TEST REPORT

Report Reference No......:	**GTS20200528006-1-2-2**
FCC ID..... **:**	**2AOAF-330**
Compiled by (position+printed name+signature)..:	File administrators Jimmy Wang
Supervised by (position+printed name+signature)..:	Test Engineer Aaron Tan
Approved by (position+printed name+signature)..:	Manager Jason Hu
Date of issue.....:	May 25, 2020

Representative Laboratory Name .:	**Shenzhen Global Test Service Co., Ltd.**
Address.....**:**	No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

Applicant's name.....:	**TYLT, inc.**
Address .....:	685 Cochran St. Suite 200, Simi Valley, California 93065, United States

Test specification .....**:**	
Standard .....:	**FCC Rules and Regulations part 2.1091** **KDB680106 D01v03**
TRF Originator.....:	Shenzhen Global Test Service Co.,Ltd.
Master TRF.....:	Dated 2014-12

Test item description .....:	Shield
Trade Mark .....:	TYLT
Manufacturer .....:	TYLT, inc.
Model/Type reference.....:	QISHLDBK-T
Listed Models .....:	QISHLDXX-T(XX=RD,BL,GY, Which the XX represent the different colour)
Modulation Type .....:	ASK
Operation Frequency.....:	From 110KHz~205KHz
Rating .....:	DC 5V/2A or 9V/1.8A
Result.....:	**PASS**

T E S T R E P O R T

Test Report No. :	**GTS20200528006-1-2-2**	May 25, 2020 Date of issue

Equipment under Test	:	Shield
Model /Type	:	QISHLDBK-T
Listed Models	:	QISHLDXX-T(XX=RD,BL,GY, Which the XX represent the different colour)
Applicant	:	**TYLT, inc.**
Address	:	685 Cochran St. Suite 200, Simi Valley, California 93065, United States
Manufacturer	:	**SHENZHEN GOODWIN TECHNOLOGY CO.,LTD**
Address	:	4/F,Buiding A, Huayuan Industrial park, Fenghuang No.1 Industrial Area, Fuyong, Baoan Dist., Shenzhen, China

Test Result:	**PASS**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1 SUMMARY

1.1 General Remarks

Date of receipt of test sample	:	May 19, 2020
Testing commenced on	:	May 20, 2020
Testing concluded on	:	May 24, 2020

1.2 Product Description

Product Name:	Shield
Model/Type reference:	QISHLDBK-T
Hardware version:	GW-WD30-V1.0
Software version:	V1.0
Test samples ID:	GTS20200528006-1-2#
Power supply:	DC 5V/2A or 9V/1.8A
Operation frequency:	110KHz - 205KHz
Modulation type:	ASK
Antenna type:	Loop coil antenna

1.3 Description of the test mode

Equipment under test was operated during the measurement under the following conditions:
☒ Charging and communication mode

Test Modes:		
Mode 1	AC/DC Adapter (9V/1.8A) + EUT + Wireless charger tester (Load 10W)	Pre-tested
Mode 2	AC/DC Adapter (9V/1.8A) + EUT + Wireless charger tester (Load 7.5W)	Pre-tested
Mode 3	AC/DC Adapter (9V/1.8A) + EUT + Wireless charger tester (Load 5W)	Pre-tested
Mode 4	AC/DC Adapter (5V/2A) + EUT + Wireless charger tester (Load 10W)	Pre-tested
Mode 5	AC/DC Adapter (5V/2A) + EUT + Wireless charger tester (Load 7.5W)	Pre-tested
Mode 6	AC/DC Adapter (5V/2A) + EUT + Wireless charger tester (Load 5W)	Pre-tested
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

1.4 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Technical Parameters	Certificate	Provided by
Adapter	CHENYANG ELECTRONICS	CD103	Input: 100-240V~, 50/60Hz, 0.5A Output: 5V⎓2A / 9V⎓1.8A	CE/FCC	laboratory
Wireless charger tester	/	SW-MK-89898	Full Protocol Wireless Chager Tester, 5W / 7.5W / 10W / 15W four gear switchable	CE/FCC	laboratory
/	/	/	/	/	/
/	/	/	/	/	/

1.5 Modifications

No modifications were implemented to meet testing criteria.

2 TEST ENVIRONMENT

2.1 Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.
No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

2.2 Test Facility

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

FCC-Registration No.: 165725

Shenzhen Global Test Service Co.,Ltd 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.

A2LA-Lab Cert. No.: 4758.01

Shenzhen Global Test Service Co.,Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

CNAS-Lab Code: L8169

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2024.

2.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2.4 Summary of measurement results

Test Item	Result
Electric Field Strength (E) (V/m)	Compliant
Magnetic Field Strength (H) (A/m)	Compliant

2.5 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 Global Test Service 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 Shenzhen GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(1)

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

2.6 Equipments Used during the Test

Description	Brand	Model No.	Frequency Range	Calibrated Date	Calibrated Until
Broadband Field Meter	NARDA	NBM-550	-	Dec. 27, 2019	Dec. 26, 2020
Magnetic Field Meter	NARDA	ELT-400	1 – 400kHz	Dec. 27, 2019	Dec. 26, 2020
Magnetic Probe	NARDA	HF-3061	300kHz – 30MHz	Dec. 27, 2019	Dec. 26, 2020
Magnetic Probe	NARDA	HF-0191	27 – 1000MHz	Dec. 27, 2019	Dec. 26, 2020
Broadband Field Meter	NARDA	NBM-550	-	Dec. 27, 2019	Dec. 26, 2020
Electric Field Meter	COMBINOVA	EFM 200	5Hz – 400kHz	Dec. 27, 2019	Dec. 26, 2020
E-Field Probe	NARDA	EF-0391	100kHz – 3GHz	Dec. 27, 2019	Dec. 26, 2020
E-Field Probe	NARDA	EF-6091	100MHz – 60GHz	Dec. 27, 2019	Dec. 26, 2020

Note: The Cal.Interval was one year.

3 TEST CONDITIONS AND RESULTS

3.1 Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.
According to §1.1310 and §2.1091 RF exposure is calculated.
According KDB 680106 D01 RF Exposure Fast Wireless Charger App v03

3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

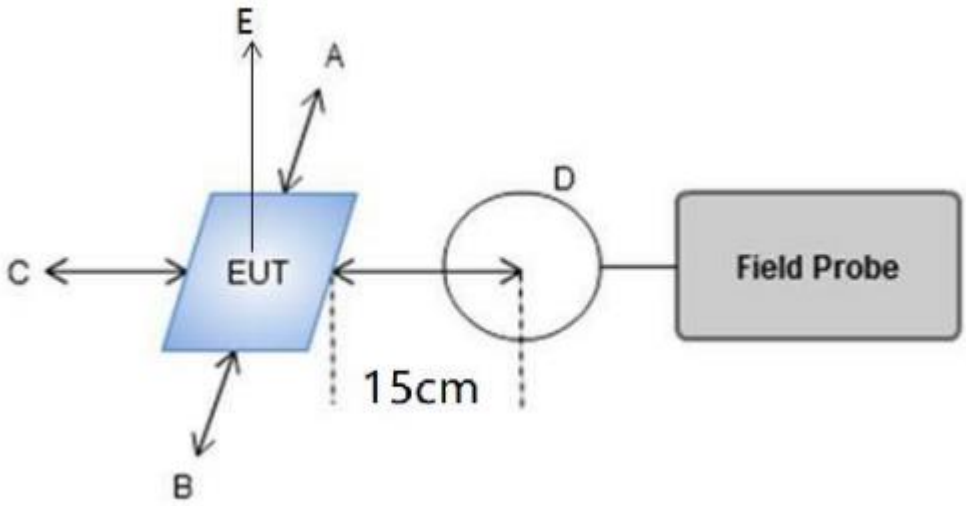
Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

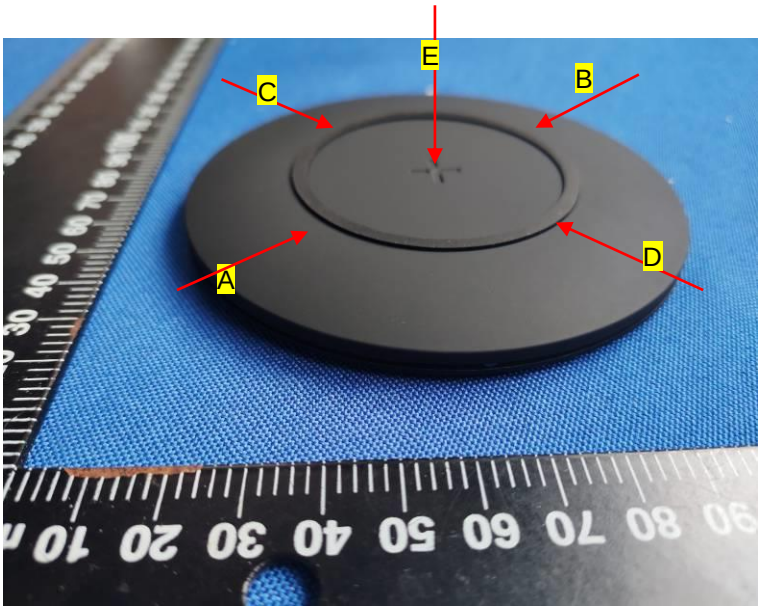
F=frequency in MHz
*=Plane-wave equivalent power density

3.3 Test Setup



Note: A, B, C, D, E, F for six surfaces of the product.

The surfaces of the EUT is defined as figure below:



3.4 Measurement Procedure

a) The RF exposure test was performed on 360 degree turn table in anechoic chamber.
b) The measurement probe was placed at test distance (10cm) which is between the edge of the charger and the geometric centre of probe.
c) The turn table was rotated 360d degree to search of highest strength.
d) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
e) The EUT were measured according to the dictates of KDB 680106 D01 RF Exposure Fast Wireless Charger App v03.

3.5 Test Result of E and H field Strength

Temperature:	22.8℃	Humidity:	56%
Test Engineer:	Moon Tan	Test site:	Anechoic chamber

E-Field Strength at 15 cm from the edges surrounding the EUT and 15cm from the top surface of the EUT

Power Load	Frequency Range (MHz)	Measured E-Field Strength Values (V/m)					FCC E-Field Strength 50% Limits (V/m)	FCC E-Field Strength Limits (V/m)
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E		
10W	0.145	1.79	1.86	1.83	1.92	2.59	307.0	614.0
7.5W	0.145	1.32	1.45	1.52	1.59	2.17	307.0	614.0
5W	0.145	1.02	1.17	1.09	1.24	1.90	307.0	614.0

H-Field Strength at 15 cm from the edges surrounding the EUT and 15cm from the top surface of the EUT

Power Load	Frequency Range (MHz)	Measured E-Field Strength Values (A/m)					FCC H-Field Strength 50% Limits (A/m)	FCC H-Field Strength Limits (A/m)
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E		
10W	0.145	0.211	0.207	0.224	0.231	0.378	0.815	1.63
7.5W	0.145	0.136	0.148	0.175	0.169	0.328	0.815	1.63

5W	0.145	0.097	0.085	0.102	0.122	0.284	0.815	1.63

H-Field Strength at 20cm from the top surface of the EUT

Power Load	Frequency Range (MHz)	Measured E-Field Strength Values (A/m)	FCC H-Field Strength 50% Limits (A/m)	FCC H-Field Strength Limits (A/m)
		Test Position E		
10W	0.145	0.322	0.815	1.63
7.5W	0.145	0.246	0.815	1.63
5W	0.145	0.231	0.815	1.63

1.1. Equipment Approval Considerations

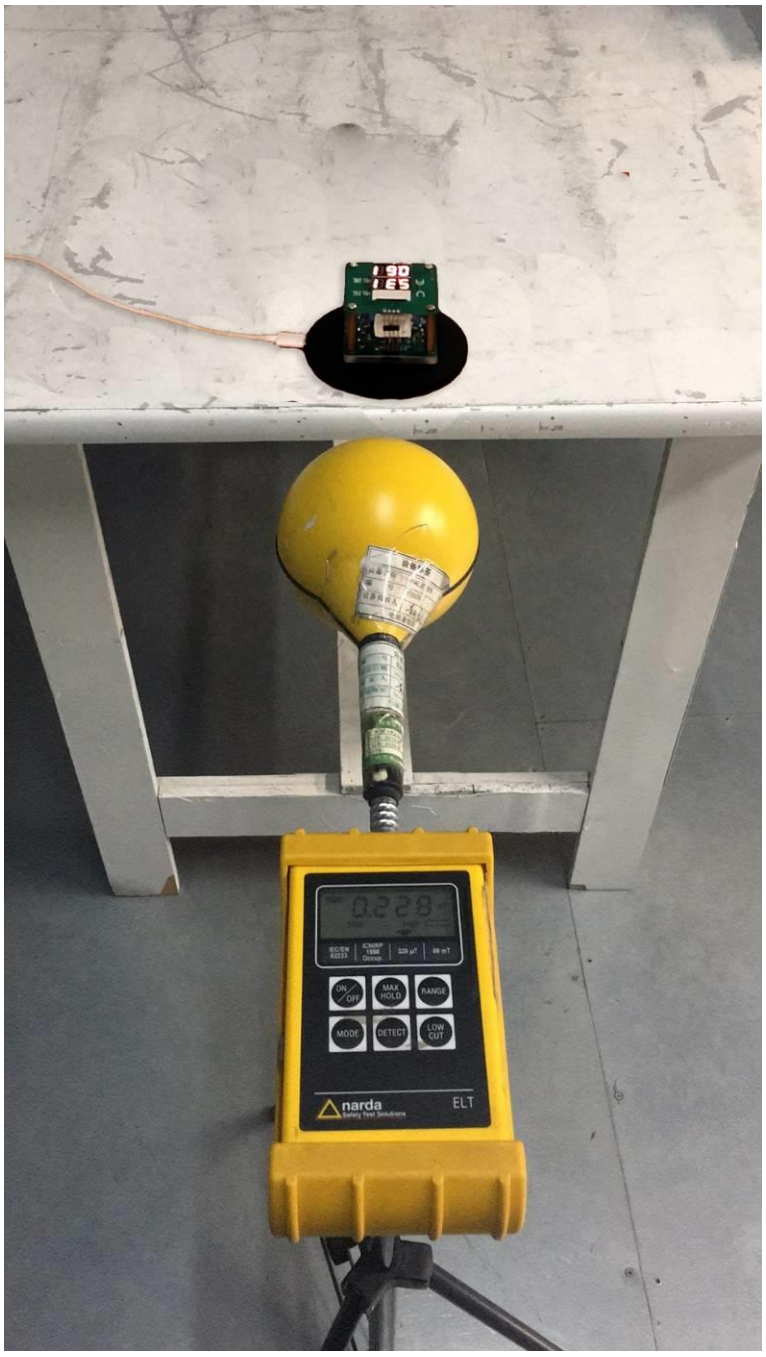
The EUT does comply with KDB 680106 D01 as follow table.

Requirements of KDB 680106 D01	Yes / No	Description
Power transfer frequency is less than 1 MHz	Yes	The device operate in the frequency range 110KHz~205KHz
Output power from each primary coil is less than 15 watts	Yes	The maximum output power for each primary coil is 10W.
The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.	Yes	The transfer system includes three primary coils and are able to detect and allow coupling only between individual pairs of coils.
Client device is placed directly in contact with the transmitter.	Yes	Client device is placed directly in contact with the transmitter.
Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes	Mobile exposure conditions only
The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes	The EUT H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

1.2. Conclusion

The detected emissions with a distance of 15cm surrounding the device and 20 cm above the top surface of the device are below the FCC E-Field Strength & H-Field Strength limits; and comply with the requirements of FCC KDB 680106 D01.

4 Test Setup Photos of the EUT



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