



Inspection/Test Report: Seats, their Anchorages and any Head Restraints Vehicles of Category M1

Legislation

UNECE Regulation 17.09 to Supplement 1

Inspection/Test Details

Location of Inspection/Test:	Braunability UK, The Horseshoe, Martock, TA12 6EY, UK
Date of Inspection/Test:	03-04 August 2021
VCA Representative(s):	Fraser Coulter
Inspectors office location:	VCA HQ
Manufacturer's Representative(s):	Paul Nieuwenhuis
Reason for Report:	Report only

Manufacturer Details

Name and Address:	Tripod Mobility B.V. Collseweg 10 5674 TR Nuenen The Netherlands
Type:	ETP/ETO/ETT
Commercial Description:	Berlingo REC / Rifter REC / Combo Life REC / Proace City REC
Category:	M1 SPV (WAV)

Conclusion

The above mentioned vehicle was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested.

Witness Engineer Signature:

Name:	Fraser Coulter
Position:	Type Approval Engineer
Date:	09 August 2021

List of Annexes

Annex	No of Pages	Subject
I	8	Braunability Test Reports
II	112	Info Doc

Issue Record





Issue 0 is original report

Worst Case Rationale

Testing to cover both fixed and quick release seat fittings in the Tripod conversions of the Berlingo/ Rifter/Combo/ Proace. For more details on seat mechanisms refer to annex II, info document.

Due to symmetrical nature of conversion with the fixed seat being tested on one side (LH) and the quick release being on the opposing side (RH) this test also covers the seats fitted in mirror image.

T-12929- Rearward
T-12930-Forward

Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report.

Significant Interpretations, Alternative Test Methods, New Technologies

Inspection/Tests Required

	Yes, NA, See Report ... / Approval ... / Annex ...
General Requirements	Yes
Special Requirements	Not covered in this report
Mounting of Head Restraints	Not covered in this report
Head Restraints secured to the Vehicle Structure	Not Applicable
Removal and Displacement of Head Restraints	Not covered in this report
Approval marking	Not covered in this report
Tests & Measurements:	
Head Restraint Dimensions	Not covered in this report
Energy Absorption/Dissipation (Impact) Tests	Not covered in this report
Moment Arm Test - Seats without Head Restraints	Not Applicable
Moment Arm Test - Seats with Head Restraints	Not covered in this report
Dynamic Test	Yes
Luggage Retention Tests	Not Applicable

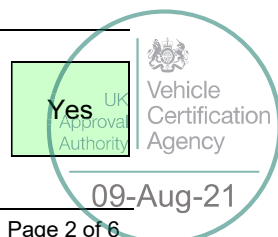
Vehicle Specification

Vehicle Identification Number:

Representative BiW

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the vehicle tested and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number.





Facility and Equipment Checks

Calibration certificates checked and valid, recorded in the following table:

Yes

Facility Appraisal reference and date (if applicable)

Not Applicable

Equipment	Serial / Certificate No.	Calibration due*
Data Acquisition	UIG133	04 September 2021
Accelerometers	UIG 108	21 September 2021
	UIG 275	21 September 2021
	UIG125	21 September 2021
	UIG 276	21 September 2021
Inclinometer	UIG246	23 July 2022

*Specify calibrated date + (interval) or calibration due date.

Inspection/Test Requirements

Complies
Yes / NA

General Requirements

5.1.1.	Vehicle is of category M1 and has no side-facing seats installed.	Yes
5.1.2.	Vehicle is not an ambulance or for use by the armed services, civil defence, fire services or forces responsible for maintaining public order.	Yes
	H-points and seat-back angles are as specified.	Yes
6.2.1	Tests carried out simultaneously, where appropriate.	Yes
5.2.1.	Adjustment and displacement systems lock automatically.	Yes
5.2.2.	The unlocking control for a displacement system is placed on the outside of the seat close to the door and is easily accessible, even to the occupant of the seat immediately behind. <i>Applies only to a seat for which the seat or one of its parts can be displaced and/or rotated to permit easy access of occupants to the space behind the seat.</i>	NA
5.2.4.	Padding and radii of the seat are satisfactory.	NA

Special Requirements

Special Requirements for Seats fitted or Capable of being fitted with Head Restraints
See page 2



**Vehicle
Certification
Agency**

VCA, 1 Eastgate Office Centre,
Eastgate Road, Bristol, BS5 6XX, United Kingdom
enquiries@vca.gov.uk |
www.vehicle-certification-agency.gov.uk |
+44(0) 300 330 5797

Report Number: ESY538240-R17

Issue: 0

This test report shall not be reproduced except in full, without written approval of the technical service.

Mounting of Head Restraints

See page 2

Head Restraints secured to the Vehicle Structure

See page 2

Removal and Displacement of Head Restraints

See page 2

Approval Marking

See page 2

Tests & Measurements

See page 2

Head Restraint Dimensions

See page 2

Energy Absorption/Dissipation (Impact) Tests

See page 2

Moment Arm Test - Seats without Head Restraints

Strength of the Seat-back and its Adjustment Systems for seats not fitted/incapable of being fitted with Head Restraints

See page 2

Moment Arm Test - Seats with Head Restraints

Strength of the Seat-back and its Adjustment Systems for seats fitted/capable of being fitted with Head Restraints

See page 2





Dynamic Test

Strength of the Seat Anchorage and Adjustment, Locking and Displacement Systems

6.3.1., 6.3.2. 6.3.1., 6.3.2. 6.3.5.	<p>Test type:</p> <ul style="list-style-type: none"> - Deceleration test. * - Acceleration test. * - Collision test. * <p>* Strikethrough as appropriate</p>	
	<p>Collision test</p>	
	<p>Collision test report number:</p>	Not Applicable
	<p>Remarks, including brief description of test equipment:</p>	
	<p>Deceleration/acceleration test</p>	
	<p>Brief description of test equipment:</p>	Bungee powered Decel Sled
6.1. 6.1.2 6.1.2. 6.1.3 6.3.3 6.1.4	<p>Seat test setup is appropriate:</p> <ul style="list-style-type: none"> - Tests of all seats with their locking mechanism and installations. * - Test of single seat of type with locking mechanism and installation identical or symmetrical with respect to another on the vehicle. * - Each seat with adjustable head restraint is tested with the restraint placed in the highest position allowed by its adjustment system. * - Test for each folding seat is in the position of use by its occupant. * <p>* Strikethrough as appropriate</p>	Yes
	<p>Details:</p>	Test of both rigid and fixed seats placed with side of cut floor, the vehicle is symmetrical relative to the seat mounting.
6.3.3.-6.3.4.	<p>Seats are adjusted as specified in paragraphs 6.1.1, 6.3.3 and 6.3.4.</p>	NA
6.1.1.	<p>Details of manufacturer's specification for seat-back angle if not 25°:</p>	Seat back angles are fixed
6.3.1.	<p>Seats are subjected to a 20 g deceleration (or acceleration) for 30 ms, imitating a frontal collision.</p>	Yes
6.3.1. Ann 9, 3.1	<p>Where the rearmost row seats are subjected to a deceleration (or acceleration) imitating a frontal impact with curve remaining within the corridor in Annex 9, this also meets the requirement for 20 g for 30ms. <i>Note: This permits the frontal impact test to be achieved in conjunction with a Luggage Retention test; however, for rearmost seats, this combined test should only be performed without the seats "staggered" longitudinally, and it may be necessary to perform separate tests where seats can be staggered.</i></p>	Yes



6.3.2.	Seats are subjected to a 20 g deceleration (or acceleration) for 30 ms, imitating a rear collision.	Yes
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Test Results

6.2.1 5.2.5	No failure in the seat frame, seat anchorage, adjustment and displacement systems or their locking devices during/after the test.	Yes
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Dynamic (Deceleration/acceleration) Test Results			
Extend/reduce table as required			
Run No	Direction	Time at 20 g (ms)	Remarks (Comments on damage, sharp edges, etc)
T-12929	Rearward	41.9	No damage or sharp edges
T-12930	Forward	42.5	No damage or sharp edges

Luggage Retention Tests

See page 2

Inspection/Test Results

This section covers general observations arising from the tests and may be duplicated to cover each individual test, or be used as a summary covering all tests.

For results covering specific tests, see the tables within the relevant sections.

5.2.4.	Except for rearmost seats, back-to-back seats or seats compliant with Regulation No. 21, the relevant parts of the surface of the rear parts of seats exhibit no dangerous roughness or sharp edges likely to increase the risk of severity of injury to the occupants.	Yes
5.2.5.	No failure in the seat frame, seat anchorage, adjustment and displacement systems or locking devices during or after the tests. <i>Note: Permanent deformations, including ruptures, may be accepted, provided that these do not increase the risk of injury in the event of a collision and prescribed loads were sustained.</i>	Yes
5.2.6.	No release of the locking systems occurs during the tests.	Yes
5.2.7.	After the tests, the displacement systems intended for permitting or facilitating the access of occupants are in working order	Yes
5.5.4	No rigid or dangerous parts projected from the Head restraint padding or attachments to the vehicle as a result of the pressure exerted during the tests.	Yes

Remarks

Note: VCA apply measurement uncertainty to calibrated items but not test results.

Test Number:	T-12929
Test Date:	8/3/2021
Test Engineer:	Ben Cox
Test House:	UDL
Witness 1:	Gavin Pike
Witness 2:	Fraser Coulter

Customer:	Braunability UK Ltd
Address:	Unwin House
	Coat Road
	Martock
	Somerset
	UK
	TA12 6EY

Test Objectives & Setup Details:
Tripod Peugeot Riffert rearwards VCA live test REG 17

Equipment Used In Test:		
Component	Description	Post Test
Occupant Restraint	N/A	N/A
Anchorage Type	N/A	N/A
3rd Point Restraint	N/A	N/A
Anchorage Type	N/A	N/A
Front Tie-Down	N/A	N/A
Anchorage Type	N/A	N/A
Rear Tie-Down	N/A	N/A
Anchorage Type	N/A	N/A
Combined System	N/A	N/A
Anchorage Type	N/A	N/A
Wheelchair	N/A	N/A
ATD	50th %ile N/A	N/A

Instrumentation:			
Type	Variant	Unwin ID	Last Calibration
Data Acquisition	BR00476	UIG 133	09/04/2020
Accelerometer	Sled Accelerometer (UIG 125)	UIG 125	09/21/2020 10:27:17
Accelerometer	Sled Accelerometer (UIG 276)	UIG 276	09/21/2020 10:31:31
Accelerometer	Sled Accelerometer (UIG 275)	UIG 275	12/03/2019 12:59:26
Accelerometer	Sled Accelerometer (UIG108)	UIG108	09/21/2020 10:28:46

Instrumentation Calibrated Annually



Post Test Observations According to Reg 17

a	ATD Shall be retained in seat of the SWC	N/A
b	The SWC shall remain in an upright position on the impact sled	N/A
c	No WTORS anchorage components or securement end fittings shall be detached or separated	Pass
d	Release of the SWC from the wheelchair tie-down shall not require the use of tools	N/A
e	Release of the ATD from the occupant restraint shall not require the use of tools	N/A
f	No part of the WTORS shall exhibit visible signs of tearing, fragmentation, fracture or complete failure of any load-bearing part unless such parts are intended to fail in a manner that limits the forces on the occupant	Pass
g	The WTORS shall exhibit no dangerous roughness, sharp edges or protrusions likely to increase the risk of injury to the occupant	Pass
h	The force required to open the buckle of any tie down or occupant restraint components shall not exceed 60N when tested as specified by 6.2.2.5 of ECE R16:1996, in accordance with the procedures of 7.8	Pass

During Test Observations According to Reg 17

		Result	Complies?
a	The horizontal excursion of the test wheelchair P-Point (Xwc) shall not exceed 200mm	???	???
b	The horizontal excursion of the ATD Knee (Xknee) shall not exceed 375mm	???	???
c	The horizontal excursion of the ATD Head (Xhead) shall not exceed 650mm	???	???
d	The WTORS shall prevent the wheelchair from imposing forward loads on the occupant Ratio of Xknee / XWC to be greater than or equal to 1.1	???	???
e	Inbound velocity (delta V 48kph +2 -0)	49.0 km.h-1	Passed
f	Cumulative Time to hold 20g (>15ms)	41.9 ms	Passed
h	Cumulative Time to hold 15g (>40ms)	45.5 ms	Passed

Test Pass or Fail Overall

Pass

Notes

Passed with good pulse



Test Photos T-12929

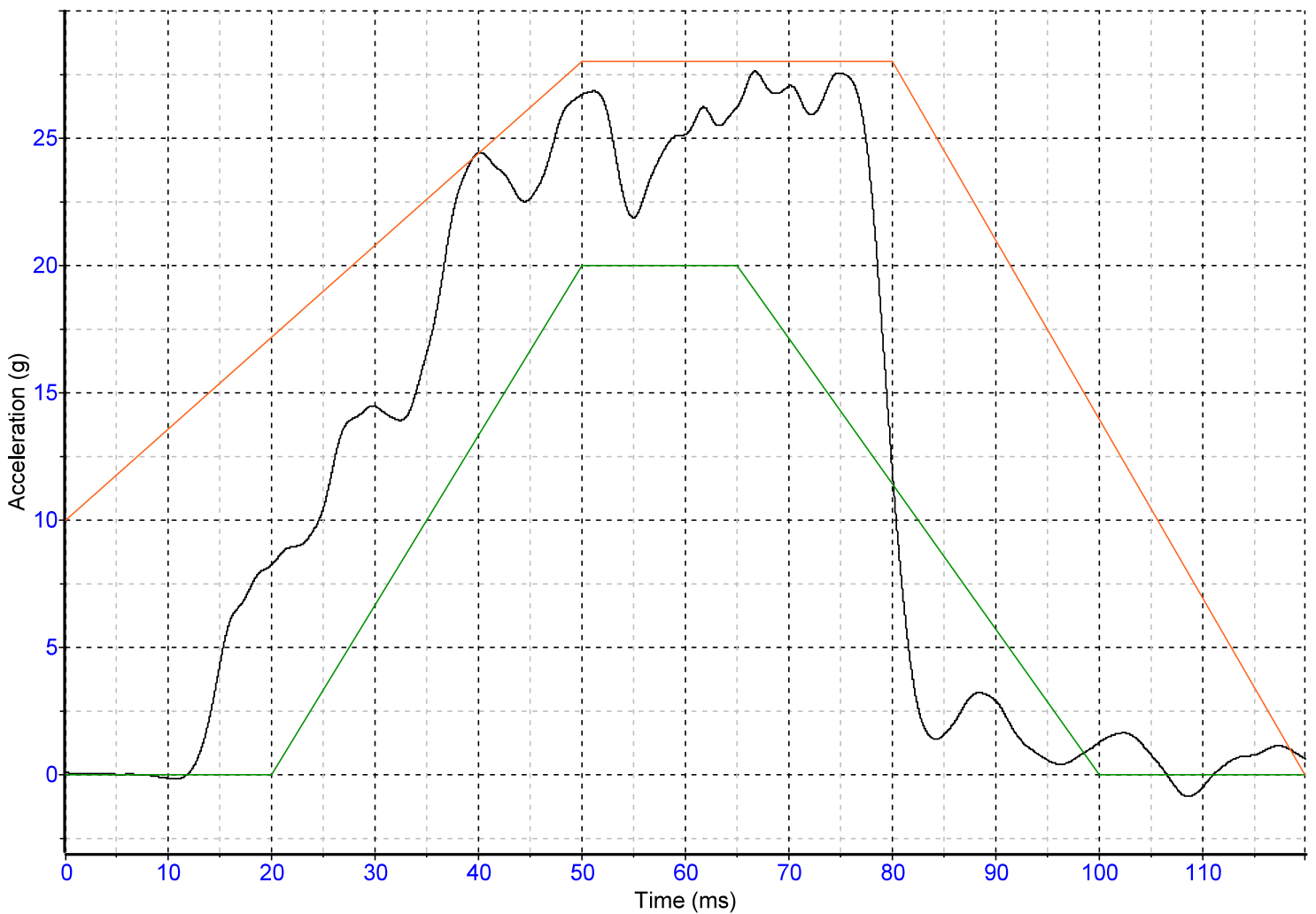


Pre Test



Post Test

Pulse Graph for Deceleration to Reg 17 T-12929



Time at 20g (Single Peak) : 41.9 ms [t1 : 36.7 ms, t2 : 78.6 ms] (Cumulative) : 41.9 ms

Test Pass or Fail Overall

5.2.5	No failure shall be shown in the seat frame or in the seat anchorage, the adjustment and displacement systems or their locking devices	N/A
5.2.6	No release of the locking systems shall occur during the test	N/A
5.2.7	After the tests, the displacement systems intended for permitting or facilitating the access of occupants shall be in working order; they shall be capable, at least once, of being unlocked and shall permit the displacement of the seat or the part of the seat for which they are intended	Pass

Test Pass or Fail Overall

Pass

Notes

Passed with good pulse



Test Number:	T-12930
Test Date:	8/3/2021
Test Engineer:	Gavin Pike
Test House:	UDL
Witness 1:	Ben Cox
Witness 2:	Fraser Coulter

Customer:	Tripod International
Address:	Tripod Mobility
	Collseweg 10
	5674 Nuenen
	Netherlands
	0
	0

Test Objectives & Setup Details:

Tripod Peugeot Rifter Forwards VCA live test REG 17

Equipment Used In Test:

Component	Description	Post Test
Occupant Restraint	N/A	N/A
Anchorage Type	N/A	N/A
3rd Point Restraint	N/A	N/A
Anchorage Type	N/A	N/A
Front Tie-Down	N/A	N/A
Anchorage Type	N/A	N/A
Rear Tie-Down	N/A	N/A
Anchorage Type	N/A	N/A
Combined System	N/A	N/A
Anchorage Type	N/A	N/A
Wheelchair	N/A	N/A
ATD	50th %ile N/A	N/A

Instrumentation:

Type	Variant	Unwin ID	Last Calibration
Data Acquisition	BR00476	UIG 133	09/04/2020
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Instrumentation Calibrated Annually



Post Test Observations According to Reg 17

a	ATD Shall be retained in seat of the SWC	N/A
b	The SWC shall remain in an upright position on the impact sled	N/A
c	No WTORS anchorage components or securement end fittings shall be detached or separated	Pass
d	Release of the SWC from the wheelchair tie-down shall not require the use of tools	N/A
e	Release of the ATD from the occupant restraint shall not require the use of tools	N/A
f	No part of the WTORS shall exhibit visible signs of tearing, fragmentation, fracture or complete failure of any load-bearing part unless such parts are intended to fail in a manner that limits the forces on the occupant	Pass
g	The WTORS shall exhibit no dangerous roughness, sharp edges or protrusions likely to increase the risk of injury to the occupant	Pass
h	The force required to open the buckle of any tie down or occupant restraint components shall not exceed 60N when tested as specified by 6.2.2.5 of ECE R16:1996, in accordance with the procedures of 7.8	Pass

During Test Observations According to Reg 17

		Result	Complies?
a	The horizontal excursion of the test wheelchair P-Point (Xwc) shall not exceed 200mm	???	???
b	The horizontal excursion of the ATD Knee (Xknee) shall not exceed 375mm	???	???
c	The horizontal excursion of the ATD Head (Xhead) shall not exceed 650mm	???	???
d	The WTORS shall prevent the wheelchair from imposing forward loads on the occupant Ratio of Xknee / XWC to be greater than or equal to 1.1	???	???
e	Inbound velocity (delta V 48kph +2 -0)	48.9 km.h-1	Passed
f	Cumulative Time to hold 20g (>15ms)	42.5 ms	Passed
h	Cumulative Time to hold 15g (>40ms)	47.9 ms	Passed

Test Pass or Fail Overall

Pass

Notes

AI held and pulse was good



Test Photos T-12930

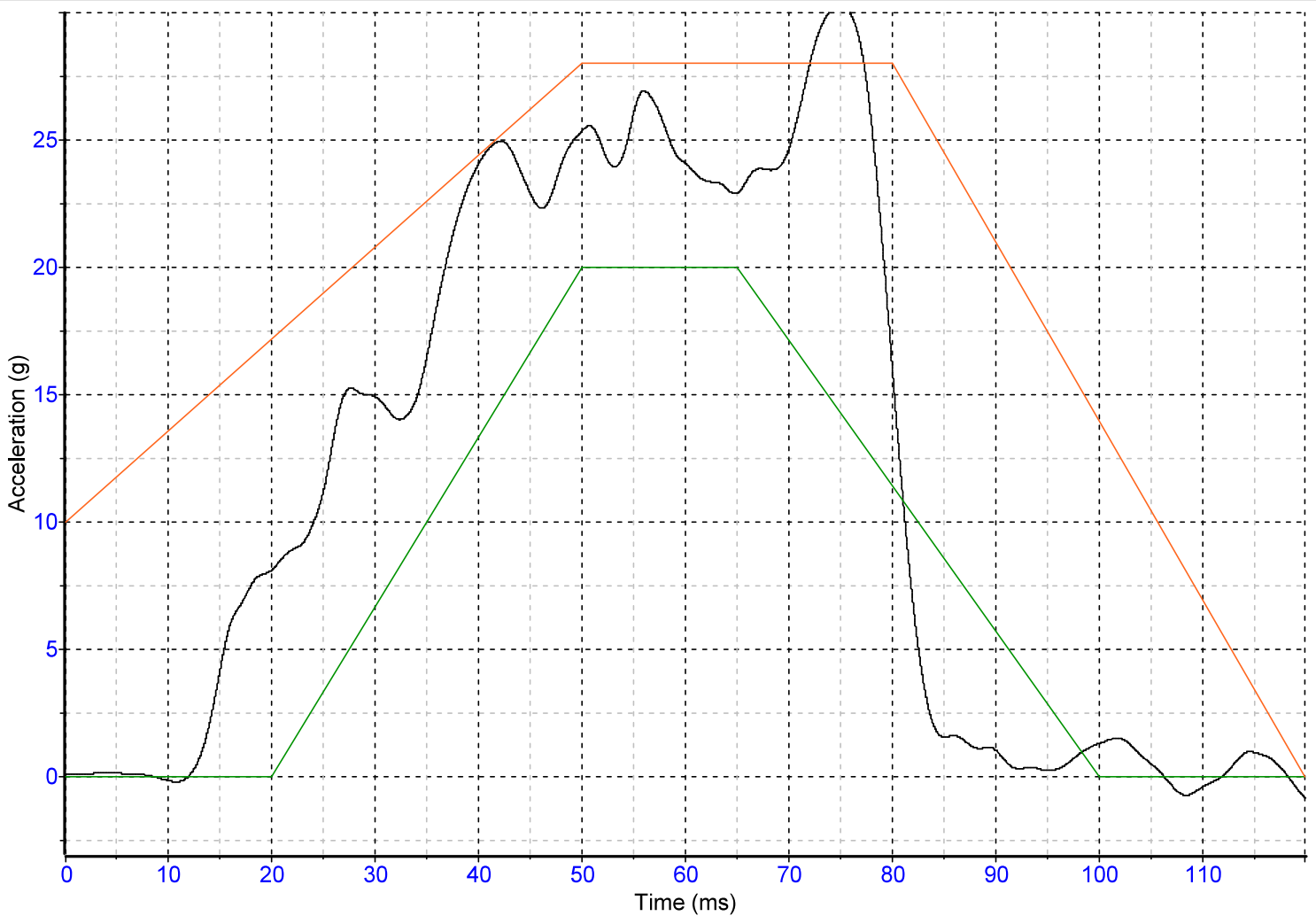


Pre Test



Post Test

Pulse Graph for Deceleration to Reg 17 T-12930



Time at 20g (Single Peak) : 42.5 ms [t1 : 36.8 ms, t2 : 79.2 ms] (Cumulative) : 42.5 ms

Test Pass or Fail Overall

5.2.5	No failure shall be shown in the seat frame or in the seat anchorage, the adjustment and displacement systems or their locking devices	N/A
5.2.6	No release of the locking systems shall occur during the test	N/A
5.2.7	After the tests, the displacement systems intended for permitting or facilitating the access of occupants shall be in working order; they shall be capable, at least once, of being unlocked and shall permit the displacement of the seat or the part of the seat for which they are intended	Pass

Test Pass or Fail Overall

Pass

Notes

AI held and pulse was good

