

CHAMPION POWER EQUIPMENT, INC

RF TEST REPORT

Report Type:

FCC Part 15C RF report

Model:

201188

REPORT NUMBER:

230400775HAN-001

ISSUE DATE:

November 6, 2023

DOCUMENT CONTROL NUMBER:

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Applicant : CHAMPION POWER EQUIPMENT, INC.
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Manufacturer : CHAMPION POWER EQUIPMENT, INC.
12039 SMITH AVENUE, SANTA FE SPRINGS, CA 90670, USA

Factory : Chongqing Radiance Energy Technology Co., Ltd
No. 123, Minzu Road, Yuzhong District, Chongqing, 400050, China.

FCC ID : YA3-CPEWC01

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 15 (2021): Radio Frequency Devices (Subpart C)

ANSI C63.10 (2014) +A1(2017): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

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Reviewer

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TEST REPORT

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Revision History

Report No.	Version	Description	Issued Date
230400775HAN-001	Rev. 01	Initial issue of report	November 6, 2023

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Measurement result summary

TEST ITEM	FCC REFERENCE	RESULT
Radiated emissions	15.209	Pass
Conducted emissions	15.207	Pass

Notes: 1: NA =Not Applicable

2: Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

3: Additions, Deviations and Exclusions from Standards: None.

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Portable Power Station
Type/Model:	201188
Description of EUT:	The Product covered by this report is a Portable Power Station. The EUT includes the wireless charging module: 10W, 112kHz – 148kHz. The EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual. Therefore, we test it under wireless charging mode and the worst testing data is listed in the report as representative.
Rating:	Wireless charger: 10W Max., 5Vdc, 1A or 7.5vdc, 1A or 9vdc, 1.12A (112kHz – 148kHz). Charging input: 120V~, 60Hz. Capacity 285Wh, 13Ah, AC output: 300W, 120V~, 60Hz. DC Output: 237W.
Category of EUT:	Class B
EUT type:	☒ Tabletop ☐ Floor standing
Software Version:	/
HVIN:	201188
Sample number:	1230808-23-001
Sample received date:	June 06, 2023
Date of test:	June 20-August 15, 2023

1.2 Technical Specification

Frequency Range:	112kHz – 148kHz
Modulation:	FSK
Antenna:	Coil antenna, 0dBi

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1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road (North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Member No: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

TEST REPORT

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2021)

ANSI C63.10 (2014) +A1(2017)

2.2 Mode of operation during the test

Within this test report, EUT was tested under all available operation modes and tested under its rating voltage and frequency. Other voltage and frequency are specified if used.

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	SKET Auto EMC Test Software	Keleto	V3.0
Radiated emission	SKET Auto EMC Test Software	Keleto	V3.0

2.4 Test peripherals list

Item No.	Name	Brand and Model	Description
1	Wireless load	EESON	100%/50%/0% power level

2.5 Test environment condition:

Test items	Temperature	Humidity
Radiated emission	25°C	54% RH
Power line conducted emission	24°C	54% RH

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2.6 Instrument list

Conducted Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESR7	EC 6194	2024-02-08
☒	A.M.N.	R&S	ESH2-Z5	EC 3119	2024-11-08
☒	Shielding room	Zhongyu	-	EC 2838	2024-01-11
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESIB 26	EC 3045	2024-07-18
☒	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2024-08-23
☐	Horn antenna	Tonscend	bha9120d	EC 6432-2	2024-02-15
☐	Pre-amplifier	Tonscend	tap01018050	EC 6432-1	2023-12-07
☒	Active loop antenna	Schwarzbeck	FMZB1519	EC 5345	2024-06-15
☒	Semi-anechoic chamber	Albatross project	-	EC 3048	2024-07-08
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Thermo-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2024-03-24
☒	Pressure meter	YM3	Shanghai Mengde	EC 4620	2024-09-12

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2.7 Measurement uncertainty

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Frequency	Expanded Uncertainty ($k=2$)
Conducted emission at mains ports	9kHz ~ 150kHz	3.52 dB
	150kHz ~ 30MHz	3.19 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.90 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.02 dB
	6GHz ~ 18GHz	5.28 dB

TEST REPORT

3 Radiated emissions.

Test result: Pass

3.1 Limit

Frequencies (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

3.2 Measurement Procedure

For Radiated emission below 30MHz:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- Both X and Y axes of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

TEST REPORT

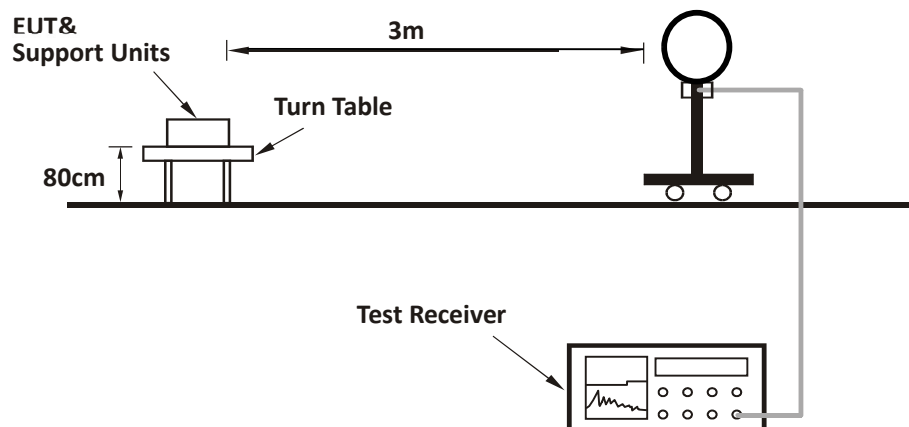
- d) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. All modes of operation were evaluated and the worst-case emissions were reported

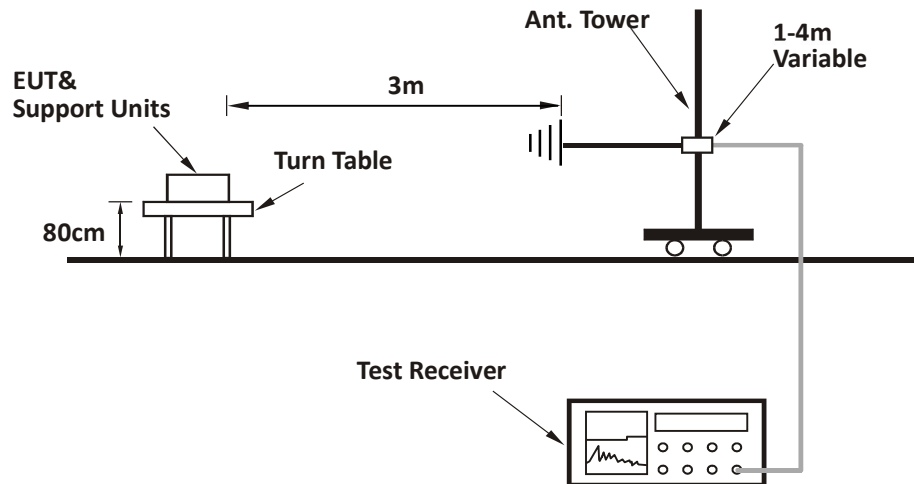
3.3 Test Configuration

For Radiated emission below 30MHz:

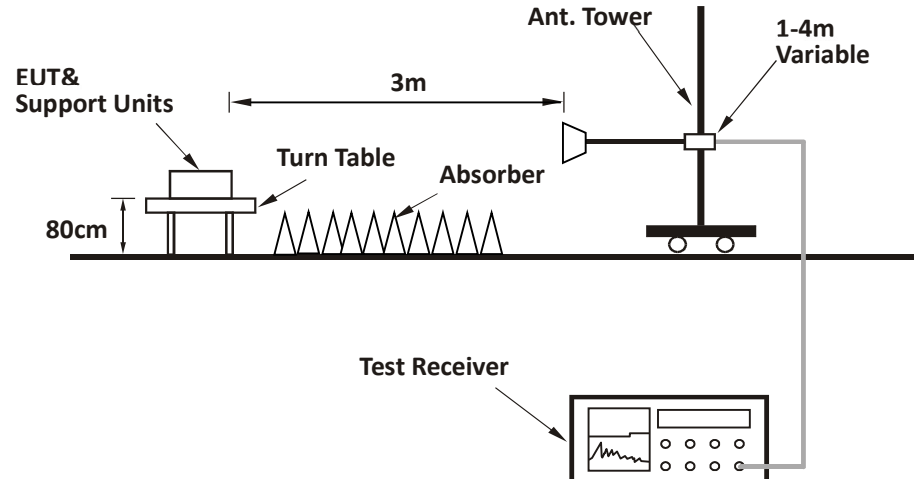


TEST REPORT

For Radiated emission 30MHz to 1GHz:



For Radiated emission above 1GHz:



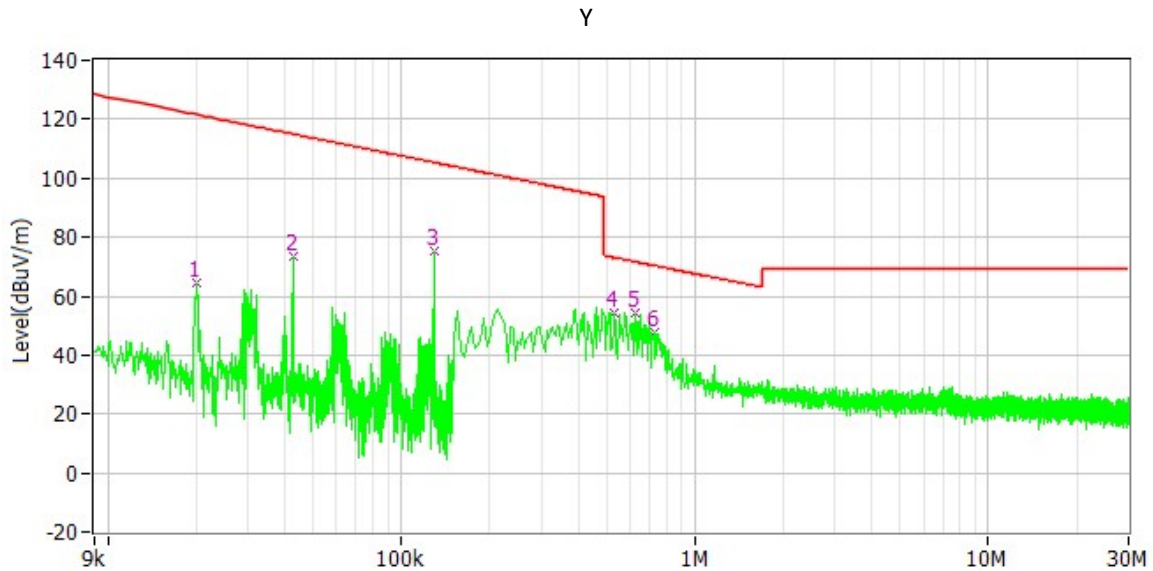
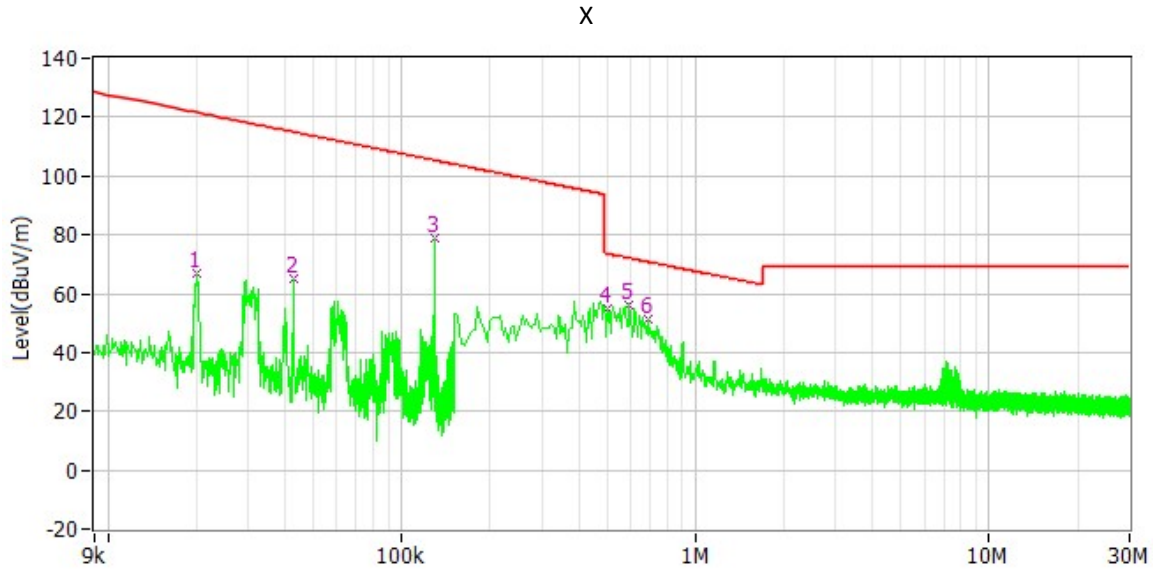
TEST REPORT

3.4 Test Results of Radiated Emissions

The EUT was tested with empty load, half load and full load, the full load is the worst case and we listed the results in the report.

Below 30MHz:

Test Curve:



TEST REPORT

Z



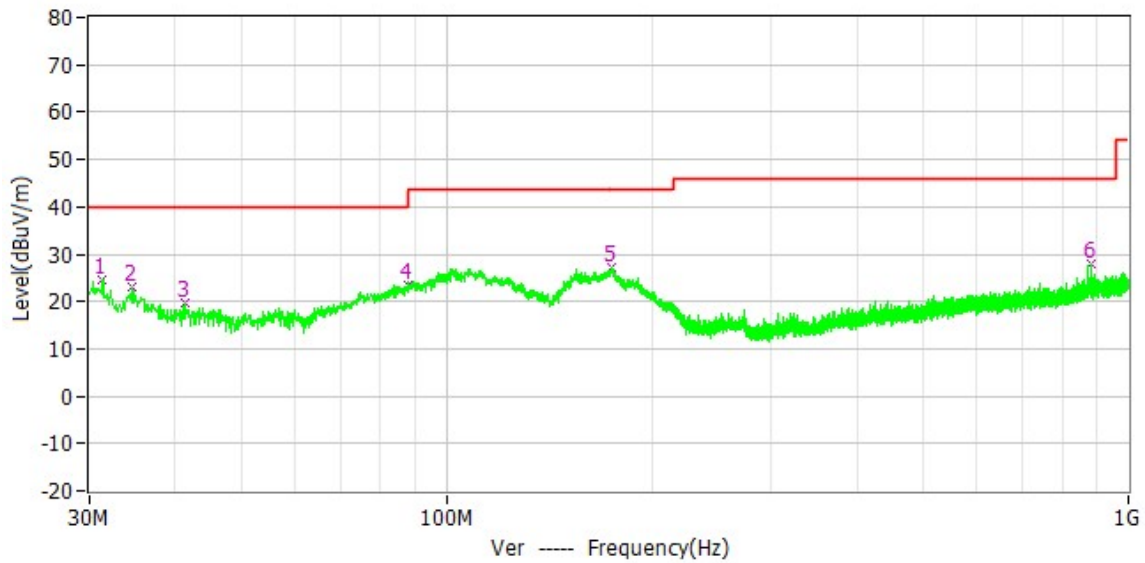
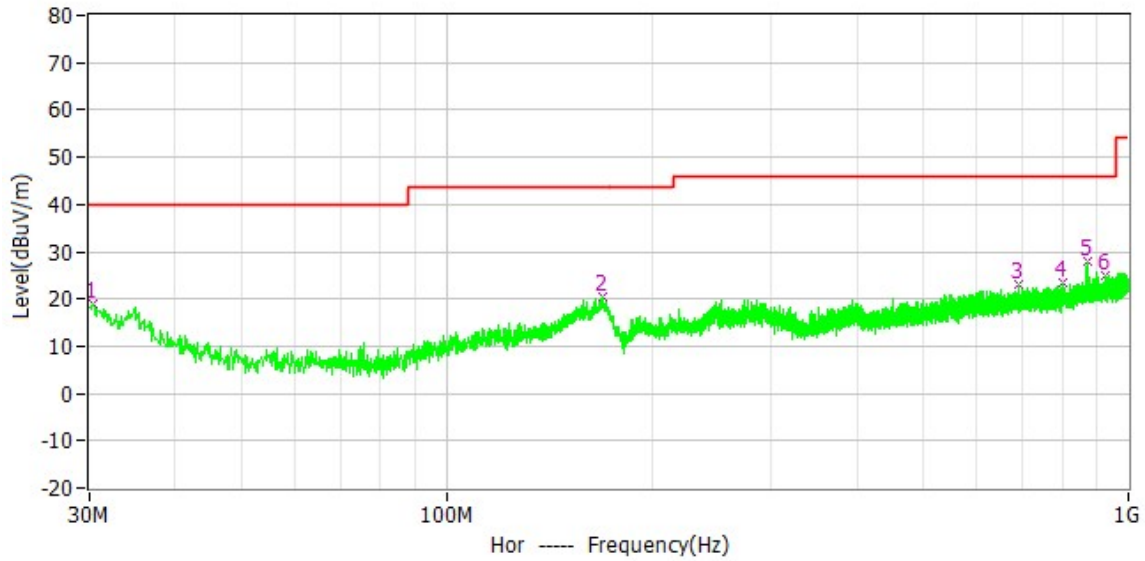
Test Data:

Antenna Polarization	Frequency (kHz)	Limit (dBuV/m)	Level (dBuV/m)	Delta	Factor (dB)	Detector	Remark
X	20.00	121.60	66.90	54.70	20.20	PK	Spurious
X	42.80	115.00	64.90	50.00	20.10	PK	Spurious
X	129.40	105.40	78.90	26.40	20.10	PK	Fundamental
X	501.00	73.60	55.10	18.50	20.20	PK	Spurious
X	595.50	72.10	56.40	15.70	20.20	PK	Spurious
X	690.00	70.80	51.30	19.50	20.20	PK	Spurious
Y	20.00	121.60	64.30	57.20	20.20	PK	Spurious
Y	42.80	115.00	73.40	41.60	20.10	PK	Spurious
Y	129.20	105.40	75.30	30.00	20.10	PK	Fundamental
Y	532.50	73.10	54.40	18.70	20.20	PK	Spurious
Y	627.00	71.70	54.30	17.30	20.20	PK	Spurious
Y	726.00	70.40	47.90	22.50	20.10	PK	Spurious
Z	20.00	121.60	59.20	62.30	20.20	PK	Spurious
Z	129.40	105.40	82.40	22.90	20.10	PK	Fundamental
Z	532.50	73.10	55.50	17.60	20.20	PK	Spurious
Z	645.00	71.40	55.20	16.30	20.20	PK	Spurious
Z	744.00	70.20	49.60	20.50	20.10	PK	Spurious
Z	906.00	68.50	46.90	21.50	20.10	PK	Spurious

TEST REPORT

Test data from 30MHz to 1000MHz:

Test Curve:



TEST REPORT

Test Data:

Frequency (MHz)	Limit dB μ V/m	Level dB μ V/m	Delta dB	Reading dB μ V/m	Factor dB	Detector	Polar
30.38	40.00	19.00	21.00	-0.60	19.60	PK	Hor
169.48	43.50	20.50	23.00	9.40	11.10	PK	Hor
690.86	46.00	22.90	23.10	1.00	21.90	PK	Hor
802.02	46.00	23.50	22.50	0.80	22.70	PK	Hor
873.60	46.00	27.80	18.20	4.10	23.70	PK	Hor
927.25	46.00	25.10	20.90	0.70	24.40	PK	Hor
31.35	40.00	24.60	15.40	5.50	19.10	PK	Ver
34.65	40.00	23.00	17.00	5.80	17.20	PK	Ver
41.34	40.00	19.70	20.30	6.10	13.60	PK	Ver
87.71	40.00	23.40	16.60	13.70	9.70	PK	Ver
174.82	43.50	27.10	16.40	16.20	10.90	PK	Ver
879.81	46.00	28.00	18.00	4.20	23.80	PK	Ver

- Remark: 1. Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.
2. Level = Original Receiver Reading + Factor
3. Delta = Limit - Level
4. If the PK Level is lower than AV limit, the AV test can be elided.

TEST REPORT

4 Conducted emissions.

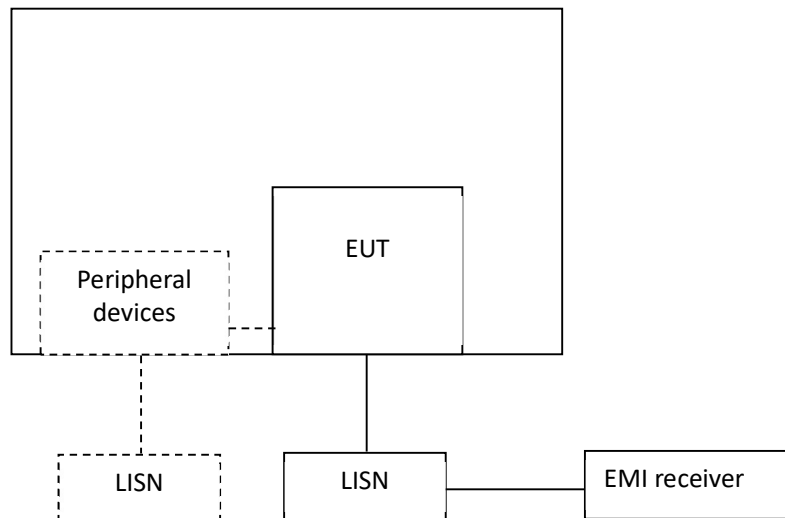
Test result: Pass

4.1 Limit

Frequency of Emission (MHz)	Conducted Emissions Limit (dBuV)	
	QP	AV
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.

4.2 Test Configuration



TEST REPORT**4.3 Measurement Procedure**

Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50 Ω measuring port is terminated by a measuring instrument having 50 Ω input impedance. All other ports are terminated in 50 Ω loads.

Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

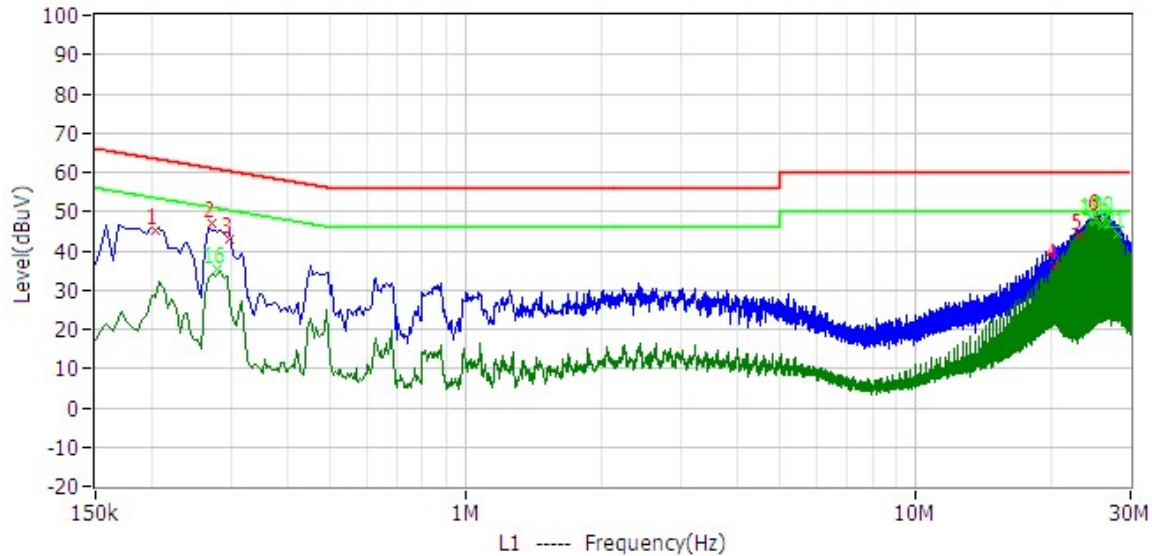
TEST REPORT

4.4 Test Results of Conducted Emissions

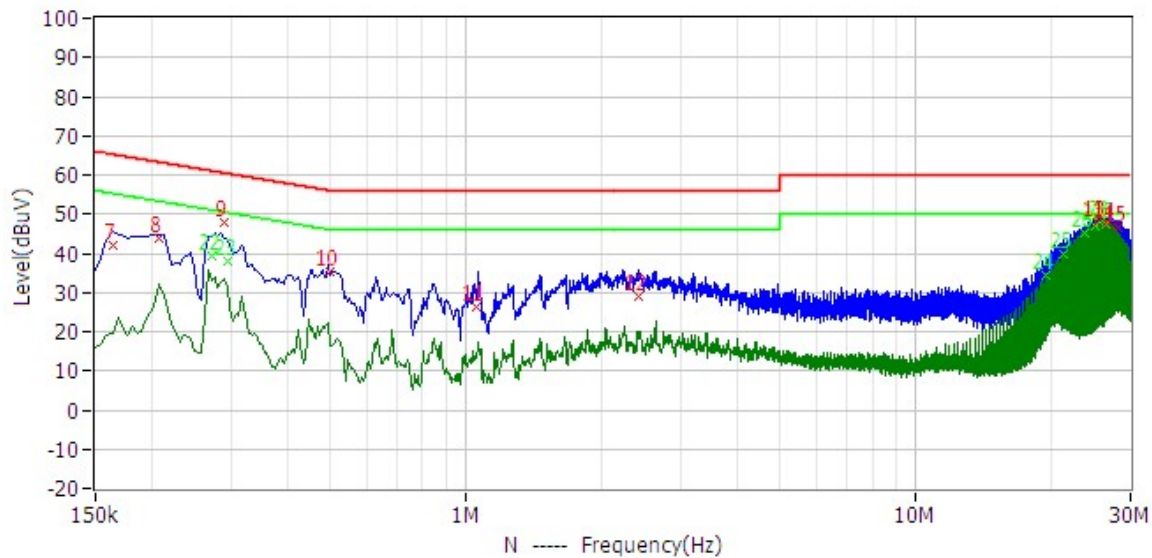
The EUT was tested with empty load, half load and full load, the full load is the worst case and we listed the results in the report.

Test Curve:

L-Line



N-Line



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Test Data:

Frequency	Limit dBμV	Level dBμV	Delta dB	Reading dBμV	Factor dB	Detector	Phase
204.000kHz	63.4	45.1	18.3	34.9	10.2	QP	L1
271.500kHz	61.1	46.8	14.3	36.6	10.2	QP	L1
298.500kHz	60.3	42.8	17.5	32.6	10.2	QP	L1
20.270MHz	60.0	36.2	23.8	25.3	10.9	QP	L1
23.132MHz	60.0	44.0	16.0	33.0	11.0	QP	L1
25.292MHz	60.0	48.8	11.2	37.7	11.1	QP	L1
163.500kHz	65.3	42.0	23.3	31.8	10.2	QP	N
208.500kHz	63.3	43.6	19.7	33.3	10.3	QP	N
289.500kHz	60.5	47.7	12.8	37.4	10.3	QP	N
496.500kHz	56.1	35.5	20.6	25.2	10.3	QP	N
1.055MHz	56.0	26.4	29.6	16.1	10.3	QP	N
2.427MHz	56.0	29.2	26.8	18.8	10.4	QP	N
25.269MHz	60.0	47.9	12.1	37.0	10.9	QP	N
26.628MHz	60.0	47.4	12.6	36.5	10.9	QP	N
28.239MHz	60.0	46.5	13.5	35.6	10.9	QP	N
280.500kHz	50.8	35.2	15.6	25.0	10.2	CAV	L1
24.747MHz	50.0	47.8	2.2	36.7	11.1	CAV	L1
25.004MHz	50.0	47.2	2.8	36.1	11.1	CAV	L1
26.070MHz	50.0	46.5	3.5	35.4	11.1	CAV	L1
26.363MHz	50.0	48.2	1.8	37.1	11.1	CAV	L1
28.266MHz	50.0	44.1	5.9	33.0	11.1	CAV	L1
271.500kHz	51.1	39.3	11.8	29.0	10.3	CAV	N
294.000kHz	50.4	38.2	12.2	27.9	10.3	CAV	N
19.455MHz	50.0	34.5	15.5	23.5	11.0	CAV	N
21.359MHz	50.0	39.8	10.2	28.8	11.0	CAV	N
23.667MHz	50.0	45.0	5.0	34.0	11.0	CAV	N
25.022MHz	50.0	47.0	3.0	36.1	10.9	CAV	N
25.832MHz	50.0	47.7	2.3	36.8	10.9	CAV	N
26.376MHz	50.0	47.6	2.4	36.7	10.9	CAV	N

Remark: 1. Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.

2. Level = Reading + Factor

3. Delta = Limit - Level

4. If the PK Level is lower than AV limit, the AV test can be elided.

***** END *****