GPS and Mobile Handsets is the fourth consecutive report from Berg Insight analysing the latest trends on the worldwide market for GNSS technology in 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:**

- **Identify** 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.
- **Understand** the reshaping of the GPS value chain and consolidation trends.
- **Anticipate** future design trends and technology developments.
- **Realize** the importance of Assisted-GPS and hybrid location technologies.
- **Predict** when GNSS 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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GPS to be standard in all but entry handset models in 2014

Mobile handsets are by far the most pervasive consumer electronics devices globally. Even though the global economic slowdown led to the sharpest decline in handset sales since 2001, shipments nevertheless remained above 1.1 billion units for the third year in a row. Mobile phones with GPS receivers have been available since the late 1990s. Technical development enabling GPS integration in mass-market handsets was driven by the FCC’s E911 emergency call mandates requiring all US mobile operators to provide high-accuracy location of emergency callers. CDMA and iDEN operators chose to use GPS location technology for locating emergency callers that led to rapidly increasing penetration of GPS in iDEN and CDMA handsets in North America and other parts of the world where CDMA is widely deployed. Emergency call location regulation is being introduced in other regions as well. Canada has chosen to stipulate location accuracy requirements as in the US, while no such rules are yet in place in Japan or in Europe where Cell-ID-type location accuracy so far is enough for compliance.

The number of GPS-enabled GSM/WCDMA handset models is growing fast. Disregarding handsets only available in Japan, as well as operator-specific variants of base-models, the total number of models that are available on the market has grown from 80 in 2008 to more than 180 at the end of 2009. Since 2008, all tier-1 vendors have started to ship GPS-enabled phones for worldwide. The attach rate for GPS is growing rapidly in GSM/WCDMA handsets, from less than 8 percent in 2008 to 15 percent in 2009.

Sales of GPS-enabled GSM/WCDMA handsets grew to an estimated 150 million units in 2009, up from 78 million devices in 2008. Berg Insight forecasts that shipments of GPS-enabled GSM/WCDMA/LTE handsets will grow to 770 million units in 2014, representing an attach rate of 55 percent. Including handsets based on other air interface standards such as CDMA and TD-SCDMA, GPS-enabled handsets sales are estimated to reach about 960 million, or 60 percent of total handset shipments in 2014.

Handset vendors are increasingly focusing on improving the user experience through software and applications. Especially smartphones are receiving more attention from handset manufacturers, mobile network operators, application developers and last but not least users. Smartphones are devices that support installation of native third party applications. In the past, smartphones have been more costly than featurephones, but chipset vendors and handset manufacturers are now developing low cost smartphones with unsubsidised retail prices below € 100 for launch in 2010. Smartphones costing about € 50 can be available on the market in 2014. Encouraged by Apple’s success, major handset vendors and several leading mobile operators have now launched on-device application stores that allow users to download applications directly to their handsets. Many of these applications have some kind of support for GPS location.

GPS technology for handsets has matured, offering much better performance in terms of sensitivity, power consumption, size and price than was possible a few years ago. Support for other satellite systems such as GLONASS and Galileo will also be added over time. The first handsets with receivers for GPS and GLONASS are expected to become available in 2011 and mobile phones with Galileo compatible receivers can be expected in greater numbers in 2014 when the new system will become operational.

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 consumer market. SUPL allows deployment of A-GPS services that reduce the time-to-first-fix, lowers power consumption and enhances the sensitivity of GPS receivers. New business models have also become possible, ranging from hosted services for operators, to services deployed by handset vendors for end-users that cannot get similar services from their network operator. Besides adding support for other satellite systems that ensures more visible satellites and incrementally better performance in urban canyons, handset vendors are also starting to adopt hybrid location technologies to improve indoor performance. These technologies combine GPS with other wireless and sensor-based technologies, including Wi-Fi positioning, accelerometers, gyroscopes and electronic compasses to gradually improve performance in challenging environments where GPS signals are extremely weak or unavailable.

This report answers the following questions:

- What is driving the adoption of GPS technology in GSM/WCDMA handsets?
- Who are the leading developers of cellular, connectivity and GPS chipsets?
- What is the technology development roadmap for handset GPS in the coming years?
- What are the benefits with Assisted-GPS, A-GNSS and hybrid location technologies?
- How is GPS supported in Android, BREW, Java ME, OS X, Palm webOS, Symbian OS and Windows Mobile?
- Which handset vendors have adopted GPS in their products?
- Which are the leading vendors of GPS-enabled GSM/WCDMA handsets?
- When will satellite positioning technologies become a standard feature in handsets?
1 GNSS in mobile phones
1.1 Introduction to GPS in mobile handsets
1.1.1 Global navigation satellite system technology
1.1.2 Challenges of GPS integration in mobile handsets
1.2 GPS handset value chain analysis
1.2.1 Traditional handset vendors face competition from new entrants
1.2.2 Mobile network operators show interest in smartphones and apps
1.2.3 Handset software and applications central to new user experiences
1.2.4 Reformation of the cellular chipset industry continues
1.3 Drivers and barriers to GPS integration in handsets
1.3.1 Key drivers
1.3.2 Key barriers
1.4 Overview of key handset segments
1.4.1 Main handset segments
1.4.2 Popular handset categories and form factors
1.4.3 New devices blur the line between handsets and mobile computers
1.5 GPS handset trends
1.5.1 Proliferation of GSM/WCDMA handset models
1.5.2 Best selling GPS-enabled GSM/WCDMA handsets in 2009
1.5.3 GPS gradually becoming a standard feature in Japanese WCDMA handsets
2 Technology overview
2.1 Overview of global navigation satellite systems
2.1.1 Global Positioning System (GPS)
2.1.2 Galileo
2.1.3 GLONASS
2.1.4 Compass/Beidou 2
2.2 Mobile network location technologies and platforms
2.2.1 Mobile location technologies
2.2.2 Control Plane and User Plane location platforms
2.2.3 Location platforms and technologies in 3GPP2 standard networks
2.3 Assisted GPS and hybrid location technologies
2.3.1 Assisted GPS
2.3.2 Enhanced GPS
2.3.3 Hybrid and mixed mode technologies
2.4 GPS, cellular and wireless technology integration
2.4.1 GPS receiver functionality and architectures
2.4.2 Handset hardware and software platforms
2.4.3 Wireless connectivity technologies
2.4.4 Horizontal and vertical integration of connectivity technologies
3 GPS and wireless chipset developers
3.1 Overview of the wireless chipset industry
3.1.1 Handset baseband vendors
3.1.2 GPS and connectivity chipset vendors
3.1.3 Sensor IC vendors
3.2 GPS and connectivity chipset vendor profiles
3.2.1 Atheros Communications
3.2.2 CellGuide
3.2.3 CSR
3.2.4 Texas Instruments
3.2.5 u-blox
3.3 Cellular chipset vendor profiles
3.3.1 Broadcom
3.3.2 Freescale Semiconductor
3.3.3 Infineon Technologies
3.3.4 Marvell
3.3.5 MediaTek
3.3.6 Qualcomm
3.3.7 Renesas Technology
3.3.8 ST-Ericsson
4 Handset operating systems
4.1 Introduction to mobile operating systems
4.1.1 Proliferation of mobile operating systems
4.1.2 Efforts to reduce fragmentation for Linux and Symbian
4.1.3 Application stores provide a new channel to the market
4.1.4 Web technologies and runtimes will eventually overtake native applications
4.2 Leading operating systems and software platforms
4.2.1 The Android platform
4.2.2 BlackBerry OS
4.2.3 iPhone OS
4.2.4 Symbian Foundation
4.2.5 webOS
4.2.6 Windows Mobile
4.2.7 BREW
4.2.8 Java Micro Edition
4.3 Application stores
4.3.1 The Apple App Store
4.3.2 The Android Market
4.3.3 BlackBerry App World
4.3.4 Ovi Store
4.3.5 Windows Marketplace for Mobile
5 Handset manufacturers
5.1 Nokia
5.2 Samsung Electronics
5.3 LG Electronics
5.4 Sony Ericsson
5.5 Motorola
5.6 Research In Motion
5.7 Apple
5.8 HTC
5.9 Second tier handset vendors
5.9.1 Acer
5.9.2 ASUSTeK – Garmin
5.9.3 Dell
5.9.4 Fujitsu
5.9.5 Hewlett Packard
5.9.6 Huawei
5.9.7 Kyocera Sanyo Telecom
5.9.8 NEC Casio Mobile Communications
5.9.9 Palm
5.9.10 Panasonic
5.9.11 Pantech
5.9.12 Sharp
5.9.13 Toshiba
5.9.14 ZTE
6 Market trends and forecasts
6.1 Market trends
6.1.1 Focus on smartphones and apps among vendors and operators
6.1.2 Changing demands reshape the wireless chipset industry
6.1.3 Cost requirements drive development of integrated GPS architectures
6.1.4 Further performance improvements from A-GPS and hybrid navigation
6.2 Handset shipment forecasts
6.2.1 Handset shipment forecasts by access technology
6.2.2 Handset shipment forecasts by feature and price segment
6.3 GPS-enabled CDMA handset shipment forecasts
6.4 GPS-enabled GSM/WCDMA handset shipments
6.4.1 GPS handset vendor market shares
6.4.2 GPS handset shipments by OS and primary input method
6.4.3 GPS handset shipment forecasts by segment
6.4.4 GPS handset shipment forecasts by geographical region
6.5 GPS solution shipments and revenue forecasts
6.5.1 GPS IC vendor market shares
6.5.2 GPS receiver solution revenue forecasts
Glossary
Who should buy this report?

**GPS and Mobile Handsets** is the foremost source of information about the worldwide market for GNSS functionality in mobile handsets. Whether you are a vendor, telecom operator, investor, consultant, application developer or government agency, you will gain valuable insights from our in-depth research.

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