TECHNICAL REPORT

Report No.:	TW2010209E
File Reference No.:	2020-11-24
Applicant:	ShenZhen Wireless Cloud Image Electronics Co., Ltd.
Product:	Magnet Wireless Charger
Model No.:	W10, W20, W28, W30, AB-20J, JR-A37, XO-CX001, EW100, GSG-W10, US-CD155, JR-A41, CW30 PRO
Trademark:	N/A
Test Standards:	FCC CFR 47 Part 18
Test Result:	It is herewith confirmed and found to comply with the requirements set up by FCC MP-5 & FCC Part 18, for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Manager

Dated: November 24, 2020

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The 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. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

Test Report Conclusion

Content

1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Telephone: +86 755 83448688

Fax: +86 755 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189

For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: ShenZhen Wireless Cloud Image Electronics Co., Ltd.

Address: 7F, Qiugu Building, Meishenghuigu Science & Technology Innovation Park, Dabao Road, 33 District Bao'an, Shenzhen

Telephone: 13534291353

Fax: 0755-29129262

1.3 Description of EUT

Product:	Magnet Wireless Charger
Manufacturer:	ShenZhen Wireless Cloud Image Electronics Co., Ltd.
Address:	7F, Qiugu Building, Meishenghuigu Science & Technology Innovation Park, Dabao Road, 33 District Bao'an, Shenzhen
Brand Name:	N/A
Model Number:	W10
Additional Model Name	W20, W28, W30, AB-20J, JR-A37, XO-CX001, EW100, GSG-W10, US-CD155, JR-A41, CW30 PRO
Additional Trade Name	N/A
Hardware Version:	A04
Software Version:	A04-V00
Serial No.:	SEBM0001W2W1
Rating:	Input: DC 5V/2A or 9V/2A; Wireless output: 5W/7.5W/10W/15W; Note: for wireless charging, only the data for wireless output 15W was reported, and it was the worst case
Operation Frequency:	110kHz-148kHz
Channel Separation:	0.1kHz
Modulation Type:	FSK

Antenna Designation Inductive Loop Antenna with Gain 0dBi

1.4 Submitted Sample

2 Samples

1.5 Test Duration

2020-10-29 to 2020-11-23

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 9kHz-30MHz Uncertainty =4.3dB

Radiated Emissions below 30MHz-1GHz Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by Terry Tang

Print Name: Terry Tang

2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100294	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100253	2020-06-23	2021-06-22
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2020-06-23	2021-06-22
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2020-06-23	2021-06-22
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2020-06-23	2021-06-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2020-06-23	2021-06-22
Power sensor	Anritsu	MA2491A	32263	2020-06-23	2021-06-22
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03
9*6*6 Anechoic	--	--	N/A	2018-02-07	2021-02-06
EMI Test Receiver	RS	ESVB	826156/011	2020-06-23	2021-06-22
EMI Test Receiver	RS	ESH3	860904/006	2020-06-23	2021-06-22
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2020-06-23	2021-06-22
Spectrum	HP/Agilent	E4407B	MY50441392	2020-06-23	2021-06-22
Spectrum	RS	FSP	1164.4391.38	2020-01-16	2021-01-15
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA	--	2020-06-23	2021-06-22
RF Cable	Zhengdi	7m	--	2020-06-23	2021-06-22
RF Switch	EM	EMSW18	060391	2020-06-23	2021-06-22
Pre-Amplifier	Schwarebeck	BBV9743	#218	2020-06-23	2021-06-22
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2020-06-23	2021-06-22
LISN	SCHAFFNER	NNB42	00012	2020-01-07	2021-01-06

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC CFR47 Part 18, Paragraph 18.307	Conducted Emission Test	**Pass**	Compliant
FCC CFR47 Part 18, Paragraph 18.305	Radiated Emission Test	**Pass**	Compliant

3.2 Test Standards

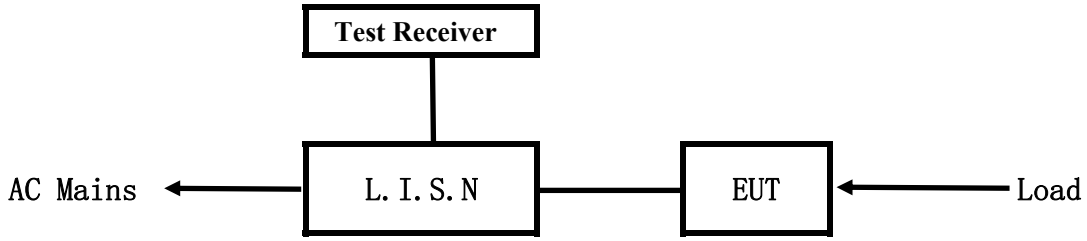
FCC CFR47 Part 18 and FCC MP-5

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

5. Power Line Conducted Emission Test

5.1 Schematics of the test

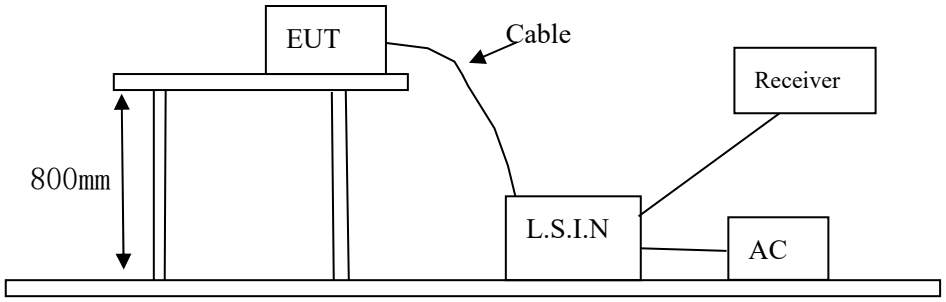


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to MP-5.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section FCC Part 18.307.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to MP-5. All interface ports were connected to the appropriate Peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Magnet Wireless Charger	ShenZhen Wireless Cloud Image Electronics Co., Ltd.	W10, W20, AB-20J, JR-A37, XO-CX001, EW100, GSG-W10, US-CD155	2AYBS-W20

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating

Power Supply	Chenyang	UP0920	Input: 100-240V~, 50-60Hz, 0.5A; Output: DC5V or DC9V, 2A

5.4 EUT Operating Condition

Operating condition is according to MP-5.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 18.307 (b)

Frequency (MHz)	Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ～ 0.50	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	56.0	46.0
5.00 ～ 30.00	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz. (The average detector is necessary when the Quasi-peak emission level beyond the average Limit.)

A: Conducted Emission on Live Terminal (150kHz to 30MHz)

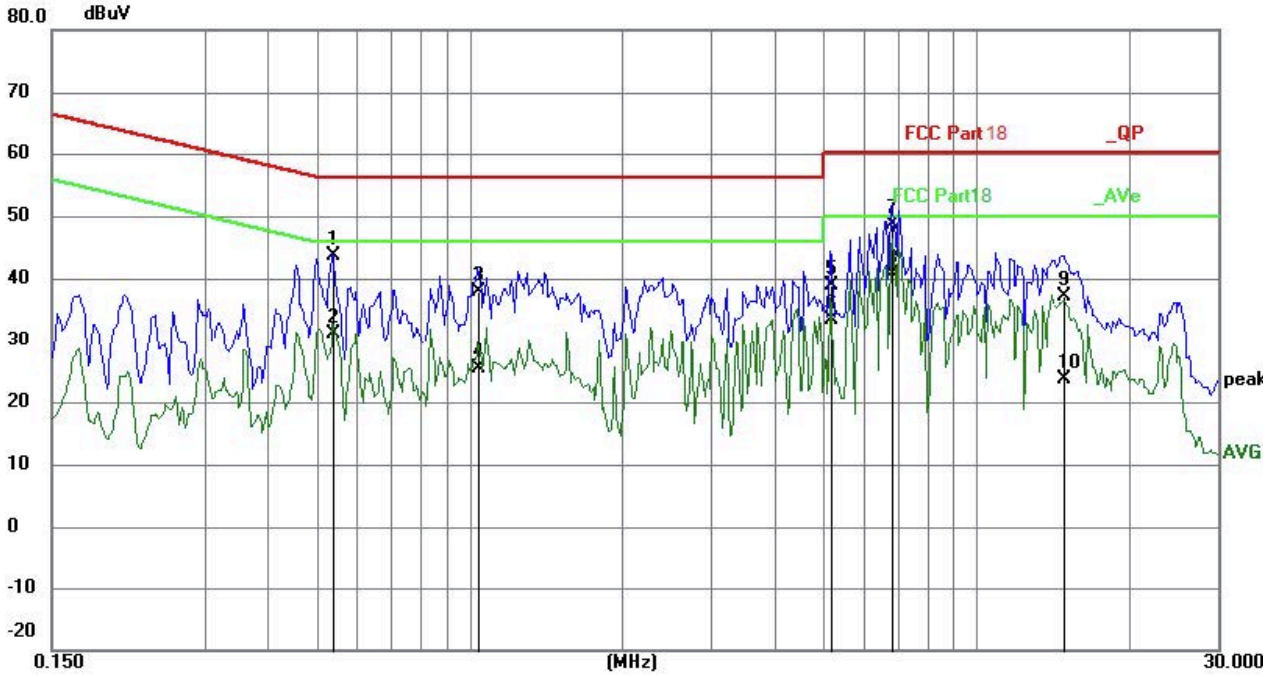
EUT Operating Environment

Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Wireless Charging Mode

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.5400	33.19	10.33	43.52	56.00	-12.48	QP	P
2	0.5400	20.85	10.33	31.18	46.00	-14.82	AVG	P
3	1.0392	26.86	10.90	37.76	56.00	-18.24	QP	P
4	1.0392	14.54	10.90	25.44	46.00	-20.56	AVG	P
5	5.1567	28.02	10.84	38.86	60.00	-21.14	QP	P
6	5.1567	22.62	10.84	33.46	50.00	-16.54	AVG	P
7	6.8337	37.69	11.03	48.72	60.00	-11.28	QP	P
8	6.8337	29.51	11.03	40.54	50.00	-9.46	AVG	P
9	14.9418	25.75	11.30	37.05	60.00	-22.95	QP	P
10	14.9418	12.29	11.30	23.59	50.00	-26.41	AVG	P

B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

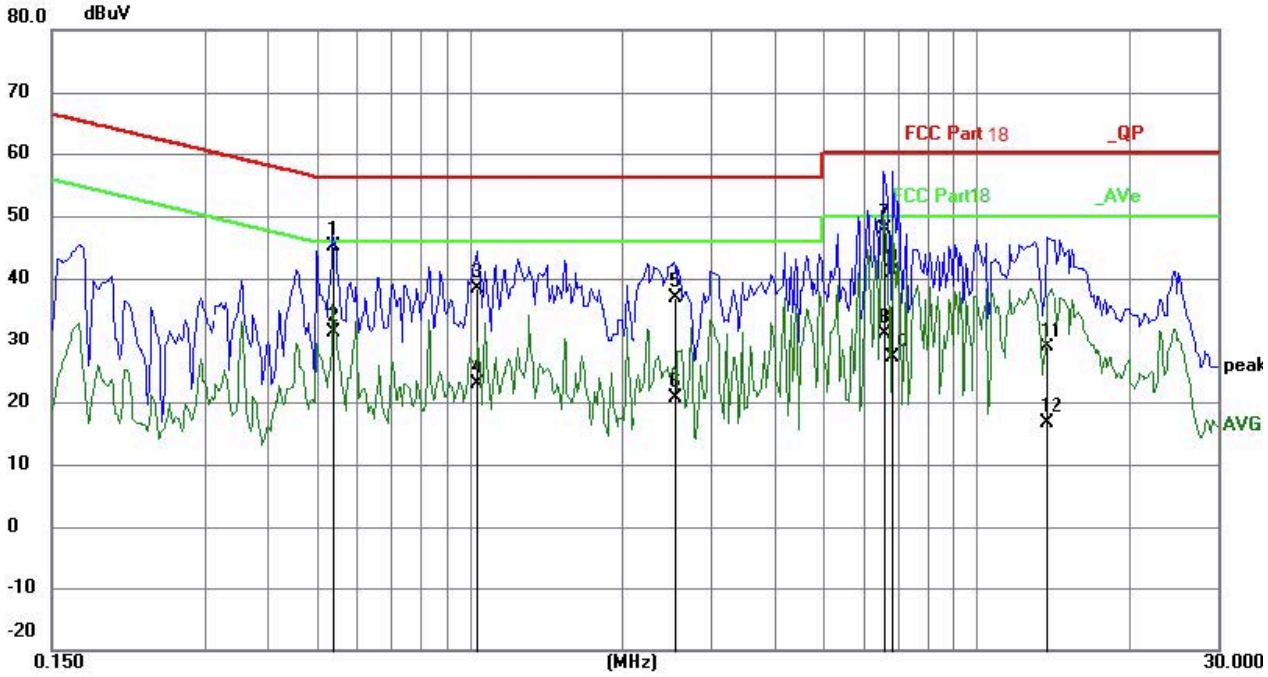
EUT Operating Environment

Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition : Wireless Charging Mode

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.5400	34.74	10.33	45.07	56.00	-10.93	QP	P
2	0.5400	21.15	10.33	31.48	46.00	-14.52	AVG	P
3	1.0353	27.55	10.90	38.45	56.00	-17.55	QP	P
4	1.0353	12.10	10.90	23.00	46.00	-23.00	AVG	P
5	2.5485	26.07	10.87	36.94	56.00	-19.06	QP	P
6	2.5485	9.77	10.87	20.64	46.00	-25.36	AVG	P
7	6.5802	36.83	11.00	47.83	60.00	-12.17	QP	P
8	6.5802	20.19	11.00	31.19	50.00	-18.81	AVG	P
9	6.8181	29.78	11.03	40.81	60.00	-19.19	QP	P
10	6.8181	16.12	11.03	27.15	50.00	-22.85	AVG	P
11	13.7601	17.62	11.32	28.94	60.00	-31.06	QP	P
12	13.7601	5.39	11.32	16.71	50.00	-33.29	AVG	P

6 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to MP-5. The radiated test was performed at TIMEWAY EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189

(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to MP-5.

(3) The frequency spectrum from 9 kHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with RBW=120 kHz/VBW=300 kHz; All readings from 9 kHz to 30 MHz are quasi-peak values with RBW=10 kHz/VBW=30 kHz. For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission test in these three bands are based on measurements employing an average detector. Measurements were made at 3 meters.

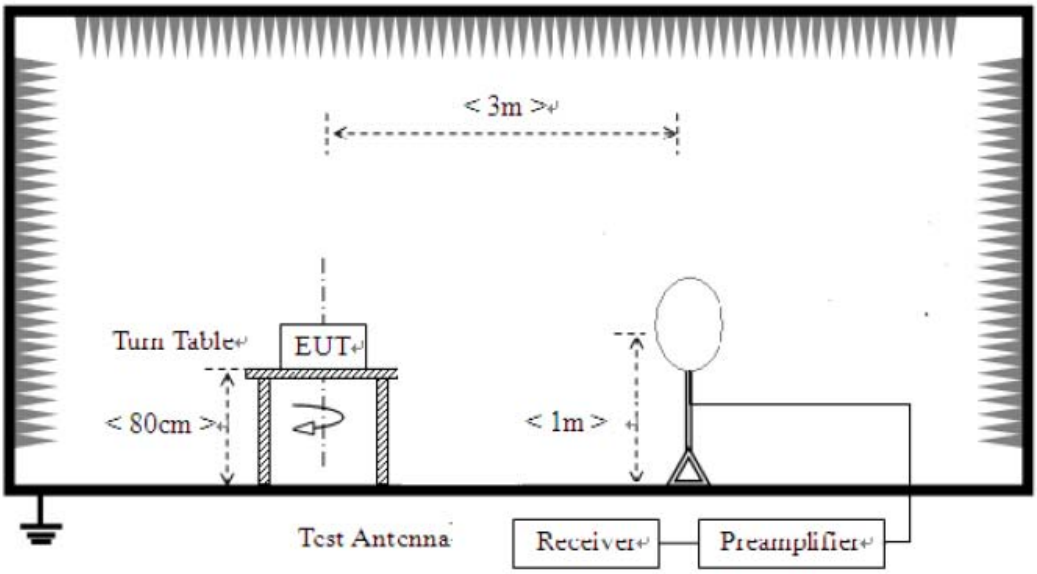
(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

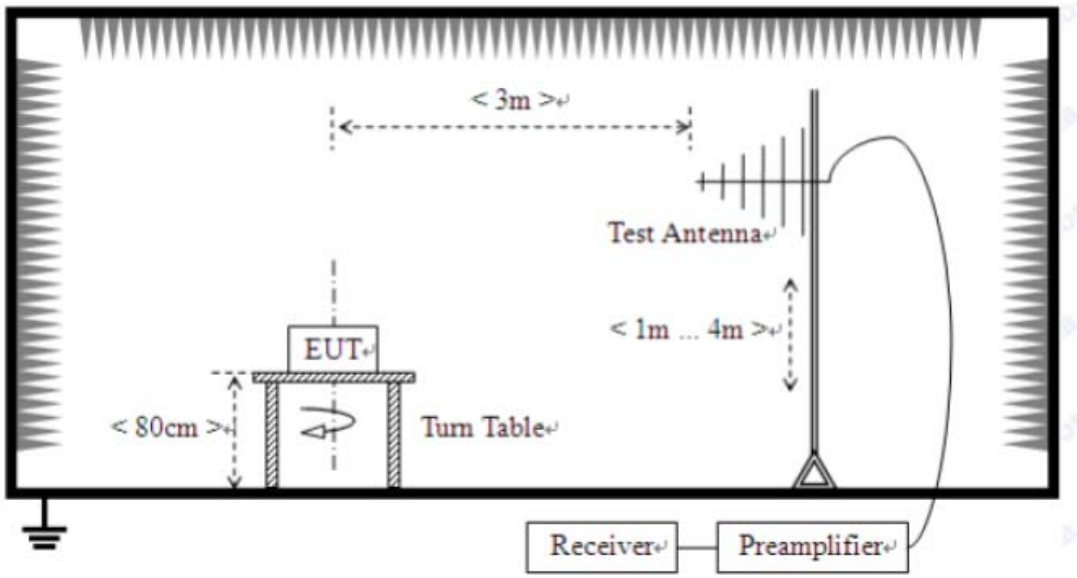
(6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

9kHz-30MHz



30MHz-1000MHz



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

B. Frequencies in restricted band are compiled to limit on Paragraph 18.307.

Limits for frequency below 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (dBμV/m)
0.009-30	3	103.5

Limits for frequency above 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-1000	3	46.0

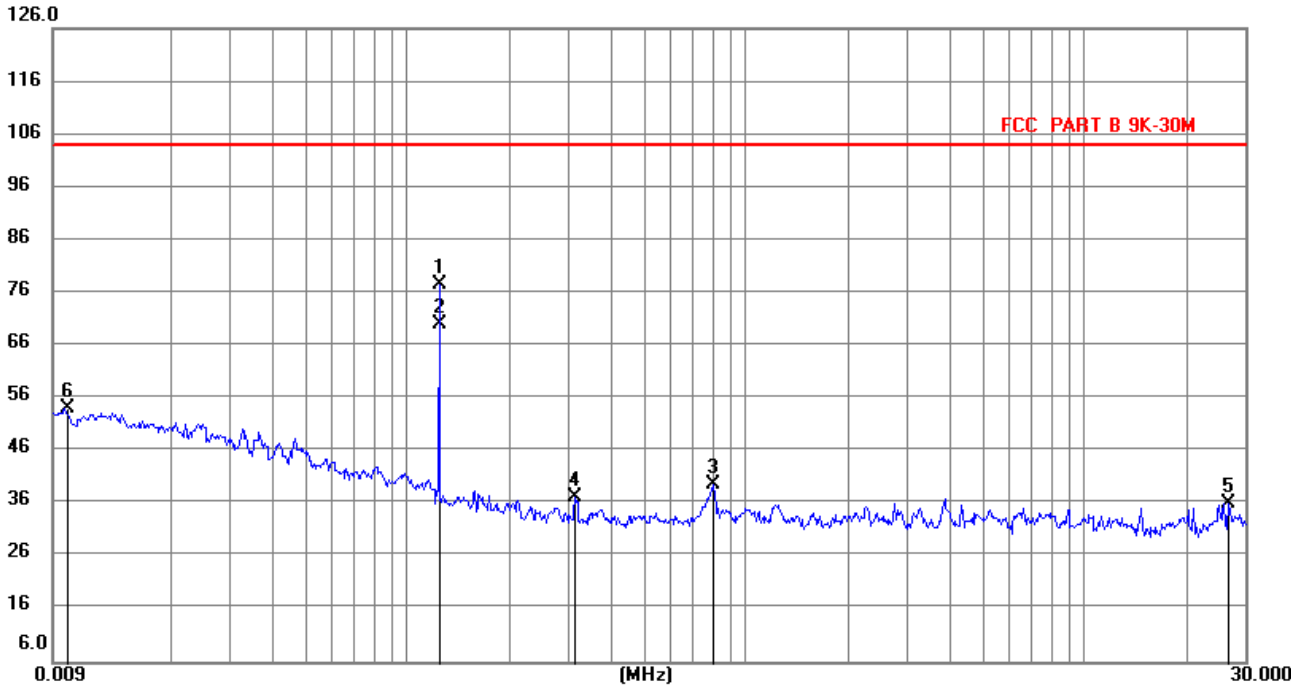
Note: 1. Emission level for frequency of 0.009~30MHz = 20log (15) + 40log (300/3)=103.5 dB μ V/m

1. Emission level for frequency of 30-1000MHz = 20log (10 or15 or 220) + 20log (30/3)=40 or 43.5 or 46 dB μ V/m
2. Calculated according FCC 18.305
3. In the Above Table, the tighter limit applies at the band edges.
4. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
5. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6.5 Test result

Measurement data:

9 kHz~30 MHz



No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	0.1249	67.65	9.80	77.45	103.50	-26.05	peak	P
2	0.1249	60.26	9.80	70.06	103.50	-33.44	AVG	P
3	0.8034	29.95	9.78	39.73	103.50	-63.77	peak	P
4	0.3135	27.73	9.76	37.49	103.50	-66.01	peak	P
5	26.6250	25.00	11.09	36.09	103.50	-67.41	peak	P
6	0.0100	44.05	9.99	54.04	103.50	-49.46	peak	P

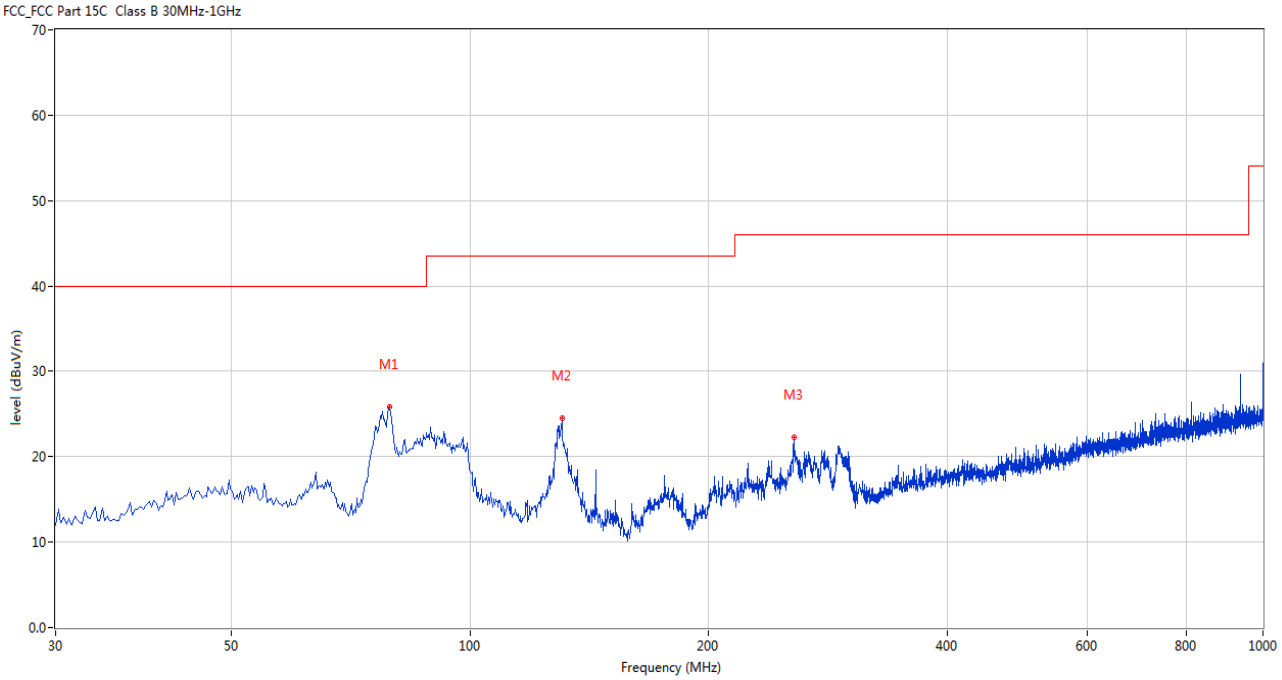
A. General Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: **Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	79.215	25.85	-17.46	40.0	-14.15	Peak	335.00	200	Horizontal	Pass
2	130.612	24.50	-16.74	40.0	-15.50	Peak	0.00	200	Horizontal	Pass
3	255.954	22.27	-12.02	47.0	-24.73	Peak	251.00	100	Horizontal	Pass

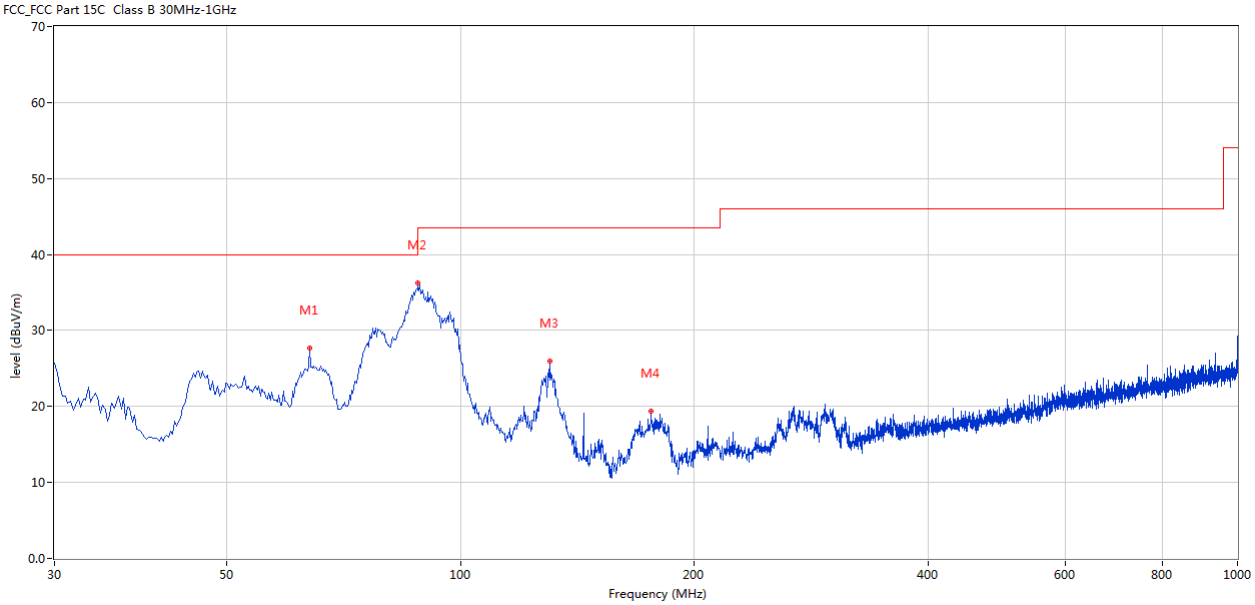
B. General Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: **Pass**

Please refer to following diagram for individual



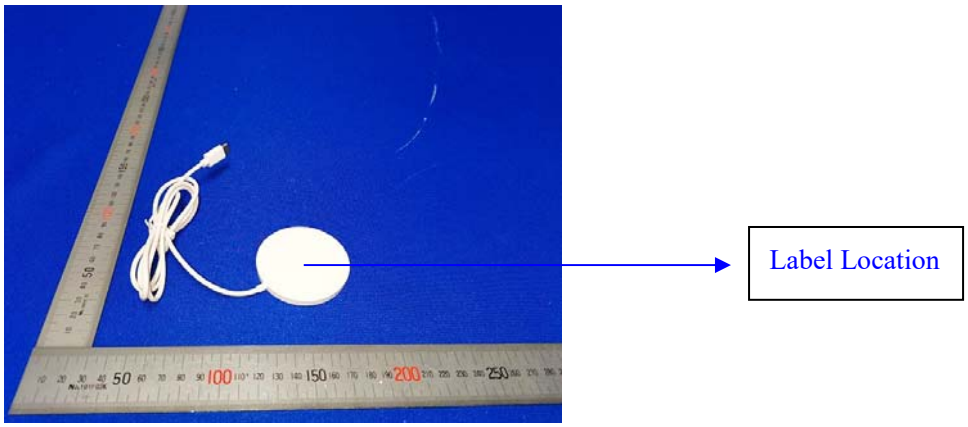
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	63.942	27.69	-13.32	40.0	-12.31	Peak	0.00	200	Vertical	Pass
2	88.185	36.30	-15.59	40.0	-3.70	Peak	319.00	100	Vertical	Pass
3	130.127	25.97	-16.77	40.0	-14.03	Peak	6.00	100	Vertical	Pass
4	175.949	19.44	-15.62	40.0	-20.56	Peak	277.00	100	Vertical	Pass

7.0 FCC ID Label

FCC ID: 2AYBS-W20

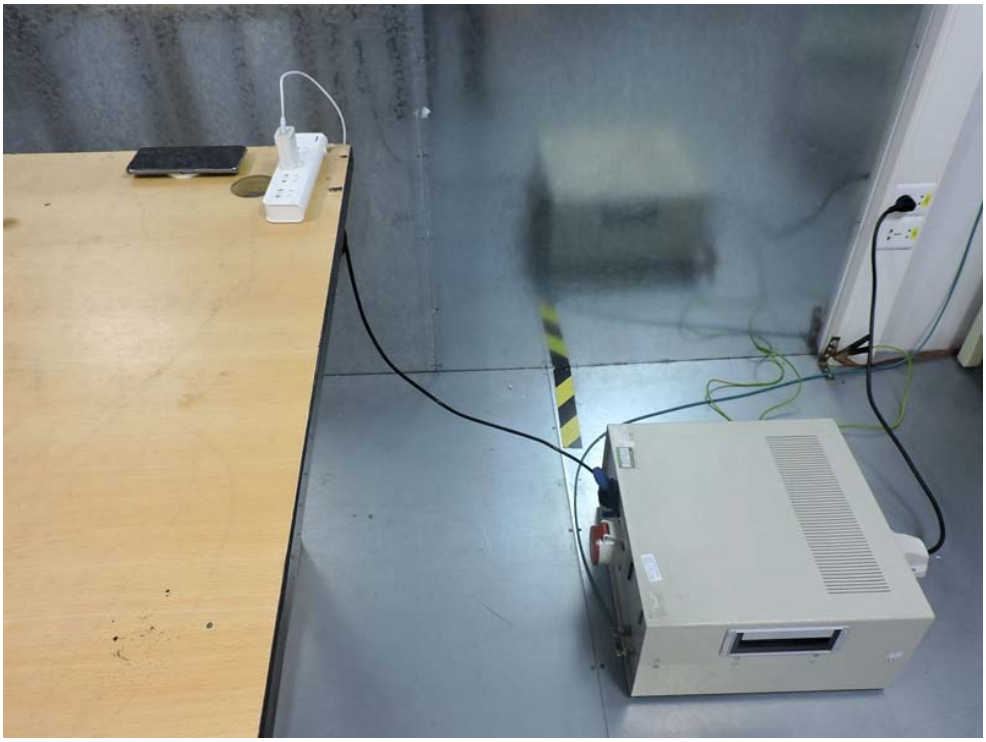
The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



8.0. Photo of testing

8.1 Conducted test View



8.2 Radiated emission test view

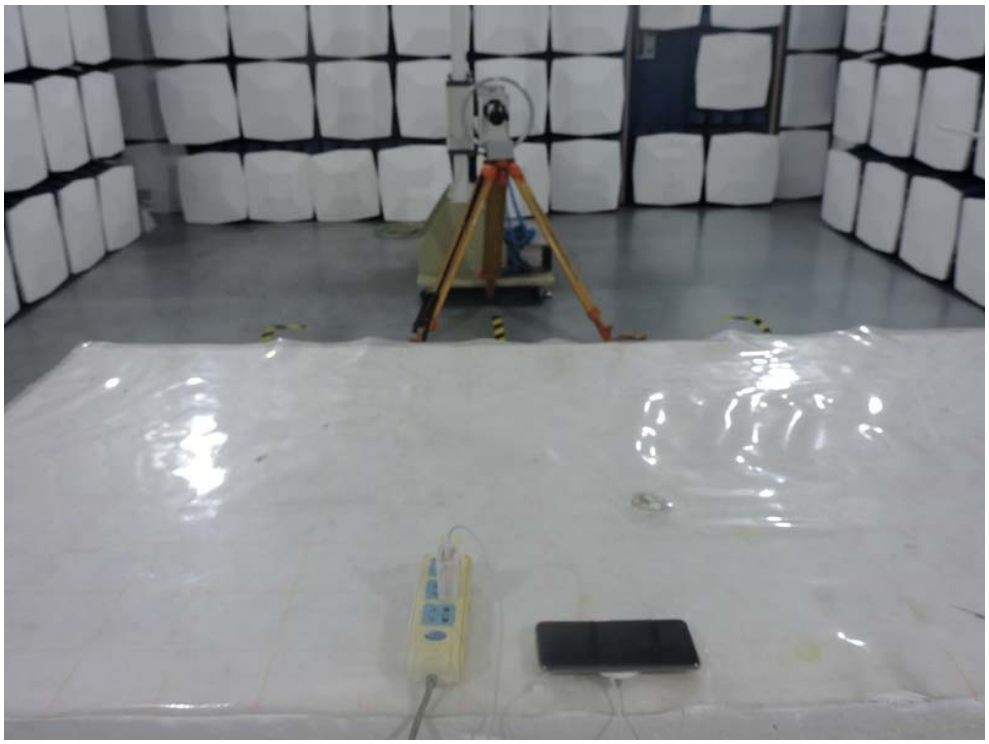
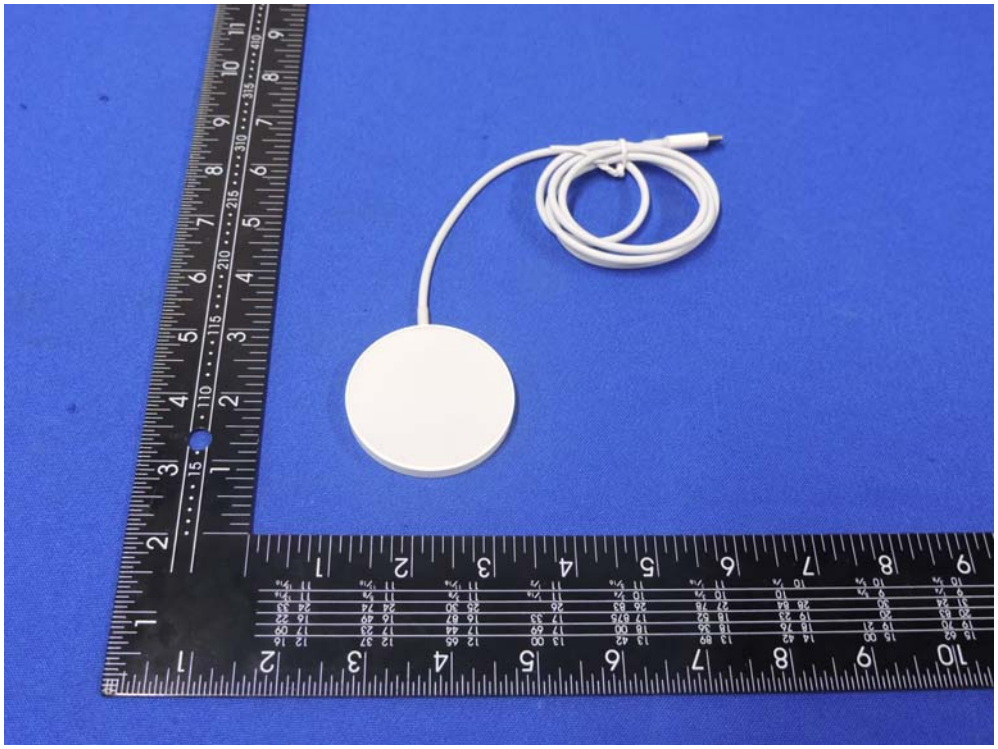
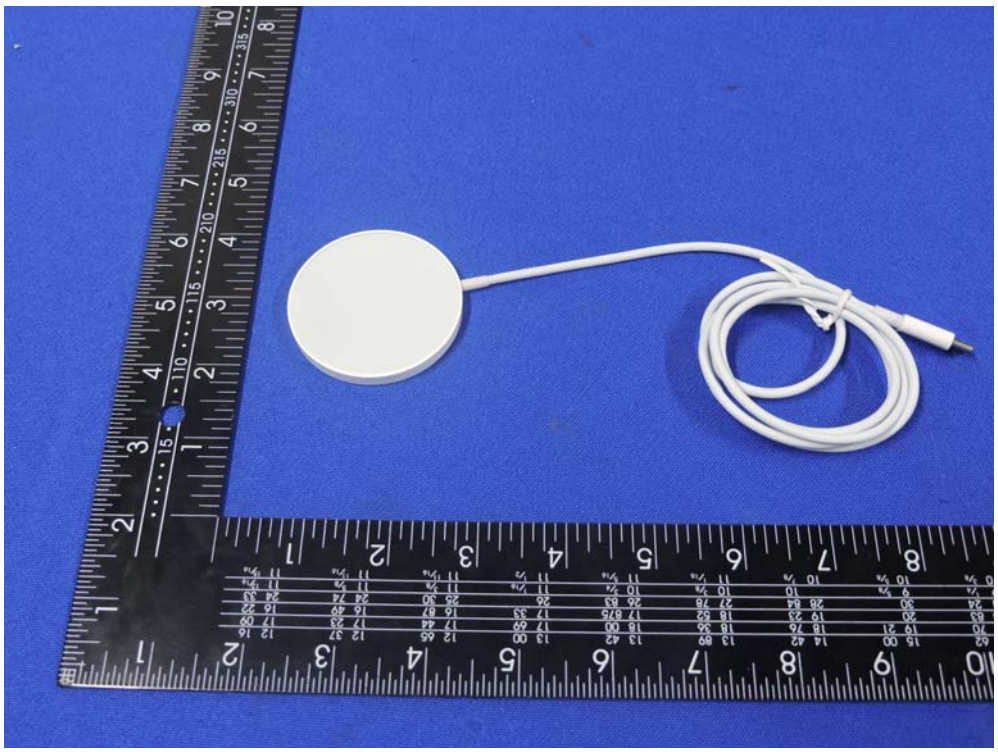


Photo for the EUT





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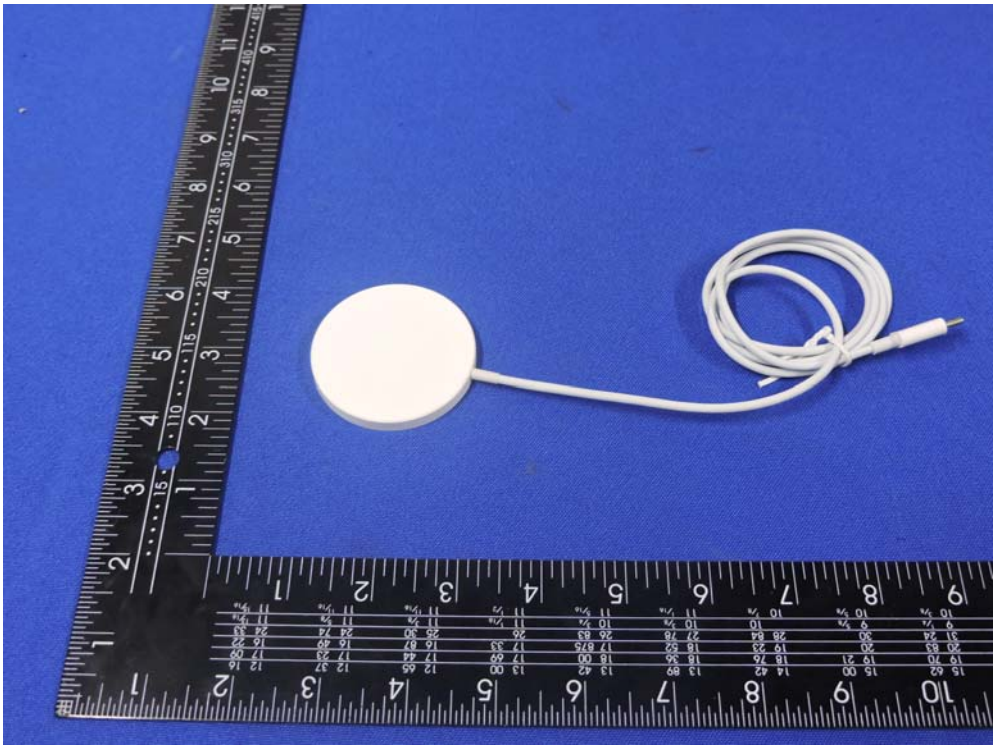

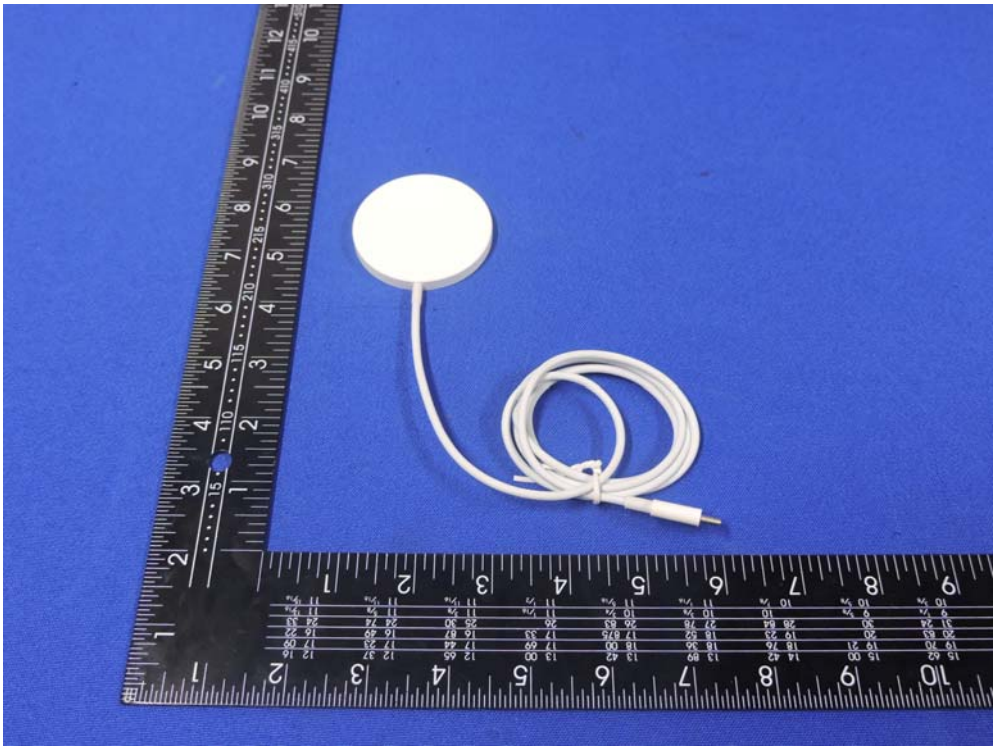

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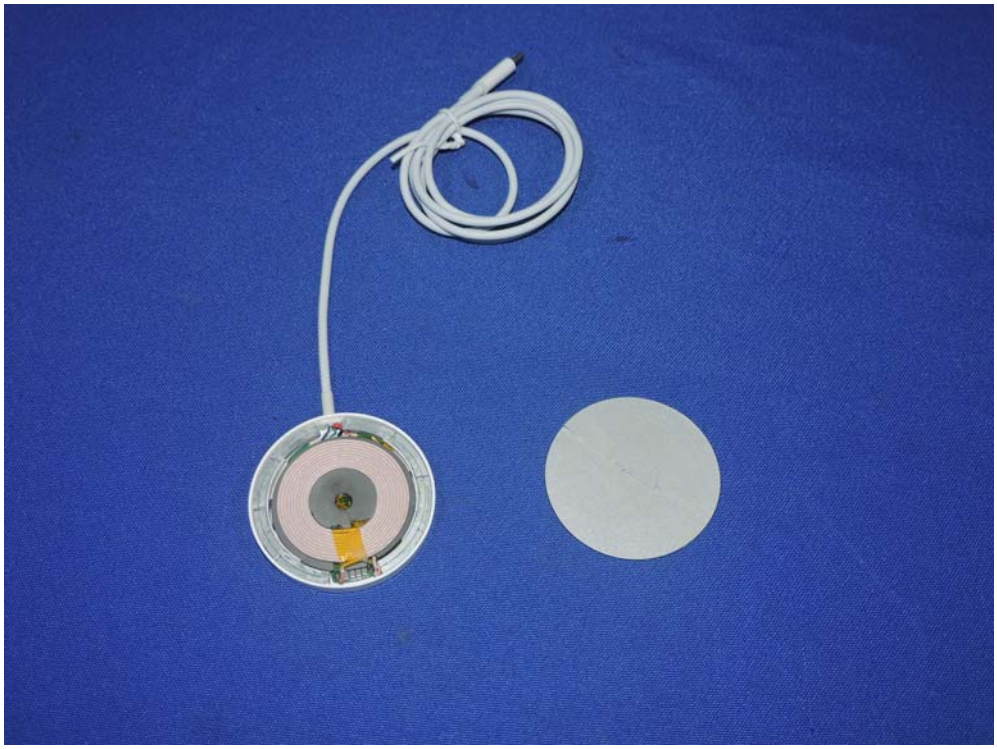


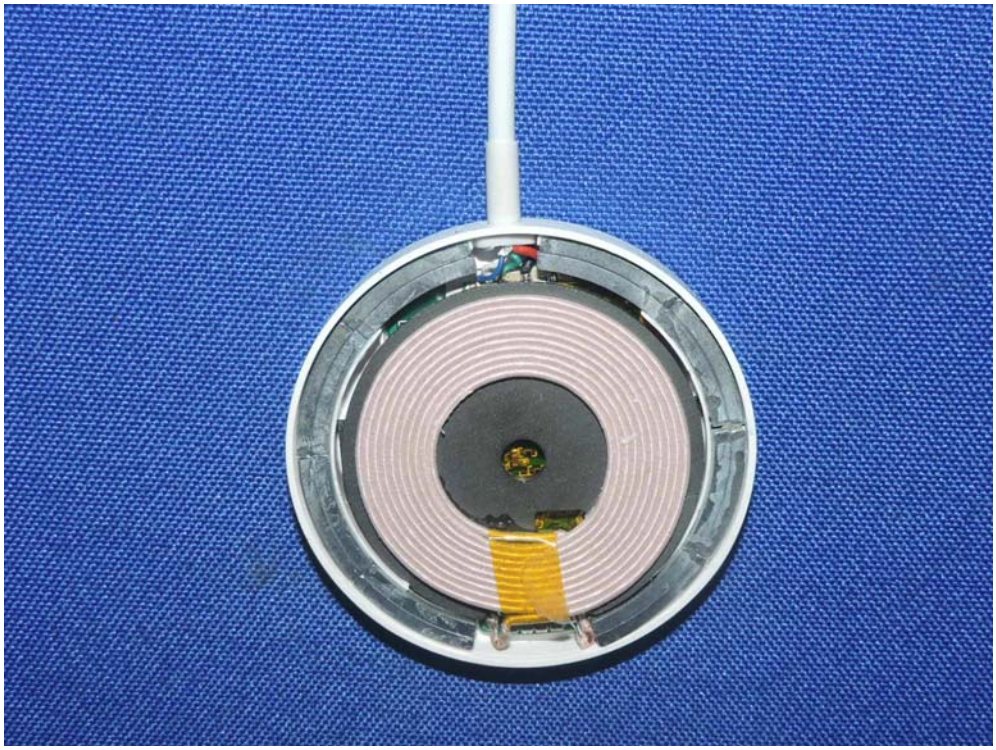
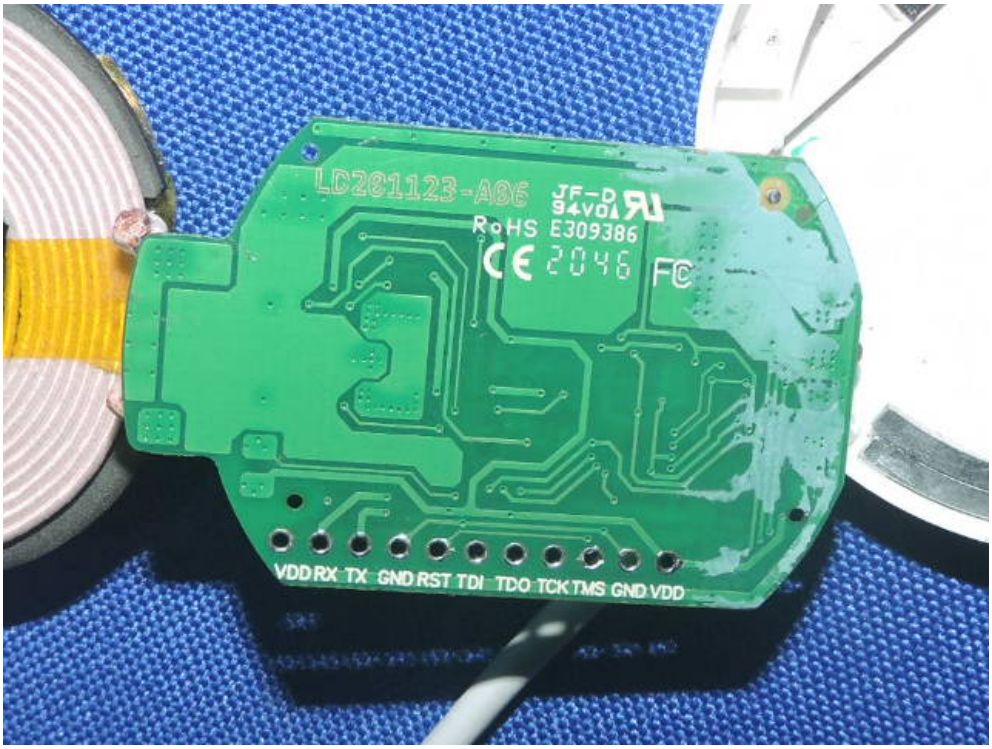
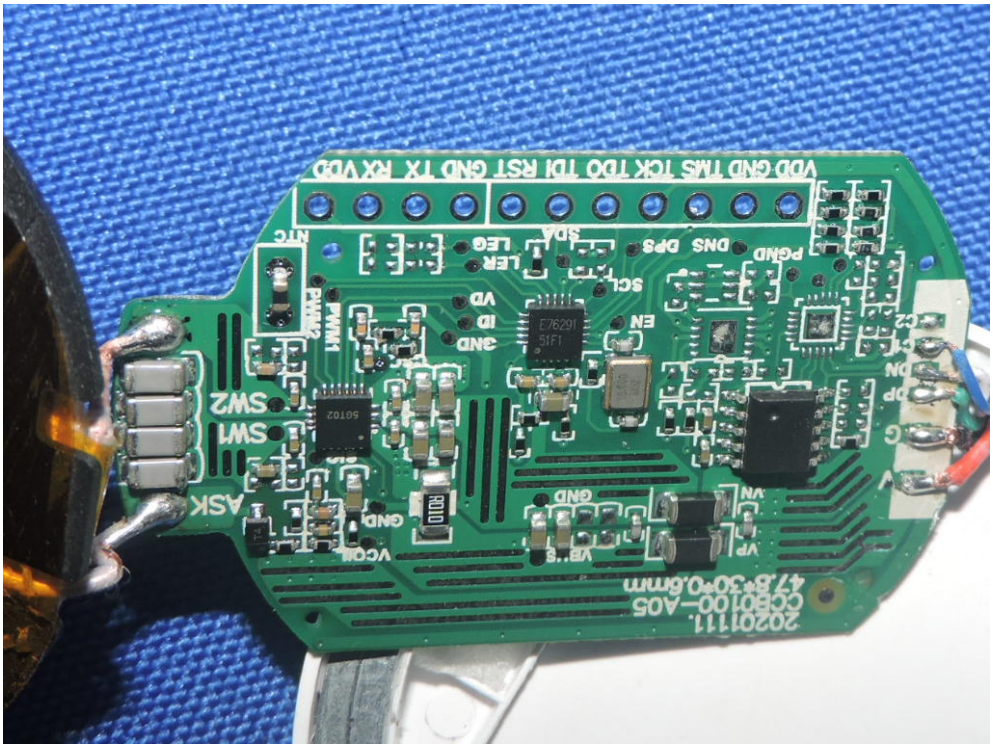


Photo for the EUT





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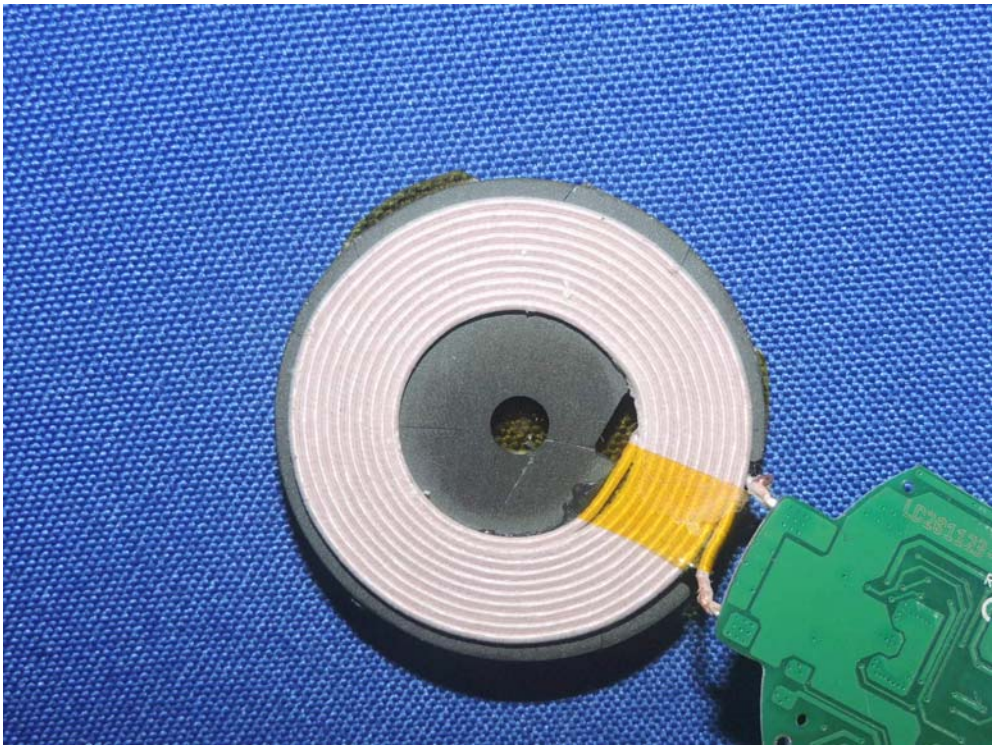

-End of the report-