

ETS - LDI 2004 LASER SAFETY & IMPORT INFORMATION

ETS-LDI has adopted these laser safety rules to ensure a safe and professional conference for exhibitors and visitors. All exhibitors using lasers must understand and follow these rules, which were developed in conjunction with the International Laser Display Association (ILDA). ETS-LDI will stop any laser activity that it deems to be unsafe. Exhibitors bringing in laser equipment from outside the United States should also be aware of laws governing the use and importation of laser equipment. Information about restrictions on imports is included below.

Because we want all exhibitors to have a successful and safe experience at ETS-LDI, we urge you to contact us before the show if you have any questions. Please contact Casey Stack, Laser Compliance, Inc, (+1) 801-495-9746; CaseyStack@lasercompliance.com, if you have any questions in advance of the show. A Laser Safety Officer (LSO) will be present the day before the show and during the show to answer questions and offer assistance.

Standards in the United States: "Variances" Required for Products and Shows

All manufacturers of laser light shows and laser light show projectors outputting more than 5 milliwatts (mW) must have approved variances from the United States Center for Devices and Radiological Health (CDRH) to introduce laser light shows and laser light show projectors into U.S. commerce (which includes demonstrating a product at a trade show). Prior to introducing laser light shows or projectors into U.S. commerce, the manufacturer must submit the following to CDRH:

- A Product Report describing the laser projector
- A Laser Light Show Report describing the laser light show, and
- A variance application requesting permission to deviate from the Federal Laser Performance Standards.

Only the Laser Light Show Report and variance application must be submitted if an individual or firm purchases a certified laser projector for which a Product Report has already been submitted by the projector manufacturer. Laser display products below 5mW do not need a variance; manufacturers need only submit a Product Report to the CDRH. Laser display products imported to the US, under certain circumstances, may not require a variance (see the section on imports for more details).

In addition, dealers and distributors of laser light show projectors must have approved laser light show variances to purchase and sell equipment from projector manufacturers. Dealers and distributors that demonstrate the capabilities of laser light show projectors to customers during the course of sale are considered by the CDRH to be creating a laser light show, and thus are required to have a laser light show variance. Companies performing laser shows at ETS-LDI must file a CDRH Laser Show Report with CDRH and with the State of Nevada (see below for contact information).

It can take several months to obtain a variance, so if you do not already have a variance, you should begin the process as soon as possible. If you build or sell laser equipment without a proper variance, you can be subject to fines as high as \$300,000. You will find several companies listed at the end of this section that will assist you in obtaining a variance.

You can find the necessary forms at:

<http://forms.psc.gov/forms/FDA/FDA-3147.pdf>

<http://www.fda.gov/cdrh/radhth/pdf/llsrpt01.pdf>

These rules pertain to indoor shows. Outdoor laser shows in the US have significant additional requirements, and special restrictions apply to outdoor shows in Las Vegas.

Use of Lasers at ETS-LDI

Companies that demonstrate or use lasers at ETS-LDI will be required to obey the following rules, which are drawn from U.S. law, from the American National Standards Institute (ANSI, Standard Z136.1 for Safe Use of Lasers,) and from extensive experience in working with lasers in trade shows.

Rules:

1. Lasers display products above 5 milliwatts in output power require a variance from the US CDRH. Exhibitors must be able to furnish a copy of their variance to the ETS-LDI Laser Safety Officer (LSO) on-site.
2. Exhibitors conducting laser shows above 5 mW must be able to provide a copy of their CDRH variance and the Laser Light Show Report submitted to the CDRH and the state of Nevada.
3. Laser effects with irradiance greater than $2.5\text{mW}/\text{cm}^2$ shall be positioned a minimum of 3 meters (10 feet) above floor areas, and be separated 2.5 meters (8 feet) horizontally from audience areas.
4. Stray light, either diffuse or direct beams, that is not a necessary and intended part of the display shall be controlled and eliminated. For static displays, diffuse reflections shall produce no more than $5\text{ microwatts}/\text{cm}^2$ in isles or neighboring trade shows booths.
5. All optical components shall be rigidly secured, so that vibration or accidental movement will not misalign the system, possibly causing a hazardous reflection.
6. Laser projectors incorporating scanners, and oriented such that scanner failure could allow laser light above Class I levels to be directed into audience/public areas, shall incorporate a permanent or temporary physical beam block to prevent this.
7. If laser beams or scanned graphics leave the exhibitor's booth, they are subject to approval by the LSO and must not interfere with other exhibitor's displays.
8. Setup and alignment procedures should be conducted at the lowest practical power (500 mW or less), and all personnel in the room should be made aware of each laser emission. This is of particular importance when multiple laser systems are being setup by different exhibitors.
9. Laser graphics, diffraction, and lumia effects should be projected on screen surfaces. Scrim, water screens or other materials that do not completely diffuse the beam are not acceptable screen surfaces if the audience has access to areas behind these screens.
10. Fiber optic cables shall be routed in such a manner as to prevent ignition of flammable materials in the event of failure of the cable.
11. At least one hour prior to the opening of the ETS-LDI trade show, all exhibitors are required to demonstrate their laser equipment to the LSO. If any aspect of the exhibitor's display is in question, it is strongly recommended that such inspection be done at an earlier time. This allows time for corrective actions to be taken. The LSO will also be available the day before the show to offer assistance. The LSO may request to measure laser emission levels to determine compliance.
12. Laser display products may be imported into the US temporarily for exhibit purposes, but may not be turned on at ETS-LDI if the power level exceeds 5mW. This restriction does not apply to imported products that have a CDRH variance.
13. If exhibiting a laser display product that does not comply with CDRH requirements, be prepared to show a valid "Temporary Import Bond" (TIB) and FDA 2877 US Customs form (see below on where to obtain a copy).
14. For laser products below 5mW that have not received an accession number from the CDRH, be prepared to show proof that you have submitted a laser Product Report to the CDRH.

Importation of Laser Equipment for Exhibition

You can temporarily import laser products for exhibit at ETS-LDI without a CDRH variance. However, you cannot turn the product on if it outputs more than 5 mW. Imported products below 5 mW that have not been certified to the CDRH can be turned on. Uncertified laser products of any power level will probably require a Temporary Import Bond (TIB), which ensures that the equipment leaves the US. A TIB can be obtained from your customs broker.

The US Food and Drug Administration and US Customs control all laser products entering the US. Laser products shipped to the US without the proper laser paperwork can be seized by US Customs. Carefully check all the details of your particular situation, as there are several problems that can prevent the timely arrival and release of your lasers when shipped to the US. In addition to the standard Customs forms required of all products imported to the US, laser products must be accompanied by this form: FDA 2877 Radiation Declaration. This form can be downloaded at: <http://www.fda.gov/opacom/morechoices/fdaforms/FDA-2877.pdf>

The second page of the form includes instructions for completing it. Attach 3 copies of the completed form to the outside of the shipment along with other required customs and shipping documents. Take a copy of this document with you to the exhibit, and provide several copies of the completed 2877 form to your customs broker.

For more information:

The ANSI Standard Z136.1 for Safe User of Lasers (See section 4.5) can be obtained from the following:

Laser Institute of America, Suite 128, 13501 Ingenuity Drive, Orlando FL 32826, Phone: (+1) 407-380-1553; Fax: (+1) 407-380-5588; Website: <http://www.laserinstitute.org>

American National Standards Institute, 25 West 43rd Street, (between 5th and 6th Avenues), 4 floor, New York, NY 10036, Tel: (+1) 212-642-4900; Fax: (+1) 212-398-0023; Website: www.ansi.org

Government Safety Agencies

Center for Devices and Radiological Health, Office of Compliance, HFZ-342, 2098 Gaither Road, Rockville MD 20850 USA, (+1) 301-594-4654; Fax: (+1) 301-594-4672; Website: www.fda.gov/cdrh/comp/rad_consumer.html
www.fda.gov/cdrh/comp/guidance/1349.html

State of Nevada Radiation Authority, Radiological Health Section Health Division, 1179 Fairview Dr., Room 102, Carson City, NV 89701 USA; Phone; (+1) 702-687-5394; Fax: (+1) 702-687-5751; E-mail: smarshall@govmail.state.nv.us; Contact: Stan Marshall, Radiation Control Specialist

Safety Firms To Assist in Filing Variances

Laser Compliance Inc, 11607 Broadview Way, Sandy, Utah 84092 USA; Phone: (+1) 801-495-9746, Fax: (+1) 509-562-7412; E-Mail: Caseystack@aol.com; Contact: Casey Stack

Lighting Systems Design, Inc.: 4625 Winter Garden Road Suite A-2, Orlando, FL 32811-1777 USA
Phone: (+1) 407-299-9504, Fax: (+1) 407-299-3965; E-Mail: lsdi@lsdi.com, Website: www.lsdi.com
Contact: Greg Makhov

Rockwell Laser Industries, P.O. Box 43010, 7754 Camargo Rd, Cincinnati OH 45243 USA; Phone: (+1) 513-271-1598; Fax: (+1) 513-271-1568; www.rli.com

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