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RF Exposure Evaluation Report

Report No.: CQASZ20260601224E-04
Applicant: Shenzhen Kean Digital Co., Ltd.
Address of Applicant: Room 1001, Rujun Building, No. 105, Zhongxing Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen, 518129, China
Equipment Under Test (EUT):
EUT Name: Wireless Camera
Model No.: I81BM, I81BU, I81GV, I81GW, I81GX, I81GY, I81GZ, I81DK, I81DM, I81DN, I81DL, I81GU, I81GV, I81GW, I81GX, I81GY, I81GL, I81DU, I81DV, I81BV, I91CU, I91CV, I91CW, I91CX, I91CY, I91CZ, I91EH, I91EF, I91EG, I91RE, I91RF, I91RG, I91RH, I91RK, I71CW, I71CX, I71CY, I51GV, I51GX, I51GY, I51GZ, I51GR, I51GS
Test Model No.: I81BM
Brand Name:   
FCC ID: 2AKL2I81BM
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2026-06-11
Date of Test: 2026-06-11 to 2026-07-14
Date of Issue: 2026-07-28
Test Result: **PASS***

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

Tested By: Lewis Zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Jack Ai
(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20260601224E-04	Rev.01	Initial report	2026-07-28

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Kean Digital Co., Ltd.
Address of Applicant:	Room 1001, Rujun Building, No. 105, Zhongxing Road, Ma'antangCommunity, Bantian Street, Longgang District, Shenzhen, 518129, China
Manufacturer:	Shenzhen Kean Digital Co., Ltd.
Address of Manufacturer:	Room 1001, Rujun Building, No. 105, Zhongxing Road, Ma'antangCommunity, Bantian Street, Longgang District, Shenzhen, 518129, China
Factory:	Shenzhen Kean Digital Co., Ltd.
Address of Factory:	Room 1001, Rujun Building, No. 105, Zhongxing Road, Ma'antangCommunity, Bantian Street, Longgang District, Shenzhen, 518129, China

3.2 General Description of EUT

Product Name:	Wireless Camera
Model No.:	I81BM, I81BU, I81GV, I81GW, I81GX, I81GY, I81GZ, I81DK, I81DM, I81DN, I81DL, I81GU, I81GV, I81GW, I81GX, I81GY, I81GL, I81DU, I81DV, I81BV, I91CU, I91CV, I91CW, I91CX, I91CY, I91CZ, I91EH, I91EF, I91EG, I91RE, I91RF, I91RG, I91RH, I91RK, I71CW, I71CX, I71CY, I51GV, I51GX, I51GY, I51GZ, I51GR, I51GS
Test Model No.:	I81BM
Trade Mark:	  
Software Version:	5.10.6.0
Hardware Version:	V300PD
EUT Power Supply:	Li-ion battery DC 3.7V 9000mAh, Charge by DC 5V for adapter

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	Bluetooth Spec 5.4
Modulation Technique:	Non-Frequency Hopping Spread Spectrum(NFHSS)
Modulation Type:	GFSK
Number of Channel:	40
Transfer Rate:	1Mbps/2Mbps
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	PCB antenna
Antenna Gain:	2.4dBi

3.4 General Description of 2.4G WIFI Classic

Operation Frequency:	IEEE 802.11b/g/n(HT20)/ax(HE20): 2412MHz to 2462MHz IEEE 802.11n(HT40)/ax(HE40): 2422MHz to 2452MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11ax(HE20 and HE40): OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Number of Channel:	IEEE 802.11b/g, IEEE 802.11n HT20/ax HE20: 11 Channels IEEE 802.11n HT40/ax HE40: 7 Channels
Channel Separation:	5MHz
Transfer Rate:	IEEE for 802.11b: 1Mbps/2Mbps/5.5Mbps/11Mbps IEEE for 802.11g : 6Mbps/9Mbps/12Mbps/18Mbps/24Mbps/36Mbps/48Mbps/54Mbps IEEE for 802.11n(HT20) : 6.5Mbps/13Mbps/19.5Mbps/26Mbps/39Mbps/52Mbps/58.5Mbps/65Mbps IEEE for 802.11n(HT40) : 13.5Mbps/27Mbps/40.5Mbps/54Mbps/81Mbps/108Mbps/121.5Mbps/135Mbps IEEE for 802.11ax(HE20): 8.6Mbps/17.2Mbps/25.8Mbps/34.4Mbps/51.6Mbps/68.8Mbps/77.4Mbps /86.7Mbps/103.3Mbps/114.7Mbps/129.0Mbps/143.4Mbps IEEE for 802.11ax(HE40): 17.2Mbps/34.4Mbps/51.6Mbps/68.8Mbps/103.2Mbps/137.6Mbps/154.9Mbps /173.3Mbps/206.5Mbps/229.4Mbps/258.1Mbps/286.8Mbps
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	PCB antenna
Antenna Gain:	2.4dBi

3.5 General Description of 5G WIFI Classic

Operation Frequency:	IEEE 802.11a/n/ac/ax(20M): 5150MHz ~5250 MHz IEEE802.11n/ac/ax(40M): 5150MHz ~5250 MHz IEEE 802.11a/n/ac/ax(20M): 5725MHz ~5850 MHz IEEE802.11n/ac/ax(40M): 5725MHz ~5850 MHz
Channel Numbers:	IEEE 802.11a/n/ac/ax(20M): 5150MHz ~5250MHz/ 4 channel IEEE 802.11n/ac/ax(40M): 5150MHz ~5250MHz/ 2 channel IEEE 802.11a/n/ac/ax(20M): 5725MHz ~5850MHz/ 5 channel IEEE 802.11n/ac/ax(40M): 5725MHz ~5850MHz/ 2 channel2
Type of Modulation:	OFDM
Sample Type:	☒ Mobile ☐ Portable
Test Software of EUT:	SecureCRT
Antenna Type:	PCB antenna
Antenna gain:	1.59dBi
Cable loss:	1.0 dB

Note:

The above parameters will directly affect the test results. The information is provided by the applicant.

4 MPE Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 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: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

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.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure

1) For BLE

Antenna Gain: 2.4dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber 1.74 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.70	-1.5 ± 1	0.5	1.122
Middle(2440MHz)	-0.08	0 ± 1	1.0	1.259
Highest(2480MHz)	-0.60	-0.5 ± 1	0.5	1.122

The worst case:

Maximum tune-up Power (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
1.259	2.4	0.0004352403	1.0	PASS

Note: 1) Refer to report No. CQASZ20260601224E-01 for EUT test Max Conducted Peak Output Power value.

2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (1.41 * 1.74) / (4 * 3.1416 * 20^2) = 0.0004352403$

2)For 2.4G WIFI

Antenna Gain: 2.4dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.74 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

11B mode				
Test channel	AV Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	14.29	14.5±1	15.5	35.48
Middle(2437MHz)	14.53	14.5±1	15.5	35.48
Highest(2462MHz)	13.94	14.0±1	15.0	31.62

The worst case:

Maximum tune-up Power (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
35.48	2.4	0.012266739	1.0	PASS

Note: 1) Refer to report No. CQASZ20260601224E-02 for EUT test Max Conducted AV Output Power value.

2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (35.48 * 1.74) / (4 * 3.1416 * 20^2) = 0.012266739$

3) For 5G WIFI Classic

Antenna Gain: 1.59dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.44 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

11A mode				
Test channel	AV Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(5180MHz)	9.52	9.5 ± 1	10.5	11.22
Middle(5200MHz)	8.69	8.5 ± 1	9.5	8.91
Highest(5240MHz)	8.32	8.5 ± 1	9.5	8.91

The worst case:

Maximum tune-up Power (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
11.22	1.59	0.00321906	1.0	PASS

Note: 1) Refer to report No. CQASZ20260601224E-03 for EUT test Max Conducted AV Output Power value.

2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (11.22 * 1.44) / (4 * 3.1416 * 20^2) = 0.00321906$

*** END OF REPORT ***