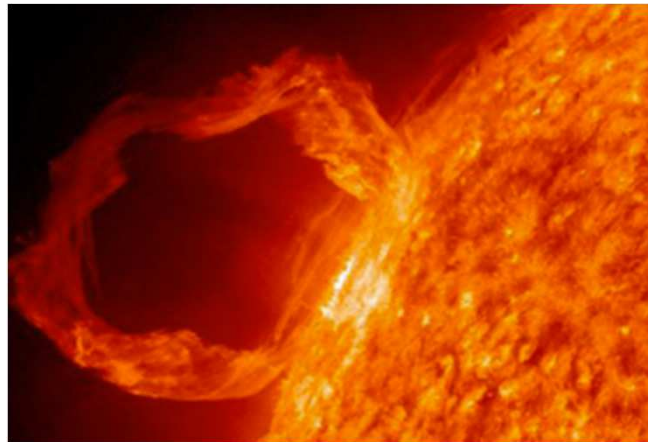




Australian & Canadian Legal Sanctions

GPS System Vulnerabilities & Threats

- **Unintentional** (“natural”) Interference:
 - Radio Frequency Interference (RFI)
 - Ionospheric disturbances
 - Multipath
- **Intentional** (“unnatural”) Interference:
 - Jamming
 - Spoofing



Recognition of GNSS Vulnerability

- GPS has been a remarkably reliable PNT technology... *and has fostered complacency regarding its vulnerability*
- There are a number of sources of vulnerabilities... *natural & unnatural*
- Open service signals are **very weak** and can be disturbed
- Military equipment & signals more **robust** than civilian/open service signals
- GNSS is a critical civilian **infrastructure** & critical military **capability**
- Seriously addressing GNSS **vulnerability** is a challenge... *it can be expensive & may be complicated*
- ***What can be done as far as legal sanctions is concerned?... consider Australia and Canada***



Vulnerability of GNSS to “Unnatural RFI”

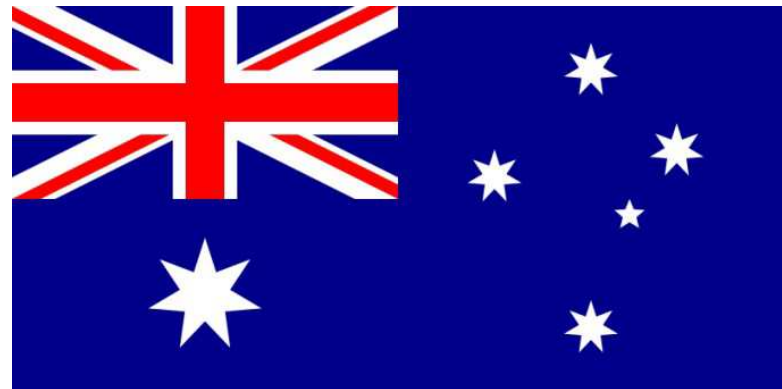
- **Illegal use of the GNSS bands**
 - Any GNSS signal can be easily jammed
 - Software Defined Radios making it easy to design all kinds of new communications devices
 - Signal flooding / saturating due to irresponsible “re-radiating” GNSS signals for buildings, etc.
 - Jammers can be readily purchased on the Internet
 - Appeal of “Personal Privacy Devices”
 - Lack of understanding of “collateral damage” by jamming nearby GNSS receivers
 - Often hard to detect as jammers are mobile
 - Can be a real nuisance for GBAS, CORS, PNT ...



Australia



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Spectrum Management in Australia (1)

The **Australian Communications and Media Authority (ACMA)** is the regulatory authority for spectrum management in Australia.

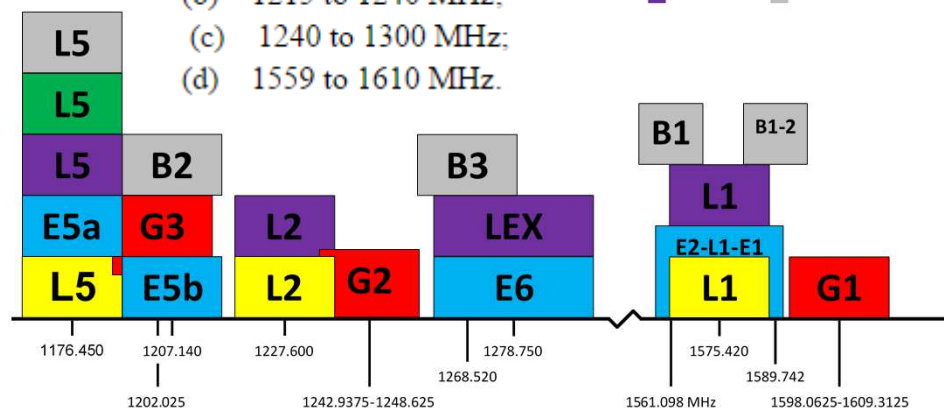
In September 2015 the ACMA established a new Class Licence: the **Radionavigation Satellite Service (RNSS) Class Licence 2015** to better facilitate the use of GNSS frequencies in Australia... The Licence authorises *reception* of all GNSS signals currently defined.



<http://acma.gov.au/theACMA/Consultations/Consultations/Current/remaking-the-communication-with-space-object-class-licence>

Authorised frequencies

- (a) 1164 to 1215 MHz;
- (b) 1215 to 1240 MHz;
- (c) 1240 to 1300 MHz;
- (d) 1559 to 1610 MHz.



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Grant Hausler – Geoscience Australia

Spectrum Management in Australia (2)

- **Radiocommunications (Prohibited Device) (RNSS Jamming Devices) Declaration 2014, under section 190 of Radiocommunications Act 1992**
- Radionavigation-satellite service (RNSS) jamming devices can affect services over significant distances, interfere with other licensed radiocommunications and pose a risk to public safety and the integrity of the radiocommunications spectrum.
- Services provided by systems operating within the RNSS frequency bands are critical to military, government and civilian communities.
-
- Under section 190 of the Act, the ACMA declares that:
 - a) the operation or supply of an RNSS jamming device is prohibited**
 - b) the possession, for the purpose of operation or supply, of a RNSS jamming device is prohibited**
- Links:
- [Radiocommunications \(Prohibited Device\) \(RNSS Jamming Devices\) Declaration 2014](#)
- [ACMA Consultation on Varying the RNSS jamming prohibition](#)



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Melbourne

By Ry Crozier on
Filed under [Hardw](#)

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An ACMA inspector monitors a Melbourne taxi rank. (Photo credit: ACMA)

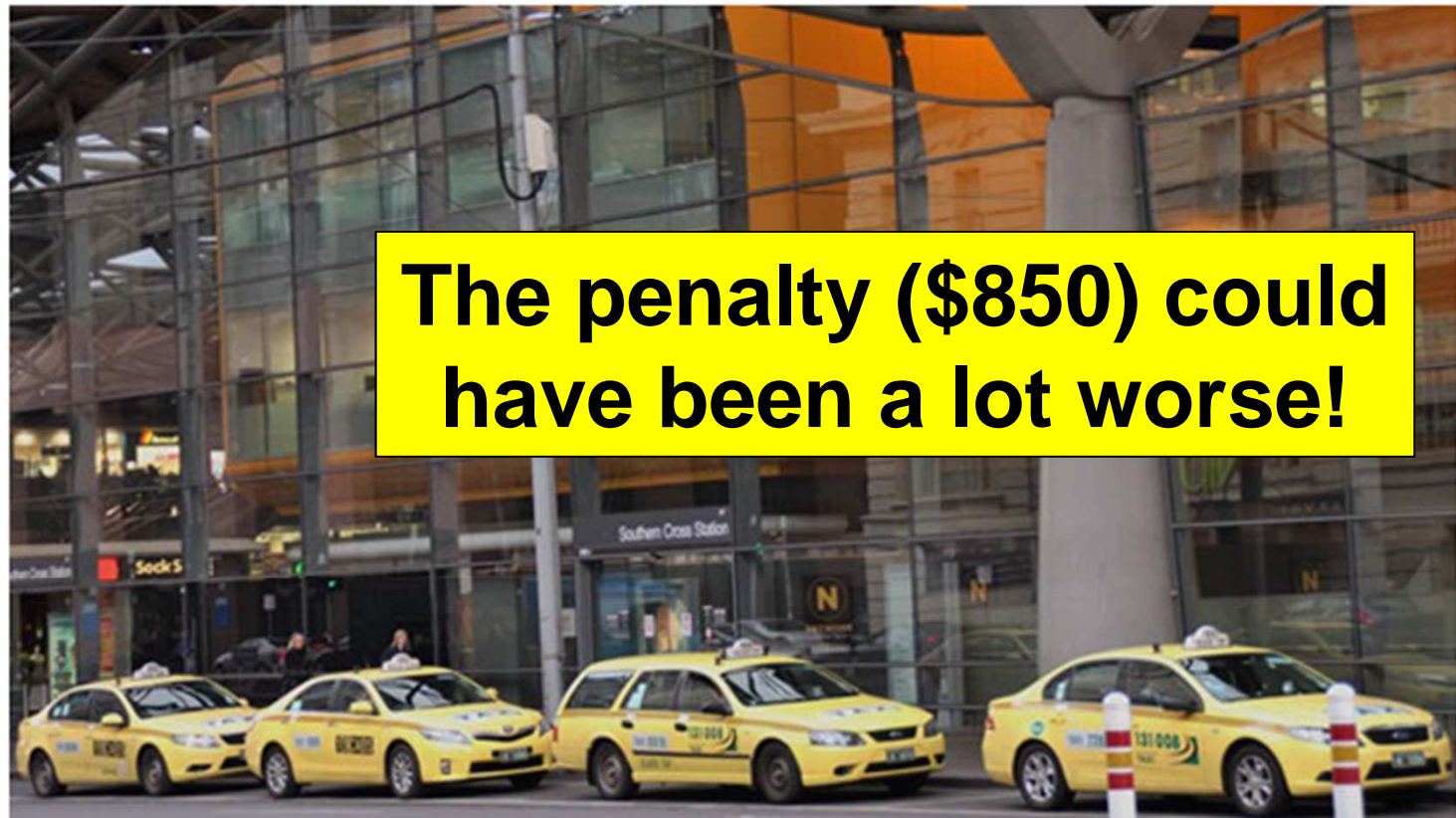
Tags

melbourne, taxi, driver, fine, gps, jammer, illegal

Related Articles

- ▶ Equinix commits US\$60m to Melbourne data centre
- ▶ Melbourne tries again for

Taxi driver convicted



A Melbourne taxi driver was recently convicted and fined \$850 by the Magistrates Court for recklessly engaging in conduct that would cause substantial interference to radiocommunications (section 197 of the *Radiocommunications Act 1992*).

The prosecution was the result of a joint operation between the Australian Communications and Media Authority and the Victorian Taxi Services Commission to combat GPS jammer use within the Melbourne taxi industry. The driver, who pleaded guilty, was detected operating a GPS jammer in the CBD through ACMA surveillance techniques.

Australian Offences and Penalties

- Operation or supply of a prohibited device, 2 years' imprisonment or \$165,000 fine.
- Causing interference likely to prejudice the safe operation of vessels, aircraft or space object, 5 years' imprisonment or \$550,000 fine.
- Causing interference in relation to certain radiocommunications (including rescue and emergency call service police, fire, ambulance, etc), 5 years' imprisonment or \$550,000.
- Causing interference likely to endanger safety of another person or cause another person to suffer or incur substantial loss or damage, which attracts a penalty of 5 years' imprisonment or \$550,000 fine.
- Reckless conduct which causes substantial interference with radiocommunications, or substantial disruption or disturbance of radiocommunications, which attracts a penalty of 1 year imprisonment.



Australian Response to The Threat

STEP 1

- Tighten the Communications Laws with regards to GNSS Jammer & Spoofer Ownership and Operation...
done

STEP 2

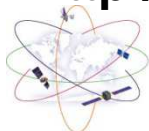
- Investigate technologies to DETECT and GEO-LOCATE Jammer & Spoofer operations in GNSS bands... *underway*



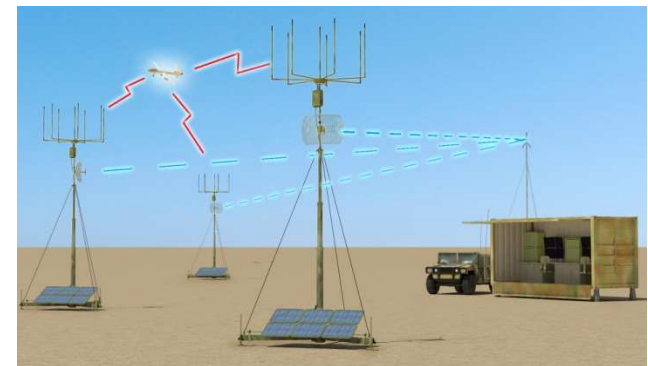


The Woomera Range Complex is a globally unique military testing range. It covers 122 188 square kilometres in north-west South Australia, about 450 km NNW of Adelaide. **It is the largest land testing range in the world.**

<http://www.defence.gov.au/woomera/about.htm>



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Canada



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Radiocommunication Act 1985

- Governs the use of radiofrequency spectrum resource
- Regulates radio apparatus and other devices that impact the use of RF spectrum
- Administered by Industry Canada

<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10048.html>



Spectrum Management and Telecommunications

What's New

Online Services

Broadcasting

Radiocom

600 MHz

Advanced Wireless Services

Air-Ground Services

Amateur Radio Service

Broadband Radio Service

Broadband Wireless Access

Cellular Services

Emergency Telecom

Family Radio Service

General Mobile Radio Service

Local Multipoint
Communications SystemsMandatory Roaming and
Antenna Tower and Site
Sharing

Jamming Devices are Prohibited in Canada: That's The Law

July 2011

The importation, manufacturing, distribution, offering for sale, sale, possession and use of radiocommunication jamming devices in Canada are prohibited under sections 4, 9 and 10 of the *Radiocommunication Act*.

What is a radiocommunication jamming device?

A radiocommunication jamming device, also known as a signal silencer, blocker or disabler, is a radiocommunication transmitter designed to interfere with, disrupt, or block radiocommunication signals and services. Although most jamming devices are manufactured for the purpose of disrupting the functioning of wireless cellular networks and low-power communication devices (cordless telephones and cameras, Wi-Fi networks and reception of GPS signals), they can also prevent communication to emergency services (9-1-1, ambulance, fire, police, aeronautical service, etc.).

Over the past few years, Industry Canada has encountered several cases of illegal importation, possession and use of radiocommunication jamming devices.

Legislation

A conviction under the *Radiocommunication Act* carries a fine of up to \$5,000 and/or imprisonment not exceeding one year (individual) or a fine of up to \$25,000 (corporation), as well as forfeiture of the radio apparatus and possibly an injunction to refrain from activity related to the offence.

For further information on the associated Canadian regulations, please consult: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01329.html>.

Importation of Equipment

In Canada, radio apparatus, interference-causing equipment and terminal equipment are subject to Canadian regulations. Canadian consumers and others seeking to import radio transmitting equipment into Canada should verify that the equipment meets Industry Canada's technical regulations prior to making any purchases. Jamming devices may be detained or seized at the border, and the importer may, on prosecution, be liable to a fine or to imprisonment.



Jammer Definition

- Broad definition of jammers:
 - 4(4) “jammer” means any device or combination of devices that transmits, emits or radiates electromagnetic energy and is designed to cause, causes or is capable of causing interference or obstruction to radiocommunication other than a device or combination of devices for which standards have been established under paragraph 5(1)(d) or 6(1)(a) or for which radio authorization has been issued
- Prohibition
 - Installation, use, possession, manufacture, import, distribution, lease, offering for sale or sale of a jammer is prohibited



Penalties

- Administrative Monetary Penalties
 - Civil penalties
 - Up to \$10 million (\$15 million for subsequent violation) for companies, \$25,000 (\$50,000 for subsequent violations) for individuals
- Regulatory Offence
 - \$5,000 fine and/or one year in prison for individual
 - \$25,000 fine for companies



Jammer Exemptions

- The Act provides the Minister with the authority to grant exemptions to permit use of jammers for:
 - National security
 - Public safety
 - National defence
 - Customs and immigration
 - International relations
 - Investigating or prosecuting offences in Canada
 - Preserving or protecting any property, or preventing serious harm to any person

