



# Federal Aviation Administration

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## Memorandum

Date: January 17, 2013

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

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Todd Martin, ANM-115

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Ground Load Conditions on Airbus Model A350 series airplanes, FAA Project Number TC0544IB-T.

ELOS Memo#: TC0544IB-T-A-11

Reg. Ref.: §§ 25.471, 25.473, 25.477, 25.479, 25.481, 25.485, 25.493, 25.499, 25.503, 25.507, 25.511, and 25.723.

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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

The referenced Title 14, Code of Federal Regulations (14 CFR) sections prescribe ground load conditions for transport category aircraft. The Aviation Rulemaking Advisory Committee (ARAC) has developed new ground loads criteria. Airbus proposed that the new criteria be applied to the Airbus Model A350 aircraft instead of the existing 14 CFR and European Aviation Safety Agency (EASA) Certification Specification (CS) sections.

Airbus requested an ELOS finding to the referenced requirements and proposed to use the ground loads criteria recommended by ARAC. Airbus also requested the same ELOS finding to the corresponding CS sections of EASA. FAA accepts the Airbus proposal as equivalently safe.

**Applicable regulations**

§§ 25.471, 25.473, 25.477, 25.479, 25.481, 25.485, 25.493, 25.499, 25.503, 25.507, 25.511, and 25.723.

**Regulations requiring an ELOS finding**

§§ 25.471, 25.473, 25.477, 25.479, 25.481, 25.485, 25.493, 25.499, 25.503, 25.507, 25.511, and 25.723.

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

The ARAC proposal includes comprehensive changes to the referenced ground loads requirements. These requirements include loading conditions on the landing gear and airframe. The requirements address vertical loads due to landing, side loads, one gear landing, runway vibration, pivoting, and shock absorption criteria.

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

The criteria proposed by ARAC includes a number of changes that reorganize, clarify and improve the requirements.

The FAA considers the ARAC proposal to be equivalently safe to the referenced requirements that are currently effective.

**FAA approval and documentation of the ELOS finding**

The FAA has approved the aforementioned ELOS finding in project issue paper A-11, titled Ground Load Conditions. EASA has approved the ELOS finding in project Certification Review Item (CRI) C-11, "Ground Loads Conditions," at Issue 3.

This memorandum provides standardized documentation of the FAA's 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 Safety Findings have been made for the following regulations:

§§ 25.471, general; 25.473, Landing load conditions and assumptions; 25.477, Landing gear arrangement; 25.479, Level landing conditions; 25.481, Tail down landing conditions; 25.485, Side load conditions; 25.493, Braked roll conditions; 25.499, Nose-wheel yaw and steering; 25.503, Pivoting; 25.507, Reversed braking; 25.511, Ground

load: unsymmetrical loads on multiple-wheel units; and 25.723 Shock absorption tests (documented in TAD ELOS Memo TC0544IB-T-A-11).

Original signed by

*Suzanne Masterson*

Transport Airplane Directorate,  
Aircraft Certification Service

January 18, 2013

Date

ELOS Originated by Transport Standards Staff:	Project Engineer Todd Martin	Routing Symbol ANM-115
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