

項次	規章名稱	修訂內容	新增項目	頁碼	說明
1	1.3 星級評等應用程序規章	◎		P.3-15	依 Euro NCAP 星級評等應用程序規章 2.1 版修訂相關內容。
2	1.4 車型挑選提名、自費申請評等、車輛規格及試驗管理規章	◎		P.16-20	依 Euro NCAP 車型挑選提名、自費申請評等、車輛規格及試驗管理規章 8.1 版修訂相關內容。
3	3.11 緊急煞車輔助系統(弱勢道路使用者)試驗規章	◎		P.21-228	依 Euro NCAP 緊急煞車輔助系統(弱勢道路使用者)試驗規章 4.5.1 版，新增轉彎成人碰撞情境試驗、倒車成人及兒童移動碰撞情境試驗、倒車成人及兒童靜止碰撞情境試驗、近端自行車騎士障礙物碰撞情境試驗、遠端自行車騎士碰撞情境試驗、轉彎自行車騎士碰撞情境試驗、車門開啟自行車騎士碰撞情境試驗、機車騎士靜止碰撞情境試驗、機車騎士煞車碰撞情境試驗、轉彎機車騎士碰撞情境試驗、對向來車機車騎士碰撞情境試驗、車道超車機車騎士碰撞情境試驗。
4	2.3.3 行人保護評等規章-2.3.3 緊急煞車輔助系統(弱勢道路使用者)評等	◎		P.229-285	依 Euro NCAP 緊急煞車輔助系統(弱勢道路使用者)評等規章 11.4 版，新增各項弱勢道路使用者碰撞情境之評分標準，並修正評等方式，使評分內容與最新試驗項目一致，提升評等完整性。
5	2.4 安全輔助評等規章-2.4.2 車速輔助系統評等	◎		P.286-328	依 Euro NCAP 安全輔助評等規章 10.4 版，修訂車速輔助系統(SAS)評等標準，修正車速輔助系統評分項目及給分標準，使評等方

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					式符合國際最新車速輔助功能要求。
6	3.22 頭燈性能試驗規章		◎	P.329-333	參考 JNCAP 高性能頭燈試驗規章 2024.5 版，新增自動切換型頭燈及自動防眩光型頭燈定義以及車輛業者應提供資訊等要求。
7	2.4 安全輔助評等規章-2.4.8 頭燈性能評等		◎	P.334-334	參考 JNCAP 新車評等資訊提供計畫安全性能評估程序 2021.3 版，新增訂高性能頭燈之評分要求。
8	3.23 後方視野輔助系統試驗規章		◎	P.335-350	參考 ASEAN NCAP 新增後方視野輔助系統試驗規章，新增後方影像及偵測輔助功能之試驗方法、設備要求及判定標準，以提升倒車安全性能評估。
9	2.4 安全輔助評等規章-2.4.9 後方視野輔助系統評等		◎	P.351-355	參考 ASEAN NCAP 後方視野輔助系統評等規章，新增後方視野輔助系統評等方式及給分標準，使安全輔助評等內容更加完整。

1.3 星級評等應用程序規章

Euro NCAP Application of Star Rating Protocol Version 2.1

修訂 TNCAP 條文草案(第三版)			對應 TNCAP 第二版規章		
1.3.1 名詞釋義			1.3.1 名詞釋義		
...			...		
1.3.1.2 車款(Variant):指車輛型式安全審驗合格證明書所載之車型代碼者， <u>或由特定車身式樣、引擎與傳動系統所構成之特定組合。該車款可沿用受驗車款之部分或全部試驗結果，並經執行機構同意且車輛業者應提供所需的佐證資料。</u>			1.3.1.2 車款(Variant):指車輛型式安全審驗合格證明書所載之車型代碼者， <u>且與原始受驗車輛共用下列參數。</u> (1) <u>製造廠(廠牌)。</u> (2) <u>車型名稱(基本市售車型名稱相同者，得加註掀背、運動旅行等)。</u> (3) <u>所有與安全性相關之配備。</u> (4) <u>所有與安全性能相關之重要結構組件。如車身兩側車門數有差異者，應額外提交資料。</u> <u>受評車輛業者應依 1.3.3.2 規定提交資料證明其與原始受驗車輛無差異。</u>		
1.3.3 車款及共生車型(Partner models)			1.3.3 車款及共生車型(Partner models)		
...			...		
1.3.3.2.1 車輛業者得提供相關數據資料佐證其他車款/共生車型符合 <u>下表規定</u> ，且經執行機構同意後，得共用原始受驗車款之星級評等。			1.3.3.2.1 車輛業者得提供相關數據資料佐證其他車款/共生車型符合 <u>1.3.6 規定</u> ，且經執行機構同意後，得共用原始受驗車款之星級評等。		
<u>項目</u>	<u>判定準則</u>	<u>資料需求</u>			

修訂 TNCAP 條文草案(第三版)			對應 TNCAP 第二版規章
<u>車身式樣</u>	<u>C 柱前相同(含內裝配置、感測器及軟體版次)</u>	<u>無需額外數據</u>	
	<u>C 柱前有差異(如門數、後座、感測器或軟體版次不同)</u>	<u>內部數據或正式試驗*</u>	
<u>空車重量</u>	<u>與受驗車款差異$\leq \pm 10\%$</u>	<u>無需額外數據</u>	
	<u>與受驗車款差異介於$\pm 10\%$至$\pm 20\%$</u>	<u>內部數據(MPDB, AE-MDB, Pole)</u>	
	<u>與受驗車款差異$> \pm 20\%$</u>	<u>正式試驗(MPDB, AE-MDB, Pole)</u>	
<u>動力系統</u>	<u>內燃機(當與受驗車款不同時)</u>	<u>正式試驗(MPDB, AE-MDB, Pole)</u>	
	<u>混合動力(當與受驗車款不同時)</u>	<u>內部數據或正式試驗*</u>	
	<u>純電動(當與受驗車款不同時)</u>	<u>正式試驗(MPDB, AE-MDB, Pole)</u>	
<u>車身高度</u>	<u>與受驗車款差異$> \pm 50\text{mm}$</u>	<u>內部數據(MPDB, AE-MDB, VRU)</u>	
<u>軸距</u>	<u>與受驗車款差異$> \pm 10\%$</u>	<u>內部數據(MPDB)</u>	
<u>*執行機構視車款差異程度評估應提供之資料。</u> 1.3.3.2.2 除 <u>1.3.3.2.1</u> 另有規定應執行正式試驗(Official test)外，車輛業者得提供內部佐證數據(In-house data)。另執行機構得要求車輛業			1.3.3.2.2 除 <u>1.3.6</u> 另有規定應執行正式試驗(Official test)外，車輛業者得提供內部佐證數據(In-house data)。

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<u>者提供額外補充資訊。</u>							
1.3.3.6 試驗資料比對 執行試驗資料比對時，其試驗結果 <u>與原始受驗車款分數差異 ± 10% 範圍內，且原始整體星級評等結果相同或更佳時，星級評等結果得適用於該車款。</u> 惟若不符合前述規定者，車輛業者應向執行機構說明其差異性。	1.3.3.6 試驗資料比對 執行試驗資料比對時，其試驗結果 <u>之所有成人身體部位及兒童相關動態試驗分數應達原試驗結果之 85%，且結構狀態或安全配備性能與原始試驗結果相同</u> ，惟若不符合前述規定者，車輛業者應向執行機構說明其差異性。						
	1.3.6 共用星級評等規定 <u>申請共用星級評等之車款未符合表 1 至表 4 規定者，應額外提交佐證資料。前述佐證資料係指依本規章執行之試驗數據。除表 1 至表 4 要求應執行正式試驗外，受評車輛業者得提供內部數據。</u> <u>表 1：成人保護</u> <table><tr><th></th><th><u>確認項目</u></th><th><u>說明</u></th></tr><tr><td>a)</td><td><u>車身式樣(兩側車門數相同)</u></td><td><u>受評車輛業者應提供第一排座椅安全帶固定點之結構圖(非後排座椅安全帶固定點)，證明駕駛座安全帶上部固定點後方 500mm 處之橫向垂直面之前方設計及結構相同，以確保其碰撞性能(Crashworthiness)。</u> <u>若前方設計或結構有差異者，例如受驗車輛為內燃機，但共用星級評等對象為電動車者(前方結構設計用於容納電器設備)，受評車輛業者得申請共用星級評等，惟執行機構得依其差異要求額外執行試驗項目，以確保其碰撞性能無差異。</u></td></tr></table>		<u>確認項目</u>	<u>說明</u>	a)	<u>車身式樣(兩側車門數相同)</u>	<u>受評車輛業者應提供第一排座椅安全帶固定點之結構圖(非後排座椅安全帶固定點)，證明駕駛座安全帶上部固定點後方 500mm 處之橫向垂直面之前方設計及結構相同，以確保其碰撞性能(Crashworthiness)。</u> <u>若前方設計或結構有差異者，例如受驗車輛為內燃機，但共用星級評等對象為電動車者(前方結構設計用於容納電器設備)，受評車輛業者得申請共用星級評等，惟執行機構得依其差異要求額外執行試驗項目，以確保其碰撞性能無差異。</u>
	<u>確認項目</u>	<u>說明</u>					
a)	<u>車身式樣(兩側車門數相同)</u>	<u>受評車輛業者應提供第一排座椅安全帶固定點之結構圖(非後排座椅安全帶固定點)，證明駕駛座安全帶上部固定點後方 500mm 處之橫向垂直面之前方設計及結構相同，以確保其碰撞性能(Crashworthiness)。</u> <u>若前方設計或結構有差異者，例如受驗車輛為內燃機，但共用星級評等對象為電動車者(前方結構設計用於容納電器設備)，受評車輛業者得申請共用星級評等，惟執行機構得依其差異要求額外執行試驗項目，以確保其碰撞性能無差異。</u>					

修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章		
	b)	<u>車身式樣(兩側車門數不同)</u>	1. <u>兩側車門數量與原始受驗車輛不同，例如三門/五門，惟車輛前方結構之碰撞性能相同者，應依以下原則額外提交側方撞擊、側方立柱撞擊試驗佐證資料。</u> (1) <u>廠牌及車型名稱相同者，得提交內部試驗數據。</u> (2) <u>廠牌相同、車型名稱不同者，例如共生車型，應執行TNCAP正式試驗若成人及兒童人偶之試驗結果與原始受驗車輛相當，則原始評等結果得適用於其他車款或共生車型。</u> 2. <u>後排座椅外形或H點與受驗車款不同者，可能須額外提交資料佐證其與前方全寬撞擊試驗之等效性能。</u>
	c)	<u>空車重量</u>	1. <u>允許與前方偏置撞擊試驗之受驗車輛重量差異未逾±10%，且提供之車體不得被變更致使有不穩定現象。另車體雖未經變更，惟經查有不穩定之現象者，應額外提交佐證資料。</u> 2. <u>申請之車款最大空車重量(即包括所有選配、安全相關或其他配備)與前方偏置撞擊試驗之受驗車輛差異介於±10%~20%間，應提交前方偏置撞擊、側方撞擊、側方立柱撞擊內部試驗數據。</u> 3. <u>申請之車款最大空車重量與前方偏置撞擊之受驗車輛差異逾±20%，受評車輛業者應額外於</u>

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			<u>TNCAP認可實驗室執行前方偏置撞擊試驗、側方撞擊試驗及側方立柱撞擊正式試驗。</u>
	d)	<u>引擎 (汽缸總排氣量/ 汽缸配置/ 進氣/ 缸體尺寸/ 能源種類)</u>	1. <u>針對內燃機部分，允許相同之汽缸體尺寸及配置，無需考慮汽缸總排氣量、進氣及能源種類。試驗過程，如可妥善控制受驗車輛腳踏區及踏板侵入量，則可接受引擎室額外之組件，例如LPG轉換器、渦輪增壓器。即駕駛腿部獲得4分且沒有發生腳踏區破裂情況。</u> 2. <u>受評車輛業者如無額外提供佐證資料(內部試驗或TNCAP正式前方偏置撞擊試驗)，則四缸引擎試驗結果不適用V6引擎，V6引擎試驗結果不適用於V8引擎，反之亦然。</u> 3. <u>原始受驗車款為內燃機者，其試驗結果不得適用於純電動車及混合動力車款。純電動車及混合動力車款應額外執行TNCAP正式前方偏置撞擊及側方立柱撞擊試驗試驗。另純電動車試驗過程應額外確認相關參數，例如電池完整性。</u>
	e)	<u>變速箱 (手排或自排/ 檔位數)</u>	<u>可接受任何型式之變速箱。</u>

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	f)	<u>驅動輪 (4x4/4x2/前輪驅動/後輪驅動)</u>	1. <u>由於後傳動系統影響，受評車輛業者如無額外提供前方偏置撞擊試驗佐證資料，兩輪(前或後輪)驅動試驗結果不得與四輪驅動車款之試驗結果相互引用。同樣地，如無其他佐證資料，則前輪驅動結果亦不得與後輪驅動結果相互引用。</u> 2. <u>側方撞擊及側方立柱撞擊試驗可接受驅動輪之差異。</u>
	g)	<u>車身高度 (例如:輪弧距地高)及輪胎直徑</u>	<u>原則上，前方偏置撞擊及側方撞擊試驗可接受與受驗車款之車身高度差異±50mm。惟受評車輛業者應提交數據證明前述試驗中關鍵結構相對於可變形元件之位置。</u> <u>主要查驗官(Lead Inspector)得要求出具額外之佐證資料。任何情況下，若車身高度較受驗車款低50mm以上時，應額外提交側方撞擊試驗佐證資料。</u>
	h)	<u>軸距</u>	<u>可接受軸距差異±10%。軸距差異逾±10%時，應額外提交前方偏置撞擊試驗試驗佐證資料。</u>
	i)	<u>乘員束縛系統</u>	<u>座椅設計上應具有相似束縛相關之特性，例如防淺滑座椅底板。座椅飾墊(Upholstery)及調整功能得有差異。若束縛系統有差異者，應視其差異內容提交佐證資料。</u>

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	j)	<u>鞭甩</u>	1. <u>可接受座椅表面(面料或填充材料)之差異。座椅結構、安裝方式或座椅幾何有差異時(除易壓縮的材質外)，應額外提供靜、動態鞭甩試驗佐證資料。可接受電動/記憶及手動控制之差異。</u> 2. <u>駕駛座椅後方結構差異時，受評車輛業者應額外提供佐證資料證明此機構設計有充裕的操作空間以達成抑制鞭甩傷害。例如，如無額外之動態鞭甩試驗佐證資料，則雙廂式鞭甩試驗結果不適用於單廂式車款。</u>
	k)	<u>第三排座椅</u>	1. <u>第三排座椅應執行TNCA正式後座鞭甩、CRS安裝及安全帶提醒裝置評等。另前述任一項評等分數較原始受驗車款低時，應將評等較差之車款分數使用於：</u> (1) <u>採用共同評等之車款(TNCAP網站)。</u> (2) <u>採用共同評等之共生車型(TNCAP網站)。</u> <u>TNCAP網站採單獨方式公告之共生車型，應依前述方式呈現評等結果。</u> 2. <u>第二排座椅H點與受驗車款有差異者，受評車輛業者應額外提交資料佐證其與前方偏置撞擊及側方撞擊試驗之等效性能。</u>

修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章		
	1)	<u>緊急煞車輔助系統(市區道路)</u>	1. <u>原始評等時已提交節點分數者(例如:2022年評等), 受評車輛業者得再提交修改後之節點分數並佐證新車款或共生車型之等效性能。TNCAP 得要求額外之試驗, 以確認修改後之節點分數。</u> 2. <u>未提交節點分數者, 則該車款應使用與原始受驗車款相同之組件、人機介面及軟體。</u> 3. <u>共用原始受驗車款之星級評等應符合下列規定:</u> (1) <u>該系統應與TNCAP受驗車款具相同廠牌、型式及系列之功能組件, 例如光達、雷達發射器與接受器、以及單眼(Mono)或立體攝影機。</u> (2) <u>緊急煞車輔助系統之軟體應與TNCAP受驗車款相同。</u> (3) <u>所有發射器、接受器及攝影機位置應與TNCAP受驗車款相同。</u> <u>未符合上述規定者, 受評車輛業者應額外提交緊急煞車輔助系統試驗資料證明該系統具備與TNCAP受驗車款相同系統或更佳之性能。</u>

表 2：兒童保護

	<u>確 認 項 目</u>	<u>說 明</u>
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修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章		
	a)	<u>後排長條型座椅外型</u>	<u>後排座椅外型、型式或H點與受驗車款有差異者，受評車輛業者應提交前述差異之數據，並可能須額外提供資料證明其與兒童動態試驗及CRS安裝之等效性能。</u>
	b)	<u>安全帶預負載裝置及張力限制裝置</u>	<u>後排座椅束縛系統與受驗車款有差異者，受評車輛業者應提交資料證明其與兒童動態試驗及CRS安裝之等效性能。</u>
	c)	<u>第三排座椅</u>	<u>第三排座椅與受驗車款有差異者，應執行TNCAP正式CRS安裝評等。結果呈現方式請參考表1、成人保護(第三排座椅說明)。</u>
	<u>表 3：行人保護</u>		
		<u>確認項目</u>	<u>說明</u>

修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章		
	a)	<u>頭 部 衝 擊區</u>	1. <u>原始評等時已提交頭部模型試驗網格點者，受評車輛業者應再次提交共生車型及其他車款修改之網格點。TNCAP得額外要求試驗確認部分網格點位置。</u> 2. <u>網格點與原始提交有差異者：</u> (1) <u>前方車蓋下方之間隙小於原始受驗車款，且前方車蓋外表面間隙小於50mm者，應額外提交行人頭部衝擊試驗佐證資料。</u> (2) <u>成人及兒童頭部衝擊區內(及前方車蓋外表面下方深度50mm)之組件剛性可能大於原始受驗車款者，應出提交關佐證資料。</u> 3. <u>原始評等如配置主動式行人保護系統者，例如開展式前方車蓋，則應針對未配置此系統之車款執行TNCAP正式試驗。</u>
	b)	<u>上 腿 部 衝擊區</u>	<u>前方車蓋前緣幾何差異、或規定區域內之組件剛性可能大於原始受驗車款者，受評車輛業者應額外提交上腿部衝擊試驗之佐證資料。</u>
	c)	<u>腿 部 衝 擊區</u>	<u>前保險桿幾何差異、或規定區域內之組件剛性可能大於原始受驗車款者，受評車輛業者應額外提交腿部衝擊試驗之佐證資料。</u>

修訂 TNCAP 條文草案(第三版)		對應 TNCAP 第二版規章	
	d)	<u>緊急煞車輔助系統(弱勢道路使用者)</u>	1. <u>原始受驗車款於緊急煞車輔助系統(弱勢道路使用者)獲得分數者，其他車款應配置與TNCAP原始受驗車款相同之組件、人機介面及軟體。</u> 2. <u>共用原始受驗車款之星級評等應符合下列規定：</u> (1) <u>該系統應與TNCAP受驗車款具相同廠牌、型式及系列之功能組件，例如光達、雷達發射器與接受器、以及單眼(Mono)或立體攝影機。</u> (2) <u>緊急煞車輔助系統之軟體應與TNCAP受驗車款相同。</u> (3) <u>所有發射器、接受器及攝影機位置應與TNCAP受驗車款相同。</u> <u>未符合上述規定者，受評車輛業者應額外提交緊急煞車輔助系統(弱勢道路使用者)試驗資料，證明該系統具備與TNCAP受驗車款相同系統或更佳之性能。</u>
	e)	<u>車身高度</u>	<u>行人保護之衝擊點係依據車身高度訂定之。車身高度與原始受驗車款差異逾±50mm，受評車輛業者應額外提交所有行人試驗之佐證資料。</u>
	表 4：安全輔助		
	<u>確認項</u>	<u>說明</u>	

修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章		
		<u>目</u>	
	a)	<u>車速輔助系統</u>	<u>原始受驗車款於下列任一項功能獲得分數者，其他車款應配置與TNCAP原始受驗車款相同之組件、人機介面及軟體。</u> (1) <u>攝影機為主之車速限制資訊機能(SLIF)</u> (2) <u>數位地圖為主之車速限制資訊機能(SLIF)</u> (3) <u>攝影機與數位地圖整合系統</u> (4) <u>手動車速輔助 (MSA) 之車速警示功能，例如聽覺警示。</u> (5) <u>手動車速輔助(MSA) 之車速限制功能</u> (6) <u>智能車速輔助(ISA).</u> <u>未符合上述規定者，受評車輛業者應額外提交車速輔助試驗之佐證資料。</u>

修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章		
	b)	<u>緊急煞車輔助系統(快速道路)</u>	1. <u>原始受驗車款於緊急煞車輔助系統獲得分數者，其他車款應配置與TNCAP原始受驗車款相同之組件、人機介面及軟體。</u> 2. <u>共用原始受驗車款之星級評等應符合下列規定：</u> (1) <u>該系統應與TNCAP受驗車款具相同廠牌、型式及系列之功能組件，例如光達、雷達發射器與接受器、以及單眼(Mono)或立體攝影機。</u> (2) <u>緊急煞車輔助系統之軟體應與TNCAP受驗車款相同或更新版次。</u> (3) <u>所有發射器、接受器及攝影機位置應與TNCAP受驗車款相同。</u> <u>未符合上述規定者，受評車輛業者應額外提交緊急煞車輔助系統(快速道路)試驗資料，證明該系統具備與TNCAP受驗車款相同系統或更佳之性能。</u>
	c)	<u>車道輔助系統</u>	<u>原始受驗車款於車道輔助系統獲得分數，其他車款應配置與TNCAP受驗車款相同系統型式之組件、人機介面與軟體，例如LDW/LKA。未符合前述規定者，受評車輛業者應額外提交車道輔助試驗之佐證資料。</u>

1.4 車型挑選提名、自費申請評等、車輛規格及試驗管理規章

Euro NCAP Vehicle Selection, Specification, Testing and Retesting Protocol Version 8.1

修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章
1.4.2.3 政府預算提名標準配備車型評等 1.4.2.3.1 執行機構依政府預算提名標準配備車型與車輛業者自費申請評等同車型時，或車輛業者有意願承接政府預算提名標準配備車型時，優先以車輛業者自費申請辦理… 1.4.2.3.2 執行機構提名之標準配備車型應於交通部核定之期限內完成評等。 <u>1.4.2.3.3 執行機構得與受評車輛業者協商辦理「部分自費評等(Shared sponsorship)」，由車輛業者負擔部分費用，其餘費用由政府預算負擔。受評車輛業者得與執行機構協商選定執行試驗之檢測機構試驗與發布日程。除前述事項外，其餘各項作業均應依政府預算提名車型評等之規範。</u>	1.4.2.3 政府預算提名標準配備車型評等 1.4.2.3.1 執行機構依政府預算提名標準配備車型與車輛業者自費申請評等同車型<u>之基本安全等級配備車款相同</u>時，或車輛業者有意願承接政府預算提名標準配備車型時，優先以車輛業者自費申請辦理… 1.4.2.3.2 執行機構提名之標準配備車型應於交通部核定之期限內完成評等。
1.4.3.1 基本安全等級配備之受驗車款選定原則 … 1.4.3.1.3 基本安全等級配備不得為選配之安全配備。<u>付費訂閱(Paid subscription basis)之安全配備，不得視為標準配備，且不納入評等計分。受評車輛業者得向執行機構申請將該配備納入評等計分，惟自評等結果公告起應提供至少六年免費訂閱服務。</u> 1.4.3.1.4 惟如受評車型之選配配備可能影響原本車室內可容納特定乘客之空間(如前方空氣囊)，或受評車型得選配與評等相關之配備(如第三排座椅)等，TNCAP 得評等其他配備等級之車款，且該受	1.4.3.1 基本安全等級配備之受驗車款選定原則 … 1.4.3.1.3 基本安全等級配備不得為選配之安全配備。 1.4.3.1.4 惟如受評車型之選配配備可能影響原本車室內可容納特定乘客之空間(如前方空氣囊)，或受評車型得選配與評等相關之配備(如第三排座椅)等，TNCAP 得評等其他配備等級之車款，且該受

修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章
評業者應提供至少一台具有第三排座椅之車輛，以利執行安全帶提醒裝置、兒童保護裝置安裝性以及後座鞭甩等試驗。 1.4.3.1.5 惟若受評車型總覽中有多車款同屬於基本安全等級配備者，執行機構得自前述車款中挑選受驗車款。 <u>1.4.3.1.6 執行機構僅以單一受驗車款執行試驗，無須考慮其他車款於特定試驗情境下是否為最嚴苛條件（Worst-case）。</u>	評業者應提供至少一台具有第三排座椅之車輛，以利執行安全帶提醒裝置、兒童保護裝置安裝性以及後座鞭甩等試驗。 1.4.3.1.5 惟若受評車型總覽中有多車款同屬於基本安全等級配備者，執行機構得自前述車款中挑選受驗車款。
1.4.3 受驗車款規格 ... 1.4.3.2 座椅鞭甩為單件試驗項目，受評車輛業者應提交車型總覽之所有座椅詳細資料，並說明基本安全等級車款駕駛座椅與第一排乘客座椅之鞭甩試驗保護性能差異，再由執行機構選擇駕駛座椅或第一排乘客座椅進行試驗。上述座椅如無顯著差異者，執行機構得<u>優先挑選駕駛座椅</u>；如有顯著差異者，則應選擇保護能力較弱之座椅做為試驗對象。	1.4.3 受驗車款規格 ... 1.4.3.2 座椅鞭甩為單件試驗項目，受評車輛業者應提交車型總覽之所有座椅詳細資料，並說明基本安全等級車款駕駛座椅與第一排乘客座椅之鞭甩試驗保護性能差異，再由執行機構選擇駕駛座椅或第一排乘客座椅進行試驗。上述座椅如無顯著差異者，執行機構得<u>隨機挑選</u>；如有顯著差異者，則應選擇保護能力較弱之座椅做為試驗對象。
1.4.4 受驗車輛選擇與狀態 1.4.4.1 為確保星級評等之有效性，受驗車輛應與市售車輛相同且具相同生產狀態。所有受驗車輛係由執行機構以匿名方式至受評車輛業者之經銷商據點購買，或受評車輛業者應依執行機構要求提供車輛製造廠、整備廠(Pre-Delivery Inspection, PDI)或經銷商之車身號碼清冊，執行機構得參考該清冊並隨機前往挑選購買受驗車輛。 <u>受驗車輛應搭載該車型之最新軟體版次，包括主、被動安全系統，例如空氣囊控制模組、緊急煞車輔助系統、車道輔助系統等。車輛</u>	1.4.4 受驗車輛選擇與狀態 1.4.4.1 為確保星級評等之有效性，受驗車輛應與市售車輛相同且具相同生產狀態。所有受驗車輛係由執行機構以匿名方式至受評車輛業者之經銷商據點購買，或受評車輛業者應依執行機構要求提供車輛製造廠、整備廠(Pre-Delivery Inspection, PDI)或經銷商之車身號碼清冊，執行機構得參考該清冊並隨機前往挑選購買受驗車輛。

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<u>業者應於配備矩陣表中說明主、被動安全系統所涉之軟體版次，執行機構應將內容揭露於 TNCAP 網站。</u>	
1.4.4.3.2 鞭甩試驗至少需要 <u>2</u> 張座椅，而行人保護試驗需求零件及數量應由檢測機構與受評車輛業者討論確認之，再由執行機構向受評車輛業者購置，惟鞭甩試驗座椅及行人保護試驗耗材得與受驗車輛分開購置。受評車輛業者如提供不切實際之高額報價或交貨期過長，<u>TNCAP 得取用執行主、被動安全試驗之受驗車輛座椅辦理試驗，惟若最終仍無法進行鞭甩試驗</u>，執行機構得不執行該項試驗並給予 0 分。	1.4.4.3.2 鞭甩試驗至少需要 <u>3</u> 張座椅，而行人保護試驗需求零件及數量應由檢測機構與受評車輛業者討論確認之，再由執行機構向受評車輛業者購置，惟鞭甩試驗座椅及行人保護試驗耗材得與受驗車輛分開購置。受評車輛業者如提供不切實際之高額報價或交貨期過長，執行機構得不執行該項試驗並給予 0 分。
1.4.5 試驗、重新試驗與重新評等管理 1.4.5.1 試驗管理 <u>1.4.5.1.1 自費申請評等之車輛業者得委由交通部指定之檢測機構執行試驗，並經執行機構同意。</u> <u>政府預算或車輛業者自費申請評等車型至多得委由兩家交通部指定之檢測機構辦理試驗，且所有碰撞保護試驗項目須於同一家機構執行(遠端側方模擬碰撞及虛擬遠端側方模擬碰撞試驗不在此限)，所有安全駕駛與碰撞預防試驗須於另一家機構執行。另執行機構得視情況同意部分試驗項目委由第三家交通部指定之檢測機構辦理。</u> 1.4.5.1.2 受驗車輛由執行機構依 1.4.4.2 規定安排運送至檢測機構執行試驗。 1.4.5.1.3 檢測機構應依照執行機構最新公告之規章內容執行試驗。	1.4.5 試驗、重新試驗與重新評等管理 1.4.5.1 試驗管理 1.4.5.1.1 受驗車輛由執行機構依 1.4.4.2 規定安排運送至檢測機構執行試驗。 1.4.5.1.2 檢測機構應依照執行機構最新公告之規章內容執行試驗。

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1.4.5.1.4 試驗前，檢測機構應確實查檢受驗車輛及其相關零件是否符合 1.4.3 受驗車輛規格之規定。 1.4.5.1.5 執行機構或檢測機構於試驗或評等過程中，如發現有未符合 TNCAP 規章致影響評等結果時應暫停試驗或評等。經執行機構及檢測機構確認暫停原因已排除，應恢復試驗、評等或必要之處置。試驗期程如需異動，檢測機構應於試驗前一週通知執行機構，經確認同意後更新試驗期程。 1.4.5.1.6 檢測機構應於各項試驗完成後 12 日內提供檢測數據及出具檢測報告予執行機構，並至少保存 6 年。另除電動車輛外，其餘試驗後車輛至少留存 6 個月。	1.4.5.1.3 試驗前，檢測機構應確實查檢受驗車輛及其相關零件是否符合 1.4.3 受驗車輛規格之規定。 1.4.5.1.4 執行機構或檢測機構於試驗或評等過程中，如發現有未符合 TNCAP 規章致影響評等結果時應暫停試驗或評等。經執行機構及檢測機構確認暫停原因已排除，應恢復試驗、評等或必要之處置。試驗期程如需異動，檢測機構應於試驗前一週通知執行機構，經確認同意後更新試驗期程。 1.4.5.1.5 檢測機構應於各項試驗完成後 12 日內提供檢測數據及出具檢測報告予執行機構，並至少保存 6 年。另除電動車輛外，其餘試驗後車輛至少留存 6 個月。
1.4.5.3 <u>重新評等</u> <u>針對已取得星級評等之車型，受評車輛業者得於同一版規章適用期間內，自費申請重新評等以反映其車輛安全性能之改善成果，且應符合下列規定。</u> (1) <u>受評車輛業者應提交佐證資料說明車輛安全性已有顯著提升，例如安全配備或系統性能強化，或將原先未提供或選配之安全配備改為標準配備。</u> (2) <u>安全性提升係指預估四大安全之任一領域(安全駕駛、碰撞預防、碰撞保護或碰撞後安全)之得分率增加達 10%以上。</u> <u>若經重新評等作業後，受評車型之任一安全領域得分率增幅未達 10%以上者，則該重新評等結果無效且不予對外公告(含 TNCAP 網站)，該車型維持原核定之星級評等與得分，且所衍生費用均由業者負擔。另若於 TNCAP 規章改版後申請重新評等，則不受前項限</u>	1.4.5.3 <u>車輛業者得自費申請重新評等以反映改善後之車輛安全性，申請者應檢附安全性提升佐證資料予執行機構，例如改善膝部保護、空氣囊或配置主動安全系統，經執行機構同意後得辦理重新評等。</u>

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<u>制，且應依 1.4.1.3 規定辦理。</u>	

3.11 緊急煞車輔助系統(弱勢道路使用者)試驗規章

Euro NCAP Test Protocol – AEB/LSS VRU systems Version 4.5.1

Technical Bulletin TB037 Test of Emergency Steering Support Systems Version 1.0

Technical Bulletin TB038 Robot Friction Measurement for LSS Testing Version 1.1

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2 DEFINITIONS ... Autonomous Emergency Steering (AES) – steering that is applied automatically by the vehicle in response to the detection of a likely collision to steer the vehicle and potentially avoid the collision. Emergency Steering Support (ESS) – a system that supports the driver steering input in response to the detection of a likely collision to alter the vehicle path and potentially avoid a collision. Vehicle width – the widest point of the vehicle ignoring the rear-view mirrors, side marker lamps, tyre pressure indicators, direction indicator lamps,	2 DEFINITIONS ... Vehicle width – the widest point of the vehicle ignoring the rear-view mirrors, side marker lamps, tyre pressure indicators, direction indicator lamps,	3.11.1 名詞釋義 ... <u>3.11.1.4 自動緊急轉向輔助系統 (Autonomous Emergency Steering, AES)：車輛偵測到可能發生碰撞情況下，系統自動介入轉向以使車輛繞過前方車輛並避免碰撞情事發生。</u> <u>3.11.1.5 緊急轉向輔助系統 (Emergency Steering Support, ESS)：車輛偵測到可能發生碰撞情況下，系統介入輔助駕駛進行轉向，致使改變車輛行駛路徑並避免碰撞情事發生。</u> <u>3.11.1.6 車輛寬度(Vehicle width)：車輛最大寬度不包括後視鏡、側方標識燈、胎壓偵測裝置、方向燈、位置燈、軟式擋泥板及位於地面接觸點正上</u>	3.11.1 名詞釋義 ... <u>3.11.1.4 車輛寬度(Vehicle width)：車輛最大寬度不包括後視鏡、側方標識燈、胎壓偵測裝置、方向燈、位置燈、軟式擋泥板及位於地面接觸點正上</u>

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position lamps, flexible mud-guards and the deflected part of the tyre side-walls immediately above the point of contact with the ground.	position lamps, flexible mud-guards and the deflected part of the tyre side-walls immediately above the point of contact with the ground.	方之輪胎胎壁(side-wall)最突出部分。	方之輪胎胎壁(side-wall)最突出部分。
Car-to-Pedestrian – a collision between a vehicle and an adult or child pedestrian in its path, when no braking and/or steering action is applied.		<u>3.11.1.7 車對行人：當車輛行駛路徑上有成人或兒童行人，且未採取煞車及/或轉向動作時，車輛與行人可能發生碰撞之情境。</u>	
Car-to-Bicyclist – a collision between a vehicle and an adult bicyclist in its path, when no braking and/or steering is applied.		<u>3.11.1.8 車對自行車騎士：當車輛行駛路徑上有成人自行車騎士，且未採取煞車及/或轉向動作時，車輛與自行車騎士可能發生碰撞之情境。</u>	
Car-to-Motorcyclist – a collision between a vehicle and a Motorcyclist in its path, when no braking and/or steering is applied.		<u>3.11.1.9 車對機車騎士：當車輛行駛路徑上有機車騎士，且未採取煞車及/或轉向動作時，車輛與機車騎士可能發生碰撞之情境。</u>	
Vehicle under test (VUT) – means the vehicle tested according to this protocol with a pre-crash collision mitigation or avoidance system on board.	Vehicle under test (VUT) – means the vehicle tested according to this protocol with a pre-crash collision mitigation or avoidance system on	<u>3.11.1.10 受驗車輛(Vehicle under test, VUT)：係指配備減緩碰撞或預防碰撞系統，並依據此規章進行試驗之車輛。</u>	<u>3.11.1.14 受驗車輛(Vehicle under test, VUT)：係指配備減緩碰撞或預防碰撞系統，並依據此規章進行試驗之車輛。</u>

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	board.		
Euro NCAP Pedestrian Target (EPTa) – means the articulated adult pedestrian target used in this protocol as specified in ISO 19206-2 : 2018	Euro NCAP Pedestrian Target (EPTa) – means the adult pedestrian target used in this protocol as specified in the Articulated Pedestrian Target Specification document version 2.0.	3.11.1.11 目標成人行人(EPTa): 係指規範於 ISO 19206-2 : 2018 之關節式目標成人行人。	3.11.1.15 目標成人行人(EPTa): 使用目標關節式行人規格文件 2.0 版本之目標成人行人。
Euro NCAP Child Target (EPTc) – means the articulated child pedestrian target used in this protocol as specified in ISO 19206-2 : 2018	Euro NCAP Child Target (EPTc) – means the child pedestrian target used in this protocol as specified in the Articulated Pedestrian Target Specification document version 2.0.	3.11.1.12 目標兒童行人(EPTc): 係指規範於 ISO 19206-2 : 2018 之關節式目標兒童行人。	3.11.1.16 目標兒童行人(EPTc): 使用目標關節式行人規格文件 2.0 版本之目標兒童行人。
Euro NCAP Bicyclist Target (EBTa) – means the adult bicyclist and bike target used in this protocol as specified in ISO 19206-4 : 2020	Euro NCAP Bicyclist and bike Target (EBT) – means the bicyclist and bike target used in this protocol as specified in the Bicyclist Target Specification document version 1.0.	3.11.1.13 目標自行車騎士(EBTa): 係指規範於 ISO 19206-4 : 2020 之目標自行車騎士。	3.11.1.17 目標自行車騎士(EBT): 使用目標自行車騎士規格文件 1.0 版本之目標自行車騎士。
Euro NCAP Motorcyclist Target (EMT) – means the Motorcyclist target used in this protocol as specified in the deliverable D2.1 of the MUSE project		3.11.1.14 目標機車騎士(EMT): 係採用 MUSE 計畫 D2.1 文件 (Fritz 及 Wimmer 2019) 之目標機車騎士, 並將於發布時該規格由 ISO 19206-5 所取	

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(Fritz and Wimmer 2019) which at time of publication is to be replaced with ISO 19206-5. Real Motorcycle – Means a motorcyclist target that can be used in the Blind-Spot Monitoring Tests of this protocol, as an alternative to the EMT. The Real Motorcycle shall be a type approved two-wheeled motorcycle, with a maximum speed of at least 80km/h by design, without front fairing or windshield. It shall closely resemble the EMT (as specified in section 2.1 of deliverable D2.1 of the MUSE project), thus staying within the mean dimensions of the most registered middleweight naked motorcycles in Europe (i.e. wheelbase >1405mm. and <1445mm.). Time To Collision (TTC) – means the remaining time before the VUT strikes the test target, assuming that the VUT		<u>代。</u> <u>3.11.1.15 真實機車(Real Motorcycle)：</u> <u>係指適用於此規章盲點偵測試驗之機車騎士目標物，可作為目標機車騎士之替代方案。真實機車應經型式認證的兩輪機器腳踏車，最高車速至少 80km/h，且無前整流罩(fairing)或擋風玻璃。其外觀應與目標機車騎士高度相似(如 MUSE 計畫 D2.1 文件第 2.1 節所述)，軸距應大於 1405mm 且小於 1445mm。</u> <u>3.11.1.16 碰撞時間(Time To Collision, TTC)：</u>若受驗車輛與<u>試驗</u>目標皆依其速度行進，受驗車輛會碰撞<u>試驗</u>目	
	Time To Collision (TTC) – means the remaining time before the VUT strikes the EPT, assuming that the VUT and	<u>3.11.1.18 碰撞時間(Time To Collision, TTC)：</u>若受驗車輛與目標<u>行人</u>皆依其速度行進，受驗車輛會碰撞目標<u>行</u>	

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and test target would continue to travel with the speed it is travelling.	EPT would continue to travel with the speed it is travelling.	標之預估時間值。	<u>人</u> 之預估時間值。
T_{AEB} – means the time where the AEB system activates. Activation time is determined by identifying the last data point where the filtered acceleration signal is below -1 m/s^2 , and then going back to the point in time where the acceleration first crossed -0.3 m/s^2	T_{AEB} – means the time where the AEB system activates. Activation time is determined by identifying the last data point where the filtered acceleration signal is below -1 m/s^2 , and then going back to the point in time where the acceleration first crossed -0.3 m/s^2	3.11.1.17 緊急煞車輔助系統觸發時間點(T _{AEB})：觸發時間點的定義方式為找出最後一個濾波後加速度信號低於 -1m/s^2 的數據點，再往回找出加速度首次達到 -0.3m/s^2 的數據點，該點之時間即為觸發時間點。	3.11.1.19 緊急煞車輔助系統觸發時間點(T _{AEB})：觸發時間點的定義方式為找出最後一個濾波後加速度信號低於 -1m/s^2 的數據點，再往回找出加速度首次達到 -0.3m/s^2 的數據點，該點之時間即為觸發時間點。
T_{FCW} – means the time where the audible warning of the FCW starts. The starting point is determined by audible recognition.	T_{FCW} – means the time where the audible warning of the FCW starts. The starting point is determined by audible recognition.	3.11.1.18 前方碰撞預警系統觸發時間點(T _{FCW})：前方碰撞預警系統之聲音警示觸發的時間，起始點以辨識到聲音作判定。	3.11.1.20 前方碰撞預警系統觸發時間點(T _{FCW})：前方碰撞預警系統之聲音警示觸發的時間，起始點以辨識到聲音作判定。
Lane Support System (LSS) – a system that correct the vehicle heading to keep the vehicle within its driving lane and/or warns the driver.		3.11.1.19 車道輔助系統(Lane Support System, LSS)：車輛偵測到即將偏離目前行駛之車道邊界標線時，所自動施加之方向性修正。	
Emergency Lane Keeping (ELK) – default On heading correction that is applied automatically by the vehicle in		3.11.1.20 緊急車道維持輔助系統(Emergency Lane Keeping, ELK)：預設啟用(default On)，當車輛偵測到即	

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response to the detection of the vehicle that is about to drift beyond a solid line marking, the edge of the road or into oncoming or overtaking traffic in the adjacent lane. V_{impact} – means the speed at which the profiled line around the front or rear end of the VUT coincides with the virtual box around the test targets (platform not included in the virtual box) EPTa, EPTc, EBTa and EMT as shown in the right part of the figures below.  $V_{\text{rel_test}}$ – means the relative speed between the VUT and the test target (EPT, EBT or EMT) by subtracting the	V_{impact} – means the speed at which the profiled line around the front end of the VUT coincides with the square box around the EPTa, EPTc and EBT as shown in the figure below. 	<u>將偏離車道並跨越實線車道標線、道路邊緣或相鄰車道對向來車或車道超車等情境，所自動施加轉向修正。</u> 3.11.1.21 碰撞速度(V_{impact})：受驗車輛之車頭標示線或<u>車輛後端</u>與測試目標<u>(平台不包含虛擬正方形)</u>周圍的虛擬正方形範圍碰撞時的速度，EPTa、EPTc、<u>EBTa 及 EMT</u> 如下圖所示。 (請參末頁圖示) 3.11.1.22 試驗相對速度($V_{\text{rel_test}}$)：係指試驗開始時，受驗車輛及試驗目標(EPT、EBT 或 EMT)之相對速度，其	3.11.1.21 碰撞速度(V_{impact})：受驗車輛之車頭標示線與目標成人行人(EPTa)、目標兒童行人(EPTc)以及目標自行車騎士(EBT)周圍的虛擬正方形範圍碰撞時的速度，如下圖所示。 (請參末頁圖示)

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longitudinal velocity of the test target from that of the VUT at the start of test. V_{rel_impact} – means the relative speed at which the VUT hits the test target (EPT, EBT or EMT) by subtracting the longitudinal velocity of the test target from V_{impact} at the time of collision. 2.2 Test Scenarios Car-to-Bicyclist Dooring Adult (CBDA) – a collision between the vehicle’s door (or an occupant exiting a vehicle equipped with a sliding door) and a bicyclist traveling alongside the parked vehicle. Car-to-Pedestrian Farside Adult 50% (CPFA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path running from the farside and the frontal structure of the vehicle strikes the		<u>值為受驗車輛之縱向速度減去試驗目標之縱向速度。</u> <u>3.11.1.23 碰撞相對速度(V_{rel_impact}): 受驗車輛碰撞試驗目標(EPT、EBT 或 EMT)於碰撞瞬間之相對速度，其值為碰撞時受驗車輛之碰撞速度減去試驗目標之縱向速度。</u> <u>3.11.2 試驗情境</u> <u>3.11.2.1 車門開啟自行車騎士碰撞情境 試驗 (Car-to-Bicyclist Dooring Adult, CBDA): 車門開啟(或配備乘客出入之滑門)與沿停車車輛旁行駛之自行車騎士碰撞之情境。</u> <u>3.11.2.2 遠端成人碰撞情境試驗 50% (Car-to-Pedestrian Farside Adult, CPFA): 車輛行進時，前方有成人行人自遠端跑步穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。</u>	
	Car-to-Pedestrian Farside Adult 50% (CPFA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path running from the farside and the frontal structure of the vehicle strikes the		<u>3.11.1.5 遠端成人碰撞情境試驗 50%(Car-to-Pedestrian Farside Adult, CPFA): 車輛行進時，前方有成人行人自遠端跑步穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。</u>

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pedestrian at 50% of the vehicle's width when no braking action is applied.	pedestrian at 50% of the vehicle's width when no braking action is applied.		
Car-to-Pedestrian Nearside Adult 25% (CPNA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied.	Car-to-Pedestrian Nearside Adult 25% (CPNA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied.	3.11.2.3 近端成人碰撞情境試驗 25% (Car-to-Pedestrian Nearside Adult, CPNA-25): 車輛行進時, 前方有成人行人自近端走路穿越其路徑; 若未煞車, 車輛正面寬度百分之 25 處會碰撞行人之情境。	3.11.1.6 近端成人碰撞情境試驗 25%(Car-to-Pedestrian Nearside Adult, CPNA-25): 車輛行進時, 前方有成人行人自近端走路穿越其路徑; 若未煞車, 車輛正面寬度百分之 25 處會碰撞行人之情境。
Car-to-Pedestrian Nearside Adult 75% (CPNA-75) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 75% of the vehicle's width when no braking action is applied.	Car-to-Pedestrian Nearside Adult 75% (CPNA-75) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 75% of the vehicle's width when no braking action is applied.	3.11.2.4 近端成人碰撞情境試驗 75% (Car-to-Pedestrian Nearside Adult, CPNA-75): 車輛行進時, 前方有成人行人自近端走路穿越其路徑; 若未煞車, 車輛正面寬度百分之 75 處會碰撞行人之情境。	3.11.1.7 近端成人碰撞情境試驗 75%(Car-to-Pedestrian Nearside Adult, CPNA-75): 車輛行進時, 前方有成人行人自近端走路穿越其路徑; 若未煞車, 車輛正面寬度百分之 75 處會碰撞行人之情境。
Car-to-Pedestrian Nearside Child	Car-to-Pedestrian Nearside Child	3.11.2.5 近端兒童 障礙物 碰撞情境試驗	3.11.1.8 近端兒童碰撞情境試驗

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Obstructed 50% (CPNCO-50) – a collision in which a vehicle travels forwards towards a child pedestrian crossing its path running from behind and obstruction from the nearside and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.	50% (CPNC-50) – a collision in which a vehicle travels forwards towards a child pedestrian crossing its path running from behind and obstruction from the nearside and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.	驗 50% (Car-to-Pedestrian Nearside Child, CPNCO-50)：車輛行進時，前方有兒童行人自近端有障礙物之後方跑步穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。	50%(Car-to-Pedestrian Nearside Child, CPNC)：車輛行進時，前方有兒童行人自近端有障礙物之後方跑步穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。
Car-to-Pedestrian Longitudinal Adult 25% (CPLA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW.	Car-to-Pedestrian Longitudinal Adult 25% (CPLA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW.	3.11.2.6 前端成人碰撞情境試驗 25% (Car-to-Pedestrian Longitudinal Adult, CPLA-25)：車輛行進時，同前方之成人行人行走方向前進；若未煞車或前方碰撞預警系統警示後，車輛未進行閃避轉向動作，車輛正面寬度百分之 25 處會碰撞行人之情境。	3.11.1.9 前端成人碰撞情境試驗 25%(Car-to-Pedestrian Longitudinal Adult, CPLA-25)：車輛行進時，同前方之成人行人行走方向前進；若未煞車或前方碰撞預警系統警示後，車輛未進行閃避轉向動作，車輛正面寬度百分之 25 處會碰撞行人之情境。
Car-to-Pedestrian Longitudinal Adult	Car-to-Pedestrian Longitudinal Adult	3.11.2.7 前端成人碰撞情境試驗	3.11.1.10 前端成人碰撞情境試驗

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50% (CPLA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 50% of the vehicle’s width when no braking action is applied. Car-to-Pedestrian Turning Adult 50% (CPTA-50) – a collision in which a vehicle turns towards an adult pedestrian crossing its path, walking across a junction (in either the same and opposite direction as the VUT, before the VUT made the turn) and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Reverse Adult/Child moving 50% (CPRA/Cm-50) – a collision in which a vehicle travels rearwards towards an adult or child pedestrian crossing its	50% (CPLA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 50% of the vehicle’s width when no braking action is applied.	50%(Car-to-Pedestrian Longitudinal Adult, CPLA-50)：車輛行進時，同前方之成人行人行走方向前進，若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。 <u>3.11.2.8 轉彎成人碰撞情境試驗</u> <u>50%(Car-to-Pedestrian Turning Adult, CPTA-50)：車輛轉彎穿越交叉路口時，對向有成人行人走路穿越其路徑（車輛轉彎前，行人與測試車輛的行進方向相同或相反）；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。</u> <u>3.11.2.9 倒車成人/兒童移動碰撞情境試驗</u> <u>50%(Car-to-Pedestrian Reverse Adult/Child moving, CPRA/Cm-50)：車輛倒車行進時，後方有成人或兒童行人自近端走路穿越其路徑；若未煞</u>	50%(Car-to-Pedestrian Longitudinal Adult, CPLA-50)：車輛行進時，同前方之成人行人行走方向前進；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。

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path walking from the nearside and the rear structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Reverse Adult/Child stationary (CPRA/Cs) – a collision in which a vehicle travels rearwards towards an adult or child pedestrian standing still and the rear structure of the vehicle strikes the pedestrian at 25, 50 or 75% of the vehicle's width when no braking action is applied. Car-to-Bicyclist Nearside Adult 50% (CBNA-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the nearside and the frontal structure of the vehicle strikes the bicyclist when no braking action is applied.		<u>車，車輛後方寬度百分之 50 處會碰撞行人之情境。</u> <u>3.11.2.10 倒車成人/兒童靜止碰撞情境試驗 (Car-to-Pedestrian Reverse Adult/Child stationary, CPRA/Cs)：車輛倒車行進時，後方有成人或兒童行人站立靜止；若未煞車，車輛後方寬度百分之 25、50 或 75 處會碰撞行人之情境。</u> <u>3.11.2.11 近端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Nearside Adult, CBNA-50)：車輛行進時，前方有自行車騎士自近端騎乘穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>	
	Car-to-Bicyclist Nearside Adult 50% (CBNA-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the nearside and the frontal structure of the vehicle strikes the bicyclist when no braking action is applied.		<u>3.11.1.11 近端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Nearside Adult, CBNA-50)：車輛行進時，前方有自行車騎士自近端騎乘穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>

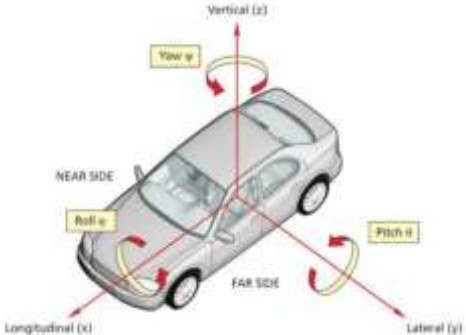
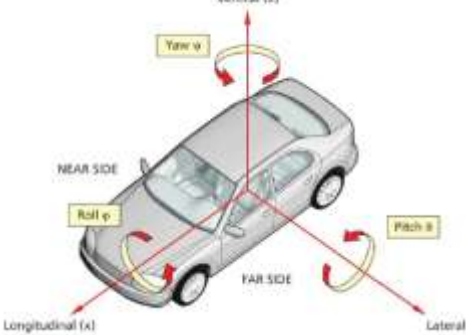
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Car-to-Bicyclist Nearside Adult Obstructed 50% (CBNAO-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the nearside from behind an obstruction and the frontal structure of the vehicle strikes the bicyclist at 50% of the vehicle's width when no braking action is applied.		<u>3.11.2.12 近端自行車騎士障礙物碰撞情境試驗 50%(Car-to-Bicyclist Nearside Adult Obstructed, CBNAO-50): 車輛行進時, 前方有自行車騎士自近端障礙物後方騎乘穿越其路徑; 若未煞車, 車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>	
Car-to-Bicyclist Farside Adult 50% (CBFA-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the farside and the frontal structure of the vehicle strikes the bicyclist at 50% of the vehicle's width when no braking action is applied.		<u>3.11.2.13 遠端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Farside Adult, CBFA-50): 車輛行進時, 前方有自行車騎士自遠端騎乘穿越其路徑; 若未煞車, 車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>	
Car-to-Bicyclist Longitudinal Adult 25% (CBLA-25) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle	Car-to-Bicyclist Longitudinal Adult 25% (CBLA-25) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle	<u>3.11.2.14 前端自行車騎士碰撞情境試驗 25%(Car-to-Bicyclist Longitudinal Adult, CBLA-25): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車或前方碰撞預警系統警示後,</u>	<u>3.11.1.12 前端自行車騎士碰撞情境試驗 25%(Car-to-Bicyclist Longitudinal Adult, CBLA-25): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車或前方碰撞預警系統警示後,</u>

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would strike the cyclist at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW.	would strike the cyclist at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW.	車輛未進行閃避轉向動作，車輛正面寬度百分之 25 處會碰撞自行車騎士之情境。	車輛未進行閃避轉向動作，車輛正面寬度百分之 25 處會碰撞自行車騎士之情境。
Car-to-Bicyclist Longitudinal Adult 50% (CBLA-50) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 50% of the vehicle's width when no braking action is applied.	Car-to-Bicyclist Longitudinal Adult 50% (CBLA-50) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 50% of the vehicle's width when no braking action is applied.	3.11.2.15 前端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Longitudinal Adult, CBLA-50)：車輛行進時，同前方之自行車騎士騎乘方向前進；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。	3.11.1.13 前端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Longitudinal Adult, CBLA-50)：車輛行進時，同前方之自行車騎士騎乘方向前進；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。
Car-to-Bicyclist Turning Adult 50% (CBTA-50) – a collision in which a vehicle turns towards a bicyclist crossing its path, cycling in the opposite direction across a junction and the frontal structure of the vehicle strikes the cyclist at 50% of the vehicle's width when no braking action is applied.		3.11.2.16 轉彎自行車騎士碰撞情境試驗 (Car-to-Bicyclist Turning Adult, CBTA-50)：車輛轉彎穿越交叉路口時，有自行車騎士朝相反方向騎行穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。	

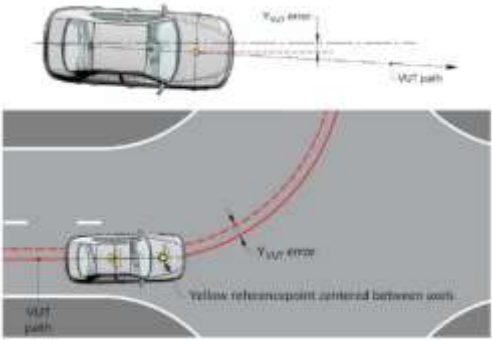
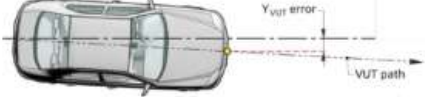
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Car-to-Motorcyclist Rear Stationary (CMR_s) – a collision in which a vehicle travels forwards towards a motorcyclist and the front structure of the vehicle strikes the rear of the motorcycle.		3.11.2.17 機車騎士靜止碰撞情境試驗 (Car-to-Motorcyclist Rear Stationary, CMR_s): 車輛往前行駛撞向前方靜止之機車騎士, 其車輛之前方結構碰撞機車之後方之情境。	
Car-to-Motorcyclist Rear Braking (CMR_b) – a collision in which a vehicle travels forwards towards a motorcyclist that is travelling at constant speed and then decelerates, and the frontal structure of the vehicle strikes the rear of the motorcycle.		3.11.2.18 機車騎士煞車碰撞情境試驗 (Car-to-Motorcyclist Rear Braking, CMR_b): 後方車輛往前行駛接近原以恆定速度行駛而後減速之前方機車騎士, 其車輛之前方結構碰撞機車之後方之情境。	
Car-to-Motorcyclist Front Turn Across Path (CMF_{tap}) – a collision in which a vehicle turns across the path of an oncoming motorcyclist travelling at a constant speed, and the frontal structure of the vehicle strikes the front of the motorcycle.		3.11.2.19 轉彎機車騎士碰撞情境試驗 (Car-to-Motorcyclist Front Turn Across Path, CMF_{tap}): 車輛轉彎穿越並切入對向以恆定速度行駛之機車騎士行駛路徑, 其車輛之前方結構碰撞機車之前方之情境。	
Car-to-Motorcyclist Oncoming (CM_{oncoming}) – a collision in which a		3.11.2.20 對向來車機車騎士碰撞情境試驗 (Car-to-Motorcyclist Oncoming,	

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vehicle drifts out of lane and into the path of a motorcyclist travelling in the opposite direction in the adjacent lane. Car-to-Motorcyclist Overtaking (CM_{overtaking}) – a collision in which a vehicle drifts out of lane and into the path of a motorcyclist travelling in the same direction in the adjacent lane.		<u>CM_{oncoming}</u>)：車輛偏離原車道，並駛入鄰近車道上正朝相反方向(對向)行駛的機車騎士行駛路徑之碰撞情境。 <u>3.11.2.21 車道超車機車騎士碰撞情境試驗(Car-to-Motorcyclist Overtaking, CM_{overtaking})</u>：車輛偏離原車道，並駛入鄰近車道上正朝相同方向行駛的機車騎士行駛路徑之碰撞情境。	
3 REFERENCE SYSTEM 3.1 Convention 3.1.1 For VUT, EPT, EBT and EMT use the convention specified in ISO 8855 : 1991 in which the x-axis points towards the front of the vehicle, the y-axis towards the left and the z-axis upwards (right hand system), with the origin at the most forward point on the centreline of the VUT for dynamic data measurements as shown in Figure 3-1. 3.1.2 Viewed from the origin, roll, pitch	3 REFERENCE SYSTEM 3.1 Convention 3.1.1 For VUT, EPT and EBT use the convention specified in ISO 8855 : 1991 in which the x-axis points towards the front of the vehicle, the y-axis towards the left and the z-axis upwards (right hand system), with the origin at the most forward point on the centreline of the VUT for dynamic data measurements as shown in Figure 1. 3.1.2 Viewed from the origin, roll, pitch	<u>3.11.3 參考系統</u> <u>3.11.3.1 通則</u> <u>3.11.3.1.1</u> 受驗車輛、目標行人、目標自行車騎士 <u>以及目標機車騎士</u> 皆使用 ISO 8855 : 1991 之通則進行動態數據測量。此通則中 X 軸指向車頭、Y 軸指向車輛左側、Z 軸則指向車頂(右手座標系統)，原點則是受驗車輛中線之最前點，如圖 <u>2</u> 所示。 <u>3.11.3.1.2</u> 以原點為中心，翻轉角	<u>3.11.2 參考系統</u> <u>3.11.2.1 通則</u> <u>3.11.2.1.1</u> 受驗車輛、目標行人以及目標自行車騎士皆使用 ISO 8855 : 1991 之通則進行動態數據測量。此通則中 X 軸指向車頭、Y 軸指向車輛左側、Z 軸則指向車頂(右手座標系統)，原點則是受驗車輛中線之最前點，如圖 <u>1</u> 所示。 <u>3.11.2.1.2</u> 以原點為中心，翻轉角

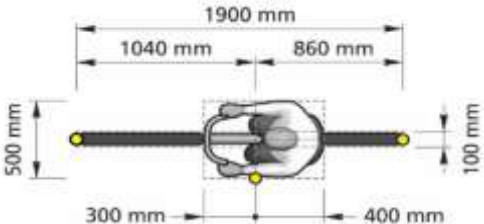
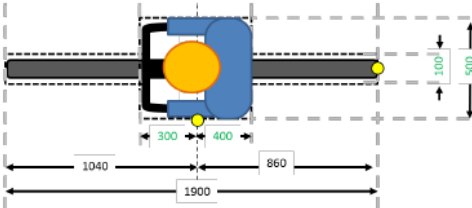
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and yaw rotate clockwise around the x, y and z axes respectively. Longitudinal refers to the component of the measurement along the x-axis, lateral the component along the y-axis and vertical the component along the z-axis.	and yaw rotate clockwise around the x, y and z axes respectively. Longitudinal refers to the component of the measurement along the x-axis, lateral the component along the y-axis and vertical the component along the z-axis.	(roll)、俯仰角(pitch)與橫擺角(yaw)分別以順時針方式繞 X 軸、Y 軸與 Z 軸。縱向為沿著 X 軸的測量方式、側向為沿著 Y 軸的測量方式、垂直向則是沿著 Z 軸的測量方式。	(roll)、俯仰角(pitch)與橫擺角(yaw)分別以順時針方式繞 X 軸、Y 軸與 Z 軸。縱向為沿著 X 軸的測量方式、側向為沿著 Y 軸的測量方式、垂直向則是沿著 Z 軸的測量方式。
3.1.3 This reference system should be used for both left-hand drive (LHD) and right-hand drive (RHD) vehicles tested.	3.1.3 This reference system should be used for both left (LHD) and right hand drive (RHD) vehicles tested.	(國內無右駕車，此段無需翻譯)	(國內無右駕車，此段無需翻譯)
3.1.4 The nearside is swapped as per LHD and RHD vehicles. Figure 3-1 shows the near and farside of the vehicle for a left hand driven (LHD) vehicle.	3.1.4 The nearside is swapped as per LHD and RHD vehicles. Figure 1 shows the near and farside of the vehicle for a left hand driven (LHD) vehicle.	(國內無右駕車，此段無需翻譯)	<u>3.11.2.1.3 圖 1 顯示左駕 (LHD) 車輛之近側與遠側。</u>

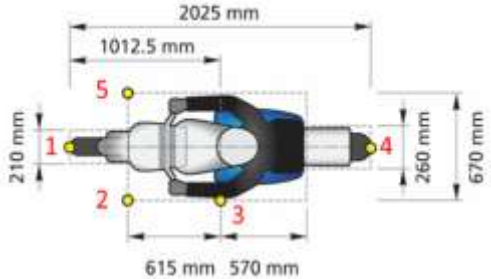
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 Figure 3-1 : Coordinate system and notation (LHD & RHD) and nearside – farside for LHD vehicle 3.2 VUT longitudinal path error 3.2.1 For CMF_{tap} scenario, the VUT longitudinal path error is determined as the difference between the desired position and the actual position of the front of the VUT when measured at a single defined “stable” position of the front of the EMT during the test. VUT longitudinal path error = $X_{VUT, \text{desired}} - X_{VUT, \text{actual}} (@X_{EMT})$	 Figure 1 : Coordinate system and notation	(請參末頁圖示) 3.11.3.2 受驗車輛縱向偏移量 3.11.3.2.1 對於轉彎機車騎士碰撞情境試驗(CMFtap), 受驗車輛縱向偏移量(longitudinal path error)之定義為當量測到目標機車騎士前方之穩定位置時, 受驗車輛前方期望位置與實際位置之差值。 受驗車輛縱向偏移量 = $X_{VUT \text{ 期望}} - X_{VUT \text{ 實際}} (@X_{EMT})$	(請參末頁圖示)

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When the origin of the reference system is at the intended collision point, the values shown in the table below shall be used to determine the VUT longitudinal path error. <table border="1"> <thead> <tr> <th>VUT speed</th><th>EMI speed</th><th>$X_{VUT,desired}$</th><th>X_{VUT}</th></tr> </thead> <tbody> <tr> <td rowspan="3">10 km/h</td><td>30 km/h</td><td rowspan="3">- 10.66 m</td><td>33.33 m</td></tr> <tr> <td>45 km/h</td><td>50.00 m</td></tr> <tr> <td>60 km/h</td><td>66.66 m</td></tr> <tr> <td rowspan="3">15 km/h</td><td>30 km/h</td><td rowspan="3">- 16.39 m</td><td>33.33 m</td></tr> <tr> <td>45 km/h</td><td>50.00 m</td></tr> <tr> <td>60 km/h</td><td>66.66 m</td></tr> <tr> <td rowspan="3">20 km/h</td><td>30 km/h</td><td rowspan="3">- 22.02 m</td><td>33.33 m</td></tr> <tr> <td>45 km/h</td><td>50.00 m</td></tr> <tr> <td>60 km/h</td><td>66.66 m</td></tr> </tbody> </table>	VUT speed	EMI speed	$X_{VUT,desired}$	X_{VUT}	10 km/h	30 km/h	- 10.66 m	33.33 m	45 km/h	50.00 m	60 km/h	66.66 m	15 km/h	30 km/h	- 16.39 m	33.33 m	45 km/h	50.00 m	60 km/h	66.66 m	20 km/h	30 km/h	- 22.02 m	33.33 m	45 km/h	50.00 m	60 km/h	66.66 m		<u>當參考系統原點位於預期碰撞點時，應使用下表所示之數值決定受驗車輛縱向偏移量。</u> <u>(請參末頁表格)</u>	
VUT speed	EMI speed	$X_{VUT,desired}$	X_{VUT}																												
10 km/h	30 km/h	- 10.66 m	33.33 m																												
	45 km/h		50.00 m																												
	60 km/h		66.66 m																												
15 km/h	30 km/h	- 16.39 m	33.33 m																												
	45 km/h		50.00 m																												
	60 km/h		66.66 m																												
20 km/h	30 km/h	- 22.02 m	33.33 m																												
	45 km/h		50.00 m																												
	60 km/h		66.66 m																												
3.3 VUT Lateral Path Error 3.3.1 The lateral offset ($Y_{VUT-error}$) is determined as the lateral distance between the centre of the front axle of the VUT when measured in parallel to the intended path as shown in Figure 3-2.	3.2 Lateral Path Error 3.2.1 The lateral offset is determined as the lateral distance between the centre of the front of the VUT when measured in parallel to the intended straight lined path as shown in the figure below. Lateral offset = $Y_{VUT\ error}$	<u>3.11.3.3 側向偏移量</u> <u>3.11.3.3.1 側向偏移量($Y_{VUT-error}$)之定義為受驗車輛前軸中心，其與欲達成之直線路徑平行測量時所得到側向距離誤差值，如下圖 3 所示。</u>	<u>3.11.2.2 側向偏移量</u> <u>3.11.2.2.1 側向偏移量 (lateral Path Error)之定義為受驗車輛前方中心，其與欲達成之直線路徑平行測量時所得到側向距離誤差值，如下圖所示。</u> <u>側向偏移量 = Y_{VUT} 誤差</u>																												

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 Figure 3-2 : Lateral path error 3.4 Profiles for impact speed determination 3.4.1 A virtual profiled line is defined around both the front end and the rear end of the VUT. This line is defined by straight line segments connecting seven points that are equally distributed over the vehicle width minus 50mm on each side. The theoretical x,y coordinates are provided by the OEMs and verified by the test laboratory.	 Figure 2 : Lateral path error 3.3 Profiles for impact speed determination 3.3.1 A virtual profiled line is defined around the front end of the VUT. This line is defined by straight line segments connecting seven points that are equally distributed over the vehicle width minus 50mm on each side. The theoretical x,y coordinates are provided by the OEMs and verified by the test laboratory.	(請參末頁圖示) 3.11.3.4 碰撞速度之標示線 3.11.3.4.1 受驗車輛之車頭有虛擬標示線。此標示線由車寬最外緣兩側處各減 50mm，並由平均劃分之七條平行線與車頭及車尾碰觸處連接而成。x,y 座標理論值由車輛業者提供，由檢測機構驗證。	(請參末頁圖示) 3.11.2.3 碰撞速度之標示線 3.11.2.3.1 受驗車輛之車頭有虛擬標示線。此標示線由車寬最外緣兩側處各減 50mm，並由平均劃分之七條平行線與車頭碰觸處連接而成。x,y 座標理論值由車輛業者提供，由檢測機構驗證。

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Figure 3-3 : Virtual profiled line around both the front end (left) and rear end (right) of the VUT 3.4.2 Around the EPT a virtual box is defined which is used to determine the impact speed. The dimensions of this virtual box are shown in Figure 3-4 below, with reference points on the hip and a virtual point where the centreline of the dummy crosses the virtual box. The scenario descriptions in 7.2 illustrate which of the reference points is used in that scenario. Figure 3-4 : Virtual box dimensions	Figure 3 : Virtual profiled line around vehicle front end 3.3.2 Around the EPT a virtual box is defined which is used to determine the impact speed. The dimensions of this virtual box are shown in Figure 4 below. For crossing scenarios, the reference point of the EPT is the HIP point and for the longitudinal scenario a virtual point where the centreline of the dummy crosses the virtual box. Figure 4 : Virtual box dimensions	(請參末頁圖示) 3.11.3.4.2 目標行人周圍亦標示虛擬正方形，用來測量碰撞速度。此虛擬正方形之尺寸如圖 5 所示，參考點設在人偶髖部位置以及人偶中心線與虛擬正方形交會之虛擬點。條文 3.11.7.2 中的情境描述闡該特定情境所採用的參考點。 (請參末頁圖示)	(請參末頁圖示) 3.11.2.3.2 目標行人周圍亦標示虛擬正方形，用來測量碰撞速度。此虛擬正方形之尺寸如圖 4 所示。對於穿越情境，EPT 的參考點是臀部，而縱向情境是人偶中心線穿過虛擬正方形的虛擬點。 (請參末頁圖示)

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3.4.3 Around the EBT a virtual box is defined which is used to determine the impact speed. The dimensions of this virtual box are shown in Figure 3-5 below, with reference points on the crank shaft, most forward point on the front wheel and most rearward point on the rear wheel. The scenario descriptions in 7.3 illustrate which of the reference points is used in that scenario.  Figure 3-5 : Virtual box dimensions around EBT 3.4.4 Around the EMT a virtual box is defined which is used to determine the impact speed. The dimensions of this	3.3.3 Around the EBT a virtual box is defined which is used to determine the impact speed. The dimensions of this virtual box are shown in Figure 5 below. For crossing scenarios, the reference point of the EBT is the centre of the bottom bracket (crank shaft) (dashed line in Figure 5) and for the longitudinal scenario the most rearward point on the rear wheel is used.  Figure 5 : Virtual box dimensions around EBT	3.11.3.4.3 目標自行車騎士周圍亦標示虛擬正方形，用來測量碰撞速度。此虛擬正方形之尺寸如圖 6 所示。<u>參考點設在曲柄軸、前輪最前端點，以及後輪最後端點。條文 3.11.7.3 中的情境描述闡該特定情境所採用的參考點。</u> (請參末頁圖示) 3.11.3.4.4 在目標機車騎士周圍定義一個虛擬正方形，用於判定碰撞速度。此虛擬正方形尺寸如圖 7 所示，參考	3.11.2.3.3 目標自行車騎士周圍亦標示虛擬正方形，用來測量碰撞速度。此虛擬正方形之尺寸如圖 5 所示。<u>對於穿越情境，EBT 的參考點是底部支架(曲軸)的中心(如圖 5 之虛線)，而縱向情境是使用後輪上最後面的點。</u> (請參末頁圖示)

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virtual box are shown in Figure 3-6 below with reference points on the side mid position, most forward point on the front wheel and most rearward point on the rear wheel. The scenario descriptions in 7.4 illustrate which of the reference points is used in that scenario.  EMT Impact points: 1. Front wheel 2. Front left outer edge 3. Left Side 4. Rear wheel 5. Front right outer edge Figure 3-6 : Virtual box dimensions around EMT and impact points		<u>點設在側邊中點位置、前輪最前端點，以及後輪最後端點。條文 3.11.7.4 中的情境描述闡該特定情境所採用的參考點。</u> <u>(請參末頁圖示)</u>	
4 MEASURING EQUIPMENT 4.1.1 Sample and record all inertial/GPS data at a frequency of at least 100Hz.	4 MEASURING EQUIPMENT 4.1.1 Sample and record all dynamic data at a frequency of at least 100Hz.	<u>3.11.4</u> 量測配備 <u>3.11.4.1</u> 所有 <u>慣性(inertial)/GPS</u> 數據之採樣及記錄頻率不得低於 100Hz。使	<u>3.11.3</u> 量測配備 <u>3.11.3.1</u> 所有 <u>動態</u> 數據之採樣及記錄頻率不得低於 100Hz。使用差分全球

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Synchronise the VRU target data with that of the VUT using the DGPS time stamp. 4.1.2 Where assessment by video footage is permitted (CBDA only), footage must be recorded in high definition [1080p or above and $\geq 50\text{Hz}$]. 4.2 Measurements and Variables 4.2.1 Time T • T_0, time of test start. $T_0 = T_{\text{EMT_deceleration_start}}$ TTC 4s except for : ▪ CMRb : T_0 is 1 s. before steering : T_0 is 1 s. before T_{steer} ▪ CPFA, CPNA, CPNCO, CPTA CPRA/CPRC : For the EPT, T_0 starts when the EPT enters the steady state distance (0.5s after EPT acceleration phase). For	Synchronise using the DGPS time stamp the EPT and EBT data with that of the VUT. 4.2 Measurements and Variables 4.2.1 Time T • T_0 equals TTC = 4s T_0	用差分全球定位系統時間標記 (DGPS time stamp)將<u>目標弱勢道路使用者</u>數據與受驗車輛數據同步。 <u>3.11.4.1.1</u> 在允許以影片畫面進行評等之情況下(僅限 CBDA)，影片應以高解析度錄製(1080p 或更高，且頻率大於等於 50Hz)。 <u>3.11.4.2</u> 量測與變數 <u>3.11.4.2.1</u> 時間 T (1) <u>T_0，試驗開始時間。 $T_0 = \text{TTC } 4\text{s}$，</u> <u>以下除外：</u> <u>I. CMRb : T_0 為 $T_{\text{EMT_deceleration_start}}$ 前 1 秒。</u> <u>II. 涉及轉向情境：</u> <u>T_0 為 T_{steer} 前 1 秒。</u> <u>III. CPFA、CPNA、CPNCO、CPTA、CPRA/CPRC：</u> <u>對目標行人，T_0 為目標行人進入</u>	定位系統時間標記 (DGPS time stamp)將<u>目標行人及目標自行車騎士</u>數據與受驗車輛數據同步。 <u>3.11.3.2</u> 量測與變數 <u>3.11.3.2.1</u> 時間 T (1) <u>直線行進兩秒之開始時間</u> T_0

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VUT, $T_0 = \text{TTC } 4\text{s}$ ▪ CBFA, CBNA, CBNAO : For EBT, T_0 starts when the EBT enters the steady state distance (0.5s after EBT acceleration phase). For VUT, $T_0 = \text{TTC } 4\text{s}$		<u>穩定距離狀態距離時(即目標行人加速階段結束後0.5秒)。</u> <u>對受驗車輛，$T_0 = \text{TTC } 4\text{秒時}$。</u> <u>IV.CBFA、CBNA、CBNAO：</u> <u>對目標自行車騎士，T_0為目標自行車騎士進入穩定狀態距離時(即目標自行車騎士加速階段結束後0.5秒)。</u>對受驗車輛，$T_0 = \text{TTC } 4\text{秒時}$。	
• T_{AEB}, time where AEB activates • T_{FCW}, time where FCW activates • T_{impact}, time where VUT impacts the target	• T_{AEB}, time where AEB activates • T_{FCW}, time where FCW activates • T_{impact}, time where VUT impacts EPT or EBT	(2) 緊急煞車輔助系統觸發時間點 T_{AEB} (3) 前方碰撞預警系統觸發時間點 T_{FCW} (4) 受驗車輛碰撞目標之時間點 T_{impact}	(2) 緊急煞車輔助系統觸發時間點 T_{AEB} (3) 前方碰撞預警系統觸發時間點 T_{FCW} (4) 受驗車輛碰撞目標行人或目標自行車騎士之時 T_{impact}

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•T_{steer}, time where VUT T_{steer} enters in curve segment •$T_{\text{EMT_deceleration_start}}$, time $T_{\text{EMT_d}}$ where EMT starts deceleration in CMRb scenario (deceleration to be reached in [1.0] seconds) •$T_{\text{door_operation}}$, time where VUT driver door opening interface is operated •T_{open}, time when the door opens. 4.2.2 Time (LSS-related tests) •T_0, time where T_0 manoeuvre starts with 2s straight path •T_{LDW}, time where LDW T_{LDW} activates •T_{steer}, time where VUT T_{steer} enters in curve segment •T_{crossing}, time where VUT T_{crossing} crosses the line or road		(5) <u>受驗車輛進入彎道路段之時間點</u> T_{steer} (6) <u>CMRb情境試驗中，目標機車騎士開始減速之時間(應於1.0秒內達到減速)</u> $T_{\text{EMT_deceleration_start}}$ (7) <u>受驗車輛駕駛座車門開啟介面操作之時間</u> $T_{\text{door_operation}}$ (8) <u>開啟車門之時間點</u> T_{open} <u>3.11.4.2.2時間(相關LSS試驗)</u> (1) <u>直線行進2秒開始之時間</u> T_0 (2) <u>LDW系統啟動時間</u> T_{LDW} (3) <u>受驗車輛進入曲線段之時間</u> T_{steer} (4) <u>受驗車輛越過標線或道路邊緣之時間</u> T_{crossing}	間點

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edge			
4.2.3 Position of the VUT during the entire test X_{VUT} , Y_{VUT}	4.2.2 Position of the VUT during the entire test X_{VUT} , Y_{VUT}	3.11.4.2.3 試驗過程中受驗車輛之位置 X_{VUT} , Y_{VUT}	3.11.3.2.2 試驗過程中受驗車輛之位置 X_{VUT} , Y_{VUT}
4.2.4 Position of the EMT during the entire test X_{EMT} , Y_{EMT}		3.11.4.2.4 試驗過程中目標機車騎士之位置 X_{EMT} , Y_{EMT}	
4.2.5 Position of the target during the entire test	4.2.3 Position of the EPT or EBT during the entire test	3.11.4.2.5 試驗過程中目標之位置	3.11.3.2.3 試驗過程中目標行人或目標自行車騎士之位置
•for crossing scenarios Y_{target}	•for crossing scenarios Y_{EPT}/Y_{EBT}	(1) 穿越情境 Y_{target}	(1) 穿越情境 Y_{EPT}/Y_{EBT}
•for longitudinal scenarios X_{target}	•for longitudinal scenarios X_{EPT}/X_{EBT}	(2) 縱向情境 X_{target}	(2) 縱向情境 X_{EPT}/X_{EBT}
4.2.6 Speed of the VUT during the entire test V_{VUT}	4.2.4 Speed of the VUT during the entire test V_{VUT}	3.11.4.2.6 試驗過程中受驗車輛之速度 V_{VUT}	3.11.3.2.4 試驗過程中受驗車輛之速度 V_{VUT}
• V_{impact} , speed when VUT impacts the target V_{impact}	• V_{impact} , speed when VUT impacts EPT or EBT V_{impact}	(1) 碰撞速度：受驗車輛碰撞目標時的速度 V_{impact}	碰撞速度：受驗車輛碰撞目標行人或目標自行車騎士時的速度 V_{impact}
• V_{rel_impact} , relative speed when VUT impacts the target V_{rel_impact}		(2) 受驗車輛碰撞目標時之相對速度 V_{rel_impact}	
4.2.7 Speed of the target V_{target}	4.2.5 Speed of the EPT or EBT V_{EPT}/V_{EBT}	3.11.4.2.7 試驗過程中目標 V_{target}	3.11.3.2.5 試驗過程中目標行人 V_{EPT}/V_{EBT}

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during the entire test	during the entire test V_{EBT}	<u>標之速度</u>	<u>人或目標自行車騎士之速度</u> V_{EBT}
4.2.8 Yaw velocity of the Ψ_{VUT} VUT during the entire test	4.2.6 Yaw velocity of the VUT Ψ_{VUT} during the entire test	3.11.4.2.8 試驗過程中受 Ψ_{VUT} 驗車輛之橫擺角速度	3.11.3.2.6 試驗過程中受驗車 Ψ_{VUT} 輛之橫擺角速度
4.2.9 Yaw velocity of the Ψ_{EMT} EMT during the entire test		3.11.4.2.9 試驗過程中 Ψ_{EMT} 目標機車騎士之橫擺角 速度	
4.2.10 Yaw angle of the Ψ_{EMT} EMT during the entire test		3.11.4.2.10 試驗過程中 Ψ_{EMT} 目標機車騎士之橫擺角 度	
4.2.11 Longitudinal A_{VUT} acceleration of the VUT during the entire test	4.2.7 Longitudinal acceleration A_{VUT} of the VUT during the entire test	3.11.4.2.11 試驗過程中 A_{VUT} 受驗車輛之縱向加速度	3.11.3.2.7 試驗過程中受驗車 A_{VUT} 輛之縱向加速度
4.2.12 Longitudinal A_{target} acceleration of the test target during the entire test		3.11.4.2.12 測試過程中 A_{target} 目標之縱向加速度	
4.2.13 Steering wheel Ω_{VUT} velocity of the VUT during the entire test	4.2.8 Steering wheel velocity Ω_{VUT} of the VUT during the entire test	3.11.4.2.13 試驗過程中 Ω_{VUT} 受驗車輛之方向盤轉速	3.11.3.2.8 試驗過程中受驗車 Ω_{VUT} 輛之方向盤轉速

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4.3 Measuring Equipment 4.3.1 Equip the VUT and the VRU target (where self-propelling platforms are used) with data measurement and acquisition equipment to sample and record data with an accuracy of at least : •VUT and target speed to 0.1km/h; •VUT and target lateral and longitudinal position to 0.03m; •VUT heading angle to 0.1°; •VUT and target yaw rate to 0.1°/s;	4.3 Measuring Equipment 4.3.1 Equip the VUT, EPT and EBT with data measurement and acquisition equipment to sample and record data with an accuracy of at least : •VUT speed to 0.1km/h; • EPT and EBT speed to 0.01km/h; •VUT lateral and longitudinal position to 0.03m; • EPT and EBT position in the direction of movement to 0.03m; •VUT yaw rate to 0.1°/s;	<u>3.11.4.3</u> 量測配備精度 <u>3.11.4.3.1</u> 受驗車輛 及目標弱勢道路使用者(使用自推進平台) 應配備數據量測與採集配備，用以抽樣及記錄數據，其精準度最低要求如下： (1) 受驗車輛 及目標 速度：0.1km/h (2) 受驗車輛 及目標 之側向及縱向位置：0.03m (3) <u>受驗車輛航向角：0.1°</u> (4) 受驗車輛 及目標 橫擺角速度：0.1°/s	<u>3.11.3.3</u> 量測配備精度 <u>3.11.3.3.1</u> 受驗車輛、 目標行人以及目標自行車騎士 應配備數據量測與採集配備，用以抽樣及記錄數據，其精準度最低要求如下： (1) 受驗車輛速度：0.1km/h (2) <u>目標行人及目標自行車騎士速度：0.01km/h</u> (3) 受驗車輛之側向及縱向位置：0.03m (4) <u>目標行人及目標自行車騎士移動方向位置：0.03m</u> (5) 受驗車輛橫擺角速度：0.1°/s

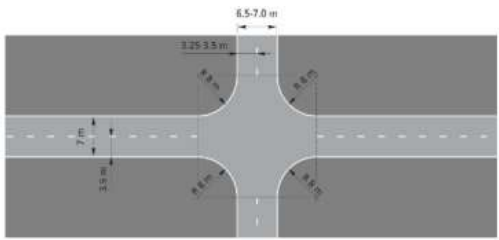
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●EMT yaw angle to 0.1°; ●VUT and target longitudinal acceleration to 0.1m/s²; ●VUT steering wheel velocity to 1.0 °/s. 4.3.2 To determine X_{target} at T_{FCW}, T_{open} and T_{door_operation} in CBDA scenario for assessment, use of video recording (including reference markings for X_{target}) is permitted. 4.4 Data Filtering 4.4.1 Filter the measured data as follows : 4.4.1.1 Position and speed are not filtered and are used in their raw state. 4.4.1.2 Acceleration, yaw rate and VUT steering wheel velocity with a 12-pole phaseless Butterworth filter with a cut	●VUT longitudinal acceleration to 0.1m/s²; ●VUT steering wheel velocity to 1.0 °/s. 4.4 Data Filtering 4.4.1 Filter the measured data as follows : 4.4.1.1 Position and speed are not filtered and are used in their raw state. 4.4.1.2 Acceleration, yaw rate and VUT steering wheel velocity with a 12-pole phaseless Butterworth filter with a cut	(5) <u>目標機車騎士橫擺角：0.1°</u> (6) 受驗車輛<u>及目標</u>縱向加速度：0.1m/s² (7) 受驗車輛方向盤轉速：1.0°/s <u>3.11.4.3.2 對車門開啟自行車騎士碰撞情境試驗，為評等 T_{FCW}、T_{open} 及 T_{door_operation} 之 X_{target}，可使用影片錄製(包含 X_{target} 之參考標記)。</u> <u>3.11.4.4 數據濾波</u> <u>3.11.4.4.1</u> 依據下列原則對量測所得數據進行濾波： <u>3.11.4.4.1.1</u> 位置與速度不需濾波，直接使用原始數據。 <u>3.11.4.4.1.2</u> 加速度、橫擺角速度及受驗車輛方向盤速度：由 12-pole phaseless 巴特沃斯濾波器	(6) 受驗車輛縱向加速度：0.1m/s² (7) 受驗車輛方向盤轉速：1.0°/s <u>3.11.3.4 數據濾波</u> <u>3.11.3.4.1</u> 依據下列原則對量測所得數據進行濾波： <u>3.11.3.4.1.1</u> 位置與速度不需濾波，直接使用原始數據 <u>3.11.3.4.1.2</u> 加速度、橫擺角速度及受驗車輛方向盤速度：由 12-pole phaseless 巴特沃斯濾波器

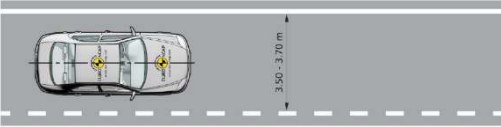
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off frequency of 10Hz.	off frequency of 10Hz.	(Butterworth filter)及 10Hz 之截止頻率進行濾波。	(Butterworth filter)及 10Hz 之截止頻率進行濾波。
5 EURO NCAP VULNERABLE ROAD USER TARGETS 5.1 Specification 5.1.1 Conduct the tests in this protocol using the Euro NCAP Pedestrian Target (EPTa and EPTc), Euro NCAP Bicyclist Target (EBT) and Euro NCAP Motorcyclist Target (EMT) dressed in a black shirt and blue trousers, as shown in Figure 5-1 below. The EPT, EBT and EMT replicate the visual, radar, LIDAR and PMD attributes of a typical pedestrian, bicyclist and motorcyclist respectively, and is impactable without causing significant damage to the VUT.	5 EURO NCAP PEDESTRIAN and BICYCLIST TARGET 5.1 Specification 5.1.1 Conduct the tests in this protocol using the Euro NCAP Pedestrian Target (EPTa and EPTc) and Euro NCAP Bicyclist and bike Target (EBT) dressed in a black shirt and blue trousers, as shown in Figure 6 below. The EPT and EBT replicate the visual, radar, LIDAR and PMD attributes of a typical pedestrian and bicyclist respectively, and is impactable without causing significant damage to the VUT.	3.11.5 目標弱勢道路使用者 3.11.5.1 規格 3.11.5.1.1 進行試驗時，請使用穿著黑色上衣、藍色長褲之目標行人(目標成人行人與目標兒童行人)、目標自行車騎士及目標自行車(EBT)，以及目標機車騎士(EMT)，如圖 8 所示，目標行人與目標自行車模擬一般行人、自行車騎士及機車騎士之光學儀器、雷達、光達(LIDAR)與 PMD 特性，不會造成受驗車輛嚴重損壞。 (請參末頁圖示)	3.11.4 目標行人及目標自行車騎士 3.11.4.1 規格 3.11.4.1.1 進行試驗時，請使用穿著黑色上衣、藍色長褲之目標行人(目標成人行人與目標兒童行人)，以及目標自行車騎士及目標自行車(EBT)，如圖 6 所示，目標行人與目標自行車模擬一般行人及自行車騎士之光學儀器、雷達、光達(LIDAR)與 PMD 特性，不會造成受驗車輛嚴重損壞。 (請參末頁圖示)
	 Figure 6：Euro NCAP Pedestrian and		

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Figure 5-1 : Euro NCAP VRU Targets (EPTa, EPTc, EBT and EMT) To ensure repeatable results, the propulsion system and VRU target must meet the requirements as detailed in ISO 19206 Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions •Part 2 : 2018 : Requirements for pedestrian targets (articulated targets only) •Part 4 : 2018 : Requirements for bicyclist targets •Part 5 (Draft) : Requirements for Motorcyclist targets (including Micro-Doppler) 5.1.2 The VRU targets are designed to work with the following types of sensors : •Radar (24 and 76-81 GHz) •LIDAR	Bicyclist and bike Targets (EPTa, EPTc and EBT) 5.1.2 To ensure repeatable results the propulsion system, EPT and EBT must meet the requirements as detailed in Articulated Pedestrian Target Specification document version 2.0 and Bicyclist Target Specification document version 1.0. 5.1.3 The EPT and EBT are designed to work with the following types of sensors : •Radar (24 and 77 GHz) •LIDAR	3.11.5.1.2 為確保試驗結果之再現性，推進系統與目標弱勢道路使用者應符合 ISO 19206《道路車輛-試驗用目標車輛、弱勢道路使用者及其他物體之試驗裝置》中對於主動安全功能評等之要求： (1) 第 2 部分:2018 年版-目標行人之要求(僅限關節式目標) (2) 第 4 部分:2018 年版-目標自行車騎士之要求 (3) 第 5 部分(草案):目標機車騎士之要求(包含微都卜勒效應) 3.11.5.1.3 目標弱勢道路使用者應能辨識下列型式感測器： (1) 雷達(24 與 76-81GHz) (2) 光達 (3) 攝影機	3.11.4.1.2 為確保試驗結果之再現性，推進系統、目標行人及目標自行車騎士，其應符合目標關節式行人規格文件 2.0 版本，以及目標自行車騎士規格文件 1.0 版本規定。 3.11.4.1.3 目標行人及目標自行車騎士應能辨識下列型式感測器： (1) 雷達(24 與 77GHz) (2) 光達 (3) 攝影機

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●Camera ●Ultrasonic sensors When a manufacturer believes that any of the VRU targets is not suitable for another type of sensor system used by the VUT but not listed above, the manufacturer is asked to contact the Euro NCAP Secretariat.	●Camera When a manufacturer believes that the EPT or EBT is not suitable for another type of sensor system used by the VUT but not listed above, the manufacturer is asked to contact the Euro NCAP Secretariat.	(4) 超音波感測器 如車輛業者認為受驗車輛裝設非上述之感測器系統且不適用於任何目標弱勢道路使用者時，則車輛業者應與 TNCAP 執行機構聯繫。	如車輛業者認為受驗車輛裝設非上述之感測器系統且不適用於目標行人或目標自行車騎士時，則車輛業者應與 TNCAP 執行機構聯繫。
6 TEST CONDITIONS 6.1 Test Track 6.1.1 Conduct tests on a dry (no visible moisture on the surface), uniform, solid-paved surface with a consistent slope between level and 1%. The test surface shall have a minimal peak braking coefficient (PBC) of 0.9. 6.1.2 The surface must be paved and may not contain any irregularities (e.g. large dips or cracks, manhole covers or reflective studs) that may give rise to abnormal sensor measurements within a lateral distance of 5.0m to either side	6 TEST CONDITIONS 6.1 Test Track 6.1.1 Conduct tests on a dry (no visible moisture on the surface), uniform, solid-paved surface with a consistent slope between level and 1%. The test surface shall have a minimal peak braking coefficient (PBC) of 0.9. 6.1.2 The surface must be paved and may not contain any irregularities (e.g. large dips or cracks, manhole covers or reflective studs) that may give rise to abnormal sensor measurements within a lateral distance of 3.0m to either side	3.11.6 試驗條件 3.11.6.1 試驗道路 3.11.6.1.1 試驗道路應乾燥(試驗路面無明顯可見之水分)、平整、固態鋪設之路面，坡度應介於水平至 1%之間。試驗路面之最高煞車係數(PBC)應大於等於 0.9。 3.11.6.1.2 試驗道路應為鋪設路面，試驗路徑兩側 5.0m 內及試驗結束時受驗車輛前方 20m 內，不得有任何可能造成感測器偵測異常之不平整處(如：驟降斜坡、裂縫、人孔蓋或反光路釘)。	3.11.5 試驗條件 3.11.5.1 試驗道路 3.11.5.1.1 試驗道路應乾燥(試驗路面無明顯可見之水分)、平整、固態鋪設之路面，坡度應介於水平至 1%之間。試驗路面之最高煞車係數(PBC)應大於等於 0.9。 3.11.5.1.2 試驗道路應為鋪設路面，試驗路徑兩側 3.0m 內及試驗結束時受驗車輛前方 30m 內，不得有任何可能造成感測器偵測異常之不平整處(如：驟降斜坡、裂縫、人孔蓋或反光路釘)。

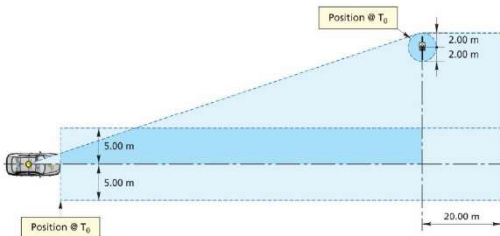
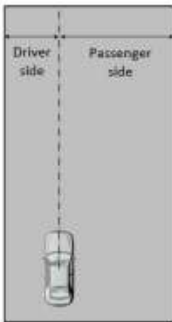
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of the test path and with a longitudinal distance of 20m ahead of the VUT when the test ends.	of the test path and with a longitudinal distance of 30m ahead of the VUT when the test ends.		
6.1.3 The presence of lane markings is allowed. However, testing may only be conducted in an area where typical road markings depicting a driving lane may not be parallel to the test path within 3.0m either side. Lines or markings may cross the test path, but may not be present in the area where AEB activation and/or braking after FCW is expected.	6.1.3 The presence of lane markings is allowed. However, testing may only be conducted in an area where typical road markings depicting a driving lane may not be parallel to the test path within 3.0m either side. Lines or markings may cross the test path, but may not be present in the area where AEB activation and/or braking after FCW is expected.	3.11.6.1.3 試驗道路上可設有車道標線。然而，試驗路徑兩側 3.0m 以內不得有平行於路徑之一般車道標線。指示線或標線可以通過試驗路徑，但不得出現於預計會觸發緊急煞車輔助系統及/或前方碰撞預警系統煞車處。	3.11.5.1.3 試驗道路上可設有車道標線。然而，試驗路徑兩側 3.0m 以內不得有平行於路徑之一般車道標線。指示線或標線可以通過試驗路徑，但不得出現於預計會觸發緊急煞車輔助系統及/或前方碰撞預警系統煞車處。
6.1.4 Junction and Lane Markings		3.11.6.1.4 交叉路口與車道標線	
6.1.4.1 Some scenarios described in this document require the use of a junction, where this is the case the scenario description will illustrate the scenario on a junction as in Figure 6-1. The main approach lane where the VUT path starts, (horizontal lanes in Figure 6-1) will have a width of 3.5m. The side lane		3.11.6.1.4.1 本規章所規範之部分情境應使用交叉路口如圖 9 所示，受驗車輛行駛路徑之主車道(圖 9 之水平車道)及側車道(圖 9 之垂直車道)寬度不得小於 3m。 (1) 車道標線應使用白虛線，起始點應同外側標線半徑轉換為車道直	

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(vertical lanes in Figure 6-1) will have a width of 3.25 to 3.5m. The lane markings on these lanes need to conform to one of the lane markings as defined in UNECE Regulation 130 : 1. Dashed line starting at the same point where the radius transitions into a straight line with a width between 0.10 and 0.15m 2. Solid line with a width between 0.10 and 0.25m 3. Junction without any central markings		<u>線標線處，線寬為 10cm。應使用線段長 4m，間距 6m</u> (2) <u>路面邊緣應使用白實線，線寬為 15cm</u> (3) <u>無任何中心標線於交叉路口</u> <u>(請參末頁圖示)</u>	
			
Figure 6-1 : Layout of junction and the connecting lanes (Dimensions reference centre of lane markings)			
6.1.5 Lane Markings 6.1.5.1 Some tests described in this		<u>3.11.6.1.5 車道標線</u> <u>3.11.6.1.5.1 車道寬度不得小於 3m，車</u>	

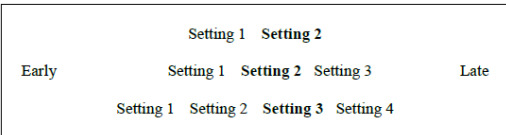
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document require use of two different types of lane markings. These lane markings must conform to one of the lane markings as defined in UN Regulation R130 to mark a lane with a width of 3.5m to 3.7m when measured from the inside edge of the lane marking : 1. Dashed line with a width between 0.10 and 0.25m (0.10 and 0.15m for centerlines) 2. Solid line with a width between 0.10 and 0.25m The lane markings should be sufficiently long to ensure that there is at least 20m of marking remaining ahead of the vehicle after the test is complete.  Figure 6-2 Layout of the lane markings (Dimensions reference inside edge of lane marking)		<u>道標線應使用白虛線，線寬為 10cm。應使用線段長 4m，間距 6m；路面邊緣應使用白實線，線寬為 15cm，車道標線及/或路面邊緣應具備足夠長度，以確保試驗完成後，受驗車輛前方仍留有至少 20m 之標線。</u> <u>(請參末頁圖示)</u>	

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6.2 Weather Conditions	6.2 Weather Conditions	3.11.6.2 天氣條件	3.11.5.2 天氣條件
6.2.1 Conduct tests in dry conditions with ambient temperature above 5°C and below 40°C. For night time tests, the lab may liaise with the OEM to be able to test at lower temperatures.	6.2.1 Conduct tests in dry conditions with ambient temperature above 5°C and below 40°C. For night time tests, the lab may liaise with the OEM to be able to test at lower temperatures.	<u>3.11.6.2.1</u> 試驗應於環境溫度 5°C 至 40°C 間之乾燥環境進行。夜間測試時，檢測機構可與車輛業者聯繫，經取得同意得在較低溫環境下進行測試。	<u>3.11.5.2.1</u> 試驗應於環境溫度 5°C 至 40°C 間之乾燥環境進行。夜間測試時，檢測機構可與車輛業者聯繫，經取得同意得在較低溫環境下進行測試。
6.2.2 No precipitation shall be falling and horizontal visibility at ground level shall be greater than 1km. Wind speeds shall be below 10m/s to minimise VRU target and VUT disturbance. In case of wind speeds above 5m/s during test the validity of the tests is decided by lab discretion using the OEM predicted performance.	6.2.2 No precipitation shall be falling and horizontal visibility at ground level shall be greater than 1km. Wind speeds shall be below 10m/s to minimise EPT, EBT and VUT disturbance. In case of wind speeds above 5m/s during test the validity of the tests is decided by lab discretion using the OEM predicted performance.	<u>3.11.6.2.2</u> 降雨時不得進行試驗，且地面水平能見度應大於 1km。風速應小於 10m/s，以使 <u>目標弱勢道路使用者</u> 及受驗車輛干擾應降至最低。若試驗期間風速大於 5 m/s，則試驗之有效性由檢測機構參考使用車輛業者之預測性能。	<u>3.11.5.2.2</u> 降雨時不得進行試驗，且地面水平能見度應大於 1km。風速應小於 10m/s，以使 <u>目標行人、目標自行車騎士</u> 及受驗車輛干擾應降至最低。若試驗期間風速大於 5 m/s，則試驗之有效性由檢測機構參考使用車輛業者之預測性能。
6.2.3 For daytime testing, natural ambient illumination must be homogenous in the test area and in excess of 2000 lux for daylight testing with no strong shadows cast across the test area other than those caused by the VUT or VRU target . Ensure testing is	6.2.3 For daytime testing, natural ambient illumination must be homogenous in the test area and in excess of 2000 lux for daylight testing with no strong shadows cast across the test area other than those caused by the VUT, EPT or EBT . Ensure testing is not	<u>3.11.6.2.3</u> 白天試驗時，試驗區域的自然光線應均勻照射，白天試驗時照度應高於 2000lux，且除了受驗車輛或 <u>目標弱勢道路使用者</u> 之陰影外，不得有其他陰影籠罩試驗區域。當陽光直接照射時，應確保試驗時之車輛行進方向非直接朝向或背向陽光照射方	<u>3.11.5.2.3</u> 白天試驗時，試驗區域的自然光線應均勻照射，白天試驗時照度應高於 2000lux，且除了受驗車輛與 <u>目標行人或目標自行車騎士</u> 之陰影外，不得有其他陰影籠罩試驗區域。當陽光直接照射時，應確保試驗時之車輛行進方向非直接朝向或背向陽

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not performed driving towards, or away from the sun when there is direct sunlight.	performed driving towards, or away from the sun when there is direct sunlight.	向。	光照射方向。
6.2.4 Testing at low ambient lighting conditions, night time, are specified in ANNEX B.	6.2.4 Testing at low ambient lighting conditions, night time, are specified in ANNEX B.	3.11.6.2.4 夜間低照明環境條件下進行試驗時，應詳參 3.11.9 規定。	3.11.5.2.4 夜間低照明環境條件下進行試驗時，應詳參 3.11.8 規定。
6.2.5 Measure and record the following parameters preferably at the commencement of every single test or at least every 30 minutes : a) Ambient temperature in °C; b) Track Temperature in °C; c) Wind speed and direction in m/s; d) Ambient illumination in lux.	6.2.5 Measure and record the following parameters preferably at the commencement of every single test or at least every 30 minutes : a) Ambient temperature in °C; b) Track Temperature in °C; c) Wind speed and direction in m/s; d) Ambient illumination in Lux.	3.11.6.2.5 應於每次試驗開始前或至少每隔 30 分鐘，測量與記錄以下參數： (1) 現場環境溫度，以攝氏記錄； (2) 路面溫度，以攝氏記錄； (3) 風速與風向，以m/s記錄； (4) 環境照度，以 lux 記錄。	3.11.5.2.5 應於每次試驗開始前或至少每隔 30 分鐘，測量與記錄以下參數： (1) 現場環境溫度，以攝氏記錄； (2) 路面溫度，以攝氏記錄； (3) 風速與風向，以m/s記錄； (4) 環境照度，以 lux 記錄。
6.3 Surroundings	6.3 Surroundings	3.11.6.3 試驗環境	3.11.5.3 試驗環境
6.3.1 Conduct testing such that there are no other vehicles, highway infrastructure (except lighting columns during the low ambient lighting condition tests), obstructions (except where detailed in the test scenario),	6.3.1 Conduct testing such that there are no other vehicles, highway infrastructure (except lighting columns during the low ambient lighting condition tests), obstructions, other objects or persons protruding above the	3.11.6.3.1 執行試驗時，應無其他車輛、高速公路之基礎設施(低環境照明條件試驗期間之照明柱除外)、障礙物(試驗若有描述除外)、其他物體或人員，以避免造成感測器偵測異常， 包含範圍如下：	3.11.5.3.1 受驗車輛之最小側向距離試驗路徑如下表所示，目標行人與目標自行車騎士周遭 1.0m 內、及試驗結束時受驗車輛前方 30m 內(如圖 7)，應無其他車輛、高速公路之基礎設施(低環境照明條件試驗期間之照明柱

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other objects or persons protruding above the test surface, that may give rise to abnormal sensor measurements within : •5m either side of the VUT test path during the full duration of the test and within a longitudinal distance 20m ahead of the VUT when the test ends, •a circle of 2m radius around the VRU target, and •the visual axis between the geometric centre of the VUT and the circle surrounding the VRU target.  Figure 6-3 Free space requirements (farside scenario only)	test surface that may give rise to abnormal sensor measurements within a minimum lateral distance of the VUT test path as per table below (for a LHD vehicle), 1.0m around of the EPT and EBT and within a longitudinal distance of 30m ahead of the VUT when the test ends (Figure 7).  <table><tr><th>Scenario</th><th>Driver side</th><th>Passenger side</th></tr><tr><td>CPFA-50</td><td>6.0m</td><td>4.0m</td></tr><tr><td>CPNA-25</td><td>4.0m</td><td>4.0m</td></tr><tr><td>CPNA-75</td><td>4.0m</td><td>4.0m</td></tr><tr><td>CPNC-50</td><td>4.0m</td><td>4.0m</td></tr><tr><td>CPLA-25</td><td>6.0m</td><td>6.0m</td></tr><tr><td>CPLA-75</td><td>6.0m</td><td>6.0m</td></tr><tr><td>CBNA-50</td><td>4.0m</td><td>17.0m</td></tr><tr><td>CBLA-25</td><td>6.0m</td><td>6.0m</td></tr><tr><td>CBLA-75</td><td>6.0m</td><td>6.0m</td></tr><tr><td>Max</td><td>6.0m</td><td>17.0m</td></tr></table> Figure 7 : Free surroundings	Scenario	Driver side	Passenger side	CPFA-50	6.0m	4.0m	CPNA-25	4.0m	4.0m	CPNA-75	4.0m	4.0m	CPNC-50	4.0m	4.0m	CPLA-25	6.0m	6.0m	CPLA-75	6.0m	6.0m	CBNA-50	4.0m	17.0m	CBLA-25	6.0m	6.0m	CBLA-75	6.0m	6.0m	Max	6.0m	17.0m	(1) 試驗過程中，受驗車輛試驗路徑兩側各 5m 範圍內，以及試驗結束時受驗車輛前方 20m 範圍內。 (2) 以目標弱勢道路使用者為中心，半徑 2m 之圓形範圍。 (3) 受驗車輛幾何中心與目標弱勢道路使用者外接圓之間的視線(軸線)。 (請參末頁圖示)	除外)、障礙物、其他物體或人員，以避免造成感測器偵測異常。 (請參末頁圖示)
Scenario	Driver side	Passenger side																																		
CPFA-50	6.0m	4.0m																																		
CPNA-25	4.0m	4.0m																																		
CPNA-75	4.0m	4.0m																																		
CPNC-50	4.0m	4.0m																																		
CPLA-25	6.0m	6.0m																																		
CPLA-75	6.0m	6.0m																																		
CBNA-50	4.0m	17.0m																																		
CBLA-25	6.0m	6.0m																																		
CBLA-75	6.0m	6.0m																																		
Max	6.0m	17.0m																																		
6.3.2 Test areas where the VUT needs to pass under overhead signs, bridges,	6.3.2 Test areas where the VUT needs to pass under overhead signs, bridges,	3.11.6.3.2 試驗區域應不得設置於受驗車輛會從標誌、橋樑、門架(gantries)，	3.11.5.3.2 試驗區域應不得設置於受驗車輛會從標誌、橋樑、門架(gantries)，																																	

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gantries or other significant structures are not permitted.	gantries or other significant structures are not permitted.	或其他大型建築物下方通過之場地。	或其他大型建築物下方通過之場地。
6.3.3 The general view ahead and to either side of the test area shall comprise of a wholly plain man made or natural environment (e.g. further test surface, plain coloured fencing or hoardings, natural vegetation or sky etc.) and must not comprise any highly reflective surfaces or contain any vehicle-like silhouettes that may give rise to abnormal sensor measurements.	6.3.3 The general view ahead and to either side of the test area shall comprise of a wholly plain man made or natural environment (e.g. further test surface, plain coloured fencing or hoardings, natural vegetation or sky etc.) and must not comprise any highly reflective surfaces or contain any vehicle-like silhouettes that may give rise to abnormal sensor measurements.	3.11.6.3.3 試驗區域前方與兩側之基本視野應為單純之人造建設或自然環境(如：測試路面的延伸、素色圍籬或圍牆、天然植被或天空等)，且不得有高度反光表面或任何類似車輛之輪廓，以免造成感測器偵測異常。	3.11.5.3.3 試驗區域前方與兩側之基本視野應為單純之人造建設或自然環境(如：測試路面的延伸、素色圍籬或圍牆、天然植被或天空等)，且不得有高度反光表面或任何類似車輛之輪廓，以免造成感測器偵測異常。
6.4 VUT Preparation	6.4 VUT Preparation	3.11.6.4 受驗車輛整備	3.11.5.4 受驗車輛整備
6.4.1 AEB, FCW and LSS System Settings	6.4.1 AEB and FCW System Settings	3.11.6.4.1 緊急煞車輔助系統、前方碰撞預警系統，以及車道輔助系統設定	3.11.5.4.1 緊急煞車輔助系統與前方碰撞預警系統設定
6.4.1.1 Set any driver configurable elements of the AEB, FCW and or LSS system (e.g. the timing of the collision warning or the lane keep assist if present) to the middle setting or midpoint and then next latest setting	6.4.1.1 Set any driver configurable elements of the AEB and/or FCW system (e.g. the timing of the collision warning or the braking application if present) to the middle setting or midpoint and then next latest setting	3.11.6.4.1.1 緊急煞車輔助系統、前方碰撞預警系統及/或車道輔助系統之駕駛可調整之設定選項(如：碰撞預警時機或車道維持輔助時機，若設置)調整至中間選項或距中間位置但較晚發出警示之選項，如圖 12 緊急煞	3.11.5.4.1.1 緊急煞車輔助系統及/或前方碰撞預警系統之駕駛可調整之設定選項(如：碰撞預警時機或煞車作動時機，若設置)調整至中間選項或距中間位置但較晚發出警示之選項，如圖 8 所示。

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similar to the examples shown in Figure 6-4 AEB and/or FCW system setting for testing. When the vehicle is equipped with a Driver State Monitoring (DSM) which alters the AEB, FCW and/or LSS sensitivity according to the driver's state (e.g. distracted / attentive), this system shall be deactivated before the testing commences.  Figure 6-4 AEB and/or FCW system setting for testing	similar to the examples shown in Figure 8.  Figure 8 : AEB and/or FCW system setting for testing	<u>車輔助系統及/或前方碰撞預警系統設定。</u> <u>若受驗車輛配備駕駛狀態監測系統，應於試驗開始前應關閉此系統，因該系統會根據駕駛狀態(例如分心/專注)調整緊急煞車輔助系統、前方碰撞預警系統及/或車道輔助系統靈敏度。</u> <u>(請參末頁圖示)</u>	<u>(請參末頁圖示)</u>
6.4.2 Deployable Pedestrian/VRU Protection Systems When the vehicle is equipped with a deployable pedestrian/VRU protection system, this system shall be deactivated before the testing commences.	6.4.2 Deployable Pedestrian/VRU Protection Systems When the vehicle is equipped with a deployable pedestrian/VRU protection system, this system shall be deactivated before the testing commences.	<u>3.11.6.4.2 行人/弱勢道路使用者保護系統</u> <u>若受驗車輛配備其他行人/弱勢道路使用者保護系統，試驗前應關閉上述保護系統。</u>	<u>3.11.5.4.2 行人/弱勢道路使用者保護系統 (Deployable Pedestrian/VRU Protection Systems)</u> <u>如受驗車輛配備其他行人/弱勢道路使用者保護系統，試驗前應關閉上述保護系統。</u>
6.4.3 Tyres	6.4.3 Tyres	<u>3.11.6.4.3 輪胎</u>	<u>3.11.5.4.3 輪胎</u>

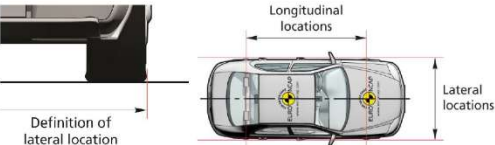
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Perform the testing with new original fitment tyres of the make, model, size, speed and load rating as specified by the vehicle manufacturer. It is permitted to change the tyres which are supplied by the manufacturer or acquired at an official dealer representing the manufacturer if those tyres are identical make, model, size, speed and load rating to the original fitment. Use inflation pressures corresponding to least loading normal condition.	Perform the testing with new original fitment tyres of the make, model, size, speed and load rating as specified by the vehicle manufacturer. It is permitted to change the tyres which are supplied by the manufacturer or acquired at an official dealer representing the manufacturer if those tyres are identical make, model, size, speed and load rating to the original fitment. Use inflation pressures corresponding to least loading normal condition.	試驗應使用車輛業者指定之型式、尺寸、速度代號及載重能力指數之全新原廠輪胎。試驗時，可更換車輛業者或代理商所提供之輪胎，前提是新的輪胎應符合原廠規格之型式、尺寸、速度代號及載重能力指數。將輪胎充氣至車輛業者建議之冷胎胎壓。使用之輪胎胎壓應至少與一般負載狀態之胎壓>Loading normal condition)相同。	試驗應使用車輛業者指定之型式、尺寸、速度代號及載重能力指數之全新原廠輪胎。試驗時，可更換車輛業者或代理商所提供之輪胎，前提是新的輪胎應符合原廠規格之型式、尺寸、速度代號及載重能力指數。將輪胎充氣至車輛業者建議之冷胎胎壓。使用之輪胎胎壓應至少與一般負載狀態之胎壓>Loading normal condition)相同。
Run-in tyres according to the tyre conditioning procedure specified in 7.1.3. After running-in maintain the run-in tyres in the same position on the vehicle for the duration of the testing.	Run-in tyres according to the tyre conditioning procedure specified in 7.1.3. After running-in maintain the run-in tyres in the same position on the vehicle for the duration of the testing.	依 3.11.7.1.3 節進行輪胎磨合(run-in)，磨合完畢之輪胎於整個試驗過程中應維持於車輛相同位置。	依 3.11.6.1.3 節進行輪胎磨合(run-in)，磨合完畢之輪胎於整個試驗過程中應維持於車輛相同位置。
6.4.4 Wheel Alignment Measurement The vehicle should be subject to a vehicle (in-line) geometry check to record the wheel alignment set by the	6.4.4 Wheel Alignment Measurement The vehicle should be subject to a vehicle (in-line) geometry check to record the wheel alignment set by the	3.11.6.4.4 車輪定位測量 (Wheel Alignment Measurement) 受驗車輛應以製造廠之設定進行車輛幾何檢查 (vehicle (in-line))	3.11.5.4.4 車輪定位測量 (Wheel Alignment Measurement) 受驗車輛應以製造廠之設定進行車輛幾何檢查 (vehicle (in-line))

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OEM. This should be done with the vehicle in kerb weight.	OEM. This should be done with the vehicle in kerb weight.	geometry check),以紀錄其車輪定位, 受驗車輛應為空車重量。	geometry check),以紀錄其車輪定位, 受驗車輛應為空車重量。
6.4.5 Unladen Kerb Mass	6.4.5 Unladen Kerb Mass	3.11.6.4.5 空車重量 (Unladen Kerb Mass)	3.11.5.4.5 空車重量 (Unladen Kerb Mass)
6.4.5.1 If applicable , fill up the tank with fuel to at least 90% of the tank's capacity of fuel.	6.4.5.1 Fill up the tank with fuel to at least 90% of the tank's capacity of fuel.	3.11.6.4.5.1 若適用 , 車輛燃油箱應至少裝滿 90%容量的燃油。	3.11.5.4.5.1 車輛燃油箱至少裝滿 90%容量的燃油。
6.4.5.2 Check the oil level and top up to its maximum level if necessary. Similarly, top up the levels of all other fluids to their maximum levels if necessary.	6.4.5.2 Check the oil level and top up to its maximum level if necessary. Similarly, top up the levels of all other fluids to their maximum levels if necessary.	3.11.6.4.5.2 檢查機油油位, 必要時加注至最高油位; 同樣地, 其他液體若有需要也可加注至其最高限值。	3.11.5.4.5.2 檢查機油油位, 必要時加注至最高油位; 同樣地, 其他液體若有需要也可加注至其最高限值。
6.4.5.3 Ensure that the vehicle has its spare wheel on board, if fitted, along with any tools supplied with the vehicle. Nothing else should be in the car.	6.4.5.3 Ensure that the vehicle has its spare wheel on board, if fitted, along with any tools supplied with the vehicle. Nothing else should be in the car.	3.11.6.4.5.3 確認備胎及其他隨車工具已在車上, 除此之外, 車內不應有其他物品。	3.11.5.4.5.3 確認備胎及其他隨車工具已在車上, 除此之外, 車內不應有其他物品。
6.4.5.4 Ensure that all tyres are inflated according to the manufacturer's	6.4.5.4 Ensure that all tyres are inflated according to the manufacturer's	3.11.6.4.5.4 確認所有輪胎依車輛業者之建議進行充氣至適當負載狀態	3.11.5.4.5.4 確認所有輪胎依車輛業者之建議進行充氣至適當負載狀態

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instructions for the least loading condition.	instructions for the least loading condition.	(appropriate loading condition)。	(appropriate loading condition)。
6.4.5.5 Measure the front and rear axle masses and determine the total mass of the vehicle. The total mass is the ‘unladen kerb mass’ of the vehicle. Record this mass in the test details.	6.4.5.5 Measure the front and rear axle masses and determine the total mass of the vehicle. The total mass is the ‘unladen kerb mass’ of the vehicle. Record this mass in the test details.	3.11.6.4.5.5 測量前軸及後軸重量，並計算車輛之總重量。此重量即為「空車重量」，將該數據記錄於試驗資料。	3.11.5.4.5.5 測量前軸及後軸重量，並計算車輛之總重量。此重量即為「空車重量」，將該數據記錄於試驗資料。
6.4.5.6 Calculate the required ballast mass, by subtracting the mass of the test driver and test equipment from the required 200 kg interior load.	6.4.5.6 Calculate the required ballast mass, by subtracting the mass of the test driver and test equipment from the required 200 kg interior load.	3.11.6.4.5.6 試驗規定需配重(ballast mass)200 公斤，且此重量應包含試驗駕駛及試驗配備之重量。	3.11.5.4.5.6 試驗規定需配重(ballast mass)200 公斤，且此重量應包含試驗駕駛及試驗配備之重量。
6.4.6 Vehicle Preparation	6.4.6 Vehicle Preparation	3.11.6.4.6 車輛整備	3.11.5.4.6 車輛整備
6.4.6.1 Fit the on-board test equipment and instrumentation in the vehicle. Also, fit any associated cables, cabling boxes and power sources.	6.4.6.1 Fit the on-board test equipment and instrumentation in the vehicle. Also, fit any associated cables, cabling boxes and power sources.	3.11.6.4.6.1 將車載資料擷取配備裝在車輛內，並裝配所有相關電線、接線盒及電源。	3.11.5.4.6.1 將車載資料擷取配備裝在車輛內，並裝配所有相關電線、接線盒及電源。
6.4.6.2 Place weights with a mass of the ballast mass. Any items added should be securely attached to the car.	6.4.6.2 Place weights with a mass of the ballast mass. Any items added should be securely attached to the car.	3.11.6.4.6.2 置放相當於配重之重量(weights)。所有物品皆應穩當地固定於車內。	3.11.5.4.6.2 置放相當於配重之重量(weights)。所有物品皆應穩當地固定於車內。

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6.4.6.3 With the driver in the vehicle, weigh the front and rear axle loads of the vehicle.	6.4.6.3 With the driver in the vehicle, weigh the front and rear axle loads of the vehicle.	3.11.6.4.6.3 駕駛上車後，分別量測車輛前後軸重量。	3.11.5.4.6.3 駕駛上車後，分別量測車輛前後軸重量。
6.4.6.4 Compare these loads with the “unladen kerb mass”	6.4.6.4 Compare these loads with the “unladen kerb mass”	3.11.6.4.6.4 將上述車輛負載狀態與空車重量進行比較。	3.11.5.4.6.4 將上述車輛負載狀態與空車重量進行比較。
6.4.6.5 The total vehicle mass shall be within $\pm 1\%$ of the sum of the unladen kerb mass, plus 200kg. The front/rear axle load distribution needs to be within 5% of the front/rear axle load distribution of the original unladen kerb mass plus full fuel load. If the vehicle differs from the requirements given in this paragraph, items may be removed or added to the vehicle which has no influence on its performance. Any items added to increase the vehicle mass should be securely attached to the car.	6.4.6.5 The total vehicle mass shall be within $\pm 1\%$ of the sum of the unladen kerb mass, plus 200kg. The front/rear axle load distribution needs to be within 5% of the front/rear axle load distribution of the original unladen kerb mass plus full fuel load. If the vehicle differs from the requirements given in this paragraph, items may be removed or added to the vehicle which has no influence on its performance. Any items added to increase the vehicle mass should be securely attached to the car.	3.11.6.4.6.5 車輛總重應為空車重量加上 200 公斤，容許誤差值為 $\pm 1\%$ 。前軸/後軸之空車重與加滿燃油配重後，前軸/後軸重量變化皆在 5%以內。若受驗車輛無法符合此規範，可於車輛內移除或增加與性能表現無關之物品。任何用以增加重量之物品應穩當地固定於車內。	3.11.5.4.6.5 車輛總重應為空車重量加上 200 公斤，容許誤差值為 $\pm 1\%$ 。前軸/後軸之空車重與加滿燃油配重後，前軸/後軸重量變化皆在 5%以內。若受驗車輛無法符合此規範，可於車輛內移除或增加與性能表現無關之物品。任何用以增加重量之物品應穩當地固定於車內。
6.4.6.6 Repeat paragraphs 6.4.6.3 and 6.4.6.4 until the front and rear axle	6.4.6.6 Repeat paragraphs 6.4.6.3 and 6.4.6.4 until the front and rear axle	3.11.6.4.6.6 重複 3.11.6.4.6.3 與 3.11.6.4.6.4 之步驟，直至前後軸重量	3.11.5.4.6.6 重複 3.11.5.4.6.3 與 3.11.5.4.6.4 之步驟，直至前後軸重量

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loads and the total vehicle mass are within the limits set in paragraph 6.4.6.5. Care needs to be taken when adding or removing weight in order to approximate the original vehicle inertial properties as close as possible. Record the final axle loads in the test details. Record the axle weights of the VUT in the ‘as tested’ condition.	loads and the total vehicle mass are within the limits set in paragraph 6.4.6.5. Care needs to be taken when adding or removing weight in order to approximate the original vehicle inertial properties as close as possible. Record the final axle loads in the test details. Record the axle weights of the VUT in the ‘as tested’ condition.	及車輛總重符合條文 3.11.6.4.6.5 之規定。增加或移除重量時應謹慎執行，以維持車輛之慣性屬性(inertial properties)。試驗內容應記錄最終之軸重。試驗條件應記錄受驗車輛之軸重。	及車輛總重符合條文 3.11.5.4.6.5 之規定。增加或移除重量時應謹慎執行，以維持車輛之慣性屬性(inertial properties)。試驗內容應記錄最終之軸重。試驗條件應記錄受驗車輛之軸重。
6.4.6.7 Verify the x-y coordinates for the virtual front end vehicle contour given by the manufacturer. When the coordinates given are within 10mm of those measured by the test laboratory, the coordinates as provided by the manufacturer will be used. When the coordinates are not within 10mm, the coordinates as measured by the laboratory will be used.	6.4.6.7 Verify the x-y coordinates for the virtual front end vehicle contour given by the manufacturer. When the coordinates given are within 10mm of those measured by the test laboratory, the coordinates as provided by the manufacturer will be used. When the coordinates are not within 10mm, the coordinates as measured by the laboratory will be used.	3.11.6.4.6.7 應驗證車輛業者提供之車頭虛擬標示線 x,y 座標。若提供之座標與檢測機構測量出之座標誤差小於 10mm，則直接使用車輛業者提供之座標。若誤差大於 10mm，則應使用檢測機構測量之座標。	3.11.5.4.6.7 應驗證車輛業者提供之車頭虛擬標示線 x,y 座標。若提供之座標與檢測機構測量出之座標誤差小於 10mm，則直接使用車輛業者提供之座標。若誤差大於 10mm，則應使用檢測機構測量之座標。
6.4.6.8 For purposes of the ELK elements of this procedure, vehicle dimensions shall be represented by a		3.11.6.4.6.8 就執行緊急車道維持輔助系統(ELK)要素而言，車輛尺寸應以一個二維多邊形表示，該多邊形由車	

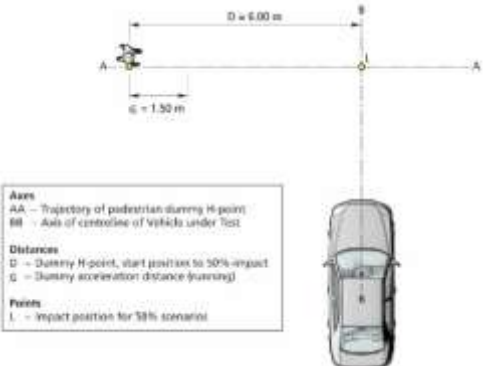
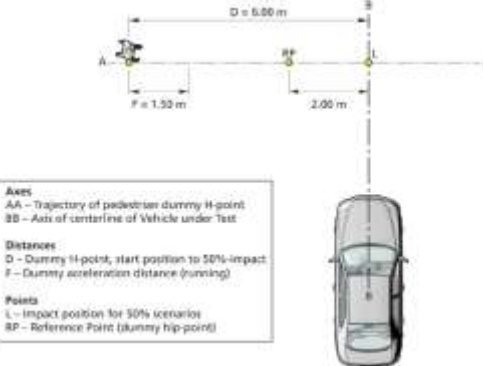
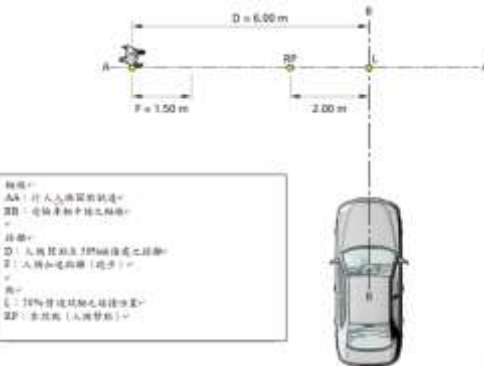
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two-dimensional polygon defined by the lateral and longitudinal dimensions relative to the centroid of the vehicle using the standard ISO 8855 coordinate system. The corners of the polygon are defined by the lateral and longitudinal locations where the plane of the outside edge of each tyre makes contact with the road. This plane is defined by running a perpendicular line from the outer most edge of the tyre to the ground at the wheelbase, as illustrated in Figure 6-5.  Figure 6-5 : Vehicle dimensional measurements 6.4.6.9 Requirements for Steering Robot friction levels should be checked prior to testing the ELK elements of this procedure, as detailed in the Technical		<u>輛幾何中心相對之橫向與縱向尺寸定義，並使用 ISO 8855 座標系統，多邊形角點由車輪外側邊緣平面與路面接觸之位置決定，該平面係透過從輪胎最外側邊緣作垂直線至軸距處之地面來定義，如圖 13 所示。</u> <u>(請參末頁圖示)</u> <u>3.11.6.4.6.9 執行緊急車道維持輔助系統(ELK)試驗前，應依據 Euro NCAP TB038 檢查轉向機器人之摩擦力基準。</u>	

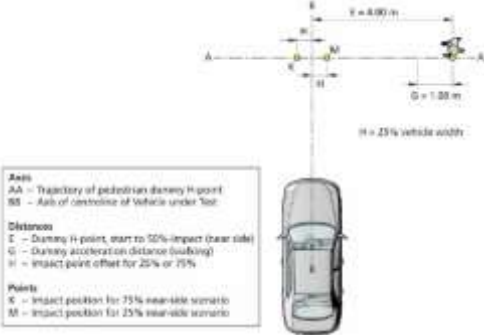
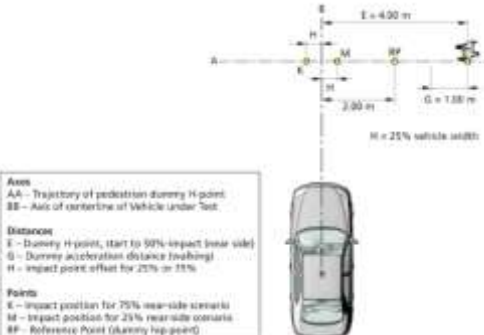
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7 TEST PROCEDURE	7 TEST PROCEDURE	3.11.7 試驗程序	3.11.6 試驗程序
7.1 VUT Pre-test Conditioning	7.1 VUT Pre-test Conditioning	3.11.7.1 受驗車輛試驗前調整	3.11.6.1 受驗車輛試驗前調整
7.1.1 General	7.1.1 General	3.11.7.1.1 一般通則	3.11.6.1.1 一般通則
7.1.1.1 A new car is used as delivered to the test laboratory.	7.1.1.1 A new car is used as delivered to the test laboratory.	3.11.7.1.1.1 以新車送至檢測機構。	3.11.6.1.1.1 以新車送至檢測機構。
7.1.1.2 If requested by the vehicle manufacturer, drive a maximum of 100km on a mixture of urban and rural roads with other traffic and roadside furniture to ‘calibrate’ the sensor system. Avoid harsh acceleration and braking.	7.1.1.2 If requested by the vehicle manufacturer, drive a maximum of 100km on a mixture of urban and rural roads with other traffic and roadside furniture to ‘calibrate’ the sensor system. Avoid harsh acceleration and braking.	3.11.7.1.1.2 若車輛業者要求，受驗車輛可行駛於市區及鄉村道路，或檢測機構試驗道路之交通環境及設施下最多 100 公里，以校準感測器系統。行駛時，應避免劇烈加速及煞車。	3.11.6.1.1.2 若車輛業者要求，受驗車輛可行駛於市區及鄉村道路，或檢測機構試驗道路之交通環境及設施下最多 100 公里，以校準感測器系統。行駛時，應避免劇烈加速及煞車。
7.1.2 Brakes	7.1.2 Brakes	3.11.7.1.2 煞車	3.11.6.1.2 煞車
7.1.2.1 Condition the vehicle’s brakes in the following manner, if it has not been done before or in case the lab has not performed a 100km of driving : ●Perform twenty stops from a speed of 56km/h with an average deceleration of	7.1.2.1 Condition the vehicle’s brakes in the following manner, if it has not been done before or in case the lab has not performed a 100km of driving : ●Perform twenty stops from a speed of 56km/h with an average deceleration of	3.11.7.1.2.1 若未完成或檢測機構未進行 100 公里的行駛，則依下列方式調節車輛煞車： (1) 自車速 56km/h 以平均減速度為 0.5 至 0.6g 之方式執行 20 次煞	3.11.6.1.2.1 若未完成或檢測機構未進行 100 公里的行駛，則依下列方式調節車輛煞車： (1) 自車速 56km/h 以平均減速度為 0.5 至 0.6g 之方式執行 20 次煞

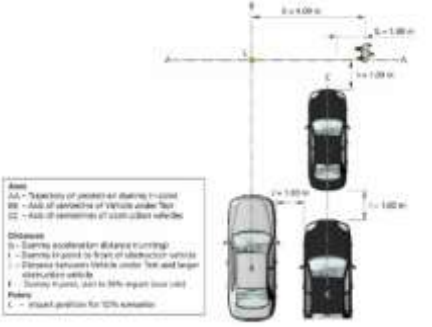
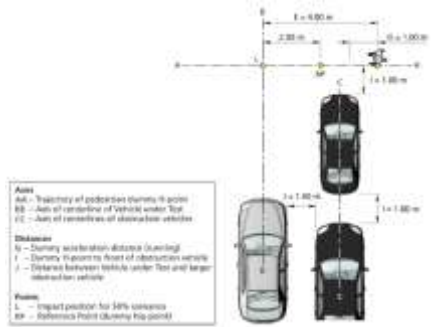
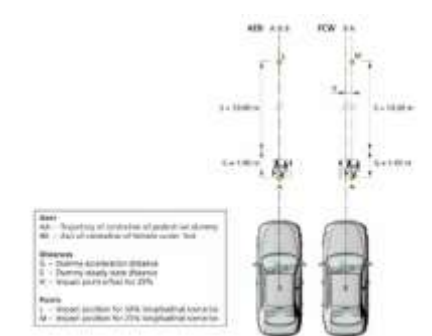
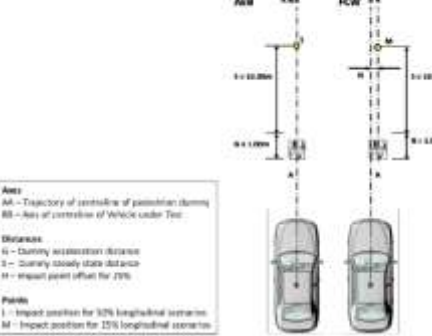
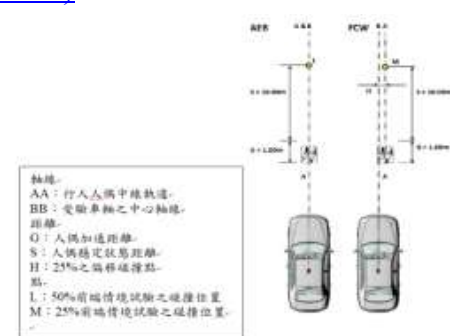
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approximately 0.5 to 0.6g. •Immediately following the series of 56km/h stops, perform three additional stops from a speed of 72km/h, each time applying sufficient force to the pedal to operate the vehicle's antilock braking system (ABS) for the majority of each stop. •Immediately following the series of 72km/h stops, drive the vehicle at a speed of approximately 72km/h for five minutes to cool the brakes.	approximately 0.5 to 0.6g. •Immediately following the series of 56km/h stops, perform three additional stops from a speed of 72km/h, each time applying sufficient force to the pedal to operate the vehicle's antilock braking system (ABS) for the majority of each stop. •Immediately following the series of 72km/h stops, drive the vehicle at a speed of approximately 72km/h for five minutes to cool the brakes.	停。 (2) 完成上述 56km/h 一系列煞車後，緊接著再以 72km/h 的速度煞停 3 次，每次應以足夠的力度踩下煞車，讓車輛的防鎖死煞車系統(antilock braking system，ABS)可於每次煞車時充分作動。 (3) 完成上述 72km/h 一系列煞車後，隨即應以 72km/h 的速度行駛 5 分鐘以冷卻煞車。	停。 (2) 完成上述 56km/h 一系列煞車後，緊接著再以 72km/h 的速度煞停 3 次，每次應以足夠的力度踩下煞車，讓車輛的防鎖死煞車系統(antilock braking system，ABS)可於每次煞車時充分作動。 (3) 完成上述 72km/h 一系列煞車後，隨即應以 72km/h 的速度行駛 5 分鐘以冷卻煞車。
7.1.3 Tyres	7.1.3 Tyres	3.11.7.1.3 輪胎	3.11.6.1.3 輪胎
7.1.3.1 Condition the vehicle's tyres in the following manner to remove the mould sheen, if this has not been done before for another test or in case the lab has not performed a 100km of driving :	7.1.3.1 Condition the vehicle's tyres in the following manner to remove the mould sheen, if this has not been done before for another test or in case the lab has not performed a 100km of driving :	3.11.7.1.3.1 若未完成其他試驗或者檢測機構未進行 100 公里的行駛，則以下列方式調節車輛輪胎，以磨除輪胎之毛邊：	3.11.6.1.3.1 若未完成其他試驗或者檢測機構未進行 100 公里的行駛，則以下列方式調節車輛輪胎，以磨除輪胎之毛邊：
•Drive around a circle of 30m in diameter at a speed sufficient to generate a lateral acceleration of approximately 0.5 to 0.6g for three	•Drive around a circle of 30m in diameter at a speed sufficient to generate a lateral acceleration of approximately 0.5 to 0.6g for three	(1) 測試車輛沿直徑 30m 之圓環並以能產生接近 0.5 至 0.6g 側向加速度之速度繞行，先以順時針方向行駛 3 圈接著以逆時針方	(1) 測試車輛沿直徑 30m 之圓環並以能產生接近 0.5 至 0.6g 側向加速度之速度繞行，先以順時針方向行駛 3 圈接著以逆時針方

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clockwise laps followed by three anticlockwise laps. ●Immediately following the circular driving, drive four passes at 56km/h, performing ten cycles of a sinusoidal steering input in each pass at a frequency of 1Hz and amplitude sufficient to generate a peak lateral acceleration of approximately 0.5 to 0.6g. ●Make the steering wheel amplitude of the final cycle of the final pass double that of the previous inputs.	clockwise laps followed by three anticlockwise laps. ●Immediately following the circular driving, drive four passes at 56km/h, performing ten cycles of a sinusoidal steering input in each pass at a frequency of 1Hz and amplitude sufficient to generate a peak lateral acceleration of approximately 0.5 to 0.6g. ●Make the steering wheel amplitude of the final cycle of the final pass double that of the previous inputs.	向行駛 3 圈。 (2) 使用頻率 1 赫茲之正弦轉向模式，與符合最高側向加速度 0.5 至 0.6g 之方向盤轉角振幅極值，且車速為 56km/h，使車輛繞行 4 次，並於每次進行 10 次之正弦轉向循環。 (3) 最終次之最終循環之方向盤轉角振幅應為前次循環之 2 倍。	向行駛 3 圈。 (2) 使用頻率 1 赫茲之正弦轉向模式，與符合最高側向加速度 0.5 至 0.6g 之方向盤轉角振幅極值，且車速為 56km/h，使車輛繞行 4 次，並於每次進行 10 次之正弦轉向循環。 (3) 最終次之最終循環之方向盤轉角振幅應為前次循環之 2 倍。
7.1.3.2 In case of instability in the sinusoidal driving, reduce the amplitude of the steering input to an appropriately safe level and continue the four passes.	7.1.3.2 In case of instability in the sinusoidal driving, reduce the amplitude of the steering input to an appropriately safe level and continue the four passes.	3.11.7.1.3.2 如正弦轉向模式 (sinusoidal driving) 致使車身不穩定，則應減少方向盤輸入之振幅至安全水平，並完成 4 次操作。	3.11.6.1.3.2 如正弦轉向模式 (sinusoidal driving) 致使車身不穩定，則應減少方向盤輸入之振幅至安全水平，並完成 4 次操作。
7.1.4 AEB/FCW & LSS System Check 7.1.4.1 Before any testing begins, perform a maximum of ten runs at the	7.1.4 AEB/FCW System Check 7.1.4.1 Before any testing begins, perform a maximum of ten runs at the	3.11.7.1.4 緊急煞車輔助系統/前方碰撞預警系統及車道輔助系統檢測 3.11.7.1.4.1 試驗開始前，應以可觸發	3.11.6.1.4 緊急煞車輔助系統/前方碰撞預警系統檢測 3.11.6.1.4.1 試驗開始前，應以可觸發

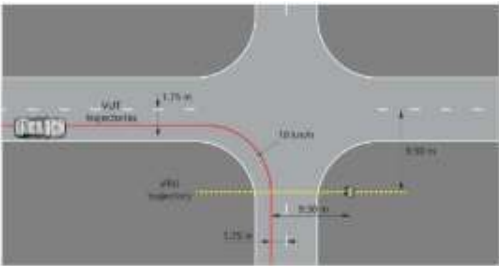
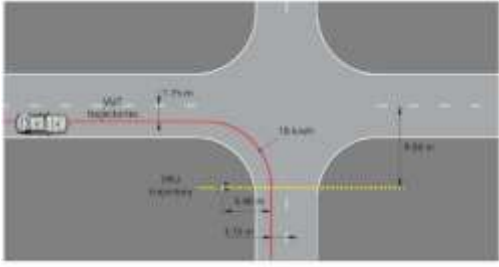
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lowest test speed the system is supposed to work, to ensure proper functioning of the system. 7.2 Car-to-Pedestrian Scenarios The performance of the system is assessed in different scenarios. For AEB Pedestrian the scenarios are considered in these sections : <table><tr><th></th><th>CPFA</th><th>CPNA</th><th>CPHCO</th><th>CPLA</th><th>CPTA</th><th>CPRA/CPRC</th></tr><tr><td>Section</td><td>7.2.1</td><td>7.2.2</td><td>7.2.3</td><td>7.2.4</td><td>7.2.5</td><td>7.2.6</td></tr><tr><td>Type of test</td><td colspan="2">AEB</td><td>AEB</td><td>FCW/ESS</td><td>AEB</td><td>AEB</td></tr><tr><td>VUT speed (km/h)</td><td colspan="2">10-60</td><td>20-60</td><td>50-80</td><td>10,15,20</td><td>10</td><td>4,8</td></tr><tr><td>VUT direction</td><td colspan="2">Forward</td><td>Forward</td><td>Far side turn</td><td>Near side turn</td><td colspan="2">Rearward</td></tr><tr><td>Target speed (km/h)</td><td>8</td><td>5</td><td>5</td><td>5</td><td>5</td><td>0</td><td>5</td></tr><tr><td>Target direction</td><td>Coming from 1/2 side</td><td>Coming from Near side</td><td>Forward</td><td>Coming from Opposite direction</td><td>Coming from Same direction</td><td>Coming from Opposite direction</td><td>Coming from Same direction</td></tr><tr><td>Impact location [%]</td><td>50</td><td>75, 75*</td><td>50</td><td>50</td><td>25</td><td>75, 50, 75</td><td>50</td></tr><tr><td>Dummy Articulation</td><td colspan="2">Yes – as per test speed</td><td>Yes</td><td>Yes</td><td>Articulated dummy in 'off' position</td><td>Yes</td></tr><tr><td>Lighting condition</td><td colspan="2">Day/Night</td><td>Day/Night</td><td>Day</td><td>Day</td></tr><tr><td>Vehicle lights (night)</td><td colspan="2">Low beam</td><td>High beam</td><td>N/A</td><td>N/A</td></tr><tr><td>Streetlights (night)</td><td colspan="2">Streetlights</td><td>No streetlights</td><td>N/A</td><td>N/A</td></tr></table> *For the CPNA-75 scenario, an additional test is performed during both day and night-time as part of the prerequisite verification at a test speed of 20km/h and with an EPTa speed of 3 km/h.		CPFA	CPNA	CPHCO	CPLA	CPTA	CPRA/CPRC	Section	7.2.1	7.2.2	7.2.3	7.2.4	7.2.5	7.2.6	Type of test	AEB		AEB	FCW/ESS	AEB	AEB	VUT speed (km/h)	10-60		20-60	50-80	10,15,20	10	4,8	VUT direction	Forward		Forward	Far side turn	Near side turn	Rearward		Target speed (km/h)	8	5	5	5	5	0	5	Target direction	Coming from 1/2 side	Coming from Near side	Forward	Coming from Opposite direction	Coming from Same direction	Coming from Opposite direction	Coming from Same direction	Impact location [%]	50	75, 75*	50	50	25	75, 50, 75	50	Dummy Articulation	Yes – as per test speed		Yes	Yes	Articulated dummy in 'off' position	Yes	Lighting condition	Day/Night		Day/Night	Day	Day	Vehicle lights (night)	Low beam		High beam	N/A	N/A	Streetlights (night)	Streetlights		No streetlights	N/A	N/A	lowest test speed the system is supposed to work, to ensure proper functioning of the system. 7.2 Test Scenarios 7.2.1 The performance of the system is assessed in different scenarios. For AEB Pedestrian the scenarios CPFA-50, CPNA-25, CPNA-75, CPNC-50 and CPLA are considered as shown in Figures 10a, 10b, 10c and 10d respectively.	系統之最低試驗速度行駛至多 10 次，以確保系統正常運作。 <u>3.11.7.2 車對行人試驗情境</u> <u>3.11.7.2.1 在不同情境下之緊急煞車輔助系統試驗。針對 AEB 行人之情境，如下表所示。</u> <u>(請參末頁表格)</u> <u>對於近端成人碰撞情境試驗 75%·應於白天與晚上各進行一次額外試驗·試驗速度為 20km/h·且目標成人速度為 3km/h。</u>	系統之最低試驗速度行駛至多 10 次，以確保系統正常運作。 <u>3.11.6.2 試驗情境</u> <u>3.11.6.2.1 在不同情境下之緊急煞車輔助系統試驗。針對 AEB 行人之情境係以遠端成人碰撞情境試驗、近端成人碰撞情境試驗 25%、近端成人碰撞情境試驗 75%、近端兒童碰撞情境試驗，以及前端成人碰撞情境試驗作評等，如圖 9abcd 所示。</u>
	CPFA	CPNA	CPHCO	CPLA	CPTA	CPRA/CPRC																																																																																			
Section	7.2.1	7.2.2	7.2.3	7.2.4	7.2.5	7.2.6																																																																																			
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Lighting condition	Day/Night		Day/Night	Day	Day																																																																																				
Vehicle lights (night)	Low beam		High beam	N/A	N/A																																																																																				
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	7.2.2 For AEB Bicyclist the CBNA and CBLA scenarios are considered as shown in Figures 11a and 11b. 7.2.3 For testing purposes, assume a straight line path equivalent to the centreline of the lane in which the collision occurred, hereby known as the test path. Control the VUT with driver inputs or using alternative control systems that can modulate the vehicle controls as necessary to perform the tests.		3.11.6.2.2 AEB 自行車騎士之近端自行車騎士碰撞情境試驗及前端自行車騎士碰撞情境試驗如圖 10ab 所示。 3.11.6.2.3 試驗路徑應維持於車道中線。可由駕駛直接控制受驗車輛，另試驗若有需要，可以使用調節車輛控制之控制系統作替代。
7.2.1 Car-to-Pedestrian Farside Adult  Diagram illustrating the Car-to-Pedestrian Farside Adult test scenario. The car is positioned 6.00 m from the pedestrian. The pedestrian is 1.50 m from the car's centerline. The car's trajectory is labeled AA, and the vehicle's centerline is labeled BB. The impact point is labeled L. The car's acceleration distance is labeled D.	 Diagram illustrating the Car-to-Pedestrian Farside Adult test scenario. The car is positioned 6.00 m from the pedestrian. The pedestrian is 1.50 m from the car's centerline. The car's trajectory is labeled AA, and the vehicle's centerline is labeled BB. The impact point is labeled L. The car's acceleration distance is labeled D.	3.11.7.2.2 遠端成人碰撞情境試驗 (CPFA)  Diagram illustrating the Car-to-Pedestrian Farside Adult test scenario. The car is positioned 6.00 m from the pedestrian. The pedestrian is 1.50 m from the car's centerline. The car's trajectory is labeled AA, and the vehicle's centerline is labeled BB. The impact point is labeled L. The car's acceleration distance is labeled D.	 Diagram illustrating the Car-to-Pedestrian Farside Adult test scenario. The car is positioned 6.00 m from the pedestrian. The pedestrian is 1.50 m from the car's centerline. The car's trajectory is labeled AA, and the vehicle's centerline is labeled BB. The impact point is labeled L. The car's acceleration distance is labeled D.

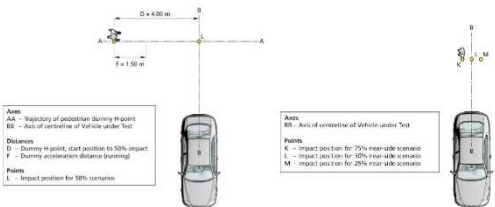
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Figure 7-1 : CPFA-50 scenario, Adult running from Farside 7.2.2 Car-to-Pedestrian Nearside Adult  Figure 7-2 : CPNA-25 & CPNA-75 scenarios, Walking Adult from Nearside 7.2.3 Car-to-Pedestrian Nearside Child Obstructed	Figure 9a : CPFA-50 scenario, Adult running from Farside  Figure 9b : CPNA-25 & CPNA-75 scenarios, Walking Adult from Nearside	圖 14a : 遠端成人碰撞情境試驗，成人行人自遠端跑步穿越其路徑 3.11.7.2.3 近端成人碰撞情境試驗 (CPNA)  圖 14b : 近端成人碰撞情境試驗 25% 及近端成人碰撞情境試驗 75%，成人行人自近端走路穿越其路徑 3.11.7.2.4 近端兒童障碍物碰撞情境試驗 (CPNCO)	圖 9a : 遠端成人碰撞情境試驗，成人行人自遠端跑步穿越其路徑  圖 9b : 近端成人碰撞情境試驗 25% 及近端成人碰撞情境試驗 75%，成人行人自近端走路穿越其路徑

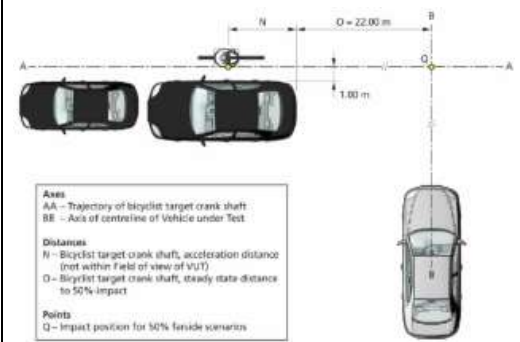
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 Figure 7-3 : CPNCO-50 scenario, Running Child from Nearside from Obstruction (Annex A)	 Figure 9c : CPNC-50 scenario, Running Child from Nearside from Obstruction vehicles (see Annex A)	 圖 14c：近端兒童障礙物碰撞情境試驗，兒童行人自近端障礙物之後方跑步穿越其路徑(參 3.11.8)	 圖 9c：近端兒童碰撞情境試驗，兒童行人自近端障礙物之後方跑步穿越其路徑(參 3.11.7)
7.2.4 Car-to-Pedestrian Longitudinal Adult  Figure 7-4 : CPLA scenario, Longitudinal walking Adult 7.2.5 Car-to-Pedestrian Turning Adult	 Figure 9d : CPLA scenario, Longitudinal walking Adult	3.11.7.2.5 前端成人碰撞情境試驗 (CPLA)  圖 14d：前端成人碰撞情境試驗，成行人縱向向前步行 3.11.7.2.6 轉彎成人碰撞情境試驗	 圖 9d：前端成人碰撞情境試驗，成行人縱向向前步行

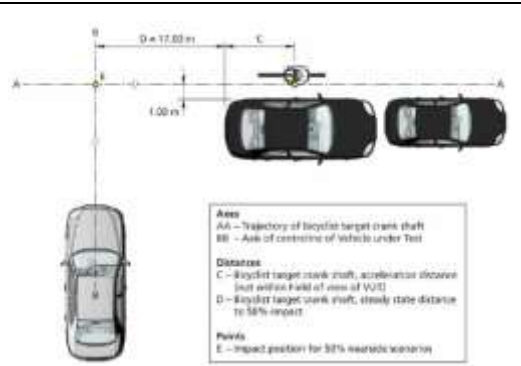
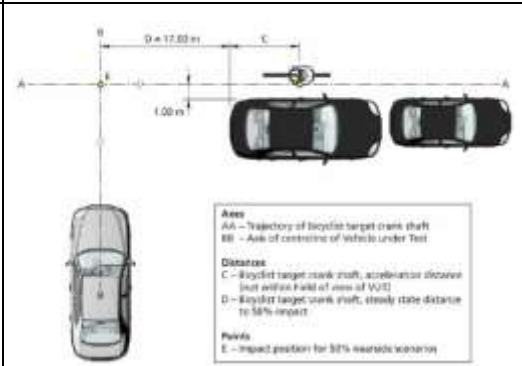
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For the CPTA scenarios, for the VUT assume an initial straight-line path followed by a turn (clothoid, fixed radius and clothoid as specified in section 7.2.5.1), followed again by a straight line, hereby known as the test path. These tests are conducted without the use of the turn signals. The VUT will follow a straight-line path in the approach lane which will be 1.75m from the centre of the centre dashed lane marking of the VUT lane. The 4 different scenarios of CPTA are represented below : f for farside turn, n for nearside turn, s for same direction, o for opposite direction		<u>(CPTA)</u> <u>對於轉彎成人碰撞情境試驗(CPTA)，</u> <u>受驗車輛於試驗路徑先沿直線行駛，</u> <u>接著進入一個轉彎(迴旋曲線、固定</u> <u>半徑及迴旋曲線，如 3.11.7.2.6.1 規</u> <u>定)，再回到直線，試驗均不使用方向</u> <u>燈，受驗車輛進入車道時，將沿著一</u> <u>直線行駛，其位置距離受驗車輛之車</u> <u>道中央虛線標線中心 1.5 公尺。4 種</u> <u>轉彎成人碰撞情境試驗如下：f 表示</u> <u>遠端轉彎(farside turn)、n 表示近端轉</u> <u>彎(nearside turn)、s 表示同向(same</u> <u>direction)、o 表示對向(opposite</u> <u>direction)。</u>	

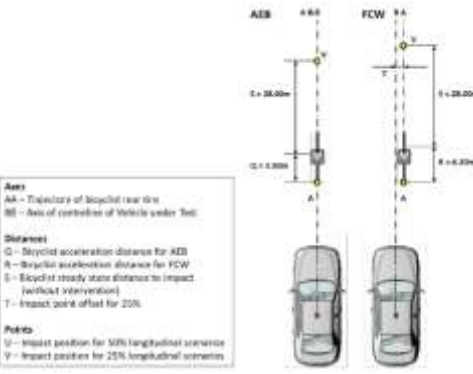
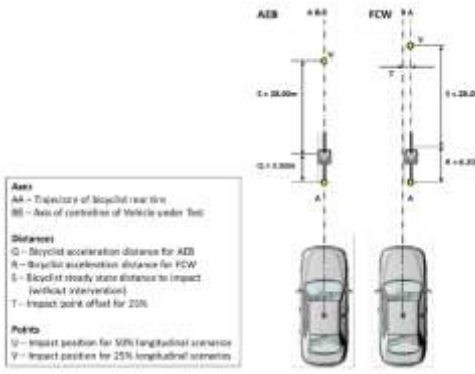
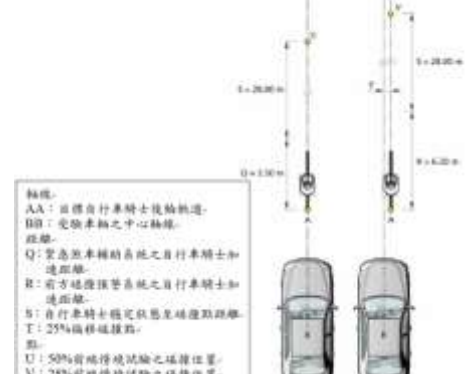
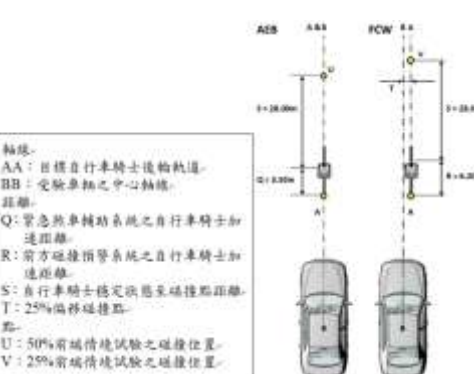
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turn, pedestrian crossing from nearside  Figure 7-7 CPTAno scenario – VUT right turn, pedestrian crossing from farside 		(請參末頁圖示) (請參末頁圖示)	

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Figure 7-8 CPTAns scenario – VUT right turn, pedestrian crossing from nearside 7.2.5.1 For CPTA, CBTA and CMFtap, the following parameters should be used to create the test paths. <table><tr><th rowspan="2">Test speed</th><th colspan="3">Part 1 (clothoid)</th><th colspan="3">Part 2 (constant radius)</th><th colspan="3">Part 3 (clothoid)</th></tr><tr><th>Start Radius R1 [m]</th><th>End Radius R2 [m]</th><th>Angle α [deg]</th><th>Start Radius R1 [m]</th><th>End Radius R2 [m]</th><th>Angle β [deg]</th><th>Start Radius R1 [m]</th><th>End Radius R2 [m]</th><th>Angle γ [deg]</th></tr><tr><td>10 km/h to Far-side</td><td>396</td><td>293</td><td>179.6</td><td>196</td><td>193</td><td>193</td><td>196</td><td>293</td><td>179.6</td></tr><tr><td>15 km/h to Far-side</td><td>1500</td><td>9.00</td><td>20.42</td><td>9.00</td><td>9.00</td><td>48.76</td><td>9.00</td><td>1500</td><td>20.42</td></tr><tr><td>20 km/h to Far-side</td><td>1500</td><td>11.75</td><td>20.83</td><td>11.75</td><td>11.75</td><td>49.14</td><td>11.75</td><td>1500</td><td>20.83</td></tr><tr><td>25 km/h to Far-side</td><td>1500</td><td>14.75</td><td>21.39</td><td>14.75</td><td>14.75</td><td>49.43</td><td>14.75</td><td>1500</td><td>21.39</td></tr><tr><td>30 km/h to Near-side</td><td>1500</td><td>6.00</td><td>22.85</td><td>6.00</td><td>6.00</td><td>49.30</td><td>6.00</td><td>1500</td><td>22.85</td></tr></table>	Test speed	Part 1 (clothoid)			Part 2 (constant radius)			Part 3 (clothoid)			Start Radius R1 [m]	End Radius R2 [m]	Angle α [deg]	Start Radius R1 [m]	End Radius R2 [m]	Angle β [deg]	Start Radius R1 [m]	End Radius R2 [m]	Angle γ [deg]	10 km/h to Far-side	396	293	179.6	196	193	193	196	293	179.6	15 km/h to Far-side	1500	9.00	20.42	9.00	9.00	48.76	9.00	1500	20.42	20 km/h to Far-side	1500	11.75	20.83	11.75	11.75	49.14	11.75	1500	20.83	25 km/h to Far-side	1500	14.75	21.39	14.75	14.75	49.43	14.75	1500	21.39	30 km/h to Near-side	1500	6.00	22.85	6.00	6.00	49.30	6.00	1500	22.85		3.11.7.2.6.1 對於轉彎成人、轉彎自行車騎士及轉彎機車騎士等碰撞情境試驗，應依以下參數建立試驗路徑。 (請參末頁表格) 3.11.7.2.7 倒車成人/兒童碰撞情境試驗(CPRA/CPRC) 對於倒車成人/兒童碰撞情境試驗(CPRA/CPRC)，使用目標成人與目標兒童以確保系統性能穩健性。下表顯示於不同速度與重疊情境下，所使用之目標行人。	
Test speed		Part 1 (clothoid)			Part 2 (constant radius)			Part 3 (clothoid)																																																																
	Start Radius R1 [m]	End Radius R2 [m]	Angle α [deg]	Start Radius R1 [m]	End Radius R2 [m]	Angle β [deg]	Start Radius R1 [m]	End Radius R2 [m]	Angle γ [deg]																																																															
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15 km/h to Far-side	1500	9.00	20.42	9.00	9.00	48.76	9.00	1500	20.42																																																															
20 km/h to Far-side	1500	11.75	20.83	11.75	11.75	49.14	11.75	1500	20.83																																																															
25 km/h to Far-side	1500	14.75	21.39	14.75	14.75	49.43	14.75	1500	21.39																																																															
30 km/h to Near-side	1500	6.00	22.85	6.00	6.00	49.30	6.00	1500	22.85																																																															
7.2.6 Car-to-Pedestrian Reverse Adult/Child In the Car-to-Pedestrian Reverse scenario, a combination of the EPTa and EPTc is used to ensure robust performance. The following table shows which of the pedestrian targets is used in the different speed and overlap combinations.																																																																								

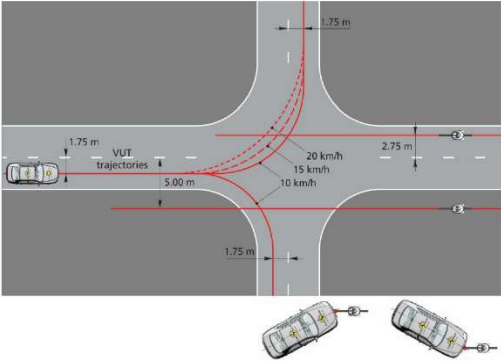
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<table border="1"> <thead> <tr> <th>Speed</th><th>Overlap</th><th>CPRA/Cs</th><th>CPRA/Cm</th></tr> </thead> <tbody> <tr> <td rowspan="3">4 km/h</td><td>25%</td><td>EFTc</td><td></td></tr> <tr> <td>50%</td><td>EFTa</td><td>EPTa</td></tr> <tr> <td>75%</td><td>EFTc</td><td></td></tr> <tr> <td rowspan="3">8 km/h</td><td>25%</td><td>EFTa</td><td></td></tr> <tr> <td>50%</td><td>EFTc</td><td>EPTc</td></tr> <tr> <td>75%</td><td>EPTa</td><td></td></tr> </tbody> </table> 7.2.6.1 Where the dummy is stationary (CPRA/Cs), the dummy should be used in its resting position with the articulation being switched off (i.e. not the static dummy posture as defined in ISO 19206-2).  Figure 7-9 : CPRA/CPRC scenario, Pedestrian from Nearside (left) and Stationary (right) 7.3 Car-to-Bicyclist Scenarios For AEB Bicyclist the scenarios are considered in these sections :	Speed	Overlap	CPRA/Cs	CPRA/Cm	4 km/h	25%	EFTc		50%	EFTa	EPTa	75%	EFTc		8 km/h	25%	EFTa		50%	EFTc	EPTc	75%	EPTa			(請參末頁表格) 3.11.7.2.7.1 當人偶為靜止狀態 (CPRA/Cs)時，人偶應保持於其休止位置，並關閉其關節動作(不使用 ISO 19206-2 中定義之靜態人偶姿勢)。 (請參末頁圖示) 3.11.7.3 車對自行車騎士情境 針對 AEB 自行車騎士之情境，如下表所示。	
Speed	Overlap	CPRA/Cs	CPRA/Cm																								
4 km/h	25%	EFTc																									
	50%	EFTa	EPTa																								
	75%	EFTc																									
8 km/h	25%	EFTa																									
	50%	EFTc	EPTc																								
	75%	EPTa																									

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<table><tr><th></th><th>CBFA</th><th>CBNA</th><th>CBLA</th><th>CBTA</th><th>CBDL</th></tr><tr><td>Paragraph</td><td>7.3.1</td><td>7.3.2 & 7.3.3</td><td>7.3.4</td><td>7.3.5</td><td>7.3.6</td></tr><tr><td>Type of test</td><td>AFB</td><td>AFB</td><td>AFB</td><td>FCW/ESS</td><td>AFB</td></tr><tr><td>VUT speed [km/h]</td><td>10-60</td><td>10-60</td><td>25-60</td><td>50-80</td><td>10,15,20</td></tr><tr><td>VUT direction</td><td>Forward</td><td>Forward</td><td>Forward</td><td>Farside turn</td><td>Nearside turn</td></tr><tr><td>Obstruction</td><td>No</td><td>No</td><td>Yes**</td><td>No</td><td>Yes</td></tr><tr><td>Target speed [km/h]</td><td>20</td><td>15</td><td>10</td><td>15</td><td>20</td></tr><tr><td>Target direction</td><td>Farside</td><td>Nearside</td><td>Forward</td><td>Opposite direction</td><td>Forward</td></tr><tr><td>Impact location [%]</td><td>50</td><td>50</td><td>50</td><td>25</td><td>50</td></tr><tr><td>Lighting condition</td><td>Day</td><td>Day</td><td>Day</td><td>Day</td><td>Day</td></tr></table> *Reference point is the same for front doors and rear doors. ** Distance between obscuration vehicles [0.1 ~ 0.3]m.		CBFA	CBNA	CBLA	CBTA	CBDL	Paragraph	7.3.1	7.3.2 & 7.3.3	7.3.4	7.3.5	7.3.6	Type of test	AFB	AFB	AFB	FCW/ESS	AFB	VUT speed [km/h]	10-60	10-60	25-60	50-80	10,15,20	VUT direction	Forward	Forward	Forward	Farside turn	Nearside turn	Obstruction	No	No	Yes**	No	Yes	Target speed [km/h]	20	15	10	15	20	Target direction	Farside	Nearside	Forward	Opposite direction	Forward	Impact location [%]	50	50	50	25	50	Lighting condition	Day	Day	Day	Day	Day		(請參末頁表格) 3.11.7.3.1 遠端自行車騎士碰撞情境試驗(CBFA) (請參末頁圖示) 3.11.7.3.2 近端自行車騎士碰撞情境試驗 (CBNA)	
	CBFA	CBNA	CBLA	CBTA	CBDL																																																										
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Lighting condition	Day	Day	Day	Day	Day																																																										
7.3.1 Car-to-Bicyclist Farside Adult  Figure 7-10 : CBFA scenario, Bicyclist from Farside 7.3.2 Car-to-Bicyclist Nearside Adult																																																															

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 Figure 7-11 : CBNA scenario, Bicyclist from Nearside	 Figure 10a : CBNA scenario, Bicyclist from Nearside	 圖 14k : 近端自行車騎士碰撞情境試驗，自行車騎士自騎乘穿越其路徑	 圖 10a: 近端自行車騎士碰撞情境試驗，自行車騎士自騎乘穿越其路徑
7.3.3 Car-to-Bicyclist Nearside Adult Obstructed  Figure 7-12 : CBNAO scenario, Bicyclist from Nearside(obstructed)		3.11.7.3.3 近端自行車騎士障礙物碰撞情境試驗(CBNAO) (請參末頁圖示)	

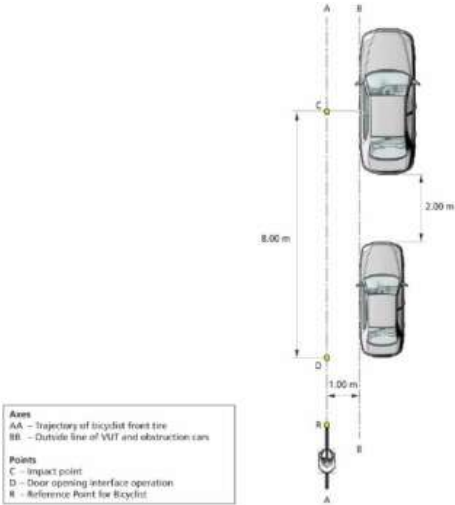
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7.3.4 Car-to-Bicyclist Longitudinal Adult  Figure 7-13 : CBLA scenarios, Longitudinal Bicyclist (AEB left & FCW right) Note : <i>the reflected acceleration distances Q and R are meant to suit the limited usable length of a belt-driven carrier platform. If a self-propelled carrier platform is used for the execution of CBLA, the acceleration distances Q and R can be increased according to the acceleration capabilities of the platform carrier.</i>	 Figure 10b : CBLA scenarios, Longitudinal Bicyclist (AEB left & FCW right)	3.11.7.3.4 前端自行車騎士碰撞情境試驗(CBLA)  圖 14m : 前端自行車騎士碰撞情境試驗，自行車騎士(AEB 左側與 FCW 右側)縱向向前騎乘 <u>備註：所對應加速距離 Q 與 R 係為配合皮帶驅動載具平台可用長度限制而設計。若使用自推進平台執行前端自行車騎士碰撞情境試驗，則加速距離 Q 與 R 可依該平台之加速性能增加距離。</u>	 圖 10b : 前端自行車騎士碰撞情境試驗，自行車騎士(AEB 左側與 FCW 右側)縱向向前騎乘

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7.3.5 Car-to-Bicyclist Turning Adult 7.3.5.1 For the CBTA scenarios, for the VUT assume an initial straight-line path followed by a turn (clothoid, fixed radius and clothoid as specified in section 7.2.5.1, followed again by a straight line, hereby known as the test path. The direction indicator is applied at $1.0s \pm 0.5s$ before TSteer. 7.3.5.2 The VUT will follow a straight-line path in the approach lane which will be 1.75m from the centre of the centre dashed lane marking of the VUT lane. The EBT will follow a straight-line path which will be respectively 2.75m (farside turn) and 5.00m (nearside turn) from the centre of the centre dashed lane marking of the VUT lane. Steady state speed of EBT starts at 4sec TTC.		<u>3.11.7.3.5 轉彎自行車騎士碰撞情境試驗(CBTA)</u> <u>3.11.7.3.5.1 對於轉彎自行車騎士碰撞情境試驗，受驗車輛試驗路徑為先直線，再進入轉彎段(迴旋曲線、固定半徑及迴旋曲線，依 3.11.7.2.6.1 規定)，再接直線，方向燈應於 T_{steer} 前 $1.0s \pm 0.5s$ 開啟。</u> <u>3.11.7.3.5.2 受驗車輛將沿接近車道之直線行駛，其路徑距離受驗車輛車道中央虛線標線中心 1.5m。目標自行車騎士將分別沿距受驗車輛車道中央虛線標線中心 2.5m(遠端轉彎)與 4.5m(近端轉彎)之直線行駛。目標自行車騎士穩態速度於 $TTC=4s$ 時開始。</u>	

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7.3.5.2.1 The paths of the VUT and EBT will be synchronized so that the front reference point of the EBT impacts the VUT at 100% overlap, assuming no system reaction. Farside turn with opposite direction -> CBTAfo  Figure 7-14 : CBTAfo scenarios, Turning cycling Adult 7.3.6 Car-to-Bicyclist Dooring 7.3.6.1 For the CBDA scenario a bicycle is traveling in a straight line at 15 km/h beside the parked vehicle.		<u>3.11.7.3.5.2.1 受驗車輛與目標自行車騎士路徑同步，使目標自行車騎士前參考點以 100%重疊碰撞受驗車輛(若系統無反應)。(遠端轉彎且反向為CBTAfo)</u> <u>(請參末頁圖示)</u> <u>3.11.7.3.6 車門開啟自行車騎士碰撞情境試驗(CBDA)</u> <u>3.11.7.3.6.1 對於車門開啟自行車騎士碰撞情境試驗(CBDA)，目標自行車騎士以 15km/h 速度沿停車車輛旁直線騎乘。</u>	

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7.3.6.2 In the first run, the EBT passes the parking car without operation on the door opening interface to assess the information given to the driver, where applicable. 7.3.6.3 In the second run (when applicable), the VUT driver door opening interface will be operated in a manner that for a warning system Topen and for a retention system Tdoor operation is achieved when the bicyclist front reference point is @ 8 m + [0,5] m from the most rearward point of the driver door.  Figure 7-15 : Reference point and direction relative to the VUT for dooring scenario		<u>3.11.7.3.6.2 第一次測試時，目標自行車騎士在不對車門開啟介面操作下通過停放車輛，用於評估是否提供駕駛提示資訊(若適用)。</u> <u>3.11.7.3.6.3 第二次測試時(若適用)，受驗車輛駕駛座車門開啟介面操作下，應於自行車騎士前方參考點距離駕駛座車門最末端 8m+0.5m 時，警示系統應達到 T_{open}；而車門限制系統 (retention system)應達到 T_{door_operation}° (請參末頁圖示)</u>	

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7.3.6.4 Door opening (manually operated) : Pull door handle or activate other door opening interface (e.g. push a button) in a manner that would open the door to exit the car in a normal non-hazard situation, while pushing the door open. Emergency exit functions are permitted where triggered by an additional action (e.g. second pull). For CBDA, all tests shall be performed with the VUT in parking position within 60 seconds (180 seconds from 2026 onwards) after propulsion system turned off with the driver in unbelted state. The widest outside structure (without mirrors) of VUT and obstruction car are aligned one meter from the path of the VRU while the central-axis of the cars are in parallel to VUT path. The distance between VUT and obstruction		<u>3.11.7.3.6.4 車門開啟(手動操作)</u> <u>以在正常無危險情況下開門下車的方式，拉動車門把手或啟動其他車門開啟介面（例如按下按鈕），同時將車門推開。若需透過額外動作（例如拉動第二次）才能觸發的緊急逃生功能，則屬允許範圍。</u> <u>車門開啟自行車騎士碰撞情境試驗，應於動力系統關閉後 60 秒內進行，且此時受驗車輛停車狀態、駕駛未繫安全帶下執行。(目前參考測試規章係為 2025 年版，故暫不納入 2026 年適用之 180 秒)</u> <u>受驗車輛與障礙車之最外側車體結構(不含後視鏡)對齊於目標自行車騎士路徑外側 1m，兩車縱向中心線平行於受驗車輛路徑，受驗車輛與障礙車間距為 2m，障礙車規格詳參 3.11.8.1。</u>	

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car is currently 2m and is intended to be lowered from 2026 onwards.The obstruction vehicle to be used is the smaller obstruction vehicle as defined in Annex A.1.  Figure 7-16 CBDA scenarios, Dooring cycling Adult 7.4 Car-to-Motorcyclist Scenarios For AEB/LSS Motorcyclist the scenarios are considered in these sections :		(請參末頁圖示) <u>3.11.7.4車對機車騎士情境</u> <u>針對AEB/LSS機車騎士之情境，如下表所示。</u>	

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<table><tr><th></th><th colspan="2">CMRs</th><th>CMRb</th><th>CMFtap</th><th>CMoncoming</th><th>CMovertaking</th></tr><tr><th>Paragraph</th><th>7.4.1</th><th>7.4.2</th><th>7.4.3</th><th>7.4.5</th><th>7.4.6</th><th></th></tr><tr><td>Type of test</td><td>AFB</td><td>FCW</td><td>AFB/FCW</td><td>AFB</td><td>ISS</td><td>ISS</td></tr><tr><td>VUT speed (km/h)</td><td>10-60</td><td>30-60</td><td>50</td><td>10,15,20</td><td>72</td><td>50 / 72</td></tr><tr><td>Target speed (km/h)</td><td>0</td><td>50</td><td>30,45,60</td><td>72</td><td>60</td><td>80</td></tr><tr><td>VUT direction</td><td>Forward</td><td>Forward</td><td>Farside turn</td><td>Forward</td><td>Forward</td><td></td></tr><tr><td>Impact location (%)</td><td>50</td><td>25</td><td>50</td><td>10</td><td>EMT front wheel to VUT rear wheel</td><td></td></tr><tr><td>Lighting condition</td><td>Day</td><td>Day</td><td>Day</td><td>Day</td><td>Day</td><td></td></tr></table>		CMRs		CMRb	CMFtap	CMoncoming	CMovertaking	Paragraph	7.4.1	7.4.2	7.4.3	7.4.5	7.4.6		Type of test	AFB	FCW	AFB/FCW	AFB	ISS	ISS	VUT speed (km/h)	10-60	30-60	50	10,15,20	72	50 / 72	Target speed (km/h)	0	50	30,45,60	72	60	80	VUT direction	Forward	Forward	Farside turn	Forward	Forward		Impact location (%)	50	25	50	10	EMT front wheel to VUT rear wheel		Lighting condition	Day	Day	Day	Day	Day			(請參末頁表格) <u>3.11.7.4.1 機車騎士靜止碰撞情境試驗(CMRs)</u> <u>機車騎士靜止碰撞情境試驗以 5km/h 速度增量執行，涵蓋完整試驗速度範圍，碰撞位置於 50%位置。</u> (請參末頁圖示) <u>3.11.7.4.2 機車騎士煞車碰撞情境試驗(CMRb)</u> <u>機車騎士煞車碰撞情境試驗之受驗車輛與目標機車騎士速度均為 50km/h，目標機車騎士減速度 4m/s²，車距分別為 12m 與 40m，碰撞位置於 25%位置。</u>	
	CMRs		CMRb	CMFtap	CMoncoming	CMovertaking																																																					
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7.4.1 Car-to-Motorcyclist Rear stationary

The CMRs scenario will be performed with 5km/h incremental steps in speed within the complete speed range and with a 50% hit-point as shown in the figure below.

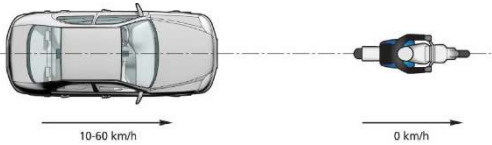


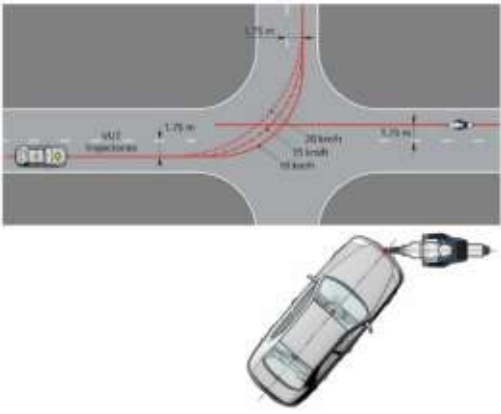
Figure 7-17 : CMRs scenario

7.4.2 Car-to-Motorcyclist Rear braking

The CMRb tests will be performed at a fixed speed of 50km/h for both VUT and EMT with -4m/s² EMT acceleration and 12 and 40m headway. These tests will be performed with 25% hit-point as shown on the figure below.

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Figure 7-18 : CMRb scenario For CMRb, $T_0 = T_{\text{EMT_deceleration_start}} - 1\text{s}$. T_0 begins 1 second before GVT(依 3.11.4.2 定義，此處應為 EMT，原文誤植) starts deceleration, for tolerance monitoring purposes. The desired deceleration of the EMT shall be reached within [1.0] seconds ($T_0 + 2.0\text{s}$) which after the EMT shall remain within $\pm [0.5]\text{km/h}$ of the reference speed profile, derived from the desired deceleration, until the vehicle speed equals 1km/h. 7.4.3 Car-to-Motorcyclist Front turn across path 7.4.3.1 For the CMFtap scenario, for the VUT assume an initial straight-line path followed by a turn (clothoid, fixed		(請參末頁圖示) <u>對於機車騎士煞車碰撞情境試驗，$T_0 = T_{\text{EMT_deceleration_start}} - 1$ 秒，即 T_0 開始於目標機車騎士開始減速前 1 秒，用於監測容許誤差。目標機車騎士應於 1.0 秒內($T_0 + 2.0$ 秒)達到預期減速度，之後其速度應保持在參考速度曲線 $\pm 0.5\text{km/h}$ 內，直到速度降至 1km/h。</u> <u>3.11.7.4.3 轉彎機車騎士碰撞情境試驗(CMFtap)</u> <u>3.11.7.4.3.1 對於轉彎機車騎士碰撞情境試驗，受驗車輛試驗路徑為先直線</u>	

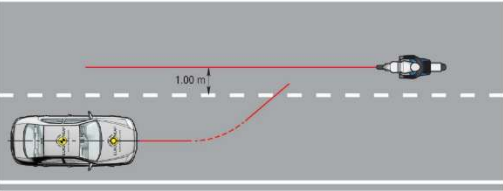
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radius and clothoid as specified in section 7.2.5.1), followed again by a straight line, hereby known as the test path. The direction indicator is applied at $1.0s \pm 0.5s$ before T_{steer}. 7.4.3.2 The EMT will follow a straight-line path in the lane adjacent to the VUT's initial position, in the opposite direction to the VUT. The straight-line path of the VUT and target will be 1.75m from the centre of the centre dashed lane marking of the VUT lane. 7.4.3.3 The paths of the VUT and EMT will be synchronised so that the front edges of the vehicle meet with a lateral position that gives a 100% overlap (assuming no system reaction) of the width of the VUT. The VUT longitudinal path error shall be within $\pm [0.5]$ m when determined in accordance with section 3.2.1		<u>行駛，接著依 3.11.7.2.6.1 所規定之迴旋曲線、固定半徑及迴旋曲線路徑完成轉彎，之後再回到直線行駛，方向燈應於 T_{steer} 前 $1.0s \pm 0.5s$ 開啟。</u> <u>3.11.7.4.3.2 目標機車騎士沿受驗車輛初始位置之相鄰車道直線騎乘，方向與受驗車輛相反，兩者路徑與受驗車輛車道中央虛線標線中心相距 1.5m。</u> <u>3.11.7.4.3.3 受驗車輛與目標機車騎士路徑同步，以使兩車的前端邊緣在交會時的橫向位置達到 100%重疊(若系統未作動情況下)，受驗車輛縱向偏移量應在 $\pm 0.5m$ 範圍內(依 3.11.3.2.1 規定)。</u>	

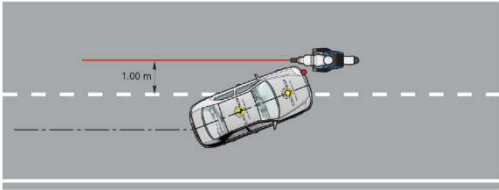
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 Figure 7-19 : CMFtap scenario VUT and EMT paths 7.4.3.4 The CMFtap scenarios are all combinations of VUT speeds of 10, 15 and 20 km/h combined with EMT speeds of 30, 45 and 60 km/h. 7.4.4 Car to Motorcyclist LSS Test Scenarios 7.4.4.1 The performance of the VUT LSS system is assessed in two scenarios that are applicable to the Emergency Lane Keep (only when		(請參末頁圖示) 3.11.7.4.3.4 轉彎機車騎士碰撞情境試驗之速度組合為受驗車輛速度 10、15 及 20km/h，目標機車騎士速度為 30、45 及 60km/h。 3.11.7.4.4 機車騎士之車道輔助系統試驗情境 3.11.7.4.4.1 受評受驗車輛之 2 項緊急車道維持(僅當預設為開啟)之車道輔助系統性能。	

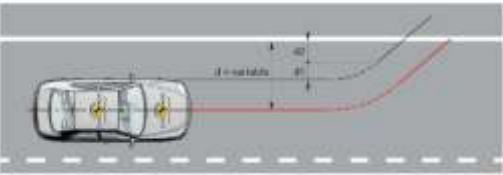
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default on). 7.4.4.2 Tests in all scenarios will be performed with 0.1 m/s incremental steps within the lateral velocities specified for the test scenarios. 7.4.4.3 For testing purposes, assume an initial straight-line path followed by a fixed radius as specified for the test scenarios, followed again by a straight line, hereby known as the test path. Control the VUT with driver inputs or using alternative control systems that can modulate the vehicle controls as necessary to perform the tests. 7.4.4.4 The vehicle manufacturer shall provide information describing the location when the closed loop path and/or speed control shall be ended so as not to interfere with the system intervention for each test. Otherwise for each lateral velocity, two		<u>3.11.7.4.4.2 所有情境的測試，皆應在該測試情境所指定的橫向速度範圍內，以 0.1 m/s 的增量進行。</u> <u>3.11.7.4.4.3 受驗車輛沿直線行駛，接著進入固定半徑之彎道，再回到直線路徑，受驗車輛可由駕駛操作，或使用其他可控制車輛之替代控制系統。</u> <u>3.11.7.4.4.4 車輛業者應提供資訊，說明每項試驗中，應於何處結束閉迴路路徑及/或速度控制，以避免干擾系統介入，若未提供此資訊，則針對每一側向速度，應進行兩次校準以判定系統作動時機，比較兩次校準之方向</u>	

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calibration runs shall be performed in order to determine when the system activates. Compare steering wheel torque, vehicle speed or yaw rate of both runs and determine where there is a notable difference that identifies the location of intervention. Run 1: Complete the required test path with the system turned OFF and measure the control parameter Run 2: Complete the required test path with the system turned ON and measure the control parameter 7.4.4.5 Complete the tests while ending the closed loop control before system activation as defined in 7.4.4.4. In the case of calibration runs the release of steering control should occur on the test path and no less than 5m longitudinally before the location of intervention. If the intervention point of the function occurs before the target V_{latVUT} is reached, the test laboratory will		<u>盤扭矩、車速或橫擺角速度，以找出明顯差異並確定系統介入位置。</u> <u>試驗 1：系統關閉狀態下，完成規定之試驗路徑並測量控制參數。</u> <u>試驗 2：系統開啟狀態下，完成規定之試驗路徑並測量控制參數。</u> <u>3.11.7.4.4.5 完成試驗時，應依 3.11.7.4.4.4 所定義，在系統作動前結束閉迴路控制。若為校準測試者，應於試驗路徑上，在介入位置前至少 5 公尺釋放方向盤控制，若該系統介入點在達到 V_{latVUT} 前發生，則檢測機構應使用彎曲車道標線相交之直線行駛路徑執行驗證試驗。</u>	

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conduct a verification test using a straight-line vehicle path intersecting with a curved lane marking. 7.4.4.6 If the intervention point of the function occurs before the target V_{latVUT} is reached, the test laboratory will conduct a verification check of the $V_{latVUT} = 0.6m/s$ test case (both for dashed and solid line) using a straight-line vehicle path intersecting with a curved lane marking which results in the yaw angle (Ψ_{VUT}) shown in 7.4.5.3. A maximum of 3 runs shall be conducted (both for solid and dashed line), where the system intervention and resulting DTLE is monitored. 7.4.4.7 When the closed loop path ends, the driver's hands or the control will remain passive on the steering wheel without applying deliberate force but reflecting the behavior of an inattentive driver holding the steering wheel.		3.11.7.4.4.6 若該功能的介入於達到 V_{latVUT} 前發生，檢測機構應使用彎曲車道標線相交之直線行駛路徑執行驗證之車輛路徑，就 V_{latVUT} 為 $0.6m/s$ 之試驗案例(包含虛線與實線)進行驗證確認，其產生之橫擺角(Ψ_{VUT})，應同 3.11.7.4.5.3 所規範，並於此過程中確認系統介入及其產生之車道邊緣剩餘距離。 3.11.7.4.4.7 當閉迴路控制結束後，駕駛雙手或控制系統應保持被動，不得對方向盤施加主動力量，但應模擬心不在焉駕駛手握方向盤狀態。	

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7.4.5 Car-to-Motorcyclist oncoming 7.4.5.1 For the oncoming scenario the EMT will follow a straight line path at 72 km/h in the lane adjacent to the VUT's initial position, in the opposite direction to the VUT which also drives at 72 km/h. The straight line path of the target will be 1m for the EMT from the centre of the centre dashed lane marking of the VUT lane.  Figure 7-20 : CMoncoming vehicle scenario paths 7.4.5.2 The paths of the VUT and EMT will be synchronised so that the outermost front left impact point of the EMT's virtual box (impact point 2 in Figure 3-6 : Virtual box dimensions around EMT and impact points)		3.11.7.4.5 對向來車機車騎士碰撞情境試驗(CMoncoming) 3.11.7.4.5.1 目標機車騎士與受驗車輛分別以 72km/h 於相鄰車道直線對向行駛，目標機車騎士路徑距受驗車輛車道中央虛線標線中心 1m。 (請參末頁圖示) 3.11.7.4.5.2 受驗車輛與目標機車騎士路徑同步，使目標機車騎士虛擬正方形最外側左前方碰撞點(圖 7:目標機車騎士及碰撞點周圍之虛擬正方形	

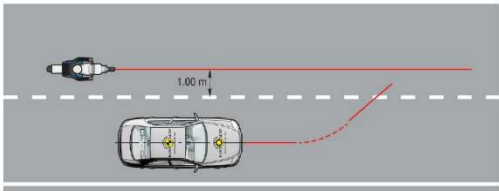
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impacts the VUT at 10% of the width of the VUT (assuming no system reaction).  Figure 7-21 : CMoncoming motorcycle impact location 7.4.5.3 The following parameters should be used to create the test paths for the tests : <table><tr><th>VUT@ 72km/h</th><th>V_{latcur} [m/s]</th><th>R [m]</th><th>Ψ_{lat} [°]</th><th>d1</th><th>d2</th></tr><tr><td rowspan="5">Unintentional</td><td>0.2</td><td rowspan="5">1200</td><td>0.57</td><td>0.06</td><td>0.70</td></tr><tr><td>0.3</td><td>0.86</td><td>0.14</td><td>0.90</td></tr><tr><td>0.4</td><td>1.15</td><td>0.24</td><td>0.80</td></tr><tr><td>0.5</td><td>1.43</td><td>0.38</td><td>0.75</td></tr><tr><td>0.6</td><td>1.72</td><td>0.54</td><td>0.60</td></tr></table> Where the lateral offset d from the lane marking : d = d1 + d2 + Half of the vehicle width (m) d1 : Lateral distance travelled during curve establishing yaw angle (m) d2 : Lateral distance travelled during	VUT@ 72km/h	V _{latcur} [m/s]	R [m]	Ψ _{lat} [°]	d1	d2	Unintentional	0.2	1200	0.57	0.06	0.70	0.3	0.86	0.14	0.90	0.4	1.15	0.24	0.80	0.5	1.43	0.38	0.75	0.6	1.72	0.54	0.60		<u>之碰撞點 2)，與受驗車輛寬度 10% 位置處發生碰撞(若系統未作動)。</u> <u>(請參末頁圖示)</u> <u>3.11.7.4.5.3 應使用以下參數建置試驗路徑：</u> <u>(請參末頁表格)</u> <u>車道標線的側向偏移量：</u> <u>d=d1+d2+車輛寬度的一半(m)</u> <u>d1：橫擺角曲線建立時之側向偏離距離(m)</u> <u>d2：側向速度穩定狀態之側向偏離距離(m)</u>	
VUT@ 72km/h	V _{latcur} [m/s]	R [m]	Ψ _{lat} [°]	d1	d2																										
Unintentional	0.2	1200	0.57	0.06	0.70																										
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V_{lat} steady state (m)  7.4.5.4 CMoncoming tests will be performed with 0.1 m/s incremental steps within the lateral velocity range of 0.2 to 0.6m/s for departures at the driver side only. 7.4.6 Car-to-Motorcyclist overtaking 7.4.6.1 For the overtaking scenario a EMT will follow a straight line path in the lane adjacent to the VUT's initial position at the driver side, in the same direction as the VUT. The straight line path of the target will be 1m for the EMT from the centre of the centre dashed lane marking of the VUT line. 7.4.6.2 The paths of the VUT and EMT will be synchronised so that the		(請參末頁圖示) 3.11.7.4.5.4 對向來車機車騎士碰撞情境試驗應以 0.1m/s 增量執行 0.2 至 0.6m/s 側向速度範圍，且僅針對駕駛側情況進行測試。 3.11.7.4.6 車道超車機車騎士碰撞情境試驗(CMover-taking) 3.11.7.4.6.1 目標機車騎士沿位於駕駛側之直線路徑騎乘，與受驗車輛位於相鄰車道上，且騎乘方向與受驗車輛相同，目標機車騎士路徑距受驗車輛車道中央虛線標線中心 1m。 3.11.7.4.6.2 受驗車輛與目標機車騎士路徑同步，使目標機車騎士虛擬外形	

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outermost front right impact point of the EMT's virtual box (impact point 5 in Figure 3-6) is equal to that of the rear axle of the VUT at the impact point (assuming no system reaction). 7.4.6.3 CMovertaking tests will be performed with 0.1m/s incremental steps within the lateral velocity range of 0.2 to 0.6m/s for unintentional lane change and 0.5 to 0.7m/s for intentional lane changes for departures at the driver side only. 7.4.6.4 Both unintentional and intentional lane changes are tested in two situations : •EMT @ 60km/h is overtaking the VUT @ 50km/h (relative velocity of 10km/h) •EMT @ 80km/h is overtaking the VUT @ 72km/h (relative velocity of 8km/h) Alternatively, an agreed fallback		<u>的最外側右前碰撞點(圖 7:目標機車騎士及碰撞點周圍之虛擬正方形之碰撞點 5)與受驗車輛後軸位置發生碰撞(若系統未作動)。</u> <u>3.11.7.4.6.3 車道超車機車騎士碰撞情境試驗，應以 0.1m/s 增量執行側向速度範圍 0.2 至 0.6m/s(非刻意變換車道)及 0.5 至 0.7 m/s(刻意變換車道)，且僅針對駕駛側情況進行測試。</u> <u>3.11.7.4.6.4 非刻意及刻意變換車道皆應於以下兩種情境執行試驗：</u> (1) <u>目標機車騎士以 60km/h 超越以 50km/h 行駛之受驗車輛(相對速度 10km/h)</u> (2) <u>目標機車騎士以 80km/h 超越以 72km/h 行駛之受驗車輛(相對速度 8km/h)</u> <u>或者，針對目標機車騎士 80km/h 試驗，可採用替代方案，若受驗車輛已</u>	

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solution is to be implemented for the EMT @ 80 km/h test： Where the vehicle passes the 60-50 km/h CMovertaking and the 80-72 km/h C2C ELK overtaking test and blind-spot monitoring information or warning is issued when a real motorcycle overtakes the VUT when driving at the higher test speeds, points should also be awarded. 7.4.6.5 For both intentional and unintentional lane changes, the following parameters should be used to create the test paths. For the intentional lane change tests where the direction indicator is applied at 1.0s ± 0.5s before T_{STEER}： <table><tr><th>VUT@ 50km/h</th><th>V_{lane} [m/s]</th><th>R [m]</th><th>Ψ_{VUT} [°]</th><th>d1</th><th>d2</th></tr><tr><td rowspan="5">Unintentional</td><td>0.2</td><td rowspan="5">1200</td><td>0.83</td><td>0.12</td><td>0.64</td></tr><tr><td>0.3</td><td>1.24</td><td>0.28</td><td>0.76</td></tr><tr><td>0.4</td><td>1.65</td><td>0.50</td><td>0.54</td></tr><tr><td>0.5</td><td>2.06</td><td>0.78</td><td>0.35</td></tr><tr><td>0.6</td><td>2.48</td><td>1.12</td><td>0.02</td></tr><tr><td rowspan="3">Intentional</td><td>0.5</td><td rowspan="3">400</td><td>2.06</td><td>0.26</td><td>0.74</td></tr><tr><td>0.6</td><td>2.48</td><td>0.37</td><td>0.59</td></tr><tr><td>0.7</td><td>2.89</td><td>0.51</td><td>0.51</td></tr></table> For LKA systems where “LKA dashed line” is also implemented as an ELK	VUT@ 50km/h	V _{lane} [m/s]	R [m]	Ψ _{VUT} [°]	d1	d2	Unintentional	0.2	1200	0.83	0.12	0.64	0.3	1.24	0.28	0.76	0.4	1.65	0.50	0.54	0.5	2.06	0.78	0.35	0.6	2.48	1.12	0.02	Intentional	0.5	400	2.06	0.26	0.74	0.6	2.48	0.37	0.59	0.7	2.89	0.51	0.51		<u>通過 60-50km/h 之車道超車機車騎士碰撞情境試驗及 80-72km/h 之車道超車情境試驗 (緊急車道維持輔助統(ELK)), 且真實機車以較高的測試速度超越受驗車輛時, 系統能發出盲點偵測資訊或警示, 亦可獲得分數。</u> <u>3.11.7.4.6.5 對於非刻意及刻意變換車道試驗, 應使用以下參數建置試驗路徑, 對於刻意變換車道試驗, 應於 T_{steer} 前 1.0±0.5 秒開啟方向燈。</u> <u>(請參末頁表格)</u>	
VUT@ 50km/h	V _{lane} [m/s]	R [m]	Ψ _{VUT} [°]	d1	d2																																								
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functionality (default-on), the following shall apply : If in the test case of “CMovertaking Unintentional” at a speed of 50 km/h the intervention point of the function occurs before the target $Vlat_{VUT}$ is reached, the lateral offset d shall be increased by a distance large enough to avoid an ELK intervention. <table><tr><th>VUT@ 72km/h</th><th>$Vlat_{cur}$ [m/s]</th><th>R [m]</th><th>Ψ_{cur} [°]</th><th>d1</th><th>d2</th></tr><tr><td rowspan="5">Unintentional</td><td>0.2</td><td rowspan="5">1200</td><td>0.57</td><td>0.06</td><td>0.70</td></tr><tr><td>0.3</td><td>0.86</td><td>0.14</td><td>0.90</td></tr><tr><td>0.4</td><td>1.15</td><td>0.24</td><td>0.80</td></tr><tr><td>0.5</td><td>1.43</td><td>0.38</td><td>0.75</td></tr><tr><td>0.6</td><td>1.72</td><td>0.54</td><td>0.60</td></tr><tr><td rowspan="3">Intentional</td><td>0.5</td><td rowspan="3">800</td><td>1.43</td><td>0.25</td><td>0.75</td></tr><tr><td>0.6</td><td>1.72</td><td>0.36</td><td>0.60</td></tr><tr><td>0.7</td><td>2.01</td><td>0.49</td><td>0.53</td></tr></table> Where the lateral offset d from the lane marking : $d = d1 + d2 + \text{Half of the vehicle width (m)}$ d1 : Lateral distance travelled during curve establishing yaw angle (m) d2 : Lateral distance travelled during $Vlat$ steady state (m)	VUT@ 72km/h	$Vlat_{cur}$ [m/s]	R [m]	Ψ_{cur} [°]	d1	d2	Unintentional	0.2	1200	0.57	0.06	0.70	0.3	0.86	0.14	0.90	0.4	1.15	0.24	0.80	0.5	1.43	0.38	0.75	0.6	1.72	0.54	0.60	Intentional	0.5	800	1.43	0.25	0.75	0.6	1.72	0.36	0.60	0.7	2.01	0.49	0.53		<u>對於 LKA 系統，若具備「LKA 虛線功能」作為「ELK 功能(預設開啟)」之情況，應適用以下規定：若在非刻意變換車道試驗中，以 50km/h 行駛時，系統的介入點於達到 $Vlat_{VUT}$ 前發生，則側向偏移量應增加足夠距離以避免觸發 ELK 介入。</u> (請參末頁表格) <u>車道標線的側向偏移量：</u> <u>$d=d1+d2+\text{車輛寬度的一半(m)}$</u> <u>d1：橫擺角曲線建立時之側向偏離距離(m)</u> <u>d2：側向速度穩定狀態之側向偏離距離(m)</u>	
VUT@ 72km/h	$Vlat_{cur}$ [m/s]	R [m]	Ψ_{cur} [°]	d1	d2																																								
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	0.7		2.01	0.49	0.53																																								

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 Figure 7-22 : CMovetaking scenarios	7.2.4 All tests will be performed with 5 km/h incremental steps within the speed ranges as summarised in the tables below : <table><thead><tr><th></th><th colspan="6">AEB Pedestrian</th></tr><tr><th></th><th>CPEA-80</th><th>CPNA-25</th><th>CPNA-75</th><th>CPNC-80</th><th>CPLA-80</th><th>CPLA-25</th></tr></thead><tbody><tr><td>Type of test</td><td colspan="6">AEB</td></tr><tr><td>VUT speed</td><td colspan="6">20-60 km/h</td></tr><tr><td>Target speed</td><td>8 km/h</td><td colspan="2">5 km/h</td><td>5 km/h</td><td colspan="2">25%</td></tr><tr><td>Impact location</td><td>50%</td><td>25%</td><td>75%</td><td>50%</td><td>50%</td><td>25%</td></tr><tr><td>Lighting condition</td><td>Day</td><td colspan="2">Day & Night</td><td>Day</td><td colspan="2">Day & Night</td></tr><tr><td>Vehicle light(s) (night)</td><td colspan="6">Low beam</td></tr><tr><td>Streetlight(s) (night)</td><td colspan="6">No streetlight</td></tr></tbody></table> <table><thead><tr><th></th><th colspan="3">AEB Bicyclist</th></tr><tr><th></th><th>CPNA-50</th><th>CPNA-50</th><th>CPLA-25</th></tr></thead><tbody><tr><td>VUT speed</td><td colspan="3">20-60 km/h</td></tr><tr><td>Target speed</td><td colspan="3">15 km/h</td></tr><tr><td>Impact location</td><td colspan="3">50%</td></tr><tr><td>Lighting condition</td><td colspan="3">Day</td></tr></tbody></table> 7.2.5 For the CPNA-75 scenario the following additional tests are performed as part of the prerequisite verification : •Test speed of 20km/h with an EPTa speed of 3 km/h •Test speed of 10km/h (or min. idle		AEB Pedestrian							CPEA-80	CPNA-25	CPNA-75	CPNC-80	CPLA-80	CPLA-25	Type of test	AEB						VUT speed	20-60 km/h						Target speed	8 km/h	5 km/h		5 km/h	25%		Impact location	50%	25%	75%	50%	50%	25%	Lighting condition	Day	Day & Night		Day	Day & Night		Vehicle light(s) (night)	Low beam						Streetlight(s) (night)	No streetlight							AEB Bicyclist				CPNA-50	CPNA-50	CPLA-25	VUT speed	20-60 km/h			Target speed	15 km/h			Impact location	50%			Lighting condition	Day			(請參末頁圖示)	3.11.6.2.4 以 5km/h 之遞增步驟 (incremental steps)進行，速度範圍如下表所示： <table><thead><tr><th></th><th colspan="6">AEB Pedestrian</th></tr><tr><th></th><th>CPEA-80</th><th>CPNA-25</th><th>CPNA-75</th><th>CPNC-80</th><th>CPLA-80</th><th>CPLA-25</th></tr></thead><tbody><tr><td>Type of test</td><td colspan="6">AEB</td></tr><tr><td>VUT speed</td><td colspan="6">20-60 km/h</td></tr><tr><td>Target speed</td><td>8 km/h</td><td colspan="2">5 km/h</td><td>5 km/h</td><td colspan="2">25%</td></tr><tr><td>Impact location</td><td>50%</td><td>25%</td><td>75%</td><td>50%</td><td>50%</td><td>25%</td></tr><tr><td>Lighting condition</td><td>Day</td><td colspan="2">Day & Night</td><td>Day</td><td colspan="2">Day & Night</td></tr><tr><td>Vehicle light(s) (night)</td><td colspan="6">Low beam</td></tr><tr><td>Streetlight(s) (night)</td><td colspan="6">No streetlight</td></tr></tbody></table> <table><thead><tr><th></th><th colspan="3">AEB Bicyclist</th></tr><tr><th></th><th>CPNA-50</th><th>CPNA-50</th><th>CPLA-25</th></tr></thead><tbody><tr><td>VUT speed</td><td colspan="3">20-60 km/h</td></tr><tr><td>Target speed</td><td colspan="3">15 km/h</td></tr><tr><td>Impact location</td><td colspan="3">50%</td></tr><tr><td>Lighting condition</td><td colspan="3">Day</td></tr></tbody></table> 3.11.6.2.5 近端成人碰撞情境試驗75% 應額外進行以下試驗，以作為驗證前提： (1) 試驗速度為 20km/h，目標成人行人速度為 3km/h (2) 試驗速度為 10km/h(或最低怠速		AEB Pedestrian							CPEA-80	CPNA-25	CPNA-75	CPNC-80	CPLA-80	CPLA-25	Type of test	AEB						VUT speed	20-60 km/h						Target speed	8 km/h	5 km/h		5 km/h	25%		Impact location	50%	25%	75%	50%	50%	25%	Lighting condition	Day	Day & Night		Day	Day & Night		Vehicle light(s) (night)	Low beam						Streetlight(s) (night)	No streetlight							AEB Bicyclist				CPNA-50	CPNA-50	CPLA-25	VUT speed	20-60 km/h			Target speed	15 km/h			Impact location	50%			Lighting condition	Day		
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7.5 Test Conduct 7.5.1 Before every test run, drive the VUT around a circle of maximum diameter 30m at a speed less than 10km/h for one clockwise lap followed by one anticlockwise lap, and then manoeuvre the VUT into position on the test path. If requested by the OEM an initialisation run may be included before every test run. Bring the VUT to a halt and push the brake pedal through the full extent of travel and release. 7.5.2 For vehicles with an automatic transmission select D. For vehicles with a manual transmission select the highest gear where the RPM will be at least 1500 at the test speed. 7.5.3 Perform the first test a minimum of 90s and a maximum of 10 minutes after	speed in 1st gear) with an EPTa speed of 5 km/h 7.3 Test Conduct 7.3.1 Before every test run, drive the VUT around a circle of maximum diameter 30m at a speed less than 10km/h for one clockwise lap followed by one anticlockwise lap, and then manoeuvre the VUT into position on the test path. If requested by the OEM an initialisation run may be included before every test run. Bring the VUT to a halt and push the brake pedal through the full extent of travel and release. 7.3.2 For vehicles with an automatic transmission select D. For vehicles with a manual transmission select the highest gear where the RPM will be at least 1500 at the test speed. 7.3.3 Perform the first test a minimum of 90s and a maximum of 10 minutes after	3.11.7.5 試驗規範 <u>3.11.7.5.1</u> 每次試驗前，受驗車輛應以低於 10km/h 之速度繞著最大直徑 30m 之圓圈行駛，先以順時針方向行駛一圈，接著以逆時針方向行駛一圈，最後再將受驗車輛開到試驗道路上的預備位置。若車輛業者要求，可於每項試驗前進行此啟始程序 (initialization run)。待受驗車輛完全停止，將煞車踏板踩到底再放開。 <u>3.11.7.5.2</u> 若車輛為自動變速者，應選擇前進檔位 D。若車輛為手排變速者於試驗速度行駛時，應選擇轉速可達 1500rpm 之最高檔位。	<u>維持在 1 檔)目標成人行人速度為 5km/h</u> <u>3.11.6.3</u> 試驗規範 <u>3.11.6.3.1</u> 每次試驗前，受驗車輛應以低於 10km/h 之速度繞著最大直徑 30m 之圓圈行駛，先以順時針方向行駛一圈，接著以逆時針方向行駛一圈，最後再將受驗車輛開到試驗道路上的預備位置。若車輛業者要求，可於每項試驗前進行此啟始程序 (initialization run)。待受驗車輛完全停止，將煞車踏板踩到底再放開。 <u>3.11.6.3.2</u> 若車輛為自動變速者，應選擇前進檔位 D。若車輛為手排變速者於試驗速度行駛時，應選擇轉速可達 1500rpm 之最高檔位。 <u>3.11.6.3.3</u> 應於輪胎調節後 90 秒至 10 分鐘內進行第一次試驗(若適用)，並

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completing the tyre conditioning (if applicable), and subsequent tests after the same time period. If the time between consecutive tests exceeds 10 minutes perform three brake stops from 72 km/h at approximately 0.3g. 7.5.4 Between tests, manoeuvre the VUT at a maximum speed of 50km/h and avoid riding the brake pedal and harsh acceleration, braking or turning unless strictly necessary to maintain a safe testing environment. 7.5.5 For CPFA-50, CPNA-25 and CPNA-75, CPNCO-50, CPLA-50, CBNA-50, CBNAO-50, CBFA-50, and CBLA-50, based on the OEM colour prediction, the highest avoidance (Green) test speeds of each scenario and one randomly selected avoidance (Green) test speed per scenario (where applicable) will be tested according to the following colour scheme detailed in	completing the tyre conditioning (if applicable), and subsequent tests after the same time period. If the time between consecutive tests exceeds 10 minutes perform three brake stops from 72 km/h at approximately 0.3g. Between tests, manoeuvre the VUT at a maximum speed of 50km/h and avoid riding the brake pedal and harsh acceleration, braking or turning unless strictly necessary to maintain a safe testing environment.	3.11.7.5.3 應於輪胎調節後 90 秒至 10 分鐘內進行第一次試驗(若適用)，並於同樣的時間範圍內進行其他試驗。若試驗間隔時間超過 10 分鐘，則應以 72km/h 的速度煞停 3 次，減速度約為 0.3g。 3.11.7.5.4 執行下次試驗前，行駛速度不得高於 50km/h，且非必要情況下，應儘量避免踩踏煞車(riding the brake pedal)、劇烈加速、煞車或轉彎，以維持安全的試驗環境。 3.11.7.5.5 對於遠端成人 50%、近端成人 25%及 75%、近端兒童障礙物 50%、前端成人 50%、近端自行車騎士 50%、近端自行車騎士障礙物 50%、遠端自行車騎士 50%、前端自行車 50%，應依據車輛業者的顏色預測結果，依據評等規章 2.3.3.3.1 所詳述的顏色方案，對每個場景中預測為	於同樣的時間範圍內進行其他試驗。若試驗間隔時間超過 10 分鐘，則應以 72km/h 的速度煞停 3 次，減速度約為 0.3g。 執行下次試驗前，行駛速度不得高於 50km/h，且非必要情況下，應儘量避免踩踏煞車(riding the brake pedal)、劇烈加速、煞車或轉彎，以維持安全的試驗環境。

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the assessment scheme section 1.3.1. If there is an impact in any of these tests, perform a test at the adjacent test speed(s) until the predicted avoidance is confirmed. 7.5.6 Perform all tests where the predicted result is Yellow, Orange or Brown. Test points that are predicted Red are excluded from testing. 7.5.7 For CBNA-50, CBNAO-50 and CBFA-50 the lowest avoidance (Green) test speed will be tested additionally.		<u>完全避撞（綠色）的最高測試速度，以及每個場景中隨機抽選的一個預測為完全避撞（綠色）的測試速度（若適用）進行測試。若在上述任一測試中發生碰撞，應在相鄰的測試速度下進行測試，直到確認符合預測之避免碰撞速度。</u> <u>3.11.7.5.6 針對預測結果為黃色、橘色或棕色之所有試驗點進行測試，預測結果為紅色之試驗點則不需測試。</u> <u>3.11.7.5.7 對於近端自行車騎士 50%、近端自行車障礙物 50%及遠端自行車騎士 50%，應額外測試預測為綠色之最低速度。</u> <u>3.11.7.5.8 試驗速度高於 40km/h 測試中，若實際速度減少幅度小於 15km/h，則應停止試驗。</u>	

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7.5.8 In the tests above 40km/h, stop testing when the actual speed reduction measured is less than 15km/h. 7.5.9 For CPLA-25 and CBLA-25 FCW systems tests, based on the OEM prediction, test the highest test speed of each scenario where the FCW is issued at a $TTC \geq 1.7s$, plus one randomly selected test speed per scenario where the FCW is issued at a $TTC \geq 1.7s$. 7.5.10 If the FCW is not issued at a $TTC \geq 1.7s$ in any of these tests, perform tests at all remaining test speeds in the scenario in 5km/h increments. 7.5.11 Stop testing when the OEM predicts that the FCW is not issued at a $TTC \geq 1.7s$. For the CPLA-25 and CBLA-25 test scenarios the OEM may choose to implement ESS as an alternative strategy to issuing an FCW at a $TTC \geq 1.7s$. The ESS is evaluated		<u>3.11.7.5.9 對於前端成人 25%及前端自行車騎士 25%，依據車輛業者之碰撞預警時間數據選取試驗速度，選取預測 FCW 碰撞時間大於等於 1.7 秒時發出警示之最高速度，再隨機抽選 1 個預測 FCW 碰撞時間大於等於 1.7 秒時發出警示之速度。</u> <u>3.11.7.5.10 若於上述任何試驗速度中，FCW 碰撞時間小於 1.7 秒，則應以 5km/h 增量，測試其餘試驗速度。</u> <u>3.11.7.5.11 若車輛業者預測 FCW 碰撞時間小於 1.7 秒時，則停止測試。對於前端成人 25%及前端自行車騎士 25%，車輛業者可選擇配備緊急轉向輔助系統(ESS)作為得分替代方案，試驗程序如下。</u>	

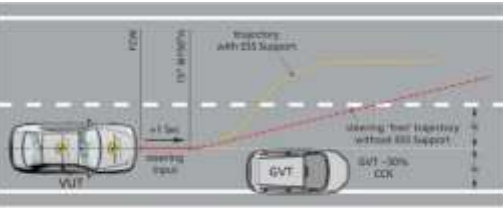
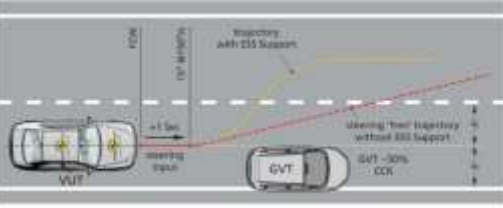
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at the Euro NCAP lab with input from the OEM to ensure proper triggering of the system. The recommended testing procedure can be found in the Technical Bulletin TB037. 2. General Requirements for ESS Systems 2.1 ESS scenario 2.1.1 The Car-to-Car Rear (CCRs -50) FCW scenario shall be used – a collision in which a vehicle travels forwards towards another stationary vehicle and the frontal structure of the vehicle strikes the rear structure of the other. 2.1.2 It is also possible to use the CPLA25 and CBLA25 scenarios with ESS.		<u>3.11.7.5.11.1 緊急轉向輔助系統一般要求</u> <u>3.11.7.5.11.1.1 緊急轉向輔助系統試驗情境</u> <u>3.11.7.5.11.1.1.1 適用於前車靜止情境 -50%之前方碰撞預警系統試驗，即係指後方車輛往前行駛接近靜止的前方車輛，且行駛車輛之車頭碰撞靜止車輛之車尾。</u> <u>3.11.7.5.11.1.1.2 亦適用於前端成人碰撞情境試驗 25%及前端自行車騎士碰撞情境試驗 25%。</u>	

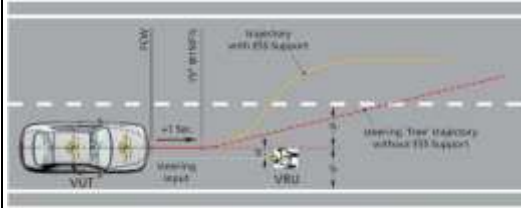
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2.2 ESS system requirements ALL of the following requirements must be met in order to qualify for ESS rewards: 2.2.1 ESS is defined as an AEB supplementary function, vehicles without an AEB system do not qualify for an ESS reward. 2.2.2 The system must be default ON. 2.2.3 An ESS system requires driver initiation and steering wheel input to trigger the ESS manoeuvre. 2.2.4 The ESS system must support the driver's steering inputs to avoid collision with the target and initiate a controlled steer back straight to minimise the overshoot outside of the adjacent lane.		<u>3.11.7.5.11.1.1.3 緊急轉向輔助系統要求</u> <u>應滿足以下所有要求，緊急轉向輔助系統才能獲得分數：</u> (1) <u>緊急轉向輔助系統定義為緊急煞車輔助系統之輔助功能，未配備緊急煞車輔助系統之車輛無法獲得分數。</u> (2) <u>緊急轉向輔助系統應預設開啟。</u> (3) <u>應由駕駛介入並輸入轉向致使觸發緊急轉向輔助系統作動。</u> (4) <u>緊急轉向輔助系統應輔助駕駛之轉向輸入以避免與目標碰撞，並主動引導車輛受控地駛回直行狀態，將偏離至相鄰車道外之過衝(overshoot)情況降至最低。</u>	

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2.2.5 A forward collision warning (FCW) must be issued, the FCW requirements are defined in the Safety Assist Assessment Protocol – Collision Avoidance.		(5) <u>前方碰撞預警系統警示要求參安全輔助評等規章。</u>	
2.2.6 While an ESS manoeuvre is being conducted, the ESS system must not be deactivated by slight driver braking actions.		(6) <u>當緊急轉向輔助系統作動時，應不因駕駛輕微煞車動作而解除。</u>	
2.2.7 The system must function symmetrically for both left hand and right hand drive versions of the vehicle (i.e. evasion support towards the far side).		緊急轉向輔助系統功能在左駕(LHD)與右駕(RHD)版本的車輛上必須具備對稱性(即皆能朝向遠側進行閃避輔助)。(此條文無涉及第三版規章內容，故刪除)	
2.2.8 The system shall be available for speeds of 50km/h and above (V_{VUT}).		(7) <u>緊急轉向輔助系統應於受驗車輛速度 50km/h 以上時作動。</u>	
2.2.9 Systems that give support beyond 80km/h (V_{VUT}) in the CCR _S -50 scenario or, alternatively, systems that		(8) <u>對於前車靜止情境試驗-50%，若緊急轉向輔助系統能於受驗車輛速度大於 80km/h 時提供輔</u>	

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comply with these requirements at differential speeds >80 km/h, qualify for additional rewards as defined in the HMI section of the Safety Assist Assessment Protocol. 2.2.10 During and after the ESS support, a visual warning to inform the driver that there is/was a hazard or system action is recommended, but not required for scoring 2.2.11 The OEM must inform the test laboratory of the system functionality prior to testing. Where an ESS system requires a driver's hands to be in contact with the steering wheel the vehicle may not detect the presence of a steering robot. In this case, the laboratory will deactivate the 'hands on' detection for the test. If this is not possible, the OEM shall bring information of how to activate 'hands on' detection while testing.		<u>助，或系統能於相對速度大於 80km/h 時符合前述要求，則具備獲得人機介面分數之資格(參安全輔助評等規章)。</u> (9) <u>於緊急轉向輔助系統作動期間與作動之後，建議提供視覺警示以通知駕駛存在/曾存在之危險或系統已作動，惟此項不納入評等。</u> (10) <u>車輛業者應於試驗前向 TNCAP 執行機構與檢測機構提供緊急轉向輔助系統之功能設定，若系統要求駕駛雙手必須接觸方向盤，車輛可能會偵測不到轉向機器人，此情況下檢測機構將於試驗中解除手握方向盤(hands on)偵測功能；若無法解除，車輛業者應提供如何於試驗中啟動手握方向盤偵測功能。</u>	

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3. Performance Requirements 3.1 ESS system rewards An ESS system qualifies for rewards if the requirements detailed in Section 2 are met and testing has demonstrated that: 3.1.1 The VUT avoids any impact with the target (including side mirrors and other exterior components) and, 3.1.2 The VUT does not cross outside of the adjacent lane (i.e. DTLE < -0.3m of adjacent lane) for at least 2 seconds after TTC=0. 4. Test Execution 4.1 ESS test parameters to apply		3.11.7.5.11.2 緊急轉向輔助系統性能要求 3.11.7.5.11.2.1 緊急轉向輔助系統得分前提條件 緊急轉向輔助系統應符合 3.11.7.5.11.1 所述要求，且需符合以下試驗條件才能獲得分數： (1) 受驗車輛應避免與目標發生任何碰撞(包含車外後視鏡及其他車身外部零組件)。 (2) 碰撞時間 0 秒後之至少 2 秒內，受驗車輛不應越過至相鄰車道之外(例如相鄰車道之車道邊緣剩餘距離小於-0.3m)。 3.11.7.5.11.3 緊急轉向輔助系統試驗程序 3.11.7.5.11.3.1 應採用緊急轉向輔助系統試驗參數。	

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4.1.1 The test shall be performed in two fully marked lanes, each lane shall be 3.5m in width with solid lines on the outside. See Figure 1  4.1.2 The VUT is driven in a straight line in the middle of the ego lane in accordance with the tolerances specified in the relevant AEB C2C or VRU AEB testing protocols. 4.1.3 For CCRs -50, the GVT shall be set to -50% overlap position relative to the VUT, see Figure 1 (where applicable). 		<u>3.11.7.5.11.3.2 試驗應於兩條具備完整標線之車道進行，每條車道寬度不得小於 3m，且外側為實線，如下圖所示。</u> (請參末頁圖示) <u>3.11.7.5.11.3.3 受驗車輛應依據緊急煞車輔助系統(車對車)或(弱勢道路使用者)試驗規章中定義之容許誤差，於車道中央直線行駛。</u> <u>3.11.7.5.11.3.4 對於前車靜止情境試驗-50%，全球目標車相對於受驗車輛之位置應設定為-50%重疊，如下圖所示（若適用）。</u> (請參末頁圖示，同 3.11.7.5.11.3.2 圖示)	

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4.1.4 Alternatively, for VRU scenarios the EPT or EBT shall be set to CPLA25 or CBLA25 scenarios respectively, see Figure 2 (where applicable).  Figure 2: ESS Test diagram using CPLA25 scenario 4.1.5 At a time of 1 second after FCW initiation, a steering wheel input shall be applied to the VUT's steering wheel with an angular rate of $150^{\circ}/s^1$. The 1 second delay to the steering input corresponds to a typical driver reaction time. 4.1.6 After reaching a steering wheel angle of $15^{\circ}1$, the steering robot shall be released to free mode for the remainder of the test. ¹Derived from naturalistic driving study EVADE Project		<u>3.11.7.5.11.3.5 對於弱勢道路使用者情境試驗，目標行人或目標自行車騎士應分別設定為前端成人碰撞情境試驗 25%或前端自行車騎士碰撞情境試驗 25%，如下圖所示（若適用）。</u> (請參末頁圖示) <u>3.11.7.5.11.3.6 前方碰撞預警發出 1 秒後，應對受驗車輛之方向盤施加轉向輸入，其方向盤角速度應為 $150^{\circ}/s$，方向盤輸入延遲 1 秒，對應於一般駕駛的反應時間。</u> <u>3.11.7.5.11.3.7 當方向盤角度達到 15° 後，轉向機器人應釋放並切換至自由模式（free mode）直至試驗結束。</u>	

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4.1.7 The accelerator pedal shall be held constant while the ESS system is active and released as soon as the initial VUT test speed is reduced by 5km/h. 4.1.8 The test ends 2 seconds after the VUT front passing the rear of the target. 4.2 OEM data 4.2.1 For assessment years 2023 & 2024 only, the OEM may present an alternative test method to demonstrate ESS system functionality and performance. 4.2.2 Where the assessment is based upon OEM data, a dossier must be presented to the Euro NCAP Secretariat and demonstrate functionality with the use of flowcharts, photographs, videos, plots and written descriptions.		<u>3.11.7.5.11.3.8 緊急轉向輔助系統作動期間，加速踏板應保持恆定，並於受驗車輛之初始試驗速度降低 5km/h 時立即釋放。</u> <u>3.11.7.5.11.3.9 試驗於受驗車輛車頭通過目標後端 2 秒後結束。</u> (此條文無涉及第三版規章內容，故不納入) (此條文無涉及第三版規章內容，故不納入)	

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7.5.12 For AEB CMR systems tests, perform tests over the full test speed range per scenario, starting with the lowest test speed. When there is complete avoidance, the subsequent test speed for the next test is incremented with 10km/h. When there is contact, first perform a test at a test speed 5km/h less than the test speed where contact occurred. After this test continue to perform the remainder of the tests with speed increments of 5km/h. Stop testing when the speed reduction seen in the test is less than 5 km/h. 7.5.13 For the CMR FCW system tests, when there is complete avoidance, the subsequent test speed for the next test is incremented by 10km/h. When there is contact, first perform a test at a test speed 5km/h less than the test speed where contact occurred. After this test continue to perform the remainder of		<u>3.11.7.5.12 對於機車騎士碰撞情境之 AEB 系統試驗，應自最低試驗速度起執行所有試驗，當避免碰撞時，下一次試驗速度增加 10km/h；若發生碰撞，則以發生碰撞之試驗速度減 5km/h 執行試驗，之後再以 5km/h 為增量繼續測試，當測得速度減少幅度小於 5km/h 時停止試驗。</u> <u>3.11.7.5.13 對於機車騎士碰撞情境之 FCW 系統試驗，應自最低試驗速度起執行所有試驗，當避免碰撞時，下一次試驗速度增加 10km/h；若發生碰撞，則以發生碰撞之試驗速度減 5km/h 執行試驗，之後再以 5km/h 為增量繼續測試，並重複 3.11.7.5.6 程序。機車騎士碰撞情境之 FCW 系統</u>	

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the tests with speed increments of 5km/h by repeating section 7.5.6. In the CMR FCW scenarios, only perform tests at the test speeds where there was no avoidance in the AEB function tests, where applicable. Stop testing when the speed reduction seen in the test is less than 5 km/h. 7.5.14 For vehicles with a system where LKA dashed line is implemented as an ELK functionality (default-on) but not including a DIM feature, conduct the calibration runs as stated in 7.4.4.4 and monitor the steering torque at the intervention point for all the lateral velocities. The overriding torque shall be ≤ 3.5 Nm. 7.6 Test Execution Control the VUT with driver inputs or using alternative control systems that can modulate the vehicle controls as necessary to perform the tests within	7.4 Test Execution	<u>試驗，僅需執行未能避免碰撞之試驗速度(若適用)，當測得速度減少幅度小於 5km/h 時停止試驗。</u> <u>3.11.7.5.14 若 LKA 虛線功能可以 ELK 功能(預設開啟)實現，但不包含駕駛意圖監測系統(DIM)功能，則應依 3.11.7.4.4.4 進行校準測試，並監測所有側向速度之介入點轉向力矩，該凌駕力矩應小於等於 3.5Nm。</u> <u>3.11.7.6 試驗執行</u> <u>透過駕駛操作或其他替代控制系統來控制受驗車輛，以符合 3.11.7.6.1.2 緊急煞車輔助系統試驗及 3.11.7.6.2 車</u>	<u>3.11.6.4 試驗執行</u>

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the boundary conditions as specified in 7.6.1.2 for the AEB tests and 7.6.2 for the LSS tests. 7.6.1 AEB tests 7.6.1.1 Accelerate the VUT and target to the respective test speeds where needed. 7.6.1.2 The test shall start at T₀ and is valid when all boundary conditions are met between T₀ and T_{AEB} and/or T_{FCW} : <table><tr><th></th><th>VUT</th><th>EPT</th><th>EBT</th><th>EMT</th></tr><tr><td>Speed</td><td>± 1.0 km/h</td><td>± 0.2 km/h</td><td>± 0.5 km/h</td><td>± 1.0 km/h</td></tr><tr><td>Lateral deviation</td><td>0 ± 0.05 m (0 ± 0.1 m for CPTA and CBTA)</td><td colspan="2">0 ± 0.05 m for crossing scenarios (incl. CPTA, CBTA & CPBA) 0 ± 0.15 m for longitudinal scenarios (incl. LHOA)</td><td>0 ± 0.15 m</td></tr><tr><td>Lateral velocity</td><td></td><td>0 ± 0.15 m/s</td><td>0 ± 0.15 m/s</td><td></td></tr><tr><td>Relative distance</td><td></td><td></td><td></td><td>12m/40m ± 0.5m</td></tr><tr><td>Yaw velocity (up to T_{end})</td><td>0 ± 1.0 °/s</td><td></td><td></td><td></td></tr><tr><td>Yaw Angle (up to T_{end})</td><td></td><td></td><td></td><td>0 ± 1.5 °</td></tr><tr><td>Steering wheel velocity (up to T_{end})</td><td>0 ± 15.0 °/s</td><td></td><td></td><td></td></tr></table> 7.6.1.3 The end of a test, where the AEB function is assessed and for CMRs FCW and CMRb FCW, is considered when one of the following occurs : •V_{VUT} = 0km/h (crossing) or V_{VUT} = V_{target} (longitudinal) •Contact between VUT and target		VUT	EPT	EBT	EMT	Speed	± 1.0 km/h	± 0.2 km/h	± 0.5 km/h	± 1.0 km/h	Lateral deviation	0 ± 0.05 m (0 ± 0.1 m for CPTA and CBTA)	0 ± 0.05 m for crossing scenarios (incl. CPTA, CBTA & CPBA) 0 ± 0.15 m for longitudinal scenarios (incl. LHOA)		0 ± 0.15 m	Lateral velocity		0 ± 0.15 m/s	0 ± 0.15 m/s		Relative distance				12m/40m ± 0.5m	Yaw velocity (up to T _{end})	0 ± 1.0 °/s				Yaw Angle (up to T _{end})				0 ± 1.5 °	Steering wheel velocity (up to T _{end})	0 ± 15.0 °/s					<u>道輔助系統試驗所規定之邊界條件內執行測試。</u> <u>3.11.7.6.1 緊急煞車輔助系統試驗</u> <u>3.11.7.6.1.1 若需要，可將受驗車輛與目標加速至各指定之試驗速度。</u> <u>3.11.7.6.1.2 試驗應於 T₀ 開始，當於 T₀ 至 T_{AEB} 及/或 T_{FCW} 之間滿足所有邊界條件時，該次試驗即視為有效。</u> (請參末頁表格) <u>3.11.7.6.1.3 對於 AEB 系統試驗、機車騎士靜止及煞車情境之 FCW 系統試驗，當發生以下任一情況時，即視為測試結束：</u>	
	VUT	EPT	EBT	EMT																																							
Speed	± 1.0 km/h	± 0.2 km/h	± 0.5 km/h	± 1.0 km/h																																							
Lateral deviation	0 ± 0.05 m (0 ± 0.1 m for CPTA and CBTA)	0 ± 0.05 m for crossing scenarios (incl. CPTA, CBTA & CPBA) 0 ± 0.15 m for longitudinal scenarios (incl. LHOA)		0 ± 0.15 m																																							
Lateral velocity		0 ± 0.15 m/s	0 ± 0.15 m/s																																								
Relative distance				12m/40m ± 0.5m																																							
Yaw velocity (up to T _{end})	0 ± 1.0 °/s																																										
Yaw Angle (up to T _{end})				0 ± 1.5 °																																							
Steering wheel velocity (up to T _{end})	0 ± 15.0 °/s																																										

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●The target has left the VUT path or VUT has left the target path For CPLA-25 and CBLA-25 tests where the FCW function is assessed, the end of a test is considered when one of the following occurs : ●$V_{VUT} = V_{target}$ (longitudinal) ●T_{FCW} ●$TTC \leq 1.5s$, after which an evasive action can be started It is at the labs discretion to select and use one of the options above to ensure a safe testing environment. 7.6.1.4 To avoid contact in the CMFtap scenario, the test laboratory may include an automated braking action by the robot in case the AEB system fails to intervene (sufficiently). This braking action is applied automatically when : ●The VUT reaches the latest position at which maximum braking applied to the vehicle will prevent the VUT entering the path of the Motorcyclist and no		(1) <u>受驗車輛速度等於 0km/h(穿越情境)，或受驗車輛速度等於目標速度(縱向情境)</u> (2) <u>受驗車輛與目標碰撞</u> (3) <u>目標離開受驗車輛行駛路徑或受驗車輛離開目標行駛路徑</u> <u>前端成人碰撞情境試驗 25%及前端自行車騎士碰撞情境試驗 25%之 FCW 系統試驗，當發生以下任一情況時，即視為測試結束：</u> (1) <u>受驗車輛速度等於目標速度(縱向情境)</u> (2) <u>前方碰撞預警系統觸發警示的時間點</u> (3) <u>碰撞時間小於等於 1.5s(此時可開始閃避動作)</u> <u>檢測機構可自行選擇並採用上述任一條件，以確保安全的測試環境。</u> 3.11.7.6.1.4 <u>對於轉彎機車騎士碰撞情境試驗，若 AEB 系統未能介入(或介入程度不足)，檢測機構可使用機器人施加自動煞車，此自動煞車可於以下情況觸發：</u>	

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intervention from the AEB system is detected. •Lateral separation between the VUT and EMT reaches $\leq 0.3\text{m}$ during / after AEB intervention. It is at the test laboratory's discretion to select and use one of the options above to ensure a safe testing environment. If the OEM feels the avoidance action is negatively affecting the performance of their vehicle, they should consult with the test laboratory and Euro NCAP secretariat. 7.6.1.5 For manual or automatic accelerator control, it needs to be assured that during automatic brake the accelerator pedal does not result in an override of the system. The accelerator pedal needs to be released when the initial test speed is reduced by 5 km/h. There shall be no operation of other driving controls during the test, e.g. clutch or brake pedal. This does not		(1) <u>受驗車輛到達最後位置時，在此位置對受驗車輛施加最大煞車可避免進入目標機車騎士路徑，且未偵測到來自 AEB 系統的任何介入。</u> (2) <u>AEB 系統介入期間或介入之後，受驗車輛與目標機車騎士之間的側向距離小於等於 0.3m。</u> <u>檢測機構可自行選擇並採用上述任一條件，以確保試驗安全性。若車輛業者認為閃避動作對其車輛性能產生不利影響，則應與 TNCAP 執行機構及檢測機構協商。</u> 3.11.7.6.1.5 <u>無論採用手動或自動的油門控制，皆應確保在自動煞車期間，系統不會被加速踏板所凌駕(override)。當初始試驗速度降低 5km/h 時，必須鬆開加速踏板，試驗</u>	

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apply for the CPRA tests. 7.6.1.6 The CMRs and CMRb FCW system tests should be performed using a braking robot reacting to the warning with a delay time of 1.2 seconds as per C.4 to account for driver reaction time. 7.6.1.7 Braking will be applied that results in a maximum brake level of $-4 \text{ m/s}^2 - 0.50 \text{ m/s}^2$ when applied in a non-threat situation. The particular brake profile to be applied (pedal application rate applied in 200ms (max. 400mm/s) and pedal force) shall be specified by the manufacturer. When the brake profile provided by the manufacturer results in a higher brake level than allowed, the iteration steps as described in ANNEX C will be applied to scale the brake level to $-4 \text{ m/s}^2 - 0.50 \text{ m/s}^2$. 7.6.1.8 If no brake profile is provided, apply default brake profile as described		<u>過程中不得操作其他駕駛控制裝置，例如離合器或煞車踏板。此規定不適用於倒車成人碰撞情境(CPRA)試驗。</u> <u>3.11.7.6.1.6 機車騎士靜止及煞車碰撞情境之 FCW 系統試驗，應使用煞車機器人執行，並於警示後延遲 1.2s(參 3.11.10.4)，以模擬駕駛的反應時間。</u> <u>3.11.7.6.1.7 在非危險情況下施加煞車應產生 $-4\text{m/s}^2-0.50\text{m/s}^2$ 最大減速度。車輛業者應提供煞車曲線(200ms 內之踏板施加速率，最大 400mm/s，及踏板力度)，若車輛業者提供之煞車曲線導致煞車基準超出允許範圍，則應採用 3.11.10 所規範之步驟進行調整，使其調整至 $-4\text{m/s}^2-0.50\text{m/s}^2$ 之範圍內。</u>	

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in ANNEX C. 7.6.2 LSS tests 7.6.2.1 Accelerate the VUT to 50km/h or 72km/h depending on the test scenario. 7.6.2.2 Where applicable accelerate the target vehicle to 60km/h or 80km/h depending on the test scenario, as described in chapter 7.4. 7.6.2.3 The test shall start at T₀ and is valid when all boundary conditions are met between T₀ and T_{ELK} : <table><tr><th></th><th>VUT</th><th>EMT</th></tr><tr><td>Speed</td><td colspan="2">±1.0 km/h</td></tr><tr><td>Relative speed (30/overtaking)</td><td colspan="2">±1.0 km/h</td></tr><tr><td>Lateral deviation</td><td>0 ± 0.09 m</td><td>0 ± 0.14 m</td></tr><tr><td>Steady state lane departure lateral velocity</td><td>± 0.05m/s</td><td></td></tr><tr><td>Yaw velocity (up to T₀ for VUT)</td><td>0 ± 6.3 °/s</td><td></td></tr><tr><td>Yaw velocity (up to T₀ for EMT)</td><td></td><td>0 ± 1.5 °</td></tr><tr><td>Steering wheel velocity (up to T₀ for VUT)</td><td>0 ± 13.0 °/s</td><td></td></tr></table> 7.6.2.4 Steer the vehicle as appropriate to achieve the lateral velocity in a		VUT	EMT	Speed	±1.0 km/h		Relative speed (30/overtaking)	±1.0 km/h		Lateral deviation	0 ± 0.09 m	0 ± 0.14 m	Steady state lane departure lateral velocity	± 0.05m/s		Yaw velocity (up to T ₀ for VUT)	0 ± 6.3 °/s		Yaw velocity (up to T ₀ for EMT)		0 ± 1.5 °	Steering wheel velocity (up to T ₀ for VUT)	0 ± 13.0 °/s			<u>3.11.7.6.1.8 若車輛業者未提供煞車曲線，則應採用 3.11.10 所述之預設煞車曲線。</u> <u>3.11.7.6.2 車道輔助系統試驗</u> <u>3.11.7.6.2.1 依試驗情境，將受驗車輛加速至 50km/h 或 72km/h。</u> <u>3.11.7.6.2.2 依 3.11.7.4 所述試驗情境，將受驗車輛加速至 60km/h 或 80km/h。(若適用)</u> <u>3.11.7.6.2.3 試驗應於 T₀ 開始，當於 T₀ 至 T_{ELK} 之間滿足所有邊界條件時，該次試驗即視為有效。</u> (請參末頁表格) <u>3.11.7.6.2.4 適當操控車輛轉向，使其以平穩且可控方式達到所需之側向</u>	
	VUT	EMT																									
Speed	±1.0 km/h																										
Relative speed (30/overtaking)	±1.0 km/h																										
Lateral deviation	0 ± 0.09 m	0 ± 0.14 m																									
Steady state lane departure lateral velocity	± 0.05m/s																										
Yaw velocity (up to T ₀ for VUT)	0 ± 6.3 °/s																										
Yaw velocity (up to T ₀ for EMT)		0 ± 1.5 °																									
Steering wheel velocity (up to T ₀ for VUT)	0 ± 13.0 °/s																										

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smooth controlled manner and with minimal overshoot. 7.6.2.5 The end of an CMoncoming or CMovertaking test is considered as when one of the following occurs : •The system intervenes to prevent a collision between the VUT and target vehicle •The system has failed to intervene (sufficiently) to prevent a collision between the VUT and target vehicle. This can be assumed when one of the following occurs : - o The lateral separation between the VUT and target vehicle equal < 0.3m in the oncoming and overtaking scenario - o No intervention is observed at a TTC = 0.8s or a TTC submitted by the OEM It is at the labs discretion to select and use one of the options above to ensure a safe testing environment. 7.6.2.6 If the test ends because the vehicle has failed to intervene		<u>速度，並將過衝量(overshoot)情形降至最低。</u> <u>3.11.7.6.2.5 對於對向來車機車騎士碰撞情境試驗或車道超車機車騎士碰撞情境試驗，當發生以下任一情況時，即視為試驗結束：</u> <u>(1) 系統介入以防止受驗車輛與目標機車騎士發生碰撞</u> <u>(2) 系統未介入(或介入程度不足)以避免受驗車輛與目標車輛發生碰撞。當發生下列任一情況時，即可判定為此狀態：</u> <u>A. 在對向來車與車道超車情境中，受驗車輛與目標機車騎士之側向距離小於 0.3m</u> <u>B. 在碰撞時間等於 0.8s 或由車輛業者提供之碰撞時間點，仍未觀察到系統有任何介入動作</u> <u>檢測機構可自行選擇並採用上述任一條件，以確保安全試驗的測試環境。</u> <u>3.11.7.6.2.6 若試驗因系統未能介入(或介入程度不足)而結束，或目標</u>	

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(sufficiently) or if the EMT has left its designated path by more than 0.2m, it is recommended that the VUT and/or EMT are steered away from the impact, either manually or by reactivating the steering control of the driving robot/EMT. 7.6.2.7 The subsequent lateral velocity for the next test is incremented with 0.1m/s.	7.4.1 Accelerate the VUT and EPT or EBT to the respective test speeds. 7.4.2 The test shall start at T_0 (4s TTC) and is valid when all boundary conditions are met between T_0 (for CPLA & CBLA-AEB T_0-1s) and T_{AEB} and/or T_{FCW} : - Speed of VUT (GPS-speed) Test speed + 0.5 km/h - Lateral deviation from VUT test path 0 ± 0.05 m - Lateral deviation from EPT and EBT	<u>機車騎士偏離預定路徑超過 0.2m，建議透過手動操作，或重新啟動駕駛機器人/目標機車騎士的轉向控制，將受驗車輛及/或目標機車騎士轉向駛離以免碰撞。</u> <u>3.11.7.6.2.7 下一次試驗之側向速度應以 0.1m/s 級距遞增。</u>	<u>3.11.6.4.1 讓受驗車輛與目標行人或目標自行車騎士各自加速至試驗規定速度。</u> <u>3.11.6.4.2 試驗於 T_0(4s TTC)開始，若 T_0(適用前端成人碰撞情境試驗及前端自行車騎士碰撞情境試驗-AEB T_0-1s)與 T_{AEB}/T_{FCW} 之間符合下列所有限制條件，則該次試驗認定有效：</u> <u>(1) 受驗車輛速度(GPS-速度)試驗速度+0.5km/h</u> <u>(2) 受驗車輛行駛路徑側向偏移距離 $0 \pm 0.05m$</u> <u>(3) 目標行人與目標自行車騎士行</u>

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	test path - crossing scenarios 0 ± 0.05 m - longitudinal scenarios 0 ± 0.15 m - lateral velocity 0 ± 0.15 m/s - Yaw velocity 0 ± 1.0 °/s - Steering wheel velocity 0 ± 15.0 °/s - Speed of EPT or EBT during steady state ± 0.2 km/h - Start of steady state - EPT Nearside 3.0 m from vehicle centreline - EPT Farside 4.5 m from vehicle centreline - EBT Nearside 17m from vehicle centreline - EPT and EBT Longitudinal 10 and 28m from vehicle impact point 7.4.3 The end of a test, where the AEB function is assessed, is considered when one of the following occurs : - $V_{VUT} = 0$km/h (crossing) or $V_{VUT} = V_{EPT/EBT}$ (longitudinal)		<u>駛路徑側向偏移距離</u> (A) <u>穿越情境 0 ± 0.05 m</u> (B) <u>縱向情境 0 ± 0.15 m</u> (C) <u>側向速度 0 ± 0.15 m/s</u> (4) <u>橫擺角速度 0 ± 1.0 °/s</u> (5) <u>方向盤轉速 0 ± 15.0 °/s</u> (6) <u>目標行人或目標自行車騎士於穩定狀態之速度± 0.2km/h</u> (7) <u>開始穩定狀態</u> (A) <u>目標行人近端距離車輛中線 3.0m</u> (B) <u>目標行人遠端 距離車輛中線 4.5m</u> (C) <u>目標自行車騎士近端距離車輛中線 17m</u> (D) <u>目標行人與目標自行車騎士前端距離車輛碰撞點 10 m 與 28m</u> <u>3.11.6.4.3 AEB 功能之評等，發生下述條件其中之一時試驗即結束：</u> (1) <u>受驗車輛速度 = 0km/h (穿越) 或受驗車輛速度 = $V_{EPT/EBT}$ (縱向)</u>

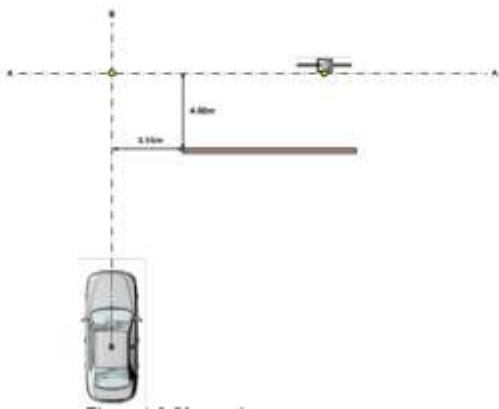
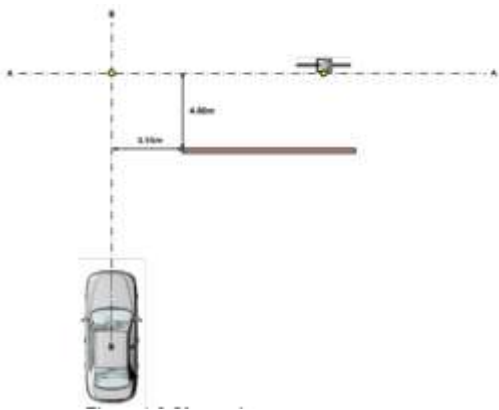
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	- Contact between VUT and EPT or EBT - EPT or EBT has left the VUT path or VUT has left the EPT or EBT path 7.4.4 For manual or automatic accelerator control, it needs to be assured that during automatic brake the accelerator pedal does not result in an override of the system. The accelerator pedal needs to be released when the initial test speed is reduced by 5 km/h. There shall be no operation of other driving controls during the test, e.g. clutch or brake pedal. This does not apply for the CPRA tests. 7.4.5 For AEB systems tests, when there is complete avoidance (if applicable, test results below 20km/h may be ignored), the subsequent test speed for the next test is incremented with		(2) <u>受驗車輛與目標行人或目標自行車騎士發生碰撞</u> (3) <u>目標行人或目標自行車騎士已離開受驗車輛路徑或受驗車輛已離開目標行人或目標自行車騎士路徑</u> 3.11.6.4.4 <u>不論是使用自動控制裝置或人員駕駛受驗車輛，應確保自動煞車作動期間，加速踏板不會取代(override)煞車系統。試驗初始速度降低 5 km/h 時，應放開加速踏板。試驗進行時，不得使用其他駕駛控制功能，如：離合器或煞車踏板。這不適用於後端成人碰撞情境試驗。</u> 3.11.6.4.5 <u>執行緊急煞車輔助系統試驗時，若未發生碰撞者(若適用，可忽略低於 20km/h 之試驗結果)，則下一次的試驗速度應增加 10 km/h。若發生碰撞，則以發生碰撞之測試速度減</u>

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	10km/h. When there is contact, first perform a test at a test speed 5km/h less than the test speed where contact occurred. After this test continue to perform the remainder of the tests with speed increments of 5km/h. For tests above 20km/h, stop testing when the manufacturer predicts no performance. In the tests above 40km/h, stop testing when the actual speed reduction measured is less than 15km/h. For FCW systems tests, when the FCW is issued before 1.7s TTC, the subsequent test speed for the next test is incremented with 10km/h. When the FCW is issued after 1.7s TTC, first perform a test at a test speed 5km/h less than the test speed where this occurred. After this test continue to perform the remainder of the tests with speed increments of 5km/h.		<u>5km/h 進行試驗。此次試驗後，繼續再以 5 km/h 之遞增速度進行後續的試驗。</u> <u>試驗速度 20km/h 以上時，若車輛業者預測系統無法發生效用，則應停止試驗。試驗速度高於 40 km/h 以上時，若速度減少幅度小於 15 km/h，則應停止試驗。</u> <u>執行前方碰撞預警系統試驗時，當前方碰撞預警系統在碰撞時間之 1.7 秒前發出警示，則下一項試驗速度應增加 10km/h。當前方碰撞預警系統在碰撞時間 1.7 秒後發出警示，則以發生碰撞之測試速度減 5km/h 進行試驗。此次試驗後，繼續再以 5km/h 之遞增速度進行後續的試驗。</u>

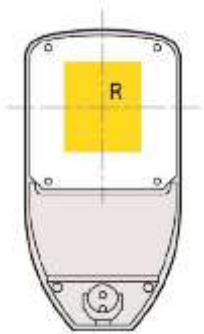
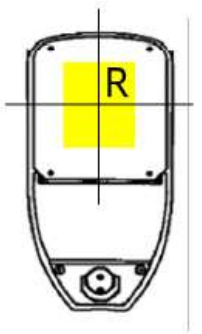
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	Stop testing when the manufacturer predicts that the FCW is not issued before 1.5s TTC. 7.4.6 Where the predicted speed reduction in the tests above 40 km/h is at least 20km/h (sufficient to score points), but the actual speed reduction measured in the test is between 15 and 20km/h, the test shall be repeated a further two times and the middle value will be used in the assessment. In case FCW triggers between 1.5 and 1.7s TTC, the test shall be repeated a further two times and the middle value will be used in the assessment.		<u>當車輛業者預測前方碰撞預警系統無法於碰撞時間 1.5 秒前發出警示時，則應停止試驗。</u> <u>3.11.6.4.6 試驗車速 40 km/h 以上時，預測之減速度至少為 20km/h (足以得分)，但在試驗中測得的實際減速度在 15 至 20km/h 之間，應額外進行兩次試驗，其中間值將用於評等。</u> <u>若前方碰撞預警系統警示觸發在碰撞時間 1.5 與 1.7 秒之間，應額外進行兩次試驗，其中間值將用於評等。</u>
ANNEX A OBSTRUCTION DIMENSIONS	ANNEX A OBSTRUCTION DIMENSIONS	3.11.8 障礙尺寸	3.11.7 障礙尺寸
A.1 Smaller obstruction vehicle The smaller obstruction vehicle should be of the category Small Family Car and is positioned closest to the	A.1 Smaller obstruction vehicle The smaller obstruction vehicle should be of the category Small Family Car and is positioned closest to the	3.11.8.1 小型障礙車輛 小型障礙車輛屬於小型家庭房車類別，且置於距離行人路徑最近之位置。小型障礙車輛應符合以下尺寸，	3.11.7.1 小型障礙車輛 小型障礙車輛屬於小型家庭房車類別，且置於距離行人路徑最近之位置。小型障礙車輛應符合以下尺寸，

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	A.3 Obstruction for bicycle acceleration phase The obstruction represents a permanent full view blocking obstruction from the ground up (brick building or wall)	3.11.7.3 自行車加速階段之障礙物 障礙物係為由地面向上延伸之永久性磚砌建築物或牆壁，其位於車輛及自行車騎乘路徑之間(與騎乘方向平行)。																																																																									

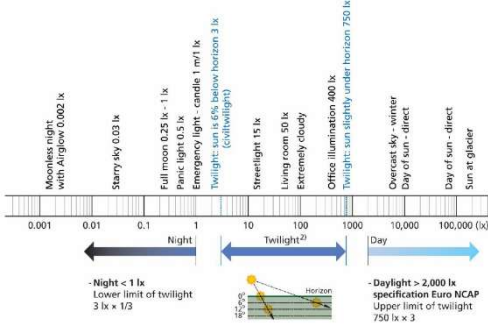
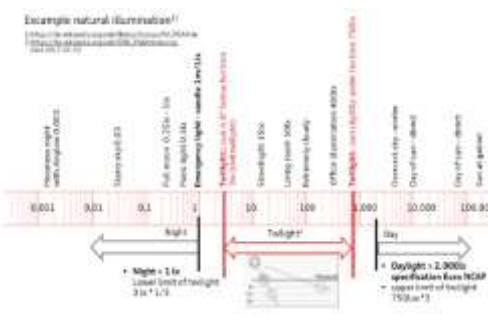
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	between vehicle and bicyclist running parallel with the bicyclist path. A.3.1 Obstruction dimensions The obstruction should have flat uniform surfaces from the ground up visible from the VUT. - Height of the obstruction $\geq 2.00\text{m}$ - Width of the obstruction ≥ 0.05 and $\leq 0.50\text{m}$ - Length of the obstruction $\geq 8.50\text{m}$ A.3.2 Visible properties The obstruction sides visible from the VUT should have a uniform light colour. A.3.3 Radar properties The radar cross section (RCS) properties of the obstructions long side, visible from the VUT, should be similar to brick wall with similar RCS observed as depicted in Figure A.1. It is noted that the RCS verification		<u>3.11.7.3.1 障礙物尺寸</u> <u>受驗車輛可見之地面障礙物，其應具有平坦均勻之外表面。</u> (1) <u>障礙物的高度$\geq 2.00\text{m}$</u> (2) <u>障礙物寬度≥ 0.05 與 $\leq 0.50\text{m}$</u> (3) <u>障礙物長度$\geq 8.50\text{m}$</u> <u>3.11.7.3.2 可見特性</u> <u>受驗車輛可見障礙物之側面，應為均勻之淺色系。</u> <u>3.11.7.3.3 雷達特性</u> <u>從受驗車輛可見的障礙物長邊的雷達散射截面(RCS)特性，應與磚牆類似，亦如同觀測圖 11 之 RCS。注意：RCS 驗證情境非此規章之試驗情境。</u>

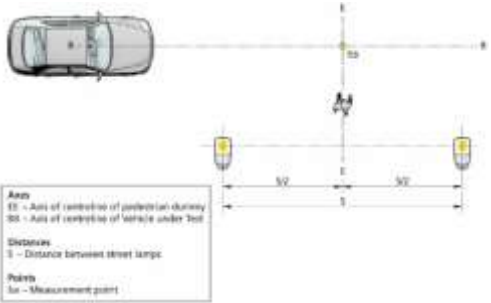
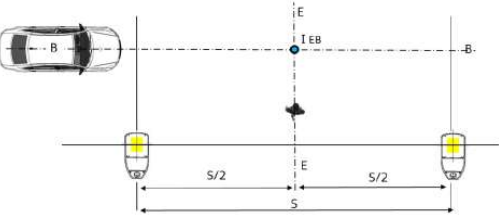
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	scenario is not a 2018 test scenario.  Figure A.1 Obstruction measurement set-up		 圖 11 障礙物量測設置
ANNEX B TESTING AT LOW AMBIENT LIGHTING CONDITIONS B.1 Illumination Situation Based on a GIDAS hotspot analysis, this annex will describe a test condition for a night test scenario in urban situations. B.2 Reference EN 13201 This European Standard defines performance requirements, which are	ANNEX B TESTING AT LOW AMBIENT LIGHTING CONDITIONS B.1 Illumination Situation Based on a GIDAS hotspot analysis, this appendix will describe a test condition for a night test scenario in urban situations. B.2 Reference EN 13201 This European Standard defines performance requirements, which are	3.11.9 低照明環境試驗 3.11.9.1 照度情況 依據 GIDAS(German In-Depth Accident Study)熱點分析，本條文將描述市區夜間試驗情境之試驗條件。 3.11.9.2 參照 EN 13201 此歐洲標準定義性能要求，其道路使用者的視覺需求具體指定道路照明	3.11.8 低照明環境試驗 3.11.8.1 照度情況 依據 GIDAS(German In-Depth Accident Study)熱點分析，本條文將描述市區夜間試驗情境之試驗條件。 3.11.8.2 參照 EN 13201 此歐洲標準定義性能要求，其道路使用者的視覺需求具體指定道路照明

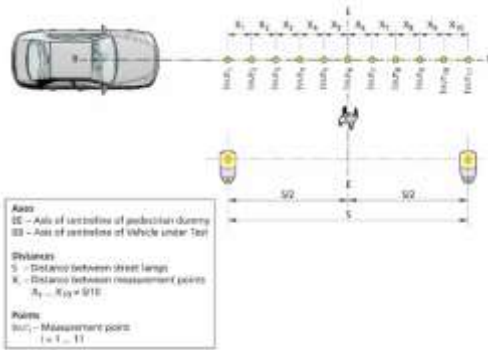
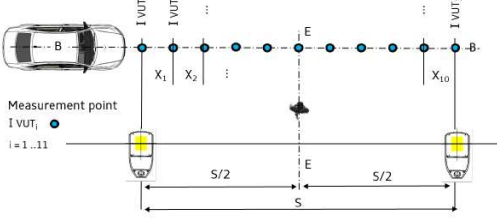
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— Part 1 : Guidelines on selection of lighting classes [Technical Report]; — Part 2 : Performance requirements [present document]; — Part 3: Calculation of performance; — Part 4 : Methods of measuring lighting performance; — Part 5 : Energy performance indicators.	— Part 1 : Guidelines on selection of lighting classes [Technical Report]; — Part 2 : Performance requirements [present document]; — Part 3: Calculation of performance; — Part 4 : Methods of measuring lighting performance; — Part 5 : Energy performance indicators.	(1) 第 1 部分：照明等級選擇指南 [技術報告]; (2) 第 2 部分：性能要求[本文件]; (3) 第 3 部分：性能計算; (4) 第 4 部分：量測照明性能之方法; (5) 第 5 部分：能源績效指標。	(1) 第 1 部分：照明等級選擇指南 [技術報告]; (2) 第 2 部分：性能要求[本文件]; (3) 第 3 部分：性能計算; (4) 第 4 部分：量測照明性能之方法; (5) 第 5 部分：能源績效指標。
B.3 Terms and definitions	B.3 Terms and definitions	3.11.9.3 術語及定義	3.11.8.3 術語及定義
E - horizontal illuminance over a road area measured in lux (lx)	E - horizontal illuminance over a road area measured in lux (lx)	E-道路區域的水平照度以(lx)為量測單位。	E-道路區域的水平照度以(lx)為量測單位。
$\overline{E_{min}}$ - horizontal illuminance averaged	$\overline{E_{min}}$ - horizontal illuminance averaged	$\overline{E_{min}}$ -道路區域的平均最小水平照度	$\overline{E_{min}}$ -道路區域的平均最小水平照度

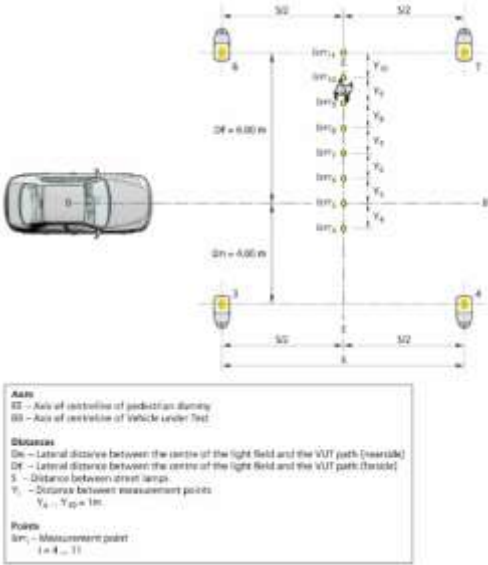
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over a road area measured in lux (lx). E_{min} - lowest illuminance on a road area measured in lux (lx). E_{max} - horizontal illuminance averaged over a road area measured in lux (lx). Reference point R - The reference point of the lamp shall be the geometric centre of the light field  B.3.1 Derivation of parameter The test condition in this annex is based on accident analysis. The illumination values refer to DIN EN 13201.	over a road area measured in lux (lx). E_{min}- lowest illuminance on a road area measured in lux (lx). E_{max} - horizontal illuminance averaged over a road area measured in lux (lx). Reference point R - The reference point of the lamp shall be the geometric centre of the light field  B.3.1 Derivation of parameter The test condition in this appendix is based on accident analysis. The illumination values refer to DIN EN 13201.	以(lx)為量測單位。 E_{min}-道路區域的最低照度以(lx)為量測單位。 E_{max}-道路區域的平均最大水平照度以(lx)為量測單位。 參考點R- 燈的參考點應為光場域的幾何中心。 (請參末頁圖示) 3.11.9.3.1 參數的推導 本條文中的試驗條件基於事故分析。照度值參考 DIN EN 13201。	以(lx)為量測單位。 E_{min}-道路區域的最低照度以(lx)為量測單位。 E_{max}-道路區域的平均最大水平照度以(lx)為量測單位。 參考點R- 燈的參考點應為光場域的幾何中心。 (請參末頁圖示) 3.11.8.3.1 參數的推導 本條文中的試驗條件基於事故分析。照度值參考 DIN EN 13201。

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The main illumination situations are main roads in urban situations with velocity 30...60 km/h, where main users are motorized vehicles and where bicycles and pedestrians are permitted. The illuminance is based on class ME3. For ME3 comparative classes are available: C3 und S1. For Illuminance class S1 following values are defined in EN 13201: Values for Class S1: $\overline{E_{min}} > 15lx \text{ AND } \overline{E_{min}} > 5lx$ $\overline{E_{max}} < 1,5 \cdot \overline{E_{min}} \text{ AND } \overline{E_{max}} < 22,5lx$ $\overline{E_{ref}} - \text{In order to reach a stable measurement setup, a reference value is defined as:}$ $\overline{E_{ref}} = \frac{\overline{E_{min}} + \overline{E_{max}}}{2} = \frac{15lx + 22,5lx}{2} = 18,75lx$ B.4 Light condition There is a wide range of illuminance values in different situations. (see figure below).	The main illumination situations are main roads in urban situations with velocity 30...60 km/h, where main users are motorized vehicles and where bicycles and pedestrians are permitted. The illuminance is based on class ME3. For ME3 comparative classes are available: C3 und S1. For Illuminance class S1 following values are defined in EN 13201: Values for Class S1: $\overline{E_{min}} > 15lx \text{ AND } \overline{E_{min}} > 5lx$ $\overline{E_{max}} < 1,5 \cdot \overline{E_{min}} \text{ AND } \overline{E_{max}} < 22,5lx$ $\overline{E_{ref}} - \text{In order to reach a stable measurement setup, a reference value is defined as:}$ $\overline{E_{ref}} = \frac{\overline{E_{min}} + \overline{E_{max}}}{2} = \frac{15lx + 22,5lx}{2} = 18,75lx$ B.4 Light condition There is a wide range of illuminance values in different situations. (see figure below).	主要照度係以市區主要道路之情況，速度為 30 ... 60 km / h，主要使用者為機動車輛，並允許自行車及行人。 照度係以 ME3 等級為基礎。可使用 ME3 之同等等級：C3 及 S1。照度等級 S1 所列之值定義於 EN 13201: S1 等級的值: $\overline{E_{min}} > 15lx \text{ AND } \overline{E_{min}} > 5lx$ $\overline{E_{max}} < 1,5 \cdot \overline{E_{min}} \text{ AND } \overline{E_{max}} < 22,5lx$ $\overline{E_{ref}} - \text{為了達到穩定的監測設置，參考值定義為:}$ $\overline{E_{ref}} = \frac{\overline{E_{min}} + \overline{E_{max}}}{2} = \frac{15lx + 22,5lx}{2} = 18,75lx$ <u>3.11.9.4</u> 光照條件 不同情況下有多種照度值。(詳見下圖)。	主要照度係以市區主要道路之情況，速度為 30 ... 60 km / h，主要使用者為機動車輛，並允許自行車及行人。 照度係以 ME3 等級為基礎。可使用 ME3 之同等等級：C3 及 S1。照度等級 S1 所列之值定義於 EN 13201: S1 等級的值: $\overline{E_{min}} > 15lx \text{ AND } \overline{E_{min}} > 5lx$ $\overline{E_{max}} < 1,5 \cdot \overline{E_{min}} \text{ AND } \overline{E_{max}} < 22,5lx$ $\overline{E_{ref}} - \text{為了達到穩定的監測設置，參考值定義為:}$ $\overline{E_{ref}} = \frac{\overline{E_{min}} + \overline{E_{max}}}{2} = \frac{15lx + 22,5lx}{2} = 18,75lx$ <u>3.11.8.4</u> 光照條件 不同情況下有多種照度值。(詳見下圖)。

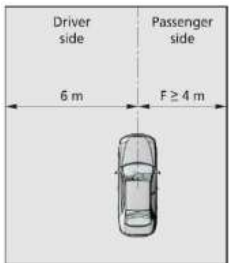
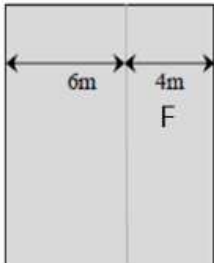
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 The diagram shows a logarithmic scale for background illuminance from 0.001 lx to 100,000 lx. Key points include: Moonless night (0.002 lx), Starry sky (0.03 lx), Full moon (0.25 lx), Pacific light (0.5 lx), Emergency light (1 lx), Twilight (3 lx), Streetlight (15 lx), Living room (50 lx), Office (400 lx), and Daylight (10,000 lx). It also defines Night (< 1 lx), Twilight (1-3 lx), and Day (> 2,000 lx) periods.	 The diagram shows a logarithmic scale for background illuminance from 0.001 lx to 100,000 lx. Key points include: Moonless night (0.002 lx), Starry sky (0.03 lx), Full moon (0.25 lx), Pacific light (0.5 lx), Emergency light (1 lx), Twilight (3 lx), Streetlight (15 lx), Living room (50 lx), Office (400 lx), and Daylight (10,000 lx). It also defines Night (< 1 lx), Twilight (1-3 lx), and Day (> 2,000 lx) periods.	(請參末頁圖示)	(請參末頁圖示)
B.4.1 Background illuminance The background illumination is an additive value to the streetlight illumination. The position of the measurement of the background illumination shall be measured at the collision point. During measurement of background illumination all lamps and vehicle light shall be switched off. Maximum of the background illumination on a test area during night shall be less than : $I_{EB} < 1lx$	B.4.1 Background illuminance The background illumination is an additive value to the streetlight illumination. The position of the measurement of the background illumination shall be measured at the collision point. During measurement of background illumination all lamps and vehicle light shall be switched off. Maximum of the background illumination on a test area during night shall be less than : $I_{EB} < 1lx$	3.11.9.4.1 背景照度 背景照度係為附加於路燈照度之照明值。 應於碰撞點位置量測背景照度，量測背景照度期間，應關閉所有路燈及車燈。 夜間試驗區域之背景照度最大值應小於： $I_{EB} < 1lx$	3.11.8.4.1 背景照度 背景照度係為附加於路燈照度之照明值。 應於碰撞點位置量測背景照度，量測背景照度期間，應關閉所有路燈及車燈。 夜間試驗區域之背景照度最大值應小於： $I_{EB} < 1lx$

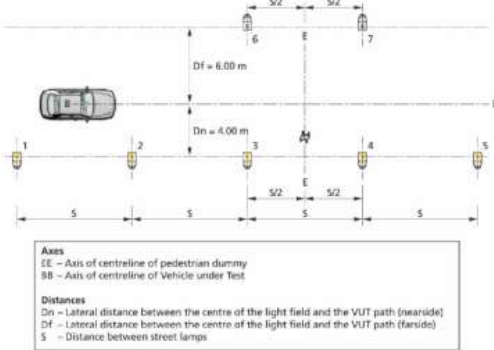
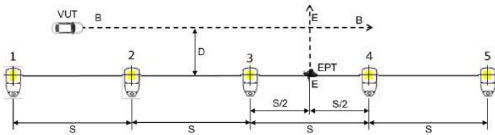
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 Axis EE - Axis of centerline of pedestrian dummy BB - Axis of centerline of vehicle under Test Distances S - Distance between street lamps Points for - Measurement point B.4.2 Illuminance at VUT path The illuminance of VUT path ($\overline{IVUT}$) is defined as an average of illuminance measurement points along the VUT path, trajectory BB. For CPNA-25, CPNA-75 and CPNCO the average illuminance shall be in a range of : $\overline{IVUT} = \overline{E_{ref}} \pm Tolerance = 19lx \pm 3lx$ $\overline{IVUT} = \frac{1}{11} \sum_{i=1}^{11} IVUT_i; \quad 16lx < \overline{IVUT} < 22lx$ For CPFA, two additional lamps on the farside shall be switched on and the	 EE : Axis of centerline of pedestrian dummy BB : Axis of centerline of Vehicle under Test S : Distance between street lamps ● Measurement point B.4.2 Illuminance at VUT path The illuminance of VUT path ($\overline{IVUT}$) is defined as an average of illuminance measurement points along the VUT path, trajectory BB. The average illuminance shall be in a range of : $\overline{IVUT} = \overline{E_{ref}} \pm Tolerance = 19lx \pm 3lx$ $\overline{IVUT} = \frac{1}{11} \sum_{i=1}^{11} IVUT_i; \quad 16lx < \overline{IVUT} < 22lx$	(請參末頁圖示) 3.11.9.4.2 受驗車輛路徑之照度 受驗車輛路徑($\overline{IVUT}$)的照度之定義為沿著受驗車輛路徑BB之平均照度量測點，對於近端成人碰撞情境試驗25%及75%、近端兒童障礙物情境試驗之平均照度應在以下範圍內： $\overline{IVUT} = \overline{E_{ref}} \pm Tolerance = 19lx \pm 3lx$ $\overline{IVUT} = \frac{1}{11} \sum_{i=1}^{11} IVUT_i; \quad 16lx < \overline{IVUT} < 22lx$ 對於遠端成人碰撞情境試驗，應開啟遠端之2個附加路燈，其平均照度應位於以下範圍內：	(請參末頁圖示) EE：目標行人之中心軸線 BB：受驗車輛之中心軸線 S：路燈間距 ●量測點 3.11.8.4.2 受驗車輛路徑之照度 受驗車輛路徑($\overline{IVUT}$)的照度之定義為沿著受驗車輛路徑BB之平均照度量測點，平均照度應在以下範圍內： $\overline{IVUT} = \overline{E_{ref}} \pm Tolerance = 19lx \pm 3lx$ $\overline{IVUT} = \frac{1}{11} \sum_{i=1}^{11} IVUT_i; \quad 16lx < \overline{IVUT} < 22lx$

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average illuminance shall be in a range of : $\overline{IVUT} = \overline{E_{ref}} \pm Tolerance = 25lx \pm 5lx$ $\overline{IVUT} = \frac{1}{11} \sum_{i=1}^{11} IVUT_i; \quad 20lx < \overline{IVUT} < 30lx$  B.4.3 Illuminance at EPT path The illuminance along the EPT path, trajectory EE shall be at least $I_{EPTi} > E_{min}$ I_{EPTi} ranges from 1 to 6 in nearside	 EE : Axis of centreline of pedestrian dummy BB : Axis of centreline of Vehicle under Test S : Distance between street lamps Xi : Distance between measurement points $X_1, X_2, .. X_{10} = S/10$ B.4.3 Illuminance at EPT path The illuminance along the EPT path, trajectory EE shall be at least $I_{EPTi} > E_{min}$	$\overline{IVUT} = \overline{E_{ref}} \pm Tolerance = 25lx \pm 5lx$ $\overline{IVUT} = \frac{1}{11} \sum_{i=1}^{11} IVUT_i; \quad 20lx < \overline{IVUT} < 30lx$ (請參末頁圖示) 3.11.9.4.3 目標行人路徑之照度 沿著目標行人路徑之照度，路徑 EE 應至少為 $I_{EPTi} > E_{min}$ 對於近端情境試驗(圖 3.11.9.5)，I_{EPTi} 範圍為 1 至 6，其中路燈 6 及	(請參末頁圖示) EE : 目標行人之中心軸線 BB : 受驗車輛之中心軸線 S : 路燈間距 $X_1, X_2, .. X_{10} = S/10$ 3.11.8.4.3 目標行人路徑之照度 沿著目標行人路徑之照度，路徑 EE 應至少為 $I_{EPTi} > E_{min}$

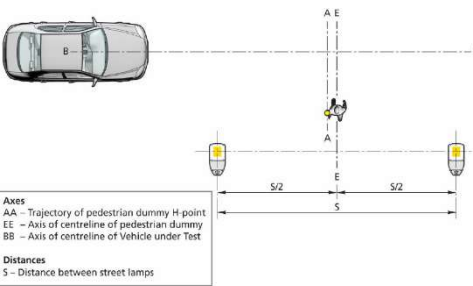
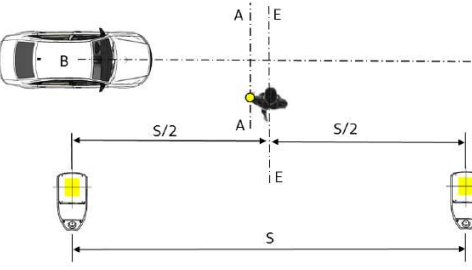
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 Figure B.4.3 : Illuminance EPT path - farside scenarios		(請參末頁圖示)	
B.4.4 Measurement tolerances All measurement tolerances shall be E : ± 1lx	B.4.4 Measurement tolerances All measurement tolerances shall be EE : ± 1lx	3.11.9.4.4 量測容許誤差 所有量測容許誤差應為 E : ±1lx	3.11.8.4.4 量測容許誤差 所有量測容許誤差應為 EE : ±1lx
B.5 Test Equipment B.5.1 General requirement The chosen lamp setup must reflect real world conditions. It is not allowed to install separate lamps to reach the	B.5 Test Equipment B.5.1 General requirement The chosen lamp setup must reflect real world conditions. It is not allowed to install separate lamps to reach the	3.11.9.5 試驗配備 3.11.9.5.1 一般要求 燈源之設置應與真實現況條件一致。不允許分開設置燈源以達到所需條件。夜間試驗時，應使用 LED 燈，	3.11.8.5 試驗配備 3.11.8.5.1 一般要求 燈源之設置應與真實現況條件一致。不允許分開設置燈源以達到所需條件。夜間試驗時，應使用 LED 燈，

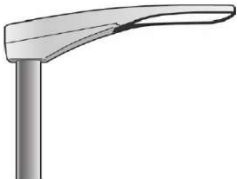
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required conditions. For the night test, a LED lamp shall be used due to its overall advantages like homogeneous illumination, long-term stability, power consumption etc.	required conditions. For the night test, a LED lamp shall be used due to its overall advantages like homogeneous illumination, long-term stability, power consumption etc.	因其具均勻照明、長期穩定性，以及低電力消耗等整體優勢。	因其具均勻照明、長期穩定性，以及低電力消耗等整體優勢。
B.5.2 Glaring The lamps shall not be tilted towards the SV path to avoid any glaring which could affect the sensor performance. Glaring of the sensor system shall not occur everywhere on the test area and especially not along the section of the vehicle path.	B.5.2 Glaring The lamps shall not be tilted towards the SV path to avoid any glaring which could affect the sensor performance. Glaring of the sensor system shall not occur everywhere on the test area and especially not along the section of the vehicle path.	3.11.9.5.2 眩光 燈源不應偏斜照向受驗車輛路徑以避免眩光影響感測器性能。感測器系統之眩光不應出現在試驗區域的任何地方，特別是不應沿著車輛路徑的部分。	3.11.8.5.2 眩光 燈源不應偏斜照向受驗車輛路徑以避免眩光影響感測器性能。感測器系統之眩光不應出現在試驗區域的任何地方，特別是不應沿著車輛路徑的部分。
B.5.3 Constant illumination function To reach constant test conditions during test and lifetime, the lamp shall have a constant illumination function.	B.5.3 Constant illumination function To reach constant test conditions during test and lifetime, the lamp shall have a constant illumination function.	3.11.9.5.3 恆定照明功能 為於試驗及使用生命週期達到恆定的試驗條件，燈源應具有恆定的照明功能。	3.11.8.5.3 恆定照明功能 為於試驗及使用生命週期達到恆定的試驗條件，燈源應具有恆定的照明功能。
B.5.4 Colour temperature The colour temperature of the lamps shall be between 4500±1000K.	B.5.4 Colour temperature The colour temperature of the lamps shall be between 4500±1000K.	3.11.9.5.4 色溫 燈源的色溫應在 4500±1000K 之間。	3.11.8.5.4 色溫 燈源的色溫應在 4500±1000K 之間。

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B.5.5 Mounting device The lamps can be either installed stationary on a fixed pole, or on a mobile tripod. The mounting device must be designed to withstand wind speeds up to 20m/s.	B.5.5 Mounting device The lamps can be either installed stationary on a fixed pole, or on a mobile tripod. The mounting device must be designed to withstand wind speeds up to 20m/s.	3.11.9.5.5 安裝設備 燈源可固定安裝於固定桿或安裝於移動三腳架上。安裝設備應能承受高達 20 m/s 之風速。	3.11.8.5.5 安裝設備 燈源可固定安裝於固定桿或安裝於移動三腳架上。安裝設備應能承受高達 20 m/s 之風速。
B.5.6 Free Space (F) In the passenger side of the VUT test path it is not allowed to install any mounting device from the lamp.  The free space F between the VUT path and the mounting facility shall be F ≥ 4m.	B.5.6 Free Space (F) In the passenger side of the VUT test path it is not allowed to install any mounting device from the lamp.  The free space F between the VUT path and the mounting facility shall be F ≥ 4m.	3.11.9.5.6 自由空間(F) 不允許從受驗車輛乘客側之試驗路徑至燈源處，設置任何安裝設備。 (請參末頁圖示) 受驗車輛路徑與安裝設施之間的自由空間 F 應為 $F \geq 4m$	3.11.8.5.6 自由空間(F) 不允許從受驗車輛乘客側之試驗路徑至燈源處，設置任何安裝設備。 (請參末頁圖示) 受驗車輛路徑與安裝設施之間的自由空間 F 應為 $F \geq 4m$
B.5.7 Test setup Four lamps in front of the pedestrian path and three lamps behind the	B.5.7 Test setup Three lamps in front of the pedestrian path and two lamps behind the	3.11.9.5.7 試驗設定 建議於行人路徑前端設置四盞燈源，於行人路徑後端設置三盞燈源(詳見	3.11.8.5.7 試驗設定 建議於行人路徑前端設置三盞燈源，於行人路徑後端設置兩盞燈源(詳見

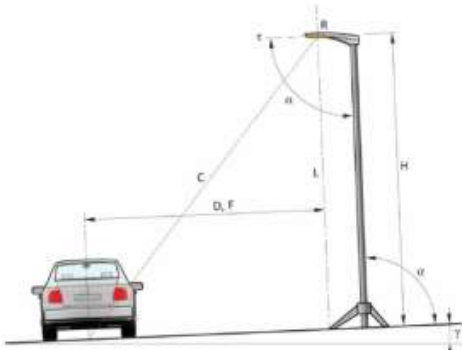
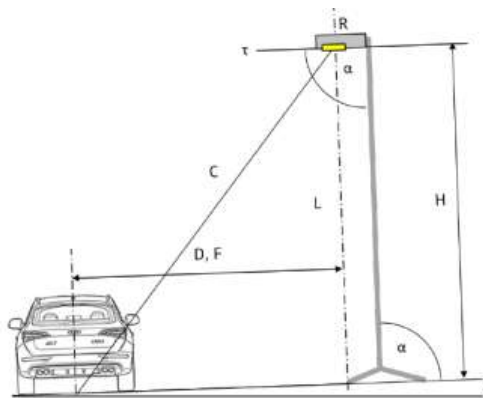
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pedestrian path are required (see figure below). That lamp configuration provides a homogeneous illumination of the test scenario according to real world situations. The position of the EPT is between lamp 3 and 4 (6 and 7 for CPFA). Lamps 3, 4, 6 and 7 must be the same model lamp. Lamps 6 and 7 are only switched on for the farside scenario.  Figure B8 : CPNA Night-time setup	pedestrian path are recommended (see figure below). That lamp configuration provides a homogeneous illumination of the test scenario according to real world situations. The position of the EPT is between lamp 3 and 4.  D : Lateral distance between the centre of the light field and the VUT path EE : Axis of centreline of pedestrian dummy BB : Axis of centreline of Vehicle under Test VUT : Vehicle under Test EPT : Euro NCAP Pedestrian Target S : Distance between streetlight	下圖)。該燈源配置依據真實情況，以提供試驗情境之均勻照明。 目標行人的位置在燈源 3 及 4 之間 <u>(遠端成人碰撞情境試驗在燈源 6 及 7)。</u> <u>燈源 3、4、6 及 7 應為相同型號。</u> <u>燈源 6 及 7 僅在遠端情境中開啟。</u> <u>(請參末頁圖示)</u>	下圖)。該燈源配置依據真實情況，以提供試驗情境之均勻照明。 目標行人的位置在燈源 3 及 4 之間。 <u>(請參末頁圖示)</u> <u>D</u> : 光場域中心與受驗車輛路徑間之側向距離 <u>EE</u> : 目標行人之中心軸線 <u>BB</u> : 受驗車輛之中心軸線 <u>VUT</u> : 試驗之車輛 <u>EBT</u> : 目標行人 <u>S</u> : 路燈間距

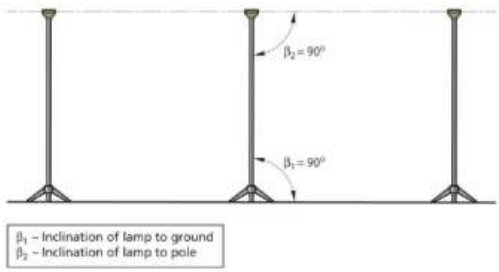
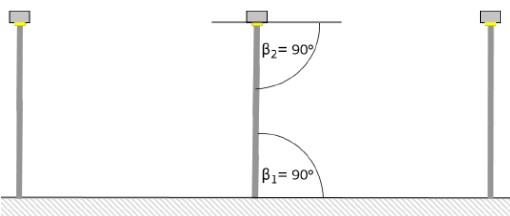
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Figure B9 : CPNCO Night-time setup		(請參末頁圖示)	
Figure B10 : CPFA Night-time setup		(請參末頁圖示)	

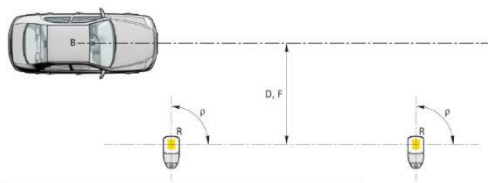
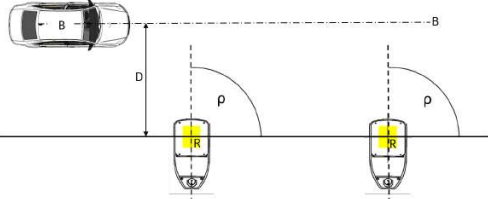
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B.5.8 EPT position The EPT track EE shall be positioned between the street lamp 3 and 4 and passes the centreline of the EPT. Reference point for test setup is trajectory AA, which passes the pedestrian dummy H-point.  Axes AA – Trajectory of pedestrian dummy H-point EE – Axis of centreline of pedestrian dummy BB – Axis of centreline of Vehicle under Test Distances S – Distance between street lamps	B.5.8 EPT position The EPT track EE shall be positioned between the street lamp 3 and 4 and passes the centreline of the EPT. Reference point for test setup is trajectory AA, which passes the pedestrian dummy H-point.  AA : Trajectory of the pedestrian dummy H-Point BB : Axis of centreline of Vehicle under Test EE : Axis of centreline of pedestrian dummy S : Distance between streetlight	3.11.9.5.8 目標行人位置 目標行人之路徑 EE 應於路燈 3 及 4 之間，並通過目標行人的中心線。試驗設定之參考點是路徑 AA，其應通過目標行人之 H 點。 (請參末頁圖示)	3.11.8.5.8 目標行人位置 目標行人之路徑 EE 應於路燈 3 及 4 之間，並通過目標行人的中心線。試驗設定之參考點是路徑 AA，其應通過目標行人之 H 點。 (請參末頁圖示) AA：目標行人之 H 點路徑 BB：受驗車輛之中心軸線 EE：目標行人之中心軸線 S：路燈間距
B.6 Example Test Equipment As a reference and to demonstrate feasibility, the following sections	B.6 Example Test Equipment As a reference and to demonstrate feasibility, the following sections	3.11.9.6 試驗配備之範例 作為可行性之參考及展示，下述提供	3.11.8.6 試驗配備之範例 作為可行性之參考及展示，下述提供試驗配備範例、試驗設置及量測參

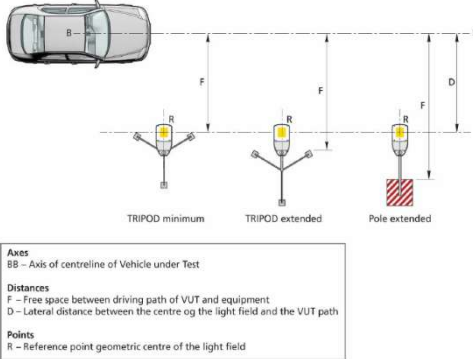
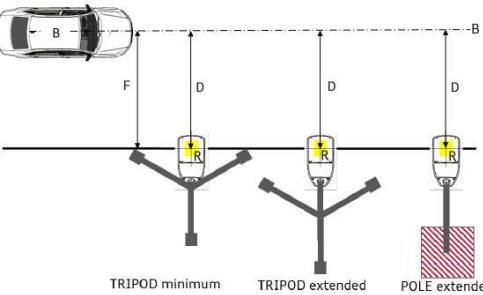
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provides example test equipment, test set-up and reference measurements that can be taken to ensure that the set-up will meet the requirements of this ANNEX. Lamp type Schuch, 48_LED (48 2403 ABX CL), or Schuch, 47_LED (48 2403 ABX CL) 	provides example test equipment, test set-up and reference measurements that can be taken to ensure that the set-up will meet the requirements of this ANNEX. B.6.1 Lamp type Schuch, 48_LED (48 2403 ABX CL) 	試驗配備範例、試驗設置及量測參考，可確保此設置符合本條文的要求。 <u>3.11.9.6.1</u> 燈泡型式 Schuch, 48_LED (48 2403 ABX CL) <u>或</u> <u>Schuch, 47_LED (48 2403 ABX CL)</u> (請參末頁圖示)	考，可確保此設置符合本條文的要求。 <u>3.11.8.6.1</u> 燈泡型式 Schuch, 48_LED (48 2403 ABX CL) (請參末頁圖示)
B.6.1 Requirement test setup adjustment To be sure to reach requirement B4.2 and B4.3 the following parameters are allowed to be adjusted. The distance of the lamp should be adjustable in order to reach the requested illumination values.	B.6.2 Requirement test setup adjustment To be sure to reach requirement B4.2 and B4.3 the following parameters are allowed to be adjusted. The distance of the lamp should be adjustable in order to reach the requested illumination values.	<u>3.11.9.6.2</u> 試驗設置調整要求 為確保達到 <u>3.11.9.4.2</u> 與 <u>3.11.9.4.3</u> 要求，允許調整以下參數。 應可作調整燈源距離，以達到要求之照度值。	<u>3.11.8.6.2</u> 試驗設置調整要求 為確保達到 3.11.8.4.2 與 3.11.8.4.3 要求，允許調整以下參數。 應可作調整燈源距離，以達到要求之照度值。 S：25m ± 0.5m

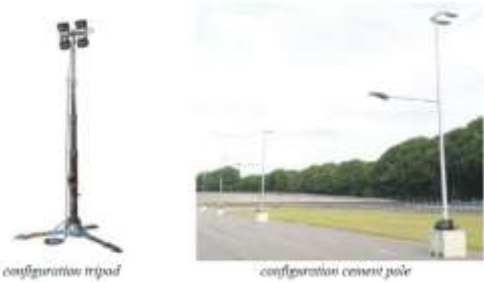
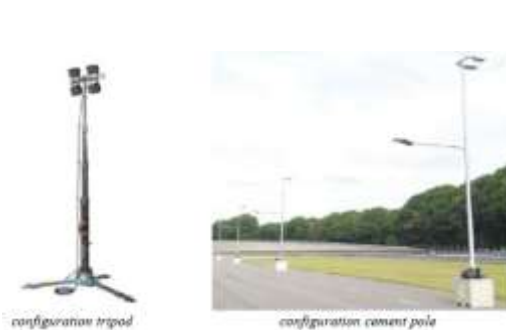
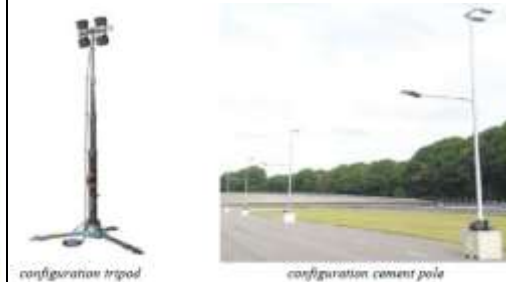
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S : 25m ± 0,5m The lateral distance between the centre of the LED-area and the vehicle path is adjustable in a range of Dn : 4,0m ± 0,1m ; Df : 6,0m ± 0,1m The height of the lamp should be adjustable in order to reach the requested illumination values. H : 5m ± 0,1m Angle against ground and pole. α : 90° ± 0,5° The tilt of the lamp is adjustable in three different positions. (0° standard, 5°, 10°) T : 0° standard position The inclination of road and test site surfaces is typically ~2.5% γ : < 1,5°	S : 25m ± 0,5m The lateral distance between the centre of the LED-area and the vehicle path is adjustable in a range of D : 4,0m ± 0,1m The height of the lamp should be adjustable in order to reach the requested illumination values. H : 5m ± 0,1m Angle against ground and pole. a : 90° ± 0,5° The tilt of the lamp is adjustable in three different positions. (0° standard, 5°, 10°) T : 0° standard position The inclination of road and test site surfaces is typically ~2.5% c : < 1,5°	S : 25m ± 0.5m 應可在一定範圍內調整 LED 區域的中心與車輛路徑間的側向距離 <u>D_n : 4,0m ± 0,1m ; D_f : 6,0m ± 0,1m</u> 應可調整燈源高度，以達到要求的照度值。 H : 5m ± 0.1m 地平面與燈桿之角度 a : 90° ± 0.5° 燈源傾斜度應可於三個不同位置作調整。(標準 0°，5°，10°) T：標準位置 0° 道路與試驗區域表面的傾斜度為 2.5% <u>γ : < 1.5°</u>	應可在一定範圍內調整 LED 區域的中心與車輛路徑間的側向距離 D : 4.0m ± 0.1m 應可調整燈源高度，以達到要求的照度值。 H : 5m ± 0.1m 地平面與燈桿之角度 a : 90° ± 0.5° 燈源傾斜度應可於三個不同位置作調整。(標準 0°，5°，10°) T：標準位置 0° 道路與試驗區域表面的傾斜度為 2.5% <u>c : < 1.5°</u>

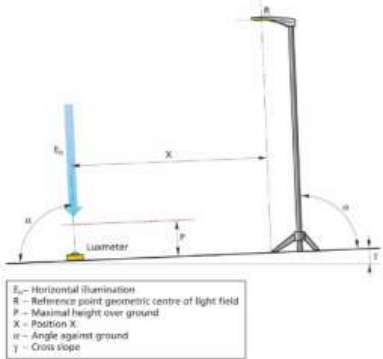
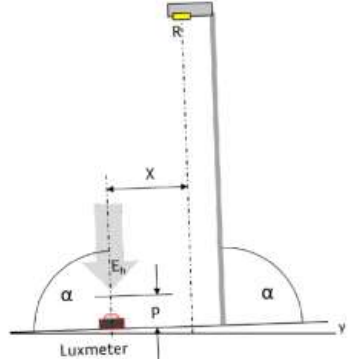
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To ensure that the centre lines L of the lamps are oriented at right angles to the street even under the above conditions the length of the control line C (for both nearside Cn and farside Cf) shall be verified. Approval for the two lamps adjacent to the pedestrian path is sufficient : $Cn = \sqrt{Dn^2 + H^2} = \sqrt{4m^2 + 5m^2}$ Cn: 6,4m ± 0,1m; $Cf = \sqrt{Df^2 + H^2} = \sqrt{6m^2 + 5m^2}$ Cf: 7,8m ± 0,1m;  R - Reference point geometric centre of the light field L - Centre line of the lamp (parallel to the pole) D - Lateral distance between the centre of the light field and the VUT path F - Free space between driving path of VUT and equipment H - Height of lamp C - Control line tau - Tilt of lamp alpha - Angle against ground and pole gamma - Cross slope	To ensure that the centre lines L of the lamps are oriented at right angles to the street even under the above conditions the length of the control line C shall be verified. Approval for the two lamps adjacent to the pedestrian path is sufficient. $c = \sqrt{D^2 + H^2} = \sqrt{4m^2 + 5m^2}$ C : 6,4m ± 0,1m  R : Reference point geometric centre of the light field L : Centre line of the lamp (parallel to the pole) D : Lateral distance between the centre of the light field and the VUT path	應確保燈源的中心線 L 與街道平面成直角，包含上述條件下控制線 C 之長度(適用於近端 Cn 及遠端 Cf)亦應被驗證。應驗證兩盞相鄰燈源的路徑是否明亮充足。 $Cn = \sqrt{Dn^2 + H^2} = \sqrt{4m^2 + 5m^2}$ Cn: 6,4m ± 0,1m; $Cf = \sqrt{Df^2 + H^2} = \sqrt{6m^2 + 5m^2}$ Cf: 7,8m ± 0,1m; (請參末頁圖示)	應確保燈源的中心線 L 與街道平面成直角，包含上述條件下控制線 C 之長度亦應被驗證。應驗證兩盞相鄰燈源的路徑是否明亮充足。 $c = \sqrt{D^2 + H^2} = \sqrt{4m^2 + 5m^2}$ C : 6.4m ± 0.1m (請參末頁圖示) R : 光場域的幾何中心參考點 L : 燈源的中心線(與燈柱平行) D : 光場域中心與受驗車輛路徑間之側向距離 F : 受驗車輛的駕駛路徑與配備間之自由空間

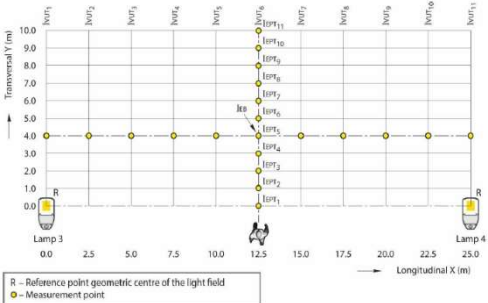
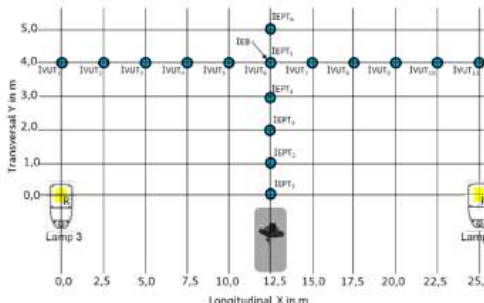
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	F : Free space between driving path of VUT and equipment H : Height of lamp C : Control line τ : Tilt of lamp α : Angle against ground and pole γ : Cross slope		<u>H : 燈源的高度</u> <u>C : 控制線</u> <u>τ : 燈源傾斜度</u> <u>α : 地面與燈柱之角度</u> <u>γ : 側向坡度</u>
B.6.2 Longitudinal inclination of lamp In order to get well balanced light distribution, it is necessary that the inclination of the lamp is in a range of : $\beta_{1,2} : 90^\circ \pm 0.5^\circ$  β_1 - Inclination of lamp to ground β_2 - Inclination of lamp to pole	B.6.3 Longitudinal inclination of lamp In order to get well balanced light distribution, it is necessary that the inclination of the lamp is in a range of : $\beta_{1,2} : 90^\circ \pm 0.5^\circ$  β_1 : inclination of lamp to ground β_2 : inclination of lamp to pole	<u>3.11.9.6.3</u> 燈源的縱向傾角 為獲得均衡的光分佈，燈源的傾角應於以下範圍內： $\beta_{1,2} : 90^\circ \pm 0.5^\circ$ <u>(請參末頁圖示)</u>	<u>3.11.8.6.3</u> 燈源的縱向傾角 為獲得均衡的光分佈，燈源的傾角應於以下範圍內： $\beta_{1,2} : 90^\circ \pm 0.5^\circ$ <u>(請參末頁圖示)</u> <u>β_1 : 燈源與地面之傾角</u> <u>β_2 : 燈源與燈柱之傾角</u>
B.6.3 Orientation of lamp In order to get well balanced light distribution, it is necessary that the	B.6.4 Orientation of lamp In order to get well balanced light distribution, it is necessary that the	<u>3.11.9.6.4</u> 燈源的方位 為獲得良好均衡的光分佈，燈源的旋轉角度應在以下範圍內：	<u>3.11.8.6.4</u> 燈源的方位 為獲得良好均衡的光分佈，燈源的旋轉角度應在以下範圍內：

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rotation of the lamp in a range of : $\rho : 90^{\circ} \pm 0,1^{\circ}$  Axes BB – Axis of centreline of Vehicle under Test Angles ρ – rotation of lamp Distances F – Free space between driving path of VUT and equipment. D – Lateral distance between the centre of the light field and the VUT path Points R – Reference point geometric centre of the light field	rotation of the lamp in a range of : $\rho : 90^{\circ} \pm 0,1^{\circ}$  BB : Axis of centerline of Vehicle under Test F : Free space between driving path of VUT and equipment D : Lateral distance between the center of the light field and the VUT path R : Reference point geometric center of the light field ρ : rotation of lamp	轉角度應在以下範圍內： $\rho : 90^{\circ} \pm 0.1^{\circ}$ (請參末頁圖示)	$\rho : 90^{\circ} \pm 0.1^{\circ}$ (請參末頁圖示) <u>BB：受驗車輛之中心軸線</u> <u>F：受驗車輛的駕駛路徑及配備間的自由空間</u> <u>D：光場域中心與受驗車輛路徑間之側向距離</u> <u>R：光場域的幾何中心參考點</u> <u>ρ：燈源的旋轉角度</u>
B.6.4 Example solutions It is not allowed to install any mounting device within the free space. Different solutions are possible to reach the requirement as defined in B5.6.	B.6.5 Example solutions It is not allowed to install any mounting device within the free space. Different solutions are possible to reach the requirement as defined in B5.6.	3.11.9.6.5 解決方案之範例 不允許在自由空間內設置任何安裝裝置。可使用不同的解決方案以達到 3.11.9.5.6 中定義的要求。	3.11.8.6.5 解決方案之範例 不允許在自由空間內設置任何安裝裝置。可使用不同的解決方案以達到 3.11.8.5.6 中定義的要求。

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 Axes BB – Axis of centreline of Vehicle under Test Distances F – Free space between driving path of VUT and equipment D – Lateral distance between the centre of the light field and the VUT path Points R – Reference point geometric centre of the light field	 BB : Axis of centreline of Vehicle under Test F : Free space between driving path of VUT and equipment D : Lateral distance between the center of the light field and the VUT path R : Reference point geometric center of the light field	(請參末頁圖示)	(請參末頁圖示) BB：受驗車輛之中心軸線 F：受驗車輛的駕駛路徑與設備間的自由空間 D：光場域中心與受驗車輛路徑間之側向距離 R：光場域的幾何中心參考點
B.6.5 Example mounting devices It is not allowed to install any mounting device within the free space. Different solutions are possible to reach the requirement as defined in B5.6. Towerlight TF5.5 http : //www.towerlight.de/produkt/tf-5-5-7m/ (Date 2017-05-15)	B.6.6 Example mounting devices It is not allowed to install any mounting device within the free space. Different solutions are possible to reach the requirement as defined in B5.6. Towerlight TF5.5 http : //www.towerlight.de/produkt/tf-5-5-7m/ (Date 2017-05-15)	3.11.9.6.6 安裝設備之範例 不允許在自由空間內設置任何安裝設備。可以使用不同的解決方案以達到 3.11.9.5.6 定義的要求。 燈塔 TF5.5 http : //www.towerlight.de/produkt/tf-5-5-7m/ (Date 2017-05-15)	3.11.8.6.6 安裝設備之範例 不允許在自由空間內設置任何安裝設備。可以使用不同的解決方案以達到 3.11.8.5.6 定義的要求。 燈塔 TF5.5 http : //www.towerlight.de/produkt/tf-5-5-7m/ (Date 2017-05-15)

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 B.7 Measurement To ensure, that the parameter defined in B4.1, B4.2 and B4.3 are in line with test setup, the parameter must be verified and documented. B.7.1 Measurement setting To measure the illumination, a calibrated luxmeter must be set on ground in a right angle to the street. P : < 0,2m	 B.7 Measurement To ensure, that the parameter defined in B4.1, B4.2 and B4.3 are in line with test setup, the parameter must be verified and documented. B.7.1 Measurement setting To measure the illumination, a calibrated luxmeter must be set on ground in a right angle to the street. P : < 0,2m	 3.11.9.7 量測 為確保 3.11.9.4.1、3.11.9.4.2 及 3.11.9.4.3 定義之參數與試驗設置一致，其應驗證並記錄參數。 3.11.9.7.1 量測設定 為量測照度，應將校準的照度計設置於地面使與其街道平面成直角。 P : < 0.2m	 3.11.8.7 量測 為確保 3.11.8.4.1、3.11.8.4.2 及 3.11.8.4.3 定義之參數與試驗設置一致，其應驗證並記錄參數。 3.11.8.7.1 量測設定 為量測照度，應將校準的照度計設置於地面使與其街道平面成直角。 P : < 0.2m

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 E_h – Horizontal illumination R – Reference point geometric centre of light field P – Maximal height over ground X – Position X α – Angle against ground γ – Cross slope	 E_h : horizontal illumination R : Reference point geometric center of the light field P : maximal height over ground X : Position X α : Angle against ground	(請參末頁圖示)	(請參末頁圖示) E_h : 水平照度 R : 光場域的幾何中心參考點 P : 地面的最大高度 X : X位置 α : 與地面形成之角度
B.7.2 Example measurement grid To ensure, that the parameter defined in B4.1, B4.2 and B4.3 are in line with test setup, the parameter must be verified and documented. For IEPT5, IVUT6, IEB the position for measurement is : $X=12,5m$, $Y=4,0m$.	B.7.2 Example measurement grid To ensure, that the parameter defined in B4.1, B4.2 and B4.3 are in line with test setup, the parameter must be verified and documented. For IEPT5, IVUT6, IEB the position for measurement is : $X=12,5m$, $Y=4,0m$.	3.11.9.7.2 量測網格點之範例 為確保 3.11.9.4.1 、 3.11.9.4.2 及 3.11.9.4.3 定義之參數與試驗設置一致，其應驗證並記錄參數。 針對IEPT5，IVUT6，IEB量測位置為： $X=12.5m$, $Y=4.0m$.	3.11.8.7.2 量測網格點之範例 為確保 3.11.8.4.1 、 3.11.8.4.2 及 3.11.8.4.3 定義之參數與試驗設置一致，其應驗證並記錄參數。 針對IEPT5，IVUT6，IEB量測位置為： $X=12.5m$, $Y=4.0m$. 其他值詳見下圖。

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The other values see figure below.  R : Reference point geometric centre of the light field • Measurement point	The other values see figure below.  R : Reference point geometric centre of the light field • Measurement point	其他值詳見下圖。 (請參末頁圖示)	(請參末頁圖示) <u>R：光場域的幾何中心參考點</u> <u>• 量測位置</u>
B.7.3 Example measurement tools To measure the illuminance values, a calibrated luxmeter shall be used. The tolerance shall be : Maximal error tolerance < 5%. Luxmeter LMT B 360 http : //www.lmt-berlin.de/de/b360.html (Date 2017-05-15)	B.7.3 Example measurement tools To measure the illuminance values, a calibrated luxmeter shall be used. The tolerance shall be : Maximal error tolerance < 5%. Luxmeter LMT B 360 http : //www.lmt-berlin.de/de/b360.html (Date 2017-05-15)	3.11.9.7.3量測工具之範例 應使用校準的照度計量測照度值。容許誤差應為： 最大誤差值<5%。 照度計LMT B 360 http : //www.lmt-berlin.de/de/b360.html (Date 2017-05-15)	3.11.8.7.3量測工具之範例 應使用校準的照度計量測照度值。容許誤差應為： 最大誤差值<5%。 照度計LMT B 360 http : //www.lmt-berlin.de/de/b360.html (Date 2017-05-15)

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 <i>Luxmeter LMT B 360</i> Luxmeter Konika T-10A Illuminance Meters T-10A / T-10MA / T-10WsA KONICA MINOLTA (Date 2017-05-15)  <i>Figure: Luxmeter Konika T-10A</i> B.7.4 Measurement documentation The following values shall be measured and documented before and after a complete test series.	 <i>Luxmeter LMT B 360</i> Luxmeter Konika T-10A https://www.konicaminolta.eu/de/messgeraete/produkte/licht-messtechnik/luxmeter/t-10a/einfuehrung.html (Date 2017-05-15)  <i>Figure: Luxmeter Konika T-10A</i> B.7.4 Measurement documentation The following values shall be measured and documented before and after a complete test series.	 <i>Luxmeter LMT B 360</i> 照度計Konika T-10A Illuminance Meters T-10A / T-10MA / T-10WsA KONICA MINOLTA (Date 2017-05-15)  <i>Figure: Luxmeter Konika T-10A</i> 3.11.9.7.4 量測文件 應於一系列完整試驗之前與後，量測並記錄以下數值。	 <i>Luxmeter LMT B 360</i> 照度計Konika T-10A https://www.konicaminolta.eu/de/messgeraete/produkte/licht-messtechnik/luxmeter/t-10a/einfuehrung.html (Date 2017-05-15)  <i>Figure: Luxmeter Konika T-10A</i> 3.11.8.7.4 量測文件 應於一系列完整試驗之前與後，量測並記錄以下數值。

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- Background illuminance I_{EB} (B.4.1) With all lamps and vehicle lights switched OFF, measure and record I_{EB} before and after a full test series. - Illuminance at VUT, EPT path (B.4.2 & B.4.3) With all lamps ON and vehicle lights OFF, measure and record the illuminance at VUT and EPT path.	- Background illuminance I_{EB} (B.4.1) With all lamps and vehicle lights switched OFF, measure and record I_{EB} before and after a full test series. - Illuminance at VUT, EPT path (B.4.2 & B.4.3) With all lamps ON and vehicle lights OFF, measure and record the illuminance at VUT and EPT path.	(1) 背景照度I_{EB}(3.11.9.4.1) 應在所有燈源及車燈關閉的情況下，於完整試驗模式之前與後，量測並記錄I_{EB}值。 (2) 受驗車輛與目標行人之路徑的照度(3.11.9.4.2及3.11.9.4.3) 應在所有燈源打開且車燈關閉的情況下，量測並記錄受驗車輛與目標行人之路徑的照度。	(1) 背景照度I_{EB}(3.11.8.4.1) 應在所有燈源及車燈關閉的情況下，於完整試驗模式之前與後，量測並記錄I_{EB}值。 (2) 受驗車輛與目標行人之路徑的照度(3.11.8.4.2及3.11.8.4.3) 應在所有燈源打開且車燈關閉的情況下，量測並記錄受驗車輛與目標行人之路徑的照度。
ANNEX C BRAKE APPLICATION PROCEDURE The braking input characterisation test determines the brake pedal displacement and force necessary to achieve a vehicle deceleration typical of that produced by a typical real-world driver in emergency situations. C.1 Definitions T_{BRAKE} - The point in time where the brake pedal displacement exceeds 5mm.		3.11.10 煞車應用程序 煞車輸入特性試驗主要藉由煞車踏板位移量及控制力，以確認真實情況下駕駛因緊急致動煞車所得之車輛減速度。 3.11.10.1 名詞釋義 T_{BRAKE}：煞車踏板位移大於5mm之間點。	

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T-6m/s² - The point in time is defined as the first data point where filtered, zeroed and corrected longitudinal acceleration data is less than -6 m/s². T-2m/s², T-4m/s² - similar to T-6m/s². C.2 Measurements Measurements and filters to be applied as described in Chapter 4 of this protocol. C.3 Brake Characterization Procedure First perform the brake and tyre conditioning tests as described in 7.1.2 and 7.1.3. The brake input characterisation tests shall be undertaken within 10 minutes after conditioning the brakes and tyres. C.3.1 Brake Displacement Characterisation Tests •Push the brake pedal through the full		<u>T-6m/s²：濾波、歸零及校正後，第一次縱向加速度數據低於-6m/s²之時間點。</u> <u>T-2m/s², T-4m/s²：與上述T-6m/s²相似。</u> <u>3.11.10.2測量</u> <u>量測及濾波方法應依此附件之條文3.11.10.4執行。</u> <u>3.11.10.3煞車特性試驗程序</u> <u>依條文3.11.7.1.2及3.11.7.1.3進行煞車與輪胎調節程序。煞車輸入特性試驗應於調節煞車系統與輪胎後10分鐘內進行。</u> <u>3.11.10.3.1煞車位移特性試驗</u> <u>(1) 將煞車踩到底再釋放，讓煞車踏板回到原本位置。</u>	

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extent of travel and release. ●Accelerate the VUT to a speed in excess of 85km/h. Vehicles with an automatic transmission will be driven in D. For vehicles with a manual transmission select the highest gear where the RPM will be at least 1500 at the 85km/h. ●Release the accelerator and allow the vehicle to coast. At a speed of $80 \pm 1.0\text{km/h}$ initiate a ramp braking input with a pedal application rate of $20 \pm 5\text{mm/s}$ and apply the brake until a longitudinal acceleration of -7 m/s^2 is achieved. For manual transmission vehicles, press the clutch as soon as the RPM drops below 1500. The test ends when a longitudinal acceleration of -7 m/s^2 is achieved. ●Measure the pedal displacement and applied force normal to the direction		(2) <u>受驗車輛加速至超過85km/h。自排變速車輛應打前進擋；手排變速車輛應選擇最高擋，速度為85km/h時，轉速應至少為1500rpm。</u> (3) <u>釋放油門踏板讓車輛滑行。速度為$80 \pm 1.0\text{km/h}$時，以$20 \pm 5\text{mm/s}$的踏板速度（Pedal application rate）作動煞車（Ramp braking input），持續施壓，直至達到-7 m/s^2的縱向加速度。如果為手排變速車輛，轉速降至低於1500rpm時，立刻踩下離合器。縱向加速度達到-7 m/s^2時，試驗結束。</u> (4) <u>測量第一次踩下煞車踏板時，踏板行程的位移與控制力，或盡可</u>	

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of travel of the initial stroke of the brake pedal, or as close as possible to normal as can be repeatedly achieved. C.3.1.1 Perform three consecutive test runs. A minimum time of 90 seconds and a maximum time of 10 minutes shall be allowed between consecutive tests. If the maximum time of 10 minutes is exceeded, perform three brake stops from 72 km/h at approximately 0.3g. •Using second order curve fit and the least squares method between T-2 m/s², T-6 m/s², calculate the pedal travel value corresponding to a longitudinal acceleration of -4 m/s² (=D4, unit is m). Use data of at least three valid test runs for the curve fitting. •This brake pedal displacement is referred to as D4 in the next chapters.		<u>能接近正常可重複達成之狀況。</u> <u>3.11.10.3.1.1 連續進行三次試驗，試驗間隔最短為 90 秒，最長為 10 分鐘。若超過 10 分鐘，則應從 72km/h 以平均減速度為 0.3 g 之方式執行 3 次煞停。</u> (1) <u>於T-2m/s²，T-6m/s²之間，利用二階曲線擬合（Second order curve fit）及最小平方法（Least squares method）計算對應-4m/s²（=D4，單位為m）之煞車踏板縱向行程值。使用至少三次有效試驗計算曲線擬合（Curve fitting）。</u> (2) <u>此煞車踏板位移簡稱為D4。</u>	

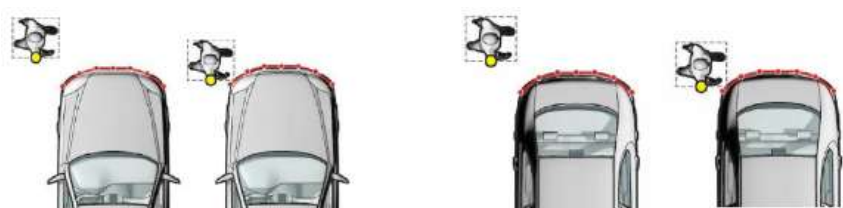
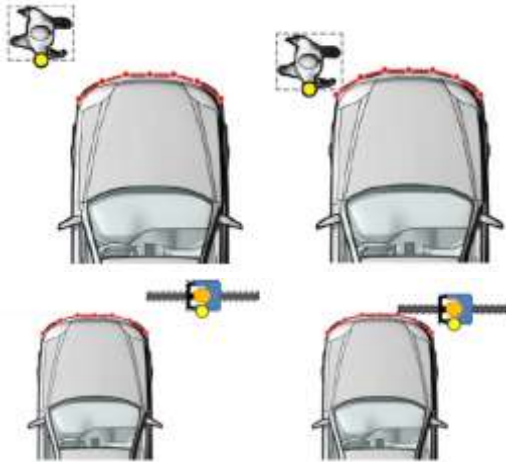
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- Using second order curve fit and the least squares method between T-2 m/s², T-6 m/s², calculate the pedal force value corresponding to a longitudinal acceleration of -4 m/s² (=F4, unit is N). Use data of at least three valid test runs for the curve fitting. - This brake pedal force is referred to as F4 in the next chapters. C.3.2 Brake Force Confirmation and Iteration Procedure - Accelerate the VUT to a speed of 80+1km/h. Vehicles with an automatic transmission will be driven in D. For vehicles with a manual transmission select the highest gear where the RPM will be at least 1500 at the 80km/h. - Apply the brake force profile as specified in C.4, triggering the input manually rather than in response to		(3) <u>於T-2m/s²，T-6m/s²之間，利用二階曲線擬合（Second order curve fit）及最小平方法（Least squares method）計算對應-4m/s²（=F4，單位為N）之煞車踏板力量值。使用至少三次有效試驗計算曲線擬合（Curve fitting）。</u> (4) <u>此煞車踏板力量值簡稱為F4。</u> <u>3.11.10.3.2 煞車控制力確認及重複程序</u> (1) <u>受驗車輛加速至80+1km/h的速度。自排變速車輛應打前進擋；手排變速車輛應選擇最高擋，速度為80km/h時，轉速應至少為1500rpm。</u> (2) <u>依據3.11.10.4產出之數據，以非前方碰撞預警系統而觸發。計算T_{BRAKE} +1s至T_{BRAKE} +3s間達到</u>	

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the FCW. Determine the mean acceleration achieved during the window from TBRAKE +1s TBRAKE +3s. If a mean acceleration outside the range of -4 -0.5 m/s^2 results, apply the following method to ratio the pedal force applied. $F4_{\text{new}} = F4_{\text{original}} * (-4/\text{mean acceleration})$, i.e. if $F4_{\text{original}}$ results in a mean acceleration of -5 m/s^2, $F4_{\text{new}} = F4_{\text{original}} * -4 / -5$ •Repeat the brake force profile with this newly calculated F4, determine the mean acceleration achieved and repeat the method as necessary until a mean acceleration within the range of -4 -0.5 m/s^2 is achieved. C.3.2.1 Three valid pedal force characteristic tests (with the acceleration level being in the range as specified) are required. A minimum time of 90 seconds and a maximum		<u>之平均加速度。若計算結果超出 -4 m/s^2 至 -4.50 m/s^2，應利用以下方式計算煞車踏力。</u> <u>新F4 = 原F4 * (-4/ 平均加速度)，例：若原F4計算結果中平均加速度為-5 m/s^2，則新F4 = 原F4 * $-4/-5$</u> (3) <u>使用計算出最新F4煞車力量作動煞車，並確認已達到目標加速度。可依需求，重複此步驟，直到計算出-4 m/s^2至-4.50 m/s^2範圍內之平均加速度。</u> <u>3.11.10.3.2.1應進行三次有效煞車踏力試驗（加速度必須達到規定之範圍）。試驗間隔最短為90秒，最長為10分鐘。若超過10分鐘，則應從72km/h以平均減速度為0.3 g 之方式</u>	

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time of 10 minutes shall be allowed between consecutive tests. If the maximum time of 10 minutes is exceeded, perform three brake stops from 72 km/h at approximately 0.3g. •before restarting the brake pedal force characterisation tests. This brake pedal force is referred as F4 in the next chapters. C.4 Brake Application Profile •Detect T_{FCW} during the experiment in real-time. •Release the accelerator at $T_{FCW} + 1$ s. •Perform displacement control for the brake pedal, starting at $T_{FCW} + 1.2$ s with a gradient of the lesser of $5 \times D4$ or 400mm/s (meaning the gradient to reach pedal position D4 within 200ms, but capped to a maximum		<u>執行3次煞停。</u> (1) <u>在重新進行煞車踏力試驗之前，此煞車踏板力度於往後章節中稱為F4。</u> <u>3.11.10.4 煞車應用設定 (Brake application profile)</u> (1) <u>於試驗中即時偵測 T_{FCW}。</u> (2) <u>$T_{FCW}+1$s 時，放開加速踏板。</u> (3) <u>進行煞車踏板之位移控制時，從 $T_{FCW}+1.2$s 開始，梯度(Gradient) 為 $5 \times D4$ 或 400mm/s (即為於 200ms 內達到踏板位置 D4 所需之梯度，但上限為 400mm/s)，取較低者。</u>	

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application rate of 400mm/s). •Monitor brake force during displacement control and use second-order filtering with a cut-off frequency between 20 and 100 Hz (online) as appropriate. •Switch to force control, maintaining the force level, with a desired value of F4 when i. the value D4 as defined in C.3.1.1 is exceeded for the first time, ii. the force F4 as defined in C.3.1.1 is exceeded for the first time, whichever is reached first. •The point in time where position control is switched to force control is noted as Tswitch. •Maintain the force within boundaries of $F4 \pm 25\% F4$. A stable force level should be achieved within a period of		(4) <u>位移控制期間應監控煞車力度，使用二階濾波（Second-order filtering），截止頻率 20 至 100Hz。</u> (5) <u>於下述時間點轉換成目標值為 F4 之力量控制且維持力量之水平：</u> (A) <u>首次超過 3.11.10.3.1.1 定義之 D4 位移值。</u> (B) <u>首次超過 3.11.10.3.1.1 定義之 F4 力量值，以先達成之條件為準。</u> (6) <u>位移控制轉變成控制力控制之時間點為 T_{switch}。</u> (7) <u>開始控制力量之後，應以小於 200ms 之時間達到穩定之控制力層級。力量值應維持在 $F4 \pm$</u>	

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200ms maximum after the start of force control. Additional disturbances of the force over $\pm 25\%$ F4 due to further AEB interventions are allowed, as long as they have a duration of less than 200ms. •The average value of the force between TFCW + 1.4s and the end of the test should be in the range of $F4 \pm 10\text{ N}$.		<u>25% F4 之限值內，惟因緊急煞車輔助系統作動而造成超過$\pm 25\%$ F4，且持續時間小於 200ms 者不在此限。</u> (8) <u>$T_{FCW} + 1.4\text{s}$ 至試驗結束之間平均力量應落在 $F4 \pm 10\text{N}$ 範圍內。</u>	

修正後	修正前
2 DEFINITIONS  Figure 2-1 : Front end profile and EPT	2 DEFINITIONS  Figure 2-2 : Rear end profile and EPT

修正後

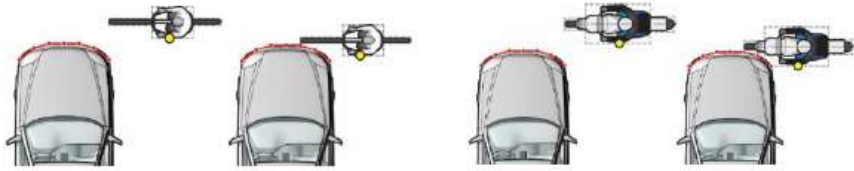


Figure 2-3 : Front end profile and EBT [Figure 2-4 : Front end profile and EMT](#)

3.11.1.21

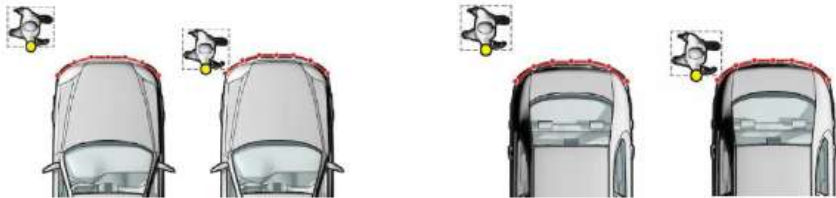


圖1-1：車頭標示線與目標行人 [圖1-2：車尾標示線與目標行人](#)

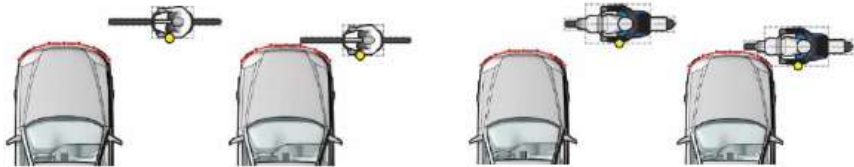
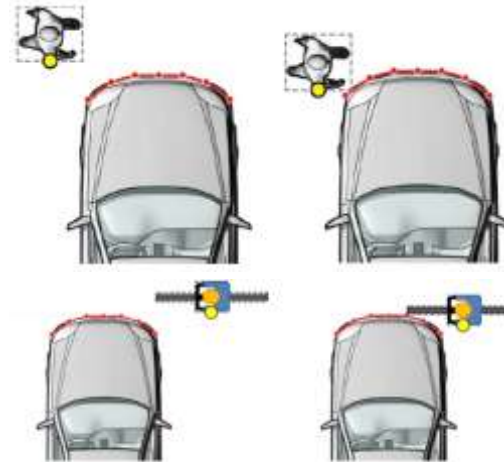


圖1-3：車頭標示線與目標自行車騎士 [圖1-4：車頭標示線與目標機車騎士](#)

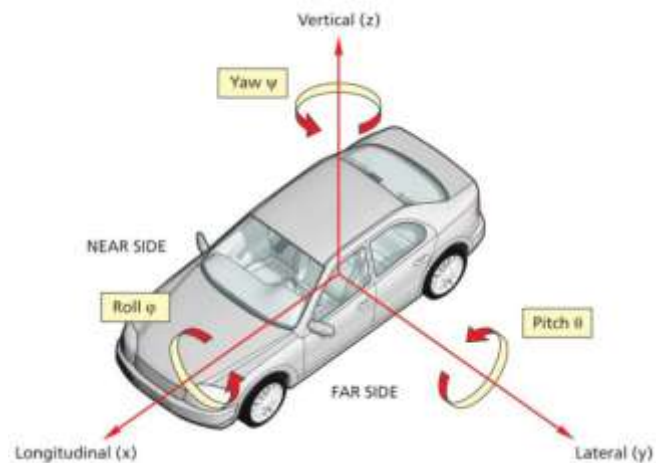
修正前

3.11.1.21



修正後

3.1.4



[3.11.3.1.2](#)

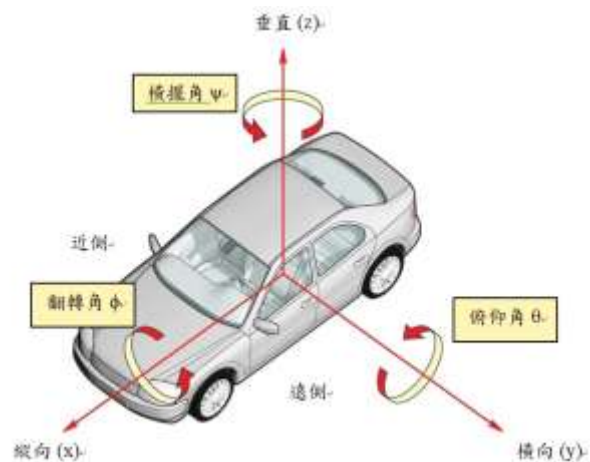
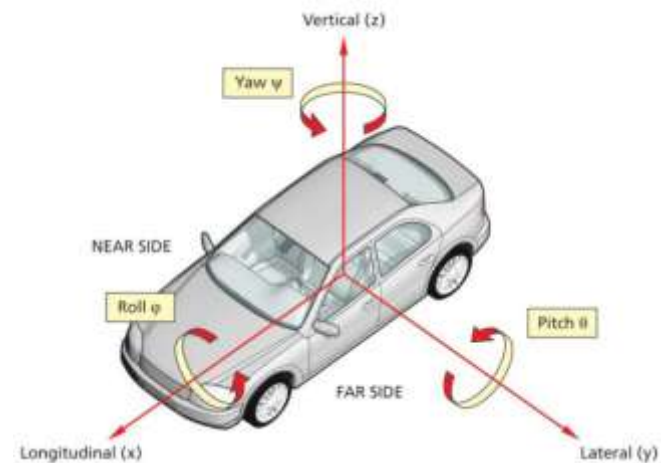


圖2：座標系統與標記

修正前

3.1.4



[3.11.2.1.2](#)

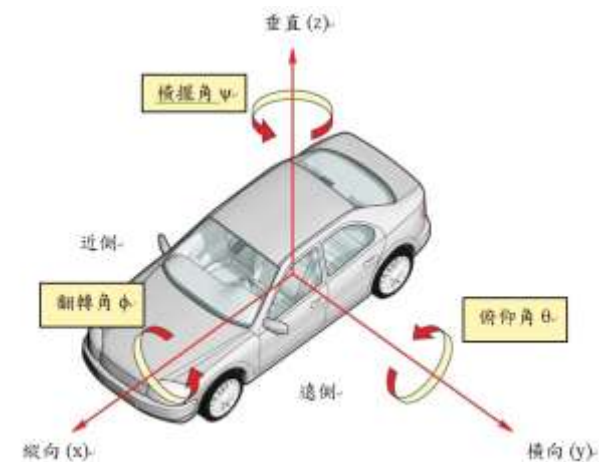


圖1：座標系統與標記

修正後

[3.2.1](#)

VUT speed	EMT speed	$X_{VUT, desired}$	X_{EMT}
10 km/h	30 km/h	- 10.66 m	33.33 m
	45 km/h		50.00 m
	60 km/h		66.66 m
15 km/h	30 km/h	- 16.39 m	33.33 m
	45 km/h		50.00 m
	60 km/h		66.66 m
20 km/h	30 km/h	- 22.02 m	33.33 m
	45 km/h		50.00 m
	60 km/h		66.66 m

[3.11.3.2.1](#)

VUT速度	EMT速度	X_{VUT,desired}	X_{EMT}
10 km/h	30 km/h	-10.66 m	33.33 m
	45 km/h		50.00 m
	60 km/h		66.66 m
15 km/h	30 km/h	-16.39 m	33.33 m
	45 km/h		50.00 m
	60 km/h		66.66 m
20 km/h	30 km/h	-22.02 m	33.33 m
	45 km/h		50.00 m
	60 km/h		66.66 m

修正前

修正後

[3.3.1](#)

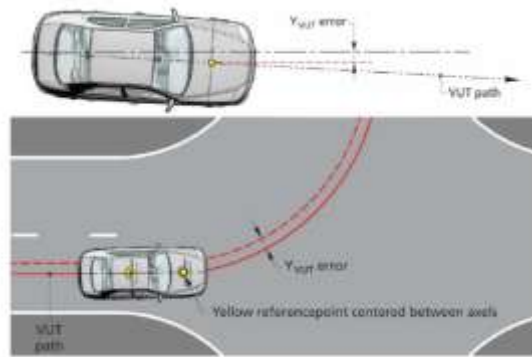


Figure [3-2](#) : Lateral path error

[3.11.3.3.1](#)

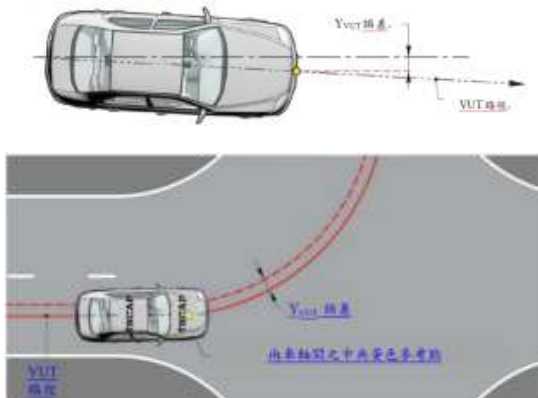


圖3：側向偏移量

修正前

[3.2.1](#)



Figure [2](#) : Lateral path error

[3.11.2.3.1](#)

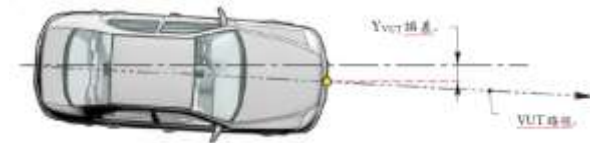


圖2：側向偏移量

修正後

[3.4.1](#)

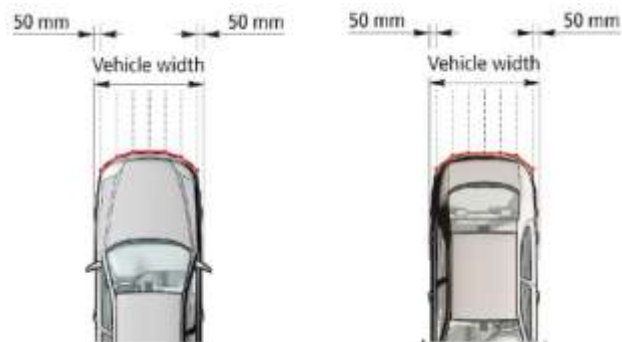


Figure [3-3](#) : Virtual profiled line around [both the front end \(left\) and rear end \(right\) of the VUT](#)

[3.11.3.4.1](#)

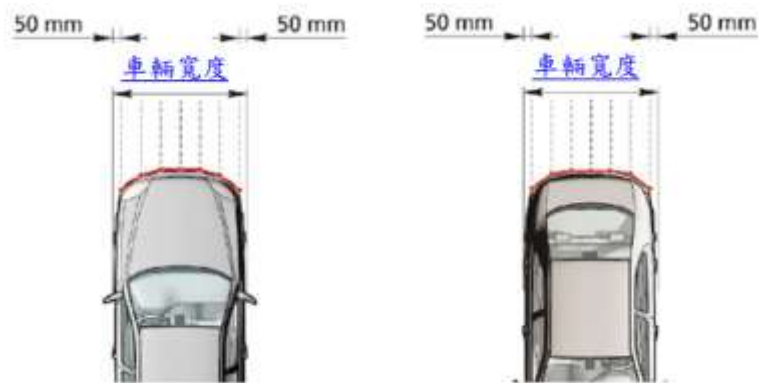


圖4： [受驗車輛](#)車頭(左圖)及車尾(右圖)之虛擬標示線

修正前

[3.3.1](#)



Figure [3](#) : Virtual profiled line around [vehicle front end](#)

[3.11.2.3.1](#)

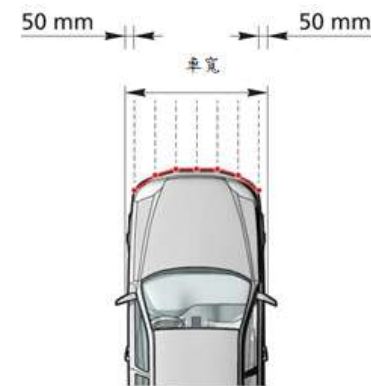


圖3：車頭之虛擬標示線

修正後

[3.4.2](#)



Figure [3-4](#) : Virtual box dimensions around EPTa and EPTc

[3.11.3.4.2](#)

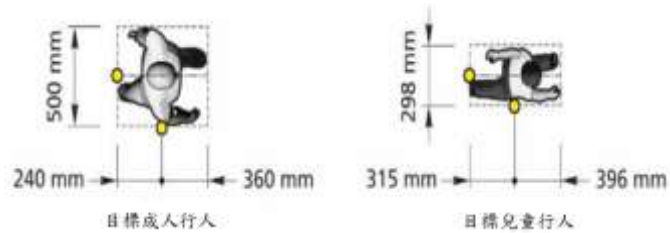


圖5：目標成人行人與目標兒童行人周圍之虛擬正方形尺寸

[3.4.3](#)

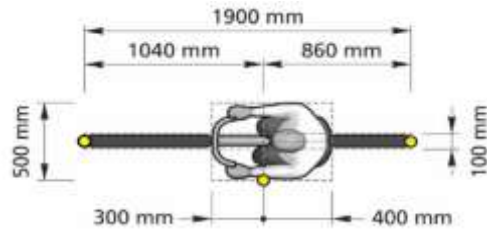


Figure [3-5](#) : Virtual box dimensions around EBT

[3.11.3.4.3](#)

修正前

[3.3.2](#)



Figure [4](#) : Virtual box dimensions around EPTa and EPTc

[3.11.2.3.2](#)



圖4：目標成人行人與目標兒童行人周圍之虛擬正方形尺寸

[3.3.3](#)

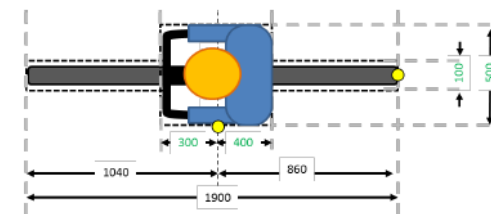


Figure [5](#) : Virtual box dimensions around EBT

[3.11.2.3.3](#)

修正後

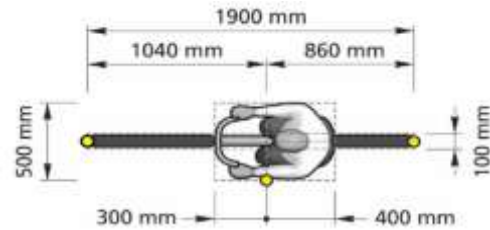


圖 6：目標自行車騎士周圍之虛擬正方形尺寸

修正前

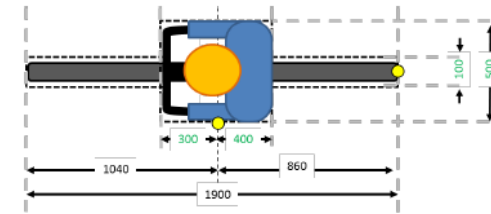
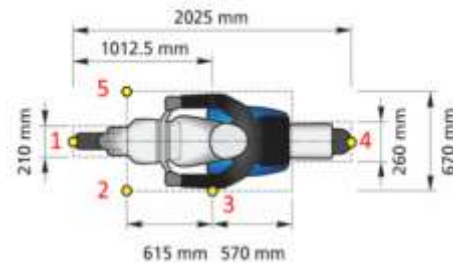


圖 5：目標自行車騎士周圍之虛擬正方形尺寸

3.4.4



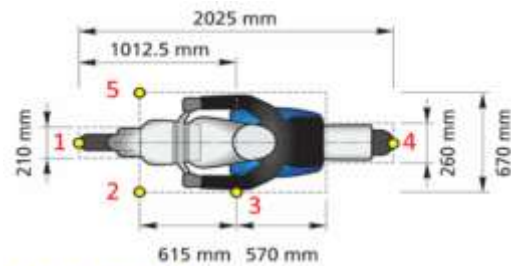
EMT Impact points:

1. Front wheel
2. Front left outer edge
3. Left Side
4. Rear wheel
5. Front right outer edge

Figure 3-6 : Virtual box dimensions around EMT and impact points

修正後

3.11.3.4.4



EMT 碰撞點：

- 1. 前輪
- 2. 前方左側外邊緣
- 3. 左側
- 4. 後輪
- 5. 前方右側外邊緣

圖7：目標機車騎士及碰撞點周圍之虛擬正方形尺寸

修正前

5.1.1



Figure 5-1 : Euro NCAP **VRU** Targets (EPTa, EPTc, EBT **and** EMT)

5.1.1



Figure 6 : Euro NCAP **Pedestrian and Bicyclist and bike** Targets (EPTa, EPTc and EBT)

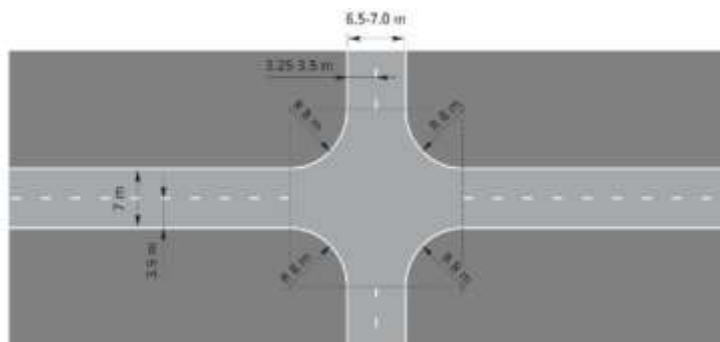
修正後

[3.11.5.1.1](#)



[圖8：目標弱勢道路使用者](#)(目標成人行人、目標兒童行人、目標自行車騎士及[目標機車騎士](#))

[6.1.4.1](#)



[Figure 6-1 : Layout of junction and the connecting lanes\(Dimensions reference centre of lane markings\)](#)

修正前

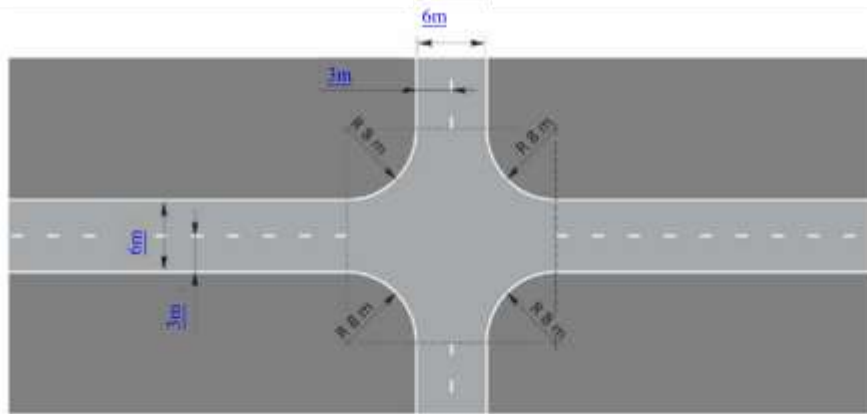
[3.11.4.1.1](#)



[圖6：目標行人、目標自行車騎士及目標自行車](#)(目標成人行人、目標兒童行人及目標自行車騎士)

修正後

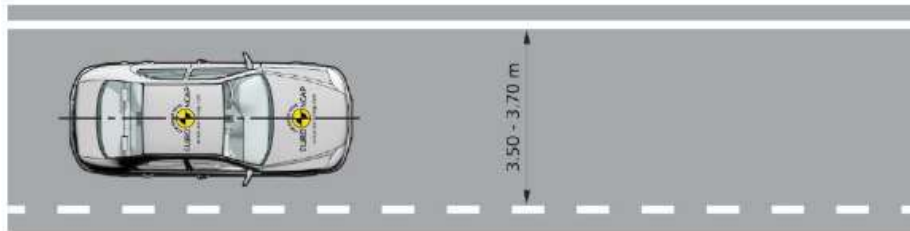
[3.11.6.1.4.1](#)



[圖9：道路交匯處及連接車道的配置\(尺寸以車道標線中心為基準\)](#)

修正前

[6.1.5.1](#)



[Figure 6-2 : Layout of the lane markings](#)
[\(Dimensions reference inside edge of lane marking\)](#)

修正後

3.11.6.1.5.1

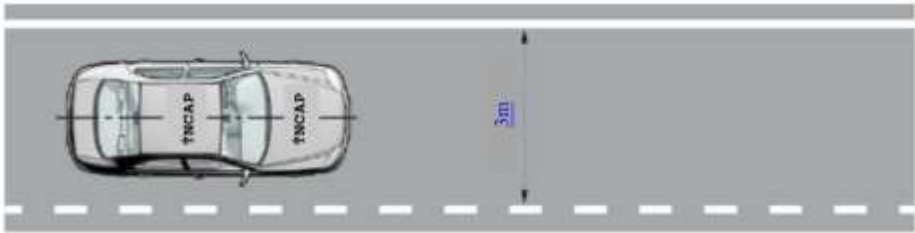


圖10：車道標線配置(尺寸以標線內側邊緣為基準)

6.3.1

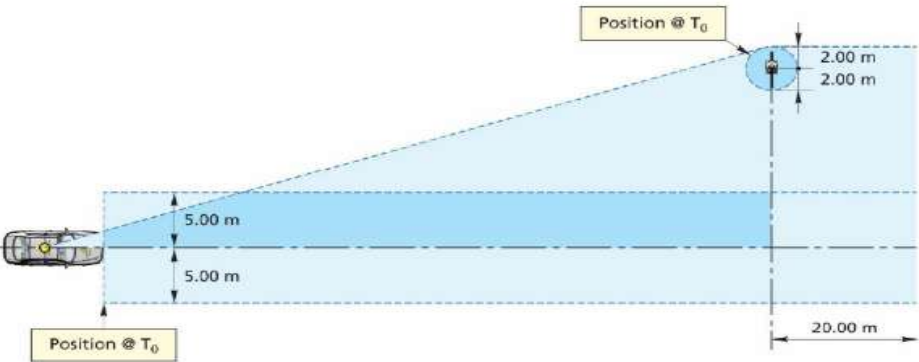


Figure 6-3 : Free space requirements(farside scenario only)

修正前

6.3.1

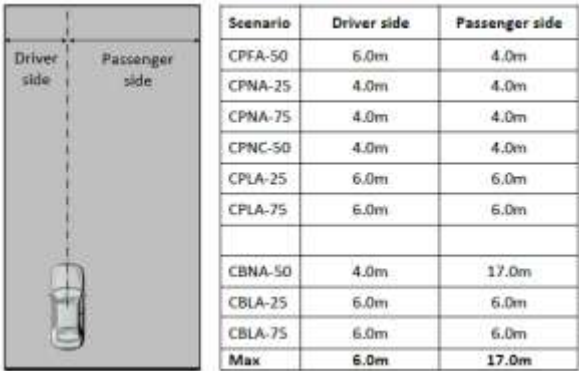


Figure 7 : Free surroundings

3.11.5.3.1

修正後

3.11.6.3.1

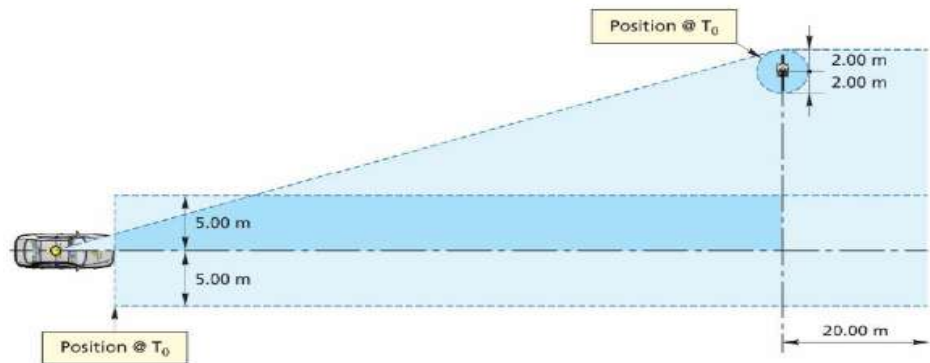
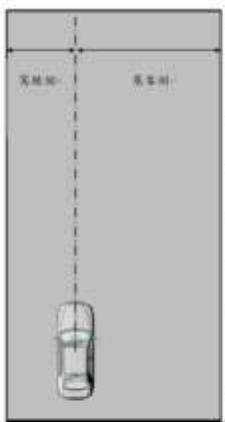


圖11：空曠空間(僅限遠端試驗情境)

修正前



情境	駕駛側	乘客側
遠端成人碰撞 情境試驗 50%	6.0 公尺	4.0 公尺
近端成人碰撞 情境試驗 25%	4.0 公尺	4.0 公尺
近端成人碰撞 情境試驗 75%	4.0 公尺	4.0 公尺
近端兒童碰撞 情境試驗 50%	4.0 公尺	4.0 公尺
前端成人碰撞 情境試驗 25%	6.0 公尺	6.0 公尺
前端成人碰撞 情境試驗 50%	6.0 公尺	6.0 公尺
近端自行車騎 士碰撞情境試 驗 50%	4.0 公尺	17.0 公尺
前端自行車騎 士碰撞情境試 驗 25%	6.0 公尺	6.0 公尺
前端自行車騎 士碰撞情境試 驗 50%	6.0 公尺	6.0 公尺
最大值	6.0 公尺	17.0 公尺

圖7：空曠的環境

6.4.1.1

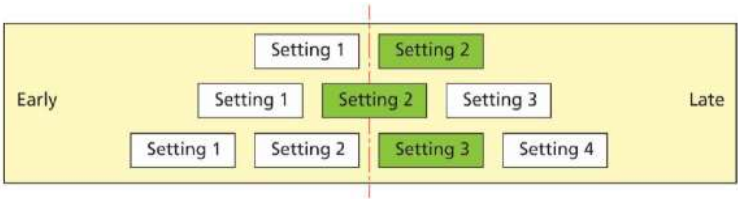


Figure 6-4：AEB and/or FCW system setting for testing

6.4.1.1

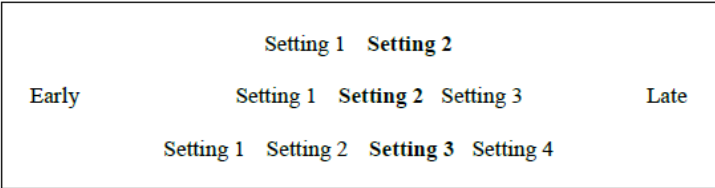


Figure 8：AEB and/or FCW system setting for testing

3.11.5.4.1.1

修正後

[3.11.6.4.1.1](#)

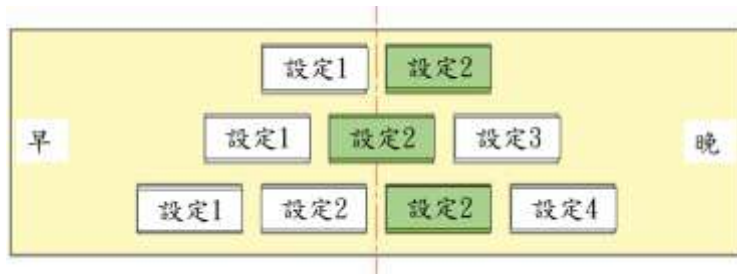


圖12：緊急煞車輔助系統及/或前方碰撞預警系統試驗設定

修正前

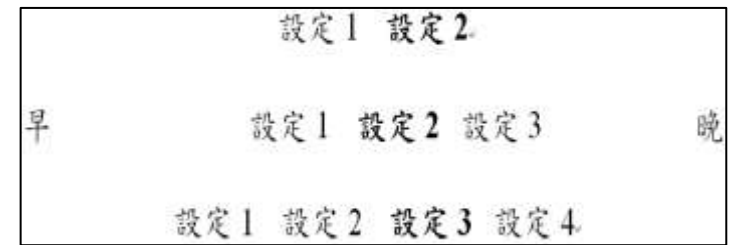


圖8：緊急煞車輔助系統及/或前方碰撞預警系統試驗設定

[6.4.6.8](#)



[Figure 6-5 : Vehicle dimensional measurements](#)

修正後

3.11.6.4.6.8

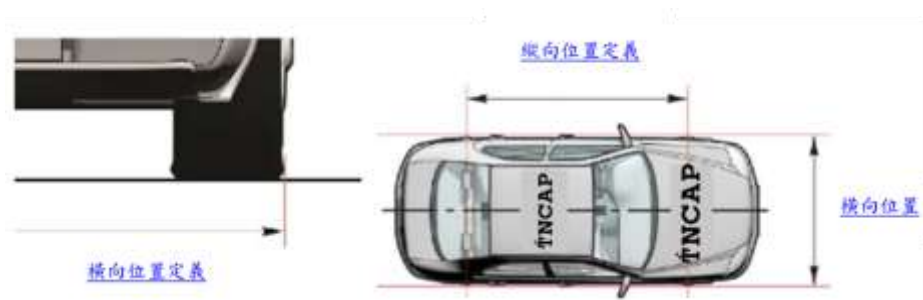


圖13：車輛尺寸量測

修正前

7.2

	CPFA	CPNA	CPNCO	CPLA		CPTA				CPRA/CPRC	
Section	7.2.1	7.2.2	7.2.3	7.2.4		7.2.5				7.2.6	
Type of test	AEB			AEB	FCW/ESS	AEB				AEB	
VUT speed [km/h]	10-60			20-60	50-80	10,15,20		10		4,8	
VUT direction	Forward			Forward		Farside turn		Nearside turn		Rearward	
Target speed [km/h]	8	5		5	5	5				0	5
Target direction	Coming from farside	Coming from Nearside		Forward		Coming from Opposite direction	Coming from Same direction	Coming from Opposite direction	Coming from Same direction	Standing, Direction facing selected by lab	Coming from nearside
Impact location [%]	50	25,75*	50	50	25	50				25,50,75	50
Dummy Articulation	Yes – as per test speed			Yes		Yes				Articulated dummy in 'off position	Yes
Lighting condition	Day/Night			Day/Night		Day				Day	
Vehicle lights (night)	Low beam			High beam		N/A				N/A	
Streetlights (night)	Streetlights			No streetlights		N/A				N/A	

修正後					修正前					
<u>3.11.7.2.1</u>										
	<u>遠端成人碰撞 情境試驗 (CPFA)</u>	<u>近端成人碰撞情 境試驗 (CPNA)</u>	<u>近端兒童障礙物碰 撞情境試驗 (CPNCO)</u>	<u>前端成人碰撞情境試驗 (CPLA)</u>		<u>轉彎成人碰撞情境試驗 (CPTA)</u>			<u>倒車成人及兒童移動/靜止碰撞情境試 驗(CPRA/CPRC)</u>	
<u>章節</u>	<u>3.11.7.2.2</u>	<u>3.11.7.2.3</u>	<u>3.11.7.2.4</u>	<u>3.11.7.2.5</u>		<u>3.11.7.2.6</u>			<u>3.11.7.2.7</u>	
<u>測試類型</u>	<u>緊急煞車輔助系統</u>			<u>緊急煞車 輔助系統</u>	<u>前方碰撞預警系統/ 緊急轉向輔助系統</u>	<u>緊急煞車輔助系統</u>			<u>緊急煞車輔助系統</u>	
<u>VUT速度 (km/h)</u>	<u>10-60</u>			<u>20-60</u>	<u>50-80</u>	<u>10,15,20</u>	<u>10</u>	<u>4.8</u>		
<u>VUT方向</u>	<u>前向</u>			<u>前向</u>		<u>遠端轉向</u>	<u>近端轉向</u>	<u>後向</u>		
<u>目標速度 [km/h]</u>	<u>8</u>	<u>5</u>		<u>5</u>	<u>5</u>	<u>5</u>			<u>0</u> <u>5</u>	
<u>目標方向</u>	<u>由遠端接近</u>	<u>由近端接近</u>		<u>前向</u>		<u>由反向接近</u>	<u>由同向接近</u>	<u>由反向接近</u>	<u>由同向接近</u>	<u>靜止，由檢測機構選定 方向</u> <u>由近端接近</u>
<u>碰撞位置 (%)</u>	<u>50</u>	<u>25,75*</u>	<u>50</u>	<u>50</u>	<u>25</u>	<u>50</u>			<u>25,50,75</u> <u>50</u>	
<u>人偶關節 活動</u>	<u>是-依測試速度</u>			<u>是</u>		<u>是</u>			<u>關節人偶置於「關閉」 位置</u> <u>是</u>	
<u>光線條件</u>	<u>白天/晚上</u>			<u>白天/晚上</u>		<u>白天</u>			<u>白天</u>	
<u>車輛燈光 (晚上)</u>	<u>近光燈</u>			<u>遠光燈</u>		<u>不適用</u>			<u>不適用</u>	
<u>街道照明 (晚上)</u>	<u>有街燈</u>			<u>無街燈</u>		<u>不適用</u>			<u>不適用</u>	
<u>*針對CPNA-75 情境，在白天與晚上均須進行額外測試，作為前提條件驗證的一部分，該測試的測試車速為 20 km/h，目標成人行人（EPTa）速度為 3 km/h。</u>										

修正後

7.2.5

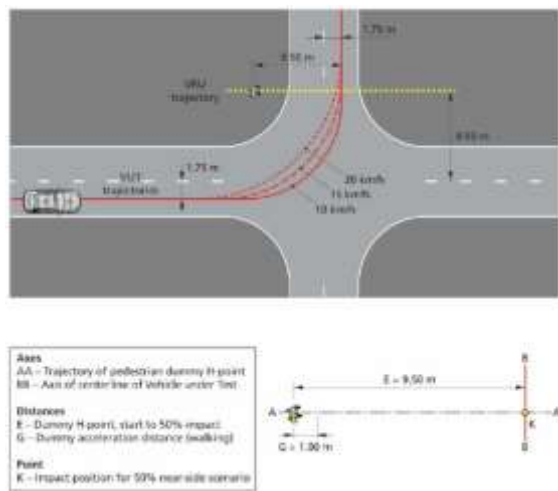


Figure 7-5: CPTAfs scenario – VUT left turn, pedestrian crossing from farside

3.11.7.2.6

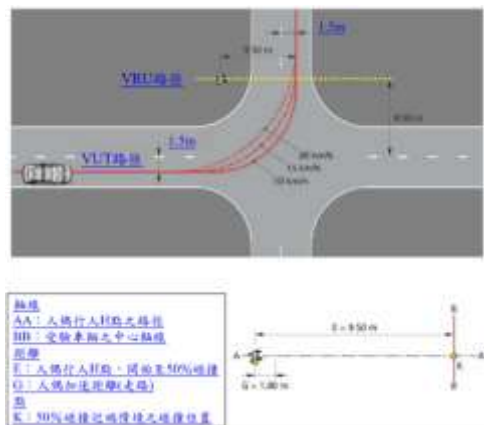


圖14e：轉彎成人碰撞情境試驗，受驗車輛左轉，行人自遠端橫越

修正前

修正後

7.2.5

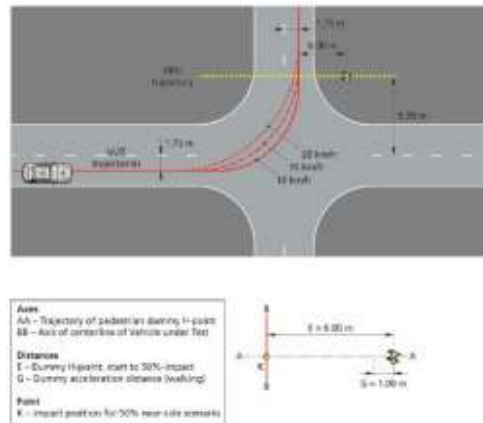


Figure 7-6 CPTAfo scenario – VUT left turn, pedestrian crossing from nearside
3.11.7.2.6



圖14f：轉彎成人碰撞情境試驗，受驗車輛左轉，行人自近端橫越

修正前

修正後

7.2.5

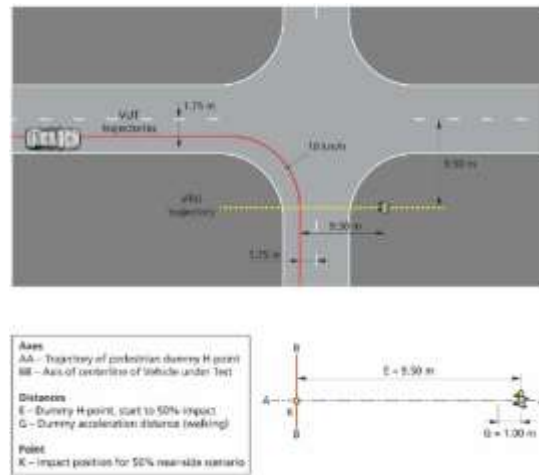


Figure 7-7 CPTAno scenario – VUT right turn, pedestrian crossing from farside
3.11.7.2.6



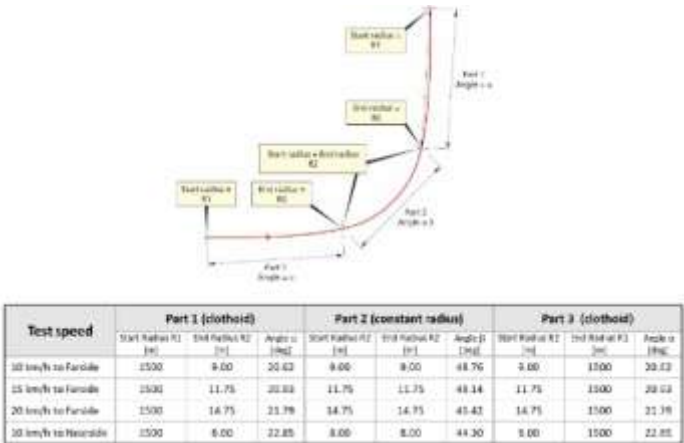
圖14g：轉彎成人碰撞情境試驗，受驗車輛右轉，行人自遠端橫越

修正前

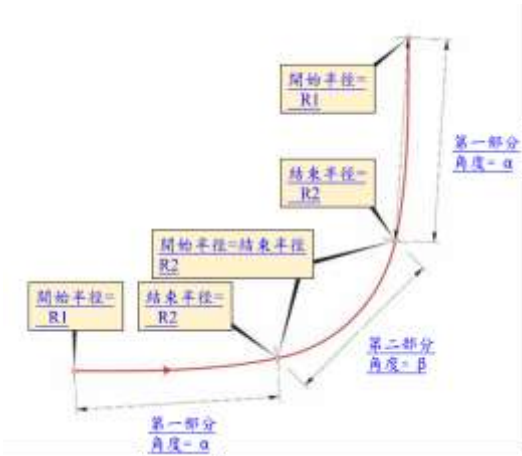
修正前

修正後

7.2.5.1



3.11.7.2.6.1



修正前

修正後

試驗速度	第一部分(迴旋)			第二部分(固定半徑)			第三部分(迴旋)		
	開始半徑	結束半徑	角度α	開始半徑	結束半徑	角度β	開始半徑	結束半徑	角度α
	R1(m)	R2(m)	(deg)	R2(m)	R2(m)	(deg)	R2(m)	R1(m)	(deg)
10km/h至遠端	1500	9.00	20.62	9.00	9.00	48.76	9.00	1500	20.62
15km/h至遠端	1500	11.75	20.93	11.75	11.75	48.14	11.75	1500	20.93
20km/h至遠端	1500	14.75	21.79	14.75	14.75	46.42	14.75	1500	21.79
10km/h至近端	1500	8.00	22.85	8.00	8.00	44.30	8.00	1500	22.85

修正前

7.2.6

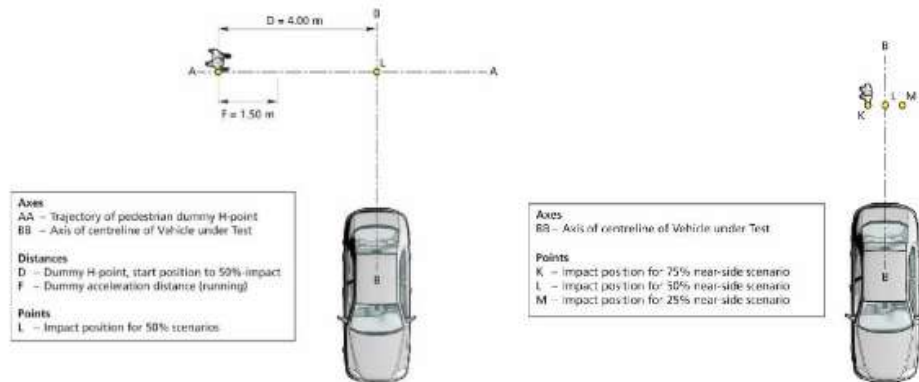
Speed	Overlap	CPRA/Cs	CPRA/Cm
4 km/h	25%	EPTc	
	50%	EPTa	EPTa
	75%	EPTc	
8 km/h	25%	EPTa	
	50%	EPTc	EPTc
	75%	EPTa	

3.11.7.2.7

試驗速度	重疊位置	倒車成人及兒童靜止碰撞情境試驗	倒車成人及兒童移動碰撞情境試驗
4km/h	25%	目標兒童行人	
	50%	目標成人行人	目標成人行人
	75%	目標兒童行人	
8km/h	25%	目標成人行人	
	50%	目標兒童行人	目標兒童行人
	75%	目標成人行人	

修正後

7.2.6.1



3.11.7.2.7.1

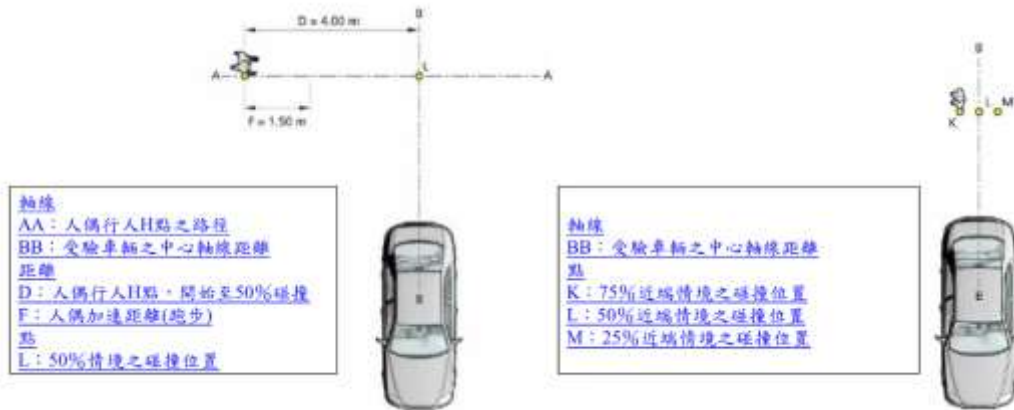


圖14i：倒車成人/兒童碰撞情境試驗，行人自近端橫越(左圖)及靜態(右圖)

修正前

修正後

修正前

7.3

	CBFA	CBNA		CBLA		CBTA		CBDA
Paragraph	7.3.1	7.3.2 & 7.3.3		7.3.4		7.3.5		7.3.6
Type of test	AFB	AFB		AFB	FCW/ESS	AFB		
VUT speed [km/h]	10-60	10-60		25-60	50-80	10,15,20	10	0
VUT direction	Forward	Forward		Forward		Farside turn	Nearside turn	Stationary
Obstruction	No	No	Yes**	No		No		Yes
Target speed [km/h]	20	15	10	15	20	15		15
Target direction	Farside	Nearside		Forward		Opposite direction		Forward
Impact location [%]	50	50		50	25	50		Most rearward point of closed driver door*
Lighting condition	Day	Day		Day		Day		Day

*Reference point is the same for front doors and rear doors.

** Distance between obscuration vehicles [0.1 ~ 0.3]m.

修正後				修正前					
3.11.7.3									
	遠端自行車騎士碰撞情境試驗 (CBFA)	近端自行車騎士碰撞情境試驗 (CBNA)		前端自行車騎士碰撞情境試驗(CBLA)		轉彎自行車騎士碰撞情境試驗(CBTA)		車門開啟自行車騎士碰撞情境試驗(CBDA)	
章節	3.11.7.3.1	3.11.7.3.2 & 3.11.7.3.3		3.11.7.3.4		3.11.7.3.5		3.11.7.3.6	
測試類型	緊急煞車輔助系統	緊急煞車輔助系統		緊急煞車輔助系統	前方碰撞預警系統/緊急轉向輔助系統		緊急煞車輔助系統		-
VUT速度 (km/h)	10-60	10-60		25-60	50-80		10,15,20	10	0
VUT方向	前向	前向		前向		遠端轉向	近端轉向	靜止	
障礙物	無	無	有**	無		無		有	
目標速度 (km/h)	20	15	10	15	20		15		15
目標方向	遠端	近端		前向		反向		前向	
碰撞位置 (%)	50	50		50	25		50		駕駛座車門最靠後點(關閉時)*
光線條件	白天	白天		白天		白天		白天	
*前車門與後車門的參考點相同。									
**障礙車輛間距為0.1-0.3公尺。									
7.3.1									

修正後

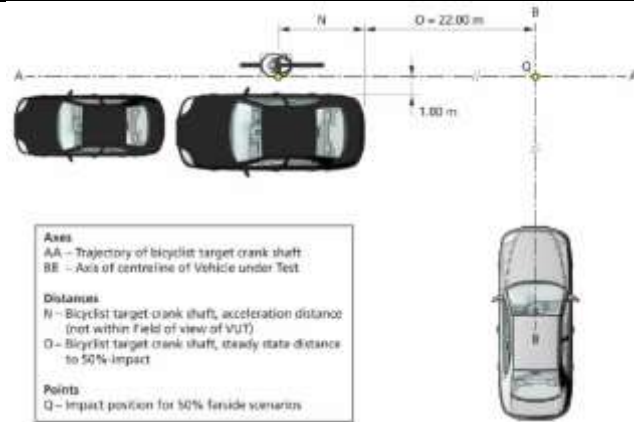


Figure 7-10: CBFA scenario, Bicyclist from Farside

3.11.7.3.1



圖14j：遠端自行車騎士碰撞情境試驗，自行車騎士騎乘自遠端穿越其路徑

修正前

修正後

7.3.3

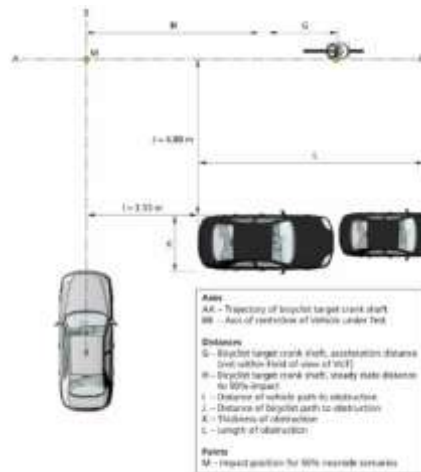


Figure 7-12: CBNAO scenario, Bicyclist from Nearside (obstructed)

3.11.7.3.3

修正前

修正後



圖14l：近端自行車騎士障礙物碰撞情境試驗，自行車騎士騎乘自近端穿越其路徑

修正前

修正後

修正前

7.3.5.2.1

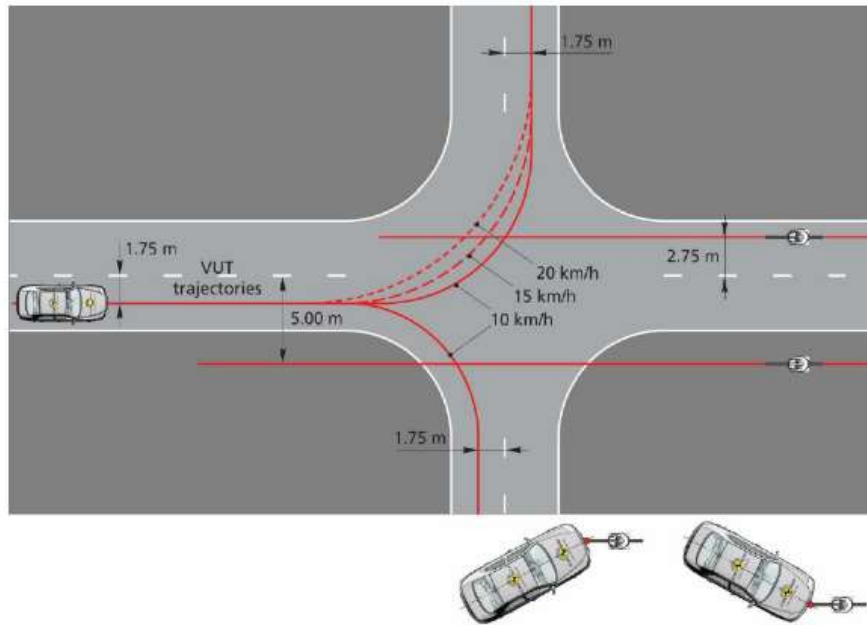
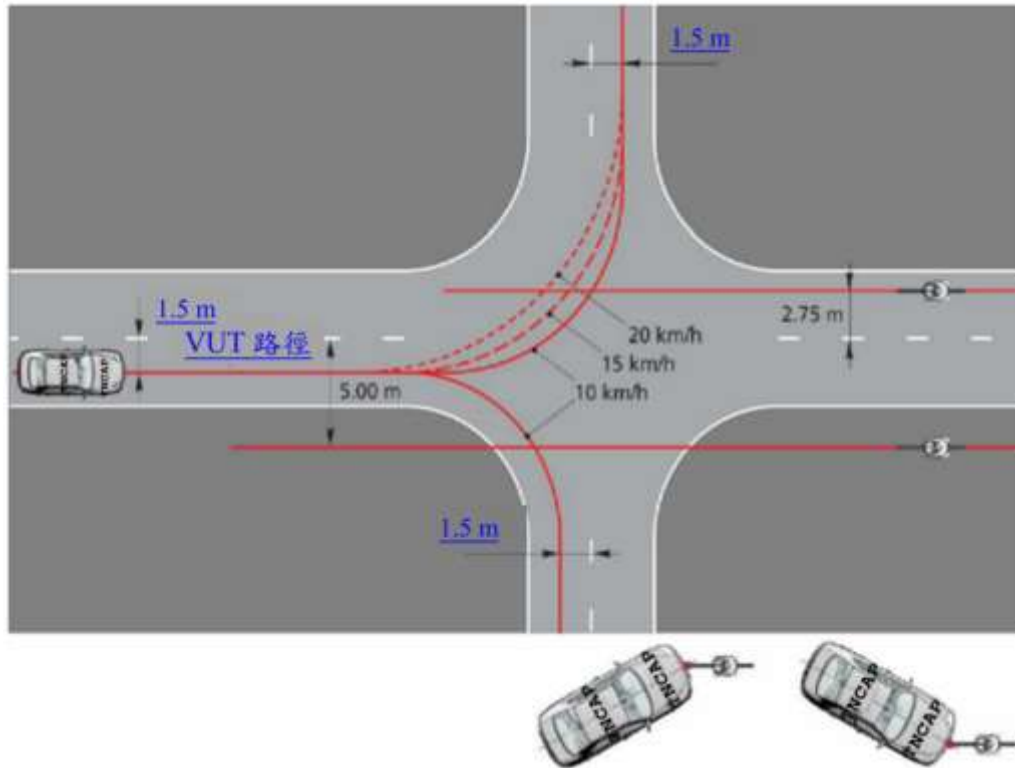


Figure 7-14: CBTAfo scenarios, Turning cycling Adult

修正後

[3.11.7.3.5.2.1](#)



[圖14n：轉彎自行車騎士碰撞情境試驗](#)

修正前

修正後

[7.3.6.3](#)



[Figure 7-15: Reference point and direction relative to the VUT for dooring scenario](#)

[3.11.7.3.6.3](#)

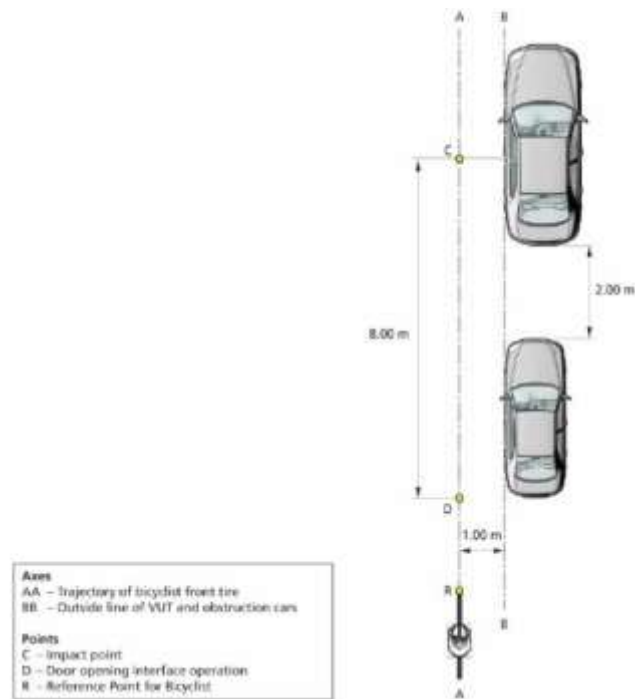


[圖14o：相對於受驗車輛之參考點與方向](#)

修正前

修正後

[7.3.6.4](#)

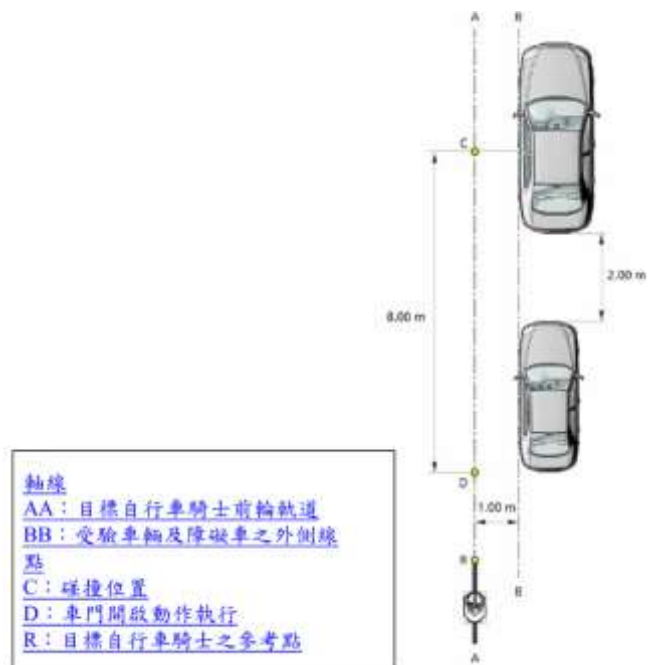


[Figure 7-16 CBDA scenarios, Dooring cycling Adult](#)

修正前

修正後

[3.11.7.3.6.4](#)



[圖14p：車門開啟自行車騎士碰撞情境試驗](#)

修正前

修正後

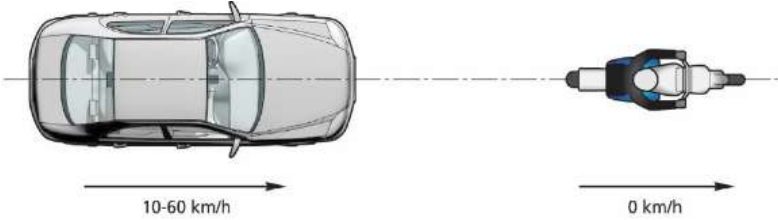
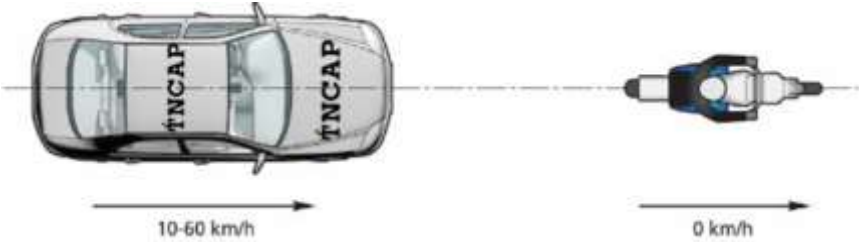
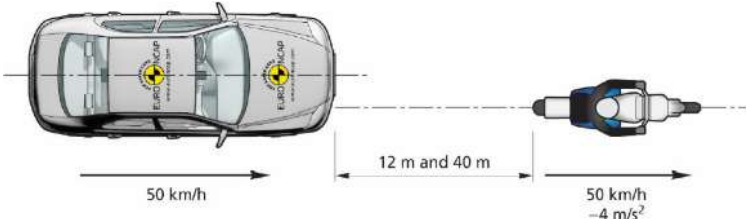
修正前

7.4

	CMRs		CMRb	CMFtap	CMoncoming	CMovertaking	
Paragraph	7.4.1		7.4.2	7.4.3	7.4.5	7.4.6	
Type of test	AFB	FCW	AFB/FCW	AFB	ISS	ISS	
VUT speed [km/h]	10-60	30-60	50	10,15,20	72	50	72
Target speed [km/h]	0		50	30,45,60	72	60	80
VUT direction	Forward		Forward	Farside turn	Forward	Forward	
Impact location [%]	50		25	50	10	EMT front wheel to VUT rear wheel	
Lighting condition	Day		Day	Day	Day	Day	

3.11.7.4

	<u>機車騎士靜止碰撞情境試驗 (CMRs)</u>		<u>機車騎士煞車碰撞情境試驗 (CMRb)</u>	<u>轉彎機車騎士碰撞情境試驗 (CMFtap)</u>	<u>對向來車機車騎士碰撞情境試驗 (CMoncoming)</u>	<u>車道超車機車騎士碰撞情境試驗 (CMovertaking)</u>	
<u>章節</u>	<u>3.11.7.4.1</u>		<u>3.11.7.4.2</u>	<u>3.11.7.4.3</u>	<u>3.11.7.4.5</u>	<u>3.11.7.4.6</u>	
<u>測試類型</u>	<u>緊急煞車輔助系統</u>	<u>前方碰撞預警系統</u>	<u>緊急煞車輔助系統/前方碰撞預警系統</u>	<u>緊急煞車輔助系統</u>	<u>車道輔助系統</u>	<u>車道輔助系統</u>	
<u>VUT速度 (km/h)</u>	<u>10-60</u>	<u>30-60</u>	<u>50</u>	<u>10,15,20</u>	<u>72</u>	<u>50</u>	<u>72</u>
<u>目標車速 (km/h)</u>	<u>0</u>		<u>50</u>	<u>30,45,60</u>	<u>72</u>	<u>60</u>	<u>80</u>
<u>VUT行駛方向</u>	<u>前向</u>		<u>前向</u>	<u>遠端轉向</u>	<u>前向</u>	<u>前向</u>	
<u>碰撞位置 (%)</u>	<u>50</u>		<u>25</u>	<u>50</u>	<u>10</u>	<u>目標機車騎士前輪對受驗車輛後輪</u>	
<u>光線條件</u>	<u>白天</u>		<u>白天</u>	<u>白天</u>	<u>白天</u>	<u>白天</u>	

修正後	修正前
7.4.1  Figure 7-17: CMRs scenario 3.11.7.4.1  圖14q：機車騎士靜止碰撞情境試驗	
7.4.2  Figure 7-18: CMRb scenario 3.11.7.4.2	

修正後

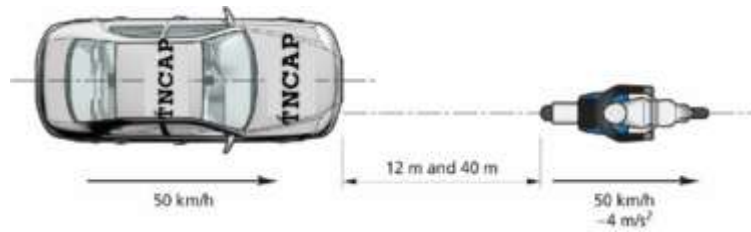


圖14r：機車騎士煞車碰撞情境試驗

修正前

7.4.3.3

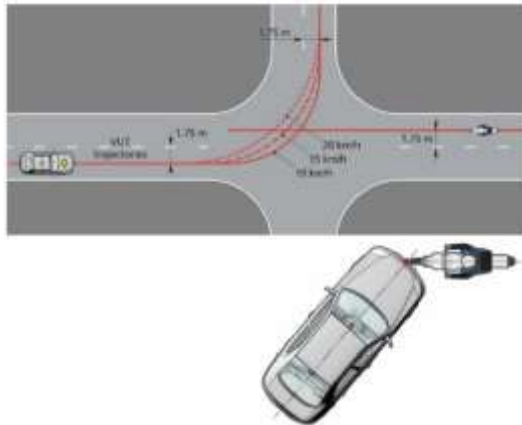


Figure 7-19: CMFtap scenario VUT and EMT paths

修正後

[3.11.7.4.3.3](#)

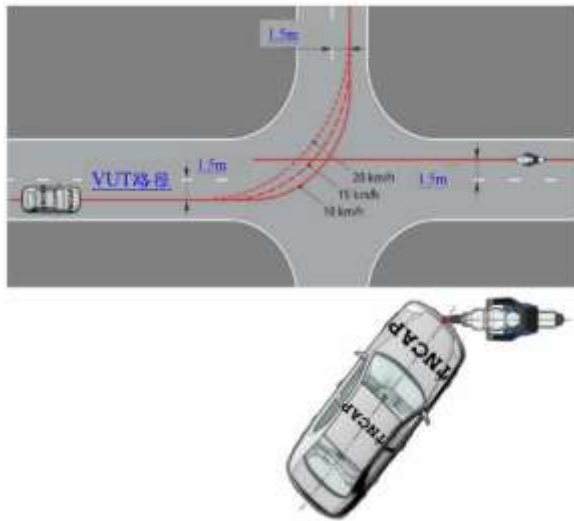
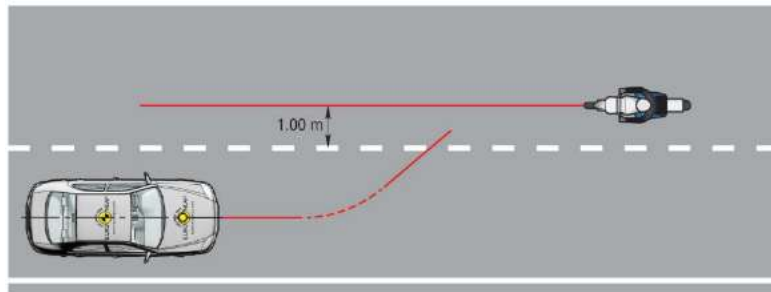


圖14s：轉彎機車騎士碰撞情境試驗

修正前

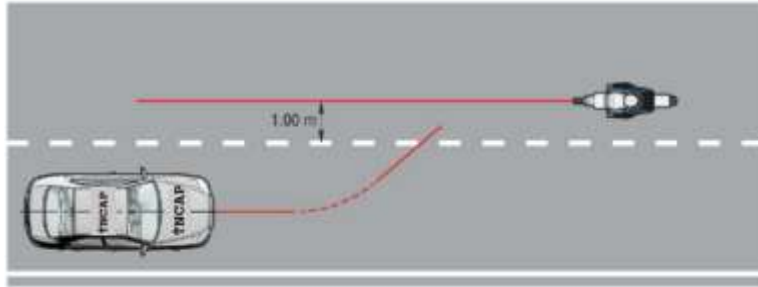
[7.4.5.1](#)



[Figure 7-20: CMoncoming vehicle scenario](#)

修正後

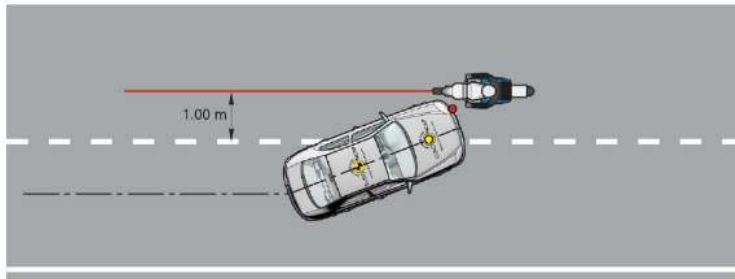
[3.11.7.4.5.1](#)



[圖14t：對向來車機車騎士碰撞情境試驗](#)

修正前

[7.4.5.2](#)



[Figure 7-21: CMoncoming motorcycle impact location](#)

修正後

3.11.7.4.5.2

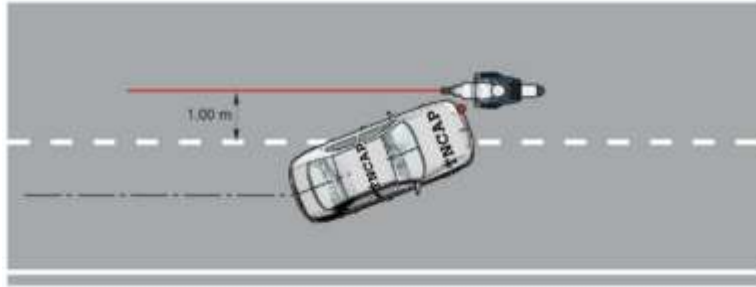


圖14u：對向來車機車騎士碰撞情境試驗碰撞位置

修正前

7.4.5.3

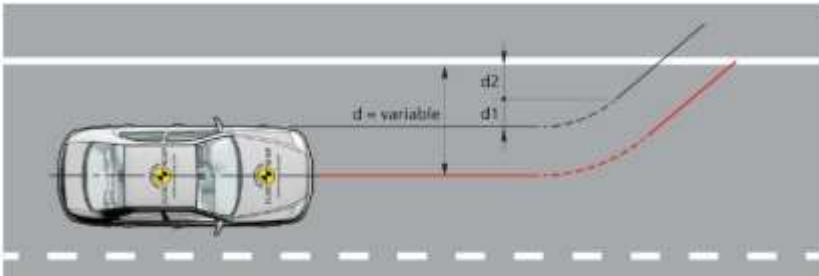
VUT@ 72km/h	Vlat _{VUT} [m/s]	R [m]	Ψ _{VUT} [°]	d1	d2
Unintentional	0.2	1200	0.57	0.06	0.70
	0.3		0.86	0.14	0.90
	0.4		1.15	0.24	0.80
	0.5		1.43	0.38	0.75
	0.6		1.72	0.54	0.60

3.11.7.4.5.3

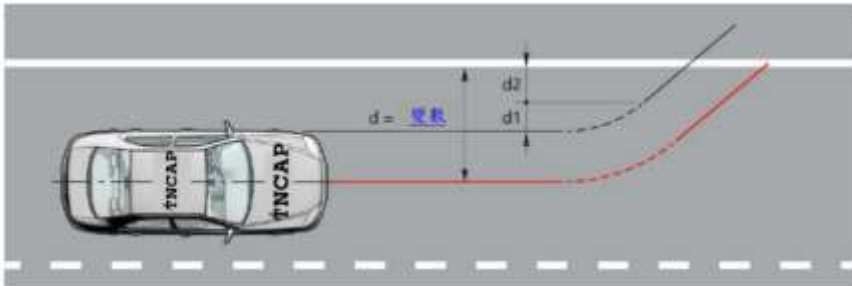
受驗車輛速度 72km/h	受驗車輛側向 速度[m/s]	轉彎半徑 [m]	試驗過程中受驗車 輛之橫擺角速度[°]	橫擺角曲線建立 時之側向偏離[m]	側向速度穩定狀態 之側向偏離距離[m]
非刻意	0.2	1200	0.57	0.06	0.70
	0.3		0.86	0.14	0.90
	0.4		1.15	0.24	0.80
	0.5		1.43	0.38	0.75
	0.6		1.72	0.54	0.60

修正後

[7.4.5.3](#)



[3.11.7.4.5.3](#)



修正前

[7.4.6.5](#)

VUT@ 50km/h	Vlat _{vut} [m/s]	R [m]	Ψ _{vut} [°]	d1	d2
Unintentional	0.2	1200	0.83	0.12	0.64
	0.3		1.24	0.28	0.76
	0.4		1.65	0.50	0.54
	0.5		2.06	0.78	0.35
	0.6		2.48	1.12	0.02
Intentional	0.5	400	2.06	0.26	0.74
	0.6		2.48	0.37	0.59
	0.7		2.89	0.51	0.51

修正後

修正前

3.11.7.4.6.5

受驗車輛速度 50km/h	受驗車輛側 向速度[m/s]	轉彎半徑 [m]	試驗過程中受驗車 輛之橫擺角速度[°]	橫擺角曲線建立 時之側向偏離[m]	側向速度穩定狀態 之側向偏離距離[m]
非刻意	0.2	1200	0.83	0.12	0.64
	0.3		1.24	0.28	0.76
	0.4		1.65	0.50	0.54
	0.5		2.06	0.78	0.35
	0.6		2.48	1.12	0.02
刻意	0.5	400	2.06	0.26	0.74
	0.6		2.48	0.37	0.59
	0.7		2.89	0.51	0.51

7.4.6.5

VUT@ 72km/h	Vlat _{VUT} [m/s]	R [m]	Ψ _{VUT} [°]	d1	d2
Unintentional	0.2	1200	0.57	0.06	0.70
	0.3		0.86	0.14	0.90
	0.4		1.15	0.24	0.80
	0.5		1.43	0.38	0.75
	0.6		1.72	0.54	0.60
Intentional	0.5	800	1.43	0.25	0.75
	0.6		1.72	0.36	0.60
	0.7		2.01	0.49	0.53

修正後

修正前

3.11.7.4.6.5

受驗車輛速度 72km/h	受驗車輛側 向速度[m/s]	轉彎半徑 [m]	試驗過程中受驗車 輛之橫擺角速度[°]	橫擺角曲線建立 時之側向偏離[m]	側向速度穩定狀態 之側向偏離距離[m]
非刻意	<u>0.2</u>	<u>1200</u>	<u>0.57</u>	<u>0.06</u>	<u>0.70</u>
	<u>0.3</u>		<u>0.86</u>	<u>0.14</u>	<u>0.90</u>
	<u>0.4</u>		<u>1.15</u>	<u>0.24</u>	<u>0.80</u>
	<u>0.5</u>		<u>1.43</u>	<u>0.38</u>	<u>0.75</u>
	<u>0.6</u>		<u>1.72</u>	<u>0.54</u>	<u>0.60</u>
刻意	<u>0.5</u>	<u>800</u>	<u>1.43</u>	<u>0.25</u>	<u>0.75</u>
	<u>0.6</u>		<u>1.72</u>	<u>0.36</u>	<u>0.60</u>
	<u>0.7</u>		<u>2.01</u>	<u>0.49</u>	<u>0.53</u>

7.4.6.5

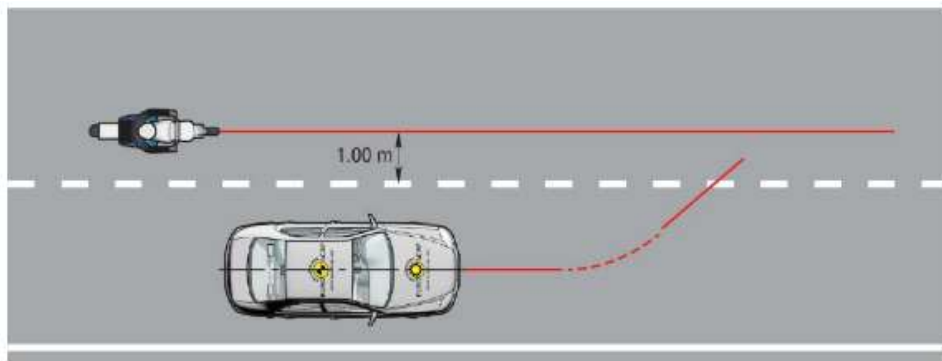


Figure 7-22: CMoveovertaking scenarios

修正後

3.11.7.4.6.5

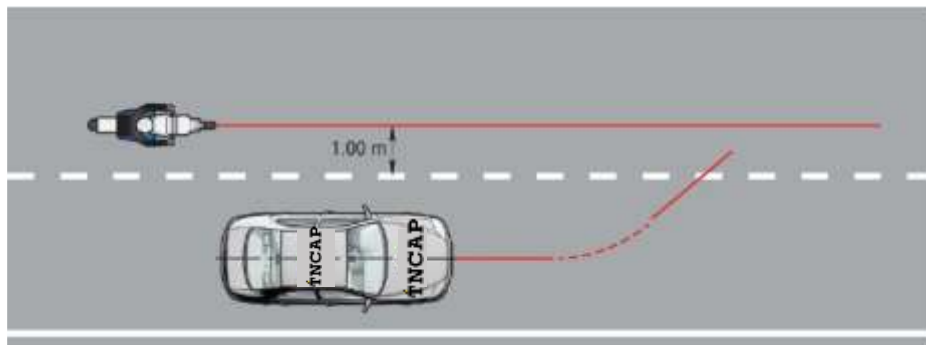


圖14v：車道超車機車騎士碰撞情境試驗

修正前

7.6.1.2

	VUT	EPT	EBT	EMT
Speed	± 1.0 km/h	± 0.2 km/h	± 0.5 km/h	± 1.0 km/h
Lateral deviation	0 ± 0.05 m (0 ± 0.1 m for CPTA and CBTA)	0 ± 0.05 m for crossing scenarios (incl. CPTA, CBTA & CPRA) 0 ± 0.15 m for longitudinal scenarios (incl. CHDA)		$0 \pm [0.15]$ m
Lateral velocity		0 ± 0.15 m/s	0 ± 0.15 m/s	
Relative distance				12m/10m ± 0.5 m
Yaw velocity (upto T_{STEER})	0 ± 1.0 °/s			
Yaw Angle (upto T_{STEER})				0 ± 1.5 °
Steering wheel velocity (upto T_{STEER})	0 ± 15.0 °/s			

修正後

修正前

3.11.7.6.1.2

	<u>受驗車輛(VUT)</u>	<u>目標成人(EPT)</u>	<u>目標自行車騎士(EBT)</u>	<u>目標機車騎士(EMT)</u>
<u>速度</u>	<u>+ 1.0 km/h</u>	<u>± 0.2 km/h</u>	<u>± 0.5 km/h</u>	<u>± 1.0 km/h</u>
<u>側向偏移量</u>	<u>0 ± 0.05 m</u> <u>(0 ± 0.1 m for 轉彎成人碰撞情境試驗及轉彎自行車騎士碰撞情境試驗)</u>	<u>0 ± 0.05 m 穿越情境(包含轉彎成人碰撞情境試驗、轉彎自行車騎士碰撞情境試驗、倒車成人碰撞情境試驗)</u> <u>0 ± 0.15 m 縱向情境(包含車門開啟自行車騎士碰撞情境試驗)</u>		<u>0 ± 0.15 m</u>
<u>側向速度</u>		<u>0 ± 0.15 m/s</u>	<u>0 ± 0.15 m/s</u>	
<u>相對距離</u>				<u>12m/40m ± 0.5m</u>
<u>橫擺角速度(至T_{steer}時)</u>	<u>0 ± 1.0 °/s</u>			
<u>橫擺角(至T_{steer}時)</u>				<u>0 ± 1.5 °</u>
<u>方向盤轉速(至T_{steer}時)</u>	<u>0 ± 15.0 °/s</u>			

7.6.2.3

	VUT	EMT
Speed	± 1.0 km/h	
Relative speed (CMovertaking)	± 1.0 km/h	
Lateral deviation	0 ± 0.05 m	0 ± [0.15] m
Steady state lane departure lateral velocity	± 0.05m/s	
Yaw velocity (upto T _{STEER} for VUT)	0 ± 1.0 °/s	
Yaw angle (upto T _{STEER} for VUT)		0 ± 1.5 °
Steering wheel velocity (upto T _{STEER} for VUT)	0 ± 15.0 °/s	

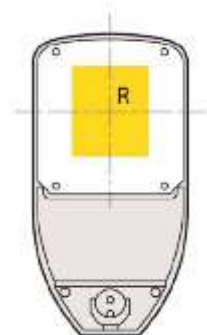
修正後

修正前

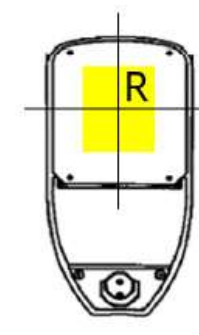
[3.11.7.6.2.3](#)

	受験車輛(VUT)	目標機車騎士(EMT)
速度	± 1.0 km/h	
相對速度(CMovertaking)	± 1.0 km/h	
側向偏移量	0 ± 0.05 m	0 ± [0.15] m
穩態車道偏離側向速度	± 0.05m/s	
橫擺角速度(至T_{steer}為止)	0 ± 1.0 °/s	
橫擺角(至T_{steer}為止)		0 ± 1.5 °
方向盤轉速(至T_{steer}為止)	0 ± 15.0 °/s	

B.3



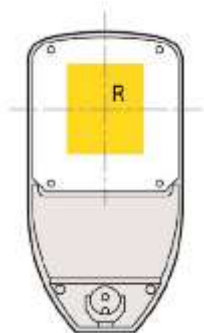
B.3



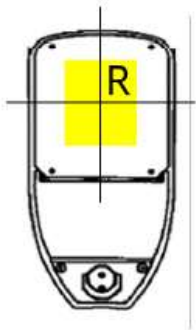
[3.11.8.3](#)

修正後

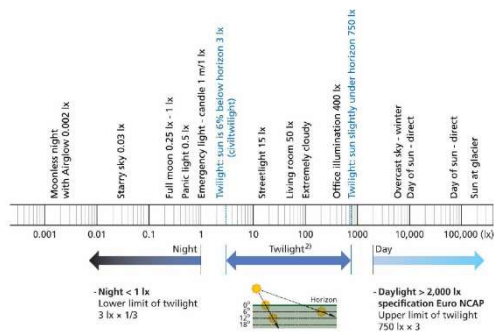
3.11.9.3



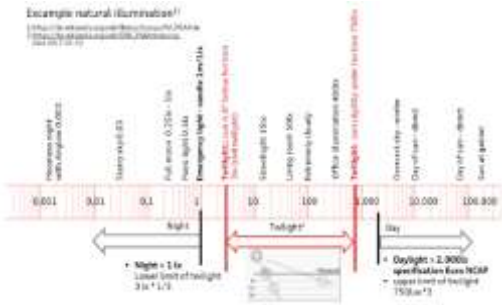
修正前



B.4



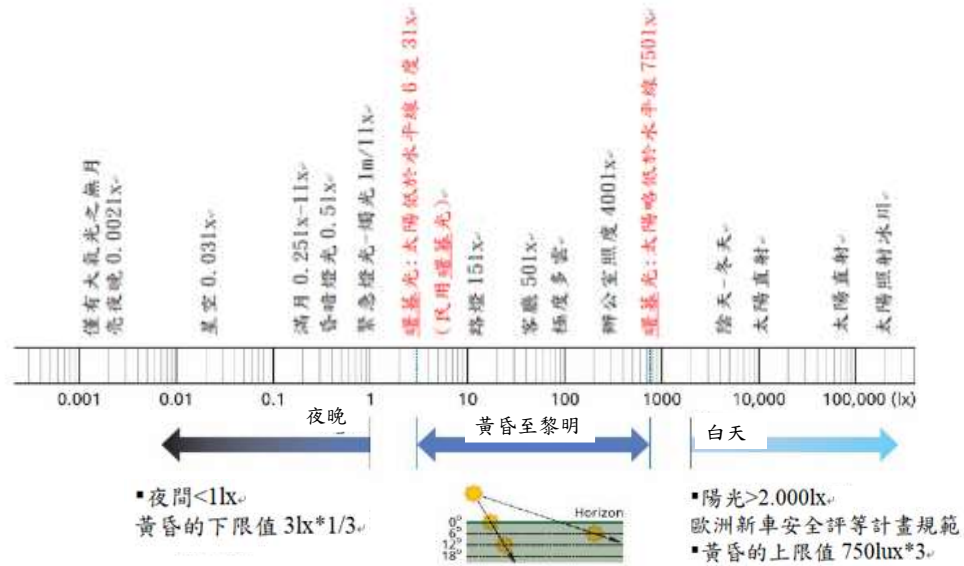
B.4



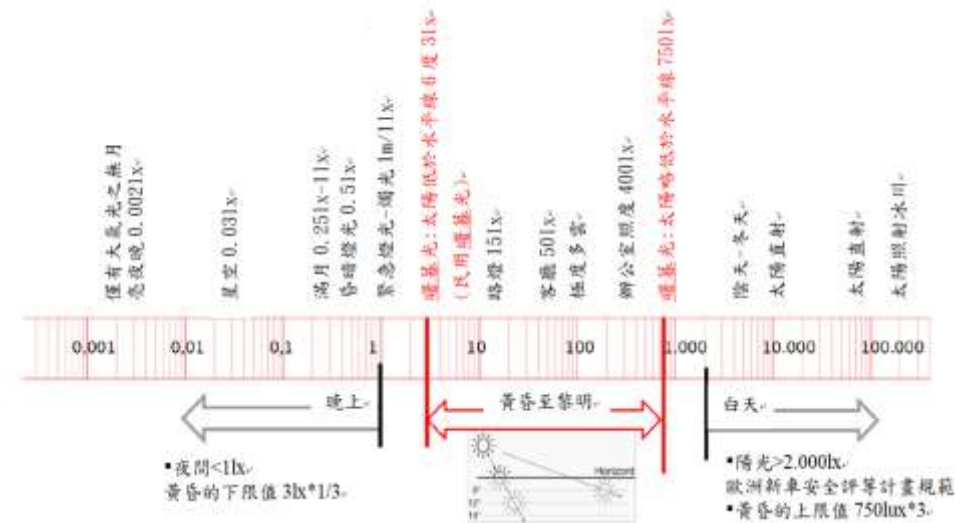
3.11.8.4

修正後

3.11.9.4

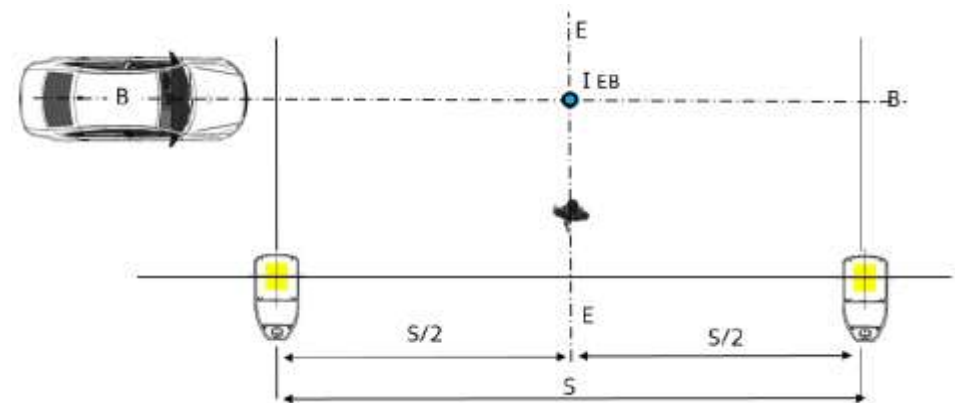


修正前

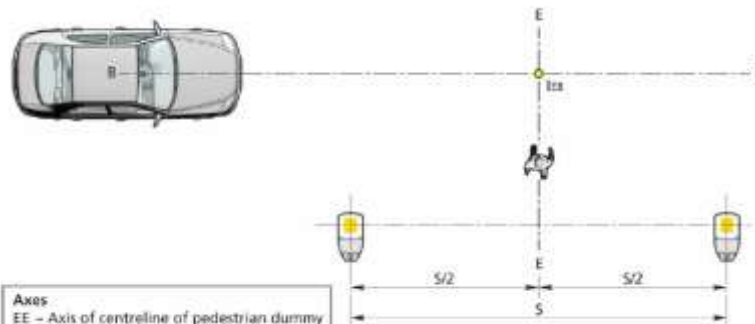


B.4.1

B.4.1



修正後

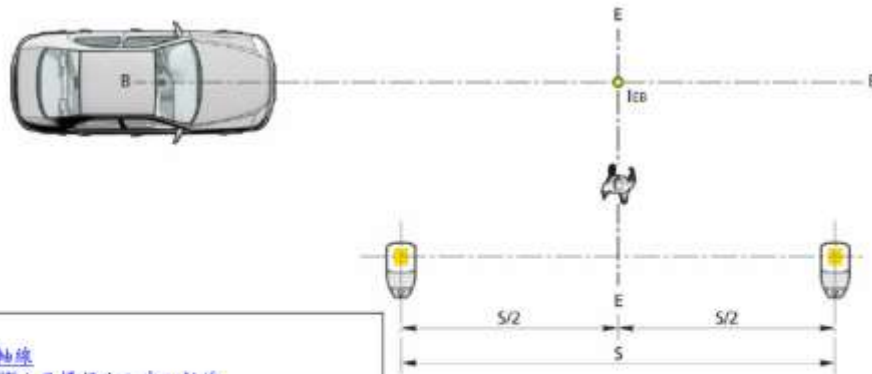


Axes
 EE – Axis of centreline of pedestrian dummy
 BB – Axis of centreline of Vehicle under Test

Distances
 S – Distance between street lamps

Points
 IEB – Measurement point

3.11.9.4.1



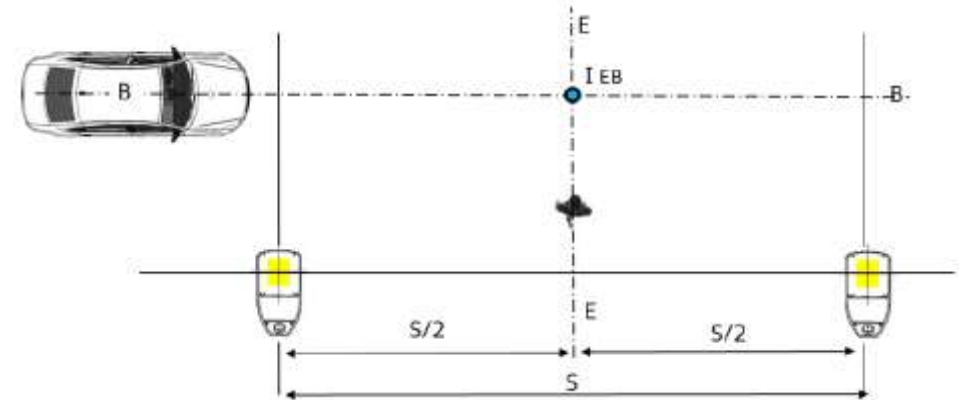
軸線
 EE：目標行人之中心軸線
 BB：受驗車輛之中心軸線

距離
 S：路燈間距

點
 IEB：量測點

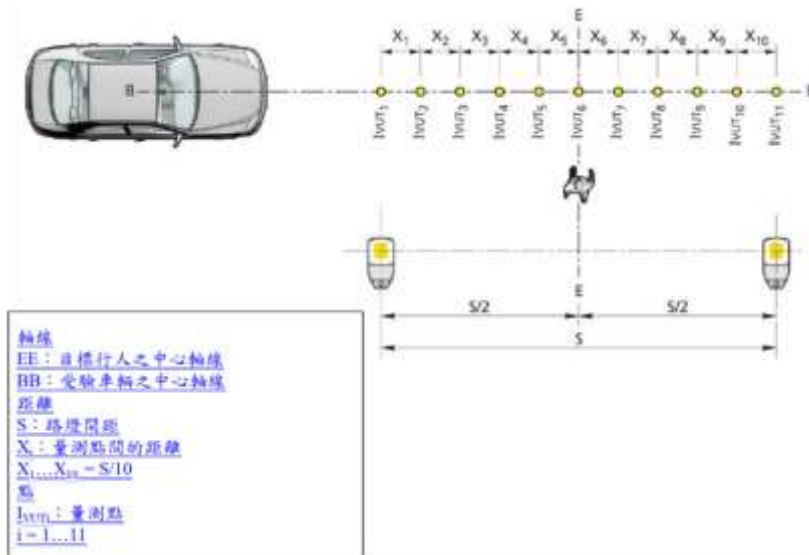
修正前

3.11.8.4.1



修正後

3.11.9.4.2



修正前

B.4.3

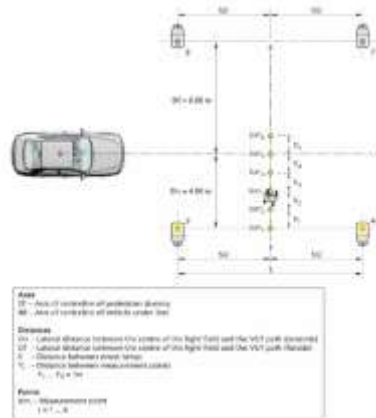
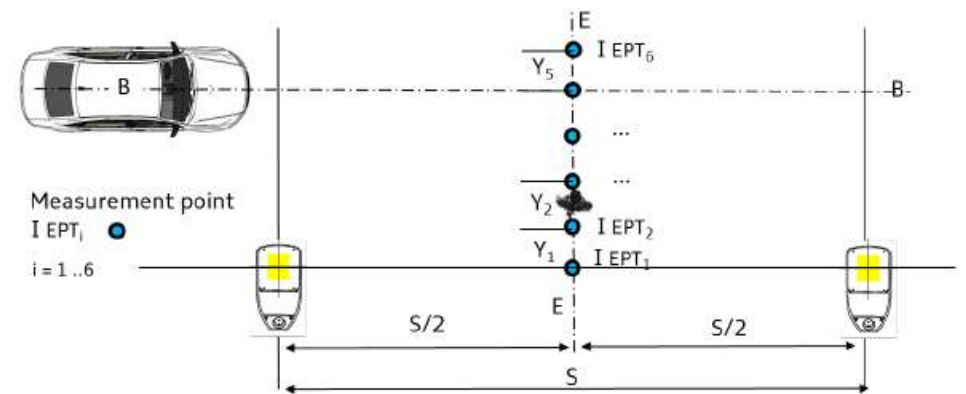


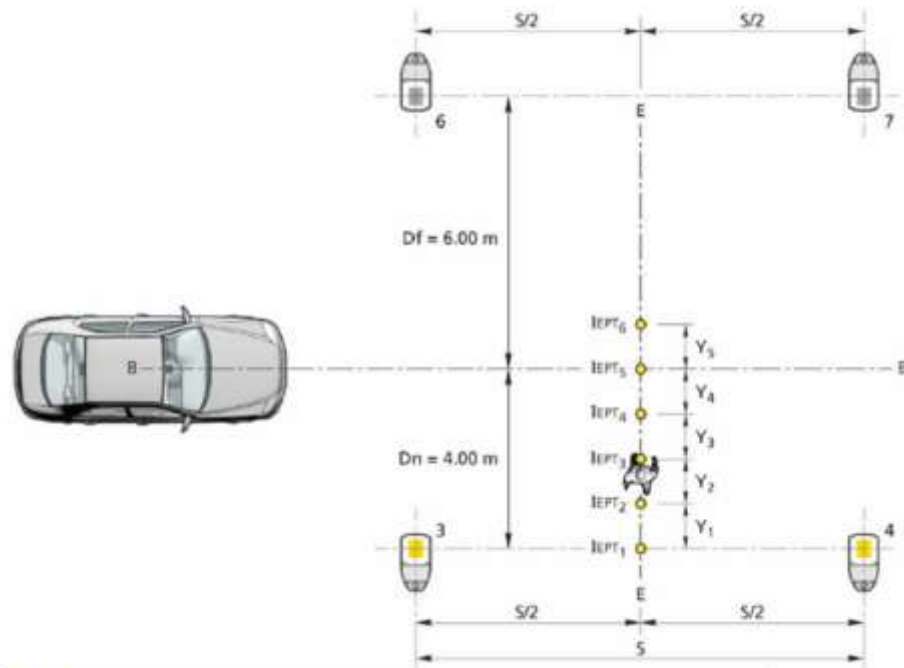
Figure B.4.3: Illuminance EPT path - nearside scenarios

B.4.3



修正後

3.11.9.4.3



軸線

EE: 目標行人之中心軸線

BB: 受驗車輛之中心軸線

距離

D_n : 燈光照射區中心與受驗車路徑之間的側向距離(近端)

D_f : 燈光照射區中心與受驗車路徑之間的側向距離(遠端)

S : 路燈間距

Y_i : 量測點間的距離

$Y_1 \dots Y_5 = 1\text{m}$

點

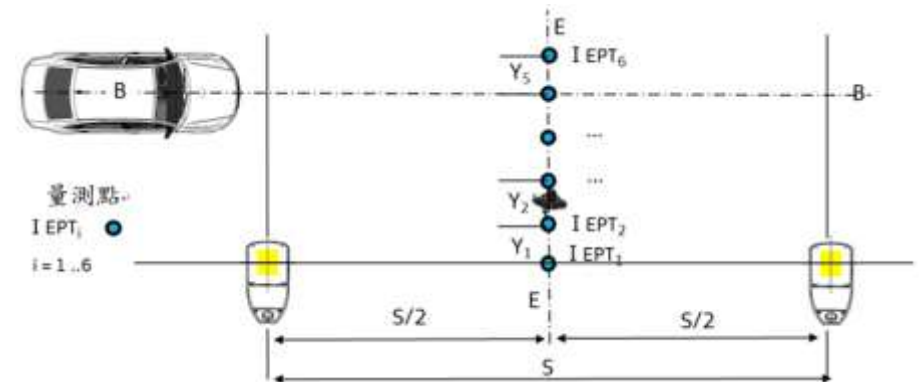
I_{EPT_i} : 量測點

$i = 1 \dots 6$

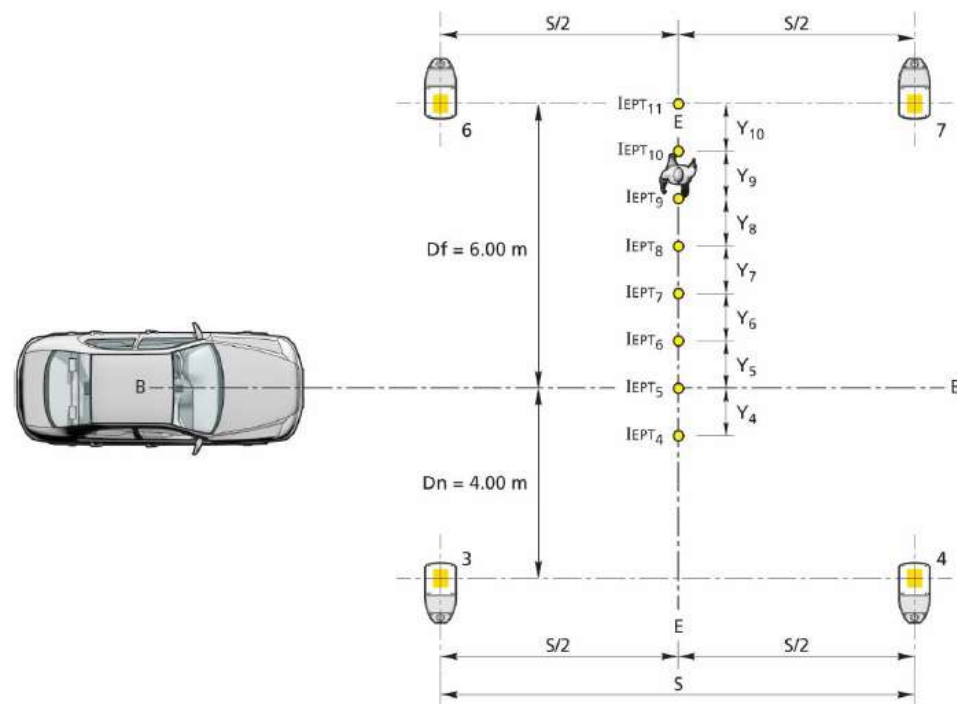
圖15a: 目標行人照明路徑-近端情境

修正前

3.11.8.4.3



B.4.3



Axes

EE – Axis of centreline of pedestrian dummy
BB – Axis of centreline of Vehicle under Test

Distances

D_n – Lateral distance between the centre of the light field and the VUT path (nearside)
 D_f – Lateral distance between the centre of the light field and the VUT path (farside)
 S – Distance between street lamps
 Y_i – Distance between measurement points
 $Y_4 \dots Y_{10} = 1\text{ m}$

Points

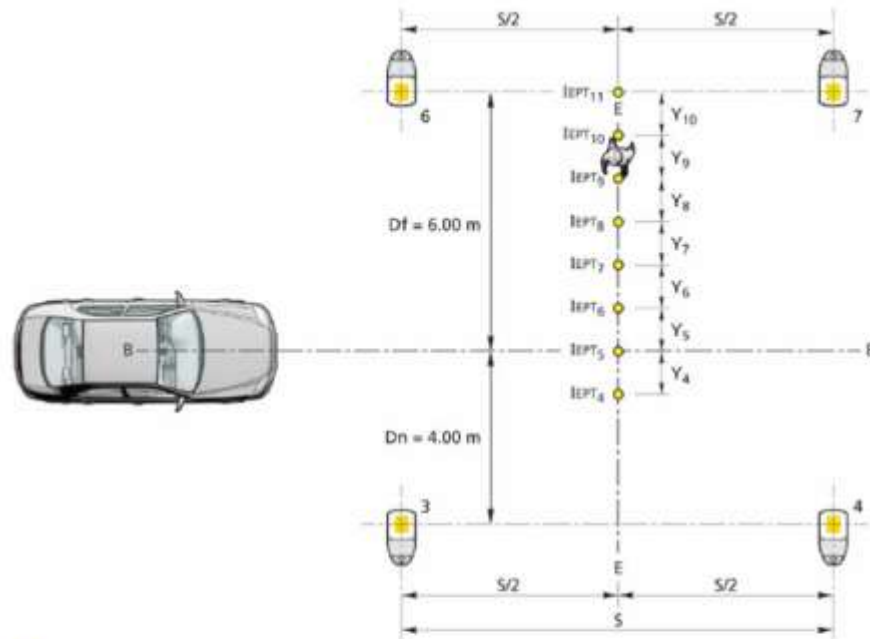
IEPT_i – Measurement point
i = 4 ... 11

修正前

修正後

Figure B.4.3: Illuminance EPT path - farside scenarios

3.11.9.4.3



軸線

EE: 目標行人之中心軸線

BB: 受驗車輛之中心軸線

距離

Dn: 燈光照射區中心與受驗車路徑之間的側向距離(近端)

Df: 燈光照射區中心與受驗車路徑之間的側向距離(遠端)

S: 路燈間距

Y_i : 量測點間的距離

$Y_4 \dots Y_{10} = 1\text{m}$

點

I_{EPTi} : 量測點

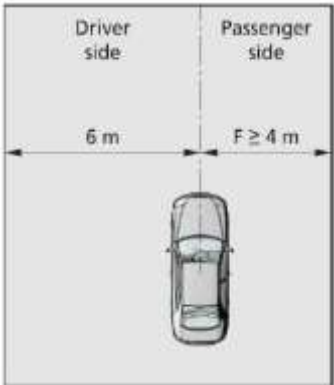
$i = 4 \dots 11$

圖15b: 目標行人照明路徑-遠端情境

修正前

修正後

B.5.6



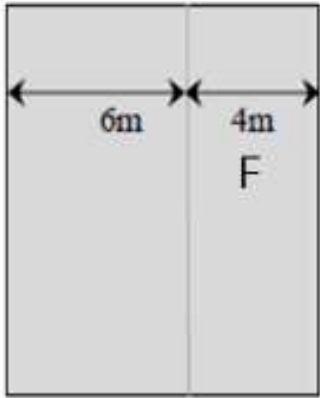
[3.11.9.5.6](#)



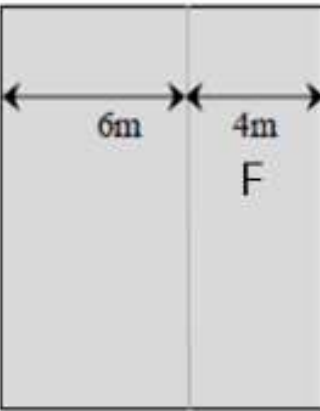
B.5.7

修正前

B.5.6



[3.11.8.5.6](#)



B.5.7

修正後

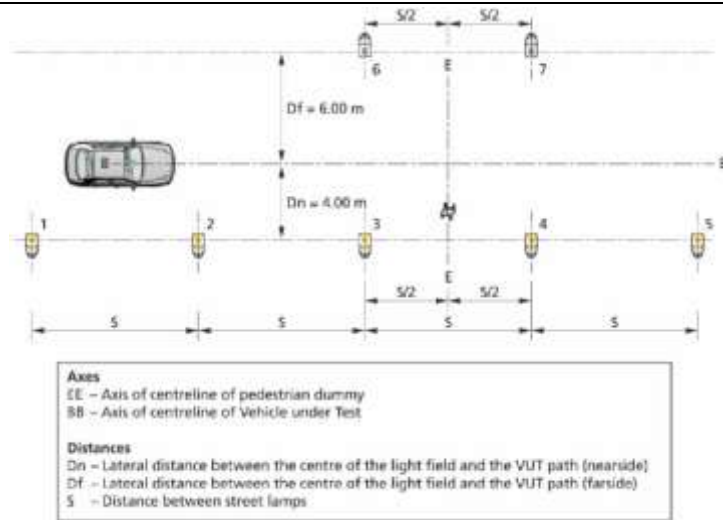
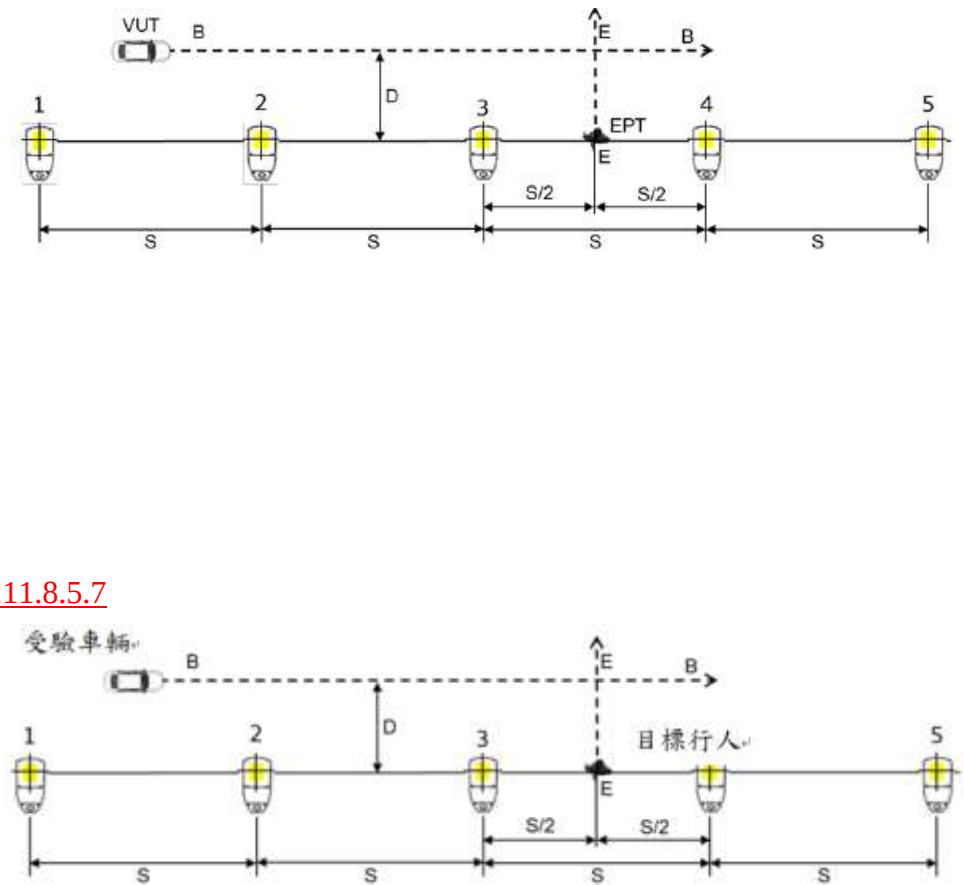


Figure B8: CPNA Night-time setup

3.11.9.5.7

修正前



3.11.8.5.7

修正後



圖15c：近端成人碰撞情境試驗-晚上設定

修正前

B.5.7

修正後

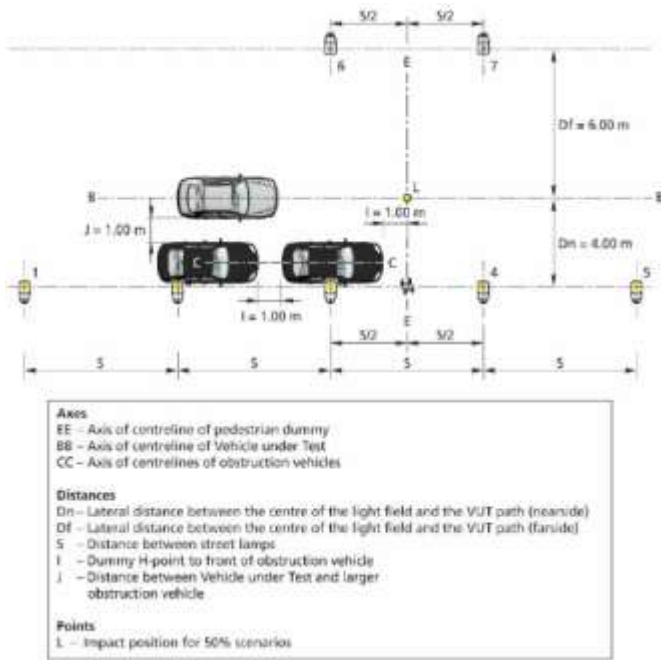


Figure B9: CPNCO Night-time setup

3.11.9.5.7

修正前

修正後

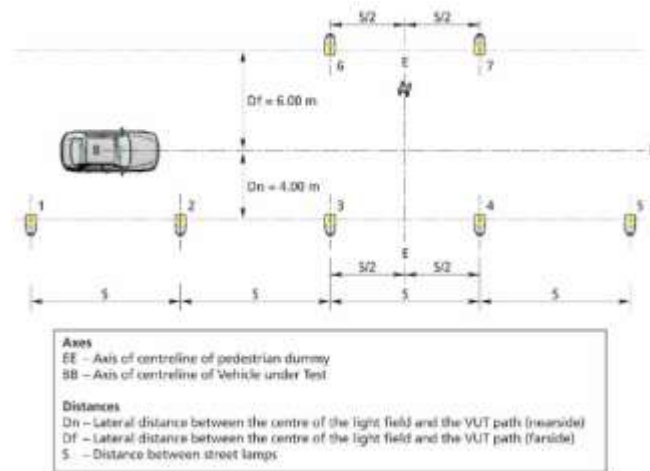


Figure B10: CPFA Night-time setup

[3.11.9.5.7](#)

修正前

修正後

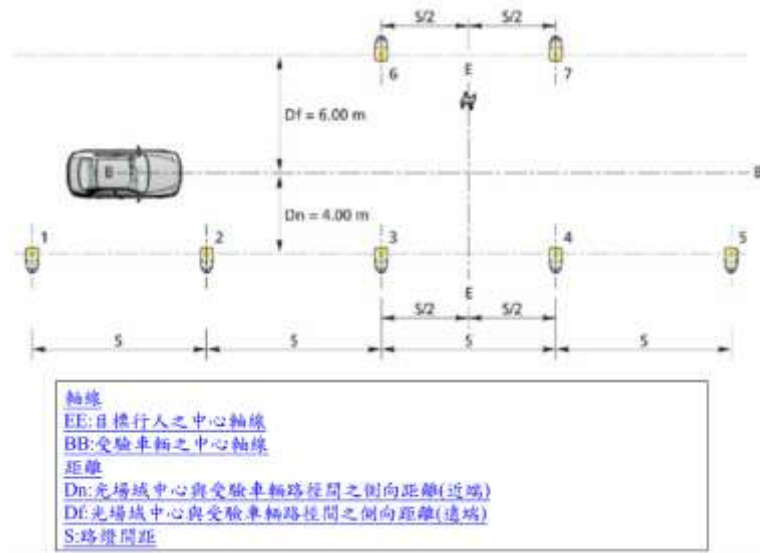
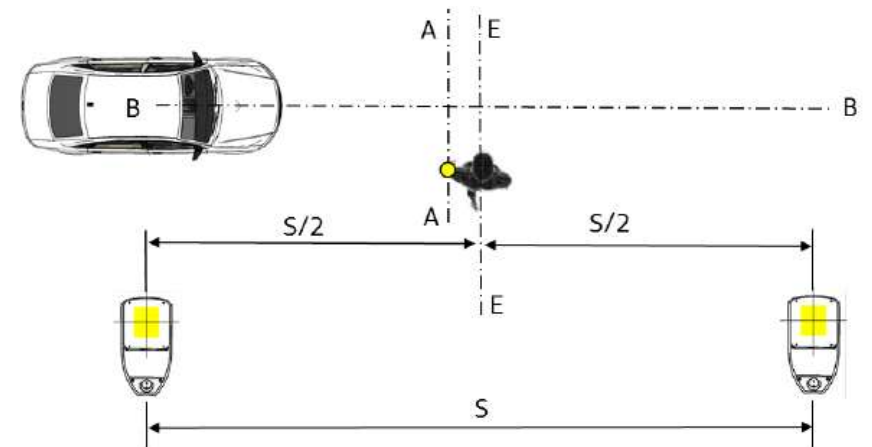


圖15e：遠端成人碰撞情境試驗-晚上設定

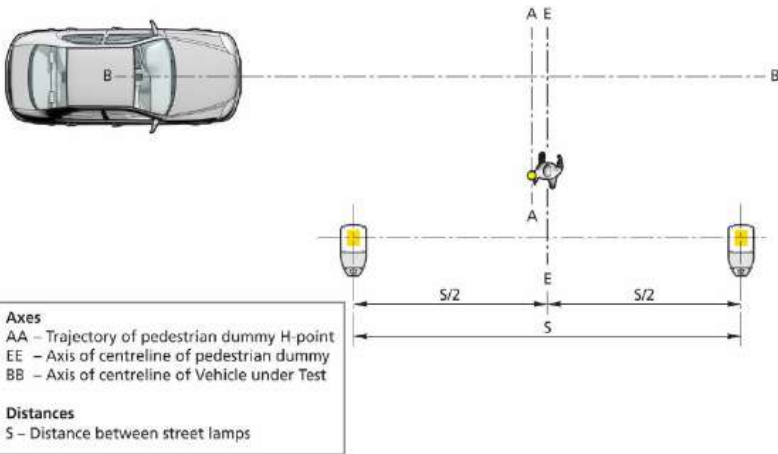
修正前

B.5.8

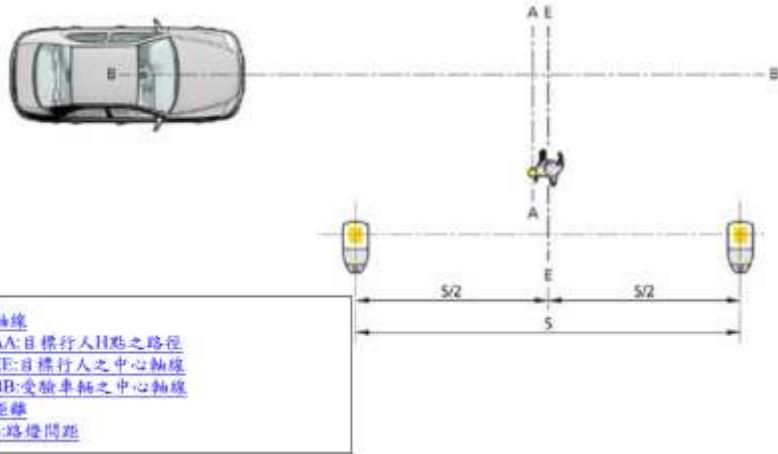
B.5.8



修正後



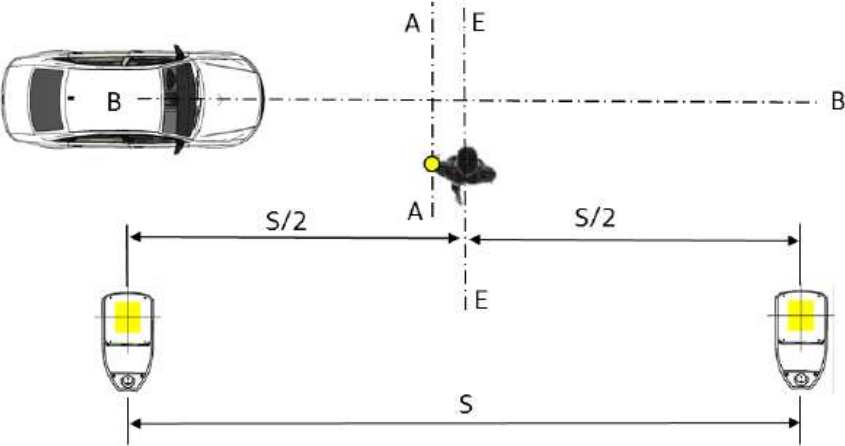
3.11.9.5.8



3.11.9.6.1

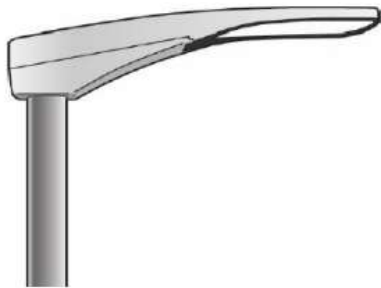
修正前

3.11.8.5.8



3.11.8.6.1

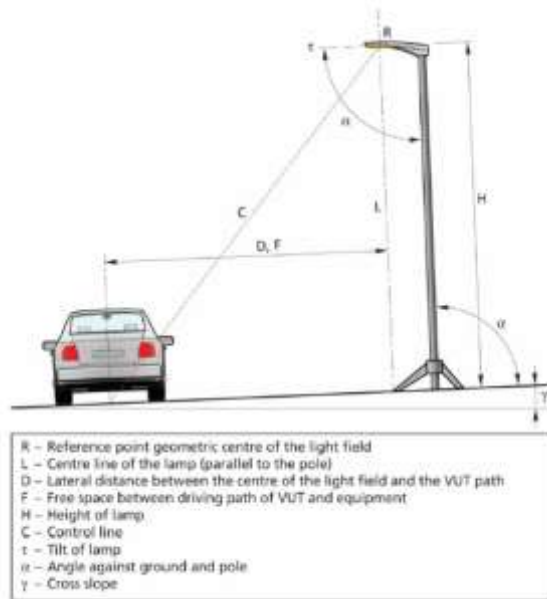
修正後



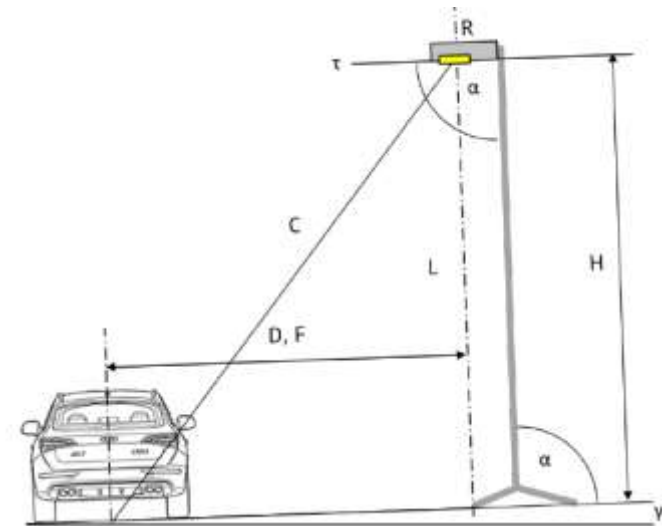
修正前



[B.6.1](#)

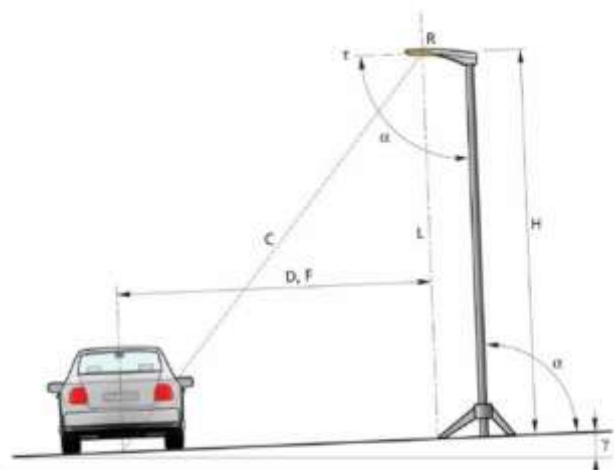


[B.6.2](#)



修正後

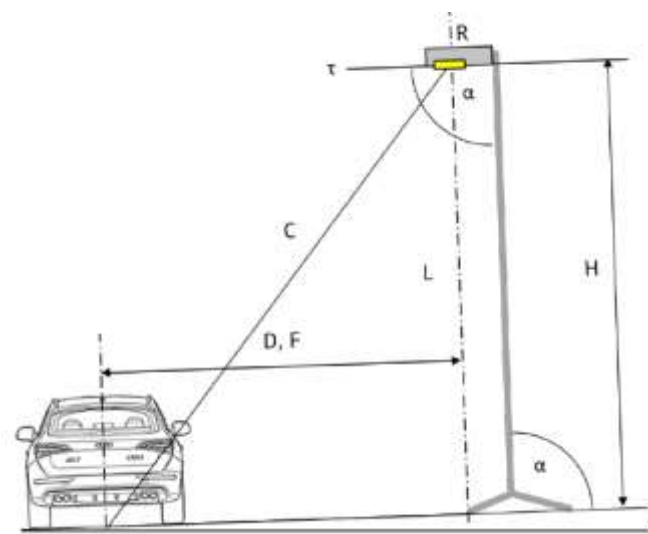
3.11.9.6.2



R: 光場域的幾何中心參考點
L: 燈源的中心線(與燈柱平行)
D: 光場域中心與受驗車輛路徑間之側向距離
F: 受驗車輛的駕駛路徑與配備間的自由空間
H: 燈源的高度
C: 控制線
 τ : 燈源傾斜度
 α : 地面與燈柱之角度
 γ : 橫向坡度

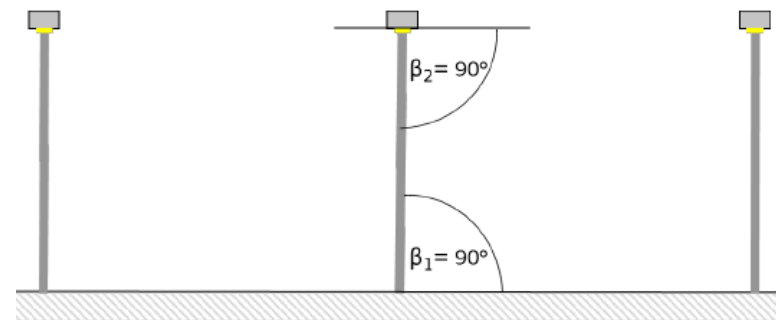
修正前

3.11.8.6.2

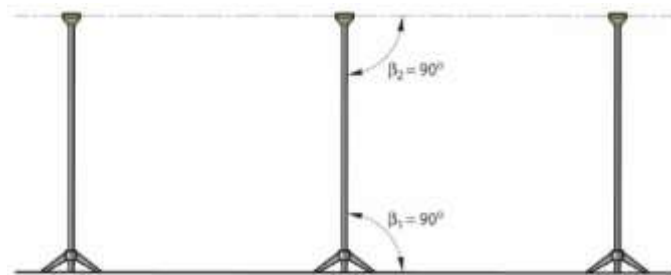


B.6.2

B.6.3

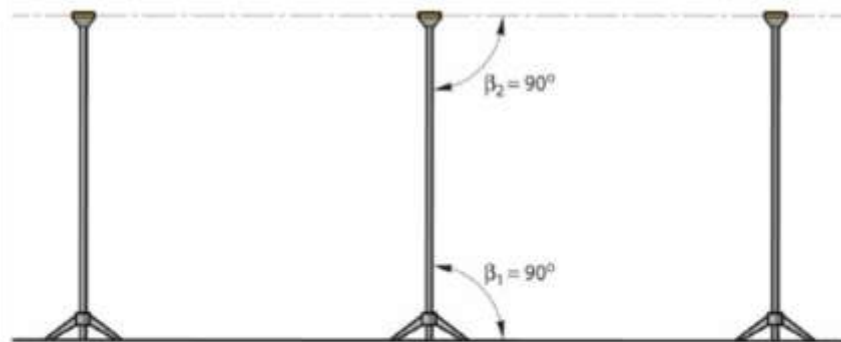


修正後



β_1 - Inclination of lamp to ground
 β_2 - Inclination of lamp to pole

[3.11.9.6.3](#)

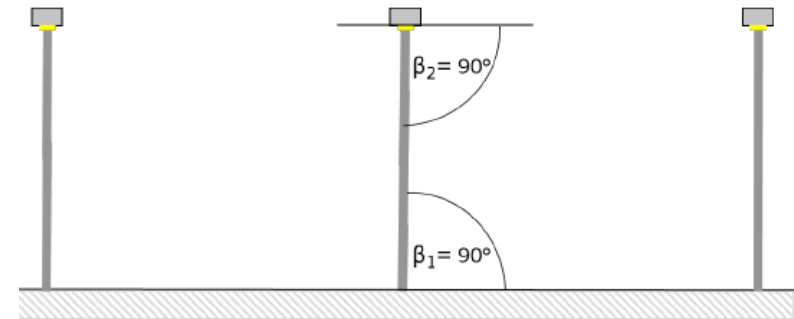


β_1 : 燈源與地面之傾角
 β_2 : 燈源與燈柱之傾角

[B.6.3](#)

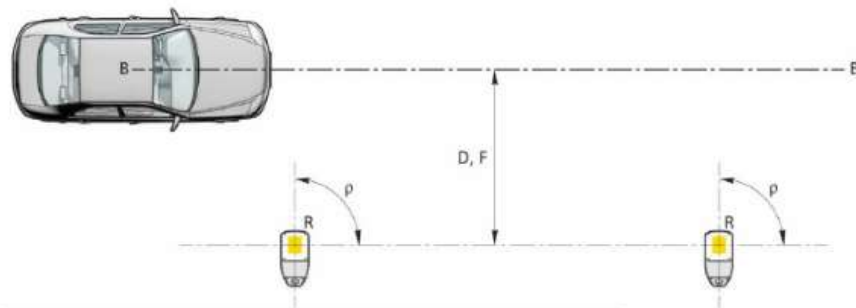
修正前

[3.11.8.6.3](#)



[B.6.4](#)

修正後



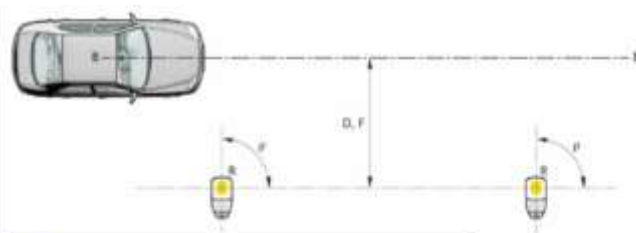
Axes
BB – Axis of centreline of Vehicle under Test

Angles
 ρ – rotation of lamp

Distances
F – Free space between driving path of VUT and equipment
D – Lateral distance between the centre of the light field and the VUT path

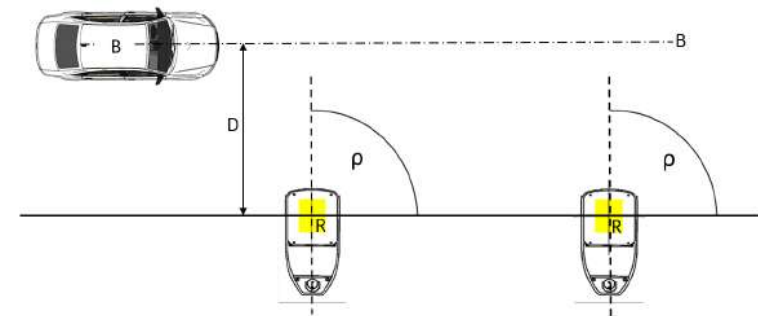
Points
R – Reference point geometric centre of the light field

3.11.9.6.4

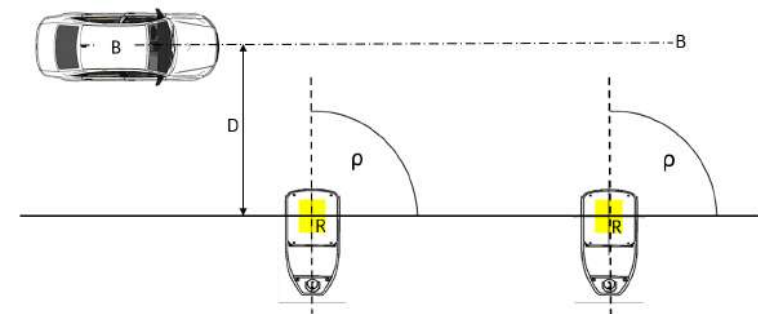


軸線
BBH：受驗車輛之中心軸線
角度
 ρ ：燈源的旋轉角度
距離
F：受驗車輛的駕駛路徑及設備間的自由空間
D：光場域中心與受驗車輛路徑間之側向距離
點
R：光場域的幾何中心參考點

修正前

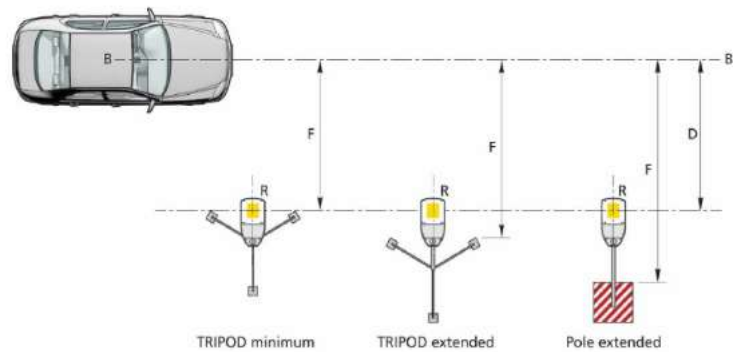


3.11.8.6.4



修正後

[B.6.4](#)



Axes
BB – Axis of centreline of Vehicle under Test

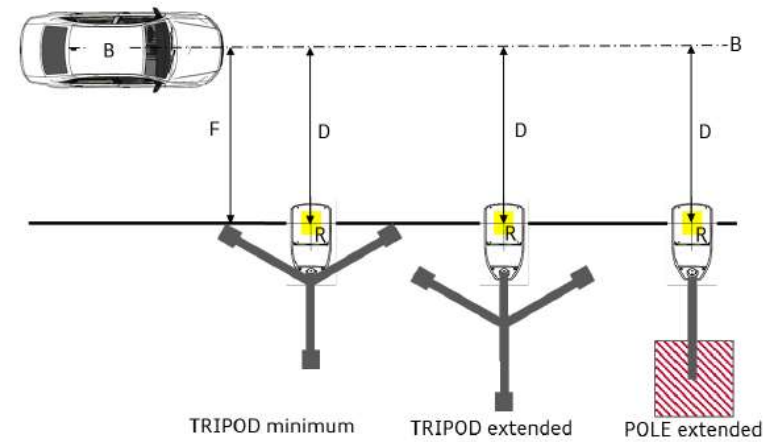
Distances
F – Free space between driving path of VUT and equipment
D – Lateral distance between the centre of the light field and the VUT path

Points
R – Reference point geometric centre of the light field

[3.11.9.6.5](#)

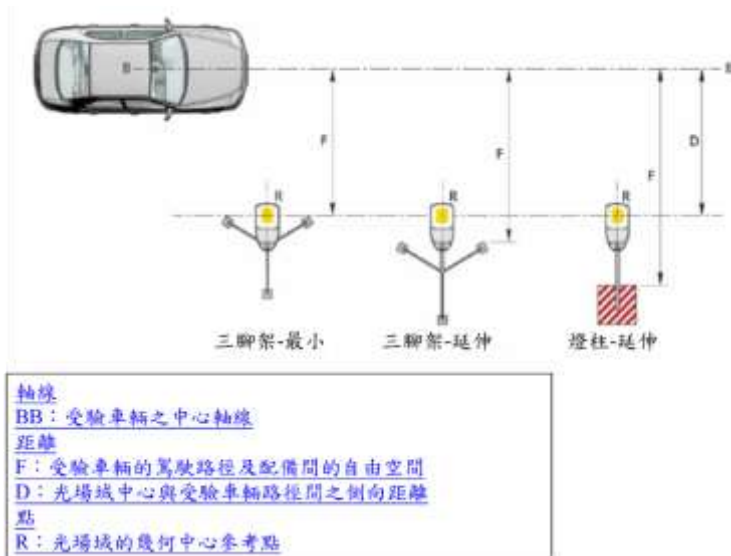
修正前

[B.6.5](#)

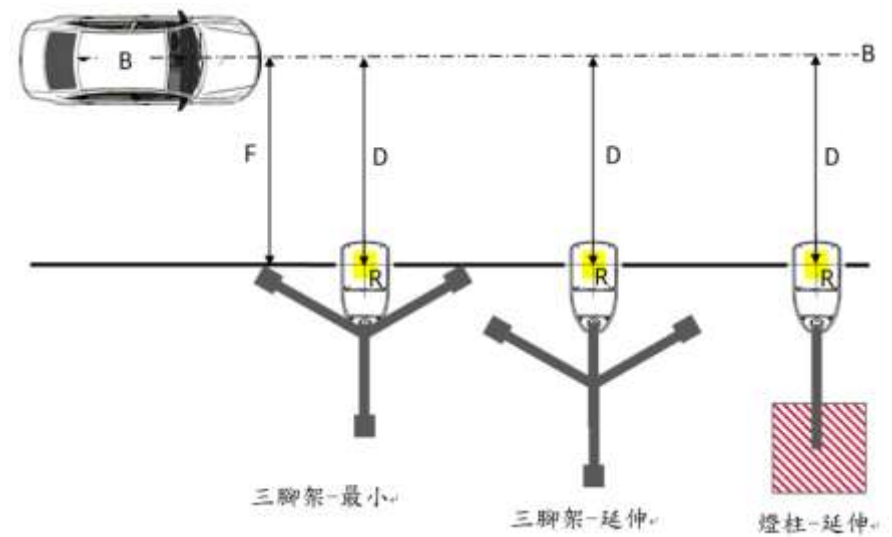


[3.11.8.6.5](#)

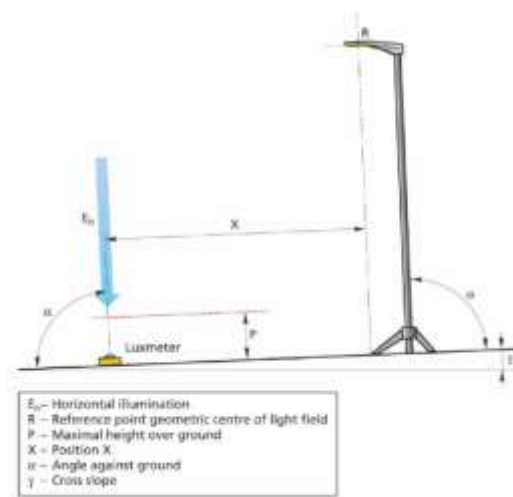
修正後



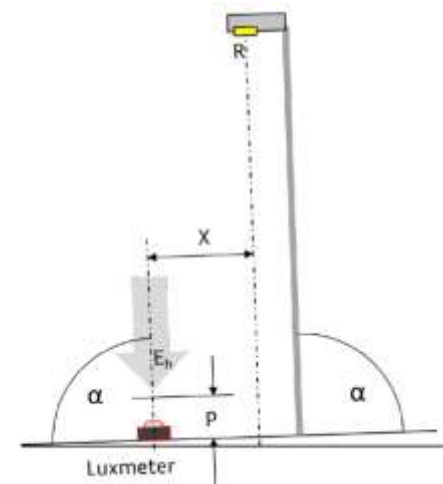
修正前



B.7.1

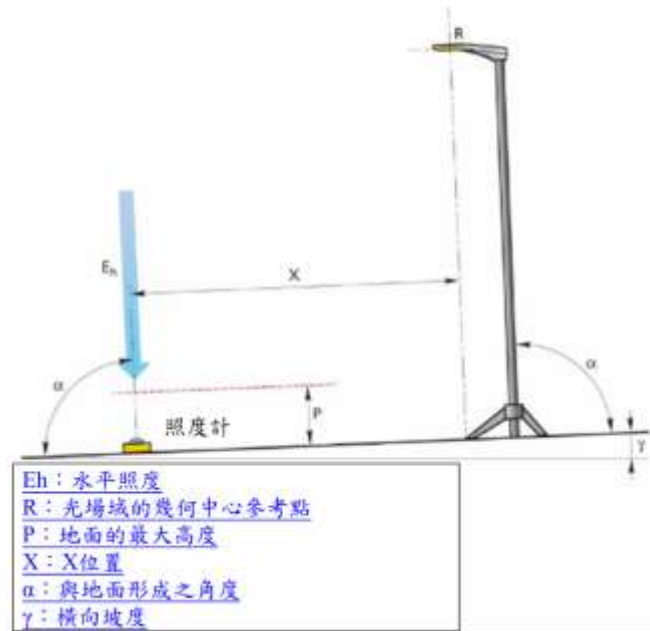


B.7.1



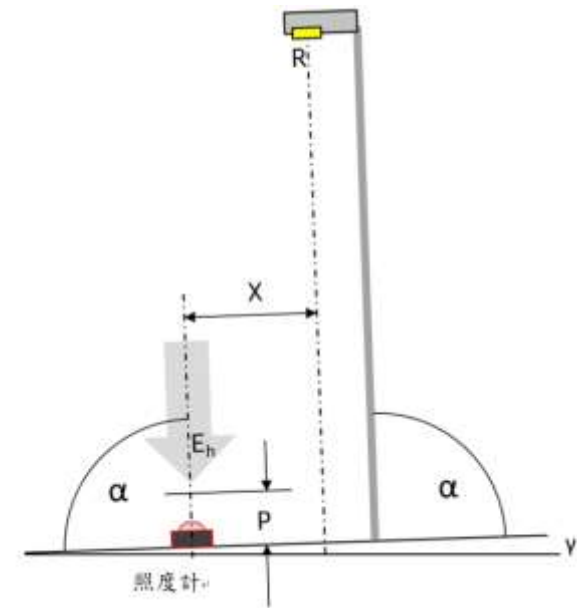
修正後

[3.11.9.7.1](#)



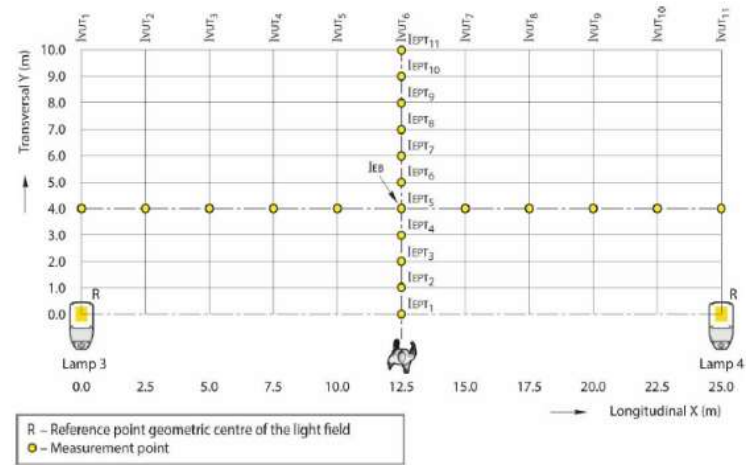
修正前

[3.11.8.7.1](#)

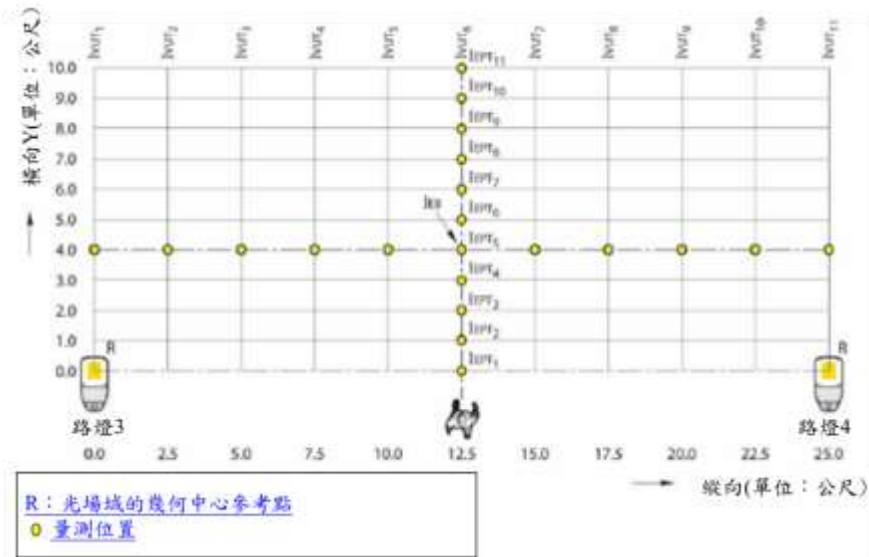


修正後

B.7.2

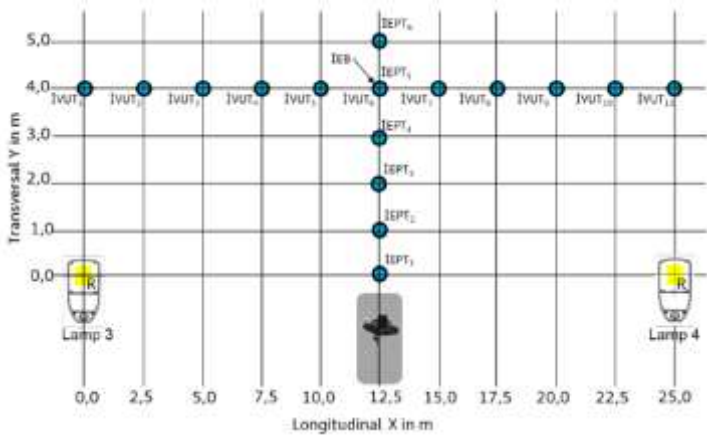


3.11.9.7.2

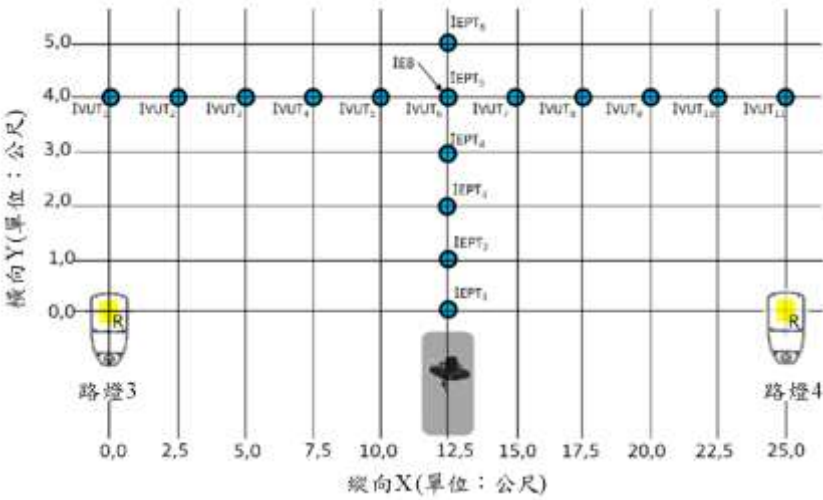


修正前

B.7.2



3.11.8.7.2



2.3.3 緊急煞車輔助系統(弱勢道路使用者)評等 <<本案暫以2.3規章編號說明緊急煞車輔助系統(弱勢道路使用者)評等條文修訂內容，後續擬修訂至2.2碰撞預防評等規章 >>

Euro NCAP Assessment Protocol – Vulnerable Road User Protection Version 11.4

2025 年版 Euro NCAP 規章	2019 年版 Euro NCAP 規章	修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章
2 ASSESSMENT OF AEB & LSS VULNERABLE ROAD USER SYSTEMS 2.1 Introduction AEB & LSS Vulnerable Road User (VRU) systems are systems that are designed to brake or steer autonomously for vulnerable road user's like: pedestrians, cyclists and/or powered two wheelers. For the assessment of AEB & LSS VRU systems, three areas of assessment are considered; AEB Pedestrian, AEB Bicyclist and AEB & LSS Powered Two Wheelers, which are assessed in different scenarios.	1 ASSESSMENT OF AEB VULNERABLE ROAD USER SYSTEMS 1.1 Introduction AEB Vulnerable Road User (VRU) systems are AEB systems that are designed to brake autonomously for pedestrian and/or cyclists crossing the path of the vehicle. For the assessment of AEB VRU systems, two areas of assessment are considered; AEB Pedestrian and AEB Cyclists. The AEB Pedestrian system is assessed in 5 different scenarios, where in the longitudinal scenario both AEB and FCW functions are included. For AEB Cyclist, a limited number of scenarios is assessed at first with an update in 2020 to cover more real life scenarios distracted from European	2.3.3 緊急煞車輔助之弱勢道路使用者系統評等	2.3.3 緊急煞車輔助之弱勢道路使用者系統評等 1.1 簡介 緊急煞車輔助之弱勢道路使用者 (VRU) 系統為設計於車輛突遇行人及/或自行車騎士穿越道路時之自動緊急煞車輔助系統。緊急煞車輔助之弱勢道路使用者系統 (AEB VRU) 評等分為兩大部分：AEB 行人和 AEB 自行車騎士。AEB 行人系統分別於五種不同的情境中進行評等，在縱向情境包括 AEB 與 FCW 三種功能。 對於 AEB 自行車騎士部分，首先評等有限數量的情境，並在 2020 年進行更新，以涵蓋歐洲事故數據分散的更多現實生活情境。

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2.2 Definitions 2.2.1 General Throughout this protocol the following terms are used: Autonomous Emergency Braking (AEB) – braking that is applied automatically by the vehicle in response to the detection of a likely collision to reduce the vehicle speed and potentially avoid the collision. Forward Collision Warning (FCW) – an audio-visual warning that is provided automatically by the vehicle in response to the detection of a likely collision to alert the driver. Emergency Steering Support (ESS) – a system that supports the driver steering input in response to the	accident data. 1.2 Definitions Throughout this protocol the following terms are used: Autonomous Emergency Braking (AEB) – braking that is applied automatically by the vehicle in response to the detection of a likely collision to reduce the vehicle speed and potentially avoid the collision. Forward Collision Warning (FCW) – an audiovisual warning that is provided automatically by the vehicle in response to the detection of a likely collision to alert the driver.	2.3.3.1 名詞釋義 此規章中使用名詞如下： 2.3.3.1.1 緊急煞車輔助系統 (Autonomous Emergency Braking, AEB)：車輛偵測到可能發生碰撞情況下自動煞車，致使車輛減速並避免碰撞情事發生。 2.3.3.1.2 前方碰撞預警系統 (Forward Collision Warning, FCW)：車輛偵測到可能發生碰撞情況下，為了警示駕駛而自動發出之視聽覺警告信號。 <u>2.3.3.1.3 緊急轉向輔助系統 (Emergency Steering Support, ESS)：車輛偵測到可能發生碰撞情況下，系</u>	2.3.3.1 名詞釋義 此規章中使用名詞如下： 2.3.3.1.1 緊急煞車輔助系統 (Autonomous Emergency Braking, AEB)：車輛偵測到可能發生碰撞情況下自動煞車，致使車輛減速並避免碰撞情事發生。 2.3.3.1.2 前方碰撞預警系統 (Forward Collision Warning, FCW)：車輛偵測到可能發生碰撞情況下，為了警示駕駛而自動發出之視聽覺警告信號。

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detection of a likely collision to alter the vehicle path and potentially avoid a collision. Vehicle width – the widest point of the vehicle ignoring the rear-view mirrors, side marker lamps, tyre pressure indicators, direction indicator lamps, position lamps, flexible mud-guards and the deflected part of the tyre side-walls immediately above the point of contact with the ground.	Vehicle width – the widest point of the vehicle ignoring the rear-view mirrors, side marker lamps, tyre pressure indicators, direction indicator lamps, position lamps, flexible mud-guards and the deflected part of the tyre side-walls immediately above the point of contact with the ground. Car-to-Pedestrian Farside Adult 50% (CPFA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path running from the farside and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Nearside Adult 25% (CPNA-25) – a collision in which	<u>統介入輔助駕駛進行轉向，致使改變車輛行駛路徑並避免碰撞情事發生。</u> <u>2.3.3.1.4 車輛寬度 (Vehicle width)：車輛最大寬度不包括後視鏡、側方標識燈、胎壓偵測裝置、方向燈、位置燈、軟式擋泥板及位於地面接觸點正上方之輪胎胎壁 (side-wall) 最突出部分。</u>	<u>2.3.3.1.3 車輛寬度 (Vehicle width)：車輛最大寬度不包括後視鏡、側方標識燈、胎壓偵測裝置、方向燈、位置燈、軟式擋泥板及位於地面接觸點正上方之輪胎胎壁 (side-wall) 最突出部分。</u> <u>2.3.3.1.4 遠端成人碰撞情境試驗 50% (Car-to- Pedestrian Farside Adult, CPFA)：車輛行進時，前方有成人行人自遠端跑步穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。</u> <u>2.3.3.1.5 近端成人碰撞情境試驗 25% (Car-to- Pedestrian Nearside Adult,</u>

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	a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Nearside Adult 75% (CPNA-75) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 75% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Nearside Child 50% (CPNC-50) – a collision in which a vehicle travels forwards towards a child pedestrian crossing its path running from behind and obstruction from the nearside and the frontal		<u>CPNA-25): 車輛行進時, 前方有成人行人自近端走路穿越其路徑; 若未煞車, 車輛正面寬度百分之 25 處會碰撞行人之情境。</u> <u>2.3.3.1.6 近端成人碰撞情境試驗 75% (Car-to- Pedestrian Nearside Adult, CPNA-75): 車輛行進時, 前方有成人行人自近端走路穿越其路徑; 若未煞車, 車輛正面寬度百分之 75 處會碰撞行人之情境。</u> <u>2.3.3.1.7 近端兒童碰撞情境試驗 50% (Car-to- Pedestrian Nearside Child, CPNC): 車輛行進時, 前方有兒童行人自近端有障礙物之後方跑步穿越其路徑; 若未煞車, 車輛正面寬度百分之 50 處會碰撞行人之情境。</u>

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	structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Longitudinal Adult 25% (CPLA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW. Car-to-Pedestrian Longitudinal Adult 50% (CPLA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.		<u>2.3.3.1.8 前端成人碰撞情境試驗 25%(Car-to-Pedestrian Longitudinal Adult, CPLA-25):車輛行進時，同前方之成人行人行走方向前進；若未煞車或前方碰撞預警系統警示後，車輛未進行閃避轉向動作，車輛正面寬度百分之 25 處會碰撞行人之情境。</u> <u>2.3.3.1.9 前端成人碰撞情境試驗 50%(Car-to-Pedestrian Longitudinal Adult, CPLA-50): 車輛行進時，同前方之成人行人行走方向前進，若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。</u>

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	Car-to-Bicyclist Nearside Adult 50% (CBNA-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the nearside and the frontal structure of the vehicle strikes the bicyclist when no braking action is applied. Car-to-Bicyclist Longitudinal Adult 25% (CBLA-25) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 25% of the vehicle’s width when no braking action is applied or an evasive steering action is initiated after an FCW. Car-to-Bicyclist Longitudinal Adult 50% (CBLA-50) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 50% of the		<u>2.3.3.1.10 近端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Nearside Adult, CBNA-50):車輛行進時，前方有自行車騎士自近端騎乘穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u> <u>2.3.3.1.11 前端自行車騎士碰撞情境試驗 25%(Car-to-Bicyclist Longitudinal Adult, CBLA-25): 車輛行進時，同前方之自行車騎士騎乘方向前進；若未煞車或前方碰撞預警系統警示後，車輛未進行閃避轉向動作，車輛正面寬度百分之 25 處會碰撞自行車騎士之情境。</u> <u>2.3.3.1.12 前端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Longitudinal Adult, CBLA-50): 車輛行進時，同前方之自行車騎士騎乘方向前進；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>

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	vehicle's width when no braking action is applied.		
Vehicle under test (VUT) – means the vehicle tested according to this protocol with a pre-crash collision mitigation or avoidance system on board.	Vehicle under test (VUT) – means the vehicle tested according to this protocol with a pre-crash collision mitigation or avoidance system on board	2.3.3.1.5 受驗車輛 (Vehicle under test, VUT)：係指配備減緩碰撞或預防碰撞系統，並依據此規章進行試驗之車輛。	2.3.3.1.13 受驗車輛 (Vehicle under test, VUT)：係指配備減緩碰撞或預防碰撞系統，並依據此規章進行試驗之車輛。
Euro NCAP Pedestrian Target (EPTa) – means the adult pedestrian target used in this protocol as specified in the ISO 19206-2:2018	Euro NCAP Pedestrian Target (EPTa) – means the adult pedestrian target used in this protocol as specified in the Articulated Pedestrian Target Specification document version 2.0.	2.3.3.1.6 目標成人行人(EPTa)：係指規範於 ISO 19206-2：2018 之關節式目標成人行人。	2.3.3.1.14 目標成人行人 (EPTa)：使用目標關節式行人規格文件 2.0 版本之目標成人行人。
Euro NCAP Child Target (EPTc) – means the child pedestrian target used in this protocol as specified in the ISO 19206-2:2018	Euro NCAP Child Target (EPTc) – means the child pedestrian target used in this protocol as specified in the Articulated Pedestrian Target Specification document version 2.0.	2.3.3.1.7 目標兒童行人(EPTc)：係指規範於 ISO 19206-2：2018 之關節式目標兒童行人。	2.3.3.1.15 目標兒童行人 (EPTc)：使用目標關節式行人規格文件 2.0 版本之目標兒童行人。
Euro NCAP Bicyclist Target (EBTa) – means the adult bicyclist and bike target used in this protocol as specified	Euro NCAP Bicyclist and bike Target (EBT) – means the bicyclist and bike target used in this protocol as specified	2.3.3.1.8 目標自行車騎士(EBTa)：係指規範於 ISO 19206-4：2020 之目標自行車騎士。	2.3.3.1.16 目標自行車騎士(EBT)：使用目標自行車騎士規範文件 1.0 版本之目標自行車騎士。

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in ISO 19206-4:2020 Euro NCAP Motorcyclist Target (EMT) – means the Motorcyclist target used in this protocol as specified in the deliverable D2.1 of the MUSE project (Fritz and Wimmer 2019) which at time of publication is to be replaced with ISO 19206-5. Time To Collision (TTC) – means the remaining time before the VUT strikes the test target, assuming that the VUT and EPT would continue to travel with the speed it is travelling. T_{AEB} – means the time where the AEB system activates. Activation time is determined by identifying the last data point where the filtered acceleration signal is below -1 m/s^2, and then going back to the point in time where the acceleration first crossed -0.3 m/s^2	in the Bicyclist Target Specification document version 1.0. Time To Collision (TTC) – means the remaining time before the VUT strikes the EPT, assuming that the VUT and EPT would continue to travel with the speed it is travelling. T_{AEB} – means the time where the AEB system activates. Activation time is determined by identifying the last data point where the filtered acceleration signal is below -1 m/s^2, and then going back to the point in time where the acceleration first crossed -0.3 m/s^2	<u>2.3.3.1.9 目標機車騎士(EMT):係採用 MUSE 計畫 D2.1 文件(Fritz 及 Wimmer 2019)之目標機車騎士,並將於發布時該規格由 ISO 19206-5 所取代。</u> <u>2.3.3.1.10 碰撞時間(Time To Collision, TTC):若受驗車輛與目標行人皆依其速度向前行進,受驗車輛會碰撞<u>試驗目標</u>之預估時間值。</u> <u>2.3.3.1.11 緊急煞車輔助系統觸發時間點(T_{AEB}):觸發時間點的定義方式為找出最後一個濾波後加速度信號低於-1 m/s^2的數據點,再往回找出加速度首次達到-0.3 m/s^2的數據點,該點之時間即為觸發時間點。</u>	<u>2.3.3.1.17 碰撞時間(Time To Collision, TTC):若受驗車輛與目標行人皆依其速度向前行進,受驗車輛會碰撞<u>目標行人</u>之預估時間值。</u> <u>2.3.3.1.18 緊急煞車輔助系統觸發時間點(T_{AEB}):觸發時間點的定義方式為找出最後一個濾波後加速度信號低於-1 m/s^2的數據點,再往回找出加速度首次達到-0.3 m/s^2的數據點,該點之時間即為觸發時間點。</u>

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T_{FCW} – means the time where the audible warning of the FCW starts. The starting point is determined by audible recognition. Emergency Lane Keeping (ELK) – default On heading correction that is applied automatically by the vehicle in response to the detection of the vehicle that is about to drift beyond a solid line marking, the edge of the road or into oncoming or overtaking traffic in the adjacent lane.	T_{FCW} – means the time where the audible warning of the FCW starts. The starting point is determined by audible recognition.	2.3.3.1.12 前方碰撞預警系統觸發時間點 (T_{FCW}): 前方碰撞預警系統之聲音警示觸發的時間, 起始點以聲音辨識作判定。 2.3.3.1.13 緊急車道維持輔助系統 (Emergency Lane Keeping, ELK): 車輛偵測到即將偏離目前行駛之實線車道標線、道路邊緣或相鄰車道對向來車或車道超車的交通情境下, 所自動施加之方向性修正。	2.3.3.1.19 前方碰撞預警系統觸發時間點 (T_{FCW}): 前方碰撞預警系統之聲音警示觸發的時間, 起始點以聲音辨識作判定。
V_{impact} – means the speed at which the profiled line around the front or rear end of the VUT coincides with the virtual box around the EPTa, EPTc, EBTa and EMT. V_{rel_test} – means the relative speed between the VUT and the test target (EPT, EBTa or EMT) by subtracting the longitudinal velocity of the test target	V_{impact} – means the speed at which the profiled line around the front end of the VUT coincides with the square box around the EPTa, EPTc and EBT.	2.3.3.1.14 碰撞速度(V_{impact}): 受驗車輛之車頭標示線或車輛後端與測試目標周圍的虛擬正方形範圍碰撞時的速度, EPTa、EPTc、EBTa 及 EMT。 2.3.3.1.15 試驗相對速度(V_{rel_test}): 係指試驗開始時, 受驗車輛及試驗目標(EPT、EBT 或 EMT)之相對速度, 其值為受驗車輛之縱向速度減去試驗	2.3.3.1.20 碰撞速度 (V_{impact}): 受驗車輛之車頭標示線與目標成人行人 (EPTa)、目標兒童行人 (EPTc) 以及目標自行車騎士 (EBT) 周圍的虛擬正方形範圍碰撞時的速度。

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from that of the VUT at the start of test. V_{rel_impact} – means the relative speed at which the VUT hits the test target (EPT, EBTa or EMT) by subtracting the longitudinal velocity of the test target from V_{impact} at the time of collision. Driver Intention Monitoring system (DIM) - means a system that is effective at distinguishing intentional from unintentional lane crossing and suppressing undesired interventions. 2.2.2 Test Scenarios Car-to-Bicyclist Dooring Adult (CBDA) – a collision between the vehicle’s door and a bicyclist traveling alongside the parked vehicle. Car-to-Pedestrian Farside Adult 50% (CPFA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path		<u>目標之縱向速度。</u> <u>2.3.3.1.16 碰撞相對速度(V_{rel_impact}): 受驗車輛碰撞試驗目標(EPT、EBT 或 EMT)於碰撞瞬間之相對速度，其值為碰撞時受驗車輛之碰撞速度減去試驗目標之縱向速度。</u> <u>2.3.3.1.17 駕駛意圖監測系統(Driver Intention Monitoring system, DIM): 係指系統能有效區分駕駛是否為刻意與非刻意之車道穿越，並抑制非預期之介入及/或警示。</u> <u>2.3.3.2 試驗情境</u> <u>2.3.3.2.1 車門開啟自行車騎士碰撞情境 試驗 (Car-to-Bicyclist Dooring Adult, CBDA): 車輛車門與沿停車車輛旁行駛之自行車騎士碰撞之情境。</u> <u>2.3.3.2.2 遠端成人碰撞情境試驗 50% (Car-to- Pedestrian Farside Adult, CPFA): 車輛行進時，前方有成人行人自遠端跑步穿越其路徑；若未煞</u>	

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running from the farside and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.		車，車輛正面寬度百分之 50 處會碰撞行人之情境。	
Car-to-Pedestrian Nearside Adult 25% (CPNA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied.	Car-to-Pedestrian Farside Adult 50% (CPFA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path running from the farside and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.	2.3.3.2.3 近端成人碰撞情境試驗 25% (Car-to- Pedestrian Nearside Adult, CPNA-25)：車輛行進時，前方有成人行人自近端走路穿越其路徑；若未煞車，車輛正面寬度百分之 25 處會碰撞行人之情境。	2.3.3.1.21 遠端成人碰撞情境試驗 50% (Car-to- Pedestrian Farside Adult, CPFA)：車輛行進時，前方有成人行人自遠端跑步穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。
Car-to-Pedestrian Adult 75% (CPNA-75) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 75% of the vehicle's width when no braking action is applied.	Car-to-Pedestrian Nearside Adult 25% (CPNA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied.	2.3.3.2.4 近端成人碰撞情境試驗 75% (Car-to- Pedestrian Nearside Adult, CPNA-75)：車輛行進時，前方有成人行人自近端走路穿越其路徑；若未煞車，車輛正面寬度百分之 75 處會碰撞行人之情境。	2.3.3.1.22 近端成人碰撞情境試驗 25% (Car-to- Pedestrian Nearside Adult, CPNA-25)：車輛行進時，前方有成人行人自近端走路穿越其路徑；若未煞車，車輛正面寬度百分之 25 處會碰撞行人之情境。

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Car-to-Pedestrian Nearside Child Obstructed 50% (CPNCO-50) – a collision in which a vehicle travels forwards towards a child pedestrian crossing its path running from behind and obstruction from the nearside and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.	Car-to-Pedestrian Nearside Adult 75% (CPNA-75) – a collision in which a vehicle travels forwards towards an adult pedestrian crossing its path walking from the nearside and the frontal structure of the vehicle strikes the pedestrian at 75% of the vehicle's width when no braking action is applied.	2.3.3.2.5 近端兒童 障礙物 碰撞情境試驗 50% (Car-to- Pedestrian Nearside Child Obstructed , CPNCO-50): 車輛行進時, 前方有兒童行人自近端有障礙物之後方跑步穿越其路徑; 若未煞車, 車輛正面寬度百分之 50 處會碰撞行人之情境。	2.3.3.1.23 近端成人碰撞情境試驗 75% (Car-to- Pedestrian Nearside Adult, CPNA-75): 車輛行進時, 前方有成人行人自近端走路穿越其路徑; 若未煞車, 車輛正面寬度百分之 75 處會碰撞行人之情境。
Car-to-Pedestrian Longitudinal Adult 25% (CPLA-25) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied, or an evasive steering action is initiated after an FCW.	Car-to-Pedestrian Nearside Child 50% (CPNC-50) – a collision in which a vehicle travels forwards towards a child pedestrian crossing its path running from behind and obstruction from the nearside and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.	2.3.3.2.6 前端成人碰撞情境試驗 25%(Car-to-Pedestrian Longitudinal Adult, CPLA-25): 車輛行進時, 同前方之成人行人行走方向前進; 若未煞車或前方碰撞預警系統警示後, 車輛未進行閃避轉向動作, 車輛正面寬度百分之 25 處會碰撞行人之情境。	2.3.3.1.24 近端兒童碰撞情境試驗 50% (Car-to- Pedestrian Nearside Child, CPNC): 車輛行進時, 前方有兒童行人自近端有障礙物之後方跑步穿越其路徑; 若未煞車, 車輛正面寬度百分之 50 處會碰撞行人之情境。
Car-to-Pedestrian Longitudinal Adult 50% (CPLA-50) – a collision in which	Car-to-Pedestrian Longitudinal Adult 25% (CPLA-25) – a collision in which	2.3.3.2.7 前端成人碰撞情境試驗 50%(Car-to-Pedestrian Longitudinal	2.3.3.1.25 前端成人碰撞情境試驗 25%(Car-to-Pedestrian Longitudinal

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a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied.	a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW. Car-to-Pedestrian Longitudinal Adult 50% (CPLA-50) – a collision in which a vehicle travels forwards towards an adult pedestrian walking in the same direction in front of the vehicle where the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Bicyclist Nearside Adult 50% (CBNA-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the nearside and the frontal structure of the vehicle strikes the bicyclist when no	Adult, CPLA-50): 車輛行進時，同前方之成人行人行走方向前進，若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。 (第二版條文 2.3.3.1.27 已調整至第三版條文 2.3.3.2.11)	Adult, CPLA-25):車輛行進時，同前方之成人行人行走方向前進；若未煞車或前方碰撞預警系統警示後，車輛未進行閃避轉向動作，車輛正面寬度百分之 25 處會碰撞行人之情境。 <u>2.3.3.1.26 前端成人碰撞情境試驗 50%(Car-to-Pedestrian Longitudinal Adult, CPLA-50): 車輛行進時，同前方之成人行人行走方向前進，若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。</u> <u>2.3.3.1.27 近端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Nearside Adult, CBNA-50):車輛行進時，前方有自行車騎士自近端騎乘穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>

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	braking action is applied.		
	Car-to-Bicyclist Longitudinal Adult 25% (CBLA-25) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 25% of the vehicle’s width when no braking action is applied or an evasive steering action is initiated after an FCW.	(第二版條文 2.3.3.1.28 已調整至第三版條文 2.3.3.2.14)	<u>2.3.3.1.28 前端自行車騎士碰撞情境試驗 25%(Car-to-Bicyclist Longitudinal Adult, CBLA-25): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車或前方碰撞預警系統警示後, 車輛未進行閃避轉向動作, 車輛正面寬度百分之 25 處會碰撞自行車騎士之情境。</u>
	Car-to-Bicyclist Longitudinal Adult 50% (CBLA-50) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 50% of the vehicle’s width when no braking action is applied.	(第二版條文 2.3.3.1.29 已調整至第三版條文 2.3.3.2.15)	<u>2.3.3.1.29 前端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Longitudinal Adult, CBLA-50): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車, 車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>
Car-to-Pedestrian Turning Adult 50% (CPTA-50) – a collision in which a vehicle turns towards an adult		<u>2.3.3.2.8 轉彎成人碰撞情境試驗 50% (Car-to-Pedestrian Turning Adult, CPTA-50) : 當車輛轉彎以穿越交叉</u>	

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pedestrian crossing its path, walking across a junction (in either the same and opposite direction as the VUT, before the VUT made the turn) and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Reverse Adult/Child moving 50% (CPRA/Cm-50) – a collision in which a vehicle travels rearwards towards an adult or child pedestrian crossing its path walking from the nearside and the rear structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Pedestrian Reverse Adult/Child stationary (CPRA/Cs) – a collision in which a vehicle travels rearwards towards an adult or child		<u>路口時，對向有成人行人走路穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞行人之情境。</u> <u>2.3.3.2.9 倒車成人及兒童移動碰撞情境 試驗 50%(Car-to-Pedestrian Reverse Adult/Child moving, CPRA/Cm-50)：車輛倒車行進時，後方有成人或兒童行人自近端走路穿越其路徑；車輛後方寬度百分之 50 處碰撞行人之情境。</u> <u>2.3.3.2.10 倒車成人及兒童靜止碰撞情境 試驗 (Car-to-Pedestrian Reverse Adult/Child stationary, CPRA/Cs)：車輛倒車行進時，後方有成人或兒童行</u>	

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pedestrian standing still and the rear structure of the vehicle strikes the pedestrian at 25, 50 or 75% of the vehicle's width when no braking action is applied. Car-to-Bicyclist Nearside Adult 50% (CBNA-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the nearside and the frontal structure of the vehicle strikes the bicyclist when no braking action is applied. Car-to-Bicyclist Nearside Adult Obstructed 50% (CBNAO-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the nearside from behind an obstruction and the frontal structure of the vehicle strikes the bicyclist at 50% of the vehicle's width when no braking action is applied.		<u>人站立靜止；車輛後方寬度百分之 25、50 或 75 處碰撞行人之情境。</u> <u>2.3.3.2.11 近端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Nearside Adult, CBNA-50)：車輛行進時，前方有自行車騎士自近端騎乘穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u> <u>2.3.3.2.12 近端自行車騎士障礙物碰撞情境試驗 50%(Car-to-Bicyclist Nearside Adult Obstructed, CBNAO-50)：車輛行進時，前方有自行車騎士自近端障礙物後方騎乘穿越其路徑；若未煞車，車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。</u>	

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Car-to-Bicyclist Farside Adult 50% (CBFA-50) – a collision in which a vehicle travels forwards towards a bicyclist crossing its path cycling from the farside and the frontal structure of the vehicle strikes the bicyclist at 50% of the vehicle's width when no braking action is applied.		2.3.3.2.13 遠端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Farside Adult, CBFA-50): 車輛行進時, 前方有自行車騎士自遠端騎乘穿越其路徑; 若未煞車, 車輛正面寬度百分之 50 處會碰撞自行車騎士之情境。	
Car-to-Bicyclist Longitudinal Adult 25% (CBLA-25) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW.	Car-to-Bicyclist Longitudinal Adult 25% (CBLA-25) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle would strike the cyclist at 25% of the vehicle's width when no braking action is applied or an evasive steering action is initiated after an FCW.	2.3.3.2.14 前端自行車騎士碰撞情境試驗 25%(Car-to-Bicyclist Longitudinal Adult, CBLA-25): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車或前方碰撞預警系統警示後, 車輛未進行閃避轉向動作, 車輛正面寬度百分之 25 處會碰撞自行車騎士之情境。	2.3.3.1.30 前端自行車騎士碰撞情境試驗 25%(Car-to-Bicyclist Longitudinal Adult, CBLA-25): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車或前方碰撞預警系統警示後, 車輛未進行閃避轉向動作, 車輛正面寬度百分之 25 處會碰撞自行車騎士之情境。
Car-to-Bicyclist Longitudinal Adult 50% (CBLA-50) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle	Car-to-Bicyclist Longitudinal Adult 50% (CBLA-50) – a collision in which a vehicle travels forwards towards a bicyclist cycling in the same direction in front of the vehicle where the vehicle	2.3.3.2.15 前端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Longitudinal Adult, CBLA-50): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車, 車輛正面寬度百分之 50 處會	2.3.3.1.31 前端自行車騎士碰撞情境試驗 50%(Car-to-Bicyclist Longitudinal Adult, CBLA-50): 車輛行進時, 同前方之自行車騎士騎乘方向前進; 若未煞車, 車輛正面寬度百分之 50 處會

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would strike the cyclist at 50% of the vehicle's width when no braking action is applied. Car-to-Bicyclist Turning Adult 50% (CBTA-50) – a collision in which a vehicle turns towards a bicyclist crossing its path, walking across a junction (in either the same and opposite direction as the VUT, before the VUT made the turn) and the frontal structure of the vehicle strikes the pedestrian at 50% of the vehicle's width when no braking action is applied. Car-to-Motorcyclist Rear Stationary (CMRs) – a collision in which a vehicle travels forwards towards a motorcyclist and the front structure of the vehicle strikes the rear of the motorcycle. Car-to-Motorcyclist Rear Braking (CMRb) – a collision in which a	would strike the cyclist at 50% of the vehicle's width when no braking action is applied.	碰撞自行車騎士之情境。 2.3.3.2.16 轉彎自行車騎士碰撞情境試驗 (Car-to-Bicyclist Turning Adult, CBTA-50)：當車輛轉彎以穿越交叉路口時，對向有自行車騎士穿越其路徑；若未煞車，車輛正面寬度百分之50處會碰撞自行車騎士之情境。 2.3.3.2.17 機車騎士靜止碰撞情境試驗 (Car-to-Motorcyclist Rear Stationary, CMRs)：後方車輛往前行駛接近靜止之前方機車騎士，且行駛車輛之車頭碰撞靜止機車之車尾。 2.3.3.2.18 機車騎士煞車碰撞情境試驗 (Car-to-Motorcyclist Rear Braking,	碰撞自行車騎士之情境。

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vehicle travels forwards towards a motorcyclist that is travelling at constant speed and then decelerates, and the frontal structure of the vehicle strikes the rear of the motorcycle. Car-to-Motorcyclist Front Turn Across Path (CMFtap) – a collision in which a vehicle turns across the path of an oncoming motorcyclist travelling at a constant speed, and the frontal structure of the vehicle strikes the front of the motorcycle. Car-to-Motorcyclist Oncoming (CMoncoming) – a collision in which a vehicle drifts out of lane and into the path of a motorcyclist travelling in the opposite direction in the adjacent lane. Car-to-Motorcyclist Overtaking (CMovertaking) – a collision in which a vehicle drifts out of lane and into the		<u>CMRb):後方車輛往前行駛接近原以恆定速度行駛而後減速之前方機車騎士,且行駛車輛之車頭碰撞減速機車之車尾。</u> <u>2.3.3.2.19 轉彎機車騎士碰撞情境試驗 (Car-to-Motorcyclist Front Turn Across Path, CMFtap):當車輛轉彎以穿越交叉路口與對向以恆定速度行駛之機車騎士,其雙方車輛之前方結構可能發生碰撞之情境。</u> <u>2.3.3.2.20 對向來車機車騎士碰撞情境試驗 (Car-to-Motorcyclist Oncoming, CMoncoming):當車輛偏離原車道駛入對向車道,與對向行駛之機車騎士,其雙方車輛可能發生碰撞之情境。</u> <u>2.3.3.2.21 車道超車機車騎士碰撞情境試驗 (Car-to-Motorcyclist Overtaking, CMovertaking):當車輛偏離原車道</u>	

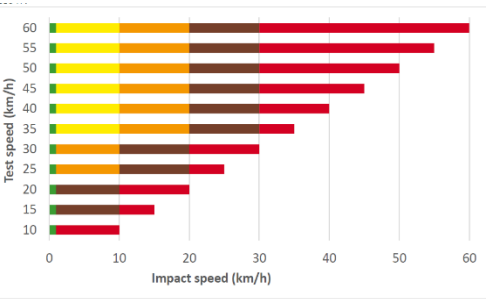
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path of a motorcyclist travelling in the same direction in the adjacent lane. 2.3 Criteria and Scoring To be eligible for scoring points in AEB and/or LSS VRU: -The vehicles must score 18 or more points in the subsystem tests, i.e. the sum of Headform, Upper Legform & Lower Legform scores. -The system under test must be default ON at the start of every journey. It may not be possible to switch off the system with a momentary single push on a button. -For AEB Pedestrian, must operate (i.e. warn or brake) from speeds of 10 km/h in the CPNA-75 scenario in both day and night. In addition, the system must be able to detect pedestrians walking as slow as 3 km/h and reduce	1.3 Criteria and Scoring To be eligible for scoring points in AEB Pedestrian or AEB Cyclist, the AEB system must be default ON at the start of every journey. It may not be possible to switch off the system with a single push on a button. For AEB Pedestrian, the system needs to operate (i.e. warn or brake) from speeds of 10 km/h in the CPNA-75 scenario in both day and night. In addition, the system must be able to detect pedestrians walking as slow as 3	<u>駛入相鄰車道，超車同向行駛之機車騎士，其雙方車輛可能發生碰撞之情境。</u> <u>2.3.3.3 標準與得分</u> 為具備 AEB 及／或 LSS 弱勢道路使用者情境的計分資格： <u>頭部、上腿部以及下腿部之分數總和應達到 18 分以上。</u> 每次啟動車輛時，<u>受驗系統</u>預設狀態應為「開啟」。系統不得僅按<u>短暫</u>一鍵即關閉。 對於 AEB 行人，在 CPNA-75 之白天及夜晚的情境下，系統應從 10km/h 時作動（例如：警示或煞車）。此外，在 CPNA-75 情境下，該系統在 20km/h 時應能偵測到以 3km/h 走動之行人並減速，同時也適用於白天及	<u>2.3.3.2 標準與得分</u> 為具備 <u>AEB 行人或 AEB 自行車騎士</u> 情境的計分資格，每次啟動車輛時，<u>緊急煞車輔助之行人或緊急煞車輔助之自行車騎士之得分</u>，預設狀態為「開啟」。系統不得僅按一鍵即關閉。 對於 AEB 行人，在 CPNA-75 之白天及夜晚的情境下，系統應從 10km/h 時作動（例如：警示或煞車）。此外，在 CPNA-75 情境下，該系統在 20km/h 時應能偵測到以 3km/h 走動之行人並減速，同時也適用於白天及

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speed in the CPNA-75 scenario at 20 km/h, also for both day and night. -The AEB systems may also not automatically switch off at a speed below 80 km/h. -Additionally, for CPRA/CPRC the system may not release the brakes after an intervention, unless the threat (EPT) has left the vehicle path or in case of an override action by the driver. When the VUT is fitted as standard with a rear-view camera, the brakes may be release after 1.5s or longer after the AEB intervention.	km/h and reduce speed in the CPNA-75 scenario at 20 km/h, also for both day and night. For both AEB Pedestrian as for AEB Bicyclists, the system may also not automatically switch off at a speed below 80 km/h.	夜晚。<u>對於 CBNA50%情境試驗，系統應於試驗速度 40km/h 以下、目標自行車騎士速度 15km/h 時避免碰撞，若未符合前提條件，則 CBNA50%情境試驗不予計分。</u> <u>AEB 系統</u>在低於 80 km/h 情況下應不得自動關閉。 <u>此外，對於倒車成人及兒童碰撞情境試驗，AEB 系統介入後不應解除煞車，除非目標行人已離開車輛行駛路徑或駕駛進行取代(override)操作。若受驗車輛配備後視攝影機，AEB 系統介入後 1.5 秒或更長時間應解除煞車。</u>	夜晚。 <u>對於 AEB 行人及 AEB 自行車騎士，該系統</u>在低於 80 km/h 情況下應不得自動關閉。

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	The total score is also conditional to the subsystem test score, see section 1.4. 1.3.1 Autonomous Emergency Braking (AEB) For the AEB system tests, the assessment criteria used is the (relative) impact speed. For test speeds up to 40 km/h, the available points per test speed are awarded based on the relative speed reduction achieved. Where there is no full avoidance a linear interpolation is applied to calculate the score for every single test speed. $Score_{testspeed} = ((V_{rel_test} - V_{rel_impact}) / V_{rel_test}) \times points_{test\ speed}$ Where: V_{rel_test} Theoretical relative test speed V_{rel_impact} Measured relative impact speed		<u>總得分係由各子系統之試驗得分計算加總而異，參 2.3.3.3 節。</u> <u>2.3.3.2.1 緊急煞車輔助系統（AEB）</u> <u>緊急煞車輔助系統試驗評等之標準係為（相對）碰撞速度。對於試驗速度小於等於 40 km/h 者，其得分係依所可達成之相對減速度。另以線性內插法計算每項試驗速度之得分。</u> <u>得分_{試驗速度} = ((試驗相對速度 - 碰撞相對速度) / 試驗相對速度) x 分數_{試驗速度}</u> <u>備註:</u> <u>試驗相對速度(V_{rel_test})-理論試驗相對速度</u> <u>碰撞相對速度(V_{rel_impact})-量測碰撞相對速度</u>

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	For test speeds above 40km/h points are available on a pass/fail basis. For each of these test speeds points are awarded when a speed reduction of at least 20 km/h is achieved related to the actual measured test speed. 1.3.2 Forward Collision Warning (FCW) For the FCW system tests in the longitudinal scenarios, the assessment criteria used is the Time-To-Collision (TTC). The available points per test speed are awarded when the warning is issued at a $TTC \geq 1.70s$. 1.4 Scoring and Visualisation AEB Pedestrian scoring is conditional to the total points achieved in subsystem tests, i.e. the sum of pedestrian Headform, Upper Legform & Lower Legform scores:		<u>對於試驗速度大於 40km/h 者，其得分以通過/未通過計算得分。每一試驗速度之得分，其實際量測試驗速度應至少達到減速 20km/h。</u> <u>2.3.3.2.2 前方碰撞預警系統(FCW)</u> <u>對於縱向情境中的 FCW 系統試驗，使用的評等標準為碰撞時間 (TTC)。</u> <u>當 TTC 大於等於 1.70s 發出警告時，即可獲得每一試驗速度之可得分數。</u> <u>2.3.3.3 評分說明</u> <u>緊急煞車輔助之弱勢道路使用者系統得分，其建立於其他子系統之分數加總，例如：行人頭部、上腿部與下腿部之分數總和：</u> <u>若子系統試驗加總分數低於 22 分，即使安裝此系統且獲得高分，緊急煞</u>

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2.3.1 Assessment Criteria 2.3.1.1 For the following test scenarios, the assessment criteria used is V_{impact}: -CPFA-50, CPNA-25, CPNA-75, CPNCO-50, -CBNA-50, CBNAO-50, CBFA-50, -CMRs (AEB and FCW), CMRb (AEB and FCW) The impact speed is then given a colour based on the test speed as defined in the graph below:	If the subsystem total test score is lower than 22 points, no points are available for AEB Pedestrian, regardless whether the system is fitted and would achieve a good score.	<u>2.3.3.3.1 評等標準</u> <u>2.3.3.3.1.1 對於以下情境試驗，評等標準為碰撞速度：</u> <u>CPFA-50、CPNA-25、CPNA-75、CPNCO-50</u> <u>CBNA-50、CBNAO-50、CBFA-50</u> <u>CMRs(AEB 及 FCW)、CMRb(AEB 及 FCW)</u> <u>接著根據以下圖表所定義之試驗速度給予碰撞速度相應顏色：</u>	<u>車輔助之弱勢道路使用者系統(AEB VRU) 得分仍為零。</u>

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 To aid understanding, the following table illustrates the speed range for each colour at a test speed of 60km/h. <table><tr><th>Colour</th><th>Impact speed range (km/h)</th></tr><tr><td>Green</td><td>$V_{\text{impact}} = 0$</td></tr><tr><td>Yellow</td><td>$0 < V_{\text{impact}} < 10$</td></tr><tr><td>Orange</td><td>$10 \leq V_{\text{impact}} < 20$</td></tr><tr><td>Brown</td><td>$20 \leq V_{\text{impact}} < 30$</td></tr><tr><td>Red</td><td>$30 \leq V_{\text{impact}}$</td></tr></table> 2.3.1.2 For the following test scenarios, the assessment criteria used is $V_{\text{rel_impact}}$: -CPLA-50 -CBLA-50 The relative impact speed is then given a colour based on the relative test speed as defined in the graph below:	Colour	Impact speed range (km/h)	Green	$V_{\text{impact}} = 0$	Yellow	$0 < V_{\text{impact}} < 10$	Orange	$10 \leq V_{\text{impact}} < 20$	Brown	$20 \leq V_{\text{impact}} < 30$	Red	$30 \leq V_{\text{impact}}$		(請參末頁圖示) 下表為試驗速度 60km/h 時，碰撞速度範圍與相應顏色: (請參末頁表格) 2.3.3.3.1.2 對於以下情境試驗，評等標準為相對碰撞速度: CPLA-50 CBLA-50 接著根據以下圖表所定義之相對試驗速度給予相對碰撞速度相應顏色:	
Colour	Impact speed range (km/h)														
Green	$V_{\text{impact}} = 0$														
Yellow	$0 < V_{\text{impact}} < 10$														
Orange	$10 \leq V_{\text{impact}} < 20$														
Brown	$20 \leq V_{\text{impact}} < 30$														
Red	$30 \leq V_{\text{impact}}$														

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<table border="1"> <caption>Approximate data from Euro NCAP 2025 chart</caption> <thead> <tr> <th>Test speed (km/h)</th> <th>Yellow bar (km/h)</th> <th>Brown bar (km/h)</th> <th>Red bar (km/h)</th> </tr> </thead> <tbody> <tr><td>60</td><td>10</td><td>20</td><td>58</td></tr> <tr><td>55</td><td>10</td><td>20</td><td>55</td></tr> <tr><td>50</td><td>10</td><td>20</td><td>50</td></tr> <tr><td>45</td><td>10</td><td>20</td><td>45</td></tr> <tr><td>40</td><td>10</td><td>20</td><td>40</td></tr> <tr><td>35</td><td>10</td><td>20</td><td>35</td></tr> <tr><td>30</td><td>10</td><td>20</td><td>30</td></tr> <tr><td>25</td><td>10</td><td>20</td><td>25</td></tr> <tr><td>20</td><td>10</td><td>20</td><td>20</td></tr> <tr><td>15</td><td>10</td><td>20</td><td>15</td></tr> <tr><td>10</td><td>10</td><td>20</td><td>10</td></tr> </tbody> </table> 2.3.1.3 In any scenario the VUT may enter the path of the target after the target has completely passed the path of the VUT. For CPTA the VUT may enter the path of the EPT, as long as the VUT velocity = 0 before impact with the EPT. 2.3.1.4 For the CPLA-25 and CBLA-25 test scenarios, the assessment criteria used is the Time-To-Collision (TTC) of the FCW. The available points per test speed are awarded when the warning is issued at a $TTC \geq 1.70s$. Alternatively, when the FCW issued at a $TTC < 1.70s$ in the CPLA-25 and	Test speed (km/h)	Yellow bar (km/h)	Brown bar (km/h)	Red bar (km/h)	60	10	20	58	55	10	20	55	50	10	20	50	45	10	20	45	40	10	20	40	35	10	20	35	30	10	20	30	25	10	20	25	20	10	20	20	15	10	20	15	10	10	20	10		(請參末頁圖示) 2.3.3.3.1.3 在任何情境試驗下，受驗車輛應於目標行人完全通過受驗車輛路徑後進入目標行人路徑。對於轉彎成人碰撞情境試驗，受驗車輛應於與目標行人碰撞前速度等於 0 時進入目標行人路徑。 2.3.3.3.1.4 對於前端成人碰撞情境試驗 25%及前端自行車騎士碰撞情境試驗 25%，評等標準為 FCW 系統之碰撞時間，若系統於碰撞時間大於等於 1.7 秒時發出警告則可獲得相應試驗速度之分數；若系統於碰撞時間小於 1.7 秒時發出警告，車輛業者可選擇向 TNCAP 執行機構提供證明緊急	
Test speed (km/h)	Yellow bar (km/h)	Brown bar (km/h)	Red bar (km/h)																																																
60	10	20	58																																																
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50	10	20	50																																																
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CBLA-25 scenarios, the manufacturer has the option to demonstrate to Euro NCAP that their ESS system will provide the appropriate support to avoid the collision by steering to have the available points awarded. 2.3.1.5 For CBDA the assessment criteria used is the Time-to-Collision. The available points per test are awarded when: •Visual information is provided at a $TTC \geq 2.3s$ •Visual and (audible or haptic) warning is issued at a $TTC \geq 1.7s$ •A door retention system is activated, starting at $TTC \geq 1.7s$ and finishing at $TTC \leq -0.4s$. If the system issues effective warning (i.e. loud and clear) or retention functionality on all doors on the side where the threat is present Furthermore, the visual information needs to be provided in the field of view of the front side window.		<u>轉向輔助系統可及時作動並避免碰撞，則亦可獲得分數。</u> <u>2.3.3.3.1.5 對於車門開啟自行車騎士碰撞情境試驗，評等標準為碰撞時間，若符合以下規定則可獲得分數:</u> <u>(1) 視覺資訊於碰撞時間大於等於 2.3 秒時發出</u> <u>(2) 視覺及(聽覺或觸覺)警示於碰撞時間大於等於 1.7 秒時發出</u> <u>(3) 車門限制系統於碰撞時間大於等於 1.7 秒時作動，並於碰撞時間小於等於-0.4 秒時結束。若系統在威脅存在一側之所有車門上發出有效警示(即大聲及清楚)或車門限制功能作動</u> <u>此外，視覺資訊應顯示於駕駛前方視野明顯處。</u>	

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“All other side doors” points are awarded if the system issues effective warning or retention functionality on all doors on the side where the threat is present. If effectiveness is doubted, tests can be executed for the remaining doors with the performance criteria above applied. Reference point for all tests is the rear of the front door. Visual warning on the rear doors is not required. An information only system cannot score for functionality on all doors. It is permitted to combine retention on driver door with warning on all other side doors. For doors that cannot endanger VRUs passing by the VUT (e.g. sliding doors that open to a small extend), 0.500 will be awarded for a ‘Visual warning (e.g. flashing) accompanied with an audible or haptic warning’. This warning can be		<u>若系統可在威脅存在一側之所有車門上，發出有效警示或車門限制功能作動，則可獲得分數。若對系統有效性有疑慮，可對剩餘車門進行測試，所有測試參考點為前門後半部，後門之視覺警示為非必要。</u> <u>僅提供資訊之系統無法於所有車門之功能性上獲得分數。</u> <u>允許將駕駛座之車門限制與其他車門之警示結合，對於無危及弱勢道路使用者路徑安全之車門(如略微開啟之滑門)，若提供視覺警示(如閃爍)伴隨聽覺或觸覺警示則可獲得 0.5 分，警示可於車門開啟後 10 秒停止。</u>	

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suppressed 10 seconds after T_{door} operation. 2.3.1.6 For CMoncoming and CMovertaking, the assessment criteria used is no impact, meaning that the lateral separation between the VUT and the Oncoming or Overtaking EMT must be $>0.3m$ at any time during the test. The available points per scenario are awarded based on a pass/fail basis. The points for CMoncoming and CMovertaking Unintentional (for the corresponding speeds) may be achieved using a system where LKA dashed line is implemented as an ELK functionality (default-on) and the LKA dashed line tests fulfils all LKA dashed lane criteria, provided that either: The system features a Driver Intention Monitoring (DIM) with subsequent suppression of undesired		<u>2.3.3.3.1.6 針對對向來車及車道超車碰撞試驗，使用的評等標準為無碰撞，意即受驗車輛在試驗期間內與車道超車或對向來車之目標機車騎士間的側向距離皆須大於 0.3 公尺。每項試驗之得分以通過/未通過作判定。</u> 對向來車與非刻意車道超車(相應速度)之得分，可透過將車道維持輔助系統之虛線功能作為緊急車道維持輔助系統功能(預設開啟)來達成，且車道維持輔助系統之虛線試驗須符合所有車道維持輔助系統之虛線車道評等標準，前提是符合以下任一條件： (1) 該系統具備駕駛意圖監測(DIM)功能，並隨後抑制非預期之介入，或	

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intervention, OR - The steering torque applied by the driver to override the system is ≤ 3.5 Nm For both cases, the OEM shall provide a dossier that includes a system overview and compelling evidence demonstrating how the system is effective at eliminating or mitigating driver acceptance issues associated with lateral control. For DIM, specific provisions for the dossier are outlined in 2.3.1.7. 2.3.1.7 For the evaluation of Driver Intention Monitoring system (DIM), Euro NCAP requires a dossier from the OEM containing a detailed technical assessment. The dossier shall contain, as minimum: - Overview of the DIM System operating principle and its strategy/logic to determine driver		(2) 駕駛為取代系統控制所施加之轉向扭力須小於等於3.5 Nm。 在這兩種情境下，車輛業者應提供一份技術文件，其中包含系統概述及佐證，以證明該系統能有效消除或減輕與側向控制相關的駕駛接受度問題。針對駕駛意圖監測系統技術文件的具體要求詳述於條文2.3.3.1.7。 2.3.3.1.7 針對評等駕駛意圖監測系統(DIM)，TNCAP執行機構要求車輛業者提供包含詳細技術評估資料，資料應至少包含： 駕駛意圖監測系統操作原理及其確定駕駛「意圖」之策略/邏輯概述，包括間接/直接輸入變數及其	

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‘intention’, including a list of the Indirect/Direct input variables and their inter-dependency for suppressing undesired LKA interventions. 2. System Failsafe strategies in which DIM system is overruled e.g., - To avoid a crash with a threat on a collision course - When a driver is deemed incapacitated 3. Information describing naturalistic driving in which lane marking crossing/lane changing manoeuvring typically occurs for the vehicle, and associated driver indicator usage 4. Evidence of the effectiveness of the system at suppressing undesirable LKA interventions and promoting driver acceptance 5. Any other information the OEM deems relevant to support their		相互影響關係，以抑制非預期之車道維持輔助系統介入。 2. 駕駛意圖監測系統之失效安全策略(Failsafe strategies)，例如： (A) 避免於行駛路線上發生碰撞之威脅。 (B) 當駕駛被認為喪失行為能力時。 3. 描述一般行駛之資訊，包含車輛超出車道標線/車道變換操作，以及相關駕駛指示器之使用情況。 4. 抑制非預期之車道維持輔助系統介入及提升駕駛接受度之有效佐證資料。 5. 車輛業者認為有助於佐證其申請的任何相關資訊。	

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application 2.3.1.8Impact speed tolerance As test results can be variable between labs and in-house tests and/or simulations a 2 km/h tolerance to the impact speeds of the verification test is applied. The tolerance is applied in both directions, meaning that when a tested point scores better than predicted, but within tolerance, the predicted result is applied. The tolerance only applies to verify whether the predicted colour of the tested verification point is correct. When, including tolerance, the colour is not in line with the prediction, the true colour of the test point will be determined by comparing the actual measured impact speed with the colour band without applying a tolerance to the impact speed.		<u>2.3.3.3.1.8 碰撞速度的容許誤差</u> <u>由於試驗結果在檢測機構與內部試驗及/或模擬之間有所不同，因此 2 km/h 容許誤差適用於驗證試驗的碰撞速度。容許誤差適用於兩個方向，當試驗點得分高於預測值但在容許誤差範圍內時，則應用預測結果。</u> <u>容許誤差僅適用於驗證試驗點之預測顏色是否正確。當包括容許誤差在內，顏色與預測不一致時，試驗點的真實顏色將通過實際測量的碰撞速度並比照色帶來確定顏色，而不對碰撞速度施加容許誤差。</u>	

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As an example, the accepted impact speed ranges for the 60km/h CMRs test: <table><tr><th>Colour</th><th>Impact speed range (km/h)</th><th>Accepted Range (km/h)</th></tr><tr><td>Green</td><td>$V_{\text{impact}} < 0$</td><td>$V_{\text{impact}} < 2$</td></tr><tr><td>Yellow</td><td>$0 < V_{\text{impact}} < 10$</td><td>$0 < V_{\text{impact}} < 12$</td></tr><tr><td>Orange</td><td>$10 < V_{\text{impact}} < 20$</td><td>$8 < V_{\text{impact}} < 22$</td></tr><tr><td>Brown</td><td>$20 < V_{\text{impact}} < 30$</td><td>$18 < V_{\text{impact}} < 32$</td></tr><tr><td>Red</td><td>$30 < V_{\text{impact}}$</td><td>$30 < V_{\text{impact}}$</td></tr></table>	Colour	Impact speed range (km/h)	Accepted Range (km/h)	Green	$V_{\text{impact}} < 0$	$V_{\text{impact}} < 2$	Yellow	$0 < V_{\text{impact}} < 10$	$0 < V_{\text{impact}} < 12$	Orange	$10 < V_{\text{impact}} < 20$	$8 < V_{\text{impact}} < 22$	Brown	$20 < V_{\text{impact}} < 30$	$18 < V_{\text{impact}} < 32$	Red	$30 < V_{\text{impact}}$	$30 < V_{\text{impact}}$		<u>例如用 60km/h 之機車靜止碰撞情境試驗之試驗速度其可接受的碰速度範圍如下：</u> <table><tr><th>顏色</th><th>碰撞速度範圍 (km/h)</th><th>接受範圍 (km/h)</th></tr><tr><td>綠色</td><td>碰撞速度 < 0</td><td>碰撞速度 < 2</td></tr><tr><td>黃色</td><td>$0 < \text{碰撞速度} < 10$</td><td>$0 < \text{碰撞速度} < 12$</td></tr><tr><td>橘色</td><td>$10 < \text{碰撞速度} < 20$</td><td>$8 < \text{碰撞速度} < 22$</td></tr><tr><td>棕色</td><td>$20 < \text{碰撞速度} < 30$</td><td>$18 < \text{碰撞速度} < 32$</td></tr><tr><td>紅色</td><td>$30 < \text{碰撞速度}$</td><td>$30 < \text{碰撞速度}$</td></tr></table>	顏色	碰撞速度範圍 (km/h)	接受範圍 (km/h)	綠色	碰撞速度 < 0	碰撞速度 < 2	黃色	$0 < \text{碰撞速度} < 10$	$0 < \text{碰撞速度} < 12$	橘色	$10 < \text{碰撞速度} < 20$	$8 < \text{碰撞速度} < 22$	棕色	$20 < \text{碰撞速度} < 30$	$18 < \text{碰撞速度} < 32$	紅色	$30 < \text{碰撞速度}$	$30 < \text{碰撞速度}$	
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2.3.2 AEB Pedestrian A maximum of 9 points is available for AEB Pedestrian, 6 points for daytime performance (all scenarios) and 3 points for performance at night conditions (CPFA, CPNA, CPNCO and CPLA). For each scenario a normalised score is calculated and multiplied with the available points for that specific scenario. For each predicted colour the following scaling is applied to the colour band, which is then multiplied by the points	1.4.1 AEB Pedestrian A maximum of 6 points is available for AEB Pedestrian, 3 points for daytime performance (all scenarios) and 3 points for performance at night conditions (CPNA-25, CPNA-75, CPLA-25 and CPLA-50). For each scenario a normalised score is calculated which are averaged and multiplied with the available 3 points available for day and night conditions.	<u>2.3.3.3.2 緊急煞車輔助系統之行人情境評等</u> AEB 行人最多可獲得 9 分，白天所有情境試驗最多 6 分，夜間所有情境試驗最多可獲得 3 分(CPFA、CPNA、CPNCO 及 CPLA)。 計算每種情境之常態化分數，<u>乘以該特定情境所配置的分數。</u> <u>對於每一預測顏色，將依其對應之顏色區帶套用以下縮放比例，接著再乘以該試驗速度所對應的分數：</u>	<u>2.3.3.3.1 緊急煞車輔助系統之行人情境評等</u> AEB 行人最多可獲得 6 分，白天所有情境試驗最多 3 分，夜間所有情境試驗最多可獲得 3 分(CPNA-25、CPNA-75、CPLA-25 及 CPLA-50)。 計算每種情境之常態化分數，<u>將其平均並乘以白天與夜晚條件可得之 3 分。</u>																																				

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available for the test speed: Green 1.000 Yellow 0.750 Orange 0.500 Brown 0.250 Red 0.000 The following points are available for the different test speeds in each AEB Pedestrian scenario for both day and night conditions: <table><tr><th rowspan="3">Test speed</th><th colspan="6">CPFA-50</th><th colspan="6">CPNA-25</th><th colspan="6">CPNA-75</th><th colspan="6">CPNC-50</th><th colspan="6">CPLA-50</th></tr><tr><th colspan="2">Day</th><th colspan="2">Night</th><th colspan="2">Day</th><th colspan="2">Day</th><th colspan="2">Night</th><th colspan="2">Day</th><th colspan="2">Day</th><th colspan="2">Night</th><th colspan="2">Day</th><th colspan="2">Day</th><th colspan="2">Night</th><th colspan="2">Day</th><th colspan="2">Day & Night</th><th colspan="2">Day & Night</th><th colspan="2">Day & Night</th></tr><tr><th>100%</th><th>75%</th><th>50%</th><th>25%</th><th>100%</th><th>75%</th><th>100%</th><th>75%</th><th>50%</th><th>25%</th><th>100%</th><th>75%</th><th>100%</th><th>75%</th><th>50%</th><th>25%</th><th>100%</th><th>75%</th><th>100%</th><th>75%</th><th>50%</th><th>25%</th><th>100%</th><th>75%</th><th>100%</th><th>75%</th><th>50%</th><th>25%</th><th>100%</th><th>75%</th></tr><tr><td>20 km/h</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td></tr><tr><td>30 km/h</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td></tr><tr><td>40 km/h</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td></tr><tr><td>50 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km/h</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td></tr><tr><td>80 km/h</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td></tr><tr><td>90 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km/h</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td></tr><tr><td>140 km/h</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td><td>1.000</td></tr><tr><td>150 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speed	CPFA-50						CPNA-25						CPNA-75						CPNC-50						CPLA-50						Day		Night		Day		Day		Night		Day		Day		Night		Day		Day		Night		Day		Day & Night		Day & Night		Day & Night		100%	75%	50%	25%	100%	75%	100%	75%	50%	25%	100%	75%	100%	75%	50%	25%	100%	75%	100%	75%	50%	25%	100%	75%	100%	75%	50%	25%	100%	75%	20 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	30 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	40 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	50 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	60 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	70 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	80 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	90 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	100 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	110 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	120 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	130 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	140 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	150 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km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	Total	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	下下述各點適用於白天及夜間條件，不同試驗速度之每個 AEB 行人情境： (請參末頁表格)	下下述各點適用於白天及夜間條件，不同試驗速度之每個 AEB 行人情境： (請參末頁表格)
Test speed		CPFA-50						CPNA-25						CPNA-75						CPNC-50						CPLA-50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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170 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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2.3.2.1 AEB Pedestrian Scoring Example <table><tr><th rowspan="2">AEB Pedestrian</th><th colspan="4">Daytime</th><th colspan="4">Nighttime</th></tr><tr><th>Points</th><th>Percentage</th><th>Score</th><th>Points</th><th>Percentage</th><th>Score</th><th>Points</th></tr><tr><td>CPFA</td><td>16,000</td><td>80.0%</td><td>0.200</td><td>14,000</td><td>70.0%</td><td>0.525</td><td></td></tr><tr><td>CPNA</td><td>36,000</td><td>90.0%</td><td>0.225</td><td>32,000</td><td>80.0%</td><td>0.600</td><td></td></tr><tr><td>CPNCO</td><td>11,000</td><td>55.0%</td><td>0.550</td><td>10,000</td><td>50.0%</td><td>0.250</td><td></td></tr><tr><td>CPLA</td><td>24,000</td><td>80.0%</td><td>0.400</td><td>80,000</td><td>100.0%</td><td>1.000</td><td></td></tr><tr><td>CPFA/CPNC</td><td>4,000</td><td>100.0%</td><td>2.000</td><td></td><td></td><td></td><td></td></tr><tr><td>TOTAL</td><td></td><td>5.125</td><td></td><td></td><td>2.375</td><td></td><td></td></tr><tr><td></td><td></td><td></td><td>7.500</td><td></td><td></td><td></td><td></td></tr></table>	AEB Pedestrian	Daytime				Nighttime				Points	Percentage	Score	Points	Percentage	Score	Points	CPFA	16,000	80.0%	0.200	14,000	70.0%	0.525		CPNA	36,000	90.0%	0.225	32,000	80.0%	0.600		CPNCO	11,000	55.0%	0.550	10,000	50.0%	0.250		CPLA	24,000	80.0%	0.400	80,000	100.0%	1.000		CPFA/CPNC	4,000	100.0%	2.000					TOTAL		5.125			2.375						7.500					1.4.1.1 AEB Pedestrian Scoring Example <table><tr><th rowspan="2">Scenario</th><th colspan="2">Daytime</th><th colspan="2">Night-time</th></tr><tr><th>16.02</th><th>89.0%</th><th>14.93</th><th>82.9%</th></tr><tr><td>CPFA-50</td><td>16.02</td><td>89.0%</td><td>14.93</td><td>82.9%</td></tr><tr><td>CPNA-25</td><td>18.00</td><td>100.0%</td><td>15.84</td><td>88.0%</td></tr><tr><td>CPNA-75</td><td>18.00</td><td>100.0%</td><td>15.84</td><td>88.0%</td></tr><tr><td>CPNC-50</td><td>14.94</td><td>83.0%</td><td></td><td></td></tr><tr><td>CPLA</td><td>22.50</td><td>75.0%</td><td>24.00</td><td>80.0%</td></tr><tr><td>TOTAL</td><td>89.4 % or 2.682 points</td><td></td><td>83.6 % or 2.509 points</td><td></td></tr></table> Total AEB Pedestrian Score = 2.682 + 2.509 = 5.191 points	Scenario	Daytime		Night-time		16.02	89.0%	14.93	82.9%	CPFA-50	16.02	89.0%	14.93	82.9%	CPNA-25	18.00	100.0%	15.84	88.0%	CPNA-75	18.00	100.0%	15.84	88.0%	CPNC-50	14.94	83.0%			CPLA	22.50	75.0%	24.00	80.0%	TOTAL	89.4 % or 2.682 points		83.6 % or 2.509 points		2.3.3.3.2.1 緊急煞車輔助系統之行人情境得分範例 (請參末頁表格) 緊急煞車輔助系統之行人總分 = 2.628 + 2.509 = 5.191 分																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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2025 年版 Euro NCAP 規章	2019 年版 Euro NCAP 規章	修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章
2.3.3 AEB Bicyclist A maximum of 9 points is available for AEB Bicyclist. For each scenario a normalised score is calculated and multiplied with the available points for that specific scenario. For each predicted colour the following scaling is applied to the colour band, which is then multiplied by the points available for the test speed: Green 1.000 Yellow 0.750 Orange 0.500 Brown 0.250 Red 0.000 The following points are available for the different test speeds in each AEB Bicyclist scenario:	1.4.2 AEB Cyclist A maximum of 6 points is available for AEB Cyclist. For both scenarios a normalised score is calculated which are averaged and multiplied with the available 6 points. The following points are available for the different test speeds in each AEB Pedestrian scenario:	2.3.3.3 緊急煞車輔助系統之自行車騎士情境評等 AEB 自行車騎士最高可獲得 <u>9</u> 分。 <u>針對每一情境，將計算一個常態化分數，並乘以該情境分數。</u> <u>對於每一預測顏色，將依其對應之顏色區帶套用以下縮放比例，接著再乘以該試驗速度所對應的分數：</u> <u>綠色 1.000 分</u> <u>黃色 0.750 分</u> <u>橘色 0.500 分</u> <u>棕色 0.250 分</u> <u>紅色 0.000 分</u> 下述各點適用於每個 AEB <u>自行車騎士情境</u> 中的不同試驗速度：	2.3.3.3.2 緊急煞車輔助系統之自行車騎士情境評等 AEB 自行車騎士最多可獲得 <u>6</u> 分。 <u>對於這兩種情境，計算常態化分數，將其平均並乘以可得的 6 分。</u> 下述各點適用於每個 AEB <u>行人情境</u> 中的不同試驗速度：

2025 年版 Euro NCAP 規章

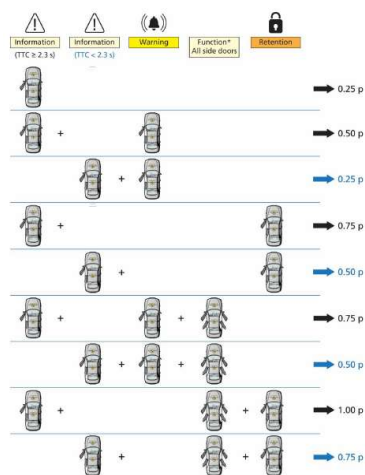
Test speed	Daytime						
	CBFA			CBLA		CBDA	
	50%	50%	50%	50%	25%	Opposite direction Far side Near side	Stationary
0 km/h							3,000
10 km/h	1,000	1,000	1,000			1,000	1,000
15 km/h	1,000	1,000	1,000			1,000	
20 km/h	1,000	1,000	1,000			1,000	
25 km/h	1,000	1,000	1,000	1,000			
30 km/h	1,000	1,000	1,000	1,000			
35 km/h	1,000	1,000	1,000	2,000			
40 km/h	1,000	1,000	1,000	2,000			
45 km/h	1,000	1,000	1,000	3,000			
50 km/h	1,000	1,000	1,000	3,000	3,000		
55 km/h	1,000	1,000	1,000	3,000	3,000		
60 km/h	1,000	1,000	1,000	1,000	1,000		
65 km/h					1,000		
70 km/h					1,000		
75 km/h					1,000		
80 km/h					1,000		
TOTAL	11,000	11,000	11,000	27,000		4,000	3,000
Scenario points	2,000	3,000	3,000	2,000		2,000	3,000

For CBDA, the following scoring is applied:

[illegible]

The annual resignation fee was about equalled

The scoring is further illustrated below:



* Warning or Retention.
No visual component for rear doors required.

2019 年版 Euro NCAP 規章

Test speed	CBNA	CBLA	
20 km/h	1.000		
25 km/h	1.000	1.000	
30 km/h	1.000	1.000	
35 km/h	1.000	2.000	
40 km/h	1.000	2.000	
45 km/h	1.000	3.000	
50 km/h	1.000	3.000	3.000
55 km/h	1.000	3.000	3.000
60 km/h	1.000	1.000	1.000
65 km/h			1.000
70 km/h			1.000
75 km/h			1.000
80 km/h			1.000
Total	9.000	27.000	

修訂 TNCAP 條文草案(第三版)

(請參末頁表格)

對於車門開啟自行車騎士碰撞情境
試驗，適用以下評分方式。

(請參末頁表格)

評分方式參以下圖示：

(請參末頁圖示)

對應 TNCAP 第二版規章

(請參末頁表格)

2025 年版 Euro NCAP 規章	2019 年版 Euro NCAP 規章	修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章																																																																																																															
Special Cases Information Warning Function* All side doors Retention + → 0.25 p Information only + → 0.75 p Sliding doors - active 10 sec + + → 1.00 p Sliding doors - active 10 sec * Warning or Retention. No visual component for rear doors required.		(請參末頁圖示)																																																																																																																
2.3.3.1 AEB Bicyclist Scoring example	1.4.2.1 AEB Cyclist Scoring example Test results in CBLA scenario: <table><tr><th rowspan="2">Vtest</th><th colspan="2">pointstest speed</th><th colspan="2">Vimpact</th><th colspan="2">Scoretest speed</th></tr><tr><th>AEB</th><th>FCW</th><th>AEB</th><th>FCW</th><th>AEB</th><th>FCW</th></tr><tr><td>25 km/h</td><td>1,000</td><td></td><td>0 km/h</td><td></td><td>1,000</td><td></td></tr><tr><td>30 km/h</td><td>1,000</td><td></td><td>0 km/h</td><td></td><td>1,000</td><td></td></tr><tr><td>35 km/h</td><td>2,000</td><td></td><td>0 km/h</td><td></td><td>2,000</td><td></td></tr><tr><td>40 km/h</td><td>2,000</td><td></td><td>20 km/h</td><td></td><td>1,000</td><td></td></tr><tr><td>45 km/h</td><td>3,000</td><td></td><td>25 km/h</td><td></td><td>3,000</td><td></td></tr><tr><td>50 km/h</td><td>3,000</td><td>3,000</td><td>30 km/h</td><td>2.28s TTC</td><td>3,000</td><td>3,000</td></tr><tr><td>55 km/h</td><td>3,000</td><td>3,000</td><td>40 km/h</td><td>2.01s TTC</td><td>0,000</td><td>3,000</td></tr><tr><td>60 km/h</td><td>1,000</td><td>1,000</td><td>Not tested</td><td>1.71s TTC</td><td>0,000</td><td>1,000</td></tr><tr><td>65 km/h</td><td></td><td>1,000</td><td></td><td>1.70s TTC</td><td></td><td>1,000</td></tr><tr><td>70 km/h</td><td></td><td>1,000</td><td></td><td>1.69s TTC</td><td></td><td>0,000</td></tr><tr><td>75 km/h</td><td></td><td>1,000</td><td></td><td>1.41s TTC</td><td></td><td>0,000</td></tr><tr><td>80 km/h</td><td></td><td>1,000</td><td></td><td>1.43s TTC</td><td></td><td>0,000</td></tr><tr><td>Total</td><td colspan="2">27,000</td><td colspan="2"></td><td colspan="2">19,000</td></tr><tr><td colspan="3">Normalised score</td><td colspan="2"></td><td colspan="2">70.3%</td></tr></table> AEB Cyclist (assumed normalized scores for this example) - Normalized score in CBNA scenario:	Vtest	pointstest speed		Vimpact		Scoretest speed		AEB	FCW	AEB	FCW	AEB	FCW	25 km/h	1,000		0 km/h		1,000		30 km/h	1,000		0 km/h		1,000		35 km/h	2,000		0 km/h		2,000		40 km/h	2,000		20 km/h		1,000		45 km/h	3,000		25 km/h		3,000		50 km/h	3,000	3,000	30 km/h	2.28s TTC	3,000	3,000	55 km/h	3,000	3,000	40 km/h	2.01s TTC	0,000	3,000	60 km/h	1,000	1,000	Not tested	1.71s TTC	0,000	1,000	65 km/h		1,000		1.70s TTC		1,000	70 km/h		1,000		1.69s TTC		0,000	75 km/h		1,000		1.41s TTC		0,000	80 km/h		1,000		1.43s TTC		0,000	Total	27,000				19,000		Normalised score					70.3%		2.3.3.3.1 緊急煞車輔助系統之自行車騎士情境得分範例 (請參末頁表格)	2.3.3.3.2.1 緊急煞車輔助系統自行車騎士情境得分範例 CBLA 情境中試驗結果： (請參末頁表格) AEB 自行車騎士(假設該範例的常態化分數) (1) CBNA 情境之常態化分數:45.7%
Vtest	pointstest speed		Vimpact		Scoretest speed																																																																																																													
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70 km/h		1,000		1.69s TTC		0,000																																																																																																												
75 km/h		1,000		1.41s TTC		0,000																																																																																																												
80 km/h		1,000		1.43s TTC		0,000																																																																																																												
Total	27,000				19,000																																																																																																													
Normalised score					70.3%																																																																																																													

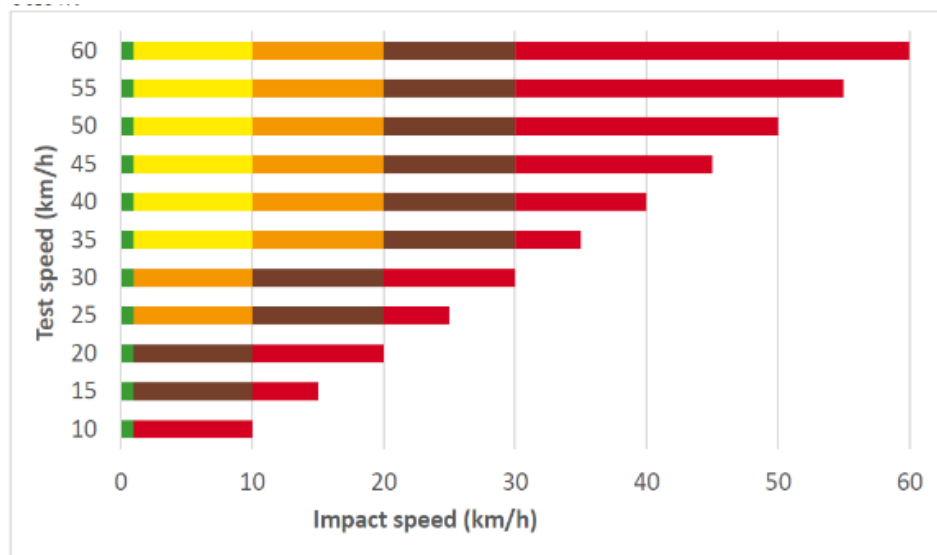
2025 年版 Euro NCAP 規章	2019 年版 Euro NCAP 規章	修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章
2.3.4 AEB/LSS Motorcyclist A maximum of 9 points is available for AEB/LSS Motorcyclist. For each scenario a normalised score is calculated and multiplied with the available points for that specific scenario. For each predicted colour the following scaling is applied to the colour band, which is then multiplied by the points available for the test speed: Green 1.000 Yellow 0.750 Orange 0.500	45.7% - Normalized score in CBLA scenario: 70.3% Total 58.0% AEB Cyclist total score = 6.0 x 58.0% = 3.480 points	2.3.3.3.4 緊急煞車輔助系統/車道輔助系統之機車騎士情境評等 AEB/LSS 機車騎士最高可獲得 9 分。針對每一情境，將計算一個常態化分數，並乘以該情境分數。 對於每一預測顏色，將依其對應之顏色區帶套用以下縮放比例，接著再乘以該試驗速度所對應的分數： 綠色 1.000 分 黃色 0.750 分 橘色 0.500 分 棕色 0.250 分	(2) <u>CBLA 情境之常態化分數：70.3%</u> <u>總分：58.0%</u> <u>緊急煞車輔助系統自行車騎士總分 = 6.0 x 58.0% = 3.480 分</u>

2025 年版 Euro NCAP 規章	2019 年版 Euro NCAP 規章	修訂 TNCAP 條文草案(第三版)	對應 TNCAP 第二版規章																																																																																																																																																																																			
Brown 0.250 Red 0.000 The following points are available for the different test speeds in each AEB/LSS Motorcyclist scenario: <table><tr><th rowspan="3">Test speed</th><th colspan="4">AEB</th><th colspan="2">FCW</th><th colspan="4">LSS</th></tr><tr><th>CMRs</th><th>CMRs</th><th colspan="2">CMFtap</th><th>CMRs</th><th>CMRs</th><th>CMoncoming</th><th colspan="2">CMovertaking</th></tr><tr><th>50%</th><th>25% 8.12m</th><th>25% 8.60m</th><th>40 km/h 45 km/h 60 km/h</th><th>50%</th><th>25% 8.12m</th><th>25% 8.40m</th><th>72 km/h</th><th>60 km/h 80km/h 60km/h 80 km/h</th></tr><tr><td>10 km/h</td><td>1,000</td><td></td><td></td><td>1,000 1,000 1,000</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>15 km/h</td><td>1,000</td><td></td><td></td><td>1,000 1,000 1,000</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>20 km/h</td><td>1,000</td><td></td><td></td><td>1,000 1,000 1,000</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>25 km/h</td><td>1,000</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>30 km/h</td><td>1,000</td><td></td><td></td><td></td><td></td><td>1,000</td><td></td><td></td><td></td></tr><tr><td>35 km/h</td><td>1,000</td><td></td><td></td><td></td><td></td><td>1,000</td><td></td><td></td><td></td></tr><tr><td>40 km/h</td><td>1,000</td><td></td><td></td><td></td><td></td><td>1,000</td><td></td><td></td><td></td></tr><tr><td>45 km/h</td><td>1,000</td><td></td><td></td><td></td><td></td><td>1,000</td><td></td><td></td><td></td></tr><tr><td>50 km/h</td><td>1,000</td><td>1,000</td><td></td><td></td><td>1,000</td><td>1,000</td><td>1,000</td><td>0.500</td><td>0.500</td></tr><tr><td>55 km/h</td><td>1,000</td><td></td><td></td><td></td><td>1,000</td><td></td><td></td><td></td><td></td></tr><tr><td>60 km/h</td><td>1,000</td><td></td><td></td><td></td><td>1,000</td><td></td><td></td><td></td><td></td></tr><tr><td>72 km/h</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2,000</td><td>0.500 0.500</td></tr><tr><td>TOTAL</td><td>11,000</td><td>2,000</td><td></td><td>9,000</td><td>7,000</td><td>2,000</td><td>2,000</td><td>2,000</td><td></td></tr><tr><td>Scenario points</td><td>1,000</td><td>1,000</td><td></td><td>3,000</td><td>0.500</td><td>0.500</td><td>2,000</td><td>1,000</td><td></td></tr><tr><td colspan="10">9,000</td></tr></table>	Test speed	AEB				FCW		LSS				CMRs	CMRs	CMFtap		CMRs	CMRs	CMoncoming	CMovertaking		50%	25% 8.12m	25% 8.60m	40 km/h 45 km/h 60 km/h	50%	25% 8.12m	25% 8.40m	72 km/h	60 km/h 80km/h 60km/h 80 km/h	10 km/h	1,000			1,000 1,000 1,000						15 km/h	1,000			1,000 1,000 1,000						20 km/h	1,000			1,000 1,000 1,000						25 km/h	1,000									30 km/h	1,000					1,000				35 km/h	1,000					1,000				40 km/h	1,000					1,000				45 km/h	1,000					1,000				50 km/h	1,000	1,000			1,000	1,000	1,000	0.500	0.500	55 km/h	1,000				1,000					60 km/h	1,000				1,000					72 km/h								2,000	0.500 0.500	TOTAL	11,000	2,000		9,000	7,000	2,000	2,000	2,000		Scenario points	1,000	1,000		3,000	0.500	0.500	2,000	1,000		9,000											<u>紅色 0.000 分</u> <u>下述各點適用於每個 AEB/LSS 機車騎士情境中的不同試驗速度：</u> <u>(請參末頁表格)</u>	
Test speed		AEB				FCW		LSS																																																																																																																																																																														
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2.3.4.1 AEB/LSS Motorcyclist Scoring example <table><tr><th rowspan="2">AEB Motorcyclist</th><th colspan="3">Daytime</th></tr><tr><th>Points</th><th>Percentage</th><th>Score</th></tr><tr><td>CMRs AEB</td><td>8,000</td><td>72.7%</td><td>0.727</td></tr><tr><td>CMRs AEB</td><td>1,000</td><td>50.0%</td><td>0.500</td></tr><tr><td>CMFtap</td><td>9,000</td><td>100.0%</td><td>3.000</td></tr><tr><td>CMRs FCW</td><td>5,000</td><td>71.4%</td><td>0.357</td></tr><tr><td>CMRs FCW</td><td>2,000</td><td>100.0%</td><td>0.500</td></tr><tr><td>CMoncoming</td><td>2,000</td><td>100.0%</td><td>2.000</td></tr><tr><td>CMovertaking</td><td>0,000</td><td>0.0%</td><td>0.000</td></tr><tr><td>TOTAL</td><td></td><td>7.084</td><td></td></tr></table>	AEB Motorcyclist	Daytime			Points	Percentage	Score	CMRs AEB	8,000	72.7%	0.727	CMRs AEB	1,000	50.0%	0.500	CMFtap	9,000	100.0%	3.000	CMRs FCW	5,000	71.4%	0.357	CMRs FCW	2,000	100.0%	0.500	CMoncoming	2,000	100.0%	2.000	CMovertaking	0,000	0.0%	0.000	TOTAL		7.084			<u>2.3.3.3.4.1 緊急煞車輔助系統/車道輔助系統之自行車騎士情境得分範例</u> <u>(請參末頁表格)</u>																																																																																																																																													
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2.4 Visualisation The AEB/LSS VRU scores are presented separately using a coloured top view of the different scenarios; crossing and longitudinal (where applicable). The colours used are based on the scenario scores respectively, rounded to three decimal places. <table> <tr> <th>Colour</th><th>Verdict</th><th>Applied to Total Score</th><th>Applied to Scenario</th></tr> <tr> <td>Green</td><td>'Good'</td><td>6.751 - 9.000 points</td><td>75.0% - 100.0%</td></tr> <tr> <td>Yellow</td><td>'Adequate'</td><td>4.501 - 6.750 points</td><td>50.0% - 75.0%</td></tr> <tr> <td>Orange</td><td>'Marginal'</td><td>2.251 - 4.500 points</td><td>25.0% - 50.0%</td></tr> <tr> <td>Brown</td><td>'Weak'</td><td>0.001 - 2.250 points</td><td>00.0% - 25.0%</td></tr> <tr> <td>Red</td><td>'Poor'</td><td>0.000 points</td><td>00.0%</td></tr> </table>	Colour	Verdict	Applied to Total Score	Applied to Scenario	Green	'Good'	6.751 - 9.000 points	75.0% - 100.0%	Yellow	'Adequate'	4.501 - 6.750 points	50.0% - 75.0%	Orange	'Marginal'	2.251 - 4.500 points	25.0% - 50.0%	Brown	'Weak'	0.001 - 2.250 points	00.0% - 25.0%	Red	'Poor'	0.000 points	00.0%	1.4.3 Visualisation The AEB Pedestrian and AEB Cyclist scores are presented separately using a coloured top view of the different scenarios; adult crossing, child crossing and longitudinal (where applicable). The colours used are based on the scenario scores respectively, rounded to three decimal places. <table> <tr> <th>Colour</th><th>Verdict</th><th>Applied to Total Score</th><th>Applied to Scenario</th></tr> <tr> <td>Green</td><td>'Good'</td><td>4.501 - 6.000 points</td><td>75.0% - 100.0%</td></tr> <tr> <td>Yellow</td><td>'Adequate'</td><td>3.001 - 4.500 points</td><td>50.0% - 75.0%</td></tr> <tr> <td>Orange</td><td>'Marginal'</td><td>1.501 - 3.000 points</td><td>25.0% - 50.0%</td></tr> <tr> <td>Brown</td><td>'Weak'</td><td>0.001 - 1.500 points</td><td>00.0% - 25.0%</td></tr> <tr> <td>Red</td><td>'Poor'</td><td>0.000 points</td><td>00.0%</td></tr> </table>	Colour	Verdict	Applied to Total Score	Applied to Scenario	Green	'Good'	4.501 - 6.000 points	75.0% - 100.0%	Yellow	'Adequate'	3.001 - 4.500 points	50.0% - 75.0%	Orange	'Marginal'	1.501 - 3.000 points	25.0% - 50.0%	Brown	'Weak'	0.001 - 1.500 points	00.0% - 25.0%	Red	'Poor'	0.000 points	00.0%	2.3.3.4 視覺呈現 AEB/LSS 弱勢道路使用者得分個別使用不同情境之彩色俯視圖呈現; 穿越及縱向(如適用)。使用之顏色依個別情境分數為基礎，四捨五入到小數點後三位。 (請參末頁表格)	2.3.3.3.3 視覺呈現 AEB 行人與 AEB 自行車騎士得分個別使用不同情境之彩色俯視圖呈現; 成人穿越、兒童穿越及縱向(如適用)。使用之顏色依個別情境分數為基礎，四捨五入到小數點後三位。 (請參末頁表格)
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修正後

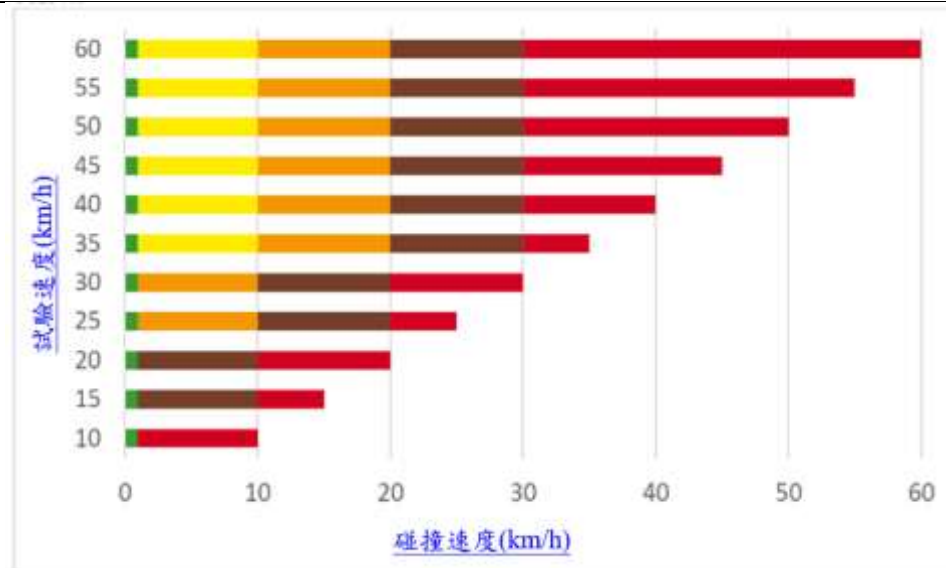
[2.3.1.1](#)



[2.3.3.3.1.1](#)

修正前

修正後



修正前

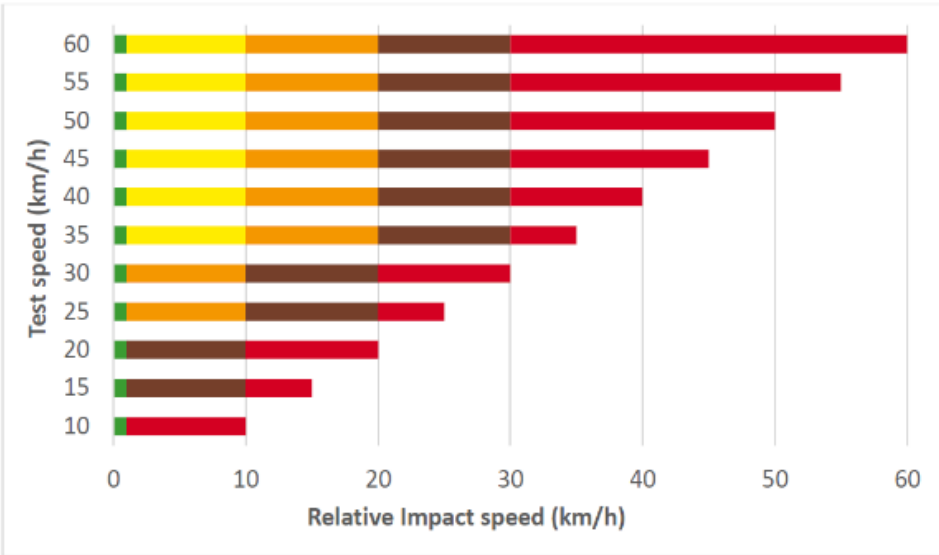
2.3.1.1

Colour	Impact speed range (km/h)
Green	$V_{\text{impact}} = 0$
Yellow	$0 < V_{\text{impact}} < 10$
Orange	$10 < V_{\text{impact}} < 20$
Brown	$20 < V_{\text{impact}} < 30$
Red	$30 \leq V_{\text{impact}}$

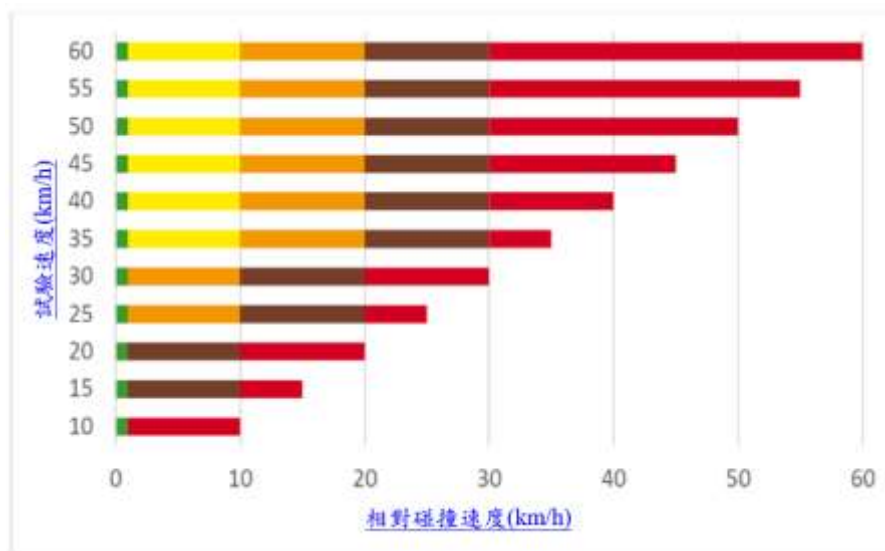
2.3.3.3.1.1

顏色	碰撞速度範圍 (km/h)
綠色	碰撞速度 = 0
黃色	$0 < \text{碰撞速度} < 10$
橘色	$10 \leq \text{碰撞速度} < 20$

修正後		修正前
棕色	20 ≤ 碰撞速度 < 30	
紅色	30 ≤ 碰撞速度	

2.3.1.2		
		
2.3.3.3.1.2		

修正後



修正前

2.3.1.7

Colour	Impact speed range (km/h)	Accepted Range (km/h)
Green	$V_{\text{impact}} = 0$	$V_{\text{impact}} < 2$
Yellow	$0 < V_{\text{impact}} < 10$	$0 < V_{\text{impact}} < 12$
Orange	$10 < V_{\text{impact}} < 20$	$8 < V_{\text{impact}} < 22$
Brown	$20 < V_{\text{impact}} < 30$	$18 < V_{\text{impact}} < 32$
Red	$30 \leq V_{\text{impact}}$	$30 \leq V_{\text{impact}}$

2.3.3.3.1.7

顏色	碰撞速度範圍 (km/h)	接受範圍 (km/h)
綠色	碰撞速度 = 0	碰撞速度 < 2
黃色	$0 < \text{碰撞速度} < 10$	$0 < \text{碰撞速度} < 12$
橘色	$10 \leq \text{碰撞速度} < 20$	$8 \leq \text{碰撞速度} < 22$

修正後	修正前
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<u>棕色</u>	<u>$20 \leq \text{碰撞速度} < 30$</u>	<u>$18 \leq \text{碰撞速度} < 32$</u>
<u>紅色</u>	<u>$30 \leq \text{碰撞速度}$</u>	<u>$30 \leq \text{碰撞速度}$</u>

修正前

1.4.1

Test speed	Daytime										Nighttime					
	CPFL					CPFA				CPFA/CPIC		CPFA				
	30%	25%	75%	50%	25%	Opposite direction Far-side Near-side		Same direction Far-side Near-side		Stationary	Moving	30%	25%	75%	50%	25%
4 km/h										1,000	1,000					
8 km/h										1,000	1,000					
10 km/h	1,000	1,000	1,000	1,000		1,000	1,000	1,000	1,000			1,000	1,000	1,000	1,000	
15 km/h	1,000	1,000	1,000	1,000		1,000		1,000				1,000	1,000	1,000	1,000	
20 km/h	1,000	1,000	1,000	1,000	1,000	1,000		1,000				1,000	1,000	1,000	1,000	1,000
25 km/h	1,000	1,000	1,000	1,000	1,000					1,000	1,000	1,000	1,000	1,000	1,000	1,000
30 km/h	2,000	2,000	2,000	2,000	1,000					1,000	1,000	1,000	1,000	1,000	1,000	1,000
35 km/h	3,000	3,000	3,000	3,000	2,000					2,000	2,000	2,000	2,000	2,000	2,000	2,000
40 km/h	4,000	4,000	4,000	4,000	2,000					2,000	2,000	2,000	2,000	2,000	2,000	2,000
45 km/h	5,000	5,000	5,000	4,000	1,000					3,000	3,000	4,000	3,000	1,000	1,000	1,000
50 km/h	2,000	2,000	2,000	2,000	1,000	1,000				4,000	3,000	4,000	3,000	1,000	1,000	1,000
55 km/h	2,000	2,000	2,000	2,000	3,000	3,000	1,000			3,000	3,000	3,000	3,000	1,000	1,000	1,000
60 km/h	1,000	1,000	1,000	1,000	2,000	2,000				2,000	2,000	2,000	2,000	1,000	1,000	1,000
65 km/h						1,000								1,000		
70 km/h						1,000								1,000		
75 km/h						1,000								1,000		
80 km/h					2,000									1,000		
TOTAL	26,000	40,000	20,000	30,000		8,000				4,000		26,000	40,000	20,000	30,000	
Scenario points	0.210	0.210	1,000	0.500		0.000		2,000		2,000		0.750	0.750	0.500	1,000	
						0.000								3,000		

Test speed	CPFA-50	CPNA-25		CPNA-75		CPNC-50	CPLA-50	CPLA-25
	Day	Day	Night	Day	Night	Day	Day & Night	
20 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
25 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
30 km/h	2.000	2.000	1.000	2.000	1.000	2.000	1.000	
35 km/h	3.000	3.000	2.000	3.000	2.000	3.000	2.000	
40 km/h	3.000	3.000	2.000	3.000	2.000	3.000	2.000	
45 km/h	3.000	3.000	3.000	3.000	3.000	3.000	3.000	
50 km/h	2.000	2.000	3.000	2.000	3.000	2.000	3.000	3.000
55 km/h	2.000	2.000	3.000	2.000	3.000	2.000	3.000	3.000
60 km/h	1.000	1.000	2.000	1.000	2.000	1.000	2.000	2.000
65 km/h								1.000
70 km/h								1.000
75 km/h								1.000
80 km/h								1.000
Total	18.000	18.000	18.000	18.000	18.000	18.000	30.000	

2.3.3.3.1

試驗 速度	白天											晚上										
	遠端成人碰撞 情境試驗		近端成人碰撞 情境試驗		近端兒童障礙物 碰撞情境試驗		前端成人碰撞 情境試驗		絲帶成人碰撞情境試驗				側垂成人及兒童 碰撞情境試驗		遠端成人碰撞 情境試驗		近端成人碰撞 情境試驗		近端兒童障礙物 碰撞情境試驗		前端成人碰撞 情境試驗	
	50%	25%	75%	50%	50%	25%	反向		同向		靜止	移動	50%	25%	75%	50%	25%	75%	50%	25%		
							遠端	近端	遠端	近端												
4 km/h											1,000	1,000										
8 km/h											1,000	1,000										
10 km/h	1,000		1,000	1,000	1,000				1,000	1,000	1,000	1,000		1,000	1,000	1,000	1,000		1,000			
15 km/h	1,000		1,000	1,000	1,000				1,000		1,000			1,000	1,000	1,000	1,000		1,000			
20 km/h	1,000		1,000	1,000	1,000	1,000		1,000		1,000				1,000	1,000	1,000	1,000	1,000		1,000		
25 km/h	1,000		1,000	1,000	1,000	1,000		1,000						1,000	1,000	1,000	1,000	1,000		1,000		
30 km/h	2,000		2,000	2,000	2,000	1,000								1,000	1,000	1,000	1,000	1,000		1,000		
35 km/h	3,000		3,000	3,000	3,000	2,000								2,000	2,000	2,000	2,000	2,000		2,000		
40 km/h	3,000		3,000	3,000	3,000	2,000								2,000	2,000	2,000	2,000	2,000		2,000		
45 km/h	3,000		3,000	3,000	3,000	3,000								3,000	3,000	3,000	3,000	3,000		3,000		
50 km/h	2,000		2,000	2,000	2,000	3,000	3,000							3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	
55 km/h	2,000		2,000	2,000	2,000	3,000	3,000							3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	
60 km/h	1,000		1,000	1,000	1,000	2,000	2,000							2,000	2,000	2,000	2,000	2,000		2,000	2,000	
65 km/h						1,000															1,000	
70 km/h						1,000															1,000	
75 km/h						1,000															1,000	
80 km/h						1,000															1,000	
總分	20,000		40,000		20,000		30,000			8,000			4,000		20,000		40,000		20,000		30,000	
情境分數	0.250		0.250		1,000		0.500			2,000			2,000		0.750		0.750		0.500		1,000	
						6,000											3,000					

2.3.3.3.1

修正後

修正前

試驗 速度	遠端成人碰撞 情境試驗-50	近端成人碰撞 情境試驗-75		近端成人碰撞 情境試驗-75		近端兒童碰撞 情境試驗-50	前端成人碰撞 情境試驗-50	前端成人碰撞 情境試驗-25
	白天	白天	夜間	白天	夜間	白天	日夜	
20 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
25 km/h	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
30 km/h	2.000	2.000	1.000	2.000	1.000	2.000	1.000	
35 km/h	3.000	3.000	2.000	3.000	2.000	3.000	2.000	
40 km/h	3.000	3.000	2.000	3.000	2.000	3.000	2.000	
45 km/h	3.000	3.000	3.000	3.000	3.000	3.000	3.000	
50 km/h	2.000	2.000	3.000	2.000	3.000	2.000	3.000	3.000
55 km/h	2.000	2.000	3.000	2.000	3.000	2.000	3.000	3.000
60 km/h	1.000	1.000	2.000	1.000	2.000	1.000	2.000	2.000
65 km/h								1.000
70 km/h								1.000
75 km/h								1.000
80 km/h								1.000
總分	18.000	18.000	18.000	18.000	18.000	18.000	30.000	

2.3.2.1

AEB Pedestrian	Daytime			Nighttime		
	Points	Percentage	Score	Points	Percentage	Score
CPFA	16,000	80,0%	0,200	14,000	70,0%	0,525
CPNA	36,000	90,0%	0,225	32,000	80,0%	0,600
CPNCO	11,000	55,0%	0,550	10,000	50,0%	0,250
CPLA	24,000	80,0%	0,400	30,000	100,0%	1,000
CPTA	7,000	87,5%	1,750			
CPRA/CPRC	4,000	100,0%	2,000			
TOTAL	5,125			2,375		
	7,500					

1.4.1.1

Scenario	Daytime		Night-time	
CPFA-50	16.02	89.0%		
CPNA-25	18.00	100.0%	14.93	82.9%
CPNA-75	18.00	100.0%	15.84	88.0%
CPNC-50	14.94	83.0%		
CPLA	22.50	75.0%	24.00	80.0%
TOTAL	89.4 % or 2.682 points		83.6 % or 2.509 points	

2.3.3.3.1.1

2.3.3.3.2.1

修正後

緊急煞車輔助系統之 行人碰撞情境試驗	白天			晚上		
	得分	百分比	分數	得分	百分比	分數
遠端成人碰撞情境試驗	16.000	80.0%	0.200	14.000	70.0%	0.525
近端成人碰撞情境試驗	36.000	90.0%	0.225	32.000	80.0%	0.600
近端兒童障礙物 碰撞情境試驗	11.000	55.0%	0.550	10.000	50.0%	0.250
前端成人碰撞情境試驗	24.000	80.0%	0.400	30.000	100.0%	1.000
轉彎成人碰撞情境試驗	7.000	87.5%	1.750			
倒車成人及兒童 碰撞情境試驗	4.000	100.0%	2.000			
總分	5.125			2.375		
	7.500					

2.3.3

Test speed	Daytime							
	CBFA	CBNA	CBNAO	CBLA		CBTA		CBDA
	50%	50%	50%	50%	25%	Opposite direction		
						Farside	Nearside	Stationary
0 km/h								1.000
10 km/h	1.000	1.000	1.000			1.000	1.000	
15 km/h	1.000	1.000	1.000			1.000		
20 km/h	1.000	1.000	1.000			1.000		
25 km/h	1.000	1.000	1.000	1.000				
30 km/h	1.000	1.000	1.000	1.000				
35 km/h	1.000	1.000	1.000	2.000				
40 km/h	1.000	1.000	1.000	2.000				
45 km/h	1.000	1.000	1.000	3.000				
50 km/h	1.000	1.000	1.000	3.000	3.000			
55 km/h	1.000	1.000	1.000	3.000	3.000			
60 km/h	1.000	1.000	1.000	1.000	1.000			
65 km/h					1.000			
70 km/h					1.000			
75 km/h					1.000			
80 km/h					1.000			
TOTAL	11.000	11.000	11.000	27.000		4.000		1.000
Scenario points	2.000	1.000	1.000	2.000		2.000		1.000
	9.000							

2.3.3.3.3

修正前

試驗情境	白天		夜間	
遠端成人碰撞情境-50	16.02	89.0%		
近端成人碰撞情境-25	18.00	100.0%	14.93	82.9%
近端成人碰撞情境-75	18.00	100.0%	15.84	88.0%
近端兒童碰撞情境-50	14.94	83.0%		
前端成人碰撞情境	22.50	75.0%	24.00	80.0%
總分	89.4%or 2.682 分		83.6%or 2.509分	

1.4.2

Test speed	CBNA	CBLA	
20 km/h	1.000		
25 km/h	1.000	1.000	
30 km/h	1.000	1.000	
35 km/h	1.000	2.000	
40 km/h	1.000	2.000	
45 km/h	1.000	3.000	
50 km/h	1.000	3.000	3.000
55 km/h	1.000	3.000	3.000
60 km/h	1.000	1.000	1.000
65 km/h			1.000
70 km/h			1.000
75 km/h			1.000
80 km/h			1.000
Total	9.000	27.000	

2.3.3.3.2

修正後

試驗速度	白天							
	遠端自行車騎士 碰撞情境試驗	近端自行車騎士 碰撞情境試驗	近端自行車騎士 障礙物碰撞情境 試驗	前端自行車騎士 碰撞情境試驗		轉彎自行車騎士 碰撞情境試驗		車門開啟自行車 騎士碰撞情境試 驗
	50%	50%	50%	50%	25%	反向		
						遠端	近端	靜止
0 km/h								1.000
10 km/h	1.000	1.000	1.000			1.000	1.000	
15 km/h	1.000	1.000	1.000			1.000		
20 km/h	1.000	1.000	1.000			1.000		
25 km/h	1.000	1.000	1.000	1.000				
30 km/h	1.000	1.000	1.000	1.000				
35 km/h	1.000	1.000	1.000	2.000				
40 km/h	1.000	1.000	1.000	2.000				
45 km/h	1.000	1.000	1.000	3.000				
50 km/h	1.000	1.000	1.000	3.000	3.000			
55 km/h	1.000	1.000	1.000	3.000	3.000			
60 km/h	1.000	1.000	1.000	1.000	1.000			
65 km/h					1.000			
70 km/h					1.000			
75 km/h					1.000			
80 km/h					1.000			
總分	11.000	11.000	11.000	27.000		4.000		1.000
情境分數	2.000	1.000	1.000	2.000		2.000		1.000
	9.000							

修正前

試驗速度	近端自行車騎士碰撞情境試驗	前端自行車騎士碰撞情境試驗	
20 km/h	1.000		
25 km/h	1.000	1.000	
30 km/h	1.000	1.000	
35 km/h	1.000	2.000	
40 km/h	1.000	2.000	
45 km/h	1.000	3.000	
50 km/h	1.000	3.000	3.000
55 km/h	1.000	3.000	3.000
60 km/h	1.000	1.000	1.000
65 km/h			1.000
70 km/h			1.000
75 km/h			1.000
80 km/h			1.000
總分	9.000	27.000	

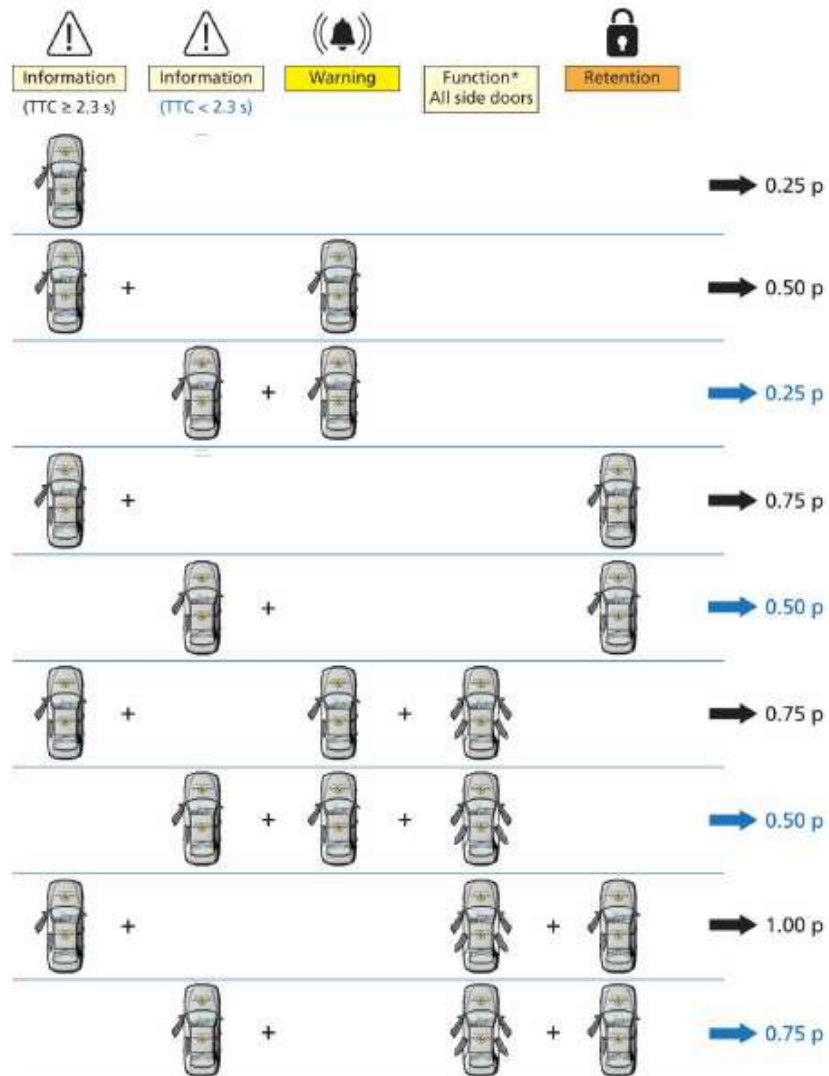
CBDA	Requirement	Criteria	Points	Score
Driver Door Information	Visual Information	TTC $\geq 2.3s$	0.250	0.250
Driver Door Warning or Retention	Visual Warning (e.g., flashing) accompanied by an audible or haptic warning	TTC $\geq 1.7s$	0.250	0.500
	Door Retention	Start @ TTC $\geq 1.7s$ End @ TTC $\leq -0.4s$	0.500	
All Other Side Doors	Warning	TTC $\geq 1.7s$	0.250	0.250
	Door Retention	Start @ TTC $\geq 1.7s$ End @ TTC $\leq -0.4s$		

No visual component for rear doors required

修正後					修正前
車門開啟自行車騎士碰撞情境試驗	要求	判定標準	分數	得分	
駕駛座車門資訊	視覺資訊	碰撞時間大於等於2.3秒	0.25	0.25	
駕駛座車門警示或車門限制	視覺警示(例如閃爍)，且同時搭配聽覺或觸覺警示	碰撞時間大於等於1.7秒	0.25	0.5	
	車門限制	開始@碰撞時間大於等於1.7秒 結束@碰撞時間小於等於-0.4秒	0.5		
其他所有側車門	警示	碰撞時間大於等於1.7秒	0.25	0.25	
	車門限制	開始@碰撞時間大於等於1.7秒 結束@碰撞時間小於等於-0.4秒			
後車門不要求提供視覺資訊					

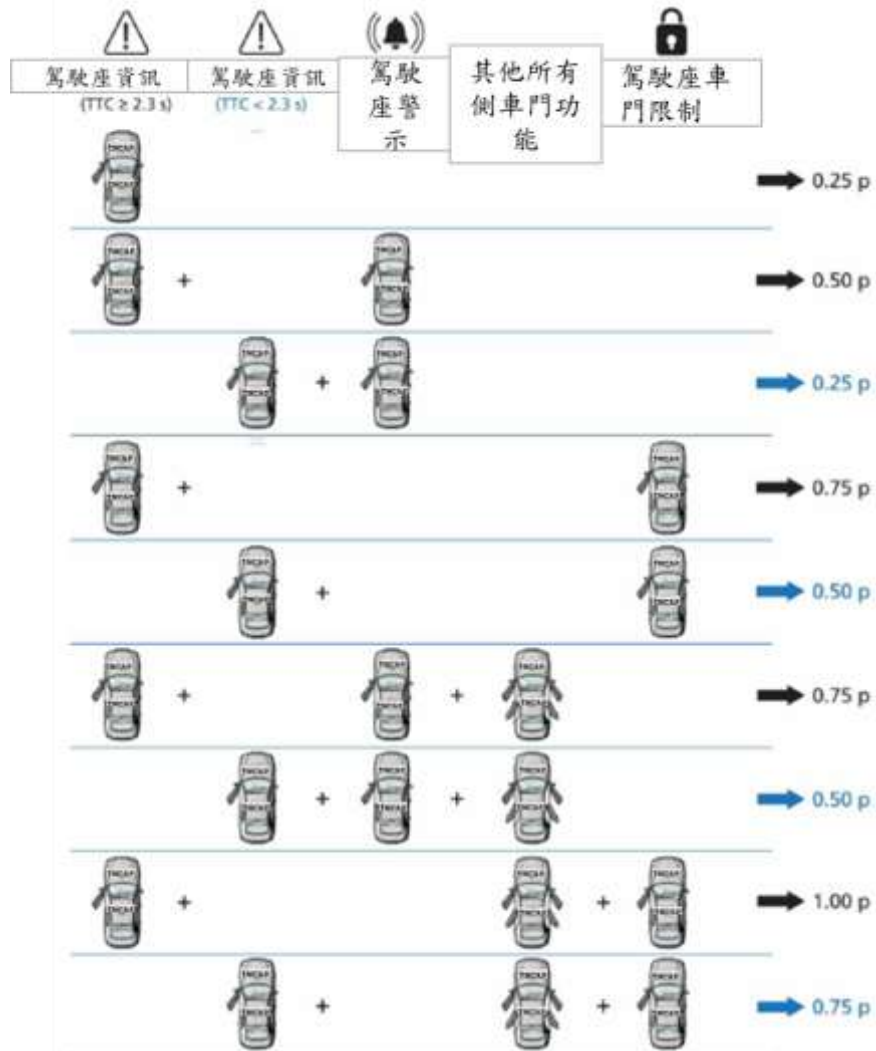
修正後

修正前



* Warning or Retention.
No visual component for rear doors required.

修正後



*警示或防護機制

後車門不要求提供視覺資訊

修正前

修正後

修正前

Special Cases



Information



Warning



Retention

Function*
All side doors



+



→ 0.25 p
Information only



+



→ 0.75 p
Sliding doors - active 10 sec



+

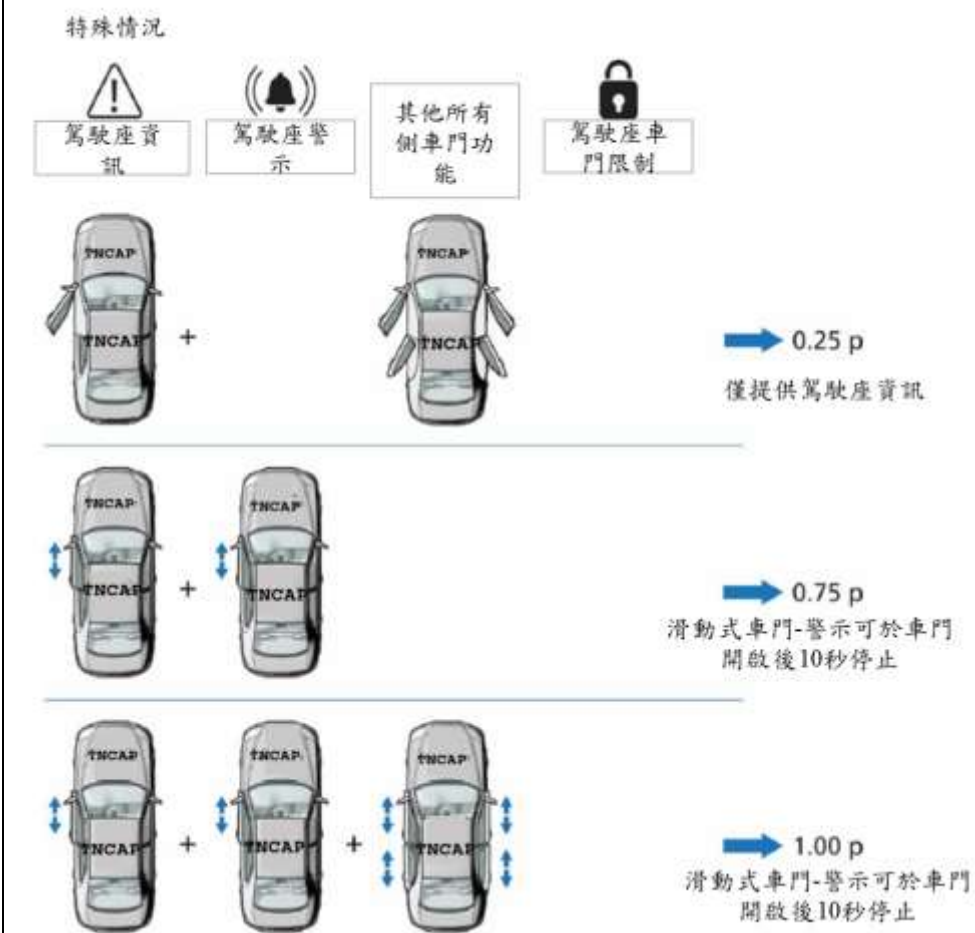


→ 1.00 p
Sliding doors - active 10 sec

* Warning or Retention.
No visual component for rear doors required.

修正後

修正前



*警示或防護機制

後車門不要求提供視覺資訊

修正後

2.3.3.1

AEB Bicyclist	Daytime		
	Points	Percentage	Score
CBFA	8,000	72,7%	1,455
CBNA	11,000	100,0%	1,000
CBNAO	10,000	90,9%	0,909
CBLA	25,000	92,6%	1,852
CBTA	3,000	75,0%	1,500
CBDA	0,500	50,0%	0,500
TOTAL		7,215	

2.3.3.3.1

緊急煞車輔助系統之 自行車騎士碰撞情境試驗	白天		
	分數	百分比	得分
遠端自行車騎士碰撞情境試驗	8.000	72.7%	1.455
近端自行車騎士碰撞情境試驗	11.000	100.0%	1.000
近端自行車騎士障礙物碰撞情境試驗	10.000	90.9%	0.909
前端自行車騎士碰撞情境試驗	25.000	92.6%	1.852
轉彎自行車騎士碰撞情境試驗	3.000	75.0%	1.500
車門開啟自行車騎士碰撞情境試驗	0.500	50.0%	0.500
總分		7.215	

2.3.4

修正前

1.4.2.1

Vtest	pointsTest speed		Vimpact		Scoretest speed	
	AEB	FCW	AEB	FCW	AEB	FCW
25 km/h	1.000		0 km/h		1.000	
30 km/h	1.000		0 km/h		1.000	
35 km/h	2.000		0 km/h		2.000	
40 km/h	2.000		20 km/h		1.000	
45 km/h	3.000		25 km/h		3.000	
50 km/h	3.000	3.000	30 km/h	2.28s TTC	3.000	3.000
55 km/h	3.000	3.000	40 km/h	2.01s TTC	0.000	3.000
60 km/h	1.000	1.000	Not tested	1.71s TTC	0.000	1.000
65 km/h		1.000		1.70s TTC		1.000
70 km/h		1.000		1.69s TTC		0.000
75 km/h		1.000		1.41s TTC		0.000
80 km/h		1.000		1.43s TTC		0.000
Total	27.000				19.000	
Normalised score					70.3%	

2.3.3.3.2.1

試驗速度	分數 試驗速度		碰撞速度		得分 試驗速度	
	AEB	FCW	AEB	FCW	AEB	FCW
25 km/h	1.000		0 km/h		1.000	
30 km/h	1.000		0 km/h		1.000	
35 km/h	2.000		0 km/h		2.000	
40 km/h	2.000		20 km/h		1.000	
45 km/h	3.000		25 km/h		3.000	
50 km/h	3.000	3.000	30 km/h	2.28sTTC	3.000	3.000
55 km/h	3.000	3.000	40 km/h	2.01sTTC	0.000	3.000
60 km/h	1.000	1.000	未測試	1.71sTTC	0.000	1.000
65 km/h		1.000		1.70sTTC		1.000
70 km/h		1.000		1.69sTTC		0.000
75 km/h		1.000		1.41sTTC		0.000
80 km/h		1.000		1.43sTTC		0.000
總分	27.000				19.000	
常態化分數					70.3%	

修正後

修正前

Test speed	AEB						FCW			LSS					
	CMRs	CMRb		CMFtap			CMRs	CMRb		CMoncoming	CMovertaking				
		50%	25% & 12m	25% & 40m	30 km/h	45 km/h		60 km/h	Unintentional		Intentional				
									72 km/h		60 km/h	80km/h	60km/h	80 km/h	
10 km/h	1.000			1.000	1.000	1.000									
15 km/h	1.000			1.000	1.000	1.000									
20 km/h	1.000			1.000	1.000	1.000									
25 km/h	1.000														
30 km/h	1.000						1.000								
35 km/h	1.000						1.000								
40 km/h	1.000						1.000								
45 km/h	1.000						1.000								
50 km/h	1.000	1.000	1.000				1.000	1.000	1.000		0.500		0.500		
55 km/h	1.000						1.000								
60 km/h	1.000						1.000								
72 km/h										2.000		0.500		0.500	
TOTAL	11.000	2.000		9.000			7.000	2.000		2.000	2.000				
Scenario points	1.000	1.000		3.000			0.500	0.500		2.000	1.000				
	9.000														

2.3.3.3.4

試驗速度	緊急煞車輔助系統						前方碰撞預警系統			車道輔助系統							
	機車騎士靜止碰撞情境試驗	機車騎士煞車碰撞情境試驗		轉彎機車騎士碰撞情境試驗			機車騎士靜止碰撞情境試驗	機車騎士煞車碰撞情境試驗		對向來車機車騎士碰撞情境試驗	車道超車機車騎士碰撞情境試驗						
		50%	25% &12m	25% &40m	30km/h	45km/h		60km/h	50%		25% &12m	25% &40m	72km/h	非刻意		刻意	
														60km/h	80km/h	60km/h	80km/h
10 km/h	1.000			1.000	1.000	1.000											
15 km/h	1.000			1.000	1.000	1.000											
20 km/h	1.000			1.000	1.000	1.000											
25 km/h	1.000																
30 km/h	1.000						1.000										
35 km/h	1.000						1.000										
40 km/h	1.000						1.000										
45 km/h	1.000						1.000										
50 km/h	1.000	1.000	1.000				1.000	1.000	1.000		0.500		0.500				
55 km/h	1.000						1.000										
60 km/h	1.000						1.000										
72 km/h										2.000		0.500			0.500		
總分	11.000	2.000		9.000			7.000	2.000		2.000	2.000						
情境分數	1.000	1.000		3.000			0.500	0.500		2.000	1.000						
	9.000																

修正後

[2.3.4.1](#)

AEB Motorcyclist	Daytime		
	Points	Percentage	Score
CMRs AEB	8,000	72,7%	0,727
CMRb AEB	1,000	50,0%	0,500
CMFtap	9,000	100,0%	3,000
CMRs FCW	5,000	71,4%	0,357
CMRb FCW	2,000	100,0%	0,500
CMoncoming	2,000	100,0%	2,000
CMovertaking	0,000	0,0%	0,000
TOTAL		7,084	

[2.3.3.4.1](#)

緊急煞車輔助系統之 機車騎士碰撞情境試驗	白天		
	分數	百分比	得分
機車騎士靜止碰撞情境試驗(AEB)	8.000	72.7%	0.727
機車騎士煞車碰撞情境試驗(AEB)	1.000	50.0%	0.500
轉彎機車騎士碰撞情境試驗	9.000	100.0%	3.000
機車騎士靜止碰撞情境試驗(FCW)	5.000	71.4%	0.357
機車騎士煞車碰撞情境試驗(FCW)	2.000	100.0%	0.500
對向來車機車騎士碰撞情境試驗	2.000	100.0%	2.000
車道超車機車騎士碰撞情境試驗	0.000	0.0%	0.000
總分		7.084	

[2.4](#)

Colour	Verdict	Applied to Total Score	Applied to Scenario
Green	'Good'	6.751 - 9.000 points	75.0% - 100.0%
Yellow	'Adequate'	4.501 - 6.750 points	50.0% - 75.0%
Orange	'Marginal'	2.251 - 4.500 points	25.0% - 50.0%
Brown	'Weak'	0.001 - 2.250 points	00.0% - 25.0%
Red	'Poor'	0.000 points	00.0%

[2.3.3.4](#)

修正前

[1.4.3](#)

Colour	Verdict	Applied to Total Score	Applied to Scenario
Green	'Good'	4.501 - 6.000 points	75.0% - 100.0%
Yellow	'Adequate'	3.001 - 4.500 points	50.0% - 75.0%
Orange	'Marginal'	1.501 - 3.000 points	25.0% - 50.0%
Brown	'Weak'	0.001 - 1.500 points	00.0% - 25.0%
Red	'Poor'	0.000 points	00.0%

[2.3.3.3.3](#)

修正後				修正前			
顏色	判定	適用於總得分	功能性比	顏色	判定	適用於總得分	功能性比
綠色	優	<u>6.751-9.000</u> 分	75.0%-100.0%	綠色	優	<u>4.501-6.000</u> 分	75.0%-100.0%
黃色	良好	<u>4.501-6.750</u> 分	50.0%-75.0%	黃色	良好	<u>3.001-4.500</u> 分	50.0%-75.0%
橘色	尚可	<u>2.251-4.500</u> 分	25.0%-50.0%	橘色	尚可	<u>1.501-3.000</u> 分	25.0%-50.0%
棕色	差	0.001- <u>2.250</u> 分	00.0%-25.0%	棕色	差	0.001- <u>1.500</u> 分	00.0%-25.0%
紅色	不良	0.000 分	00.0%	紅色	不良	0.000 分	00.0%
灰色	未具備	0.000 分	00.0%	灰色	未具備	0.000 分	00.0%

2.4.2 車速輔助系統評等 <<本案暫以 2.4 規章編號說明車速輔助系統評等條文修訂內容，後續擬修訂至 2.1 安全駕駛評等規章 >>

Euro NCAP Assessment Protocol – Safety Assist Safe Driving Version 10.4

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4 ASSESSMENT OF SPEED ASSIST SYSTEMS 4.2 Definitions Throughout this protocol the following terms are used: ... Speed Limit Warning Function (SLWF) – SLWF means a function that alerts the driver that the Vindicated is exceeding the perceived speed limit Adjustable speed (Vadj) – Adjustable speed Vadj means the voluntarily set speed for the speed control functions, which is based on Vindicated and includes the offset set by the driver. Speed Limitation Function (SLF) – SLF means a system which allows the driver to set a vehicle speed Vadj, to which he wishes the speed of his car to be limited and above which he wishes	4 ASSESSMENT OF SPEED ASSIST SYSTEMS 4.2 Definitions Throughout this protocol the following terms are used: ... Adjustable speed (Vadj) – Adjustable speed Vadj means the voluntarily set speed for the speed control functions, which is based on Vindicated and includes the offset set by the driver. Speed Limitation Function (SLF) – SLF means a system which allows the driver to set a vehicle speed Vadj, to which he wishes the speed of his car to be limited and above which he wishes	2.4.2 車速輔助系統評等 2.4.2.1 名詞釋義 ... <u>2.4.2.1.4 車速限制警示功能(Speed Limit Warning Function, SLWF)：係指當指示速率超過感知車速限制時，向駕駛發出警示之功能。</u> 2.4.2.1.5 可調式限制車速 (V_{adj})：係指駕駛自行設定之車速控制功能車速值，設定的車速值以指示速率為基礎，並將駕駛設定的偏差值 (offset) 納入計算。 2.4.2.1.6 車速限制功能 (Speed Limitation Function, SLF)：車速限制功能為一系統，能讓駕駛設定可調式限制車速 (V_{adj})，以限制車輛車速上限及/或超過該車速時應發出警示。	2.4.2 車速輔助系統評等 2.4.2.1 名詞釋義 ... 2.4.2.1.4 可調式限制車速 (V_{adj})：係指駕駛自行設定之車速控制功能車速值，設定的車速值以指示速率為基礎，並將駕駛設定的偏差值 (offset) 納入計算。 2.4.2.1.5 車速限制功能 (Speed Limitation Function, SLF)：車速限制功能為一系統，能讓駕駛設定可調式限制車速 (V_{adj})，以限制車輛車速上限及/或超過該車速時應發出警示。

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to be warned.	to be warned.		
Intelligent Speed Limiter (ISL) – ISL is a SLF combined with SLIF, where the Vadj is set by the SLIF with or without driver confirmation.	Intelligent Speed Assistance (ISA) – ISA is a SLF combined with SLIF, where the Vadj is set by the SLIF with or without driver confirmation.	2.4.2.1.7 智慧車速限制 (Intelligent Speed Limiter, ISL)：智慧車速限制是一套結合車速限制功能(SLF)與車速限制資訊功能(SLIF)的系統，其可調式限制車速(V _{adj})係由車速限制資訊功能(SLIF)在無須經駕駛確認下便自動設定或經駕駛確認後自動設定。	2.4.2.1.6 智能車速輔助 (Intelligent Speed Assistance, ISA)：智能車速輔助是一套結合車速限制功能(SLF)與車速限制資訊功能(SLIF)的系統，其可調式限制車速(V _{adj})係由車速限制資訊功能(SLIF)在無須經駕駛確認下便自動設定或經駕駛確認後自動設定。
Intelligent Adaptive Cruise Control (iACC) – iACC is an ACC combined with SLIF, where the speed is set by the SLIF with or without driver confirmation.	Intelligent Adaptive Cruise Control (iACC) – iACC is an ACC combined with SLIF, where the speed is set by the SLIF with or without driver confirmation.	2.4.2.1.8 智慧巡航控制 (Intelligent Adaptive Cruise Control, iACC)：智慧巡航控制是一套整合自動巡航系統(ACC)及車速限制資訊功能(SLIF)的系統，其速度係由車速限制資訊功能在無須經駕駛確認下便自動設定或經駕駛確認後自動設定。	2.4.2.1.7 智能巡航控制 (Intelligent Adaptive Cruise Control, iACC)：智能巡航控制是一套整合自動巡航系統(ACC)及車速限制資訊功能(SLIF)的系統，其速度係由車速限制資訊功能在無須經駕駛確認下便自動設定或經駕駛確認後自動設定。
The following term is used for the assessment of the Speed Limitation function:	The following term is used for the assessment of the Speed Limitation function:		
Stabilised speed (Vstab) – Stabilised	Stabilised speed (Vstab) – Stabilised	2.4.2.1.9 穩定車速 (Stabilised speed,	2.4.2.1.8 穩定車速 (Stabilised speed,

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speed Vstab means the mean actual vehicle speed when operating. Vstab is calculated as the average actual vehicle speed over a time interval of 20 seconds beginning 10 seconds after first reaching Vadj – 10 km/h.	speed Vstab means the mean actual vehicle speed when operating. Vstab is calculated as the average actual vehicle speed over a time interval of 20 seconds beginning 10 seconds after first reaching Vadj – 10 km/h.	V _{stab})：穩定車速係指車輛運作時的實際平均速度。車速達可調式限制車速設定值減 10km/h 的 10 秒後之 20 秒區間內採樣實際車輛速度所計算出之平均值即為穩定車速。	V _{stab})：穩定車速係指車輛運作時的實際平均速度。車速達可調式限制車速設定值減 10km/h 的 10 秒後之 20 秒區間內採樣實際車輛速度所計算出之平均值即為穩定車速。
4.3 Requirements for SLIF and Speed Control Functions	4.3 Requirements for SLIF and Speed Control Functions	2.4.2.2 車速限制資訊功能及車速控制功能之規定	2.4.2.2 車速限制資訊功能及車速控制功能之規定
...	...	...	...
4.3.1 Speed Limit Information Function	4.3.1 Speed Limit Information Function	2.4.2.2.1 車速限制資訊功能(SLIF)	2.4.2.2.1 車速限制資訊功能(SLIF)
- Basic SLIF meeting the General Requirements on this protocol (4.4.1) and the ones set by GSR ISA EU 2021/4455 (SLIF Technical Requirements – chapter 3.4)	- Basic SLIF meeting the General Requirements	(1) 符合 <u>本規章條文 2.4.2.3.1</u> 一般需求之基本車速限制資訊功能 <u>以及 GSR ISA EU 2021/4455 所設定的之需求 (SLIF 技術規定——第 3.4 章)</u> 。 (GSR 規定國內不適用，故刪除)	(1) 符合一般需求之基本車速限制資訊功能
- Advanced Functions	- Advanced Functions	(2) 高階功能	(2) 高階功能
- Conditional speed limits		(A) <u>條件式車速限制</u>	(3) <u>系統準確性</u>
- Road features		(B) <u>道路特徵</u>	(4) 警示功能
- Local hazards		(C) <u>當地道路風險</u>	
- System updates	- System Accuracy	(D) <u>系統更新</u>	
- Warning function	- Warning Function	(3) 警示功能	

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4.3.2 <u>Speed Control Function</u> - Speed Limitation Function (without SLIF coupling) - Intelligent Speed Limiter (SLIF and Speed Limitation Function coupled) - Intelligent ACC (SLIF and ACC coupled)	4.3.2 <u>Speed Control function</u> - Speed Limitation function (standalone function or combined with SLIF without coupling) - Intelligent Speed Assistance (SLIF and Speed Limitation function coupled) - Intelligent ACC (SLIF and ACC coupled)	2.4.2.2.2 車速控制功能(SCF) (1) 車速限制功能 (<u>未整合車速限制資訊功能</u>) (2) 智慧車速限制(車速限制資訊功能與車速限制功能整合) (3) 智慧巡航控制(車速限制資訊功能與自動巡航系統(ACC)整合)	2.4.2.2.2 車速控制功能(SCF) (1) 車速限制功能 (<u>具有獨立功能，或車速限制功能+車速限制資訊功能但未整合</u>) (2) 智能車速輔助(車速限制資訊功能與車速限制功能整合) (3) 智能巡航控制(車速限制資訊功能與自動巡航系統(ACC)整合)
4.4 Speed Limit Information Function The Speed Limit Information Function can be a standalone function or an integrated part of a Speed Control Function. Any SLIF using all relevant system inputs, for example camera input and electronic map based or a combination of both, is eligible for scoring points for Advanced Functions when meeting the General Requirements when the SLIF is default ON at the start of a journey.	4.4 Speed Limit Information Function The Speed Limit Information Function can be a standalone function or an integrated part of a speed control function. Any SLIF, camera or map based or a combination of both, is eligible for scoring points of this section when meeting the General Requirements when the SLIF is default ON at the start of a journey.	2.4.2.3 車速限制資訊功能 車速限制資訊功能可為單獨功能或車速控制功能的一部分。任何車速限制資訊功能，無論<u>使用所有相關系統輸入，例如：攝影機輸入、數位地圖為主或兩者兼具</u>，每次啟動車輛時，車速限制資訊功能之預設狀態應為「開啟」，若符合此一般要求，即可<u>符合高階功能</u>得分。	2.4.2.3 車速限制資訊功能 車速限制資訊功能可為單獨功能或車速控制功能的一部分。任何車速限制資訊功能，無論是攝影機<u>為主、地圖為主或兩者兼具</u>，每次啟動車輛時，車速限制資訊功能之預設狀態應為「開啟」，若符合此一般要求，即可得分。

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	The speed limit information could either be provided by vehicle-integrated devices or by mobile devices connected to the vehicle network. A list of compatible devices needs to be mentioned in the vehicle handbook.		<u>車速限制資訊功能可由車輛整合裝置提供，亦可由車輛網絡連結之行動裝置提供。車主手冊中應列出所有相容之裝置。</u>
4.4.1 <u>General Requirements</u> ...	4.4.1 <u>General Requirements</u> ...	2.4.2.3.1 一般規定 ...	2.4.2.3.1 一般規定 ...
The speed limit information must be shown at all times (excluding the initialization period and temporary interruption for safety reasons).	The speed limit information must be shown or accessible at any time with a simple operation and needs to be shown at the start of the next journey (excluding the initialization period).	2.4.2.3.1.2 車速限制資訊應全程顯示（不含啟動階段 及安全因素短期介入 ）。	2.4.2.3.1.2 車速限制資訊應全程顯示 <u>或僅需進行簡單操作即可顯示，且應於下一趟旅程開始時顯示</u> （不含啟動階段）。
The indicated speed limit information may indicate the level of reliability of the speed limit.	The indicated speed limit information may indicate the level of reliability of the speed limit.	2.4.2.3.1.3 顯示之車速限制資訊可同時顯示車速限制之可靠度。	2.4.2.3.1.3 顯示之車速限制資訊可同時顯示車速限制之可靠度。
In the presence of explicit conditional speed limits (see for examples Appendix I) the system needs to either: - Properly identify and show (for example when raining) the applicable	In the presence of conditional speed limits (see Appendix I) the system needs to either properly identify and show (for example when raining) the applicable speed limit or alternatively,	2.4.2.3.1.4 若出現 明確的 條件式車速限制（參 2.4.2.6 範例 ）， <u>系統應符合下述任一項要求：</u> (1) 系統應準確辨識且顯示當下之車速限制（如下雨的情況），	2.4.2.3.1.4 若出現條件式車速限制（參 2.4.2.6），系統應準確辨識且顯示當下之車速限制（如下雨的情況）， 或是 告知駕駛前方有系統無法 處理 之條件式車速限制狀況， 以及

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speed limit or - Needs to indicate the presence of a conditional speed limit which the system is not able to compute, in addition to the non-conditional speed limit. Manufacturers must supply Euro NCAP with background information of the SLIF (if applicable to the technology). 4.4.1.1 Warning Function Any Speed Limit Information Function requires a warning function to indicate the driver that Vlimit is exceeded. The warning function shall be default ON. It may be switched OFF fully or partially by the driver, but it shall be reinstated in normal operation mode upon each activation of the vehicle master control switch. - The warning shall be a flashing traffic sign used to communicate the speed	needs to indicate the presence of a conditional speed limit which the system is not able to compute, in addition to the non-conditional speed limit. Manufacturers need to supply Euro NCAP with background information of the SLIF (if applicable to the technology).	(2) <u>除顯示非條件式車速限制外</u>，亦應告知駕駛前方有系統無法<u>計算</u>之條件式車速限制狀況。 2.4.2.3.1.5 車輛業者應將車速限制資訊功能之背景資料提供給 TNCAP 執行機構(若該技術可適用)。 <u>2.4.2.3.1.6 警示功能</u> <u>在任何車速限制資訊功能中，當超出車速限制值時</u><u>警示功能應</u>警示駕駛。警示功能<u>應預設為開啟</u>。<u>駕駛可完全或部分關閉該功能，但每次啟動車輛主控制開關後，警示功能應在正常操作模式下重新啟動。</u> (1) 警示應為一個閃爍的交通標誌，用於傳達車速限制或交通標誌相	非條件式車速限制。 2.4.2.3.1.5 車輛業者應將車速限制資訊功能之背景資料提供給 TNCAP 執行機構(若該技術可適用)。

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limit or an additional visual signal adjacent to the traffic sign. 4.4.2 <u>Advanced Functions</u> Those systems providing more advanced functions in the following three areas can score additional points: - Advanced speed limits - Road features - Local hazards These advanced functions are not required to be default ON. For each advanced function, in order to be awarded with the corresponding points, the manufacturer must provide evidence that the advanced functions operate as intended, unless the infrastructure would not enable these functions. The evidence shall demonstrate that the features can support the driver during at least 80% of typical driving on public roads. This requirement must be met in all the following conditions:	4.4.2 <u>Advanced Functions</u>	鄰的附加視覺信號。 2.4.2.3.2 高階功能 <u>在下述三個領域中提供更多高階功能之系統可獲得額外分數:</u> (1) <u>高階車速限制</u> (2) <u>道路特徵</u> (3) <u>當地道路風險</u> <u>這些高階功能不須預設開啟。</u> <u>針對各項高階功能，車輛業者應提供佐證證明高階功能運作符合預期，則可獲得相對應分數，若因基礎設施無法啟動這些功能時，則不在此限。另應佐證該功能於一般日常公共道路行駛過程中，至少 80% 之一般駕駛期間皆能為駕駛提供支援。應符合下述所有條件:</u>	2.4.2.3.2 高階功能

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•In these specific countries: Austria, France, Germany, Italy, Luxemburg, the Netherlands, Spain, Sweden and the United Kingdom (Norway from 2024). •In at least half of the countries of the Euro NCAP Application Area (as defined in TB002). <u>4.4.2.1 Advanced speed limits</u> Systems that are able to properly identify conditions and act accordingly can attract points based on the number of conditions it can identify compute and show correctly. The speed limit under these conditions shall not be shown separately from the speed limit information requested in the general requirements (Section 4.4.1). These functions are listed in the table below and example traffic signs of a limited number of countries are specified in APPENDIX I.		(1) 在這些特定國家:奧地利、法國、德國、義大利、盧森堡、荷蘭、西班牙、瑞典以及英國(挪威自 2024 年起) (此條文國內不適用，故刪除) (2) 至少在 Euro NCAP 應用範圍(如 TB002 中定義)內一半的國家。 (此條文國內不適用，故刪除) 2.4.2.3.2.1 <u>高階車速限制</u> 若系統能夠正確識別條件並採取相應地行動，可依據<u>正確識別計算及顯示條件</u>之符合數量獲得分數。<u>這些條件式車速限制不應與一般規範（參 2.4.2.3.1 節）中要求之車速限制資訊分開顯示。</u> 功能如下表所列，2.4.2.6 列出部分交通標誌範例。	
	Systems that are able to properly identify conditions and act accordingly can attract additional points based on the number of advanced functions. These functions are listed in the table below and example traffic signs of a limited number of countries are specified in APPENDIX I.		2.4.2.3.2.1 若系統能夠正確識別條件並採取相應地行動，可依據高階功能之符合數量額外獲得分數。功能如下表所列，2.4.2.6 列出部分交通標誌範例。

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<table><tr><th colspan="2">AWARDED SPEED LIMITS</th><th>Points</th><th>Required Action</th></tr><tr><td rowspan="6">Conditional Speed Limits</td><td>Weather</td><td>2</td><td>Show correct speed limit</td></tr><tr><td>Rain / Wetness</td><td>2</td><td>Warning only and ignore if irrelevant</td></tr><tr><td>Time</td><td>2</td><td>Show correct speed limit</td></tr><tr><td>Distance</td><td>1</td><td>Show correct speed limit</td></tr><tr><td>Arrival</td><td>1</td><td>Show correct speed limit / ignore if irrelevant</td></tr><tr><td>Other vehicle / weight categories</td><td>1</td><td>Show correct speed limit</td></tr><tr><td rowspan="2">England Speed Limits</td><td>Highway / Motorway</td><td>5</td><td rowspan="2">Show correct speed limit</td></tr><tr><td>City Entry / Exit</td><td>5</td></tr><tr><td>Residential areas</td><td>2</td><td></td></tr><tr><td>Dynamic Speed Limits</td><td>Dynamic speed signs including roadworks</td><td>3</td><td>Show correct speed limit</td></tr><tr><td colspan="2">TOTAL</td><td>20</td><td></td></tr></table> ¹⁰ including imports	AWARDED SPEED LIMITS		Points	Required Action	Conditional Speed Limits	Weather	2	Show correct speed limit	Rain / Wetness	2	Warning only and ignore if irrelevant	Time	2	Show correct speed limit	Distance	1	Show correct speed limit	Arrival	1	Show correct speed limit / ignore if irrelevant	Other vehicle / weight categories	1	Show correct speed limit	England Speed Limits	Highway / Motorway	5	Show correct speed limit	City Entry / Exit	5	Residential areas	2		Dynamic Speed Limits	Dynamic speed signs including roadworks	3	Show correct speed limit	TOTAL		20		<table><tr><th colspan="2">Advanced Functions</th><th>Points</th><th>Required Action</th></tr><tr><td rowspan="6">Weather</td><td>Rain / Wetness</td><td>2</td><td>Show correct speed limit</td></tr><tr><td>Snow / Ice</td><td>2</td><td>Warning only and ignore if irrelevant</td></tr><tr><td>Time</td><td>5</td><td>Show correct speed limit</td></tr><tr><td>Distance</td><td>1</td><td>Show correct speed limit</td></tr><tr><td>Arrival</td><td>1</td><td>Show correct speed limit or ignore if irrelevant</td></tr><tr><td>Vehicle Categories</td><td>1</td><td>Ignore if irrelevant</td></tr><tr><td rowspan="2">England Speed Limits</td><td>Highway / Motorway</td><td>5</td><td rowspan="2">Show correct speed limit</td></tr><tr><td>City Entry / Exit</td><td>5</td></tr><tr><td>Residential areas</td><td>2</td><td></td></tr><tr><td>Dynamic Speed Limits</td><td>Dynamic speed signs including roadworks</td><td>3</td><td>Show correct speed limit</td></tr><tr><td colspan="2">TOTAL</td><td>30</td><td></td></tr></table> The Advanced Functions score is calculated by multiplying the points achieved by 0.025. A system that achieves more than 12 out of 20 points from the Advanced Functions will be awarded the score for System Accuracy. If map-based data is required to achieve any of the points up to 12 the speed limits must be updated frequently (at least quarterly) and automatically for the first six years, without user action. (ex. sending DVD/USB to customer allowed).	Advanced Functions		Points	Required Action	Weather	Rain / Wetness	2	Show correct speed limit	Snow / Ice	2	Warning only and ignore if irrelevant	Time	5	Show correct speed limit	Distance	1	Show correct speed limit	Arrival	1	Show correct speed limit or ignore if irrelevant	Vehicle Categories	1	Ignore if irrelevant	England Speed Limits	Highway / Motorway	5	Show correct speed limit	City Entry / Exit	5	Residential areas	2		Dynamic Speed Limits	Dynamic speed signs including roadworks	3	Show correct speed limit	TOTAL		30		(請參末頁表格)	(請參末頁表格) 2.4.2.3.2.2 高階功能得分之計算方法是將所得分數乘以 0.025。 2.4.2.3.3 系統準確性 2.4.2.4.3.1 若系統可從高階功能 20 分中獲得超過 12 分，則可獲得系統準確性之分數。 若使用地圖的基本數據得到 12 分者，其應經常性更新(至少每季一次)，以及前六年應能自動更新，無須使用者手動更新(例如，允許寄送 DVD / USB 予消費者)。
AWARDED SPEED LIMITS		Points	Required Action																																																																																
Conditional Speed Limits	Weather	2	Show correct speed limit																																																																																
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4.4.2.2 Road Features Systems that are able to properly identify road features where a speed, lower than the legal speed limit, is more appropriate and/or advised or the vehicle should come to a stop can attract points based on the number of road features. The recommended speed under these conditions may be shown separately from the speed limit information requested in the general requirements (Section 4.4.1). These road features are listed in the table below and example traffic signs of a limited number of countries are specified in APPENDIX I. <table><tr><th>ROAD FEATURES</th><th>Points</th><th>Required Action</th></tr><tr><td>Curves*</td><td>2</td><td>Show and start reducing to appropriate speed</td></tr><tr><td>Roundabouts*</td><td>2</td><td>Show and start reducing to appropriate speed</td></tr><tr><td>Junctions - without right of way*</td><td>1</td><td>Show and start reducing to appropriate speed</td></tr><tr><td>Traffic lights</td><td>3</td><td>Warning only</td></tr><tr><td>Stop Signs</td><td>1</td><td>Warning only</td></tr><tr><td>Yield Signs</td><td>1</td><td>Warning only</td></tr><tr><td>No Entry</td><td>1</td><td>Warning only</td></tr><tr><td>TOTAL</td><td>10</td><td></td></tr></table> * Only eligible for scoring when linked to SL and/or LCT	ROAD FEATURES	Points	Required Action	Curves*	2	Show and start reducing to appropriate speed	Roundabouts*	2	Show and start reducing to appropriate speed	Junctions - without right of way*	1	Show and start reducing to appropriate speed	Traffic lights	3	Warning only	Stop Signs	1	Warning only	Yield Signs	1	Warning only	No Entry	1	Warning only	TOTAL	10			2.4.2.3.2.2 道路特徵 <u>若系統能夠正確識別速度行駛應低於法定車速限制才更合適及/或建議，或應停止車輛之道路特徵，則可依據道路特徵之數量獲得分數。</u> <u>這些情況下之建議車速，可與一般規範（參 2.4.2.3.1 節）中要求的車速限制資訊分開顯示。</u> <u>道路特徵如下表所列，並於 2.4.2.6 節列出交通標誌範例。</u> <u>(請參末頁表格)</u>	
ROAD FEATURES	Points	Required Action																												
Curves*	2	Show and start reducing to appropriate speed																												
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<u>4.4.2.3 Local Hazards</u> Systems that are able to receive messages and process them to warn for local hazards before the come within the field of view of the vehicle forward looking sensors can attract points for the features implemented. The possible features to select from are listed in the table below. The information / warning referring to these conditions may be shown separately from the speed limit information requested in the general requirements (Section 4.4.1). The hazard information/data could either be provided by vehicle-integrated devices or by mobile devices physically connected to the vehicle network (provided in all cases by standard vehicle-integrated driver interfaces). A list of compatible devices needs to be mentioned in the vehicle		<u>2.4.2.3.2.3 當地道路風險</u> <u>系統應能接收訊息及處理，並於當地道路風險尚未進入車輛前向感知器的視野範圍內之前對發出警示，依據已執行之功能而獲得分數。可供選擇之功能詳細列於下表中。</u> <u>涉及這些狀況之資訊/警示，可與一般規範（參 2.4.2.3.1 節）中要求的車速限制資訊分開顯示。</u> <u>危險訊息/數據可由車輛整合裝置提供，或由實體連接至車輛網路行動裝置提供（在所有情況下，均由標準車輛整合之駕駛界面提供）。車主手冊中應列出所有相容裝置之清單。</u>	

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handbook. <table><tr><th>ADVICE MESSAGE</th><th>Points</th><th>Required Action</th></tr><tr><td>Traffic Jams</td><td>2</td><td>Inform and Warn</td></tr><tr><td>Construction Zones</td><td>2</td><td>Inform and Warn</td></tr><tr><td>Accident Ahead</td><td>1</td><td>Inform and Warn</td></tr><tr><td>Strong Wind Onset</td><td>1</td><td>Inform and Warn</td></tr><tr><td>Strapped Vehicle on Road Shoulder</td><td>1</td><td>Inform and Warn</td></tr><tr><td>Trucks on Road Shoulders, animals, persons, debris, etc.</td><td>1</td><td>Inform and Warn</td></tr><tr><td>Poor Road Conditions (incl. slippery roads)</td><td>1</td><td>Inform and Warn</td></tr><tr><td>Poor Weather Conditions (e.g. fog, heavy rain, etc.)</td><td>1</td><td>Inform and Warn</td></tr><tr><td>Emergencies (accidents)</td><td>1</td><td>Inform and Warn</td></tr><tr><td>TOTAL</td><td>10</td><td></td></tr></table> 4.4.2.4 System Updates Keeping systems updated is crucial for a high level of accuracy and acceptance over the lifetime of the vehicle. Systems updates might include map updates and/or any software updated related to the operation of the Speed Assist System in relation to speed limits, conditional speed limits and road features. System updates with the latest and most-up-to-date knowledge can score points based on the frequency of updates when available without user action and free of charge for the duration of the rating.	ADVICE MESSAGE	Points	Required Action	Traffic Jams	2	Inform and Warn	Construction Zones	2	Inform and Warn	Accident Ahead	1	Inform and Warn	Strong Wind Onset	1	Inform and Warn	Strapped Vehicle on Road Shoulder	1	Inform and Warn	Trucks on Road Shoulders, animals, persons, debris, etc.	1	Inform and Warn	Poor Road Conditions (incl. slippery roads)	1	Inform and Warn	Poor Weather Conditions (e.g. fog, heavy rain, etc.)	1	Inform and Warn	Emergencies (accidents)	1	Inform and Warn	TOTAL	10			(請參末頁表格) 2.4.2.3.2.4 系統更新 保持系統更新在車輛使用生命週期內維持高準確性及可接受度至關重要。系統更新可包括地圖更新及/或車速輔助系統運作相關的軟體更新，其包含相關的車速限制、條件式車速限制及道路特徵。 在評等期間，若有更新可用、無需使用者操作及免費，其包含最新且即時資訊，則可依更新頻率獲得分數。	
ADVICE MESSAGE	Points	Required Action																																		
Traffic Jams	2	Inform and Warn																																		
Construction Zones	2	Inform and Warn																																		
Accident Ahead	1	Inform and Warn																																		
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<table><tr><th>SYSTEM UPDATES</th><th>Points</th><th>Required Action</th></tr><tr><td>Quarterly (from 1 to 3 months)</td><td>5</td><td>Automatic update without user action</td></tr><tr><td>Continuous (Daily, weekly)</td><td>10</td><td>Automatic update without user action</td></tr><tr><td>TOTAL</td><td>15</td><td></td></tr></table>	SYSTEM UPDATES	Points	Required Action	Quarterly (from 1 to 3 months)	5	Automatic update without user action	Continuous (Daily, weekly)	10	Automatic update without user action	TOTAL	15		4.4.4 Warning Function Speed Limit Information Functions that meet the warning requirements below to indicate the driver that Vlimit is exceeded will score for Warning Function. The warning function may be switched ON/OFF by the driver where the last user mode may be used. - The warning shall be a flashing traffic sign used to communicate the speed limit or an additional visual signal adjacent to the traffic sign. - The warning commences when Vindicated is exceeding Vlimit by more than 5km/h (3 mph). A negative and/or positive offset with respect to the known speed limit is allowed but may not be larger than 10 km/h (5 mph).	(請參末頁表格)	<u>2.4.2.3.4 警示功能</u> <u>若超出車速限制值時能警示駕駛者，則符合車速限制資訊功能之警示功能得分要求。警示功能之開啟/關閉，可採駕駛之最後使用模式。</u> <u>2.4.2.3.4.1 警示應為一個閃爍的交通標誌，用於傳達車速限制或交通標誌相鄰的附加視覺信號。</u> <u>2.4.2.3.4.2 指示速率（V_{indicated}）應不超過車速限制 5km / h 時開始警示。車速限制允許負及/或正偏差值，但不得大於 10 km/h。</u>
SYSTEM UPDATES	Points	Required Action													
Quarterly (from 1 to 3 months)	5	Automatic update without user action													
Continuous (Daily, weekly)	10	Automatic update without user action													
TOTAL	15														

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	- The driver continues to be informed for the duration of the time that Vlimit is exceeded by more than 5 km/h, with a total duration of at least 10 seconds. Gaps of less than 1 second, which allow for signals which flash are ignored, but the signal may not start with a gap. If the signal is not continuous for the first 10 seconds, it needs to be repeated every 30 seconds or less, resulting in a minimum total duration of at least 10 seconds. - The warning sequence does not need to be reinitiated for each exceedance of Vlimit until Vindicated has reduced to more than 5km/h below Vlimit.		<u>2.4.2.3.4.3 速度應不超過車速限制 5 km/h 時持續警示駕駛，警示期間應至少為 10 秒。若閃爍視覺警示之間斷小於 1 秒時，則可被忽略，但警示不應由間斷開始。無法於前 10 秒連續警示，則應於每 30 秒或以內重複警示，直至持續時間至少為 10 秒。</u> <u>2.4.2.3.4.4 若指示速率未降至車速限制大於 5 km/h，不需於每次超過車速限制時出現警示。</u>
4.5 Speed Control Function Three speed control functions are considered in this section; Speed Limitation Function (manually set), Intelligent Speed Limiter and Intelligent Adaptive Cruise Control	4.5 Speed Control Function Three speed control functions are considered in this section; Speed Limitation Function (manually set), Intelligent Speed Assist and Intelligent Adaptive Cruise Control which need	2.4.2.4 車速控制功能 三種車速控制功能：車速限制功能（手動設置）、智慧車速輔助及智慧巡航控制，應符合以下要求才能獲得分數：	2.4.2.4 車速控制功能 三種車速控制功能：車速限制功能（手動設置）、智能車速輔助及智能巡航控制，應符合以下要求才能獲得分數：

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which need to meet the following requirements to score points: <table><tr><th>SPEED CONTROL FUNCTION TYPES</th><th>Sections</th></tr><tr><td>Speed Limitation Function (SLF)</td><td>4.5.1, 4.5.2.1 & 4.5.3</td></tr><tr><td>Intelligent Speed Limiter (ISL)</td><td rowspan="2">4.5.1, 4.5.2.2 & 4.5.3</td></tr><tr><td>Intelligent Adaptive Cruise Control (iACC)</td></tr></table>	SPEED CONTROL FUNCTION TYPES	Sections	Speed Limitation Function (SLF)	4.5.1, 4.5.2.1 & 4.5.3	Intelligent Speed Limiter (ISL)	4.5.1, 4.5.2.2 & 4.5.3	Intelligent Adaptive Cruise Control (iACC)	to meet the following requirements to score points: <table><tr><th>Type Speed Control Function</th><th>Sections</th></tr><tr><td>Speed Limitation Function (SLF)</td><td>4.5.1, 4.5.2.1 & 4.5.3</td></tr><tr><td>Intelligent Speed Assist (ISA)</td><td rowspan="2">4.5.1, 4.5.2.2 & 4.5.3</td></tr><tr><td>Intelligent Adaptive Cruis Control (i-ACC)</td></tr></table>	Type Speed Control Function	Sections	Speed Limitation Function (SLF)	4.5.1, 4.5.2.1 & 4.5.3	Intelligent Speed Assist (ISA)	4.5.1, 4.5.2.2 & 4.5.3	Intelligent Adaptive Cruis Control (i-ACC)	(請參末頁表格)	(請參末頁表格)
SPEED CONTROL FUNCTION TYPES	Sections																
Speed Limitation Function (SLF)	4.5.1, 4.5.2.1 & 4.5.3																
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Type Speed Control Function	Sections																
Speed Limitation Function (SLF)	4.5.1, 4.5.2.1 & 4.5.3																
Intelligent Speed Assist (ISA)	4.5.1, 4.5.2.2 & 4.5.3																
Intelligent Adaptive Cruis Control (i-ACC)																	
4.5.1 <u>Activation / de-activation of the function</u> - The speed control function must be capable of being activated/de-activated at any time with a simple operation. Functionalities above GSR ISA requirements could be configurable by customer, with the possibility of being defined as default ON or OFF.	4.5.1 <u>Activation / de-activation of the function</u> - At the start of a new journey, the system should be de-activated by default.	2.4.2.4.1 功能啟用/解除 (1) <u>透過簡單之操作，車速控制功能應能隨時啟用/解除。高於 GSR ISA 要求之功能可由客戶進行配置，並可將其預設為開啟或關閉。</u> (GSR 規定國內不適用，故刪除)	2.4.2.4.1 功能啟用/解除 (1) 開始新旅程時，系統應預設解除。														
4.5.2 <u>Setting of Vadj</u> 4.5.2.1 <u>Manually setting the speed</u> - It shall be possible to set, by a control device operated directly by the driver, by steps not greater than 10km/h (5mph) between 30km/h (20mph) and 130km/h (80mph). - It shall be possible to set it	4.5.2 <u>Setting of Vadj</u> 4.5.2.1 <u>Manually setting the speed</u> - It shall be possible to set Vadj, by a control device operated directly by the driver, by steps not greater than 10km/h (5mph) between 30km/h (20mph) and 130km/h (80mph). - It shall be possible to set Vadj	2.4.2.4.2 可調式限制車速之設定 2.4.2.4.2.1 手動設定車速 (1) 駕駛應能直接調整控制裝置，<u>在數值 30km/h 至 130km/h 之間，調整數值</u>幅度不得大於 10km/h。 (2) 調整可調式限制車速不應受當	2.4.2.4.2 可調式限制車速之設定 2.4.2.4.2.1 手動設定車速 (1) 駕駛應能直接<u>以設定</u>裝置調整<u>可調式限制車速</u>，數值於 30km/h 至 130km/h <u>時</u>，<u>數值調整</u>幅度不得大於 10km/h。 (2) 調整可調式限制車速不應受當														

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independently of the vehicle speed. - If Vadj is set to a speed lower than the current vehicle speed, the system shall limit the vehicle speed to the new within 30s or shall initiate a warning (Section 4.5.3, para 7) no later than 30s after Vadj has been set. - The Vadj value shall be permanently indicated to the driver and visible from the driver's seat. This does not preclude temporary interruption of the indication for safety reasons or driver's demand.	independently of the vehicle speed. - If Vadj is set to a speed lower than the current vehicle speed, the system shall limit the vehicle speed to the new Vadj within 30s or shall initiate a warning (section 0) no later than 30s after Vadj has been set. - The Vadj value shall be permanently indicated to the driver and visible from the driver's seat. This does not preclude temporary interruption of the indication for safety reasons or driver's demand.	時車速影響。 (3) 若設定之可調式限制車速低於當時車速，系統應於 30 秒內讓車速低於設定完成之可調式限制車速，或是應於設定後 30 秒內發出輔助警示（參 2.4.2.4.3.6）。 (4) 可調式限制車速值應隨時顯示，讓駕駛在駕駛座上即能看見；其應涵蓋安全警示介入而暫時中斷或因駕駛要求而暫時中斷。	時車速影響。 (3) 若設定之可調式限制車速低於當時車速，系統應於 30 秒內讓車速低於設定完成之可調式限制車速，或是應於設定後 30 秒內發出輔助警示（參 2.4.2.4.3.6）。 (4) 可調式限制車速值應隨時顯示，讓駕駛在駕駛座上即能看見；其應涵蓋安全警示介入而暫時中斷或因駕駛要求而暫時中斷。
4.5.2.2 <u>Automatic setting the speed</u> An automatic setting is using the speed limit information from the SLIF to set the Vadj. iACC and ISL automatic adjustments can be introduced with or without driver confirmation. Both ISL and iACC functions fulfilling the requirements from this section are	4.5.2.2 <u>Automatic setting the speed</u> An automatic setting is using the speed limit information from the SLIF to set the Vadj with or without driver confirmation. Both ISA and iACC functions fulfilling the requirements from this section are eligible for scoring points:	2.4.2.4.2.2 自動設定車速 自動設定可調式限制車速係使用車速限制資訊功能取得車速限制資訊。智慧巡航控制及智慧車速限制可有/無經駕駛確認的情況下自動調整導入。若符合本節規定，則智慧車速限制及智慧巡航控制有資格獲得分數：	2.4.2.4.2.2 自動設定車速 不論自動設定車速係使用車速限制資訊功能取得車速限制資訊有/無經駕駛確認。若符合本節規定，則智能車速輔助及智能巡航控制有資格獲得分數：

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eligible for scoring points: - In case of ISL, the activation time for speed reduction and/or warning shall be according the general requirements of GSR ISA. In case of iACC, the system should adopt, or offer the driver to adopt, an adjusted Vadj within 5s after a change in the speed limit. - If Vadj is set to a speed lower than the current vehicle speed, the system starts to limit the vehicle speed to the new Vadj or shall initiate a warning (Section 4.5.3, para 7) no later than 30s after Vadj has been set. - A negative and/or positive offset with respect to the known speed limit is allowed but may not be larger than 10 km/h (5 mph). This offset is included in Vadj.	- The system should adopt, or offer the driver to adopt, an adjusted Vadj within 5s after a change in the speed limit. - If Vadj is set to a speed lower than the current vehicle speed, the system starts to limit the vehicle speed to the new Vadj or shall initiate a warning (section 0) no later than 30s after Vadj has been set. - A negative and/or positive offset with respect to the known speed limit is allowed but may not be larger than 10 km/h (5 mph). This offset is included in Vadj	(1) <u>智慧車速限制之減速及/或警示的啟動時間應於車輛速度超過可調式限制車速 1.5 秒內作動符合 GSR ISA 的一般規範。</u>針對智慧巡航控制，調整可調式限制車速之速度限制後，此系統應於 5 秒內採用或建議駕駛採用新的設定。 (參考 GSR ISA 及 ANCAP 規範，規範於 1.5 秒內減速及/或發出警示) (2) 若設定之可調式限制車速低於當時車速，系統應讓車速低於設定完成之可調式限制車速，或於設定可調式限制車速後 30 秒內發出輔助警示（參 2.4.2.4.3.6）。 (3) 已知車速限制有負及/或正偏差值是被允許的，但不得大於 10 km/h。可調式限制車速涵蓋此偏差值。	(1) 調整可調式限制車速之速度限制後，此系統應於 5 秒內採用或建議駕駛採用新的設定。 (2) 若設定之可調式限制車速低於當時車速，系統應讓車速低於設定完成之可調式限制車速，或於設定可調式限制車速後 30 秒內發出輔助警示(參 2.4.2.4.3.6)。 (3) 已知車速限制有負及/或正偏差值是被允許的，但不得大於 10 km/h。可調式限制車速涵蓋此偏差值。

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- The Vadj in the automatic mode of an ISL or iACC system may be retained at the end of a journey. - Where Vadj is set to the speed limit advised (i.e. as per 4.4.2.2 Road Features) by the SLIF, the indication of Vadj may be suppressed.	- The Vadj in the automatic mode of an ISA system may be retained at the end of a journey. - Where Vadj is set to the speed limit advised by the SLIF, the indication of Vadj may be suppressed.	(4) 智慧車速限制或智慧巡航控制系統自動模式中之可調式限制車速可於旅程結束時保留。 (5) 若可調式限制車速設定若設為車速限制資訊功能建議(如條文 2.4.2.3.2.2 道路特徵)之數值，可暫時不顯示可調式限制車速。	(4) 智能車速輔助系統自動模式中之可調式限制車速可於旅程結束時保留。 (5) 若可調式限制車速設定若設為車速限制資訊功能建議之數值，可暫時不顯示可調式限制車速。
4.5.3 <u>Speed Control</u>	4.5.3 <u>Speed Control</u>	2.4.2.4.3 車速控制	2.4.2.4.3 車速控制
- The vehicle speed shall be limited or controlled to Vadj. - It shall still be possible to exceed Vadj by applying a positive action – e.g. pressing the accelerator harder/deeper or kickdown.	- The vehicle speed shall be limited or controlled to Vadj. - It shall still be possible to exceed Vadj by applying a positive action – e.g. kickdown (SLF/ISA) or depressing the accelerator (iACC).	2.4.2.4.3.1 車速應被可調式限制車速限制或控制。 2.4.2.4.3.2 若進行加速動作，依然有可能超過可調式限制車速，如用力/深踩油門或降檔加速。 ...	2.4.2.4.3.1 車速應被可調式限制車速限制或控制。 2.4.2.4.3.2 若進行加速動作，依然有可能超過可調式限制車速，如降檔加速(SLF/ISA)或踩下油門(iACC)。 ...
... - NOTE: For 2026, Euro NCAP will require a speedometer accuracy of -3/+0 km/h	...	附註: 針對 Euro NCAP 2026 年將要求速率計準確性為 -3/+0 km/h。 (此條文無涉汲第三版規章內容，故刪除，第三版 TNCAP 技術規章係參考 2025 年版)	

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- When the speed control function is not able to limit to and/or maintain Vadj and Vadj is exceeded, a warning will be issued according the SLWF Requirements of GSR ISA (i.e. warning type and total duration). No warning needs to be given when Vadj is exceeded as a result of a positive action or when Vadj was advised (i.e. as per 4.4.2.2 Road Features) by the SLIF.	- When the speed control function is not able to limit to and/or maintain Vadj and Vadj is exceeded by more than 5 km/h an audio-visual warning is issued, with a total duration of at least 10 seconds. No warning needs to be given when Vadj is exceeded as a result of a positive action. - Gaps of less than 1 second, which allow for signals which flash are ignored, but the signal may not start with a gap. If the signal is not continuous for the first 10 seconds, it needs to be repeated every 30 seconds or less, resulting in a minimum total duration of at least 10 seconds.	2.4.2.4.3.6 車速控制功能無法限制及/或維持可調式限制車速，<u>以及超過可調式限制車速時，將依 2.4.2.4.3.8 (如警示類型及總持續時間)發出警示。</u>若因進行加速動作而進入正面行為時或依當下車速限制資訊功能所建議(如條文 2.4.2.3.2.2 道路特徵)之可調式限制車速時，則不需出現警示。 (GSR 規定國內不適用，故刪除。另 ANCAP 保留 SLIF 警示功能類型及總持續時間之相關要求；故推測 SCF 於刪除 GSR 相關規定後，可能缺乏對應之符合依據，故保留該條文係為維持其評分判定之依據。)	2.4.2.4.3.6 車速控制功能無法限制及/或維持可調式限制車速，<u>以及速度應不超過可調式限制車速 5 km/h 時發出視聽覺警示，警示期間應至少 10 秒。</u>若因進行加速動作而進入正面行為時，則不需出現警示。 2.4.2.4.3.7 若爍視覺警示之間斷小於 1 秒時，則可被忽略，但警示不應由間斷開始。若無法於前 10 秒連續警示，則應於每 30 秒或以內重複警示，直至持續時間至少為 10 秒。

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- For systems where active braking is applied to maintain and/or limit the speed, this warning requirement does not apply. Note: The warning signal does not preclude temporary interruption of the indication for safety reasons. (GSR ISA規定) 3.5 SLWF technical requirements 3.5.1. In the absence of conditions leading to the deactivation of the ISA system in accordance with points 3.2.1. and 3.2.2., if the perceived speed limit is known and the speedometer speed exceeds it, the SLWF shall warn the driver as specified in point 3.5.2., for speeds from 20 km/h or less. 3.5.2. The warning indication shall be provided by any of the following: (a) a visual warning and a cascaded acoustic warning; (b) a visual warning and a cascaded	- For systems where active braking is applied to maintain and/or limit the speed, this warning requirement does not apply. Note: The warning signal does not preclude temporary interruption of the indication for safety reasons.	2.4.2.4.3.7 若系統使用主動式煞車以維持及/或限制速度者，則不適用於此警示要求。 附註：警示可因其他安全警示介入而暫時中斷。 2.4.2.4.3.8 車速限制警示功能技術規定 2.4.2.4.3.8.1 若感知車速限制已知且儀表速度高於感知速度限制，則車速限制警示功能應於時速 20 公里/小時或以下時，依 2.4.2.4.3.8.2 向駕駛發出警示。 2.4.2.4.3.8.2 應採用下列任一方式提供警示： (1) 視覺警示及階段式聽覺警示； (2) 視覺警示及階段式觸覺警示；或	2.4.2.4.3.8 若系統使用主動式煞車以維持及/或限制速度者，則不適用於此警示要求。 附註：警示可因其他安全警示介入而暫時中斷。

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haptic warning; or (c)a haptic warning alone. At times when the driving speed of the vehicle, not fitted with SCF and without SCF-like characteristics, is actively controlled by a vehicle system where the driver is not expected to be touching the accelerator control (e.g. cruise control) the use of a haptic warning is not permitted. In this case the system shall attempt to reduce the driving speed to or below the perceived speed limit automatically, e.g. by disengaging or reducing engine power, or a visual warning and a cascaded acoustic warning shall be provided. 3.5.2.1.Visual warning and cascaded acoustic or visual warning and cascaded haptic warning. 3.5.2.1.1.The visual warning shall be noticeable and easily recognisable by the driver and be provided by flashing of the		(3) <u>單一觸覺警示。</u> <u>當未配備車速控制功能且不具車速控制功能類似特性之車輛，其行駛速度由車輛系統主動控制，且預期駕駛不會操作加速踏板控制時（例如定速巡航），則不允許使用觸覺警示。在此情況下，系統應自動將車速降低至感知車速限制或以下，例如透過解除或降低引擎動力，或提供視覺警示及階段式聽覺警示。</u> <u>2.4.2.4.3.8.2.1 視覺警示及階段式聽覺或觸覺警示</u> <u>2.4.2.4.3.8.2.1.1 視覺警示應明顯且易於駕駛辨識，可透過車速限制資訊功能顯示閃爍或在其旁附加閃爍光學</u>	

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SLIF display or flashing of an additional optical signal adjacent to the SLIF display. It shall be provided within 1.5 seconds from when the speedometer speed exceeds the perceived speed limit and last until at least 5.0 seconds after the timeout of the cascaded acoustic or cascaded haptic warning or until the speedometer speed is less than or equal to the perceived speed limit when this occurs earlier. 3.5.2.1.2.The cascaded acoustic warning shall be noticeable by the driver, unique and easily recognisable and be provided by a continuous or intermittent sound signal or by vocal information. Where vocal information is employed, the vehicle manufacturer shall ensure that it is easily configurable by the driver to use any of the EU official languages. The acoustic warning may be varied to indicate the magnitude or time that the perceived speed limit has been exceeded		<u>訊號之方式提供。其應在儀表速度超過感知車速限制後 1.5 秒內提供，並持續至階段式聽覺或觸覺警示結束後至少 5 秒；或持續至儀表速度低於或等於感知車速限制時停止（以較早者為準）。</u> <u>2.4.2.4.3.8.2.1.2 階段式聽覺警示應能使駕駛明確察覺，且具獨特性並易於辨識，以連續或間歇之聲音訊號，或語音資訊方式提供。採用語音資訊者，車輛業者應設定使用中文。聽覺警示並得依感知車速限制被超過之幅度或持續時間而有所變化。</u>	

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for. 3.5.2.1.3.The cascaded haptic warning shall be noticeable by the driver and be provided directly or indirectly through the accelerator control when the driver maintains an application force as well as a driving speed that exceeds the perceived speed limit. This shall be achieved by any of the following: (a)increasing the restoring force of the accelerator control; or (b)vibrating the accelerator control. 3.5.2.1.4.The cascaded acoustic warning and cascaded haptic warning shall be provided, when any of the following conditions are met, for constant vehicle speeds: (a)Speedometer speed $\geq$ 130 % perceived speed limit, for 3,0 seconds and longer; (b)Speedometer speed $\geq$ 120 % perceived speed limit, for 4,0 seconds		<u>2.4.2.4.3.8.2.1.3 階段式觸覺警示應能使駕駛明確察覺，且當駕駛持續施加控制力且行駛速度超過感知車速限制時，該警示應以直接或間接透過加速踏板控制提供，並以下列任一方式達成：</u> <u>(1) 增加加速踏板控制的回復力；或</u> <u>(2) 使加速踏板控制振動。</u> <u>2.4.2.4.3.8.2.1.4 當車輛等速行駛且符合下列條件之一時，車輛應觸發階段式聽覺及/或階段式觸覺警示：</u> <u>(1) 儀表速度大於等於感知車速限制之 130%，且持續 3 秒以上；</u> <u>(2) 儀表速度大於等於感知車速限制之 120%，且持續 4 秒以上；</u> <u>(3) 儀表速度大於等於感知車速限制之 110%，且持續 5 秒以上；</u> <u>(4) 儀表速度大於感知車速限制之</u>	

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and longer; (c)Speedometer speed $\geq$ 110 % perceived speed limit, for 5,0 seconds and longer; (d)Speedometer speed $>$ 100 % perceived speed limit, for 6,0 seconds and longer. The system may be designed in such a way that it employs a linearly interpolated time between the respective speed and time values for points (a) and (d). 3.5.2.1.4.1.When the vehicle is accelerating, the manufacturer shall select the appropriate time for the conditions referred to in point 3.5.2.1.4., points (b), (c) or (d), or 3.0 seconds as well as any duration between these two values. 3.5.2.1.4.2.When the vehicle is decelerating and none of the conditions laid down in point 3.5.3. are met, the		<u>100%，且持續 6 秒以上。</u> <u>系統可設計為於第(1)點與第(4)點所對應之速度值與時間值間，採用線性內插法方式來計算時間。</u> <u>2.4.2.4.3.8.2.1.4.1 當車輛加速時，車輛業者應選擇採用第 2.4.2.4.3.8.2.1.4 節第 (2)、(3) 或 (4) 點所列條件時間值，或 3 秒，以及在該兩個數值間的任何持續時間。</u> <u>2.4.2.4.3.8.2.1.4.2 當車輛減速且未符合第 3.5.3 節所規定之任何條件時，車輛業者應選擇採用第</u>	

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manufacturer shall select the appropriate time for the conditions referred to in point 3.5.2.1.4., points (a), (b) or (c), or 6.0 seconds as well as any duration between those two values. 3.5.2.1.5.The cascaded acoustic warning shall be provided until the speedometer speed is less than or equal to the perceived speed limit or for at least 3.0 seconds after initial activation of the cascaded acoustic warning. However, in no case shall the acoustic warning last more than 5.0 seconds, also in case of successive speed limit changes, in order to minimise driver annoyance. 3.5.2.1.6.The cascaded haptic warning shall be provided until the speedometer speed is less than or equal to the perceived speed limit or for at least 10 seconds after initial activation of the cascaded haptic warning. However, in no case shall the haptic warning last		2.4.2.4.3.8.2.1.4 節第 (1)、(2) 或 (3) 點所列條件時間值，或 6 秒，以及在該兩個數值間的任何持續時間。 2.4.2.4.3.8.2.1.5 階段式聽覺警示應持續提供，直到儀表速度低於或等於感知車速限制，或自階段式聽覺警示初次啟動後至少持續 3 秒。然而，即使車速限制連續變化，聽覺警示應不得超過 5 秒，以降低駕駛之干擾。 2.4.2.4.3.8.2.1.6 階段式觸覺警示應持續提供，直到車速表速度低於或等於感知車速限制，或自階段式觸覺警示初次啟動後至少持續 10 秒。然而，為降低對駕駛之干擾，即使車速限制連續變化，觸覺警示應不得超過 12 秒。	

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more than 12 seconds, also in case of successive speed limit changes, in order to minimise driver annoyance. 3.5.2.1.7.The cascaded acoustic or cascaded haptic warning shall be terminated immediately upon its acknowledgement by deliberate driver action (e.g. button press) if the manufacturer chooses to implement such functionality. 3.5.2.1.8.When the vehicle is decelerating due to one or more of the following events, the cascaded acoustic or cascaded haptic warning shall either not be provided or shall be terminated immediately: (a)full release of the accelerator control, except in the case when the driving speed of the vehicle is actively controlled by a vehicle system and except in the case of brief deceleration as a result of gear selection;		<u>2.4.2.4.3.8.2.1.7 若車輛業者選擇設置此類功能，則當駕駛透過刻意操作（例如按下按鈕）對該警示進行確認後，階段式聽覺或階段式觸覺警示應立即終止。</u> <u>2.4.2.4.3.8.2.1.8 當車輛因下列情況減速時，應不提供或立即終止階段式聽覺或階段式觸覺警示：</u> (1) <u>完全釋放加速踏板控制，但當車速由車輛系統主動控制時及因換檔短暫減速除外；</u> (2) <u>手動解除控制車速之車輛系統；</u> (3) <u>啟動常用煞車系統；或</u> (4) <u>啟動持續煞車系統 (Endurance Braking System)。</u>	

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(b>manual disengagement of vehicle system controlling the driving speed; (c)activation of the service braking system; or (d)activation of an endurance braking system. 3.5.2.2.Haptic warning alone 3.5.2.2.1.The haptic warning shall be noticeable by the driver and be provided directly or indirectly through the accelerator control when the driver maintains an application force as well as a driving speed that exceeds the perceived speed limit. This shall be achieved by increasing the restoring force of the accelerator control. 3.5.2.2.2.The haptic warning alone shall be provided within 1.5 seconds from when the speedometer speed exceeds the perceived speed limit and until the speedometer speed is less than or equal to the perceived speed limit or for at least		<u>2.4.2.4.3.8.2.2 單一觸覺警示</u> <u>2.4.2.4.3.8.2.2.1 觸覺警示應能使駕駛明確察覺，且當駕駛持續施加控制力且行駛速度超過感知車速限制時，該警示應以直接或間接透過加速踏板控制提供，並以下列任一方式達成。此警示應透過增加加速踏板控制的回復力來達成。</u> <u>2.4.2.4.3.8.2.2.2 單一觸覺警示應在儀表速度超過感知車速限制後 1.5 秒內啟動，直到儀表速度小於或等於感知車速限制，或自階段式觸覺警示初次啟動至少持續 15 秒。然而，為降低對駕駛之干擾，即使車速限制連續</u>	

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15 seconds after its initial activation. However, in no case shall the haptic warning last more than 20 seconds, also in case of successive speed limit changes, in order to minimise driver annoyance. 3.5.2.2.3.The haptic warning alone shall be terminated immediately upon its acknowledgement by driver deliberate action (e.g. button press) if the manufacturer chooses to implement such functionality. 3.5.3.After a warning has been terminated, the SLWF shall be prepared to provide a new warning in accordance with point 3.5.1. after one or more of the following conditions applied: (a)the speedometer speed dropped below the perceived speed limit; (b)reapplication of the accelerator control after the condition in point 3.5.2.1.8.(a) leading to the termination		<u>變化，觸覺警示應不得超過 20 秒。</u> <u>2.4.2.4.3.8.2.2.3 若車輛業者選擇設置此類功能，當駕駛透過刻意操作（例如按下按鈕）對該警示進行確認後，單一之觸覺警示應立即終止。</u> <u>2.4.2.4.3.8.3 警示終止後，車速限制警示功能應於下列一種或多種條件發生後，依 2.4.2.4.3.8.1 規定提供新的警示：</u> <u>(1) 儀表速度低於感知車速限制；</u> <u>(2) 發生 2.4.2.4.3.8.2.1.8 (1)導致警示終止後，再次施加加速踏板控制；</u> <u>(3) 發生 2.4.2.4.3.8.2.1.8 (2)導致警示終止後，再次啟用車輛速度控</u>	

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of warning; (c)reengagement of vehicle system controlling driving speed after the condition in point 3.5.2.1.8.(b) leading to the termination of warning; or (d)the perceived speed limit has changed to a lower value. 3.5.4.It is not permitted that a haptic warning system is combined with an acoustic warning function, even if provided on a voluntary basis, unless all requirements for cascaded acoustic warning are also met. 3.5.5.The vehicle may be equipped with a means to suspend the SLWF to allow for the presentation of more critical warnings (e.g. forward collision warning, lane-keeping assistance). The manufacturer shall demonstrate that all applicable warnings are presented to the driver appropriately.		<u>制系統；或</u> <u>(4) 感知車速限制已變更為較低數值。</u> <u>2.4.2.4.3.8.4 觸覺警示系統不允許與聽覺警示功能整合使用，即使該功能為自願性提供亦同，除非該系統同時符合階段式聽覺警示之所有規定。</u> <u>2.4.2.4.3.8.5 車輛可配備暫停車速限制警示功能，用以顯示更重要之警示（例如前方碰撞預警系統、車道維持輔助系統）。車輛業者應佐證所有適用之警示能妥善提供予駕駛。</u>	

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DISTANCE			100m	100m																																																							
整段距離	前方距離																																																										
40 40 一連續彎路 一險升坡 8 %	前方速限降低																																																										
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		路肩	匝道	環道	路肩	匝道	環道																			
																										
APPENDIX II Terms alignment for Euro NCAP Speed Assist Systems 2023 and GSR Intelligent Speed Assist Systems EU 2021/4455		2.4.2.7 TNCAP 車速輔助系統 2023 年版與 GSR 智慧車速輔助系統 EU 2021/4455 之術語對照表 (請參末頁表格) (GSR 規定國內不適用，故刪除)																								
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Test variable	Term used in Euro NCAP SAS	Term used in GSR ISA			
Driving speed of the vehicle	V _{veh} (km/h)	Speedometer Speed			
Legal speed limit	V _{limit}	Applicable Speed Limit			
Manually adjustable speed for SLF	V _{adj} - Adjustable Speed	-			
Average speed	V _{stab} - Stabilised Speed	Stabilised Speed			

修正後					修正前			
<u>4.4.2.1</u>					<u>4.4.2</u>			
<u>ADVANCED SPEED LIMITS</u>			Points	Required Action	<u>Advanced Functions</u>		Points	Required Action
<u>Conditional Speed limits</u>	Weather	Rain* / Wetness	2	Show correct speed limit	Weather	Rain / Wetness	2	Show correct speed limit
		Snow / Icy	2	Warning only and ignore if irrelevant		Snow / Icy	2	Warning only and ignore if irrelevant
	Time	Time / <u>Season</u>	3	Show correct speed limit	Time	Time	3	Show correct speed limit
	Distance	Distance for / in	1	Show correct speed limit	Distance	Distance for / in	1	Show correct speed limit
	Arrows	Arrows	1	Show correct speed limit / ignore if irrelevant	Arrows	Arrows	1	Show correct speed limit <u>or</u> ignore if irrelevant
	Vehicle Categories	Other vehicle / weight categories	1	<u>Show correct speed limit</u>	Vehicle Categories	Other vehicle / weight categories	1	<u>Ignore if irrelevant</u>
Implicit Speed Limits		Highway /	2	Show correct speed	Implicit Speed Limits	Highway / Motorway	2	Show correct speed limit

修正後				修正前				
	Motorway		limit		City Entry / Exit	3		
	City Entry / Exit	3			Residential zones	2		
	Residential zones	2		Dynamic Speed Limits	Dynamic speed signs including roadworks	3	Show correct speed limit	
Dynamic Speed Limits		3	Show correct speed limit	TOTAL		20		
TOTAL				20				
* including implicit								
2.4.2.3.2.1				2.4.2.3.2.1				
高階車速限制		分數	行動之要求	高階功能		分數	行動之要求	
條件式車速限制	天氣	雨 * / 濕	2	僅警告，若不相關則忽略	天氣	雨/ 濕	2	僅警告，若不相關則忽略
		雪 / 冰	2	僅警告，若不相關則忽略		雪 / 冰	2	僅警告，若不相關則忽略
	時間	時間/ 日期 / 季節	3	顯示正確的速度限制	時間	時間	3	顯示正確的速度限制
	距離	整段距離	1	顯示正確的速度限制	距離	整段距離	1	顯示正確的速度限制
		前方距離		顯示正確的速度限制或警告		前方距離		顯示正確的速度限制或警告
	車輛類	其他車輛/	1	顯示正確的速度限制	車輛類別	其他車輛/ 重量類別	1	顯示正確的速度限制或警告
隱含速度限制	高速公路	1	顯示正確的速度限制或警告	高速公路	1	顯示正確的速度限制或警告		
	快速道路	1		快速道路	1			
	行人優先區起	2		行人優先區起	2			

修正後					修正前			
	別	重量類別		制或警告		點標誌		
隱含速度限制		高速公路	1	顯示正確的速度限制或警告		住宅區	2	
		快速道路	1		動態速度限制	動態速度標誌	2	顯示正確的速度限制
		行人優先區起點標誌	2			道路施工	1	顯示正確的速度限制或警告
		住宅區	2					
動態速度限制		動態速度標誌	2	顯示正確的速度限制	車道	路肩	2	僅警告，若不相關則忽略
		道路施工	1	顯示正確的速度限制或警告		匝道		
		環道				環道		
總分			20		總分		20	

*包含隱含的。

4.4.2.2		
ROAD FEATURES	Points	Required Action
Curves*	2	Show and start reducing to appropriate speed
Roundabouts*	2	Show and start reducing to appropriate speed
Junctions , without right of way*	1	Show and start reducing to appropriate speed
Traffic Lights	2	Warning only

修正後			修正前
Stop Signs	1	Warning only	
Yield Signs	1	Warning only	
No Entry	1	Warning only	
TOTAL	10		
* Only eligible for scoring when linked to ISL and/or iACC			
2.4.2.3.2.2			
道路特徵	分數	行動之要求	
彎道*	2	顯示並開始減速至適當之速度	
圓環*	2	顯示並開始減速至適當之速度	
幹線道車先行路口*	1	顯示並開始減速至適當之速度	
交通號誌	2	僅警示	
停車再開標誌	1	僅警示	
讓路標誌	1	僅警示	
禁止進入	1	僅警示	
總分	10		
*僅當連結到ISL及/或iACC時才有資格得分			
4.4.2.3			
LOCAL HAZARDS	Points	Required Action	

修正後			修正前
Traffic Jams	<u>2</u>	Inform and Warn	
Construction Zones	<u>1</u>	Inform and Warn	
Accident Ahead	<u>1</u>	Inform and Warn	
Wrong Way Driver	<u>1</u>	Inform and Warn	
Stopped Vehicle on Hard Shoulder	<u>1</u>	Inform and Warn	
Items on road (includes animals, persons, debris, etc)	<u>1</u>	Inform and Warn	
Poor Road Conditions (incl. slippery roads)	<u>1</u>	Inform and Warn	
Poor Weather Conditions (e.g. fog, heavy rain, etc)	<u>1</u>	Inform and Warn	
Emergency Vehicle	<u>1</u>	Inform and Warn	
TOTAL	<u>10</u>		
2.4.2.3.2.3			
當地道路風險	分數	行動之要求	
交通壅塞	<u>2</u>	告知及警示	
道路施工路段	<u>1</u>	告知及警示	
前方事故	<u>1</u>	告知及警示	

修正後			修正前
逆向行駛	1	告知及警示	
路肩停車	1	告知及警示	
道路障礙物（包含動物、人、碎片等）	1	告知及警示	
路況不良（包含濕滑路面）	1	告知及警示	
天候不佳（例如霧、大雨等）	1	告知及警示	
執行緊急任務車輛	1	告知及警示	
總分	10		
4.4.2.4			
SYSTEM UPDATES	Points	Required Action	
Quarterly (from 1 to 3 months)	5	Automatic update without user action	
Continuous (daily, weekly)	10	Automatic update without user action	
TOTAL	10		
2.4.2.3.2.4			
系統更新	分數	行動之要求	
每季（1至3個月）	5	無需使用者操作的自動更新	
持續（每日、每週）	10	無需使用者操作的自動更新	
總分	10		
4.5			4.5

修正後

SPEED CONTROL FUNCTION TYPES	Sections
Speed Limitation Function (SLF)	4.5.1, 4.5.2.1 & 4.5.3
Intelligent Speed Limiter (ISL)	4.5.1, 4.5.2.2 & 4.5.3
Intelligent Adaptive Cruise Control (iACC)	

2.4.2.4

車速控制功能類型	節
車速限制功能 (SLF)	2.4.2.4.1, 2.4.2.4.2.1 & 2.4.2.4.3
智慧車速限制 (ISL)	2.4.2.4.1,
智慧巡航控制 (iACC)	2.4.2.4.2.2 & 2.4.2.4.3

4.6

SPEED LIMIT INFORMATION FUNCTION	Points
Basic SLIF (Compliant with Euro NCAP and GSR SLIF General Requirements)	0.50
Advanced Speed Limits	0.25
Road Features	0.25
Local Hazards	0.25
System Updates	0.25
SLIF TOTAL	1.50
SPEED CONTROL FUNCTION	Points
Speed Limitation Function	0.50
Intelligent Speed Limiter, not default ON	1.00
Intelligent ACC or Intelligent Speed Limiter default ON	1.50
SPEED CONTROL FUNCTION TOTAL	1.50
SPEED ASSIST SYSTEM TOTAL	3.00

2.4.2.5

修正前

Type Speed Control Function	Sections
Speed Limitation Function (SLF)	4.5.1, 4.5.2.1 & 4.5.3
Intelligent Speed Assist (ISA)	4.5.1, 4.5.2.2 & 4.5.3
Intelligent Adaptive Cruise Control (i-ACC)	

2.4.2.4

車速控制功能類型	節
車速限制功能 (SLF)	2.4.2.4.1, 2.4.2.4.2.1 & 2.4.2.4.3
智能車速輔助 (ISA)	2.4.2.4.1,
智能巡航控制 (i-ACC)	2.4.2.4.2.2 & 2.4.2.4.3

4.6

Speed Limit Information Function	1.50
Basic SLIF	0.50
Advanced SLIF	0.50
System Accuracy	0.25
Warning Function	0.25
Speed Control Function	1.50
Speed Limitation Function	1.25 For cars <i>without</i> SLIF For cars <i>with</i> SLIF
ISA and/or intelligent ACC	1.50

2.4.2.5

修正後			修正前		
<u>車速限制資訊功能</u>	<u>分數</u>		<u>車速限制資訊功能</u>	<u>1.5</u>	
<u>基本車速限制資訊功能 (符合 TNCAP 一般要求)</u>	<u>0.50</u>			<u>0</u>	
<u>高階車速限制</u>	<u>0.25</u>		<u>基本車速限制資訊功能</u>	<u>0.5</u>	
<u>道路特徵</u>	<u>0.25</u>			<u>0</u>	
<u>當地道路風險</u>	<u>0.25</u>		<u>車速限制資訊功能之高階功能</u>	<u>0.5</u>	
<u>系統更新</u>	<u>0.25</u>			<u>0</u>	
<u>車速限制資訊功能總分</u>	<u>1.50</u>		<u>系統準確性</u>	<u>0.2</u>	
<u>車速控制功能</u>	<u>分數</u>			<u>5</u>	
<u>車速限制功能</u>	<u>0.50</u>		<u>警示功能</u>	<u>0.2</u>	
<u>智慧車速限制，系統無預設開啟</u>	<u>1.00</u>			<u>5</u>	
<u>智慧巡航控制或智慧車速限制，系統預設開啟</u>	<u>1.50</u>		<u>車速控制功能</u>	<u>1.5</u>	
<u>車速控制功能總分</u>	<u>1.50</u>			<u>0</u>	
<u>車速輔助系統總分</u>	<u>3.00</u>		<u>車速限制功能：</u>	<u>1.2</u>	
			<u>使用於無車速限制資訊功能之車輛</u>	<u>5</u>	
			<u>使用於有車速限制資訊功能之車輛</u>	<u>0.7</u>	
				<u>5</u>	
			<u>智能車速輔助與/或智能巡航控制</u>	<u>1.5</u>	
				<u>0</u>	
<u>APPENDIX II</u>					
<u>Concept</u>	<u>Term used in Euro NCAP SAS</u>	<u>Term used in GSR ISA</u>			

修正後			修正前
<u>General name of the system</u>	<u>SAS—Speed Assist System</u>	<u>ISA—Intelligent Speed Assist</u>	
<u>Information function</u>	<u>SLIF—Speed Limit Information Function</u>	<u>SLIF—Speed Limit Information Function</u>	
<u>Warning function</u>		<u>SLWF—Speed Limit Warning Function</u>	
<u>Manual speed limiter function</u>	<u>SLF—Speed Limitation Function</u>	—	
<u>Automated speed limiter function</u>	<u>ISL—Intelligent Speed Limiter</u>	<u>SCF—Speed Control Function</u>	
<u>Automated speed control function</u>	<u>iACC—Intelligent Adaptive Cruise control</u>	=	
<u>Test variable</u>	<u>Term used in Euro NCAP SAS</u>	<u>Term used in GSR ISA</u>	
<u>Driving speed of the vehicle</u>	<u>Vindicated</u>	<u>Speedometer Speed</u>	
<u>Legal speed limit</u>	<u>Vlimit</u>	<u>Applicable Speed Limit</u>	
<u>Manually adjustable speed for SLF</u>	<u>Vadj—Adjustable Speed</u>	—	
<u>Average speed</u>	<u>Vstab—Stabilised Speed</u>	<u>Stabilised Speed</u>	

修正後			修正前
<u>2.4.2.7</u>			
<u>概念</u>	<u>TNCAP車速輔助系統使用術語</u>	<u>GSR智慧車速輔助使用術語</u>	
<u>系統名稱</u>	<u>車速輔助系統</u> 車速輔助系統	<u>智慧車速輔助</u> 智慧車速輔助	
<u>資訊功能</u>	<u>車速限制資訊功能</u> 車速限制資訊功能	<u>車速限制資訊功能</u> 車速限制資訊功能	
<u>警示功能</u>		<u>車速限制警示功能</u> 車速限制警示功能	
<u>手動車速限制功能</u>	<u>車速限制功能</u> 車速限制功能	—	
<u>自動車速限制功能</u>	<u>智慧車速限制</u> 智慧車速限制	<u>車速控制功能</u> 車速控制功能	
<u>自動車速控制功能</u>	<u>智慧巡航控制</u> 智慧巡航控制	—	
<u>試驗變速</u>	<u>TNCAP車速輔助系統使用術語</u>	<u>GSR智慧車速輔助使用術語</u>	
<u>車輛行駛車速</u>	<u>指示速率</u>	<u>速率計車速</u> 速率計車速	
<u>法定車速限制</u>	<u>車速限制</u>	<u>適用車速限制</u>	
<u>手動調整車速限制功能車速</u>	<u>可調式限制車速</u> 可調式限制車速	—	
<u>平均車速</u>	<u>穩定車速</u> 穩定車速	<u>穩定車速</u>	

3.22 頭燈性能試驗規章

JNCAP Test Protocol – High-Performance Headlamp Equipment Checking Method 2024/05

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1. Effective Date This equipment checking method will go into effect on April 1, 2018. However, the rules revised on May 2, 2024 shall come into effect as of May 2, 2024.	1. 生效日期 本設備檢查方法將於 2018 年 4 月 1 日生效。
2. Scope of Application This checking method applies exclusively to the passenger vehicles equipped with a High performance headlamp device, with 9 occupants or less and commercial vehicles with a gross vehicle mass of 2.8 tons or less conducted by the National Agency for Automotive Safety and Victims' Aid (hereinafter referred to as "NASVA") in the new car, etc. assessment program information supply project.	2. 適用範圍 本檢查程序僅適用於日本獨立行政法人自動車事故對策機構 (National Agency for Automotive Safety and Victims' Aid, NASVA) 依新車安全評等協會之資訊提供規畫所進行的「高性能頭燈設備檢查」，適用範圍為裝設高性能頭燈裝置之 9 名乘員以下客車，以及滿載車重 2.8 噸以下之商用車。
3. Definition of Terms The terms in this checking method shall be defined as follows. (1) 'High-performance headlamp' refers to devices which possess either the 'automatic anti-glare type' or 'automatic switching type' function with the aim to automatically change the headlamp beam illumination range depending on the condition of traffic in front at night. (2) 'Automatic anti-glare type' refers to the function which alters the light distribution of the driving beam (High beam) depending on the condition of traffic in front. (in cases where control of the High beam is based on the light emitted by the headlamp and front signaling equipment of on-coming vehicles, High beams that illuminate other than oncoming vehicles are limited	3.22.1 名詞釋義 本試驗方法之名詞釋義如下。 3.22.1.1 高性能頭燈：係指具有自動防眩光型或自動切換型之功能，能依據夜間之前方交通狀況，自動改變頭燈的照射範圍。 3.22.1.2 自動防眩光型：係指依據前方交通狀況調整遠光燈光線分布的功能。(若遠光燈控制係依對向來車之頭燈及前方號誌燈光進行判斷，僅限不照射對向來車之遠光燈保持作動)

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to ones that are kept in operation). (3) 'Automatic switching type' refers to the function which has the capability to automatically switch the High beam and the low beam. (4) 'Main driving beam (high beam)' is the illuminating light ray of the front headlamps, for the purpose of checking for obstacles in the traffic path at night. (5) 'Passing beam (low beam)' is the illuminating light ray of the front headlamps of which the illumination range has been altered by changing the optical axis and by partially blocking the light ray, in order to not disturb other traffic. (6) 'Operation speed' refers to the driving velocity range at which the automatic switch to the low beam or the partial light ray blocking function operates (works) for each device.	<u>3.22.1.3 自動切換型：係指可自動切換遠光燈與近光燈的功能。</u> <u>3.22.1.4 遠光燈：係指前方頭燈所發出的照明光束，用於夜間確認行車路徑上的障礙物。</u> <u>3.22.1.5 近光燈：係指車前頭燈所投射出的照明光束，為避免干擾其他道路使用者，其照明範圍透過改變光軸及部分遮蔽光束方式進行調整。</u> <u>3.22.1.6 作動速度：係指各裝置自動切換至近光燈或部分光束遮蔽功能時之行駛速度範圍。</u>
4. Provision of data from automobile manufactures Automobile manufacturers will provide to the organization either the data (Attached Table 1) and (following) documentation necessary for the confirmation of device function and operation speed of the vehicle undergoing the equipment check, or documentation that is the equivalent thereof. (1) Major equipment list: Documents that can confirm that the equipment is installed in the vehicle to be confirmed by catalogs, etc.	<u>3.22.2 車輛業者提供資料</u> <u>車輛業者應向檢測機構提供下列資料（詳如 3.22.3.3）及相關文件，或提供同等效力之文件，以確認受驗車輛之裝置功能及作動速度。</u> <u>3.22.2.1 主要設備清單：可透過型錄等文件確認該設備確實安裝於受驗車輛上之資料。</u>

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(2) Instruction manual: Instruction manual (owner's manual) associated with the model of the car undergoing the equipment check, or other documentation equivalent to this. (3) Standard certified test result: Standard certified test results of the 'adaptive main-beam headlamps' (in cases where control of the main beam is based on the light emitted by the headlamp and front signaling equipment of on-coming vehicles, main beams that illuminate other than oncoming vehicles are limited to ones that are kept in operation), or 'automatic control of the main-beam headlamps' (as found in the UN ECE R48), that are applicable to the model of the car undergoing equipment check, or equivalent documents.	<u>3.22.2.2 使用說明書：與受驗車輛相對應之使用說明書（車主手冊），或具同等效力之其他文件。</u> <u>3.22.2.3 交通部認可檢測機構出具之檢測報告：應提供下列任一項受驗車輛之檢測報告或具同等效力文件：</u> <u>(1)自適應遠光燈（adaptive main-beam headlamps）測試結果（遠光燈控制係依對向來車之頭燈及前方號誌燈光進行判斷，僅限不照射對向來車之遠光燈保持作動）。</u> <u>(2)自動控制遠光燈（automatic control of the main-beam headlamps）測試結果(如車輛安全檢測基準 3.車輛燈光與標誌檢驗規定)。</u> <u>(3)其他具備同等效力的證明文件。</u> VSTD 3-5 車輛燈光與標誌檢驗規定，就(1)自適應遠光燈及(2)自動控制遠光燈有相關規範，但非屬強制規範，有裝才需符合。 (1) 自適應遠光燈：參 2.15、6.16.7.4、616.9.5 (2) 自動控制遠光燈：參 4.1.9.3
5. Recording of results 5.1 High-performance headlamp function and equipment check If, according to the Major equipment list, Instruction manual or Standard certified test result documentation, the equipment of the adaptive main-beam headlamps is confirmed, in the attached appendix 2 record 'yes' in the 'automatic anti-glare' column. If, according to the same documentation, the equipment of the 'automatic control of the main-beam headlamps' is confirmed, in the attached appendix 2 record 'yes' in the 'automatic switching type' column. For devices that fall outside	<u>3.22.3 記錄結果</u> <u>3.22.3.1 高性能頭燈功能及設備確認</u> <u>依據主要設備清單、使用說明書或認可檢測報告等文件：</u> <u>(1)若確認配備自適應遠光燈（adaptive main-beam headlamps），請於 3.22.3.4 之「自動防眩光型」欄位填寫「是（Yes）」。</u> <u>(2)若確認配備自動控制遠光燈（automatic control of the main-beam headlamps），請於 3.22.3.4 之「自動切換型」欄位填寫「是（Yes）」。</u> <u>(3)若不屬於上述類型之裝置，請於各設備類型欄位填寫「否（No）」。</u>

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of this category, record ‘no’ in the columns for each device type.	
5.2 Checks of operation speed In the event that ‘yes’ was recorded for the device as referred in Section 5.1, in Attached Table 2, record the operation speed stated in the corresponding device’s instruction manual in the column marked ‘speed range’.	<u>3.22.3.2 作動速度確認</u> <u>若依 3.22.3.1 對該裝置填寫「是 (Yes)」者，請於 3.22.3.4 之「速度範圍」欄位，填寫該裝置使用說明書所記載之作動速度。</u>
APPENDIX 1 - SPECIFICATION TABLE FOR HIGH-PERFORMANCE HEADLAMP EQUIPMENT CHECK (To be filled out by the manufacturer) 1. Specifications of the car being examined (1) Make/Type (Model name): _____/ _____ (_____) 2. Declaration from the Car Manufacturer ● ‘ Automatic anti-glare type’ : Yes (Operating speed: _____ km/h ~ km/h) / No ● ‘ Automatic switching type’ Yes (Operating speed: _____ km/h ~ km/h) / No 3. Attached documents Function and equipment documents: _____ R48 certified test results / Other: _____ Operation speed documents: _____ Instruction manual / Other: _____	<u>3.22.3.3 高性能頭燈設備檢查規格表（由車輛業者填寫）</u> 1.受驗車輛規格 (廠牌/型式（車型名稱）：_____/_____(_____) 2.車輛業者聲明 (1)「自動防眩光型」： 是（作動速度 km/h 到 km/h） / 否 (2)「自動切換型」： 是（作動速度 km/h 到 km/h） / 否 3.佐證文件 (1)功能及設備文件：_____/_____/其他：_____ (2)作動速度文件：_____/其他：_____

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APPENDIX 2 – HIGH-PERFORMANCE LAMP CHECK RESULT (To be filled out by the organization performing the check) Date of check: (YYYY/MM/DD)_____ Examining officer:_____ 1. Specifications of automobile undergoing performance check (1) Make/ Type (Model name): _____ / _____ (_____) 2. Result of equipment check	3.22.3.4 高性能頭燈檢查紀錄表（由檢測機構確認及填寫） 檢查日期：(YYYY/MM/DD)_____ 檢驗人員：_____ 1.受驗車輛規格 (1)廠牌/型式（車型名稱）： _____ / _____ (_____) <table><tr><td></td><td></td><td>「自動防眩光型」</td><td>「自動切換型」</td></tr><tr><td rowspan="2">設備</td><td>是或否</td><td>是 · 否</td><td>是 · 否</td></tr><tr><td>佐證文件</td><td>(對應)</td><td>(對應)</td></tr><tr><td rowspan="2">作動速度</td><td>速度範圍</td><td>km/h~ km/h</td><td>km/h~ km/h</td></tr><tr><td>佐證文件</td><td>(對應)</td><td>(對應)</td></tr></table> 備註：_____			「自動防眩光型」	「自動切換型」	設備	是或否	是 · 否	是 · 否	佐證文件	(對應)	(對應)	作動速度	速度範圍	km/h~ km/h	km/h~ km/h	佐證文件	(對應)	(對應)
		「自動防眩光型」	「自動切換型」																
設備	是或否	是 · 否	是 · 否																
	佐證文件	(對應)	(對應)																
作動速度	速度範圍	km/h~ km/h	km/h~ km/h																
	佐證文件	(對應)	(對應)																
[Notes]																			

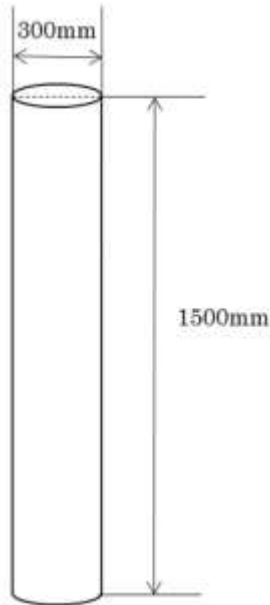
2.4 安全輔助(SA)評等規章-2.4.8 頭燈性能評等 <<本案暫以 2.4 規章編號說明頭燈性能評等條文修訂內容，後續擬修訂至 2.1 安全駕駛評等規章 >>

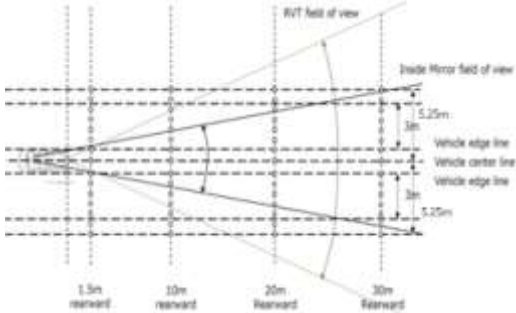
JNCAP Assessment Protocol – Vehicle Safety Performance Evaluation Procedures 2021/03

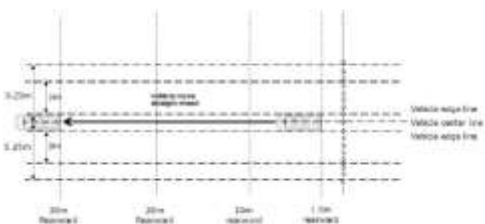
2021 年版 JNCAP 規章				新增TNCAP條文草案(第三版)			
Article 12: High-Performance Headlights From the results of the "Installed Device" and "Operation Speed" in the separately prescribed High-Performance High-beam Headlights Installation Confirmation Procedures, the highest score of (1) through (7) below shall be the evaluation score of the device.				2.4.8 頭燈性能 2.4.8.1 依高性能頭燈安裝確認程序「安裝裝置」與「作動速度」的結果，下方（1）至（7）的最高得分為該裝置的評等分數。			
#	Installed Device	Operation Speed	Score	#	安裝裝置	作動速度	分數
(1)	Auto. Antiglare Headlight	Entire Speed Range Over 41km/h	5.0	(1)	自動防眩光頭燈	整個速度範圍超過 41km/h	5.0
(2)	Auto. Antiglare Headlight	Entire Speed Range Over 51km/h	2.4	(2)	自動防眩光頭燈	整個速度範圍超過 51km/h	2.4
(3)	Auto. Antiglare Headlight	Entire Speed Range Over 61km/h	0.7	(3)	自動防眩光頭燈	整個速度範圍超過 61km/h	0.7
(4)	Auto. Switch Headlight	Entire Speed Range Over 41km/h	1.4	(4)	自動切換頭燈	整個速度範圍超過 41km/h	1.4
(5)	Auto. Switch Headlight	Entire Speed Range Over 51km/h	0.6	(5)	自動切換頭燈	整個速度範圍超過 51km/h	0.6
(6)	Auto. Switch Headlight	Entire Speed Range Over 61km/h	0.2	(6)	自動切換頭燈	整個速度範圍超過 61km/h	0.2
(7)	(Either Type)	(Other than the above)	0.0	(7)	(任一型)	(以上皆非)	0.0

3.23後方視野輔助系統試驗規章
ASEAN NCAP ARV Version 2.0

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2 DEFINITIONS	<u>3.23.1 名詞釋義</u>
2.1 General definition A system designed to provide enhanced live rear view which displays the view images created from the rearward camera. When the system is in the built-in monitor combined in the traditional inside rear-view mirror, it is switchable from the traditional rear-view mirror to rear view image from the camera or vice versa, by the driver's single action.	<u>3.23.1.1 後方視野輔助系統：係指一個提供更佳的後方即時視野，並可顯示由後方攝影機所產生的視野影像。當此系統整合於傳統車內後視鏡的內建螢幕時，駕駛人只需透過單一動作，即可將傳統後視鏡切換為攝影機的後方視野影像，反之亦然。</u>
2.1.1 Additional features	<u>3.23.1.2 夜間適應功能：係指具備夜間曝光調整之影像處理功能，可增強後方視野可視性。</u>
2.1.1.1 Night adaptation An image processing with night exposure adjustment for increasing rearward visibility.	
2.1.1.2 Glare adaptation An image processing of image glare due to sunlight by increasing rearward visibility.	<u>3.23.1.3 眩光適應功能：針對因陽光引起的影像眩光進行影像處理，可增強後方視野可視性。</u>
2.1.1.3 Weather adaptation Wiping function or other function for making camera-view to clear, or camera location inside the rear wiping range or equivalent location that can be treated as not affected by weather conditions for increasing rearward visibility of rearward in the bad weather conditions such as raining.	<u>3.23.1.4 天候適應功能：係指具備雨刷或其他保持攝影機視野清晰之功能，或者，將攝影機安裝於後雨刷作動範圍內，或其他同樣不受天候狀況影響之位置，以在下雨等惡劣天候條件下，可增強後方視野可視性。</u>

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3 TEST OBJECTS 3.1 Test object A pole is used as the test object. The dimension of pole is 300 mm diameter, 1500 mm height (Figure 1). Regarding visibility, pole should be coloured in bright colour.  Figure 1: Test object (pole)	3.23.2 試驗目標 3.23.2.1 試驗目標 使用立桿(Pole)作為試驗目標，直徑 300mm、高度 1500mm，為突顯可視性，立桿應使用亮色系顏色。 (請參末頁圖示)
4 TEST OBJECT LOCATION 4.1 Pole location origin Location of poles is defined at pole center.	3.23.3 試驗目標區域 3.23.3.1 立桿原點 定義立桿之位置係為立桿中心。

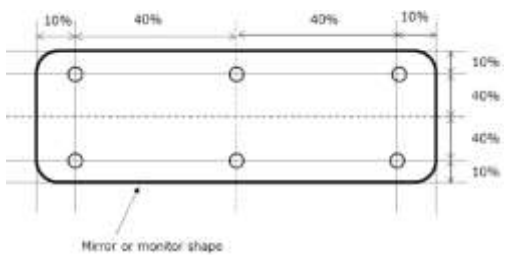
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4.2 Pole location of longitudinal (fore-aft) position First row of poles is located 1.5m from vehicle rear-end position. Second, third and fourth rows are located 10 m, 20 m, 30 m.	<u>3.23.3.2 立桿之縱向（前—後）位置</u> <u>第 1 排立桿距離車輛尾端 1.5m，第 2、3、4 排距離分別為 10m、20m、30m。</u>
4.3 Pole location of horizontal (left and right) position Center pole located at vehicle’s longitudinal center line. The poles located at 30 cm pitch from the center pole until 5.25 m.  Figure 2: Global locations of poles	<u>3.23.3.3 立桿之橫向（左—右）位置</u> <u>中央立桿對齊車輛縱向中線，每 30cm 立 1 桿，至 5.25m 為止。</u> <u>(請參末頁圖示)</u>
5 TEST PROCEDURES 5.1 Pole visibility 5.1.1 Test conditions The ambient illumination conditions in which testing is conducted comprises light that is evenly distributed from above and is at an intensity between 7,000 lux and 10,000 lux, as measured at the center of the exterior surface of the vehicle's roof.	<u>3.23.4 試驗流程</u> <u>3.23.4.1 立桿可視性</u> <u>3.23.4.1.1 試驗條件</u> <u>測試環境照度條件：光源應從上方投射且均勻分佈，並以車頂外表面的中心點為測量基準，照度應在 7,000 lux 至 10,000 lux 之間。</u>

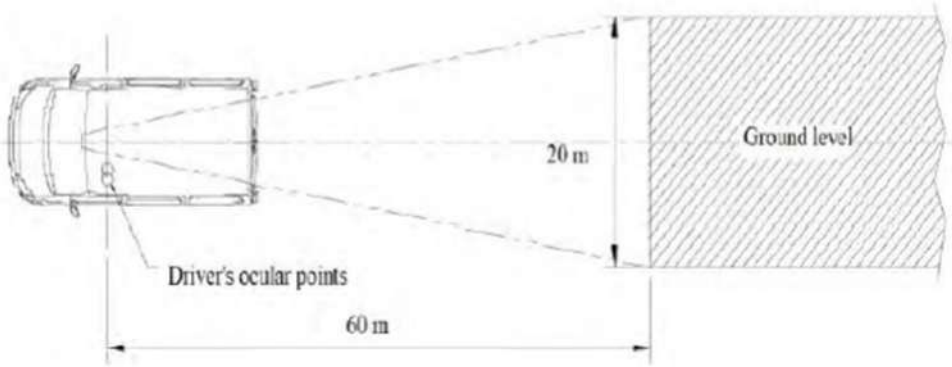
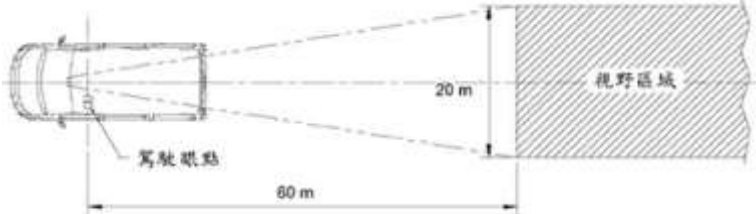
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5.1.2 Rear headrest position In order to imitate full occupied condition, rear headrest position to be set at highest position. 5.1.3 Actual movement in the test In the actual test, the poles are located in one row. Then, vehicle position of distance from poles can be changed by moving the vehicle forward (Figure 3).  Figure 3: Actual movement of vehicle in the test 5.1.4 Count number of poles In each row, the number of poles that can be seen is counted. Any part of the pole that can be seen is acceptable. Poles to be counted by using inside mirror and advanced rear visualization. 5.1.5 Criteria 5.1.5.1 Proximity Score If the number of poles counted at 1.5 m rearward position using advanced rear visualization is greater than the number of poles counted using inside mirror, the proximity visibility scores point as indicated in the assessment protocol (0.5	3.23.4.1.2 後方頭枕位置 <u>模擬車輛坐滿乘員情況，後方頭枕設定為最高高度。</u> 3.23.4.1.3 試驗期間之實際移動 <u>實際試驗中，這些立桿排列在同一列中，接著可透過車輛向前移動，改變車輛與立桿之距離位置。</u> <u>(請參末頁圖示)</u> 3.23.4.1.4 計算立桿數量 <u>車輛停在每一個前述之指定位置，應計算可見立桿數量，看到立桿之任何部分都算。分別計算從車內視鏡看到之數量，以及從後方視野輔助系統看到之數量。</u> 3.23.4.1.5 判斷準則 3.23.4.1.5.1 鄰近距離可視性得分 <u>當距離 1.5m 時，若用後方視野輔助系統看到之立桿數量比車內視鏡還多，可得鄰近可視性分數（0.5 分）。</u>

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points). 5.1.5.2 Field of view score If the number of poles counted at 10m rearward position using advanced rear visualization is greater than the number of poles counted using inside mirror, the field of view expansion gets the point (full points: 0.5 points). If the poles seen over 3.0 m, 0.5 points is given. If the poles seen below 3.0 m, but field of view expanded by advanced rear visualization, 0.3 points is given. If the field of view is not expanded by advanced rear visualization, no point is given. 5.1.5.3 Long distance visibility If the poles using advanced rear visualization can be seen clearly compared to using inside mirror, long distance visibility (20 m or 30 m) gets the points based on the field of view for surrounding lanes (full points: 0.5 points). If the poles are seen over 5.25 m on each side, 0.5 points is given. If the poles are seen over 3.5 m on each side, 0.4 points is given. If the poles are seen over 1.75 m on each side, 0.3 points is given. If the poles are seen below 1.75 m on each side, 0 point is given.	3.23.4.1.5.2 視野距離可視性得分 <u>當距離 10m 時，若用後方視野輔助系統看到之立桿數量比車內視鏡還多，則給予一般視野可視性分數（滿分：0.5 分）。</u> (1) <u>若可看見兩側橫向位置 3.0m 之外的立桿，給 0.5 分。</u> (2) <u>若僅能看見兩側橫向位置 3.0m 之內之立桿，但後方視野輔助系統之視野較為廣闊，給 0.3 分。</u> (3) <u>若後方視野輔助系統之視野並未比較廣闊，不給分。</u> 3.23.4.1.5.3 遠距離可視性得分 <u>當距離 20m 或 30m 時，若用後方視野輔助系統看到之立桿比車內視鏡清楚，則給予遠距離可視性分數（滿分：0.5 分）。</u> (1) <u>若可看見兩側橫向位置 5.25m 之外的立桿，給 0.5 分。</u> (2) <u>若可看見兩側橫向位置 3.5m 之外的立桿，給 0.4 分。</u> (3) <u>若可看見兩側橫向位置 1.75m 之外的立桿，給 0.3 分。</u> (4) <u>若僅能看見兩側橫向位置 1.75m 之內之立桿，給 0 分。</u>

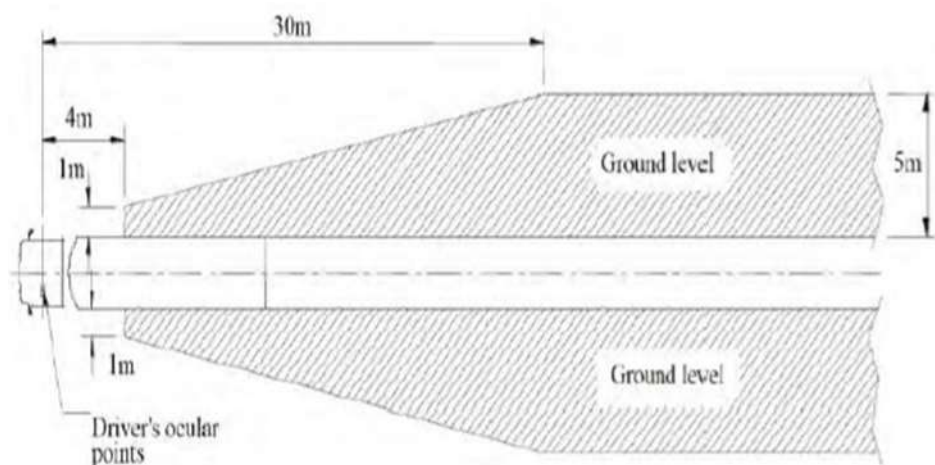
2025 年版 ASEAN NCAP 規章	新增 TNCAP 條文草案(第三版)
5.2 Night adaptation If the system has night adaptation function, the function is to be tested. The poles should be visibly better than by using inside mirror when the function is activated according to the criteria defined in paragraph 5.2.3 in this protocol. 5.2.1 Test conditions The ambient light condition is set above [15 lux]. 5.2.2 Test methods Image luminance measurement of pole surface located at 10 m in the mirror and camera view using luminance colour meter that can measure focused point luminance. Rear seat headrest shall be set at lower position in order to avoid the obstruction for mirror view of poles. If the system has image quality adjust function (contrast, brightness etc.), camera image can be adjusted to fine view as much as the function allows. 5.2.3 Criteria If the measurement results of the luminance of pole located at 10 m by camera view is 15 cd/m² larger than the results by mirror view, 0.5 points is given. Or, if the camera system satisfies UN R-46 Class I specification of image quality, 0.5 points is given. Note: Human contrast perception threshold in dark environment is 5 cd/m². Regarding clear difference of night adaptation, the difference is to be checked	<u>3.23.4.2 夜間適應功能</u> <u>若系統有夜間適應功能，該功能需經試驗。開啟該功能後其立桿之被可視性應相較於車內視鏡還清楚（使用此規章 3.23.4.2.3 標準作判定）。</u> <u>3.23.4.2.1 試驗條件</u> <u>測試環境照度條件應設定高於 15 lux。</u> <u>3.23.4.2.2 試驗方式</u> <u>使用可測量聚焦點亮度的色彩亮度計(Luminance colour meter)，分別測量後方視鏡及攝影機畫面中、位於後方 10 公尺處之立桿表面的畫面亮度。後方頭枕位置應設於低點，避免阻擋立桿觀測。若系統可以調整影像品質（對比度、亮度等等），攝影畫面可以依功能允許的範圍被調整至最佳視覺效果。</u> <u>3.23.4.2.3 判斷標準</u> <u>若透過攝影機畫面測得之 10 公尺處測試桿輝度，比透過後視鏡測得的結果高出 15 cd/m² 以上，則給予 0.5 分。或者，若該攝影機系統符合車輛安全檢測基準之 23 間接視野裝置安裝規定之 I 類視鏡的影像相關規範，亦給予 0.5 分。</u> (對應 VSTD 232 條文 7.1 及條文 8)

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over three times. The test shall be done either by MIROS measurement, OEM in-house measurement with witness by MIROS or OEM test report submission.	<u>備註：人類在黑暗環境中辨識對比差異的門檻是 5 cd/m²，為使夜間適應有明確差異，此差異需進行 3 次以上的確認。</u>
5.3 Glare adaptation If the system has glare adaptation function, the function is to be tested. The poles should be visible better than by using inside mirror when the function is activated.	<u>此試驗應由檢測機構量測或由車輛業者提交報告佐證。</u> <u>3.23.4.3 眩光適應功能</u> <u>若系統有眩光適應功能，該功能需經試驗。開啟該功能後其立桿之被可視性應相較於車內視鏡還清楚。</u>
5.3.1 Test Condition The test vehicle shall be hit by a (simulated sun) light of 40k lux at camera surface from behind or equivalent condition of hit by natural sunlight from behind the vehicle.	<u>3.23.4.3.1 試驗條件</u> <u>使用 40k lux 燈光（模擬陽光）從後方照射受驗車輛的攝影機表面，或其他類似自然陽光自車輛後方照射的同等條件。</u>
5.3.2 Test method Image luminance measurement of the brightest point of sunlight and other six points on the mirror and monitor using luminance colour meter that can measure focused point luminance. Six points shall be selected at the location from the 10% and 40% of the mirror or monitor surface edges for longitudinal and horizontal direction shown in Figure 4.	<u>3.23.4.3.2 試驗方式</u> <u>使用可測量聚焦點亮度的色彩亮度計，分別量測陽光最亮點以及後方視鏡上與螢幕上其他 6 點的畫面亮度。所選的 6 點應從後視鏡或螢幕邊界起分別算水平及垂直距離 10%與 40%的位置，如圖 4 所示。</u>

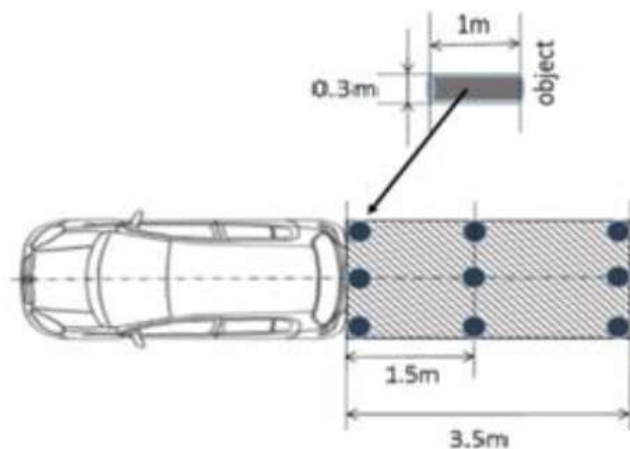
2025 年版 ASEAN NCAP 規章	新增 TNCAP 條文草案(第三版)
 Figure 4: Measurement points location of mirror or monitor surface If the point defined above included in the brightest area, the point shall be selected from another area closeby not affected by brightest area. If the system has image quality adjust function (contrast, brightness etc.), camera image can be adjusted to fine view as much as possible. Six points shall be widely selected from around average luminance and the darkest area in the mirror or camera image excluding the brightest area. 5.3.3 Criteria $\text{Luminance ratio} = \frac{\text{Brightest area luminance}}{\text{Average of 6 points in the image}}$ If the luminance ratio of camera view is over 50% smaller than the ratio of mirror view, 0.5 points is given. Or, if the camera system satisfies UN R-46 Class I specification of image quality, 0.5 points is given. The test shall be done either by MIROS measurement, OEM in-house measurement with witness by MIROS or OEM test report submission.	(請參末頁圖示) 若上述定義的點與陽光最亮點重疊，則應從鄰近且不受該陽光最亮點影響的其他區域另選一點。若系統可以調整影像品質（對比度、亮度等等），攝影機畫面儘可能調到最好。此 6 點應分散地從後視鏡或攝影機畫面中平均亮度與最暗區域選取，並排除最亮區域。 3.23.4.3.3 判斷標準 $\text{亮度比} = \frac{\text{最亮區域亮度}}{\text{畫面中 6 點平均}}$ 若攝影機畫面亮度比低於後方視鏡亮度比例 50%以上，則給予 0.5 分。或若攝影機系統符合車輛安全檢測基準之 23 間接視野裝置安裝規定之 I 類視鏡的影像相關規範，給予 0.5 分。此試驗應由檢測機構量測或由車輛業者提交報告佐證。

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5.4 Weather adaptation If the system has weather adaptation function, the function is to be tested. The poles should be clearly visible than using inside mirror when the function is activated. 5.4.1 Criteria If the camera located within the rear wiping range or equivalent location that is not affected by weather conditions such as raining, 0.5 points is given. If there is a different function for making camera-view to clear, it is acceptable with demonstration of functions.	<u>3.23.4.4 天候適應功能</u> <u>若系統有天候適應功能，該功能需經試驗。開啟該功能後其立桿之被可視性應相較於車內視鏡還清楚。</u> <u>3.23.4.4.1 判斷標準</u> <u>若攝影機安裝在後雨刷範圍內，或其他同樣不受天候狀況（例如下雨）影響的位置，則給予 0.5 分。若有其他功能可讓攝影機畫面變清晰，經功能展示後亦可接受並給予分數。</u>
ANNEX A UN R46 (Indirect vision, mirror or camera monitor systems)  Class I (Inside mirror) field of view	<u>3.23.4.5</u> <u>聯合國 UN R46（間接視野，後視鏡或攝影機監控系統）</u> <u>(因檢測基準 23 已有調和 UN R46，故建議就相關圖示作刪除，不納入規章)</u> <u>(請參末頁圖示)</u>  圖二 I 類後方視野裝置之地面視野區域

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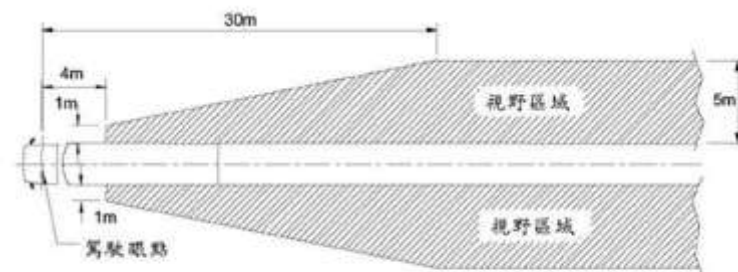


Class II (Outside mirror) field of view



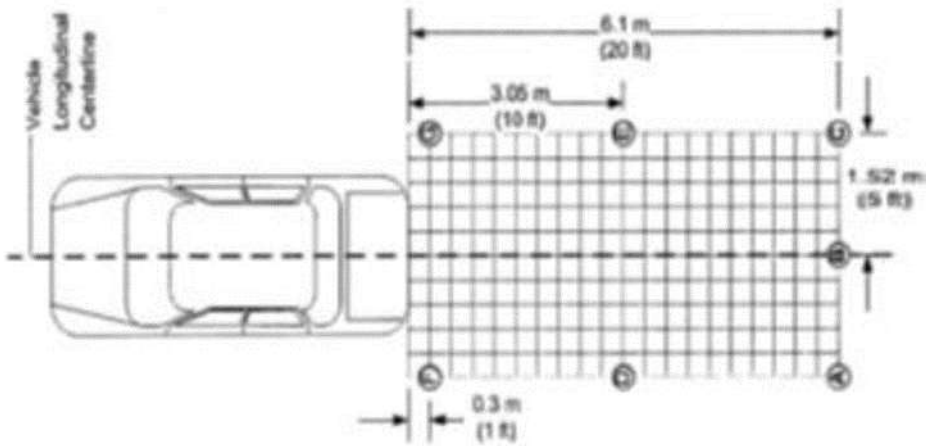
New regulation for reversing motion (Rear indirect vision, rear view camera)

新增 TNCAP 條文草案(第三版)



圖三 II 類主要後方視野裝置 之地面視野區域

[\(請參末頁圖示\)](#)



FMVSS 111 (Rear-view Camera)

[\(請參末頁圖示\)](#)

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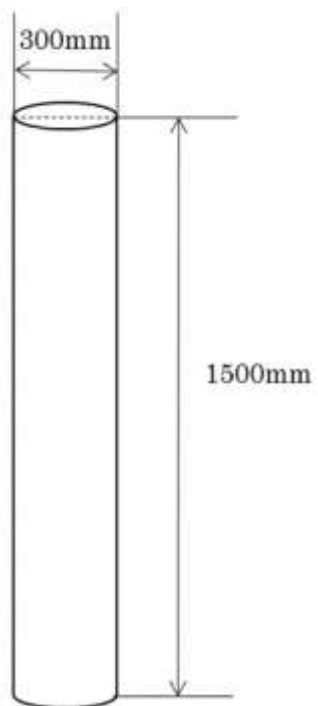
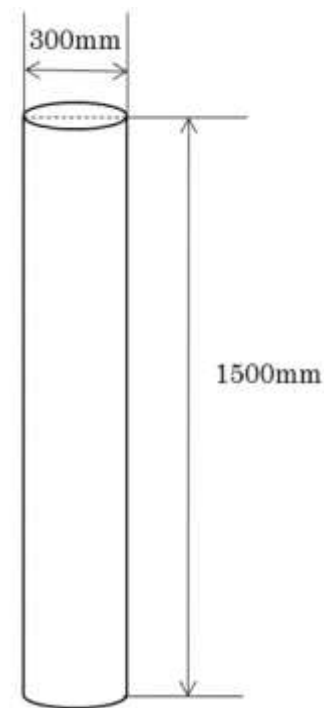


Figure 1: Test object (pole)

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[3.23.2](#)



[圖1：試驗目標（立桿）](#)

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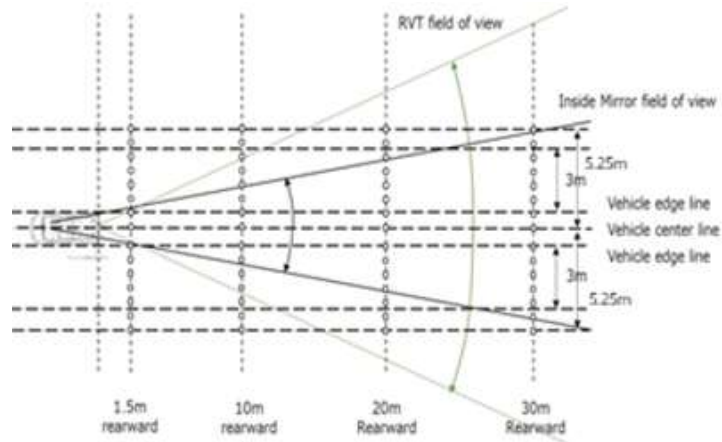


Figure 2: Global locations of poles

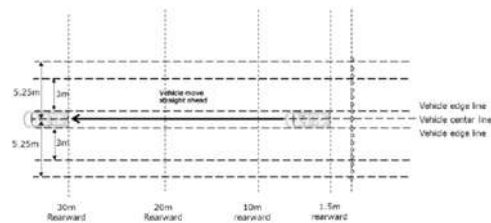


Figure 3: Actual movement of vehicle in the test

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3.23.3.3

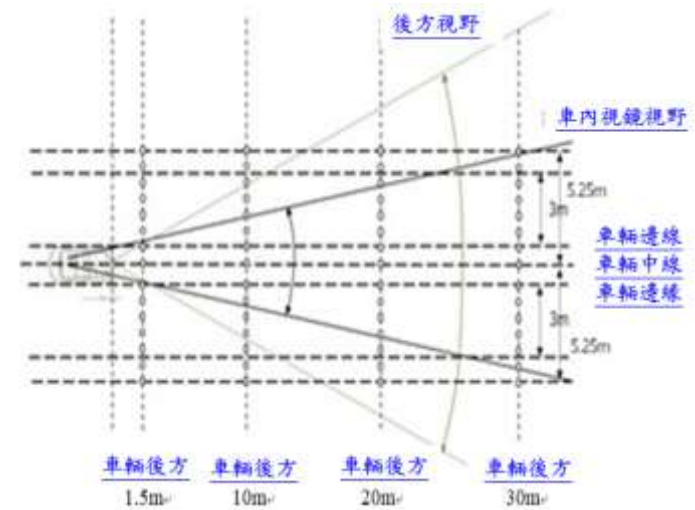


圖2：所有立桿位置

3.23.4.1.3

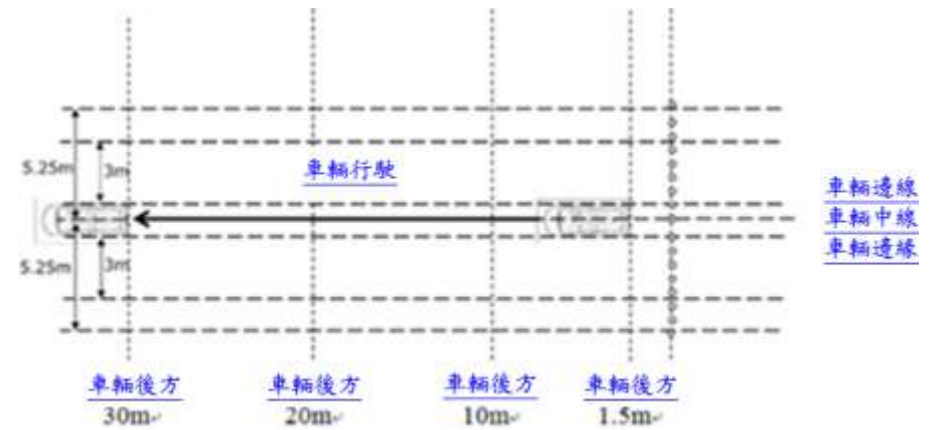
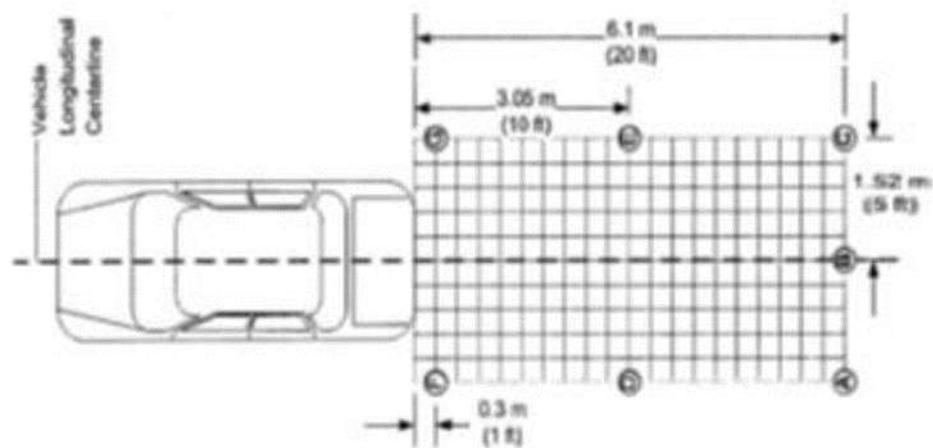


圖3：測試中車輛的實際移動

2025年版ASEAN NCAP規章	新增TNCAP條文草案(第三版)
Figure 4: Measurement points location of mirror or monitor surface	3.23.4.3.2 圖4：後視鏡或螢幕測量點位置
Class I (Inside mirror) field of view	I類（車內視鏡）視野 (因檢測基準 23 已有調和 UN R46，故建議就相關圖示作刪除，不納入規章)

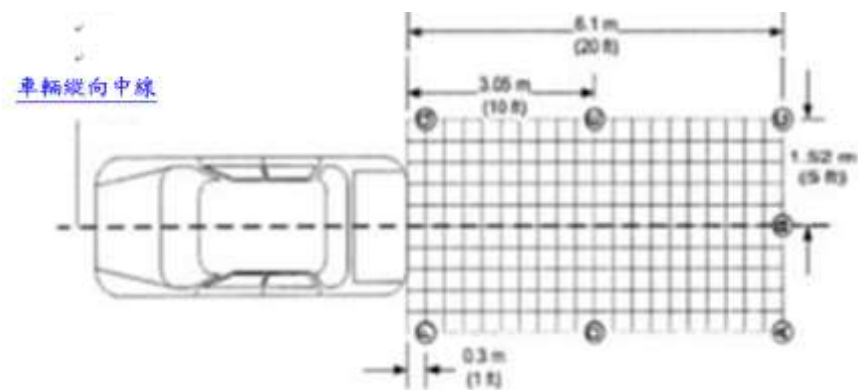
2025年版ASEAN NCAP規章	新增TNCAP條文草案(第三版)
Class II (Outside mirror) field of view	II類(車外視鏡)視野
New regulation for reversing motion (Rear indirect vision, rear view camera)	<u>針對倒車的新法規(後方間接視野, 後視攝影機)</u>

2025年版ASEAN NCAP規章



FMVSS 111 (Rear-view Camera)

新增TNCAP條文草案(第三版)



~~FMVSS 111 (後視攝影機)~~

2.4.9 後方視野輔助系統評等 <<本案暫以 2.4 規章編號說明後方視野輔助系統評等條文修訂內容，後續擬修訂至 2.1 安全駕駛評等規章 >>

ASEAN NCAP Protocol-Motorcyclist-Safety Version 2.0

2025年版ASEAN NCAP規章	新增TNCAP條文草案(第三版)
4 ASSESSMENT OF ADVANCED REAR VISUALIZATION (ARV) 4.2 Functional Definitions 4.2.1 General definition A system designed to provide enhanced live rear view, which displays the view images created from the rearward camera. When the system is in the built-in monitor combined with the traditional inside rear-view mirror, it is switchable from the traditional rear-view mirror to the rear-view image from the camera, or vice versa, by the driver's single action.	<u>2.4.9 後方視野輔助系統</u> <u>2.4.9.1 名詞釋義</u> <u>2.4.9.1.1 後方視野輔助系統：係指一個提供更佳的後方即時視野，並可顯示由後方攝影機所產生的視野影像。當此系統整合於傳統車內後視鏡的內建螢幕時，駕駛人只需透過單一動作，即可將傳統後視鏡切換為攝影機的後方視野影像，反之亦然。</u>
4.2.2 Additional features 4.2.2.1 Night adaptation An image processing of night exposure adjustment to increase rearward visibility.	<u>2.4.9.1.2 夜間適應功能：係指具備夜間曝光調整之影像處理功能，可增強後方視野可視性。</u>
4.2.2.2 Glare adaptation An image processing of image glare by sunlight from the rear side to increase rearward visibility.	<u>2.4.9.1.3 眩光適應功能：針對因陽光引起的影像眩光進行影像處理，可增強後方視野可視性。</u>
4.2.2.3 Weather adaptation Wiping function or other function for making camera view clear or camera location inside the rear wiping range for increasing visibility of rearward in bad weather condition such as rain.	<u>2.4.9.1.4 天候適應功能：係指具備雨刷或其他保持攝影機視野清晰之功能，或者，將攝影機安裝於後雨刷作動範圍內，或其他同樣不受天候狀況影響之位置，以在下雨等惡劣天候條件下，可增強後方視野可視性。</u>

4.3 Requirements for Advanced Rear Visualization

4.3.1 ASEAN NCAP assesses compliance based on the “Functional Definitions” as described in Section 4.2.

4.4 Scoring

4.4.1 Vehicles whose ARV systems meet the requirements as defined in Section 4.3 will be eligible for a maximum score of 3 points. Refer to the ASEAN NCAP Fitment Rating System Version 2.0.

4.4.2 Scoring policy

Scoring is based on the visibility of rearward objects (motorcycle riders) based on proximity (just behind the vehicle) and field of view expansion. The clear visibility of the provided camera images is used as a criterion to evaluate the visibility of objects behind the vehicle over long distances. Night visibility is also an important factor in situation awareness. Thus, it is defined as a multiplicative factor. Additional features such as glare and rain-weather adaptation are defined as additional points.

4.4.3 Proximity visibility

If the number of poles at the proximity line (1.5 m) in the camera image is larger than the inside mirror, 0.5 points will be given.

4.4.4 Field of view expansion

- If the number of poles at 10.0 m in the camera image is larger than the inside mirror, 0.5~0.0 points will be given.

2.4.9.2 後方視野輔助系統要求

2.4.9.2.1 TNCAP將依 2.4.9.1所述「名詞定義」作為符合性評估依據。

2.4.9.3 評分方式

2.4.9.3.1若受驗車輛之後方視野輔助系統符合2.4.9.2要求，即可獲得最高3分。

2.4.9.3.2 評分政策

評分依據後方目標（機車騎士）之可視性進行，評估項目包含近距離（緊貼車後）能見度及視野範圍之延伸。攝影鏡頭提供影像之清晰度用以評等車輛在遠距離條件下對後方物體之可視性。夜間可視性亦為情境察覺能力(situation awareness)之重要因素，因此作為加權乘數 (multiplicative factor)。眩光與雨天/天候適應性，則定義為額外加分項。

2.4.9.3.3 鄰近距離可視性

當距離1.5m時，若用後方視野輔助系統看到之立桿數量比車內視鏡還多，則給予0.5分。

2.4.9.3.4 視野距離可視性

(1) 若攝影機影像於10公尺處可辨識之標柱數量多於車內後視鏡，則給予0.5~0.0分。

- If the numbers of poles counted at a 10m rearward position by using rear view technology are larger than the numbers of poles counted by using an inside mirror, the field of view expansion gets the points (full points: 0.5 points).
- If the poles are seen over 3.0 m, a 0.5 point will be given.
- If the poles are seen below 3.0 m, but the field of view is expanded by rear view technology, 0.3 points will be given.
- If the field of view is not expanded by rear-view technology, no points will be given.

4.4.5 Long distance visibility

- If the image of poles at 20.0 m and 30.0 m in the camera image is clearer than the inside mirror, 0.5~0.0 points will be given, respectively.
- If the poles are seen over 5.25 m on each side, 0.5 points will be given.
- If the poles are seen over 3.50 m on each side, 0.4 points will be given.
- If the poles are seen over 1.75 m on each side, 0.3 points will be given.
- If the poles are seen below 1.75 m on each side, no points will be given.

(2) 若使用後視技術於後方10公尺位置可辨識之標柱數量多於車內後視鏡所能辨識的標柱數量，則視野擴張項目獲得分數（滿分：0.5分）。

（因評等規章與試驗規章得分內容不同，且評等規章之得分有誤，故參考試驗規章之評分研擬）

當距離10m時，若用後方視野輔助系統看到之立桿數量比車內視鏡還多，則給予一般視野可視性分數（滿分：0.5分）。

(1) 若可看見兩側橫向位置3.0m之外的立桿，給0.5分。

(2) 若僅能看見兩側橫向位置3.0m之內的立桿，但後方視野輔助系統之視野較為廣闊，給0.3分。

(3) 若後方視野輔助系統之視野並未比較廣闊，不給分。

2.4.9.3.5 遠距離可視性

(1) 若攝影機影像於20公尺及30公尺處所呈現之標柱清晰度高於車內後視鏡，則分別給予0.5~0.0分。

（因評等規章與試驗規章得分內容不同，且評等規章之得分有誤，故參考試驗規章之評分研擬）

當距離 20m 或 30m 時，若用後方視野輔助系統看到之立桿比車內視鏡清楚，則給予遠距離可視性分數（滿分：0.5 分）。

(1) 若可看見兩側橫向位置5.25m之外的立桿，給0.5分。

(2) 若可看見兩側橫向位置3.5m之外的立桿，給0.4分。

(3) 若可看見兩側橫向位置1.75m之外的立桿，給0.3分。

(4) 若僅能看見兩側橫向位置1.75m之內的立桿，給0分。

4.4.6 Night visibility If the system has a night adaptation function that meets the criteria defined in paragraph 5.2.3 of the ARV test protocol of Version 2.0, the night visibility index shall be 1.0. If the system does not have this function, the index will be 0.5. 4.4.7 Environmental condition visibility • If the system has a glare adaptation function that meets the criteria defined in paragraph 5.3.3 of the ARV test protocol Version 2.0, a 0.5 point will be given. • If the system has weather adaptation functions that satisfy the criteria defined in paragraph 5.4.1 of the ARV test protocol Version 2.0, a 0.5 point will be given. The environmental score is the sum of those 2 points. 4.4.8 Total score calculation ARV total score = (Proximity score + Field of view score + Long distance score) X Night visibility index + (Environmental score) Example of full score Proximity score: 0.5 (1.5 m) Field of view score: 0.5 (10 m) Long distance score: 0.5 + 0.5 = 1 (20,30 m) Night visibility index: 1.0 Environmental score: 0.5 + 0.5 = 1.0 ARV total score = (0.5+0.5+1.0) X 1.0 + 1.0 = 3.0	<u>2.4.9.3.6 夜間可視性</u> <u>若系統具備符合 3.23.4.2.3 後方視野輔助系統之夜間適應功能，則夜間能見度加權係數應為1.0。若系統未具備此功能，則該係數為0.5。</u> <u>2.4.9.3.7 環境條件可視性</u> <u>(1) 若系統具備符合3.23.4.3.3後方視野輔助系統之眩光適應功能，則給予0.5分。</u> <u>(2) 若系統具備符合3.23.4.4.1後方視野輔助系統之天候適應功能，則給予0.5分。</u> <u>環境條件得分為上述兩項得分之總和。</u> <u>2.4.9.3.8 總分計算</u> <u>ARV總分=（鄰近距離得分+視野距離得分+遠距離得分）×夜間可視指標+（環境條件得分）</u> <u>滿分計算示例</u> <u>鄰近距離得分：0.5（1.5公尺）</u> <u>視野距離得分：0.5（10公尺）</u> <u>遠距離得分：0.5+0.5=1（20、30公尺）</u> <u>夜間可視指標：1.0</u> <u>環境條件得分：0.5+0.5=1.0</u> <u>ARV總分=（0.5+0.5+1.0）×1.0+1.0=3.0</u>
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(ASEAN NCAP無此規定)

4.5 Performance Testing

4.5.1 Performance testing is conducted in order to evaluate the functionality and performance of the ARV system with regard to the detection of motorcyclists.

4.5.2 The result page will show the detailed specification and test performance, making it known to the public. Refer to ASEAN NCAP ARV Test Protocol Version 2.0.

後方視野輔助系統係以不同顏色來呈現不同後方視野輔助系統功能之得分，使用的顏色分別基於各別功能分數，四捨五入到小數點後三位。

<u>顏色</u>	<u>判定</u>	<u>適用於總得分</u>	<u>功能性比</u>
<u>綠色</u>	<u>優</u>	<u>2.251-3.000分</u>	<u>75.0%-100.0%</u>
<u>黃色</u>	<u>良好</u>	<u>1.501-2.250分</u>	<u>50.0%-75.0%</u>
<u>橘色</u>	<u>尚可</u>	<u>0.751-1.500分</u>	<u>25.0%-50.0%</u>
<u>棕色</u>	<u>差</u>	<u>0.001-0.750分</u>	<u>00.0%-25.0%</u>
<u>紅色</u>	<u>不良</u>	<u>0.000分</u>	<u>00.0%</u>
<u>灰色</u>	<u>未具備</u>	<u>0.000分</u>	<u>00.0%</u>

2.4.9.4 性能測試

2.4.9.4.1 性能測試旨在評估ARV系統於偵測機車方面的功能與性能表現。

2.4.9.4.2 測試結果頁面將公開顯示系統詳細規格與測試性能。詳見3.23後方視野輔助系統試驗規章。

(測試規章已規範於3.23，上述文字配合刪除)