Office of Airport Safety and Standards Update

To: IESALC Conference

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FAA Airport Lighting Standards

- FAA airport design, construction, and maintenance guidance are contained in Advisory Circulars (AC), the 150's series.

- Interim FAA airports engineering guidance is provided in Engineering Briefs (EB).

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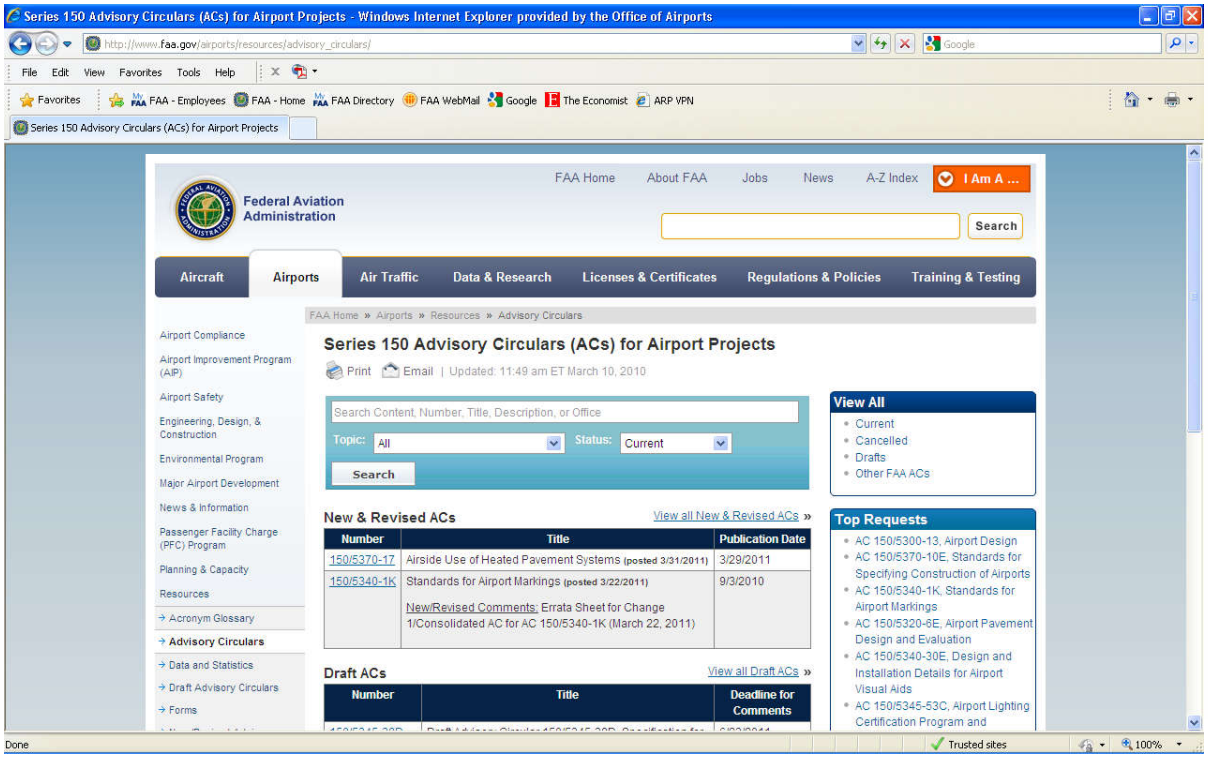
Advisory Circulars (ACs) / Engineering Briefs (EBs)



http://www.faa.gov/airports/resources/advisory_circulars/

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AC 150/5345-43J, Specification for Obstruction Lighting Equipment

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Advisory Circular

Subject: Specification for Obstruction Lighting Equipment	**Date:** Draft **Initiated By:** AAS-100	**AC No:** 150/5345-43J **Change:**

1 **Purpose.**

This advisory circular (AC) contains the Federal Aviation Administration (FAA) specification for obstruction lighting equipment.

2 **Effective Date.**

Effective 12 months after the date of this circular, only that equipment qualified per this specification will be listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program*. No re-testing will be required for existing equipment where test standards are unchanged from the previous version of this AC.

3 **Cancellation.**

This AC cancels AC 150/5345-43H, *Specification for Obstruction Lighting Equipment*, dated September 28, 2016.

4 **Application.**

The Federal Aviation Administration recommends the guidance and specifications in this advisory circular for obstruction lighting equipment. In general, use of this AC is not mandatory. However, the use of the specifications in this AC is mandatory for lighting or projects funded under the Airport Improvement Program (AIP) or with revenue from the Passenger Facility Charges (PFC) program. All lighting designs contained in this AC are acceptable to the Administrator to meet the lighting requirements under Title 14 § 139.311, *Marking, Signs and Lighting*.

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- Adds infrared specifications for Aviation Obstruction Light Compatibility with Night Vision Goggles (NVGs) per Engineering Brief 98 to allow infrared emitters to be included in LED obstruction lighting fixtures.

- The specifications for the IR emitters support the operational requirement for LED-lit obstruction lights to be visible to operators in AC 7460-1 “Obstruction Marking and Lighting”.

Infrared Specifications for red LED Obstruction Lights

IR Wavelength (nominal)	Applicability	IR Vertical Beam Width	IR Radiant Intensity
800-900 nm	L-810 (L)	≥ 10°	Minimum: 4 mW/sr
	L-864 (L) and L-885 (L)	≥ 3°	Minimum: 246 mW/sr

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AC 150/5345-39, Runway and Taxiway Retroreflective Markers

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Advisory Circular

Subject: Specification for L-853, Runway and Taxiway Retroreflective Markers	**Date:** Draft **Initiated By:** AAS-100	**AC No:** 150/5345-39E **Change:**

1 **Purpose.**

This Advisory Circular (AC) contains the Federal Aviation Administration (FAA) standards for retroreflective markers for airport runways and taxiways.

2 **Effective Date.**

Effective six months after the issue date of this AC, only equipment that is qualified within this AC will be listed according to the requirements in AC 150/5345-53, *Airport Lighting Equipment Certification Program*.

3 **Cancellation.**

AC 150/5345-39D, *FAA Specification L-853, Runway and Taxiway Retroreflective Markers*, dated September 26, 2011, is cancelled.

4 **Application.**

The Federal Aviation Administration (FAA) recommends the guidance and

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- Defined performance specification for a yellow retroreflective maker. This marker will be installed in front of the Engineering Materials Arresting System (EMAS).

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AC 150/5345-3H, Specification for L-821, Panels for the Control of Airport Lighting

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Advisory Circular

Subject: Specification for L-821, Panels for the Control of Airport Lighting	**Date:** Draft **Initiated By:** AAS-100	**AC No:** 150/5345-3H **Change:**

1 **Purpose.**
This advisory circular (AC) provides the specified manufacturing requirements for panels used for remote control of airport lighting and auxiliary systems.

2 **Effective Date.**
Effective six months after the issue date of this AC, only that equipment qualified in accordance with the specifications herein will be listed in accordance with AC 150/5345-53, *Airport Lighting Equipment Certification Program*.

3 **Cancellation.**
AC 150/5345-3G, *Specification for L-821 Panels for Remote Control of Airport Lighting*, dated September 29, 2010, is canceled.

4 **Application.**
The Federal Aviation Administration (FAA) recommends the guidelines and standards in this Advisory Circular for L-821 Airport Lighting Panels. In general, use of this AC is not mandatory. However, use of this AC is mandatory for all projects funded with federal grant monies through the Airport Improvement Program (AIP) and with revenue from the Passenger Facility Charges (PFC) Program. See Grant Assistance No. 34, "Policies, Standards, and Specifications," and PFC Assurance No.9, "Standards and Specifications."

- Changed “mandatory” requirement for inclusion of an Emergency Generator Control Switch to “optional”.

AC 150/5345-28, Precision Approach Path Indicator (PAPI) Systems

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Pending Revisions

Precision Approach Path Indicators (PAPI)
Are used by the pilot to align and angle the aircraft toward the runway targeted for landing.

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Pending Revisions

Both LED and Incandescent technologies are viable options for PAPI systems. However, as the deployment of LED technology expands and evolves our Advisory Circulars (ACs) will do the same.
For the latest pending AC, major revision include:

Section 3.2.1 Photometric Requirements
"…12. If LED lamps are used the must have a minimum rated life of 50,000 hours."

Section 3.2.2 Light Unit Construction*"…The light unit must prevent dew or frost/ice from accumulating on its lens surfaces. This may be accomplished by thermostatically activated heating or intrinsic heat management (such as incandescent lamps)..."*

Section 3.2.3.1 Adjusting Hardware
"*Any adjusting hardware must be vibration resistant and prevent movement of the optical system.*
PAPI should be capable of modifying the horizontal light beam coverage of the PAPI for obstacle avoidance in the approach area and light signal obstructions. This can be accomplished using baffles, sometimes called blanking devices."

AC 150/5345-26, Plug and Receptacle & Cable Connectors

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Pending Revisions Highlights

The AC incorporates the following principal changes:

1. Added a test for chemical resistance in paragraph 4.2.8 to compliment requirement in paragraph 3.4.2:

"4.2.8 Housing

Expose the material to the specified chemicals (not submersion) for a period of 20 days at the specified maximum temperature."

2. Added reference for requirements for cable used with Class A connectors to paragraph 3.4.4.1

" 3.4.4.1 Class A … Primary connectors must meet requirements of ICEA S-96-659/NEMA WC 71, *Standard for Non-Shielded Cables Rated 2001-5000 Volts for use in the Distribution of Electrical Energy*, …Secondary connectors must meet requirements of ICEA S-96-658/NEMA WC 70, *Standard for Non-Shielded Cables Rated 2001-5000 Volts for use in the Distribution of Electrical Energy"

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Principal Changes Continued…

3. Corrected language for Weather Test. Existing language:

Pending language:

"4.2.6 <u>Weathering Test.</u>

Following is the corrected paragraph: "Slabs of connector housing material and sample pairs of connectors must be subjected to simulated sunlight by conditioning with xenon-arc radiation for 720 hours as per Section 1200.1 of UL 1581. The conditioned and unconditioned slabs of connector housing material must then be evaluated to Section 1200.15 of UL 1581 in accordance with the procedure found in UL 2556. Failure of the material test slab samples to meet the ratio requirements of section 1200.15 of UL 1581must be cause for rejection. Cracking of the sample connectors must also be cause for rejection.

Additionally, slabs of connector housing material and sample pairs of connectors must be exposed to ozone per ASTM D1149-16 with 50 parts per hundred million (ppm) ozone, 38C, 20 percent sample extension (procedure B1 static strain), and 100 hours exposure. Cracking of the connectors, or test slabs as a result of the ozone exposure cause for rejection."

Questions?

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