

TEST REPORT

FCC ID: 2AIOC-1060

Product: Wireless Charger Car Mount

Model No.: HKWP1060-10Q

Additional Model: N/A

Trade Mark: N/A

Report No.: TCT180502E012

Issued Date: May 14, 2018

Issued for:

HANK ELECTRONICS CO., LTD.

Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road, Baoan District, Shenzhen, China

Issued By:

Shenzhen Tongce Testing Lab.

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1. Test Certification

Address:

Date of Test:

Applicable

Standards:

Product: Wireless Charger Car Mount Model No.: HKWP1060-10Q Additional N/A Model No.: **Trade Mark:** N/A HANK ELECTRONICS CO., LTD. Applicant: Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road, Address: Baoan District, Shenzhen, China Manufacturer: HANK ELECTRONICS CO., LTD.

Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road,

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.

Baoan District, Shenzhen, China

May 03, 2018 - May 11, 2018

FCC CFR Title 47 Part 18

Tested By:	Jin Wang	Date:	May 11, 2018	
(C)	Jin Wang	((c ¹)	
Reviewed By:	Beryl sharo	Date:	May 14, 2018	
	Beryl Zhao			
Approved By:	Tomsin	Date:	May 14, 2018	
	Tomsin			



2. Test Result Summary

Requirement	CFR 47 Section	Result		
AC Power Line Conducted Emission	§18.307	PASS		
Spurious Emission	§18.305	PASS		

Note:

1. PASS: Test item meets the requirement.





3. EUT Description

Product:	Wireless Charger Car Mount
Model No.:	HKWP1060-10Q
Additional Model No.:	N/A
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	112-160KHz
Modulation Technology:	MSK
Power Supply:	DC 5V, 2A / 9V, 1.67A via adapter





4. Genera Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 98.46%) with Fully-charged battery.

The sample was placed (0.1m below 1GHz, 1.5m 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 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	/	SAMSUNG
Adapter	EP-TA20CBC	R37HAEY0DT1RT3		SAMSUNG
Adapter	XC-0502000-U	(0)	(0)	1

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.



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. Conducted Emission

6.1.1. Test Specification

Test Requirement:	FCC Part18 Section 18.307				
Test Method:	FCC MP-5				
Frequency Range:	150 kHz to 30 MHz				
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto				
Limits:	Frequency range (MHz) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50				
	Reference Plane				
Test Setup:	40cm 80cm Filter AC power E.U.T Adapter Test table/Insulation plane Remark: E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Network				
Test Mode:	Charging				
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. 				
Test Result:	PASS (C)				



6.1.2. Test Instruments

Report No.: TCT180502E012

Conducted Emission Shielding Room Test Site (843)								
Equipment	Serial Number	Calibration Due						
Test Receiver	R&S	R&S ESPI 101401		Jun. 12, 2018				
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 27, 2018				
Coax cable (9KHz-30MHz)	тст	CE-05	N/A	Sep. 27, 2018				
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).

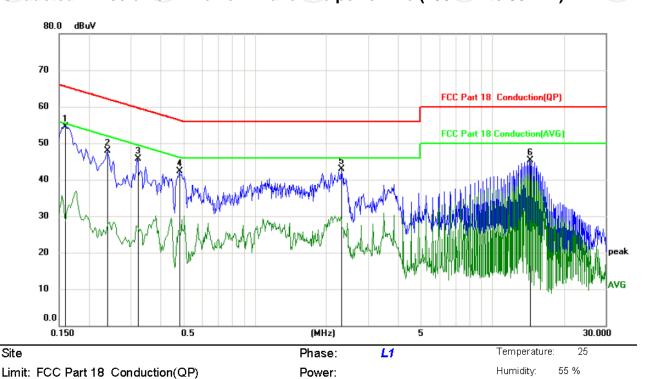




6.1.3. Test data

Please refer to following diagram for individual

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



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1590	43.08	11.39	54.47	65.52	-11.05	peak	
2	0.2400	36.60	11.35	47.95	62.10	-14.15	peak	
3	0.3209	34.36	11.31	45.67	59.68	-14.01	peak	
4	0.4830	31.04	11.23	42.27	56.29	-14.02	peak	
5	2.3145	31.71	11.25	42.96	56.00	-13.04	peak	
6	14.3790	34.31	11.07	45.38	60.00	-14.62	peak	

Note:

Freq. = Emission frequency in MHz

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

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

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

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

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

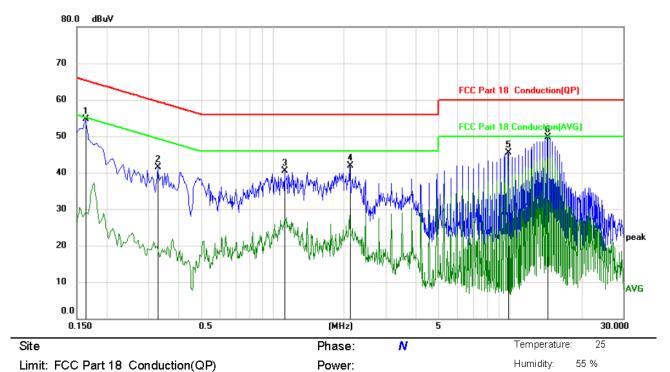
Q.P. =Quasi-Peak

AVG =average

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



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



		, ,						
No. Mk.	Freq.	Reading Level		Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Commi

NO. WK.	rreq.	Level	Factor	ment	LIIIII	Ovei		
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1	0.1635	43.30	11.39	54.69	65.28	-10.59	peak	
2	0.3300	30.28	11.30	41.58	59.45	-17.87	peak	
3	1.1265	29.43	11.02	40.45	56.00	-15.55	peak	
4	2.1120	30.53	11.33	41.86	56.00	-14.14	peak	
5	9.8565	34.60	10.94	45.54	60.00	-14.46	peak	
6 *	14.4330	38.63	11.08	49.71	60.00	-10.29	peak	

Note1:

Freq. = Emission frequency in MHz

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

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

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

Limit (dBµV) = 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.

Note2:

Measurements were conducted in both DC 5V and DC 9V input model, and the worst case Mode (DC 9V) was submitted only.



6.2. Radiated Spurious Emission Measurement

6.2.1. Test Specification

Test Requirement:	FCC Part18 Section 18.305									
Test Method:	FCC MP-5									
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			RBW VBW 200Hz 1kHz		Rem Quasi-pea				
Receiver Setup:	150kHz- 30MHz	Quasi-peak		9kHz	30kHz					
	30MHz-1GHz Above 1GHz	F	eak	100KHz 1MHz	300KH	Peak \	/alue			
		F	Peak	1MHz	10Hz	Average	Value			
	Equipment	-://	Operating frequency	RF Power gener		Field strength limit (uV/m)	Distance (meters)			
		Any type unless otherwise specified		Below 500 500 or more	•	25 25 × SQRT(power/500)	300 1300			
			frequency Any non-ISM frequency	Below 500 500 or more		15 15 × SQRT(power/500)	300			
Limit:	Industrial heaters and RF starc welders	Industrial heaters and RF stabilized arc welders		Any Any		10 (2)	1300 1,600 (²)			
	Medical diathermy		MHz Any ISM frequency Any non-ISM frequency	Any Any		25 15	300 300			
	Ultrasonic		Below 490 kHz	Below 500 500 or more		2,400/F(kHz) 2,400/F(kHz) × SQRT(power/500)	300 3300			
		490 to 1,600 kHz Any Above 1,600 kHz Any			24,000/F(kHz) 15	30 30				
	Induction cooking ranges		Below 90 kHz Any On or above 90 Any kHz			1,500 300	⁴ 30 ⁴ 30			
	For radiated	emi	K	pelow 30)MHz	(XO)				
	Distance = 3m									
	Pre -Amplifier									
Test setup:	Turn table Receiver									
	Ground Plane									

012

TESTING CENTRE TECHNOLOGY	Report No.: TCT180502E
Test Procedure:	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. 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=200Hz for 9K< f <150 KHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 9 KHz, VBW= 30KHz for 150KHz <f 30="" for="" measurement.<="" mhz="" peak="" th=""></f>
Test mode:	Refer to section 4.1 for details
Test results:	PASS





6.2.2. Test Instruments

	Radiated Emission Test Site (966)								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due					
Test Receiver	ROHDE&SCHW ARZ	ESVD	100008	Sep. 27, 2018					
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ	200061	Sep. 27, 2018					
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 27, 2018					
Pre-amplifier	HP	8447D	2727A05017	Sep. 27, 2018					
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 27, 2018					
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018					
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018					
Horn Antenna	Schwarzbeck	BBH 9170	582	Jun. 07, 2018					
Antenna Mast	Keleto	CC-A-4M	N/A	N/A					
Coax cable (9KHz-1GHz)	тст	RE-low-01	N/A	Sep. 27, 2018					
Coax cable (9KHz-40GHz)	тст	RE-high-02	N/A	Sep. 27, 2018					
Coax cable (9KHz-1GHz)	тст	RE-low-03	N/A	Sep. 27, 2018					
Coax cable (9KHz-40GHz)	тст	RE-high-04	N/A	Sep. 27, 2018					
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A					

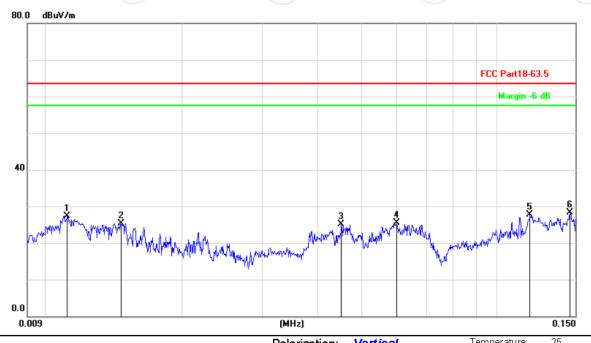
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



6.2.3. Test Data

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

9KHz-150KHz:



Site	Polarization: Vertical	remperature. 20
Limit: FCC Part18-63.5	Power:	Humidity: 55 %

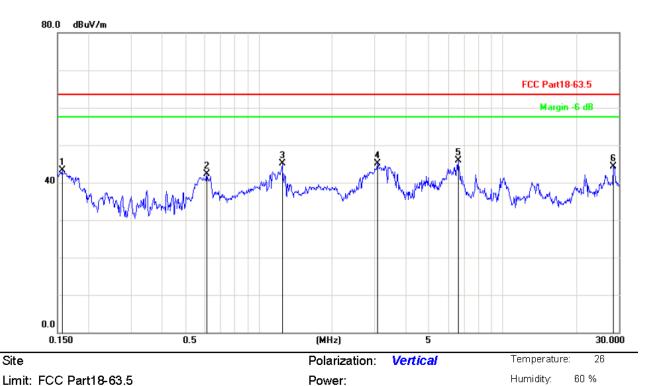
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
	MHz	dBu∀	dB	dBu∀/m	dB/m	dB	Detector	cm	degree	Comment
1	0.0111	25.42	1.96	27.38	63.50	-36.12	peak			
2	0.0146	25.13	0.20	25.33	63.50	-38.17	peak			
3	0.0451	24.44	0.62	25.06	63.50	-38.44	peak			
4	0.0600	24.03	1.42	25.45	63.50	-38.05	peak			
5	0.1188	22.70	4.94	27.64	63.50	-35.86	peak			
6 *	0.1457	22.28	6.00	28.28	63.50	-35.22	peak			

NOTE: If measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor. So the limit at 3 m is 1500 uv/m(\approx 63.5 dBuv/m)





150KHz-30MHz:



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
	MHz	dBu∀	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	0.1565	36.14	7.08	43.22	63.50	-20.28	peak			
2	0.6139	36.40	5.90	42.30	63.50	-21.20	peak			
3	1.2482	39.35	5.71	45.06	63.50	-18.44	peak			
4	3.0737	40.61	4.42	45.03	63.50	-18.47	peak			
5 *	6.5921	42.55	3.35	45.90	63.50	-17.60	peak			
6	28.4513	39.74	4.56	44.30	63.50	-19.20	peak			

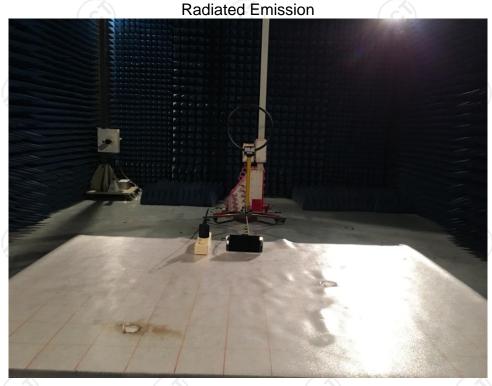
NOTE: If measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor. So the limit at 3 m is 1500 uv/m(\approx 63.5 dBuv/m)

Measurements were conducted in both DC 5V and DC 9V input model, and the worst case Mode (DC 9V) was submitted only.



Appendix A: Photographs of Test Setup

Product: Wireless Charger Car Mount Model: HKWP1060-10Q



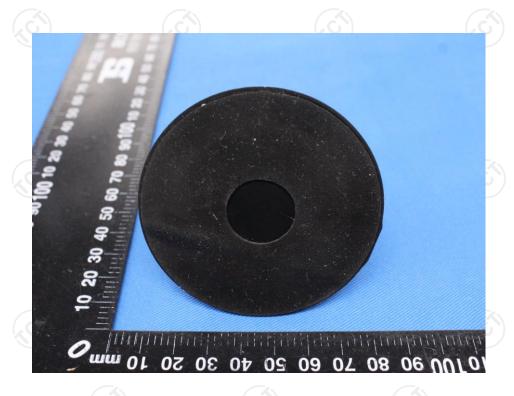
Conducted Emission



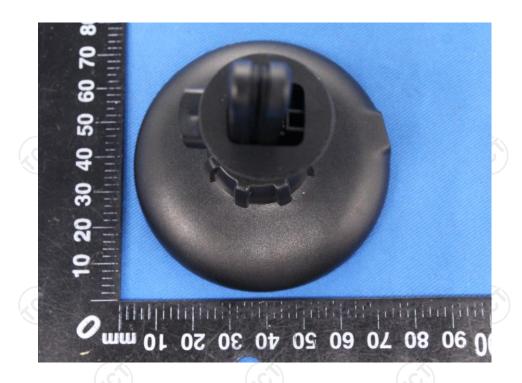


Appendix B: Photographs of EUT Product: Wireless Charger Car Mount Model: HKWP1060-10Q External Photos









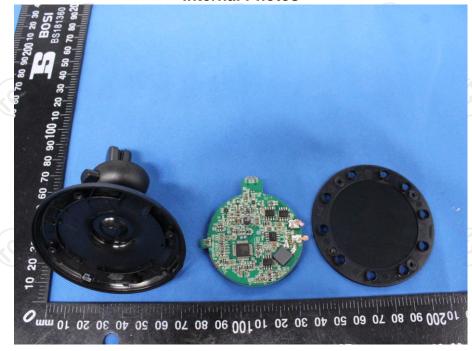


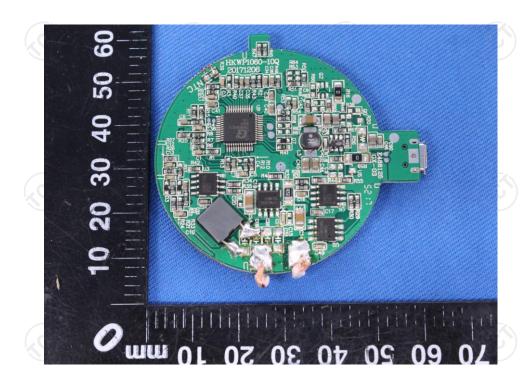
TCT通测检测 TESTING CENTRE TECHNOLOGY



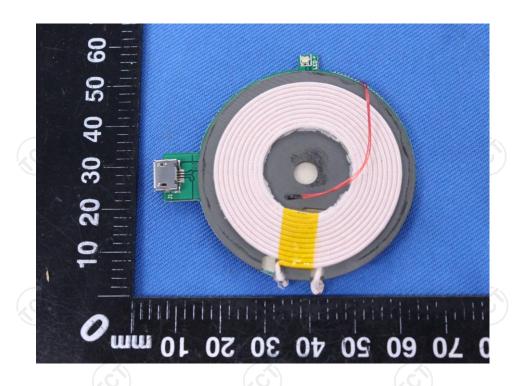


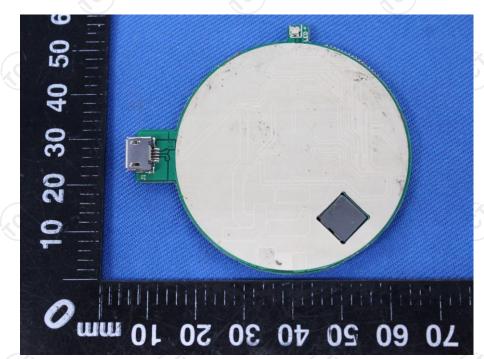
Product: Wireless Charger Car Mount Model: HKWP1060-10Q Internal Photos











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