RF Exposure Report

Application No.:	SZCR2502000519TL
Applicant:	Applied Digital Research Corporation DBA SKYBOXE
Address of Applicant:	15 Paradise Plaza, 299, Sarasota, Florida 34239 United States
Manufacturer:	Xiamen Four-Faith Communication Technology Co., Ltd.
Address of Manufacturer:	11th Floor, A-06 Area, No.370, Chengyi Street, Jimei, Xiamen, Fujian, China.
Factory:	Xiamen Four-Faith Communication Technology Co., Ltd.
Address of Factory:	11th Floor, A-06 Area, No.370, Chengyi Street, Jimei, Xiamen, Fujian, China.
Equipment Under Test (EUT):	
EUT Name:	5G CPE
Model No.:	SB5GCPE-302
Trade Mark:	SKYBOXE
FCC ID:	2AWJS-SB5GCPE302
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB 447498 D04 interim General RF Exposure Guidance v01
Date of Receipt:	2025-02-13
Date of Test:	2025-02-19 to 2025-04-10
Date of Issue:	2025-04-11
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2025-04-11		Original

Authorized for issue by:				
		Calvin Weng		
		Calvin Weng/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

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1 Contents

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2 General Information

2.1 General Description of E.U.T.

Product Type:	☐ Portable device
	☒ Mobile device
	☐ Fixed device

2.2 Details of E.U.T.

Power supply:	DC12V/3A by power adapter Adapter M/N:XH1200-3000W Adapter Input: AC100-240V, 50/60Hz, 0.8A Adapter Output: DC12/3A

2.4G Wi-Fi:

Cable Loss (for RF conducted test):	0.7dB
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)
Number of Channels:	802.11b/g/n(HT20)/ax(HE20):11 802.11n(HT40)/ax(HE40):7
Channel Spacing:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	Antenna 1: 2.81dBi and Antenna 2: 2.9dBi

5G Wi-Fi:

Cable Loss (for RF conducted test):	1.5dB
Operation Frequency/Number of channels (20MHz):	5180-5240MHz (4 Channels); U-NII-2A: 5260-5320MHz (4 Channels); U-NII-2C: 5500-5700MHz (11 Channels); U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency/Number of channels/(40MHz):	5190-5230MHz (2 Channels); U-NII-2A: 5270-5310MHz (2 Channels); U-NII-2C: 5510-5670MHz (5 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency/Number of channels (80MHz):	5210MHz (1 Channel); U-NII-2A: 5290MHz (1 Channels); U-NII-2C: 5530-5610MHz (2 Channels); U-NII-3: 5775MHz (1 Channel)
Modulation Type:	OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM); 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM)
Channel Spacing:	802.11a/n/ac/ax 20: 20MHz; 802.11n/ac/ax 40: 40MHz; 802.11ac/ax 80: 80MHz
DFS Function:	Master
TPC Function:	Not Support TPC function
Antenna Type:	Integral Antenna
Antenna Gain:	U-NII-1/2A: Ant1: 2.13dBi and Ant2: 3.23dBi; U-NII-2C: Ant1: 2.48dBi and Ant2: 2.26dBi; U-NII-2C: Ant1: 2.13dBi and Ant2: 1.19dBi

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WWAN Module (FCC ID: XMR2023RM520NNA, this module has been certified)

LTE			
Frequency band:	Band	Uplink (MHz)	Downlink (MHz)
	LTE Band 2	1850 to 1910 MHz	1930 to 1990 MHz
	LTE Band 4	1710 to 1755 MHz	2110 to 2155 MHz
	LTE Band 5	824 to 849 MHz	869 to 894 MHz
	LTE Band 7	2500 to 2570 MHz	2620 to 2690 MHz
	LTE Band 12	699 to 716 MHz	729 to 746 MHz
	LTE Band 13	777 to 787 MHz	746 to 756 MHz
	LTE Band 14	788 to 798 MHz	758 to 768 MHz
	LTE Band 17	704 to 716 MHz	734 to 746 MHz
	LTE Band 25	1850 to 1915MHz	1930 to 1995 MHz
	LTE Band 26 (814 to 824 MHz)	814 to 824MHz	859 to 869 MHz
	LTE Band 26 (824 to 849 MHz)	824 to 849 MHz	869 to 894 MHz
	LTE Band 30	2305 to 2315 MHz	2350 to 2360 MHz
	LTE Band 38	2570 to 2620 MHz	2570 to 2620 MHz
	LTE Band 41	2496 to 2690MHz	2496 to 2690MHz
	LTE Band 66	1710 to 1780 MHz	2110 to 2180 MHz
	LTE Band 71	663 to 698 MHz	617 to 652 MHz
Type of Modulation:	UL QPSK,16QAM, 64QAM, 256QAM DL QPSK,16QAM, 64QAM, 256QAM		

NR			
Frequency band:	Band	Uplink (MHz)	Downlink (MHz)
	NR Band n2	1850 to 1910 MHz	1930 to 1990 MHz
	NR Band n5	824 to 849 MHz	869 to 894 MHz
	NR Band n7	2500 to 2570 MHz	2620 to 2690 MHz
	NR Band n12	699 to 716 MHz	729 to 746 MHz
	NR Band n13	777 to 787 MHz	746 to 756 MHz
	NR Band n14	788 to 798 MHz	758 to 768 MHz
	NR Band n25	1850 to 1915MHz	1930 to 1995 MHz
	NR Band n26 (814 to 824 MHz)	814 to 824MHz	859 to 869 MHz
	NR Band n26 (824 to 849 MHz)	824 to 849 MHz	869 to 894 MHz
	NR Band n30	2305 to 2315 MHz	2350 to 2360 MHz
	NR Band n38	2570 to 2620 MHz	2570 to 2620 MHz
	NR Band n41	2496 to 2690 MHz	2496 to 2690 MHz
	NR Band n66	1710 to 1780 MHz	2110 to 2180 MHz
	NR Band n71	663 to 698 MHz	617 to 652 MHz

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	NR Band n77*	3700 to 3980 MHz 3450 to 3550 MHz	3700 to 3980 MHz 3450 to 3550 MHz
	NR Band n78*	3700 to 3800 MHz 3450 to 3550 MHz	3700 to 3800 MHz 3450 to 3550 MHz
Type of Modulation:	DFT-s-Pi/2-BPSK, DFT-s-QPSK, DFT-s-16QAM, DFT-s-64QAM, DFT-s-256QAM, CP-QPSK, CP-16QAM, CP-64QAM, CP-256QAM		

Antenna Gain:	LTE/NR Band 2	3.90 dBi
	LTE Band 4	4.00 dBi
	LTE/NR Band 5	-2.20 dBi
	LTE/NR Band 7	2.00 dBi
	LTE/NR Band 12	-0.20 dBi
	LTE/NR Band 13	-2.20 dBi
	LTE/NR Band 14	-2.20 dBi
	LTE Band 17	-0.20 dBi
	LTE/NR Band 25	3.90 dBi
	LTE/NR Band 26(814-824)	-2.20 dBi
	LTE/NR Band 26(824-849)	-2.20 dBi
	LTE/NR Band 30	-1.50 dBi
	LTE/NR Band 38	2.90 dBi
	LTE NR Band 41	1.60 dBi
	LTE/NR Band 66	-1.40 dBi
	LTE/NR Band 71	1.19 dBi
	NR Band n77 (3450-3980)	-1.40 dBi
	NR Band n78 (3450-3800)	-1.40 dBi

Separation Distance

Minimum test separation distance:	20cm
Remark: This minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander.	

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2.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

2.4 Test Facility

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

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

3 FCC Radiofrequency radiation exposure limits

According to§1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

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4 Measurement and Calculation

Power density Calculation

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Standalone Transmitter:

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Power (dBm)	EIRP(ERP) (dBm)	EIRP(ERP) Limit (dBm)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)	MPE Ratio	conclusion
LTE/NR Band 2	1852.5	3.90	25.00	28.90	33.00	0.1544	1.0000	0.1544	Pass
LTE Band 4	1710.7	4.00	25.00	29.00	33.00	0.1580	1.0000	0.1580	Pass
LTE/NR Band 5	826.5	-2.20	25.00	20.65	38.45	0.0379	0.5510	0.0688	Pass
LTE/NR Band 7	2502.5	2.00	25.00	27.00	33.00	0.0997	1.0000	0.0997	Pass
LTE/NR Band 12	701.5	-0.20	25.00	22.65	34.77	0.0601	0.4677	0.1285	Pass
LTE/NR Band 13	779.5	-2.20	25.00	20.65	34.77	0.0379	0.5197	0.0729	Pass
LTE/NR Band 14	790.5	-2.20	25.00	20.65	34.77	0.0379	0.5270	0.0719	Pass
LTE Band 17	706.5	-0.20	25.00	22.65	34.77	0.0601	0.4710	0.1276	Pass
LTE/NR Band 25	1852.5	3.90	25.00	28.90	33.00	0.1544	1.0000	0.1544	Pass
LTE/NR Band 26(814-824)	816.5	-2.20	25.00	NA	NA	0.0379	0.5443	0.0696	Pass
LTE/NR Band 26(824-849)	826.5	-2.20	25.00	20.65	38.45	0.0379	0.5510	0.0688	Pass
LTE/NR Band 30	2307.5	-1.50	25.00	23.50	23.98	0.0445	1.0000	0.0445	Pass
LTE/NR Band 38	2575.0	2.90	28.00	30.90	33.00	0.2448	1.0000	0.2448	Pass
LTE Band 41	2506.0	1.60	28.00	29.60	33.00	0.1814	1.0000	0.1814	Pass
NR Band n41	2506.0	1.60	31.00	32.60	33.00	0.3620	1.0000	0.3620	Pass
LTE/NR Band 66	1712.5	-1.40	25.00	23.60	30.00	0.0456	1.0000	0.0456	Pass
LTE/NR Band 71	665.5	1.19	25.00	24.04	34.77	0.0827	0.4437	0.1865	Pass
NR Band n77 (3450-3980)	3455.0	-1.40	31.00	29.60	30.00	0.1814	1.0000	0.1814	Pass
NR Band n78 (3450-3800)	3455.0	-1.40	31.00	29.60	30.00	0.1814	1.0000	0.1814	Pass
WLAN2.4GHz	2452.0	2.90	22.78	25.68	NA	0.0736	1.0000	0.0736	Pass
WLAN5GHz	5550.0	2.26	22.33	24.59	NA	0.0572	1.0000	0.0572	Pass

Remark:

1) P=Output Power at Antenna Terminals (mW)
2) R = distance to the center of radiation of antenna (in centimeter)

4.1 Exposure calculations for multiple sources

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE in accordance with the provisions of Table(A) and Table(B). To comply with the MPE, the fraction of the MPE in terms of E2, H2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity.

In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

Simultaneous Tx Combination	Configuration
1	WWAN + WiFi 2.4G + WiFi 5G

No.	Mode	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)	Result Ratio	Total Ratio	Limit	Result
1	NR Band n41	0.3620	1.0000	0.3620	0.4928	1.0000	Pass
	WiFi 2.4G	0.0736	1.0000	0.0736			
	WiFi 5G	0.0572	1.0000	0.0572			

Note: Considering the WWAN module collocation with the WLAN transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant.

Note3: The Power Data for 2.4G Wi-Fi is based on the RF Test report SZCR250200051902.

Note4: The Power Data for 5G Wi-Fi is based on the RF Test report SZCR250200051903

Note5: The power Date for LTE and NR are based on the module MPE report: 2303RSU050-U12.

--End of the Report--