

APPENDIX 7

Laser Data Sheet – SEMI S2

A7-1 Equipment Information - (All Laser Product Classes)

Laser Equipment Manufacturer _____
 Equipment Model # _____ Date Laser Data Sheet Completed _____
 Laser Product Classification _____ (e.g., 1, 1M, 2, 2M, 3A, 3R, 3B, 4)
 Classification Standard(s) _____ (e.g., IEC, FDA/CDRH, JIS)
 Certification File Identification Number _____ (e.g., CDRH accession number, or if CDRH accession number has been applied for, but not yet received 'pending' may be used. If self declaring under IEC 60825-1 or if certification is not required, e.g., if class 1 laser product is incorporated without changes, then 'N/A' may be used)

A7-2 Laser Information (Greater than Class 2 & embedded Class 3R (3A), 3B & 4)

Is access to laser radiation above the maximum permissible exposure (MPE) level required during maintenance or service tasks? YES NO
 _____ _____

If NO, then the information in Parts A7-2, A7-3 and A7-4 need not be provided.

If YES, complete the information in Parts A7-2, A7-3 and A7-4 for each task and laser that requires access.

If there are multiple lasers contained within the laser equipment, provide the following for each task/laser combination that meets the above criteria.

Laser Parameters Laser 1 , 2 , etc.

Laser Manufacturer _____, _____, _____
 Laser Model No. _____, _____, _____

A7-2.1 Laser Medium Type (HeNe, Nd:YAG, Argon, KrF, Diode, etc.) _____, _____, _____

A7-2.2 Wavelength(s) in nanometers (nm) _____, _____, _____

A7-2.3 Laser Hazard Classification (individual laser) _____, _____, _____

NOTE 1: If a laser is used in both continuous wave and pulsed modes, complete both A7-2.4 and A7-2.5.

A7-2.4 Continuous Wave Lasers

A. Power in Watts (W) _____, _____, _____

B. Irradiance in Watts/square centimeter (W/cm² at aperture) _____, _____, _____

A7-2.5 Pulsed Laser Characteristics

A. Pulse Duration in Seconds (s) _____, _____, _____

B. Energy per Pulse in Joules (J) _____, _____, _____

C. Pulse Repetition Frequency in Hertz (Hz) _____, _____, _____

D. Average Power in Watts (W) _____, _____, _____

E. Radiant Exposure Joules/square centimeter (J/cm²) _____, _____, _____

F. Q-Switch controlled pulses (Yes/No) _____, _____, _____

A7-2.6 Beam Parameters at maintenance or service access points

Exception: In the case of proprietary information, an acceptable alternative to providing the Beam Parameters is to provide NOHD results for each access point according to IEC 60825 or equivalent.

A. Beam shape Circular (C), Rectangular (R), Elliptical (E) _____, _____, _____

B. Beam size (mm) Major axis (R/E) or diameter (C) _____, _____, _____
 Minor axis (R/E) _____, _____, _____

Laser Parameters**Laser** 1 , 2 , etc.

- C. Beam divergence in milliradians (mr)
 Major axis (R/E) or diameter (C) _____, _____, _____
 Minor axis (R/E) _____, _____, _____
- D. Focal length in millimeters (mm) (of the emitting lens)
 Major axis (R/E) or diameter (C) _____, _____, _____
 Minor axis (R/E) _____, _____, _____
- E. Is there a collecting optics hazard? (Yes/No) _____, _____, _____

A7-3 Laser Control Measures

A7-3.1 Specify maintenance/service tasks requiring access to laser radiation in excess of the MPE and recommended laser control measures.

- A. Task 1 _____
- B. Task 2 _____
- C. Etc. _____

Note 1: Suppliers may alternately provide a reference to laser control measures information that is located in a document available to users.

A7-3.2 Of the tasks in A7-3.1, which tasks need a Laser Controlled Area? (e.g., for Class 3b or 4 lasers)

A7-3.3 If a nominal ocular hazard distance (NOHD) is used as a control measure, then provide the NOHD calculations and assumptions. See IEC 60825-1 for NOHD calculations.

Exception: If specific information required by A7-2.6 is proprietary, suppliers may provide the NOHD results and an explanation of the assumptions made.

A7-3.4 Include a beam path diagram identifying the accessible points.

NOTE 1: A description of the access points from the exterior of the tool can be considered equivalent to a diagram.

A7-4 Personnel Protective Equipment (PPE)

Provide information for accessible laser radiation hazards in excess of the Maximum Permissible Exposure (MPE)

Laser Parameters**Laser** 1 , 2 , etc.

- A. Optical Density (OD) of PPE required during maintenance _____, _____, _____
- B. OD of PPE required during service activities _____, _____, _____
- C. Other types of PPE (e.g., skin protection) if needed _____, _____, _____

Note 2: Suppliers may alternately provide a reference to PPE information located in a document available to users.