Australian Government
Department of Infrastructure and Transport

Regulation Impact Statement for

Amendments to Vehicle Standard (Australian Design Rule 34/01 – Child Restraint Anchorages and Child Restraint Anchor Fittings) 2005

ISOFIX Child Restraint Systems

January 2012
OBPR Ref No. 11918

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CONTENTS

1. Introduction

The Australian Government provides protection for new vehicle owners through the *Motor Vehicle Standards Act 1989 (C'th)* (MVSA). The MVSA provides mandatory vehicle safety, emissions and anti-theft standards which apply when new vehicles are supplied to the Australian market. These are national standards and are known as the Australian Design Rules (ADRs).

Australian Design Rule 34/01 – Child Restraint Anchorages and Child Restraint Anchor Fittings (ADR 34/01) sets requirements for the child restraint anchorages on a vehicle. These anchorages ensure that a child capsule or seat can be fitted to a vehicle, so that children who are too young to fit into an adult seatbelt assembly can still be transported safely.

This Regulation Impact Statement (RIS) examines a proposal for amending ADR 34/01. The proposal would allow manufacturers the option of providing and testing additional anchorages of the ISOFIX type. Such anchorages would be able to accommodate child restraints of ISOFIX design, as used in Europe and as adopted by United Nations Economic Commission for Europe (UNECE) regulations.

2. Background

2.1 The Problem

To sell a car in Australia it must have a means of attaching a child restraint. Cars manufactured in Europe and sold in Australia will have the normal child restraint anchorages in accordance with the Australian Design Rules (ADRs) but they may also have ISOFIX child restraint anchorages, which are common in Europe. However, even where this is the case, vehicle owners are currently unable to make any use of ISOFIX anchorages. This is because ISOFIX-based child seats cannot be purchased in Australia. The reason that they cannot be purchased in Australia is because AS/NZS 1754 does not allow ISOFIX child restraints. AS/NZS 1754 is a consumer product safety standard mandated under the Competition and Consumer Act 2010 (C'th) and all restraints used in Australia must meet this standard.

There is increasing interest from consumers and so manufacturers to allow the ISOFIX based restraint system as adopted by the UNECE to be used in Australia. The Minister for Infrastructure and Transport regularly receives requests from parents who ask for the ISOFIX system to be allowed for (or mandated) in new vehicles, for reasons relating to ease of installation, reduced chance of incorrect installation, and increased rigidity in the positioning of the child capsule or seat. Vehicle manufacturers also receive these requests and their peak representative body, the Federal Chamber of Automotive Industries (FCAI) has discussed the possibility of allowing ISOFIX anchorages with the Department of Infrastructure and Transport on a number of occasions.

The requirement preventing consumers using ISOFIX child restraints resides in the Australian Standard for child restraints. This standard requires Australian child restraints to utilise a top tether strap in conjunction with an adult seatbelt to secure the child restraint to the vehicle. ISOFIX child restraints are currently unable to gain approval to Australian Standard AS/NZS 1754 (Child restraint systems for use in motor vehicles).

While the Standards Australia CS-085 technical committee has been willing to consider changes to AS/NZS 1754 to allow for ISOFIX systems in the design of child restraints, the problem is that this would only be possible if ADR 34/01 also allowed vehicles to be fitted with matching ISOFIX based child restraint anchorages.

Therefore, amending the ADR is a pre-requisite to the use of ISOFIX based systems in Australia.

2.2 International Standards

In Australia, child restraints have been used for several decades to protect children when travelling in motor vehicles. ADR 34/01 specifies requirements for Child Restraint Anchorages (CRAs) and their fittings so that a child restraint that meets AS/NZS 1754, Child restraint systems for use in motor vehicles, can be adequately secured to a vehicle. AS/NZS 1754 is a consumer product safety standard mandated under the *Competition and Consumer Act 2010 (C'th)* and all restraints used in Australia must meet this standard.

Europe and the US have different child restraint systems, although these share some common features. The current European system is the ISOFIX system as detailed in and required by UNECE R14 (safety-belt anchorages, ISOFIX anchorages, and ISOFIX top tether anchorages). The current US system is the LATCH (Lower Anchorages and Tethers for Children) system as detailed in and required by Federal Motor Vehicle Safety Standard (FMVSS) 225 (Child restraint anchorage systems).

It is Australian Government policy to harmonise with international standards where possible. This must also be considered under Council of Australian Government (COAG) guidelines for regulation. For motor vehicles, this means adopting the regulations of the UNECE. The World Trade Organisation (WTO) has identified UNECE regulations as the peak international regulations for vehicle safety and so Australia has been gradually harmonising the ADRs with these regulations where appropriate.

ADR 34/01 is a unique Australian standard and offers no international alternatives other than for child restraints that are integral to the vehicle. ADR 4/04 Seatbelts and 5/05 Anchorages for Seatbelts are based on international standards as adopted by the UNECE. These standards are:

Regulation No. 16 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF: I. SAFETY-BELTS, RESTRAINT SYSTEMS, CHILD RESTRAINT SYSTEMS AND ISOFIX CHILD RESTRAINT SYSTEMS FOR OCCUPANTS OF POWER-DRIVEN VEHICLES and II.VEHICLES EQUIPPED WITH SAFETY-BELTS, RESTRAINT

SYSTEMS, CHILD RESTRAINT SYSTEMS AND ISOFIX CHILD RESTRAINT SYSTEMS; and

Regulation No. 14 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO SAFETY-BELT ANCHORAGES, ISOFIX ANCHORAGES SYSTEMS AND ISOFIX TOP TETHER ANCHORAGES.

ADRs 4 and 5 contain ISOFIX requirements, as this is where the UNECE have placed child restraint anchorage requirements. However, they are currently exempted out of the Australian requirements (clause 6.1 of ADR 4/04 and clauses 6.1 and 6.2 of ADR 5/05). Only ADR 34/01 sets the requirements for CRAs.

2.3 Objectives

The primary objective would be to allow consumers more options in child restraint design, without compromising road safety.

The secondary objective would be to ensure that vehicles complying with the UNECE regulations that deal with child restraint anchorages are allowed into the Australian market with the minimal possible restrictions.

3. Options

There are four options; Option 1: Take no action, Option 2: Adopt the proposed minor amendments, Option 3: Delete ADR 34/01, and Option 4: Adopt non-regulatory options.

With Option 3, vehicles would no longer need to comply with ADR 34/01 requirements. However, the issue of whether to retain or delete the entire ADR, or any of the requirements therein, is to be undertaken as part of a comprehensive review of the ADRs in general and would involve extensive consultation with a broad range of stakeholders. This kind of review is beyond the scope of the current proposal for a minor amendment. Option 4 considers non-regulatory options. As with Option 3, non-regulatory options are to be considered at the appropriate time as part of a broader review of the ADRs.

Therefore, only Option 1: Take no action and Option 2: Adopt the proposed minor amendments are considered feasible in this RIS and will be considered further.

3.1 Option 1: Take No Action

Under this option, vehicles would be required to continue to comply with the current ADR 34/01 requirements.

It would not be possible for AS/NZS 1754 to accommodate options in child restraint design that utilise the ISOFIX anchorage system. This is because ADR 34/01 does not set any performance requirements for ISOFIX based anchorages.

3.2 Option 2: Adopt the Proposed Minor Amendments

Under this option, there would be a relaxation in the overall requirement for child restraints and their anchorages through a combination of changes to ADR 34/01 and AS/NZS 1754.

However, although a relaxation overall, there would have to be an increase in the stringency of ADR 34/01 (moving to ADR 34/02) so that it can prescribe that any ISOFIX anchorage that has optionally been fitted by the manufacturer would still meet design and strength requirements. This would be necessary in order to permit the subsequent relaxation to AS/NZS 1754 to allow for ISOFIX based child restraints.

4. Analysis

4.1 Option 1: Take No Action

Under this option, ADR 34/01 would not be amended and so would continue to make no reference to ISOFIX systems. Similarly, ADRs 4 and 5 would also continue to make no reference to ISOFIX systems, as they are currently exempted out of the Australian requirements (as discussed above, ADRs 4 and 5 currently adopt UNECE regulations for seatbelts and seatbelt anchorages, while exempting the parts of the regulations that deal with child restraint anchorages).

Under this scenario, the performance of any ISOFIX anchorages that have been fitted would not be able to be proven through the ADRs. Consequently, the Australian Government would be unable to support adopting ISOFIX based child restraints within AS/NZS 1754.

This option would not meet the objectives set out above, as it would not allow the use of ISOFIX based child restraints in Australia.

4.2 Option 2: Adopt the Proposed Minor Amendments

Under this option, ADR 34/01 would be amended to set performance requirements for any new vehicle being supplied with ISOFIX child restraint anchorages. Similarly, ADRs 4 and 5 may be amended to mandate the parts of the adopted UNECE regulations that deal with ISOFIX child restraint anchorage design and performance.

Under this scenario, the performance of any ISOFIX anchorages that have been fitted would be able to be proven through the ADRs. The Australian Government would then be able to support adopting ISOFIX based child restraints within AS/NZS 1754.

The detailed form of the amendments would be determined in consultation with industry. The principle, for the purposes of this RIS, would be that ISOFIX anchorages for new vehicles could be optionally fitted, but where fitted their design and performance would have to meet established UNECE requirements and they would have to be certified through the ADR system. The current requirements within ADR 34/01 for Australian child restraint anchorages would also remain. This would ensure the ongoing compatibility with existing

Australian child restraint designs. It would then fall to the Standards Australia CS-085 technical committee to determine what changes to AS/NZS 1754 would be appropriate for the Australian environment.

In terms of safety, the existing Australian child restraint system has proven over many decades to be effective in protecting children. There may be some safety benefits in adopting the ISOFIX system instead of the existing ADR 34/01 system, such as ease of installation, reduced chance of incorrect installation, and increased rigidity in the positioning of the child capsule or seat. However, research has also shown that these benefits are not likely to be substantial and there would be other disadvantages such as limitations on the number of ISOFIX positions available in a vehicle (due to the physically larger size of the ISOFIX child restraints).

In general terms, the comparative effectiveness of ISOFIX child restraint systems depends on factors such as body region and crash type. Overall, research suggests that ISOFIX child restraint systems may offer a net safety benefit, although this is not guaranteed given relatively limited information on child impact kinematics and child dummy bio-fidelity. Furthermore, historic differences in child restraint use between Australia, Europe and the USA make it difficult to conduct useful field crash data comparisons between these regions.

A defining feature of the Australian system is that a top tether anchorage forms the basis of the child restraint system. When used in conjunction with a seatbelt, research shows that this top tether plays an important role in overall restraint performance by acting as an anti-rotation device. For this reason, only an ISOFIX system that also employs a top tether anchorage would be acceptable. This is known as the "ISOFIX universal" type and is covered by the UNECE regulations.

On balance, the Australian system has performed very well over the last thirty years. This is why neither the Australian system nor the UNECE ISOFIX system should be considered the superior system in all respects. Given that this is the case, the Government would recommend allowing ISOFIX child restraint anchorages as an option subject to consumer demand. It would not consider mandating ISOFIX exclusively.

This option would meet both of the objectives set out above.

5. Impacts

5.1 Cost to Business

The new vehicle certification system administered by the Department of Infrastructure and Transport imposes costs on industry. Before a new vehicle can be issued with an identification plate (which allows it to be supplied to the market), evidence must be provided to prove that the vehicle meets all relevant ADRs. This evidence is primarily a summary of the tests performed on various components of a vehicle or on a whole vehicle.

Option 1 imposes no additional costs but the issues described in the problem section would remain.

Option 2 would address these issues. It would allow ISOFIX universal based child restraints to be used as well, should this be permitted through AS/NZS 1754. There would be some increase in certification costs for manufacturers who wish to supply ISOFIX anchorages in their vehicles as they would have to be submitted to the Australian certification system. However, this would be estimated to be typically in the high hundreds to low thousands of dollars for each vehicle model, given that the ISOFIX anchorages currently being fitted to Australian vehicles are being fitted for the purposes of other markets anyway (as there is currently no use for them in Australia due to the limitation on child restraint designs). In this respect the design and testing would be for the most part already done. Industry has indicated that these costs would be outweighed by the benefits in being able to offer a wider range of child restraint designs and so they fully support the proposal. Because this in itself demonstrates that there would be a net benefit, these costs have not been quantified any further.

5.2 Benefits

In comparison to Option 1, it is expected that Option 2 would not negatively affect the level of road trauma in Australia. If ISOFIX based child restraints were to be permitted there may be some minor increase in safety benefits (refer discussion earlier). Some of these benefits relate to the fact that the seatbelt would not need to be used to contain the child restraint. Seatbelts can be incorrectly fitted and/or accidently unlatched by other passengers, or even loosen over time. In addition, ISOFIX based child car restraints can be quicker and simpler to install, saving consumers time. Increased consumer choice is another benefit of this option.

Option 2 would have a positive effect on trade facilitation. Manufacturers would be able to provide vehicles with child restraint anchorages and child restraints that are more closely aligned with UNECE child restraint systems.

6. Consultation

Development of the ADRs under the MVSA is the responsibility of the Vehicle Safety Standards Branch of the Department of Infrastructure and Transport. It is carried out in consultation with representatives of the Australian Government, state and territory governments, manufacturing and operating industries, road user groups and experts in the field of road safety.

The Department undertakes public consultation on significant proposals. Under Part 2, section 8 of the MVSA the Minister may consult with state and territory agencies responsible for road safety, organisations and persons involved in the road vehicle industry, and organisations representing road vehicle users before determining a design rule.

The Technical Liaison Group (TLG) has for a number of years been the consultative committee for advising on ADR developments. It includes members of the Australian, state and territory governments, the vehicle manufacturing and operating industries and consumer groups. Although the TLG has now been reconstituted under a higher level Strategic Vehicle Safety and Environment Group (SVSEG), its role in ADR development will continue in a similar way to before. The full membership of TLG is shown at APPENDIX 1.

The proposed amendments were discussed within the TLG at its 34th meeting in December 2009 (Item 12(d) Paper 34/09/06), where Option 2 (allowing for ISOFIX systems in the design of child restraints) was supported, pending canvassing of members' organisations by the end of March 2010. An excerpt of the TLG paper is shown at APPENDIX 2. This consultation period passed and comments received did not raise any concerns with the proposal. However, industry indicated that it would still need to comment regarding workability of the final form of the amendments to the ADRs.

A draft RIS, together with the draft ADR, was provided to SVSEG/TLG members in August 2011 and no objections were raised. Suitable lead times for implementing the ADR were subsequently agreed with industry, complementing the work by Standards Australia on AS/NZS 1754. Some adjustments were also made to the draft ADR to better facilitate the use of ISOFIX systems in convertible vehicles. In parallel with this, the draft RIS and draft ADR were issued for limited public consultation. Again, no objections were raised.

The amendments would increase the stringency of ADR 34 and so it would be a revision from ADR 34/01 to ADR 34/02. However, as discussed earlier, the amendment would be a relaxation in the overall requirement for child restraints and their anchorages through a combination of changes to ADR 34/01 and AS/NZS 1754.

The state and territory representatives of SVSEG represented the views of their jurisdictions and so there was no need for further consultation through the Transport and Infrastructure Senior Officials' Committee (TISOC) or the Standing Council on Transport and Infrastructure (SCOTI).

7. Conclusions and Recommendations

Option 2, to adopt the proposed minor amendments, was regarded as the most effective solution in terms of achieving the objectives established earlier. These objectives were firstly to allow consumers more options in child restraint design; and secondly, to ensure that vehicles complying with UNECE regulations that deal with child restraint anchorages are allowed into the Australian market with the minimal possible restrictions. Under this option, ADR 34/01 would be amended to set design and performance requirements for any new vehicle being supplied with ISOFIX child restraint anchorages. Similarly, ADRs 4 and 5 may be amended to mandate the parts of the adopted UNECE regulations that deal with child restraint anchorage performance. Only the "ISOFIX universal" type would be acceptable. All

other current ADR 34/01 requirements would continue to apply. It is important to highlight that ISOFIX anchorages would be optional for vehicle manufacturers.

Option 1, Take No Action, does not meet the objectives and so perpetuates the current inadequacies of the existing ADR. It not regarded as a viable solution.

The TLG/SVSEG agreed that Option 2 would be the best option. As industry and regulatory agencies are fully supportive of the minor amendment under Option 2 and there are no disadvantages to consumers, this is the option that is recommended.

8. Implementation and Review

Should the ISOFIX requirements be adopted, it would be open for the Government to either amend ADR 34/01 to include them, and/or amend ADRs 4 and 5 to re-introduce these previously exempted parts of the UNECE regulations. The draft amendments currently take the first approach, to keep the bulk of the child restraint anchorage requirements under a single ADR.

Amendments to the ADRs are determined by the Parliamentary Secretary for Infrastructure and Transport under section 7 of the *Motor Vehicle Standards Act 1989*. At the time that the amendment is signed by the Parliamentary Secretary, registered subscribers to the ADRs are e-mailed directly notifying them of the amendment to the ADR. Registered subscribers to the ADRs include but are not limited to; various industry groups such as vehicle manufacturers, designers and test facilities, and vehicle user organisations.

As Australian Government regulations, ADRs are subject to review every ten years. This ensures that they remain relevant, cost effective and do not become a barrier to the importation of safer vehicles and vehicle components. ADRs 4/04, 5/05 and 34/01 will be scheduled for a full review on an ongoing basis and in accordance with the Australian Government's Business Review Agenda. The timing for review is to be determined.

In terms of AS/NZS 1754, it is anticipated that provisions allowing for ISOFIX based child restraint systems could be incorporated into a revised version of this Standard in two to three years.

9. References

Australian Design Rules are available from
http://www.infrastructure.gov.au/roads/motor/design/adr_online.aspx

- Motor Vehicle Standards Act 1989
- Vehicle Standard (Australian Design Rule 34/01 – Child Restraint Anchorages and Child Restraint Anchor Fittings) 2005

UNECE Vehicle Regulations are available from
http://www.unece.org/trans/main/wp29/wp29regs.html

- Regulation No. 16 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF: I. SAFETY-BELTS, RESTRAINT SYSTEMS, CHILD RESTRAINT SYSTEMS AND ISOFIX CHILD RESTRAINT SYSTEMS FOR OCCUPANTS OF POWER-DRIVEN VEHICLES and II.VEHICLES EQUIPPED WITH SAFETY-BELTS, RESTRAINT SYSTEMS, CHILD RESTRAINT SYSTEMS AND ISOFIX CHILD RESTRAINT SYSTEMS
- Regulation No. 14 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO SAFETY-BELT ANCHORAGES, ISOFIX ANCHORAGES SYSTEMS AND ISOFIX TOP TETHER ANCHORAGES.

10. APPENDIX 1

Membership of the Technical Liaison Group (TLG)*

Organisation
Manufacturer Representatives
Australian Road Transport Suppliers Association
Commercial Vehicle Industry Association
Federal Chamber of Automotive Industries
Federation of Automotive Product Manufacturers
Truck Industry Council
Bus Industry Federation
Consumer Representatives
Australian Automobile Association
Australian Trucking Association
Australian Motorcycle Council
Government Representatives
Department of Infrastructure and Transport, Australian Government
Department of Transport, Energy and Infrastructure, South Australia
Queensland Transport
Roads and Traffic Authority, New South Wales
VicRoads, Victoria
Department of Planning and Infrastructure, Western Australia
Office of Transport, Australian Capital Territory
Department of Infrastructure, Energy and Resources, Tasmania
Department of Planning and Infrastructure, Northern Territory
Land Transport Safety Authority of New Zealand
Inter Governmental Agency
National Transport Commission

* In 2010 this was reconstituted as the Strategic Vehicle Safety and Environment Group (SVSEG)

11. APPENDIX 2

Excerpt of Technical Liaison Group (TLG) Item 12(d) Paper No. 34/09/06

Accommodation of ISOFIX lower anchorage requirements within ADR 34 - Child Restraint Anchorages and Child Restraint Anchor Fittings

ADR 34/01 specifies requirements for 'Child Restraint Anchorages' and 'Child Restraint Anchor Fittings' for connecting standard 'Attaching Clips' so that 'Child Restraints' may be adequately secured to a vehicle.

Europe and the USA use different systems although these share some common features. The European system is the ISOFIX system as detailed in UNECE R14. The USA system is the LATCH system as detailed in FMVSS 225.

There is interest from consumers and manufacturers in allowing the UNECE ISOFIX system to be used in new vehicles.

It is proposed that ADR 34/01 be amended to optionally allow ISOFIX lower anchorages to be fitted in addition to the current ADR requirements. This would allow a vehicle manufacturer to fit child restraint anchorage systems that either meet the current system or include ISOFIX lower anchorages as well.

Discussion

In Australia, child restraints and top tethers have been widely used for several decades. Typically, Australian passenger vehicles are equipped with a top tether anchorage in each of three second row seating positions. When used in conjunction with a seatbelt, the top tether plays an important role in overall restraint performance by acting as an anti-rotation device.

Europe and the USA have different child restraint systems, although these share some common features. The current European system is the ISOFIX system as detailed and required by UNECE R14 (safety-belt anchorages, ISOFIX anchorages, and ISOFIX top tether anchorages). The current US system is the LATCH (lower anchorages and tethers for children) system as detailed and required by FMVSS 225 (child restraint anchorage systems).

ADR 5/05 - Anchorages for Seatbelts is based on UNECE R14, but with the ISOFIX part of the regulation declared as not applicable. ADR 5/05 does not explicitly forbid ISOFIX systems from being physically fitted to the vehicle. However, it does not set any test requirements for them and as a consequence does not provide any sort of certification for them.

In reality, the requirement preventing consumers using ISOFIX child restraints resides in the Australian Standard for child restraints. All child restraints sold in Australia must

meet AS/NZS 1754 (a mandatory standard under the Trade Practices Act 1974). This requires Australian child restraint to utilise a top tether strap in conjunction with an adult seatbelt to secure the child restraint to the vehicle. ISOFIX child restraint systems are currently unable to gain approval to AS/NZS 1754.

There is interest from consumers and manufacturers in allowing the ISOFIX restraint system to be used and it is Australian Government policy to harmonise with international standards where possible, preferably by adopting the regulations of the United Nations Economic Commission for Europe (UNECE). From a consumer perspective, each system has advantages and disadvantages.

In terms of safety, the existing Australian child restraint system has proven over many decades to be effective in protecting children. The comparative effectiveness of ISOFIX child restraint systems depends on factors such as body region and crash type. Overall, research suggests that ISOFIX child restraint systems may offer a net safety benefit, although this is not guaranteed given relatively limited information on child impact kinematics and child dummy bio-fidelity. Furthermore, historic differences in child restraint use between Australia, Europe and the USA make it difficult to conduct useful field crash data comparisons between these regions.

UNECE Regulation 14 specifies strength, location, and geometry requirements for ISOFIX lower anchorages and ISOFIX top tether anchorages. ADR 5/05 could be amended to harmonise with UNECE R14 by mandating ISOFIX, and ADR 34/01 repealed.

However, there is a need to consider circumstances specific to Australia when determining the extent to which ADR 5/.. or ADR 34/.. can be harmonised with the ISOFIX top tether and lower anchorage requirements of UNECE R14. In particular, it is important that ADR requirements for child restraint anchorages are compatible with current AS/NZS 1754 requirements and state/territory in-service requirements, especially given that there are some significant differences between the top tether anchorage location requirements of UNECE R14 and ADR 34/01.

Number of top tether anchorages

A distinct disadvantage of simply replacing the existing Australian child restraint systems with ISOFIX restraint systems is that it would limit the number of child restraint positions available in vehicles. Typically vehicle geometry constraints dictate that ISOFIX lower anchorages are only able to be installed in 2 second row vehicle seating positions (i.e. outboard left and right positions). In line with this, UNECE R14 only requires passenger vehicles to have at least 2 ISOFIX top tether anchorages, one of which may be in the front. Under ADR 34/01, top tether anchorages are typically required for each second row seating position (exclusions apply for folding seats and seating positions where divisions are substantially on the seating reference plane).

There would also be backwards compatibility issues between old child restraints and new vehicles, as well as new child restraints and old vehicles. There would therefore be a need for existing Australian child restraints to continue to be available and it would be desirable for new vehicles to be able to accommodate as many of these restraints as possible.

In addition, the Australian Road Rules (model legislation) have recently been updated to increase the age up until which children must be restrained in an approved child restraint. These road rules have been or are in the process of being incorporated in the legislation of the individual states and territories. For example, the Australian Road Rules state that a child between 6 months and 4 years old must be restrained in an approved rearward facing or approved forward facing child restraint with an inbuilt harness. Both of these child restraint types require a top tether to be used, and hence a top tether anchorage in the vehicle.

The Australian Road Rules also state that a passenger under 4 years must not be in a front row seat of a vehicle that has 2 or more rows of seats. Therefore, to give road users the most opportunity to comply with these requirements, without diminishing vehicle choice, it is desirable for top tether anchorages to be fitted to as many 2nd and 3rd (if applicable) row seating positions as possible.

ADR 34/01 requires top tether anchorages to be provided in more non-front row seating positions than are mandatory under UNECE R14. This is important given Australian state/territory legal requirements for children under 4 years to be restrained in approved child restraints located in non-front row seating positions only. It is therefore proposed that the existing requirements of ADR 34/01 for top tether anchorages be retained.

Location of top tether anchorages

UNECE R14, FMVSS 225, and ADR 34/01 all define 3-dimensional zones in which a child restraint top tether anchorage can be located. The FMVSS 225 anchorage zone allows the child restraint top tether to be angled at up to 20 degrees either side of the seating reference plane. Under UNECE R14 this angle is allowed to be up to 45 degrees.

VSS has previously undertaken research investigating the impact of this tether angle on child restraint safety performance. Following analysis of these tests, it was decided for safety reasons that the maximum allowable tether angle should not be greater than 20 degrees. For this reason, in 2005 the ADR 34/01 top tether anchorage zone was aligned with the FMVSS 225 tether anchorage zone requirement. It is proposed that this top tether anchorage zone requirement be retained for all seating positions for which a top tether anchorage is installed.

UNECE R14 includes strength test requirements for ISOFIX lower anchorages and ISOFIX top tether anchorages. However, there is no top tether anchorage strength test method in UNECE R14 for seating positions where ISOFIX lower anchorages are not installed (i.e. seating positions for which the existing Australian child restraint installation

method could be used). ADR 34/01 includes a strength test requirement for all top tether anchorages. It is proposed that the ADR 34/01 top tether anchorage strength method be retained for seating positions where a top tether anchorage is installed, but there are no ISOFIX lower anchorages (e.g. a centre rear seating position). This would allow either ISOFIX test requirements, or the current test requirements for top tether anchorages where there are no ISOFIX lower anchorages.

It is therefore proposed that ADR 34/01 be updated to include requirements for ISOFIX lower anchorages in vehicles by harmonising with the UNECE R14 ISOFIX requirements where appropriate, but retaining existing ADR 34/01 requirements as needed to support the current Australian system. This would give a child restraint system that is able to accommodate the current child restraint design and/or an ISOFIX design. This would then allow the Australian Standard to be expanded to allow the ISOFIX child restraints in addition to existing child restraint systems and so give more consumer choice.

It is anticipated that in approximately two to three years from now, provisions allowing and prescribing requirements for ISOFIX child restraint systems will be incorporated in a revised version of AS/NZS 1754.