

### Shenzhen Huaxia Testing Technology Co., Ltd

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+86-755-26648637 Report Template Version: V04 www.cqa-cert.com Report Template Revision Date: 2018-07-06

# **Test Report**

**Report No.:** CQASZ20210300310E-01

Applicant: Shenzhen Times Innovation Technology Co., Ltd

Address of Applicant: 5th Floor, Building B, Baseus Intelligence Park, No. 2008, Xuegang Rd, Gangtou

Community, Bantian Street, Longgang District, Shenzhen.

**Equipment Under Test (EUT):** 

**Product:** Baseus Simple Mini Magnetic Wireless Charger

Model No.: BS-W522

Test Model No.: BS-W522

Brand Name: Baseus

**FCC ID**: 2AY37-W522

Standards: 47 CFR Part 15, Subpart C

**Date of Receipt:** 2021-03-18

**Date of Test:** 2021-03-18 to 2021-04-14

Date of Issue: 2021-04-14
Test Result: PASS\*

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

Tested By:

(Jun Li )

Reviewed By:

(Ares Liu )

( Sheek Luo )







# 1 Version

# **Revision History Of Report**

Report No.	Version	Description	Issue Date
CQASZ20210300310E-01	Rev.01	Initial report	2021-04-14





# 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



# 3 Contents

	Page
1 VERSION	2
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 Client Information	5
4.2 GENERAL DESCRIPTION OF EUT.	
4.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	5
4.4 TEST ENVIRONMENT	
4.5 DESCRIPTION OF SUPPORT UNITS	6
4.6 STATEMENT OF THE MEASUREMENT UNCERTAINTY	
4.7 TEST LOCATION	7
4.8 TEST FACILITY	
4.9 DEVIATION FROM STANDARDS.	
4.10 OTHER INFORMATION REQUESTED BY THE CUSTOMER	
4.11 EQUIPMENT LIST	8
5 TEST RESULTS AND MEASUREMENT DATA	9
5.1 Antenna Requirement	9
5.2 CONDUCTED EMISSIONS	
5.3 20dB Occupy Bandwidth	
5.4 RADIATED SPURIOUS EMISSION & RESTRICTED BANDS	
5.4.1 Spurious Emissions	
6 PHOTOGRAPHS - EUT TEST SETUP	20
6.1 Radiated Emission	20
6.2 CONDUCTED EMISSION	21
7 PHOTOGRAPHS - EUT CONSTRUCTIONAL DETAILS	22





## 4 General Information

## 4.1 Client Information

Applicant:	Shenzhen Times Innovation Technology Co., Ltd
Address of Applicant:	5th Floor,Building B,Baseus Intelligence Park, No.2008,Xuegang Rd,Gangtou Community, Bantian Street,Longgang District,Shenzhen.
Manufacturer:	Shenzhen Times Innovation Technology Co., Ltd
Address of Manufacturer:	5th Floor,Building B,Baseus Intelligence Park, No.2008,Xuegang Rd,Gangtou Community, Bantian Street,Longgang District,Shenzhen.
Factory:	Huizhou Branch of Shenzhen tongyinhai Precision Electronics Co., Ltd
Address of Factory:	27 Xingwang street, Lilin village, Lilin Town, Zhongkai hi tech Zone, Huizhou

# 4.2 General Description of EUT

Product Name:	Baseus Simple Mini Magnetic Wireless Charger
Model No.:	BS-W522
Test Model No.:	BS-W522
Brand Name:	Baseus
Hardware Version:	N/A
Software Version:	N/A
EUT Power Supply:	Input :Type-C DC 5V 2A, DC 9V 2.67A

# 4.3 Product Specification subjective to this standard

Equipment Category:	Non-ISM frequency
Operation Frequency range:	110kHz~205kHz
Modulation Type:	Induction
Antenna Type:	Induction coil
Antenna Gain:	0dBi
Power:	Output: 15W(Max)

#### Note:

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



## 4.4 Test Environment

Operating Environment	:			
Radiated Emissions:				
Temperature:	25.4 °C			
Humidity:	54 % 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 output Mode at 5W			
Mode b:	Wireless output Mode at 7.5W			
Mode c:	Wireless output Mode at 10W			
Mode d:	Wireless output Mode at 15W			
Note: The mode a was t	Note: The mode a was 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
2) Cable				
Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
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.** quality 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
		AMF-6D-02001800-29-		2020/10/25	2021/10/24
Preamplifier	MITEQ	20P	CQA-036	2020/10/20	2021/10/21
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 Took Doorings	D. C	E0D7	004 005	2000/40/05	0004/40/04
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

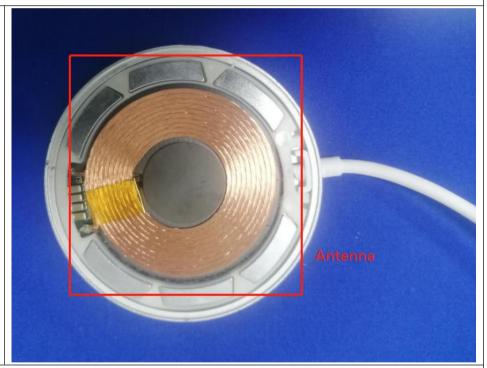
15.203 requirement:

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

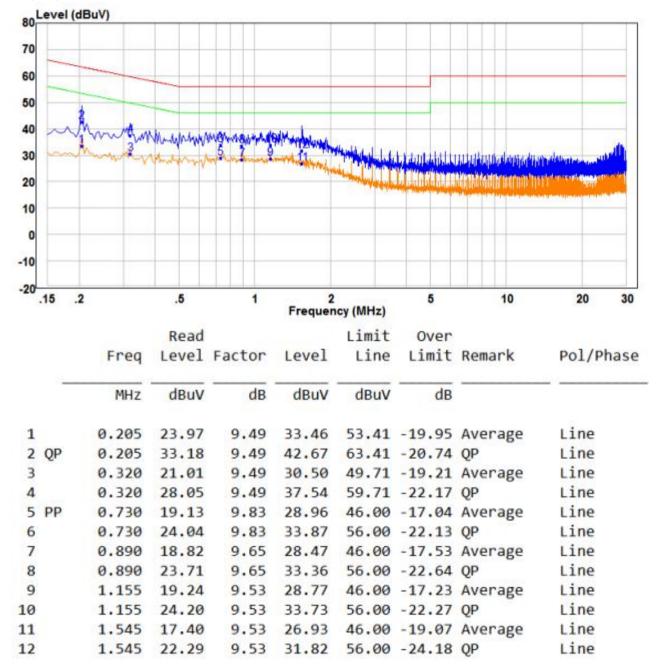
Test Requirement:	47 CFR Part 15C Section 15.2	207		
Test Method:	ANSI C63.10: 2013			
Test Frequency Range:				
, , ,				
Limit:	Frequency range (MHz)	Limit (d	, , , , , , , , , , , , , , , , , , ,	
		Quasi-peak	Average	
	0.15-0.5	66 to 56*	56 to 46*	
	0.5-5	56	46	
	5-30	60	50	
	* Decreases with the logarithn			
Test Procedure:	<ol> <li>The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>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.</li> <li>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.</li> <li>The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> </ol>			
	and all of the interface cal	•	according to	
T 101	ANSI C63.10: 2013 on con	nducted measurement.		
Test Setup:	Shielding Room  EUT  AC Mains  LISN1	Ground Reference Plane	Test Receiver	
Test Results:	Pass			

#### **Measurement Data**

The worst case:

Mode d:

Live line:



#### Remark:

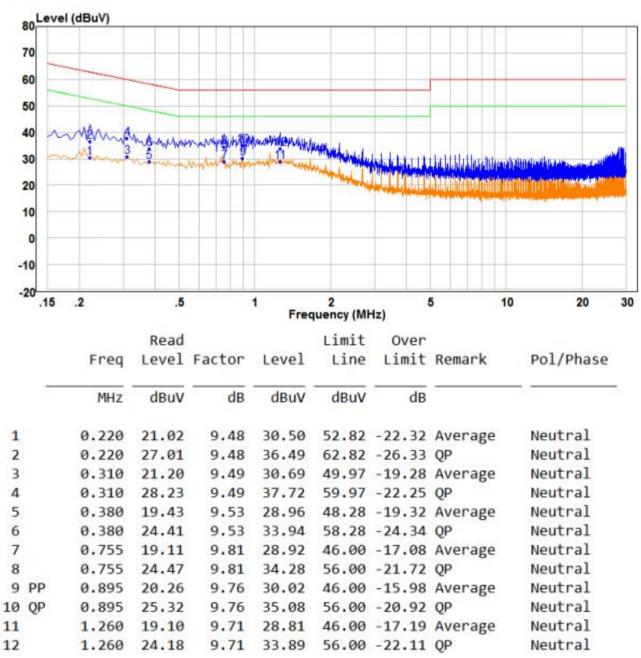
- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



The worst case:

Mode d:

Neutral line:

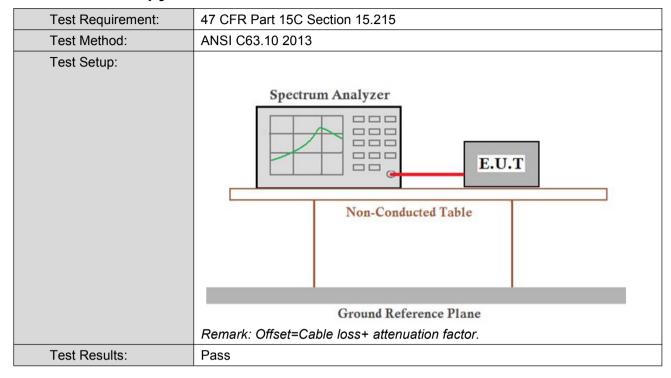


### Remark:

- 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.



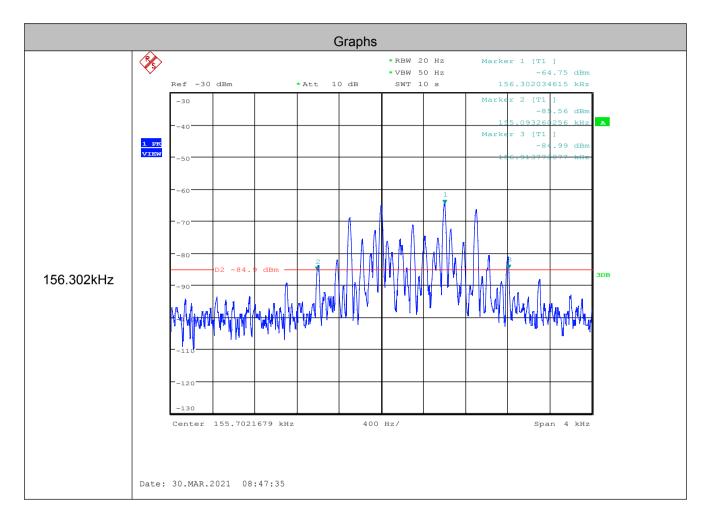
# 5.3 20dB Occupy Bandwidth



#### **Measurement Data**

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

### Test plot as follows:





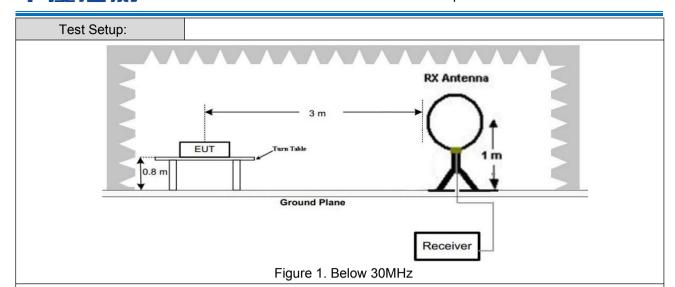
# 5.4 Radiated Spurious Emission & Restricted bands

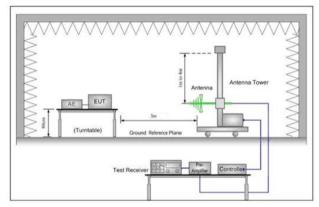
5.4.1 Spurious Emissions									
Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205								
Test Method:	ANSI C63.10 2013								
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)								
Receiver Setup:	Frequency		Detector	Detector RBW		BW	Remark	T	
	0.009MHz-0.090MHz		Peak	10kHz	z 30	kHz	Peak		
	0.009MHz-0.090MHz		Average	10kHz	z 30	kHz	Average		
	0.090MHz-0.110MHz		Quasi-peak	10kHz	z 30	kHz	Quasi-peak		
	0.110MHz-0.490MHz		Peak	10kHz	z 30	kHz	Peak		
	0.110MHz-0.490MHz		Average	10kHz	z 30	kHz	Average		
	0.490MHz -30MHz		Quasi-peak	10kHz	z 30	kHz	Quasi-peak		
	30MHz-1GHz		Quasi-peak	100 kH	z 300	)kHz	Quasi-peak		
	Above 1GHz		Peak	1MHz	: 3N	ЛHz	Peak		
			Peak	1MHz	: 10	)Hz	Average		
Limit:	Frequency Field strength (microvolt/mete 0.009MHz-0.490MHz 2400/F(kHz)		•	Limit (dBuV/m)	Remark		Measureme distance (r		
			400/F(kHz)	-	-		300		
	0.490MHz-1.705MHz 24		1000/F(kHz)	-			30		
	1.705MHz-30MHz		30 -		-		30		
	30MHz-88MHz		100	40.0	Quasi-peak		3		
	88MHz-216MHz		150 43.5		Quasi-peak		3		
	216MHz-960MHz		200	46.0	Quasi-peak		3		
	960MHz-1GHz	500		54.0	Quasi-peak		3		
	Above 1GHz 500		54.0	4.0 Average		3			
Note: 15.35(b), Unless otherwise specified, the limit on peak frequency emissions is 20dB above the maximum permitted average emi limit applicable to the equipment under test. This peak limit applies to the peak emission level radiated by the device.						erage emissio	on		



### Shenzhen Huaxia Testing Technology Co., Ltd

Report No.: CQASZ20210300310E-01





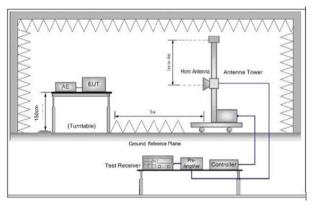


Figure 2. 30MHz to 1GHz

Figure 3. Above 1 GHz

#### Test Procedure:

- a. 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.

- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.: CQASZ20210300310E-01

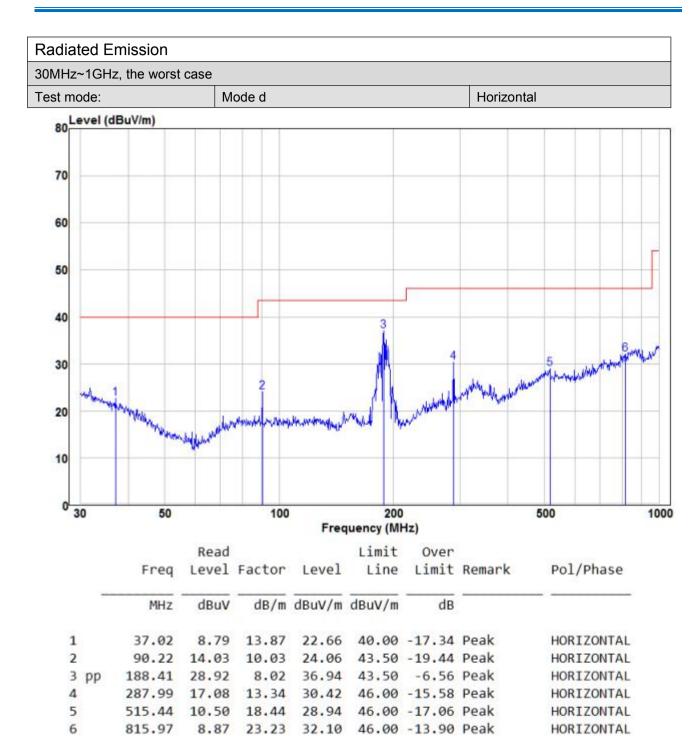
		measurement.
		For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
		The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
		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:	Pas	s

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:

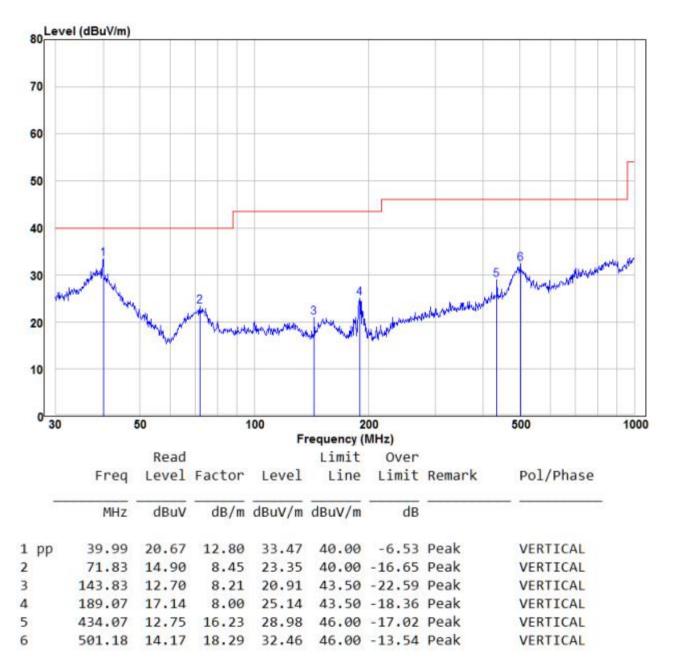
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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





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

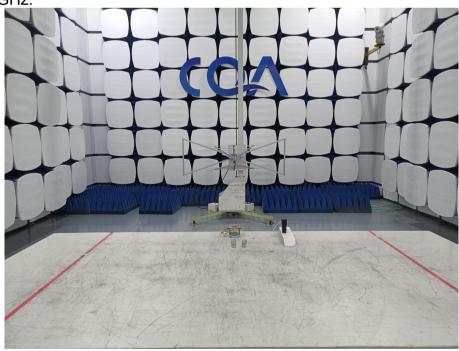
# 6 Photographs - EUT Test Setup

## 6.1 Radiated Emission

9kHz~30MHz:



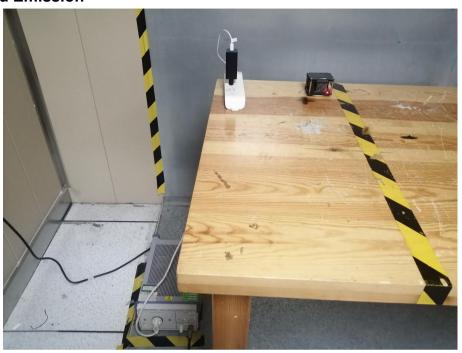
30MHz~1GHz:





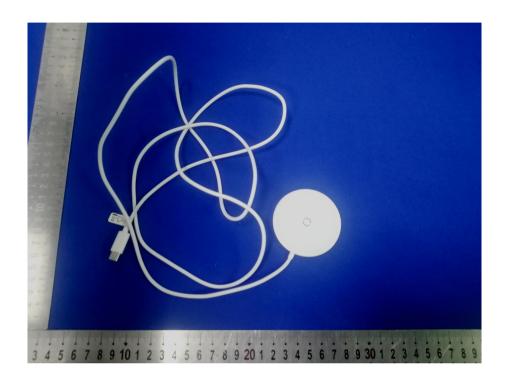


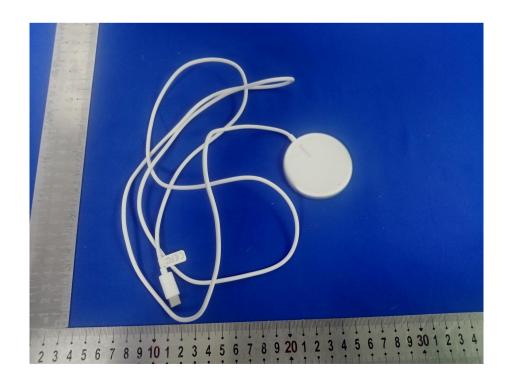
## **6.2** Conducted Emission



# 7 Photographs - EUT Constructional Details

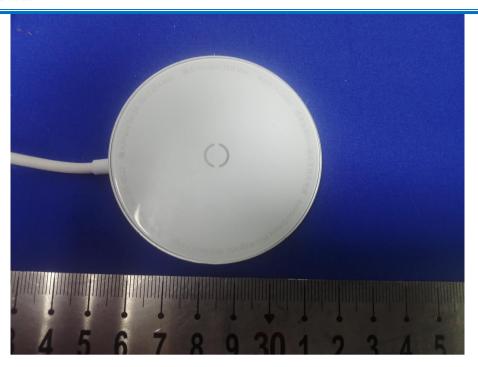
Test Model No.: BS-W522

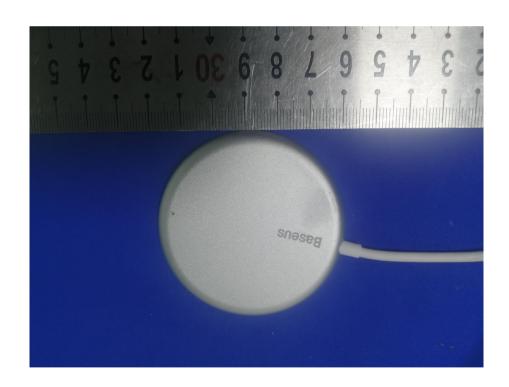






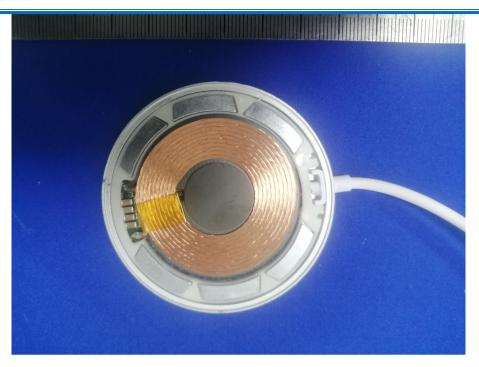


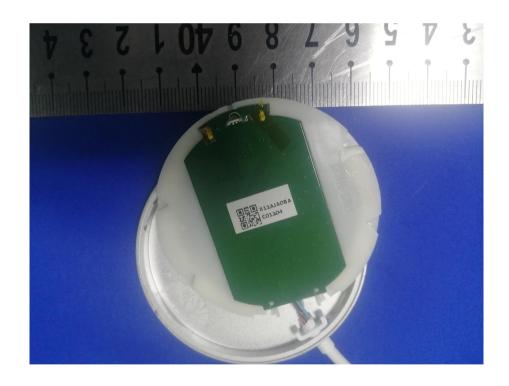














# Shenzhen Huaxia Testing Technology Co., Ltd

Report No.: CQASZ20210300310E-01



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