

RF Exposure

Applicant : Shinwa industries(China)ltd
Address : No.26,HuiFeng West 2 Road,Zhongkai High-Tech
Park,Huizhou,Guangdong,China
Product Name : Car Kit WiFi/BT Module
Brand Mark : Shinwa
Model : WF-MA80-FY3
Series model : WF-MA80-FY1
Report Number : BLA-EMC-202602-A1407
FCC ID : ZWYMA80X
Date of Receipt : Feb. 02,2026
Date of Test : Feb. 02,2026 to Mar. 23,2026
47 CFR Part 15, Part1.1307
Test Standard : 47 CFR Part 15, Part2.1091
KDB447498D04 General RF Exposure Guidance v01
Test Result : Pass

Compiled by:

charlie

Review by:

Xavier

Approved by:

Blue Zheng

Issued Date:

Mar. 23,2026



BlueAsia Technical Services (Shenzhen) Co., Ltd

Address: No.41, South of Beihuan Road, Shangwu Community, Shiyan
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Table of Contents

1 General information	4
1.1 General information	4
1.2 General description of EUT	4
2 Laboratory and accreditations	7
3 RF Exposure Compliance Requirement	8
3.1 Standard Requirement	8
3.2 Limits	8
3.3 Result	9

Revise Record

Version No.	Date	Description
01	Mar. 23,2026	Original

1 General information

1.1 General information

Applicant	Shinwa industries(China)ltd
Address	No.26,HuiFeng West 2 Road,Zhongkai High-Tech Park,Huizhou,Guangdong,China
Manufacturer	Shinwa industries(China)ltd
Address	No.26,HuiFeng West 2 Road,Zhongkai High-Tech Park,Huizhou,Guangdong,China
Factory	N/A
Address	N/A

1.2 General description of EUT

Product name	Car Kit WiFi/BT Module
Model no.	WF-MA80-FY3
Series model	WF-MA80-FY1
Differences of Series model	Due to the different sales channels, the names are different, but the rest are the same.
Power supply or adapter information	DC5V for test board
Hardware version	WF-MA80-FY1 V1.1 240701
Software version	N/A
Engineer sample no.	BLA-EMC-202602-A14

Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

For BT

Operation Frequency	2402MHz-2480MHz
Modulation Type	GFSK, π /4DQPSK, 8DPSK
Channel Spacing	1MHz
Number of Channels	79
Antenna Type	FPC antenna
Antenna Gain	0.36dBi (Provided by the applicant)

For BLE

Operation Frequency	2402MHz-2480MHz
Modulation Type	GFSK
Rate data	1Mbps; 2Mbps
Channel Spacing	2MHz
Number of Channels	40
Antenna Type	FPC antenna
Antenna Gain	0.36dBi (Provided by the applicant)

For 2.4GWIFI

Operation Frequency	802.11b/g/n(HT20)/ax (HE20):: 2412MHz to 2462MHz 802.11n(HT40)/ax (HE40): 2422MHz to 2452MHz
Modulation Type	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11ax: OFDMA(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Resource unit (802.11ax)	Only support full RU
Nominal Bandwidth	20MHz&40MHz
Channel Spacing	5MHz
Number of Channels	802.11b/g/n(HT20)/ax (HE20): 11 802.11n(HT40)/ax (HE40): 7
Antenna Type	FPC antenna
Antenna Gain	0.99dBi(Provided by customer)
Function	☒ SISO ☐ 2x2 MIMO ☐ TPC

For 5GWIFI

Operation Frequency	Band1: 5180MHz~5240MHz;Band2:5260MHz~5320MHz Band3: 5500MHz~5700MHz;Band4:5745MHz~5825MHz
Channel numbers	Band 1: 802.11a/802.11n(HT20)/802.11ac(HT20)/ax(HE20): 4, 802.11n(HT40)/802.11ac(HT40)/ax(HE40):2, 802.11ac(HT80)/ax(HE80): 1
	Band 2: 802.11a/802.11n(HT20)/802.11ac(HT20)/ax(HE20): 4, 802.11n(HT40)/802.11ac(HT40)/ax(HE40):2, 802.11ac(HT80)/ax(HE80): 1
	Band 3: 802.11a/802.11n(HT20)/802.11ac(HT20)/ax(HE20): 11, 802.11n(HT40)/802.11ac(HT40)/ax(HE40):5, 802.11ac(HT80)/ax(HE80): 3
	Band 4: 802.11a/802.11n(HT20)/802.11ac(HT20)/ax(HE20): 5, 802.11n(HT40)/802.11ac(HT40)/ax(HE40): 2, 802.11ac(HT80)/ax(HE80): 1
Channel Spacing	802.11a/n/ac(HT20)/ax(HE20): 20MHz, 802.11n/ac(HT40)/ax(HE40): 40MHz, 802.11ac(HT80)/ax(HE80): 80MHz
Modulation Type	IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE for 802.11ac(VHT20/VHT40/VHT80): OFDM(BPSK, QPSK, 16QAM, 64QAM,256QAM) IEEE for 802.11ax(HE20/HE40/HE80): OFDMA(BPSK, QPSK, 16QAM, 64QAM,256QAM,1024QAM)
Resource unit (802.11ax)	Only support full RU
Transmit Data Rate	IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20(1X1): up to 72.2 Mbps, HT40(1X1): up to 150 Mbps IEEE 802.11ac VHT20(1X1): up to 86.7 Mbps, VHT40(1X1): up to 200 Mbps, VHT80(1X1): up to 433.3 Mbps IEEE 802.11ax HE20(1X1): up to 143.4 Mbps, HE40(1X1): up to 286.6 Mbps, HE80(1X1): up to 600.5 Mbps
DFS Operation Type	☐ Master Device ☐ Slaver Device with Radar detection function ☒ Slaver Device without Radar detection function
Antenna Type	FPC antenna
Antenna Gain	4.5dBi(Provided by the customer)
Function	☒ SISO ☐ 2x2 MIMO ☐ TPC

2 Laboratory and accreditations

The test facility is recognized, certified, or accredited by the following organizations:

Company name:	BlueAsia Technical Services (Shenzhen) Co.,Ltd.
Address:	No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
CNAS accredited No.:	L9788
A2LA Cert. No.:	5071.01
FCC Designation No.:	CN1252
Test Firm Registration Number:	923526
ISED CAB identifier No.:	CN0028
Company Number:	24243
Telephone:	+86-755-28682673
FAX:	+86-755-28682673

3 RF Exposure Compliance Requirement

3.1 Standard Requirement

According to 447498 D04 Interim General RF Exposure Guidance v01

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3.2 Limits

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B. 1})$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B. 2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

3.3 Result

Calculated Result and Limit (WORSE CASE IS AS BELOW)

Mode	Frequency (MHz)	Max Output power(dBm)	Max Output power(mW)	Ant gain (dBi)	Evaluation ERP(mW)	Distance (cm)	Limit of Pth(mW)	Result
1-DH1	2480	0.704	1.18	0.36	0.78	20	3060.00	Pass
BLE 1M	2480	-2.456	0.57	0.36	0.38	20	3060.00	Pass
2.4G WIFI:B	2462	16.11	40.83	0.99	31.26	20	3060.00	Pass
5G WIFI:AC20	5280	18.022	63.42	4.5	108.94	20	3060.00	Pass

ERP=Max Output power+Ant gain-2.15

Simultaneous emission:

$\sum_{i=1}^a \frac{P_i}{P_{th,i}}$	$=(0.704-2.456+16.11+18.022)/3060=0.011<1$
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$\sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}}$	$=(0.78+0.38+31.26+108.94)/3060 =0.046<1$
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Comply with RF exposure exemption limit.

----END OF REPORT----

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