Exemption No. 10840

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

In the matter of the petition of **Bombardier Aerospace** for an exemption from § 25.809(a) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2012-1238**

GRANT OF EXEMPTION

By letter dated February 11, 2013, Mr. Keith Barnett, Airworthiness Manager, CSeries, 400 Côte-Vertu Road West, Dorval, Quebec Canada H4S 1Y9, petitioned the Federal Aviation Administration (FAA) for an exemption from the requirements of § 25.809(a) of Title 14, Code of Federal Regulations (14 CFR). This exemption grants partial relief from the outside-viewing requirements for the Bombardier CSeries Model BD-500-1A10 and BD-500-1A11 airplanes.

The petitioner requests relief from the following regulation:

> **Section 25.809(a), Amendment 25-116 –** (a) Each emergency exit, including each flightcrew emergency exit, must be a moveable door or hatch in the external walls of the fuselage, allowing an unobstructed opening to the outside. In addition, each emergency exit must have means to permit viewing of the conditions outside the exit when the exit is closed. The viewing means may be on or adjacent to the exit provided no obstructions exist between the exit and the viewing means. Means must also be provided to permit viewing of the likely areas of evacuee ground contact. The likely areas of evacuee ground contact must be viewable during all lighting conditions with the landing gear extended as well as in all conditions of landing gear collapse.

The petitioner supports its request with the following information:

This section quotes the relevant information from the petitioner's request. The complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at http://regulations.gov, in Docket No. FAA-2012-1238.

> **Background:**
> Bombardier Aerospace (BA) has encountered difficulties complying with the requirement of 14CFR § 25.809(a) for the CSeries airplane models BD-500-1A10 (CS100) & BD-500-1A11 (CS300), with respect to the viewing of the ground contact area under all

lighting and landing gear conditions for flight crew and over wing exits. Current designs are such that flight crew members are able to view the outside conditions from the flight crew compartment window in daylight conditions, but cannot view the evacuee ground contact area as required by 14CFR § 25.809(a). In the case of lower wing airplanes with over wing exits, like models BD-500-1A10 (CS100) and BD-500-1A11 (CS300), it is not feasible to view the ground from the exit location. Therefore, compliance with the requirement for viewing of the ground contact area under all lighting and landing gear conditions is not possible.

Considering the above, BA requests an exemption from compliance with 14CFR § 25.809(a), with regards to:

a) Viewing of the ground contact area under all lighting and landing gear conditions for flight crew exits;

b) Viewing of the ground contact area under all lighting and landing gear conditions for over wing passenger exits.

The CSeries airplane models BD-500-1A10 (CS100) & BD-500-1A11 (CS300) will nonetheless comply with anticipated future harmonized requirements as indicated in the EASA CRD to NPA 2010-11 and now incorporated in EASA CS 25.809(a) at Amdt 12, and specific conditions imposed by the authorities to allow such an exemption.

How Our Request Would Benefit The Public as a Whole:

Granting this exemption would benefit the public as a whole, because it:

a) Avoids waste of resources to meet some aspects of the present regulation which will be changed in the future due to recognized implementation difficulties.

b) Allows the CSeries aeroplane models BD-500-1A10 (CS100) & BD-500-1A11 (CS300) designs to meet EASA, FAA and TCCA anticipated future harmonized regulation preventing competitive disadvantage due to additional design/manufacturing complexity and increased weight.

c) Avoids additional airline operation costs associated with:
- maintenance/spare parts for a more complex viewing system;
- fuel consumption/emissions produced by additional weight of such system.

Reasons Why the Exemption Would Not Adversely Affect Safety:

Granting this exemption would not affect safety, because:
a) As stated under the sections titled Summary and Background of the 14 CFR Final Rule, the objective was not to address a known safety issue, but to update the regulation to catch-up with industry state-of-the-art and design practices.

b) The CSeries aeroplane models BD-500-1A10 (CS100) & BD-500-1A11 (CS300) design is consistent with industry present state-of-the-art and design practice.

c) The CSeries aeroplane models BD-500-1A10 (CS100) & BD-500-1A11 (CS300) will comply with anticipated future harmonized requirements as written in the EASA CRD to NPA 2010-11 and now incorporated in EASA CS 25.809(a) at Amdt 12, and specific conditions in Appendix B of TCCA Issue Paper OS-07.

d) The exterior views required in EASA CS 25.809(a)(2) and (a)(3) at Amdt 12 will be demonstrated by a combination of analysis and test.

Federal Register publication

The FAA has determined that good cause exists for waiving the requirement for Federal Register publication for public comment because the request is identical in all material respects to previously granted exemptions for which no comments were received, and the exemption, if granted, would not set a precedent.

The FAA's analysis

The FAA has reviewed the information provided by Bombardier and has concluded that granting this exemption is in the public interest for the reasons discussed below. The FAA has determined no adverse impact on safety if an occupant cannot simultaneously see conditions immediately outside the exit door and the ground-contact point under all lighting and landing-gear conditions. The impact of the regulation, as codified, went beyond what was envisioned in the rulemaking process for the overwing exits on some airplanes.

Flight Crew Exits:

At the time the NPRM and final rule for Amendment 25-116 were written, the primary focus was on passenger exits, although the FAA intended to have consistency between passenger and crew exits as well. Thus, the requirements are identical for the two exit categories. Nonetheless, flightcrew exits have several characteristics that influence the effectiveness of the outside-viewing means, and may justify a different approach.

First, some flightcrew exits do not provide an unobstructed view of the point of ground contact from a flight-deck window because the fuselage curvature blocks passenger viewing from the exit to the ground-contact point. In this case, the value in illuminating that point is questionable, since the person using the exit would not be able to see the illuminated location on the ground anyway. Of course, more sophisticated features such as cameras or optical scopes could be installed. However, these go beyond the intent of the requirement, assuming a flight-deck window is available, and has a typical field of view.

Second, flightcrew exits are generally used when the passenger exits are not available to the crew, or the situation demands more rapid egress than is possible by leaving the flight deck and moving to a passenger exit. In those cases, outside viewing of the specific ground-contact point is largely moot, because there is no alternative to using the flightcrew exit(s). As noted in the final rule, however, passengers should have a means to see outside the airplane to generally

assess conditions, even if the specific point of ground contact is not visible. Flight-deck windows typically satisfy this need.

Overwing Exits:

On many overwing exits, the location where the evacuee makes first contact on the ground is a considerable distance from the point from which they exit the passenger cabin. The distance the evacuee moves either forward or aft on the wing upper surface, and then down to the ground by escape slide, or by jumping off of the wing, or by sliding down the leading or trailing edge of the wing, makes it impossible to see the ground-contact point from inside the airplane because of the distance from the view inside the airplane to the ground, given fuselage curvature, or the wing itself blocking the view. Some commenters to the Notice of Proposed Rulemaking (Notice No. 96-9) made this point, and the FAA response was:

> With respect to the potential for the exit to be somewhat remote from the point where the evacuees would contact the ground, the FAA agrees that this may be the case. The intent of the requirement is to enable a person to ascertain whether to open an exit, and whether it is safe to evacuate through the exit, based on an assessment of the outside conditions. To the extent that the means used for determination of the former does not also allow an assessment of the ground, the FAA agrees that an additional viewing means may be necessary, and that the additional means may be somewhat remote from the exit. We have therefore reworded the amendment to allow for the dual purpose of the viewing means, and to distinguish the required locations of the two.

Our intent in this rule was that it is *not* necessary for a person to be able to view the ground-contact point while in position to open an overwing exit. The rule itself refers to the ground-contact view separately from the view of conditions outside the exit, but the intent of the rule was not clearly expressed in the rule language. The FAA worked with the European Aviation Safety Agency (EASA) to improve the rule language based on our experience applying this rule. EASA incorporated the improved language in their Certification Specifications (CS) at amendment 25/12, dated July 13, 2012. CS 25.809(a)(3) states:

> For non-over-wing passenger emergency exits, a means must also be provided to permit viewing of the likely areas of evacuee ground contact when the exit is closed with the landing gears extended or in any condition of collapse. Furthermore, the likely areas of evacuee ground contact must be viewable with the exit closed during all ambient lighting conditions when all landing gears are extended.

The FAA is considering rulemaking to harmonize this requirement with EASA.

The proposed configuration provides a level of safety consistent with the intent of the rule. The window does allow for outside viewing to assess the outside conditions prior to opening the exit. The evacuee can then open the exit and step out onto the wing and move along the wing to assess the conditions where they would make first contact to the ground. At that point, if the conditions were not acceptable, evacuees would search for another location from which to exit off of the wing. To enforce literal compliance that is more stringent than our original intent for the rule would result in an unnecessary burden on the petitioner.

The FAA's decision

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, Bombardier is hereby granted an exemption from 14 CFR 25.809(a) at Amendment 25-116. The exemption is granted to the extent necessary to allow Bombardier to partially comply with outside-viewing requirements for the overwing exits. Specifically, this exemption provides relief from the requirement that overwing exits permit viewing of the likely areas of evacuee ground contact when the exits are closed. This exemption allows viewing the first point of contact with the ground after the exit has been opened and the evacuee is on the upper surface of the wing, and to permit relief from the requirements that flightcrew emergency exits have a means to view outside conditions under all lighting and landing-gear conditions on the Bombardier CSeries Model BD-500-1A10 and BD-500-1A11 airplanes. Bombardier must demonstrate compliance with all other requirements of 14 CFR 25.809(a) at Amendment 25-116 for this airplane.

Issued in Renton, Washington, on August 8, 2013.

/s/ Jeffrey E. Duven

Jeffrey E. Duven
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service