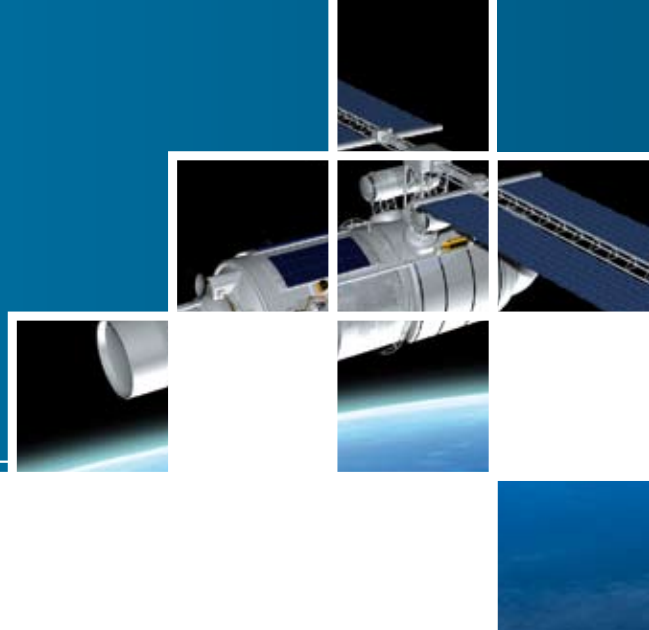


# GPS and Mobile Handsets



**GPS and Mobile Handsets** gives first-hand insights into the development of GPS technology for mobile handsets.

This report in the LBS Research Series from Berg Insight provides you with 120 pages of unique business intelligence including 5-year industry forecasts and expert commentary on which to base your business decisions.

## ***This report will allow you to:***

- **Understand** the opportunities and challenges with integration of GPS in mobile handsets.
- **Learn** about the GPS strategies of the leading chipset and handset vendors in the mobile industry.
- **Predict** future design trends and technology developments.
- **Comprehend** the importance of Assisted-GPS and hybrid location technologies.
- **Anticipate** when GPS technology will become a standard feature in GSM/WCDMA handsets.



## **Berg Insight's LBS Research Series**

What are the real business opportunities for LBS on the European market? Berg Insight's LBS Research Series is a unique series of market reports published on a quarterly basis. Each title offers detailed analysis of the most interesting LBS topics such as handset-based satellite positioning technology, mobile personal navigation services and location-enabled content services. Once per year we also publish a summary of our research with detailed forecasts for the European mobile LBS market.

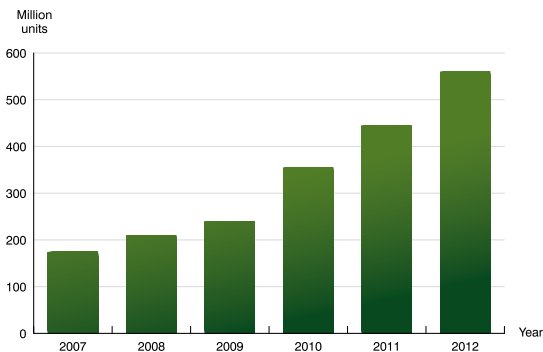
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## How many years until GPS in handsets becomes mainstream?

The primary driver for mass adoption of GPS enabled handsets has been the Enhanced 911 mandate in the US. The Federal Communications Commission (FCC) has required all mobile operators to introduce high-accuracy positioning in order to enable precise location of mobile callers placing 911 emergency calls. So far, iDEN and CDMA operators have chosen A-GPS as the means of complying with these regulations. Moreover, these operators have launched several successful commercial services, especially turn-by-turn navigation services that leverage the large installed base of GPS-enabled handsets. CDMA operators in countries such as Japan and South Korea have also deployed numerous location-based services that utilise GPS.

Although the first GSM handsets with integrated GPS were launched already in the late 1990's, broader availability of consumer-oriented handsets with GPS did not appear until late 2006, primarily in Japan. Outside Japan, numerous smartphone vendors have introduced handsets with GPS during 2007. Moreover, the largest handset vendor in the world, Nokia, accelerated its LBS initiative by acquiring the leading digital map provider NAVTEQ. In response to increasing interest in location-based services, as well as to comply with regulations, all major handset vendors have now presented GPS-enabled GSM/WCDMA handsets.

Compared to a few years ago, GPS technology for handsets has matured considerably, offering much better performance in terms of sensitivity, power consumption, size and price. What is more, the OMA SUPL A-GPS standard has enabled lower cost deployment of A-GPS services that ensure a better and more consistent user experience necessary for the mass consumer market. The SUPL A-GPS standard allows network operators or handset manufacturers to deploy assistance services that reduce the time to first fix, lowers the power consumption, and enhances the sensitivity of the GPS receiver. The SUPL standard uses User Plane communication channels such as SMS and GPRS to transport the aiding data, as opposed to the control plane channels in networks, thereby ►



Annual shipments GPS-enabled handsets (Worldwide 2007–2012)

► reducing the load on the networks, as well as complexity and cost of service deployment. New business models have also become possible, ranging from hosted services for operators that want to minimise capital investments, to services deployed by handset vendors for end-users that cannot get similar services from their network operator yet.

The major handset software platforms and operating systems are evolving, ensuring easier integration of GPS functionality for handset manufacturers and more powerful features for application developers. Along with the improving performance of handsets, in terms of screen size, processing power and memory size, current handsets thus provide much better platforms for location-enabled applications and services than before.

The GPS value-chain was reshaped considerably in 2007 as several specialist GPS technology developers were acquired by wireless chipset vendors. These transactions are likely to enhance the possibilities to meet handset manufacturers' demand for integrated connectivity solutions that include GPS at ever lower price points to enable true mass market deployment.

Sales of GPS-enabled GSM/WCDMA handsets grew to about 24.5 million units in 2007. Although the number is very small in comparison with the 150 million GPS-enabled CDMA handsets sold, the number is growing rapidly. Berg Insight estimates that shipments of GPS-enabled GSM/WCDMA handsets will grow to 370 million units in 2012, the equivalent of more than 26 percent of all GSM/WCDMA handsets sold that year. Including CDMA handsets, GPS-enabled handsets sales are estimated to reach about 560 million, or 35 percent of total handset shipments in 2012.

### This report answers the following questions:

- What is driving the adoption of GPS technology in GSM/WCDMA handsets?
- Who are the leading developers of GPS chipsets and software-based receivers?
- What is the technology development roadmap for handset GPS in the coming years?
- How can handset manufacturers, network operators and end-users benefit from Assisted-GPS and hybrid location technologies?
- How is GPS supported in BREW, Java ME, Symbian OS, Windows Mobile and Android?
- Which handset manufacturers are first with adopting GPS in their products?
- When will satellite positioning technology become a standard feature in GSM/WCDMA devices?

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## Glossary