Product Name:	Alarm clock Wireless Charger
Product Model No.:	SY-W0513
Test Auxiliary:	AC/DC Adapter, Watch
Test Auxiliary Model No.:	HW-050450C00, Watch 3
Transmitting mode	Keep the EUT in continuously Alarm clock Wireless Charger mode
Power supply:	Input: 5V⎓3A, 9V⎓3A, 12V⎓2A Mobile phone Output : 15W/10W/7.5W/5W TWS Output :5W Watch wireless Output : 2.5W

Test Modes:	Description:
Mode 1	AC Adapter+EUT +phone (Battery Status ≤1%)
Mode 2	AC Adapter+EUT +phone (Battery Status =50%)
Mode 3	AC Adapter+EUT +phone (Battery Status ≥98%)
Mode 4	AC Adapter+EUT +Earphone(Battery Status ≤1%)
Mode 5	AC Adapter+EUT +Earphone (Battery Status =50%)
Mode 6	AC Adapter+EUT +Earphone (Battery Status ≥98%)
Mode 7	AC Adapter+EUT +Watch (Battery Status ≤1%)
Mode 8	AC Adapter+EUT +Watch (Battery Status =50%)
Mode 9	AC Adapter+EUT +Watch (Battery Status ≥98%)
Mode 10	AC Adapter+EUT +phone + Earphone +Watch (Battery Status ≤1%)
Mode 11	AC Adapter+EUT +phone + Earphone +Watch (Battery Status =50%)
Mode 12	AC Adapter+EUT +phone + Earphone +Watch (Battery Status ≥98%)

RF Exposure Evaluation

1 Measuring Standard

1.1 KDB 680106 RF Exposure Alarm clock Wireless Charger Apps v03r01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainly
1	H-filed	±0.93dB
2	E-filed	±0.51dB

2 Requirements

According to the item 5 of KDB 680106 v03r01:

Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation.

a) Power transfer frequency is less that 1 MHz

Yes.The device operates in the frequency 115KHz-350KHz

b) Output power from each primary coil is less than or equal to 15watts.

Yes,The maximum output power of the primary coil is 15W.

c) The transfer system includes onle 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 system consists of three main coils used to charge one or more clients. If there are multiple primary coils, these coils can be powered up simultaneously.

d) Client device is 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. The EUT does not have portable exposure conditions.

f) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

Yes. Meet the requirement.

Limits

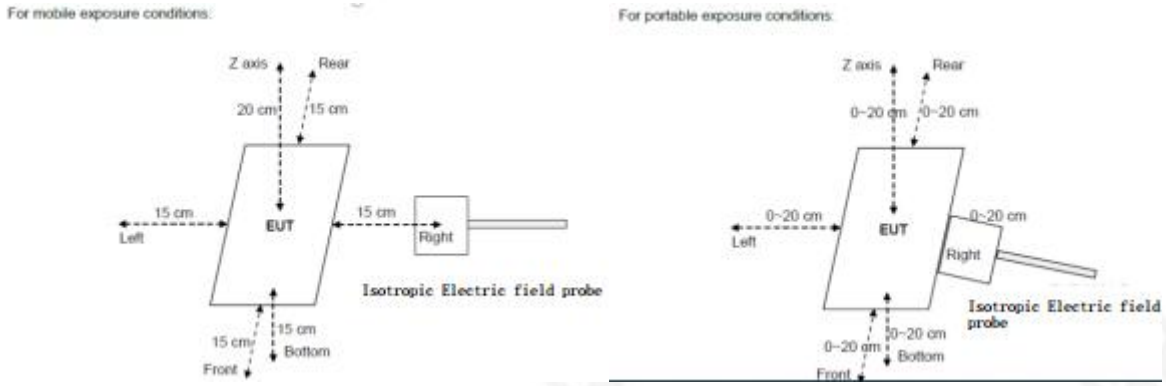
The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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: Measurements should be made from all sides and the top of the primary/client pair, with the 20 cm-0cm measured from the center of the top, and 20cm-0cm measured from the center of the rest

For mobile exposure conditions:

a. The RF exposure test was performed in anechoic chamber

b. E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the EUT and 20 cm above the top surface of the primarv/client pair

c. The highest emission level was recorded and compared with limit

d. The EUT was measured according to the dictates of KDB680106 v03r01

For portable exposure conditions:

a. The RF exposure test was performed in anechoic chamber

b. E and H-field measurements should be made with the probe at O cmfor all side of the EUT.

c. The highest emission level was recorded and compared with limit.

For portable exposure conditions:

Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cmstartino from as close as possible out to10cm

4 Test Procedure

1) The RF exposure test was performed on 360 degree turn table in anechoic chamber.
2) 20 cm-0cm measured from the center of the top, and 20cm-0cm measured from the center of the rest sides.
3) The turn table was rotated 360d degree to search of highest strength.
4) The highest emission level was recorded and compared with limit as soon as measurement of each points were completed.
5) The EUT were measured according to the dictates of KDB 680106-v03

5 Test Instruments list

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Electromagnet-ic radiation tester	WAVECONTROL	SMP 160	19SN0980	Oct. 17 2022	Oct. 16 2023
Electromagnet-ic radiation probe	WAVECONTROL	WP400-3	20WP120082	Oct. 17 2022	Oct. 16 2023

6 Test Result

Mobile Phone Coil

H-Filed Strength at 15 cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	50% Limits (A/m)	Limits (A/m)
0.115-0.205	0.49	0.50	0.48	0.52	0.815	1.63

H-Filed Strength at 15 cm from the edges surrounding the EUT (uT)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D
0.115-0.205	0.61	0.63	0.60	0.65

H-Filed Strength at 20 cm from the top of the EUT (A/m)

Frequency Range (MHz)	Test Position E	50% Limits (A/m)	Limits (A/m)
0.115-0.205	0.51	0.815	1.63

H-Filed Strength at 20 cm from the top of the EUT (uT)

Frequency Range (MHz)	Test Position E
0.115-0.205	0.64

Three states of full load half-load were tested and only the worst value was recorded

Mobile Earphone Coil

H-Filed Strength at 15 cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	50% Limits (A/m)	Limits (A/m)
0.115-0.350	0.54	0.52	0.53	0.55	0.815	1.63

H-Filed Strength at 15 cm from the edges surrounding the EUT (uT)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D
0.115-0.350	0.68	0.65	0.66	0.69

H-Filed Strength at 20 cm from the top of the EUT (A/m)

Frequency Range (MHz)	Test Position E	50% Limits (A/m)	Limits (A/m)
0.115-0.350	0.54	0.815	1.63

H-Filed Strength at 20 cm from the top of the EUT (uT)

Frequency Range (MHz)	Test Position E
0.115-0.350	0.68

Remark: A/m = uT/1.25

Three states of full load half-load were tested and only the worst value was recorded

Mobile Watch Coil

H-Filed Strength at 15 cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	50% Limits (A/m)	Limits (A/m)
0.115-0.350	0.54	0.48	0.49	0.54	0.815	1.63

H-Filed Strength at 15 cm from the edges surrounding the EUT (uT)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D
0.115-0.350	0.67	0.60	0.61	0.68

H-Filed Strength at 20 cm from the top of the EUT (A/m)

Frequency Range (MHz)	Test Position E	50% Limits (A/m)	Limits (A/m)
0.115-0.350	0.50	0.815	1.63

H-Filed Strength at 20 cm from the top of the EUT (uT)

Frequency Range (MHz)	Test Position E
0.115-0.350	0.62

Remark: A/m = uT/1.25

Three states of full load half-load were tested and only the worst value was recorded

Mobile Phone Coil+Earphone Coil+Watch Coil

H-Filed Strength at 15 cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	50% Limits (A/m)	Limits (A/m)
0.115-0.350	0.71	0.71	0.72	0.70	0.815	1.63

H-Filed Strength at 15 cm from the edges surrounding the EUT (uT)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D
0.115-0.350	0.89	0.89	0.90	0.87

H-Filed Strength at 20 cm from the top of the EUT (A/m)

Frequency Range (MHz)	Test Position E	50% Limits (A/m)	Limits (A/m)
0.115-0.350	0.70	0.815	1.63

H-Filed Strength at 20 cm from the top of the EUT (uT)

Frequency Range (MHz)	Test Position E
0.115-0.350	0.87

Remark: A/m = uT/1.25

Three states of full load half-load were tested and only the worst value was recorded

6 Test Set-up Photo