FCC TEST REPORT

FCC ID: 2AH4J-LOCK420

On Behalf of

Consumer 2.0

Rently Smart Bolt Elite

Model No.: LOCK420-8Z, LOCK420-4Z

Prepared for	:	Consumer 2.0
Address	:	6300 Wilshire Blvd Suite 620, Los Angeles, CA 90048, United States

Prepared By	:	Shenzhen PSI Testing Co., Ltd.
Address	:	1-2/F., Building 5, Yudafu Industrial Park, No.10, Xingye West Road, Shajing Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Report Number	:	psi2503155-C01-R04
Date of Receipt	:	Dec. 24, 2024
Date of Test	:	Dec. 24, 2024-Apr. 9, 2025
Date of Report	:	Apr. 9, 2025
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TEST REPORT DECLARATION

Applicant	:	Consumer 2.0
Address	:	6300 Wilshire Blvd Suite 620, Los Angeles, CA 90048, United States
Manufacturer	:	Consumer 2.0
Address	:	6300 Wilshire Blvd Suite 620, Los Angeles, CA 90048, United States
EUT Description	:	Rently Smart Bolt Elite
		(A) Model No. : LOCK420-8Z, LOCK420-4Z
		(B) Trademark : N/A

Measurement Standard Used:

FCC CFR47 Part 15 Section 15.249

ANSI C63.10:2013

The device described above is tested by Shenzhen PSI Testing Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Shenzhen PSI Testing Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the FCC Part 15 requirements.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen PSI Testing Co., Ltd.

Tested by (name + signature).....…..:	Felix Pang Test Engineer	Felix Pang
Approved by (name + signature)…....:	Simple Guan Project Manager	Simple Guan
Date of issue……..:	Apr. 9, 2025	

Revision History

Revision	Issue Date	Revisions	Revised By
V0	Apr. 9, 2025	Initial released Issue	Felix Pang

1. Summary Of Standards And Results

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Test Item	Standards Paragraph	Result
Conducted Emission	15.207	P
Fundamental &Radiated Spurious Emission Measurement	15.249(c)	P
Band Edge Emission	15.205	P
20dB Bandwidth	15.215	P
Antenna Requirement	15.203	P

Note: 1. P is an abbreviation for Pass.

2. F is an abbreviation for Fail.

3. N/A is an abbreviation for Not Applicable.

4. Frequency Stability: The manufacturer stated in the user's manual.

5. Conclusion determination rules of this report: Unless there are clear provisions on measurement uncertainty in the standard or customer requirements, decision by actual test data without considering measurement uncertainty.

2. General Information

2.1. Description of Device (EUT)

Product Name	:	Rently Smart Bolt Elite
Model No.	:	LOCK420-8Z, LOCK420-4Z
Diff	:	LOCK420-8Z is tested model, other models are derivative models . The models are identical in circuit, only different on the model names and battery capacity and size
Power supply	:	Input: DC 5V via adapter, DC 6V powered by battery
Radio Technology	:	Lora
Operation frequency	:	908.4MHz, 908.42MHz, 916MHz
Modulation type	:	FSK, GFSK
Channel No.	:	3 Channels
Antenna Type	:	PCB antenna, Maximum Gain is 1dBi.
Software version	:	N/A
Hardware version/FVIN	:	N/A
Intend use environment	:	Residential, commercial and light industrial environment
Note	:	Antenna information is provided by applicant. Testing lab is not responsible for the accuracy of the information.

2.2. Accessories of Device (EUT)

Accessories : N/A

Manufacturer : N/A

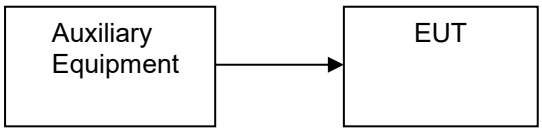
Model : N/A

Ratings : N/A

2.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number
1	AC/DC ADAPTER	HUAWEI	HW-050450C00	AE
2	/	/	/	/

2.4. Block Diagram of Connection Between EUT and Simulators



Signal Cable Description of the above Support Units

No.	Port Name	Cable	Length	Shielded (Yes or No)	Detachable (Yes or No)

2.5. Test Mode Description

The test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

Tested mode, channel, and data rate information		
Channel	Channel	Frequency (MHz)
FSK	00	908.4
FSK	01	908.42
GFSK	02	916

2.6. Software test version and power setting information

Software testing version	ATK_XCOM-3.0
Mode	< 0 dBm
Power level setup by client	

2.7. Test Conditions

Items	Required	Actual
Temperature range:	15-35℃	24℃
Humidity range:	25-75%	56%
Pressure range:	86-106kPa	98kPa

2.8. Test Facility

Shenzhen PSI Testing Co., Ltd.

1-2F, Building 5, Yudafu Industrial Park, No. 10, Xingye West Road, Shajing Street, Bao'an District, Shenzhen, Guangdong, China 518104

September 21, 2023 File on Federal Communication Commission
Registration Number: 916281

September 21, 2023 Certificated by IC
Registration Number: 31123
CAB identifier: CN0158

2.9. Measurement Uncertainty

(95% confidence levels, k=2)

Item	**Uncertainty**
Uncertainty for Power point Conducted Emissions Test	2.17dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	2.74dB(Polarize: V)
	2.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 18GHz)	4.29dB(Polarize: V)
	4.82dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (18GHz to 40GHz)	4.31dB(Polarize: V)
	4.30dB(Polarize: H)
Uncertainty for radio frequency	48.24KHz
Uncertainty for conducted RF Power	0.41dB
Uncertainty for Power Spectral Density	0.39 dB
Uncertainty for OBW	928Hz

2.10.Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Firmware Version	Last Cal.	Cal. Interval
1.	9*6*6 anechoic chamber	SKET	9*6*6	N/A	/	2022.12.20	3 Year
2.	Test Receiver	Rohde&Schwarz	ESCI 7	101032/003	4.42 SP3	2024.12.18	1 Year
3.	L.I.S.N.#1	Rohde&Schwarz	ENV216	102282	/	2024.12.18	1 Year
4.	L.I.S.N.#2	RFT	NNB111	13835240	/	2024.12.18	1 Year
5.	Loop Antenna	Schwarz beck	FMZB 1519B	00128	/	2025.01.02	2 Year
6.	Bilog Antenna	Schwarz beck	VULB 9168	01448	/	2025.01.02	2 Year
7.	Spectrum Analyzer	Rohde&Schwarz	FSV-40N	101648	3.70	2024.12.18	1 Year
8.	Horn Antenna	Schwarz beck	BBHA 9120 D	02706	/	2025.01.02	2 Year
9.	Amplifier	SKET	LAPA_01G18G-45dB	SK2022032901	/	2024.12.18	1 Year
10.	Horn Antenna	Schwarz beck	BBHA 9170	00946	/	2024.12.31	2 Year
11.	Amplifier	SKET	LNPA_0118G-45	SK2020010801	/	2024.12.18	1 Year
12	RF Power Probe	Rohde&Schwarz	NRP-Z11	1138.3004.02-1111533-Fz	/	2024.12.18	1 Year
13	RF Sensor Unit	Tachoy	TR1029-2	20220428P008	/	2024.12.18	1 Year
14	Spectrum Analyzer	Agilent	N9020A	MY51281067	A.14.03	2024.12.18	1 Year
15	Temp. & Humid Chamber	Auchno	9606	/	/	2024.12.18	1 Year
16	Regulated DC Power Supply	Xinouhua	ADC120V10A	202211251638		2024.12.18	1 Year
17	Cable	SKET	Cable-RE-1	#02/#03	/	2024.12.18	1 Year
18	Cable	SKET	Cable-RE-2	#01	/	2024.12.18	1 Year
19	Cable	SKET	Cable-RE-3	#04	/	2024.12.18	1 Year
20	Cable	SKET	Cable-CE-1	A-E-24	/	2024.12.18	1 Year
21	6dB Attenuator	Schwarzbeck	DGA 9552N 6dB	CK4186	/	2024.12.18	1 Year

For Test Software Information

Item	Software Name	Manufacturer	Version
RE	EZ_EMC	Farad	PSI-3A1
CE	EZ_EMC	Farad	PSI-3A1
RF	RTS	TACHOY	V1.0.0

3. CONDUCTED EMISSION

Test Requirement	:	FCC CFR 47 Part 15 Section 15.207
Test Method	:	ANSI C63.10:2013
Test Result	:	PASS
Frequency Range	:	150kHz to 30MHz
Class/Severity	:	Class B

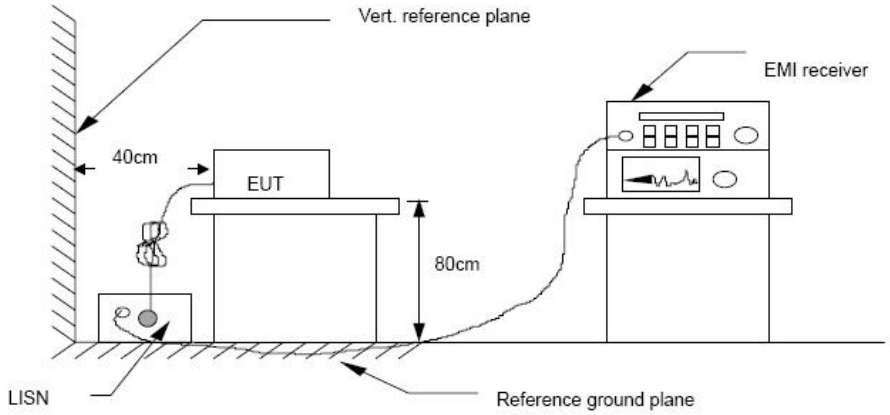
3.1. E.U.T. Operation

Operating Environment :

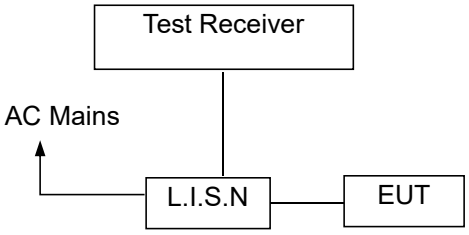
Temperature	:	25.5 °C
Humidity	:	51 % RH
Atmospheric Pressure	:	101.2kPa

3.2. EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2013.



3.3. Test SET-UP (Block Diagram of Configuration)



3.4. Measurement Procedure

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

3.5. Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:
1. The lower limit shall apply at the transition frequencies
2.The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.6. Measurement Description

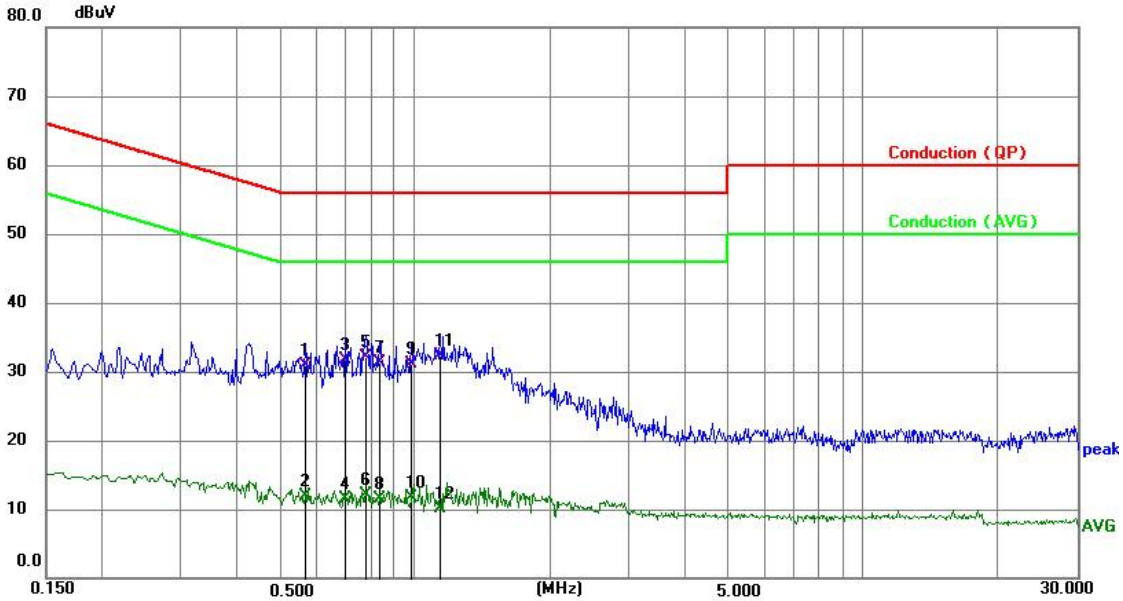
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

3.7. Conducted Emission Test Result

Test Date	: 2025.3.17	Temperature	: 24℃
Test Engineer	: Felix Pang	Humidity	: 56%
Test Mode	: FSK mode		
Test Results	: **PASS**		
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. 3. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. 4. Conducted emission at both 120V & 240V is assessed, and emission at 120V represents the worst case. All the modulation modes were tested the data of the worst mode (CH01: 908.42MHz) are recorded in the following pages and the others modulation methods do not exceed the limits.		

Model: LOCK420-8Z

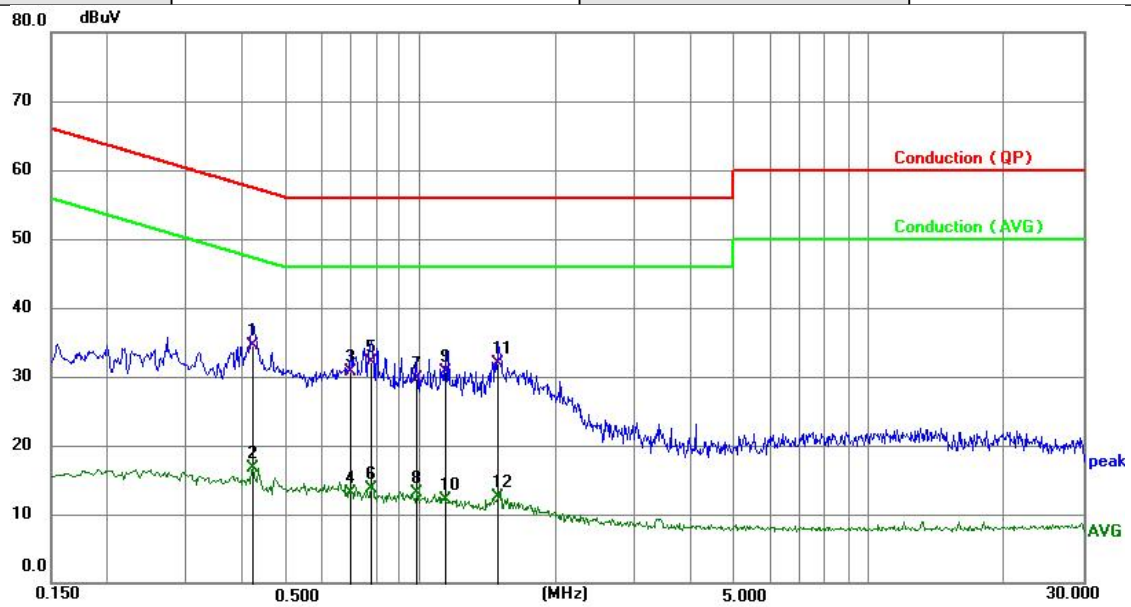
Channel:	Middle	Phase :	L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.5685	20.93	10.03	30.96	56.00	-25.04	QP
2	0.5685	1.91	10.03	11.94	46.00	-34.06	AVG
3	0.6990	21.73	10.04	31.77	56.00	-24.23	QP
4	0.6990	1.50	10.04	11.54	46.00	-34.46	AVG
5	0.7753	22.16	10.04	32.20	56.00	-23.80	QP
6	0.7753	2.08	10.04	12.12	46.00	-33.88	AVG
7	0.8340	21.20	10.05	31.25	56.00	-24.75	QP
8	0.8340	1.51	10.05	11.56	46.00	-34.44	AVG
9	0.9825	21.08	10.06	31.14	56.00	-24.86	QP
10	0.9825	1.61	10.06	11.67	46.00	-34.33	AVG
11 *	1.1400	22.19	10.06	32.25	56.00	-23.75	QP
12	1.1400	0.13	10.06	10.19	46.00	-35.81	AVG

Model: LOCK420-8Z

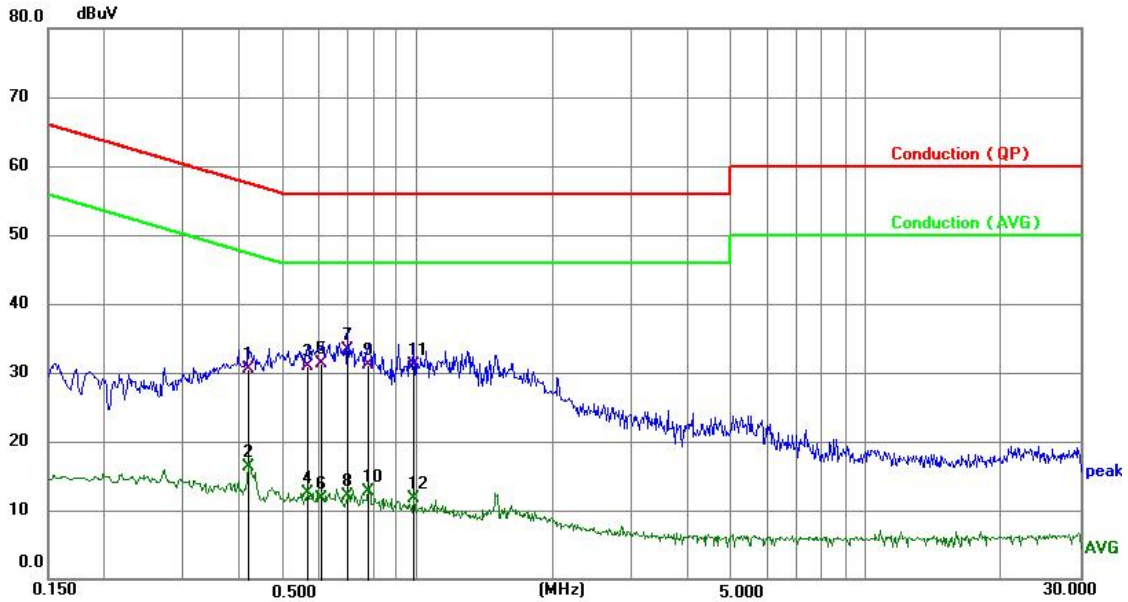
Channel:	Middle	Phase :	N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1 *	0.4200	24.51	9.99	34.50	57.45	-22.95	QP
2	0.4200	6.64	9.99	16.63	47.45	-30.82	AVG
3	0.6990	20.73	10.04	30.77	56.00	-25.23	QP
4	0.6990	3.00	10.04	13.04	46.00	-32.96	AVG
5	0.7752	22.16	10.04	32.20	56.00	-23.80	QP
6	0.7752	3.58	10.04	13.62	46.00	-32.38	AVG
7	0.9825	19.58	10.06	29.64	56.00	-26.36	QP
8	0.9825	3.11	10.06	13.17	46.00	-32.83	AVG
9	1.1400	20.69	10.06	30.75	56.00	-25.25	QP
10	1.1400	2.13	10.06	12.19	46.00	-33.81	AVG
11	1.4910	21.88	10.07	31.95	56.00	-24.05	QP
12	1.4910	2.37	10.07	12.44	46.00	-33.56	AVG

Model: LOCK420-4Z

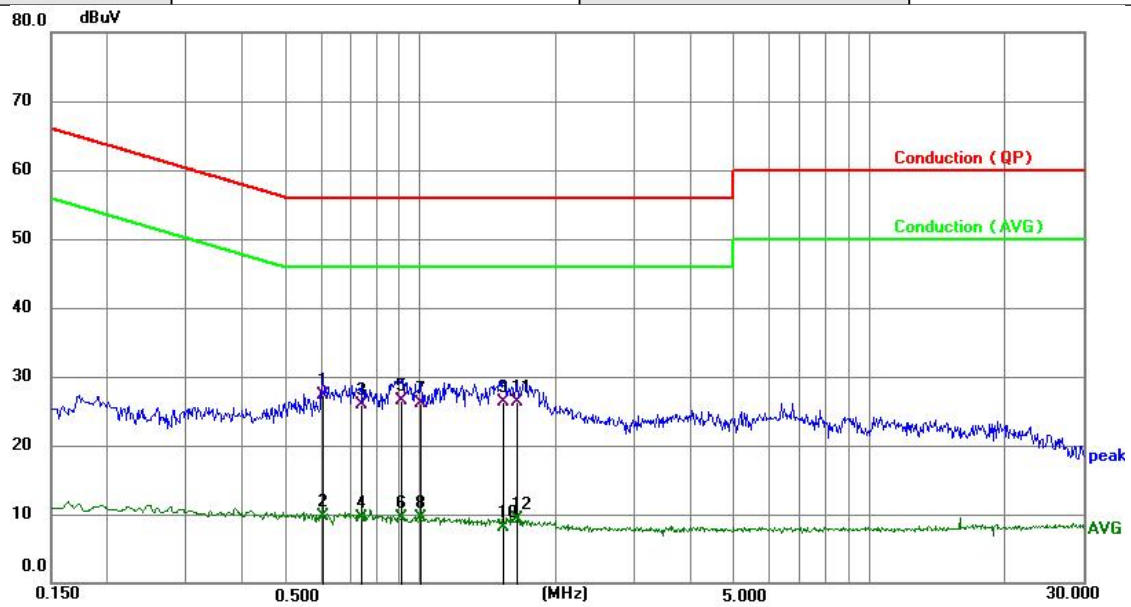
Channel:	Middle	Phase :	L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4192	20.43	9.99	30.42	57.46	-27.04	QP
2	0.4192	6.31	9.99	16.30	47.46	-31.16	AVG
3	0.5685	20.93	10.03	30.96	56.00	-25.04	QP
4	0.5685	2.41	10.03	12.44	46.00	-33.56	AVG
5	0.6134	21.22	10.03	31.25	56.00	-24.75	QP
6	0.6134	1.74	10.03	11.77	46.00	-34.23	AVG
7 *	0.6990	23.23	10.04	33.27	56.00	-22.73	QP
8	0.6990	2.00	10.04	12.04	46.00	-33.96	AVG
9	0.7752	21.16	10.04	31.20	56.00	-24.80	QP
10	0.7752	2.58	10.04	12.62	46.00	-33.38	AVG
11	0.9825	21.08	10.06	31.14	56.00	-24.86	QP
12	0.9825	1.61	10.06	11.67	46.00	-34.33	AVG

Model: LOCK420-4Z

Channel:	Middle	Phase :	N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1 *	0.6045	17.25	10.03	27.28	56.00	-28.72	QP
2	0.6045	-0.40	10.03	9.63	46.00	-36.37	AVG
3	0.7350	15.86	10.04	25.90	56.00	-30.10	QP
4	0.7350	-0.60	10.04	9.44	46.00	-36.56	AVG
5	0.9060	16.45	10.05	26.50	56.00	-29.50	QP
6	0.9060	-0.55	10.05	9.50	46.00	-36.50	AVG
7	1.0003	16.05	10.06	26.11	56.00	-29.89	QP
8	1.0003	-0.61	10.06	9.45	46.00	-36.55	AVG
9	1.5315	16.23	10.06	26.29	56.00	-29.71	QP
10	1.5315	-1.86	10.06	8.20	46.00	-37.80	AVG
11	1.6440	16.22	10.06	26.28	56.00	-29.72	QP
12	1.6440	-0.77	10.06	9.29	46.00	-36.71	AVG

Notes:

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

4. Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209

Test Method : ANSI C63.10:2013

Test Result : PASS

Measurement Distance : 3m

Limit : See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

15.249(a):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

4.1. EUT Operation

Operating Environment :

Temperature : 23.5 °C

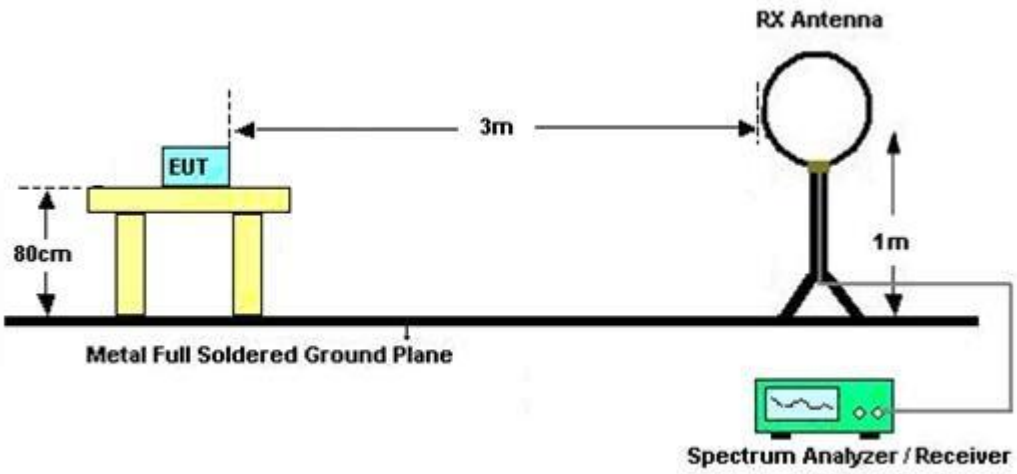
Humidity : 51.1 % RH

Atmospheric Pressure : 101.2kPa

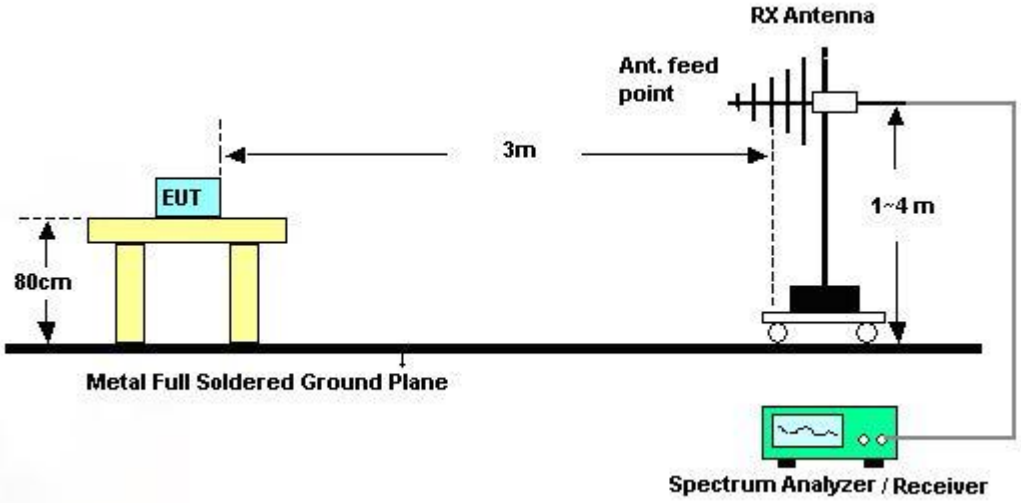
4.2. Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

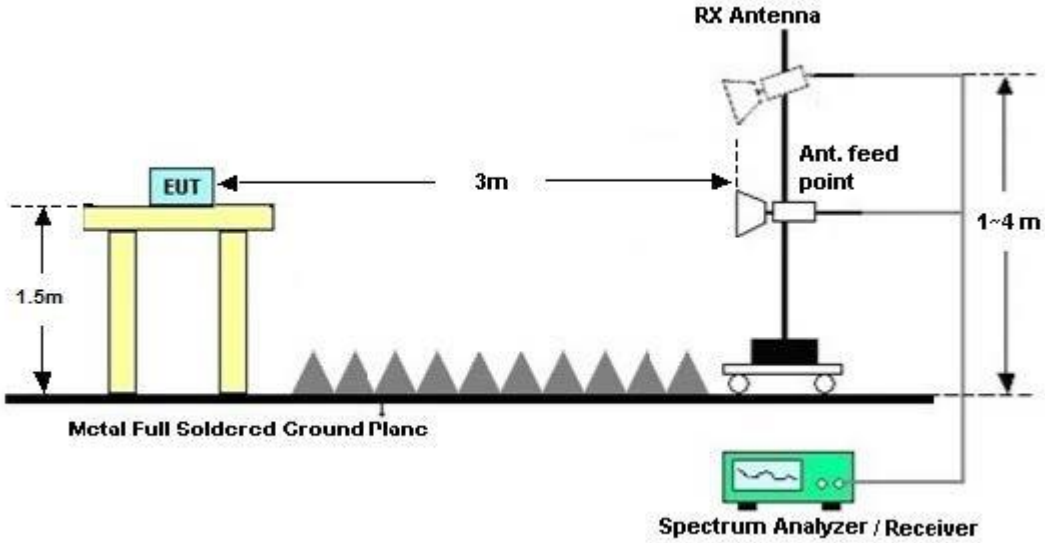
The test setup for emission measurement below 30MHz



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz



4.3. Spectrum Analyzer Setup

	Frequency	Detector	RBW	VBW	Remark
Receiver Setup	Below 30MHz	--	10kHz	10kHz	--
	30MHz ~ 1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value

4.4. Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2013.
2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.
7. Test Procedure of measurement (For Above 1GHz):

1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).
2) Change the antenna polarization and repeat 1) with vertical polarization.
3) Make a hardcopy of the spectrum.
4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
5) Change the analyser mode to Clear/ Write and found the cone of emission.
6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.
7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.
8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.

8. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

For Average Measurement:

VBW=10Hz, when duty cycle is no less than 98 percent.

VBW≥1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

4.5. Summary of Test Results

Test Frequency: 9KHz-30MHz

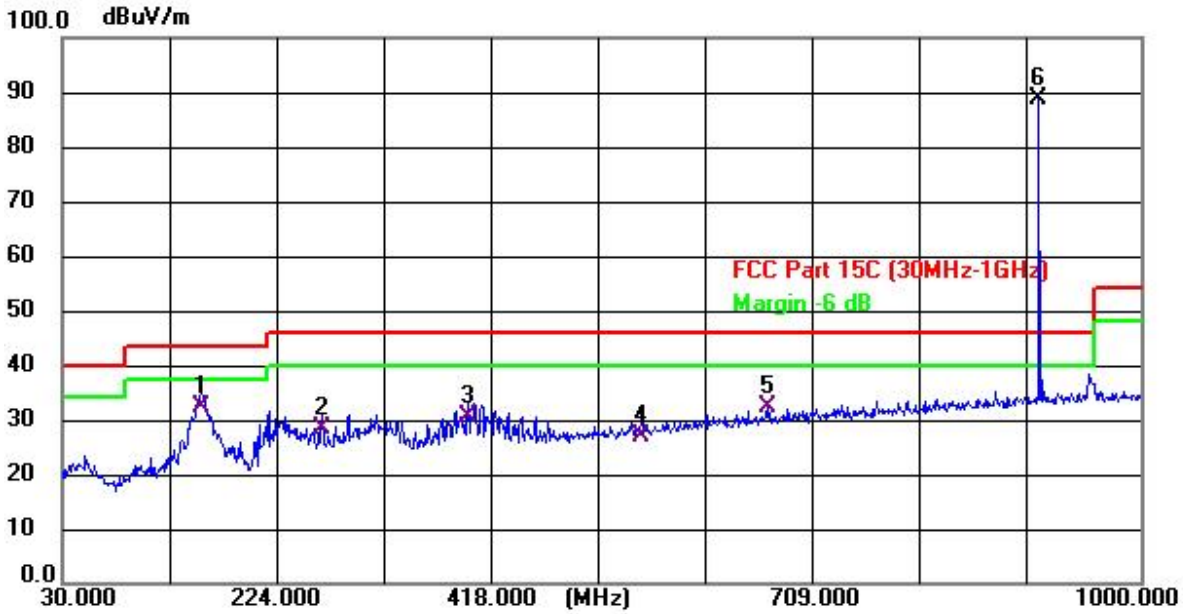
Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:
The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

4.6. Test Results

From 30MHz ~ 1GHz:					
Test Date	:	2025.3.17	Temperature	:	26℃
Test Engineer	:	Felix Pang	Humidity	:	54%
Test Mode	:	FSK mode			
Test Results	:	**PASS**			
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. 3. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.				

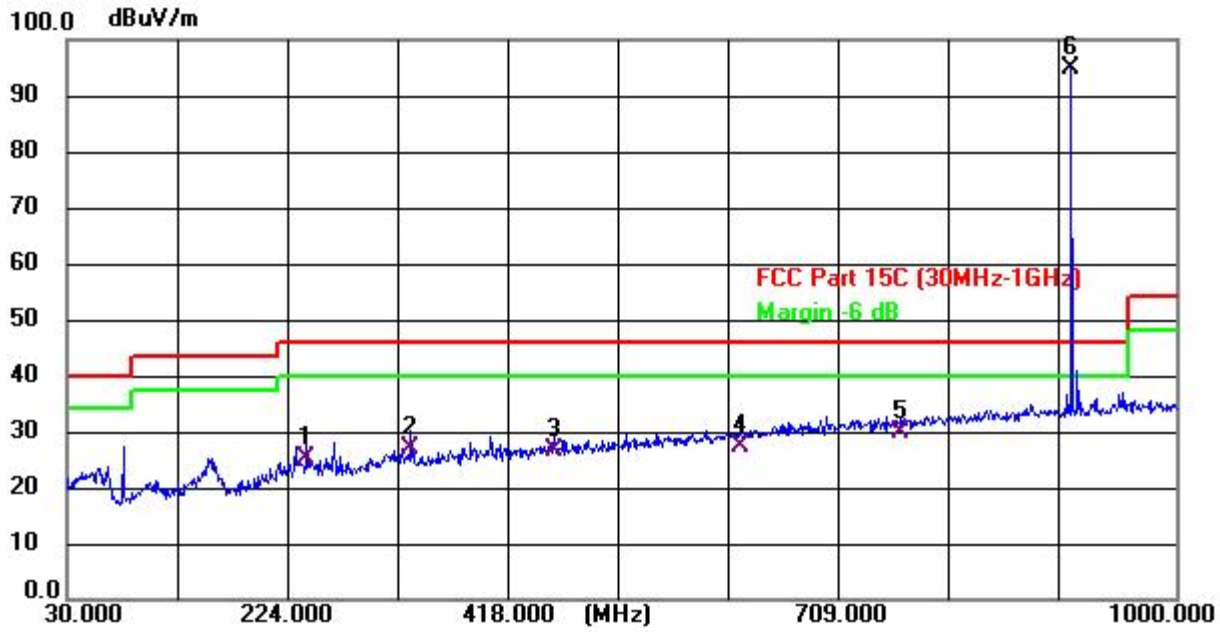
Model: LOCK420-8Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	908.4MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	155.130	46.17	-13.77	32.40	43.50	-11.10	QP
2	263.770	37.19	-8.87	28.32	46.00	-17.68	QP
3	394.720	36.48	-5.97	30.51	46.00	-15.49	QP
4	550.890	29.91	-3.09	26.82	46.00	-19.18	QP
5	664.380	33.21	-1.00	32.21	46.00	-13.79	QP
6 *	908.400	85.98	2.62	88.60	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

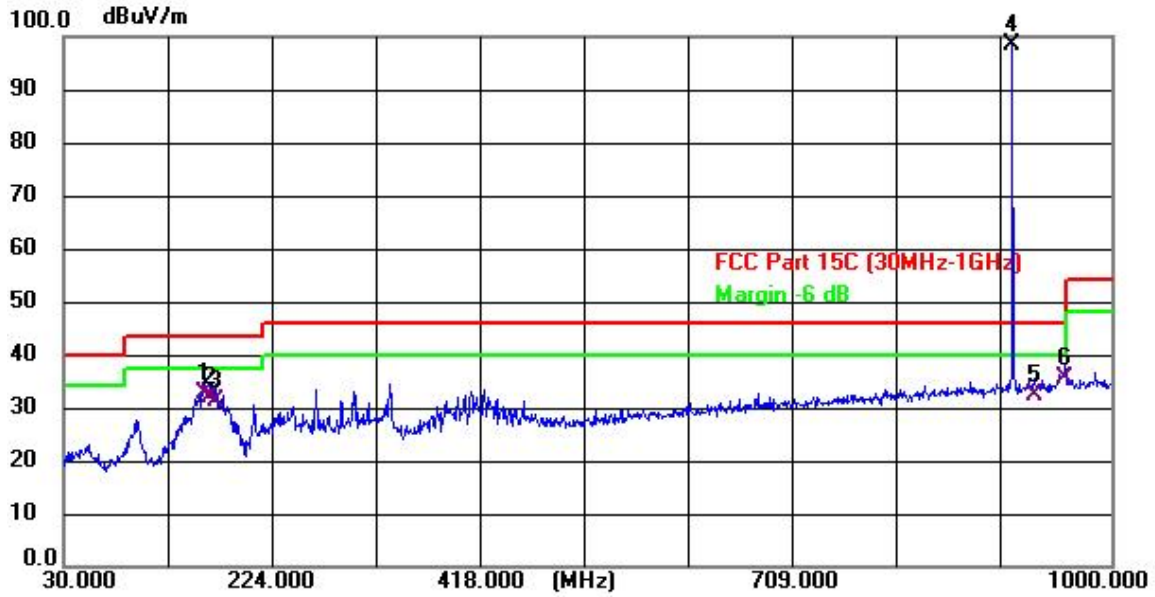
Model: LOCK420-8Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	908.4MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	239.520	34.57	-9.55	25.02	46.00	-20.98	QP
2	330.700	34.52	-7.45	27.07	46.00	-18.93	QP
3	455.830	31.49	-4.85	26.64	46.00	-19.36	QP
4	618.790	28.97	-1.82	27.15	46.00	-18.85	QP
5	759.440	29.29	0.47	29.76	46.00	-16.24	QP
6 *	908.400	92.22	2.62	94.84	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

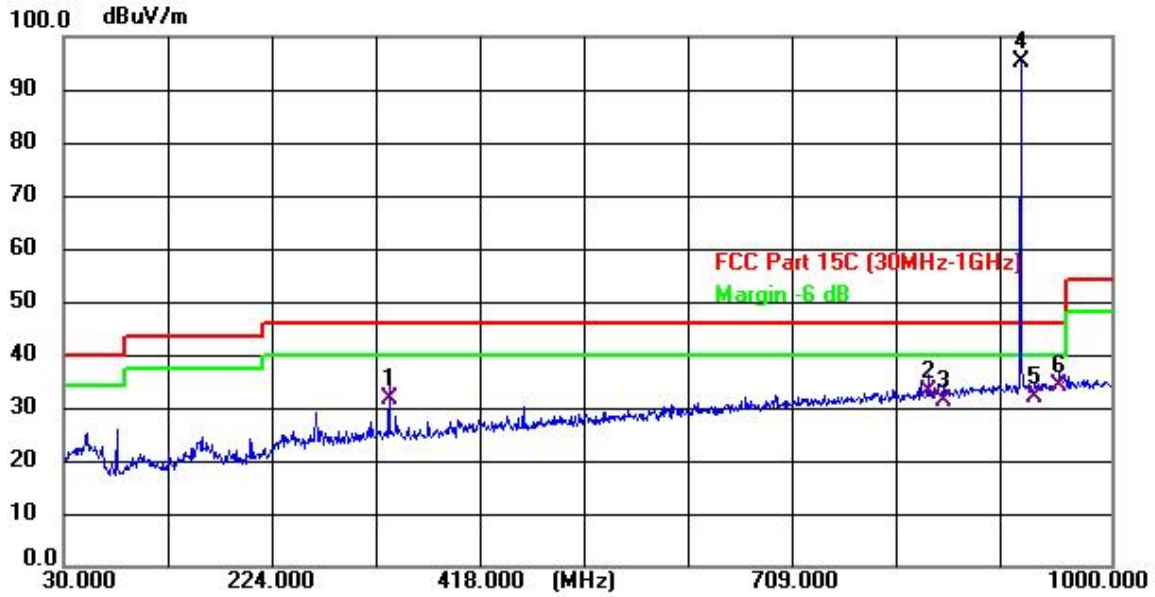
Model: LOCK420-8Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	908.42MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	159.980	46.04	-13.50	32.54	43.50	-10.96	QP
2	165.800	44.99	-13.18	31.81	43.50	-11.69	QP
3	170.650	44.31	-12.91	31.40	43.50	-12.10	QP
4 *	908.420	95.71	2.62	98.33	N/A	N/A	peak
5	928.220	29.60	2.82	32.42	46.00	-13.58	QP
6	957.320	32.43	3.10	35.53	46.00	-10.47	QP

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

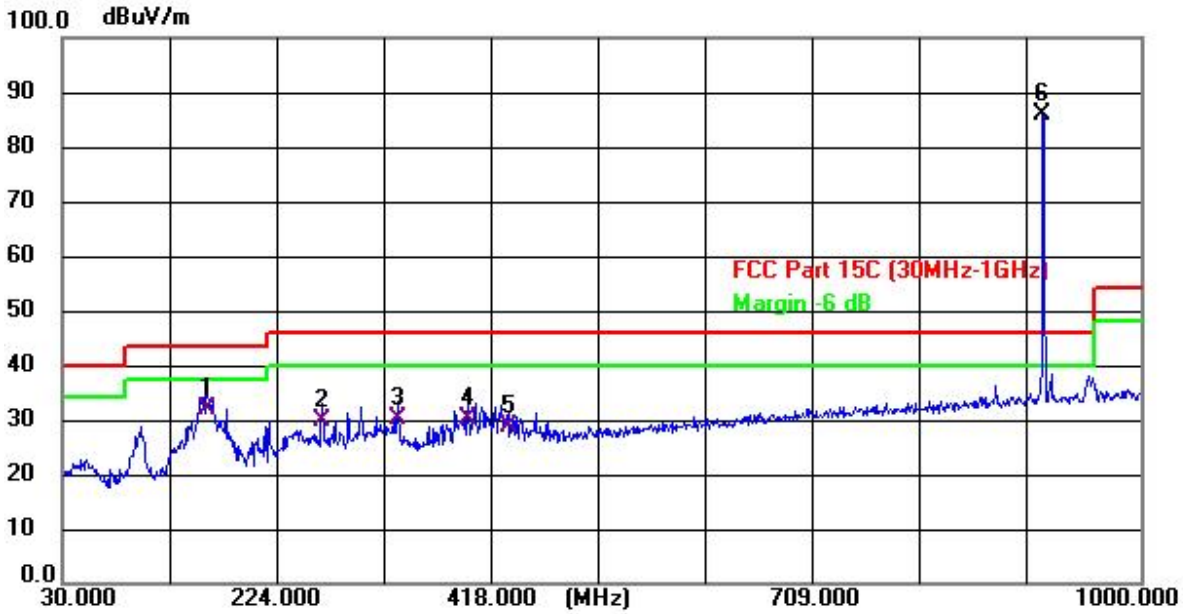
Model: LOCK420-8Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	908.42MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	331.670	38.92	-7.43	31.49	46.00	-14.51	QP
2	830.250	31.72	1.49	33.21	46.00	-12.79	QP
3	845.770	29.61	1.72	31.33	46.00	-14.67	QP
4 *	908.420	92.34	2.71	95.05	N/A	N/A	peak
5	929.190	28.97	2.82	31.79	46.00	-14.21	QP
6	952.470	30.90	3.06	33.96	46.00	-12.04	QP

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

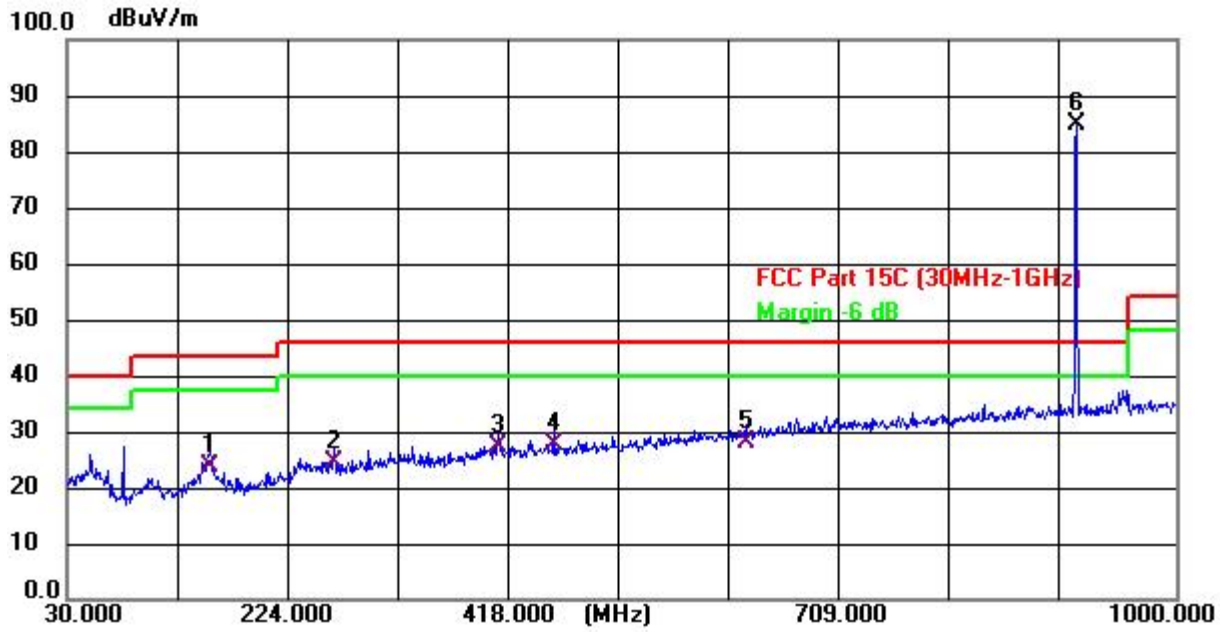
Model: LOCK420-8Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	916MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	160.950	45.33	-13.45	31.88	43.50	-11.62	QP
2	263.770	38.86	-8.87	29.99	46.00	-16.01	QP
3	331.670	37.63	-7.43	30.20	46.00	-15.80	QP
4	394.720	36.22	-5.97	30.25	46.00	-15.75	QP
5	431.580	33.96	-5.28	28.68	46.00	-17.32	QP
6 *	916.000	83.25	2.65	85.90	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

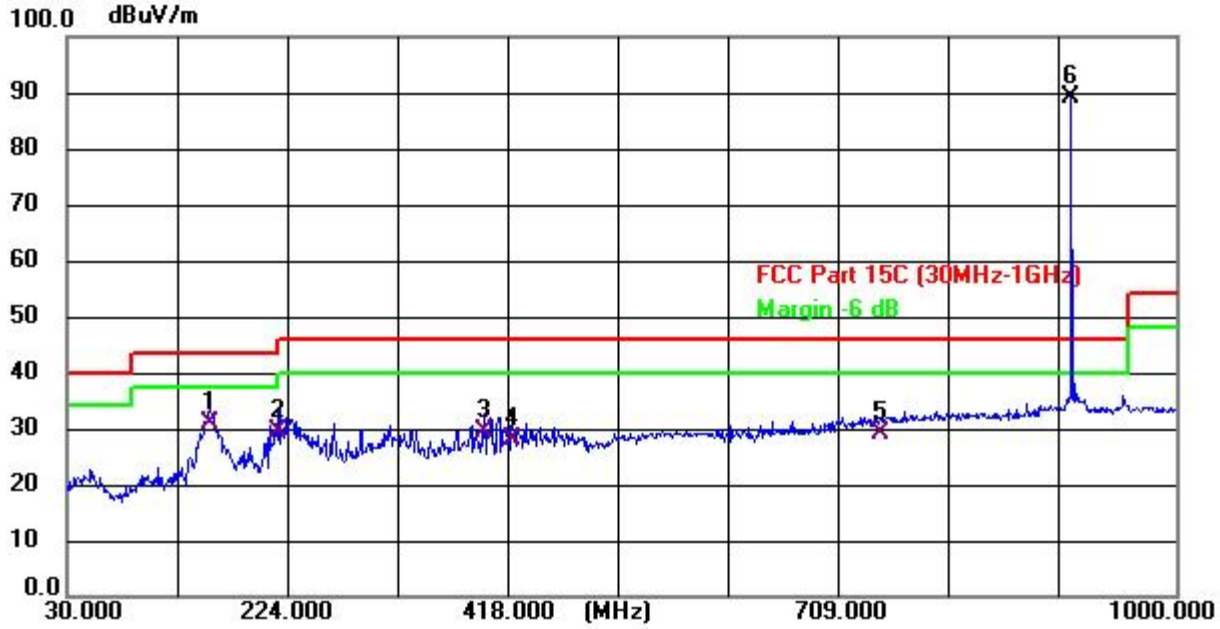
Model: LOCK420-8Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	916MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	155.130	37.38	-13.77	23.61	43.50	-19.89	QP
2	263.770	33.21	-8.87	24.34	46.00	-21.66	QP
3	407.330	32.90	-5.72	27.18	46.00	-18.82	QP
4	455.830	32.57	-4.85	27.72	46.00	-18.28	QP
5	623.640	29.93	-1.73	28.20	46.00	-17.80	QP
6 *	916.000	82.18	2.66	84.84	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

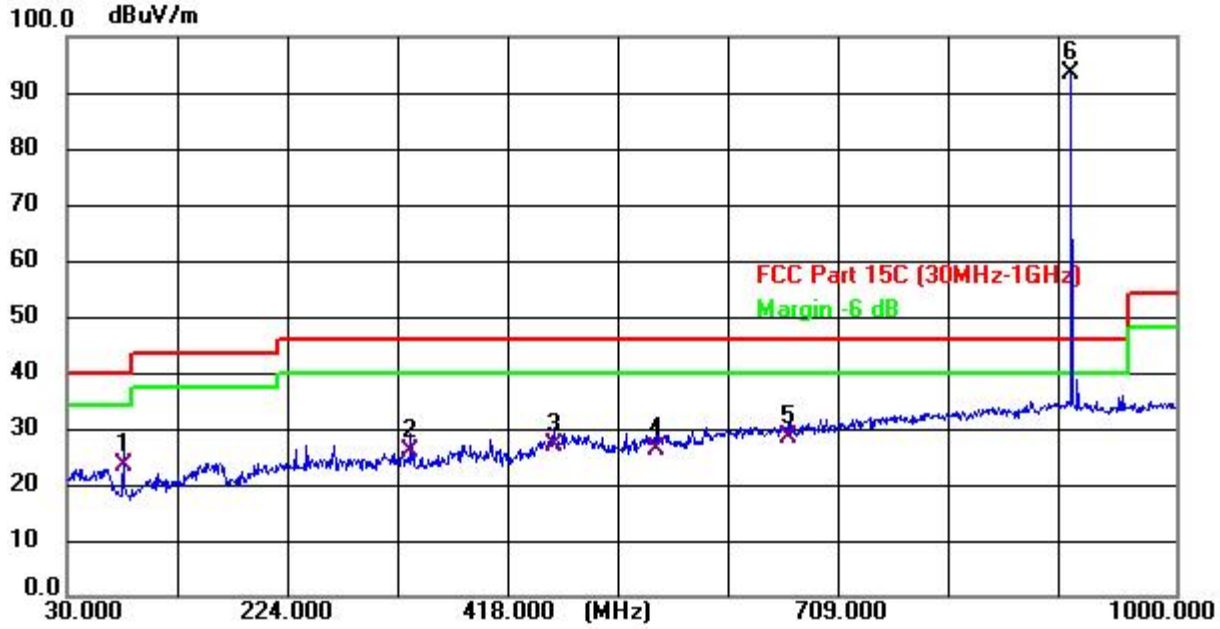
Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	908.4MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	155.130	44.67	-13.77	30.90	43.50	-12.60	QP
2	215.270	39.82	-10.47	29.35	43.50	-14.15	QP
3	394.720	35.48	-5.97	29.51	46.00	-16.49	QP
4	419.940	33.66	-5.49	28.17	46.00	-17.83	QP
5	741.980	28.90	0.23	29.13	46.00	-16.87	QP
6 *	908.400	86.48	2.62	89.10	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

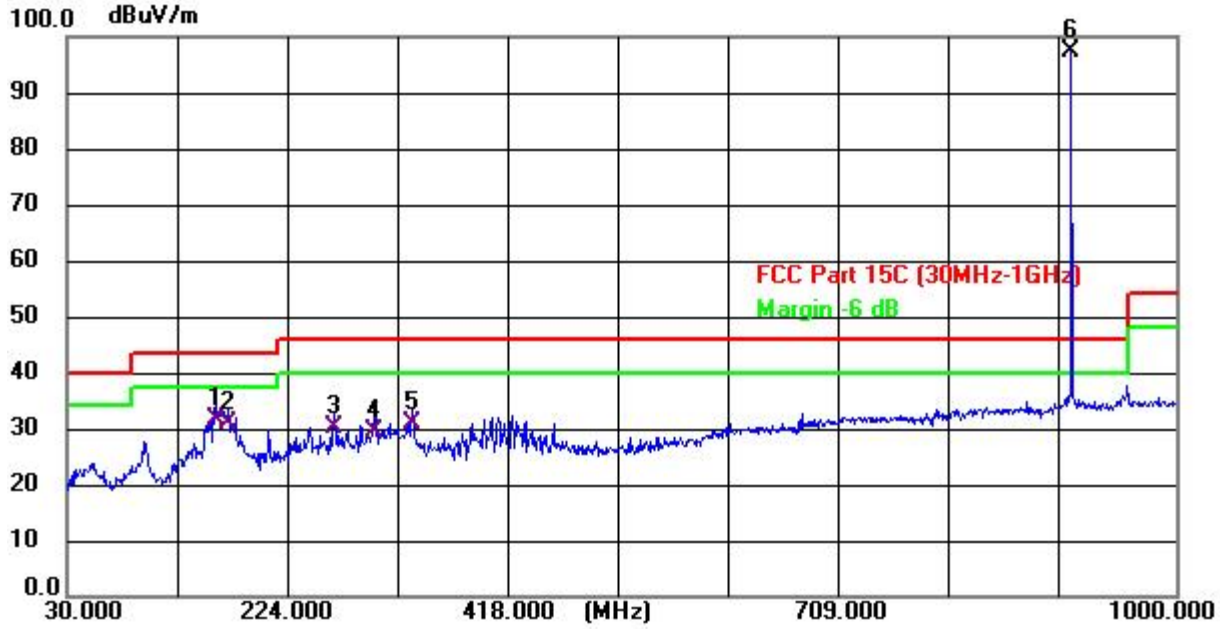
Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	908.4MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	79.470	37.59	-14.21	23.38	40.00	-16.62	QP
2	330.700	33.52	-7.45	26.07	46.00	-19.93	QP
3	455.830	31.99	-4.85	27.14	46.00	-18.86	QP
4	545.070	29.49	-3.20	26.29	46.00	-19.71	QP
5	660.500	29.31	-1.06	28.25	46.00	-17.75	QP
6 *	908.400	90.72	2.62	93.34	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

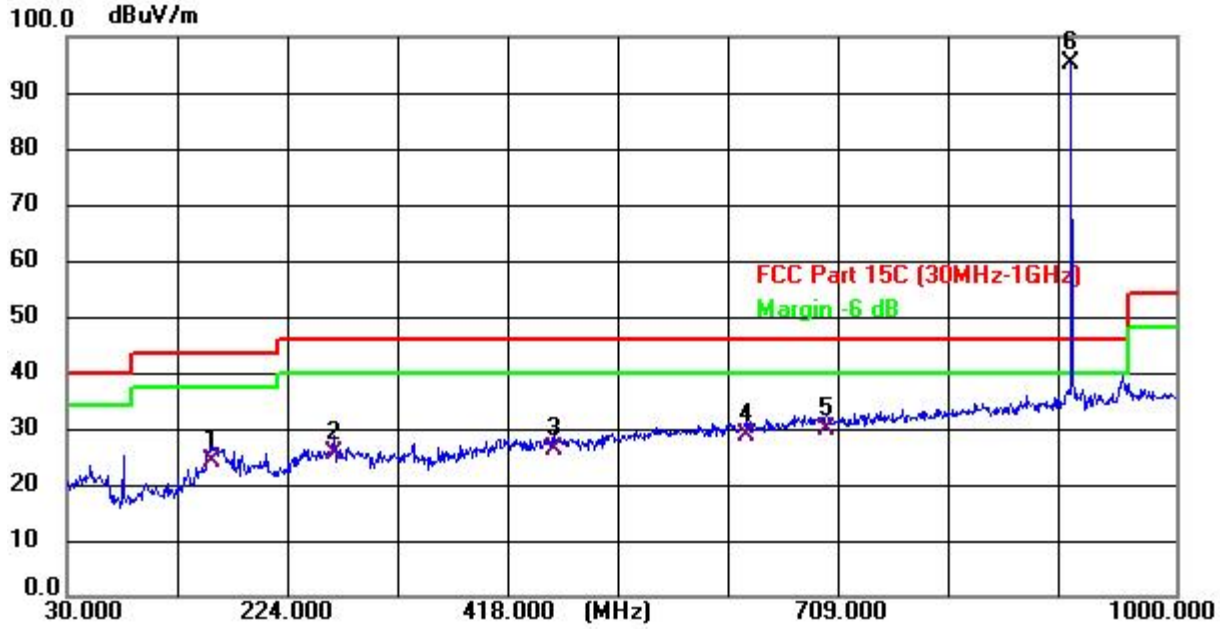
Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	908.42MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	159.980	45.04	-13.50	31.54	43.50	-11.96	QP
2	170.650	43.81	-12.91	30.90	43.50	-12.60	QP
3	263.770	38.90	-8.87	30.03	46.00	-15.97	QP
4	298.690	37.81	-8.17	29.64	46.00	-16.36	QP
5	332.640	38.32	-7.40	30.92	46.00	-15.08	QP
6 *	908.420	94.71	2.62	97.33	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

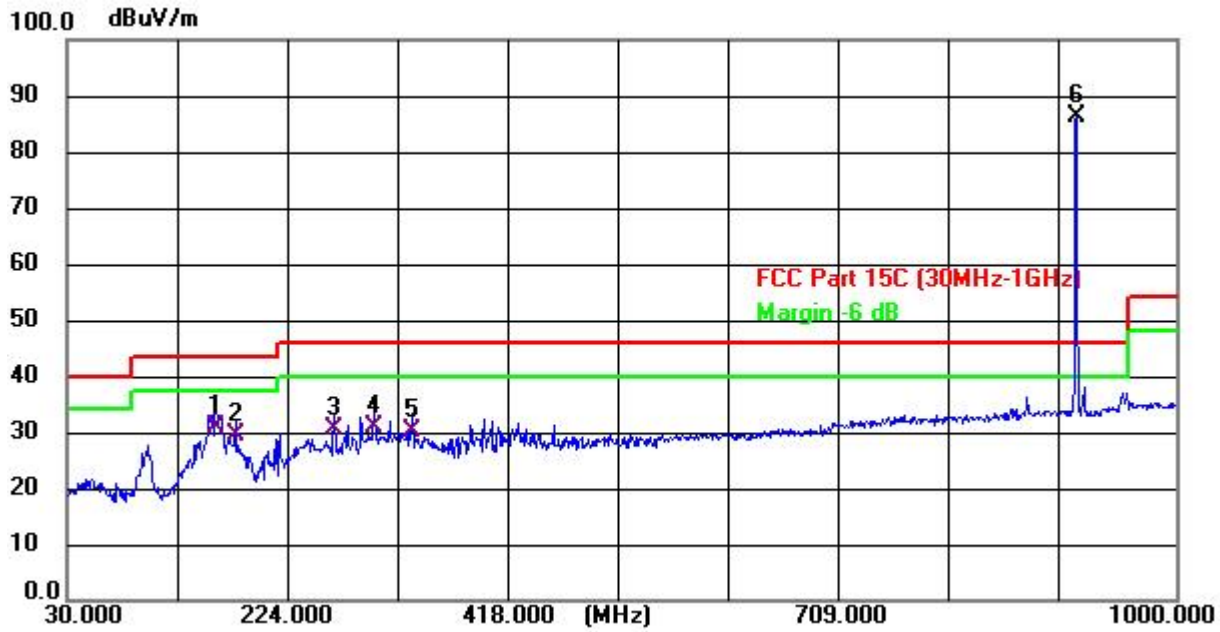
Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	908.42MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	156.100	37.96	-13.71	24.25	43.50	-19.25	QP
2	263.770	34.55	-8.87	25.68	46.00	-20.32	QP
3	455.830	31.25	-4.85	26.40	46.00	-19.60	QP
4	623.640	30.34	-1.73	28.61	46.00	-17.39	QP
5	694.450	30.17	-0.46	29.71	46.00	-16.29	QP
6 *	908.420	92.65	2.62	95.27	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

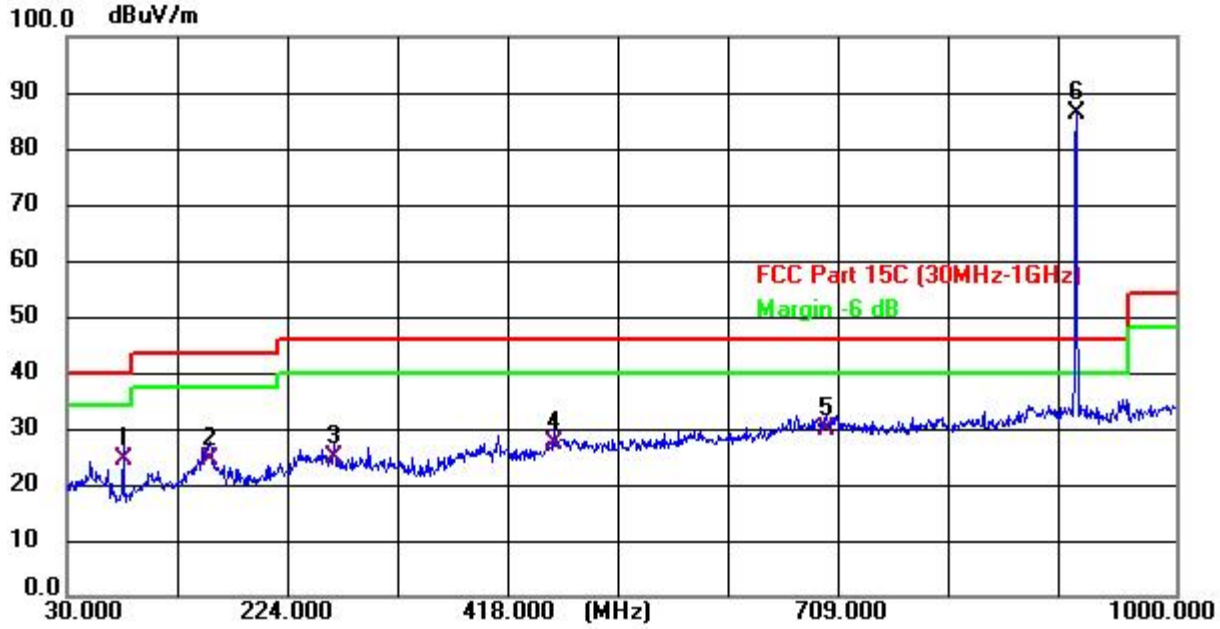
Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	916MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1 0.950	44.33	-13.45	30.88	43.50	-12.62	QP
2	177.440	41.93	-12.54	29.39	43.50	-14.11	QP
3	263.770	39.36	-8.87	30.49	46.00	-15.51	QP
4	298.690	39.10	-8.17	30.93	46.00	-15.07	QP
5	331.670	37.71	-7.43	30.28	46.00	-15.72	QP
6 *	916.000	83.75	2.66	86.41	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	916MHz



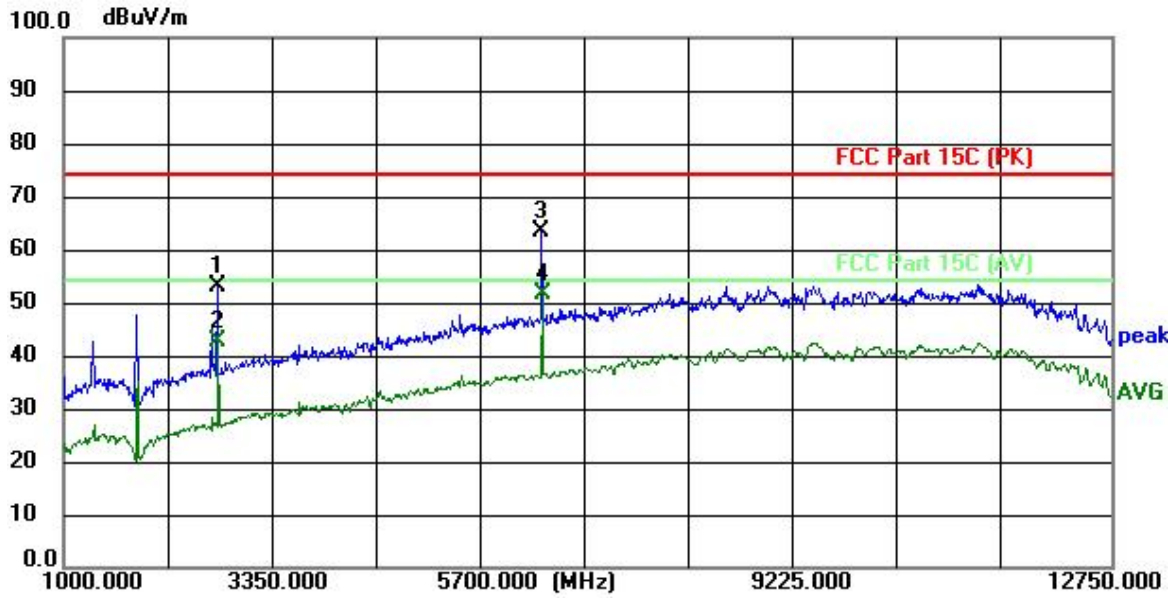
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	79.470	38.70	-14.21	24.49	40.00	-15.51	QP
2	155.130	38.38	-13.77	24.61	43.50	-18.89	QP
3	263.770	33.71	-8.87	24.84	46.00	-21.16	QP
4	455.830	32.07	-4.85	27.22	46.00	-18.78	QP
5	694.450	30.16	-0.46	29.70	46.00	-16.30	QP
6 *	916.000	83.68	2.66	86.34	N/A	N/A	peak

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

From 1GHz to 12.75GHz:			
Test Date	: 2025.3.17	Temperature	: 26℃
Test Engineer	: Felix Pang	Humidity	: 54%
Test Mode	: FSK mode		
Test Results	: **PASS**		
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. 3. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. 4. Please refer to the following test plots for the worst test mode (FSK mode (CH01: 908.42MHz).		

Test Frequency 1GHz-12.75GHz:

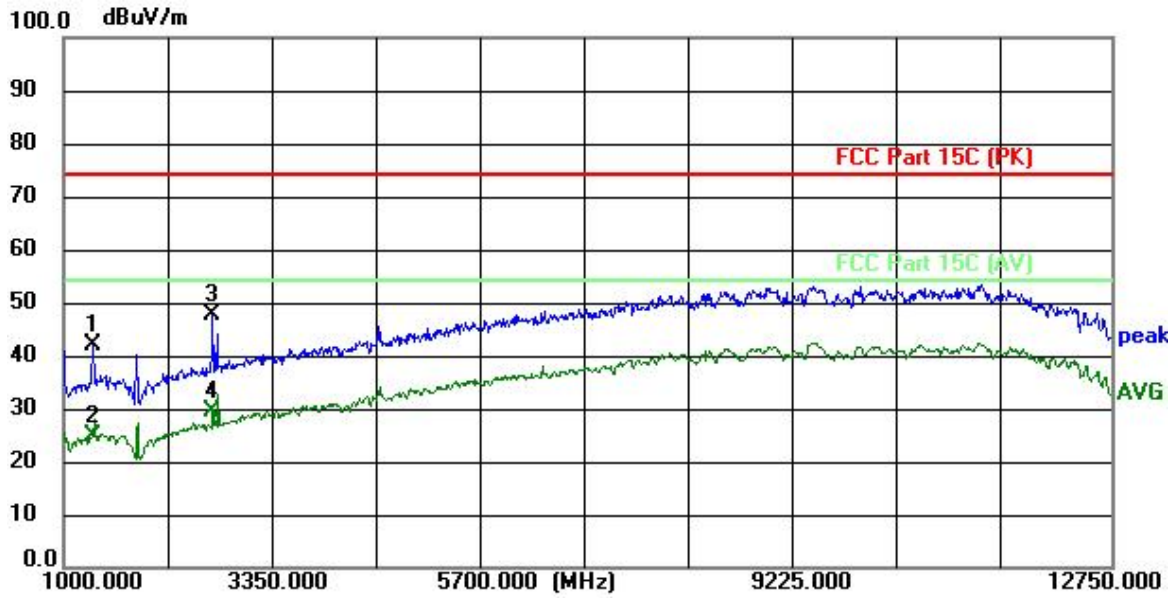
Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	908.42MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2727.250	67.09	-13.97	53.12	74.00	-20.88	peak
2	2739.000	56.52	-13.90	42.62	54.00	-11.38	AVG
3	6358.000	66.67	-3.26	63.41	74.00	-10.59	peak
4 *	6369.750	54.72	-3.24	51.48	54.00	-2.52	AVG

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Model: LOCK420-4Z			
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	908.42MHz

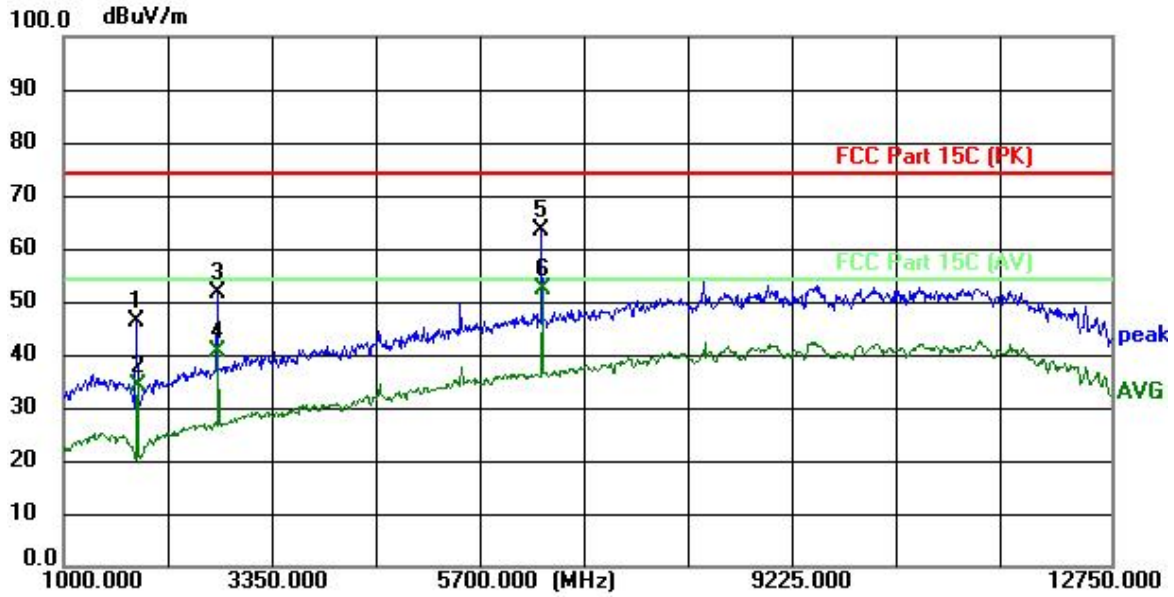


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1329.000	59.57	-17.49	42.08	74.00	-31.92	peak
2	1329.000	42.23	-17.49	24.74	54.00	-29.26	AVG
3	2668.500	61.90	-14.27	47.63	74.00	-26.37	peak
4 *	2668.500	43.89	-14.27	29.62	54.00	-24.38	AVG

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Model: LOCK420-4Z

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 6V	Mode:	908.42MHz

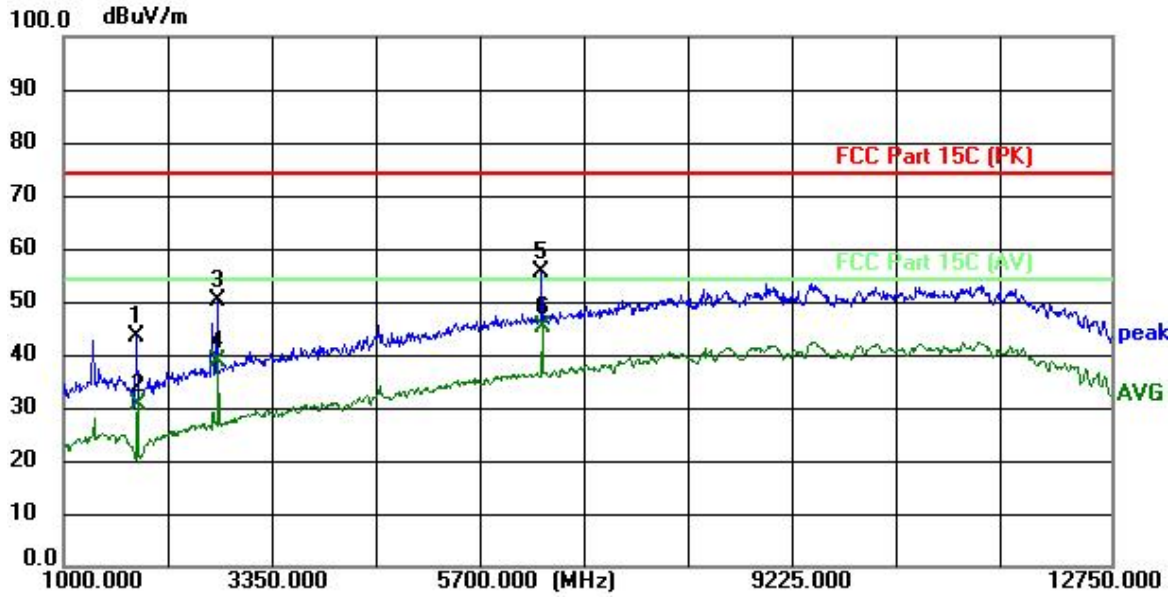


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1822.500	63.63	-17.23	46.40	74.00	-27.60	peak
2	1834.250	51.33	-17.23	34.10	54.00	-19.90	AVG
3	2727.250	65.55	-13.97	51.58	74.00	-22.42	peak
4	2739.000	54.55	-13.90	40.65	54.00	-13.35	AVG
5	6358.000	66.60	-3.26	63.34	74.00	-10.66	peak
6 *	6369.750	55.71	-3.24	52.47	54.00	-1.53	AVG

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Model: LOCK420-4Z

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 6V	Mode:	908.42MHz



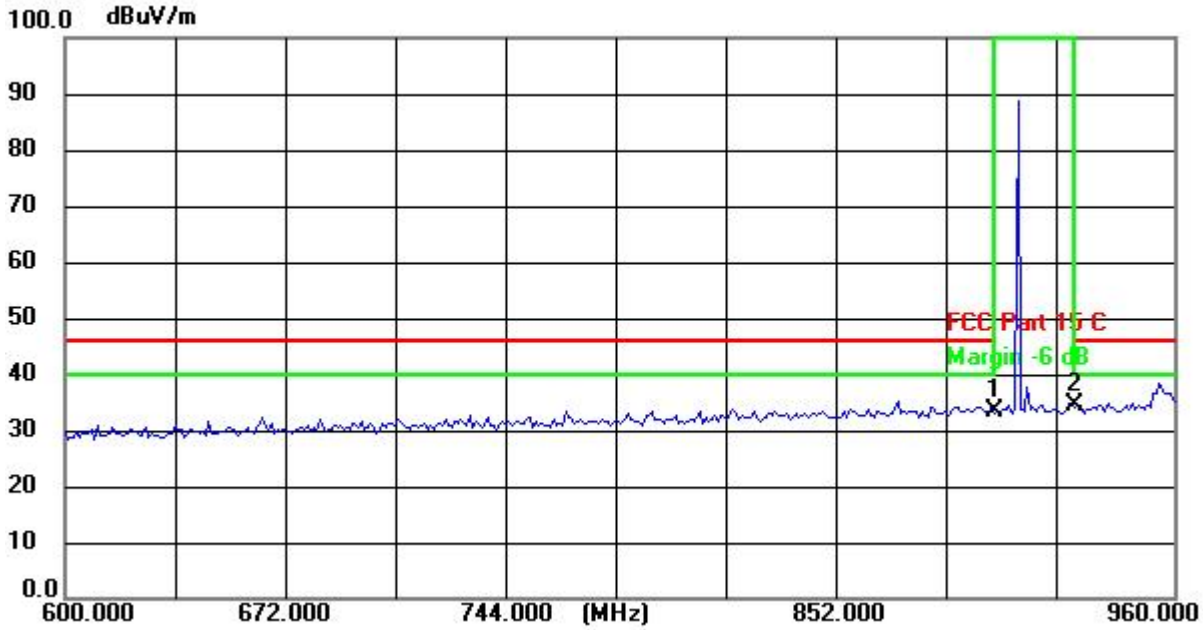
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1822.500	60.67	-17.23	43.44	74.00	-30.56	peak
2	1834.250	47.74	-17.23	30.51	54.00	-23.49	AVG
3	2727.250	64.01	-13.97	50.04	74.00	-23.96	peak
4	2739.000	52.53	-13.90	38.63	54.00	-15.37	AVG
5	6358.000	58.94	-3.26	55.68	74.00	-18.32	peak
6 *	6369.750	48.36	-3.24	45.12	54.00	-8.88	AVG

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Spurious Emission in Restricted Band

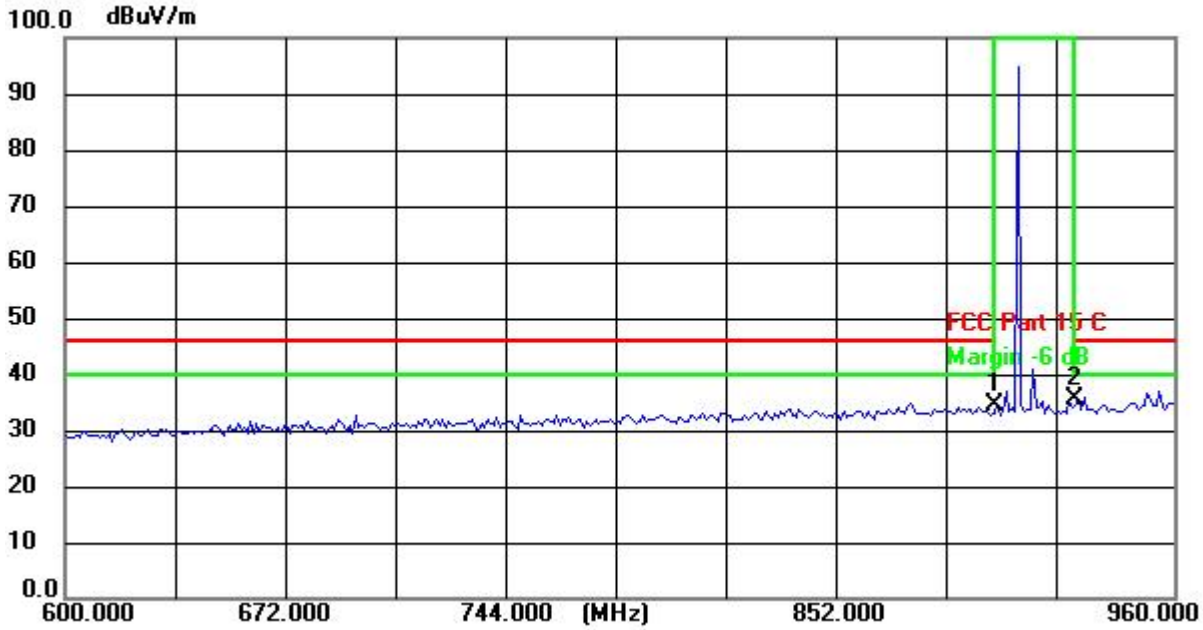
Test Date	:	2025.3.17	Temperature	:	26℃
Test Engineer	:	Felix Pang	Humidity	:	54%
Test Results	:	**PASS**			
Frequency Range	:	**902-928MHz**			

Polarization:	Horizontal	Mode:	908.4MHz



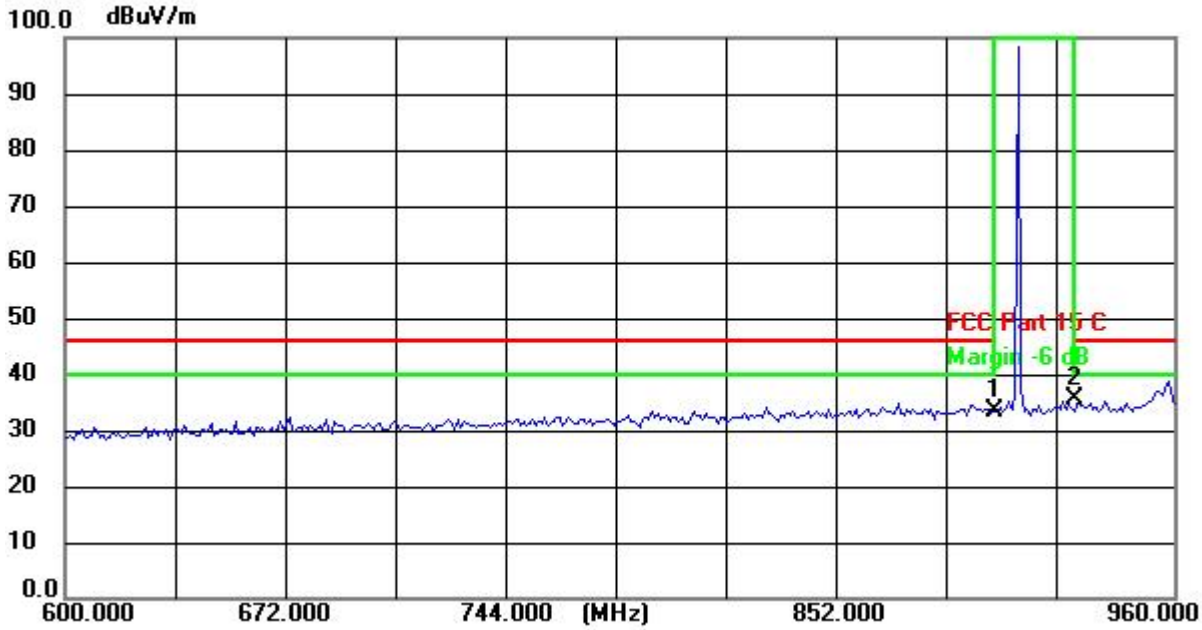
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	902.000	30.85	2.61	33.46	46.00	-12.54	peak
2 *	928.000	31.54	2.89	34.43	46.00	-11.57	peak

Polarization:	Vertical	Mode:	908.4MHz



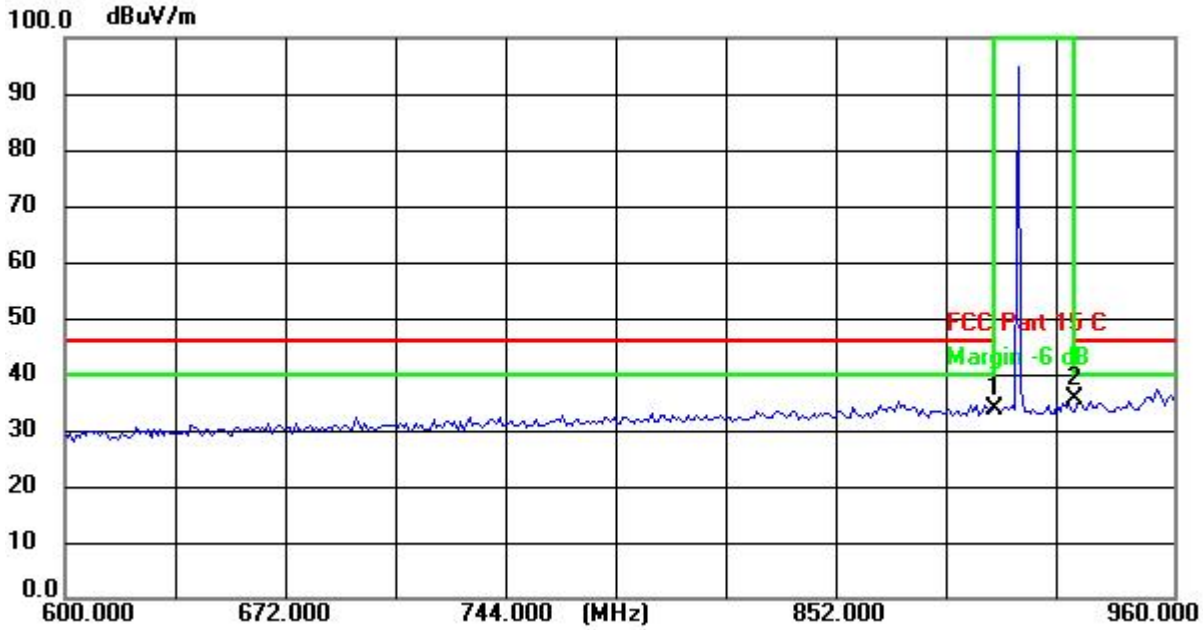
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	902.000	31.73	2.61	34.34	46.00	-11.66	peak
2 *	928.000	32.58	2.89	35.47	46.00	-10.53	peak

Polarization:	Horizontal	Mode:	908.42MHz



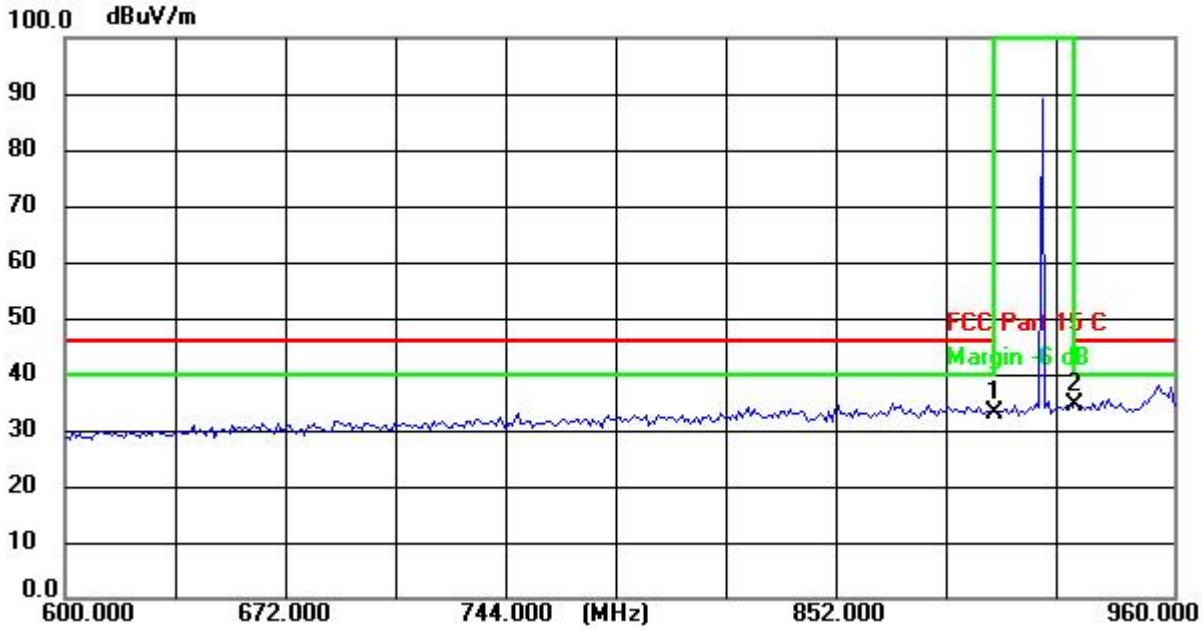
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	902.000	30.84	2.61	33.45	46.00	-12.55	peak
2 *	928.000	32.60	2.89	35.49	46.00	-10.51	peak

Polarization:	Vertical	Mode:	908.42MHz



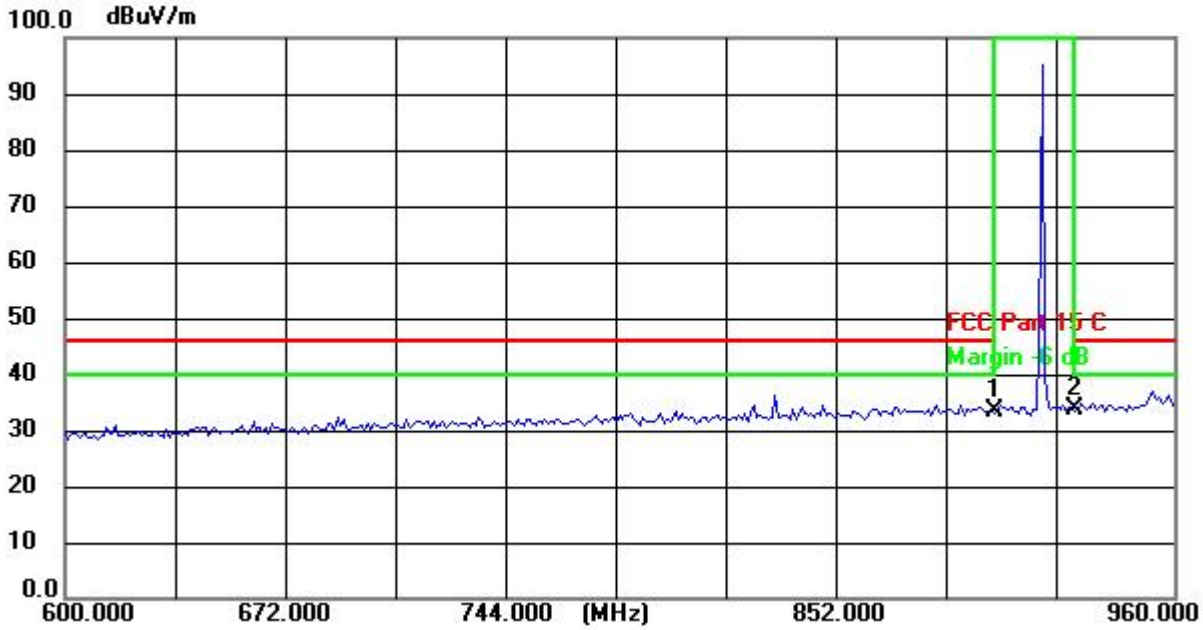
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	902.000	31.30	2.61	33.91	46.00	-12.09	peak
2 *	928.000	32.54	2.89	35.43	46.00	-10.57	peak

Polarization:	Horizontal	Mode:	916MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	902.000	30.44	2.61	33.05	46.00	-12.95	peak
2 *	928.000	31.43	2.89	34.32	46.00	-11.68	peak

Polarization:	Vertical	Mode:	916MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	902.000	30.87	2.61	33.48	46.00	-12.52	peak
2 *	928.000	30.93	2.89	33.82	46.00	-12.18	peak

5. Bandwidth Measurement

Test Requirement : FCC Part15 (15.249) , Subpart C

Test Method : ANSI C63.10:2013

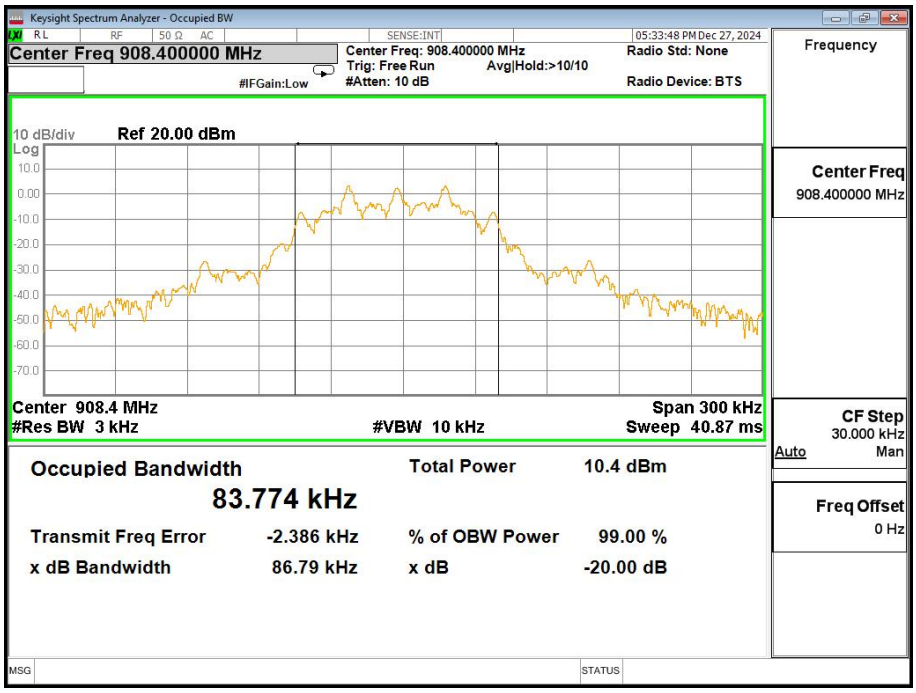
5.1. Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 3kHz, VBW = 10kHz

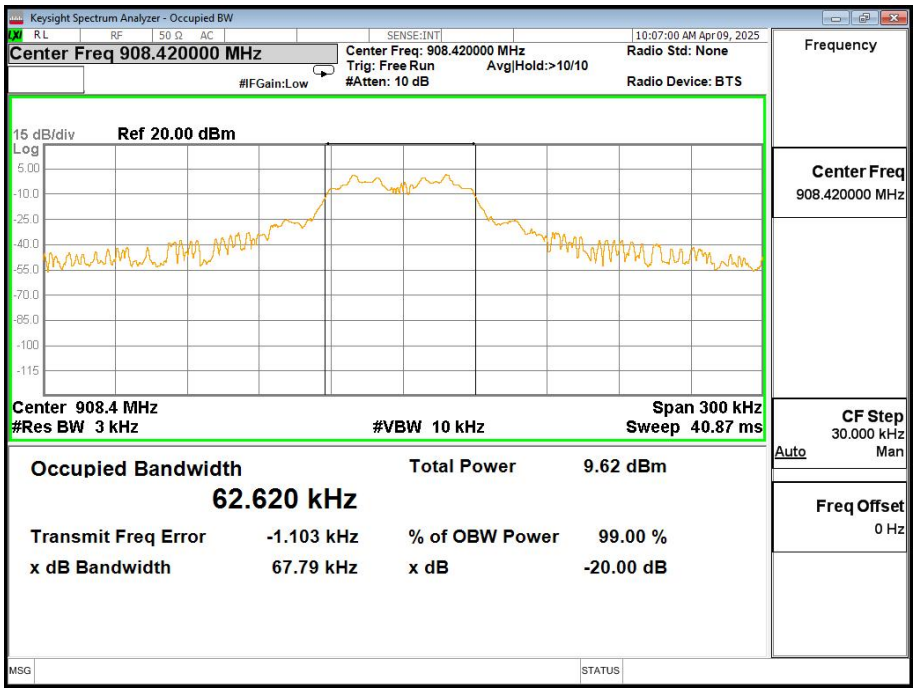
5.2. Test Result

Modulation:	Frequency (MHz)	20dB Bandwidth (kHz)	Result
GFSK	908.4	86.79	Pass
GFSK	908.42	67.79	Pass
GFSK	916	113.8	Pass

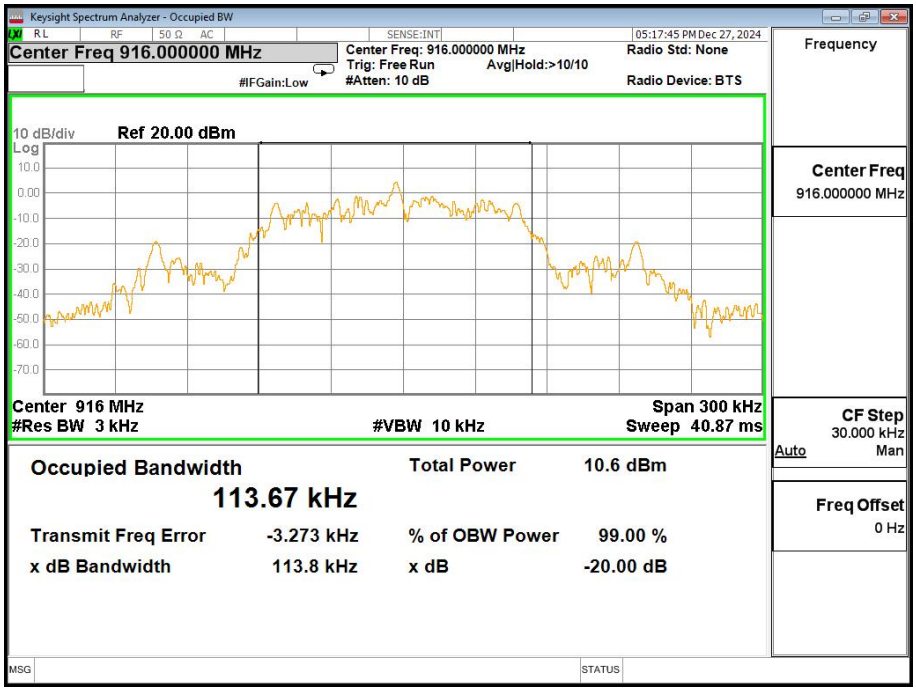
908.4MHz



908.42MHz



916MHz



6. FREQUENCY TOLERANCE

6.1. Antenna Requirement

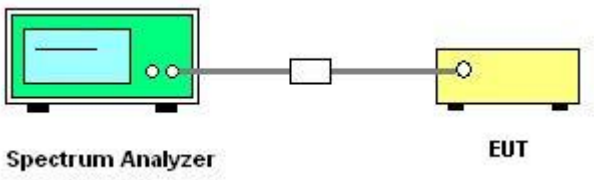
The frequency tolerance of the carrier signal shall be maintained within ±0.001% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

6.2. Test Procedure

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b. Spectrum Setting : RBW= 10KHz, VBW≧RBW, Sweep time = Auto.

6.3. TEST SETUP



6.4. Test Procedure

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Test Voltage:	DC 6V

Voltage (V)	Frequency(MHz)	Reading(MHz)	Frequency Tolerance(ppm)	LIMIT(ppm)
DC 6 V	908.4	908.406	0.00066%	±0.001%
DC 5.4 V	908.4	908.407	0.00077%	±0.001%
DC 6.6 V	908.4	908.406	0.00066%	±0.001%
DC 6 V	908.42	908.423	0.00033%	±0.001%
DC 5.4 V	908.42	908.426	0.00066%	±0.001%
DC 6.6 V	908.42	908.428	0.00088%	±0.001%
DC 6 V	916	916.009	0.00099%	±0.001%
DC 5.4 V	916	916.005	0.00055%	±0.001%
DC 6.6 V	916	916.003	0.00033%	±0.001%

Temperature (℃)	Frequency(MHz)	Reading(MHz)	Frequency Tolerance(ppm)	LIMIT(ppm)
-20	908.4	908.425	0.00055%	±0.001%
-10	908.4	908.424	0.00044%	±0.001%
0	908.4	908.427	0.00077%	±0.001%
10	908.4	908.423	0.00033%	±0.001%
20	908.4	908.424	0.00044%	±0.001%
30	908.4	908.425	0.00055%	±0.001%
40	908.4	908.425	0.00055%	±0.001%
50	908.4	908.426	0.00066%	±0.001%
-20	908.42	908.422	0.00022%	±0.001%
-10	908.42	908.421	0.00011%	±0.001%
0	908.42	908.426	0.00066%	±0.001%
10	908.42	908.421	0.00011%	±0.001%
20	908.42	908.425	0.00055%	±0.001%
30	908.42	908.426	0.00066%	±0.001%
40	908.42	908.424	0.00044%	±0.001%
50	908.42	908.427	0.00077%	±0.001%
-20	916	908.428	0.00088%	±0.001%
-10	916	908.424	0.00044%	±0.001%
0	916	908.429	0.00099%	±0.001%
10	916	908.425	0.00055%	±0.001%
20	916	908.425	0.00055%	±0.001%
30	916	908.422	0.00022%	±0.001%
40	916	908.421	0.00011%	±0.001%
50	916	908.428	0.00088%	±0.001%

7. Antenna Application

7.1. Antenna Requirement

For intentional device, according to FCC 47 CFR Section 15.203 and RSS-GEN, 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

7.2. Result

The EUT antenna is PCB antenna. It complies with the standard requirement.

8. Photos of test setup

Reference to the **appendix I Test Setup Photo** for details.

9. Photos of EUT

Reference to the **appendix II external photos** and **appendix III internal photos** for details.

------ END OF REPORT------