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Minimum Operational Performance Standards for Integrated Night Vision Imaging System Equipment

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FOREWORD

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- developing consensus on the application of pertinent technology to fulfill user and provider requirements, including development of minimum operational performance standards for electronic systems and equipment that support aviation; and
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1 PURPOSE

1.1 Introduction

This document contains minimum operational performance standards (MOPS) for the aviation night vision imaging system (NVIS) used to supplement night VFR operations. These standards specify system characteristics that should be useful to designers, manufacturers, installers and users of the equipment.

Compliance with these standards is recommended as one means of assuring that the equipment will perform its intended function(s) satisfactorily under all conditions normally encountered in routine aeronautical operations. Any regulatory application of this document is the sole responsibility of the appropriate governmental agency/authority.

Section 1 (Introduction) provides information on the purpose and scope that is needed to understand the rationale for equipment characteristics and requirements stated in this document. It describes typical equipment applications and operational goals, as envisioned by the members of Special Committee 196, and establishes the basis for the standards stated in sections 2 and 3. Definitions and assumptions essential to proper understanding of this document are also provided in this section.

Section 2 (NVG Performance Requirements and Test Procedures) contains general guidance and minimum performance standards for the night vision goggle (NVG). These standards specify the required performance under the defined operating and environmental conditions. Also included are recommended bench test procedures necessary to demonstrate equipment compliance with the stated minimums.

Section 3 (NVIS Lighting Performance Requirements and Test Procedures) contains general guidance and minimum performance standards for NVIS lighting. These requirements specify the required performance under the defined operating and environmental conditions. Also included are recommended test procedures necessary to demonstrate equipment compliance with the stated minimums.

Section 4 (Installed Integrated NVIS Equipment Performance) describes the minimum acceptable performance requirements for the installed integrated NVIS equipment. Installed equipment tests are conducted to complement, supplement and/or validate bench and component test performance data determined in sections 2 and 3.

Section 5 (Continued Airworthiness) describes the continued airworthiness procedures used to ensure the integrated NVIS equipment installation continues to meet the minimum performance standard once in operational use.

The following appendices are included in this document:

1. Appendix A is a list of abbreviations and acronyms recommended for use with NVIS and associated documents.
2. Appendix B is a bibliography and a list of all references cited in this document.
3. Appendix C is a glossary that defines terms that are used in conjunction with NVIS operations and equipment.
4. Appendix D contains information pertaining to the relative spectral response of Class B NVGs.
5. Appendix E contains recommended design practices for NVIS installations.
6. Appendix F includes a table for converting Snellen acuity to visual angular resolution.
7. Appendix G contains suggested NVG pre-flight and adjustment procedures.

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8. Appendix H NVIS Installation Ground Test Checklist.
9. Appendix I contain information for constructing a light source for use during NVG adjustment procedures.

The word “equipment,” as used in this document includes all components and features necessary for the system to properly perform its intended function(s). Standards for design and implementation of optional features, beyond those required for a minimum NVIS, only apply if those features are implemented.

If the equipment implementation includes a computer software package, the guidelines contained in RTCA/DO-178B, *Software Considerations in Airborne Systems and Equipment Certification*, should be considered.

1.2 System Overview

The Night Vision Imaging System (NVIS) consists of the following:

- NVG
- Interior and exterior lighting
- Cockpit transparencies (e.g., windshield, windows, chin bubbles, etc.)
- Crewstation design and components (e.g., location of structural components that may hinder use of NVGs, aircraft displays, etc.)

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