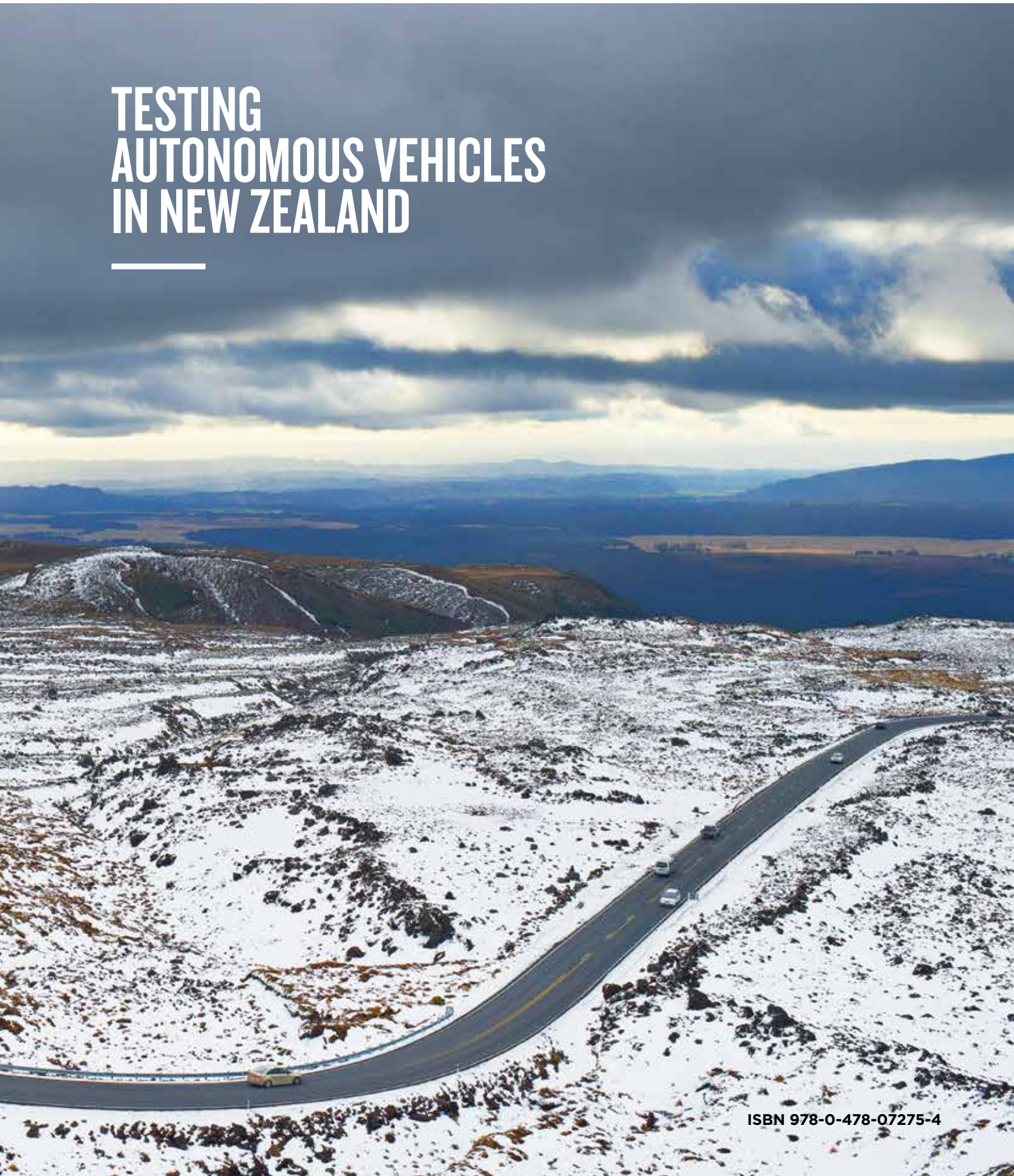


New Zealand Government



Ministry of **Transport**
TE MANATŪ WAKA

TESTING AUTONOMOUS VEHICLES IN NEW ZEALAND



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Testing Autonomous Vehicles in New Zealand



Increasing levels of automated vehicle technologies are already making a dramatic impact on the transport sector. The future possibilities could profoundly affect the way people and goods move about. Automated vehicle technology is now one of the most active fields of automotive research.

The term 'driverless vehicle' has been widely used in the popular press to describe autonomous vehicles. However the term does not acknowledge the distinction between full autonomy, where no human intervention is required and other approaches where human intervention may still be required. In this document, we have used the term 'autonomous vehicle' and 'semi-autonomous vehicle' to describe the different approaches, but other terms are also commonly used.

While some forms of automated vehicle technologies are already commercially available, many are still in the research and design phase and in need of significant real-world testing. For example, fully autonomous cars are currently being tested on the road in several countries.

The Government encourages the testing of semi and fully autonomous vehicles, as well as other Intelligent Transport Systems technologies in New Zealand in order to facilitate our early adoption of beneficial technology. The Government's [Intelligent Transport Systems Technology Action Plan 2014-18](#) recognises the potential improvements to safety and efficiency offered by emerging transport technologies such as autonomous vehicles. It sets out a programme of work to promote such technology and ensure that there are no obstacles to its continued deployment.

Why test autonomous vehicles in New Zealand?

New Zealanders are keen adopters of new technology. The Government hopes that supporting the testing of new technology such as autonomous vehicles in New Zealand will have benefits for the country and encourage rapid uptake once they are commercially available.

New Zealand is a great place to test all forms of technology. Among its advantages are:

- ▶ supportive legislation
- ▶ a wide range of climate and road conditions in a relatively small area
- ▶ the ability to test on public roads
- ▶ an advanced winter testing facility for vehicles – the Southern Hemisphere Proving Ground – which is already widely used by vehicle manufacturers for counter-seasonal testing
- ▶ world-class universities and research centres
- ▶ the appeal of the New Zealand lifestyle and culture to knowledge workers.

A particular advantage of testing autonomous vehicles in New Zealand is that our legislation does not explicitly require a vehicle to have a driver present for it to be used on the road. So long as any testing is carried out safely, a truly driverless vehicle may be tested on public roads today.

This document provides general information for anyone wishing to conduct testing of semi or fully autonomous vehicles on public roads in New Zealand.

Anyone considering testing any vehicle in New Zealand, but especially autonomous vehicles, should ensure they understand New Zealand transport and its legislation relevant to testing vehicles on public roads.

Following the recommendations in this document does not constitute a defence against applicable legal requirements.

Assistance for those wanting to test autonomous vehicles

The [NZ Transport Agency](#) is the regulator of land transport in New Zealand. Anyone considering testing autonomous vehicle technology in New Zealand, or who has questions about any aspect of testing, should contact the NZ Transport Agency.

In addition to helping ensure that any testing is safe and legal, the NZ Transport Agency will allocate a Customer Support Manager to provide assistance, and can offer an approved testing process.

More information about the NZ Transport Agency's approved testing process will be made available on its website shortly.

The NZ Transport Agency can be contacted by:

Phone: +64 4 894 5400

Email: avtesting@nzta.govt.nz

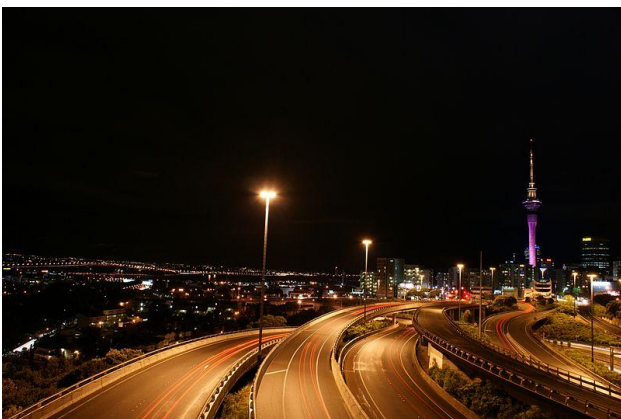
Address:

Victoria Arcade
50 Victoria Street
Private Bag 6995
Wellington 6141
New Zealand

Where can testing of autonomous vehicles occur?

Unlike some countries, New Zealand has not designated any specific areas as places for testing of autonomous vehicles. Potentially, testing can take place on any part of the road network.

Anyone testing an autonomous vehicle on public roads in New Zealand is accountable for ensuring the safety of participants and the public, and for ensuring that testing does not impede traffic or reduce the efficiency of the network.



General obligations for anyone wanting to test autonomous vehicles

New Zealand transport legislation does not have any specific requirements for the testing of autonomous vehicles. This document discusses existing powers and processes that govern all forms of testing on the road network.

As well as the specific requirements discussed further, there are several important general powers to help ensure the safety of all involved in testing vehicles on public roads. The NZ Police have broad powers to ensure safety under Section 113 of the Land Transport Act 1988¹.

This allows them to stop any activity that they perceive as unsafe, taking place on or near a public road, until it is established that the activity is deemed safe.

Section 7 of the Land Transport Act 1998 also contains several other important general provisions including:

Section 7(1) A person may not drive a motor vehicle, or cause a motor vehicle to be driven, recklessly.

Section 7(2) A person may not drive a motor vehicle, or cause a motor vehicle to be driven, at a speed or in a manner which, having regard to all the circumstances, is or might be dangerous to the public or to a person.

In addition to transport legislation, there are also obligations under the Health and Safety at Work Act 2015. This imposes duties on a person conducting a business or undertaking (PCBU) to ensure, so far as reasonably practicable, the health and safety of its workplace, of its workers while at work and others it directs or influences. A vehicle undergoing testing is regarded as a place of work and the duties of persons who control places of work apply. The information in this document does not serve as a measure of "reasonably practicable" with regard to minimising risk under health and safety legislation, but may assist someone in complying with its requirements.

Insurance

Anyone undertaking testing should hold appropriate levels of Public Liability and Professional Indemnity insurance to protect against the risks associated with testing.

New Zealand has a social insurance scheme that covers personal injury, administered by the Accident Compensation Corporation.



¹ Section 113(2)(d)

Testing and safety management plans

Real-world testing of vehicles with autonomous technologies in several countries has shown that it can be done safely. All testing should prioritise the safety of those involved and of other road users.

We recommend that a safety management plan is prepared and submitted to the NZ Transport Agency to demonstrate how safety will be ensured throughout the test programme. The NZ Transport Agency may ask for a demonstration of a test vehicle or of safety management actions.

A safety management plan should include the following:

- ▶ A description of the technologies being tested
- ▶ A description of testing already undertaken and test performance
- ▶ The testing plan, testing schedule and testing methodologies
- ▶ Safety management accountabilities, lines of responsibility, and fail-safes
- ▶ Risk and hazard identification, and planned management actions and treatments
- ▶ Completed and planned staff safety training and drills
- ▶ An incident register, and exception reporting methodologies

Engagement

The NZ Transport Agency can help to identify who else should be consulted. The NZ Transport Agency can also provide advice on whether a communications plan for engaging with the public would be appropriate. For example, it may be appropriate to provide advice for motorists on how to interact with vehicles being tested. Engagement is likely to depend on the nature of the testing.

Test vehicles

Vehicles used on public roads, including test vehicles, must meet the legal requirements set out in New Zealand's [land transport rules](#). Generally, vehicles will meet these requirements if they have been manufactured to the vehicle standards specified in Europe, Japan, the United States or Australia.

If a vehicle that met these requirements at the time of manufacture has subsequently been modified in a way that might affect safety, the modification may have to be inspected and certified as still meeting the requirements.

Exemptions from legal requirements may be provided for in certain situations, such as where requirements are clearly unreasonable or inappropriate in a particular case. Before an exemption can be granted, it must be established that non-compliance will not significantly increase the risk to safety. These exemptions are granted under Section 166 of the [Land Transport Act 1998](#).

Information about vehicle requirements is available on the NZ Transport Agency website. For further information and assistance with certifying vehicles for use on the road, please contact the NZ Transport Agency.

Before vehicles are tested on public roads, it is expected that test bench and track or closed road testing will have taken place, and any undesirable performance issues well documented and fully resolved. This approach should be applied to all modifications made to test vehicles, before or during a test phase.

If testing is for a highly automated vehicle in which the vehicle operator is able to substantially disengage from the driving task (e.g. from steering, accelerating or braking), the vehicle should provide adequate warning, such as visual and audible indicators, to allow the operator to re-engage in the driving task before any automated system becomes ineffective.

If testing is of a fully automated vehicle, in which no driver is present, there should be a means to immediately over-ride all automated systems and bring the vehicle to a controlled stop.

Test vehicle operators

Depending on a test vehicle's level of automation, a test vehicle operator may or may not be in the vehicle during testing. Where there is a driver, it is a requirement that the driver be unimpaired and hold an appropriate class and level of driver licence for the type of vehicle being tested. A passenger car requires a Class 1 licence, while Classes 2 through 5 apply to types of trucks. New Zealand operates a graduated driver licence system (learner, restricted, full).

The test vehicle operator is responsible for the safe operation of the vehicle at all times.

Equivalent overseas driver licences can be used for a period of 12 months. If testing extends beyond a 12 month period, then an overseas licence needs to be converted to a New Zealand driver licence. Information about [driver licensing](#) is available on the NZ Transport Agency website.

Control of software and data security

Particular attention should be paid to automated system control software to guard against the possibility of unintended system or vehicle operation. Revisions to software should be thoroughly documented and appropriately tested using simulation methods and private test areas before being used on the road.

Anyone undertaking testing is responsible for ensuring the security of the data used by automated systems. This means preventing unauthorised access, whether intentional or inadvertent, which could compromise the intended operation of control systems.

Feedback and further information

We would be grateful to receive a report summarising the findings of any vehicle testing carried out in New Zealand. For further information, please email us at technology@transport.govt.nz. A copy of these guidelines can be accessed at <http://bit.ly/avsinnz>



URLs

Accident Compensation Corporation

<http://www.acc.co.nz/>

Driver Licensing

<http://www.nzta.govt.nz/driver-licences/>

Health and Safety at Work Act 2015

<http://legislation.govt.nz/act/public/2015/0070/latest/DLM5976660.html>

Intelligent Transport Systems Technology Action Plan 2014-18

<http://www.transport.govt.nz/assets/Uploads/Our-Work/Documents/Intelligent-Transport-Systems-Technology-Action-plan-June-2014.pdf>

Land Transport rules

<http://www.nzta.govt.nz/resources/rules>

Land Transport Act 1988

<http://www.legislation.govt.nz/act/public/1998/0110/latest/DLM435099.html>

New Zealand Transport Agency

<http://www.nzta.govt.nz/contact-us>