Agenda Item: 5

Source: Rapporteur

Title: FINAL Report of the email discussion group - Enhanced RRC message and IE tabular descriptions

Document for: Approval

Attached is the final output of the RRC_A email ad-hoc.

Comments:

1) In producing this document the editor has assumed that the edits to RRC which were forwarded on the reflector on 28th July 99 will be approved by the group at the next meeting. The changes marked in this document are therefore with respect to that version .

Summary of email discussion and conclusions:

1) Email discussion on meaning of 'conditionality'

Sony Comment #1

When I read Tdoc 524 a bit more carefully, I discovered that the example section contains a use of CONDITIONAL in a way which I think should not be used and which I therefore do not support. Tdoc 524 states e.g. in that example section that "The presence of this element is mandatory in the RACH/FACH case. In all other cases, it is not necessary, and its presence or absence has no meaning for the receiver." This use of CONDITIONAL in the way that the sending entity is still allowed to include the information element if the condition is not true should be forbidden from my point of view, because it makes life for the receiving entity unnecessarily complicated and the attribute CONDITIONAL then specifies not the conditionality of presense anymore (but rather something like the condition of validity). The receiving entity has still to check whether an element tagged as CONDITIONAL in the specification is valid or not. In addition, I don't see the need to transfer unvalid information over the air interface as a scarce resource.

As this kind of use of CONDITIONAL was only present in the example section of Tdoc 524 and did not go into 25.921, I propose that we use the CONDITIONAL only in the way, that the condition specifies whether the sending entity shall include the element or not. Inclusion of the element when the condition is not true and forcing the receiving entity to ignore that element then, is not allowed. In the hope that this thinking reflects the groups oppinion, I've tried to make some of the text more precise in the Condition sections of Steve's first draft to reflect this. See my attachment.

Any thoughts on this?

Philips Comment #1

My comprehension of Conditional is: if condition is fulfilled, presence is Mandatory else not present It is different from Optional because Optional must be tagged and conditional needs not. On the other side, translating tabular into Z105 ASN.1 will require to build as many combinaisons as existing as Condition cannot be translated in Z105. Any other optinion ?

Nortel Comment #1

I think we need to specify both the sender and the receiver side for the use of the Conditional element. On the receiver side, what we actually have to specify are the error handling rules in case the receiver detects that an element is present when conditions are not fulfilled and vice versa. This is because you cannot assume that what has been sent by the transmitter is exactly the same as what is received on the other side, and that the conditions on the transmitter and receiver side are necessarily the same.

Sony Comment #2

Thanks for your answer. I acknowledge the fact that we have to specify an error handling to cope with the case that what is received is not identical to what has been sent. E.g. in GSM 04.08 there is also an error handling. This error handling should be generic (as far as possible) and I expect that we do not define for each information element (IE) which is conditional a specific error handling. However, error handling is not exactly the issue I wanted to raise. I just wanted to ensure that we specify that IF AND ONLY IF the condition is true, the sender includes the IE and has not the option to include it if the condition is false (because I see no sense in transferring invalid information and see a risk is this). This is also the method of GSM 04.08 / GSM 04.07. Do you have objections to this? (How we specifiy the error handling of something like "missing conditional IE" or "unexpected conditional IE" should be dealt later.)

Nortel Comment #2

I agree that on the sender side we can specify that a Conditional element is sent only when the relevant conditions are fulfilled.

Nokia comment #1

I completely agree that we must be careful when using conditional information elements. We could try to identify the different situations where conditional IEs are feasible and then decide whether to apply conditional or optional IEs in these cases.

Some possible situations that spring to mind: Whether an IE is included in a message or not could depend on
1) the value of another IE (or several IEs) in the same message.
2) the state which the protocol entities are in
3) the logical channel on which the message is sent on

How feasible does the use of conditional IEs seem in these cases? Opinions? More possible cases?

Rapporteur proposed conclusion #1:

A clarification has been added at the beginning of Section 10 stating that IE's marked as conditional will be included if and only if the condition is satisfied otherwise the IE is not sent. The description of condition states included after the message and IE descriptions have been improved in line with Sony's comments.

2) Email discussion on SSDT

Telecom Modus Comment #1

Here is a short comment on SSDT: Please also include the parameter "SSDT cell id" in the messages:
Handover Command, RRC Connection Setup, Radio Access Bearer Setup (when activating DCH), Transport Channel Reconfiguration (when activating DCH), Physical Channel Reconfiguration (when activating DCH)

as described in TDoc R2-99557 and agreed in the meeting. You can add an ffs for the parameter in these messages, because the necessity depends on wether it is possible to go from idle mode/common channel modes straight into macro diversity.

Rapporteur proposed conclusion #1: The IE has now been included in the mentioned messages, in the messages it has been marked as conditional.

3) Email discussion - General editing comments

Nokia comment #1

Here are some comments on the updated RRC tables.

Clause 10.1.1.5: The indentation of DL timeslot info is wrong - it looks like it belongs to the link specific information group now, but Note 2 states that it is the same for all radio links.
[Editors note: Agreed and change incorporated]
Clause 10.1.4.3: Why is the range 0 to <MeasRepCount> instead of 1 to <MeasRepCount>?
[Editors note: Agreed and change incorporated]
Clause 10.1.4.6: Same here - why 0 instead of 1? All measurement IEs where marked as mandatory in the previous

version.
[Editors note: Agreed and change incorporated]
Clause 10.1.4.7: RAB information elements: in my opinion there is one indentation too many in both uplink and downlink transport channels. The range could be moved to the same row with Uplink/Downlink transport channels (along with the semantics description) and the Transport channel information row could be deleted.
PhyCH information elements: to clarify, the IE item Downlink information could be renamed Downlink radio link (or RL for short) information.
[Editors note: Agreed and change incorporated]
Clause 10.1.4.8: The "M" should be removed from the Phy CH information elements row.
[Editors note: Agreed and change incorporated]
Clause 10.2.3.9: The condition "isCN" has not been clarified.
[Editors note: Agreed and change incorporated]
There are some problems with the presence and range columns. If the guidelines from tdoc 524 are followed, then whenever a range value is present, O or M should not be used. In these cases a range starting with 0 implies optionality, and a range starting from 1 (or another positive integer) implies that the IE is mandatory. If the presence is C, then the range should not start with 0 - the conditionality implies already that the IE can be missing. Some clauses with these problems are 10.1.5.9, 10.1.6.1, 10.2.6.4, 10.2.6.6 and 10.2.6.8. I did not check the document thoroughly yet, there may be more occurrences.
[Editors note: Agreed and changes incorporated. The document has been reviewed and a number of other message and IE tables have been updated]
The range bounds could be expressed in a less space-consuming way, for example by using a table like this:

Range bound	Explanation
<rangebound1>	text
<rangebound2>	text
<rangebound3>	text

[Editors note: Agreed and changes incorporated, conditions and CHOICE options have also been captured in tables]
The measurement control message definition (clause 10.1.2.1) is not very pretty... another way of writing it would be to group the IEs first by the measurement type. I could try to write this down in a Word table to see what the outcome is like. At least we would probably be able to dump the "if Measurement Type = ..." texts from the semantics description.
[Editors note: Agreed and changes incorporated, this seems a more logical way of describing the message, since there may be the necessity to associate different IE's with different measurement types (ie there may be an IE for traffic volume measurements which is not necessary for inter-frequency measurements) In addition it makes the description neater and shorter]

Yet another issue (although this may be nitpicking): having two successive IEs with the same name (for example 10.1.4.7, TFCS and TFCS in the TrCH IEs) doesn't look very pretty to me. They could be renamed UL-TFCS and DL-TFCS, since the actual definition of these IEs would still be similar (and visible from the type and reference column).
[Editors note: I have not included this change since to me it seems inappropriate to have two IE's having the same description but different names]

Ericsson comment #1

10.1.1.4 Cell Update Confirm
Shouldn't PLMN Identity be on the same level as CN related information? similar as in URA Update Confirm and RNTI Reallocation.
[Editors note: Agreed and change incorporated]
10.1.1.5 Handover Command
According to note 2, DL timeslot info is assumed to be the same for all RLs, and according to the old tables DL timeslot info should not be in the Link specific information.
[Editors note: Agreed and change incorporated]
10.1.2.1 Measurement Control
I beleive that Note 2 can be removed since that text is included in the semantics description.
[Editors note: Agreed and change incorporated]
10.1.2.2 Measurement Report
A comment to the new editors note: I beleive that it is not entirely consistent between measurement report and measurement control depending on if Reporting quantity is divided for each measurement type or not. (This is Note 1 in measurement control.)
[Editor's note: editors note has now been removed]
10.1.4.7 RRC Connection setup
Why is Uplink radio resource information Optional and Downlink radio resource information is not?

[Editor's note: These were only group names, I have removed the 'O' from the uplink resource information]
10.2.3.17 UE mode capability
As I understand the type enumerated a parameter can take "one and only one" of the listed enumerated values. This means that system and mode capability must have several entries to cover UEs capable of e.g. both GSM and UMTS and/or both FDD and TDD.
[Editors note: Agreed and ranges inserted to reflect the fact that a UE may support multiple systems and modes.]

Philips comment #1
I have few question on different topics and any delegate that have an opinion can express it. Methodology : does it mean something that the presence is M and range from 0 to n ? The question could also be presence is O and range from 1 to n but this case never happen.
[Editor's note, Juhana from Nokia made a similar comment and the tables have now been updated to reflect this]
Then for my comprehension or a suggestion : why is there uplink TFCS and Dowlink TFCS on one side and on the other side Uplink transport channels and downlink transport channels ? Is it possible to put TFCS at the same level as ssequence of Transport channel information ?

Perhaps there is something I misunderstood but as in Uplink, Physical channel is a choice, in downlink it seems that there is a sequence of PCCPCH info + DL DPCH info + SCCPCH info is it really necessary all of these for each Radio Link ?

Nokia comment #2
Some further comments on the message and IE definitions:

- CN domain identity is included in the UE information element group in 10.1.3.3. Shouldn't the correct group be CN information elements?
[Editors note: Agreed and change incorporated]
- Currently there is no difference between the IE definitions in 10.2.7.18 and 10.2.7.19. Is this just a coincidence?
[Editors note: It would appear to be a co-incidence I don't think it is in the remit of this email ad-hoc to make modifications to the IE's but just to align the messages with the new table formats. Hence I won't make any modification this time]

- In 10.2.7.27 I would include only Transport CH ID and Threshold to the parameters which are sent for each transport channel. The remaining four IEs should therefore not be indented, am I correct?
[Editors note: I think you could argue it both ways. Since different transport channels may have different QoS requirements then it might be advantageous to have different traffic volume reporting criteria for the different transport channels. However, you are right that I made a mistake in my translation from the agreed original message so I have removed the indentations]
On the issue of similar names: I guess it is just a question of viewpoints. I tend to look at the definitions from an ASN.1-biased point of view, and in the ASN.1 specifications I will have to give unique names to IEs within a message. Your point on the matter is quite valid, and I will not push the issue any further.
[Editors note: Perhaps a good compromise would be to always have different IE names in a message (to help with the ASN.1) but to not duplicate the descriptive tables (and rather use a cross reference). I could make this change in the next version of 25.331 - what do you think?]

10 Message and information element functional definition and content

The function of each Radio Resource Control message together with message contents in the form of a list of information elements is defined in subclause 10.1.

Functional definitions of the information elements are then described in subclause 10.2.

Information elements are marked as either M- mandatory, O - Optional or C -conditional (see Table 1~~Table 1~~).

Abbreviation	Meaning
M	IE's marked as Mandatory (M) will always be included in the message.
O	IE's marked as Optional (O) may or may not be included in the message.
C	IE's marked as Conditional (C) will be included in a message only if the condition is satisfied otherwise the IE is not included.

Table 1) meaning of abbreviations used in RRC messages and information elements

10.1 Radio Resource Control messages

10.1.1 RRC Connection Mobility Messages

10.1.1.1 ACTIVE SET UPDATE

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH

Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Activation time	O			
Phy CH information elements				
Radio link addition information		0 to <MaxAddRLcount>		Radio link addition information required for each RL to add
Primary CCPCH info	M			Note 1
SSDT cell identity	C - ifSSDT~~O~~			
Downlink DPCH info	M			
Radio link removal information		0 to <MaxDelRLcount>		Radio link removal information required for each RL to remove
Primary CCPCH info	M			Note 1
SSDT indicator	O			

Condition	Explanation

ifSSDT	This IE is only sent when SSDT is being used and a new radio link is added

Range bound	**Explanation**
MaxAddRLcount	Maximum number of radio links which can be added
MaxDelRLcount	Maximum number of radio links which can be removed/deleted

~~*Range bound MaxAddRLcount*~~

~~Maximum number of radio links which can be added~~

~~*Range bound MaxDelRLcount*~~

~~Maximum number of radio links which can be removed/deleted~~

~~**Information element category**~~	~~**Information elements**~~	~~**REFERENCE**~~	~~**TYPE**~~	~~**NOTE**~~	
	~~Message Type~~		~~M~~		
~~UE information elements~~	~~Activation time~~		~~O~~		
~~Phy CH information elements~~	~~Primary CCPCH info~~		~~M~~	~~Note 1~~	~~For each radio link to add~~
	~~SSDT cell identity~~		~~O~~		
	~~Downlink DPCH info~~		~~M~~		
	~~Primary CCPCH info~~		~~M~~	~~Note 1~~	~~For each radio link to delete~~
	~~SSDT indicator~~		~~O~~		

Note 1: If it is assumed that primary CCPCH downlink scrambling code is always allocated with sufficient reuse distances, primary CCPCH downlink scrambling code will be enough for designating the different radio links.

10.1.1.2 ACTIVE SET UPDATE COMPLETE

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE→UTRAN

Information Element	**Presence**	**Range**	**IE type and reference**	**Semantics description**
Message Type	M			
Phy CH information elements				
SSDT indicator	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~Phy CH information elements~~	~~SSDT indicator~~		~~O~~	

10.1.1.3 CELL UPDATE

This message is used by the UE to initiate a cell update procedure.
RLC-SAP: t.b.d.
Logical channel: t.b.d.
Direction: UE→UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
S-RNTI	M			FFS whether in RRC or MAC PDU.
SRNC identity	M			
Cell update cause	M			
Measurement information elements				
Measurement identity number				Intra-frequency measurement related report
Measured results				

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~S-RNTI~~		~~M~~	~~FFS whether in RRC or MAC PDU.~~
	~~SRNC identity~~		~~M~~	
	~~Cell update cause~~		~~M~~	
~~Measurement information elements~~	~~Measurement identity number~~			~~Intra-frequency measurement related report~~
	~~Measured results~~			

10.1.1.4 CELL UPDATE CONFIRM

This message confirms the cell update procedure and can be used to reallocate new RNTI information for the UE valid in the new cell.
RLC-SAP: t.b.d.
Logical channel: t.b.d.
Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
S-RNTI	M			FFS whether in RRC or MAC PDU
SRNC identity	M			
S-RNTI	O			New S-RNTI

SRNC identity	O			New SRNC identity
C-RNTI	O			New C-RNTI
UTRAN mobility information elements				
URA update indicator	O			
URA identifier	O			
CN information elements				
PLMN identity	O			(Note1,2)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
~~PLMN identity~~	~~O~~			~~(Note1,2)~~
CN domain identity	O			(Note1,2)
NAS system info	O			(Note1,2)
Physical CH information elements				
Default DPCH Offset Value	O			FFS

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~S-RNTI~~		~~M~~	~~FFS whether in RRC or MAC PDU.~~
	~~SRNC identity~~		~~M~~	
	~~S-RNTI~~		~~O~~	~~New S-RNTI~~
	~~SRNC identity~~		~~O~~	~~New SRNC identity~~
	~~C-RNTI~~		~~O~~	~~New C-RNTI~~
~~UTRAN mobility information elements~~	~~URA update indicator~~		~~O~~	~~When present, it instructs UE to make URA updating~~
	~~URA identifier~~		~~O~~	~~Indicates to the UE, which URA it shall use in case of overlapping URAs.~~
~~CN information elements~~	~~PLMN identity~~		~~O~~	~~(Note1,2)~~
	~~CN domain identity~~		~~O~~	~~For each CN domain (Note1,2)~~
	~~NAS system info~~		~~O~~	~~For each CN domain (Note1,2)~~
~~Physical CH information elements~~	~~Default DPCH Offset Value~~		~~O~~	~~FFS~~

Range Bound	**Explanation**
MaxNoCN domains	Maximum number of CN domains

~~*Range bound MaxNoCN domains*~~

~~Maximum number of CN domains~~

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]
[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

10.1.1.5 HANDOVER COMMAND

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Phy CH information elements				
Frequency info	M			
Uplink radio resources				
UL DPCH power control info	M			
UL DPCH info	M			
UL timeslot info	O			
Downlink radio resources				
Link specific information		1~~0~~ to <MaxHoRL count>		Provide information for each DL radio link. (Note 1)
Primary CCPCH info	M			
DL DPCH info	M			
—DL timeslot info	O			Note 2
SSDT indicator	O			
SSDT Cell ID	C ifSSDT			FFS

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~Phy CH information elements~~	~~Frequency info~~		~~M~~		
	~~UL DPCH power control info~~		~~M~~		
	~~UL DPCH info~~		~~M~~		~~Uplink radio resources~~
	~~UL timeslot info~~		~~O~~		
	~~Primary CCPCH info~~		~~M~~	~~For each radio link. Note1~~	~~Downlink radio resources~~
	~~DL DPCH info~~		~~M~~		
	~~DL timeslot info~~		~~O~~	~~Note 2~~	
	~~SSDT indicator~~		~~O~~		

Condition	Explanation
ifSSDT	This IE is only sent when SSDT is used

Range Bound	Explanation
MaxHoRLcount	Maximum number of DL radio links which can be established on handover

~~*Range bound MaxHoRLcount*~~

~~Maximum number of DL radio links which can be established on handover~~

Note1: The possibility to request the establishment of several radio links simultaneously with this message is FFS.
Note 2: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

10.1.1.6 HANDOVER COMPLETE

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.

Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Phy CH information elements				
SSDT indicator	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~Phy CH information elements~~	~~SSDT indicator~~		~~O~~	

10.1.1.7 INTER-SYSTEM HANDOVER COMMAND

This message is used for handover from UMTS to another system e.g. GSM. One or several messages from the other system can be included in the Inter-System message information element in this message. These messages are structured and coded according to that systems specification.

RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Activation time	O			
Other information elements				
Inter-System message	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~Activation time~~		~~O~~	
~~Other information elements~~	~~Inter-System message~~		~~M~~	

10.1.1.8 INTER-SYSTEM HANDOVER FAILURE

This message is sent on the RRC connection used before the Inter-System Handover was executed. The message indicates that the UE has failed to seize the new channel in the other system.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE→UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Inter-System handover failure cause	O			FFS
Other Information elements				
Inter-System message	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~Inter-System handover failure cause~~		~~O~~	~~FFS~~
~~Other Information elements~~	~~Inter-System message~~		~~O~~	

10.1.1.9 URA UPDATE

This message is used by the UE to initiate a URA update procedure.
RLC-SAP: t.b.d.
Logical channel: t.b.d.
Direction: UE→UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
S-RNTI	M			FFS whether in RRC or MAC PDU.
SRNC identity	M			FFS whether in RRC or MAC PDU.
URA update cause	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~S-RNTI~~		~~M~~	~~FFS whether in RRC or MAC PDU.~~
	~~SRNC identity~~		~~M~~	
	~~URA update cause~~		~~M~~	

10.1.1.10 URA UPDATE CONFIRM

<*Functional description of this message to be included here*>This message confirms the URA update procedure and can be used to reallocate new RNTI information for the UE valid after the URA update.
RLC-SAP: t.b.d.
Logical channel: t.b.d.
Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
S-RNTI	M			FFS whether in RRC or MAC PDU.
SRNC identity	M			
S-RNTI	O			New S-RNTI
SRNC identity	O			New SRNC identity
C-RNTI	O			New C-RNTI
UTRAN mobility information elements				
URA identifier	O			
CN information elements				
PLMN identity	O			(Note1,2)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note1,2)
NAS system info	O			(Note1,2)

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~S-RNTI~~		~~M~~	~~FFS whether in RRC or MAC PDU.~~
	~~SRNC identity~~		~~M~~	
	~~S-RNTI~~		~~O~~	~~New S-RNTI~~
	~~SRNC identity~~		~~O~~	~~New SRNC identity~~
	~~C-RNTI~~		~~O~~	~~New C-RNTI~~
~~UTRAN mobility information elements~~	~~URA identifier~~		~~O~~	~~Indicates to the UE, which URA it shall use in case of overlapping URAs.~~
~~CN information elements~~	~~PLMN identity~~		~~O~~	~~(Note1,2)~~
	~~CN domain identity~~		~~O~~	~~For each CN domain (Note1,2)~~
	~~NAS system info~~		~~O~~	~~For each CN domain (Note1,2)~~

Range Bound	Explanation
MaxNoCN domains	Maximum number of CN domains

~~*Range bound MaxNoCN domains*~~

~~Maximum number of CN domains~~

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]
[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

10.1.1.11 RNTI REALLOCATION

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: t.b.d.
Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
S-RNTI	O			FFS whether in RRC or MAC PDU.
SRNC identity	O			
S-RNTI	O			New S-RNTI
SRNC identity	O			New SRNC identity
C-RNTI	O			New C-RNTI
CN information elements				
PLMN identity	O			(Note1,2)
CN related information		0 to <MaxNoCNdomains>		CN related information to be provided for each CN domain
CN domain identity	O			(Note1,2)
NAS system info	O			(Note1,2)

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~S-RNTI~~		~~O~~	~~FFS whether in RRC or MAC PDU.~~
	~~SRNC identity~~		~~O~~	
	~~S-RNTI~~		~~O~~	~~New S-RNTI~~
	~~SRNC identity~~		~~O~~	~~New SRNC identity~~
	~~C-RNTI~~		~~O~~	~~New C-RNTI~~
~~CN information elements~~	~~PLMN identity~~		~~O~~	~~(Note1,2)~~
	~~CN domain identity~~		~~O~~	~~For each CN domain (Note1,2)~~
	~~NAS system info~~		~~O~~	~~For each CN domain (Note1,2)~~

Range Bound	Explanation
MaxNoCN domains	Maximum number of CN domains

~~*Range bound MaxNoCN domains*~~

~~Maximum number of CN domains~~

[Note1: It depends on the length of these information whether this message can be used to notify these information to UE.]
[Note2: Necessity of PLMN is FFS and for CN domain identity and NAS system information, the confirmation in SA WG2 is needed.]

10.1.1.12 RNTI REALLOCATION COMPLETE

This message is used to confirm the new RNTI information for the UE.
RLC-SAP: t.b.d.

Logical channel: DCCH
Direction: UE→UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	

10.1.2 Measurement Messages

10.1.2.1 MEASUREMENT CONTROL

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Measurement Information elements				
Measurement Identity Number	M			
Measurement Command	M			
Measurement Type	O			
Measurement Reporting Mode	O			
CHOICE Measurement				
Intra-frequency				
Intra-frequency cell info				Measurement object
Intra-frequency measurement quantity	C event trigger			
Intra-frequency measurement reporting quantity	O			Note 1
CHOICE report criteria				
Intra-frequency measurement reporting criteria				
Periodical reporting				
Inter-frequency				
Inter-frequency cell info				Measurement object
Inter-frequency measurement quantity	C event trigger			
Inter-frequency measurement reporting quantity	O			Note 1
CHOICE report criteria				
Inter-frequency measurement reporting criteria				
Periodical reporting				
Inter-system				
Inter-system cell info				Measurement object
Inter-system measurement quantity	C event trigger			
Inter-system measurement reporting quantity	O			Note 1
CHOICE report criteria				
Inter-system measurement reporting criteria				
Periodical reporting				
Traffic Volume				
Traffic volume measurement Object				
Traffic volume measurement quantity	C event trigger			
Traffic volume measurement reporting quantity	O			Note 1
CHOICE report criteria				
Traffic volume measurement reporting criteria				
Periodical reporting				
Quality				
Quality measurement Object				
Quality measurement quantity	C event trigger			
Quality measurement reporting quantity	O			Note 1
CHOICE report criteria				
Quality measurement reporting criteria				
Periodical reporting				
UE internal				
UE internal measurement quantity	C event trigger			

UE internal measurement reporting quantity	O			Note 1
CHOICE report criteria				
UE internal measurement reporting criteria				
Periodical reporting				

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Measurement Information elements				
Measurement Identity Number	M			
Measurement Command	M			
Measurement Type	O			
Measurement Reporting Mode	O			
CHOICE Measurement Object				
Intra-frequency cell info				If Measurement Type = Intra frequency measurement
Inter-frequency cell info				If Measurement Type = Inter frequency measurement
Inter-system cell info				If Measurement Type = Inter system measurement
Traffic volume measurement object				If Measurement Type = Traffic volume measurement
Quality measurement object				If Measurement Type = Quality measurement
CHOICE Measurement Quantity	C event trigger			
Intra-frequency measurement quantity				If Measurement Type = Intra frequency measurement
Inter-frequency measurement quantity				If Measurement Type = Inter frequency measurement
Inter-system measurement quantity				If Measurement Type = Inter system measurement
Traffic volume measurement quantity				If Measurement Type = Traffic volume measurement
Quality measurement quantity				If Measurement Type = Quality measurement
UE Internal measurement quantity				If Measurement Type = UE Internal measurement
CHOICE Reporting quantity (Note 1)	O			
Intra-frequency measurement reporting quantity				If Measurement Type = Intra frequency measurement
Inter-frequency measurement reporting quantity				If Measurement Type = Inter frequency measurement
Inter-system measurement reporting quantity				If Measurement Type = Inter system measurement
Traffic volume measurement reporting quantity				If Measurement Type = Traffic volume measurement
Quality measurement reporting quantity				If Measurement Type = Quality measurement
UE Internal measurement reporting quantity				If Measurement Type = UE Internal measurement
CHOICE Measurement Reporting Criteria (Note 2)	C			Periodical reporting criteria is used only in periodical reporting mode and others are used in event trigger mode
Intra-frequency measurement reporting criteria				If Measurement Type = Intra frequency measurement
Inter-frequency measurement reporting criteria				If Measurement Type = Inter frequency measurement
Inter-system measurement reporting criteria				If Measurement Type = Inter system measurement
Traffic volume measurement reporting criteria				If Measurement Type = Traffic volume measurement
Quality measurement reporting criteria				If Measurement Type = Quality measurement
UE Internal measurement reporting criteria				If Measurement Type = UE Internal measurement
Periodical reporting criteria				

Information element category	Information elements		REFERENCE	TYPE	NOTE
	Message Type			M	
Measurement Information elements	Measurement Identity Number			M	
	Measurement Command			M	
	Measurement Type			O	
	Measurement Reporting Mode			O	
	Measurement Object	Intra-frequency cell info		C	If Measurement Type = Intra frequency measurement
		Inter-frequency cell info		C	If Measurement Type = Inter frequency measurement
		Inter-system cell info		C	If Measurement Type = Inter system measurement
		Traffic volume measurement object		C	If Measurement Type = Traffic volume measurement
		Quality measurement object		C	If Measurement Type = Quality measurement
	Measurement Quantity (Note1)	Intra-frequency measurement quantity		C	If Measurement Type = Intra frequency measurement
		Inter-frequency measurement quantity		C	If Measurement Type = Inter frequency measurement
		Inter-system measurement quantity		C	If Measurement Type = Inter system measurement
		Traffic volume measurement quantity		C	If Measurement Type = Traffic volume measurement
		Quality measurement quantity		C	If Measurement Type = Quality measurement
		UE Internal measurement quantity		C	If Measurement Type = UE Internal measurement
	Reporting quantity (Note2)	Intra-frequency measurement reporting quantity		O	If Measurement Type = Intra frequency measurement
		Inter-frequency measurement reporting quantity		O	If Measurement Type = Inter frequency measurement
		Inter-system measurement reporting quantity		O	If Measurement Type = Inter system measurement
		Traffic volume measurement reporting quantity		O	If Measurement Type = Traffic volume measurement
		Quality measurement reporting quantity		O	If Measurement Type = Quality measurement
		UE Internal measurement reporting quantity		O	If Measurement Type = UE Internal measurement
	Measurement Reporting Criteria (Note3)	Intra-frequency measurement reporting criteria		C	If Measurement Type = Intra frequency measurement
		Inter-frequency measurement reporting criteria		C	If Measurement Type = Inter frequency measurement

		~~Inter-system measurement reporting criteria~~		~~C~~	~~If Measurement Type = Inter system measurement~~
		~~Traffic volume measurement reporting criteria~~		~~C~~	~~If Measurement Type = Traffic volume measurement~~
		~~Quality measurement reporting criteria~~		~~C~~	~~If Measurement Type = Quality measurement~~
		~~UE Internal measurement reporting criteria~~		~~C~~	~~If Measurement Type = UE Internal measurement~~
		~~Periodical reporting criteria~~		~~C~~	

Condition	**Explanation**
event trigger	This element is only included in the message which is sent in event trigger reporting mode.

CHOICE *Measurement*	**Condition under which the given *Measurement* is chosen**
intra-frequency	if measurement type=Intra-frequency measurement
inter-frequency	if measurement type=Inter-frequency measurement
inter-system	if measurement type=Intra-system measurement
traffic volume	if measurement type=traffic volume measurement
Quality	if measurement type=Quality measurement
UE internal	if measurement type=UE internal measurement
CHOICE *reporting criteria*	**Condition under which the given *reporting criteria* is chosen**
******* measurement reporting criteria	Chosen when event triggering is required
periodical reporting	Chosen when periodical reporting is required

~~*Condition event trigger*~~

~~*This element is only necessary* *Note 1: Necessary only* *in event trigger reporting mode.*~~

Note 1~~2~~: It is FFS whether it is necessary to separate the reporting quantity for each type.
~~Note 23: Periodical reporting criteria is used only in periodical reporting mode and others are used in event trigger mode.~~
Note~~-~~ 2~~23~~4: The network may order the UE to report other measurements when UE internal measurements are reported

10.1.2.2 MEASUREMENT REPORT

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE→UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Measurement Information Elements				
Measurement report information		1~~0~~ to <maxMeasRepCount>		Send Measurement Report information for each measurement report in the message (Note 1)
Measurement identity number	M			
Measured Results	C MR required~~Note 3~~			
CHOICE event result	C event trigger			Note 1,2
Intra-frequency measurement event results				
Inter-frequency measurement event results				
Inter-system measurement event results				
Traffic volume measurement event results				
Quality measurement event results				

~~Information element category~~	~~Information elements~~		~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~			~~M~~		
~~Measurement Information elements~~	~~Measurement Identity Number~~			~~M~~		~~For each meas.rep. in this message (Note 1)~~
	~~Event Result~~	~~Intra-frequency measurement event results~~		~~C~~	~~Necessary only in event trigger reporting mode (Note 2)~~	
		~~Inter-frequency measurement event results~~		~~C~~		
		~~Inter-system measurement event results~~		~~C~~		
		~~Traffic volume measurement event results~~		~~C~~		
		~~Quality measurement event results~~		~~C~~		
	~~Measured Results~~			~~O~~	~~Necessary only when indicated optionally by Reporting Quantity in Measurement Control~~	

Condition	Explanation
event trigger	This element is only included in the message which is sent in event trigger reporting mode.
MR required	This information element is included by the sender only if indicated optionally by Reporting Quantity in Measurement Control

Range Bound	Explanation

MaxMeasRepCount	Maximum number of Measurement reports in a message

CHOICE *event result*	**Condition under which the given *event result* is chosen**
intra-frequency measurement event results	
inter-frequency measurement event results	
inter-system measurement event results	
traffic volume measurement event results	
Quality measurement event results	

~~*Range bound MaxMeasRepCount*~~

~~Maximum number of Measurement reports in a message~~

~~*Condition event trigger*~~

~~*This element is only necessary in event trigger reporting mode.*~~

~~*Condition Note 3*~~

~~*Editors note) Agreed text is as follows, however it doesn't seem very clear: Necessary only when indicated optionally by Reporting Quantity in Measurement Control*~~

Note 1: Whether~~If~~ it is possible to send multiple~~any~~ measurement results that are identified by different measurement identity numbers in the same Measurement Report is FFS. An alternative solution is to allow~~dmit~~ only one measurement identity number per Measurement Report and concatenate different Measurement Reports in the RLC layer instead.

Note 2: If it is possible to send many measurement results that are identified by different events in the same Measurement Report is FFS.

10.1.3 Paging and Notification Messages

10.1.3.1 NOTIFICATION

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: PCCH
Direction: UTRAN → UE

Information Element	**Presence**	**Range**	**IE type and reference**	**Semantics description**
Message Type	M			

~~**Information element category**~~	~~**Information elements**~~	~~**REFERENCE**~~	~~**TYPE**~~	~~**NOTE**~~
	~~Message Type~~		~~M~~	

10.1.3.2 PAGING TYPE 1

This message is used to send information on the paging channel. One or several UEs, in idle or connected mode,can be paged in one message, which also can contain other information.

RLC-SAP: t.b.d.
Logical channel: PCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Paging record ~~information~~		1~~0~~ to <Page Count>		
~~Paging record~~	~~M~~			
Other information elements				
BCCH modification info	O			FFS

~~Information element Category~~	~~RRC Information element~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE Information elements~~	~~Paging record~~		~~M~~	~~One paging record for each UE to be paged.~~
~~Other information elements~~	~~BCCH modification info~~		~~O~~	~~FFS~~

~~*Range bound Page Count*~~

~~Number of UE's paged in the Paging Type 1 message~~

Range Bound	Explanation
Page Count	Number of UE's paged in the Paging Type 1 message

10.1.3.3 PAGING TYPE 2

This message is used to page an UE in connected mode, when using the DCCH for CN originated paging.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN Information elements				
CN domain identity	M			
UE Information elements				
~~CN domain identity~~	~~M~~			
Paging cause	M			

~~Information element Category~~	~~RRC Information element~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE Information elements~~	~~CN domain identity~~		~~M~~	
	~~Paging cause~~		~~M~~	

10.1.4 RRC Connection Establishment and maintenance messages

10.1.4.1 RRC CONNECTION RE-ESTABLISHMENT

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: t.b.d.
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Physical CH information elements				
Default DPCH Offset Value	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~Physical CH information elements~~	~~Default DPCH Offset Value~~		~~O~~	

10.1.4.2 RRC CONNECTION RE-ESTABLISHMENT COMPLETE

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	

10.1.4.3 RRC CONNECTION RE-ESTABLISHMENT REQUEST

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: t.b.d
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
S-RNTI	M			FFS whether conveyed on RRC or MAC.
SRNC identity	M			
Measurement information elements				
Measurement information		1~~0~~ to <MeasRep Count>		Send Measurement information for each measurement report in the message
Measurement identity number	M			Refers to system information. Note 1
Measured results	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~UE information elements~~	~~S-RNTI~~		~~M~~	~~FFS whether conveyed on RRC or MAC.~~	
	~~SRNC identity~~		~~M~~		
~~Measurement information elements~~	~~Measurement identity number~~		~~M~~	~~Refers to system information. Note 1~~	~~For each measurement report~~
	~~Measured results~~		~~M~~		

Note 1: The necessity and usage of Measurement identity number in this message is FFS.

~~*Range bound MeasRepCount*~~

~~Number of measurement reports in the message~~

Range Bound	Explanation
MeasRepCount	Number of measurement reports in the message

10.1.4.4 RRC CONNECTION RELEASE

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Release cause	M			
Number of Quick Repeat	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~Release cause~~		~~M~~	
	~~Number of Quick Repeat~~		~~M~~	

10.1.4.5 RRC CONNECTION RELEASE COMPLETE

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	

10.1.4.6 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: t.b.d.
Logical channel: CCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Initial UE identity	M			FFS whether conveyed on RRC or MAC.
Establishment cause	M			
Initial UE capability	O			Necessity is FFS
Measurement information elements				
Measurement information		1~~0~~ to <MeasRep Count>		Send Measurement information for each measurement report in the message
Measurement identity number	M			Refers to system information. Note 1
Measured results	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~UE information elements~~	~~Initial UE identity~~		~~M~~	~~FFS whether conveyed on RRC or MAC.~~	
	~~Establishment cause~~		~~M~~		
	~~Initial UE capability~~		~~O~~	~~Necessity is FFS~~	
~~Measurement information elements~~	~~Measurement identity number~~		~~M~~	~~Refers to system information. Note 1~~	~~For each measurement report~~
	~~Measured results~~		~~M~~		

Note 1: The necessity and usage of Measurement identity number in this message is FFS.

~~*Range bound MeasRepCount*~~

~~Number of measurement reports in the message~~

Range Bound	**Explanation**
MeasRepCoun	Number of measurement reports in the message

10.1.4.7 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.
RLC-SAP: t.b.d.
Logical channel: CCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE information elements				
Initial UE identity	M			FFS whether conveyed on RRC or MAC.
S-RNTI	M			
SRNC identity	M			
C-RNTI	O			Only if assigned to a common transport channel
Activation time	O			
RAB information elements				
RAB identity	M			Indicates the signalling link
Signalling link type	M			
RAB multiplexing info	M			For the signalling link
TrCH information elements				
TFCS	O			Uplink TFCS
TFCS	O			Downlink TFCS
TFC subset	O			
Uplink transport channel informations		0 to <MaxULTrCHCount>		Send transport channel information for each new Uplink transport channel
~~Transport channel information~~		~~0 to <MaxULTrCHCount>~~		~~Send transport channel information for each new Uplink transport channel~~
—Transport channel identity	M			
—TFS	M			
Downlink transport channel informations		0 to <MaxDLTrCHCount>		Send transport channel information for each new downlink transport channel
~~Transport channel information~~		~~0 to <MaxDLTrCHCount>~~		~~Send transport channel information for each new downlink transport channel~~
—Transport channel identity	M			
—TFS	M			
PhyCH information elements				
Frequency info	O			
Uplink DPCH power control info	O			
Uplink radio resource information	~~O~~			
Uplink timeslot info	O			
CHOICE channel requirement	O			
Uplink DPCH info				
PRACH info				
Downlink radio resource information				
Downlink information	~~O~~	0 to <MaxRLcount>		Send downlink information for each radio link to be set-up
Primary CCPCH info				
Downlink DPCH info				
Secondary CCPCH info				
Downlink timeslot info	O			Note 1
SSDT indicator	O			FFS
SSDT Cell ID	C ifSSDT			FFS
Gated Transmission Control info	O			FFS
Default DPCH Offset Value	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~UE information elements~~	~~Initial UE identity~~		~~M~~	~~FFS whether conveyed on RRC or MAC.~~	
	~~S-RNTI~~		~~M~~		
	~~SRNC identity~~		~~M~~		
	~~C-RNTI~~		~~O~~	~~Only if assigned to a common transport channel~~	
	~~Activation time~~		~~O~~		
~~RAB information elements~~	~~RAB identity~~		~~M~~	~~Indicates the signalling link~~	
	~~Signalling link type~~		~~M~~		
	~~RAB multiplexing info~~		~~M~~	~~For the signalling link~~	
~~TrCH information elements~~	~~TFCS~~		~~O~~	~~Uplink TFCS~~	
	~~TFCS~~		~~O~~	~~Downlink TFCS~~	
	~~TFC subset~~		~~O~~		
	~~Transport channel identity~~		~~M~~	~~For each new transport channel~~	~~Uplink transport channels~~
	~~TFS~~		~~M~~		
	~~Transport channel identity~~		~~M~~	~~For each new transport channel~~	~~Downlink transport channels~~
	~~TFS~~		~~M~~		
~~PhyCH information elements~~	~~Frequency info~~		~~O~~		
	~~Uplink DPCH power control info~~		~~O~~		
	~~Uplink DPCH info~~		~~O~~	~~Maximum one of these~~	~~Uplink radio resources~~
	~~PRACH info~~		~~O~~		
	~~Uplink timeslot info~~		~~O~~		
	~~Primary CCPCH info~~		~~O~~	~~For each radio link~~	~~Downlink radio resources~~
	~~Downlink DPCH info~~		~~O~~		
	~~Secondary CCPCH info~~		~~O~~		
	~~Downlink timeslot info~~		~~O~~	~~Note 1~~	
	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~	
	~~Gated Transmission Control info~~		~~O~~	~~FFS~~	
	~~Default DPCH Offset Value~~		~~O~~		

Condition	**Explanation**
ifSSDT	This IE is sent only when SSDT is to be used

Range Bound	**Explanation**
MaxULTrCHCoun	Maximum number of new uplink transport channels
MaxDLTrCHCount	Maximum number of new downlink transport channels
MaxRLcoun	Maximum number of radio links to be set up

CHOICE *channel requirement*	**Condition under which the given *channel requirement* is chosen**
Uplink DPCH info	
PRACH info	

~~*Range bound MaxULTrCHCount*~~

~~Maximum number of new uplink transport channels~~

~~*Range bound MaxDLTrCHCount*~~

~~Maximum number of new downlink transport channels~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

10.1.4.8 RRC CONNECTION SETUP COMPLETE

This message confirms the establishment of the RRC Connection by the UE.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	**Presence**	**Range**	**IE type and reference**	**Semantics description**
Message Type	M			
Phy CH information elements	~~M~~			
SSDT indicator	O			FFS

~~**Information element category**~~	~~**Information elements**~~	~~**REFERENCE**~~	~~**TYPE**~~	~~**NOTE**~~
	~~Message Type~~		~~M~~	
~~Phy CH information elements~~	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~

10.1.4.9 RRC CONNECTION REJECT

This message is transmitted by the network when the requested RRC connection cannot be accepted.
RLC-SAP: t.b.d.
Logical channel: CCCH
Direction: UTRAN → UE

Information Element	**Presence**	**Range**	**IE type and reference**	**Semantics description**
Message Type	M			
UE information elements				
Initial UE identity	M			FFS whether conveyed on RRC or MAC.
Rejection cause	M			
Wait time	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~UE information elements~~	~~Initial UE identity~~		~~M~~	~~FFS whether conveyed on RRC or MAC.~~
	~~Rejection cause~~		~~M~~	
	~~Wait time~~		~~O~~	

10.1.4.10 RRC STATUS

This message is transmitted by the network when the network requests UE to release one of several signalling connections.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN information elements				
CN domain identity	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~CN information elements~~	~~CN domain identity~~		~~M~~	

10.1.4.11 RRC STATUS ACK

This message is transmitted by UE as an acknowledgement for RRC STATUS message.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	

10.1.5 Radio Access Bearer control messages

10.1.5.1 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Activation time	O			
C-RNTI	C - RACH/FACH			
UTRAN mobility Information elements				
URA update indicator	C - PCH and optional			
Physical Channel information elements				
Frequency info	O			
Uplink DPCH power control info	O			
Uplink radio resource information				
CHOICE channel requirement	O			
Uplink DPCH info				
PRACH info				
Uplink timeslot info	O			
Downlink radio resource information				
Downlink information	~~O~~	0 to <Max RLcount>		Send downlink information for each radio link
Primary CCPCH info				
Downlink DPCH info				
Secondary CCPCH info				For FACH
Secondary CCPCH info				For PCH
Downlink timeslot info	O			Note 1
SSDT indicator	O			FFS
SSDT Cell ID	C ifSSDT			FFS
Gated Transmission Control info	O			FFS
Default DPCH Offset Value	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~UE Information elements~~	~~Activation time~~		~~O~~		
	~~C-RNTI~~		~~O~~	~~Only RACH/FACH~~	
~~UTRAN mobility Information elements~~	~~URA update indicator~~		~~O~~	~~When PCH shall be used, and when present, it instructs the UE to make URA updating~~	
~~PhyCH information elements~~	~~Uplink DPCH power control info~~		~~O~~		
	~~Frequency info~~		~~O~~		
	~~Uplink DPCH info~~		~~O~~	~~Maximum one of these~~	~~Uplink radio resources~~
	~~PRACH info~~		~~O~~		
	~~Uplink time slot info~~		~~O~~		
	~~Primary CCPCH info~~		~~O~~	~~For each radio link~~	~~Downlink radio resources~~
	~~Downlink DPCH info~~		~~O~~		
	~~Secondary CCPCH info~~		~~O~~	~~For FACH~~	
	~~Secondary CCPCH info~~		~~O~~	~~For PCH~~	
	~~Downlink timeslot info~~		~~O~~	~~Note 1~~	
	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~	
	~~Gated Transmission Control info~~		~~O~~	~~FFS~~	
	~~Default DPCH Offset Value~~		~~O~~		

Condition	**Explanation**
ifSSDT	This IE is only sent when SSDT is used and when a new DCH is being activated
RACH/FACH	This information element is only included in the sent message when using RACH/FACH
PCH	This information element is only included in the sent message when PCH is being used and is optional even then.

Range Bound	**Explanation**
MaxRLcount	Maximum number of radio links to be set up

CHOICE *channel requirement*	**Condition under which the given *channel requirement* is chosen**
Uplink DPCH info	
PRACH info	

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Condition PCH*~~

~~This information element is only used when PCH is being used and is optional even then.~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

10.1.5.2 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a physical channel reconfiguration has been done.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Phy CH information elements				
SSDT indicator	O			Necessity is FFS

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~Phy CH information elements~~	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~

10.1.5.3 RADIO ACCESS BEARER RECONFIGURATION

This message is sent from UTRAN to reconfigure parameters related to a change of QoS. This procedure can also change the multiplexing of MAC, reconfigure transport channels and physical channels.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Activation time	O			
C-RNTI	C - RACH/FACH			
RAB information elements				
RAB information		0 to <MaxRABcount>		RAB information is sent for each RAB affected by this message
RAB identity	M			
RLC info	O			FFS
RAB multiplexing info	M			
Transport Channel Information Elements				
TFCS	O			for uplink DCHs
TFCS	O			for downlink DCHs
TFC subset	O			for DCHs in uplink
Uplink transport channels				
Transport channel identity	~~O~~	0 to <MaxDelTrCH>		
Reconfigured TrCH information	~~O~~	0 to <MaxReconAddTrCH>		
Transport channel identity	M			
TFS	M			
DRAC information	C DRAC	~~1~~0 to <MaxReconAddTrCH>		
Dynamic Control				
Transmission time validity				
Time duration before retry				
Silent period duration before release				
Downlink transport channels				
Transport channel identity	~~O~~	0 to <MaxDelTrCH>		
Reconfigured TrCH information		0 to <MaxReconAddTrCH>		
Transport channel identity	M			
TFS	M			
Physical Channel information elements				
Frequency info	O			
Uplink DPCH power control info	O			
Uplink radio resource information	O			
CHOICE channel requirement	O			
Uplink DPCH info				
PRACH info				
Uplink timeslot info	O			
Downlink radio resource information				
Downlink information	~~O~~	0 to <MaxRLcount>		Send downlink information for each radio link
Primary CCPCH info				
Downlink DPCH info				

Secondary CCPCH info				
Downlink timeslot info	O			Note 1
SSDT indicator	O			FFS
Gated Transmission Control info	O			FFS
Default DPCH Offset Value	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~UE Information elements~~	~~Activation time~~		~~O~~		
	~~C-RNTI~~			~~Only RACH/FACH~~	
~~RAB information elements~~	~~RAB identity~~		~~M~~		~~For each RAB affected by this message~~
	~~RLC info~~		~~O~~	~~FFS~~	
	~~RAB multiplexing info~~		~~M~~		
~~TrCH information elements~~	~~TFCS~~		~~O~~	~~for uplink DCHs~~	
	~~TFCS~~		~~O~~	~~for downlink DCHs~~	
	~~TFC subset~~		~~O~~	~~for DCHs in uplink~~	
	~~Transport channel identity~~		~~O~~	~~For each removed transport channel~~	~~Uplink transport channels~~
	~~Transport channel identity~~		~~O~~	~~For each reconfigured or added transport channel~~	
	~~TFS~~		~~O~~		
	~~Dynamic Control~~		~~O~~	~~For each reconfigured or added transport channel controlled by DRAC~~	
	~~Transmission time validity~~		~~O~~		

	~~Time duration before retry~~		~~O~~		
	~~Silent period duration before release~~		~~O~~		
	~~Transport channel identity~~		~~O~~	~~For each removed transport channel~~	~~Downlink transport channels~~
	~~Tranpsort channel identity~~		~~O~~	~~For each reconfigured or added transport channel~~	
	~~TFS~~		~~O~~		
~~PhyCH information elements~~	~~Uplink DPCH power control info~~		~~O~~		
	~~Frequency info~~		~~O~~		
	~~Uplink DPCH info~~		~~O~~	~~Maximum one of these~~	~~Uplink radio resources~~
	~~PRACH info~~		~~O~~		
	~~Uplink timeslot info~~		~~O~~		
	~~Primary CCPCH info~~		~~O~~	~~For each radio link~~	~~Downlink radio resources~~
	~~Downlink DPCH info~~		~~O~~		
	~~Secondary CCPCH info~~		~~O~~		
	~~Downlink timeslot info~~		~~O~~	~~Note 1~~	
	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~	
	~~Gated Transmission Control info~~		~~O~~	~~FFS~~	
	~~Default DPCH Offset Value~~		~~O~~		

Condition	**Explanation**
RACH/FACH	This information element is only sent when using RACH/FACH
DRAC	These information elements are only sent for transport channels which use the DRAC procedure

Range Bound	**Explanation**
MaxRLcount	Maximum number of radio links
MaxRABcount	Maximum number of RABs to be reconfigured
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddTrCH	Maximum number of transport channels to add and reconfigure

CHOICE *channel requirement*	**Condition under which the given *channel requirement* is chosen**
Uplink DPCH info	
PRACH info	

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Condition DRAC*~~

~~These information elements are only sent for transport channels which use the DRAC procedure~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links~~

~~*Range bound MaxRABcount*~~

~~Maximum number of RABs to be reconfigured~~

~~*Range bound MaxDelTrCHcount*~~

~~Maximum number of Transport CHannels to be removed~~

~~*Range bound MaxReconAddTrCH*~~

~~Maximum number of transport channels to add and reconfigure~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

10.1.5.4 RADIO ACCESS BEARER RECONFIGURATION COMPLETE

This message is sent from the UE when a RAB and signalling link reconfiguration has been done.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Phy CH information elements				
SSDT indicator	O			FFS

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~Phy CH information elements~~	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~

10.1.5.5 RADIO ACCESS BEARER RELEASE

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Activation time	O			
C-RNTI	C - RACH/FACH			
RAB information elements				
RAB identity	~~M~~	~~1~~0 to <MaxRelRABcount>		
RAB identity	~~O~~	0 to <MaxOtherRABcount>		
RAB multiplexing info	O			
Transport Channel Information Elements				
TFCS	O			for uplink DCHs
TFCS	O			for downlink DCHs
TFC subset	O			for DCHs in uplink
Uplink transport channels				
Transport channel identity	~~O~~	0 to <MaxDelTrCH>		
Reconfigured TrCH information	~~O~~	0 to <MaxReconAddFFSTrCH>		
Transport channel identity	M			
TFS	M			
DRAC information	C DRAC	~~1~~0 to <MaxReconAddFFSTrCH>		
Dynamic Control				
Transmission time validity				
Time duration before retry				
Silent period duration before release				
Downlink transport channels				
Transport channel identity	~~O~~	0 to <MaxDelTrCH>		
Reconfigured TrCH information	~~O~~	0 to <MaxReconAddTrCH>		Editor : this limit should probably also be MaxReconAddFFSTrCH
Transport channel identity	M			
TFS	M			
Physical Channel information elements				
Frequency info	O			
Uplink DPCH power control info	O			
Uplink radio resource information	O			
CHOICE channel requirement	O			
Uplink DPCH info				
PRACH info				
Uplink timeslot info	O			
Downlink radio resource information				
Downlink information	~~O~~	0 to <MaxRLcount>		Send downlink information for each radio link to be set-up
Primary CCPCH info				

Downlink DPCH info					
Secondary CCPCH info					
Downlink timeslot info	O				Note 1

Information element category	Information elements	REFERENCE	TYPE	NOTE	
	Message Type		M		
UE Information elements	Activation time		O		
	C-RNTI		O	Only RACH/FACH	
RAB information elements	RAB identity		M	For each released RAB	
	RAB identity		O	For each other RAB affected by this message	
	RAB multiplexing info		O		
TrCH information elements	TFCS		O	for uplink DCHs	
	TFCS		O	for downlink DCHs	
	TFC subset		O	for DCHs in uplink	
	Transport channel identity		O	For each removed transport channel	Uplink transport channels
	Transport channel identity		O	For each reconfigured or added (FFS) transport channel	
	TFS		O		
	Dynamic Control		O	For each reconfigured or added (FFS) transport channel, controlled by DRAC	
	Transmission time validity		O		
	Time duration before retry		O		
	Silent period duration before release		O		
	Transport channel identity		O	For each removed transport channel	Downlink transport channels
	Transport channel identity		O	For each reconfigured or added transport channel	
	TFS		O		
PhyCH information elements	Uplink DPCH power control info		O		
	Frequency info		O		
	Uplink DPCH info		O	Maximum one of these	Uplink radio resources
	PRACH info		O		
	Uplink timeslot info		O		
	Primary CCPCH info		O	For each radio link	Downlink radio resources
	Downlink DPCH info		O		
	Secondary CCPCH info		O		
	Downlink timeslot info		O	Note 1	

Condition	**Explanation**
RACH/FACH	This information element is only sent when using RACH/FACH
DRAC	These information elements are only sent for transport channels which use the DRAC procedure

Range Bound	**Explanation**
MaxRLcount	Maximum number of radio links
MaxDelRABcount	Maximum number of RABs to be released/deleted
MaxOtherRABcount	Maximum number of Other RABs (ie RAB's not being released) affected by the procedure
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddFFSTrCH	Maximum number of transport channels to add (FFS) and reconfigure

CHOICE *channel requirement*	**Condition under which the given *channel requirement* is chosen**
Uplink DPCH info	
PRACH info	

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Condition DRAC*~~

~~These information elements are only sent for transport channels which use the DRAC procedure~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links~~

~~*Range bound MaxDelRABcount*~~

~~Maximum number of RABs to be released/deleted~~

~~*Range bound MaxOtherRABcount*~~

~~Maximum number of Other RABs (ie RAB's not being released) affected by the procedure~~

~~*Range bound MaxDelTrCHcount*~~

~~Maximum number of Transport CHannels to be removed~~

~~*Range bound MaxReconAddFFSTrCH*~~

~~Maximum number of transport channels to add (FFS) and reconfigure~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

10.1.5.6 RADIO ACCESS BEARER RELEASE COMPLETE

<Functional description of this message to be included here>

RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	

10.1.5.7 RADIO ACCESS BEARER SETUP

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN information elements				
NAS binding info	M			
CN domain identity				
UE Information elements				
Activation time	O			
C-RNTI	C - RACH/FACH			
RAB information elements				
RAB identity	M			For the new RAB
RLC info	M			
RAB multiplexing info	M			
Information for other RAB's affected by this message	~~O~~	0 to <MaxOtherRABcount>		
RAB identity	M			
RAB multiplexing info	M			
Transport Channel Information Elements				
TFCS	O			for uplink DCHs
TFCS	O			for downlink DCHs
TFC subset	O			for DCHs in uplink
Uplink transport channels				
Transport channel identity	~~O~~	0 to <MaxDelTrCH>		editor should this be FFS also?
Reconfigured TrCH information	~~O~~	0 to <MaxReconAddTrCH>		
Transport channel identity	M			
TFS	M			
DRAC information	C DRAC	~~1~~0 to <MaxReconAddTrCH>		
Dynamic Control				
Transmission time validity				
Time duration before retry				
Silent period duration before release				
Downlink transport channels				
Transport channel identity	~~O~~	0 to <MaxDelTrCH>		FFS
Reconfigured TrCH information	~~O~~	0 to <MaxReconAddTrCH>		
Transport channel identity	M			
TFS	M			
Physical Channel information elements				
Frequency info	O			
Uplink DPCH power control info	O			
Uplink radio resource information	O			
CHOICE channel requirement	O			
Uplink DPCH info				
PRACH info				
Uplink timeslot info	O			
Downlink radio resource				

information				
Downlink information	O	0 to <Max RLcount>		Send downlink information for each radio link
Primary CCPCH info				
Downlink DPCH info				
Secondary CCPCH info				
Downlink timeslot info	O			Note 1
SSDT indicator	O			FFS
SSDT Cell ID	C ifSSDT			FFS
Gated Transmission Control info	O			FFS
Default DPCH Offset Value	O			

Information element category	Information elements	REFERENCE	TYPE	NOTE	
	Message Type		M		
CN information elements	NAS binding info		M	Transparent non-access stratum info e.g. bearer identity.	
	CN domain identity				
UE Information elements	Activation time		O		
	C-RNTI		O	Only RACH/FACH	
RAB information elements	RAB identity		M	For the new RAB	
	RLC info		M		
	RAB multiplexing info		M		
	RAB identity		O	For each other RAB affected by this message	
	RAB multiplexing info		O		
TrCH information elements	TFCS		O	for uplink DCHs	
	TFCS		O	for downlink DCHs	
	TFC subset		O	for DCHs in uplink	
	Transport channel identity		O	For each removed transport channel	Uplink transport channels
	Transport channel identity		O	For each reconfigured or added transport channel	
	TFS		O		
	Dynamic Control		O	For each reconfigured or added transport channel, controlled by DRAC	
	Transmission time validity		O		
	Time duration before retry		O		
	Silent period duration before release		O		
	Transport channel identity		O	For each removed (FFS) transport channel	Downlink transport channels
	Transport channel identity		O	For each reconfigured or added transport channel	
	TFS		O		
PhyCH information elements	Uplink DPCH power control info		O		
	Frequency info		O		
	Uplink DPCH info		O	Maximum one of these	Uplink radio resources
	PRACH info		O		
	Uplink timeslot info		O		
	Primary CCPCH info		O	For each radio link	Downlink radio resources
	Downlink DPCH info		O		
	Secondary CCPCH info		O		
	Downlink timeslot info		O	Note 1	
	SSDT indicator		O	Necessity is FFS	

	~~Gated Transmission Control info~~		~~O~~	~~FFS~~
	~~Default DPCH Offset Value~~		~~O~~	

Condition	Explanation
RACH/FACH	This information element is only sent when using RACH/FACH
ifSSDT	This IE is only sent when SSDT is used and when a new DCH is being activated

Range Bound	Explanation
MaxRLcount	Maximum number of radio links
MaxDelTrCHcount	Maximum number of Transport CHannels to be removed
MaxReconAddcount	Maximum number of Transport CHannels reconfigured or added
MaxOtherRABcount	Maximum number of Other RABs (ie RAB's not being released) affected by the procedure

CHOICE *channel requirement*	**Condition under which the given *channel requirement* is chosen**
Uplink DPCH info	
PRACH info	

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

~~*Range bound MaxDelTrCHcount*~~

~~Maximum number of Transport CHannels to be removed~~

~~*Range bound MaxReconAddcount*~~

~~Maximum number of Transport CHannels reconfigured or added~~

~~*Range bound MaxOtherRABcount*~~

~~Maximum number of Other RABs (ie RAB's not being released) affected by the procedure~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

10.1.5.8 RADIO ACCESS BEARER SETUP COMPLETE

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
Phy CH information elements				
SSDT indicator	O			FFS

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~Phy CH information elements~~	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~

10.1.5.9 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
UE Information elements				
Activation time	O			
C-RNTI	C - RACH/FACH			
Control only state timer	O			FFS
Transport Channel Information Elements				
TFCS	O			for uplink DCHs
TFCS	O			for downlink DCHs
TFC subset	O			for DCHs in uplink
Uplink transport channels				
Reconfigured TrCH information	~~O~~	0 to <MaxReconTrCH>		
Transport channel identity				
TFS				
DRAC information	C DRAC	~~1~~0 to <MaxReconTrCHDRAC>		
Dynamic Control				
Transmission time validity				
Time duration before retry				
Silent period duration before release				
Downlink transport channels				
Reconfigured TrCH information		0 to <MaxReconTrCH>		
Transport channel identity				
TFS				
Physical Channel information elements				
Frequency info	O			
Uplink DPCH power control info	O			
Uplink radio resource information				
CHOICE channel requirement	O			
Uplink DPCH info				
PRACH info				
Uplink timeslot info	O			
Downlink radio resource information				
Downlink information	~~O~~	0 to <MaxRLcount>		Send downlink information for each radio link
Primary CCPCH info				
Downlink DPCH info				
Secondary CCPCH info				
Downlink timeslot info	O			Note 1
SSDT indicator	O			FFS
SSDT Cell ID	C ifSSDT			FFS
Gated Transmission Control info	O			FFS
Default DPCH Offset Value	O			

Information element category	Information elements	REFERENCE	TYPE	NOTE	
	Message Type		M		
UE Information elements	Activation time		O		
	C-RNTI		O	Only RACH/FACH	
	Control-only state timer		O	FFS	
TrCH information elements	TFCS		O	for uplink DCHs	
	TFCS		O	for downlink DCHs	
	TFC subset		O	for DCHs in uplink	
	Transport channel identity		O	For each reconfigured transport channel	Uplink transport channels
	TFS		O		
	Dynamic Control		O	For each reconfigured transport channel, controlled by DRAC	
	Transmission time validity		O		
	Time duration before retry		O		
	Silent period duration before release		O		
	Transport channel identity		O	For each reconfigured transport channel	Downlink transport channels
	TFS		O		
PhyCH information elements	Uplink DPCH power control info		O		
	Frequency info		O		
	Uplink DPCH info		O	Maximum one of these	Uplink radio resources
	PRACH info		O		
	Uplink timeslot info		O		
	Primary CCPCH info		O	For each radio link	Downlink radio resources
	Downlink DPCH info		O		
	Secondary CCPCH info		O		
	Downlink timeslot info		O	Note 1	
	SSDT indicator		O	Necessity is FFS	
	Gated Transmission Control info		O	FFS	
	Default DPCH Offset Value		O		

Condition	Explanation
ifSSDT	This IE is only sent when SSDT is used and when a new DCH is being activated
RACH/FACH	This information element is only sent when using RACH/FACH

Range Bound	Explanation
MaxRLcount	Maximum number of radio links to be set up
MaxReconcount	Maximum number of Transport CHannels reconfigured
MaxReconTrCHDRAC	Maximum number of Transport CHannels which are controlled by DRAC and which are reconfigured

CHOICE *channel requirement*	Condition under which the given *channel*

	requirement **is chosen**
Uplink DPCH info	
PRACH info	

~~*Condition RACH/FACH*~~

~~This information element is only sent when using RACH/FACH~~

~~*Range bound MaxRLcount*~~

~~Maximum number of radio links to be set up~~

~~*Range bound MaxReconcount*~~

~~Maximum number of Transport CHannels reconfigured~~

~~*Range bound MaxReconTrCHDRAC*~~

~~Maximum number of Transport CHannels which are controlled by DRAC and which are reconfigured~~

Note 1: It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.

10.1.5.10 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a transport channel reconfiguration has been done.
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	**Presence**	**Range**	**IE type and reference**	**Semantics description**
Message Type	M			
Phy CH information elements				
SSDT indicator	O			FFS

~~**Information element category**~~	~~**Information elements**~~	~~**REFERENCE**~~	~~**TYPE**~~	~~**NOTE**~~
	~~Message Type~~		~~M~~	
~~Phy CH information elements~~	~~SSDT indicator~~		~~O~~	~~Necessity is FFS~~

Note: The usage of this message for indicating the cell the UE will select in the DCH->RACH/FACH case, is FFS.

10.1.5.11 TRANSPORT FORMAT COMBINATION CONTROL

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UTRAN→UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
TrCH information elements				
TFC subset	M			For uplink DCH's multiplexed onto a CCTrCH

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~TrCH information elements~~	~~TFC subset~~		~~M~~	~~for DCHs in UL~~

10.1.6 System Information Messages

10.1.6.1 SYSTEM INFORMATION

<*Functional description of this message to be included here*>
RLC-SAP: t.b.d.
Logical channel: BCCH or DCCH or CCCH
Direction: UTRAN → UE

NOTE: The division of the system information into messages is FFS.

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN information elements				
PLMN Identity	M			
CN information		1~~0~~ to <maxCNdomains>		Send CN information for each CN domain. Information must be included for at least one core network domain type.
CN domain identity	M			
NAS system information	M			
UTRAN mobility information elements				
URA identity	~~M~~	1~~0~~ to <maxURAcount>		
Information for periodic cell and URA update	M			
Cell identity	M			The necessity and usage of cell identity is FFS.
Cell selection and re-selection info	M			
UE information				
Uplink access control info	M			
DRAC information	~~O~~	0 to <maxDRACclasses>		DRAC information is sent for each class of terminal
Transmission probability				
Maximum bit rate				
PhyCH information elements				
PRACH power control info	M			
RACH information	~~M~~	1~~0~~ to <maxRAChcount>		
Frequency info	O			
PRACH info	M			
FACH information	~~M~~	1~~0~~ to <maxFAChcount>		
Frequency info	O			
Secondary CCPCH info	M			
PCH information	~~M~~	1~~0~~ to <maxPCHcount>		
Frequency info	O			
Secondary CCPCH info	M			
Measurement information elements				
Intra-frequency measurement information		0 to <maxIntrafreqcount>		
Measurement Identity Number	M			Note 1
~~Measurement object information~~		~~0 to <maxMeasObjCount>~~		
—Intra-frequency cell info	~~M~~	1 to <maxMeasObjCount>		
Intra-frequency measurement quantity	M			
Intra-frequency measurement reporting criteria	M			
Intra-frequency reporting quantity for RACH reporting	C - RACHrep			
Inter-frequency measurement information		0 to <maxInterfr		

		eqcount>		
Measurement Identity Number	M			Note 1
~~Measurement object information~~		~~0 to <max MeasObjCount>~~		
—Inter-frequency cell info	~~M~~	1 to <max MeasObjCount>		
Inter-frequency measurement quantity	M			
Inter-frequency measurement reporting criteria	M			
Inter-system measurement information		0 to <maxInterSyscount>		
Measurement Identity Number	M			Note 1
~~Measurement object information~~		~~0 to <max MeasObjCount>~~		
—Inter-system cell info	~~M~~	1 to <max MeasObjCount>		
Inter-system measurement quantity	M			
Inter-system measurement reporting criteria	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~CN information elements~~	~~PLMN Identity~~		~~M~~		
	~~CN domain identity~~		~~M~~		~~For each Core Network Domain.~~ ~~Information must be included for at least one core network domain type.~~
	~~NAS system information~~		~~M~~		
~~UTRAN mobility information elements~~	~~URA identity~~		~~M~~		~~For each URA~~
	~~Information for periodic cell and URA update~~		~~M~~		~~*Note: not for each URA any more*~~
	~~Cell identity~~		~~M~~	~~The necessity and usage of cell identity is FFS.~~	
	~~Cell selection and re-selection info~~		~~M~~		
~~UE information elements~~	~~Uplink access control info~~		~~M~~		
	~~Transmission probability~~		~~O~~	~~For all UE having DCH controlled by DRAC procedure~~	~~For each class of UE Note2~~
	~~Maximum bit rate~~		~~O~~		
~~PhyCH information elements~~	~~Frequency info~~		~~O~~	~~For each RACH~~	
	~~PRACH info~~		~~M~~		
	~~Frequency info~~		~~O~~	~~For each FACH on secondary CCPCH~~	

	~~Secondary CCPCH info~~		~~M~~		
	~~Frequency info~~		~~O~~	~~For each PCH on secondary CCPCH~~	
	~~Secondary CCPCH info~~		~~M~~		
	~~PRACH power control info~~		~~M~~		
~~Measurement Information elements~~	~~Measurement Identity Number~~		~~M~~	~~Note 1~~	~~For each Intra-frequency measurement control~~
	~~Intra-frequency cell info~~		~~M~~	~~For each measurement object~~	
	~~Intra-frequency measurement quantity~~		~~M~~		
	~~Intra-frequency measurement reporting criteria~~		~~M~~		
	~~Intra-frequency reporting quantity for RACH reporting~~		~~C~~	~~Only included if RACH reporting is indicated in the reporting criteria~~	
	~~Measurement Identity Number~~		~~M~~	~~Note 1~~	~~For each Inter-frequency measurement control~~
	~~Inter-frequency cell info~~		~~M~~	~~For each measurement object~~	
	~~Inter-frequency measurement quantity~~		~~M~~		
	~~Inter-frequency measurement reporting criteria~~		~~M~~		
	~~Measurement Identity Number~~		~~M~~	~~Note 1~~	~~For each Inter-system measurement control~~
	~~Inter-system cell info~~		~~M~~	~~For each measurement object~~	
	~~Inter-system measurement quantity~~		~~M~~		
	~~Inter-system measurement reporting criteria~~		~~M~~		

Condition	**Explanation**
RACH-rep	This information element is only included if RACH reporting is indicated in the reporting criteria

Range Bound	**Explanation**
MaxCNdomains	Maximum number of CN domains
MaxURAcount	Maximum number of URA's in a cell
MaxDRACclasses	Maximum number of UE classes which would require different DRAC parameters
MaxRACHcount	Maximum number of RACH's
MaxFACHcount	Maximum number of FACH's mapped onto secondary CCPCH's
MaxPCHcount	Maximum number of PCH's mapped onto secondary

	CCPCH's
MaxIntraFreqCount	Maximum number of intra frequency measurement control
MaxInterFreqCount	Maximum number of inter frequency measurement control
MaxInterSysCount	Maximum number of inter system measurement control
MaxMeasObjCount	Maximum number of Measurement Objects

~~*Condition RACH-rep*~~

~~This information element is only included if RACH reporting is indicated in the reporting criteria~~

~~*Range bound MaxCNdomains*~~

~~Maximum number of CN domains~~

~~*Range bound MaxURAcount*~~

~~Maximum number of URA's in a cell~~

~~*Range bound MaxDRACclasses*~~

~~Maximum number of UE classes which would require different DRAC parameters~~

~~*Range bound MaxRACHcount*~~

~~Maximum number of RACH's~~

~~*Range bound MaxFACHcount*~~

~~Maximum number of FACH's mapped onto secondary CCPCH's~~

~~*Range bound MaxPCHcount*~~

~~Maximum number of PCH's mapped onto secondary CCPCH's~~

~~*Range bound MaxIntraFreqCount*~~

~~Maximum number of intra frequency measurement control~~

~~*Range bound MaxInterFreqCount*~~

~~Maximum number of inter frequency measurement control~~

~~*Range bound MaxInterSysCount*~~

~~Maximum number of inter system measurement control~~

~~*Range bound MaxMeasObjCount*~~

~~Maximum number of Measurement Objects~~

Note 1: The necessity and usage of Measurement identity number in this message is FFS.
Note 2: The split of parameters into several System Information message X is FFS.

10.1.7 Other Messages

10.1.7.1 UE CAPABILITY INFORMATION

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: UE → UTRAN

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN information elements				
NAS message	M			Includes the CN capability information
UE information elements				
Power control capability	M			
Code resource capability	M			
UE mode capability	M			
Transport CH support capability	O			
Ciphering capability	M			
Macro diversity capability	M			
Other information elements				
Inter-system message	O			Includes inter-system classmark

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
	~~Message Type~~		~~M~~		
~~CN information elements~~	~~NAS message~~		~~M~~	~~Includes the CN capability information~~	
~~UE information elements~~	~~Power control capability~~		~~M~~		~~UTRAN capability information~~
	~~Code resource capability~~		~~M~~		
	~~UE mode capability~~		~~M~~		
	~~Transport CH support capability~~		~~O~~		
	~~Ciphering capability~~		~~M~~		
	~~Macro diversity capability~~		~~M~~		
~~Other information elements~~	~~Inter-system message~~		~~O~~	~~Includes inter-system classmark~~	

Note: The WG1 and WG4 discussion should be concluded before the contents of this message can be finalized.

10.1.7.2 UE CAPABILITY INFORMATION CONFIRM

<Functional description of this message to be included here>
RLC-SAP: t.b.d.

Logical channel: DCCH
Direction: UTRAN → UE

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	

10.1.7.3 DIRECT TRANSFER

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: DCCH
Direction: both

Information Element	Presence	Range	IE type and reference	Semantics description
Message Type	M			
CN information elements				
CN domain identity	M			
NAS message	M			
Measurement information elements				
Measured results	O			

~~Information element category~~	~~Information elements~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Message Type~~		~~M~~	
~~CN information elements~~	~~CN domain identity~~		~~M~~	
	~~NAS message~~		~~M~~	
~~Measurement information elements~~	~~Measured results~~		~~O~~	~~Intra-frequency measurement related report~~

10.2 Information element functional definitions

10.2.1 CN Information elements

10.2.1.1 CN domain identity

Points out the core network domain (e.g. IP or PSTN/ISDN CN domain).

10.2.1.2 NAS binding info

A field with non-access stratum information to bind a RAB to the non-access stratum. This information is transparent to RRC.

10.2.1.3 NAS message

A non-access stratum message to be transferred transparently through UTRAN.

10.2.1.4 NAS system information

System information that belongs to the non-access stratum (e.g. LAC, RA code etc). This information is transparent to RRC.

10.2.1.5 PLMN identity

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
MCC, Mobile Country Code	M			
MNC, Mobile Network Code	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~MCC, Mobile Country Code~~		~~M~~	
~~MNC, Mobile Network Code~~		~~M~~	

10.2.2 UTRAN mobility Information elements

10.2.2.1 Cell identity

Identity of a cell within a PLMN.
Note: The necessity and usage of this information element is FFS.

10.2.2.2 Cell selection and re-selection info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Standby allowed reception level (dBm)	M			The usage of these parameters needs clarification FFS.
Standby prohibited reception level (dBm)	M			
Threshold for Cell Re-selection (dB)	M			
Allowed reception SIR (dB)	M			
Radio link timeout				

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~Standby allowed reception level (dBm)~~		~~M~~		~~The usage of these parameters needs clarification FFS.~~
~~Standby prohibited reception level (dBm)~~		~~M~~		
~~Threshold for Cell Re-selection (dB)~~		~~M~~		
~~Allowed reception SIR (dB)~~		~~M~~		
~~Radio link timeout~~				

10.2.2.3 Information for periodic cell and URA update

FFS.

10.2.2.4 URA identity

Gives the i~~I~~dentity of the UTRAN Registration Area. It can be used to indicate to the UE which URA it shall use in case of overlapping URAs.

10.2.2.5 URA update indicator

When present in a message, it instructs the UE to start to update its location on URA level.

10.2.3 UE Information elements

10.2.3.1 Uplink access control info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Access class	M			FFS
Dynamic persistence level	M			FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Access class~~		~~M~~	~~FFS~~
~~Dynamic persistence level~~		~~M~~	~~FFS~~

10.2.3.2 C-RNTI

The controlling RNC RNTI identifies an UE having a RRC connection within an controlling RNC.

10.2.3.3 S-RNTI

The serving RNC RNTI is allocated to an UE having a RRC connection and identifies the UE within its serving RNC.

10.2.3.4 SRNC identity

Identifies the serving RNC for an UE having an RRC connection.

10.2.3.5 Initial UE identity

This information element identifies the UE at a request of an RRC connection.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
CHOICE UE Identity	M			
IMSI				International Mobile Subscriber Identity
TMSI + LAI				Temporary Mobile Subscriber Identity and Location Area Identity
P-TMSI + RAI				Packet Temporary Mobile Subscriber Identity and Routing Area Identity
IMEI				International Mobile Subscriber Identity

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~		
~~IMSI~~		~~O~~	~~International Mobile Subscriber Identity~~	~~One of these NAS identities is used~~	
~~TMSI + LAI~~		~~O~~	~~Temporary Mobile Subscriber Identity and Location Area Identity~~		
~~P-TMSI + RAI~~		~~O~~	~~Packet Temporary Mobile Subscriber Identity and Routing Area Identity~~		
~~IMEI~~		~~O~~	~~International Mobile Subscriber Identity~~		

CHOICE *UE Identity*	Condition under which the given *UE identity* is used
IMSI	
TMSI+LAI	
P-TMSI+RAI	
IMEI	

~~*CHOICE UE Identity*~~

~~One of the four UE identities must be used, the conditions under which each ID is used is as follows....~~

[Note: The use of these identities is pending confirmation from WG1 that the RACH can support the required payload when these types of ID are used]

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10.2.3.6 Activation time

Activation Time defines the frame number (or offset to some known frame number) in which the operation/changes caused by the related message should be executed.
Current assumption is that a connection based CFN (Connection Frame Number) that is known by MS and SRNC could be used.

10.2.3.7 Wait time

Wait time defines the time period the UE has to wait before repeating the rejected procedure.

10.2.3.8 Control-only-state timer

This IE indicates for how long the UE shall stay in the control-only-state. *Editors note: the exact usage of this IE needs some clarification.*

10.2.3.9 Paging record

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Paging originator	M	Enumerated (UTRAN,CN)		
Paging cause	C isCN			
CN domain identity	C isCN			
CHOICE Identity	M			
IMSI				~~For idle mode pages~~
TMSI				
P-TMSI				
Connected mode ID				~~For connected mode pages~~
S-RNTI	M			
SRNC identity	M			

Condition	Explanation
isCN	This information element is included where the page is originated from the CN.

CHOICE *Identity*	Condition under which the given *Identity* is chosen
IMSI	For idle mode pages
TMSI	For idle mode pages
P-TMSI	For idle mode pages
Connected mode ID	For connected mode pages

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~		
~~Paging originator~~		~~M~~	~~UTRAN/CN~~		
~~Paging cause~~		~~C~~	~~For CN originated pages~~		
~~CN domain identity~~					
~~IMSI~~		~~O~~	~~International Mobile Subscriber Identity~~	~~One of these formats is used~~	~~For idle mode pages~~
~~TMSI~~		~~O~~	~~Temporary Mobile Subscriber Identity~~		
~~P-TMSI~~		~~O~~	~~Packet Temporary Mobile Subscriber Identity~~		
~~S-RNTI~~		~~O~~	~~For connected mode pages~~		
~~SRNC identity~~					

10.2.3.10 Establishment cause

Cause for an RRC connection establishment request (originating call, emergency call, paging response, location update request, forward inter-system handover etc).

10.2.3.11 Release cause

Cause for release of RRC connection.

10.2.3.12 Rejection cause

Cause for rejection of RRC connection establishment request.

10.2.3.13 Paging cause

Cause for a CN originated page. *Editors note: The usage of this IE needs further clarification.*

10.2.3.14 Initial UE capability

This is the UE capability information given in the RRC connection request message. The exact type of information is FFS.

10.2.3.15 Power control capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Transmission power capability	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Transmission power capability~~		~~M~~	

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

10.2.3.16 Code resource capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
DL multi-code capability				
UL multi-code capability				
DL Spreading factor capability				
UL Spreading factor capability				

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~DL multi-code capability~~			
~~UL multi-code capability~~			
~~DL Spreading factor capability~~			
~~UL Spreading factor capability~~			

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

10.2.3.17 UE mode capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
System capability		0 to <maxSystemCount>	Enumerated (UMTS, GSM, Others)	
UMTS capability		0 to <maxModecount>	Enumerated (TDD, FDD)	
Chip rate capability				
Radio Frequency capability				
Variable duplex distance capability				

Range Bound	Explanation
MaxSystemCount	Maximum number of Systems supported by the UE
maxModeCount	Maximum number of UMTS modes supported by the UE

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~System capability (UMTS/GSM/others)~~			
~~UMTS capability (TDD/FDD)~~			
~~Chip rate capability~~			
~~Radio Frequency capability~~			
~~Variable duplex distance capability~~			

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

10.2.3.18 Transport channel support capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Maximum number of DCHs			Integer	
Support for Transport CH				

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Maximum number of DCHs~~			
~~Support for Transport CH~~			

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

10.2.3.19 Ciphering capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Ciphering Algorithm capability	M		Enumerated	

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Ciphering Algorithm capability~~		~~M~~	

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

10.2.3.20 Macro diversity capability

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Maximum number of RLs	M		Integer	

Parameters	REFERENCE	TYPE	NOTE
Maximum number of RLs		M	

Note: The WG1 and WG4 discussion should be concluded before the contents of this IE can be finalized.

10.2.3.21 Cell update cause

Indicates the cause for s cell update. Examples of causes are cell reselection and periodic cell update.

10.2.3.22 URA update cause

Indicates the cause for s URA update. Examples of causes are change of URA and periodic URA update.

10.2.3.23 Number of Quick Repeat

Indicates the number of quick repeat for RRC Connection Release Complete message.

10.2.3.24 Inter-system handover failure cause

The purpose of this IE is to provide a reason for the failure of the Inter-system handover.

10.2.3.25 Transmission probability

Indicates the probability for a mobile to be allowed to transmit on a DCH controlled by DRAC procedure.

10.2.3.26 Maximum bit rate

Indicates the maximum user bit rate allowed on a DCH controlled by DRAC procedure for the transmission period (Transmission time validity).

10.2.3.27 Capability Update Requirement

This IE indicates to the UE, which is capable of inter-system handover, whether it should send a complete update of its capabilities in the given system (e.g. GSM) immediately after having established an RRC connection.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
System	M		Enumerated (GSM,..)	
Early Capability Update	M		Boolean	

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~System~~		~~M~~	~~E.g. GSM~~
~~Early Capability Update~~		~~M~~	~~Yes / No~~

10.2.4 Radio Access Bearer Information elements

10.2.4.1 RAB identity

An identification number for the RAB affected by a certain message.

10.2.4.2 RLC info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Uplink RLC info				
RLC mode	M		enumerated (Acknowledged, Non Acknowledged or Transparent mode data transfer.)	Indicates iwhat type of RLC entity a certain RAB should use *[Note: It is FFS if this parameter always is the same in both UL and DL.]*
RLC in-sequence delivery	O		Boolean	Indication if RLC should preserve the order of higher layer PDUs that were transmitted through RLC. *[Note: It is FFS if this parameter always is the same in both UL and DL.]*
RLC PDU size	C - ifNotDerived		Integer	Size of RLC Protocol Data Units.
RLC transmission window size	O		Integer	A flow control parameter used to set the maximum number of RLC PDUs sent without getting them acknowledged
RLC retransmission info	M			This could be the number of attempts to retransmit a RLC PDU before it is discarded, or different timer values.
Downlink RLC info				
RLC mode	M		enumerated (Acknowledged, Non Acknowledged or Transparent mode data transfer.)	
RLC in-sequence delivery	O		Boolean	
RLC PDU Size	C - ifNotDerived		Integer	
RLC transmission window size	O		Integer	
RLC retransmission info	M			*Is this needed to send to the UE for downlink?*

Condition	Explanation
ifNotDerived	RLC PDU size may be derived from transport block size and not explicitly transferred across the radio interface. In this case the information element is not sent.

~~*Condition c – ifNotDerived*~~

~~RLC PDU size may be derived from transport block size and not explicitly transferred across the radio interface~~

Parameters	REFERENCE	TYPE	NOTE	
RLC mode		M	Indicates if the RLC entity for a certain RAB should use Acknowledged, Non Acknowledged or Transparent mode data transfer. *[Note: It is FFS if this parameter always is the same in both UL and DL.]*	Uplink RLC info
RLC in-sequence delivery		O	Indication if RLC should preserve the order of higher layer PDUs that were transmitted through RLC. *[Note: It is FFS if this parameter always is the same in both UL and DL.]*	
RLC PDU size		C	Size of RLC Protocol Data Units. See Note 1	
RLC transmission window size		O	A flow control parameter used to set the maximum number of RLC PDUs sent without getting them acknowledged	
RLC retransmission info		M	This could be the number of attempts to retransmit a RLC PDU before it is discarded, or different timer values.	
RLC mode		M		Downlink RLC info
RLC in-sequence delivery		O		
RLC PDU Size		M	Note 1	
RLC transmission window size		O		
RLC retransmission info		O	*Is this needed to send to the UE for downlink?*	

Note1: RLC PDU size may be derived from transport block size and not explicitly transfered across the radio interface.

10.2.4.3 Signalling link type

The purpose of the Signalling Link Type information element is to indicate the RLC parameters needed for the signalling link.

Each possible value of Signalling Link Type information element refers to a predefined set of parameters. Details FFS.

10.2.4.4 RAB multiplexing info

A multiplexing option for each possible transport channel this RAB can be multiplexed on.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Information for each multiplexing option		1~~0~~ to <maxMuxOptionsCount>		
Uplink multi-plexing				
Transport channel identity	O			This is the ID of a transport channel that this RAB could be mapped onto.
Logical channel identity	O			This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
MAC logical channel priority	O			This includes both priority between different users traffic when using a common or shared channel, and between different RABs (or logical channels) traffic for a certain user. Different priorities for one users´RABs are mapped (through the MACś T and C/T MUXes) to the TFC selection algorithm. *[Note: Usage and precise meaning of this is FFS.]*
Downlink multi-plexing				
Transport channel identity	O			
Logical channel identity	O			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~		
~~Transport channel identity~~		~~O~~	~~This is the ID of a transport channel that this RAB could be mapped onto.~~	~~Uplink multi-plexing~~	~~For each multi-plexing option~~
~~Logical channel identity~~		~~O~~	~~This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.~~		
~~MAC logical channel priority~~		~~O~~	~~This includes both priority between different users traffic when using a common or shared channel, and between different RABs (or logical channels) traffic for a certain user. Different priorities for one users´RABs are mapped (through the MACś T and C/T MUXes) to the TFC selection algorithm.~~ ~~*[Note: Usage and precise meaning of this is FFS.]*~~		
~~Transport channel identity~~		~~O~~		~~Downlink multi-plexing~~	
~~Logical channel identity~~		~~O~~			

Note: The necessity of dividing RAB multiplexing into in uplink and downlink is FFS.

10.2.5 Transport CH Information elements

10.2.5.1 Transport Format Combination Set

Indicates the allowed combinations of already defined Transport formats.

10.2.5.2 Transport Format Combination Subset

Indicates which Transport format combinations in the already defined Transport format combination set that are allowed.

10.2.5.3 Transport channel identity

This information element is used to distinguish transport channels (both common and dedicated transport channels).

10.2.5.4 Transport Format Set (TFS)

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Transport block size(s)				(dynamic)
Transport Block Set Size(s)				(dynamic)
Transmission time interval				(semi-static)
Type of channel coding				(semi-static)
Rate matching				(semi-static)

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Transport block size(s)~~			~~(dynamic)~~
~~Transport Block Set Size(s)~~			~~(dynamic)~~
~~Transmission time interval~~			~~(semi-static)~~
~~Type of channel coding~~			~~(semi-static)~~
~~Rate matching~~			~~(semi-static)~~

10.2.5.5 Dynamic Control

Indicates if this transport channel is controlled by DRAC procedure or not.

10.2.5.6 Transmission time validity

Indicates the duration for which permission is granted on a DCH controlled by DRAC procedure.

10.2.5.7 Time duration before retry

Indicates the time duration before retrying to get the transmission permission on a DCH controlled by DRAC procedure, in case permission has not been granted.

10.2.5.8 Silent period duration before release

Indicates the maximum silent period duration before releasing the resource. This parameter may be merged with the Fkp-b parameter defined in the 'Transmission stop and resumption control'procedure defined in [1].

(Note: [1] RAN/WG1 S1.14 document)

10.2.6 Physical CH Information elements

10.2.6.1 Frequency info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Frequency number	M			Designate the centerfrequency of the uplink carrier
Duplex distance	O			
Chip rate	O			
Mode	O	enumerated (TDD, FDD)		

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Frequency number~~		~~M~~	~~Designate the centerfrequency of the uplink carrier~~
~~Duplex distance~~		~~O~~	
~~Chip rate~~		~~O~~	
~~Mode~~		~~O~~	~~Designate FDD or TDD mode~~

10.2.6.2 Primary CCPCH info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
DL scrambling code	M			DL scrambling code used for Primary CCPCH

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~DL scrambling code~~		~~M~~	~~DL scrambling code used for Primary CCPCH~~

10.2.6.3 Secondary CCPCH info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
DL scrambling code	C - DLscode			
Channelization code	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~DL scrambling code~~		~~O~~	~~Only needed if different from DL scrambling code of Primary CCPCH~~
~~Channelization code~~		~~M~~	

Condition	Explanation
DLscode	The DL scrambling code information element is only sent if it is different from the DL scrambling code of the Primary CCPCH

~~*Condition C - DLscode*~~

~~The DL scrambling code information element is only needed if it is different from the DL scrambling code of Primary CCPCH~~

10.2.6.4 PRACH info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Access slot	~~M~~	~~1~~0 to <maxAccessSlots>		
Preamble spreading code	~~M~~	~~1~~0 to <maxPcodes>		
Preamble signature	~~M~~	~~1~~0 to <maxPsigs>		
Spreading factor	~~M~~	~~1~~0 to <maxRates>		

Range Bound	Explanation
MaxAccessSlots	Maximum number of allowed access slots for the preambles
MaxPcodes	Maximum number of codes to use for spreading of the preamble. There is also a one to one mapping from preamble code to what scrambling code to use for the message part.
MaxPsigs	Maximum number of allowed preamble signatures.
MaxRates	Maximum number of rates or SF that are allowed to use on the data part (I-branch) in the message part of the random access

~~*Range bound MaxAccessSlots*~~

~~Maximum number of allowed access slots for the preambles~~

~~*Range bound MaxPcodes*~~

~~Maximum number of codes to use for spreading of the preamble. There is also a one to one mapping from preamble code to what scrambling code to use for the message part.~~

~~*Range bound MaxPsigs*~~

~~Maximum number of allowed preamble signatures.~~

~~*Range bound MaxRates*~~

~~Maximum number of rates or SF that are allowed to use on the data part (I-branch) in the message part of the random access~~

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Access slot~~		~~M~~	~~For each allowed access slot for the preambles~~
~~Preamble spreading code~~		~~M~~	~~For each code to use for spreading of the preamble. There is also a one to one mapping from preamble code to what scrambling code to use for the message part.~~
~~Preamble signature~~		~~M~~	~~For each allowed preamble signature.~~
~~Spreading factor~~		~~M~~	~~For each rate or SF that are allowed to use on the data part (I-branch) in the message part of the random access~~

10.2.6.5 PRACH power control info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
UL target SIR	M			
Primary CCPCH DL TX power	M			
UL interference	M			
Constant value	M			*Note: it should be clarified from WG1 whether this is the same as UL target SIR.*
AICH transmission timing parameter	M			
Power offset ΔP_0	M			Power step when no acquisition indicator is received
Power offset ΔP_1	M			Power step when negative acquisition is received

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~UL target SIR~~		~~M~~	
~~Primary CCPCH DL TX power~~		~~M~~	
~~UL interference~~		~~M~~	
~~Constant value~~		~~M~~	~~*Note: it should be clarified from WG1 whether this is the same as UL target SIR.*~~
~~AICH transmission timing parameter~~		~~M~~	
~~Power offset ΔP_0~~		~~M~~	~~Power step when no acquisition indicator is received~~
~~Power offset ΔP_1~~		~~M~~	~~Power step when negative acquisition is received~~

NOTE: The usage of these parameters needs clarification and are also dependent on the WG1 RACH discussions.

10.2.6.6 Uplink DPCH info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
UL scrambling code	M			What short or long uplink scrambling code a certain UE should use
DPCCH channelization code	M			SF of the channelization code for control part. *[The necessity of this parameter is FFS.]*
DPDCH channelization code	~~M~~	~~1~~0 to <maxDPDCHcount>		SF of the channelization code for data part

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~UL scrambling code~~		~~M~~	~~What short or long uplink scrambling code a certain UE should use~~	
~~DPCCH channelization code~~		~~M~~	~~SF of the channelization code for control part. *[The necessity of this parameter is FFS.]*~~	
~~DPDCH channelization code~~		~~M~~	~~SF of the channelization code for data part~~	~~For each DPDCH~~

Range Bound	Explanation
MaxDPDCHcount	Maximum number of DPDCH's

~~*Range bound MaxDPDCHcount*~~

~~Maximum number of DPDCH's~~

10.2.6.7 Uplink DPCH power control info

Interference level measured for a frequency at the UTRAN access point used by UE to set DPCH initial output power.

10.2.6.8 Downlink DPCH info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
DL scrambling code	C - DLscode			
DL channelization code	~~M~~	~~1~~0 to <maxDPCHcount>		Channelization codes to be used in the downlink for DPCH

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~DL scrambling code~~		~~O~~	~~Only needed if different from DL scrambling code of Primary CCPCH~~	
~~DL channelization code~~		~~M~~	~~Channelization codes to be used in the downlink for DPCH~~	~~For each DPCH~~

Condition	Explanation

DLscode	The DL scrambling code information element is only sent if it is different from the DL scrambling code of Primary CCPCH

Range Bound	Explanation
MaxDPCHcount	Maximum number of DPCH's

~~*Condition C – DLscode*~~

~~The DL scrambling code information element is only needed if it is different from the DL scrambling code of Primary CCPCH~~

~~*Range bound MaxDPCHcount*~~

~~Maximum number of DPCH's~~

10.2.6.9 Uplink timeslot info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Slot number	~~M~~	~~1~~0 to <maxSlotcount>		Timeslot to be used in uplink (TDD only)

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~Slot number~~		~~M~~	~~Timeslot to be used in uplink (TDD only)~~	~~For each slot~~

Range Bound	Explanation
MaxSlotcount	Maximum number of slots

~~*Range bound MaxSlotcount*~~

~~Maximum number of slots~~

10.2.6.10 Downlink timeslot info

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Slot number	~~M~~	~~1~~0 to <maxSlotcount>		Timeslot to be used in downlink (TDD only)

Range Bound	Explanation
MaxSlotcount	Maximum number of slots

~~*Range bound MaxSlotcount*~~

~~Maximum number of slots~~

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~Slot number~~		~~M~~	~~Timeslot to be used in downlink (TDD only)~~	~~For each slot~~

10.2.6.11 SSDT indicator

This information element indicates the status (e.g. initiated/terminated) of the Site Selection Diversity Transmit power control (SSDT). In the direction UTRAN to UE it is used to change the SSDT status. In the direction UE to UTRAN it is used to confirm the SSDT status by the UE. The parameter 'code word set' indicates how cell identities are coded (using many bits or few, values are long, medium, or short).

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Code Word Set	M		Enumerated (long, medium, short, SSDT off)	

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Code Word Set~~		~~M~~	~~Values: long, medium, short, SSDT off~~

10.2.6.12 SSDT cell identity

This IE is used to associate a cell identity with a given radio link

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
temporary id	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~temporary id~~		~~M~~	

10.2.6.13 Gated Transmission Control info (FFS)

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Gating pattern	M		Enumerated (periodical or random) FFS	
Gating rate	M		Enumerated (no gating,1/2 gating, 1/4 gating or 1/8 gating (FFS))	
Gating activation time	M		FFS	

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Gating pattern~~		~~M~~	~~Indicates periodical or random (FFS)~~
~~Gating rate~~		~~M~~	~~Indicates no gating, 1/2 gating, 1/4 gating or 1/8 gating (FFS)~~
~~Gating activation time~~		~~M~~	~~FFS~~

10.2.6.14 Default DPCH Offset Value

Indicates the default offset value within interleaving size at a resolution of 512chip (1/5 slot) to offset CFN in the UE. This is used to distribute discontinuous transmission periods in time and also to distribute NodeB-RNC transmission traffics in time. Even though the CFN is offset by DOFF, the start timing of the interleaving will be the timing that CFN mod (interleaving size)=0 (e.g. interleaving size: 2,4,8) in both UE and SRNC.

10.2.7 Measurement Information elements

10.2.7.1 Measurement Identity Number

A reference number that is used by the UTRAN at modification and release of the measurement, and by the UE in the measurement report.

10.2.7.2 Measurement Command

One out of three different measurement commands

- Setup: Setup a new measurement.
- Modify: Modify a previously specified measurement, e.g. change the reporting criteria.
- Release: Stop a measurement and clear all information in the UE that are related to that measurement.

10.2.7.3 Measurement Type

One of the types from a predefined list where each type describes what the UE shall measure. The types are:

- Intra-frequency measurements
- Inter-frequency measurements
- Inter-system measurements
- Traffic volume measurements
- Quality measurements

10.2.7.4 Reference time difference to cell

The reference time difference to cell indicates the time difference between the primary CCPCH of the current cell and the primary CCPCH of a neighbouring cell. It is notified to UE by System Information or Measurement Control message.
In case of macro-diversity the reference is the primary CCPCH of one the cells used in the active set.

Editors note: Exactly how the reference cell is pointed out in this case in the messages is FFS.

10.2.7.5 Measured time difference to cell

The measured time difference to cell indicates the time difference which is measured by UE between CFN in the UE and the SFN of the target neighbouring cell. It is notified to SRNC by Measurement Report message or Measurement Information Element in other RRC messages.

10.2.7.6 Measurement reporting mode

Contains the type of Measurement Report transfer mode and the indication of periodical/event trigger.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Measurement Report Transfer Mode	M		enumerated (Acknowledged / Unacknowledged)	
Periodical Reporting / Event Trigger Reporting Mode	M		enumerated (Periodical reporting / Event trigger)	

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Measurement Report Transfer Mode~~		~~M~~	~~Acknowledged / Unacknowledged~~
~~Periodical Reporting / Event Trigger Reporting Mode~~		~~M~~	~~Periodical reporting / Event trigger~~

10.2.7.7 Intra-frequency cell info

Contains the measurement object information for an intra-frequency measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Primary CCPCH info	M			
Primary CCPCH DL TX power	O			
UL load	O			FFS
SFN Measurement Indicator	M			

~~*Parameters*~~	~~*REFERENCE*~~	~~*TYPE*~~	~~*NOTE*~~
~~Primary CCPCH info~~		~~M~~	
~~Primary CCPCH DL TX power~~		~~O~~	
~~UL load~~		~~O~~	~~FFS~~
~~SFN Measurement Indicator~~		~~M~~	

10.2.7.8 Inter-frequency cell info

Contains the measurement object information for an inter-frequency measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Frequency info	M			
Primary CCPCH info	M			
Primary CCPCH DL TX power	O			FFS
UL load	O			FFS
Reference time difference to cell	O			FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Frequency info~~		~~M~~	
~~Primary CCPCH info~~		~~M~~	
~~Primary CCPCH DL TX power~~		~~O~~	~~FFS~~
~~UL load~~		~~O~~	~~FFS~~
~~Reference time difference to cell~~		~~O~~	~~FFS~~

10.2.7.9 Inter-system cell info

Contains the measurement object information for an inter-system measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
System type	M		enumerated (GSM,..)	
System specific measurement info			enumerated (frequency, timeslot, colour code, output power.)	

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~System type~~		~~M~~	~~E.g. GSM~~
~~System specific measurement info~~			~~E.g frequency, timeslot, colour code, output power.~~

10.2.7.10 Traffic volume measurement object

Contains the measurement object information for a traffic volume measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Target Transport CH ID	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Target Transport CH ID~~		~~M~~	

10.2.7.11 Quality measurement object (FFS)

(Note: Only the section is made.)

10.2.7.12 Intra-frequency measurement quantity

The quantity the UE shall measure in case of intra-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Primary CCPCH RX E_c/I_0	O			One of these is mandatory
Primary CCPCH RX SIR (RSCP/ISCP)	O FFS			
Primary CCPCH RX power (RSCP)	O FFS			
Path loss	O FFS			
Path loss plus UL load	O FFS			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~Primary CCPCH RX E_c/I_0~~		~~O~~		~~One of these is mandatory~~
~~Primary CCPCH RX SIR (RSCP/ISCP)~~		~~O~~	~~FFS~~	
~~Primary CCPCH RX power (RSCP)~~		~~O~~	~~FFS~~	
~~Path loss~~		~~O~~	~~FFS~~	
~~Path loss plus UL load~~		~~O~~	~~FFS~~	

(Note: Above measurements except for Ec/Io are not concluded in WG1)

10.2.7.13 Inter-frequency measurement quantity (FFS)

The quantity the UE shall measure in case of inter-frequency measurement. It also includes the filtering of the measurements.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
E_c/I_0	O FFS			One of these is mandatory
DL Path loss	O FFS			
SIR	O FFS			
DL path loss plus UL interference	O FFS			
Received signal code power (RSCP)	O FFS			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~E_c/I_0~~		~~O~~	~~FFS~~	~~One of these is mandatory~~
~~DL Path loss~~		~~O~~	~~FFS~~	
~~SIR~~		~~O~~	~~FFS~~	
~~DL path loss plus UL interference~~		~~O~~	~~FFS~~	
~~Received signal code power (RSCP)~~		~~O~~	~~FFS~~	

10.2.7.14 Inter-system measurement quantity (FFS)

The quantity the UE shall measure in case of inter-system measurement. It also includes the filtering of the measurements.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
E_c/I_0	O FFS			One of these is mandatory
Signal strength	O			
Path loss	O FFS			
Colour code	C - GSM			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~E_c/I_0~~		~~O~~	~~FFS~~	~~One of these is mandatory~~
~~Signal strength~~		~~O~~		
~~Path loss~~		~~O~~	~~FFS~~	
~~Colour code~~		~~M~~	~~GSM only~~	

Condition	Explanation
GSM	This information element is only sent when the system being measured is a GSM system

~~*Condition C GSM*~~

~~This information elemt is conditional on the system being a GSM system~~

10.2.7.15 Traffic volume measurement quantity

Contains the measurement quantity information for a traffic volume measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
RLC buffer payload	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~RLC buffer payload~~		~~M~~	

(Note: If there is no other measurement quantity, this parameter can be removed since it can be implicitly known by UE.)

10.2.7.16 UE internal measurement quantity

The quantity the UE shall measure in case of UE internal measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
UE Tx power	O			One of these is mandatory
UE RSSI	O			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	
~~UE Tx power~~		~~O~~		~~One of these is mandatory~~
~~UE RSSI~~		~~O~~		

10.2.7.17 Quality measurement quantity (FFS)

(Note: Only the section is made.)

10.2.7.18 Intra-frequency reporting quantity

Contains the reporting quantity information for an intra-frequency measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Primary CCPCH RX E_c/I_0	O			
Primary CCPCH RX SIR (RSCP/ISCP)	O			FFS
Primary CCPCH RX power (RSCP)	O			FFS
Path loss plus UL load	O			FFS
Measured time difference to cell	O			
DL Transport CH BLER	O			
DL Transport CH BER	O			FFS
UE Transmission Power	O			
UE Position	O			
Cell ID	O			FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Primary CCPCH RX E_c/I_0~~		~~O~~	
~~Primary CCPCH RX SIR (RSCP/ISCP)~~		~~O~~	~~FFS~~
~~Primary CCPCH RX power (RSCP)~~		~~O~~	~~FFS~~
~~Path loss plus UL load~~		~~O~~	~~FFS~~
~~Measured time difference to cell~~		~~O~~	
~~DL Transport CH BLER~~		~~O~~	
~~DL Transport CH BER~~		~~O~~	~~FFS~~
~~UE Transmission Power~~		~~O~~	
~~UE Position~~		~~O~~	
~~Cell ID~~		~~O~~	~~FFS~~

(Note: It is FFS whether the reporting quantity parameters used in different measurement types can be used commonly for all types of reporting quantity. If they can, only “Reporting Quantity” is enough instead of specifying 5 types of reporting quantity.)

10.2.7.19 Intra-frequency reporting quantity for RACH reporting

Contains the reporting quantity information for an intra-frequency measurement report, which is sent on the RACH.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Primary CCPCH RX E_c/I_0	O			
Primary CCPCH RX SIR (RSCP/ISCP)	O			FFS
Primary CCPCH RX power (RSCP)	O			FFS
Path loss plus UL load	O			FFS
Measured time difference to cell	O			
DL Transport CH BLER	O			FFS
DL Transport CH BER	O			FFS
UE Transmission Power	O			FFS
UE Position	O			FFS
Cell ID	O			FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Primary CCPCH RX E_c/I_0~~		~~O~~	
~~Primary CCPCH RX SIR (RSCP/ISCP)~~		~~O~~	~~FFS~~
~~Primary CCPCH RX power (RSCP)~~		~~O~~	~~FFS~~
~~Path loss plus UL load~~		~~O~~	~~FFS~~
~~Measured time difference to cell~~		~~O~~	
~~DL Transport CH BLER~~		~~O~~	~~FFS~~
~~DL Transport CH BER~~		~~O~~	~~FFS~~
~~UE Transmission Power~~		~~O~~	~~FFS~~
~~UE Position~~		~~O~~	~~FFS~~
~~Cell ID~~		~~O~~	~~FFS~~

10.2.7.20 Inter-frequency reporting quantity (FFS)

(Note: Only the section is made.)

10.2.7.21 Inter-system reporting quantity (FFS)

(Note: Only the section is made.)

10.2.7.22 Traffic volume reporting quantity

Contains the reporting quantity information for a traffic volume measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
RLC buffer payload for each RAB	O			
DL Transport CH BLER	O			
DL Transport CH BER	O			FFS
UE Transmission Power	O			
UE Position	O			
Cell ID	O			FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~RLC buffer payload for each RAB~~		~~O~~	
~~DL Transport CH BLER~~		~~O~~	
~~DL Transport CH BER~~		~~O~~	~~FFS~~
~~UE Transmission Power~~		~~O~~	
~~UE Position~~		~~O~~	
~~Cell ID~~		~~O~~	~~FFS~~

(Note: It is FFS whether the reporting quantity parameters used in different measurement types can be used commonly for all types of reporting quantity. If they can, only “Reporting Quantity” is enough instead of specifying 5 types of reporting quantity.

10.2.7.23 Quality reporting quantity (FFS)

(Note: Only the section is made.)

10.2.7.24 Intra-frequency measurement reporting criteria

The triggering of the event-triggered reporting for an intra-frequency measurement. All events concerning intra-frequency measurements are labeled 1x where x is a, b, c…
Event 1a: A Primary CCPCH enters the Reporting Range [Note1]
Event 1b: A Primary CCPCH leaves the Reporting Range [Note2]
Event 1c: A Non-active Primary CCPCH becomes better than an active Primary CCPCH [Note3]
Event 1d: Change of best cell [Note4, 5]
Event 1e: Other types of ranking of Primary CCPCHs (FFS)

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Max number of reporting cells	M			Common parameter for all events
RACH measurement reporting parameters				Group name
Maximum number of reported cells on RACH	M			
Parameters required for each event		0 to <maxEvent count>		
Event ID	M			1a, 1b, 1c, 1d or 1e
Reporting Range	C - clause 1			In event 1a,1b
Hysteresis	C & O - clause 2			In event 1a, 1b, 1c,1d
Reporting deactivation threshold	C - clause 3			In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur. Value 0 indicates "not applicable".
Replacement activation threshold	C - clause 4			In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. Value 0 indicates "not applicable".
Time to trigger	M			Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
Amount of reporting	M			Measurement for the indicated Transport CH ID is "released" after the indicated amount of reporting from the UE itself. FFS
Reporting interval	M			Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied.

~~Parameters~~		~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Common parameter for all events~~	~~Max number of reporting cells~~		~~M~~	
~~For each event~~	~~Event ID~~		~~M~~	~~1a, 1b, 1c, 1d or 1e~~
	~~Reporting Range~~		~~C~~	~~In event 1a,1b~~
	~~Hysteresis~~		~~O~~	~~In event 1a, 1b, 1c,1d~~
	~~Reporting deactivation threshold~~		~~C~~	~~In event 1a Indicates the maximum number of cells allowed in the active set in order for event 1a to occur. Value 0 indicates "not applicable".~~

	~~Replacement activation threshold~~		~~C~~	~~In event 1c Indicates the minimum number of cells allowed in the active set in order for event 1c to occur. Value 0 indicates "not applicable".~~
	~~Time to trigger~~		~~M~~	~~Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.~~
	~~Amount of reporting~~		~~M~~	~~Measurement for the indicated Transport CH ID is "released" after the indicated amount of reporting from the UE itself. FFS~~
	~~Reporting interval~~		~~M~~	~~Indicates the interval of periodical reporting when such reporting is triggered by an event. A zero value indicates that event triggered periodical reporting shall not be applied.~~
~~For RACH measurement reporting~~	~~Maximum number of reported cells on RACH~~		~~M~~	

Condition	**Explanation**
Clause 1	This parameter is only sent in event 1a,1b
Clause 2	This parameter is only sent in event 1a,1b, 1c,1d
Clause 3	This parameter is only sent in event 1a
Clause 4	This parameter is only sent in event 1c

~~*Condition C – Clause 1*~~

~~This parameter is only sent in event 1a,1b~~

~~*Condition C& O – Clause 2*~~

~~This parameter is only sent in event 1a,1b, 1c,1d~~

~~*Condition C – Clause 3*~~

~~This parameter is only sent in event 1a~~

~~*Condition C – Clause 4*~~

~~This parameter is only sent in event 1c~~

[Note1: whether or not PCCPCH can be active is FFS]
[Note2: whether or not PCCPCH can be non-active is FFS]
[Note3: Details are FFS: It has been suggested to divide this event into two cases; I) a non-active PCCPCH exceeds the weakest active PCCPCH, II) a non-active PCCPCH exceeds the strongest active PCCPCH]
[Note4: When best PCCPCH in active set changes, all active cells are reported.]
[Note5: Whether this event can result in the reporting of non-active cells in addition to active cells is FFS.]

10.2.7.25 Inter-frequency measurement reporting criteria (FFS)

The triggering of the measurement report, e.g. periodical, event-triggered or immediate reporting for an inter-frequency measurement. Here is also specified if the measurement report should be transmitted using either acknowledged or unacknowledged data transfer on the DCCH.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~	

10.2.7.26 Inter-system measurement reporting criteria (FFS)

The triggering of the measurement report, e.g. periodical, event-triggered or immediate reporting for an inter-system measurement. Here is also specified if the measurement report should be transmitted using either acknowledged or unacknowledged data transfer on the DCCH.

10.2.7.27 Traffic volume measurement reporting criteria

Contains the measurement reporting criteria information for a traffic volume measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Parameters sent for each transport channel		1~~0~~ to <maxTrCH count>		
Transport CH ID	M			
Threshold	M			
—Time to trigger	M			Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
—Pending time after trigger	M			Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again.
—Amount of reporting	M			Measurement for the indicated Transport CH ID is “released” after the indicated amount of reporting from the UE itself. FFS
—Reporting interval	M			Indicates the interval of periodical report during the event is in the detected state FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Common parameter for all transport CH~~			

~~For each transport CH~~	~~Transport CH ID~~		~~M~~	
	~~Threshold~~		~~M~~	
	~~Time to trigger~~		~~M~~	~~Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.~~
	~~Pending time after trigger~~		~~M~~	~~Indicates the period of time during which it is forbidden to send any new measurement reports with the same measurement ID even if the triggering condition is fulfilled again.~~
	~~Amount of reporting~~		~~M~~	~~Measurement for the indicated Transport CH ID is "released" after the indicated amount of reporting from the UE itself.~~ ~~FFS~~
	~~Reporting interval~~		~~M~~	~~Indicates the interval of periodical report during the event is in the detected state~~ ~~FFS~~

Range Bound	**Explanation**
MaxTrCHcount	Maximum number of transport channels

~~*Range bound MaxTrCHcount*~~

~~Maximum number of transport channels~~

10.2.7.28 Quality measurement reporting criteria (FFS)

(Note: Only the section is made.)

10.2.7.29 UE internal measurement reporting criteria

The triggering of the event-triggered reporting for a UE internal measurement. All events concerning UE internal measurements are labelled 6x where x is a, b, c….
Event 6a: The UE Tx power becomes larger than an absolute threshold
Event 6b: The UE Tx power becomes less than an absolute threshold
Event 6c: The UE Tx power reaches its minimum value
Event 6d: The UE Tx power reaches its maximum value
Event 6e: The UE RSSI reaches the UE's dynamic receiver range

Information Element/Group name	**Presence**	**Range**	**IE type and reference**	**Semantics description**
Parameters sent for each UE internal measurement event		1~~0~~ to <maxEvent count>		
Event ID	M			6a, 6b, 6c, 6d or 6e
Time-to-trigger	M			Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
Tx power threshold	C - clause 1			In event 6a, 6b

Parameters	**REFERENCE**	**TYPE**	**NOTE**

For each event	Event ID		M	6a, 6b, 6c, 6d or 6e
	Time-to-trigger		M	Indicates the period of time between the timing of event detection and the timing of sending Measurement Report.
	Tx power threshold		C	In event 6a, 6b

Condition	Explanation
Clause 1	This parameter is only sent in event 6a,6b

~~*Condition C Clause 1*~~

~~This parameter is only sent in event 6a,6b~~

10.2.7.30 Periodical reporting criteria

Contains the periodical reporting criteria information. It is necessary only in the periodical reporting mode.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Max number of reporting cells	O			Indicates the maximum number of cells to report.
Amount of reporting	O			Measurement is “released” after the indicated amount of reporting from the UE itself
Reporting interval	O			Indicates the interval of periodical report.

~~Parameters~~		~~REFERENCE~~	~~TYPE~~	~~NOTE~~
	~~Max number of reporting cells~~		~~O~~	~~Indicates the maximum number of cells to report.~~
	~~Amount of reporting~~		~~O~~	~~Measurement is “released” after the indicated amount of reporting from the UE itself~~
	~~Reporting interval~~		~~O~~	~~Indicates the interval of periodical report.~~

10.2.7.31 Intra-frequency measurement event results

This IE contains the measurement event results that are reported to UTRAN for intra-frequency measurements.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Event ID	M			
Primary CCPCH info	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Event ID~~		~~M~~	
~~Primary CCPCH info~~		~~M~~	

10.2.7.32 Inter-frequency measurement event results (FFS)

This IE contains the measurement event results that are reported to UTRAN for inter-frequency measurements.
The further division of this IE into parameters is FFS.

10.2.7.33 Inter-system measurement event results (FFS)

This IE contains the measurement event results that are reported to UTRAN for inter-system measurements.
The further division of this IE into parameters is FFS.

10.2.7.34 Traffic volume measurement event results

Contains the event result for a traffic volume measurement.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
Transport CH ID	M			

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~Transport CH ID~~		~~M~~	

10.2.7.35 Quality measurement event results (FFS)

(Note: Only the section is made.)

10.2.7.36 Measured results

Contains the measured results of the quantity indicated optionally by Reporting Quantity in Measurement Control.
"Measured results" can be used for both event trigger mode and periodical reporting mode.

Information Element/Group name	Presence	Range	IE type and reference	Semantics description
RAB ID + RLC buffers payload	O			
PCCPCH Info + Primary CCPCH RX E_c/I_0	O			
PCCPCH Info + Primary CCPCH RX SIR (RSCP/ISCP)	O			FFS
PCCPCH Info + Primary CCPCH RX power (RSCP)	O			FFS
PCCPCH Info + Path loss	O			FFS
PCCPCH Info + Path loss plus UL load	O			FFS
PCCPCH Info + Measured time difference to cell	O			
DL Transport CH BLER	O			
DL Transport CH BER	O			FFS
UE Transmission Power	O			
UE Position	O			
Cell ID	O			FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~RAB ID~~ ~~+ RLC buffers payload~~		~~O~~	
~~PCCPCH Info~~ ~~+ Primary CCPCH RX E_c/I_0~~		~~O~~	
~~PCCPCH Info~~ ~~+ Primary CCPCH RX SIR (RSCP/ISCP)~~		~~O~~	~~FFS~~
~~PCCPCH Info~~ ~~+ Primary CCPCH RX power (RSCP)~~		~~O~~	~~FFS~~
~~PCCPCH Info~~ ~~+ Path loss~~		~~O~~	~~FFS~~
~~PCCPCH Info~~ ~~+ Path loss plus UL load~~		~~O~~	~~FFS~~
~~PCCPCH Info~~ ~~+ Measured time difference to cell~~		~~O~~	
~~DL Transport CH BLER~~		~~O~~	
~~DL Transport CH BER~~		~~O~~	~~FFS~~
~~UE Transmission Power~~		~~O~~	
~~UE Position~~		~~O~~	
~~Cell ID~~		~~O~~	~~FFS~~

10.2.7.37 SFN Measurement Indicator

Indicates whether the UE should read cell SFN of the target neighbour cell or not.

10.2.8 Other Information elements

10.2.8.1 BCCH modification info

Indicates modification of the System Information on BCCH.

Information Element/Group name	**Presence**	**Range**	**IE type and reference**	**Semantics description**
BCCH modification type	M			FFS
Modification time	O			FFS

~~Parameters~~	~~REFERENCE~~	~~TYPE~~	~~NOTE~~
~~BCCH modification type~~		~~M~~	~~FFS~~
~~Modification time~~		~~O~~	~~FFS~~

10.2.8.2 Inter-system message

This Information Element contains one or several messages that are structured and coded according to the specification used for the system type indicated by the first parameter.

Information Element/Group name	**Presence**	**Range**	**IE type and reference**	**Semantics description**
System type	M		Enumerated (GSM,..)	
Message(s)	M			Formatted and coded according to specification for the indicated system type.

Parameters	REFERENCE	TYPE	NOTE
System type		M	E.g. GSM
Message(s)		M	Formatted and coded according to specification for the indicated system type.