RF Exposure Evaluation

FCC ID: 2A33J-BY213C021

Product:	Wireless charging socket
Trade Mark:	N/A
Model No.:	BY213-C021
Model Difference:	N/A
Transmitting mode	Keep the EUT in continuously wireless charging mode
Power supply:	Input: 100-250VAC 50/60Hz TYPE-C output: DC 5V/2.0A USB output: DC 5V/2A Wireless charging output: 5W/7.5W/10W/15W MAX.
Date of Receipt:	May. 08, 2025
Test Date:	May. 08, 2025 - May. 22, 2025
Date of Report:	May. 22, 2025

Mode1. Wireless Phone Output Mode(5W) Mode2. Wireless Phone Output Mode(7.5W)
Mode3. Wireless Phone Output Mode(10W) Mode4. Wireless Phone Output Mode(15W)
Note: 1. We have evaluated 1%, 50% and 99% battery charging mode, and the worst mode (99%) is showed in this report.
2. All modes have been tested, and the report only shows the results of the worst mode4.

1 Measuring Standard

According to Part 2.1091 RF exposure is calculated. According KDB 680106 D01 WirelessPower Transfer v04.

2 Requirements

①According to the item 5 of KDB 680106 v04:

②Inductive 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.	Yes; the device operate in the frequency range from 115 KHz to 205 KHz
(2) Output power from each primary coil is less than or equal to 15 watts.	Yes; the maximum output power of the primary coil is 15W.
(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.	Yes; the transfer system includes only one primary coils.
(4) Client device is placed directly in contact with the transmitter.	Yes; Client device is placed directly in contact with the transmitter.
(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes, mobile exposure conditions only.
(6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away	Yes, see test result in item 9.

3 Limits

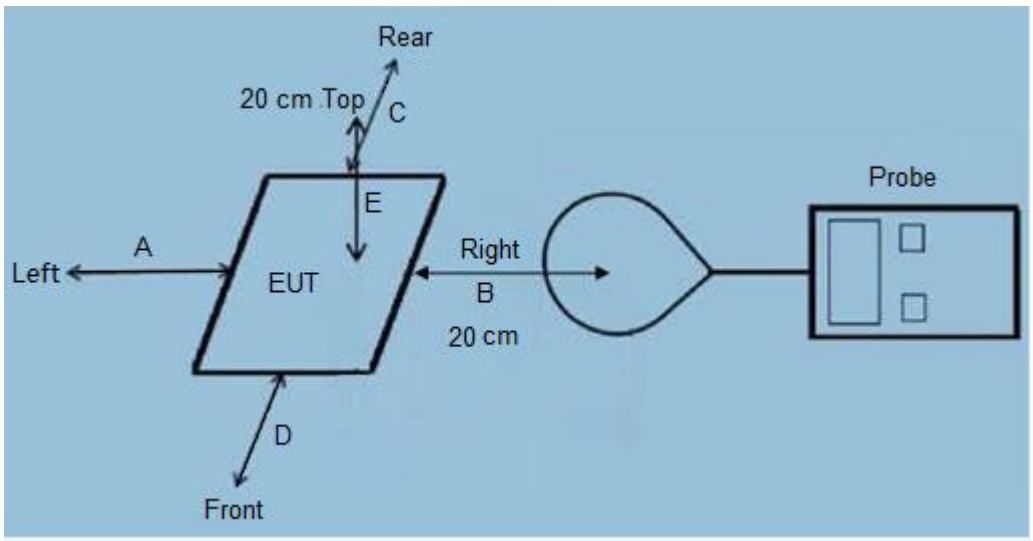
The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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).

4 Test Setup



5 Test Procedure

1) The RF exposure test was performed in anechoic chamber.

2) The measurement probe was placed at test distance (20 cm from all sides and 20 cm from the top) which is between the edge of the charger and the geometric center of probe.

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 v04.

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

6 Description of Support Units

Mobile phone (Provide by test lab): Manufacturer: SAMSUNG Model: Galaxy S21 5G	

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. 25 2024	June. 26 2025
Magnetic field probe 100cm^2	Narda	ELT probe 100cm^2	M0675	June. 25 2024	June. 26 2025
Field Probe	ETS	HI-6105	/	June. 25 2024	June. 26 2025
Laser Data Interface	ETS	HI-6113	/	June. 25 2024	June. 26 2025

8 Test Uncertainty

E-Filed Strength(1Hz-400kHz) : ±0.08V/m

H-Filed Strength(1Hz-400kHz) : ±0.02A/m

uT : ±0.01

Note: The field intensity value A/m in the report is converted from uT, and the formula is as follows:

uT to A/m $A/m = \frac{\mu T}{1.25}$

9 Test Result

E-Filed Strength at 20 cm from the edges surrounding the EUT (V/m)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Limits (V/m)

0.115-0.205	0.13	0.15	0.16	0.14	614

E-Filed Strength at 20 cm from the top of the EUT (V/m)

Frequency Range (MHz)	Test Position E	Limits (V/m)
0.115-0.205	0.13	614

H-Filed Strength at 20 cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D
0.115-0.205(uT)	0.535	0.612	0.636	0.611

Frequency Range (MHz)	Test Position A	Test Position B	Test Position C	Test Position D	Limits (A/m)
0.115-0.205	0.428	0.490	0.509	0.489	1.63

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

Frequency Range (MHz)	Test Position E
0.115-0.205(uT)	0.625

Frequency Range (MHz)	Test Position E	Limits (A/m)
0.115-0.205	0.500	1.63

10 Test Set-up Photo