Federal Aviation Administration

Memorandum

Date: August 26, 2015

To: Manager, International Branch, ANM-116

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Jayson Claar, ANM-115

Subject: INFORMATION: Equivalent Safety Finding for Graphical Exit Signs on Embraer Model EMB-550 and EMB-545 airplanes, FAA Project # TC0717IB-T and AT10256IB-T

ELOS Memo#: TC0717IB-T-C-5

Regulatory Ref: §§ 25.811, 25.812

Revision Description: The FAA revised the memo to add the Embraer Model EMB-545.

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 Embraer Model EMB-550 and EMB-545 airplanes.

Background

Title 14, Code of Federal Regulations (14 CFR) sections 25.811 and 25.812 requires text-based emergency exit signs with specific size, color and intensity. Embraer proposes to install graphical exit signs in lieu of the conventional text-based exit signs. Graphical exit signs are permitted by the European Aviation Safety Administration (EASA), but FAA research has shown that the U.S. flying public has low comprehension of graphical exit signs when compared to text-based signs.

Applicable regulation(s)

§§ 25.811, 25.812

Regulation(s) requiring an ELOS finding

§ 25.811, 25.812

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)

In lieu of strict compliance to §§ 25.811 and 25.812, Embraer proposes to use a graphical exit sign that has a comparable level of visibility to the text-based sign. In addition, Embraer will provide a special emphasis briefing prior to takeoff and also prior to landing to ensure passenger comprehension of the graphical sign and exit locations.

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

Accomplishing the following actions establishes an acceptable overall comprehension of the proposed graphical exit signs by the flying public:

(a) Incorporation of an FAA-accepted special emphasis briefing to be included in the airplane flight manual along with the requirement that the briefing be given to the passengers prior to each flight and prior to each landing.

(b) Development of an FAA-accepted implementation plan that will ensure incorporation of appropriate graphical exit sign information in standard passenger information cards (such as those required by §§ 121.571(b), 135.117(e), and 91.1035(f)) at each passenger seat place that can be 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 conducted research to determine an acceptable sign size and features to provide comparable visibility to traditional text-based signs in a cabin the size of the Model EMB-550 and EMB-545 airplanes. The FAA provided guidance on sign size and spacing of graphical features, which Embraer will meet in their final design.

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project issue paper C-5, titled Graphical Exit Signs on Embraer Model EMB-550 and EMB-545 airplanes. 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 should be listed in the Type Certificate Data Sheet under the Certification Basis section in accordance with the statement below.

Equivalent Level of Safety Findings have been made for the following regulation(s):
§§ 25.811, Emergency Exit Marking, and 25.812, Emergency Lighting (documented in TAD ELOS Memo TC0717IB-T-C-5)

Original Signed by

Suzanne Masterson August 26, 2015

Transport Airplane Directorate, Date
Aircraft Certification Service

ELOS Originated by: Airframe & Cabin Safety Branch	Project Engineer: Jayson Claar	Routing Symbol: ANM-115