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Introduction

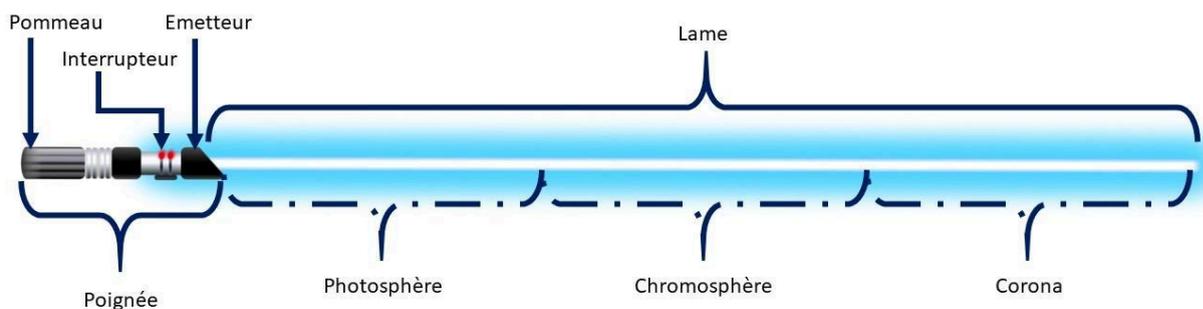
A fictional weapon, the LED saber is merely simulated by the objects used in the sporting practice, in accordance with the standards set by the French Fencing Federation (FFE). However, the techniques that define the identity of this sporting discipline are based on the consideration of specific characteristics of this weapon.

This bill of specifications is applied for disciplines related to LED saber practice. The regulations in force within the French Fencing Federation (FFE) and its affiliated associations are derived from the rules established by the FFE. The FFE may adjust these regulations according to its competitive strategy for all age categories, while taking into account the particular features of each discipline.

This document therefore presents the defining characteristics of the LED saber weapon, in order to preserve the safety and physical integrity of practitioners, as well as all participants in competitions governed by the FFE. During any activities conducted within the FFE framework, weapons must comply with this bill of specifications .

1- Description of the weapon and terminology

To avoid any confusion within the standards established for LED saber practice, below is a description of the weapon and its components.



The weapon is divided into two distinct parts:

La poignée (The hilt) : The part by which the weapon must be held. The dominant hand is placed at the top, near the emitter. The non-dominant hand is positioned lower, near the pommel. The hilt consists of several components:

- o Emetteur (Emitter) : The part of the saber from which the blade emerges.
- o Interrupteur (Switch) : The button used to activate the LED of the combat LED saber.
- o Pommeau (Pommel) : The section of the hilt furthest from the emitter.

La Lame (the blade) : The essential part of the weapon, simulated by a polycarbonate tube. The term 'blade' refers to the section extending from the tip to the emitter of the LED saber.



2 Standards

All weapons must be designed in such a way that, under normal use, they cannot injure either the fighter or their opponent.

Any modification made to the hilt and/or the blade by the fighter or by anyone close to them shall not be attributed to the manufacturer and may result in the weapon being refused for use in competition and/or in clubs.

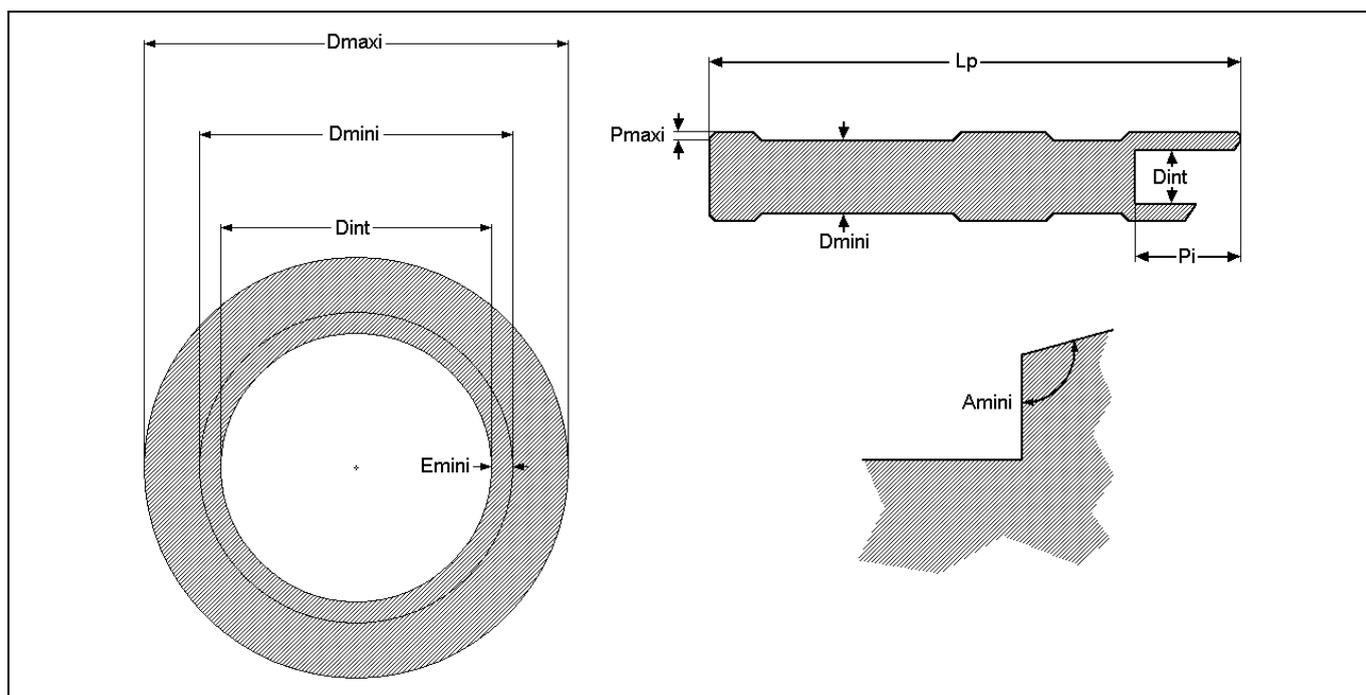
The 'FFE' marking must be affixed to the blades to certify their compliance with this bill of specifications . This marking will be applicable from September,1st 2026 and will become mandatory from September,1st 2028.

		M11-13	M15-17	M20 and above
LED saber	LED saber blade length (separate from the hilt)	710 mm (+/- 20mm)	810 mm (+/- 20mm)	810 mm (+/- 20mm)
	Weapon length	900 mm (inclusive) - 1000 mm (exclusive)	1000 mm (inclusive) - 1100 mm (exclusive)	1000 mm (inclusive) - 1100 mm (exclusive)
	Blade depth inside the hilt	25 mm to 80 mm	25 mm to 80 mm	25 mm to 80 mm
	Blade thickness	MidGrade	MidGrade	MidGrade

1.1 Features of the hilt.

The hilt is the main component of the LED saber. It is made of a metallic alloy.

In competitive combat, it is also a valid target area. As such, it must be free of any elements that could pose a danger to its user or their opponent.



Dint	Internal diameter measured at the opening of the emitter.
Dmini	External diameter measured at the narrowest point of the hilt, excluding the pommel if removable.
Dmaxi	Maximum diameter within which all fixed, movable, or removable parts of the saber must fit during competition, including the pommel.
Emini	Minimum material thickness at the narrowest point of the hilt.
Pmaxi	Maximum height of any protrusion on the hilt, including the pommel, measured from the narrowest point.
Lp	Total length of the hilt, measured from the end of the pommel to the distal end of the emitter.
Pi	Depth of blade insertion, measured from its stopping point inside the hilt to the distal end of the emitter.
Amini	Minimum angle of any sharp edge.



	M11 & M13	M15 and above
Minimum diameter (at narrowest point)	$D_{\text{mini}} \geq D_{\text{int}} + 4 \text{ mm}$	$D_{\text{mini}} \geq D_{\text{int}} + 4 \text{ mm}$
Maximum diameter of the hilt	$D_{\text{maxi}} \leq 45 \text{ mm}$ and $D_{\text{mini}} + 12 \text{ mm}$	$D_{\text{maxi}} \leq 45 \text{ mm}$ and $D_{\text{mini}} + 12 \text{ mm}$
Minimum material thickness	$E_{\text{mini}} \geq 1.5 \text{ mm}$	$E_{\text{mini}} \geq 1.5 \text{ mm}$
Maximum protrusion height	$P_{\text{maxi}} \leq 7 \text{ mm}$	$P_{\text{maxi}} \leq 7 \text{ mm}$
Hilt length :	$200 \text{ mm} \leq L_p \leq 300 \text{ mm}$	$250 \text{ mm} \leq L_p \leq 300 \text{ mm}$
Blade insertion depth :	$25 \text{ mm} \leq P_i \leq 80 \text{ mm}$	$25 \text{ mm} \leq P_i \leq 80 \text{ mm}$
Minimum edge angle	$A_{\text{mini}} \geq 130^\circ$	$A_{\text{mini}} \geq 130^\circ$

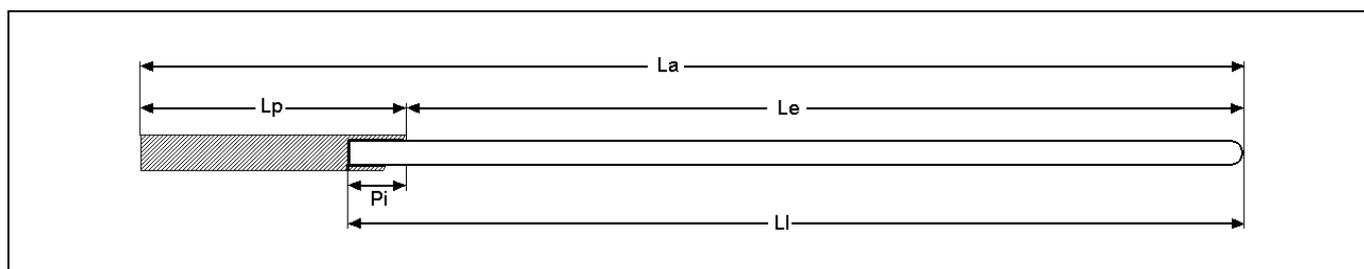
The hilt must be free of any elements that could cause injury or damage the opponent's blade. Sharp or pointed components are therefore strictly prohibited.

The hilt must be straight, with the blade aligned along the same axis as the entire hilt.

1.2 Features of the weapon.

When referring to the LED saber, two measurements must be taken into account :

- The measurement of the saber as a whole. This measurement is taken with the LED saber fully assembled (hilt + blade inserted). This measurement is between **1000 mm (inclusive)** and **1100 mm (exclusive)** (from **810 mm to 1000 mm** in M11–M13). This length is measured from the tip of the blade to the base of the pommel.
- The length of the blade alone, separately from the hilt .



La	Total length of the weapon, measured from the end of the pommel to the distal end of the blade.
Li	Total length of the blade.
Le	Effective length of the blade, measured from the distal end of the emitter to the distal end of the blade.

	M11 & M13	M15 and above
Weapon length (La) :	810 mm ≤ La < 1000 mm	1000 mm ≤ La < 1100 mm
Visible part of blade (Le) :	610 mm ≤ Le ≤ 715 mm	710 mm ≤ Le ≤ 815 mm
Blade alone (Li) :	690 mm ≤ Li ≤ 730 mm	790 mm ≤ Li ≤ 830 mm

Two systems are accepted to secure the blade within the hilt :

- Two clamping screws arranged either one beneath the other (along the length of the hilt) or at a maximum of 90° to one another.
- A threaded ring system attached directly to the emitter, creating a stop on a module fitted to the blade. In this case, the module shall be fixed to the blade by a pair of rivets placed one above the other and passing through the blade from side to side.
- Any other proposed system will be evaluated by the FFE before being accepted or rejected.



1.3 Blades

The blade refers to the polycarbonate tube illuminated by an LED, extending from the emitter outlet of the LED saber to the tip end.

Only one quality of polycarbonate blade is authorised for use in competitions: **Mid-grade type, 2 mm thick.**

Standalone polycarbonate blades have a standard measurement of **810 mm (32 inches)**. Depending on the manufacturer, this measurement may vary by **±20 mm**, with an accepted tolerance between **790 mm and 830 mm**.

For **M11 and M13**, the standard measurement is **710 mm (28 inches)**. Depending on the manufacturer, this measurement may vary by **±20 mm**, with an accepted tolerance between **690 mm and 730 mm**.

The **recommended outer diameter** of the blades is **25.4 mm**, with a tolerance of **24–26 mm**. The **recommended inner wall thickness** of the polycarbonate is **2.1 mm**, with a tolerance of **1.9–2.3 mm**.

The **blade tip** must be **round**, and either **riveted** or **screwed and glued**. Inside this tip, a **reflective system** must redirect the LED light back inside the saber to prevent glare towards the opponent.

The blade must be inserted into the emitter by **at least 25 mm** and **no more than 80 mm**.

Blades must be **FFE-approved**, ensuring compliance with the technical criteria defined in this document:

- Minimum flexural resistance: **300 N** at **50 mm/min**.
- End cap resistance: must remain fixed when subjected to **200 N·m torque**.

These standards and test protocols are detailed in **Annex 1 – Study of LED saber polycarbonate blade resistance and test validation protocol**.

To certify compliance, the blade must display the “**FFE**” marking at **100 mm from its base**.

1.4 Battery Pack (Accumulator)

When the LED saber is powered by a rechargeable battery (accumulator), and for safety reasons, it must be equipped with an **integrated protection circuit (PCM/BMS)**.

This circuit must protect the accumulator against **overcharging, deep discharge, and short circuits**.