



CERTIFICATE



This is to certify that

ACTS GmbH & Co. KG

Kurfürst-Eppstein-Ring 11
63877 Sailauf
Germany

has implemented and maintains a **Quality Management System**.

Scope:

Production and distribution of test benches for vehicle safety tests and lifecycle tests, as well as for the certification of crash test dummies. No series production, pure item and prototype production usually according to customer requirement. Service for planning and supervision of the execution of test systems in the field of passive vehicle safety.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2015

Certificate registration no. 540402 QM15
Valid from 2019-02-26
Valid until 2022-02-25
Date of certification 2019-02-26



DQS GmbH

Stefan Heinloth
Managing Director



*Joint ISO-ILAC-IAF
Communique on the
Management Systems Requirements of ISO/IEC 17025,
General Requirements for the competence of testing and
calibration laboratories*

*A laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results and calibrations. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.*

A handwritten signature in blue ink, appearing to read "K. Nishi".

ISO Acting Secretary General

A handwritten signature in blue ink, appearing to read "Matti Malmqvist Nilsson".

ILAC Chair

A handwritten signature in black ink, appearing to be in Chinese characters.

IAF Chair

Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

Accreditation



The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory

ACTS-Advanced Car Technology Systems GmbH & Co.KG
Kurfürst-Eppstein-Ring 11, 63877 Sailauf

is competent under the terms of DIN EN ISO/IEC 17025:2018 to carry out tests in the following fields:

Dynamic safety testing on automobiles and their components for investigation of the behavior of the body, the passenger protection, safety of steering systems, prevention of fire risk and safety of rechargeable electrical energy storage systems in the event of collisions;
Dynamic sled testing with the focus on components of passenger protection, structure and safety of rechargeable electrical energy storage systems in the event of collisions;
Testing on automobiles and their components for evaluation of systems for the protection of pedestrians and interior impact protection;
Testing of rechargeable electrical energy storage systems with regard to their specific requirements;
Anthropomorphic Tests

The accreditation certificate shall only apply in connection with the notice of accreditation of 07.12.2020 with the accreditation number D-PL-18416-01. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 16 pages.

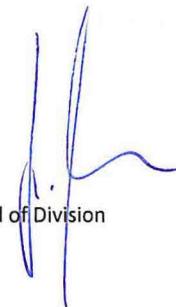
Registration number of the certificate: **D-PL-18416-01-00**

Berlin,
07.12.2020

Dr Heike Manke
Head of Division

Translation issued:
27.01.2021

Head of Division



*The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH*
<https://www.dakks.de/en/content/accredited-bodies-dakks>.

This document is a translation. The definitive version is the original German accreditation certificate.

See notes overleaf.

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkKS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkKS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAkKS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:

EA: www.european-accreditation.org

ILAC: www.ilac.org

IAF: www.iaf.nu

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-18416-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **07.12.2020**

Date of issue: 10.03.2021

Holder of certificate:

ACTS-Advanced Car Technology Systems GmbH & Co.KG
Kurfürst-Eppstein-Ring 11, 63877 Sailauf

Tests in the fields:

Dynamic safety testing on automobiles and their components for investigation of the behavior of the body, the passenger protection, safety of steering systems, prevention of fire risk and safety of rechargeable electrical energy storage systems in the event of collisions;
Dynamic sled testing with the focus on components of passenger protection, structure and safety of rechargeable electrical energy storage systems in the event of collisions;
Testing on automobiles and their components for evaluation of systems for the protection of pedestrians and interior impact protection;
Testing of rechargeable electrical energy storage systems with regard to their specific requirements;
Anthropomorphic Tests

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories. Laboratories that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

Abbreviations used: see last page

Page 1 of 16

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

1. Approval of motor vehicles by dynamic crash testing with the focus on restraint systems, structure, safety of steering mechanism, prevention of fire risk and safety of rechargeable electrical energy storage systems in the event of collisions

1.1 Electric/ Electronic		08
1.1.1 Electric vehicles		08-04
UN-R 100 Part II SERIES 02	Uniform provisions concerning the approval of vehicles with regard to specific requirements for the electric power train Part II: Requirements of a Rechargeable Electrical Energy Storage System (REESS) with regard to its safety, (only chapter 6.4.1 Mechanical Impact - Mechanical Shock / and Annex 8C: REESS-Test Procedures - Mechanical Shock)	08-04-23
(EU) 2017/79	COMMISSION DELEGATED REGULATION (EU) 2017/79 of 12 September 2016 establishing detailed technical requirements and test procedures for the EC type-approval of motor vehicles with respect to their 112-based eCall in-vehicles systems, of 112-based eCall in-vehicle separate technical units and components and supplementing and amending Regulation (EU) 2015/758 of the European Parliament and of the Council with regard to the exemptions and applicable standards Annex 1 to 3 (only dynamic testing i.e. crash test and sled test)	
1.2 Passive Safety		10
1.2.1 Prevention of fire risk		10-01
UN-R 34 Part I SERIES 03	Uniform provision concerning the approval of vehicles with regard to the prevention of fire risks	10-01-11
	Equivalent Test Procedure:	
49CFR571.301 2013-05	Standard No. 301, Fuel system integrity	

Annex to the accreditation certificate D-PL-18416-01-00

TRIAS 15-J017-01 Test for Prevention of Fuel Leakage in Collisions
2016-04 (Based on former version TRIAS 33-2005 (UN-R 32))

1.2.2 Protection of occupants against frontal collision		10-16
96/79/EC (1999/98/EC)	Directive 96/79/EC of the European Parliament and of the Council of 16 December 1996 on the protection of occupants of motor vehicles in the event of a frontal impact and amending Directive 70/156/EEC	10-16-01
UN-R 94 SERIES 03	Uniform provisions concerning the approval of vehicles with regard to the protection of the occupants in the event of a frontal collision	10-16-22
UN-R 137 SERIES 01	Uniform provisions concerning the approval of passenger cars in the event of a frontal collision with focus on the restraint system	10-16-23
UN-R 33 SERIES 00	Uniform provisions concerning the approval of vehicle with regard to the structure of the impacted vehicle in a head-on collision	10-16-81
FMVSS 208 2013-10	Occupant Crash Protection , incl. Out of Position Testing	

Equivalent Test Procedure:

Frontal Impact

ADR 69/00 2006-04	Full Frontal Impact Occupant Protection	
VSTD 44 Rev. 44-1	Steering control system - protection of the driver against the steering mechanism in the event of impact	

Offset Frontal Impact

TRIAS 18-R094-02 2016-04	Test for Occupant Protection in Offset Collisions (Agreement Regulation No. 94)	
ADR 73/00 2005-11	Offset Frontal Impact Occupant Protection	
VSTD 46 Rev. 46-3	Protection of occupants - frontal collision	

1.2.3 Protection of occupants against lateral collision **10-17**

96/27/EC Directive 96/27/EC of the European Parliament and of the Council of 20 May 1996 on the protection of occupants of motor vehicles in the event of a side impact and amending Directive 70/156/EEC 10-17-01

UN-R 95 Uniform provisions concerning the approval of vehicles with regard to the protection of the occupants in the event of a lateral collision 10-17-21
SERIES 03

UN-R 135 Uniform provisions concerning the approval of vehicles with regard to their Pole Side Impact performance (PSI) 10-17-22
SERIES 01

FMVSS 214 Side Impact Protection
2012-11

Equivalent Test Procedure:

Lateral collision with a mobile deformable Barrier

ADR 72/00 Dynamic Side Impact Occupant Protection
2005-11

VSTD 45 Protection of occupants - lateral collision
Rev. 45-2

Lateral Pole Impact

ADR 85/00 Pole Side Impact Performance
2015-12

1.2.4 Protection of the occupants in the event of a rear collision **10-18**

UN-R 34 Uniform provisions concerning the approval of vehicles with regard to the prevention of fire risks 10-18-23
SERIES 03 (Part II in relation with Part I or Part IV)

UN-R 32 Uniform provisions concerning the approval of vehicles with regard to the behavior of the structure of the impacted vehicle in a rear-end collision 10-18-81
SERIES 00

2. Approval of motor vehicles by dynamic sled testing with the focus on components of restraint systems, structure and safety of rechargeable electrical energy storage systems in the event of collisions

2.1 Electric/ Electronic		08
2.1.1 Electric vehicle		08-04
UN-R 100 (Part II) SERIES 02	Uniform provisions concerning the approval of vehicles with regard to specific requirements for the electric power train Part II: Requirements of a Rechargeable Electrical Energy Storage System (REESS) with regard to its safety, (only chapter 6.4.1 Mechanical Impact - Mechanical Shock / and Annex 8C: REESS-Test Procedures - Mechanical Shock)	08-04-23
(EU) 2017/79	COMMISSION DELEGATED REGULATION (EU) 2017/79 of 12 September 2016 establishing detailed technical requirements and test procedures for the EC type-approval of motor vehicles with respect to their 112-based eCall in-vehicles systems, of 112-based eCall in-vehicle separate technical units and components and supplementing and amending Regulation (EU) 2015/758 of the European Parliament and of the Council with regard to the exemptions and applicable standards Annex 1 to 3 (only dynamic testing i.e. crash test and sled test)	
2.2 Passive Safety		10
2.2.1 Interior fittings, arrangement of the controls, roof, sliding roof, seat-back and rear parts of seats, duplex controls in vehicles for training of applicants for a driving license		10-02
UN-R 21 SERIES 01	Uniform provisions concerning the approval of vehicles with regard to their interior fittings (without Annex VI „Method of measuring projections“)	10-02-11
FMVSS 201 02-2012	49 CFR Part 571.201 Occupant Protection in Interior Impact	
DIN 75302 2019-06	Roof racks for wheeled vehicle and its trailer - Requirements and test methods	

2.2.2 Interior fittings, seats and their anchorages, head restraints buses		10-05
UN-R 17 Series 09	Uniform provisions concerning the approval of vehicles with regard to the seats, their anchorages and any head restraints	10-05-11
UN-R 80 Series 03	Uniform provisions concerning the approval of seats of large passenger vehicles and of these vehicles with regard to the strength of the seats and their anchorages	10-05-21
Equivalent Test Procedure:		
ISO 27955 2010	Road vehicles - Securing of cargo in passenger cars, station wagons and multi-purpose vehicles - Requirements and test methods Subpart 5	
ADR34/03 2017-09	Australian Design Rule 34/03 - Child Restraint Anchorages and Child Restraint Anchor Fittings Part: 10.1.3 Dynamic Testing	
ISO/DIS 7176-19 2008-07	ISO/DIS 7176-19:2008-07 Wheelchairs - Teil 19: Wheelchairs for use as seats in motor vehicles	
ISO/DIS 7176-19 2019-04 - DRAFT	ISO/DIS 7176-19:2019-04 - DRAFT Wheelchairs - Teil 19: Wheelchairs for use as seats in motor vehicles	

3 Approval of vehicles and their components by dynamic testing with impactors with regard to the protection of pedestrians and interior impact protection

3.1 Passive Safety		10
3.1.1 Interior fittings, behavior of the steering mechanism in the event of impact		10-04
UN-R 12 SERIES 04	Uniform provisions concerning the approval of vehicles with regard to the protection of the driver against the steering mechanism in the event of impact	10-04-11
Equivalent Test Procedure:		
VSTD 44 Rev. 44-1	Steering control system - protection of the driver against the steering mechanism in the event of impact	

3.1.2 Interior fittings, seats stability and their anchorages and head restraints		10-05
UN-R 17 SERIES 09	Uniform provisions concerning the approval of vehicles with regard to the seats, their anchorages and any head restraints	10-05-11
UN-R 25 SERIES 04	Uniform provisions concerning the approval of head restraints (headrests), whether or not incorporates in vehicle seats	10-05-12
FMVSS 202a 2013-05	Head Restraints	
FMVSS 207 2009-04	Seating Systems	
Equivalent Test Procedure:		
ISO 27955 2010	Road vehicles - Securing of cargo in passenger cars, station wagons and multi-purpose vehicles - Requirements and test methods Subpart 5	

3.1.3 Safety-belt anchorages		10-06
UN-R 14 SERIES 08	Uniform provisions concerning the approval of vehicles with regard to safety-belt anchorages	10-06-11
UN-R 145 SERIES 00	Uniform provisions concerning the approval of vehicles with regard to ISOFIX anchorage systems ISOFIX top tether anchorages and i-Size seating positions	10-06-12
Equivalent Test Procedure:		
FMVSS 210 2013-12	Seat belt assembly anchorages	
FMVSS 225 2012-02	Child Restraint Anchorage Systems	
TRIAS 18- J099(1)-01 2016-04	Test for Head Protection of Pedestrians (Based on former version TRIAS 63-2004)	

Annex to the accreditation certificate D-PL-18416-01-00

3.1.4	Door latches and retention components	10-15
UN-R 11 Series 04	Approval of door holding elements	10-15-11
FMVSS 206 2012-02	49 CFR Part 571.206 Door locks and door retention components	

3.1.5	Protection of pedestrians, frontal protection systems	10-20
VO (EG) 78/2009	Regulation (EC) 78/2009 (Annex I clause 2 and 3 including Regulation (EC) 631/2009 Annex clause II chapter II-V) incl. amendments according to Regulation (EU) 459/2011	10-20-03
VO (EG) 78/2009	Regulation (EC) 78/2009 (Annex I clause 5 including Regulation (EC) 631/2009 Annex clause IV chapter II-V) incl. amendments according to Regulation (EU) 459/2011	10-20-05
VO (EG) 78/2009	Regulation (EC) 78/2009 (Annex I clause 6 including Regulation (EC) 631/2009)	10-20-06
UN-R 127 SERIES 02	Uniform provisions concerning the approval of motor vehicles with regard to their pedestrian safety performance	10-20-11

3.1.6 Test of components / Airbags

FMVSS 208 2013-10	Occupant Crash Protection, incl. Out of Position Testing	
PV 3545 2006-09	Standard Production Test of Airbag Systems - Volkswagen Group Standard Series Testing of Side airbag seat backs, Side airbag upholstery and parts of Side airbag upholstery	
PV 3550 2010-06	Standard Production Test of Airbag Systems - Volkswagen Group Standard Series testing of side airbag seat backs, side airbag upholstery and parts of side airbag upholstery	
TL 82380 2003-04	Standard Production Test of Airbag Systems - Volkswagen Group Standard ZSB seat with side airbag, structure, requirements and tests	

4 Uniform provisions concerning the approval of vehicles with regard to specific requirements for the electric power train

4.1 Electric/electronic systems		08
4.1.1. Electric Vehicles		08-04
UN-R 100 Teil II Series 02	Uniform provisions concerning the approval of vehicles with regard to specific requirements for the electric power train [2015/505] Part II: Safety requirements with respect to the Rechargeable Energy Storage System (REESS), of road vehicles of categories M and N equipped with one or more traction motors operated by electric power and not permanently connected to the grid.	08-04-23
	<ul style="list-style-type: none"> - Chapter 6.2 Vibration, in connection with annex 8A - Chapter 6.3 Thermal shock and cycling, in connection with annex 8B - Chapter 6.4. Mechanical impact, in connection with annex 8C: REESS-Test Procedures - Mechanical Shock and annex 8D: Mechanical integrity - Chapter 6.7. Overcharge protection shock in connection with annex 8G - Chapter 6.8. Over-discharge protection, shock in connection with annex 8H - Chapter 6.9. Over-temperature protection in connection with annex 8I 	

5 Anthropomorphe Tests

5.1 Hybrid III Family

49 CFR 572, Anthropomorphic Test Devices
2005-10

5.1.1 HIII Children

49 CFR 572, CRABI 12-Month-Old Infant, Alpha Version
Subpart R 572.152 - head drop test, frontal impact
29.10.2001 572.152 - head drop test, rear impact
572.153 - Neck-headform test procedure (Flexion and Extension)
572.154 - Thorax test procedure

49 CFR 572, 3-Year-old Child Crash Test Dummy, Alpha Version
Subpart P 572.142 - head drop test
14.01.2002 572.143 - Neck-headform test procedure (Flexion and Extension)
572.144 - Thorax test procedure
572.145 - torso flexion test procedure

49 CFR 572, Six-Year-old Child Test Dummy, Beta Version
Subpart N 572.122 - head drop test
07.06.2011 572.123 - Neck-headform test procedure (Flexion and Extension)
572.124 - Thorax test procedure
572.125 - torso flexion test procedure
572.126 - Knee impact test procedure (left/right)

5.1.2 Hybrid III 5th Percentile Female

49 CFR 572, Hybrid III 5th Percentile Female Test Dummy, Alpha Version
Subpart O 572.132 - head drop test
13.09.2002 572.133 - Neck-headform test procedure (Flexion and Extension)
572.134 - Thorax test procedure
572.135 - torso flexion test procedure
572.136 - Knee impact test procedure (left/right)

SAE J2878 Low Speed Thorax Impact Test Procedure for the HIII 5F Dummy
2016-06 (3 m/s Thorax test procedure)

SAE J2862 User's Manual for the Small Adult Female Hybrid III Test Dummy
2015-02 (Knee Slider Test)

5.1.3 Hybrid III 50th Percentile Male

49 CFR 572, Subpart E 29.11.2011	Hybrid III Test Dummy 572.32 - head drop test procedure 572.33 - Neck-headform test procedure (Flexion and Extension) 572.34 - Thorax Impact test procedure 572.35 - Knee impact test procedure (left/right) 572.35 - HIP Joint test procedure
SAE J2856 2009-09	User Manual for the 50th Percentile Male Hybrid III Dummy
SAE J2876 2015-05	Low Speed Knee Slider Test Procedure for the Hybrid III 50th Male Dummy (Knee Slider Test)
SAE J2779 2015-07	Low Speed Thorax Impact Test Procedure for the HIII 50th Male Dummy (3 m/s Thorax test procedure)
UN-R 94, Annex 10 SERIES 03	Regulation No 94 of the Economic Commission for Europe of the United Nations (UN/ECE) - Uniform provisions concerning the approval of vehicles with regard to the protection of the occupants in the event of a frontal collision, L 130/50 from 2010-05-28 Annex 10 Certification procedure for the dummy lower leg and foot

5.1.4 Hybrid III 95th Percentile Male

SAE J2860 2012-09	User's Manual for the Hybrid III Large Male Test Dummy 4.1 - Head drop test procedure 4.2 - Neck-headform test procedure (Flexion and Extension) 4.3 - Thorax Impact test procedure 4.4 - Knee Impact test procedure 4.5 - Knee Slider test procedure
----------------------	--

5.2 THOR Family

<p>THOR Qualification Procedures 2016-08</p>	<p>THOR-M-50th (THOR 50th Percentile Male Qualification Procedures Manual)</p> <p>4 - Head Qualification Test 5 - Face Qualification Test 6.6 - Neck Torsion Test 6.7 - Neck Frontal Flexion Test 6.8 - Neck Extension Test 6.9 - Neck Lateral Flexion Test (left/right) 7 - Upper Thorax Qualification Test 8 - Lower Thorax Qualification Test 9 - Abdomen Qualification 10 - Knee test procedure (left/right) 11 - Sliding-Knee Test (left/right) 12 - Ankle test procedure left/right 13 - Ball of foot test procedure 14 - Heel test procedure</p>
<p>THOR-50M User Manual Rev. E</p>	<p>THOR-50th Percentile Male Dummy User Manual 472-9900</p>
<p>THOR 5th THOR-5F Users Manual (Rev A) Dummy Certification</p>	<p>THOR 5th Percentile Small Female Dummy Certification Based on THOR-M-50th (THOR 50th Percentile Male Qualification Procedures Manual)</p> <p>4 - Head Qualification Test 5 - Face Qualification Test 6.6 - Neck Torsion Test 6.7 - Neck Frontal Flexion Test 6.8 - Neck Extension Test 6.9 - Neck Lateral Flexion Test (left/right) 7 - Upper Thorax Qualification Test 8 - Lower Thorax Qualification Test 9 - Abdomen Qualification 10 - Knee test procedure (left/right) 11 - Sliding-Knee Test (left/right) 12 - Ankle test procedure left/right 13 - Ball of foot test procedure 14 - Heel test procedure</p>
<p>EuroNCAP Technical Bulletin Version 1 2020-08</p>	<p>THOR Specification and Certification</p> <p>2.1.1 Head Impact Test 2.1.2 Neck Tests, all 6 six conditions 2.1.3 Upper Thorax Impact at 4.3m/s 2.1.4 Upper Thorax Impact at 2.5m/s 2.1.5 Left and Right Thorax Impact 2.1.6 Abdomen Impact 2.1.7 Left and Right Upper Leg Impact</p>

5.3 Side Impact Dummy

5.3.1 EuroSID 2

49 CFR 572,
Subpart U
29.11.2011

ES-2re Side Impact Crash Test Dummy, 50th Percentile Adult Male
572.182 - Head drop test
572.183 - Neck-pendulum test procedure
572.184 - Shoulder test procedure
572.185 - Rip test procedure (3 tests)
572.185 - Full body Thorax impact test procedure without arm
572.186 - Abdomen test procedure
572.187 - Lumbar Spine test procedure
572.188 - Pelvis test procedure

UN-R 95, Annex 6
SERIES 03

Uniform provisions concerning the approval of vehicles with regard to the protection of the occupants in the event of a lateral collision
Annex 6 Technical description of the side impact dummy
5.5 - Head drop test
5.6 - Neck-pendulum test procedure
5.7 - Shoulder test procedure
5.9 - Rip test procedure (3 tests)
5.10 - Lumbar Spine test procedure
5.11 - Abdomen test procedure
5.12 - Pelvis test procedure

5.3.2 SID-IIs

49 CFR 572,
Subpart V
23.04.2015

SID-IIsD Side Impact Crash Test Dummy, Small Adult Female (Built Level D)
572.192 - Head drop test
572.193 - Neck-pendulum test procedure
572.194 - Shoulder test procedure
572.195 - Full body Thorax impact test procedure with arm
572.196 - Full body Thorax impact test procedure without arm
572.197 - Abdomen test procedure
572.198 - Pelvis test procedure
572.199 - Iliac test procedure

5.3.3 WorldSID

W50-9900 User Manual Rev. K 2016	WorldSID 50th (User's Manual for the WorldSID 50th percentile Male Side Impact Dummy) 8.4 - Head drop test 8.5 - Neck-pendulum test procedure 8.7 - Shoulder test procedure 8.8 - Full body Thorax impact test procedure without arm 8.9 - Abdomen test procedure 8.10 - Pelvis test procedure
W5-9900 WorldSID 5th User Manual Rev. E 2015	WorldSID 5 th (User's Manual for the WorldSID 5 th percentile Small Female Side Impact Dummy) 9.1 - Head drop test 9.2 - Neck-pendulum test procedure 9.3 - Thorax / Shoulder test procedure 9.4 - Thorax with half-arm 9.5 - Full body Thorax impact test procedure without arm 9.6 - Abdomen test procedure 9.7 - Pelvis test procedure
ISO/TS 15830-2 2013-05	Road vehicles - Design and performance specifications for the WorldSID 50th percentile male side-impact dummy Part 2: Mechanical Subsystems
ISO/TS 15830-5 2018-07	Road vehicles - Design and performance specifications for the WorldSID 50th percentile male side-impact dummy Part 5: Dummy design updates

5.4 P-Dummies (Children (P))

UN-R 44, Annex 8 SERIES 04	Uniform provisions concerning the approval of restraining devices for child occupants of power-driven vehicles ("Child Restraint Systems") Annex 8 Description of manikins Appendix 1 Description of the 9 months and 3, 6 and 10-year manikins Appendix 3 Description of the 18 months manikin
-------------------------------	--

5.5 Q-Dummies(Children (Q))

047-9900 User Manual Q1 Rev. H 2016	Q 1 Year (Advanced 6 week old newborn User Manual) 8.1 - Head drop test 8.2 - Neck-test procedure (Flexion) 8.3 - Lumbar Spine test procedure 8.4 - Abdomen test procedure 8.5 - Thorax test procedure frontal und lateral
048-9900 User Manual Q1.5 Rev. G 2015	Q 1,5 Year (Advanced 1.5 year old child User Manual) 8.1 - Head drop test 8.2 - Neck-test procedure (Flexion) 8.3 - Lumbar Spine test procedure 8.4 - Abdomen test procedure 8.5 - Thorax test procedure frontal und lateral
020-9905 User Manual Q3 Rev. G 2016	Q 3 Year (Advanced 3 year old child User Manual) 8.1 - Head drop test 8.2 - Neck-test procedure (Flexion) 8.3 - Lumbar Spine test procedure 8.4 - Abdomen test procedure 8.5 - Thorax test procedure frontal und lateral
033-9900 User Manual Q6 Rev. M 2016	Q 6 Year (Advanced 6 year old child User Manual) 8.1 - Head drop test 8.2 - Neck-test procedure (Flexion) 8.3 - Lumbar Spine test procedure 8.4 - Abdomen test procedure 8.5 - Thorax test procedure frontal und lateral
010-9900 User Manual Q 10 Rev. G 2016	Q 10 Year (10.5 year old child User Manual) 14.1 to 14.3 - Head drop test 14.4 to 14.7 - Neck- test procedure (Flexion and Extension) 14.8 to 14.10 - Lumbar Spine test procedure 14.11 to 14.13 - Thorax test procedure frontal und lateral 14.14 - Shoulder test procedure frontal 14.15 - Pelvis test procedure 14.16 - Abdomen test procedure 14.17 - Shoulder test procedure lateral

5.6 Test Impactor Pedestrian Protection (FMH)

49 CFR 572, Subpart L 18.08.1995	Free Motion Headform 572.102 - Head drop test
GTR9 2011-02	Global Technical Regulation No. 9 "PEDESTRIAN SAFETY" 8.3. - Child and adult headform impactors certification
631/2009/EC Annex I 09-2011	Type-approval of motor vehicles with regard to the protection of pedestrians and other vulnerable road users PART V: Test Impactors, Appendix I: Certification of impactors, Chapter 4: Headform impactors (3,5kg/ 4,5kg), upper leg form, lower leg form

5.7 Test Impactor Pedestrian Protection (FlexPli)

133-9900 User Manual FLEX PLI GTR Rev. J/ 2016	Flex PLI GTR User Manual
---	--------------------------

Abbreviation used:

ADR	Australian Design Rule
ÄS	Revision number
CFR	Code of Federal Regulations (Office of the Federal Register, U.S. Government)
EC	European Community
EU	European Union
FMVSS	Federal Motor Vehicle Safety Standards
GTR	Global Technical Regulation, UN-R
TRIAS	Standards for the homologation of automobiles to Japan
UN-R	Regulation of the Economic Commission for Europe
VSTD	Vehicle Safety Testing Directions (Taiwan)