Federal Aviation Administration

Memorandum

Date: August 22, 2014

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

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Nazih Khaouly, ANM-111

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for a single landing light switch on Airbus Model A350 series airplanes, FAA Project Number TC0544IB-T.

ELOS Memo #: TC0544IB-T-SE-5

Reg. Ref.: § 25.1383(b)

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 A350 aircraft.

Background

Title 14, Code of Federal Regulations (14 CFR) 25.1383(b) requires separate switches for each landing light (except when one switch is used for the lights of a multiple light installation at one location). The original requirement was written with the turbo engine propeller type design in mind. During a high cross wing approach, pilots needed two switches in order to turn off the left or right landing light separately and eliminate the glare reflecting from the propeller into the flight deck. The glare could interfere with the view of the runway affecting the pilots' ability to flare the airplane and land the aircraft accurately in the middle of the runway.

This condition does not apply for modern turbo jets with swept wings. For the Airbus Model A350, the two fixed position landing lights are integrated in each wing leading edge. Airbus plans to have a single cockpit switch which will activate the landing lights. Airbus has requested an equivalent safety finding to the existing requirements of § 25.1383(b).

Applicable regulations
§ 25.1383(b).

Regulations requiring an ELOS finding
§ 25.1383(b).

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 Airbus Model A350 airplane does not have a turboprop engine. Therefore, this glare condition does not apply, and the pilot has no need to turn off the landing lights one wing at a time. Reliability and system independence of the landing light system has to meet § 25.1309 requirements.

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

This rule does not apply for the modern turbo jets such as the Model A350 airplane since these airplanes do not use turboprop engines. Therefore, this condition will not occur and the pilot is not required to turn off the landing lights one wing at a time to prevent a glare reflection. Furthermore, advancements in avionic systems reduces reliance on the use of landing lights for flare decisions and visual runway landings. In term of human factors and flight deck design, the use of a single switch has the following advantages:

- It is more intuitive to associate a single switch with a single function, than two switches with a single function;

- It results in a less-cluttered overhead panel which makes switch identification easier and reduces workload;

- It reduces the risk of error by selecting only one switch when the intention was to select both.

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project issue paper SE-5, titled single landing light switch. 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:

ELOS Findings have been made for the following regulations:
§ 25.1383(b), Landing lights; (documented in TAD ELOS Memo TC0544IB-T-SE-5).

Original signed by
Robert Duffer

Transport Airplane Directorate,
Aircraft Certification Service

August 22, 2014
Date

ELOS Originated by:	Project Engineer:	Routing Symbol:
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