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Committee Secretary
Standing Committee on Infrastructure, Transport and Cities
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Dear Sir / Madam

The Australasian New Car Assessment Program (ANCAP Safety) welcomes the opportunity to provide a submission to the *Inquiry into the Current and Future Developments in the Use of Automation and New Energy Sources in Land-Based Mass Transit* by the Standing Committee on Infrastructure, Transport and Cities.

Please find ANCAP's submission below relating to the Terms of Reference presented by the Standing Committee.

Yours sincerely

James Goodwin
Chief Executive

7 December 2018

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Inquiry into the Current and Future Developments in the use of Automation and New Energy Sources in Land-Based Mass Transit

December 2018

1. ANCAP and its role

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

ANCAP's vision is to eliminate road trauma through the testing and promotion of safer vehicles. 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 and fleet buyers.

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 active collision avoidance technologies.

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 has a key role in educating consumers about new vehicle technology, promoting the benefits and building community confidence in new and emerging automated technologies.

- 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 Federal, state and territory governments, working with the automotive industry and other stakeholders to overcome regulatory concerns limiting the introduction or use of autonomous technology;
- ANCAP supports comprehensive on and off road trials of autonomous technology; and
- ANCAP recommends that safety should remain a top priority in all discussions on autonomous technology and driverless vehicles.

2. ANCAP testing of autonomous technology

ANCAP acknowledges the difficulty in speculating on the future operation, timing and usage of vehicles featuring high levels of automation. ANCAP's current focus with respect to autonomous technologies, is assessing and encouraging technologies which support the driver, rather than replace them. These technologies include autonomous emergency braking (AEB), traffic sign recognition and lane support systems. These technologies form the building blocks for future higher levels of automation.

In 2018, ANCAP introduced performance testing of these 'Level 2' autonomous technologies to its independent 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 edge of road - and prevent the vehicle from inadvertently crossing them.

In recent years, vehicle brands have responded to ANCAP encouragement and subsequent consumer demand for these technologies and their availability in the market has increased significantly. In August 2018, ANCAP published a 5 star safety rating for one of Australia's most popular-selling models, the Toyota Corolla, which features a range of autonomous technologies as standard equipment at an affordable price-point.

Figure 1 – The Toyota Corolla undergoing ANCAP AEB pedestrian testing

In considering future developments for automation of mass transit, there are a wide range of issues that should be considered, however many of the issues are also relevant to the technologies and vehicles available today.

3. Confidence

Confidence in automated 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 assist with this through its consumer messaging and stakeholder engagement activities.

4. Regulation and supporting infrastructure

Industry confidence can be influenced by consistency in regulation and infrastructure. Consistency, both nationally and internationally, should therefore be a priority to encourage the automotive industry to prioritise market availability of technology across markets and, at the same time, build consumer understanding, confidence and uptake of the technology. Without international consistency, there is a risk that Australian consumers may be disadvantaged through a reduced offering of technology, potentially due to barriers unique to Australia.

Infrastructure to support technology is an important factor in the uptake and rollout of autonomous vehicle technologies in Australia, as these systems rely on infrastructure to enable effective operation. Therefore, to support the rollout of autonomous technologies in Australia, infrastructure requirements must be understood and consistently applied across jurisdictions. Examples of current technologies which require infrastructure support for effective operation include traffic sign recognition systems, lane keeping systems and automated emergency calling (eCall) systems.

5. Mixed fleet

As technology develops, the environments in which vehicles can operate with some level of automation will expand, increasing in complexity. At present, technology in new vehicles allows low levels of automation in environments such as highway driving and heavy traffic where systems interact with other vehicles typically travelling in the same direction. Functionality in more complex environments, with crossing traffic and a variety of road users, is limited.

As increasing levels of automation become available in the market, additional assessment and effectiveness testing of technology will be introduced by ANCAP, however ANCAP will retain and continue to update the physical crash testing component of its ratings system. With the Australian vehicle fleet having an average age of 10.1 years[1] , vehicles featuring levels of autonomous technology will continue to mix with older vehicles with little or no automation for many years to come, and high levels of occupant crash protection must continue to be required for new vehicles.

In addition to older vehicles, interaction with other road users such as motorcyclists, bicyclists, pedestrians and heavy vehicles will increase. As part of ANCAP's 2018+ test program, the ability of vehicles to recognise and avoid collisions with pedestrians and cyclists is tested. Many new vehicle models do offer this functionality, however more complex scenarios, such as night time and intersection scenarios, are an additional challenge for current systems.

6. Alternative fuel and vehicle types

Parallel with autonomous technologies is the development and uptake of vehicles powered by alternative fuel types. These vehicles can be expected to operate in the same environments as conventional vehicles and be exposed to the same crash risks. Therefore, in acknowledging the increasing demand for alternative fuel type vehicles, regulators and vehicle manufacturers must ensure safety and physical crashworthiness remain a key consideration.

This applies to all vehicle types – passenger, light commercial and medium to heavy commercial vehicles – including alternative mobility options, such as quadricycles. Vehicle safety cannot not be compromised to achieve environmental, cost or mobility benefits.

[1] Australian Bureau of Statistics (July 2018), '9309.0 Motor Vehicle Census, Australia 31 January 2018' accessed at http://www.abs.gov.au/ausstats/abs@.nsf/mf/9309.0

RECOMMENDATIONS

As Australia prepares for increasing levels of automation in mass transit, there are a wide range of issues to consider, many of which also apply to vehicles currently available in Australia.

The Australasian New Car Assessment Program presents the following issues for consideration by the Standing Committee on Infrastructure, Transport and Cities:

A. Independent testing and validation of new vehicle technology;
B. Confidence in new technology for consumers and vehicle brands;
C. Regulation and infrastructure consistency;
D. Safety implications for a mixed fleet; and
E. Safety standards for alternative fuel and vehicle types.

ANCAP welcomes the Standing Committee's consideration of the above-mentioned aspects, and is available to discuss these in further detail as required.