GNSS Vulnerability and Mitigation in the Czech Republic

NAVISP Industry Days 2020

23.01.2020

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Objectives of the project

• High level objective
  – to support Czech Republic’s activities related to the GNSS/PNT vulnerability

• Specific objectives
  – to create a complex overview of (critical) infrastructure dependency on GNSS/PNT on national level
  – to prepare recommendations of mitigation measures against GNSS/PNT to particular stakeholders and governmental institutions
Activities

Activities = WPs:

- Overview and description of stakeholders using GNSS/PNT and infrastructure operators relying on GNSS/PNT
- Detailed analysis of the vulnerability per specific infrastructure operator
- On field validation of GNSS/PNT threats on infrastructure operator
- Mitigation measures - recommendations for increase protection against threats
Results expected

- **WP1**
  - Broad picture of national (critical) infrastructure and its dependency on GNSS, understand range of fragmented activities, identify relevant stakeholders in individual industrial sectors (domains).

- **WP2**
  - Understanding RFI threats to GNSS/PNT in particular industry domains for government, state authorities & infrastructure operators

- **WP3**
  - Understanding GNSS RFI threats & real impact based on measurements on real campaigns

- **WP4**
  - Recommendations for mitigation measures for increase protection of CI, webpage with simple self-assessment tool
Addressed national needs

- ANSP’s demand and historical testing campaigns
- Follow-up to the development of national GNSS RFI Detector
- Law No. 240/2000 The law on critical management (The critical act)
- Demand of the Ministry of Transport
- NCISA’s activities & its demand
- New tolling system based on GNSS in the CR
- EC’s European GNSS Interference Task Force
Consortium

Suppliers

Support & engagement

Czech Republic Ministry of Transport

Air Navigation Services of the Czech Republic

ČR

23.1.2020 NAVISP Industry days
GNSS Centre of Excellence (GCE) was founded in 2012

- Professional association of legal entities
- Founding members:
  - ANSP of Czech Republic
  - Czech Railways
  - Railroad infrastructure directorate
  - Road & motorway directorate
- Associated members:
  - SMEs, R&D companies & R&D centres, Universities
  - Techniserv, WheelTug PLC, EXACT Control System, CTU in Prague, Žilina University, VUGTK, Universitas of Pardubice, ŠKODA AUTO University, VUS BB, OHB CZ
- Czech & Slovak overlay
creating an intelligent world
Detection station & installation

Czech Detector
GIDAS - Interference detection & analysis system

- Multi-system multi-band GNSS interference monitoring system developed by OHB Digital Solutions Austria
  - GPS L1, L2, L5
  - Galileo E1, E5, E6 (optional)
  - GLONASS G1, G2
  - BeiDou B1, B2
  - SBAS (EGNOS, WAAS, SDCM, QZSS)
  - Detection
  - Classification
  - Localization

- Development together and with funding from European Space Agency
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