RF Exposure Evaluation

FCC ID: 2AT2E-KT-SC02

1. Client Information

Applicant	:	Dongguan Kington Electronic Technology Co.,Ltd.
Address	:	3/F, Building B, Abao Industrial Park No.160 LuYuan Road TangXia Town, DongGuan China
Manufacturer	:	Dongguan Kington Electronic Technology Co.,Ltd.
Address	:	3/F, Building B, Abao Industrial Park No.160 LuYuan Road TangXia Town, DongGuan China

2. General Description of EUT

EUT Name	:	Multi-function wireless charger socket	
Models No.	:	KT-SC02, KT-SC02-US, KT-SC02-GB, KT-SC02-UK, KT-SC02-EU	
Sample ID	:	20210421-17-01	
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance and model name.	
Product Description	:	Operation Frequency:	113KHz-205KHz
		Modulation Type:	ASK
		Antenna:	Coil Antenna
Power Supply	:	Input: AC 100-240V, 50/60Hz Max Power : 2500W, Max current : 10A Wireless charge output: 15W(MAX) Type C output: 5V/9V/12V/15V 3A/20V 2.25A USB output: single usb,5V 3.6A/9V 2.5A/12V 2.25A double usb,5V 4.8A	
Software Version	:	----	
Hardware Version	:	KT-ROUND-POWER-V2.8/KT-ROUND-TYPE-CV2.8/ KT-ROUND-USBV2.8	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

Note: More test information about the EUT please refer the RF Test Report.

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RF Exposure Considerations

1. Measuring Standard

KDB 680106 D01 RF Exposure Wireless Charging App v03.

2. Requirements

According to the item 5.2 of KDB 680106 D01v03:
Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation:

(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).

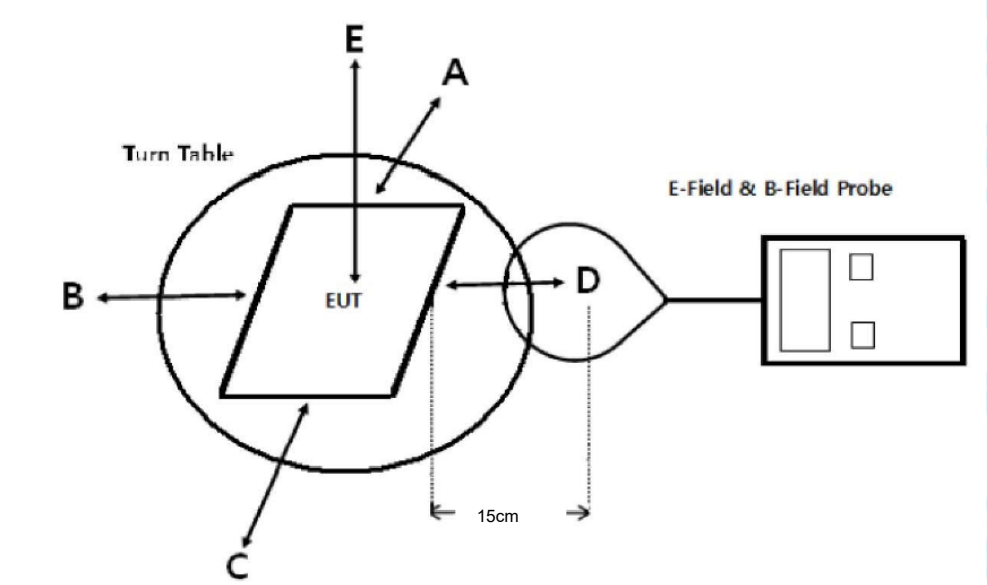
(6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

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 Exposures				
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
300-1500	/	/	f/300	6
1500-100,000	/	/	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
RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

3. Test Setup



Note: The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface.

4.Test Procedure

1) The RF exposure test was performed in anechoic chamber.
2) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface.
3) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
4) The EUT was measured according to the dictates of KDB 680106 D01 v03.

Remark:
The EUT's test position A, B, C, D and E is valid for the E and H field measurements.

5. Test Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Magnetic field meter	NARDA	ELT-400	EE030	Sep. 11, 2020	Sep. 10, 2021

6. Deviation From Test Standard

No deviation

7. Mode of operation during the test / Test peripherals used

Test Modes:		
TM1	AC Power Supply + EUT(Output: 5W) + Mobile Phone placed vertical (Battery Status: <1%)	Pre-tested
TM2	AC Power Supply + EUT(Output: 5W) + Mobile Phone placed vertical (Battery Status: <50%)	Pre-tested
TM3	AC Power Supply + EUT(Output: 5W) + Mobile Phone placed vertical (Battery Status: <99%)	Pre-tested
TM4	AC Power Supply + EUT(Output: 5W) + Mobile Phone placed horizontally (Battery Status: <1%)	Pre-tested
TM5	AC Power Supply + EUT(Output: 5W) + Mobile Phone placed horizontally (Battery Status: <50%)	Pre-tested
TM6	AC Power Supply + EUT(Output: 5W) + Mobile Phone placed horizontally (Battery Status: <99%)	Pre-tested
TM7	AC Power Supply + EUT(Output: 7.5W) + Mobile Phone placed vertical (Battery Status: <1%)	Pre-tested
TM8	AC Power Supply + EUT(Output: 7.5W) + Mobile Phone placed vertical (Battery Status: <50%)	Pre-tested
TM9	AC Power Supply + EUT(Output: 7.5W) + Mobile Phone placed vertical (Battery Status: <99%)	Pre-tested
TM10	AC Power Supply + EUT(Output: 7.5W) + Mobile Phone placed horizontally (Battery Status: <1%)	Pre-tested
TM11	AC Power Supply + EUT(Output: 7.5W) + Mobile Phone placed horizontally (Battery Status: <50%)	Pre-tested
TM12	AC Power Supply + EUT(Output: 7.5W) + Mobile Phone placed horizontally (Battery Status: <99%)	Pre-tested
TM13	AC Power Supply + EUT(Output: 10W) + Mobile Phone placed vertical (Battery Status: <1%)	Pre-tested
TM14	AC Power Supply + EUT(Output: 10W) + Mobile Phone placed vertical (Battery Status: <50%)	Pre-tested
TM15	AC Power Supply + EUT(Output: 10W) + Mobile Phone placed vertical (Battery Status: <99%)	Pre-tested
TM16	AC Power Supply + EUT(Output: 10W) + Mobile Phone placed horizontally (Battery Status: <1%)	Pre-tested
TM17	AC Power Supply + EUT(Output: 10W) + Mobile Phone placed horizontally (Battery Status: <50%)	Pre-tested
TM18	AC Power Supply + EUT(Output: 10W) + Mobile Phone placed horizontally (Battery Status: <99%)	Pre-tested
TM19	AC Power Supply + EUT(Output: 15W) + Mobile Phone placed vertical (Battery Status: <1%)	Record
TM20	AC Power Supply + EUT(Output: 15W) + Mobile Phone placed vertical (Battery Status: <50%)	Record
TM21	AC Power Supply + EUT(Output: 15W) + Mobile Phone placed vertical (Battery Status: <99%)	Record
TM22	AC Power Supply + EUT(Output: 15W) + Mobile Phone placed horizontally (Battery Status: <1%)	Record
TM23	AC Power Supply + EUT(Output: 15W) + Mobile Phone placed horizontally (Battery Status: <50%)	Record
TM24	AC Power Supply + EUT(Output: 15W) + Mobile Phone placed horizontally (Battery Status: <99%)	Record
Note: All test modes were pre-tested, but we only recorded the worst case (TM19, TM20, TM21, TM22, TM23, TM24) in this report.		

8. Test Result

E-Filed Strength at 15 cm from the edges surrounding the EUT and 15 cm above the top surface

Phone location	Charging Battery Level	Frequency Range (MHz)	Measured E-Field Strength Values (V/m) Test Position					E-Field Strength 50% Limits (V/m)	E-Field Strength Limits (V/m)
			A	B	C	D	E		
vertical	1%	0.1572	42.978	43.732	61.074	44.863	47.502	307.0	614.0
	50%	0.1572	47.125	43.355	49.010	47.502	43.355	307.0	614.0
	99%	0.1572	60.697	49.764	43.732	35.061	41.470	307.0	614.0
horizontally	1%	0.1572	50.518	45.994	50.895	47.502	49.387	307.0	614.0
	50%	0.1572	49.010	40.716	42.978	47.125	56.173	307.0	614.0
	99%	0.1572	73.138	64.467	50.518	53.157	49.010	307.0	614.0

Note: V/m= A/m *377

H-Filed Strength at 15 cm from the edges surrounding the EUT and 15 cm above the top surface

Phone location	Charging Battery Level	unit	Frequency Range (MHz)	Measured H-Field Strength Values (A/m) Test Position					H-Field Strength 50% Limits (A/m)	H-Field Strength Limits (A/m)
				A	B	C	D	E		
Vertical	1%	uT	0.1572	0.143	0.145	0.203	0.149	0.157	--	--
	1%	A/m	0.1572	0.114	0.116	0.162	0.119	0.126	0.815	1.63
	50%	uT	0.1572	0.156	0.144	0.162	0.158	0.144	--	--
	50%	A/m	0.1572	0.125	0.115	0.130	0.126	0.115	0.815	1.63
	99%	uT	0.1572	0.201	0.165	0.145	0.116	0.138	--	--
	99%	A/m	0.1572	0.161	0.132	0.116	0.093	0.110	0.815	1.63
horizontally	1%	uT	0.1572	0.168	0.153	0.169	0.157	0.164	--	--
	1%	A/m	0.1572	0.134	0.122	0.135	0.126	0.131	0.815	1.63
	50%	uT	0.1572	0.163	0.135	0.143	0.156	0.186	--	--
	50%	A/m	0.1572	0.130	0.108	0.114	0.125	0.149	0.815	1.63
	99%	uT	0.1572	0.243	0.214	0.168	0.176	0.162	--	--
	99%	A/m	0.1572	0.194	0.171	0.134	0.141	0.130	0.815	1.63

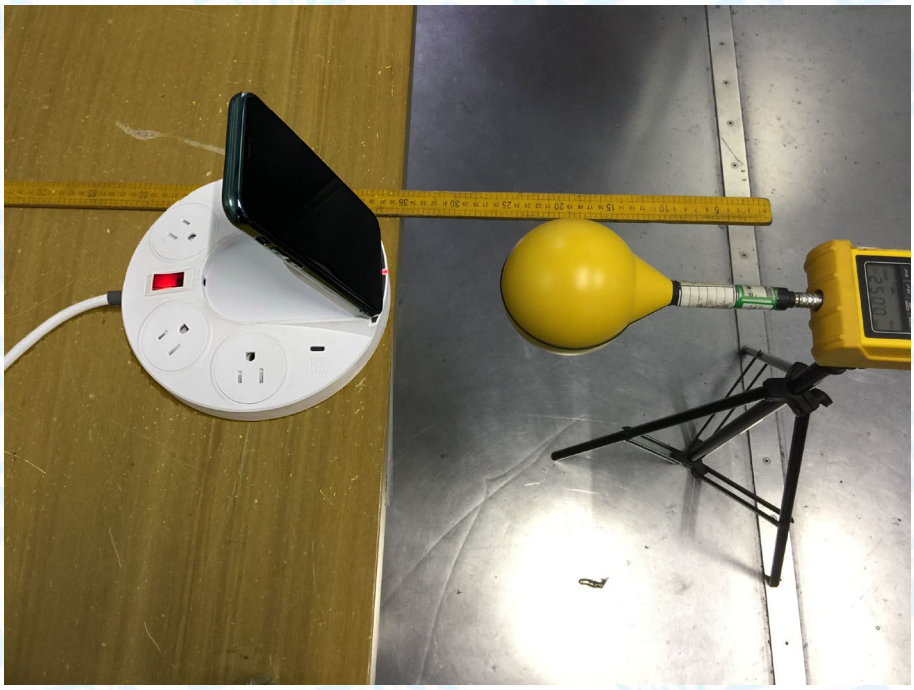
H-Field Strength at 20cm from the top surface of the EUT

Phone location	Charging Battery Level	Unit	Frequency Range (MHz)	Measured H-Field Strength Values (A/m) Test Position E	FCC H-Field Strength 50% Limits (A/m)	FCC H-Field Strength Limits (A/m)
vertical	1%	uT	0.1572	0.135	--	--
	1%	A/m	0.1572	0.108	0.815	1.63
	50%	uT	0.1572	0.124	--	--
	50%	A/m	0.1572	0.099	0.815	1.63
	99%	uT	0.1572	0.139	--	--
	99%	A/m	0.1572	0.111	0.815	1.63
horizontally	1%	uT	0.1572	0.089	--	--
	1%	A/m	0.1572	0.071	0.815	1.63
	50%	uT	0.1572	0.096	--	--
	50%	A/m	0.1572	0.077	0.815	1.63
	99%	uT	0.1572	0.107	--	--
	99%	A/m	0.1572	0.086	0.815	1.63

Note: A/m=uT/1.25

9. Test Set-up Photo

Test Set-up Photo



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