

Public Access Research Compliance Metadata

Submission Date: October 8, 2026

Recipient Agency: National Transportation Library (NTL) / US DOT Research Hub

Funding Agency: Federal Aviation Administration (FAA), Office of Aerospace Medicine (AAM-600)

Project Number / Research Hub Display ID: A11J.AM.64

1. Project Identification

- **Project Title:** Vulnerability Assessment of FAA Computerized Color Vision
- **Report Title:** Effect of Color Filter Lenses on Color Vision Screening Tests
- **Contract/Grant Number:** FA8650-21-C-6277
- **Program Element Numbers:** 0602202F, 0603456F
- **Sponsoring Organization:** Federal Aviation Administration (FAA), Office of Aerospace Medicine (AAM-600), Washington, DC 20591
- **Performing Organizations:**
 1. KBR Laboratories, Inc., 2400 NASA Parkway, Houston, TX 77058
 2. Air Force Research Laboratory (AFRL), 711th Human Performance Wing, Wright-Patterson AFB, OH 45433

2. Research Deliverables & Report Access

- **Technical Report Number:** AFRL-RH-WP-TR-2026-0090
- **Publication Date:** September 08, 2026
- **Distribution Statement:** Distribution Statement A – Approved for public release; distribution is unlimited (PA# AFRL-2026-1595).
- **Report Repository Link:** Publicly accessible via the Defense Technical Information Center (DTIC) at <https://www.dtic.mil> (Search Report ID: AFRL-RH-WP-TR-2026-0090).

3. Authors & Contributor Identifiers (ORCIDs)

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4. Dataset Description & Access

- **Dataset Title:** Color Vision Testing and Flight Simulation Performance Data
- **Summary/Abstract:** This dataset contains empirical testing data evaluating the efficacy of commercial color-filtering lenses (Colormax) on individuals with color vision deficiency (CVD). The data encompasses:
 - Spectral transmittance measurements across 380–780 nm.
 - Clinical pass/fail outcomes and raw scores across five color vision screening batteries (Innova Rabin CCT, NCI OcuTest, Waggoner FAA, CAD, Konan CCT HD).
 - Task-level response time, accuracy, and throughput metrics across four simulated flight subtasks in an optical see-through augmented reality environment.
 - Metrology data (luminance, chromaticity, gamma) for simulator displays.
- **Dataset Format:** Integrated within the technical report documentation (Appendix, Tables A1–A10, Pages 35–40).
- **Data Access / URL:** Accessible via the main report publication through DTIC (AFRL-RH-WP-TR-2026-0090).

5. Project Outcomes & Real-World Impact

- **Project Purpose:** Empirically evaluate whether color correction devices can compromise the FAA’s computerized color vision tests to inform the Office of Aerospace Medicine’s safety risk management process.
- **Key Findings:** Color-filtering lenses alter screening test results by introducing non-color (luminance) cues rather than restoring red-green color vision. These pass/fail improvements do not translate to improved performance on aviation-relevant tasks in simulated cockpit displays.
- **Operational Impact & NAS Benefit:** Results directly informed the FAA Office of Aerospace Medicine, leading to the development and implementation of targeted training for Aviation Medical Examiners (AMEs) to better detect color correction devices during airman medical examinations. This safeguards the National Airspace System (NAS) by ensuring only properly qualified pilots and air traffic controllers are cleared for duty.