

# FCC TEST REPORT FCC ID: 2BC8J-PS-B005WA

On Behalf of

# SHENZHEN SNAPPER TECHNOLOGY CO., LTD

**Universal Power Charger** 

Model No.: PS-B005WA

Prepared for : SHENZHEN SNAPPER TECHNOLOGY CO., LTD

F4, BldgE, Fenghuang third Industrial area, Tengfeng Road, Fuyong,

Baoan, Shenzhen

Address

Prepared By : Shenzhen Alpha Product Testing Co., Ltd.

Address : Building i, No.2, Lixin Road, Fuyong Street, Bao'an District,

518103, Shenzhen, Guangdong, China

Report Number : A2312139-C01-R06 Date of Receipt : October 10, 2023

Date of Test : October 10, 2023 – April 16, 2024

Date of Report : April 16, 2024

Version Number : V0

Test Result : Pass

# **TABLE OF CONTENTS**

<u> </u>	<u>escr</u>	<u>iptio</u>	n	<u>Page</u>
1.	Test	Result	Summary	5
2.	Gene	ral Info	ormation	6
	2.1. 2.2.		iption of Device (EUT)ssories of Device (EUT)	
	2.3.	Teste	d Supporting System Details	7
	2.4.	Block	Diagram of Connection between EUT and Simulators	7
	2.5.	Descr	iption of Test Modes	7
	2.6.	Test C	Conditions	7
	2.7.	Test F	Facility	8
	2.8.	Measu	urement Uncertainty	8
	2.9.	Test E	Equipment List	9
3.	Test	Result	s and Measurement Data	10
	3.1.	Condu	ucted Emission	10
	;	3.1.1.	Test Specification	10
	;	3.1.2.	Test Data	11
	3.2.	Radia	ted Spurious Emission Measurement	14
	;	3.2.1.	Test Specification	14
	;	3.2.2.	Test Data	17
	3.3.	Test S	Specification	23
	;	3.3.1.	Test Data	24
4.	Photo	os of T	est Setup	25
5.	Photo	ograph	ns of EUT	27

### TEST REPORT DECLARATION

Applicant : SHENZHEN SNAPPER TECHNOLOGY CO., LTD

Address F4, BldgE, Fenghuang third Industrial area, Tengfeng Road, Fuyong, Baoan,

Shenzhen

Manufacturer : SHENZHEN SNAPPER TECHNOLOGY CO., LTD

Address F4, BldgE, Fenghuang third Industrial area, Tengfeng Road, Fuyong, Baoan,

Shenzhen

EUT Description : Universal Power Charger

(A) Model No. : PS-B005WA

(B) Trademark : N/A

Measurement Standard Used:

FCC CFR Title 47 Part 15 Subpart C Section 15.209

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the FCC CFR Title 47 Part 15 Subpart C Section 15.209 requirements.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature)......

Yannis Wen
Project Engineer

Wen

Approved by (name + signature).....:

Reak Yang
Project Manager

Date of issue..... April 16, 2024

# **Revision History**

Revision	Issue Date	Revisions	Revised By
V0	April 16, 2024	Initial released Issue	Yannis Wen

# 1. Test Result Summary

Requirement	CFR 47 Section	Result		
Antenna requirement	§15.203	PASS		
AC Power Line Conducted Emission	§15.207	PASS		
Spurious Emission	§15.209(a)(f)	PASS		
Occupied Bandwidth	§15.215 (c)	PASS		

#### Note:

- 1. PASS: Test item meets the requirement.
- 2. Fail: Test item does not meet the requirement.
- 3. N/A: Test case does not apply to the test object.
- 4. The test result judgment is decided by the limit of test standard.

#### 2. **General Information**

### 2.1. Description of Device (EUT)

**EUT Name Universal Power Charger** 

Model No. PS-B005WA

DIFF. N/A

Power supply DC 5V/9V/12V from adapter, DC 3.85V from battery, AC 120V/60Hz

**EUT** information AC Input: 100-240VAC 50/60Hz 0.3A Max

> Type-C Input: DC5V/3A,9V/2A,12V/1.5A PD18W Max Type-C Output: DC5V/3A,9V/2A,12V/1.67A PD20W Max

Type-C cable output : DC5V/3A,9/V/2A,12V/1.67A PD20W Max

Lightning Cable Output: DC5V/2.4A Max

USB-A Output: DC5V/4.5A, 9V/2A, 12V/1.5A 22.5W Max

Wireless output: 5W/7.5W/10W/15W Max

Total Sharing Output: DC 5V/3A Max

Charge and discharge simultaneous: In AC charging mode DC5V/2A 10W

Max

Operation frequency 113~205KHz

Modulation MSK

Coil Antenna, Maximum Gain is 0dBi Antenna Type

(This value is supplied by applicant).

Software version V1.0

Hardware version V1.0

Intend use environment Residential, commercial and light industrial environment

# 2.2. Accessories of Device (EUT)

Accessories1 : Cable

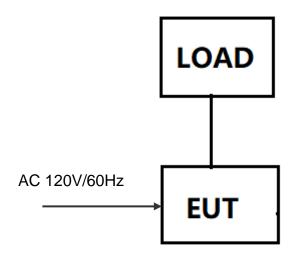
Manufacturer : SHENZHEN SNAPPER TECHNOLOGY CO., LTD

Model : /
Ratings : /

# 2.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification
1	Wireless load				

# 2.4. Block Diagram of Connection between EUT and Simulators



# 2.5. Description of Test Modes

Channel	Frequency (KHz)			
1	145			

# 2.6. Test Conditions

Items	Required	Actual		
Temperature range:	15-35℃	<b>24</b> °C		
Humidity range:	25-75%	56%		
Pressure range:	86-106kPa	98kPa		

# 2.7. Test Facility

Shenzhen Alpha Product Testing Co., Ltd Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission

Registration Number: 293961

July 15, 2019 Certificated by IC Registration Number: 12135A

# 2.8. Measurement Uncertainty

(95% confidence levels, k=2)

Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	1.63dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber	3.74dB(Polarize: V)
(30MHz to 1GHz)	3.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber	3.77dB(Polarize: V)
(1GHz to 25GHz)	3.80dB(Polarize: H)
Uncertainty for radio frequency	5.06×10 <sup>-8</sup> GHz
Uncertainty for conducted RF Power	0.40dB
Uncertainty for temperature	0.2℃
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

# 2.9. Test Equipment List

Equipment	Manufacture	Model No.	Firmware version	Serial No.	Last cal.	Cal Interval
9*6*6 anechoic chamber	CHENYU	9*6*6	/	N/A	2022.05.17	3Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	2.3	102137	2023.08.16	1Year
Spectrum analyzer	Agilent	N9020A	A.14.16	MY499100060	2023.08.16	1Year
Receiver	ROHDE&SCHWARZ	ESR	2.28 SP1	1316.3003K03-10 2082-Wa	2023.08.16	1Year
Receiver	R&S	ESCI	4.42 SP1	101165	2023.08.16	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	/	VULB 9168#627	2023.08.28	1Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	/	2106	2023.08.19	1Year
Loop Antenna	SCHWARZBECK	FMZB 1519B	/	00128	2023.08.19	1Year
RF Cable	Resenberger	Cable 1	/	RE1	2023.08.16	1Year
RF Cable	Resenberger	Cable 2	/	RE2	2023.08.16	1Year
RF Cable	Resenberger	Cable 3	/	CE1	2023.08.16	1Year
Pre-amplifier	HP	HP8347A	/	2834A00455	2023.08.16	1Year
Pre-amplifier	Agilent	8449B	/	3008A02664	2023.08.16	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	/	8126-466	2023.08.16	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	101043	2023.08.16	1Year
Horn Antenna	SCHWARZBECK	BBHA 9170	/	00946	2023.08.19	1Year
Preamplifier	SKET	LNPA_1840 -50	/	SK2018101801	2023.08.16	1 Year
Power Meter	Agilent	E9300A	/	MY41496628	2023.08.16	1 Year
Power Sensor	DARE	RPR3006W	/	15100041SNO91	2023.08.16	1 Year
Temp. & Humid. Chamber	Teelong	TL-HW408S	/	TL-20191205-01	2023.07.25	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	/	20140927-6	2023.08.16	1 Year
Adjustable attenuator	MWRFtest	N/A	/	N/A	N/A	N/A
10dB Attenuator	Mini-Circuits	DC-6G	/	N/A	N/A	N/A

Software Information							
Test Item	Software Name	Manufacturer	Version				
RE	EZ-EMC	EZ	Alpha-3A1				
CE	EZ-EMC	EZ	Alpha-3A1				
RF-CE	MTS 8310	MW	V2.0.0.0				

# 3. Test Results and Measurement Data

# 3.1. Conducted Emission

# 3.1.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.10:2013					
Frequency Range:	150 kHz to 30 MHz					
Receiver setup:	RBW=9 kHz, VBW=30 kHz,	, Sweep time=auto				
Limits:	Frequency range (MHz)  0.15-0.5  0.5-5  5-30	Limit (c Quasi-peak 66 to 56* 56 60	Average 56 to 46* 46 50			
	Refere	nce Plane				
Test Setup:	Remark: E.U.T Equipment Under Test LISN   Filter AC power   EMI   Receiver    Remark: E.U.T. Equipment Under Test LISN   Line Impedence Stabilization Network Test table height=0.8m					
Test Mode:	Transmitting Mode					
Test Procedure:	<ol> <li>The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>					
Test Result:	PASS					

#### 3.1.2. Test Data

#### Please refer to following diagram for individual

Test Mode : Charging(AC) and

Type-C Port Output(DC 5V/1A) and Wireless output(5W)

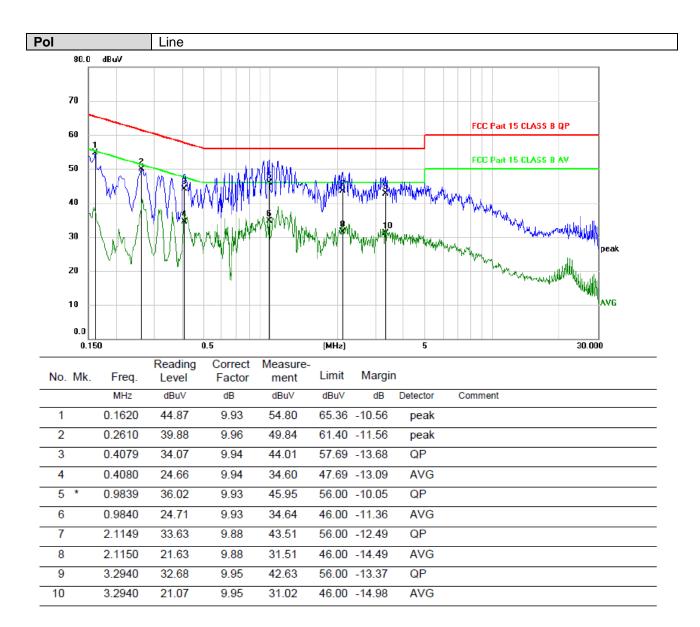
Test Result : PASS

Note: The test results are listed in next pages.

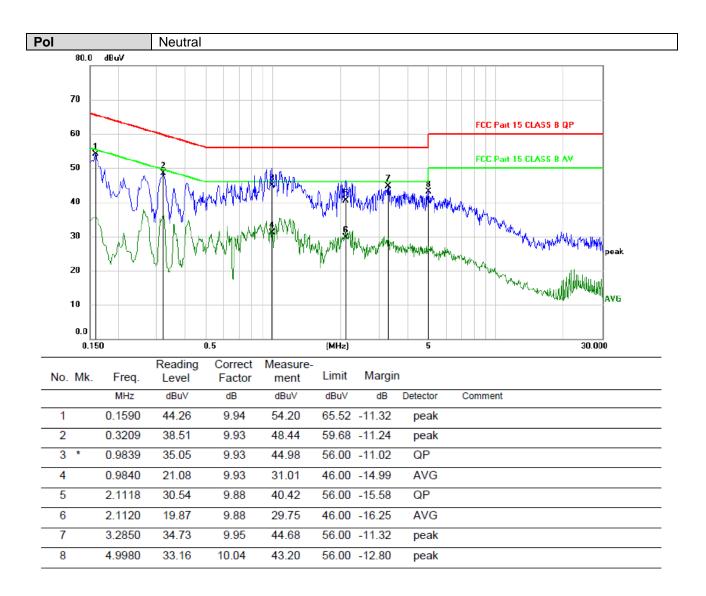
All test modes has been tested, this report only reflected the worst mode. (Charging+5W)

If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out.

If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.



<sup>\*:</sup>Maximum data x:Over limit !:over margin \( \text{Reference Only} \)
Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable



Reference Only

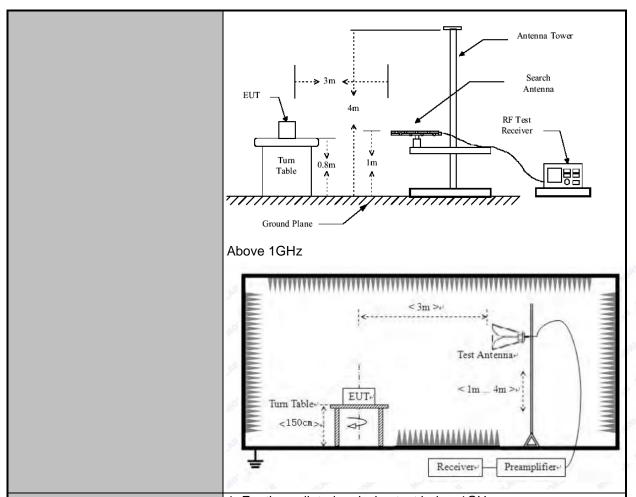
Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

<sup>\*:</sup>Maximum data x:Over limit !:over margin

# 3.2. Radiated Spurious Emission Measurement

# 3.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209							
Test Method:	ANSI C63.10: 2013							
Frequency Range:	9 kHz to 25 GHz							
Measurement Distance:	3 m							
Antenna Polarization:	Horizontal & Vertical							
Operation mode:	Refer to item 4.1							
	Frequency 9kHz- 150kHz		tector asi-pe k			VBW 1kHz		Remark uasi-peak Value
Receiver Setup:	150kHz- 30MHz		asi-pe k		)kHz	30kHz		uasi-peak Value
	30MHz-1GH z	Qua	asi-pe k	a   10	00KH z	300KH z	Q	uasi-peak Value
		F	Peak	1	MHz	3MHz	Pe	eak Value
	Above 1GHz		Peak		MHz	10Hz		erage Value
	Frequen	Frequency		Field Stre (microvolts/		_	Measurement Distance (meters)	
	0.009-0.490			2400/F(k			300	
	0.490-1.705			24000/F(KHz)		KHz)	30	
	1.705-30			30 100			30	
	30-88 88-216			150			3	
Limit:	216-960			200			3	
	Above 9	500			3			
	Frequency		Field Strength (microvolts/mete r)		Measure nt Distan (mete	ce	Detector	
	Above 1GHz		500		3		Average	
					5000 3 Peak			
	For radiated emissions below 30MHz							
	Distance = 3m  Computer  Pre -Amplifier							
Test setup:	Turn table 1m Receiver						eiver	
	30MHz to 1GHz	Z	Gi	round Plan	ne			4



1. For the radiated emission test below 1GHz:

The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.

For the radiated emission test above 1GHz:

Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

- Corrected Reading: Antenna Factor + Cable Loss + Read Level -Preamp Factor = Level
- 3. 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

#### **Test Procedure:**

	the quasi-peak detector and reported.  4. Use the following spectrum analyzer settings:  (1) Span shall wide enough to fully capture the emission being measured;  (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥RBW; Sweep = auto; Detector function = peak; Trace = max hold;  (3) Set RBW = 1 MHz, VBW= 3MHz for f 1 GHz for peak measurement.  For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 4.1 for details
Test results:	PASS

3.2.2. Test Data

### Please refer to following diagram for individual

Frequency Range : 9KHz~30MHz

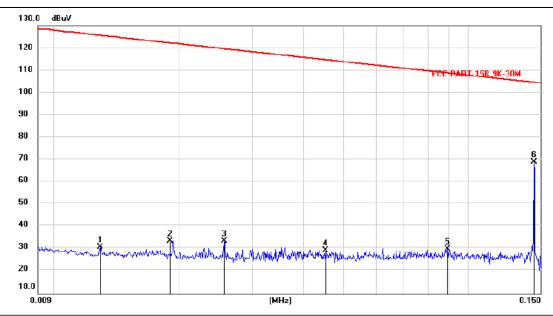
Test Mode : TX: 145kHz

Test Results : PASS

Note: 1. The test results are listed in next pages.

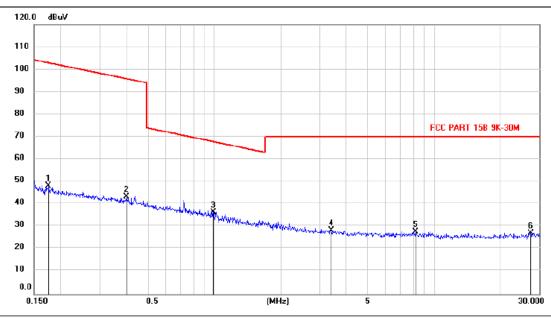
2. This mode is worst case mode, so this report only reflected the worst mode.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1	0.0128	9.31	21.43	30.74	125.5	-94.82	peak			
2	0.0189	12.30	21.27	33.57	122.1	-88.61	peak			
3	0.0256	12.55	21.11	33.66	119.5	-85.90	peak			
4	0.0451	9.12	20.17	29.29	114.6	-85.36	peak			
5	0.0892	10.00	19.91	29.91	108.7	-78.84	peak			
6 *	0.1449	48.84	20.12	68.96	104.5	-35.59	peak			

Note:1. \*:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1	0.1748	28.13	20.16	48.29	102.9	-54.63	peak			
2	0.3970	23.47	19.85	43.32	95.82	-52.50	peak			
3 *	0.9886	16.43	19.99	36.42	67.81	-31.39	peak			
4	3.4131	7.52	20.73	28.25	70.00	-41.75	peak			
5	8.2248	5.78	22.09	27.87	70.00	-42.13	peak			
6	27.5470	6.48	20.68	27.16	70.00	-42.84	peak			

Note:1. \*:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Frequency Range	:	30MHz~1000MHz
Test Mode	:	Charging(AC) and Type-C Port Output(DC 5V/1A) and Wireless output(5W)
Test Results	:	PASS

Note: 1. The test results are listed in next pages.

2. All test modes has been tested, this report only reflected the worst mode. (Charging+5W)

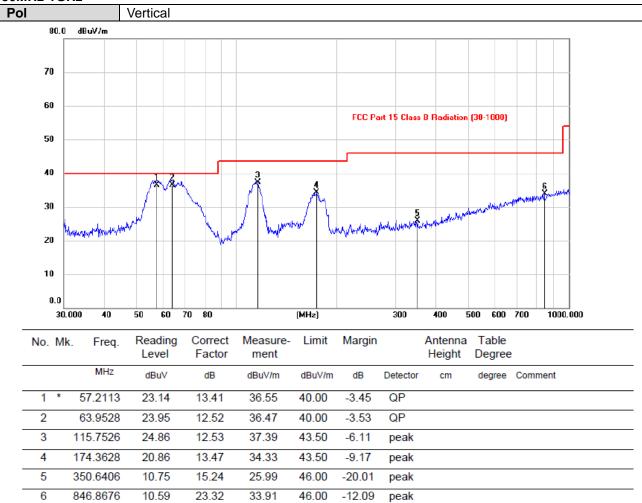
3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the quasi-peak detector need not be carried out.

Frequency Range	:	Above 1GHz			
EUT	:	/	Test Date	:	/
M/N	:	/	Temperature	:	/
Test Engineer	:	/	Humidity	:	/
Test Mode	:	/			
Test Results	:	N/A			

Note:

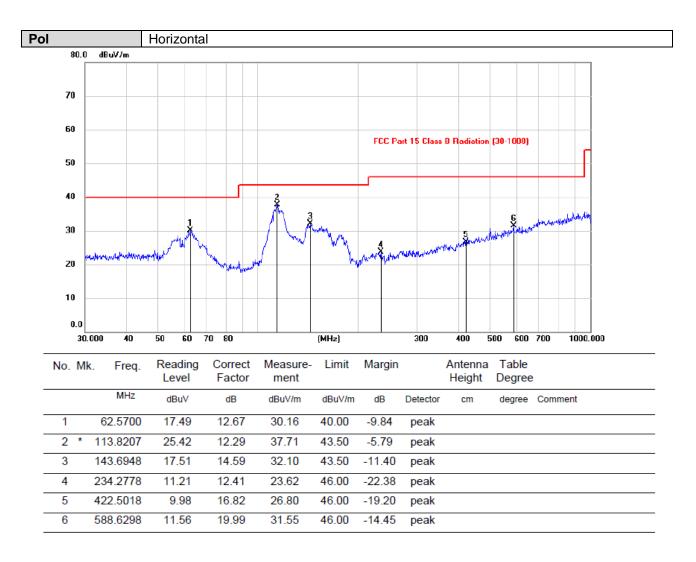
1. The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. So the frequency rang above 1GHz radiation test not applicable.

### 30MHz-1GHz



Note:1. \*: Maximum data; x: Over limit; !: over margin.

<sup>2.</sup>Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.



Note:1. \*: Maximum data; x: Over limit; !: over margin.

<sup>2.</sup>Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

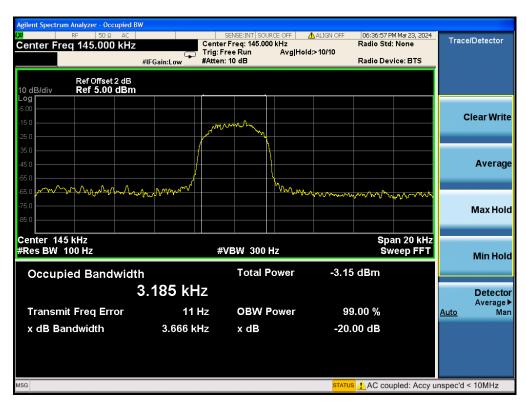
# 3.3. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)					
Test Method:	ANSI C63.10: 2013					
Limit:	N/A					
Test Procedure:	<ol> <li>According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.</li> <li>Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>Use the following spectrum analyzer settings for 20dB Bandwidth measurement.         Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW≥1% of the 20 dB bandwidth; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold.     </li> <li>Measure and record the results in the test report.</li> </ol>					
Test setup:	Spectrum Analyzer EUT					
Test Mode:	Refer to section 4.1 for details					
Test results:	PASS					

Frequency(KHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion
145	3.666		PASS

Page 24 of 35

### Test plots as follows:



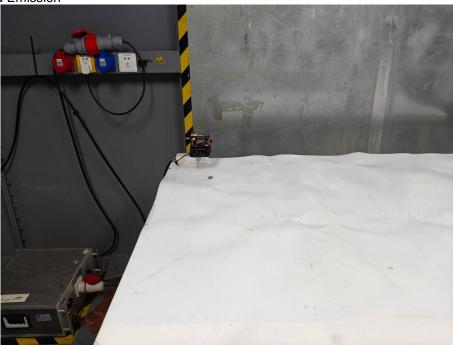
# 4. Photos of Test Setup

Radiated Emission





# Conducted Emission



# 5. Photographs of EUT





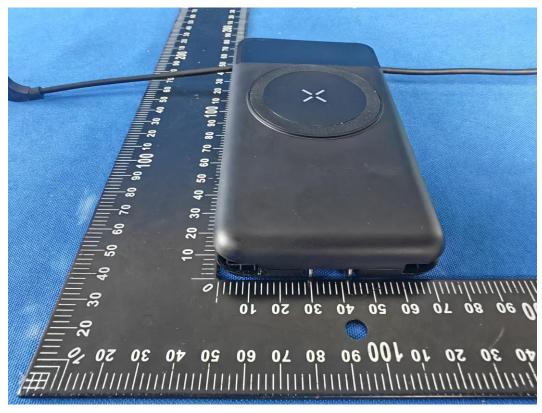




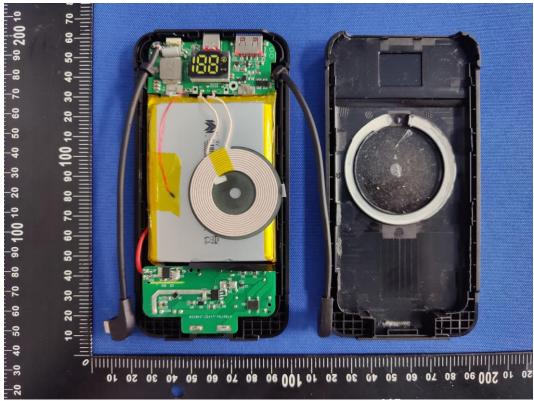


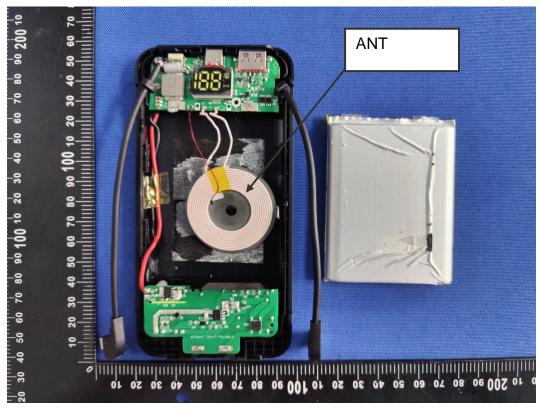


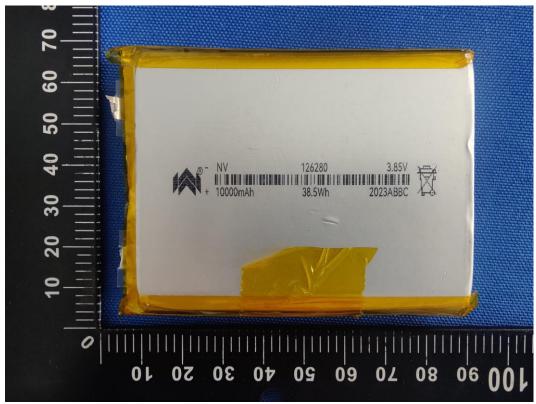


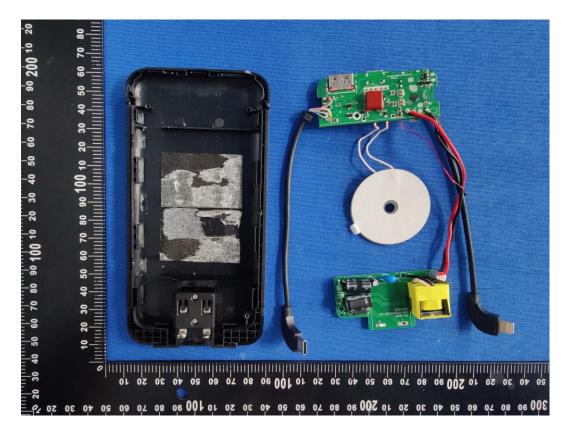


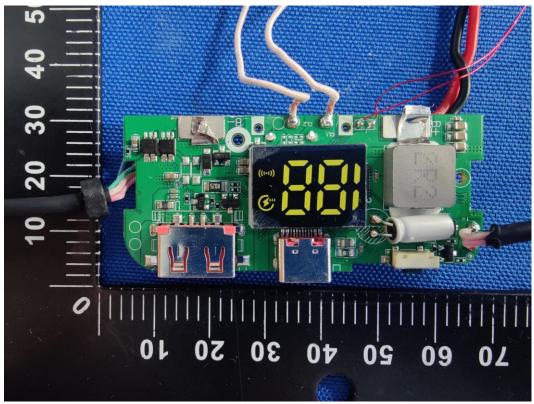


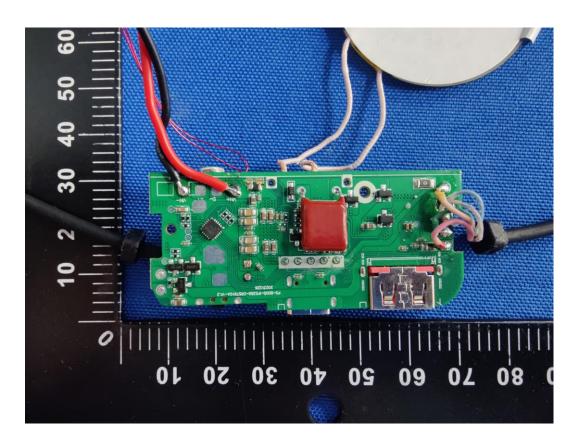


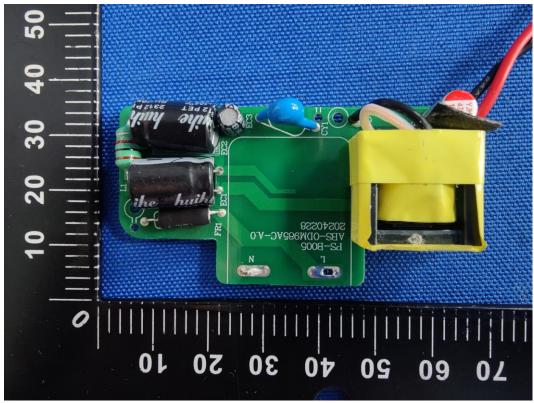


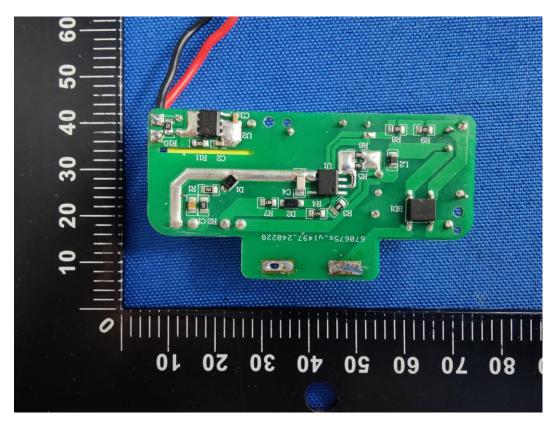












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