



Laser and Intense Pulsed Light (IPL) Hair Reduction Standards 2016

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Acknowledgment

Dubai Health Authority (DHA) is pleased to present the reviewed DHA “Laser and Intense Pulsed Light (IPL) Hair Reduction Standards”. This document was developed initially in 2011 by Health Regulation Department (HRD) in collaboration with Subject Matter Experts (SME) and have been enforced ever since. However, lately HRD has been engaged in reviewing the document to be in accordance with international best practices in this domain.

A task force of SMEs have reviewed the document and have given their valuable inputs. HRD would like to acknowledge these professionals and to thank them for their dedication to quality in health and commitment in undertaking such a complex task.

This document provides a base for the HRD to assess performance of health facilities providing hair reduction services in the Emirate of Dubai and to ensure safe and competent delivery of this service by healthcare professionals. It will also assist facilities in developing their quality management systems and in assessing their own competence to ensure compliance with DHA regulatory requirements and the United Arab Emirates (UAE) federal laws.

The Health Regulation Department
Dubai Health Authority

I. Scope

This document provides the basic requirements for health facilities that intend to provide laser and IPL services to ensure safe provision of these services subject to licensure under Dubai Health Authority (DHA) establishment law, including semi-governmental and private health facilities and those operating in free zone areas excluding Dubai Healthcare City (DHCC).

It deals only with laser and IPL for hair reduction and does not include the application of laser as a tool in any other treatment procedure.

Health Department (HRD) has the right to amend these standards without prior notice, the latest version of which shall be published on the DHA website www.dha.gov.ae and shall be referred to as Laser and IPL Hair Reduction Standards.

II. Purpose

Through the development, establishment and enforcement of minimum required standards for laser and IPL hair reduction services, DHA ensures health facilities and professionals in the Emirate of Dubai provide the highest levels of safety and quality of patient care at all times.

III. Definitions

Healthcare professional shall mean healthcare personal working in healthcare facilities and required to be licensed as per the applicable laws in United Arab Emirates.

Laser is an acronym for Light Amplification by Stimulated Emission of Radiation. A laser is a device, which is built on the principles of quantum mechanics to create a beam of light where all of the photons are in a coherent state - usually with the same frequency and phase (most light sources emit incoherent light, where the phase varies randomly). Among the other effects, this means that the light from a laser is often tightly focused and does not diverge much, resulting in the traditional laser beam.

Laser Classification shall mean the classification useful since safety measures are prescribed for each class of laser. More stringent safety measures are required for the highest classes.

Licensure shall mean issuing an official permission to operate a health facility to an individual, government, corporation, partnership, Limited Liability Company (LLC), or other form of business operation that is legally responsible for the facility's operation.

Patient shall mean any individual who receives medical attention, care or treatment by any healthcare professional or admitted in a health facility.

IV. Acronyms

ANSI	: American National Standard Institute
ARTG	: Australian Register of Therapeutic Goods
CE	: Conformité Européenne
DHA	: Dubai Health Authority
FDA	: Food and Drug Administration
HRD	: Health Regulation Department
IEC	: International Electrotechnical Commission
IPL	: Intense Pulsed Light
LSE	: Laser Safety Eyewear
MOH	: Ministry of Health
NCLC	: National Council on Laser Certification
MFDS	: Ministry of Food and Drug Safety
MITI	: Ministry of International Trade and Industry
SCHMR	: Society for Clinical and Medical Hair reduction
SME	: Subject Matter Experts
TFDA	: Taiwan Food and Drug Administration
UAE	: United Arab Emirates

1. Introduction

- 1.1. Lasers and pulsed light equipment for hair reduction are categorized as prescription devices and should be used under supervision of qualified physicians. Laser and Intense Pulsed Light (IPL) services for hair reduction shall be permitted in following health facilities:
 - 1.1.1. Hospital
 - 1.1.2. Day Surgical Center
 - 1.1.3. Outpatient Care Facility
- 1.2. At least one (1) full time specialities shall be available to supervise the laser and IPL services.
- 1.3. The following licensed physicians can provide supervision to the service with no additional training requirements:
 - 1.3.1. Consultant/ Specialist Dermatologist
 - 1.3.2. Consultant/ Specialist Plastic Surgeon
- 1.4. The following licensed physicians can provide supervision to the service if they are holding additional license for laser and IPL hair removal:
 - 1.4.1. Consultant/ Specialist Family Medicine
 - 1.4.2. Consultant/ Specialist Internal Medicine
 - 1.4.3. Consultant/ Specialist Endocrinologist
- 1.5. The following licensed healthcare professionals may add “Laser Hair Technician” title to their current license after obtaining required training from an approved training center by DHA and get through the DHA assessment:
 - 1.5.1. Registered Nurse
 - 1.5.2. Beauty therapist
- 1.6. Training requirements for healthcare professionals providing laser hair reduction service shall meet the following specified requirements:

DHA Licensed Professional	Training requirements	Supervision required
Consultant/ Specialist Dermatologist	×	×
Consultant/ Specialist Plastic Surgeon	×	×
Consultant/ Specialist Family Medicine	√	×
Consultant/ Specialist Internal Medicine	√	×
Consultant/ Specialist Endocrinologist	√	×
Registered Nurse	√	√
Beauty Therapist	√	√

- 1.7. Fresh graduates in nursing, and beauty therapy may apply to be licensed as Laser hair technician(s) provided they be trained in laser hair reduction from an approved training center by DHA and their basic academic qualification was granted not more than two (2) years ago. The approved course outline is mentioned in *Appendix 1*.
- 1.8. Professionals holding only “Laser hair technician” title are prohibited from practicing beyond their scope in hair reduction service and an “undertaking letter” shall be signed to ensure compliance.
- 1.9. Proof of hands-on training during the laser and IPL course shall be for at least ten (10) cases which shall be documented.
- 1.10. Facilities providing laser services shall not have direct access to any other facility such as beauty center or retail sales shop.

2. Registration and Licensure Procedures

To obtain a license from DHA to provide laser and IPL hair reduction services in the Emirate of Dubai, the health facility shall submit an “Add specialty– Laser and IPL Services” application to the HRD through the online licensing system *Sheryan*; which can be accessed on www.dha.gov.ae.

2.1. The application shall include:

- 2.1.1. Schematic design drawings in AutoCAD format showing the proposed floor layout with clear room measurements for each room/ area and labelled as per services.

- 2.1.2. A business plan/ proposal letter with details of services provided. If services are provided for both genders, the female area shall be physically separated with access control¹ or a dedicated time for each gender shall be identified.
- 2.1.3. A no objection letter from the health facility owner.
- 2.1.4. Updated passport copy and UAE identification of owner/ partners (if applicable).
- 2.2. Upon receipt of a completed electronic application, the HRD will perform the following:
 - 2.2.1. Verify accuracy and completeness of the information provided.
 - 2.2.2. Review the design to ensure compliance with the DHA requirements.
- 2.3. The HRD shall decide the need of onsite inspection based on the submitted documents and available information in the system, accordingly HRD shall issue adding specialty approval.
- 2.4. In case of application rejection, a detailed list of issues will be provided via the electronic system for corrective action.
- 2.5. To start the service the health facility shall employ and license a full time physician in one of the specialities mention above as the service in-charge, and employ qualified DHA licensed laser technicians to meet the functional requirement of the service.

Note: For further information regarding Laser Technician refer to the Professional Qualification Requirement document that can be accessed on the DHA website.
- 2.6. Install the laser and or IPL equipment in accordance with manufacturer specifications. The equipment(s) shall be registered by the Ministry of Health (MOH) and shall be approved by at least one (1) of the following international authorities:
 - 2.6.1. Food and Drug Administration (FDA)

¹ Female Laser Hair reduction technicians and beauty therapist must do laser and Cosmetic services provided for female patients.

- 2.6.2. Health Canada
- 2.6.3. Conformité Européenne (CE)
- 2.6.4. Australian Register of Therapeutic Goods (ARTG)
- 2.6.5. Ministry of Food and Drug Safety (MFDS) Korea
- 2.6.6. Taiwan Food and Drug Administration (TFDA)
- 2.6.7. Japans Ministry of International Trade and Industry (MITI)
- 2.7. Provide contract for maintenance with the equipment manufacturing company or authorized dealer or agents.
- 2.8. The health facility shall provide documented policies and procedures for the following:
 - 2.8.1. Informed Consent
 - 2.8.2. Infection control measures
 - 2.8.3. Patient health record

3. Facility Design Requirements

The laser and IPL services shall be provided in an approved premises. The following general design considerations shall be met in the laser and IPL treatment rooms:

- 3.1. The room shall have a minimum floor area of 7.5 square meters.
- 3.2. Room arrangement shall permit a minimum clearance of ninety (90) centimetres at each side and at the foot of the bed.
- 3.3. The room entrance shall have a laser safety sign posted visibly on the door.
- 3.4. Door swings should be oriented to provide patient privacy in the treatment room.
- 3.5. Designated shelf or area for storing and maintaining necessary supplies shall be provided.
- 3.6. Protective measures need to be taken to prevent stray laser radiation from leaving the room or from reflecting and for safe laser and IPL practice. These measures include but are not limited to:
 - 3.6.1. The walls of the room should be painted with a matt coloured paint.

- 3.6.2. Selected flooring surfaces shall be easy to maintain, readily cleanable and appropriately wear-resistant for the location. Wooden flooring could be used in treatment rooms. Carpets shall not be used in the treatment room.
- 3.6.3. The room shall have no metallic surfaces or mirrors.
- 3.6.4. The light used in the room must be non-reflecting.
- 3.6.5. Windows shall be kept closed and curtain used shall be made of non-reflecting materials.
- 3.6.6. Treatment couch shall be white colour or covered with white sheet.
- 3.6.7. Non-reflective instruments shall be used.
- 3.7. A hand-washing station with a hands free operating tap and liquid or foam soap dispensers shall be provided in the room. Sinks shall be designed with deep basins, made of porcelain or solid surface materials.
- 3.8. Hand sanitizer dispenser shall be provided in addition to hand-washing stations.
- 3.9. Provisions for hand drying shall be available at all hand-washing stations.

4. Patient Care

- 4.1. Prior to commencement of laser or IPL treatment, the treating physician shall conduct a complete clinical and physical examination to diagnose the cause of excess hair growth and shall be determined the treatment plan accordingly.
- 4.2. The treatment plan shall be within the treating physician's scope of practice. However, if the treatment is outside of the scope of practice, the patient shall be referred suitably.
- 4.3. A health record shall be created for each patient in the health facility. It shall be maintained and retained according the DHA, Health Records Guidelines.
- 4.4. Informed Consent form shall be obtained from the client for the laser and IPL service. If the age of the client is below eighteen (18) years, the parents or legal guardian shall fill and sign the consent form. The Informed Consent obtained shall be in accordance to the DHA Informed Consent Policy.

5. Matching Staff/ Client Gender Requirements

- 5.1. Gender of healthcare professional providing the laser and IPL hair removal treatment shall be similar to patient gender. This is not applicable to facial and external extremities treatment.
- 5.2. If the treatment is provided for both genders at the same time, the female treatment area shall be physically separate from the male treatment area. Or else a dedicated time for each gender shall be identified and visible posted at the entrance of the health facility.

6. Laser Safety

- 6.1. Lasers are classified into four (4) classes according to the potential hazard of the laser used *Appendix 2*.
- 6.2. The occupational health and safety requirements for any healthcare professional operating or assisting in the operation of lasers and IPL should be maintained as per international best practices such as the American National Standard Institute (ANSI) recommendations or equivalent for its safe use.
- 6.3. Healthcare professional providing the laser and IPL hair removal shall have updated training on the specific laser and IPL equipment used for treating patients. It is recommended for the health facility management to retain the staff training records to ensure their competence in safe use of the laser and IPL equipment.
- 6.4. Safety practices in the laser and IPL treatment room:
 - 6.4.1. Appropriate protective eyewear must be worn to protect the eyes from the hazards of the laser beams *Appendix 3*.
 - 6.4.2. Mandatory checks of all Laser Safety Eyewear (LSE) shall be performed to verify the appropriate wavelength and optical density imprinted on each pair of LSE prior to use.
 - 6.4.3. The facility shall post laser equipment sign appropriately.
 - 6.4.4. To avoid accidental discharging of the laser, the equipment shall be switched to standby mode, or turned off, between uses.

- 6.4.5. The room shall be adequately ventilated with a smoke evacuator (If required by the procedure).
- 6.4.6. Vacuum equipment is recommended to be maintained in the room with sufficient power and with the ability to filter to 0.1 μ m.
- 6.4.7. The laser and IPL equipment shall be maintained by authorised dealers, manufacturing companies or trained biomedical engineers who are skilled in assuring proper laser output, beam alignment and lenses used.
- 6.4.8. All filters shall be replaced according to the manufacturer's recommendation and this should be documented. Dye and filter changes shall be performed when the room is empty.
- 6.4.9. The health facility shall maintain preventive maintenance and safety maintenance logs.
- 6.4.10. All personnel handling the dyes shall wear gloves and an adequate ventilating mask because of their potential toxicity.
- 6.4.11. Dedicated and intact electrical cables shall be connected to the equipment.
- 6.4.12. Functioning shutters and safety interlocks shall be available and warning light indicators visibly placed.
- 6.4.13. Smoking shall be strictly prohibited in the laser and IPL treatment room.
- Note: For more information on "Safety guides against laser radiation" refer to Appendix 4.*

Appendix 1: Approved course outline

Recognized courses from outside the UAE, shall be attained from external body such as:

- Society for Medical and Surgical hair reduction (SCHMR)
- National Council on Laser Certification (NCLC)

Within UAE, DHA shall recognise laser training courses for hair reduction. The approved course outline must cover the following:

- Overview anatomy and physiology of the skin and hair
- Layers of skin, penetration of IPL into the skin, different skin types (Fitzpatrick), melanin synthesis, hair anatomy, growth cycle of hair, hair types, etc.
- Skin and hair disorders (alopecia/hirsutism/acne etc.)
- Basic Laser Sciences
- Laser History
- Laser Terminology
- Fundamentals of Laser biophysics
- Absorption spectrum, different kinds of IPLs, IPL Filters, difference between IPL and Lasers, peri-follicular response, what is laser, principles of lasers, properties of IPL, Laser media, time modes of operation, electromagnetic spectrum, lasing media etc.
- Laser tissue interactions (hair-skin-IPL interrelationship: Laser effects on tissue, penetration depth of different lasers, importance of chromophores, mechanism of action, wave lengths, thermal relaxation time, selective photothermolysis, pulse duration, etc.
- Understanding laser safety in practice: Laser Safety Responsibility, eye hazards, skin and fire hazards, standard operating procedures, protective eye wears, skin safety and importance of cooling, warning labels and signs, respiratory safety, electrical and fire safety, treatment guidelines, proper equipment handling, safety classification of laser
- Patient selection and orientation

- Effects and use of cosmetics with medicinal or drug like benefits on skin (Cosmeceuticals information)
 - Pre and post Laser and IPL management of skin and hair
 - Pre-treatment considerations, contraindications, post-treatment, possible side effects, management of side effects etc.
 - Documentation and filing
1. Equipment Handling
 - Different types and Quality of Laser and IPL Equipment
 - Principles of parameter setting (wavelength, pulse durations, spot size and frequency)
 - Safe equipment handling
 - Proper Equipment Maintenance and Handling.
 2. Practical Skills Module

Hands-on Workshops: Actual hands-on workshops on live volunteers in groups of 4-5 candidates to attend demonstrations and perform supervised procedures using the following lasers and IPL:

 - Alexandrite Lasers
 - Nd: YAG Laser
 - Intense Pulse IPL (IPL)
 - DIAC, Diode
 3. Hands on training
 - The training facility must provide each trainee with an opportunity to perform hands on training during the course on at least ten (10) cases prior to the trainees' final assessment. This shall be documented in the trainees file.

Appendix 2: Classification of laser and IPL

1. Laser Classification

Lasers are classified into four classes according to the potential hazard of the laser used. The international laser safety standard IEC 825 defines the Maximum Permissible Exposure (MPE) levels for the eye. In relation to these, the following classification is used to assign the degree of danger associated with any type of laser.

- **Class 1**-Class 1 lasers are considered safe based upon current medical knowledge. They include self-contained systems (lab and diagnostic types i.e.) that do not inflict harm under normal conditions. Hazard warning labels are not required.
- **Class 2**-Class 2 lasers emit a visible laser beam (400-780 nm) that by its very bright nature will be too dazzling to stare into. The Helium Neon aiming beam is an example of this laser. Momentary viewing is not considered hazardous. The normal aversion reflex, such as blinking, provides adequate protection. It is also recommended that one should not stare into the beam or otherwise do wear goggles.
- **Class 3A and 3B**-This class of lasers includes emitting ultraviolet or infrared light as well as emitting visible light. Class 3 lasers require special training to operate and suitable protective goggles are recommended. Some ophthalmology Nd: YAG lasers are in this class. The 3A lasers have an output of 0.5mW or less, while 3B lasers have an output power of less than 0.5 watts. All systems falling within the Class 1 Allowed Exposure Level (AEL) with laser output between 18µm and 1mm fall in this class.
- **Class 4**- Class 4 lasers have a potential hazardous emission to both eyes and skin by either direct or scattered radiation. Most lasers used in medicine are class 4 and protective wavelength specific eyewear must be worn. Other control measures are also required for class 4 laser systems. Class 4 laser has same laser output spectrum as class 3a, but increases the output level to that of Class 2 AEL.

2. Products of laser and IPL hair reduction

There are a few methods of laser hair treatment and for each method there are various laser products.

1. **The Ruby Laser** is the oldest type of hair reduction laser and works best for fine and light hair. The Ruby Laser cannot be used on patients with darker skin, including people with tanned skin. This and other factors, such as the relatively small area that they cover, have made Ruby lasers increasingly less popular for laser hair reduction in recent years.
2. **The Alexandrite Laser** is the fastest of the laser types and is good for treating large body areas in patients with light olive complexion. This is one of the most widely used lasers for hair reduction.
3. **The Diode Laser** is most effective for darker skin types and is less effective on lighter, finer hair. It covers large areas and has fast repetition rates, allowing brisk treatment of large body areas.
4. **The long pulse Nd: YAG laser** can be safely used for all skin types, including tanned patients. Large coverage areas and fast repetition rates allow large areas to be treated quickly. That said, patients who use this laser report more discomfort during treatment. It is also less effective for fine and light hair than other lasers.
5. **Intense Pulsed Light (IPL)**

IPL stands for intense pulsed light. An IPL machine contains a bright flash lamp that is used to create intense pulses of light. The IPL is a non-laser flash lamp light source but has the ability to emit a broad spectrum, high-intensity visible and infrared light and is used to treat a wide variety of skin conditions from Hair reduction, to Rosacea and acne therapy, removal of dyschromia and telangiectasia, and softening of facial lines and creases.

The desired wavelength is chosen by either selecting a particular wavelength filter or attaching a specific treatment head or hand piece that is configured with the filter attached. IPL equipment are more difficult to use than lasers and require a very skilled and experienced technician to operate.

Appendix 3: Protective eyewear

Protective eyewear includes:

Goggles: Must fit tightly on the face and are typically worn over prescription

Goggles must be labelled with the wavelength protection .eye glasses provided.

Glasses: A frame with two separate lenses including side shields. Prescription strength glasses can be specially ordered

Wraps: A frame with a single lens that covers both eyes including side shields

Specific Laser Safety Eyewear (LSE) is designed to reduce the amount of damaging wavelengths to a safe level while permitting sufficient room light for proper vision.

Class	Energy Level	Hazard
1	Very Low Power	None
2	Low Power (400-700nm)	Skin: None Eye: None (due to blink aversion)
3a, 3b	Medium Power	Skin: None Eye: Yes, from intra-beam viewing
4	High Power	Skin: Yes Eye: Yes



Appendix 4: Safety guides against laser radiation

1. Laser radiation should be discharged in a background that is non-reflective and fire resistant.
2. The area should be cleared of personnel for a reasonable distance on all sides of laser beam.
3. Warning sign should be attached to laser equipment in a conspicuous location indicating the potential eye hazard associated with laser.
4. Looking into primary laser beam should be avoided at all times, and equal care should be exerted to avoid looking at specula reflections of the beam, including those from lens surfaces.
5. Avoid aiming laser with eye and prevent looking along the axis of the beam, which increases the hazard from reflections.
6. Laser work should be carried in areas of high general illuminations to keep pupils constricted; thus, limit energy which might inadvertently enter the eyes.
7. Laser radiation workers should be instructed on potential eye hazards and the importance of limiting unnecessary exposure. They should receive pre-employment, periodic and final eye examinations.
8. Safety eyewear designed to filter out specific frequencies characteristic of the system affords protection, but it may only be partial.
9. Binoculars or aiming telescopes should not be used to view direct beam or reflected beam from mirrors unless the beam intensities are greatly below the safe levels. If necessary, a filter having sufficient optical density should be placed in the optical path of telescope for such situations or adequate laser protective eye wear is worn by the operator.
10. At its maximum emission capacity, a high power laser should operate in such a manner that the intensity of laser radiation at all accessible locations, when measured within a stationary circular area of 0.385 cm² and averaged over that area does not exceed the following limits
 - a) at any time interval of less than 18 µsec, an integrated irradiance of $5.0 \times 10^{-3} \text{ J/m}^2$
 - b) at any time interval t sec, that is greater than 18 µsec but less than or equal to 10 sec, an integrated irradiance of $18 t^{0.75} \text{ J/m}^2$
 - c) at any time interval of greater than 10 sec but less than or equal to 10,000 sec, an

integrated irradiance of 100 J/m^2

- d) at any time interval of greater than 10,000 sec, an irradiance of 10 mW/m^2

Since high power lasers are capable of cutting and burning, certain form of control in operating these lasers is required. Only the trained and qualified persons are allowed to use the high power lasers in most of the advanced countries. As for the use of low power lasers, it can also cause injury to the eyes if they are handled and used incorrectly by untrained personnel. Thus, there is a need to restrict its users to trained personnel only.

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