



# EMC TEST REPORT

**Report No.:** 20240217G03114X-W1

**Product Name:** Portable Power Station

**Model No. :** Pura 3

**FCC ID:** 2BFE7PUREA3

**Applicant:** Xianyang Huafei Precision Machining Co., Ltd.

**Address:** No. 31901, Floor 19, Unit 3, Building 2, Jingdu Jiayuan, Liucang Street, Qindu District, Xianyang, Shaanxi, China

**Received Date:** 2024.02.26

**Dates of Testing:** 2024.02.28~2024.05.17

**Issued by:** CCIC Southern Testing Co., Ltd.

**Lab Location:** Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.

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### Test Report

**Product Name**..... Portable Power Station

**Model No.** ..... Pura 3

**Trade name**..... 

**Brand name**..... AMPAURA

**Applicant**..... Xianyang Huafei Precision Machining Co., Ltd.

**Applicant Address**..... No. 31901, Floor 19, Unit 3, Building 2, Jingdu Jiayuan, Liucang Street, Qindu District, Xianyang, Shaanxi, China

**Manufacturer** ..... Xianyang Huafei Precision Machining Co., Ltd.

**Manufacturer Address** .... No. 31901, Floor 19, Unit 3, Building 2, Jingdu Jiayuan, Liucang Street, Qindu District, Xianyang, Shaanxi, China

**Test Standards**..... 47 CFR Part 15 Subpart C

**Test Result**..... PASS

**Tested by** ..... Sun Jiaohui  
Sun Jiaohui Test Engineer 2024.05.17

**Reviewed by** ..... Chris You  
Chris You Senior Engineer 2024.05.17

**Approved by** ..... Yang Fan  
2024.05.17  
Yang Fan, Manager



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Change History		
Issue	Date	Reason for change
1.0	2024.05.17	First edition



## 1. GENERAL INFORMATION

### 1.1 EUT Description

EUT Name	Portable Power Station
Trade Name	
Brand Name	AMPAURA
Hardware Version	TypeA_1_MAIN
Software Version	1.4.0
WPT Frequency Band	115~148KHz

*Note1:* The EUT is a Portable Power Station;

*Note2:* For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

*Note3:* EUT discharge operates at full load.



## 1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart C	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.207	Conducted Emission	PASS
2	15.209	Radiated Emission	PASS
3	Part 2	99% obw	Report Only

**NOTE:**

(1) The EUT has been tested according to 47 CFR Part 15 Subpart C. The test procedure is according to ANSI C63.10:2010



### 1.3 Facilities and Accreditations

#### 1.3.1 Facilities

**FCC-Registration No.: CN1283**

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until June 30th, 2025.

**ISED Registration: 11185A-1**

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until June 30th, 2025.

**A2LA Code: 5721.01**

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

#### 1.3.2 Test Environment Conditions

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

Temperature ( °C):	15 °C - 35 °C
Relative Humidity (%):	25% -75%
Atmospheric Pressure (kPa):	86kPa-106kPa

#### 1.3.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission:	Uc = 3.2 dB (k=2)
Uncertainty of Radiated Emission: (30MHz~1GHz)	Uc = 3.91 dB (k=2)
Uncertainty of Radiated Emission: (1~8GHz)	Uc = 4.5 dB (k=2)
Uncertainty of Radiated Emission: (18~40GHz)	Uc = 4.9 dB (k=2)



## 2. TEST CONDITIONS SETTING

### 2.1 Test Peripherals

The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

#### Support Equipment:

Description	Brand name	Model	Serial No.	FCCID
Load	/	/	/	/

#### Support Cable:

Description	Shield Type	Ferrite Core	Length
DC Power Cable	Un- shielding	/	0.8m
AC Power Cable	Un- shielding	/	0.8m

### 2.2 Test Mode

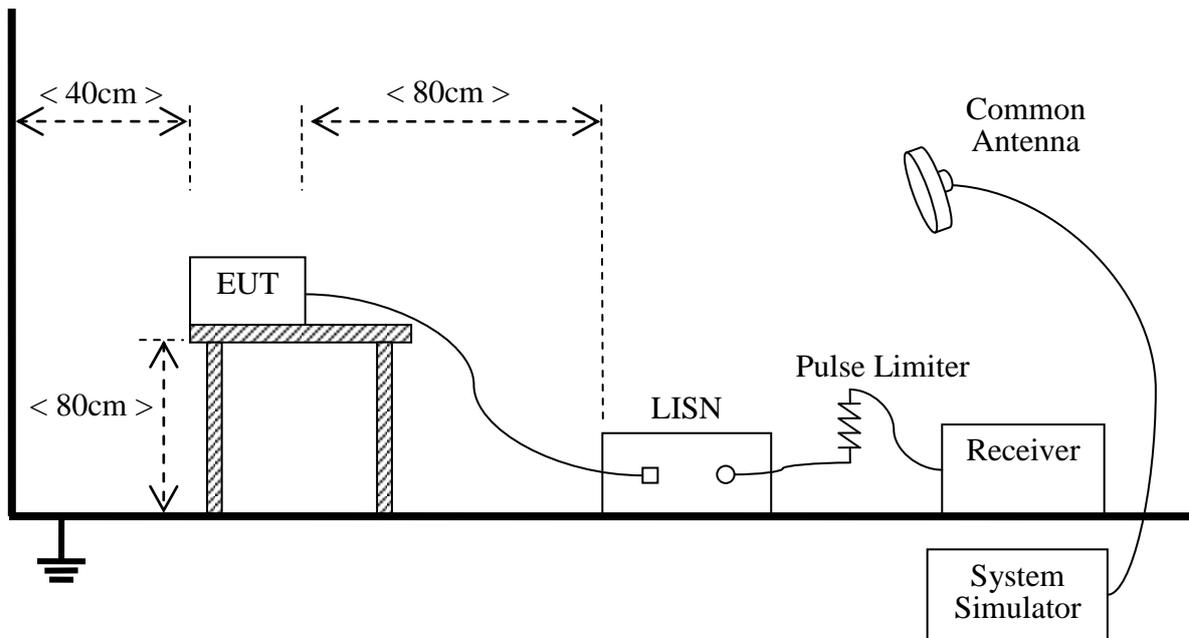
The EUT have the following typical setups during the test:

Setup1: EUT + AC Charging + DC Charging + Discharge + Load+WPT;

## 2.3 Test Setup and Equipment List

### 2.3.1 Conducted Emission

#### A. Test Setup:



The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50 μH of coupling impedance for the measuring instrument. The Common Antenna is used for the call between the EUT and the System Simulator (SS). A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

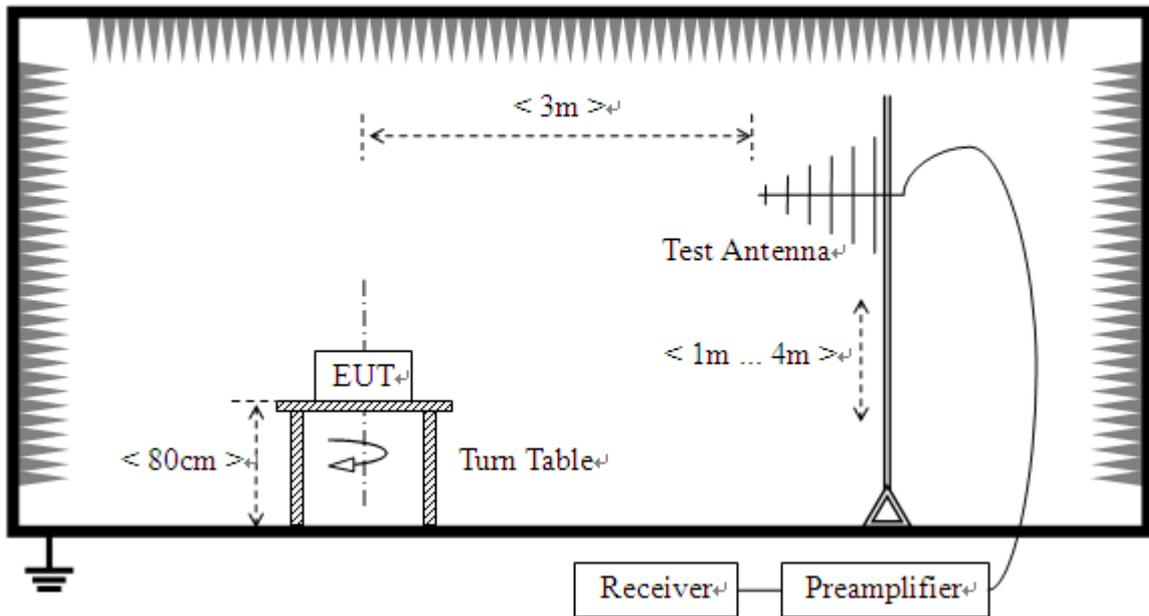
#### B. Equipment List:

Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due. Date
Test Receiver	KEYSIGHT	N9038A	A141202036	2023.06.13	2024.06.12
LISN	ROHDE&SCHWARZ	ENV216	A140701847	2023.06.09	2024.06.08
Cable	MATCHING PAD	W7	/	2023.08.02	2024.08.02

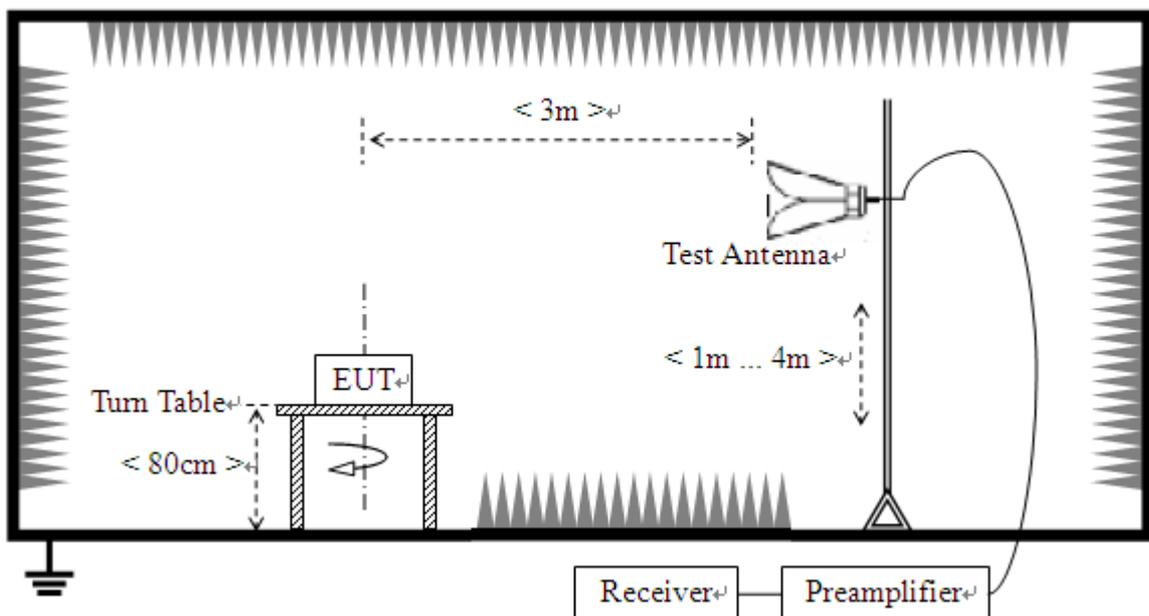
### 2.3.2 Radiated Emission

#### A. Test Setup:

- 1) For radiated emissions from 30MHz to 1GHz



- 2) For radiated emissions above 1GHz



**B. Test Procedure**

The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

- 1) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

**C. Equipment List:**

Description	Manufacturer	Model	Serial No.	Calibration Due. Date
EMI Test Receiver	ROHDE&SCHWARZ	ESU8	A220803959	2025.02.27
LISN.	SCHWARZBECK	NNLK8130	A131001541	2024.10.18
10m Anechoic Chamber	Albatross	21m*13.5m*9.5m	A082520	2025.06.26
Broadband Ant.	SCHWARZBECK	VULB 9163	L221100194	2025.09.25
Horn Antenna	ROHDE&SCHWARZ	R&S HF906	A0304225	2025.04.11

**3 meter Chamber**

Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due. Date
EMI Test Receiver	ROHDE&SCHWARZ	ESIB7	A0501375	2023.03.16	2024.03.15
Broadband Ant.	ETC	2786	A150402239	2021.03.04	2024.03.03
3M Anechoic Chamber	Albatross	SAC-3MAC 9*6*6m	A0412375	2021.03.26	2024.03.25
EMI Test Receiver	ROHDE&SCHWARZ	ESW26	A180502935	2023.06.08	2024.06.07
EMI Horn Ant.	ROHDE&SCHWARZ	HF906	A0304225	2022.04.12	2025.04.11



### 3. 47 CFR PART 15C REQUIREMENTS

#### 3.1 Conducted Emission

##### 3.1.1 Requirement

According to FCC section 15.207, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 $\Omega$  line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

**Note:**

- The limit subjects to the Class B digital device.
- The lower limit shall apply at the band edges.
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

##### 3.1.2 Test Description

See section 2.3.1 of this report.

##### 3.1.3 Test Result

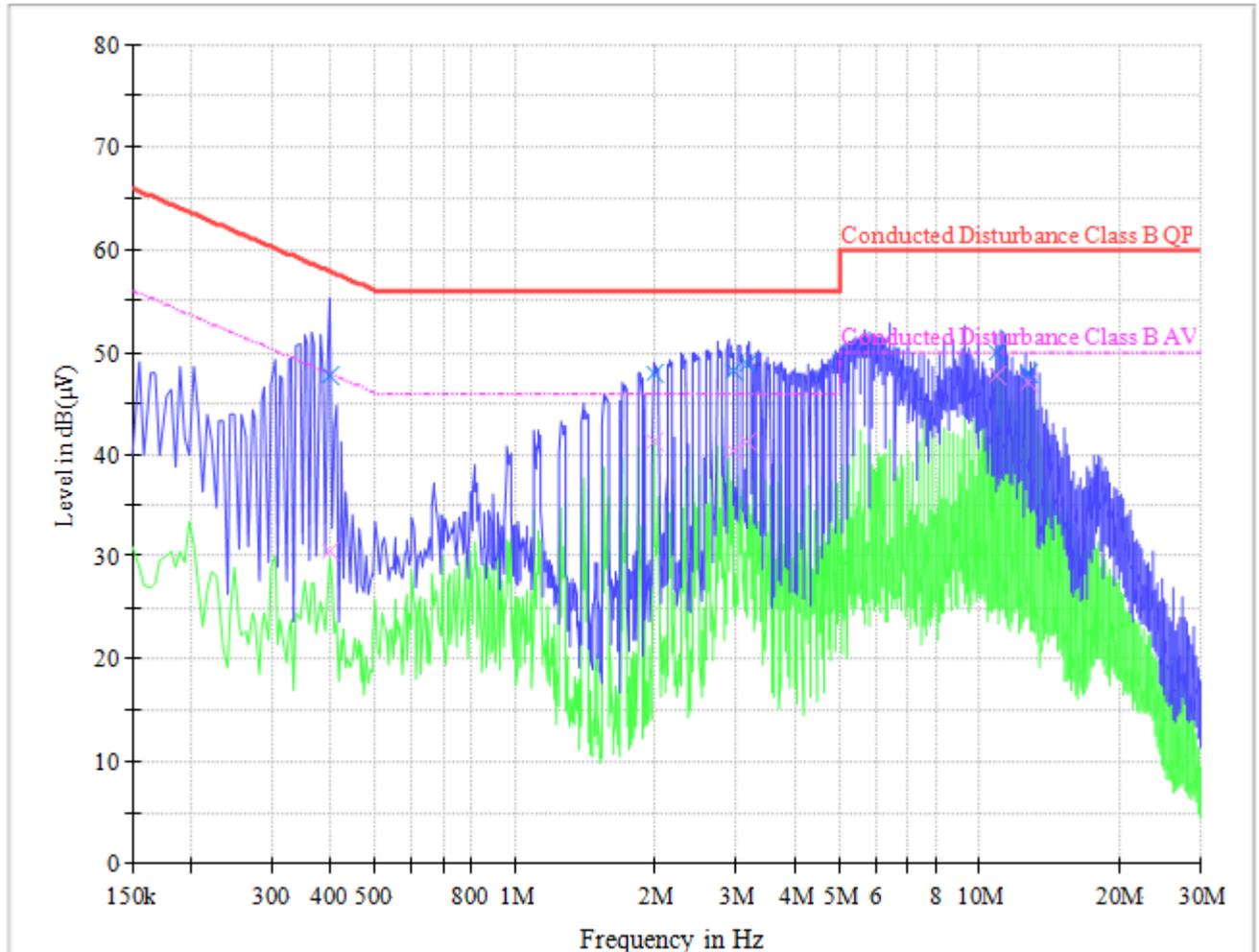
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

**Note:**

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a Nominal 120V AC, 50/60Hz) 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.

**Test voltage and frequency (120V AC, 60Hz)**

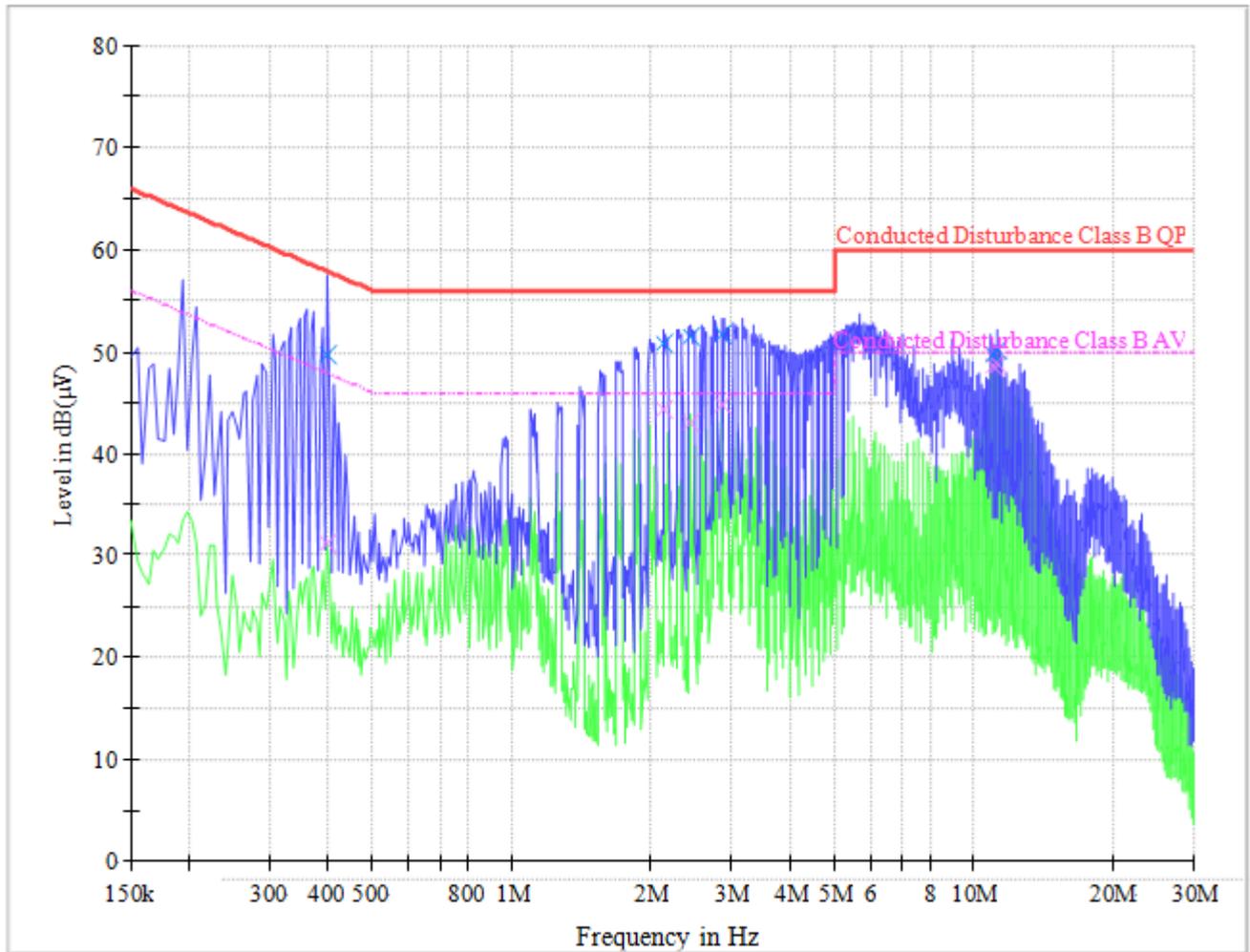
**A. Mains terminal disturbance voltage, L phase, Setup 6**



(Plot A: L Phase)

Frequency (MHz)	QuasiPea k	CAverage (dB µ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK	Limit - QPK	Margin - AV	Limit - AV (dB µ V)
0.397500	47.7	30.5	0.1	10.1	10.2	57.9	17.4	47.9
1.986000	47.8	41.3	0.2	10.2	8.2	56.0	4.8	46.0
2.949000	48.2	40.4	0.3	10.3	7.9	56.0	5.6	46.0
3.169500	48.8	41.1	0.5	10.5	7.3	56.0	4.9	46.0
10.950000	49.9	47.6	0.5	10.5	10.1	60.0	2.4	50.0
12.750000	48.0	47.1	0.5	10.5	12.0	60.0	2.9	50.0

**B. Mains terminal disturbance voltage, N phase, Setup 6**



(Plot B: N Phase)

Frequency (MHz)	QuasiPea k	CAverage (dB µ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK	Limit - QPK	Margin - AV	Limit - AV (dB µ V)
0.397500	49.8	31.1	0.1	10.1	8.1	57.9	16.8	47.9
2.134500	50.8	44.3	0.2	10.2	5.2	56.0	1.7	46.0
2.431500	51.5	43.0	0.2	10.2	4.5	56.0	3.0	46.0
2.868000	51.7	44.8	0.3	10.3	4.4	56.0	1.3	46.0
11.049000	49.7	48.5	0.5	10.5	10.3	60.0	1.5	50.0
11.251500	50.0	49.9	0.5	10.5	10.0	60.0	1.1	50.0



## 3.2 Radiated Emission

### 3.2.1 Requirement

According to FCC section 15.209, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Field Strength ( $\mu\text{V/m}$ )	Measurement Distance (m)
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

- a) For frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.
- b) Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.
- c) For below 1G : QP detector RBW 120kHz ,VBW 300kHz.

For Above 1G: PK detector RBW 1MHz, VBW 3MHz for PK value; AV detector RBW 1MHz, VBW 10Hz for AV value.

#### Note:

- 1) The tighter limit shall apply at the boundary between two frequency range.
- 2) Limitation expressed in dBuV/m is calculated by  $20\log$  Emission Level(uV/m).
- 3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of  $Ld1 = Ld2 * (d2/d1)^2$ .

Example:

F.S Limit at 30m distance is 30uV/m, then F.S Limitation at 3m distance is adjusted as

$$Ld1 = L1 = 30\text{uV/m} * (10)^2 = 100 * 30\text{uV/m}.$$



### **3.2.2 Test Description**

See section 2.3.2 of this report.

### **3.2.3 Test Result**

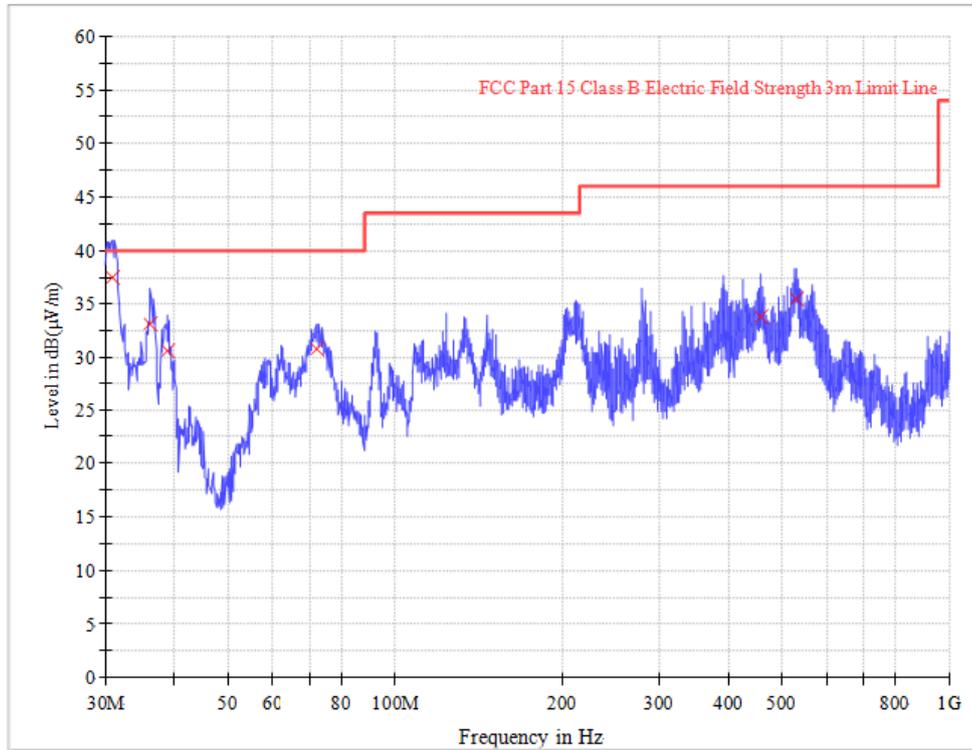
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

Note:

1. All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.
2. For Above 1GHz The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.



**A. Radiation disturbances, antenna polarization: Vertical, Setup6**

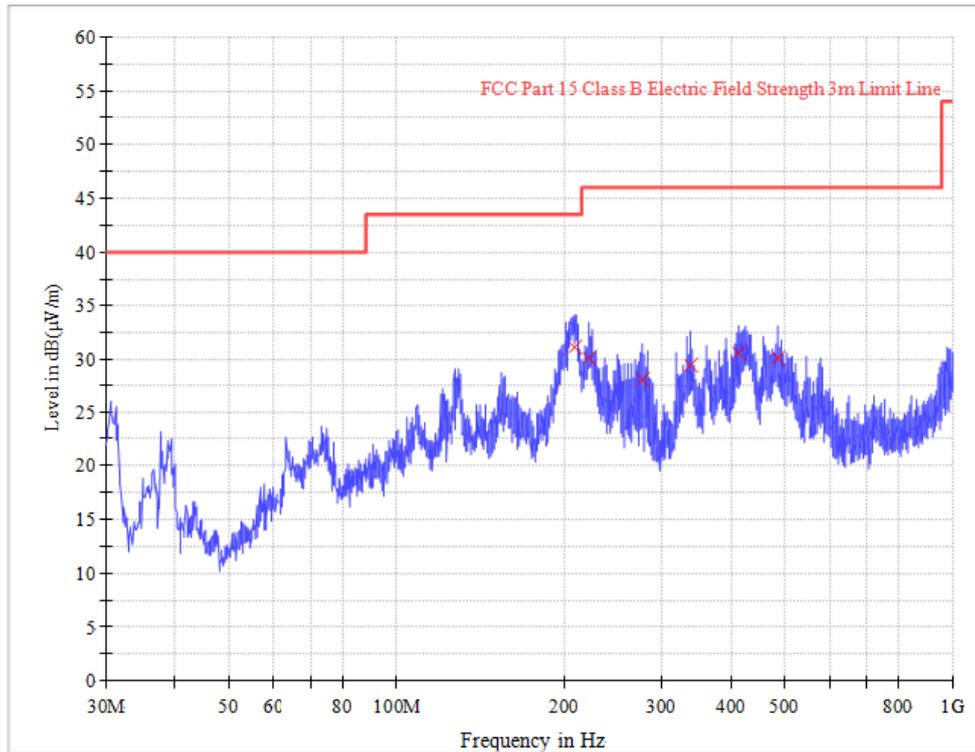


(Plot C: Test Antenna Vertical 30M - 1G)

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Margin (dB)	Antenna	Cable Loss(dB)	ANT. Factor(dB )	Verdict
30.84	37.5	120.000	100.0	40.0	2.5	Vertical	0.5	18.8	Pass
36.20	33.1	120.000	100.0	40.0	6.9	Vertical	0.5	15.8	Pass
38.84	30.6	120.000	200.0	40.0	9.4	Vertical	0.5	14.4	Pass
71.96	30.8	120.000	100.0	40.0	9.2	Vertical	0.8	6.2	Pass
458.36	33.7	120.000	200.0	46.0	12.3	Vertical	1.5	17.7	Pass
528.20	35.4	120.000	100.0	46.0	10.6	Vertical	1.5	18.3	Pass



**B. Radiation disturbances, antenna polarization: Horizontal, Setup6**

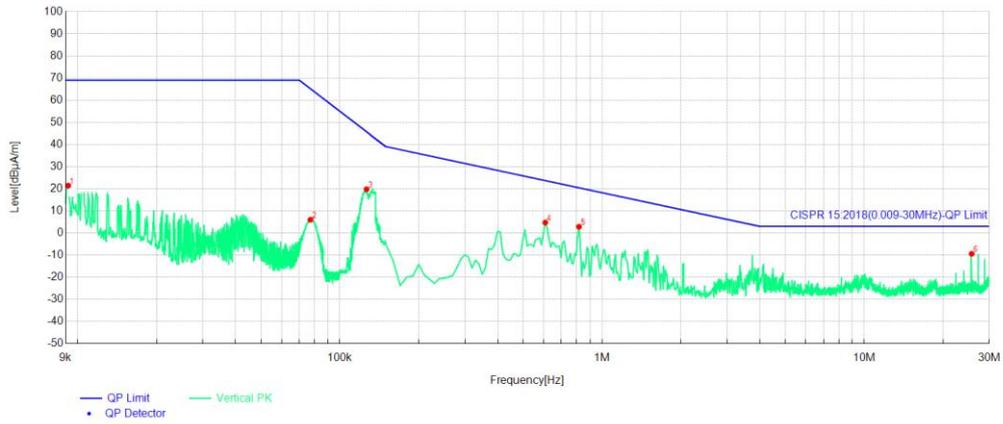


(Plot D: Test Antenna Horizontal 30M - 1G)

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna	Cable Loss(dB)	ANT. Factor(dB)	Verdict
208.60	31.0	120.000	400.0	43.5	12.5	Horizontal	1.2	10.8	Pass
222.32	30.1	120.000	400.0	46.0	15.9	Horizontal	1.2	10.6	Pass
276.76	28.2	120.000	400.0	46.0	17.9	Horizontal	1.2	13.6	Pass
337.72	29.5	120.000	300.0	46.0	16.5	Horizontal	1.4	15.1	Pass
413.04	30.6	120.000	300.0	46.0	15.4	Horizontal	1.5	16.8	Pass
485.40	30.1	120.000	400.0	46.0	16.0	Horizontal	1.5	17.8	Pass



**9KHz-30MHz**



(Plot C: 9K – 30MHz)

Suspected List								
NO.	Freq. [MHz]	Level[dB µA/m]	Factor [dB]	Limit[dBµA/m]	Margin [dBµA/m]	Trace	Height [cm]	Angle [°]
1	0.01	18.01	-19.19	69.00	50.99	PK	100	150
2	0.08	6.01	-19.10	65.14	58.94	PK	100	90
3	0.13	19.73	-19.05	45.74	26.00	PK	100	350
4	0.61	4.72	-18.82	23.66	18.94	PK	100	220
5	0.82	2.81	-18.78	20.42	17.61	PK	100	10
6	25.72	-9.39	-18.08	3.00	12.39	PK	100	260



### 3.3 Occupied bandwidth

#### 3.3.1 99%Bandwidth

Note; for reporting purposes only.

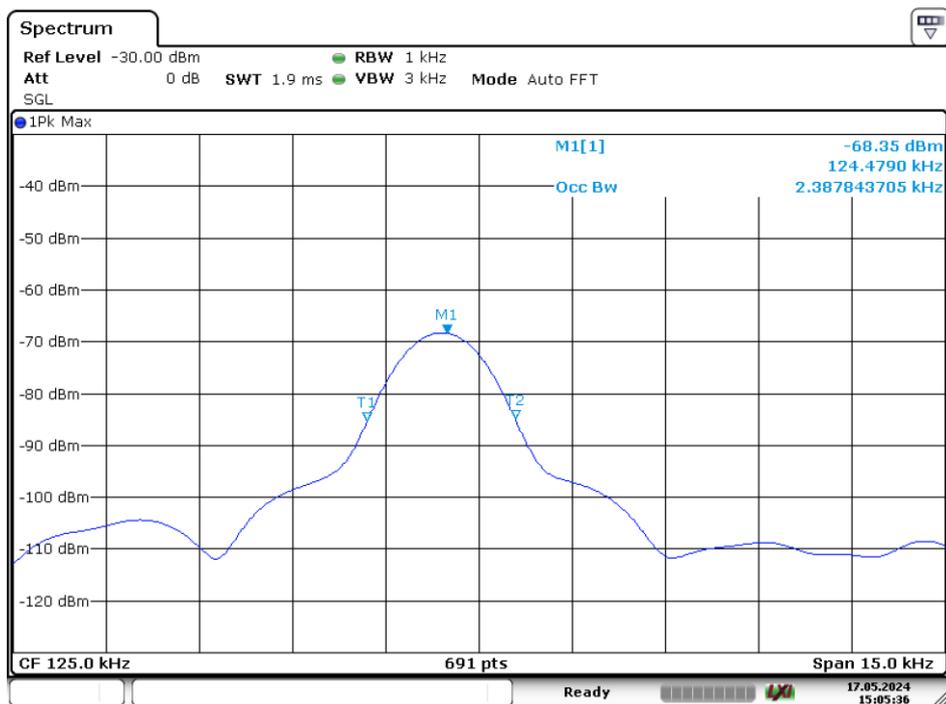
#### 3.3.2 Test Procedure

The transmitter output is connected to a spectrum analyzer. The RBW is set to  $\geq 1\%$  of the emission bandwidth. The VBW is set to  $\geq$  RBW. The sweep time is coupled.

#### 3.3.3 Results

Frequency(KHz)	99%Bandwidth(KHz)
124.79	2.39

99% Bandwidth



Date: 17.MAY.2024 15:05:35

-----End of Report-----