



AEROSPACE RECOMMENDED PRACTICE

ARP5535™

REV. B

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Superseding ARP5535A

(R) Observers for Laser Safety in the Navigable Airspace

RATIONALE

ARP5535B is updated to reflect current terminology, definitions, and applicable documents. Appendix A is updated to include visual interference effects.

INTRODUCTION

On March 26, 1999, the Federal Aviation Administration (FAA) submitted a written request to SAE for assistance in developing standards and regulations concerning outdoor laser operations. In December 1999, the SAE Aerospace Standard (AS) AS4970 was published by SAE and forwarded to the FAA. AS4970 provides guidance on assessing the potential hazards of a particular laser beam.

This SAE Aerospace Recommended Practice (ARP) document provides guidance for the use of laser safety observers during operations of a laser system outdoors in the navigable airspace. It also recommends the minimum requirements and training issues for those laser safety observers.

FOREWORD

This document applies to laser safety observers so as to mitigate a laser beam's potential hazard to aircrews when projected from an outdoor laser system. A related SAE document is AS6029. Additional control measures may be applicable and are discussed in ANSI Z136.6.

The purpose of this document is to provide guidance to all laser operators, including industry and government, and to the FAA on the optimal use of laser safety observers during propagation of a laser beam in the navigable airspace.

The SAE G-10T Committee has convened since the 1990s with representation from a variety of stakeholders, public and private, to identify the issues, technologies, and operational capabilities of outdoor laser use in navigable airspace.

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1. SCOPE

This document applies to safety observers or spotters involved with the use of outdoor laser systems. It may be used in conjunction with AS4970.

1.1 Purpose

The purpose of this document is to provide guidance to proponents for the optimal use of safety observers during operation of a laser system. It also recommends the minimum requirements for a safety observer.

1.2 Field of Application

AS4970 and ANSI Z136.6 provide guidance and information for the evaluation of laser operations in navigable airspace. Due to operational/mission requirements, some laser beams may exceed the maximum permissible exposure (MPE) limits or visual interference levels as defined in FAA Order 7400.2, ANSI Z136.1, and ANSI Z136.6. The use of laser safety observers as control measures to reduce the laser beam hazards to air navigation is discussed.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AIR5995	Evaluation of Human Factor Considerations for Outdoor Laser Operations in the Navigable Airspace
ARP5293	Safety Considerations for Lasers Projected in the Navigable Airspace.
ARP5572	Control Measures for Laser Safety in the Navigable Airspace
AS4970	Human Factor Considerations for Outdoor Laser Operations in the Navigable Airspace
AS6029	Criteria for Laser Control Measures for Aviation Safety

2.1.2 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ANSI Z136.1	American National Standard for the Safe Use of Lasers
ANSI Z136.6	American National Standard for the Safe Use of Lasers Outdoors

2.1.3 FAA Publications

Available from Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591, Tel: 866-835-5322, www.faa.gov.

FAA AC 70-1	Outdoor Laser Operations
FAA Order 7400.2	Procedures for Handling Airspace Matters, Part 6 (Miscellaneous Procedures), Chapter 129 (Outdoor Laser Operations)