

Future Handset Connectivity Technologies

Future Handset Connectivity Technologies gives first-hand insights into the development of Bluetooth, WLAN, NFC and UWB technologies for mobile handsets.

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This report will allow you to:

- **Understand** the opportunities and challenges with integration of new connectivity technologies in mobile handsets.
- **Learn** about the strategies for Bluetooth, WLAN, NFC and UWB of the leading chipset and handset vendors in the mobile industry.
- **Identify** drivers and barriers for industry-wide adoption of new technology.
- **Predict** future design trends and technology developments.
- **Anticipate** the timing of mass-market introduction of new handset connectivity features.



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Will WLAN, NFC and UWB join Bluetooth in future handsets?

Numerous connectivity technologies are being integrated into mobile phones. These technologies are largely complementary, with different use cases. The Bluetooth Special Interest Group (SIG) drives the development of the Bluetooth standard. Bluetooth is a Personal Area Networking (PAN) technology optimised for low power consumption. From the onset, Bluetooth was designed to enable easy, ad-hoc pairing and medium data rate communication for numerous electronic devices. Today, the technology is available in countless devices, for instance handsets, headsets, consumer electronics and computers, medical equipment and cars. Since the introduction of the first Bluetooth-enabled handsets in 2000, the technology has seen phenomenal growth. The number of handsets featuring Bluetooth has surpassed 550 models and unit shipments exceeded 560 million in 2007.

The IEEE 802.11 standards for wireless local area networks (WLAN) have been developed to standardise wireless LANs for computer networking applications. The first mobile phones featuring WLAN connectivity became available in 2004, primarily intended for Internet access, corporate VoIP services and later, UMA fixed mobile convergence services. Moreover, the Bluetooth SIG is developing a new radio substitution architecture that will enable the use of the established Bluetooth protocols, profiles, security and pairing mechanisms to be used by a secondary radio already present in a handset to achieve faster throughput. In February 2008, the Bluetooth SIG added the IEEE 802.11 standard as an interim solution for the Bluetooth "Alternate MAC/PHY" architecture before the WiMedia Alliance ultra wideband radio becomes more widely available. The number of WLAN-enabled handset models has experienced rapid growth during 2007 and the first half of 2008. About 40 models had been announced at the end of 2006. In June 2008, more than 110 models were available, or about to become available on the market. Meanwhile, shipments have grown from slightly more than 5 million to 27 million in 2007.

Ultra wideband (UWB) is not a standard in itself, but refers to a radio technology using low energy, high bandwidth communication. The WiMedia UWB Common Radio Platform specification is being adopted by numerous standard organisations for enabling ►

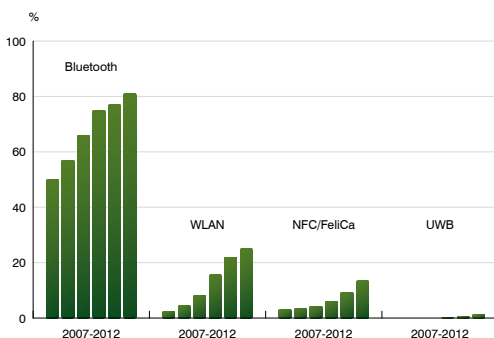
► short-range connectivity with data rates up to 480 Mbps. The radio platform has for instance been adopted by the USB-IF for the Certified Wireless USB standard and by the Bluetooth SIG as an alternative high-speed radio for the future Bluetooth specification. The first handsets with UWB radios are likely to become commercially available in the late 2009 to 2010 timeframe.

Near Field Communication (NFC) is a standard for short-range wireless, point-to-point communication between devices over distances of about 10 centimetres. When deployed in mobile phones, NFC can be used for countless applications, ranging from information exchange, electronic ticketing, electronic payments, to device pairing for establishing data transfers using complementary technologies such as Bluetooth or WLAN. In Japan, contactless payment and authentication services using mobile phones was introduced in 2004 and has since been widely deployed there. Mobile payment and ticketing services are likely to be the main drivers for NFC integration in handsets. Outside Japan, payment services using NFC largely remains in the trial state and only a few handsets are commercially available. However, the technology and business models are falling into place, thus enabling service rollouts in the near future.

In order to reduce solution cost and footprint, chipset vendors are developing multi-radio chipsets that combine multiple connectivity technologies into system-in-package or single-die system-on-chip solutions. Revenues for Bluetooth, WLAN NFC and UWB connectivity chipset solutions for mobile phones reached around US\$ 1,220 million in 2007. Berg Insight forecasts that these revenues will grow with a compound annual growth rate of 11 percent to US\$ 2,090 million in 2012. Moreover, total connectivity revenues, including AM/FM radio and GPS, are forecasted to grow from US\$ 1,660 million in 2007, to US\$ 3,050 million in 2012.

This report answers the following questions:

- How will Bluetooth evolve in the future handset environment?
- What is the roadmap for integration of WLAN in mass-market mobile phones?
- When will NFC become a widespread handset connectivity technology?
- Does UWB have a future in the mobile industry?
- Which connectivity technologies are being adopted by the main handset manufacturers?
- What impact will new technologies have on the wireless chipset value chain?
- How is the greater diversity of radios affecting wireless chipset and handset design?
- What is the current status of the standardisation work?



Projected attach rate for handset connectivity technologies (World 2007-2012)

About the Author



André Malm is a telecom analyst with a Masters degree from Chalmers University of Technology. He joined Berg Insight in 2006 and his areas of expertise include location based services, navigation services and mobile handset technologies.

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