

PRINCIPALES CHANGES TO EN 1317 PART 1 & PART 2 IN THE 2010 REVISION

EN1317-1			
Paragraphs	1998 version	2010 revision	NEW
§ 5 Test methods		The specifications for the test site and test vehicles have been moved from Parts 2 and 3 to Part 1.	X
§ 6.1 Vehicle instrumentation required for the calculation of ASI and THIV	Vehicle acceleration shall be measured at a single point (P) within the vehicle body close to the vehicle centre of gravity	The accelerometers shall be mounted at a single point (P) on the tunnel close to the vertical projection of vehicle centre of mass of the undeformed vehicle , but no further than 70 mm longitudinally and 40mm laterally. Measurements made before the publication of the present standard, with accelerometers fixed to an installation close to the centre of mass are accepted.	
§ 6.2 Frequency requirements		New requirement : Since the data will be filtered by recursive (Butterworth) filters, more data should be collected than is specifically required by the analysis. A recursive filter always produces 'starting transients' at the beginning and end of the data, and requires time to 'settle down'. An additional 500 ms of data shall be collected at the beginning and end of the data; this extra data can then be discarded after filtering.	X
§ 6.3 Compensation for instrumentation displaced from the vehicle centre of mass		The procedure has been extended also to the cases of non-null roll angle and roll velocity and when the 3 points Q ₁ , Q ₂ , P (P ₁ , P ₂ , P in the 1988 text) are aligned along any straight line.	X
§ 8.1 Severity Indices	PHD (Post impact Head Deceleration), ASI, THIV required	Only ASI and THIV are required.	
§ 8.1.1 Summary of the procedure to compute ASI	Averaging of the 3 components of the acceleration over a moving window of 50 ms	Filtering with a 4-pole phase-less Butterworth digital filter	
§ 8.2 Vehicle cockpit deformation index	∅	§ 8.2.3 Extent of the deformation (VCDI) The sub-index 3 has been added for reductions greater than 20%, or measurements which cannot be taken due to the deformation of the vehicle.	X

EN1317-2

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§ 3.2 Containment levels		In table 2 the new containment classes L1, L2, L3, L4a and L4b have been added , requiring the same tests of the corresponding H classes plus the test TB 32. NB: L classes are additional to the current H classes: they do not replace these H classes. Certain procurers may require an L class rather than an H class. In this case, an additional TB32 test is required. Otherwise, the H class is sufficient.	X
§ 3.3 Impact severity	PHD (Post impact Head Deceleration), ASI, THIV required	Only ASI and THIV are required.	
§ 3.5 Deformation of the restraint system		New requirement on the accuracy of measurement of Dynamic Deflection and Working Width: > The accuracy required for the measurement of the dynamic deflection and for the working width shall be 10 % but not less than 0,1 m. New definition of vehicle intrusion Vi: > The vehicle intrusion (V _{lm}) of the Heavy Goods Vehicle (HGV) is its maximum dynamic lateral position from the undeformed traffic side of the barrier; it shall be evaluated from high speed photographic or video recordings, in consideration of a notional load having the width and length of the vehicle platform and a total height of 4m. The V _{lm} shall be evaluated by measuring the position and angle of the vehicle platform and assuming the notional load stays undeformed and rectangular to the vehicle platform or by using test vehicles with the notional load. > The vehicle intrusion (V _{lm}) of a bus is its maximum dynamic lateral position; it shall be evaluated from high speed photographic or video recordings. The deformation of the restraint system shall be classified in accordance with Tables 4 and 5. New definitions of Normalised Dynamic Deflection D, Normalised Working Width Wand Normalised Vehicle Intrusion Vi Table 4 – Levels of working width based on the normalised values Table 5 – Levels of normalised vehicle intrusion (new item)	X
§ 4. Impact test acceptance criteria		Table 6 – Safety barrier test parameters includes containment levels L.	X
§ 4.2 Safety barrier including parapet behaviour	The safety barrier shall contain and redirect the vehicle without complete breakage of any of the principal longitudinal elements of the system. No major part of the safety barrier shall become totally detached or present an undue hazard to other traffic, pedestrians or personnel in a work zone.	The safety barrier including parapet shall contain the vehicle without complete breakage of any of the principal longitudinal elements of the system. All totally detached parts of the safety barrier with a mass greater than 2.0 kg shall be identified, located and recorded in the test report with their size.	

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§ 4.3 Test vehicle behaviour	<p>The centre of gravity of the vehicle shall not cross the centreline of the deformed system.</p> <p>The vehicle shall remain upright during and after impact, although moderate rolling, pitching and yawing are acceptable.</p>	<p>During and after the impact, no more than one of the wheels of the vehicle shall completely pass over or under the safety barrier.</p> <p>The vehicle must not roll over (including rollover of the vehicle onto its side) during or after impact. For tests with HGVs and buses, not more than 5% of the mass of the ballast shall become detached or be split during the test up to the time when the wheel tracks of the vehicle leaves the exit box..</p>	
§ 4.4 Severity Index	PHD (Post impact Head Deceleration), ASI, THIV required	Only ASI and THIV are required.	
§ 4.7 tests for system type tested safety barriers (Families of barriers)		New specifications for families of barriers.	X
§ 5. Test methods		The specifications of points 5.1 Test Site and 5.2 Test Vehicles are moved to Part 1	X
§ 5.3.2 Installation	∅	<p>New paragraph</p> <p>The length of the safety barrier or vehicle parapet tested shall be sufficient to demonstrate the full performance characteristic of any longer installation. After the test the adequacy of the length of installation shall be checked by suitable procedure as the one in Annex B. The test lengths shall be defined by the manufacturer prior to the test so that the car test(s) demonstrates the maximum severity of impact, and the large vehicle test demonstrates the maximum dynamic deflection characteristics.</p> <p>End conditions (for example end anchorage) shall be provided in accordance with the safety barrier including parapet specification and defined by the manufacturer. If an end anchorage is used which is specifically for testing and not part of the design of the system being tested, this end anchorage shall be fully described in the test report. Any end anchorage should not restrict the maximum lateral deflection of the safety barrier.</p> <p>Foundations shall meet the design specification.</p> <p>When testing pretensioned systems, where tension can be adjusted (for example cable barriers), the small vehicle test shall be performed with a tension corresponding to a temperature of –10 degrees Celsius and the large vehicle test with a tension corresponding to a temperature of +30 degrees Celsius. For the containment levels with only one test, the tension shall correspond to a temperature of 0 degrees Celsius. The data for the recommended tensions/temperature shall be supplied by the manufacturer.</p> <p>Where a parapet is required to have infilling or other modification in order that it may function as a vehicle pedestrian parapet, this infilling or other modification shall be included in the test installation if it will affect the performance of the parapet.</p>	X
§ 5.3.3 Position of the impact point	∅	<p>New requirement: If the test house chooses an impact point other than that at a point about one third of the installation length, in order to ensure worst-case conditions, then this choice shall be justified in the test report.</p>	X

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§ 5.5 Vehicle instrumentation		The specifications of points 5.5 are moved to Part 1.	
§ 5.6 Photographic coverage		<p>New requirement: Normal speed cameras shall be operated at a minimum of 24 frames per second.</p>	X
§ Annex A - Detailed Test Report Template		<p>New normative item</p>	X
§ Annex B – Criteria for sufficient test length evaluation		<p>New informative item on a possible criterion to evaluate the adequacy of the length of the test installation. An applicable procedure to check, after the tests, that the length of the installation is sufficient to demonstrate the full performance of the system consists in verifying that only longitudinal forces are transferred to the end anchorages, by the following procedure. The static lateral deflection of the barrier shall not reach to the front or the end anchorage of the test installation. This requires that the static lateral deflection of the first element (or the first section between two posts) be null, within measurement tolerance (see Figure B.1a)). If the anchorage is such that prevents the lateral displacement of all the first element, the static lateral displacement of the second element shall be null, within measurement tolerance (see Figure B.1b))</p>	X
		<p>Figure B1 – Length of barrier installed for test</p> <p>Key: 1 Test length sufficient 2 Test length not sufficient 3 Test length not sufficient 4 Face of undeforms barrier</p> 	