Galileo HAS - Do we need this service?

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SUMMARY

Galileo HAS (High Accuracy Service) represents a significant advancement in satellite navigation, providing positioning accuracy at the decimeter level. This service, integrated into Europe's Galileo GNSS system, addresses the growing demand for highly precise and reliable location data across various sectors. Our research focuses on the development of an innovative Galileo HAS receiver that not only leverages the full potential of this high-accuracy service but also aims to overcome challenges in signal processing, multi-path interference, and error correction.

The opportunities presented by Galileo HAS are vast and transformative. In autonomous systems, such as self-driving vehicles and drones, decimeter-level precision is critical for safe navigation in complex environments. Similarly, precision agriculture benefits from enhanced accuracy, enabling optimized resource management and increased productivity. Urban mobility, including smart city applications and infrastructure monitoring, relies on reliable GNSS services to ensure efficiency and safety. Additionally, Galileo HAS supports applications in geodesy, disaster management, and critical infrastructure protection, where pinpoint accuracy can be life-saving.

Our approach involves the optimization of signal processing algorithms, integration with real-time correction data, and the development of robust receiver hardware to handle diverse operational scenarios. Early findings indicate substantial improvements in positioning accuracy, system robustness, and signal availability, even in challenging environments such as urban canyons and dense foliage.

This research not only showcases the technical potential of Galileo HAS but also emphasizes its role in strengthening Europe's technological sovereignty in the GNSS domain. By unlocking new applications and enabling innovative solutions, Galileo HAS is poised to become a cornerstone of

future navigation technologies, driving progress across industries and addressing critical societal challenges. Our work highlights the transformative impact of Galileo HAS and its potential to shape the future of positioning, navigation, and timing systems.