

RF Exposure Evaluation Report

Applicant: LEXON

Address of Applicant: 125 avenue des Champs Elysées, 75008 Paris France

Equipment Under Test (EUT)

Product Name: DUO MINI CHARGER

Model No.: LD147

Trade mark: LEXON

FCC ID: 2ARD3-LD147

Applicable standards: 680106 D01 RF Exposure Wireless Charging App v03r01

Date of sample receipt: 24 May., 2021

Date of Test: 25 May., to 31 May., 2021

Date of report issue: 01 Jun., 2021

Test Result: PASS*

2 Version

Version No.	Date	Description
00	01 Jun., 2021	Original

Tested by: Janet Wei
Test Engineer

Date: 01 Jun., 2021

Reviewed by: Winner Zhang
Project Engineer

Date: 01 Jun., 2021

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4 General Information

4.1 Client Information

Applicant:	LEXON
Address:	125 avenue des Champs Elysées, 75008 Paris France
Manufacturer/Factory:	LEXON
Address:	125 avenue des Champs Elysées, 75008 Paris France

4.2 General Description of E.U.T.

Product Name:	DUO MINI CHARGER
Model No.:	LD147
Operation Frequency:	110kHz ~ 205kHz
Modulation technology:	MSK
Antenna Type:	Coil Antenna
Power supply (Wireless Charger):	Input: DC 5V/2A, 9V/2A, 12V/1.5A Output Wireless 1: 5W Output Wireless 2: 5W
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

4.3 Operating Modes

Operating mode	Detail description
Full mode	Keep the EUT in Full mode
Remark: 1. For Output Wireless 1 and Output Wireless 2, 5W were worse case mode. Output Wireless1 mode , Output Wireless2 mode and Output Wireless1+Output Wireless2 mode are all have been tested , only worse case Output Wireless1+Output Wireless2 mode is reported. 2. No load, mid load , full load mode all have been tested , only worse case full load mode is reported.	

4.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
Apple	Mobile phone	iPhone 11 Pro	F17ZL23MN6YM	Doc
Apple	Mobile phone	iPhone 11 Pro	F17ZM72AN6YM	Doc

4.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Field Strength (9kHz ~ 30MHz)	$\pm 2\%$ (k=2)

4.6 Additions to, deviations, or exclusions from the method

No

4.7 Laboratory Facility

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

● **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

● **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

4.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

4.9 Test Instruments list

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
Electric and Magnetic field Probe - Analyzer	narda Safety Test Solutions S.r.l.	EHP-200AC	180ZX10203	02-24-2021	02-23-2022
EHP200-TS Software	narda Safety Test Solutions S.r.l.	EHP200-TS	Version: Rel 1.94	N.C.R	N.C.R

5 Technical Requirements Specification in FCC CFR Title 47 Part 2.1091

5.1 Limits

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

According to KDB 680106 D01 RF Exposure Wireless Charging Apps, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm for devices designed for typical desktop applications. E and H field strength measurements or numerical modelling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device.

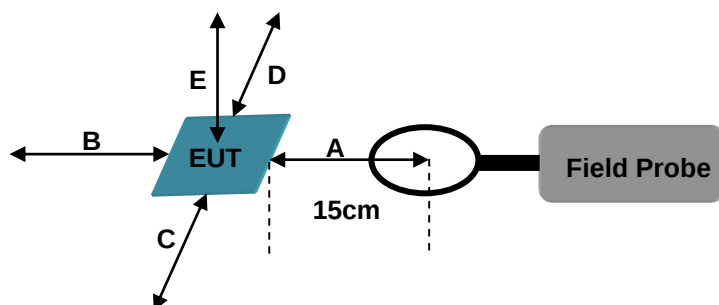
**Table 4: RF Field Strength Limits for Devices Used by the General Public
(Uncontrolled Environment)**

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> ^{0.5}	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ <i>f</i> ^{0.25}	0.1540/ <i>f</i> ^{0.25}	8.944/ <i>f</i> ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> ^{0.3417}	0.008335 <i>f</i> ^{0.3417}	0.02619 <i>f</i> ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> ^{1.2}
150000-300000	0.158 <i>f</i> ^{0.5}	4.21 x 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 x 10 ⁻⁵ <i>f</i>	616000/ <i>f</i> ^{1.2}
Note: <i>f</i> is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

5.2 Limits For General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW /cm ²)	Averaging Time (minutes)
0.3 ~ 3.0	614	1.63	(100)*	30
3.0 ~ 30	824/ <i>f</i>	2.19/ <i>f</i>	(180/ <i>f</i> ₂)*	30
30 ~ 300	27.5	0.073	0.2	30
300~1500	-	-	<i>f</i> /1500	30
1500~100000	-	-	1.0	30

5.3 Test Setup Block



Remrak: 1. The EHP 200AC probe antenna diameter is 8.8cm.
2. A is Front side, B is Back side, C is Left side, D is Right side, E is Top side.

5.4 Test Procedure

KDB 680106 D01 Section 5(b):

- (1) Power transfer frequency is less than 1 MHz.
-- Yes, the device operate in the frequency 110kHz ~ 205kHz.
- (2) Output power from each primary coil is less than or equal to 15 watts.
-- Yes, the maximum output power of the primary coil is 10W.
- (3) 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.
--No, the transfer system includes two primary and secondary coils.
- (4) Client device is placed directly in contact with the transmitter.
-- Yes, client device is placed directly in contact with the transmitter.
- (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
-- Yes, the DUT is a Wireless Charging mobile.
- (6) 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 field strength levels are less than 50% of the MPE limit.

1. Installing the probe and turn on the EHP 200AC power switch, in the testing software, select the magnetic field test mode and the A/m unit, select the peak detection mode, select the Max-Hold display.
2. Check the background noise.
3. Make DUT work at maximum transmit power.
4. During the measurement, the probe centre of the EHP 200AC is kept in 15cm distance from each test surface of the wireless charging base, and recorded the measured values of the A, B, C, D, and E side are separately.
5. In the testing software, Select the electric field test mode and the V/m unit, select the peak detection mode, select the Max-Hold display.
6. Repeat step 2 to 4 and then get the strength of the electric field.
7. Desktop device should be installed on the edge.(table : 0.8 m (H) high table structure of nonmetallic materials).

5.5 Result

Empty load, half load and full load have been tested, the full load mode is the worst, and only the worst test data is reflected in the report.

Output Wireless 1:

a) Magnetic Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (A/m)	50 % of Limit (A/m)	Limit (A/m)
A	15	0.0612	0.815	1.63
B	15	0.0319	0.815	1.63
C	15	0.0521	0.815	1.63
D	15	0.0234	0.815	1.63
E	15	0.0378	0.815	1.63

b) Electric Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (V/m)	50 % of Limit (V/m)	Limit (V/m)
A	15	1.764	307.00	614
B	15	1.208	307.00	614
C	15	1.322	307.00	614
D	15	0.947	307.00	614
E	15	1.405	307.00	614

Output Wireless 2:

c) Magnetic Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (A/m)	50 % of Limit (A/m)	Limit (A/m)
A	15	0.0588	0.815	1.63
B	15	0.0321	0.815	1.63
C	15	0.0234	0.815	1.63
D	15	0.0601	0.815	1.63
E	15	0.0344	0.815	1.63

d) Electric Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (V/m)	50 % of Limit (V/m)	Limit (V/m)
A	15	1.648	307.00	614
B	15	1.119	307.00	614
C	15	0.674	307.00	614
D	15	1.209	307.00	614
E	15	1.318	307.00	614

Output Wireless 1 + Output Wireless 2:

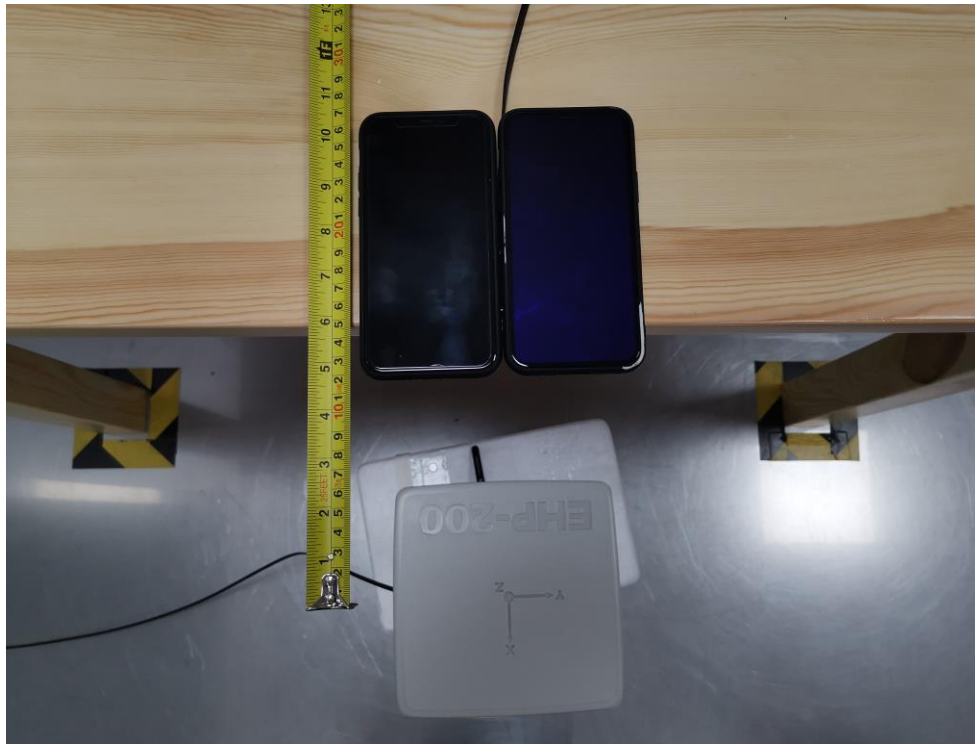
e) Magnetic Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (A/m)	50 % of Limit (A/m)	Limit (A/m)
A	15	0.0908	0.815	1.63
B	15	0.0501	0.815	1.63
C	15	0.0678	0.815	1.63
D	15	0.0711	0.815	1.63
E	15	0.0516	0.815	1.63

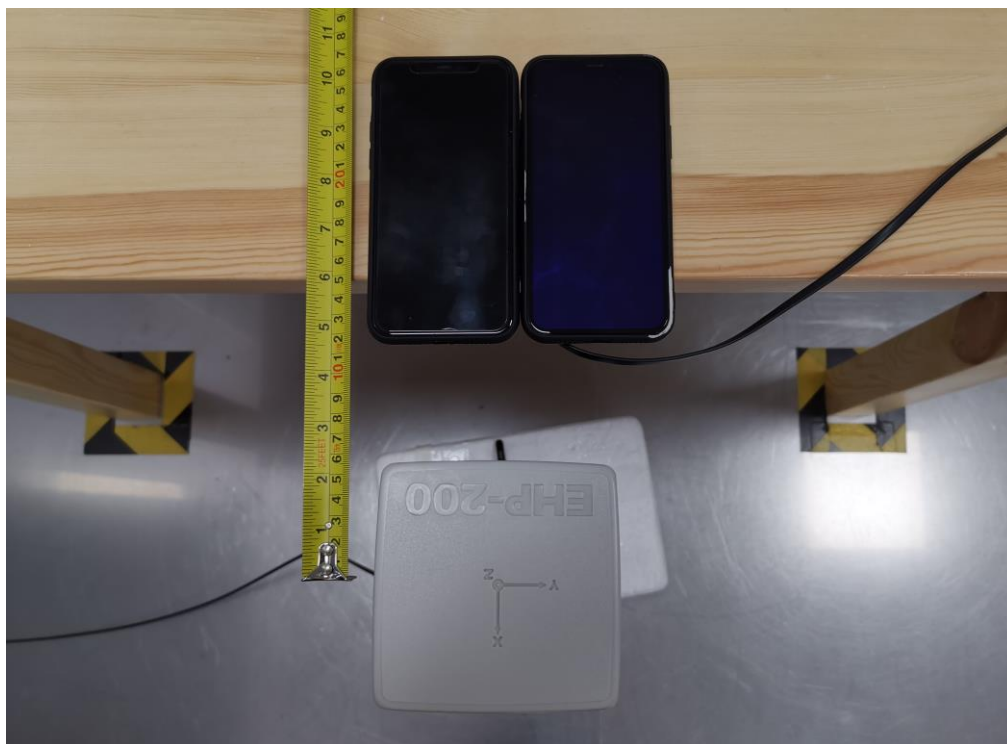
f) Electric Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (V/m)	50 % of Limit (V/m)	Limit (V/m)
A	15	2.167	307.00	614
B	15	1.678	307.00	614
C	15	1.899	307.00	614
D	15	2.044	307.00	614
E	15	1.946	307.00	614

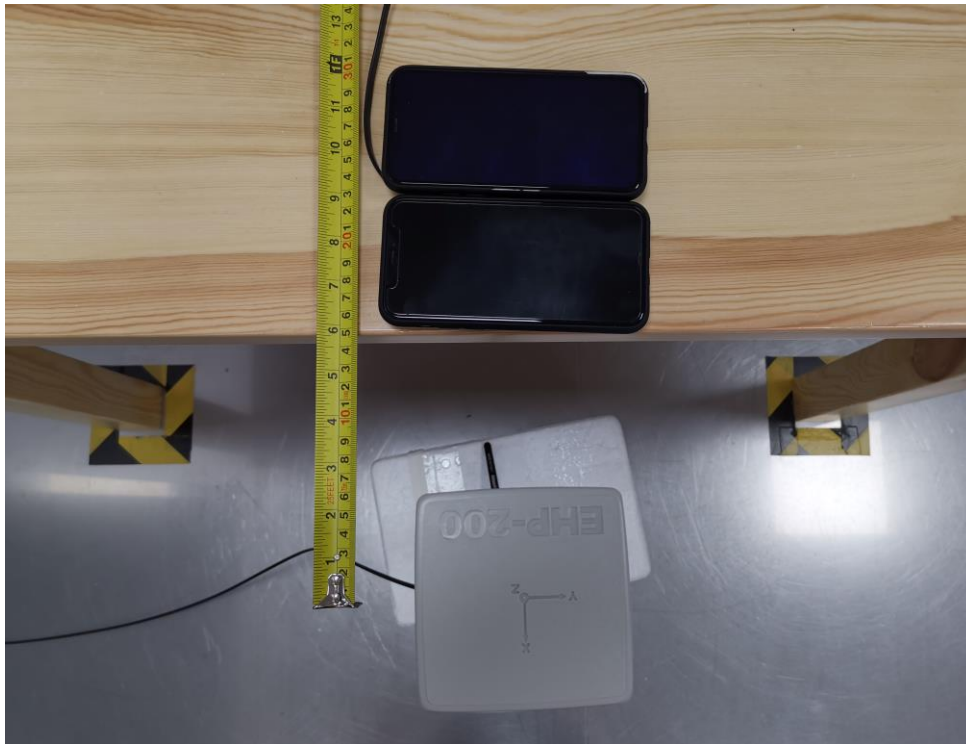
6 Test setup photo



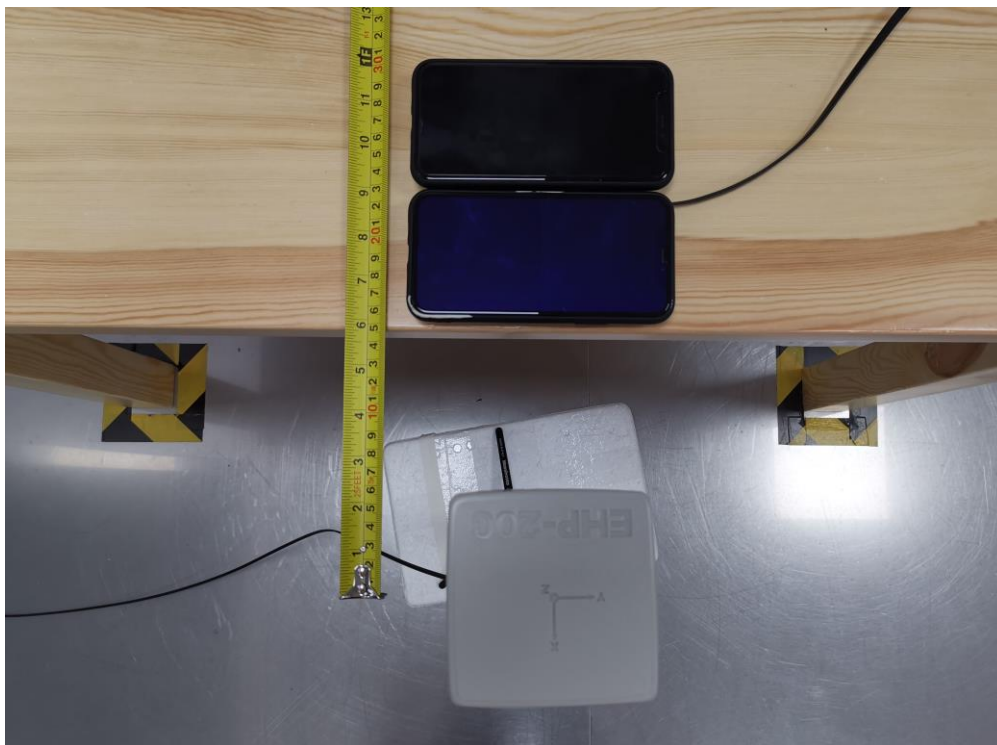
Test setup of A side with Coil 1 + Coil 2



Test setup of B side with Coil 1 + Coil 2



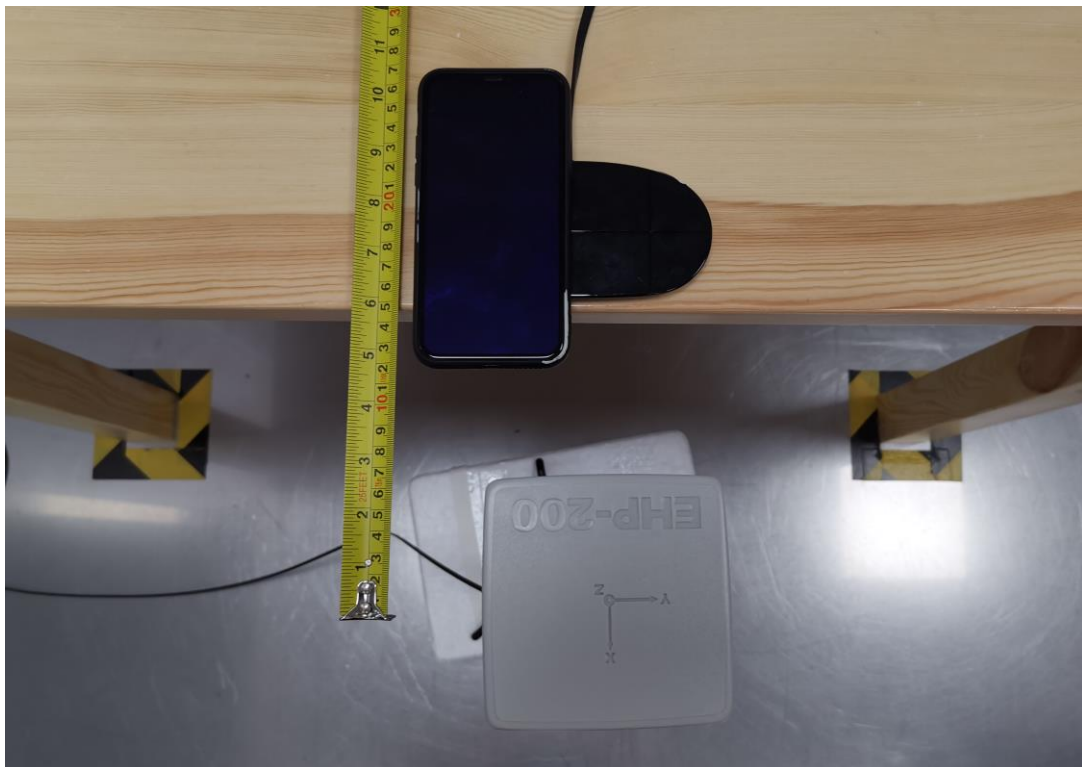
Test setup of C side with Coil 1 + Coil 2



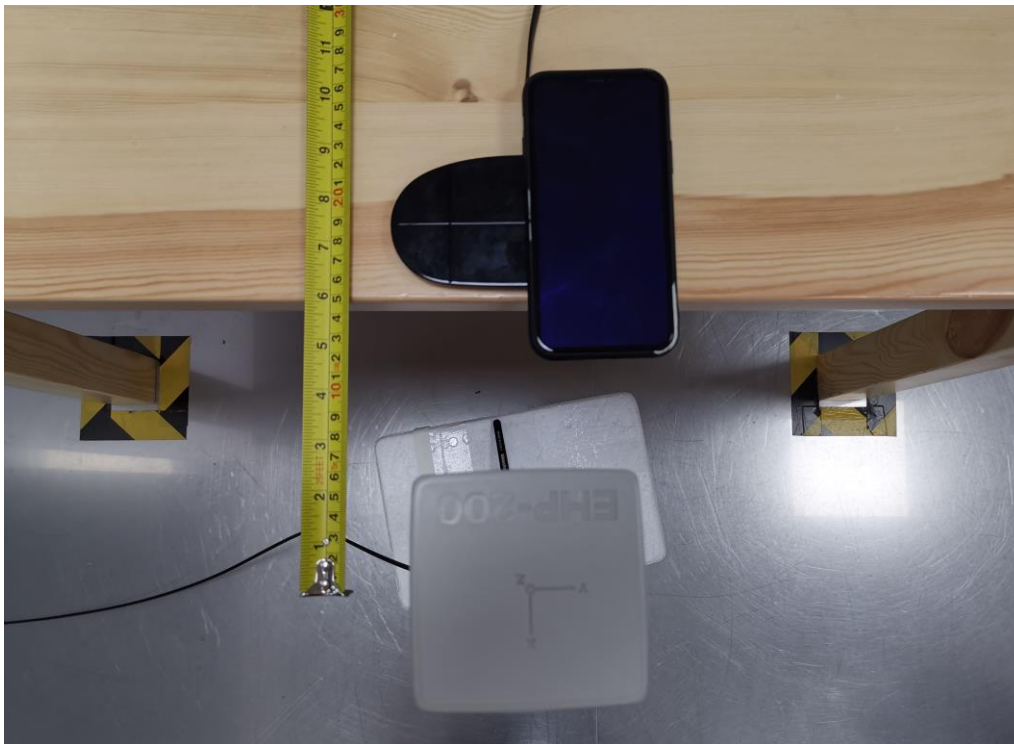
Test setup of D side with Coil 1 + Coil 2



Test setup of E side with Coil 1 + Coil 2



Test setup of A side with Coil 1



Test setup of A side with Coil 2

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