



# Federal Aviation Administration

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## Memorandum

Date: October 26, 2015

To: Manager, Transport Standards Staff, International Branch, ANM-116

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Sanjay Ralhan, Program Manager, ANM-116

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Symbolic Exit Signs, FAA Project Number TD01046IB-T.

ELOS Memo #: TD01046IB-T-CS-1

Regulatory Ref.: §§ 25.811(d), 25.811(g), 25.812(b)(1)(i), 25.812(b)(1)(ii)

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This memorandum informs the certificate management aircraft certification office of an evaluation made by the Transport Airplane Directorate (TAD) on the establishment of an equivalent level of safety (ELOS) finding for the Airbus Model A318, A319, A320 and A321 airplanes.

### Background

In March 2003, the JAA adopted Notice of Proposed Amendment (NPA) 25D-327 to allow the use of symbolic exit signs as an alternative to language based signs. EASA (the successor to the JAA) used the JAA work and published their own NPA, which was later adopted into their Certification Specifications (CS). The symbolic signs, accepted as a means of complying with the revised EASA regulations, were derived from international standards for symbols and were the subject of a comprehension study performed by Cranfield University. The Cranfield University study results, published in April 1997, were used by the JAA, and subsequently EASA, to conclude that some of the symbolic signs evaluated were sufficiently understood by members of the traveling public to be put into use. The level of comprehension of the symbolic signs as compared to the language based signs varied and was dependent on the type of sign. The FAA did not participate in the Cranfield comprehension study, or the JAA evaluation of symbolic signs. As such, there is question whether the results are directly applicable as alternatives to the FAA requirements, especially for use in the United States (US) where text based exit signs are

prevalent throughout society. The FAA has not previously certified the use of symbolic exit signs in lieu of the text based signs currently required by the existing FAA regulations.

### **Applicable regulation**

§§ 25.811(d), 25.811(g), 25.812(b)(1)(i), 25.812(b)(1)(ii)

### **Regulation requiring an ELOS finding**

§§ 25.811(d), 25.811(g), 25.812(b)(1)(i), 25.812(b)(1)(ii)

### **Description of compensating design features or alternative standards which allow the granting of the ELOS finding (including design changes, limitations or equipment need for equivalency)**

- The airplane flight manual must include a special emphasis briefing along with the requirement that the briefing be given to the passengers prior to each flight and prior to each landing.
- The FAA or their delegate must evaluate the implementation plan to ensure incorporation of appropriate symbolic exit sign information into the standard passenger information cards (such as those required by §§ 121.571 (b), 135.117(e), and 91.1 035(f) at each passenger seat place occupied for taxi, takeoff and landing. The specific exit sign artwork, placards and graphics identified in this plan must also be incorporated as part of the airplane type design.
- The FAA or their delegate must evaluate the symbolic exit signs on board the aircraft to ensure that there are no visual cues in the vicinity of the signs (e.g., symbolic signs or placards such as lavatory occupied signs) that could inadvertently mislead passengers away from the exits. Illumination of the symbolic signs must also provide equivalent visibility to the illumination levels specified for the text based signs.

### **Explanation of how design features or alternative standards provide an ELOS to that intended by the regulation**

Since not all passengers are English speaking, and may not understand the word “Exit,” the use of symbolic exit signs can increase safety by providing a common exit symbol that does not require knowledge of the English language. However, the comprehension of the symbolic signs requires reinforcement in order to provide an ELOS.

Research has shown that exposure to such symbols significantly increases comprehension, and exposure in context is a very effective means to accomplish this.

Specifically, the FAA determined that special emphasis briefings must be utilized to explain the symbolic signs to passengers, as discussed above. The FAA also determined that special emphasis briefings must include passenger review of an information card containing the text meaning of the signs.

The following Limitations will be added to the Type Certificate Data Sheet (TCDS):

*“For airplanes equipped with pictograms on exit marking signs and on exit location signs, the cabin crew in charge of the safety briefing must highlight these pictograms to the passengers prior to each takeoff and each landing.”*

Through the above compensating features, symbolic exit signs provide an ELOS intended by the regulations.

**FAA approval and documentation of the ELOS finding**

The FAA has approved the aforementioned ELOS finding in project Issue Paper CS-1, titled Symbolic Exit Signs. This memorandum provides standardized documentation of the ELOS finding that is non-proprietary and can be made available to the public. The TAD has assigned a unique ELOS memorandum number (see front page) to facilitate archiving and retrieval of this ELOS finding. This ELOS memorandum number must be listed in the TCDS under the Certification Basis section in accordance with the statement below:

ELOS Findings have been made for the following regulation:  
 §§ 25.811(d), 25.811(g), 25.812(b)(1)(i), 25.812(b)(1)(ii)

Emergency Exit Access (documented in TAD ELOS Memo TD01046IB-T-CS-1)

**Original Signed by Suzanne Masterson**  
 Transport Airplane Directorate  
 Aircraft Certification Service

**10/26/2015**  
 Date

ELOS Originated by: Airframe and Cabin Safety Branch	Project Engineer: Dan Jacquet	Routing Symbol: ANM-115
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