

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT**

OF

Wireless Charger Smart Lamp

Model No.: ALD-FW0525

Trademark: THOVAS

FCC ID: 2AXDL-ALDFW0525

Report No.: EA2008241F03001

Issue Date: September 09, 2020

Prepared for

Dongguan Chuan OptoElectronics Limited

**NO.43 SongShui Road,SongMuShan Village,Dalang Town,DongGuan
City,Guangdong,China**

Prepared by

Dong Guan Anci Electronic Technology Co., Ltd.

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Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr.,
China.**

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Dong Guan Anci Electronic Technology Co., Ltd.**

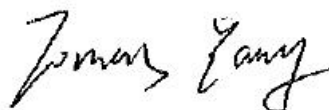
VERIFICATION OF COMPLIANCE

Applicant:	Dongguan Chuan OptoElectronics Limited NO.43 SongShui Road, SongMuShan Village, Dalang Town, DongGuan City, Guangdong, China
Manufacturer:	Dongguan Chuan OptoElectronics Limited NO.43 SongShui Road, SongMuShan Village, Dalang Town, DongGuan City, Guangdong, China
Product Description:	Wireless Charger Smart Lamp
Trade Mark:	THOVAS
Model Number:	ALD-FW0525

We hereby certify that:

The above equipment was tested by Dong Guan Anci Electronic Technology 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 conducted and radiated emission limits of FCC Rules Part 15.209.

Date of Test : August 22, 2020 to September 07, 2020



Prepared by : Tomas Yang/Supervisor



Reviewer &
Authorized Signer : Alan He/Manager

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	EA2008241F03001



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1 General Information

1.1 Product Description

Characteristics	Description
Product Name	Wireless Charger Smart Lamp
Model number	ALD-FW0525
Operation Mode	Wireless Charging
Input Rating	AC 100-240V 50/60 MHz
Power Supply	AC120V/60Hz
Operating Frequency	110-205KHz
Wireless Charging Power	5W Max
Modulation Technique	ASK
Antenna Type	Induction coil

1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for FCC ID: 2AXDL-ALDFW0525 filing to comply with the FCC Part 15, Subpart C Rules.

1.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description	:	Accredited by CNAS, 2017.06.26
EMC Lab.	:	The certificate is valid until 2022.10.28
	:	The Laboratory has been assessed and proved to be in compliance with
	:	CNAS-CL01:2006 (identical to ISO/IEC 17025:2005)
	:	The Certificate Registration Number is L6214.
	:	Accredited by A2LA, 2018.03.15
	:	The Certificate Number is 4422.01.
Name of Firm	:	Dong Guan Anci Electronic Technology Co., Ltd.
Site Location	:	1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan, Lake
	:	Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr.,
	:	China.

2 System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

2.3.2 Radiated Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the fixed in a particular direction according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

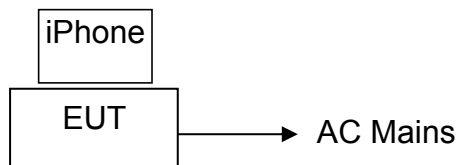


Table 2-1 Equipment Used in Tested System

Item	Equipment	Trade Mark	Model No.	FCC ID	Note
1.	Wireless Charger Smart Lamp	THOVAS	ALD-FW0525	2AXDL-ALDFW0525	<i>EUT</i>
2.	iPhone	Apple	A2108	N/A	<i>Support Equipment</i>

Note:

- (1) Unless otherwise denoted as EUT in 『Remark』 column, device(s) used in tested system is a support equipment.

3 Summary of Test Results

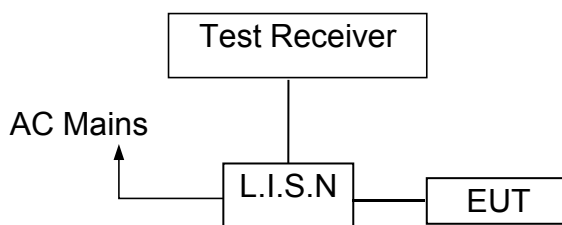
FCC Rules	Description Of Test	Result
§15.207	AC Power Conducted Emission	Compliant
§15.209	Radiated Emission	Compliant
§2.1049	20dB Bandwidth	Compliant
§15.203	Antenna Requirement	Compliant

4 Conducted Emissions Test

4.1 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

4.2 Test SET-UP (Block Diagram of Configuration)



4.3 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	Calibrated until
L.I.S.N	SCHWARZBECK	NSLK 8127	8127-669	2021-05-18
10 db attenuator	JFW	50FP-010-H4	4360846-427-1	2021-05-18
RF Cable	N/A	N/A	2#	2021-05-18
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101358	2021-05-18

4.4 Conducted Emission Limit

Conducted Emission

Frequency(MHz)

Quasi-peak

Average

0.15-0.5

66-56

56-46

0.5-5.0

56

46

5.0-30.0

60

50

Note: 1. The lower limit shall apply at the transition frequencies

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

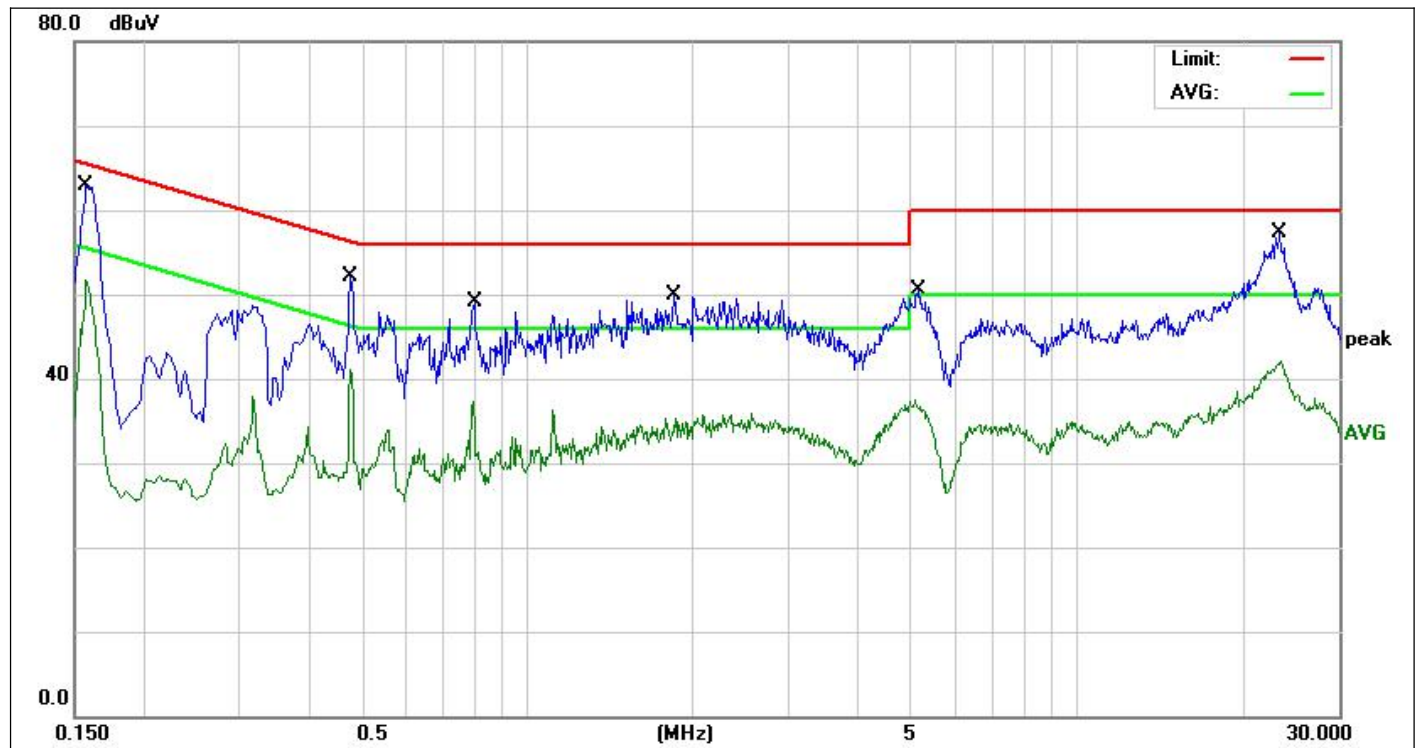
4.5 Measurement Result

Operation Mode:	TX	Test Date :	2020-08-21
Frequency Range:	0.15MHz~30MHz	Temperature :	28°C
Test Result:	PASS	Humidity :	65 %
Test By:	Best		

Pass

The test data see follow the table.

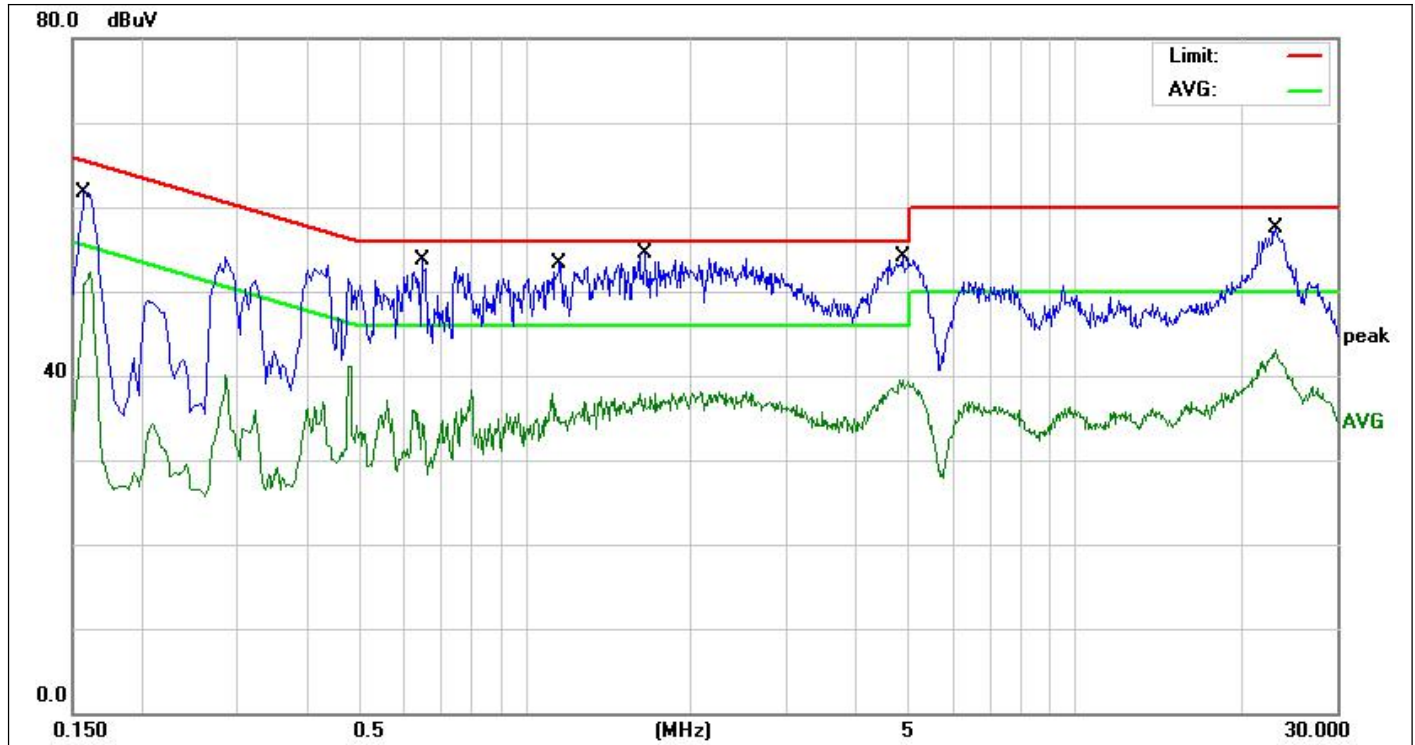
Report No.: EA2008241F03001 12 of 32
Test mode: Wireless Charging 5W use iphone



Site:	843	Phase:	N	Temperature(C):	26(C)
Limit:	FCC Part 15 C Conduction(QP)	Test Time:	2020-08-21	Humidity(%):	60%
EUT:	Wireless Charger Smart Lamp	Power Rating:	AC 120V/60Hz		
M/N.:	ALD-FW0525	Test Engineer:	Jack		
Mode:	Wireless Charging 5W				
Note:					

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1 *	0.1580	52.46	9.68	62.14	65.56	-3.42	QP	
2	0.1580	42.14	9.68	51.82	55.56	-3.74	AVG	
3	0.4780	40.26	9.75	50.01	56.37	-6.36	QP	
4	0.4780	30.66	9.75	40.41	46.37	-5.96	AVG	
5	0.8020	33.35	9.79	43.14	56.00	-12.86	QP	
6	0.8020	23.86	9.79	33.65	46.00	-12.35	AVG	
7	1.8500	33.07	9.80	42.87	56.00	-13.13	QP	
8	1.8500	24.28	9.80	34.08	46.00	-11.92	AVG	
9	5.1420	34.03	9.86	43.89	60.00	-16.11	QP	
10	5.1420	25.91	9.86	35.77	50.00	-14.23	AVG	
11	23.4860	40.24	10.22	50.46	60.00	-9.54	QP	
12	23.4860	29.67	10.22	39.89	50.00	-10.11	AVG	

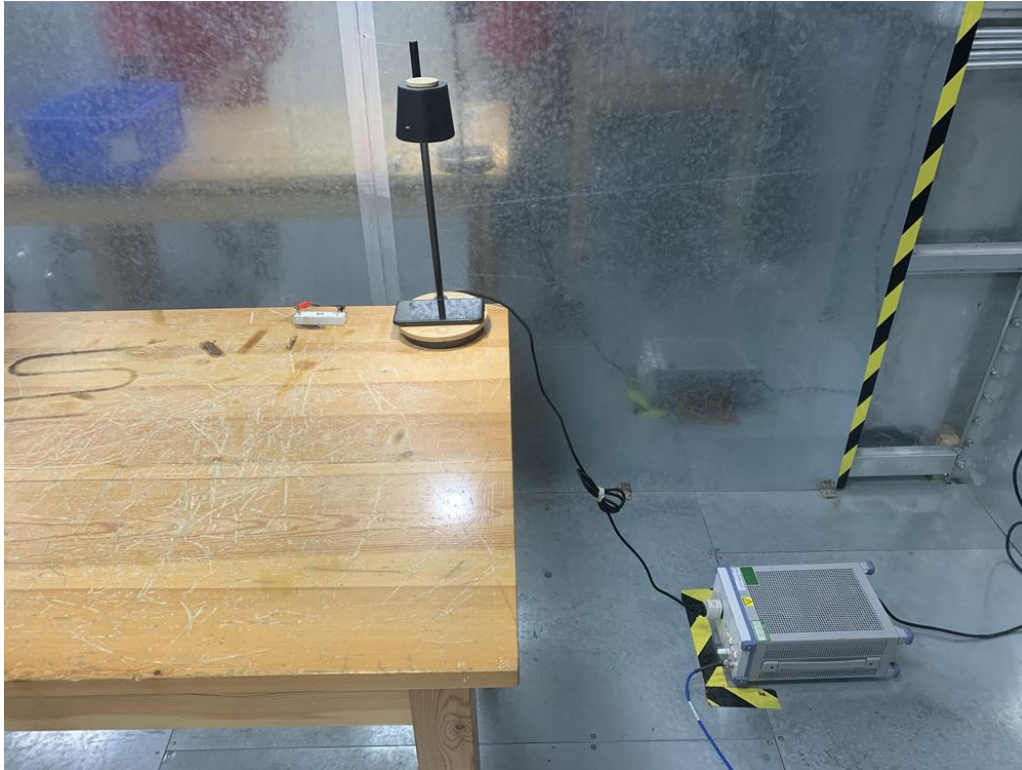
*:Maximum data x:Over limit !:over margin



Site:	843	Phase:	L1	Temperature(C):	26(C)
Limit:	FCC Part 15 C Conduction(QP)			Humidity(%):	60%
EUT:	Wireless Charger Smart Lamp	Test Time:	2020-08-21		
M/N.:	ALD-FW0525	Power Rating:	AC 120V/60Hz		
Mode:	Wireless Charging 5W	Test Engineer:	Jack		
Note:					

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.1580	51.52	9.68	61.20	65.56	-4.36	QP	
2 *	0.1580	41.60	9.68	51.28	55.56	-4.28	AVG	
3	0.6500	37.23	9.79	47.02	56.00	-8.98	QP	
4	0.6500	24.23	9.79	34.02	46.00	-11.98	AVG	
5	1.1539	36.93	9.77	46.70	56.00	-9.30	QP	
6	1.1539	23.98	9.77	33.75	46.00	-12.25	AVG	
7	1.6620	36.72	9.80	46.52	56.00	-9.48	QP	
8	1.6620	25.85	9.80	35.65	46.00	-10.35	AVG	
9	4.8659	37.68	9.86	47.54	56.00	-8.46	QP	
10	4.8659	27.60	9.86	37.46	46.00	-8.54	AVG	
11	23.2099	41.20	10.22	51.42	60.00	-8.58	QP	
12	23.2099	30.14	10.22	40.36	50.00	-9.64	AVG	

*:Maximum data x:Over limit !:over margin

4.6 Conducted Measurement Photo

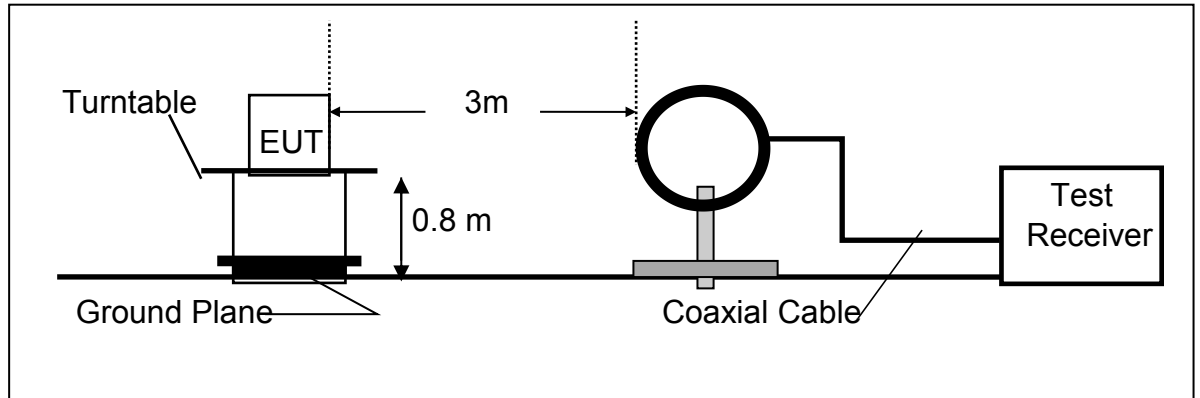
5 Radiated Emission Test

5.1 Measurement Procedure

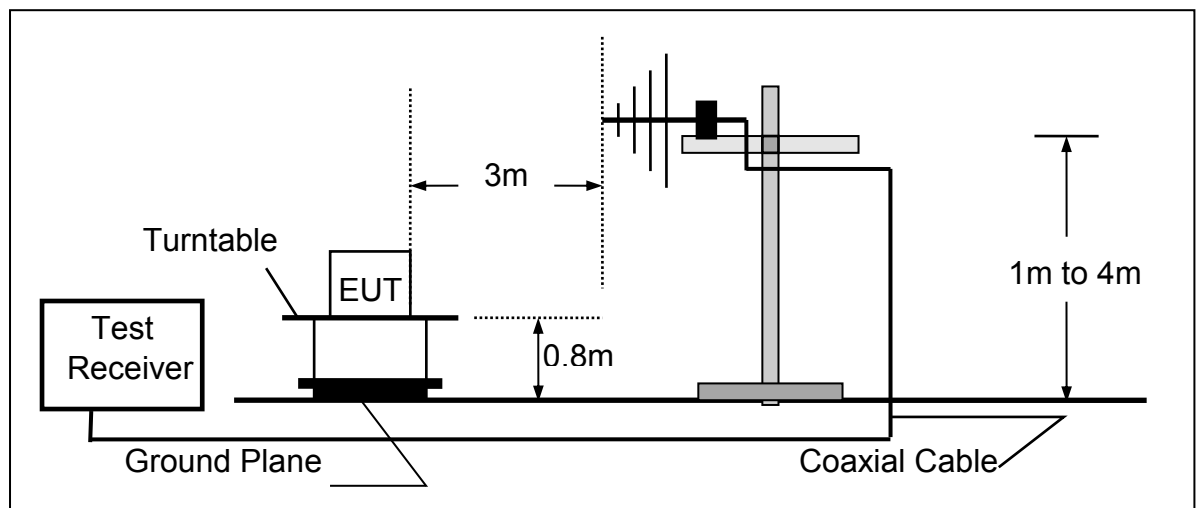
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



5.3 Measurement Equipment Used

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1.	EMI Test Receiver	Rohde & Schwarz	ESPI	100502	2020-11-28
2.	Pre-Amplifier	HP	8447D	2727A06172	2021-05-18
3.	Bilog Antenna	Schwarzbeck	VULB9163	VULB9163-588	2021-05-18
4.	Loop Antenna	Schwarzbeck	FMZB 1516	1516-141	2020-11-28
5.	RF Cable	Gigalink Microwave	ZT40-2.92J-2.92 J-2m	N/A	2020-11-28
6.	RF Cable	Gigalink Microwave	ZT40-2.92J-2.92 J-0.3m	N/A	2020-11-28
7.	RF Cable	N/A	N/A	6#	2021-05-18
8.	3m Semi-anechoic Chamber	chengyu	9m*6m*6m	N/A	2021-05-18
9.	Test Software	Farad	EZ-EMC Ver:ANCI-3A1	N/A	N/A

5.4 Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	$2400 / F(\text{KHz})$	300m	$10000 * 2400/F(\text{KHz})$	$20\log 2400/F(\text{KHz}) + 80$
0.490 – 1.705	$24000 / F(\text{KHz})$	30m	$100 * 24000/F(\text{KHz})$	$20\log 24000/F(\text{KHz}) + 40$
1.705 – 30.00	30	30m	$100 * 30$	$20\log 30 + 40$
30.0 – 88.0	100	3m	100	$20\log 100$
88.0 – 216.0	150	3m	150	$20\log 150$
216.0 – 960.0	200	3m	200	$20\log 200$
Above 960.0	500	3m	500	$20\log 500$

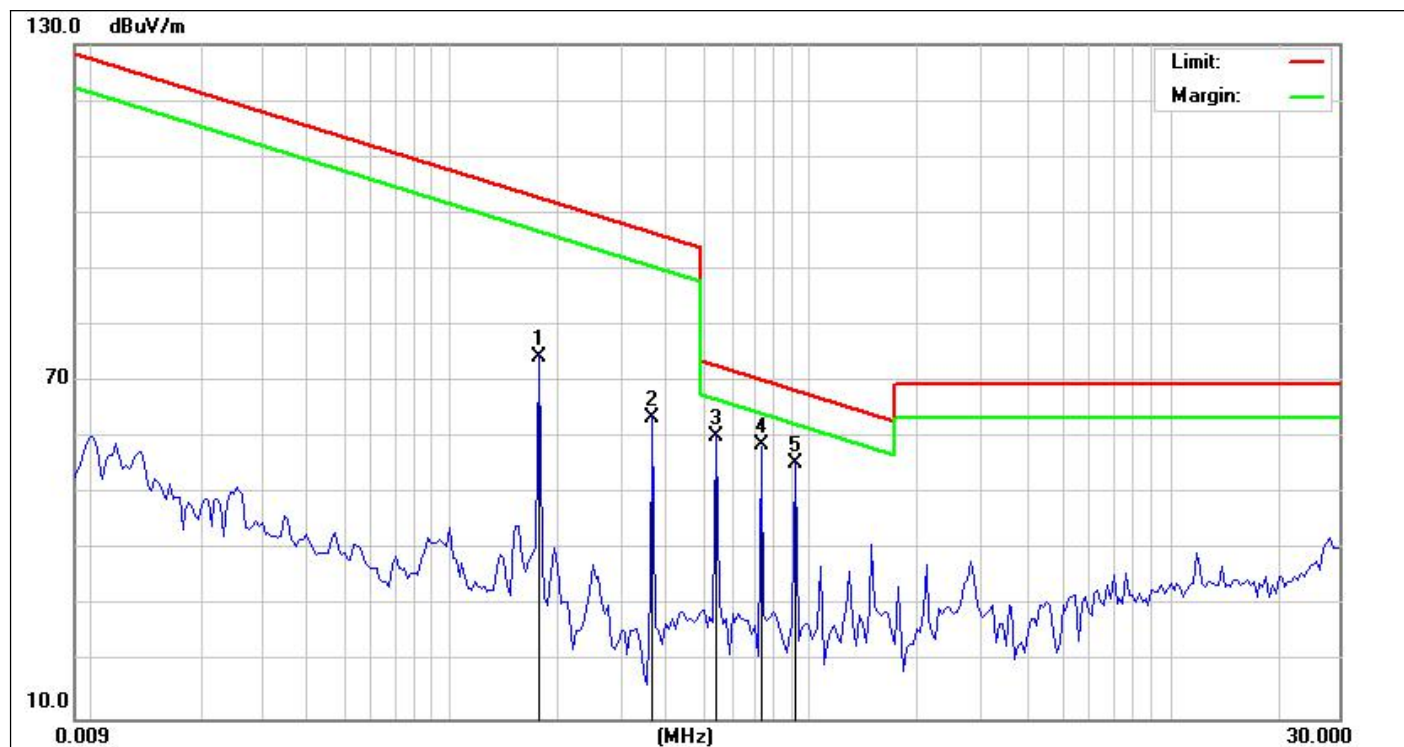
15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

5.5 Measurement Result

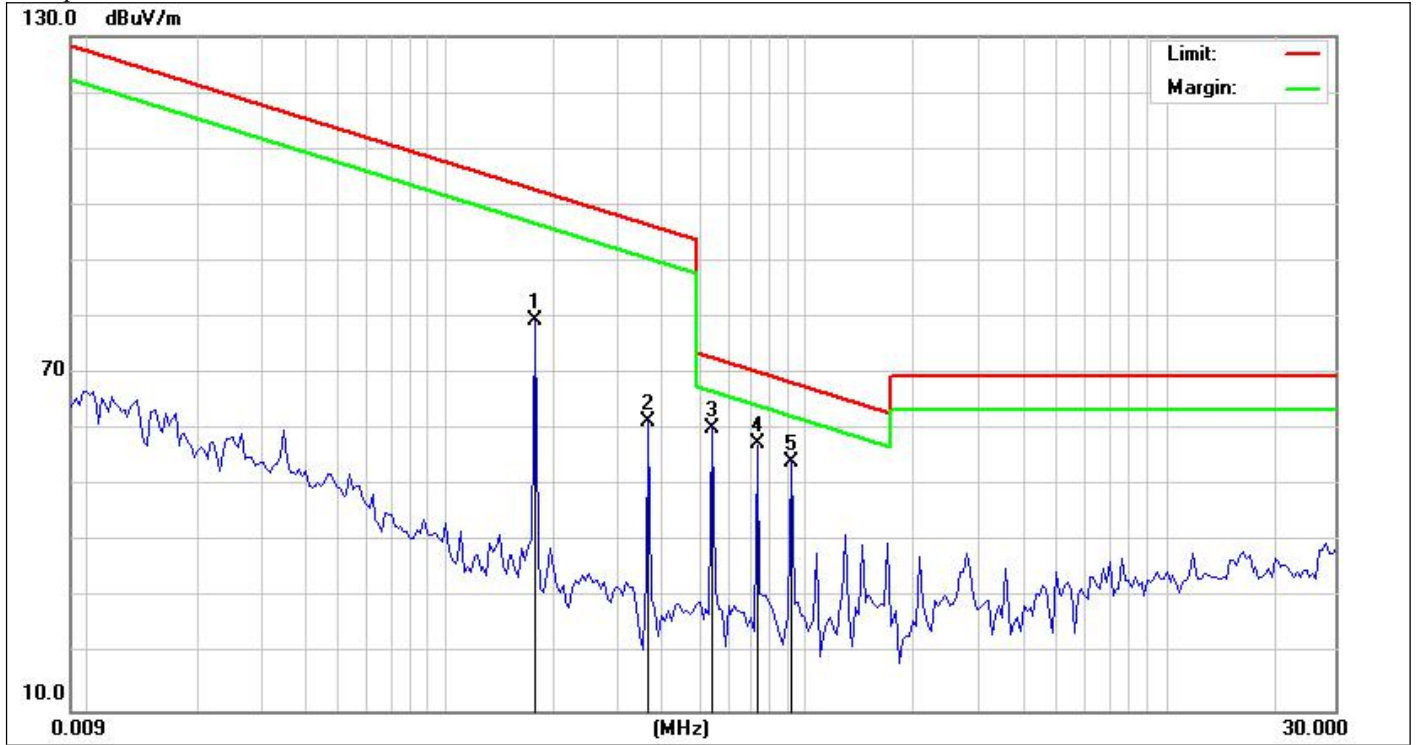
The worst mode (Wireless Charging(5W))test data see follow the table.



Site:	LAB	Antenna::Vertical	Temperature(C):23.4(C)
Limit:	FCC Part 15 Class B 3m Radiation(QP)	Test Time:	Humidity(%):56.7%
EUT:	Wireless Charger Smart Lamp	Power Rating:	2020-09-07
M/N.:	ALD-FW0525	Test Engineer:	AC 120V/60Hz
Mode:	Wireless Charging 15W		sunshine
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	0.1800	83.12	-8.77	74.35	102.44	-28.09	QP			
2	0.3602	72.20	-8.68	63.52	96.45	-32.93	QP			
3	0.5421	68.51	-8.16	60.35	72.92	-12.57	QP			
4 *	0.7213	66.17	-7.55	58.62	70.45	-11.83	QP			
5	0.9035	62.77	-7.36	55.41	68.50	-13.09	QP			
6	0.1800	83.12	-8.77	74.35	102.44	-28.09	QP			

*:Maximum data x:Over limit !:over margin



Site:	LAB	Antenna::Horizontal	Temperature(C):23.4(C)
Limit:	FCC Part 15 Class B 3m Radiation(QP)	Test Time:	Humidity(%):56.7%
EUT:	Wireless Charger Smart Lamp	Power Rating:	2020-09-07
M/N.:	ALD-FW0525	Test Engineer:	AC 120V/60Hz
Mode:	Wireless Charging 5W		sunshine
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	0.1800	88.13	-8.77	79.36	102.44	-23.08	QP			
2	0.3602	70.24	-8.68	61.56	96.45	-34.89	QP			
3 *	0.5421	68.48	-8.16	60.32	72.92	-12.60	QP			
4	0.7213	65.07	-7.55	57.52	70.45	-12.93	QP			
5	0.9035	61.72	-7.36	54.36	68.50	-14.14	QP			
1	0.1800	88.13	-8.77	79.36	102.44	-23.08	QP			

Note:

- (1) All Readings are Peak Value.
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) The average measurement was not performed when the peak measured data under the limit of average detection.
- (4) EUT lying on the table position is the worst case result in the report.

Test mode: Wireless Charging 5W use iphone



Site:	LAB	Antenna::Horizontal	Temperature(C):23.4(C)
Limit:	FCC Part 15 Class B 3m Radiation(QP)	Test Time:	Humidity(%):56.7%
EUT:	Wireless Charger Smart Lamp	Power Rating:	2020-09-07
M/N.:	ALD-FW0525	Test Engineer:	AC 120V/60Hz
Mode:	Wireless Charging 5W		sunshine
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	80.7857	40.79	-15.19	25.60	40.00	-14.40	QP			
2	116.7446	42.12	-12.32	29.80	43.50	-13.70	QP			
3	162.8959	49.36	-13.36	36.00	43.50	-7.50	QP			
4 !	171.6933	50.94	-12.74	38.20	43.50	-5.30	QP			
5 *	179.3863	53.96	-12.26	41.70	43.50	-1.80	QP			
6	227.2917	45.36	-10.16	35.20	46.00	-10.80	QP			

*:Maximum data x:Over limit !:over margin

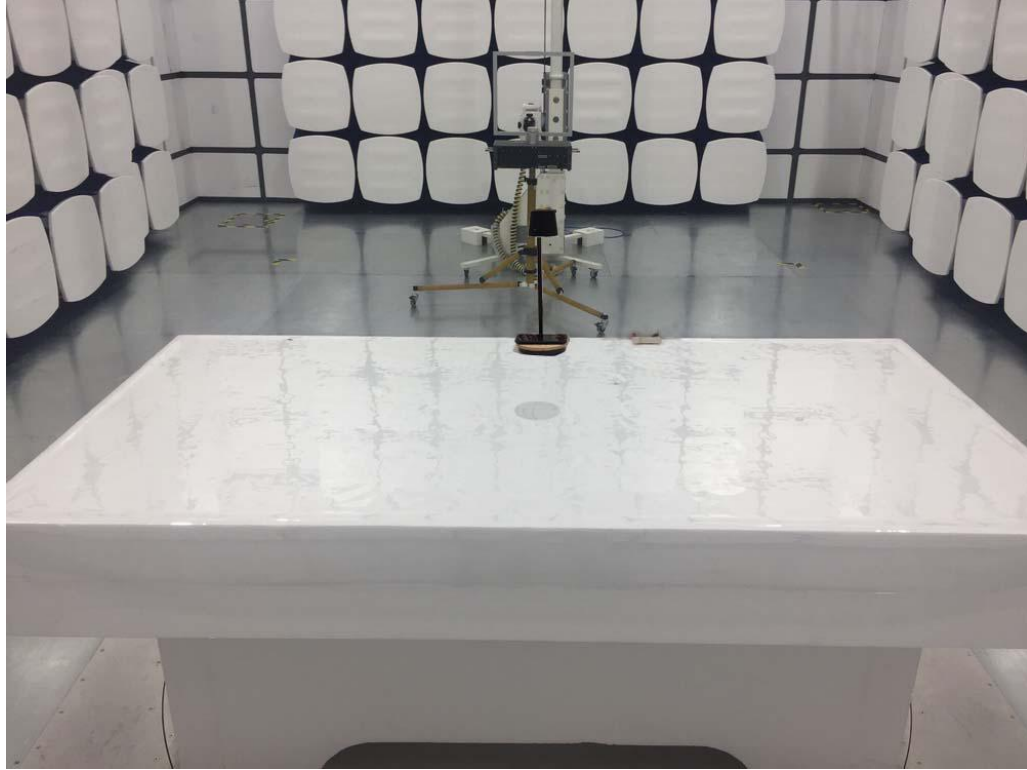


Site:	LAB	Antenna::	Vertical	Temperature(C):	23.4(C)
Limit:	FCC Part 15 Class B 3m Radiation(QP)			Humidity(%):	56.7%
EUT:	Wireless Charger Smart Lamp	Test Time:	2020-09-07		
M/N.:	ALD-FW0525	Power Rating:	AC 120V/60Hz		
Mode:	Wireless Charging 5W	Test Engineer:	sunshine		
Note:					

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1 *	45.2960	46.55	-12.45	34.10	40.00	-5.90	QP			
2	125.2259	45.05	-13.45	31.60	43.50	-11.90	QP			
3	180.9658	48.43	-12.13	36.30	43.50	-7.20	QP			
4	208.2148	47.10	-10.60	36.50	43.50	-7.00	QP			
5	217.5443	47.48	-10.38	37.10	46.00	-8.90	QP			
6	227.2917	46.36	-10.16	36.20	46.00	-9.80	QP			

*:Maximum data x:Over limit !:over margin

5.6 Radiated Measurement Photos



6 20db Bandwidth

6.1 20dB Bandwidth Limit

None: for reporting purposed only.

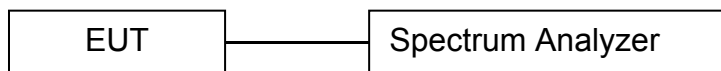
6.2 Test Instruments

Refer a test equipment and calibration data table in this test report.

6.3 Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 10Hz RBW and 30Hz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

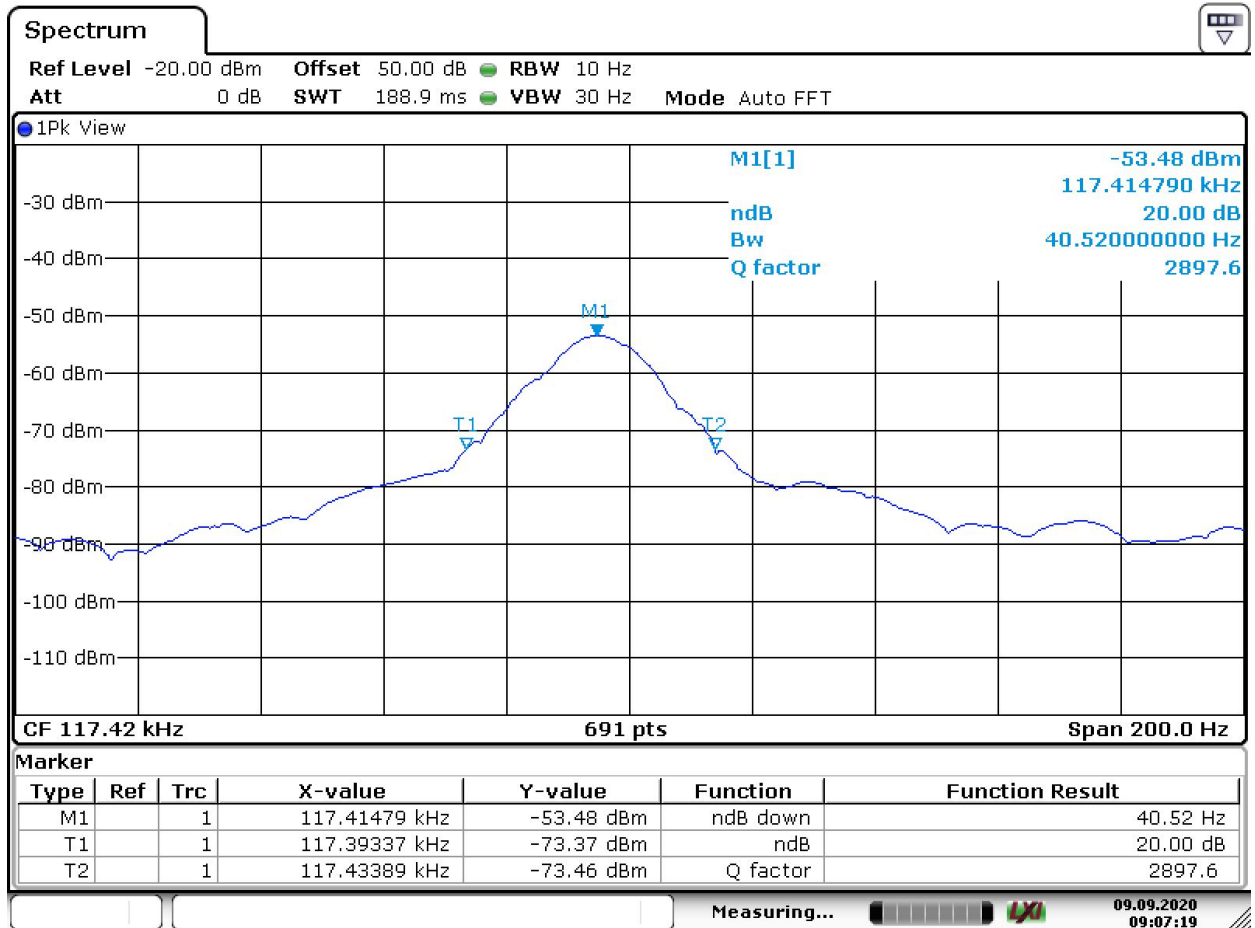
6.4 Test Setup



6.5 Test Result

Frequency (KHz)	20dB Bandwidth (Hz)	Results
117.42	40.52	PASS

20 dB Bandwidth Test plot



Date: 9.SEP.2020 09:07:18

7 Antenna Application

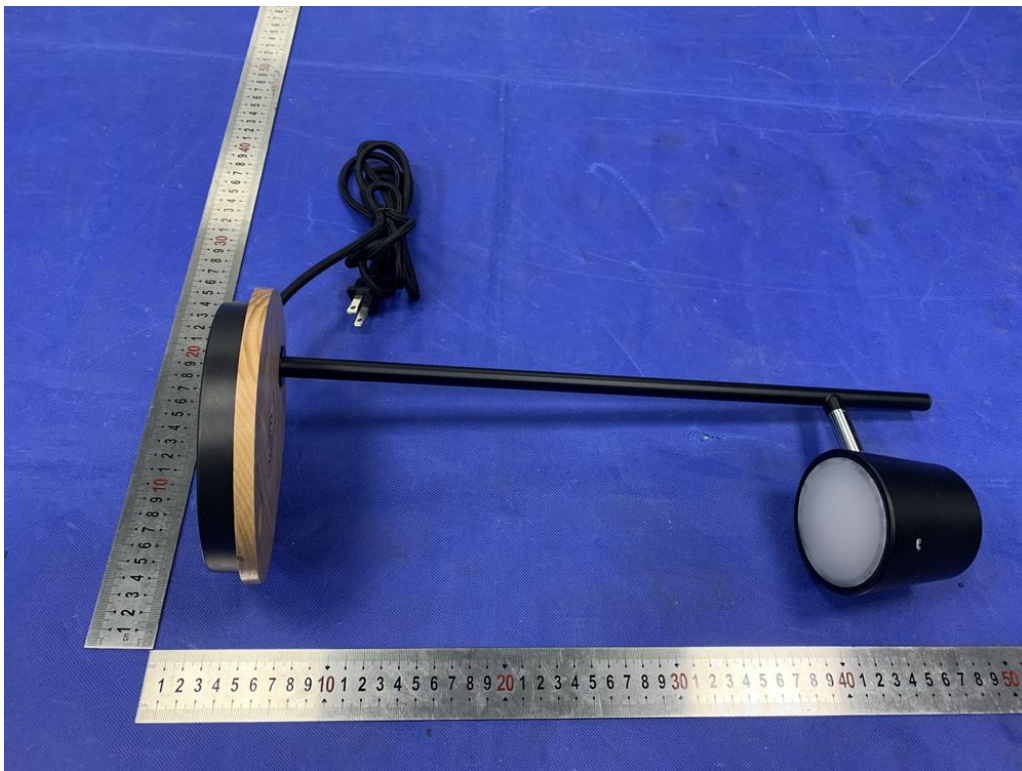
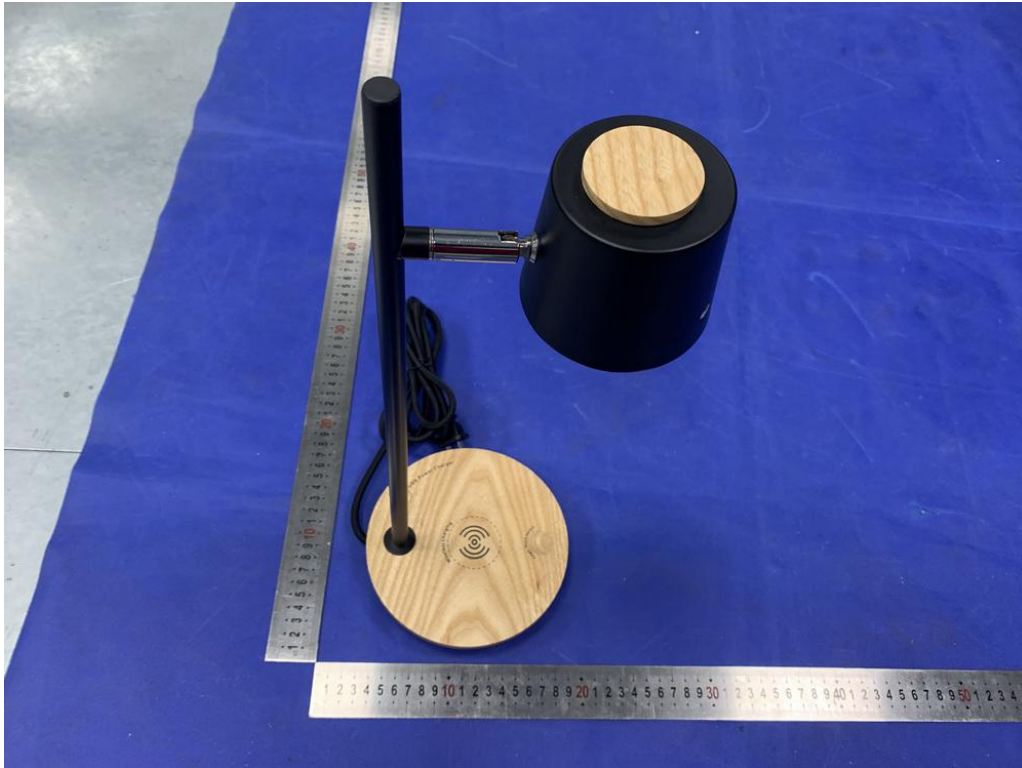
7.1 Antenna requirement

For intentional device, according to FCC 47 CFR Section 15.203, 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.

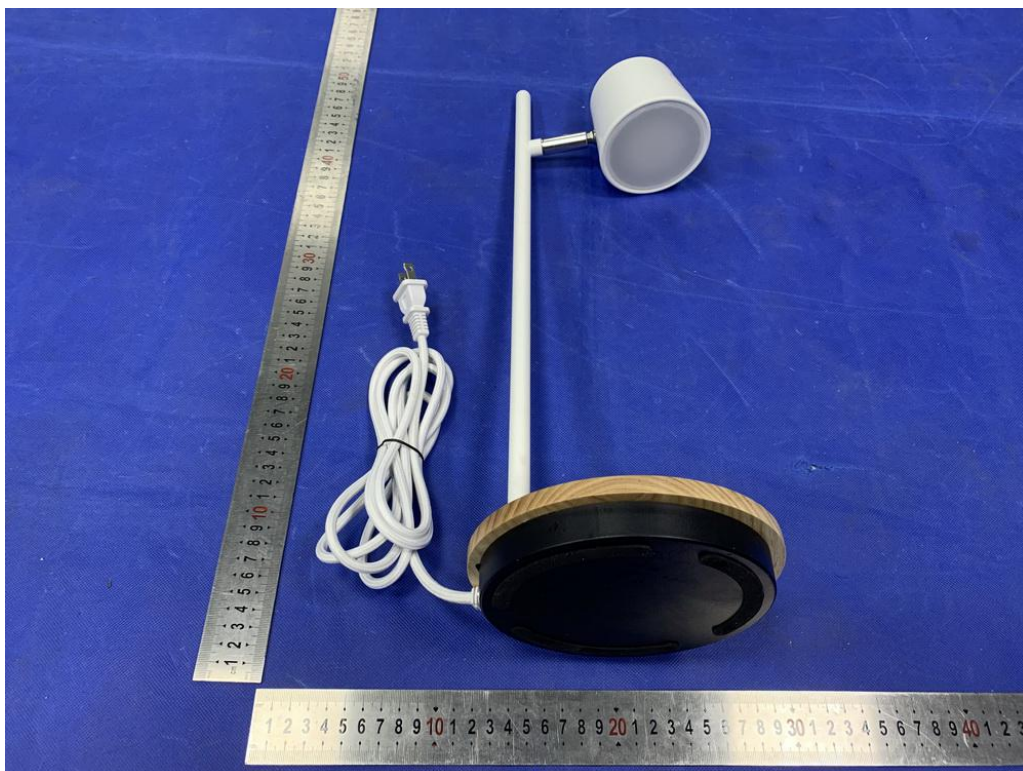
7.2 Result

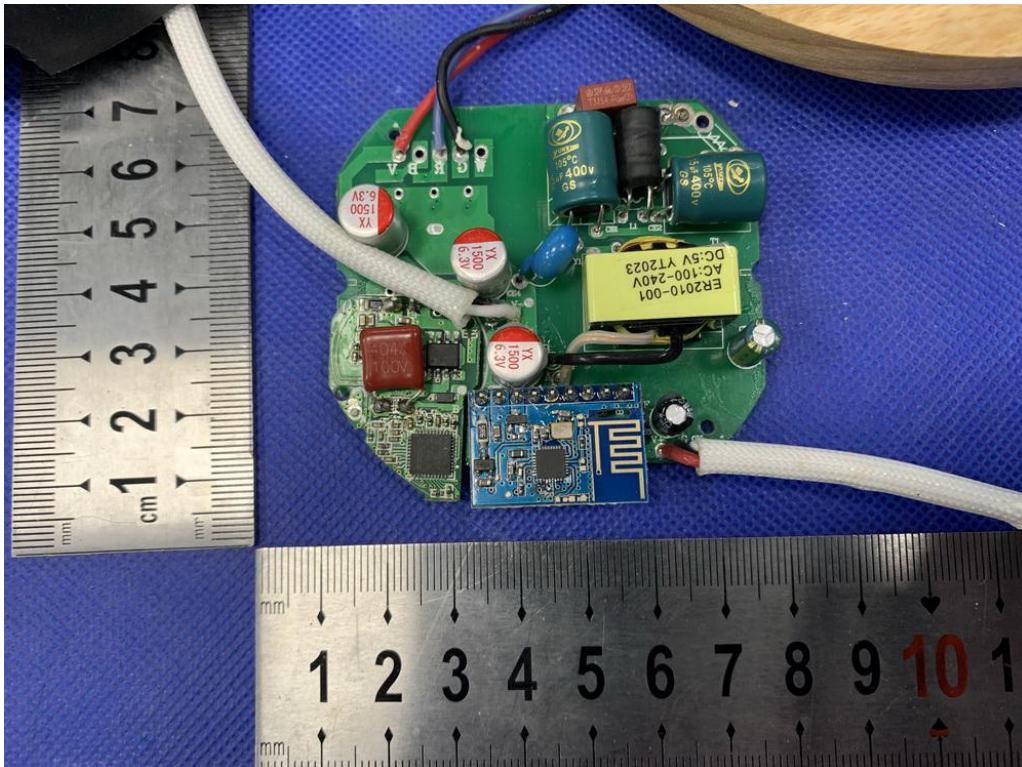
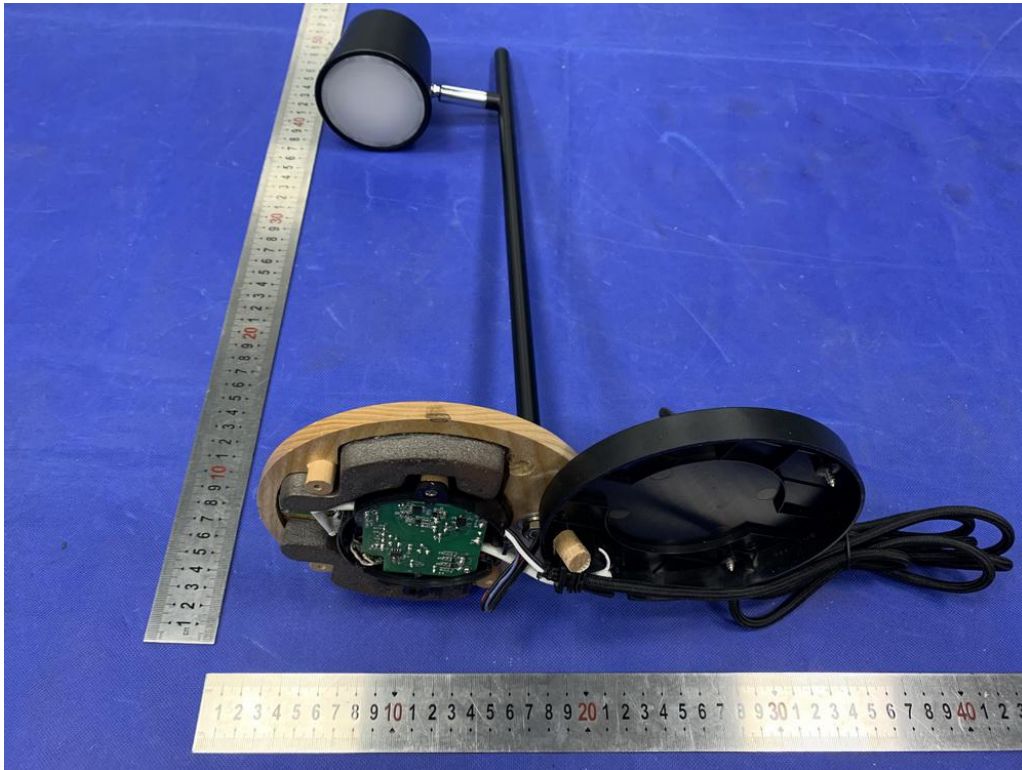
The EUT's antenna, permanent attached antenna, used an Induction coil and integrated on PCB, The antenna's gain meets the requirement.

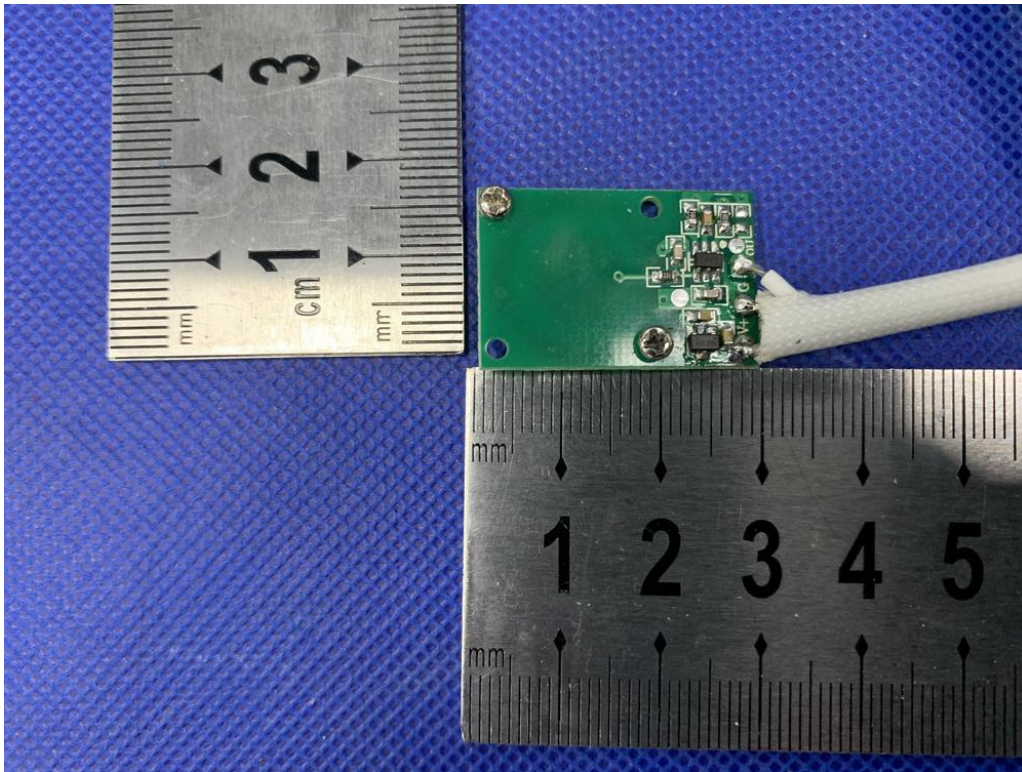
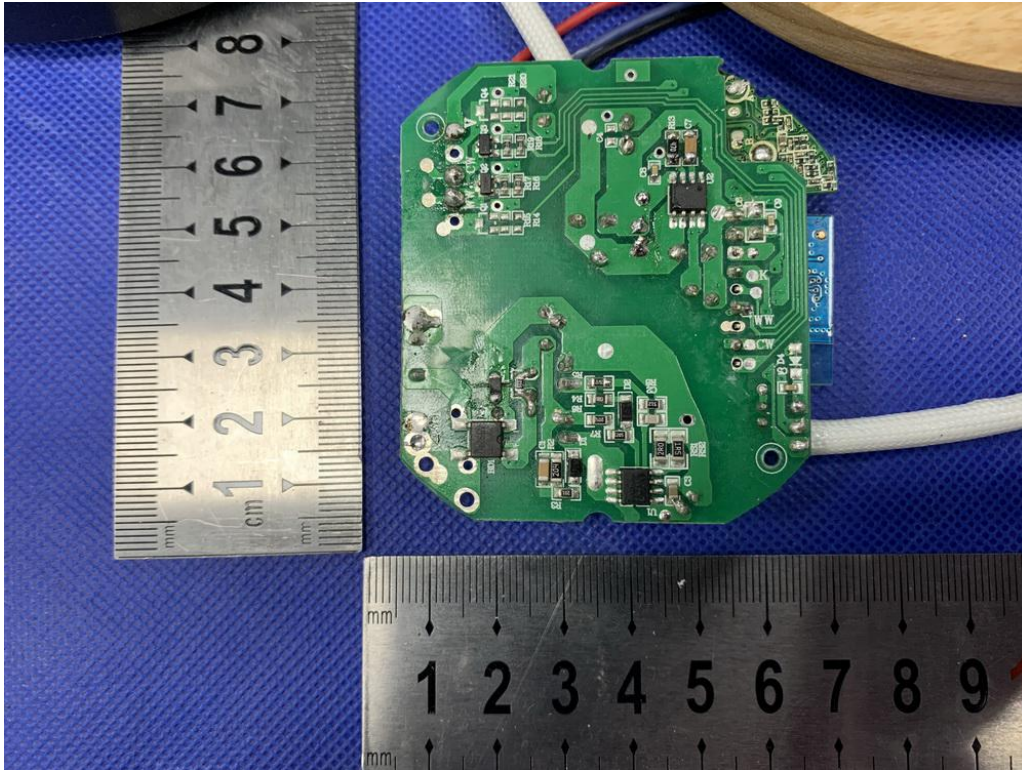
APPENDIX (Photos of EUT)

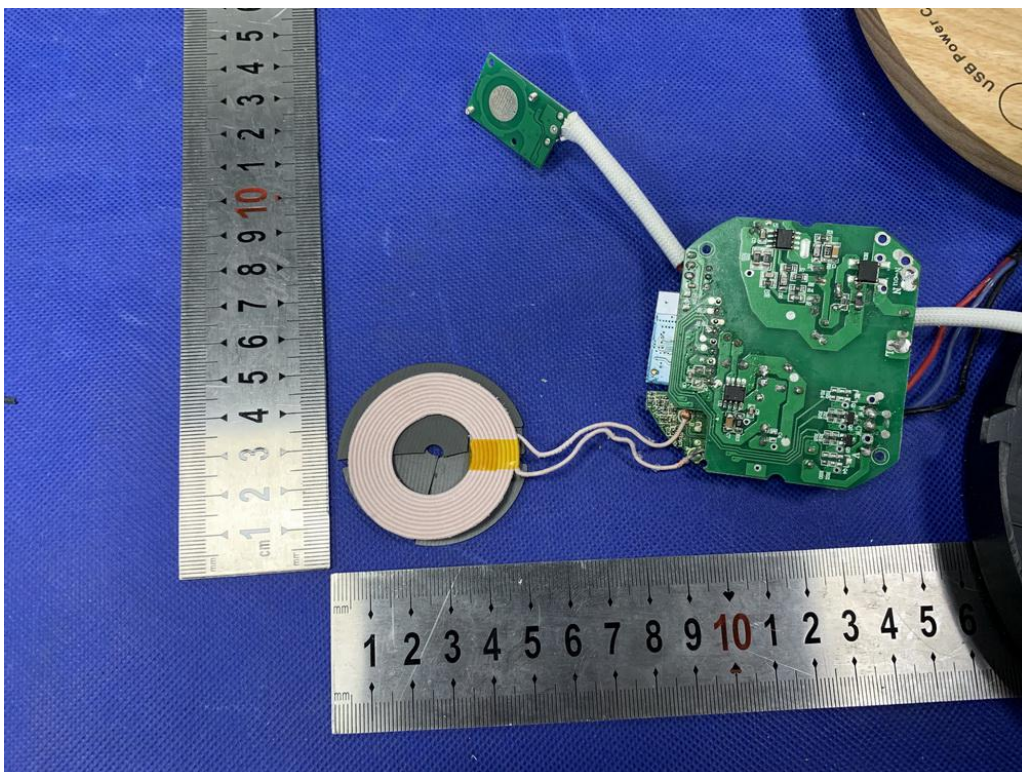
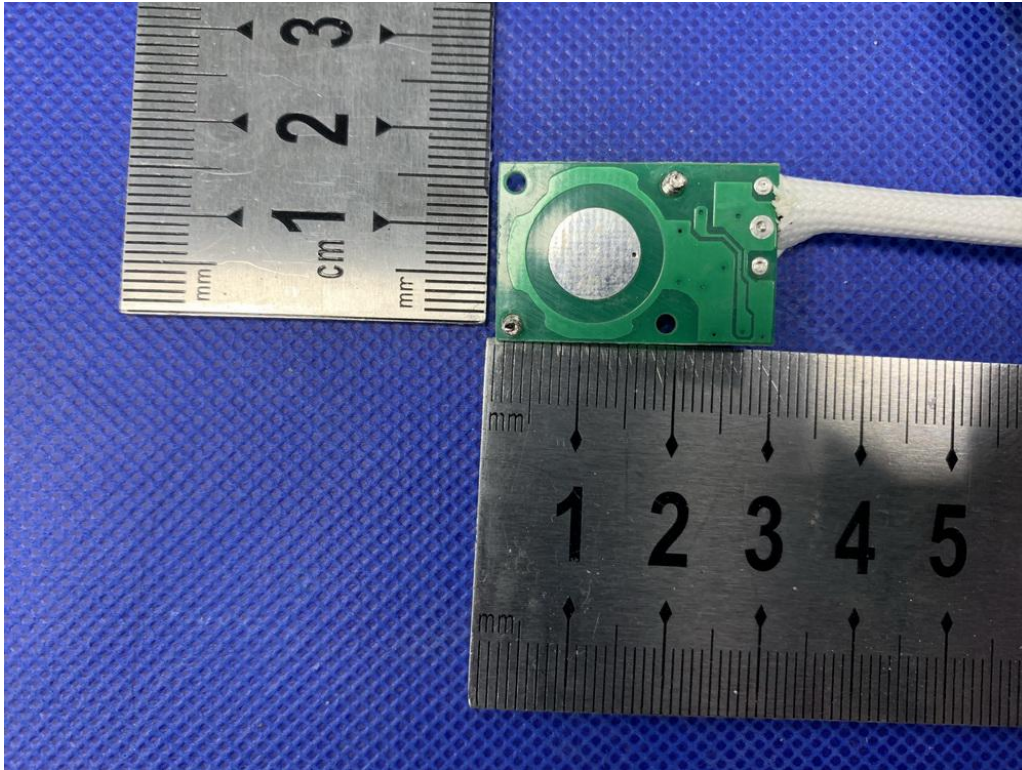












-----The end of report-----