



**U.S. Department
of Transportation**
Federal Aviation
Administration

FAA Form 7140-1, Notice of Proposed Outdoor Laser Operation(s)

Who Should Complete and Submit This Form

Any person, entity, or proponent planning to conduct outdoor laser operations with a visible laser beam exceeding 50 nanowatts per square centimeter or with a (visible or non-visible) laser beam that exceeds the maximum permissible exposure in navigable airspace. FAA encourages proponents to contact the applicable FAA service center for guidance.

Instructions to Complete

Consult FAA Advisory Circular (AC) 70-1 for detailed instructions to assist with completing and submitting this form. Reference FAA Order JO 7400.2, Chapter 29 for additional background information. FAA provides public access to these documents via https://www.faa.gov/regulations_policies.


Please print or type on this form and complete all sections prior to submission to the appropriate FAA service center. To enhance clarity, use plain language and numbers, e.g., decimal notation (0.7277) instead of scientific notation (72.77×10^{-2} or $72.77E-02$). Failure to provide all requested information may delay processing.

Paperwork Reduction Act Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB control number. The OMB control number for this information collection is 2120-0662. Public reporting for this collection of information is estimated to be approximately 240 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing, and reviewing the collection of information.

The Federal Aviation Administration (FAA) requires all responses to this collection of information if the proponent wishes to obtain or retain benefits available per Title 21 Code of Federal Regulations Part 1010 if projecting into navigable airspace. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524.

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| | | |
|--|---|----------------|
|  U.S. Department of Transportation Federal Aviation Administration | | |
| Notice of Proposed Outdoor Laser Operation(s) | | |
| 1. General information | | |
| a. To: <i>(FAA Service Center)</i> | b. From: <i>(Proponent)</i> | |
| c. Name of event or facility | d. Report date | |
| e. Customer | f. Site address | |
| 2. Date(s) and time(s) of laser operation | | |
| a. Testing and alignment | b. Operation | |
| 3. Brief description of laser operation | | |
| | | |
| 4. On-site operation information | | |
| a. Operator(s) | | |
| b. On-site phone #1 <i>(primary)</i> | c. On-site phone #2 <i>(secondary)</i> | |
| 5. FDA/CDRH information (if applicable) | | |
| a. Variance # | b. Variance expiration date | c. Accession # |
| 6. Brief description of control measures | | |
| | | |
| 7. Attachments | | |
| a. Number of laser configurations: State the total number of configurations and complete a Laser Configuration Worksheet (page 2) for each configuration | | |
| b. Attachments: List all attachments, e.g., maps, diagrams, control measure details, calculation details, or software printouts | | |
| | | |
| 8. Designated contact person (if FAA requires further information) | | |
| a. Name | b. Position | |
| c. Phone | d. Fax | e. E-mail |
| 9. Statement of accuracy <i>To the best of my knowledge, the information provided in this form (all pages) and corresponding attachment(s) is accurate and correct</i> | | |
| a. Name | b. Position | |
| c. Signature | d. Date | |

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Laser Configuration Worksheet

10. Configuration information

| | |
|--|---------------------------------------|
| a. Configuration number _____ of _____ <i>(example: 7 of 9)</i> | b. Brief description of configuration |
| | |

11. Geographic location

| | |
|---|---|
| a. Site elevation, in feet: _____ mean sea level | d. Information determined by: <input type="checkbox"/> GPS <input type="checkbox"/> Map (topo) <input type="checkbox"/> Other _____ |
| b. Laser height above site elevation, in feet: _____ above ground level | e. Latitude: _____ degrees, _____ minutes, _____ seconds |
| c. Overall laser elevation (a) + (b), in feet: _____ mean sea level | f. Longitude: _____ degrees, _____ minutes, _____ seconds |

12. Beam characteristics and calculations *(check only one mode of operation and fill in only that column)*

| MODE OF OPERATION | <input type="checkbox"/> Single pulse | <input type="checkbox"/> Continuous wave | <input type="checkbox"/> Repetitively pulsed |
|--|---------------------------------------|--|--|
| a. Laser and beam characteristics | | | |
| Laser type <i>(example: CO₂, diode, or Nd-YAG)</i> | | | |
| Laser hazard class <i>(example: Class 2, Class 3B, or Class 4)</i> | | | |
| Power Watts (W) | <i>(not applicable)</i> | <i>(maximum power)</i> | <i>(average power)</i> |
| Pulse energy Joules (J) | | <i>(not applicable)</i> | |
| Pulse duration Seconds (s) | | <i>(not applicable)</i> | |
| Pulse repetition frequency (PRF) Hertz (Hz) | | <i>(not applicable)</i> | |
| Beam diameter at 1/e points Centimeters (cm) | | | |
| Beam divergence 1/e at full angle Milliradians (mrad) | | | |
| Wavelength(s) Nanometers (nm) | | | |
| b. Maximum permissible exposure (MPE) values <i>(use this value to calculate the NOHD)</i> | | | |
| MPE Milliwatts per square cm (mW/cm ²) | <i>(not applicable)</i> | | |
| MPE per pulse Joules per square cm (J/cm ²) | | <i>(not applicable)</i> | |
| c. Visual effect calculations <i>The following items are for lasers with visible wavelengths (400-700 nm). If the laser has no visible wavelengths, enter "N/A (non-visible laser)" in all blocks.</i> | | | |
| Pre-corrected power (PCP) Watts (W) | Pulse energy (J) x 4 | Maximum power (W) | Pulse energy (J) x PRF (Hz) |
| Visual Correction Factor (VCF) <i>Enter "1.0" or use FAA AC 70-1 Table 3</i> | | | |
| Visually Corrected Power <i>See FAA AC 70-1</i> | | | |

13. Beam direction(s)

| | |
|--|---|
| a. Minimum elevation angle <i>(degrees, where horizontal = 0 degrees)</i> | c. Azimuth <i>(degrees)</i> <input type="checkbox"/> True north or <input type="checkbox"/> Magnetic north |
| b. Maximum elevation angle <i>(degrees)</i> | d. Magnetic declination <i>(degrees)</i> |

14. Protection and visual interference distances *(fill in the entire NOHD row and the entire column for the applicable mode of operation)*

| | Slant range (feet) | Horizontal distance (feet) | Vertical distance (feet) |
|--|--------------------|----------------------------|--------------------------|
| a. NOHD <i>(based on MPE value)</i> | | | |
| <i>The following items are for lasers with visible wavelengths (400 nm to 700 nm). If the laser has no visible wavelengths, enter "N/A (non-visible laser)" in all blocks.</i> | | | |
| b. SZED <i>(for 100 μW/cm²)</i> | | | |
| c. CZED <i>(for 5 μW/cm²)</i> | | | |
| d. LFED <i>(for 50 nW/cm²)</i> | | | |

15. Calculation method

Commercial software *(product name and version)* Other *(describe method such as a spreadsheet or calculator)*