FCC PART 15B, CLASS B

MEASUREMENT AND TEST REPORT

For

Shenzhen wanmai technology innovation Co.,LTD

501, 5th Flr.BLDG 4,Pingshan Minqi Technology Park,No.65 Lishan Road Pingshan Community,Taoyuan Street,Nanshan District,Shenzhen,China

Tested Model: Savior 300
Multiple Models: Savior C300T, A15003

Report Type:	**Product Type:**
Original Report	Portable power station

Test Engineer:	Haiguo Li Harris He
Report Number:	SZ4210413-11206E-EM-00
Report Date:	2021-06-11
Reviewed By:	Moon Liu EMC Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Portable power station
Tested Model	Savior 300
Multiple Model	Savior C300T, A15003
Model Differences	Refer to the DoS letter
Voltage Range	AC120V/60Hz
Highest operating frequency	4 MHz
Date of Test	2021-05-31
Sample number	SZ4210413-11206E-EM-S1(Assigned by BACL, Shenzhen)
Received date	2021-04-13
Sample/EUT Status	Good condition
Adapter information	Model:YHY-19003150 Input: AC 100-240V, 50/60Hz, 1.5A Output:19V 3.15A 59.85W

Objective

This test report is in accordance with Part 2-Subpart J, Part 15B Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters. Each test item follows test standards and with no deviation.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will be taken into consideration for the test data recorded in the report

Parameter		uncertainty
Conducted Emissions		±1.95dB
Emissions, radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in worst case condition (charging & full load).

EUT exercise software

No exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

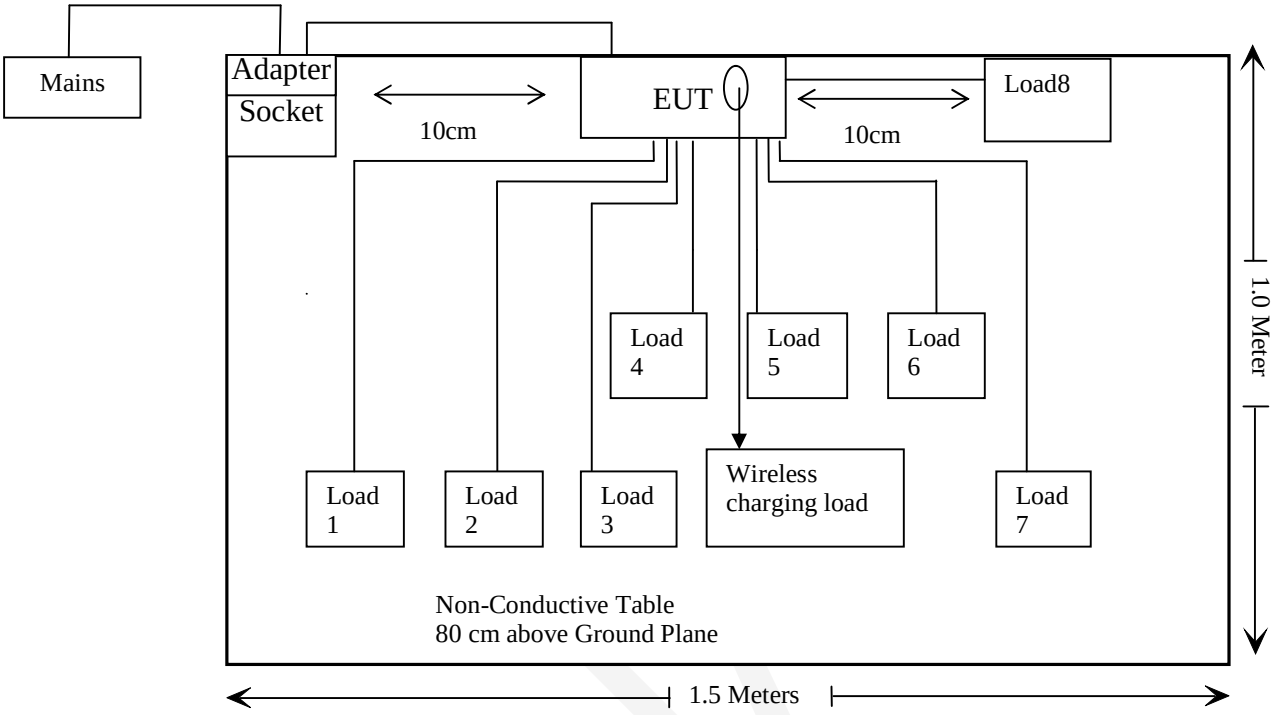
Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-415K	5503290068073
Unknown	Wireless charging load	001	Unknown
Unknown	Load1	1.2ohm	Unknown
Unknown	Load2	1.2ohm	Unknown
Unknown	Load3	1.2ohm	Unknown
Unknown	Load4	2ohm	Unknown
Unknown	Load5	2.1ohm	Unknown
Unknown	Load6	2.1ohm	Unknown
Unknown	Load7	1.0ohm	Unknown
Unknown	Load8	Light 500W	Unknown
Unknown	PD adapter	63W	Unknown
ZHAOXIN	DC POWER SUPPLY	RXN-303A	Unknown

External I/O Cable

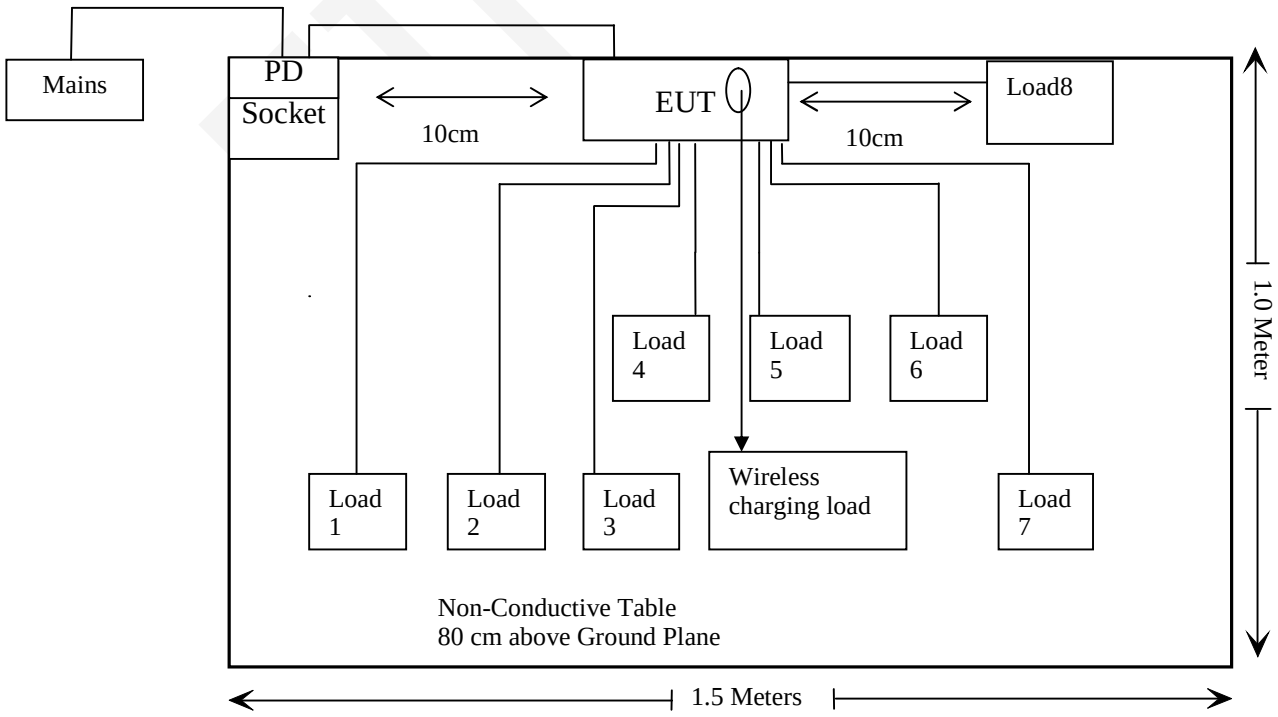
Cable Description	Length (m)	From/Port	To
Un-Shielded Un-Detachable Ac Cable	1.2	Socket	Mains
Un-Shielded Un-Detachable Dc Cable	1.0	Eut	Adapter
Un-Shielded Detachable DC Cable	1.0	Load1	EUT
Un-Shielded Detachable DC Cable	1.0	Load2	EUT
Un-Shielded Detachable DC Cable	1.0	Load3	EUT
Un-Shielded Detachable USB Cable	0.6	Load4	EUT
Un-Shielded Detachable USB Cable	0.6	Load5	EUT
Un-Shielded Detachable USB Cable	0.6	Load6	EUT
Un-Shielded Detachable Typc Cable	1.0	Load7	EUT
Un-Shielded Un-Detachable AC Cable	0.4	Load8	EUT
Un-Shielded Detachable Typc Cable	1.0	EUT	PD Adpater

Block Diagram of Test Setup

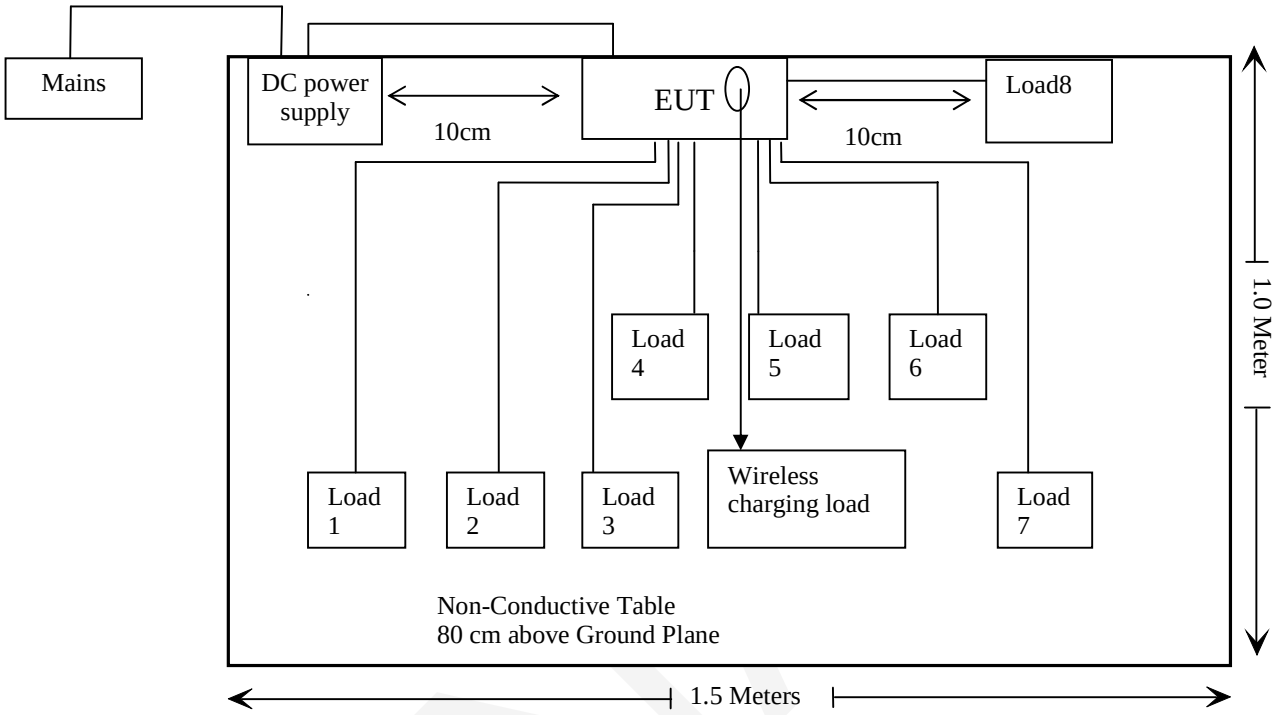
Adapter power supply:



PD Adapter power supply:



DC power supply:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliant
§15.109	Radiated Emissions	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2020/08/04	2021/08/03
Rohde & Schwarz	LISN	ENV216	101613	2020/08/04	2021/08/03
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2020/11/29	2021/11/28
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2020/11/29	2021/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 4	EC-007	2020/11/29	2021/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR
CHIGO	Temperature & Humidity Meter	HTC-1S	T-03-EM451	2021/04/07	2022/04/06

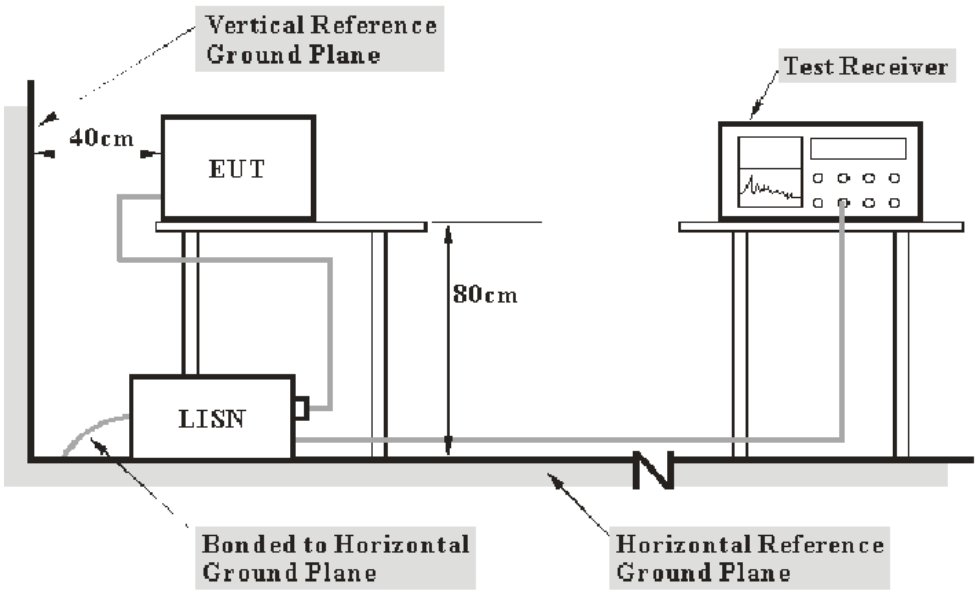
*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC§15.107

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Correction Factor = LISN/ISN VDF + Cable Loss + Transient Limiter Attenuation

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Data

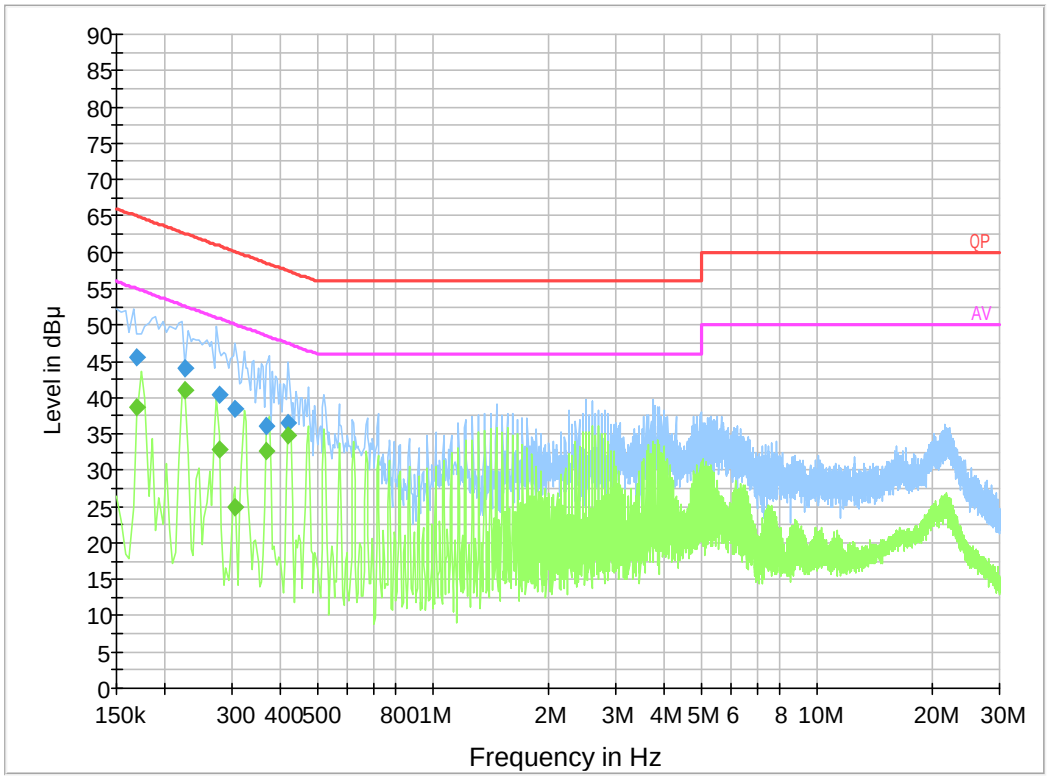
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	65 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2021-05-31.

EUT Operation Mode: Charging& Full load

Adapter power supply:
AC 120V/60 Hz, Line



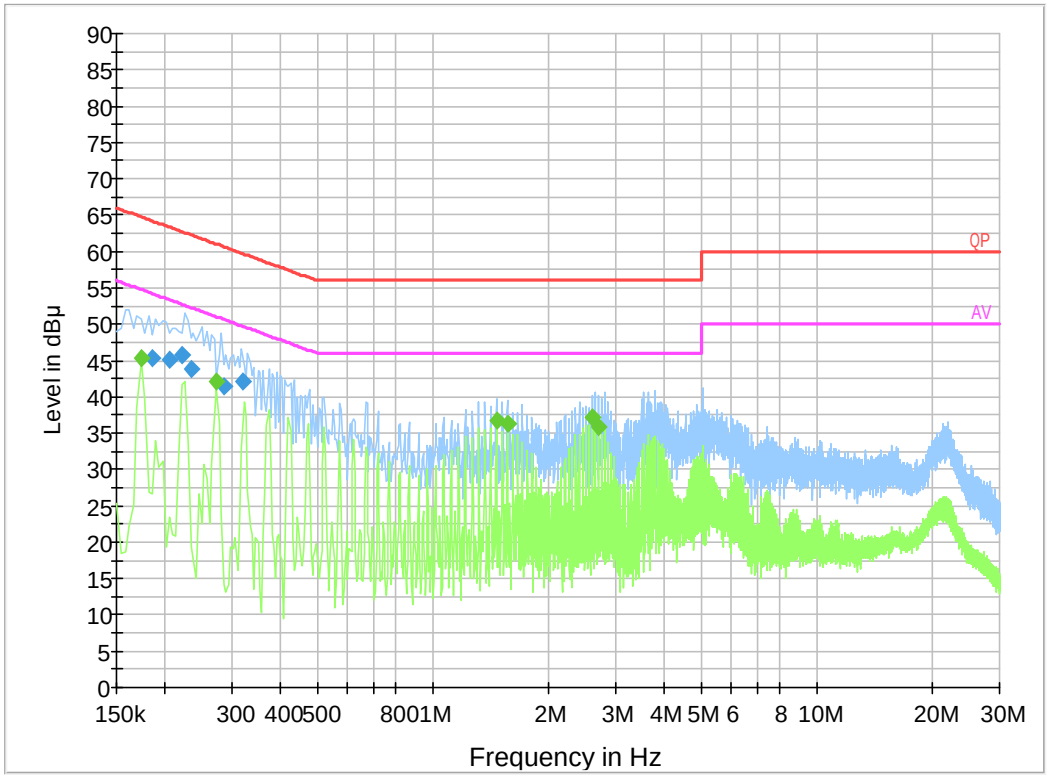
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.169500	45.4	9.000	L1	19.9	19.6	65.0
0.225500	44.0	9.000	L1	19.8	18.6	62.6
0.278501	40.5	9.000	L1	19.8	20.4	60.9
0.305410	38.5	9.000	L1	19.7	21.6	60.1
0.368390	36.2	9.000	L1	19.9	22.3	58.5
0.419670	36.4	9.000	L1	19.9	21.1	57.5

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.169500	38.6	9.000	L1	19.9	16.4	55.0
0.225500	40.9	9.000	L1	19.8	11.7	52.6
0.278501	32.9	9.000	L1	19.8	18.0	50.9
0.305410	25.0	9.000	L1	19.7	25.1	50.1
0.368390	32.6	9.000	L1	19.9	15.9	48.5
0.419670	34.8	9.000	L1	19.9	12.7	47.5

AC 120V/60 Hz, Neutral



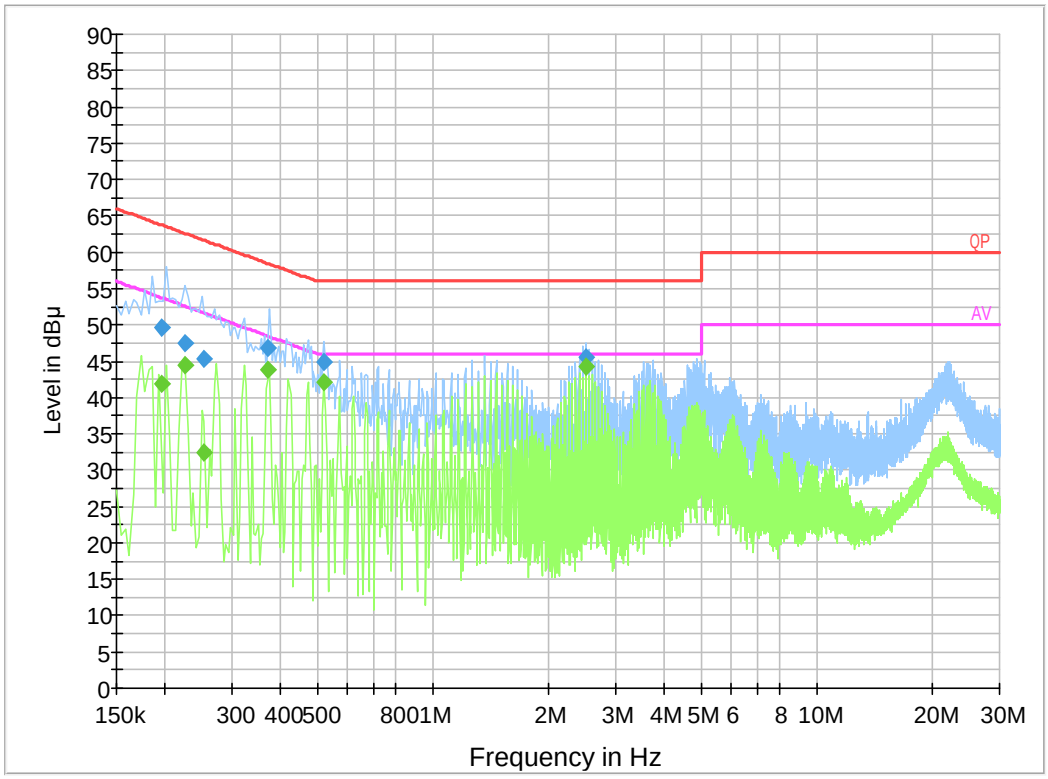
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.186500	45.2	9.000	N	19.8	19.0	64.2
0.206500	45.0	9.000	N	19.8	18.3	63.3
0.221500	45.8	9.000	N	19.8	17.0	62.8
0.234500	43.9	9.000	N	19.8	18.4	62.3
0.286500	41.5	9.000	N	19.7	19.1	60.6
0.321230	42.0	9.000	N	19.8	17.7	59.7

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.174000	45.3	9.000	N	19.8	9.5	54.8
0.274000	42.0	9.000	N	19.7	9.0	51.0
1.466000	36.8	9.000	N	19.8	9.2	46.0
1.566000	36.2	9.000	N	19.8	9.8	46.0
2.610000	37.1	9.000	N	19.8	8.9	46.0
2.710000	35.8	9.000	N	19.8	10.2	46.0

PD Adapter power supply:
AC 120V/60 Hz, Line



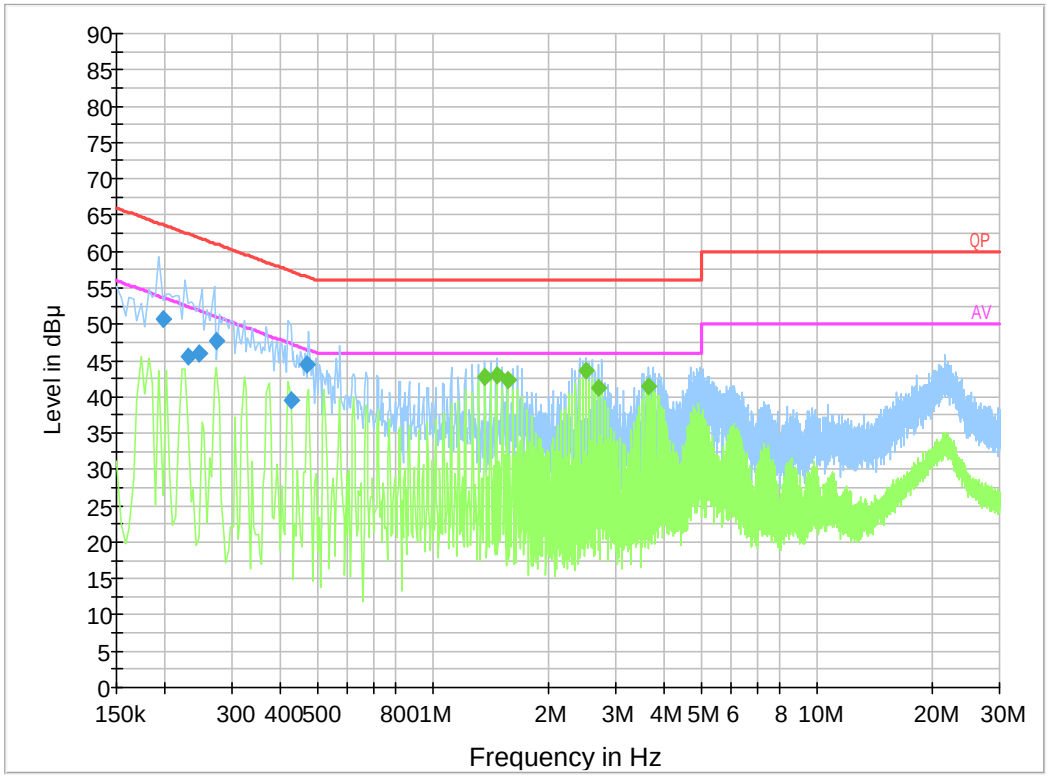
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.197500	49.6	9.000	L1	19.8	14.1	63.7
0.225500	47.5	9.000	L1	19.8	15.1	62.6
0.253500	45.3	9.000	L1	19.8	16.3	61.6
0.372390	46.9	9.000	L1	19.9	11.5	58.4
0.522170	44.9	9.000	L1	19.8	11.1	56.0
2.508350	45.5	9.000	L1	19.8	10.5	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.197500	41.9	9.000	L1	19.8	11.8	53.7
0.225500	44.5	9.000	L1	19.8	8.1	52.6
0.253500	32.5	9.000	L1	19.8	19.1	51.6
0.372390	43.9	9.000	L1	19.9	4.5	48.4
0.522170	42.1	9.000	L1	19.8	3.9	46.0
2.508350	44.2	9.000	L1	19.8	1.8	46.0

AC 120V/60 Hz, Neutral



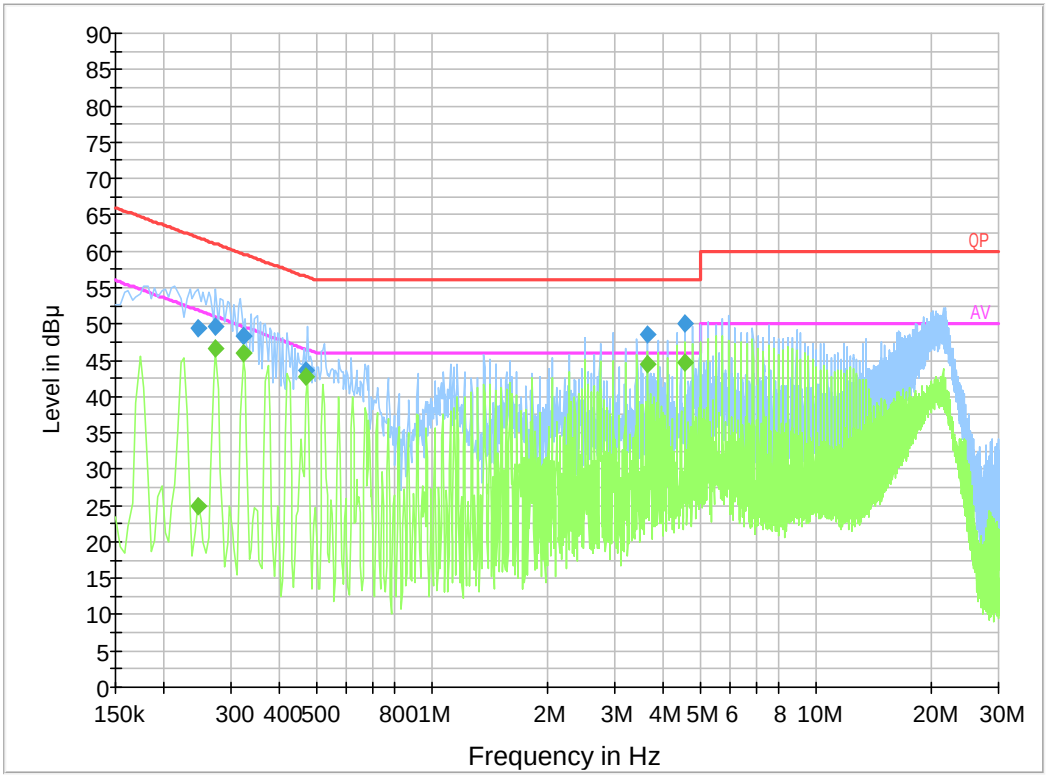
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.198500	50.7	9.000	N	19.8	13.0	63.7
0.230500	45.5	9.000	N	19.8	16.9	62.4
0.245500	46.0	9.000	N	19.8	15.9	61.9
0.273500	47.6	9.000	N	19.7	13.4	61.0
0.428330	39.4	9.000	N	19.8	17.9	57.3
0.470890	44.6	9.000	N	19.8	11.9	56.5

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
1.366000	42.6	9.000	N	19.8	3.4	46.0
1.466000	43.0	9.000	N	19.8	3.0	46.0
1.566000	42.3	9.000	N	19.8	3.7	46.0
2.510000	43.6	9.000	N	19.8	2.4	46.0
2.710000	41.3	9.000	N	19.8	4.7	46.0
3.654000	41.5	9.000	N	19.9	4.5	46.0

DC power supply:
AC 120V/60 Hz, Line



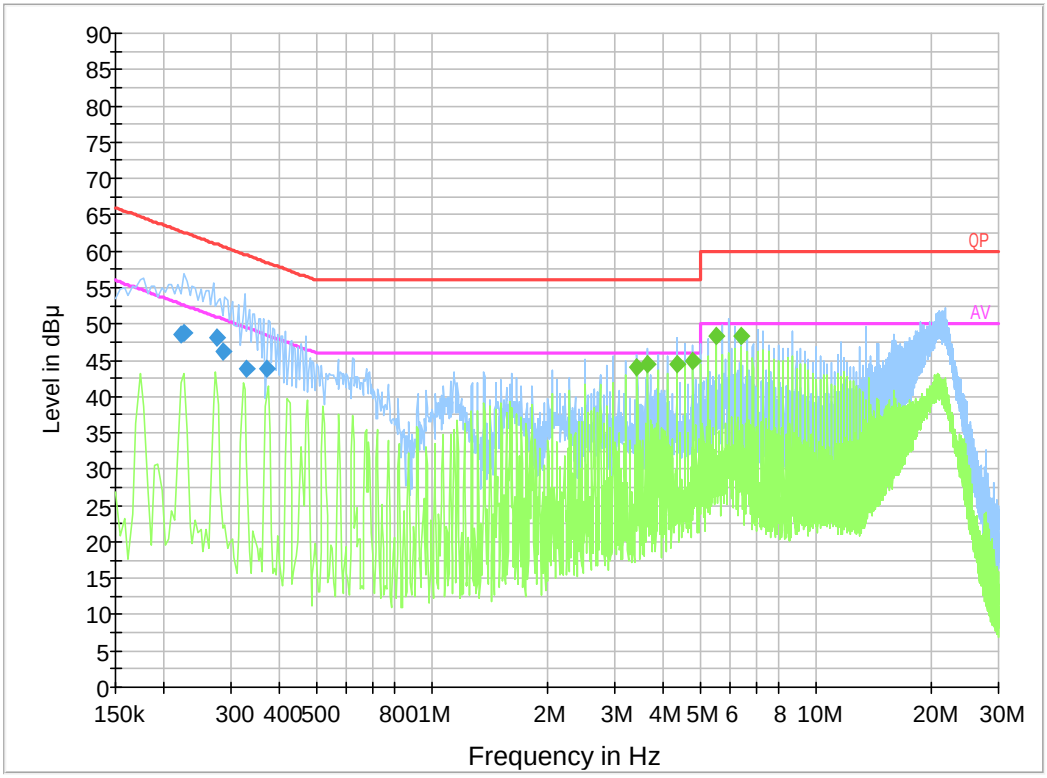
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.245500	49.5	9.000	L1	19.8	12.4	61.9
0.273500	49.6	9.000	L1	19.8	11.4	61.0
0.322770	48.3	9.000	L1	19.8	11.3	59.6
0.470890	43.7	9.000	L1	19.8	12.8	56.5
3.663070	48.6	9.000	L1	19.9	7.4	56.0
4.577330	50.0	9.000	L1	19.9	6.0	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.245500	24.9	9.000	L1	19.8	27.0	51.9
0.273500	46.6	9.000	L1	19.8	4.4	51.0
0.322770	46.0	9.000	L1	19.8	3.6	49.6
0.470890	42.7	9.000	L1	19.8	3.8	46.5
3.663070	44.5	9.000	L1	19.9	1.5	46.0
4.577330	44.7	9.000	L1	19.9	1.3	46.0

AC 120V/60 Hz, Neutral



Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.221500	48.6	9.000	N	19.8	14.2	62.8
0.225500	48.8	9.000	N	19.8	13.8	62.6
0.274500	48.2	9.000	N	19.7	12.8	61.0
0.285500	46.1	9.000	N	19.7	14.6	60.7
0.329110	43.9	9.000	N	19.8	15.6	59.5
0.371490	43.8	9.000	N	19.9	14.7	58.5

Final Result 2

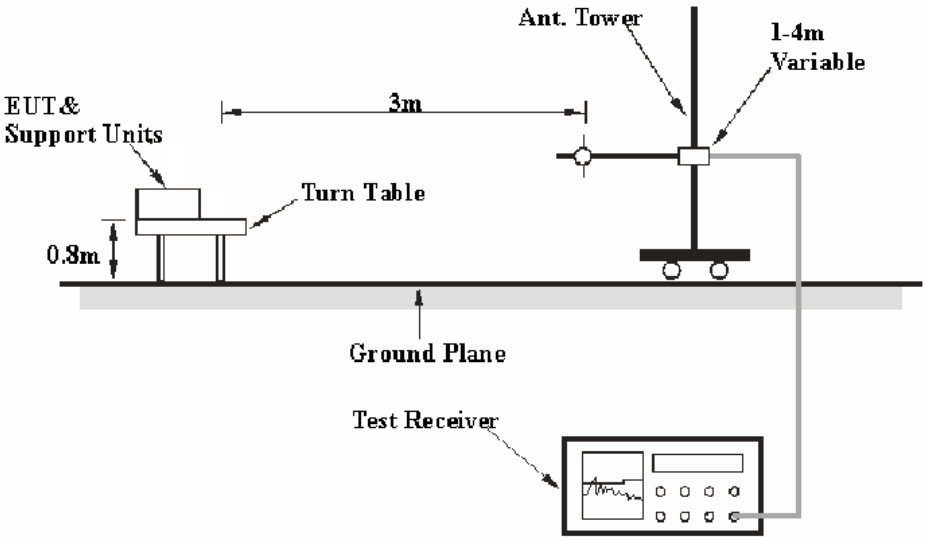
Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
3.434000	44.1	9.000	N	19.9	1.9	46.0
3.662000	44.4	9.000	N	19.9	1.6	46.0
4.350000	44.5	9.000	N	19.9	1.5	46.0
4.806000	44.9	9.000	N	19.9	1.1	46.0
5.494000	48.3	9.000	N	19.9	1.7	50.0
6.410000	48.4	9.000	N	19.9	1.6	50.0

FCC§15.109 - RADIATED EMISSIONS

Applicable Standard

FCC §15.109

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The related limit was specified in FCC Part 15B.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Data

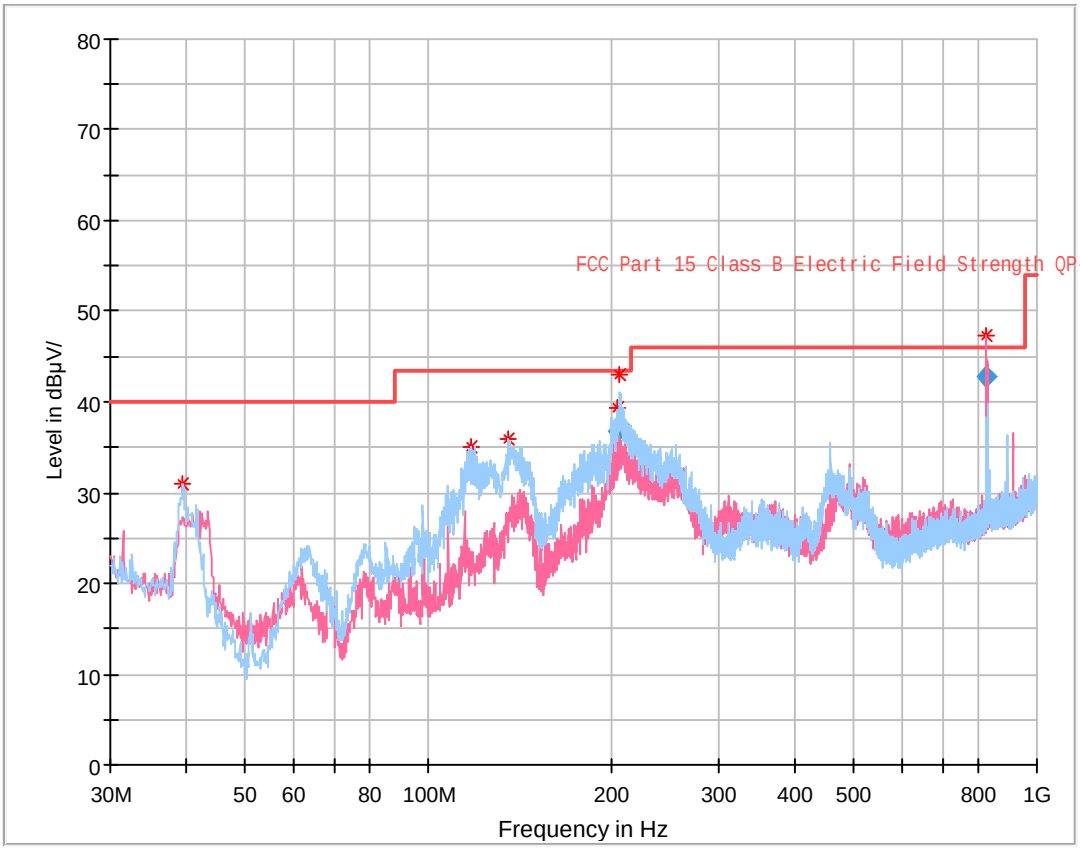
Environmental Conditions

Temperature:	27 ℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Harris He on 2021-05-31.

EUT Operation Mode: Charging& Full load

Adapter power supply
30 MHz~1 GHz



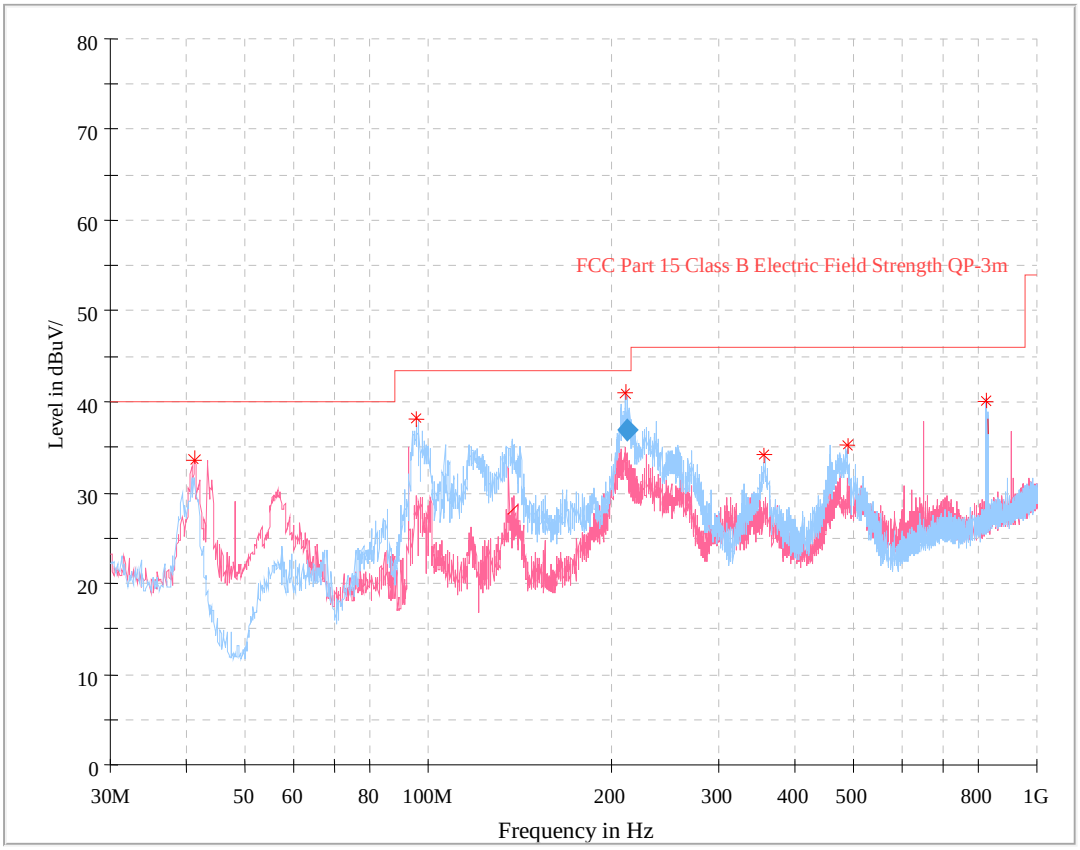
Final_Result

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
204.188750	36.84	43.50	6.66	145.0	H	230.0	-11.1
206.183375	37.36	43.50	6.14	111.0	H	229.0	-11.1
827.739375	42.73	46.00	3.27	111.0	V	152.0	-0.1

Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.457500	30.89	40.00	9.11	100.0	H	178.0	-10.1
117.542500	34.98	43.50	8.52	300.0	H	214.0	-10.5
135.245000	35.94	43.50	7.56	300.0	H	235.0	-10.5

PD Adapter power supply
30 MHz~1 GHz



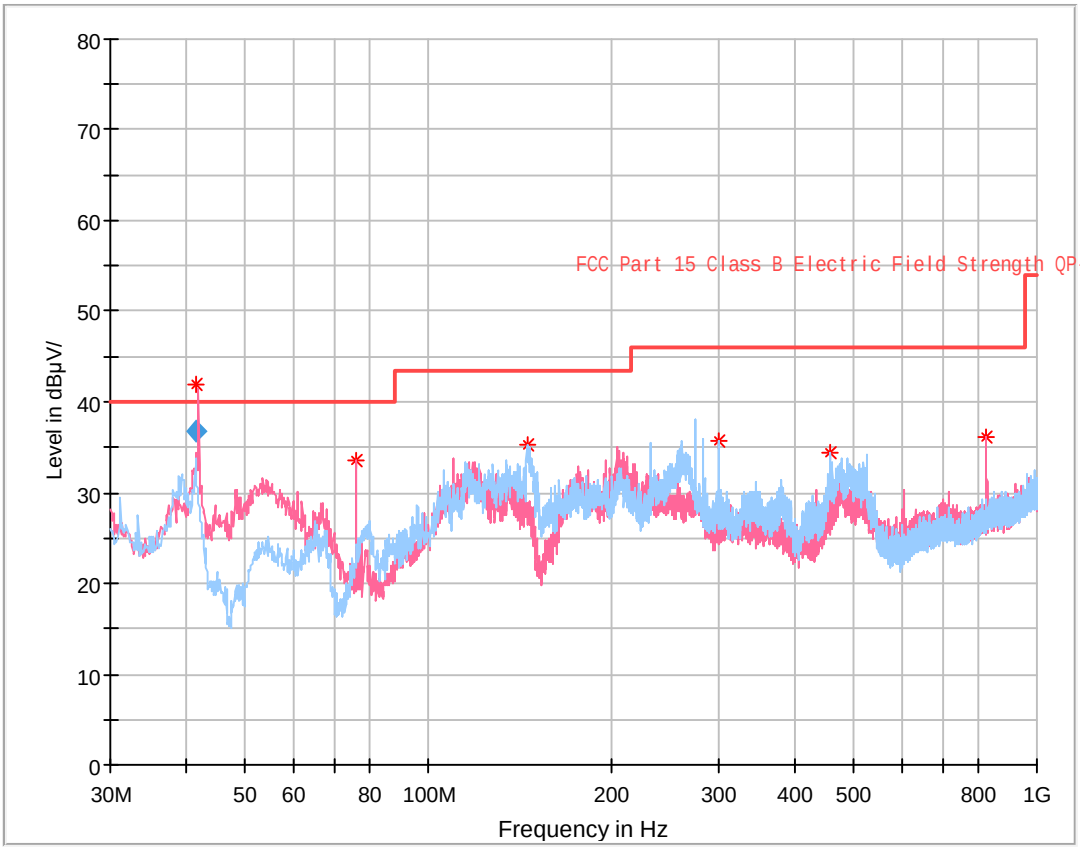
Final_Result

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth	Corr. (dB)
204.188750	36.97	43.50	6.53	196.0	V	250.0	-11.5

Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.457500	33.89	40.00	6.11	100.0	H	178.0	-10.1
95.953750	37.49	43.50	6.01	300.0	V	194.0	-16.5
345.187500	34.20	46.00	11.80	200.0	H	144.0	-11.1
497.648750	34.49	46.00	11.51	100.0	H	292.0	-5.5
825.400000	39.71	46.00	6.29	100.0	V	99.0	-0.2

DC power supply
30 MHz~1 GHz



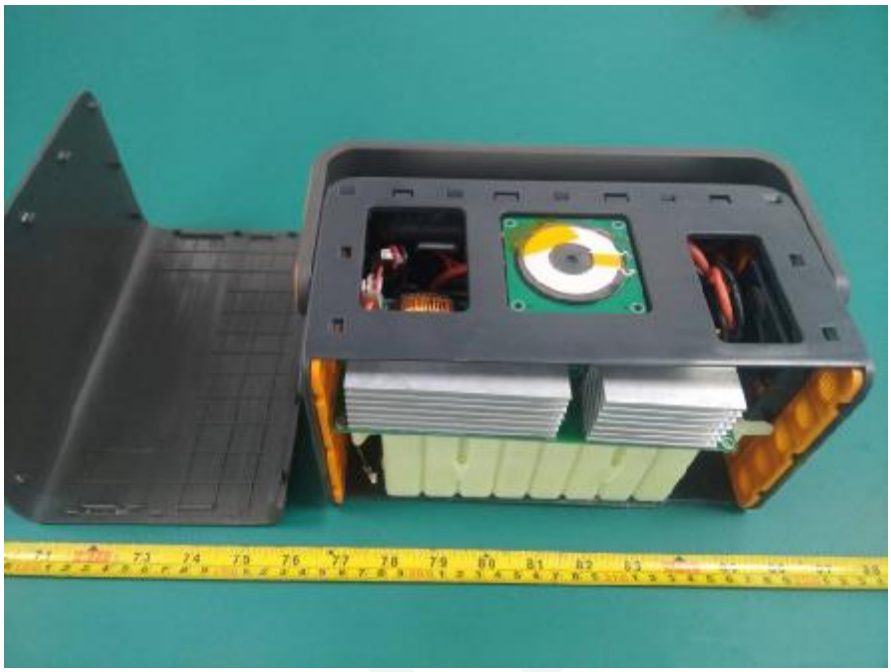
Final_Result

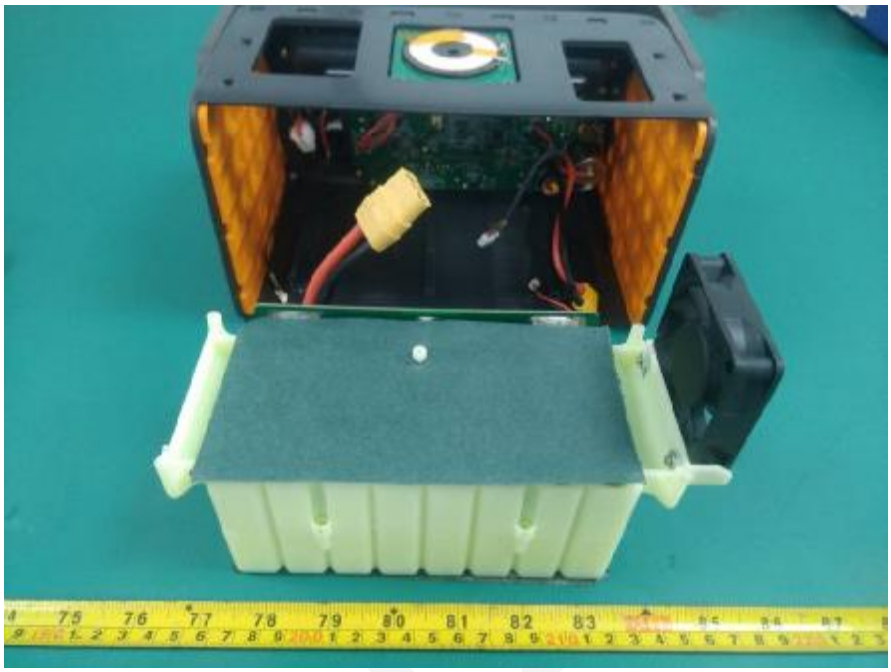
Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
41.514000	36.77	40.00	3.23	196.0	V	250.0	-11.5

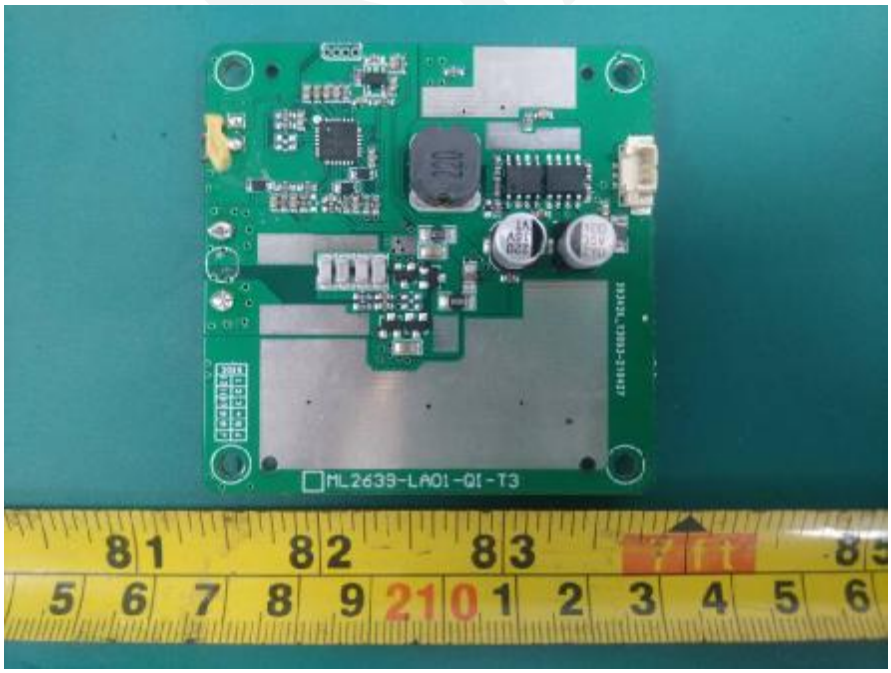
Critical_Freqs

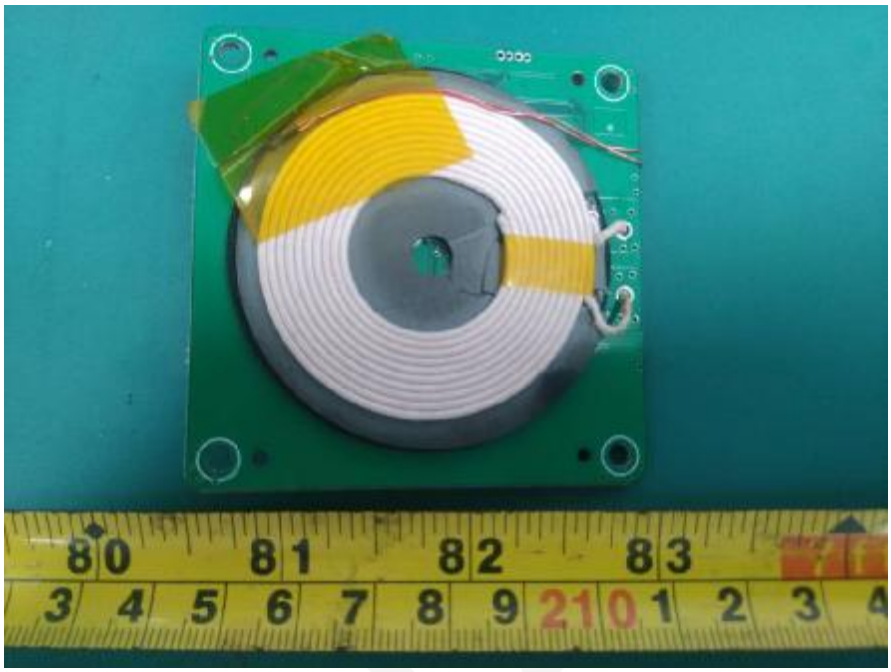
Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
75.953750	33.49	40.00	6.51	300.0	V	194.0	-16.5
145.187500	35.20	43.50	8.30	200.0	H	144.0	-11.1
300.751250	35.69	46.00	10.31	100.0	H	13.0	-9.9
457.648750	34.49	46.00	11.51	100.0	H	292.0	-5.5
825.400000	36.13	46.00	9.87	100.0	V	99.0	-0.2

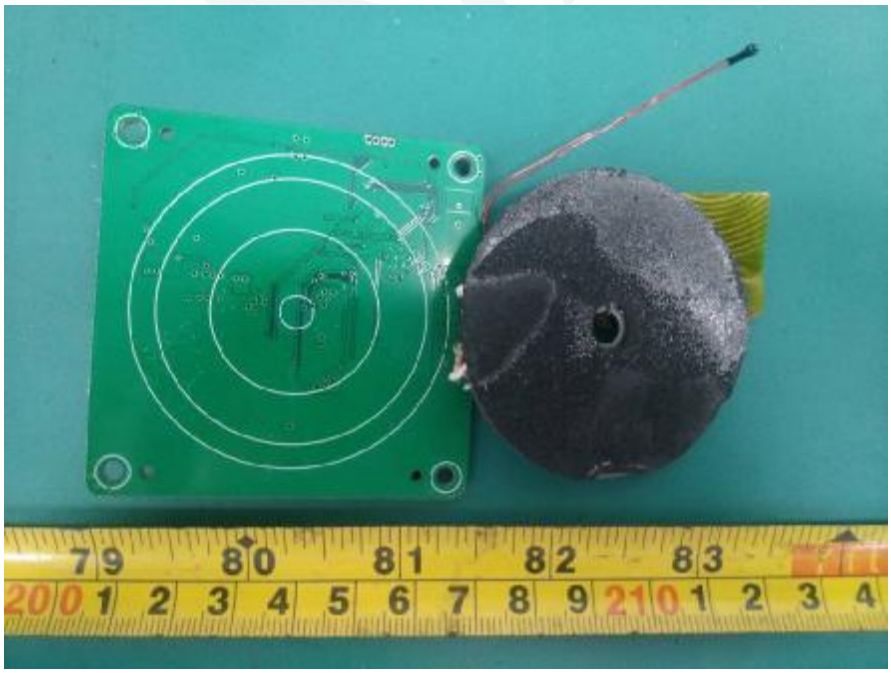
EXHIBIT A - EUT PHOTOGRAPHS

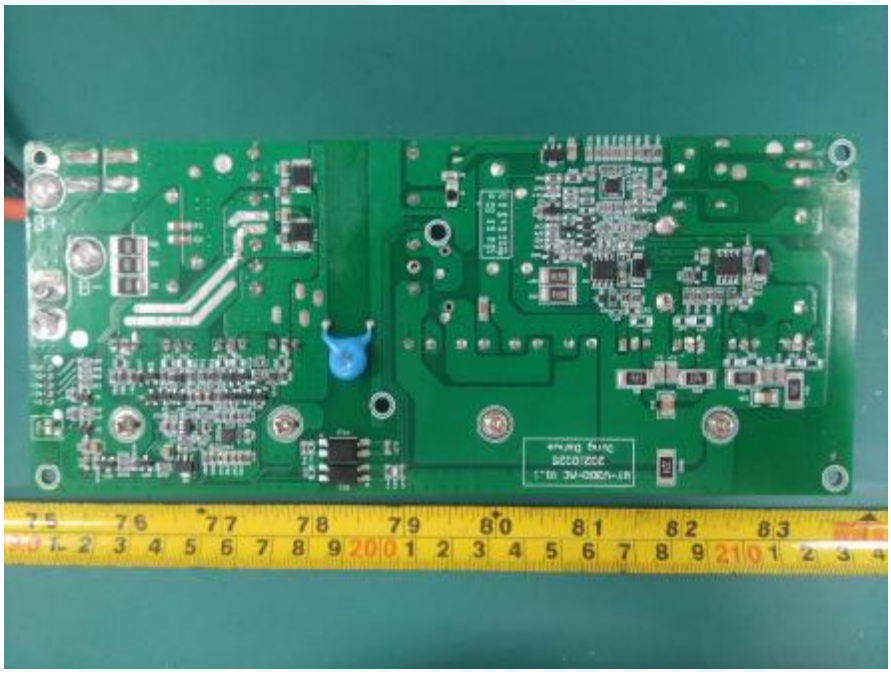


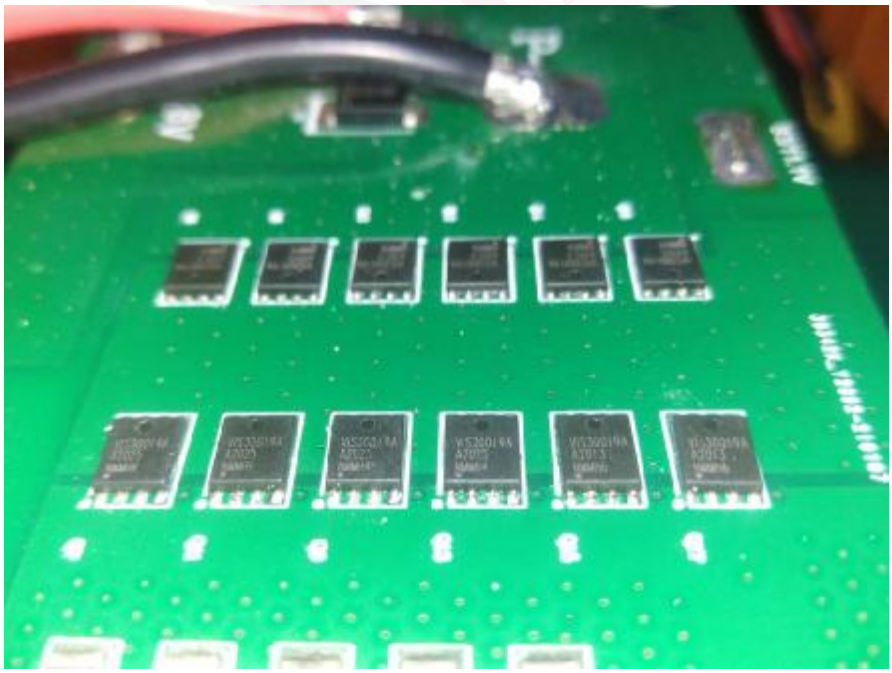



ML2639-LA01-GI-T3



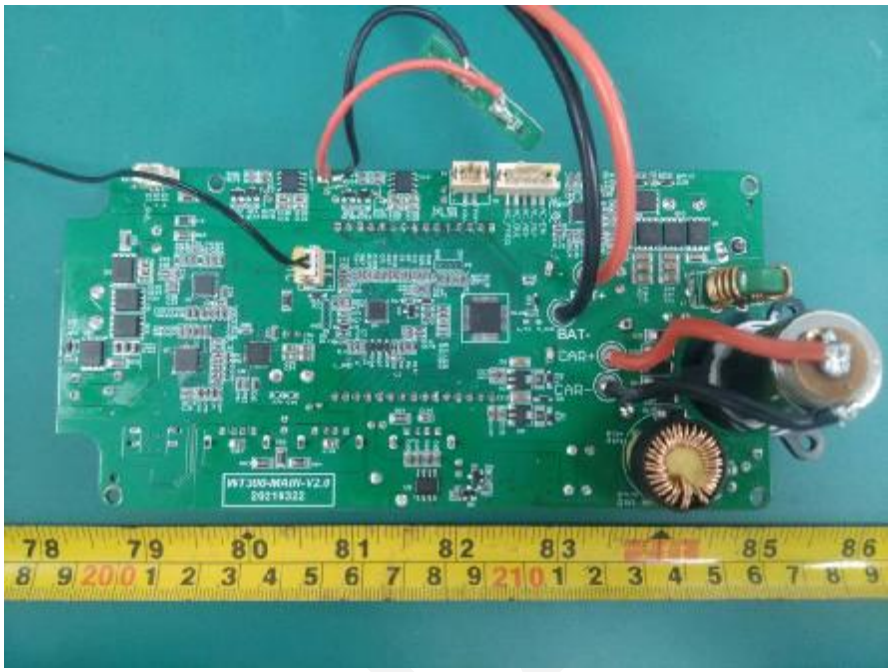


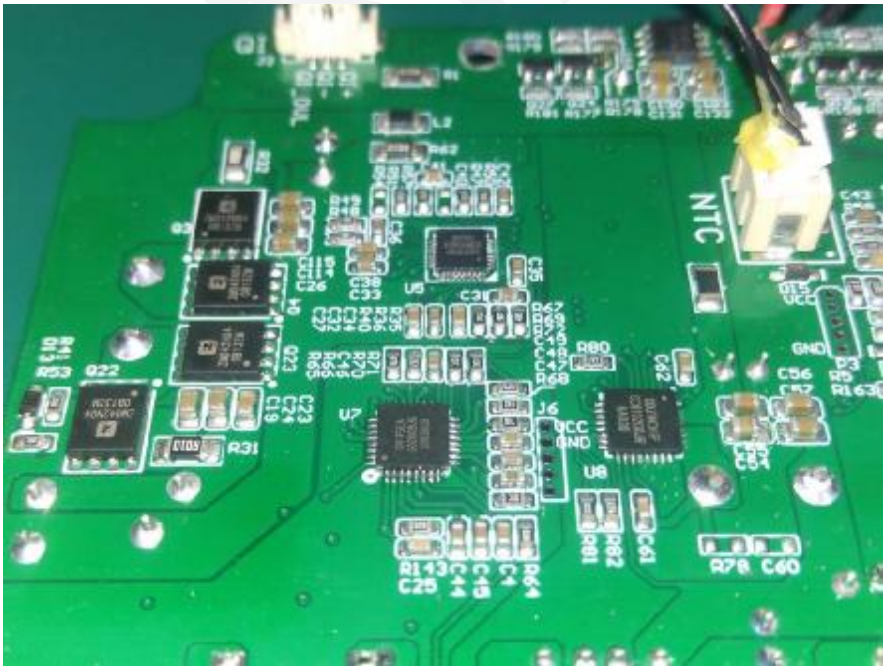


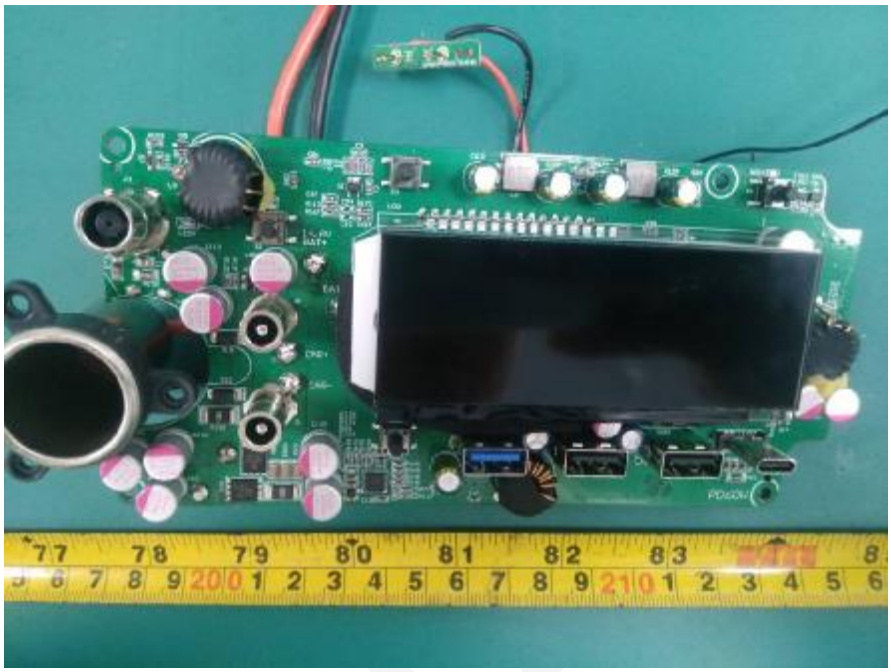



YCCFAN
MODEL:YDH6015C12F
DC 12V 0.18A


INR18650S-2500mAh
9.0Wh UG1F041FEB


BAT-
CAR+
CAR-


NTC
GND
VCC
GND




AC/DC ADAPTER
CAUTION
WARNING
RoHS
MADE IN CHINA
CL12105120052

EXHIBIT B - TEST SETUP PHOTOGRAPHS

Conducted Emissions (Adapter power supply) - Front View

Conducted Emissions (Adapter power supply) - Side View

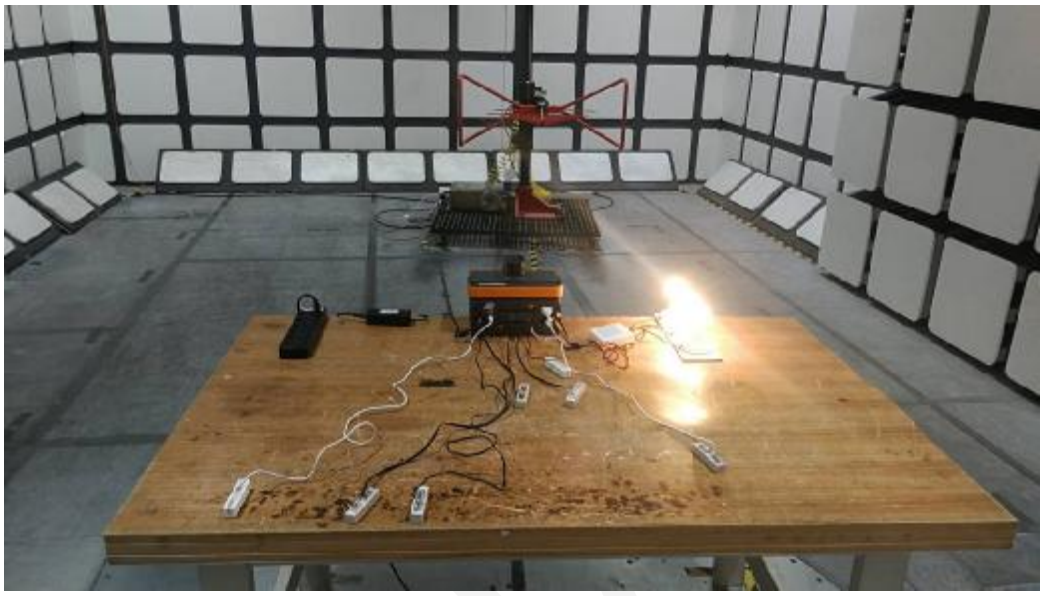
Conducted Emissions (PD Adapter power supply) - Front View

Conducted Emissions (PD Adapter power supply) - Side View

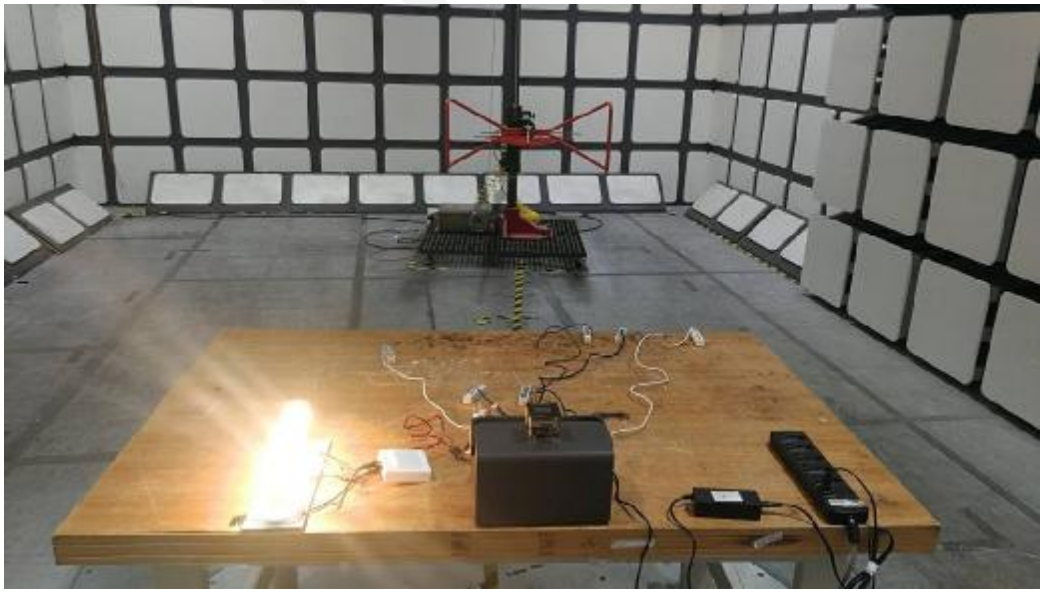
Conducted Emissions (DC power supply) - Front View

Conducted Emissions (DC power supply) - Side View

Radiated Emissions (Adapter power supply) – Front View

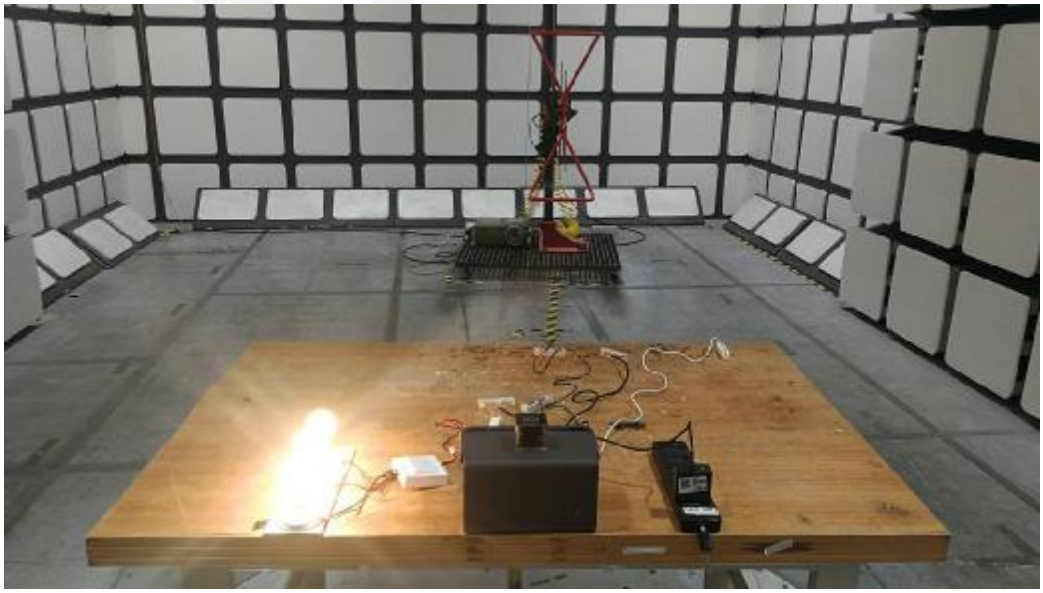


Radiated Emissions (Adapter power supply) – Rear View

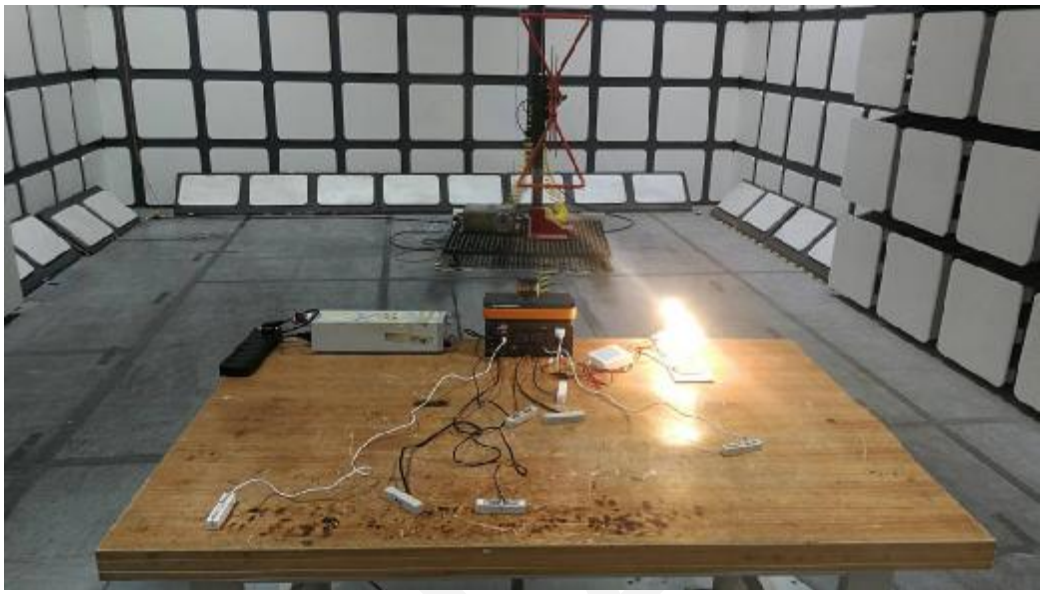


Radiated Emissions (PD Adapter power supply) – Front View

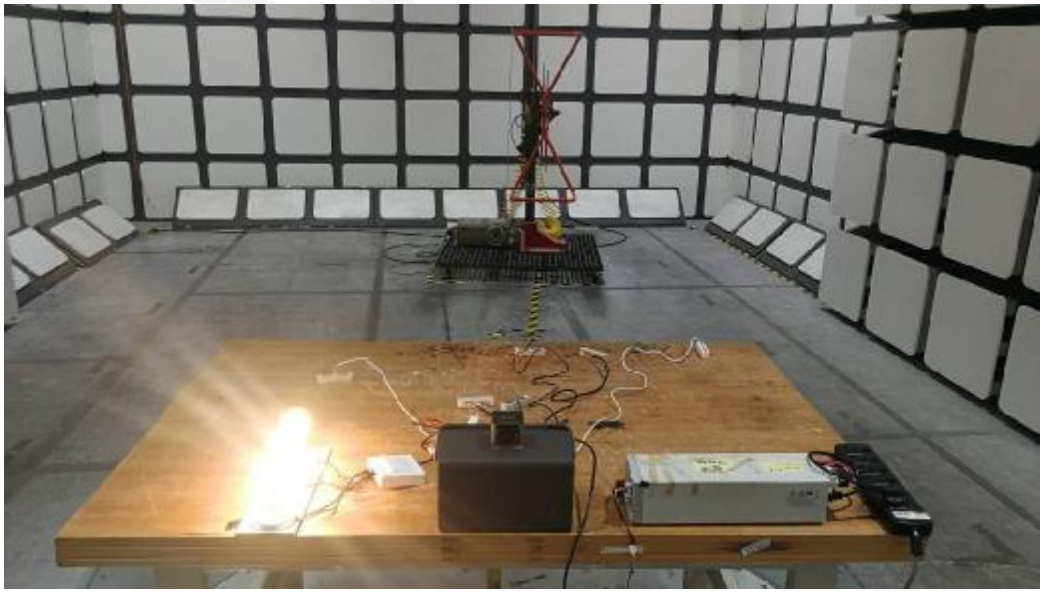
Radiated Emissions (PD Adapter power supply) – Rear View



Radiated Emissions (DC power supply) – Front View



Radiated Emissions (DC power supply) – Rear View



PRODUCT SIMILARITY DECLARATION LETTER

Shenzhen wanmai technology innovation Co., LTD.
501,5th Fir,BLDG 4,Pingshan Minqi Technology Park No.65 LishanRoad,Pingshan Community,Taoyuan Street,Nanshan District, Shenzhen,GuangDong 518055 China
Tel: 86-0755-84652162
Email: info@vantopgroup.com
Date: 2021-06-11

Portable power station Similarity Declaration

Dear Sir or Madam,

FEDERAL COMMUNICATIONS COMMISSIONS
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

Dear Sir or Madam,

We, Shenzhen wanmai technology innovation Co., LTD. hereby declare that we have a product named as Portable power station (Model number: Savior 300 FCC ID: 2AZV4-SAVIOR300) was tested by BACL. Meanwhile, for our marketing purpose, we would like to list a series models (Savior C300T，A15003) on reports and certificate. All of the models are electrically identical, but the difference among them is model name.

We confirm that all information above is true, and we'll be responsible for all the consequences. Please contact me if you have any question.

Signature: Xiao yan Liu

Xiaoyan Liu

Title: Management Support Manager

******* END OF REPORT *******