

RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2406000607MD
Applicant: Maxphotonics Co., Ltd.
Address of Applicant: Maxphotonics Industrial Park, Third Furong Road Furong Industrial Area, Shajing Town, BaoAn District Shenzhen, Guangdong, China.
Manufacturer: Maxphotonics Co., Ltd.
Address of Manufacturer: Maxphotonics Industrial Park, Third Furong Road Furong Industrial Area, Shajing Town, BaoAn District Shenzhen, Guangdong, China.
Factory: Maxphotonics Co., Ltd.
Address of Factory: Maxphotonics Industrial Park, Third Furong Road Furong Industrial Area, Shajing Town, BaoAn District Shenzhen, Guangdong, China.
Product Name: MFSC 1000-6000X (G6.1) CW Fiber Laser Series
Model No.: MFSC-6000X-BKW6.1, MFSC-####*-**W* (####*=1000, 1500, 2000, 3000, 6000; the first*=H, M, X, C, W, W_Pro, plus, HW; the second*=(W), (C), (HMB) or blank space; the third*=A, B, C, D, E, F, G, H; the fourth*=A, B, C, D, E, F, G, H, I, J, K, L, M, X; the fifth*=1-99; the sixth*=0-99; the seventh*= C or Blank space) ♣
 ♣ Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Trade Mark: 
Standard(s) : 47 CFR Part 1.1310
 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2024-06-05
Date of Evaluation: 2024-06-12 to 2024-06-25
Date of Issue: 2024-07-04

Evaluation Result:

Pass*

* In the configuration evaluated, the EUT complied with the standards specified above.

Ricky Liu

Ricky Liu
Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch, Testing Center EEC Laboratory.

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Revision Record			
Version	Report No.	Date	Remark
01	GZCR240600060702	2024-07-04	Original

Authorized for issue by:			
		Luke Lin	
		Luke Lin/Project Engineer	
		Vico Cui	
		Vico Cui/Reviewer	

2 Evaluation Summary

Item	Standard	Method	Requirement	Result
RF Exposure	KDB447498D01 General RF Exposure Guidance v06	KDB447498D01 General RF Exposure Guidance v06	47 CFR Part 1.1310	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

♣ Declaration of EUT Family Grouping:

Model No.: MFSC-6000X-BKW6.1, MFSC-#####-**W*.** ('####'=1000, 1500, 2000, 3000, 6000; the first '*'=H, M, X, C, W, W_Pro, plus, HW; the second '*'=(W), (C), (HMB) or blank space; the third '*'=A, B, C, D, E, F, G, H; the fourth '*'= A, B, C, D, E, F, G, H, I, J, K, L, M, X; the fifth '*'=1-99; the sixth '*'=0-99; the seventh '*'= C or Blank space)

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the model name. More details are shown in the table below.

Therefore, only one model MFSC-6000X-BKW6.1 was tested in this report.



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Model:		MFSC-####*										
		MFSC-####*W*. **										
1	2	3	4	5	6	7	8	9	10	11		
M	F	MC	-	####	*	*	-	*	W	*	*	
Company	Fiber Laser	Code	/	Power	Characteristic	Application direction	/	Output type	Cable Length	Cooling	Optical path design and software operation, etc.	
Code	Kind											
F	Fiber laser											
Code	Application											
SC	Single-module CW											
Code	Power (W)	Current(A)										
1000	1000	12										
1500	1500	18.5										
2000	2000	28										
3000	3000	12.5										
6000	6000	31										
Code	Characteristic											
H												
M												
X												
C												
W												
W Pro												
Plus												
HW												
Code	Application direction											
(W)												
(C)												
(HMB)												
	Blank space											
Code	Output type											
A	Collimator isolator											
B	QBH											
C	QCS											
D	SMA-905											
E	LOE											
F	QD											
G	Bare fiber											
H	D80											
Code	Cable Length											
A	1.5M											
B	1.9M											
C	2.0M											
D	2.5M											
E	3.0M											
F	4.0M											
G	5.0M											
H	10M											
I	12M											
J	15M											
K	20M											
L	25M											
M	30M											
X	Other											
Code	Cooling											
W	Water-cooling											
Code	Kind											
1												
2												
3												
4												
5												
.												
97												
98												
99												
Code	Kind											
0												
1												
2												
3												
4												
.												
97												
98												
99												
Code	Kind											
	Blank space											
C	Customized											

3 Contents

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4 General Information

4.1 Details of E.U.T.

Power supply: AC 400V 50/60Hz
 Cable(s): Three phase power line 2.5m
 Operation Frequency: 2402MHz to 2480MHz
 Modulation Type: GFSK
 Number of Channels: 40
 Channel Spacing: 2MHz
 Antenna Type: Dedicated Antenna
 Antenna Gain: 4.63dBi according to antenna specification
 Antenna Number: 1

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Evaluating Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
 No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,
 Guangdong, China 510663

Tel: +86 20 82155555

No tests were sub-contracted.



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4.3 Facility

The facility is recognized, certified, or accredited by the following organizations:

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.4 Deviation from Standards

None

4.5 Abnormalities from Standard Conditions

None



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5 Technical Requirements Specification

5.1 General Description of Applied Standards

KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.2 RF Exposure Evaluation

5.2.1 Limit & Test Method

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

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

P_i = 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.



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5.2.2 Conclusion

Normal use condition for
Distance between antenna and body: 20cm declared by applicant

For Bluetooth BLE

Antenna Gain: 4.63 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S)	Test Result
					(mW/cm ²)	
2402	2.904022654	-0.23	0.95	0.00055	1	Complies
2440	2.904022654	-0.1	0.98	0.00056	1	Complies
2480	2.904022654	-0.07	0.98	0.00057	1	Complies

So SAR report is not required.

Note: Refer to report No. GZCR240600060701 for EUT test Max Conducted Peak Output Power value.



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6 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZCR2406000607MD

- End of the Report -



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