Hangzhou Kitchen Idea Technology Co., Ltd

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
SKI.WB800DS2.1

REPORT NUMBER:
230300086HAN-003

ISSUE DATE:
July 31, 2023

DOCUMENT CONTROL NUMBER:
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TEST REPORT

Report no.: 230300086HAN-003

Applicant:	Hangzhou Kitchen Idea Technology Co., Ltd Room 2501, Huaye Building, 511 Jianye Road, Changhe Subdistrict, Binjiang District, Hangzhou, Zhejiang, China
Manufacturer:	Shaoxing Kitchen Idea Electrical Appliances Manufacturing Co., Ltd West of 2nd Floor, South of Qisheng Road, Paojiang Industrial Zone, Shaoxing City, Zhejiang Province, China
Product Name:	RF module
Type/Model:	SKI.WB800DS2.1
FCC ID:	2A2KP-K2902

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)

PREPARED BY:	**REVIEWED BY:**
Project Engineer Alex Wu	Reviewer Wakeyou Wang

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Revision History

Report No.	Version	Description	Issued Date
230300086HAN-003	Rev. 01	Initial issue of report	July 31, 2023

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1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	RF module
Type/Model:	SKI.WB800DS2.1
Description of EUT:	The EUT is a highly integrated SoC with dual band Wi-Fi and high-performance Cortex-M4F for wireless application. The Module band is 2.4GHz and 5.0GHz.
Rating:	12VDC
EUT type:	☒ Tabletop ☐ Floor standing
Brand name:	NA
PMN:	SKI.WB800DS2.1
Brand name:	NA
Software Version:	NA
Hardware Version:	SKI.WB800DS2.1
Serial numbers:	NA
Sample Identification No.:	1230227-25-003
Sample received date:	April 15, 2023
Date of test:	June 10-30, 2023

1.2 Technical Specification

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g IEEE 802.11n(HT20), IEEE 802.11AX(HE20) IEEE 802.11n(HT40), IEEE 802.11AX(HE40)
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT20) /AX(HE20): OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT40) /AX(HE40): OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Operating Frequency:	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20) /AX(HE20) 2422MHz to 2452MHz for IEEE 802.11n(HT40) /AX(HE40)
Channel Number:	11 Channels for 802.11b, 802.11g and 802.11n(HT20) /AX(HE20) 7 Channels for 802.11n(HT40) /AX(HE40)
Channel Separation:	5 MHz
Antenna:	External Antenna, 3.7 dBi Gain

Frequency Range:	5150 ~ 5250MHz 5725 ~ 5850MHz
Support Standards:	802.11a, 802.11n(HT20), 802.11n(HT40), 802.11AC(VHT20), 802.11AC(VHT40), 802.11AX(HE20), 802.11AX(HE40)
Type of Modulation:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Number:	For 5180 ~ 5240MHz band: Channel 36 - 48 For 5745 ~ 5825MHz band: Channel 149 - 165
Antenna:	External Antenna, 4.2 dBi Gain

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road (North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Member No: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m^2)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	250/f	4/f	5/f	-
0,8-3 kHz	250/f	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	0,73/f	0,92/f	-
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

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2.2 Assessment Results

Power density (S) is calculated according to the formula:
$S = PG / (4\pi R^2)$
Where S = power density in mW/cm^2
P = Radiated transmit power in mW
G = numeric gain of transmit antenna
R = distance (cm)

As we can see from the test report 230300086HAN-001 and 230300086HAN-002:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Mode	Frequency band	Power		Antenna Gain	R	S	Limits
	(MHz)	dBm	mW	dBi	(cm)	(mW/cm^2)	(mW/cm^2)
2.4G WIFI	2400-2483.5	15.61	36.39	3.7	20	0.017	1
5G WIFI	5180-5825	11.72	14.86	4.2	20	0.008	1

Note: 1 mW/cm^2 from 1.310 Table 1

For the device cannot support simultaneous transmission, according to 447498 D01 General RF Exposure Guidance v06.

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Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

********** END **********