Report No.: 58250SC10039901

Test Report

Client Name	:	Shenzhen Vstarcam Technology Co., Ltd.
Address	:	4-5th Floor, G Building, Jiangxia Tech Park, Huangfengling Industrial Zone, Shiyan street, Baoan District, ShenZhen City, Guangdong Province, P.R China
Product Name	:	IP CAMERA
Date	:	Jan. 06, 2022

Anbotek (Guangzhou) Compliance Laboratory Limited

TEST REPORT
IEC 60825-1
Safety of laser products
Part 1: Equipment classification and requirements

Report

Report reference No.	58250SC10039901
Compiled by	Clearloveq Zheng
Approved by	Terry Tian
Date of issue	Jan. 06, 2022
Contents	14 pages

Testing laboratory

Name	Anbotek (Guangzhou) Compliance Laboratory Limited
Address	Rm.508, Bld.2, No.232, Kezhu Road, Science City, Economic & Technology Development Area, Guangzhou, Guangdong, China. 510663
Testing location	Same as above

Applicant

Name	Shenzhen Vstarcam Technology Co., Ltd.
Address	4-5th Floor, G Building, Jiangxia Tech Park, Huangfengling Industrial Zone, Shiyan street, Baoan District, ShenZhen City, Guangdong Province, P.R China

Manufacturer

Name	Shenzhen Vstarcam Technology Co., Ltd.
Address	4-5th Floor, G Building, Jiangxia Tech Park, Huangfengling Industrial Zone, Shiyan street, Baoan District, ShenZhen City, Guangdong Province, P.R China

Test specification

Standard	IEC 60825-1:2014
Test procedure	N.A.
Non-standard test method	N.A.

Test item Description

Product name	IP CAMERA
Trademark	N.A.
Model and/or type reference	C38S-P
Rating(s)	DC5V, 2A

Test case verdicts

Test case does not apply to the test object …..: N(.A.)

Test item does meet the requirement ……: P(ass)

Test item does not meet the requirement ..... : F(ail)

Testing

Date of receipt of test item ....: Dec. 13, 2021

Date(s) of performance of test ..... : Dec. 13, 2021 to Dec. 21, 2021

Copy of marking plate:

Note: This label for reference only.

IP CAMERA
Model No.: C38S-P
Rating: 5V⎓2A

CLASS 1 LASER PRODUCT
Shenzhen Vstarcam Technology Co., Ltd.
4-5th Floor, G Building, Jiangxia Tech Park, Huangfengling Industrial Zone, Shiyan street, Baoan District, ShenZhen City, Guangdong Province, P.R China

General product information:

The product is a laser level.

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict
4	**CLASSIFICATION PRINCIPLES**		
4.3	Classification rules		---
4.3 a	Radiation of a single wavelength		P
4.3 b	Radiation of multiple wavelengths		N
	1) Laser product emits at two or more wavelengths shown as additive in Table 1		N
	2) Laser product emits at two or more wavelengths not shown as additive in Table 1		N
4.3 c	Radiation from extended sources (see 5.4.3)		N
4.3 d	Non-uniform, non-circular or multiple apparent source		N
4.3 e	Time bases		---
	1) 0,25 s		N
	2) 100 s	Class 1	P
	3) 30000 s		N
4.3 f	Repetitively pulsed or modulated lasers		N
	1) Any single pulse		N
	2) Average power for pulse trains		N
	3) Pulse duration $t \leq T_i$ ..... : Number of pulses N and C_5..... :		N
	3) Pulse duration $t > T_i$..... : Number of pulses N and C_5 ..... :		P
4.4	Laser products designed to function as conventional lamps.		N
	α measured at 200 mm distance from closest point of human access ($\alpha > 5$ mrad).		N
	Un-weighted radiance L measured at 200 mm distance (comparison with $L_T = 1\ MWm^{-2}sr^{-1}/\alpha$) under reasonably foreseeable single fault conditions.		N
	Evaluation of emission according to IEC 62471 series (optional): Standard applied (IEC 62471 series)……,…..... : Risk Group…….……..... : Labelling……... : Classification of product based on accessible laser radiation (if no laser radiation accessible: Class 1).		N
5	**DETERMINATION OF THE ACCESSIBLE EMISSION LEVEL and PRODUCT CLASSIFICATION**		

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict
5.1	Tests		---
	Compliance under reasonably foreseeable single fault conditions.		P
5.3	Determination of the class of the laser product ... : For Class 1C: vertical safety standard applied with requirements for Class 1C.		---
5.4	Measurement geometry		---
5.4.1	General		---
5.4.2	Default (simplified) evaluation		P
	Conditions applied ..... :		P
	Aperture diameter ..... :		P
	Reference point : ..... :		P
	Measurement distance ..... : (for each condition)		N
5.4.3	Evaluation condition for extended sources		N
	Conditions applied ..... :		N
	Most restrictive position ..... : (distance from reference point)		N
	Angular subtense of the apparent source α and C_6: (for each condition)		N
5.4.3 a	Aperture diameters (for each condition). ..... :		N
5.4.3 b	Angle of acceptance (for each condition)……..:		N
6	**ENGINEERING SPECIFICATIONS**		
6.2	Protective housing		---
6.2.1	General		---
	Protective housing prevents access to energy levels in excess of the AEL for Class 1.		P
	Protective housing prevents access to energy levels equivalent to Class 4 and withstands exposures under reasonably foreseeable single fault conditions.		N
	Maintenance of Class 1, 1C, 1M, 2, 2M, or 3R (access to emissions of Class 3B or 4 is prevented).		N
	Maintenance of Class 3B product (access to emission of Class 4 is prevented).		N
6.2.2	Service		N
6.2.3	Removable laser system (laser system complies with requirements of Clauses 6 and 7).		N
6.3	Access panels and safety interlocks		---

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict
6.3.1	Panel is intended to be removed during operation (or maintenance) and would give access to higher energy levels (see Table 13).		N
	Accessible emission (after removal of the panel) corresponds to product Class (designated by "X" in Table 13)		N
	Emission through the opening if interlocked panel of Class 1, 1C, 1M, 2, or 2M is removed (Emission < AEL of Class 1M or 2M).		N
	Emission through the opening if interlocked panel of Class 3R, 3B, or 4 is removed (Emission < AEL of Class 3R).		N
	Requirements regarding reasonably foreseeable single fault condition.		N
6.3.2	Override mechanism		N
	Behaviour of override in operation when the panel is replaced.		N
	Visible or audible warning for override mode.		N
6.4	Remote interlock connector		N
6.5	Manual reset		N
6.6	Key control		N
6.7	Laser radiation emission warning		---
6.7.1	Laser product is a 3R (λ<400 nm; λ>700 nm), 1C, 3B or 4 laser systems.		N
6.7.2	Audible or visible warning.		N
	Warning is failsafe or redundant.		N
	Viewing of the visible warning does not require exposure to emissions > AEL for Class 1M and 2M.		N
6.7.3	Operational control and laser aperture are provided with a warning device when they are separated more than 2 m from warning device.		N
6.7.4	Visible indication of output aperture if laser emission may be distributed through more than one output.		N
6.7.5	Switch for handheld Class 3R device must be depressed for emission (in lieu of emission indicator).		N
6.8	Beam stop or attenuator		N
6.9	Controls		N
6.10	Viewing optics		N

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict
	a) Human access to laser radiation in excess of Class 1M prevented when the shutter is opened or attenuation varied.		N
	b) Opening of the shutter or variation of the attenuation prevented when exposure to laser radiation in excess of Class 1M is possible.		N
6.11	Scanning safeguard		N
6.12	Safeguard for Class 1C products		N
	a) Human access to laser radiation in excess of AEL for Class 1 measured under Condition 3 is prevented.		N
	b) Human access to laser radiation in excess of AEL for Class 3B measured through 3,5 mm aperture at 5 mm distance from applicator is prevented.		N
6.13	Walk-in access		
	a) Means provided so that any person inside the housing can prevent activation of Class 3B or 4 laser hazards.		N
	b) A warning device provides adequate warning of emission to any person within the housing.		N
	c) Where “walk-in” access during operation is intended or reasonably foreseeable, emission of laser radiation that is equivalent to Class 3B or 4 while someone is present inside the enclosure of Class 1, Class 2 or Class 3R product is prevented by engineering means.		N
6.14	Environmental conditions		---
	- climatic conditions		P
	- vibration and shock		P
6.15	Protection against other hazards		---
6.15.1	Non-optical hazards (product safety standard)		P
	- electrical hazards;		P
	- excessive temperature;		P
	- spread of fire from the equipment;		P
	- sound and ultrasonics;		P
	- harmful substances;		P
	- explosion;		P
6.15.2	Collateral radiation		N
6.16	Power limiting circuit		N
7	**LABELLING**		

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict
7.1	General		---
	Labels durable, permanently affixed		P
	Labels clearly visible		P
	Reading of labels is possible without exposure to laser radiation in excess of AEL for Class 1.		N
	Colour combination		P
	Labelling impractical due to the size or design of the product.		P
	Warning label – Hazard symbol (Figure 3)		N
7.2 - 7.7	Text on explanatory label or pictogram (laser class, warning text)		P
7.8	Aperture label		N
7.9	Radiation output and standards information		---
	Max output of laser radiation ..... :		N
	Pulse duration ..... :		N
	Emitted wavelength(s) ..... :		N
	Name and publication date of the standard..... :		N
7.10	Labels for access panels		---
7.10.1 a) – f)	Labels for panels - warning wording used ..... :		N
7.10.2	Labels for safety interlocked panels - Warning wording used ..... :		N
7.11	Warning for invisible laser radiation ..... :		N
7.12	Warning for visible laser radiation ..... :		N
7.13	Warning for potential hazard to the skin or anterior parts of the eye - warning wording used..... :		N

8	**OTHER INFORMATIONAL REQUIREMENTS**		
8.1	Information for the user		---
	a) adequate instructions for assembly, maintenance and safe use and description of the classification limitations, if appropriate.		P
	b) additional warning for Class 1M and 2M		N
	c) laser beam parameters for radiation above the AEL of Class 1		---
	• Wavelength ..... :		N
	• Beam divergence ..... :		N

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict
	• Pulse pattern ..... : (pulse duration, repetition rate, …)		N
	• Maximum power or energy output ..... :		N
	d) safety instruction for embedded laser products and other incorporated laser products.		P
	e) MPE and NOHD for Class 3B and 4 laser products; For collimated beam Class 1M and 2M lasers the extended NOHD (ENOHD).		N
	f) information for the selection of eye protection.		N
	g) reproduction of all required labels and warnings.		N
	h) location of laser apertures		N
	i) list of controls, adjustments of procedures for operation and maintenance - and warning statement.		N
	j) information (compatibility requirements) about laser energy source if not incorporated.		N
	k) additional warning for Class 1, 1M, 2, 2M, and 3R regarding skin or corneal burns.		P
	l) Information for Class 1C products (e.g. warning that repeated application may pose a risk).		N
8.2	Purchasing and service information		P
	a) safety classification of each laser product stated in all descriptive material (e.g. brochures).		P
	b) adequate instructions for servicing available: • warnings and precautions regarding exposure of laser emission above Class 1 • maintenance schedule • list of controls and procedures that could increase accessible emissions • description of displaceable parts • protective procedures for service personnel • reproduction of labels and hazard warnings		P

9	**ADDITIONAL REQUIREMENTS FOR SPECIFIC LASER PRODUCTS**		
9.1	Applicable other parts of the standard series IEC 60825		---
	IEC 60825-2 (Safety of optical communication systems)		N
	IEC 60825-4 (Laser guards)		N

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict
	IEC 60825-12 (Safety of free space optical communication systems used for transmission of information)		N
9.2	Medical laser products: Class 3B and Class 4 medical laser products comply with IEC 60601-2-22		N
9.3	Laser processing machines: Comply with IEC/ISO 11553 series.		N
9.4	Electric toys: Comply with IEC 62115		N
9.5	Consumer electronic products: Comply with IEC 60950 (IT-equipment) or IEC 60065 (AV equipment)		N

IEC 60825-1			
Clause	Requirement – Test	Result - Remark	Verdict

Test condition

1. Condition 1 is intended to apply to collimated beams where telescopes and binoculars may increase the hazard. The radiation is collected through a circular aperture stop having a diameter 50 mm and its location is 2000 mm away from the reference points.

2. Condition 2 is intended to apply to optical fibre communication systems.

3. Condition 3 applies to the unaided eye. For power and energy measurement of scanned laser radiation, condition 3 shall be used. The radiation is collected through a circular aperture stop having a diameter 7 mm and its location is 100 mm away from the reference points.

Condition 2 is not applicable to this product, and the condition 3 is obviously severer than condition 1.

Therefore, measurements for condition 1 and condition 2 are omitted.

Class	1	Beam shape	—
Wavelength:	650nm	Position of app. source	—
Angular Subtense:	Less than 1.5mrad	Pulse width tpw:	—
Breakpoint T1:	—	Period duration:	—
Breakpoint T2:	—	Number of pulses N:	—
C1:	—	C5:	—
C2:	—	C6:	—
C3:	—	C7:	1
C4:	2.57		
AEL limits:	3.9×10^{-4} W		

Measurement: 0.27mW
Conclusions: This product is class 1 laser product.

Photo Documentation

Photo 1 [√] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [ ] internal	

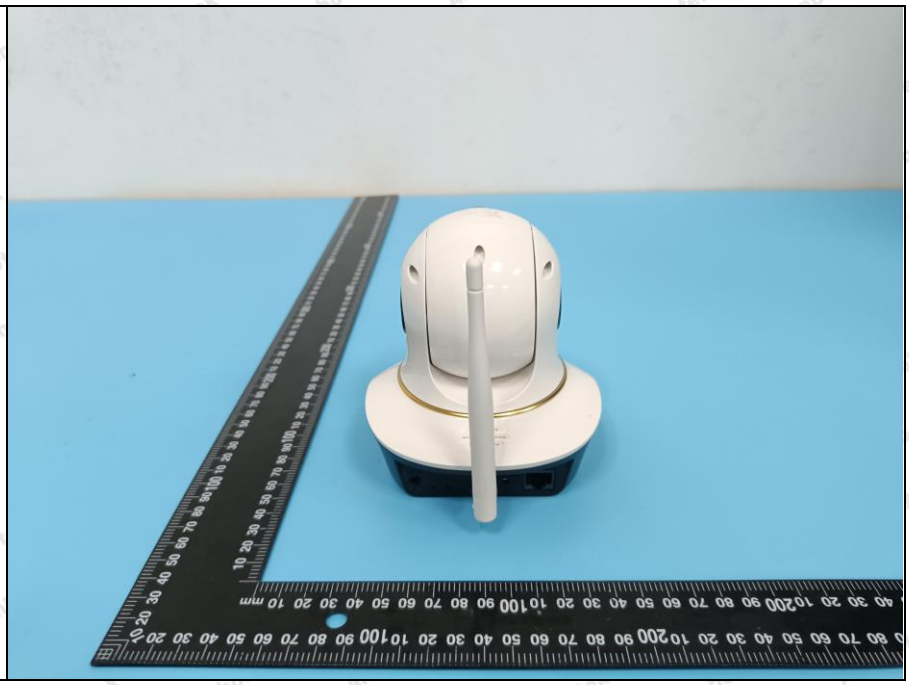
Photo 2 [ ] front [√] rear [ ] right side [ ] left side [ ] top [ ] bottom [ ] internal	

Photo Documentation

Photo 3 [ ] front [ ] rear [√] right side [ ] left side [ ] top [ ] bottom [ ] internal	

Photo 4 [ ] front [ ] rear [ ] right side [√] left side [ ] top [ ] bottom [ ] internal	

Photo Documentation

Photo 5 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [√] bottom [ ] internal	

Photo 6 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

***** End of Report *****