

FCC Test Report

Report No.: AGC02724190601FE03

FCC ID	: 2ADK3XO-9549
APPLICATION PURPOSE	: Original Equipment
PRODUCT DESIGNATION	: Wooden Wireless Charging Pad
BRAND NAME	: N/A
MODEL NAME	: XO-9549
APPLICANT	: XING DA INTERNATIONAL ELECTRONICS LIMITED
DATE OF ISSUE	: Jul. 22, 2019
STANDARD(S) TEST PROCEDURE(S)	: FCC Part 15 Rules
REPORT VERSION	: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul. 22, 2019	Valid	Initial Release





Report No.: AGC02724190601FE03 Page 3 of 29

TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY	
2. GENERAL INFORMATION	5
2.1. PRODUCT DESCRIPTION	5
3. MEASUREMENT UNCERTAINTY	6
4. DESCRIPTION OF TEST MODES	7
5. SYSTEM TEST CONFIGURATION	8
5.1. CONFIGURATION OF EUT SYSTEM 5.2. EQUIPMENT USED IN EUT SYSTEM 5.3. SUMMARY OF TEST RESULTS	8
6. TEST FACILITY	9
7. RADIATED EMISSION	
7.1TEST LIMIT 7.2. MEASUREMENT PROCEDURE 7.3. TEST SETUP 7.4. TEST RESULT	11 12
8. 20DB BANDWIDTH	16
8.1. MEASUREMENT PROCEDURE 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 8.3. MEASUREMENT RESULTS	16
9. FCC LINE CONDUCTED EMISSION TEST	
 9.1. LIMITS OF LINE CONDUCTED EMISSION TEST 9.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST 9.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST 9.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST 9.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST 	
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	
APPENDIX B: PHOTOGRAPHS OF EUT	



 $\label{eq:attestation} Attestation of Global Compliance (Shenzhen) Co., Ltd.$



1. VERIFICATION OF CONFORMITY

Applicant	XING DA INTERNATIONAL ELECTRONICS LIMITED				
Address	#98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China				
Manufacturer	XING DA INTERNATIONAL ELECTRONICS LIMITED				
Address	#98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China				
Factory	XING DA INTERNATIONAL ELECTRONICS LIMITED				
Address	#98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China				
Product Designation	Wooden Wireless Charging Pad				
Brand Name	N/A				
Test Model	XO-9549				
Date of test	Jun. 26, 2019 to Jul. 22, 2019				
Deviation	None				
Condition of Test Sample	Normal				
Test Result	Pass				
Report Template	AGCRT-US-BR/RF				

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with Section 15.207, 15.209, 15.203 of the FCC Part 15, Subpart C Rules. The results of testing in this report apply to the product/system which was tested only.

Erik Yeng Tested By Erik Yang(Yang Jianmin) Jul. 22, 2019 Max Zhang **Reviewed By** Max Zhang(Zhang Yi) Jul. 22, 2019 Forrest in Approved By Forrest Lei(Lei Yonggang) Jul. 22, 2019 Authorized Officer





2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	116.3 kHz
Maximum field strength	55.72dBuV/m(PK)@3m
Modulation	FSK
Number of channels	
Antenna Gain	0dBi
Antenna Designation	Integrated Antenna (Met 15.203 Antenna requirement)
Hardware Version	ST-121-9549 REV01
Software Version	V1.0
Power Supply	DC 5V/1A by Micro-USB





3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in

- measurement" (GUM) published by CISPR and ANSI.
- Uncertainty of Conducted Emission, $Uc = \pm 3.2 dB$
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB





4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Wireless charging Mode(Full load)
2	Wireless charging Mode(half load)
3	Wireless charging Mode(Null load)





5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure :

EUT	

Accessory

5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Wooden Wireless Charging Pad	XO-9549	2ADK3XO-9549	EUT
2	Adapter	HW-050100O2W	DC 5.0V/1.0A	Accessory
3	Load	N/A	5W	Accessory

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.209	Radiated Emission	Compliant
§15.215	20dB bandwidth	Compliant
§15.207	Conducted Emission	Compliant





6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd				
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China				
Designation Number	CN1259				
FCC Test Firm Registration Number	975832				
A2LA Cert. No.	5054.02				
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA				

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun.12, 2019	Jun.11, 2020
LISN	R&S	ESH2-Z5	100086	Aug. 28, 2018	Aug. 27, 2019

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun.12, 2019	Jun.11, 2020
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 20, 2018	Dec. 19, 2019
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Jun.12, 2019	Jun.11, 2020
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 28, 2017	Sep. 27, 2019





7. RADIATED EMISSION

7.1TEST LIMIT

Standard FCC 15.209

Frequency	Distance	Field	I Strengths Limit			
(MHz)	Meters	μ V/m	dB(µV)/m			
0.009 ~ 0.490	300	2400/F(kHz)	G 2			
0.490 ~ 1.705	30	24000/F(kHz)				
1.705 ~ 30	30	30				
30 ~ 88	3	100	40.0			
88 ~ 216	3	150	43.5			
216 ~ 960	3	200	46.0			
960 ~ 1000	3	500	54.0			
Above 1000	3	Other:74.0 dB(µV)/m	Other:74.0 dB(µV)/m (Peak) 54.0 dB(µV)/m (Average			
Remark: (1) Emiss	sion level dBµV = 20 log l	Emission level µV/m				

(1) Emission level $dB\mu V = 20 \log Emission level \mu V/m$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.





7.2. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

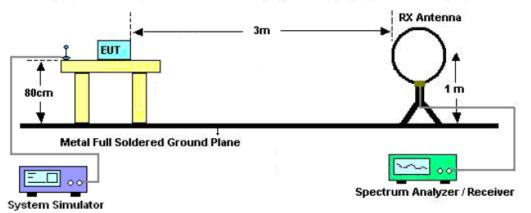
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP



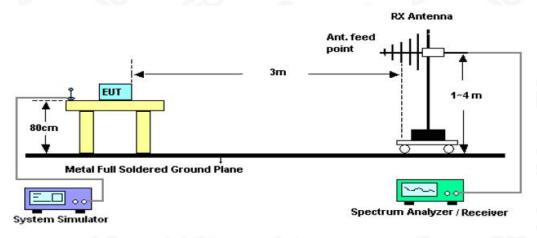


7.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz







7.4. TEST RESULT

Frequency MHz	Polarization	Reading dB(uV) PK	Factor dB (1/m)	Level dB(uV/m) PK	Limit dB(uV/m) PK	Margin dB	Pass/Fail
0.1163	Face	45.32	10.40	55.72	106.29	-50.57	Pass
0.1163	Side	35.24	10.40	45.64	106.29	-60.65	Pass

RADIATED EMISSION BELOW 30MHZ

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.

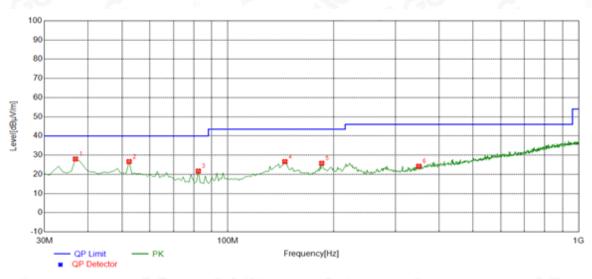




Report No.: AGC02724190601FE03 Page 14 of 29

EUT :	Wooden Wireless Charging Pad	Model Name. :	XO-9549
Temperature :	23 ℃	Relative Humidity:	58%
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Mode 1	Polarization :	Horizontal

RADIATED EMISSION 30MHz-1GHz



NO.	Freq.		Factor	Limit	Margin	Height	Angle	Polarity
	[MHz]	[dBµV/m]	[dB]	[dBµV/m]	[dB]	[cm]	I	0
1	36.7900	27.98	14.16	40.00	12.02	100	271	Horizontal
2	52.3100	26.64	14.49	40.00	13.36	200	310	Horizontal
3	82.3800	21.69	10.17	40.00	18.31	200	332	Horizontal
4	145.4300	26.59	14.88	43.50	16.91	200	62	Horizontal
5	185.2000	25.75	12.74	43.50	17.75	200	358	Horizontal
6	350.1000	24.21	17.85	46.00	21.79	100	14	Horizontal

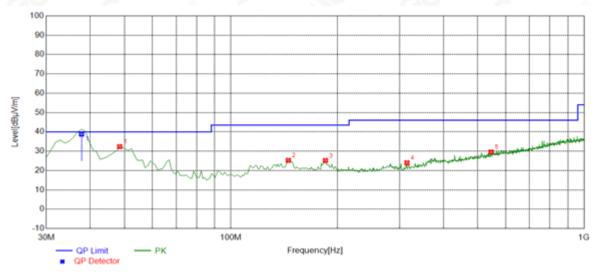
RESULT: PASS



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EUT :	Wooden Wireless Charging Pad	Model Name. :	XO-9549
Temperature :	23 °C	Relative Humidity:	58%
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Mode 1	Polarization :	Vertical



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	37.7600	14.39	38.85	40.00	1.15	100	25	Vertical
2	48.4300	32.34	14.71	40.00	7.66	100	5	Vertical
3	145.4300	25.23	14.88	43.50	18.27	100	151	Vertical
4	185.2000	25.15	12.74	43.50	18.35	100	136	Vertical
5	315.1800	23.98	16.48	46.00	22.02	100	136	Vertical
6	545.0700	29.56	23.17	46.00	16.44	100	356	Vertical

RESULT: PASS

Note:

Factor=Antenna Factor + Cable loss, Margin=Limit-Level.

The "Factor" value can be calculated automatically by software of measurement system.



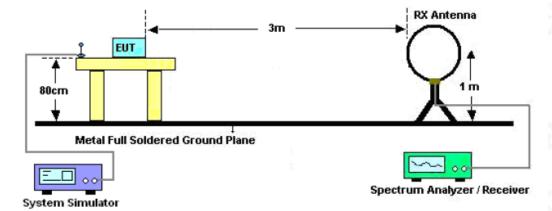


8. 20DB BANDWIDTH

8.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2, Set the EUT Work on operation frequency.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a channel The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)







8.3. MEASUREMENT RESULTS

TEST ITEM	20DB BANDWIDTH	- G	N
TEST MODULATION	FSK	No CC	
- C. 0	F No co		2

Test Data (Hz)	Criteria	
Operate Channel	915	PASS

07:22:11 PM Jul 22, 2019 Radio Std: None ALIGN AUTO Center Freq: 116.270 kHz Trig: Free Run Avg|Hold:>10/10 #Atten: 10 dB Frequency Center Freg 116.270 kHz #IFGain:Low Radio Device: BTS Ref 10.00 dBm 0 dB/div **Center Freq** 116.270 kHz Center 116.3 kHz #Res BW 300 Hz Span 3 kHz Sweep 40.87 ms CF Step 300 Hz #VBW 1 kHz Mai Auto -6.20 dBm **Occupied Bandwidth Total Power** 867 Hz **Freq Offset** 0 Hz **Transmit Freq Error** 3 Hz **OBW Power** 99.00 % 915 Hz -20.00 dB x dB Bandwidth x dB

TEST PLOT OF BANDWIDTH



9. FCC LINE CONDUCTED EMISSION TEST

9.1. LIMITS OF LINE CONDUCTED EMISSION TEST

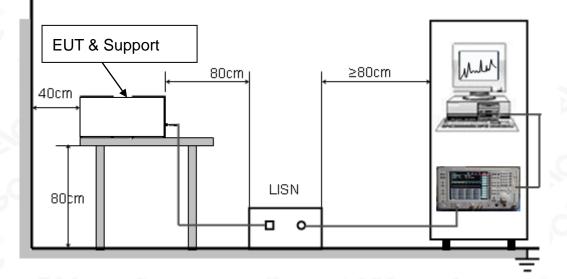
F	Maximum RF Line Voltage				
Frequency	Q.P.(dBuV)	Average(dBuV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

9.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST







9.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipments received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received charging voltage by adapter which received 120V/60Hzpower by a LISN..
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

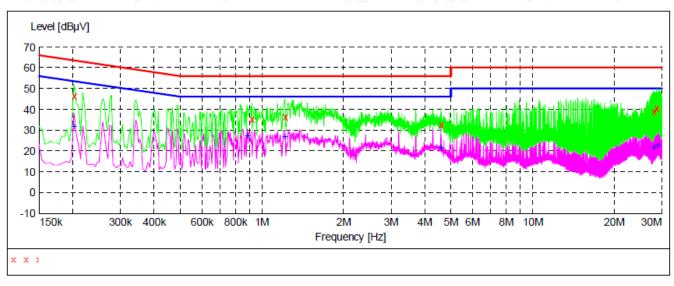
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

9.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.







9.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST-L

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.202000 0.918000 1.214000 4.586000 27.970000 28.762000	46.70 35.30 36.30 32.70 39.30 40.60	10.9 11.2 11.5 11.6 12.8 12.8	64 56 56 60 60	16.8 20.7 19.7 23.3 20.7 19.4	QP QP QP QP QP QP	L1 L1 L1 L1 L1 L1

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.202000 0.882000 1.214000 4.586000 27.966000 29.034000	32.00 27.30 27.20 22.00 22.00 22.80	10.9 11.1 11.5 11.6 12.8 12.8	54 46 46 50 50	21.5 18.7 18.8 24.0 28.0 27.2	AV AV AV AV AV	L1 L1 L1 L1 L1 L1

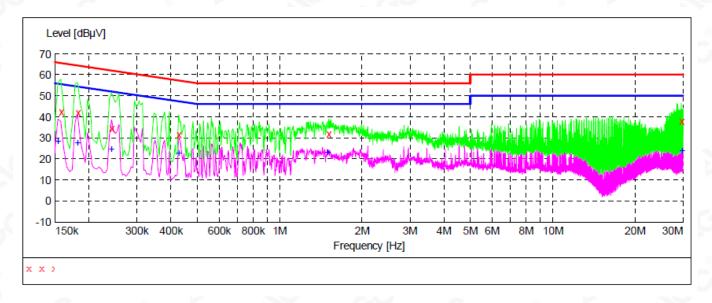
RESULT: PASS





Report No.: AGC02724190601FE03 Page 21 of 29

LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.158000	42.40	10.8	66	37.2	QP	N
0.182000	42.20	10.9	64	28.2	QP	Ν
0.242000	34.30	10.9	62	32.7	QP	Ν
0.426000	31.50	10.6	57	25.8	QP	Ν
1.510000	32.00	11.5	56	24.0	QP	Ν
29.610000	38.00	12.8	60	22.0	QP	Ν

MEASUREMENT RESULT

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	28.40	10.8	56	38.4	AV	Ν
0.182000	27.80	10.9	54	36.6	AV	N
0.242000	24.90	10.9	52	37.1	AV	N
0.426000	23.10	10.6	47	31.2	AV	N
1.494000	23.20	11.5	46	22.8	AV	N
29.778000	24.20	12.8	50	30.8	AV	N

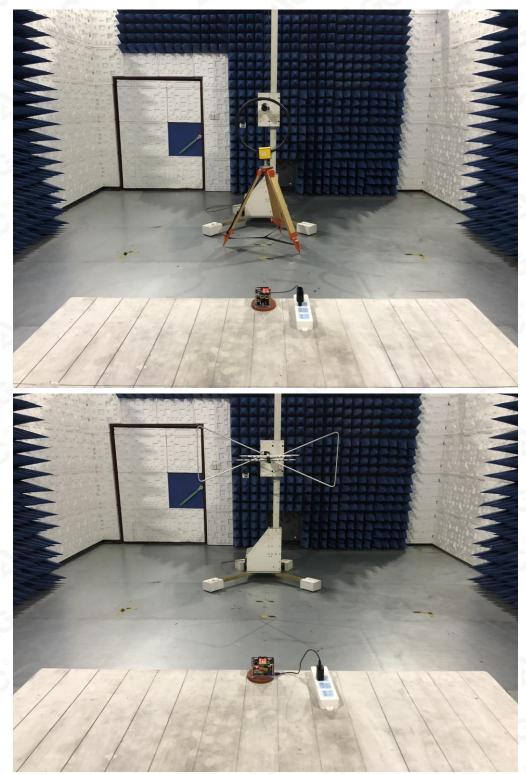
RESULT: PASS





Report No.: AGC02724190601FE03 Page 22 of 29

APPENDIX A: PHOTOGRAPHS OF TEST SETUP FCC RADIATED EMISSION TEST SETUP BELOW 1GHZ





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Service Hotline:400 089 2118



Report No.: AGC02724190601FE03 Page 23 of 29



FCC LINE CONDUCTED EMISSION TEST SETUP



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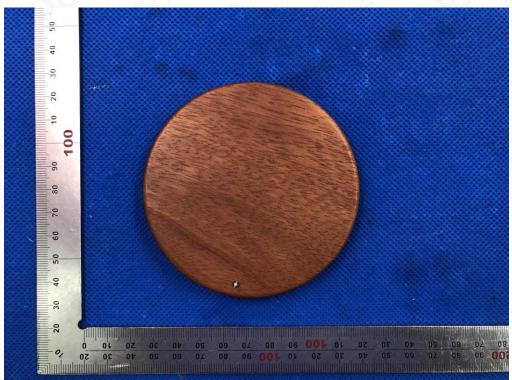


Report No.: AGC02724190601FE03 Page 24 of 29



APPENDIX B: PHOTOGRAPHS OF EUT ALL VIEW OF EUT

TOP VIEW OF EUT





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Report No.: AGC02724190601FE03 Page 25 of 29

BOTTOM VIEW OF EUT



FRONT VIEW OF EUT





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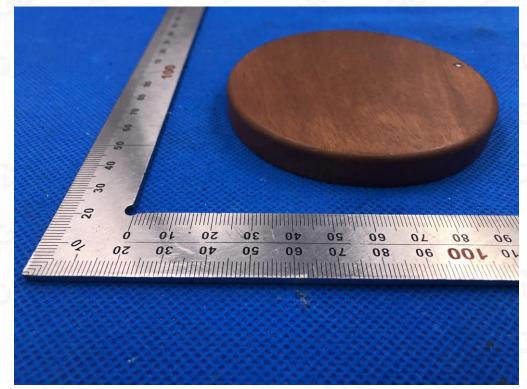


Report No.: AGC02724190601FE03 Page 26 of 29

BACK VIEW OF EUT



LEFT VIEW OF EUT





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Report No.: AGC02724190601FE03 Page 27 of 29

RIGHT VIEW OF EUT



OPEN VIEW-1 OF EUT

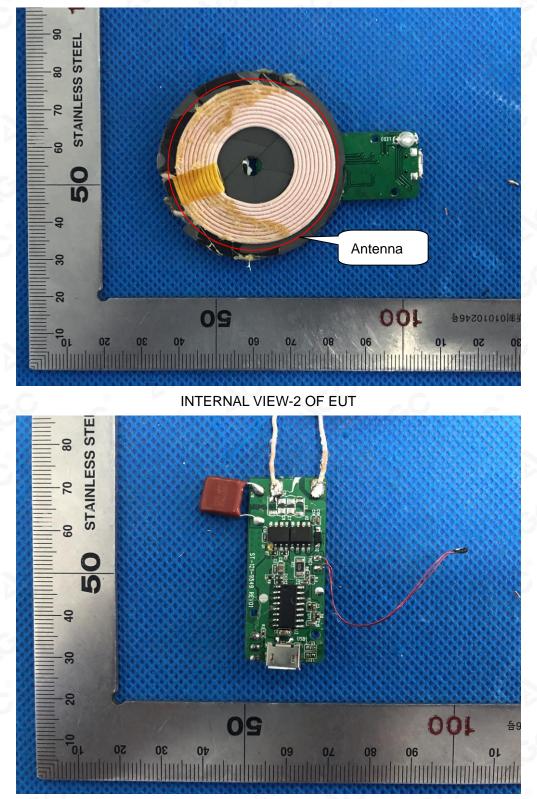






Report No.: AGC02724190601FE03 Page 28 of 29

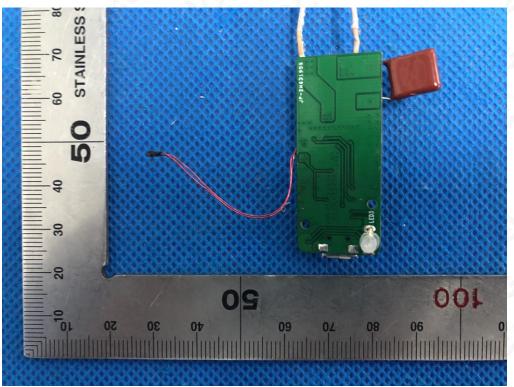
INTERNAL VIEW-1 OF EUT







Report No.: AGC02724190601FE03 Page 29 of 29



INTERNAL VIEW-3 OF EUT

----END OF REPORT----



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