

FCC Test Report

Report No.: AGC12027210501FE04

FCC ID : 2AZ4Z-H8

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION : Magnetic suction vehicle wireless fast charging

BRAND NAME : GOOSUO

MODEL NAME : H8

APPLICANT : Shenzhen Haoshuo E-commerce Co., Ltd

DATE OF ISSUE : Jun. 10, 2021

STANDARD(S) : FCC Part 15 Rules

TEST PROCEDURE(S)

REPORT VERSION : V1.0

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jun. 10, 2021	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Haoshuo E-commerce Co., Ltd
Address	12F-1225, Huananfazhanzhongxin, Pinghu jiedao, Longgangqu, Shenzhen, Guangdong, China
Manufacturer	GOOSUO
Address	Longgangqu Pinghujiedao Huananfazhanzhongxin 12F-1225 Shenzhen Guangdong
Factory	Shenzhen Haoshuo E-commerce Co., Ltd
Address	12F-1225, Huananfazhanzhongxin, Pinghu jiedao, Longgangqu, Shenzhen, Guangdong, China
Product Designation	Magnetic suction vehicle wireless fast charging
Brand Name	GOOSUO
Test Model	H8
Date of test	May 31, 2021 to Jun. 10, 2021
Deviation	No any deviation from the test method
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.

Prepared By

Kelly Cheng

Kelly Cheng
(Project Engineer)

Jun. 10, 2021

Reviewed By

Max Zhang

Max Zhang
(Reviewer)

Jun. 10, 2021

Approved By

Forrest Lei

Forrest Lei
(Authorized Officer)

Jun. 10, 2021

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	110-205kHz
Test Frequency	117.8kHz
Maximum field strength	53.71dBuV/m(PK) @3m
Modulation	FSK
Number of channels	1
Antenna Designation	Coil Antenna (Met 15.203 Antenna requirement)
Hardware Version	HC-X287-V3.0
Software Version	V1.0
Power Supply	12V/1.35A, 11.5V/1.24A, 11V/1.15A
Wireless charger	5W /10W /7.5W

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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, $U_c = \pm 3.2$ dB
- Uncertainty of Radiated Emission below 1GHz, $U_c = \pm 3.9$ dB
- Uncertainty of Radiated Emission above 1GHz, $U_c = \pm 4.8$ dB

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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)
Note: 1. The mode 1 was the worst case and only the data of the worst case record in this report.	

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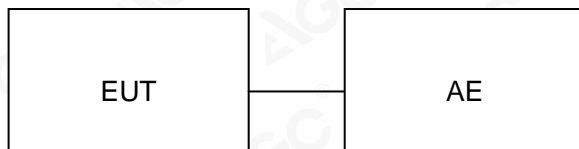
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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure :



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Magnetic suction vehicle wireless fast charging	H8	2AZ4Z-H8	EUT
2	Wireless Load	N/A	15W	AE

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

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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	ESCI	10096	Sep. 29, 2020	Sep. 28, 2021
LISN	R&S	ESH2-Z5	100086	Jul. 03,2020	Jul. 02, 2021
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 07, 2020	Dec. 06, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 20, 2019	Sep. 19, 2021
Test software	FARA	EZ EMC (Ver.RA-03A)	N/A	N/A	N/A

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7. RADIATED EMISSION

7.1 TEST LIMIT

Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μ V/m	dB(μ V)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
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(μ V)/m (Peak) 54.0 dB(μ V)/m (Average)	
Remark: (1) Emission level dB μ V = 20 log Emission level μ 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.			

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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

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7.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



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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
0.1178	Face	43.31	10.40	53.71	106.18	-52.47	Pass
0.1178	Side	36.15	10.40	46.55	106.18	-59.63	Pass
0.1121	Face	36.14	13.50	49.64	106.61	-56.97	Pass
0.1121	Side	30.79	13.50	44.29	106.61	-62.32	Pass
0.1094	Face	18.57	12.50	31.07	74	-42.93	Pass
0.1094	Side	15.33	12.50	27.83	74	-46.17	Pass

RADIATED EMISSION BELOW 30MHZ

Note1: The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported. The peak level of the emission is less than the average limit, so the average level shall be less than the limit without test.

Note 2: $\text{Level(dBuV/m)} = \text{Reading(dBuV)} + \text{Factor(dB/m)}$

$\text{Factor(dB/m)} = \text{Antenna Factor(dB/m)} + \text{Cable loss(dB)} + \text{Attenuation(dB) for Attenuator}$

$\text{Margin} = \text{Level} - \text{Limit}$

For 0.1178MHz

$\text{Limit(dBuV/m)} = 20\log(2400/F(\text{kHz})) + 40\log(300/3) = 106.18\text{dBuV/m.}$

For 0.1121MHz

$\text{Limit(dBuV/m)} = 20\log(2400/F(\text{kHz})) + 40\log(300/3) = 106.61\text{dBuV/m.}$

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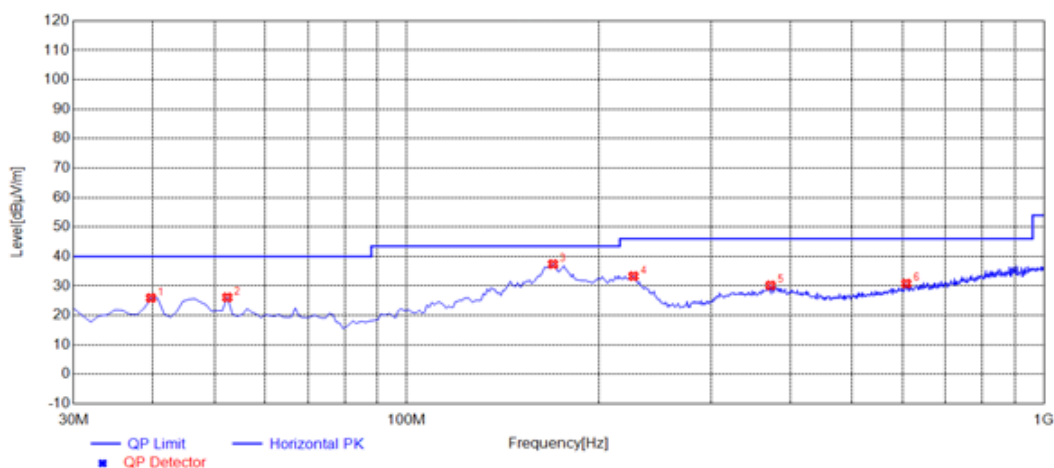
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RADIATED EMISSION 30MHz- 1GHz

EUT :	Magnetic suction vehicle wireless fast charging	Model Name.	H8
Temperature :	25 °C	Relative Humidity:	60%
Pressure :	1010 hPa	Test Voltage :	DC 12V
Test Mode :	Mode 1	Polarization :	Horizontal



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	39.7000	25.93	11.86	40.00	14.07	100	199	Horizontal
2	52.3100	26.11	11.49	40.00	13.89	200	188	Horizontal
3	169.6800	37.41	13.98	43.50	6.09	200	360	Horizontal
4	226.9100	33.32	13.80	46.00	12.68	100	313	Horizontal
5	372.4100	30.20	18.70	46.00	15.80	100	11	Horizontal
6	608.1200	30.82	24.44	46.00	15.18	100	293	Horizontal

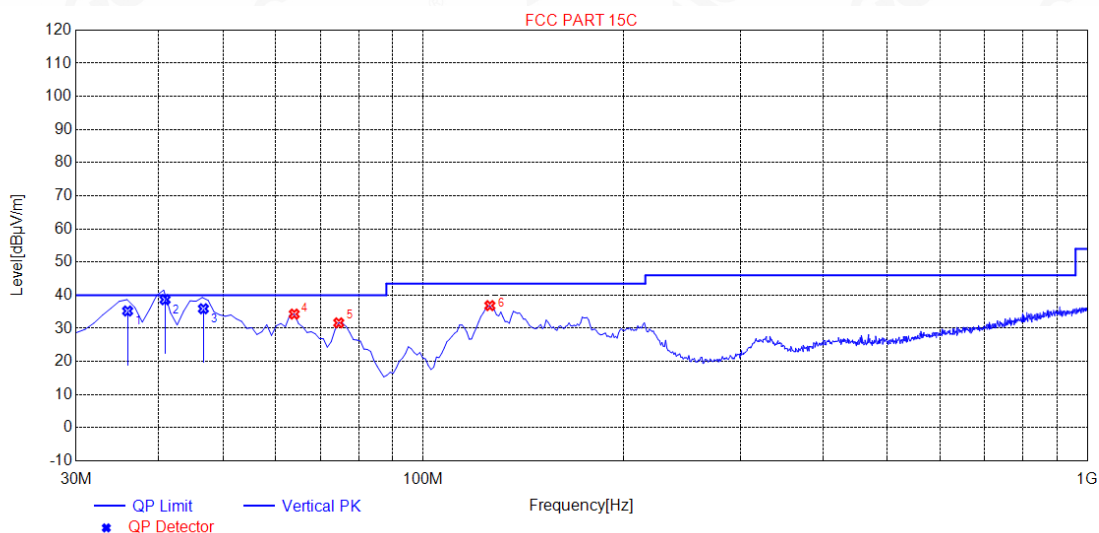
RESULT: PASS

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EUT :	Magnetic suction vehicle wireless fast charging	Model Name.	H8
Temperature :	25 °C	Relative Humidity:	60%
Pressure :	1010 hPa	Test Voltage :	DC 12V
Test Mode :	Mode 1	Polarization :	Vertical



Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
4	63.9500	34.31	10.25	40.00	5.69	100	205	Vertical
5	74.6200	31.66	8.27	40.00	8.34	100	175	Vertical
6	126.0300	36.86	13.88	43.50	6.64	100	358	Vertical

Final Data List

Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.8916	10.95	35.24	40.00	4.76	110	20	Vertical
2	40.8636	11.91	38.66	40.00	1.34	160	10	Vertical
3	46.6750	11.76	35.92	40.00	4.08	120	190	Vertical

RESULT: PASS

Note:

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

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

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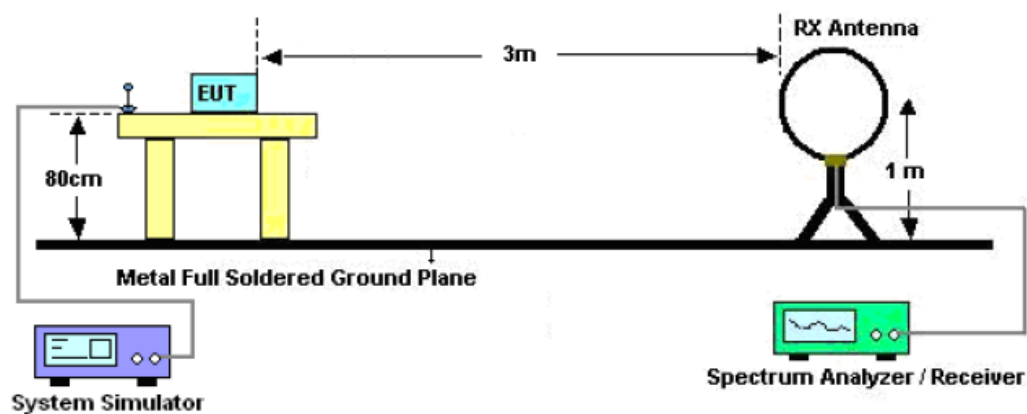


8. 20DB BANDWIDTH

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)



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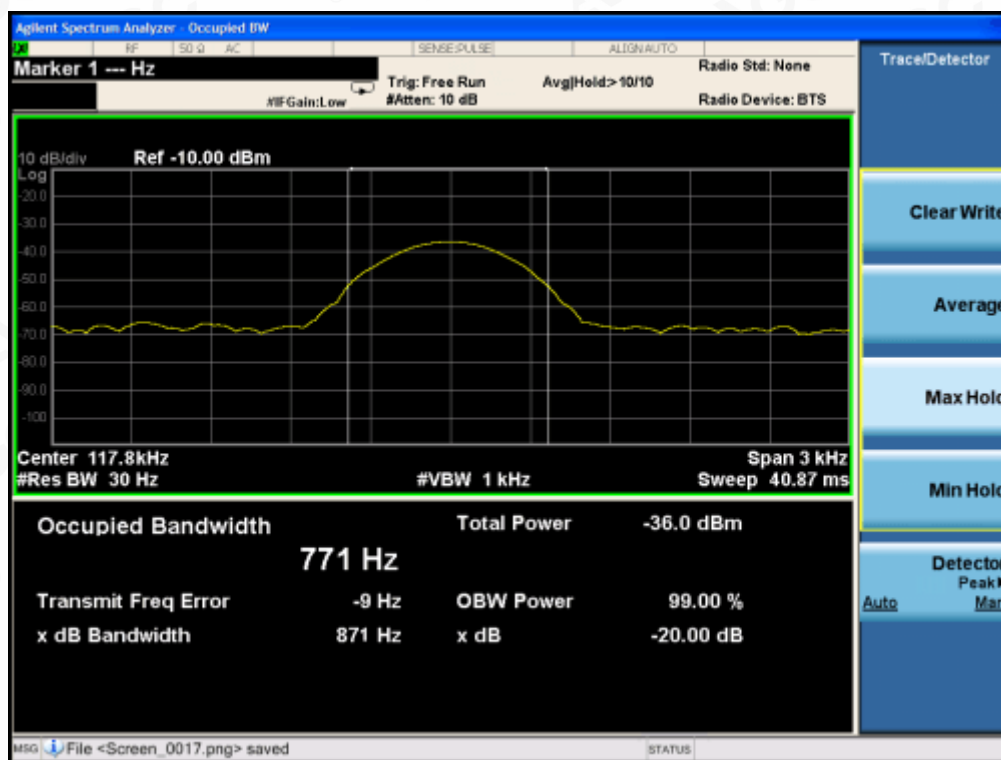


8.3. MEASUREMENT RESULTS

TEST ITEM	20DB BANDWIDTH
TEST MODULATION	FSK

Test Data (Hz)		Criteria
Operate Channel	871	PASS

TEST PLOT OF BANDWIDTH



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9. FCC LINE CONDUCTED EMISSION TEST

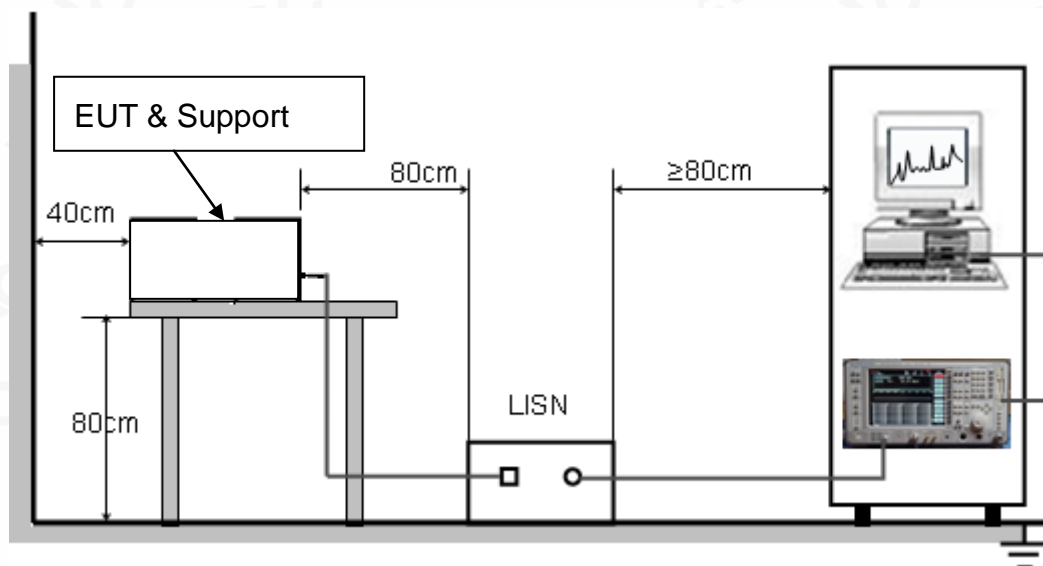
9.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	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



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9.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. 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/60Hz power 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.

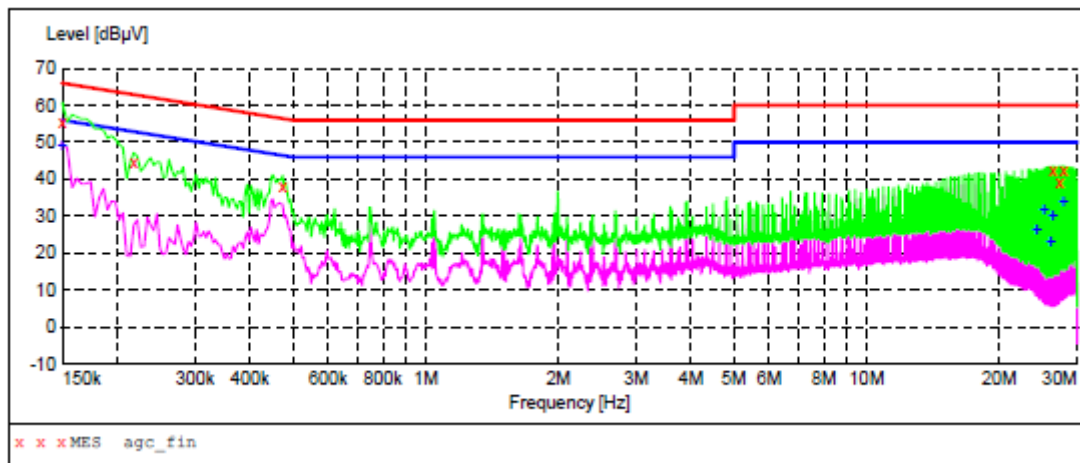
9.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. 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: "agc_fin"**

2021/6/3 21:09

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.150000	55.50	12.4	66	10.5	QP	L1
0.218000	44.80	12.4	63	18.1	QP	L1
0.474000	37.90	12.4	56	18.5	QP	L1
26.454000	42.50	15.3	60	17.5	QP	L1
27.354000	39.00	15.4	60	21.0	QP	L1
27.946000	42.60	15.4	60	17.4	QP	L1

MEASUREMENT RESULT: "agc_fin2"

2021/6/3 21:09

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.150000	49.70	12.4	56	6.3	AV	L1
24.290000	26.80	15.1	50	23.2	AV	L1
25.258000	32.00	15.2	50	18.0	AV	L1
26.158000	23.60	15.3	50	26.4	AV	L1
26.454000	30.70	15.3	50	19.3	AV	L1
27.946000	34.40	15.4	50	15.6	AV	L1

RESULT: PASS

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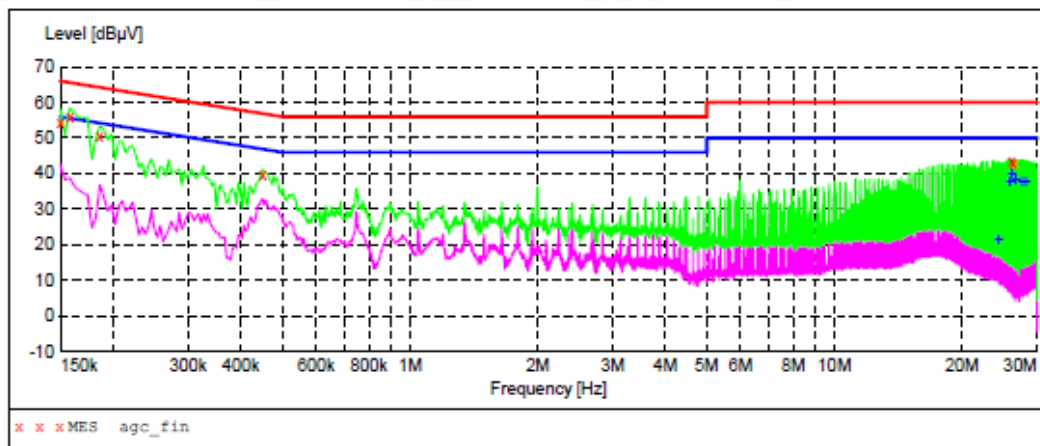
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LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT: "agc_fin"

2021/6/3 21:06

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.150000	54.20	12.4	66	11.8	QP	N
0.158000	55.80	12.4	66	9.8	QP	N
0.186000	50.60	12.4	64	13.6	QP	N
0.450000	39.60	12.4	57	17.3	QP	N
26.158000	43.30	15.3	60	16.7	QP	N
26.458000	43.10	15.3	60	16.9	QP	N

MEASUREMENT RESULT: "agc_fin2"

2021/6/3 21:06

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
24.290000	21.70	15.1	50	28.3	AV	N
25.858000	38.10	15.2	50	11.9	AV	N
26.154000	40.10	15.3	50	9.9	AV	N
26.754000	38.60	15.3	50	11.4	AV	N
27.650000	38.20	15.4	50	11.8	AV	N
28.250000	38.10	15.4	50	11.9	AV	N

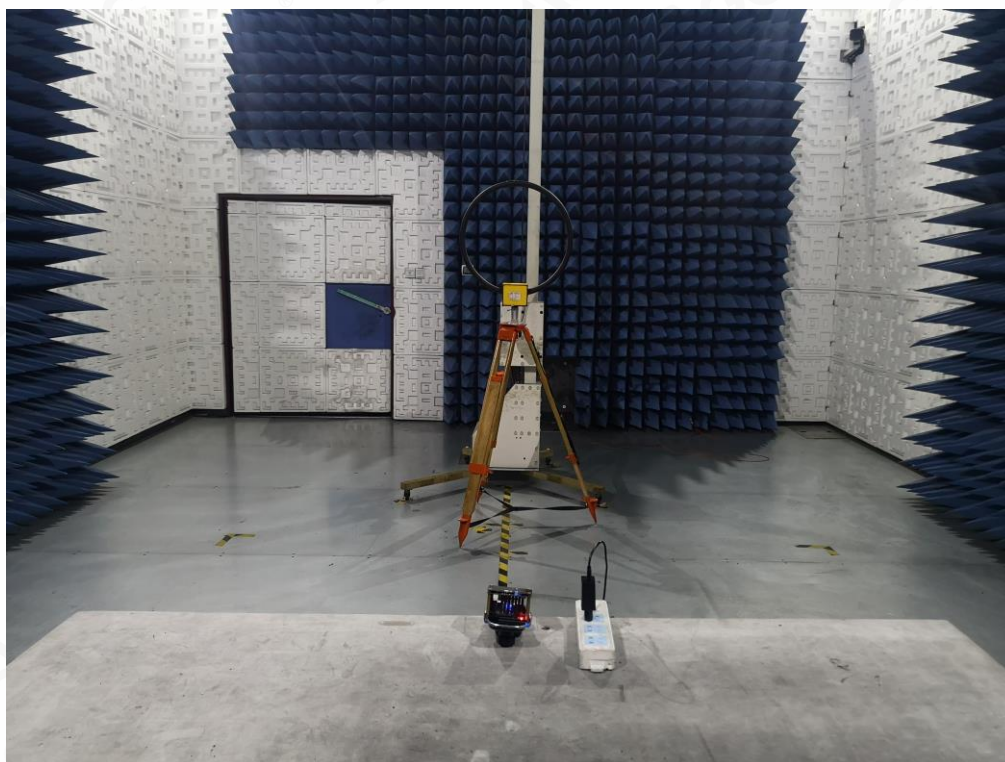
RESULT: PASS

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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC RADIATED EMISSION TEST SETUP 9kHz-30MHZ



FCC RADIATED EMISSION TEST SETUP 30MHz-1GHZ



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FCC LINE CONDUCTED EMISSION TEST SETUP



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APPENDIX B: PHOTOGRAPHS OF EUT

ALL VIEW OF EUT



TOP VIEW OF EUT



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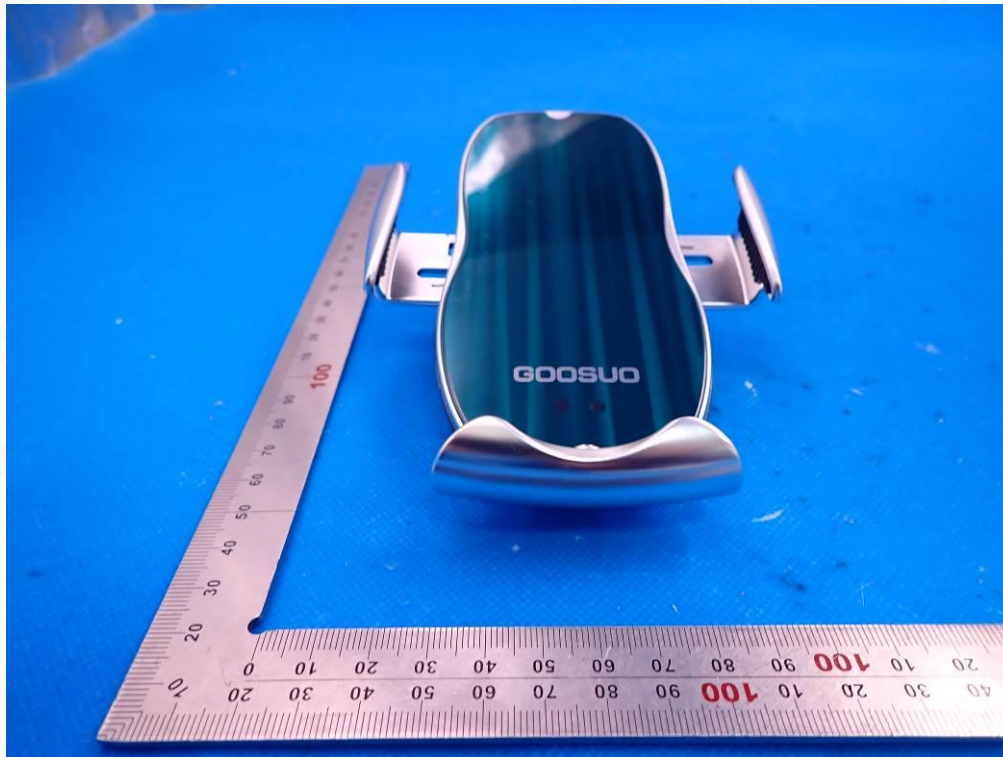
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BOTTOM VIEW OF EUT



FRONT VIEW OF EUT

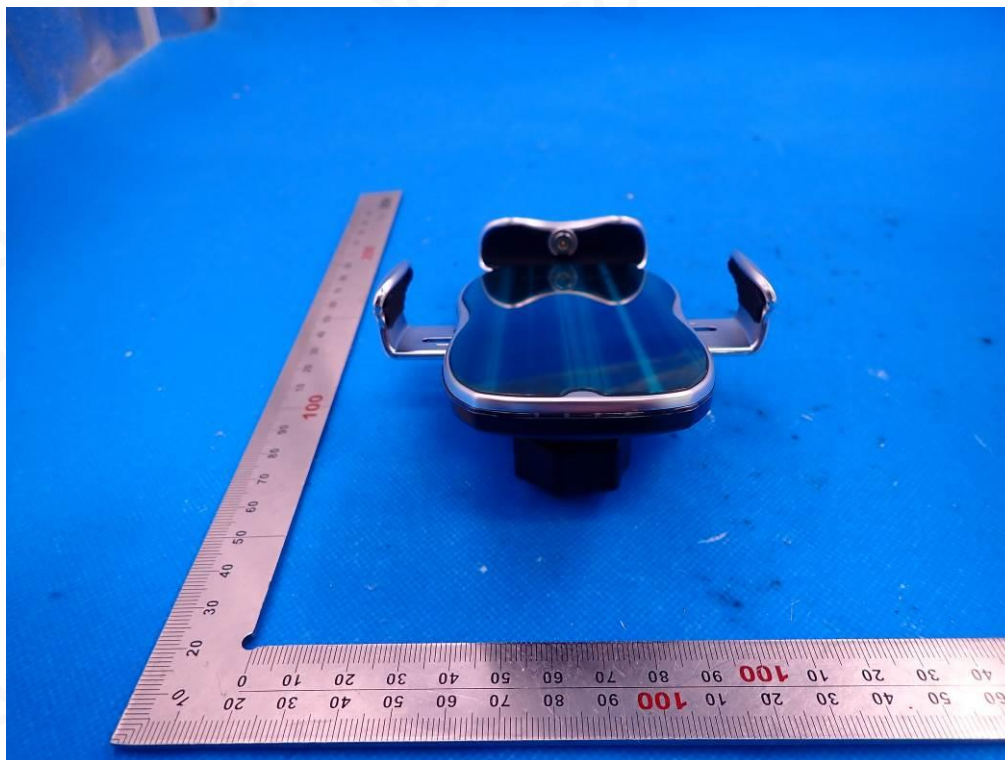


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BACK VIEW OF EUT



LEFT VIEW OF EUT

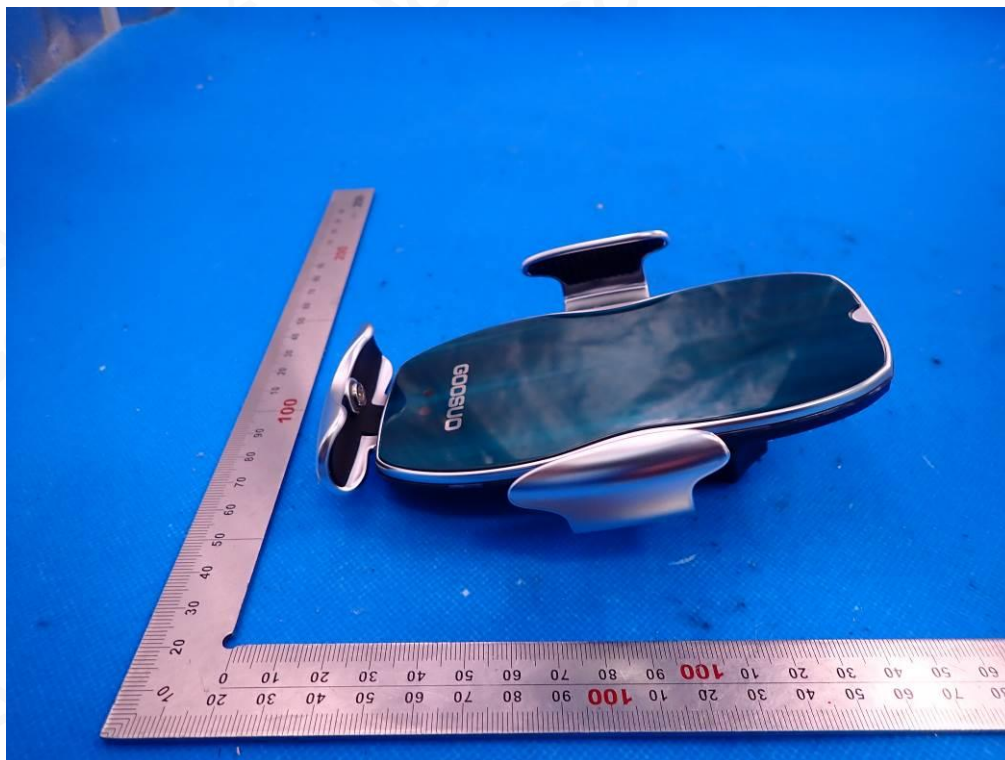


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RIGHT VIEW OF EUT



VIEW OF EUT (PORT)-1



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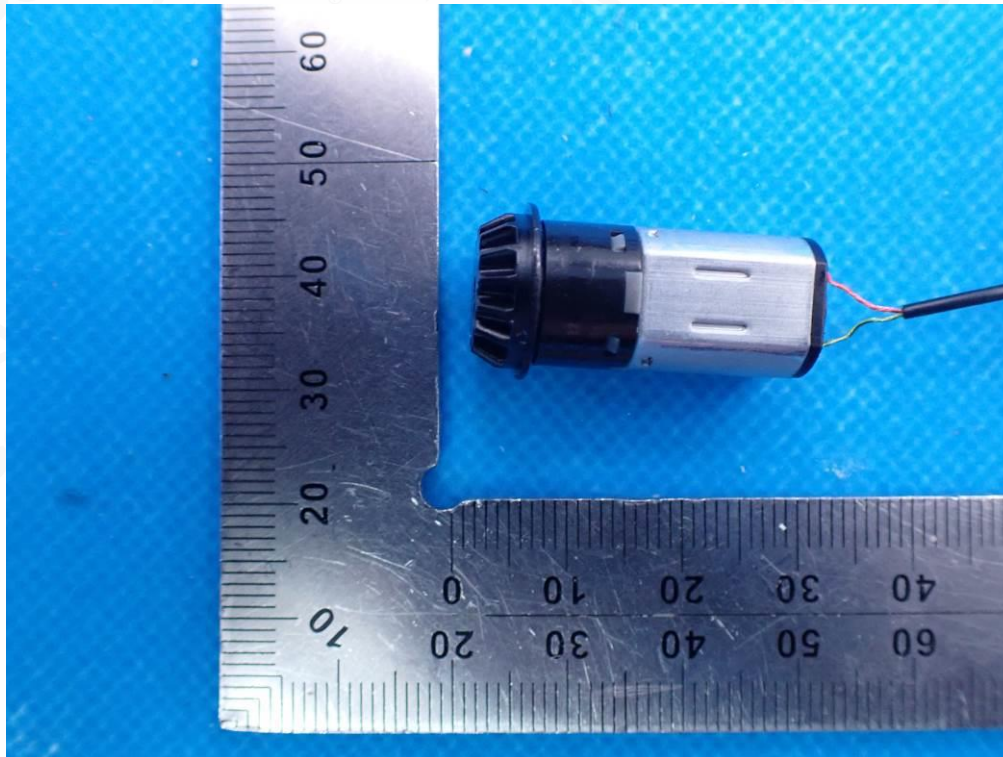
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OPEN VIEW OF EUT



INTERNAL VIEW OF EUT-1

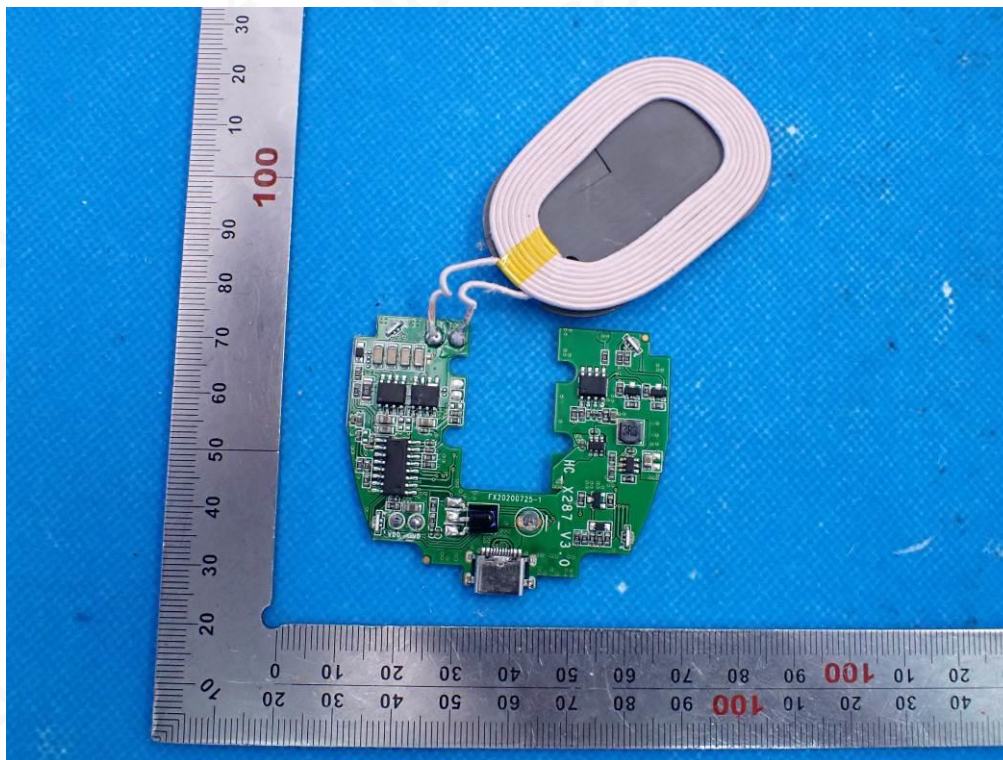


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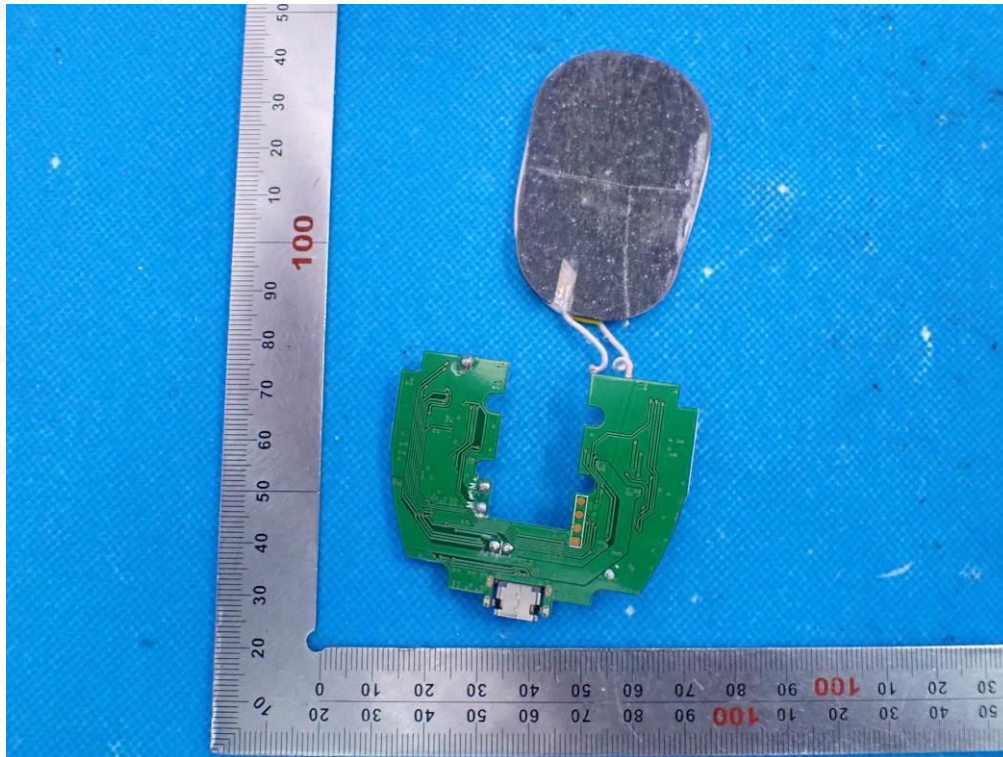
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INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



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