

Withings

TEST REPORT

SCOPE OF WORK:

FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

Model:
WPA02

REPORT NUMBER
2502B1019SHA-003

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TEST REPORT

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Report no. 2502B1019SHA-003

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Manufacturer: Withings
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Manufacturer Site: YAHORNG (DONGGUAN) ELECTRONIC CO., LTD
Room 201, Building #9, No.84 Gaoyu South Road, Tangxia Town, Dong Guan, Guangdong, China

Product Name: Withings U-Scan Reader

Type/Model: WPA02

FCC ID: XNAWPA02

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093, FCC Part1.1307(b)

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Revision History

Report No.	Version	Description	Issued Date
2502B1019SHA-003	Rev. 01	Initial issue of report	February 26, 2025

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Withings U-Scan Reader
Type/Model/PMN/HVIN:	WPA02
Description of EUT:	The EUT is Withings U-Scan Reader, it supports NFC functions, there is only one model. We test them and list the worst results in this report.
Rating:	DC 3.8V
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	v3101
Hardware Version:	v10a
Sample Identification No.:	A4:7E:FA:3C:C9:04
Sample received date:	January 24, 2025
Date of test:	February 10, 2025 ~ February 21, 2025

Note: SOP document (RF_EMI_STM32WB_test_procedure_v7) for reference in fixed frequency testing.

1.2 Technical Specification

Frequency Range:	13.56MHz-13.56MHz
Modulation Type:	ASK
Antenna Type:	PCB antenna

1.3 Description of Test Facility

Name:	Intertek Testing Services (Shanghai FTZ) Co., Ltd.
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
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The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L21189
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 RF Exposure Evaluation

Test result: Pass

2.1 Limit

Based on KDB447498D01v06 4.3.1 c), SAR test exclusion threshold for NFC (13.56MHz) shall be evaluated as below,

Clause 4.3.1 a):

For 100 MHz to 6 GHz and test separation distances \leq 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR,

The test exclusions are applicable only when the minimum test separation distance is \leq 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is $<$ 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

Clause 4.3.1 b):

For 100 MHz to 6 GHz and test separation distances $>$ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

1) $\{[\text{Power allowed at numeric threshold for 50 mm in 4.3.1 a}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz

2) $\{[\text{Power allowed at numeric threshold for 50 mm in 4.3.1 a}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for $>$ 1500 MHz and \leq 6 GHz

Clause 4.3.1 c):

For frequencies below 100 MHz, the following may be considered for SAR test exclusion:

1) For test separation distances $>$ 50 mm and $<$ 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in 4.3.1 b) is multiplied by $[1 + \log(100/f(\text{MHz}))]$

2) For test separation distances \leq 50 mm, the power threshold determined by the equation in 4.3.1 c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$

3) SAR measurement procedures are not established below 100 MHz.

Hence, SAR test exclusion threshold is calculated in reverse sequence:

a): $(3/\sqrt{0.1}) \cdot 50 = 474.3416 \text{ mW}$

b): $474.3416 - (50-50) \cdot (100/150) = 474.3416 \text{ mW}$

c): $474.3416 \cdot [1 + \log(100/13.56)] = 885.9470 \text{ mW}$

$885.9470 \cdot 0.5 = 442.974 \text{ mW}$

2.2 Assessment Results

Conversion of measured field strength on 13.56MHz (NFC) from dBuV/m to mW:

$$PG / (4\pi R^2) = E^2 / 120\pi$$

Assuming Antenna Gain=0 dBi and D=3 meters,

$$P/36\pi = E^2 / 120\pi$$

$$P = 0.3 * E^2$$

Measured field strength=50.8 dBuV/m@3m=0.0003467 V/m@3m

$$P = 0.3 * E^2 = 0.3 * (0.0003467)^2 = 3.6 * 10^{-6} \text{ mW}$$

Conclusion:

The 1-g SAR test exclusion power threshold for operation on 13.56MHz, and where the minimum separation distance between the user and the transmitter is ≤ 50 mm, is: 442.974mW

The radiated RF output power of the NFC transmitter is determined as being: $3.6 * 10^{-6}$ mW.

The NFC transmitter is deemed to comply with CFR 47, Part 1.1310 and therefore meets the requirement for portable devices as devices stipulated by CFR 47, Part 2.1093.

***** END *****