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

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 Deviation Request

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

2.2 Summary of Deviation

Deviate from ETSO-C90d and SAE AS36100A Section 8 by using different testing restraint conditions.

2.3 Original Requirement

SAE AS36100A 8. TESTING RESTRAINT CONDITIONS {(RC) P}

"8.1 The typical testing restraint conditions specified in this Aerospace Standard were selected based on worst testing case analysis. They shall be used for testing the corresponding unit load devices configurations, and analysis or numeric simulation, if used, shall use the same assumptions.

8.2 Testing restraint condition pages are listed in Table 2 hereafter: […]"

TABLE 2 - TESTING RESTRAINT CONDITIONS

Restraint Condition (RC)	ULD Base (UC)	Nominal Dimensions mm (inches)	Upper Deck	Main Deck	Lower Deck	Length Wise[1]	Cross Wise[2]	Page
RC **A1**	A	2235 X 3175 (88 X 125)	X	X		X	X	27
RC **A1**	B	2235 X 2743 (88 X 108)	X	X		X	X	27
RC **A1**	M	2438 X 3175 (96 X 125)	X	X		X	X	27
RC **A2**	A	2235 X 3175 (88 X 125)			X	X	X	28
RC **A2**	B	2235 X 2743 (88 X 108)			X	X	X	28
RC **A2**	M	2438 X 3175 (96 X 125)			X	X	X	28
RC G	G	2438 X 6058 (96 X 238.5)		X		X		29
RC G	R	2438 X 4978 (96 X 196)	X	X		X		29
RC **K**	K	1534 X 1562 (60.4 X 61.5)			X		X	30
RC **L**	L	1534 X 3175 (60.4 X 125)			X		X	31
RC **N**	N	1562 X 2438 (61.5 X 96)	X	X	X	X	X	32
RC **N**	S	1562 X 2235 (61.5 X 88)	X	X	X	X	X	32
RC P	P	1194 X 1534 (47 X 60.4)			X		X	33
RC Q	Q	1534 X 2436 (60.4 X 96)			X		X	34
RC R	R	2438 X 4978 (96 X 196)		X			X	35

1 = with longest dimension parallel to aircraft centerline.

2 = with longest dimension perpendicular to aircraft centerline.

RESTRAINT CONDITION (RC) P

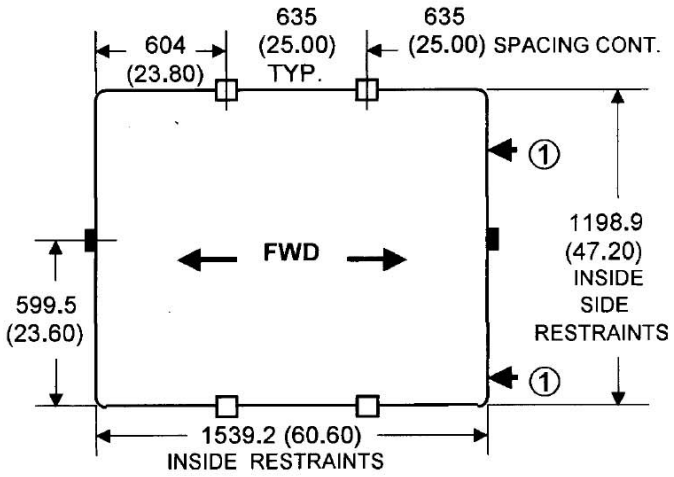
Applicable to ULD configuration P1

Applicable to: Containers

Orientation: crosswise

Restraint condition plan view

Dimensions in mm (inches)



①: During fore and aft testing, an evenly distributed horizontal force equal to 6 times the forward load shall be applied alongside the opposite pallet or container base edge to simulate a possible stack of up to 7 units.

2.4 Industry

Performed the fore and aft testing using 2 (instead of 1) stopper blocks on each side of the ULD in the fore-aft direction when stacking up to seven containers.

The restraint condition in AS36100A with two stopper blocks and a possible stack of seven units is based on conditions not used by the Industry. Indeed, one cargo aircraft manufacturer (Boeing) is allowing stacking up to seven units but using two stopper blocks; meanwhile, another cargo aircraft manufacturer (Airbus) allows the use of only one stopper block, but without stacking of ULDs.

Testing in the fore and aft directions using two stopper blocks represents the practical worst case scenario.

Note: This inconsistency has been brought up and discussed in SAE committee AGE-2A with various ULD manufacturers, Boeing, Airbus as well as FAA and EASA in order to amend the current standard and the (E)TSO. This inconsistency with the industry practice will be accounted for and resolved in the next revision B of SAE AS36100.

2.5 Equivalent Level of Safety

Revision B of SAE AS36100 will represent an up-dated version of this industry standard and is commonly regarded to be an improvement in certification of ULDs. Hence it provides at least the same level of safety than the previous Revision A.

In addition, the restraint conditions in AS36100A with one stopper block and a possible stack of seven units is based on conditions not used by the Industry. Indeed, one major cargo aircraft manufacturer (Boeing) is allowing stacking up to seven units but using two stopper blocks; meanwhile, another cargo aircraft manufacturer (Airbus) allows the use of only one stopper block, but without stacking of ULDs.

Testing in the fore and aft directions using two stopper blocks represents the practical worst case scenario. Nevertheless, proper limitation will be addressed in relevant user manual to avoid stacking configurations with only one cargo stopper installed.

2.6 EASA position

We accept the deviation.