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Subject : standardization of a full solution based on the UTRA TDD mode

As decided in january 1998, the UTRA combines a FDD mode (WCDMA) and a TDD mode (TD/CDMA). Both must allow for seamless handover to and from GSM. TDD mode allows only short range communications.
On the other hand, the IMT 2000 frequencies, as allocated by ITU, comprise 35 MHz of unpaired bands, of which a certain amount will be for unlicensed uses (cordless telephony like), the remaining being allocated to cellular operators in the frame of their license.

From a marketing point of view, there is an opportunity for the launch of multimedia services on the TDD mode, early in the XXIst century. At that time, the coverage of GSM – at least in the countries that adopted this standard – will be quite complete, allowing GSM customers to be accustomed to universal service (anywhere, anytime). Therefore, the idea of "islands" of coverage for the deployment of UMTS could be faced with difficulties to be explained to the customers. Especially with a "cell-breathing" system, where the cell boundaries are evolving, making it difficult to draw an honest coverage map.

For ergonomy reasons, it may be forecast that real multimedia applications (above what is already achievable with GSM/GPRS) will be only of interest for stationary users, either at home or in the premises of a company. Many will use a card plugged in a computer for internet application, possibly internet telephony. Therefore, it seems that the coverage of UMTS should be focused at the beginning on business premises as well as home multimedia. It means a frontal competition with fixed wired solution, in front of which UMTS must be cost effective. UMTS TDD mode appears ideal to bring standardized low cost equipments that ensure local service, as well as handover to and from GSM for outdoor coverage (in the limits of the bit rates offered by the local operator).

On this basis, 3GPP should standardize a complete and coherent service, involving core network, system and services applications, terminals as well as radio access network. The basis is to design only one terminal offering UMTS-TDD and GSM, capable of being used on a company network operated by a cellular operator as well as on a home base station (cordless telephony type). The same search of high volumes, that bring low cost solutions, induces to standardize only one base station for both uses, i.e. indoor home base station and base stations deployed for the coverage of the premises of a company.
For the business premises, a local switching facility should be provided, allowing for local routing of local traffic. The connection of the radio system to the inner network of the company should be possible either on a LAN architecture, or with a classical PABX structure.
This must be compatible with a distant management of "foreign" mobiles entering the coverage of the company's base stations. There will be a RNC installed in the company's premises, connected to the operator's network.

In the case of unlicensed frequencies being used, e.g. for home base stations and small businesses such as garages, there will be no management by a cellular operator. The equipment will be connected to any fixed operator for incoming and outgoing calls.

In all cases, the terminal must be standard, as well as the base station, as a "generic" solution, in order to bring the prices down, as low as possible. The mobile will include a SIM card allowing for authentication and encryption as well as for a recognition of the allowed networks (e.g. home base station). The base station will be able to scan the whole frequency range. A system will forbid the use of a frequency already occupied except for a base station connected to a RNC.