



Code of Practice for Electromagnetic Compatibility (EMC) for heavy vehicles

TODAY'S TRUCKS



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This Code formalises agreements between the Australian Communications and Media Authority (ACMA) and the Truck Industry Council which includes compliance with Broadband and Narrowband electromagnetic emission requirements and Immunity of devices to electromagnetic interference.

Operators, suppliers and enforcement agencies must comply with the Australian Design Rules (ADRs), the Australian Vehicle Standards Regulations, the Roadworthiness Guidelines and any specific information and instructions provided by manufacturers in relation to vehicle's systems and components.

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Code of Practice development process

This Code of Practice, the Code, has been prepared under the direction of the Truck Industry Council (TIC) Board with input from the chief technical officers of each TIC member, reviewed by them and endorsed by TIC Board.

Document version control

Edition	Date	Nature of change / comments	Editors
First	January 2007	Initial release	Simon Humphries, TIC, Chief Technical Officer.
Second	April 2020	Expanded and reformatted	Mark Hammond, TIC, Chief Technical Officer.

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1) Introduction

The Truck Industry Council (TIC) is the peak industry association representing the importers and manufacturers of commercial vehicles in Australia. A full list of our member companies can be found in section 9 or on the [TIC website](#).

The Australian Communications and Media Authority (ACMA) has responsibility to achieve effective control over unintended electromagnetic interference through implementation of a system of compliance with relevant standards.

The ACMA framework regulations require that all electrical and electronic equipment comply with relevant emission.

In the preparation of this Code, meetings between the ACMA, FCAI and the TIC established that compliance with Electromagnetic Compatibility (EMC) requirements will be ensured through this TIC Code, which is binding to products manufactured or distributed by TIC member companies.

2) Background

The Australian Communications and Media Authority (ACMA) has responsibility to achieve effective control over unintended electromagnetic interference through implementation of a system of compliance with relevant standards. The Radiocommunications Act 1992, Section 182(1) provides that ACMA may, by legislative instrument, give notice requiring any person who manufactures or imports a device installed in a specified class of devices to apply a label to the device to indicate whether the device meets the requirements of the radiocommunications standards or the class license specified in the standard.

The objective of the electromagnetic compatibility (EMC) regulatory arrangements is to minimise the risk of unintentional electromagnetic interference from products which may affect the performance of other electrical products or disrupt radiocommunications services. The requirements are detailed in the:

- Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2017 (the EMC LN), and
- Radiocommunications (Electromagnetic Compatibility) Standard 2017 (the EMC Standard)

The EMC LN and the EMC Standard specify the maximum allowable level for unintended emissions of electromagnetic energy from electrical and electronic devices, vehicles and products with internal combustion engines. The EMC LN specifies, among other things, the form and placement of the compliance label, the compliance level, the applicable EMC testing and record keeping arrangements.

The EMC regulatory arrangements require that, prior to supplying a product to the Australian market, a supplier must:

- Assess applicability, i.e. establish whether the product is subject to the EMC regulatory arrangements.
- Identify the applicable EMC standards (from list registered on the ACMA website).
- Demonstrate compliance.
- Complete a Declaration of Conformity and maintain compliance records.
- Register on the national database.
- Apply a compliance label.

Further information is available on the ACMA website: [EMC regulatory arrangements](#).

3) Scope

This Code applies to all new N category road vehicles as defined in the Vehicle Standard (Australian Design Rule – Definitions and Vehicle Categories) 2005 provided by TIC members. In addition, the Code also applies to new non-road registered categories manufactured or distributed by TIC members.

4) Basic concepts

Compliance with the relevant standard(s) will be ensured in all cases via the self-regulatory process of adherence to the EMC Code. Audit and penalty provisions applicable to products complying with the ACMA Electromagnetic Compatibility Regulations are not applicable to products complying with the EMC Code.

The ACMA Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2017 does not apply to product covered by the EMC Code as full traceability of individual product compliance status is provided by reference to manufacturer name and series/serial/model numbers.

It is possible to extend compliance status to cover other vehicle types, either as variants to a model or as a superseding model provided, they meet one of the technical standards noted in section 5.1 below.

A complying vehicle may have additional or replacement electrical/electronic equipment fitted to it without requiring retest/confirmation of the vehicle provided this equipment also complies with the technical standards noted in section 5.1 below (for L, M and N group).

Optional 'generic' electronic equipment fitted to vehicles by the vehicle manufacturer (i.e. where substantially the same equipment e.g. mobile telephone or television etc could be fitted to any manufacturers vehicle) requires compliance with either the Code of Practice or a relevant standard from the EMC Standard.

TIC Member's will maintain records to demonstrate compliance with the chosen standard. The ACMA may, at its own decision, request companies to submit documents to this effect which may, for example, be in the form of approval certificates from UN-ECE test reports from specialist facilities and/or internal documents or reports from appropriate testing authorities confirming compliance to the relevant areas of the technical standards noted in section 5.1 below.

5) Technical requirements

Compliance with this Code requires that sufficient evaluations have been undertaken to ensure that performance of vehicles and/or electronic sub-assemblies (ESA's) satisfies the standards called up by the EMC Standard:

5.1) For N group vehicles:

- A) Meets the technical requirements of United Nations Economic Commission for Europe (UN-ECE) Regulation 10 excluding immunity, harmonics and flicker as detailed by ACMA. Issue of an approval certificate for UN-ECE R10 shall be taken as evidence of conformity without any additional assessment being necessary or equivalent sourced assurance of compliance, or
- B) CISPR¹ 12, Vehicles, boats and internal combustion engine driven devices, Radio disturbance characteristics, Limits and methods of measurement for the protection of receivers except those installed in the vehicle/boat/device itself or in adjacent vehicles/boats/devices, or
- C) CAN/CSA-CISPR 12-10 (R2018), Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers (Adopted IEC CISPR 12:2007 + A1:2009, edition 6.1, 2009-03, with Canadian deviations), or
- D) Alternative standards referenced by ACMA's mandated EMC standards listing.

5.2) TIC member companies shall maintain records sufficient to be able to confirm compliance in the event of a request from the ACMA.

6) Test facilities

Broadband emission measurements can be carried out at an open-air test site. Narrowband emissions measurement is difficult to carry out at an open-air test site due to interference by incoming RF noise, although some open-air facilities are operating in areas with low background RF noise. On the other hand, Immunity testing requires large anechoic chambers which could be used also for large size commercial vehicles. Furthermore,

¹ CISPR is the acronym of Committee International Special des Perturbations Radio, [or the International Special Committee for Radio Protection.

Immunity testing requires considerable additional equipment; e.g. high-power RF power amplifiers, etc.

It is desirable, although not essential that test reports associated with the declaration of conformity against the primary standards be issued by a test laboratory accredited for the relevant tests by the National Association of Testing Authorities (NATA) - for testing in Australia, or a test laboratory accredited for the relevant tests by a body that has a mutual recognition agreement with NATA - in the case of overseas laboratories. The laboratory may be 'In-house,' or that of a client or second party (supplier) or a third-party commercial test facility.

7) Implementation timing

This version of the TIC EMC Code applies 24 months after the issue date of this Code, noting that EMC LN was introduced 18 December 2017. Vehicles supplied by TIC Members prior to this date may comply with earlier versions of the EMC Code.

8) Definitions / Glossary of terms

The following references apply to this Code.

ADR Vehicle Categories

Is the categorisation of a vehicle as per the definitions contained in the 3rd Edition Australian Design Rules as issued pursuant to the Motor Vehicle Standards Act 1989.

L category - Two and Three Wheeled Vehicles

M category - Passenger Vehicles

N category - Goods Vehicles

ADR New Model Vehicle

A new model vehicle is one which has a Type Approval or Identification Plate Approval issued after the date specified in Clause 7, or in the case of a non-road registered or specific purpose vehicle is first offered for sale prior to the date specified in Clause 7

ADR Existing Model Vehicle

An existing model vehicle is one which has an identification plate approval issued prior to the date specified in clause 7, or in the case of a non-road registered vehicle, is on sale prior to the date specified in clause 7.

Road Vehicle

Has the same meaning as Section 6 of the Road Vehicle Standards Act 2018.

Terms

For the definitions of Broadband emissions, Narrowband emissions, Immunity, electrical/electronic sub-assemblies (ESA) and technical units refer to 2004/104/EC, 2005/83/EC or UN-ECE R10 as appropriate.

TIC Member

Means the organisation in Australia represented by TIC:

- Which manufacturers and/or assembles and/or imports vehicles, engines and components for distribution in Australia; or
- Which is the accredited representative in Australia of an overseas manufacturer, and which is responsible for the distribution of the overseas manufacturer's vehicles and engines in Australia and which has adopted this Code.

Refer to section 9 of this code for a listing of TIC members applicable at the time of publication.

Vehicle Category

Is the categorisation of a vehicle as per the definitions contained in the Vehicle Standard (Australian Design Rule – Definitions and Vehicle Categories) 2005.

9) List of TIC members

- Allison Transmissions Australia Pty Ltd
- Cummins South Pacific Pty Ltd
- Daimler Truck and Bus Australia Pty Ltd (Fuso, Mercedes-Benz & Freightliner Trucks)
- Eaton Pty Ltd
- Hino Motor Sales Australia Pty Ltd (Hino Trucks)
- Isuzu Australia Ltd (Isuzu Trucks)
- Iveco Trucks Australia Ltd (Iveco Trucks, Iveco Vans & International Trucks)
- Navistar AusPac Pty Ltd
- PACCAR Australia Pty Ltd (Kenworth & DAF Trucks)
- Penske Commercial Vehicles Australia Pty Ltd (Western Star, MAN & Dennis Eagle Trucks)
- Penske Power Systems Ltd
- Scania Australia Pty Ltd (Scania Trucks)
- Volvo Group Australia Pty Ltd (Volvo, Mack & UD Trucks)

The current member listing can be found on the TIC's website –

www.truck-industry-council.org