Testing
NVLAP LAB CODE 600222-0

RF Exposure Evaluation Declaration

Report No.: S20240925789104
Issue Date: 11-21-2024

Applicant:	Waylens Inc.
Address:	2711 Centerville Road - Suite 400, Wilmington, Delaware, United States
FCC ID:	2AKAF-CAM18
Product:	AI Recorder II
Model No.:	CAM18
Trade Mark:	/
FCC Rule Part(s):	CFR 47, FCC Part 2.1091 Radio frequency radiation exposure evaluation: mobile devices.
Item Receipt date:	Sep. 29, 2024
Test Date:	Oct. 08, ~ Oct. 29, 2024

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FANGGUANG INSPECTION & TESTING CO.,LTD. APPROVED(02)

The test results relate only to the samples tested.
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 KDB 558074 D01. Test results reported herein relate only to the item(s) tested.
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Revision History

Report No.	Version	Description	Issue Date
S20240925789104	Rev. 01	/	11-21-2024

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	AI Recorder II		
Model Name:	CAM18		
Trade Mark:	/		
Input Voltage Range:	DC: 14V 1A		
Wi-Fi Specification:	802.11b/g/n-HT20/n-HT40		
Bluetooth Version:	4.2		
LTE Frequency Range:	LTE Band	TX(MHz)	RX(MHz)
	2	1850~1910	1930~1990
	4	1710~1755	2110~2155
	5	824~849	869~894
	12	699~716	729~746
	17	704~716	734~746
	66	1710~1780	2110~2200
Software Version:	1.2.01		
Hardware Version:	TWN_V5		
Note:	This information is provided by the Customer and its authenticty is the responsibility of the Customer.		

1.2. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2472MHz 802.11n-HT40: 2422 ~ 2462MHz BT/BLE:2402~2480MHz
Channel Number:	802.11b/g/n-HT20: 13 802.11n-HT40: 5 BT: 79 BLE: 40
Antenna Type:	PCB softboard Antenna
Antenna Gain:	WLAN&BT: 2.93dBi LTE Band 2 : 3.01dBi LTE Band 4 : 1.59dBi LTE Band 5 : 0.05dBi LTE Band 12 : -3.8dBi LTE Band 17 : -3.8dBi LTE Band 66 : 1.24dBi
Type of Modulation:	802.11b/g/n: CCK/DBPSK/BPSK/OFDM/QPSK//DQPSK/16QAM/64QAM BT: GFSK, Π/4 DQPSK, 8DPSK BLE: GFSK LTE: QPSK, 16QAM
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0~MCS7 BT: 1Mbps (GFSK), 2Mbps (Π/4 DQPSK), 3Mbps (8DPSK) BLE: 1Mbps
Note:	/

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: 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 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

Pd is the limit of MPE, $1mW/cm^2$. 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.

2.2. Test Result of RF Exposure Evaluation

Product	AI Recorder II
Test Item	RF Exposure Evaluation

Mode	Frequency (MHz)	Maximum Conducted OutputPower (dBm)	Antenna Gain (dBi)	PG		MPE (mW/cm^2)	MPE Limits (mW/cm^2)
				(dBm)	(mW)		
WIFI	2412~2462	17.32	2.93	20.25	105.93	0.0211	1.00
BT	2402~2480	6.99	2.93	9.92	9.82	0.0020	1.00
BLE	2402~2480	5.63	2.93	8.56	7.18	0.0014	1.00

Mode	Frequency (MHz)	Tune-up Conducted Power (dBm)	Antenna Gain (dBi)	PG		MPE (mW/cm^2)	MPE Limits (mW/cm^2)
				(dBm)	(mW)		
LTE Band 2	1850~1910	25.0	3.01	28.01	632.41	0.1258	1.00
LTE Band 4	1710~1755	25.0	1.59	26.59	456.04	0.0907	1.00
LTE Band 5	824~849	25.0	0.05	25.05	319.89	0.0636	0.5493
LTE Band 12	699~716	25.0	-3.8	21.2	131.83	0.0262	0.466
LTE Band 17	704~716	25.0	-3.8	21.2	131.83	0.0262	0.4693
LTE Band 66	1710~1780	25.0	1.24	26.24	420.73	0.0837	1.00

Remark: 1. MPE use distance is 20cm from manufacturer declaration of user manual.

Remark: 2.Use the maximum gain of all bands when evaluating.

Remark: 3. The results of LTE Maximum Conducted OutputPower please refer to the LTE module test report (Report No. RSHIA240408005-00B) which was issued by Bay Area Compliance Laboratories Corp.(Kunshan) on 2024.05.30.

Remark: 4. The device only has single WLAN/BT Antenna and single LTE Main Antenna, without LTE Diversity Antenna. WLAN/BT can operate simultaneously with the cellular mode.

CONCULISON:

The Max Power Density at R (20 cm) = $0.1258mW/cm^2 < 1.00mW/cm^2$.

The Max MPE of simultaneous transmission = $0.1258mW/cm^2+0.0211mW/cm^2$

= $0.1469mW/cm^2 < 1.00mW/cm^2$

So the EUT complies with the requirement.

The End