Exemption No. 9676

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98057-3356

In the matter of the petition of **Enflite, Inc.** for an exemption from § 25.813(e) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2007-28817**

GRANT OF EXEMPTION

By letter dated May 31, 2007, Mr. Ken Arnold, QA Manager, Enflite, Inc., 105 Cooperative Way, Georgetown, Texas 78626, petitioned the Federal Aviation Administration (FAA) for an exemption from the requirements of § 25.813(e) of Title 14, Code of Federal Regulations (14 CFR). The proposed exemption, if granted, would permit relief from the requirement that prohibits installation of interior doors between passenger compartments. The proposed exemption is requested specifically for installation of executive interiors on Bombardier Models BD-700-1A10, BD-700-1A11, and all variants of the CL-600 airplane that have been designated as "private use, not for hire, not offered for common carriage."

The petitioner requests relief from the following regulations:

> **Section 25.813(e), Amendment 25-46** – This regulation prohibits installation of interior doors between passenger compartments.

Summary of the petitioner's supportive information:

Following is a summary of the petitioner's supportive information. The complete petition can be found in docket FAA-2007-28817 of the Federal Document Management System, which can be found on the Internet at http://www.regulations.gov.

The petitioner requests exemption from 14 CFR 25.813(e) in order to install doors in partitions between passenger compartments of the above-referenced airplanes which are registered in the US and used for private/corporate transport. Enflite proposes alternative design requirements to provide an equivalent level of safety appropriate to the operation of such airplanes equipped with doors in cabin partitions.

Enflite requests relief from the standard public comment period because a public comment period was applied for the same exemption for another Bombardier BD700-1A10 airplane, with no comments received.

The BD-700-1A10, BD-700-1A11, and all variants of CL-600, when configured for private/corporate operations have the same passenger cabin size and layout and the same type of interior. The BD-700-1A11 is a derivative of the BD-700-1A10, and both are on Type Certificate No. T00003-NY. All of the CL-600 variants have a common Type Certificate, No. A21EA.

The petitioner states that the airworthiness standards for transport category airplanes were primarily written for airplanes with seating capacities of up to 500, used to carry fare-paying passengers. The BD-700-1A10 and BD-700-1A11, however, are type certified for a maximum of 19 passengers, and outfitted exclusively for private/corporate use. While some CL-600 variants are type certified for up to 90 passengers, this exemption petition requests a specific limitation of this exemption to airplanes certified for 19 passengers or less. Enflite contends that airplanes specifically designed for corporate service, whether private or charter, should be eligible by exemption for certain cabin features and facilities which do not comply with the full requirements of 14 CFR part 25, provided an equivalent level of safety is provided and can be demonstrated.

The petitioner says that aircraft specifically designed and outfitted for private/corporate operation generally carry passengers who are very familiar with the specific aircraft on which they travel. The crew of a corporate aircraft has *day* to *day* contact with their private/corporate passengers, thus simplifying and reinforcing communication about safety procedures and concerns. These aircraft are generally operated continuously by a limited number of crewmembers who are intimately familiar with the specific aircraft involved, further enhancing the safety environment. The petitioner believes that these factors provide a level of safety not easily achieved in air carriers. Thus, Enflite contends, air carriers require a more complete set of regulatory safety features in order to achieve the same result. Enflite has incorporated mechanical features in its cabin door design which will enhance the safety of the BD-700-1A10, BD-700-1A11, and all variants of CL-600 aircraft equipped with a partition and door dividing the passenger seating area.

Description of the aircraft, partition, and door

> **1.** The cabin of the above-referenced airplanes is approximately 8 feet wide. A side corridor is impractical so, to produce a private area, it is necessary to divide the cabin full width laterally. Installed doors would be sliding pocket doors which retract into the partition on one side of the airplane. The doors will require a retracting footer because, with a cabin head-room of 6 to 7 ft, the door must slide downward tangential to the fuselage contour. The door would be frangible, capable of being broken open by a 5th percentile female in an emergency. It would have blow-out capability for decompression. Since a partition and door could be installed so that passengers could be seated forward or aft of it, the door is designed to be frangible in either direction, allowing access to emergency exits in front of or behind the partition and door.

2. Partitioning the seating area with a door installed would allow one section of passenger seating area to be used as a private office or bedroom during long flights. Proposed door(s) would have a placard requiring they be open for take-off and landing.

3. Door(s) would have two ways of being locked in the open position. The probability of unlocking because of distortion of the fuselage in an emergency landing would be remote. Either locking means alone will be capable of supporting the inertia loads specified in 14 CFR 25.561.

4. An amber light will be installed in the cockpit to alert the crew when the doors are not open. The lighted annunciator will be controlled by the cockpit "No Smoking" switch and will be on whenever the "No Smoking" signs are on and a door is closed. In this condition, the annunciator will remain illuminated until the doors are all secured in the open position, at which time it will extinguish.

5. The emergency exit sign requirements will be addressed separately to ensure that the level of passenger guidance required to find an exit will be provided. Because there are often differences between the individual airplanes' interior arrangements, this will be customized on each aircraft.

6. The passenger information card will contain a section describing the action of the door, the emergency features it includes, and instructions for latching the door open for take-off and landing.

The petitioner believes that the safety features described above will ensure that there is always a clear path through any partition to an emergency exit. If some extreme condition should result in a door being closed or partially closed after an accident, there are simple, failsafe means to get through the door and reach an exit. The frangibility feature will be tested using a 5^{th} percentile female. The resulting aperture will be demonstrated to be large enough to allow a 95^{th} percentile male to pass through.

The petitioner believes that the above features address the basic issues involved in a passenger finding and reaching an exit in an emergency. The petitioner has also presented additional safety parameters inherent in corporate operation, and maintains that the exemption as requested would provide a level of safety for passengers in a BD-700-1A10, BD-700-1A11, and all variants of CL-600 that is equal to that required for commercial carrier aircraft.

Public interest

Enflite believes that the design of the BD-700-1A10, BD-700-1A11, and CL-600 pocket door, with its combination dual latchable sliding door and cabin partition, meets or exceeds the level of safety required by 14 CFR 25.813(e) because it permits absolute access by all passengers to all of the aircraft's normal and emergency exits. Enflite believes that the restrictions of § 25.813(e) were primarily aimed at large commercial transport category aircraft used in part 121 operations.

Enflite says that, unlike passengers in those larger aircraft, all BD-700-1A10, BD-700-1A 11, and CL-600 passengers are only steps away from the nearest emergency exit.

Enflite believes that installation of the combination dual latchable sliding door and cabin partition is in the public's best interest because it will permit the conduct of important business meetings which, because of their sensitivity, require privacy. The petitioner contends that an enormous amount of commercial activity occurs on board the US general aviation fleet and that such commercial activity, including private business meetings where important commercial decisions are made, is vital to maintaining the competitiveness and overall strength of the US economy. Sick or infirm passengers can be more comfortably transported with the divided cabin configuration as well.

Enflite previously received Exemption 8722 for the Falcon 900/900EX, docket FAA 2006-24000. The BD-700-1A10, BD-700-1A11, and CL-600 airplanes with the Enflite pocket door installation are direct competitors with Dassault Falcon's 900/900EX. Enflite states that denial of this petition would put Enflite and its customer Midcoast Aviation at a disadvantage in the competitive general aviation marketplace for executive aircraft sales. This would not only be unfair but would have a detrimental effect on the welfare of Enflite's Georgetown, Texas and Woodland, Washington workforce (almost 150 strong) as well as on the welfare of its customer Midcoast Aviation (almost 500 strong) in St Louis, MO, and on hundreds of vendors across the country who supply parts and labor in connection with the sales of Enflite and Midcoast Aviation products.

Public Comment

No summary of this petition was published in the Federal Register. The nature of this exemption is effectively identical to those of previous petitions for which there were no public comments received.

The FAA's analysis/summary is as follows:

> The FAA considers the petitioner's proposal to be in the public interest for the same reasons as those previously stated by the petitioner.
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> As more and more transport category airplanes have been configured (or re-configured) for "private, not-for-hire, not for common carriage" use, the FAA has given considerable attention to the issue of appropriate regulation of such airplanes. Some of the current regulations governing design certification of transport category airplanes are not compatible with operators' desire to use these airplanes for private use, not-for-hire, not for common carriage operations. As a result, we have received a number of petitions for exemption from certain regulations. We have granted such exemptions when we find that to do so is in the public interest and does not adversely affect the level of safety provided by the regulations. We recently published a notice of proposed rulemaking, Notice No. 07-13, "Special Requirements for Private Use Transport Category

Airplanes" (72 FR 38732, July 13, 2007), which, if issued, will obviate the need for case-by-case review of individual petitions for exemption.

Interior Doors

The placement of interior doors is clearly quite significant to the owner/operator of the private or corporate use airplane. Operators consider availability of private meeting rooms and bedrooms to be essential. Therefore, flexibility to partition the airplane into individual rooms or compartments, such as private meeting rooms or bedrooms, is paramount to an acceptable interior. The FAA acknowledges the desirability of these features from the operator's point of view.

When the regulations pertaining to interior doors were adopted, they did not necessarily consider "rooms." They considered two possible types of interior doors in a passenger compartment—an interior door between passenger compartments, and one between the exit and the passenger compartment.

Until recently, only the first type of door was prohibited by § 25.813(e). But now part 25, as amended by Amendment 25-116, prohibits interior doors between the exit and the passenger compartment. In addition, Amendment 121-306 prohibits these doors in airplanes operated under 14 CFR part 121 that were manufactured after November 27, 2006. Amendments 25-116 and 121-306, titled "Miscellaneous Cabin Safety Changes," were published in the Federal Register on October 27, 2004.

It is beyond the scope of this exemption to permit operation in part 135. Any interior door installed would be required to be deactivated (requiring tools and a maintenance action in order to reactivate it) in order for it to be considered for operation in part 135 service.

For airplanes configured for "private, not-for-hire" use, there are four different categories of doors in the passenger cabins. For all four of these categories, the compartment may be occupied during takeoff and landing.

Category 1 is a door in a compartment that is less than the full width of the airplane. There will be an aisle on the outside of the compartment. Only the occupants of the compartment must use the door to reach an exit.

Category 2 is a door in a compartment and is the same as **Category 1** except there is a single emergency exit or pair of emergency exits within the compartment.

Category 3 is a door or doors in a compartment that is the full width of the airplane. There are passengers seated on both sides of the door(s) and the main aisle leads out of or passes through the compartment. This compartment does not have any emergency exits.

Category 4 is a door in a compartment that is the full width of the airplane. Passengers are seated on both sides of the door, and there is an exit in the compartment.

After considerable deliberation, the FAA has concluded that, in regard to the installation of interior doors between passenger compartments, not all interior doors are equivalent. We have determined that the following requirements will produce an adequate level of safety for airplanes operated in "private use."

1. To maximize the level of safety, doors in **Categories 2, 3, or 4** installed across the main cabin aisle must open and close in a transverse direction. The direction of motion of the door must be at a right angle to the longitudinal axis of the airplane. This will tend to minimize the chance that the inertia forces of an accident could force the door closed. A "pocket door" is one example of such a design.

2. Redundant means are necessary to latch doors open for takeoff and landing. Each latching means must be capable of retaining the door in the takeoff and landing position under the inertia forces of § 25.561.

3. Each interior door must be frangible in case it becomes jammed in the closed position in flight or during taxi, takeoff, or landing. Frangibility is meant to ensure that, if a door is jammed closed, occupants can still escape in either direction and emergency equipment can be moved. Frangibility may be demonstrated in either of the following ways.

- A 5^{th} percentile female can break through the door, creating a large enough opening that a 95^{th} percentile (or larger) male can pass through. (See Advisory Circular 25-17, "Transport Airplane Cabin Interiors Crashworthiness Handbook," paragraph 43b(2)).

- A 5th percentile female can break a hinge on the door, or a hinge on a smaller door within the door, so that the door can swing enough to allow a 95th (or larger) percentile male to pass through the opening with the door swung open. This evaluation must be made with any cabin furnishing or equipment that could limit the swing arc of the door installed and then placed in the most adverse position. In using this approach, one must consider the possibility that the door is physically jammed in the closed position by distortion of the fuselage or furnishings. This possibility must be considered even if the door normally translates into the open and closed positions.

4. Doors that fall into **Category 1** must be in the open position during taxi, takeoff, and landing only when the compartment is occupied.

5. Doors that fall into **Categories 2, 3, or 4** must be in the open position during taxi, takeoff, and landing, regardless of occupancy.

6. Because of the possibility that a door could remain closed when it should not be, the FAA has determined that a higher level of awareness is required to address this issue. Because of the relative complexity of the cabin interior, we have determined that inspection by flight attendants prior to takeoff and landing is not sufficient to verify that interior doors are in the proper position. Some type of remote indication is considered necessary. The petitioner's proposal to provide remote indication to the flightcrew is considered adequate.

The Grant of Exemption

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 40113 and 44701, delegated to me by the Administrator, Enflite, Inc., is hereby granted an exemption from 14 CFR 25.813(e), Amendment 25-46. The petition is granted to the extent necessary to allow Enflite, Inc., to install an executive interior on "private, not-for-hire, not for common carriage" Bombardier Models BD-700-1A10, BD-700-1A11, and all variants of the Model CL-600 airplanes. Accordingly, this exemption allows installation of interior doors between passenger compartments. This exemption is subject to the following provisions. Provisions 1 through 5 must be documented as operating limitations in the limitations section of the Airplane Flight Manual.

1. The airplane is not operated for hire or offered for common carriage. This provision does not preclude the operator from receiving remuneration to the extent consistent with 14 CFR part 125 and part 91, subpart F, as applicable.

2. Each door between passenger compartments must be frangible in both directions.

3. Doors that fall into **Category 1** must be in the open position during taxi, takeoff, and landing only when the compartment is occupied or when passengers must pass through the compartment to reach an emergency exit.

4. Doors that fall into **Categories 2, 3, or 4** must be in the open position during taxi, takeoff, and landing, regardless of occupancy.

5. Appropriate procedures and means must be established to signal the flightcrew when any door between passenger compartments is closed and to prohibit takeoff or landing when a door between passenger compartments is not in the proper position.

6. Doors between passenger compartments must have dual means to retain them in the open position, each of which means must be capable of withstanding the inertia loads specified in § 25.561.

7. Doors in **Categories 2, 3, or 4** that are installed across a longitudinal aisle must translate laterally to open and close.

8. Any interior door installed must be deactivated so that it would require tools and a maintenance action in order to reactivate it in order for it to be considered for operation in part 135 service.

Issued in Renton Washington, on April 4, 2008.

/s/Ali Bahrami
Ali Bahrami
Manager, Transport Airplane Directorate
Aircraft Certification Service