

# O-NIRSA: Events Involving Laser Radiation

## 1 Background

Some events involving laser radiation use very powerful lasers with output powers of several watts. If such a laser beam hits a person's eye, great harm may be caused. The measures needed to minimise these risks are listed in the Federal Act on Protection Against Hazards Arising from Non-Ionising Radiation and Sound Levels (NIRSA), which Parliament approved on 16 June 2017. The Ordinance O-NIRSA, which the Federal Council ratified on February 27<sup>th</sup> 2019, stipulates appropriate measures. The Act and the Ordinance come into force on June 1<sup>st</sup> 2019.

The aim of O-NIRSA is to ensure that organisers holding such events take the required measures to protect the audience from any eye damage, visual impairment, after-images or reading impairment.

Up to now, events involving laser radiation have been governed by the Sound Levels and Laser Ordinance (SLO). O-NIRSA will replace SLO (see section 4). For events involving laser equipment of laser classes 1M, 2M, 3R, 3B and 4<sup>1</sup>, there will also be a **mandatory 14-day notification period**.

## 2 New regulations

### 2.1 Competence

Anyone holding an event involving laser equipment of classes 1M, 2M, 3R, 3B or 4 will in future be required to appoint a qualified person to operate the laser equipment and notify the event in accordance with the requirements laid down in O-NIRSA.

A distinction is made between events with no laser radiation in the audience zone, which may be held either with a certificate of competence level 1 or 2, and events with laser radiation in the audience zone, for which the notification, planning, installation and operation during the event will always require a certificate of competence level 2.

#### **What does the *audience zone* mean?**

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

The training needed to gain a **competence level 1** includes laser technology and safety,

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<sup>1</sup> As specified in the SN EN 60825-1:2014 standard "Safety of Laser Products – Part 1: Equipment Classification and Requirements"

#### **Further information:**

health implications, requirements for events with laser beams, registration and legal requirements. The training needed to gain a **competence level 2** additionally includes the fundamental principles for calculating the maximum permissible exposure (MPE) and for programming laser shows.

For events **involving laser radiation in the audience zone**, a person with a certificate of competence level 2 must register the event and carry out tests on the laser equipment before the event. This person may instruct someone with a certificate of competence level 1 and have him or her monitor the event. Table 1 (see page 3) provides an overview of the O-NIRSA regulations: who is responsible, what training is required, who registers the event, and who is responsible for the on-site commissioning of the laser equipment.

## 2.2 Enforcement agency

Until now, the cantons have been responsible for enforcing the regulations on events involving laser radiation. The Federal Office of Public Health (FOPH) is now assuming responsibility for enforcing the regulations on events involving laser radiation. The FOPH will operate an electronic notification portal, check the submitted notifications and monitor on-site compliance with the requirements.

## 2.3 Notification portal

As of December 1<sup>st</sup> 2020 at the latest (see section 4), qualified persons must notify the FOPH about events involving laser radiation via the new notification portal, and will receive a confirmation of notification.

Furthermore, the FOPH must be notified of events involving laser radiation of any laser class that are projected into airspace for air traffic safety reasons. FOPH will automatically forward such notifications to the air traffic control authority.

In the case of several successive events or repeated identical events that take place at the same location or at different locations (e.g.

clubs or tours), it will in future be possible to submit a single notification for such a series of events.

## 3 Acquiring competence

FOPH is currently drawing up the training plan and examination rules for acquiring the certificate of competence level 1 and 2. FOPH will issue an ordinance listing all the certificates from examination bodies that meet the requirements of the training plan and the examination rules, and that are in accordance with the latest scientific and technological developments.

Once the first examination bodies are declared, interested persons will be able to take a course. The **first courses** will probably be available by **the first quarter of 2020** at the latest. Once participants have passed the exam, the examination body will issue a certificate of competence level 1 or 2, depending on the course taken.

As of **December 1<sup>st</sup> 2020**, events with laser equipment of classes 1M, 2M, 3R, 3B or 4 may only be held by people who possess a certificate of competence entitled "Person with certificate of competence level 1 for events involving laser radiation" and / or "Person with certificate of competence level 2 for events involving laser radiation" (see section 4).

You can find up-to-date information on the status of the ordinance and course provision on the FOPH website. Please contact FOPH via the laser e-mail address ([laser@bag.admin.ch](mailto:laser@bag.admin.ch)) if you would like to be notified of the initial courses or would like to offer a course yourself.

## 4 Transitional provisions

Events involving laser radiation can be held in accordance with the Sound Levels and Laser Ordinance of 28 February 2007 and notified to the relevant canton until **December 1<sup>st</sup> 2020** at

### Further information:

Federal Office of Public Health, Radiation Protection Department, [www.bag.admin.ch/nissg](http://www.bag.admin.ch/nissg)

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the latest. As soon as a proficient person has gained their certificate of competence level 1 or 2, they can notify events involving laser radiation via the FOPH online notification portal (see section 2.3).

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[www.bag.admin.ch/nissg](http://www.bag.admin.ch/nissg)  
[nissg@bag.admin.ch](mailto:nissg@bag.admin.ch)

## 5 Contact

Federal Office of Public Health FOPH  
Consumer Protection Directorate  
Non-Ionising Radiation and Dosimetry Section  
Schwarzenburgstrasse 157

**Further information:**

Federal Office of Public Health, Radiation Protection Department, [www.bag.admin.ch/nissg](http://www.bag.admin.ch/nissg)

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## Table 1 Overview of regulations for events involving laser radiation

NB: The person in charge must submit the notification

Event with laser beams	Responsibility	Training	Notification	On site for commissioning the laser equipment <sup>1</sup>	On site during the event
Class 1 or 2 lasers in a closed room	No regulations and no requirements in O-NIRSA				
Class 1 or 2 lasers in the open air (or where beams are projected into the open air)	Organiser	None	Yes (beams projected into air space)	-	-
Class 1M, 2M, 3R, 3B or 4 lasers with no laser radiation in the audience zone	Person with certificate of competence level 1 or 2	Certificate of competence level 1 or 2	Yes	Yes	Yes
Class 1M, 2M, 3R, 3B or 4 lasers with laser radiation in the audience zone	Person with certificate of competence level 2	Certificate of competence level 2	Yes	Yes	Yes (or instruction of a person with certificate of competence level 1)

<sup>1</sup> Planning, programming the laser show, installation, calibration and testing of laser equipment

### Further information:

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