



Federal Aviation Administration

Memorandum

Date: February 20, 2013

To: Manager, New York Aircraft Certification Office, ANE-170

From: Manager, Rotorcraft Directorate, ASW-100

Prepared by: Dr. Andreas Rambalacos, ANE-171

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Emergency Landing Dynamic Conditions certification of Aerolite Emergency Medical Service (EMS) Seat with Adapter on Agusta Westland AW-139 model helicopters, FAA Project # ST7135NY-R

ELOS Memo#: ST7135NY-R-C-1

Regulatory Ref: 14 CFR 29.562(b)

This memorandum documents concurrence with an equivalent level of safety (ELOS) finding for Aerolite GmbH project ST7135NY-R on the Agusta Westland AW-139 helicopters.

Background

Aerolite, GmbH applied to have its European Aviation Safety Agency (EASA) Supplemental Type Certificate (STC) No.10042079 validated by the FAA for EMS equipment installed on the AW139 model helicopters. The EMS cabin configuration includes a multi-mission floor with integrated seat tracks installed on top of the helicopter original floor and EASA Technical Standard Order (ETSO) approved F+E Medical Seat installed on the individual Aerolite swiveling adapter in order to add functions of tracking and swiveling to the seat during flight. The swiveling adapter is installed between the F+E single seat and the multi-mission floor.

The ETSO F+E seat without the adapter has been dynamically tested in accordance with EASA Certification Standards (CS) and Code of Federal Regulations (CFR) 29.562(b) requirements. The complete seat assembly with the swiveling adapter was not dynamically tested however. EASA approved this installation through an alternate means of compliance (AMOC) based on a static test of the seat and adapter combination with the application of the peak loads obtained during the dynamic test of the seat specified in the ETSO approval. Based on this demonstration, the FAA has determined that an ELOS has been demonstrated to 14

CFR 29.562(b). The technical requirements for the ELOS were outlined in FAA Issue Paper C-1.

Applicable regulation(s)

§ 29.562(b)

Regulation(s) requiring an ELOS finding

§ 29.562(b)

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

Although the Aerolite, GmbH medical seat installation was not shown to be directly compliant with the requirements of § 29.562(b), an equivalent level of safety finding can be based on the successful static test of the seat and adapter combination using the peak loads of an approved similar TSO seat installation.

Taking into consideration the above, Aerolite demonstrated an ELOS with the requirements of CFR 29.562(b) by a rational analysis based on:

1. ETSO of the F+E Medical Seat
2. Static test of the approved TSO seat with the swiveling Adapter
3. Similarity between the approved TSO approved seat and the proposed seat with the swiveling adapter
4. Ultimate strength of the multi-mission integral seat tracks determined by test taking into account the effects of floor deformation per §29.562(b)(3).

Explanation of how design features or alternative standards provide an equivalent level of safety to the level of safety intended by the regulation

Based on the successful static test of the seat and adapter combination and the ultimate load test of the integral floor track, the FAA finds that the design does provide an equivalent level of safety for the seat and adapter combination equivalent to § 29.562(b)

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project Issue Paper C-1. This memorandum provides standardized documentation of the ELOS finding that is non-proprietary and can be made available to the public. The Rotorcraft Directorate has assigned a unique ELOS memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS memorandum number should be listed in the STC data sheet under the certification basis.

As example:

*Equivalent Level of Safety Finding has been made for the following regulation:
§ 29.562(b) Emergency Landing Dynamic Conditions (documented in Rotorcraft Directorate
ELOS Memo ST7135NY-R-C-1)*

Rotorcraft Directorate,
Aircraft Certification Service

Date

ELOS Originated by: New York ACO	Gaetano Sciortino – NYACO Manager	Routing Symbol ANE-170
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