RF Exposure Evaluation Report

Report No.:	JYTSZ-R12-2400927
Applicant:	ChangSha Kiloview Electronics Co., Ltd.
Address of Applicant:	B4-106/109, Jiahua Intelligence Valley Industrial Park, 877 Huijin Road, Yuhua District, Changsha, China
Equipment Under Test (EUT)	
Product Name:	4G Bonding Encoder
Model No.:	P3 mini
Trade mark:	KILOVIEW
FCC ID:	2AUYX-P3MINI
Applicable standards:	FCC CFR Title 47 Part 2 (§2.1091)
Date of sample receipt:	08 Aug., 2024
Date of Test:	09 Aug., to 26 Aug., 2024
Date of report issue:	27 Aug., 2024
Test Result:	PASS

Project by:	***Project Engineer***	***Date:***	*27 Aug., 2024*
Reviewed by:	***Senior Engineer***	***Date:***	*27 Aug., 2024*
Approved by:	***Manager***	***Date:***	*27 Aug., 2024*

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

1 Version

Version No.	Date	Description
00	*27 Aug., 2024*	*Original*

2 Contents

3 General Information

3.1 Client Information

Applicant:	ChangSha Kiloview Electronics Co., Ltd.
Address:	B4-106/109, Jiahua Intelligence Valley Industrial Park, 877 Huijin Road, Yuhua District, Changsha, China
Manufacturer:	ChangSha Kiloview Electronics Co., Ltd.
Address:	B4-106/109, Jiahua Intelligence Valley Industrial Park, 877 Huijin Road, Yuhua District, Changsha, China
Factory:	ChangSha Kiloview Electronics Co., Ltd.
Address:	B4-106/109, Jiahua Intelligence Valley Industrial Park, 877 Huijin Road, Yuhua District, Changsha, China

3.2 General Description of E.U.T.

Product Name:	4G Bonding Encoder		
Model No.:	P3 mini		
Test Sample Condition:	The test samples were provided in good working order with no visible defects.		
2.4GWi-Fi Specification			
Operation Frequency:	2412 MHz - 2462 MHz (802.11b, g, n-HT20)		
Channel Numbers:	11 (802.11b, g, n-HT20)		
Channel Separation:	5MHz		
Modulation Technology: (IEEE 802.11b)	DSSS-DBPSK, DQPSK, CCK		
Modulation Technology: (IEEE 802.11g/n/ax)	OFDM-BPSK, QPSK, 16QAM, 64QAM		
Antenna Type:	External Antenna		
Antenna Gain:	3.05 dBi (declare by applicant)		
5GWi-Fi Specification			
Operation Frequency:	Band 1: 5150 MHz - 5250 MHz		
	Band 4: 5725 MHz - 5850 MHz		
Channel Numbers:	Band 1: 4 , Band 4: 5 (802.11a, n-HT20, ac-VHT20)		
	Band 1, 4: 2 (802.11n-HT40, ac-VHT40)		
	Band 1, 4: 1 (802.11ac-VHT80)		
Modulation Technology: (IEEE 802.11a/802.11n)	OFDM-BPSK, QPSK, 16QAM, 64QAM		
Modulation Technology: (IEEE 802.11ac)	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM		
Antenna Type:	External Antenna		
Antenna Gain:	5.2G: 2.09 dBi (declare by applicant) 5.8G: 4.54 dBi (declare by applicant)		
LTE Specification			
Operation Frequency Range:	LTE band 2:	Tx: 1850 MHz - 1910 MHz	Rx: 1930 MHz - 1990 MHz
	LTE band 4:	Tx: 1710 MHz - 1755 MHz	Rx: 2110 MHz - 2155 MHz
	LTE band 5:	Tx: 824 MHz - 849 MHz	Rx: 869 MHz - 894 MHz
	LTE band 7:	Tx: 2500 MHz - 2570 MHz	Rx: 2620 MHz - 2690 MHz
	LTE band 12:	Tx: 699 MHz - 716 MHz	Rx: 729 MHz - 746 MHz

	LTE band 13:	Tx: 777 MHz - 787 MHz	Rx: 746 MHz - 756 MHz
	LTE band 25:	Tx: 1850 MHz - 1915 MHz	Rx: 1930 MHz - 1995 MHz
	LTE band 26:	Tx: 814 MHz - 849 MHz	Rx: 859 MHz - 894 MHz
	LTE band 38:	Tx: 2570 MHz - 2620 MHz	Rx: 2570 MHz - 2620 MHz
	LTE band 41:	Tx: 2496 MHz - 2690 MHz	Rx: 2496 MHz - 2690 MHz
	LTE band 66:	Tx: 1710 MHz - 1780 MHz	Rx: 2110 MHz - 2200 MHz
Modulation Type:	☒QPSK ☒16QAM		
Antenna Type:	External Antenna		
Antenna Gain:	LTE band 2:	4.44 dBi (declare by Applicant)	
	LTE band 4:	3.32 dBi (declare by Applicant)	
	LTE band 5:	2.71 dBi (declare by Applicant)	
	LTE band 7:	4.70 dBi (declare by Applicant)	
	LTE band 12:	2.10dBi (declare by Applicant)	
	LTE band 13:	2.10dBi (declare by Applicant)	
	LTE band 25:	4.44 dBi (declare by Applicant)	
	LTE band 26:	2.71 dBi (declare by Applicant)	
	LTE band 38:	2.42 dBi (declare by Applicant)	
	LTE band 41:	4.70 dBi (declare by Applicant)	
	LTE band 66:	3.32 dBi (declare by Applicant)	
Test Sample Condition:	The test samples were provided in good working order with no visible defects.		

3.3 Operating Modes

Operating mode	Detail description
2.4G WIFI mode	Keep the EUT in continuously transmitting in 2.4G WIFI mode
5.2G WIFI mode	Keep the EUT in continuously transmitting in 5.2G WIFI mode
5.8G WIFI mode	Keep the EUT in continuously transmitting in 5.8G WIFI mode
LTE mode	Keep the EUT in continuously transmitting in LTE Band2/4/5/7/12/13/25/26/38/41/66 mode

3.4 Additions to, deviations, or exclusions from the method

No

3.5 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

3.6 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://jyt.lets.com

4 Technical Requirements Specification

4.1 Limits

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 1.1307(b)

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

4.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

4.3 Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm^2)	Limits for General Population/ Uncontrolled Exposure (mW/cm^2)
2.4G Wi-Fi							
2412	15.02	31.77	3.05	2.02	20.00	0.01	1.0
5.2G Wi-Fi							
5230	12.46	17.62	2.09	1.62	20.00	0.01	1.0
5.8G Wi-Fi							
5795	11.70	14.79	4.54	2.84	20.00	0.01	1.0
LTE							
Band 2	25.00	316.23	4.44	2.78	20.00	0.17	1.0
Band 4	25.00	316.23	3.32	2.15	20.00	0.14	1.0
Band 5	25.00	316.23	2.71	1.87	20.00	0.12	0.55
Band 7	25.00	316.23	4.70	2.95	20.00	0.19	1.00
Band 12	25.00	316.23	2.10	1.62	20.00	0.10	0.47
Band 13	25.00	316.23	2.10	1.62	20.00	0.10	0.52
Band 25	25.00	316.23	4.44	2.78	20.00	0.17	1.0
Band 26	25.00	316.23	2.71	1.63	20.00	0.10	0.55
Band 38	25.00	316.23	2.42	1.75	20.00	0.11	1.0
Band 41	25.00	316.23	4.70	2.95	20.00	0.19	1.0
Band 66	25.00	316.23	3.32	2.15	20.00	0.14	1.0

Simultaneous transmission(Worse mode):

No.	Mode	Ratio	Total Ratio	Limit
1	2.4G Wi-Fi	0.01	0.22	1.00
2	LTE B12	0.21		

Note:

1. Just the worst case mode was shown in report.
2. LTE Maximum Output power please refer to FCC ID: XMR202212EG25GL, report No.: 2211RSU065-U2 & 2211RSU065-U3. Reports was issued by MRT Technology (Suzhou) Co., Ltd.

Note: Just the worst case mode was shown in report.

4.4 Conclusion

The device is exempt from the SAR test and satisfies RF exposure evaluation.

------End of report------