Federal Aviation Administration

Memorandum

Date:	October 20, 2011
To:	Manager, Atlanta Aircraft Certification Office, ACE-115A
From:	Manager, Transport Airplane Directorate, ANM-100
Prepared by:	Robert Sprayberry, ACE-117A
Subject:	INFORMATION: Equivalent Level of Safety (ELOS) for Encroachment into Emergency Exits due to Seats and Interior Furnishings on Gulfstream Model GVI Series Aircraft (FAA Project Number TC8700AT-T)
Memo No.:	TC8700AT-T-C-7
Reg. Ref.:	§§ 21.21(b)(1), 25.807, 25.809(b), and 25.813(c)(2)(ii)

The purpose of this memorandum is to inform 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 Gulfstream Model GVI series of aircraft.

Background

Gulfstream has proposed to install interior furnishings adjacent to the overwing exits on their new Model GVI airplane that, when placed in their most adverse configuration and location (i.e., not a placarded taxi, take-off, and landing position), result in obstructions that are significantly greater than those defined as “minor obstructions” under the currently issued guidance for compliance findings against § 25.813(c)(2)(ii).

A**pplicable regulation(s)**

§§ 21.21(b)(1), 25.807, 25.809(b), and 25.813(c)(2)(ii)

Regulation(s) requiring an ELOS

§ 25.813(c)(2)(ii) [Amdt 25-116]

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

In order to demonstrate an ELOS with § 25.813(c)(2)(ii) at Amendment 25-116, Gulfstream will demonstrate that of a pair of GVI overwing emergency exits, both partially obstructed by seats and/or other furnishings, provides equal to or better egress capabilities of a standard, unobstructed Type III emergency exit.

Gulfstream will also provide the following compensating factors for the proposed obstructions:

- Multiple, redundant egress paths,
- Type I main entry door on left side of the aircraft, and
- Optimal location of emergency exits.

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

Gulfstream will demonstrate an ELOS is provided in the following ways:

Gulfstream will demonstrate, via Latin Squares testing, that the egress capabilities of a pair of GVI overwing emergency exits, both partially obstructed by seats and/or other furnishings, is equal to or better than the egress capabilities of a standard, unobstructed Type III emergency exit.

The following details are also provided on how the noted compensating factors add to the level of safety:

> Multiple, redundant exits - Having two overwing emergency exits per side, designed to be deployed at the same time to provide multiple egress paths, will help to reduce problems caused by passenger panic and congestion.
>
> Type 1 main entry door on the left side of the aircraft – Provides an additional non-ditching emergency exit in excess of the required emergency exits in the passenger cabin; this in turn will provide improved emergency egress rates.
>
> Optimal location of emergency exits - The location of the exits in the passenger compartment will provide easier identification, awareness, and access than other possible exit arrangements.

FAA approval and documentation of the ELOS

The FAA has approved the aforementioned ELOS finding in project Issue Paper C-7. This memorandum provides standardized documentation of the ELOS 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. This ELOS memorandum

number should be listed in the type certificate data sheet under the Certification Basis section.. An example of an appropriate statement is provided below.

Equivalent Safety Findings have been made for the following regulation(s):

§ 25. 813(c)(2)(ii), “Emergency Exit Access” (documented in TAD ELOS Memo TC8700AT-T- C-7).

Original Signed by

Franklin Tiangsing	November 1, 2011
Manager, Transport Airplane Directorate, Aircraft Certification Service	Date

ELOS Originated by Atlanta ACO:	Robert Sprayberry	ACE-117A