

**Proposed Equivalent Safety Finding B-24 on CS 25.161(c)(1) – Trim**

**Applicable to Bombardier CSeries CS100 (BD-500-1A10)**

**Introductory note:**

The hereby presented Equivalent Safety Finding has been classified as an important Equivalent Safety Finding and as such shall be subject to public consultation, in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) of which states:

*"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."*

**Statement of Issue**

CS 25.161(c)(1) requires a demonstration of stick free longitudinal trim at not more than  $1.3V_{SR1}$ , with maximum continuous power and with the flaps retracted and in the take-off positions.

Under light weight conditions stick free longitudinal trim may not be achieved due to the Pitch Attitude Protection (PAP) in the flight control laws.

At low speeds corresponding to light weights, high thrust conditions, the CSeries CS100 (BD-500-1A10) aeroplane model can reach the PAP nose-up pitch attitude limit during a climb. As a result, the minimum speed that can be maintained in a trimmed condition is limited by the PAP and it will not be possible to demonstrate a stick free longitudinal trim at the speed defined in CS 25.161(c)(1).

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**Applicant proposal :**

In the case of the CSeries aircraft, the operational speeds can be up to 15kts above the  $1.3V_{SR1}$  speed, at the lighter weights due to limiting conditions, such a minimum control speed limits. The requirement to demonstrate stick free longitudinal trim at speeds below the operational speeds has no practical application and is not appropriate.

**Applicant Safety Equivalency Demonstration proposal :**

Bombardier Inc. (BA) proposes that the intent of CS 25.161(c)(1) is satisfied by demonstrating stick free longitudinal trim at the appropriate operational speeds for the conditions specified in CS 25.161(c)(1).