

## **New additions to the powerful Ericsson portfolio for increasing GSM network capacity**

**Ericsson introduces two new cost-effective solutions to raise capacity in GSM networks. The high capacity Radio Base Station RBS 2206 doubles capacity and liberates space on existing sites – while occupying the same footprint. The GSM Capacity Booster, Ericsson's adaptive antenna solution, enables capacity expansions by up to 250 percent – far beyond what is possible today. The RBS 2206 and the GSM Capacity Booster will support third generation (3G) services.**

The number of GSM users continues to grow at unprecedented rates and the outlook for future growth shows no signs of letting up. The challenge operators often face is how to keep expanding their networks so that capacity keeps pace with ever growing demand for services.

With Ericsson's high capacity RBS 2206 and the unique GSM Capacity Booster, operators can squeeze more out of their GSM networks without having to find and finance new sites. Both solutions will support 3G services over EDGE (Enhanced Data rates for Global Evolution) and WCDMA (Wideband Code Division Multiple Access).

In addition, all macro radio base stations in Ericsson's RBS 2000 family, delivered after January 1, 1995, can also support EDGE and WCDMA by conveniently adding plug-in units. These solutions make the transition into the future easier for operators – minimizing investment and maximizing network capacity, performance and quality.

### **RBS 2206 – doubles the capacity but with the same footprint**

The RBS 2206 is good news for operators; especially those with limited floor space and those who need more capacity in high-density areas. This powerful new indoor macro base station with 12 transceivers inside each cabinet has the potential to double the capacity of its predecessor, RBS 2202, but still occupies the same footprint.

The RBS 2206 is extremely flexible. Due to its world-class radio performance, it works just as well in high-density urban areas as in low-density rural areas where coverage is the main objective. RBS 2206 also supports an extended range of more than 120 kilometers and four-branch receiver diversity – requiring fewer sites to cover a given area compared to traditional base stations.

### **GSM Capacity Booster - enables capacity expansions by up to 250%**

The GSM Capacity Booster, Ericsson's unique adaptive antenna solution, eliminates any bottlenecks in GSM 900 networks by significantly reducing interference in critical areas. The GSM Capacity Booster is a cost-effective solution for increasing capacity in urban environments without investing in expensive new macro sites.

The GSM Capacity Booster consists of an indoor macro base station (RBS 2205) and a passive eight-lobe array antenna (adaptive antenna). By tracking traffic demand, the GSM Capacity Booster sends and receives signals in eight narrow beams, always selecting the one best suited to handle the call. Since interference is significantly reduced in both directions, operators can increase network capacity whilst maintaining quality of service. Used in only 15 percent of the existing macro cells in high traffic areas, capacity can be doubled.

Ericsson's RBS 2206 and GSM Capacity Booster are additional parts of Ericsson's High Capacity Solutions, giving operators a broad range of cost-effective options to increase network capacity – without requiring new sites or new frequencies. The solution portfolio provides a general, future-proof transition path, from solutions to raise the capacity of GSM networks to those prepared for 3G services. This makes it possible for operators to add capacity for more users and more advanced services as their business needs evolve and, at the same time, to maximize network resources.

*Ericsson is the leading provider in the new telecoms world, with communications solutions that combine telecom and datacom technologies with freedom of mobility for the user. With more than 100,000 employees in 140 countries, Ericsson simplifies communications for its customers – network operators, service providers, enterprises and consumers – the world over.*

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#### **About GSM**

GSM is the world's most widely deployed wireless communications standard. Ericsson is the global market leader in GSM, with close to half of the world's 250 million GSM users connected by Ericsson systems. More than 140 operators in more than 75 countries around the world rely on GSM systems from Ericsson.

## BACKGROUND INFORMATION

### Facts about other High Capacity Solutions from Ericsson

***Adaptive Multi Rate (AMR)*** continuously adapts the codec bit-rates used, depending upon the interference level of the channel selected, to get the best possible speech quality for all radio channel environments.

***Cell load sharing*** optimizes use of existing resources by distributing traffic to a neighboring cell when the traffic load is heavy in one cell, but lighter in the surrounding cells.

***Discontinuous Transmission*** suspends radio transmission during a pause in conversation to save power, reduce interference and increase capacity.

***Dual Band Solutions*** enable GSM 900 operators to use additional spectrum in the 1800 MHz band to boost capacity, and 1800 MHz operators to use the 900 MHz band to expand coverage area. This solution is planned to be available for 1900 MHz operators.

***Dynamic Half Rate Allocation*** dynamically assigns speech traffic channels for new calls to full- or half-rate mode based on whether the load in a given cell exceeds pre-set thresholds.

***Dynamic Power Control*** reduces network interference to less than half of its original level, by regulating output power from the mobile station and the base transceiver station. Its quality-based algorithm outperforms the ETSI-specified algorithm used by most other GSM vendors.

***Dynamic Underlaid/Overlaid Subcells*** automatically divides traffic in a cell in two, between an underlaid subcell, which carries most of the traffic, and an overlaid subcell, which carries traffic only during peak periods.

***Fractional Load Planning (FLP)*** is based on synthesized frequency hopping. It facilitates easy frequency planning and faster network roll-out. The two most commonly used frequency allocation patterns are 1/1 and 1/3. For large bandwidths, FLP provides similar capacity gain as MRP (Multiple Reuse Pattern). For narrow bandwidths, however, it can provide up to double the capacity of MRP.

***Frequency Hopping*** enables transmission over one frequency during one time slot and over another during the next time slot, and so on. This limits exposure of the signal to interference. Two types of frequency hopping are available, base band frequency hopping and synthesized frequency hopping.

***Hierarchical Cell Structure*** uses traffic control parameters set by the operator to distribute traffic among different types of cells (macro-, micro, pico, etc.) in up to eight different network layers.

***High Capacity Base Station Controller*** handles more than 500 cells and is scalable from one cabinet with 144 transceivers to up to 1,020 transceivers.

***Hot Spot Finder*** is a unique tool that identifies high-traffic areas and, before deployment, measures the traffic level that the microcells will carry in these areas. This makes it possible to guarantee profitable revenue streams before investments are made.

***Intracell Handover*** moves a call from one channel to another within the same sub-cell when the quality of the mobile station connection, at a given signal strength, falls below a certain threshold.

***Multiple Reuse Pattern*** is the most efficient technique for implementing base band frequency hopping in a network. By allocating a different reuse to each transceiver and using frequency hopping to average out the differences, it is possible to achieve a very tight frequency reuse. Compared to conventional non-hopping techniques, MRP can double network capacity. MRP is widely used in many networks.

***RBS 2302*** is an indoor/outdoor micro base station that provides up to 15 times more capacity than a traditional single-transceiver micro base station.

***RBS 2401*** is the world's first two-transceiver pico base station with built-in transmission and power supply. It provides three times the capacity of any single-transceiver solution.