

TEST REPORT FOR:
**Product Design Group Inc. Stellar
Tilt Manual Wheelchair to 114kg**



LABORATORY REFERENCE
492558

30th June 2016

REFERENCED DOCUMENTS IN THIS REPORT:

AS/NZS 3695.1:2011	
Part 1: Requirements and test methods for manual wheelchairs	
Part 1	AS/NZS ISO 7176.1:2015 (Identical to ISO 7176-1:2014) Part 1: Determination of static stability
Part 3	AS/NZS ISO 7176.3:2015 (Identical to ISO 7176-3:2012) Part 3: Determination of effectiveness of brakes
Part 5	AS 3696.5-1989 (Identical to ISO 7176/5-1986) Part 5: Determination of overall dimensions, mass and turning space
Part 7	ISO 7176-7-1998 (E) Part 7: Measurement of seating and wheel dimensions
Part 8	AS/NZS ISO 7176.8:2015 (Identical to ISO 7176-8:2014) Part 8: Requirements & test methods for static, impact and fatigue strengths
Part 11	AS/NZS ISO 7176.11:2013 (Identical to ISO 7176-11:2012) Part 11: Test dummies
Part 13	AS 3696.13-1991 (Identical to ISO 7176-13:1989) Part 13: Coefficient of friction of test surfaces
Part 16	AS/NZS ISO 7176.16:2013 (Identical to ISO 7176-16:2012) Part 16: Resistance to ignition of postural supports
Part 19	AS/NZS 3696.19:2009 (Adopted from ISO 7176-19:2008 MOD) Part 19: Wheeled mobility devices for use as seats in motor vehicles
Part 22	AS/NZS ISO 7176.22:2015 (Identical to ISO 7176-22:2014) Part 22: Set-up procedures
Part 26	AS/NZS ISO 7176.26:2011 (Identical to ISO 7176-26:2007) Part 26: Vocabulary

The above referenced standards were confirmed as current at date of testing

TEST REPORT

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PRODUCT

Job no: 492558

Name and Model No:
Product Design Group Inc
Stellar Tilt Manual Wheelchair

Serial no(s) of test sample:
79712

Maximum user mass:
250 lbs /114 kg

Documents used in testing
As referenced on page 2 of this report.

SUPPLIER

Name:
Product Design Group Inc

Address:
Unit 103, 318 East Kent Avenue South
Vancouver, BC
Canada V5X4N6

Telephone: +1 604 323 9220

Fax: n/a

Contact person: Torr Brown

Order No: n/a

Order Date: n/a

TESTING AUTHORITY

NOVITATECH TEST LABORATORY
171 Days Road, Regency Park, South Australia, 5010
Telephone: 1300 85 55 85

Fax: (08) 8243 8208

Testing supervisor: Wayne Wurfel
Senior Test Technician
(Authorised signatory)

Checked: Andrew Rose
(Team Leader)



Dates of testing period:
June 2016

Date of issue of this report:
30th June 2016

PRODUCT DETAILS

Manufacturer:

Name Product Design Group Inc.
 Address Unit 103, 318 East Kent Avenue South, Vancouver, BC, Canada V5X4N6

Chair type:

Manual wheelchair with tilt function

Frame:

Size Adult chair
 Frame type Rigid frame with tilting seat function
 Frame material Tubular steel construction
 Tilt Yes
 Recline No
 Anti-tips Anti-tips fitted
 Push handles Single 1 piece bar type push handle
 Footrests Individual footrests, swing-away, removable
 Armrests Height adjustable, lift out, padded armrests
 Headrest No headrest fitted

Seating:

Backrest
 Width 460 mm
 Height 530 mm
 Description Sling type fabric backrest
 Seat
 Width 460 mm
 Depth 515 mm
 Description Solid metal base

Wheels:

Castor Front
 Width 26 mm
 Diameter 200 mm
 Description Plastic rims with solid tyres
 Drive Wheel
 Width 32 mm
 Diameter 600 mm
 Description Plastic rims, metal hand-rim, solid tyres

Other features:

Tie down brackets fitted to sample

**Set-up details
 (to AS3696.22)**

Ambient test temperature: 22 ° C
 As per user instructions and test standards requirements

Note: Other descriptive dimensions etc. may be included in part 5 and 7 of the test report

AS/NZS 3695.1:2011 – GENERAL REQUIREMENTS

Requirements	Result of verification	Reference in AS EN 12182
Section 5 – General requirements		
Corrosion – Risk assessment in accordance with Clause 4.1 of AS EN 12182	By manufacturer	Clause 4.1
Shall conform to the requirements of AS EN 12182-2002 (with reference to AS/NZS 4810.1)		
(a) Intended performance and technical documentation	Pass	Clause 4.2
(b) Aids that can be dismantled	NA	Clause 4.4
(c) Single use fasteners	NA	Clause 4.5
(d) Biocompatibility and toxicity	By supplier	Clause 5.2
(e) Contaminants and residues	By supplier	Clause 5.3
(f) Infection and microbiological contamination	By supplier	Clause 5.4
(g) Overflow, spillage, leakage and ingress of liquids	NA	Clause 9
(h) Safety of moving parts	Pass	Clause 12
(i) Prevention of traps for parts of human body	Pass	Clause 13
(j) Folding and adjusting mechanisms	NA	Clause 14
(k) Surfaces, corners and edges	Pass	Clause 18
Requirements	Result of verification	Reference in AS3695.1:2011
Risk analysis by manufacturer, in accordance with AS/NZS 4810.1	By supplier	5.1
Section 6 – Design and construction requirements		
Pneumatic tyres		
- Same type of valve connection for all tyres, Maximum pressure marked	NA (Solid)	6.1
Fitting of anterior pelvic support		
- Shall have provision for anterior pelvic support to be fitted	Pass	6.2
Wheelchairs for use as seats in motor vehicles		
- If occupant mass >22 kg, shall conform to AS/NZS 3696.19	See remarks	6.3
- If occupant mass <22 kg, shall conform to AS/NZS 3696.19:2009	NA	
Foot supports, lower leg supports and arm supports		
- Shall be fitted with foot supports	Pass	6.4
- Provision for preventing occupants feet from sliding backwards	Pass	
Brake system		
- Shall have provision to be fitted with a brake system	Pass	6.5
Component mass		
- Components >10 kg provided with suitable handling device	NA	6.6
Operations intended to be carried out by operator		
- All controls to meet requirements of Clause 7.1 (a, b), Appendix A & Clause 8	NA	6.7

AS/NZS 3695.1:2011 – PERFORMANCE REQUIREMENTS

Requirements	Result of verification	Reference in AS3695.1:2011
Section 7 – Brake system		
- Shall be accessible and operable by the operator	Pass	7.1 (a)
- Maximum operating forces (as per Table 1, AS/NZS ISO 7176.3:2015)	Pass	7.1 (b)
- No parts above level of occupied seat (With removable or movable arm supports)	Pass	7.1 (c)
- Provision for adjustment or replacement	Pass	7.1 (d)
- Shall not slide or rotate on slope of < 7° (when tested to AS/NZS ISO 7176.3:2015)	Pass	7.1 (e)
- No movement away from pre-set condition after completion of all brake testing	Pass	7.1 (f)
- Shall not roll on slope of 7° after Static, Impact and Fatigue tests	Pass	7.1 (g)
Section 7.2 Static, Impact and Fatigue strength		
- After completion of all tests, shall conform to requirements of AS/NZS 3696.8	Pass	7.2
Section 7.3 – Static stability		
- If rearward stability <10° then must be fitted with anti-tip devices	NA	7.3
- If fitted with anti-tip devices, must be stable at >10° for rearward stability	Pass	
Section 7.4 – Operating force		
- Max forces for engage & release, ref: Table 1, AS/NZS ISO 7176.3:2015 (60N)	Pass	7.4
- If knob diameter >25 mm, maximum torque to be applied = Knob dia x 0.05 (Nm)	NA	7.4 (a)
- If knob diameter <25 mm, maximum torque to be applied = Knob dia x 0.025 (Nm)		7.4 (b)
Section 7.5 – Pushing force		
- Force required to start & keep moving a wheelchair with user mass <100kg, 40 N	NA	7.5.1 (a)
- With user mass >100 kg and <150 kg, 60 N	Pass (45 N)	7.5.1 (b)
- With user mass >150 kg and <200 kg, 70 N	NA	7.5.1 (c)
Section 7.6 – Foot supports & lower leg supports		
- Incorporate means to fix securely in any operating position	Pass	7.6.1 (a)
- Lower leg support height adjustments in increments <25 mm	Pass	7.6.1 (b)
- Movable to facilitate transfer without use of tools	Pass	7.6.1 (c)
- Foot support gap as per AS EN 12182-2002 Clause 13 (<35 or >100 mm)	Pass	7.6.1 (d) (i)
- Fitted with means to prevent occupant’s feet sliding into gap		7.6.1 (d) (ii)
Section 7.7 Arm supports		
- Shall incorporate means to be suitable for loading in any operating position	Pass	7.7 (a)
- Be movable to facilitate transfer without tools	Pass	7.7 (b)

AS/NZS 3695.1:2011 – PERFORMANCE REQUIREMENTS (Cont.)

Requirements	Result of verification	Reference in AS3695.1:2011
7.8 Push handles and grips		
- Complies with requirement of Figure 1 (85° from rear of push handle)	Pass	7.8 (a)
- Complies with requirement of Figure 1 (2 planes not < 350mm apart)	Pass	7.8 (b)
- Complies with requirement of Figure 1 (Horizontal test plane)	Pass	7.8 (c)
- Handgrips (where fitted) at least 75 mm long	Pass	7.8
- Handgrips width (where fitted) >20 mm, <45 mm	Pass	7.8
- Handgrip width (where fitted with controls) not > 75mm before force applied	Pass	Fig 2
7.9 Resistance to ignition (As per ISO 7176-16)		
- All postural support devices	Pass	7.9 (a)
- Complete composite of all upholstered parts	Pass	7.9 (b)
- The material of each part of foam materials	Pass	7.9 (c)
7.10 Seating adjustments for tilt and recline systems		
- Controls operated by occupant shall be accessible from all seating positions	NA	
7.11 Castor stem (As per ISO 7176-5)		
- Fore-aft castor stem angle shall be 90° (+2°, -0°)	Pass	7.11 (a)
- Difference between left & right castor not > 1°	Pass	
- Lateral castor stem angle to be 90° (+/- 1°)	Pass	7.11 (b)
- Asymmetry between left & right castor not >1°	Pass	
- If rear wheels or castors adjustable, then castor stem angle adjustable to 90° (+2°/-0°)	Pass	7.11 (c)

Remarks:

Clause 7.9 a), b), c)

Resistance to ignition was not assessed by this laboratory.

Seat fabric for a like material fitted to the PDG Bentley wheelchair was previously assessed to ISO test standards. (Refer to separate report # 492106-1 dated 21st May 2014 issued by NovitaTech test laboratory)

The operator manual states that upholstery meets ANSI/RESNA WC.19 and ISO 7176 requirements.

A separate report/s should be available from the manufacture on request.

The sample supplied for testing was fitted with the optional Transit Tie-Down System (TTDS)

The operator manual states that when fitted with the TTDS system the product has been dynamically tested in a forward facing mode to a 30 mph frontal impact test.

The designated tie-down anchorage points fitted have been identified with the recognised carabiner symbols, and no further marking is required for compliance to AS/NZS 3695.1:2011.

If this wheelchair is not intended for use as a seat in motor vehicles and does not have the TTDS option fitted, the product must be labelled as specified below:

- Clauses, 8.2 (d) (ii) For AS/NZS 3696.19 Non-compliant chairs, warning label with the words 'Not AS/NZS 3696.19 compliant'
- Clause 8.2 (d)(ii) A,B,C Label to have correct font size, contrast & location on chair
- Clause 8.2 (e) (i, ii,iii) Label/s to be permanent and durable

WW. End of remarks -----

AS/NZS 3695.1:2011 – INFORMATION DISCLOSURE REQUIREMENTS

Requirements	Result of verification	Reference in AS3695.1:2011
8.1 General		
- Documentation and labelling available in English	Pass	
- Manufacturer to provide full test report when requested	Pass	
Printed documentation to comprise the following:		
- Contact name, phone number & email address of sponsor in country of supply	Pass	8.1 (a)
- Details of how to obtain documentation of this clause	Pass	8.1 (b)
- Operator information (in printed or CD/DVD format)	Pass	8.1 (c)
8.2 Labelling - Permanent & durable labels for the following:		
- Make	Pass	8.2 (a) (i)
- Model	Pass	8.2 (a) (ii)
- Safe working load (in kg)	Pass	8.2 (a) (iii)
- Year of production	See remarks	8.2 (a) (iv)
- Unique identification number	Pass	8.2 (a) (v)
- Contact details & name and address of manufacturer	Pass	8.2 (b)
- Identification of engagement / disengagement systems including warnings	NA	8.2 (c)
- For AS/NZS 3696.19 compliant chairs, WTORS approved symbol attached	See remarks	8.2 (d) (i)
- For AS/NZS 3696.19 Non-compliant chairs, warning label attached	See remarks	8.2 (d) (ii)
- Label to have correct font size, contrast & location on chair	See remarks	8.2 (d)(ii) A,B,C
- Label/s to be permanent and durable	See remarks	8.2 (e) (i, ii,iii)
8.3 Pre-sale information – to include the following:		
- Description of the intended occupant of the wheelchair (including specific requirements)	Pass	8.3 (a)
- Description of intended use and intended environment	Pass	8.3 (b)
- Overall dimensions (mm), Mass (kg), ready for use and folded (Appendix B)	Pass	8.3 (c)
- Standard options available	Pass	8.3 (d)
- Types of tyres that can be used	Pass	8.3 (e)
- Operator adjustments	Pass	8.3 (f)
- Whether & how wheelchair can be folded or dismantled for storage or transport	NA	8.3 (g)
- Heaviest part of wheelchair (if capable of dismantling)	NA	8.3 (h)
- Instructions for transport when not occupied	Pass	8.3 (i)
- Information if intended for use as a seat in vehicle and effect on options	See remarks	8.3 (j)
- If intended as seat in vehicle, details of attachment points and accessories & warnings	See remarks	8.3 (k)
- Specific information on Australian / New Zealand warranties & contact details	See remarks	8.3 (l)

AS/NZS 3695.1:2011 – INFORMATION DISCLOSURE REQUIREMENTS (Cont.)

Requirements	Result of verification	Reference in AS3695.1:2011
8.4 Operator information – Shall contain the following:		
- Location of unique identification number	Pass	8.4 (a)
- Information relating to the supplied chair from Clause 8.3 (a), (d) , (i) to (k)	Pass	8.4 (b)
- Intended operator (occupant, assistant or both)	Pass	8.4 (c)
- Adjustments or settings required before use & warnings for effects on stability	Pass	8.4 (d)
- Information on adjustments and persons competent for adjustments	Pass	8.4 (e)
- Instructions for operation of all controls, including brakes	Pass	8.4 (f)
- Manufacturers recommended tyres and tubes	Pass	8.4 (g)
- Manufacturers recommended maintenance requirements	Pass	8.4 (h)
- Warning regarding surface temperatures of wheelchair	See remarks	8.4 (i)
- Warning for trapping hazards & pinch points	Pass	8.4 (j)
- Instructions of drive engagement & disengagement	NA	8.4 (k)
- Instructions for dismantling and re-assembly of wheelchair	NA	8.4 (l)
- Mass of heaviest component of wheelchair (in kg)	NA	8.4 (m)
- Areas of safe handling, moving, dismantling, assembly, carrying etc.	Pass	8.4 (n)
- Information on recycling	See remarks	8.4 (o)
- Warnings if adjustments can be set outside safe limits	NA	8.4 (p)
- Information on Australian / New Zealand warranty & contacts for service & repairs	See remarks	8.4 (q)

Remarks:

Clause 8.2 (a) (iv) may form part of the serial number attached to the sample.

The sample supplied for testing was fitted with the optional Transit Tie-Down System (TTDS)
 The operator manual states that when fitted with the TTDS system the product has been dynamically tested in a forward facing mode to a 30 mph frontal impact test.

The designated tie-down anchorage points fitted have been identified with the recognised carabiner symbols, and no further marking is required for compliance to AS/NZS 3695.1:2011.

If this wheelchair is not intended for use as a seat in motor vehicles and does not have the TTDS option fitted, the product must be labelled as specified below:

- Clauses, 8.2 (d) (ii) For AS/NZS 3696.19 Non-compliant chairs, warning label with the words ‘Not AS/NZS 3696.19 compliant’
- Clause 8.2 (d)(ii) A,B,C Label to have correct font size, contrast & location on chair
- Clause 8.2 (e) (i, ii,iii) Label/s to be permanent and durable

Clause 8.4 (i) No statement could be found in the owners’ manual warning of increased surface temperatures if the wheelchair is exposed to direct sunlight. (Requirement for AS/NZS compliance, not an ISO requirement)

Clause 8.4 (o) No statement could be found in the owner’s manual recommending recycling of chair or components at the end of service life. (Requirement for AS/NZS compliance, not an ISO requirement)

Clause 8.4 (q) considered only necessary if wheelchair is to be sold into AS/NZS markets

WW. End of remarks -----

AS/NZS ISO 7176.1:2015 (ISO 7176-1:2014) – DETERMINATION OF STATIC STABILITY

Test	Result of measurement (°) Requirement, minimum 10° as per AS/NZS 3695.1:2011 (Unless fitted with anti-tips)		Result of measurement (°) Max safe slope as claimed by manufacturer (if greater)	
Testing method: (To AS/NZ ISO 7176.1:2015)				
8. Test for static stability in the forwards direction (w/chair facing down the slope)				
8.1 a) For wheelchairs with non-lockable front wheels, measure tipping angles as per 8.2 and 8.4 only				
8.2 b) For wheelchairs with lockable front wheels, measure tipping angles as per 8.2 to 8.5				
8.2 Downhill wheels unlocked -Tested using roll restraint				
Least stable condition	>11.0°		NA	
8.3 Downhill wheels locked -Tested using slide restraint				
Least stable condition	NA (Non lockable front wheels)		NA	
8.4 Downhill wheels unlocked -Tested using roll restraint				
Most stable condition	>11.0°		NA	
8.5 Downhill wheels locked -Tested using slide restraint				
Most stable condition	NA (Non lockable front wheels)		NA	
9. Test for static stability in the rearwards direction (w/chair facing up the slope)				
9.1.1 For wheelchairs with non-lockable rear wheels, measure tipping angles as per 9.2 and 9.4 only				
9.1.2 For wheelchairs with lockable rear wheels, measure tipping angles as per 9.2 to 9.5				
9.2 Downhill wheels unlocked - Tested using roll restraint				
Least stable condition	12.0° at tip onto anti-tips		NA	
9.3 Downhill wheels locked – Tested using slide restraint				
Least stable condition	7.8° at tip onto anti-tips		NA	
9.4 Downhill wheels unlocked – Tested using roll restraint				
Most stable condition	11.5°		NA	
9.5 Downhill wheels locked – Tested using slide restraint				
Most stable condition	8.8° at tip onto anti-tips		NA	
10. Test for static stability, lateral orientation – W/chair facing across the slope				
10.2.3 Tested with all lockable wheels locked				
5.3 Tested with roll restraint when a castor wheel, pivot wheel, or pivot drive wheel is unlocked				Y
5.4 Tested with slide restraint when a castor wheel, pivot wheel, or pivot drive wheel is locked				Y
5.4 Tested with slide restraint when a drive wheel, manoeuvring wheel or guide wheel is locked or unlocked				Y
Least stable condition	>12.0° LH	>12.0° RH	NA	NA
Most stable condition	>12.0° LH	>12.0° RH	NA	NA
11. Static stability with forward or rearward anti-tip devices				
11.2 Anti-tip devices in least effective configuration, wheelchair in least stable condition			>14.0°	
11.3 Anti-tip devices in most effective configuration, wheelchair in least stable condition			>14.0°	
11.4 Effectiveness of anti-tip devices in most effective configuration (If chair stability is less than 10°)			>14.0°	

AS/NZS 3695.1:2011 and AS/NZS ISO 7176.3:2015 – DETERMINATION OF BRAKE EFFICIENCY, PARKING BRAKE TEST

Test	Angle when movement commences	Type of movement (e.g. turning, Sliding, tyre rolling)	Specification according to AS3695.1	Reference in clause of AS/NZS ISO 7176.3:2015
Force to apply brakes	60 N			
As measured before brakes fatigue tests				
Parking brakes facing down slope	>9.0°	No slipping or creep	>7°	7.2
Parking brakes facing up slope	>9.0°	No slipping or creep	>7°	7.2

Test	N° of fatigue cycles	Specification according to AS/NZS ISO 7176.8:2015	Reference in clause of ISO 7176.8:2015	Reference in clause of ISO 7176.8:2015
Brakes fatigue	60,000 Cycles	60,000 cycles	10.5	10.5

Test	Angle when movement commences	Type of movement (e.g. turning, sliding, tyre rolling)	Specification according to AS3695.1	Reference in clause of AS/NZS ISO 7176.3:2015
As measured after brakes fatigue tests				
Parking brakes facing down slope	>9.0°	No slipping or creep	>7°	7.2
Parking brakes facing up slope	>9.0°	No slipping or creep	>7°	7.2

Remarks:

None. WW. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS/NZS 3695.1:2011 and AS/NZS ISO 7176.3:2015 (except the methods indicated in this report as “not tested” and/or tested with deviations) for user mass 114 kg

PASS

AS3695.1:2011, AS3696.5:1989 – OVERALL DIMENSIONS, MASS AND TURNING SPACE

Overall dimensions (Clause 5 of AS3696.5)					
Dimensions, to the nearest 10mm	Measured value	Reference in clause of AS3696.5	Dimensions, to the nearest 10mm	Measured value	Reference in clause of AS3696.5
Dimensions ready for occupation		5.1	Folded dimensions		5.2
Length, mm	*1100 / 1165	5.1.1	Min. folded length, mm	845	5.2.1
Length (no footrest or support), mm	*845 / 910	5.1.2	Min. folded width, mm	730	5.2.2
Width, mm	730	5.1.3	Min. folded height, mm	930	5.2.3
Overall height, mm	930	5.1.4	Min folded volume, m ³ .	0.57 m ³	5.2.4

Mass, to the nearest kg	Measured value	Reference in clause of AS3696.5	Dimensions, to the nearest 10mm	Measured value	Reference in clause of AS3696.5
Mass	34.2 kg	6	Turning space		7
			Min. turning radius, mm	815	7.1
			Min. turn between walls, mm	1485	7.2

Remarks:

None. WW. End of remarks -----

AS3695.1:2011, ISO 7176.7:1998 - DIMENSIONS

Dimensions (ISO 7176.7)					
Dimension	Measured values Min/Max	Reference dimension in ISO DIS 7176.7	Dimension	Measured values Min/Max	Reference dimension in ISO DIS 7176.7
Seat plane angle, °	4.0 / 24.5°	1	Effective seat depth, mm	515	2
Max. seat width, mm	465	3	Seat surface height, front edge, mm	455 / 485	5
Backrest angle, °	7.2° / 27.7°	6	Backrest height, mm	530	7

The size of RLG: Adult

Remarks:

Dimensions shown * taken without anti-tips and with anti-tips

None. WW. End of remarks -----

AS/NZS 3695.1:2011 and AS/NZS ISO 7176.8:2015 – STATIC, IMPACT AND FATIGUE TESTS

STATIC STRENGTH TESTS to AS/NZS ISO 7176.8:2015					
Test method for static strength	Actual force applied, (N)	Specification according to a table of AS/NZS ISO 7176.8:2015		Result of strength test	Reference in AS/NZS ISO 7176.8
		Force for 100 kg user mass	Force for 114 user mass (N)		
Armrest resistance to downward forces (No test dummy fitted)	1740 N	761 N	1736 N (Both)	PASS	8.4
Footrest resistance to downward forces (No test dummy fitted)	1120 N	981 N	1118 N	PASS	8.5
Tipping levers downwards load (Test dummy fitted)	NA	1000 N	1000 N	NA	8.6
Handgrips (Test dummy fitted)	750 N	750 N	750 N	PASS	8.7
Armrests resistance to upward forces (Test dummy fitted)	995 N	896 N	994 N	PASS	8.8
Footrest resistance to upward forces (Test dummy fitted)	490 N	444 N each	490 N (Each)	PASS	8.9
Push handle resistance to upward load (Test dummy fitted)	1760 N	882 N each	1760 N	PASS	8.10

Remarks:

None. WW. End of remarks -----

IMPACT STRENGTH TESTS to AS/NZS ISO 7176.3:2015		
Test method for impact strength	Result of test and mode of failure (see list of failures above)	Reference in AS/NZS ISO 7176.8
Backrest resistance to impact (DUMMY THIGHS ONLY FITTED)	PASS	9.3
Hand-rim resistance to impact (DUMMY FITTED)	PASS	9.4
Castors (DUMMY FITTED)	PASS	9.5
Footrests resistance to lateral impact (DUMMY FITTED)	PASS	9.6.3
Footrests resistance to longitudinal impact (DUMMY FITTED)	PASS	9.6.4
Anti-tip devices – Upwards impacts (3 Times with test dummy fitted)	PASS	9.7.1
Anti-tip devices – Longitudinal impact (Test dummy fitted)	PASS	9.7.2
Anti-tip devices – Lateral impact (Test dummy fitted)	PASS	9.7.3

Remarks:

Static strength and impact tests were performed before the durability tests.
WW. End of remarks -----

FATIGUE TESTS to AS/NZS ISO 7176.8:2015				
Test method for fatigue strength	Actual number of cycles (Or cycles recorded at failure)	Specification according to AS/NZS ISO 7176.8, number of cycles	Mode of failure (see list of failures in table below)	Reference in AS/NZS ISO 7176.8
Two drum test	200,000 Cycles	200,000 Cycles	None	10.3
Drop test	6,666 Cycles	6,666 Cycles	None	10.4

Remarks:

None. WW. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS/NZS 3695.1:2011 and AS/NZS ISO 7176.8:2015 (except the methods indicated in this report as "not tested" and/or tested with deviations) for user mass 114 kg

PASS

STRENGTH REQUIREMENTS AS/NZS ISO 7176.8:2015 Confirmation of strength test requirements – Post-test – Clause 4		
Test requirement.	Result following all strength tests	Reference in AS/NZS ISO 7176.8 (Clause 4)
No component to show evidence of visible cracks, be fractured or have become detached	PASS	4.1 a)
No externally visible cable shall be cut, abraded or crushed No externally visible electrical connector shall be crushed or disconnected	NA	4.1 b)
All parts intended to move, rotate or be removable, folding or adjustable shall operate as req'd.	PASS	4.1 c)
All power operated systems shall operate as described by the manufacturer	NA	4.1 d)
Handgrips shall not be displaced	PASS	4.1 e)
No component or assembly of parts shall exhibit visible plastic deformation, free play or loss of adjustment that adversely affects the function of the wheelchair	PASS	4.1 f)
The brake mechanism shall not have moved from the pre-set condition	PASS	4.1 g)

Traceable Equipment used for Measurements in this report					
Gauge #	Gauge Type		Gauge #	Gauge Type	
TLE004	Standard finger Probe	<input type="checkbox"/>	TLE141	Tape Measure, 5 Metre	<input checked="" type="checkbox"/>
TLE009	Cold Climate Chamber	<input type="checkbox"/>	TLE144	Stop Watch	<input checked="" type="checkbox"/>
TLE010	Test Rig (Static Load Drop)	<input checked="" type="checkbox"/>	TLE148	Protractor, Vernier	<input type="checkbox"/>
TLE011	2 Drum Durability Rig	<input checked="" type="checkbox"/>	TLE151	Accelerometer	<input type="checkbox"/>
TLE012	Stability Ramp - Static	<input checked="" type="checkbox"/>	TLE167	Test Masses, 25kg	<input type="checkbox"/>
TLE016	Square, Steel - Large	<input type="checkbox"/>	TLE175	2 Drum Durability rig	<input type="checkbox"/>
TLE018	Rule, Steel – 1,000 mm	<input type="checkbox"/>	TLE176	Test Dummy	<input type="checkbox"/>
TLE019	Reference Load Gauge	<input checked="" type="checkbox"/>	TLE179	Test Rig Prosthetics, Foot	<input type="checkbox"/>
TLE024	Stability Ramp, Dynamic	<input type="checkbox"/>	TLE182	Multimeter	<input type="checkbox"/>
TLE028	Spring Balance 0-100g	<input type="checkbox"/>	TLE183	Impact Pendulum	<input checked="" type="checkbox"/>
TLE029	Spring Balance 0– 5kg	<input type="checkbox"/>	TLE184	Test Dummy	<input type="checkbox"/>
TLE030	Spring Balance 0-20kg	<input type="checkbox"/>	TLE185	Inclinometer	<input checked="" type="checkbox"/>
TLE032	Thermometer	<input type="checkbox"/>	TLE186	Inclinometer, small	<input type="checkbox"/>
TLE049	Torque Wrench	<input type="checkbox"/>	TLE196	Test Rig Prosthetics, Knee	<input type="checkbox"/>
TLE067	Tyre Pressure Gauge	<input type="checkbox"/>	TLE201	Load Cell	<input checked="" type="checkbox"/>
TLE068	Impact Mass, 25 kg Soccer	<input checked="" type="checkbox"/>	TLE203	Impactor	<input type="checkbox"/>
TLE077	Force Gauge, RLG	<input checked="" type="checkbox"/>	TLE204	Pendulum Impact Hammer	<input type="checkbox"/>
TLE084	Rule, Steel – 300mm	<input type="checkbox"/>	TLE205	Tape Measure, 8 Metre	<input type="checkbox"/>
TLE087	Test Obstacles	<input type="checkbox"/>	TLE210	Test Obstacle, Threshold	<input type="checkbox"/>
TLE105	Thermohygrograph	<input checked="" type="checkbox"/>	TLE211	Prosthetic Set up Gauge	<input type="checkbox"/>
TLE106	Scales, Digital	<input checked="" type="checkbox"/>	TLE212	Test Rig, Proof Test	<input type="checkbox"/>
TLE112	Vernier Caliper, 200mm	<input type="checkbox"/>	TLE216	Load Pad, Seat Base	<input type="checkbox"/>
TLE114	Spring Balance, 50kg	<input type="checkbox"/>	TLE218	Square, Steel - Small	<input type="checkbox"/>
TLE131	Test Dummy	<input type="checkbox"/>	TLE220	DC Wattmeter	<input type="checkbox"/>
TLE132	Test Dummy	<input checked="" type="checkbox"/>	TLE221	Temp/Humidity Meter	<input type="checkbox"/>
TLE133	Test Dummy	<input type="checkbox"/>	TLE225	Caliper, Digital 200mm	<input checked="" type="checkbox"/>

NOTES

1U₉₅ Uncertainty of measurements where not specified: linear ± 1 mm, angular $\pm 30'$, force, mass $\pm 1\%$, temperature $\pm 1^\circ\text{C}$, cycles ± 1 count. This means the true measurement is within the stated tolerances at least ninety five times in one hundred

2 All testing was carried out in a controlled environment laboratory using methods set out in the Standards documents, all deviations and additions to the Standards' methods are noted in remarks.

3 All instruments either carried valid calibration certificates throughout the test period or were checked against traceable Standards before and after use.

4 The NovitaTech Test Laboratory has no control over the selection of test samples. Any extension of the findings of this report to cover production items must be based on production being truly represented by the sample(s).

5 Any non-conformances are indicated in red.

6 Items marked NA – Not applicable to sample tested

_____ END OF REPORT _____