Instruction Sheet “Laser systems” 2020

The use of laser devices and equipment must be notified to NürnbergMesse. The form “Registration of a laser device” must be returned to NürnbergMesse at least 42 days before the start of construction. The written appointment of a laser protection officer to oversee the operation of the laser device and proof of adequate liability insurance must be attached to the registration form. In addition, the exhibitor must prepare a threat assessment for the demonstration and operation of the laser device in advance and attach it to the registration form.

According to DGUV Regulation 11 ”Laser radiation”, notice of the operation of laser systems must be submitted to the Berufsgenossenschaft [Trade Association] and the authority responsible for safety at work (Industrial Trade Inspectorate, Regierungsbezirk Mittelfranken):

Gewerbeaufsichtsamt Nürnberg
Roonstrasse 20
90429 Nürnberg
T +49 9 11 9 28-0
F +49 9 11 9 28-29 99
www.gaa-n.bayern.de

A trained **laser protection officer** (according to IEC/EN 60825; 2006/25 EC/OStrV) must be present on the stand if the laser or LED devices are classified in normal operation and/or during erection in **classes 3R, 3B or 4** (according to DIN EN 60825-1).

General:

Laser equipment (according to DIN EN 60825-1) produces extremely intensive radiation, which is concentrated into a high energy/power density by optical systems. The energy/power density is only slightly reduced even at long range. If laser radiation strikes the eyes or skin it can cause permanent damage.

The following instructions must therefore be observed when setting up laser equipment and also LED equipment where applicable at trade fairs, exhibitions and shows:

1. Only lasers that transmit **visible light** (wavelength 400 to 700 nm) may be used. The output power must be limited to the extent essential for the purpose.
2. Laser equipment must be assigned to a class (1-4) in accordance with DIN EN 60825-1 and marked accordingly.

Class 1	Safe for the human eye. Output power: < 0.4 mW
Class 1M	Safe as long as no optical instruments (lenses, etc.) are used.
Class 1C	Medical lasers (use and safety measures as per manufacturer's instructions)
Class 2	Safe for the human eye for short periods of exposure to radiation of max. 0.25 s. Output power: ≤ 1 mW
Class 2M	Safe for the human eye as long as no optical instruments (lenses, etc.) are used.
Class 3R	The accessible laser radiation is dangerous for the eye. Output power: ≤ 5 mW
Class 3B	Dangerous for the human eye and in special cases for the skin as well. Output power: ≤ 500 mW
Class 4	Very dangerous for the human eye and dangerous for the skin. There is also a **risk of fire**! (See Form P2) Output power: > 500 mW

3. Laser equipment covered by the EU Machinery Directive must meet the requirements of the 9th Ordinance German Product. Safety Act and generally accepted engineering practice. Material processing lasers must comply e.g. with DIN EN 60825-1/-4 and show lasers e.g. with DIN EN 56912. The manufacturer must confirm compliance with the provisions relating to the safety features of the laser equipment by means of a declaration of conformity. The operator must comply with the provisions of the Occupational Health and Safety Regulations on Artificial Optical Radiation **OstrV** and the **TROS Laser Radiation** as well as the safety regulation of the trade associations **DGUV Regulation 11** (formerly BGV B2).
4. If class **3R, 3B or 4** lasers (e.g. for projections or show events) are used, the beam must be widened by optical instruments to reduce the power density to a safe level in all areas in which people are present. Alternatively, the beam must be routed at a minimum height of 2.7 m above the floor.
   In the case of class 3R, 3B or 4 laser equipment, the safety precautions taken must generally have been inspected on site by a publicly appointed and sworn authority to verify that they are effective before they are used. A copy of the inspection report is to be submitted to NürnbergMesse.
   For all modes of operation, any persons not trained in laser safety must not be exposed to laser radiation in excess of the MZB-/EGW limits (as per DIN EN 60825-1 and/or OStRV). This must be ensured by means of technical and/or organizational measures.
   Any persons in the laser area to perform maintainance and servicing must be equipped with appropriate PPE (laser safety goggles/alignment) glasses).
   For the operation of lasers class 3R, 3B or 4, a laser safety officer (as per OStrV and TROS Laser Radiation) must be nominated by the exhibitor in writing. The presence of a laser safety officer at the stand is necessary if the laser equipment is categorized as Class 3R, 3B or 4 (to DIN EN 60825) in normal operation and during assembly.
   When demonstrating laser equipment it must be ensured that no uncontrolled reflected radiation can occur and that no-one can access the laser or projection area. Laser equipment must be shielded in such a way that only the effective beam can be emitted. Other radiation must be shielded using suitable optical filters.
5. If individual requirements cannot be complied with, **the following protective measures shall be used**:
   The laser beam shall be permanently installed so that people cannot enter the area of the beam.
   Beams reflected intentionally or unintentionally from reflective surfaces (mirrors, metallic surfaces, glasses, bottles) must not be aimed at areas where people are present. If this cannot be precluded for other groups of people (operating personnel, performers, artists) or is accepted as necessary during demonstrations, these persons must be instructed accordingly and if necessary provided with suitable tested safety goggles.
   If light effects are used during shows, persons must be prevented from entering the laser projection area. This also applies to areas through which the beam is deflected by reflection equipment.
   No focusing devices are to be present in the laser area.
   Unintentional drifting or deflection of the beam must be prevented by non-combustible barriers.
6. Laser systems must be shielded to ensure that only the useful beam can be transmitted.
7. Laser equipment must be set up in a firm position and secured to prevent movement.
8. Optical equipment, deflection devices, scanners, etc. must be secured to prevent falling or unintentional movement. The measures implemented must comply with the relevant event equipment regulations, e.g. DGUV Regulation 11 and DGUV Information 203-036.
9. Optical components/equipment e.g. dispersion lenses, unless part of the equipment, must have technical data on them that can be used to determine whether changes to the radiation data have taken place.
10. The adjustment of the laser system must be checked for correctness before each demonstration. If maladjustment is detected, the system must be taken out of operation immediately and repaired by a skilled person.
11. Laser systems, operator consoles and other control equipment must be fitted with authorization devices (e.g. key-operated switch, password, transponder) so that they are not accessible to unauthorized persons and may not be started up inadvertently by such persons.
12. The operating staff must be able to view the complete sphere of action of the laser.

13. If the laser radiation could cause an unintentional fire hazard, this must be notified to NürnbergMesse on Form P2.

    For more detailed information please contact our Event Technology Department:

    veranstaltungstechnik@nuernbergmesse.de
    www.nuernbergmesse.de

14. **Laser pointers** with the designation “IIIa”, “IIIA” or ”3A” under the US ANSI/CDRH rules do not comply with the requirements of valid standard EN 60825-1 and may not be used, since these generally have power outputs > 1 mW.

NürnbergMesse may intervene in the case of violations of these rules and is then entitled to switch off the power supply to the stand or to confiscate and secure the laser devices/equipment (to be returned on the last day of the trade fair when the trade fair is over).

For further information, please contact:

- **NürnbergMesse GmbH**
  Abteilung Veranstaltungstechnik
  Messezentrum
  90471 Nürnberg
  veranstaltungstechnik@nuernbergmesse.de
  www.nuernbergmesse.de

- **For all questions concerning health and safety and work, safety technology and accident prevention, please contact, in Bavaria:**

  Bayerisches Landesamt für Gesundheit und Lebensmittelsicherheit
  Pfarrstrasse 3
  80538 München
  T +49 7 11 22 52-7 94
  F +49 7 11 22 52-8 00
  www.lgl.bayern.de

Instruction Sheet “Laser systems” 2020

i4.10

(continued)

Notification of a laser system

Return to
NürnbergMesse GmbH
Abteilung Veranstaltungstechnik
Messezentrum
90471 Nürnberg, Deutschland
veranstaltungstechnik@nuernbergmesse.de
www.nuernbergmesse.de

Event _____

Return deadline **Hall/Stand**
No later than 42 days before use

Company _____

_____

Street _____

Postcode, Town, Country _____

Person to contact _____

Tel _____

E-mail _____

Because the **operation of laser systems** can cause dangers for visitors, employees of NürnbergMesse, their operation is **subject to notification**. Please complete a separate notification for each laser system.

1. **Type of laser system** on exhibition stand/event or stage space:

☐ Show/stage or display laser ☐ Laser for measuring purposes ☐ Labelling laser
☐ Medical laser ☐ Cutting laser ☐ Other laser (e.g. positioning lasers for material processing lasers)

2. In **normal operation for the intended use**, the system is classified as follows under IEC/EN 60825:

☐ Class 1 ☐ Class 1M ☐ Class 1C ☐ Class 2
☐ Class 2M ☐ Class 3R ☐ Class 3B ☐ Class 4

3. During the **erection phase and maintenance/service**, the system is classified as follows under DIN EN 60825-1:

☐ Class 1 ☐ Class 1M ☐ Class 1C ☐ Class 2
☐ Class 2M ☐ Class 3R ☐ Class 3B ☐ Class 4

4. If during normal operation and/or setup (incl. maintenance/service) your laser is classified as 3R, 3B or 4, you will need to have on the stand a trained laser protection officer as per OStrV (national) and TROS Laser Radiation.
Please enclose a copy of the certification of the laser protection officer with this notification.

Name of laser protection officer: _____

Telephone/mobile number: _____

5. The exhibited **laser device** has been classified or certified by an independent test institute (e.g. TÜV, BG-Zert., VDE, BSI, UL, FDA).
Please enclose a copy of the **laser system certification** with this notification.

☐ TÜV ☐ BG-Zert. ☐ VDE ☐ BSI
☐ FDA ☐ UL ☐ other: _____

6. The **laser source** used in the laser device has the following specifications:

Laser manufacturer: _____

Laser type/designation: _____

Maximum output of energy: _____ W or J

Pulse length/frequency: _____

Wavelength: _____ nm

7. The exhibited laser device meets the specified performance level in respect of the safety controller as per DIN EN ISO 13849-1 and 2 (PLr determined in risk assessment):

☐ PL_a ☐ PL_b ☐ PL_c ☐ PL_d ☐ PL_e

(continued)

Notification of a laser system

(continued)

Laser operation in class 3R, 3B or 4:

The operation of a class 3R, 3B or 4 laser device is only allowed if it has been tested before the start of the trade fair/event by a **publicly appointed, certified expert** and declared safe. After the safety inspection, you will be provided with an acceptance report. A copy of this report must be submitted to NürnbergMesse.

The first copy and a **risk assessment according to § OStrV** should be retained at the stand and presented to the supervisory authorities on request.

The second copy should be handed over to NürnbergMesse.

Start-up of your laser systems will not be allowed if the exhibitor cannot produce the safety certificate.

☐ The exhibited laser device operated at the exhibition stand is categorized as **class 3R, 3B or 4** in normal operation. Any risk to persons is prevented through technical and/.or organizational measures. The effectiveness of the protective measures will be verified by a public appointed and certified expert. The associated report will be available to NürnbergMesse at the exhibition stand before the trade fair begins.

Tested on site on/at: _____
date/time

Expert (name): _____

Telephone/mobile number: _____

I confirm with my signature that the protective measures listed and defined in the acceptance report are complied with at all times.

In addition, I declare that I agree with the following:

If modifications or additions to the laser device are made after the inspection/acceptance by the publicly appointed, certified expert, the operating permit of NürnbergMesse will expire.

NürnbergMesse is then entitled to switch off the power supply to the stand and to confiscate and secure the laser device (to be returned on the last day of the trade fair when the trade fair is over)**.**

Place/date _____ Signature _____

The above operation of a laser system is approved by NürnbergMesse subject to the following conditions:

Place/date _____ Company stamp and signature (NürnbergMesse; Event Technology Department) _____