

Road Panel Discussions Results Summary

EGNSS User Consultation Platform Plenary

4th December 2018

Agenda

- Highlights of Main Trends in the Market
- Recommended Refinements of User Requirements
- User Requirements for New/Emerging Applications
- Research and Innovation Priorities
- Discussion on Enhanced EGNSS Services
- Feedback on Back-up PNT Solutions

Highlights of Main Trends in the Market

Based on the categorisation of the Road User Needs and Requirements Report, we see the following key trends:

- Safety critical applications: **Automated driving** is still on top of the agenda. It is also the application with the most stringent requirements.
- Smart mobility applications: in public transport, **on-demand mobility** represents an important use case of GNSS, where availability, continuity and trustability are the most relevant requirements.

Mobility platform such as AutoPilot provides a case for convergence within location, IoT sensors and automotive applications (e.g. update of Local Dynamic Maps)

Recommended Refinements of User Requirements

- **Traffic and Safety Warnings:** 3 metres will not be enough for upcoming lane-level applications
- **Automated driving:**
 - GNSS availability needs to be as close as possible to 100% to support a location engine that needs to be operational all the time
 - New automotive research suggests that levels of confidence should target 10-15 metres of protection level at Integrity Risk 10^{-7}
- **Smart mobility** and **Regulatory critical** applications will be considered separately to take into account the different role of integrity
- **Smart mobility** and **Payment critical** will be considered together for converging applications in terms of accuracy requirements

User Requirements for New/Emerging Applications

- Safety critical applications:
 - **Automated shuttles:** user requirements are slightly less stringent than the ones of other automated driving applications, because of operation in a more controlled scenario
- Regulatory critical applications: **eCall** extension to other forms of transport (with focus on motorbikes) brings in safety opportunities along with some implementation challenges in terms of accuracy requirements
- With respect to GNSS technology state of the art, new **active antennas** might provide significant mitigation against jamming, but they are still cost-sensitive for the industry.

Research and Innovation Priorities

- **Automated vehicles (AV)** should still be the top priority in terms of application areas:
 - Support actions for standardisation to **achieve the definition of integrity requirements**
 - **Innovation actions** for large scale pilots are still relevant. Alignment of efforts by different Commission services involved in automated driving pilots will further boost their effectiveness
 - **Prize competitions** could foster the emergence of innovative SME/entrepreneurs focusing on niche applications in connected and automated driving (e.g. entertainment apps)

Discussion on Enhanced EGNSS Services

High Accuracy Service:

- Target accuracy performance of 20 cm as of 2020, based on Galileo infrastructure, is **welcomed by the industry**. However, **Time To First Fix for high accuracy** remains a major challenge.

ARAIM:

- The significant relevance of **local errors** limits ARAIM potential impact but...

Ionospheric Prevision Service:

- ... a prediction service will be **useful for the industry** to know when GNSS positioning and timing is less reliable

Feedback on Back-up PNT Solutions

For the most challenging application (automated driving), it is important to clarify that some technologies are already **in use today** as a **complement**, rather than a back-up of GNSS

These complementary technologies (e.g. cameras, HD maps, motion sensors, ...) bring value to reach a **minimum performance** in the case of absence of GNSS.

However, there is no single technology that could potentially meet the required **full performance** globally similarly to GNSS.

Thank you !