

RF Exposure Evaluation

FCC ID: 2AQLJYM-P20

1. Client Information

Applicant	:	Shenzhen Wintop Electronics Co.,Ltd.
Address	:	Huaguan Industrial Park, No.46 Xinhe Road, Baolai Industrial District, Shangmugu, Pinghu Town, Longgang District, Shenzhen, China
Manufacturer	:	Shenzhen Wintop Electronics Co.,Ltd.
Address	:	Huaguan Industrial Park, No.46 Xinhe Road, Baolai Industrial District, Shangmugu, Pinghu Town, Longgang District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Wireless Charger	
Models No.	:	YM-P20, YM-P10, YM-M10, YM-M20, YM-P25, YM-P30, YM-C10, YM-U10, YM-U20, YM-U30, YM-U40, POA01, WI-S1, WI-X1, WI-U1	
Model Difference	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is appearance.	
Product Description	:	Operation Frequency:	110KHz-150KHz
		Modulation Type:	MSK
		Antenna:	Coil Antenna
Power Supply	:	Input: 5V/2A, 9V/ 1.67A Output: 5V/1A, 9V/ 1.1A	
Charging Distance	:	≤8mm	
Software Version	:	YM_P20(004)V02	
Hardware Version	:	YM_P20(004)V02	
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.

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:

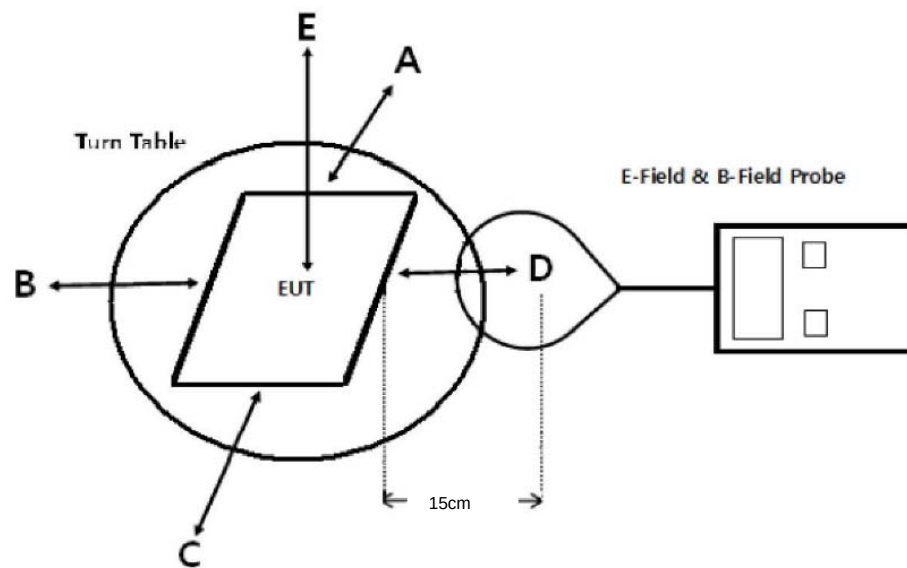
- (1) Power transfer frequency is less than 1 MHz.
- (2) Output power from each primary coil is less than or equal to 15 watts.
- (3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to 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. 28, 2017	Sep. 27, 2018

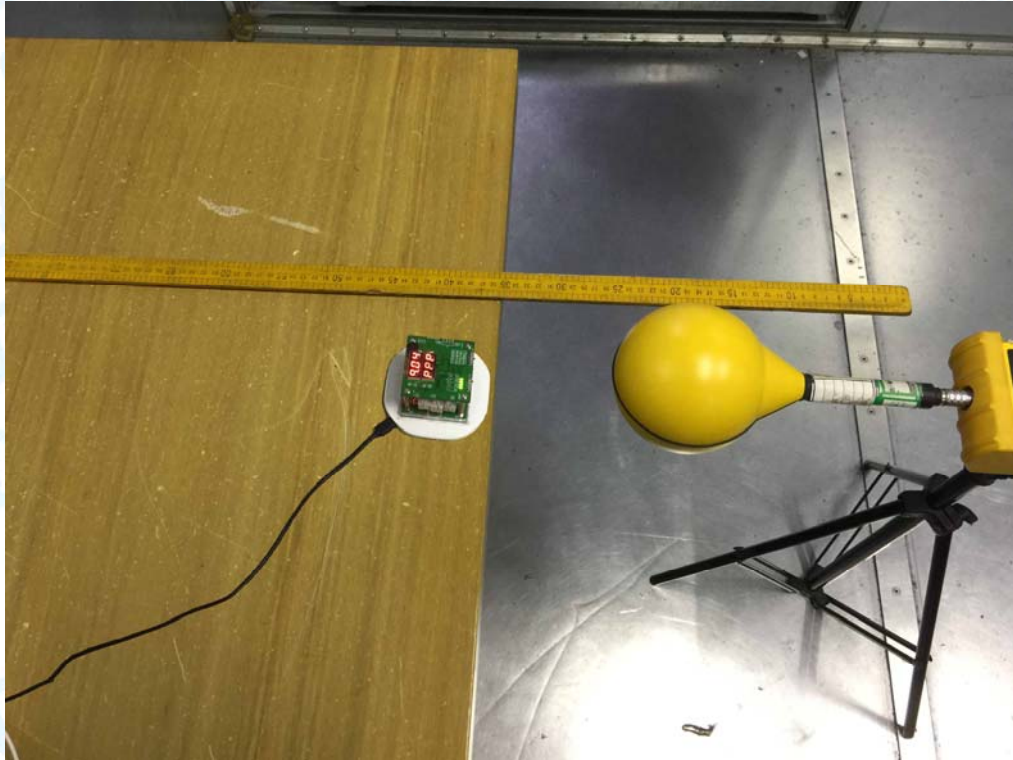
6. Test Result

Test Mode: Output 5V/1A							
E-Filed Strength							
Frequency Range (KHz)	Test Position	Test Distance (cm)	Calculated Value (A/m)	Calculated Value (V/m)	50% Limits Test (V/m)	Limits Test (V/m)	Result
110-205	A	15	0.114	42.695	307	614	PASS
	B	15	0.110	41.492			PASS
	C	15	0.102	38.486			PASS
	D	15	0.138	52.016			PASS
	E	20	0.134	50.212			PASS
H-Filed Strength							
Frequency Range (KHz)	Test Position	Test Distance (cm)	Measured Value (uT)	Calculated Value (A/m)	50% Limits Test (A/m)	Limits Test (A/m)	Result
110-205	A	15	0.142	0.114	0.815	1.63	PASS
	B	15	0.138	0.110			PASS
	C	15	0.128	0.102			PASS
	D	15	0.173	0.138			PASS
	E	20	0.167	0.134			PASS
Note: The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface. A/m=uT/1.25							

Test Mode: Output 9V/1.1A							
E-Filed Strength							
Frequency Range (KHz)	Test Position	Test Distance (cm)	Calculated Value (A/m)	Calculated Value (V/m)	50% Limits Test (V/m)	Limits Test (V/m)	Result
110-205	A	15	0.132	49.611	307	614	PASS
	B	15	0.134	50.212			PASS
	C	15	0.206	77.272			PASS
	D	15	0.190	71.559			PASS
	E	20	0.171	64.343			PASS
H-Filed Strength							
Frequency Range (KHz)	Test Position	Test Distance (cm)	Measured Value (uT)	Calculated Value (A/m)	50% Limits Test (A/m)	Limits Test (A/m)	Result
110-205	A	15	0.165	0.132	0.815	1.63	PASS
	B	15	0.167	0.134			PASS
	C	15	0.257	0.206			PASS
	D	15	0.238	0.190			PASS
	E	20	0.214	0.171			PASS
Note: The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface.							
$V/m=10^{((((dBuV/m)-120)/20)}=10^{((((dBuA/m+51.5)-120)/20)}=10^{((((20lg(A/m*10^6)+51.5)-120)/20)}$							
A/m=uT/1.25							

7. Test Set-up Photo

Test Set-up Photo



-----END OF REPORT-----