



Federal Aviation Administration

Memorandum

Date: August 7, 2015

To: Manager, Boeing Aviation Safety Oversight Office, ANM-100B

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Jen Pei, ANM-106B

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Forward and Rear Position Light Distribution and Intensities on a Boeing Model 767-2C Airplane, Project # PS09-0863

ELOS Memo # PS09-0863-SE-3

Regulatory Ref: 14 CFR 21.21(b)(1) and 25.1389(b)(3)

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 Model 767-2C airplane.

Background

Title 14, Code of Federal Regulations (14 CFR) 25.1389(b)(3), Amendment 25-0, specifies the maximum allowable intensities in the overlap areas A and B of the forward and rear position lights.

For the Model 767-2C position lighting system (consisting of both forward and rear position lights), the lighting intensities in overlap areas A and B does not meet the maximum allowable value required by § 25.1389(b)(3). The intensities are exceeded for the conditions of forward red and green position lights, and white (rear) position lights.

Applicable regulation(s)

14 CFR 21.21(b)(1), 25.1389(b)(3), 25.1391, 25.1393, and 25.1395

Regulation(s) requiring an ELOS finding

14 CFR 25.1389(b)(3)

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

The compensating factors that provide an ELOS for the regulations not complied with are as follows:

- Each of the forward and rear position lights provides intensities which are substantially greater than the intensities required by §§ 25.1391 and 25.1393.
- The exceeding intensities of the proposed position lights in overlap areas A and B are insignificant and do not adversely affect the signal clarity. The physical separation between the position light assemblies (installed on the wing-tips) and the main beam intensity levels of the position lights will maintain the signal clarity.
- In all cases, the exceeding intensities in the overlap areas are of minimal intensity above the specified limit, or are in extreme angles and are very narrow.
- A trained observer could not visually discriminate between a position light system producing the overlap intensities described herein and one without the overlaps. The difference can only be detected with sensitive precision instruments.

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

The compensating factor(s) raise the level of safety to that required by § 25.1389(b)(3) by providing significantly greater position light intensities than those required by §§ 25.1391 and 25.1393. Slightly exceeding the intensity in the overlap areas does not adversely affect the signal clarity required by § 25.1389(b)(3).

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project issue paper SE-3. 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 type certificate data sheet under the Certification Basis section. An example of an appropriate statement is provided below.

Equivalent Level of Safety Findings have been made for the following regulation(s):
14 CFR 25.1389(b)(3) Position light distribution and intensities
(documented in TAD ELOS Memorandum PS09-0863-SE-3)



Transport Airplane Directorate,
Aircraft Certification Service

8/7/15

Date

ELOS Originated by Boeing Aviation Safety Oversight Office	Jen Pei	ANM-106B
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