Review of electromagnetic compatibility (EMC) rules

Consultation paper

NOVEMBER 2023

Canberra

Red Building   
Benjamin Offices  
Chan Street   
Belconnen ACT

PO Box 78  
Belconnen ACT 2616

T +61 2 6219 5555  
F +61 2 6219 5353

Melbourne

Level 32   
Melbourne Central Tower  
360 Elizabeth Street   
Melbourne VIC

PO Box 13112  
Law Courts   
Melbourne VIC 8010

T +61 3 9963 6800  
F +61 3 9963 6899

Sydney

Level 5   
The Bay Centre  
65 Pirrama Road   
Pyrmont NSW

PO Box Q500  
Queen Victoria Building   
NSW 1230

T +61 2 9334 7700 or 1800 226 667  
F +61 2 9334 7799

Copyright notice

[Creative Commons logo](http://i.creativecommons.org/l/by/3.0/88x31.png)

<https://creativecommons.org/licenses/by/4.0/>

With the exception of coats of arms, logos, emblems, images, other third-party material or devices protected by a trademark, this content is made available under the terms of the Creative Commons Attribution 4.0 International (CC BY 4.0) licence.

We request attribution as © Commonwealth of Australia (Australian Communications and Media Authority) 2023.

All other rights are reserved.

The Australian Communications and Media Authority has undertaken reasonable enquiries to identify material owned by third parties and secure permission for its reproduction. Permission may need to be obtained from third parties to re-use their material.

Written enquiries may be sent to:

Manager, Editorial Services  
PO Box 13112  
Law Courts  
Melbourne VIC 8010  
Email: [info@acma.gov.au](mailto:info@acma.gov.au)

[Executive summary 1](#_Toc149912266)

[Background 2](#_Toc149912267)

[Recent changes 2](#_Toc149912268)

[Stage 3 – Proposed future changes 3](#_Toc149912269)

[Existing regulatory framework 3](#_Toc149912270)

[EMC standard 5](#_Toc149912271)

[EMC labelling notice 5](#_Toc149912272)

[Issues for comment 8](#_Toc149912273)

[Expanding the current list of recognised EMC harmonised standards 8](#_Toc149912274)

[Assessing whether current EMC arrangements effectively allow for advances in technology – particularly for vehicles (including   
electric vehicles) 9](#_Toc149912275)

[Ensuring our categorisation of devices appropriately reflects the harms associated with the risk of interference 13](#_Toc149912276)

[Invitation to comment 19](#_Toc149912277)

[Making a submission 19](#_Toc149912278)

[Appendix A: Proposal to recognise EMC standards under European Directive 2014/30/EU 20](#_Toc149912279)

[Appendix B: Comparison of Australian and New Zealand EMC device categories 25](#_Toc149912280)

# Executive summary

The ACMA is consulting on the effectiveness of its regulatory arrangements for the electromagnetic compatibility (EMC) of equipment under the [*Radiocommunications Act 1992*](https://www.legislation.gov.au/Series/C2004A04465) (the Act). We have identified areas for regulatory improvement, and we seek views on our proposed approach.

The ACMA regulates EMC to help contain the risk of:

interference to radiocommunications

interference to any uses or functions of equipment.

The EMC regulatory arrangements apply to an extensive range of equipment including, but not limited to:

products with internal combustion engines (such as chainsaws, motorcycles, cars, lawn mowers)

household appliances (refrigerators, dishwashers, microwave ovens)

electronic toys

lighting equipment

information technology equipment (personal computers, laptops, monitors, keyboards, printers, servers, hard drives, network equipment).

We are seeking views on our EMC regulatory arrangements to ensure they remain effective for both the current electromagnetic environment as well as being durable enough to accommodate anticipated future developments. We seek to balance the need to provide suppliers with flexibility in achieving compliance with relevant technical requirements, while minimising the risks of electromagnetic interference.

The paper identifies several potential areas of reform including:

expanding the current list of industry standards that may be used to demonstrate compliance

assessing whether the current arrangements effectively mitigate the potential risks associated with advances in vehicles including the proliferation of electric vehicles and their associated equipment

amending the current categorisation of low, medium and high-risk devices to ensure our regulation accurately reflects the degree of potential harm associated with particular devices.

Feedback from this process will inform our approach when we undertake further consultation next year on specific proposals to update the regulation by:

repealing the [Radiocommunications (Electromagnetic Compatibility) Standard 2017](https://www.legislation.gov.au/Details/F2018L00024) (the EMC standard) and [Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2017](https://www.legislation.gov.au/Details/F2021C01287) (the EMC labelling notice)

including new EMC regulation in the [Radiocommunications Equipment (General) Rules 2021](https://www.legislation.gov.au/Details/F2023C00236)(General Equipment Rules).

# Background

## Recent changes

The Act was amended in 2021 by the [Radiocommunications Legislation Amendment (Reform and Modernisation) Act 2020](https://www.legislation.gov.au/Series/C2020A00151) (the Modernisation Act).

The Modernisation Act introduced the power for the ACMA to make equipment rules under subsection 156(1) of the Act.

Items 42 and 44 of Schedule 4 to the Modernisation Act prescribe transitional arrangements to save the following EMC legislative instruments as if they had been made as equipment rules:

the EMC standard

the EMC labelling notice.

Subsection 156(3) of the Act specifies that the equipment rules must be directed towards achieving specified objectives, which may include, but are not limited to, the following EMC-related objectives:

ensuring the electromagnetic compatibility of equipment

containing interference to radiocommunications

containing interference to any uses or functions of equipment.

Section 158 of the Act also sets out that the equipment rules may prescribe standards for equipment, which may require equipment to have particular design features or to meet particular performance requirements.

Section 159 of the Act sets out that the equipment rules may impose obligations or prohibitions in relation to equipment. Section 160 provides that a person to whom a prohibition or obligation applies must comply with that prohibition or obligation, subject to the penalties set out in that section.

In May 2021, we made the General Equipment Rules under the Act. The General Equipment Rules commenced in June 2021.

Since making the General Equipment Rules, we have been undertaking a staged program to reform and modernise our radiocommunications equipment regulation. We envisage the General Equipment Rules will become a ‘one-stop shop’ for radiocommunications equipment regulation.

Staged program to reform and modernise radiocommunications equipment regulation.

|  |  |  |
| --- | --- | --- |
| **Project stage** | **Technical standard(s) and labelling notice(s) incorporated in the General Equipment Rules** | **Timeframe** |
| Stage 1 | Radiocommunications (Electromagnetic Radiation – Human Exposure) Standard 2014and Radiocommunications(Compliance Labelling – Electromagnetic Radiation) Notice 2014 | Completed in November 2021 |
| Stage 2 | 13 radiocommunications mandatory technical standards and the Radiocommunications (Compliance Labelling – Devices) Notice 2014 | Completed in February 2023 |
| Stage 3 | Consideration of the Radiocommunications (Electromagnetic Compatibility) Standard 2017 and Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2017 | Consultation to commence in Q4 2023 |

## Stage 3 – Proposed future changes

We are now at Stage 3 of the reform program and are reviewing the EMC standard and EMC labelling notice, and considering the incorporation of the relevant requirements into the General Equipment Rules. As part of this process, we want to ensure that the EMC regulatory arrangements are operating effectively and are commensurate with the potential harms.

## Existing regulatory framework

The ACMA’s EMC regulatory arrangements are currently set out in the Act, the General Equipment Rules, the EMC standard and the EMC labelling notice. Our EMC regulatory arrangements broadly capture any product – irrespective of its use or function or the purpose of its design – that is capable of a radio emission, whether or not the radio emission was intended.

Part 3 of the General Equipment Rules sets out prohibitions and obligations related to:

causing a radio emission to be made by a transmitter that does not comply with the EMC standard

possessing a device that does not comply with the EMC standard

supplying a device that does not comply with the EMC standard.

Section 8 of the Act defines ‘radio emission’ and ‘transmitter’ as follows:

8  Definitions of radio emission and transmitter

(1)  For the purposes of this Act, a ***radio emission*** is any emission of electromagnetic energy of frequencies less than 420 terahertz without continuous artificial guide, whether or not any person intended the emission to occur.

(2)  For the purposes of this Act, a ***transmitter*** is:

(a)  anything designed or intended for radio emission; or

(b)  any other thing, irrespective of its use or function or the purpose of its design, that is capable of radio emission.

The prohibitions in Part 3 of the General Equipment Rules do not apply if a person holds a relevant permit issued under the General Equipment Rules, if constitutional limitations apply, or if an exemption applies.

Part 5 of the General Equipment Rules sets out prohibitions and obligations related to non-compliance with labelling requirements, including the requirements of the EMC labelling notice. The prohibitions and obligations in Part 5 do not apply if a person holds a relevant permit issued under the General Equipment Rules, if constitutional limitations apply, or if an exemption applies.

Part 7 of the General Equipment Rules provides for the ACMA to issue a permit to a person, allowing them to do an act that is otherwise prohibited by the General Equipment Rules, or not to comply with an obligation that is otherwise required by the General Equipment Rules.

Part 8 of the General Equipment Rules provides exemptions to our EMC equipment regulation in relation to:

emergency transmission

possession or supply for use solely outside Australia

supply for modification so that the device complies with all applicable standards

supply for re-export

labelling rules for equipment imported from New Zealand.

The EMC regulatory arrangements also exempt:

devices listed in Schedule 2 to the EMC labelling notice from compliance with the EMC standard and the EMC labelling notice[[1]](#footnote-2)

suppliers who import devices from New Zealand that comply with New Zealand labelling legislation from EMC labelling and record keeping requirements.[[2]](#footnote-3)

Division 4 of Part 1.4 of the Act also provides for certain matters to which the Act does not apply, including in relation to:

foreign space objects, vessels and aircraft

defence research and intelligence

special defence undertakings

defence, law enforcement and emergency personnel

uses of devices by the ACMA.

## EMC standard

The EMC standard is the instrument made by the ACMA that prescribes the electromagnetic compatibility performance requirements for a device.

The EMC standard applies to a device manufactured in Australia, or imported into Australia, for supply, unless it is mentioned in Schedule 2 to the EMC labelling notice.[[3]](#footnote-4)

Section 10 of the EMC standard requires a device to comply with an ‘applicable industry standard’ as in force on the day the device was manufactured in Australia, or the day the device was imported into Australia.

The ‘applicable industry standard’ is determined with reference to the ‘list of standards’.[[4]](#footnote-5)

Subsection 6(2) of the EMC standard defines the ‘list of standards’ as follows:

(2)  The ***list of standards*** is the list, in existence from time to time, that comprises each document that meets the following criteria:

(a)  the title of the document is in a list published on the web address <http://www.acma.gov.au/standards/emc>;

(b)  the document consists of, or includes, requirements that are necessary or convenient for the following purposes:

(i)  containing interference to radiocommunications;

(ii)  containing interference to any uses or functions of devices; and

(c)  the document was created by:

(i)  Standards Australia;

(ii)  International Electrotechnical Commission;

(iii)  European Committee for Electrotechnical Standardization;

(iv) European Committee for Standardization;

(v) European Telecommunications Standards Institute; or

(vi)  another standards development organisation.

Subsection 8(1) sets out that suppliers are free to choose to comply with:

any of the applicable industry documents in Part 2 of the list of standards

if the device does not fall under Part 2 of the list of standards, one of the generic industry documents listed in Part 1 of the list of standards.

## EMC labelling notice

The EMC labelling notice applies to a device:

that is manufactured in Australia, or imported into Australia, for supply   
in Australia

to which the EMC standard applies.[[5]](#footnote-6)

The EMC labelling notice assigns devices to one of 3 compliance levels: low-risk device, medium-risk device and high-risk device.

**Low-risk device:** a device that is neither a medium-risk device or high-risk device.[[6]](#footnote-7) This includes a ‘battery-powered device’, which is a device not capable of being connected, directly or indirectly, to an external power supply.[[7]](#footnote-8)

**Medium-risk device:** a device that is not a high-risk device and contains one or more of the following:

switch mode power supply

transistor switching circuit

a microprocessor

a commutator

a slip-ring motor

an electronic device operating in a switching mode or a non-linear mode.[[8]](#footnote-9)

**High-risk device** means a device described as ‘Group 2 ISM equipment’ in AS/NZS CISPR 11:2011.[[9]](#footnote-10)

The compliance record keeping rules and labelling rules for devices are based on each device’s compliance level, as set out in Table 2. Under section 4.3 of the EMC labelling notice, suppliers are required to prepare a description of the device and meet the relevant compliance level for the device.

EMC compliance levels

|  |  |  |
| --- | --- | --- |
| Compliance level | Labelling | Requirements |
| **Low-risk device:** EMC compliance level 1[[10]](#footnote-11) | Voluntary[[11]](#footnote-12) | If no compliance label, then a supplier must:   * obtain a description of the device * register on the national database as a responsible supplier.   If the device has a compliance label, then a supplier must:   * obtain a description of the device * register on the national database as a responsible supplier * sign the Declaration of Conformity * provide explanatory documentation to minimise the possibility that the device is installed or operated incorrectly so it does not comply with the applicable standard (where applicable). |
| **Medium-risk device:** EMC compliance level 2[[12]](#footnote-13) | Mandatory | A supplier must:   * obtain a description of the device * obtain an EMC test report in relation to the applicable industry standard, or a technical construction file * register on the national database as a responsible supplier * complete and sign a Declaration of Conformity * provide explanatory documentation to minimise the possibility that the device is installed or operated incorrectly so it does not comply with the applicable standard (where applicable) |
| **High-risk device:** EMC compliance level 3[[13]](#footnote-14) | Mandatory | A supplier must:   * obtain a description of the device * obtain an accredited test report from an accredited testing laboratory in relation to the applicable industry standard, or a technical construction file * register on the national database as a responsible supplier * complete and sign a Declaration of Conformity * provide explanatory documentation to minimise the possibility that the device is installed or operated incorrectly so it does not comply with the applicable standard (where applicable) |

# Issues for comment

We welcome comments on issues relevant to EMC equipment regulation. We are particularly interested in views on the questions outlined below:

**Question 1.** We are proposing to expand the range of EMC standards that may be used by suppliers to demonstrate compliance. This is anticipated to reduce barriers to trade, compliance costs and time to market. Do you have any comments on the proposal to reference all the EMC harmonised standards for emission under Directive 2014/30/EU in the ACMA’s EMC regulatory arrangements?

**Question 2.** Modern vehicles are increasingly embedded with and reliant on advanced electronic and safety systems. Do you have any comments on whether the current EMC regulatory arrangements for managing EMC risks for vehicles, including electric vehicles, are effective?

* **Question 3.** Do you have any comments on the options to exclude specified low-powered inductive power transfer devices such as wireless chargers for phones, electronic wearables and electric toothbrushes from the definition of a high-risk device?

**Question 4.** Do you have any comments on our proposal to lower the compliance level of certain household devices? Are there any other devices that we have not identified, where we should consider lowering the compliance level due to their low risk of causing interference? If so, please specify the types of devices and why their compliance level should be changed, including any common characteristics that cause these devices to pose a low risk of interference.

**Question 5.** Do you have any comments on the categorisation of battery-powered devices as low-risk devices?

## Expanding the current list of recognised EMC harmonised standards

The ACMA’s list of EMC standards largely references international documents such as European (EN) and the Comité International Spécial des Pertubations Radioélectriques (CISPR) standards.

Most of the EN documents included in our list of standards are EMC harmonised standards[[14]](#footnote-15) under Directive 2014/30/EU (the European Directive). A notable difference is that the ACMA’s list of EMC standards does not include all of the EMC harmonised standards for emission.[[15]](#footnote-16)

We are considering whether to expand our current list of EMC standards to include all of the EMC harmonised standards for emission under the European Directive.

Under our current EMC regulatory arrangements, a device is expected to comply with:

a standard in Part 2 of the ACMA’s list of standards that is applicable to the device (if any)

one of the generic standards in Part 1 of the ACMA’s list of standards if there is no applicable standard in Part 2.[[16]](#footnote-17)

Therefore, a supplier who has tested their device against an EMC harmonised standard for emission that is currently not recognised would need to re-test their device against one of the standards in the ACMA’s list of standards, and ensure the device complies with that standard, to meet Australian requirements.

Our proposal to expand the arrangements to include all EMC harmonised standards for emission is intended to simplify the regulatory arrangements for suppliers and to provide the following benefits:

greater range of standards to use to show compliance

reduction in barriers to trade

reduction in compliance costs

reduction in time to market.

We are seeking views on our proposal to recognise all the EMC harmonised standards for emission under the European Directive.

[Appendix A](#_Appendix_A:_Proposal) provides a list of the EMC harmonised standards for emissions in the European Directive that are proposed to be recognised by the ACMA.

**Question 1**

Do you have any comments on our proposal to reference all the EMC harmonised standards for emission under Directive 2014/30/EU in the ACMA’s EMC regulatory arrangements as indicated in Appendix A?

## Assessing whether current EMC arrangements effectively allow for advances in technology – particularly for vehicles (including electric vehicles)

The EMC arrangements for vehicles have been identified as an area of interest, given recent technological advancements mean that many vehicles are increasingly embedded with radiocommunications transmitters, electronics and electrical systems such as sensors, radar, lidar, electronic control units, microprocessors and vehicle-to-everything (V2X) technology.[[17]](#footnote-18)

In Australia, the Federal Chamber of Automotive Industries (FCAI) is the peak industry association for suppliers of light vehicles including category L and M vehicles and some category N vehicles.

**Category L vehicles** cover a variety of vehicles including, but not limited to, motorcycles, mopeds, scooters, off-road, utility, all-terrain, personal watercraft and snowmobiles.[[18]](#footnote-19)

**Category M vehicles** are vehicles with at least 4 wheels used for the carriage of passengers and are the most common category of vehicles used by the Australian community, including cars, taxis, passenger vans, and buses.[[19]](#footnote-20)

**Category N vehicles** cover both light and heavy commercial vehicles used for the carriage of goods, such as vans and trucks.[[20]](#footnote-21)

According to the FCAI, its members make up around 99% of suppliers of light vehicles in Australia.

Clause 13 of Schedule 2 to the EMC labelling notice sets out the following exclusion for FCAI members:

 13  A vehicle or machine that:

(a)  is supplied by an organisation that is a member of:

…

(ii)  the FCAI;

… and

(b)  is compliant with all broadband and narrowband emission standards and requirements as specified in:

…

(ii)  if the organisation is a member of the FCAI – the FCAI code, ‘Voluntary Code of Practice for Electromagnetic Compatibility (EMC) of Motor Vehicles’[[21]](#footnote-22);

The effect of clause 13 of Schedule 2 to the EMC labelling notice is to exclude FCAI members from complying with the ACMA’s EMC regulatory arrangements if they comply with the FCAI code.[[22]](#footnote-23) The FCAI advises that all its members are expected to comply with the FCAI code.

Subclause 5.2 of the FCAI code allows suppliers of category L vehicles to choose to comply with either CISPR 12[[23]](#footnote-24) which only applies to emissions or UN ECE R10.[[24]](#footnote-25) UN ECE R10 is the United Nations Economic Commission for Europe’s ‘Regulation 10 – Uniform provisions concerning the Approval of Vehicles with regard to Electromagnetic Compatibility’*,* and includes immunity, emissions, harmonics and flicker requirements.[[25]](#footnote-26) Under the EMC regulatory arrangements, a supplier or manufacturer is only required to demonstrate compliance with the emission requirements specified in one of the applicable standards.[[26]](#footnote-27)

Subclause 5.1 of the FCAI code requires suppliers of all category M and N vehicles to fully comply with UN ECE R10, including the emission, immunity harmonics and flicker requirements. The FCAI code does not contemplate compliance with any other applicable standard for category M and N vehicles. This is a higher compliance threshold than the ACMA’s regulatory arrangements, which only apply in relation to the emission requirements of UN ECE R10, CISPR 12, AS/NZS CISPR 12[[27]](#footnote-28) and EN 55012.[[28]](#footnote-29)

If a supplier of a category L, M or N vehicle is not an FCAI member or their product does not comply with the FCAI code, then the EMC standard and EMC labelling notice will apply. In this case, the supplier may choose to comply with UN ECE R10 (excluding the provisions related to immunity, harmonics and flicker), CISPR 12, AS/NZS CISPR 12 or EN 55012.[[29]](#footnote-30)

Therefore, while the FCAI code requires full compliance with UN ECE R10, the ACMA’s EMC regulatory arrangements do not require a supplier to comply with the immunity, harmonics, and flicker provisions in UN ECE R10. We note that the majority of category M or N light vehicles supplied in Australia are likely to fully comply with UN ECE R10, as most suppliers are FCAI members. However, there is a question as to whether the current EMC regulations should be expanded to capture immunity for vehicles, making the Australian requirements the same as the FCAI requirements.

Vehicle compliance

|  |  |  |
| --- | --- | --- |
| **Vehicle type** | **ACMA** | **FCAI** |
| Category L | UN ECE R10 (no immunity)  CISPR 12 or AS/NZS CISPR 12 or EN 55012 | UN ECE R10 (with immunity)  CISPR 12 |
| Category M | UN ECE R10 (no immunity)  CISPR 12 or AS/NZS CISPR 12 or EN 55012 | UN ECE R10 (with immunity) |
| Category N | UN ECE R10 (no immunity)  CISPR 12 or AS/NZS CISPR 12 or EN 55012 | UN ECE R10 (with immunity) |

Under the EMC labelling notice and EMC standard, members of the Truck Industry Council (TIC), the Construction & Mining Equipment Industry Group (CMEIG) and the Tractor & Machinery Association of Australia (TMA) who comply with their codes of practice for EMC are exempt from the EMC labelling notice and EMC standard. In comparison to the FCAI code, the codes of practices for EMC by TIC, CMEIG and TMA correspond with the ACMA’s EMC regulatory arrangements by only requiring compliance with UN ECE R10 in relation to emissions.[[30]](#footnote-31) However, recent amendments to UN ECE R10 mean that it now applies to more categories of vehicles than it had previously which may mean over time that TIC, CMEIG and TMA also look to adopt UN ECE R10’s immunity requirements as part of their individual codes of practice.

While the UN ECE R10 is part of a global regulatory framework to harmonise vehicle regulation, not all countries are party to the agreement (for example, USA and Canada).[[31]](#footnote-32) Similar to Australia, New Zealand only mandates the emission requirements of UN ECE R10.[[32]](#footnote-33)

We could continue to mandate only the emission requirements in UN ECE R10, given current industry practice where the majority of light vehicle suppliers comply with immunity requirements as a result of their FCAI membership.

However, there may be benefits in the ACMA requiring compliance with both the emission and the immunity requirements of UN ECE R10 to harmonise our EMC arrangements with the global regulatory framework and the FCAI code. International harmonisation is consistent with Australia’s obligations as a member of the World Trade Organisation.[[33]](#footnote-34) As vehicles become more sophisticated, there is an increase in other UN regulations cross referencing UN ECE R10, which means that there is an increasing international expectation that vehicles comply with both the immunity and emission requirements of UN ECE R10.

### Electric vehicles

‘Electric vehicles’ generally refer to a subset of category M vehicles; i.e., 4-wheel cars used to carry passengers.[[34]](#footnote-35) The uptake of electric vehicles is growing in Australia[[35]](#footnote-36) with the demand being supported by the Australian Government’s National Electric Vehicle Strategy.[[36]](#footnote-37) While EMC is important for all vehicles, there is concern that electrical vehicles may generate higher levels of electromagnetic interference and may be particularly susceptible to electromagnetic disturbances.

The EMC regulatory arrangements currently set limits on the emissions from electric vehicles, thereby minimising the risk of interference caused by electric vehicles. However, as noted above, the EMC regulatory arrangements do not currently cover the vehicle’s immunity to electromagnetic disturbance. Therefore, the current EMC regulatory arrangements may not be sufficient to mitigate the risk of electromagnetic disturbances to electric vehicles.

We are interested in whether our current framework sufficiently covers the EMC risk to electric vehicles. We note that the majority of electric vehicles supplied in Australia are likely to fully comply with UN ECE R10, given 99% of suppliers are FCAI members and are therefore required to comply with the FCAI code.

### Electric vehicle charging stations

In addition to emission limits on electric vehicles, our EMC arrangements also limit the emission from their associated chargers. We note, however, that while our arrangements cover the emissions from individual chargers, there is currently no mechanism to manage the potential for cumulative emissions from multiple chargers in proximity to each other. This scenario may occur as the proliferation of charging equipment increases in response to the growth in electric vehicles.

We understand that there are studies being undertaken internationally on how to best mitigate this potential issue and will monitor the progress of these studies to assess whether there are any regulatory implications for Australia.[[37]](#footnote-38)

### Question 2

Do you have any comments on whether the ACMA’s current EMC regulatory arrangements for managing EMC risks for vehicles, including electric vehicles,   
are effective?

## Ensuring our categorisation of devices appropriately reflects the harms associated with the risk of interference

We are considering whether our current categorisation of devices properly reflects their risk of causing interference.

The compliance level of a device relates to its potential to cause interference to radiocommunications or to the use or function of another device. The EMC labelling notice prescribes 3 compliance levels and requires suppliers to label their devices depending on the applicable compliance level.[[38]](#footnote-39)

The ACMA’s device categories are defined by:

the type of device (e.g., Group 2 industrial, scientific, medical (ISM) equipment and battery-powered devices)

the components in a device.

Internationally, the ACMA’s device categories are closely aligned with New Zealand’s EMC regulatory arrangements.[[39]](#footnote-40) A comparison of Australian and New Zealand device categories is provided in [Appendix B](#_Appendix_B:_Comparison).

In contrast, in the USA the Federal Communications Commission (FCC) sets out the compliance requirements (known as ‘equipment authorisation’) based on whether a device is an intentional, unintentional or incidental radiator.[[40]](#footnote-41) The FCC sub-categorises unintentional radiators by the type of device and provides different compliance authorisation requirements depending on the type of device.[[41]](#footnote-42)

In Europe, equipment is categorised as ‘apparatus’ or ‘fixed installation’.[[42]](#footnote-43) Fixed installation is exempt from the compliance requirements for labelling (CE marking), making a Declaration of Conformity or for formal EMC assessment. The compliance requirements (known as ‘conformity assessment procedures’) for apparatuses are determined based on whether a harmonised standard applies fully, partly or does not apply to the apparatus.

While methods for device categorisation vary between countries, there are common concepts that can be observed:

Different compliance requirements need to be set for devices to address the different risks of electromagnetic interference. Generally, the higher the risk, the higher the compliance requirements.

Exemptions to compliance requirements for certain types of devices may   
be granted.

### History of ACMA’s current approach

For over 20 years the ACMA (and our predecessor, the Australian Communications Authority) has categorised devices as: low-risk, medium-risk and high-risk.

Our approach to defining the device categories has changed over time. Prior to November 2009, the ACMA’s approach was to define low-risk device and high-risk device, and all other devices were a medium-risk device.[[43]](#footnote-44) In practice, this meant that the majority of devices (approximately 80%) fell within the medium-risk category and most suppliers were required to test, label and keep compliance records.

In November 2008, the ACMA’s technical working group, which included industry participants, met to consider issues relating to the operation and application of the Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2008 (EMC Labelling Notice 2008). As a result of the meeting, the following changes to EMC Labelling Notice 2008 were proposed:

**Low-risk devices**would be those devices that were not medium-risk or high-risk devices, and would include all devices that were **battery-powered devices** (and could not connect to the electrical mains supply, either directly   
or indirectly).

**Medium-risk devices** would be those devices that were not battery-powered devices and contained switch mode power supplies, transistor switching circuits, microprocessors, commutator or slip-ring motors, or electronic devices operating in a switching or non-linear mode.

**High-risk devices** would remain those devices defined as Group 2 Industrial, Scientific and Medical (ISM) equipment in AS/NZS CISPR 11:2004.[[44]](#footnote-45)

In November 2009, we amended the EMC Labelling Notice 2008 to revise our approach as per the proposed changes.[[45]](#footnote-46) At the time, the ACMA expected the changes to relax the administrative burden (i.e., labelling and record-keeping) on equipment suppliers as the default category for EMC devices would be low-risk.[[46]](#footnote-47)

Defining battery-powered devices as low-risk devices also had the effect of providing suppliers with a choice as to whether to label the device and make a Declaration of Conformity. This approach further aligned Australia’s EMC regulatory arrangements with the New Zealand EMC regulations, consistent with our obligations under the Trans-Tasman Mutual Recognition Agreement (TTMRA).

We continue to define device categories in the current EMC labelling notice using the approach proposed in the 2008 technical work group meeting.[[47]](#footnote-48)

### Review of device categories

We have reviewed our current EMC device categories of high-risk device, medium-risk device, low-risk device and battery-powered device and identified areas of potential improvement to better align device categorisation with the risks associated with the respective categories.

#### High-risk device

A high-risk device covers Group 2 ISM equipment as defined in AS/NZS CISPR 11:2011 (CISPR 11). This has the effect of requiring suppliers of Group 2 ISM equipment to obtain accredited test reports to demonstrate compliance with the applicable EMC standard.[[48]](#footnote-49)

Group 2 ISM equipment contains all ISM RF equipment in which radio-frequency energy is intentionally generated and used in the form of electromagnetic radiation, inductive and/or capacitive coupling, for the treatment of material, for inspection/analysis purposes, or for the transfer of electromagnetic energy.

Examples of Group 2 ISM equipment include microwave-powered UV irradiating apparatuses, industrial induction heating equipment operating at frequencies above   
9 kHz, microwave ovens, medical electrical equipment, electric welding equipment and inductive power transfer/charging equipment.

Inductive power transfer is now widely used in range of devices such as wireless chargers for phones, electronic wearables and electric toothbrushes, induction cooktops, implantable medical devices, electric vehicles and electric vehicle (EV) charging stations.

Typically, inductive power transfer devices would be scoped under Group 2 ISM equipment and therefore fall under the category of a high-risk device. We are concerned that certain low-powered inductive power transfer devices do not carry a high risk of interference, and are therefore inappropriately scoped as a high-risk device. For example, wireless chargers for phones, electronic wearables and electric toothbrushes are unlikely to pose a high risk of interference due to their low power.

We consider there are 2 options for potentially narrowing the scope of a high-risk device to ensure low-powered inductive power transfer devices are not included in the definition of a high-risk device.

Firstly, this could be done by proposing to adopt the latest version of AS CISPR 11 when the relevant EMC requirements are incorporated into the General Equipment Rules. The latest version of AS CISPR 11 includes a note that allows devices which are captured by another applicable EMC industry standard to be excluded from the Group 2 ISM equipment and therefore would not be considered as high-risk devices.

Alternatively, we could specifically exclude low-powered inductive power transfer devices from the definition of high-risk device in our EMC regulation. This may be beneficial as it provides greater clarity to suppliers who have an interest in how our EMC regulatory arrangements apply to these kinds of devices.

We consider one or both of the options to exclude low-powered inductive power transfer devices is necessary, as improvements in technology mean that these devices should no longer be considered high-risk devices of the sort which the Group 2 ISM equipment definition was directed at capturing (i.e., high-powered industrial applications). By excluding low-powered inductive power transfer devices from the high-risk device category, they are likely to be classified as a medium-risk device. This will reduce compliance costs for suppliers as while they will still have to provide a test report for compliance, it will no longer need to be an accredited test report.

### Question 3

Do you have any comments on the options to exclude specified low-powered inductive power transfer devices such as wireless chargers for phones, electronic wearables and electric toothbrushes from the definition of a high-risk device?

### *Medium-risk device*

A medium-risk device is defined by whether it contains one or more of the following components (provided it is not captured by the definitions of a high-risk device or battery-powered device):

a switch mode power supply

a transistor switching circuit

a microprocessor

a commutator

a slip-ring motor

an electronic device operating in a switching mode or a non-linear mode.[[49]](#footnote-50)

During the 2008 ACMA technical working group meeting, the majority of participants agreed that devices containing any of the above minimum components should be categorised as medium-risk.

We have considered whether the definition of medium-risk device accurately reflects the risk of interference of devices associated with this category, specifically noting technological developments over the last 15 years. For example, the majority of devices now contain microprocessors to increase their efficiency and effectiveness. In practice, this means more devices are now categorised as medium-risk because they include a microprocessor, although this may not appropriately reflect the device’s risk of electromagnetic interference.

We note that it would seem unlikely that a household toaster would pose the same risk of electromagnetic interference as a motor vehicle, although both fall under the medium-risk device category as they contain microprocessors. We also note that the potential spread of interference between a household toaster and motor vehicle is likely to be different, given the toaster is expected to be placed in a stationary position in a kitchen, while a motor vehicle is mobile.

We are considering amending the definition of a medium-risk device to better reflect the risk of electromagnetic interference associated with certain devices categorised by this compliance level. The amendment will exclude certain types of devices; similar to the exclusion of battery-powered devices that currently exists.

In particular, we are considering whether common household devices, such as toasters, vacuum cleaners, kettles, etc, could be excluded from the definition of a medium-risk device, because they pose a low risk of interference.

In the USA, the FCC has exempted specified devices from its equipment authorisation procedures;[[50]](#footnote-51) such devices are exempt from demonstrating compliance with EMC requirements.[[51]](#footnote-52) However, if an exempt device causes interference, the operator must cease operation upon notification from the FCC.

We note that the FCC’s exempted devices include household devices that are designed to heat, cool or move something by converting electrical energy into heat or motion. Examples of these devices include vacuum cleaners, kettles, toasters, air conditioners and clothes dryers. The devices are intended to be used exclusively in a household environment for basic housekeeping.

We are seeking views on our proposal to lower the compliance level for common household devices.

If we lower the compliance level for some medium-risk devices to that of a low-risk device, the devices would still be required to comply with an applicable EMC industry standard. However, compliance labelling would be voluntary and the supplier’s administrative burden would be reduced.

We note that if the devices contain radiocommunications transmitters such as Bluetooth or Wi-Fi modules, or have telecommunications capabilities, then the devices would need to comply with the ACMA’s respective electromagnetic energy (EME), radiocommunications and telecommunications regulatory arrangements, to the relevant compliance level.

Additionally, devices may need to comply with any applicable electrical safety rules and compliance labelling arrangements under the Electrical Equipment Safety System (EESS), which is separate to our regulatory arrangements.

### Question 4

Do you have any comments on our proposal to lower the compliance level of certain household devices from medium-risk to low-risk? Are there any other devices that we have not identified, where we should consider lowering the compliance level due to their low risk of causing interference? If so, please specify the types of devices and why their compliance level should be changed, including any common characteristics that cause these devices to pose a low risk of interference.

#### Low-risk device and battery-powered device

A low-risk device captures all devices that are not a medium-risk device or a high-risk device, including a battery-powered device.[[52]](#footnote-53)

A battery-powered device is a device not capable of being connected, directly or indirectly, to an external power supply.[[53]](#footnote-54)

Devices with removable batteries, including rechargeable batteries that are recharged using an external battery charger, would fall under the definition of a battery-powered device and therefore be considered a low-risk device. For example, this includes cordless lawn mowers where the rechargeable battery is removed from the lawn mower during charging and the lawn mower is not directly connected to an external power supply.

Devices that can be charged by connecting directly or indirectly to an external power supply such as a laptop charged by AC adapter or phone via a wireless charger would not be included in the definition of a battery-powered device.

Battery-powered devices are categorised as low-risk devices, as they are only capable of operating for the duration of the battery life. The effect is to allow the supplier to choose whether or not to apply a label on the battery-powered device.

However, the risk of electromagnetic interference from battery-powered devices may now vary significantly, depending on the battery technology.

Advances in battery technologies have resulted in the use of new elements beyond the traditional lead-acid and nickel-cadmium batteries and use of a greater array of batteries. Modern batteries include lithium-ion batteries and solar-powered batteries, while emerging technologies such as solid-state batteries and lithium-sulphur   
batteries are being developed to power electric vehicles, aircraft, trains, phones   
and electronic devices.

A toy car powered by AA batteries (which would typically be alkaline or nickel-cadmium batteries) is likely to pose a low-risk of interference. On the other hand, the risk of electromagnetic interference may be higher if a modern battery is used to operate a high-powered device.

Subsection 1.8(2) of the EMC labelling notice prescribes that a battery-powered device is not a medium-risk device unless we have declared the device to be a medium-risk device under subsection (3). A battery-powered device is currently defined as a device that is not capable of being connected, directly or indirectly, to an external power supply. It is our understanding that the classification of battery-powered devices as low risk is still sought by industry and continues to be an effective mechanism to reflect the risk profile of certain battery-powered devices. However, we are concerned with the proliferation of battery-powered equipment and are considering whether the current wording excluding battery-powered devices from the definition of a medium-risk device is too broad.

We are seeking views on whether the current categorisationof battery-powered devices as low-risk devices remains appropriate. We consider that some battery-powered devices may carry an increased risk of interference, and therefore may be more appropriately classified as medium or high-risk devices. We note that any change to the classification of battery-powered devices may introduce a point of difference between Australia and New Zealand in relation to these devices.

### Question 5

Do you have any comments on the categorisation of battery-powered devices as   
low-risk devices?

# Invitation to comment

## Making a submission

We invite comments on the issues set out in this consultation paper.

[Online submissions](https://www.acma.gov.au/have-your-say) can be made by uploading a document. Submissions in PDF, Microsoft Word or Rich Text Format are preferred.

Submissions by post can be sent to:

The Manager

Infrastructure and Equipment Safeguards Section

Australian Communications and Media Authority

PO Box 13112 Law Courts

Melbourne Victoria 8010

The closing date for submissions is **COB,** **Wednesday 20 December 2023**.

Consultation enquiries can be emailed to [techreg@acma.gov.au](mailto:techreg@acma.gov.au).

#### Publication of submissions

We publish submissions on our website, including personal information (such as names and contact details), except for information that you have claimed (and we have accepted) is confidential.

Confidential information will not be published or otherwise released unless required or authorised by law.

#### Privacy

View information about our policy on the [publication of submissions](https://www.acma.gov.au/publication-submissions), including collection of personal information during consultation and how we handle that information.

Information on the *Privacy Act 1988,* how to access or correct personal information, how to make a privacy complaint and how we will deal with any complaints, is available in our [privacy policy](https://www.acma.gov.au/privacy-policy).

# Appendix A: Proposal to recognise EMC standards under European Directive 2014/30/EU

**Currently recognised by ACMA**

**Proposal to recognise**

|  |  |  |
| --- | --- | --- |
| 1 | EN 617 | Continuous handling equipment and systems -Safety and EMC requirements for the equipment for the storage of bulk materials in silos, bunkers, bins and hoppers |
| 2 | EN 618 | Continuous handling equipment and systems -Safety and EMC requirements for equipment for mechanical handling of bulk materials except fixed belt conveyors |
| 3 | EN 620 | Continuous handling equipment and systems - Safety and EMC requirements for fixed belt conveyors for bulk materials |
| 4 | EN 1155 | Building hardware - Electrically powered hold-open devices for swing doors - Requirements and test methods |
| 5 | EN 12015 | Electromagnetic compatibility – Product family standard for lifts, escalators and moving walks - Emission |
| 6 | EN 12895 | Industrial trucks – Electromagnetic compatibility |
| 7 | EN 13241-1 | Industrial, commercial and garage doors and gates - Product standard - Part 1: Products without fire resistance or smoke control characteristics |
| 8 | EN ISO 13766-1 | Earth-moving and building construction machinery - Electromagnetic compatibility (EMC) of machines with internal electrical power supply - Part 1: General EMC requirements under typical electromagnetic environmental conditions (ISO 13766-1:2018) |
| 9 | EN 14010 | Safety of machinery - Equipment for power driven parking of motor vehicles - Safety and EMC requirements for design, manufacturing, erection and commissioning stages |
| 10 | EN ISO 14982 | Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria (ISO 14982:1998) |
| 11 | EN 16361 | Power operated pedestrian doors – Product standard, performance characteristics - Pedestrian doorsets, other than swing type, initially designed for installation with power operation |
| 12 | EN 50065-1 | Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 1: General requirements, frequency bands and electromagnetic disturbances |
| 13 | EN 50083-2 | Cable networks for television signals, sound signals and interactive services - Part 2: Electromagnetic compatibility for equipment |
| 14 | EN 50121-1 | Railway applications – Electromagnetic compatibility - Part 1: General |
| 15 | EN 50121-2 | Railway applications – Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world |
| 16 | EN 50121-3-1 | Railway applications – Electromagnetic compatibility - Part 3-1: Rolling stock – Train and complete vehicle |
| 17 | EN 50121-3-2 | Railway applications – Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus |
| 18 | EN 50121-4 | Railway applications – Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus |
| 19 | EN 50121-5 | Railway applications – Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus |
| 20 | EN 50148 | Electronic taximeters |
| 21 | EN 50270 | Electromagnetic compatibility – Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen |
| 22 | EN 50293 | Road traffic signal systems – Electromagnetic compatibility |
| 23 | EN 50370-1 | Electromagnetic compatibility (EMC) -Product family standard for machine tools - Part 1: Emission |
| 24 | EN 50428 | Switches for household and similar fixed electrical installations - Collateral standard - Switches and related accessories for use in home and building electronic systems (HBES) |
| 25 | EN 50470-1 | Electricity metering equipment (a.c.) - Part 1: General requirements, tests and test conditions - Metering equipment (class indexes A, B and C) |
| 26 | EN 50490 | Electrical installations for lighting and beaconing of aerodromes – Technical requirements for aeronautical ground lighting control and monitoring systems - Units for selective switching and monitoring of individual lamps |
| 27 | EN 50491-5-1 | General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-1: EMC requirements, conditions and test set-up |
| 28 | EN 50491-5-2 | General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light industry environment |
| 29 | EN 50491-5-3 | General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-3: EMC requirements for HBES/BACS used in industry environment |
| 30 | EN 50498 | Electromagnetic compatibility (EMC) - Product family standard for aftermarket electronic equipment in vehicles |
| 31 | EN 50512 | Electrical installations for lighting and beaconing of aerodromes - Advanced Visual Docking Guidance Systems (A-VDGS) |
| 32 | EN 50529-1 | EMC Network Standard - Part 1: Wire-line telecommunications networks using telephone wires |
| 33 | EN 50529-2 | EMC Network Standard - Part 2: Wire-line telecommunications networks using coaxial cables |
| 34 | EN 50550 | Power frequency overvoltage protective device for household and similar applications (POP) |
| 35 | EN 50557 | Requirements for automatic reclosing devices (ARDs) for circuit breakers-RCBOs-RCCBs for household and similar uses |
| 36 | EN 50561-1 | Power line communication apparatus used in low-voltage installations - Radio disturbance characteristics - Limits and methods of measurement - Part 1: Apparatus for in-home use |
| 37 | EN 55011 | Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement |
| 38 | EN 55012 | Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers |
| 39 | EN 55014-1 | Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission |
| 40 | EN IEC 55015 | Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment |
| 41 | EN 55032 | Electromagnetic compatibility of multimedia equipment - Emission requirements |
| 42 | EN 55103-1 | Electromagnetic compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 1: Emissions |
| 43 | EN 60034-1 | Rotating electrical machines - Part 1: Rating and performance |
| 44 | EN 60204-31 | Safety of machinery - Electrical equipment of machines - Part 31: Particular safety and EMC requirements for sewing machines, units and systems |
| 45 | EN 60255-26 | Measuring relays and protection equipment - Part 26: Electromagnetic compatibility requirements |
| 46 | EN 60669-2-1 | Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic switches |
| 47 | EN 60730-1 | Automatic electrical controls for household and similar use - Part 1: General requirements |
| 48 | EN 60730-2-5 | Automatic electrical controls for household and similar use - Part 2-5: Particular requirements for automatic electrical burner control systems |
| 49 | EN 60730-2-6 | Automatic electrical controls for household and similar use - Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements |
| 50 | EN 60730-2-7 | Automatic electrical controls for household and similar use - Part 2-7: Particular requirements for timers and time switches |
| 51 | EN 60730-2-8 | Automatic electrical controls for household and similar use - Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements |
| 52 | EN 60730-2-9 | Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls |
| 53 | EN 60730-2-14 | Automatic electrical controls for household and similar use - Part 2-14: Particular requirements for electric actuators |
| 54 | EN 60730-2-15 | Automatic electrical controls for household and similar use - Part 2-15: Particular requirements for automatic electrical air flow, water flow and water level sensing controls |
| 55 | EN 60870-2-1 | Telecontrol equipment and systems - Part 2: Operating conditions - Section 1: Power supply and electromagnetic compatibility |
| 56 | EN 60945 | Maritime navigation and radiocommunication equipment and systems – General requirements - Methods of testing and required test results |
| 57 | EN 60947-1 | Low-voltage switchgear and controlgear - Part 1: General rules |
| 58 | EN 60947-2 | Low-voltage switchgear and controlgear - Part 2: Circuit-breakers |
| 59 | EN IEC 60947-3 | Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch disconnectors and fuse-combination units |
| 60 | EN 60947-4-1 | Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motorstarters |
| 61 | EN IEC 60947-4-1 | Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motorstarters |
| 62 | EN 60947-4-2 | Low-voltage switchgear and controlgear - Part 4-2: Contactors and motor-starters – AC semiconductor motor controllers and starters |
| 63 | EN 60947-4-3 | Low-voltage switchgear and controlgear - Part 4-3: Contactors and motor-starters – AC semiconductor controllers and contactors for non-motor loads |
| 64 | EN 60947-5-1 | Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices |
| 65 | EN 60947-5-2 | Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches |
| 66 | EN 60947-5-3 | Low-voltage switchgear and controlgear - Part 5-3: Control circuit devices and switching elements - Requirements for proximity devices with defined behaviour under fault conditions (PDF) |
| 67 | EN 60947-5-6 | Low-voltage switchgear and controlgear - Part 5-6: Control circuit devices and switching elements - DC interface for proximity sensors and switching amplifiers (NAMUR) |
| 68 | EN 60947-5-7 | Low-voltage switchgear and controlgear - Part 5-7: Control circuit devices and switching elements - Requirements for proximity devices with analogue output |
| 69 | EN 60947-5-9 | Low-voltage switchgear and controlgear - Part 5-9: Control circuit devices and switching elements - Flow rate switches |
| 70 | EN 60947-6-1 | Low-voltage switchgear and controlgear - Part 6-1: Multiple function equipment - Transfer switching equipment |
| 71 | EN 60947-6-2 | Low-voltage switchgear and controlgear - Part 6-2: Multiple function equipment - Control and protective switching devices (or equipment) (CPS) |
| 72 | EN 60947-8 | Low-voltage switchgear and controlgear -Part 8: Control units for built-in thermal  protection (PTC) for rotating electrical machine |
| 73 | EN IEC 60947-9-1 | Low-voltage switchgear and controlgear - Part 9-1: Active arc-fault mitigation systems - Arc quenching devices |
| 74 | EN 60974-10 | Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements |
| 75 | EN 61000-6-3 | Electromagnetic compatibility (EMC) – Part 6-3: Generic standards - Emission standard for residential, commercial and light industrial environments |
| 76 | EN 61000-6-4 | Electromagnetic compatibility (EMC) – Part 6-4: Generic standards - Emission standard for industrial environments |
| 77 | EN 61008-1 | Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) - Part 1: General rules |
| 78 | EN 61009-1 | Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules |
| 79 | EN IEC 61058-1 | Switches for appliances - Part 1: General requirements |
| 80 | EN 61131-2 | Programmable controllers - Part 2: Equipment requirements and tests |
| 81 | EN 61204-3 | Low voltage power supplies, d.c. output – Part 3: Electromagnetic compatibility (EMC) |
| 82 | EN 61326-1 | Electrical equipment for measurement, control and laboratory use – EMC requirements - Part 1: General requirement |
| 83 | EN 61326-2-1 | Electrical equipment for measurement, control and laboratory use – EMC requirements - Part 2-1: Particular requirements - Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications |
| 84 | EN 61326-2-2 | Electrical equipment for measurement, control and laboratory use – EMC requirements - Part 2-2: Particular requirements - Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems |
| 85 | EN 61326-2-3 | Electrical equipment for measurement, control and laboratory use – EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning |
| 86 | EN 61326-2-4 | Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9 |
| 87 | EN 61326-2-5 | Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for devices with field bus interfaces according to IEC 61784-1 |
| 88 | EN 61439-1 | Low-voltage switchgear and controlgear assemblies - Part 1: General rules |
| 89 | EN 61439-2 | Low-voltage switchgear and controlgear assemblies - Part 2: Power switchgear and controlgear assemblies |
| 90 | EN 61439-3 | Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO) |
| 91 | EN 61439-4 | Low-voltage switchgear and controlgear assemblies - Part 4: Particular requirements for assemblies for construction sites (ACS) |
| 92 | EN 61439-5 | Low-voltage switchgear and controlgear assemblies - Part 5: Assemblies for power distribution in public networks |
| 93 | EN 61439-6 | Low-voltage switchgear and controlgear assemblies - Part 6: Busbar trunking systems (busways) |
| 94 | EN 61543 | Residual current-operated protective devices (RCDs) for household and similar use - Electromagnetic compatibility |
| 95 | EN 61557-12 | Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 12: Performance measuring and monitoring devices (PMD) |
| 96 | EN 61800-3 | Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods |
| 97 | EN 61812-1 | Time relays for industrial and residential use - Part 1: Requirements and tests |
| 98 | EN 62020 | Electrical accessories - Residual current monitors for household and similar uses (RCMs) |
| 99 | EN 62026-1 | Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 1: General rules |
| 100 | EN 62026-2 | Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 2: Actuator sensor interface (AS-i) |
| 101 | EN 62026-3 | Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 3: DeviceNet |
| 102 | EN 62026-7 | Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 7: CompoNet |
| 103 | EN 62040-2 | Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements |
| 104 | EN 62052-11 | Electricity metering equipment (AC) - General requirements, tests and test conditions - Part 11: Metering equipment |
| 105 | EN 62052-21 | Electricity metering equipment (a.c.) - General requirements, tests and test conditions - Part 21: Tariff and load control equipment |
| 106 | EN 62053-11 | Electricity metering equipment (a.c.) - Particular requirements - Part 11: Electromechanical meters for active energy (classes 0,5, 1 and 2) |
| 107 | EN IEC 62053-21 | Electricity metering equipment - Particular requirements - Part 21: Static meters for AC active energy (classes 0,5, 1 and 2) |
| 108 | EN IEC 62053-22 | Electricity metering equipment - Particular requirements - Part 22: Static meters for AC active energy (classes 0,1S, 0,2S and 0,5S) |
| 109 | EN IEC 62053-23 | Electricity metering equipment - Particular requirements - Part 23: Static meters for reactive energy (classes 2 and 3) |
| 110 | EN IEC 62053-24 | Electricity metering equipment - Particular requirements - Part 24: Static meters for fundamental component reactive energy (classes 0,5S, 1S, 1, 2 and 3) |
| 111 | EN 62054-11 | Electricity metering (a.c.) - Tariff and load control - Part 11: Particular requirements for electronic ripple control receivers |
| 112 | EN 62054-21 | Electricity metering (a.c.) - Tariff and load control - Part 21: Particular requirements for time switches |
| 113 | EN 62135-2 | Resistance welding equipment - Part 2: Electromagnetic compatibility (EMC) requirements |
| 114 | EN 62310-2 | Static transfer systems (STS) - Part 2: Electromagnetic compatibility (EMC) requirements |
| 115 | EN 62423 | Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses |
| 116 | EN 62586-1 | Power quality measurement in power supply systems - Part 1: Power quality instruments (PQI) |
| 117 | EN 62586-2 | Power quality measurement in power supply systems - Part 2: Functional tests and uncertainty requirements |
| 118 | EN 62606 | General requirements for arc fault detection devices |
| 119 | EN 63024 | Requirements for automatic reclosing devices (ARDs) for circuit-breakers, RCBOs and RCCBs for household and similar uses |
| 120 | EN 300 386 | Electromagnetic compatibility and Radio spectrum Matters (ERM); Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements |
| 121 | EN 301 489-1 | Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements |

# Appendix B: Comparison of Australian and New Zealand EMC device categories

|  |  |
| --- | --- |
| **Australia** | **New Zealand** |
| **High-risk device** | **Level of conformity 3 product** |
| Group 2 ISM equipment as defined in AS/NZS CISPR 11:2011 | Group 2 ISM equipment as defined in AS/NZS CISPR 11 |
| **Medium-risk device** | **Level of conformity 2 product** |
| A device that contains:  switch mode power supply  transistor switching circuit  microprocessor  commutator  slip-ring motor  electronic device operating in a switching mode or a non-linear mode. | A product that is:  a microprocessor or other clocked digital device  a radio frequency oscillator  a commutator or slip-ring motor  arc welding equipment  lighting ballast  electronic devices operating in a switching or non-linear mode such as a switched-mode power suppliers, lighting dimmers, electronic transformers, and motor speed controllers.  The product is exempt from the requirement to be the subject of a compliance folder or to be labelled if it is:  supplied in a total quantity of no more than 10 per annum  battery-powered  a prototype for demonstration purposes  a fixed installation, including telecommunications network (TNE).  Group 1 ISM equipment as defined in AS/NZS CISPR 11.  Telecommunications terminal equipment (TTE) designed for installation in customer premises. |
| A battery-powered device that contains the above minimum components is exempted from the medium-risk device category |
| **Low-risk device** | **Level of conformity 1 product** |
| A device that is neither a medium-risk device or a high-risk device (includes a battery-powered device) | Product which is not a product which level of conformity 2 or level of conformity 3 applies.  Products include those that are, or only incorporate:  manually-operated switches or simple relays  brushless squirrel cage induction motors  wire-wound, mains frequency transformers  rectifier diodes  resistive heating elements. |

1. Section 9 of the EMC standard and section 2.2 of the EMC labelling notice. [↑](#footnote-ref-2)
2. Section 2.3 of the EMC labelling notice. [↑](#footnote-ref-3)
3. Section 9 of the EMC standard. [↑](#footnote-ref-4)
4. Section 8 of the EMC standard. [↑](#footnote-ref-5)
5. Section 2.1 of the EMC labelling notice. [↑](#footnote-ref-6)
6. Subsection 1.5(1) of the EMC labelling notice. [↑](#footnote-ref-7)
7. ‘Battery-powered device’ is defined in subsection 1.5(1) of the EMC labelling notice. Subsection 1.8(2) of the EMC labelling notice sets out that a ‘battery-powered device’ is not a medium-risk device unless the ACMA has declared the device to be a medium-risk device under subsection (3). The ACMA has not made any declarations under subsection 1.8(3) of the EMC labelling notice. [↑](#footnote-ref-8)
8. Section 1.8 of the EMC labelling notice. [↑](#footnote-ref-9)
9. Subsection 1.5(1) of the EMC labelling notice. [↑](#footnote-ref-10)
10. Section 4.4 of the EMC labelling notice sets out that a low-risk device is EMC compliance level 1. [↑](#footnote-ref-11)
11. Sections 3.1 and 3.2 of the EMC labelling notice. [↑](#footnote-ref-12)
12. Section 4.5 of the EMC labelling notice sets out that a medium-risk device is EMC compliance level 2. [↑](#footnote-ref-13)
13. Section 4.6 of the EMC labelling notice sets out that a high risk device is EMC compliance level 3. [↑](#footnote-ref-14)
14. A harmonised standard is a European standard commissioned by the European Commission and developed by a recognised European Standards Organisation such as the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC) or the European Telecommunications Standards Institute (ETSI). A harmonised standard must be published in the Official Journal of the European Union (OJEU). [↑](#footnote-ref-15)
15. A summary list of EMC harmonised standards under Directive 2014/30/EU can be found on the European Commission webpage: <https://ec.europa.eu/docsroom/documents/51315> [↑](#footnote-ref-16)
16. Subsection 8(1) of the EMC standard. [↑](#footnote-ref-17)
17. Davis, Tony (24 February 2023), ‘[Eight big changes coming to EVs](https://www.afr.com/life-and-luxury/cars-bikes-and-boats/subscribe-to-your-own-car-one-of-8-big-changes-coming-soon-to-evs-20221206-p5c40r)’, *Financial Review*, accessed online 23 August 2023. [↑](#footnote-ref-18)
18. [Consolidated Resolution on the Construction of Vehicles (R.E.3) Revision 7](https://unece.org/transport/vehicle-regulations/wp29/resolutions). [↑](#footnote-ref-19)
19. Ibid. [↑](#footnote-ref-20)
20. Ibid. [↑](#footnote-ref-21)
21. <https://www.fcai.com.au/news/codes-of-practice/view/publication/116>. [↑](#footnote-ref-22)
22. Section 9 of the EMC standard and section 2.2 of the EMC labelling notice. [↑](#footnote-ref-23)
23. *CISPR 12 Vehicles, boats and internal combustion engines: Radio disturbance characteristics – Limits and methods of measurement for the protection of off-board receivers.* [↑](#footnote-ref-24)
24. CISPR 12 does not cover immunity but UN ECE R10 does. [↑](#footnote-ref-25)
25. [Addenda to the 1958 Agreement (Regulations 0-20) | UNECE](https://unece.org/transport/vehicle-regulations-wp29/standards/addenda-1958-agreement-regulations-0-20) [↑](#footnote-ref-26)
26. The applicable standards are UNE ECE R10, CISPR 12, AS/NZS CISPR 12, EN 55012. [↑](#footnote-ref-27)
27. *AS/NZS CISPR 12 Vehicles, boats and internal combustion engines: Radio disturbance characteristics – Limits and methods of measurement for the protection of off-board receivers.* [↑](#footnote-ref-28)
28. *EN 55012 Vehicles, Boats and internal combustion engines – Radio disturbance characteristic – Limits and methods of measurement for the protection of off-board receivers.* [↑](#footnote-ref-29)
29. CISPR 12, AS/NZS CISPR 12 and EN55012 do not contain immunity requirements. [↑](#footnote-ref-30)
30. [TIC Code of Practice for EMC of heavy vehicles](https://assets.website-files.com/5cbe46bce3c2320cf45d2b62/5e9fe0e281f2df51a44cf762_CoP%20%20EMC%20April%202020.pdf); [CMEIG and TMA Code of Practice for EMC of machinery](https://www.cmeig.com.au/wp-content/uploads/TMA-CMEIGCodeofpractice_1.pdf). [↑](#footnote-ref-31)
31. We note that Canada and the USA do not apply UN ECE R10 as they are not parties to [the 1958 agreement to harmonise vehicle regulation](https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XI-B-16&chapter=11&clang=_en). [↑](#footnote-ref-32)
32. Subsection 5(d) of [Radiocommunications (EMC Standards) Notice 2015 (NZ)](https://gazette.govt.nz/notice/id/2015-go4671). [↑](#footnote-ref-33)
33. The [Technical Barriers to Trade Agreement](https://www.wto.org/english/docs_e/legal_e/17-tbt.pdf) sets out obligations to use international standards unless they would be ineffective or inappropriate. [↑](#footnote-ref-34)
34. Electric vehicles may include other categories of vehicles such as e-bikes and e-scooters (Category L) and electric agricultural machinery (Category T, R or S). [↑](#footnote-ref-35)
35. Chung, Laura (7 February 2023), ‘[Five charts that explain how the Australian electric vehicle industry is booming](https://www.smh.com.au/environment/climate-change/five-charts-that-explain-how-the-australian-electric-vehicle-industry-is-booming-20230206-p5ci5m.html)’, *The Sydney Morning Herald*, accessed online 16 August 2023. [↑](#footnote-ref-36)
36. DCCEEW (Department of Climate Change, Energy, the Environment and Water) (2023) [National Electric Vehicle Strategy](https://www.dcceew.gov.au/energy/transport/national-electric-vehicle-strategy), DCCEEW, accessed online 23 August 2023. [↑](#footnote-ref-37)
37. European Commission (2021), *Study on the Evaluation of the Electromagnetic Compatibility Directive 2014/30/EU (EMCD)*, Publications Office of the European Union website, accessed 9 June 2023. The European Commission recently considered the general issue of the cumulative effects of multiple products in close proximity as part of a study evaluating the European Directive; noting the study did not specifically examine the issue of cumulative emissions from electric vehicle chargers. The study noted that a possible solution is to the change the limit values included in harmonised standards to ensure consideration of the likely close proximity of other electrical apparatus. [↑](#footnote-ref-38)
38. If the device is a low-risk device and complies with the applicable standard, the supplier of the device can choose whether or not to apply a compliance label (section 3.2 of the EMC labelling notice). [↑](#footnote-ref-39)
39. [New Zealand Radiocommunications (EMC Standards) Notice 2015](https://gazette.govt.nz/notice/id/2015-go4671). [↑](#footnote-ref-40)
40. FCC 47 CFR 15.1(a). [↑](#footnote-ref-41)
41. FCC 47 CFR 15.101. [↑](#footnote-ref-42)
42. Article 3 of the Directive 2014/30/EU. [↑](#footnote-ref-43)
43. See the Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2008 prior to its amendment in November 2009 and the Radiocommunications (Compliance Labelling – Incidental Emissions) Notice 2001. [↑](#footnote-ref-44)
44. *AS/NZS CISPR 11:2004 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement.* [↑](#footnote-ref-45)
45. Radiocommunications Labelling (Electromagnetic Compatibility) Amendment Notice 2009 (No.1). [↑](#footnote-ref-46)
46. Explanatory Statement to the Radiocommunications Labelling (Electromagnetic Compatibility) Amendment Notice 2009 (No. 1). [↑](#footnote-ref-47)
47. Subsection 1.5(1) and section 1.8 of the EMC labelling notice. [↑](#footnote-ref-48)
48. The applicable EMC standards for Group 2 ISM equipment would be either AS CISPR 11, CISPR 11 or EN 55011 as per serial 3 in Part 2 of the list of standards. [↑](#footnote-ref-49)
49. Section 1.8 of the EMC Labelling Notice [↑](#footnote-ref-50)
50. [FCC Part 15 Equipment Authorization Exemptions](https://apps.fcc.gov/kdb/GetAttachment.html?id=aPHDD74GRH5N2s050fBjxA%3D%3D&desc=772105%20D01%20Exempt%20Devices%20v01r01&tracking_number=33062). [↑](#footnote-ref-51)
51. If a device has additional capabilities such as a Bluetooth or Wi-Fi transmitter, the transmitter is   
    not exempted. [↑](#footnote-ref-52)
52. Subsection 1.5(1) of the EMC Labelling Notice. [↑](#footnote-ref-53)
53. Ibid. [↑](#footnote-ref-54)