

# **Deviation Request ETSO-C172c#1 for an ETSO approval for CS-ETSO applicable to Cargo Restraint Strap Assemblies (ETSO-C172)**

## **Consultation Paper**

### **1 Introductory Note**

The hereby presented deviation requests shall be subject to public consultation, in accordance with EASA Management Board Decision No 7-2004 as amended by EASA Management Board [Decision No 12-2007](#) products certification procedure dated 11th 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.”

### **2 ETSO-C172#1 Cargo Restraint Strap Assemblies**

#### **2.1 Summary of Deviation**

Replacement of paragraph 5.5.8 of SAE AS5385C “Cargo Restraint Straps - Design Criteria and Testing Methods” by paragraph 5.5.8 of ISO 16049-1-2013 “Air cargo equipment - Restraint straps - Part 1: Design criteria and test requirements”.

#### **2.2 Original Requirement**

In paragraph 5.5.8 of SAE AS5385C “Cargo Restraint Straps - Design Criteria and Testing Methods” it is stated:

5.5.8 If the tested restraint strap assembly includes double stud fitting type end fittings conforming to either ISO 9788, for restraint of 22,250 N (5,000 lbf) ultimate load, or AS33601, for lower ultimate loads, (Figure 1, D3), the test procedure from 5.5.1 through 5.5.7 shall be applied and the strap assembly shall be additionally tested in accordance with 5.5.4 at 45° and 0° angles, with the tension load applied, in a sequence of separate tests, parallel and perpendicular to track centerline. Appreciation of test results shall be as per 5.5.7.

#### **2.3 Statement of issue**

On top of the strap assembly tension tests required by AS5385C paragraphs 5.5.1 through 5.5.7 in normal (90°) direction to the track surface the above paragraph 5.5.8 requires physical testing of the whole cargo strap assembly also at 45° and 0° angles parallel and perpendicular to the track centerline.

Paragraph 5.5.8 of ISO 16049-1-2013 contains an alternative provision that only the 90° load test may be performed under the provision that the subject model of double stud fitting used was separately tested by component tests at 45° and 0° angles under the same ultimate load.

## 2.4 Equivalent Level of Safety

Use of the alternative provision in paragraph 5.5.8 of ISO 16049-1-2013 and referring to suitable component tests performed on the double studs for the load directions of 45° and 0° angles to the track surface instead of physical test of the whole strap assembly.

The different load directions in 90°, 45° or 0° angles to the track surface have no influence on the load capability of the cargo strap assembly as the load transfer interface between the cargo strap webbing and the double stud remains the same. The cargo strap webbing loop can freely travel within the attachment eye of the double stud to properly transfer the load independent from the actual load angle. Therefore it is considered acceptable if the cargo strap assembly is only tested at 90° and the substantiation for the 45° and 0° angles is made based on double stud component tests.

## 2.5 EASA position

We accept the above equivalent level of safety.