

AERONAUTICAL CHARTING MEETING
Charting Group
Meeting – April 24 - 25, 2019

RECOMMENDATION DOCUMENT

FAA Control #19-01-333

Subject: LED Lighting at Airfields

Background/Discussion:

In 2007, LED-based lighting began to replace traditional incandescent lighting at both US and foreign airports. This changeover to LED systems will continue as market forces drive manufacturers to producing only LED lighting. Traditional manufacturers no longer produce suitable incandescent lamps. This change to LED lighting can affect operators who rely on EFVS for low visibility approaches, as EFVS technologies do not always detect LED-based lighting. Discussion with the FAA and various flight departments who use EFVS, as well as many who do not, have shown the need for operators to know whether the airfield they are flying into has LED-based lighting on the field prior to departure. This LED replacement situation does not currently affect any approach lighting systems (ALS), as there are no LED-based approach lighting systems operating within the National Airspace System (NAS).

Several operators have asked Flight Standards to identify LED lighting at airfields in the NAS. The LEDs on a field that would have the greatest effect on an EFVS user would be LED HIRLs (of which there are few) and LED Approach Lights (of which there are none).

Recommendations:

Flight Standards is proposing a change to the Terminal Procedures Publication (TPP) to identify the presence of LED lighting on airfields with emphasis on High Intensity Runway Lighting (HIRLs) as well as identifying any ALS' with LEDs if and when they are adopted.

These changes will also be addressed in the AIM, IPH, Chart Supplement, Chart User's Guide and possibly the AIP.

Several options will be presented and be open for discussion/comments.

Comments:

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Date: March 21, 2019

MEETING 19-01

Matt Harmon, FAA/AFS-410, [briefed the new topic](#) and provided a brief history on issues associated with the use of Light Emitting Diode (LED) lighting at airports. Matt explained that most incandescent lamp suppliers have been forced to become LED suppliers so the FAA has no choice but to change Runway Lighting and Approach Lighting Systems (ALS) to LEDs. He said there are currently no certified LED ALSs in the National Airspace System (NAS) though there are a number of High Intensity Runway Edge Lighting (HIRL) systems in place and users of Enhanced Flight Vision Systems (EFVS) have requested they be identified. In the near future, in addition to runway edge lighting systems, it is expected that ALS will also begin being installed with LEDs.

In order to increase awareness of LED lighting, Matt is recommending that the FAA modify the lighting symbols on Instrument Approach Procedure (IAP) charts to identify the presence of LEDs. He suggested adding an "L" to denote the presence of LED lighting, or modifying the symbol used on the chart ([See Slides 4-6](#)). He also recommends that a note be added to the airport remarks in Chart Supplement entries to indicate that LED lighting is in use ([See Slide #7](#)). He understands that updates to pilot guidance in the Instrument Procedure Handbook (IPH), Aeronautical Information Manual (AIM), and Chart User's Guide will also have to follow.

Michael Stromberg, UPS, commented that because LED lights are not visible when using EFVSSs, there have been experiments done adding Infrared signatures to LED systems, but he understands that is very expensive. Michael then asked if there could be a mix of LED and incandescent lighting at an airport. Matt said there would not be both types of lighting used in a single lighting system, but that there could be both LED and incandescent systems at a given airport.

Gary McMullen, Southwest Airlines, expressed concern that LED lights are overly bright. Matt responded that his office is aware of that problem and the intensity has been lowered at some locations. He recommended that pilots file complaints for lights that are too bright.

The question arose whether LEDs will be used for Runway Touchdown Zone or Centerline Lighting systems. Chris Hope, FAA/AFS-410, said that as the runway edge lights are tied to procedure minima, they are looking into that first. Rich Boll, NBAA, said that they would like to see all LED lighting identified, including touchdown zone lighting. Juergen Kuhnhenh, Lido, said that Lido supports the identification of LED lighting, but they would like more details on the impacts. He asked about minima credits depending on the type of runway lighting. Chris responded that minima credit is yet to be determined and that currently the focus is on impacts for flight planning.

Valerie Watson, FAA/AJV-A250, noted strong consensus of the audience for publishing the existence of LED lighting systems. She stated that, in the past, the charting offices could not pursue the publication of LED lighting systems because there was not a source for the data. She suggested working with the FAA Office of Airports to collect this data is the first step. Chris said his office is working with the Office Airports and are working toward getting this information added to FAA Form 5010, Airport Master Record. She stated that once a reliable source for LED lighting system locations is established, the charting offices will investigate the best way to communicate this information to users.

STATUS: OPEN

ACTION: Matthew Harmon, FAA/AFS-410, will continue to work with the Office of Airports to secure a source for the LED data.

MEETING 19-02

Joe Lintzenich, FAA/AFS-410, Contract Support, provided an update. He stated that the Flight Operations Group is continuing to work with the Office Airports to get LED lighting systems added to FAA Form 5010, Airport Master Record. Once a reliable source for LED lighting system locations is established, then the charting offices will investigate the best way to communicate this information to users.

STATUS: OPEN

ACTION: Joe Lintzenich, FAA/AFS-410, Contract Support, will continue to work with the Office of Airports, FAA/AAS-100, to secure a source for the LED data.

MEETING 20-02

Samer Massarueh, FAA/AJV-A221, reviewed the issue. Matt Harmon, FAA/AFS-410, reported that the Flight Operations Branch is continuing to work with the Office Airports to get LED lighting systems added to FAA Form 5010, Airport Master Record. Once a reliable source for LED lighting system locations is established, the AJV-A charting/publication offices will investigate how to communicate this information to users.

STATUS: OPEN

ACTION: Matt Harmon, FAA/AFS-410, will continue to work with the Office of Airports, FAA/AAS-100, to secure a source for the LED data.

MEETING 21-01

Samer Massarueh, FAA/AJV-A223, reviewed the issue. Matt Harmon, FAA/AFS-410, said there is nothing new to report. The Flight Operations Branch is continuing to work with the Office of Airports to have LED lighting systems added to FAA Form 5010, Airport Master Record, so the information can be collected and submitted for publication. Once a reliable source for LED lighting system locations is established, Aeronautical Information Services charting/publication offices will investigate how to communicate this information to users.

STATUS: OPEN

ACTION: Matt Harmon, FAA/AFS-410, will continue to work with the Office of Airports, FAA/AAS-100, to secure a source for the LED data.

MEETING 21-02

Samer Massarueh, FAA/AJV-A223, reviewed the issue. Matt Harmon, FAA/AFS-410, reported that there is no status change and the Flight Operations Branch is continuing to work with the Office of Airports to have LED lighting systems added to FAA Form 5010, Airport Master Record, so LED lighting information can be collected and submitted for publication.

Drew Goldsmith, FAA/AAS-120, confirmed the Office of Airports is working on updating the 5010 and the Airport Data and Information Portal (ADIP) to collect LED lighting information.

Jon Gdowik, FAA/AJV-A313, stated it will take time for the National Airspace System Resource (NASR) database to be enhanced to accept LED lighting requirements. The Aeronautical Data Team needs to fully understand the source flow/process and what the data publication requirements are before they can begin to making changes to NASR. Jon said his team would like to begin this work as soon as possible. Valerie Watson, FAA/AJV-A250, asked if this topic is being discussed at the monthly meetings between AJV-A and AAS-100. Jon said he doesn't recall if LED lighting is on that agenda, but said he will ensure it is discussed at future meetings.

STATUS: OPEN

ACTION: Matt Harmon, FAA/AFS-410, will continue to work with the Office of Airports, FAA/AAS-100, to secure a source for the LED data and will report back at the next ACM.

ACTION: Jon Gdowik, FAA/AJV-A313, will report on the status of enhancements to the National Airspace System Resource (NASR) database for LED lighting information.

MEETING 22-01

Matt Harmon, FAA/AFS-410, reported the project to collect LED lighting information is gaining traction. He said FAA Form 5010 (Airport Master Record) and the Airport Data and Information Portal (ADIP) will be updated to collect and reflect LED lighting information. Advisory Circular (AC) 150 is being updated to add LED lighting to the airfield approach lighting requirements to explain how they will be collecting that information.

Aaron Jacobson, Jeppesen, asked if they are still planning to update the lighting symbology to indicate LED lighting as was briefed originally. Matt said there is no consensus yet about how it will be charted, but he does expect that it will be graphically depicted. Valerie Watson, FAA/AJV-A250, said the first step is securing the source, then it must be determined how the data will be stored in the National Airspace System Resource (NASR) database. Then we can look at where and how LED lighting will be shown on/in the products.

STATUS: OPEN

ACTION: Matt Harmon, FAA/AFS-410, will continue to work with the Office of Airports, FAA/AAS-100, to secure a source for the LED data and will report back at the next ACM.

MEETING 22-02

Mike Melssen, FAA/AFS-410, said he has nothing new to report, but said his team will continue to work on this issue and will report at the next meeting.

STATUS: OPEN

ACTION: Mike Melssen, FAA/AFS-410, will continue to work with the Office of Airports, FAA/AAS-100, to secure a source for the LED data and will report back at the next ACM.

MEETING 23-01

Matt Harmon, FAA/AFS-410, reported that as airports are transitioning to LED lights, his office would still like to find the best way to alert pilots to the presence of LED approach lighting systems.

Rich Boll, NBAA, strongly suggested this information be put on the Instrument Approach Procedures (IAP) charts in some form. He said it makes a big difference and requested NBAA be included in discussion with the FAA on this issue. Guy Copeland, FAA/AJV-A210, thinks lighting information is better to put in the Chart Supplement than on the charts. Rich thinks it is important that pilots have information about the equipment requirements necessary to see the lights. NBAA wants this information on the IAP charts.

Mike Stromberg, UPS IPA, asked if the incandescent LED lights would be charted differently than LED infrared lights. Matt said incandescent is being used in the test and expects they will not be charted any differently. Mike asked if anyone had looked into using infrared lights with the LED. Matt said they looked into it and they work like a normal incandescent light.

Scott Jerdan, FAA/AJV-A310, said this issue was stalled until about a week ago, so he said the National Airspace System Resource (NASR) requirements still need to be defined. He said there is a lot of work to do in order to get this information published and the Office of Airports and Aeronautical Information Services need to be part of the discussion. He pointed out that his team's ability to make NASR enhancements is very limited, so this group should have plenty of time to work this issue.

Jennifer Hendi, FAA/AJV-A250, suggested creating a workgroup with industry to investigate this issue. She requested that individuals send an email to 9-amc-avs-acm-info@faa.gov to be included in the workgroup.

STATUS: OPEN

ACTION: Matt Harmon, FAA/AFS-410, will continue to work with the Office of Airports, FAA/AAS-100, to secure a source for the LED data.

ACTION: Matt Harmon, FAA/AJV-410, will report on the LED Lighting Workgroup with regard to data and charting requirements.