

RF Exposure Evaluation Report

Report Reference No...... : **MTEB25030166-H**
FCC ID..... : **2BOA7-B1**
Compiled by

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Date of issue..... : **Mar. 13, 2025**
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Applicant's name..... : **Shenzhen Tongxin Weiye Technology Co., Ltd**
Address..... : 2/F, Bldg C12, Fuyuan Ind'l City, 598 Zhoushi Rd, Jiuwei Comm.,
Hangcheng Sub-dist., Bao'an Dist., Shenzhen

Test specification/ Standard..... : **47 CFR Part 1.1307; 47 CFR Part 1.1310**
KDB447498D01 General RF Exposure Guidance v06
TRF Originator..... : Shenzhen Most Technology Service Co., Ltd.

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Test item description..... : Wireless CarPlay/Android Auto Adapter

Trade Mark..... : VCARLINKPLAY、FLIXIVI、Carivio

Model/Type reference..... : B1

Listed Models : C1, X1, F1, U2, B2, U1, U3, U4, U5, U6, U7, U8, U9, U10

Modulation Type..... : GFSK, $\pi/4$ DQPSK, 8DPSK
b: DSSS, CCK/ g/n/ax: BPSK, QPSK, QAM
OFDM

Operation Frequency..... : From 2402MHz to 2480MHz
From 2412MHz~2462MHz
From 5180MHz-5240MHz; 5745MHz-5825MHz

Hardware Version..... : V0.6

Software Version..... : V0.1

Rating..... : DC 5V $\pm$ 0.5 1A

Result..... : **PASS**

TEST REPORT

Equipment under Test : Wireless CarPlay/Android Auto Adapter

Model /Type : B1

Listed Models : C1, X1, F1, U2, B2, U1, U3, U4, U5, U6, U7, U8, U9, U10

Remark : Only the model “ B1 ” was tested, Their electrical circuit design, layout, components used and internal wiring are identical, Only the model name and Appearance is different.

Applicant : Shenzhen Tongxin Weiye Technology Co., Ltd

Address : 2/F, Bldg C12, Fuyuan Ind'l City, 598 Zhoushi Rd, Jiuwei Comm., Hangcheng Sub-dist., Bao'an Dist., Shenzhen

Manufacturer : Shenzhen Siyide Technology Co., Ltd

Address : D403, Bldg D, Huafeng Int'l Robot Ind'l Park, Hangcheng Ave., Nanchang Cmty., Xixiang, Bao'an Dist., Shenzhen

Manufacturer : Shenzhen Suding Technology Co., Ltd

Address : D401, Bldg D, Huafeng Int'l Robot Ind'l Park, Hangcheng Ave., Nanchang Cmty., Xixiang, Bao'an Dist., Shenzhen

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2025.03.13	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. 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.

2.1.2 Limits

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 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)
(A) Limits for Occupational/Controlled Exposures				
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
1500–100,000			5	6
(B) 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
1500–100,000			1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$ Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.1.3 EUT RF Exposure**BLE**

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402 MHz)	-0.675	-0.675 ± 1	0.325
Middle(2440MHz)	-2.003	-2.003 ± 1	-1.003
Highest(2480MHz)	-1.806	-1.806 ± 1	-0.806

BLE

Worst case: GFSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Lowest(2402MHz)	0.325	1.08	0.8	0.00026	1.0	Pass

Note: 1) Refer to report MTEB25030166-R1 for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (1.08 \cdot 1.20) / (4 \cdot 3.1416 \cdot 20^2) = 0.00026$

WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	12.57	12.57 ± 1	13.57
Middle(2437MHz)	13.27	13.27 ± 1	14.27
Highest(2462MHz)	13.06	13.06 ± 1	14.06

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	11.60	11.60 ± 1	12.6
Middle(2437MHz)	12.87	12.87 ± 1	13.87
Highest(2462MHz)	12.11	12.11 ± 1	13.11

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	12.91	12.91 ± 1	13.91
Middle(2437MHz)	13.45	13.45 ± 1	14.45
Highest(2462MHz)	12.39	12.39 ± 1	13.39

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2422MHz)	8.98	8.98 ± 1	9.98
Middle(2437MHz)	12.43	12.43 ± 1	13.43
Highest(2452MHz)	11.25	11.25 ± 1	12.25

802.11ax(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	11.32	11.32 ± 1	12.32
Middle(2437MHz)	11.90	11.90 ± 1	12.9
Highest(2462MHz)	10.09	10.09 ± 1	11.09

802.11ax(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2422MHz)	10.30	10.30 ± 1	11.3
Middle(2437MHz)	10.47	10.47 ± 1	11.47
Highest(2452MHz)	8.76	8.76 ± 1	9.76

WIFI 2.4G

Worst case: 802.11n(H20)						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Lowest(2412MHz)	14.45	27.86	-1.78	0.00366	1.0	Pass

Note: 1) Refer to report MTEB25030166-R2 for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (27.86 * 0.66) / (4 * 3.1416 * 20^2) = 0.00366$

BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	-1.047	-1.047 ± 1	-0.047
Middle(2441MHz)	-0.614	-0.614 ± 1	0.386
Highest(2480MHz)	-0.628	-0.628 ± 1	0.372

π /4DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	1.338	1.338 ± 1	2.338
Middle(2441MHz)	1.703	1.703 ± 1	2.703
Highest(2480MHz)	1.695	1.695 ± 1	2.695

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	1.753	1.753 ± 1	2.753
Middle(2441MHz)	2.157	2.157 ± 1	3.157
Highest(2480MHz)	2.150	2.150 ± 1	3.15

Worst case: 8DPSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Middle(2441MHz)	3.157	2.07	0.8	0.00049	1.0	Pass

Note: 1) Refer to report MTEB25030166-R for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (2.07 \cdot 1.20) / (4 \cdot 3.1416 \cdot 20^2) = 0.00049$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

WIFI 5.1G

Mode	Channel	Ant. 0 (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
IEEE 802.11a	36	6.170	6.170 ± 1	7.17
	40	5.720	5.720 ± 1	6.72
	48	7.716	7.716 ± 1	8.716
IEEE 802.11n_20	36	9.399	9.399 ± 1	10.399
	40	8.612	8.612 ± 1	9.612
	48	10.955	10.955 ± 1	11.955
IEEE 802.11n_40	38	10.146	10.146 ± 1	11.146
	46	10.179	10.179 ± 1	11.179
IEEE 802.11ac_20	36	6.752	6.752 ± 1	7.752
	40	6.448	6.448 ± 1	7.448
	48	7.505	7.505 ± 1	8.505
IEEE 802.11ac_40	38	7.252	7.252 ± 1	8.252
	46	7.623	7.623 ± 1	8.623
IEEE 802.11ax_20	36	9.140	9.140 ± 1	10.14
	40	7.329	7.329 ± 1	8.329
	48	8.981	8.981 ± 1	9.981
IEEE 802.11ax_40	38	6.431	6.431 ± 1	7.431
	46	5.426	5.426 ± 1	6.426

Worst case: IEEE 802.11n_20						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(5240MHz)	11.955	15.69	-0.35	0.00287	1.0	Pass

Note: 1) Refer to report MTEB25030166-R3 for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (15.69 \cdot 0.92) / (4 \cdot 3.1416 \cdot 20^2) = 0.00287$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

WIFI 5.8G

Mode	Channel	Ant. 0 (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
IEEE 802.11a	149	8.887	8.887 ± 1	9.887
	157	7.159	7.159 ± 1	8.159
	165	8.259	8.259 ± 1	9.259
IEEE 802.11n_20	149	4.241	4.241 ± 1	5.241
	157	4.345	4.345 ± 1	5.345
	165	5.049	5.049 ± 1	6.049
IEEE 802.11n_40	151	4.335	4.335 ± 1	5.335
	159	3.813	3.813 ± 1	4.813
IEEE 802.11ac_20	149	9.561	9.561 ± 1	10.561
	157	8.593	8.593 ± 1	9.593
	165	8.655	8.655 ± 1	9.655
IEEE 802.11ac_40	151	7.435	7.435 ± 1	8.435
	159	8.858	8.858 ± 1	9.858
IEEE 802.11ax_20	149	8.734	8.734 ± 1	9.734
	157	8.176	8.176 ± 1	9.176
	165	8.296	8.296 ± 1	9.296
IEEE 802.11ax_40	151	7.547	7.547 ± 1	8.547
	159	7.063	7.063 ± 1	8.063

Worst case: IEEE 802.11ac_20						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Lowest(5745MHz)	10.561	11.38	-0.35	0.00208	1.0	Pass

Note: 1) Refer to report MTEB25030166-R3 for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (11.38 * 0.92) / (4 * 3.1416 * 20^2) = 0.00208$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

.....THE END OF REPORT.....