

Superior Nokia WCDMA System:

- Modular base stations enable rapid rollout and flexible capacity
- Efficient traffic management for maximum return on investment
- Integrated transmission brings greater reliability and reduced costs
- Fast network start-up with advanced planning services and tools
- Improved O&M efficiency and effectiveness with the Nokia Network Management System
- Full support to plan, integrate and manage WCDMA networks for peak performance

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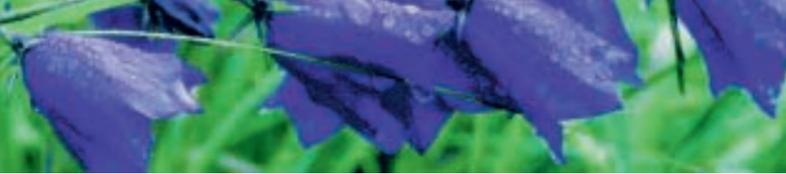
**Building 3rd Generation
business for fun and profit
Nokia WCDMA Base Station Subsystem**

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Experience the opportunity of Mobile Multimedia



See the difference

The changing needs of people on the move are bringing about a major shift in telecommunications, transferring the focus from ears to eyes.

The result is the 3rd Generation, a true convergence of voice, image and data, which will profoundly alter the way we work, shop and entertain ourselves. People can look forward to exciting new mobile multimedia services and applications, many of which are inconceivable to us now.

Technology is not the goal of the 3rd Generation, but rather what that technology can do for your subscribers. And they are willing to place a high value on these new applications and services.

Personal communications will remain as important as ever, but will be easier than ever before. A video postcard, for example, creates a new dimension in messaging that is both easy and fun. When combined with sponsored advertising content, this application becomes a fresh marketing opportunity.

In addition to traditional person-to-person telephony, new applications such as mobile Internet access offer a wealth of exciting

opportunities. With a secure multimedia communication channel at their fingertips, users will shop, play, explore – do all their favourite world wide web services – all while on the move.

Business uses for mobile multimedia also bring new possibilities, such as simultaneous videoconferencing and data exchange. In fact, a variety of intra-business solutions will become possible, well beyond mobile access to the corporate intranet and other databases.

Build the future

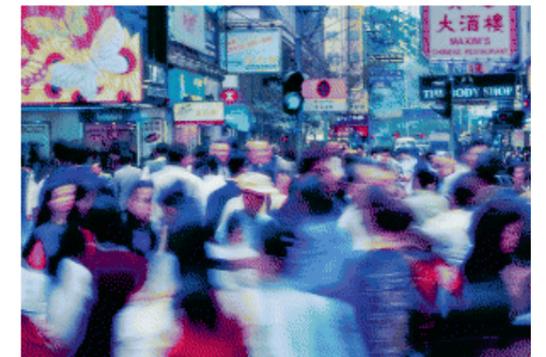
Alongside changing consumer demands and changing technology comes a changing business environment. In addition to network operators, the mobile multimedia field will be crowded with many other players who will want to benefit from the vast new opportunities on offer. Among these will be content and application providers, Internet portals providing managed gateways, and infomediaries collecting and reselling information from third parties.

The greatest opportunities will come through the creation and provision of applications and services, the added value that subscribers want. Whether these services are offered directly by the operator or via partnerships with other industry players, there is potential business for everyone involved.

Winning in this new 3G world means acting now. Seize the opportunity of mobile multimedia to make the most of your business.



As a full system supplier, Nokia provides complete 3rd Generation solutions, ranging from supply and installation of networks to billing systems and application development support. Nokia Wideband Code Division Multiple Access (WCDMA) systems and services suit your needs whatever they are, whether you have an existing 2nd Generation network or you are building a completely new mobile network.





Nokia WCDMA BSS spells business opportunity



Be fast, be first to market

Nokia's complete WCDMA Base Station Subsystem (BSS) solution includes the triple-mode Nokia UltraSite Base Station, Nokia WCDMA Radio Network Controller, integrated cellular transmission, Nokia Network Management System for 3rd Generation and the Nokia Totem™ WCDMA Network Planning System. In addition to infrastructure and software, Nokia Professional Services can provide all the support you need to build, integrate and manage your network and service applications for peak performance.

Modular base stations to build competitive advantage

The heart of this high-performance WCDMA BSS is the Nokia UltraSite Base Station and site solution.

The Nokia UltraSite WCDMA Base Station has a high level of system integration, designed to limit site space requirements while maximising the coverage of each base station (BTS). This helps to reduce both the size and number of base station sites needed, as urban site location and acquisition can be difficult and costly.

Nokia UltraSite Base Stations are easy to expand and configure to meet the demands of your subscribers while you only pay for the capacity you need. Each BTS cabinet can support up to 12 carriers and several cabinets can be chained together to provide a maximum capacity of 24 carriers. The flexible Nokia UltraSite WCDMA Base Station also allows



you to mix traffic patterns to accommodate whatever proportion of voice and data is required.

Included with Nokia UltraSite is an optional site support cabinet for battery back-up and storage of additional equipment, as well as associated antennas and cables. This complete site solution is easy to install and commission, enabling fast and easy rollout of your WCDMA network, so you can deploy new mobile multimedia services while others are still planning their 3rd Generation networks.

Control WCDMA traffic with minimum investment for maximum benefit

Making the most efficient use of your radio resources is important to the success of your multimedia service offering. With this in mind we designed the Nokia WCDMA Radio Network Controller to control and manage the radio access network for excellent performance.

The Nokia Radio Network Controller's modular architecture and dynamic allocation of processing capacity supports a wide range of call mixes and service requirements. With the Nokia Radio Network Controller, key traffic areas can be covered quickly to provide new multimedia services while eliminating the need to carry surplus capacity.

The Nokia Radio Network Controller includes the Nokia Radio Resource Management solution, which allows you to maximise and tailor your network coverage, capacity and service quality to meet your own network planning targets. This would allow you, for example, to tailor your resources to meet different quality of service needs for real-time voice traffic, video streaming, interactive data and background file download.

It is also simple to operate and maintain full network optimisation thanks to its easy-to-use graphical user interface, which can be operated from either a local terminal or the Nokia Network Management System.

Integrated transmission solutions bring low costs

Our philosophy is to design systems that help operators keep costs to a minimum. With the Nokia WCDMA Cellular Transmission solution, we have done this by incorporating ATM functions into Nokia UltraSite WCDMA Base Stations and the Nokia WCDMA Radio Network Controller. You have no need to invest in a separate ATM switching network, saving capital and operational costs, as less equipment is required on-site. This also makes site acquisition and installation much easier for faster rollout and early market entry with mobile multimedia services.

With this solution, all of the existing Nokia transmission products can be used for WCDMA transmission, in both fixed access and cellular configurations. This includes, for example, the Nokia MetroHopper Radio, Nokia MetroHub Transmission Node and Nokia FlexiHopper Microwave Radios.





Nokia Professional Services – Supporting you every step of the way

Smooth sailing in the 3rd Generation

Although Nokia BSS equipment is designed for easy implementation, the task of building a new mobile network can be a challenge. That's why we are with you during the entire process, from initial planning and implementation to managing and improving your 3rd Generation network and services.

End-to-end planning for optimised performance

Based on extensive knowledge of the telecoms and datacoms markets, Nokia is able to provide and coordinate a wide range of planning activities to help you enter the market early and succeed. From

radio network, transmission and switching planning, to building IP and ATM platforms, we can support your efforts to achieve optimum system performance and asset utilisation.

In addition to these services we also offer the

Nokia Totem™ WCDMA Network Planning System for easier network planning. Using the system's powerful editing and analysis features you can get your WCDMA network up and running as quickly as possible.

Full support of network deployment and integration

Once you have made your plans, Nokia can help you build and integrate your network so you can launch services right away. We offer a range of Rollout Services packages varying in scope from traditional implementation to a full turnkey delivery.

And to ensure your subscribers get quality services, your network should perform as a seamless entity without disruption. Our system integration services help you build end-to-end solutions containing Nokia products, third-party offerings and content provider information for maximum performance.

Powerful management for peak performance

Throughout the network lifecycle,

you will need a reliable system for managing your network and services. Nokia's Network Management System (NMS) will help you realise the full potential of your WCDMA network to meet future needs. Our Care Services provide you with the opportunity to select the right service level, enabling you to focus your resources on core competencies.

The Nokia NMS supports full integration of network operations, providing advanced tools for monitoring, analysing and optimising your network, while supporting service creation and provision as well. By combining the Nokia NMS with our network planning tools and Care Services, such as network optimisation, we can keep your network operating at peak performance and help reduce lifetime system costs to a minimum.

No matter what level of support you need, there are Nokia services and tools available every step of the way, helping you cut your workload so you can concentrate on building your 3rd Generation business.

Picture the possibilities

And it's not just WCDMA network equipment and services that Nokia is creating. We are also helping to build demand for 3rd Generation services, so that your network will find a ready market of eager customers.

As the leading supplier of mobile phones, Nokia is involved in developing open operating platforms and advanced terminal technologies for the next generation. Likewise, we have been participating in standardisation activities that will simplify and solidify this new 3G world.

Nokia is committed to helping you take full advantage of the opportunities offered by mobile multimedia. The Mobile Information Society is just over the horizon. See you there.

