

TEST REPORT

Report No.....: KS2312S6620E
FCC ID.....: 2A7MQ-1200
Applicant.....: Senci electro mechanical Co., LTD
Address.....: No.200 Tongxinbei Road, Beibei District Chongqing 400701, China
Manufacturer.....: Senci electro mechanical Co., LTD
Address.....: No.200 Tongxinbei Road, Beibei District Chongqing 400701, China
Product Name.....: PORTABLE POWER STATION
Trademark.....: 
Model/Type reference.....: PRO 1200, PRO 1000
Standard.....: 47 CFR Part 15C
Date of Receipt.....: December 12, 2023
Date of Test Date.....: December 12, 2023 to January 4, 2024
Date of issue.....: January 5, 2024

Test result.....: Pass

Conclusion.....: The submitted sample was found to COMPLY with the standards above.

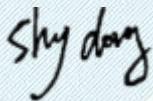
Prepared by:
(Printed name + Signature)

Pai Zheng



Approved by:
(Printed name + Signature)

Sky Dong



Testing Laboratory Name...: KSIGN(Guangdong) Testing Co., Ltd.

Address.....: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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Add: West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

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TABLE OF CONTENTS

	Page
1. TEST SUMMARY	3
1.1. Test Standards	3
1.2. Report Version	3
1.3. Test Description	4
1.4. Test Facility	5
1.5. Measurement Uncertainty	5
2. GENERAL INFORMATION	6
2.1. General Description Of EUT	6
2.2. Accessory Equipment Information	6
2.3. Description of Test Modes	6
2.4. Measurement Instruments List	7
3. Evaluation Results (Evaluation)	8
3.1. Antenna requirement	8
4. Radio Spectrum Matter Test Results (RF)	9
4.1. Conducted Emission at AC power line	9
4.2. Emissions in frequency bands (below 30MHz)	15
4.3. Emissions in frequency bands (30MHz - 1GHz)	19
5. EUT TEST PHOTOS	23
6. PHOTOGRAPHS OF EUT CONSTRUCTIONAL	25

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

47 CFR Part 15C: Radiated emission limits; general requirements

ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

1.2. Report Version

Revised No.	Date of issue	Description
01	January 5, 2024	Original

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1.3. Test Description

Test Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15C	47 CFR Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15C	47 CFR Part 15.207(a)	Pass
20dB Occupied Bandwidth	47 CFR Part 15C	47 CFR Part 15.215(c)	Pass
Emissions in frequency bands (below 30MHz)	47 CFR Part 15C	47 CFR Part 15.209	Pass
Emissions in frequency bands (30MHz - 1GHz)	47 CFR Part 15C	47 CFR Part 15.209	Pass

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1.4. Test Facility

KSIGN(Guangdong) Testing Co., Ltd.

West Side of 1/F., Building C, Zone A, Fuyuan New Factory, Jiujiu Industrial Park, Minzhu, Shatou, Shajing, Bao'an District, Shenzhen, Guangdong, China

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L13261

KSIGN(Guangdong) Testing Co., Ltd. has been assessed and proved to be in Compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5457.01

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing

ISED#: 25693 CAB identifier.: CN0096

KSIGN(Guangdong) Testing Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

FCC-Registration No.: 294912 Designation Number: CN1328

KSIGN(Guangdong) Testing Co., Ltd. EMC Laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

1.5. Measurement Uncertainty

Test Items	Measurement Uncertainty
Conducted Emission (150k-30MHz)	± 3.34dB
RE (9kHz-30MHz)	± 2.20dB
RSE (30-1000MHz)	± 5.7dB

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %. Otherwise required by the applicant or Product Regulations. Decision Rule in this report did not consider the uncertainty.

2. GENERAL INFORMATION

2.1. General Description Of EUT

Test Sample Number:	1-1(Normal Sample), 1-2(Engineering Sample)
Product Name:	PORTABLE POWER STATION
Trademark:	
Model / Type reference:	PRO 1200, PRO 1000
Model Difference:	The only difference before the model is the name of the model. Other power supply methods, appearance, internal structure, circuits, and key components are the same, and do not affect safety and electromagnetic compatibility performance.
Power Supply:	Input: AC 100-120V, 60Hz Battery: DC 25.6V Wireless Charging Output: 15W
Operation Frequency:	115KHz-205KHz
Modulation Type:	ASK
Antenna Type:	Coil
Antenna Gain:	0dBi
Note: For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.	

Note: Antenna gain provided by the applicant Can affect the validity of results

2.2. Accessory Equipment Information

Title	Manufacturer	Model No.	Technical Parameters	Provided by
Wireless charging load	EESON	2S	15W	laboratory

2.3. Description of Test Modes

No.	Title	Description of Mode
Test Mode1	Charging+Wireless charging mode(15W)	N/A
Test Mode2	Standby mode	N/A

Note: All test modes were pre-tested, The Mode 1 was the worst case and only the data of the worst case record in this report.

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2.4. Measurement Instruments List

Conducted Emission at AC power line				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
LISN	R&S	ENV432	1326.6105.02	2024-02-17
EMI Test Receiver	R&S	ESR	102524	2024-02-17
Manual RF Switch	JS TOYO	/	MSW-01/002	2024-02-17
ISN CAT6	Schwarzbeck	CAT5 8158	227	2024-02-17
Color Signal Generator	Philips	PM5418	672926	2024-02-17
Power Absorbing Clamp	R&S	MDS-21	100925	2024-02-19

Emissions in frequency bands (below 30MHz) Emissions in frequency bands (30MHz - 1GHz)				
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Color Signal Generator	Philips	PM5418	672926	2024-02-17
Ultra-Broadband logarithmic period Antenna	Schwarzbeck	VULB 9163	1230	2025-02-18
Pre-Amplifier	Schwarzbeck	BBV 9745	9745#129	2024-02-17
Broadcast Television Signal Generator	R&S	SFE100	141038	2024-02-17
Analog Signal Generator	Agilent	8648A	3847M00445	2024-02-17
EMI Test Receiver	R&S	ESR	102525	2024-02-17
Loop Antenna	Beijin ZHINAN	ZN30900C	18050	2024-02-19
Horn Antenna	Schwarzbeck	BBHA 9120 D	2023	2026-02-19
Pre-Amplifier	EMCI	EMC051835SE	980662	2024-02-17
Spectrum Analyzer	Keysight	N9020A	MY46471971	2024-02-17

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3. Evaluation Results (Evaluation)

3.1. Antenna requirement

Test Requirement:	Refer to 47 CFR Part 15.203, 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.
Antenna Information:	The antenna used in this product is a Coil Antenna.
Note: The antenna gain is 0dBi, and the antenna gain is provided by the applicant.	

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4. Radio Spectrum Matter Test Results (RF)

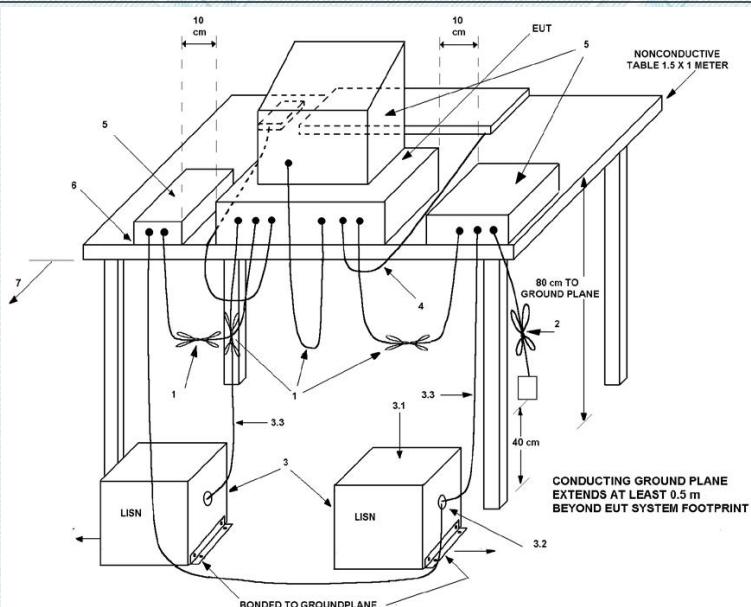
4.1. Conducted Emission at AC power line

Test Requirement:	<p>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).</p>		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average	
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
<p>*Decreases with the logarithm of the frequency.</p>			
Test Method:	ANSI C63.10-2013 section 6.2		
Procedure:	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:	24.3 °C
Humidity:	45 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1, Test Mode2

4.1.2. Test Setup Diagram:



Note:

NOTE:

- 1). QP Value (dB μ V)= QP Reading (dB μ V)+ Factor (dB)
- 2). Factor (dB)=insertion loss of LISN (dB) + Cable loss (dB)
- 3). QPMargin(dB) = QP Limit (dB μ V) - QP Value (dB μ V)
- 4). AVMargin(dB) = AV Limit (dB μ V) - AV Value (dB μ V)

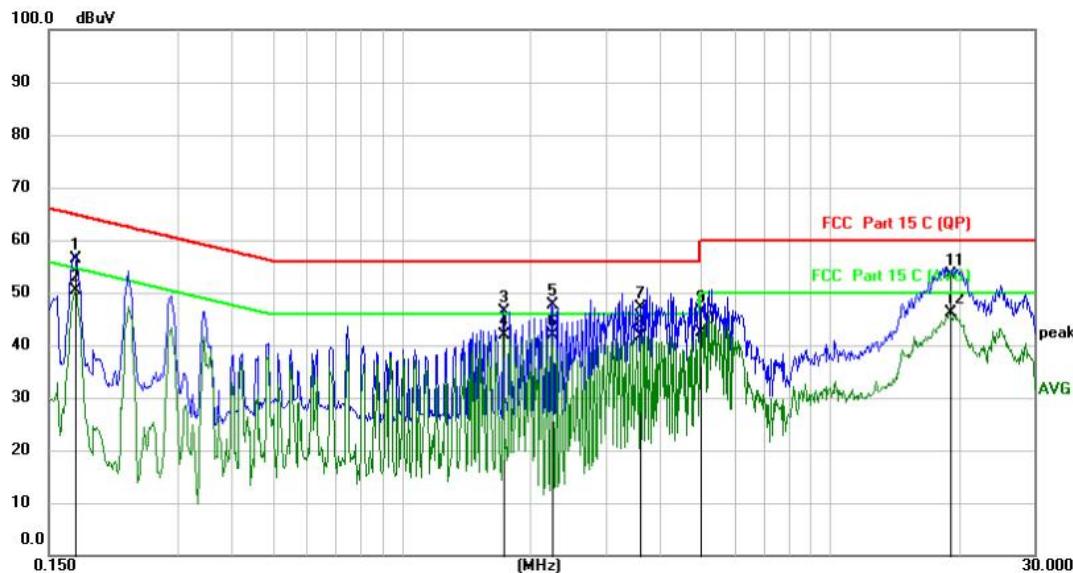
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4.1.3. Test Data:

Test Mode1 / Line: Line



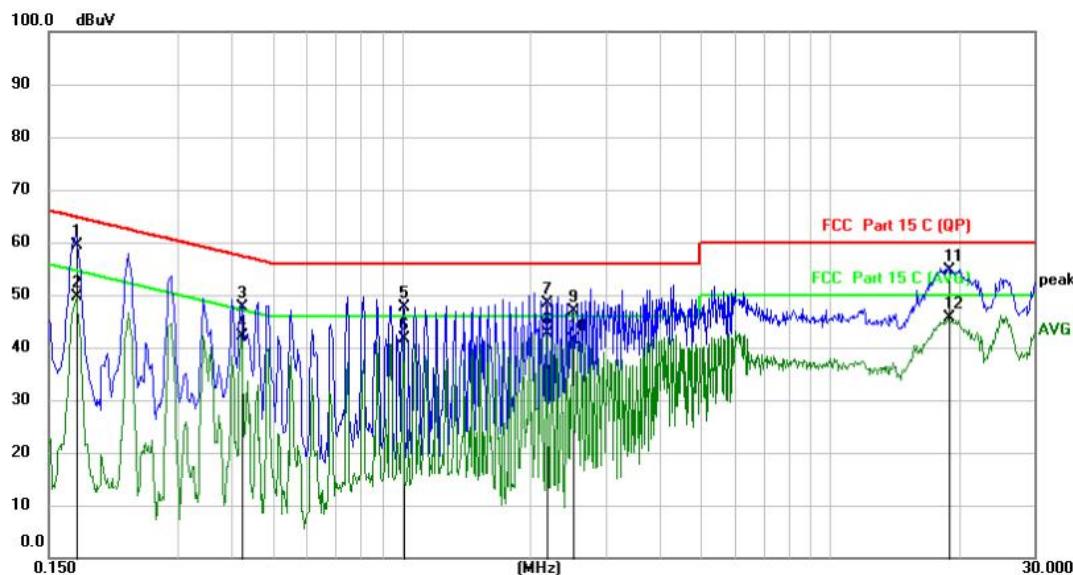
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dB			
1		0.1729	45.39	11.08	56.47	64.82	-8.35	QP	
2		0.1729	39.27	11.08	50.35	54.82	-4.47	AVG	
3		1.7259	35.36	11.14	46.50	56.00	-9.50	QP	
4		1.7259	30.80	11.14	41.94	46.00	-4.06	AVG	
5		2.2459	36.44	11.22	47.66	56.00	-8.34	QP	
6		2.2459	30.77	11.22	41.99	46.00	-4.01	AVG	
7		3.6139	35.81	11.43	47.24	56.00	-8.76	QP	
8		3.6139	30.26	11.43	41.69	46.00	-4.31	AVG	
9		4.9818	34.86	11.53	46.39	56.00	-9.61	QP	
10	*	4.9818	30.84	11.53	42.37	46.00	-3.63	AVG	
11		19.1139	37.94	15.42	53.36	60.00	-6.64	QP	
12		19.1139	30.71	15.42	46.13	50.00	-3.87	AVG	

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Test Mode1 / Line: Neutral



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1		0.1737	48.33	11.08	59.41	64.78	-5.37	QP	
2		0.1737	38.45	11.08	49.53	54.78	-5.25	AVG	
3		0.4218	36.71	10.99	47.70	57.41	-9.71	QP	
4		0.4218	31.22	10.99	42.21	47.41	-5.20	AVG	
5		1.0100	36.62	11.05	47.67	56.00	-8.33	QP	
6		1.0100	30.67	11.05	41.72	46.00	-4.28	AVG	
7		2.1819	37.10	11.19	48.29	56.00	-7.71	QP	
8	*	2.1819	31.36	11.19	42.55	46.00	-3.45	AVG	
9		2.5059	35.72	11.26	46.98	56.00	-9.02	QP	
10		2.5059	30.01	11.26	41.27	46.00	-4.73	AVG	
11		18.9338	39.42	15.16	54.58	60.00	-5.42	QP	
12		18.9338	30.59	15.16	45.75	50.00	-4.25	AVG	

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4.2. 20dB Occupied Bandwidth

Test Requirement:	47 CFR Part 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), 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:	ANSI C63.10-2013, section 6.9.2
Procedure:	<p>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.</p> <p>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.</p> <p>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 $[10 \log (\text{OBW}/\text{RBW})]$ below the reference level. Specific guidance is given in 4.1.5.2.</p> <p>d) Steps a) through c) might require iteration to adjust within the specified tolerances.</p> <p>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.</p> <p>f) Set detection mode to peak and trace mode to max hold.</p> <p>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).</p> <p>h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - \text{xx}]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument.</p> <p>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).</p> <p>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.</p> <p>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).</p>

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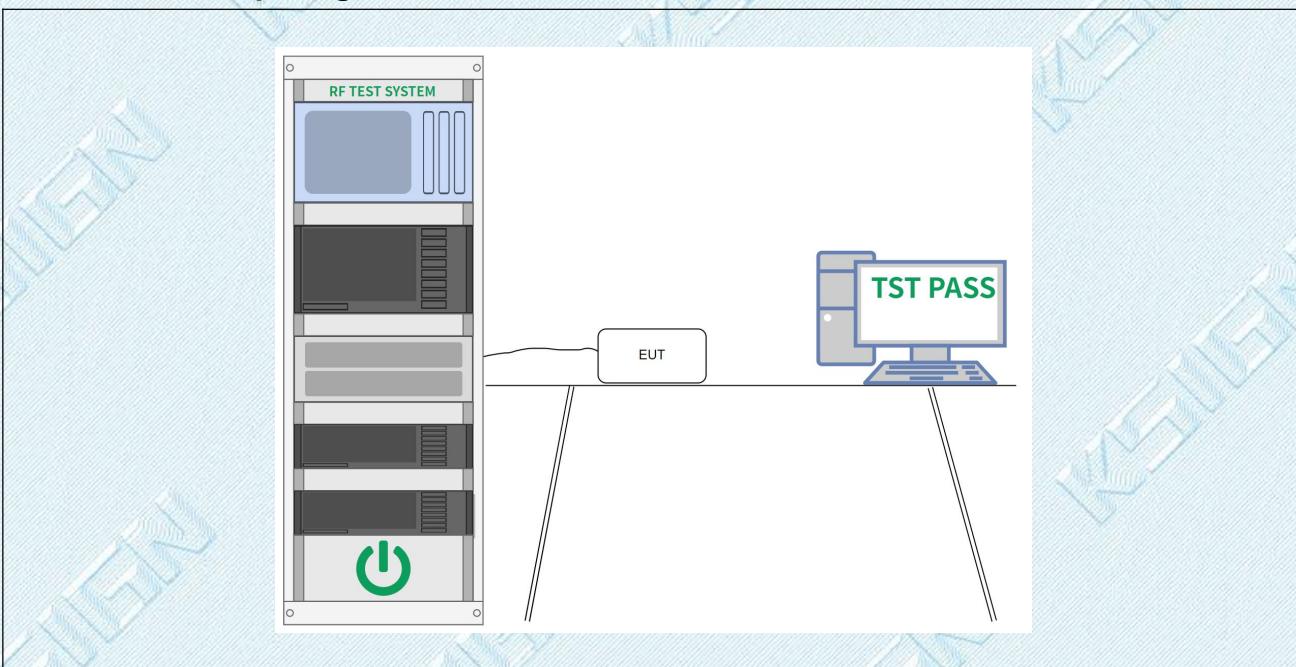
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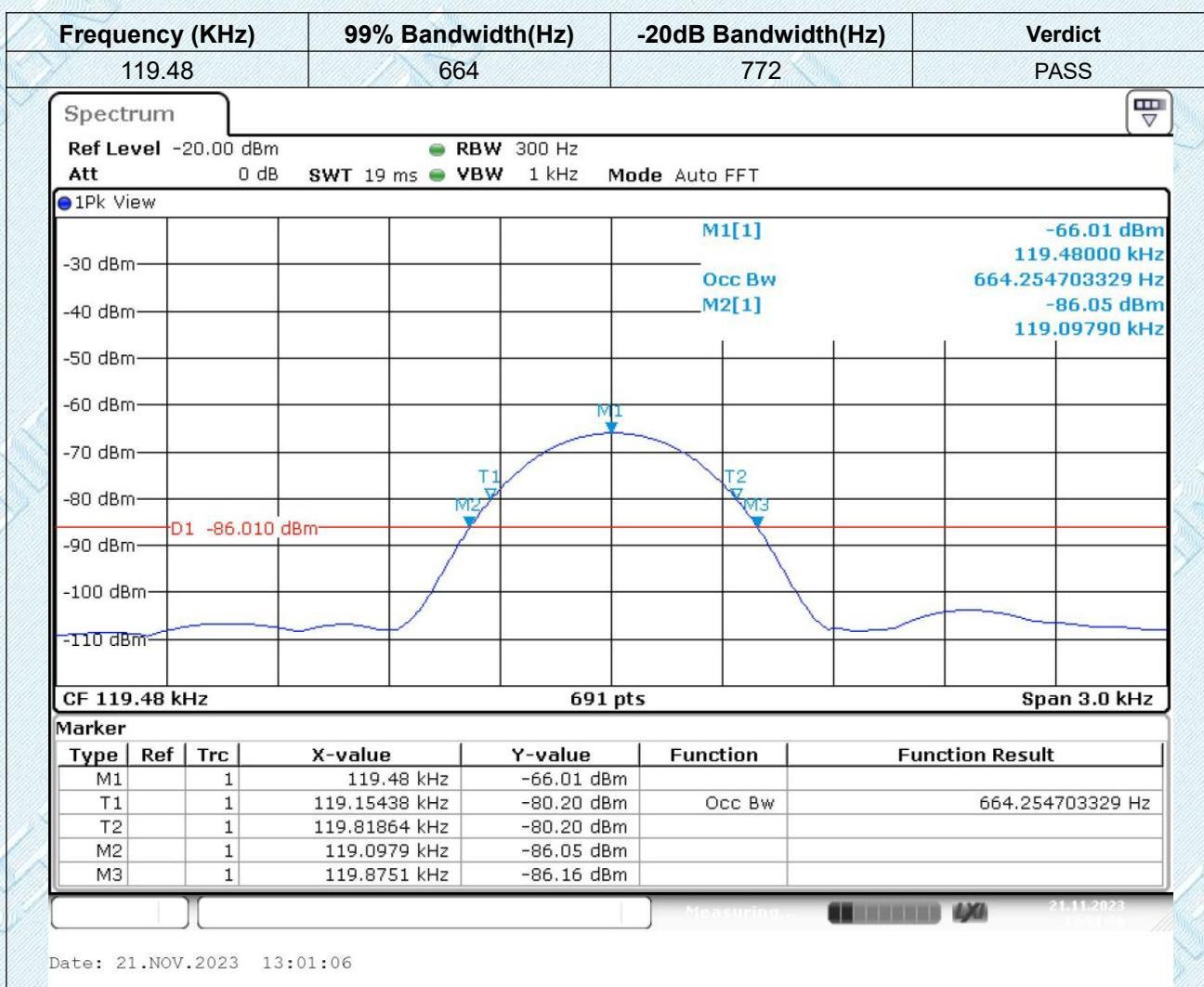
4.2.1. E.U.T. Operation:

Operating Environment:	
Temperature:	24.8 °C
Humidity:	47.2 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1, Test Mode2

4.2.2. Test Setup Diagram:



4.2.3. Test Data:



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4.3. Emissions in frequency bands (below 30MHz)

Test Requirement:	47 CFR Part 15.209		
	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.

In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. 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 Limit:

Test Method:

ANSI C63.10-2013 section 6.4

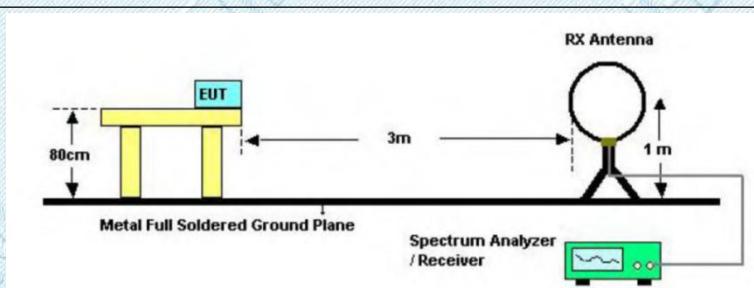
Procedure:

ANSI C63.10-2013 section 6.4

4.3.1. E.U.T. Operation:

Operating Environment:	
Temperature:	25.4 °C
Humidity:	50.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1, Test Mode2

4.3.2. Test Setup Diagram:



Note:

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

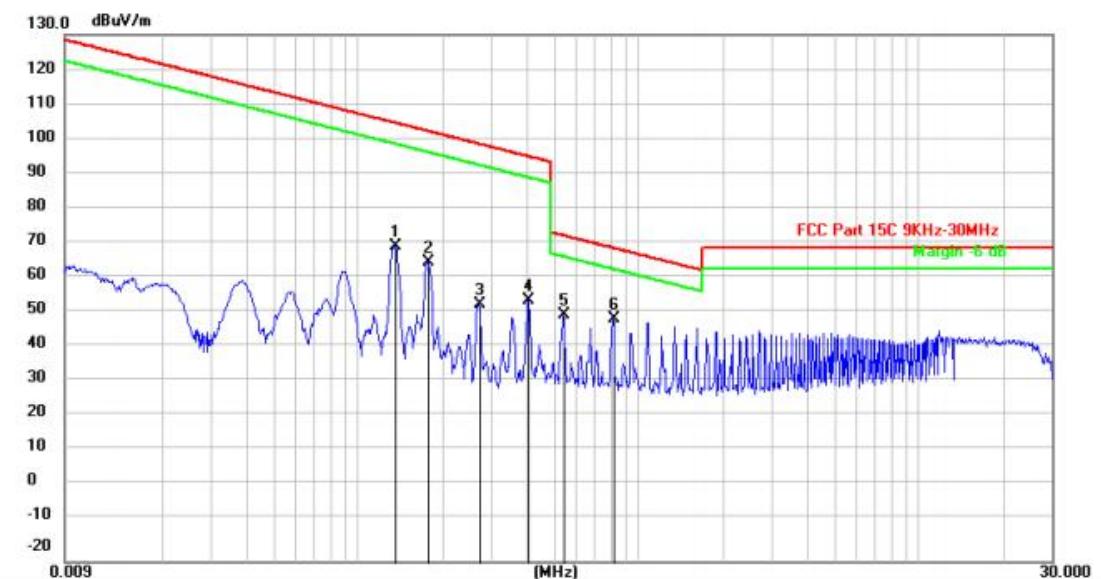
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4.3.3. Test Data:

Test Mode1 / Axis: X



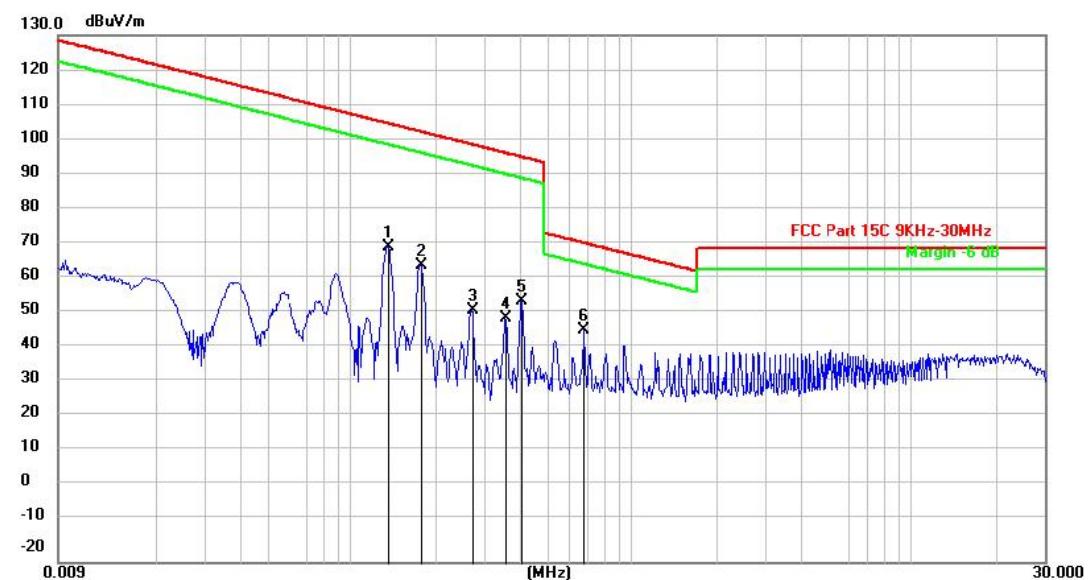
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		0.1355	80.78	-10.88	69.95	104.97	-35.02	peak
2		0.1785	76.80	-11.38	65.42	102.57	-37.15	peak
3		0.2706	65.34	-11.88	53.46	98.96	-45.50	peak
4		0.4072	65.78	-11.41	54.37	95.41	-41.04	peak
5		0.5423	61.32	-10.87	50.45	72.92	-22.47	peak
6	*	0.8149	58.95	-9.68	49.27	69.38	-20.11	peak

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Test Mode1 / Axis: Y



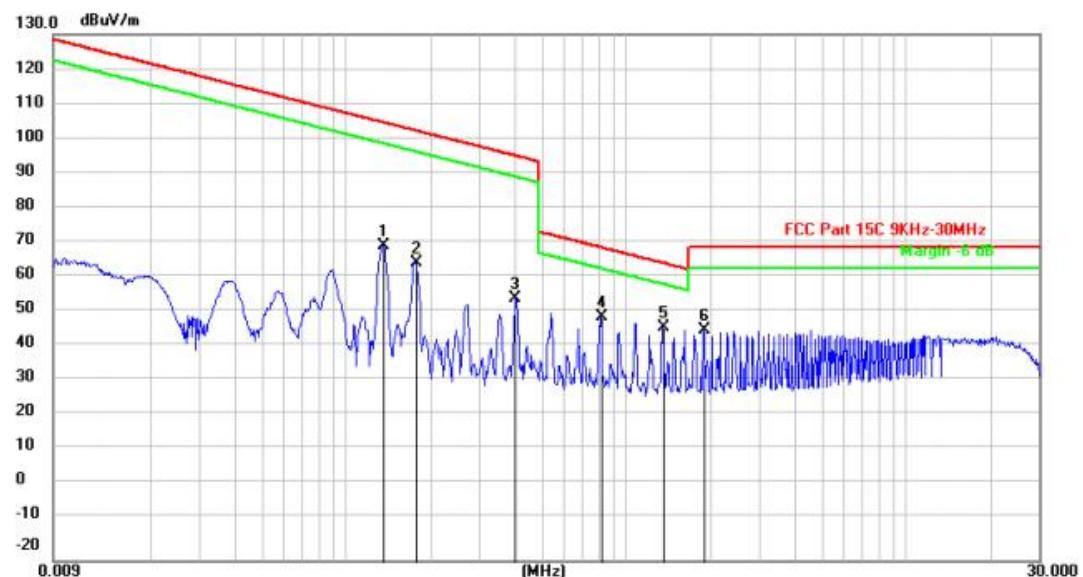
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
			MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	
1		0.1355	80.78	-10.88	69.90	104.97	-35.07	peak
2		0.1779	76.06	-11.37	64.69	102.60	-37.91	peak
3		0.2695	63.64	-11.89	51.75	98.99	-47.24	peak
4		0.3557	61.02	-11.59	49.43	96.58	-47.15	peak
5		0.4072	65.67	-11.41	54.26	95.41	-41.15	peak
6	*	0.6780	56.47	-10.14	46.33	70.98	-24.65	peak

TRF RF_R1

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Test Mode1 / Axis: Z



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		0.1355	80.78	-10.88	69.76	104.97	-35.21	peak
2		0.1776	76.45	-11.37	65.08	102.62	-37.54	peak
3		0.4040	66.41	-11.42	54.99	95.48	-40.49	peak
4		0.8144	59.27	-9.68	49.59	69.39	-19.80	peak
5	*	1.3574	56.18	-9.56	46.62	64.95	-18.33	peak
6		1.9010	55.51	-9.63	45.88	69.54	-23.66	peak

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4.4. Emissions in frequency bands (30MHz - 1GHz)

Test Requirement:	47 CFR Part 15.209		
	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
Test Limit:	<p>** 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.</p> <p>In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. 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.</p>		
Test Method:	ANSI C63.10-2013 section 6.5		
Procedure:	ANSI C63.10-2013 section 6.5		

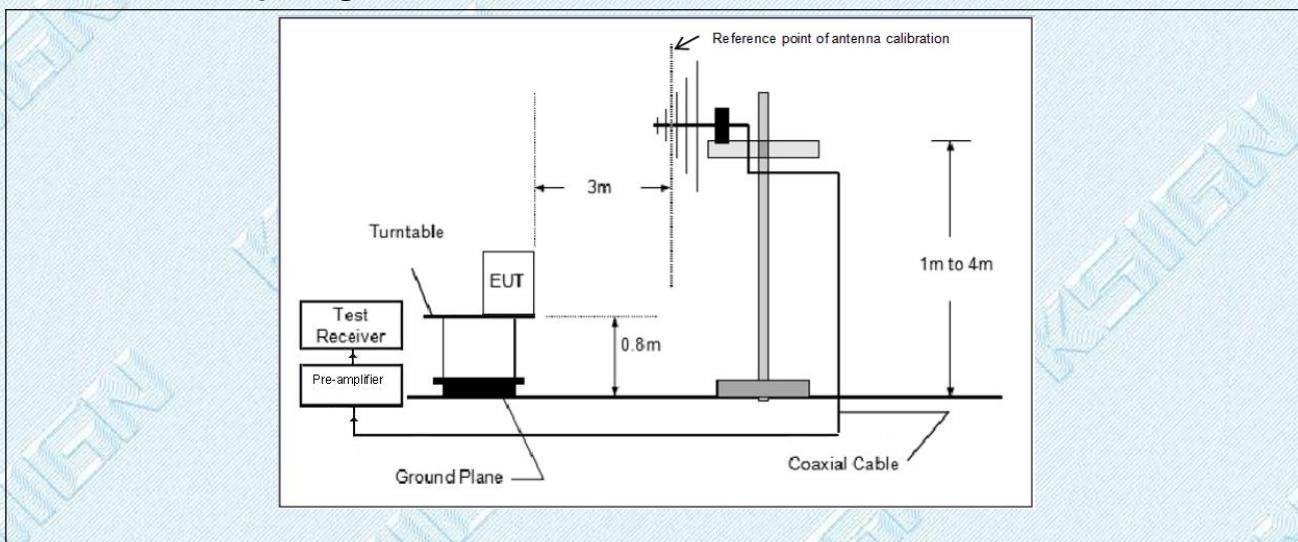
4.4.1. E.U.T. Operation:

Operating Environment:	
Temperature:	25.4 °C
Humidity:	50.8 %
Atmospheric Pressure:	102 kPa
Final test mode:	Test Mode1, Test Mode2

TRF RF_R1

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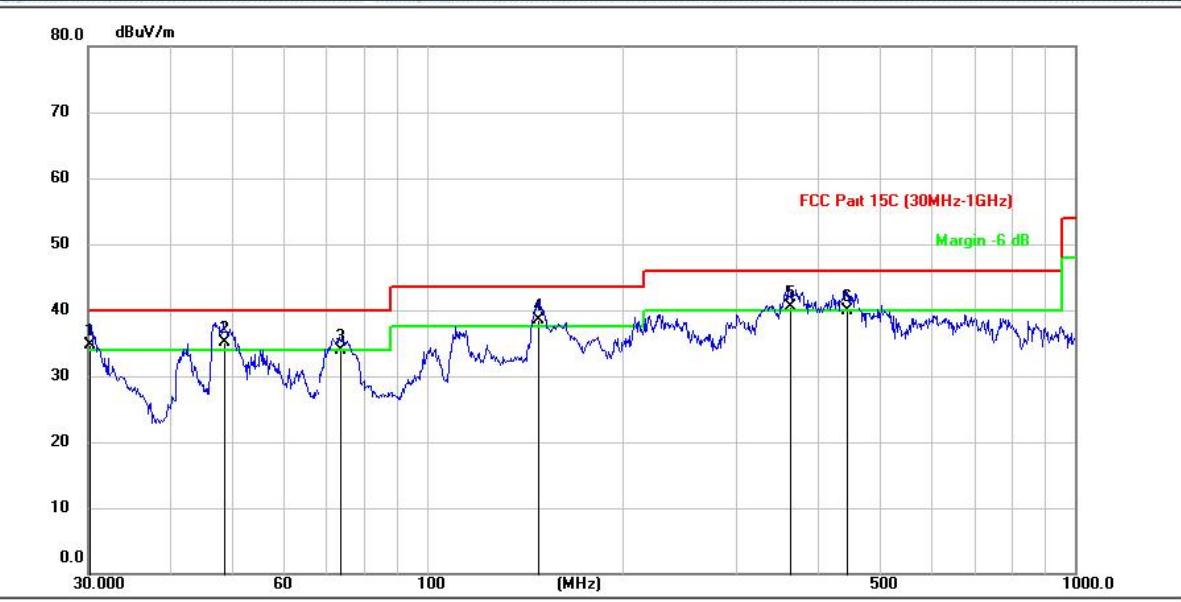
4.4.2. Test Setup Diagram:

Note:

- 1). Level (dB μ V/m)= Reading (dB μ V)+ Factor (dB/m)
- 2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)
- 3). Margin(dB) = Limit (dB μ V/m) - Level (dB μ V/m)

4.4.3. Test Data:

Test Mode1 / Polarization: Horizontal



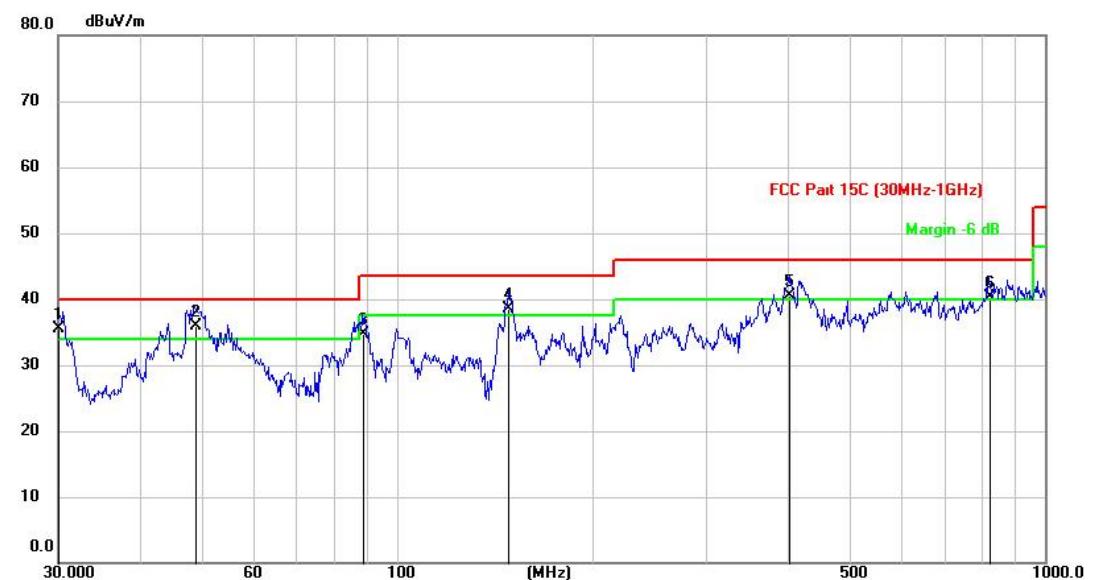
No.	Mk.	Freq. MHz	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
1	!	30.1265	53.05	-18.29	34.76	40.00	-5.24	QP
2	*	48.6548	50.91	-15.77	35.14	40.00	-4.86	QP
3		73.5652	53.84	-20.00	33.84	40.00	-6.16	QP
4	!	148.5450	59.55	-21.06	38.49	43.50	-5.01	QP
5	!	361.8407	52.54	-12.05	40.49	46.00	-5.51	QP
6		442.5176	49.92	-10.08	39.84	46.00	-6.16	QP

TRF RF_R1

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Test Mode1 / Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	!	30.0421	53.79	-18.30	35.49	40.00	-4.51	QP
2	*	48.8085	51.73	-15.76	35.97	40.00	-4.03	QP
3		88.9325	54.86	-20.23	34.63	43.50	-8.87	QP
4	!	148.7536	59.56	-21.07	38.49	43.50	-5.01	QP
5	!	402.1202	50.84	-10.25	40.59	46.00	-5.41	QP
6	!	820.2708	44.77	-4.55	40.22	46.00	-5.78	QP

TRF RF_R1

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5. EUT TEST PHOTOS

Conducted Emission at AC power line



Emissions in frequency bands (below 30MHz)



TRF RF_R1

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6. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Refer to Appendix - EUT Photos for KS2312S6620E.docx

--THE END--

TRF RF_R1

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1.	The results are valid only for the samples submitted.
2.	The report is invalid without the "APPROVED" and the "seal for riding".
3.	The test report is invalid without the signatures of Approver, Reviewer and Testing engineer.
4.	The test report can not be partially copied unless prior written approval is issued from our lab.
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6.	Product information, customer information and sample sources are provided by the client, and we are not responsible for their authenticity;
7.	The test basis or test items marked ★ are not within the scope of CNAS accreditation and CMA accreditation of our laboratory.
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TRF RF_R1

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