



RF Exposure Evaluation

FCC ID: 2A9V7-HY08

1 General Information

Product Name:	3 IN 1 Wireless charger
Product Model No.:	HY08
Test Auxiliary:	iPhone 12 pro, Smart earphone, Adapter
Model No.:	N/A
Transmitting mode	Keep the EUT in continuously wireless charging mode
Power supply:	Input: DC 5V/2A, 9V/3A Wireless Output: transmitter 1(PHONE): 5W/7.5W/10W/15W transmitter 2(Earphone): 3W
Test description:	Phone Battery>98%, =50%and <1% are tested, and the worst is <1%.

Test Auxiliary					
A1	Adapter	XIAOMI	/	/	Auxiliary
A2	Earphone	HUAWEI	/	/	Auxiliary
A3	iPhone 12 pro	Apple	/	/	Auxiliary
A4	Apple Watch	Apple	/	/	Auxiliary
Transmitting mode		Keep the EUT in continuously wireless charging mode			

2 Test Modes

Test Modes		
Mode 1	Wireless Output(5W)	Record
Mode 2	Wireless Output(7.5W)	Record
Mode 3	Wireless Output(10W)	Record
Mode 4	Wireless Output(15W)	Record
Mode 5	Earphone(3W)	Record
Mode 6	Watch(2.5W)	Record
Mode 7	Wireless Output(5W)+Earphone(3W)	Record
Mode 8	Wireless Output(5W)+Watch(2.5W)	Record
Mode 9	Wireless Output(7.5W)+Earphone(3W)	Record
Mode 10	Wireless Output(7.5W)+Watch(2.5W)	Record
Mode 11	Wireless Output(10W)+Earphone(3W)	Record
Mode 12	Wireless Output(10W)+Watch(2.5W)	Record
Mode 13	Wireless Output(15W)+Earphone(3W)	Record
Mode 14	Wireless Output(15W)+Watch(2.5W)	Record
Mode 15	Earphone(3W)+Watch(2.5W)	Record
Mode 16	Wireless Output(15W)+ Earphone(3W)+Watch(2.5W)	Record

Note: all modes of the equipment have been evaluated and tested, and the report only reflects the data of the worst mode.



3 Measuring Standard

KDB 680106 RF Exposure Wireless Charging Apps v03r01

4 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.



- (1) Power transfer frequency is less than 1MHz.
- (2) Output power from each primary coil is less than or equal to 15 watts.
- (3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
- (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 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.

Remark: Meet all the above requirements.

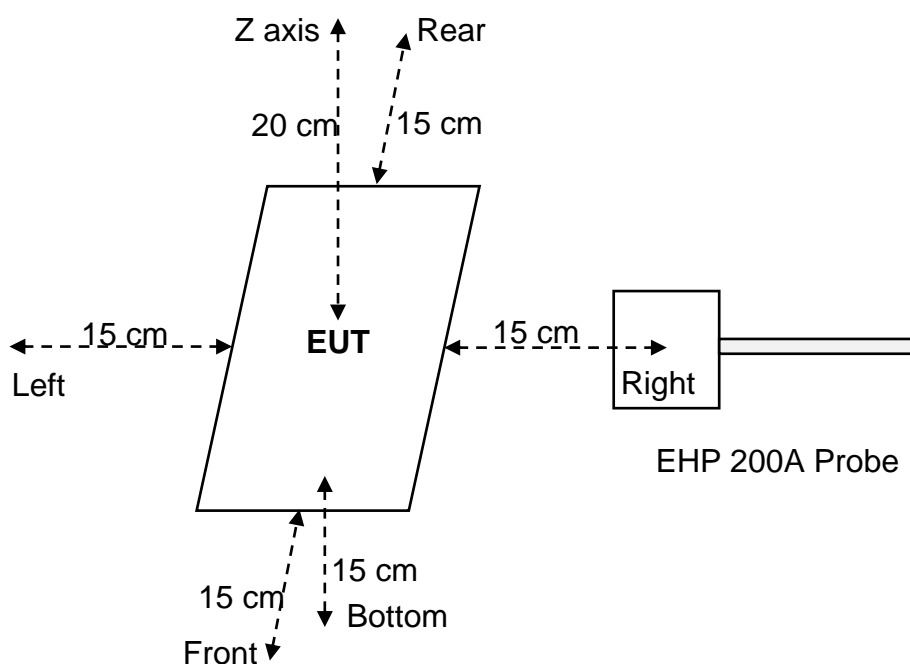
Limits

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).				

5 Test Setup



6 Test Procedure

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

These measurements should be repeated for three different client battery levels, 1%, 50%, and 99%.

Record the test results.

KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01:

- (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 system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
- (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 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.

Note: The device is in compliance with KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01 6 conditions.

7 Test Instruments list

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Exposure Level Tester	Narda	ELT-400	N-0231	June. 26 2022	June. 25 2023
Magnetic field probe 100cm ²	Narda	ELT probe 100cm ²	M0675	June. 26 2022	June. 25 2023
Isotropic Electric field probe	Narda	EP-601	611WX70332	June. 26 2022	June. 25 2023



8 Test Result

Test condition 1: Mode 13 operating mode with client device (1 % battery status of client device)

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<1%	Top	20	2.6613	0.0489
<1%	Bottom	15	1.6385	0.0811
<1%	Left	15	4.1253	0.0504
<1%	Right	15	5.0873	0.0489
<1%	Front	15	4.3467	0.0470
<1%	Back	15	1.7802	0.0470
Limit			614	1.63
Margin Limit (%)			0.83%	4.98%

Test condition 2: Mode 13 operating mode with client device (50% battery status of client device)

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<50%	Top	20	2.6645	0.0521
<50%	Bottom	15	1.6315	0.0778
<50%	Left	15	4.1452	0.0502
<50%	Right	15	5.1254	0.0487
<50%	Front	15	4.3214	0.0488
<50%	Back	15	1.8502	0.0469
Limit			614	1.63
Margin Limit (%)			0.83%	4.77%

Test condition 3: Mode 13 operating mode with client device (99% battery status of client device)

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<99%	Top	20	2.5202	0.0502
<99%	Bottom	15	1.5423	0.0725
<99%	Left	15	4.1452	0.0452
<99%	Right	15	5.0247	0.0445
<99%	Front	15	4.2104	0.0485
<99%	Back	15	1.8324	0.0472
Limit			614	1.63
Margin Limit (%)			0.82%	3.08%



9 Test Set-up Photo

Reference to the appendix III for details.