



FCC ID:2BAWT-F16

Product Name:	3-in-1 Car Wireless Charging
Product Model No.:	F16, F16S
Model Difference:	F16 is tested model, other models are derivative models .The models are identical in circuit, only different on the model names. So the test data of F16 can represent the remaining models.
Test Auxiliary:	Smartphone and Power adapter
Transmitting mode:	Keep the EUT in continuously wireless charging mode
Power supply:	Input: 9 V $\overline{\text{---}}$ 2.5 A Output1: 15W Max (Wireless phone) Output2: 5W Max (TWS) Output3: 2.5W Max (Watch)

Test Modes:	
Mode 1	AC Adapter+Wireless charging mode (Wireless phone: 15W)
Mode 2	AC Adapter+Wireless charging mode (Wireless phone: 10W)
Mode 3	AC Adapter+Wireless charging mode (Wireless phone: 5W)
Mode 4	AC Adapter+Wireless charging mode (TWS: 5W)
Mode 5	AC Adapter+Wireless charging mode (Watch: 2.5W)
Mode 6	AC Adapter+Wireless phone (15W)+Watch (2.5W)
Mode 7	AC Adapter+Wireless phone (15W)+TWS (5W)
Mode 8	AC Adapter+Wireless phone (15W)+TWS (5W)+Watch (2.5W)
Note: All full load, half load, and no-load tests have been conducted in each mode, only the worst-case was recorded in the report. Mode 8 full load is the worst mode.	

Auxiliary equipment					
Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Adapter	HUAWEI	HW-059200CHQ	/	AE
E-2	Wireless charging load	/	EESON	/	AE
E-3	Wired headset	Hege Technology Co.,Ltd	EA125	Wired headset	AE
E-4	Smart watch	Hege Technology Co.,Ltd	SW506	AE	AE



1 Measuring Standard

KDB 680106 D01 Wireless Power Transfer v04

2 Requirements

According to the item 5 of KDB 680106 D01 v04:

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

(1) The power transfer frequency is below 1 MHz.

The EUT frequency range is:

Wireless phone: 110.2-205KHz

TWS: 110.2-205KHz

Watch: 110.2-350KHz

(2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.

The output power is equal to 15W, Only three coil.

(3) A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact)

EUT can be directly charged.

(4) Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).

EUT is a mobile device

(5) The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a 1/d (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.

Yes, the EUT field strength levels are less 50% x MPE limit.

(6) For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.

Yes, EUT has only three coil.

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)



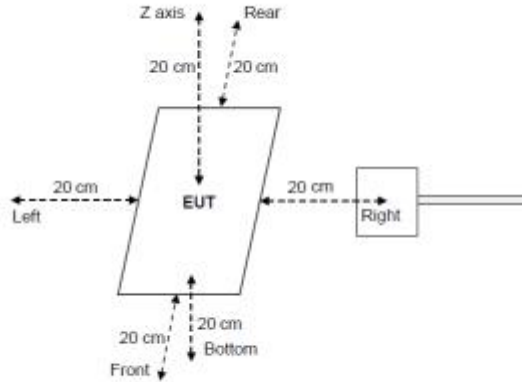
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	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

For mobile exposure conditions:



4 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 D01 v04.

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

5 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded 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	Uncertainty
1	H-field	$\pm 0.7\text{dB}$
2	E-field	$\pm 1.06\text{dB}$

Decision Rule

- Uncertainty is not included
- Uncertainty is included



6 Test Instruments list

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Magnetic Amplitude and Gradient Probe System	SPEAG	MAGPy-8H3D+E3D V2& MAGPy-DAS V2	SZ186-06& 3061	Feb. 26, 2024	Feb. 25, 2025

7 Test Result

We have evaluated mode 1 to mode 8 and the worst mode 8 is showed in this report.

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	Test Position E	50%Limits (V/m)	Limits (V/m)	test result
0.1102-0.350	0.44	0.48	0.51	0.48	0.20	307	614	PASS

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	Test Position E	50%Limits (V/m)	Limits (A/m)	test result
0.1102-0.350	0.16	0.13	0.55	0.45	0.67	0.815	1.63	PASS



7. Test Photo

