

IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)  
Advanced Space Communications and Navigation Systems (1)

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THE GALILEO REFERENCE CENTRE AND ITS ROLE IN THE GALILEO SERVICE PROVISION

**Abstract**

Galileo has made significant progress in recent years: twenty-two Galileo satellites are now orbiting the Earth, a significant part of the supporting ground station infrastructure has been deployed, and the European GNSS Agency (GSA) has assumed the role of the Galileo Service Provider. With the Declaration of Galileo Initial Services on 15th of December 2016, the transition of Galileo from the testing and deployment phase to a system in service has started, and Galileo is now ready to be used. During this Initial Services provision phase, deployment towards Full Operational Capability continues in parallel. To support this service phase, the GSA is establishing a new service facility called the Galileo Reference Centre (GRC) in Noordwijk, the Netherlands.

The primary mission of the Galileo Reference Centre is to provide the GSA with an independent means for monitoring and evaluating the performance of the Galileo services and quality of the signals in space. It is fully independent of the system and of the operator with respect to both the technical solution and operations. The GRC will also provide service performance expertise to the Galileo Programme, support to investigations of service performance and service degradations and archiving of relevant service performance data over the operational lifetime of the system. Where feasible, the GRC will assess the compatibility and interoperability between Galileo and other GNSS. In addition to its stand-alone capabilities, the GRC integrates data and products from cooperating entities from the EU Member States, Norway and Switzerland. These contributions may support everyday operations (e.g. data provided by Member States from additional networks, Member State generated reference and monitoring products) and specific campaigns (e.g. utilisation of large gain antennas operated by Member States, expertise available at Member State level).

This paper will describe the overall mission and derived functionality of the GRC, as well as the architecture and operational concept. Special emphasis will be on the innovative technological solutions being developed, the role of the GRC in the Galileo Service Provision and the incorporation of contributions from cooperating entities in the EU Member States, Norway and Switzerland. The paper will include information on the Galileo performance observed by the GRC such as ranging accuracy and availability, and the timing and positioning accuracy.