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

Tested Model: W0300XA

Test Engineer:	Xu Yihan Xu Yihan
Report Number:	WSCT-ANAB-R&E241100059A-SAR
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FCC ID:	2AIZN-W0300XA
Check By:	Wei Liangmei Wei Liangmei
Approved By:	Li Huaibi Li Huaibi
Prepared By:	World Standardization Certification & Testing Group (Shenzhen) Co., Ltd. Building A-B,Baoli'an Industrial Park,No.58 and 60,Tangtou Avenue, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, China Tel: +86-755-26996192 Fax: +86-755-86376605

World Standardization Certification & Testing Group (Shenzhen) Co., Ltd. WSCT

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Modified History

REV.	Modification Description	Issued Date	Remark
REV.1.0	Initial Test Report Relesse	18 April 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: 2024-11-25
Start of test: 2024-11-30
End of test: 2025-02-25

1.3 EUT Information

Device Information:	
Product Type:	Wireless Charger
Model:	W0300XA
Trade Name:	Infinix
Device Type:	Portable device
Exposure Category:	uncontrolled environment / general population
Software version :	MT5812-8EC011_V02.00.0a(1)
Hardware version:	W0142_V1.5_20141113
Operating Voltage:	Input:5-12V⎓3A Max Output:5W/7.5W/10W/15W/30W Max

Antenna Type	Operation Frequency	Wireless Output	Maximum Coil operating current	Modulation Type
Coil	120-148 kHz	4Watts	3A	ASK
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 ☐ Laboratory B ☐
China	CNAS (The certificated registration number: L3732)	Laboratory A ☒ Laboratory B ☐
USA	A2LA (The certificated registration number: 5768.01)	Laboratory A ☐ Laboratory B ☐
USA	ANAB (The certificated registration number:AT-3951)	Laboratory A ☒ 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
3	47 CFR Part 15 Subpart C	Radio Frequency Devices:Intentional Radiators

7 RF exposure limits

<Limit for peak spatial-average SAR>

Pursuant to §1.1310(c):

The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

<Limits for Maximum Permissible Exposure>

According to §1.1310 (d)(2)

For operations within the frequency range of 300 kHz and 6 GHz (inclusive), the limits for maximum permissible exposure (MPE), derived from whole-body SAR limits and listed in Table 1 in paragraph (e)(1) of this section, may be used instead of whole-body SAR limits as set forth in paragraphs (a) through (c) of this section to evaluate the environmental impact of human exposure to RF radiation as specified in § 1.1307(b) of this part, except for portable devices as defined in § 2.1093 of this chapter as these evaluations shall be performed according to the SAR provisions in § 2.1093.

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.

8 Measurement System

8.1 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

Sensor specifications:

- H-field extrapolation uncertainty: 0.6 dB (k = 2)

8.2 System Description

General

1.DASY6/8 Module WPT V2.6+ is based on the MAGPy Version 2 technology integrated in DASY6/8 product line for high-precision robot-based evaluations of wireless power transfer (WPT) devices. It is the only system for fully automated compliance testing according to all international standards and national regulations.The precision is achieved by combining the MAGPy system with the DASY robotics system and Sim4Life simulation platform.

2.DASY6/8 Module WPT is composed of the isotropic probe MAGPy-8H3D+E3D Version 2, the reference probe (MAGPy-RAφ), and the data acquisition system (MAGPy-DAS) mounted to the DASY6/8 robot via the emergency stop (MAGPy-ES). It measures the incident electric (E-) and magnetic (H-) fields in a volume from the surface of the device under test (DUT) using advanced field reconstructions to obtain a high-resolution (mm range) field distribution. The induced E-field distributions and specific absorption rate (SAR) are assessed with Sim4Life's Quasi-Static EM Solver (P-EM-QS) using only the measured data. At each probe location, eight sets of isotropic H-field values and one set of isotropic E-field values are acquired in parallel. The dedicated graphical user interface (GUI) fully automates the testing workflow.

3. The system is fully compliant IEC PAS 63184, FCC KDB 680106 D01, ISED Canada SPR-002.

Compliance Evaluation

DASY6/8 Module WPT SW version V2.6+ offers compliance evaluation with respect to:

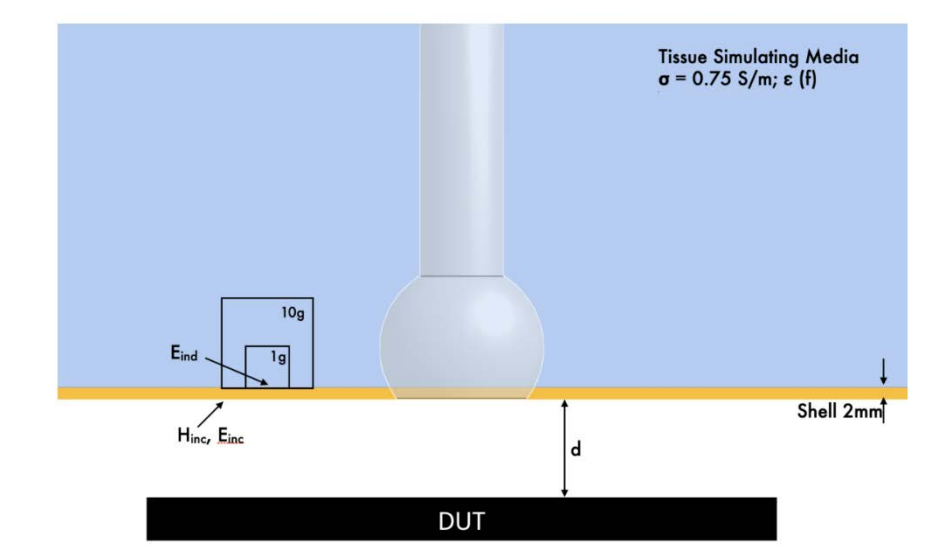
- Reference levels on the basis of the incident H- and E-fields measured from the volume scan
- Basic restrictions on the basis of the peak induced E-field, peak induced current density, and **peak spatial-average SAR** calculated from the Sim4Life simulation.

Since SPEAG release a DASY8/6 Module WPT system (SW Module WPT V2.6+) for E and H-Field measurement, and also the system support Sim4Life plug-in includes the components to import the 3D H-fild scan data (Hx, Hy, Hz values in the measurement volume) to the Sim4Life simulation platform. And a magneto quasi-static (MQS) simulation is automatically setup to solve for a lossy halfspace Phantom setup. The lossy half-space has muscle tissue dielectric properties (σ = 0.75 S/m, ρ = 1000 kg/m3,), The induced electric (E-) fields and **specific absorption rate (SAR)** are assessed with Sim4Life's Quasi-Static EM Solver (P-EM-QS) using only the measured data.

The post-processing engine determines the maximum induced E-field, current density, and SAR values in a homogeneous half-space of muscle tissue equivalent media (half-space muscle phantom) positioned at the compliance distance. In general, the compliance distance corresponds to the closest point (with respect to the exposure source) the human body (e.g., a part of the hand) can reach during the operation of the source.

The relative dielectric constant, conductivity, and mass density of the homogeneous phantom used in the simulations were 55, 0.75 S/m, and 1000 kg/m3 respectively, which correspond to the phantom.

Simulation Results



Distance used in the tables for simulation and compliance evaluation results is defined as the spacing between the top surface of the DUT and the bottom surface of the fictive phantom shell (with a thickness of 2mm). In this case, the evaluation is made at distance d. Typically d = 0, i.e., at the DUT surface. The evaluation locations of the incident fields (i.e., H inc and E inc) as well as the induced fields (e.g., E ind , psSAR1g, and psSAR10g) are also illustrated.

The following figure shows the system.

8.3 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

Six aspects of the EUT were tested successively, and H-field,E-field,PsSAR were obtained after the test, and the results were recorded

8.4 System verification

Below table shows the target value and measured value after normalized to 1A and comparing to the Target value provided by SPEAG calibration, the verification data should be within its specification of 1.33dB(16.6%,k=2)

Test Date	Calibrated Parameters (kHz)	Distance (mm)	Target H-field (A/m)	Measurement H-field(A/m)
2025.01.22	3	2	150	153
2024.11.01	85	2	189	200
2025.01.18	400	2	249	232

9 Uncertainty

DASY8 Uncertainty Budget for Peak Incident *H*-field according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic E-field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.10
12	Surface field reconstruction	0.3	N	1	1	0.3
Combined uncertainty (k = 1)						0.67
Expanded uncertainty (k = 2)						**1.33 (16.6%)**

DASY8 Uncertainty Budget for Incident *E*-field according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.53	N	1	1	0.53
2	Probe anisotropy	0.8	R	$\sqrt{3}$	1	0.46
3	Probe dynamic linearity	1	R	$\sqrt{3}$	1	0.58
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Parasitic H-field sensitivity	0.2	R	$\sqrt{3}$	1	0.12
7	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
8	Readout electronics	0	N	1	1	0
9	Repeatability	0.1	N	1	1	0.10
Combined uncertainty (k = 1)						0.95
Expanded uncertainty (k = 2)						**1.89 (24.4%)**

DASY8 Uncertainty Budget for psSAR1g according to IEC/IEEE 63184						
Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic *E*-field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.2	N	1	1	0.2
Numerical simulations						
13	Grid resolution	0.02	R	$\sqrt{3}$	1	0.01
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.09	N	1	1	0.09
17	Convergence and power budget	0	R	$\sqrt{3}$	1	0
18	Boundary conditions	0.1	R	$\sqrt{3}$	1	0.06
19	Phantom loading/backscattering	0.1	R	$\sqrt{3}$	1	0.06
Combined uncertainty (k = 1)						0.63
Expanded uncertainty (k = 2)						**1.27 (33.9%)**

DASY8 Uncertainty Budget for psSAR10 g
according to IEC/IEEE 63184

Item	Error Description	Unc. Value (±dB)	Probab. Distr.	Div.	(c_i)	Std. Unc. (±dB)
Measurement system						
1	Amplitude calibration uncertainty	0.35	N	1	1	0.35
2	Probe anisotropy	0.6	R	$\sqrt{3}$	1	0.35
3	Probe dynamic linearity	0.2	R	$\sqrt{3}$	1	0.12
4	Probe frequency domain response	0.3	R	$\sqrt{3}$	1	0.17
5	Probe frequency linear interp. fit	0.15	R	$\sqrt{3}$	1	0.09
6	Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06
7	Parasitic *E*-field sensitivity	0.1	R	$\sqrt{3}$	1	0.06
8	Detection limit	0.15	R	$\sqrt{3}$	1	0.09
9	Readout electronics	0	N	1	1	0
10	Probe positioning	0.19	N	1	1	0.19
11	Repeatability	0.1	N	1	1	0.1
12	Surface field reconstruction	0.2	N	1	1	0.2
Numerical simulations						
13	Grid resolution	0	R	$\sqrt{3}$	1	0
14	Tissue parameters	0	R	$\sqrt{3}$	1	0
15	Exposure position	0	R	$\sqrt{3}$	1	0
16	Source representation	0.04	N	1	1	0.04
17	Convergence and power budget	0	R	$\sqrt{3}$	1	0
18	Boundary conditions	0.1	R	$\sqrt{3}$	1	0.06
19	Phantom loading/backscattering	0.1	R	$\sqrt{3}$	1	0.06
Combined uncertainty (k = 1)						0.63
Expanded uncertainty (k = 2)						**1.25 (33.4%)**

10 Test results

H-Field(A/m) & E-Field(V/m) result

Measuring Position	Test Frequency(kHz)	
Front side	124.8	
Measuring Distance (mm)	H-Field(A/m)	E-Field(V/m)
0	6.38	342
5	4.03	213
10	3.70	97.4
15	2.47	71.7
20	1.84	68.3

The H-Field and E-Field values for each measured 0 mm position

Measuring Position	Measuring Distance(mm)	Measured H-Field(A/m)	Limit
Front side	0	6.38	1.63

Measuring Position	Measuring Distance(mm)	Measured E-Field(V/m)	Limit
Front side	0	342	614

An assessment against the Limit for peak spatial-average SAR shall be performed for the EUT when the Limits for Maximum Permissible Exposure are exceeded.

Peak spatial-average SAR Result

Position	Test Distance (mm)	Measured 1g avg. (W/kg)	1g Limit (W/kg)	Result
Front side	0	0.046	1.6	Pass

Measured 1g avg =2.49e^{-4}=0.046

Note: The calculation result only retains three decimal places

Conclusion:

Based on SPEAG DASY6 Module WPT-MAGPY system, a magneto quasi-static (MQS) simulation is automatically setup to solve for a lossy halfspace Phantom setup. The lossy half-space has muscle tissue dielectric properties (σ = 0.75 S/m, ρ = 1000 kg/m3,), The induced electric (E-) fields and specific absorption rate (SAR) are assessed with Sim4Life's Quasi-Static EM Solver (P-EM-QS) that the the product is compliance with Peak spatial-average SAR Result < 1.6W/kg.

11 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+E3DV2	3087	2024.11.01	2025.10.31
SPEAG	V&V Source	V-Coil500/3V2	1028	2024.11.13	2027.11.14
SPEAG	V&V Source	V-Coil50/400V2	1034	2024.10.31	2027.11.01
SPEAG	V&V Source	V-Coil350/85V2	1035	2024.11.06	2027.11.07

Note: V&V:verification & validation

Test photos to see W0300XA_ test setup photos file