

**BY ORDER OF THE COMMANDER
WRIGHT PATTERSON AIR FORCE
BASE**



**AIR FORCE INSTRUCTION 48-139
WRIGHT PATTERSON AIR FORCE BASE
Supplement**

6 APRIL 2020

Aerospace Medicine

**LASER AND OPTICAL
RADIATION PROTECTION PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available on the e-Publishing website at www.e-Publishing.af.mil

RELEASABILITY: There are no releasability restrictions on this publication

OPR: 88 AMDS/SGPB

Certified by: 88 MDG/CC
(Colonel Michael D. Foutch)

Supersedes: AFI48-139_ WRIGHT
PATTERSONAFBSUP,
19 June 2015

Pages: 5

AFI 48-139, 30 September 2014, is supplemented as follows:

This supplement expands the guidance provided in AFI 48-139, *Laser and Optical Radiation Protection Program*. Send comments and suggestions about this publication for improvements on AF Form 847, *Recommendation for Change of Publication*, to the Office of Primary Responsibility (OPR). Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS).

SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. Tiers have been added to wing-level and below directives and are designated with a "(T-x)", where x ranges from 0 to 3 to indicate waiver authority. This tiering results from changes to the inspection process outlined in AFI 90-201, *The Air Force Inspection System*. Refer to AFI 90-201 for details. (ADDED-WRIGHTPATTERSONAFB) SUMMARY OF CHANGES: The following paragraphs have been changed and moved: 2.17.16. (added to 2.17.4.), 2.22.4. (added to 2.22.2), 2.23.17. (added to 2.23.8.), and 2.23.18. (added to 2.23.13.). The following paragraph has been changed: 3.2.3.

Paragraphs 2.17.14., 2.17.15., 2.23.15., 2.23.16., and 2.25.5. have been eliminated. The following paragraphs have had new requirements added to them: 2.21.1., 2.21.2., 2.21.3., and 2.23.12. The term and application of laser “permits” has been rescinded. Applicable lasers must receive a hazard evaluation by the ULSO and ILSO prior to use (including alignment at hazardous energy/power levels). Laser evaluation documentation must be maintained in accordance with (IAW) Air Force Manual (AFMAN) 33- 363, Management of Records, and disposed of IAW Air Force Records Disposition Schedule (RDS).

2.17.4. Incorporates laser and optical radiation hazard evaluations into the special surveillance processes described in AFI 48-145, *Occupational Health Program*. (T-2) (ADDED): Ensures all Class 3R lasers with NOHDs > 10 cm and all Class 3B & 4 lasers receive a hazard evaluation by the ULSO prior to use or alignment.

2.21.1. Ensures government contractors implement this instruction pursuant to the terms of their governing contract for any purchase of Class 1M, 2M, 3R, 3B, or 4 FDA-Compliant Lasers or military specific lasers that impact AF property or personnel. (T-0) (ADDED): Develops, implements, and executes procedures, in coordination with the ILSO, to ensure all government contractors working on WPAFB implement this instruction pursuant to the terms of their governing contract for any purchase of Class 1M, 2M, 3R, 3B, or 4 FDA-Compliant Lasers or military specific lasers that impact AF property or personnel.

2.21.2. Informs contractors to notify the ILSO, at least 30 days in advance of a contractor performing operations using military specific lasers, or Class 3B or 4 FDA-Compliant Laser systems that impact AF property or personnel. Notifies ILSO prior to a contractor bringing Class 3B or 4 lasers on the installation, and provides laser hazard and control information to the ILSO and/or ULSO for authorization prior to use. (T-2) (ADDED): Develops, implements, and executes procedures, in coordination with the ILSO, to notify the ILSO, at least 30 days in advance of a contractor performing operations using military specific lasers, or Class 3B or 4 FDA-Compliant Laser systems that impact AF property or personnel. Must notify the ILSO prior to a contractor bringing Class 3B or 4 lasers on the installation.

2.21.3. All solicitations for goods or services that use or contain Class 1M, 2M, 3R, 3B, or 4 FDA-Compliant lasers or military-specific lasers to include commercial-off-the-shelf (COTS) lasers must be approved by the ILSO prior to award and procurement. (T-2) (ADDED): Develops, implements, and executes procedures, in coordination with the ILSO, to identify Class 1M, 2M, 3R, 3B, or 4 FDA-Compliant lasers or military-specific lasers to include commercial-off-the-shelf (COTS) lasers that must be approved by the ILSO prior to award and procurement.

2.22.2. Designates a qualified ULSO. Consult the ILSO for guidance on ULSO qualifications. The ILSO could fulfill this role if agreed upon between the Unit Commander and the ILSO's Squadron Commander. (T-0) (ADDED): Consult the ILSO for guidance on the Unit Laser Safety Officer (ULSO) qualifications and the number of ULSOs to be appointed. The number of ULSOs is based on the number of active Class 3B and 4 lasers the unit possesses and how often they change their use or location of use. BE recommends the ULSO be a qualified civilian or military member, (based on DoD Instruction 6055.01, Safety and Occupational Health (SOH) Program, Enclosure 3, 4. c. (5))).

2.23.8. Coordinates laser and other optical radiation evaluation activities with unit command, supervisory personnel, and the ILSO. (T-2) (ADDED): Conducts hazard evaluation prior to any use or alignment for all Class 3R lasers with NOHDs > 10 cm and all Class 3B & 4 lasers and provides the evaluation to the ILSO. The evaluation must include the following: ANSI Class, Standard Operating Procedure(s) (SOP), spec. sheet(s), diagram of the test set up with the location of the laser beams and identification of any items in and/or at the end of the beam path and designation of any change to the beam(s) along the path (i.e. diameter, divergence,

wavelength), hazard distances, and optical density to determine appropriate Laser Eye Protection and controls. If laser evaluative software is used, it must be current with the AFI and ANSI Z136 requirements. ULSOs should maintain a copy of or have ready access to ANSI Z136.1 and any other ANSI Z136 standard(s) that are applicable to lasers used in their area (e.g. Z136.8).

2.23.12. Prior to any COTS laser purchases such as laser etchers, coordinates with workplace supervisor and ILSO to determine any safety requirements and to ensure compliance with 21 CFR 1040. (T-0) (ADDED): Review the requestor's submitted purchase documents for completeness, accuracy and compliance with this AFI and applicable ANSI Z136 standard(s).

2.23.13. Maintains accountability in coordination with the unit's equipment and logistics sections for all Class 3B and 4 lasers and laser systems and all military specific lasers, regardless of class, possessed by the unit. (T-0) (ADDED): Periodically inspect for the presence and functionality of the laser safety features and control measures required for each Class 3B and 4 laser or laser system and report any findings to the ILSO that are out-of-scope with standard operating procedures.

3.2.3. **(Added)** LSOs Continuing Education/Training. The *Bioenvironmental Engineer's Guide for Lasers and Optical Radiation* recommends that LSOs should have periodic training, as needed, to stay current on laser topics and changes in the field of laser safety. The DoD Safety and Occupational Health (SOH) Program (DoDI6055.01) states that it is an SOH Program requirement to provide training to SOH staff to ensure they maintain the necessary technical specialty competencies needed to advise and provide support to commanders and management officials and personnel. The DoDI also states that full-time DoD SOH Staff are encouraged to attend and participate in federal and professional society safety and health conferences, seminars, and workshops. Two such events that are laser safety specific are the International Laser Safety Conference and the US Department of Energy LSO Workshop.

THOMAS P. SHERMAN, Colonel, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 48-139, *Laser and Optical Radiation Protection Program*, 30 Sep 2014
AFI 48-145, *Occupational and Environmental Health Program*, 11 July 2018
AFI 90-201, *The Air Force Inspection System*, 20 Nov 2018
ANSI Z136.3-2018, *Safe Use of Lasers in Health Care Facilities*
ANSI Z136.6-2015, *Safe Use of Lasers Outdoors*
DOD Directive 5400.11, *DoD Privacy Program*, 29 Oct 2014
DoDI 6055.01, *DoD Safety and Occupational Health (SOH) Program*, 31 Aug 2018

Adopted Form

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AFI—Air Force Instruction
ANSI—American National Standards Institute
BE—Bioenvironmental Engineering
ILSO—Installation Laser Safety Officer
LEP—Laser Eye Protection
LSO—Laser Safety Officer
OPR—Office of Primary Responsibility
PPE—Personal Protective Equipment
SOP—Standard Operating Procedure
ULSO—Unit Laser Safety Officer