FCC §1.1307 & 1.1310 – RF EXPOSURE

Applicable Standard

FCC §1.1307 & 1.1310

According to the item 5.2 of KDB 680106 D01 RF Exposure Wireless Charging Apps v02:
Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF evaluation.

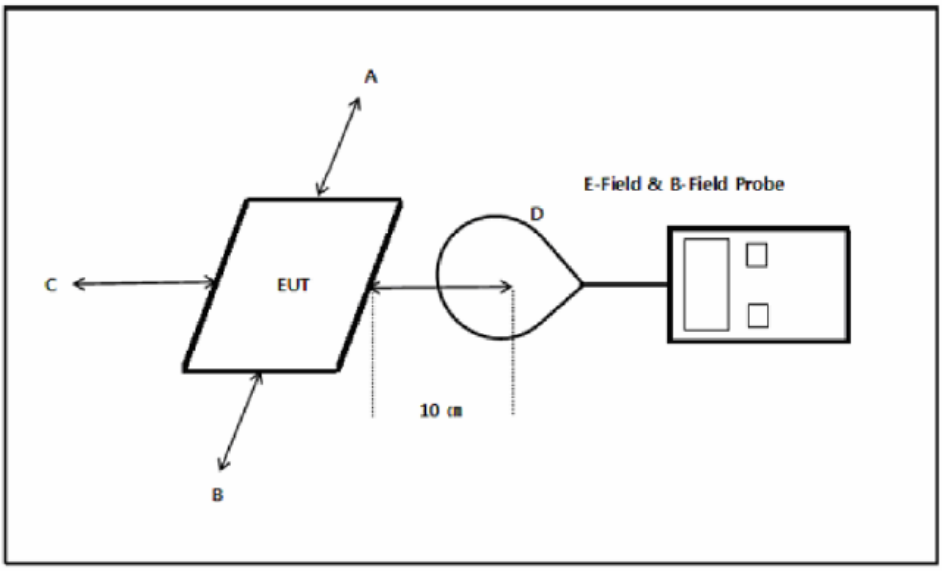
a) Power transfer frequency is less that 1 MHz.
b) Output power from each primary coil is less than 5 watts.
c) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
d) Client device is inserted in or placed directly in contact with the transmitter.
e) The maximum coupling surface area of the transmit (charging) device is between 60 cm² and 400 cm^2.
f) Aggregate leakage fields at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% 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

a) Power transfer frequency is less that 1 MHz.
The deivce operates in the frequency 110kHz-205kHz.

b) Output power from each primary coil is less than 5 watts.
The maximum output power of the primary coil is 4.85W<5W.

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.

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.
Client device is placed directly in contact with the transmitter.

e) The maximum coupling surface area of the transmit (charging) device is between 60 cm^2 and 400 cm^2.
The EUT Coupling surface area (Type: Cycle)

$\pi*R^2=3.14*5^2=78.50cm^2>60cm^2$

f) Aggregate leakage fields at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.
The EUT E-field Strength at 10cm & The EUT H-field Strength levels at 10cm are less than 30% the MPE limit.

Please refer the results below.

E-Filed Strength(10 cm)

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)
110-205	1.75	1.71	1.94	1.66	5.74	614

H-Filed Strength(10 cm)

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)
110-205	0.266	0.262	0.293	0.257	0.321	1.63

Note:

According with KDB 680106 D01 RF Exposure Wireless Charging Apps v02, 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.