UN R100 02 2012/11/14 電池動力車輛結構及功能安全

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
02			
12. Transitional provisions 12.1. As from the official date of entry into force of the 02 series of amendments, no Contracting Party applying this Regulation shall refuse to grant approval under this Regulation as amended by the 02 series of amendments. 12.2. As from [36] months after the date of entry into force of the 02 series of amendments, Contracting Parties applying this Regulation shall grant approvals only if the vehicle type to be approved meets the requirements of this Regulation as amended by the 02 series of amendments." 12.3. Contracting Parties applying this Regulation shall continue to grant approvals to those types of vehicles which comply with the requirements of this Regulation as amended by the preceding series of amendments during the [36] months' period which follows the date of entry into force of the 02 series of amendments. 12.4. Contracting Parties applying this Regulation shall not refuse to grant	11. Transitional provisions 11.1. As from the official date of entry into force of the 01 series of amendments, no Contracting Party applying this Regulation shall refuse to grant approval under this Regulation as amended by the 01 series of amendments. 11.2. As from 24 months after the date of entry into force, Contracting Parties applying this Regulation shall grant approvals only if the vehicle type to be approved meets the requirements of this Regulation as amended by the 01 series of amendments. 11.3. Contracting Parties applying this Regulation shall not refuse to grant extensions of approval to the preceding series of amendments to this Regulation. 11.4. Contracting Parties applying this Regulation shall continue to grant approvals to those types of vehicles which comply with the requirements of this Regulation as amended by the preceding series of amendments during the 24 months' period which	六十四之一、電動汽車之電氣安全(草案) 1. 實施時間及適用範圍： 1.1 中華民國○年○月○日起，新型式M及N類電動車輛及中華民國○年○月○日起，~~已符合本基準項次「六十四」且配備可充電式能量儲存系統（REESS）之~~各型式M及N類電動車輛，應符合本項規定。已符合本基準項次「六十四」且未配備可充電式能量儲存系統（REESS）之既有型式M及N類電動車輛，視同符合本項規定。 1.2 本規定不適用於設計速度小於或等於 25 公里/小時之車輛。亦不適用於主要供應啟動引擎及/或燈光及/或其他車輛輔助系統之可充電式能量儲存系統（REESS）。 1.3 同一申請者同一年度同型式規格車輛，申請少量或逐車少量車型安全審驗且總數未逾三輛者~~；或同一申請者同一年度同型式規格車輛，申請逐車少量車型安全審驗且總數未逾三十輛者~~，得免符合 4.1.3 絕緣電阻及/或 7.車載絕緣電阻監測系統之功能確認及 8.可充電式能量儲存系統安全規範之規定。	六十四、電動汽車之電氣安全 1. 實施時間及適用範圍： 1.1 中華民國一〇三年一月一日起，使用於設計速度大於 25 公里/小時之新型式M及N類電動車輛及中華民國一〇五年一月一日起，使用於設計速度大於 25 公里/小時之各型式M及N類電動車輛，應符合本項規定。

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extensions of approval to the preceding series of amendments to this Regulation. 12.5. Notwithstanding the transitional provisions above, Contracting Parties whose application of this Regulation comes into force after the date of entry into force of the most recent series of amendments are not obliged to accept approvals which were granted in accordance with any of the preceding series of amendments to this Regulation. (UN 之生效日期為 2013/7/15(即 102/7/15)；實施日期為36個月(即 105/7/15))	follows the date of entry into force of the 01 series of amendments. 11.5. Notwithstanding the transitional provisions above, Contracting Parties whose application of this Regulation comes into force after the date of entry into force of the most recent series of amendments are not obliged to accept approvals which were granted in accordance with any of the preceding series of amendments to this Regulation.		
Text 1. Scope 1.1. Part I: safety requirements with respect to the electric power train of road vehicles of categories M and N 1, with a maximum design speed exceeding 25 km/h, equipped with one or more traction motor(s) operated by electric power and not permanently connected to the grid, as well as their high voltage components and systems which are galvanically	1. Scope The following prescriptions apply to safety requirements with respect to the electric power train of road vehicles of categories M and N, with a maximum design speed exceeding 25 km/h, equipped with one or more traction motor(s) operated by electric power and not permanently connected to the grid, as well as their high voltage components and systems		

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connected to the high voltage bus of the electric power train. 1.2. Part II: safety requirements with respect to the Rechargeable Energy Storage System(REESS), of road vehicles of categories M and N equipped with one or more traction motors operated by electric power and not permanently connected to the grid. Part II of this Regulation does not apply to REESS(s) whose primary use is to supply power for starting the engine and/or lighting and/or other vehicle auxiliaries systems.	which are galvanically connected to the high voltage bus of the electric power train. This regulation does not cover post crash safety requirements of road vehicles.	(併於 1.1 實施對象及 1.2 不適用對象) ~~1.2 對於配備一個或多個電能推進馬達且未固定連接至電網之M及N類車輛，其可充電式能量儲存系統（REESS），自中華民國○年○月○日起應符合X之規定。惟若其主要用途是供應啟動引擎及/或燈光及/或其他車輛輔助系統，則得免符合X之規定。~~	
2. Definitions For the purpose of this Regulation the following definitions apply: 2.1. "Active driving possible mode" means the vehicle mode when application of pressure to the accelerator pedal (or activation of an equivalent control) or release of the brake system will cause the electric power train to move the vehicle. 2.2. "Barrier" means the part providing protection against direct contact to the live parts from any direction of access. 2.3. "Cell" means a single encased	2. Definitions For the purpose of this Regulation the following definitions apply: 2.1. "Active driving possible mode" means the vehicle mode when application of pressure to the accelerator pedal (or activation of an equivalent control) or release of the brake system will cause the electric power train to move the vehicle. 2.2. "Barrier" means the part providing protection against direct contact to the live parts from any direction of access.	2. 名詞釋義： 2.1 可行車模式(Active driving possible mode)：指踩下加速踏板(或相當之控制動作)即可藉由電能動力傳動帶動車輛之車輛狀態。 2.2 屏障：提供從任何方向均可避免直接接觸帶電體之保護裝置。 2.3 單電池(Cell)：係指單一封閉之電	2. 名詞釋義： 2.1 可行車模式：指踩下加速踏板(或相當之控制動作)即可藉由電動推進馬達帶動車輛之行車狀態。 2.2 屏障：提供從任何方向均可避免直接接觸帶電體之保護裝置。

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electrochemical unit containing one positive and one negative electrode which exhibits a voltage differential across its two terminals.		化學元件，包含一個正極及負極，且兩極間具有電位差。	
2.4. "*Conductive connection*" means the connection using connectors to an external power supply when the rechargeable energy storage system (REESS) is charged.	2.3. "Conductive connection" means the connection using connectors to an external power supply when the rechargeable energy storage system (RESS) is charged.	2.4 導電連接 (Conductive connection)：當 REESS 充電時，使用充電器與外部電力供應裝置進行連接。	2.3 導電連接：當 RESS 充電時，使用充電器與外部電力供應裝置進行連接。
2.5. "*Coupling system for charging the rechargeable energy storage system (REESS)*" means the electrical circuit used for charging the REESS from an external electric power supply including the vehicle inlet.	2.4. "Coupling system for charging the rechargeable energy storage system (RESS)" means the electrical circuit used for charging the RESS from an external electric power supply including the vehicle inlet.	2.5 REESS 充能耦合系統(Coupling system for charging the rechargeable energy storage system (REESS))：指充能系統使用外部電源供應器之電路來充電。	2.4 RESS 充能耦合系統(Coupling system for charging the RESS)：指充能系統使用外部電源供應器之電路來充電。
2.6. "C Rate" of "n C" is defined as the constant current of the tested-device, which takes 1/ n hours to charge or discharge the tested-device between 0 per cent of the state of charge and 100 per cent of the state of charge.		2.6 n C 的 C 比率：定義為待測件之恆定電流，其對待測件於電量狀態百分之 0 及百分之一 0 0 間之充電或放電時間需要 1/n 個小時。	
2.7. "Direct contact" means the contact of persons with live parts.	2.5. "Direct contact" means the contact of persons with live parts.	2.7 直接接觸：指人與帶電體之接觸。	2.5 直接接觸：指人與帶電體之接觸。
2.8. "Electrical chassis" means a set made of conductive parts electrically linked together, whose potential is taken as reference.	2.6. "Electrical chassis" means a set made of conductive parts electrically linked together, whose potential is taken as reference.	2.8 電路介面(Electrical chassis)：指由導電的元件所組成連結之裝置，其應參考其電位。	2.6 電路介面：指由導電的元件所組成連結之裝置，其應參考其電位。
2.9. "Electrical circuit" means an assembly of connected live parts which is designed to be electrically	2.7. "Electrical circuit" means an assembly of connected live parts which is designed to be electrically	2.9 電路(Electrical circuit)：指由連接之帶電體所構成，在一般操作情況下可導通電流。	2.7 電路：指由連接之帶電體所構成，在一般操作情況下可導通電流。

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energized in normal operation.	energized in normal operation.		
2.10. "Electric energy conversion system" means a system that generates and provides electric energy for electric propulsion.	2.8. "Electric energy conversion system" means a system that generates and provides electric energy for electric propulsion.	2.10 電能轉換系統(Electric energy conversion system)：用來產生及提供電能以供電動推進之系統。	2.8 電能轉換系統：用來產生及提供電能以供電動推進之系統。
2.11. "Electric power train" means the electrical circuit which includes the traction motor(s), and may include the REESS, the electric energy conversion system, the electronic converters, the associated wiring harness and connectors, and the coupling system for charging the REESS.	2.9. "Electric power train" means the electrical circuit which includes the traction motor(s), and may include the RESS, the electric energy conversion system, the electronic converters, the associated wiring harness and connectors, and the coupling system for charging the RESS.	2.11 電能動力傳動(Electric power train)：包含電動推進馬達、REESS(若有的話)、電能轉換系統、電能轉換器、電線連接線束與連接器以及 REESS 充能耦合系統之電路。	2.9 電能動力傳動：包含電動推進馬達、RESS(若有的話)、電能轉換系統、電能轉換器、電線連接線束與連接器以及 RESS 充能耦合系統之電路。
2.12. "Electronic converter" means a device capable of controlling and/or converting electric power for electric propulsion.	2.10. "Electronic converter" means a device capable of controlling and/or converting electric power for electric propulsion.	2.12 電能轉換器(Electronic converter)：指能控制及/或轉換電力之裝置以供電動推進之系統。	2.10 電能轉換器(Electronic converter)：指能控制及/或轉換電力之裝置以供電動推進之系統。
2.13. "Enclosure" means the part enclosing the internal units and providing protection against direct contact from any direction of access.	2.11. "Enclosure" means the part enclosing the internal units and providing protection against direct contact from any direction of access.	2.13 外殼(Enclosure)：用來圍住內部零件且能提供保護，以避免遭遇任何直接接觸之部分。	2.11 外殼(Enclosure)：用來圍住內部零件且能提供保護，以避免遭遇任何直接接觸之部分。
2.14. "Exposed conductive part" means the conductive part which can be touched under the provisions of the protection IPXXB and which becomes electrically energized under isolation failure conditions. This includes parts under a cover that can be removed without using tools.	2.12. "Exposed conductive part" means the conductive part which can be touched under the provisions of the protection IPXXB and which becomes electrically energized under isolation failure conditions. This includes parts under a cover that can be removed without using tools.	2.14 外露可導電元件(Exposed conductive part)：符合 IPXXB 規範之可被接觸之可導電元件，且在絕緣失效之情況下才會帶電。	2.12 外露可導電元件(Exposed conductive part)：符合 IPXXB 規範之可被接觸之可導電元件，且在絕緣失效之情況下才會帶電。

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2.15. "Explosion" means the sudden release of energy sufficient to cause pressure waves and/or projectiles that may cause structural and/or physical damage to the surrounding of the tested-device.		2.15 爆裂(Explosion)：指足以引發壓力波及/或物體散射，致使待測件周圍結構及/或實體受損之能量突然釋放。	
2.16. "External electric power supply" means an alternating current (AC) or direct current (DC) electric power supply outside of the vehicle.	2.13. "External electric power supply" means an alternating current (AC) or direct current (DC) electric power supply outside of the vehicle.	2.16 外部電力供應裝置：車輛本身以外之交流電或直流電電力供應裝置。	2.13 外部電力供應裝置：車輛本身以外之交流電或直流電電力供應裝置。
2.17. "High Voltage" means the classification of an electric component or circuit, if its working voltage is > 60 V and ≤ 1500 V DC or > 30 V and ≤ 1000 V AC root mean square (rms).	2.14. "High Voltage" means the classification of an electric component or circuit, if its working voltage is > 60 V and ≤ 1500 V DC or > 30 V and ≤ 1000 V AC root mean square (rms).	2.17 高電壓：電子零件或電路之分類，若其工作電壓>六０伏特且≦一五００伏特(直流電)，或>三０伏特且≦一０００伏特(交流電真均方根值(rms))者。	2.14 高電壓：電子零件或電路之分類，若其工作電壓>60V 且≦1500V(直流電)，或>30V 且≦1000V(交流電真均方根值(rms))者。
2.18. "Fire" means the emission of flames from a tested-device. Sparks and arcing shall not be considered as flames.		2.18 起火(Fire)：指從待測件散放出火焰。火花及電弧應不得視為火焰。	
2.19. "Flammable electrolyte" means an electrolyte that contains substances classified as Class 3 "flammable liquid" under "UN Recommendations on the Transport of Dangerous Goods - Model Regulations (Revision 17 from June 2011), Volume I, Chapter 2.3" 2		2.19 可燃性電解液(Flammable electrolyte)：指包含可燃物質之電解液。	
2.20. "High voltage bus" means the electrical circuit, including the	2.15. "High voltage bus" means the electrical circuit, including the	2.20 高電壓匯流排(High voltage bus)：包含使用高電壓之 REESS 充	2.15 高電壓匯流排(High voltage bus)：包含使用高電壓之 RESS 充能耦合系統之電路。

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coupling system for charging the REESS that operates on high voltage.	coupling system for charging the RESS that operates on high voltage.	能耦合系統之電路。	
2.21. "Indirect contact" means the contact of persons with exposed conductive parts.	2.16. "Indirect contact" means the contact of persons with exposed conductive parts.	2.21 間接接觸：指人或家畜與外露之可導電元件之接觸。	2.16 間接接觸：指人或家畜與外露之可導電元件之接觸。
2.22. "Live parts" means the conductive part(s) intended to be electrically energized in normal use.	2.17. "Live parts" means the conductive part(s) intended to be electrically energized in normal use.	2.22 帶電體(Live Parts)：指在一般正常使用下帶電之可導電元件。	2.17 帶電體：指在一般正常使用下帶電之可導電元件。
2.23. "Luggage compartment" means the space in the vehicle for luggage accommodation, bounded by the roof, hood, floor, side walls, as well as by the barrier and enclosure provided for protecting the power train from direct contact with live parts, being separated from the passenger compartment by the front bulkhead or the rear bulk head.	2.18. "Luggage compartment" means the space in the vehicle for luggage accommodation ,bounded by the roof, hood, floor, side walls, as well as by the barrier and enclosure provided for protecting the power train from direct contact with live parts, being separated from the passenger compartment by the front bulkhead or the rear bulk head.	2.23 行李廂：車輛內由車頂、行李廂蓋(Hood)、地板、側板及可保護避免帶電體與乘員直接接觸之屏障與外殼等所圍成用來放置行李之空間，其係與車室空間之前方隔板或後方隔板相分隔。	2.18 行李廂：車輛內由車頂、車蓬、地板、側板及可保護避免帶電體與電動馬達直接接觸之屏障與外殼等所圍成用來放置行李之空間，其係與車室空間之前方隔板或後方隔板相分隔。
2.24. "Manufacturer" means the person or body who is responsible to the approval authority for all aspects of the type approval process and for ensuring conformity of production. It is not essential that the person or body be directly involved in all stages of the construction of the vehicle, system, component or component which is the subject of the approval process.		~~2.24 申請者(Manufacturer)：係指負責型式認證過程中各方面程序及確保生產一致性的人或團體，其可不必直接參與車輛、系統或零件之建造階段。~~ (申請者係於管理辦法已有定義)	
2.25. "On-board isolation resistance	2.19. "On-board isolation resistance	2.24 車載絕緣電阻監控系統(On-board isolation resistance	2.19 車載絕緣電阻監控系統：用來監

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monitoring system" means the device which monitors the isolation resistance between the high voltage buses and the electrical chassis.	monitoring system" means the device which monitors the isolation resistance between the high voltage buses and the electrical chassis.	monitoring system)：用來監控高電壓匯流排與電路介面間之絕緣電阻之裝置。	控高電壓匯流排與電路介面間之絕緣電阻之裝置。
2.26. "Open type traction battery" means a liquid type battery requiring refilling with water and generating hydrogen gas released to the atmosphere.	2.20. "Open type traction battery" means a liquid type battery requiring refilling with water and generating hydrogen gas released to the atmosphere.	2.25 開放式主電池(Open type traction battery)：需要加水及會產生氫氣之液體式電池。	2.20 開放式主電池：需要加水及會產生氫氣之液體式電池。
2.27. "Passenger compartment" means the space for occupant accommodation, bounded by the roof, floor, side walls, doors, window glass, front bulkhead and rear bulkhead, or rear gate, as well as by the barriers and enclosures provided for protecting the power train from direct contact with live parts.	2.21. "Passenger compartment" means the space for occupant accommodation, bounded by the roof, floor, side walls, doors, window glass, front bulkhead and rear bulkhead, or rear gate, as well as by the barriers and enclosures provided for protecting the power train from direct contact with live parts.	2.26 車室：指車輛內由車頂、地板、側板、車門、玻璃、前方隔板、後方隔板、後方閘門等可保護避免帶電體與乘員直接接觸之屏障與外殼等所圍成供乘員使用之空間。	2.21 乘客室：指車輛內由車頂、地板、側板、車門、玻璃、前方隔板、後方隔板、後方閘門等可保護避免帶電體與電動馬達直接接觸之屏障與外殼等所圍成供乘員使用之空間。
2.28. "Protection degree" means the protection provided by a barrier/enclosure related to the contact with live parts by a test probe, such as a test finger (IPXXB) or a test wire (IPXXD), as defined in Annex 3.	2.22. "Protection degree" means the protection provided by a barrier/enclosure related to the contact with live parts by a test probe, such as a test finger (IPXXB) or a test wire (IPXXD), as defined in Annex 3.	2.27 保護等級：如 5.所定義，藉由測試指(如關節測試指(IPXXB)或測試導線(IPXXD))驗證屏障/外殼對於帶電體所提供之保護程度。	2.22 保護等級：如 5.所定義，藉由測試指(如關節測試指(IPXXB)或測試導線(IPXXD))驗證屏障/外殼對於帶電體所提供之保護程度。
2.29. "Rechargeable energy storage system (REESS)" means the rechargeable energy storage system that provides electric energy for	2.23. "Rechargeable energy storage system (RESS)" means the rechargeable energy storage system that provides electric energy for	2.28 可充電式能量儲存系統(REESS)：用來提供電動推進所需電能之可充能之能量儲存系統。該REESS 可包括子系統及作為實體支	2.23 可充電式能量儲存系統(RESS)：用來提供電動推進所需電能之可充能之能量儲存系統。

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electrical propulsion. The REESS may include subsystem(s) together with the necessary ancillary systems for physical support, thermal management, electronic control and enclosures.	electric propulsion.	撐(Physical support)、熱管理、微電子控制及外殼之必要輔助系統。	
2.30. "Rupture" means opening(s) through the casing of any functional cell assembly created or enlarged by an event, large enough for a 12 mm diameter test finger (IPXXB) to penetrate and make contact with live parts (see Annex 3).		2.29 破裂(Rupture)：係指因某種事件而在任何功能性電池總成之保護罩上產生開口或擴大開口，其足以讓直徑 12 公釐關節測試指（IPXXB）穿入碰觸帶電體（表一及圖二）。	
2.31. "Service disconnect" means the device for deactivation of the electrical circuit when conducting checks and services of the REESS, fuel cell stack, etc.	2.24. "Service disconnect" means the device for deactivation of the electrical circuit when conducting checks and services of the RESS, fuel cell stack, etc.	2.30 維修斷電：當執行 REESS、燃料電池等之檢查或維護時可用來將電路暫時中斷供電之裝置。	2.24 維修斷電：當執行 RESS、燃料電池等之檢查或維護時可用來將電路暫時中斷供電之裝置。
2.32. "State of Charge (SOC)" means the available electrical charge in a tested-device expressed as a percentage of its rated capacity.		2.31 電量狀態(State of charge；SOC)：指待測件內之可用電量，其以額定容量之百分比表示。	
2.33. "Solid insulator" means the insulating coating of wiring harnesses provided in order to cover and protect the live parts against direct contact from any direction of access; covers for insulating the live parts of connectors, and varnish or paint for the purpose of insulation.	2.25. "Solid insulator" means the insulating coating of wiring harnesses provided in order to cover and protect the live parts against direct contact from any direction of access; covers for insulating the live parts of connectors, and varnish or paint for the purpose of insulation.	2.32 固體絕緣體(Soild insulator)：用來覆蓋及保護電線連接線束之絕緣塗層，以避免帶電體從任何方向遭遇直接接觸；連接器供帶電體絕緣之表面塗層，以及用來絕緣之絕緣漆或油漆。	2.25 固體絕緣體：用來覆蓋及保護電線連接線束之絕緣塗層，以避免帶電體從任何方向遭遇直接接觸；連接器供帶電體絕緣之表面塗層，以及用來絕緣之絕緣漆或油漆。

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
2.34. "Subsystem" means any functional assembly of REESS components. 2.35. " tested-device " means either the complete REESS or the subsystem of a REESS that is subjected to the tests prescribed by this Regulation. 2.36. "Type of REESS" means systems which do not differ significantly in such essential aspects as: (a) the manufacturer's trade name or mark, (b) the chemistry, capacity and physical dimensions of its cells, (c) the number of cells, the mode of connection of the cells and the physical support of the cells, (d) the construction, materials and physical dimensions of the casing and (e) the necessary ancillary devices for physical support, thermal management and electronic control. 2.37. "Vehicle type" means vehicles which do not differ in such essential aspects as: (a) Installation of the electric power train and the galvanically connected high voltage bus. (b) Nature and type of electric power train and the galvanically connected high voltage components.	2.26. "Vehicle type" means vehicles which do not differ in such essential aspects as: (a) Installation of the electric power train and the galvanically connected high voltage bus. (b) Nature and type of electric power train and the galvanically connected high voltage components.	2.33 子系統(Subsystem)：係指 REESS 組件(Component)之任何功能性總成。 2.34 待測件(Tested-device)：指依照本規範接受試驗之完整 REESS，或 REESS 之子系統。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
2.38. "*Working* voltage" means the highest value of an electrical circuit voltage root-meansquare (rms), specified by the manufacturer, which may occur between any conductive parts in open circuit conditions or under normal operating condition. If the electrical circuit is divided by galvanic isolation, the working voltage is defined for each divided circuit, respectively.	2.27. "*Working voltage*" means the highest value of an electrical circuit voltage root-meansquare (rms), specified by the manufacturer, which may occur between any conductive parts in open circuit conditions or under normal operating condition. If the electrical circuit is divided by galvanic isolation, the working voltage is defined for each divided circuit, respectively.	2.35 工作電壓(Working voltage)：指由製造廠定義之電路電壓的最高均方根值(rms)，可在任何可導電元件間且在短路或一般運作的情況下發生。若電路係以電流絕緣分隔，則應對分隔之電路個別定義其工作電壓。 2.36 可充電式能量儲存系統(REESS)特性包含： 2.36.1 REESS 廠牌 2.36.2 電池之化學性質、電容量及實體尺寸。 2.36.3 電池之數量、連接模式及實體支撐。 2.36.4 外殼(Casing)之構造、材質及其實體尺寸。 2.36.5 作為實體支撐、熱管理及微電子控制之必要輔助系統。 2.36.6 限制之適用車型	2.26 工作電壓：指由製造廠定義之電路電壓的最高均方根值(rms)，可在任何可導電元件間且在短路或一般運作的情況下發生。若電路係以電流絕緣分隔，則應對分隔之電路個別定義其工作電壓。
2.36. "Type of REESS" means systems which do not differ significantly in such essential aspects as: (a) the manufacturer's trade name or mark, (b) the chemistry, capacity and physical dimensions of its cells, (c) the number of cells, the mode of connection of the cells and the physical support of the cells, (d) the construction, materials and		3.電動汽車之適用型式及其範圍認定原則： 3.1 若以完成車執行本項檢測時，其適用型式及其範圍認定原則： 3.1.1 車種代號相同。 3.1.2 車輛廠牌及車輛型式系列相同。 3.1.3 電能動力傳動及通電連接之高電壓匯流排之配置相同。 3.1.4 電能動力傳動及高電壓零組件之型式系列相同。	3.電動汽車之適用型式及其範圍認定原則： 3.1 若以完成車執行本項檢測時，其適用型式及其範圍認定原則： 3.1.1 車種代號相同。 3.1.2 廠牌及車輛型式系列相同。 3.1.3 電能動力傳動及通電連接之高電壓匯流排之配置相同。 3.1.4 電能動力傳動及高電壓零組件之型式系列相同。

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
physical dimensions of the casing and (e) the necessary ancillary devices for physical support, thermal management and electronic control.		3.1.5 可充電式能量儲存系統特性相同 3.2 若以底盤車代替完成車執行本項全部或部分檢測時，其適用型式及其範圍認定原則： 3.2.1 底盤車廠牌相同。 3.2.2 底盤車製造廠宣告之底盤車型式系列相同。 3.2.3 車輛推進動力來源種類(內燃機或電動馬達)相同。 3.2.4 電能動力傳動及通電連接之高電壓匯流排之配置相同。 3.2.5 電能動力傳動及高電壓零組件之型式系列相同。 3.2.6 可充電式能量儲存系統特性相同 ~~3.3 可充電式能量儲存系統(REESS)特性：~~(移作名詞釋義 2.36) ~~3.3.1 REESS 廠牌及型式系列~~ ~~3.3.2 電池之化學性質、電容量及實體尺寸。~~ ~~3.3.3 電池之數量、連接模式及實體支撐。~~ ~~3.3.4 外殼之構造、材質及實體尺寸。~~ ~~3.3.5 作為實體支撐、熱管理及電子控制之必要輔助系統。~~	3.2 若以底盤車代替完成車執行本項全部或部分檢測時，其適用型式及其範圍認定原則： 3.2.1 底盤車廠牌相同。 3.2.2 底盤車製造廠宣告之底盤車型式系列相同。 3.2.3 車輛推進動力來源種類(內燃機或電動馬達)相同。 3.2.4 電能動力傳動及通電連接之高電壓匯流排之配置相同。 3.2.5 電能動力傳動及高電壓零組件之型式系列相同。
3. Application for approval 3.1. Part I: Approval of a vehicle type with regard to the High Voltage	3. Application for approval 3.1. The application for approval of a vehicle type with regard to specific	(此為申請認證項目，修訂內容不影響國內基準)	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
System 3.1.1. The application for approval of a vehicle type with regard to specific requirements for the electric power train shall be submitted by vehicle manufacturer or by his duly accredited representative. 3.1.2. It shall be accompanied by the under-mentioned documents in triplicate and following particulars: 3.1.2.1. Detailed description of the vehicle type as regards the electric power train and the galvanically connected high voltage bus. 3.1.2.2. For vehicles with REESS, additional evidence showing that the REESS is in compliance with the requirements of paragraph 6 of this Regulation. 3.1.3. A vehicle representative of the vehicle type to be approved shall be submitted to the Technical Service responsible for conducting the approval tests and, if applicable, at the manufacturer's discretion with the agreement of the Technical Service, either additional vehicle(s), or those parts of the vehicle regarded by the Technical Service as essential for the test(s) referred to in the Paragraph 6	requirements for the electric power train shall be submitted by vehicle manufacturer or by his duly accredited representative. 3.2. It shall be accompanied by the under-mentioned documents in triplicate and following particulars: 3.2.1. Detailed description of the vehicle type as regards the electric power train and the galvanically connected high voltage bus. 3.3. A vehicle representative of the vehicle type to be approved shall be submitted to the technical service responsible for conducting the approval tests. 3.4. The competent Authority shall verify the existence of satisfactory arrangements for ensuring effective control of the conformity of production before type approval is granted.		

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
of this Regulation. 3.2. Part II: Approval of a Rechargeable Energy Storage System (REESS) 3.2.1. The application for approval of a type of REESS or separate technical unit with regard to the safety requirements of the REESS shall be submitted by the REESS manufacturer or by his duly accredited Representative. 3.2.2. It shall be accompanied by the under-mentioned documents in triplicate and comply with the following particulars: 3.2.2.1. Detailed description of the type of REESS or separate technical unit as regards the safety of the REESS. 3.2.3. A component(s) representative of the type of REESS to be approved plus, at the manufacturer's discretion, and with the agreement of the Technical Service, those parts of the vehicle regarded by the Technical Service as essential for the test, shall be submitted to the Technical Service responsible for conducting the approval tests. 3.3. The competent Authority shall verify the existence of satisfactory arrangements for ensuring effective			

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
control of the conformity of production before type approval is granted.			
4. Approval 4.1. If the type submitted for approval pursuant to this Regulation meets the requirements relevant parts*/ of this Regulation, approval of that type shall be granted. ... 4.3. Notice of approval or of refusal or of extension or withdrawal of approval or production definitely discontinued of a vehicle type pursuant to this Regulation shall be communicated to the Parties to the Agreement applying this Regulation, by means of a form conforming to the model in Annex 1, Part 1 or 2 as appropriate to this Regulation. 4.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle or REESS or separate technical unit conforming to a type approved under this Regulation an international approval mark consisting of: ...	4. Approval 4.1. If the vehicle submitted for approval pursuant to this Regulation meets the requirements of paragraph 5 below and Annexes 3, 4, 5 and 7 to this Regulation, approval of this vehicle type shall be granted. ... 4.3. Notice of approval or of refusal or of extension or withdrawal of approval or production definitely discontinued of a vehicle type pursuant to this Regulation shall be communicated to the Parties to the Agreement applying this Regulation, by means of a form conforming to the model in Annex 1 to this Regulation. 4.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation an international approval mark consisting of:	(此為認證項目，修訂內容不影響國內基準)	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
4.4.3. In the case of an approval of a REESS or a separate technical unit of the REESS the "R" shall be followed by the symbol "ES". 4.5. If the vehicle or REESS conforms to a type approved under one or more other Regulations annexed to the Agreement in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 4.4.1. need not be repeated; in this case the Regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 4.4.1. 4.6.1. In the case of a vehicle, the approval mark shall be placed on or close to the vehicle data plate affixed by the Manufacturer. 4.6.2. In the case of a REESS or separate technical unit approved as a REESS, the approval mark shall be affixed on the major element of the REESS by the Manufacturer. 4.7. Annex 2 to this Regulation gives	... 4.5. If the vehicle conforms to a vehicle type approved under one or more other Regulations annexed to the Agreement in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 4.4.1. need not be repeated; in this case the Regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 4.4.1. ... 4.7. The approval mark shall be placed on or close to the vehicle data plate affixed by the Manufacturer. 4.8. Annex 2 to this Regulation gives examples of the arrangements of the approval mark.		

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
examples of the arrangements of the approval mark.			
5. Requirements of a vehicle with regard to its electrical safety ... 5.1.1. Protection against direct contact Protection against direct contact with live parts is also required for vehicles equipped with any REESS type approved under Part II of this Regulation. The protection against direct contact with the live parts, shall comply with paragraphs 5.1.1.1. and 5.1.1.2. These protections (solid insulator, barrier, enclosure, etc.) shall not be able to be opened, disassembled or removed without the use of tools. ... 5.1.1.5.1. In the case of a REESS having high voltage capability the symbol shown in Figure 1 shall appear on or near the REESS. The symbol background shall be yellow, the bordering and the arrow shall be black. ... 5.1.2. Protection against indirect contact Protection against indirect contact is also required for vehicles equipped	5. Specifications and tests ... 5.1.1. Protection against direct contact The protection against direct contact with live parts shall comply with paragraphs 5.1.1.1. and 5.1.1.2. These protections (solid insulator, barrier, enclosure, etc.) shall not be able to be opened, disassembled or removed without the use of tools. ... 5.1.1.5.1. The symbol shown in Figure 1 shall appear on or near the RESS. The symbol background shall be yellow, the bordering and the arrow shall be black. ... 5.1.2. Protection against indirect contact 5.1.2.1. For protection against electrical	4. 車輛電氣安全要求 ... 4.1.1 直接接觸保護： 配備可充電式能量儲存系統(REESS)之車輛，該系統應符合 8.規定，且車輛仍應具備防止與帶電體直接接觸之保護。 對帶電體之直接接觸保護應符合 4.1.1.1 及 4.1.1.2 之規定。這些保護裝置(固體絕緣、屏障、外殼等)不得在未使用工具之情形下被打開、拆開或移除。 ... 4.1.1.5 標識 4.1.1.5.1 對具有高電壓性能之 REESS，應於 REESS 或其附近標示有圖一之標識。 此標識之底色應為黃色，邊線及箭頭應為黑色。 4.1.2 間接接觸保護 配備可充電式能量儲存系統(REESS)之車輛，該系統應符合 8.規定，且	4. 測試方法與規範 ... 4.1.1 直接接觸保護：對帶電體之直接接觸保護應符合 4.1.1.1 及 4.1.1.2 之規定。這些保護裝置(固體絕緣、屏障、外殼等)不得在未使用工具之情形下被打開、拆開或移除。 ... 4.1.1.5 標識 4.1.1.5.1 應於 RESS 或其附近標示有圖一之標識。 此標識之底色應為黃色，邊線及箭頭應為黑色。 4.1.2 間接接觸保護

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
with any REESS type approved under Part II of this Regulation. 5.1.2.1. For protection against electrical shock which could arise from indirect contact, the exposed conductive parts, ... 5.1.3. Isolation resistance 5.1.3.1. Electric power train consisting of separate Direct Current- or Alternating Current-buses If AC high voltage buses and DC high voltage buses are galvanically isolated from each other, isolation resistance between the high voltage bus and the electrical chassis shall have a minimum value of 100 ohms/volt of the working voltage for DC buses, and a minimum value of 500 ohms/volt of the working voltage for AC buses. The measurement shall be conducted according to Annex 4A "Isolation resistance measurement method for vehicle based tests.	shock which could arise from indirect contact, the exposed conductive parts,... ... 5.1.3. Isolation resistance 5.1.3.1. Electric power train consisting of separate Direct Current- or Alternating Current-buses If AC high voltage buses and DC high voltage buses are galvanically isolated from each other, isolation resistance between the high voltage bus and the electrical chassis shall have a minimum value of 100 ohms/volt of the working voltage for DC buses, and a minimum value of 500 ohms/volt of the working voltage for AC buses. The measurement shall be conducted according to Annex 4 "Isolation resistance measurement method".	車輛仍應具備防止間接接觸之保護。 ... 4.1.3 絕緣電阻 4.1.3.1 由獨立的直流電或交流電匯流排所構成的電能動力傳動 若交流電高電壓匯流排及直流電高電壓匯流排彼此為電氣隔離，則高電壓匯流排與電路介面間之絕緣電阻，當直流電匯流排之絕緣電阻處於工作電壓時應至少為一００歐姆/伏特，而對交流電匯流排處於工作電壓時則至少為五００歐姆/伏特。 試驗應依照 6.整車試驗之「絕緣電阻量測法」進行。	... 4.1.3 絕緣電阻 4.1.3.1 由獨立的直流電或交流電匯流排所構成的電能動力傳動 若交流電高電壓匯流排及直流電高電壓匯流排彼此為電氣隔離，則高電壓匯流排與電路介面間之絕緣電組，當直流電匯流排處於工作電壓時應至少為 100 Ohms/Volt，而對交流電匯流排處於工作電壓時則至少為 500 Ohms/Volt。 試驗應依照 6.「絕緣電組量測法」進行。
5.1.3.2. Electric power train consisting of combined DC- and AC-buses If AC high voltage buses and DC high voltage buses are galvanically connected isolation resistance between the high voltage bus and the	5.1.3.2. Electric power train consisting of combined DC- and AC-buses If AC high voltage buses and DC high voltage buses are galvanically connected isolation resistance between the high voltage bus and the	4.1.3.2 由直流電及交流電匯流排並聯構成的電能動力傳動 若交流電高電壓匯流排與電路介面間之間，交流電高電壓匯流排及直流電高電壓匯流排通電連結下之絕緣	4.1.3.2 由直流電及交流電匯流排並聯構成的電能動力傳動 若交流電高電壓匯流排與電路介面間之間，交流電高電壓匯流排及直流電高電壓匯流排通電連結至絕緣電阻時，工作電壓則至少為 500

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
electrical chassis shall have a minimum value of 500 ohms/volt of the working voltage. However, if all AC high voltage buses are protected by one of the 2 following measures, isolation resistance between the high voltage bus and the electrical chassis shall have a minimum value of 100 ohms/V of the working voltage: (a) Double or more layers of solid insulators, barriers or enclosures that meet the requirement in paragraph 5.1.1. independently, for example wiring harness; (b) Mechanically robust protections that have sufficient durability over vehicle service life such as motor housings, electronic converter cases or connectors; The isolation resistance between the high voltage bus and the electrical chassis may be demonstrated by calculation, measurement or a combination of both. The measurement shall be conducted according to Annex 4A "Isolation resistance measurement method for vehicle based tests.	electrical chassis shall have a minimum value of 500 ohms/volt of the working voltage. However, if all AC high voltage buses are protected by one of the 2 following measures, isolation resistance between the high voltage bus and the electrical chassis shall have a minimum value of 100 ohms/V of the working voltage: (a) Double or more layers of solid insulators, barriers or enclosures that meet the requirement in paragraph 5.1.1. independently, for example wiring harness; (b) Mechanically robust protections that have sufficient durability over vehicle service life such as motor housings, electronic converter cases or connectors; The isolation resistance between the high voltage bus and the electrical chassis may be demonstrated by calculation, measurement or a combination of both. The measurement shall be conducted according to Annex 4 "Isolation resistance measurement method"	電阻，處於工作電壓時應至少為五００歐姆/伏特。 然而，若所有的交流電高電壓匯流排由以下其中一種方法保護時，則高電壓匯流排與電路介面間之絕緣電阻，處於工作電壓時應至少為一００歐姆/伏特。 (a)兩層或多層的固體絕緣體，符合 4.1.1 規範之單獨屏障或外殼(例如電線束)。 (b)具有超過車輛壽命之足夠耐久度之堅固機械保護，例如馬達外殼、電子轉換器之外殼或連接器。 高電壓匯流排與電路介面間之絕緣電阻，可以計算、試驗或兩者結合之方式進行。 試驗方式應依照 6.整車試驗之「絕緣電阻量測法」進行。	Ohms/Volt。 然而，若所有的交流電高電壓匯流排由以下其中一種方法保護時，則高電壓匯流排與電路介面間之絕緣電組，當為工作電壓時應至少為 100 Ohms/Volt。 (a)兩層或多層的固體絕緣體，符合 4.1.1 規範之單獨屏障或外殼(例如電線束)。 (b)具有超過車輛壽命之足夠耐久度之堅固機械保護，例如馬達外殼、電子轉換器之外殼或連接器。 高電壓匯流排與電路介面間之絕緣電阻，可以計算、試驗或兩者結合之方式進行。 試驗方式應依照 6.「絕緣電阻量測法」進行。

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5.1.3.3. Fuel cell vehicles If the minimum isolation resistance requirement cannot be maintained over time, then protection shall be achieved by any of the following: (a) Double or more layers of solid insulators, barriers or enclosures that meet the requirement in paragraph 5.1.1. independently; (b) On-board isolation resistance monitoring system together with a warning to the driver if the isolation resistance drops below the minimum required value. The isolation resistance between the high voltage bus of the coupling system for charging the REESS, which is not energized besides during charging the REESS, and the electrical chassis need not be monitored. The function of the on-board isolation resistance monitoring system shall be confirmed as described in Annex 5.	5.1.3.3. Fuel cell vehicles If the minimum isolation resistance requirement cannot be maintained over time, then protection shall be achieved by any of the following: (a) Double or more layers of solid insulators, barriers or enclosures that meet the requirement in paragraph 5.1.1. independently; (b) On-board isolation resistance monitoring system together with a warning to the driver if the isolation resistance drops below the minimum required value. The isolation resistance between the high voltage bus of the coupling system for charging the RESS, which is not energized besides during charging the RESS, and the electrical chassis need not be monitored. The function of the on-board isolation resistance monitoring system shall be confirmed as described in Annex 5.	4.1.3.3 燃料電池車輛 若無法滿足所需之最小絕緣電阻，則須以下述任一方式提供保護： (a)兩層或多層的固體絕緣體，符合 4.1.1 規範之單獨屏障或外殼。 (b)與車載絕緣電阻監控系統整合，當絕緣電阻降至要求之最低值以下時可警告駕駛人之裝置。 用來充能 REESS 之耦合系統內之高電壓匯流排間之絕緣電阻(僅在充電 REESS 時方通電)，以及電路介面無需被監控。車載絕緣電阻監控系統之功能應依 7.所述加以確認。	4.1.3.3 燃料電池車輛 若無法滿足所需之最小絕緣電阻，則須以下述任一方式提供保護： (a)兩層或多層的固體絕緣體，符合 4.1.1 規範之單獨屏障或外殼。 (b)與車載絕緣電阻監控系統整合，當絕緣電阻降至要求之最低值時可警告駕駛人之裝置。 用來充能 RESS 之耦合系統內之高電壓匯流排間之絕緣電阻(僅在充電 RESS 時方通電)，以及電路介面無需被監控。車載絕緣電阻監控系統之功能應依 7.所述加以確認。
5.1.3.4. Isolation resistance requirement for the coupling system for charging the REESS For the vehicle inlet intended to be conductively connected to the grounded external AC power supply and the electrical circuit that is	5.1.3.4. Isolation resistance requirement for the coupling system for charging the RESS For the vehicle inlet intended to be conductively connected to the grounded external AC power supply and the electrical circuit that is	4.1.3.4 REESS 充能耦合系統絕緣電阻之規範 對於車輛用來與一接地的外部交流電電力供應裝置進行導電連接之車輛端插座，且其電路在 REESS 充電期間係與車輛端插座耦合連接，則在高電壓匯流排與電路介面間之絕緣	4.1.3.4 RESS 充能耦合系統絕緣電阻之規範 對於車輛用來與一接地的外部交流電電力供應裝置進行導電連接之車輛端插座，且其電路在 RESS 充電期間係與車輛端插座耦合連接，則在高電壓匯流排與電路介面間之絕

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galvanically connected to the vehicle inlet during charging of the REESS, the isolation resistance between the high voltage bus and the electrical chassis shall be at least 1 megohm when the charger coupler is disconnected. During the measurement, the traction battery may be disconnected.	galvanically connected to the vehicle inlet during charging of the RESS, the isolation resistance between the high voltage bus and the electrical chassis shall be at least 1 megohm when the charger coupler is disconnected. During the measurement, the traction battery may be disconnected.	電阻，當充電器耦合器分離時應至少為一００萬歐姆/伏特。可於主電池斷電之情形下進行量測。	緣電阻，當充電器耦合器分離時應至少為 1M Ohms。可於主電池斷電之情形下進行量測。
5.2. Rechargeable Energy Storage System (REESS)	5.2. Rechargeable energy storage system (RESS)	4.2 可充電式能量儲存系統(REESS)	4.2 可充電式能量儲存系統(RESS)
5.2.1. For a vehicle with a REESS, the requirement of either paragraph 5.2.1.1. or Paragraph 5.2.1.2. shall be satisfied.	5.2.1. Protection against excessive current The RESS shall not overheat. If the RESS is subject to overheating due to excessive current, it shall be equipped with a protective device such as fuses, circuit breakers or main contactors. However, the requirement may not apply if the manufacturer supplies data that ensure that overheating from excessive current is prevented without the protective device.	4.2.1 對於具有 REESS 之車輛，應符合下列要求之一。 4.2.1.1 其 REESS 應依 REESS 安裝說明文件(內容至少包含表三所列資料)指定方式及適用車型安裝於車輛上，且提出經 REESS 檢測機構驗證其 REESS 符合 8.規定之佐證文件。 4.2.1.2 其 REESS 符合 8.規定。	4.2.1 過大電流之保護 充能系統不應過熱。 若 RESS 會因承受過大電流而導致過熱時，應配備如保險絲、斷路器或主電流接觸器等之保護裝置。 然而若申請者可提供資料確保在無保護裝置時仍可不因承受過大電流而導致過熱，則可視為符合本項規定。
5.2.1.1. For a REESS which has been type approved in accordance with PART II of this Regulation, it shall be installed in accordance with the instructions provided by the manufacturer of the REESS, and in conformity with the description provided in Annex 6 - Part 2 of this Regulation.			
5.2.1.2. The REESS shall comply with the respective requirements of Paragraph 6 of this Regulation.			
5.2.2. Accumulation of gas Places for containing open type traction batteries that may produce hydrogen	5.2.2. Accumulation of gas Places for containing open type traction battery that may produce hydrogen	4.2.2 氣體累積：對於安裝可能產生氫氣之開放式主電池之場所，應提供通風風扇或通風管，以便免氫氣之	4.2.2 氣體累積：對於安裝可能產生氫氣之開放式主電池之場所，應提供通風風扇或通風管，以便免氫氣之

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gas shall be provided with a ventilation fan or a ventilation duct to prevent the accumulation of hydrogen gas. 5.3. Functional safety At least a momentary indication shall be given to the driver when the vehicle is in "active driving possible mode". However, this provision does not apply under conditions where an internal combustion engine provides directly or indirectly the vehicle's propulsion power. When leaving the vehicle, the driver shall be informed by a signal (e.g. optical or audible signal) if the vehicle is still in the active driving possible mode. If the on-board REESS can be externally charged by the user, vehicle movement by its own propulsion system shall be impossible as long as the connector of the external electric power supply is physically connected to the vehicle inlet. This requirement shall be demonstrated by using the connector specified by the car manufacturer. The state of the drive direction control unit shall be identified to the driver.	gas shall be provided with a ventilation fan or a ventilation duct to prevent the accumulation of hydrogen gas. 5.3. Functional safety At least a momentary indication shall be given to the driver when the vehicle is in "active driving possible mode". However, this provision does not apply under conditions where an internal combustion engine provides directly or indirectly the vehicle's propulsion power. When leaving the vehicle, the driver shall be informed by a signal (e.g. optical or audible signal) if the vehicle is still in the active driving possible mode. If the on-board RESS can be externally charged by the user, vehicle movement by its own propulsion system shall be impossible as long as the connector of the external electric power supply is physically connected to the vehicle inlet. This requirement shall be demonstrated by using the connector specified by the car manufacturer. The state of the drive direction control	累積。 4.3 功能安全 當車輛處於可行車模式時，應提供駕駛人一瞬時指示。 然而，當由內燃機引擎直接或間接提供車輛之推進動力時，得免符合本項規定。 當駕駛人欲離開車輛而車輛卻處於「可行車模式」時，應提供訊號（光學或聲響）予駕駛人。 若車載 REESS 可由使用者自外部進行充電時，當外部電力供應系統之連接器係以實體與車輛插孔連接時，則車輛不可藉由自身之推進系統而移動。 此規範應以申請者宣告之連接器進行測試操作。 行車方向控制單元之狀態應顯示予駕駛人。	累積。 4.3 功能安全 當車輛處於可行車模式時，應提供駕駛人一瞬時指示。 然而，當由內燃機引擎直接或間接提供車輛之推進動力時，得免符合本項規定。 當駕駛人欲離開車輛而車輛卻處於「可行車模式」時，應提供訊號（光學或聲響）予駕駛人。 若車載 RESS 可由使用者自外部進行充電時，當外部電力供應系統之連接器係以物理方式與車輛插孔連接時，則車輛不可藉由自身之推進系統而移動。 此規範應以申請者宣告之連接器進行測試操作。 行車方向控制單元之狀態應顯示予駕駛人。

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... 5.4. Determination of hydrogen emissions 5.4.1. This test shall be carried out on all vehicles equipped with open type traction batteries. If the REESS has been approved under Part 2 of this Regulation and installed in accordance with paragraph 5.2.1.1. this test can be omitted for the approval of the vehicle. ... 5.4.4. During a charge carried out by a charger presenting a failure (conditions given in Annex 7), hydrogen emissions shall be below 42 g. Furthermore the charger shall limit this possible failure to 30 minutes. 5.4.5. All the operations linked to the REESS charging shall be controlled automatically, included the stop for charging. ... 5.4.8. Important charging failures shall be permanently indicated. An important failure is a failure that can lead to a malfunction of the charger during charging later on.	unit shall be identified to the driver. ... 5.4. Determination of hydrogen emissions 5.4.1. This test shall be carried out on all vehicles equipped with open type traction batteries. ... 5.4.4. During a charge carried out by an on-board charger presenting a failure (conditions given in Annex 7), hydrogen emissions shall be below 42 g. Furthermore the on-board charger shall limit this possible failure to 30 minutes. 5.4.5. All the operations linked to the battery charging are controlled automatically, included the stop for charging. ... 5.4.8. Important charging failures shall be permanently signalled to the driver. An important failure is a failure that can lead to a disfunctioning of the on-board charger during charging later on.	(UN 5.4~5.4.8 段為氫氣排放之量測規定，因考量目前國內尚未具備氫氣排放測試之檢測能量，且現行所生產之電動車輛其電池均非屬會使用過程中會產稱氫氣之鉛酸電池，綜上，後續待國內建置完整之氫氣排放檢測能量後，再行研擬納入，故修訂內容不影響國內基準)	無

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6. Part II: Requirements of a Rechargeable Energy Storage System (REESS) with regard to its safety 6.1. General The procedures prescribed in Annex 8 of this Regulation shall be applied. 6.2. Vibration 6.2.1. The test shall be conducted in accordance with Annex 8A of this Regulation. 6.2.2. Acceptance criteria 6.2.2.1. During the test, there shall be no evidence of: (a) electrolyte leakage, (b) rupture (applicable to high voltage REESS (s) only), (c) fire, (d) explosion. Evidence of electrolyte leakage shall be verified by visual inspection without disassembling any part of the tested-device. 6.2.2.2. For a high voltage REESS, the isolation resistance measured after the test in accordance with Annex 4B of this Regulation shall not be less than 100 ohm/Volt. 6.3. Thermal shock and cycling 6.3.1. The test shall be conducted in accordance with Annex 8B of this		8.可充電式能量儲存系統(REESS)安全規範 8.1 一般規定： 試驗程序應依照 9.之規定。 8.2 振動試驗 8.2.1 應依 9.1 規定進行試驗。 8.2.2 試驗標準 8.2.2.1 試驗期間應無下列狀況發生： (a)電解液洩漏。 (b)破裂(僅適用於高電壓 REESS) 。 (c)起火。 (d)爆裂。 應在無需拆卸待測件任何部分之下透過目視檢查以驗證電解液之洩漏。 8.2.2.2 對於高電壓 REESS 者，應執行 8.10 試驗，量測得之絕緣電阻不小於一００歐姆/伏特。 8.3 熱衝擊及循環試驗 8.3.1 應依 9.2 規定進行試驗	

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Regulation. 6.3.2. Acceptance criteria 6.3.2.1. During the test, there shall be no evidence of: (a) electrolyte leakage, (b) rupture (applicable to high voltage REESS(s) only), (c) fire, (d) explosion. Evidence of electrolyte leakage shall be verified by visual inspection without disassembling any part of the tested-device. 6.3.2.2. For a high voltage REESS, the isolation resistance measured after the test in accordance with Annex 4B of this Regulation shall not be less than 100 ohm/Volt. 6.4. Mechanical impact 6.4.1. Mechanical Shock At the manufacturer's choice the test may be performed as, either (a) Vehicle based tests in accordance with paragraph 6.4.1.1. of this Regulation, or (b) Component based tests in accordance with paragraph 6.4.1.2. of this Regulation, or (c) Any combination of (a) and (b) above, for different direction of		8.3.2 試驗標準 8.3.2.1 試驗期間應無下列狀況發生： (a)電解液洩漏。 (b)破裂(僅適用於高電壓 REESS)。 (c)起火。 (d)爆裂。 應在無需拆卸待測件任何部分之下透過目視檢查以驗證電解液之洩漏。 8.3.2.2 對於高電壓 REESS 者，應執行 8.10 試驗，量測得之絕緣電阻不小於一００歐姆/伏特。 8.4 機械衝擊試驗 8.4.1 機械衝擊(Mechanical Shock)試驗 由申請者自行選擇下述任一項執行測試： (a)8.4.1.1 整車試驗規定，或 (b)8.4.1.2 零組件試驗規定，或 (c)上述(a)及(b)依照車輛行進方向之任一組合試驗。	

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vehicle travel. 6.4.1.1. Vehicle based test Compliance with the requirements of the acceptance criteria of Paragraph 6.4.1.3. below may be demonstrated by REESS(s) installed in vehicles that have been subjected to vehicle crash tests in accordance with UNECE Regulations No. 12 Annex 3 or UNECE Regulation No. 94 Annex 3 for frontal impact, and UNECE No. 95 Annex 4 for side impact. The ambient temperature and the SOC shall be in accordance with the said Regulation. The approval of a REESS tested under this paragraph shall be limited to the specific vehicle type. 6.4.1.2. Component based test The test shall be conducted in accordance with Annex 8C of this Regulation. 6.4.1.3. Acceptance criteria During the test there shall be no evidence of: (a) Fire (b) Explosion (c1) Electrolyte leakage if tested according to paragraph 6.4.1.1. (i) For a period from the impact until 30		8.4.1.1 整車試驗 關於 8.4.1.3 試驗標準符合性之演示，得以該 REESS 安裝於車輛後符合本基準「轉向控制系駕駛人碰撞保護」之撞擊固定壁試驗、或「前方碰撞乘員保護」及「側方碰撞乘員保護」方式予以替代。環境溫度及電池電量狀態(SOC)則應依該項基準規定。 以此 8.4.1.1 方式驗證之 REESS 應限定使用於特定車型。 8.4.1.2 零組件試驗 應依 9.3 規定進行試驗。且依記載於 REESS 安裝說明文件之安裝方式固定。 8.4.1.3 試驗標準 試驗期間應無下列狀況發生： (a)起火。 (b)爆裂。 (c1)電解液洩漏(適用於依照 8.4.1.1 試驗者)。 (c1-i) 衝擊試驗後三０分鐘內，	

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minutes after the impact there shall be no electrolyte spillage from the REESS into the passenger compartment. (ii) No more than 7 per cent by volume of the REESS electrolyte capacity shall spill from the REESS to the outside of the passenger department (for open type traction batteries a limitation to a maximum of 5 litres also applies). (c2) Electrolyte leakage if tested according to paragraph 6.4.1.2. After the vehicle based test (paragraph 6.4.1.1.), a REESS which is located inside the passenger compartment shall remain in the installed location and the REESS components shall remain inside REESS boundaries. No part of any REESS that is located outside the passenger compartment shall enter the passenger compartment during or after the impact test procedures. After the component based test (paragraph 6.4.1.2.) the tested-device shall be retained by its mounting and its components shall remain inside its boundaries. For a high voltage REESS the isolation		REESS 不應有電解液流出至車室。 (c1-ii) 從 REESS 流出至車室外側之 REESS 電解液量，不應超過其總容量之百分之七(開放式主電池洩漏之電解液亦不應超過五公升)。 (c2) 電解液洩漏(適用於依照 8.4.1.2 試驗者)。 經整車試驗(8.4.1.1)後，安裝於車室內之 REESS 仍應保持在原位置且 REESS 元件應保持在 REESS 範圍內。位於車室外之任何 REESS 部分，不應在碰撞試驗期間或其之後侵入車室。 經零組件試驗(8.4.1.2)後，待測件應維持於原來位置，且其元件應保持在其範圍內。 對於高電壓 REESS 者，應執行 6.或 8.10 試驗，量測得之整個 REESS 待	

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resistance of the Tested-Device shall ensure at least 100 ohm /Volt for the whole REESS measured after the test in accordance with Annex 4A or Annex 4B of this Regulation, or the protection degree IPXXB shall be fulfilled for the Tested-Device. For a REESS tested in accordance with paragraph 6.4.1.2., the evidence of electrolyte leakage shall be verified by visual inspection without disassembling any part of the tested-device. To confirm compliance to c1) of paragraph 6.4.1.3. an appropriate coating shall, if necessary, be applied to the physical protection (casing) in order to confirm if there is any electrolyte leakage from the REESS resulting from the impact test. Unless the manufacturer provides a means to differentiate between the leakage of different liquids, all liquid leakage shall be considered as the electrolyte. 6.4.2. Mechanical Integrity This test applies only to a REESS intended for installation in vehicles of category M1 and N1. At the manufacturer's choice, the test may be performed as, either		測件絕緣電阻確保至少一００歐姆/伏特，或待測件滿足 IPXXB 保護等級。 REESS 依 8.4.1.2 試驗後，應在無需拆卸待測件任何部分之下透過目視檢查以驗證電解液之洩漏。 為確認符合 8.4.1.3(c1)，必要時可於實體保護（殼體）施加適當塗層，以確認衝擊試驗後 REESS 可能產生之任何電解液洩漏狀況。除非申請者提供不同液體洩漏之區分說明，否則所有洩漏之液體應被視為電解液。 (下次 07/18 繼續) 8.4.2 機械完整性 (Mechanical Integrity)試驗 此試驗僅適用於安裝在 M1 及 N1 類車輛之 REESS。 由申請者自行選擇下述任一項執行測試：	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
(a) Vehicle based tests in accordance with paragraph 6.4.2.1. of this Regulation, or (b) Component based tests in accordance with paragraph 6.4.2.2. of this Regulation. 6.4.2.1. Vehicle specific test At the manufacturer's choice, the test may be performed as either (a) A vehicle based dynamic tests in accordance with paragraph 6.4.2.1.1. of this Regulation, or (b) A vehicle specific component test in accordance with paragraph 6.4.2.1.2. of this Regulation, or (c) Any combination of (a) and (b) above, for different directions of vehicle travel. When the REESS is mounted in a position which is between a line from the rear edge of the vehicle perpendicular to the centre line of the vehicle and 300 mm forward and parallel to this line, the manufacturer shall demonstrate the mechanical integrity performance of the REESS in the vehicle to the Technical Service. The approval of a REESS tested under this Paragraph shall be limited to specific vehicle type.		(a) 8.4.2.1 整車試驗規定，或 (b) 8.4.2.2 零組件試驗規定。 8.4.2.1 整車試驗 由申請者自行選擇下述任一項執行試驗： (a)8.4.2.1.1 規定之整車動態試驗，或 (b)8.4.2.1.2 規定之限制車型(Vehicle specific)車輛結構關聯零組件試驗，或 (c)上述(a)及(b)依照車輛行進方向之任一組合試驗。若 REESS 安裝位置，在車輛最後方邊緣切面(此切面垂直於車輛縱向中心線)前方三００公釐內，則申請者應向檢測機構演示車內 REESS 之機械完整性性能。 以此 8.4.2.1 方式驗證之 REESS 應限定使用於特定車型。且記載於 REESS 安裝說明文件。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
6.4.2.1.1. Vehicle based dynamic test Compliance with the requirements of the acceptance criteria of paragraph 6.4.2.3. below may be demonstrated by REESS(s) installed in vehicles that have been subjected to a vehicle crash test in accordance with the Annex 3 of Regulation Nos. 12 or 94 for frontal impact, and Annex 4 of Regulation No. 95 for side impact. The ambient temperature and the SOC shall be in accordance with the said Regulation.		8.4.2.1.1 整車動態試驗 8.4.2.3 試驗標準符合性之演示，得以該 REESS 安裝於車輛後符合本基準「轉向控制系駕駛人碰撞保護」之撞擊固定壁試驗或「前方碰撞乘員保護」、及「側方碰撞乘員保護)」方式予以替代。環境溫度及電池電量狀態(SOC)則應依該項基準規定。	
6.4.2.1.2. Vehicle specific component test The test shall be conducted in accordance with Annex 8D of this Regulation.		8.4.2.1.2 限制車型車輛結構關聯零組件試驗 應依 9.4 規定進行試驗。	
The crush force replacing the prescribed force specified in paragraph 3.2.1. of Annex 8D shall be determined by the vehicle manufacturer using the data obtained from either actual crash tests or its simulation as specified in Annex 3 of Regulation No. 12 or No. 94 in the direction of travel and according to Annex 4 of Regulation No. 95 in the direction horizontally perpendicular to the direction of travel. These forces shall be agreed by the Technical Service.		用於替代 9.4.3.2.1 規定施力之試驗力，申請者應運用分析本基準「轉向控制系駕駛人碰撞保護之撞擊固定壁試驗」或「前方碰撞乘員保護」(於車輛行進方向)、及「側方碰撞乘員保護」(與車輛行進方向垂直之水平方向)之實際碰撞試驗或模擬所獲得適用車型之數據而提出，且此試驗力應獲得檢測機構同意。	

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The manufacturers may, in agreement with the Technical Services, use forces derived from the data obtained from alternative crash test procedures, but these forces shall be equal to or greater than the forces that would result from using data in accordance with the regulations specified above. The manufacturer may define the relevant parts of the vehicle structure used for the mechanical protection of the REESS components. The test shall be conducted with the REESS mounted to this vehicle structure in a way which is representative of its mounting in the vehicle. 6.4.2.2. Component based test The test shall be conducted in accordance with Annex 8D of this Regulation. REESS approved according to this paragraph shall be mounted in a position which is between the two planes; (a) a vertical plane perpendicular to the centre line of the vehicle located 420mm rearward from the front edge of the vehicle, and (b) a vertical plane perpendicular to the centre line of the vehicle located 300 mm forward from the rear edge of the		申請者亦可在檢測機構同意之下，運用其他可替代之碰撞試驗所獲得數據，惟據此所得試驗力應等於或大於上述規定獲得之試驗力數據。 申請者可指定作為 REESS 組件機械保護之車輛結構部分。 應以等同於實車安裝方式將 REESS 安裝在車輛結構上進行試驗。此應符合 REESS 安裝說明文件。 8.4.2.2 零組件試驗 應依 9.4 規定進行試驗。且依記載於 REESS 安裝說明文件之安裝方式固定。 REESS 應安裝在以下兩個平面間；(a)垂直於車輛縱向中心線，且距車身前緣四二０公釐之平面，及(b)垂直於車輛縱向中心線，且距車身後緣三００公釐之平面。	

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vehicle. The mounting restrictions shall be documented in Annex 6 - Part 2. The crush force specified in paragraph 3.2.1. of Annex 8D may be replaced with the value declared by the manufacturer, where the crush force shall be documented in Annex 6 Part 2 as a mounting restriction. In this case, the vehicle manufacture who uses such REESS shall demonstrate, during the process of approval for Part 1 of this Regulation, that the contact force to the REESS will not exceed the figure declared by the REESS manufacturer. Such force shall be determined by the vehicle manufacturer using the data obtained from either actual crash test or its simulation as specified in Annex 3 of Regulation No. 12 or 94 in the direction of travel and according to Annex 4 of Regulation No. 95 in the direction horizontally perpendicular to the direction of travel. These forces shall be agreed by the manufacturer together with the Technical Service. The manufacturers may, in agreement with the Technical Services, use forces derived from the data obtained		各種安裝限制應記載於 REESS 安裝說明文件。 於 9.4.3.2.1 規定之試驗力，可由 REESS 申請者聲明之宣告值替代，此宣告值應記載於 REESS 安裝說明文件之安裝限制。惟於此情況下，申請者應運用分析本基準「轉向控制系駕駛人碰撞保護之撞擊固定壁試驗」或「前方碰撞乘員保護」(於車輛行進方向)、及「側方碰撞乘員保護」(與車輛行進方向垂直之水平方向)之實際碰撞試驗或模擬所獲得適用車型之數據而提出，此試驗力應獲得檢測機構同意。 申請者亦可在檢測機構同意之下，運用其他可替代之碰撞試驗所獲得數據，惟據此所得試驗力應等於或大	

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from alternative crash test procedures, but these forces shall be equal to or greater than the forces that would result from using data in accordance with the regulations specified above. 6.4.2.3. Acceptance criteria During the test there shall be no evidence of: (a) Fire (b) Explosion (c1) Electrolyte leakage if tested according to paragraph 6.4.1.1.: (i) For a period from the impact until 30 minutes after the impact there shall be no electrolyte spillage from the REESS into the passenger compartment. (ii) No more than 7 per cent by volume of the REESS electrolyte capacity shall spill from the REESS to the outside of the passenger department (for open type traction batteries a limitation to a maximum of 5 litres also applies). (c2) Electrolyte leakage if tested according to paragraph 6.4.2.2. For a high voltage REESS, the isolation resistance of the Tested-Device shall ensure at least 100 ohm/Volt for the whole REESS measured in		於上述規定獲得之試驗力數據。 8.4.2.3 試驗標準 試驗期間應無下列狀況發生： (a)起火。 (b)爆裂。 (c1)電解液洩漏(適用於依照 8.4.2.1 試驗者)。 (c1-i) 衝擊試驗後三０分鐘內，REESS 不應有電解液流出至車室。 (c1-ii) 從 REESS 流出至車室外側之 REESS 電解液量，不應超過其總容量之百分之七 (開放式主電池洩漏之電解液亦不應超過五公升)。 (c2) 電解液洩漏(適用於依照 8.4.2.2 試驗者)。 對於高電壓 REESS 者，應執行 6.或 8.10 試驗，量測得之整個 REESS 待測件絕緣電阻，應確保至少一００歐姆/伏特，或待測件滿足 IPXXB	

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accordance with Annex 4A or Annex 4B of this Regulation, or the protection degree IPXXB shall be fulfilled for the Tested-Device. If tested according to Paragraph 6.4.2.2., the evidence of electrolyte leakage shall be verified by visual inspection without disassembling any part of the tested-device. To confirm compliance to c1) of paragraph 6.4.2.3. an appropriate coating shall, if necessary, be applied to the physical protection (casing) in order to confirm if there is any electrolyte leakage from the REESS resulting from the impact test. Unless the manufacturer provides a means to differentiate between the leakage of different liquids, all liquid leakage shall be considered as the electrolyte. 6.5. Fire resistance This test is required for REESS containing flammable electrolyte. This test is not required when the REESS as installed in the vehicle, is mounted such that the lowest surface of the casing of the REESS is more than 1.5m above the ground. At the option of the manufacturer, this test may be performed where the*/ of the		保護等級。 REESS 依 8.4.2.2 試驗後，應在無需拆卸待測件任何部分之下透過目視檢查以驗證電解液之洩漏。 為確認符合 8.4.2.3(c1)，必要時可於實體保護(殼體)施加適當塗層(Coating)，以確認衝擊試驗後 REESS 可能產生之任何電解液洩漏狀況。除非申請者提供不同液體洩漏之區分說明，否則所有洩漏之液體應被視為電解液。 8.5 耐火性 含有可燃性電解液之 REESS 應執行此試驗。 當安裝於車輛上之 REESS 殼體下表面距地高逾一・五公尺時，不需進行此試驗。對於 REESS 下表面距地高逾一・五公尺者，申請者仍可選擇執行本試驗。應以一試驗件執行本測試。	

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REESS's lower surface is higher than 1.5m above the ground. The test shall be carried out on one test sample. At the manufacturer's choice the test may be performed as, either (a) A vehicle based test in accordance with paragraph 6.5.1. of this Regulation, or (b) A component based test in accordance with paragraph 6.5.2. of this Regulation. 6.5.1. Vehicle based test The test shall be conducted in accordance with Annex 8E paragraph 3.2.1. of this Regulation. The approval of a REESS tested according to this paragraph shall be limited to approvals for a specific vehicle type. 6.5.2. Component based test The test shall be conducted in accordance with Annex 8E paragraph 3.2.2. of this Regulation. 6.5.3. Acceptance criteria; 6.5.3.1. During the test, the tested-device shall exhibit no evidence of explosion. 6.6. External short circuit protection 6.6.1. The test shall be conducted in accordance with Annex 8F of this Regulation.		由申請者自行選擇下述任一項執行測試： (a) 8.5.1 規定之整車試驗，或 (b) 8.5.2 規定之零組件試驗。 8.5.1 整車試驗 應依 9.5.3.2.1 規定進行試驗。 以此 8.5.1 方式驗證之 REESS 應限定使用於特定車型。且記載於 REESS 安裝說明文件。 8.5.2 零組件試驗 應依 9.5.3.2.2 規定進行試驗。且依記載於 REESS 安裝說明文件之安裝方式固定。 8.5.3 試驗標準 8.5.3.1 試驗期間，待測件應無爆裂。 8.6 外部短路保護 8.6.1 應依 9.6 規定進行試驗。	

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6.6.2. Acceptance criteria; 6.6.2.1. During the test there shall be no evidence of (a) Electrolyte leakage, (b) Rupture (applicable to high voltage REESS(s) only), (c) Fire, (d) Explosion. Evidence of electrolyte leakage shall be verified by visual inspection without disassembling any part of the tested-device. 6.6.2.2. For a high voltage REESS, the isolation resistance measured after the test in accordance with Annex 4 B of this Regulation shall not be less than 100 ohm/Volt. 6.7. Overcharge protection 6.7.1. The test shall be conducted in accordance with Annex 8 G of this Regulation. 6.7.2. Acceptance criteria; 6.7.2.1. During the test there shall be no evidence of: (a) Electrolyte leakage, (b) Rupture (applicable to high voltage REESS(s) only), (c) Fire, (d) Explosion. Evidence of electrolyte leakage shall be		8.6.2 試驗標準 8.6.2.1 試驗期間應無下列狀況發生： (a)電解液洩漏。 (b)破裂(僅適用於高電壓 REESS）。 (c)起火。 (d)爆裂。 應在無需拆卸待測件任何部分之下透過目視檢查以驗證電解液之洩漏。 8.6.2.2 對於高電壓 REESS 者，應執行 8.10 試驗，量測得之絕緣電阻，應確保至少一００歐姆/伏特。 8.7 過度充電(Overcharge)保護 8.7.1 應依 9.7 規定進行試驗。 8.7.2 試驗標準 8.7.2.1 試驗期間應無下列狀況發生： (a)電解液洩漏。 (b)破裂(僅適用於高電壓 REESS）。 (c)起火。 (d)爆裂。 應在無需拆卸待測件任何部分之下透	

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verified by visual inspection without disassembling any part of the tested-device. 6.7.2.2. For a high voltage REESS, the isolation resistance measured after the test in accordance with Annex 4B of this Regulation shall not be less than 100 ohm/Volt. 6.8. Over-discharge protection 6.8.1. The test shall be conducted in accordance with Annex 8H of this Regulation. 6.8.2. Acceptance criteria; 6.8.2.1. During the test there shall be no evidence of: (a) Electrolyte leakage, (b) Rupture (applicable to high voltage REESS(s) only), (c) Fire, (d) Explosion. Evidence of electrolyte leakage shall be verified by visual inspection without disassembling any part of the tested-device. 6.8.2.2. For a high voltage REESS the isolation resistance measured after the test in accordance with Annex 4B of this Regulation shall not be less than 100 ohm/Volt. 6.9. Over-temperature protection		過目視檢查以驗證電解液之洩漏。 8.7.2.2 對於高電壓 REESS 者，應執行 8.10 試驗，量測得之絕緣電阻，應確保至少一００歐姆/伏特。 8.8 過度放電(Over-discharge)保護 8.8.1 應依 9.8 規定進行試驗。 8.8.2 試驗標準 8.8.2.1 試驗期間應無下列狀況發生： (a)電解液洩漏。 (b)破裂(僅適用於高電壓 REESS）。 (c)起火。 (d)爆裂。 應在無需拆卸待測件任何部分之下透過目視檢查以驗證電解液之洩漏。 8.8.2.2 對於高電壓 REESS 者，應執行 8.10 試驗，量測得之絕緣電阻，應確保至少一００歐姆/伏特。 8.9 過熱保護	

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6.9.1. The test shall be conducted in accordance with Annex 8I of this Regulation. 6.9.2. Acceptance criteria; 6.9.2.1. During the test there shall be no evidence of: (a) Electrolyte leakage, (b) Rupture (applicable to high voltage REESS(s) only), (c) Fire, (d) Explosion. Evidence of electrolyte leakage shall be verified by visual inspection without disassembling any part of the tested-device. 6.9.2.2. For a high voltage REESS, the isolation resistance measured after the test in accordance with Annex 4 B of this Regulation shall not be less than 100 ohm/Volt. ~~6.10. Emission~~ ~~Possible emission of gases caused by the energy conversion process during normal use shall be considered.~~ ~~6.10.1. Open-type traction batteries shall meet the requirements of paragraph 5.4. of this Regulation with regard to hydrogen emissions.~~ ~~Systems with a closed chemical process shall be considered as emission-free~~		8.9.1 應依 9.9 規定進行試驗。 8.9.2 試驗標準 8.9.2.1 試驗期間應無下列狀況發生： (a)電解液洩漏。 (b)破裂(僅適用於高電壓 REESS）。 (c)起火。 (d)爆裂。 應在無需拆卸待測件任何部分之下透過目視檢查以驗證電解液之洩漏。 8.9.2.2 對於高電壓 REESS，應執行 8.10 試驗，量測得之絕緣電阻，應確保至少一００歐姆/伏特。 (6.10 為氫氣排放之規定，故修訂內容不影響國內基準。)	

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~~under normal operation (e.g. Lithium-ion battery).~~ ~~The closed chemical process shall be described and documented by the battery manufacturer in Annex 6 Part 2.~~ ~~Other technologies shall be evaluated by the manufacturer and the Technical Service regarding any possible emissions under normal operation.~~ ~~6.10.2. Acceptance criteria~~ ~~For hydrogen emissions see paragraph 5.4. of this Regulation.~~ ~~For emission free systems with closed chemical process no verification is necessary.~~			
Annex 4A Isolation resistance measurement method for vehicle based tests ... 2.1. Measurement method using voltage from off-vehicle sources ... 2.2. Measurement method using the vehicle's own REESS as DC voltage source 2.2.1. Test vehicle conditions The high voltage-bus shall be energized by the vehicle's own REESS and/or energy conversion system and the voltage level of the REESS and/or	Annex 4 Isolation resistance measurement method ... 2.1. Measurement method using DC voltage from off-vehicle sources ... 2.2. Measurement method using the vehicle's own RESS as DC voltage source 2.2.1. Test vehicle conditions The high voltage-bus shall be energized by the vehicle's own RESS and/or energy conversion system and the voltage level of the RESS and/or energy conversion system throughout	6. 絕緣電阻之量測方法-整車試驗 6.2 量測方法 ... 6.2.1 使用從非車輛來源之電壓之量測方法 ... 6.2.2 使用車輛本身之 REESS 作為直流電來源之量測方法 6.2.2.1 測試車輛狀態：高電壓匯流排應由車輛本身之 REESS 及/或電能轉換系統提供電能，且測試時 REESS 及/或電能轉換系統之電壓等級，應至少為申請者宣稱之標稱運作電壓(Operating voltage)。	6. 絕緣電阻之量測方法 6.2 量測方法 ... 6.2.1 使用從非車輛來源之直流電壓之量測方法 ... 6.2.2 使用車輛本身之 RESS 作為直流電來源之量測方法 6.2.2.1 測試車輛狀態：高電壓匯流排應由車輛本身之 RESS 及/或電能轉換系統提供電能，且測試時 RESS 及/或電能轉換系統之電壓等級，應至少為申請者宣稱之標稱運作電壓。

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
energy conversion system throughout the test shall be at least the nominal operating voltage as specified by the vehicle manufacturer. ... 2.2.3.1. First step The voltage is measured as shown in Figure 1 and the high voltage bus voltage (Vb) is recorded. Vb shall be equal to or greater than the nominal operating voltage of the REESS and/or energy conversion system as specified by the vehicle manufacturer.	the test shall be at least the nominal operating voltage as specified by the vehicle manufacturer. ... 2.2.3.1. First step The voltage is measured as shown in Figure 1 and the high voltage bus voltage (Vb) is recorded. Vb shall be equal to or greater than the nominal operating voltage of the RESS and/or energy conversion system as specified by the vehicle manufacturer.	... 6.2.2.3 測量方法 6.2.2.3.1 步驟一：電壓之量測如圖三所示，且應記錄高電壓匯流排之電壓(Vb)。Vb 應該等同或大於由車輛申請者所宣稱之 REESS 及/或能量轉換系統之標稱運作電壓。	... 6.2.2.3 測量方法 6.2.2.3.1 步驟一：電壓之量測如圖三所示，且應記錄高電壓匯流排之電壓(Vb)。Vb 應該等同或大於由車輛申請者所宣稱之 RESS 及/或能量轉換系統之標稱運作電壓。
Annex 4B Isolation Resistance Measurement Method for component based tests of a REESS 1. Measurement method The isolation resistance measurement shall be conducted by selecting an appropriate measurement method from among those listed in Paragraphs 1.1. through 1.2., depending on the electrical charge of the live parts or the isolation resistance, etc. If the operating voltage of the tested-device (Vb, Figure 1) cannot be measured (e.g. due to disconnection of the electric circuit caused by main	(本項為新增)	8.10 絕緣電阻之量測方法-REESS 零組件試驗 8.10.1 量測方法 絕緣電阻之量測應根據帶電體電量或絕緣電阻等，選擇條文 8.10.1.1 至 8.10.1.2 當中適當之量測方法執行。 若待測件之運作電壓(如圖六所示)無法被量測(例如由於主電流接觸器(Main contactor)或保險絲作動而斷	無

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contactors or fuse operation) the test may be performed with a modified test device to allow measurement of the internal voltages (upstream the main contactors). These modifications shall not influence the test results. The range of the electrical circuit to be measured shall be clarified in advance, using electrical circuit diagrams, etc. If the high voltage buses are galvanically isolated from each other, isolation resistance shall be measured for each electrical circuit. Moreover, modification necessary for measuring the isolation resistance may be carried out, such as removal of the cover in order to reach the live parts, drawing of measurement lines, change in software, etc. In cases where the measured values are not stable due to the operation of the isolation resistance monitoring system, etc., necessary modification for conducting the measurement may be carried out, such as stopping the operation of the device concerned or removing it. Furthermore, when the device is removed, it shall be proven,		路)，可使用修改後之待測件以執行內部電壓(主電流接觸器上游)之量測。 該修改不應影響試驗結果。 應先以電路圖等釐清量測之電路範圍。若高電壓匯流排之間電氣隔離，則應量測每個電路之絕緣電阻。 而且，可進行絕緣電阻量測所需要之修正，例如為了觸及帶電體而移除覆蓋、繪製量測線、軟體更換等。 如因絕緣電阻監控系統之運作等因素導致量測數值不穩定，則可進行絕緣電阻量測所需要之修正，例如停止該顧慮裝置之運作或移掉該裝置。而且，當該裝置被移除時，應該使用圖面等方式來佐證其不會改	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
using drawings, etc., that it will not change the isolation resistance between the live parts and the ground connection designated by the manufacturer as a point to be connected to the electrical chassis when installed on the vehicle. Utmost care shall be exercised as to short circuit, electric shock, etc., for this confirmation might require direct operations of the high-voltage circuit.		變帶電體和接地(申請者指定當安裝於車輛時和電路介面之接點)間之絕緣電阻。由於此確認可能需要高電壓電路之直接作動，故應以最謹慎之方式避免短路或電擊(Electric shock)等情形。	
1.1. Measurement method using voltage from external sources 1.1.1. Measurement instrument An isolation resistance test instrument capable of applying a DC voltage higher than the nominal voltage of the tested-device shall be used. 1.1.2. Measurement method An insulation resistance test instrument shall be connected between the live parts and the ground connection. Then, the isolation resistance shall be measured. If the system has several voltage ranges (e.g. because of boost converter) in a galvanically connected circuit and some of the components cannot withstand the working voltage of the entire circuit, the isolation resistance	(本項為新增)	8.10.1.1 使用外部供電之量測方法 8.10.1.1.1 量測設備：所使用之絕緣電阻試驗設備，應可施加高於待測件標稱電壓之直流電壓。 8.10.1.1.2 量測方法：應將絕緣電阻試驗設備連接於帶電體和接地之間，量測其絕緣電阻。 若於系統之耦合電路連接中有多個直流電電壓範圍(例如因為升壓轉換器(Boost converter))，以及有些組件無法承受整個電路中工作電壓，則可以在該等組件未連接之下，施加至少其一半運作電壓，分別量測在	無

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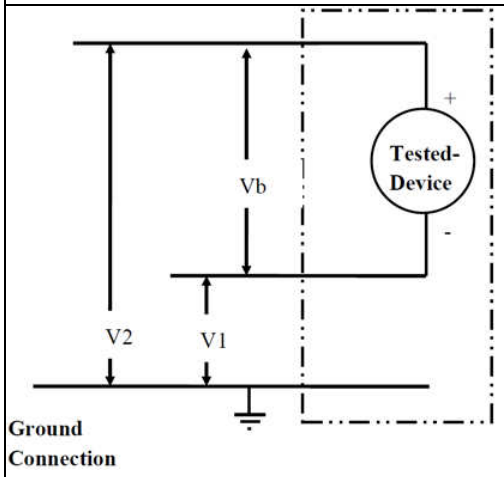
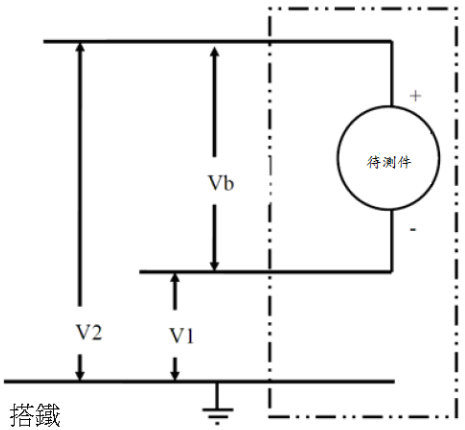
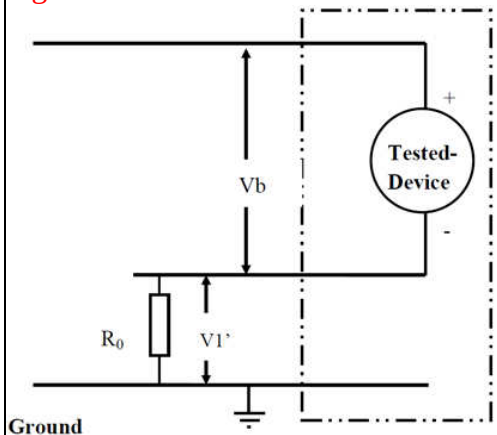
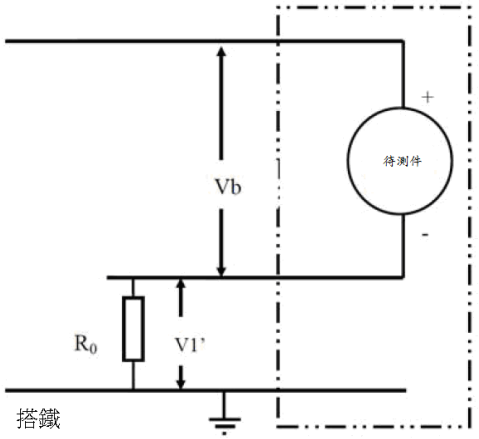
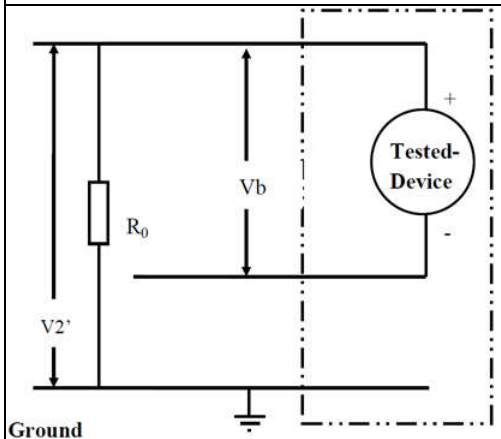
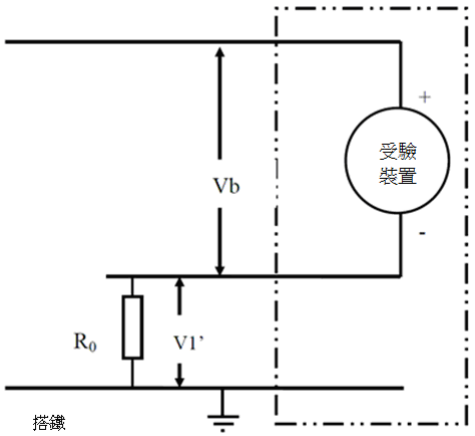
between those components and the ground connection can be measured separately by applying at least half of their own working voltage with those component disconnected. 1.2. Measurement method using the tested-device as DC voltage source 1.2.1. Test conditions The voltage level of the tested-device throughout the test shall be at least the nominal operating voltage of the tested-device. 1.2.2. Measurement instrument The voltmeter used in this test shall measure DC values and shall have an internal resistance of at least 10 megohms . 1.2.3. Measurement method 1.2.3.1. First step The voltage is measured as shown in Figure 1 and the operating voltage of the tested device (Vb, Figure 1) is recorded. Vb shall be equal to or greater than the nominal operating voltage of the tested-device. Figure 1		該等組件和接地間之絕緣電阻。 8.10.1.2 使用待測件作為直流電來源之量測方法 8.10.1.2.1 試驗條件：試驗中待測件之電壓，應至少為待測件之標稱運作電壓。 8.10.1.2.2 量測設備：使用於本試驗之電位計應量測直流電數值且應有至少一0百萬歐姆(MΩ)之內部電阻。 8.10.1.2.3 量測方法 8.10.1.2.3.1 步驟一：電壓量測如圖六所示，且應記錄待測件之運作電壓(Vb，如圖六所示)。Vb 應該等於或大於待測件之標稱運作電壓。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
 1.2.3.2. Second step Measure and record the voltage (V1) between the negative pole of the tested-device and the ground connection (Figure 1). 1.2.3.3. Third step Measure and record the voltage (V2) between the positive pole of the tested-device and the ground connection (Figure 1). 1.2.3.4. Fourth step If V1 is greater than or equal to V2, insert a standard known resistance (Ro) between the negative pole of the tested-device and the ground connection. With Ro installed, measure the voltage (V1') between the negative pole of the tested-device and		 圖六 8.10.1.2.3.2 步驟二：量測和記錄待測件之負極和接地之間電壓(V1)(如圖六)。 8.10.1.2.3.3 步驟三：量測和記錄待測件之正極和接地之間電壓(V2)(如圖六)。 8.10.1.2.3.4 步驟四：若 V1 大於或等於 V2，則在待測件負極和接地之間嵌入一標準已知電阻(Ro)，在有 Ro 安裝之下，量測待測件負極和接地之間電壓(V1')(如圖七)。依據下列公式計算電阻(Ri)。 Ri = Ro*(Vb/V1'– Vb/V1) 或 Ri = Ro*Vb*(1/V1'– 1/V1)	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
the ground connection (see Figure 2). Calculate the electrical isolation (Ri) according to the following formula: Ri = Ro*(Vb/V1' - Vb/V1) or Ri = Ro*Vb*(1/V1' - 1/V1) Figure 2  If V2 is greater than V1, insert a standard known resistance (Ro) between the positive pole of the tested-device and the ground connection. With Ro installed, measure the voltage (V2') between the positive pole of the tested-device and the ground connection (see Figure 3). Calculate the electrical isolat on (Ri) according to the following formula: Ri = Ro*(Vb/V2' - Vb/V2) or Ri = Ro*Vb*(1/V2' - 1/V2) Figure 3		 圖七 若 V2 大於 V1，則在待測件正極和接地之間嵌入一標準已知電阻(Ro)，在有 Ro 安裝之下，量測待測件正極和接地之間電壓(V2')（如圖八）。 依據下列公式計算電阻 (Ri)： Ri = Ro*(Vb/V2'– Vb/V2) 或 Ri = Ro*Vb*(1/V2'– 1/V2)	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
 1.2.3.5. Fifth step The electrical isolation value Ri (in ohm) divided by the nominal voltage of the tested-device (in volts) results in the isolation resistance (in ohm/V). NOTE 1: The standard known resistance Ro (in ohm) should be the value of the minimum required isolation resistance (in ohm/V) multiplied by the nominal voltage of the tested-device plus/minus 20 per cent (in volts). Ro is not required to be precisely this value since the equations are valid for any Ro; however, a Ro value in this range should provide good resolution for the voltage measurements.		 圖八 8.10.1.2.3.5 步驟五：將電阻值 Ri(歐姆)除以待測件標稱電壓(伏特)，得絕緣電阻值(歐姆/伏特)。 標準已知電阻 Ro(歐姆)應為所需最小絕緣電阻(歐姆/伏特)乘以待測件標稱電壓(正負百分之二０) (伏特)之值。由於此方程式適於取得許多 Ro，故無須要求精準之 Ro 數值，然而，在此範圍內之 Ro 值應能對電壓測量提供良好解析度(Resolution)。	
Annex 8 REESS test procedures Annex 8 - Appendix 1 Procedure for conducting a Standard Cycle	(本項為新增)	9. REESS 試驗程序	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
A standard cycle will start with a standard discharge followed by a standard charge. Standard discharge: Discharge rate: The discharge procedure including termination criteria shall be defined by the manufacturer. If not specified, then it shall be a discharge with 1C current. Discharge limit (end voltage): specified by the manufacturer Rest period after discharge: minimum 30 min Standard charge: The charge procedure including termination criteria shall be defined by the manufacturer. If not specified, then it shall be a charge with C/3 current.		標準循環之程序由標準放電啟始，隨之以標準充電。 標準放電： 放電率：應由申請者定義放電程序，包含終止條件。若未指定，則應以一庫倫(C)電流放電。 放電極限(末電壓(End voltage))：由申請者指定 放電後之靜置時間：至少三0分鐘。 標準充電：由申請者定義充電程序，包括終止條件。若未指定，應以三分之一庫倫(C)之電流充電。	
Annex 8 A Vibration test 1. Purpose The purpose of this test is to verify the safety performance of the REESS under a vibration environment which the REESS will likely experience during the normal operation of the vehicle. 2. Installations 2.1. This test shall be conducted either with the complete REESS or with a	(本項為新增)	9.1 振動試驗 9.1.1 目的 試驗目的係為驗證 REESS 於車輛正常操作期間可能會經歷之振動環境下之安全性能。 9.1.2 設置 9.1.2.1 以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
related REESS subsystem(s) including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. If the electronic management unit for the REESS is not integrated in the casing enclosing the cells, then the electronic management unit may be omitted from installation on the tested-device if so requested by the manufacturer. 2.2. The tested-device shall be firmly secured to the platform of the vibration machine in such a manner as to ensure that the vibrations are directly transmitted to the tested-device. 3. Procedures 3.1. General test conditions The following conditions shall apply to the tested-device: (a) The test shall be conducted at an ambient temperature of 20 +/- 10 deg. C, (b) At the beginning of the test, the SOC		連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。若 REESS 之微電子管理單元未與包圍電池之外殼結合為一體，則可依申請者要求，微電子管理單元免於待測件上之設置。 9.1.2.2 待測件應依照 REESS 之實車安裝說明文件牢靠地固定在振動機平台上，確保振動能夠直接傳遞至待測件。 9.1.3 程序 9.1.3.1 一般試驗條件 待測件應處於下述條件： (a) 試驗應於環境溫度攝氏二０正負一０度下進行。 (b) 試驗開始時，應調整 SOC 至待測件之正常作動 SOC 範圍之百分之五	

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shall be adjusted to a value in the upper 50 per cent of the normal operating SOC range of the tested-device, (c) At the beginning of the test, all protection devices which affect the function(s) of the tested-device that are relevant to the outcome of the test shall be operational. 3.2. Test Procedures The tested-devices shall be subjected to a vibration having a sinusoidal waveform with a logarithmic sweep between 7 Hz and 50 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours in the vertical direction of the mounting orientation of the REESS as specified by the manufacturer. The correlation between frequency and acceleration shall be as shown in table 1: (請參考頁末之表格) At the request of the manufacturer, a higher acceleration level as well as a higher maximum frequency may be used. At the request of the manufacturer a vibration test profile determined by		0以上。 (c) 試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。 9.1.3.2 試驗程序 待測件振動應以對數掃描(logarithmic sweep) 之正弦波 (sinusoidal waveform)於一五分鐘內自七赫茲掃描至五0赫茲再回到七赫茲。 以垂直於申請者指定 REESS 配置方向之方向，此循環重複進行一二次，共計三個小時。 頻率及加速度之關係如表三所示： 可依申請者要求，使用更高之加速度及最大頻率。 可依申請者要求，使用其指定、經適用車型驗證且檢測機構同意之振動試驗關係(Test profile)替代表三(頻率及加速度關係)。以此方式驗證之	

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the vehicle-manufacturer, verified for the vehicle application and agreed with the Technical Service may be used as a substitute for the frequency - acceleration correlation of table 1. The approval of a REESS tested according to this condition shall be limited to approvals for a specific vehicle type. After the vibration, a standard cycle as described in Annex 8 Appendix 1 shall be conducted, if not inhibited by the tested-device. The test shall end with an observation period of 1 h at the ambient temperature conditions of the test environment.		REESS 應限定安裝於特定車型且記載於 REESS 安裝說明文件。 經振動後，若不被待測件抑制，則應執行 9.所規範之標準循環。 於試驗環境溫度條件下，進行一小時之觀察期後，結束此試驗。	
Annex 8 B Thermal shock and cycling test 1. Purpose The purpose of this test is to verify the resistance of the REESS to sudden changes in temperature. The REESS shall undergo a specified number of temperature cycles, which start at ambient temperature followed by high and low temperature cycling. It simulates a rapid environmental temperature change which a REESS would likely experience during its	(本項為新增)	9.2 熱衝擊及循環試驗 9.2.1 目的 試驗目的係為驗證 REESS 之抗溫變能力。REESS 應經歷所規範之溫度循環次數，從環境溫度開始，接著通過高溫及低溫之循環。此模擬 REESS 生命週期中可能會經歷之環境溫度急速變化。	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
life. 2. Installations This test shall be conducted either with the complete REESS or with related REESS subsystem(s) of the REESS including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. If the electronic management unit for the REESS is not integrated in the casing enclosing the cells, then the electronic management unit may be omitted from installation on the tested-device if so requested by the manufacturer. 3. Procedures 3.1. General test conditions The following conditions shall apply to the tested-device at the start of the test (a) The SOC shall be adjusted to a value in the upper 50 per cent of the normal operating SOC range, (b) All protection devices, which would affect the function of the tested-device and which are relevant to the outcome		9.2.2 設置 以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。若 REESS 之微電子管理單元未與包圍電池之外殼結合為一體，則可依申請者要求，微電子管理單元免於待測件上之設置。 9.2.3 程序 9.2.3.1 一般試驗條件 於開始試驗時，待測件應處於下述條件： (a) 應調整 SOC 至待測件之正常作動 SOC 範圍之百分之五0以上。 (b) 應作動所有會影響待測件功能及試驗結果之保護裝置。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
of the test shall be operational. 3.2. Test Procedure The tested-device shall be stored for at least six hours at a test temperature equal to 60 +/- 2 deg. C or higher if requested by the manufacturer, followed by storage for at least six hours at a test temperature equal to -40 +/- 2 deg. C or lower if requested by the manufacturer. The maximum time interval between test temperature extremes shall be 30 minutes. This procedure shall be repeated until a minimum of 5 total cycles are completed, after which the tested-device shall be stored for 24 hours at an ambient temperature of 20 +/- 10 deg. C. After the storage for 24 hours, a standard cycle as described in Annex 8, Appendix 1 shall be conducted, if not inhibited by the tested-device. The test shall end with an observation period of 1 h at the ambient temperature conditions of the test environment.		9.2.3.2 試驗程序 該待測件應存放於試驗溫度攝氏六０正負二度或依申請者要求之更高溫度下，至少六小時。接著存放於試驗溫度攝氏負四０正負二度或依申請者要求之更低溫度下，至少六小時。兩極端溫度間隔時間最多為三０分鐘。該程序應至少重複執行五次循環，完成後該待測件應存放於環境溫度攝氏二０正負一０度下二四小時。 存放二四小時後，若不被待測件抑制，則應執行9.規範之標準循環。 於試驗環境溫度條件下，進行一小時之觀察期後，結束此試驗。	
Annex 8 C Mechanical shock 1. Purpose The purpose of this test is to verify the	(本項為新增)	9.3 機械衝擊試驗(Mechanical shock) 9.3.1 目的 試驗目的係為驗證車輛碰撞可能發生慣性力(Inertia Load)時之 REESS 安	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
safety performance of the REESS under inertial loads which may occur during a vehicle crash. 2. Installation 2.1. This test shall be conducted either with the complete REESS or with related REESS subsystem(s) including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. If the electronic management unit for the REESS is not integrated in the casing enclosing the cells, then the electronic management unit may be omitted from installation on the tested-device if so requested by the manufacturer 2.2. The tested-device shall be connected to the test fixture only by the intended mountings provided for the purpose of attaching the REESS or REESS subsystem to the vehicle. 3. Procedures 3.1. General test conditions and requirements		全性能。 9.3.2.設置 9.3.2.1 以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。若 REESS 之微電子管理單元未與包圍電池之外殼結合為一體，則可依申請者要求，微電子管理單元免於待測件上之設置。 9.3.2.2 應依照 REESS 之實車安裝說明文件將 REESS 或 REESS 子系統待測件連接固定至試驗治具。 9.3.3 程序 9.3.3.1 一般試驗條件與要求	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
The following condition shall apply to the test: (a) The test shall be conducted at an ambient temperature of 20 +/- 10 deg. C, (b) At the beginning of the test, the SOC shall be adjusted to a value in the upper 50 per cent of the normal operating SOC range, (c) At the beginning of the test, all protection devices which effect the function of the tested-device and which are relevant to the outcome of the test, shall be operational. 3.2. Test Procedure The tested-device shall be decelerated or, at the choice of the applicant, accelerated in compliance with the acceleration corridors which are specified in tables 1 - 3. The Technical Service in consultation with the manufacturer shall decide whether the tests shall be conducted in either the positive or negative direction or both. For each of the test pulses specified, a separate tested-device may be used. The test pulse shall be within the minimum and maximum value as specified in tables 1 to 3. A higher		待測件應處於下述條件：： (a) 試驗環境溫度為攝氏二0正負一0度。 (b) 試驗開始時，應調整SOC至待測件之正常作動SOC範圍之百分之五0以上。 (c) 試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。 9.3.3.2 試驗程序 待測件應依照表四至表六之加速度區帶，執行減速或由申請者選擇之加速，檢測機構應於與申請者確認後決定試驗執行方向為正向(Positive direction)或負向(Negative direction)或兩者。 可於指定之每一個試驗脈衝，分別使用個別之待測件。 試驗脈衝應介於表四至表六之最小值及最大值之間。可依申請者指定，使用比表四至表六中所述最大值高	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
shock level and /or longer duration as described in the maximum value in tables 1 to 3 can be applied to the tested-device if recommended by the manufacturer. Figure 1: Generic description of test pulses (請參考頁末圖示) Table 1 for M1 and N1 vehicles: (請參考頁末表格) Table 2 for M2 and N2 vehicles: (請參考頁末表格) Table 3 for M3 and N3 vehicles: (請參考頁末表格) The test shall end with an observation period of 1 h at the ambient temperature conditions of the test environment.		之衝擊量及/或較長時間量， 圖九：試驗脈衝之一般說明 (請參考頁末之圖示) 表四：M1 及 N1 之車輛 (請參考頁末之表格) 表五：M2 及 N2 之車輛 (請參考頁末之表格) 表六：M3 及 N3 之車輛 (請參考頁末之表格) 於試驗環境溫度條件下，進行一小時之觀察期後，結束此試驗。	
Annex 8 D Mechanical integrity 1. Purpose The purpose of this test is to verify the safety performance of the REESS under contact loads which may occur during vehicle crash situation. 2. Installations 2.1. This test shall be conducted with either the complete REESS or with a related REESS subsystem(s) including the cells and their electrical	(本項為新增)	9.4 機械完整性試驗 (Mechanical integrity) 9.4.1 目的 試驗目的係為驗證車輛碰撞可能發生接觸力(Contact Load)時之 REESS 安全性能。 9.4.2.設置 9.4.2.1 以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. If the electronic management unit for the REESS is not integrated in the casing enclosing the cells, then the electronic management unit may be omitted from installation on the tested-device if so requested by the manufacturer. 2.2. The tested-device shall be connected to the test fixture as recommended by the manufacturer. 3. Procedures 3.1. General test conditions The following condition and requirements shall apply to the test: (a) The test shall be conducted at an ambient temperature of 20 +/- 10 deg. C, (b) At the beginning of the test, the SOC shall be adjusted to a value in the upper 50 per cent of the normal operating SOC range, (c) At the beginning of the test, all internal and external protection devices which would affect the		表完整 REESS 於相同條件下之安全性能。若 REESS 之微電子管理單元未與包圍電池之外殼結合為一體，則可依申請者要求，微電子管理單元免於待測件上之設置。 9.4.2.2 應依照 REESS 之實車安裝說明文件將 REESS 或 REESS 子系統待測件連接固定至試驗治具。 9.4.3 程序 9.4.3.1 一般試驗條件 待測件應處於下述條件：： (a) 試驗環境溫度為攝氏二0正負一0度。 (b) 試驗開始時，應調整 SOC 至待測件之正常作動 SOC 範圍之百分之五0以上。 (c) 試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
function of the tested-device and which are relevant to the outcome of the test shall be operational. 3.2. Crush test 3.2.1. Crush force The tested-device shall be crushed between a resistance and a crush plate as described in figure 1 with a force of at least 100 kN, but not exceeding 105 kN, unless otherwise specified in accordance with Paragraph 6.4.2 of this Regulation, with an onset time less than 3 minutes and a hold time of at least 100 ms but not exceeding 10s. Figure 1 (請參考頁末圖示) A higher crush force, a longer onset time, a longer hold time, or a combination of these, may be applied at the request of the manufacturer. The application of the force shall be decided by the manufacturer together with the Technical Service having consideration to the direction of travel of the REESS relative to its installation in the vehicle. The application force being applied horizontally and perpendicular to the direction of travel of the REESS. The test shall end with an observation		9.4.3.2 擠壓試驗(Crush test) 9.4.3.2.1 擠壓力 待測件應在阻擋件(Resistance)及圖一０擠壓板(Crush plate)之間受到至少一００千牛頓、未逾一０五千牛頓之施力擠壓，除本規範中 8.4.2 另有規定外，其應於三分鐘內達到施力值，且保持時間至少一００毫秒(ms)、未逾一０秒。 (請參考頁末之圖一０) 可依申請者要求施加更大擠壓力、更長之達到施力時間、更長之保持時間或以上之組合。 檢測機構應依 REESS 之實車安裝說明文件，與申請者確認 REESS 實車安裝後之隨車行進方向，並決定於車輛上之擠壓力施加方向。 擠壓力水平施加且垂直於 REESS 之行進方向。 於試驗環境溫度條件下，進行一小時	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
period of 1 h at the ambient temperature conditions of the test environment.		之觀察期後，結束此試驗。	
Annex 8 E Fire resistance 1. Purpose The purpose of this test is to verify the resistance of the REESS, against exposure to fire from outside of the vehicle due to e.g. a fuel spill from a vehicle (either the vehicle itself or a nearby vehicle). This situation should leave the driver and passengers with enough time to evacuate. 2. Installations 2.1. This test shall be conducted either with the complete REESS or with related REESS subsystem(s) including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. If the electronic management unit for the REESS is not integrated in the casing enclosing the cells, then the electronic	(本項為新增)	9.5 防火性 9.5.1 目的 試驗目的係為確認 REESS 暴露於車輛外部之火焰之抵抗性能，例如：從車輛溢流之燃油(來自車輛本身或鄰近車輛)，以有足夠時間讓駕駛及乘客逃離。 9.5.2.設置 9.5.2.1 以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。若 REESS 之微電子管理單元未與包圍電池之外殼結合為一體，則可依申請者要求，微電子管理單元免於待測件上之設置。若相關之各 REESS 子系統係分散配置於車輛上，則可對各個相關之 REESS 子系統執行試驗。	無

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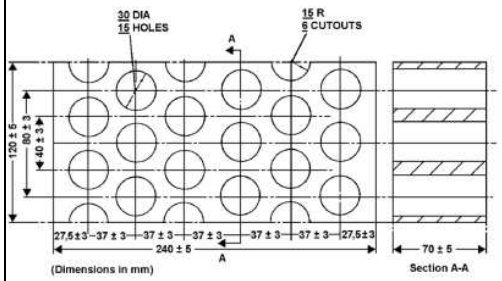
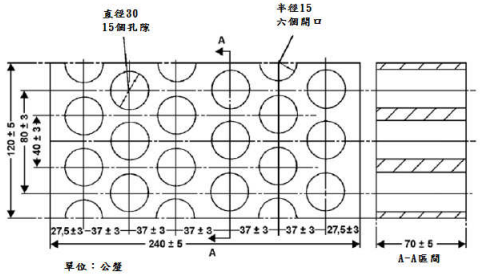
management unit may be omitted from installation on the tested-device if so requested by the manufacturer. Where the relevant REESS subsystems are distributed throughout the vehicle, the test may be conducted on each relevant of the REESS subsystem. 3. Procedures 3.1. General test conditions The following requirements and conditions shall apply to the test: (a) The test shall be conducted at a temperature of at least 0 deg. C, (b) At the beginning of the test, the SOC shall be adjusted to a value in the upper 50 per cent of the normal operating SOC range, (c) At the beginning of the test, all protection devices which effect the function of the tested-device and are relevant for the outcome of the test shall be operational. 3.2. Test Procedure A vehicle based test or a component based test shall be performed at the discretion of the manufacturer: 3.2.1. Vehicle based test The tested-device shall be mounted in a testing fixture simulating actual		9.5.3 程序 9.5.3.1 一般試驗條件 待測件應處於下述條件：： (a) 試驗環境溫度至少為攝氏 0 度。 (b) 試驗開始時，應調整 SOC 至待測件之正常作動 SOC 範圍之百分之五 0 以上。 (c) 試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。 9.5.3.2 試驗程序 依申請者選定執行整車試驗或零組件試驗。 9.5.3.2.1 整車試驗 待測件應盡可能模擬實車裝設條件安裝於試驗治具，除了 REESS 自身材質外，應不使用其它可燃物質於此試驗。應依 REESS 之實車安裝說明文	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
mounting conditions as far as possible; no combustible material should be used for this with the exception of material that is part of the REESS. The method whereby the tested-device is fixed in the fixture shall correspond to the relevant specifications for its installation in a vehicle. In the case of a REESS designed for a specific vehicle use, vehicle parts which affect the course of the fire in any way shall be taken into consideration. 3.2.2. Component based test The tested-device shall be placed on a grating table positioned above the pan, in an orientation according to the manufacturer's design intent. The grating table shall be constructed by steel rods, diameter 6-10 mm, with 4-6 cm in between. If needed the steel rods could be supported by flat steel parts. 3.3. The flame to which the tested-device is exposed shall be obtained by burning commercial fuel for positive-ignition engines (hereafter called "fuel") in a pan. The quantity of fuel shall be sufficient to permit the flame, under free-burning conditions,		件將待測件固定於治具。若 REESS 係用於特定車型，則任何會影響起火之車輛部件皆應列入考慮。 9.5.3.2.2 零組件試驗 應依申請者之設計(REESS 之實車安裝說明文件)朝向將待測件置放於格柵檯(Grating table)，其下方有油盤(Pan)。 格柵檯應由直徑六至一0公釐、間隔四至六公分之鋼條構成，可視需要用鋼片元件支撐鋼條。 9.5.3.3 應於油盤內注入主動點火式引擎(positive-ignition engines)所用之市售燃油(簡稱燃油)，讓待測件暴露於其所引發之火焰中，應有足夠燃油量讓整個試驗程序有充分燃燒之火焰。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
to burn for the whole test procedure. The fire shall cover the whole area of the pan during whole fire exposure. The pan dimensions shall be chosen so as to ensure that the sides of the tested-device are exposed to the flame. The pan shall therefore exceed the horizontal projection of the tested-device by at least 20 cm, but not more than 50 cm. The sidewalls of the pan shall not project more than 8 cm above the level of the fuel at the start of the test. 3.4. The pan filled with fuel shall be placed under the tested-device in such a way that the distance between the level of the fuel in the pan and the bottom of the tested-device corresponds to the design height of the tested-device above the road surface at the unladen mass if paragraph 3.2.1. is applied or approximately 50 cm if Paragraph 3.2.2. is applied. Either the pan, or the testing fixture, or both, shall be freely movable. 3.5. During phase C of the test, the pan shall be covered by a screen. The screen shall be placed 3 cm +/- 1 cm above the fuel level measured prior to		燃燒期間，火焰應能覆蓋整面油盤。油盤尺寸應確保待測件各表面暴露於火焰之中。油盤尺寸應逾待測件之水平投影尺寸至少二0公分、不逾五0公分，於試驗開始時油盤側壁應不突出燃油面八公分以上。 9.5.3.4 裝滿燃油之油盤應置於待測件下方，油盤燃油面與待測件底部之間距調整，應依照實車無負載時待測件之設計距地高(適用 9.5.3.2.1 者)或為五0公分(適用 9.5.3.2.2 者)。 油盤、試驗治具或上述兩者應可配合試驗需要自由移動。 9.5.3.5 階段 C 試驗期間，應以隔離磚遮蔽油盤。隔離磚應置於未點燃時之燃油面高度上方三公分正負一公分處，並應依 9.5.4 之規範以耐火磚製造。磚塊間應無間隙，被支撐置	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
the ignition of the fuel. The screen shall be made of a refractory material, as prescribed in Annex 8E - Appendix 1. There shall be no gap between the bricks and they shall be supported over the fuel pan in such a manner that the holes in the bricks are not obstructed. The length and width of the frame shall be 2 cm to 4 cm smaller than the interior dimensions of the pan so that a gap of 1 cm to 2 cm exists between the frame and the wall of the pan to allow ventilation. Before the test the screen shall be at least at the ambient temperature. The firebricks may be wetted in order to guarantee repeatable test conditions. 3.6. If the tests are carried out in the open air, sufficient wind protection shall be provided and the wind velocity at pan level shall not exceed 2.5 km/h. 3.7. The test shall comprise of three phases B-D, if the fuel is at least at temperature of 20 deg. C. Otherwise the test shall comprise four phases A-D. 3.7.1. Phase A: Pre-heating (Figure 1) (請參考頁末圖示) The fuel in the pan shall be ignited at a		於油盤上方，且磚塊內之孔隙不應被遮蔽。整面隔離磚之長及寬應較油盤內部尺寸小二至四公分，即整面隔離磚與油盤各側壁保持一至二公分之通風空隙。試驗前，隔離磚應至少為室溫，可濕潤耐火磚以確保重複之試驗條件。 9.5.3.6 若於戶外執行試驗，應提供足夠之防風保護，及能確保油盤燃油面處之風速未逾二．五公里/小時。 9.5.3.7 若燃油溫度為二０度以上，則試驗應包含Ｂ－Ｄ三個階段，否則試驗應包含Ａ－Ｄ四個階段。 9.5.3.7.1 階段Ａ：預熱(如圖一一) (請參考頁末圖示) 應於距離待測件至少三公尺處，點燃	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
distance of at least 3 m from the tested-device. After 60 seconds pre-heating, the pan shall be placed under the tested-device. If the size of the pan is too large to be moved without risking liquid spills etc. then the tested-device and test rig can be moved over the pan instead. 3.7.2. Phase B: Direct exposure to flame (Figure 2) (請參考頁末圖示) The tested-device shall be exposed to the flame from the freely burning fuel for 70 seconds. 3.7.3. Phase C: Indirect exposure to flame (Figure 3) (請參考頁末圖示) As soon as phase B has been completed, the screen shall be placed between the burning pan and the tested-device. The tested-device shall be exposed to this reduced flame for a further 60 seconds. Instead of conducting Phase C of the test, Phase B may at the manufacturer's discretion be continued for an additional 60 seconds. However this shall only be permitted where it is demonstrable to the		燃油盤內之燃油。 預熱六０秒後，將油盤置放於待測件下方。若油盤尺寸過大而有可能讓液體於移動時溢出，則可改以移動待測件及試驗設備。 9.5.3.7.2 階段Ｂ：直接暴露於火焰(如圖一二) (請參考頁末圖示) 待測件應暴露於自由燃燒火焰七０秒。 9.5.3.7.3 階段Ｃ：間接暴露於火焰(如圖一三) (請參考頁末圖示) 緊接於階段Ｂ完成後，隔離磚應置於燃燒油盤與待測件之間。待測件應暴露於此火焰降低情況下六０秒。 可依申請者選擇，以階段Ｂ持續額外六０秒，取代階段Ｃ試驗。惟此須由申請者演示證明不會造成試驗嚴苛度降低且經檢測機構同意。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
satisfaction of the Technical Service that it will not result in a reduction in the severity of the test. 3.7.4. Phase D: End of test (Figure 4) (請參考頁末圖示) The burning pan covered with the screen shall be moved back to the position described in phase A. No extinguishing of the tested-device shall be done. After removal of the pan the tested-device shall be observed until such time as the surface temperature of the tested-device has decreased to ambient temperature or has been decreasing for a minimum of 3 hours.		9.5.3.7.4 階段Ｄ：試驗結束(如圖一四) (請參考頁末圖示) 將隔離磚及燃燒中油盤一起移回階段Ａ之位置，且不熄滅該待測件。燃燒中油盤移回後，留意待測件表面溫度降至環境溫度，或已降溫至少三小時。	
Annex 8 E - Appendix 1 Dimension and Technical Data of Firebricks  Fire resistance: (Seger-Kegel) SK 30 Al2O3 content: 30 - 33 per cent Open porosity (Po): 20 - 22 per cent vol. Density: 1,900 - 2,000 kg/m3	(本項為新增)	9.5.4 耐火磚之規格及技術資料  耐火性：(賽格-凱格爾)(Seger-Kegel)SK 30 氧化鋁含量：百分之三０至三三 開放孔隙(Po)：百分之二０至二二體積 密度：一九００至二０００公斤/立方	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
Effective holed area: 44.18 per cent		公尺 有效孔區面積：百分之四四．一八	
Annex 8 F External short circuit protection 1. Purpose The purpose of this test is to verify the performance of the short circuit protection. This functionality, if implemented, shall interrupt or limit the short circuit current to prevent the REESS from any further related severe events caused by short circuit current. 2. Installations This test shall be conducted either with the complete REESS or with related REESS subsystem(s), including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. If the electronic management unit for the REESS is not integrated in the casing enclosing the cells, then the electronic management unit may be omitted	(本項為新增)	9.6 外部短路保護 9.6.1 目的 試驗目的係為確認短路防護之性能。其功能性係應中斷或限制短路電流以避免 REESS 受到短路電流所引起嚴重影響。 9.6.2 設置 以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。若 REESS 之微電子管理單元未與包圍電池之外殼結合為一體，則可依申請者要求，微電子管理單元免於待測件上之設置。若相關之各 REESS 子系統係分散配置於車輛上，則可對各個相關之 REESS 子系統執行試驗。	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
from installation on the tested-device if so requested by the manufacturer. 3. Procedures 3.1. General test conditions The following condition shall apply to the test: (a) The test shall be conducted at a ambient temperature of 20 +/- 10 deg. C or at higher temperature if requested by the manufacturer, (b) At the beginning of the test, the SOC shall be adjusted to a value in the upper 50 per cent of the normal operating SOC range, (c) At the beginning of the test, all protection devices which would affect the function of the tested-device and which are relevant to the outcome of the test shall be operational. 3.2. Short circuit At the start of the test all relevant main contactors for charging and discharging shall be closed to represent the active driving possible mode as well as the mode to enable external charging. If this cannot be completed in a single test, then two or more tests shall be conducted. The positive and negative terminals of the tested-device shall be connected to		9.6.3 程序 9.6.3.1 一般試驗條件 待測件應處於下述條件： (a) 試驗環境溫度至少為攝氏二０正負一０度，或依申請者要求之更高溫度。 (b) 試驗開始時，應調整 SOC 至待測件之正常作動 SOC 範圍之百分之五０以上。 (c) 試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。 9.6.3.2 短路 試驗開始時，應關閉充電及放電所有相關之主要接觸器(Contactor)，以處於可行車模式及可外部充電模式。若無法於單一試驗完成，得以執行二次或更多次之試驗。 應相互連接待測件之正負極端以產生短路，用此方式連接時電阻值應未	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
each other to produce a short circuit. The connection used for this purpose shall have a resistance not exceeding 5 megohms . The short circuit condition shall be continued until the operation of the REESS's protection function to interrupt or limit the short circuit current is confirmed, or for at least one hour after the temperature measured on the casing of the tested-device has stabilised, such that the temperature gradient varies by a less than 4 deg. C through 1 hour. 3.3. Standard Cycle and observation period Directly after the termination of the short circuit a standard cycle as described in Annex 8 Appendix 1 shall be conducted, if not inhibited by the tested-device. The test shall end with an observation period of 1 h at the ambient temperature conditions of the test environment.		逾五百萬歐姆。 短路情形應持續至確認 REESS 之中斷或限制短路電流之保護功能發生作用，或待測件外殼溫度已穩定後至少一小時，溫度梯度（Gradient）於此一小時當中變化小於四度。 9.6.3.3 標準循環及觀察期 緊接於短路試驗結束後，若不被待測件抑制，則應執行 9.所規範之標準循環。 於試驗環境溫度條件下，進行一小時之觀察期後，結束此試驗。	
Annex 8 G Overcharge protection 1. Purpose The purpose of this test is to verify the performance of the overcharge	(本項為新增)	9.7 過度充電保護 9.7.1 目的 試驗目的係為確認過度充電保護之性能。	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
protection. 2. Installations This test shall be conducted, under standard operating conditions, either with the complete REESS (this maybe a complete vehicle) or with related REESS subsystem(s), including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. The test may be performed with a modified tested-device as agreed by the manufacturer and the Technical Service. These modifications shall not influence the test results. 3. Procedures 3.1. General test conditions The following requirements and conditions shall apply to the test: (a) The test shall be conducted at an ambient temperature of 20 +/- 10 deg. C or at higher temperature if requested by the manufacturer, (b) At the beginning of the test, all		9.7.2 設置 應於標準運作條件下試驗，以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。 可使用申請者及檢測機構雙方同意修改之待測件執行試驗，惟該修改不應影響試驗結果。 9.7.3 程序 9.7.3.1 一般試驗條件 待測件應處於下述條件： (a) 試驗環境溫度至少為攝氏二0正負一0度，或依申請者要求之更高溫度。 (b) 試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
protection devices which would affect the function of the tested-device and which are relevant to the outcome of the test shall be operational. 3.2. Charging At the beginning all relevant main contactors for charging shall be closed. The charge control limits of the test equipment shall be disabled. The tested-device shall be charged with a charge current of at least 1/3C rate but not exceeding the maximum current within the normal operating range as specified by the manufacturer. The charging shall be continued until the tested-device (automatically) interrupts or limits the charging. Where an automatic interrupt function fails to operate, or if there is no such function the charging shall be continued until the tested-device is charged to twice of its rated charge capacity. 3.3. Standard cycle and observation period Directly after the termination of charging a standard cycle as described in Annex 8 shall be conducted, if not		9.7.3.2 充電 試驗開始時，應關閉充電所有相關之主要接觸器，並解除待測件之充電控制極限功能。 待測件應以至少三分之一庫倫充電率之電流充電，惟充電電流應未逾申請者指定正常運作範圍內之最大電流。 應持續充電直到待測件(自動地)中斷或限制充電為止。若自動中斷功能運作失效或無此功能時，則應持續充電直到待測件之兩倍額定電容量為止。 9.7.3.3 標準循環及觀察期 緊接於充電試驗結束之後，若不被待測件抑制，則應依照 9.規定執行標準循環。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
inhibited by the tested-device. The test shall end with an observation period of 1 h at the ambient temperature conditions of the test environment.		於試驗環境溫度條件下，進行一小時之觀察期後，結束此試驗。	
Annex 8 H Over-discharge protection 1. Purpose The purpose of this test is to verify the performance of the over-discharge protection. This functionality, if implemented, shall interrupt or limit the discharge current to prevent the REESS from any severe events caused by a too low SOC as specified by the manufacturer. 2. Installations This test shall be conducted, under standard operating conditions, either with the complete REESS (this maybe a complete vehicle) or with related REESS subsystem(s), including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same	(本項為新增)	9.8 過度放電保護 9.8.1 目的： 試驗目的係為確認過度放電保護之性能。 執行試驗時，其功能性係應中斷或限制放電電流以避免過低 SOC(申請者指定值)嚴重影響 REESS。 9.8.2 設置 應於標準運作條件下試驗，以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
conditions. The test may be performed with a modified tested-device as agreed by the manufacturer and the Technical Service. These modifications shall not influence the test results. 3. Procedures 3.1. General test conditions The following requirements and condition shall apply to the test: (a) The test shall be conducted at an ambient temperature of 20 +/- 10 deg. C or at higher temperature if requested by the manufacturer, (b) At the beginning of the test, all protection devices which would affect the function of the tested-device and which are relevant for the outcome of the test shall be operational. 3.2. Discharging At the beginning of the test, all relevant main contactors shall be closed. A discharge shall be performed with at least 1/3 C rate but shall not exceed the maximum current within the normal operating range as specified by the manufacturer. The discharging shall be continued until the tested-device (automatically) interrupts or limits the discharging.		可使用申請者及檢測機構雙方同意修改之待測件執行試驗，惟該修改不應影響試驗結果。 9.8.3 程序 9.8.3.1 一般試驗條件 待測件應處於下述條件： (a) 試驗環境溫度至少為攝氏二0正負一0度，或依申請者要求之更高溫度。 (b) 試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。 9.8.3.2 放電 試驗開始時，應關閉所有相關主要接觸器。 待測件應以至少三分之一庫倫放電率放電，惟放電電流應未逾申請者指定正常運作範圍內之最大電流。 應持續放電直到待測件(自動地)中斷或限制放電為止。若自動中斷功能運作失效或無此功能時，應持續放電直到待測件之標稱電壓值之百分之二五為止。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
Where an automatic interrupt function fails to operate, or if there is no such function then the discharging shall be continued until the tested-device is discharged to 25 per cent of its nominal voltage level. 3.3. Standard charge and observation period Directly after termination of the discharging the tested-device shall be charged with a standard charge as specified in Annex 8 if not inhibited by the tested-device. The test shall end with an observation period of 1 h at the ambient temperature conditions of the test environment.		9.8.3.3 標準充電及觀察期 緊接於放電試驗結束之後，若不被待測件抑制，則應依照 9.規定以標準充電執行充電。 於試驗環境溫度條件下，進行一小時之觀察期後，結束此試驗。	
Annex 8 I Over-temperature protection 1. Purpose The purpose of this test is to verify the performance of the protection measures of the REESS against internal overheating during the operation, even under the failure of the cooling function if applicable. In the case that no specific protection measures are necessary to prevent the REESS from reaching an unsafe state due to internal over-temperature, this	(本項為新增)	9.9 過熱保護 9.9.1 目的 試驗目的係為驗證 REESS 於運作期間即使可用之冷卻功能失效(若適用)，仍可防護內部過熱之性能。若無需特定防護措施來避免 REESS 因內部過熱而達到不安全狀態，則申請者應演示證明此安全作動。	無

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
safe operation must be demonstrated. 2. Installations 2.1. The following test may be conducted with the complete REESS (maybe as a complete vehicle) or with related REESS subsystem(s), including the cells and their electrical connections. If the manufacturer chooses to test with related subsystem(s), the manufacturer shall demonstrate that the test result can reasonably represent the performance of the complete REESS with respect to its safety performance under the same conditions. The test may be performed with a modified Tested-Device as agreed by the manufacturer and the Technical Service. These modifications shall not influence the test results. 2.2. Where a REESS is fitted with a cooling function and where the REESS will remain functional without a cooling function system being operational, the cooling system shall be deactivated for the test. 2.3. The temperature of the tested-device shall be continuously measured inside the casing in the proximity of the cells during the test in order to monitor the		9.9.2 設置 9.9.2.1 下述試驗應以完整 REESS 或一個相關之 REESS 子系統(包括電池及其電氣連接)執行試驗，若申請者選擇以相關之 REESS 子系統試驗，則申請者應演示證明其試驗結果能合宜地代表完整 REESS 於相同條件下之安全性能。。 9.9.2.2 若 REESS 配備有冷卻功能，及若 REESS 無冷卻系統作動仍可維持正常功能，則試驗時應解除此系統功能。 9.9.2.3 試驗時，為了監控溫度變化，應持續量測待測件外殼內鄰近電池之溫度。若有配備感知器，則可使用該感知器。溫度感知器安裝位置應經申請者與檢測機構同意。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
changes of the temperature. The onboard sensor if existing may be used. The manufacturer and Technical Service shall agree on the location of the temperature sensor(s) used. 3. Procedures 3.1. At the beginning of the test, all protection devices which affect the function of the tested-device and are relevant to the outcome of the test shall be operational, except for any system deactivation implemented in accordance with Paragraph 2.2. 3.2. During the test, the tested-device shall be continuously charged and discharged with a steady current that will increase the temperature of cells as rapidly as possible within the range of normal operation as defined by the manufacturer. 3.3. The tested-device shall be placed in a convective oven or climatic chamber. The temperature of the chamber or oven shall be gradually increased until it reaches the temperature determined in accordance with Paragraph 3.3.1 or 3.3.2 below as applicable, and then maintained at a temperature that is equal to or higher than this, until the end of the test.		9.9.3 程序 9.9.3.1 除了依照 9.9.2.2 之系統解除以外，試驗開始時，應作動所有會影響待測件功能及試驗結果之保護裝置。 9.9.3.2 試驗期間，於申請者定義之正常運作範圍內，待測件應以盡可能迅速地提升電池溫度之穩定電流持續充放電。 9.9.3.3 待測件應置放於對流烤爐(Convective oven)或空調室內(Climatic chamber)，空調室或烤爐應逐漸提升溫度直至適用之 9.9.3.3.1 或 9.9.3.3.2 規範之溫度，接著維持與此相同或較此更高之溫度，直至試驗終止。	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
3.3.1. Where the REESS is equipped with protective measures against internal overheating, the temperature shall be increased to the temperature defined by the manufacturer as being the operational temperature threshold for such protective measures, to insure that the temperature of the tested-device will increase as specified in Paragraph 3.2. 3.3.2. Where the REESS is not equipped with any specific measures against internal overheating, the temperature shall be increased to the maximum operational temperature specified by the manufacturer. 3.4. The end of test: The test will end when one of the followings is observed: (a) The tested-device inhibits and/or limits the charge and/or discharge to prevent the temperature increase, (b) The temperature of the tested-device is stabilised, which means that the temperature varies by a gradient of less than 4 deg. C through 2 hours, (c) Any failure of the acceptance criteria prescribed in paragraph 6.9.2.1.		9.9.3.3.1 若 REESS 配備預防內部過熱之保護措施，溫度應提升至申請者所定義該防護措施作動之溫度值，確保待測件之溫度能如 9.9.3.2 所述方式提升。 9.9.3.3.2 若 REESS 未配備預防內部過熱之任何特定防護措施，溫度應提升至申請者指定之最高運作溫度。 9.9.3.4 試驗結束：觀察達下述條件之一時，試驗即結束： (a) 待測件抑制及/或限制充電及/或放電以防止溫度升高。 (b) 待測件溫度已穩定，此係指溫度梯度於歷經兩小時期間，其變化小於四度。 (c) 發生8.9.2.1試驗標準規範中之任一情況。	
Annex 7 5. Test procedure	5. Test procedure ...	（Annex 7為主電池充電過程中氫氣排放之試驗，後續待國內建置完整之	

增/修內容	原內容	修訂國內法規條文草案	對應國內法規條文
... 5.2.1. REESS preparation The ageing of REESS shall be checked, to confirm that the REESS has performed at least 5 standard cycles (as specified in Annex 8, Appendix 1).	5.2.1. REESS preparation The ageing of REESS shall be checked, to confirm that the REESS has performed at least 5 standard cycles (as specified in Annex Appendix 1).	氫氣排放檢測能量後，再行研擬納入，故修訂內容不納入國內基準）	
Annex 6 - Part 1 Essential characteristics of road vehicles or systems (如附) Annex 6 - Part 2 Essential characteristics of REESS (如附)		4. 車輛電氣安全要求 應提供車輛電氣規格基本特性資料(至少包含表二)，或為符合規定 8 之 REESS 可充電式能量儲存系統基本特性資料(至少包含表三)予檢測機構確認。	4. 測試方法與規範

Annex 6 - Part 1

Essential characteristics of road vehicles or systems

1. General

1.1. Make (trade name of manufacturer): .....

1.2. Type: .....

1.3. Vehicle category: .....

1.4. Commercial name(s) if available: .....

.....

1.5. Manufacturer's name and address: .....

.....

1.6. If applicable, name and address of manufacturer's representative: .....

1.7. Drawing and/or photograph of the vehicle:.....

1.8. Approval number of the REESS: .....

2. Electric motor (traction motor)

2.1. Type (winding, excitation): .....

2.2. Maximum net power and / or maximum 30 minutes power (kW): .....

3. REESS

4. 表二 車輛電氣規格基本特性

1	一般特性
1.1	廠牌
1.2	型式
1.3	車輛種類
1.4	車輛市售名稱(如適用)
1.5	申請者名稱或地址
1.6	(---)
1.7	車輛圖示及/或照片
1.8	REESS可充電式能量儲存系統合格報告(如適用)
2	電動馬達(牽引馬達)

3.1. Trade name and mark of the REESS:	**2.1**	類型(線圈(winding)、激磁(excitation))
3.2. Indication of all types of cells:	**2.2**	最大淨馬力及/或三十分鐘最大馬力(kW)
3.2.1. The cell chemistry:	**3**	REESS可充電式能量儲存系統
3.2.2. Physical dimensions:	**3.1**	REESS可充電式能量儲存系統廠牌
3.2.3. Capacity of the cell (Ah):	**3.2**	所有電池類型之標示
3.3. Description or drawing(s) or picture(s) of the REESS explaining:	**3.2.1**	電池化學性質
3.3.1. Structure:	**3.2.2**	實體尺寸
3.3.2. Configuration (number of cells, mode of connection, etc.):	**3.2.3**	電容量(Ah)
3.3.3. Dimensions:	**3.3**	REESS可充電式能量儲存系統之描述說明及/或圖示及/或照片
3.3.4. Casing (construction, materials and physical dimensions):	**3.3.1**	結構
3.4. Electrical specification:	**3.3.2**	組態配置(電池數量、連接模式等)
3.4.1. Nominal voltage (V):	**3.3.3**	實體尺寸
3.4.2. Working voltage (V):	**3.3.4**	外殼(構造、材質及實體尺寸)
3.4.3. Capacity (Ah):	**3.4**	電氣規格
3.4.4. Maximum current (A):	**3.4.1**	額定電壓(V)
3.5. Gas combination rate (in per cent):	**3.4.2**	工作電壓(V)
3.6. Description or drawing(s) or picture(s) of the installation of the REESS in the vehicle:	**3.4.3**	電容量(Ah)
3.6.1. Physical support:	**3.4.4**	最大電流(A)
3.7. Type of thermal management	**3.5**	氣體結合率(Gas combination rate)(百分比)
3.8. Electronic control:	**3.6**	REESS可充電式能量儲存系統實車安裝之描述說明及/或圖示及/或照片
4. Fuel Cell (if any)	**3.6.1**	實體支撐
4.1. Trade name and mark of the fuel cell:	**3.7**	熱管理類型
4.2. Types of fuel cell:	**3.8**	微電子控制
4.3. Nominal voltage (V):	**4**	燃料電池(如適用)
4.4. Number of cells:	**4.1**	燃料電池廠牌
4.5. Type of cooling system (if any):	**4.2**	燃料電池類型
4.6. Max Power(kW):	**4.3**	額定電壓(V)
5. Fuse and/or circuit breaker		
5.1. Type:		
5.2. Diagram showing the functional range:		
6. Power wiring harness		
6.1. Type:		
7. Protection against Electric Shock		
7.1. Description of the protection concept:		
8. Additional data		
8.1. Brief description of the power circuit components installation or drawings/ pictures showing the location of the power circuit components installation:		
8.2 Schematic diagram of all electrical functions included in power circuit:		
8.3. Working voltage (V):		

	4.4	電池數量
	4.5	冷卻系統類型(如適用)
	5	保險絲及/或斷電器
	5.1	類型
	5.2	功能範圍圖示
	6	電源線束
	6.1	類型
	7	電擊(Electric Shock)保護
	7.1	保護設計描述
	8	附加資料
	8.1	對電源電路組件安裝說明或電源電路零件安裝圖面/照片
	8.2	電源電路中所有電氣功能示意圖
	8.3	工作電壓(V)

Annex 6 - Part 2

Essential characteristics of REESS

1. REESS

1.1. Trade name and mark of the REESS: .....

1.2. Indication of all types of cells: .....

1.2.1. The cell chemistry: .....

1.2.2. Physical dimensions: .....

1.2.3. Capacity of the cell (Ah): .....

1.3. Description or drawing(s) or picture(s) of the REESS explaining

1.3.1. Structure: .....

1.3.2. Configuration (number of cells, mode of connection, etc.): .....

1.3.3. Dimensions: .....

1.3.4. Casing (construction, materials and physical dimensions): .....

1.4. Electrical specification

1.4.1. Nominal voltage (V): .....

1.4.2. Working voltage (V): .....

1.4.3. Capacity (Ah): .....

1.4.4. Maximum current (A): .....

1.5. Gas combination rate (in percentage): .....

1.6. Description or drawing(s) or picture(s) of the installation of the REESS in the vehicle: .....

1.6.1. Physical support: .....

1.7. Type of thermal management: .....

1.8. Electronic control: .....

1.9. Category of vehicles on which the REESS can be installed: .....

4. 表三 REESS 可充電式能量儲存系統基本特性

1.1.	REESS可充電式能量儲存系統廠牌
1.2.	所有類型電池之標示
1.2.1	電池化學性質
1.2.2	實體尺寸
1.2.3	電容量(Ah)
1.3.	REESS可充電式能量儲存系統之描述說明及/或圖面及/或照片
1.3.1.	結構
1.3.2.	組態配置(電池數量，連接模式等)
1.3.3.	實體尺寸
1.3.4.	外殼(構造、材質及實體尺寸)
1.4.	電氣規格
1.4.1.	額定電壓(V)
1.4.2.	工作電壓(V)
1.4.3.	電容量(Ah)
1.4.4.	最大電流(A)
1.5.	氣體結合率(Gas combination rate)(百分比)
1.6.	REESS可充電式能量儲存系統實車安裝之描述說明及/或圖面及/或照片
1.6.1	實體支撐
1.7.	熱管理類型
1.8.	微電子控制裝置
1.9.	REESS可充電式能量儲存系統之適用限制車型

ANNEX 8A 3.2

Table 1: Frequency and acceleration

9.1.3.2

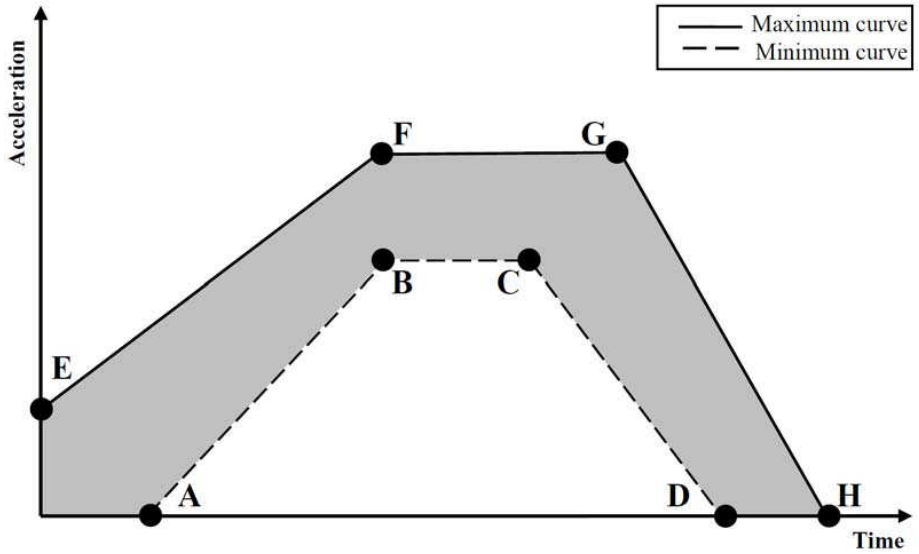
表三：頻率及加速度之關係

Frequency (Hz)	Acceleration (m/s2)
7 - 18	10
18 - 30	gradually reduced from 10 to 2
30 - 50	2

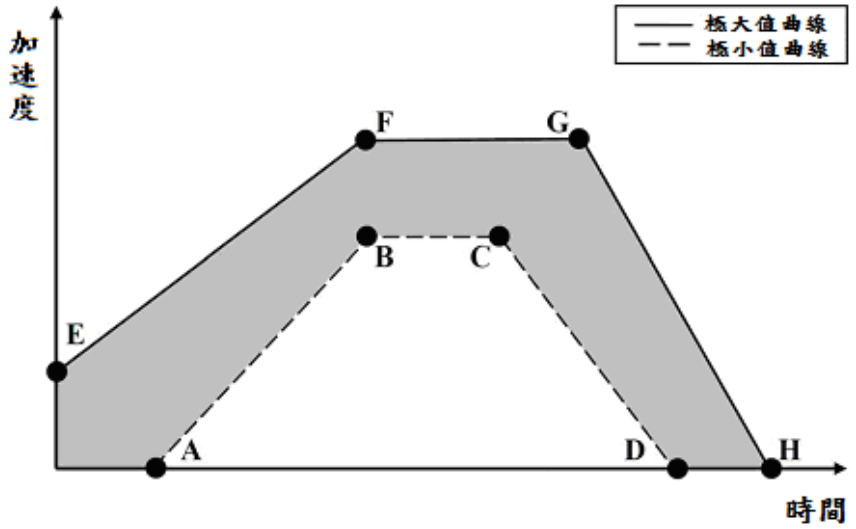
頻率(赫茲)	加速度(公尺/秒平方)
7-18	10
18-30	由 10 逐漸減少至 2
30-50	2

ANNEX 8C 3.2

Figure 1: Generic description of test pulses



9.3.3.2



圖九：試驗脈衝之一般說明

ANNEX 8C 3.2

Table 1 for M1 and N1 vehicles:

Point	Time (ms)	Acceleration (g)	
		Longitudinal	Transverse
A	20	0	0
B	50	20	8
C	65	20	8
D	100	0	0
E	0	10	4.5
F	50	28	15
G	80	28	15
H	120	0	0

ANNEX 8C 3.2

Table 2 for M2 and N2 vehicles:

Point	Time (ms)	Acceleration (g)	
		Longitudinal	Transverse
A	20	0	0
B	50	10	5
C	65	10	5
D	100	0	0
E	0	5	2.5
F	50	17	10
G	80	17	10
H	120	0	0

9.3.3.2

表四：M1 及 N1 類車輛

點	時間(毫秒)	加速度(g)	
		縱向	橫向
A	20	0	0
B	50	20	8
C	65	20	8
D	100	0	0
E	0	10	4.5
F	50	28	15
G	80	28	15
H	120	0	0

9.3.3.2

表五：M2 及 N2 類車輛

點	時間(毫秒)	加速度(g)	
		縱向	橫向
A	20	0	0
B	50	10	5
C	65	10	5
D	100	0	0
E	0	5	2.5
F	50	17	10
G	80	17	10
H	120	0	0

ANNEX 8C 3.2

Table 3 for M3 and N3 vehicles:

Point	Time (ms)	Acceleration (g)	
		Longitudinal	Transverse
A	20	0	0
B	50	6,6	5
C	65	6,6	5
D	100	0	0
E	0	4	2.5
F	50	12	10
G	80	12	10
H	120	0	0

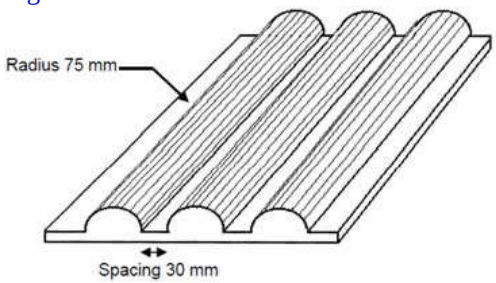
9.3.3.2

表六：M3 及 N3 類車輛

點	時間(毫秒)	加速度(g)	
		縱向	橫向
A	20	0	0
B	50	6.6	5
C	65	6.6	5
D	100	0	0
E	0	4	2.5
F	50	12	10
G	80	12	10
H	120	0	0

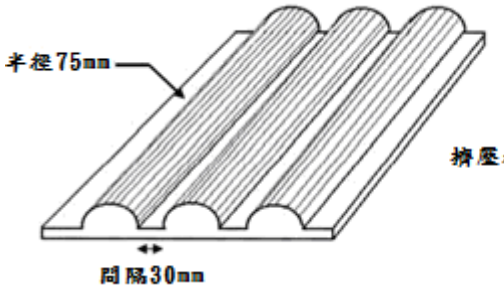
ANNEX 8D 3.2

Figure 1



Dimension of the crush plate:
600 mm x 600 mm or smaller

9.4.3.2.1

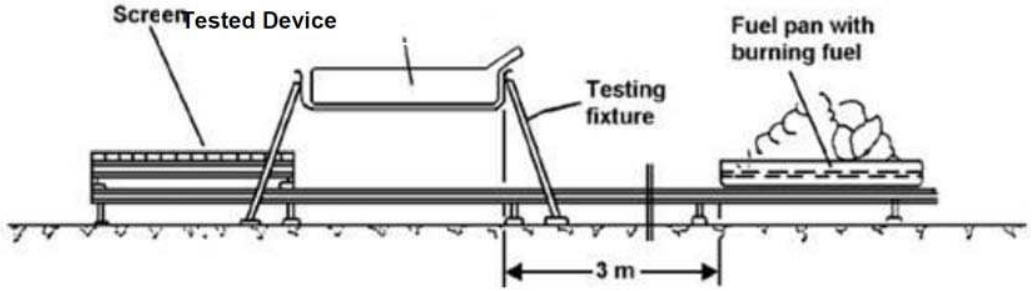


擠壓板尺寸：600mmx600mm或更小

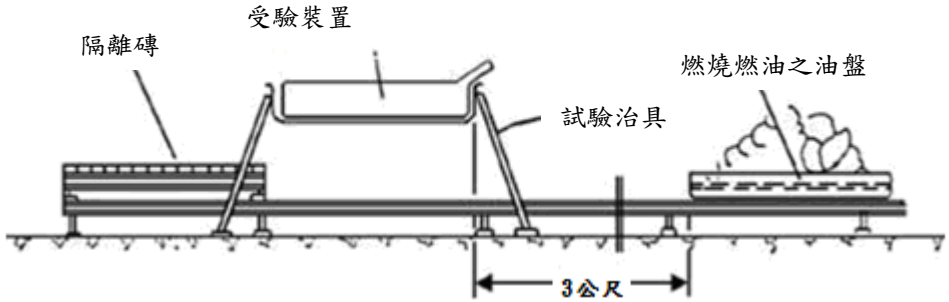
圖一0

ANNEX 8E 3.7.1

Figure 1: Phase A: Pre-heating



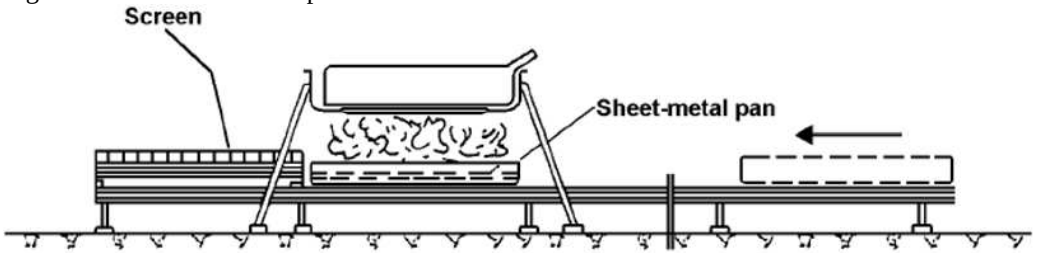
9.5.3.7.1



圖一一：階段A：預熱

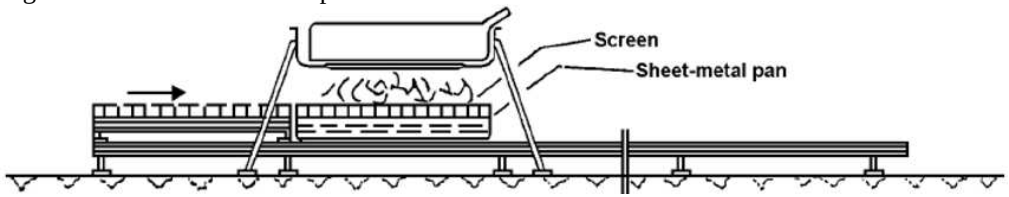
ANNEX 8E 3.7.2

Figure 2: Phase B: Direct exposure to flame



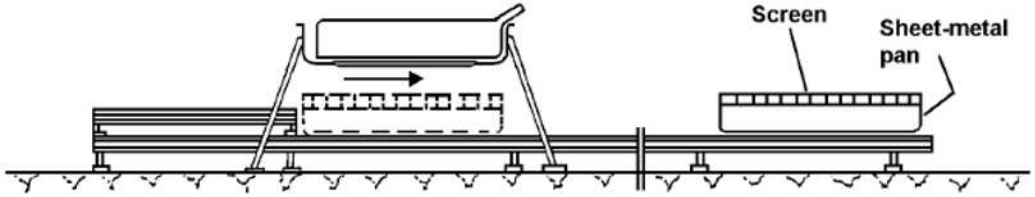
ANNEX 8E 3.7.3

Figure 3: Phase C: Indirect exposure to flame

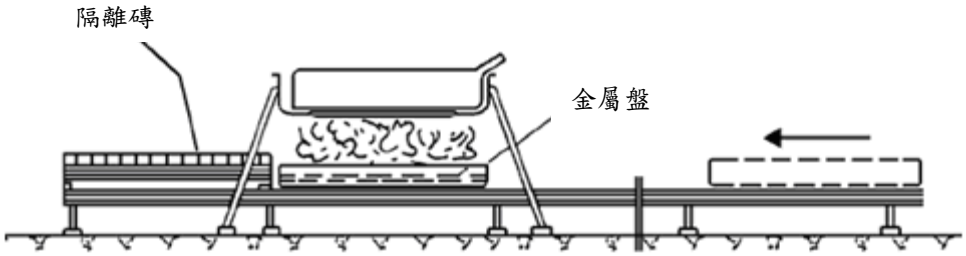


ANNEX 8E 3.7.4

Figure 4: Phase D: End of test

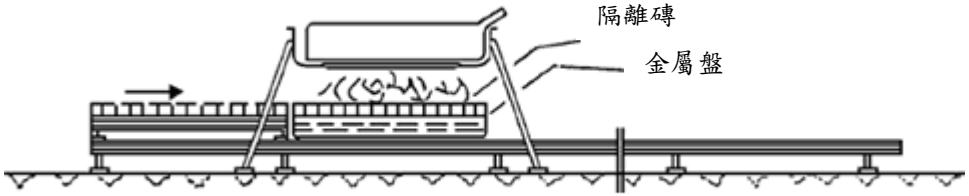


9.5.3.7.2



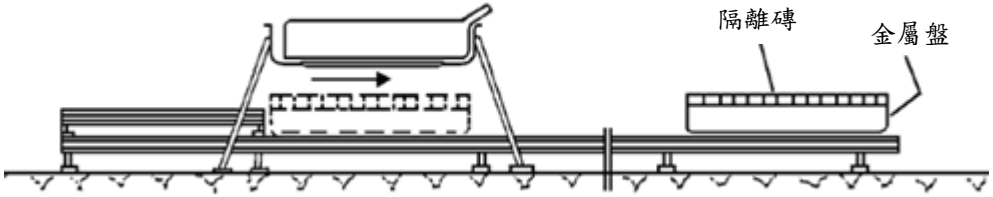
圖一二：階段Ｂ：直接暴露於火焰中

9.5.3.7.3



圖一三：階段Ｃ：間接暴露於火焰中

9.5.3.7.4



圖一四：階段Ｄ：試驗結束