

Working safely around Radiofrequency Electromagnetic Radiation

This information sheet provides practical guidance for persons conducting a business or undertaking (PCBUs) on managing work health and safety (WHS) risks for workers who may be exposed to radiofrequency electromagnetic radiation sources, particularly from radiofrequency transmitting antennas.

What is Radiofrequency Electromagnetic Radiation?

Radiofrequency (RF) Electromagnetic Radiation (EMR), also known as Electromagnetic Emissions or Energy (EME), is [non-ionising radiation](#). RF is found at the low energy (long wavelength) end of the electromagnetic spectrum and may be produced by both natural sources (e.g. the sun) and artificial sources.

Sources of artificial RF EMR

- Satellite communications
- Radars
- Mobile base stations
- Radio/television broadcasting
- Wireless networks (Wi-Fi)
- Industrial heaters
- Emergency Services radios
- Medical equipment
- Remote controls
- Mobile phones
- Smart meters
- Burglar alarms

RF sources such as mobile telephones, cordless telephones, wireless computer networks, smart meters, burglar alarms, and remote controls emit low levels of EMR. However, relatively high levels of exposure to EMR can occur when a person is in close proximity to RF transmitting antennas and radar systems.

What are the risks of working near RF Electromagnetic Radiation sources?

Exposure to high levels of RF EMR can cause increased body temperature and heating of biological tissue, causing cellular damage.

Workers in the broadcasting, transport and communications industries, who work near RF transmitting antennas, including mobile base stations, satellites and radar systems, are at risk of exposure to RF EMR if the appropriate control measures are not implemented.

As many RF transmitting antennas are located on the top of buildings, workers may also be at risk of [falls from heights](#).

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) [Standard](#) (Radiation Protection Series S-1) sets limits for RF EMR exposure to protect both workers and the general public. Further information is available on the [ARPANSA website](#).

How to manage the risks of exposure to RF EMR

WHS duties

Everyone in the workplace has WHS duties under the WHS Act.

PCBUs must, so far as is reasonably practicable:

- ensure the health and safety of workers and others at the workplace
- provide the necessary information, training, instruction, or supervision to protect individuals from health and safety risks arising from work
- consult with workers who carry out work for the business or undertaking and who are (or are likely to be) directly affected by a health and safety matter, and
- consult, cooperate and coordinate activities with all other relevant duty holders.

Workers must also:

- take reasonable care for their own health and safety and not adversely affect the health and safety of others
- comply with reasonable health and safety instructions, as far as they are reasonably able, and
- co-operate with reasonable health and safety policies or procedures.

Identifying and managing the risks of exposure to RF EMR

Prior to carrying out any work at or close to base stations, buildings or other facilities with radio transmitters or RF transmitting antennas, **PCBUs must identify the sources of RF EMR, including their exclusion zones**, i.e. areas where the levels of RF EMR exceed the limits of the ARPANSA [Standard](#).

A good way to identify any RF EMR sources on a building is to consult with the building manager or owner. This will also assist you, as a PCBU, in meeting your [duty to consult](#) with other duty holders in a workplace.

The Australian Mobile Telecommunications Association (AMTA) has also developed two practical resources to assist in identifying site owners and to provide safety information:

- The Radiofrequency National Site Archive ([RFNSA](#)) database provides free access to maps showing the location, EMR reports and carrier details for both existing or proposed mobile telecommunications sites which are near a worksite.
 - **Note:** the RFNSA database focuses primarily on infrastructure related to mobile and wireless communications. It does not include all sources of EMR, such as those from other types of infrastructure or industries.
 - If the details of the telecommunications site owner are not shown on the RFNSA, the [Australian Communications and Media Authority \(ACMA\) register of Radio licences](#) can identify the relevant licence holder so contact may be made.
- [RadioWorkSafe](#) which provides the basic safety steps for working at known mobile and wireless communications network RF transmitting sources and includes resources to assist PCBUs and workers understand who to contact, and where to access training, safety videos and information resources.

If a transmitter or antenna owner cannot be identified, the equipment must be treated as live. Work must not be undertaken near it until the exclusion zone is identified by the facility manager and the area where work can be undertaken safely is understood.

PCBUs must ensure that work is not carried out in the exclusion zone unless they have verified that the transmitter is turned off.

When carrying out work with radiocommunications and mobile transmitters, PCBUs must implement work practices that ensure EMR exposures are eliminated where reasonably practicable.

- Follow the [ARPANSA Standard \(Radiation Protection Series S-1\)](#). The Standard includes requirements for protection of the general public and the management of risk in occupational exposure from RF EMR, together with additional information on verifying compliance with the limits of the standard.
- Workers employed in telecommunications and similar higher risk industries must be provided with specialised training and resources, including safe work practices and risk controls to enable them to carry out work on and around high-powered RF EMR equipment safely.
- It is recommended that any worker who regularly works near RF EMR sources should be equipped with an RF meter to monitor their individual level of exposure to RF EMR.
- PCBUs must ensure workers follow the safety procedures they have put in place.

Other workers and the general public

Workers who are not in the telecommunications industry, but who work near RF transmitter devices, must also be provided with training and work procedures that ensure their safety. RF transmitter devices are typically antennas located on the roof of a multistorey building or the building nearby.

Industries or roles who may be at risk include, but are not limited to:

- facility managers
- painters
- electricians
- construction/builder
- maintenance personnel (for example, air conditioning, window cleaning, rigging)
- emergency services (Police/Fire rescue).

Additional information and resources

RadioWorkSafe

[RadioWorkSafe](#) contains the following information to help workers stay safe:

- basic safety steps
- a checklist
- training videos
- fact sheets
- information resources
- site contacts
- safety bookmark.



Safe Work Australia

Safe Work Australia model legislation

[model Work Health and Safety Act](#)

[model Work Health and Safety Regulations](#)

Safe Work Australia Codes of Practice

For more information about the risk management process, see [Code of Practice for How to manage work health and safety risks](#)

For more information on working at heights and managing the risk of falls, see [Code of Practice for Managing the Risk of Falls at Workplaces](#)

Safe Work Australia guidance

- [Managing risks](#)
- [Consulting, cooperating and coordinating activities with other duty holders](#)
- [Provision of information, training and instruction](#)
- [Working at heights](#)
- [Working outside](#)
- [Personal Protective Equipment \(PPE\)](#)
- [Confined space](#)
- [Remote or isolated work](#)
- [First aid in the workplace](#)
- [Emergency management](#)

Other resources

- [WHS regulators](#)
- [Australian Radiation Protection and Nuclear Safety Agency](#)