

Surveying 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 upcoming EGNSS Services

Highlights of Main Trends in the Market

High Accuracy

- Prices for high accuracy services and Receivers will continue to go down
- Classical NRTK services moving towards PPP-RTK techniques driving down convergence time
- Less dense network, Local ionospheric/tropospheric precise estimation (PPP-RTK)
- Cost Benefits Analysis for Galileo HAS with very positive numbers for Europe

Galileo

- Galileo adoption well on the way for professional markets
- E6 capability still lagging behind (due to HAS definition)

Recommended Refinements of User Requirements (1/2)

- General user requirements remain the same, some details to be looked into
- Complementary topics:
 - Introduce a section on E-GNSS proposition and the addition of user stories/testimonies
 - Susceptibility to interference
 - Further elaborate on the automatic seamless indoor-outdoor transition
 - Preference on Open standards (e.g. RTCM) for RTK, PPP, PPP-RTK solutions

Recommended Refinements of User Requirements (2/2)

- When referring to the accuracies in the URD document, better specify accuracies metrics (e.g. 95%, 2DRMS, etc.)
- Construction Machine Guidance: specific applications to be further detailed
- “Trustable” needs to be further explained
- Convergence time (time to first accurate fix) requirements shall be further discussed
- Further clarifications on the needs of availability open sky vs harsh environment

User Requirements for New/Emerging Applications

- Drones and LIDAR integration in surveying
- SLAM (Simultaneous Localization And Mapping): mitigation of multipath, 3D-building map, real-time analysis, GNSS beneficial for SLAM and vice versa
- BIM (Building Information Modelling): GNSS/Galileo currently mostly for infrastructure rather than building
- Mobile Mapping:
 - Good signal available at initiation
 - Harsh environment remains an hard topic
 - Road and Railways Maintenance
- Augmented Reality: superimposition of specific information and BIM
- Underground Cadastre and Mining

Research and Innovation Priorities

- Third frequency
- Impacts of multiple frequency and multi-constellation in harsh environment
- Mass-Market receivers and multipath mitigation through E5
- Reliability indicators with different requirements (e.g. blind people guidance, Cadastral applications)
- Crowdsourcing is under horizon (e.g. for Cadastre and Mapping) and could be tested in future applications, standardization topics, more suitable for developing countries
- Interest for 3-D Cadastre

To be further
elaborated on

eWeek

Discussion on Upcoming EGNSS Services

- High Accuracy Services:
 - HAS broadcasting through internet, same format, adding GLONASS and Beidou
 - Standard as an important enabler
 - Calibration of Galileo Ground Antennas to be followed
- Authentication (e.g. for drones and institutional applications)
- Dual Frequency, vs Third Frequency
- Ionospheric Prediction Service

Selected questions (1/3)

Do you see any potential usage of HAS (20cm precision) in surveying which is typically the domain of cm-level application?

12 

Not at all, we only work in cm-level

☐ 0 %

Yes, in some cases within cadastre

☐ 17 %

Yes, in some cases within construction

☐ 0 %

Yes, in some cases within topographic survey

☐ 33 %

No, it is rather for GIS or the mass-market

☐ 33 %

Non-conclusive

☐ 17 %

What is still acceptable time of the time-to-first accurate fix for PPP (convergence time) in surveying?

12 

Less than 10 sec

☐ 0 %

Less than 30 sec

☐ 75 %

Less than 1 min

☐ 25 %

Less than 5 min

☐ 0 %

Selected questions (2/3)

A GNSS spoofing attack attempts to deceive a GNSS receiver by broadcasting incorrect signals, structured to resemble a set of normal GNSS signals. Do you consider spoofing as a serious threat for surveying applications?

12 

No, we are applying special QC procedures which always identify outliers or if something is wrong with the final coordinates.

 33 %

Yes

 67 %

If YES, would you think of utilizing Galileo authentication services for some relevant applications (e.g. cadastre) where the "stamp" could help to mitigate these threats

10 

Yes

 80 %

No

 20 %

Selected questions (3/3)

Do you think the state-owned RTK providers shall provide HP corrections for free of charge?

12 

YES, to follow INSPIRE open data policy



YES, there are high public benefits



YES, needed for new emerging applications where the fee would not be acceptable (e.g. automotive)



NO, to provide high-quality service we need to generate income to cover all associated costs



NO, it is disrupting the market



Non-conclusive



Do you think it makes sense to establish an initiative that would aim at providing a unified Pan-European RTK service that would utilize the data of the current public RTK service providers?

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Yes, there is a need for this kind of the service to provide a seam-less RTK service for new emerging applications such as autonomous driving



Yes, but it is rather difficult or not doable



No, I think there is no need for such a service



No, as PPP service fits better for the regional type of services and especially mass market



Non-conclusive



Thank you !