

**Intertek**

## **Intertek Airport Lighting Equipment Certification Program**



**IES Government Contacts Subcommittee, May 8, 2014**

**Washington, D.C.**

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***Certification Program covers all equipment specified in the FAA AC 150/5345 series:***

- Rotating Beacons
- Obstruction Lights
- Wind Cones
- Isolation Transformers
- Taxiway / Runway Inpavement Lights
- Retroreflective Markers
- Cable Connectors
- Underground Cable
- Runway & Taxiway Signs
- Portable Runway Lights
- Light Bases
- Constant Current Regulators
- Precision Approach Path Indicators (PAPI)
- Runway End Identification Lights (REIL)



## FAA AC 150/5345-53D

- Third Party Certifier Acceptance Criteria
  - Section 5
- Third Party Certifier Application (every 4 years)
  - Section 6
  - Background as a certification body
  - Competency verification (accreditations)
  - Resumes of related staff
  - Copy of procedural guide and license agreement

## GENERAL OUTLINE

- Manufacturer submits certification request via AL-2 application form
- Qualification testing
- Documentation submittal and engineering review
- Initial manufacturing facility audit
- License Agreement
- Certificate issued and product listed in 53D Addendum
- Certification process covered under ANSI accreditation to ISO Guide 65

## Qualification Testing

FAA AC 150/5345-53D, Appendix 2, section 5.C.i

Must be done IAW ISO 17025

At Intertek – covered under A2LA accreditation

Outside of Intertek – covered by audit and witness

- Test Plan Review and Acceptance
- Assignment to Intertek Representative
- Formal Report issued by Manufacturer

## Qualification Testing

When is testing required?

1. 8 year re-qualifications (4 years for L-890 ALCMS)
2. Product modifications
  - requires - AL-2 resubmittal
    - associated documentation
    - abbreviated testing
3. Specification updates

## Semi-annual Inspections

- AL-7 Audit (follows basic ISO quality assurance requirements)
- AL-1; AL-1A Contact Sheet
- Product Checklist(s)
  - Construction review using the applicable ACs
- Production Testing Requirements
  - As required in the applicable ACs

# AL-2 Request for Certification or Revision of Certificate

Exhibit 2 Form AL-2rev, Request for Certification - EQUIPMENT

An Activity Sponsored and Administered by



PROGRAM ADMINISTRATOR  
DEPARTMENT ALECP  
INTERTEK  
3933 US ROUTE 11  
CORTLAND, NY 13845-0950

INTERTEK  
AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM  
REQUEST FOR EQUIPMENT CERTIFICATION

Intertek

TO BE COMPLETED AND FORWARDED WITH REQUIRED DOCUMENTATION TO THE ADMINISTRATOR pg 1 of \_\_\_

DATE: _____		L-type: _____		Catalog No./Lamp No. (or attach list): _____	
1. MFG Name: _____		Contact: _____			
MFG Facility site: _____		Phone: _____			
		e-mail: _____			
		website: _____			
2. The equipment to be tested is:		3. The Certification is (check applicable note):			
<input type="checkbox"/> prototype		<input type="checkbox"/> new listing of product (or re-qualification)			
<input type="checkbox"/> production unit		<input type="checkbox"/> addition of product (issued as new cert)**			
and described as follows _____		<input type="checkbox"/> addition of product to Certificate issued**			
		<input type="checkbox"/> addition of lamp to Certified product**			
		<input type="checkbox"/> revision to catalog numbers listed or additional catalog numbers for tested product***			
		<input type="checkbox"/> a manufacturer listing for non-OEM product**			
		<input type="checkbox"/> a manufacturer name and/or site change**			
		<input type="checkbox"/> modification to certified product** (requires Waiver form submittal and Engineering review fee)			
4. To be tested at:		<b>Fee for review \$ 800. **List applicable test reports below and submit a copy of report(s) with copy of current C of C:</b>			
<input type="checkbox"/> Intertek - Lighting Department - Cortland, NY					
<input type="checkbox"/> Manufacturer's Facility (see section 5)					
<input type="checkbox"/> Independent Commercial Laboratory (subject to audit and see section 5)					
Name: _____					
Location: _____					
Contact: _____		5. WITNESS: Attach the Proposed Test Schedule and test Plan (to be witnessed - Engineering Review for Test Plan required) Authorization for engineering and witness fees required. Request from Program: Coordinator (jill.wilson@intertek.com)			
Phone: _____					
6. In addition to copies of applicable test reports and written authorization or PO for ** \$800 fee per certificate, attached to this form are :					
<input type="checkbox"/> (a) List of Types, Classes, Styles, Sizes, manufacturer's catalog numbers.					
<input type="checkbox"/> (b) Section and part drawings					
<input type="checkbox"/> (c) Assembly drawings					
<input type="checkbox"/> (d) Bill of Materials showing manufacturer's name and part numbers					
<input type="checkbox"/> (e) Statement of Warranty					
<input type="checkbox"/> (f) Instruction/installation/operating manual					
<input type="checkbox"/> (g) Product Description sheet (marketing material)					
<input type="checkbox"/> (h) AL-2-B Lamp Life Test form					
If submitting electronically, please identify the file name to include the L-type, catalog no, document name, client, date					

BY FILING THIS FORM, THE LICENSEE AGREES TO THE FOLLOWING:

A. THAT THE EQUIPMENT BEING SUBMITTED FOR TEST IS REPRESENTATIVE OF PRODUCTION AND IS A DUPLICATE OF THE TYPE PRODUCT DESIGNATED THAT WILL BE OFFERED FOR SALE, OR THAT IS A PROTOTYPE OF THE PRODUCTION UNITS WHICH WILL BE IDENTICAL TO IT WHEN OFFERED FOR SALE.

B. THAT THE TESTING LABORATORY IS TO VERIFY THE DESIGN CONSTRUCTION OF THE SAMPLE, WHICH LICENSEE WILL DELIVER TO THE LABORATORY, BY REFERENCE TO DRAWINGS AND OTHER DESCRIPTIVE INFORMATION.

C. PERMIT THE ADMINISTRATOR TO WITNESS THE TESTING (AT HIS OPTION) AND HAVE COMPLETE ACCESS TO THE TEST SAMPLE AND ALL DATA PERTAINING THERETO.

D. THAT THE APPLICANT AGREES TO COMPLY WITH THE REQUIREMENTS FOR VERIFICATION AND TO SUPPLY ANY INFORMATION NEEDED FOR EVALUATION OF PRODUCTS TO BE CERTIFIED.

FORM AL-2rev 10/2010

- Copy of all Qual Test Reports
- List of L-type, class, style, size
- List of catalogue number(s)
- Application required by ISO Guide 65



Required Product Documentation listed in section 6 of AL-2

- Section & part drawings
- Assembly drawings and schematics
- BOM with mfg name/catalogue numbers
- Statement of Warrantee
- Instruction/installation/operating manual
- Product Description sheet (marketing)
- AL-2B Lamp Life form

# AL-2B Lamp Life Form



- Identifies the light source
  - Source manufacturer's designation
  - End product manufacturer's designation
- Provides life ratings, or airport lighting equipment manufacturer's life estimates in the end product

## AL-2B Lamp Life Form (continued)



- Documents compliance with requirements that are not verified by qualification testing
- FAA AC 150/5345-53D Appendix 5
  - Determines Lamp Life in particular fixture by testing
  - Sources rated for more than 8,750 hours are exempt
- Product ACs contain minimum rated life
  - 46D (runway and taxiway lights)
    - 500 or 1,000 hours
  - 43G (obstruction lights)
    - Xenon – 2 years
    - Incandescent – 2,000 hours
    - LED – 2 years
  - 12F (beacons)
    - 4,000 hours

## AL-2B Lamp Life Form (continued)



- LED products still must comply with the specific product AC and 53D
- Also must comply with EB67D
  - LED junction temperature as determined per the LED manufacturer's guidance
  - Must be consistent with life estimate
  - Usually done by product manufacturer

LED supplier's ratings must be submitted with the AL-2B

# AL-2B Lamp Life Form (continued)

- This information results in the lamp list contained in the FAA AC 150/5345-53D addendum
- FAA lamp number can also be found on each product's certificate

October 16, 2013

AC 150/5345-53D Appendix 3 Addendum

### LAMP DESCRIPTIONS

Lamp	Designation	Watts	Volts	Amps	Lamp Manufacturer
(10)	6.6A/T10/IP	30		6.6	General Electric, Sylvania, Philips
(10A)	6.6A/T10/IP	30		6.6	General Electric
(10C)	6.6A/T10/IP	30		6.6	Philips
(11)	6.6A/T10/P	45		6.6	General Electric, Sylvania, Philips
(11A)	6.6A/T10/P	45		6.6	General Electric
(11B)	6.6A/T10/P	45		6.6	Sylvania
(11C)	6.6A/T10/P	45		6.6	Philips
(16)	20058	115		6.6	Crouse-Hinds
(17)	40732	45		6.6	Crouse-Hinds
(18)	40737	30		6.6	Crouse-Hinds
(21)	EWR	150		6.6	General Electric
(31)	FXL	30		6.6	General Electric
(32A)	116A21/TS	116	120		General Electric
(32B)	116A21/TS	116	120		Philips
(32C)	116A21/TS	116	130		Philips
(33)	EXM	45		6.6	General Electric
(36)	EVV	120		6.6	General Electric
(48B)	620PS40P	620	120		GE
(54)	20538	185		6.6	Crouse-Hinds
(66)	64382	200		6.6	Osram

## Current Program Status

71 Program Participants

80 Licensed Manufacturing Facilities

- 71 new and requalification certificates issued since the fall meeting
  
- 44 revised certificates issued since the fall meeting

## Heliport Perimeter Lights For Visual Meteorological Conditions (VMC)

- L-860HR – raised heliport perimeter light
- L-860HS - semi-flush heliport perimeter light
- Application contained in FAA AC 150/5390-2

Photometric Requirements are provided

Field testing is required after laboratory verification

Design and testing requirements found in FAA AC 150/5345-46D and FAA EB67D apply

FAA AC 150/5340-30 and FAA AC 150/5345-42 are referenced for installation

Light Types will be included in the next -46 update

- “Any fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging. **(L)** Indicates LED fixture. (###\*) IR element present is not tested nor certified under this program as to compatibility with any night vision equipment.”



- 3-digit Lamp Number is the identifier of the visible source.
- Product has been evaluated to the applicable ACs with IR related components present and functioning.
- No acceptance criteria yet for the IR performance characteristics, so they are not part of the certification.

- FAA AC 150/5345-10H (Specification for Constant Current Regulators and Regulator Monitors)
  - Comments due June 5, 2014
  - Principal change relates to CCR response to short duration input voltage losses.

- FAA AC 150/5345-10H Section 3.3.11
  - Input losses from 5ms to 500ms
  - Resume operation within 1 s
  - Return to operation at commanded current within 5 s

## Test Procedure to verify 3.3.11

- 4.2.13c (Protective Device Tests)
- Also related to 4.2.15 (Output Current Surge)
- How should switching be done?
- How many repetitions?
- How is “resume operation” defined?



Questions?