

## Galileo

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### **The Future of Satellite Navigation**

In recent years, we have witnessed a big change in the way satellite navigation (SatNav) has evolved and how rapidly its influence has affected our society.

Roke Manor Research has experienced consultants, state-of-the-art channel modelling tools and a thorough understanding of the technological developments in SatNav to help solve your individual requirements.

Roke has worked for a number of high profile clients and can tap into the global network of innovation from Siemens, our parent company.



**Datasheet**

Roke Manor Research Ltd  
a Siemens company

Figure 1.



**Figure 1.**  
Simulation showing the enhanced accuracy of Galileo satellite navigation over the current GPS system.

## So, what is the future of SatNav?

Within the next ten to fifteen years, SatNav-capable mobile phones will become as widespread as camera phones are today. Rather than just using them to find the best route to a particular location such as a restaurant, theatre or a meeting place, they will also be able to tell you which bus to take to get there or where the nearest tube station is. They may even be able to hail the cab for you!

Galileo, the new civilian European satellite navigation system is currently under development to enable this to become a reality. Its SatNav receivers must be able to work accurately in challenging environments; in heavily built-up urban areas, on narrow streets, and even indoors, e.g. in shopping malls.

The Galileo programme is currently funded by the European Union and the European Space Agency (ESA). The first experimental satellite was launched towards the end of 2005 and started transmitting navigation waveforms in early 2006. When the system becomes fully operational in 2010, the 30 – satellite constellation will provide a wealth of navigational services to diverse groups of users; from the general public and commercial users to the aviation community and governments throughout the world.

Roke is participating in these challenging new advances in SatNav and in particular, Galileo. From system design, system simulations and co-existence studies through to the design and development of GPS and Galileo antennas and receivers, Roke is proud to play a key role and provide leading edge communications technology for Europe's very own global navigation systems.

## Roke's capabilities include:

- System and co-existence studies
- System simulation (SatNav receivers, performance in urban environment, indoor performance)
- Advanced algorithms (acquisition and tracking of the weak signal in adverse environments)
- Integration of current and future GPS, Galileo and European Geostationary Navigation Overlay Service (EGNOS) positioning services to achieve better positioning performance on the ground
- SatNav antennas and high performance receiver analogue front end development
- Generation of SatNav test waveforms.

## Key Customers in this area include:

British National Space Centre (BNSC), Raytheon, EADS Astrium, Ofcom and Siemens.

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