

FCC §1.1307 & 1.1310 – RF EXPOSURE

Applicable Standard

FCC §1.1307 & 1.1310

According to the item 5. b) of KDB 680106 D01 RF Exposure Wireless Charging Apps v03:

Inductive wireless power transfer applications with supporting field strength results and meeting all of the following requirements are not required to submit a KDB inquiry for devices approved using SDoC or a PAG for equipment approved using certification to address RF exposure compliance.

- (1) Power transfer frequency is less than 1 MHz.
- (2) Output power from each primary coil is less than or equal to 15 watts.
- (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.
- (4) Client device is placed directly in contact with the transmitter.
- (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
- (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.

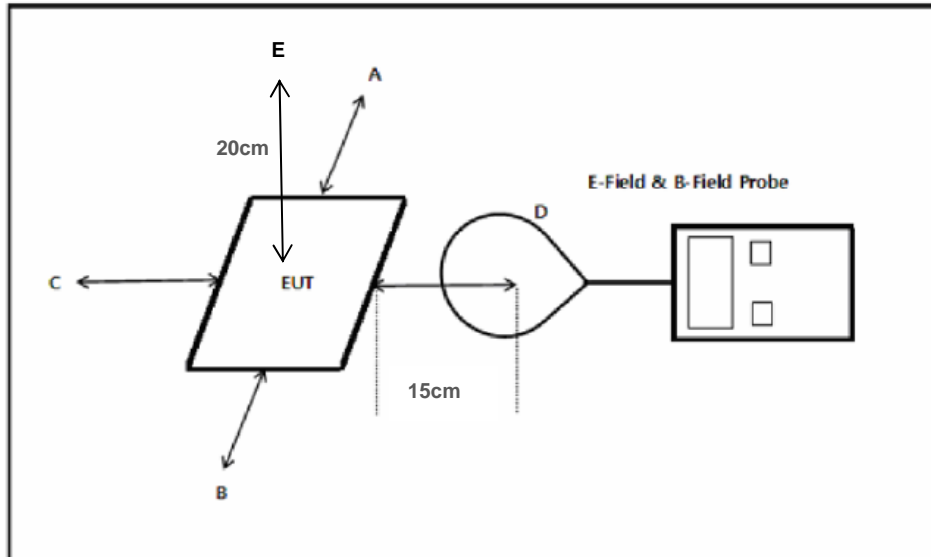
Limits for Maximum Permissible Exposure (MPE)

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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz

*= Plane-wave equivalent power density

EUT Setup



Result

- 1) Power transfer frequency is less than 1 MHz.
The device operates in the frequency 110 kHz-148 kHz.
- 2) Output power from each primary coil is less than or equal to 15 watts.
The maximum output power of the primary coil is $10W < 15W$.
- 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.

The transfer system including a charging system with only single primary coils is to detect and allow only between individual of coils.
- 4) Client device is placed directly in contact with the transmitter.

Client device is placed directly in contact with the transmitter.
- (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
The device is not for portable use.
- 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.
The measured H-field strengths is less than 50% of the MPE limit.

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	51 %
ATM Pressure:	96.2 kPa

The testing was performed by Lorin Bian on 2018-05-03.

Please refer the results below.

E-field strengths at 15 cm surrounding the device and 20 cm above the top surface

Frequency Range (kHz)	Position A (V/m)	Position B (V/m)	Position C (V/m)	Position D (V/m)	Position E (V/m)	Limit Test (V/m)
110-148	1.12	1.39	1.08	1.26	2.12	614

H-field strengths at 15 cm surrounding the device and 20 cm above the top surface

Frequency Range (kHz)	Position A (A/m)	Position B (A/m)	Position C (A/m)	Position D (A/m)	Position E (A/m)	Limit Test (A/m)
110-148	0.292	0.327	0.289	0.311	0.483	1.63

Note:

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.