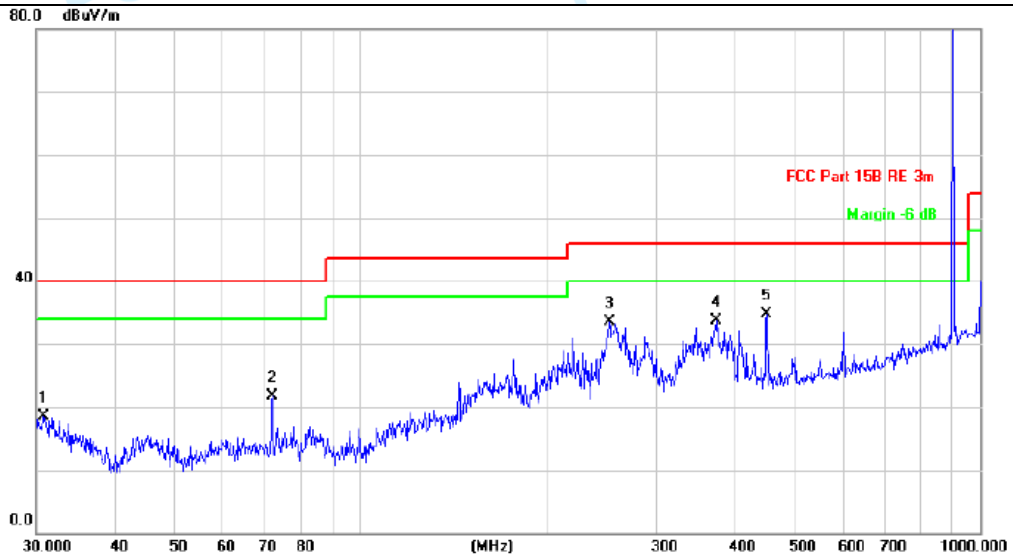
Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

NOTE:Test data only records the worst mode or worst channel.

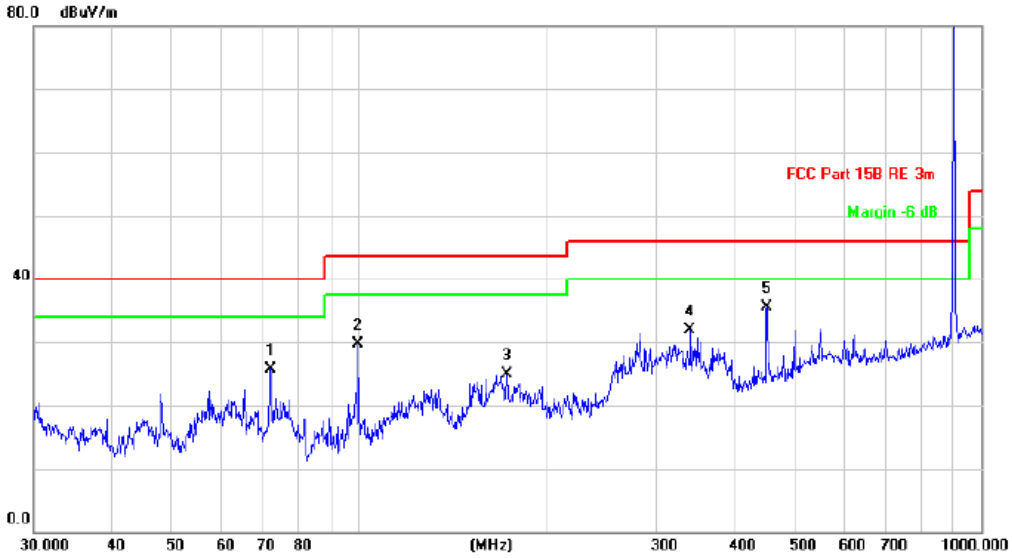
Between 30MHz – 1000MHz

TM1 / Polarization: Horizontal / Band: 903M / BW: 2 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		30.7455	22.00	-3.49	18.51	40.00	-21.49	QP	100	336	
2		72.0843	31.75	-10.04	21.71	40.00	-18.29	QP	100	54	
3		252.0627	37.77	-4.19	33.58	46.00	-12.42	QP	100	189	
4		374.6225	34.93	-1.15	33.78	46.00	-12.22	QP	100	60	
5		452.7197	33.42	1.26	34.68	46.00	-11.32	QP	100	331	
6	*	903.3094	84.14	8.36	92.50	46.00	46.50	QP	100	178	

TM1 / Polarization: Vertical / Band: 903M / BW: 2 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		72.0843	35.02	-9.24	25.78	40.00	-14.22	QP	100	127	
2		99.5281	36.87	-7.09	29.78	43.50	-13.72	QP	100	352	
3		172.5988	29.57	-4.64	24.93	43.50	-18.57	QP	100	264	
4		340.7817	33.28	-1.32	31.96	46.00	-14.04	QP	100	162	
5		452.7197	33.94	1.59	35.53	46.00	-10.47	QP	100	183	
6	*	903.3094	83.95	8.88	92.83	46.00	46.83	QP	100	258	

Remark: Over= Measurement Level - Limit
Measurement Level=Test receiver reading + correction factor
Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

4.6 Emissions in restricted frequency bands (above 1GHz)

Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)
Test Limit:	Except as provided in paragraph (b)of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Emissions 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

§ 15.209, whichever is the lesser attenuation.

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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g.,

§§ 15.231 and 15.241.

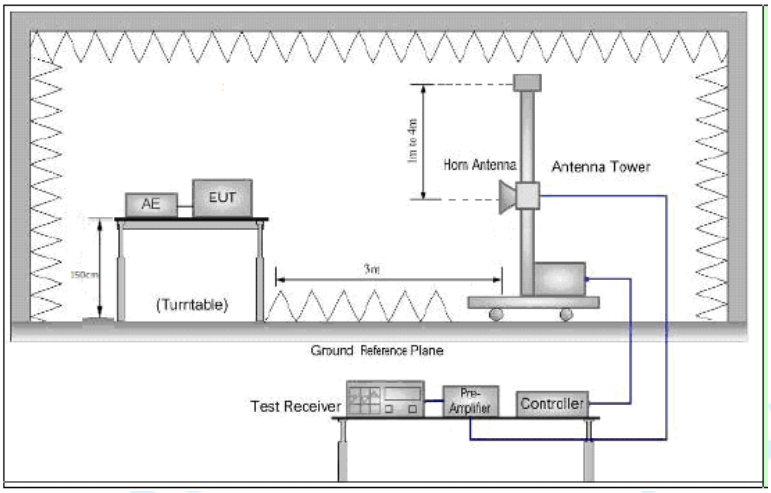
As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a)and (b)of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b)of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Test Method:	ANSI C63.10-2013 section 6.6
Procedure:	ANSI C63.10-2013 section 6.6

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.5 °C	Humidity:	53.6 %	Atmospheric Pressure:	101 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

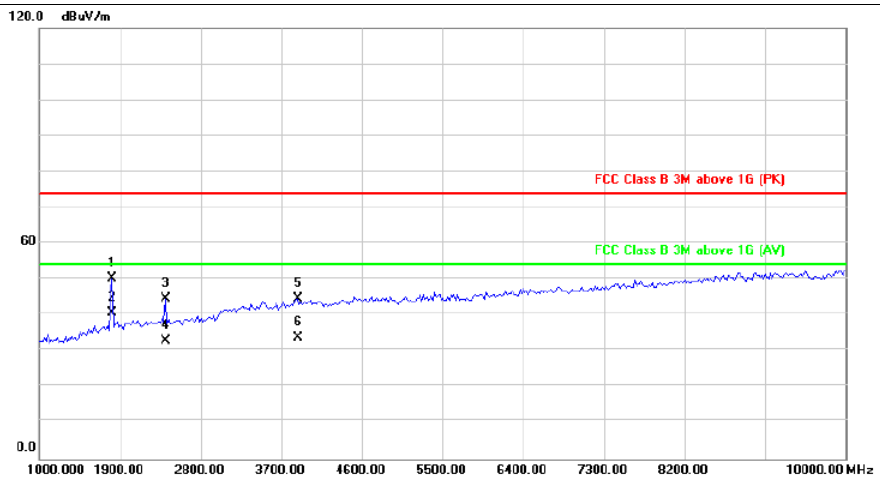
4.6.2 Test Setup Diagram:



4.6.3 Test Data:

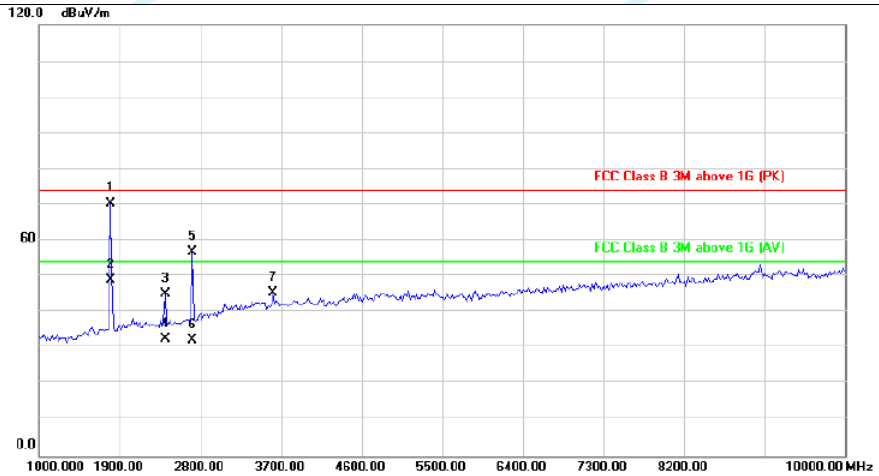
Test frequency up to 10GHz:

TM1 / Polarization: Horizontal / Band: 903MHz



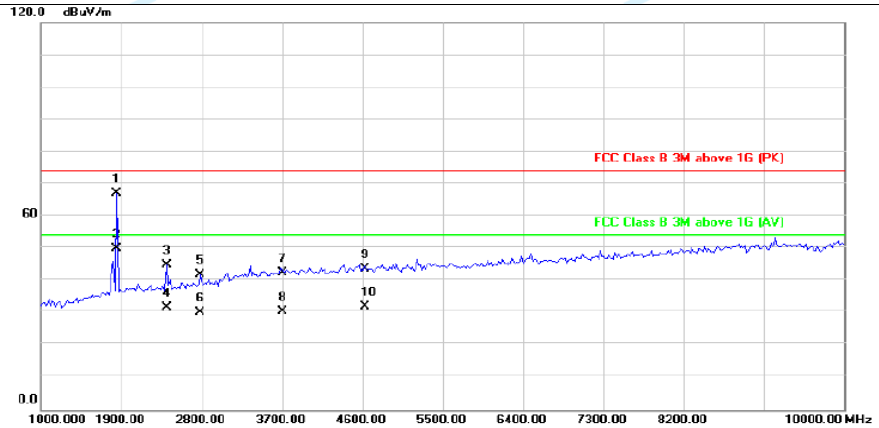
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		1810.000	58.68	-8.33	50.35	74.00	-23.65	peak			
2	*	1810.000	48.90	-8.33	40.57	54.00	-13.43	AVG			
3		2404.000	51.25	-6.68	44.57	74.00	-29.43	peak			
4		2404.000	39.49	-6.68	32.81	54.00	-21.19	AVG			
5		3880.000	47.72	-3.11	44.61	74.00	-29.39	peak			
6		3880.000	36.94	-3.11	33.83	54.00	-20.17	AVG			

TM1 / Polarization: Vertical / Band: 903MHz



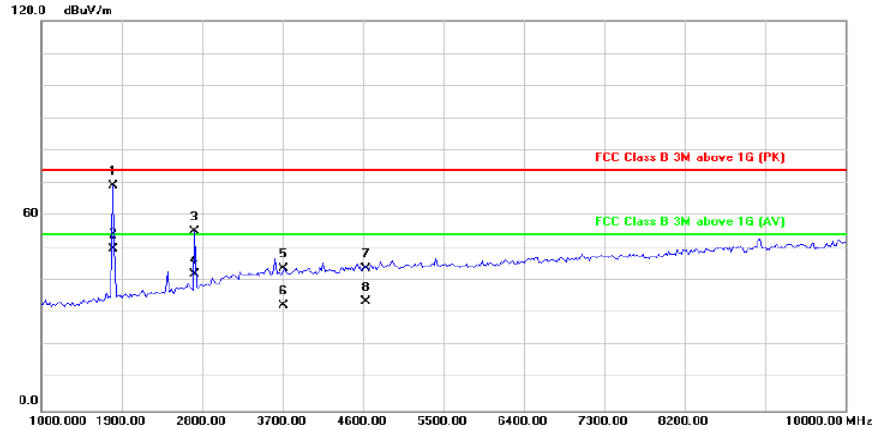
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		1792.000	80.59	-10.21	70.38	74.00	-3.62	peak			
2	*	1792.000	59.53	-10.21	49.32	54.00	-4.68	AVG			
3		2404.000	53.09	-7.86	45.23	74.00	-28.77	peak			
4		2404.000	40.33	-7.86	32.47	54.00	-21.53	AVG			
5		2710.000	63.39	-6.65	56.74	74.00	-17.26	peak			
6		2710.000	38.79	-6.65	32.14	54.00	-21.86	AVG			
7		3610.000	49.54	-3.96	45.58	74.00	-28.42	peak			

TM1 / Polarization: Horizontal / Band: 927MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		1846.000	75.32	-8.22	67.10	74.00	-6.90	peak			
2	*	1846.000	58.36	-8.22	50.14	54.00	-3.86	AVG			
3		2404.000	51.51	-6.68	44.83	74.00	-29.17	peak			
4		2404.000	38.19	-6.68	31.51	54.00	-22.49	AVG			
5		2781.000	47.96	-5.97	41.99	74.00	-32.01	peak			
6		2781.000	36.01	-5.97	30.04	54.00	-23.96	AVG			
7		3708.000	45.97	-3.46	42.51	74.00	-31.49	peak			
8		3708.000	33.93	-3.46	30.47	54.00	-23.53	AVG			
9		4635.000	45.10	-1.49	43.61	74.00	-30.39	peak			
10		4635.000	33.35	-1.49	31.86	54.00	-22.14	AVG			

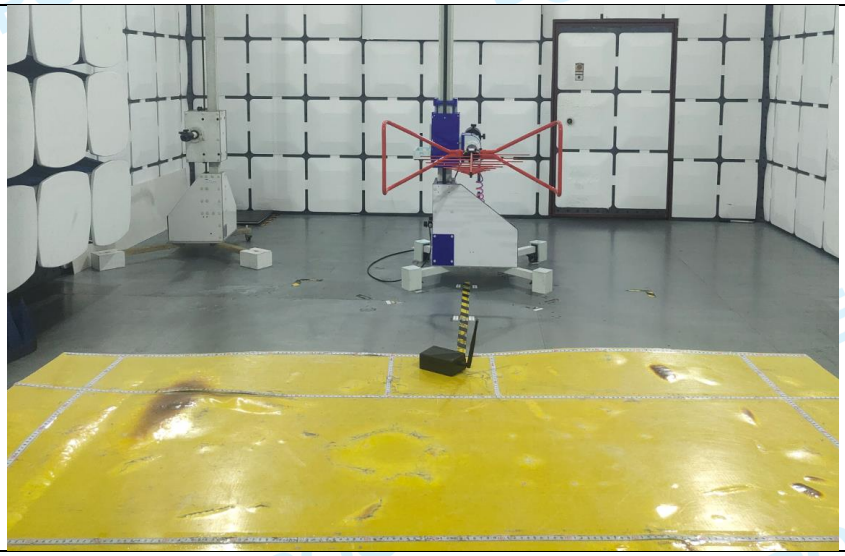
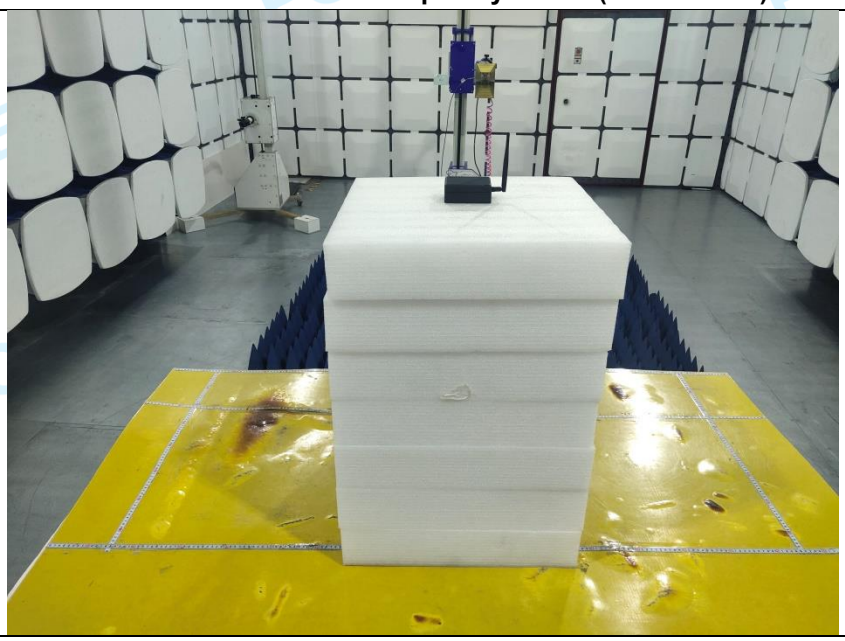
TM1 / Polarization: Vertical / Band: 927MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		1792.000	79.48	-10.21	69.27	74.00	-4.73	peak			
2	*	1792.000	50.79	-10.21	50.58	54.00	-3.42	AVG			
3		2710.000	61.70	-6.65	55.05	74.00	-18.95	peak			
4		2710.000	48.92	-6.65	42.27	54.00	-11.73	AVG			
5		3708.000	47.78	-3.70	44.08	74.00	-29.92	peak			
6		3708.000	36.31	-3.70	32.61	54.00	-21.39	AVG			
7		4635.000	44.90	-0.85	44.05	74.00	-29.95	peak			
8		4635.000	34.60	-0.85	33.75	54.00	-20.25	AVG			

Remark: Over= Measurement Level - Limit
Measurement Level=Test receiver reading + correction factor
Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

5 TEST SETUP PHOTOS

Emissions in restricted frequency bands (below 1GHz)

Emissions in restricted frequency bands (above 1GHz)


Conducted Emission at AC power line

6 PHOTOS OF THE EUT

Please refer to report No.: POCE230727155BRW

********** **End of Report** **********

Appendix

1.1 Occupied Bandwidth

Condition	Antenna	Frequency (MHz)	-20dB BW(kHz)	Result
NVNT	ANT1	903.00	108.4	Pass
NVNT	ANT1	915.00	110.3	Pass
NVNT	ANT1	927.00	107.9	Pass

-20dB_Bandwidth_NVNT_ANT1_903

-20dB_Bandwidth_NVNT_ANT1_915

-20dB_Bandwidth_NVNT_ANT1_927