



GPS JAMMING

EXPLORING THE OPERATIONAL AND SAFETY RISKS TO NZ AVIATION

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WHAT DO WE MEAN BY 'GPS JAMMING'?

GPS Interference

Unintentional. Radio spectrum crowding, Harmonics or natural events.
Damaged, malfunctioning equipment or equipment used in error.

Examples: Space weather , Spectrum encroachment

GPS Jamming

Deliberate use of a transmission to block GPS.

Unintentional consequences – Using GPS jammers for non aviation purposes.

Spoofing – 'tricking' a GPS nav system by feeding it counterfeit signals.



JAMMING – WHO AND WHY?

Any ideas?

Interfere with Drones

Evasion of GPS tracking, employees in company vehicles

Criminal activities

Military: protect national security

Evasion of road user charging schemes (toll roads/road user charges)

Desire for privacy

Commercial interests: Taxi vs app based rideshare (Uber)

Socio-environmental: Pokémon GO

INTERNATIONAL INCIDENT EXAMPLES

CULTURE

Truck driver has **GPS jammer**, accidentally jams Newark airport

Pilots warned of jamming in Finnmark

«Reasons to believe it could be related to military exercise activities outside Norway's borders,» says the Civil Aviation Authority to the Barents Observer.

Read in Russian | Читать по-русски

By Thomas

November

FRENCH NEWS

'Forgotten' GPS jammer costs motorist €2,000

Connexion journalist

Thu 10 Aug 2017 10h12

193 words

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Connexion

Especially written for Britons living in France!



The Chirp Jammer: a GPS hit and run



If a \$45 device made your daily commute free, you too might be tempted to commit a federal crime.

The €50 device that brought a multi-million euro project to a standstill

by readers



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Thousands using GPS jammers on UK roads pose risks, say experts

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JAMMERS IN NZ

In NZ it is illegal to manufacture, import, sell, supply or use a jammer

MBIE 'owns' the regulatory impact under the Radiocommunications Act 1989 and Regulations 2011.



MBIE website: <https://www.rsm.govt.nz/>

0508 RSM INFO
info@rsm.govt.nz



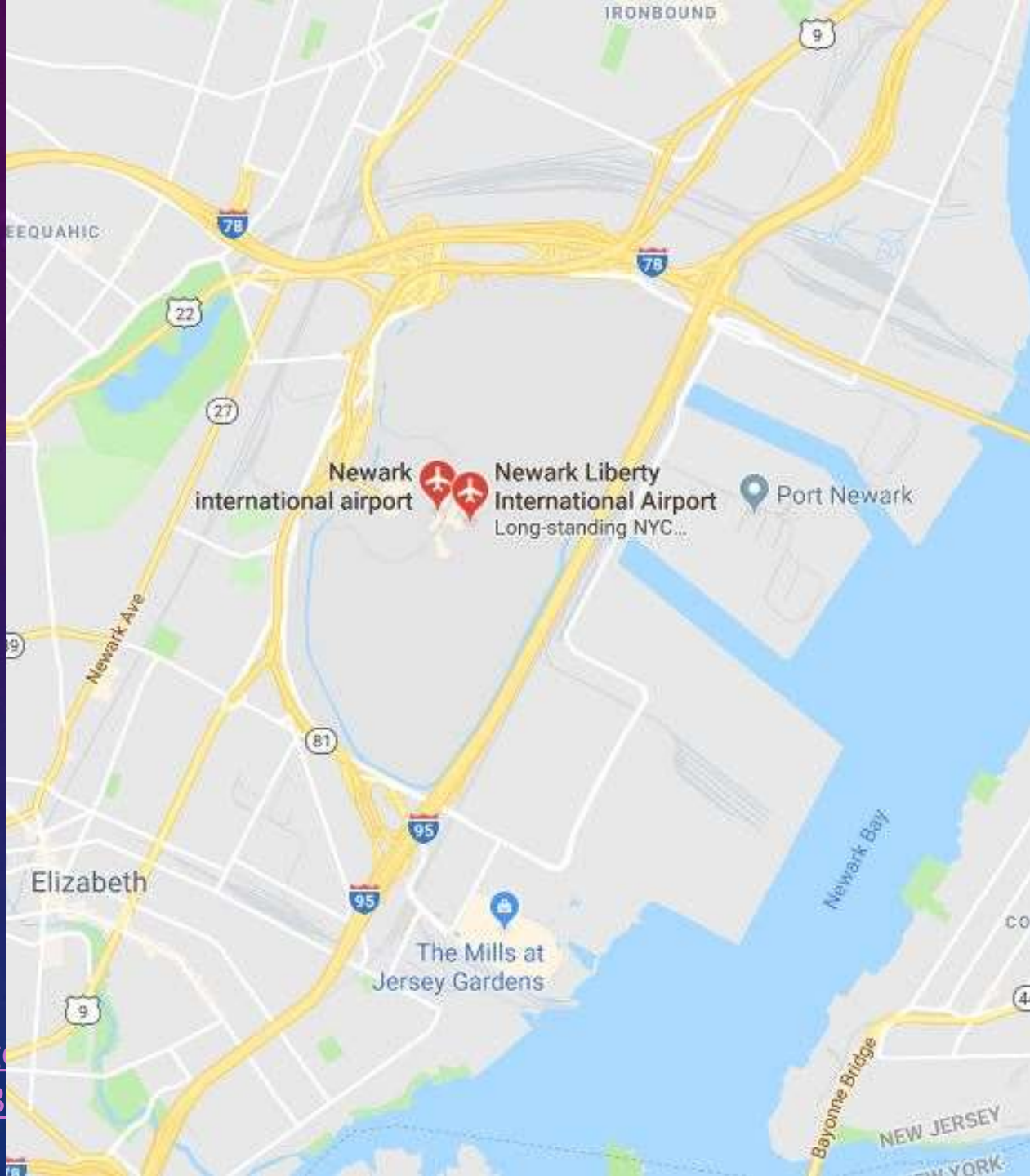
**MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT**
HĪKINA WHAKATUTUKI

HOW EASY IS IT TO JAM GPS?

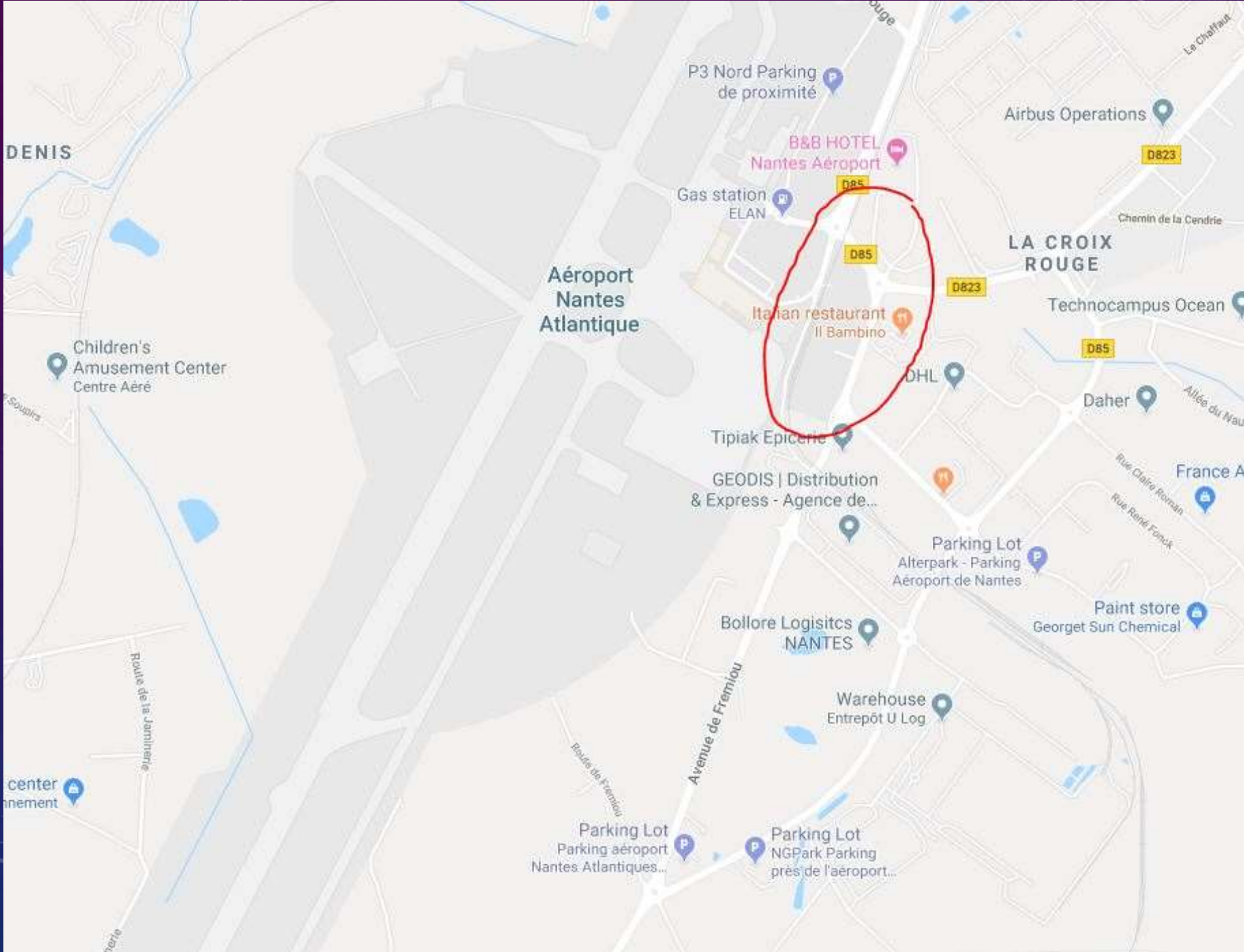
-127.5 dBm	GPS Signal strength on reaching earth	0.178 fW
0 dBm	Bluetooth radio 1m range	1mW
15 dBm	wireless LAN	32mW
27 dBm	Cell phone transmission power	500mW
30 dBm	radio controlled aircraft controller	1W

0.178 of a quadrillionth of a Watt (15 zeros)





<https://www.g...>
74.1850501,13



DENIS

P3 Nord Parking de proximité

Airbus Operations

B&B HOTEL Nantes Aéroport

Gas station ELAN

Aéroport Nantes Atlantique

LA CROIX ROUGE

Technocampus Ocean

Children's Amusement Center Centre Aéré

Italian restaurant Il Bambino

DHL

Daher

Tipiak Epicene

France A

GEODIS | Distribution & Express - Agence de...

Parking Lot Alterpark - Parking Aéroport de Nantes

Paint store Georget Sun Chemical

Bollore Logisitcs NANTES

Warehouse Entrepôt U Log

center nement

Parking Lot Parking aéroport Nantes Atlantiques...

Parking Lot NGPark Parking près de l'aéroport...

Rivage de la Jambrière

Avenue de Fremicou

Rue de Fremicou

Rue Claire Roman
Rue René Fonck

Le Chaffais

Chemin de la Cendrie

Allée du Wau



Manu Tapu Dr

AIRPORT

Butterfly Creek

Z - Skyway - Service Station

McDonald's Airport Drive-Thru

Scenic Lookout Airport Runway

A Short Term Uncovered Car Park

Laurence Stevens Dr

Puhinui Rd

DHL Express

Puhinui Rd 20B

Auckland i-SITE Visitor Information...

BP New Zealand

Hertz Car Rental Auckland Airport

Geoffrey Roberts Rd

Auckland Airport

We are interested in finding out if jammers are out there, and if so, where and how many.



Strike3 trial

MBIE trial, different type of set up

Stay connected to other agencies:
Aviation is not alone in this threat.



IS JAMMING A RISK IN NZ?

What is the consequence of loss of GPS?

- Operational impacts?
- Safety impacts?



How could NZ be susceptible to jamming?

Risk = Likelihood v Consequence

Changing dependence on GPS: PBN and ADS-B are both GPS
reliant primary means

- Our airports/aerodromes are close to roads and accessible to the public
- Portable jammers are likely to have most effect close to the ground – higher risk phases for aircraft
- NZ has similar technology trends to other nations that have reported issues

