

Correspondent	Support ADR 109/00	Comments	Official Departmental Response
Public Comment Summary on ADR 109/00 Electric Power Train Safety Requirements			
Dirk van der Walt Sotera		1. Raised the question on thermal propagation in ADR 109/00 requesting for a wireless signal to be sent simultaneously in an event of a fire if the vehicle is parked or stored in a building.	1. (a) The Australian Building Codes (ABCB) is conducting research in this area of electric vehicles parked under buildings and apartments. The Department is actively involved with this work through the EV Readiness Roundtable chaired by the ABCB. (b) The Department participates in the Electric Vehicle Safety Informal Working Group (IWG) at the United Nations regarding High Voltage Battery thermal propagation issues. This work is ongoing and is expected to inform future development of UN Regulation No. 100 (ADR 109/00).
Amy R		1. Raised the question of how these standards are better for climate change and the environment than petrol or diesel cars?	1. National road vehicle standards for safety, anti-theft and emissions. Introduction of these ADRs is not based on environmental change policy but they are expected to help achieve Net Zero with regard to tail pipe emissions. Additionally, recent studies have demonstrated benefits to the environment with the introduction of electric vehicles. California's early transition to electric vehicles: Observed health and air quality co-benefits - ScienceDirect How climate-friendly is an electric car? University of Technology Sydney (uts.edu.au)
Hyundai Motor Company Australia (HMCA) Scott Nargar	Support	1. Notes that Hyundai's current BEV and Hybrid models are certified to the UN Regulations adopted in the ADRs. 2. Notes that given the draft ADR 109/00 accepts both UN R100/02 and 100/03 HMCA does not have concerns with ADR 109/00.	1. Noted. 2. Noted.
Transport for NSW (TfNSW)	Support	1. Notes that their preference is for UN R100/03 to be mandated as soon as possible. In	1. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and

Rob Sharp		<p>addition, TfNSW suggests that UN R100/02 should only be mandated as an interim measure for a defined period.</p> <ol style="list-style-type: none"> 2. Notes that UN R100/03 effectively requires the installation of a Battery Management System (BMS) and claims UN R100/02 does not provide the same level of safety assurance in terms of mandating a BMS. 3. Suggests that UN R100/03 is incorporated into ADR 109/00 to replace UN R100/02 to harmonize closely with UN Regulations as soon as practicable. 4. Raised the issue of the lack of local testing facilities for locally manufactured vehicles including modifications to Individually Constructed Vehicles (ICVs) to meet technical requirements in the ADR. 5. Noted that guidance for modifying vehicles or ICVs may refer to Vehicle Standards Bulletin (VSB) 14 which has not been updated since 2011. Therefore, it does not reflect modern day developments. 6. Proposes that the Commonwealth review VSB 14 to ensure it reflects contemporary developments in electric vehicle manufacturing. 7. Raised that ADR 109/00 impacts on NSW Authorized Inspection Scheme (AIS). Requested that the Commonwealth assist in increasing skills and training, including funding and support. This will enable third-party AIS providers to capably assess 	<p>decision by the Minister.</p> <ol style="list-style-type: none"> 2. The Department would like to clarify that BMS is not specified in UN Regulations however is referred to in GTR 20. Discussion of BMS requirements for UN R100 is in progress through IWGs. 3. Noted, see point 1 above. 4. Noted. The ADR allows for exemptions which are clearly set out and in line with any exemptions in the UN regulations. These have been consulted on separately with stakeholders to implement the recommended option. Further exemptions may be given according to section 19(3) of the <i>RVS Rules</i> 2019 for ICVs that comply with the ADRs to an extent that makes them suitable for use on a public road in Australia. 5. The ADRs apply to new vehicles when first supplied to market. Modification of vehicles in-service and their compliance is a matter for the state and territory road authorities. Furthermore, there may be a role for members of the Australian Motor Vehicle Certification Board (AMVCB) in consultation with industry, user groups, government agencies and individuals with an interest in modifying light vehicles and/or building ICVs to consider. The <i>National Code of Practice for Light Vehicle Construction and Modification</i> (VSB 14) has been prepared by members of the AMVCB in consultation with industry. The Department provides the website as a service only. 6. Noted, see point 5 above. 7. Electric vehicles (EVs) are a transitional alternative drive system. it will allow industry, state and territory governments sufficient time to allocate resources, training and public education during this uptake phase. The Australian Government “National Electric Vehicle Strategy” identifies a significant opportunity to develop new jobs and skills in Australia with regard to EV education and awareness. National Electric Vehicle Strategy (dcccew.gov.au)
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		ongoing ADR compliance.	
National Heavy Vehicle Regulator (NHVR) Michael Ross	Support	1. Supports the proposed ADR 109/00.	1. Noted.
Hyzon Motors Murray Newton	Support	1. Support for ADR 109/00.	1. Noted.
Government of South Australia. Department of Infrastructure and Transport Rickman Smith	Support	<ol style="list-style-type: none"> 1. Raised that clause 6.13; In Annex 7A of Appendix A, omit “testing authority”. In Annex 7A contains the words “testing authorities”. Change clause 6.13 with “testing authority” and “testing authorities”. 2. Propose amending Explanatory Statement clauses, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.13, 6.15 and 6.16 clarify that “testing authority” or “testing authorities”. 3. Raised that clauses 2.9, 2.19, 2.43 Tested-Device Tested-Device. Clause 2.44 in definitions, “<i>Tested-Device</i>” therefore, consider adding the following clauses; 6.16, 6.17, 6.18 “Tested-Device Tested-Device” and to ES under Alternative Procedures. 	<ol style="list-style-type: none"> 1. Noted. In Annex 7A, vehicle manufacturers shall provide information to testing authorities to identify, as verification, which is done by the testing authority. The terminology of ‘Authority’ to remain in place. 2. Notes the ES references “technical service” and is referenced in ADR 109/00 as such. No wording change is required. 3. Noted. The Department intends to submit a correction to the relevant expert group at the UN to amend the UN regulation.
Australian Automobile Association (AAA) Kate Johnson	Support	<ol style="list-style-type: none"> 1. Supports the Commonwealth’s efforts and encourages continued participation in UN forums and harmonization of UN Regulations. 2. Supports the implementation dates. 	<ol style="list-style-type: none"> 1. Noted. 2. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister. 3. Noted, the Department consulted with industry on the compliance status

		<ol style="list-style-type: none"> Believes that if there are any costs associated with these ADRs which would be passed onto consumers then they should be quantified by the Department and details released for consideration. 	<p>of their products already being supplied to the Australian market. The light vehicle industry claimed almost 100 per cent of their EVs already comply with the requirements in the UN Regulation or are built to comply with the UN Regulations. The compliance burden associated with these ADRs is minimal to none as vehicles already comply with these UN regulations, therefore this means that there will be no additional cost in the light vehicle segment.</p>
<p>Electric Vehicle Council (EVC)</p> <p>Jake Whitehead</p>	Support	<ol style="list-style-type: none"> Welcomes the approach to harmonize new ADRs with established international standards. Encourages the Australian Government to take a similar stance in reviewing the <i>Road Vehicle Standards Act 2018</i> (RVSA) to allow the direct acceptance of type approved vehicles from global major markets in full volume supply. Raised the issue of heavy vehicle width limits in Australia in comparison with the EU to increase the domestic supply of electric trucks. 	<ol style="list-style-type: none"> Noted. Noted. Refer to the Australian Government safer freight vehicle work.
<p>Council of Heritage Motor Clubs NSW Inc (CHMC)</p> <p>Peter Wright</p>		<ol style="list-style-type: none"> Supports the position that it is mandatory for all EVs to comply with a new ADR on a “must comply, if fitted” basis. Proposed that not only ADR 109/00 be applicable to new and future vehicles, but acknowledge and reference road vehicle components are fitted to historic Internal Combustion Engines (ICE) vehicles with conversions to electric drive power. Notes that VSB 14 is eight years old. Raised that ADR 109/00 does not appear to be addressing what is a developing sector in 	<ol style="list-style-type: none"> Noted. ADRs apply to new vehicles when first supplied to market and in-service or aftermarket regulation is a jurisdictional matter. For older type vehicles, alternative pathways are available via State and Territory government policies, VSBs and certification procedures. Noted. The <i>National Code of Practice for Light Vehicle Construction and Modification</i> (VSB 14) has been prepared by members of the AMVCB. ADRs apply to new vehicle when first supplied to the Australian market. Older vehicles are considered a safety issue in ANCAP testing results. State and Territory governments are reviewing the safety aspect of older type vehicles on the road. Older type vehicles being converted are normally show vehicles, club cars and driven on club registration.

		<p>Australia which is converting older vehicles with electric drive components.</p> <p>5. Raised that there is a need for the ADR's to also ensure that the standards for components used for conversions are suitable for, and applicable in conversions in older vehicles. This would unduly disadvantage the operation and registration of those vehicles.</p> <p>6. Recommends that ADR 109/00 not be limited in its coverage. This is to ensure the use of components for conversions are safely and appropriately fitted to historic ICE vehicles, should the owners so desire.</p> <p>7. Raised that the National Road Vehicle Standards administers "road vehicle components" and interpreted that this applies to components that would be used in converting historic ICE vehicles to electric power.</p> <p>8. Strongly supports the Purpose and Operation stated in the Explanatory Statement.</p> <p>9. Raised that they were unaware of any direct consultation on ADR 109/00 with the relevant historic vehicle industry peak bodies, stakeholders or consumers to date. Asked if such consultation has taken place, please advise with whom and when.</p>	<p>See point 1 above.</p> <p>5. Noted, see point 3 and 4 above.</p> <p>6. Noted, see point 5 above.</p> <p>7. A component type approval is one option applicants for a vehicle type approval or approval of a Model Report may use to demonstrate compliance with applicable national road vehicle standards. Please refer to the Department website for more information to gain an understanding on how the CHMC may use this pathway. These components in the UN Regulation apply to components fitted to new vehicles supplied to the market.</p> <p>8. Noted.</p> <p>9. The Department proposed the introduction of these new ZEV ADRs through the standard consultative forums SVSEG, TLG and AMVCB in early 2022. Additionally, the Department consulted with the public by posting on the Department's website for an eight-week public comment period which ended on the 27 March 2023.</p>
<p>Australasian College of Road Safety</p> <p>Dr Ingrid Johnston</p>		<p>1. Notes that electric motorcycles are a reality in Australia, and their safety needs to be considered.</p>	<p>1. Noted, the Department in consultation with industry will consider the case for adopting internationally agreed safety standards for Australian delivered motorcycles.</p>

ANCAP John Ryan	Support	<ol style="list-style-type: none"> 1. Strongly supports the implementation of ADR 109/00. 2. Supports the proposed timeframes for implementation of ADR 109/00. 	<ol style="list-style-type: none"> 1. Noted. 2. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.
Australian Hydrogen Council (AHC) Natasha Cerexhe and Joe Kremzer	Support	<ol style="list-style-type: none"> 1. Supports the Australian Government's approach to the ensuring the safety of Australian road vehicles. 2. Raised that the new ADRs do not address issues with heavy transport vehicles. Noted that a significant barrier in the current ADRs relating to width and steer axle load weight exists. They support calls for the ADRs to be reviewed more broadly to allow greater uptake of Zero Emissions Vehicles (ZEVs). 3. Recommended that the development of ADR 109/00 be undertaken as part of a broader review of the ADRs based on feedback provided by industry in the development of the National Electric Vehicle Strategy. 4. With regard to ADR 109/00, AHC considers the proposed ADR to be generally fit for purpose. However, they noted that the requirements for destructive testing may restrict the ability for participants in Australia's developing electric vehicle industry to compete with established OEM. 	<ol style="list-style-type: none"> 1. Noted. 2. Noted. Refer to the Australian Government safer freight vehicle work for vehicle width. Weight limits are set through State and Territory governments. 3. ADR 109/00 has been circulated with peak industry bodies through the Department's established consultation forums. Further development of ADR 109/00 (UN R100) occurs through the UN Working Groups which the Department participates in. Developing unique requirements for local manufacturers in the ADR would deviate from the Government's policy to harmonize with international standards. Regulations based on internationally agreed standards provide consumers with access to the safest vehicles from the global market at the lowest cost. 4. Imported vehicles for the Australian market must meet other ADR requirements. Also, depending on vehicle category for example, heavy vehicles are exempt from certain destructive test requirements.
Fire and Rescue NSW (FRNSW) Jamie Vistnes		<ol style="list-style-type: none"> 1. Considers that the standards should include the requirements for an emergency rescue sheet and an emergency response guide that is publicly available for all vehicles. 	<ol style="list-style-type: none"> 1. Noted. An ANCAP RESCUE app has been designed to assist first responders in Australia stay safe on our roads when attending crash events. ANCAP RESCUE App Vehicle Rescue App for First Responders Furthermore,

		<ol style="list-style-type: none"> 2. Notes that in Annex 9C Mechanical Shock, 9D Mechanical Integrity, 9G Overcharge Protection and 9J Over-current Protection the test duration is limited to one hour. They raised that these are very short times considering that research and their experience suggest that damaged batteries may fail and go into thermal runaway after an extended amount of time that could be many hours later. 3. Notes that Appendix A clause 6.5 only requires a test if the REESS is 1.5 m or less above ground level. Why is the REESS above this height also not considered a risk. 4. Noted that Annex 9E phase B is only 70 seconds, which seems short for a fire resistance test. Notes that it would be helpful to know the basis for all the times used in the test and how they relate to real world exposures and battery behavior. 5. Raised a question over the durations in the test for Annex 9I over-temperature protection and 9J over-current protection time frames. 6. Asked why the UN standard was adopted and there is no mention of UL 2580 or SAE J2464. Have these been considered. 	<p>ANCAP will seek Rescue Cards from vehicle manufacturers each time ANCAP rates a vehicle. These Rescue Cards are designed to assist first responders in quickly identifying in-vehicle hazards, such as High Voltage (HV) batteries to minimize risks and safely free occupants from vehicles post crash.</p> <p>Adding a unique requirement to the ADR would go against the Australian government's policy to harmonize with international regulations and therefore not allow for the safest and cheapest vehicles supplied to the Australian market.</p> <ol style="list-style-type: none"> 2. Testing duration is conducted, then the observation time which in total is a lot longer than one hour depending on which test is conducted. The observation time is the final phase of the test: "The test shall end with an observation period of 1 hour at the ambient temperature conditions of the test environment". See also point 4. 3. Noted, Appendix A – clause 6.5 is an option for the manufacturer to conduct this fire test if the REESS is above 1.5 m above ground level. With a REESS above 1.5 m above ground level is a substantial height which may relate to vehicle categories of heavy omnibus, medium and heavy goods vehicles for example. 4. Noted, Annex 9E requires several phases and clauses to conduct a fire resistance test. It is simply not just phase B in clause 3.3.4.2 for only 70 seconds. These tests may occur over a six-hour period. 5. Noted, see point 2 above. 6. UL and SAW standards are only guides towards ensuring the safety of REESS in road vehicles, whereas UN regulations cover all aspects of the REESS and vehicle HV system in the safety requirements. Furthermore, the ADRs are harmonized with UN Regulations and GTRs ensure the safest vehicles are delivered to the Australian market as the lowest price. In addition, ADR 109/00 allows for alternative standards through acceptance of UN R100/03, UN R100/02 and GTR 20 as equivalent standards. Standards from UL and SAE are for specific components
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			only, not for the complete vehicle.
Truck Industry Council (TIC) Mark Hammond	Support	<ol style="list-style-type: none"> 1. Fully supports ADR 109/00 subject to implementation timing. 2. Supports the alternative standards in the draft ADRs and requested that the Department acknowledge, that if future alternative regulations are developed, particularly from Japan or USA, that these will be considered for adoption as alternatives. 3. Noted that clauses 6.11 and 6.14 in the ADR refer to light vehicle test procedures for vehicles with a GVM of 3.5t or less. TIC do not believe that these test procedures are suitable for vehicles above 3.5t GVM. TICs recommendation is for vehicle categories above 3.5t GVM to be removed from these clauses. If the Department has information that show that the application of these light vehicle test standards is suitable for heavy vehicles, then TIC would be willing to discuss this matter further. 4. TIC and TIC members do not support the implementation dates for ADR 109/00. Given the minimum 60 working day regulatory timeline for Vehicle Type Approvals (VTAs) under the RVSA if the applicability date is set for November 2023. TIC proposes the following introduction dates: <ul style="list-style-type: none"> • New models 1 November 2024, • All models 1 November 2025. 	<ol style="list-style-type: none"> 1. Noted. 2. Noted. The Department will consider alternative standards from other markets based on their availability and suitability to the Australian conditions. 3. Noted. ADR 109/00 has been updated to remove heavy vehicles (vehicles with a GVM above 3.5t) from being subject to crash tests. 4. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.

		<p>With the additional safety measures in UN R100/03, TIC requests secondary introduction dates that mandate UN R100/03, new model introduction date plus 2 years. For all models with new model introduction date plus 3 years. Alternatively, TIC would also accept, 1 November after the UN R100/03 all model introduction date plus 2 years.</p>	
<p>Bus Industry Confederation (BIC)</p> <p>Luke Hardy</p>	Support	<ol style="list-style-type: none"> 1. Noted that ADR 109 is harmonized with UN R100/03 and accepts UN R100/02 and GTR 20 as ongoing equivalents. Recommends accepting UN R100/03 as a minimum requirement under alternative standards. 2. Noted that applicability dates are not acceptable and recommended the following dates: <ul style="list-style-type: none"> • New models 1 November 2024 • All models 1 November 2025. 	<ol style="list-style-type: none"> 1. Noted. The Department will consider alternative standards in the ADR with industry before implementation. 2. Noted, final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.
<p>Confidential Submission</p>	Support	<ol style="list-style-type: none"> 1. Supports the introduction of ADR 109/00 at the earliest possible timeframe. 2. Noted that ADR 109/00 lacks the consideration of ADR 85/00 (UN R135) Pole Side Impact. Submission recommends that ADR 109/00 makes direct reference to pole side impact test UN R135 or ADR 85/00 for vehicle-based testing to ensure that there is maximized occupant safety in the event of an incident in lieu of an updated ADR 85/00. Alternatively, the submission recommends 	<ol style="list-style-type: none"> 1. Noted. 2. Noted. The Department is constantly reviewing ADRs and prioritizing them. ADR 85/00 will be considered in future work.

		that ADR85/00 is updated to include the newest amendment of UN R135 and is implemented at the same time as ADR 109/00.	
Heavy Vehicle Industry Australia (HVIA) Greg Forbes	Support	<ol style="list-style-type: none"> 1. Noted their satisfaction that the proposed ADRs represent best practice requirements for vehicle safety. However, raised concerns on the availability of local testing facilities for local manufacturers. Noted that for this reason the HVIA does not agree with Office of Impact Analysis (OIA) assessment. 2. Raised that any testing requirements related to complete vehicles or vehicle subsystems must be able to be completed wholly with Australia. Tests included in the ADRs as mandatory must not necessitate the international transport of complete vehicles, nor vehicle subsystems, for certification tests. Doing so would impose prohibitive costs on local manufacturers. 3. Furthermore; if compliance by component-level testing is allowed, HVIA seeks greater clarity on any specific requirements the Department would have to avoid whole of vehicle testing, and on the evidence that the Department will require to satisfy itself that vehicles are compliant when tested on a component by component basis. And; If compliance by component-level testing is not allowed, HVIA strongly advocates for the revision of the testing requirements. 4. Raised that the timelines may be too 	<ol style="list-style-type: none"> 1. Noted. 2. Manufacturers are not required to gain a UN approval to certify their products to the ADR, they may also submit documentation showing test results to the technical requirements of the ADR. Manufacturers are also importing components for assembly in the local market. Depending on components, they are able to be accessed with a UN approval prior to importation and assembly 3. Manufacturers are importing components for assembly in the local market. Depending on components, they are able to be accessed with UN approval prior to importation. The ADR allows for the certification of components for ZEVs built locally by accepting test reports to the technical requirements of the UN regulation. 4. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister. 5. Noted, ADRs do not regulate dangerous goods, worksafe legislation and in-service regulations.

		<p>ambitious in view of the testing requirements.</p> <p>5. Raised the request that the Department investigate whether there are inconsistencies between the proposed ADRs and dangerous goods and worksafe legislation across the country.</p>	
<p>Federal Chamber of Automotive Industries (FCAI)</p> <p>Ashley Sanders</p>	Support	<p>1. Supported the ADRs implementation timing of</p> <ul style="list-style-type: none"> 1 November 2024 New Models 1 November 2026 All Models. <p>2. Recommended the Department ensures the requirements are not in advance of international timing and to ensure sufficient lead time for attaining UN approvals and updating Australian Vehicle Type Approval (VTA) through the Road Vehicle Regulator (ROVER) system.</p> <p>3. Raised that ROVER and timing to achieve VTA assessments is a major concern, not just for these proposed ADRs, but for VTAs in general.</p>	<p>1. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.</p> <p>2. Noted, see point 1 above.</p> <p>3. Noted. This to be raised with the ROVER team for consideration. Currently process time is under the 60 days.</p>