

# KOZMIC LAZER SHOW - QUALITY CONTROL CHECKLIST

All items must be brought to a satisfactory state before being checked off.

## A. IDENTIFICATION

1. Name of show: \_\_\_\_\_
2. Location of Show: \_\_\_\_\_
3. Date(s) and time(s) or show(s): \_\_\_\_\_
4. Operator / Laser Safety Officer: \_\_\_\_\_
5. Accession #: 93V-0376
6. Manufacturer of the laser light show projector/display Device;  
Name: Kozmic Lazer Show  
Address: Post Office Box 140197  
City: Nashville State: TN ZIP: 37214  
Phone: 615.391.3226 Fax: 615.391.3265
7. Contact Name, & Title Of Responsible Person: Patrick Sittnick, President.

## B. EQUIPMENT CHECKS - Perform These Test With System Powered Down.

1.  Are all protective housings in place with proper tight fit?
2.  Is the projector secured rigidly in place?
3.  Before activating the laser, check that all beam shutters are operable and are left in the closed positions.
4.  Make sure that the laser cannot be energized without the key and that key removal terminates operation.
5.  Check that all accessory optics such as mirrors and targets are secured firmly in place.
6.  Manual Beam Attenuator Functional ?
7.  Remote Beam Attenuator Functional ?
8. Verify that all required labels are in place and visible on the projector:
  - Certification - Projector's label with variance number.
  - Certification - Show identification label with variance number.
  - Identification of light show manufacturer Aperture(s) labels.
  - Non-interlockeded (or defeatable interlocked) housing(s) labels.
  - Warning logotype present?
9.  Energize the laser at the lowest possible power (without allowing the laser light to emerge and with shutters closed).
10.  Confirm that all emission indicators and the emission delay is operational?

## C. ALIGNMENT CHECKS

1.  Evacuate all but essential personnel from the facility. These checks must be performed with no audience present.
2.  Make certain that you have visual control of the entire projection space from your operating location (especially the audience space) and that areas are adequately secured (see the current ANSI Z136.1 standard for guidance).
3.  Operate the laser at the lowest possible power, open the shutters, and perform alignments.
4.  Perform a physical survey to confirm that beams exceeding Class IIIa will be separated from the audience by at least the minimum distances required. (In general, for shows under operator control, a 3 meter vertical separation and a 2.5 meter horizontal separation from audience locations are required. For shows not under continuous operator control, a 6 meter vertical and 2.5 meter horizontal separation would be required.)
5.  Review your proposed projections with venue management to be certain that the audience will not be permitted access to locations resulting in a violation of item 4 above. (fill in name and title of management agent with whom review was conducted). \_\_\_\_\_
6.  Operate the projector at the power required for the show, making sure that there are no spurious projections into unintended areas and that the conditions of item 4 are maintained. Determine and record the power levels in accordance with the levels reported in Part 9 of your laser light show report.
7.  Confirm that all projectors and optics are rigidly secured and cannot be disturbed during subsequent setup operations or during the show itself.
8. Check for operation and proper setting of all devices related to safety, including:

<input type="checkbox"/> Beam blocks	<input type="checkbox"/> No light leaks from system or effects
<input type="checkbox"/> Scanning safeguards	<input type="checkbox"/> System Interface Functional
<input type="checkbox"/> Emergency stop controls	<input type="checkbox"/> Other: _____
9. Maintain continuous surveillance of the projectors and all optics between the times of alignment and the show to be certain that the alignment of the projector and optics is not disturbed.

**D. MEASUREMENT / PARAMETRIC CHECKS**

1. List the effects to be performed.

- Screen Projections ( Front / Rear )
- Stationary Beams
- Aerial Scanning ( Horizontal / X&Y )
- Scattering Effects - ( Mirror Ball / Rhinestone / Lumia )
- Diffraction Effects
- Other: \_\_\_\_\_

2. For each effect, give, if applicable, time duration, intended and measured power in the beams 50% for 2 beam launchers, 25% for 4 beam launchers. scan frequency and amplitude, and identification of the measuring instrument use: Instrument used was power meter on power supply.

- \_\_\_\_\_ Watts, \_\_\_\_\_ Hz, \_\_\_\_\_ Time, - Screen Projections ( Front / Rear )
- \_\_\_\_\_ Watts, N/A Hz, \_\_\_\_\_ Time, - Stationary Beams
- \_\_\_\_\_ Watts, \_\_\_\_\_ Hz, \_\_\_\_\_ Time, - Aerial Scanning ( Horizontal / X&Y )
- \_\_\_\_\_ Watts, N/A Hz, \_\_\_\_\_ Time, - ( Mirror Ball / Rhinestone / Lumia )
- \_\_\_\_\_ Watts, N/A Hz, \_\_\_\_\_ Time, - Dffraction Effects
- \_\_\_\_\_ Watts, N/A Hz, \_\_\_\_\_ Time, - Other: \_\_\_\_\_

**E. ADMINISTRATIVE CHECKS**

- 1. Name and title of the individual responsible for safety at the show facility. \_\_\_\_\_
- 2. List those agencies you have notified of your show. (FDA / FAA / State CDRH) Attach a copy of your notifications. (Attached / See KLS File)
- 3. Attach plan and elevation drawings showing the locations of all projectors, external optics, projections, and audience. (Attached / See KLS Show Report)

**NOTE:** Safety considerations mandate that you account for all specular reflections and that the operator have visual control of all projections at all times.

**Other Notable Data:**

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## F. Separation and Alignment Checks:

1. **Effect 1**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
2. **Effect 2**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
3. **Effect 3**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
4. **Effect 4**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
5. **Effect 5**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
6. **Effect 6**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
7. **Effect 7**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
8. **Effect 8**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
9. **Effect 9**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
10. **Effect 10**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
11. **Effect 11**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
12. **Effect 12**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
13. **Effect 13**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
14. **Effect 14**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.
15. **Effect 15**
  - a. Focused To All Remote Mirrors , Locate All Termination Points,
  - b. Maintains 3 Meters Vertical & 2.5 Meters Horizontal Separation.

G. **Note:** Any significant activity or unusual events related to the operation of the projection system or the show during the day.

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