



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: **ACTION:** Program Guidance Letter 19-02

Date: June 18, 2019

From:

Robin K. Hunt, Acting Director, Office of Airport
Planning and Programming, Acting APP-1

Reply to
Attn. of:

Nancy S. Williams
202-267-8822
Amanda J. Shotto
202-267-8744

To: PGL Distribution List

In 2012, the FAA issued Program Guidance Letter 12-02, Specifying LED Lighting on AIP Funded Projects. At the time, the FAA was reviewing the use of LED high intensity runway edge lights, obstruction lights and approach lights with aircraft using Enhanced Flight Vision Systems or Night Vision Imagery technology that rely on an infrared signature.

The FAA Flight Technologies and Procedures Division has determined that the prohibition against using LED high intensity runway edge lights, obstruction lights, and approach lights may be lifted because the lights meet the performance requirements set by the FAA. A copy of the June 14, 2019, determination is attached to this Memorandum as well as two supplementary emails providing further clarification.

FAA Regional and Airport District Offices can now permit the use of AIP funding on LED high intensity runway edge lights, obstruction lights, and approach lights provided they meet performance and procurement standards.



FAA

Aviation Safety

Memorandum

Date: June 14, 2019

To: John Dermody, Director, Office of Airport Safety & Standards

Christopher J. Hope
Digitally signed by
CHRISTOPHER J HOPE
Date: 2019.06.14 09:20:53
+0400

From: Mark Steinbicker, Manager, Flight Technologies and Procedures Division

Prepared by: Matt Harmon, 202-267-9838

Subject: Light Emitting Diode (LED) High Intensity Runway Lights (HIRL)

BACKGROUND: Industry stakeholders informed the FAA and Flight Standards of concerns with Light Emitting Diode (LED) aviation lighting in 2010. Specifically, industry was concerned that aircraft systems such as Enhanced Flight Vision Systems (EFVS) or Night Vision Imagery that used infrared (IR) technology to identify airport and obstruction lighting would not be able to detect LEDs. Based on these concerns, the FAA Office of Airports issued Program Letter (PGL) 12-02, *Specifying LED Lighting on AIP-funded Projects*. This letter which was incorporated in the FAA Order 5100.38D, Airport Improvement Program (AIP) Handbook, restricts the eligibility of Airport Improvement Program (AIP) funds for the purchase of LED High Intensity Runway Lights (HIRL), LED obstruction lights and LED approach lights.

Industry raised an additional concern about the brightness of LED aviation lighting in 2014. The FAA received pilot reports suggesting that LED lights at airports are perceived as brighter than comparable signal lights using incandescent sources at the same measured intensity.

DISCUSSION: The FAA Office of Airports and the William J. Hughes Technical Center in Atlantic City conducted research to quantify the brightness of white and color LED signal lights relative to incandescent signal lights. Consequently, to resolve the issue, the dimming curves for LED runway lighting (based on lamp current and intensity) were revised in FAA Engineering Brief 67D for white and color LEDs. The intensity curves for LEDs were also re-defined. These actions have addressed industry concerns

with the relative brightness of LEDs and have received favorable comments from stakeholders.

In 2015, the FAA assembled a Significant Safety Issues (SSI) team to study the integration of LED lighting into the aviation system. The SSI team conducted a Safety Risk Management Panel and concluded there is no additional risk with LEDs compared to incandescent approach lighting and runway lighting systems.

In December 2016, the FAA published a rule titled *Revisions to Operational Requirements for the Use of Enhanced Flight Vision System (EFVS) and to Pilot Compartment View Requirements for Vision Systems*. This rule expanded the use of EFVS operations to touchdown and rollout without reliance on natural vision. Commenters to the rule expressed concern that LED lighting would eliminate the benefits of EFVS. The FAA acknowledged the commenters' concerns regarding LED lighting; however, the FAA disagreed that the installation of LED lights will eliminate the benefits of EFVS and stated it does not mandate the installation of specific lighting technologies. While currently approved IR based EFVS cannot sense LED lighting, LEDs do not completely eliminate the benefits of EFVS. The EFVS regulations provide for required visual references other than lighting, such as markings, the runway threshold, and the runway touchdown zone landing surface. Therefore, as long as a pilot can see the required visual references using an EFVS, he or she may conduct an EFVS operation. The FAA also noted that the presence of LEDs does not make an EFVS operation unsafe.

CONCLUSION: In all cases tested to date, LEDs meet the standards set for lighting performance. Technology demonstrations at Atlantic City airport also met all expectations and received favorable reviews from independent operators. Flight Standards finds no additional risk in the use of LED lighting for HIRLs and rescinds the previous non-concur with LED light specifications for HIRLs. EFVS users with IR-based sensors are reminded to review Safety Alert for Operator (SAFO) 09007.

For questions regarding this memorandum, please contact Matt Harmon, Flight Operations Group, Section A, at 202-267-9838 or via email at matthew.k.harmon@faa.gov.

From: Harmon, Matthew K (FAA)
Sent: Thursday, June 6, 2019 3:15 PM
To: Williams, Nancy S (FAA)
Cc: Swigart, Stacy (FAA); Shotto, Amanda J (FAA); Balgobin, Vanessa (FAA); Hope, Chris (FAA); Greenwood, Janet E (FAA)
Subject: RE: Memo dated June 3, 2019 on LED lighting for airports .

Nancy;

Flight Standards has no objections to the use of LED lights that meet all FAA requirements for visual light sources. Previously, Flight Standards did issue a non-concur on an AC that did not go into circulation; and we have since rescinded that non-concur via memo.

So while it is not Flight Operations Group's decision to prohibit or approve lighting or funding for lighting, we do not object to the use of LEDs in approach lighting systems or HIRLs. Also, we do not have a policy in place objecting to LED obstruction lights.

From: Kodsi, Khalil (FAA)
Sent: Monday, June 17, 2019 7:44 AM
To: Williams, Nancy S (FAA); Carriger, Jesse (FAA); Dermody, John (FAA); Hiatt, Patricia (FAA)
Cc: Shotto, Amanda J (FAA); Swigart, Stacy (FAA); Bassey, Robert (FAA)
Subject: RE: LED PGL lifting restrictions

Hello Nancy

The memo from AFS that we shared was for the use of HIRL. We completed a task last year to provide IR specifications for red LED obstruction lights. The L-810 LED can be manufactured with Infrared Emitter – so from an operational standpoint they are safe. We published the IR specifications (for L-810 LED with IR) via an EB and also updated our AC last FY and closed the SSI action item. What else do you need from us to assure that the LED obstruction lights are also good? Or, is this e-mail sufficient?

We will forward you the EB and the published AC if necessary.