AS/NZS 3696.21:2008
ISO 7176-21:2003

AS/NZS 3696.21:2008

Australian/New Zealand Standard™

Wheelchairs

Part 21: Requirements and test methods for electromagnetic compatibility of electrically powered wheelchairs and motorized scooters

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

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Association of Consultants in Access Australia
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Consumers' Federation of Australia
Engineers Australia
Flinders University of South Australia
Furntech
Independent Living Centres Australia
Northern Sydney Area Health Services
Novita Children's Services
Paraplegic & Quadriplegic Association of Australia
Queensland Health
Royal Perth Hospital
The Commercial Vehicle Industry Association of Australia

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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.

This Standard is identical with, and has been reproduced from ISO 7176-21:2003, *Wheelchairs*—Part 21: *Requirements and test methods for electromagnetic capability of electrically powered wheelchairs and motorized scooters*.

The objective of this Standard is to provide a suitable test methods for the determination of electromagnetic compatibility of electrically powered and manual scooters with an added power kit.

As this Standard is reproduced from an international standard, the following applies:

(a) Its number appears on the cover and title page while the international standard number appears only on the cover.

(b) In the source text 'this part of ISO 7176' should read 'this Australian/New Zealand Standard'.

(c) A full point substitutes for a comma when referring to a decimal number.

References to International Standards should be replaced by references to Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
ISO		AS	
7176	Wheelchairs	3696	Wheelchairs
7176-5	Part 5: Determination of overall dimensions, mass and turning space	3695.	Part 5: Determination of overall dimensions, mass and turning space
7176-9	Part 9: Climatic tests for electric wheelchairs	3639.9	Part 9: Climatic tests for electric wheelchairs
7176-15	Part 15: Requirements for information disclosure, documentation and labelling	—	
		AS/NZS	
7176-22	Part 22: Set-up procedures	3696.22	Part 22: Set-up procedures
IEC			
61000	Electromagnetic capability (EMC)	61000	Electromagnetic capability (EMC)
61000-4-2	Part 4: Testing and measurement techniques. Section 2: Electrostatic discharge immunity test	61000.4.2	Part 4.2: Testing and measurement techniques—Electrostatic discharge immunity test
61000-4-3	Part 4 Testing and measurement techniques. Section 3: Radiated, radio frequency, electromagnetic field immunity test	61000.4.3	Part 4.3: Testing and measurement techniques—Radiated, radio frequency, electromagnetic field immunity test
61000-4-4	Part 4: Testing and measurement techniques. Section 4: Electrical fast transient/burst immunity test	61000.4.4	Part 4.4: Testing and measurement techniques—Electrical fast transient/burst immunity test

IEC		AS/NZS	
61000-4-5	Part 4: Testing and measurement techniques. Section 5: Surge immunity test	61000.4.5	Part 4.5: Testing and measurement techniques—Surge immunity test
61000-4-6	Part 4: testing and measurement techniques. Section 6: Immunity to conduct disturbances, induced by radio frequency fields	61000.4.6	Part 4.6: Testing and measurement techniques—Immunity to conduct disturbances, induced by radio frequency fields
61000-4-11	Part 11: Testing and measurement techniques. Section 11: Voltage dips, short interruption and voltage variations immunity tests	61000.4.11	Part 4.11: testing and measurement techniques—Voltage dips, short interruptions and voltage variations immunity test (IEC 61000-4-11 Ed. 2.0 (2004) MOD)
CISPR		AS/NZS CISPR	
11	Industrial, scientific and medical (ISM) radio frequency equipment—Electromagnetic disturbance characteristics—Limits and methods of measurement	11	Industrial, scientific and medical (ISM) radio frequency equipment—Electromagnetic disturbance characteristics—Limits and methods of measurement

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INTRODUCTION

Electrically powered wheelchairs should operate without introducing significant electromagnetic disturbances to the environment and without significant degradation of operational performance in the presence of electromagnetic disturbances that can be expected in normal use. Wheelchairs can be expected to operate in traffic areas and therefore should be immune to radio frequency fields from fixed and mobile communications equipment, as well as from other sources of electromagnetic disturbance. Injury could occur in the event of unintentional movement or change in direction of a wheelchair.

This part of ISO 7176 specifies requirements and test methods for wheelchairs to minimize the risks connected with reasonably foreseeable electromagnetic interference and electrostatic discharge and to minimize the risk of producing electromagnetic fields which could impair the operation of other devices or equipment in the wheelchair's usual environment.

AUSTRALIAN/NEW ZEALAND STANDARD

Wheelchairs

Part 21:

Requirements and test methods for electromagnetic compatibility of electrically powered wheelchairs and motorized scooters

WARNING — This part of ISO 7176 calls for the use of procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the manufacturer or test house from legal obligations relating to health and safety at any stage.

1 Scope

This part of ISO 7176 specifies requirements and test methods for electromagnetic emissions and for electromagnetic immunity of electrically powered wheelchairs and motorized scooters with a maximum speed of not more than 15 km/h for indoor and outdoor use by people with disabilities. It is also applicable to manual wheelchairs with an add-on power kit. It is not applicable to vehicles designed to carry more than one person.

This part of ISO 7176 also specifies additional requirements for electromagnetic emissions and for electromagnetic immunity of electrically powered wheelchairs and motorized scooters with a built-in battery charger. It is not applicable to battery chargers that are not built into a wheelchair.

A reference configuration is specified for adjustable wheelchairs and scooters to enable test results to be used for comparison of performance.

NOTE The term “wheelchair” is used in this part of ISO 7176 to cover electrically powered wheelchairs, motorized scooters and manual wheelchairs with an add-on power kit.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7176-5, *Wheelchairs — Part 5: Determination of overall dimensions, mass and turning space*

ISO 7176-9, *Wheelchairs — Part 9: Climatic tests for electric wheelchairs*

ISO 7176-15, *Wheelchairs — Part 15: Requirements for information disclosure, documentation and labelling*

ISO 7176-22, *Wheelchairs — Part 22: Set-up procedures*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 2: Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 3: Radiated, radio frequency, electromagnetic field immunity test*