

FCC TEST REPORT

FCC ID: 2AP2N-DECK-TS

On Behalf of

Shenzhen Esorun Technology Co., LTD

3-in-1 desktop wireless charger

Model No.: Deck TS, Deck T

Prepared for	:	Shenzhen Esorun Technology Co.,LTD
Address	:	Room 226, Building A, B, C, Zone B, Yuanfen Industrial Zone, Taoyuan Community, Dalang Street, Longhua District, Shenzhen

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

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Applicant	:	Shenzhen Esorun Technology Co.,LTD		
Address	:	Room 226, Building A, B, C, Zone B, Yuanfen Industrial Zone, Taoyuan Community, Dalang Street, Longhua District, Shenzhen		
Manufacturer	:	Shenzhen Esorun Technology Co.,LTD		
Address	:	Room 226, Building A, B, C, Zone B, Yuanfen Industrial Zone, Taoyuan Community, Dalang Street, Longhua District, Shenzhen		
EUT Description	:	3-in-1 desktop wireless charger		
		(A) Model No. : Deck TS, Deck T		
		(B) Trademark : ESORUN		

TEST REPORT DECLARATION

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	Vannis wen
Approved by (name + signature):	Simple Guan Project Manager	ET G-
Date of issue	July 5, 2022	

Revision History

Revision	Issue Date	Revisions	Revised By
V0	July 5, 2022	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	:	3-in-1 desktop wireless charger		
Model No.	:	Deck TS, Deck T		
DIFF.	:	There is no difference except the name of the model. All tests are made with the Deck TS model.		
Trademark	:	ESORUN		
Power supply	:	Type C Input : 5V/3A, 9V/2A,12V/2A Output 1(Mobile) : 5W/7.5W/10W/15W Output 2(Airpods):5W Max Output 3(Apple Watch):3W Max Charging Output Total: 18W		
Operation frequency	:	115~205KHz		
Modulation	:	MSK		
Antenna Type	:	Coil Antenna, Maximum Gain is 0dBi (This value is supplied by applicant).		
Software version	:	V1.0		
Hardware version	:	V1.0		
Connector cable loss	:	0.5dB (This value is supplied by applicant).		
Intend use environment	:	Residential, commercial and light industrial environment		

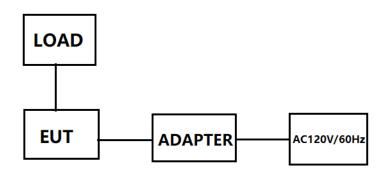
2.2. Accessories of Device (EUT)

Accessories1	:	/
Manufacturer	:	/
Model	:	/
Ratings	:	/

2.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification
1	Adapter	Airline Mechanical(Shenz hen)Co.,Ltd	CD226		
2	Wireless load				

2.4. Block Diagram of Connection between EUT and Simulators



2.5. Description of Test Modes

Channel	Frequency (KHz)
1	122

2.6. Test Conditions

Items	Required	Actual
Temperature range:	15-35°C	24 °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: CN0085

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 ⁻⁸ GHz
Uncertainty for conducted RF Power	0.40dB
Uncertainty for temperature	0.2 °C
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

2.9. Test Equipment List

Equipment	Manufacture	Model No.	Model No. Firmware Version Serial No		Last cal.	Cal Interval
9*6*6 anechoic chamber	CHENYU	9*6*6	/	N/A	2020.09.02	3Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	2.3	102137	2021.08.25	1Year
Spectrum analyzer	Agilent	N9020A	A.14.16	MY499100060	2021.08.25	1Year
Receiver	ROHDE&SCHWARZ	ESR	2.28 SP1	1316.3003K03-10 2082-Wa	2021.08.25	1Year
Receiver	R&S	ESCI	4.42 SP1	101165	2021.08.25	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	/	VULB 9168#627	2021.08.30	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	/	2106	2021.08.30	2Year
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	/	00059	2021.08.30	2Year
RF Cable	Resenberger	Cable 1	/	RE1	2021.08.25	1Year
RF Cable	Resenberger	Cable 2	/	RE2	2021.08.25	1Year
RF Cable	Resenberger	Cable 3	/	CE1	2021.08.25	1Year
Pre-amplifier	HP	HP8347A	/	2834A00455	2021.08.25	1Year
Pre-amplifier	Agilent	8449B	/	3008A02664	2021.08.25	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	/	8126-466	2021.08.25	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	101043	2021.08.25	1 Year
Horn Antenna	SCHWARZBECK	BBHA9170	/	00946	2021.08.30	2 Year
Preamplifier	SKET	LNPA_1840 -50	/	SK2018101801	2021.08.25	1 Year
Power Meter	Agilent	E9300A	/	MY41496628	2021.08.25	1 Year
Power Sensor	DARE	RPR3006W	/	15100041SNO91	2021.08.25	1 Year
Temp. & Humid. Chamber	Weihuang	WHTH-1000 -40-880	/	100631	2022.04.22	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	/	20140927-6	2021.08.25	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	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

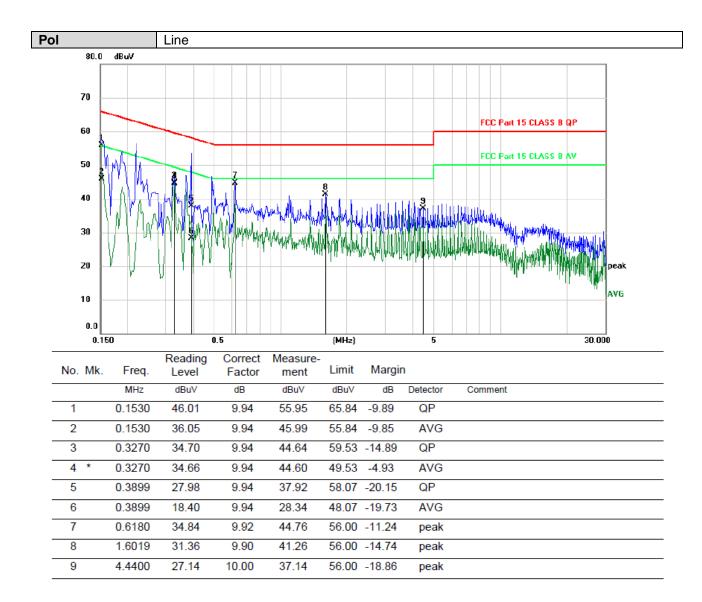
3.1.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.20	07		
Test Method:	ANSI C63.10:2013			
Frequency Range:	150 kHz to 30 MHz			
Receiver setup:	RBW=9 kHz, VBW=30 kHz,	Sweep time=auto		
	Frequency range (MHz)	Limit (d	IBuV)	
		Quasi-peak	Average	
Limits:	0.15-0.5	66 to 56*	56 to 46*	
	0.5-5	56	46	
	5-30	60	50	
	Refere	nce Plane		
Test Setup:	Image: stable height=0.8m			
Test Mode:	Transmitting Mode			
Test Procedure:	 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. 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). 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. 			
Test Result:	PASS			

3.1.2. Test Data

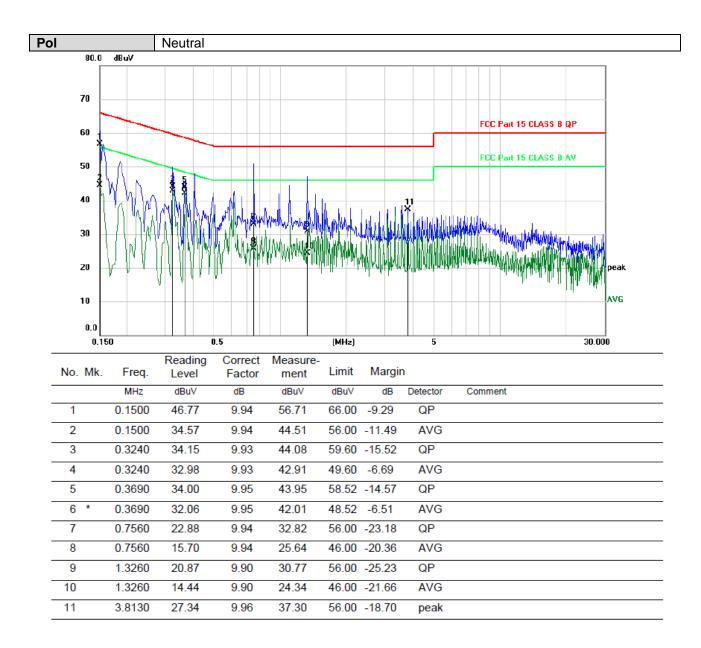
Please refer to following diagram for individual

Test Mo	bde : 5W, 7.5W, 10W, 15W, 10W+5W, 5W+5W+3W
Test Re	esult : PASS
Note:	The test results are listed in next pages.
	All test modes has been tested, this report only reflected the worst mode.(15W+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 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.



```
*:Maximum data x:Over limit !:over margin 

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



*:Maximum data x:Over limit I:over margin

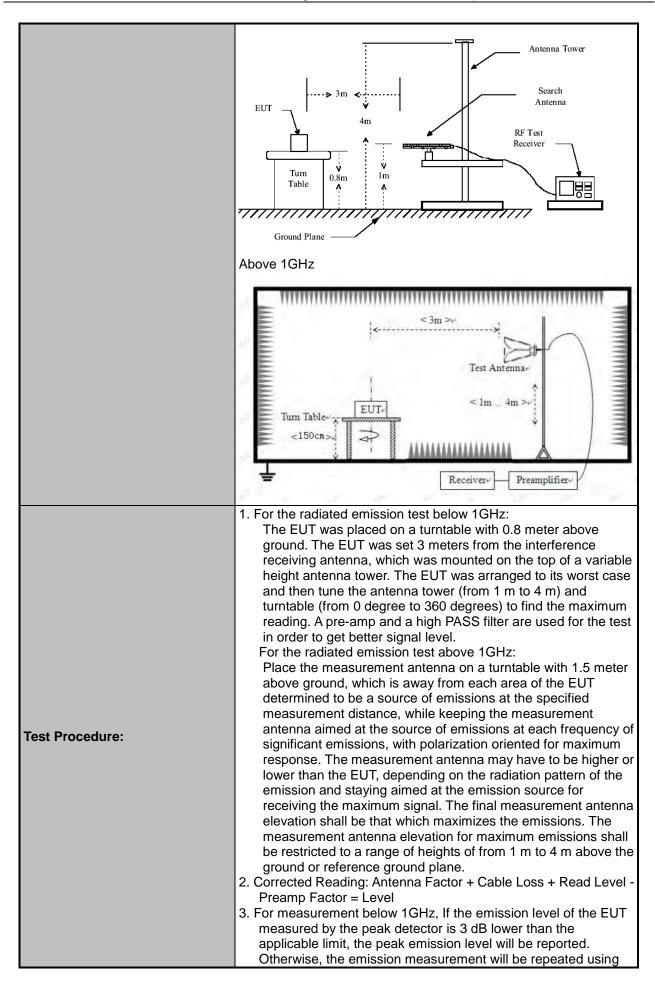
(Reference Only

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

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	Qua	tecto asi-pe k	ea	RBW 200Hz	VBW 1kHz	Q	Remark uasi-peak Value	
Receiver Setup:	150kHz- 30MHz	Qua	asi-pe k	ea	9kHz	30kHz	Q	uasi-peak Value	
	30MHz-1GH z		asi-pe k	ea	100KH z	300KH z		uasi-peak Value	
	Above 1GHz		Peak Peak		1MHz 1MHz	<u>3MHz</u> 10Hz		eak Value rage Value	
	Frequer		Cak	(Field Stre	ength N		Measurement Distance (meters)	
	0.009-0.490			2400/F(K		ć		300	
	0.490-1.7			24000/F(KHz)		30			
	<u>1.705-30</u> 30-88			30 100		30 3			
	88-216				150		3		
Limit:	216-96			200			3		
	Above 960 500 3						3		
	Frequency		Field Strength (microvolts/mete r)		Measure nt Distan (meter	се	Detector		
	Above 1GHz		500 5000		3		Average		
	For radiated en	niseio	ns ha			3 Pea		Peak	
		13310		2101					
	Distance = 3m Computer Pre -Amplifier								
Test setup:			table	1m			Reco	viver	
			G	round	d Plane				
	30MHz to 1GH	Z							



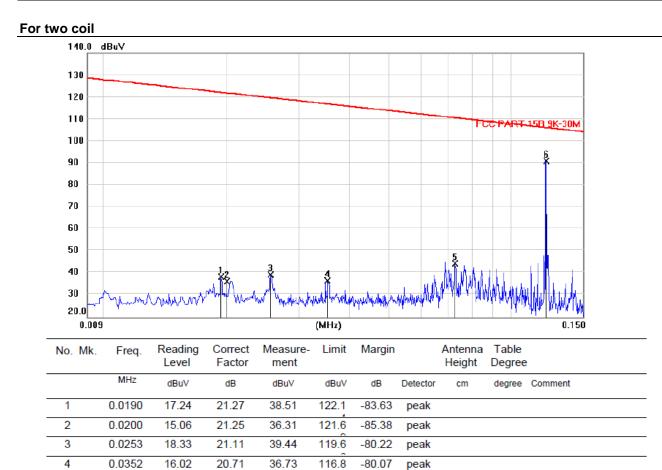
	 the quasi-peak detector and reported. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f □ 1 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

Freque	ncy Range : 9KHz~30MHz				
Test Mo	de	:	TX: 122kHz		
Test Re	sults	:	PASS		
Note:	e: 1. The test results are listed in next pages.				
	2. This mode is worst case mode, so this report only reflected the worst mode.				
	 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. 				





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

44.58

90.91

20.16

19.82

110.5

106.0

-65.94

-15.14

peak

peak

0.0727

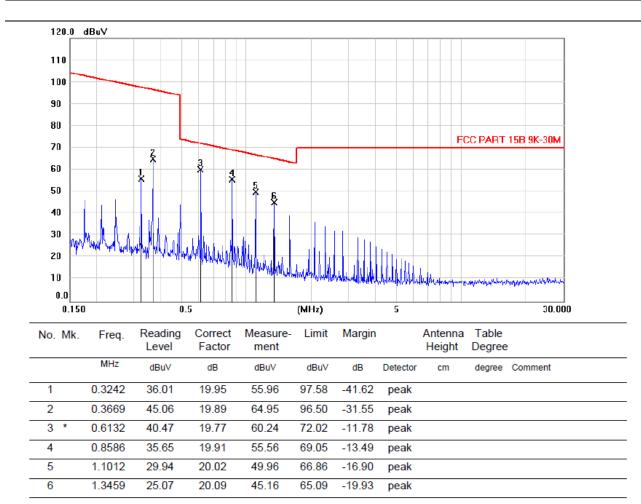
0.1218

24.42

71.09

5

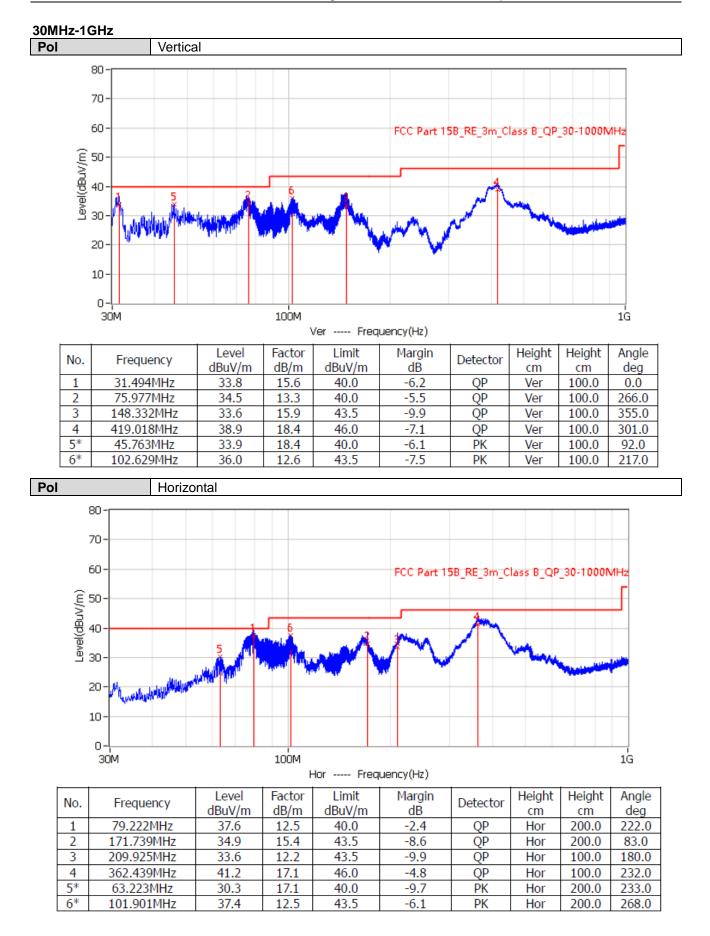
6 *



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

Frequer	ency Range : 30MHz~1000MHz				
Test Mo	Test Mode : 5W, 7.5W, 10W, 15W, 10W+5W, 5W+5W+3W		5W, 7.5W, 10W, 15W, 10W+5W, 5W+5W+3W		
Test Re	Test Results : PASS				
Note:	e: 1. The test results are listed in next pages.				
	2. All test modes has been tested, this report only reflected the worst mode. (15W+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 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					
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.					



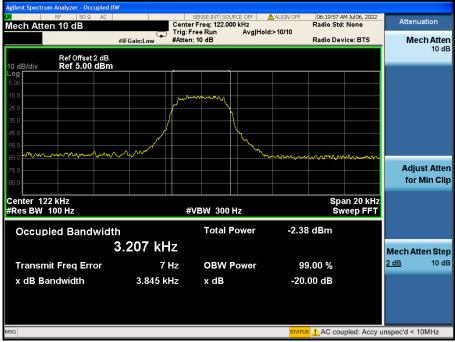
3.3. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2013
Limit:	N/A
Test Procedure:	 According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. Set to the maximum power setting and enable the EUT transmit continuously. 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. Measure and record the results in the test report.
Test setup:	Spectrum Analyzer EUT
Test Mode:	Refer to section 4.1 for details
Test results:	PASS

3.3.1. Test Data

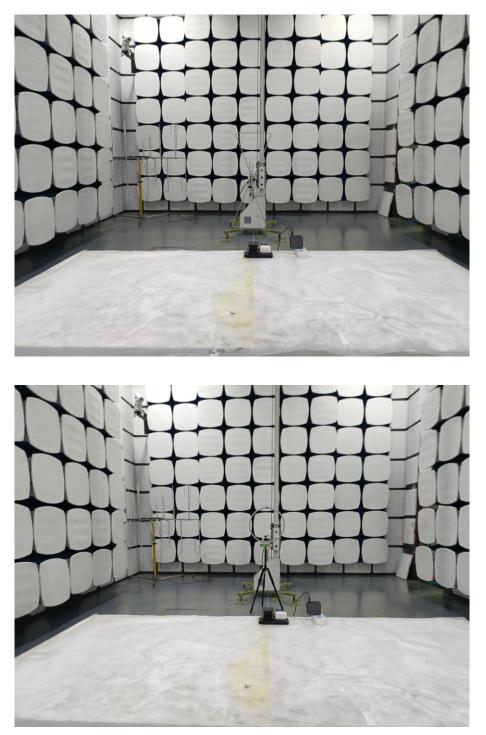
Frequency(KHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion
122	3.845		PASS

Test plots as follows:



4. Photos of Test Setup

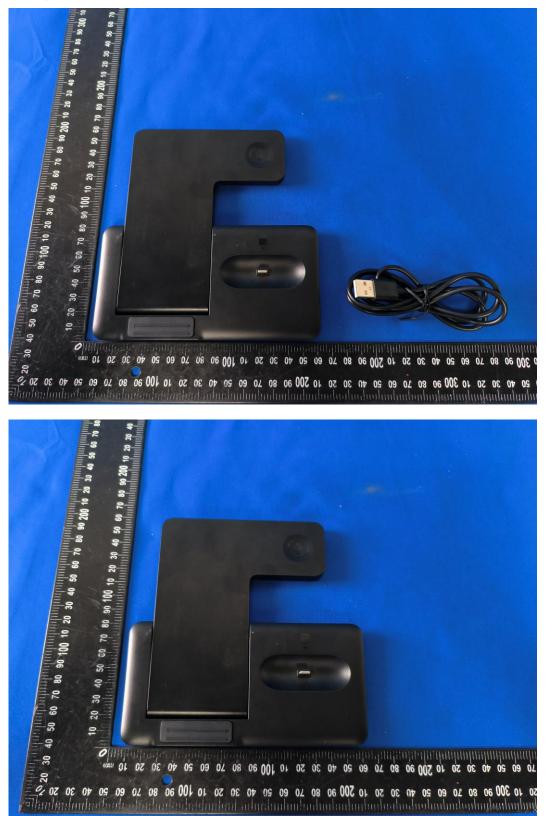
Radiated Emission

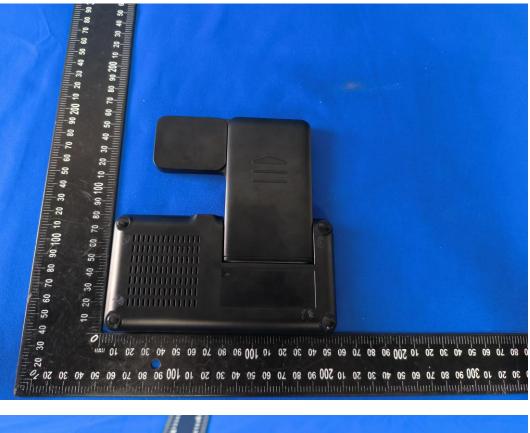


Conducted Emission

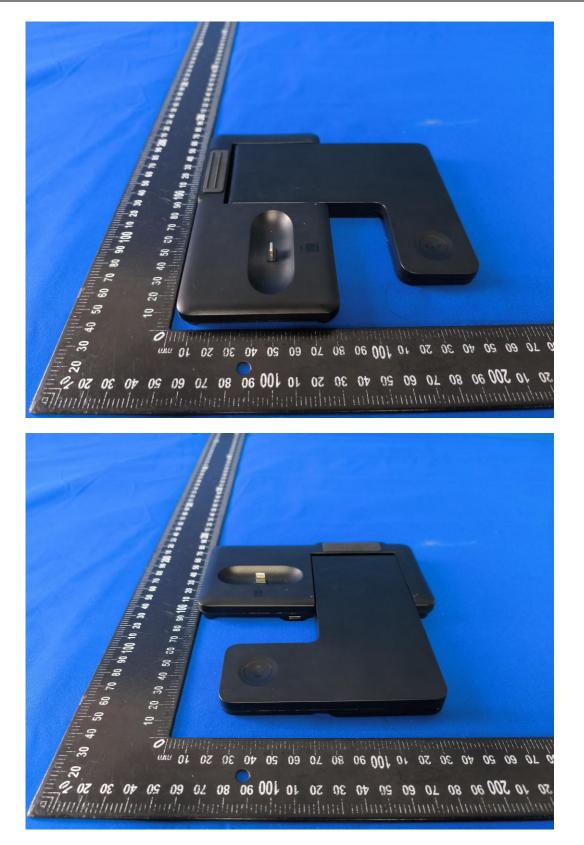


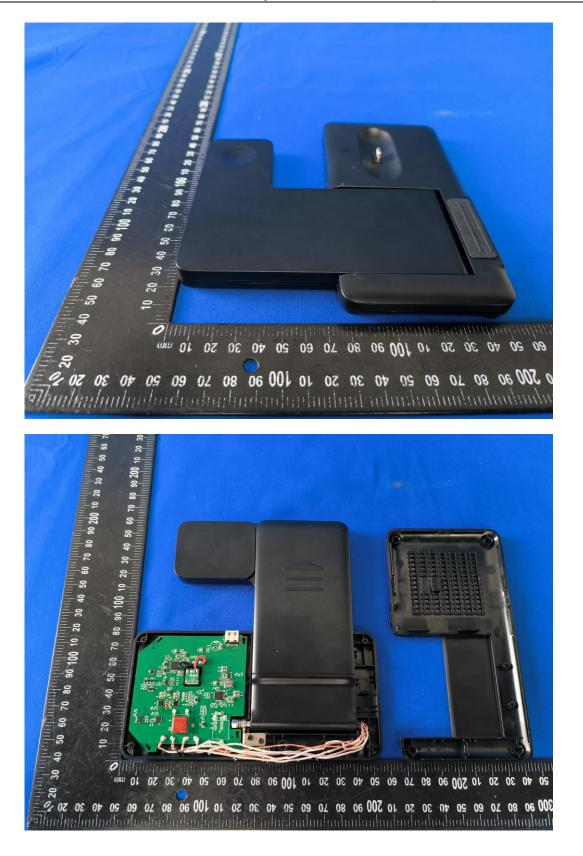
5. Photographs of EUT

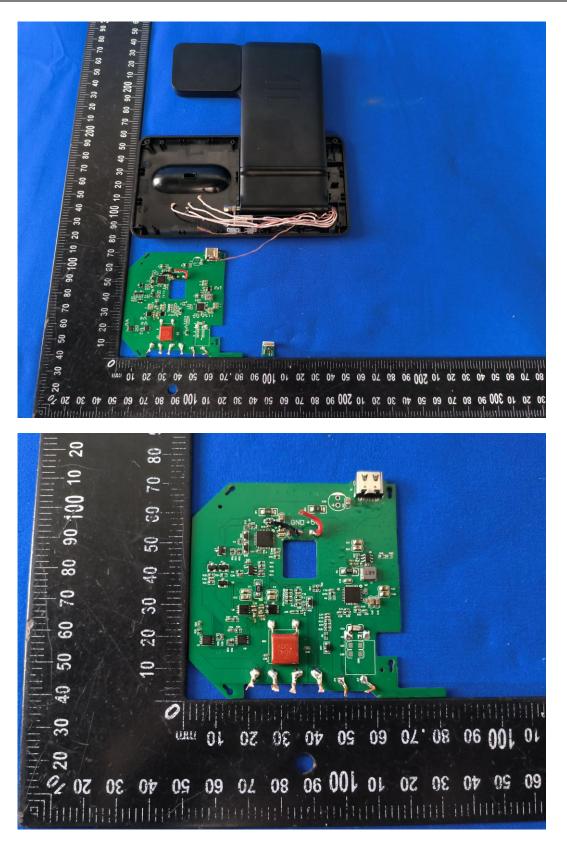


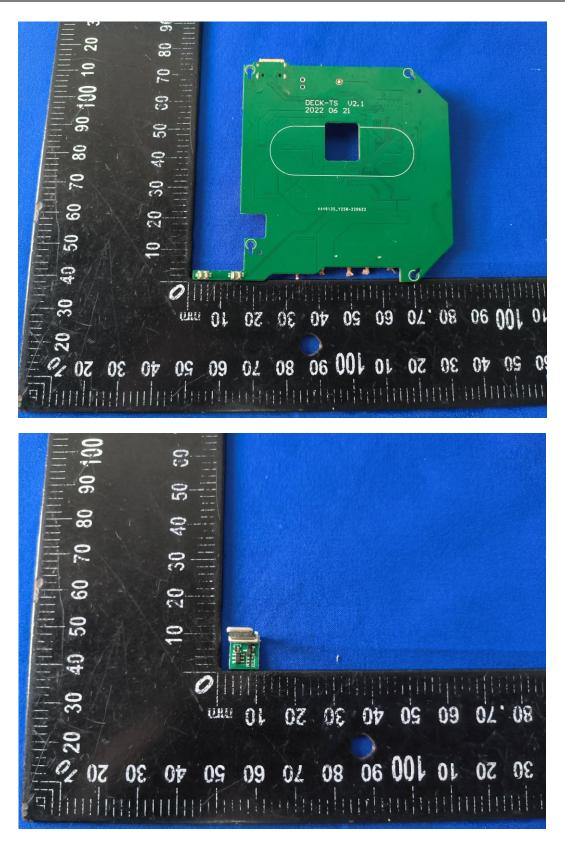


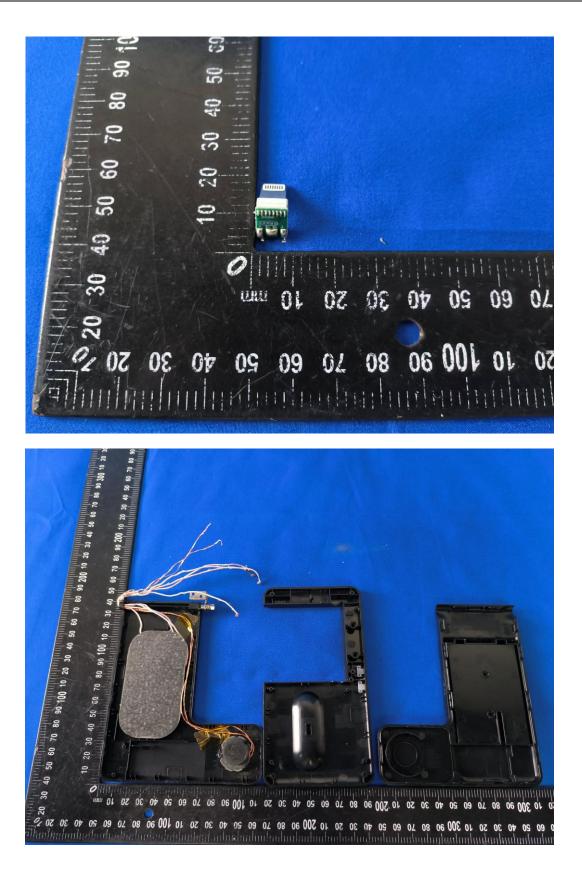


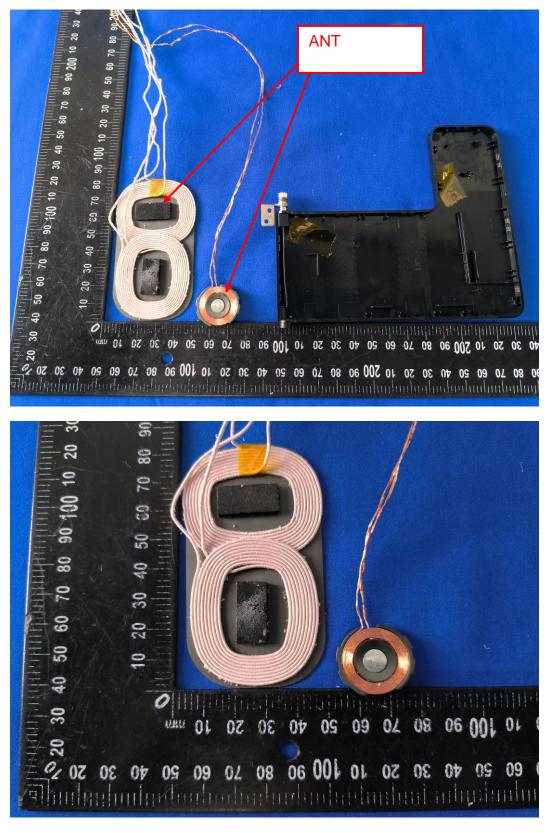












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