TEST REPORT

Report No.:	8135EU012601W1
Applicant:	Galastar Limited
Address:	1501, Block A, Weidong Long Building, Longhua Avenue, Longhua District, Shenzhen, China
Product Name:	Power Station 5 in 1
Model No.:	MAAIWA130WH22, MAAIWA130BK22
Trademark:	MAGEASY
FCC ID:	2A7WL-MAAIWA130WH22
Test Standard(s):	47 CFR Part 15 Subpart C
Date of Receipt:	Dec. 26, 2023
Test Date:	Dec. 26, 2023 – Jan. 02, 2024
Date of Issue:	Jan. 11, 2024

ISSUED BY:

SHENZHEN EU TESTING LABORATORY LIMITED

SHENZHEN EU TESTING LABORATORY LIMITED APPROVED

Prepared by:	**Reviewed and Approved by:**
Mikey Zhu	Sally Zhang
Mikey Zhu/ Engineer	Sally Zhang/ Manager

Revision Record

Report Version	Issued Date	Description	Status
V0	Jan. 11, 2024	Original	Valid

Table of Contents

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com

2 General Information

2.1 Applicant Information

Applicant	Galastar Limited
Address	1501, Block A, Weidong Long Building, Longhua Avenue, Longhua District, Shenzhen, China

2.2 Manufacturer Information

Manufacturer	Shenzhen Shouyixin Technology Co, LTD
Address	2F, No. 9, Huatao 1st Road, Longgang Street, Longgang District, Shenzhen City, Guangdong Province, China

2.3 Factory Information

Factory	Shenzhen Shouyixin Technology Co, LTD
Address	2F, No. 9, Huatao 1st Road, Longgang Street, Longgang District, Shenzhen City, Guangdong Province, China

2.4 General Description of E.U.T.

Product Name	Power Station 5 in 1
Model No. Under Test	MAAIWA130WH22
List Model No.	MAAIWA130BK22
Description of Model differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in appearance and model name. (this information provided by the customer)
Trade Mark	MAGEASY
Rating(s)	Input:9V/3A 12V/3A 15V/3A 20V/3.25A(65W Max) Wireless output: 15W+15W+3W (33W Max) Type-C output: 20W
Product Type	☒ Mobile ☐ Portable ☐ Fix Location
Test Sample No.	-1/2(Normal Sample), -2/2(Engineering Sample)
Hardware Version	N/A
Software Version	N/A
Remark	N/A

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2.5 Technical Information of E.U.T.

Technology Used	Wireless Power Transfer

The requirement for the following technical information of the EUT was tested in this report:

Technology	**WPT**
Operating Frequency	115-205 kHz
Modulation Type	ASK
Antenna Type	Inductive Loop Antenna
Antenna Gain(Peak)	0 dBi

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3 Test Summary

3.1 Test Standard

The tests were performed according to following standards:

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional radiators of radio frequency equipment
2	ANSI C63.10-2020	American National Standard for Testing Unlicensed Wireless Devices

Remark:
Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

3.2 Test Verdict

No.	Description	FCC Part No.	Verdict	Remark
1	Antenna Requirement	15.203	Pass	--
2	Conducted Emission at AC Power Line	15.207	Pass	--
3	Emissions Bandwidth	15.215	Pass	--
4	Field Strength of Fundamental Emissions	15.225(a)	Pass	--
5	Radiated Emissions	15.225(d) / 15.209	Pass	--
6	Frequency Stability	15.225(e)	Pass	Note [1]

Note [1]: This test item is only applicable for battery-operated device.
Note [2]: Compared with the EUT of test report 8133EU012301W1, the changes of the EUT of this report as below:
1. Added three electrolytic capacitors in PCB.
2. Update internal photo.
Other hardware circuit and software are the same as EUT referred in test report 8133EU012301W1. Therefore, re-tested conducted emission and radiated emissions items, other test data please refer to report 8133EU012301W1, which was issued by SHENZHEN EU TESTING LABORATORY LIMITED. on Nov. 14, 2023.

3.3 Test Laboratory

Test Laboratory	Shenzhen EU Testing Laboratory Limited
Address	101, Bldg. B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Designation Number	CN1368
Test Firm Registration Number	952583

4 Test Configuration

4.1 Test Environment

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	30% to 60%	
Atmospheric Pressure	86 kPa to 106 kPa	
Temperature	NT (Normal Temperature)	+15℃ to +35℃
Working Voltage of the EUT	NV (Normal Voltage)	AC 120V/60Hz

4.2 Test Equipment

Conducted Emission at AC power line					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	EE-004	2023/01/10	2024/01/09
EMI Test Receiver	Rohde & Schwarz	ESCI	EE-005	2023/01/10	2024/01/09
Test Software	Farad	EZ-EMC	EE-014	N.C.R	N.C.R

Radiated Emission and RF Test					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2023/01/10	2024/01/09
Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	EE-007	2023/01/14	2026/01/09
Double Ridged Horn Antenna	A-INFOMW	LB-10180-NF	EE-008	2023/01/12	2026/01/09
Pre-amplifier	Agilent	8447D	EE-009	2023/01/10	2024/01/09
Pre-amplifier	Agilent	8449B	EE-010	2023/01/10	2024/01/09
MXA Signal Analyzer	Agilent	N9020A	EE-011	2023/01/10	2024/01/09
MXG RF Vector Signal Generator	Agilent	N5182A	EE-012	2023/01/10	1 Year
Test Software	Farad	EZ-EMC	EE-015	N.C.R	N.C.R
MIMO Power Measurement Module	TSTPASS	TSPS 2023R	EE-016	2023/05/17	2024/05/16
RF Test Software	TSTPASS	TS32893 V2.0	EE-017	N.C.R	N.C.R
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CMW500	EE-402	2023/02/16	2024/02/15
Loop Antenna	TESEQ	HLA6121	EE-403	2023/02/16	2024/02/15
MXG RF Analog Signal Generator	Agilent	N5181A	EE-406	2023/02/16	2024/02/15
Constant Temperature Humidity Chamber	Guangxin	GXP-401	ES-002	2023/07/31	2024/07/30

4.3 Description of Support Unit

No.	Title	Manufacturer	Model No.	Serial No.
1	Mobile Phone	Apple	iPhone xs max	--
2	Watch	Apple	iWatch	--
3	Airpods	Apple	Airpods	--
4	PD Charger	Anker	A2341	--

4.4 Test Mode

No.	Description	Remark
TM1	PD Charger (9V/3A) + EUT + iPhone	
TM2	PD Charger (9V/3A) + EUT + iPhone + iWatch	
TM3	PD Charger (9V/3A) + EUT + iPhone + iWatch + Airpods	
TM4	PD Charger (12V/3A) + EUT + iPhone + iWatch + Airpods + Full Load	
TM5	PD Charger (12V/3A) + EUT + iPhone	
TM6	PD Charger (12V/3A) + EUT + iPhone + iWatch	
TM7	PD Charger (12V/3A) + EUT + iPhone + iWatch + Airpods	
TM8	PD Charger (12V/3A) + EUT + iPhone + iWatch + Airpods + Full Load	
TM9	PD Charger (15V/3A) + EUT + iPhone	
TM10	PD Charger (15V/3A) + EUT + iPhone + iWatch	
TM11	PD Charger (15V/3A) + EUT + iPhone + iWatch + Airpods	
TM12	PD Charger (15V/3A) + EUT + iPhone + iWatch + Airpods + Full Load	
TM13	PD Charger (20V/3.25A) + EUT + iPhone	
TM14	PD Charger (20V/3.25A) + EUT + iPhone + iWatch	
TM15	PD Charger (20V/3.25A) + EUT + iPhone + iWatch + Airpods	
TM16	PD Charger (20V/3.25A) + EUT + iPhone + iWatch + Airpods + Full Load	Record

4.5 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test Item	Measurement Uncertainty
Conducted Emission	2.64 dB
Occupied Channel Bandwidth	2.8 %
RF output power, conducted	0.68 dB
Power Spectral Density, conducted	1.37 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.11 dB
Temperature	0.8°C
Humidity	4%

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Condition

None.

5 Test Items

5.1 Antenna requirement

5.1.1 Test Requirement

Test Requirement	According to FCC §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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded. If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	The EUT has a permanently and irreplaceable inductive loop antenna.

5.1.3 Antenna Gain

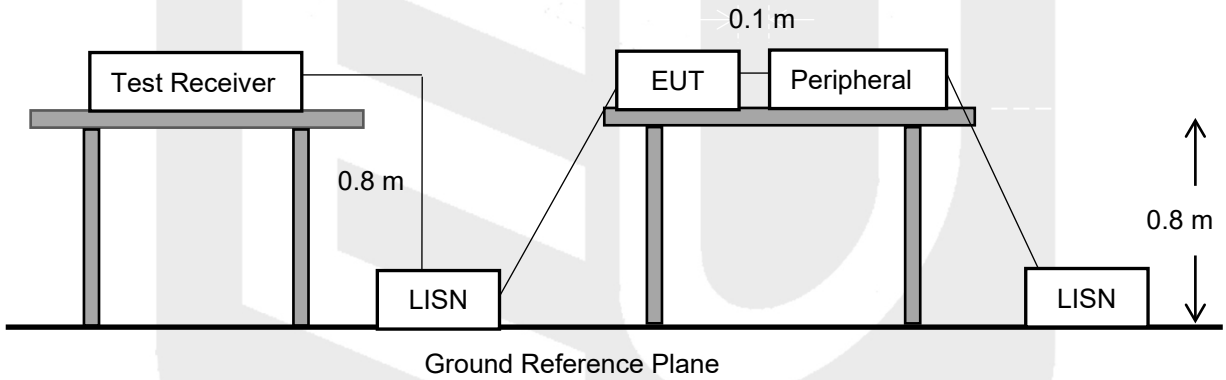
The antenna peak gain of EUT is less than 6 dBi.

5.2 Conducted Emission at AC Power Line

5.2.1 Test Requirement

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 C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices.

5.2.2 Test Setup Diagram



5.2.3 Test Procedure

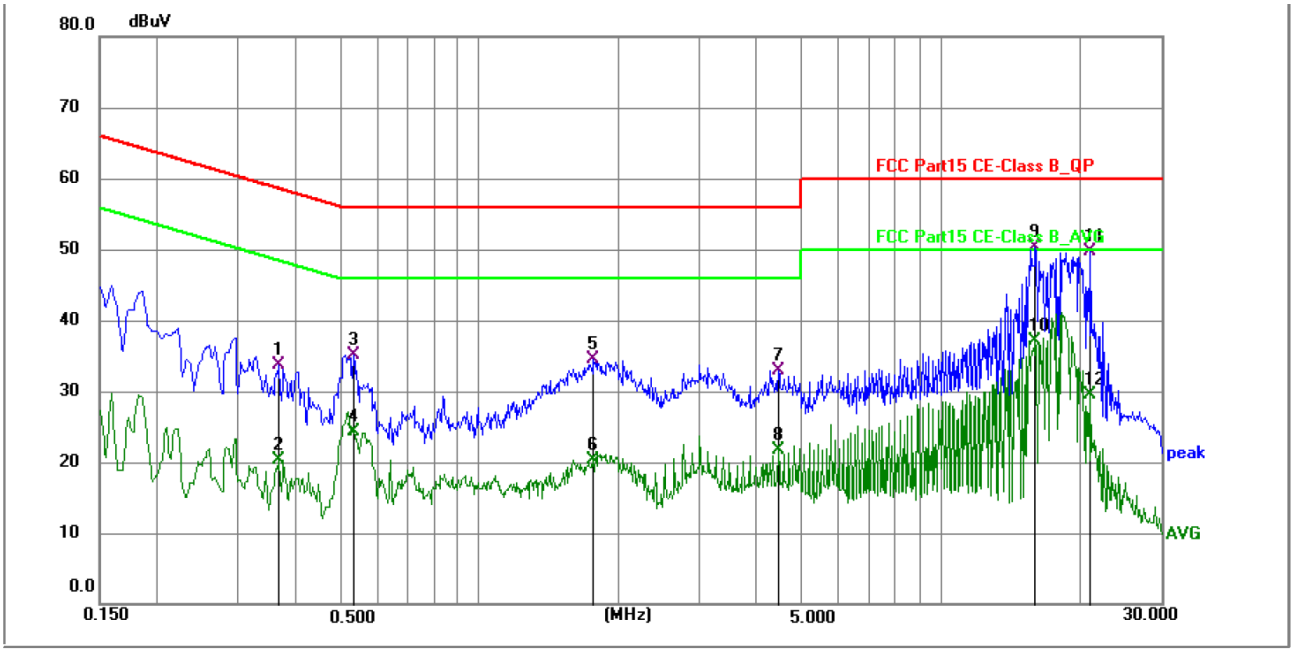
The EUT is put on the plane 0.8 m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipment. Both sides of AC line are investigated to find out the maximum conducted emission according to the test standard regulations during conducted emission measurement.
The bandwidth of the field strength meter (R&S Test Receiver ESCI) is set at 9kHz in 150kHz~30MHz.
The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.2.4 Test Data

PASS.
Only the worst case data was showed in the report, please to see the following pages.

Conducted Emission Test Data

Test Site:	Shielded Room #1
Test Mode:	TM16
Comments:	Live Line

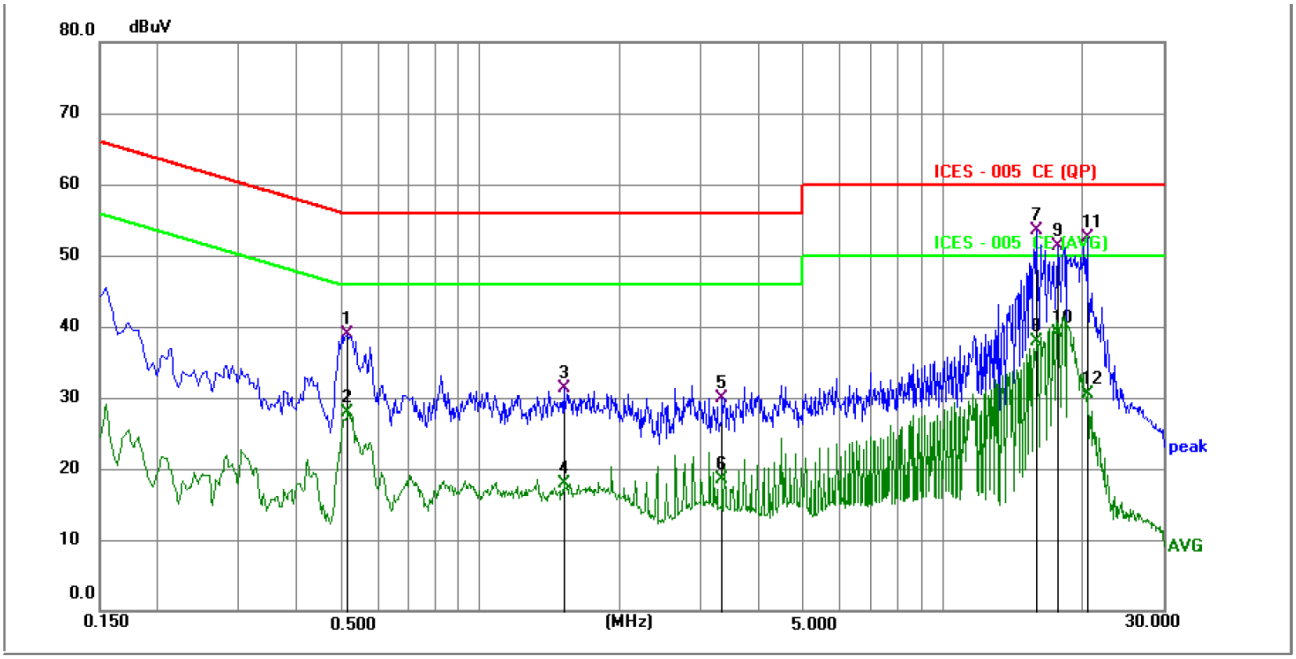


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3660	23.81	9.95	33.76	58.59	-24.83	QP	P	
2	0.3660	10.35	9.95	20.30	48.59	-28.29	AVG	P	
3	0.5325	25.16	9.97	35.13	56.00	-20.87	QP	P	
4	0.5325	14.40	9.97	24.37	46.00	-21.63	AVG	P	
5	1.7700	24.56	9.99	34.55	56.00	-21.45	QP	P	
6	1.7700	10.28	9.99	20.27	46.00	-25.73	AVG	P	
7	4.4520	22.98	10.00	32.98	56.00	-23.02	QP	P	
8	4.4520	11.75	10.00	21.75	46.00	-24.25	AVG	P	
9 *	16.0035	40.24	10.04	50.28	60.00	-9.72	QP	P	
10	16.0035	27.00	10.04	37.04	50.00	-12.96	AVG	P	
11	21.1425	39.48	10.14	49.62	60.00	-10.38	QP	P	
12	21.1425	19.29	10.14	29.43	50.00	-20.57	AVG	P	

Note: Level = Reading + Factor Margin = Level – Limit

Conducted Emission Test Data

Test Site:	Shielded Room #1
Test Mode:	TM16
Comments:	Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.5144	28.90	10.00	38.90	56.00	-17.10	QP	P	
2	0.5144	17.94	10.00	27.94	46.00	-18.06	AVG	P	
3	1.5135	21.21	10.04	31.25	56.00	-24.75	QP	P	
4	1.5135	7.86	10.04	17.90	46.00	-28.10	AVG	P	
5	3.3450	19.97	10.01	29.98	56.00	-26.02	QP	P	
6	3.3450	8.47	10.01	18.48	46.00	-27.52	AVG	P	
7 *	15.8865	43.53	10.06	53.59	60.00	-6.41	QP	P	
8	15.8865	27.84	10.06	37.90	50.00	-12.10	AVG	P	
9	17.8080	41.12	10.09	51.21	60.00	-8.79	QP	P	
10	17.8080	29.04	10.09	39.13	50.00	-10.87	AVG	P	
11	20.5350	42.39	10.14	52.53	60.00	-7.47	QP	P	
12	20.5350	20.41	10.14	30.55	50.00	-19.45	AVG	P	

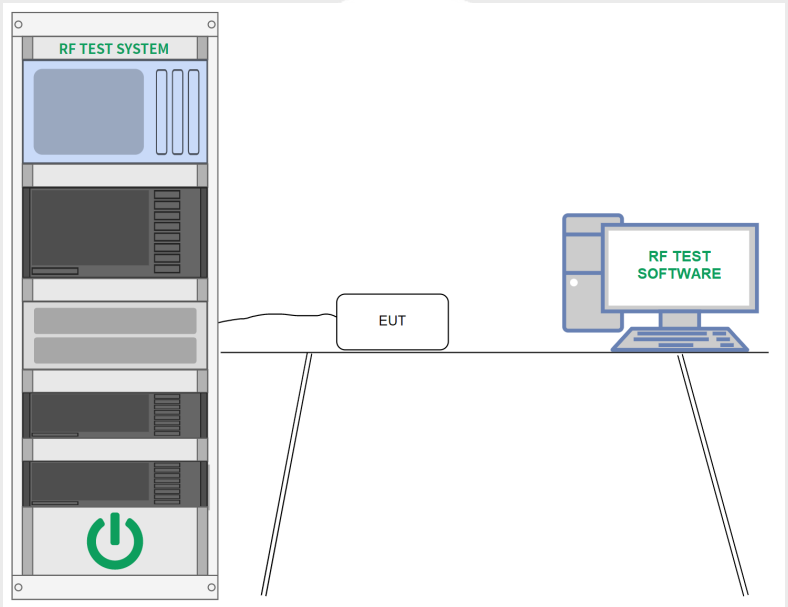
Note: Level = Reading + Factor Margin = Level – Limit

5.3 Emissions Bandwidth

5.3.1 Test Requirement

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 Method	ANSI C63.10-2020, section 6.9.2 Occupied bandwidth—relative measurement procedure

5.3.2 Test Setup Diagram



5.3.3 Test 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).

5.3.4 Test Data

PASS.

Please refer to the following pages.

Frequency (KHz)	20dB bandwidth (KHz)	99% bandwidth (KHz)	Result
128.2	0.151	/	Pass

5.4 Field Strength of Fundamental Emissions and Radiated Emission

5.4.1 Test Requirement

<table>
<tr><td>Test Requirement</td><td>FCC §15.225; FCC §15.209</td></tr>
<tr><td>Test Limit</td><td>According to FCC section 15.225, for <30 MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 10 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the center of the loop. The measuring bandwidth was set to 10 kHz. (Note: During testing the receive antenna was rotated about its axis to maximize the emission from the EUT)
There was no detected Restricted bands and Radiated spurious emission below 30MHz. The 30m limit was converted to 3m Limit using square factor(x) as it was found by measurements as follows;
3 m Limit(dBμV/m) = 20log(X)+40log(30/3)= 20log(15848)+40log(30/3) = 124dBμV
Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Field Strength@30m</td><td>Field Strength@3m</td></tr>
<tr><td>μV/m</td><td>dBμV/m</td><td>dBμV/m</td></tr>
<tr><td>Below 13.110</td><td>30</td><td>29.5</td><td>69.5</td></tr>
<tr><td>13.110 ~ 13.410</td><td>106</td><td>40.5</td><td>80.5</td></tr>
<tr><td>13.410 ~ 13.553</td><td>334</td><td>50.5</td><td>90.5</td></tr>
<tr><td>13.553 ~13.567</td><td>15848</td><td>84</td><td>124</td></tr>
<tr><td>13.567 ~ 13.710</td><td>334</td><td>50.5</td><td>90.5</td></tr>
<tr><td>13.710 ~14.010</td><td>106</td><td>40.5</td><td>80.5</td></tr>
<tr><td>Above 14.010</td><td>30</td><td>29.5</td><td>69.5</td></tr>
</table>
NOTE:
1. Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.

FCC §15.225(d)
According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:
<table>
<tr><td>Frequency (MHz)</td><td>Field strength (microvolts/meter)</td><td>Measurement distance (meters)</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100 **</td><td>3</td></tr>
<tr><td>88-216</td><td>150 **</td><td>3</td></tr>
<tr><td>216-960</td><td>200 **</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
** 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.
NOTE:
1. Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.</td></tr>
<tr><td>Test Method</td><td>ANSI C63.10-2020 section 6.6.4
Radiated emissions tests</td></tr>
</table>

5.4.2 Test Setup Diagram

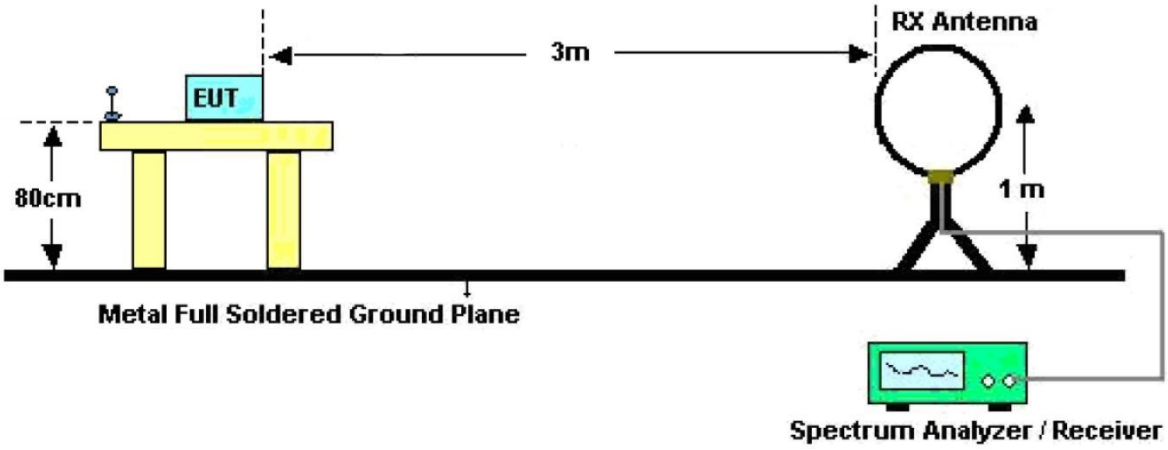


Figure 1. Below 30MHz

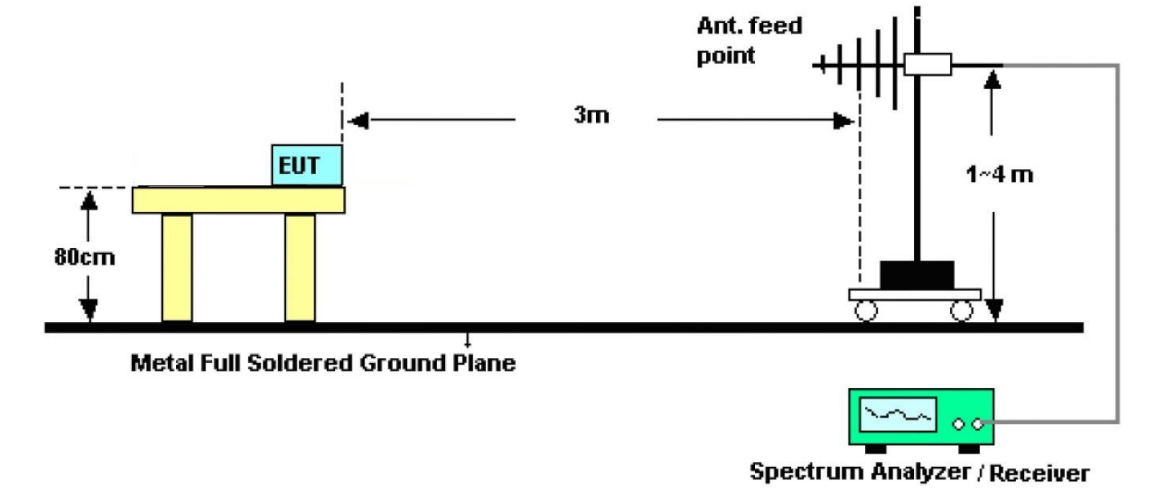


Figure 2. 30MHz to 1GHz

5.4.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power.
The power of the EUT transmitting frequency should be ignored.
All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.
Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured
For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:
RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.
RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

5.4.4 Test Data

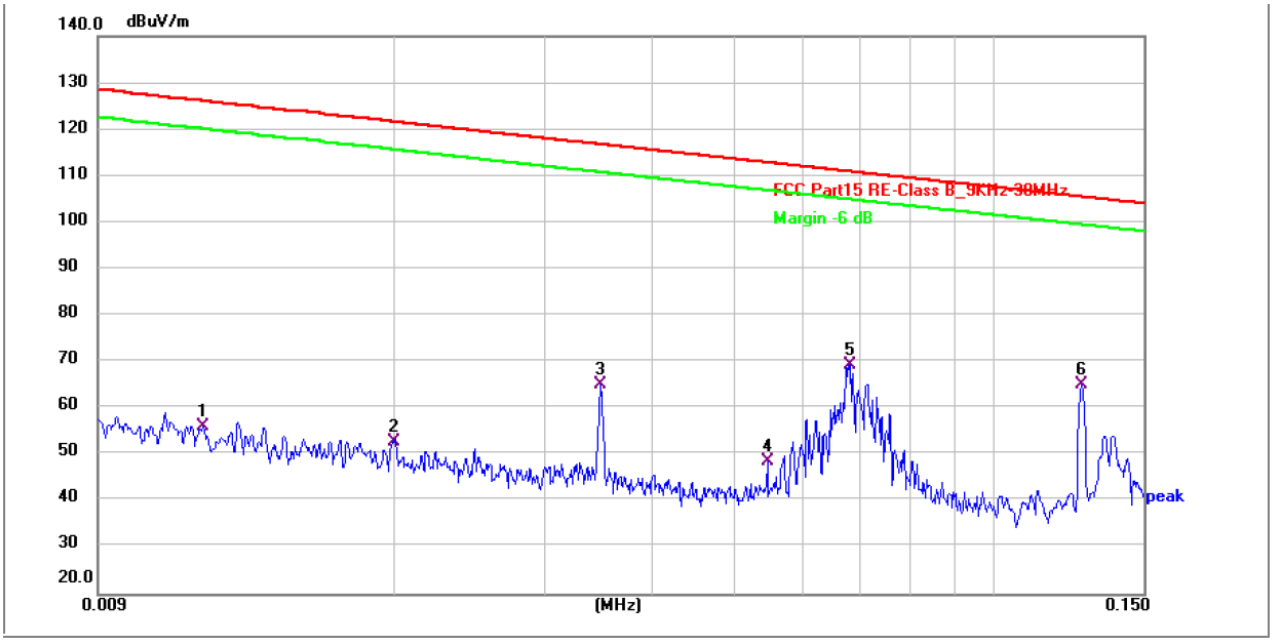
PASS.

Please refer to the following pages.

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com

Radiated Emission Test Data (9kHz -150kHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Parallel**
Distance:	**3m**	**Test Mode:**	**TM16**

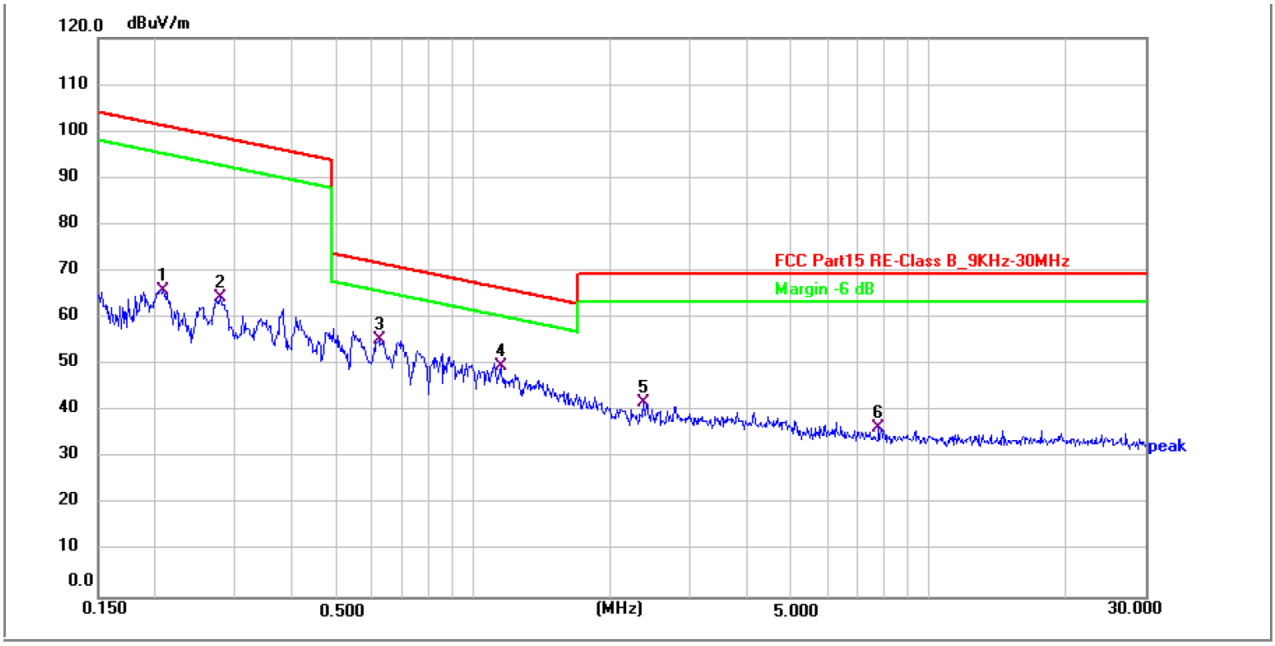


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.0120	20.29	35.82	56.11	126.02	-69.91	QP	P	
2	0.0200	17.21	35.68	52.89	121.58	-68.69	QP	P	
3	0.0348	30.37	34.89	65.26	116.77	-51.51	QP	P	
4	0.0545	15.76	33.02	48.78	112.88	-64.10	QP	P	
5	0.0680	35.99	33.30	69.29	110.95	-41.66	QP	P	
6 *	0.1267	33.08	32.14	65.22	105.55	-40.33	QP	P	

Note: Level = Reading + Factor **Margin =Level - Limit**

Radiated Emission Test Data (150kHz -30 MHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Parallel**
Distance:	**3m**	**Test Mode:**	**TM16**

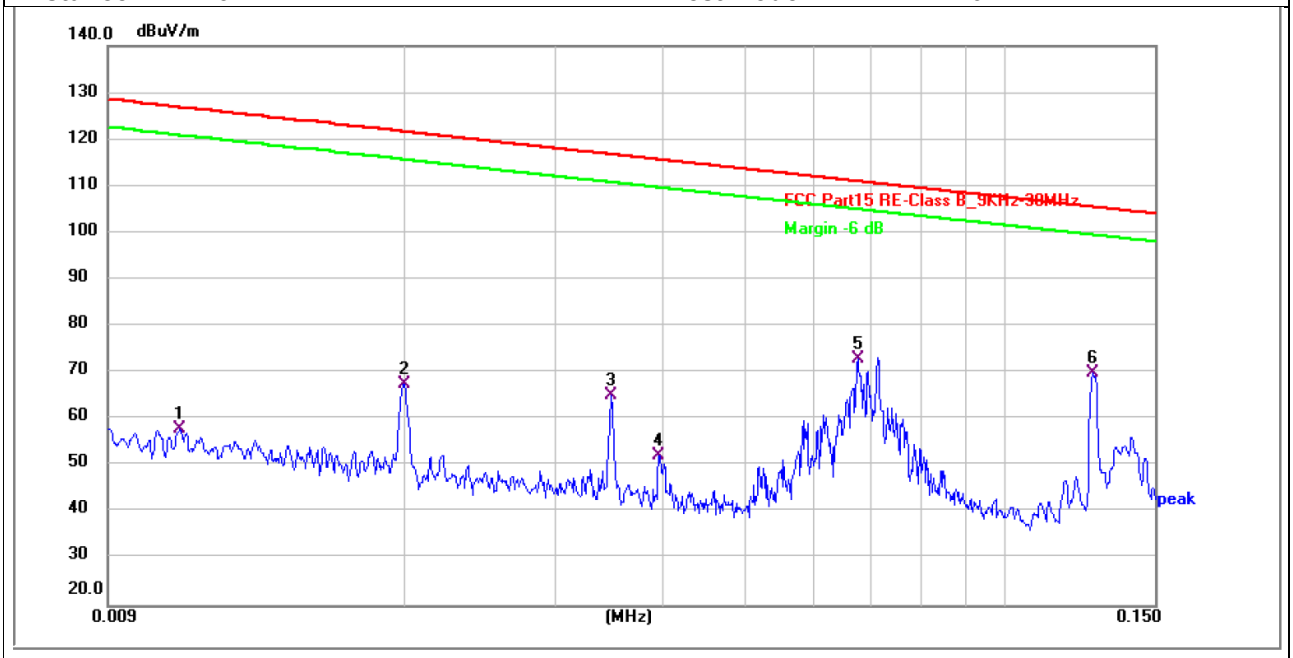


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.2083	34.10	31.66	65.76	101.23	-35.47	QP	P	
2	0.2788	33.60	30.90	64.50	98.70	-34.20	QP	P	
3 *	0.6205	26.91	28.33	55.24	71.75	-16.51	QP	P	
4	1.1473	22.14	27.61	49.75	66.41	-16.66	QP	P	
5	2.3585	15.67	26.20	41.87	69.54	-27.67	QP	P	
6	7.7689	13.19	23.34	36.53	69.54	-33.01	QP	P	

Note: Level = Reading + Factor Margin =Level - Limit

Radiated Emission Test Data (9kHz -150kHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Perpendicular**
Distance:	**3m**	**Test Mode:**	**TM16**

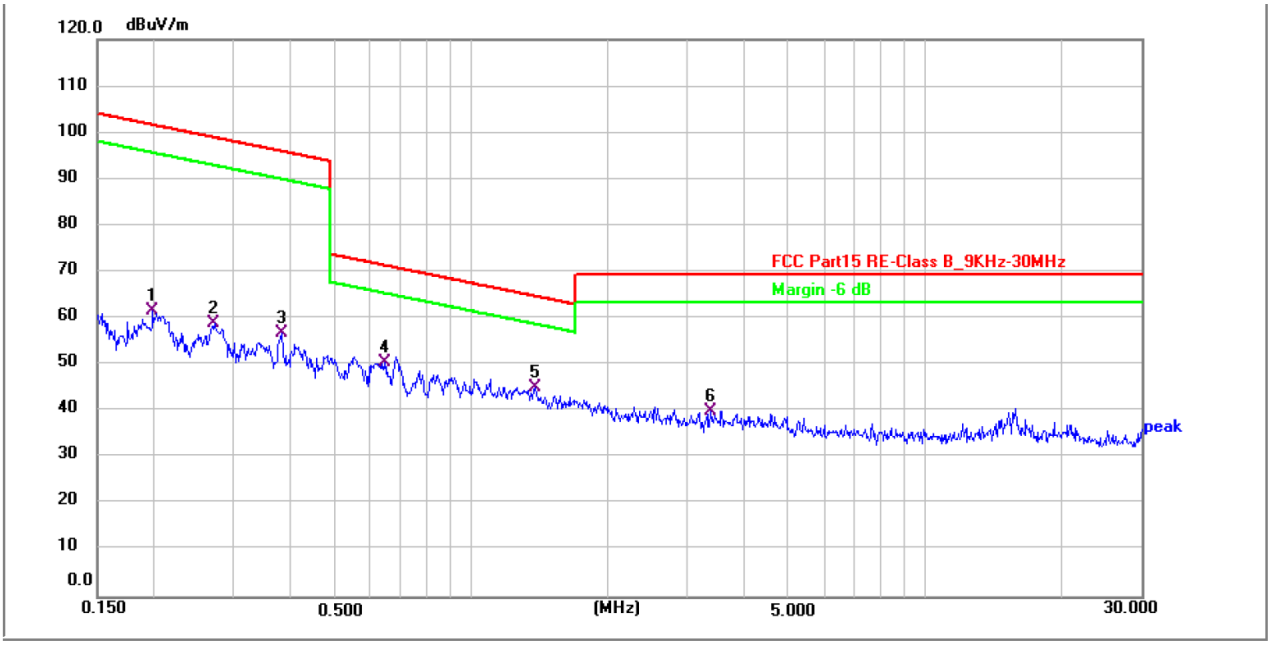


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.0109	22.19	35.84	58.03	126.86	-68.83	QP	P	
2	0.0200	31.79	35.68	67.47	121.58	-54.11	QP	P	
3	0.0348	30.16	34.89	65.05	116.77	-51.72	QP	P	
4	0.0395	17.91	34.28	52.19	115.67	-63.48	QP	P	
5	0.0675	39.65	33.29	72.94	111.02	-38.08	QP	P	
6 *	0.1271	37.95	32.14	70.09	105.52	-35.43	QP	P	

Note: Level = Reading + Factor **Margin =Level - Limit**

Radiated Emission Test Data (150kHz -30 MHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Perpendicular**
Distance:	**3m**	**Test Mode:**	**TM16**

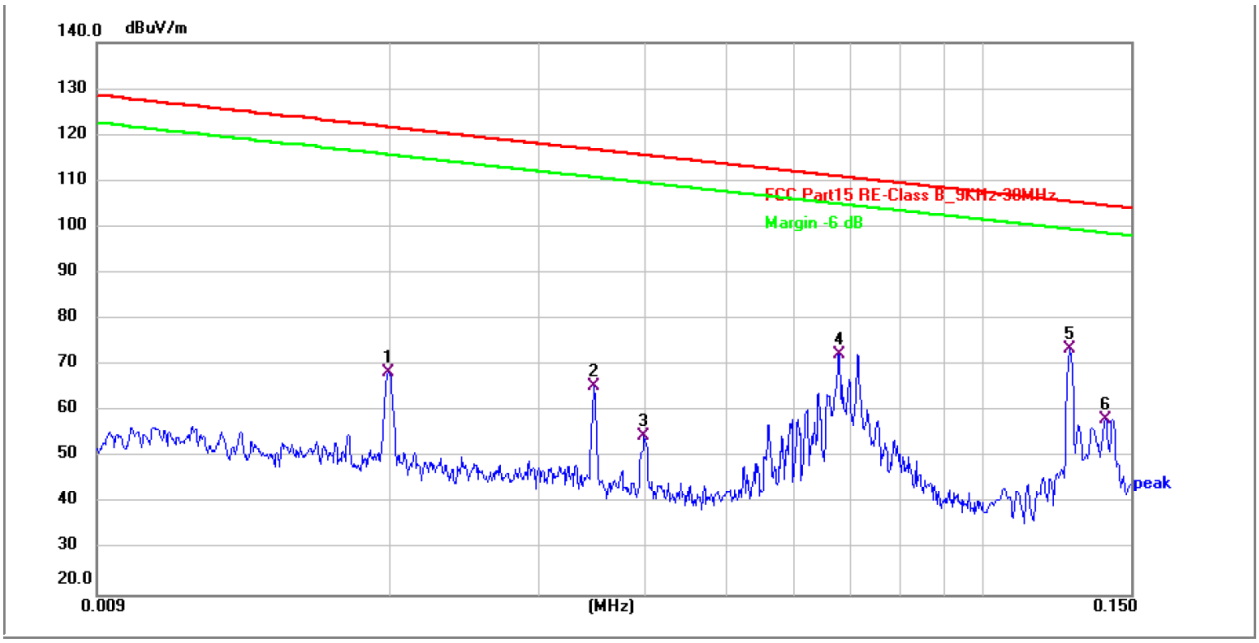


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.1986	29.91	31.76	61.67	101.64	-39.97	QP	P	
2	0.2714	28.02	30.98	59.00	98.93	-39.93	QP	P	
3	0.3832	27.00	29.77	56.77	95.94	-39.17	QP	P	
4	0.6440	22.17	28.30	50.47	71.43	-20.96	QP	P	
5 *	1.3810	17.97	27.33	45.30	64.80	-19.50	QP	P	
6	3.3635	14.89	25.28	40.17	69.54	-29.37	QP	P	

Note: Level = Reading + Factor Margin =Level - Limit

Radiated Emission Test Data (9kHz -150kHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Ground-parallel**
Distance:	**3m**	**Test Mode:**	**TM16**

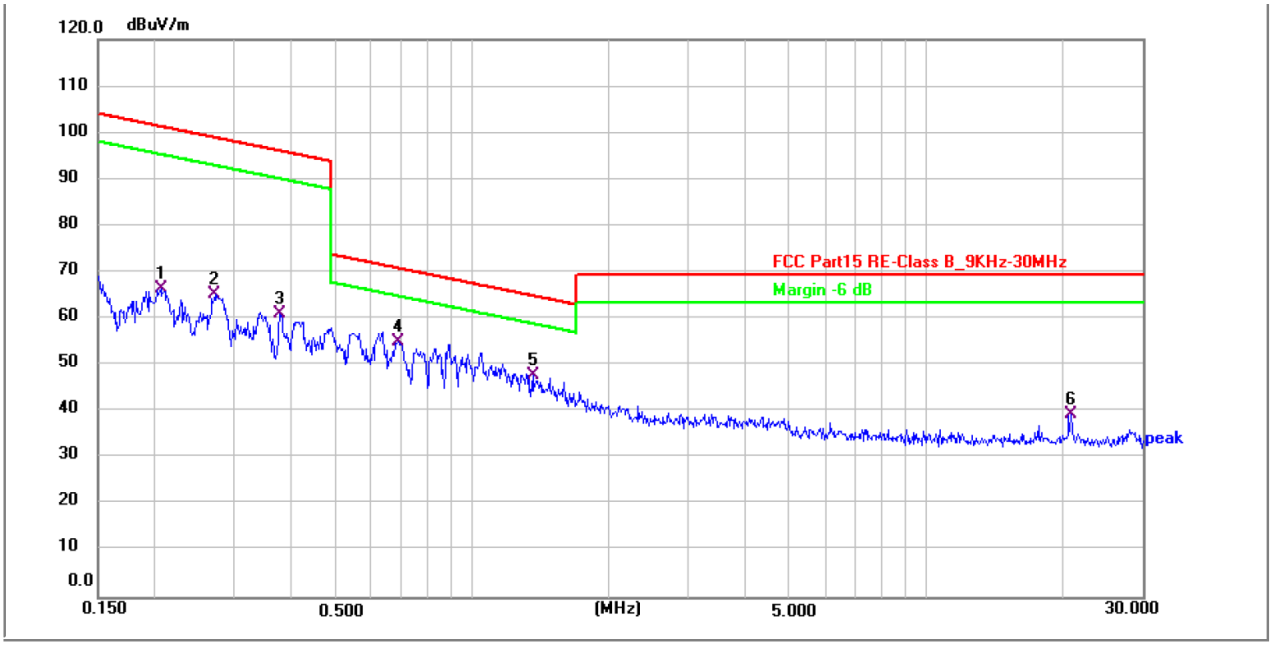


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.0199	32.68	35.68	68.36	121.63	-53.27	QP	P	
2	0.0348	30.49	34.89	65.38	116.77	-51.39	QP	P	
3	0.0399	20.47	34.23	54.70	115.58	-60.88	QP	P	
4	0.0678	39.06	33.30	72.36	110.98	-38.62	QP	P	
5 *	0.1271	41.42	32.14	73.56	105.52	-31.96	QP	P	
6	0.1398	25.97	32.22	58.19	104.69	-46.50	QP	P	

Note: Level = Reading + Factor Margin =Level - Limit

Radiated Emission Test Data (150kHz -30 MHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Ground-parallel**
Distance:	**3m**	**Test Mode:**	**TM16**

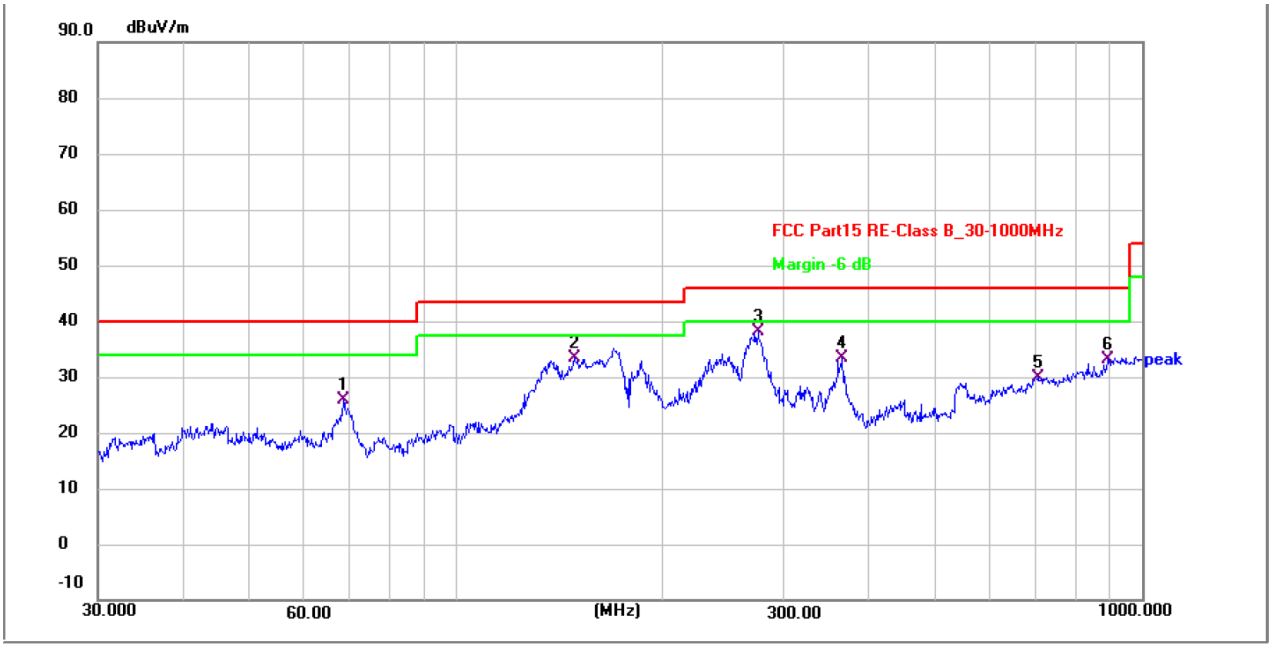


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.2061	34.76	31.69	66.45	101.32	-34.87	QP	P	
2	0.2714	34.36	30.98	65.34	98.93	-33.59	QP	P	
3	0.3771	31.17	29.83	61.00	96.07	-35.07	QP	P	
4 *	0.6862	26.92	28.24	55.16	70.87	-15.71	QP	P	
5	1.3593	20.36	27.36	47.72	64.94	-17.22	QP	P	
6	20.8137	16.92	22.44	39.36	69.54	-30.18	QP	P	

Note: Level = Reading + Factor Margin =Level - Limit

Radiated Emission Test Data (30-1000MHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Horizontal**
Distance:	**3m**	**Test Mode:**	**TM16**

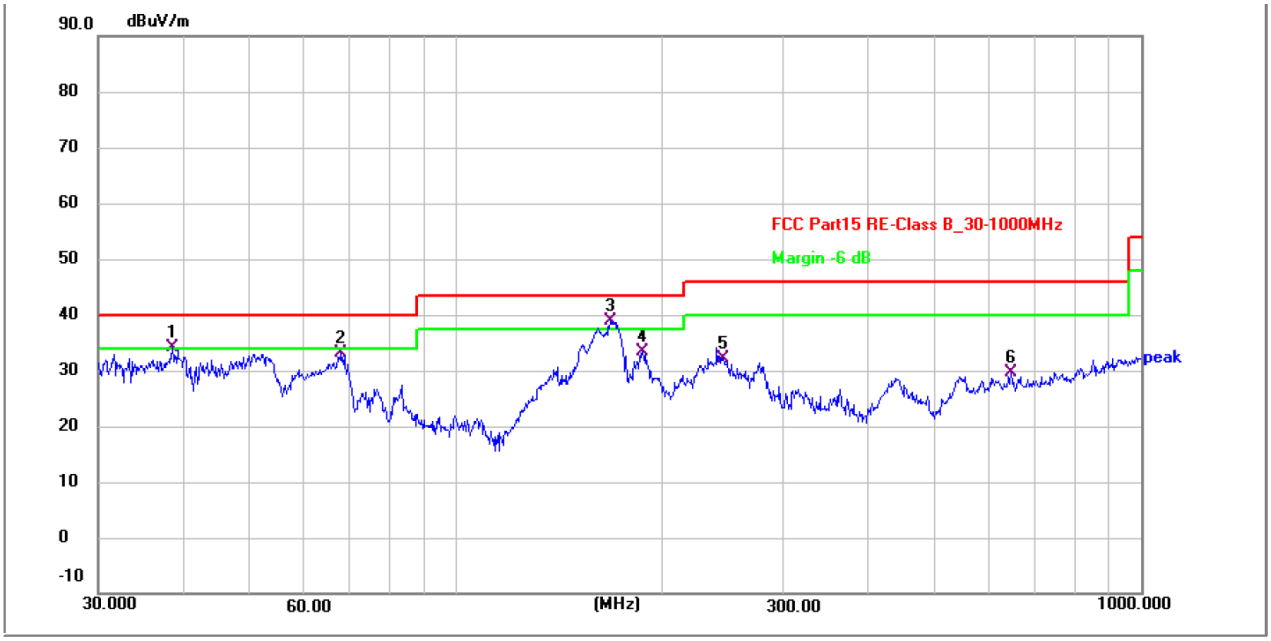


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	68.3908	42.89	-17.02	25.87	40.00	-14.13	QP	P	
2	148.4410	51.65	-18.15	33.50	43.50	-10.00	QP	P	
3 *	275.1570	50.50	-12.34	38.16	46.00	-7.84	QP	P	
4	365.5390	43.76	-10.37	33.39	46.00	-12.61	QP	P	
5	704.2261	34.14	-4.16	29.98	46.00	-16.02	QP	P	
6	890.7277	33.86	-0.68	33.18	46.00	-12.82	QP	P	

Note: Level = Reading + Factor Margin =Level - Limit

Radiated Emission Test Data (30-1000MHz)

Test item:	**966 Chamber #1**	**Polarization:**	**Vertical**
Distance:	**3m**	**Test Mode:**	**TM16**



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1 !	38.4810	49.23	-15.18	34.05	40.00	-5.95	QP	P	
2	67.9128	49.90	-16.85	33.05	40.00	-6.95	QP	P	
3 *	167.8242	55.95	-16.97	38.98	43.50	-4.52	QP	P	
4	187.0956	49.03	-15.59	33.44	43.50	-10.06	QP	P	
5	245.0900	45.44	-13.31	32.13	46.00	-13.87	QP	P	
6	645.1194	34.67	-5.04	29.63	46.00	-16.37	QP	P	

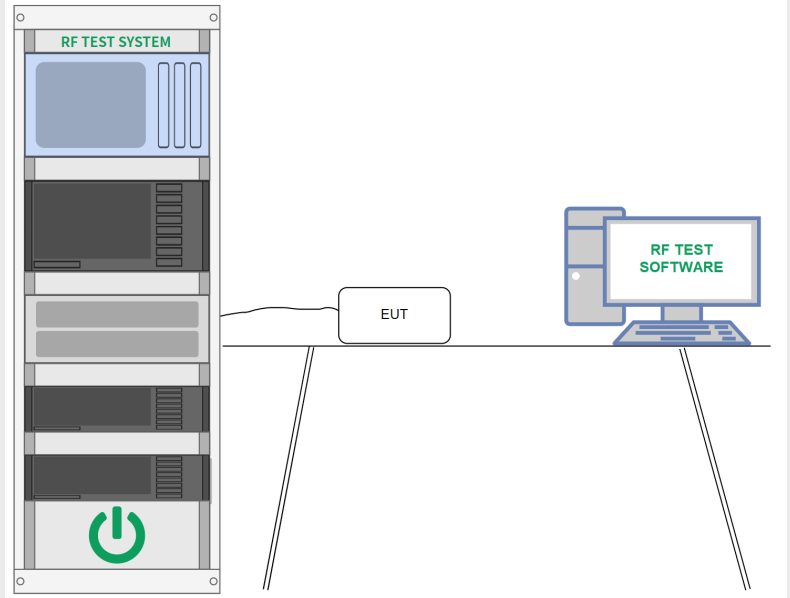
Note: Level = Reading + Factor Margin =Level - Limit

5.5 Frequency Stability

5.5.1 Test Requirement

Test Requirement	FCC §15.225(e) The frequency tolerance of the carrier signal shall be maintained within ±0.01% 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. For battery operated equipment, the equipment tests shall be performed using a new battery.
Test Method	ANSI C63.10-2020, section 6.8 Frequency Stability Test

5.5.2 Test Setup Diagram



5.5.3 Test Procedure

✧ **Frequency stability with respect to ambient temperature**

a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies.

b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument through an attenuator if necessary.

NOTE-An instrument that has an adequate level of accuracy as specified by the procuring or regulatory agency is the recommended measuring instrument.

c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters energize only the heater circuit.

e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.

f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 min, 5 min, and 10 min after the EUT is energized. Four measurements in total are made.

g) Measure the frequency at each of frequencies.

h) Switch OFF the EUT but do not switch OFF the oscillator heater.

i) Lower the chamber temperature by not more than 10 ℃, and allow the temperature inside the chamber to stabilize.

j) Repeat step f through step i) down to the lowest specified temperature.

✧ **Frequency stability when varying supply voltage**

Unless otherwise specified, these tests shall be made at ambient room temperature (+15 °C to +25 °C).

a) An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency measuring instrument.

NOTE An instrument that has an adequate level of accuracy as specified by the procuring or regulatory agency is the recommended measuring instrument.

b) Tune the EUT to one of the number of frequencies. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

c) Measure the frequency at each of the frequencies.

d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

5.5.4 Test Data

Not Applicable.

ANNEX A TEST SETUP PHOTOS

Please refer to the document “8135EU012601W-AA.PDF”

ANNEX B EXTERNAL PHOTOS

Please refer to the document “8135EU012601W-AB.PDF”

ANNEX C INTERNAL PHOTOS

Please refer to the document “8135EU012601W-AC.PDF”

--- End of Report ---