項 次	法 規 名 稱	修訂法規內容	新增之法規項目	頁碼	UN 版本別	內容摘要
1	七十○、車輛前方結構之行人碰撞防護性能(草案)		◎	P.1	UN R127 00-C1 2013/10/16	參考 UN R127 00-C1 版，研擬車輛前方結構之行人碰撞防護性能之實施時間、名詞釋義、適用型式及其範圍認定原則、試驗程序及衝擊器功能驗證之相關規定。

ECE R127 PEDESTRIAN SAFETY 00-C1 2013/10/16 行人碰撞防護法規

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
1. Scope This Regulation applies to motor vehicles of categories M1 and N1[1]. However, vehicles of category N1 where the driver's position "R-point" is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by a maximum of 1,100 mm, are exempted from the requirements of this Regulation. This Regulation does not apply to vehicles of category M1 above 2,500 kg maximum mass and which are derived from N1 category vehicles, and where the driver's position "R-point" is either forward of the front axle or longitudinally rearwards of the front axle transverse centreline by a maximum of 1,100 mm; for these vehicle		七十○、車輛前方結構之行人碰撞防護性能(草案) 1. 實施時間及適用範圍： 1.1 中華民國○年○月○日起，新型式 M1、N1 類車輛，及中華民國○年○月○日起，各型式 M1、N1 類車輛，除下列車輛外，應符合本項規定。 1.1.1 駕駛座 R 點位於前軸前方，或位於前軸橫向中心線後方且其間距小於或等於一一００公釐之 N1 類車輛。 1.1.2 最大重量大於二·五公噸之下列 M1 類車輛 1.1.2.1 N1 類衍生之 M1 類車輛，且 1.1.2.2 駕駛座 R 點位於前軸前方，或位於前軸橫向中心線後方且其間距小於或等於一一００公釐。 1.2 除幼童專用車以外之車輛，申請	

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categories Contracting Parties may continue to apply the requirements already in force for that purpose at the time of acceding to this Regulation.		少量車型安全審驗或逐車少量車型安全審驗者，得免符合本項規定。	
2. Definitions When performing measurements as described in this Part, the vehicle should be positioned in its normal ride attitude. If the vehicle is fitted with a badge, mascot or other structure, which would bend back or retract under an applied load of maximum 100 N, then this load shall be applied before and/or while these measurements are taken. Any vehicle component which could change shape or position, other than suspension components or active devices to protect pedestrians, shall be set to their stowed position. For the purposes of this Regulation: 2.1. "*Adult headform test area*" is an area on the outer surfaces of the front structure. The area is bounded, in the front, by a wrap around distance (WAD) of 1,700 mm and, at the rear, by the rear reference line for		2.名詞釋義 執行本節所述之所有量測時，車輛應處於正常乘載狀態(Normal ride attitude)。 若車輛裝有標章(Badge/mascot)或其他構件(Structure)，且其於承受最大一００牛頓之負載下會彎曲或收縮，則應於進行量測前及/或量測時對其施加此負載。 非懸吊組件或主動防護行人裝置，而可以改變外形或位置之車輛上任何組件，應處於收合位置。 2.1 成人頭部模型試驗區域(Adult headform test area)：係指車輛前方結構外部表面之一特定區域。該區域之前方為一七００公釐之縱向攀越定距(Wrap around distance)(WAD)標線末端所決定	

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adult headform and, at each side, by the side reference line. 2.2. "*A-pillar*" means the foremost and outermost roof support extending from the chassis to the roof of the vehicle. 2.3. "*Approval of a vehicle type*" means the full procedure whereby a Contracting Party to the Agreement certifies that a vehicle type meets the technical requirements of this Regulation. 2.4. "*Bonnet leading edge*" means the edge of the front upper outer structure of the vehicle, including the bonnet and wings, the upper and side members of the headlight surrounds and any other attachments. The reference line identifying the position of the bonnet leading edge is defined by its height above the ground reference plane and by the horizontal distance separating it from the bumper (bumper lead). 2.5. "*Bonnet leading edge height*" means, at any point on the bonnet leading edge, the vertical distance between the ground reference plane and the bonnet leading		之各點連線，後方為成人頭部模型之後方參考線，及兩側為側方參考線。 2.2 A柱(A-pillar)：從車輛底盤延伸至車頂處，最前端且最外部之車頂支柱。 2.3 引擎蓋前緣(Bonnet leading edge)：係指車輛前方結構外部表面之上方部位邊緣，包括引擎蓋、葉子板、頭燈外框上方和側方部件、及任何其他配件。構成引擎蓋前緣位置之參考線，係由參考線與地面參考平面之垂直距離，及其與保險桿(保險桿前緣)之水平距離所定義。 2.4 引擎蓋前緣高度(Bonnet leading edge height)：指引擎蓋前緣上任一點位置之所在引擎蓋前緣參考線與地面參考平面間之垂直距	

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edge reference line at that point. 2.6. "*Bonnet leading edge reference line*" means the geometric trace of the points of contact between a straight edge 1,000 mm long and the front surface of the bonnet, when the straight edge, held parallel to the vertical longitudinal plane of the car and inclined rearwards by 50 deg. from the vertical and with the lower end 600 mm above the ground, is traversed across and in contact with the bonnet leading edge (see Figure 1). For vehicles having the bonnet top surface inclined at 50 deg., so that the straight edge makes a continuous contact or multiple contacts rather than a point contact, the reference line is determined with the straight edge inclined rearwards at an angle of 40 deg. from the vertical. For vehicles of such shape that the bottom end of the straight edge makes first contact, then that contact is taken to be the bonnet leading edge reference line, at that lateral position. For vehicles of such shape that the top end of		離。 2.5 引擎蓋前緣參考線(Bonnet leading edge reference line)：係指以一０００公釐長、平行於車輛垂直縱向平面且從垂直線朝車後方傾斜五０度、底部距地高六００公釐之直尺，於引擎蓋前方表面保持接觸下橫移掃掠，直尺與引擎蓋前方表面間接觸點之幾何軌跡。如圖一所示。 若為具有從垂直線朝車後方傾斜五０度之引擎蓋頂部表面之車輛，其將使直尺與之連續接觸或多點接觸而非單點接觸，則直尺應以從垂直線朝車後方傾斜四０度來決定參考線。 若直尺底部先與車輛接觸，則該接觸點應視為該位置之引擎蓋前緣參考線組成。 若直尺頂部先與車輛接觸，則應	

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the straight edge makes first contact with the vehicle, then the geometric trace of 1,000 mm wrap around distance will be used as the bonnet leading edge reference line at that lateral position. The top edge of the bumper shall also be regarded as the bonnet leading edge for the purposes of this Regulation, if it is contacted by the straight edge during this procedure. **Figure 1: Bonnet leading edge reference line** (請參考頁末圖示) 2.7. "*Bonnet rear reference line*" means the geometric trace of the most rearward points of contact between a 165 mm diameter sphere and the front structure of the vehicle when the sphere is traversed across the front structure of the vehicle while maintaining contact with the windscreen (see Figure 2). The wiper blades and arms are removed during this process. Where the bonnet rear reference line and the side reference line do not intersect, the bonnet rear reference line should be		以一０００公釐縱向攀越定距標線末端之幾何軌跡為該位置之引擎蓋前緣參考線組成。 若保險桿上緣與直尺接觸，則該保險桿上緣亦應視為引擎蓋前緣。 圖一：引擎蓋前緣參考線 (請參考頁末圖示) 2.6 引擎蓋後方參考線(Bonnet rear reference line)：指以直徑一六五公釐之球體於車輛前方結構上橫向滾動，過程中使其與擋風玻璃保持接觸之下（如圖二所示），球體與車輛前方結構間之最後方接觸點所形成之幾何軌跡。執行過程中應移除雨刷片及雨刷臂。 若引擎蓋後方參考線未與側方參考線相交，則應使用半徑一００公釐之半圓形樣板來延展及/或修	

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extended and/or modified using a semi-circular template, of radius 100 mm. The template should be made of a thin flexible sheet material that easily bends to a single curvature in any direction. The template should, preferably, resist double or complex curvature where this could result in wrinkling. The recommended material is a foam backed thin plastic sheet to allow the template to "grip" the surface of the vehicle.		正引擎蓋後方參考線。樣板應由軟性薄板材質所製成，其應可於任何方向彎曲成單曲率，且應防止能導致樣板產生皺褶之雙曲率或多曲率。建議使用背面被覆有泡棉(Foam)之塑質薄板，以使樣板緊貼於車輛表面。	
The template should be marked up with four points "A" through "D", as shown in Figure 3, while the template is on a flat surface.		將樣板置於平坦表面，在樣板上四個點標記英文字母 A~D，如圖三所示。	
The template should be placed on the vehicle with Corners "A" and "B" coincident with the side reference line. Ensuring these two corners remain coincident with the side reference line, the template should be slid progressively rearwards until the arc of the template makes first contact with the bonnet rear reference line. Throughout the process, the template should be curved to follow, as closely as possible, the outer contour of the vehicle's bonnet top, without		將樣板置於車輛上，使轉角 A 及轉角 B 與側方參考線重疊。確保前述轉角皆與側方參考線重疊之條件下，逐漸向後滑動樣板直到其弧線與引擎蓋後方參考線首次接觸。過程中樣板應盡可能地順著車輛引擎蓋頂部之外部輪廓曲線軌跡，惟不應使樣板皺褶或摺疊。若樣板與引擎蓋後方參考線相切，且切點位於 C D 弧線外，則應沿著樣板之圓弧線延展及/或修正引擎蓋後方參考線，使其與引擎蓋側方參考線相交，如圖四	

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wrinkling or folding of the template. If the contact between the template and bonnet rear reference line is tangential and the point of tangency lies outside the arc scribed by points "C" and "D", then the bonnet rear reference line is extended and/or modified to follow the circumferential arc of the template to meet the bonnet side reference line, as shown in Figure 4. If the template cannot make simultaneous contact with the bonnet side reference line at points "A" and "B" and tangentially with the bonnet rear reference line, or the point at which the bonnet rear reference line and template touch lies within the arc scribed by points "C" and "D", then additional templates should be used where the radii are increased progressively in increments of 20 mm, until all the above criteria are met. **Figure 2: Bonnet rear reference line** (請參考頁末圖示) **Figure 3: Template** (請參考頁末圖示)		所示。 若無法同時使樣板Ａ點和Ｂ點與引擎蓋側方參考線接觸，及與引擎蓋後方參考線相切，或若引擎蓋後方參考線與樣板之接觸點落在ＣＤ弧線上，則應另使用其他樣板，其半徑以二０公釐為增量逐漸加大，直到於符合上述所有認定條件下完成延展及/或修正引擎蓋後方參考線。 圖二：引擎蓋後方參考線 (請參考頁末圖示) 圖三：樣板 (請參考頁末圖示)	

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Figure 4: Marking of intersection between bonnet rear and side reference lines (請參考頁末圖示) 2.8. "*Bonnet top*" is the area which is bounded by (a), (b) and (c) as follows: (a) The bonnet leading edge reference line; (b) The bonnet rear reference line; (c) The side reference lines. 2.9. "*Bumper*" means the front, lower, outer structure of a vehicle. It includes all structures that are intended to give protection to a vehicle when involved in a low speed frontal collision and also any attachments to this structure. The reference height and lateral limits of the bumper are identified by the corners and the bumper reference lines. 2.10. "*Bumper lead*" means for any longitudinal section of a vehicle, the horizontal distance measured in any vehicle vertical longitudinal plane between the upper bumper reference line and the bonnet leading edge reference line. 2.11. "*Bumper test area*" means the frontal surface of the bumper limited by two		圖四：引擎蓋後方及側方參考線間之連接 (請參考頁末圖示) 2.7 引擎蓋頂部(Bonnet top)：係指由下述所圍成之區域： (a)引擎蓋前緣參考線； (b)引擎蓋後方參考線； (c)側方參考線。 2.8 保險桿(Bumper)：係指車輛前方結構外部表面之下方部位。其包括車輛低速前方碰撞防護有關之所有結構及其配件。保險桿之參考高度及側向界限由保險桿參考線及保險桿彎角(Corner)所定義。 2.9 保險桿前緣(Bumper lead)：係指於車輛之任何垂直縱向平面上，所量測得保險桿上方參考線與引擎蓋前緣參考線間之水平距離。 2.10保險桿試驗區域(Bumper test area)：係指兩縱向垂直平面間之	

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longitudinal vertical planes intersecting the corners of the bumper and moved 66 mm parallel and inboard of the corners of the bumpers. 2.12. "*Centre of the knee*" of the lower legform impactor is defined as the point about which the knee effectively bends. 2.13. "*Child headform test area*" is an area on the outer surfaces of the front structure. The area is bounded, in the front, by the front reference line for child headform, and, at the rear, by the WAD1700 line, and by the side reference lines. 2.14. "*Corner of bumper*" means the vehicle's point of contact with a vertical plane which makes an angle of 60 deg. with the vertical longitudinal plane of the vehicle and is tangential to the outer surface of the bumper (see Figure 5). **Figure 5: Corner of bumper** (請參考頁末圖示) 2.15. "*Corner reference point*" means the intersection of the bonnet leading edge reference line and of the bonnet side		保險桿前方表面；此二平面位於左右兩側保險桿彎角各向內平行移動六六公釐處。 2.11下腿部模型衝擊器(Lower legform impactor)之膝部中心：係指膝部有效彎曲之點。 2.12兒童頭部模型試驗區域(Child headform test area)：係指車輛前方結構外部表面之一特定區域。該區域之前方為兒童頭部模型前方參考線，後方為以WAD一七００標線末端所決定之各點連線，及兩側為側方參考線。 2.13保險桿彎角(Corner of bumper)：係指保險桿外部表面與六０度夾角垂直平面相切之接觸點；該六０度夾角垂直平面為與車輛縱向垂直平面成六０度夾角之垂直平面，如圖五所示。 圖五：保險桿彎角 (請參考頁末圖示) 2.14引擎蓋彎角參考點(Corner reference point)：係指引擎蓋前緣參考線與引擎蓋側方參考線之交	

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reference line (see Figure 6). **Figure 6: Determination of corner reference point; intersection of the bonnet leading edge reference line and the bonnet side reference line** (請參考頁末圖示) 2.16. "*Driver mass*" means the nominal mass of a driver that shall be 75 kg (subdivided into 68 kg occupant mass at the seat and 7 kg luggage mass in accordance with ISO standard 2416-1992). 2.17. "*Femur*" of the lower legform impactor is defined as all components or parts of components (including flesh, skin covering, damper, instrumentation and brackets, pulleys, etc. attached to the impactor for the purpose of launching it) above the level of the centre of the knee. 2.18. "*Front reference line for child headform*" means the geometric trace as described on the vehicle front structure using a WAD1000 line. In the case of vehicles where the wrap around distance to the bonnet leading edge reference line, is more than 1,000 mm at any point, then the		點。如圖六所示。 圖六：引擎蓋彎角參考點之認定：引擎蓋前緣參考線與引擎蓋側方參考線之交點。 (請參考頁末圖示) 2.15駕駛重量：係指應為七五公斤之標稱駕駛重量（依照 ISO 2416-1992，細分為座椅上乘坐重量六八公斤及行李重量七公斤）。 2.16下腿部模型衝擊器之股骨(Femur)：係指膝部中心以上之所有組件或其零件（連接於衝擊器上，以使其向前投射，包括肌肉、外皮、阻尼器、儀器組立與支架、滑輪等）。 2.17兒童頭部模型前方參考線(Front reference line for child headform)：係指 WAD －０００標線於車輛前方結構所形成各點連線之幾何軌跡。於任一點上，若至該點所在車輛引擎蓋前緣參考線之 WAD 大於－０００公釐，則以該點所在之引擎蓋前緣參考線為兒童頭部模型前方參考	

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bonnet leading edge reference line will be used as the front reference line for child headform at that point.		線。	
2.19. "*Front structure*" means all outer structures of the vehicle except the windscreen, the windscreen header, the A-pillars and structures rearward of these. It therefore includes, but is not limited to, the bumper, the bonnet, wings, scuttle, wiper spindles and lower windscreen frame.		2.18前方結構(Front structure)：係指除前擋風玻璃、前擋風玻璃上座(Windscreen header)、A柱及於前述部件後方之結構以外，車輛之所有外部結構。前方結構包括但不限於保險桿、引擎蓋、葉子板、氣窗(Scuttle)、雨刷轉軸(Wiper spindles)及前擋風玻璃下座(Lower windscreen frame)。	
2.20. "*Ground reference plane*" means a horizontal plane, either real or imaginary, that passes through the lowest points of contact for all tyres of a vehicle while the vehicle is in its normal ride attitude. If the vehicle is resting on the ground, then the ground level and the ground reference plane are one and the same. If the vehicle is raised off the ground such as to allow extra clearance below the bumper, then the ground reference plane is above ground level.		2.19地面參考平面(Ground reference plane)：係指車輛處於正常乘載狀態下，通過其所有輪胎最低接觸點之真實或假想水平面。若車輛置放於地面上，則地面與地面參考平面相同；若車輛被抬離地面使保險桿下方有額外淨空間隙，則地面參考平面位於地面上方。	
2.21. "*Head Injury Criterion (HIC)*" means the calculated result of accelerometer time		2.20頭部傷害指數(Head Injury Criterion)(HIC)：係指使用下列公	

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histories using the following formula: $HIC = \left[\frac{1}{t_2 - t_1}\int_{t_1}^{t_2} a\,dt\right]^{2.5}(t_2 - t_1)$ Where: "*a*" is the resultant acceleration measured in units of gravity "g" (1 g = 9.81 m/s2); "t_1" and "t_2" are the two time instants (expressed in seconds) during the impact, defining an interval between the beginning and the end of the recording period for which the value of HIC is a maximum (t_2 - t_1 < 15 ms). 2.22. "*Impact point*" means the point on the vehicle where initial contact by the test impactor occurs. The proximity of this point to the target point is dependent upon both the angle of travel by the test impactor and the contour of the vehicle surface (see point B in Figure 7). **Figure 7: Impact and target point** **【請參考頁末圖示】** 2.23. "*Lower bumper height*" means the vertical distance between the ground reference plane and the lower bumper		式計算加速度計之時間歷程結果： $HIC = \left[\frac{1}{t_2 - t_1}\int_{t_1}^{t_2} a\,dt\right]^{2.5}(t_2 - t_1)$ a 係指合成加速度(Resultant acceleration)，單位:重力加速度 g (1g=9.81m/s^2) t_1 及 t_2 係指衝擊過程中的兩個瞬時點（單位：秒），其代表所記錄最大 HIC 值開始時間與結束時間之間隔時間(t_2-t_1<15ms)。 2.21 衝擊點(Impact point)：試驗衝擊器於車輛上之初次接觸點。衝擊點與目標點之接近程度取決於試驗衝擊器衝擊角度與車輛表面輪廓，如圖七之 B 點所示。 圖七：衝擊點與目標點 (請參考頁末圖示) 2.22保險桿下方高度(Lower bumper height)：係指車輛處於正常乘載狀態下，地面參考平面與保險桿下	

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reference line, with the vehicle positioned in its normal ride attitude. 2.24. "*Lower bumper reference line*" means the lower limit to significant points of pedestrian contact with the bumper. It is defined as the geometric trace of the lowermost points of contact between a straight edge 700 mm long and the bumper, when the straight edge, held parallel to the vertical longitudinal plane of the vehicle and inclined forwards by 25 deg. from the vertical, is traversed across the front of the vehicle, while maintaining contact with the ground and with the surface of the bumper (see Figure 8). **Figure 8: Lower Bumper Reference Line (LBRL)** (請參考頁末圖示) 2.25. "*Mass in running order*" means the nominal mass of a vehicle as determined by the sum of unladen vehicle mass and driver's mass. 2.26. "*Normal ride attitude*" means the vehicle positioned on a flat horizontal surface with its mass in running order, with		方參考線間之垂直距離。 2.23保險桿下方參考線(Lower bumper reference line)：係指保險桿與行人間顯著接觸點之下方界線。以七００公釐長、平行於車輛垂直縱向平面且從垂直線朝車前傾斜二五度、底部與地面維持接觸之直尺橫向掃掠車輛前方，其於保險桿表面接觸之最低接觸點幾何軌跡，如圖八所示。 圖八：保險桿下方參考線(LBRL) (請參考頁末圖示) 2.24可行駛狀態空車重(Mass in running order)：指空車重量與駕駛重量之和。 2.25正常乘載狀態(Normal ride attitude)：係指車輛處於可行駛狀態空車重下，停放於平坦之地	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
the tyres inflated to manufacturer recommended pressures, the front wheels in the straight-ahead position and with a passenger mass placed on the front passenger seat. The front seats are placed at the nominal mid-track position. The suspension shall be set in normal running condition as specified by the manufacturer for a speed of 40 km/h.		面，輪胎充氣至申請者指定之胎壓，前輪朝向前行方向且將一乘客重量放在第一排乘客座椅上。調整第一排座椅於標稱之中間軌道位置(Mid-track position)。懸吊系統應調整至申請者指定車速四０公里/小時之正常行駛狀態。	
2.27. "*Passenger mass*" means the nominal mass of a passenger that shall be 68 kg, with in addition a 7 kg provision for luggage which shall be located in the luggage compartment(s) in accordance with ISO standard 2416-1992.		2.26乘客重量(Passenger mass)：係指依照 ISO2416-1992，應為六八公斤之標稱乘客重量，再加上七公斤之置放於行李箱內行李重量。	
2.28. "*Side reference line*" means the geometric trace of the highest points of contact between a straight edge 700 mm long and the sides of the vehicle, when the straight edge, held parallel to the transverse vertical plane of the vehicle and inclined inwards by 45 deg., is traversed down, and maintains contact with the sides of the front structure (see Figure 9).		2.27側方參考線(Side reference line)：係指以七００公釐長、平行於車輛垂直橫向平面且從垂直線朝車輛縱向中心線傾斜四五度之直尺，於車輛前方結構側面保持接觸下橫移掃掠，直尺與車輛側方間之最高接觸點幾何軌跡，如圖九所示。	
Figure 9: Side reference line		圖九：側方參考線	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
(請參考頁末圖示) 2.29. "*Target point*" means the intersection of the projection of the headform longitudinal axis with the front surface of the vehicle (see point A in Figure 7). 2.30. "*Third of the bonnet leading edge*" means the geometric trace between the corner reference points, measured with a flexible tape following the outer contour of the leading edge, divided in three equal parts. 2.31. "*Third of the bonnet top*" means the geometric trace of the area between the bonnet side reference lines, measured with a flexible tape following the outer contour of the bonnet top on any transverse section, divided in three equal parts. 2.32. "*Third of the bumper*" means the geometric trace between the corners of the bumper, measured with a flexible tape following the outer contour of the bumper, divided in three equal parts. 2.33. "*Tibia*" of the lower legform impactor is defined as all components or parts of components (including flesh, skin covering,		(請參考頁末圖示) 2.28目標點(Target point)：係指頭部模型縱向軸延伸線與車輛前方表面之交點，如圖七之 A 點。 2.29引擎蓋前緣三分之一劃分(Third of the bonnet leading edge)：係指以軟性捲尺順著引擎蓋彎角參考點間之引擎蓋前緣外部輪廓，量測得並被劃分三個等份之幾何軌跡。 2.30引擎蓋頂部三分之一劃分(Third of the bonnet top)：係指於引擎蓋頂部區域之任一橫向截面上，以軟性捲尺順著引擎側方參考線間之引擎蓋頂部外部輪廓，量測得並被劃分三個等份之幾何軌跡。 2.31保險桿三分之一劃分(Third of the bumper)：係指以軟性捲尺順著保險桿彎角間之保險桿外部輪廓，量測得並被劃分三個等份之幾何軌跡。 2.32下腿部模型衝擊器之脛骨(Tibia)：係指膝蓋中心以下之所有組件或其零件（連接於衝擊器	

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instrumentation and brackets, pulleys, etc. attached to the impactor for the purpose of launching it) below the level of the centre of the knee. Note that the tibia as defined includes allowances for the mass, etc., of the foot.		上，以使其向前投射，包括肌肉、外皮、儀器組立與支架、滑輪等）。前述定義之脛骨應包含足部重量等之考量。	
2.34. "*Unladen vehicle mass*" means the nominal mass of a complete vehicle as determined by the following criteria:		2.33空車重量(Unladen vehicle mass)：係指依照下述基準決定之完成車標稱重量：	
2.34.1. Mass of the vehicle with bodywork and all factory fitted equipment, electrical and auxiliary equipment for normal operation of vehicle, including liquids, tools, fire extinguisher, standard spare parts, chocks and spare wheel, if fitted.		2.33.1 具有車身及車輛正常運作應有之所有電氣及輔助之廠裝配備，包括所有液體、工具、滅火器、標準備用零件、輪擋(Chocks)及備胎（若有配備）。	
2.34.2. The fuel tank shall be filled to at least 90 per cent of rated capacity and the other liquid containing systems (except those for used water) to 100 per cent of the capacity specified by the manufacturer		2.33.2 燃油箱內應至少裝填額定容量之百分之九０，內含液體(除廢水外)之其他系統應裝填申請者宣告容量之百分之一百。	
2.35. "*Upper bumper reference line*" means a line which identifies the upper limit to significant points of pedestrian contact with the bumper. It is defined as the geometric trace of the upper most points of contact		2.34保險桿上方參考線(Upper bumper reference line)：保險桿與行人間顯著接觸點之上方界線。以七００公釐長、平行於車輛垂直縱向平面且從垂直線朝車後傾斜二０度、底部與地面維持接觸之直尺	

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between a straight edge 700 mm long and the bumper, when the straight edge, held parallel to the vertical longitudinal plane and inclined rearwards by 20 deg., is traversed across the front of the vehicle, while maintaining contact with the ground and with the surface of the bumper (see Figure 10). Where necessary the straight edge shall be shortened to avoid any contact with structures above the bumper. **Figure 10: Upper Bumper Reference Line (UBRL)** (請參考頁末圖示) ~~2.36. "*Vehicle type with regard to the pedestrian protection requirements*" means a category of vehicles which, forward of the A-pillars, do not differ in such essential respects as:~~ ~~(a) The structure,~~ ~~(b) The main dimensions,~~ ~~(c) The materials of the outer surfaces of the vehicle,~~ ~~(d) The component arrangement (external or internal),~~		橫向掃掠車輛前方，其於保險桿表面接觸之最高接觸點幾何軌跡，如圖一0所示。 必要時應縮短直尺，以避免與位於保險桿上方之結構有任何接觸。 圖一0：保險桿上方參考線(UBRL) (請參考頁末圖示)	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
~~in so far as they may be considered to have a negative effect on the results of the impact tests prescribed in this Regulation.~~ 2.37. "*Vehicles of category M1 derived from N1*" means those vehicles of M1 category which, forward of the A-pillars, have the same general structure and shape as a pre-existing N1 category vehicle. 2.38. "*Vehicles of category N1 derived from M1*" means those vehicles of N1 category which, forward of the A-pillars, have the same general structure and shape as a pre-existing M1 category vehicle. 2.39. "*Windscreen*" means the frontal glazing of the vehicle situated between the A-pillars. 2.40. "*Wrap Around Distance (WAD)*" means the geometric trace described on the outer surface of the vehicle front structure by one end of a flexible tape, when it is held in a vertical longitudinal plane of the vehicle and traversed across the front structure. The tape is held taut throughout the operation with one end held at the same level as the ground reference plane,		2.35 N1 類衍生之 M1 類車輛：係指其 A 柱前方結構/形狀與一既有 N1 類車輛相同之 M1 類車輛。 ~~2.36 M1 類衍生之 N1 類車輛：係指其 A 柱前方結構/形狀與一既有 M1 類車輛相同之 N1 類車輛。~~ (內容未涉及基準條文，建議不納入。) 2.36 前擋風玻璃(Windscreen)：位於車輛 A 柱之間之前方玻璃。 2.37 縱向攀越定距(Wrap around distance (WAD))：係指以維持於車輛垂直縱向平面上之軟性捲尺攀越車輛前方結構，捲尺之一端於車輛前方結構外部表面上所形成之幾何軌跡。於攀越過程中，車輛處於正常乘載狀態下，且應拉緊捲尺，捲尺一端置於與地面參考平面等高、保險桿前方表面之正下方處，另一端與車輛前方結	

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vertically below the front face of the bumper and the other end held in contact with the front structure (see Figure 11). The vehicle is positioned in the normal ride attitude. This procedure shall be followed, using alternative tapes of appropriate lengths, to describe wrap around distances of 1,000 mm (WAD1000), of 1,700 mm (WAD1700) and of 2,100 mm (WAD2100). **Figure 11: Wrap around distance measurement** (請參考頁末圖示)		構相接觸，如圖一一所示。 應以適當長度之捲尺做為：一〇〇〇公釐縱向攀越定距(WAD1000)標線、一七〇〇公釐縱向攀越定距(WAD1700)標線及二一〇〇公釐縱向攀越定距(WAD2100)標線。 圖一一：縱向攀越定距之量測 (請參考頁末圖示)	
參考 R13H 00-S15 2.11. "Maximum mass" means the maximum mass stated by the vehicle manufacturer to be technically permissible (this mass may be higher than the "permissible maximum mass" laid down by the national administration).		2.38 最大重量(Maximum mass)：係指申請者宣告技術上容許之重量（此可能高於核定重量）。	

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2.36. "*Vehicle type with regard to the pedestrian protection requirements*" means a category of vehicles which, forward of the A-pillars, do not differ in such essential respects as: (a) The structure, (b) The main dimensions, (c) The materials of the outer surfaces of the vehicle, (d) The component arrangement (external or internal), in so far as they may be considered to have a negative effect on the results of the impact tests prescribed in this Regulation.		3.車輛前方結構之行人碰撞防護性能之適用型式及其範圍認定原則： 3.1 若以完成車執行本項 3.1.1 車種代號相同。 3.1.2 車輛廠牌及型式系列相同。 3.1.3 足以影響衝擊試驗結果之A柱前方下列特性相同： 3.1.3.1 結構。 3.1.3.2 主要尺寸。 3.1.3.3 車輛外部表面材質。 3.1.3.4 組件配置（外部或內部之主動防護系統(Active protection system)）。 3.2 若以底盤車執行本項 3.2.1 適用車種代號相同。 3.2.2 底盤車廠牌及型式系列相同。 3.2.3 足以影響衝擊試驗結果之A柱前方下列特性相同： 3.2.3.1 結構。 3.2.3.2 主要尺寸。 3.2.3.3 車輛外部表面材質。 3.2.3.4 組件配置（外部或內部之主動防護系統(Active protection system)）。	
3.2.1. The manufacturer shall submit to the Type Approval Authority the information document, established in accordance with the		4. 一般規定 4.1 申請者應提供至少一部代表車及下列文件予檢測機構，確認實車	

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model set out in Part 1 of Annex 1, including a description of the vehicle type with regard to the items mentioned in paragraph 2.37., together with dimensional drawings. The numbers and/or symbols identifying the vehicle type shall be specified. 3.3. A vehicle representative of the vehicle type to be approved shall be submitted to the Technical Service conducting the approval tests.		與文件內容一致。 4.1.1 規定3.之車輛及/或底盤車規格資料，與實車圖示及/或照片。 4.1.1.1 引擎位置及配置方式。 4.1.2 行人防護相關之車輛前方結構特性描述說明與實車圖示及/或照片。 4.1.2.1 相關參考線。 4.1.2.2 頭部模型試驗區域之劃分。 4.1.2.2.1 識別出HIC不應超過一０００（HIC一０００區域）或不應超過一七００（HIC一七００區域）之引擎蓋頂部區域。 4.1.2.2.2 所需足夠數量之X及Y座標值。	
Annex 1 - Part 1 **Model** **Information document No … relating to the type approval of a vehicle with regard to pedestrian protection** The following information, if applicable, shall be supplied in triplicate and include a list of contents. Any drawings shall be supplied in appropriate scale and in sufficient detail on size A4 or on a folder of A4 format. Photographs, if any, shall show sufficient details. If the systems, components or separate technical units have electronic controls, information concerning their performance shall be supplied.			

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0. General 0.1. Make (trade name of manufacturer): 0.2. Type: 0.2.1. Commercial name(s) (if available): 0.3. Means of identification of type, if marked on the vehicle [1,2]: 0.3.1. Location of that marking: 0.4. Category of vehicle [3]: 0.5. Name and address of manufacturer: 0.6. Name(s) and address(es) of assembly plant(s): 0.7. Name and address of the manufacturer's representative (if any): 1. General construction characteristics of the vehicle 1.1. Photographs and/or drawings of a representative vehicle: 1.6. Position and arrangement of the engine: 9. Bodywork 9.1. Type of bodywork: 9.2. Materials used and methods of construction: 9.23. Pedestrian protection 9.23.1. A detailed description, including photographs and/or drawings, of the vehicle			

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
with respect to the structure, the dimensions, the relevant reference lines and the constituent materials of the frontal part of the vehicle (interior and exterior) shall be provided. This description shall include detail of any active protection system installed. **Annex 5** **3. Child and adult headform test procedures - Common test specifications** 3.4. Splitting of headform test zones 3.4.1. The manufacturer shall identify the zones of the bonnet top where the HIC must not exceed 1,000 (HIC1000 zone) or 1,700 (HIC1700 zone) (see Figure 3). **…**			
5. Specifications 5.1. Legform test to bumper: For vehicles with a lower bumper height at the test position of less than 425 mm the requirements of paragraph 5.1.1. shall be applied. For vehicles with a lower bumper height at the test position which is greater than, or equal to, 425 mm and less than 500 mm the		5. 性能基準 5.1 保險桿之腿部模型試驗： 試驗位置之車輛保險桿下方高度低於四二五公釐者，應符合 5.1.1 之規定。 試驗位置之車輛保險桿下方高度大於或等於四二五公釐且小於五００公釐者，應符合 5.1.1 或 5.1.2 之規	

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requirements of either paragraph 5.1.1. or 5.1.2., at the choice of the manufacturer, shall be applied. For vehicles with a lower bumper height at the test position of greater than, or equal to, 500 mm the requirements of paragraph 5.1.2. shall be applied. 5.1.1. Lower legform to bumper: When tested in accordance with Annex 5, paragraph 1. (lower legform to bumper), the maximum dynamic knee bending angle shall not exceed 19 deg., the maximum dynamic knee shearing displacement shall not exceed 6.0 mm, and the acceleration measured at the upper end of the tibia shall not exceed 170 g. In addition, the manufacturer may nominate bumper test widths up to a maximum of 264 mm in total where the acceleration measured at the upper end of the tibia shall not exceed 250 g. The lower legform impactor shall be certified pursuant to Annex 6, paragraph 1. 5.1.2. Upper legform to bumper: When tested in accordance with Annex 5,		定。 試驗位置之車輛保險桿下方高度大於或等於五００公釐者，應符合5.1.2之規定。 5.1.1 保險桿之下腿部模型試驗 當執行8.1（保險桿之下腿部模型試驗）之試驗時，膝部最大動態彎曲角度不應超過一九度，膝部最大動態剪切位移(Shearing displacement)不應超過六公釐，且脛骨頂端加速度不應超過一七０g。且申請者可指定之保險桿試驗最大總寬度至多為二六四公釐，而脛骨頂端加速度不應超過二五０g。 下腿部模型衝擊器須依照 9.1 之規定進行功能驗證。 5.1.2 保險桿之上腿部模型試驗 當執行8.2（保險桿之上腿部模型試	

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paragraph 2. (upper legform to bumper), the instantaneous sum of the impact forces with respect to time shall not exceed 7.5 kN and the bending moment on the test impactor shall not exceed 510 Nm.		驗）之試驗時，相對於時間之瞬時衝擊力總和不應超過七・五千牛頓，且試驗衝擊器之彎曲力矩不應超過五一０牛頓米。	
The upper legform impactor shall be certified pursuant to Annex 6, paragraph 2.		上腿部模型衝擊器須依照 9.2 之規定進行功能驗證。	
5.2. Headform tests		5.2 頭部模型試驗	
5.2.1. Child and adult headform tests:		5.2.1 兒童及成人之頭部模型試驗	
When tested in accordance with Annex 5, paragraphs 3., 4., and 5., the HIC recorded shall not exceed 1,000 over two thirds of the combined child and adult headform test areas. The HIC for the remaining areas shall not exceed 1,700 for both headforms.		執行 8.3、8.4 及 8.5 之試驗時，兒童及成人頭部模型試驗區域組合區三分之二，其 HIC 值不應超過一０００；其餘區域，其 HIC 值不應超過一七００。	
In case there is only a child headform test area, the HIC recorded shall not exceed 1,000 over two thirds of the test area. For the remaining area the HIC shall not exceed 1,700.		若僅有兒童頭部模型試驗區域，則該試驗區域三分之二，其 HIC 值不應超過一０００，其餘區域之 HIC 值應不超過一七００。	
5.2.2. Child headform impact:		5.2.2 兒童頭部模型衝擊	
When tested in accordance with Annex 5, paragraphs 3. and 4., the HIC recorded shall not exceed 1,000 over a minimum of one half of the child headform test area.		執行 8.3 及 8.4 之試驗時，至少兒童頭部模型試驗區域二分之一，其 HIC 值不應超過一０００，其餘區域之 HIC 值不應超過一七００。	

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The HIC for the remaining areas shall not exceed 1,700. 5.2.3. The headform impactors shall be certified pursuant to Annex 6, paragraph 3.		5.2.3 頭部模型衝擊器須依照 9.3 之規定進行功能驗證。	
Annex 3 **General test conditions** 1. Temperature and humidity 1.1. At the time of testing, the test facility and the vehicle or sub-system shall have a relative humidity of 40 +/-30 per cent and stabilized temperature of 20 +/- 4 deg. C. 2. Impact test site 2.1. The test site shall consist of a flat, smooth and hard surface with a slope not exceeding 1 per cent. **Annex 3** 3. Preparation of the vehicle 3.1. Either a complete vehicle, or a cut-body, adjusted to the following conditions shall be used for the test. 3.1.1. The vehicle shall be in its normal ride attitude, and shall be either securely mounted on raised supports or at rest on a flat horizontal surface with the parking		6.一般試驗條件 6.1 溫度及濕度 6.1.1 試驗時，試驗設施及車輛或子系統應置放於相對濕度百分之四０正負三０及穩定溫度攝氏二０正負四度環境下。 6.2 衝擊試驗場地 6.2.1 試驗場地應為平坦、平順且堅硬之平面，平面之坡度不超過百分之一。 6.3 車輛準備 6.3.1 整車或切割車身，應調整至下述條件以執行試驗。 6.3.1.1 車輛應處於正常乘載狀態下，且牢固地安裝於頂起支柱上，或施加駐煞車以停放於水平地面上。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
brake applied. 3.1.2. The cut-body shall include, in the test, all parts of the vehicle front structure, all underbonnet components and all components behind the windscreen that may be involved in a frontal impact with a vulnerable road user, to demonstrate the performance and interactions of all the contributory vehicle components. The cut-body shall be securely mounted in the normal vehicle ride attitude. 3.2. All devices designed to protect vulnerable road users when impacted by the vehicle shall be correctly activated before and/or be active during the relevant test. It shall be the responsibility of the manufacturer to show that any devices will act as intended in a pedestrian impact. 3.3. For vehicle components which could change shape or position, other than active devices to protect pedestrians, and which have more than one fixed shape or position shall require the vehicle to comply with the components in each fixed shape or position.		6.3.1.2 試驗中，切割車身應包括車輛前方結構之所有零件、引擎蓋下之所有組件，及前擋風玻璃後方可能與用路人發生前方碰撞之所有組件。切割車身應處於正常乘載狀態，且牢固地安裝。 6.3.2 設計用以保護遭受車輛碰撞之用路人之所有裝置，在相關試驗前應被正確致動(Activate)，及/或相關試驗期間作動(Active)。申請者應示範任何裝置於行人碰撞中會如預期地作動。 6.3.3 對於非主動防護行人裝置而可以改變外形或位置之車輛組件，及具有一種以上固定外型或位置之車輛組件，於該等組件之每個固定外型或位置，車輛均應符合規定。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
Annex 4 **Test impactor specifications** **1. Lower legform impactor** 1.1. The lower legform impactor shall consist of two foam covered rigid segments, representing femur (upper leg) and tibia (lower leg), joined by a deformable, simulated knee joint. The overall length of the impactor shall be 926 +/- 5 mm, having a required test mass of 13.4 +/- 0.2 kg (see Figure 1). Dimensions of the various parts are detailed in Figure 1. Brackets, pulleys, etc. attached to the impactor for the purpose of launching it, may extend the dimensions shown in Figure 1. 1.2. The diameter of the femur and tibia shall be 70 +/- 1 mm and both shall be covered by foam flesh and skin. The foam flesh shall be 25 mm thick foam type CF-45 or equivalent. The skin shall be made of neoprene foam, faced with 0.5 mm thick nylon cloth on both sides, with an overall thickness of 6 mm. 1.3. The knee joint shall be fitted with		7. 試驗衝擊器之規格 7.1 下腿部模型衝擊器 7.1.1 下腿部模型衝擊器由泡棉塑料(Foam)覆蓋之兩個剛性件所組成，用來代表股骨（大腿）及脛骨（下腿），兩者以可變形之膝部模擬關節相連接。衝擊器全長應為九二六正負五公釐，符合規定之試驗重量應為一三．四正負０．二公斤。各部位之詳細尺寸如圖一二所示。 連接在衝擊器上用於投射之裝置，如支架、滾輪等可延伸圖一二之尺寸。 7.1.2 股骨及脛骨之直徑應為七０正負一公釐，外面覆蓋泡棉塑料肌肉及外皮。泡棉塑料肌肉應為厚度二五公釐之 CF-45 類泡棉塑料或其同等物。外皮應為尼奧普林(Neoprene)泡棉塑料所製成，兩面皆覆蓋厚度０．五公釐之尼龍布，總厚度為六公釐。 7.1.3 應使用與功能驗證試驗同批之可	

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deformable knee elements from the same batch as those used in the certification tests. 1.4. The total masses of the femur and tibia shall be 8.6 +/- 0.1 kg and 4.8 +/- 0.1 kg respectively, and the total mass of the impactor shall be 13.4 +/- 0.2 kg. The centre of gravity of the femur and tibia shall be 217 +/- 10 mm and 233 +/- 10 mm from the centre of the knee respectively. The moment of inertia of the femur and tibia, about a horizontal axis through the respective centre of gravity and perpendicular to the direction of impact, shall be 0.127 +/- 0.010 kgm^2 and 0.120 +/- 0.010 kgm2 respectively. **Annex 4** **2. Lower legform instrumentation** 2.1. An uniaxial accelerometer shall be mounted on the non-impacted side of the tibia, 66 +/- 5 mm below the knee joint centre, with its sensitive axis in the direction of impact. 2.2. A damper shall be fitted to the shear displacement system and may be mounted at any point on the rear face of the impactor		變形膝部元件，安裝於膝部關節。 7.1.4 股骨及脛骨之總重量應分別為八・六正負０・一公斤及四・八正負０・一公斤，且衝擊器之總重量應為一三・四正負０・二公斤。股骨及脛骨之重心距離膝蓋中心應分別為二一七正負一０公釐及二三三正負一０公釐。一水平軸位於股骨及脛骨之重心且垂直於衝擊方向，相對於該水平軸之股骨及脛骨慣性力矩應分別為０・一二七正負０・０一０公斤・平方米及０・一二０正負０・０一０公斤・平方米。 7.2 下腿部模型試驗儀器組立 7.2.1 在脛骨之非衝擊側安裝單軸加速度計，加速度計應安裝在膝部關節中心下方六六正負五公釐處，其靈敏軸(Sensitive axis)位於衝擊方向上。 7.2.2 在剪切位移系統安裝阻尼器，其可安裝於衝擊器後方表面之任一處或內部。阻尼器特性應確保衝擊器	

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or internally. The damper properties shall be such that the impactor meets both the static and dynamic shear displacement requirements and prevents excessive vibrations of the shear displacement system.		符合靜態及動態剪切位移之規定，且應避免剪切位移系統過度振動。	
2.3. Transducers shall be fitted to measure knee bending angle and knee shearing displacement.		7.2.3 安裝轉換器(Transducers)來量測膝部彎曲角度及膝部剪切位移。	
2.4. The instrumentation response value channel frequency class (CFC), as defined in ISO 6487:2002, shall be 180 for all transducers. The CAC response values, as defined in ISO 6487:2002, shall be 50 deg. for the knee bending angle, 10 mm for the shearing displacement and 500 g for the acceleration. This does not require that the impactor itself be able to physically bend and shear to these angles and displacements.		7.2.4 依照 ISO 6487:2002 定義之儀器響應值通道頻率等級(Channel frequency class)(CFC)，所有轉換器之 CFC 應為一八０。依照 ISO 6487:2002 定義之 CAC 響應值，膝部彎曲角度之 CAC 響應值應為五０度、剪切位移之 CAC 響應值應為一０公釐且加速度之 CAC 響應值應為五００g。衝擊器本身不須彎曲至此角度及剪切至此位移。	
Figure 1: Lower legform impactor (請參考頁末圖示)		圖一二：下腿部模型衝擊器 (請參考頁末圖示)	
Annex 4 **3. Upper legform impactor**		7.3 上腿部模型衝擊器	
3.1. The upper legform impactor shall be		7.3.1 上腿部模型衝擊器應為剛性，衝	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
rigid, foam covered at the impact side, and 350 +/ - 5 mm long (see Figure 2). 3.2. The total mass of the upper legform impactor including those propulsion and guidance components which are effectively part of the impactor during the impact shall be 9.5 +/ - 0.1 kg. 3.3. The total mass of the front member and other components in front of the load transducer assemblies, together with those parts of the load transducer assemblies in front of the active elements, but excluding the foam and skin, shall be 1.95 +/- 0.05 kg. 3.4. The upper legform impactor for the bumper test shall be mounted to the propulsion system by a torque limiting joint and be insensitive to off-axis loading. The impactor shall move only in the specified direction of impact when in contact with the vehicle and shall be prevented from motion in other directions including rotation about any axis. 3.5. The torque limiting joint shall be set so that the longitudinal axis of the front		擊側覆蓋泡棉塑料，且長度應為三五０正負五公釐（如圖一三所示）。 7.3.2 上腿部模型衝擊器總重量應為九・五正負０・一公斤，其包括衝擊過程中做為衝擊器有效部位之推進及導向組件。 7.3.3 負載轉換器(Load transducer)總成前方構件(Front member)及其他前方組件之總重量，加上主動元件(Active element)前方負載轉換器總成部位（不包括泡棉塑料及外皮）之總重量應為一・九五正負０・０五公斤。 7.3.4 在保險桿試驗中，上腿部模型衝擊器應以扭矩限制連接件(Torque limiting joint)安裝在推進系統上且對偏軸負載(Off-axis loading)不敏感。與車輛接觸時，衝擊器應僅沿著指定之衝擊方向移動，且避免其他方向之移動，包括繞任一軸旋轉。 7.3.5 扭矩限制連接件設置應確保衝擊時前方構件之縱向軸保持垂直	

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member is vertical at the time of impact with a tolerance of +/-2 deg., with the joint friction torque set to 675 +/- 25 Nm. 3.6. The centre of gravity of those parts of the impactor which are effectively forward of the torque limiting joint, including any weights fitted, shall lie on the longitudinal centre line of the impactor, with a tolerance of +/- 10 mm. 3.7. The length between the load transducer centre lines shall be 310 +/- 1 mm and the front member diameter shall be 50 +/- 1 mm. **Annex 4** **4. Upper legform instrumentation** 4.1. The front member shall be strain gauged to measure bending moments in three positions, as shown in Figure 2, each using a separate channel. The strain gauges are located on the impactor on the back of the front member. The two outer strain gauges are located 50 +/- 1 mm from the impactor's symmetrical axis. The middle strain gauge is located on the symmetrical axis with a +/-1 mm tolerance.		（公差正負二度），連接件之摩擦力矩設定為六七五正負二五牛頓米。 7.3.6 扭矩限制連接件前方之衝擊器有效部位之重心（包含安裝之所有配重），應位於衝擊器縱向中心線上（公差正負一０公釐）。 7.3.7 兩負載轉換器中心線間之長度應為三一０正負一公釐，且前方構件直徑應為五０正負一公釐。 7.4 上腿部模型試驗儀器組立 7.4.1 前方構件應以應變計在三個位置上量測彎曲力矩，如圖一三所示，每一個位置使用個別頻道量測。應變計應安裝於衝擊器前方構件之背面。兩外側應變計安裝於各距離衝擊器對稱軸五０正負一公釐處，中間之應變計應安裝於對稱軸上（公差正負一公釐）。	

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4.2. Two load transducers shall be fitted to measure individually the forces applied at either end of the upper legform impactor, plus strain gauges measuring bending moments at the centre of the upper legform impactor and at positions 50 mm either side of the centre line (see Figure 2). 4.3. The instrumentation response value CFC, as defined in ISO 6487:2002, shall be 180 for all transducers. The CAC response values, as defined in ISO 6487:2002, shall be 10 kN for the force transducers and 1,000 Nm for the bending moment measurements. **Figure 2: Upper legform impactor** (請參考頁末圖示) **Annex 4** **5. Child and adult headform impactors** 5.1. Child headform impactor (see Figure 3) 5.1.1. The child headform impactor shall be made of aluminium, be of homogenous construction and be of spherical shape. The overall diameter shall be 165 +/- 1 mm. The mass shall be 3.5 +/- 0.07 kg. The moment of inertia about an axis through the		7.4.2 安裝兩負載轉換器來個別量測施加於上腿部模型衝擊器兩端之力，以及上腿部模型衝擊器中心與距離中心線各五０公釐處之兩側應變計來個別量測彎曲力矩（如圖一三所示）。 7.4.3 依照 ISO 6487:2002 定義之儀器響應值通道頻率等級 CFC，所有轉換器之 CFC 應為一八０，依照 ISO 6487:2002 定義之 CAC 響應值，力轉換器 CAC 應為一０千牛頓，且彎曲力距之 CAC 應為一０００牛頓米。 圖一三：上腿部模型衝擊器 (請參考頁末圖示) 7.5 兒童及成人頭部模型衝擊器 7.5.1 兒童頭部模型衝擊器（如圖一四） 7.5.1.1 兒童頭部模型衝擊器應為以鋁材且同質結構(homogenous construction)製成之球體，直徑為一六五正負一公釐，重量為三・五正	

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centre of gravity and perpendicular to the direction of impact shall be within the range of 0.008 to 0.012 kgm^2. The centre of gravity of the headform impactor including instrumentation shall be located in the geometric centre of the sphere with a tolerance of +/-2 mm. The sphere shall be covered with a 14 +/- 0.5 mm thick synthetic skin, which shall cover at least half of the sphere. 5.1.2. The first natural frequency of the child headform impactor shall be over 5,000 Hz. 5.2. Child headform instrumentation 5.2.1. A recess in the sphere shall allow for mounting one triaxial or three uniaxial accelerometers within +/-10 mm seismic mass location tolerance from the centre of the sphere for the measurement axis, and +/-1 mm seismic mass location tolerance from the centre of the sphere for the perpendicular direction to the measurement axis. 5.2.2. If three uniaxial accelerometers are used, one of the accelerometers shall have its sensitive axis perpendicular to the		負０・０七公斤。於與衝擊方向垂直之重心軸，其慣性力矩應於０・００八至０・０一二公斤・平方米之範圍內。包括儀器在內之頭部模型衝擊器，其重心應位於球體之幾何中心（公差正負二公釐）。 該球體應以一四正負０・五公釐厚度之合成外皮覆蓋，覆蓋至少為球體面積一半。 7.5.1.2 兒童頭部模型衝擊器之第一階自然頻率(First natural frequency)應大於五０００赫茲。 7.5.2 兒童頭部模型儀器組立 7.5.2.1 球體內凹槽應允許安裝一個三軸或三個單軸之加速度計，在量測軸方向之加速度計，其振動塊位置與球體中心之公差應為正負一０公釐以內，且在與量測軸垂直方向之加速度計，其振動塊位置與球體中心之公差應為正負一公釐以內。 7.5.2.2 若使用三個單軸之加速度計，則其中一個加速度計之靈敏軸(Sensitive axis)應垂直於安裝面 A	

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mounting face A (see Figure 3) and its seismic mass shall be positioned within a cylindrical tolerance field of 1 mm radius and 20 mm length. The centre line of the tolerance field shall run perpendicular to the mounting face and its mid-point shall coincide with the centre of the sphere of the headform impactor. 5.2.3. The remaining accelerometers shall have their sensitive axes perpendicular to each other and parallel to the mounting face A and their seismic mass shall be positioned within a spherical tolerance field of 10 mm radius. The centre of the tolerance field shall coincide with the centre of the sphere of the headform impactor. 5.2.4. The instrumentation response value CFC, as defined in ISO 6487:2002, shall be 1,000. The CAC response value, as defined in ISO 6487:2002, shall be 500 g for the acceleration. **Figure 3: Child headform impactor** (請參考頁末圖示) 5.3. Adult headform impactor (see Figure 4)		（如圖一四所示），且其振動塊應安裝在半徑一公釐且長度二０公釐之圓柱形允許公差區域(Cylindrical tolerance field)內。 允許公差區域之中心線應垂直於安裝面，且其中點應與頭部模型衝擊器球體之中心重疊。 7.5.2.3 其餘加速度計之靈敏軸(Sensitive axis)應互相垂直，且平行於安裝面 A，其振動塊應安裝在半徑一０公釐之球形允許公差區域(Spherical tolerance field)內。允許公差區域之中心應與頭部模型衝擊器球體之中心重疊。 7.5.2.4 依照 ISO 6487:2002 定義之儀器響應值通道頻率等級 CFC，應為一０００，依照 ISO 6487:2002 定義之 CAC 響應值，加速度之 CAC 值應為五００g。 圖一四：兒童頭部模型衝擊器 (請參考頁末圖示) 7.5.3 成人頭部模型衝擊器（如圖一	

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5.3.1. The adult headform impactor shall be made of aluminium, be of homogenous construction and be of spherical shape. The overall diameter is 165 +/- 1 mm as shown in Figure 4. The mass shall be 4.5 +/- 0.1 kg. The moment of inertia about an axis through the centre of gravity and perpendicular to the direction of impact shall be within the range of 0.010 to 0.013 kgm^2. The centre of gravity of the headform impactor including instrumentation shall be located in the geometric centre of the sphere with a tolerance of +/-5 mm.		五） 7.5.3.1 成人頭部模型衝擊器應為以鋁材且同質結構製成之球體，直徑為一六五正負一公釐，重量為四・五正負0・一公斤，如圖一五所示。於與衝擊方向垂直之重心軸，其慣性力矩應於0・0一0至0・0一三公斤・平方米之範圍內。包括儀器在內之頭部模型衝擊器，其重心應位於球體之幾何中心（公差正負五公釐）。	
The sphere shall be covered with a 14 +/- 0.5 mm thick synthetic skin, which shall cover at least half of the sphere.		該球體應以一四正負0・五公釐厚度之合成外皮覆蓋，覆蓋至少為球體面積一半。	
Figure 4: Adult headform impactor **【請參考頁末圖示】**		圖一五：成人頭部模型衝擊器 (請參考頁末圖示)	
5.3.2. The first natural frequency of the headform impactor shall be over 5,000 Hz.		7.5.3.2 成人頭部模型衝擊器之第一階自然頻率應大於五000赫茲。	
5.4. Adult headform instrumentation		7.5.4 成人頭部模型儀器組立	
5.4.1. A recess in the sphere shall allow for mounting one triaxial or three uniaxial accelerometers within +/-10 mm seismic		7.5.4.1 球體內凹槽應允許安裝一個三軸或三個單軸之加速度計，在量測軸方向之加速度計，其振動塊位	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
mass location tolerance from the centre of the sphere for the measurement axis, and +/-1 mm seismic mass location tolerance from the centre of the sphere for the perpendicular direction to the measurement axis.		置與球體中心之公差應為正負一0公釐以內，且在與量測軸垂直方向之加速度計，其振動塊位置與球體中心之公差應為正負一公釐以內。	
5.4.2. If three uniaxial accelerometers are used, one of the accelerometers shall have its sensitive axis perpendicular to the mounting face A (see Figure 4) and its seismic mass shall be positioned within a cylindrical tolerance field of 1 mm radius and 20 mm length. The centre line of the tolerance field shall run perpendicular to the mounting face and its mid-point shall coincide with the centre of the sphere of the headform impactor.		7.5.4.2 若使用三個單軸之加速度計，則其中一個加速度計之靈敏軸應垂直於安裝面 A（如圖一五所示），且其振動塊應安裝在半徑一公釐且長度二0公釐之圓柱形允許公差區域內。 允許公差區域之中心線應垂直於安裝面，且其中點應與頭部模型衝擊器球體之中心重疊。	
5.4.3. The remaining accelerometers shall have their sensitive axes perpendicular to each other and parallel to the mounting face A and their seismic mass shall be positioned within a spherical tolerance field of 10 mm radius. The centre of the tolerance field shall coincide with the centre of the sphere of the headform		7.5.4.3 其餘加速度計之靈敏軸應互相垂直，且平行於安裝面 A，其振動塊應安裝在半徑一0公釐之球形允許公差區域內。允許公差區域之中心應與頭部模型衝擊器球體之中心重疊。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
impactor. 5.4.4. The instrumentation response value CFC, as defined in ISO 6487:2002, shall be 1,000. The CAC response value, as defined in ISO 6487:2002, shall be 500 g for the acceleration. 5.5. Rear face of the child and adult headform impactors A rear flat face shall be provided on the outer surface of the headform impactors which is perpendicular to the direction of travel, and typically perpendicular to the axis of one of the accelerometers as well as being a flat plate capable of providing for access to the accelerometers and an attachment point for the propulsion system.		7.5.4.4 依照 ISO 6487:2002 定義之儀器響應值通道頻率等級 CFC，應為一０００，依照 ISO 6487:2002 定義之 CAC 響應值，加速度之 CAC 值應為五００g。 7.5.5 兒童及成人衝擊器之後方表面 與衝擊方向垂直之頭部模型衝擊器後方外表面，其應為平整表面，且垂直於其中一加速度計之靈敏軸，並能作為加速度計取用口及推進系統連接點(Attachment point)之平整底板。	
Annex 5 **Test procedures** **1. Lower legform to bumper** 1.1. For each test the impactor shall be fitted with new foam flesh cut from one of up to four consecutive sheets of foam type CF-45 flesh material or equivalent, produced from the same batch of manufacture (cut from one block or "bun" of foam), provided that		8.試驗程序 8.1 保險桿之下腿部模型試驗 8.1.1 對於每次試驗，衝擊器應安裝全新之泡棉塑料肌肉，該泡棉塑料肌肉係取自多達四片連續 CF-45 類泡棉塑料之肌肉材料或其同等物之一，該材料乃同批生產（從同一塊或一團(Bun)泡棉塑料取得），且其	

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foam from one of these sheets was used in the dynamic certification test and the individual weights of these sheets are within +/-2 per cent of the weight of the sheet used in the certification test.		中一片泡棉塑料用於功能驗證動態試驗，以及其他各泡棉塑料片重量與功能驗證動態試驗中所用泡棉塑料片之重量差應小於正負百分之二。	
1.2. The test impactor or at least the foam flesh shall be stored during a period of at least four hours in a controlled storage area with a stabilized humidity of 35 +/- 15 per cent and a stabilized temperature of 20 +/- 4 deg. C prior to impactor removal for test. After removal from the storage the impactor shall not be subjected to conditions other than those pertaining in the test area.		8.1.2 試驗衝擊器移往試驗前，衝擊器或至少其泡棉塑料肌肉應存放在穩定濕度百分之三五正負一五，穩定溫度攝氏二0正負四度之控制存放區域內至少四小時。從存放區取出後，衝擊器不應暴露於試驗區域條件以外之環境下。	
1.3. Each test shall be completed within two hours of when the impactor to be used is removed from the controlled storage area.		8.1.3 從控制存放區域取出衝擊器後，各項試驗應於兩小時內完成。	
1.4. The selected target points shall be in the bumper test area.		8.1.4 選定目標點應位於保險桿試驗區域內。	
1.5. A minimum of three lower legform to bumper tests shall be carried out, one each to the middle and the outer thirds of the bumper at positions judged to be the most likely to cause injury. Tests shall be to		8.1.5 保險桿之下腿部模型試驗應至少執行三次，分別針對保險桿中間及兩外側之各三分之一劃分區域當中最易引發受傷位置進行試驗。應針對整個評估區域內各不同型式之結	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
different types of structure, where they vary throughout the area to be assessed. The selected test points shall be a minimum of 132 mm apart, and a minimum of 66 mm inside the defined corners of the bumper. These minimum distances are to be set with a flexible tape held tautly along the outer surface of the vehicle. The positions tested by the laboratories shall be indicated in the test report.		構進行個別試驗。選定試驗點之間應至少相距一三二公釐，且自保險桿彎角向內應至少六六公釐。上述之距離應以拉緊之軟性捲尺沿著車輛外部表面量測得。試驗位置應記錄於試驗報告中。	
1.6. The direction of the impact velocity vector shall be in the horizontal plane and parallel to the longitudinal vertical plane of the vehicle. The tolerance for the direction of the velocity vector in the horizontal plane and in the longitudinal plane shall be +/-2 deg. at the time of first contact. The axis of the impactor shall be perpendicular to the horizontal plane with a tolerance of +/-2 deg. in the lateral and longitudinal plane. The horizontal, longitudinal and lateral planes are orthogonal to each other (see Figure 1).		8.1.6 衝擊速度向量之方向應在水平平面內且平行於車輛縱向垂直平面。首次接觸時，速度向量之方向在水平平面及縱向平面之公差應為正負二度。衝擊器之軸應垂直於水平平面，且在橫向及縱向平面之公差各為正負二度。水平、縱向及橫向平面係相互垂直（如圖一六所示）。	
1.7. The bottom of the impactor shall be at 25 mm above ground reference plane at the		8.1.7 於與保險桿首次接觸時，衝擊器底部應在地面參考平面上方二五公	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
time of first contact with the bumper (see Figure 2), with a +/-10 mm tolerance. When setting the height of the propulsion system, an allowance must be made for the influence of gravity during the period of free flight of the impactor.		釐處（公差正負一0公釐），如圖一七。設置推進系統高度時，應考量衝擊器於自由飛行期間所遭遇之重力影響。	
1.8. The lower legform impactor for the bumper tests shall be in "free flight" at the moment of impact. The impactor shall be released to free flight at such a distance from the vehicle that the test results are not influenced by contact of the impactor with the propulsion system during rebound of the impactor.		8.1.8 保險桿試驗中，下腿部模型衝擊器於兩者碰觸時應為自由飛行狀態。衝擊器於車輛前方一定距離被釋放為自由飛行狀態，該距離應使推進系統與衝擊器於衝擊器反彈期間之接觸不影響試驗結果。	
The impactor may be propelled by an air, spring or hydraulic gun, or by other means that can be shown to give the same result.		衝擊器可藉由空氣槍/彈簧槍/液壓槍或其他能得到相同結果之方式推進。	
1.9. At the time of first contact the impactor shall have the intended orientation about its vertical axis, for the correct operation of its knee joint, with a tolerance of +/-5 deg. (see Figure 1).		8.1.9 為使衝擊器膝部關節正確作動，於首次接觸時，衝擊器應按相對於其垂直軸之方位要求，公差為正負五度，如圖一六所示。	
1.10. At the time of first contact the centre line of the impactor shall be within a +/- 10 mm tolerance to the selected impact		8.1.10 首次接觸時，衝擊器中心線與選定衝擊位置之公差應於正負一0公釐以內。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
location. 1.11. During contact between the impactor and the vehicle, the impactor shall not contact the ground or any object which is not part of the vehicle. 1.12. The impact velocity of the impactor when striking the bumper shall be 11.1 +/- 0.2 m/s. The effect of gravity shall be taken into account when the impact velocity is obtained from measurements taken before the time of first contact. **Figure 1: Tolerances of angles for the lower legform impactor at the time of the first impact** (請參考頁末圖示) **Figure 2: Lower legform to bumper tests for complete vehicle in normal ride attitude (left) and for cutbody mounted on supports (right)** (請參考頁末圖示) **Annex 5** **2. Upper legform to bumper** 2.1. For each test the foam flesh shall be two new sheets of 25 mm thick foam type		8.1.11 衝擊器與車輛接觸之過程中，衝擊器不應接觸地面或非車輛部分之任何物體。 8.1.12 衝擊器接觸保險桿時，衝擊速度應為一一•一正負０•二公尺/秒。 首次接觸前量測得之衝擊速度，應考量重力之影響。 圖一六：首次接觸時，下腿部模型衝擊器之角度公差 (請參考頁末圖示) 圖一七：以正常乘載狀態下之整車(左側)及安裝於支柱上之切割車身(右側)進行保險桿之下腿部模型試驗 (請參考頁末圖示) 8.2 保險桿之上腿部模型試驗 8.2.1 對於每次試驗，泡棉塑料肌肉應為兩片厚度二五公釐之 CF-45 類全	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
CF-45 or equivalent, which shall be cut from the sheet of material used for the dynamic certification test. The skin shall be a 1.5 mm thick fibre reinforced rubber sheet. The mass of the foam and the rubber skin together shall be 0.6 +/- 0.1 kg (this excludes any reinforcement, mountings, etc. which are used to attach the rear edges of the rubber skin to the rear member). The foam and rubber skin shall be folded back towards the rear, with the rubber skin attached via spacers to the rear member so that the sides of the rubber skin are held parallel. The foam shall be of such a size and shape that an adequate gap is maintained between the foam and components behind the front member, to avoid significant load paths between the foam and these components.		新泡棉塑料肌肉或其同等物，該等泡棉塑料肌肉應取自功能驗證動態試驗所取用之材料片。外皮應為厚度一・五公釐之纖維強化橡膠片(Fibre reinforced rubber sheet)。泡棉塑料肌肉及橡膠外皮之總重量應為０・六正負０・一公斤（不包括橡膠外皮後緣連接至後方構件(Rear member)上之所有加強件或安裝件等）。泡棉塑料及橡膠外皮應朝後方折疊，橡膠外皮藉由墊片(Spacer)固定於後方構件上，以使橡膠外皮兩側保持平行。泡棉塑料之尺寸及外型應確保泡棉塑料與前方構件後方之組件間保持適度間隙，以避免泡棉塑料與這些組件之間傳遞顯著之負載。	
2.2. The test impactor or at least the foam flesh shall be stored during a period of at least four hours in a controlled storage area with a stabilized humidity of 35 +/- 15 per cent and a stabilized temperature of 20 +/- 4 deg. C prior to impactor removal for test.		8.2.2 試驗衝擊器移往試驗前，衝擊器或至少其泡棉塑料肌肉應存放在穩定濕度百分之三五正負一五，穩定溫度攝氏二０正負四度之控制存放區域內至少四小時。從存放區取出後，衝擊器不應暴露於試驗區域條	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
After removal from the storage the impactor shall not be subjected to conditions other than those pertaining in the test area.		件以外之環境下。	
2.3. Each test shall be completed within two hours of when the impactor to be used is removed from the controlled storage area.		8.2.3 從控制存放區域取出衝擊器後，各項試驗應於兩小時內完成。	
2.4. The selected target points shall be in the bumper test area as defined in paragraph 2.11.		8.2.4 選定目標點應位於規定 2.10 之保險桿試驗區域內。	
2.5. A minimum of three upper legform to bumper tests shall be carried out, one each to the middle and the outer thirds of the bumper at positions judged to be the most likely to cause injury. Tests shall be to different types of structure, where they vary throughout the area to be assessed. The selected test points shall be a minimum of 132 mm apart, and a minimum of 66 mm inside the defined corners of the bumper.		8.2.5 保險桿之上腿部模型試驗應至少執行三次，分別針對保險桿中間及兩外側之各三分之一劃分區域當中最易引發受傷位置進行試驗。應針對整個評估區域內各不同型式之結構進行個別試驗。選定試驗點之間應至少相距一三二公釐，且自保險桿彎角向內應至少六六公釐。	
These minimum distances are to be set with a flexible tape held taut along the outer surface of the vehicle. The positions tested by the laboratories shall be indicated in the test report.		上述之距離應以拉緊之軟性捲尺沿著車輛外部表面量測得。試驗位置應記錄於試驗報告中。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
2.6. The direction of impact shall be parallel to the longitudinal axis of the vehicle, with the axis of the upper legform vertical at the time of first contact. The tolerance to this direction is +/-2 deg.		8.2.6 首次接觸時，衝擊方向應平行於車輛縱向軸，且上腿部模型之軸為垂直狀態，公差為正負二度。	
2.7. The impact velocity of the upper legform impactor when striking the bumper shall be 11.1 +/- 0.2 m/s.		8.2.7 上腿部模型衝擊器接觸保險桿時，衝擊速度應為一一・一正負０・二公尺/秒。	
Annex 5			
3. Child and adult headform test procedures - Common test specifications		8.3 兒童及成人頭部模型試驗程序－一般試驗規定	
3.1. Propulsion of the headform impactors		8.3.1 頭部模型衝擊器之推進	
3.1.1. The headform impactors shall be in "free flight" at the moment of impact, at the required impact velocity (as specified in paragraphs 4.6. and 5.6.) and the required direction of impact (as specified in paragraphs 4.7. and 5.7.).		8.3.1.1 接觸時，頭部模型衝擊器應處於自由飛行狀態，且達到規定之速度（8.4.6 及 8.5.6）及規定之衝擊方向（8.4.7 及 8.5.7）。	
3.1.2. The impactors shall be released to "free flight" at such a distance from the vehicle that the test results are not influenced by contact of the impactor with the propulsion system during rebound of the impactor.		8.3.1.2 衝擊器於車輛前方一定距離被釋放為自由飛行狀態，該距離應使推進系統與衝擊器於衝擊器反彈期間之接觸不影響試驗結果。	
3.2. Measurement of impact velocity		8.3.2 衝擊速度之量測	
3.2.1. The velocity of the headform impactor		8.3.2.1 接觸前，應在自由飛行狀態中	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
shall be measured at some point during the free flight before impact, in accordance with the method specified in ISO 3784:1976. The accuracy of velocity measurement shall be +/-0.01 m/sec. The measured velocity shall be adjusted considering all factors which may affect the impactor between the point of measurement and the point of impact, in order to determine the velocity of the impactor at the time of impact. The angle of the velocity vector at the time of impact shall be calculated or measured.		某一時刻，依照 ISO3784:1976 指定之方法，量測頭部模型衝擊器之速度。速度量測之準度應為正負０・０一公尺/秒。為了決定接觸時衝擊器之速度，應考慮量測時刻與接觸時刻之間可能影響衝擊器之所有因素以調整量測得之速度。應計算或量測接觸時速度向量之角度。	
3.3. Recording		8.3.3 紀錄	
3.3.1. The acceleration time histories shall be recorded, and HIC shall be calculated. The first point of contact on the front structure of the vehicle shall be recorded. Recording of test results shall be in accordance with ISO 6487:2002.		8.3.3.1 應記錄加速度之時間歷程及計算 HIC 值，並記錄車輛前方結構上之首次接觸點，應依照 ISO 6487:2002 記錄試驗結果。	
3.4. Splitting of headform test zones		8.3.4 頭部模型試驗區域之劃分	
3.4.1. The manufacturer shall identify the zones of the bonnet top where the HIC must not exceed 1,000 (HIC1000 zone) or 1,700 (HIC1700 zone) (see Figure 3).		8.3.4.1 申請者應識別出 HIC 不應超過一０００(HIC 一０００區域)或不應超過一七００(HIC 一七００區域)之引擎蓋頂部區域(如圖一八所	

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Figure 3: Example of marking of HIC1000 zone and HIC1700 zone **【請參考頁末圖示】** 3.4.2. Marking of the "bonnet top" impact area as well as "HIC1000 zone" and "HIC1700 zone" will be based on a drawing supplied by the manufacturer, when viewed from a horizontal plane above the vehicle that is parallel to the vehicle horizontal zero plane. A sufficient number of x and y co-ordinates shall be supplied by the manufacturer to mark up the areas on the actual vehicle while considering the vehicle outer contour in the z direction. 3.4.3. The areas of "HIC1000 zone" and "HIC1700 zone" may consist of several parts, with the number of these parts not being limited. The determination of the impacted zone is done by the first contact point of the headform with the "bonnet top". 3.4.4. The calculation of the surface of the impact area as well as the surface areas of "HIC1000 zone" and "HIC1700 zone" shall be done on the basis of a projected bonnet		示)。 圖一八：HIC 一０００區域及 HIC 一七００區域標示之示意 (請參考頁末圖示) 8.3.4.2 從位於車輛上方且平行於車輛零水平平面(Vehicle horizontal zero plane)之水平面，依照申請者提供之圖面來觀看確認引擎蓋頂部衝擊區域、HIC 一０００區域及 HIC 一七００區域等標示。申請者應提供足夠數量之 X 及 Y 座標值，並考量 Z 軸方向之車輛外部輪廓，以於實車上標示出上述區域。 8.3.4.3 HIC 一０００區域及 HIC 一七００區域可由數個部分所組成，且組成部分之數量不限。以頭部模型與引擎蓋頂部之首次接觸點來決定衝擊區域。 8.3.4.4 從位於車輛上方且平行於車輛零水平平面之水平面，依照申請者提供之圖面來觀看引擎蓋投影，計算衝擊區域、HIC 一０００區域	

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when viewed from a horizontal plane parallel to the horizontal zero plane above the vehicle, on the basis of the drawing data supplied by the manufacturer. 3.5. Impact test points - Particular specifications Notwithstanding the provisions of paragraphs 4.2. and 5.2. below, if a number of test positions have been selected in order of potential to cause injury and the test area remaining is too small to select another test position while maintaining the minimum spacing between tests, then less than nine tests for each impactor may be performed. The positions tested by the laboratories shall be indicated in the test report. However, the technical services conducting the tests shall perform as many tests as necessary to guarantee the compliance of the vehicle with the head injury criteria (HIC) limit values of 1000 for the HIC1000 zone and 1700 for the HIC1700 zone, especially in the points near to the borders between the two types of zones. **Annex 5**		及 HIC 一七００區域之面積。 8.3.5 衝擊試驗點 – 特別規定 考量 8.4.2 及 8.5.2 之規定時，若按受傷之引發可能性順序選定試驗位置，且各試驗位置之間隔已保持至最小，以致剩餘試驗區域太小而無法選擇其他試驗位置，則每個衝擊器執行之試驗次數可少於九次。試驗位置應記錄於試驗報告。檢測機構應執行必要次數之試驗，以確保車輛符合頭部傷害指數(HIC)之基準值：HIC 一０００區域基準值為一０００，HIC 一七００區域基準值為一七００，尤其是在此兩類型區域邊界附近之點上。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
4. Child headform - Specific test procedure 4.1. Tests shall be made to the front structure within the boundaries as defined in paragraph 2.13. For tests on the rear area of the bonnet top, the headform impactor shall not contact the windscreen or A-pillar before impacting the bonnet top. 4.2. A minimum of nine tests shall be carried out with the child headform impactor, three tests each to the middle and the outer thirds of the child/small adult bonnet top test areas, at positions judged to be the most likely to cause injury. Tests shall be to different types of structure, where these vary throughout the area to be assessed and at positions judged to be the most likely to cause injury. 4.3. The selected test points for the child/small adult headform impactor shall be at the time of first contact: (a) A minimum of 165 mm apart, and (b) A minimum of 82.5 mm inside the defined side reference lines, and; (c) Forward of the WAD1700 line or a minimum of 82.5 mm forward of the		8.4 兒童頭部模型 – 具體試驗程序 8.4.1 應在 2.12 規定範圍內之前方結構進行試驗。對於引擎蓋頂部後方區域之試驗，在接觸到引擎蓋頂部之前，頭部模型衝擊器不應與前擋風玻璃或 A 柱接觸。 8.4.2 應以兒童頭部模型衝擊器執行至少九次試驗。分別針對兒童/小型成人引擎蓋頂部試驗區域之中間及兩外側各三分之一劃分區域當中最易引發受傷處，各進行三次試驗。 應針對整個評估區域內各不同型式之結構及其中最易引發受傷位置，進行個別試驗。 8.4.3 首次接觸時，兒童/小型成人頭部模型衝擊器之選定試驗點應： (a)間距至少一六五公釐，且 (b)於側方參考線以內至少八二・五公釐，且 (c)於 WAD 一七００標線末端所決定之各點連線前方，或引擎蓋後方參考線之前方至少八二・五公釐，取	

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bonnet rear reference line, whichever is most forward at the point of measurement, and (d) Rearward of the WAD1000 line, or a minimum of 82.5 mm rearward of the bonnet leading edge reference line, whichever is most rearward at the point of measurement. These minimum distances are to be set with a flexible tape held tautly along the outer surface of the vehicle.		兩者當中較為前方之量測點者，且 (d)於 WAD 一０００標線末端所決定之各點連線後方，或引擎蓋前緣參考線後方至少八二・五公釐，取兩者當中較為後方之量測點者。 上述距離應以拉緊之軟性捲尺沿著車輛外部表面確認。	
4.4. No impact point shall be located so that the impactor will impact the test area with a glancing blow resulting in a more severe second impact outside the test area.		8.4.4 選定之衝擊點位置不應使衝擊器與之斜擊(Glancing blow)而導致於試驗區域外產生更為嚴重之二次衝擊。	
4.5. The point of first contact of the headform impactor shall be within a +/- 10 mm tolerance to the selected impact point.		8.4.5 頭部模型衝擊器首次接觸點與選定衝擊點間之公差應於正負一０公釐以內。	
4.6. The headform velocity at the time of impact shall be 9.7 +/- 0.2 m/s.		8.4.6 接觸時之頭部模型速度應為九・七正負０・二公尺/秒。	
4.7. The direction of impact shall be in the longitudinal vertical plane of the vehicle to be tested at an angle of 50 +/- 2 deg. to the horizontal. The direction of impact of tests to the front structure shall be downward		8.4.7 衝擊方向應於試驗車輛之縱向垂直面內，相對於水平平面之試驗衝擊角度為五０正負二度。相對於前方結構之試驗衝擊方向應朝下及朝車後。	

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and rearward. **Annex 5** **5. Adult headform specific test procedure** 5.1. Tests shall be made to the front structure within the boundaries as defined in paragraph 2.1. For tests at the rear of the bonnet top, the headform impactor shall not contact the windscreen or A-pillar before impacting the bonnet top. 5.2. A minimum of nine tests shall be carried out with the adult headform impactor, three tests each to the middle and the outer thirds of the adult bonnet top test areas, at positions judged to be the most likely to cause injury. Tests shall be to different types of structure, where these vary throughout the area to be assessed and at positions judged to be the most likely to cause injury. 5.3. Selected impact points on the bonnet for the adult headform impactor shall be, at the time of first contact: (a) A minimum of 165 mm apart, and (b) A minimum of 82.5 mm inside the defined side reference lines, and;		8.5 成人頭部模型 – 具體試驗程序 8.5.1 應在 2.1 規定範圍內之前方結構進行試驗。對於引擎蓋頂部後方區域之試驗，在接觸到引擎蓋頂部之前，頭部模型衝擊器不應與前擋風玻璃或 A 柱接觸。 8.5.2 應以成人頭部模型衝擊器執行至少九次試驗。分別針對成人引擎蓋頂部試驗區域之中間及兩外側各三分之一劃分區域當中最易引發受傷處，各進行三次試驗。 應針對整個評估區域內各不同型式之結構及其中最易引發受傷位置，進行個別試驗。 8.5.3 首次接觸時，引擎蓋上成人頭部模型衝擊器之選定衝擊點應： (a)間距至少一六五公釐，且 (b)於側方參考線以內至少八二・五公釐，且 (c)於 WAD 二一００標線末端所決定	

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(c) Forward of the WAD2100 line or a minimum of 82.5 mm forward of the bonnet rear reference line, whichever is most forward at the point of measurement, and (d) Rearward of the WAD1700 line, or a minimum of 82.5 mm rearward of the bonnet leading edge reference line, whichever is most rearward at the point of measurement. These minimum distances are to be set with a flexible tape held tautly along the outer surface of the vehicle.		之各點連線前方，或引擎蓋後方參考線之前方至少八二・五公釐，取兩者當中較為前方之量測點者，且 (d)於 WAD 一七００標線末端所決定之各點連線後方，或引擎蓋前緣參考線之後方至少八二・五公釐，取兩者當中較為後方之量測點者。 上述距離應以拉緊之軟性捲尺沿著車輛外部表面確認。	
5.4. No impact point shall be located so that the impactor will impact the test area with a glancing blow resulting in a more severe second impact outside the test area.		8.5.4 選定之衝擊點位置不應使衝擊器與之斜擊(Glancing blow)而導致於試驗區域外產生更為嚴重之二次衝擊。	
5.5. The point of first contact of the headform impactor shall be within a +/-10 mm tolerance to the selected impact point.		8.5.5 頭部模型衝擊器首次接觸點與選定衝擊點間之公差應於正負一０公釐以內。	
5.6. The headform velocity at the time of impact shall be 9.7 +/- 0.2 m/s.		8.5.6 接觸時之頭部模型速度應為九・七正負０・二公尺/秒。	
5.7. The direction of impact shall be in the longitudinal vertical plane of the vehicle to be tested at an angle of 65 +/- 2 deg. to the		8.5.7 衝擊方向應於試驗車輛之縱向垂直面內，相對於水平平面之試驗衝擊角度為六五正負二度。相對於	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
horizontal. The direction of impact of tests to the front structure shall be downward and rearward.		前方結構之試驗衝擊方向應朝下及朝車後。	
Annex 6 **Certification of the impactor** **1. Lower legform impactor certification** 1.1. The certified impactor may be used for a maximum of 20 impacts before re-certification. With each test new plastically deformable knee elements shall be used. The impactor shall also be re-certified if more than one year has elapsed since the previous certification, if any impactor transducer output, in any impact, has exceeded the specified CAC or has reached the mechanical limits of the leg impactor deformation capability. 1.2. Static tests 1.2.1. For both tests specified in paragraphs 1.2.2. and 1.2.3. below, the impactor shall have the intended orientation about its longitudinal axis, for the correct operation of its knee joint, with a tolerance of +/-2 deg.		9. 衝擊器之功能驗證 9.1 下腿部模型衝擊器功能驗證 9.1.1 已功能驗證之衝擊器於重新功能驗證之前，最多可進行二0次衝擊試驗。 每次試驗應使用全新可塑變形之膝部元件。若距離上次驗證已超過一年，或衝擊器轉換器輸出值於任何衝擊時超過規定之 CAC 或達到腿部衝擊器變形能力之機械極限，則衝擊器應重新進行功能驗證。 9.1.2 靜態試驗 9.1.2.1 執行 9.1.2.2 及 9.1.2.3 之試驗時，為確保膝部關節正確作動，待驗衝擊器應按相對於其縱軸之既定方位（公差正負二度）。 功能驗證試驗時，待驗衝擊器之穩定溫度應為攝氏二0正負二度。	

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The stabilized temperature of the impactor during certification shall be 20 deg. +/- 2 deg. C. The CAC response values, as defined in ISO 6487:2002 shall be 50 deg. for the knee bending angle and 500 N for the applied force when the impactor is loaded in bending in accordance with paragraph 1.2.4., and 10 mm for the shearing displacement and 10 kN for the applied force when the impactor is loaded in shearing in accordance with paragraph 1.2.5. For both tests low-pass filtering at an appropriate frequency is permitted, to remove higher frequency noise without significantly affecting the measurement of the response of the impactor. 1.2.2. When the impactor is loaded in bending in accordance with paragraph 1.2.4. below, the applied force/bending angle response shall be within the limits shown in Figure 1. Also, the energy taken to generate 15.0 deg. of bending shall be 100 +/- 7 J. 1.2.3. When the impactor is loaded in		依照 ISO 6487:2002 定義之 CAC 響應值：膝部彎曲角度應為五０度，依照 9.1.2.4 規定彎曲時所施予衝擊器之施力應為五００牛頓，且依照 9.1.2.5 規定剪切時所施加負載於衝擊器之剪切位移為一０公釐，施力應為一０千牛頓。於此二項試驗中，為了降低高頻雜訊，於對衝擊器之響應值量測結果無顯著影響之下，容許對適當頻率使用低通濾波。 9.1.2.2 對待驗衝擊器施加 9.1.2.4 規定之彎曲負載時，施力/彎曲角度之響應值應在圖一九之限制範圍內。且彎曲角度一五度所需之能量應為一００正負七焦耳。 9.1.2.3 對待驗衝擊器施加 9.1.2.5 規定	

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shearing in accordance with paragraph 1.2.5. below, the applied force/shearing displacement response shall be within the limits shown in Figure 2.		之剪切負載時，施力/剪切位移之響應值應在圖二0之限制範圍內。	
1.2.4. The impactor, without foam covering and skin, shall be mounted with the tibia firmly clamped to a fixed horizontal surface and a metal tube connected firmly to the femur, as shown in Figure 3. The rotational axis of the impactor knee joint shall be vertical. To avoid friction errors, no support shall be provided to the femur section or the metal tube. The bending moment applied at the centre of the knee joint, due to the mass of the metal tube and other components (excluding the legform itself), shall not exceed 25 Nm.		9.1.2.4 無泡棉塑料覆蓋及外皮之待驗衝擊器應安裝在脛骨上，脛骨應牢固夾在一固定之水平平面，且金屬管應牢固連接在股骨，如圖二一所示。待驗衝擊器膝部關節之旋轉軸應為垂直。為了避免摩擦引發之誤差，不應提供支架給股骨或金屬管。源自金屬管及其他組件(不包括腿部模型本身)之重量，而施加於膝部關節中心之彎曲力矩不應超過二五牛頓米。	
A horizontal normal force shall be applied to the metal tube at a distance of 2.0 +/- 0.01 m from the centre of the knee joint and the resulting angle of knee deflection shall be recorded. The load shall be increased at a rate between 1.0 and 10 deg. /s until the angle of deflection of the knee is in excess of 22 deg. Brief excursions from these		於距離膝部關節中心二・0正負0・0一公尺處之金屬管施加水平之正向力，並記錄膝部之偏轉角(Angle of knee deflection)。以一・0至一0度/秒之比例增加負載，直到膝部偏轉角超過二二度為止。若使用手動泵(Hand-pump)，則允許些微超過上述之限制。 透過彎曲角度（單位：弧度）與施力關係之積分，及與桿長二・0正	

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limits due, for instance, to the use of a hand-pump shall be permitted. The energy is calculated by integrating the force with respect to the bending angle in radians, and multiplying by the lever length of 2.0 +/- 0.01 m.		負０・０一公尺之乘積，計算得能量。	
1.2.5. The impactor, without foam covering and skin, shall be mounted with the tibia firmly clamped to a fixed horizontal surface and a metal tube connected firmly to the femur and restrained at 2.0 m from the centre of the knee joint, as shown in Figure 4.		9.1.2.5 無泡棉塑料覆蓋及外皮之待驗衝擊器應安裝在脛骨上，脛骨應牢固夾在一固定之水平平面，且金屬管應牢固連接在股骨，於距離膝部關節中心二・０公尺處將金屬管限制住，如圖二二所示。	
A horizontal normal force shall be applied to the femur at a distance of 50 mm from the centre of the knee joint and the resulting knee shearing displacement shall be recorded. The load shall be increased at a rate between 0.1 and 20 mm/s until the shearing displacement of the knee is in excess of 7.0 mm or the load is in excess of 6.0 kN. Brief excursions from these limits due, for instance, to the use of a hand-pump shall be permitted.		應於距離膝部關節中心五０公釐處之股骨施加水平之正向力，並記錄膝部剪切位移。以０・一至二０公釐/秒之比例增加負載，直到膝部剪切位移超過七・０公釐或負載超過六・０千牛頓為止。若使用手動泵，則允許些微超過上述之限制。	
1.3. Dynamic tests		9.1.3 動態試驗	

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1.3.1. Calibration 1.3.1.1. The foam flesh for the test impactor shall be stored for a period of at least four hours in a controlled storage area with a stabilized humidity of 35 +/- 10 per cent and a stabilized temperature of 20 +/- 2 deg. C prior to impactor removal for calibration. The test impactor itself shall have a temperature of 20 +/- 2 deg. C at the time of impact. The temperature tolerances for the test impactor shall apply at a relative humidity of 40 +/- 30 per cent after a soak period of at least four hours prior to their application in a test. 1.3.1.2. The test facility used for the calibration test shall have a stabilized humidity of 40 +/- 30 per cent and a stabilized temperature of 20 +/- 4 deg. C during calibration. 1.3.1.3. Each calibration shall be completed within two hours of when the impactor to be calibrated is removed from the controlled storage area. 1.3.1.4. The relative humidity and temperature of the calibration area shall be		9.1.3.1 校正 9.1.3.1.1 待驗衝擊器被取用於校正之前，待驗衝擊器之泡棉塑料肌肉應存放於穩定濕度百分之三五正負一０，穩定溫度攝氏二０正負二度之控制存放區域內至少四小時。接觸時，待驗衝擊器本身溫度應為攝氏二０正負二度。待驗衝擊器本身溫度公差適用於至少四小時靜置後至試驗前之環境相對濕度百分之四０正負三０。 9.1.3.1.2 校正過程中，試驗設施應保持穩定濕度百分之四０正負三０，且穩定溫度攝氏二０正負四度。 9.1.3.1.3 待驗衝擊器從控制存放區域移出後，應於兩小時內完成校正。 9.1.3.1.4 校正時，應量測校正區域之相對濕度及溫度，並記錄於校正報	

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measured at the time of calibration and recorded in the calibration report. 1.3.2. Requirements 1.3.2.1. When the impactor is impacted by a linearly guided certification impactor, as specified in paragraph 1.3.3., the maximum upper tibia acceleration shall be not less than 120 g and not more than 250 g. The maximum bending angle shall be not less than 6.2 deg. and not more than 8.2 deg. The maximum shearing displacement shall be not less than 3.5 mm and not more than 6.0 mm. For all these values, the readings used shall be from the initial impact with the certification impactor and not from the arresting phase. Any system used to arrest the impactor or certification impactor shall be so arranged that the arresting phase does not overlap in time with the initial impact. The arresting system shall not cause the transducer outputs to exceed the specified CAC. 1.3.2.2. The instrumentation response value CFC, as defined in ISO 6487:2002, shall be		告中。 9.1.3.2 要求 9.1.3.2.1 依照 9.1.3.3 之規定，當待驗衝擊器被線性導向式功能驗證衝擊器衝擊時，上脛骨之最大加速度不應小於一二０g 且不應超過二五０g，最大彎曲角度不應小於六・二度且不應超過八・二度，最大剪切位移不應小於三・五公釐且不應超過六・０公釐。 所有量測值都應於其與功能驗證衝擊器初始接觸時讀取，而非於攔停階段(Arresting phase)。用於攔停待驗衝擊器或功能驗證衝擊器之任何系統，其攔停階段不應與初始接觸時程重疊。攔停系統不應導致轉換器輸出值超過規定之 CAC。 9.1.3.2.2 依照 ISO 6487:2002 定義之儀器響應值 CFC（通道頻率等級），	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
180 for all transducers. The CAC response values, as defined in ISO 6487:2002, shall be 50 deg. for the knee bending angle, 10 mm for the shearing displacement and 500 g for the acceleration. This does not require that the impactor itself be able to physically bend and shear to these angles and displacements.		所有轉換器之 CFC 應為一八０。依照 ISO 6487:2002 定義之 CAC 響應值：膝部彎曲角度應為五０度、剪切位移應為一０公釐且加速度應為五００g。衝擊器本身不須彎曲至此角度及剪切至此位移。	
1.3.3. Test procedure		9.1.3.3 試驗程序	
1.3.3.1. The impactor, including foam covering and skin, shall be suspended horizontally by three wire ropes of 1.5 +/- 0.2 mm diameter and of 2000 mm minimum length, as shown in Figure 5. It shall be suspended with its longitudinal axis horizontal, with a tolerance of +/-0.5 deg., and perpendicular to the direction of the certification impactor motion, with a tolerance of +/-2 deg. The impactor shall have the intended orientation about its longitudinal axis, for the correct operation of its knee joint, with a tolerance of +/-2 deg. The impactor must meet the requirements of paragraph 1.1., with the attachment bracket(s) for the wire ropes		9.1.3.3.1 應以三條直徑一・五正負０・二公釐且長度至少二０００公釐之鋼繩，將包括泡棉塑料覆蓋及外皮之待驗衝擊器水平地懸吊著，如圖二三所示。懸吊狀態之待驗衝擊器其縱向軸應保持水平（公差正負０・五度）且垂直於功能驗證衝擊器之移動方向（公差正負二度）。為使待驗衝擊器膝部關節正確作動，待驗衝擊器應按相對於其縱軸之既定方位（公差為正負二度）。待驗衝擊器及懸吊用鋼繩之安裝連接支架應符合 9.1.1 之規定。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
fitted. 1.3.3.2. The certification impactor shall have a mass of 9.0 +/- 0.05 kg, this mass includes those propulsion and guidance components which are effectively part of the impactor during impact. The dimensions of the face of the certification impactor shall be as specified in Figure 6. The face of the certification impactor shall be made of aluminium, with an outer surface finish of better than 2.0 micrometers. The guidance system shall be fitted with low friction guides, insensitive to off-axis loading, that allow the impactor to move only in the specified direction of impact, when in contact with the vehicle. The guides shall prevent motion in other directions including rotation about any axis. 1.3.3.3. The impactor shall be certified with previously unused foam. 1.3.3.4. The impactor foam shall not be excessively handled or deformed before, during or after fitting.		9.1.3.3.2 功能驗證衝擊器總重應為九・0正負0・0五公斤，應包括衝擊期間屬於衝擊器有效部位之推進及導向組件。功能驗證衝擊器衝擊面之尺寸如圖二四所示。功能驗證衝擊器之衝擊面應以鋁材製成，具優於二・0微米(Micrometer)之外表面拋光(Finish)。 導向系統(Guidance system)應配備低摩擦導件，不易受偏軸負載之影響，僅允許衝擊器沿指定之衝擊方向移動與車輛接觸。導件應避免其他方向之移動，包括繞任何軸旋轉。 9.1.3.3.3 待驗衝擊器於功能驗證時應使用未用過之泡棉塑料。 9.1.3.3.4 待驗衝擊器泡棉塑料於安裝前、安裝期間、安裝後不應過度地被觸摸或變形。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
1.3.3.5. The certification impactor shall be propelled horizontally at a velocity of 7.5 +/- 0.1 m/s into the stationary impactor as shown in Figure 5. The certification impactor shall be positioned so that its centreline aligns with a position on the tibia centreline of 50 mm from the centre of the knee, with tolerances of +/-3 mm laterally and +/-3 mm vertically.		9.1.3.3.5 功能驗證衝擊器應以七・五正負０・一公尺/秒之速度水平推向靜止狀態之待驗衝擊器，如圖二三所示。功能驗證衝擊器中心線與距離膝部中心五０公釐處之脛骨中心線對齊，橫向公差正負三公釐，垂直方向公差正負三公釐。	
Annex 6			
2. Upper legform impactor certification		9.2 上腿部模型衝擊器功能驗證	
2.1. The certified impactor may be used for a maximum of 20 impacts before re-certification (this limit does not apply to propulsion or guidance components). The impactor shall also be re-certified if more than one year has elapsed since the previous certification or if any impactor transducer output, in any impact, has exceeded the specified CAC.		9.2.1 已功能驗證之衝擊器於重新功能驗證之前，最多可進行二０次衝擊試驗（本項限制不適用於推進或導向組件）。若距離上次驗證已超過一年，或衝擊器轉換器輸出值於任何衝擊時超過規定之 CAC，則衝擊器應重新進行功能驗證。	
2.2. Calibration		9.2.2 校正	
2.2.1. The foam flesh for the test impactor shall be stored for a period of at least four hours in a controlled storage area with a stabilized humidity of 35 +/- 10 per cent		9.2.2.1 待驗衝擊器被取用於校正之前，待驗衝擊器之泡棉塑料肌肉應存放在穩定濕度百分之三五正負一０，穩定溫度攝氏二０正負二度之	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
and a stabilized temperature of 20 +/- 2 deg. C prior to impactor removal for calibration. The test impactor itself shall have a temperature of 20 +/- 2 deg. C at the time of impact. The temperature tolerances for the test impactor shall apply at a relative humidity of 40 +/- 30 per cent after a soak period of at least four hours prior to their application in a test.		控制存放區域內至少四小時。接觸時，待驗衝擊器本身溫度應為攝氏二０正負二度。衝擊器本身溫度公差適用於至少四小時靜置後至試驗前之環境相對濕度百分之四０正負三０。	
2.2.2. The test facility used for the calibration test shall have a stabilized humidity of 40 +/- 30 per cent and a stabilized temperature of 20 +/- 4 deg. C during calibration.		9.2.2.2 校正過程中，試驗設施應保持穩定濕度百分之四０正負三０，且穩定溫度攝氏二０正負四度。	
2.2.3. Each calibration shall be completed within two hours of when the impactor to be calibrated is removed from the controlled storage area.		9.2.2.3 待驗衝擊器從控制存放區域移出後，應於兩小時內完成校正。	
2.2.4. The relative humidity and temperature of the calibration area shall be measured at the time of calibration, and recorded in the calibration report.		9.2.2.4 校正時，應量測校正區域之相對濕度及溫度，並記錄於校正報告中。	
2.3. Requirements		9.2.3 要求	
2.3.1. When the impactor is propelled into a stationary cylindrical pendulum the peak force measured in each load transducer		9.2.3.1 當待驗上腿部模型衝擊器被推向靜止狀態之圓柱擺錘時，每個負載轉換器所量測得之施力峰值不應小於一・二０千牛頓且不應超過	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
shall be not less than 1.20 kN and not more than 1.55 kN and the difference between the peak forces measured in the top and bottom load transducers shall not be more than 0.10 kN. Also, the peak bending moment measured by the strain gauges shall not be less than 190 Nm and not more than 250 Nm on the centre position and not less than 160 Nm and not more than 220 Nm for the outer positions. The difference between the upper and lower peak bending moments shall not be more than 20 Nm. For all these values, the readings used shall be from the initial impact with the pendulum and not from the arresting phase. Any system used to arrest the impactor or pendulum shall be so arranged that the arresting phase does not overlap in time with the initial impact. The arresting system shall not cause the transducer outputs to exceed the specified CAC. 2.3.2. The instrumentation response value CFC, as defined in ISO 6487:2002, shall be 180 for all transducers. The CAC response values, as defined in ISO 6487:2002, shall		一・五五千牛頓，上方與下方之負載轉換器所量測得施力峰值之差值不應超過0・一0千牛頓。中間位置之應變計所量測得彎曲力矩峰值不應小於一九0牛頓米且不應超過二五0牛頓米，兩外側位置之彎曲力矩峰值不應小於一六0牛頓米且不應超過二二0牛頓米。上方與下方之應變計彎曲力矩峰值之差值不應超過二0牛頓米。 所有量測值皆於與擺錘初始接觸時讀取，而非於攔停階段(Arresting phase)。用於攔停衝擊器或擺錘之任何系統，其攔停階段不得與初始接觸時程重疊。攔停系統不應導致轉換器輸出值超過規定之CAC。 9.2.3.2 依照ISO 6487:2002定義之儀器響應值CFC（通道頻率等級）：所有轉換器應為一八0。依照ISO 6487:2002定義之CAC響應值：力	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
be 10 kN for the force transducers and 1,000 Nm for the bending moment measurements. 2.4. Test procedure 2.4.1. The impactor shall be mounted to the propulsion and guidance system, by a torque limiting joint. The torque limiting joint shall be set so that the longitudinal axis of the front member is perpendicular to the axis of the guidance system, with a tolerance of +/ -2 deg., with the joint friction torque set to 675 +/- 25 Nm. The guidance system shall be fitted with low friction guides that allow the impactor to move only in the specified direction of impact, when in contact with the pendulum. 2.4.2. The impactor mass shall be adjusted to give a mass of 12 +/- 0.1 kg, this mass includes those propulsion and guidance components which are effectively part of the impactor during impact. 2.4.3. The centre of gravity of those parts of the impactor which are effectively forward of the torque limiting joint, including the extra masses fitted, shall lie on the		轉換器應為一０千牛頓，且彎曲力矩應為一０００牛頓米。 9.2.4 試驗程序 9.2.4.1 待驗衝擊器應以扭矩限制連接件安裝在推進及導向系統(Guidance system)上。扭矩限制連接件之摩擦力矩設定為六七五正負二五牛頓米，應使前方構件之縱向軸垂直於導向系統之軸（公差正負二度）。導向系統應配備低摩擦導件，以使待驗衝擊器與擺錘接觸時僅允許沿指定之衝擊方向移動。 9.2.4.2 待驗衝擊器總重應調整為一二正負０・一公斤，應包括衝擊期間屬於衝擊器有效部位之推進及導向組件。 9.2.4.3 扭距限制連接件前方之待驗衝擊器有效部位（包括安裝附加重量），其重心應位於待驗衝擊器縱向中心線上（公差正負一０公釐）。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
longitudinal centreline of the impactor, with a tolerance of +/-10 mm. 2.4.4. The impactor shall be certified with previously unused foam. 2.4.5. The impactor foam shall not be excessively handled or deformed before, during or after fitting. 2.4.6. The impactor with the front member vertical shall be propelled horizontally at a velocity of 7.1 +/- 0.1 m/s into the stationary pendulum as shown in Figure 7. 2.4.7. The pendulum tube shall have a mass of 3 +/- 0.03 kg, a wall thickness of 3 +/- 0.15 mm and an outside diameter of 150 mm +1 mm/-4 mm. Total pendulum tube length shall be 275 +/- 25 mm. The pendulum tube shall be made from cold finished seamless steel (metal surface plating is permissible for protection from corrosion), with an outer surface finish of better than 2.0 micrometer. It shall be suspended on two wire ropes of 1.5 +/- 0.2 mm diameter and of 2.0 m minimum length. The surface of the pendulum shall be clean and dry. The pendulum tube shall		9.2.4.4 待驗衝擊器之功能驗證應使用未用過之泡棉塑料。 9.2.4.5 待驗衝擊器泡棉塑料於安裝前、安裝期間、安裝後不應過度地被觸摸或變形。 9.2.4.6 待驗衝擊器應保持前方構件垂直，以七・一正負0・一公尺/秒之速度水平推向靜止狀態之擺錘，如圖二五所示。 9.2.4.7 擺槌管重量應為三正負0・0三公斤，管壁厚度為三正負0・一五公釐且外徑為一五0正一/負四公釐，擺槌管全長為二七五正負二五公釐。擺槌管應為冷拉無縫鋼管(Cold finished seamless steel)（允許金屬表面鍍層，以防止腐蝕），具優於二・0微米之外表面拋光。以直徑一・五正負0・二公釐且長度至少二・0公尺之兩條鋼繩懸吊著。撞槌表面應乾淨且乾燥。撞槌管定位應使圓柱之縱軸垂直於前方構件（即維持水平）（公差正負二度），並垂直於待驗衝擊器之移動方向	

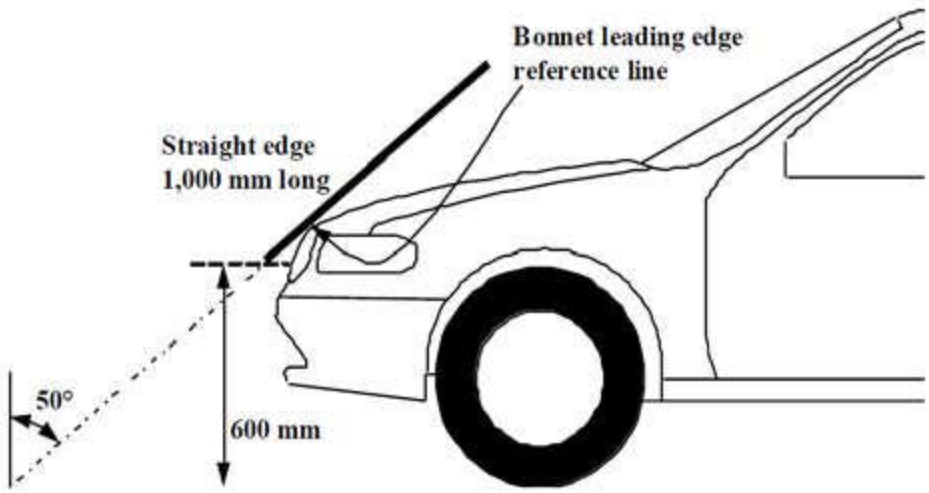
增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
be positioned so that the longitudinal axis of the cylinder is perpendicular to the front member (i.e. level), with a tolerance of +/-2 deg., and to the direction of impactor motion, with a tolerance of +/-2 deg., and with the centre of the pendulum tube aligned with the centre of the impactor front member, with tolerances of +/-5 mm laterally and +/-5 mm vertically.		（公差正負二度），且擺槌管之中心與衝擊器前方構件中心對齊，橫向公差正負五公釐，垂直方向公差正負五公釐。	
Annex 6			
3. Child and adult headform		9.3 兒童及成人頭部模型	
3.1. The certified impactors may be used for a maximum of 20 impacts before recertification. The impactors shall be re-certified if more than one year has elapsed since the previous certification or if the transducer output, in any impact, has exceeded the specified CAC.		9.3.1 已功能驗證之衝擊器於重新功能驗證之前，最多可進行二０次衝擊試驗。若距離上次驗證已超過一年，或衝擊器轉換器輸出值於任何衝擊時超過規定之 CAC，則衝擊器應重新進行功能驗證。	
3.2. Drop test		9.3.2 掉落試驗	
3.2.1. When the headform impactors are dropped from a height of 376 +/- 1 mm in accordance with paragraph 3.3. below, the peak resultant acceleration measured by one triaxial (or three uniaxial) accelerometer (accelerometers) in the		9.3.2.1 依照 9.3.3 規定，讓待驗頭部模型衝擊器從高度三七六正負一公釐處掉落，由一個三軸加速度計或三個單軸之加速度計量測得待驗頭部模型衝擊器之合成加速度峰值(Peak resultant acceleration)應為：	

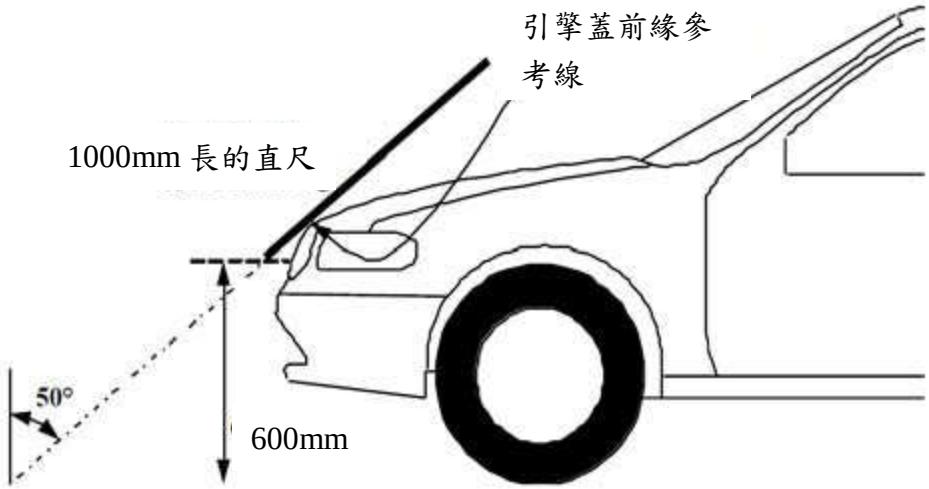
增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
headform impactor shall be: (a) For the child headform impactor not less than 245 g and not more than 300 g; (b) For the adult headform impactor not less than 225 g and not more than 275 g. The acceleration time curve shall be uni-modal. 3.2.2. The instrumentation response values CFC and CAC for each accelerometer shall be 1,000 Hz and 500 g respectively as defined in ISO 6487:2002. 3.2.3. The headform impactors shall have a temperature of 20 +/- 2 deg. C at the time of impact. The temperature tolerances shall apply at a relative humidity of 40 +/- 30 per cent after a soak period of at least four hours prior to their application in a test. 3.3. Test procedure 3.3.1. The headform impactor shall be suspended from a drop rig as shown in Figure 8. 3.3.2. The headform impactor shall be dropped from the specified height by		(a) 對於待驗兒童頭部模型衝擊器不應小於二四五 g 且不應超過三００g。 (b) 對於待驗成人頭部模型衝擊器不應小於二二五 g 且不應超過二七五 g。 加速度-時間關係曲線應為單峰(Uni-modal)。 9.3.2.2 依照 ISO 6487:2002 定義之儀器響應值 CFC 及 CAC：每個加速度計應分別為一０００赫茲及五００g。 9.3.2.3 接觸時，待驗衝擊器本身溫度應為攝氏二０正負二度。待驗衝擊器本身溫度公差適用於至少四小時靜置後至試驗前之環境相對濕度百分之四０正負三０。 9.3.3 試驗程序 9.3.3.1 待驗頭部模型衝擊器應懸吊於掉落試驗用支架上，如圖二六所示。 9.3.3.2 待驗頭部模型衝擊器從指定高度掉落，掉落方式應確保瞬間釋	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
means that ensure instant release onto a rigidly supported flat horizontal steel plate, over 50 mm thick and over 300 x 300 mm square which has a clean dry surface and a surface finish of between 0.2 and 2.0 micrometers.		放並掉落於牢固支撐之水平鋼板上，鋼板厚度大於五０公釐，大於三００公釐乘以三００公釐之正方形，表面應乾淨、乾燥，且具介於０・二至二・０微米間之表面拋光。	
3.3.3. The headform impactor shall be dropped with the rear face of the impactor at the test angle specified in Annex 5, paragraph 4.7. for the child headform impactor and in Annex 5, paragraph 5.7. for the adult headform impactor with respect to the vertical as shown in Figure 8. The suspension of the headform impactor shall be such that it does not rotate during the fall.		9.3.3.3 待驗頭部模型衝擊器應以相對於垂直方向角度之後方表面掉落，待驗兒童頭部模型衝擊器依照 8.4.7 規定之試驗角度，待驗成人頭部模型衝擊器依照 8.5.7 試驗角度，如圖二六所示。待驗頭部模型衝擊器之懸吊裝置不應於掉落期間旋轉。	
3.3.4. The drop test shall be performed three times, with the headform impactor rotated 120 deg. around its symmetrical axis after each test.		9.3.3.4 應執行三次掉落試驗，每次試驗後，將待驗頭部模型衝擊器相對於其對稱軸旋轉一二０度。	
Figure 1: Force versus angle requirement in static lower legform impactor bending certification test		圖一九：待驗下腿部模型衝擊器之功能驗證靜態彎曲試驗－施力與角度要求	
(請參考頁末圖示)		(請參考頁末圖示)	
Figure 2: Force versus displacement		圖二０：待驗下腿部模型衝擊器之	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
requirement in static lower legform impactor shearing certification test (請參考頁末圖示) **Figure 3: Top view of test set-up for static lower legform impactor bending certification test** (請參考頁末圖示) **Figure 4: Top view of test set-up for static lower legform impactor shearing certification test** (請參考頁末圖示) **Figure 5: Top set-up*/ for dynamic lower legform impactor certification test (side view top diagram, view from above bottom diagram)** (請參考頁末圖示) **Figure 6: Details of dynamic lower legform certification impactor face** (請參考頁末圖示) **Figure 7: Test set-up for dynamic upper legform impactor certification test** (請參考頁末圖示) **Figure 8: Test set-up for dynamic headform impactor biofidelity test** (請參考頁末圖示)		功能驗證靜態剪切試驗－施力與位移要求 (請參考頁末圖示) 圖二一：待驗下腿部模型衝擊器之功能驗證靜態彎曲試驗裝置上視圖 (請參考頁末圖示) 圖二二：待驗下腿部模型衝擊器之功能驗證靜態剪切試驗裝置上視圖 (請參考頁末圖示) 圖二三：待驗下腿部模型衝擊器之功能驗證動態試驗裝置(上圖為側視圖，下圖為上視圖) (請參考頁末圖示) 圖二四：待驗下腿部模型之功能驗證動態試驗，衝擊器表面之詳細說明 (請參考頁末圖示) 圖二五：待驗上腿部模型衝擊器之功能驗證動態試驗裝置 (請參考頁末圖示) 圖二六：待驗頭部模型衝擊器之生物特性(Biofidelity)動態試驗裝置 (請參考頁末圖示)	

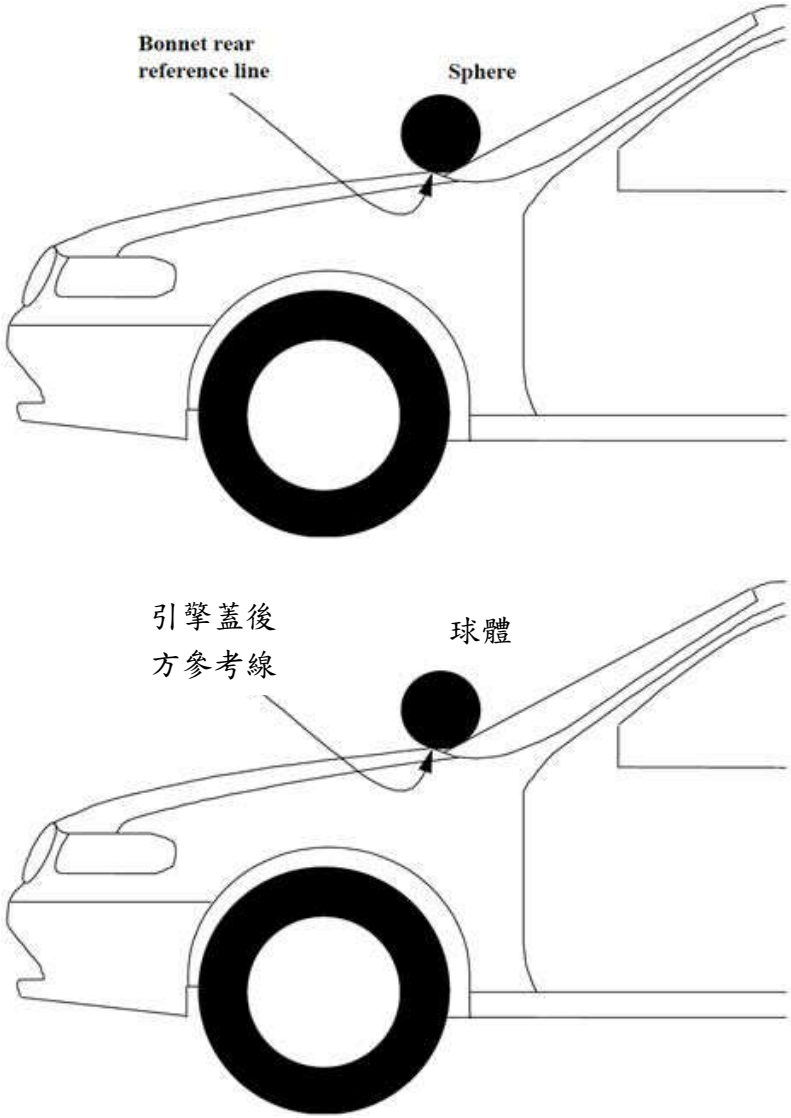
Figure 1: Bonnet leading edge reference line





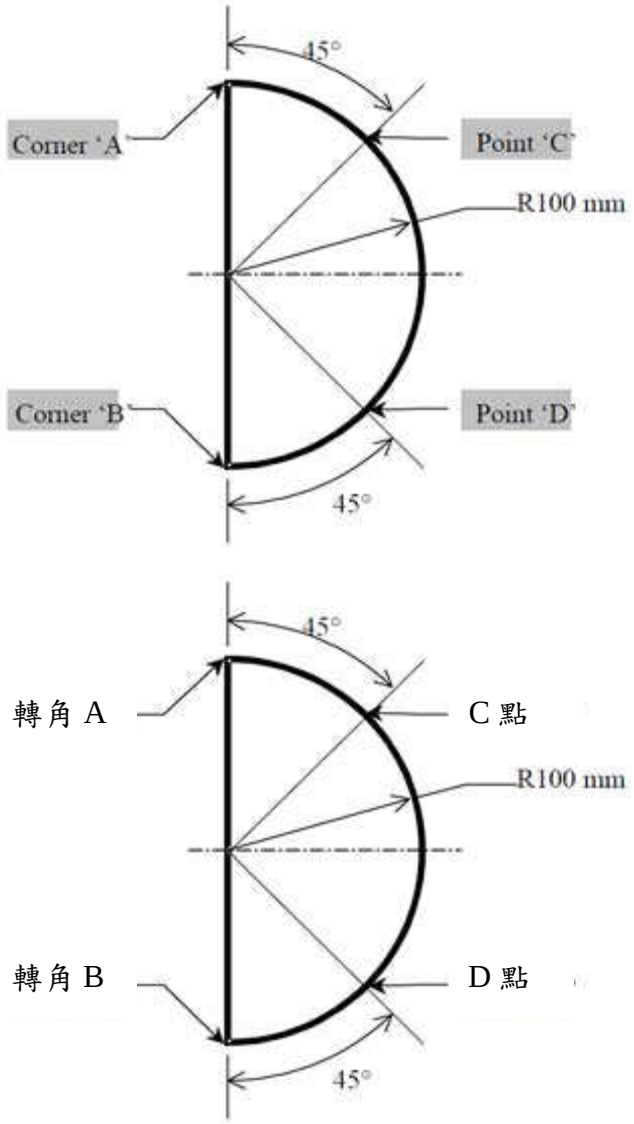
圖一：引擎蓋前緣參考線

Figure 2: Bonnet rear reference line



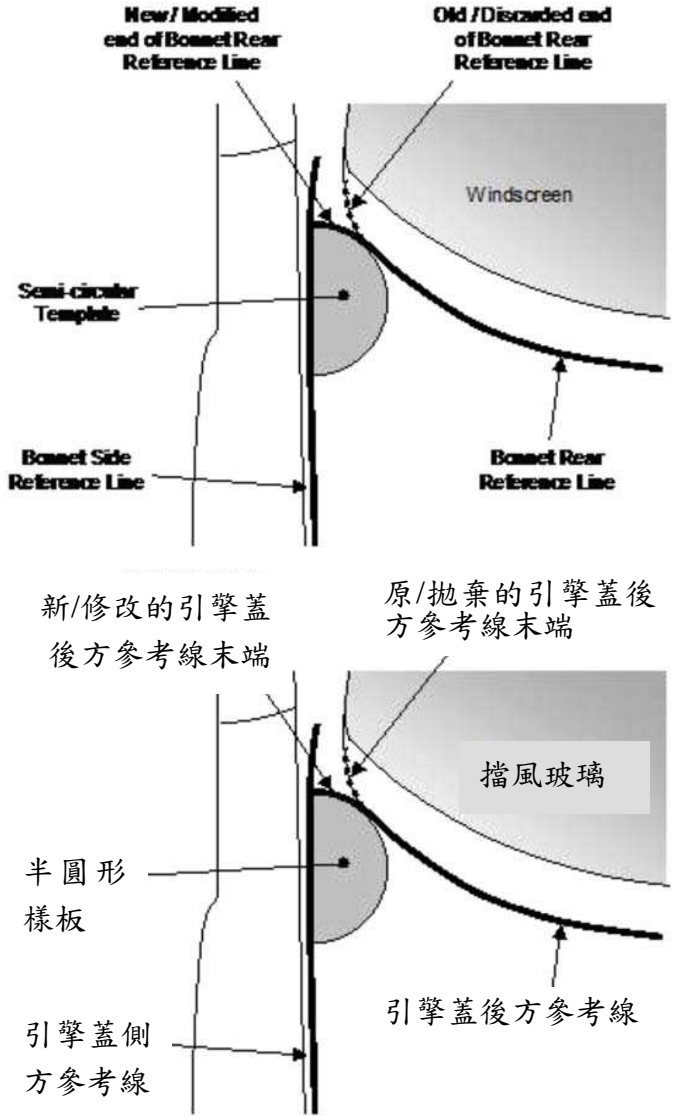
圖二：引擎蓋後方參考線

Figure 3: Template



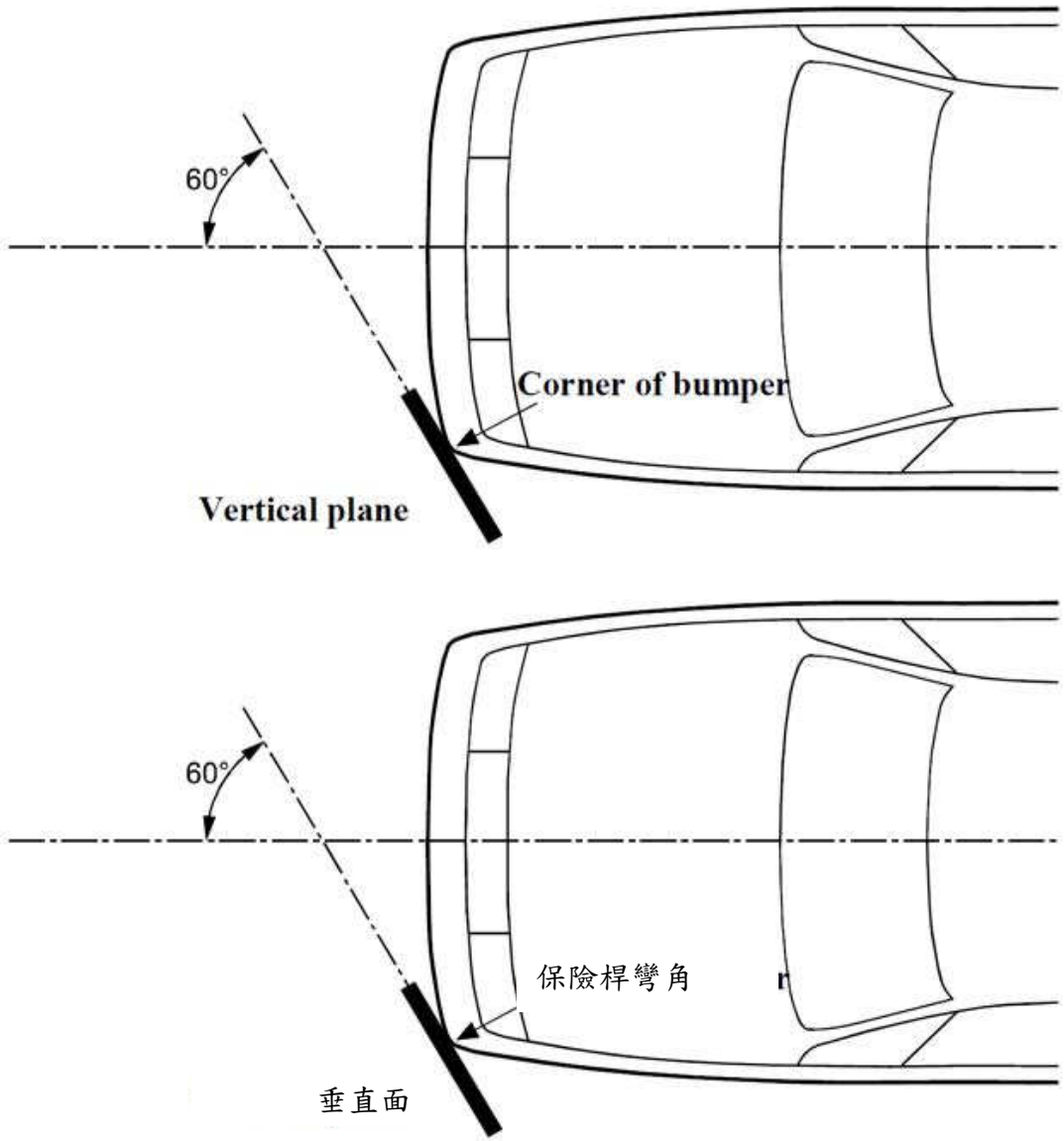
圖三：樣板

Figure 4: Marking of intersection between bonnet rear and side reference lines



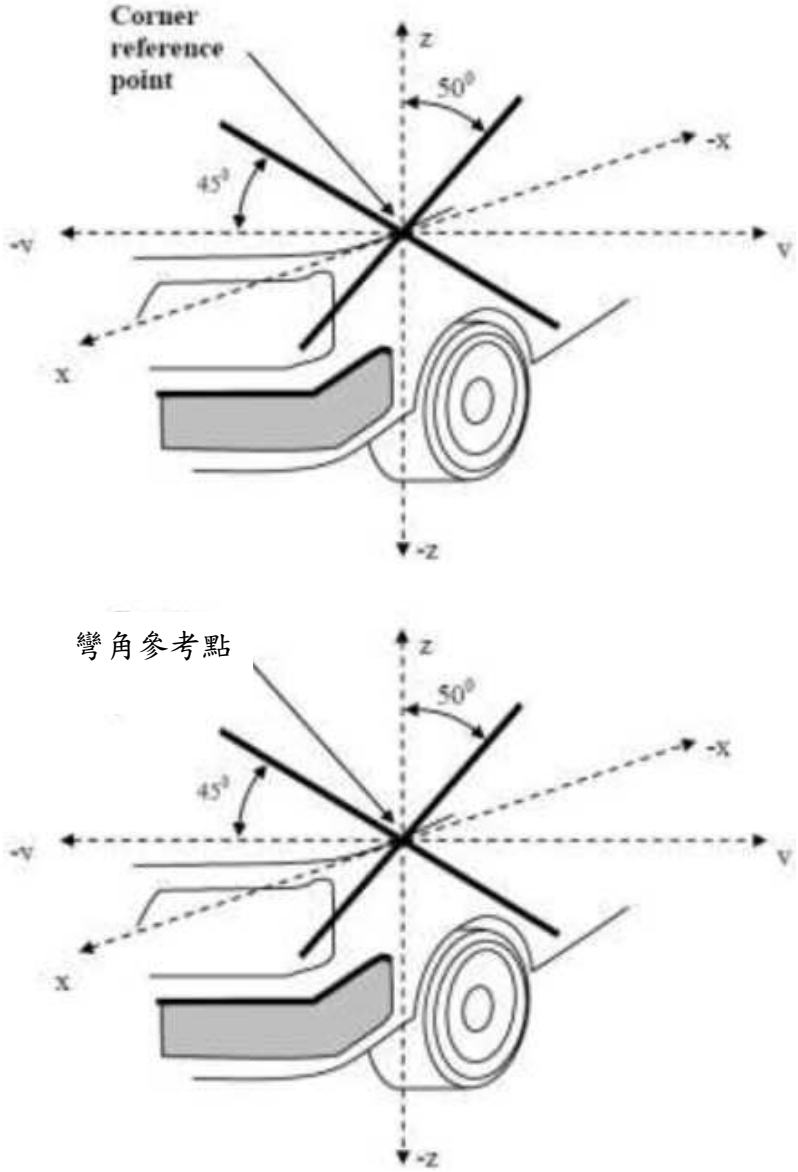
圖四：引擎蓋後方及側方參考線間之連接.

Figure 5: Corner of bumper



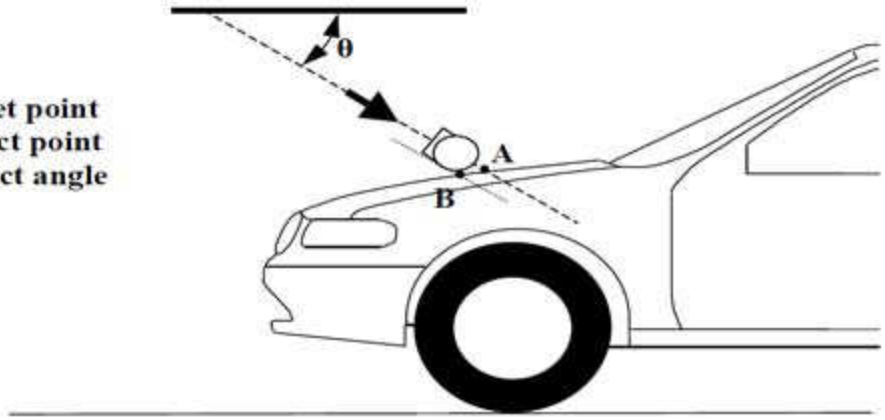
圖五：保險桿彎角

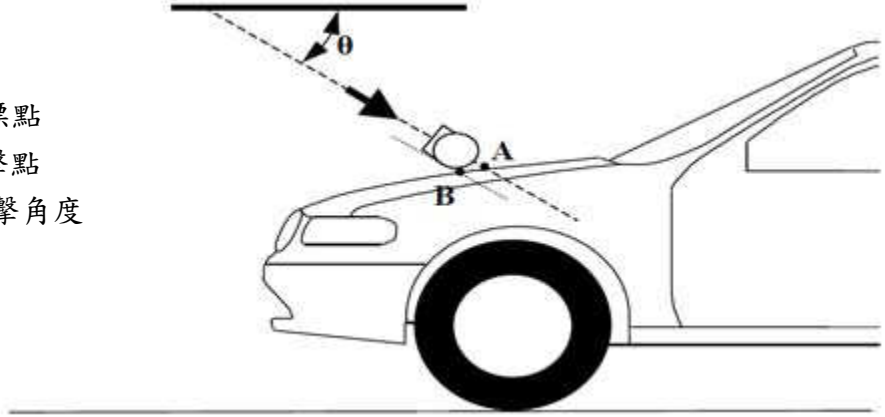
Figure 6: Determination of corner reference point; intersection of the bonnet leading edge reference line and the bonnet side reference line



圖六：引擎蓋彎角參考點之認定：引擎蓋前緣參考線與引擎蓋側方參考線之交點

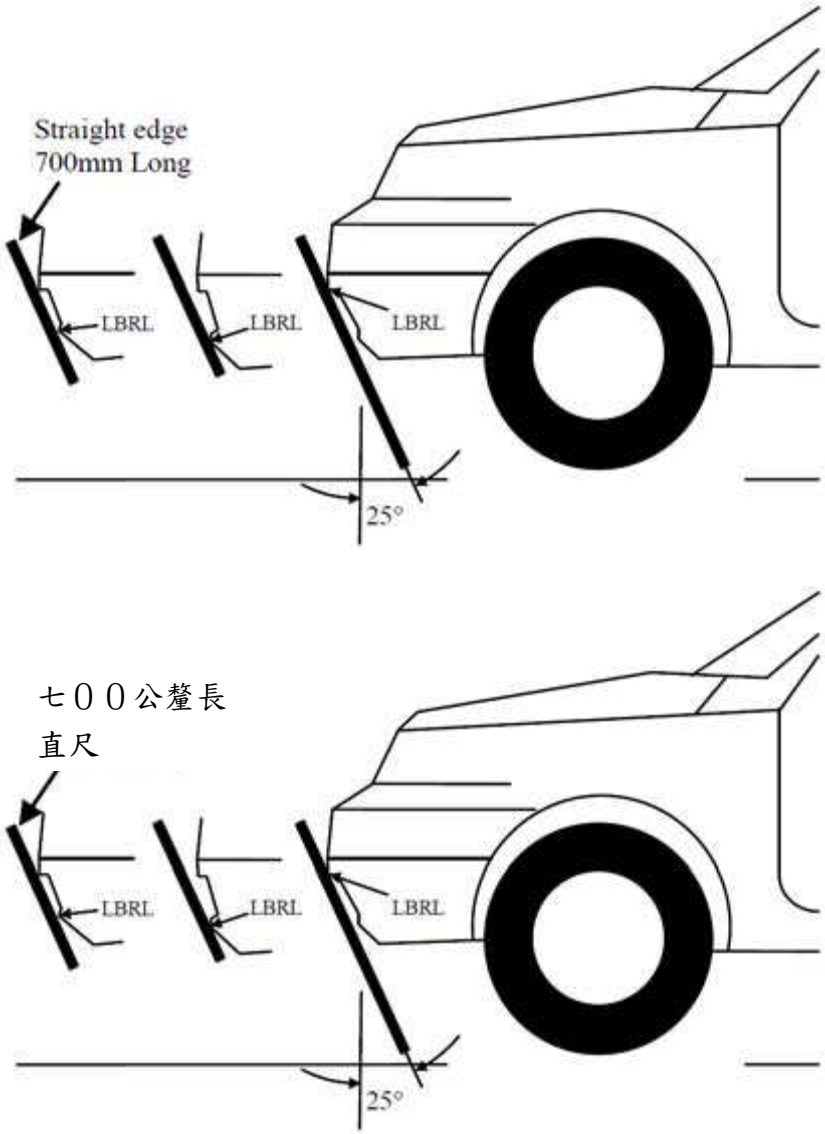
Figure 7: Impact and target point





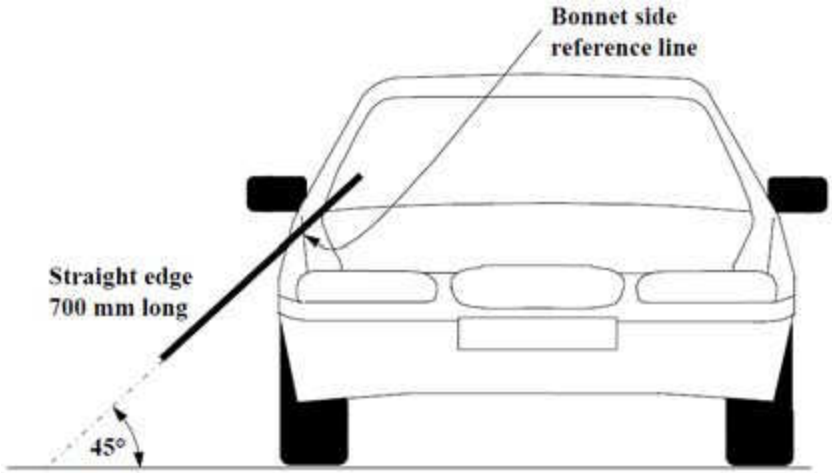
圖七：衝擊點與目標點

Figure 8: Lower Bumper Reference Line (LBRL)

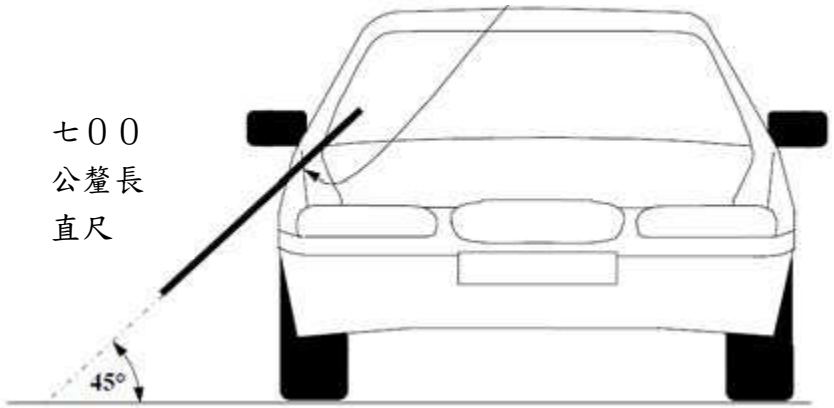


圖八：保險桿下方參考線(LBRL)

Figure 9: Side reference line

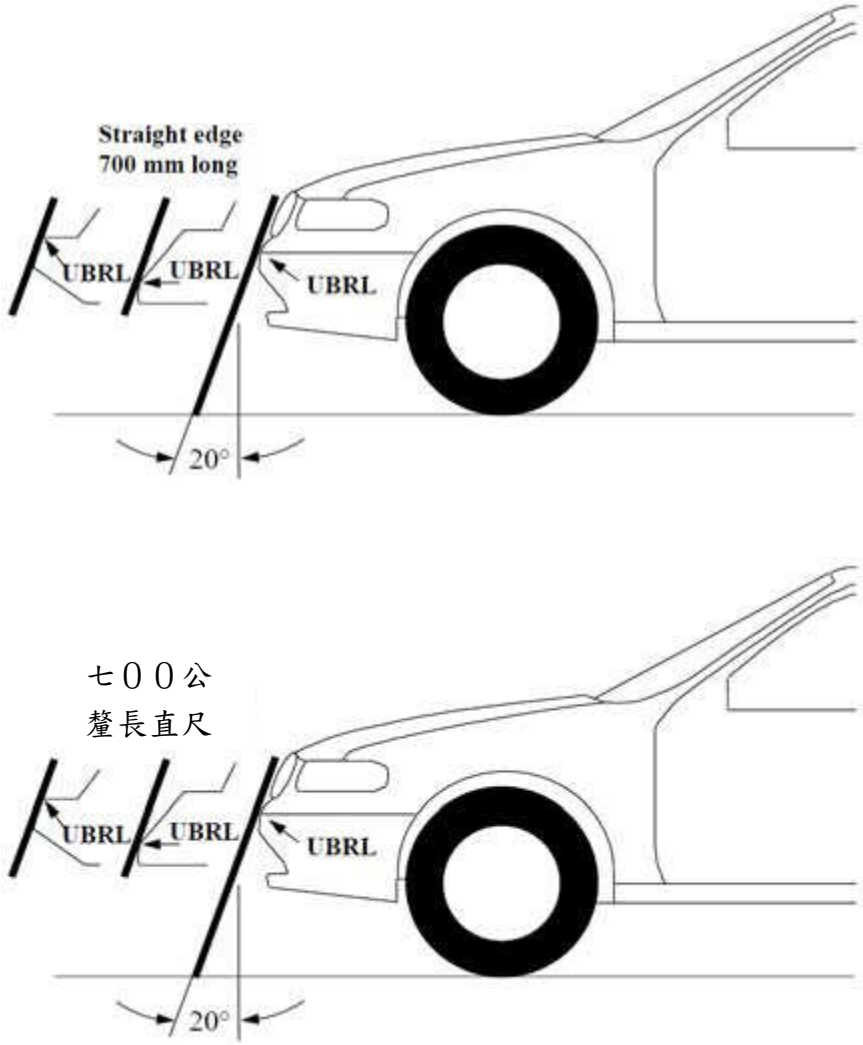


引擎蓋側方參考線



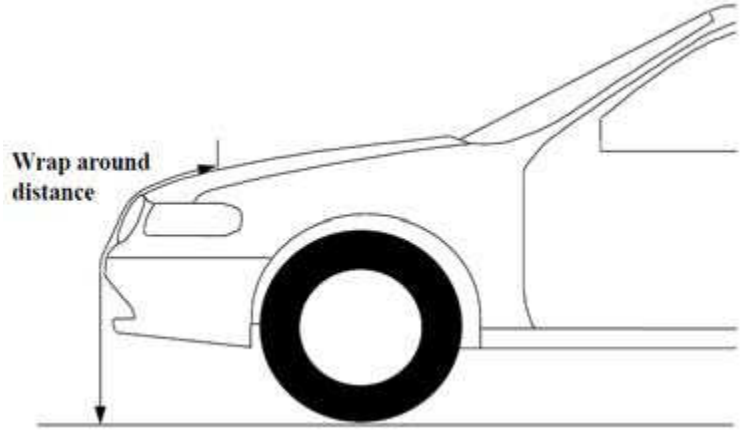
圖九：側方參考線

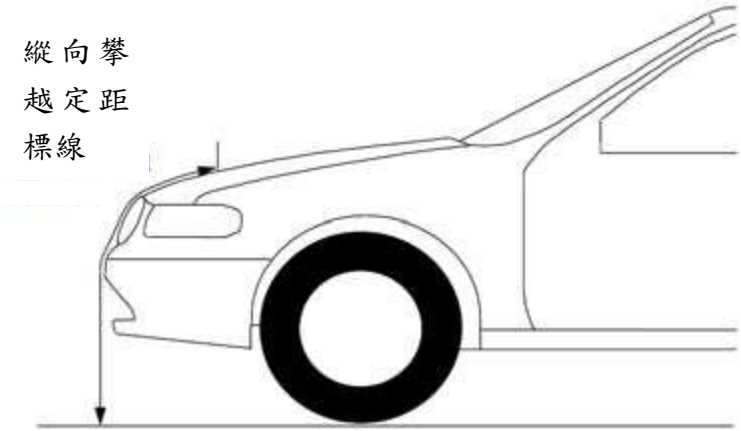
Figure 10: Upper Bumper Reference Line (UBRL)



圖一０：保險桿上方參考線(UBRL)

Figure 11: Wrap around distance measurement

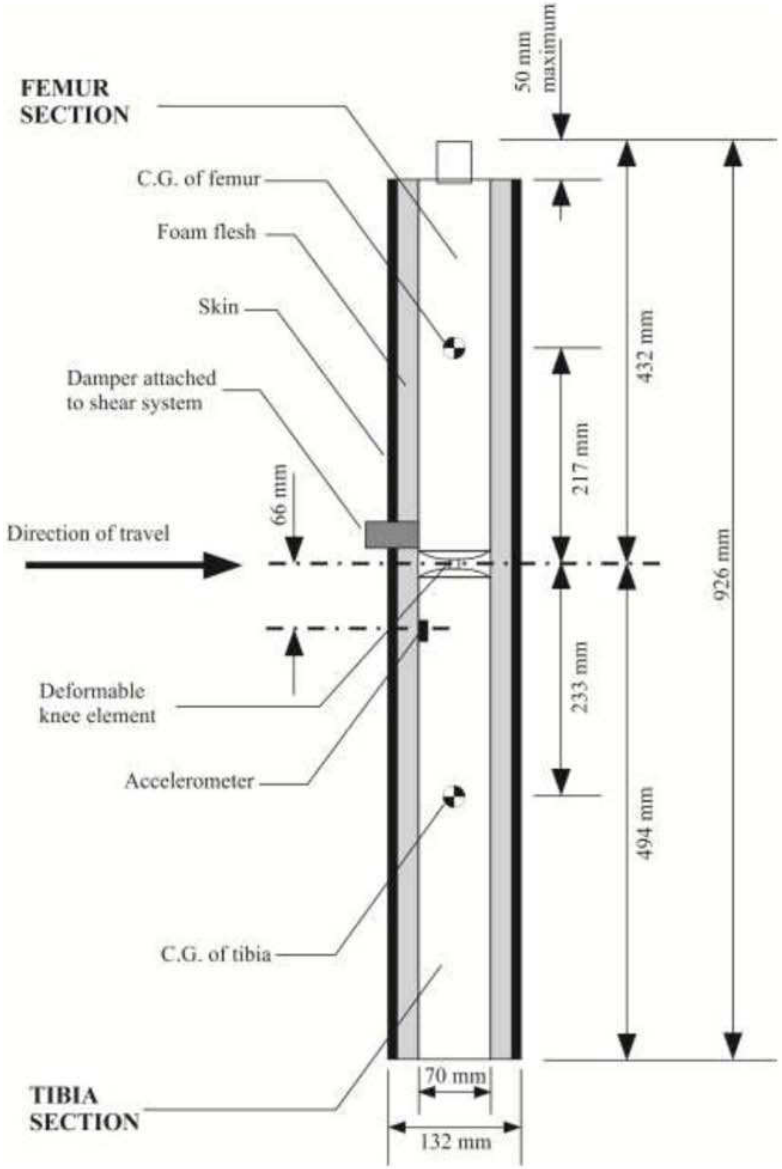


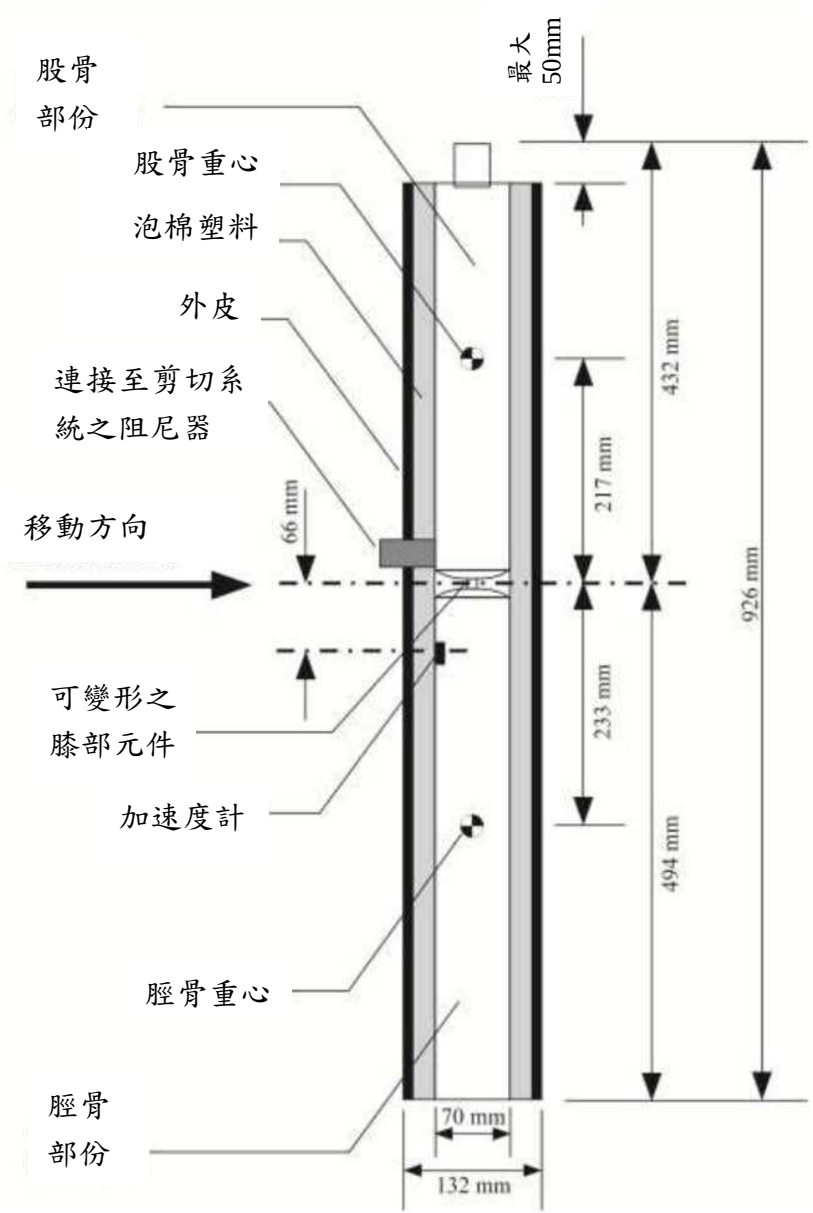


圖一一：縱向攀越定距之量測

Annex3

Figure 1: Lower legform impactor

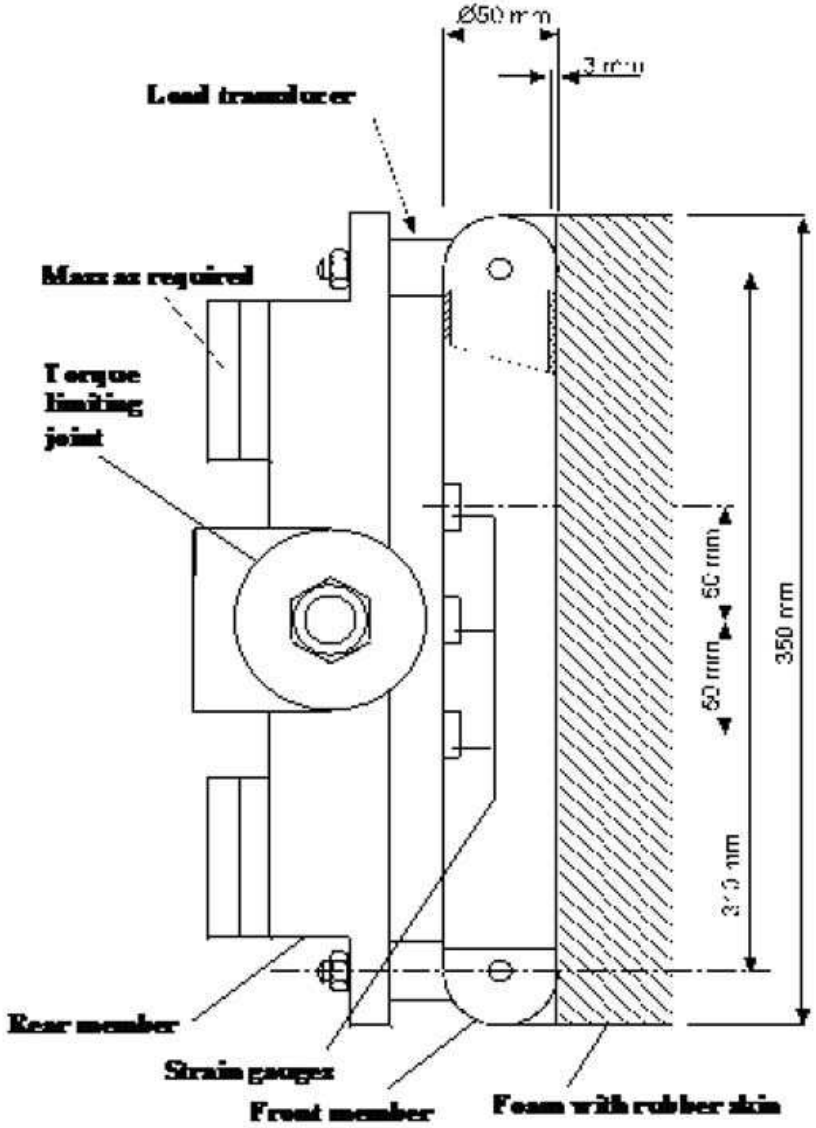


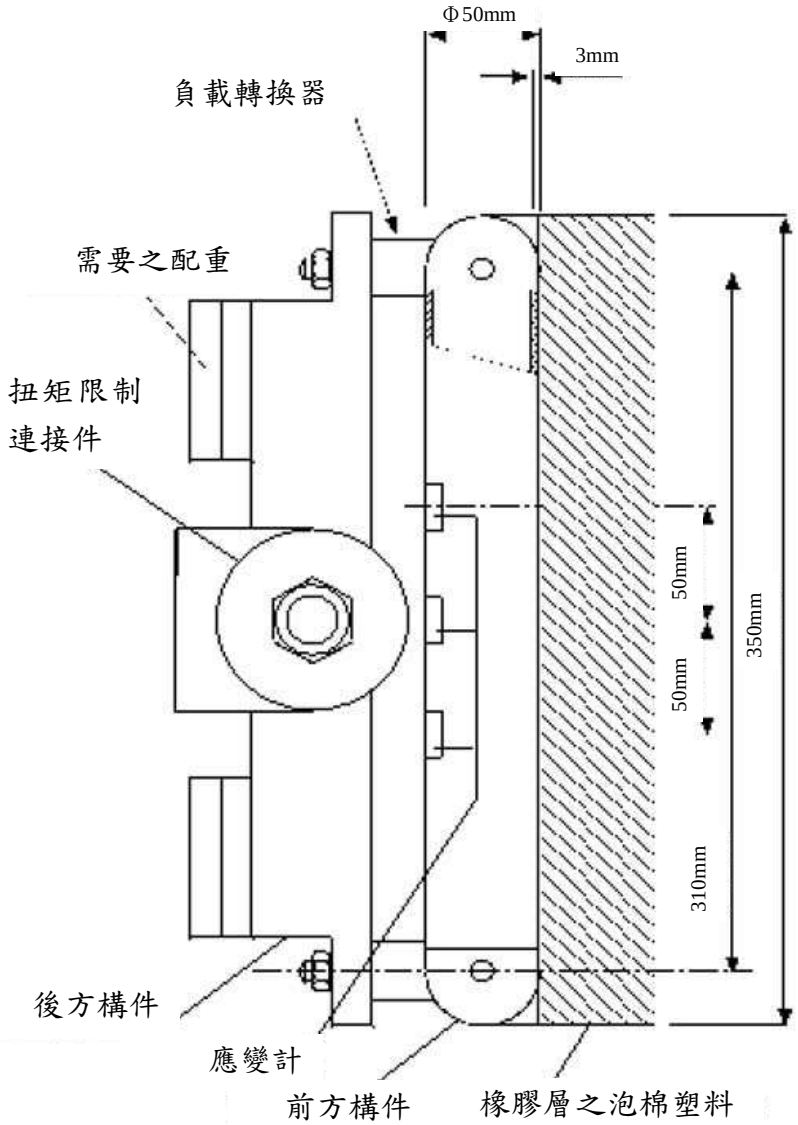


圖一二：下腿部模型衝擊器

Annex3

Figure 2: Upper legform impactor

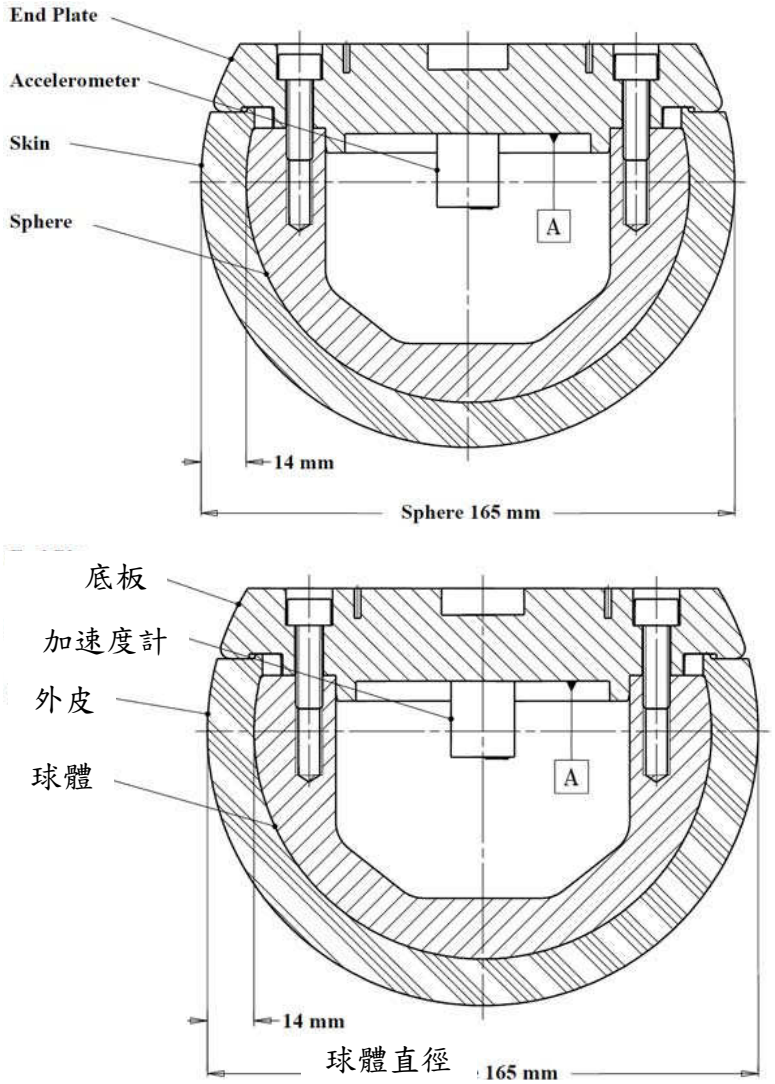




圖一三：上腿部模型衝擊器

Annex3

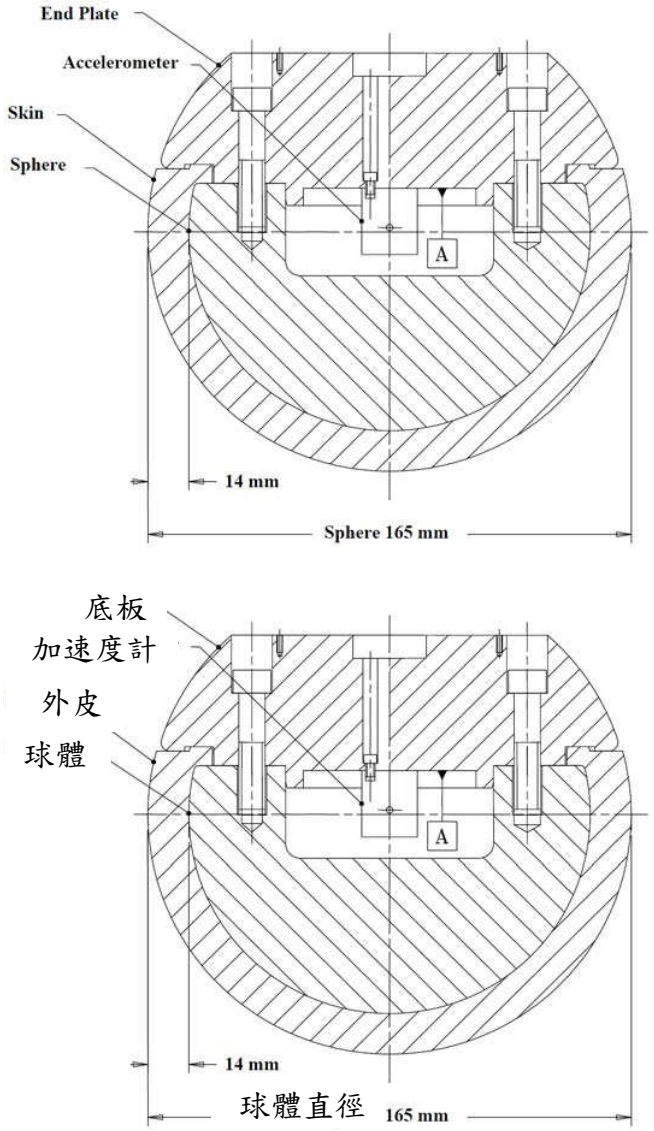
Figure 3: Child headform impactor



圖一四：兒童頭部模型衝擊器

Annex3

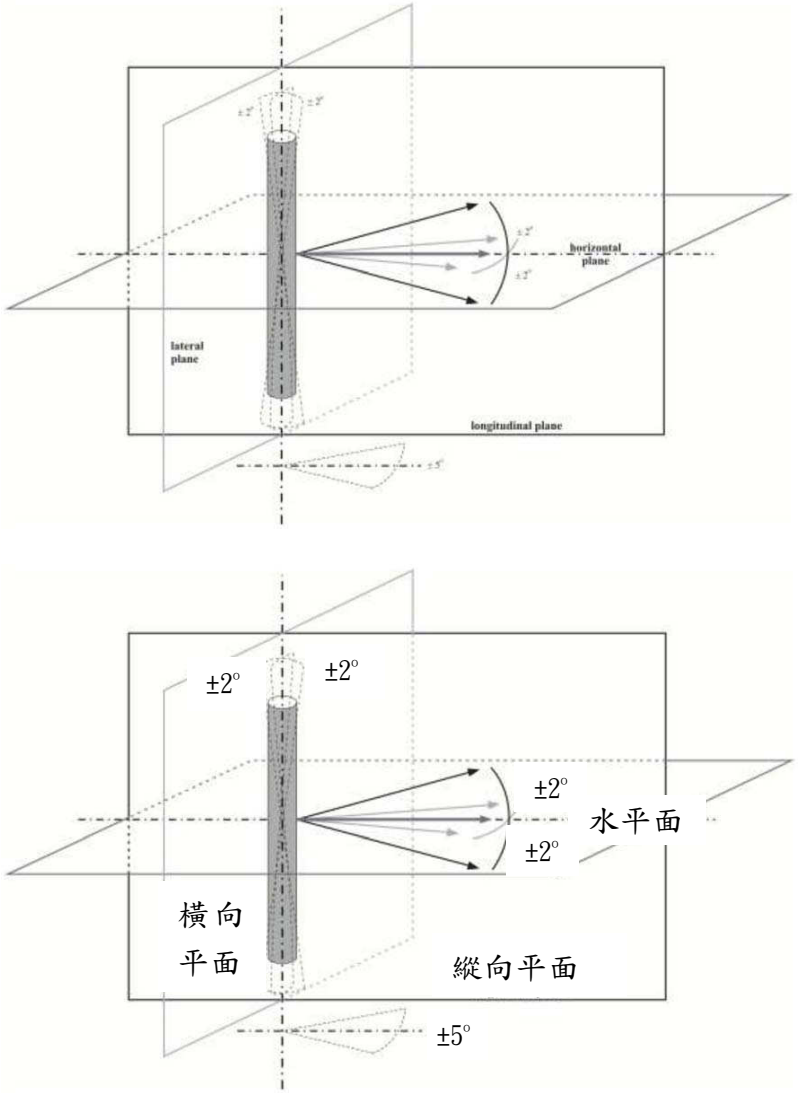
Figure 4: Adult headform impactor



圖一五：成人頭部模型衝擊器

Annex 5

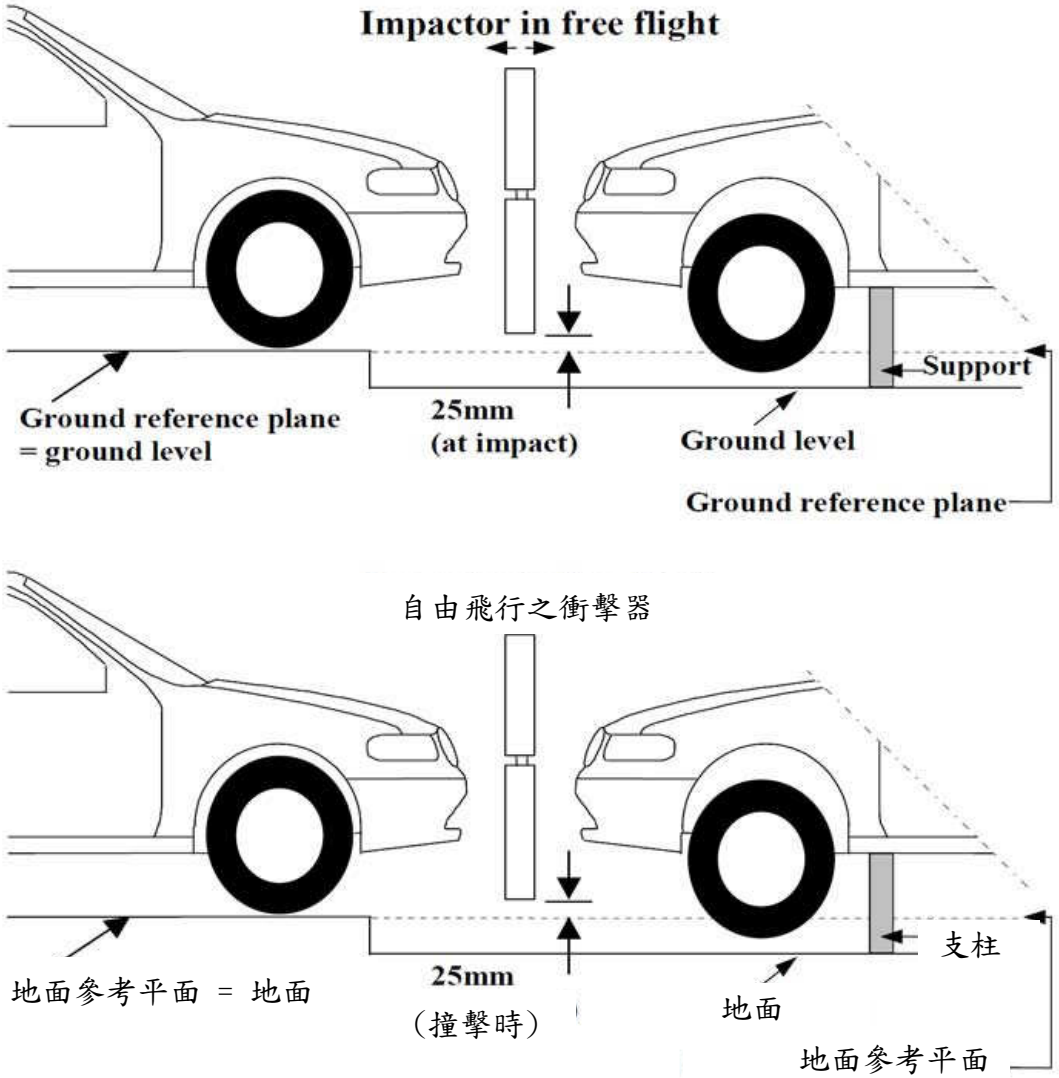
Figure 1: Tolerances of angles for the lower legform impactor at the time of the first impact



圖一六：首次接觸時，下腿部模型衝擊器之角度公差

Annex 5

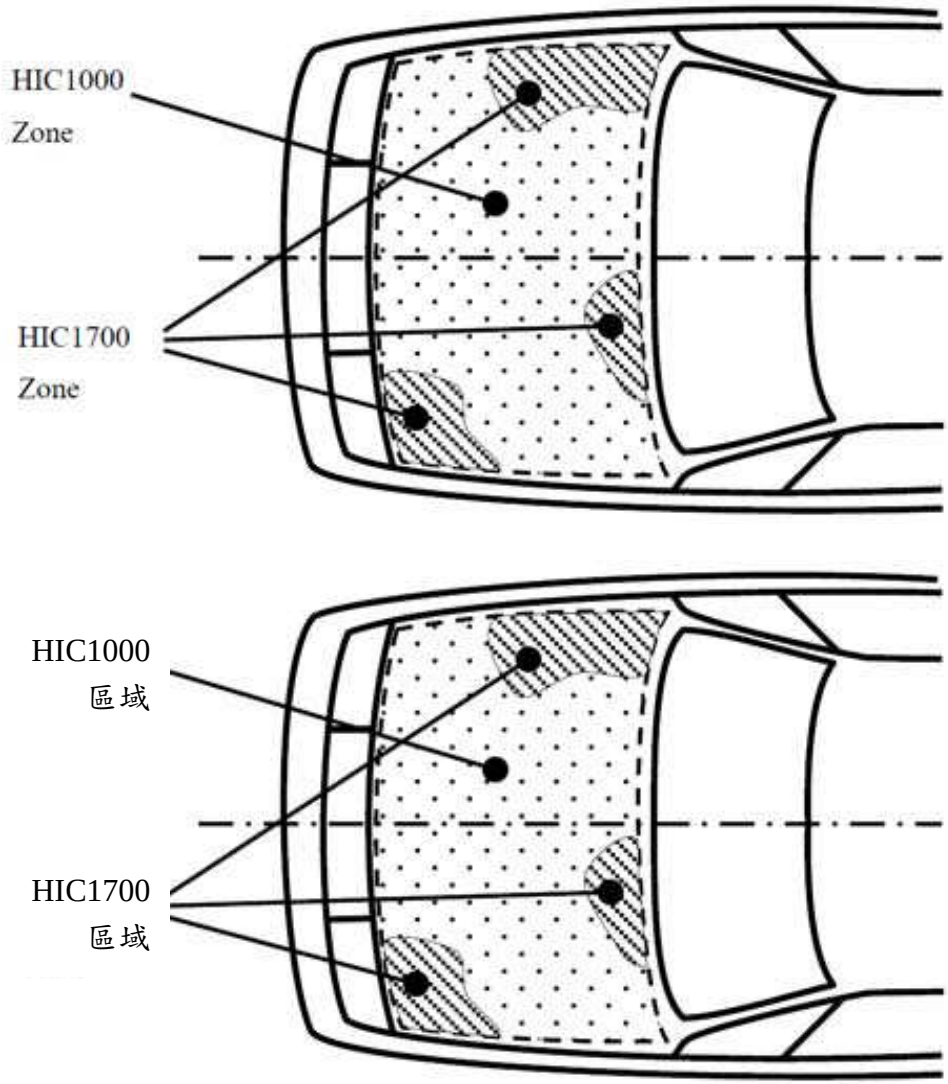
Figure 2: Lower legform to bumper tests for complete vehicle in normal ride attitude (left) and for cutbody mounted on supports (right)



圖一七：以正常乘載狀態下之整車(左側)及安裝於支柱上之切割車身(右側)進行保險桿之下腿部模型試驗

Annex 5

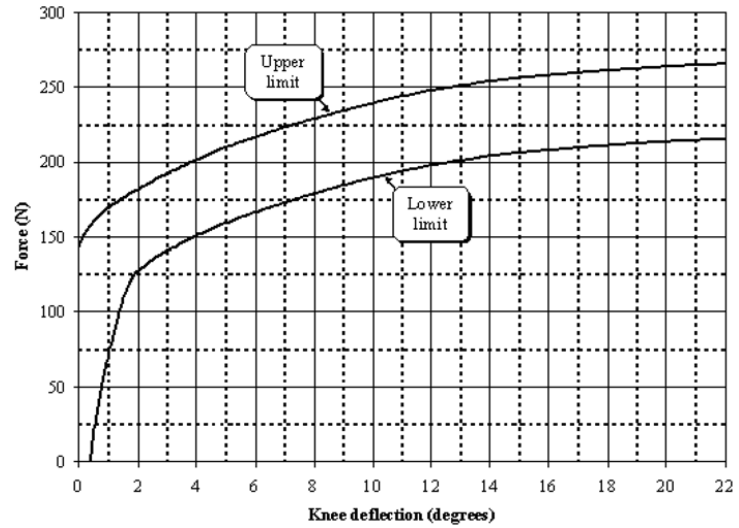
Figure 3: Example of marking of HIC1000 zone and HIC1700 zone

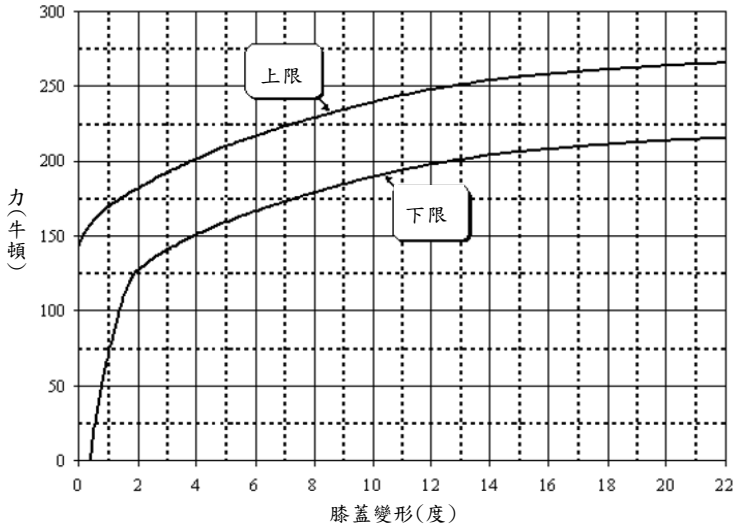


圖一八：HIC 一０００區域及 HIC 一七００區域標示之示意

Annex6

Figure 1: Force versus angle requirement in static lower legform impactor bending certification test

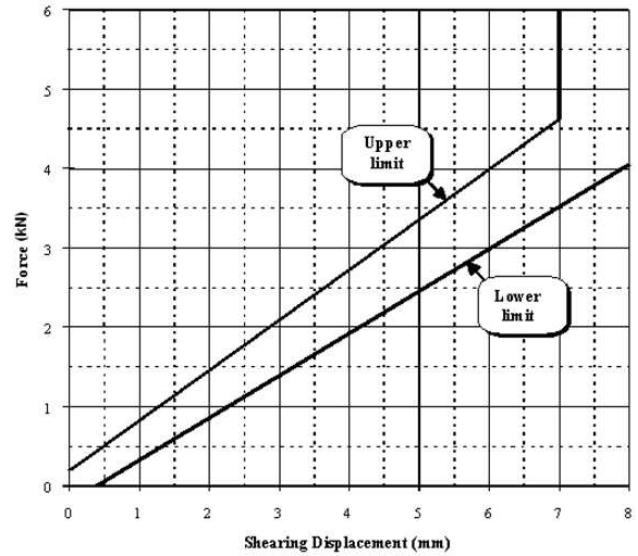


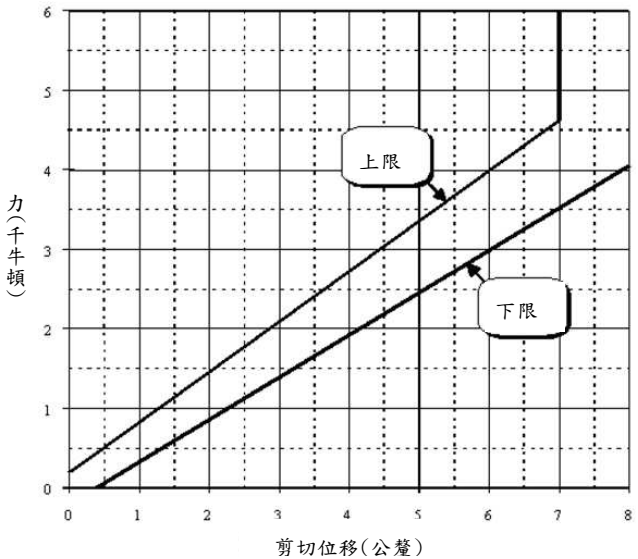


圖一九：待驗下腿部模型衝擊器之功能驗證靜態彎曲試驗－施力與角度要求

Annex6

Figure 2: Force versus displacement requirement in static lower legform impactor shearing certification test

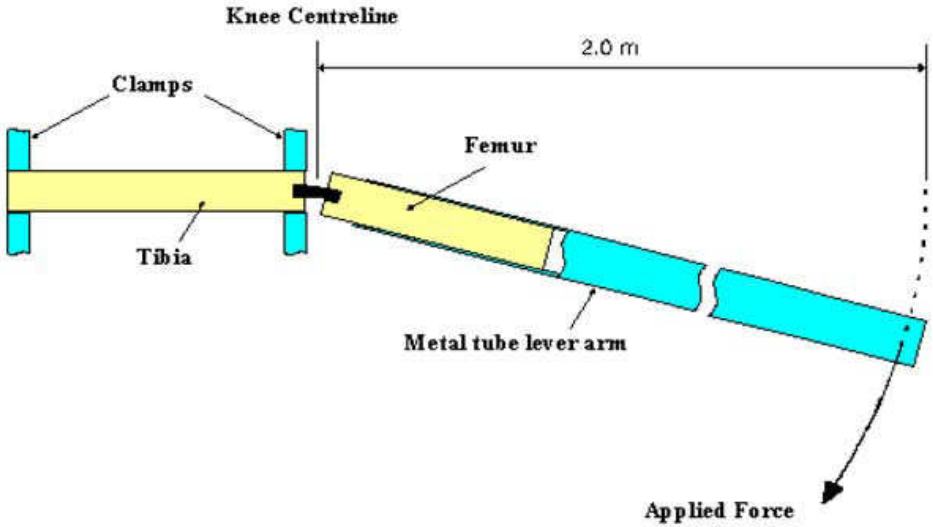


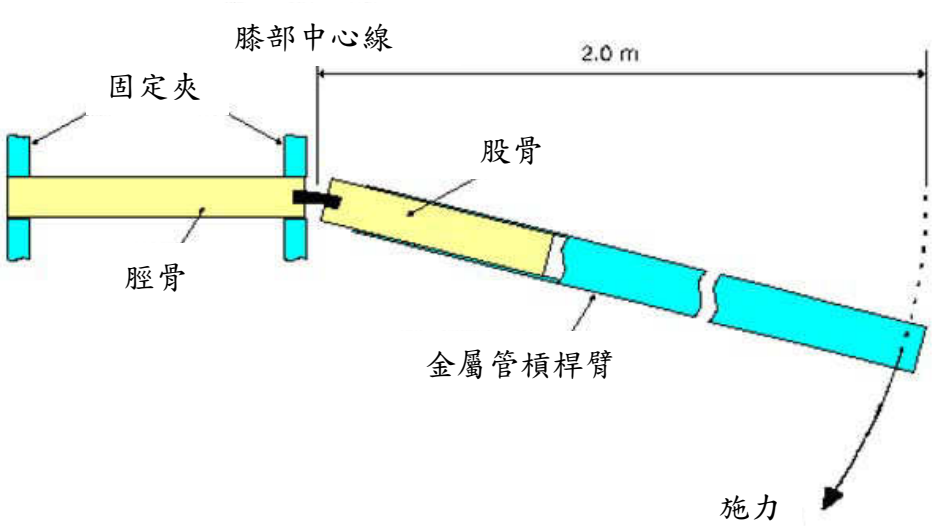


圖二０：待驗下腿部模型衝擊器之功能驗證靜態剪切試驗－施力與位移要求

Annex6

Figure 3: Top view of test set-up for static lower legform impactor bending certification test

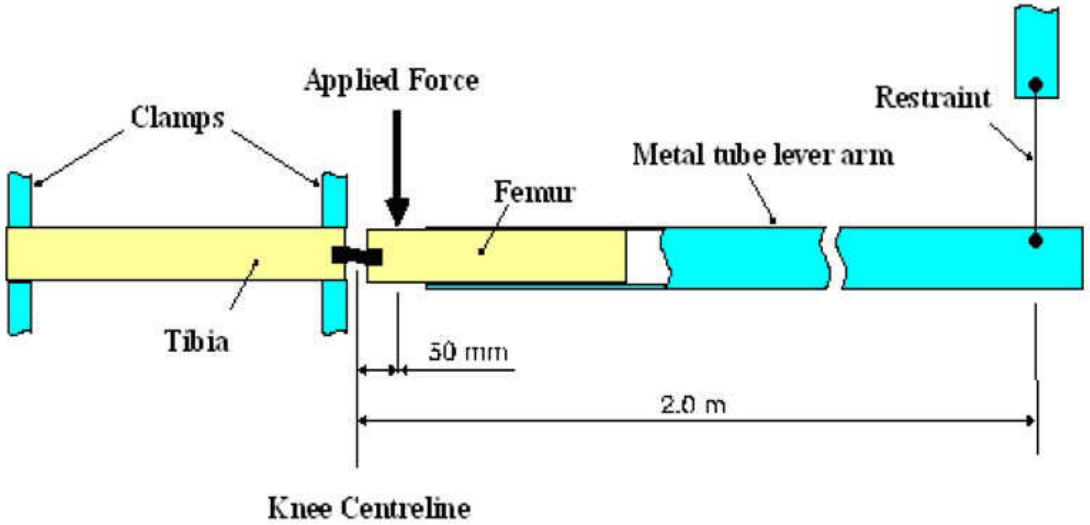


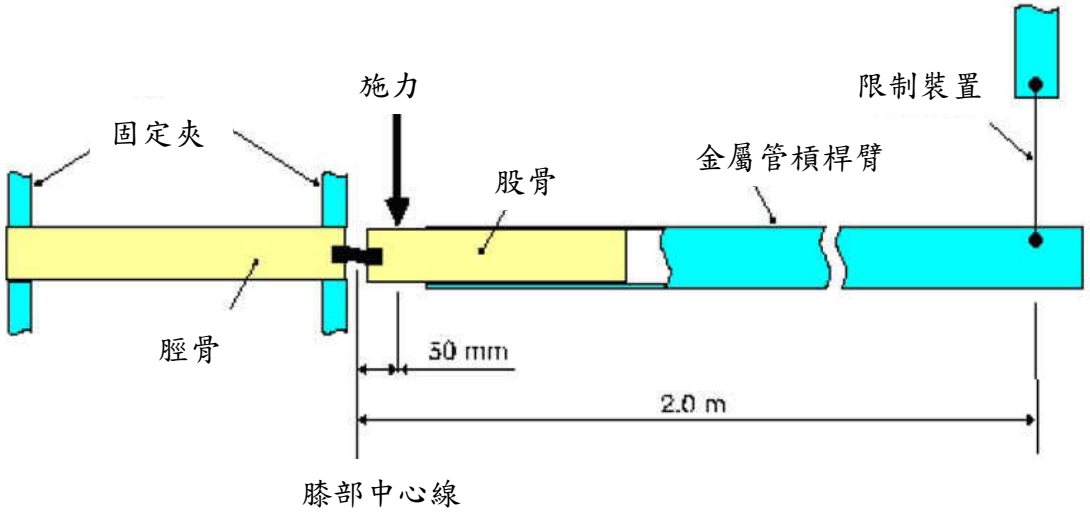


圖二一：待驗下腿部模型衝擊器之功能驗證靜態彎曲試驗裝置上視圖

Annex6

Figure 4: Top view of test set-up for static lower legform impactor shearing certification test

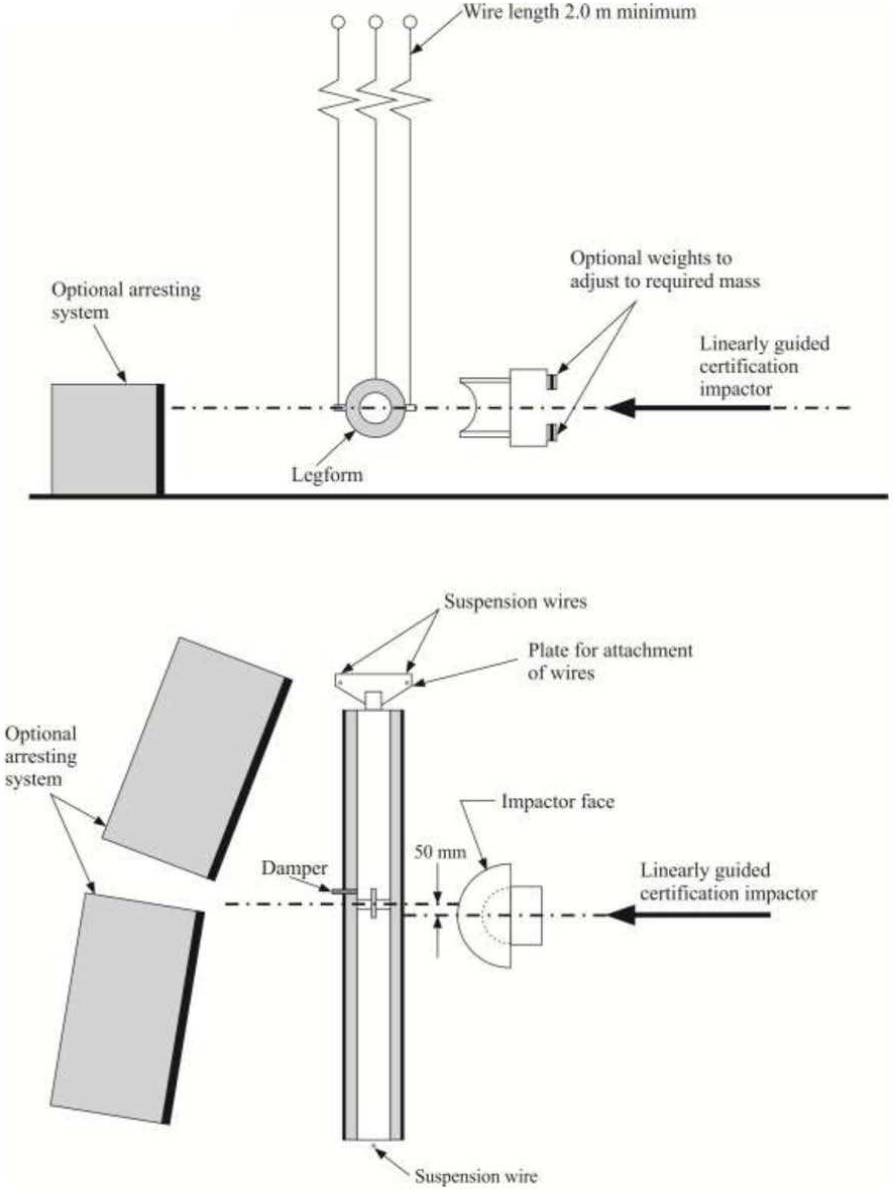


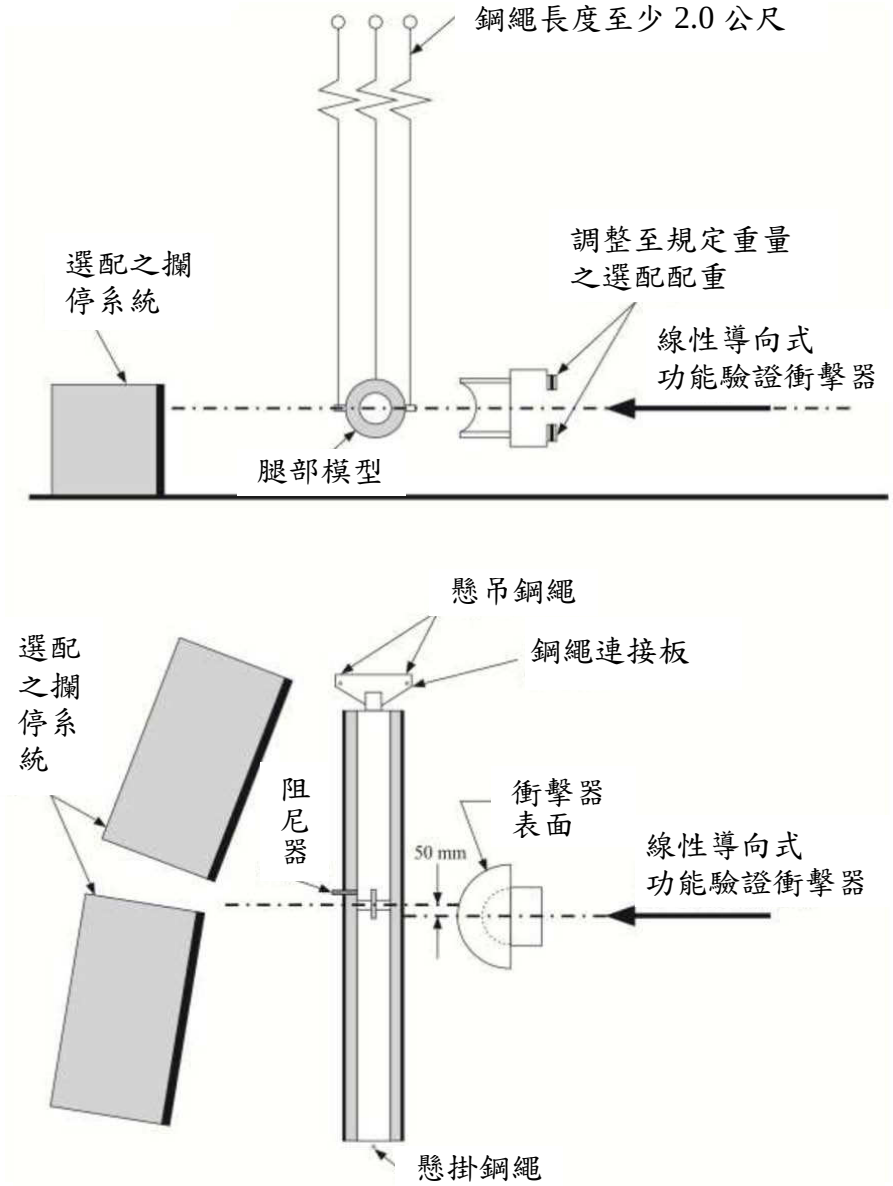


圖二二：待驗下腿部模型衝擊器之功能驗證靜態剪切試驗裝置上視圖

Annex6

Figure 5: Top set-up[*/] for dynamic lower legform impactor certification test (side view top diagram, view from above bottom diagram)

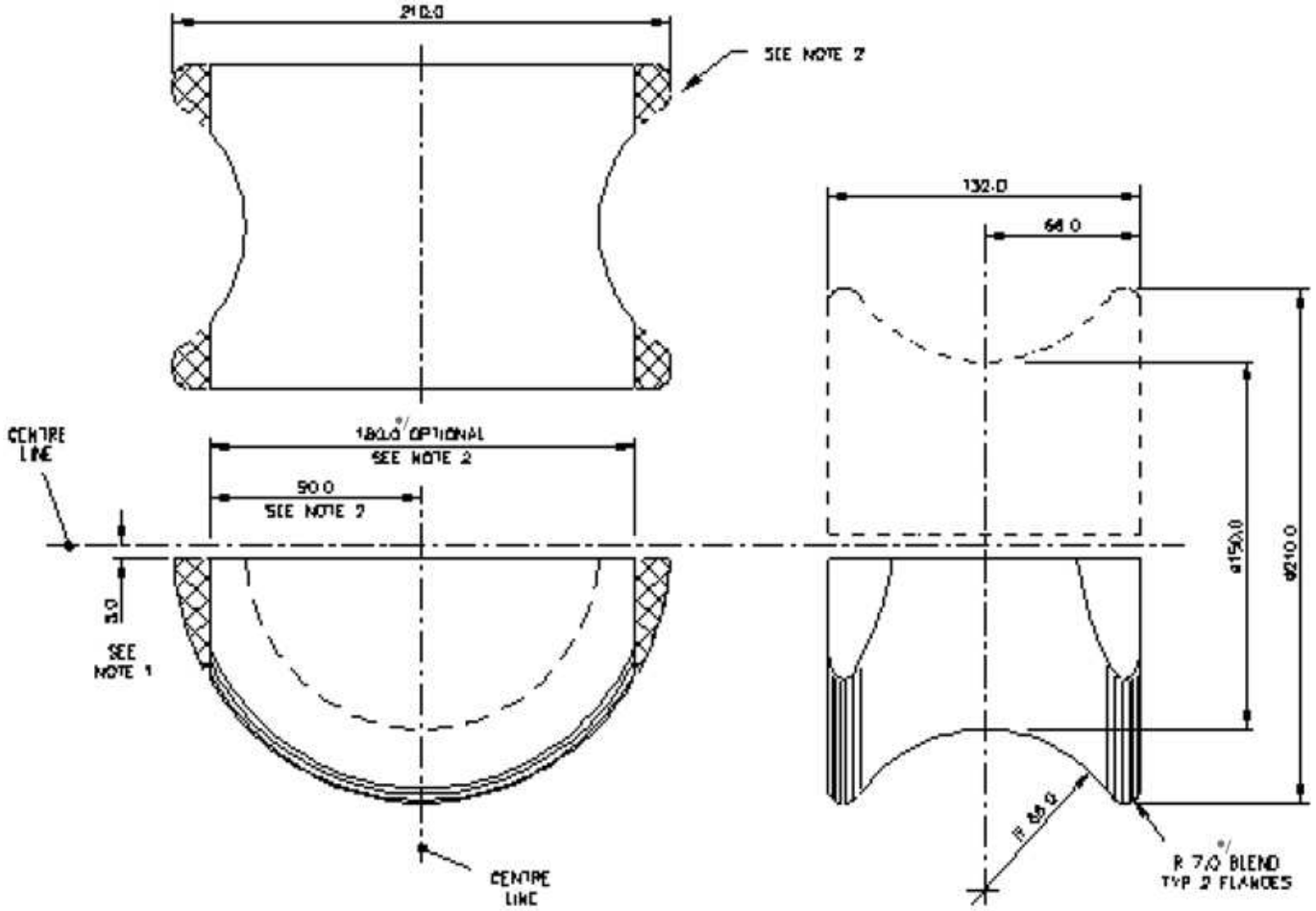




圖二三：待驗下腿部模型衝擊器之功能驗證動態試驗裝置(上圖為側視圖，下圖為上視圖)

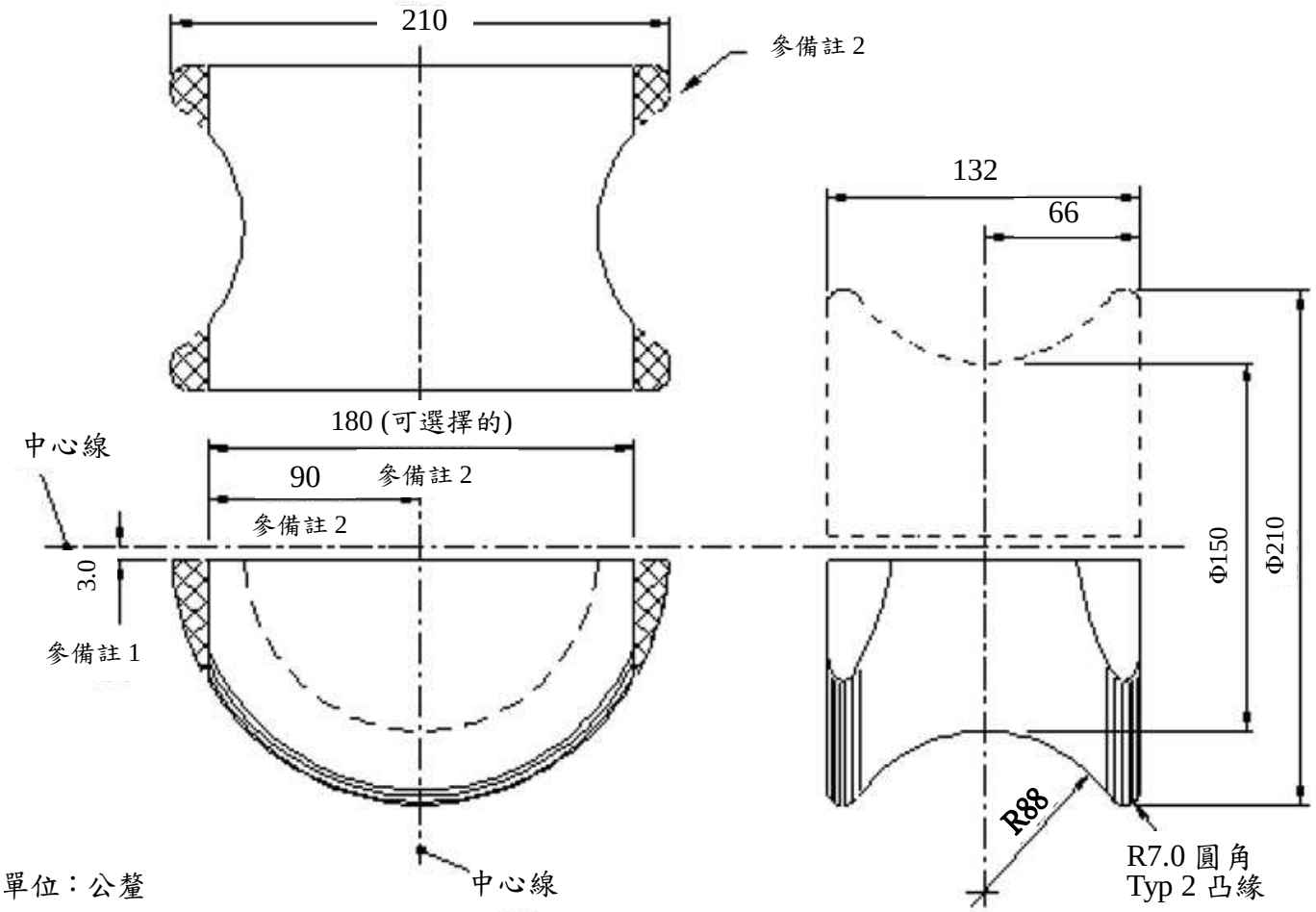
Annex6

Figure 6: Details of dynamic lower legform certification impactor face



Notes:

1. Saddle may be made as a complete diameter and cut as shown to make two components.
2. The shaded areas may be removed to give the alternative form shown.
3. Tolerance on all dimensions is +/-1.0 mm.
4. Material: Aluminium alloy.



單位：公釐

圖二四：待驗下腿部模型之功能驗證動態試驗，衝擊器表面之詳細說明

備註：

1.底板可依整個直徑製作，並如圖切割為兩個部份。

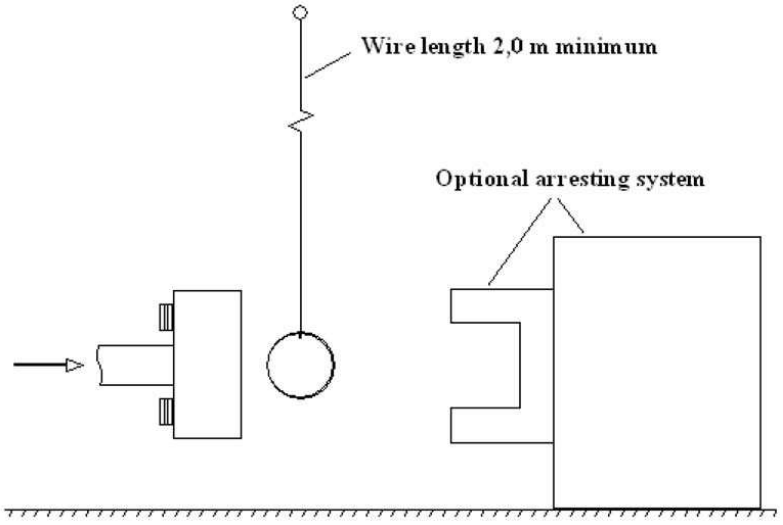
2.陰影區域可如圖所示移除。

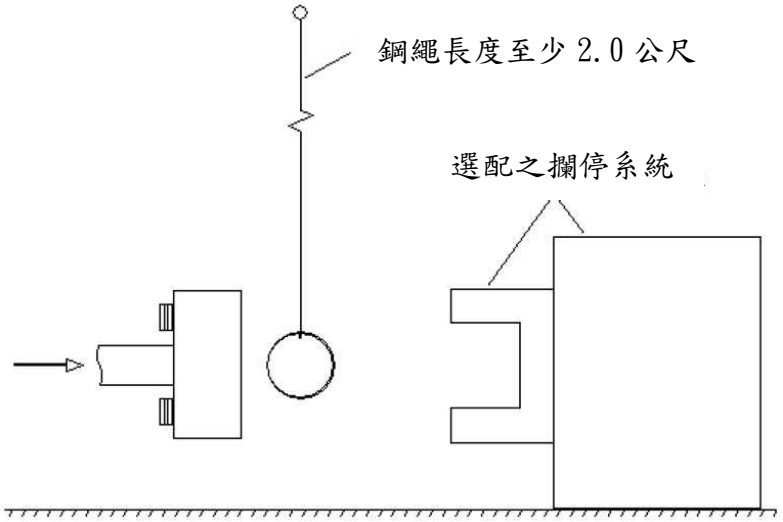
3.公差為正負一・0 公釐。

4.材質：鋁合金。

Annex6

Figure 7: Test set-up for dynamic upper legform impactor certification test

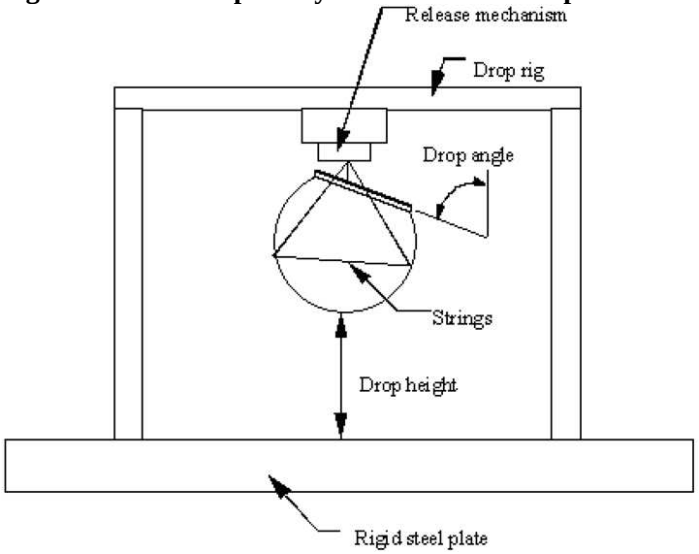


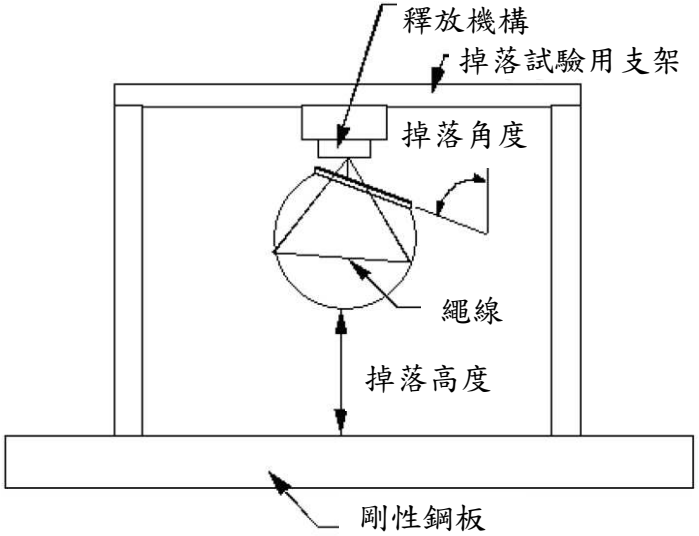


圖二五：待驗上腿部模型衝擊器之功能驗證動態試驗裝置

Annex6

Figure 8: Test set-up for dynamic headform impactor biofidelity test





圖二六：待驗頭部模型衝擊器之生物特性動態試驗裝置