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ICS 55.040

WITHDRAWAL

October 2018

Bulk packaging for computer equipment

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Acknowledgment is made for the translation of this Canadian General Standards Board standard by the Translation Bureau of Public Works and Government Services Canada.

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Introduction

This standard sets out requirements for the performance aspects of the design of bulk packaging for computer equipment. These performance requirements provide accommodation so that the computer equipment is protected while ensuring that environmental, risk and cost-based factors are met.

Suitable packaging is necessary to protect and transport computer equipment safely to ensure the fragile components are secured. However, the amount of packaging required to protect this equipment is often designed for single-use, and the packaging is often not recyclable or reusable. The large amount of computer equipment purchased creates enormous packaging waste. This has resulted in an increased demand by both governments and private industry for environmentally preferable packaging that conforms to performance requirements.

This standard supports the Canadian national economy by providing clear and precise attributes specifically aimed at bulk packaging for computer equipment. This standard protects consumers by specifying bulk packaging quality expectations. Further, the standard supports green procurement initiatives and sustainable development by clearly stating how environmental packaging criteria shall be implemented. The fundamental goal of this standard is to ensure that bulk packaging is designed in such a way that the computer equipment is protected for transport and that the packaging can be easily reused/recycled/returned to reduce the cost to the supplier and recipient while promoting environmental responsibility.

Units of measurement used in this standard are given in metric units with yard/pound equivalents shown in brackets, as exemplified by a 130 mm (5.25 in) drive bay. Computer equipment industry standard measurement nomenclature is expressed in yard/pound units therefore SI units are presented as rounded values of the industry measurement.

This standard was prepared by the CGSB Committee on bulk packaging for computer equipment and has been formally approved by the Committee.

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Bulk packaging for computer equipment

1 Scope

This standard specifies the performance requirements related to the bulk packaging used for computer equipment procured by the Canadian federal government.

This standard consists of four main sections.

Section 4 specifies general requirements for packaging including material, sustainability, transport, facilities access and functionality.

Section 5 specifies detailed requirements for packaging properties including minimum capacity per bulk packaging container, dimensions, engineering requirements, environmental criteria and delivery and logistics.

Section 6 pertains to packaging and marking.

Section 7 pertains to inspection including sampling and testing.

The testing and evaluation of a product against this standard may require the use of materials and equipment that could be hazardous. This standard does not purport to address all the safety aspects associated with its use. Anyone using this standard has the responsibility to consult the appropriate authorities and to establish appropriate health and safety practices in conjunction with any applicable regulatory requirements prior to its use.

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2 Normative references

The following normative documents contain provisions that, through reference in this text, constitute provisions of this CGSB Standard. The referenced documents may be obtained from the sources noted below.

NOTE The addresses provided below were valid at the date of publication of this standard.

An undated reference is to the latest edition or revision of the reference or document in question, unless otherwise specified by the authority applying this standard. A dated reference is to the specified revision or edition of the reference or document in question. However, parties to agreements based on this CGSB Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below.

2.1 Canadian General Standards Board (CGSB)

CAN/CGSB-43.22-2001 — *Corrugated fibreboard products* (withdrawn 2012).

2.1.1 Source

The above may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone 819-956-0425 or 1-800-665-2472. Fax 819-956-5740. E-mail ncr.cgsb-ongc@tpsgc-pwgsc.gc.ca. Web site www.tpsgc-pwgsc.gc.ca/ongc-cgsb.

2.2 Institute of Electrical and Electronics Engineers (IEEE)

IEEE-1680.1—2009 *IEEE standard for environmental assessment of personal computer products, including notebook personal computers, desktop personal computers, and personal computer displays.*

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2.2.1 Source

The above may be obtained from IHS Global Canada Ltd., 200-1331 MacLeod Trail SE, Calgary, Alberta T2G 0K3, telephone 613-237-4250 or 1-800-267-8220, fax 613-237-4251, Web site www.global.ihs.com.

2.3 International Safe Transit Association (ISTA)

Procedure 1A: *Packaged-products weighing 150 lb (68 Kg) or less. Basic requirements: fixed displacement vibration and shock testing.*

Procedure 3E: *Unitized loads of same product. Basic requirements: atmospheric conditioning, compression, random vibration and shock testing.*

2.3.1 Source

The above may be obtained from International Safe Transit Association, ISTA, 1400 Abbot Road, Suite 160 East Lansing, Michigan 48823-1900 U.S.A., telephone 517-333-3437, fax 517-333-3813, e-mail ISTA@ISTA.org, Web site www.ista.org/.

2.4 International Standards for Phytosanitary Measures (ISPM)

ISPM 15 — *Regulation of wood packaging material in international trade.*

2.4.1 Source

The above may be obtained as a pdf from the International Plant Protection Convention – International Standards for Phytosanitary Measures (ISPMs), www.ippc.int/index.php?id=ispms

2.5 Technical Association of the Pulp and Paper Industry (TAPPI)

T810 om-11 — *Bursting strength of corrugated board*

T811 om-07— *Edgewise compressive strength of corrugated fiberboard (short column test).*

2.5.1 Source

The above may be obtained from Technical Association of the Pulp and Paper Industry, TAPPI Inc., P.O. Box 933644, Atlanta, GA 31193-3644, U.S.A., telephone 1-800-446-9431 (Canada), 1-800-332-8686 (U.S.A.), 770-446-1400 (Worldwide), fax 770-209-7206, e-mail memberconnection@tappi.org, Web site www.tappi.org/.

3 Terms and definitions

For the purposes of this CGSB Standard, the following terms and definitions apply.

3.1
bulk packaging
large quantities of products packaged together in accordance with 5.1.

3.2
computer equipment
these products include, but are not limited to desktops, notebooks, display devices, small servers and peripheral equipment such as mice, keyboards and printers.

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3.3
packaging
products made of any materials, which meet the specifications set out by this standard, to be used for the containment, protection, handling, delivery and preservation of goods from the producer to the user or consumer. This applies to both materials used for external protection of the bulk package as well as internal packaging used to protect/ separate individual items within the bulk package.

4 General requirements

4.1 Packaging

4.1.1 Material

The materials selected for use in bulk packaging for computer equipment shall be readily recyclable using available current material recovery methodologies.

4.1.2 Sustainability

Major components of bulk packaging materials include but are not limited to corrugated fibreboard and wood materials. Major components of bulk packaging materials shall be re-usable for shipping purposes.

4.1.3 Transport

Bulk packaging for computer equipment shall be able to be shipped using conventionally accepted logistic processes in accordance with laws and regulations.

4.1.4 Facilities access

Bulk packaging shall be able to be readily transported through current facilities infrastructure without hindrance of access to the purchaser's computer equipment distribution location.

4.1.5 Functionality

Bulk packaging configurations shall be such that economic use of available space for packing computer components is encouraged while suitably protecting computer equipment from damage.

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5 Detailed requirements

5.1 Packaging

5.1.1 Minimum capacity per bulk packaging container

a. For small form factor (SFF) desktops, bulk package shall accommodate a minimum of eight systems.

b. For tower form factor (TFF) desktops, bulk package shall accommodate a minimum of four systems.

c. For notebooks, bulk package shall accommodate a minimum of eight systems.

d. Display devices, bulk package shall accommodate a minimum of ten devices.

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5.1.2 Dimensions

5.1.2.1 Palletization

Bulk package shall fit on a standard shipping pallet of 122 x 102 x 15 cm (48 x 40 x 6 in) with no overhang.

5.1.3 Engineering requirements

5.1.3.1 Packaging

Bulk packaging shall be engineered to conform to ISTA Procedures 1A & 3E, pre-shipment tests, freight carrier rules.

5.1.3.2 Material

Bulk container shall be comprised primarily of cardboard (excepting shock deadening material). Stronger materials (plywood, particleboard, etc.) may be used to replace cardboard if they conform to 5.1.4 b.

5.1.3.3 Strength

All cardboard material in the external walls shall be double wall with a “B” or “C” flute corrugation and have a minimum burst test of 19.3 kg/cm (275 psi). All internal load bearing walls shall have a minimum edge crush test (ECT) of 33 N/mm (44 lbs/in) width in accordance with T811 om–07.

5.1.3.4 Density

Bulk packaging void space shall be minimized to the extent practicable to optimize transportation efficiency. TFF and SFF desktops shall be vertically situated to maximize horizontal pallet density. TFF bulk packaging shall contain a minimum of 20 systems per pallet. SFF shall contain a minimum of 36 systems per pallet.

5.1.3.5 Long haul transit

Bulk packaging shall be engineered to withstand long haul transit dynamic load factors over 1609 km (1000 mi) without damage.

5.1.3.6 Handling

Bulk packaging shall be engineered to withstand forklift, pallet jack handling and mechanical layer clamping without damage.

5.1.3.7 Climate

Bulk packaging shall be engineered to withstand 80-90% RH environmental conditions without failing.

5.1.3.8 Storage

Bulk packaging shall be engineered to withstand a minimum of four weeks storage time under load weight without failing.

5.1.3.9 Interior packaging

a. If the packaging involves foam inserts and or dust bags, those materials shall be non electro-static device (ESD) conducting.

b. Packaging materials not acceptable are bubble wrap, spray foam, and polystyrene foam “peanuts”.

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5.1.3.10 Shrink wrap

The bulk packaging specified herein does not preclude the use of shrink-wrapping if wrapping conforms to 5.1.4.

5.1.4 Environmental criteria

Recyclable content for bulk packaging material shall be determined by reference to the Electronic Product Environmental Assessment Tool (EPEAT) in accordance with IEEE 1680.1-2009 where indicated.

The following requirements shall be met:

a. Bulk packaging materials shall possess identification symbols that are clearly displayed in order to facilitate and encourage recycling in accordance with article 4.8.2.2 of IEEE 1680.1-2009;

b. Bulk packaging that promotes an environmental claim shall be able to be authenticated and remain viable during all periods of storage, transport and handling in accordance with article 4.8.3.2 of IEEE 1680.1-2009;

c. Bulk packaging materials shall not contaminate the environment during use, recovery or disposal in accordance with article 4.8.1.1 of IEEE 1680.1-2009;

d. Bulk packaging materials shall be separable by hand in accordance with article 4.8.2.1 of IEEE 1680.1-2009;

e. Bulk packaging materials shall be hygienic and shall not expose contaminants or odour to its contents or surroundings;

f. Bulk packaging shall not pose any preventable danger to individuals who may come into contact with it. Suitable warnings shall be conveyed where identifiable risks exist;

g. Metals shall not be added to any packaging or packaging component in accordance with article 4.8.1.1 of IEEE 1680.1-2009;

h. All wooden pallets shall comply with ISPM 15;

i. The computer vendor shall include a free service whereby, upon request, the packaging material can be collected for reuse or recycling in accordance with article 4.8.4.1 of IEEE 1680.1-2009, and

j. All bulk packaging materials shall comply with EPEAT in accordance with article 4.8.3.1 of IEEE 1680.1-2009. The manufacturer shall declare the type of recyclable content as well as the recycled content for each material.

NOTE Appropriate measures should be taken to use shrink-wrap that is compostable and biodegradable.

5.1.5 Delivery and logistics

5.1.5.1 Origin

Bulk packaging shall originate from the plant of manufacture or final hardware assembly point.

5.1.5.2 Re-packaging

Bulk packaging shall not be introduced as re-packaging, mid-stream in the delivery cycle (e.g. at North American distribution points).

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6 Packaging and marking

All packaging and marking requirements shall conform to applicable federal laws.

7 Inspection

7.1 Sampling

Sampling of the containers, the components and the packaging material entering into the manufacture of the containers for inspection shall be in accordance with TAPPI T810 om-11 or T811 om-07, unless otherwise specified.

7.2 Testing

Testing of the containers, the components and the packaging material entering into the manufacture of the containers for inspection shall be in accordance with CAN/CGSB-43.22-2001, unless otherwise specified and shall at least include the following tests:

a. Bursting strength;

b. Edge crush;

c. Ply separation;

d. Flat crush;

e. Vibration (test in accordance with ISTA Procedures 1A & 3E) and;

f. Drop / shock. (test in accordance with ISTA Procedures 1A & 3E)

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Annex A
[informative]

Glossary of computer equipment types

NOTE The description of the terms found in this glossary are for information only and are not to be used for equipment classification.

A.1
desktop computer
a computer where the main unit is intended to be located in a permanent location, often on a desk or on the floor. Desktop computers are not designed for portability and utilize an external computer display, a keyboard and a mouse.

A.2
monitor or display device
a monitor or display device is an electronic visual display for use with computers. The monitor comprises the display device, circuitry and an enclosure. The display device is typically a thin film transistor liquid crystal display panel that provides for a display screen size of between 48 – 61 cm (19 – 24 in).

A.3
notebook computer
a computer designed specifically for portability that can be operated for extended periods of time either with or without a direct connection to an AC power source. Notebook computers utilize an integrated computer display from 29 to 44 cm (11.6 to 17.3 in) and are capable of operation off an integrated battery or other portable power source. In addition, most notebook computers use an external power supply and have an integrated keyboard and pointing device.

NOTE Notebook computers are typically designed to provide similar functionality to desktops, including operation of software similar in functionality as that used in desktops. For the purposes of this standard, docking stations are considered accessories for notebook computers and therefore are not part of this standard. Tablet PCs, which may use touch-sensitive screens along with or instead of other input devices, are considered notebook computers in this standard.

A.4
small form factor (SFF) desktop
desktop computer that is 2006 cm^3 (790 in^3) or less and contains a minimum of 3 expansion slots and one vacant 130 mm (5.25 in) (front accessible) drive bay.

A.5
tower form factor (TFF) desktop
desktop computer housed in a larger case that is 2009 – 5842 cm^3 (791 – 2300 in^3) and when stood vertically is between 33 and 43 cm (13 - 17 in) tall and contains 3 expansion slots and 2 vacant 130 mm (5.25 in) drive bays.

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Bibliography

[1] Canadian Council of Ministers of the Environment (CCME). *Canada-wide Action Plan for Extended Producer Responsibility, 2009.*

[2] Canadian Council of Ministers of the Environment (CCME). *A Canada-wide Strategy for Sustainable Packaging, 2009.*

[3] Office of Greening Government Operations (OGGO) — *Guideline for the Disposal of Federal Surplus Electronic and Electrical Equipment, 2012.*

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