

L V R Limited www.lvroptical.com



LVR presents...

Professional Laser Display Safety Training Course

to be held at:

**Hunton Park Hotel, Watford, London
on Monday 2 October 2017**

Course overview

Included with the course, all delegates receive:

- Full course reference manual
- Lunch and refreshments through the day
- Certificate of Attendance
- Entry onto the Registered Laser Safety Attendee Scheme
- Opportunity to sit an optional laser safety examination

The course includes information regarding Laser Regulations
"Control of Artificial Optical Radiation Regulations 2010"



Laser & Optical Radiation Safety
www.lvroptical.com

LVR Limited

The Old Barn, Meathop, Cumbria LA11 6RF
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Professional Laser Display Safety Training Course

Hunton Park Hotel: Monday 2 October 2017

The topics covered in the safety course have been designed to help the laser user to ensure they have the knowledge required to perform safe and legal laser displays. The cost of our safety course is probably much less than what most operators would charge for a single laser show event; and with regulators having the authority to say no to a display if they are not happy with things, attending one of our courses and making sure you are aware of what is needed, can help you avoid running into any such problems.

Being able to show that you have attended a laser safety course also gives you a competitive advantage over operators that are unable to demonstrate safety skills.

On completion of the day long course, you will receive full course colour notes, and a certificate to show that you have attended our Laser Display Safety Training Course.

Registered Laser Safety Attendee Scheme



Upon completion of attendance at the Professional Laser Display Training Course, attendees will each be given a certificate of attendance. A copy of the certificate should be enclosed with the Laser Safety Record produced for every laser display performed. In addition, each certificate contains a unique ID number that will be registered to the recipient. Attendees of the safety course can provide venue owners, local authority officers, & event organisers with this reference number, which can be checked online at www.lasershowsafety.org for authenticity to prove that you have attended a laser display training course. When they type the reference number along with your surname printed on the certificate, the authenticator will report back if the certificate number matches the registered surname.

Please note: *No other details are given about members on the registered database.*

In accordance with Data Protection Legislation, details are not revealed or passed onto any third parties.

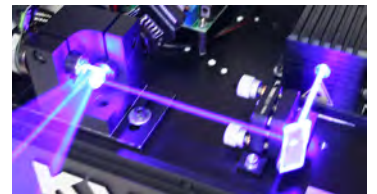
Reliable Knowledge ...

The Laser Safety Course has been designed and presented by laser safety expert and laser display designer, James Stewart, who through over 20 years of experience in the light show industry has come across many of the safety problems and situations that are often unique in the laser display application. During 2003, Laser Visuals Research received a government DTI SMART award to help carry out extensive research work into the affects of audience scanned laser radiation and ways of making laser displays safer. Since that time LVR have gone on to develop important safety products such as the multi-award winning Scanguard Laser Show software, and the new range of laser safety App's for the Apple devices iPhone, iPad and iPod Touch.

As well as specific laser safety expertise, James also has a wider knowledge of general Health & Safety issues being NEBOSH qualified, and holding a MSc in Risk & Safety Management, along with being a Chartered Member of the Institute for Occupational Safety and Health (IOSH) and International Institute of Risk and Safety Management (IIRSM). This broad mix of specialist skills has led to James being employed by some of the world's leading recording artists to prepare laser safety cases for their Productions so that audiences can be treated to spectacular and safe effects. James also regularly works as consulting Laser Safety Officer for many of the UK's largest entertainment venues and arenas, including The O2 London, SSE Arena Wembley, NEC Group & Live Nation Venues.

He also regularly helps provide feedback and input for developing Laser Safety Standard. James has spoken about laser show safety issues at the annual Laser Safety Forum, presented papers at the international Laser Safety Conferences in LA, San Francisco and Atlanta, and has spoken on the subject for PLASA. James is a Certified Laser Safety Officer, having taken the examination in the USA.

Throughout the time, James have been involved in laser safety he has gained recognition from leading experts in the laser safety world, and government agencies of being a reputable source of information on the subject area.



Benefits of attending ...

- Certificate of attendance and exam pass, which can be used as an appendices to any Risk Assessment or Show Technical Documents.
- Registered Laser Safety Attendee Scheme, where your attendance on the course can be proven online .
- Discounts off laser safety products, such as Pangolin PASS and Safety Lens Holders.
- Being able to chat with like minded people about lasers all day!



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Professional Laser Display Safety Training Course

Hunton Park Hotel : Monday 2 October 2017

We present a single day course in laser display safety at Hunton Park Hotel. The course covers the key aspects that need to be considered by anybody involved in working with laserdisplays. The course combines theory with practical examples of many topics, enabling attendees to gain valuable knowledge and an insight into what is necessary to perform legal, safe and enjoyable laser displays.

In addition to the subjects covered in the course, everyone that attends our laser safety training day is given a copy of our printed reference manual and receives a certificate of attendance. If you decide to sit the examination, a further certificate issued if you pass!



Main Course Topics Covered:

- Laser Beam Properties
- Biological Effects
- Safety Standard and Health & Safety Guidance
- Preparing Risk Assessments
- Designing Audience Safe Effects
- Working with Local Authorities & other officials
- Demonstarions on how to measure scanned emissions
- Laser Hazards
- Legal Requirements (New regulations covered)
- Maximum Permissible Exposure (MPE) and Exposure Limit Values (ELVs)
- Outdoor display considerations
- Practical examples of calculating beam hazards
- Manufacturing and installation requirements
- The UK laser regulations and how they affect light show operators and installers
- Discussion of the simplified approach to assessing audience scanning laser shows, with advantages and disadvantages of such an approach.
- Optional Examination, covering laser safety for display applications (*exam based on course syllabus*).

Laser Safety : The Reason...

Lasers can be dangerous and can cause hazards if they are not installed and operated safely. The types of laser used for laser displays have the potential to cause serious injury to people if proper care is not taken. Standards and guidance do exist for using lasers, and more recently new "Laser Specific" Health & Safety legislation has been introduced. Our Professional Laser Display Training Course is designed to teach you what is necessary to peform legal, safe and enjoyable shows.

Laser Safety : The Solution...

The training course covers a wide range of laser safety topics targeted specifically for the light show and entertainment industry. You will learn about what the hazards are when using lasers, how to design sage shows and effects, along with what measurements and calculations are necessary to create safe audience scanning effects. You will also learn how to prepare risk assessments and work with local authorities, and other regulatory bodies.

Laser Safety : The Requirement...

Any person or venue operating a laser display that has an output power of more than 5mW should appoint a Laser Safety Officer (LSO) who is responsible for overseeing the safe installation, operation, and management of the laser display. There are legal requirements under Health & Safety Law and the Management of Health and Safety at Work Regulations 1999 to carry out proper risk assessments when using lasers, and for staff to be properly trained. There are additional specific requirements under the new "Laser Regulations". In addition, many venues have to ensure any laser dispays comply with regulations as part of their entertainment licence grated by the local authority, and for insurance purposes. With the influx of low-cost laser equipment available both online and on the High Street, the use of lasers in public places is becoming more widespread. As a result, regulatory bodies are starting to pay closer attention to laser display activity.



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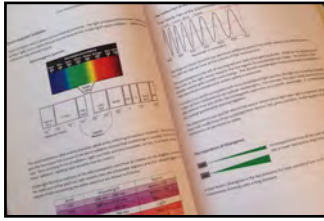
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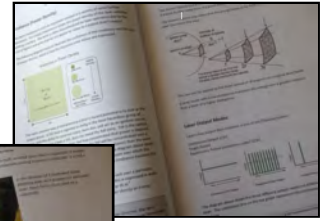
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Laser Display Safety Training Course Outline



The course and the accompanying colour printed handbook are divided into seven main segments that each cover a different aspect of the points that need to be considered before performing a laser display.



Section 1 : Laser Show Basics

The day begins with an introduction into laser beam properties and hazards. The parameters and terms used for laser safety assessment are introduced.

Section 2 : Laser Display Optical Hazards

Laser display hazards are highlighted, along with explanations as to why laser light properties are hazardous, and the resulting biological injuries from exposure.

Section 3 : Laser Safety Legislation

Discusses relevance of the published Laser Safety Standards and Health & Safety guidance, and what the legal requirements are for persons or venues operating laser displays are, and who needs to be notified when a laser display is performed or installed. Also included is full coverage of the Control of Artificial Optical Radiation at Work Regulations 2010 "Laser Regulations", detailing what the regulations mean in practice for laser light show operators. Also in this section we cover what the minimum set of features that should be included on Class 3B and Class 4 laser products used for laser displays. This session is useful to manufacturers and users alike, as it shows what needs to be featured in a laser projector.

Section 4 : Laser Installation Guidance

This segment covers the rules and guidance for best practice on laser display installations; separation distances, aperture masking and handover arrangements are all included.

Section 5 : Evaluating Laser Effects

Here we take a closer look at Maximum Permissible Exposure (MPE), calculating Hazard Distance and other important laser safety calculations such as measuring Diffraction Grating Effects, and detailing what equipment is needed.

Section 6 : Laser Show Documentation

Planning and assessing the display area for indoor and outdoor events, conducting and documenting a Risk Assessment, preparing a Laser Safety Record and other documentation is discussed in this section.

Section 7 : Laser Shows in Practice

The final part of the day concentrates on ways in which laser displays can be made safer by choosing specific types of laser effects; along with handy tips of do's and don'ts

Optional Examination

At the end of the day, there is a chance to test your knowledge and demonstrate your capabilities in a 45 minute Professional Laser Show Operator's Exam. The exam is based on what is taught during the training day and is a mix of multiple choice and short written answers. The pass mark is 60%. We award a Merit if 75% or more is achieved and a Distinction if you manage to obtain 90% or more. If you wish to sit the exam, please ensure that you tick the box on the booking form either paper or online version.

The course runs through a single day from 09:30 hrs to 17:00 hrs, with welcome tea/coffee and a hot/cold buffet lunch. Along with lunch break, you will also have morning and afternoon refreshment breaks where tea and coffee is available at no extra cost. If you opt to sit the examination, this would be sat at the end of the day (approx. 45 minutes) along with an exam debrief upon completion by James Stewart.



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