



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

SAFO

Safety Alert for Operators

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Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo

A SAFO contains important safety information and may include recommended action. SAFO content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest possible degree of safety in the public interest. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO.

Subject: Night Vision Goggle (NVG) Advisory Pertaining to Certain Red Color Light Emitting Diodes (LED)

Purpose: This SAFO advises operators utilizing NVGs that certain LED lighting systems fall outside the combined visible and near-infrared spectrum of NVGs.

Discussion: A Flight Safety Flash was issued in 2008 by the Canadian Air Force's Directorate of Flight Safety, which identified some red obstruction lighting systems that were clearly visible to the naked eye but not visible to NVGs. These lighting systems employ LEDs instead of traditional incandescent sources. The use of LEDs is becoming more common for almost all lighting applications because of their energy efficiency and extremely long life.

Aviation Red light ranges from about 610 to 700 nanometers (nm), and NVGs approved for civil aviation (having a Class B Minus Blue Filter) are only sensitive to energy ranging from 665 to about 930 nm. Because LEDs have a relatively narrow emission band and do not emit infrared energy like incandescent lights, it is possible for them to meet FAA requirements for Aviation Red but be below the range in which NVGs are sensitive.

In general terms, NVG users should be aware that LED lighting systems falling outside the combined visible and near-infrared spectrum of an NVG (approximately 665 to 930 nm) will not be visible to their goggles. Crews that fly using NVGs are warned to use extra caution when flying near obstacle areas and to report any hazardous sites to the nearest Flight Standards District Office (FSDO) or the appropriate military Safety Officer.

Recommended Action: Pilots, directors of operations, chief pilots, training program managers, and training centers either using, or providing training for NVGs should advise pilots of the limitations outlined in this SAFO and ensure such information is incorporated into the pilot NVG training program.