Deviation Request ETSO-C90d A1#3 for an ETSO approval for CS-ETSO applicable to Cargo Pallets, Nets and Containers (Unit Load Devices) (ETSO-C90d A1)

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-C90d A1#3 Cargo Pallets, Nets and Containers (Unit Load Devices)

2.1 Summary of Deviation

Deviates from ETSO-C90d A1 and the referenced SAE AS36100A Section 3.2 Sizes by applying the analogous paragraph of SAE AS36100C defining the size "U".

2.2 Original Requirement

AS36100A par. *3.2 Sizes*

This Aerospace Standard provides for the following sizes of unit load devices, expressed as nominal dimensions in the overall plan form of a pallet or a container base, in mm (inches):

Size Code	Nominal Dimension
A	2235 X 3175 mm (88 x 125 in)
B	2235 x 2743 mm (88 x 108 in)
G	2438 x 6058 mm (96 x 238.5 in)
K	1534 x 1562 mm (60.4 x 61.5 in)
L	1534 x 3175 mm (60.4 x 125 in)
M	2438 x 3175 mm (96 x 125 in)
N	1562 x 2438 mm (61.5 x 96 in)
P	1198 x 1534 mm (47 x 60.4 in)
Q	1534 x 2438 mm (60.4 x 96 in)
R	2438 x 4978 mm (96 x 196 in)
S	1562 x 2235 mm (61.5 x 88 in)

2.3 Industry

SAE AS36100A Section 3.2 – Sizes - were based on the prior applied standard NAS3610 Rev. 10 originating in the late 80's of the last century and was based on industry needs and aircraft models available at this time. This NAS 3610 was then transferred into AS36100 in 2005 and stayed unchanged until AS36100C in preparation for (E)TSO-C90e in 2020.

The AS36100C introduced a new pallet size "U" (see Table 1) with related test configuration requirements. The "U" size pallet was created as a 'certified' version of the prior used 'non-certified' "PYB" pallet widely used in absents of a certification standard.

Table 1 - ULD sizes

Size Code	Nominal Dimension
A	2235 X 3175 mm (88 x 125 in)
B	2235 x 2743 mm (88 x 108 in)
G	2438 x 6058 mm (96 x 238.5 in)
K	1534 x 1562 mm (60.4 x 61.5 in)
L	1534 x 3175 mm (60.4 x 125 in)
M	2438 x 3175 mm (96 x 125 in)
N	1562 x 2438 mm (61.5 x 96 in)
P	1198 x 1534 mm (47 x 60.4 in)
Q	1534 x 2438 mm (60.4 x 96 in)
R	2438 x 4978 mm (96 x 196 in)
S	1562 x 2235 mm (61.5 x 88 in)
T	3175 x 4978 mm (125 x 196 in)
U	1397 x 2438 mm (55 x 96 in)

The proposed use of the "U" size net shall provide the industry a means to design a cargo pallet which provides the industry with a pallet size prior only available as a 'non-certified' ULD.
While the restraint condition in AS36100C for the 'U' sized net will be adhered (see below Restraint Condition (RC) U), we propose to test in accordance with AS36100A to have a common compliance demonstration across the ETSO-C90d_A1 certified pallets.

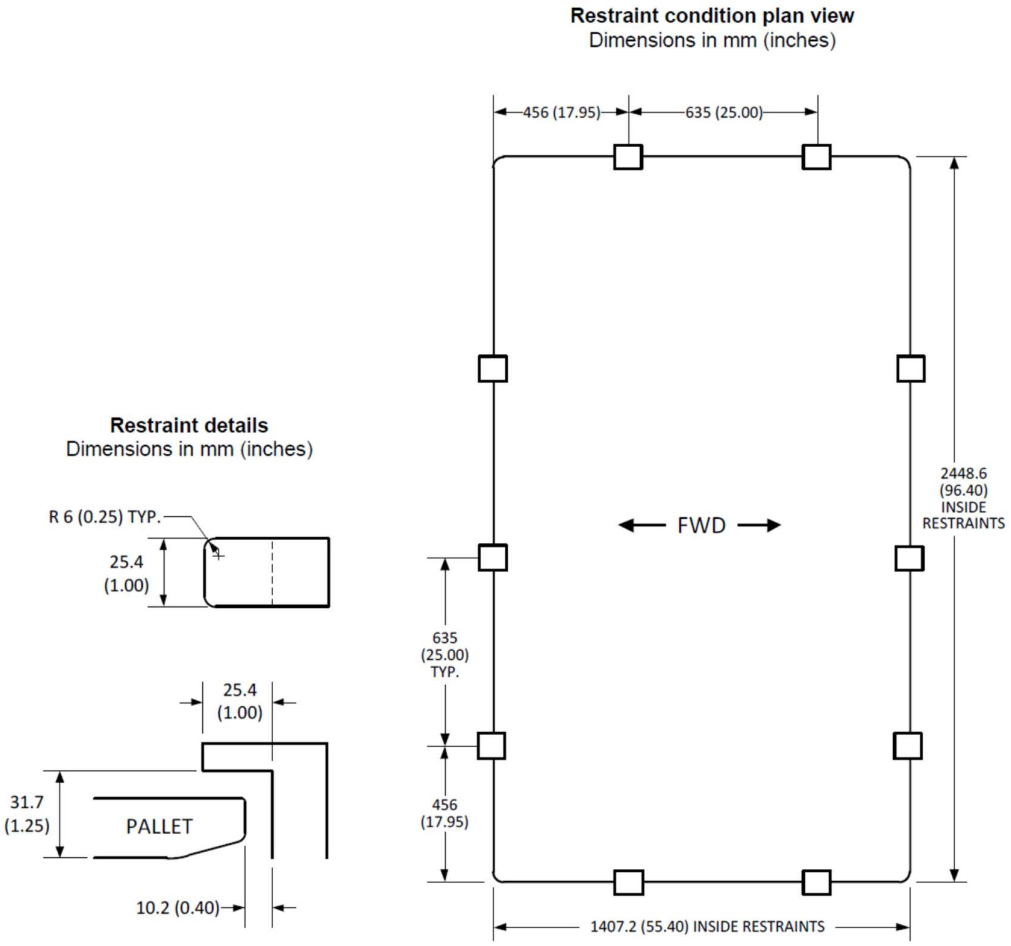
Note:
This inconsistency has been brought up and discussed in SAE committee AGE-2A with various ULD manufacturers, major aircraft OEMs and Regulators in order to amend the current standard and the (E)TSO. This inconsistency with the industry practice has been accounted for and resolved in the revision of this standard called AS36100C and has been used in the TSO-C90e as reference. We assume that ETSO-C90e will be harmonised with TSO-C90e.

RESTRAINT CONDITION (RC) U

Applicable to ULD configuration: U1

Applicable to: Containers, Pallets

Orientation: crosswise



Other testing conditions

Maximum ultimate loads, CG height and CG longitudinal and lateral eccentricities of ULD configuration.

Figure 1 – Restraint condition (AS36100C page 39 of 40)

ULD CONFIGURATION U1

Nominal base size 1397 x 2438 mm (55 x 96 in) - Type 2

Applicable to: Containers, Pallets, Nets

Minimum base area load: 10 kPa (209 lb/ft²)

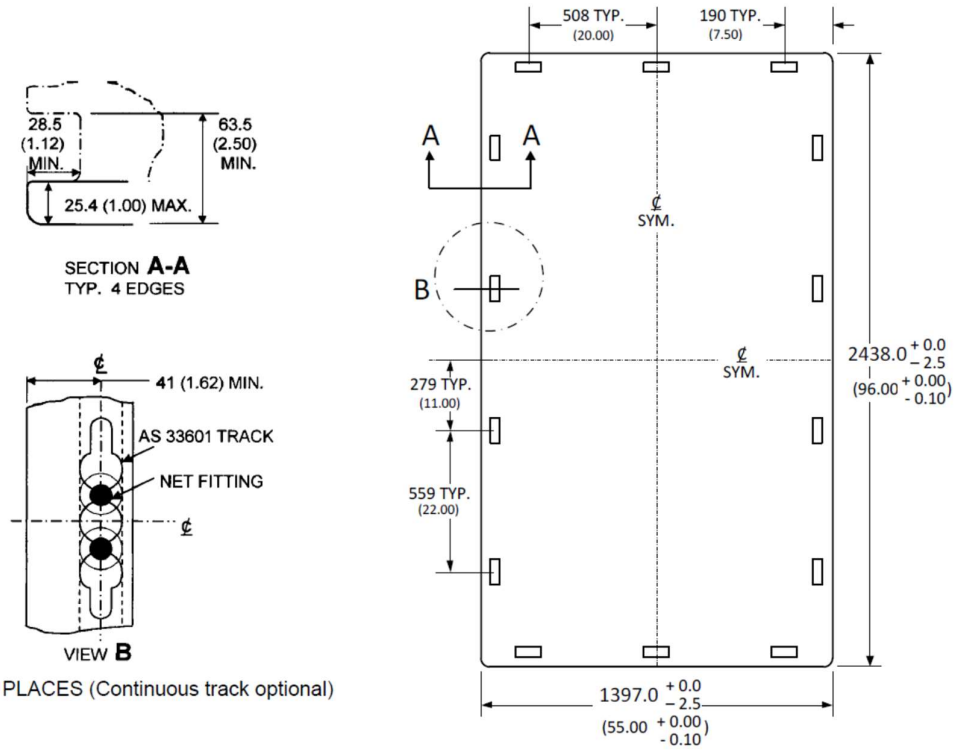
Table U1 - Ultimate load criteria

Ultimate Loads N (pounds)					CG height mm (inches)[1]	CG eccentricity %	
Forward	Aft	Side	Up	Down	Maximum	Longitudinal	Lateral
39650 (8950)	39650 (8950)	39650 (8950)	66100 (14900)	129000 (29000)	914 (36)	± 10	± 10

1 = for containers, 55% of maximum height, limited to the maximum shown

Configuration drawing

Dimensions in mm (inches)



Applicable testing restraint condition

RC **U** (see Section 8)

Figure 2 – ULD Configuration (AS36100C page 28 of 40)

2.4 Equivalent Level of Safety

The applicable requirements and testing standards are the ones identified in the current ETSO-C90d A1 applicable to all pallet sizes listed in Section 3.2 of AS36100A while the size, the restraint conditions (Figure 1) and the ULD configuration (Figure 2) including the tested loads are those from the SAE AS36100C.

In general, the Revision C of SAE AS36100 represents an up-dated version of this industry standard and is commonly regarded to be an improvement in certification of ULDs. AS36100C is currently referenced by the FAA TSO-C90e. Hence compliance demonstration to the requirements of AS36100A as referenced by ETSO-C90d A1, for the proposed 'U' size pallet of AS36100C, shall provide at least the same level of safety than for any other pallet identified in Section 3.2. of AS36100A.

2.5 EASA position

We accept the deviation.