

Australian/New Zealand Standard™

Wheelchairs

**Part 2: Requirements and test methods
for electrically powered wheelchairs
(including mobility scooters)**



AS/NZS 3695.2:2013

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-067, Assistive Technology Products for Persons with Disabilities. It was approved on behalf of the Council of Standards Australia on 8 June 2013 and on behalf of the Council of Standards New Zealand on 14 June 2013. This Standard was published on 11 September 2013.

The following are represented on Committee ME-067:

Assistive Technology Suppliers Australasia
Association of Consultants in Access Australia
Australian Rehabilitation and Assistive Technology Association
Bus and Coach Association of New Zealand
Commercial Vehicle Industry Association of Australia
Consumers' Federation of Australia
Department of Family and Communities SA
Engineers Australia
Independent Living Centres Australia
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Australian/New Zealand Standard™

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Part 2: Requirements and test methods for electrically powered wheelchairs (including mobility scooters)

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PREFACE

This Standard was prepared by the joint Standards Australia/Standards New Zealand Committee ME-067, Mobility Appliances for People with Disabilities, to supersede, in part, AS/NZS 3695:1992, *Wheelchairs—Product requirements*.

The Standard is based on EN 12184:2009, *Electrically powered wheelchairs, scooters and their chargers—Requirements and test methods*.

The braking requirements of this Standard differ from the braking requirements of EN 12184 primarily when the wheelchair is in 'freewheel mode'. This Standard requires a warning label where no braking exists when a wheelchair is in freewheel mode while EN 12184 does not. The Committee is confident that international research will soon identify a method to retard a wheelchair at a set speed when it is in freewheel mode, which will be included in this Standard at the subsequent revision.

This is the first revision of this Australian Standard (originally issued in 1992) covering powered wheelchairs.

Where this Australian Standard does not apply to particular wheelchairs, contracting parties should consider if appropriate clauses of this Australian Standard may be applicable.

Manufacturers may also wish to consider if appropriate clauses of this Australian Standard may be used to assess the performance of their products against the relevant Essential Principles of the Medical Device legislation of the Australian Therapeutic Goods Act 1989.

In revising this Standard, the role and function of the Standard was expanded to align the AS 3695 series, where possible, with EN 12183:2008, *Manual wheelchairs—Requirements and test methods*, and specifically for this part of the series EN 12184:2009, *Electrically powered wheelchairs, scooters and their chargers—Requirements and test methods*. In addition, the Committee continues to embed developments from the ISO series of test methods for wheelchairs (ISO 7176 series, *Wheelchairs*) and seating (ISO 16840 series, *Wheelchair seating*).

This Standard is part of a series as follows:

AS

3695 Wheelchairs

3695.1 Part 1: Requirements and test methods for manual wheelchairs

3695.2 Part 2: Requirements and test methods for electrically powered wheelchairs
(this Standard)

Major changes to the previous edition are the following:

- (a) The Scope of this edition applies only to powered wheelchairs and scooters intended to carry one person.
- (b) An option to use a larger mass dummy, where the manufacturer specifies a larger user capacity than 100 kg, has been included (Clause 4.2).
- (c) The set-up configuration of the wheelchair for each test is as specified in ISO 7176-22 (Clause 4.3).
- (d) Clarity regarding order of testing is provided (Clause 4.4).
- (e) Powered wheelchairs may now be categorized into 3 classes: Class A for indoor, Class B for indoor/outdoor and Class C for outdoor (Clause 5) with each class having a different test requirements (Table 1).
- (f) The requirement for a risk analysis in accordance with AS/NZS 4810.1 and AS EN 12182 has been introduced (Clause 6).

- (g) Pneumatic tyres are required to have a common inflation valve and be marked with the maximum inflation pressure (Clause 7.3).
- (h) A warning is required to state that 'There is no braking when this wheelchair is in freewheel mode' (Clause 10.4). The requirement for a separate parking brake that is effective in freewheel mode has been withdrawn.
- (i) Where used, batteries are required to be non-spillable (Clause 8.8).
- (j) Wheelchairs are required to be fitted with one or more emergency stop input devices (Clause 8.9).
- (k) Wheelchairs are required to have provision for fitting an anterior pelvic support (Clause 7.4).
- (l) Onboard and carry-on battery chargers are required to comply with environmental protection requirements IPX4 and class II test voltage requirements of AS/NZS 60335.1 and AS/NZS 60335.2.29 (Clause 8.5).
- (m) A test for the ability of the wheelchair to climb a specified maximum safe slope has been included (Clause 9.1.2).
- (n) The wheelchair is required to be able to negotiate various degrees of ground unevenness (Clause 9.1.3).
- (o) Parking brakes are required to have a fatigue test by operating the brake through 60 000 cycles (Clause 9.3.5).
- (p) Where the manufacturer specifies that the seat can be used in a motor vehicle, the wheelchair is required to comply with AS/NZS 3696.19 (Clause 9.4).
- (q) A more rigorous test for ignitability of upholstery is required. The test Standard for ignitability of upholstery has been changed from AS 3744.1 to AS/NZS ISO 7176.16 (Clause 9.7).
- (r) Informative appendices have been provided on recommendations for dimensions and manoeuvring space, design features, seating design, and lighting and reflectors.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Wheelchairs****Part 2: Requirements and test methods for electrically powered wheelchairs
(including mobility scooters)****1 SCOPE**

This Standard specifies requirements and test methods for electrically powered wheelchairs with a maximum speed not exceeding 15 km/h intended to carry one person of mass not greater than 300 kg. It covers—

- (a) manual wheelchairs with add-on power kits used for propulsion; and
- (b) electrically powered wheelchairs (which include scooters).

It also specifies requirements and test methods for battery chargers for wheelchairs and scooters.

This Standard does not apply (in total) to custom-made wheelchairs (fabricated to a prescription for a single user as defined by the Therapeutic Goods (Medical series) Regulations 2002). Where custom made wheelchairs are constructed—

- (i) on the basis of a standardized design;
- (ii) using structural members of common technical specification; or
- (iii) with primarily dimensional variations between occupants,

this Standard may be applied to the base design.

NOTE: Where the Standard is applied to the base design, the test sample will need be constructed to a specification that is representative of common prescriptions, in accordance with the base design, giving consideration to the set-up requirements specified in ISO 7176-22.

Specific elements of the Standard may be relevant to—

- (A) wheelchairs intended for special purposes, such as sports;
- (B) hand-rim-activated power-assisted wheelchairs; and
- (C) powered office chairs.

2 REFERENCED DOCUMENTS

The following documents are referenced in this Standard.

AS	
60529	Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)
AS/NZS	
3200	Medical electrical equipment
3200.1.0	Part 1.0: General requirements for safety—Parent Standard
3696	Wheelchairs
3696.3	Part 3: Determination of effectiveness of brakes
3696.19	Part 19: Wheeled mobility devices for use as seats in motor vehicles (ISO 7176-19:2008, MOD)
4810	Medical devices—Risk management
4810.1	Part 1: Application of risk analysis