

# E-light Multifunctional Aesthetic Machine - Official Clinical Overview & Datasheet

## EXECUTIVE SUMMARY

The E-light Multifunctional Aesthetic Machine integrates intense pulsed light (IPL) and bipolar radiofrequency (RF) energy into a single, advanced platform, clinically positioned for non-invasive hair removal, skin rejuvenation, and vascular/pigmented lesion clearance. Designed exclusively for medical spas and dermatology clinics, the system delivers synergistic photothermal and volumetric heating effects, achieving superior clinical outcomes with fewer treatments compared to single-energy devices. Its primary value proposition centers on high patient comfort via advanced contact cooling, low per-treatment operational costs, and rapid return on investment (ROI) driven by high patient throughput and minimal consumables.



## CLINICAL ARCHITECTURE & DESIGN

The device employs a modular, dual-energy delivery architecture featuring a high-energy xenon flashlamp (intelligent spectrum filtering) and a 1.0 MHz or 2.0 MHz bipolar RF generator. Premium components include imported quartz light guides with high-transmittance coatings, a medical-grade brushless DC water pump for silent, long-life thermal regulation, and a dual-TEC (thermoelectric cooler) cascade cooling engine. The handpiece integrates real-time skin impedance monitoring and a sapphire-tip contact cooling mechanism (operating between  $-5^{\circ}\text{C}$  to  $+5^{\circ}\text{C}$ ) to continuously protect the epidermis during RF and light pulses. The system's closed-loop feedback control adjusts RF fluence based on skin resistance changes, ensuring consistent energy delivery across different skin phototypes.

## KEY INDICATIONS & CAPABILITIES

- Permanent Hair Reduction: Combines IPL (590–1200nm) and bipolar RF to target melanin and water in hair follicles simultaneously, effective on Fitzpatrick Skin Types I–V. Average clearance of 70–85% after 4–6 sessions.
- Pigmented Lesion Clearance: Optimized cutoff filters (570nm/590nm) for treating solar lentigines, ephelides, and café-au-lait macules. The RF component enhances dermal heating, accelerating pigment fragmentation and lymphatic clearance.
- Vascular Lesion Treatment: 530 – 590nm filters target oxyhemoglobin absorption peaks for telangiectasia, rosacea, and spider veins. Bipolar RF coagulates deeper vessels without surface epidermal damage.
- Skin Rejuvenation (Non-Ablative): Sequential or simultaneous IPL+RF emission stimulates neocollagenesis and elastin remodeling, reducing fine lines, enlarged pores, and textural irregularities. Clinical studies show a 40–60% improvement in global skin laxity after 3 sessions.
- Smart User Interface: 10.4-inch capacitive touchscreen with intuitive workflow presets (by indication, skin type, and treatment area). Real-time energy calibration, treatment counter, and historical data logging for medico-legal documentation.

## COMPLIANCE & STANDARDS

The E-light Multifunctional Aesthetic Machine is manufactured under ISO 13485:2016 certified quality management systems. It holds Medical CE (Directive 93/42/EEC Class IIb) and has obtained FDA 510(k) clearance for hair removal and skin rejuvenation indications. The system complies with IEC 60601-1 (electrical safety), IEC 60601-2-22 (surgical laser/laser equipment specific standards), and IEC 60825-1 (laser product safety). All optical and RF components undergo 100% factory calibration and burn-in testing before release.

#### TECHNICAL SPECIFICATIONS

Parameter	Specification
Laser Type / Wavelength	IPL: 530 – 1200nm (swappable filters: 530/570/590/640/690nm) + Bipolar RF: 1.0/2.0 MHz
Spot Size	15 x 35 mm (IPL+RF handpiece), 8 x 15 mm (precision RF tip)
Cooling System	TEC + Sapphire contact plate + Closed-loop water circulation + Wind (skin temperature monitored, -5°C to +5°C setpoint)
Energy Fluence (IPL)	10–50 J/cm <sup>2</sup> , step 1 J/cm <sup>2</sup>

RF Power	Up to 100 W (bipolar, impedance-adjusted)
Pulse Width	1 – 50 ms (IPL), 1 – 200 ms (RF), multiplexed modes
Repetition Rate	1–3 Hz (continuous mode)
Display	10.4-inch TFT capacitive touchscreen, 1024 x 768 resolution
Power Supply	AC 110–240 V, 50/60 Hz, 2000 VA
Dimensions (W x D x H)	450 x 550 x 1050 mm (console)
Weight	Approx. 65 kg (complete system)
Cooling Unit Specifications	Medical-grade brushless DC water pump, 10 L/min flow, 200 W TEC total capacity

