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AUSTRALIAN GOVERNMENT

AUSTRALIAN DEFENCE STANDARD

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## **DEF(AUST)1000C PART 11/ Issue 3**

Dated Sep 2009

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**SUPERSEDING**  
DEF(AUST)1000C PART 11 /  
Amendment 1 (Issue 2)  
Dated March 2004

# **ADF PACKAGING; PART 11: UNITISATION STANDARD**

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Joint Logistics Unit (Victoria)  
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**AUSTRALIAN DEFENCE STANDARD**

**DEF(AUST) 1000C**

**ADF PACKAGING**

**PART 11 : UNITISATION**

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SEPTEMBER 2009

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**Prepared by the Defence Packaging Committee (DPC) under the Authority of the Defence Standardisation Coordination Group.**

**Specific inquiries regarding the application of this Standard to Requests for Tender or contracts should be addressed to the Procurement Authority named in the Request for Tender, or to the Quality Assurance Authority named in the contract, as appropriate.**

**This Standard is mandatory for use by the RAN, Australian Army and RAAF, and Contractors to the ADF.**

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**WARNING (1)**

**This Standard may call for the use of substances and test procedures that may be injurious to health if adequate precautions are not taken. It refers to technical suitability only and in no way absolves the supplier or user from statutory obligations relating to health and safety at any stage of manufacture or use.**

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**WARNING (2)**

**For timber products (ie packaging, dunnage) that are to be forwarded overseas please be aware of AQIS conditions on the export or import of timber products. Information on timber products is contained in DEF(AUST)1000, ADF Packaging, Part 10, AQIS Requirements, and AQIS Requirements for the Australian Wood Packaging Certification Scheme (IPSM-15) relevant information is contained at the following AQIS URL:**

**<http://www.daffa.gov.au/aqis/avm/military>**

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**WARNING (3)**

**Environmental Impact / Materiel Minimisation.**

**In order to comply with Defence waste minimisation policy, users are reminded of their obligations to maximise use of recycled materials and the intent of the National Packaging Covenant in material decisions. Further information is available at : <http://www.defence.gov.au/environment> - waste**

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.... DEF(AUST)1000C is issued in 20 parts, with each part sub-divided into Sections.  
The 20 parts are:

|          |  |
|----------|--|
| PART 1:  | General Information <sup>1</sup>   |
| PART 2:  | Packaging Requirements <sup>1</sup>  |
| PART 3:  | Packaging Practices and Materials <sup>1</sup>   |
| PART 4:  | Standard Packaging Test Procedures <sup>1</sup>  |
| PART 5:  | Marking of Packages <sup>1</sup>   |
| PART 6:  | Packaging of Dangerous Goods (Except Dangerous Goods Class 1); Packaging Requirements and Packaging Mediums <sup>1</sup> |
| PART 7:  | Packaging for Materiel Susceptible to Damage by Electrostatic Discharge <sup>1</sup>                                     |
| PART 8:  | Defective Packaging Reporting System <sup>1</sup>  |
| PART 9:  | Requirements for Reusable Containers <sup>1</sup>  |
| PART 10: | Australian Quarantine Inspection Service (AQIS) Requirements <sup>1</sup>  |
| PART 11: | Unitisation <sup>1</sup>   |
| PART 12: | Bar Code Symbolology <sup>1</sup>  |
| PART 13: | Packaging Material Catalogue   |
| PART 14: | Minimum Packaging Specifications of Commercial Items <sup>1</sup>  |
| PART 15: | Packaging Specifications and Classification Systems <sup>1</sup>   |
| PART 16: | Creative Brief Template  |
| PART 17: | Packaging ILS Checklist  |
| PART 18: | Life Cycle Analysis  |
| PART 19: | Caching  |
| PART 20: | Techniques for Deployment, Packaging and Storage for Tropical Conditions   |

<sup>1</sup>Denotes available at [http://www.defence.gov.au/dmo/lsd/standards/def\\_aust\\_1000.cfm](http://www.defence.gov.au/dmo/lsd/standards/def_aust_1000.cfm)

Two or more parts may apply to any one packaging requirement and it is essential that all parts be considered and used where appropriate.

**This PART of the Defence Standard concerns the dimensions of the standard unit loads.**

This Standard does not apply to the packaging of ammunition and explosives (for packaging information refer to EO Division – Munitions Branch). Further guidance available at URL: TBA

It should be noted that this standard might not be applicable to the packaging of materiel already covered by detailed contractual packaging or production data. Examples are, but not limited to, ammunition, explosives, non-commercial foodstuffs, POL, vehicles, small craft, clothing, arms, armament, telecommunications equipment and systems.

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## 1. PURPOSE

- 1.1 To promulgate the policy of the Department of Defence on the dimensions of the Defence Standard Unit Load.

## 2. SCOPE

- 2.1 This standard details the dimensions of the standard unit loads which are compatible with the ISO series 1C freight container.

## 3. APPLICABLE DOCUMENTS

- 3.1 Reference may be necessary to the following:

### Standards Australia

AS 3711 Part 1- Freight containers – Classifications, dimensions and ratings  
AS 4068 - Flat pallets for materials handling

Copies of Australian Standards may be obtained from:

Publication Distributor - SAI Global  
Office Hours: 8am to 5pm AEST  
Telephone: 131 242  
Facsimile: 1300 65 49 49  
Overseas Telephone calls +61 2 8206 6010  
Overseas Faxes +61 2 8206 6020  
Email: sales @sai-global.com  
Web shop: <http://www.saiglobal.com/shop>

Copies of these standards may be obtained from the Contract Authority.

**For Defence personnel only:** Standards Australia documents are available from the Defence Library Service at the following URL:  
<http://library.dcb.defence.gov.au/standards/standards.nsf>

## 4. DEFINITIONS

- 4.1 **Pallet.** A flat base for combining stores or carrying a single item to form a unit load for handling, transportation and storage by materials handling equipment. Further details at paragraph 5.4
- 4.2 **Pallet area utilisation** - The area occupied by the transport packages, expressed as a percentage of the overall area of the pallet deck.
- 4.3 **Captive pallet** - A pallet used only in a particular set of operations.
- 4.4 **Double-faced pallet** - A pallet with similar top and bottom decks, either of which would take the load (not suitable for use with pallet trucks).
- 4.5 **Four-way pallet** - A pallet whose bearers permit the entry of tines from four directions.

- 4.6 **Non-captive pallet** - A pallet used in unrestricted operations (private, corporate or military) and may include a common carrier service and pallet exchange pools.
- 4.7 **Reusable pallet** - A pallet designed to be used indefinitely.
- 4.8 **Single-faced pallet** - A pallet with a top deck to take the load and a bottom deck acting as a base (for use with pallet trucks).
- 4.9 **Two-way pallet** - A pallet with bearers that permit the entry of tines from two opposite directions only.
- 4.10 **Universal pallet** - A pallet with a top deck to take the load and a bottom deck of maximum area consistent with the use of pallet trucks.
- 4.11 **Unit Load.** A number of stacked packages bonded together to make them suitable for transport and storage as a unit. The term may also be used to describe a single large item.

## 5. REQUIREMENTS

- 5.1 The dimensions of the Defence Standard Unit Loads shall be as detailed below.

### 5.2 Standard Unit Loads

- 5.2.1 One Tonne Standard Unit Load. Based on the 1100 mm Australian Standard Metric Pallet, to form a unit load within the following dimensions:

- a. mass: 1000 kg, maximum 1130 kg
- b. plan dimensions: 1100 mm square, maximum 1120 mm square
- c. height: 1000 mm, maximum 1065 mm. These figures are the total height including the pallet when used.

### 5.3 Outsize Unit Loads

- 5.3.1 Outsize Unit Loads (Standard Pallet Based). Based upon the standard pallet but limited to two tonnes plan dimensions of 1120 mm square and 2060 mm high.
- 5.3.2 Outsize Unit Loads (Unrestricted). All other load forms. Where possible they should be compatible with the 2500 kg and 5000 kg rough terrain forklift trucks and/or with the 10,000 kg off pavement crane.

### 5.4 Pallets

- 5.4.1 Packages shall be placed in uniform quantities on a pallet (1100mm x 1100mm), in accordance with Annex A.

#### NOTE

- 5.4.2 **Non captive pallets such as CHEP or LOSCAM origin shall not be accepted.**

- 5.4.3 **Pallet Dimensions.** Each pallet shall conform to the material dimensions shown at Figure A1 and table 1.

- 5.4.4 **Pallet materials of manufacture.** Pallets shall be supplied manufactured from timber in accordance with AS 4068. As stated in AS 4068 the timber grade and the fasteners used in the manufacturer of the pallet shall be such as to enable the pallet to meet the performance requirements of the standard.

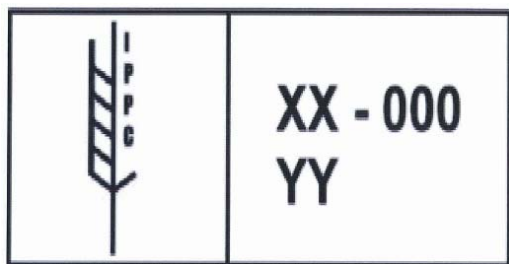
5.4.5 **Pallets used for consignment to and from Australia.** If there is a requirement for the wood product (pallet) to be returned to Australia, the wood will need to be treated or fumigated to AQIS or ISPM 15 requirement.

5.5 **AQIS approved Treatments.** Approved treatments are as follows:

- a. Methyl bromide fumigation ( $\text{CH}_3\text{Br}$ ) 48g/m<sup>3</sup> (3lbs/1000cu ft) for 24 hours at 21<sup>o</sup> C (70<sup>o</sup> F) or above.
- b. Sulphuryl fluoride ( $\text{SO}_2\text{F}_2$ ) (Vikane® ) 64 gm/m<sup>3</sup> (4lb/1000 cu ft) for 16 hours at 21<sup>o</sup> C (70<sup>o</sup> F) or above.
- c. Kiln drying (T9912) for quarantine purposes.
- d. Heat treatment: 56<sup>o</sup> C (XX<sup>o</sup> F) for 30 minutes (T9968; under review).
- e. Permanent timber preservatives treatment.

5.5.1 **ISPM 15.** Introduced in May 2006, ISPM 15 is a mandatory treatment requirement for all wood packaging material entering Australia. ISPM 15 is an alternative to existing AQIS approved treatment options for wood packaging materials.

5.5.2 **ISPM Marking.** Timber products that have undergone ISPM 15 treatments are marked with the ISPM 15 symbol. Examples of the marking are as follows:



**Figure A-1 ISPM 15 Example Markings**

5.6 **UNITISATION (Unit Load)**

- 5.6.1 Overall height of the palletised load shall not exceed 1065mm. (Refer paragraph 5.2.1).
- 5.6.2 Fibreboard or plastic edge protection shall be placed on top of the load.
- 5.6.3 Palletised loads shall be secured by polypropylene or steel strapping as required.
- 5.6.4 Packages shall not protrude the external edges of the pallet.
- 5.6.5 Palletised loads shall have a label denoting consignment details (refer [DEF\(AUST\)1000C PART 5](#)).

**NOTE**

- 5.6.6 **Consignments destined for direct dispatch from the Contractor to RAN Ships shall not be shrink/stretch wrapped. Bubble wrap shall not be used within primary and/or secondary packaging.**

5.6.7 Shrink/stretch wrapping should be used at the contractor's discretion.

ANNEX A MINIMUM FLAT PALLET REQUIREMENTS

A1. SCOPE

A1 .1 This data sheet outlines the minimum standard pallet requirements for supply of unitised commercial goods supplied to Defence.

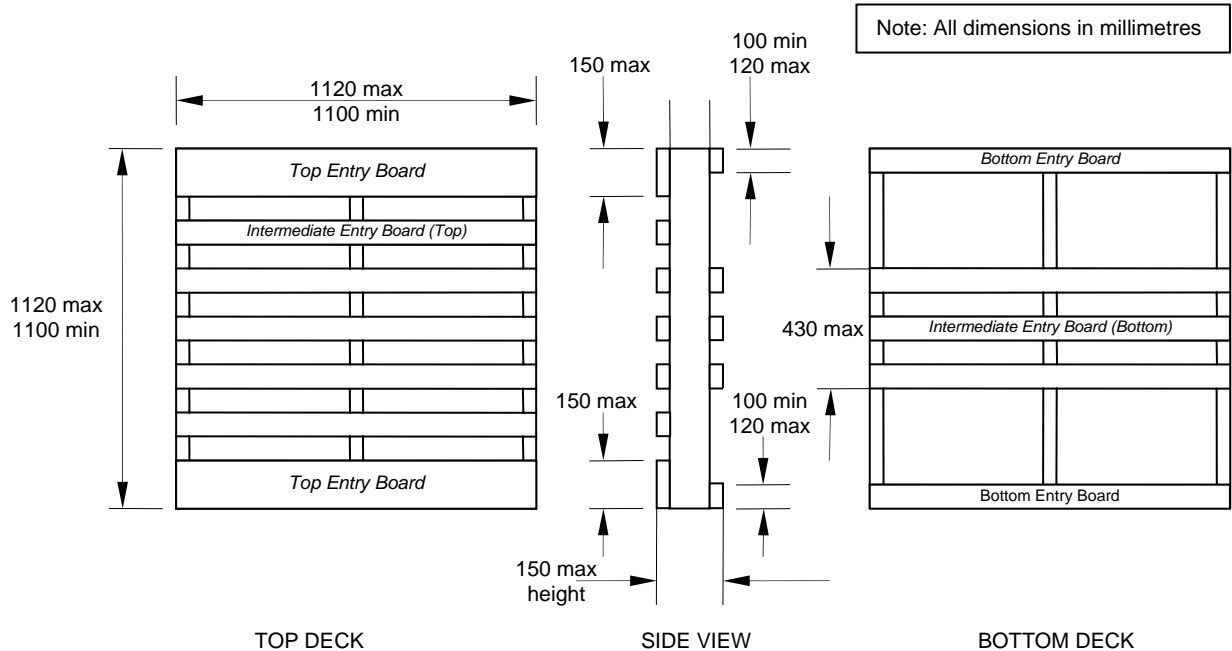




Figure A- 1 PALLET DIMENSIONAL REQUIREMENTS

Table 1 MATERIALS LIST

NOTE: Cross-sectional dimensions of deck boards are as follows:

- (a) Top and bottom intermediate boards . . . . . 95 min. width, 22 min. thick.
- (b) Top entry boards . . . . . 150 max. width, 22 min. thick.
- (c) Bottom entry boards . . . . . 120 max. width, 22 min. thick.

| PREFERRED PALLET STYLE  |  |
|---|--|
|  |  |
| Figure A-2 PALLET – Acceptable  | Figure A- 3 PALLET – Acceptable  |

## QUARANTINED UNIT LOADS

- A2.1 All palletised consignments shall be visually inspected at point of delivery. Unit loads supplied on pallets not conforming to the requirements as stated in Paragraph A1 will be quarantined and subject to rectification by supplier.
- A2.2 Photographic examples of quarantined Unit loads are shown in the Figures A2 – A6.
- A2.3 Photographic examples of preferred pallets are shown in the Figures A2 – A3.

| <b>PALLET STYLES – Unsuitable for Pallet Racking (subject to quarantine)</b>        |  |
|---|--|
|    |    |
| <b>Figure A- 4 Unit Load (unsuitable for racking)</b>                               | <b>Figure A- 5 Unit Load (unsuitable for racking)</b>                                |
|  |  |
| <b>Figure A- 6 Unit Load (unsuitable for racking)</b>                               | <b>Figure A- 7 Unit Load (unsuitable for racking)</b>                                |
|  |  |
| <b>Figure A- 8 Unit Load (unsuitable for racking)</b>                               | <b>Figure A- 9 Unit Load (unsuitable for racking) and use of non-captive pallets</b> |

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