



Federal Aviation Administration

Memorandum

Date: March 17, 2015

To: Ross Landes, Manager, Seattle ACO, ANM-100S

From: Manager, Transport Airplane Directorate, ANM-100S

Prepared by: Thuan Nguyen, ANM-130S

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for § 25.1387(e) Position Light System Dihedral Angles on a Boeing Model 737-700/700IGW airplane, FAA Project Nos. SA12511SE-T, SA12512SE-T and SA12513SE-T

ELOS Memo #: SA12511SE-T-G-6-2

Regulatory Ref: § 25.1387(e) at Amendment 25-30

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 Boeing Model 737-700/700IGW airplane.

Background:

Title 14, Code of Federal Regulations (14 CFR) 25.1385(c) Amendment 25-38 requires that rear position lights be mounted as far aft as practicable on the tail or on each wing tip. Position lights provide airplane position, direction, and attitude to persons in other airplanes or on the ground.

Section 25.1387(e) Amendment 25-30 specifies the dihedral angle requirements of the rear position lights.

The rear position lights proposed by Aviation Partners Boeing do not meet the dihedral angle requirements as the proposed winglet design blocks the rear position light visibility beyond that which is allowed. That which is allowed is based on a tail mounted position light, not a wing tip mounted position light.

Applicable Regulations:

§ 25.1385(c) Amendment 25-38

§ 25.1387(e) Amendment 25-30

Regulations Requiring an ELOS Finding:

§ 25.1387(e) Amendment 25-30

Description of compensating design features or alternative Methods of Compliance (MoC) which allow the granting of the ELOS (including design changes, limitations or equipment needed for equivalency):

Three wing tip mounted features (listed below) provide for an equivalent level of safety to § 25.1387(e) Amendment 25-30.

- (1) The position of the blockage is such that the potential for an observing aircraft to be within the blockage area for any length of time is very small. In those instances, the anticollision lights would be very noticeable.
- (2) The aircraft has two complete anticollision light systems which will easily allow visibility of the aircraft in the very small areas of position light obstruction.
- (3) Section 25.1387(e), Amendment 25-30, was established based on a single light in the tail of the airplane and did not take into account wingtip mounting which is much more effective, even with a small amount of blockage to the side due to winglet.

Explanation of how design features or alternative Methods of Compliance (MoC) provide an equivalent level of safety intended by the regulation:

Subject wing tip mounted features provide an equivalent level of safety by providing adequate aircraft lighting to prevent a collision.

FAA approval and documentation of the ELOS finding:

The FAA has approved the aforementioned ELOS finding in project Issue Paper G-6. 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 achieving and retrieval of this ELOS. This ELOS memorandum number must be listed in the Limitations and Conditions section of the supplemental type certificate. An example of an appropriate statement is provided below.

Equivalent Level of Safety Findings have been made for the following regulations:

§ 25.1387(e) Amendment 25-30 (documented in ELOS Memo SA12511SE-T-G-6-2)

Original Signed by

Dale Dunford

Transport Airplane Directorate,
Aircraft Certification Service

April 2, 2015

Date

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| ELOS Originated by ACO: | ACO Manager (or Project Engineer for ANM-116): | Routing Symbol: |
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