



RF Exposure Evaluation

1 Measuring Standard

KDB 680106 D01 RF Exposure Wireless Charging Apps v03 r01

2 Requirements

According to the item 5 of KDB 680106 D01v03 r01:

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 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.

Remark: Meet all the above requirements.

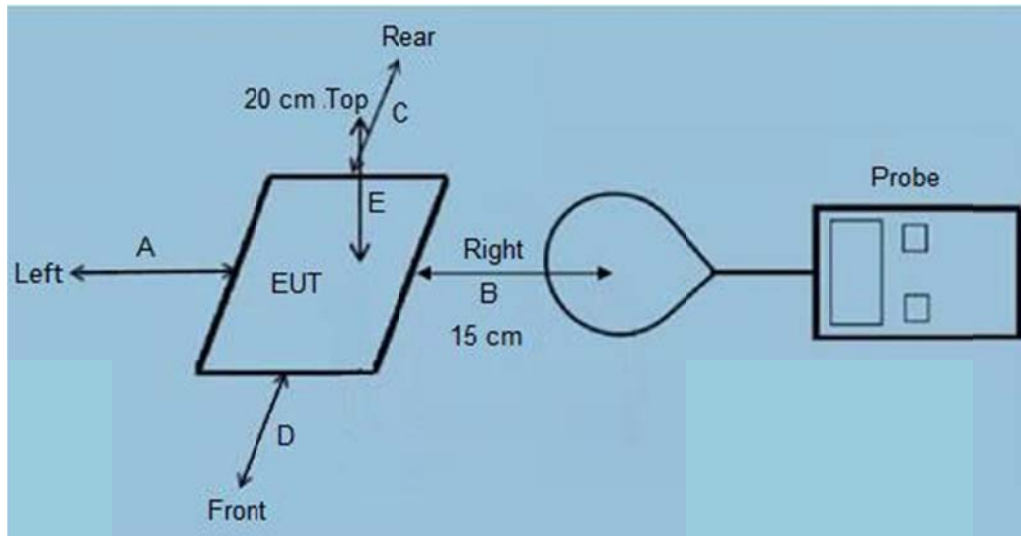
Limits

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 | 514 | 1.63 | *(100) | 6 |
| 3.0-30 | 1342/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 | 514 | 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: 514V/m, 1.63A/m). | | | | |

3 Test Setup



4 Test Procedure

- 1) The RF exposure test was performed in an anechoic chamber.
- 2) The measurement probe was placed at test distance (15 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 KDB680106D01v03 r01.

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



5 Test Instruments list

| Test Equipment | Manufacturer | Model No. | SN. | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
|----------------|--------------|---------------|--------|----------------------|--------------------------|
| EMF Meter | NARDA | ELT-400 | N-0356 | Oct08, 2022 | Oct07, 2023 |
| EMF probe | NARDA | B-Field Probe | M-0812 | Oct08, 2022 | Oct07, 2023 |

6 Test Result

Note: Frequency Range 0.1115-0.205 (MHz); <5% load energy, 50 % load energy, > 90% load energy mode

all have been tested, Only worse case Max load mode (<5% load energy) is reported.

E-Filed Strength at 15cm from the edgessurrounding the EUT (V/m)

| Frequency Range (MHz) | Test Position A | Test Position B | Test Position C | Test Position D | Limits (V/m) |
|-----------------------|-----------------|-----------------|-----------------|-----------------|--------------|
| 0.1115-0.205 | 1.93 | 1.88 | 1.83 | 1.81 | 614 |

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

| Frequency Range (MHz) | Test Position E | Limits (V/m) |
|-----------------------|-----------------|--------------|
| 0.1115-0.205 | 1.71 | 614 |

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

| Frequency Range (MHz) | Test Position A | Test Position B | Test Position C | Test Position D | Limits (A/m) |
|-----------------------|-----------------|-----------------|-----------------|-----------------|--------------|
| 0.1115-0.205 | 0.58 | 0.56 | 0.49 | 0.47 | 1.63 |

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

| Frequency Range (MHz) | Test Position E | Limits (A/m) |
|-----------------------|-----------------|--------------|
| 0.1115-0.205 | 0.45 | 1.63 |

Simultaneous: (BLE+ WPC) = 0.0028+0.58/1.63=0.359
 (WIFI+WPC)= 0.0960+0.58/1.63=0.452

Conclusion: For the max result: 0.452 < 1.0, the product comply with the FCC RF exposure requirement. .

The report refers only to the sample tested and does not apply to the bulk.
 This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced in its entirety or in part and it may not be used for advertising. The client to whom the report is issued may, however, show or send it, or a certified copy thereof prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES, to his customer, supplier or other persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.
 In the event of the improper use of the report, the SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



7.0 TestSetup Photo



6. Measurement Uncertainty

| Item | Uncertainty |
|-------------------------|-------------|
| Uncertainty for H-Field | 2.53dB |
| Uncertainty for E-Field | 2.61dB |

(95% confidence levels, k=2)

Test Data: May 30, 2023
Review Data: May 30, 2023

TestEngineer: Andy Xing

Reviewer: Terry Tang

The report refers only to the sample tested and does not apply to the bulk.
This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced in its entirety or in part and it may not be used for advertising. The client to whom the report is issued may, however, show or send it, or a certified copy thereof prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES, to his customer, supplier or other persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.
In the event of the improper use of the report, the SHENZHEN TIMEWAY TESTING LABORATORIES reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.