

## TABLE OF CONTENTS

1.	Test Certification	3
2.	Test Result Summary	4
3.	EUT Description	5
4.	Genera Information	
	4.1. Test environment and mode	6
	4.2. Description of Support Units	6
5.	Facilities and Accreditations	7
	5.1. Facilities	7
	5.2. Location	
	5.3. Measurement Uncertainty	7
6.	Test Results and Measurement Data	8
	6.1. Antenna requirement	8
	6.2. Conducted Emission	9
	6.3. Radiated Spurious Emission Measurement	13
Α	ppendix A: Photographs of Test Setup	
Α	ppendix B: Photographs of EUT	

# TCT通测检测 1. Test Certification

Report No.: TCT171227E003

Product:	Wireless charger
Model No.:	K10
Additional Model No.:	Q8, Q8-10W, M8, M8-10W, JT-M10, JT-K10-10W, JT-Q8-10W, JT-M8-10W, JT-M8, M8-10W, N5, JT-N5, JT-KC-10W, JT-N1, JT-N800, JT-N6, JT-N7, JT-N9, JT-N10, N1, N800, N6, N7, N10,T1, T2, T3, T4, T5, JT-T1, JT-T2, JT-T3, JT-T4, JT-T5
Trade Mark:	N/A
Applicant:	Shenzhen MHLL Technology Co., Limited
Address:	3 Floor, Building 3, Youpin Cultural Creative Park, Meilong Road, Minzhi, Longhua New District, Shenzhen, China
Manufacturer:	Shenzhen MHLL Technology Co., Limited
Address:	3 Floor, Building 3, Youpin Cultural Creative Park, Meilong Road, Minzhi, Longhua New District, Shenzhen, China
Date of Test:	Dec. 28, 2017 – Jan. 09, 2018
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C
$\langle \mathcal{O} \rangle$	

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:	Garen	Date:	Jan. 09, 2018	
	Reviewed By:	Zorthan	Date:	Jan. 10, 2018	_
	Approved By:			Jan. 10, 2018	
		Tomom		Page 3	of 28
Hotline:	400-6611-140	Tel: 86-755-27673339	Fax: 86-755-2767333	32 http://www.tct-lab.o	<u>com</u>



# 2. Test Result Summary

Report No.: TCT171227E003

Require	ment		CFR 47 S	ection		Result	
Antenna requirement		§15.203			PASS PASS		
ourious E	Emission		§15.209(a)(f)			PASS	
	Ś				(C)		K.
ail: Test item d ⁄A: Test case d	loes not meet th does not apply t	e requirement. to the test objec	ct.	rd.			
	ower Line Emiss ourious E ASS: Test item ail: Test item of (A: Test case of	ower Line Conducted Emission Durious Emission ASS: Test item meets the requark il: Test item does not meet the A: Test case does not apply t	ower Line Conducted         Emission         ourious       Emission         ASS: Test item meets the requirement.         ail: Test item does not meet the requirement.         (A: Test case does not apply to the test object	ower Line Conducted Emission       §15.20         ourious Emission       §15.2090         ASS: Test item meets the requirement.       Since the requirement.         ail: Test item does not meet the requirement.       Yest case does not apply to the test object.	ower Line Conducted Emission       §15.207         ourious Emission       §15.209(a)(f)         ASS: Test item meets the requirement.       all: Test item does not meet the requirement.	ower Line Conducted Emission       §15.207         ourious Emission       §15.209(a)(f)         ASS: Test item meets the requirement.         wil: Test item does not meet the requirement.         'A: Test case does not apply to the test object.	ower Line Conducted Emission§15.207PASSourious Emission§15.209(a)(f)PASSASS: Test item meets the requirement. hil: Test item does not meet the requirement. (A: Test case does not apply to the test object.(a)



## 3. EUT Description

Product:	Wireless charger			
Model No.:	K10			
Additional Model No.:	Q8, Q8-10W, M8, M8-10W, JT-M10, JT-K10-10W, JT-Q8-10W, JT-M8-10W, JT-M8, M8-10W, N5, JT-N5, JT-KC-10W, JT-N1, JT-N800, JT-N6, JT-N7, JT-N9, JT-N10, N1, N800, N6, N7, N10,T1, T2, T3, T4, T5, JT-T1, JT-T2, JT-T3, JT-T4, JT-T5			
Trade Mark:	N/A			
Hardware Version:	+V1.0			
Software Version:	+V1.0			
<b>Operation Frequency:</b>	110-205KHz			
Number of Channel:	20 Channels			
Modulation Technology:	MSK			
Antenna Type:	Inductive loop coil Antenna			
Antenna Gain:	0dBi			
Remark:	All models above are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement.			

### **Operation Frequency each of channel**

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	0.110	6	0.135	11	0.160	16	0.185
2	0.115	7	0.140	12	0.165	17	0.190
3	0.120	8	0.145	13	0.170	18	0.195
4	0.125	9	0.150	14	0.175	19	0.200 🚫
5	0.130	10	0.155	15	0.180	20	0.205

## 4. Genera Information

**FCT**通测检测 TESTING CENTRE TECHNOLOGY

## 4.1. Test environment and mode

Operating Environment:						
Temperature:	25.0 °C					
Humidity:	56 % RH					
Atmospheric Pressure:	1010 mbar					
Test Mode:						
Engineering mode:	Koon the ELIT in continuous transmitting					

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
Adapter	HW-059200CHQ	K68247F5H01734	1	HUAWEI
Mobilephone	honor 9	5JPDU17610004560	1	honor

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. Antenna requirement

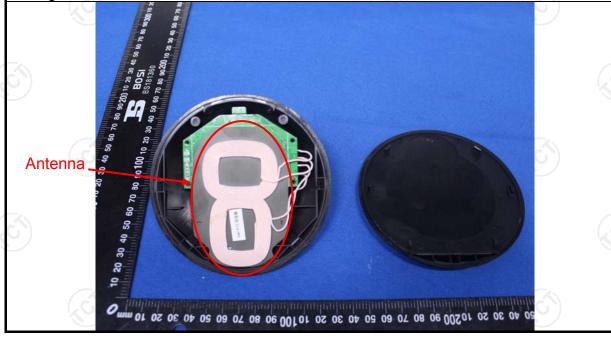
Standard requirement: FCC Part15 C Section 15.203

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, and the best case gain of the antenna is 0dBi.



## 6.2. Conducted Emission

#### 6.2.1. Test Specification

			(			
Test Requirement:	FCC Part15 C Section	15.207				
Test Method:	ANSI C63.10:2013	ANSI C63.10:2013 150 kHz to 30 MHz				
Frequency Range:	150 kHz to 30 MHz					
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto					
	Frequency range	Frequency range Limit (dBuV)				
	(MHz)	Quasi-peak	Áverage			
Limits:	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
		Reference Plane				
Test Setup:	E.U.T Adap Test table/Insulation pla Remarkc E.U.T: Equipment Under Test LISN: Line Impedence Stabilizatio Test table height=0.8m	ne EMI Receiver	ter AC power			
Test Mode:	Charging + Transmittir	ng Mode				
	<ol> <li>The E.U.T is connering edance stabilizing provides a 500hm/s measuring equipme</li> <li>The peripheral device power through a L coupling impedance</li> </ol>	zation network 50uH coupling im nt. ces are also conne ISN that provides	(L.I.S.N.). This pedance for the ected to the mair a 50ohm/50uH			
Test Procedure:	refer to the block photographs). 3. Both sides of A.C. conducted interferent emission, the relative the interface cables	diagram of the line are checkence. In order to fir positions of equ s must be chang	d for maximun nd the maximun ipment and all o ed according to			
Test Procedure: Test Result:	refer to the block photographs). 3. Both sides of A.C. conducted interfere emission, the relativ	diagram of the line are checkence. In order to fir positions of equ s must be chang	d for maximun nd the maximun ipment and all o ed according to			

Page 9 of 28

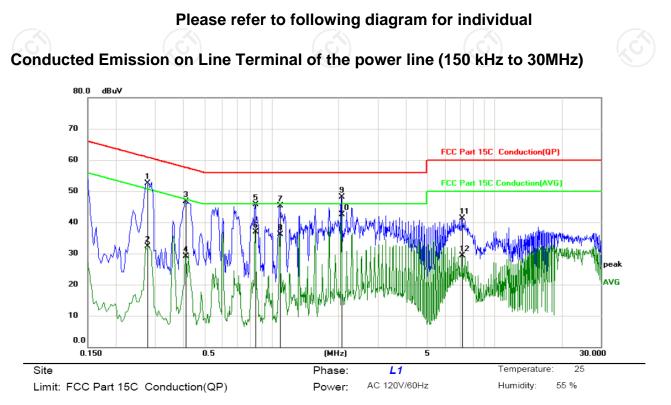
## 6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)							
Equipment	Manufacturer	Model	Serial Number	Calibration Due			
Test Receiver	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).

Page 10 of 28

#### 6.2.3. Test data

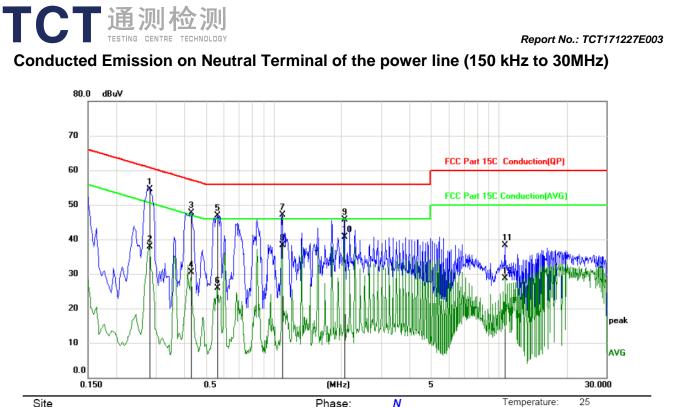


	Freq.	Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.2760	41.00	11.41	52.41	60.94	-8.53	QP	
2	0.2760	20.88	11.41	32.29	50.94	-18.65	AVG	
3	0.4110	35.41	11.34	46.75	57.63	-10.88	QP	
4	0.4110	17.86	11.34	29.20	47.63	-18.43	AVG	
5	0.8474	34.57	11.22	45.79	56.00	-10.21	QP	
6	0.8474	25.69	11.22	36.91	46.00	-9.09	AVG	
7	1.0904	34.01	11.25	45.26	56.00	-10.74	QP	
8	1.0904	24.93	11.25	36.18	46.00	-9.82	AVG	
9	2.0579	36.35	11.67	48.02	56.00	-7.98	QP	
10 *	2.0579	30.89	11.67	42.56	46.00	-3.44	AVG	
11	7.1430	30.38	10.94	41.32	60.00	-18.68	QP	
12	7.1430	18.42	10.94	29.36	50.00	-20.64	AVG	

#### 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 Page 11 of 28

Report No.: TCT171227E003



	i nase.			
Limit: FCC Part 15C Conduction(QP)	Power:	AC 120V/60Hz	Humidity:	55 %

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.2805	43.00	11.41	54.41	60.80	-6.39	QP	
2	0.2805	26.46	11.41	37.87	50.80	-12.93	AVG	
3	0.4290	36.44	11.34	47.78	57.27	-9.49	QP	
4	0.4290	19.14	11.34	30.48	47.27	-16.79	AVG	
5	0.5639	35.69	11.28	46.97	56.00	-9.03	QP	
6	0.5639	14.53	11.28	25.81	46.00	-20.19	AVG	
7	1.0904	35.81	11.25	47.06	56.00	-8.94	QP	
8	1.0904	26.98	11.25	38.23	46.00	-7.77	AVG	
9	2.0579	33.99	11.67	45.66	56.00	-10.34	QP	
10 *	2.0579	28.96	11.67	40.63	46.00	-5.37	AVG	
11	10.6575	27.01	11.37	38.38	60.00	-21.62	QP	
12	10.6575	17.29	11.37	28.66	50.00	-21.34	AVG	

#### 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  $(dB\mu V)$  = 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.

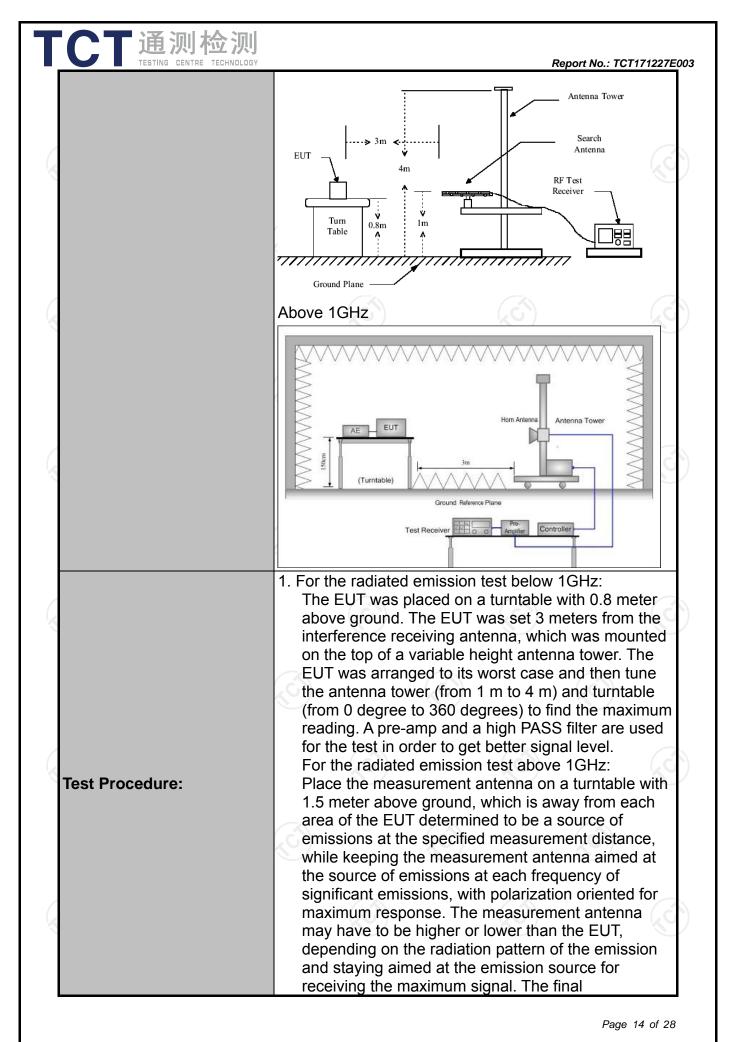
Page 12 of 28

## 6.3. Radiated Spurious Emission Measurement

#### 6.3.1. Test Specification

TCT通测检测 TESTING CENTRE TECHNOLOGY

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     Detector     RBW     VBW     Rema										
	Frequency 9kHz- 150kHz 150kHz-	Detector Quasi-peal Quasi-peal	k 200Hz	VBW 1kHz 30kHz		Remark si-peak Value si-peak Value					
Receiver Setup:	30MHz 30MHz-1GHz Above 1GHz	Quasi-peal Peak Peak	x 100KHz 1MHz 1MHz	300KHz 3MHz 10Hz	P	si-peak Value eak Value erage Value					
	Frequen	icy	Field Stre (microvolts	ength /meter)	Me	easurement ance (meters)					
	0.009-0.4 0.490-1.7 1.705-3	705	2400/F(I 24000/F( 30		300 30 30						
	30-88	1	<u>100</u> 150		3						
Limit:	216-96	0	200			3					
	Above 9	00				3					
	Frequency		d Strength ovolts/meter)	Measure Distan (meter	се	Detector					
	Above 1GHz	2	500 5000			Average Peak					
Test setup:	For radiated	Distance = 3m	s below 30	)MHz		Computer Amplifier Receiver					



└ <b>┌</b> ┲通测检	泂
	<ul> <li>Report No.: TCT171227</li> <li>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.</li> <li>2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level</li> <li>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.</li> <li>4. Use the following spectrum analyzer settings: <ul> <li>(1) Span shall wide enough to fully capture the emission being measured;</li> <li>(2) Set RBW=100 kHz for f &lt; 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;</li> <li>(3) Set RBW = 1 MHz, VBW= 3MHz for f = 1 GHz for peak measurement.</li> <li>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</li> </ul> </li> </ul>
Testmeder	power control level for the tested mode of operation.
Test mode:	Refer to section 4.1 for details
Test results:	PASS

Page 15 of 28

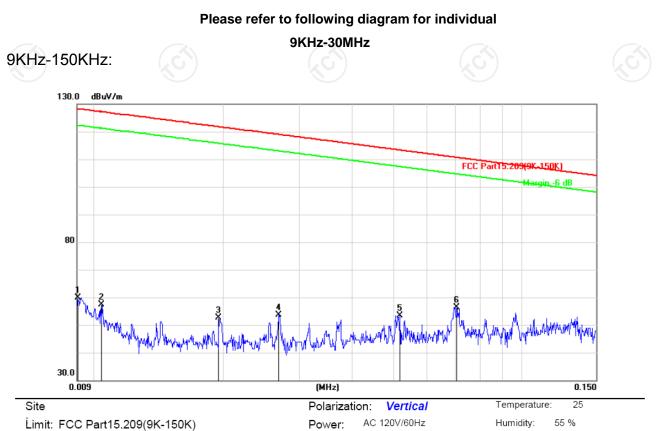


## 6.3.2. Test Instruments

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).

### 6.3.3. Test Data



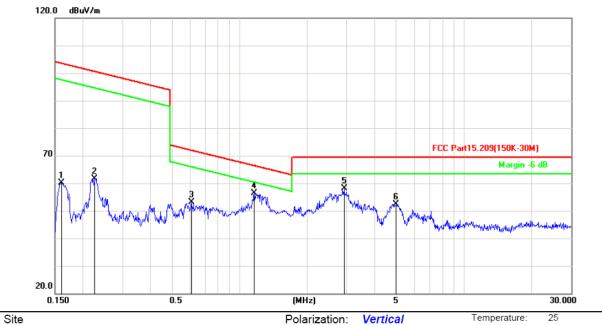
Report No.: TCT171227E003

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	0.0091	59.78	0.00	59.78	128.4	-68.63	peak			
2	0.0103	33.75	23.54	57.29	127.3	-70.05	peak			
3	0.0194	34.01	18.72	52.73	121.8	-69.12	peak			
4	0.0269	34.76	18.86	53.62	119.0	-65.39	peak			
5	0.0517	32.91	20.51	53.42	113.3	-59.92	peak			
6 *	0.0704	34.51	21.79	56.30	110.6	-54.36	peak			



#### 150KHz-30MHz:

TCT通测检测 TECTING CENTRE TECHNOLOGY



Limit: FCC Part15.209(150K-30M)

Polarization: Vertical Power: AC 120V/60Hz

Humidity: 55 %

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	0.1597	33.93	26.12	60.05	103.5	-43.50	peak			
2	0.2255	35.88	25.75	61.63	100.5	-38.92	peak			
3	0.6075	27.99	25.16	53.15	71.94	-18.79	peak			
4 *	1.1592	31.43	24.95	56.38	66.34	-9.96	peak			
5	2.9152	33.41	24.64	58.05	69.50	-11.45	peak			
6	4.9782	27.94	24.50	52.44	69.50	-17.06	peak			



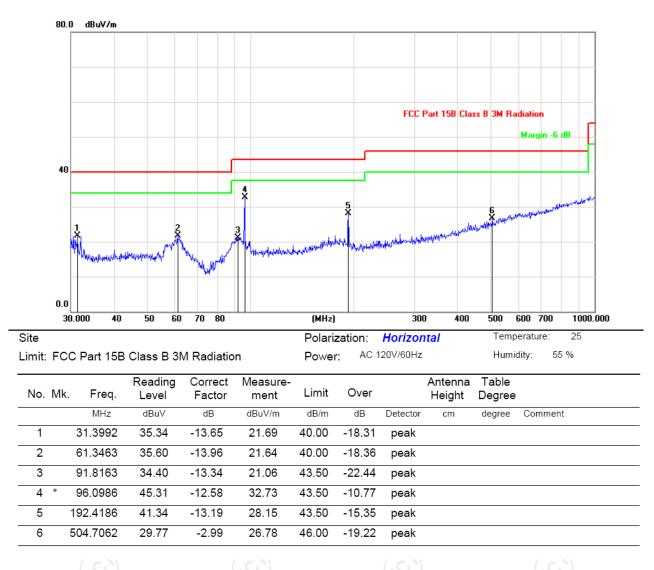
Report No.: TCT171227E003

Page 18 of 28

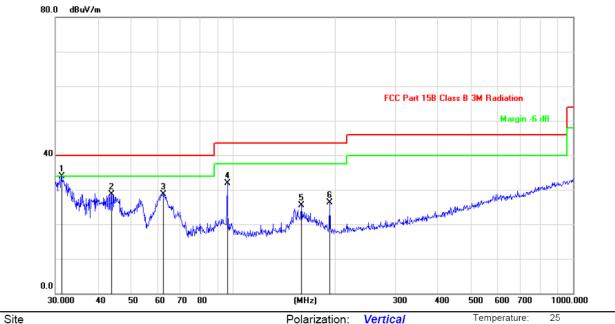
Report No.: TCT171227E003

30MHz-1GHz

#### Horizontal:



#### Vertical:



Limit: FCC Part 15B Class B 3M Radiation

Polarization: Vertical Power: AC 120V/60Hz

. Humidity: 55 %

Report No.: TCT171227E003

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	31.2893	47.66	-13.66	34.00	40.00	-6.00	peak			
2		43.9658	41.42	-12.75	28.67	40.00	-11.33	peak			
3		62.2128	43.05	-14.28	28.77	40.00	-11.23	peak			
4		96.0986	44.53	-12.58	31.95	43.50	-11.55	peak			
5		158.6677	40.80	-15.27	25.53	43.50	-17.97	peak			
6		192.4186	39.44	-13.19	26.25	43.50	-17.25	peak			

#### Note:

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



