



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: Action: Review and Concurrence, Equivalent Level of
Safety for FAA project SA5651AT-T

Date: February 25, 2002

From: Manager, Atlanta ACO, ACE-115A

Reply to
Attn. of: Linda Haynes, ACE-118A

To: Manager, Transport Airplane Directorate ANM-100

ELOS SA5651AT-T-S01
Memo #:

Background

The forward position lights of Model 737-200 airplanes consist of a red position light on the left wing tip and a green position light on the right wing tip. The rear position lights are also located on the wingtip and consist of a white, aft-facing light at the trailing edge of each wing tip. Each of the forward position light assemblies contains two lamps, situated one forward of the other. The rear position light also contains two lamps, one above the other. The intent of this design feature is to enable the position light to meet the minimum intensity requirements of FAR Parts 25.1391 and 25.1393 with one lamp inoperative.

In addition to the minimum intensity requirements of FAR Parts 25.1391 and 25.1393, the regulations imposes maximum allowable intensities for the red, green, and white position lights in the overlap areas between their respective angular areas of coverage. These maximum allowable intensities are defined in FAR Part 25.1389(b)(3). The overlap areas related to the incursion of one position light into the area of coverage of an adjacent position light are identified as "Area A" and "Area B". These areas are defined in FAR Part 25.1395. The intent of FAR Part 25.1389(b)(3) and 25.1395 is to minimize the potential for confusion by limiting the angles, and the intensity at those angles, at which an observer in another aircraft would be able to visually detect:

Applicable regulations

14 CFR 25.1389(b)(3)

Regulation(s) requiring an ELOS

The position light distribution and intensities requirement was incorporated into the initial release of 14 CFR § 25.1389 (b)(3). The certification basis for the Boeing Model 737-200 is amendment 15. The certification basis for the Boeing 737-200 for § 25.1389 is up to amendment 25-15. This is the amendment level to which the equivalent level of safety was found.

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

No compensating design features were required.

Explanation of how features provide an equivalent level of safety to the level of safety intended by the regulation

The guidance for complying with the requirements of § 25.1389(b)(3) is as follows:

The new halogen position lights provides increased intensity in overlap areas that deviate from the maximum allowable level in those areas. However, since the signal clarity ratio of much higher proportions than FAR 25.1389(b)(3) are maintained with the intensities provided in these deviated areas, the lights as designed provide an equivalent level of safety and fully meets the intent of the FAR requirement.

ACO recommendation for approving the ELOS

The FAA has approved the aforementioned Equivalent Level of Safety Finding in Issue Paper S-1. This memorandum provides standardized documentation of the ELOS that is non-proprietary and can be made available to the public. The Transport Directorate has assigned a unique ELOS Memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS Memorandum number is listed in the Supplemental Type Certificate.

Melvin D. Taylor, Manager
Atlanta Aircraft Certification Office

Concur

Signature: Robert Breneman /s/ _____
Project Officer, Transport Standard Staff, ANM-110

Date: 3/18/02