TEST REPORT FOR:

Product Design Group Inc. Bentley Tilt G2 Model Manual Wheelchair, (250 lbs / 114 kg user weight)

LABORATORY REFERENCE

492550

21st September 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: **492550**

Name and Model No:
Product Design Group Inc.
Bentley Tilt G2 model
Manual Wheelchair

Serial no(s) of test sample:
81324

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

Contact person: Torr Brown

Order No: 238388 **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)

Digitally signed by Wayne Wurfel
DN: cn=Wayne Wurfel, o=Test Laboratory, ou=NovitaTech, email=wayne.wurfel@novita.org.au, c=AU
Reason: I attest to the accuracy and integrity of this document
Date: 2016.09.23 09:02:06 +09'30'

Checked: Andrew Rose
Team Leader

Dates of testing period:
February & March, September 2016

Date of issue of this report:
21st September 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 up to 250lbs / 114 kg
Frame type	Fixed frame with tilting seat mechanism
Frame material	Tubular steel construction
Tilt	Yes
Recline	No
Anti-tips	Rear anti-tips fitted
Push handles	Single horizontal bar type, with seat tilt locking handle fitted
Footrests	Individual footrests, height adjustable, swing away, removable
Armrests	Height adjustable, removable
Headrest	No headrest
Seating:	
Backrest	Fixed backrest
Width	430 mm
Height	530 mm
Description	Sling type padded fabric
Seat	Fixed seat
Width	450 mm
Depth	480 mm
Description	Rigid aluminium base plate fixed to steel frame
Wheels:	
Castor wheels	Front
Width	25 mm
Diameter	200 mm
Description	Moulded plastic rims with solid tyres
Self- propelled wheels	
Width	25 mm
Diameter	600 mm
Description	Moulded plastic rims with solid tyres
Other features:	Tilting seat function
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 supplier	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	Pass	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 tyres	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	Pass	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 3696.3:2008)	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	Pass	7.3
- If fitted with anti-tip devices, must be stable at >10° for rearward stability	Pass	
Section 7.4 – Operating force		
- Max operating forces for engaging & releasing ref: Table 1, AS/NZS 3696.3;2008 (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 (38 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	NA	Fig 2
7.9 Resistance to ignition (As per ISO 7176-16)		
- All postural support devices	See remarks	7.9 (a)
- Complete composite of all upholstered parts	See remarks	7.9 (b)
- The material of each part of foam materials	See remarks	7.9 (c)
7.10 Seating adjustments for tilt and recline systems		
- Controls operated by occupant shall be accessible from all seating positions	Pass	
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 the 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. 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) Operator manual states that when fitted with the TTDS system the product has been dynamically tested and compliant to SAE J2249 (30 mph frontal impact test) As these designated tie-down anchorage points have been identified with the recognised carabiner symbols, no further marking is required.
To meet the requirements of 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	Pass	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	Pass	8.3 (j)
- If intended as seat in vehicle, details of attachment points and accessories & warnings	Pass	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	NA Solid tyres	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:

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) Requirement 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	>12.0°		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	>12.0°		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 point of tipping		NA	
9.3 Downhill wheels locked – Tested using slide restraint				
Least stable condition	7.5° at point of tipping		NA	
9.4 Downhill wheels unlocked – Tested using roll restraint				
Most stable condition	>12.0°		NA	
9.5 Downhill wheels locked – Tested using slide restraint				
Most stable condition	8.5° at point of tipping		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			>15.0°	
11.3 Anti-tip devices in most effective configuration, wheelchair in least stable condition			>20.0°	

11.4 Effectiveness of anti-tip devices in most effective configuration (If chair stability is less than10°)	>15.0°

Remarks:

None RP. End of remarks ----------

The sample submitted for this test satisfies the relevant requirements of AS/NZS ISO 7176.1:2015 (except the methods indicated in this report as "not tested" and/or tested with deviations) for user mass 114 kg — PASS

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 AS3695.1:2011	Reference in clause of AS/NZS ISO 7176.3:2015
Force to apply brakes	40 N			
As measured before brakes fatigue tests				
Parking brakes facing down slope	12.5 °	Brake creep commences	>7 °	7.2
Parking brakes facing up slope	10.0 °	Brake creep commences	>7 °	7.2

Test	Completed cycles (or cycles recorded at failure)	Specification according to AS/NZS ISO 7176.8:2015	Reference in clause of AS/NZS ISO 7176.8:2015	Reference in clause of AS/NZS ISO 7176.8:2015
Brakes fatigue	60,000	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	>12.0	Brake creep commences	>7 °	7.2
Parking brakes facing up slope	>10.0	Brake creep commences	>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 AS3696.5:1989)					
Dimensions, to the nearest 10mm	**Measured value**	**Reference in clause of AS3696.5-1989**	**Dimensions, to the nearest 10mm**	**Measured value**	**Reference in clause of AS3696.5-1989**
Dimensions ready for occupation		5.1	Folded dimensions		5.2
Overall Length, mm	1195	5.1.1	Min. folded length, mm	900	5.2.1
Overall Length (no footrest or leg support), mm	900	5.1.2	Min. folded width, mm	725	5.2.2
Width, mm	725	5.1.3	Min. folded height, mm	995	5.2.3
Overall height, mm	995	5.1.4	Min folded volume, m^3.	0.65 m^3	5.2.4

Mass, to the nearest kg	**Measured value**	**Reference in clause of AS3696.5:1989**	**Dimensions, to the nearest 10mm**	**Measured value**	**Reference in clause of AS3696.5:1989**
Mass, kg	33 kg	6	Turning space		7
			Min. turning radius, mm	1620	7.1
			Min. turn between walls, mm	1600	7.2

Remarks:

None. RP. End of remarks ----------

AS3695.1:2011, AS/NSZ ISO 7176.7:1998(E) - DIMENSIONS

DIMENSIONS AS/NZS ISO 7176.7:1998(E)					
Dimension	**Measured values Min / Max**	**Reference dimension in AS/NSZ ISO 7176.7:1998(E)**	**Dimension**	**Measured values Min / Max**	**Reference dimension in AS/NSZ ISO 7176.7:1998(E)**
Seat plane angle, °	4.0° / 8.5°	1	Effective seat depth, mm	480 / 480	2
Max. seat width, mm	460	3	Seat surface height at front edge, mm	440	5
Backrest angle,°	18.0° / 22.5°	6	Backrest height, mm	530	7

The size of RLG: Adult
Remarks:

None. RP. 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 kg user mass (N)**		
Armrest resistance to downward forces (No test dummy fitted)	1760 N (Both)	761 N	868 N each	Pass	8.4
Footrest resistance to downward forces (No test dummy fitted)	1140 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)	NA (Enclosed)	750 N	750 N	NA	8.7
Armrests resistance to upward forces (Test dummy fitted)	1004 N	896 N	994 N	Pass	8.8
Footrest resistance to upward forces (Test dummy fitted)	502 N	444 N each	489 N each	Pass	8.9
Push handle resistance to upward load (Test dummy fitted)	1780 N (1 piece)	882 N each	880 N single	Pass	8.10

Remarks:

Static strength tests performed before impact and fatigue tests

No dedicated tipping levers fitted. RP. 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 (30° impact angle)	9.3
Hand-rim resistance to impact (DUMMY FITTED)	Pass (45° impact angle)	9.4
Castors (DUMMY FITTED)	Pass (52.4° impact angle)	9.5
Footrests resistance to lateral impact (DUMMY FITTED)	Pass (52.4° impact angle)	9.6.3
Footrests resistance to longitudinal impact (DUMMY FITTED)	Pass (52.4° impact angle)	9.6.4
Anti-tip devices – Upwards impacts (3 Times with test dummy fitted)	Pass (15 mm step)	9.7.1
Anti-tip devices – Longitudinal impact (Test dummy fitted)	Pass (33.4° impact angle)	9.7.2
Anti-tip devices – Lateral impact (Test dummy fitted)	Pass (52.4° impact angle)	9.7.3

Remarks:

Impact tests performed before fatigue strength tests.

RP. 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	No failure	10.3
Drop test	6,666 Cycles	6,666 Cycles	No failure	10.4

Remarks:

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

NOTES

1 U_{95} Uncertainty of measurements where not specified: linear ±1mm, angular +- 30', force, mass ±1%, temperature ±1°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