Display Safety Record

SAMPLE. A fictional show, for training only.

This sample shows how the Display Safety Record (DSR) for one show can be laid out. It follows the list in clause 7.5 of AS/NZS IEC 60825.3:2022 (items a to k). Every name, number, date and approval below is made up. Do not copy the values: measure and assess your own show.

Note: Where a section says "Sample entry", it shows the kind of answer a reviewer expects. The grey notes under each heading say what the Standard wants and what reviewers look for. Delete the notes in a real record.

Document control

Item	Entry
DSR number / revision	SAMPLE-0001, revision B (revision A issued 26 October 2026)
Show	"Spring Gala" corporate dinner and dance
Venue	Example Hall, 1 Sample Street, Anytown (fictional)
Show dates	Bump-in 13 November 2026. Show 14 November 2026. Dismantle 15 November 2026.
Equipment owner / operator company	Example Laser Productions Pty Ltd (fictional)
Prepared by / date	A. Sample (designer), 20 October 2026
LSO (keeps this record at the show site)	B. Example, mobile 0400 000 000
Status	Show complete. Record closed out 14 November 2026. Revision B adds the alignment measurements and the show log.

Keep this record at the show site, kept up to date at every stage from design to dismantling [cl. 7.5]. Note each revision above.

1. The show (items a and c)

Standard asks for: equipment, location, venue layout, types of effect, and the beam paths in relation to spectators, ancillary personnel and performers. Reviewers look for: plan and elevation drawings that show where everyone is [cl. 7.2.2].

1.1 Equipment

Label	Equipment	Position	Notes
P1	RGB laser projector, galvo scanning, Class 4, serial EX-0001 (sample)	Centre of a ground-supported truss at the back of the stage, 5.5 m above the hall floor	Rigid clamp mount plus safety bond. One projector only.
C1	Laser controller and show computer	Front-of-house control position, 22 m from the stage	Operator has direct view of every projection.
E1	E-stop, fail-safe, hard-wired, independent of the control signal	Under the operator's hand at the control position	Tested before every show (record in section 10).
E2	Second e-stop, same type	Stage-left wing, next to the stage manager	Tested before every show.

M1	Physical aperture mask, steel plate on P1	Fitted to the projector window	Blocks all output below horizontal.

1.2 Location and layout

• Hall floor 24 m wide and 30 m deep. Ceiling 8 m. Stage 1.2 m high at the north end.

• Audience stands on the flat floor in front of the stage, up to 400 people, behind a crowd barrier 2 m from the stage front.

• Performers and the band are on the stage. Ancillary staff (bar, security, catering) work at the side walls and back of the hall.

• No balcony. No windows facing the beam paths. Emergency exits are not blocked by the equipment or the projections.

[Attach: Drawing 1, plan view. Drawing 2, elevation through the stage and centre line. Show P1, the beams, the audience area, the barrier and the exits.]

1.3 Effects and how people could be exposed

Effect	Category (Table 2)	Who could be reached	Why
Beam fans and tunnels over the audience	Potentially accessible	Nobody is meant to be reached	Beams stay at least 5.5 m above the floor. A fault could move them, so the mask and e-stop apply.
Graphics on the back wall	Non-accessible	Nobody	Beams end on the back wall at least 5.5 m up. The mask blocks anything lower.
Audience scanning	Not used	n/a	No beams are aimed at people. Section 7 explains why items j and k do not apply.

2. Beam characteristics (items b and i)

Standard asks for: maximum power, wavelength, divergence, maximum and minimum scan rates, scan-fail fault conditions and response time, plus relevant details from the maker's manual.

Parameter	P1 sample entry
Laser class (label)	Class 4
Sources	Red 638 nm, 1.0 W. Green 520 nm, 1.0 W. Blue 445 nm, 1.0 W. Total 3.0 W when all three are on.
Beam diameter at the aperture	3 mm
Divergence (full angle)	1 milliradian
Scan rate	Maximum 30,000 points per second. Minimum used 8,000 points per second. No effect is held still.
Scan-fail safeguard (SFS)	Fitted. It cuts the output when it detects a still beam by watching the x and y mirror speed signals. It is a backup. No effect relies on it to stay within a limit (section 7).
SFS response time	The maker quotes 2 ms (detection only). Measured at install: T1 2 ms + T2 1 ms + T3 1 ms = 4 ms. The full 4 ms is the figure in this record [cl. 9.6.1].
Other maker details	Key control, emission indicator, remote interlock connector and beam stop are fitted as the maker's manual describes (IEC 60825-1). Manual copy is in the case.

3. Risk assessment conclusions (item d)

Standard asks for: the conclusions of the risk assessment for every stage. Reviewers look for key findings and the controls chosen, not a long hazard list [cl. 7.2.5, 8.2.1]. The Standard sets no scoring method, so the organisation's own method is used.

Phase	Main hazards	People who could be reached	Controls chosen	Residual risk
Design	Beams too low over the audience. Reflective surfaces in the beam paths.	Spectators	Mount high. Mask below horizontal. Walk the venue for shiny items.	Low
Install and build	Falls from height at the truss. Beam on during rigging.	Installers	Output off during rigging. Key removed. Safety bonds.	Low
Alignment	Stray beams and reflections at low and full power.	Alignment crew, any ancillary staff nearby	Laser controlled area set up before alignment. Low-power alignment. E-stop within reach. Two people.	Low
Operation (rehearsal and show)	A projector moves. A control failure. A person climbs into a beam path. Reflective items brought in by guests.	Spectators, performers, ancillary staff	Mask. Rigid mount. E-stops E1 and E2. Operator in continuous control. Security briefed. Reflective items banned.	Low
Dismantle	Beam on by mistake. Hot optics.	Crew	Key out and stored. Output off until the projector is packed.	Low

4. Control measures in place and the reasons (item e)

Control	Type	Reason	Clause
Projector mounted 5.5 m above the floor	Engineering	Removes the need for a rule telling people to keep clear.	7.2.3
Physical mask on the aperture, blocking output below horizontal	Engineering	Keeps all beams at least 3 m above where spectators stand even if the aim drifts. A physical mask is preferred over a software mask.	6.2, 6.10
Rigid clamp mount and safety bond	Engineering	Vibration, knocks and wind can move projectors.	6.4
Two fail-safe e-stops, hard-wired	Engineering	Esc and DMX blackout are not reliable e-stops. The e-stop does not depend on the control signal.	6.8
Control link fault switches the output off	Engineering	A break in the link must not leave the beam on.	6.7
Scan-fail safeguard	Engineering (backup)	Cuts the output if scanning fails. It takes time to act, so it is a backup and not the main control.	9.6
Operator in continuous control with direct sight of every projection	Procedure	Allows the 3 m and 2.5 m separation of clause 6.10 instead of 6 m.	7.4.3, 6.10
Laser controlled area on the stage and at the truss during alignment	Procedure	Alignment can send beams above the limit into areas where people work.	8.2.1

Warning signs and crowd barrier	Warning and barrier	Signs name the responsible person. A sign alone is not a control, so the site induction explains them.	8.2.4
Announcement at the doors about laser effects	Information	As for strobes and smoke.	8.2.5
Reflective items banned over the audience (balloons, flags, selfie sticks)	Procedure	They can send a beam where it should not go.	7.3.11

5. Separation distances (clause 6.10)

Case used: an operator is in continuous control, so beams that exceed the spectator limit stay at least 3 m above any surface where spectators can stand and at least 2.5 m away sideways.

Place	Standard asks	This show	Result
Hall floor in front of the stage	At least 3 m above the surface	Lowest beam is 5.5 m above the floor (mask at horizontal)	Meets
Sideways from the nearest spectator	At least 2.5 m	No beam passes lower than the mask line, so sideways distance is above 5 m	Meets
Where beams end	Not on an accessible surface at spectator height	Back wall and side walls, all at least 5.5 m up	Meets
Tiered seating, balcony or raised floor	Measure from each such surface	None in this hall	n/a
Binoculars and long lenses	If they cannot be banned, multiply the spectator limit by 0.02	Indoor hall. Security bans professional cameras. Binoculars are not expected. Limit not reduced.	Judgement recorded

Operation without an operator in continuous control is not planned. If it were, strong beams would need to stay at least 6 m above the floor [cl. 6.12].

6. Contingency plans (item g)

The plan covers three cases [cl. 7.6]: an actual eye injury, an actual skin injury, and an exposure above the limit that could have injured an eye. In every case, end the laser emission first.

Step	Action
1	End the emission. Press the e-stop. Do not restart until the cause is understood and the controls are reviewed [cl. 7.4.5].
2	Sit the person down. Do not let them rub, press or medicate the eye.
3	Eye injury or concern: take them to an accident and emergency hospital, because of the risk of shock. Do not let them drive. Call 000 (Australia) or 111 (New Zealand) if serious.
4	Send basic laser details with them: wavelengths 638, 520 and 445 nm, the retina is the part most at risk.
5	A quick check, not a diagnosis: Amsler grid at the control position, or a reading test.
6	Skin burn: treat it like a flame or hot-surface burn and get medical advice.

7	Record the time, the cue running, where the person stood and what they said. Keep the show log. Tell the LSO and the venue manager. Report to the laser company's management [cl. 7.7].

Contact	Name / number (sample)
Responsible person on site	C. Operator, mobile 0400 000 001
LSO	B. Example, mobile 0400 000 000
Venue manager	D. Venue, mobile 0400 000 002
Nearest accident and emergency hospital	Anytown Hospital, Sample Road (fictional), 6 minutes by car
Emergency services	000 in Australia. 111 in New Zealand.

7. Exposure assessment (items j and k)

Standard asks for: for audience illumination, the spectator MPE chosen, the measurements, and the instrument and set-up; for any effect that relies on a scan-fail safeguard, the performance criteria and the operational tests.

Item	Sample entry
j. Audience illumination	Not used. No beam is aimed at people, so there is no spectator exposure to measure. This is why section 5 relies on position and the mask.
k. Effects that rely on the SFS	None. Every effect stays within the limits by position and mask. The SFS is fitted as a backup and tested in the field at this installation (section 10).
Distance does not protect	For 3.0 W, 1 milliradian and the 10-second spectator limit of 10.1 W/m², the nominal ocular hazard distance is about 615 m. (1 / 0.001) × √(4 × 3 ÷ (π × 10.1)) = 1000 × 0.615. The hall is 30 m deep, so beams are kept away from people by position, not by distance.
Checked by	Calculation checked by a second person, E. Checker, on 21 October 2026.

Note: If you do scan the audience, items j and k need a lot more: the spectator MPE for at least 10 seconds, peak-power measurements with a fast detector, the detector aperture of 7 mm, positions and settings so the measurement can be repeated, and the full SFS response time. Reviewers read this section most closely.

8. People (item f)

Role	Name	Contact (sample)	Notes
Designer	A. Sample	0400 000 003	Decides effects, projections and where equipment goes.
Installer	F. Rigger	0400 000 004	Places the equipment and helps align it.
Modifier	None		No changes made to the projector or its safety parts.
Operator	C. Operator	0400 000 001	Has direct control of the laser. Also the responsible person on the night.
Laser safety officer	B. Example	0400 000 000	Oversees hazard control. Keeps this record at the site. This role is in addition to the responsible person's.

Equipment owner	Example Laser Productions Pty Ltd	apps@example.invalid	Owns P1 and C1.
Laser protection adviser	Not engaged		No independent measurement is needed for this show. Local rules did not ask for one.

Training and briefing: installers, performers and ancillary staff were briefed at site induction on how to avoid exposure above the limit and what the signs mean. The briefing was recorded in writing [cl. 7.1.2, 8.2.4, 8.2.6]. Security agreed how they will alert the operator in an emergency [cl. 7.3.11].

9. Approvals and restrictions (item h)

Body	Approval or notice	Conditions	Reference (sample)
State radiation regulator	Registration for the equipment, as the state requires	DSR referring to the Standard to be held at the site	SAMPLE-REG-0001
Work health and safety regulator	No approval needed. PCBU duties apply	Notify as required	n/a
Aviation authority	Not needed	Indoor show, no beams leave the building	n/a
Maritime authority	Not needed	No waterway nearby	n/a
Council	Event permit	Laser part disclosed in the application	SAMPLE-PERMIT-0001
Venue	Written venue expectations	Venue is told before beams go on	Venue letter dated 5 November 2026

The state's rules differ and change. Confirm what applies in writing from the regulator before you quote or plan, and keep the answer here.

10. Check records

10.1 Pre-show checks (every show) [cl. 7.3.7, 7.3.8]

Check	Result	Time	Initials
Venue walk: new reflective items, blocked beam paths, moved barriers	Pass. Metallic banner moved 3 m away	16:10	CO
Mask M1 in place and tight	Pass	16:20	CO
P1 mount and safety bond secure	Pass	16:20	CO
Control link and cables undamaged, connectors locked	Pass	16:25	CO
E-stop E1: output stops at once, resets, system returns normally	Pass	16:30	CO
E-stop E2: output stops at once, resets, system returns normally	Pass	16:32	CO
Scan-fail safeguard works (still beam is cut)	Pass	16:40	CO
Signs and barriers in place	Pass	16:45	CO

Staff briefed: security and bar know where the e-stops are and how to alert the operator	Done	17:00	BE

10.2 Alignment and final check [cl. 7.3.4, 7.4.2]

Step	Entry
Laser controlled area set up before alignment	Yes, 13 November, 15:00
Alignment power	Lowest practical. Two people: one at the projector, one at the controls with the e-stop.
Full-power check for stray beams at the end of alignment	Done 13 November, 17:30, no stray beams found
Final low-power check before high power	Done 14 November, 18:30. Nothing has moved. Recorded.
Lowest beam above the audience floor, measured	5.5 m (needs at least 3 m)

Note: Checklists help, but do not rely on them alone. Rare problems can slip past a checklist [cl. 8.2.7]. Think about what is different tonight.

11. Show log and incident record [cl. 7.4.6, 7.7]

Date and time	Entry (sample)	By
14 Nov, 19:30	Doors open. Announcement made about laser effects.	CO
14 Nov, 20:05	Show started. All effects ran in normal pattern. Visual control kept throughout.	CO
14 Nov, 21:40	E-stop pressed during song 6: a guest reached up near the barrier. Output stopped at once. No beam reached the guest. Restarted after the cause was understood and the area was clear.	CO
14 Nov, 22:30	Show ended. Key removed and stored with the venue manager. System fully off.	CO
14 Nov, 22:45	Handover and fault report: no faults. One precautionary e-stop recorded above.	CO

After any incident where a control failed, do not use the laser again until you know why and have fixed the controls. Report every incident to the laser company's management and the venue [cl. 7.7].

12. Review and sign-off

Role	Name	Signature	Date
Prepared by (designer)	A. Sample		20 Oct 2026
Checked by	E. Checker		21 Oct 2026
Approved by (LSO)	B. Example		21 Oct 2026

Show closed out (responsible person)	C. Operator		14 Nov 2026

After the event, note what worked and what could improve [cl. 7.2.5]: Sample entry. The doors-open announcement worked well. Move the venue walk to the start of bump-in, so banners can be shifted before alignment.