3G TR 25.938 V0.1.10 (2000-1208)

Technical Report

3rd Generation Partnership Project;
Technical Specification Group Radio Access Network;
Terminal Power Saving Features
(Iur/Iub aspects)
(Release 2000)

Reference

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Keywords

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Contents

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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 pupose 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 “Terminal Power Saving Features” option for Release 2000.

WG1 is the leading working group of this Work Item (WI) 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 Work Task.

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.

~~[1] 3G TS 25.211 (V3.2.0): "Example 1, using sequence field".~~

[1] 3G TR 25.840 (V1.0.0): "Terminal Power Saving Features”

[2] 3G TS 25.212 (V3.2.0): "Example 2, using fixed text".

[3] 3G TS 25.213 (V3.2.0): “”

[4] 3G TS 25.214 (V3.2.0): “”

[5] 3G TS 25.215 (V3.2.0): “”

[6] 3G TS 25.302 (V3.2.0): “”

[7] 3G TS 25.331 (V3.2.0): “”

[8] 3G TS 25.402 (V3.2.0): “”

[9] 3G TS 25.433 (V3.2.0): “”

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

DSCH Downlink Shared Channel

4 Introduction

4.1 Background

Terminal power saving feature is one of the work items for the WCDMA Release 2000. In this technical report ~~(draft)~~, the requirements and detail solutions are described

5 Requirements

This section describes the requirements to the solutions of terminal power saving feature.

5.1 General requirements

- The solution should be described in the TR 25.840 [1] and provided by Leading WG.

5.2 Requirements in case of Gated DPCCH Transmission Scheme with DSCH in FDD

Required changes in Node B and UE are given in [1]. For support of gated DPCCH Transmission, the following functionality's should be provided.

- Setting Gated DPCCH Transmission scheme in a cell
- Initiation and termination of Gated DPCCH Transmission scheme
- Soft handover during gating

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 Gated DPCCH Transmission

In this section, the gated DPCCH transmission which is a solution for the terminal power saving features is described.

6.1.1 General

In this section, the general aspect of gated DPCCH transmission will be discussed.

6.1.2 Discussions in Leading Group

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

6.1.3 ~~Discussions in WG3~~Possible Gating Signalling

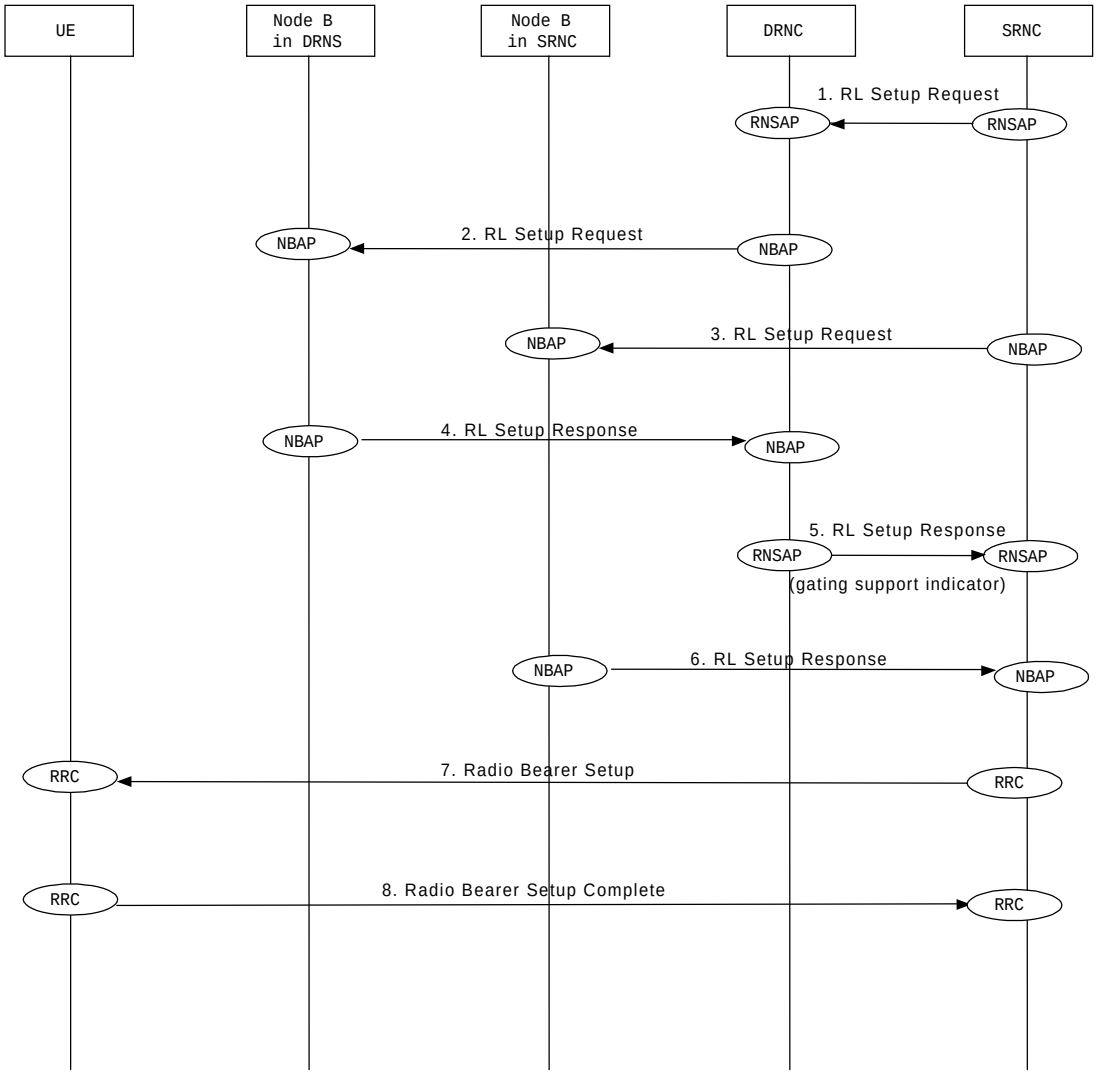
~~*In this section, the discussions in WG3 will be described.*~~

6.1.3.1 Gating Setup

- When CRNC sets up a cell, CRNC sends Cell Setup Request message with gating indicator.
  Parameter: *gating Indicator*
- If CRNC sends gating indicator as gating on and the Node B does not support gating operation, then Node B sends **Cell Setup Failure** with cause value gating not supported
  Parameter: *gating not supported*

6.1.3.2 Radio Link Setup

- When SRNC sets up a radio link, DRNC can send gating support indicator as a part of neighboring cell information in the Radio Link Setup Response message and SRNC will save the information.
- If one of the cells that will have radio link does not support gating operation, SRNC shall terminate and not initiate gating operation.

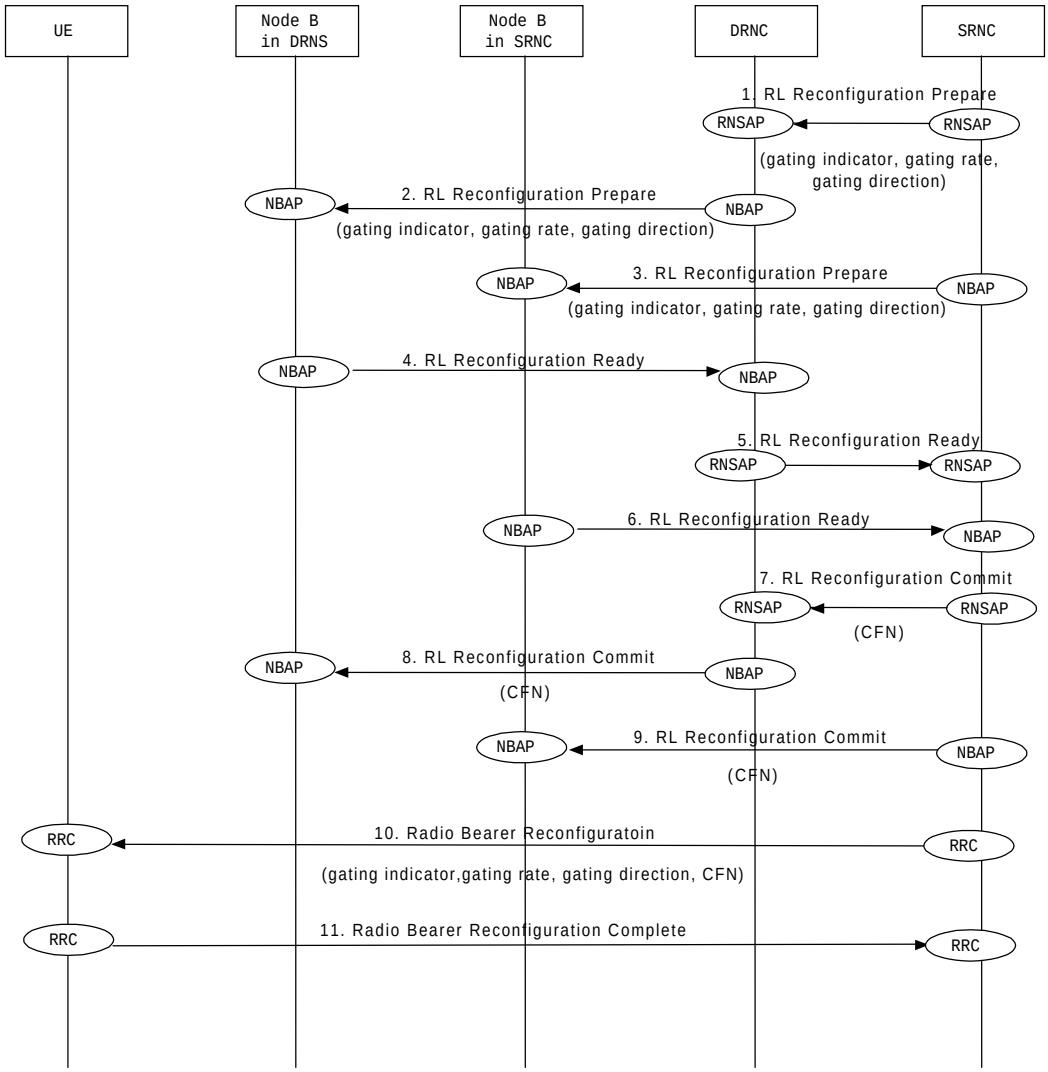


1. When SRNC sets up a Radio Link via the DRNC, SRNC sends **Radio Link Setup Request** message to DRNC
2. DRNC requests its Node B to setup a Radio Link sending **Radio Link Setup Request** message.
3. SRNC requests its Node B to setup a Radio Link sending **Radio Link Setup Request** message.
4. Node B allocates resources and notifies DRNC that the Radio Link is setup sending **Radio Link Setup Response** message.
5. DRNC notifies SRNC that the Radio Link is setup. DRNC can send the information whether neighboring cells including the active cell support gating or not using IE gating support indicator.
   Parameters: *gating support indicator*.
6. Node B allocates resources and notifies SRNC that the Radio Link is setup sending **Radio Link Setup Response** message.

7. SRNC sends UE **Radio Bearer Setup** message.
8. UE notifies SRNC that radio bearer is setup sending **Radio Bearer Setup Complete** message.

6.1.3.3 Gating Initiation and termination

- When SRNC determines gating initiation/termination, SRNC sends NBAP/RNSAP message **Radio Link Reconfiguration Prepare** the parameter, gating indicator and SRNC may include the gating parameters (gating rate and gating direction).
- SRNC sends RRC message **Radio Bearer Reconfiguration** or **Transport Channel Reconfiguration** or **Physical Channel Reconfiguration** to initiate/terminate gating operation with the gating parameters.
- During gating operation, SRNC and UE may restrict TFCIs in order to keep lower data rate.
- Gating initiation and termination can be synchronized since Synchronized Radio Link Reconfiguration procedure and Radio Bearer Reconfiguration procedure have activation time which can be synchronized.



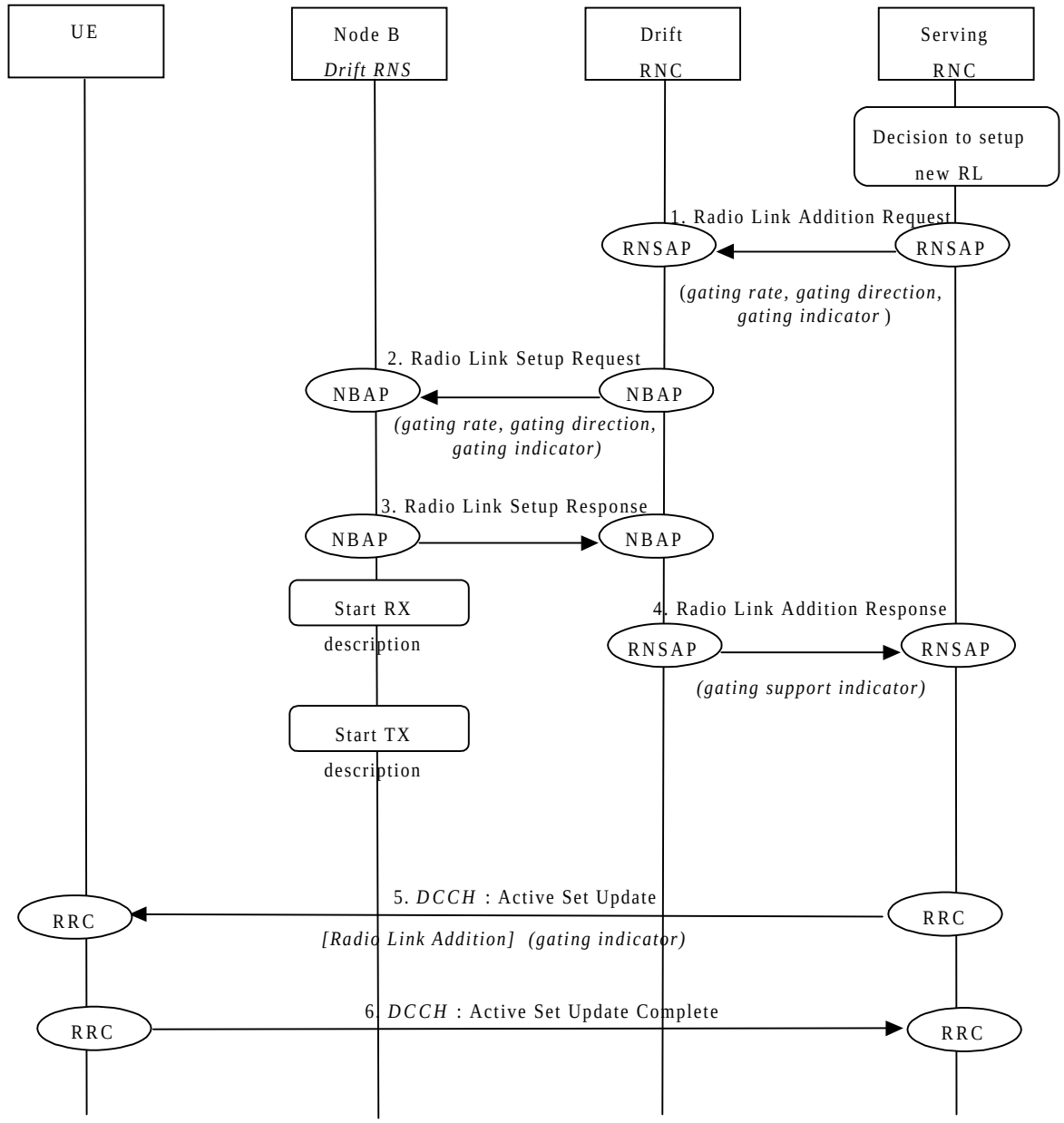
1. SRNC initiates/terminates gating operation sending **Radio Link Reconfiguration Prepare** message to DRNC with gating parameters.
   Parameters: *gating indicator, gating rate, gating direction*
2. DRNC requests its Node B to initiate/terminate gating operation sending **Radio Link Reconfiguration Prepare** message.
   Parameters: *gating indicator, gating rate, gating direction*
3. SRNC requests its Node B to initiate/terminate gating operation sending **Radio Link Reconfiguration Prepare** message.
   Parameters: *gating indicator, gating rate, gating direction*.
4. Node B prepares gating operation and notifies DRNC that the gating operation is ready sending **Radio Link Reconfiguration Ready** message.
5. DRNC notifies SRNC that the gating operation is ready sending **Radio Link Reconfiguration Ready** message.
6. Node B prepares gating operation and notifies SRNC that the

gating operation is ready sending **Radio Link Reconfiguration Ready** message.

7. RNSAP message **Radio Link Reconfiguration Commit** is sent from SRNC to DRNC for initiating/terminating gating operation at CFN.
8. NBAP message **Radio Link Reconfiguration Commit** is sent from DRNC to Node B for initiating/terminating gating operation at CFN.
9. NBAP message **Radio Link Reconfiguration Commit** is sent from SRNC to Node B for initiating/terminating gating operation at CFN.
10. SRNC sends UE **Radio Bearer Reconfiguration** message with gating parameters. Parameters: *gating indicator, gating rate, gating direction*.
11. UE notifies SRNC that gating operation is ready sending **Radio Bearer Reconfiguration Complete** message and UE initiates/terminates gating operation with gating parameters at CFN that is signaled.

6.1.3.4 Soft handover during Gating

- When SRNC determines to setup a new Radio Link in a DRNC during gating operation, SRNC sends NBAP/RNSAP message **Radio Link Addition/Setup Request** with the parameter, gating rate, gating direction, gating indicator. Gating indicator notifies gating operation is on.
- Node B saves the gating parameters and starts UL reception and DL transmission based on gating parameters.
- If the Node B which will have the new Radio Link does not support the gating operation, SRNC shall send gating indicator with off to terminate gating operation.
- SRNC sends RRC message **Active Set Update** to UE with gating indicator that will be off if gating operation should be off.



1 SRNC decides to setup a radio link via a new cell controlled by another RNC. SRNC requests DRNC for radio resources by sending RNSAP message **Radio Link Addition Request**. If gating operation is on, SRNC includes gating parameter: gating indicator with gating on.
Parameters: *gating indicator*.

2 If requested resources are available, DRNC sends NBAP message Radio Link Setup **Request** to Node B. If SRNC sends gating indicator with gating on and Node B supports gating operation, DRNC includes gating indicator in **Radio Link Setup Request** message.
Parameters: *gating rate, gating direction, gating indicator*

3. Node B allocates requested resources. Successful outcome is reported in NBAP message **Radio Link Setup Response**.
   Then Node B starts the UL reception and then DL transmission based on the gating parameters.
4. DRNC sends RNSAP message **Radio Link Addition Response** to SRNC.
5. SRNC sends RRC message **Active Set Update** (Radio Link Addition) to UE on DCCH. If DRNC sends failure response with cause gating not supported, SRNC will terminate gating operation and include gating indicator with gating off in **Active Set Update**.
   Parameters: *gating indicator*
6. UE acknowledges with RRC message **Active Set Update Complete**.

6.1.4 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 Work 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 Work Task Status

	Planned Date	Milestone	Status

11 History

Document history		
V0.0.1	2000-08	First proposal
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