

#### Shenzhen Huaxia Testing Technology Co., Ltd

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Report Template Revision Date: 2018-07-06 www.cqa-cert.com

Report Template Version: V04

# **Test Report**

CQASZ20210500722E-01 Report No.:

Applicant: Shenzhen Chunchun Technology Co. LTD

Address of Applicant: 4th floor, No. 8. Huarong first industrial zone, Xinshi community, Dalang street,

LonghuaDistrict, Shenzhen

**Equipment Under Test (EUT):** 

**Product:** Pen Holder Type Wireless Charging stand

Model No.: CCH<sub>1</sub> N/A **Brand Name:** 

FCC ID: 2AWHQCCH1

Standards: 47 CFR Part 15, Subpart C

Date of Receipt: 2021-05-21

**Date of Test:** 2021-05-21 to 2021-06-02

Date of Issue: 2021-6-10 PASS\* **Test Result:** 

\*In the configuration tested, the EUT complied with the standards specified above

Tested By:

(Timo Lei) Reviewed By:







## 1 Version

## **Revision History Of Report**

Report No.	Version	Description	Issue Date
CQASZ20210500722E-01	Rev.01	Initial report	2021-6-10





# 2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215	ANSI C63.10 2013	PASS
Radiated Emission , Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.209	ANSI C63.10 2013	PASS



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### 4 General Information

### 4.1 Client Information

Applicant:	Shenzhen Chunchun Technology Co. LTD
Address of Applicant:	4th floor, No. 8. Huarong flrst industrial zone, Xinshi community, Dalang street, LonghuaDistrict, Shenzhen
Manufacturer:	Shenzhen Chunchun Technology Co. LTD
Address of Manufacturer:	4th floor, No. 8. Huarong first industrial zone, Xinshi community, Dalang street, LonghuaDistrict, Shenzhen
Factory:	Shenzhen Chunchun Technology Co. LTD
Address of Factory:	4th floor, No. 8. Huarong flrst industrial zone, Xinshi community, Dalang street, LonghuaDistrict, Shenzhen

## 4.2 General Description of EUT

Product Name:	Pen Holder Type Wireless Charging stand
Model No.:	CCH1
Brand Name:	N/A
Hardware Version:	V3.1
Software Version:	V3.1
EUT Power Supply:	Input:5V 2A/9V 2A/12V 1.5A

## 4.3 Product Specification subjective to this standard

Equipment Category:	Non-ISM frequency
Modulation Type:	Induction
Antenna Type:	Induction coil
Antenna Gain:	0dBi

#### Note:

1. In section 15.31(m), regards to the operating frequency range less 1 MHz.



### 4.4 Test Environment

Operating Environment	Operating Environment:		
Radiated Emissions:			
Temperature:	25.8 °C		
Humidity:	59 % RH		
Atmospheric Pressure:	1009 mbar		
Conducted Emissions:			
Temperature:	25.5 °C		
Humidity:	55 % RH		
Atmospheric Pressure:	1009 mbar		
Radio conducted item to	est (RF Conducted test room):		
Temperature:	27.1 °C		
Humidity:	56 % RH		
Atmospheric Pressure:	1009 mbar		
Test Mode:			
Mode a:	Wireless charging Mode at output 18W		
Mode b:	Wireless charging Mode at output 15W		
Mode c:	Wireless charging Mode at output 10W		
Mode d:	Wireless charging Mode at output 7.5W		
Mode e:	Wireless charging Mode at output 5W		
Note: The mode d was t	the worst case and only the data of the worst case record in this report.		

## 4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	HUAWEI	LPL-C010050200Z	DOC	CQA
Wireless				
electronic Load	-	-	-	CQA

2) Cable

C	Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
	1	1	1	1	1





### 4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** guality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	5.12dB	(1)
2	Radiated Emission (Above 1GHz)	4.60dB	(1)
3	Occupied Bandwidth	1.1%	(1)
4	Temperature test	0.8℃	(1)
5	Humidity test	2.0%	(1)

<sup>(1)</sup>This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 4.7 Test Location

#### Shenzhen Huaxia Testing Technology Co., Ltd,

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

### 4.8 Test Facility

#### A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

#### • FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen 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. Registration No.:522263

#### 4.9 Deviation from Standards

None.

### 4.10 Other Information Requested by the Customer

None.





## 4.11 Equipment List

			Instrument	Calibration	Calibration
Test Equipment	Manufacturer	Model No.	No.	Date	Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2020/10/25	2021/10/24
Spectrum analyzer	R&S	FSU26	CQA-038	2020/10/25	2021/10/24
Preamplifier	MITEQ	AMF-6D-02001800-29- 20P	CQA-036	2020/10/25	2021/10/24
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2020/10/21	2021/10/20
Bilog Antenna	R&S	HL562	CQA-011	2020/9/26	2021/9/25
Horn Antenna	R&S	HF906	CQA-012	2020/9/26	2021/9/25
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2020/9/25	2021/9/24
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2020/9/26	2021/9/25
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2020/9/26	2021/9/25
Antenna Connector	CQA	RFC-01	CQA-080	2020/9/26	2021/9/25
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2020/9/26	2021/9/25
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2020/9/26	2021/9/25
EMI Test Receiver	R&S	ESR7	CQA-005	2020/10/25	2021/10/24
LISN	R&S	ENV216	CQA-003	2020/10/23	2021/10/22
Coaxial cable	CQA	N/A	CQA-C009	2020/9/26	2021/9/25
DC power	KEYSIGHT	E3631A	CQA-028	2020/9/26	2021/9/25





### 5 Test results and Measurement Data

### 5.1 Antenna Requirement

**Standard requirement:** 47 CFR Part 15C Section 15.203

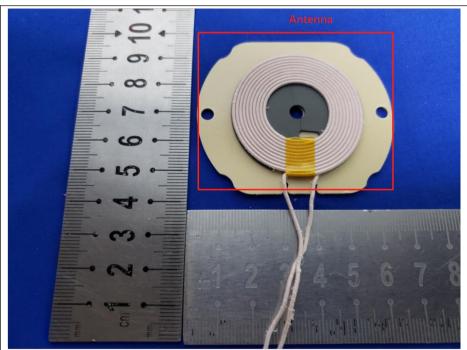
15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **EUT Antenna:**



The antenna is Induction coil. The best case gain of the antenna is 0dBi.





## 5.2 Conducted Emissions

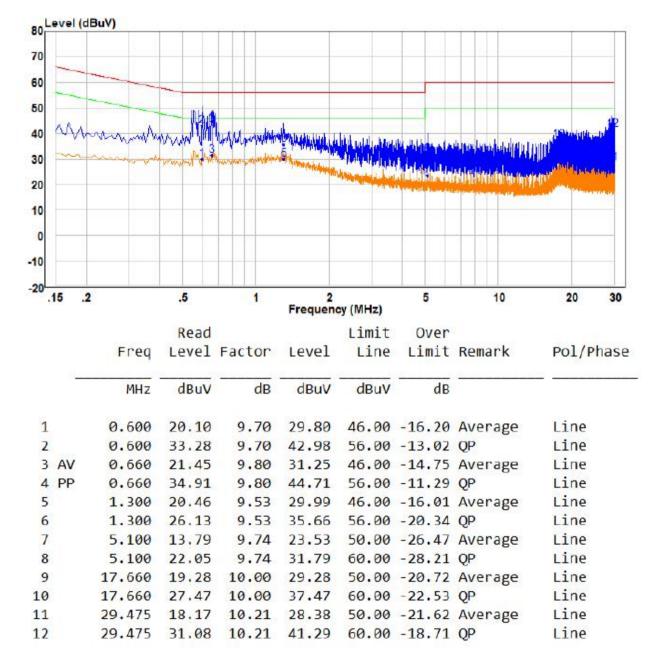
Test Method:  ANSI C63.10: 2013  Test Frequency Range:  150kHz to 30MHz  Limit:  Frequency range (MHz)  Quasi-peak  0.15-0.5  66 to 56* 56 to 46*  0.5-5  56  46  5-30 60  * Decreases with the logarithm of the frequency.  1) The mains terminal disturbance voltage test was conducted in a shielded room.  2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.  3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.	T 1 D	47.0ED D. 4.60 0 . 45 . 46 (	207			
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Limit:    Frequency range (MHz)						
Section   Company   Com		150kHz to 30MHz				
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Test Setup:  Shielding Room  Test Receiver  LISN2 AC Mains  Ground Reference Plane				according to		
Shielding Room  Test Receiver  LISN1  Ground Reference Plane	Test Setup:			1		
Test Results: Pass		AC Mains	USN2 → AC Ma			
Test Results: Pass			**************************************			
	Test Results:	Pass				

#### **Measurement Data**

The worst case:

Mode a:

Live line:



#### Remark:

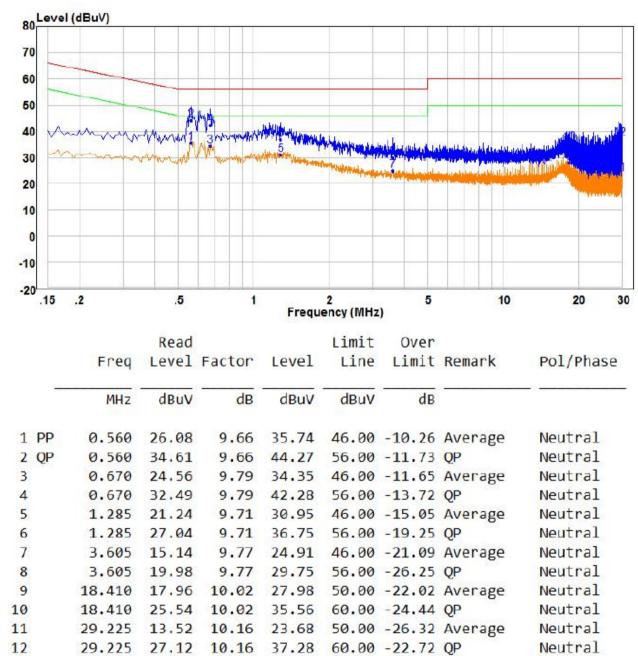
- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



The worst case:

Mode a:

Neutral line:

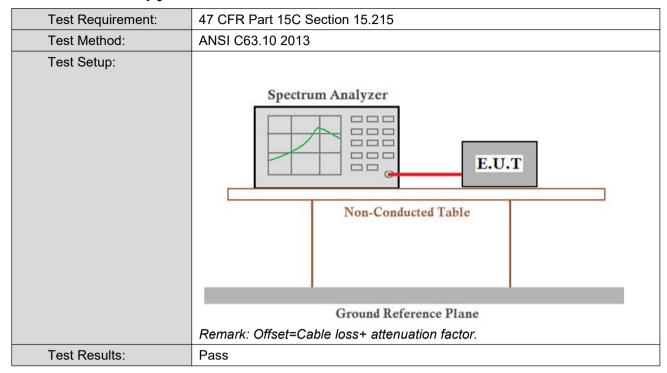


#### Remark:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



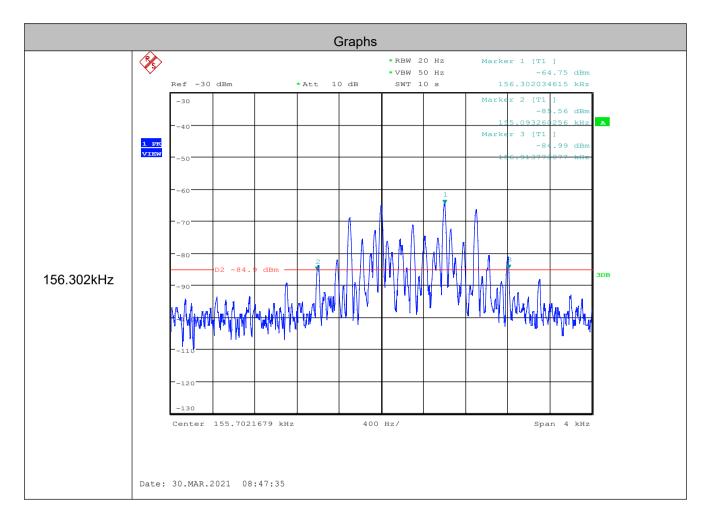
## 5.3 20dB Occupy Bandwidth



#### **Measurement Data**

Mode a					
Test Frequency (kHz)	20dB Occupy Bandwidth (Hz)	Result			
156.302	1820.5	Pass			

### Test plot as follows:





## 5.4 Radiated Spurious Emission & Restricted bands

5.4.1 Spurious Emissions								
Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205							
Test Method:	ANSI C63.10 2013							
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)							
Receiver Setup:	Frequency Detect		Detector	RBW		VBW	Remark	
	0.009MHz-0.090MHz Peak		10kHz	10kHz 30kHz		Peak		
	0.009MHz-0.090MH	z	Average	10kHz	10kHz 3		Average	
	0.090MHz-0.110MH	Z	Quasi-peak	10kHz	Z	30kHz	Quasi-peak	
	0.110MHz-0.490MH	Z	Peak	10kHz	Z	30kHz	Peak	
	0.110MHz-0.490MHz		Average	10kHz	<u>z</u>	30kHz	Average	
	0.490MHz -30MHz		Quasi-peak	10kHz	Z	30kHz	Quasi-peak	
	30MHz-1GHz		Quasi-peak	100 kH	Iz 3	300kHz	Quasi-peak	
	Above 1GHz		Peak	1MHz	<u>-</u>	3MHz	Peak	
			Peak	1MHz	<u>-</u>	10Hz	Average	
Limit:	Frequency		eld strength crovolt/meter)	Limit (dBuV/m)	Remark		Measuremen distance (m)	
	0.009MHz-0.490MHz	2	400/F(kHz)	-			300	
	0.490MHz-1.705MHz	24000/F(kHz)		-	-		30	
	1.705MHz-30MHz		30			-	30	
	30MHz-88MHz		100	40.0	Quasi-peak		3	
	88MHz-216MHz		150	43.5 Qu		asi-peak	3	
	216MHz-960MHz		200	46.0	Quasi-peak		3	
	960MHz-1GHz		500	54.0	Qua	asi-peak	3	
	Above 1GHz 500		54.0	A۱	verage	3		
Note: 15.35(b), Unless otherwise specified, the limit on peak radiffered frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the topeak emission level radiated by the device.					erage emission			





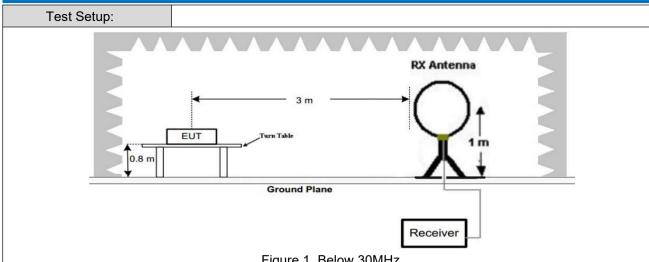
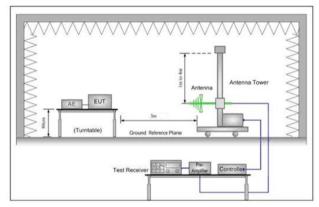


Figure 1. Below 30MHz



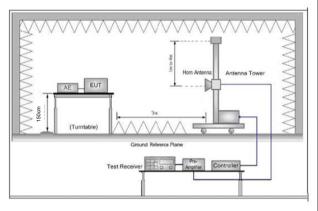


Figure 2. 30MHz to 1GHz

Figure 3. Above 1 GHz

#### Test Procedure:

- 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
  - 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

Note: For the radiated emission test above 1GHz:

Place the measurement antenna 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.

- 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 antenna height 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



### Shenzhen Huaxia Testing Technology Co., Ltd

Report No.: CQASZ20210500722E-01

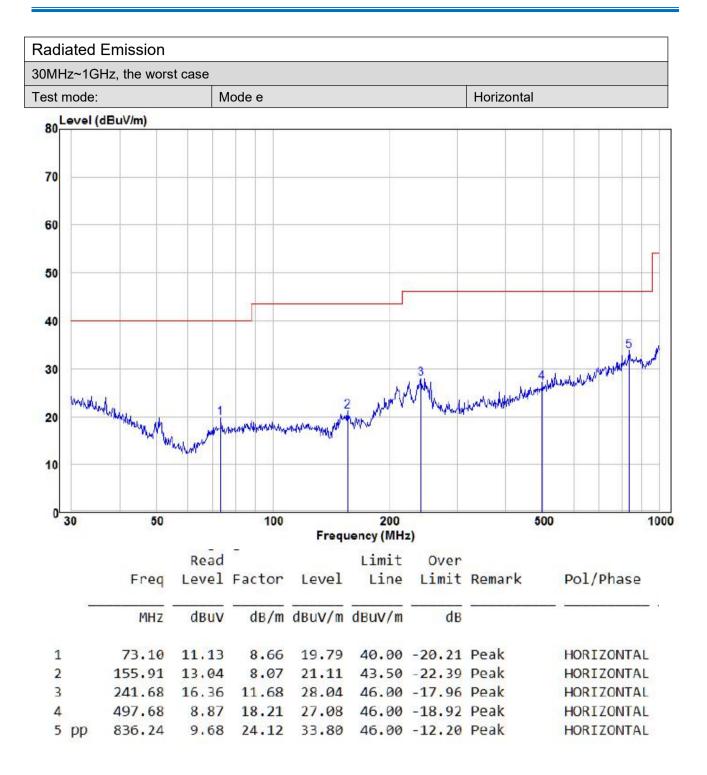
	measurement.
	d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
	e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
	f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
	g. Repeat above procedures until all frequencies measured was complete.
Test Results:	Pass

Radiated Emission below 9k~30MHz			
the worst case			
Test mode:	Mode d		

Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m) Peak	Limit dB(uV/m) Average	Margin dB	Pass/Fail
0.156302	Face	44.18	19.59	63.77	104.50	40.73	Pass
0.156302	Side	40.55	19.59	69.36	104.50	44.36	Pass

Note: No other emissions found between lowest internal used/generated frequencies to 30MHz. The peak level of the emission is less than the average limit, so the average level shall be less than the limit without test.





#### Remark:

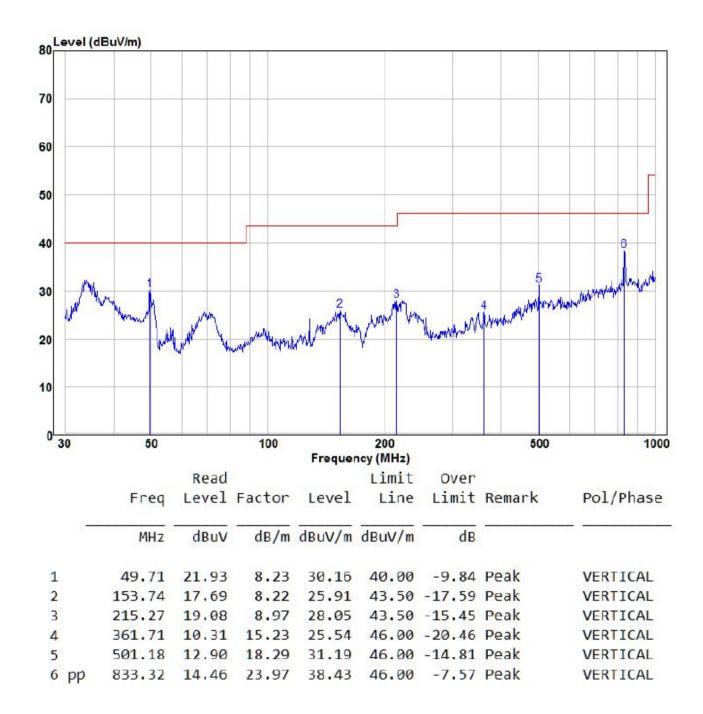
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor





30MHz~1GHz, the worst case				
Test mode:	Mode e	Vertical		



#### Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor

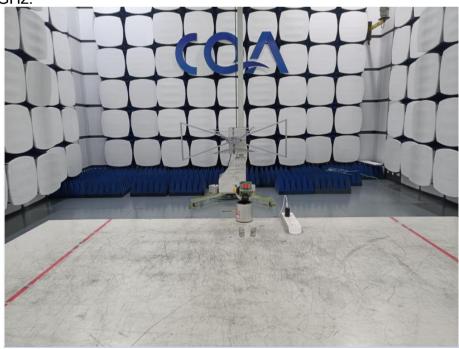
## 6 Photographs - EUT Test Setup

### 6.1 Radiated Emission

9kHz~30MHz:



30MHz~1GHz:





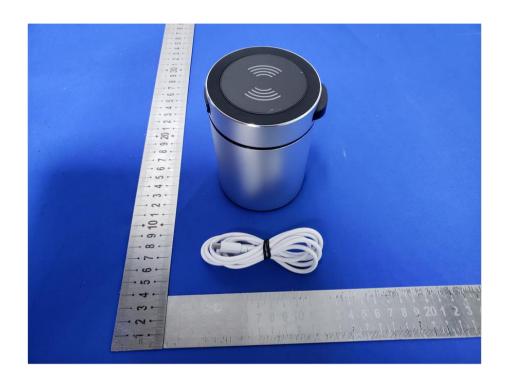


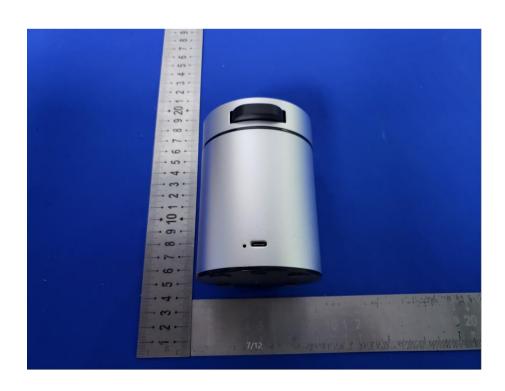
### **6.2** Conducted Emission



# 7 Photographs - EUT Constructional Details

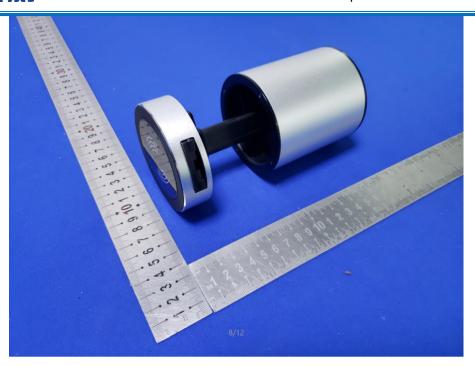
Test Model No.: CCH1







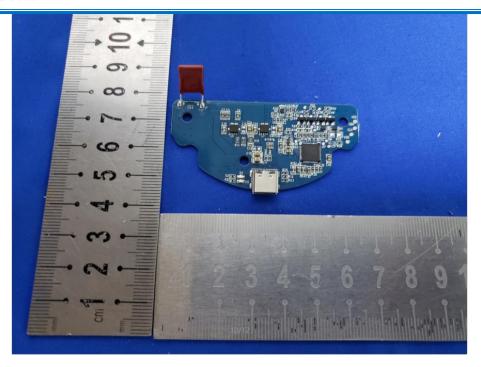


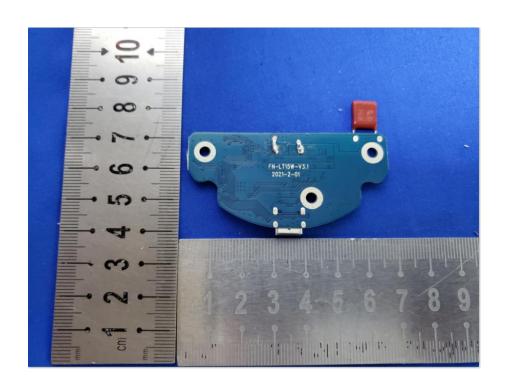








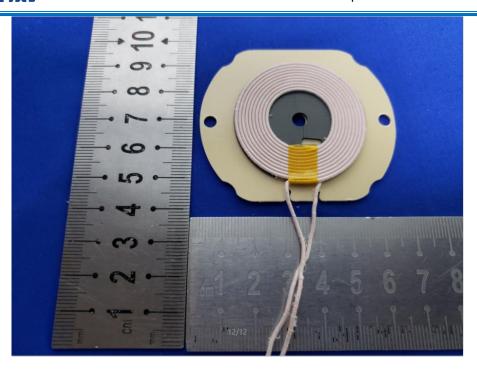






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\*\*\* End of Report \*\*\*