



**IEEE UKRI – SPC Chapter  
& Communication Soc.**



**The Ericsson Way Forward to High Capacity GSM Networks**

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by

**Dr Husni Hammuda**

**Network Performance Manager and Technical Advisor (Principal Radio Network Design Consultant),  
Ericsson Limited, Turnkey Solutions, Guildford, Surrey, UK.**

***Introduction:***

The capacity demand is increasing in the GSM systems. Operators are looking for alternatives to meet this increasing demand that also supports the continued improvement of network quality, enhances offered services and are cost efficient.

Ericsson is offering an extremely attractive way to a manifold increase of the radio network capacity, in a very spectrum and cost efficient way, with the Ericsson GSM systems. The concept is based on tight frequency reuse, multi band operation and micro cells. The benefits of frequency hopping are taken advantage of to achieve a tighter frequency plan. A tighter frequency reuse will allow for more transceivers per cell and/or making frequencies available for a very spectrum efficient micro cell implementation. Adaptive Multi Beam Antennas is a new technique that substantially increases the gain of tighter frequency reuse. It can increase the capacity up to 250% compared to the tightest reuses possible today. Operators with access to both the 900 MHz and the 1800 MHz frequency bands can implement multi band functionality achieving a seamless service between the bands.

Ericsson has performed in-depth studies of various tight frequency reuse schemes based on using frequency hopping in conjunction with other radio network features available in the Ericsson GSM system. Advanced simulations have been performed and by working closely together with some operators the concepts have been verified in real networks.

Today, many operators are facing the challenge of introducing GPRS/EDGE services in their networks. While in the first phase no special considerations have to be made in the radio network due to similar interference robustness of speech and GPRS phase one, the second phase of GPRS and especially EDGE will require special attention to achieve the highest possible data rates. Here the network improvements offered by The Way Forward will provide invaluable assistance to operators, allowing successful introduction of high speed data services.

**All members and nonmembers are welcome.**

**For further information please contact the Chairman of SP chapter for UKRI**

***Dr Marwan Al-Akaidi***

**Chairman IEEE UKRI - Signal Processing Chapter**

**IEEE UKRI Conferences Chair**

**Faculty of Computing Sciences & Engineering, De Montfort University, Leicester, LE1 9BH.**

**Tel: 00 44 116 2577098, Fax: 00 44 116 2577052, Mobile: 0044 (0) 7884 235159**

**email: mma@dmu.ac.uk**