



AEROSPACE RECOMMENDED PRACTICE

ARP5647™**REV. B**

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Superseding ARP5647A

High Intensity Discharge Light Sources

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

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1. SCOPE

This SAE Aerospace Recommend Practice (ARP) is intended to identify both safety related best practices and unique design considerations of metal halides High Intensity Discharge (HID) lamps and power supplies in aircraft applications.

1.1 Purpose

The purpose of this document is to set forth safety related considerations and specific criteria which should be observed when designing High Intensity Discharge (HID) lamps and power supplies for aircraft applications.

2. REFERENCES

CIE S 009/E:2002: Photobiological Safety of Lamps and Lamps Systems.

FAA AC 43.13-1B, section 15: Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair. Grounding and Bonding

SAE ARP1870A: Aerospace Systems Electrical Bonding and Grounding for Electromagnetic Compatibility and Safety

RTCA/D0-160G: Environmental Conditions and Test Procedures for Airborne Equipment.

FAA Federal Aviation Regulation Part 25 Section 1383 - Landing Light Requirements

3. BACKGROUND

3.1 High Intensity Discharge

HID lamps emit light by producing a luminous arc that operates in a dense vapor atmosphere between two electrodes in a contained arc tube. An igniter supplies the high voltage necessary to start the lamp, and ballast controls the lamp operation after start-up. Once the arc sufficiently heats the enclosing fused quartz or ceramic arc tube, metal salts evaporate and greatly increase the lights intensity and luminous efficacy. Typical HID lamps exhibit high luminous efficacy (up to 100 lumens per watt), long life (500 to 4000 operational hours) and a high correlated color temperature (over 4500 K).