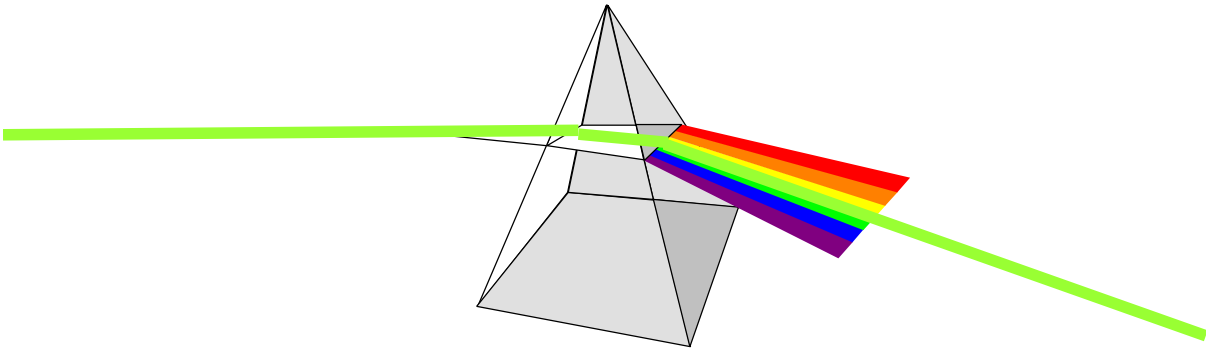
Appendix F
Example Laser Display Record

The Laser Display Company



Laser Display Safety Record

The Stately Home
Somewhere

6 May 1997

Introduction

This Record is produced by The Laser Display Company as part of its general commitment to safety. It is intended to meet the Company's duties under Section 6 of the Health and Safety at Work etc Act 1974 and Regulations made under that Act, particularly the Management of Health and Safety at Work Regulations 1992 and the Provision and Use of Equipment Regulations 1992. Due consideration is taken of the British Standard covering laser safety (BS EN 60825-1:1994) and current guidance from the Health and Safety Executive (HS(G)95) on the Radiation Safety of Lasers Used for Display Purposes.

The Record is presented in this comprehensive form to ensure that all of the necessary information is available for our employees, enforcing officers, the venue management and the promoter.

The assistance of the National Radiological Protection Board with the drafting and format of this Record is gratefully acknowledged but The Laser Display Company accepts full responsibility for the accuracy of the information contained herein.

1. Description of the Laser Display

1.1 Company Details

The Laser Display Company
1 The Beam
Shine
Brightshire
XY1 2AB

Telephone: 01999 999999
Fax: 01999 999999

1.2 Venue Details

The Stately Home
Somewhere
Anyshire
AB1 2XY

Telephone: 01999 999999
Fax: 01999 999999

1.3 Description of the Event

Laser display effects will be used to support a live performance by a classical orchestra. This particular show is in support of the GLOBF charity. Other visual effects will include fireworks and a water fountain. The event will take place in the grounds of The Stately Home.

1.3.1 Date

7 May 1997

On-site meeting took place on 10 April 1997. A record of the meeting is filed in Section 10 of this file.

1.3.2 Timetable

1000	Arrive on site and commence assembly
1400	Complete assembly and commence alignment
1500	Alignment complete
1700	Open to public admission
1900	Music starts
2130	Laser Show starts
2230	Performance finishes and commence dismantling
2330	Depart site

1.3.3 Plan of the Site

A plan of the site showing the layout of the stage, audience, lasers and associated equipment is filed after this page. Further plan and side elevations are also included to show the extent of the laser beams in relation to the audience and neighbouring buildings. Since the laser beams are to be projected beyond the confines of the venue, a plan of the region in which the venue is located is also included.

1.4 **Lasers**

Three lasers will be used for this performance. Details are as follows:

Laser 1 & 2

Manufacturer:	DuoLase
Model:	Display 100
Serial Number:	123456
Type:	Krypton/Argon (white light or mixed gas)
Wavelengths:	476.5 nm
	488.0 nm
	514.5 nm
	530.9 nm
	568.2 nm
	647.1 nm
	676.4 nm
Power:	4 W maximum (sum of all wavelengths)
Beam divergence:	3 mrad (full angle at 1/e x peak power points)
Initial beam diameter:	2 mm (at 1/e x peak power points)
Class:	4
Cooling:	Water
Electrical supply:	60 A three phase

Laser 3

Manufacturer:	DuoLase
Model:	Display 20
Serial Number:	98765
Type:	Argon
Wavelengths:	488.0 nm
	514.5 nm
Power:	7 W maximum (sum of both wavelengths)
Beam divergence:	2 mrad (full angle at 1/e x peak power points)
Initial beam diameter:	2.5 mm (at 1/e x peak power points)
Class:	4
Cooling:	Water
Electrical supply:	60 A three phase

1.5 **Other Equipment**

The following is an inventory of the equipment, other than the lasers described above, which will be brought onto the site as part of the laser display:

3 off diesel generators
3 off heat exchanger plants
3 off scaffolding towers
3 off primary optical systems
2 off mirror balls
3 off control consoles
Control cables
Power cables
Cooling water pipes
3 off smoke generators

2. Safety and Operational Structure

2.1 **The Laser Display Company**

2.1.1 Laser Display Operators

Mr John Smith (Person in charge on site) Mobile phone: 0999 999999
Ms Alison Doe
Mr Fred Bloggs

The three operators have UHF PMR radios for communication between them on site.

2.1.2 Laser Safety Officer

Mr Bert Major Mobile phone: 0999 999999

The Laser Safety Officer is responsible for ensuring that the Company operates to a high level of safety. He reports directly to the Managing Director.

2.1.3 Managing Director

Mr Frank Blair Mobile phone: 0999 999999

2.2 **Venue**

2.2.1 Estate Manager

Mr Eric Ashdown Telephone: 01999 999999 or 0999 999999 (mobile)

The Estate Manager is the main point of contact on site regarding services.

2.2.2 Health and Safety Manager

Ms Florence Starling Telephone: 01999 999999 or 0999 999999 (mobile)

2.3 **Promoter**

2.3.1 Name and Address

The Anything Goes Right Company
23a Building Block
Ourtown
Ourshire
ZZ6 5AB

Telephone: 01999 999999
Fax: 01999 999999

The contract for the laser show is between The Laser Display Company and The Anything Goes Right Company.

2.3.2 Managing Director

Mr Mike Lotsamoney Mobile phone: 0999 999999

2.3.3 Principal Contact

Ms Amy Curry Telephone: 01999 999999 or 0999 999999 (mobile)

Ms Curry is the main point of liaison between The Laser Display Company and the Promoter. She is considered the Customer.

2.3.4 Health and Safety Manager

Mr Ivor Plaster Telephone: 01999 999999 or 0999 999999 (mobile)

2.4 **Equipment Manufacturers/Agents**

2.4.1 Lasers

DuoLase
Unit 1
The Big Industrial Estate
Histown
Hisshire
AA1 2ZZ

Telephone: 01999 999999 Principal Contact: Mr A Person
Fax: 0999 999999

2.4.2 Generators

The Generator Supply Company
Their Address

Telephone: 01999 999999
Fax: 0999 999999

Principal Contact: Mr A Person

2.4.3 Cooling Plants

The Cooling Plant Supply Company
Their Address

Telephone: 01999 999999
Fax: 0999 999999

Principal Contact: Mr A Person

2.4.4 Optical Systems

The Laser Optics Supply Company
Their Address

Telephone: 01999 999999
Fax: 0999 999999

Principal Contact: Mr A Person

2.4.5 Smoke Generators

The Smoke Generator Supply Company
Their Address

Telephone: 01999 999999
Fax: 0999 999999

Principal Contact: Mr A Person

2.5 **Emergency Assistance**

In the first instance, the senior laser display operator from The Laser Display Company will be responsible for immediate assistance in the event of an incident involving the Company's operations at the venue. This will be backed up by the Company's other staff on site. First aid kits and appropriate fire extinguishers are available the whole time the Company representatives and its equipment are on site.

It has been agreed (see Contract filed in Section 10 of this file) that the promoter will provide first aid cover for employees of The Laser Display Company as part of its normal arrangements for its own employees and members of the public.

3. Control Measures

3.1 **Training**

The Laser Display Company recognises that the main control measure to reduce the risk of injury to all persons it the quality of the training of its employees. The training of the employees involved with this show is as follows:

Name	Formal Training	Experience
Mr John Smith	In-Company training scheme attended from 1/4/91-4/4/91. Update session last attended 4/1/97. Qualified First Aider - retested 5/4/97.	Joined Company 5/3/91. Experienced show designer and operator. Has been responsible for 35 shows in the last twelve months.
Ms Alison Doe	In-Company training scheme attended from 20/8/95-23/8/95. Update session last attended 4/1/97	Joined Company 5/8/95. Provides support to more experienced operators.
Mr Fred Bloggs	In-Company training scheme attended from 20/8/95-23/8/95. Update session last attended 4/1/97	Joined Company 5/8/95. Provides support to more experienced operators.
Mr Bert Major	In-Company training scheme attended from 1/6/89-4/6/89. Update session last attended 4/1/97. Attended US New York state laser display training course 6/9/92-8/9/92.	Joined Company at the beginning (3/4/88). Experienced laser show designer and operator. Has been responsible for 20 shows in the last twelve months and 10 fixed installations.

3.2 **Engineering Controls**

Where possible our laser display installations are designed to minimise the risk of injury to any person. As such, the laser and primary optical systems are rigidly mounted on the same baseplate to minimise the risk of relative movement. All optical components are securely mounted with a minimum of two fixing bolts or screws. The optical path with the primary optics is constrained by the use of local shielding covers. The laser apertures are all masked. Although these masked are adjustable, they are secured after adjustment by four fixing bolts.

The primary optical system is of a revolutionary design which allows all adjustments on site to be made from above with the minimum of covers removed. No alignment within the laser chassis is made on site.

3.3 **Security Arrangements**

Each of the lasers is key operated. Once the laser is mounted in position and coupled to the primary optical system there are no accessible beam paths until the control system is activated.

Each of the control systems is password protected. The shutter can only be opened, and laser radiation made accessible, when the correct password is entered.

The control consoles, lasers and optical systems are located in restricted areas. Access to these areas is for pass holders only.

3.4 **Safety Signs**

Each laser control area is designated a Laser Controlled Area when the key to the laser is in place (whether switched on or not). Signs are placed prominently at the entrance to each Laser Controlled Area as follows:

Caution Laser Starburst symbol with the legend "Laser Controlled Area"

Prohibition symbol with the legend "Laser Display Company Authorised Personnel Only"

The name of the responsible person and the Laser Safety Officer, along with details of how to contact them are also displayed.

3.5 **Protective Eyewear**

During normal operations and normal alignment work it is not necessary to wear laser safety eyewear. However two pairs of Kr/Ar goggles are available should some unforeseen alignment work be necessary. These are designed to provide sufficient protection in the event of an accidental eye exposure.

Manufacturer:	The Laser Eyewear Company
Stated OD:	???
Stated wavelength:	???
Indications:	????

4 Written Procedures

Written procedures have been prepared by the Company for the operations carried out away from the Company's premises. These are separated to cover installation of the laser display system, alignment work, the performance and dismantling. In each case a contingency plan has been prepared to cover reasonably foreseeable incidents or accidents.

Each member of staff is required to have read and understood the contents of these Written Procedures. A record of this is maintained in Section 8 of this file.

Where the involvement of third parties required for the successful implementation of these Written Procedures this has been agreed in writing (see Section 8).

4.1 Written Procedures for Installation

4.1.1 Introduction

These Written Procedures have been prepared for the installation of the laser display at The Stately Home on 6 May 1997. They should be seen as implementing, at least in part, The Laser Display Company's duties under Section 6 of the Health and Safety at Work etc Act 1974.

4.1.2 Responsibilities

The Laser Display Company is represented on site by:

Mr John Smith Mobile phone: 0999 999999

The Laser Safety Officer is:

Mr Bert Major Mobile phone: 0999 999999

4.1.3 Duties

All staff will work in a safe and responsible manner with due regard for their own safety and that of others.

4.1.4 Emergency Arrangements

The most likely incidents during installation relate to physical impact and falling. There should be no risk of injury from laser radiation. Where appropriate, first aid should be applied and, if necessary, the relevant emergency services summoned. First aid support is available from The Stately Home by telephoning 01999 999999.

4.2 **Written Procedures for Alignment**

4.2.1 Introduction

These Written Procedures have been prepared for the alignment of the laser display at The Stately Home on 6 May 1997. They should be seen as implementing, at least in part, The Laser Display Company's duties under Section 6 of the Health and Safety at Work etc Act 1974.

4.2.2 Responsibilities

The Laser Display Company is represented on site by:

Mr John Smith Mobile phone: 0999 999999

The Laser Safety Officer is:

Mr Bert Major Mobile phone: 0999 999999

4.2.3 Duties

All staff will work in a safe and responsible manner with due regard for their own safety and that of others.

Before powering up any of the equipment a check should be made of the layout and integrity of the power and water systems. The structural integrity of the support structure should be confirmed.

A particular concern during alignment work is the potential for accidental exposure to the laser radiation. To minimise the potential for this, the number of people in the vicinity should be minimised and, if reasonably possible, eliminated completely.

Alignment should be carried out at the minimum power necessary and, where possible, should be carried out with the laser beam constrained, ie by using local shielding. It should be recognised that alignment with external optical components during daylight may require almost full power.

4.2.4 Emergency Arrangements

The most likely incidents during alignment relate to laser radiation exposure. During alignment with the primary optical system, the operator is at greatest risk. However, alignment with the secondary optics may expose others. If an actual or suspected eye exposure occurs then a judgement will need to be made on the course of action. If the incident involves a third party then they should be referred to an ophthalmologist. An employee of the Company will be encouraged to see an ophthalmologist within 24 hours.

Other accidents and incidents could occur which relate to working at height, high voltages, etc. Where appropriate, first aid should be applied and, if necessary, the relevant emergency services summoned. First aid support is available from The Stately Home by telephoning 01999 999999.

4.3 **Written Procedures for the Performance**

1 Introduction

These Written Procedures have been prepared for the performance of the laser display at The Stately Home on 6 May 1997. They should be seen as implementing, at least in part, The Laser Display Company's duties under Section 6 of the Health and Safety at Work etc Act 1974.

4.3.2 Responsibilities

The Laser Display Company is represented on site by:

Mr John Smith Mobile phone: 0999 999999

The Laser Safety Officer is:

Mr Bert Major Mobile phone: 0999 999999

4.3.3 Duties

All staff will work in a safe and responsible manner with due regard for their own safety and that of others.

Before powering up any of the equipment a check should be made of the layout and integrity of the power and water systems. The structural integrity of the support structure should be confirmed.

Communication links between the three operators should be confirmed prior to the commencement of the performance.

The show will have been pre-programmed and aligned to ensure that no members of the audience or other staff are at risk.

4.3.4 Emergency Arrangements

The lasers incorporate temperature sensors which turn the respective laser off in the event of cooling failure. Loss of power to the laser will automatically terminate the emission of laser radiation.

In the event of a developing situation in the audience, such as unruliness, each operator is aware of the duty to terminate the laser show if appropriate. Each operator can make this decision without reference to the other operators.

Failure of the control system or primary optics should result in a failure to safety due to the masking of the laser apertures. However, the operator will decide whether the performance from that laser can continue safely in any form.

If an actual or suspected eye exposure occurs then a judgement will need to be made on the course of action. If the incident involves a third party then they should be referred to an ophthalmologist. An employee of the Company will be encouraged to see an ophthalmologist within 24 hours.

Other accidents and incidents could occur which relate to working at height, high voltages, etc. Where appropriate, first aid should be applied and, if necessary, the relevant emergency services summoned. First aid support is available from The Stately Home by telephoning 01999 999999.

4.4 **Written Procedures for Dismantling**

4.4.1 Introduction

These Written Procedures have been prepared for the dismantling of the laser display at The Stately Home on 6 May 1997. They should be seen as implementing, at least in part, The Laser Display Company's duties under Section 6 of the Health and Safety at Work etc Act 1974.

4.4.2 Responsibilities

The Laser Display Company is represented on site by:

Mr John Smith Mobile phone: 0999 999999

The Laser Safety Officer is:

Mr Bert Major Mobile phone: 0999 999999

4.4.3 Duties

All staff will work in a safe and responsible manner with due regard for their own safety and that of others. Due consideration should be given to the lighting levels and the presence of members of the public and vehicles (particularly those from other employers).

If there is a requirement for the cooling water to continue to flow for a period after the end of the performance then due consideration should be taken of the risks associated with this. Equally, when the cooling water is drained, this should be to a ditch and not in the vicinity of the structural work and high voltages.

4.4.4 Emergency Arrangements

The most likely incidents during dismantling relate to physical impact and falling. There should be no risk of injury from laser radiation. Where appropriate, first aid should be applied and, if necessary, the relevant emergency services summoned. First aid support is available from The Stately Home by telephoning 01999 999999.

5. **Risk Assessments**

These risk assessments are provided in compliance with The Laser Display Company's duties under Regulation 3 of the Management of Health and Safety at Work Regulations. Consideration is also given to the requirements for an Installation Safety Assessment in Chapter 4 of the Health and Safety Executive guidance HS(G)95 "The Radiation Safety of Lasers Used for Display Purposes".

The methodology used here is based on that developed by the National Radiological Protection Board and Loughborough University. We are grateful for the practical assistance that they have provided but the responsibility for the content and adequacy of the assessment rests with The Laser Display Company.

The assessment is considered as a function of the life cycle of the display for each section of the display and considers groups of people at risk. The assessment is presented in a format similar to that recommended in the Health and Safety Executive guidance "The Five Steps to Risk Assessment". A hazard is defined as the physical entity which has the potential to do harm; a risk is the result of the hazard being realised coupled with the likelihood of it being realised. In some cases, as appropriate, due account is also taken of the number of people at risk.

5.1 **General**

The Laser Display Company is committed to providing a safe environment for its employees and others who may be affected by its work activities, including members of the public. The assessment described here does not take account of work activities at our own premises. This is the subject of a separate assessment document. What is covered here is transport from our premises to the venue, and from venue to venue; installation of the laser display at the venue; alignment and testing of the display; the performance; and dismantling.

5.2 **Transport**

The laser display system is transported from our premises to the venue in a ***** truck owned by the Company. All of the equipment is transported in flight cases to minimise the risk of damage.

Hazards	Persons at Risk	Control Measures	Comments
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees.	Training Back lift on vehicle Casters on flight cases	Adequately controlled
Movement of Load During Transit	Employees. Others.	Training Flight case installation planned to minimise movement. Restraining straps used	Adequately controlled No reported incidents by employees
Road Traffic Accident	Employees. Others.	Driver training and demonstration of competence with the **** vehicle. All three operators are competent to drive the vehicle to ensure adequate rest periods, especially after performances	The Company considers it has taken all reasonable precautions to reduce the risk of "own fault" accidents and the probability of involvement with incidents caused by other drivers. The company has had no accidents involving its vehicles since $$$$.
Vehicle Breakdown	Employees affecting repair. Others.	Regular vehicle maintenance. Pre-journey check schedule. High visibility vests provided in vehicle to be worn if vehicle does break down	The Company considers it has taken all reasonable precautions to reduce the risk of vehicle breakdown and to protect its staff should this occur.
Vehicle Fire	Employees Others.	Regular vehicle maintenance. Pre-journey check schedule. Vehicle fire extinguisher carried in cab. Staff have received training in its operation.	The Company considers it has taken all reasonable precautions to reduce the risk of vehicle fire and to protect its staff and other should this occur.

5.3 **Installation**

Most of the risks during installation relate to the weight of some components of the laser display system and working at height. It is assumed for this assessment that none of the equipment is switched on. The assessment for the alignment work covers the next stage where equipment is switched on.

The assessment is broken down into the different segments of the display.

5.3.1 Lasers

Hazard	Persons at Risk	Control Measures	Comments
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Working at height ■ falling ■ dropping the laser	Employees Others in the vicinity	Training Provision of appropriate footwear for employees	Adequate

5.3.2 Equipment Associated with the Lasers

This section considers the installation of the cooling plants, the diesel generators, smoke generators, and cabling and pipework associated with these items.

Laser Exciters			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Sharp Edges	Employees	Provision of gloves for employees	Adequate

Cooling Plants			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Sharp Edges	Employees	Provision of gloves for employees	Adequate

Diesel Generators			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Battery Acid	Employees	Sealed unit	Adequate
Diesel fuel	Employees Other in the vicinity	Provision of gloves for employees Purpose fuel containers See also COSHH assessment contained in Section ****	Adequate

Smoke Generators			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Sharp Edges	Employees	Provision of gloves for employees	Adequate
Fluid	Employees	Training. Anti-spill design. See also COSHH assessment in Section ****	Adequate

Cables			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Trip hazard	Employees Others in the vicinity	Training of employees Consideration of cable routes. Cables are bright yellow	Adequate
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate

Cooling Water Pipes			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Trip hazard	Employees Others in the vicinity	Training of employees Consideration of pipe routes. Pipes are bright red	Adequate
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate

5.3.3 Primary Optics

Hazard	Persons at Risk	Control Measures	Comments
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Working at height ■ falling ■ dropping the optics	Employees Others in the vicinity	Training Provision of appropriate footwear for employees	Adequate

5.3.4 Support Structure

Hazard	Persons at Risk	Control Measures	Comments
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Tower stability ■ crushing hazard	Employees Others in the vicinity	Purpose designed structure Wooden spreaders installed under feet. Outriggers installed at earliest opportunity	Adequate
Working at height ■ falling ■ dropping the laser	Employees Others in the vicinity	Training Provision of appropriate footwear for employees	Adequate

5.3.5 Secondary Optics

Hazard	Persons at Risk	Control Measures	Comments
Manual Handling ■ crushed limbs ■ crushed extremities ■ back injuries	Employees Others in the vicinity	Training Provision of gloves for employees Provision of appropriate footwear for employees	Adequate
Working at height ■ falling ■ dropping the optics	Employees Others in the vicinity	Training Provision of appropriate footwear for employees	Adequate

5.3.6 Operators

Hazard	Persons at Risk	Control Measures	Comments
Poor working protocol	Other Employees Others in the vicinity	Training The Company regularly audits the work of its employees	Adequate
Poor workmanship	Employees Others in the vicinity	Training The Company regularly audits the work of its employees	Adequate

5.3.7 Staff other than Operators

There are likely to be a number of other staff in the vicinity of the working areas during installation. This assessment considers the risks presented to the Company's employees by these other groups of staff, who are not employees of the Company. The contractual arrangement with the event promoter requires that these other groups of staff should consider the safety of our employees.

Hazard	Persons at Risk	Control Measures	Comments
Stage installation ■ large structure	Our Employees	Our employees are not permitted to enter the immediate area of the stage until clearance has been given by the stage manager	Adequate
Sound installation ■ large structure ■ lorry movements ■ trailing cables	Our Employees	The work our employees are required to undertake is away from the sound systems and the proposed vehicle movements	Adequate
Other vehicle movements	Our Employees	All vehicle movements are controlled and a site speed limit of 10 mph will be imposed	Adequate

5.3.8 External Factors

Hazard	Persons at Risk	Control Measures	Comments
Rain	Employees	Suitable footwear and rainwear is provided Tarpaulins are provided for equipment	Adequate Employees should be aware of the increased risk of slipping
Sun	Employees	Sun hats and factor 15 sun lotion is provided	Adequate
Wind	Employees Others in the vicinity	As described in the previous sections, the stability of the various structures is considered important from an operational viewpoint.	Adequate

5.4 **Alignment**

The alignment stage is considered to start as soon as power is applied to the laser or any of the associated systems, including the cooling plant, or when the diesel generators are started. At the alignment stage it is assumed that covers may be removed from some of the equipment and the risk assessment takes this into account.

5.4.1 Lasers

The lasers are proprietary pieces of equipment which themselves comply with the requirements of the current British Standard on laser safety, BS EN 60825-1:1994. The lasers are maintained and adjusted at our premises prior to transport to the venue and no further on-site alignment or adjustment is envisaged. Therefore, this section is included for completeness only.

Hazard	Persons at Risk	Control Measures	Comments
High voltages	Employees	Training. Access is not generally possible through engineering controls, ie secondary covers if the main chassis cover is removed. Access to laser area is restricted to employees by the use of a barrier and safety signs.	Adequate
High temperatures	Employees	Training. Employees know which surfaces are at an elevated temperature. During normal operation (including alignment) the accessible surfaces are not sufficiently hot to cause a burn.	Adequate
Laser radiation (may need to be quantified)	Employees	Training. Appropriate protective eyewear is available for alignment work.	Adequate
Collateral radiation (may need to be quantified)	Employees	Training. Only one employee is permitted to work in the immediate vicinity with the covers removed. The duration of exposure is kept to a minimum.	Adequate

5.4.2 Equipment Associated with the Lasers

This section considers the laser exciters, cooling plants, the diesel generators, smoke generators, and cabling and pipework associated with these items.

Laser Exciters			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
High voltages	Employees Others in the vicinity	Covers remain in place at all times	Adequate
Sharp edges	Employees Others in the vicinity	The exciter is sited away from thoroughfares.	Adequate

Cooling Plants			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Noise (may need to be quantified)	Employees Others in the vicinity	Positioned away from occupied areas	Adequate
High pressure water (may need to be quantified)	Employees Others in the vicinity	High pressure hoses and clips used. Integrity of cooling system confirmed as soon as possible after switch on	Adequate
Sharp Edges	Employees Others in the vicinity	Positioned away from occupied areas	Adequate

Diesel Generators			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Diesel fuel	Employees Other in the vicinity	Provision of gloves for employees Purpose fuel containers See also COSHH assessment contained in Section ****	Adequate
Diesel fumes	Employees Others in the vicinity	Exhaust to unoccupied areas confirmed on site	Adequate
High temperatures	Employees	Training Covers kept closed when unattended	Adequate
Noise (may need to quantify)	Employees Others in the vicinity	Covers kept closed except when access required.	Adequate
Battery Acid	Employees	Sealed unit	Adequate

Smoke Generators			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
Smoke	Employees Others in the vicinity	Minimum quantity necessary for alignment and testing used. See also COSHH assessment in Section ****	Adequate
Sharp Edges	Employees Others in the vicinity	Positioned away from general access areas	Adequate
Fluid	Employees	Training. Anti-spill design. See also COSHH assessment in Section ****	Adequate

Cables			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
High voltages	Anyone	Armoured cables for high voltages. RCDs installed	Adequate
Trip hazard	Employees Others in the vicinity	Cables are bright yellow	Adequate

Cooling Water Pipes			
Hazard	**Persons at Risk**	**Control Measures**	**Comments**
High pressure water	Employees Others in the vicinity	Pipes are inspected prior to installation. High pressure hosing used with appropriate connectors	Adequate
Trip hazard	Employees Others in the vicinity	Pipes are bright red	Adequate

6. **Liaison**

This section of the file is used to file relevant correspondence and notifications to/from various official bodies involved with the laser display or who could be affected by the display.

6.1 **Licensing Authority**

The Licensing Authority for the event is:

The Somewhere District Council
Somewhere
XY9 4AB

The principal contact is:

Ms A Officer, Licensing Officer

Telephone: 01999 999999
Fax: 01999 999999

Notification first made: 1 February 1997

Copies of documents are filed here.

6.2 **Health and Safety Authority**

The Health and Safety Authority for the event is:

The Somewhere District Council
Somewhere
XY9 4AB

The principal contact is:

Mr B Safely, Senior Environmental Health Officer

Telephone: 01999 999999
Fax: 01999 999999

Notification first made: 1 February 1997

Copies of documents are filed here.

6.3 **Civil Aviation Authority**

Details of the event have been forwarded to the Civil Aviation Authority at Gatwick. A copy of the notification is filed in this Section of the file.

Principal contact: ** ***** ********

Telephone: 01293 573262
Fax: 01293 573971

6.4 **Other Aviation Authorities**

Due to the proximity of The Stately Home to the following airports, these have been notified direct (copies of the correspondence is filed in this Section of the file):

RAF ******

Principal contact: ** ***** *******

Telephone: 01999 999999
Fax: 01999 999999

The Somewhere Flying School

Principal contact: ** ***** *******

Telephone: 01999 999999
Fax: 01999 999999

6.5 **Marine/Harbour Authorities**

The Stately Home is sufficiently far inland that notification of Marine/Harbour Authorities is not considered appropriate.

6.6 **Fire**

The fire service local to The Stately Home is:

The Somewhere Fire Brigade

Principal contact: ** ***** *******

Telephone: 01999 999999
Fax: 01999 999999

Details of the laser display have been forwarded to the Fire Brigade and it is understood that an on-site inspection will take place.

6.7 **Police**

The constabulary local to The Stately Home is:

The Local Constabulary

Principal contact: ** ***** *******

Telephone: 01999 999999
Fax: 01999 999999

Correspondence with the constabulary is filed in this Section of the file. Particular concern has been expressed over the proximity to the main A??? trunk road and the potential for driver distraction. This has been addressed.

6.8 **Ambulance**

On site first aid will be provided by **********. Several Groups will provide ambulances and first-aiders to patrol the site. These are aware of the use of lasers on site.

Principal contact: ** ***** *******

Telephone: 01999 999999
Fax: 01999 999999

In addition the County Ambulance Service will be summoned for assistance in the event of a major incident.

Principal contact: ** ***** *******

Telephone: 01999 999999
Fax: 01999 999999

7. **Entertainment Licence**

This section is used to file information relating to the Entertainment Licence. The Licensee is The Anything Goes Right Company. However, the Licence puts certain conditions on the use of the lasers.

A copy of the Entertainment Licence is held in Section 7.1. Details of the particular conditions effecting The Laser Display Company are given in Section 7.2.

8. **Audit Record**

This Section of the file is used to file the audit records which assist in demonstration compliance with our own procedures as well as legal requirements.

8.1 **Management Review Log**

The Laser Safety Officer will review the planned laser display and certify in this section that he is satisfied that the performance will be able to take place with a minimum of risk to all parties.

8.2 **Operator Check List Record**

This Section contains the final check list to be used by the Operator in charge on the day. It is used as an assurance that safety critical examinations of the laser display have been carried out.

8.3 **Enforcing Officer Check Log**

This log records the checks undertaken by the enforcing officer(s).

8.4 **Portable Appliance Testing Log**

This log confirms that all of the portable electrical equipment has been tested within the last six months.

8.5 **RCD Checks**

All RCDs should be checked prior to use. This is a log of these checks.

9. **Certificates**

Photocopies of various certificates should be filed in this Section.

9.1 **Insurance**

The Laser Display Company carried third party liability insurance up to £15,000,000 and product liability insurance up to £10,000,000. Employer liability insurance is to a maximum of £1,000,000.

Copies of the relevant certificates are filed in this Section.

9.2 **Safety Checks**

The Laser Display Company employs The Laser Display Inspection Company to provide an independent audit of its working practices. The current certificate is filed in this Section.

9.3 **Laser Power Meter**

The Wizzo Laser Power Meter is calibrated every 12 months by the Laser Calibration Company. The current calibration certificate is filed in this Section.

10. **Working Section**

There are a number of records of meetings and correspondence which do not readily fit into one of the other file Sections. These should be filed here. By default, they should be filed in date order, with the oldest at the back working forward to the most recent.