



June 10, 2024

Wuhan Pioon Technology Co.,Ltd.
Tracy Liu
Regulatory Affairs
7th Floor,A21 of Sino Pharm Building, Biolake Innovation
Park,No.666 Gaoxin Avenue,East Lake High-tech Development
Wuhan, Hubei 430075
China

Re: K240644
Trade/Device Name: Medical Diode Laser (S1Pro)
Regulation Number: 21 CFR 878.4810
Regulation Name: Laser Surgical Instrument For Use In General And Plastic Surgery And In
Dermatology
Regulatory Class: Class II
Product Code: GEX
Dated: March 7, 2024
Received: March 7, 2024

Dear Tracy Liu:

We have reviewed your section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (the Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database available at <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm> identifies combination product submissions. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Additional information about changes that may require a new premarket notification are provided in the FDA guidance documents entitled "Deciding When to Submit a 510(k) for a Change to an Existing Device" (<https://www.fda.gov/media/99812/download>) and "Deciding When to Submit a 510(k) for a Software Change to an Existing Device" (<https://www.fda.gov/media/99785/download>).

Your device is also subject to, among other requirements, the Quality System (QS) regulation (21 CFR Part 820), which includes, but is not limited to, 21 CFR 820.30, Design controls; 21 CFR 820.90, Nonconforming product; and 21 CFR 820.100, Corrective and preventive action. Please note that regardless of whether a change requires premarket review, the QS regulation requires device manufacturers to review and approve changes to device design and production (21 CFR 820.30 and 21 CFR 820.70) and document changes and approvals in the device master record (21 CFR 820.181).

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR Part 803) for devices or postmarketing safety reporting (21 CFR Part 4, Subpart B) for combination products (see <https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products>); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR Part 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR Parts 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems>.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (<https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance>) and CDRH Learn (<https://www.fda.gov/training-and-continuing-education/cdrh-learn>).

Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (<https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice>) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Tanisha L.
Hithe -S

Digitally signed by
Tanisha L. Hithe -S
Date: 2024.06.10
17:50:53 -04'00'

Tanisha Hithe
Assistant Director
DHT4A: Division of General Surgery Devices
OHT4: Office of Surgical
and Infection Control Devices
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

Indications for Use

510(k) Number (if known)

K240644

Device Name

Medical Diode Laser (S1Pro)

Indications for Use (Describe)

The Medical Diode Laser (Model: S1Pro) is indicated for use in surgical applications requiring the vaporization, incision, excision, ablation, cutting and hemostasis, or coagulation of soft tissue in conjunction with endoscopic equipment for medical specialist including: Urology, Thoracic Surgery, Plastic Surgery and Dermatology, General Surgery, Ophthalmology, Orthopedics, Podiatry, Arthroscopy, Spinal Surgery, Gynecology, Pulmonary Surgery, Neurosurgery, Gastroenterology, Head/neck/ENT and Radiology, Oral Surgery and Dental procedures, Endovascular coagulation and endovenous occlusion of the greater saphenous vein in patients with superficial vein reflux. The Medical Diode Laser (Model: S1Pro) is further indicated for laser assisted lipolysis.

Type of Use (Select one or both, as applicable)

☒ Prescription Use (Part 21 CFR 801 Subpart D)

☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

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510(k) Summary

In accordance with the content and format regulatory requirements of 21 CFR Part 807.92, the 510(k) Summary for the Medical Diode Laser is provided below.

The assigned 510(k) Number: K240644

1. Submitter

Device Submitter: Wuhan Pioon Technology Co., Ltd.

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Date Prepared: June 8, 2024

Official Correspondent: Tracy Liu, Wuhan Pioon Technology Co., Ltd.

Phone: +86 15012997429

Email: tracy@pioon.com

2. Device

Type of 510(k) submission: Traditional

Device name: Medical Diode Laser

Model: S1Pro

Common Name: Powered Laser Surgical Instrument

Regulation: 878.4810 - Laser surgical instrument for use in general and plastic surgery and in dermatology

Medical Specialty: General & Plastic Surgery

Regulatory Class: II

Product Code: GEX

3. Predicate Device and Reference Device

Predicate Device:

G.N.S neoLaser Ltd., neoV980 & neoV1470 Diode Lasers, Model: neoV1470 - K152722. (Primary Predicate Device)



Quanta System S.p.A, Quanta System QUANTA Diode Laser Family, Model:
QUANTA1470 - K100558.(Secondary Predicate Device)

Reference Device:

Wuhan Pioon Technology Co.,Ltd., Medical Diode Laser, Model: S1Pro - K231548.

4. Device Description

The Medical Diode Laser device incorporates a 1470nm wavelength Gallium Aluminum Arsenide (GaAlAs) diode laser for producing its therapeutic effects. The device also incorporates a red (650nm) aiming beam diode to indicate the area to be irradiated by the laser beam. The device is composed of the main unit, foot switch, power cord, and protective goggles. The device incorporates an LCD touchscreen for the device user to set output parameters and for control of the device. The device transmits the laser output via third-party optical fibers with SMA905 connectors and with single cores of 400µm and 600µm diameter respectively.

5. Indications for Use

The Medical Diode Laser (Model: S1Pro) is indicated for use in surgical applications requiring the vaporization, incision, excision, ablation, cutting and hemostasis, or coagulation of soft tissue in conjunction with endoscopic equipment for medical specialist including: Urology, Thoracic Surgery, Plastic Surgery and Dermatology, General Surgery, Ophthalmology, Orthopedics, Podiatry, Arthroscopy, Spinal Surgery, Gynecology, Pulmonary Surgery, Neurosurgery, Gastroenterology, Head/neck/ENT and Radiology, Oral Surgery and Dental procedures, Endovascular coagulation and endovenous occlusion of the greater saphenous vein in patients with superficial vein reflux. The Medical Diode Laser (Model: S1Pro) is further indicated for laser assisted lipolysis.

6. Comparison to the Predicate Device

The Medical Diode Laser (Model: S1Pro) has been compared to the neoV1470 Diode Laser of G.N.S neoLaser neoV980 & neoV1470 Diode Lasers (K152722) and QUANTA1470 Diode Laser of Quanta System QUANTA Diode Laser Family (K100558) as reference for substantial equivalence. A table comparing the predicate devices to the subject device is shown as the following:

Item	Subject Device (this submission)	Primary Predicate Device (K152722)	Secondary Predicate Device (K100558)
Regulation Number	21 CFR 878.4810	21 CFR 878.4810	21 CFR 878.4810

Item	Subject Device (this submission)	Primary Predicate Device (K152722)	Secondary Predicate Device (K100558)
Product Code	GEX	GEX	GEX
Regulatory Class	Class II	Class II	Class II
Proprietary Name	Medical Diode Laser	neoV980 & neoV1470 Diode Lasers	Quanta System QUANTA Diode Laser Family
Model	S1Pro	neoV1470	QUANTA1470
Manufacturer	Wuhan Pioon Technology Co.,Ltd.	G.N.S neoLaser Ltd.	Quanta System S.p.A
Indications for Use Comparison Information	The Medical Diode Laser(Model: S1Pro) is indicated for use in surgical applications requiring the vaporization, incision, excision, ablation, cutting and hemostasis, or coagulation of soft tissue in conjunction with endoscopic equipment for medical specialist including: Urology, Thoracic Surgery, Plastic Surgery and Dermatology, General Surgery, Ophthalmology, Orthopedics, Podiatry, Arthroscopy, Spinal Surgery, Gynecology, Pulmonary Surgery, Neurosurgery, Gastroenterology, Head/neck/ENT and Radiology, Oral Surgery and Dental procedures, Endovascular coagulation and endovenous occlusion of the greater saphenous vein in patients with	The neoV980 & neoV1470 Diode Lasers, (and their delivery accessories used to deliver optical energy) are indicated for use in surgical applications requiring the vaporization, incision, excision, ablation, cutting and hemostasis, or coagulation of soft tissue in conjunction with endoscopic equipment for medical specialties including: Urology, Thoracic Surgery, Plastic Surgery and Dermatology, General Surgery, Ophthalmology, Orthopedics, Podiatry, Arthroscopy, Spinal Surgery, Gynecology, Pulmonary Surgery, Neurosurgery, Gastroenterology, Head/neck/ENT and Radiology, Oral Surgery and Dental procedures, Endovascular	The Quanta System QUANTA Diode Laser Family, including the QUANTA532, QUANTA808,QUANTA A940, QUANTA980, QUANTA1064,QUANTA1320, QUANTA1470, and QUANTA1950 (and all their double wavelength combination and their delivery accessories used to deliver optical energy) are indicated for use in surgical applications requiring the vaporization, incision, excision, ablation, cutting and hemostasis, or coagulation of soft tissue in conjunction with endoscopic equipment for medical specialist including: Urology (BPH), Genitourinary (Urology), Thoracic Surgery, Plastic Surgery and Dermatology, Aesthetics including

Item	Subject Device (this submission)	Primary Predicate Device (K152722)	Secondary Predicate Device (K100558)
	superficial vein reflux.	coagulation, and endovenous occlusion of the greatest saphenous vein in patients with superficial vein reflux.	vascular lesions and hair removal, General Surgery, Ophthalmology, Orthopedics, Podiatry, Arthroscopy , Spinal Surgery, Gynecology, Pulmonary Surgery, Neurosurgery(PLDD), Gastroenterology, Head/neck/ENT and Radiology, Endovascular coagulation, Oral Surgery and Dental procedures.
	The Medical Diode Laser(Model: S1Pro) is further indicated for laser assisted lipolysis.	NA	The QUANTA980 and QUANTA1470 Diode Laser are further indicated for laser assisted lipolysis.
Use of device	Rx only	Rx only	Rx only
Laser Type	diode laser	diode laser	diode laser
Laser Class	4	4	4
Components	Laser system, Color touch screen, Foot switch	Laser system, Color touch screen, Foot switch	Laser system, Color touch screen, Foot switch
Wavelength	1470nm	1470nm	1470nm
Max Output Power	12W	10W	15W
Operation Mode	CW, single pulse, repeat pulse	CW, single pulse, repeat pulse	CW, single pulse, repeat pulse
Pulse Duration	10ms-25s	100μs-30s	3ms - 2.5s
Repetition Rate	0-50Hz	0.02 Hz to 5,000 Hz	1-200Hz
Aiming Beam	Diode laser of 650nm, power <2mW, adjustable brightness.	Green (532nm), adjustable - <5mW	Red (650nm), adjustable - <5mW



Item	Subject Device (this submission)	Primary Predicate Device (K152722)	Secondary Predicate Device (K100558)
Operation Interface	Color LCD touch screen	Color LCD touch screen	Color LCD touch screen
Power Supply	100-240VAC, 50/60Hz, 2.5A Max	100 - 240 V AC, 47/63 Hz, 1.06-0.45A	100-240, VAC 50-60 Hz, 6.3 A, single phase
Dimensions& Weight	210 (L)* 210 (W)* 140(H) mm ≤4KG NW	22cm (L) x 22 cm (W) x 10 cm (H) 3.5 Kg.	39 cm (L) x 33 cm (W) x 25 cm (H) 8 Kg.
Cooling Method	Air cooling	Air cooling	Air cooling
Microprocess or Control	Yes	Yes	Yes
Standard	IEC60601-1 IEC60601-1-2 IEC60601-2-22 IEC60825-1	IEC60601-1 IEC60601-1-2 IEC60601-2-22 IEC60825-1	IEC60601-1 IEC60601-1-2 IEC60601-2-22 IEC60825-1

The subject device uses similar 1470nm diode laser technology as that used by the predicates. The output parameters of the proposed device are similar to the output parameters of the predicates, and differences in the output parameters do not raise new types of questions regarding the safety and effectiveness when the device is used for the proposed indications for use. The indications for use of the subject device are nearly the same as those from each of the predicate devices and also do not raise new types of questions regarding safety and effectiveness.

7. Performance Data

Clinical data:

Not applicable.

Non-clinical data:

Electrical Compatibility and Electrical Safety

The Medical Diode Laser was tested and found to conform to the criteria of the following performance standards:

- IEC 60601-1:2005+AMD1:2012+AMD2:2020 Medical electrical equipment - Part 1: General requirements for basic safety and essential performance.
- IEC 60601-1-2:2014+A1:2020 (Fourth Edition) Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral



Standard: electromagnetic disturbances – Requirements and tests.

Performance Testing - Bench

The Guidance Document, Laser Products – Conformance with IEC 60825-1 and IEC 60601-2-22 (Laser Notice 56) January 19, 2018 was used. Pioon has conducted functional and system level testing to validate the performance of the devices. The results of the bench testing show that the subject device meets its accuracy specifications and meets relevant consensus standards.

- IEC 60825-1:2014 Safety of laser products - Part 1: Equipment classification, and requirements
- IEC 60601-2-22:2019 Medical electrical equipment - Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment

Software Verification and Validation Testing

Software verification and validation testing were conducted and documentation was provided as recommended by FDA's Guidance for Industry and FDA Staff, "Content of Premarket Submissions for Device Software Function".

The recommended Documentation Level for software of this device was considered as a "Basic Documentation Level" and the documentation was provided accordingly.

8. Conclusions

The non-clinical data support the safety of the proposed Medical Diode Laser (Model: S1Pro) device, and the software verification and validation demonstrate that the device can perform as intended. The proposed device uses similar laser diode technology as that used by the predicate devices and difference in parameters do not raise new types of questions regarding safety and effectiveness for the proposed indications for use. The Medical Diode Laser (Model: S1Pro) is considered to be substantially equivalent to the predicate devices.