



# Federal Aviation Administration

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## Memorandum

Date: October 12, 2010

To: Manager, Chicago Aircraft Certification Office, ACE-115C

From: Manager, Rotorcraft Directorate, ASW-100

Prepared by: Gregory J. Michalik, ACE-116C

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Snaky Creek Enterprises LLC dba Spectrum Aeromed's Project to Install Equipment Transport Deck into Agusta Model A109E with factory installed EMS interior, FAA Project # ST7436CH-R

ELOS Memo#: ST7436CH-R-C-1

Regulatory Ref: Title 14, Code of Federal Regulations (14 CFR) §§ 27.807(a)(1) and 27.807(b)(1)

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This memorandum informs the certificate management aircraft certification office of an evaluation made by the Rotorcraft Directorate on the establishment of an equivalent level of safety finding for the Agusta Model A109E.

### **Background**

Spectrum Aeromed is applying for a STC for a carry-on medical equipment mount (ITS Deck). This mount secures in the same fashion to the original equipment manufacturer (OEM) provisions for the OEM stretcher and will accommodate carry on medical equipment (Infant Incubator). The installation of the proposed ITS Deck, with the carry-on medical equipment (Incubator) secured to it, will obstruct the aft left side cabin exit which is an emergency exit for the passengers in the aft cabin. The remaining cabin exits would be unaffected.

### **Applicable regulation(s)**

14 CFR § 27.807, Emergency exits – paragraphs (a)(1) and (b)(1):  
(a) *Number and Location.*

- (1) There must be at least one emergency exit on each side of the cabin readily accessible to each passenger. One of these exits must be usable in any probable attitude that may result from a crash;
- (b) *Type and operation.* Each emergency exit prescribed by paragraph (a) of this section must—
- (1) Consist of a movable window or panel, or additional external door, providing an unobstructed opening that will admit a 19-by 26-inch ellipse;

### **Regulation(s) requiring an ELOS**

14 CFR §§ 27.807(a)(1) and 27.807(b)(1)

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

This installation will allow for medical crews to use life-saving equipment such as an incubator for critically ill infant transportation. The medical crew and patient in the passenger cabin will have access to the existing aft right side cabin exit and also the forward left side exit via a short egress passageway. Also, the aft left door is operable from the inside while the ITS Deck is installed. With the Incubator hood and the infant out of the incubator, access to the aft side left window increases and with the incubator off the ITS deck, an obstructed opening is provided. The usage of the ITS Deck will not affect the remaining emergency exits and doors.

The currently approved OEM medical interior allows for a non-ambulatory patient to be secured to a stretcher that is in front of the left side cabin emergency exit. If certain, life-saving equipment is needed, such as an incubator for infant transports, the only usable position for the equipment is mounted on the Spectrum Aeromed ITS Deck in the vicinity of the aft cabin exit in the Agusta A109 helicopter.

The Spectrum Aeromed STC will require that emergency training will be conducted annually by the operator. The unobstructed opening that will admit a 19-by 26-inch ellipse is required by 14 CFR § 27.807(b)(1) for standard passenger carrying operations. The typical passenger will not receive any specific emergency training other than the required safety briefing and passenger information cards. The air ambulance operator will be required to have specific emergency training for the medical crew and the pilot. This emergency training will include annual classroom and drill training for this specific aircraft configuration.

Another compensating factor is that the number of occupants is greatly reduced. The standard Agusta A109 is allowed to carry up to 6 passengers in the aft cabin. The aircraft with the ITS Deck configuration will only be allowed to operate with a maximum of 3 trained medical crew and one patient in the aft cabin. This will reduce the cabin capacity by 33%.

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

Spectrum Aeromed will show that the compensating factors are adequate by demonstrating that all occupants can safely evacuate the rotorcraft in an emergency situation when the ITS Deck installed and the incubator in place.

**FAA approval and documentation of the ELOS**

The FAA has approved the aforementioned Equivalent Level of Safety Finding as documented in Issue Paper C-1. This memorandum provides standardized documentation of the ELOS 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 Limitations and Conditions section of the STC as stated below:

Equivalent Safety Findings have been made for the following regulation(s):  
14 CFR § 27.807, Emergency exits – paragraphs (a)(1) and (b)(1) (documented in ELOS Memo ST7436CH-R-C-1)

*Mal R. Schulz*

*10-13-10*

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Manager, Rotorcraft Directorate,  
Aircraft Certification Service

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Date

ELOS Originated by Chicago ACO	Project Engineer Gregory J Michalik	Routing Symbol ACE-116C
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