Presentation of Specification to TSG or WG

Presentation to:	**TSG-RAN Meeting #12**
Document for presentation:	**TR 25.839 Version 0.2.0**
Presented for:	**Information**

Abstract of document:

The present document is to help the TSG RAN WG3 group to specify the changes to existing specifications, needed for the introduction of the "Uplink Synchronous Transmission Scheme (USTS)" option for Release 5.

Changes since last presentation to TSG-RAN Meeting #11:

Chapter2 (References) and chapter3 (Abbreviations) were modified. Chapter4 (Introduction) and chapter5 (Requirements) were included.

Outstanding Issues:

None

Contentious Issues:

None

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Technical Report

3rd Generation Partnership Project;
Technical Specification Group Radio Access Network;
Uplink Synchronous Transmission Scheme (USTS)
(Iur/Iub aspects)
(Release ~~2000~~5)

Reference

<Workitem>
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Keywords

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Foreword

This Technical Report(TR) has been produced by the 3rd Generation Partnership Project (3GPP), Technical Specification Group RAN.

The contents of this TR are subject to continuing work within the 3GPP TSG and may change following formal TSG approval. Should the TSG modify the contents of this TR, it will be re-released with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The purpose of the present document is to help the TSG RAN WG3 group to specify the changes to existing specifications, needed for the introduction of the "Uplink Synchronous Transmission Scheme(USTS)" option for Release 20005.

WG1 is the leading working group of this Study Item and has its own TR. The purpose of this TR is not to replace the TR or any decisions made in the leading WG. Rather, it is intended to gather all the information in order to trace the history and the status of the Work Task in other RAN WGs, and discuss issues that WG3 has impact on.

It is not intended to replace contributions and Change Requests, but only to list conclusions and make references to agreed contributions and CRs. When solutions are sufficiently stable, the CRs can be issued.

It describes agreed requirements related to the Study Item.

It identifies the affected specifications with related Change Requests.

It also describes the schedule of the Study Item.

This document is a 'living' document, i.e. it is permanently updated and presented to all TSG-RAN meetings

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.

For a specific reference, subsequent revisions do not apply.

For a non-specific reference, the latest version applies.

[1] TS 25.211 : Physical channels and mapping of transport channels onto physical channels (FDD)
[2] TS 25.213 : Spreading and modulation (FDD)
[3] TS 25.214 : FDD : Physical layer procedures
[4] TS 25.302 : Services provided by the Physical Layer
[5] TS 25.331 : Radio Resource Control (RRC) Protocol Specification
[6] TS 25.423 : UTRAN Iur Interface RNSAP Signalling
[7] TS 25.433 : UTRAN Iub Interface NBAP Signalling
[8] TS 25.435 : UTRAN interface User Plane Protocol for Common Transport channel Data Streams
[9] TR 25.926 : UE Radio access capabilities definition
[10] TR 25.854 : Study Report for Uplink Synchronous Transmission Scheme (USTS)

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

3.2 Symbols

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CFN	Connection Frame Number
DPCCH	Dedicated Physical Control CHannel
DPDCH	Dedicated Physical Data CHannel
~~RTD~~	~~Round Trip Delay~~
RTT	Round Trip Time
RTPD	Round Trip Propagation Delay
TAB	Time Alignment Bit
T_{ref}	Reference time
UE	User Equipment
USTS	Uplink Synchronous Transmission Scheme
UTRAN	Universal Terrestrial Radio Access Network

4 Introduction

4.1 Background

Uplink Synchronous Transmission Scheme feature is one of the study items for the WCDMA Release ~~20005~~. In this technical report ~~(draft)~~, the requirements and detail solutions are described

4.2 Overview

Uplink Synchronous Transmission Scheme(USTS) is an alternative technology applicable for low mobility terminals. USTS can reduce uplink intra-cell interference by means of making a cell receive orthogonalized signals from UEs. To orthogonalize receiving signals from UEs,

- the network may allocate the same scrambling code to more than one UE,
- the different channelization codes are allocated to all dedicated physical channels across all UEs in a cell and the spreading factor and node number of channelization code are delivered from network to each UE, and the signal transmission time of each UE is adjusted by UTRAN.

The spreading and modulation scheme for USTS is same as section 4 of TS 25.213. In case of USTS, the long scrambling code described in section 4.3.2.2. of TS 25.213 is used. However, this long scrambling code is not UE specific, but cell specific. In order to generate the cell specific long scrambling code, the initial loading value of PN generator is determined by the network

The channelisation codes for DPDCH and DPCCH in a UE are chosen to follow OVSF code allocation rule. More information about the method for the channelization codes allocation for USTS is described in this document later.

In a USTS mode, time alignment is required to preserve orthogonality between channelisation codes from different UEs and also to properly despread the cell-specific long scrambling code. The transmission time control is carried out by two steps. The first step is Initial synchronization and the second is tracking.

1) Initial synchronization: Adjust transmission time through the initial timing control message given by higher layer

~~3G TR 25.XXX839 V0.2.0 (2001-05)~~ ~~Release 2000~~ ~~3G TR 25.XXX839 V0.2.00(20001-056)~~ ~~3G TR 25.XXX839 V0.1. 10(20001-085)~~

2) Tracking process (Closed Loop Timing control): Adjust the transmission time through the Time Alignment Bit (TAB) over DPCCH.

5 Requirements

This section describes the requirements to the solutions of USTS regarding Iur/Iub Interfaces.

5.1 General requirements

The solution should be described in the TR 25.854[10] and provided by leading WG.

5.2 Requirements in case of USTS

Required changes in RNC, Node B and UE are given in the TR 25.854[10], For the support of USTS, the following functionality's should be provided.

- Parameter configuration for USTS in a cell
- Initiation and termination of USTS
- Soft Handover for USTS

6 Study Area

This section gives a summary of areas that have been identified where study needs to be performed to complete the study item.

6.1 General

In this section, the general aspect of the uplink syncronous transmission scheme will be discussed.

6.2 Discussions in Leading Group

In this section, the discussions in Leading group and contents TR of the Leading group will be described.

6.3 Discussions in WG3

In this section, the discussions in WG3 will be described.

6.4 Impact to other WGs

In this section, the impact to other WGs of the discussions in WG3 will be described.

7 Agreements and associated agreed contributions

This section documents agreements that have been reached and makes reference to contributions agreed in RAN-WG3 with respect to this Study item.

8 Specification Impact and associated Change Requests

This section is intended to list the affected specifications and the related agreed Change Requests. It also lists the possible new specifications that may be needed for the completion of the Work Task.

9 Backward Compatibility

In this section, the backward compatibility will be discussed.

10 Project Plan

10.1 Schedule

Date	Meeting	Scope	[expected] Input	[expected]Output

10.2 Study Item Status

	Planned Date	Milestone	Status

11 History

Document history		
V0.0.1	2000-08	First proposal
V0.1.1	2001-05	Chapter2(References) and chapter3 (Abbreviations) were modified. Chapter4(Introduction) and chapter5(Requirements) were included
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