

ANCAP SUBMISSION

Addressing NTC Issues Paper on *Developing Technology-Neutral Road Rules for Driver Distraction*

February 2019

1. ANCAP and its role

The Australasian New Car Assessment Program (ANCAP Safety) is Australasia's independent vehicle safety authority.

ANCAP employs a non-regulatory approach, with its key focus to eliminate road trauma through independent assessment, market influence and consumer advocacy – empowering consumers with information to make safer vehicle choices; encouraging vehicle brands to improve their vehicle designs; and complementing regulation.

ANCAP safety ratings are published for a range of new passenger, sports utility (SUV) and light commercial vehicles (LCV) entering the Australian and New Zealand markets, using a rating system of 0 to 5 stars.

ANCAP star ratings indicate the level of safety a vehicle provides for occupants and pedestrians in the event of a crash, as well as its ability — through technology — to avoid or minimise the effects of a crash. These independent safety ratings are used to compare the relative safety between vehicles of similar size, and have become a critical factor in vehicle selection for private consumers and commercial fleet buyers and operators.

ANCAP's safety rating criteria influence vehicle design and specification, and ANCAP has a key role in educating the community about new and emerging vehicle technologies; promoting the benefits; and building confidence and demand.

ANCAP safety ratings are determined based on a series of internationally recognised, independent crash tests and safety assessments – involving a range of destructive physical crash tests, an assessment of on-board safety features and equipment, and performance testing of autonomous collision avoidance technologies. ANCAP continuously updates its safety rating criteria to influence and promote new and emerging vehicle safety features as well as target new aspects of vehicle safety.

ANCAP works in partnership with 23 member organisations including the Australian and New Zealand automobile clubs, the Australian Commonwealth, State and Territory governments, the New Zealand Government, the Victorian Transport Accident Commission, the Insurance Australia Group and the FIA Foundation.

“ANCAP influences vehicle design and plays a key role in educating the community about the benefits of new and emerging technologies.”

ANCAP acts as a key conduit between all Australian jurisdictions and the Commonwealth on policy development, promotion and issues relating to the safety of light passenger vehicles:

- ANCAP supports and will actively encourage the introduction of autonomous vehicle technology to assist the driver and improve road safety;
- ANCAP has a key role in educating consumers and building community confidence in autonomous technology;
- ANCAP supports consistent regulation concerning the introduction and use of vehicle technology;
- ANCAP is complementary to regulation and can assist in expediting market change, and
- ANCAP recommends that safety should remain a top priority in all discussions on autonomous technology and driverless vehicles.

2. Driver distraction

Driver distraction is recognised as a significant road safety issue with the potential to affect all road users. ANCAP supports this review targeting a technology-neutral approach to addressing driver distraction through the Australian Road Rules.

Factors contributing to a driver shifting their attention away from the driving task are many and varied, and in recognising that human drivers are fallible, modern vehicles are increasingly available with automated safety technologies which are designed to assist the driver and minimise the effects of driver error.

Autonomous emergency braking (AEB) is an example of current technology designed to reduce the effects of driver error, such as inattention. While these technologies are relatively new to the Australian light vehicle fleet, they are proving to be effective, and as technology improves in new model generations, the effects of driver distraction in new vehicles may be less severe in future years.

However, these technologies do not yet replace the driver and drivers must remain attentive and vigilant. The average age of the Australian light passenger vehicle fleet (10.1 years¹) also means that the majority of vehicles on our roads for many years to come will offer little in the way of advanced driver assistance systems.

In considering the way distraction affects driving performance and safety consequences, ANCAP agrees that defining the key functions of the driving task is appropriate. In noting the functions presented in the Issues Paper, ANCAP suggests that monitoring the status of the vehicle, such as the travelling speed or fuel levels, is a fundamental part of the driving task which typically requires the driver to momentarily shift their attention away from the environment ahead and onto the instrument cluster.

Many examples relating to driver distraction focus on the driver being visually distracted as this can be the most dangerous form, however distraction in a manual or cognitive sense are also clear forms of distraction identified in the Issues Paper.

ANCAP notes distraction in an auditory sense is also included in the proposed definition of driver distraction. ANCAP acknowledges that audible sounds can trigger a diversion of attention and it should be noted that audible signals are often used in modern vehicles to manage distraction by redirecting driver attention. Forward collision warning and lane departure warning are examples where an audible signal is issued by the vehicle to redirect the driver's attention to the driving task to avoid a potential collision or unintentional lane departure.

¹ Australian Bureau of Statistics (ABS); 9309 – Motor Vehicle Census, Australia, 31 January 2018; July 2018.

In these cases, sound warnings are used to redirect attention in visual and cognitive senses, rather than specifically in an auditory sense. It is also noted that auditory perception is not a prerequisite to driving a private vehicle.

As driver distraction can be triggered by a variety of mechanisms, there are benefits to implementing a performance-based approach to managing driver fatigue. A key benefit is the ability to clearly capture the intent of managing driver distraction, rather than managing specific instances of driver distraction. With technology linked to increasing driver distraction, a more technology-agnostic performance-based approach may be a suitable starting point, however with enforcement challenges, a balanced approach is likely to be necessary to ensure positive gains.

3. Technology and vehicle design

Personal use technology (such as smartphones, smartwatches and other devices) and in-vehicle technology are often associated with driver distraction, however, at the same time, vehicle technology can assist with managing driver distraction. Encouraging and influencing such technologies should be targeted.

The independent ANCAP safety rating program is an example of a successful non-regulatory mechanism for influencing vehicle design and specification, with ANCAP having a particularly significant influence over several years by expediting market change which complements regulation. As ANCAP has updated its rating program over time to encourage further improvements in vehicle safety, the majority of vehicle manufacturers have responded and repeatedly met these increasing criteria well ahead of mandatory regulation.

In 2018, ANCAP introduced performance testing of autonomous driver assist technologies to its safety rating program, with good levels of performance necessary to qualify for the maximum 5 star ANCAP safety rating. AEB systems are tested for their ability to detect and react to other vehicles as well as pedestrians and cyclists, while lane support systems are tested for their ability to recognise lane boundaries – marked or road edge - and prevent the vehicle from inadvertently crossing them.

As part of these assessments, human machine interface (HMI) considerations are included which influences the way drivers engage with the safety technologies fitted. The functionality of human machine interfaces should be optimised and encouraged to minimise complexity and limit the 'depth' of driver interactivity with in-vehicle systems. The example in the Issues Paper of the young driver fatally injuring a cyclist while attempting to pair their phone to the car audio system highlights that design and functionality can be improved.

Vehicle manufacturers have a significant amount of control over the design and complexity of in-vehicle operating systems and can implement features targeted at managing distraction. Head-up displays are an example technology where vehicle messaging and information can be projected onto the windscreen, directly in the driver's field of vision. Such systems can assist in managing distraction, however fitment is relatively low at present.

In future years, the emphasis on driver engagement is expected to increase with driver monitoring identified as an area for specific inclusion in the next generation of ANCAP assessment protocols.

In 2018, ANCAP supported VicRoads in a project examining how a rating system could be developed to assess the level of distraction from in-vehicle technologies with the potential for such a rating system to be incorporated into the ANCAP program to influence vehicle design and provide greater levels of consumer information. Research in this area continues, with VicRoads and the Australian Automobile Association (AAA) leading this work.

4. Future vehicle technology

Vehicle automation is a key focus for vehicle manufacturers, vehicle regulators, infrastructure providers, and consumers. At present, drivers cannot hand over the driving task entirely to a vehicle system, however, as technology develops and becomes more reliable, the general expectation is that more of the driving task can be performed by a system and, eventually, a human driver will not be required.

Automation Levels 2 and 3 are the most relevant at present and driver distraction needs to be considered for these systems. Level 3 systems - where drivers may pass control of the vehicle over to a system under certain driving environments - may present new challenges around maintaining appropriate levels of attention.

While vehicles operate at Level 3 automation, the human driver may not be required to specifically monitor the driving task however the human driver is required to be 'fallback-ready'. There may be cases of unexpected 'handover requests' from the vehicle system, where the driver is required to regain control of the vehicle at short notice. An example scenario may be a sudden weather event within which the automated driving system may not be designed to operate, and therefore the human driver must regain safe control of the vehicle.

The handover process of shifting control and responsibility from the system to a human may be influenced by international and national vehicle standards. However, the secondary activities that a human driver may engage in while a vehicle operates at Level 3 automation may be influenced by road rules.

Activities such as reading a newspaper or watching a movie on a tablet have the potential to hinder driver awareness and reaction to vehicle warnings or handover requests. If secondary tasks are permitted in Level 3 autonomous vehicles, it may be more appropriate that the human fallback-ready driver should only engage in secondary tasks which are integrated with in-vehicle systems.

Permitting the use of vehicle-integrated systems only would ensure that any vehicle warnings or information can override secondary activities and reduce the potential for delayed driver response. This would operate in similar fashion to in-flight announcements on aircraft.

5. Consumer confidence

Confidence in automated vehicle technology is a significant factor which will affect the timeframe that new technology is offered to market and its penetration rate. Safety and trust in the operation of automated systems are critical elements which will have significant impact on consumer confidence and uptake. Of concern to ANCAP are the limitations and subsequent gaps in consumer understanding of the operation and benefit of these technologies. Without an understanding of function and limitation, or the human (legal and ethical) responsibilities associated with their operation, there is a risk that road safety benefits will not be realised and that technology may be rejected.

ANCAP is working to build consumer confidence through its consumer messaging and stakeholder engagement activities, however incorporating greater education of new vehicle technology into the consumer buying process may assist in communicating driver responsibilities and specific information relating to road rules.

6. Additional considerations

ANCAP notes the Issues Paper targets driver distraction, however in addition to drivers, distraction also affects other road users such as pedestrians and cyclists with the potential effects equally or more severe.

"Permitting the use of vehicle-integrated systems only would ensure that vehicle warnings override secondary activities and reduce the potential for delayed driver response."

"This would operate in a similar fashion to in-flight announcements on aircraft."

Nationally, the number of pedestrians fatally injured on Australian roads has been gradually increasing², and with road rules already applicable to pedestrians and other road users, there may be a case to review road rules affecting the distraction of other road users. In-vehicle safety systems can assist both groups.

7. Recommendations

As personal use and vehicle technology develops, the potential sources for driver distraction are likely to increase and will need to be managed. ANCAP Safety supports a review of the Australian Road Rules relating to driver distraction.

ANCAP presents the following key points for consideration by the National Transport Commission:

- RECOMMENDATION 1.** A balance between performance-based and prescriptive approach to regulation should be targeted to ensure positive gains are made.
- RECOMMENDATION 2.** The ANCAP Safety rating program is utilised as a non-regulatory tool of influence - to introduce and assess new technologies and the way in which consumers interact with the technology.
- RECOMMENDATION 3.** As increasing levels of automation become widely available, targeting the responsibilities of drivers and permitted secondary activities is necessary.
- RECOMMENDATION 4.** Greater consumer education on in-vehicle technology and driver responsibilities is required.

² Bureau of Infrastructure, Transport and Regional Economics (BITRE) National Crash Database, 2018, https://bitre.gov.au/statistics/safety/fatal_road_crash_database.aspx