RF EXPOSURE EVALUATION

Applicant: **Xiamen Milesight IoT Co., Ltd.**

Address: Building C09, Software Park Phase III, Xiamen 361024, Fujian, China

FCC ID: **2AYHY-SC311**

Product Name: **X5 Sensing Camera**

Standard(s): **47 CFR §1.1310, 47 CFR §2.1091**
447498 D01 General RF Exposure Guidance v06

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR230422405-00E**

Date Of Issue: **2023/9/4**

Reviewed By: **Julie Tan**
Title: RF Engineer

Julie Tan

Approved By: **Sun Zhong**

Sun Zhong

Title: Manager

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230422405-00E	Original Report	2023/9/4

FCC§1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Applicable Standard

According to subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
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

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

1.2 EUT Information▲:

Operation Modes	Operation Frequency (MHz)	Max Conducted output power including Tune-up Tolerance (dBm)	Maximum Antenna Gain (dBi)
BLE	2402-2480	4	2.21
2.4G WLAN	2412-2462	17	1.93
5.8G Radar	5825	-9.23	3
WCDMA B2	1850-1910	25	2.18
WCDMA B4	1710-1755	25	3.63
WCDMA B5	824-849	25	2.39
LTE B2	1850-1910	25	2.18
LTE B4	1710-1755	25	3.63
LTE B5	824-849	25	2.39
LTE B12	699-716	25	-0.21
LTE B13	777-787	25	1.42
LTE B25	1850-1915	25	2.18
LTE B26	814-824	25	2.39
LTE B26	824-849	25	2.39

Note:
1. The Above Parameters were provided by the manufacturer.
2. For 5.8G Radar :this device maximum E-Field level is 88.97dBμV/m at 3m, so the EIRP power is -6.23dBm,Antenna Gain is 3dBi, so the Maximum Conduct Power is -9.23dBm
3. Please refer to the FCC ID: XMR201909EG95NAX for power about the certified WWAN module.

1.3 Measurement Result

Operation Modes	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance	Power Density	MPE Limit
		(dBi)	(numeric)	(dBm)	(mW)	(cm)	(mW/cm^2)	(mW/cm^2)
BLE	2402-2480	2.21	1.66	4	2.51	20.00	0.00083	1
2.4G WLAN	2412-2462	1.93	1.56	17	50.12	20.00	0.01556	1
5.8G Radar	5825	3	2.00	-9.23	0.12	20.00	0.00005	1
WCDMA B2	1850-1910	2.18	1.65	25	316.23	20.00	0.10398	1
WCDMA B4	1710-1755	3.63	2.31	25	316.23	20.00	0.14519	1
WCDMA B5	824-849	2.39	1.73	25	316.23	20.00	0.10913	0.55
LTE B2	1850-1910	2.18	1.65	25	316.23	20.00	0.10398	1
LTE B4	1710-1755	3.63	2.31	25	316.23	20.00	0.14519	1
LTE B5	824-849	2.39	1.73	25	316.23	20.00	0.10913	0.55
LTE B12	699-716	-0.21	0.95	25	316.23	20.00	0.05997	0.47
LTE B13	777-787	1.42	1.39	25	316.23	20.00	0.08729	0.52
LTE B25	1850-1915	2.18	1.65	25	316.23	20.00	0.10398	1
LTE B26	814-824	2.39	1.73	25	316.23	20.00	0.10913	0.55
LTE B26	824-849	2.39	1.73	25	316.23	20.00	0.10913	0.55

For worst case:

The BLE/WLAN/5.8G Radar/WWAN can transmit simultaneously:

$$\sum_i \frac{S_i}{S_{Limit,i}} \le 1$$

$= S_{WLAN}/S_{limit\text{-}WLAN} + S_{WWAN}/S_{limit\text{-}WWAN} + S_{Radar}/S_{limit\text{-}Radar} + S_{BLE}/S_{limit\text{-}BLE}$

$= 0.01556/1 + 0.10913/0.55 + 0.0141/0.602 + 0.00005/1 + 0.00083/1$

$= 0.215$

< 1.0

Result: The device compliant the Exemption at 20cm distances.

===== END OF REPORT =====