



# FIA STANDARD GUIDELINES RACE CAR RAIN LIGHTS



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15. Any matters relating to investigation and enforcement of FIA Regulations are subject to the jurisdiction of the internal judicial and disciplinary bodies of the FIA.

# SCOPE

The FIA safety regulations are made up of several different types of documents. Some of the documents, such as FIA Standards, FIA Homologation Regulations for Safety Equipment and FIA labelling guidelines, are targeted to the safety equipment manufacturers. Some regulations aim to ensure that the safety equipment used in competitions appearing on the FIA International Sporting Calendar delivers a specified level of protection. There are other documents, such as Appendices to the International Sporting Code and Technical and Sporting Regulations, that aim to regulate the use of safety equipment in competitions appearing on the FIA International Sporting Calendar.

The aim of these new Safety Equipment Guidelines (“Guidelines”) is to complement the FIA Safety Regulations and to collect all the relevant regulatory information in one place, including the different Standards recognized by the FIA, the differences between them, the importance of safety equipment, the protection delivered, how to select, use and customize safety equipment, and how to avoid critical mistakes. It also gives tips on how to identify non-original products and what to do after an accident.

This document is intended to make the FIA regulations more easily understandable for competitors and scrutineers.

The text written here does not replace the official documents published on the FIA website and it has no regulatory value.

This is a living document that can be updated to reflect any new information, updates to regulatory or guidance documents or clarification that the FIA considers relevant to the competitors and officials. Please ensure that you take into consideration the latest available version.



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# INTRODUCTION

Rain lights are electronic devices mounted on racing vehicles with intention to improve safety and visibility of the vehicle. The primary goal of a rain light is to enhance visibility during wet or low-visibility conditions. Rain lights can also indicate various states of a car with periodic flashing. For example, Re-generating electrical charge for batteries from kinetic energy might impact the car's velocity; this can be indicated by flashing the rain light. Additionally, if a car has a terminal problem and is moving slowly, a flashing rain light serves as a caution to drivers behind the vehicle.

FIA Standard 8874-2019 provides design and performance requirements for rain light devices.

Specifications for rain lights include dimensions, minimum light intensity within a certain range of vertical and horizontal angles, and the range of allowed wavelengths for the emitted colours.

There are two grades of rain lights that can be approved, with the required grade defined in the Technical Regulations of each championship. Grade 2 have specific constraints for the surface of the light emitting area. Grade 1 can have smaller light-emitting surface for special applications. Other colours may be specified for certain series and applications, in which case a rain light may be homologated under Grade 1 special applications.





## 1/ REGULATION REFERENCES

Rain lights used in FIA regulated championships must be FIA homologated and approved in accordance with FIA standard 8874-2019. The standard prescribes design requirements, model classification and performance requirements. Rain lights can be classified as Grade 1 or Grade 2. Grade 1 rain lights are used in special applications such as FIA F1 Championships or the FIA LMDH class.

Homologated race car rain lights are listed in FIA Technical List No. 76.

Technical List 76 contains information about devices which have been homologated according to the 8874-2019 standard. The technical list also contains model classification information such as configuration orientation and grade of the rain light.



QR Code 1 - Technical List No. 76 "List of approved rain lights according to FIA standard 8874-2019"



# USER GUIDE & INSTALLATION



## 1/ INSTALLATION

Rain lights are delicate devices and should be treated with care and precision. Extra care should be taken while fitting the rain lights to the car. Appropriate force must be applied to fasteners and fixings to avoid any damage or wear to the device. The user manual contains recommendations concerning appropriate force and torque needed to fix the rain light. It also contains information on proper installation of the rain light on the vehicle.



Figure 1 - Fixation points



Rain lights operate in specific voltage and current type. Subjecting a rain light to higher voltages or different types of currents will cause damage to the unit and possibly injury to the user. The user manual specifies the operable temperature range rain lights can be exposed to.

It is beneficial to consider the rain light placement during the design of other parts of the car. The temperature of the environment should be taken into consideration as it can excessively damage or cause wear to the rain light. Subjecting the device to temperatures outside of the recommended range can cause damage, affecting the performance and functionality of the rain light. Open airflow can be beneficial to the device as it increases the cooling effect.

Rain light must be installed in the same position and orientation as manufacturer's instructions. Make sure that the rain light is pointing in the right direction when installing the device on the car. The centre of the light beam must project rearwards. Individual LEDs are sometimes placed at an angle in the device casing so the light beams project rearwards even when the casing is mounted at an angle.

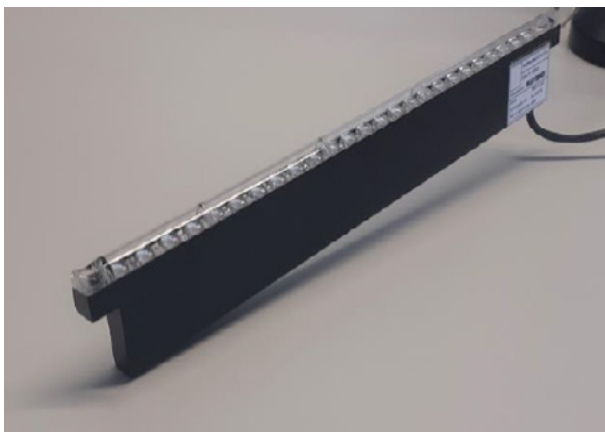


Figure 2 - Rain light end plate

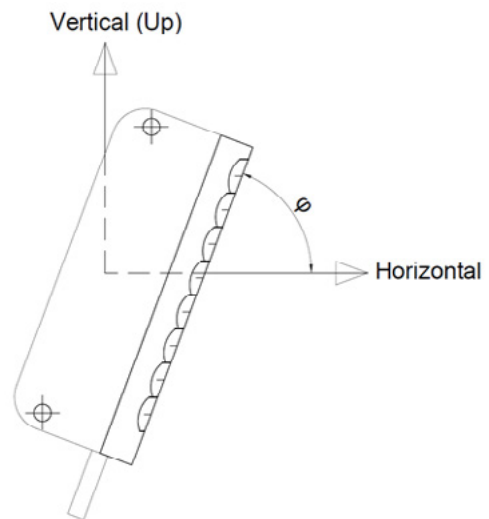


Figure 3 - Rain light reference positioning



Figure 4 - Rain light reference positioning - F3

Rain lights can be different shapes depending on where they are designed to be mounted on the car. For rain lights installed on the endplates of aerodynamic devices, the configuration of the rain light must be specified. Rain lights can also be homologated as stand-alone units or to be used in pairs. Information on the configuration of rain lights and usage as stand-alone systems is specified in Technical List n°76.



Figure 5 Vertical rain light configuration



Figure 6 - Horizontal/vertical rain light configuration

Any modification of the rain light is prohibited. It should only be used as manufactured. No advertising is allowed.

It is important to consider cable routes to relieve the strain on the cables. Considering rain lights are usually installed in areas with significant and constant vibration, correct cable routing can relieve strain on the cables and therefore mitigate wear and abrasion.

## 2/ MAINTENANCE

To ensure the light-emitting intensity and colour requirements are satisfied, it is important to check the surface of the rain light is clean during every service of the race car. Rain lights are usually placed on the rear of the vehicle near diffusers and exhaust systems where they can easily pick up dirt or oil. The presence of dirt and oil can compromise the intensity of the light emitted to the drivers behind the car.

It is important to follow manufacturer recommendations for cleaning the rain light. Appropriate cleaning products must be used to avoid any chemical abrasion to the surface or the wiring. If dirt penetrates to the inner layer of the protective surface, the user must follow manufacturer instructions for removing the protective surface to clean the dirt.

Before every racing event, the user must make sure that the rain light is working properly. Any sign of malfunction should be taken seriously and inspected thoroughly.

The lifespan of a rain light is specified by the manufacturer and must be respected.



Figure 8 Rain light



# SCRUTINEERING CORNER

## 1/ PRE-EVENT CONTROL

Please ensure that you have downloaded the latest version of Technical List No. 76 (Race car rain lights). It contains very useful information on how to check that the safety equipment complies with the FIA Safety Regulations.



QR Code 1 - Technical List No. 76 "List of approved rain lights according to FIA standard 8874-2019"

In addition, approved rain lights according to FIA standard 8874-2019 have a presentation form. In case of doubt, it is possible to compare the safety equipment with the presentation form. It is important that you consult the latest updated version on the FIA website. The presentation forms are accessible through the link on the technical list.



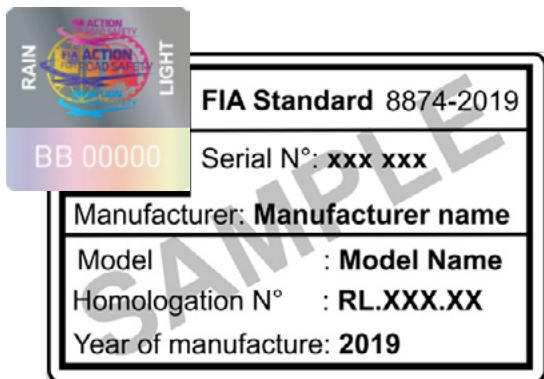
QR Code 2 - Presentation forms for race car rain lights according to FIA Standard 8874-2019



In the presentation form you will be able to check the following information:

- An image of the rain light;
- Technical details of the light;
- Orientation of the rain light;
- Homologation label;
- Complementary information.

The FIA-approved label is affixed on products only if they comply with FIA safety requirements. The FIA hologram and label indicate that the product has undergone the stringent tests defined in the FIA Standard.

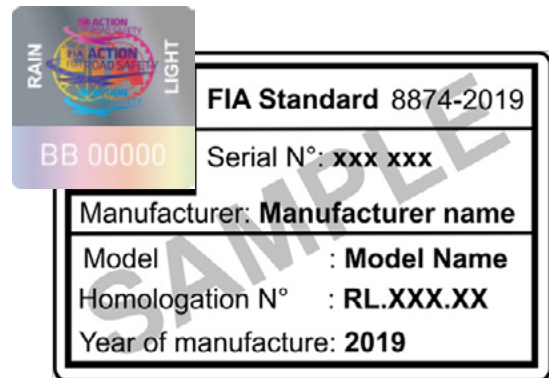


Use the above label example to check that the equipment complies with the Technical List and prove its authenticity. In case of doubt, contact your ASN or the event officials.

Alternatively, you may compare the label/hologram with another product you are confident complies with the Regulations.

### CHECKLIST TO IDENTIFY RAIN LIGHT COMPLIANCE WITH FIA REGULATIONS

1. Compare FIA label and hologram affixed on the rain light with label template shown in the relevant technical list.



2. The way the information is displayed, the font and bold type must be the same as the template.
3. The standard, manufacturer's name, homologation number, model name and validity date must always be presented and printed according to font style and label size.
4. Compare information shown on the FIA label with the information shown in the relevant technical list.



5. Compare the date of manufacture with the homologation date. Rain lights homologated according to FIA Standard 8874-2019 are valid for five years.

Numéro homologation Homologation number	Fabricant Manufacturer	Modèle Model	Utilisé seul Used stand-alone	Configuration Configuration	Degré Grade	Validité d'homologation Homologation validity	
						Début Starting	Fin <sup>(1)</sup> End <sup>(1)</sup>
RL.001.21	LIFELINE	421-100-011	YES	Horizontal/Vertical	2	02.2021	02.2026

## 2/ POST-ACCIDENT ANALYSIS

After an incident in which the rear part of the car is impacted, it is important to conduct checks on the rain light system. LEDs, protective surfaces and wiring must be intact and undamaged. The functionality of the device also must be tested before vehicle roll-out prior to a racing event. In case any of these checks do not pass the requirement, the user must contact the manufacturer for further action. It is prohibited to install a damaged rain light on a race car.





## QR CODES - SUMMARY

Technical List 76



Presentation forms  
(8874-2019))





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