

**Proposed Special Condition on On-Ground Yaw Stabilisation flight control law – R\* law**  
**CS 25.107, 25.143 and 25.149 at Amendment 15**

**Applicable to Airbus A330-700L “Beluga XL”**

**Introductory note:**

The hereby presented Special Condition has been classified as an important Special Condition 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**

The Airbus A330-700L “Beluga XL” will be certified as a derivative cargo aircraft of the A330-300 aeroplane for the special purpose of transporting outsized cargo items, mainly aircraft components and subassemblies between the Airbus sites of its manufacturing / production locations.

In normal operating state, the A330-700L derivative is equipped with a permanent ground control law in the yaw axis to improve the aircraft controllability on ground (called RSTAR / R\* law). This yaw stabilisation law acts on the rudder and has a limited authority on the Nose Wheel Steering (NWS) to control a yaw rate target.

These aspects of controllability on ground are generally covered by current certification requirements as this law is permanently active in normal operating state. However, the following requirements CS 25.107, 25.143 and 25.149 at Amendment 15 must be complemented and interpreted via a dedicated Interpretative Material to consider this control law. The associated Interpretative Material is published for awareness only and it is not subject to public consultation.

The Special Condition addresses a novel design feature by introducing a new terminology new to the CS 25 and associated characteristics of the system.

**Proposed Special Condition B-14-700L**

**On-Ground Yaw Stabilisation Law - R\* law**  
**Applicable to A330-700L Beluga XL Large Aeroplane**

**1 – Definition**

The following definition shall apply:

- Yaw stabilisation law (RSTAR / R\*):

An automatic function within the electronic flight control system designed to improve stability in yaw axis on ground and to help controllability in case of engine failure on ground, acting on the rudder and on nose wheel steering.

The yaw stabilisation law is an integrated part of the electronic flight control system and can neither be armed, selected nor deselected by the pilot.

## **2 – Engine failure detection**

If the inherent characteristics of the aeroplane do not provide adequate indication that an engine is failed, an alerting system must be provided to give the pilot a clear indication of engine failure during take-off.

### **Interpretative Material Associated to the Special Condition B-14-700L**

#### **1 – VMCG demonstration** (ref: CS 25.149)

VMCG should be demonstrated with RSTAR law active only on the rudder part and NWS disconnected.

#### **2 – Control surfaces close to their limits** (ref: CS 25.143(m) as per A330-700L Special Condition SC B-02-700L)

A Special Condition B-02-700L “Electronic Flight Control Systems “EFCS- Control Surface Awareness” based on similar past SCs was issued on A330-700L “Beluga XL” derivative. This SC B-02-700L introduced a new paragraph CS 25.143(m) with the following content:

*“When a flight case exists where, without being commanded by the crew, control surfaces are coming so close to their limits that return to normal flight condition and (or) continuing of safe flight needs a specific crew action, a suitable flight control position annunciation shall be provided to the crew, unless other existing indications are found adequate or sufficient to prompt that action”.*

The wording “flight case” of this paragraph refers to any flight phase including ground phases. Consequently, the paragraph CS 25.143(m) created in SC B-02-700L is within this context applicable both in the air and on ground.