TSG-RAN Meeting #28
Quebec, Canada, 01-03 June 2005

RP-050323
agenda item 8.2.1

Source: **TSG-RAN WG2.**

Title: **CRs on 25.321 and 25.331 on RAB Support enhancement**

The following CRs are in RP-050323:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.321	0215	-	Rel-6	HS-DSCH Provided Bit Rate measurement per Cell Portion	B	6.4.0	6.5.0	R2-051648	RANimp-BFE
25.331	2565	-	Rel-6	radio bearer release F-DPCH asn1	F	6.5.0	6.6.0	R2-051204	RANimp-RABSE-CodeOptFDD
25.331	2600	1	Rel-6	Setting up F-DPCH and E-DCH in RRC connection setup	B	6.5.0	6.6.0	R2-051685	RANimp-RABSE-CodeOptFDD

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.321** CR **0215** ⌘ **rev** **-** ⌘ Current version: **6.4.0** ⌘

For **HELP** *on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐   ME ☐ Radio Access Network **X** Core Network ☐

Title: ⌘	HS-DSCH Provided Bit Rate measurement per Cell Portion
Source: ⌘	RAN WG2
Work item code: ⌘	RANimp-BFE *Date:* ⌘ 03/05/2005

Category: ⌘	**B**	*Release:* ⌘	Rel-6

Use <u>one</u> *of the following categories:*
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> *of the following releases:*
   Ph2   *(GSM Phase 2)*
   R96   *(Release 1996)*
   R97   *(Release 1997)*
   R98   *(Release 1998)*
   R99   *(Release 1999)*
   Rel-4 *(Release 4)*
   Rel-5 *(Release 5)*
   Rel-6 *(Release 6)*
   Rel-7 *(Release 7)*

Reason for change: ⌘	At RAN1#34, it was agreed to extend the HS-DSCH Provided Bit Rate measurement for cell portion level in order to improve RRM for HSDPA for cell portion level.
Summary of change: ⌘	It is clarified that the HS-DSCH Provided Bit Rate measurement can be performed per cell portion.
Consequences if not approved: ⌘	Inconsistent specifications.

Clauses affected: ⌘	11.7

	Y	N	
Other specs affected: ⌘		X	Other core specifications ⌘
		X	Test specifications
		X	O&M Specifications

Other comments: ⌘	The CR to NBAP (CR1085r2 to 25.433) is in RP-050062. It was approved in RAN#27 (03/2005).

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

11.7   HS-DSCH Provided Bit Rate measurement

The HS-DSCH Provided Bit Rate measurements is defined as follows:

- for each priority class the MAC-hs entity measures the total number of MAC-d PDU bits whose transmission over the radio interface has been considered successful by MAC-hs in Node-B during the last measurement period, divided by the duration of the measurement period;

- the values reported by MAC-hs shall be raw samples;

- the measurement period shall be [100 ms];

- when the cell portions are defined in a cell, the HS-DSCH Provided Bit Rate shall be measured for each cell portion.

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CHANGE REQUEST

| | ⌘ | **25.331** CR **2565** | ⌘**rev** | **-** | ⌘ | Current version: | **6.5.0** | ⌘ |

For **HELP** *on using this form, see bottom of this page or look at the pop-up text over the* ⌘ *symbols.*

Proposed change affects: UICC apps⌘ ☐   ME **X** Radio Access Network **X** Core Network ☐

Title: ⌘	radio bearer release F-DPCH asn1	
Source: ⌘	RAN WG2	
Work item code:⌘	RANimp-RABSE-CodeOptFDD	***Date:*** ⌘ 04/2005

Category: ⌘ **F**	***Release:*** ⌘ Rel-6

Use one of the following categories:	*Use one of the following releases:*
F (correction)	*Ph2 (GSM Phase 2)*
A (corresponds to a correction in an earlier release)	*R96 (Release 1996)*
B (addition of feature),	*R97 (Release 1997)*
C (functional modification of feature)	*R98 (Release 1998)*
D (editorial modification)	*R99 (Release 1999)*
Detailed explanations of the above categories can	*Rel-4 (Release 4)*
be found in 3GPP TR 21.900.	*Rel-5 (Release 5)*
	Rel-6 (Release 6)
	Rel-7 (Release 7)

Reason for change: ⌘	1) dl-CommonInformation refers to incorrect IE type, in r6 version of Radio Bearer Release message. 2) The IE "CFN-targetSFN frame offset" is not used as described in 8.6.6.28, therefore it should be removed from the r6 version of the messages.
Summary of change:⌘	1) Made dl-CommonInformation refer to DL-CommonInformation-r6 IE type 2) Created r6 version of the DL-DPCH-InfoCommon IE without IE IE "CFN-targetSFN frame offset" and reflected that change where the IE is used (last version used was r4). Also made the same correction in DL-FDPCH-InfoCommon-r6 IE.
Consequences if ***not approved:*** ⌘	1) Incorrect IE type will be used and F-DPCH cannot be used. 2) New version of the messages and IEs will contain unused information elements.

Clauses affected: ⌘	11.2, 11.3

	Y	N		
Other specs ⌘		X	Other core specifications	⌘
affected:		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

```
RadioBearerRelease-r6-IEs ::= SEQUENCE {
    -- User equipment IEs
        integrityProtectionModeInfo     IntegrityProtectionModeInfo        OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                  OPTIONAL,
        activationTime                  ActivationTime                     OPTIONAL,
        new-U-RNTI                      U-RNTI                             OPTIONAL,
        new-C-RNTI                      C-RNTI                             OPTIONAL,
        new-DSCH-RNTI                   DSCH-RNTI                          OPTIONAL,
        new-H-RNTI                      H-RNTI                             OPTIONAL,
        new-E-RNTI                      E-RNTI                             OPTIONAL,
        rrc-StateIndicator              RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient   OPTIONAL,
    -- Core network IEs
        cn-InformationInfo              CN-InformationInfo                 OPTIONAL,
        plmn-Identity                   PLMN-Identity                      OPTIONAL,
        signallingConnectionRelIndication  CN-DomainIdentity               OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                       OPTIONAL,
    -- Radio bearer IEs
        rab-InformationReconfigList     RAB-InformationReconfigList        OPTIONAL,
        rb-InformationReleaseList       RB-InformationReleaseList,
        rb-InformationAffectedList      RB-InformationAffectedList-r6      OPTIONAL,
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo-r5   OPTIONAL,
    -- Transport channel IEs
        ul-CommonTransChInfo            UL-CommonTransChInfo-r4            OPTIONAL,
        ul-deletedTransChInfoList       UL-DeletedTransChInfoList-r6      OPTIONAL,
        ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList-r6    OPTIONAL,
        modeSpecificTransChInfo         CHOICE {
            fdd                             SEQUENCE {
                cpch-SetID                      CPCH-SetID                 OPTIONAL,
                addReconfTransChDRAC-Info       DRAC-StaticInformationList OPTIONAL
            },
            tdd                             NULL
        }                                                                  OPTIONAL,
        dl-CommonTransChInfo            DL-CommonTransChInfo-r4           OPTIONAL,
        dl-DeletedTransChInfoList      DL-DeletedTransChInfoList-r5      OPTIONAL,
        dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r5    OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                  FrequencyInfo                     OPTIONAL,
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power             OPTIONAL,
        ul-ChannelRequirement          UL-ChannelRequirement-r6          OPTIONAL,
        ul-EDCH-Information            UL-EDCH-Information-r6             OPTIONAL,
        modeSpecificPhysChInfo         CHOICE {
            fdd                             SEQUENCE {
                dl-PDSCH-Information             DL-PDSCH-Information       OPTIONAL
            },
            tdd                             NULL
        },
        dl-HSPDSCH-Information          DL-HSPDSCH-Information            OPTIONAL,
        dl-CommonInformation            DL-CommonInformation-r56             OPTIONAL,
        dl-InformationPerRL-List        DL-InformationPerRL-List-r6       OPTIONAL,
    -- MBMS IEs
        mbms-FLCApplicabilityInfo       MBMS-FLCApplicabilityInfo-r6,
        mbms-RB-ListReleasedToChangeTransferMode
                                        RB-InformationReleaseList         OPTIONAL
}
```

11.3   Information element definitions

[…]

```
DL-CommonInformation-r6 ::=         SEQUENCE {
    dl-dpchInfoCommon                   CHOICE {
        dl-DPCH-InfoCommon                  DL-DPCH-InfoCommon-r46,
        dl-FDPCH-InfoCommon                 DL-FDPCH-InfoCommon-r6
    }                                                                  OPTIONAL,
    modeSpecificInfo                    CHOICE {
        fdd                                 SEQUENCE {
            defaultDPCH-OffsetValue             DefaultDPCH-OffsetValueFDD OPTIONAL,
            dpch-CompressedModeInfo             DPCH-CompressedModeInfo    OPTIONAL,
            tx-DiversityMode                    TX-DiversityMode           OPTIONAL,
            ssdt-Information                    SSDT-Information-r4        OPTIONAL
        },
        tdd                                 SEQUENCE {
            tddOption                           CHOICE {
                tdd384                              NULL,
```

```
                    tdd128                          SEQUENCE {
                        tstd-Indicator                  BOOLEAN
                    }
            },
            defaultDPCH-OffsetValue         DefaultDPCH-OffsetValueTDD  OPTIONAL
        }
    },
    mac-hsResetIndicator               ENUMERATED { true }          OPTIONAL
}
```

[…]

```
DL-DPCH-InfoCommon-r6 ::=                SEQUENCE {
    cfnHandling                         ENUMERATED {
                                            maintain,
                                            initialise }
        },
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            dl-DPCH-PowerControlInfo         DL-DPCH-PowerControlInfo         OPTIONAL,
            powerOffsetPilot-pdpdch          PowerOffsetPilot-pdpdch,
            dl-rate-matching-restriction     Dl-rate-matching-restriction    OPTIONAL,
            -- TABULAR: The number of pilot bits is nested inside the spreading factor.
            spreadingFactorAndPilot          SF512-AndPilot,
            positionFixedOrFlexible          PositionFixedOrFlexible,
            tfci-Existence                   BOOLEAN
        },
        tdd                             SEQUENCE {
            dl-DPCH-PowerControlInfo         DL-DPCH-PowerControlInfo         OPTIONAL
        }
    },
-- The IE mac-d-HFN-initial-value should be absent in the RRCConnectionSetup-r4-IEs or
-- RRCConnectionSetup-r5-IEs or HandoverToUTRANCommand-r4-IEs or HandoverToUTRANCommand-r5-IEs and
-- if the IE is included, the general error handling for conditional IEs applies.
    mac-d-HFN-initial-value             MAC-d-HFN-initial-value              OPTIONAL

}
```

[…]

```
DL-FDPCH-InfoCommon-r6 ::=              SEQUENCE {
    cfnHandling                             CHOICE ENUMERATED {
                                            maintain                            NULL,
                                            initialise                          SEQUENCE {
            cfntargetsfnframeoffset             Cfntargetsfnframeoffset             OPTIONAL
            }
    dl-FDPCH-PowerControlInfo            DL-DPCH-PowerControlInfo             OPTIONAL,
-- Actual value dl-FDPCH-TPCcommandErrorRate = IE value * 0.005
-- dl-FDPCH-TPCcommandErrorRate values 21..32 are spare and shall not be used in this version of
-- the protocol
    dl-FDPCH-TPCcommandErrorRate        INTEGER (1..32)     OPTIONAL
}
```

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CHANGE REQUEST

⌘ **25.331 CR 2600** ⌘**rev 1** ⌘ Current version: **6.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME **X** Radio Access Network **X** Core Network ☐

Title: ⌘	Setting up F-DPCH and E-DCH in RRC connection setup
Source: ⌘	RAN WG2
Work item code: ⌘	RANimp-RABSE-CodeOptFDD **Date:** ⌘ 11/05/2005
Category: ⌘ **B**	**Release:** ⌘ REL-6

Use one of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
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Use one of the following releases:
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R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change: ⌘	It was agreed in RAN2 #45bis to introduce possibility to set up the F-DPCH and E-DCH in RRC connection setup procedure, which is currently not possible.
Summary of change: ⌘	1) RRC connection request procedure and message is enhanced so that UE can indicate its capability of supporting HSDPA and E-DCH can be included when UE is attempting to establish signalling connection to PS domain. 2) The RRC connection setup message is enhanced such way that necessary IE to set up E-DCH and F-DPCH can be signalled to UE. 3) Two default configuration identities are reserved for two default configuration to set up UL DCH + DL F-DPCH and UL E-DCH + DL F-DPCH when only SRBs are mapped on it, so that RRC connection setup message size can be reduced when default configurations are used 4) Tabular for these default configurations is reserved.
Consequences if not approved: ⌘	The F-DPCH and E-DCH cannot be set up in RRC connection setup procedure.

Clauses affected: ⌘	8.1.3.3, 10.2.39, 10.2.40, 10.3.4.21, 10.3.5.2, 10.3.6.27, 11.2

	Y	N		
Other specs ⌘		X	Other core specifications ⌘	
affected:	X		Test specifications	34.123-1
		X	O&M Specifications	

Other comments: ⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.
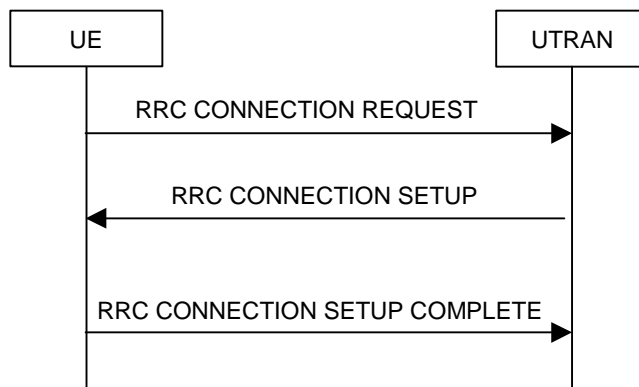
8.1.3   RRC connection establishment

```
┌─────────┐                                    ┌─────────┐
│   UE    │                                    │  UTRAN  │
└─────────┘                                    └─────────┘
     │                                              │
     │          RRC CONNECTION REQUEST              │
     │─────────────────────────────────────────────>│
     │                                              │
     │          RRC CONNECTION SETUP                │
     │<─────────────────────────────────────────────│
     │                                              │
     │      RRC CONNECTION SETUP COMPLETE           │
     │─────────────────────────────────────────────>│
     │                                              │
```

Figure 8.1.3-1: RRC Connection Establishment, network accepts RRC connection

```
┌─────────┐                                    ┌─────────┐
│   UE    │                                    │  UTRAN  │
└─────────┘                                    └─────────┘
     │                                              │
     │          RRC CONNECTION REQUEST              │
     │─────────────────────────────────────────────>│
     │                                              │
     │          RRC CONNECTION REJECT               │
     │<─────────────────────────────────────────────│
     │                                              │
```
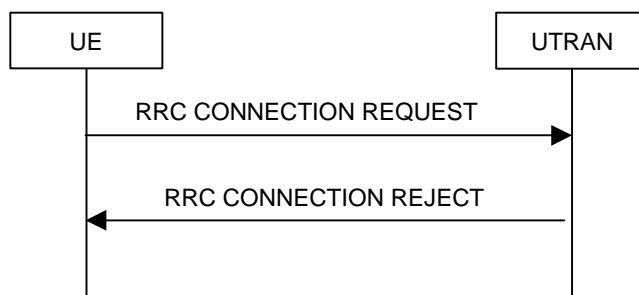
Figure 8.1.3-2: RRC Connection Establishment, network rejects RRC connection

8.1.3.1   General

The purpose of this procedure is to establish an RRC connection.

8.1.3.2   Initiation

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists), as specified in subclause 8.1.8.

Upon initiation of the procedure, the UE shall:

  1> set the variable PROTOCOL_ERROR_INDICATOR to FALSE;

  1> if the USIM is present:

      2> set the value of "THRESHOLD" in the variable "START_THRESHOLD" to the 20 MSBs of the value stored in the USIM [50] for the maximum value of START for each CN Domain.

  1> if the SIM is present:

      2> set the value of "THRESHOLD" in the variable "START_THRESHOLD" to the default value in [40] for each CN Domain.

  1> set the IE "Initial UE identity" in the variable INITIAL_UE_IDENTITY according to subclause 8.5.1;

  1> set the contents of the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

  1> set CFN in relation to SFN of current cell according to subclause 8.5.15;

1> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> if the variable ESTABLISHMENT_CAUSE is set to "MBMS reception":

2> start timer T318 when the MAC layer indicates success or failure to transmit the message;

2> apply value 0 for counter N300 regardless of the value included in IE "UE Timers and Constants in idle mode";

1> otherwise:

2> start timer T300 when the MAC layer indicates success or failure to transmit the message.

1> select a Secondary CCPCH according to [4];

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

8.1.3.3 RRC CONNECTION REQUEST message contents to set

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR; and

1> include the IE "Predefined configuration status information" and set this IE to true if the UE has all pre-configurations stored with the same value tag as broadcast in the cell in which the RRC connection establishment is initiated.

1> if UE is attempting to establish the signalling connection to PS-domain:

2> if UE only supports HS-DSCH but not E-DCH

3> include the IE "UE capability indication" and set it to the "HS-DSCH" value

2> if UE supports HS-DSCH and E-DCH

3> include the IE "UE capability indication" and set it to the "HS-DSCH+E-DCH" value

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

8.1.3.4 Reception of an RRC CONNECTION REQUEST message by the UTRAN

Upon receiving an RRC CONNECTION REQUEST message, UTRAN should either:

1> accept the request and use a predefined or default radio configuration, in which case it should:

2> include the following information in the RRC CONNECTION SETUP message:

3> the IE "Predefined configuration identity", to indicate which pre-defined configuration of RB and, transport channel parameters shall be used; or

3> the IE "Default configuration mode" and IE "Default configuration identity", to indicate which default configuration of RB and transport channel parameters shall be used;

3> PhyCH information elements.

2> submit the RRC CONNECTION SETUP message to the lower layers for transmission on the downlink CCCH.

NOTE 1: UTRAN should only apply a predefined radio configuration in case it orders the UE to enter CELL_DCH. This is because the predefined configuration information included in System Information Block 16 mandatorily includes information only required in CELL_DCH state.

1> accept the request without using a predefined or default radio configuration, in which case it should:

2> include in the RRC CONNECTION SETUP message the complete set of RB, TrCH and PhyCH information elements to be used;

2> submit the RRC CONNECTION SETUP message to the lower layers for transmission on the downlink CCCH;

NOTE 2: In R'99, the RRC CONNECTION SETUP message always includes the IEs "Added or Reconfigured TrCH information list", both for uplink and downlink transport channels, even if UTRAN orders the UE to move to CELL_FACH and hence need not configure any transport channels. In these cases, UTRAN may include a configuration that adds little to the encoded message size e.g. a DCH with a single zero size transport format. At a later stage, UTRAN may either remove or reconfigure this configuration.

1> submit an RRC CONNECTION REJECT message on the downlink CCCH. In the RRC CONNECTION REJECT message, the UTRAN may direct the UE to another UTRA carrier or to another system. After the RRC CONNECTION REJECT message has been sent, all context information for the UE may be deleted in UTRAN.

8.1.3.5 Cell re-selection, T300 or T318 timeout

1> if the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

1> if cell re-selection or expiry of timer T300 or timer T318 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

3> if cell re-selection occurred:

4> set CFN in relation to SFN of current cell according to subclause 8.5.15.

3> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

3> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13; and

3> apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

2> if V300 is greater than N300:

3> enter idle mode.

3> consider the procedure to be unsuccessful;

3> Other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;

3> the procedure ends.

8.1.3.5a Abortion of RRC connection establishment

If the UE has not yet entered UTRA RRC Connected mode and the RRC connection establishment is to be aborted as specified in subclause 8.1.8, the UE shall:

1> consider the procedure to be unsuccessful;

1> perform the actions when entering idle mode as specified in subclause 8.5.2.

The procedure ends.

8.1.3.6 Reception of an RRC CONNECTION SETUP message by the UE

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Predefined configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the predefined parameters identified by the IE "Predefined configuration identity" with the following exception;

4> ignore the IE "RB to setup list" and the IE "Re- establishment timer".

NOTE: IE above IEs are mandatory to include in IE "Predefined RB configuration" that is included in System Information Block 16 but should be ignored since it is not possible to establish a RAB during RRC connection establishment.

3> initiate the physical channels in accordance with the received physical channel information elements;

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

2> if IE "Specification mode" is set to "Complete specification":

3> initiate the radio bearer, transport channel and physical channel configuration in accordance with the received radio bearer, transport channel and physical channel information elements.

1> clear the variable ESTABLISHMENT_CAUSE;

1> stop timer T300 or T318, whichever one is running, and act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

3> if the IE "Frequency info" is included:

4> select a suitable UTRA cell according to [4] on that frequency.

3> enter UTRA RRC connected mode;

3> select PRACH according to subclause 8.5.17;

   3> select Secondary CCPCH according to subclause 8.5.19;

   3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

  1> if the UE, according to subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

   2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);

   2> enter UTRA RRC connected mode.

  1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

   2> set the IE "RRC transaction identifier" to:

    3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

    3> clear that entry.

   2> if the USIM or SIM is present:

    3> set the "START" for each CN domain in the IE "START list" in the RRC CONNECTION SETUP COMPLETE message with the corresponding START value that is stored in the USIM [50] if present, or as stored in the UE if the SIM is present; and then

    3> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START_THRESHOLD.

   2> if neither the USIM nor SIM is present:

    3> set the "START" for each CN domain in the IE "START list" in the RRC CONNECTION SETUP COMPLETE message to zero;

    3> set the value of "THRESHOLD" in the variable "START_THRESHOLD" to the default value [40].

   2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

   2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

   2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

   2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

  1> if the UE has entered CELL_FACH state:

   2> start timer T305 using its initial value if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS.

  1> store the contents of the variable UE_CAPABILITY_REQUESTED in the variable UE_CAPABILITY_TRANSFERRED;

  1> initialise variables upon entering UTRA RRC connected mode as specified in subclause 13.4;

  1> consider the procedure to be successful;

And the procedure ends.

8.1.3.7 Physical channel failure or cell re-selection

1> If the UE failed to establish, per subclause 8.5.4, the physical channel(s) indicated in the RRC CONNECTION SETUP message; or

1> if the UE performs cell re-selection; or

1> if the UE will be in the CELL_FACH state at the conclusion of this procedure; and

1> if the received RRC CONNECTION SETUP message included the IE "Frequency info" and the UE could not find a suitable UTRA cell on that frequency but it could find a suitable UTRA cell on another frequency; or

1> if the received RRC CONNECTION SETUP message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE; or

1> if the contents of the variable C_RNTI is empty;

1> after having received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

1> before the RRC CONNECTION SETUP COMPLETE message is delivered to lower layers for transmission:

the UE shall:

1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> check the value of V300, and:

> 2> if V300 is equal to or smaller than N300:

>> 3> set CFN in relation to SFN of current cell according to subclause 8.5.15;

>> 3> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

>> 3> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

>> 3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

>> 3> increment counter V300; and

>> 3> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

> 2> if V300 is greater than N300:

>> 3> enter idle mode;

>> 3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

>> 3> consider the RRC establishment procedure to be unsuccessful;

>> 3> the procedure ends.

8.1.3.8 Invalid RRC CONNECTION SETUP message, unsupported configuration or invalid configuration

If the UTRAN instructs the UE to use a configuration, which it does not support e.g., the message includes a pre-defined configuration that the UE has not stored and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION or the variable INVALID_CONFIGURATION to be set to TRUE the UE shall perform procedure specific error handling as specified in this subclause.

If the UE receives an RRC CONNECTION SETUP message which contains an IE "Initial UE identity" with a value which is identical to the value of the variable INITIAL_UE_IDENTITY, but the RRC CONNECTION SETUP message

contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

  1> stop timer T300 or T318, whichever one is running; and

  1> clear the entry for the RRC CONNECTION SETUP message in the table "Rejected transactions" in the variable TRANSACTIONS and proceed as below.

If the UE receives an RRC CONNECTION SETUP message which contains an IE "Initial UE identity" with a value which is identical to the value of the variable INITIAL_UE_IDENTITY:

  1> if the RRC CONNECTION SETUP message contained a configuration the UE does not support; and/or

  1> if the variable UNSUPPORTED_CONFIGURATION becomes set to TRUE due to the received RRC CONNECTION SETUP message; and/or

  1> if the variable INVALID_CONFIGURATION becomes set to TRUE due to the received RRC CONNECTION SETUP message:

the UE shall:

  1> stop timer T300 or T318, whichever one is running; and

  1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS and proceed as below.

If V300 is equal to or smaller than N300, the UE shall:

  1> set the variable PROTOCOL_ERROR_INDICATOR to TRUE;

  1> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

  1> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13; and

  1> apply the given Access Service Class when accessing the RACH;

  1> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

  1> increment counter V300; and

  1> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

If V300 is greater than N300, the UE shall:

  1> enter idle mode;

  1> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

  1> consider the RRC establishment procedure to be unsuccessful;

  1> the procedure ends.

8.1.3.9 Reception of an RRC CONNECTION REJECT message by the UE

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

  1> stop timer T300 or T318, whichever one is running; and

  1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE has disabled cell reselection to a UTRA carrier due to an earlier RRC CONNECTION REJECT message, the UE shall resume cell reselection to that UTRA carrier;

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

    2> if V300 is equal to or smaller than N300:

        3> select a suitable UTRA cell according to [4] on that frequency;

        3> after having selected and camped on a suitable cell on the designated UTRA carrier:

            4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

            4> set the contents of the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

            4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

            4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

            4> reset counter V300;

            4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

            4> disable cell reselection to original UTRA carrier until the time stated in the IE "wait time" has elapsed or until the RRC connection establishment procedure ends, whichever occurs first;

        3> if no suitable cell on the designated UTRA carrier is found:

            4> wait for at least the time stated in the IE "wait time";

            4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

            4> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

            4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

            4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

            4> increment counter V300;

            4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

    2> if V300 is greater than N300:

        3> enter idle mode;

        3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

        3> consider the RRC establishment procedure to be unsuccessful;

        3> the procedure ends.

1> if the IE "inter-RAT info" is present:

    2> if the IE "wait time" = '0':

        3> the UE behaviour is not specified.

    2> if V300 is equal to or smaller than N300:

        3> if the IE "GSM target cell info" is present:

            4> attempt to camp on a suitable cell of the list of cells indicated for that RAT;

4> if the UE selects and camps on one of the cells indicated for that RAT:

    5> disable cell reselection to the original RAT until the time stated in the IE "wait time" has elapsed.

4> if the UE cannot find any suitable cell from the indicated ones within 10s, the UE is allowed to camp on any suitable cell on that RAT.

3> if the IE "GSM target cell info" is not present:

    4> select a suitable cell belonging to the selected PLMN or any PLMN indicated to be equivalent to that PLMN in the designated RAT;

    4> after having selected and camped on a suitable cell on the designated RAT:

        5> disable cell reselection to the original RAT until the time stated in the IE "wait time" has elapsed or until the UE successfully establishes a connection on the designated RAT, whichever occurs first.

3> if no suitable cell in the designated RAT is found:

    4> wait at least the time stated in the IE "wait time";

    4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

    4> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.

    4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

    4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

    4> increment counter V300;

    4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

    3> enter idle mode;

    3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

    3> consider the RRC establishment procedure to be unsuccessful;

    3> the procedure ends.

1> if the IE "wait time" <> '0'; and

1> if neither the IEs "frequency info" nor "inter-RAT info" are present:

2> if V300 is equal to or smaller than N300:

    3> wait at least the time stated in the IE "wait time";

    3> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2;

    3> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

    3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

    3> increment counter V300;

    3> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

　　　　3> enter idle mode;

　　　　3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

　　　　3> consider the RRC establishment procedure to be unsuccessful;

　　　　3> the procedure ends.

1> if the IE "wait time" = '0':

　　2> enter idle mode;

　　2> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

　　2> consider the RRC establishment procedure to be unsuccessful;

　　2> the procedure ends.

8.1.3.10　　Invalid RRC CONNECTION REJECT message

If the UE receives an RRC CONNECTION REJECT message which contains an IE "Initial UE identity" with a value which is identical to the value of the IE "Initial UE identity" in the most recent RRC CONNECTION REQUEST message sent by the UE; but the RRC CONNECTION REJECT message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows:

The UE shall:

1> stop timer T300 or T318, whichever one is running; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Rejected transactions" in the variable TRANSACTIONS;

1> if V300 is equal to or smaller than N300:

　　2> set the variable PROTOCOL_ERROR_INDICATOR to TRUE;

　　2> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

　　2> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

　　2> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

　　2> increment counter V300;

　　2> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

1> if V300 is greater than N300:

　　2> enter idle mode;

　　2> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

　　2> consider the procedure to be successful;

　　2> the procedure ends.

*** NEXT modified Section ***

10.2.39 RRC CONNECTION REQUEST

RRC Connection Request is the first message transmitted by the UE when setting up an RRC Connection to the network.

RLC-SAP: TM

Logical channel: CCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
Radio Bearer IEs					
Predefined configuration status information	MP		Boolean	True indicates the UE has all pre-configurations stored with the same value tag as broadcast in the cell in which the RRC connection establishment is initiated	REL-5
UE information elements					
Initial UE identity	MP		Initial UE identity 10.3.3.15		
Establishment cause	MP		Establishme nt cause 10.3.3.11		
Protocol error indicator	MD		Protocol error indicator 10.3.3.27	Default value is FALSE	
>UE Specific Behaviour Information 1 idle	OP		UE Specific Behaviour Information 1 idle 10.3.3.51	This IE shall not be included in this version of the protocol	
UE capability indication	OP		ENUMERAT ED(HS-DSCH, HS-DSCH+E-DCH)	Absence of this IE implies that neither HS-DSCH nor E-DCH are not supported by the UE	REL-6
Measurement information elements					
Measured results on RACH	OP		Measured results on RACH 10.3.7.45		
Access stratum release indicator	MP		Enumerated(REL-4,	Absence of the IE implies R99. The IE also indicates the release of the RRC transfer syntax supported by the UE 13 spare values are needed	REL-4
			REL-5		REL-5
			REL-6)		REL-6

If the encoded message does not fill a transport block, the RRC layer shall insert padding according to subclause 12.1.

10.2.40 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for a UE, including assignment of signalling link information, transport channel information and optionally physical channel information.

RLC-SAP: UM

Logical channel: CCCH

Direction: UTRAN → UE

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE Information Elements					
Initial UE identity	MP		Initial UE identity 10.3.3.15		
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Activation time	MD		Activation time 10.3.3.1	Default value is "now"	
New U-RNTI	MP		U-RNTI 10.3.3.47		
New C-RNTI	OP		C-RNTI 10.3.3.8		
New H-RNTI	OP		H-RNTI 10.3.3.14a		REL-6
New Primary E-RNTI	OP		E-RNTI 10.3.3.10a		REL-6
New Secondary E-RNTI	OP		E-RNTI 10.3.3.10a		REL-6
RRC State Indicator	MP		RRC State Indicator 10.3.3.35a		
UTRAN DRX cycle length coefficient	MP		UTRAN DRX cycle length coefficient 10.3.3.49		
Capability update requirement	MD		Capability update requirement 10.3.3.2	Default value is defined in subclause 10.3.3.2	
CHOICE *specification mode*	MP				REL-5
>Complete specification					
RB Information Elements					
>>Signalling RB information to setup list	MP	3 to 4			
>>>Signalling RB information to setup	MP		Signalling RB information to setup 10.3.4.24		
TrCH Information Elements					
Uplink transport channels					
>>UL Transport channel information common for all transport channels	OP		UL Transport channel information common for all transport channels 10.3.5.24		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1	
	OP				REL-4
>>>Added or Reconfigured UL TrCH information	MP		Added or Reconfigured UL TrCH information 10.3.5.2		
Downlink transport channels					
>>DL Transport channel information common for all transport channels	OP		DL Transport channel information common for all transport channels 10.3.5.6		
>>Added or Reconfigured TrCH information list	MP	1 to <maxTrCH >		Although this IE is not required when the IE "RRC state indicator" is set to "CELL_FACH", need is MP to align with ASN.1	
	OP				REL-4
>>>Added or Reconfigured DL TrCH information	MP		Added or Reconfigured DL TrCH information 10.3.5.1		
>Preconfiguration					REL-5
>>CHOICE *Preconfiguration mode*	MP				REL-5
>>>Predefined configuration identity	MP		Predefined configuration identity 10.3.4.5		REL-5
>>>Default configuration					REL-5
>>>>Default configuration mode	MP		Enumerated (FDD, TDD)	Indicates whether the FDD or TDD version of the default configuration shall be used	REL-5
>>>>Default configuration identity	MP		Default configuration identity 10.3.4.0		REL-5
PhyCH information elements					
Frequency info	OP		Frequency info 10.3.6.36		
Uplink radio resources					
Maximum allowed UL TX power	MD		Maximum allowed UL TX power 10.3.6.39	Default value is the existing maximum UL TX power	
CHOICE *channel requirement*	OP				
>Uplink DPCH info			Uplink DPCH info 10.3.6.88		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>CPCH SET Info			CPCH SET Info 10.3.6.13		
E-DCH Info	OP		E-DCH Info 10.3.6.97		REL-6
Downlink radio resources					
Downlink HS-PDSCH Information	OP		Downlink HS-PDSCH information 10.3.6.23a		REL-6
Downlink information common for all radio links	OP		Downlink information common for all radio links 10.3.6.24		
Downlink information per radio link list	OP	1 to <MaxRL>		Send downlink information for each radio link to be set-up	
>Downlink information for each radio link	MP		Downlink information for each radio link 10.3.6.27		

10.3.4.21   RB mapping info

A multiplexing option for each possible transport channel MAC-d flow or E-DCH MAC-d flow this RB can be multiplexed on.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Information for each multiplexing option	MP	1 to <maxRBMuxOptions>			
>RLC logical channel mapping indicator	CV-*UL-RLCLogicalChannels*		Boolean	TRUE indicates that the first logical channel shall be used for data PDUs and the second logical channel shall be used for control PDUs. FALSE indicates that control and data PDUs can be sent on either of the two logical channels. This parameter is not used in this release and shall be set to TRUE.	
>Number of uplink RLC logical channels	CV-*UL-RLC info*	1 to MaxLoCHperRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16]	
>>Uplink transport channel type	MP		Enumerated(	CPCH is FDD	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			DCH,RACH, CPCH,USCH	only USCH is TDD only	
			, E-DCH)	~~Note 2~~	REL-6
>>CHOICE *Uplink transport channel type*					REL-6
>>>DCH, RACH, CPCH, USCH					REL-6
>>>>ULTransport channel identity	CV-*UL-DCH/USCH*		Transport channel identity 10.3.5.18	This is the ID of a DCH or USCH (TDD only) that this RB could be mapped onto.	
>>>>Logical channel identity	OP		Integer(1..15)	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.	
>>>>CHOICE *RLC size list*	MP			The RLC sizes that are allowed for this logical channel.	
>>>>>All			Null	All RLC sizes listed in the *Transport Format Set*. 10.3.5.23	
>>>>>Configured			Null	The RLC sizes configured for this logical channel in the *Transport Format Set*. 10.3.5.23 if present in this message or in the previously stored configuration otherwise	
>>>>>Explicit List		1 to \<maxTF\>		Lists the RLC sizes that are valid for the logical channel.	
>>>>>>RLC size index	MP		Integer(1..maxTF)	The integer number is a reference to the *RLC size* which arrived at that position in the *Transport Format Set* 10.3.5.23	
>>>E-DCH					REL-6
>>>>E-DCH MAC-d flow identity	MP		E-DCH MAC-d flow identity 10.3.5.7e		REL-6
>>>>DDI	MP		Integer (0..62)	If more than 1 UL RLC PDU size is configured for this RB, the different sizes will use subsequent DDI values starting from this DDI value. Value "0x3F" is reserved	REL-6

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>>>RLC PDU size list	MP	1 to <maxRLC PDUsizeP erLogChan >			REL-6
>>>>>RLC PDU size	MP		Integer (16..5000 by step of 8)	Unit is bits	REL-6
>>MAC logical channel priority	MP		Integer(1..8)	This is priority between a user's different RBs (or logical channels). [15]	
>Downlink RLC logical channel info	CV-*DL-RLC info*				
>>Number of downlink RLC logical channels	*MD*	1 to MaxLoCHp erRLC		1 or 2 logical channels per RLC entity or radio bearer RLC [16] Default value is that parameter values for DL are exactly the same as for corresponding UL logical channel. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards to the IE "Channel type", rule is specified in 8.6.4.8.	
>>>Downlink transport channel type	MP		Enumerated(DCH,FACH, DSCH,DCH+ DSCH		
			, HS-DSCH, DCH + HS-DSCH)	~~Note 1~~	REL-5
>>>DL DCH Transport channel identity	CV-*DL-DCH*		Transport channel identity 10.3.5.18		
>>>DL DSCH Transport channel identity	CV-*DL-DSCH*		Transport channel identity 10.3.5.18		
>>>DL HS-DSCH MAC-d flow identity	*CV-DL-HS-DSCH*		MAC-d flow identity 10.3.5.7c		REL-5
>>>Logical channel identity	OP		Integer(1..15)	16 is reserved	
~~Note 1:~~ ~~The IE "Downlink transport channel type" values "HS-DSCH" and "DCH + HS-DSCH" are not used in the RRC CONNECTION SETUP message.~~					
~~Note 2:~~ ~~The IE "Uplink transport channel type" value E-DCH is not used in the RRC CONNECTION SETUP message.~~					

Condition	Explanation

UL-RLC info	If "CHOICE *Uplink RLC mode*" in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed.
DL-RLC info	If "CHOICE *Downlink RLC mode*" in the IE "RLC info" that applies for that RB (i.e. either the one stored or received in the same message for the RB for which the "RB mapping info" was received, or the one stored or received in the same message for the RB pointed at in the IE "Same as RB" in the IE "RB information to setup" stored or received in the same message) is present this IE is mandatory present. Otherwise the IE is not needed.
UL-RLCLogicalChannels	If "Number of uplink RLC logical channels" in IE "RB mapping info" is 2, then this IE is mandatory present. Otherwise this IE is not needed.
UL-DCH/USCH	If IE "Uplink transport channel type" is equal to "DCH" or "USCH" (TDD only) this IE is mandatory present. Otherwise the IE is not needed.
DL-DCH	If IE "Downlink transport channel type" is equal to "DCH", "DCH+DSCH" or "DCH + HS-DSCH" this IE is mandatory present. Otherwise the IE is not needed.
DL-DSCH	If IE "Downlink transport channel type" is equal to "DSCH" or "DCH+DSCH" this IE is mandatory present. Otherwise the IE is not needed.
DL-HS-DSCH	If IE "Downlink transport channel type" is equal to "HSDSCH" or "DCH + HS-DSCH" this IE is mandatory present. Otherwise the IE is not needed.

10.3.5   Transport CH Information elements

10.3.5.1b   Added or reconfigured E-DCH MAC-d flow

This IE is used in relation to MAC-d flows mapped to the E-DCH transport channel.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
E-DCH MAC-d flow identity	MP		E-DCH MAC-d flow identity 10.3.5.7e		REL-6
E-DCH MAC-d flow power offset	OP		FFS	Only allowed to be absent when already defined for this E-DCH MAC-d flow	REL-6
E-DCH MAC-d flow maximum number of retransmissions	OP		Integer (0..FFS)	Only allowed to be absent when already defined for this E-DCH MAC-d flow	REL-6
E-DCH MAC-d flow multiplexing list	OP		Bitstring (maxE-DCHMACdFlow-1)	Indicates whether information from this MAC-d flow can be multiplexed in the same MAC-e PDU with MAC-d PDU's belonging to other MAC-d flows. Bit 0 is for MAC-d flow 0, … Only bits below "MAC-d flow identity" of this MAC-d flow shall be used. Value '1' means multiplexing is allowed.	REL-6

10.3.5.2   Added or Reconfigured UL TrCH information

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Uplink transport channel type	MP		Enumerated(DCH,USCH	USCH is TDD only	
			,E-DCH)	~~Note 1~~	REL-6
UL Transport channel identity	MP		Transport channel identity 10.3.5.18		
	CV-NotE-DCH				REL-6
CHOICE *UL parameters*					REL-6
>DCH,USCH					REL-6
>>TFS	MP		Transport Format Set 10.3.5.23		
>E-DCH				~~Note 1~~	REL-6
>>E-DCH Transmission Time Interval	OP		Integer(2,10)	Unit is ms.	REL-6
>>HARQ info for E-DCH	OP		10.3.5.7d		REL-6
>>Added or reconfigured E-DCH MAC-d flow	OP		10.3.5.1b		REL-6
~~Note 1: The IE "Uplink transport channel type" value "E-DCH" is not used in the RRC CONNECTION SETUP message, nor is the CHOICE *UL parameters* = "E-DCH".~~					

Condition	Explanation
NotE-DCH	If the uplink transport channel type is DCH or USCH then this IE is mandatory otherwise it is not needed.

NOTE: This information element is included within IE "Predefined RB configuration".

10.3.6.27   Downlink information for each radio link

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Choice mode	MP				
>FDD					
>>Primary CPICH info	MP		Primary CPICH info 10.3.6.60		
>>Cell ID	OP		Cell ID 10.3.2.2		REL-4

>>PDSCH with SHO DCH Info	OP		PDSCH with SHO DCH Info 10.3.6.47		
>>PDSCH code mapping	OP		PDSCH code mapping 10.3.6.43		
>>Serving HS-DSCH radio link indicator	MP~~CV- not_rrcCon nectionSet up~~		Boolean	The value "TRUE" indicates that this radio link is the serving HS-DSCH radio link	REL-5
>> Serving E-DCH radio link	MP~~CV- not_rrcCon nectionSet up~~		Boolean	The value "TRUE" indicates that this radio link is the serving E-DCH radio link	REL-6
>TDD					
>>Primary CCPCH info	MP		Primary CCPCH info 10.3.6.57		
CHOICE *DPCH info*	OP				REL-6
>Downlink DPCH info for each RL	MP		Downlink DPCH info for each RL 10.3.6.21		
>Downlink F-DPCH info for each RL	MP		Downlink F-DPCH info for each RL 10.3.6.23ob		REL-6
SCCPCH Information for FACH	OP		SCCPCH Information for FACH 10.3.6.70		
E-AGCH Info	MP~~CV- not_rrcCon nectionSet up~~		E-AGCH Info 10.3.6.100		REL-6
E-HICH Information	MP~~CV- not_rrcCon nectionSet up~~		E-HICH Info 10.3.6.101		REL-6
E-RGCH Information	MP~~CV- not_rrcCon nectionSet up~~		E-RGCH Info 10.3.6.102		REL-6

~~Condition~~	~~Explanation~~
~~not_rrcConnectionSetup~~	~~This IE is not needed in the RRC CONNECTION SETUP message. Otherwise it is mandatory present.~~

11.2   PDU definitions

```
-- **************************************************
--
-- RRC CONNECTION REQUEST
--
-- **************************************************

RRCConnectionRequest ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
        initialUE-Identity              InitialUE-Identity,
        establishmentCause              EstablishmentCause,
        -- protocolErrorIndicator is MD, but for compactness reasons no default value
        -- has been assigned to it.
        protocolErrorIndicator          ProtocolErrorIndicator,
    -- Measurement IEs
        measuredResultsOnRACH           MeasuredResultsOnRACH               OPTIONAL,
    -- Non critical Extensions
        v3d0NonCriticalExtensions          SEQUENCE {
            rRCConnectionRequest-v3d0ext    RRCConnectionRequest-v3d0ext-IEs,
        -- Reserved for future non critical extension
            v4b0NonCriticalExtensions          SEQUENCE {
                rrcConnectionRequest-v4b0ext      RRCConnectionRequest-v4b0ext-IEs,
                v590NonCriticalExtensions          SEQUENCE {
                    rrcConnectionRequest-v590ext      RRCConnectionRequest-v590ext-IEs,
                    v6xyNonCriticalExtensions          SEQUENCE {
                        rrcConnectionRequest-v6xyext    RRCConnectionRequest-v6xyext-IEs,
                    -- Reserved for future non critical extension
                    nonCriticalExtensions           SEQUENCE {}    OPTIONAL
                    } OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
}

RRCConnectionRequest-v3d0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        uESpecificBehaviourInformation1idle     UESpecificBehaviourInformation1idle     OPTIONAL
}

RRCConnectionRequest-v4b0ext-IEs ::=    SEQUENCE {
    -- User equipment IEs
        accessStratumReleaseIndicator           AccessStratumReleaseIndicator
}

RRCConnectionRequest-v590ext-IEs ::=    SEQUENCE {
    -- User equipment IEs
        predefinedConfigStatusInfo          BOOLEAN
}

RRCConnectionRequest-v6xyext-Ies ::=    SEQUENCE {
    -- User equipment IEs
        ueCapabilityIndication ::=          ENUMERATED { HSDCH, HSDCH-EDCH }    OPTIONAL
}

-- **************************************************
--
-- RRC CONNECTION SETUP
--
-- **************************************************

RRCConnectionSetup ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionSetup-r3           RRCConnectionSetup-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
```

```
            -- Container for additional R99 extensions
            rrcConnectionSetup-r3-add-ext    BIT STRING      OPTIONAL,
            v4b0NonCriticalExtensions        SEQUENCE {
                rrcConnectionSetup-v4b0ext       RRCConnectionSetup-v4b0ext-IEs,
                v590NonCriticalExtensions        SEQUENCE {
                    rrcConnectionSetup-v590ext       RRCConnectionSetup-v590ext-IEs,
                    nonCriticalExtensions            SEQUENCE {}    OPTIONAL
                }   OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
    },
    later-than-r3                    SEQUENCE {
        initialUE-Identity               InitialUE-Identity,
        rrc-TransactionIdentifier        RRC-TransactionIdentifier,
        criticalExtensions               CHOICE {
            r4                               SEQUENCE {
                rrcConnectionSetup-r4            RRCConnectionSetup-r4-IEs,
                v4d0NonCriticalExtensions       SEQUENCE {
                    -- Container for adding non critical extensions after freezing REL-5
                    rrcConnectionSetup-r4-add-ext   BIT STRING      OPTIONAL,
                    v590NonCriticalExtensions       SEQUENCE {
                        rrcConnectionSetup-v590ext      RRCConnectionSetup-v590ext-IEs,
                        v6xyNonCriticalExtensions       SEQUENCE {
                            rrcConnectionSetup-v6xyext      RRCConnectionSetup-v6xyext-IEs,
                            nonCriticalExtensions           SEQUENCE {}    OPTIONAL
                        }   OPTIONAL
                    }   OPTIONAL
                }   OPTIONAL
            },
            criticalExtensions              CHOICE {
                r5                              SEQUENCE {
                    rrcConnectionSetup-r5           RRCConnectionSetup-r5-IEs,
                    -- Container for adding non critical extensions after freezing REL-6
                    rrcConnectionSetup-r5-add-ext   BIT STRING      OPTIONAL,
                    v6xyNonCriticalExtensions       SEQUENCE {
                        rrcConnectionSetup-v6xyext      RRCConnectionSetup-v6xyext-IEs,
                        nonCriticalExtensions           SEQUENCE {}    OPTIONAL
                    }   OPTIONAL
                },
                criticalExtensions              CHOICE {
                    r6                              SEQUENCE {
                        rrcConnectionSetup-r6           RRCConnectionSetup-r6-IEs,
                        -- Container for adding non critical extensions after freezing REL-7
                        rrcConnectionSetup-r6-add-ext       BIT STRING      OPTIONAL,
                        nonCriticalExtensions           SEQUENCE {}    OPTIONAL
                    }
                    criticalExtensions              SEQUENCE {}
                }
            }
        }
    }
}

RRCConnectionSetup-r3-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
    -- User equipment IEs
    initialUE-Identity              InitialUE-Identity,
    rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    activationTime                  ActivationTime                      OPTIONAL,
    new-U-RNTI                      U-RNTI,
    new-c-RNTI                      C-RNTI                              OPTIONAL,
    rrc-StateIndicator              RRC-StateIndicator,
    utran-DRX-CycleLengthCoeff      UTRAN-DRX-CycleLengthCoefficient,
    -- TABULAR: If capabilityUpdateRequirement is not present, the default value
    -- defined in 10.3.3.2 shall be used.
    capabilityUpdateRequirement     CapabilityUpdateRequirement         OPTIONAL,
    -- Radio bearer IEs
    srb-InformationSetupList        SRB-InformationSetupList2,
    -- Transport channel IEs
    ul-CommonTransChInfo            UL-CommonTransChInfo                OPTIONAL,
    -- NOTE: ul-AddReconfTransChInfoList should be optional in later versions of
    -- this message
    ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList,
    dl-CommonTransChInfo            DL-CommonTransChInfo                OPTIONAL,
    -- NOTE: dl-AddReconfTransChInfoList should be optional in later versions
    -- of this message
    dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList,
    -- Physical channel IEs
```

```
        frequencyInfo                  FrequencyInfo                     OPTIONAL,
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power             OPTIONAL,
        ul-ChannelRequirement          UL-ChannelRequirement            OPTIONAL,
        dl-CommonInformation           DL-CommonInformation             OPTIONAL,
        dl-InformationPerRL-List       DL-InformationPerRL-List         OPTIONAL
}

RRCConnectionSetup-v4b0ext-IEs ::= SEQUENCE {
        capabilityUpdateRequirement-r4-ext  CapabilityUpdateRequirement-r4-ext  OPTIONAL,
    -- Physical channel IEs
        -- ssdt-UL extends SSDT-Information, which is included in
        -- DL-CommonInformation. FDD only.
        ssdt-UL-r4                          SSDT-UL                             OPTIONAL,
        -- The order of the RLs in IE cell-id-PerRL-List is the same as
        -- in IE DL-InformationPerRL-List included in this message
        cell-id-PerRL-List                  CellIdentity-PerRL-List             OPTIONAL
}

RRCConnectionSetup-v590ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        systemSpecificCapUpdateReq     SystemSpecificCapUpdateReq-v590ext    OPTIONAL,
    -- Physical channel IEs
        dl-TPC-PowerOffsetPerRL-List   DL-TPC-PowerOffsetPerRL-List    OPTIONAL
}

RRCConnectionSetup-r4-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
        activationTime                 ActivationTime                    OPTIONAL,
        new-U-RNTI                     U-RNTI,
        new-c-RNTI                     C-RNTI                            OPTIONAL,
        rrc-StateIndicator             RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient,
        -- TABULAR: If capabilityUpdateRequirement is not present, the default value
        -- defined in 10.3.3.2 shall be used.
        capabilityUpdateRequirement    CapabilityUpdateRequirement-r4    OPTIONAL,
    -- Radio bearer IEs
        srb-InformationSetupList       SRB-InformationSetupList2,
    -- Transport channel IEs
        ul-CommonTransChInfo           UL-CommonTransChInfo-r4           OPTIONAL,
        ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList       OPTIONAL,
        dl-CommonTransChInfo           DL-CommonTransChInfo-r4           OPTIONAL,
        dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r4    OPTIONAL,
    -- Physical channel IEs
        frequencyInfo                  FrequencyInfo                     OPTIONAL,
        maxAllowedUL-TX-Power          MaxAllowedUL-TX-Power             OPTIONAL,
        ul-ChannelRequirement          UL-ChannelRequirement-r4          OPTIONAL,
        dl-CommonInformation           DL-CommonInformation-r4           OPTIONAL,
        dl-InformationPerRL-List       DL-InformationPerRL-List-r4       OPTIONAL
}

RRCConnectionSetup-r5-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
        activationTime                 ActivationTime                    OPTIONAL,
        new-U-RNTI                     U-RNTI,
        new-c-RNTI                     C-RNTI                            OPTIONAL,
        rrc-StateIndicator             RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff     UTRAN-DRX-CycleLengthCoefficient,
        -- TABULAR: If capabilityUpdateRequirement is not present, the default value
        -- defined in 10.3.3.2 shall be used.
        capabilityUpdateRequirement    CapabilityUpdateRequirement-r5    OPTIONAL,
    -- Specification mode information
        specificationMode              CHOICE {
            complete                       SEQUENCE {
                -- Radio bearer IEs
                srb-InformationSetupList       SRB-InformationSetupList2,
                -- Transport channel IEs
                ul-CommonTransChInfo           UL-CommonTransChInfo-r4           OPTIONAL,
                ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList       OPTIONAL,
                dl-CommonTransChInfo           DL-CommonTransChInfo-r4           OPTIONAL,
                dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r4    OPTIONAL
            },
            preconfiguration              SEQUENCE {
                -- All IEs that include an FDD/TDD choice are split in two IEs for this message,
                -- one for the FDD only elements and one for the TDD only elements, so that one
                -- FDD/TDD choice in this level is sufficient.
                preConfigMode                  CHOICE {
                    predefinedConfigIdentity       PredefinedConfigIdentity,
                    defaultConfig                  SEQUENCE {
```

```
                        defaultConfigMode           DefaultConfigMode,
                        defaultConfigIdentity       DefaultConfigIdentity-r5
                    }
                }
            }
        },
    -- Physical channel IEs
        frequencyInfo              FrequencyInfo                    OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power            OPTIONAL,
        ul-ChannelRequirement      UL-ChannelRequirement-r4         OPTIONAL,
        dl-CommonInformation       DL-CommonInformation-r4          OPTIONAL,
        dl-InformationPerRL-List   DL-InformationPerRL-List-r5bis   OPTIONAL
}

RRCConnectionSetup-v6xyext-IEs ::= SEQUENCE {
    -- Physical Channel IEs
        beaconPLEst                BEACON-PL-Est                    OPTIONAL
}

RRCConnectionSetup-r6-IEs ::= SEQUENCE {
    -- TABULAR: Integrity protection shall not be performed on this message.
        activationTime             ActivationTime                   OPTIONAL,
        new-U-RNTI                 U-RNTI,
        new-c-RNTI                 C-RNTI                           OPTIONAL,
        new-H-RNTI                 H-RNTI                           OPTIONAL,
        new-E-RNTI                 E-RNTI                           OPTIONAL,
        newSecondary-E-RNTI        E-RNTI                           OPTIONAL,
        rrc-StateIndicator         RRC-StateIndicator,
        utran-DRX-CycleLengthCoeff UTRAN-DRX-CycleLengthCoefficient,
        -- TABULAR: If capabilityUpdateRequirement is not present, the default value
        -- defined in 10.3.3.2 shall be used.
        capabilityUpdateRequirement CapabilityUpdateRequirement-r5  OPTIONAL,
    -- Specification mode information
        specificationMode          CHOICE {
            complete               SEQUENCE {
                -- Radio bearer IEs
                srb-InformationSetupList       SRB-InformationSetupList-r6,
                -- Transport channel IEs
                ul-CommonTransChInfo           UL-CommonTransChInfo-r4          OPTIONAL,
                ul-AddReconfTransChInfoList    UL-AddReconfTransChInfoList-r6   OPTIONAL,
                dl-CommonTransChInfo           DL-CommonTransChInfo-r4          OPTIONAL,
                dl-AddReconfTransChInfoList    DL-AddReconfTransChInfoList-r5   OPTIONAL
            },
            preconfiguration       SEQUENCE {
                -- All IEs that include an FDD/TDD choice are split in two IEs for this message,
                -- one for the FDD only elements and one for the TDD only elements, so that one
                -- FDD/TDD choice in this level is sufficient.
                preConfigMode          CHOICE {
                    predefinedConfigIdentity       PredefinedConfigIdentity,
                    defaultConfig                  SEQUENCE {
                        defaultConfigMode           DefaultConfigMode,
                        defaultConfigIdentity       DefaultConfigIdentity-r5
                    }
                }
            }
        },
    -- Physical channel IEs
        frequencyInfo              FrequencyInfo                    OPTIONAL,
        maxAllowedUL-TX-Power      MaxAllowedUL-TX-Power            OPTIONAL,
        ul-ChannelRequirement      UL-ChannelRequirement-r6         OPTIONAL,
        ul-EDCH-Information        UL-EDCH-Information-r6            OPTIONAL,
        dl-HSPDSCH-Information     DL-HSPDSCH-Information            OPTIONAL,
        dl-CommonInformation       DL-CommonInformation-r6          OPTIONAL,
        dl-InformationPerRL-List   DL-InformationPerRL-List-r6      OPTIONAL
}
```