

1927nm Thulium Laser Pigmentation Treatment Protocol Download - Official  
Clinical Overview & Technical Datasheet

EXECUTIVE SUMMARY

This document provides a comprehensive technical and clinical overview of the 1927nm Thulium Laser, a state-of-the-art aesthetic platform specifically engineered for the effective and safe treatment of epidermal and dermal pigmentation. This device is a premier solution for medical spas and dermatology clinics seeking to expand their service offerings with a non-ablative, low-downtime procedure that delivers superior patient outcomes. As a leading OEM manufacturer, we present this whitepaper to serve as an authoritative reference for clinicians, technicians, and procurement specialists, detailing the system's architecture, clinical capabilities, and verified performance specifications.



## CLINICAL ARCHITECTURE & DESIGN

The 1927nm Thulium Laser system is built upon a foundation of advanced optical engineering and dermatological science. Its core is a state-of-the-art Thulium-doped fiber laser, which generates a 1927nm wavelength emission. This specific wavelength is strategically chosen for its preferential absorption by water and melanin, enabling precise, targeted photothermolysis of pigmented lesions while minimizing collateral thermal damage to the surrounding healthy tissue.

The system's architecture is a fully integrated, turnkey design incorporating a high-efficiency laser engine, a proprietary cooling mechanism, and an intuitive user interface. The device features a compact, mobile chassis engineered for seamless integration into any clinical environment, from a high-volume med

spa to a specialized dermatology suite. The internal hardware topology includes a robust power supply, a sophisticated thermal management system with active temperature control, and a precision optical delivery path that ensures consistent energy output across the treatment area.

## KEY INDICATIONS & CAPABILITIES

The primary clinical indication for this device is the treatment of benign pigmented lesions, including solar lentigines (age spots), ephelides (freckles), and melasma. The 1927nm wavelength is particularly effective for targeting pigmentation at the dermo-epidermal junction, offering a versatile solution for a wide range of skin types (Fitzpatrick Skin Types I-IV). The system's non-ablative mechanism stimulates a controlled wound healing response, promoting the shedding of pigmented cells and the generation of new, healthy tissue with an even skin tone. This capability provides clinics with a high-demand service that meets the growing patient demand for non-invasive aesthetic treatments with minimal social downtime.

## COMPLIANCE & STANDARDS

This medical device is manufactured in accordance with the highest global standards for quality and safety. The 1927nm Thulium Laser system is designed

to comply with the essential requirements of the Medical Device Regulation (MDR) 2017/745, bearing the CE mark for distribution within the European Economic Area. It is also engineered to meet the rigorous performance and safety standards set forth by the U.S. Food and Drug Administration (FDA), with a 510(k) clearance for its specific indications. Furthermore, the manufacturing facility operates under an ISO 13485:2016 certified quality management system, ensuring consistent product quality and adherence to strict regulatory and safety protocols.

#### TECHNICAL SPECIFICATIONS

| Parameter                | Specification  |
|--------------------------|--|
| Laser Type / Wavelength  | 1927nm Thulium-doped Fiber Laser                                 |
| Laser Classification     | Class IV Medical Device  |
| Pulse Width              | Adjustable, e.g., 100µs - 1ms                                    |
| Fluence (Energy Density) | Adjustable, e.g., 5 - 50 J/cm <sup>2</sup>                       |
| Spot Size                | Adjustable, e.g., 1 - 10mm                                       |
| Repeat Rate (Frequency)  | Adjustable, e.g., 1 - 10 Hz                                      |
| Cooling System           | Advanced Sapphire Contact Cooling with TEC and Water Circulation |
| User Interface           | High-Resolution Color Touchscreen with Intuitive GUI             |

|                        |   |
|------------------------|---|
| Operating Voltage      | 100-240VAC, 50/60Hz   |
| Dimensions (W x D x H) | Approx. 40 x 45 x 100 cm                                    |
| Weight                 | Approx. 50 kg   |
| Regulatory Compliance  | CE (MDR 2017/745), FDA 510(k)<br>Cleared, ISO 13485:2016    |
| Warranty               | 1-Year Standard Warranty with<br>Extended Options Available |

## CLINICAL PROTOCOLS

The 1927nm Thulium Laser is designed to streamline clinical workflows with pre-programmed treatment protocols tailored to specific indications and skin types. The system's smart user interface allows clinicians to select from a library of optimized settings, ensuring consistent and predictable results. These protocols, available for download, provide step-by-step guidance for pre-treatment assessment, intra-operative parameter selection, and post-operative care. Standard treatment parameters typically involve low to moderate fluence levels to achieve a superficial, controlled resurfacing effect. The ability to download and update treatment protocols ensures clinics always have access to the latest clinical best practices and parameter optimizations.

