



# Factsheet

## *Events involving laser radiation*

### 1 In brief

Some events involving laser radiation use very powerful lasers with output powers of several watts. If such a laser beam hits the human eye, this can put the person concerned at risk of serious injury. The actions that are required to be taken to minimise such risks are specified in the Federal Act on Protection Against Hazards Arising from Non-Ionising Radiation and Sound Levels (NIRSA), and are fleshed out in the corresponding O-NIRSA Ordinance. Both the Act and the Ordinance entered into effect on 1 June 2019.

The purpose of O-NIRSA is to ensure that the organisers of such events conduct them with the appropriate actions required to protect their audience from any eye damage, visual impairment, after-images or reading impairment as a result of such laser use.

Events involving the use of Class 1M, 2M, 3R, 3B or 4<sup>1</sup> laser equipment are subject to **mandatory 14-day advance notification**.

#### Where can I find out more?

Further information on the conducting of events involving laser radiation will be found on the [www.bag.admin.ch/lasershow](http://www.bag.admin.ch/lasershow) webpage.

#### Key points

- For any event involving laser radiation, a suitably qualified person must be enlisted and involved.
- If required, this qualified person must notify the FOPH of the event at least 14 days in advance of its commencement via the FOPH's notification portal.

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<sup>1</sup> as defined in Standard EN 60825-1:2014 'Safety of laser products – Part 1: Equipment classification and requirements'

#### Further information:

Federal Office of Public Health FOPH  
Radiation Protection Department, Non-Ionising Radiation and Dosimetry Section  
Schwarzenburgstrasse 157, CH-3003 Bern  
[www.bag.admin.ch](http://www.bag.admin.ch)

## 2 Legal provisions

### 2.1 Competence

Anyone conducting an event involving Class 1M, 2M, 3R, 3B or 4 laser equipment is required to appoint a qualified person to operate such equipment in accordance with the provisions of O-NIRSA and to notify the FOPH in advance that the event will take place.

A distinction is made in such matters between events with no laser radiation in the audience zone, which may be conducted with a Level 1 or a Level 2 certificate of competence, and events with laser radiation in the audience zone, for which the notification, planning, installation and operation of the laser equipment will always require a Level 2 certificate of competence to be held.

#### What is the audience zone?

The audience zone for the purposes above is defined as the space up to 3 metres above and 2.5 metres to the sides of the area reserved for the audience. Within this audience zone, the maximum permissible exposure (MPE) for the cornea specified in Standard EN 60825-1:2014 may not be exceeded.

The training needed to acquire a **Level 1 certificate of competence** covers laser technology and safety, health ramifications, the requirements of events featuring laser beams, notification duties and legal requirements. The training needed to acquire a **Level 2 certificate of competence** additionally extends to the principles for calculating maximum permissible exposures (MPEs) and to the programming of laser shows.

For events involving laser radiation in the audience zone, a qualified person with a Level 2 certificate of competence must notify the FOPH of the event in advance and must test the laser equipment to be used before the event. This qualified person may also instruct a holder of a Level 1 certificate of competence accordingly and assign them to monitor the event. Table 1 below provides an overview of the O-NIRSA provisions: who bears overall responsibility, what training is required, who notifies the FOPH of the event and who is responsible for the on-site operation of the laser equipment.

**Table 1: Overview of the provisions for events involving laser radiation**

Type of laser and event	Overall responsibility	Training	Notification <sup>2</sup>	On-site operation of the laser equipment <sup>3</sup>	On-site during the event
Class 1 or 2 lasers in an enclosed space	No O-NIRSA provisions or requirements				
Class 1 or 2 lasers in (or into) the open air	Event organiser	None	Yes (radiation emitted into airspace)	-	-
Class 1M, 2M, 3R, 3B or 4 lasers with <b>no</b> radiation in the audience zone	Person with Level 1 or Level 2 certificate of competence	Level 1 or Level 2 certificate of competence	Yes	Yes	Yes
Class 1M, 2M, 3R, 3B or 4 lasers <b>with</b> radiation in the audience zone	Person with Level 2 certificate of competence	Level 2 certificate of competence	Yes	Yes	Yes (or correspondingly instructed holder of Level 1 certificate of competence)

<sup>2</sup> The notification must be made by the person responsible overall.

<sup>3</sup> Planning, laser show programming, installation, calibration and equipment testing.

## 2.2 Enforcement agency

Under the previous Sound Levels and Laser Ordinance, which was superseded on 1 June 2019, responsibility for ensuring the compliance of events involving laser radiation with the relevant legal provisions rested with the cantons. With effect from 1 June 2019, this responsibility has now passed to the Federal Office of Public Health (FOPH). To perform this role, the FOPH maintains an electronic notification portal, studies the notifications it receives and verifies at events on-site whether the relevant requirements are met.

## 2.3 Notification portal

The qualified persons assigned to events involving laser radiation must notify the FOPH thereof if required using the [notification portal](#), and will receive a confirmation that their notification has been received.

The FOPH must be notified of any event involving laser radiation of any laser class that is projected into airspace, for air traffic safety reasons. The FOPH will automatically forward all such notifications to the air navigation services authority.

In the case of multiple successive events or repeated identical events, be they held at the same location (such as clubs) or at different locations (such as tours), a series notification may be submitted covering all the events concerned.

# 3 Competence

## 3.1 Acquisition of competence

Under the provisions of O-NIRSA, events using Class 1M, 2M, 3R, 3B or 4 laser equipment have had to be conducted by an appropriately qualified person since 1 December 2020. The training and examination bodies via whom the corresponding Level 1 and Level 2 certificates of competence can be obtained are listed in the annex to the *Ordinance of the FDHA on Certificates of Competence for Events Involving Laser Radiation* (SR 814.711.31). They will also be found on the corresponding FOPH [webpage](#).

## 3.2 List of qualified persons

A list of persons holding Level 1 and Level 2 certificates of competence to conduct events involving laser radiation who have consented to the publication of their data and qualifications will be found on the [NIRSA ePortal](#).

## 3.3 Recognition of other training qualifications

Other training qualifications may be submitted to the FOPH for consideration of their equivalence. Any such request in connection with an event involving the use of Class 1M, 2M, 3R, 3B or 4 laser equipment in Switzerland must be submitted at least five-and-a-half months in advance of the event concerned. The FOPH's consideration of such submissions will be subject to a fee. Further information will be found on the FOPH [website](#) and in the guide to [Issuing certificates of competence at Level 1 or 2 for events involving laser radiation](#).