Source:	TIM/CSELT, VODAFONE, FRANCE TELECOM, T-MOBIL, TELIA, OMNITEL, MANNE? MOBILFUNK, E-PLUS
Title:	UE PHYSICAL LAYER CAPABILITIES FOR UTRA
Document for:	Information
Agenda Item:	10

There has been some ongoing debate within 3GPP TSG RAN WG1 on physical layer features that should be optional or mandatory. Operators feel this to be a very important issue, in order to achieve a proper operation of the system.

It is critical for operators to be able to plan and dimension a system with a clear view of what physical layer capabilities or features will be standard in the initial phase. It would be highly inefficient or even impossible to plan for a vast pool of UE optional physical layer capabilities. In a similar way, performance and roaming could be severely compromised if a terminal not supporting some features enters a network whose planning is based on "optional" features (for example, Tx antenna diversity and site selection diversity). In fact system planning and dimensioning have to be based on the 'worse case' MS and if the set of available options is too large the impact on the complexity of the planning phase as well as on the cost of the overall system would be inacceptable.

With this in mind it is the belief of operators that features affecting layer 1 must be supported by ALL UE. It has to be made clear that, e.g., downlink transmit diversity or power control are not optional for the UE since they affect the lower layer and they are not services as such.

To cite a few examples from GSM, DTX, Slow Frequency Hopping and Power control were features that had to be supported by MS by day 1 (in GSM terminology, mobile stations are called MS and not UE, as in UMTS) even though initially these features were not used by operators. However, they are currently essential tools and one can say that they are used by default and not as an option.

Recommendation

The Operators listed as authors of this document believe that not implementing the features affecting layer 1 in all UE from day 1 is likely to severely affect the network performance. It is also felt that a coordinated approach on UE capabilities definitions is needed as this affects not only layer 1 but also layers 2/3. For example, if a L1 feature is mandatory, then we need to ensure that protocol issues linked to this feature will necessarily be specified in time and supported by all UEs. As UE capabilities is an important issue for network operator to plan a network, we are recommending the following actions:

- features impacting layer 1 and enhancing the system by e.g. increasing network capacity shall be indicated as mandatory in document S1.02 « UE capabilities » or removed from 3 GPP specifications.

- It is also requested to clarify responsibilities for management of UE capabilities specification(s) between all 3GPP groups working on radio interface and more generally between TSG RAN and TSG T on this issue and on the related issue which is UE classes.