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Technical Report

3rd Generation Partnership Project (3GPP);
Technical Specification Group (TSG) RAN;

Node B Synchronisation for TDD (Iub/Iur aspects)
Release 2000

Reference

<Workitem> (<Shortfilename>.PDF)

Keywords

<keyword[, keyword]>

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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 3GPP 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 m.t.e
where:

m indicates [major version number]

x the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

y the third digit is incremented when editorial only changes have been incorporated into the specification.

1 Scope

The purpose of the present document is to help the TSG RAN WG3 group to specify the changes to existing WG3 specifications, needed for the introduction of the “Node B Synchronisation for TDD”. It is intended to gather all information in order to trace the history and the status of the Work Task in RAN WG3. It is not intended to replace contributions and Change Requests, but only to list conclusions and make reference to agreed contributions and CRs. When solutions are sufficiently stable, the CRs can be issued.
This TR describes agreed requirements related to the Work Task, and split the Work Task into “Study Areas” in order to group contributions in a consistent way.
It identifies the affected specifications with related Change Requests.
It also describes the schedule of the Work Task.
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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] RP-000055, Work Item Description: Node B Synchronisation for TDD
[2] TR 25.836, Node B Synchronisation for TDD (Release 2000).
[3] 3G TS 25.402: "Synchronisation in UTRAN, Stage 2".
[4] 3G TS 25.433: "UTRAN Iub Interface NBAP Signalling".
[5] 3G TS 25.423: "UTRAN Iur Interface RNSAP Signalling"

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:

4 Introduction

4.1 Task Description

Node B synchronisation for TDD is a release 2000 work item described in [1], that was agreed at TSG-RAN#7 meeting. This work item enables the TDD Inter Node B Node Synchronisation via the air interface. This includes the synchronisation of cells among each other belonging to the same Node B or to neighbouring Node B.

4.2 Rationale for Node B Synchronisation for TDD

For the rationale for Synchronisation of Node B for TDD in the UTRAN refer to [2].

5 Requirements

For support of the TDD Node B synchronisation the following ~~procedures~~ functionalities have to be provided:

- Synchronisation of the radio frame clock and multiframe clock between neighbouring cells
- Possibility to synchronise cells without external reference at each Node B
- Possibility to synchronise the TDD cells belonging to the same or to different Node B to an external clock (e.g. GPS) provided at a sync port.

~~- Additional Node B configuration procedures in support of TDD Node B synchronisation if necessary~~

~~- Neighbouring cell measurement procedures in order to measure the timing deviation between neighbouring cells~~

~~- Synchronisation adjustment procedures controlled by the CRNC for synchronisation of neighbouring cells via the air interface~~

~~- Alarming procedures in case a cell has lost its synchronisation.~~

~~- Delay compensation procedures that compensate the propagation delay on the transmission line between Node Bs in case over the air synchronisation is not available and Node Bs are synchronised to an external reference at the Sync port in a daisy chain configuration.~~

6 Study Areas

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

6.1 Neighbouring Cell Measurement ~~procedures~~

6.2 Synchronisation Adjustment ~~procedures~~

6.3 Synchronisation alarming ~~procedures~~

6.4 Delay Compensation

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. This section is split according to the above mentioned Study Areas.

7.1 Neighbouring Cell Measurement ~~procedures~~

7.2 Synchronisation Adjustment ~~procedures~~

7.3 Synchronisation alarming ~~procedures~~

7.4 Delay Compensation

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.

~~9~~10 Project Plan

~~9.1~~10.1 Schedule

Date	Meeting	Scope	[expected] Input	[expected]Output

~~9.2~~10.2 Work Task Status

	Planned Date	Milestone	Status
1.			
2.			

~~10~~11 Open Issues

~~11~~12 History

Document history		
V0.0.1	2000-07	First proposal
Rapporteur for 3GPP RAN TR xx.xxx is:		
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