Proliferation of GPS/GNSS Jammer Devices
Disclaimer

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Jamming vs. Spoofing

• Jamming is intended to prevent a receiver from acquiring, tracking, or navigating with GNSS signals

• Spoofing is intended to fool a receiver so it provides false position, navigation, and/or time (PNT)
  – Thus allowing the Spoofer to control the victim’s PNT

• Smart-Jamming is intended to cause receivers to acquire false signals, which either:
  – Prevents navigation (with less power than for jamming),
  – Or, causes false (but uncontrolled) PNT results
What Are Jammers?

Generally includes devices commonly called signal blockers, GPS jammers, cell phone jammers, text blockers, etc.

- Illegal radio frequency transmitters
- Designed to block, jam, or otherwise interfere with authorized radio communications
How do Jammers Work?

• A jammer can *block all radio communications* on devices that operates on radio frequencies within its range.

• *Emits radio frequency waves* that prevent the targeted device from establishing or maintaining a connection.

• Generally *does not discriminate* between desirable and undesirable communications.

• Jammers can:
  – prevent your cell phone from making or receiving calls, text messages, and emails;
  – prevent your Wi-Fi enabled device from connecting to the Internet;
  – prevent your GPS unit from receiving correct positioning signals; and
  – prevent a first responder from locating you in an emergency.
Received GPS Signals are Weak

- Signals from each GPS satellite cover 38% of the earth or 194,244,017 sq km
- A 50 watt GPS transmitter thus provides $\sim 2.6 \times 10^{-13}$ Watts per square meter on the earth
- A hemispheric L1 antenna “capture area” is $\sim 0.006$ m
- Received signal power thus is $\sim 1.5 \times 10^{-15}$ Watts ($-148$ dBW) or $\sim 1.5 \times 10^{-12}$ mW ($-118$ dBm)
- Very weak signals!!!

GPS defines the minimum C/A “open sky” signal power to be $-158.5$ dBW, 11 times weaker than calculated here
Jamming Sources

• Thrill seekers – interrupt GPS “for the fun of it”
• “Privacy” jammers, e.g., cigarette lighter devices
• Criminals
• Terrorists
• Authorized services (not well regulated)
  – Powerful adjacent channel signals causing overload
  – Higher order intermodulation products, e.g., $2f_1 - f_2$
Jammers for Sale

GPS Jammers
To prevent GPS monitoring on your person, cell phone, or vehicle, a GPS signal blocker will stop tracking signals. Maintain your privacy, keep your movements private, and avoid unauthorized surveillance by utilizing a jamming device.

GPS Jammer

For car, truck, bus, van, or even boat security, stop GPS tracking signals by simply plugging this into any cigarette lighter. This will protect you from being tracked.

Cell and GPS
One of our most popular combinations is to silence all nearby mobile phones as always on local signal strengths.

GPS Mini

One of the best GPS signal units available for sale, this pocket model will help you defeat GPS tracking. Block tracking signals on your person or vehicle in a 10-meter (30 foot) radius. Give those following your…

GPS Tracker Detector

Locate Bugs with a GPS Tracking Detector. Concerned about a covert GPS tracking device on your person or vehicle? Locate them with this GPS tracking detector. This high sensitivity GSM and GPS detector will not...

High Power Component

Not Rated
If you need a large area of coverage for military or law enforcement applications, this is for you. This high power unit will cover up to 100 Meters, and is built into an attractive aluminum alloy case that is...

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Questions?