

Commission Regulation (EC) No 631/2009 of 22 July 2009 laying down detailed rules for the implementation of Annex I to Regulation (EC) No 78/2009 of the European Parliament and of the Council on the type-approval of motor vehicles with regard to the protection of pedestrians and other vulnerable road users, amending Directive 2007/46/EC and repealing Directives 2003/102/EC and 2005/66/EC

- Article 1 This Regulation lays down the technical prescriptions necessary to carry...
- Article 2 The tests set out in Annex I to Regulation (EC)...
- Article 3 Where, in the case of the tests for type-approval of...
- Article 4 This Regulation shall enter into force on the twentieth day...
Signature

ANNEX

PART I

GENERAL REQUIREMENTS AND DEFINITIONS

1. General
2. Definitions
 - 2.1. 'Bonnet leading edge height' for any section of a vehicle...
 - 2.2. 'Bonnet Leading Edge Reference Line' means the geometric trace of...
 - 2.3. 'Bonnet rear reference line' means the geometric trace of the...
 - 2.4. 'Bumper lead' for any longitudinal section of a vehicle means...
 - 2.5. 'Centre of the knee' means the point about which the...
 - 2.6. 'Corner of bumper' means the vehicle's point of contact with...
 - 2.7. 'Corner of frontal protection system' means the frontal protection system's...
 - 2.8. 'Corner of frontal protection system leading edge' means the frontal...
 - 2.9. 'Corner reference point' means the intersection of the bonnet leading...
 - 2.10. 'Essential outer front end dimensions' means solid points in space...
 - 2.11. 'Femur' means all components or parts of components (including flesh,...
 - 2.12. 'Frontal protection system lead' for any point on a frontal...
 - 2.13. 'Frontal protection system leading edge' means the uppermost outer structure...
 - 2.14. 'Frontal protection system leading edge height' for any vertical longitudinal...
 - 2.15. 'Frontal protection system leading edge reference line' means the geometric...
 - 2.16. 'Impact point' means the point on the vehicle where initial...
 - 2.17. 'Intersection of bonnet rear reference line and side reference line'
 - 2.18. 'Lower bumper height' means, at any transverse position, the vertical...
 - 2.19. 'Lower bumper reference line' means a line which identifies the...
 - 2.20. 'Lower frontal protection system height' means, at any transverse position,...
 - 2.21. 'Lower frontal protection system reference line' means a line which...
 - 2.22. 'Rear windscreen reference line' means as the geometric trace of...
 - 2.23. 'Side reference line' means the geometric trace of the highest...

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- 2.24. 'Target point' means the intersection of the projection of the...
- 2.25. 'Third of the bonnet leading edge' means the geometric trace...
- 2.26. 'Third of the bonnet top' means the geometric trace of...
- 2.27. 'Third of the frontal protection system' means the geometric trace...
- 2.28. 'Third of the frontal protection system leading edge' means the...
- 2.29. 'Third of the bumper' means the geometric trace between the...
- 2.30. 'Tibia' means all components or parts of components (including flesh,...
- 2.31. 'Upper bumper reference line' means a line which identifies the...
- 2.32. 'Upper frontal protection system height' means, at any transverse position,...
- 2.33. 'Upper frontal protection system reference line' means a line which...
- 2.34. 'Vehicle type' means a category of vehicles which, forward of...
- 2.35. 'Wrap Around Distance' means the geometric trace described on the...

PART II

VEHICLE TEST SPECIFICATIONS

CHAPTER I

General conditions

- 1. Complete vehicle
 - 1.1. For testing on complete vehicles, the vehicles shall comply with...
 - 1.1.1. The vehicle shall be in its normal ride attitude and...
 - 1.1.2. All devices designed to protect vulnerable road users shall be...
 - 1.1.3. Any vehicle component which could change shape or position, other...
- 2. Subsystem of vehicle
 - 2.1. Where only a subsystem of the vehicle is supplied for...
 - 2.1.1. All the parts of the vehicle structure, bonnet and under-bonnet...
 - 2.1.2. The vehicle subsystem shall be securely mounted in the vehicle...
 - 2.1.3. All devices designed to protect vulnerable road users shall be...
 - 2.1.4. Any vehicle component which could change shape or position, other...

CHAPTER II

Lower legform to bumper test

- 1. Scope
- 2. General
 - 2.1. The lower legform impactor for the bumper tests shall be...
 - 2.2. The impactor may be propelled by an air, spring or...
- 3. Specification of the test
 - 3.1. The purpose of the test is to ensure that the...
 - 3.2. This test shall apply to vehicles with a lower bumper...
 - 3.3. A minimum of three lower legform to bumper tests shall...
- 4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.1.1. The test impactor or at least the foam flesh shall...

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- 4.1.2. Each test shall be completed within two hours of when...
- 4.2. The lower legform impactor to be used for the purposes...
- 4.3. The impactor shall be mounted, propelled and released as set...
- 4.4. The direction of the impact velocity vector shall be in...
- 4.5. The axis of the impactor shall be perpendicular to the...
- 4.6. The bottom of the impactor shall be 25 mm above...
- 4.7. At the time of first contact the centre line of...
- 4.8. During contact between the impactor and the vehicle, the impactor...
- 4.9. The impact velocity of the impactor when striking the bumper...

CHAPTER III

Upper legform to bumper test

- 1. Scope
- 2. General
 - 2.1. The upper legform impactor for the bumper test shall be...
 - 2.2. The impactor may be propelled by an air, spring or...
- 3. Specification of the test
 - 3.1. The purpose of the test is to ensure that the...
 - 3.2. The test shall apply to vehicles with a lower bumper...
 - 3.3. Upper legform to bumper tests shall be carried out to...
- 4. Test procedure
 - 4.1. The state of the vehicle or sub-system shall comply with...
 - 4.1.1. The test impactor or at least the foam flesh shall...
 - 4.1.2. Each test shall be completed within two hours of when...
 - 4.2. The upper legform impactor to be used for the purposes...
 - 4.3. The impactor shall be mounted, propelled and released as defined...
 - 4.4. The direction of impact shall be parallel to the longitudinal...
 - 4.5. The impact velocity of the upper legform impactor when striking...

CHAPTER IV

Upper legform to bonnet leading edge test

- 1. Scope
- 2. General
 - 2.1. The upper legform impactor for the bonnet leading edge test...
 - 2.2. The impactor may be propelled by an air, spring or...
- 3. Specification of the test
 - 3.1. The purpose of the test is to ensure that the...
 - 3.2. A minimum of three upper legform to bonnet leading edge...
 - 3.3. All standard equipment fitted to the front end of the...
- 4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.1.1. The test impactor or at least the foam flesh shall...
 - 4.1.2. Each test shall be completed within two hours of when...

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- 4.2. The upper legform impactor to be used for the purposes...
 - 4.3. The upper legform impactor shall be mounted and propelled as...
 - 4.4. The upper legform impactor shall be aligned such that the...
 - 4.5. The required impact velocity, the direction of impact and the...
 - 4.6. Determination of vehicle shape:
 - 4.6.1. The position of the upper bumper reference line shall be...
 - 4.6.2. The bonnet leading edge reference line shall be determined as...
 - 4.6.3. For the section of bonnet leading edge to be tested...
 - 4.7. The required impact velocity and the direction of impact shall...
 - 4.8. The total mass of the upper legform impactor includes those...
 - 4.9. Fit the required extra weights to give the calculated value...
- Notes:

CHAPTER V

Child/small adult headform to bonnet top test

- 1. Scope
- 2. General
 - 2.1. The headform impactor for the bonnet top test shall be...
 - 2.2. The impactor may be propelled by an air, spring or...
- 3. Specification of the test
 - 3.1. The purpose of the test is to ensure that the...
 - 3.2. Headform impactor tests shall be to the bonnet top. A...
 - 3.2.1. Identification of 'HPC1000 zone' and 'HPC2000 zone'. The manufacturer shall...
 - 3.2.2. Marking of the bonnet top impact area as well as...
 - 3.2.3. The areas of 'HPC1000 zone' and 'HPC2000 zone' may consist...
 - 3.2.4. The calculation of the surface of the impact area as...
- 4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.2. The child/small adult headform impactor to be used for the...
 - 4.3. The impactor shall be mounted, propelled and released as defined...
 - 4.4. For tests at the rear of the bonnet top the...
 - 4.5. The direction of impact shall be on a vertical longitudinal...
 - 4.6. At the time of first contact, the point of contact...
 - 4.7. The impact velocity of the headform impactor when striking the...
 - 4.7.1. The velocity of the headform impactor shall be measured at...
 - 4.8. The acceleration time histories shall be recorded, and HIC shall...

CHAPTER VI

Adult headform to windscreen test

- 1. Scope
- 2. General
 - 2.1. The headform impactor for the windscreen top test shall be...
 - 2.2. The impactor may be propelled by an air, spring or...

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3. Specification of the test
 - 3.1. The purpose of the test is to ensure that the...
 - 3.2. The adult headform impactor tests shall be to the windscreen....
4. Test procedure
 - 4.1. The state of the vehicle or sub-system shall comply with...
 - 4.2. The adult headform impactor to be used for the purposes...
 - 4.3. The headform impactors shall be mounted, propelled and released as...
 - 4.4. The direction of impact shall be on a vertical longitudinal...
 - 4.5. At the time of first contact, the point of first...
 - 4.6. The impact velocity of the headform impactor when striking the...
 - 4.6.1. The velocity of the headform impactor shall be measured at...
 - 4.7. The acceleration time histories shall be recorded, and HIC shall...

CHAPTER VII

Child/Small Adult and Adult headforms to bonnet top tests

1. Scope
2. General
 - 2.1. The headform impactors for the bonnet top tests shall be...
 - 2.2. The impactors may be propelled by an air, spring or...
3. Specification of the test
 - 3.1. The purpose of the test is to ensure that the...
 - 3.1.1. A minimum of nine tests shall be carried out with...
 - 3.2. The selected test points for the child/small adult headform impactor...
 - 3.3. The selected test points for the adult headform impactor shall...
 - 3.3.1. The test points shall be located so that the impactor...
 - 3.3.2. Identification of HPC1000 and HPC1700 impact zones. The manufacturer shall...
 - 3.3.3. Marking of the bonnet top impact area as well as...
4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.2. The child/small adult and adult impactors to be used for...
 - 4.3. The impactors shall be mounted, propelled and released as specified...
 - 4.4. For tests at the rear of the bonnet top the...
 - 4.4.1. The direction of impact shall be on a vertical longitudinal...
 - 4.5. At the time of first contact, the point of contact...
 - 4.6. The impact velocity of the headform impactors when striking the...
 - 4.6.1. The velocity of the headform impactor shall be measured at...
 - 4.7. The acceleration time histories shall be recorded, and HIC shall...

PART III

BRAKE ASSIST SYSTEMS SPECIFICATION

1. General
 - 1.1. Performance characteristics for Category 'A' BAS systems
 - 1.2. Performance characteristics for Category 'B' and Category 'C' BAS systems....

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2. For the purposes of this Part, the following definitions shall...
 - 2.1. 'Category A Brake Assist System' means a system which detects...
 - 2.2. 'Category B Brake Assist System' means a system which detects...
 - 2.3. 'Category C Brake Assist System' means a system which detects...
3. Requirements
 - 3.1. Brake pedal force, F_p , applied at the centre of the...
 - 3.2. Vehicle longitudinal velocity, v_x ;
 - 3.3. Vehicle longitudinal acceleration, a_x ;
 - 3.4. Brake temperature, T_d , measured on the surface of the braking...
 - 3.5. Brake pressure, P , where applicable;
 - 3.6. Brake pedal travel, S_p , measured at the centre of the...
4. Measurements
 - 4.1. The variables listed in Section 3 shall be measured by...
 - 4.2. Accuracy of pedal force and disc temperature measurements shall be...
 - 4.2.1. A sampling rate for data acquisition of at least 500...
 - 4.2.2. Further details on analogue and digital data processing of the...
 - 4.2.3. Alternative measuring methods to those referred to above may be...
5. Test Conditions
 - 5.1. Test vehicle loading condition:
6. Test Method
 - 6.1. The tests as described in Sections 7 and 8 shall...
 - 6.2. The average temperature of the front brakes shall be measured,...
 - 6.3. The braking tests shall be performed on a dry asphalt...
 - 6.4. For the tests, the reference time, t_0 , is defined as...

Note:
7. Assessment of the Presence of a Category 'A' BAS
 - 7.1. Test 1: Reference test to determine FABS and aABS
 - 7.1.1. The reference values FABS and aABS shall be determined in...
 - 7.2. Test 2: For activation of BAS
 - 7.2.1. Once an emergency braking condition has been detected, systems sensitive...
 - 7.2.2. The performance requirements for a Category 'A' BAS are met...
 - 7.2.3. FT and aT are threshold force and threshold deceleration as...
 - 7.2.4. A straight line is drawn from the origin through the...
 - 7.2.5. As an alternative, which can be selected by the manufacturer,...
 - 7.2.5.1. The pressure, at which ABS cycling commences, shall be determined...
 - 7.2.5.2. The threshold pressure P_T shall be stated by the manufacturer...
 - 7.2.5.3. Figure 1b shall be constructed in the manner set out...
 - 7.3. Data evaluation
8. Assessment of the Presence of a Category 'B' BAS
 - 8.1. Test 1: Reference test to determine FABS and aABS
 - 8.1.1. The reference values FABS and aABS shall be determined in...
 - 8.2. Test 2: For activation of BAS
 - 8.2.1. The vehicle shall be driven in a straight line at...
 - 8.2.2. In order to activate BAS the brake pedal shall be...

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- 8.2.2.1. For category B systems, definition of the brake pedal speed...
 - 8.2.2.2. For category C systems, definition of the input variables affecting...
 - 8.2.3. After $t = t_0 + 0,8$ s and until the...
 - 8.2.4. The requirements also are considered to be met if, after...
 - 8.3. Data evaluation
9. Assessment of the Presence of a Category 'C' BAS.
- 9.1. A Category 'C' BAS shall meet the test requirements of...
 - 9.2. Data evaluation

Appendix Method for Determination of FABS and aABS

- 1. The brake pedal force FABS is the minimum pedal force...
- 2. The brake pedal shall be applied slowly (without activating the...
- 3. The full deceleration shall be reached within the timeframe of...
- 4. Five tests meeting the requirements of point 3 shall be...
- 5. For the determination of aABS and FABS a low-pass filter...
- 6. The five individual 'deceleration versus brake pedal force' curves are...
- 7. The maximum value for the vehicle deceleration is determined from...
- 8. All values of the 'maF curve' that are above 90...
- 9. The minimum force on the pedal (FABS, min) sufficient to...

Appendix Data Processing for BAS

- 1. Analogue Data processing
Note:
- 2. Digital Data Processing
 - 2.1. General consideration
 - 2.2. Aliasing errors
Note:
 - 2.3. Filter phase shifts and time delays for anti-aliasing filtering
Note:
 - 2.4. Data sampling and digitising
 - 2.5. System requirements

PART IV

FRONTAL PROTECTION SYSTEMS TEST SPECIFICATIONS

CHAPTER I

General conditions

- 1. Frontal Protection System as original equipment fitted to a vehicle...
 - 1.1. The frontal protection system mounted on the vehicle shall comply...
 - 1.2. The vehicle shall be in its normal ride attitude and...
 - 1.3. All devices designed to protect pedestrians and other vulnerable road...
 - 1.4. Any vehicle component that could change shape or position, such...
- 2. Frontal Protection System as a separate technical unit
 - 2.1. Where only a frontal protection system is supplied for tests,...
 - 2.2. The test may be carried out either with the frontal...

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3. Information to be provided
 - 3.1. All frontal protection systems, whether being part of the type-approval...
 - 3.2. All frontal protection systems type-approved as separate technical units shall...

CHAPTER II

Lower Legform to Frontal Protection System test

1. Scope
2. General
 - 2.1. The Lower Legform impactor for the frontal protection system tests...
 - 2.2. In all cases the impactor may be propelled by an...
3. Specification of the test
 - 3.1. A minimum of three Lower Legform to frontal protection system...
 - 3.2. For vehicles with a lower frontal protection system reference line...
4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.1.1. The test impactor or at least the foam flesh shall...
 - 4.1.2. Each test shall be completed within two hours of when...
 - 4.2. The lower legform impactor is described in Section 1 of...
 - 4.3. The impactor shall be mounted and propelled as set out...
 - 4.4. The direction of impact shall be in the horizontal plane...
 - 4.5. The axis of the impactor shall be perpendicular to the...
 - 4.6. The bottom of the impactor shall be 25 mm above...
 - 4.7. At the time of first contact the impactor shall have...
 - 4.8. At the time of the first contact the centre line...
 - 4.9. During contact between the impactor and the frontal protection system,...
 - 4.10. The impact velocity of the impactor when striking the frontal...

CHAPTER III

Upper Legform to Frontal Protection System test

1. Scope
 - 1.1. This test procedure shall apply to the requirements set out...
2. General
 - 2.1. The Upper Legform impactor for tests to the frontal protection...
 - 2.2. The impactor may be propelled by an air, spring or...
3. Specification of the test
 - 3.1. A minimum of three Upper Legform to frontal protection system...
 - 3.2. For vehicles with a lower frontal protection system reference line...
4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.1.1. The test impactor or at least the foam flesh shall...
 - 4.1.2. Each test shall be completed within two hours of when...
 - 4.2. The upper legform impactor is described in Section 2 of...
 - 4.3. The impactor shall be mounted and propelled as specified in...

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- 4.4. The direction of impact shall be parallel to the longitudinal...
- 4.5. The impact velocity of the impactor when striking the frontal...

CHAPTER IV

Upper Legform to Frontal Protection System Leading Edge test

- 1. Scope
 - 1.1. This test shall apply to the requirements set out in...
 - 2. General
 - 2.1. The Upper Legform impactor for tests to the frontal protection...
 - 2.2. In all cases the impactors may be propelled by an...
 - 3. Specification of the test
 - 3.1. A minimum of three tests shall be carried out to...
 - 4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.1.1. The test impactor or at least the foam flesh shall...
 - 4.1.2. Each test shall be completed within two hours of when...
 - 4.2. The upper legform impactor is described in Section 2 of...
 - 4.3. The impactor shall be mounted and propelled as specified in...
 - 4.4. The impactor shall be aligned in such a way that...
 - 4.5. The required impact velocity, the angle of impact and the...
 - 4.6. The required impact velocity and the angle of impact are...
 - 4.7. The required impactor test energy shall be determined by reference...
 - 4.8. The total mass of the impactor includes those propulsion and...
 - 4.8.1. Calculate the required test value of the impactor mass from:...
 - 4.9. Fit the required extra weights to give the calculated value...
- Notes:

CHAPTER V

Child/Small Adult headform to Frontal Protection System test

- 1. Scope
 - 1.1. This test procedure shall apply to the requirements set out...
- 2. General
 - 2.1. The child/small adult headform impactor for the frontal protection system...
 - 2.2. In all cases the impactors may be propelled by an...
- 3. Specification of the test
 - 3.1. A minimum of three headform impact tests shall be carried...
 - 3.2. Test points for the child/small adult headform impactor shall be...
- 4. Test procedure
 - 4.1. The state of the vehicle or subsystem shall comply with...
 - 4.2. The child/small adult headform impactor is described in Section 3...
 - 4.3. The impactor shall be mounted and propelled as specified in...
 - 4.4. The direction of impact shall be on a vertical longitudinal...
 - 4.5. At the time of first contact, the point of first...

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- 4.6. The impact velocity of the impactor when striking the impact...
- 4.6.1. The velocity of the headform impactor shall be measured at...
- 4.7. The acceleration time histories shall be recorded, and HIC shall...

PART V

TEST IMPACTORS

1. Lower Legform impactor
 - 1.1. The lower legform impactor shall consist of two foam-covered rigid...
 - 1.2. The diameter of the femur and tibia shall be 70...
 - 1.3. The mass of the femur and tibia shall be 8,6...
 - 1.4. The moment of inertia of the femur and tibia, about...
 - 1.5. Transducers shall be fitted to measure knee bending angle and...
 - 1.6. A damper shall be fitted to the shear displacement system...
 - 1.7. The instrumentation response value channel frequency class (CFC), as defined...
 - 1.8. The impactor shall meet the certification requirements specified in Section...
 - 1.8.1. For each test the impactor shall be fitted with new...
 - 1.8.2. The test impactor or at least the foam flesh shall...
 - 1.8.3. Each test shall be completed within two hours of when...
 - 1.9. The certified impactor may be used for a maximum of...
2. Upper legform impactor
 - 2.1. The upper legform impactor shall be rigid, foam-covered at the...
 - 2.2. The torque limiting joint shall be set so that the...
 - 2.3. The centre of gravity of those parts of the impactor...
 - 2.4. The total mass of the upper legform impactor, including those...
 - 2.5. Two load transducers shall be fitted to measure the individual...
 - 2.6. Three strain gauges shall be located on the impactor to...
 - 2.7. The instrumentation response value channel frequency class (CFC), as defined...
 - 2.8. The upper legform impactor shall meet the certification requirements specified...
 - 2.9. For each test the foam shall be two new sheets...
 - 2.9.1. The test impactor or at least the foam flesh shall...
 - 2.9.2. Each test shall be completed within two hours of when...
 - 2.10. The certified impactor may be used for a maximum of...
3. Child/Small Adult headform impactor
 - 3.1. The child/small adult headform impactor shall be a rigid sphere,...
 - 3.2. The sphere shall be covered with a $14,0 \pm 0,5$...
 - 3.3. The centre of gravity of the impactor, including instrumentation, shall...
 - 3.4. A recess in the sphere shall allow for mounting one...
 - 3.4.1. If three uniaxial accelerometers are used, one of the accelerometers...
 - 3.4.2. The remaining accelerometers shall have their sensitive axes perpendicular to...
 - 3.5. The instrumentation response value channel frequency class (CFC), as defined...
 - 3.6. The impactor shall meet the performance requirements specified in Section...
 - 3.7. The first natural frequency of the impactor shall be over...

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4. Adult headform impactor
 - 4.1. The adult headform impactor shall be a rigid sphere, made...
 - 4.1.1. For the purposes of testing for compliance with Part II,...
 - 4.1.2. For the purposes of testing for compliance with Part II,...
 - 4.2. The sphere shall be covered with a $14,0 \pm 0,5$...
 - 4.3. The centre of gravity of the impactor, including instrumentation, shall...
 - 4.4. A recess in the sphere shall allow for mounting one...
 - 4.4.1. If three uniaxial accelerometers are used, one of the accelerometers...
 - 4.4.2. The remaining accelerometers shall have their sensitive axes perpendicular to...
 - 4.5. The instrumentation response value channel frequency class (CFC), as defined...
 - 4.6. The impactor shall meet the certification requirements specified in Section...
 - 4.7. The first natural frequency of the impactor shall be over...

Appendix Certification of Impactors

1. Certification requirements
 - 1.1. The impactors that are used in the tests detailed in...
2. Lower legform impactor
 - 2.1. Static tests
 - 2.1.1. The lower legform impactor shall meet the requirements specified in...
 - 2.1.2. When the impactor is loaded in bending in accordance with...
 - 2.1.3. When the impactor is loaded in shearing in accordance with...
 - 2.1.4. The legform impactor, without foam covering and skin, shall be...
 - 2.1.5. The impactor, without foam covering and skin, shall be mounted...
 - 2.2. Dynamic tests
 - 2.2.1. The lower legform impactor shall meet the requirements specified in...
 - 2.2.1.1. The foam flesh for the test impactor shall be stored...
 - 2.2.1.2. The test facility used for the calibration test shall have...
 - 2.2.1.3. Each calibration shall be completed within two hours of when...
 - 2.2.1.4. The relative humidity and temperature of the calibration area shall...
 - 2.2.2. When the impactor is impacted by a linearly guided certification...
 - 2.2.3. The instrumentation response value CFC, as defined in ISO 6487:2002,...
 - 2.2.4. Test procedure
 - 2.2.4.1. The impactor, including foam covering and skin, shall be suspended...
 - 2.2.4.2. The certification impactor shall have a mass of $9,0 \pm$...
 - 2.2.4.3. The impactor shall be certified with previously unused foam.
 - 2.2.4.4. The impactor foam shall not be excessively handled or deformed...
 - 2.2.4.5. The certification impactor shall be propelled horizontally at a velocity...
3. Upper legform impactor

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- 3.1. The upper legform impactor shall meet the requirements specified in...
 - 3.1.1. The foam flesh for the test impactor shall be stored...
 - 3.1.2. The test facility used for the calibration test shall have...
 - 3.1.3. Each calibration shall be completed within two hours of when...
 - 3.1.4. The relative humidity and temperature of the calibration area shall...
 - 3.2. Requirements
 - 3.2.1. When the impactor is propelled into a stationary cylindrical pendulum...
 - 3.2.2. The instrumentation response value CFC, as defined in ISO 6487:2002,...
 - 3.3. Test procedure
 - 3.3.1. The impactor shall be mounted to the propulsion and guidance...
 - 3.3.2. The impactor mass shall be adjusted to give a mass...
 - 3.3.3. The centre of gravity of those parts of the impactor...
 - 3.3.4. The impactor shall be certified with previously unused foam.
 - 3.3.5. The impactor foam shall not be excessively handled or deformed...
 - 3.3.6. The impactor with the front member vertical shall be propelled...
 4. Headform impactors
 - 4.1. Performance criteria
 - 4.2. Requirements
 - 4.2.1. When the headform impactors are dropped from a height of...
 - 4.2.2. The instrumentation channel frequency class (CFC) response values and channel...
 - 4.2.3. Temperature conditions
 - 4.3. After complying with the certification test, each headform impactor can...
 - 4.4. Test procedure
 - 4.4.1. The headform impactor shall be suspended from a drop rig...
 - 4.4.2. The headform impactor shall be dropped from the specified height...
 - 4.4.3. The headform impactor shall be dropped with the rear face...
 - 4.4.4. The suspension of the headform impactor shall be such that...
 - 4.4.5. The drop test shall be performed three times, with the...
- Notes:

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- (1) [OJ L 35, 4.2.2009, p. 1.](#)
- (2) [OJ L 263, 9.10.2007, p. 1.](#)
- (3) [OJ L 321, 6.12.2003, p. 15.](#)
- (4) [OJ L 309, 25.11.2005, p. 37.](#)
- (5) A Study on the feasibility of measures relating to the protection of pedestrians and other vulnerable road users — Final 2006, Transport Research Laboratory, UK.
- (6) [OJ L 31, 4.2.2004, p. 21.](#)
- (7) [OJ L 140, 29.5.2006, p. 33.](#)

Changes to legislation:

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Changes and effects yet to be applied to the whole legislation item and associated provisions

- Signature words omitted by [S.I. 2022/1273 reg. 54](#)