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**REPUBLIC OF COSTA RICA**
CIVIL AVIATION AUTHORITY
Air Navigation Services Department
Aeronautical Information Services Unit
P.O. BOX 5026 -1000
SAN JOSE – COSTA RICA

**AIC**
**Series A**
**07**
**28 MAY 2021**

**AGA**

## REPORT OF UNBEATABLE LASER BEAM EMISSIONS

Due to the increasing incidence of illuminations to flight personnel due to the use of laser beams for all types of activities, the Civil Aviation Authority has proceeded to update the information on inadvertent laser beam emissions and communicates it to all air operators , pilots and flight crews that, this can compromise the safety of the flight due to physical injuries to the eye or functional damages, such as;flash blindness, after-images and glare that can affect critical phases of flight.

There are obvious flight safety risks associated with laser beam illumination during critical phases of flight (particularly procedures that require continuous turns). These are caused by ocular, vestibular and psychological effects, which one by one or in combination can lead to loss of situational awareness (LSA). Temporary visual impairment makes the pilot dependent on other sensory inputs, which can provide inadequate but imperative information leading to incorrect decisions. Temporary visual impairment can be frightening, distracting, disturbing, disorienting, and in extreme cases completely incapacitated.

### Preventive procedures

### Pre-flight procedures

a. The NOTAMs should be consulted to know the place and hours of operation of laser activities and alternative routes should be taken into account in any case that will be presented.

### In-flight procedures prior to entry into airspace where laser activity is known

a. Exterior lights should be turned on to help ground observers locate and identify the aircraft.
b. One of the pilots should observe the instruments to minimize the effects of possible lighting.
c. The lights should come on in the cockpit.

If a pilot is exposed to bright light that is suspected to be a laser beam, the following measures should be taken to reduce the risk, unless some of these measures compromise flight safety:

a. Look away from the light source.
b. Shield the eyes from the light source.
c. Declare the visual condition presented to another crew member.
d. Transfer control of the aircraft to other pilots if necessary or if there is an alternative.
e. Switch to instrument flight.

f. Maneuvering or repositioning the aircraft so that the laser beam no longer illuminates the flight deck.
g. Assess visual function, for example, by reading instruments or approach charts.
h. Avoid rubbing the eyes.
i. Notify air traffic control (ATC) of any suspected in-flight lighting from a laser beam and, if necessary, declare an emergency.

It is important to inform authorities, as appropriate, of any lighting in flight that is suspected of being a laser beam. After landing, the pilot must undergo an immediate medical evaluation, preferably by a competent vision specialist, and inform the authorities and provide the details of the incident, filling out the attached form, which must be formally sent to the Safety Program of the State (SSP) of the Civil Aviation Authority to the email indicated in the table below, and the administration of the aerodrome immediately.

| Airport | Notifications |
|---|---|
| **Safety Program of the State** | seguridadoperacional@dgac.go.cr |
| **Juan Santamaría International Airport** | oscar5@aeris.cr |
| **Daniel Oduber Quirós International Airport** | hjuarez@dgac.go.cr |
| **Tobías Bolaños Palma International Airport** | kcascante@dgac.go.cr |
| **Limón International Airport** | jarias@dgac.go.cr |

**REPLACES AIC A17/13 DATED NOVEMBER 01, 2013**

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| **LASER BEAM EXPOSURE REPORT** | | | | | | |
|---|---|---|---|---|---|---|
| Name: | | | | | Age: | |
| Position (Pilot, second officer, ATC controller, etc): | | | | Phone: | | |
| Type of vision correction used at incident momento (contact lenses-glasses): | | | | | | |
| Aircraft type: | | | Aircraft ID or call sign: | | | |
| Date and time of laser incident (UTC): | | | Date and time of completion of report (UTC): | | | |
| **Environmental Factors** | | | | | | |
| Circle the weather conditions present at the time of the incident: | | | | VMC | | IMC |
| Ambient light level (day, night, sunlight, twilight, starlight, moonlight, etc): | | | | | | |
| **Incident place** | | | | | | |
| Near to (aerodrome/city/NAVAID): | | | | | | |
| Radial and Distance: | | | | Flight phase: | | |
| Type/Name of approach-departure procedure: | | | | | | |
| Aircraft heading/Approximated Aircraft heading: | | | | Altitude (AGL): | (MSL): | |
| Lateral slope and pitching angle: | | | | | | |
| **Incidence angle** | | | | | | |
| Did the laser beam light shines directly in to your eyes or aside? | | | | | | |
| **Laser light description** | | | | | | |
| Color: | | | | | | |
| Kind of light: | | | | | | |
| Did the laser beam appear to deliberately track the aircraft? | | | | | | |
| Relative intensity (bulb, projector, sunlight): | | | | | | |
| Exposure time (seconds): | | | Was the beam visible before the incident? | | | |
| Position of the light source (in relation to the geographical feature with the aircraft): | | | | | | |
| Circle the window through which the light entered the cockpit: | Left | Front left | Center | Front right | Right | Other: |
| Beam elevation from horizontal (degrees): | | | | | | |
| **Effects on the individual** | | | | | | |
| Describe the visual * / psychological / physical effects: | | | | | | |
| Visual effects duration (seconds / minutes / hours / days): | | | | | | |
| Effect on the operating procedures or the pilot point: | | | | | | |

* Example of ordinary visual effects:
***Secondary image**: An image that remains in the field of view after exposure to bright light.
***Blind spot**: a temporary or permanent loss of vision in part of the visual field.
***Flash blindness**: the inability to see (temporarily or permanently) caused by bright light entering the eye and persisting after illumination has ceased.
***Glare**: a temporary disturbance in vision caused by the presence of bright light (such as a car headlight coming close to an individual's field of vision). Glare lasts only as long as bright light is present in the person's field of vision.