

Agenda Item: 6.6.
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Introduction

The third generation services will be multimedia services:

- Video
- Internet
- Videoconference
- E-Mail
- Audio services

So it is commonly considered that the global traffic will present a consequent asymmetry. For the operators this issue is crucial because it implies impacts on the network design.

If the operator want to answer the market demand, it has to be able to easily design its network.

Use of the TDD mode in the paired bands

To support these types of services, the network has to offer the desired asymmetry. In order to achieve this asymmetry between uplink and downlink it is necessary that the use of both modes in the spectrum be flexible.

In addition we do not have to forbidden the use of the TDD mode in the paired band because operators may desire to design a TDD mode only network.

So in the document 22.00, we propose this change:

7 UTRAN capabilities

NOTE : The term performance refers in this clause to the realisation of the QoS objectives inside the UTRAN.

UTRAN capabilities for UMTS are the complete set of bearer capabilities and bearer control specified in UMTS 22.05. The UTRAN shall have the following capabilities :

- 1) A UTRAN shall be contained within only one UMTS network. (In the case of a network with a phase 1 UMTS core network consisting of an evolved GSM core network, it shall be possible to connect the UTRAN to the GSM NSS and GPRS backbone infrastructures or only one of them.)
- 2) The UTRAN shall support the set-up, re-negotiation and clearing of connections with a range of traffic and performance characteristics. The re-negotiation may result from an upper layer request or a change in the radio conditions (handover, cell load modification,...) and may be mobile station or network initiated. It shall be possible for the UTRAN to apply the following traffic policing mechanisms such as :
 - . connection admission control (CAC) during connection set-up and re-negotiation,
 - . flow control (FC) on a connection during its lifetime,
 - . usage parameter control (UPC) on a connection during its lifetime..
- 3) The UTRAN shall support a range of traffic and performance characteristics for the connectionless traffic.
- 4) The range of traffic and performance characteristics that shall be supported by UTRAN for connection oriented and connectionless traffic is indicated in TS 22.05 sections 5.2 to 5.4.
- 5) The UTRAN shall allow one mobile termination to handle more than one bearer service simultaneously and to have bearer services of different connection modes. It is nevertheless expected that the terminal and network capabilities will put some limitations on the number of bearer services that can be handled simultaneously. It shall be possible for each connection to have independent traffic and performance characteristics. It shall be possible for each connectionless message to have independent traffic and performance characteristics.
- 6) Seamless handover of active bearer service(s) from a single mobile termination, between cells of one UTRAN shall be supported. This shall result in an imperceptible loss of speech (if any) for the user of telephony services and without incurring degradation of QoS for data services.
- 7) The mobile terminals and the base stations shall support the use of the TDD mode in the bands 1900-1980 MHz, 2010-2025 and 2110 – 21170 MHz
- 8) At least one Capability Class shall be standardised for mobile terminals supporting more than one UTRA mode (e.g. UTRA FDD and TDD modes). It shall support monitoring of the different types of cells in idle mode (cell reselection procedure) and active mode (handover preparation procedure).
- 9) For UMTS networks composed of UTRANs with different UTRA modes, the cell selection and the paging procedures shall accommodate to the fact that service areas may be covered by cells supporting one specific mode (e.g. FDD or TDD mode), and cells supporting more than one mode (e.g. FDD and TDD modes).
- 10) Handover of one mobile termination handling one or more bearer services between cells of two UTRANs using different UTRA modes and operated by one single UMTS network operator shall be supported in both directions. Furthermore, handover between cells using two different UTRA modes should be supported similarly to handover within one mode.
- 11) The UTRAN shall facilitate determination of the location of a UMTS mobile termination. The realisation of a positioning service can be determined by several methodologies, namely *mobile-based positioning*, *network-based positioning*, or a *hybrid position* architecture. It shall be possible for the location precision to be a UMTS network operator choice, with the precision of the location varying from one part of the service area to another. It shall be possible to achieve a minimum precision of around 50 meters in all types of terrestrial radio environments. Location requirements are detailed in UMTS 22.05 subclause 8.5.
- 12) The UTRAN shall support the Localised Service Area (LSA) concept. It shall facilitate user-dependent radio resource selection based on LSA (e.g. when user is located at his office, radio coverage provided with indoor radio solutions should be preferred). Corresponding GSM feature has been specified in GSM 02.43.
- 13) The optimisation of the UTRAN radio interface shall be based upon the objectives expressed in UMTS 22.05 clause 5.

- 14) Standardised protocols shall be defined for the operation, administration and maintenance of each of the UTRAN components in UMTS phase 1 in cooperation with ETSI TMN.
- 15) The USIM requirements defined for later releases of UMTS should be taken into account in the design of UTRAN (for any impact).