Test Report issued under the responsibility of:

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

Report Number.....:	AOC250630002S
Date of issue.....:	June 30, 2025
Total number of pages.....	16 pages
Name of Testing Laboratory preparing the Report.....:	Shenzhen AOCE Electronic Technology Service Co., Ltd Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Applicant's name.....:	BT TECHNOLOGY (HK) LIMITED
Address.....:	RM 1101, 11/F SAN TOI BUILDING NO.139 CONNAUGHT RD CENTRAL HONG KONG
Test specification:	
Standard.....:	☒ EN 60825-1:2014+A11:2021
Test procedure.....:	Type testing
Non-standard test method.....:	N/A
Test Report Form No.....:	EN60825_1G
Test Report Form(s) Originator.....:	LCIE
Master TRF.....:	Dated 2016-03

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the Testing Laboratory, responsible for this Test Report.

Test item description.....:	FIBER LASER MACHINE
Trade Mark.....:	INTERLASER
Manufacturer.....:	BT TECHNOLOGY (HK) LIMITED RM 1101, 11/F SAN TOI BUILDING NO.139 CONNAUGHT RD CENTRAL HONG KONG
Model/Type reference.....:	See Model List
Ratings.....:	380V, 50Hz, 30KW

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**Testing Laboratory:**	Shenzhen AOCE Electronic Technology Service Co., Ltd	
Testing location/ address.....:		Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China	
Tested by (name, function, signature).....:		WanYang Ye Technical Engineer	
Approved by (name, function, signature)...:		Robin Liu Technical Manager	
☐	**Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address.....:			
Tested by (name + signature).....:			
Witnessed by (name, function, signature)..:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**	N/A	
☐	**Testing procedure: CTF Stage 4:**	N/A	
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature)..:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

Model List

ITT-200	ITT-300	ITT-500	IMK20	IMK30
IMK50	IMK60	IT-200	IT-300	IT-500
DM30	DM60	IMZF20B	IMZF30B	IMZF20C
IMZF30C	IMZF20D	IMZF30D	IMZF20E	IMZF30E
IMZF20N	IMZF30N	LT200	LT300	LT500
LG300	LG600	LG1000	ITT-U3	ITT-U5
ITT-U10	IT-U3	IT-U5	IT-U10	LUV300
LUV500	LUV1000	ILT-550H	ILT-550HSC	ILT-650H
ILT-850H	ILT-360M	ILT-280M	ILT-260M	ILT-6026FT
ILT-9028FT	ILT-12036FT	ILT-550FH	ILT-550SC	ILT-650FH
ILT-850FH	ILT-120VF/BC	ILT-120VFH/BC	ILT-180VF/BC	ILT-120VF
ILT-120VFH	ILT-180VF	ILT-6018G	ILT-6026G	ILT-9028G
ILT-12036G	ILT-6012E	ILT-6026E	ILT-9028E	ILT-12036E
ILT-6012D	ILT-6018D	ILT-6023D	ILT-6012A	ILT-6012AB
ILT-12020GCM	ILT-12030GCM	ILT-12035GCM	ILS-3015	ILS-4020
ILS-6025	ILS-12025	ILS-3015DP	ILS-4020DP	ILS-6025DP
ILS-12030DP	ILS-12025LR	ILS-14025LR	ILS-24030LR	ILS-3015ST/12
ILS-4020ST/18	ILS-6025ST/26	ILS-4020DTP/12	ILS-6025DTP/26	ILS-12025DTP/28

List of Attachments (including a total number of pages in each attachment):

Attachment No.1: Photo document.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
- EN 60825-1:2014+A11:2021	Shenzhen AOCE Electronic Technology Service Co., Ltd Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China

Summary of compliance with National Differences (List of countries addressed):

N/A

Copy of marking plate:

INTERLASER

FIBER LASER MACHINE
ILT-180VF/BC
380V, 50Hz, 30KW

Manufacturer: BT TECHNOLOGY (HK) LIMITED
Address: RM 1101, 11/F SAN TOI BUILDING NO.139 CONNAUGHT RD CENTRAL HONG KONG

Made in China

Marking label

Test item particulars..... :	
Classification of installation and use.....:	N/A
Supply Connection.....:	internally powered
.....:	
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing..... :	
Date of receipt of test item.....:	June 19, 2025
Date (s) of performance of tests.....:	June 19, 2025 to June 30, 2025

General remarks:

The tested sample(s) and the sample information are provided by the client.

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Note: clauses marked '*' not included in CNAS scope.

The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.

When determining for test conclusion, measurement uncertainty of tests has been considered.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies)..... :	BT TECHNOLOGY (HK) LIMITED RM 1101, 11/F SAN TOI BUILDING NO.139 CONNAUGHT RD CENTRAL HONG KONG

General product information:
N/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict
4	**CLASSIFICATION PRINCIPLES**		
4.3	Classification rules		---
4.3 a	Radiation of a single wavelength	657nm	P
4.3 b	Radiation of multiple wavelengths		N/A
	1) Laser product emits at two or more wavelengths shown as additive in Table 1		N/A
	2) Laser product emits at two or more wavelengths not shown as additive in Table 1		N/A
4.3 c	Radiation from extended sources (see 5.4.3)		N/A
4.3 d	Non-uniform, non-circular or multiple apparent source		N/A
4.3 e	Time bases		---
	1) 0,25 s	For Class 2	P
	2) 100 s		N/A
	3) 30000 s		N/A
4.3 f	Repetitively pulsed or modulated lasers		P
	1) Any single pulse		P
	2) Average power for pulse trains		P
	3) Pulse duration $t \leq T_i$ .....: Number of pulses N and C_5..... :		P
	3) Pulse duration $t > T_i$.....: Number of pulses N and C_5 .....:		N/A
4.4	Laser products designed to function as conventional lamps.		N/A
	α measured at 200 mm distance from closest point of human access (α > 5 mrad).		N/A
	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/A
	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/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict
5	**DETERMINATION OF THE ACCESSIBLE EMISSION LEVEL and PRODUCT CLASSIFICATION**		
5.1	Tests		---
	Compliance under reasonably foreseeable single fault conditions.		N/A
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)		P
5.4.3	Evaluation condition for extended sources		N/A
	Conditions applied .....:		N/A
	Most restrictive position .....: (distance from reference point)		N/A
	Angular subtense of the apparent source α and C_6: (for each condition)		N/A
5.4.3 a	Aperture diameters (for each condition)..... :		N/A
5.4.3 b	Angle of acceptance (for each condition)……..:		N/A

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.		N/A
	Protective housing prevents access to energy levels equivalent to Class 4 and withstands exposures under reasonably foreseeable single fault conditions.		N/A
	Maintenance of Class 1, 1C, 1M, 2, 2M, or 3R (access to emissions of Class 3B or 4 is prevented).		N/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict
	Maintenance of Class 3B product (access to emission of Class 4 is prevented).		
6.2.2	Service		N/A
6.2.3	Removable laser system (laser system complies with requirements of Clauses 6 and 7).		N/A
6.3	Access panels and safety interlocks		---
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/A
	Accessible emission (after removal of the panel) corresponds to product Class (designated by “X” in Table 13)		N/A
	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/A
	Emission through the opening if interlocked panel of Class 3R, 3B, or 4 is removed (Emission < AEL of Class 3R).		N/A
	Requirements regarding reasonably foreseeable single fault condition.		N/A
6.3.2	Override mechanism		N/A
	Behaviour of override in operation when the panel is replaced.		N/A
	Visible or audible warning for override mode.		N/A
6.4	Remote interlock connector		N/A
6.5	Manual reset		N/A
6.6	Key control		N/A
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/A
6.7.2	Audible or visible warning.		N/A
	Warning is failsafe or redundant.		N/A
	Viewing of the visible warning does not require exposure to emissions > AEL for Class 1M and 2M.		N/A
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/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict
6.7.4	Visible indication of output aperture if laser emission may be distributed through more than one output.		N/A
6.7.5	Switch for handheld Class 3R device must be depressed for emission (in lieu of emission indicator).		N/A
6.8	Beam stop or attenuator		N/A
6.9	Controls		N/A
6.10	Viewing optics		N/A
	a) Human access to laser radiation in excess of Class 1M prevented when the shutter is opened or attenuation varied.		N/A
	b) Opening of the shutter or variation of the attenuation prevented when exposure to laser radiation in excess of Class 1M is possible.		N/A
6.11	Scanning safeguard		N/A
6.12	Safeguard for Class 1C products		N/A
	a) Human access to laser radiation in excess of AEL for Class 1 measured under Condition 3 is prevented.		N/A
	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/A
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/A
	b) A warning device provides adequate warning of emission to any person within the housing.		N/A
	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/A
6.14	Environmental conditions		---
	- climatic conditions		P
	- vibration and shock		N/A
6.15	Protection against other hazards		---
6.15.1	Non-optical hazards (product safety standard)		N/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict
	- electrical hazards;		N/A
	- excessive temperature;		N/A
	- spread of fire from the equipment;		N/A
	- sound and ultrasonics;		N/A
	- harmful substances;		N/A
	- explosion;		N/A
6.15.2	Collateral radiation		N/A
6.16	Power limiting circuit		N/A

7	**LABELLING**		
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.		P
	Colour combination		P
	Labelling impractical due to the size or design of the product.		N/A
	Warning label – Hazard symbol (Figure 3)		P
7.2 - 7.7	Text on explanatory label or pictogram (laser class, warning text)		P
7.8	Aperture label		N/A
7.9	Radiation output and standards information		---
	Max output of laser radiation ..... :		P
	Pulse duration .....:		P
	Emitted wavelength(s) .....:		P
	Name and publication date of the standard.....:		P
7.10	Labels for access panels		---
7.10.1 a) – f)	Labels for panels - warning wording used ..... :		N/A
7.10.2	Labels for safety interlocked panels - Warning wording used .....:		N/A
7.11	Warning for invisible laser radiation .....:		N/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict
7.12	Warning for visible laser radiation ..... :		P
7.13	Warning for potential hazard to the skin or anterior parts of the eye - warning wording used..... :		N/A

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/A
	c) laser beam parameters for radiation above the AEL of Class 1		---
	• Wavelength .....:		P
	• Beam divergence .....:		P
	• Pulse pattern ..... : (pulse duration, repetition rate, …)		P
	• Maximum power or energy output .....:		P
	d) safety instruction for embedded laser products and other incorporated laser products.		N/A
	e) MPE and NOHD for Class 3B and 4 laser products; For collimated beam Class 1M and 2M lasers the extended NOHD (ENOHD).		N/A
	f) information for the selection of eye protection.		N/A
	g) reproduction of all required labels and warnings.		P
	h) location of laser apertures		P
	i) list of controls, adjustments of procedures for operation and maintenance - and warning statement.		P
	j) information (compatibility requirements) about laser energy source if not incorporated.		N/A
	k) additional warning for Class 1, 1M, 2, 2M, and 3R regarding skin or corneal burns.		N/A
	l) Information for Class 1C products (e.g. warning that repeated application may pose a risk).		N/A
8.2	Purchasing and service information		N/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict
	a) safety classification of each laser product stated in all descriptive material (e.g. brochures).		N/A
	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		N/A
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/A
	IEC 60825-4 (Laser guards)		N/A
	IEC 60825-12 (Safety of free space optical communication systems used for transmission of information)		N/A
9.2	Medical laser products: Class 3B and Class 4 medical laser products comply with IEC 60601-2-22		N/A
9.3	Laser processing machines: Comply with IEC/ISO 11553 series.		N/A
9.4	Electric toys: Comply with IEC 62115		N/A
9.5	Consumer electronic products: Comply with IEC 60950 (IT-equipment) or IEC 60065 (AV equipment)		N/A

EN 60825			
Clause	Requirement + Test	Result - Remark	Verdict

Test summary

Additional measured and calculated data

Name	Symbol	Value	Unit
Wavelength	λ	657	nm
Angular subtense of the apparent		1.4	mrad
Pulse width	t	97.87	us
Repetition frequency	F	14.94	KHz
Time base for class 2 evaluation	T	0.24	s
Correction factors and conversion points	C_6	1	-

Condition	Symbol	Value	Unit
Continuous power measured under condition 3	P_1	4.78×10^{-8}	J
Regarding a potential skin hazard and/or cornea/iris	P_2	5.85×10^{-8}	J

P_1= 7.14mJ / (14.95KHz x 10s) = 4.78×10^{-8}J

P_2= 8.744mJ / (14.95KHz x 10s) = 5.85×10^{-8} J

AEL for classification

Class 1 $AEL_{single}=7 \times 10^{-4} t^{0.75}J=6.89 \times 10^{-7}J$ $AEL_{s.p.T}=3.9 \times 10^{-4}W / F \times 1s =$ **$2.61 \times 10^{-8}J$** $AEL_{s.p.train}=AEL_{single} \times C_5=2.76 \times 10^{-7}J$ $T \le T_i$ N>600 C_5=0.4	Class 2 $AEL_{single}=7x10^{-4}t^{0.75}$ J=6.89 x 10^{-7}J $AEL_{s.p.T}=1x10^{-3}$ W / F x 1s=6.69 x 10^{-8}J $AEL_{s.p.train}=AEL_{single} \times C_5=2.76 \times 10^{-7}J$ $T \le T_i$ N>600 C_5=0.4
Class 3B $AEL_{single}=0.03$ J=3 x 10^{-2} J $AEL_{s.p.T}=0.5W / F \times 1s =$ **$3.34 \times 10^{-5}J$** $AEL_{s\ p\ train}=AEL_{single} \times C_5=1.2 \times 10^{-2}J$ $T \le T_i$ N>600 C_5=0.4	

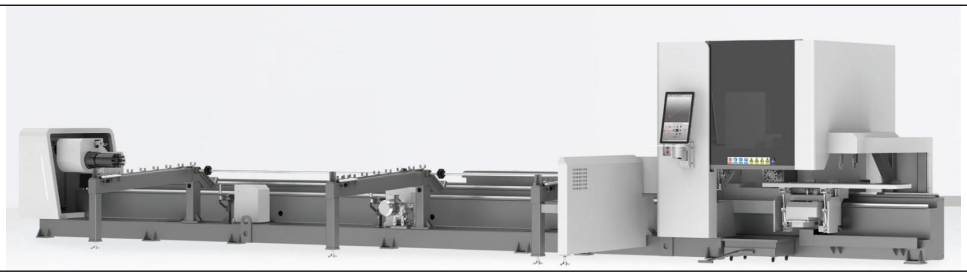
Conclusion

1, The laser safety level of this product is **Class 2**.

2, No potential skin hazard and/or cornea/iris hazard.

Attachment No.2 **Product Photos**

Details of: Fig for model ILT-180VF/BC



- End of test report -