

## 5. 510(k) Summary

Submitter's Name: Fotona d.d.  
Stegne 7  
1210 Ljubljana, Slovenia  
Phone: +386 15009100  
Fax: + 386 5009 200  
Contact Person: Stojan Trošt, QA&RA Manager  
Phone: + 386 1 5009 299  
E-mail: [stojan.trost@fotona.com](mailto:stojan.trost@fotona.com)

K101817  
NOV 22 2010

Date: June 23, 2010

Device Name:  
Trade name: Fotona LightWalker Laser System Family  
Common name: Er:YAG/Nd:YAG Surgical Laser  
Classification name: Instruments, Surgical, Powered, Laser  
79-GEX

### DEVICE DESCRIPTION

The Fotona LightWalker laser system family is based on Er:YAG (2940 nm) and Nd:YAG (1064 nm) laser technology. It combines two flashlamp-pumped laser sources in one housing, with optical cavities containing the Er:YAG and Nd:YAG crystals. A red diode aiming beam (650 nm) is combined with both therapeutic laser beams. The combined therapeutic and aiming beams are guided through an articulated arm to an optical hand piece (in the case of the Er:YAG laser), or through an optical fiber delivery system to an optical hand piece (in the case of the Nd:YAG laser). The Er:YAG laser is capable of delivering up to 1.5 J of laser energy in pulses with durations of up to 1000  $\mu$ s and frequencies (repetition rates) of up to 50 Hz. The maximum average output power is 20 W.

For aesthetic indications, the Nd:YAG laser is capable of delivering laser fluences up to 300 J/cm<sup>2</sup> in pulses with durations of up to 25 ms. For dental indications, it is capable of delivering laser pulses with durations of up to 320  $\mu$ s, frequencies (repetition rates) up to 100 Hz and a maximum output power of 15 W.

Fotona's power supply Variable Square Pulse (VSP) Technology, integrated into the laser system, allows ultimate control of the laser energy and the laser pulse duration. This ensures treatment precision, patient comfort, safety and ease-of-use in all treatments.

### INTENDED USE

The LightWalker Er:YAG laser, and its accessories, are intended for use in dentistry, dermatology and other surgical areas in the following procedures:

In dentistry, for:

- Intra-oral soft tissue surgery (incision, excision, ablation, coagulation)
- Leukoplakia
- Pulpotomy as adjunct to root canal retreatment
- Pulp extirpation

- Removal of fibromae
- Removal granulated tissue
- Caries removal, cavity preparation, enamel roughening
- Sulcular debridement
- Tooth preparation to obtain access to root canal, root canal debridement and cleaning, root canal preparation including enlargement
- Cutting, shaving, contouring and resection of oral osseous tissue (bone)
- Osteotomy, osseous crown lengthening, osteoplasty
- Apicectomy surgery
- Removal of subgingival calculi in periodontal pockets with periodontitis by closed or open curetage

In **dermatology and other surgical areas**, for:

- Dermatology and Plastic Surgery Indications: Epidermal nevi, actinic cheilitis, skin tags, keratoses, verrucae, and skin resurfacing
- ENT Surgery Indications: ENT lesions, cysts, polyps, hyperkeratosis, oral leukoplakia
- Oral/Maxillofacial Indications: Oral and glossal lesions, gingivectomy
- General Surgery Indications: Surgical incision/excision, vaporization and coagulation of soft tissue during any general surgery application where skin incision, tissue dissection, excision of lesions, complete or partial resection of internal organs, lesions, tissue ablation and vessel coagulation
- Podiatry Indications: warts, plantar verrucae, large mosaic verrucae, matrixectomy

The **LightWalker Nd:YAG laser**, and its accessories, are intended for use in dentistry, dermatology and other surgical areas in the following procedures:

In **dentistry**, for:

- Excisional and incisional biopsies
- Excision and vaporization of herpes simplex I and II
- Exposure of unerupted teeth
- Fibroma removal
- Frenectomy and frenotomy
- Gingival troughing for crown impressions
- Gingivectomy
- Gingivoplasty
- Gingival incision and excision
- Hemostasis
- Implant recovery
- Incision and drainage of abscess
- Laser assisted uvulopalatoplasty (LAUP)
- Operculectomy
- Oral papillectomies
- Pulpotomy and pulpotomy as an adjunct to root canal therapy
- Reduction of denture hyperplasia
- Reduction of gingival hypertrophy
- Removal of filling material such as gutta percha or resin as adjunct treatment during root canal

therapy

- Removal of post-surgical granulations
- Soft tissue crown lengthening
- Sulcular debridement or soft tissue curettage (removal of diseased or inflamed soft tissue in the periodontal pocket to improve clinical indices including gingival index, gingival bleeding index, probe depth, attachment loss, and tooth mobility)
- Tissue retraction for impression
- Treatment of aphtous ulcers
- Vestibuloplasty

In **dermatology and other surgical areas**, for:

- Removal of unwanted hair, for stable long term or permanent hair reduction and for treatment of PFB. The laser is indicated for all skin types, Fitzpatrick I-VI, including tanned skin
- Photocoagulation and hemostasis of pigmented and vascular lesions, such as, but not limited to, port wine stains, hemaangiomae, warts, telangiectasiae, rosacea, venus lake, leg veins and spider veins
- Treatment of wrinkles
- Treatment of mild to moderate inflammatory acne vulgaris

#### **STATEMENT OF SUBSTANTIAL EQUIVALENCE**

The LightWalker laser system family shares the same indications for use, similar design and functional features with, and therefore Fotona d.d. believes that its LightWalker laser system family is substantially equivalent to, the Fotona Fidelis III Er:YAG/Nd:YAG Laser System Family (K093162) previously cleared for incision, excision, vaporization, ablation and coagulation of soft and hard tissue in the mouth.

Details are provided in the Substantial Equivalence Discussion Section of this submission.



Food and Drug Administration  
10903 New Hampshire Avenue  
Document Control Room -WO66-G609  
Silver Spring, MD 20993-0002

Fotona d.d.  
% Mr. Stojan Trost  
Quality Assurance and Regulatory Affairs Manager  
Stegne 7  
1210 Ljubljana, Slovenia

NOV 22 2010

Re: K101817

Trade/Device Name: Fotana LightWalker Laser System Family  
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: November 10, 2010  
Received: November 12, 2010

Dear Mr. Trost:

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 (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. 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.

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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 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please go to <http://www.fda.gov/AboutFDA/CentersOffices/CDRH/CDRHOffices/ucml15809.htm> for the Center for Devices and Radiological Health's (CDRH's) Office of Compliance. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm> for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>.

Sincerely yours,

A handwritten signature in black ink, appearing to read "For Mark N. Melkerson" with "D&O D.R." written below it.

Mark N. Melkerson  
Director  
Division of Surgical, Orthopedic  
And Restorative Devices  
Office of Device Evaluation  
Center for Devices and  
Radiological Health

Enclosure

## 4. Indications for Use Statement

510(k) Number (if known):

K101817

Device Name: **Fotona LightWalker Laser System Family**

NOV 22 2010

Indications For Use:

Er:YAG laser (2940 nm wavelength) in dentistry:

- Intra-oral soft tissue surgery (incision, excision, ablation coagulation)
- Leukoplakia
- Pulpotomy as adjunct to root canal retreatment
- Pulp extirpation
- Removal of fibromae
- Removal of granulated tissue
- Caries removal, cavity preparation, enamel roughening
- Sulcular debridement
- Tooth preparation to obtain access to root canal, root canal debridement and cleaning, root canal preparation including enlargement
- Cutting, shaving, contouring and resection of oral osseous tissue (bone)
- Osteotomy, osseous crown lengthening, osteoplasty
- Apicectomy surgery
- Removal of subgingival calculi in periodontal pockets with periodontitis by closed or open curetage

Er:YAG laser (2940 nm wavelength) in dermatology and other surgical areas:

- Dermatology and Plastic Surgery Indications: Epidermal nevi, actinic cheilitis, verrucae, skin tags, keratoses and skin resurfacing;
- ENT Surgery Indications: ENT lesions, cysts, polyps, hyperkeratosis, oral leukoplakia;
- Oral/Maxillofacial Indications: Oral and glossal lesions, gingivectomy;
- General Surgery Indications: Surgical incision/excision, vaporization and coagulation of soft tissue during any general surgery application where skin incision, tissue dissection, excision of lesions, complete or partial resection of internal organs, lesions, tissue ablation and vessel coagulation;
- Podiatry Indications: Warts, plantar verrucae, large mosaic verrucae, matrixectomy;

Nd:YAG laser (1064 nm wavelength) in dentistry:

- Excisional and incisional biopsies
- Excision and vaporization of herpes simplex I and II
- Exposure of unerupted teeth
- Fibroma removal
- Frenectomy and frenotomy
- Gingival troughing for crown impressions

Neil R. Oden for max  
(Division Sign-Off)  
Division of Surgical, Orthopedic,  
and Restorative Devices

510(k) Number K101817

- Gingivectomy
- Gingivoplasty
- Gingival incision and excision
- Hemostasis
- Implant recovery
- Incision and drainage of abscess
- Laser assisted uvulopalatoplasty (LAUP)
- Operculectomy
- Oral papillectomies
- Pulpotomy and pulpotomy as an adjunct to root canal therapy
- Reduction of denture hyperplasia
- Reduction of gingival hypertrophy
- Removal of filling material such as gutta percha or resin as adjunct treatment during root canal therapy
- Removal of post-surgical granulations
- Soft tissue crown lengthening
- Sulcular debridement or soft tissue curettage (removal of diseased or imflamed soft tissue in the periodontal pocket to improve clinical indices including gingival index, gingival bleeding index, probe depth, attachment loss, and tooth mobility)
- Tissue retraction for impression
- Treatment of aphtous ulcers
- Vestibuloplasty

Nd:YAG laser (1064 nm wavelength) in dermatology and other surgical areas:

- Removal of unwanted hair, for stable long term or permanent hair reduction and for treatment of PFB. The laser is indicated for all skin types, Fitzpatrick I-VI, including tanned skin
- Photocoagulation and hemostasis of pigmented and vascular lesions, such as, but not limited to, port wine stains, hemaangiomae, warts, telangiectasiae, rosacea, venus lake, leg veins and spider veins
- Treatment of wrinkles
- Treatment of mild to moderate inflammatory acne vulgaris

Prescription Use:   X    
(21 CFR 801 Subpart D)

AND/OR

Over-The-Counter Use: \_\_\_\_\_  
(21 CFR 807 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED)

\_\_\_\_\_ Neil R. Ogden for man  
(Division Sign-Off)  
Concurrence of CDRH, Office of Device Evaluation (ODE) Division of Surgical, Orthopedic, and Restorative Devices

510(k) Number K. 61817