

Test Report

Report No.: MTi241021004-12E2

Date of issue: 2024-11-15

Applicant: Ningbo Youdian Electronic Technology Co., Ltd.

Product: 3-in-1 Magnetic Wireless Power Bank

Model(s): KH69, KH70

FCC ID: 2AZKB-KH69

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>

Instructions


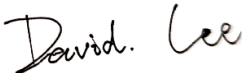

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Test Result Certification

Applicant:	Ningbo Youdian Electronic Technology Co., Ltd.
Address:	Room 1902, 19th Floor, East area of Weijiachuangyi Building, No.35 of Shucheng Road, Hongshan District, Wuhan, Hubei, China
Manufacturer:	Ningbo Youdian Electronic Technology Co., Ltd.
Address:	Room 1902, 19th Floor, East area of Weijiachuangyi Building, No.35 of Shucheng Road, Hongshan District, Wuhan, Hubei, China
Product description	
Product name:	3-in-1 Magnetic Wireless Power Bank
Trademark:	KPON
Model name:	KH69
Series Model:	KH70
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 D01 Wireless Power Transfer v04
Date of Test	
Date of test:	2024-10-30 to 2024-11-01
Test result:	Pass

Test Engineer	:	
		(Maleah Deng)
Reviewed By	:	
		(David Lee)
Approved By	:	
		(Leon Chen)

1 General Description

1.1 Description of the EUT

Product name:	3-in-1 Magnetic Wireless Power Bank
Model name:	KH69
Series Model:	KH70
Model difference:	All the models are the same circuit and module, except the model name and support.
Electrical rating:	Input: Type-C: DC 5V3A,9V2A Output: Type-C: DC 5V3A,9V2.22A,12V1.5A Wireless Output: Phone: 5W/7.5W/10W/15W; Watch: 2.5W Battery: DC 3.85V 10000mAh
Accessories:	Cable: USB-C to USB-C cable 80cm
Hardware version:	V1.3-20230830
Software version:	WE9127-F150
Test sample(s) number:	MTi241021004-12S1001(HK69) MTi241021004-12S1001(HK70)
RF specification:	
Operation frequency:	Phone: 115 kHz – 205 kHz Watch: 300kHz - 350kHz
Modulation type:	ASK
Antenna type:	Coil Antenna

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

No.	Emission test modes
Mode1	Charging+Wireless Output(5W)
Mode2	Charging+Watch Output(2.5W)
Mode3	Wireless Output(5W)
Mode4	Wireless Output(7.5W)
Mode5	Wireless Output(10W)
Mode6	Wireless Output(15W)
Mode7	Watch Output(2.5W)
Mode8	Stand by

1.3 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support equipment list			
Description	Model	Serial No.	Manufacturer
HUAWEI QUICK CHARGE(65W)	HW-200200ZP1	JN67LSN7N03451	HUAWEI
Smartphone	FIND X3	/	OPPO
iwatch	iwatch SE	/	Apple
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Measurement uncertainty

Parameter	Expanded Uncertainty
Magnetic field measurements(3kHz~10MHz)	$\pm 14.8\%$
Electric field measurements(3kHz~10MHz)	$\pm 17.5\%$

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 Test facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTI-E143	Near-field Electric and Magnetic Field Sensor System	Speag	MAGPy-8H3D +ED3 V2	3101	2024/3/12	2027/3/11

No.	Equipment	Manufacturer	Model	Software version:	Cal. date	Cal. Due
MTI-E016S	MPE test software	SPEAG	MAGPY 2.4	2.4.1	/	/

5 Test result

5.1.1 Requirement

§1.1310: 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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

Table 1 to §1.1310(e)(1) - 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)
(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
300-1500			f/300	<6
1500-100000			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
300-1500			f/1500	<30
1500-100000			1.0	<30

f = frequency in MHz

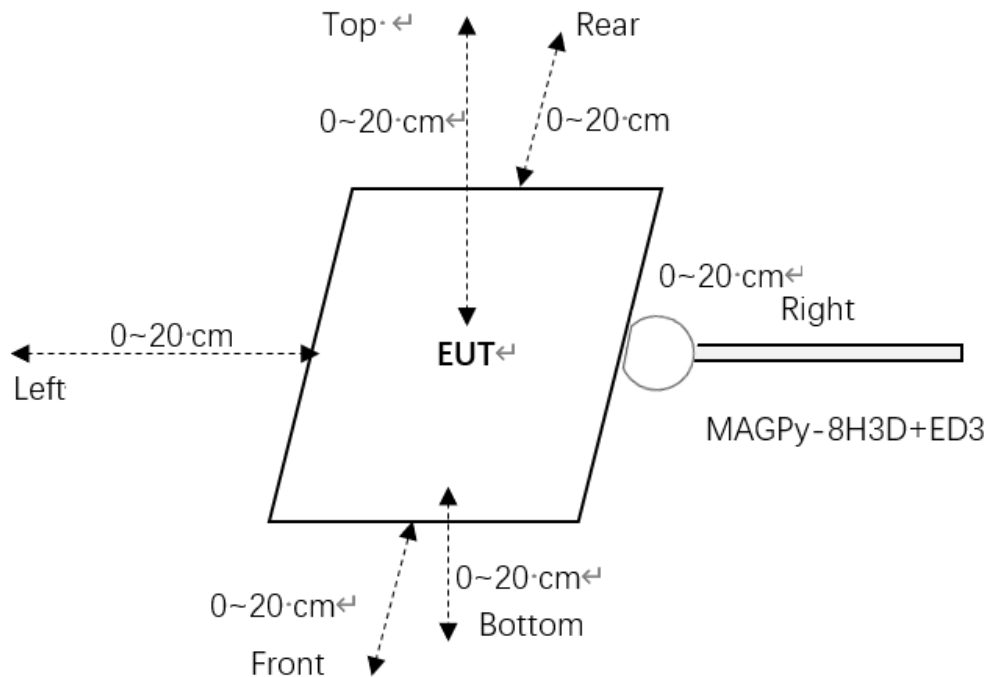
* = Plane-wave equivalent power density

Note 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

Note 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

5.2 Test setup

0~20cm distance:



Note: tips mode of the test probe is used for 0cm measurement.

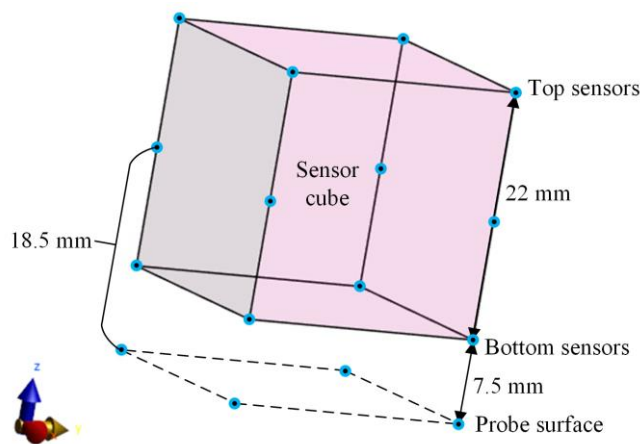
5.3 Test Procedures

a. H-field measurements should be taken 0 cm ~ 20 cm with 2 cm increments from the center of the probe.

The center of the probe to the tip surface of the probe is 18.5 mm, so the directly testing can be performed at the probe center from 2 cm to 20 cm.

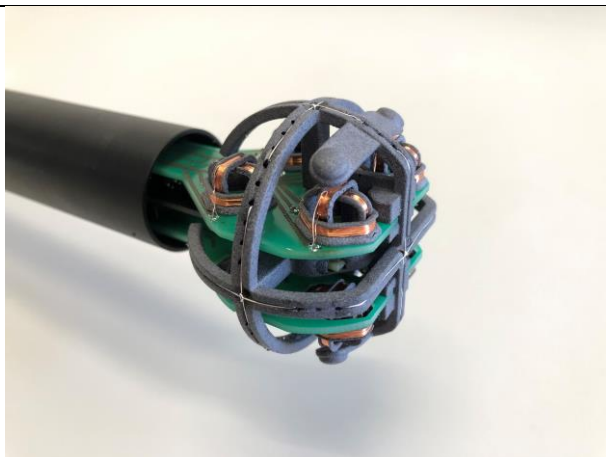
To measure the 0 cm H-field, the probe tip mode is used. The total H-field at the tip-surface $H_{tip-surface}$ can be extrapolated using the total H-field measured at the top and bottom sensors, H_{top} and H_{bottom} , as well as the normalized H-field gradient G_n . The field extrapolation formula is a polynomial function of G_n ($\Delta d = 18.5$ mm)

$$H_{tip-surface} = \frac{H_{bottom} + H_{top}}{2} \sum_{i=0}^7 c_i (G_n \Delta d)^i$$



5.4 Information of test equipment

Test equipment: MAGPy-8H3D+ED3	
Diameter	60mm
8 isotropic H-field sensors	Concentric loops of 1cm ² arranged at the corner of a cube of 22mm side length
1 isotropic E-field sensor	Orthogonal dipole/monopole (arm length: 50mm)
Measurement center	18.5mm from the probe tip
Dimensions	110*635*35mm (MAGPy-8H3D+E3D V2 & MAGPy-DAS V2)



Test probe, without the casing

Item	Specification
Test frequency range:	3kHz ~ 10MHz
Probe sensitivity	E-field: 0.08-2000 V/m H-field: 0.1-3200 A/m
Probe level response	E-field: ± 1 dB H-field: ± 1 dB
linearity error	E-field: ± 0.3 dB H-field: ± 0.3 dB
Isotropy	E-field: ± 0.8 dB H-field: ± 0.6 dB

5.5 Test results

Model: HK69

Test condition 1: Mode 6 operating mode with client device (1 % battery status of client device)

-estimated value: 0cm

Estimated value for H-Filed Strength at 0 cm from the edges surrounding the EUT (A/m)

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	1.60	1.63	98.16%
	Left	1.27		
	Right	1.45		
	Front	1.24		
	Rear	1.08		
	Bottom	1.09		

Test condition 2: Mode 6 operating mode with client device (1 % battery status of client device)

- Test distance: 2cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	1.34	1.63	82.21%
	Left	1.08		
	Right	0.86		
	Front	0.83		
	Rear	1.02		
	Bottom	1.04		

Test condition 3: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 4cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	1.13	1.63	69.33%
	Left	1.02		
	Right	0.56		
	Front	0.79		
	Rear	0.83		
	Bottom	0.86		

Test condition 4: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 6cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.68	1.63	52.15%
	Left	0.85		
	Right	0.26		
	Front	0.78		
	Rear	0.63		
	Bottom	0.51		

Test condition 5: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 8cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.31	1.63	26.99%
	Left	0.44		
	Right	0.15		
	Front	0.28		
	Rear	0.21		
	Bottom	0.19		

Test condition 6: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 10cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.16	1.63	10.43%
	Left	0.17		
	Right	0.07		
	Front	0.11		
	Rear	0.14		
	Bottom	0.09		

Test condition 7: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 12cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.1248	1.63	8.13%
	Left	0.1326		
	Right	0.0546		
	Front	0.0858		
	Rear	0.1092		
	Bottom	0.0702		

Test condition 8: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 14cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0936	1.63	6.10%
	Left	0.0995		
	Right	0.0410		
	Front	0.0644		
	Rear	0.0819		
	Bottom	0.0527		

Test condition 9: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 16cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0580	1.63	3.78%
	Left	0.0617		
	Right	0.0254		
	Front	0.0399		
	Rear	0.0508		
	Bottom	0.0326		

Test condition 10: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 18cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0424	1.63	2.76%
	Left	0.0450		
	Right	0.0185		
	Front	0.0291		
	Rear	0.0371		
	Bottom	0.0238		

Test condition 11: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 20cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0182	1.63	1.19%
	Left	0.0194		
	Right	0.0080		
	Front	0.0125		
	Rear	0.0159		
	Bottom	0.0102		

Model: HK70

Test condition 1: Mode 6 operating mode with client device (1 % battery status of client device)
-estimated value: 0cm

Estimated value for H-Filed Strength at 0 cm from the edges surrounding the EUT (A/m)

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	1.05	1.63	64.42%

Test condition 2: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 2cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	1.01	1.63	61.96%

Test condition 3: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 4cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.82	1.63	50.31%

Test condition 4: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 6cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.47	1.63	28.83%

Test condition 5: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 8cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.15	1.63	9.20%

Test condition 6: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 10cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.08	1.63	4.91%

Test condition 7: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 12cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0698	1.63	4.28%

Test condition 8: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 14cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0519	1.63	3.18%

Test condition 9: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 16cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0332	1.63	2.04%

Test condition 10: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 18cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0210	1.63	1.29%

Test condition 11: Mode 6 operating mode with client device (1 % battery status of client device)
- Test distance 20cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0107	1.63	0.66%

Test condition 1: Mode 7 operating mode with client device (1 % battery status of client device)

-estimated value: 0cm

Model: HK69

Estimated value for H-Filed Strength at 0 cm from the edges surrounding the EUT (A/m)

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	1.56	1.63	95.71%
	Left	1.25		
	Right	1.26		
	Front	1.49		
	Rear	1.42		
	Bottom	1.22		

Test condition 2: Mode 7 operating mode with client device (1 % battery status of client device)

- Test distance: 2cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	1.28	1.63	78.53%
	Left	1.07		
	Right	0.12		
	Front	0.91		
	Rear	0.62		
	Bottom	0.53		

Test condition 3: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 4cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.89	1.63	54.60%
	Left	0.52		
	Right	0.07		
	Front	0.43		
	Rear	0.38		
	Bottom	0.27		

Test condition 4: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 6cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.41	1.63	25.15%
	Left	0.26		
	Right	0.03		
	Front	0.28		
	Rear	0.15		
	Bottom	0.11		

Test condition 5: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 8cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.23	1.63	14.11%
	Left	0.14		
	Right	0.01		
	Front	0.16		
	Rear	0.05		
	Bottom	0.04		

Test condition 6: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 10cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.12	1.63	7.36%
	Left	0.08		
	Right	0.006		
	Front	0.09		
	Rear	0.01		
	Bottom	0.009		

Test condition 7: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 12cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0941	1.63	5.77%
	Left	0.0627		
	Right	0.0047		
	Front	0.0706		
	Rear	0.0078		
	Bottom	0.0071		

Test condition 8: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 14cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0593	1.63	3.64%
	Left	0.0395		
	Right	0.0030		
	Front	0.0445		
	Rear	0.0049		
	Bottom	0.0044		

Test condition 9: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 16cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0373	1.63	2.29%
	Left	0.0249		
	Right	0.0019		
	Front	0.0280		
	Rear	0.0031		
	Bottom	0.0028		

Test condition 10: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 18cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.0172	1.63	1.05%
	Left	0.0115		
	Right	0.0009		
	Front	0.0129		
	Rear	0.0014		
	Bottom	0.0013		

Test condition 11: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 20cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Z axis	0.00944	1.63	0.58%
	Left	0.00630		
	Right	0.00048		
	Front	0.00708		
	Rear	0.00078		
	Bottom	0.00071		

Model: HK70

Test condition 1: Mode 7 operating mode with client device (1 % battery status of client device)
-estimated value: 0cm

Estimated value for H-Filed Strength at 0 cm from the edges surrounding the EUT (A/m)

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	1.13	1.63	69.33%

Test condition 2: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 2cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.49	1.63	30.06%

Test condition 3: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 4cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.23	1.63	14.11%

Test condition 4: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 6cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.09	1.63	5.52%

Test condition 5: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 8cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.01	1.63	0.61%

Test condition 6: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 10cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.006	1.63	0.37%

Test condition 7: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 12cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0083	1.63	0.51%

Test condition 8: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 14cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0037	1.63	0.23%

Test condition 9: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 16cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0025	1.63	0.15%

Test condition 10: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 18cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0016	1.63	0.10%

Test condition 11: Mode 7 operating mode with client device (1 % battery status of client device)
- Test distance 20cm

Antenna	Probe Position	H-field (A/m)		
		Measurement	Limit	Max. Percentage (%)
1	Bottom	0.0023	1.63	0.14%

Photographs of the Test Setup

See the Appendix - Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

----End of Report----