

3GPP TR 25.849 V4.0.0 (2001-03)

Technical Report

3rd Generation Partnership Project; Technical Specification Group Radio Access Network; DSCH power control improvement in soft handover (Release 4)



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Keywords

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Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

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

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- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document is for part of the Release 4 work item "DSCH power control improvement in soft handover".

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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 25.841: "DSCH power control improvement in soft handover".
 - [2] 3GPP TS 25.423: "UTRAN Iur interface RNSAP signalling".
 - [3] 3GPP TS 25.433: "UTRAN Iub interface NBAP signalling".
 - [4] 3GPP TS 25.435: "UTRAN Iub interface user plane protocols for CCH data streams".
 - [5] 3GPP TS 25.214: "Physical layer procedures (FDD)".
-

3 Definitions, symbols and abbreviations

3.1 Definitions

Void.

3.2 Symbols

Void.

3.3 Abbreviations

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

DCH	Dedicated Channel
DPCCH	Dedicated Physical Control Channel
FBI	Feedback Information
PDSCH	Physical Downlink Shared Channel
SSDT	Site Selection Diversity Transmission
SHO	Soft Handover
DSCH	Downlink Shared Channel

4 Introduction

4.1 Fast DSCH power control combined with SSDT

In this clause, the method for the DSCH power control improvement is described as given in [1].

The proposal intends to allow the improvement of DSCH power control in soft handover by the use of the existing SSDT signalling in the uplink to determine whether the DSCH power should be adjusted with an offset in case primary cell is transmitting or not.

The SSDT has been specified in clause 5.2.1.4 in [5] and according to the principle UE provides indication of the primary cell ID for in the uplink FBI field. This feature is considered as baseline feature and provided by all UEs (that can use dedicated channels) in the Release 1999 as well. The intention with SSDT is that only the primary cell sends the DPDCH part of the downlink DCH, while DPCCH part is sent by the all Node Bs in the active set.

In the proposed enhancement, the UTRAN may activate the uplink SSDT signalling even the SSDT transmission is not necessary used on the downlink DCH. The Node Bs are given power offset value that is used whether the DSCH is sent from the Node B determined to be the primary Node B (or cell) or whether the Node B sending the DSCH is the secondary one. The primary/secondary status would be determined with sliding average for example over 10 frames with parameter given (over Iub) how many primary indications are needed to use the primary value power offset for DSCH.

The existing maximum/minimum power level values would be naturally valid, thus allowing to set the DSCH e.g. to be 6 dB over DCH but not to exceed the power level determined.

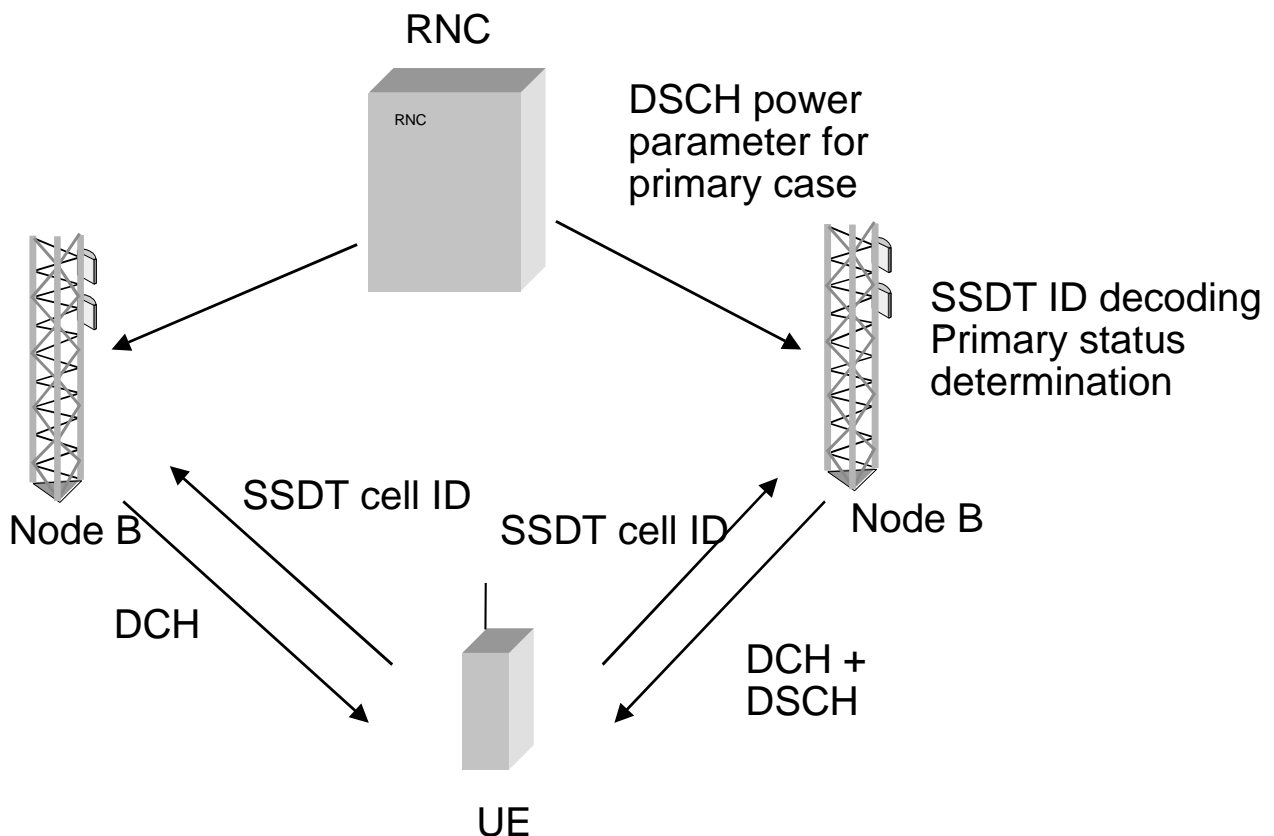


Figure 1: Concept of using SSDT signalling with DSCH power control

5 Requirements

Iub/Iur signalling shall fully support DSCH Power Control improvement during soft handover which is defined in [1] and provide the proper parameters to perform this function in the way as decided in WG1, leading group of this work item.

6 Study Areas

6.1 General

For the Iub/Iur (NBAP/RNSAP) specifications [3] and [2] the power offset parameters for the primary case with respect to the power value given per each frame in the FP in [4] and the averaging window parameters for the primary/secondary status determination from the SSDT commands sent in the uplink FBI (Feedback Information) field, would be needed.

For the Iub/Iur the following IEs would be needed to indicate improved DSCH PC activation which is very similar with the way of SSDT activation (e.g. *Enhanced DSCH PC Indication IE*).

For the averaging window parameters at Node B the range [1..10] frames and [1..50] primary SSDT commands are proposed (the latter range is larger as there can be from 1 to 5 updates of SSDT status per frame depending on the SSDT ID length).

DSCH power control improvement during soft handover function and SSDT can be used at the same time.

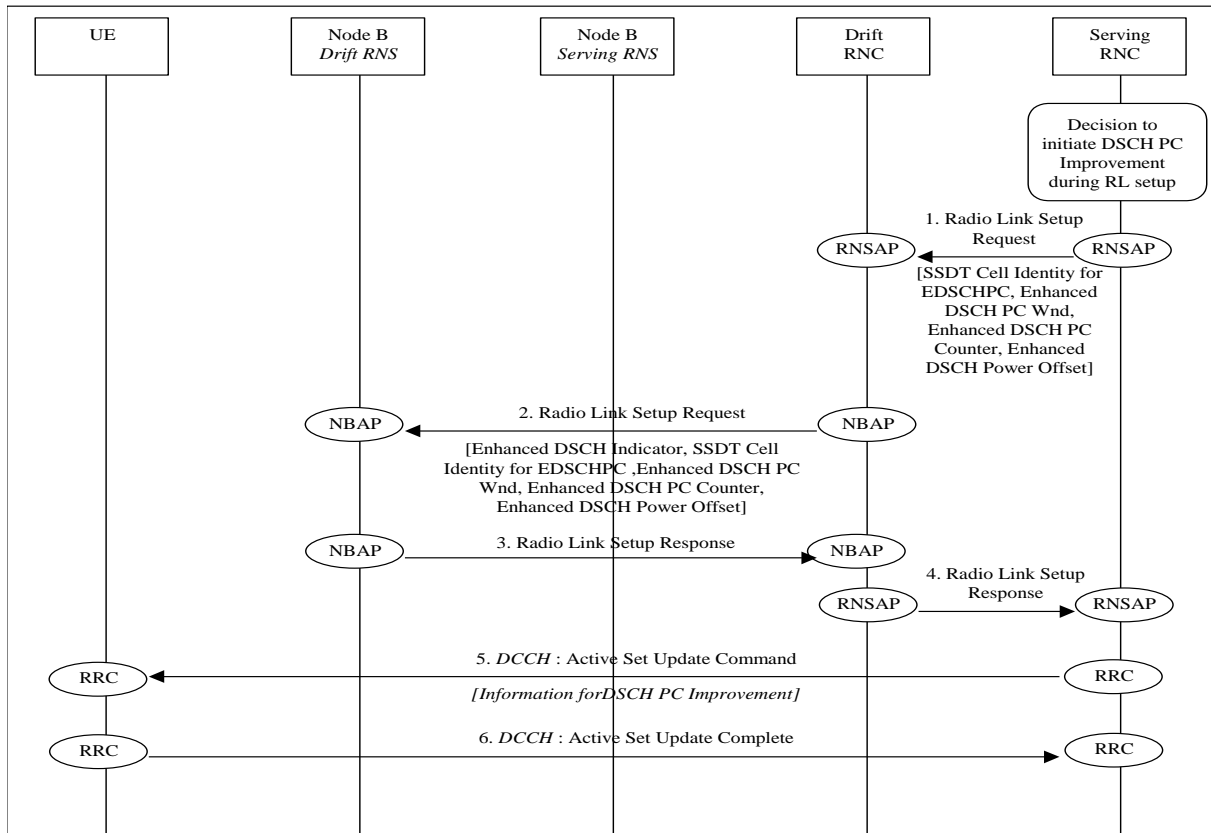
6.2 New Information

The parameters to be needed for this function are as followings:

- 1) for Primary cell selection: averaging window, primary cell selection counter, SSDT cell id for DSCH power control;
- 2) for activation and deactivation: enhanced DSCH PC indicator;
- 3) for DSCH power control: additional power offset.

6.3 Example Scenario

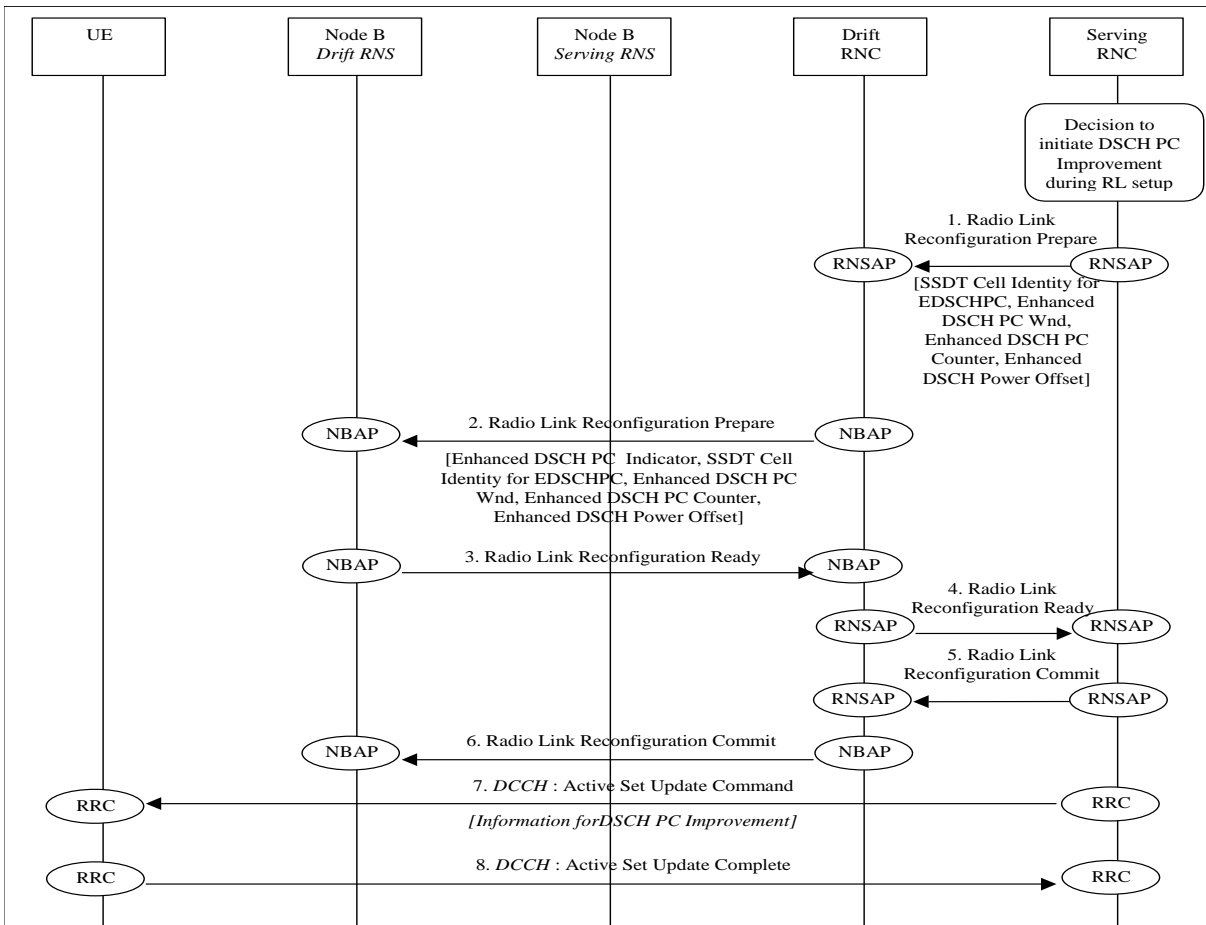
6.3.1 DSCH Power Control Initiation when the RL Setup with DSCH



1. SRNC decides to setup a radio link including DSCH which improved power control will be applied on. In **Radio Link Setup Request**, SRNC will provides necessary parameters [SSDT Cell Identity for EDSCHPC, Enhanced DSCH PC Wnd, Enhanced DSCH PC Counter, Enhanced DSCH Power Offset].
2. DRNC sends **Radio Link Setup Request** to Node B with the parameters which SRNC provided [Enhanced DSCH PC Indicator, SSDT Cell Identity for EDSCHPC, Enhanced DSCH PC Wnd, Enhanced DSCH PC Counter, Enhanced DSCH Power Offset].
3. Node B sends **Radio Link Setup Response**.
4. DRNC sends RNSAP message **Radio Link Setup Response** to SRNC.
5. SRNC sends RRC message **Active Set Update** to UE with proper parameter(s) for DSCH Power Control Improvement.
6. UE acknowledges with RRC message **Active Set Update Complete**.

Figure 2

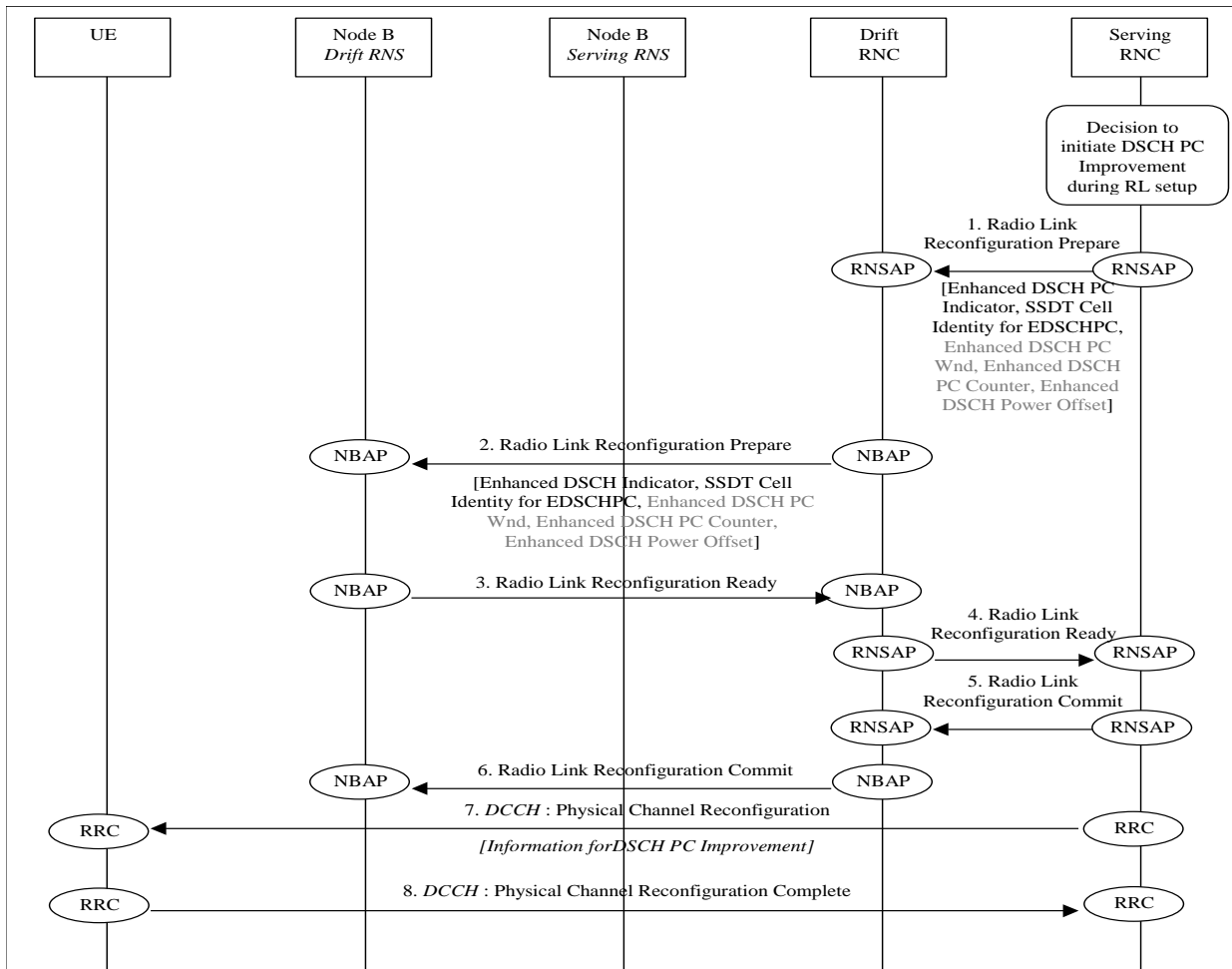
6.3.2 DSCH Power Control Initiation when the RL Reconfiguration with new DSCH



1. SRNC decides to add a DSCH which improved power control will be applied on. In **Radio Link Reconfiguration Prepare**, SRNC will provides necessary parameters [SSDT Cell Identity for EDSCHPC, Enhanced DSCH PC Wnd, Enhanced DSCH PC Counter, Enhanced DSCH Power Offset].
2. DRNC sends **Radio Link Reconfiguration Prepare** to Node B with the parameters which SRNC provided [Enhanced DSCH PC Indicator, SSDT Cell Identity for EDSCHPC, Enhanced DSCH PC Wnd, Enhanced DSCH PC Counter, Enhanced DSCH Power Offset].
3. Node B sends **Radio Link Reconfiguration Ready**.
4. DRNC sends RNSAP message **Radio Link Reconfiguration Ready** to SRNC.
5. SRNC sends **Radio Link Reconfiguration Commit**.
6. DRNC sends **Radio Link Reconfiguration Commit**.
7. SRNC sends RRC message **Active Set Update** to UE with proper parameter(s) for DSCH Power Control Improvement.
8. UE acknowledges with RRC message **Active Set Update Complete**.

Figure 3

6.3.3 DSCH Power Control Initiation/Termination when the RL Reconfiguration with DSCH to modify



1. SRNC decides to initiate/terminate a DSCH power control improvement to the existing DSCH. In **Radio Link Reconfiguration Prepare**, SRNC will provides necessary parameters [Enhanced DSCH PC indicator, SSDT Cell Identity for EDSCHPC, Enhanced DSCH PC Wnd, Enhanced DSCH PC Counter, Enhanced DSCH Power Offset].
2. DRNC sends **Radio Link Reconfiguration Prepare** to Node B with the parameters which SRNC provided [Enhanced DSCH PC indicator, SSDT Cell Identity for EDSCHPC, Enhanced DSCH PC Wnd, Enhanced DSCH PC Counter, Enhanced DSCH Power Offset].
3. Node B sends **Radio Link Reconfiguration Ready**.
4. DRNC sends RNSAP message **Radio Link Reconfiguration Ready** to SRNC.
5. SRNC sends **Radio Link Reconfiguration Commit**.
6. DRNC sends **Radio Link Reconfiguration Commit**.
7. SRNC sends RRC message **Physical Channel Reconfiguration Complete** to UE with proper parameter(s) for DSCH Power Control Improvement.
8. UE acknowledges with RRC message **Physical Channel Reconfiguration Complete**.

Figure 4

6.4 Open Items

Void.

7 Agreements and associated contributions

7.1 General

The description in clause 6.1 was agreed.

7.2 New Information

It was agreed to use IEs which are described in clause 6.2 to support DSCH power control improvement during soft handover.

7.3 Example Scenario

The scenarios described in clause 6.3 were agreed. I.e, the followings were agreed too.

- 1) To initiate DSCH power control improvement function during soft handover, RADIO LINK SETUP REQUEST message (RNSAP/NBAP) and RADIO LINK RECONFIGURATION PREPARE message shall be used.
- 2) To initiate DSCH power control improvement function during soft handover, parameters [Enhanced DSCH PC indicator(NBAP only), SSDT Cell Identity for EDSCHPC, **Enhanced DSCH PC Wnd**, **Enhanced DSCH PC Counter**, and **Enhanced DSCH Power Offset** information shall be delivered to Node B from SRNC].
- 3) To initiate DSCH power control improvement function during soft handover for the existing DSCH, **Enhanced DSCH PC Indicator**, SSDT Cell Identity for EDSCHPC, **Enhanced DSCH PC Wnd**, **Enhanced DSCH PC Counter**, and **Enhanced DSCH Power Offset** information shall be delivered in RADIO LINK RECONFIGURATION PREPARE message. And *Enhanced DSCH PC Wnd*, *Enhanced DSCH PC Counter*, and *Enhanced DSCH Power Offset* IEs shall be conditional field based on the value of *Enhanced DSCH PC Indicator* IE.
- 4) To terminate DSCH power control improvement during soft handover, **Enhanced DSCH PC Indicator** information shall be delivered in RADIO LINK RECONFIGURATION PREPARE message.

8 Specification Impact and associated Change Requests

This clause 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.

8.1 Impacts on RNSAP (TS25.423)

8.1.1 Radio Link Setup procedure

8.1.1.1 Radio Link Setup

8.1.1.2 General

This procedure is used for establishing the necessary resources in the DRNS for one or more radio links.

The connection-oriented service of the signalling bearer shall be established in conjunction with this procedure.

8.1.1.3 Successful Operation

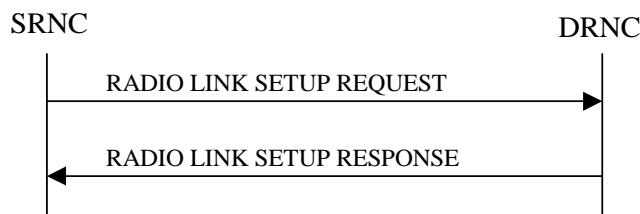


Figure 5: Radio Link Setup procedure: Successful Operation

When the SRNC makes an algorithmic decision to add the first cell or set of cells from a DRNS to the active set of a specific RRC connection, the RADIO LINK SETUP REQUEST message is sent to the corresponding DRNC to request setup of the radio link(s).

If no *D-RNTI* IE was included in the RADIO LINK SETUP REQUEST message, the DRNC shall assign a new *D-RNTI* for this UE.

[FDD - The *First RLS Indicator* IE indicates if the concerning RL shall be considered part of the first RLS established towards this UE. If the *First RLS indicator* IE is set to "first RLS", the DRNS shall use a TPC pattern of $n \cdot "01" + "1"$ in the DL of the concerning RL and all RLs which are part of the same RLS, until UL synchronisation is achieved on the Uu. The TPC pattern shall continuously be repeated but shall be restarted at the beginning of every frame with $CFN \bmod 4 = 0$. For all other RLs, the DRNS shall use a TPC pattern of all "1"s in the DL until UL synchronisation is achieved on the Uu.]

[FDD - The *Diversity Control Field* IE indicates for each RL except for the first RL whether the DRNS shall combine the RL with any of the other RLs or not on the Iur. If the *Diversity Control Field* IE is set to "May" (be combined with another RL), then the DRNS shall decide for any of the alternatives. If the *Diversity Control Field* IE is set to "Must", the DRNS shall combine the RL with one of the other RL. When an RL is to be combined the DRNS shall choose which RL(s) to combine it with.]

[FDD - If the *Propagation Delay* IE is included, the DRNS may use this information to speed up the detection of L1 synchronisation.]

If the RADIO LINK SETUP REQUEST message includes the *Allowed Queuing Time* IE the DRNS may queue the request the time corresponding to the value of the *Allowed Queuing Time* IE before starting to execute the request.

[FDD - If the *Initial DL TX Power* IE and *Uplink SIR Target* IE are present in the message, the DRNS shall use the indicated DL TX Power and Uplink SIR Target as initial value. If the value of the *Initial DL TX Power* IE is outside the configured DL TX power range, the DRNS shall apply these constraints when setting the initial DL TX power. The DRNS shall also include the configured DL TX power range defined by *Maximum DL TX Power* IE and *Minimum DL TX Power* IE in the RADIO LINK SETUP RESPONSE message.]

[FDD - If the *Primary CPICH Ec/No* IE is present, the DRNC should use the indicated value when deciding the Initial DL TX Power.]

[TDD - If the *Primary CCPCH RSCP* IE and/or the *DL Time Slot ISCP Info* IE are present, the DRNC should use the indicated values when deciding the Initial DL TX Power.]

[FDD – If the received *Limited Power Increase* IE is set to 'Used', the DRNS shall, if supported, use Limited Power Increase according to ref. [10] clause 5.2.1 for the inner loop DL power control.]

[FDD – If the received *Inner Loop DL PC Status* IE is set to "Active", the DRNS shall activate the inner loop DL power control for all RLs. If *Inner Loop DL PC Status* IE is set to "Inactive", the DRNS shall deactivate the inner loop DL power control for all RLs according to ref. [10].]

[FDD – The DRNS shall start the DL transmission using the indicated DL TX power level (if received) or the decided DL TX power level on each DL channelisation code of a RL until UL synchronisation is achieved for the concerning RLS or a DL POWER CONTROL REQUEST message is received. No innerloop power control or power balancing shall be performed during this period. The DL power shall then vary according to the inner loop power control (see ref. [10] clause 5.2.1.2) with $DPC_MODE=0$ and the power control procedure (see clause 8.3.7).]

[TDD – The DRNS shall start the DL transmission using the decided DL TX power level on each DL channelisation code and on each Time Slot of a RL until UL synchronisation is achieved for the concerning RL. No innerloop power control shall be performed during this period. The DL power shall then vary according to the inner loop power control (see ref. [22] clause 4.2.3.3).]

[TDD - If the *DCH Information* IE is present in RADIO LINK SETUP REQUEST message, the DRNS shall configure the new DCHs according to the parameters given in the message.]

If the RADIO LINK SETUP REQUEST message includes a *DCH Information* IE with multiple *DCH Specific Info* IEs then the DRNS shall treat the DCHs in the *DCH Information* IE as a set of co-ordinated DCHs.

[FDD - For DCHs which do not belong to a set of co-ordinated DCHs with the *QE-Selector* IE set to "selected", the Transport channel BER from that DCH shall be the base for the QE in the UL data frames. If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [4]. If the *QE-Selector* is set to "non-selected", the Physical channel BER shall be used for the QE in the UL data frames, ref. [4].]

For a set of co-ordinated DCHs the Transport channel BER from the DCH with the *QE-Selector* IE set to "selected" shall be used for the QE in the UL data frames, ref. [4]. [FDD - If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [4]. If all DCHs have *QE-Selector* IE set to "non-selected" the Physical channel BER shall be used for the QE, ref. [4].]

The DRNS shall prioritise resource allocation for the RL(s) to be established according to annex A.

The *Frame Handling Priority* IE defines the priority level that should be used by the DRNS to prioritise the discard/delay of the data frames of the DCH and DSCH (if any).

The DRNS shall use the included *UL DCH FP Mode* IE for a DCH or a set of co-ordinated DCHs as the new DCH FP Mode in the Uplink of the user plane for the DCH or the set of co-ordinated DCHs.

The DRNS shall use the included *ToAWS* IE for a DCH or a set of co-ordinated DCHs as the new Time of Arrival Window Start Point in the user plane for the DCH or the set of co-ordinated DCHs.

The DRNS shall use the included *ToAWE* IE for a DCH or a set of co-ordinated DCHs as the new Time of Arrival Window End Point in the user plane for the DCH or the set of co-ordinated DCHs.

[FDD - If the RADIO LINK SETUP REQUEST message includes the *SSDT Cell Identity* IE, the DRNS shall activate SSDT, if supported, using the *SSDT Cell Identity* IE and *SSDT Cell Identity Length* IE.]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *SSDT Cell Identity for EDSCHPC* IE, the DRNS shall activate enhanced DSCH power control, if supported, using the *SSDT Cell Identity for EDSCHPC* IE and *SSDT Cell Identity Length* IE as well as *Enhanced DSCH PC* IE. If the RADIO LINK SETUP REQUEST message includes both *SSDT Cell Identity* IE and *SSDT Cell Identity for EDSCHPC* IE, then DRNS shall ignore the *SSDT Cell Identity for EDSCHPC* IE.]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *Transmission Gap Pattern Sequence Information* IE, the DRNS shall store the information about the Transmission Gap Pattern Sequences to be used in the Compressed Mode Configuration. This Compressed Mode Configuration shall be valid in the DRNS until the next Compressed Mode Configuration is configured in the DRNS or last Radio Link is deleted.]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *Transmission Gap Pattern Sequence Information* IE and the *Active Pattern Sequence Information* IE, the DRNS shall immediately activate the indicated Transmission Gap Pattern Sequences: for each sequence the *TGCFN* refers to latest passed CFN with that value. If during the compressed mode measurement the gaps of two or more pattern sequences overlap, the DRNS shall behave as specified in clause 8.3.9.]

[TDD - The DRNS shall use the list of RB Identities in the *RB Info* IE in the *USCH information* IE to map each *RB Identity* IE to the corresponding USCH.]

At the reception of the RADIO LINK SETUP REQUEST message, DRNS allocates requested type of channelisation codes and other physical channel resources for each RL and assigns a binding identifier and a transport layer address for each DCH or set of co-ordinated DCHs and for each DSCH [TDD - and USCH]. This information shall be sent to the SRNC in the message RADIO LINK SETUP RESPONSE when all the RLs have been successfully setup.

If the *DSCH Information* IE is included in the RADIO LINK SETUP REQUEST message, the DRNC shall establish the requested DSCH's [FDD - on the RL indicated by the *PDSCH RL ID* IE]. In addition, the DRNC shall send a valid set

of *DSCH Scheduling Priority* IE and *MAC-c/sh SDU Length* IE parameters to the SRNC in the message RADIO LINK SETUP RESPONSE message.

[FDD - If the *Initial DL TX Power* and the *Uplink SIR Target* IEs are not present in the RADIO LINK SETUP REQUEST message, then DRNC shall include the determined initial Uplink SIR Target in the RADIO LINK SETUP RESPONSE message.]

[FDD – When more than one DL DPDCH are assigned per RL, the segmented physical channel shall be mapped on to DL DPDCHs according to [8]. When p number of DL DPDCHs are assigned to each RL, the first pair of DL Scrambling Code and FDD DL Channelisation Code Number corresponds to "*PhCH number 1*", the second to "*PhCH number 2*", and so on until the p th to "*PhCH number p*".]

[FDD – For each RL not having a common generation of the TPC commands in the DL with another RL, the DRNS shall assign the *RL Set ID* IE included in the RADIO LINK SETUP RESPONSE message a value that uniquely identifies the RL Set within the UE context.]

[FDD – For all RLs having a common generation of the TPC commands in the DL with another RL, the DRNS shall assign the *RL Set ID* IE included in the RADIO LINK SETUP RESPONSE message the same value. This value shall uniquely identify the RL Set within the UE context.]

[FDD - In the case of combining one or more RLs the DRNC shall indicate in the RADIO LINK SETUP RESPONSE message with the *Diversity Indication* IE that the RL is combined with another RL. In this case the Reference *RL ID* IE shall be included to indicate with which RL the combination is performed. The Reference *RL ID* IE shall be included for all but one of the combined RLs, for which the *Transport Layer Address* IE and the *Binding ID* IE shall be included.]

[FDD - In the case of not combining an RL with another RL, the DRNC shall indicate in the RADIO LINK SETUP RESPONSE message with the *Diversity Indication* IE that no combining is performed. In this case the DRNC shall include both the *Transport Layer Address* IE and the *Binding ID* IE for the transport bearer to be established for each DCH and DSCH of the RL in the RADIO LINK SETUP RESPONSE message.]

[TDD - The DRNC shall always include in the RADIO LINK SETUP RESPONSE message both the *Transport Layer Address* IE and the *Binding ID* IE for the transport bearer to be established for each DCH, DSCH and USCH of the RL.]

In case of a set of coordinated DCHs requiring a new transport bearer on Iur the *Binding ID* IE and the *Transport Layer Address* IE shall be included only for one of the DCH in the set of co-ordinated DCHs.

[FDD – If the cell in which the RL is being set up is capable to provide Close loop Tx diversity, the DRNC shall include the *Closed Loop Timing Adjustment Mode* IE in the RADIO LINK SETUP RESPONSE message indicating the configured Closed loop timing adjustment mode of the cell.]

For any cell neighbouring a cell in which a RL was established, the DRNS shall also provide the SRNC with the UTRAN Cell Identifier (UC-Id), the Frequency Number, the [FDD - Primary Scrambling Code], the [TDD - Cell Parameter ID, the Sync Case, the SCH Time Slot information, the Block STTD Indicator] and the node identification of the CN nodes connected to the RNC controlling the neighbouring cell if the UMTS neighbouring cell is not controlled by the DRNC. In addition, if the information is available, the DRNC shall also provide the [FDD - CPICH Power level, cell individual offset]/[TDD - PCCPCH Power level, DPCH Constant Value] and Frame Offset of the UMTS neighbouring cell.

If a UMTS neighbouring cell is controlled by another RNC, the DRNC shall report also the node identifications (i.e. RNC and CN domain nodes) of the RNC controlling the UMTS neighbouring cell. [FDD – If the information is available, the DRNC shall include the *Tx Diversity Indicator* IE and Tx diversity capability (i.e. *STTD Support Indicator* IE, *Closed Loop Mode1 Support Indicator* IE, and *Closed Loop Mode2 Support Indicator* IE) in the *Neighbouring FDD Cell Information* IE].

If there are GSM neighbouring cells to the cell(s) where a radio link is established, the DRNC shall include the *Neighbouring GSM Cell Information* IE in the RADIO LINK SETUP RESPONSE message for each of the GSM neighbouring cells. If available the DRNC shall include the *GSM Output Power* IE in the *Neighbouring GSM Cell Information* IE.

If no *D-RNTI* IE was included in the RADIO LINK SETUP REQUEST message, the DRNC shall include the node identifications of the CN Domain nodes that the RNC is connected to (using LAC and RAC of the current cell), and the *D-RNTI* IE in the RADIO LINK SETUP RESPONSE message.

[FDD - If the *D-RNTI* IE was included the RADIO LINK SETUP REQUEST message the DRNC shall include the *Primary Scrambling Code* IE, the *UL UARFCN* IE, the *DL UARFCN* IE, and the *Primary CPICH Power* IE in the RADIO LINK SETUP RESPONSE message.]

[FDD - If the *DRAC Control* IE is set to "requested" in the RADIO LINK SETUP REQUEST message for at least one DCH and if the DRNC supports the DRAC, the DRNC shall indicate in the RADIO LINK SETUP RESPONSE message the *Secondary CCPCH Info* IE to be received on FACH, for each added Radio Link. If the DRNC does not support DRAC, it shall not provide these IEs in the RADIO LINK SETUP RESPONSE message.]

Depending on local configuration in the DRNS, it may include the geographical co-ordinates of the cell and the UTRAN access point position for each of the established RLs in the RADIO LINK SETUP RESPONSE message.

After sending of the RADIO LINK SETUP RESPONSE message the DRNS shall continuously attempt to obtain UL synchronisation and start reception on the new RL. The DRNS shall start transmission on the new RL after synchronisation is achieved in the DL user plane as specified in ref. [3].

[FDD – When *Diversity Mode* IE is "STTD", "Closed loop mode1", or "Closed loop mode2", the DRNC shall activate/deactivate the Transmit Diversity to each Radio Link in accordance with *Transmit Diversity Indication* IE].

[FDD- If the *Downlink compressed mode method* in one or more Transmission Gap Pattern Sequence is set to 'SF/2' in the RADIO LINK SETUP REQUEST message, the DRNS shall include the *Transmission Gap Pattern Sequence Scrambling Code Information* IE in the RADIO LINK SETUP RESPONSE message indicating for each DL Channelisation Code whether the alternative scrambling code shall be used or not.]

[FDD – The UL out-of-sync algorithm defined in [10] shall for each of the established RL Set(s) use the maximum value of the parameters *N_OUTSYNC_IND* and *T_RLFAILURE*, and the minimum value of the parameters *N_INSYNC_IND*, that are configured in the cells supporting the radio links of the RL Set.]

For each Radio Link the DRNC shall include the *URA ID* IE of the cell, the *Multiple URAs Indicator* IE indicating whether or not the cell belongs to multiple URAs, and the RNC Identity of all other RNCs that are having at least one cell within the URA in the cell in the *URA Information* IE in the RADIO LINK SETUP RESPONSE message.

8.1.2 Synchronised Radio Link Reconfiguration Preparation procedure

8.1.2.1 General

The Synchronised Radio Link Reconfiguration Preparation procedure is used to prepare a new configuration of all Radio Links related to one UE-UTRAN connection within a DRNS.

This procedure shall use the signalling bearer connection for the relevant UE context.

The Synchronised Radio Link Reconfiguration Preparation procedure shall not be initiated if a Prepared Reconfiguration exists, as defined in clause 3.1.

8.1.2.2 Successful Operation

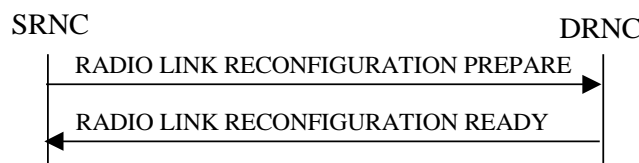


Figure 6: Synchronised Radio Link Reconfiguration Preparation procedure, Successful Operation

The Synchronised Radio Link Reconfiguration Preparation procedure is initiated by the SRNC by sending the RADIO LINK RECONFIGURATION PREPARE message to the DRNC.

Upon reception, the DRNS shall reserve necessary resources for the new configuration of the Radio Link(s) according to the parameters given in the message. Unless specified below, the meaning of parameters is specified in other specifications.

If the RADIO LINK RECONFIGURATION PREPARE message includes the *Allowed Queuing Time* IE the DRNS may queue the request the time corresponding to the value of the *Allowed Queuing Time* IE before starting to execute the request.

The DRNS shall prioritise resource allocation for the RL(s) to be modified according to annex A.

DCH Modification:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DCHs to Modify* IEs then the DRNS shall treat them each as follows:

- If the *DCHs to Modify IE* includes the *UL FP Mode* IE for a DCH or a DCH which belongs to a set of co-ordinated DCHs to be modified, the DRNS shall apply the new FP Mode in the Uplink of the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- If the *DCHs to Modify IE* includes the *ToAWS* IE for a DCH or a DCH which belongs to a set of co-ordinated DCHs to be modified, the DRNS shall apply the new ToAWS in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- If the *DCHs to Modify IE* includes the *ToAWE* IE for a DCH or a DCH which belongs to a set of co-ordinated DCHs to be modified, the DRNS shall apply the new ToAWE in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- If the *DCHs to Modify IE* includes multiple *DCH Specific Info* IEs then the DRNS shall treat the DCHs in the *DCHs to Modify IE* as a set of co-ordinated DCHs. The DRNS shall include these DCHs in the new configuration only if it can include all of them in the new configuration.
- If the *DCH Specific Info* IE includes the *Frame Handling Priority* IE for a DCH to be modified, the DRNS should store this information for this DCH in the new configuration. The received Frame Handling Priority should be used when prioritising between different frames in the downlink on the radio interface in congestion situations within the DRNS once the new configuration has been activated.
- If the *DCH Specific Info* IE includes the *Transport Format Set* IE for the UL of a DCH to be modified, the DRNS shall apply the new Transport Format Set in the Uplink of this DCH in the new configuration.
- If the *DCH Specific Info* IE includes the *Transport Format Set* IE for the DL of a DCH to be modified, the DRNS shall apply the new Transport Format Set in the Downlink of this DCH in the new configuration.
- [FDD - If, in the *DCH Specific Info* IE, the *DRAC Control* IE is present and set to "requested" for at least one DCH and if the DRNS supports the DRAC, the DRNS shall indicate in the RADIO LINK RECONFIGURATION READY message the *Secondary CCPCH Info* IE to be received on FACH, for each Radio Link. If the DRNS does not support DRAC, it shall not provide these IEs in the RADIO LINK RECONFIGURATION READY message.]
- [TDD - If the *DCH Specific Info* IE includes the *CCTrCH ID* IE for the UL, the DRNS shall map the DCH onto the referenced UL CCTrCH.]
- [TDD - If the *DCH Specific Info* IE includes the *CCTrCH ID* IE for the DL, the DRNS shall map the DCH onto the referenced DL CCTrCH.]

DCH Addition:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DCHs to Add* IEs then the DRNS shall treat them each as follows:

- The DRNS shall reserve necessary resources for the new configuration of the Radio Link(s) according to the parameters given in the message and include these DCH in the new configuration.
- If the *DCHs to Add* IE includes a *DCHs to Add* IE with multiple *DCH Specific Info* IEs then the DRNS shall treat the DCHs in the *DCHs to Add* IE as a set of co-ordinated DCHs. The DRNS shall include these DCHs in the new configuration only if it can include all of them in the new configuration.

- [FDD - For DCHs which do not belong to a set of co-ordinated DCHs with the *QE-Selector* IE set to "selected", the Transport channel BER from that DCH shall be the base for the QE in the UL data frames. If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [4]. If the *QE-Selector* is set to "non-selected", the Physical channel BER shall be used for the QE in the UL data frames, ref. [4].]
- [FDD - For a set of co-ordinated DCHs the Transport channel BER from the DCH with the *QE-Selector* IE set to "selected" shall be used for the QE in the UL data frames, ref. [4]. [FDD - If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [4]. If all DCHs have *QE-Selector* IE set to "non-selected" the Physical channel BER shall be used for the QE, ref. [4].]
- The DRNS should store the *Frame Handling Priority* IE received for a DCH to be added in the new configuration. The received *Frame Handling Priority* should be used when prioritising between different frames in the downlink on the radio interface in congestion situations within the DRNS once the new configuration has been activated.
- The DRNS shall use the included *UL FP Mode* IE for a DCH or a set of co-ordinated DCHs to be added as the new FP Mode in the Uplink of the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- The DRNS shall use the included *ToAWS* IE for a DCH or a set of co-ordinated DCHs to be added as the new Time of Arrival Window Start Point in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- The DRNS shall use the included *ToAWE* IE for a DCH or a set of co-ordinated DCHs to be added as the new Time of Arrival Window End Point in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- [FDD - If the *DRAC Control* IE is set to "requested" in the *DCH Specific Info* IE for at least one DCH and if the DRNS supports the DRAC, the DRNS shall indicate in the RADIO LINK RECONFIGURATION READY message the *Secondary CCPCH Info* IE to be received on FACH, for each Radio Link. If the DRNS does not support DRAC, it shall not provide these IEs in the RADIO LINK RECONFIGURATION READY message.]

DCH Deletion:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DCH to Delete*, the DRNS shall not include the referenced DCHs in the new configuration.

If all of the DCHs belonging to a set of co-ordinated DCHs are requested to be deleted, the DRNS shall not include this set of co-ordinated DCHs in the new configuration.

Physical Channel Modification:

[FDD - If the RADIO LINK RECONFIGURATION PREPARE message includes an *UL DPCH Information* IE then the DRNS shall apply the parameters to the new configuration as follows:]

- [FDD - If the *UL DPCH Information* IE includes the *Uplink Scrambling Code* IE, the DRNS shall apply this Uplink Scrambling Code to the new configuration.]
- [FDD - If the *UL DPCH Information* IE includes the *Min UL Channelisation Code Length* IE, the DRNS shall apply the new Min UL Channelisation Code Length in the new configuration.]
- [FDD - If the *UL DPCH Information* IE includes the *TFCS* IE, the DRNS shall use the *TFCS* IE for the UL when reserving resources for the uplink of the new configuration. The DRNS shall apply the new TFCS in the Uplink of the new configuration.]
- [FDD - If the *UL DPCH Information* IE includes the *UL DPCCCH Slot Format* IE, the DRNS shall apply the new Uplink DPCCCH Slot Format to the new configuration.]
- [FDD - If the *UL DPCH Information* IE includes the *UL SIR Target* IE, the DRNS shall set the UL inner loop power control to the UL SIR target when the new configuration is being used.]
- [FDD - If the *UL DPCH Information* IE includes the *Puncture Limit* IE, the DRNS shall apply the value in the uplink of the new configuration.]

- [FDD - If the *UL DPCH Information IE* includes the *Diversity Mode IE*, the DRNS shall apply diversity according to the given value.]
- [FDD – If the *UL DPCH Information IE* includes an *SSDT Cell Identity Length IE* and/or an *S-Field Length IE*, the DRNS shall apply the values in the new configuration.]

[FDD - If the RADIO LINK RECONFIGURATION PREPARE message includes a *DL DPCH Information IE* then the DRNS shall apply the parameters to the new configuration as follows:]

- [FDD - If the *DL DPCH Information IE* includes *Number of DL Channelisation Codes IE*, the DRNS shall allocate given number of Downlink Channelisation Codes per Radio Link and apply the new Downlink Channelisation Code(s) to the new configuration. Each Downlink Channelisation Code allocated for the new configuration shall be included as a FDD DL Channelisation Code Number IE in the RADIO LINK RECONFIGURATION READY message when sent to the SRNC. If some Transmission Gap Pattern sequences using 'SF/2' method are already initialised in the DRNS, DRNC shall include the *Transmission Gap Pattern Sequence Scrambling Code Information IE* in the RADIO LINK RECONFIGURATION READY message in case the DRNS selects to change the Scrambling code change method for one or more DL Channelisation Code.]
- [FDD – When more than one DL DPDCH are assigned per RL, the segmented physical channel shall be mapped on to DL DPDCHs according to [8]. When p number of DL DPDCHs are assigned to each RL, the first pair of DL Scrambling Code and FDD DL Channelisation Code Number corresponds to "*PhCH number 1*", the second to "*PhCH number 2*", and so on until the p th to "*PhCH number p*".]
- [FDD - If the *DL DPCH Information IE* includes the *TFCS IE*, the DRNS shall use the *TFCS IE* for the DL when reserving resources for the downlink of the new configuration. The DRNS shall apply the new TFCS in the Downlink of the new configuration.]
- [FDD – If the *DL DPCH Information IE* includes the *DL DPCH Slot Format IE*, the DRNS shall apply the new slot format used in DPCH in DL.]
- [FDD – If the *DL DPCH Information IE* includes the *TFCI Signalling Mode IE*, the DRNS shall apply the new signalling mode of the TFCI.]
- [FDD – If the *DL DPCH Information IE* includes the *Multiplexing Position IE*, the DRNS shall apply the new parameter to define whether fixed or flexible positions of transport channels shall be used in the physical channel.]
- [FDD – If the *DL DPCH Information IE* includes the *Limited Power Increase IE* and the IE is set to 'Used', the DRNS shall, if supported, use Limited Power Increase according to ref. [10] clause 5.2.1 for the inner loop DL power control in the new configuration.]
- [FDD – If the *DL DPCH Information IE* includes the *Limited Power Increase IE* and the IE is set to 'Not Used', the DRNS shall not use Limited Power Increase for the inner loop DL power control in the new configuration.]
- [FDD: If the RADIO LINK RECONFIGURATION PREPARE message includes the *Transmission Gap Pattern Sequence Information IE*, the DRNS shall store the new information about the Transmission Gap Pattern Sequences to be used in the new Compressed Mode Configuration.
- [FDD: If the RADIO LINK RECONFIGURATION PREPARE message includes the *Transmission Gap Pattern Sequence Information IE* and the *Downlink compressed mode method* in one or more Transmission Gap Pattern Sequence within the *Transmission Gap Pattern Sequence Information IE* is set to 'SF/2', the DRNC shall include the *Transmission Gap Pattern Sequence Scrambling Code Information IE* to the RADIO LINK RECONFIGURATION READY message indicating for each Channelisation Code whether the alternative scrambling code shall be used or not].

[TDD - UL/DL CCTrCH Modification]

[TDD - If the RADIO LINK RECONFIGURATION PREPARE message includes any *UL CCTrCH to Modify IEs* or *DL CCTrCH to Modify IEs*, then the DRNS shall treat them each as follows:]

[TDD - If any of the *UL CCTrCH to Modify IEs* or *DL CCTrCH to Modify IEs* includes any of *TFCS IE*, *TFCI coding IE*, *Puncture limit IE*, or *TPC CCTrCH ID IEs* the DRNS shall apply these as the new values, otherwise the old values specified for this CCTrCH are still applicable.]

- [TDD – The DRNC shall include in the RADIO LINK RECONFIGURATION READY message DPCH information to be modified and the IEs modified if any of *Repetition Period IE*, *Repetition Length IE*, *TDD DPCH Offset IE* or timeslot information was modified. The DRNC shall include timeslot information and the IEs modified if any of *Midamble Shift and Burst Type IE*, *Time Slot IE*, *TFCI Presence IE* or Code information was modified. The DRNC shall include code information if *TDD Channelisation Code IE* was modified.]

[TDD – UL/DL CCTrCH Addition]

[TDD -If the RADIO LINK RECONFIGURATION PREPARE message includes any *UL CCTrCH to Add* IEs or *DL CCTrCH to Add* IEs, the DRNS shall include this CCTrCH in the new configuration.]

[TDD – If the DRNS has reserved the required resources for any requested DPCHs, the DRNC shall include the DPCH information within DPCH to be added in the RADIO LINK RECONFIGURATION READY message. If no DPCH was active before the reconfiguration, and if a valid Rx Timing Deviation measurement is known in DRNC, then the DRNC shall include the *Rx Timing Deviation IE* in the RADIO LINK RECONFIGURATION READY message.]

[TDD – UL/DL CCTrCH Deletion]

[TDD - If the RADIO LINK RECONFIGURATION PREPARE message includes any *UL CCTrCH to Delete* IEs or *DL CCTrCH to Delete* IEs, the DRNS shall remove this CCTrCH in the new configuration.]

SSDT Activation/Deactivation:

- [FDD - If the *RL Information IE* includes the *SSDT Indication IE* set to "SSDT Active in the UE", the DRNS shall activate SSDT, if supported, using the *SSDT Cell Identity IE* in *RL Information IE*, and the *SSDT Cell Identity Length IE* in *UL DPCH Information IE*, in the new configuration. If the *RL Information IE* includes both *SSDT Cell Identity IE* and *SSDT Cell Identity for EDSCHPC IE*, then DRNS shall ignore the *SSDT Cell Identity for EDSCHPC IE*.]
- [FDD - If the *RL Information IE* includes the *SSDT Indication IE* set to "SSDT not Active in the UE", the DRNS shall deactivate SSDT in the new configuration.]

DSCH Addition/Modification/Deletion:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DSCH to modify*, *DSCH to add* or *DSCH to delete* IEs, then the DRNS shall use this information to add/modify/delete the indicated DSCH channels to/from the radio link, in the same way as the DCH info is used to add/modify/release DCHs.

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DSCH to Add IE*, then the DRNS shall use the *Allocation/Retention Priority IE*, *Scheduling Priority Indicator IE* and *TrCH Source Statistics Descriptor IE* to define a set of DSCH Priority classes each of which is associated with a set of supported MAC-c/sh SDU lengths.

[FDD - If the *DSCHs to Add IE* includes the *Enhanced DSCH PC IE*, the DRNS shall activate enhanced DSCH power control, if supported, using either:]

- [FDD - the *SSDT Cell Identity for EDSCHPC IE* in the *RL Information IE*, if the *SSDT Cell Identity IE* is not included in the *RL Information IE* or]
- [FDD - the *SSDT Cell Identity IE* in the *RL Information IE*, if both the *SSDT Cell Identity IE* and the *SSDT Cell Identity for EDSCHPC* are included in the *RL Information IE*.]

[FDD - together with the *SSDT Cell Identity Length IE* in *UL DPCH Information IE*, and *Enhanced DSCH PC IE*, in the new configuration.]

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DSCH to Modify IE*, then the DRNS shall treat them each as follows:

- [FDD: If the *DSCH to Modify IE* includes any *DSCH Info* IEs, then the DRNS shall treat them each as follows:]
- [FDD: If the *DSCH Info IE* includes any of the *Allocation/Retention Priority IE*, *Scheduling Priority Indicator IE* or *TrCH Source Statistics Descriptor IE*, the DRNS shall use them to update the set of DSCH Priority classes each of which is associated with a set of supported MAC-c/sh SDU lengths.]
- [FDD: If the *DSCH Info IE* includes any of the *Transport Format Set IE* or *BLER IE*, the DRNS shall apply the parameters to the new configuration.]

- [FDD: If the *DSCH to Modify* IE includes the *PDSCH RL ID* IE, then the DRNS shall use it as the new DSCH RL identifier.]
- [FDD: If the *DSCH to Modify* IE includes the *Transport Format Combination Set* IE, then the DRNS shall use it as the new Transport Format Combination Set associated with the DSCH.]
- [TDD: If the *DSCHs to Modify* IE includes the *CCTrCH Id* IE, then the DRNS shall map the DSCH onto the referenced DL CCTrCH.]
- [TDD: If the *DSCHs to Modify* IE includes any of the *Allocation/Retention Priority* IE, *Scheduling Priority Indicator* IE or *TrCH Source Statistics Descriptor* IE, the DRNS shall use them to update the set of DSCH Priority classes each of which is associated with a set of supported MAC-c/sh SDU lengths.]
- [TDD: If the *DSCHs to Modify* IE includes any of the *Transport Format Set* IE or *BLER* IE, the DRNS shall apply the parameters to the new configuration.]
- [FDD - If the *DSCHs to Modify* IE includes the *Enhanced DSCH PC Indicator* IE set to "Enhanced DSCH PC Active in the UE", the DRNS shall activate enhanced DSCH power control, if supported, using either:]
 - [FDD - the *SSDT Cell Identity for EDSCHPC* IE in *RL Information* IE, if the *SSDT Cell Identity* IE is not included in the *RL Information* IE or]
 - [FDD - the *SSDT Cell Identity* IE in the *RL Information* IE, if both the *SSDT Cell Identity* IE and the *SSDT Cell Identity for EDSCHPC* are included in the *RL Information* IE.]

[FDD - together with the *SSDT Cell Identity Length* IE in *UL DPCH Information* IE, and *Enhanced DSCH PC* IE, in the new configuration.]
- [FDD - If the *DSCHs to Modify* IE includes the *Enhanced DSCH PC Indicator* IE set to "Enhanced DSCH PC not Active in the UE", the DRNS shall deactivate enhanced DSCH power control in the new configuration.]

[FDD - If *DSCHs to Add* IE includes *Enhanced DSCH PC* IE and *DSCH to Modify* IE include the *Enhanced DSCH PC Indicator* IE set to "Enhanced DSCH PC not Active in the UE", then the DRNS shall deactivate enhanced DSCH power control in the new configuration.]

[FDD - If both *DSCHs to Add* IE and *DSCH to Modify* IE include *Enhanced DSCH PC* IE, then the DRNS shall ignore the *Enhanced DSCH PC* IE in the *DSCH to Add* IE.]

If the requested modifications are allowed by the DRNS and the DRNS has successfully reserved the required resources for the new configuration of the Radio Link(s), it shall respond to the SRNC with the RADIO LINK RECONFIGURATION READY message.

[TDD] USCH Addition/Modification/Deletion

If the RADIO LINK RECONFIGURATION PREPARE message includes any *USCH to modify*, *USCH to add* or *USCH to delete* IEs, then the DRNS shall use this information to add/modify/delete the indicated USCH channels to/from the radio link, in the same way as the DCH info is used to add/modify/release DCHs.

If the RADIO LINK RECONFIGURATION PREPARE message includes any *USCH to Add* IE, then, the DRNS shall use the *Allocation/Retention Priority* IE, *Scheduling Priority Indicator* IE and *TrCH Source Statistics Descriptor* IE to define a set of USCH Priority classes each of which is associated with a set of supported MAC-c/sh SDU lengths.

If the RADIO LINK RECONFIGURATION PREPARE message includes any *USCH to Modify* IE, then the DRNS shall treat them each as follows:

- if the *USCH to Modify* IE includes any of the *Allocation/Retention Priority* IE, *Scheduling Priority Indicator* IE or *TrCH Source Statistics Descriptor* IE, the DRNS shall use them to update the set of USCH Priority classes;
- if the *USCH to Modify* IE includes any of the *CCTrCH Id* IE, *Transport Format Set* IE, *BLER* IE or *RB Info* IE, the DRNS shall apply the parameters to the new configuration.

If the requested modifications are allowed by the DRNC and the DRNC has successfully reserved the required resources for the new configuration of the Radio Link(s), it shall respond to the SRNC with the RADIO LINK RECONFIGURATION READY message.

General

The DRNS shall include in the RADIO LINK RECONFIGURATION READY message the *Transport Layer Address* IE and the *Binding ID* IE in the *DCH Information Response* IE for any Transport Channel being added, or any Transport Channel being modified for which a new transport bearer was requested with the *Transport Bearer Request Indicator* IE. In case of a set of coordinated DCHs requiring a new transport bearer on Iur, the *Transport Layer Address* IE and the *Binding ID* IE in the *DCH Information Response* IE shall be included only for one of the DCH in the set of coordinated DCHs.

In case of a Radio Link being combined with another Radio Link within the DRNS, the *Transport Layer Address* IE and the *Binding ID* IE in the *DCH Information Response* IE shall be included only for one of the combined Radio Links.

If the requested modifications are allowed by the DRNS, and the DRNS has successfully reserved the required resources for the new configuration of the Radio Link(s) it shall respond to the SRNC with the RADIO LINK RECONFIGURATION READY message. When this procedure has been completed successfully there exist a Prepared Reconfiguration, as defined in clause 3.1.

The DRNS decides the maximum and minimum SIR for the uplink of the Radio Link(s) and shall return this in the *Maximum Uplink SIR* IE and *Minimum Uplink SIR* IE for each Radio Link in the RADIO LINK RECONFIGURATION READY message.

If the DL TX power upper or lower limit has been re-configured the DRNC shall return this in the *Maximum DL TX Power* IE and *Minimum DL TX Power* IE respectively in the RADIO LINK RECONFIGURATION RESPONSE message.

8.1.3 RADIO LINK SETUP REQUEST message

To initiate DSCH power control improvement function during soft handover, *SSDT Cell Identity for EDSCHPC*, , *Enhanced DSCH PC Wnd*, *Enhanced DSCH PC Counter*, and *Enhanced DSCH Power Offset* IEs shall be included in the RADIO LINK SETUP REQUEST message.

8.1.4 RADIO LINK SETUP REQUEST

8.1.4.1 FDD Message

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
SRNC-Id	M		RNC-Id 9.2.1.50		YES	reject
S-RNTI	M		9.2.1.53		YES	reject
D-RNTI	O		9.2.1.24		YES	reject
Allowed Queuing Time	O		9.2.1.2		YES	reject
UL DPCH Information		1			YES	reject
>UL Scrambling Code	M		9.2.2.53		–	
>Min UL Channelisation Code Length	M		9.2.2.25		–	
>Max Number of UL DPDCHs	C – CodeLen		9.2.2.24		–	
>Puncture Limit	M		9.2.1.46	For the UL.	–	
>TFCS	M		TFCS for the UL 9.2.1.63		–	
>UL DPCCH Slot Format	M		9.2.2.52		–	
>Uplink SIR Target	O		Uplink SIR 9.2.1.69		–	
>Diversity mode	M		9.2.2.8		–	
>SSDT Cell Identity Length	O		9.2.2.41		–	
>S Field Length	O		9.2.2.36		–	
DL DPCH Information		1			YES	reject
>TFCS	M		TFCS for the DL. 9.2.1.63		–	
>DL DPCH Slot Format	M		9.2.2.9		–	
>Number of DL Channelisation Codes	M		9.2.2.26A		–	
>TFCI Signalling Mode	M		9.2.2.46		–	
>TFCI Presence	C- SlotFormat		9.2.1.55		–	
>Multiplexing Position	M		9.2.2.26		–	
>Power Offset Information		1			–	
>>PO1	M		Power Offset 9.2.2.30	Power offset for the TFCI bits.	–	
>>PO2	M		Power Offset 9.2.2.30	Power offset for the TPC bits.	–	
>>PO3	M		Power Offset 9.2.2.30	Power offset for the pilot bits.	–	
>FDD TPC Downlink Step Size	M		9.2.2.16		–	
>Limited Power Increase	M		9.2.1.33		–	
>Inner Loop DL PC Status	M		9.2.2.21a		–	
DCH Information	M		DCH FDD Information 9.2.2.4A		YES	reject
DSCH Information	O		DSCH FDD Information 9.2.2.13A		YES	reject
RL Information		1...<maxn oofRLs>			EACH	notify
>RL ID	M		9.2.1.49		–	
>C-Id	M		9.2.1.6		–	

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
>First RLS Indicator	M		9.2.2.16A		-	
>Frame Offset	M		9.2.1.30		-	
>Chip Offset	M		9.2.2.1		-	
>Propagation Delay	O		9.2.2.33		-	
>Diversity Control Field	C – NotFirstRL		9.2.2.6		-	
>Initial DL TX Power	C_ifAlone		DL Power 9.2.2.10		-	
>Primary CPICH Ec/No	C_ifAlone		9.2.2.32		-	
>SSDT Cell Identity	O		9.2.2.40		-	
>Transmit Diversity Indicator	C – Diversity mode		9.2.2.50		-	
>SSDT Cell Identity for EDSCHPC	C- EDSCHPC		9.2.2.xx		YES	ignore
Transmission Gap Pattern Sequence Information	O		9.2.2.47A		YES	reject
Active Pattern Sequence Information	O		9.2.2.A		YES	reject

Condition	Explanation
CodeLen	This IE is present only if <i>Min UL Channelisation Code length</i> IE equals to 4
SlotFormat	This IE is only present if the <i>DL DPCH Slot Format</i> IE is equal to any of the values 12 to 16.
NotFirstRL	This IE is present only if the RL is not the first one in the <i>RL Information</i> IE.
Diversity mode	This IE is present unless <i>Diversity Mode</i> IE in <i>UL DPCH Information</i> IE is "none"
C_ifalone	Either <i>Initial DL TX Power</i> IE or <i>Primary CPICH Ec/No</i> IE shall be present.
EDSCHPC	This IE shall be present if <i>Enhanced DSCH PC</i> IE is present in the <i>DSCH Information</i> IE.

Range bound	Explanation
MaxnoofRLs	Maximum number of RLs for one UE.

8.1.5 RADIO LINK RECONFIGURATION PREPARE message

To initiate or to terminate DSCH power control improvement function during soft handover, , *Enhanced DSCH PC Indicator*, *SSDT Cell Identity for EDSCHPC*, *Enhanced DSCH PC Wnd*, *Enhanced DSCH PC Counter*, and *Enhanced DSCH Power Offset* Ies shall be included in the RADIO LINK RECONFIGURATION PREPARE message. *Enhanced DSCH PC Wnd*, *Enhanced DSCH PC Counter*, and *Enhanced DSCH Power Offset* Ies are conditional based on the value of *Enhanced DSCH PC Indicator* IE.

8.1.6 RADIO LINK RECONFIGURATION PREPARE

8.1.6.1 FDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Type	M		9.2.1.40		YES	reject
Transaction ID	M		9.2.1.59		–	
Allowed Queuing Time	O		9.2.1.2		YES	reject
UL DPCH Information		0..1			YES	reject
>UL Scrambling Code	O		9.2.2.53		–	
>UL SIR Target	O		Uplink SIR 9.2.1.69		–	
>Min UL Channelisation Code Length	O		9.2.2.25		–	
>Max Number of UL DPDCHs	C – CodeLen		9.2.2.24		–	
>Puncture Limit	O		9.2.1.46	For the UL.	–	
>TFCS	O		9.2.1.63	TFCS for the UL.	–	
>UL DPCCCH Slot Format	O		9.2.2.52		–	
>Diversity mode	O		9.2.2.8		–	
>SSDT Cell Identity Length	O		9.2.2.41		–	
>S-Field Length	O		9.2.2.36		–	
DL DPCH Information		0..1			YES	reject
>TFCS	O		9.2.1.63	TFCS for the DL.	–	
>DL DPCH Slot Format	O		9.2.2.9		–	
>Number of DL Channelisation Codes	O		9.2.2.26A		–	
>TFCI Signalling Mode	O		9.2.2.46		–	
>TFCI Presence	C- SlotFormat		9.2.1.55		–	
>Multiplexing Position	O		9.2.2.26		–	
>Limited Power Increase	O		9.2.1.33		–	
DCHs to Modify	O		FDD DCHs to Modify 9.2.2.14C		YES	reject
DCHs to Add	O		DCH FDD Information 9.2.2.4A		YES	reject
DCHs to Delete		0..<maxnoof DCHs>			GLOBAL	reject
>DCH ID	M		9.2.1.16		–	
DSCHs to Modify		0..1			YES	reject
>DSCH Info		0..<maxnoof DSCHs>			–	
>>DSCH ID	M		9.2.1.26A		–	
>>TrCh Source Statistics Descriptor	O		9.2.1.65		–	
>>Transport Format Set	O		9.2.1.64	For DSCH	–	
>>Allocation/Retention Priority	O		9.2.1.1		–	
>>Scheduling Priority Indicator	O		9.2.1.51A		–	
>>BLER	O		9.2.1.4		–	
>>Transport Bearer Request Indicator	M		9.2.1.61		–	
>PDSCH RL ID	O		RL ID 9.2.1.49		–	

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
>TFCS	O		9.2.1.63	For DSCH	–	
>Enhanced DSCH PC Indicator	O		9.2.2.xx		YES	ignore
>Enhanced DSCH PC	C-EDSCHPC On		9.2.2.xx		YES	ignore
DSCHs to Add	O		DSCH FDD Information 9.2.2.13A		YES	reject
DSCHs to Delete		0..1			YES	reject
>DSCH Info		1..<maxnoof DSCHs>			–	
>>DSCH ID	M		9.2.1.26A		–	
RL Information		0..<maxnoof RLs>			EACH	reject
>RL ID	M		9.2.1.49		–	
>SSDT Indication	O		9.2.2.41		–	
>SSDT Cell Identity	C – SSDTIndON		9.2.2.40		–	
>Transmit Diversity Indicator	C – Diversity mode		9.2.2.50		–	
>SSDT Cell Identity for EDSCHPC	C-EDSCHPC		9.2.2.xx		YES	ignore
Transmission Gap Pattern Sequence Information	O		9.2.2.47A		YES	reject

Condition	Explanation
SSDTIndON	The IE may be present if the <i>SSDT Indication</i> IE is set to 'SSDT Active in the UE'.
CodeLen	This IE is present only if the <i>Min UL Channelisation Code length</i> IE equals to 4.
SlotFormat	This IE is only present if the <i>DL DPCH Slot Format</i> IE is equal to any of the values 12 to 16.
Diversity mode	This IE is present if <i>Diversity Mode</i> IE is present in the <i>UL DPCH Information</i> IE and is not equal to "none".
EDSCHPCOn	The IE shall be present only if the <i>Enhanced DSCH PC Indicator</i> IE is set to "Enhanced DSCH PC Active in the UE".
EDSCHPC	This IE shall be present if <i>Enhanced DSCH PC</i> IE is present in either the <i>DSCHs to Modify</i> IE or the <i>DSCHs to Add</i> IE.

Range bound	Explanation
MaxnoofDCHs	Maximum number of DCHs for a UE.
MaxnoofDSCHs	Maximum number of DSCHs for one UE.
MaxnoofRLs	Maximum number of RLs for a UE.

8.1.7 DSCH FDD Information

8.1.7.1 DSCH FDD Information

The *DSCH FDD Information* IE provides information for DSCHs to be established.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
DSCH FDD Information		1			–	
>DSCH Specific FDD Information		1..<maxno ofDSCHs>			–	
>>DSCH ID	M		9.2.1.26A		–	
>>TrCh Source Statistics Descriptor	M		9.2.1.65		–	
>>Transport Format Set	M		9.2.1.64	For DSCH	–	
>>Allocation/Retention Priority	M		9.2.1.1		–	
>>Scheduling Priority Indicator	M		9.2.1.51A		–	
>>BLER	M		9.2.1.4		–	
>PDSCH RL ID	M		RL ID 9.2.1.49		–	
>TFCS	M		9.2.1.63	For DSCH	–	
>Enhanced DSCH PC	O		9.2.2.xx		YES	ignore

Range bound	Explanation
MaxnoofDSCHs	Maximum number of DSCHs for one UE.

8.1.8 NEW IEs

To support DSCH power control enhancement during soft handover function, following new IEs shall be defined.

8.1.8.1 Enhanced DSCH PC

The Enhanced DSCH PC includes all the parameters which are needed for DSCH power control improvement during soft handover.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Wnd	M		9.2.2.xx	
Enhanced DSCH PC Counter	M		9.2.2.xx	
Enhanced DSCH Power Offset	M		9.2.2.xx	

8.1.8.2 Enhanced DSCH PC Counter

The Enhanced DSCH PC Counter parameter gives the number of correct cell ID command to receive in the averaging window, *Enhance DSCH PC Wnd* IE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Counter			INTEGER(1..50)	

8.1.8.3 Enhanced DSCH PC Indicator

The Enhanced DSCH PC Indicator indicates whether Enhanced DSCH PC is in use by the UE or not.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Indicator			ENUMERATED(Enhanced DSCH PC Active in the UE, Enhanced DSCH PC not Active in the UE)	

8.1.8.4 Enhanced DSCH PC Wnd

The Enhanced DSCH PC Wnd parameter shows the window size to decide primary or non-primary cell.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Wnd			INTEGER(1..10)	

8.1.8.5 Enhanced DSCH Power Offset

The Enhanced DSCH Power Offset parameter gives the power offset to be added on DSCH when cell is decided to be primary.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH Power Offset			INTEGER(-15..0)	step 1dB

8.1.8.6 SSDT Cell Identity for EDSCHPC

The SSDT Cell Identity for EDSCHPC is a temporary ID for enhanced DSCH power control.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SSDT Cell Identity for EDSCHPC			SSDT Cell Identity 9.2.2.40	

8.2 Impacts on NBAP (TS 25.433)

8.2.1 Radio Link Setup procedure

Void.

8.2.2 Radio Link Setup

8.2.2.1 General

This procedure is used for establishing the necessary resources for a new Node B Communication Context in the Node B.

8.2.2.2 Successful Operation

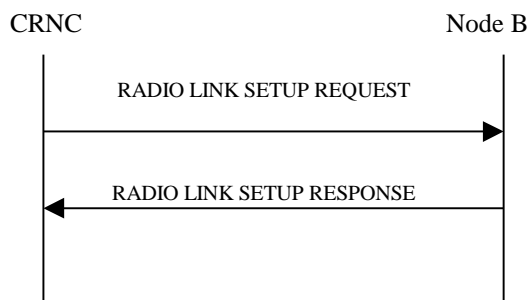


Figure 7: Radio Link Setup procedure: Successful Operation

The procedure is initiated with a RADIO LINK SETUP REQUEST message sent from the CRNC to Node B.

Upon reception of RADIO LINK SETUP REQUEST message, the Node B shall reserve necessary resources and configure the new Radio Link(s) according to the parameters given in the message.

[FDD – The RL Setup procedure can be used to setup one or more radio links. The procedure shall include the establishment of one or more DCHs on all radio links, and in addition, it can include the establishment of one or more DSCHs on one radio link.]

[TDD – The RL Setup procedure is used for setup of one radio link including one or more transport channels. The transport channels can be a mix of DCHs, DSCHs, and USCHs, including also combinations where one or more transport channel types are not present.]

[FDD - The *First RLS Indicator* IE indicates if the concerning RL shall be considered part of the first RLS established towards this UE. If the *First RLS indicator* IE is set to "first RLS", the Node B shall use a TPC pattern of $n \cdot "01" + "1"$ in the DL of the concerning RL and all RLs which are part of the same RLS, until UL synchronisation is achieved on the Uu. The parameter n shall be set equal to the value received in the *DL TPC pattern 01 count* IE in the Cell Setup procedure. The TPC pattern shall continuously be repeated but shall be restarted at the beginning of every frame with $CFN \bmod 4 = 0$. For all other RLs, the Node B shall use a TPC pattern of all "1"s in the DL until UL synchronisation is achieved on the Uu.]

[FDD - The *Diversity Control Field* IE indicates for each RL (except the first RL in the message) whether the Node B shall combine the concerned RL or not. If the *Diversity Control Field* IE indicates, "may be combined with already existing RLs", then Node B shall decide for either of the alternatives. If the *Diversity Control Field* IE is set to "Must", the Node B shall combine the RL with one of the other RL. Diversity combining is applied to Dedicated Transport Channels (DCH), i.e. it is not applied to the DSCHs. When a new RL is to be combined, the Node B shall choose which RL(s) to combine it with.]

[FDD – If the received *Limited Power Increase* IE is set to 'Used', the DRNS shall, if supported, use Limited Power Increase according to ref. [10] clause 5.2.1 for the inner loop DL power control.]

[FDD – If the received *Inner Loop DL PC Status* IE is set to "Active", the Node B shall activate the inner loop DL power control for all RLs. If *Inner Loop DL PC Status* IE is set to "Inactive", the Node B shall deactivate the inner loop DL power control for all RLs according to ref. [10].]

[TDD -If the *DCH Information* IE is present, the Node B shall configure the new DCH(s) according to the parameters given in the message.]

If the RADIO LINK SETUP REQUEST message includes a *DCH Info* IE with multiple *DCH Specific Info* IEs then, the Node B shall treat the DCHs in the *DCH Info* IE as a set of co-ordinated DCHs. The Node B shall include these DCHs in the new configuration only if it can include all of them in the new configuration.

[FDD – When more than one DL DPDCH are assigned per RL, the segmented physical channel shall be mapped on to DL DPDCHs according to [8]. When p number of DL DPDCHs are assigned to each RL, the first pair of DL Scrambling Code and FDD DL Channelisation Code Number corresponds to "*PhCH number 1*", the second to "*PhCH number 2*", and so on until the p th to "*PhCH number p*".]

[FDD - For DCHs which do not belong to a set of co-ordinated DCHs with the *QE-Selector* IE set to "selected", the Transport channel BER from that DCH shall be the base for the QE in the UL data frames. If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [16]. If the *QE-Selector* is set to "non-selected", the Physical channel BER shall be used for the QE in the UL data frames, ref. [16].]

For a set of co-ordinated DCHs the Transport channel BER from the DCH with the *QE-Selector* IE set to "selected" shall be used for the QE in the UL data frames, ref. [16]. [FDD - If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [16]. If all DCHs have *QE-Selector* IE set to "non-selected" the Physical channel BER shall be used for the QE, ref. [16]].

The Node B shall prioritise resource allocation for the RL(s) to be established according to Annex A.

The received *Frame Handling Priority* IE specified for each Transport Channel should be used when prioritising between different frames in the downlink on the radio interface in congestion situations within the Node B once the new RL(s) has been activated.

The Node B shall use the included *UL FP Mode* IE for a DCH or a set of co-ordinated DCHs to be added as the new FP Mode in the Uplink of the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.

The Node B shall use the included *ToAWS* IE for a DCH or a set of co-ordinated DCHs to be added as the new Time of Arrival Window Start Point in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.

The Node B shall use the included *ToAWE* IE for a DCH or a set of co-ordinated DCHs to be added as the new Time of Arrival Window End Point in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.

[FDD - If the *Propagation Delay* IE is included, the Node B may use this information to speed up the detection of L1 synchronisation.]

[FDD - The *UL SIR Target* IE included in the message shall be used by the Node B as initial UL SIR target for the UL inner loop power control.]

[FDD - The Node B shall start the DL transmission using the initial DL power specified in the message on each DL channelisation code of the RL until either UL synchronisation is achieved for the RLS or a DL POWER CONTROL REQUEST message is received. No inner loop power control or balancing shall be performed during this period. The DL power shall then vary according to the inner loop power control (see ref. [10], clause 5.2.1.2) with DPC MODE=0 and the power control procedure (see clause 8.3.7), but shall always be kept within the maximum and minimum limit specified in the RL SETUP REQUEST message.]

[TDD - The Node B shall start the DL transmission using the initial DL power specified in the message on each DL channelisation code and on each Time Slot of the RL until the UL synchronisation is achieved for the RL. No inner loop power control shall be performed during this period. The DL power shall then vary according to the inner loop power control (see ref. [22], clause 4.2.3.3), but shall always be kept within the maximum and minimum limit specified in the RL SETUP REQUEST message.]

If the *DSCH Information* IE Group is present, the Node B shall configure the new DSCH(s) according to the parameters given in the message.

[FDD - If the RADIO LINK SETUP REQUEST message includes the *SSDT Cell Identity* IE, the Node B shall activate SSDT, if supported, using the *SSDT Cell Identity* IE and *SSDT Cell Identity Length* IE.]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *SSDT Cell Identity for EDSCHPC* IE, the Node B shall activate enhanced DSCH power control, if supported, using the *SSDT Cell Identity for EDSCHPC* IE and *SSDT Cell Identity Length* IE as well as *Enhanced DSCH PC* IE. If the RADIO LINK SETUP REQUEST message includes both *SSDT Cell Identity* IE and *SSDT Cell Identity for EDSCHPC* IE, then Node B shall ignore the value in *SSDT Cell Identity for EDSCHPC* IE]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *TFCI2 Bearer Information* IE then the Node B shall support the setup of a transport bearer on which the DSCH TFCI Signaling control frames shall be received. The Node B shall manage the time of arrival of these frames according to the values of *ToAWS* and *ToAWE* specified in the IE's. The *Binding ID* IE and *Transport Layer Address* IE for the new bearer to be set up for this purpose shall be returned in the RADIO LINK SETUP RESPONSE message.]

[FDD - If the *TFCI Signalling Mode* IE within the RADIO LINK SETUP message indicates that there shall be a hard split on the TFCI field but the *TFCI2 Bearer Information* IE is not included in the message then the Node B shall transmit the TFCI2 field with zero power.]

[FDD - If the *TFCI Signalling Mode* IE within the RADIO LINK SETUP message indicates that there shall be a hard split on the TFCI and the *TFCI2 Bearer Information* IE is included in the message then the Node B shall transmit the TFCI2 field with zero power until Synchronization is achieved on the TFCI2 transport bearer and the first valid DSCH TFCI Signalling control frame is received on this bearer (see ref. [24]).]

[FDD - If the RADIO LINK SETUP REQUEST message contains an *SSDT Cell Identity* IE the Node B shall activate SSDT, if supported, for the concerned new RL, with the indicated cell identity used for that RL.]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *Transmission Gap Pattern Sequence Information* IE, the Node B shall store the information about the Transmission Gap Pattern Sequences to be used in the Compressed Mode Configuration. This Compressed Mode Configuration shall be valid in the Node B until the next Compressed Mode Configuration is configured in the Node B or Node B Communication Context is deleted.]

[FDD- If the *Downlink compressed mode method* in one or more Transmission Gap Pattern Sequence is set to 'SF/2' in the RADIO LINK SETUP REQUEST message, the Node B shall use or not the alternate scrambling code as indicated for each DL Channelisation Code in the *Transmission Gap Pattern Sequence Code Information* IE.]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *Transmission Gap Pattern Sequence Information* IE and the *Active Pattern Sequence Information* IE, the Node B shall immediately activate the indicated Transmission Gap Pattern Sequences. For each sequence the *TGCFN* refers to the latest passed CFN with that value. If during the compressed mode measurement the gaps of two or more pattern sequences overlap, the Node B shall behave as specified in clause 8.3.12.]

[FDD – For each RL not having a common generation of the TPC commands in the DL with another RL, the Node B shall assign the *RL Set ID* IE included in the RADIO LINK SETUP RESPONSE message a value that uniquely identifies the RL Set within the Node B Communication context.]

[FDD – For all RLs having a common generation of the TPC commands in the DL with another RL, the Node B shall assign the *RL Set ID* IE included in the RADIO LINK SETUP RESPONSE message the same value. This value shall uniquely identify the RL Set within the Node B Communication context.]

[TDD -If the *USCH Information* IE is present, the Node B shall configure the new USCH(s) according to the parameters given in the message.]

[TDD – If the *DL Timeslot ISCP* IE is present, the Node B shall use the indicated value when deciding the initial DL TX Power for each timeslot as specified in [21], i.e. it shall reduce the DL TX power in those downlink timeslots of the radio link where the interference is low, and increase the DL TX power in those timeslots where the interference is high, while keeping the total downlink power in the radio link unchanged].

If the RLs are successfully setup, the Node B shall start reception on the new RL(s) and respond with a RADIO LINK SETUP RESPONSE message.

[FDD - The Node B shall indicate with the *Diversity Indication* IE whether the RL is combined or not. In case of combining, only the *Reference RL ID* IE shall be included to indicate one of the existing RLs that the concerned RL is combined with. In case of not combining the Node B shall include in the RL SETUP RESPONSE the *Binding ID* IE and *Transport Layer Address* IE for the transport bearer to be established for each DCH of this RL.]

[TDD – The Node B shall include in the RADIO LINK SETUP RESPONSE the *Binding ID* IE and *Transport Layer Address* IE for the transport bearer to be established for each DCH of this RL.]

The Node B shall include in the RADIO LINK SETUP RESPONSE the *Binding ID* IE and *Transport Layer Address* IE for the transport bearer to be established for each DSCH of this RL.

[TDD – In case the *USCH Information* IE is present, the Node B shall include in the RADIO LINK SETUP RESPONSE the *Binding ID* IE and *Transport Layer Address* IE for the transport bearer to be established for each USCH of this RL.]

In case of coordinated DCH, the *Binding ID* IE and the *Transport Layer Address* IE shall be specify for only one of the coordinated DCHs.

After sending of the RADIO LINK SETUP RESPONSE message the Node B shall continuously attempt to obtain UL synchronisation and start reception on the new RL. The Node B shall start transmission on the new RL after synchronisation is achieved in the DL user plane as specified in [16].

[FDD – When *Diversity Mode* IE is "STTD", "Closedloop mode1", or "Closedloop mode2", the DRNC shall activate/deactivate the Transmit Diversity to each Radio Link in accordance with *Transmit Diversity Indication* IE]

[FDD - If the RADIO LINK SETUP REQUEST message includes the *SSDT Cell Identity* IE, the Node B may activate SSDT using the *SSDT Cell Identity* IE and *SSDT Cell Identity Length* IE.]

[FDD - Irrespective of SSDT activation, the Node B shall include in the RADIO LINK SETUP RESPONSE message an indication concerning the capability to support SSDT on this RL. Only if the RADIO LINK SETUP REQUEST message requested SSDT activation and the RADIO LINK SETUP RESPONSE message indicates that the SSDT capability is supported for this RL, SSDT is activated in the Node B.]

[FDD –The UL out-of-sync algorithm defined in [10] shall for each of the established RL Set(s) use the maximum value of the parameters N_OUTSYNC_IND and T_RLFAILURE, and the minimum value of the parameters N_INSYNC_IND, that are configured in the cells supporting the radio links of the RL Set].

8.2.3 Synchronised Radio Link Reconfiguration Preparation procedure

Void.

8.2.4 Synchronised Radio Link Reconfiguration Preparation

8.2.4.1 General

The Synchronised Radio Link Reconfiguration Preparation procedure is used to prepare a new configuration of all Radio Links related to one UE-UTRAN connection within a Node B.

The Synchronised Radio Link Reconfiguration Preparation procedure shall not be initiated if a Prepared Reconfiguration exists, as defined in clause 3.1.

8.2.4.2 Successful Operation

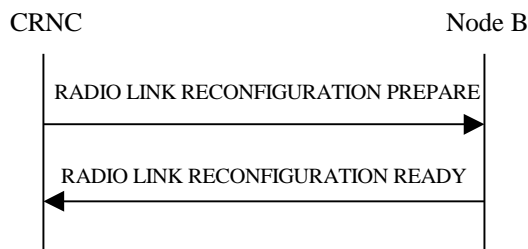


Figure 8: Synchronised Radio Link Reconfiguration Preparation procedure, Successful Operation

The Synchronised Radio Link Reconfiguration Preparation procedure is initiated by the CRNC by sending the message RADIO LINK RECONFIGURATION PREPARE to the Node B. The message shall use the Communication Control Port assigned for this Node B Communication Context.

Upon reception, the Node B shall reserve necessary resources for the new configuration of the Radio Link(s) according to the parameters given in the message. Unless specified below, the meaning of parameters is specified in other specifications.

The Node B shall prioritise resource allocation for the RL(s) to be modified according to Annex A.

DCH Modification:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DCHs to Modify* IEs then the Node B shall treat them each as follows:

- If the *DCHs to Modify* IE includes the *Frame Handling Priority* IE, the Node B should store this information for this DCH in the new configuration. The received Frame Handling Priority should be used when prioritising between different frames in the downlink on the radio interface in congestion situations within the Node B once the new configuration has been activated.
- If the *DCHs to Modify* IE includes the *Transport Format Set* IE for the UL of a DCH, the Node B shall apply the new Transport Format Set in the Uplink of this DCH in the new configuration.
- If the *DCHs to Modify* IE includes the *Transport Format Set* IE for the DL of a DCH, the Node B shall apply the new Transport Format Set in the Downlink of this DCH in the new configuration.
- If the *DCHs to Modify* IE includes multiple *DCH Specific Info* IEs then the Node B shall treat the DCHs in the *DCHs to Modify* IE as a set of co-ordinated DCHs. The Node B shall include these DCHs in the new configuration only if it can include all of them in the new configuration.
- If the *DCHs to Modify* IE includes the *UL FP Mode* IE for a DCH or a DCH which belongs to a set of co-ordinated DCHs, the Node B shall apply the new FP Mode in the Uplink of the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- If the *DCHs to Modify* IE includes the *ToAWS* IE for a DCH or a DCH which belongs to a set of co-ordinated DCHs, the Node B shall apply the new ToAWS in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- If the *DCHs to Modify* IE includes the *ToAWE* IE for a DCH or a DCH which belongs to a set of co-ordinated DCHs, the Node B shall apply the new ToAWE in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.
- [TDD – If the *DCHs to Modify* IE includes the *CCTrCH ID* IE for the DL of a DCH to be modified, the Node B shall apply the new CCTrCH ID in the Downlink of this DCH in the new configuration.]
- [TDD - If the *DCHs to Modify* IE includes the *CCTrCH ID* IE for the UL of a DCH to be modified, the Node B shall apply the new CCTrCH ID in the Uplink of this DCH in the new configuration.]

DCH Addition:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DCHs to Add* IEs then the Node B shall treat them each as follows:

- If the *DCHs to Add* IE multiple *DCH specific Info* IEs then, the Node B shall treat the DCHs in the *DCHs to Add* IE as a set of co-ordinated DCHs. The Node B shall include these DCHs in the new configuration only if it can include all of them in the new configuration.
- [FDD - For DCHs which do not belong to a set of co-ordinated DCHs with the *QE-Selector* IE set to "selected", the Transport channel BER from that DCH shall be the base for the QE in the UL data frames. If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [16]. If the QE-Selector is set to "non-selected", the Physical channel BER shall be used for the QE in the UL data frames, ref. [16]].

For a set of co-ordinated DCHs the Transport channel BER from the DCH with the *QE-Selector* IE set to "selected" shall be used for the QE in the UL data frames, ref. [16]. [FDD - If no Transport channel BER is available for the selected DCH the Physical channel BER shall be used for the QE, ref. [16]. If all DCHs have *QE-Selector* IE set to "non-selected" the Physical channel BER shall be used for the QE, ref. [16]].

The Node B should store the *Frame Handling Priority* IE received for a DCH to be added in the new configuration. The received Frame Handling Priority should be used when prioritising between different frames in the downlink on the radio interface in congestion situations within the Node B once the new configuration has been activated.

The Node B shall use the included *UL FP Mode* IE for a DCH or a set of co-ordinated DCHs to be added as the new FP Mode in the Uplink of the user plane for the DCH or the set of co-ordinated DCHS in the new configuration.

The Node B shall use the included *ToAWS* IE for a DCH or a set of co-ordinated DCHs to be added as the new Time of Arrival Window Start Point in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.

The Node B shall use the included *ToAWE* IE for a DCH or a set of co-ordinated DCHs to be added as the new Time of Arrival Window End Point in the user plane for the DCH or the set of co-ordinated DCHs in the new configuration.

[TDD – The Node B shall apply the *CCTrCH ID* IE (for the DL) in the Downlink of this DCH in the new configuration.]

[TDD – The Node B shall apply the *CCTrCH ID* IE (for the UL) in the Uplink of this DCH in the new configuration.]

DCH Deletion:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DCHs to Delete* IEs, the Node B shall not include the referenced DCHs in the new configuration.

If all of the DCHs belonging to a set of coordinated DCHs are requested to be deleted, the Node B shall not include this set of coordinated DCHs in the new configuration.

Physical Channel Modification:

[FDD - If the RADIO LINK RECONFIGURATION PREPARE message includes an *UL DPCH Information* IE then the Node B shall apply the parameters to the new configuration as follows:]

- [FDD - If the *UL DPCH Information* IE includes the *Uplink Scrambling Code* IE, the Node B shall apply this Uplink Scrambling Code to the new configuration.]
- [FDD – If the *UL DPCH Information* IE includes the *Min UL Channelisation Code Length* IE, the Node B shall apply the value in the new configuration. The Node B shall apply the contents of the *Max Number of UL DPDCBs* IE (if it is included) in the new configuration.]
- [FDD – If the *UL DPCH Information* IE includes the *UL SIR Target* IE, the Node B shall use the value for the UL inner loop power control when the new configuration is being used.]
- [FDD – If the *UL DPCH Information* IE includes the *Puncture Limit* IE, the Node B shall apply the value in the uplink of the new configuration
- [FDD - The Node B shall use the *TFCS* IE for the UL (if present) when reserving resources for the uplink of the new configuration. The Node B shall apply the new TFCS in the Uplink of the new configuration.]
- [FDD - If the *UL DPCH Information* IE includes the *UL DPCCCH Slot Format* IE, group the Node B shall set the new Uplink DPCCCH Structure to the new configuration.]
- [FDD - If the *UL DPCH Information* IE includes the *Diversity Mode* IE, the Node B shall apply diversity according to the given value.]
- [FDD – If the *UL DPCH Information* IE includes an *SSDT Cell Identity Length* IE and/or an *S-Field Length* IE, the Node B shall apply the values in the new configuration.]

[FDD - If the RADIO LINK RECONFIGURATION PREPARE message includes a *DL DPCH Information* IE then the Node B shall apply the parameters to the new configuration as follows:]

- [FDD - The Node B shall use the *TFCS* IE for the DL (if it is present) when reserving resources for the downlink of the new configuration. The Node B shall apply the new TFCS in the Downlink of the new configuration.]
- [FDD – If the *DL DPCH Information* IE includes the *TFCI Signalling Mode* IE or the *TFCI Presence* IE, the Node B shall use the information when building TFCIs in the new configuration.]
- [FDD - If the *DL DPCH Information* IE includes the *DL DPCCCH Slot Format* IE, group the Node B shall set the new Downlink DPCCCH Structure to the new configuration.]
- [FDD – If the *DL DPCH Information* IE includes the *Multiplexing Position* IE, the Node B shall apply the indicated multiplexing type in the new configuration.]

- [FDD – If the *DL DPCH Information* IE includes the *Limited Power Increase* IE and the IE is set to 'Used', the Node B shall use Limited Power Increase ref. [10] clause 5.2.1 for the inner loop DL power control in the new configuration.]
- [FDD – If the *DL DPCH Information* IE includes the *Limited Power Increase* IE and the IE is set to 'Not Used', the Node B shall not use Limited Power Increase for the inner loop DL power control in the new configuration.]
- [FDD - If the *DL DPCH Information* IE includes the *PDSCH code mapping* IE then the Node B shall apply the defined mapping between TFCI values and PDSCH channelisation codes.]
- [FDD - If the *DL DPCH Information* IE includes the *PDSCH RL ID* IE then the Node B shall infer that the PDSCH for the specified user will be transmitted on the defined radio link.]

[FDD - If the RADIO LINK RECONFIGURATION PREPARE message includes the *Transmission Gap Pattern Sequence Information* IE the Node B shall store the new information about the Transmission Gap Pattern Sequences to be used in the new Compressed Mode Configuration. This new Compressed Mode Configuration shall be valid in the Node B until the next Compressed Mode Configuration is configured in the Node B or Node B Communication Context is deleted.]

[TDD - UL/DL CCTrCH Modification]

[TDD - If the RADIO LINK RECONFIGURATION PREPARE message includes any *UL CCTrCH to Modify* or *DL CCTrCH to Modify* IEs, then the Node B shall treat them each as follows:]

- [TDD - If the IE includes any of *TFCS* IE, *TFCI coding* IE or *Puncture Limit* IE the Node B shall apply these as the new values, otherwise the old values specified for this CCTrCH are still applicable.]
- [TDD – If the IE includes any *UL DPCH to add* or *DL DPCH to add* IEs, the Node B shall include this DPCH in the new configuration.]
- [TDD – If the IE includes any *UL DPCH to delete* or *DL DPCH to delete* IEs, the Node B shall remove this DPCH in the new configuration.]
- [TDD – If the IE includes any *UL DPCH to modify* or *DL DPCH to modify* IEs, and includes any of *Repetition Period* IE, *Repetition Length* IE, or *TDD DPCH Offset* IE or the message includes *UL/DL Timeslot Information* and includes any of *Midamble shift and Burst Type* IE, *Time Slot* IE, or *TFCI presence* IE or the message includes *UL/DL Code* information and includes *TDD Channelisation Code* IE, the Node B shall apply these specified information elements as the new values, otherwise the old values specified for this DPCH configuration are still applicable.]

[TDD – UL/DL CCTrCH Addition]

[TDD -If the RADIO LINK RECONFIGURATION PREPARE message includes any *UL CCTrCH to Add* IE or *DL CCTrCH to Add* IE, the Node B shall include this CCTrCH in the new configuration.]

[TDD - If the *UL/DL CCTrCH to Add* IE includes any *UL/DL DPCH Information* IE, the Node B shall reserve necessary resources for the new configuration of the UL/DL DPCH(s) according to the parameters given in the message.]

[TDD – UL/DL CCTrCH Deletion]

[TDD - If the RADIO LINK RECONFIGURATION PREPARE message includes any UL or DL CCTrCH to be deleted, the Node B shall remove this CCTrCH in the new configuration.]

DSCH Addition/Modification/Deletion:

If the RADIO LINK RECONFIGURATION PREPARE message includes any *DSCH to modify*, *DSCH to add* or *DSCH to delete* IEs, then the Node B shall use this information to add/modify/delete the indicated DSCH channels to/from the radio link, in the same way as the DCH info is used to add/modify/release DCHs.

The Node B shall include in the RADIO LINK RECONFIGURATION READY message both the *Transport Layer Address* IE and the *Binding ID* IE for the transport bearer to be established for each DSCH.

[FDD – If the RADIO LINK RECONFIGURATION PREPARE message includes the *TFCI2 Bearer Information IE* then the Node B shall support the setup of a transport bearer on which the DSCH TFCI Signaling control frames shall be received if one does not already exist or shall apply the new values if such a bearer does already exist. The *Binding ID IE* and *Transport Layer Address IE* of any new bearer to be set up for this purpose shall be returned in the RADIO LINK RECONFIGURATION READY message. If the RADIO LINK RECONFIGURATION PREPARE message specifies that the TFCI2 transport bearer is to be deleted then the Node B shall release the resources associated with that bearer in the new configuration.

[FDD - If the *TFCI Signalling Mode IE* within the RADIO LINK RECONFIGURATION PREPARE message indicates that there shall be a hard split on the TFCI field but a TFCI2 transport bearer has not already been set up and *TFCI2 Bearer Information IE* is not included in the message then the Node B shall transmit the TFCI2 field with zero power in the new configuration.]

[FDD - If the *TFCI Signalling Mode IE* within the RADIO LINK RECONFIGURATION PREPARE message indicates that there shall be a hard split on the TFCI and the *TFCI2 Bearer Information IE* is included in the message then the Node B shall transmit the TFCI2 field with zero power until Synchronization is achieved on the TFCI2 transport bearer and the first valid DSCH TFCI Signalling control frame is received on this bearer in the new configuration (see ref.[24]).]

[FDD - If the RADIO LINK RECONFIGURATION PREPARE message includes the *DSCH Common Information IE*, the Node B shall treat it as follows:]

- [FDD - If the *Enhanced DSCH PC Indicator IE* is included and set to "Enhanced DSCH PC Active in the UE", the Node B shall activate enhanced DSCH power control, if supported, using either:]
 - [FDD - the *SSDT Cell Identity for EDSCHPC IE* in the *RL Information IE*, if the *SSDT Cell Identity IE* is not included in the *RL Information IE* or]
 - [FDD - the *SSDT Cell Identity IE* in the *RL Information IE*, if both the *SSDT Cell Identity IE* and the *SSDT Cell Identity for EDSCHPC IE* are included in the *RL Information IE*.]
- [FDD - together with the *SSDT Cell Identity Length IE* in *UL DPCH Information IE*, and *Enhanced DSCH PC IE*, in the new configuration.]

[FDD - If the RADIO LINK RECONFIGURATION PREPARE message includes the *Enhanced DSCH PC Indicator IE* set to "Enhanced DSCH PC not Active in the UE", the Node B shall deactivate enhanced DSCH power control in the new configuration.]

[TDD - USCH Addition/Modification/Deletion:]

- [TDD - If the RADIO LINK RECONFIGURATION PREPARE message includes USCH information for the USCHs to be added/modified/deleted then the Node B shall use this information to add/modify/delete the indicated USCH channels to/from the radio link, in the same way as the DCH info is used to add/modify/release DCHs.]
- [TDD - The Node B shall include in the RADIO LINK RECONFIGURATION READY message both the *Transport Layer Address IE* and the *Binding ID IE* for the transport bearer to be established for each USCH.]

RL Information:

If the RADIO LINK RECONFIGURATION PREPARE message includes the *RL Information IE*, the Node B shall treat it as follows:

- [FDD – When more than one DL DPDCH are assigned per RL, the segmented physical channel shall be mapped on to DL DPDCHs according to [8]. When p number of DL DPDCHs are assigned to each RL, the first pair of DL Scrambling Code and FDD DL Channelisation Code Number corresponds to "*PhCH number 1*", the second to "*PhCH number 2*", and so on until the p th to "*PhCH number p*".]
- [FDD - If the *RL Information IE* includes the *SSDT Indication IE* set to "SSDT Active in the UE", the Node B may activate SSDT using the *SSDT Cell Identity IE* in the new configuration.]
- [FDD - If the *RL Information IE* includes the *SSDT Indication IE* set to "SSDT not Active in the UE", the Node B shall deactivate SSDT in the new configuration.]

- [FDD - If the *RL Information* IE includes both *SSDT Cell Identity* IE and *SSDT Cell Identity for EDSCHPC* IE, then Node B shall ignore the *SSDT Cell Identity for EDSCHPC* IE.]
- [FDD – If the *RL Information* IE includes a *DL Code Information* IE containing a *DL Scrambling Code* IE, the Node B shall apply the scrambling code in the new configuration.]
- [FDD – If the *RL Information* IE includes the *DL Code Information* IE containing a *DL Channelisation Code Number* IE, the Node B shall apply the channelisation code in the new configuration.]
- [FDD- If the *RL Information* IE contains the *Transmission Gap Pattern Sequence Code Information* IE for any of the allocated DL Channelisation code, the Node B shall apply the alternate scrambling code as indicated whenever the downlink compressed mode method SF/2 is active in the new configuration.]
- If the *RL Information* IE includes the *Maximum DL Power* and/or the *Minimum DL Power* IEs, the Node B shall apply the values in the new configuration.

General

If the requested modifications are allowed by the Node B and the Node B has successfully reserved the required resources for the new configuration of the Radio Link(s), it shall respond to the CRNC with the RADIO LINK RECONFIGURATION READY message. When this procedure has been completed successfully there exist a Prepared Reconfiguration, as defined in clause 3.1.

In the RADIO LINK RECONFIGURATION READY message, the Node B shall include the *RL Information Response* IE for each affected Radio Link.

The Node B shall include in the RADIO LINK RECONFIGURATION READY message the Transport Layer Address and the Binding ID for any Transport Channel being added, or any Transport Channel being modified for which a new transport bearer was requested with the *Transport Bearer Request Indicator* IE.

In case of a DCH requiring a new transport bearer on Iur, the *Transport Layer Address* IE and the *Binding ID* shall be included in the *DCH Information Response* IE group.

In case of a set of coordinated DCHs requiring a new transport bearer on Iub, the *Transport Layer Address* IE and the *Binding ID* IE in the *DCH Information Response* IE group shall be included only for one of the DCH in the set of coordinated DCHs.

In case of a Radio Link being combined with another Radio Link within the Node B, the *RL Information Response* IE group shall be included only for one of the combined RLS. The *Transport Layer Address* IE and the *Binding ID* IE in the *DCH Information Response* IE group shall be included only for one of the combined Radio Links.

8.2.5 RADIO LINK SETUP REQUEST message

To initiate DSCH power control improvement function during soft handover, *SSDT Cell Identity for EDSCHPC*, *Enhanced DSCH PC Wnd*, *Enhanced DSCH PC Counter*, and *Enhanced DSCH Power Offset* IEs shall be included in the RADIO LINK SETUP REQUEST message.

8.2.6 RADIO LINK SETUP REQUEST

8.2.6.1 FDD message

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Discriminator	M		9.2.1.45		-	
Message Type	M		9.2.1.46		YES	reject
CRNC Communication Context ID	M		9.2.1.18	The reserved value "All CRNCC C" shall not be used.	YES	reject
Transaction ID	M		9.2.1.62		-	
UL DPCH Information		1			YES	reject
>UL Scrambling Code	M		9.2.2.59		-	
>Min UL Channelisation Code length	M		9.2.2.22		-	
>Max Number of UL DPCHs	C – CodeLen		9.2.2.21		-	
>puncture Limit	M		9.2.1.50	For UL	-	
>TFCS	M		9.2.1.58	for UL	-	
>UL DPCCH Slot Format	M		9.2.2.57		-	
> UL SIR Target	M		UL SIR 9.2.2.58		-	
>Diversity mode	M		9.2.2.9		-	
>SSDT cell ID Length	O		9.2.2.45		-	
>S Field Length	C-FBI		9.2.2.40		-	
DL DPCH Information		1			YES	reject
>TFCS	M		9.2.1.58	For DL	-	
>DL DPCH Slot Format	M		9.2.2.10		-	
>TFCI signalling mode	M		9.2.2.50		-	
>TFCI presence	C- SlotFormat		9.2.1.57		-	
>Multiplexing Position	M		9.2.2.23		-	
>PDSCH RL ID	C-DSCH		RL ID 9.2.1.53		-	
>PDSCH code mapping	C-DSCH		9.2.2.25		-	
>Power Offset Information		1			-	
>>PO1	M		Power Offset 9.2.2.29	Power offset for the TFCI bits	-	
>>PO2	M		Power Offset 9.2.2.29	Power offset for the TPC bits	-	
>>PO3	M		Power Offset 9.2.2.29	Power offset for the pilot bits	-	
>FDD TPC DL Step Size	M		9.2.2.16		-	
>Limited Power Increase	M		9.2.2.18A		-	
>Inner Loop DL PC Status	M		9.2.2.18B		-	
DCH Information	M		DCH FDD Information 9.2.2.4D		YES	reject
DSCH Information	O		DSCH FDD Information 9.2.2.13B		YES	reject
TFCI2 bearer information		0..1			-	

>ToAWS	M		9.2.1.61		-	
>ToAWE	M		9.2.1.60		-	
RL Information		1 to <maxnoof RLs>			EACH	notify
>RL ID	M		9.2.1.53		-	
>C-ID	M		9.2.1.9		-	
>First RLS Indicator	M		9.2.2.16A		-	
>Frame Offset	M		9.2.1.31		-	
>Chip Offset	M		9.2.2.2		-	
>Propagation Delay	O		9.2.2.35		-	
>Diversity Control Field	C – NotFirstRL		9.2.1.25		-	
>DL Code Information	M		FDD DL Code Information 9.2.2.14A		-	
>Initial DL transmission Power	M		DL Power 9.2.1.21		-	
>Maximum DL power	M		DL Power 9.2.1.21		-	
>Minimum DL power	M		DL Power 9.2.1.21		-	
>SSDT Cell Identity	O		9.2.2.44		-	
>Transmit Diversity Indicator	C – Diversity mode		9.2.2.53		-	
>SSDT Cell Identity for EDSCHPC	C- EDSCHPC		9.2.2.xx		YES	ignore
Transmission Gap Pattern Sequence Information	O		9.2.2.53A		YES	reject
Active Pattern Sequence Information	O		9.2.2.A		YES	reject
DSCH Common Information	O		DSCH FDD Common Information 9.2.2.xx		YES	ignore

Condition	Explanation
CodeLen	This IE is present only if "Min UL Channelisation Code length" equals to 4
FBI	This IE shall be present if the <i>UL DPCCH Slot Format</i> IE indicates a slot format with 1 or 2 FBI bits (see ref.[7])
NotFirstRL	This IE is present only if the RL is not the first one in the RL Information.
DSCH	This IE is present only if the <i>DSCH Information</i> IE is present
SlotFormat	This IE is only present if the DL DPCH slot format is equal to any of the value 12 to 16.
Diversity mode	This IE is present unless <i>Diversity Mode</i> IE in <i>UL DPCH Information</i> IE is "none"
EDSCHPC	This IE shall be present if <i>Enhanced DSCH PC</i> IE is present in the <i>DSCH Common Information</i> IE.

Range bound	Explanation
MaxnoofRLs	Maximum number of RLs for one UE.

8.2.7 RADIO LINK RECONFIGURATION PREPARE message

To initiate or to terminate DSCH power control improvement function during soft handover, *SSDT Cell Identity for EDSCHPC*, *Enhanced DSCH PC Indicator*, *Enhanced DSCH PC Wnd*, *Enhanced DSCH PC Counter*, and *Enhanced DSCH Power Offset* IEs shall be included in the RADIO LINK RECONFIGURATION PREPARE message. *Enhanced DSCH PC Wnd*, *Enhanced DSCH PC Counter*, and *Enhanced DSCH Power Offset* IEs are conditional based on the value of *Enhanced DSCH PC Indicator* IE.

8.2.8 RADIO LINK RECONFIGURATION PREPARE

8.2.8.1 FDD Message

IE/Group Name	Presence	Range	IE Type and Reference	Semantic Description	Criticality	Assigned Criticality
Message Discriminator	M		9.2.1.45		–	
Message Type	M		9.2.1.46		YES	reject
Node B Communication Context ID	M		9.2.1.48	The reserved value "All NBCC" shall not be used.	YES	reject
Transaction ID	M		9.2.1.62		–	
UL DPCH Information		0..1			YES	reject
>UL Scrambling code	O		9.2.2.59		–	
>UL SIR Target	O		UL SIR 9.2.2.58		–	
>Min UL Channelisation Code Length	O		9.2.2.22		–	
>Max Number of UL DPDCHs	C – CodeLen		9.2.2.20		–	
>Puncture Limit	O		9.2.1.50	For UL	–	
>TFCS	O		9.2.1.58		–	
>UL DPCH Slot Format	O		9.2.2.57		–	
>Diversity mode	O		9.2.2.9		–	
>SSDT Cell Identity Length	O		9.2.2.45		–	
>S-Field Length	O		9.2.2.40		–	
DL DPCH Information		0..1			YES	reject
>TFCS	O		9.2.1.58		–	
>DL DPCH Slot Format	O		9.2.2.10		–	
>TFCI Signalling Mode	O		9.2.2.50		–	
>TFCI presence	C-Slot Format		9.2.1.57		–	
>Multiplexing Position	O		9.2.2.23		–	
>PDSCH code mapping	O		9.2.2.25		–	
>PDSCH RL ID	O		RL ID 9.2.1.53		–	
>Limited Power Increase	O		9.2.2.18A		–	
DCHs to Modify	O		DCHs FDD to Modify 9.2.2.4E		YES	reject
DCHs to Add	O		DCH FDD Information 9.2.2.4D		YES	reject
DCHs to Delete		0..<max noofDC Hs>			GLOBAL	reject
>DCH ID	M		9.2.1.20		–	
DSCH to modify		0..<max noofDS			YES	reject

		<i>CHs></i>				
>DSCH ID	M		9.2.1.27		–	
>Transport Format Set	O		9.2.1.59	For the DL.	–	
>Allocation/Retention Priority	O		9.2.1.1A		–	
>Frame Handling Priority	O		9.2.1.30		–	
>ToAWS	O		9.2.1.61		–	
>ToAWE	O		9.2.1.60		–	
>Transport Bearer Request Indicator	M		9.2.1.62A		–	
DSCH to add	O		DSCH FDD Information 9.2.2.13B		YES	reject
DSCH to Delete		<i>0..<max noofDS CHs></i>			YES	reject
>DSCH ID	M		9.2.1.27		–	
TFCI2 bearer specific information		0..1			YES	reject
>CHOICE <i>TFCI2 bearer action</i>	M				–	
>>Add or modify					–	
>>>ToAWS	M		9.2.1.61		–	
>>>ToAWE	M		9.2.1.60		–	
>>Delete			NULL		–	
RL Information		<i>0..<max noofRLs ></i>			EACH	reject
>RL ID	M		9.2.1.53		–	
>DL Code Information	O		FDD DL Code Information 9.2.2.14A		–	
>Maximum DL Power	O		DL Power 9.2.1.21		–	
>Minimum DL Power	O		DL Power 9.2.1.21		–	
>SSDT Indication	O		9.2.2.47		–	
>SSDT Cell Identity	C–SSDTIndON		9.2.2.44		–	
>Transmit Diversity Indicator	C – Diversity mode		9.2.2.53		–	
>SSDT Cell Identity for EDSCHPC	C-EDSCHPC		9.2.2.xx		YES	ignore
Transmission Gap Pattern Sequence Information	O		9.2.2.53A		YES	reject
DSCH Common Information	O		DSCH FDD Common Information 9.2.2.xx		YES	ignore

Condition	Explanation
SSDTIndON	The IE may be present if the SSDT Indication is set to 'SSDT Active in the UE'.
CodeLen	This IE is present only if "Min UL Channelisation Code length" equals to 4.
SlotFormat	This IE is only present if the DL DPCH slot format is equal to any of the value 12 to 16.
SF/2	This IE is present only if the <i>Transmission Gap Pattern Sequence Information</i> IE is included and the indicated Downlink Compressed Mode method for at least one of the included Transmission Gap Pattern Sequence is set to "SF/2".
Diversity mode	This IE is present unless <i>Diversity Mode</i> IE in <i>UL DPCH Information</i> group, unless it is equal to "none"
EDSCHPC	This IE shall be present if <i>Enhanced DSCH PC</i> IE is present in the <i>DSCH Common Information</i> IE.

Range Bound	Explanation
<i>MaxnoofDCHs</i>	Maximum number of DCHs for a UE.
<i>MaxnoofDSCHs</i>	Maximum number of DSCHs for a UE.
<i>MaxnoofRLs</i>	Maximum number of RLs for a UE.

8.2.9 New IE

To support DSCH power control enhancement during soft handover function, following new IEs shall be defined.

8.2.9.1 DSCH FDD Common Information

The DSCH Common Information includes common information for all DSCHs for one UE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Enhanced DSCH PC Indicator	O		9.2.2.xx		–	
Enhanced DSCH PC	C-EDSCHPC On		9.2.2.xx		–	

Condition	Explanation
EDSCHPCOn	The IE shall be present only if the <i>Enhanced DSCH PC Indicator</i> IE is set to 'Enhanced DSCH PC Active in the UE'.

8.2.9.2 Enhanced DSCH PC

The Enhanced DSCH PC includes all the parameters which are needed for DSCH power control improvement during soft handover.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Wnd	M		9.2.2.xx	
Enhanced DSCH PC Counter	M		9.2.2.xx	
Enhanced DSCH Power Offset	M		9.2.2.xx	

8.2.9.3 Enhanced DSCH PC Counter

The Enhanced DSCH PC Counter parameter gives the number of correct cell ID command to receive in the averaging window, *Enhance DSCH PC Wnd* IE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Counter			INTEGER(1..50)	

8.2.9.4 Enhanced DSCH PC Indicator

The Enhanced DSCH PC Indicator indicates whether Enhanced DSCH PC is in use by the UE or not.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Indicator			ENUMERATED(Enhanced DSCH PC Active in the UE, Enhanced DSCH PC not Active in the UE)	

8.2.9.5 Enhanced DSCH PC Wnd

The Enhanced DSCH PC Wnd parameter shows the window size to decide primary or non-primary cell.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH PC Wnd			INTEGER(1..10)	

8.2.9.6 Enhanced DSCH Power Offset

The Enhanced DSCH Power Offset parameter gives the power offset to be added on DSCH when cell is decided to be primary.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Enhanced DSCH Power Offset			INTEGER(-15..0)	step 1dB

8.2.9.7 SSDT Cell Identity for EDSCHPC

The SSDT Cell Identity for EDSCHPC is a temporary ID for enhanced DSCH power control.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SSDT Cell Identity for EDSCHPC			SSDT Cell Identity 9.2.2.44	

Annex A: Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
03/2001	11	RP-010154	-	-	Approved at TSG RAN #11 and placed under Change Control	2.0.0	4.0.0