

TEST REPORT

FCC ID: 2AAPK-HG320

Product: UV sanitizing wand and wireless phone charger

Model No.: HG-320

Additional Model No.: HB-946, V40061N

Trade Mark: N/A

Report No.: TCT200803E002

Issued Date: Aug. 10, 2020

Issued for:

Shenzhen Kingsun Enterprises Co., Ltd. 25/F, CEC Information Building, Xinwen Rd., Shenzhen, Guangdong, 518034 China

Issued By:

Shenzhen Tongce Testing Lab. 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

> TEL: +86-755-27673339 FAX: +86-755-27673332

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com





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1. Test Certification

Report No.: TCT200803E002

Product:	UV sanitizing wand and wireless phone charger
Model No.:	HG-320
Additional Model No.:	HB-946, V40061N
Trade Mark:	N/A
Applicant:	Shenzhen Kingsun Enterprises Co., Ltd.
Address:	25/F, CEC Information Building, Xinwen Rd., Shenzhen, Guangdong, 518034 China
Manufacturer:	Dongguan Huoge Technology Co., Ltd.
Address:	8 F/ Building A of Longzhixiang Zhengxing Industrial Estate, 16 of Xingyi Rd., Wusha Community, Changan Town Dongguan, China
Date of Test:	Aug. 04, 2020 – Aug. 07, 2020
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

Brews Xu

Date: Aug. 07, 2020

Brews Xu

Tomsin

Reviewed By:

Date:

Aug. 10, 2020

Approved By:

Date:

Aug. 10, 2020

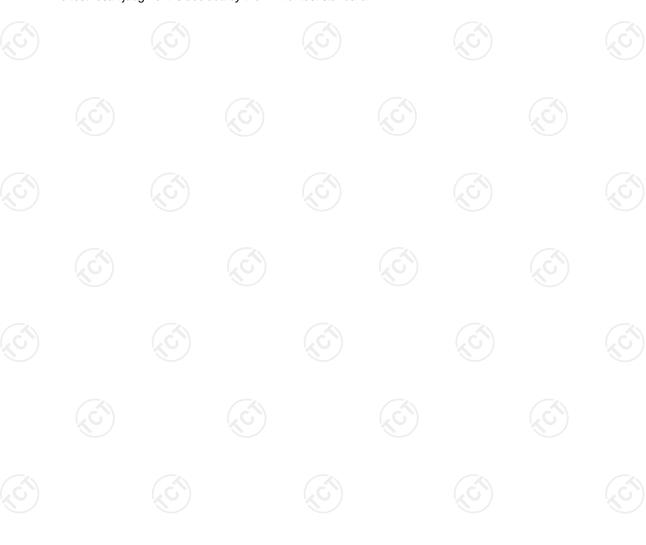


2. Test Result Summary

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		
20dB Bandwidth	§15.215	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.







Product:	UV sanitizing wand and wireless phone charger
Model No.:	HG-320
Additional Model No.:	HB-946, V40061N
Trade Mark:	N/A
Operation Frequency:	116.35KHz - 155.45KHz
Modulation Technology:	Load modulation
Antenna Type:	Inductive loop coil Antenna
Power Supply:	Rechargeable Li-ion battery DC 3.7V
Remark:	All models above are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement.





4. General Information

4.1. Test environment and mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	25.0 °C	25.0 °C
Humidity:	55 % RH	55 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar

Test Mode:

Engineering mode: Keep the EUT in continuous transmitting

The sample was placed 0.8m & 1.5m for the measurement below & above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case(Z axis) are shown in Test Results of the following pages.

4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Mobile Phone	SM-G9350	R28HA2ER3GT	1	SAMSUNG

Note:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
- 3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

• FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab.

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

• IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab.

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District,

Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.92dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%



6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:

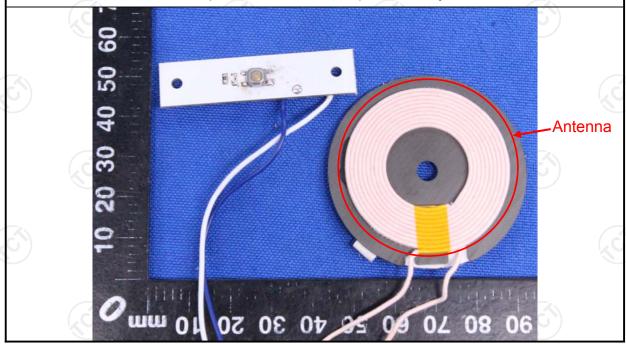
FCC Part15 C Section 15.203

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.

E.U.T Antenna:

The antenna is inductive loop coil antenna which permanently attached.





6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section	15.207		(C)				
Test Method:	ANSI C63.10:2013							
Frequency Range:	150 kHz to 30 MHz	(C ⁽)	(0)					
Receiver setup:	RBW=9 kHz, VBW=30	RBW=9 kHz, VBW=30 kHz, Sweep time=auto						
Limits:	Frequency range (MHz) 0.15-0.5 0.5-5 5-30	Limit (Quasi-peak 66 to 56* 56 60 ference Plane	Average 56 to 46* 46 50					
Test Setup:		dapter n plane	Filter — AC por	wer				
Test Mode:	Charging + Transmittin	g Mode						
Test Procedure:	 The E.U.T is consimpedance stabilizated 500hm/50uH couplequipment. The peripheral device through a LISN through a L	tion network (L. ling impedance ling impedance less are also contract provides a linguistic and photogone are checked er to find the equipment and a according to A	I.S.N.). This prove for the me mected to the main 500hm/50uH of (Please refer to the raphs). for maximum emissicall of the interface	vides a asuring a power coupling a block anducted on, the cables				
Test Result:	PASS		(0)	(C				
Note:	The mobile phone in both have been tested, only phone put uprightly we	the test data in v	•	• ,				



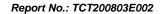


6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)								
Equipment	Manufacturer	Model	Serial Number	Calibration Due				
Test Receiver	R&S	ESPI	101402	Jul. 27, 2021				
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 11, 2020				
Coax cable (9KHz-30MHz)	тст	CE-05	N/A	Sep. 08, 2020				
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A				

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



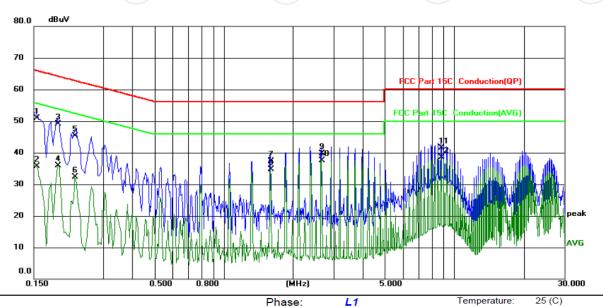




6.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Limit: FCC Part 15C Conduction(QP)

Power: Humidity: 55 %RH

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1548	40.77	10.12	50.89	65.74	-14.85	QP	
2	0.1548	25.62	10.12	35.74	55.74	-20.00	AVG	
3	0.1904	39.07	10.12	49.19	64.02	-14.83	QP	
4	0.1904	25.81	10.12	35.93	54.02	-18.09	AVG	
5	0.2260	35.27	10.13	45.40	62.60	-17.20	QP	
6	0.2260	22.25	10.13	32.38	52.60	-20.22	AVG	
7	1.5940	27.11	10.12	37.23	56.00	-18.77	QP	
8	1.5940	24.59	10.12	34.71	46.00	-11.29	AVG	
9	2.6580	29.67	10.12	39.79	56.00	-16.21	QP	
10 *	2.6580	27.43	10.12	37.55	46.00	-8.45	AVG	
11	8.7700	31.43	10.15	41.58	60.00	-18.42	QP	
12	8.7700	28.31	10.15	38.46	50.00	-11.54	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level $(dB\mu V)$ = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement $(dB\mu V)$ = Reading level $(dB\mu V)$ + Corr. Factor (dB)

 $Limit (dB\mu V) = Limit stated in standard$

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$

Q.P. =Quasi-Peak

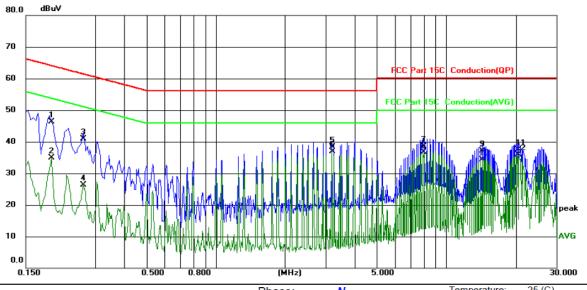
AVG =average

 $^{^{\}star}$ is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.





Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site	Phase:	IV	remperature.	23 (0
Limit: FCC Part 15C Conduction(QP)	Power:		Humidity: 58	5 %RH

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1940	36.10	10.12	46.22	63.86	-17.64	QP	
2	0.1940	24.72	10.12	34.84	53.86	-19.02	AVG	
3	0.2672	30.85	10.13	40.98	61.20	-20.22	QP	
4	0.2672	16.25	10.13	26.38	51.20	-24.82	AVG	
5	3.1900	28.20	10.13	38.33	56.00	-17.67	QP	
6 *	3.1900	26.70	10.13	36.83	46.00	-9.17	AVG	
7	7.9740	28.39	10.14	38.53	60.00	-21.47	QP	
8	7.9740	26.49	10.14	36.63	50.00	-13.37	AVG	
9	14.3540	27.03	10.17	37.20	60.00	-22.80	QP	
10	14.3540	24.20	10.17	34.37	50.00	-15.63	AVG	
11	20.4700	27.22	10.20	37.42	60.00	-22.58	QP	
12	20.4700	25.70	10.20	35.90	50.00	-14.10	AVG	

Note1:

Freq. = Emission frequency in MHz

Reading level $(dB\mu V)$ = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

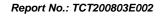
Measurement $(dB\mu V)$ = Reading level $(dB\mu V)$ + Corr. Factor (dB)

 $Limit (dB\mu V) = Limit stated in standard$

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$

Q.P. =Quasi-Peak AVG =average

^{*} is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.





6.3. Radiated Spurious Emission Measurement

6.3.1. Test Specification

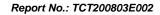
Test Requirement:	FCC Part15 C Section 15.209					(C	
Test Method:	ANSI C63.10	0: 2013					
Frequency Range:	9 kHz to 25 (GHz					
Measurement Distance:	3 m						
Antenna Polarization:	Horizontal &	Vertical					
Operation mode:	Refer to item	14.1		(.61)			(.ć
	Frequency 9kHz- 150kHz	Detector Quasi-peak	RBW 200Hz	VBW 1kHz		Remark si-peak Value	
Receiver Setup:	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quas	si-peak Value	
Receiver octup.	30MHz-1GHz	Quasi-peak	120KHz	300KHz		si-peak Value]
	Above 1GHz	Peak	1MHz	3MHz		eak Value	-
		Peak	1MHz	10Hz	Ave	erage Value	
	Freque		Field Strength (microvolts/meter)		Measurement Distance (meters)		
	0.009-0					300	
	0.490-1.705		24000/F(KHz)		30		⊣ I
	1.705-30		30 100		30		\dashv [
	30-88 88-216		150		3		\dashv [
Limite	216-960		200			3	
Limit:	Above 960		500			3	
				(.c.)			Cc
	II Frequency I		d Strength Distan (meter)		ce	Detector	
	(1/4) 1011		500 3		- /	Average	1
	Above 1GHz		5000 3			Peak]
Test setup:	For radiated emissions below 30MHz Distance = 3m Computer Pre-Amplifier Receiver 30MHz to 1GHz						

Test Procedure:

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



TESTING CENTRE TECHNOLOG	Y Report No.: TCT200803E0
	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. 2. 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 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=120 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
Note:	The mobile phone in both positions(vertically and horizontally) have been tested, only the test data in worse case when mobile phone put uprightly were listed





6.3.2. Test Instruments

	Radiated Em	ission Test Site	e (966)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESIB7	100197	Jul. 27, 2021
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ40	200061	Sep. 11, 2020
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 08, 2020
Pre-amplifier	HP	8447D	2727A05017	Sep. 08, 2020
Loop antenna	ZHINAN	ZN30900A	12024	Oct. 27, 2020
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 06, 2020
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 06, 2020
Horn Antenna	A-INFO	LB-180400-KF	J211020657	Sep. 06, 2020
Antenna Mast	Keleto	RE-AM	N/A	N/A
Coax cable (9KHz-40GHz)	тст	RE-high-02	N/A	Sep. 08, 2020
Coax cable (9KHz-40GHz)	тст	RE-high-04	N/A	Sep. 08, 2020
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

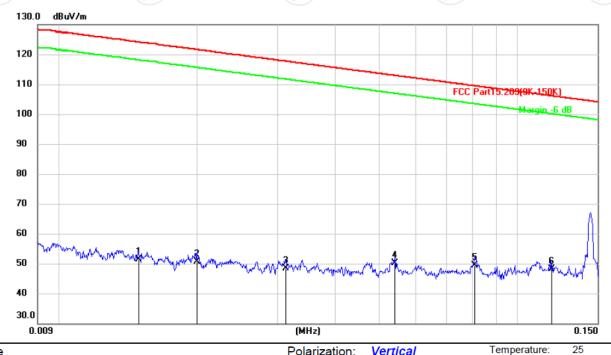
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



6.3.3. Test Data

Please refer to following diagram for individual 9KHz-30MHz

9KHz-150KHz:



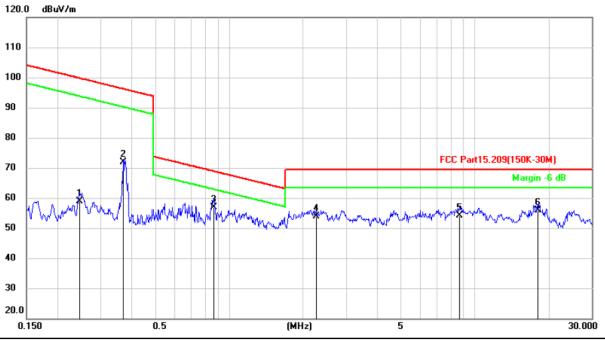
Site Polarization: Vertical Temperature: 25
Limit: FCC Part15.209(9K-150K) Power: DC 5V Humidity: 55 %

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	0.0149	30.21	21.22	51.43	124.1	-72.71	QP
2	0.0200	32.11	18.53	50.64	121.5	-70.94	QP
3	0.0313	29.09	19.29	48.38	117.7	-69.32	QP
4	0.0541	29.37	20.82	50.19	112.9	-62.76	QP
5	0.0810	26.71	22.65	49.36	109.4	-60.09	QP
6 *	0.1188	23.40	24.84	48.24	106.1	-57.88	QP





150KHz-30MHz:



Site Polarization: Vertical Temperature: 25
Limit: FCC Part15.209(150K-30M) Power: DC 5V Humidity: 55 %

No. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	0.2467	33.13	25.85	58.98	99.77	-40.79	QP
2	0.3709	46.36	25.63	71.99	96.22	-24.23	QP
3 *	0.8659	31.65	25.32	56.97	68.87	-11.90	QP
4	2.2606	28.98	25.01	53.99	69.50	-15.51	QP
5	8.6829	28.05	26.16	54.21	69.50	-15.29	QP
6	18.0393	30.09	25.82	55.91	69.50	-13.59	QP

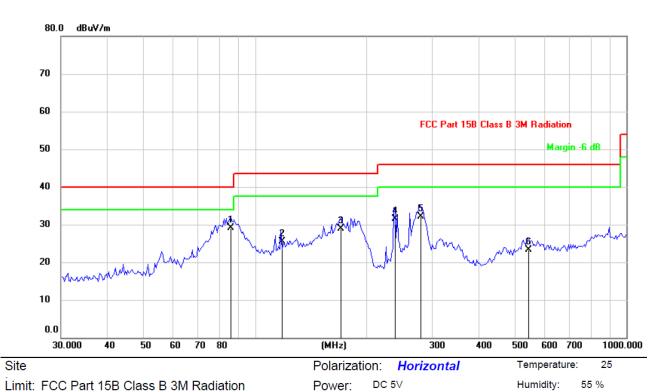






30MHz-1GHz

Horizontal:



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB	dBuV/m	dBu∀/m	dB	Detector
1	*	86.0795	42.27	-13.24	29.03	40.00	-10.97	QP
2		117.2688	36.84	-11.24	25.60	43.50	-17.90	QP
3		170.1888	44.57	-15.67	28.90	43.50	-14.60	QP
4		236.7928	44.57	-13.15	31.42	46.00	-14.58	QP
5		278.3308	43.84	-11.78	32.06	46.00	-13.94	QP
6		542.6104	30.14	-6.78	23.36	46.00	-22.64	QP

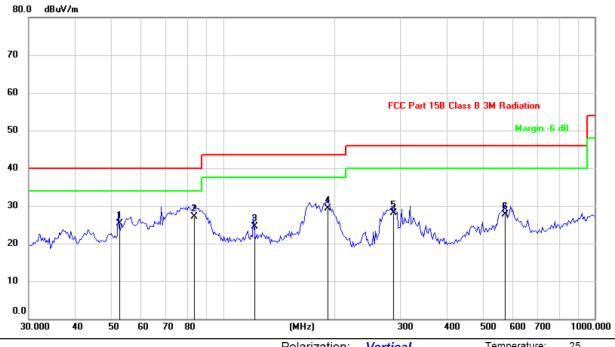








Vertical:



Site	Polarization: Vertical	Temperature: 25
Limit: FCC Part 15B Class B 3M Radiation	Power: DC 5V	Humidity: 55 %

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB	dBu∀/m	dBu∀/m	dB	Detector
1		52.2659	36.02	-10.68	25.34	40.00	-14.66	QP
2	*	83.6937	41.78	-14.73	27.05	40.00	-12.95	QP
3		120.6118	36.75	-12.20	24.55	43.50	-18.95	QP
4		191.7841	43.90	-14.65	29.25	43.50	-14.25	QP
5		288.2840	39.45	-11.44	28.01	46.00	-17.99	QP
6		573.9882	33.81	-6.10	27.71	46.00	-18.29	QP

Note:

Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss - Pre-amplifier





6.4. 20dB Occupy Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.215				
Test Method:	ANSI C63.10: 2013				
Limit:	N/A				
Test Setup:	Spectrum Analyzer EUT				
Test Mode:	Transmitting mode with modulation				
Test Procedure:	 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 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 5 times the 20 dB bandwidth, centered on a hopping channel; 1% RBW ≤ 5% of the 20 dB bandwidth; VBW≥3RBW; Sweep = auto; Detector function = peak; Trace = max hold. Measure and record the results in the test report. 				
Test Result:	PASS				

6.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSU	200054	Sep. 11, 2020
RF cable (9kHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2020
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2020

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

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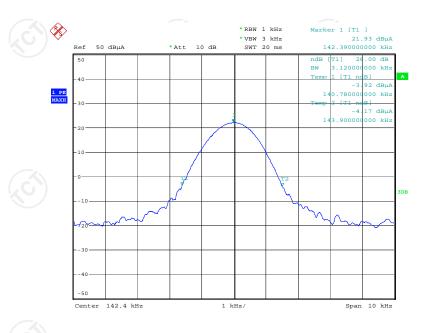


6.4.3. Test data

Report No.: TCT200803E002

Frequecy	20dB Occupy Bandwidth (kHz)			
Lowest	3.12			

Test plots as follows:





Date: 24.AUG.2020 14:30:53



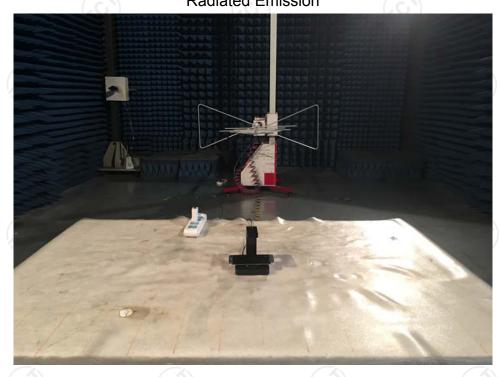


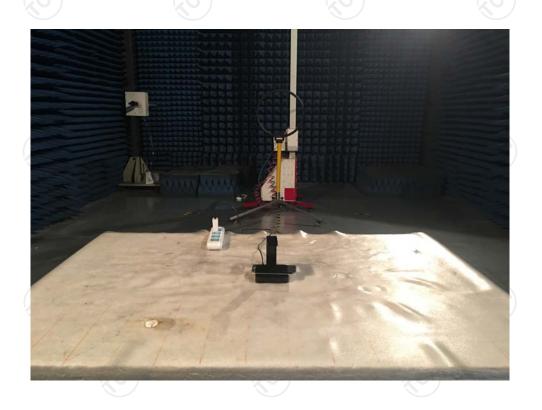




Appendix A: Photographs of Test Setup

Product: UV sanitizing wand and wireless phone charger Model: HG-320
Radiated Emission







Conducted Emission





Appendix B: Photographs of EUT Product: UV sanitizing wand and wireless phone charger Model: HG-320





















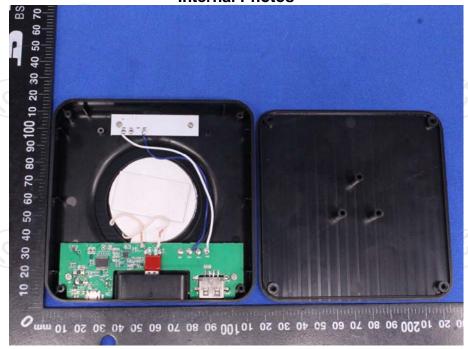


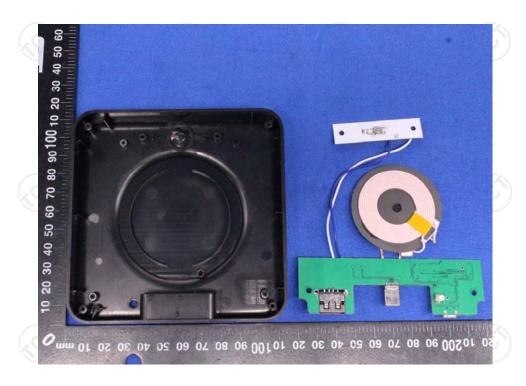






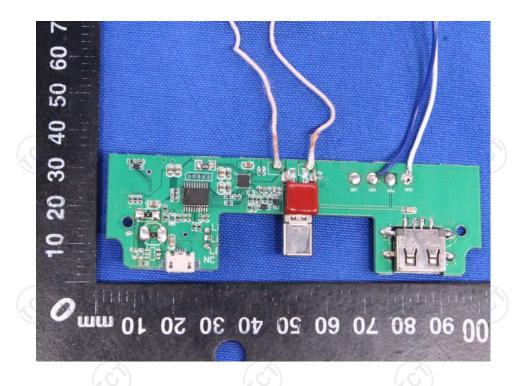
Product: UV sanitizing wand and wireless phone charger Model: HG-320 Internal Photos

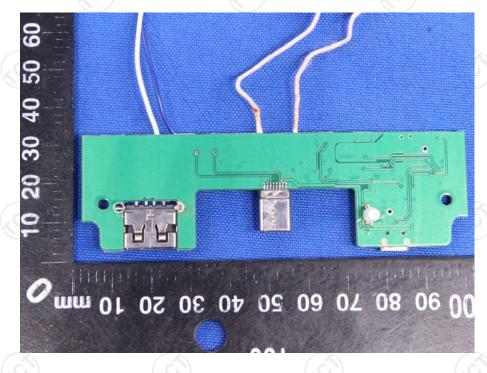




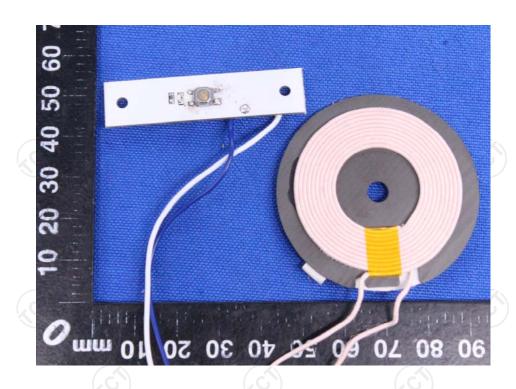


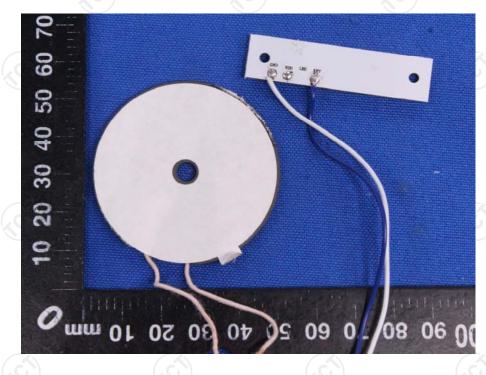






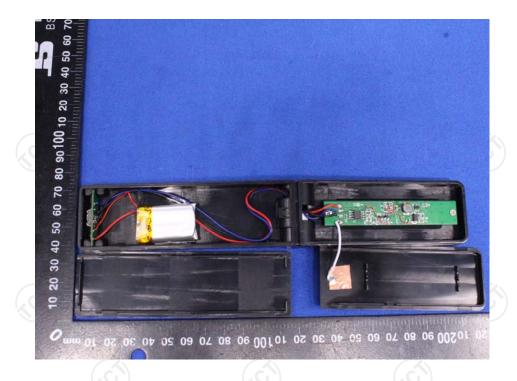


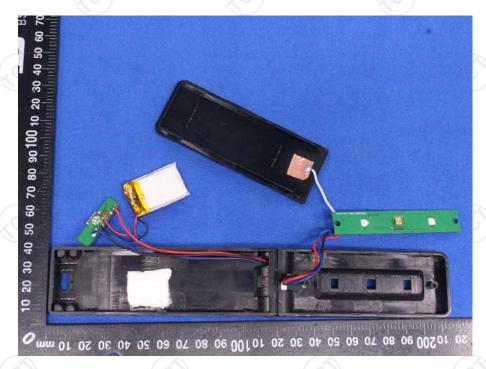






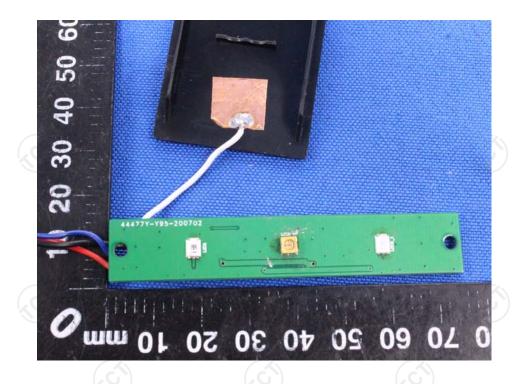


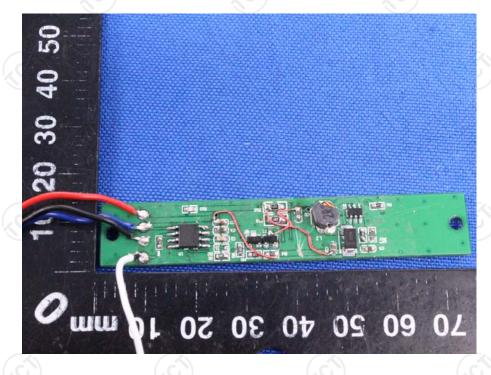


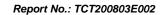




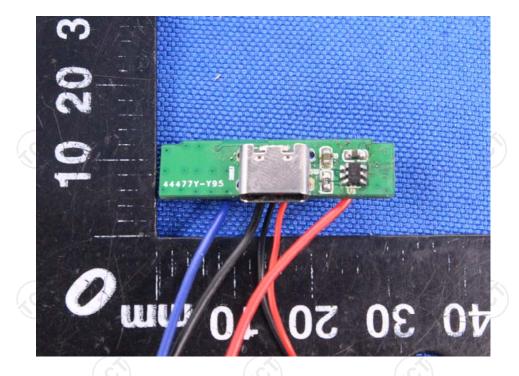


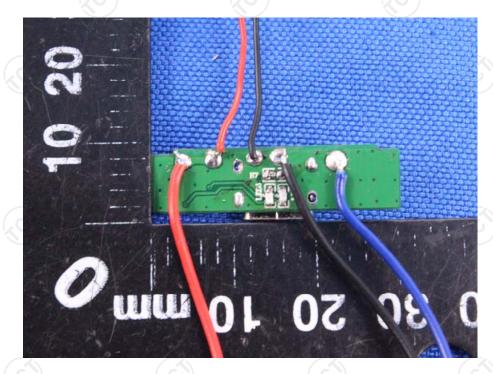


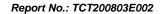




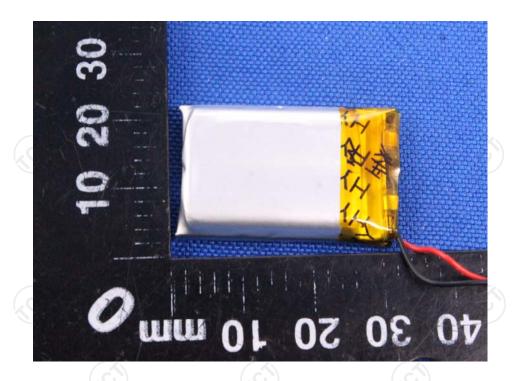


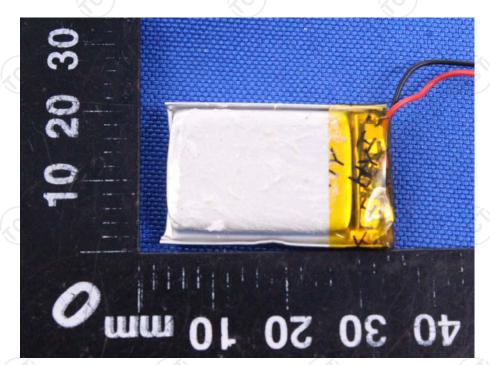












*****END OF REPORT****