

Why ALEGRO?

To fulfill the growing demand concerning safety and security of sea navigation, GNSS becomes an enabling key technology. A number of maritime applications like automatic docking, dredging, and cargo handling requests for local augmentation systems to achieve the required integrity and accuracy. To support these applications, the development and enhancement of Ground Based Augmentation Systems (GBAS) is the overall aim of ALEGRO.



DLR at a glance

DLR is Germany's national research center for aeronautics and space. Its extensive research and development work is integrated into national and international cooperative ventures. As Germany's space agency, DLR has been given responsibility for the forward planning and the implementation of the German space program by the German federal government as well as for the international representation of German interests. Furthermore, Germany's largest project-management agency is also part of DLR.

Approximately 5,100 people are employed in DLR's 27 institutes and facilities at nine locations in Germany: Koeln-Porz (headquarters), Berlin-Adlershof, Bonn-Oberkassel, Braunschweig, Bremen, Goettingen, Lampoldshausen, Oberpfaffenhofen, and Stuttgart. DLR also operates offices in Brussels, Paris, and Washington, D.C.



DLR

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Information



ALEGRO

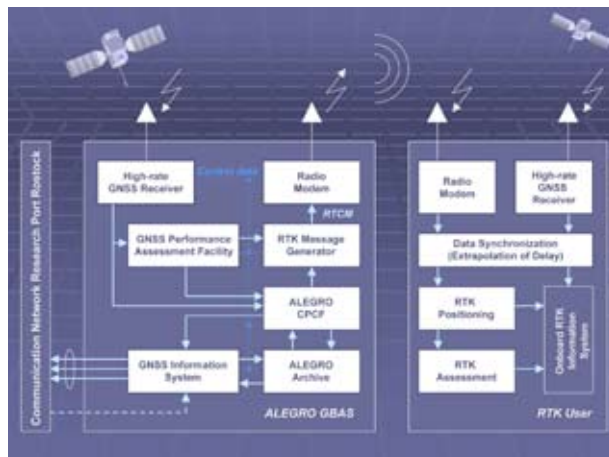
Ground Based
Augmentation for
Maritime Galileo
Application



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What is ALEGRO?

ALEGRO is one of the pilot projects of the Research Port Rostock, which is an initiative of the Federal State of Mecklenburg-Vorpommern in cooperation with regional industries and R&D facilities to deploy a maritime GNSS/Galileo test environment and to force maritime R&D activities up to their economical utilization. The project ALEGRO deals with the development and deployment of a local augmentation system supporting high-precise and reliable GNSS based positioning within the Research Port Rostock.



GBAS architecture of ALEGRO

What are the Objectives?

- Development and deployment of GNSS experimentation infrastructure towards a maritime test bed for novel GNSS technologies by the provision of a GBAS service within the vicinity of the harbor.
- Support of the regional business companies, universities, and research institutions in the development of new maritime applications and services by provision of high precision positioning and reliability information for validation and verification tasks.
- Enhancement of the real-time kinematic technology (RTK) and services by the in advance implementation of the new characteristics like the provision of integrity for certified services and multi-carrier based processing as offered by Galileo. ALEGRO's reference station provides the augmentation data by radio transmission.
- Support of the demonstration and certification of new maritime products and services that rely on global navigation satellite system (GNSS) positioning.
- Demonstration of an extended GBAS service that enables the development of future marketable and functional products/applications in the maritime "Safety of Life" sector.

What are the Activities and the Schedule?

In the initial phase of the project measurement activities are realised to identify "Safety of Life" critical influences in the maritime environment. For this purpose the GNSS signal quality and the performance of different GNSS standard technologies (GNSS stand alone, Galileo/EGNOS and RTK) are validated.

In the next step the deployment and the measurement of the experimental RTK-System in the Research Port Rostock is realised.

The development and integration of the "GNSS Performance Assessment Facility" into the ALEGRO GBAS is one of the main R&D activities to provide augmentation services. They cover the description of the local GNSS performance and the determination of performance quantities for adaptive navigation algorithms inside the ALEGRO system. The future R&D activity deals with the qualification of the RTK-technology by multi-carrier signal processing and by the self-monitoring of the ALEGRO system.

In autumn 2008 the project will be finished by the validation and demonstration of the final ALEGRO system in different maritime application scenarios.

