FCC §1.1310 & §2.1091–MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

FCC & 1.1310& §2.1091

According to the item 5.2 of KDB 680106 D01 RF Exposure Wireless Charging Apps v03: Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF evaluation.

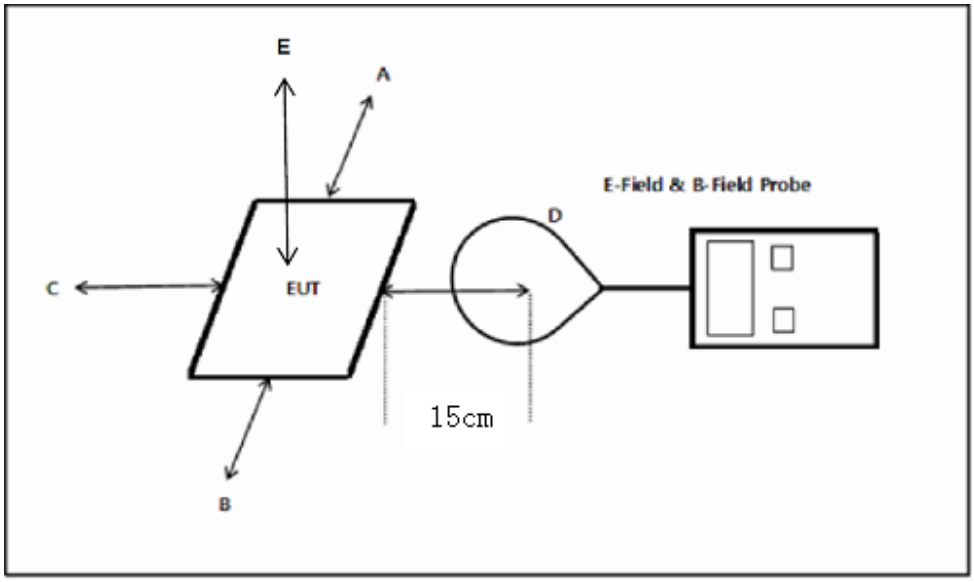
a) Power transfer frequency is less that 1 MHz.
b) Output power from each primary coil is less than or equal to 15 watts.
c) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
d) Client device is placed directly in contact with the transmitter.
e) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
f) 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.

Limits for Maximum Permissible Exposure (MPE)

(B) 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)**
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	$*(180/f^2)$	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

EUT Setup



Result

a) Power transfer frequency is less that 1 MHz.
Yes, the device operates in the frequency 110 kHz-205 kHz.

b) Output power from each primary coil is less than or equal to 15 watts.
Yes, the maximum output power of the primary coil is 5W<15W.

c) 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..
Yes, the transfer system including a charging system with only single primary coils is to detect and allow only between individual of coils.

d) Client device is inserted in or placed directly in contact with the transmitter.
Yes, client device is placed directly in contact with the transmitter.

e) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
Yes, this is a mobile device.

f) 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.
The EUT H-field Strength levels at 15cm surrounding the device and 20 cm above the top surface are less than 50% the MPE limit.

Test Data

Environmental Conditions

Temperature:	24.3 ℃
Relative Humidity:	49 %
ATM Pressure:	101.2 kPa

The testing was performed by Lee Li on 2020-05-11.

H-Filed Strength

Frequency Range (kHz)	Position A (A/m)	Position B (A/m)	Position C (A/m)	Position D (A/m)	Limit Test (A/m)	50%Limit (A/m)
110-205	0.065	0.095	0.076	0.07	1.63	0.815

E-Filed Strength

Frequency Range (kHz)	Position A (V/m)	Position B (V/m)	Position C (V/m)	Position D (V/m)	Limit Test (V/m)	50%Limit (V/m)
110-205	2.712	2.698	2.804	2.967	614	307

Note:

1. According with KDB 680106 D01 RF Exposure Wireless Charging Apps v03, Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614V/m and 1.63 A/m.

2. The distance for position A, B, C are 15cm, the distance for position D is 20cm.

3.There is a side that cannot be tested because of the sample organization.