# FCC WPT Compliance Test Report

For

**INFINIX MOBILITY LIMITED**

**FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG**

**Model: X6856**

| | |
|---|---|
| Test Engineer: | Zeng Longhao |
| Report Number: | WSCT-ANAB-R&E241200075A-SAR |
| Report Date: | 06 January 2025 |
| FCC ID: | 2AIZN-X6856 |
| Check By: | Jiang Xuling |
| Approved By: | Li Huaibi |
| Prepared By: | World Standardization Certification & Testing Group (Shenzhen) Co., Ltd.<br>Building A-B,Baoli'an Industrial Park,No.58 and 60,Tangtou Avenue, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, China<br>Tel: +86-755-26996192<br>Fax: +86-755-86376605 |

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**Modified History**

| REV. | Modification Description | Issued Date | Remark |
|---|---|---|---|
| REV.1.0 | Initial Test Report Relesse | 06 January 2025 | Li Huaibi |
| | | | |

# 1 General information

## 1.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report. Shenzhen Timeway Testing Laboratories does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report is not to be reproduced or published in full without the prior written permission.

## 1.2 Application details

Date of receipt of test item: 2024-11-08
Start of test: 2025-01-02
End of test: 2025-01-06

## 1.3 EUT Information

| Device Information： | |
|---|---|
| **Product Type:** | Mobile Phone |
| **Model:** | X6856 |
| **Trade Name:** | Infinix |
| **Device Type:** | Portable device |
| **Exposure Category:** | uncontrolled environment / general population |
| **Software version :** | X6856-15.0.1 |
| **Hardware version:** | V1.2 |
| **Power Source:** | Adapter: U900XSA<br>Input: 100-240V~50/60Hz 0.6A<br>Output: 5.0V⎓2.4A or 7.5V⎓2.4A 18.0W MAX<br>Rechargeable Li-ion Polymer Battery Model: BL-5ABX<br>Rated Voltage: 3.86V<br>Rated Capacity: 4900mAh/18.97Wh<br>Typical Capacity: 5000mAh/19.35Wh<br>Limited Charge Voltage: 4.45V |

| Antenna Type | Operation Frequency | Wireless Output | Maximum Coil operating current | Modulation Type |
|---|---|---|---|---|
| Coil | 115-148 kHz | 4Watts | 4A | ASK&FSK |

EUT Methods for Complying with Section §15.203

☒Permanently attached antenna

☐Antennas using unique coupling with intentional radiators

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## 2 Testing laboratory

| Test Site | World Standardization Certification & Testing Group (Shenzhen) Co., Ltd. |
|---|---|
| Laboratory A: | Building A-B,Baoli'an Industrial Park,No.58 and 60,Tangtou Avenue, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, China |
| Laboratory B: | Building J-7F and Building D, Dongjiang Science & Technology Park, Tangjia Community, Fenghuang Street, Guangming District, Shenzhen City, Guangdong Province, China |

## 3 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

| | | |
|---|---|---|
| **CBTL** | IECEE(international Electrotechnical Commiss,The certificate registration number is TL672) | Laboratory A ☐<br>Laboratory B ☐ |
| **China** | CNAS (The certificated registration number: L3732) | Laboratory A ☐<br>Laboratory B ☐ |
| **USA** | A2LA (The certificated registration number: 5768.01) | Laboratory A ☐<br>Laboratory B ☐ |
| **USA** | ANAB (The certificated registration number:AT-3951) | Laboratory A ☒<br>Laboratory B ☐ |

Copies of granted accreditation certificates are available for downloading from our web site, http://www.wsct-cert.com

## 4 Test Environment

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

| Parameter | Measurement Uncertainty |
|---|---|
| Temperature | ±1℃ |
| Humidity | ±5% |
| H-field | 2.11dB |
| E-field | 2.18dB |

## 5 Applicant and Manufacturer

| | |
|---|---|
| **Applicant/Client Name:** | **INFINIX MOBILITY LIMITED** |
| **Applicant Address:** | FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG |
| **Manufacturer Name:** | **INFINIX MOBILITY LIMITED** |
| **Manufacturer Address:** | FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG |

## 6 Test standard/s:

| No. | Identity | Document Title |
|---|---|---|
| 1 | 47 CFR Part 2.1093 | Radiofrequency radiation exposure evaluation: portable devices |
| 2 | 47 CFR Part 1.1310 | Maximum Permissible Exposure (MPE) |
| 3 | 47 CFR Part 15 Subpart C | Radio Frequency Devices:Intentional Radiators |
| 4 | KDB 680106 D01 V04 | Equipment authorization of wireless power transfer devices |

## 6.1 RF exposure limits

Pursuant to §1.1310, systems operating under the provisions of this section shall be operated in a manner that in such a manner as to ensure that the public is not exposed to radio frequency energy levels in excess of the Commission guidelines

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| (i) Limits for Occupational/Controlled Exposure | | | | |
| 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 |
| 300-1,500 | | | f/300 | <6 |
| 1,500-100,000 | | | 5 | <6 |
| (ii) 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 |
| 300-1,500 | | | f/1500 | <30 |
| 1,500-100,000 | | | 1.0 | <30 |

f = frequency in MHz. * = Plane-wave equivalent power density

According to KDB 680106 D01 V04 clause 3.2

Accordingly, for § 2.1091-Mobile devices, the MPE limits between 100 kHz to 300 kHz are to be considered the same as those at 300 kHz in Table 1 of § 1.1310, that is, 614 V/m and 1.63 A/m, for the electric field and magnetic field, respectively. For § 2.1093-Portable devices below 4 MHz and down to 100 kHz, the MPE limits in § 1.1310 (with the 300 kHz limit applicable all the way down to 100 kHz) can be used for the purpose of equipment authorization in lieu of SAR evaluations.

## 6.2 Compliancy

There might be situations where the WPT RF emissions are limited enough that even operations in a "crowded" environment, where many similar WPT devices are present, do not pose significant EMC and RF exposure concerns. In this scenario, and for devices operating within a one-meter distance from the receiver, as defined above, a manufacturer will not have to submit an "Equipment Compliance Review" KDB, and receive FCC concurrence before proceeding with equipment authorization. This exception to the requirement of submitting the ECR to obtain FCC concurrence only applies when all the following criteria
through (6) are met:

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

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

(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)

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

(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.

(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.

# 7 Measurement System

## 7.1 MAGPy Probe Information

The full MAGPy-8H3D+E3D V2 probe consists of eight isotropic H-field subprobes and one isotropic E-field subprobe that are all integrated inside the probe head with a flat tip. Each isotropic H-field subprobe comprises three concentric orthogonal loop coil sensors. The isotropic E-field subprobe is composed of three orthogonal sensors (x and y sensors are dipoles and the sensor measuring the z component is a monopole). In total, the MAGPy-8H3D+E3D V2 probe is thus composed of nine subprobes and 27 single sensors that measure in the time-domain. The flat-tip probe design brings the sensors closer to the tip (e.g., the closest H-field sensors are now 7.5mm from the tip). The probe specifications are provided in Table 2.1.

| Parameter | Specs |
|---|---|
| PROBE DESIGN | |
| Diameter | 60 mm |
| 8 isotropic $H$-field sensors | concentric loops of 1 $cm^2$ arranged at the corner of a cube of 22 mm side length |
| 1 isotropic $E$-field sensor | orthogonal dipole/monopole (arm length: 50 mm) |
| Measurement center | 18.5 mm from the probe tip |
| Temperature range | 0–40 °C |
| Dimensions | 110 × 635 × 35 mm (MAGPy-8H3D+E3D V2 & MAGPy-DAS V2) |
| $H$-FIELD SPECIFICATION | |
| Frequency range | 3 kHz–10 MHz |
| Measurement range | 0.1–3200 A/m, 0.12 µT–4 mT |
| Gradient range | 0–80 T/m/T |
| $E$-FIELD SPECIFICATION | |
| Frequency range | 3 kHz–10 MHz |
| Measurement range | 0.08–2000 V/m |

Table 2.1: MAGPy-8H3D+E3D V2 probe specifications

The following figure shows the system.

## 7.2 Measurement procedure

Place the EUT on the test bench to stimulate the wireless charging mode, manually adjust the initial position of the probe to the highest center point of the EUT horizontal plane, the distance between a piece of A4 paper, set up the parameters in the WPT software to test

According to KDB 680106, since the measurement distance from the center of the probe to the tip of the probe is 1.85 cm, the minimum measurement distance is 1.85 cm; to obtain the H-field and E-field at 0 cm, perform the following steps.

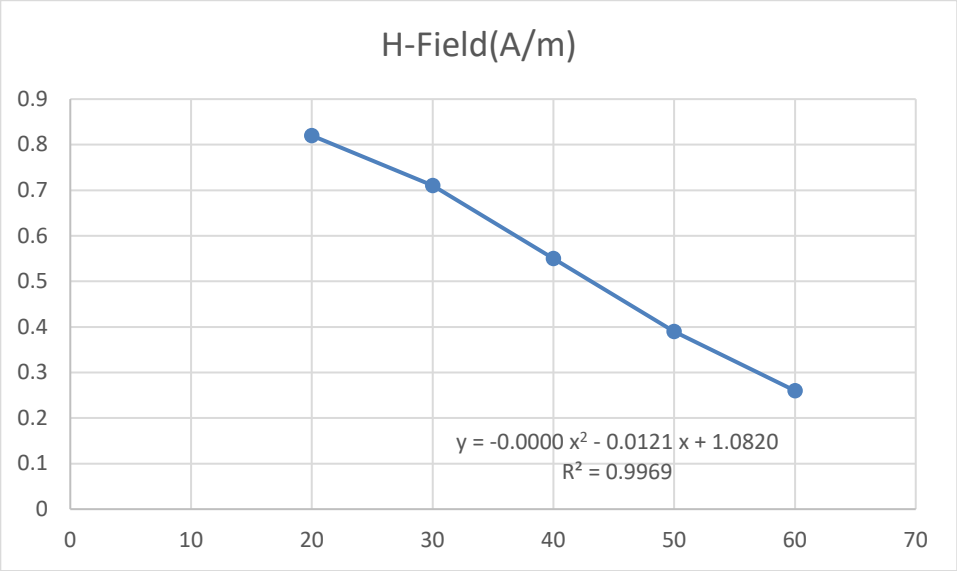
1) Measure the H-field and E-field at 2~6cm from the surface of the EUT along all major axes relative to the surface of the EUT; the test spacing is 1cm. For the backside of the EUT, measurements were taken at a distance of 3 to 7 cm because the wireless charging load has a certain thickness and needs to be fitted to derive the most conservative values.
2) Record the highest emission level.
3) Based on the measured data, fit a curve using the measured distance as the horizontal coordinate, and fit the curve using the measured H-field or E-field as the vertical coordinate.
4) The fitted curve needs to be verified by probe measurements of the two points closest to the surface of the equipment; the difference must be less than 30%.
5) Estimate the H-field or E-field at 0 cm from the fitted curve and compare it with the limit values.

## 8 Test results

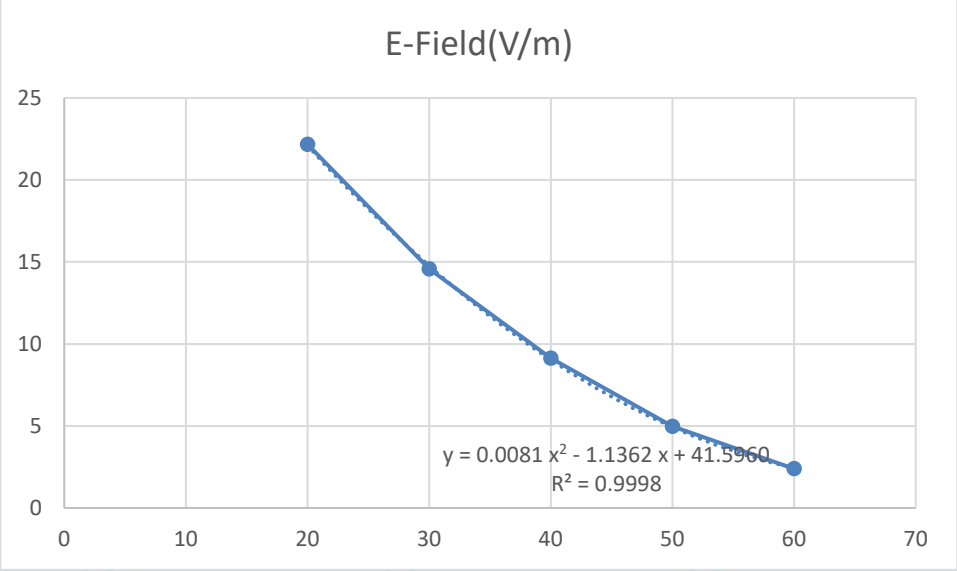
| Measuring Position | Test Frequency(kHz) | |
|---|---|---|
| Front side | 122 | |
| Measuring Distance (mm) | H-Field(A/m) | E-Field(V/m) |
| 20 | 0.82 | 22.17 |
| 30 | 0.71 | 14.58 |
| 40 | 0.55 | 9.14 |
| 50 | 0.39 | 4.98 |
| 60 | 0.26 | 2.39 |

curve fitting diagram:

Ⅰ) Front side H-Field(A/m):



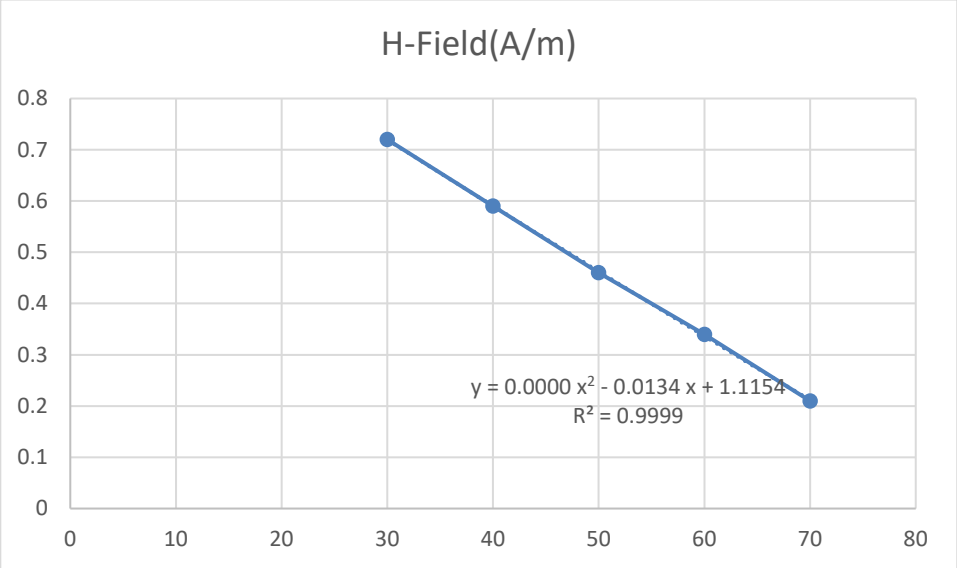

Ⅱ) Front side E-Field(V/m):



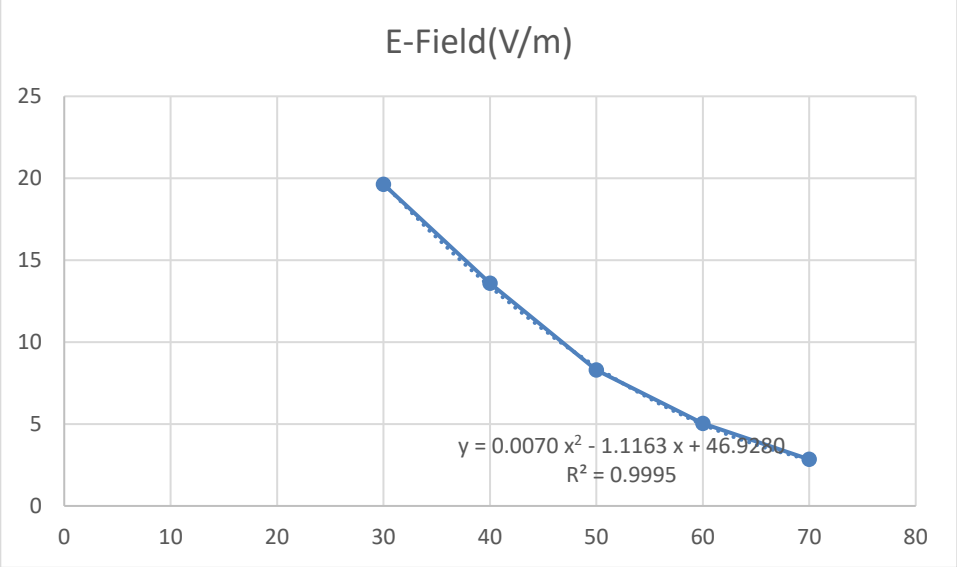
| Measuring Position | Test Frequency(kHz) | |
|---|---|---|
| Rear side | 122 | |
| Measuring Distance (mm) | H-Field(A/m) | E-Field(V/m) |
| 30 | 0.72 | 19.63 |
| 40 | 0.59 | 13.59 |
| 50 | 0.46 | 8.29 |
| 60 | 0.34 | 5.04 |
| 70 | 0.21 | 2.84 |

curve fitting diagram:

Ⅰ) Rear side H-Field(A/m):



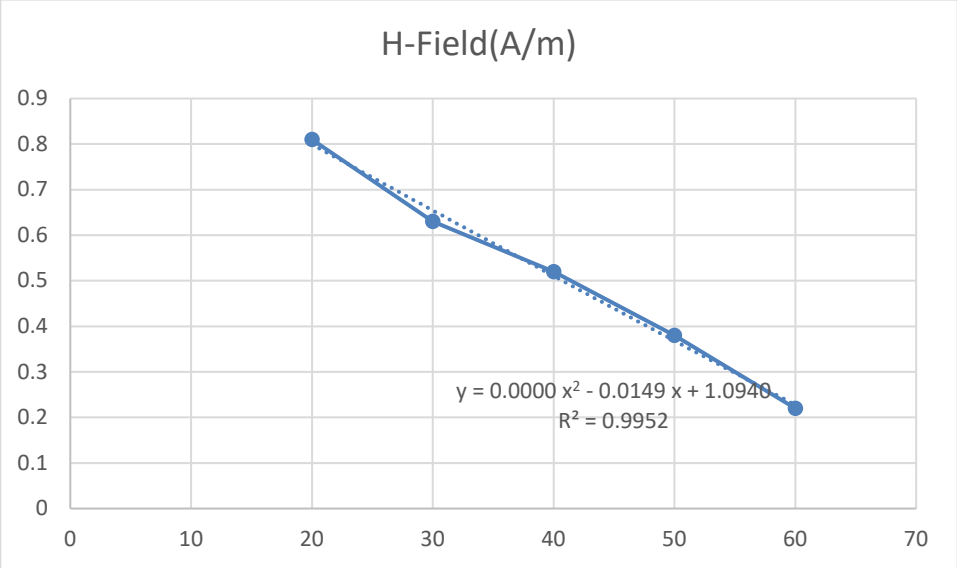

Ⅱ) Rear side E-Field(V/m):



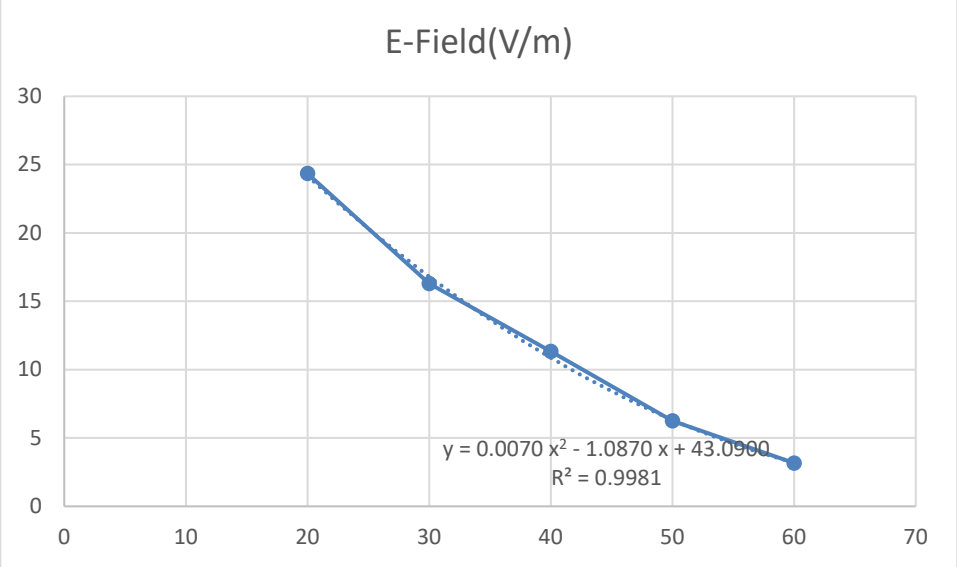
| Measuring Position | Test Frequency(kHz) | |
|---|---|---|
| Left side | 122 | |
| Measuring Distance (mm) | H-Field(A/m) | E-Field(V/m) |
| 20 | 0.81 | 24.35 |
| 30 | 0.63 | 16.29 |
| 40 | 0.52 | 11.33 |
| 50 | 0.38 | 6.24 |
| 60 | 0.22 | 3.17 |

curve fitting diagram:

Ⅰ) Left side H-Field(A/m):



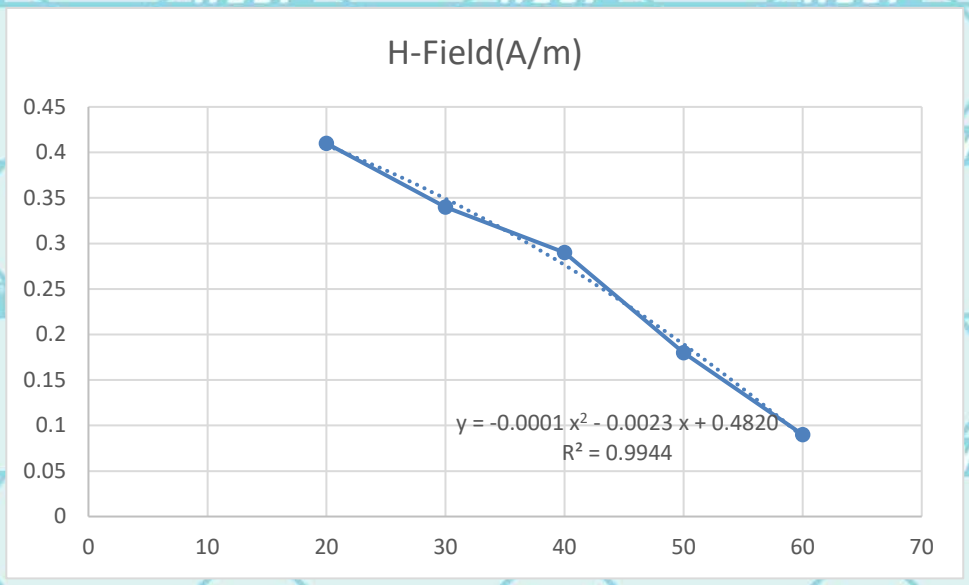

Ⅱ) Left side E-Field(V/m):



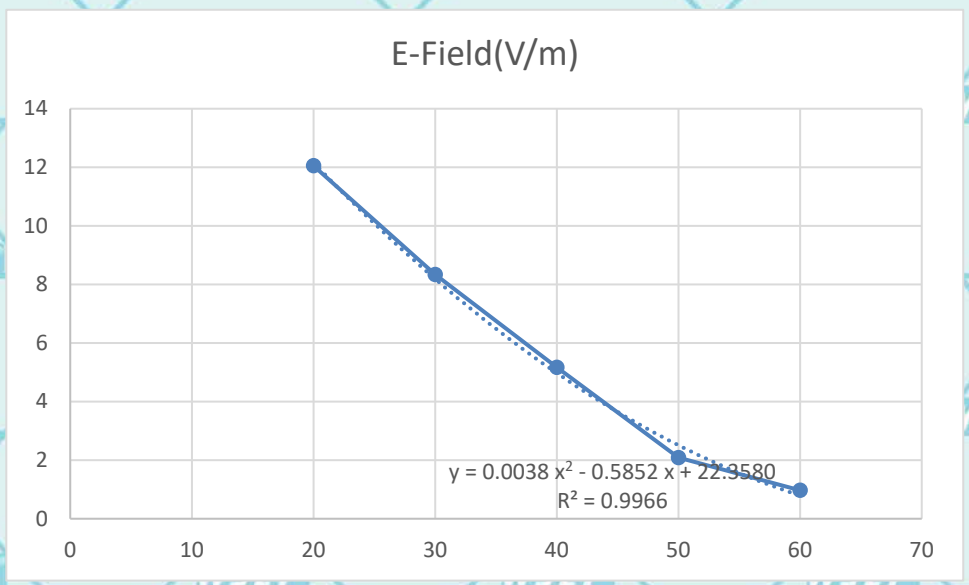
| Measuring Position | Test Frequency(kHz) | |
|---|---|---|
| Right side | 122 | |
| Measuring Distance (mm) | H-Field(A/m) | E-Field(V/m) |
| 20 | 0.41 | 12.05 |
| 30 | 0.34 | 8.34 |
| 40 | 0.29 | 5.17 |
| 50 | 0.18 | 2.09 |
| 60 | 0.09 | 0.97 |

curve fitting diagram:

Ⅰ) Right side H-Field(A/m):



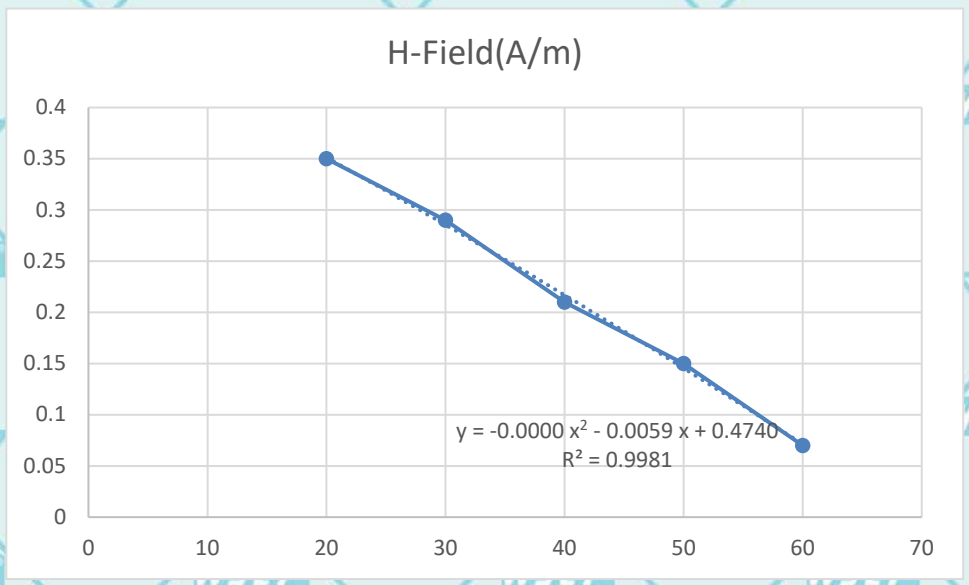

Ⅱ) Right side E-Field(V/m):



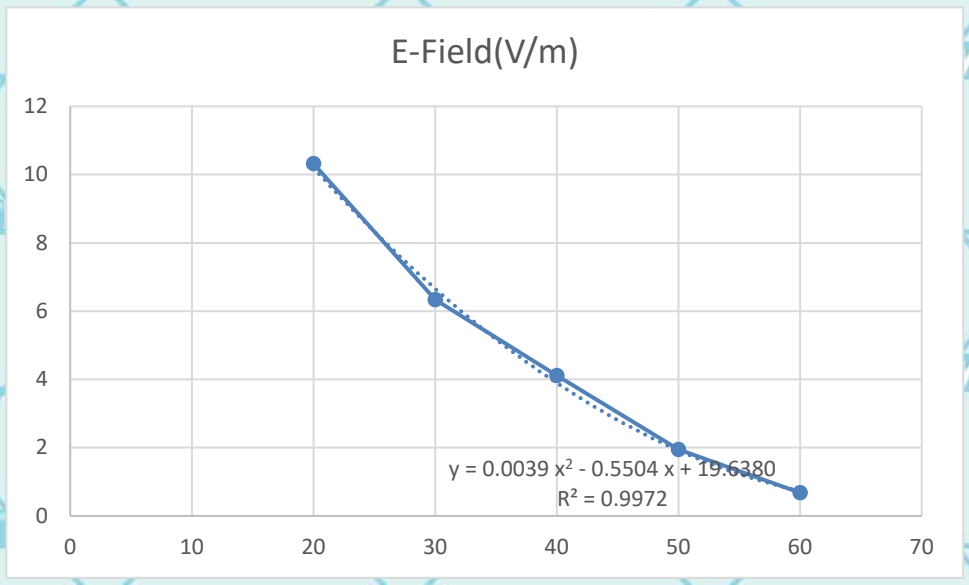
| Measuring Position | Test Frequency(kHz) | |
|---|---|---|
| Top side | 122 | |
| Measuring Distance (mm) | H-Field(A/m) | E-Field(V/m) |
| 20 | 0.35 | 10.32 |
| 30 | 0.29 | 6.34 |
| 40 | 0.21 | 4.11 |
| 50 | 0.15 | 1.95 |
| 60 | 0.07 | 0.68 |

curve fitting diagram:

Ⅰ) Top side H-Field(A/m)：



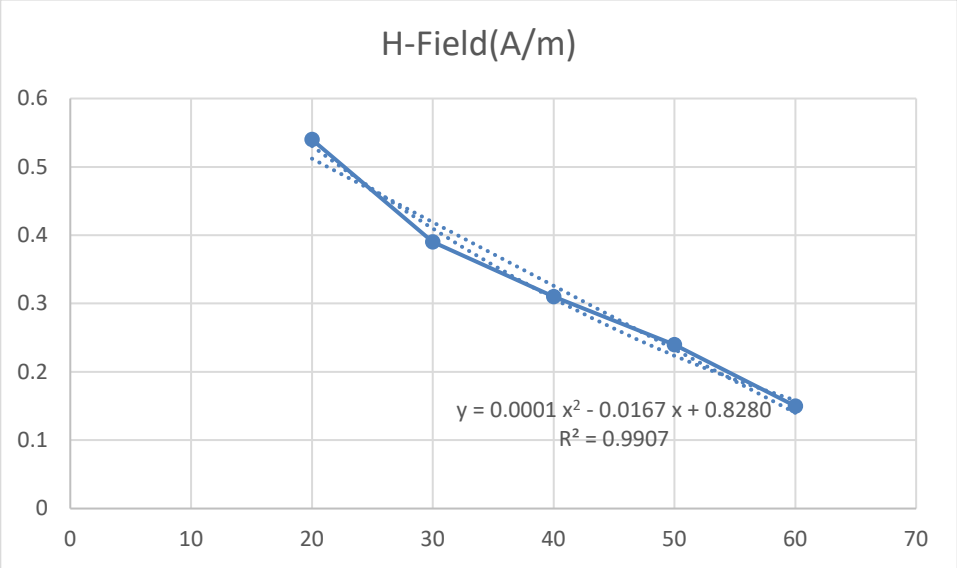

Ⅱ) Top side E-Field(V/m)：



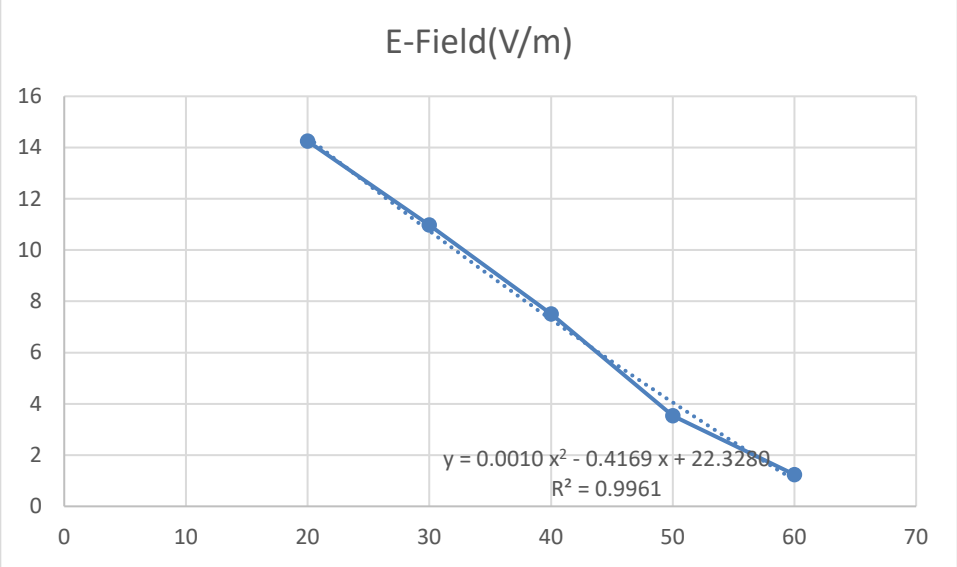
| Measuring Position | Test Frequency(kHz) | |
|---|---|---|
| Bottom side | 122 | |
| Measuring Distance (mm) | H-Field(A/m) | E-Field(V/m) |
| 20 | 0.54 | 14.25 |
| 30 | 0.39 | 10.98 |
| 40 | 0.31 | 7.51 |
| 50 | 0.24 | 3.54 |
| 60 | 0.15 | 1.24 |

curve fitting diagram:

Ⅰ) Bottom side H-Field(A/m):




Ⅱ) Bottom side E-Field(V/m):



Validate the fitted curve according to KDB 680106, the error between the two nearest test points must not exceed 30%.

| Measuring Position | Measuring Distance (mm) | Measured E-Field (A/m) | Estimated E-Field (A/m) | Error value (%) | Limit (%) |
|---|---|---|---|---|---|
| Front side | 20 | 0.82 | 0.84 | -2.38 | ±30 |
| | 30 | 0.71 | 0.72 | -1.39 | ±30 |
| Rear side | 30 | 0.72 | 0.71 | 1.41 | ±30 |
| | 40 | 0.59 | 0.58 | 1.72 | ±30 |
| Left side | 20 | 0.81 | 0.80 | 1.25 | ±30 |
| | 30 | 0.63 | 0.65 | -3.08 | ±30 |
| Right side | 20 | 0.41 | 0.40 | 2.50 | ±30 |
| | 30 | 0.34 | 0.32 | 6.25 | ±30 |
| Top side | 20 | 0.35 | 0.36 | -2.78 | ±30 |
| | 30 | 0.29 | 0.30 | -3.33 | ±30 |
| Bottom side | 20 | 0.54 | 0.53 | 1.89 | ±30 |
| | 30 | 0.39 | 0.42 | -7.14 | ±30 |

| Measuring Position | Measuring Distance (mm) | Measured E-Field (A/m) | Estimated E-Field (A/m) | Error value (%) | Limit (%) |
|---|---|---|---|---|---|
| Front side | 20 | 22.17 | 22.11 | 0.27 | ±30 |
| | 30 | 14.58 | 14.80 | -1.49 | ±30 |
| Rear side | 30 | 19.63 | 19.74 | -0.56 | ±30 |
| | 40 | 13.59 | 13.48 | 0.82 | ±30 |
| Left side | 20 | 24.35 | 24.15 | 0.83 | ±30 |
| | 30 | 16.29 | 16.78 | -2.92 | ±30 |
| Right side | 20 | 12.05 | 12.17 | -0.99 | ±30 |
| | 30 | 8.34 | 8.22 | 1.46 | ±30 |
| Top side | 20 | 10.32 | 10.19 | 1.28 | ±30 |
| | 30 | 6.34 | 6.64 | -4.52 | ±30 |
| Bottom side | 20 | 14.25 | 14.34 | -0.63 | ±30 |
| | 30 | 10.98 | 10.64 | 3.20 | ±30 |

The H-Field and E-Field values for each measured 0 mm position of the EUT were obtained by extrapolating from the equations of each fitted curve.

| Measuring Position | Measuring Distance (mm) | Measured H-Field (A/m) | Limit |
|---|---|---|---|
| Front side | 0 | 1.08 | 1.63 |
| Rear side | | 1.12 | |
| Left side | | 1.09 | |
| Right side | | 0.48 | |
| Top side | | 0.47 | |
| Bottom side | | 0.83 | |

| Measuring Position | Measuring Distance (mm) | Measured E-Field (A/m) | Limit |
|---|---|---|---|
| Front side | 0 | 41.60 | 614 |
| Rear side | | 46.93 | |
| Left side | | 43.09 | |
| Right side | | 22.36 | |
| Top side | | 19.64 | |
| Bottom side | | 22.33 | |

EUT in accordance with clause 5.2 of KDB 680106 D01 V04

| | |
|---|---|
| 1.The power transfer frequency is below 1 MHz | Yes, the operation frequency is 115-148 kHz. |
| 2.The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts. | Yes, the maximum output power of primary coil is 4 Watts |
| 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) | Yes, client device is placed directly in contact with the transmitter |
| 4.Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions). | No, portable exposure conditions. |
| 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 | No, the test result for E-field and H-field strength are not at 20cm distance. |
| 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,. all the radiating structures operating at maximum power at the same time. |

## 9 Test equipment and ancillaries used for tests

To simplify the identification of the test equipment and/or ancillaries which were used, the reporting of the relevant test cases only refer to the test item number as specified in the table below.

| Manufacturer | Device Type | Type(Model) | Serial number | calibration | |
|---|---|---|---|---|---|
| | | | | Last Cal. | Due Date |
| SPEAG | Probe | MAGPY-8H3D+E3D | 3087 | 2024.11.01 | 2025.10.31 |

Note:Test photos to see X6856 _ test setup photos file