

RF Exposure Evaluation Report

Product : 4K Triple Laser Projector
Trade mark :  VALERION
Model/Type reference : VisionMaster Pro2, VisionMaster Plus,
VisionMaster Plus2, VisionMaster Pro
Serial Number : N/A
Report Number : EED32Q81354205
FCC ID : 2BKWN-VALMAVISION
Date of Issue : Dec. 18, 2024
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

VALERION TECHNOLOGY USA CO., LTD
1312 17th Street, Unit Num 2955, Denver, CO 80202, United States.

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Dec. 18, 2024

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1 Version

Version No.	Date	Description
00	Dec. 18, 2024	Original

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3 General Information

3.1 Client Information

Applicant:	VALERION TECHNOLOGY USA CO., LTD
Address of Applicant:	1312 17th Street, Unit Num 2955, Denver, CO 80202, United States.
Manufacturer:	VALERION TECHNOLOGY USA CO., LTD
Address of Manufacturer:	1312 17th Street, Unit Num 2955, Denver, CO 80202, United States.
Factory:	Shenzhen WeProTalk Techology Co.,Ltd
Address of Factory:	2505, 2501, Yihua Financial Technology Building, No. 3939, Baishi Road, Binhai Community, Yuehai Street, Nanshan District, Shenzhen

3.2 General Description of EUT

Product Name:	4K Triple Laser Projector
Model No.:	VisionMaster Pro2, VisionMaster Plus, VisionMaster Plus2, VisionMaster Pro
Test Model No.:	VisionMaster Pro2
Trade mark:	 VALERION

3.3 Product Specification subjective to this standard

Frequency Range:	BLE/BT: 2402MHz~2480MHz 2.4G Wi-Fi: IEEE 802.11b/g/n(HT20)/ax(HE20): 2412MHz to 2462MHz IEEE 802.11n(HT40)/ax(HE40): 2422MHz to 2452MHz 5G Wi-Fi: U-NII-1: 5150-5250MHz U-NII-3:5745-5825MHz
Modulation Type:	BLE: GFSK BT: GFSK, $\pi/4$ DQPSK, 8DPSK 2.4G Wi-Fi: 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 802.11ax(HE20/HE40): OFDM (QPSK, BPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 5G Wi-Fi: IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11ac(VHT20/VHT40/VHT80): OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) IEEE 802.11ax(HE20/HE40/HE80): OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Test Power Grade:	Default
Test Software of EUT:	BLE/BT: WCN_Combo_Tool 2.4G Wi-Fi/5G Wi-Fi: QATool_Dbg
Antenna Type:	Internal Antenna
Antenna Gain:	BLE/BT: 0.7dBi 2.4G Wi-Fi/5G Wi-Fi: ANT 1: 1.3 dBi, ANT 2: 1.2 dBi 5G Wi-Fi: ANT 1: 1.7dBi, ANT 2: 1.9dBi

Power Supply:	Adapter:	Input: 100V-240V 50-60Hz Output: 36V/5A
Sample Received Date:	Nov. 04, 2024	
Sample tested Date:	Nov. 04, 2024 to Nov. 20, 2024	
Remark: Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified. Model No.: VisionMaster Pro2, VisionMaster Plus, VisionMaster Plus2, VisionMaster Pro Only the model VisionMaster Pro2 was tested. The difference between different product models is different sales channels and different product appearance colors, resulting in different models. The rest of the same, does not affect the safety and electromagnetic compatibility test results.		

3.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

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 Evaluation

For Stand alone:

BLE:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio
@2.4GHz	20	8.35	0.7000	6.90	4.8978	3060	0.0016

BT:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@2.4GHz	20	1.91	0.7000	0.45	1.1092	3060	0.0004	Pass

2.4G Wi-Fi:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@2.4GHz	20	14.94	1.3	14.09	25.645	3060	0.0084	Pass

5G Wi-Fi:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@5GHz	20	14.07	1.7	13.8	23.988	3060	0.0078	Pass

Note:

For Simultaneous Transmission:

As MPE ratio (BLE+2.4G Wi-Fi+5GWIFI)=0.0016+0.0084+0.0078=0.0178 < 1, it' s deemed to fulfil the RF exposure requirement.

①EIRP=conducted power+antenna gain;

②ERP=EIRP-2.15;

③EIRP(dBm) = Field strength of the fundamental signal(dBuV/m@3m) – 95.23;

④ERP(mW) = 10^{(ERP (dBm)/10)};

⑤The estimation distance is 20cm;

⑥The test data please refer to the report of EED32Q81354201, EED32Q81354202, EED32Q81354203, EED32Q81354204 and only the worst case data was recorded in the report.

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*** End of Report ***