

**Proposed Temporary Deviations against CS 25.901(c) 'Powerplant General  
installation'  
and 25.1309 (b)(1)(ii) 'Equipment, systems and installation'  
'Powerplant installation'**

**Applicable to BD100-1A10 equipped with Honeywell AS907-2-1A  
(marketing name CL350).**

**Introductory Note**

The hereby presented deviation 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**

The current design of the Challenger 350 engine control system has been assessed against CS 25.901(c) and CS 25.1309 as outlined in CRI E-02 (and comparable TCCA Issue Paper P-01). CRI E-02 required that Bombardier Aerospace assess failures of the engine control system resulting in uncontrollable high thrust that could jeopardize safe operation of the aircraft.

In the subsequent safety analysis of the type certification design standard, BA has identified that certain failure conditions resulting in uncontrollable high thrust on one engine that could occur during the landing phase or a rejected take-off are not compliant because they result in potential Catastrophic effect and has not been shown

- to have a probability of 'Extremely Improbable' or
- to not result from a single failure.

BA has requested a time limited deviation from CS 25.901(c) and 25.1309(b)(1)(ii) (letter reference AW-BD1/14/454 dated 7 July 2014) to enable type certification to proceed to granting of approval for the Challenger 350 aircraft and future affected modifications or derivatives. The EASA deviation is requested for a period of four years after EASA issuance of the deviation. This will allow BA time to develop a modification to the engine control system that will remove the failure modes that could lead to a catastrophic failure condition.

Considering that:

- the applicant has committed together with Honeywell to develop and make available an improved Uncontrollable High Thrust design Change that will mitigate the effects of a UHT event within 4 years
- The risks due to UHT failure conditions on the improved BD100-1A10 equipped with AS907-2-1A engines will not exceed those for the current BD100-1A10 equipped with AS907-A-1A engines
- there is only one single failure condition that could result in UHT event (failure of the Fuel Metering Valve -FMV), and that the failure leading to UHT condition can potentially result in a catastrophic event has very limited exposure : it can only occur during take-off before reaching decision speed V1 or during the final phase of the approach below 200 ft above ground level
- the occurrence has a low probability

A temporary deviation with regards to 25.901(c) and 1309(b)(1)(ii) can be granted for the BD100-1A10 equipped with AS907-2-1A for 4 years. If practical, retrofit of the in-service CL350 fleet is requested by the Agency.