

# Spectrum for small satellites and CubeSats

Are you planning to communicate with a small satellite or CubeSat?

Here's what you need to do before using the radiofrequency spectrum for space-based communication systems.



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## What are small satellites and CubeSats?

A small satellite is generally defined as weighing under 500 kg. It includes nanosatellites (under 10 kg) and picosatellites (under 1 kg), as well as satellites known as CubeSats. A CubeSat is a standardised type of nanosatellite comprising up to six modular units (or cubes) each measuring 10 x 10 x 10 cm.

## Why use small satellites?

Small satellite design has brought with it dramatically lower construction and launch costs, enabling a larger range of organisations to participate in the satellite industry. Organisations such as universities, research bodies and start-up companies that previously found it cost prohibitive to launch their own satellite can now build and operate satellites for a range of communication, earth observation and space exploration purposes.

## What do I need to do before launching or communicating with a satellite?

### 1 Talk to us about your requirements and what you need to do

If you are planning to build and launch a small satellite, or communicate with an existing satellite, **contact** the ACMA's satellite coordination team at the earliest stages to discuss your spectrum requirements and learn about your regulatory obligations.

### 2 Apply to the ACMA for a radiocommunications licence

A satellite network cannot be operated in Australia without a **radiocommunications licence**. The ACMA issues radiocommunications licences in accordance with the *Radiocommunications Act 1992* that authorise communication between space objects and ground stations in Australia, as well as for space research and radioastronomy applications.

All transmitting and receiving devices, including ground stations and space stations on satellites, must be authorised by a radiocommunications licence. To avoid interference, coordination with existing and planned networks and services may also be required. The ACMA can advise you if this is applicable.

### 3 Request the ACMA to submit an international satellite filing (if required)

Operators of new satellite networks are generally required to submit the technical parameters of the network to the International Telecommunication Union (ITU) for international coordination. The ACMA represents Australian satellite operators in this process, so can do this on your behalf. If you have already confirmed with us that an international satellite filing is required, you may **submit an application**.

### 4 Contact the Australian Space Agency

The Australian Space Agency administers additional Australian regulations under the *Space Activities Act 1998*, which apply to the launch of a space object in Australia and overseas. Please contact the **Australian Space Agency** for further information about how these regulations apply to your space activity.

### How long does it take to get a radiocommunications licence?

The time it takes to get an Australian radiocommunications licence varies from case to case, so apply for a licence well in advance of your scheduled launch date. If your application is straightforward, a licence may be issued within 10 business days. If your application is complicated or requires amendment of a regulation, it may take six months or longer before it can be issued. Additional time may be needed if your proposed satellite network requires international coordination.

In some cases, it may not be possible to issue a licence. **Contact the ACMA** at the earliest opportunity to allow time to meet your regulatory obligations before making launch commitments.

### Why do I need a licence?

It is an offence to operate a radiocommunications device in Australia without a licence. Spectrum is a valuable public asset used for a range of purposes such as mobile phones, broadcast television and space-based communications. Licensing ensures that these and other wireless communication services can legally operate in a stable, coordinated environment, free from interference.

### What frequency ranges can I use?

There are several internationally-agreed frequency bands that have been reserved for use by space-based networks. Other bands may also be available for use by small satellites depending on the type of use. Complete details of frequency allocations in Australia can be found in the **Australian Radiofrequency Spectrum Plan**. Please **contact us** to discuss your requirements.

### What happens if I operate a satellite without approval?

The ACMA carries out compliance activities to ensure that radiocommunication activity in Australia is undertaken legally. It is an offence to operate a radiocommunications device in Australia without a licence. When this occurs, the ACMA is authorised to issue fines or, for serious offences, commence criminal prosecution. Operating a satellite without approval may cause interference to existing services and you are also at risk of receiving interference to your own satellite (which could result in mission failure).

### About ACMA

The Australian Communications and Media Authority (ACMA) is the Australian Government regulator of broadcasting, some internet content, radiocommunications and telecommunications.

We work closely with the Australian satellite industry to provide access to the radiofrequency spectrum through planning, licensing and compliance activities, as well as upholding Australia's international obligations for space-based communication systems.

### Need more information?

- > Email us at [satellite.coordination@acma.gov.au](mailto:satellite.coordination@acma.gov.au)
- > Visit our space systems regulation hub at [acma.gov.au/Industry/Spectrum/Spectrum-planning/Space-systems-regulation](http://acma.gov.au/Industry/Spectrum/Spectrum-planning/Space-systems-regulation)