



Tackling GNSS Interference

An overview of the technical, operational and legal actions undertaken by administrations against GNSS interference in CEPT countries (Europe)

Transport and Communications Agency TRAFICOM

- The Finnish Transport and Communications Agency Traficom is an authority serving people and businesses in licence, registration and approval matters related to transport and communications.
- Traficom promotes traffic safety and the smooth functioning of the transport system, and makes sure that everyone in Finland has access to high-quality, secure and reasonably priced communications connections and services.
- The Agency boosts the digital transformation and supports sustainable development.
- Traficom has approximately 900 employees at 15 locations in Finland. The head office is in Helsinki.

The Finnish Transport Safety Agency (Trafi), the Finnish Communications Regulatory Authority (FICORA) and certain functions of the Finnish Transport Agency merged to form the Finnish Transport and Communications Agency TRAFICOM on 1 January 2019.

Traficom is a responsible and reforming expert of transport and communications





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ECC

ECC SG

- ↳ ECC-ETSI
- ↳ ECC-EC
- ↳ ECC-US-CA

ECC PT1

CPG

- ↳ CPG PT A
- ↳ CPG PT B
- ↳ CPG PT C
- ↳ CPG PT D
- ↳ WRC19 Coordination
- ↳ Coordination team

WG NaN

- ↳ PT FNI
- ↳ PT NP
- ↳ PT TRIS
- ↳ PT ES
- ↳ NaN SFG

WG FM

- ↳ EFIS/MG
- ↳ SRD/MG
- ↳ FM 22
- ↳ FM 44
- ↳ FM 51
- ↳ FM 56
- ↳ FM 57
- ↳ FM 58
- ↳ FM 59
- ↳ FM Radio Amateur FG

WG SE

- ↳ STG
- ↳ SE 7
- ↳ SE 19
- ↳ SE 21
- ↳ SE 24
- ↳ SE 40
- ↳ SE 45
- ↳ FG on Wind Turbines
- ↳ FG on Receiver Intermodulation

Non-ECC

- ✓ Member
- ★ Favourite group
- 👁 Watching

ECC FM(19)091R2; 5.6.2019
**Technical, operational and legal
actions undertaken by CEPT
administrations against GNSS
jamming and GNSS illegal jammers**

Source: ECC FM(19)091R2; 5.6.2019; Technical, operational and legal actions undertaken by CEPT administrations against GNSS jamming and GNSS illegal jammers

– Summary:

- GNSS jammers are a threat to number of critical services and national administrations are engaged in a fight against the proliferation of such devices
- WGMF Questionnaire to CEPT Administrations in October 2018
- 28 countries participated
- Analysis highlights several points and interests:
 - Differences in national legal framework and regulation regarding GNSS-jammers
 - Experiences of GNSS jamming case investigations
 - Actions put in place to detect jammer
 - Co-operation with different authorities
 - Jammers on internet web sites
 - Awareness of the risk of GNSS-jammers among interested parties

GNSS jammers, even low powered ones, are a threat, on economic, safety and security terms, to an increasing number of services which rely on GNSS for positioning and timing and synchronisation services, for example transportation, emergency services, energy, television and mobile operators' networks and timing community.



Jammer's possession



Use of jammers



Marketing of jammers



GNSS interference investigation cases

National spectrum monitoring authorities have indicated few (average of 5 per year) or sometimes no GNSS interference investigation requests in the last years.

When they received GNSS interference investigation requests, they were mainly initiated by their national aviation authority and therefore critical services were at stake (i.e. aircraft navigation and notably approach, landing, and take-off phases of flights)

Typical sources of interference in GNSS RFI cases are mainly due to equipment in default or frequency band sharing example:

- L2, E2 and E6 bands shared with radio-amateurs and JTIDS/MIDS and DME (radiolocation, radionavigation)
- faulty antenna coupler AIS / GNSS
- indoor TV amplifier in default, unauthorized radio links, unauthorized wireless camera transmission and a faulty radio transmitter of a public local radio broadcaster

Proactive actions put into place by spectrum monitoring and enforcement authorities to detect illegal GNSS jammers in use

- Monitoring the GNSS frequency bands to get a picture of the number of GNSS jammers in circulation
- Detecting and seizing illegal jammers in circulation: monitoring being in this case a prior step to enforcement
- Research and development on techniques and equipment to detect GNSS jammers
- At least: **Belgium, France, Norway, The Netherlands, Slovenia, United Kingdom**
- **Finland**: case by case measurements, occasional automatic violation detection measurements also including GNSS-band; participation in STRIKE3-Project; developed specialised tools to find interference in GNSS-bands

In this respect, it is proposed the following actions be pursued over time, through regular exchanges and presentations in FM22 meetings for:

Watching and monitoring the evolution of:

- The number of GNSS jamming cases reported and the types of GNSS jammers detected (circulation and the trend)
- The technological, legal and operational practices of the spectrum monitoring and enforcement authorities
- New potential threats (spoofers, repeaters, pseudolites)

Highlighting good practices and detailed cases of:

- Investigations and enforcement of GNSS interference cases
- Operations of GNSS market surveillance and enforcement
- Preventing illegal merchandising of GNSS jammers on the Internet
- Cooperative processes and partnerships of the spectrum monitoring and enforcement authority with other administrations in the fight against illegal jammers and the handling of GNSS jamming cases
- Awareness-raising actions

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Thank you!

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