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Contents

Foreword

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Introduction

Packet-oriented features like HSDPA and E-DCH in UMTS systems will promote the subscribers' desire for continuous connectivity, where the user stays connected over a long time span with only occasional active periods of data transmission, and avoiding frequent connection termination and re-establishment with its inherent overhead and delay.

This is the perceived mode a subscriber is used to in fixed broadband networks (e.g. DSL) and a precondition to attract users from fixed broadband networks.

For a high number of users in the cell it can be assumed that many users are not transmitting any user data for some time (e.g. for reading during web browsing or in between packets for periodic packet transmission such as VoIP).The corresponding overhead control channels and dedicated channels will significantly limit the number of users that can be efficiently supported.

As completely releasing dedicated channels during periods of temporary traffic inactivity would cause considerable delays for reestablishing data transmission and a corresponding bad user perception, this WI is intended to reduce the impact of control channels while maintaining the DCH state and allowing a much faster reactivation for temporarily inactive users.

1 Scope

The present document summarizes the work done under the WI "Continuous Connectivity for Packet Data Users for 1.28Mcps TDD" defined in [1] by listing technical concepts addressing the objectives of the work item (see below), analysing these technical concepts and selecting the best solution (which might be a combination of technical concepts).

The objective of this work item is to reduce the code consumption (e.g. overhead of physical control channels or related signaling messages) of packet data users for both real-time (e.g. VoIP) and non real-time services, e.g. for users which have temporarily no data transmission in either uplink or downlink. Packet data users as considered in this work item are using only HS-DSCH/E-DCH channels without UL DPCH and DL DPCH.

The aim is to increase the number of packet data users in the UMTS 1.28Mcps TDD system that can be kept efficiently in CELL_DCH state over a longer time period and that can restart transmission after a period of temporary inactivity with a much shorter delay (for example, <100ms) than would be necessary for reestablishment of a new connection.

Another aim is to reduce UE power consumption in CELL_DCH state over a long period by DTX and DRX.

The present document provides the base for the following preparation of change requests to the corresponding RAN specifications.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
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[1] 3GPP Tdoc RP- 080085: " New Work item Proposal: Continuous Connectivity for packet data users for 1.28Mcps TDD ", TSG RAN #39, Puerto Vallarta, Mexico, 04 - 07 March 2008.

[2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[3] 3GPP TS 25.221: "Physical channels and mapping of transport channels onto physical channels (TDD)".

[4] 3GPP TS 25.222: "Multiplexing and channel coding (TDD)".

[5] 3GPP TS 25.223: "Spreading and modulation (TDD)".

[6] 3GPP TS 25.224: "Physical layer procedures (TDD)".

[7] 3GPP TS 25.225: "Physical layer – Measurements (TDD)".

[8] 3GPP TS 25.306: "UE Radio Access Capabilities".

[9] 3GPP TS 25.308: "UTRA High Speed Downlink Packet Access (HSDPA); Overall description; Stage 2".

[10] 3GPP TS 25.319: "Enhanced uplink; Overall description; Stage 2".

[11] 3GPP TS 25.321: "Medium Access Control (MAC) protocol specification".

[12] 3GPP TS 25.331: "Radio Resource Control (RRC) Protocol Specification".

[13] 3GPP TS 25.433: "UTRAN Iub Interface NBAP Signalling".