

INTERTEK AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM

**IESALC Spring Government Contacts
Subcommittee Meeting**

Washington, DC – May 8, 2018

Jeremy N. Downs, P.E. – ALECP Program Administrator



INTRODUCTION



- **Purpose / Outline**

- Overview of ALECP
- Update of Current Program Status
- Update on Current Initiatives



TESTING VS. CERTIFICATION




• Testing

- One-time event
- May not be all specified tests
- End result is a Test Report
 - (and possibly supplemental document like TVOC)
- No follow-up production monitoring

“Fine Print”:

“ This verification is part of the full test report(s) and should be read in conjunction with them.”

“...This verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.”



Total Quality. Proven.

Test Verification of Conformity


Verification Number: 103111587CRT-001TVOC

In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out. This verification is part of the full test report(s) and should be read in conjunction with them.

Applicant Name & Address:	Orga B.V. Strickledeweg 13 3125 AT Schiedam Netherlands
Product Description:	Helipoint Touchdown/Positioning Marker (Yellow Circle) Eight elements (two sub sections) comprise one segment Helipoint Identification Marking (Green H) Eight sub sections comprise one four meter edge
Ratings & Characteristics:	Power Module Input Voltage: 110 - 254 VAC, p/n MPC510 4 yellow LEDs 46cm x 8.5cm, p/n HTP100EX-A 4 green LEDs 46cm x 8.5cm, p/n HTP100EX-G Sub section length is 0.5 meters
Models:	Orga HCH-xxx-xxx system
Relevant Standards:	Civil Aviation Authority CAP 437, "Standards for Offshore Helicopter Landing Areas" 8th Edition Dated December 2016 Appendix C: Photometry Sec. C25-C29 & Chromaticity Sec. C.31 Appendix C: Photometry Sec. C38-C41 & Chromaticity Sec. C.44
Verification Issuing Office:	Intertek Cortland – Lighting 3933 US Route 11 Cortland, NY 13045
Date of Tests:	January 22, 2014 through January 29, 2014
Test Report Number(s):	101493860CRT-001 Dated March 7, 2014

Additional information in Appendix.

Note: This verification supersedes all previous verifications with the noted Verification number dated before this verification.


Signature
Name: Jeremy N. Downs, P.E.
Position: Staff Engineer
Date: 29 August 2017

This verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement, entered into on the date of the test. This verification is not to be used for any other purpose, nor is it to be used as evidence of compliance with any other standard. Only the Client is authorized to permit copying or distribution of this verification. Any use of the Intertek name or logo for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/report results referenced in this verification are relevant only to the sample tested/requested. This verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Intertek Page 1 of 2 GFT-OP-11a (28-April-2017)

TESTING VS. CERTIFICATION



Certification

- Must include successful completion of all specified tests
- Must include compliance with all specified requirements
- Not just testing
- Includes follow-up quality assurance provisions
- Includes a authorization to use a mark
- Must be strict configuration management

“Fine Print”:

“This equipment requires continuing validation in accordance with the requirements of AC 150/5345-53, and the Intertek Airport Lighting Equipment Certification Program.”



PROGRAM ADMINISTRATOR
DEPARTMENT ALECP
INTERTEK
3933 U.S. ROUTE 11
CORTLAND, NY 13045-0950

REVISED ISSUE DATE: October 12, 2017

ORIGINAL ISSUE DATE: August 7, 2017

Recertification due: April 2025

An Activity Sponsored and Administered by
Intertek

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Lowton St. Mary's, Warrington UK WA3 2AP

AIRPORT LIGHTING
EQUIPMENT
CERTIFICATION PROGRAM

CERTIFICATE OF
CONFORMANCE

The product described below is hereby approved for listing in the next issue of the Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5345-53, Appendix 3 Addendum "Airport Lighting Equipment Certification Program. The approval is based on successful completion of tests in accordance with the specifications listed in, and the requirements for approval described in the Advisory Circular, and the reporting to the Program Administrator the results of such tests, accompanied by related documents by an Intertek recognized testing laboratory. This Certificate is only confirmable in conjunction with equipment being listed in AC 150/5345-53, Appendix 3, Addendum, as currently published by the FAA. The certification is not valid for a product modified with non-OEM replacement parts or non-production components.

L-850 - Lights, Runway, Inpavement (AC 150/5345-46E)				
Manufacturer	Type	Class	Style	Manufacturer's Catalog Number
ATG Airports Ltd.	A	1	2	ZA484-WW-X (126); ZA484-WR-X (126)
	A	1	2	ZA484-WN-1 (126); ZA484-RN-1 (126)
	B	1	2	ZA480-WN-LHT (126)
	B	1	2	ZA480-WN-RHT (126)

1. This Equipment requires continuing validation in accordance with the requirements of AC 150/5345-53, and the Intertek Airport Lighting Equipment Certification Program.

2. Product tested and Report issued by: Intertek

(A) Report No: 102355430CRT-003

(B) Date of Report: 10/2017

NOTE: PLEASE REVIEW, AND ADVISE
ADMINISTRATOR AT INTERTEK IMMEDIATELY
IF DATA, AS SHOWN, NEED TO BE
CORRECTED.

Approved for Certification by:

Jeremy N Downs, PE, Program Administrator
Date: October 12, 2017

Form AL-3 1/2006

AIRPORT LIGHTING EQUIPMENT CERTIFICATION

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)





ALECP PURPOSE AND APPLICABILITY

- **Purpose is to assist in enhancing aviation safety by:**
 - Insuring good quality, reliable, airfield lighting products
 - Verifying equipment performance so that all pilots receive reliable, standardized visual queues.
- **Applicability**
 - Only FAA acceptable means to satisfy Title 14 CFR Part 139 Section 139.311 Certification of Airports
 - Mandatory for all projects funded by Federal AIP for PFC monies

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

FAA AC 150/5345-53D



- **GENERAL OUTLINE**

- Manufacturer submits certification request via AL-2 application form
- Qualification testing
- Documentation submittal and engineering review
- Initial manufacturing facility audit (semi-annual inspections continue)
- License Agreement
- Certificate issued and product listed in 53D Addendum
- Certification process covered under ANSI accreditation to ISO 17065

FAA AC 150/5345-53D



- **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

Could be at manufacturer's facility or another independent lab

Test Plan Review and Acceptance

Assignment to Intertek Representative

Formal Report issued by Manufacturer

The Third Party Certifier must be notified prior to testing.

The Third Party Certifier has the authority to witness all qualification testing.

FAA AC 150/5345-53D



- **DOCUMENTATION REVIEW**

- AL-2 Application

- Section & part drawings

- Assembly drawings and schematics

- BOM with mfg name/catalogue numbers

- Statement of Warranty

- Instruction/installation/operating manual

- Product Description sheet (marketing)

- AL-2B Lamp Life form



SEMI-ANNUAL INSPECTIONS

- **First Visit:**
 - AL-7 Audit (follows basic ISO quality assurance requirements)
 - AL-1; AL-1A Contact Sheet
- **Second Visit:**
 - Product Checklist(s)
 - Construction review using the applicable ACs
 - Production Testing Requirements
 - As required in the applicable ACs
 - AL-1; AL-1A Contact Sheet (as needed)
- **Documentation:**
 - Inspector leaves copy of all inspection reports with the manufacturer, and sends copy to Intertek, Cortland for review.
 - Results of the audit/inspection are reviewed and appropriate actions taken.



SEMI-ANNUAL INSPECTIONS

- **AL-7 Audit (follows basic ISO quality assurance requirements)**
 - Existence
 - Adequacy
 - Compliance
 - Objective Evidence
- **Production Testing Requirements**
 - Page 9 of AL-7 (Final Inspection and Testing)
 - As required in the applicable AC's
- **Audit Wrap-up**
 - Summarize issues on page 22.
 - Inspector and manufacturer sign page 22



SEMI-ANNUAL INSPECTIONS

- **Product Checklist(s)**
 - Construction review using the applicable ACs
 - Must also have the applicable AC available for questions/confusion
- **Production Testing Requirements**
 - As required in the applicable ACs
 - Documented as per the ACs
 - Traceability to units
- **AL-5 Inspection Data form**
 - Summary of production status



RESCINDING OF CERTIFICATES

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

- Lack of required documentation

- Failure of manufacturer to honor required warranty

- Unsatisfactory failure rate of equipment in the field

 - Unreliable performance of equipment as determined by the FAA

- Failure of manufacturer to maintain quality system

- Changes made to the equipment without the approval of the third party certifier

- Failure to re-certify

- Non-compliance found during manufacturer challenge process

CURRENT PROGRAM STATISTICS



- 61 participants
- 75 manufacturing facilities
- Certifications since the Fall Government Contacts Meeting
 - 38 new or re-qual. certificates
 - 70 revised certificates
 - 40 de-listings

DRAFT SPECIFICATIONS



FAA AC 150/5345-42J (Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories)

Deadline for comments – 1/8/2018

FAA AC 150/5345-26E (Specification for L-823 Plug and Receptacle, Cable Connectors)

Deadline for comments – 3/23/2018

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

Deadline for comments – 2/12/2018

DRAFT SPECIFICATIONS



FAA AC 150/5345 – 54C (Specification for L-884, Power and Control Unit for Land and Hold Short Lighting Systems)

Deadline for comments – 3/28/18

FAA AC 150/5345 – 43J (Specification for Obstruction Lighting Equipment)

Deadline for comments – 6/4/2018

DRAFT SPECIFICATIONS



FAA AC 150/5345-26E

Posted – 2/20/2018

Principal Change:

Mainly editorial and formatting changes

Potential required action:

None

Open issues to address:

Ozone issue (50ppm(26E) vs 50pphm(26C))

Connectors to accommodate shielded cable

FAA AC 150/5345-7F allows shielded primary cable

Options available from all manufacturers

Incorrect UL references for weathering



DRAFT SPECIFICATIONS

FAA AC 150/5345-28H

Posted – 1/12/2018

Principal Changes:

3.2.3.2.1 - Horizontal light beam coverage adjustment

3.2.2.4 - Light cover heater

Potential required action:

Testing of new features

Repeat testing effected by new features

Open issues to address:

Multiple color requirements

Evaluation of “baffling” designs

Evaluation of light cover heaters

DRAFT SPECIFICATIONS



FAA AC 150/5345 – 54C

Posted – 2/20/2018

Principal Change:

Changed surge from ANSI/IEEE C62.41-1991 category C1 to category C2

6kV/3kA combination wave up to 10kV/5kA

Potential required action:

Currently no certified L-884s to update

DRAFT SPECIFICATIONS

FAA AC 150/5345 – 42J

Posted – 12/7/2017

Principal Changes:

L-894 – Elevated Light Cover

0.63” max height was removed.

0.88” max thread depth was removed.

The cover plate of the light fixture shall be sloped toward the bolt plate circle to facilitate the drainage of water.

The thread size is to be specified by the light fixture manufacturer.



DRAFT SPECIFICATIONS



FAA AC 150/5345 – 42J

Potential required action:

Issue certificates where applicable.

Testing redesign required for L-804 baseplates.

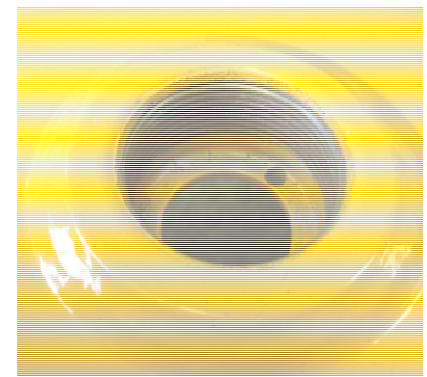


Open issues to address:

The sloped cover plate will eliminate all L-804 baseplates.

The thread size is to be specified by the light fixture manufacturer.

Which manufacturer?



DRAFT SPECIFICATIONS



FAA AC 150/5345 – 43J

Posted – 5/3/2018

Principal Changes:

Added reference to EB98, Infrared Specifications for Aviation Obstruction Light Compatibility with Night Vision Goggles.

The requirements of EB98 are fully included in this draft AC.

In order to be NVG compatible, red obstruction lights (L-810(L), L-864(L), and L-885(L)) must include IR emitters or be used in conjunction with a standalone IR emitter.

Since FAA EB98 provides for a “standalone IR emitter” that can be used in conjunction with LED red aviation obstruction lights, LED obstruction lights could still be offered without IR capability.



NEW SPECIFICATIONS

FAA Engineering Brief 98 – “Infrared Specifications for Aviation Obstruction Light Compatibility with Night Vision Imaging Systems (NVIS)”

Output Wavelength

- The IR output must be in the 800 to 900 nm range.

Beam Width / Timing Synchronization

- IR radiation angular distribution must match the visible light photometric angular distribution for the applicable product type.
- The IR radiation must be synchronized with the visible light both in flash duration, and flash rate. The IR emitters must be on when the visible light is on, and off when the visible light is off.

Minimum IR Radiant Intensity in the 800-900nm range

- 4 mW/sr for L-810(L) applications
- 246mW/sr for L-864(L) and L-885(L) applications

Monitoring / Control

- IR emitters must be monitored in accordance with the requirements in FAA AC 150/5345-43H.
- IR emitter failure must result in the visible light being de-energized.



NEW SPECIFICATIONS

FAA Engineering Brief 98 – “Infrared Specifications for Aviation Obstruction Light Compatibility with Night Vision Imaging Systems (NVIS)”

Certified systems with IR capability.

- Testing must be conducted to demonstrate compliance with the requirements contained in FAA EB98 as stated above.

Certified systems that are now being modified to include IR capability.

- The manufacturer must submit the design details of the modification to Intertek so that an engineering review can be done to determine what FAA AC 150/5345-43H and FAA EB67D testing must be repeated.
- Testing must be conducted to demonstrate compliance with the requirements contained in FAA EB98 as stated above.

Stand-alone IR emitters.

- Testing must be conducted to demonstrate compliance with all applicable requirements found in FAA AC 150/5345-43H and FAA EB67D. Proper system integration must be demonstrated for all systems that the stand alone IR emitter is intended to be used with.
- Testing must be conducted to demonstrate compliance with the requirements contained in FAA EB98 as stated above.

NEW SPECIFICATIONS



FAA Engineering Brief 98 – “Infrared Specifications for Aviation Obstruction Light Compatibility with Night Vision Imaging Systems (NVIS)”

Current Note on the FAA AC 150/5345-53D Addendum:

“IR element present is not tested nor certified under this program as to compatibility with any night vision equipment.”

IR elements currently are tested to ensure they do not create any adverse effects that may render the equipment non-compliant with the base standard.

This note will transition to indicate that NVG compatible LED red obstruction lights have been evaluated to EB98.

ALECP certificates will also indicate that products have been evaluated to EB98.

NEW SPECIFICATIONS



FAA AC 150/5340-30J (Design and Installation Details for Airport Visual Aids)

Posted – 2/15/2018

Principal Changes:

4.8.8.2.1 – yellow/red RGL/Stop bar usage clarification.

6.6.3.2 – Constant brightness for wind cones.

6.7.2.5 - Requirement for separate power for wind cone obstruction lights was removed.

PAPI Obstacle Clearance Surface evaluation guidance added.

