

Equivalent Safety Finding
**Passenger doors locking visual inspection by
fibre-optic light**

Doc. No. : ESF-D29.783-01

Issue : 1

Date : 29 APR 2021

Proposed ☐Final ☒

SUBJECT : **Passenger doors locking visual inspection by fibre-optic light**

REQUIREMENTS incl. Amdt. : **CS 29.783 (e) Amdt. 2**

ASSOCIATED IM/MoC : Yes ☐ / No ☒

ADVISORY MATERIAL : AC 29-2C

INTRODUCTORY NOTE:

The following Equivalent Safety Finding (ESF) has been classified as important and as such was subject to public consultation in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

IDENTIFICATION OF ISSUE:

A request for an Equivalent Safety Finding (ESF) to CS-29 paragraph 29.783 (e) at Amdt.2 was submitted to EASA for a large helicopter design change modifying the basic cabin configuration.

In the original Type Certification design, four inspection holes are present on the helicopter passenger doors, in order to allow direct inspection of the locks and evaluate the state of the door locking system. This provides indication to the crew member that the door is fully locked. The locking system is ensured by four pins engaged on the receptacle on the fuselage and indicated via visible markers inside the inspection holes.

The design change includes the installation of a door liner frame, which covers the inspection holes, thus preventing direct visual inspection of the locking system.

In order to restore the possibility to perform the visual check, four devices, utilizing fibre-optic technology, are located inside the door liners, to restore a visual mean of the actual door engagement.

According to the requirement CS 29.783 subparagraph (e):

"There must be means for direct visual inspection of the locking mechanism by crew members to determine whether the external doors (including passenger, crew, service, and cargo doors) are fully locked. There must be visual means to signal to appropriate crew members when normally used external doors are closed and fully locked."

The fibre-optic light provides a visual signal to indicate whether the door is closed and locked. However, the proposed design solution does not allow a direct visual inspection of the locking mechanism (as required by CS 29.783(e)). Nevertheless, according to point 21.B.80(a)(2) of Part-21 (Annex I to Regulation (EU) No 748/2012), it is possible to demonstrate that any airworthiness provisions not complied with are compensated for by factors that provide an equivalent level of safety.

