

Test Report



Customer	Sunrise Medical
Test Item	Cirrus G5
Test	ISO 7176-19:2008 as amended by EN 12183:2014
Millbrook Report No.	18/0654
Millbrook Test No.	S15375

Author:



B. Appleyard
Engineer

Approved:



N. Targett
Manager: Safety Test
Engineering

Date:

28th March 2018

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Distribution

Organisation	Recipient	Format	Qty
Sunrise Medical Limited Thorns Road Brierley Hill West Midlands DY5 2LD	David Davies	PDF	1
Millbrook Proving Ground Ltd Millbrook Bedford MK45 2JQ	Contract file	PDF	1

Report Revision History

Rev.	Revision Description	Date	Author	Approver	Pages
0	Initial release	28 th March 2018	B. Appleyard	N. Targett	All

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Appendices

Appendix A	Graphical Results
Appendix B	Transducer Calibration Report
Appendix C	Pre and Post Test Photography
	Summary of Results
High Speed Digital Films	See "Films" directory on data media
Still Photography	See "Stills" directory on data media

Test Facility and Date

The test, number S15375, was performed on 27th March 2018 at the Sled facility at Millbrook Proving Ground Ltd.

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MK45 2JQ
England

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Test Items

Test parts were delivered to Millbrook on 27th March 2018.

Item	Part No.	Test mass (kg)
Wheelchair	Cirrus G5	44kg
Front Wheelchair Tie Downs	Unwin OR02	6kg
Rear Wheelchair Tie Downs	Unwin OR03	
Occupant Restraints	MPG Surrogate v1	

The following table provides information regarding the ATD used in the test.

Description	Family	Test mass (kg)
50 th percentile male	HII	75kg

Test Outcome

The Cirrus G5 wheelchair satisfied the dynamic test requirements of ISO 7176-19:2008 as amended by EN 12183:2014.

Note 1: Lap belt routing through wheelchair structure required.

Note 2: High definition pre and post-test still images of the test are provided in the 'Stills' directory.

Photographic

A single high speed camera was positioned to provide overall coverage of the dynamic response of test item and occupant during the test. The high speed camera (nominal 1000 frames per second) used for this test was as detailed below:

Camera Position	Camera	Lens
LH Total on-board view	MotionXtra NX-Air-5-S2	IDT 6mm

Disclaimers

The results contained within this report only relate to the Cirrus G5 wheelchair, as described in Test Items.

Millbrook Proving Ground has no control over matters pertaining to conformity of production items with tested items.



At Millbrook, we provide a comprehensive range of engineering, test and validation services to customers in the automotive, transport, petrochemical, defence and security industries. We are independent and impartial in everything we do.

At our Proving Ground in the UK, we have 70km of varied test tracks, including hills routes, high speed areas and challenging off road courses. Our professional drivers and engineers perform repeatable tests, on all types of vehicles, in a secure and safe environment. We have a range of test facilities for components and full vehicles.

These include engine dynamometers, environmental chambers, crash laboratory and advanced emissions testing. We engineer and manufacture specialist vehicle conversions. These range from new versions of existing platforms, such as

estate cars, to armoured solutions and complex electronics installations. We conduct impartial vehicle assessments and develop class-leading vehicle dynamics improvements. We help Vehicle Manufacturers manage complex bills of materials and launch new models.

We are passionate about customer service and technical excellence; we take pride in delivering exactly what our customers want, whether that is a vehicle test, engineered solution or smooth-running conference. We develop our people so that they remain at the leading edge of their specialist fields and contribute to the development of future regulations. The quality of our work is reflected in our ISO 9001 and ISO 17025 certification. All of this combines to make Millbrook an integral part of the industries we serve and an ideal partner at any stage in the development and launch of the vehicles of tomorrow.