TSG-RAN Meeting #26
Athen, Greece, 08-10 December 2004

RP-040482
Agenda item 7.3.5

Source: TSG-RAN WG2.

Title: CRs to 25.331 Rel-5 (2) (and Rel-6)

The following CRs are in RP-040482:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.331	2456	1	Rel-5	Correction to cell selection and reselection parameters	F	5.10.0	5.11.0	R2-042634	TEI5
25.331	2457	1	Rel-6	Correction to cell selection and reselection parameters	A	6.3.0	6.4.0	R2-042635	TEI5
25.331	2458	1	Rel-5	Clarification the PDCP capability- Max HC context space	F	5.10.0	5.11.0	R2-042683	TEI5
25.331	2459	1	Rel-6	Clarification the PDCP capability- Max HC context space	A	6.3.0	6.4.0	R2-042684	TEI5
25.331	2460	-	Rel-5	Corrections to IE “WAIT TIME” = 0	F	5.10.0	5.11.0	R2-042624	TEI5
25.331	2461	-	Rel-6	Corrections to IE “WAIT TIME” = 0	A	6.3.0	6.4.0	R2-042625	TEI5
25.331	2462	1	Rel-5	RRC transaction identifier in the MEASUREMENT CONTROL message	F	5.10.0	5.11.0	R2-042699	TEI5
25.331	2463	1	Rel-6	RRC transaction identifier in the MEASUREMENT CONTROL message	A	6.3.0	6.4.0	R2-042690	TEI5
25.331	2464	-	Rel-5	Correction to intra-frequency measurement handling in SIB11	F	5.10.0	5.11.0	R2-042628	TEI5
25.331	2465	-	Rel-6	Correction to intra-frequency measurement handling in SIB11	A	6.3.0	6.4.0	R2-042629	TEI5
25.331	2469	1	Rel-5	Clarification of Radio Bearer Downlink Ciphering Activation Time Info	F	5.10.0	5.11.0	R2-042721	TEI5
25.331	2470	2	Rel-6	Clarification of Radio Bearer Downlink Ciphering Activation Time Info	F	6.3.0	6.4.0	R2-042727	TEI6
25.331	2471	1	Rel-5	TFC Subset Variable Usage and Application of Transport Format Combination Subset	F	5.10.0	5.11.0	R2-042696	TEI5
25.331	2472	1	Rel-6	TFC Subset Variable Usage and Application of Transport Format Combination Subset	A	6.3.0	6.4.0	R2-042697	TEI5

3GPP TSG-RAN WG2 Meeting #45 ***Tdoc ⌘R2-042634***
Shin-Yokohama, Japan, November 15th – 19 th, 2004

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2456** ⌘ **rev** **1** ⌘ Current version: **5.10.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Correction to cell selection and reselection parameters
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	17th November, 2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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

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

Reason for change: ⌘ Expierence from commercial W-CDMA networks have shown that CELL_FACH performance needs to be improved while still optimising for reasonable long DRX cycles to safe UE battery consumption. See R2-042361 for detail.

Summary of change: ⌘ It is proposed to add information elements in SIB4 in the following manner.

1) Treselection for CELL_FACH with its step size of 200 ms and its range (0..6.2).
2) Treselection for CELL/URA_PCH with its step size of 1 second (existing value)
3) Qhyst for CELL_FACH and CELL_PCH/URA_PCH, resepectively with their step size of ~~0.5~~ 1 dB.

If Treselection for CELL_FACH is broadcast in SIB4, the UE in CELL_FACH uses the value as Treselection. If not, it uses the exisiting Treselection. If Treselection for CELL/URA_PCH is broadcase in SIB4, the UE in CELL_PCH or URA_PCH uses the value as Treselection. If not, it uses the exisiting Treselection.

If Qhyst for CELL_FACH is broadcast in SIB4, the UE in CELL_FACH uses the value as Qhyst. If not, it uses the exisiting Qhyst. If Qhyst for CELL/URA_PCH is broadcast in SIB4, the UE in CELL_PCH or URA_PCH uses the value as Qhyst. If not, it uses the exisiting Qhyst.

Isolated Impacts:
· CR implemented only by the UTRAN: No interoperability issues foreseen.
· CR implemented only by the UE: No interoperability issues foreseen.

Changes made to rev1 are highlighted in water colour

Consequences if not approved:	⌘	The timing of cell selection and reselection in connected mode is not optimized, resulting in failure of RACH transmission and FACH/PCH reception failure or unwanted ping-pong effect. Optimised parametrisation or cell reselection is not possible resulting in non optimised cell reselection performance or non-optimised UE standby times.

Clauses affected:	⌘	Section 10.3.2.3			
		Y	**N**		
Other specs Affected:	⌘	**X**		Other core specifications	25.304
		X		Test specifications	34.123 & 34.108
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

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

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

1.1.1.1. 10.3.2.3 Cell selection and re-selection info for SIB3/4

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Mapping Info	OP		Mapping info 10.3.2.5	This IE should not be sent.	
Cell selection and reselection quality measure	MP		Enumerated (CPICH Ec/N0, CPICH RSCP)	Choice of measurement (CPICH Ec/N0 or CPICH RSCP) to use as quality measure Q for FDD cells. This IE is also sent to the UE in SIB11/12. Both occurrences of the IE should be set to the same value.	
CHOICE *mode*	MP				
>FDD					
>>$S_{intrasearch}$	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{intersearch}$	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{searchHCS}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>RAT List	OP	1 to <maxOtherRAT>			
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)		
>>>$S_{search,RAT}$	MP		Integer (-32..20 by step of 2)	In case the value 20 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]	
>>>$S_{HCS,RAT}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>$S_{limit,SearchRAT}$	MP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>Qqualmin	MP		Integer (-	Ec/N0, [dB]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			24..0)		
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]	
>> $Delta_{Qrxlevmin}$	CV-*Delta*		Integer(-4..-2 by step of 2)	If present, the actual value of Qrxlevmin = Qrxlevmin + $Delta_{Qrxlevmin}$	REL-5
>TDD					
>>$S_{intrasearch}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{intersearch}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{searchHCS}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>RAT List	OP	1 to <maxOtherRAT>			
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)		
>>>$S_{search,RAT}$	MP		Integer (-105..91 by step of 2)	In case the value 91 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]	
>>>$S_{HCS,RAT}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>$S_{limit,SearchRAT}$	MP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>Delta$_{Qrxlevmin}$	CV-*Delta*		Integer(-4..-2 by step of 2)	If present, the actual value of Qrxlevmin = Qrxlevmin + Delta$_{Qrxlevmin}$	REL-5
Qhyst1$_S$	MP		Integer (0..40 by step of 2)	[4] [dB]	
Qhyst1$_{S,PCH}$	CV-*SIB4*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst1$_S$ for UE in CELL_PCH or URA_PCH state [4] [dB]	REL-5
Qhyst1$_{S,FACH}$	CV-*SIB4*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst1$_S$ for UE in CELL_FACH state [4] [dB]	REL-5
Qhyst2$_S$	CV-*FDD-Quality-Measure*		Integer (0..40 by step of 2)	Default value is Qhyst1$_S$ [4] [dB]	
Qhyst2$_{S,PCH}$	CV-*SIB4-FDD-Qualtiy-Measure*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst2$_S$ for UE using CPICH Ec/No quality measure in CELL_PCH or URA_PCH state. Default value is Qhyst1$_{S,PCH}$ [4] [dB]	REL-5
Qhyst2$_{S,FACH}$	CV-*SIB4-FDD-Qualtiy-Measure*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst2$_S$ for UE using CPICH Ec/No quality measure in CELL_FACH state. Default value is Qhyst1$_{S,FACH}$ [4] [dB]	REL-5
Treselection$_S$	MP		Integer (0..31)	[s]	
Treselection$_{S,PCH}$	CV-*SIB4*		Integer (0..31)	If present, it is used as Treselection$_S$ for UE in CELL_PCH or URA_PCH state [4] [s]	REL-5
Treselection$_{S,FACH}$	CV-*SIB4*		Integer (0..6.2 by step of 0.2)	If present, it is used as Treselection$_S$ for UE in CELL_FACH state [4] [s]	REL-5
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12		
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.39	[dBm] UE_TXPWR_MAX_RACH in [4].	

Condition	Explanation
FDD-Quality-Measure	The IE is not needed if the IE "Cell selection and reselection quality measure" has the value CPICH RSCP, otherwise the IE is mandatory and has a default value.
Delta	This IE is optional if the value of Qrxlevmin is below –115dBm. It is not needed otherwise.
SIB4	This IE is optional if the IE “Cell selection and re-selection info for SIB3/4” is included in SIB type 4. It is not needed otherwise.
SIB4-FDD-Qualtiy-Measure	This IE is optional if the IE “Cell selection and re-selection info for SIB3/4” is included in SIB type 4, and the IE "Cell selection and reselection quality measure" has the value CPICH Ec/N0. It is not needed otherwise.

1.2. 11.3 Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=

BEGIN
-- **************************************************
--
--     MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- **************************************************

[...]

SysInfoType4 ::=                    SEQUENCE {
    -- UTRAN mobility IEs
        cellIdentity                    CellIdentity,
        cellSelectReselectInfo          CellSelectReselectInfoSIB-3-4,
        cellAccessRestriction           CellAccessRestriction,
    -- Extension mechanism for non- release99 information
        v4b0NonCriticalExtensions       SEQUENCE {
            sysInfoType4-v4b0ext            SysInfoType4-v4b0ext-IEs,
            v590NonCriticalExtension        SEQUENCE {
                sysInfoType4-v590ext            SysInfoType4-v590ext,
                v5b0NonCriticalExtension        SEQUENCE {
                    sysInfoType4-v5b0ext            SysInfoType4-v5b0ext,
                    nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
                } OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
}

[...]

SysInfoType4-v590ext ::= SEQUENCE {
    cellSelectReselectInfo-v590ext      CellSelectReselectInfo-v590ext      OPTIONAL
}

SysInfoType4-v5b0ext ::= SEQUENCE {
    cellSelectReselectInfoPCHFACH-v5b0ext   CellSelectReselectInfoPCHFACH-v5b0ext       OPTIONAL
}

[...]


CellSelectReselectInfo-v590ext ::= SEQUENCE {
    deltaQrxlevmin                  DeltaQrxlevmin                  OPTIONAL,
    deltaQhcs                       DeltaRSCP                       OPTIONAL
}

CellSelectReselectInfoPCHFACH-v5b0ext ::= SEQUENCE {
    q-Hyst-l-S-PCH              Q-Hyst-S-Fine                       OPTIONAL,
    q-Hyst-l-S-FACH             Q-Hyst-S-Fine                       OPTIONAL,
    q-Hyst-2-S-PCH              Q-Hyst-S-Fine                       OPTIONAL,
    q-Hyst-2-S-FACH             Q-Hyst-S-Fine                       OPTIONAL,
    t-Reselection-S-PCH         T-Reselection-S                     OPTIONAL,
    t-Reselection-S-FACH        T-Reselection-S-Fine                OPTIONAL
}

[...]
```

```
-- Actual value Q-Hyst-S = IE value * 2
Q-Hyst-S ::=      INTEGER (0..20)

-- Actual value Q-Hyst-S-Fine = IE value * 0.5
Q-Hyst-S-Fine ::= INTEGER (0..4080)

[...]


T-Reselection-S ::=     INTEGER (0..31)

-- Actual value T-Reselection-S-Fine = IE value * 0.2
T-Reselection-S-Fine ::=INTEGER (0..31)
```

3GPP TSG-RAN WG2 Meeting #45 ***Tdoc ⌘R2-042635***
Shin-Yokohama, Japan, November 15th – 19th, 2004

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2457** ⌘ **rev** **1** ⌘ Current version: **6.3.0** ⌘

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Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Correction to cell selection and reselection parameters
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	17th November, 2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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

Reason for change: ⌘ Expierence from commercial W-CDMA networks have shown that CELL_FACH performance needs to be improved while still optimising for reasonable long DRX cycles to safe UE battery consumption. See R2-042361 for detail.

Summary of change: ⌘ It is proposed to add information elements in SIB4 in the following manner.

1) Treselection for CELL_FACH with its step size of 200 ms and its range (0..6.2).
2) Treselection for CELL/URA_PCH with its step size of 1 second (existing value)
3) Qhyst for CELL_FACH and CELL_PCH/URA_PCH, resepectively with their step size of ~~0.5~~ 1 dB.

If Treselection for CELL_FACH is broadcast in SIB4, the UE in CELL_FACH uses the value as Treselection. If not, it uses the exisiting Treselection. If Treselection for CELL/URA_PCH is broadcase in SIB4, the UE in CELL_PCH or URA_PCH uses the value as Treselection. If not, it uses the exisiting Treselection.

If Qhyst for CELL_FACH is broadcast in SIB4, the UE in CELL_FACH uses the value as Qhyst. If not, it uses the exisiting Qhyst. If Qhyst for CELL/URA_PCH is broadcast in SIB4, the UE in CELL_PCH or URA_PCH uses the value as Qhyst. If not, it uses the exisiting Qhyst.

Isolated Impacts:
· CR implemented only by the UTRAN: No interoperability issues foreseen.
· CR implemented only by the UE: No interoperability issues foreseen.

Changes made to rev1 are highlighted in water colour

Consequences if ⌘ The timing of cell selection and reselection in connected mode is not optimized,

not approved:	resulting in failure of RACH transmission and FACH/PCH reception failure or unwanted ping-pong effect. Optimised parametrisation or cell reselection is not possible resulting in non optimised cell reselection performance or non-optimised UE standby times.

Clauses affected:	⌘	Section 10.3.2.3			
		Y	**N**		
Other specs Affected:	⌘	**X**		Other core specifications	⌘ 25.304
		X		Test specifications	34.123 & 34.108
			X	O&M Specifications	
Other comments:	⌘				

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1.1.1.1. 10.3.2.3 Cell selection and re-selection info for SIB3/4

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Mapping Info	OP		Mapping info 10.3.2.5	This IE should not be sent.	
Cell selection and reselection quality measure	MP		Enumerated (CPICH Ec/N0, CPICH RSCP)	Choice of measurement (CPICH Ec/N0 or CPICH RSCP) to use as quality measure Q for FDD cells. This IE is also sent to the UE in SIB11/12. Both occurrences of the IE should be set to the same value.	
CHOICE *mode*	MP				
>FDD					
>>$S_{intrasearch}$	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{intersearch}$	OP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{searchHCS}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>RAT List	OP	1 to <maxOtherRAT>			
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)		
>>>$S_{search,RAT}$	MP		Integer (-32..20 by step of 2)	In case the value 20 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]	
>>>$S_{HCS,RAT}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>$S_{limit,SearchRAT}$	MP		Integer (-32..20 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>Qqualmin	MP		Integer (-	Ec/N0, [dB]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			24..0)		
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]	
>> $Delta_{Qrxlevmin}$	CV-*Delta*		Integer(-4..-2 by step of 2)	If present, the actual value of Qrxlevmin = Qrxlevmin + $Delta_{Qrxlevmin}$	REL-5
>TDD					
>>$S_{intrasearch}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{intersearch}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>$S_{searchHCS}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>RAT List	OP	1 to <maxOtherRAT>			
>>>RAT identifier	MP		Enumerated (GSM, cdma2000)		
>>>$S_{search,RAT}$	MP		Integer (-105..91 by step of 2)	In case the value 91 is received the UE shall consider this IE as if it was absent according to [4] If a negative value is received the UE shall consider the value to be 0. [dB]	
>>>$S_{HCS,RAT}$	OP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>>$S_{limit,SearchRAT}$	MP		Integer (-105..91 by step of 2)	If a negative value is received the UE shall consider the value to be 0. [4] [dB]	
>>Qrxlevmin	MP		Integer (-115..-25 by step of 2)	RSCP, [dBm]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>Delta$_{Qrxlevmin}$	CV-*Delta*		Integer(-4..-2 by step of 2)	If present, the actual value of Qrxlevmin = Qrxlevmin + Delta$_{Qrxlevmin}$	REL-5
Qhyst1$_S$	MP		Integer (0..40 by step of 2)	[4] [dB]	
Qhyst1$_{S,PCH}$	CV-*SIB4*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst1$_S$ for UE in CELL_PCH or URA_PCH state [4] [dB]	REL-5
Qhyst1$_{S,FACH}$	CV-*SIB4*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst1$_S$ for UE in CELL_FACH state [4] [dB]	REL-5
Qhyst2$_S$	CV-*FDD-Quality-Measure*		Integer (0..40 by step of 2)	Default value is Qhyst1$_S$ [4] [dB]	
Qhyst2$_{S,PCH}$	CV-*SIB4-FDD-Qualtiy-Measure*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst2$_S$ for UE using CPICH Ec/No quality measure in CELL_PCH or URA_PCH state. Default value is Qhyst1$_{S,PCH}$ [4] [dB]	REL-5
Qhyst2$_{S,FACH}$	CV-*SIB4-FDD-Qualtiy-Measure*		Integer (0..40 ~~by step of 0.5~~)	If present, it is used as Qhyst2$_S$ for UE using CPICH Ec/No quality measure in CELL_FACH state. Default value is Qhyst1$_{S,FACH}$ [4] [dB]	REL-5
Treselection$_S$	MP		Integer (0..31)	[s]	
Treselection$_{S,PCH}$	CV-*SIB4*		Integer (0..31)	If present, it is used as Treselection$_S$ for UE in CELL_PCH or URA_PCH state [4] [s]	REL-5
Treselection$_{S,FACH}$	CV-*SIB4*		Integer (0..6.2 by step of 0.2)	If present, it is used as Treselection$_S$ for UE in CELL_FACH state [4] [s]	REL-5
HCS Serving cell Information	OP		HCS Serving cell information 10.3.7.12		
Maximum allowed UL TX power	MP		Maximum allowed UL TX power 10.3.6.39	[dBm] UE_TXPWR_MAX_RACH in [4].	

Condition	Explanation
FDD-Quality-Measure	The IE is not needed if the IE "Cell selection and reselection quality measure" has the value CPICH RSCP, otherwise the IE is mandatory and has a default value.
Delta	This IE is optional if the value of Qrxlevmin is below –115dBm. It is not needed otherwise.
SIB4	This IE is optional if the IE “Cell selection and re-selection info for SIB3/4” is included in SIB type 4. It is not needed otherwise.
SIB4-FDD-Qualtiy-Measure	This IE is optional if the IE “Cell selection and re-selection info for SIB3/4” is included in SIB type 4, and the IE "Cell selection and reselection quality measure" has the value CPICH Ec/N0. It is not needed otherwise.

1.2. 11.3 Information element definitions

```
InformationElements DEFINITIONS AUTOMATIC TAGS ::=

BEGIN
-- **************************************************
--
--     MEASUREMENT INFORMATION ELEMENTS (10.3.7)
--
-- **************************************************

[...]

SysInfoType4 ::=                    SEQUENCE {
    -- UTRAN mobility IEs
        cellIdentity                    CellIdentity,
        cellSelectReselectInfo          CellSelectReselectInfoSIB-3-4,
        cellAccessRestriction           CellAccessRestriction,
    -- Extension mechanism for non- release99 information
        v4b0NonCriticalExtensions       SEQUENCE {
            sysInfoType4-v4b0ext            SysInfoType4-v4b0ext-IEs,
            v590NonCriticalExtension        SEQUENCE {
                sysInfoType4-v590ext            SysInfoType4-v590ext,
                v5b0NonCriticalExtension        SEQUENCE {
                    sysInfoType4-v5b0ext            SysInfoType4-v5b0ext,
                    nonCriticalExtensions           SEQUENCE {}                     OPTIONAL
                } OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
}

[...]

SysInfoType4-v590ext ::= SEQUENCE {
    cellSelectReselectInfo-v590ext      CellSelectReselectInfo-v590ext      OPTIONAL
}

SysInfoType4-v5b0ext ::= SEQUENCE {
    cellSelectReselectInfoPCHFACH-v5b0ext   CellSelectReselectInfoPCHFACH-v5b0ext       OPTIONAL
}

[...]


CellSelectReselectInfo-v590ext ::= SEQUENCE {
    deltaQrxlevmin                  DeltaQrxlevmin                  OPTIONAL,
    deltaQhcs                       DeltaRSCP                       OPTIONAL
}

CellSelectReselectInfoPCHFACH-v5b0ext ::= SEQUENCE {
    q-Hyst-l-S-PCH              Q-Hyst-S-Fine                       OPTIONAL,
    q-Hyst-l-S-FACH             Q-Hyst-S-Fine                       OPTIONAL,
    q-Hyst-2-S-PCH              Q-Hyst-S-Fine                       OPTIONAL,
    q-Hyst-2-S-FACH             Q-Hyst-S-Fine                       OPTIONAL,
    t-Reselection-S-PCH         T-Reselection-S                     OPTIONAL,
    t-Reselection-S-FACH        T-Reselection-S-Fine                OPTIONAL
}

[...]
```

```
-- Actual value Q-Hyst-S = IE value * 2
Q-Hyst-S ::=      INTEGER (0..20)

-- Actual value Q-Hyst-S-Fine = IE value * 0.5
Q-Hyst-S-Fine ::= INTEGER (0..4080)

[...]


T-Reselection-S ::=     INTEGER (0..31)

-- Actual value T-Reselection-S-Fine = IE value * 0.2
T-Reselection-S-Fine ::=INTEGER (0..31)
```

3GPP TSG-RAN2 Meeting #45
Shin Yokohama, Japan, 15-19 Nov 2004

Tdoc ⌘R2-042683

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2458** ⌘**rev** **1** ⌘ Current version: **5.10.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Clarification the PDCP capability- Max HC context space
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	16/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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

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

Reason for change: ⌘ 25.331clause 10.3.4.2 specifies" (1)MAX_HEADER must be at least 60 octets and at most 65535 octets.(2) TCP_SPACE must be at least 3 and at most 255.(3)NON_TCP_SPACE must be at least 3 and at most 65535.".

25.306 clause 4.1 specifies" The context space for a single RFC 2507 protocol entity calculates from:(2 * (TCP_SPACE + 1 + NON_ TCP_SPACE + 1) * MAX_HEADER)".

With the formula described on 25.306,The value range of "Maximum header compression context space" can't be less than (2*(3+1+3+1)*60 = 960 .

25.331 clause 10.3.3.24 specifies the value range of "Max HC context space" is from 512 to 131072.

So the value range specified on 10.3.3.24 is not consistent with 10.3.4.2.

Summary of change: ⌘ Clause 10.3.3.24 is changed to make clear that the value range of Max HC context space is from 1024 to 131072.

The corresponding value in the ASN.1 is labelled "dummy". [The Max HC context space parameter is sent to the RAN in the UE capabilities. The action taken by the RAN if "dummy" is received is a RAN implementation issue. No clarifying text is needed.]

Consequences if not approved: ⌘ If this CR is not approved, RAN can't configure header compress parameters if the Max HC context space including in the PDCP capability is 512.

Clauses affected:	⌘	10.3.3.24, 11.3, 11.5			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

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

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

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

10.3.3.24 PDCP capability

Indicates which algorithms and which value range of their parameters are supported by the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Support for lossless SRNS relocation	MP		Boolean	TRUE means supported	
Support for RFC2507	MP		Boolean	TRUE means supported	
>Max HC context space	MP		Integer(~~512,~~ 1024, 2048, 4096, 8192,		
			16384, 32768, 65536, 131072)	Note 1	REL-5
Support for RFC 3095	CV-*not_iRAT_HoInfo*		Boolean	TRUE means supported	REL-4
>Maximum number of ROHC context sessions	MD		Integer(2, 4, 8, 12, 16, 24, 32, 48, 64, 128, 256, 512, 1024, 16384)	Default value is 16.	REL-4
>Reverse decompression depth	MD		Integer (0..65535)	Default value is 0 (reverse decompression is not supported).	REL-4
>Support for RFC 3095 context relocation	MP		Boolean	TRUE means supported	REL-5
Note 1: The IE "Max HC context space" values 16384, 32768, 65536 and 131072 are not used in the INTER RAT HANDOVER INFO message.					

Condition	Explanation
not_iRAT_HoInfo	The IE is not needed in the INTER RAT HANDOVER INFO message. Otherwise, it is mandatory present.

```
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace ::=                   ENUMERATED  {
                                            by512dummy, by1024, by2048, by4096,
                                            by8192 }

MaxHcContextSpace-r5-ext ::=            ENUMERATED  {
                                            by16384, by32768, by65536, by131072 }


-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace-r5 ::=                ENUMERATED {
                                            by512dummy, by1024, by2048, by4096, by8192,
                                            by16384, by32768, by65536, by131072 }
```

3GPP TSG-RAN2 Meeting #45
Shin Yokohama, Japan, 15-19 Nov 2004

Tdoc ⌘R2-042684

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2459** ⌘ **rev** **1** ⌘ Current version: **6.3.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Clarification the PDCP capability- Max HC context space
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	16/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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

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

Reason for change: ⌘

25.331clause 10.3.4.2 specifies" (1)MAX_HEADER must be at least 60 octets and at most 65535 octets.(2) TCP_SPACE must be at least 3 and at most 255.(3)NON_TCP_SPACE must be at least 3 and at most 65535.".

25.306 clause 4.1 specifies" The context space for a single RFC 2507 protocol entity calculates from:(2 * (TCP_SPACE + 1 + NON_ TCP_SPACE + 1) * MAX_HEADER)".

With the formula described on 25.306,The value range of "Maximum header compression context space" can't be less than (2*(3+1+3+1)*60 = 960 .

25.331 clause 10.3.3.24 specifies the value range of "Max HC context space" is from 512 to 131072.

So the value range specified on 10.3.3.24 is not consistent with 10.3.4.2.

Summary of change: ⌘

Clause 10.3.3.24 is changed to make clear that the value range of Max HC context space is from 1024 to 131072.

The corresponding value in the ASN.1 is labelled "dummy". [The Max HC context space parameter is sent to the RAN in the UE capabilities. The action taken by the RAN if "dummy" is received is a RAN implementation issue. No clarifying text is needed.]

Consequences if not approved: ⌘

If this CR is not approved, RAN can't configure header compress parameters if the Max HC context space including in the PDCP capability is 512.

Clauses affected:	⌘	10.3.3.24, 11.3, 11.5			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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

10.3.3.24 PDCP capability

Indicates which algorithms and which value range of their parameters are supported by the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Support for lossless SRNS relocation	MP		Boolean	TRUE means supported	
Support for RFC2507	MP		Boolean	TRUE means supported	
>Max HC context space	MP		Integer(~~512,~~ 1024, 2048, 4096, 8192,		
			16384, 32768, 65536, 131072)	Note 1	REL-5
Support for RFC 3095	CV-*not_iRAT_HoInfo*		Boolean	TRUE means supported	REL-4
>Maximum number of ROHC context sessions	MD		Integer(2, 4, 8, 12, 16, 24, 32, 48, 64, 128, 256, 512, 1024, 16384)	Default value is 16.	REL-4
>Reverse decompression depth	MD		Integer (0..65535)	Default value is 0 (reverse decompression is not supported).	REL-4
>Support for RFC 3095 context relocation	MP		Boolean	TRUE means supported	REL-5
Note 1: The IE "Max HC context space" values 16384, 32768, 65536 and 131072 are not used in the INTER RAT HANDOVER INFO message.					

Condition	Explanation
not_iRAT_HoInfo	The IE is not needed in the INTER RAT HANDOVER INFO message. Otherwise, it is mandatory present.

```
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace ::=                   ENUMERATED  {
                                            by512dummy, by1024, by2048, by4096,
                                            by8192 }

MaxHcContextSpace-r5-ext ::=            ENUMERATED  {
                                            by16384, by32768, by65536, by131072 }


-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
MaxHcContextSpace-r5 ::=                ENUMERATED {
                                            by512dummy, by1024, by2048, by4096, by8192,
                                            by16384, by32768, by65536, by131072 }
```

3GPP TSG-RAN WG2 Meeting #45
Yokohama, Japan, 15-19 November 2004

Tdoc ⌘R2-042624

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2460** ⌘**rev** **-** ⌘ Current version: **5.10.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Corrections to IE "WAIT TIME" = 0
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	15/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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

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

Reason for change: ⌘ At UE reception of message RRC CONNECTION REJECT, and IE "WAIT TIME" = 0, TS 25.331, section 8.1.3.9 currently does not specify a unique UE behaviour in the following cases:

1. If IE "inter-RAT info" is present and IE "WAIT TIME" = 0: UE shall act both according to

   a) (in case no cell is found in the other RAT,) wait WAIT TIME = 0, revert to the old cell and send another RRC CONNECTION REQUEST message,and

   b) enter idle mode (without attempting to select a cell of the other RAT).

2. If neither the IEs "frequency info" nor "inter-RAT info" are present and IE "WAIT TIME" = 0: UE shall act both according to

   a) wait WAIT TIME = 0 and send another RRC CONNECTION REQUEST message, and

   b) enter idle mode (without sending another RRC CONNECTION REQUEST message).

Summary of change: ⌘ If IE "inter-RAT info" is present and IE WAIT TIME = 0, UE behaviour is not specified.

If neither the IEs "frequency info" nor "inter-RAT info" are present and IE WAIT

		TIME = 0, UE shall enter idle mode. **Isolated Impact Analysis** Functionality corrected: RRC Connection Reject Isolated impact statement: Correction to a function where specification is ambiguous. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. **Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.**
Consequences if not approved:	⌘	UE behaviour is not uniquely specified.

Clauses affected:	⌘	8.1.3.9			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

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

8.1.3.9 Reception of an RRC CONNECTION REJECT message by the UE

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

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

If the values are identical, the UE shall:

1> stop timer T300; and

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

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

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

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

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

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

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

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

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

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

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

4> reset counter V300;

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

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

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

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

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

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

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

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

4> increment counter V300;

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

2> if V300 is greater than N300:

3> enter idle mode;

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

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

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

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

3> the UE behaviour is not specified.

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

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

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

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

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

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

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

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

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

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

4> increment counter V300;

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

2> if V300 is greater than N300:

3> enter idle mode;

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

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

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

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

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

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

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

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

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

3> increment counter V300;

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

2> if V300 is greater than N300:

3> enter idle mode;

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

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

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

2> enter idle mode;

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

2> consider the RRC establishment procedure to be unsuccessful;

2> the procedure ends.

3GPP TSG-RAN WG2 Meeting #45
Yokohama, Japan, 15-19 November 2004

Tdoc ⌘R2-042625

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2461** ⌘**rev** **-** ⌘ Current version: **6.3.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Corrections to IE "WAIT TIME" = 0
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	15/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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

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

Reason for change: ⌘ At UE reception of message RRC CONNECTION REJECT, and IE "WAIT TIME" = 0, TS 25.331, section 8.1.3.9 currently does not specify a unique UE behaviour in the following cases:

1. If IE "inter-RAT info" is present and IE "WAIT TIME" = 0: UE shall act both according to

   a) (in case no cell is found in the other RAT,) wait WAIT TIME = 0, revert to the old cell and send another RRC CONNECTION REQUEST message,and

   b) enter idle mode (without attempting to select a cell of the other RAT).

2. If neither the IEs "frequency info" nor "inter-RAT info" are present and IE "WAIT TIME" = 0: UE shall act both according to

   a) wait WAIT TIME = 0 and send another RRC CONNECTION REQUEST message, and

   b) enter idle mode (without sending another RRC CONNECTION REQUEST message).

Summary of change: ⌘ If IE "inter-RAT info" is present and IE WAIT TIME = 0, UE behaviour is not specified.

If neither the IEs "frequency info" nor "inter-RAT info" are present and IE WAIT

		TIME = 0, UE shall enter idle mode. **Isolated Impact Analysis** Functionality corrected: RRC Connection Reject Isolated impact statement: Correction to a function where specification is ambiguous. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise. **Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.**
Consequences if not approved:	⌘	UE behaviour is not uniquely specified.

Clauses affected:	⌘	8.1.3.9			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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

8.1.3.9 Reception of an RRC CONNECTION REJECT message by the UE

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

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

If the values are identical, the UE shall:

1> stop timer T300; and

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

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

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

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

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

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

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

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

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

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

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

4> reset counter V300;

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

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

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

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

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

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

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

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

4> increment counter V300;

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

2> if V300 is greater than N300:

3> enter idle mode;

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

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

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

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

3> the UE behaviour is not specified.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4> increment counter V300;

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

2> if V300 is greater than N300:

3> enter idle mode;

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

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

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

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

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

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

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

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

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

3> increment counter V300;

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

2> if V300 is greater than N300:

3> enter idle mode;

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

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

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

2> enter idle mode;

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

2> consider the RRC establishment procedure to be unsuccessful;

2> the procedure ends.

3GPP TSG-RAN WG2 Meeting #45
Shin Yokohama, Japan, 15 – 19 November 2004

Tdoc ⌘R2-042699
Revised R2-042626

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2462** ⌘**rev** **1** ⌘ Current version: **5.10.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	RRC transaction identifier in the MEASUREMENT CONTROL message
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	17/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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

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

Reason for change:	⌘	The value range of the RRC transaction identifier has been extended in the MEASUREMENT CONTROL and the MEASUREMENT CONTROL FAILURE messages. However, it should be noted that a pre-Rel-5 UTRAN does not send extended values. Even a Rel-5 UTRAN might exclude the extension of the RRC transaction identifier in the MEASUREMENT CONTROL message, if none of the Rel-5 measurement control options are used. Different interoperability scenarios could thus be foreseen. The extension of the RRC transaction identifier is not well defined in the tabular. It is defined such that there are two separate integers: one of range 0..3 and another (conditional) one of range 0..15. The intention must be that there is only one integer, which is either of range 0..3 or of range 0..15. The basic range (0..3) is mandatory present. The presence of the extension (4..15) depends on the conditions.
Summary of change:	⌘	It is clarified (10.3.3.36) that there is only one integer, with two different ranges, depending on the conditions. It is also clarified that the extension of the value range is optionally present, in order to cover the different interoperability scenarios.
Consequences if not approved:	⌘	It is unclear how the RRC transaction identifier should be treated by the UE. It would be unclear how an RRC transaction identifier received using one of the formats relates to one received using the other format: if they are the same or two separate varaibles. **Isolated Impact Analysis** The expected behaviour of neither the UE nor the UTRAN is changed. No

	interoperability issues are foreseen.

Clauses affected:	⌘	10.3.3.36			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

10.3.3.36 RRC transaction identifier

This IE contains an identification of the RRC procedure transaction local for the type of the message this IE was included within.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE *RRC Tr Id type*	MP				REL-5
>Normal					
>>RRC transaction identifier	MP		Integer (0..3)		
>Extended					REL-5
>>RRC transaction identifier	MP		Integer (0..15)		REL-5
~~RRC transaction identifier~~	~~MP~~		~~Integer (0..3)~~		
	~~CV-Measurement~~		~~Integer (0..15)~~		~~REL-5~~

CHOICE *RRC Tr Id type*	**Condition under which the given *RRC Tr Id type* is chosen**
Normal	All cases where the *RRC Tr Id type: Extended* is not chosen.
Extended	Optional in the MEASUREMENT CONTROL message. Mandatory in the MEASUREMENT CONTROL FAILURE message.

~~Condition~~	~~Explanation~~
~~*Measurement*~~	~~This IE is mandatory present if used in MEASUREMENT_CONTROL or MEASUREMENT_CONTROL_FAILURE message otherwise it is absent~~

Next section: ASN.1 PDU definitions provided for information

11.2 PDU definitions

```
    :

-- **************************************************
--
-- MEASUREMENT CONTROL
--
-- **************************************************

MeasurementControl ::= CHOICE {
    r3                              SEQUENCE {
        measurementControl-r3           MeasurementControl-r3-IEs,
        v390nonCriticalExtensions       SEQUENCE {
            measurementControl-v390ext      MeasurementControl-v390ext,
            v3a0NonCriticalExtensions           SEQUENCE {
                measurementControl-v3a0ext          MeasurementControl-v3a0ext,
                laterNonCriticalExtensions      SEQUENCE {
                    -- Container for additional R99 extensions
                    measurementControl-r3-add-ext       BIT STRING  OPTIONAL,
                    v4b0NonCriticalExtensions           SEQUENCE{
                        v590NonCriticalExtensions       SEQUENCE {
                            measurementControl-v590ext      MeasurementControl-v590ext-IEs,
                            nonCriticalExtensions               SEQUENCE {}     OPTIONAL
                        }                       OPTIONAL
                    }                       OPTIONAL
                }                           OPTIONAL
            }                           OPTIONAL
        }                       OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                measurementControl-r4           MeasurementControl-r4-IEs,
                v4d0NonCriticalExtensions           SEQUENCE {
                    -- Container for adding non critical extensions after freezing REL-5
                    measurementControl-r4-add-ext       BIT STRING      OPTIONAL,
                    v590NonCriticalExtensions       SEQUENCE{
                        measurementControl-v590ext      MeasurementControl-v590ext-IEs,
                        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                    }   OPTIONAL
                }   OPTIONAL
            },
            criticalExtensions              SEQUENCE {}
        }
    }
}

MeasurementControl-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Measurement IEs
        measurementIdentity     MeasurementIdentity,
        -- TABULAR: The measurement type is included in MeasurementCommand.
        measurementCommand              MeasurementCommand,
        measurementReportingMode        MeasurementReportingMode            OPTIONAL,
        additionalMeasurementList       AdditionalMeasurementID-List        OPTIONAL,
    -- Physical channel IEs
        dpch-CompressedModeStatusInfo   DPCH-CompressedModeStatusInfo       OPTIONAL
}

MeasurementControl-v4b0ext-IEs ::= SEQUENCE {
    ue-Positioning-OTDOA-AssistanceData-r4ext   UE-Positioning-OTDOA-AssistanceData-r4ext   OPTIONAL
}

MeasurementControl-v390ext ::= SEQUENCE {
        ue-Positioning-Measurement-v390ext      UE-Positioning-Measurement-v390ext  OPTIONAL
}

MeasurementControl-v3a0ext ::= SEQUENCE {
    sfn-Offset-Validity             SFN-Offset-Validity     OPTIONAL
```

```
}

MeasurementControl-r4-IEs ::= SEQUENCE {
    -- Measurement IEs
        measurementIdentity     MeasurementIdentity,
        -- TABULAR: The measurement type is included in measurementCommand.
        measurementCommand              MeasurementCommand-r4,
        measurementReportingMode        MeasurementReportingMode            OPTIONAL,
        additionalMeasurementList       AdditionalMeasurementID-List        OPTIONAL,
    -- Physical channel IEs
        dpch-CompressedModeStatusInfo   DPCH-CompressedModeStatusInfo       OPTIONAL
}

MeasurementControl-v590ext-IEs ::= SEQUENCE {
    measurementCommand-v590ext          CHOICE {
        -- the choice “intra-frequency” shall be used for the case of intra-frequency measurement,
        -- as well as when intra-frequency events are configured for inter-frequency measurement
        intra-frequency                     Intra-FreqEventCriteriaList-v590ext,
        inter-frequency                     Inter-FreqEventCriteriaList-v590ext
    }       OPTIONAL,
    intraFreqReportingCriteria-1b-r5        IntraFreqReportingCriteria-1b-r5        OPTIONAL,
    intraFreqEvent-1d-r5                    IntraFreqEvent-1d-r5                    OPTIONAL,
    -- most significant part of "RRC transaction identifier" (MSP),
    -- "RRC transaction identifier" = rrc-TransactionIdentifier-MSP-v590ext * 4 +
    -- rrc-TransactionIdentifier
    rrc-TransactionIdentifier-MSP-v590ext   RRC-TransactionIdentifier
}

-- ************************************************
--
-- MEASUREMENT CONTROL FAILURE
--
-- ************************************************

MeasurementControlFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        failureCause                    FailureCauseWithProtErr,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            measurementControlFailure-r3-add-ext        BIT STRING      OPTIONAL,
            v590NonCriticalExtensions       SEQUENCE {
                measurementControlFailure-v590ext       MeasurementControlFailure-v590ext-IEs,
                nonCriticalExtensions           SEQUENCE {}     OPTIONAL
            }   OPTIONAL
        }   OPTIONAL
}

MeasurementControlFailure-v590ext-IEs ::= SEQUENCE {
    -- most significant part of "RRC transaction identifier" (MSP),
    -- "RRC transaction identifier" = rrc-TransactionIdentifier-MSP-v590ext * 4 +
    -- rrc-TransactionIdentifier
    -- If the rrc-TransactionIdentifier-MSP-v590ext was not received in the MEASUREMENT CONTROL
    -- message, then the rrc-TransactionIdentifier-MSP-v590ext shall be set to zero
    rrc-TransactionIdentifier-MSP-v590ext   RRC-TransactionIdentifier
}
```

3GPP TSG-RAN WG2 Meeting #45
Shin Yokohama, Japan, 15 – 19 November 2004

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CHANGE REQUEST

⌘ **25.331** **CR** **2463** ⌘**rev** **1** ⌘ Current version: **6.3.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	RRC transaction identifier in the MEASUREMENT CONTROL message
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	17/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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

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

Reason for change:	⌘	The value range of the RRC transaction identifier has been extended in the MEASUREMENT CONTROL and the MEASUREMENT CONTROL FAILURE messages. However, it should be noted that a pre-Rel-5 UTRAN does not send extended values. Even a Rel-5 UTRAN might exclude the extension of the RRC transaction identifier in the MEASUREMENT CONTROL message, if none of the Rel-5 measurement control options are used. Different interoperability scenarios could thus be foreseen. The extension of the RRC transaction identifier is not well defined in the tabular. It is defined such that there are two separate integers: one of range 0..3 and another (conditional) one of range 0..15. The intention must be that there is only one integer, which is either of range 0..3 or of range 0..15. The basic range (0..3) is mandatory present. The presence of the extension (4..15) depends on the conditions.
Summary of change:	⌘	It is clarified (10.3.3.36) that there is only one integer, with two different ranges, depending on the conditions. It is also clarified that the extension of the value range is optionally present, in order to cover the different interoperability scenarios.
Consequences if not approved:	⌘	It is unclear how the RRC transaction identifier should be treated by the UE. It would be unclear how an RRC transaction identifier received using one of the formats relates to one received using the other format: if they are the same or two separate varaibles. **Isolated Impact Analysis** The expected behaviour of neither the UE nor the UTRAN is changed. No

	interoperability issues are foreseen.

Clauses affected:	⌘	10.3.3.36			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

10.3.3.36 RRC transaction identifier

This IE contains an identification of the RRC procedure transaction local for the type of the message this IE was included within.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE *RRC Tr Id type*	MP				REL-5
>Normal					
>>RRC transaction identifier	MP		Integer (0..3)		
>Extended					REL-5
>>RRC transaction identifier	MP		Integer (0..15)		REL-5
~~RRC transaction identifier~~	~~MP~~		~~Integer (0..3)~~		
	~~CV-Measurement~~		~~Integer (0..15)~~		~~REL-5~~

CHOICE *RRC Tr Id type*	**Condition under which the given *RRC Tr Id type* is chosen**
Normal	All cases where the *RRC Tr Id type: Extended* is not chosen.
Extended	Optional in the MEASUREMENT CONTROL message. Mandatory in the MEASUREMENT CONTROL FAILURE message.

~~Condition~~	~~Explanation~~
~~*Measurement*~~	~~This IE is mandatory present if used in MEASUREMENT_CONTROL or MEASUREMENT_CONTROL_FAILURE message otherwise it is absent~~

3GPP TSG-RAN WG2 Meeting #45 ***Tdoc ⌘R2-042628***
Shin Yokohama, Japan, 15-19 November 2004

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **2464** ⌘ **rev** **-** ⌘ Current version: **5.10.0** ⌘

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

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

Title:	⌘	Correction to intra-frequency measurement handling in SIB11
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	15-11-2004
Category:	⌘	**F**
Release:	⌘	REL-5

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

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

In section 8.1.1.6.11 there are the following sentences describing the UE behavior at SIB11 reception:

1> if in connected mode and if System Information Block type 12 is not broadcast in the cell:

2> if no intra-frequency measurement was set up or modified through a MEASUREMENT CONTROL message:

3> if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered in the variable MEASUREMENT_IDENTITY. The IE "Cells for measurement" is absent for this measurement. The IE "Measurement Validity" is absent for this measurement after a state transition to CELL_DCH;

The bullet 2 above was introduced by the CR 1399 (Handling of variables CELL_INFO_LIST and MEASUREMENT_IDENTITY). The intention of this change was that if an intra-frequency measurement is configured via a Measurement Control message (i.e. setup or modified) then this configuration is not overwritten by the configuration in SIB11.

The scenario which is considered in this CR is when SIB12 is not broadcast and SIB11 includes the configuration of intra-frequency reporting at CELL_DCH transition. The UE is in CELL_DCH and intra-frequency measurements are modified with a Measurement Control. Then the UE moves to CELL_FACH and intra-frequency measurement configuration is deleted as per section 8.4.1.6.1. The intended UE behavior is that the UE will have to store the intra-frequency configuration included in SIB11 in order to resume reporting at transition to

	CELL_DCH. However the current text in the above bullet 2 is confusing since according to this sentence the UE may not store the intra-frequency configuration in SIB11 since an intra-frequency measurement was previously modified via a Measurement Control message although the configuration was deleted at CELL_FACH transition.
Summary of change: ⌘	To avoid the above confusion it is proposed to clarify the sentence as follows: "if no intra-frequency measurement stored in the variable MEASUREMENT_IDENTITY was set up or modified through a MEASUREMENT CONTROL message" **Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.**
Consequences if not approved: ⌘	In case when SIB12 is not broadcast and SIB11 includes intra-frequency measurement configuration, the UE may not store the intra-frequency measurement configuration at CELL_FACH to CELL_DCH transition and therefore the intra-frequency measurement reporting is misaligned between the UE and UTRAN.

Clauses affected:	⌘	8.1.1.6.11			
Other specs affected:	⌘	**Y**	**N**	Other core specifications	⌘
				Test specifications	
				O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.1.1.6.11 System Information Block type 11

The UE should store all relevant IEs included in this system information block. The UE shall:

1> if in idle mode:

2> clear the variable MEASUREMENT_IDENTITY.

1> if IE "FACH measurement occasion info" is included:

2> act as specified in subclause 8.6.7.

1> else:

2> may perform inter-frequency/inter-RAT measurements or inter-frequency/inter-RAT cell re-selection evaluation, if the UE capabilities permit such measurements while simultaneously receiving the S-CCPCH of the serving cell.

1> clear the variable CELL_INFO_LIST;

1> act upon the received IE "Intra-frequency cell info list"/"Inter-frequency cell info list"/"Inter-RAT cell info list" as described in subclause 8.6.7.3;

1> if in idle mode; or

1> if in connected mode and if System Information Block type 12 is not broadcast in the cell:

2> if no intra-frequency measurement stored in the variable MEASUREMENT_IDENTITY was set up or modified through a MEASUREMENT CONTROL message:

3> if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered in the variable MEASUREMENT_IDENTITY. The IE "Cells for measurement" is absent for this measurement. The IE "Measurement Validity" is absent for this measurement after a state transition to CELL_DCH;

1> if in connected mode and if System Information Block type 12 is not broadcast in the cell:

2> read the IE "Traffic volume measurement information";

2> if no traffic volume measurement with the measurement identity indicated in the IE "Traffic volume measurement system information" was set up or modified through a MEASUREMENT CONTROL message:

3> update the variable MEASUREMENT_IDENTITY with the measurement information received in that IE.

1> if the IE "Cell selection and reselection info" is not included for a new neighbouring cell in the IE "intra-frequency cell info list", the IE "inter-frequency cell info list" or the IE "inter-RAT cell info list" in System Information Block type 11:

2> use the default values specified for the IE "Cell selection and reselection info" for that cell except for the IE "HCS neighbouring cell information".

1> if the IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:

2> if IE "HCS neighbouring cell information" is not included for the first new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 11:

3> use the default values specified for the IE "HCS neighbouring cell information" for that cell.

2> if IE "HCS neighbouring cell information" is not included for any other new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 11:

3> for that cell use the same parameter values as used for the preceding cell in the same cell info list in System Information Block type 11.

1> if the value of the IE "Cell selection and reselection quality measure" is different from the value of the IE "Cell selection and reselection quality measure" obtained from System Information Block type 3 or System Information Block type 4:

2> use the value of the IE from this System Information Block and ignore the value obtained from System Information Block type 3 or System Information Block type 4.

1> if in connected mode, and System Information Block type 12 is indicated as used in the cell:

2> read and act on information sent in System Information Block type 12 as indicated in subclause 8.1.1.6.12.

8.1.1.6.12 System Information Block type 12

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall:

1> after reception of System Information Block type 11:

2> update the variable MEASUREMENT_IDENTITY with the measurement information in the received IEs unless specified otherwise.

1> if IE "FACH measurement occasion info" is included:

2> act as specified in subclause 8.6.7.

1> else:

2> may perform inter-frequency/inter-RAT measurements or inter-frequency/inter-RAT cell re-selection evaluation, if the UE capabilities permit such measurements while simultaneously receiving the S-CCPCH of the serving cell.

1> act upon the received IE "Intra-frequency cell info list"/"Inter-frequency cell info list"/"Inter-RAT cell info list" as described in subclause 8.6.7.3;

1> if any of the IEs "Intra-frequency measurement quantity", "Intra-frequency reporting quantity for RACH reporting", "Maximum number of reported cells on RACH" or "Reporting information for state CELL_DCH" are not included in the system information block:

2> read the corresponding IE(s) in system information block type 11 and use that information for the intra-frequency measurement.

1> if included in this system information block or in System Information Block type 11:

2> if no intra-frequency measurement in the variable MEASUREMENT_IDENTITY was set up or modified through a MEASUREMENT CONTROL message:

3> store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered in the variable MEASUREMENT_IDENTITY. The IE "Cells for measurement" is absent for this measurement. The IE "Measurement Validity" is absent for this measurement after a state transition to CELL_DCH;

1> if the IE "Traffic volume measurement system information" is not included in this system information block:

2> read the corresponding IE in System Information Block type 11.

1> if the IE "Traffic volume measurement system information" was received either in this system information block or in System Information Block type 11:

2> if no traffic volume measurement with the measurement identity indicated in the IE "Traffic volume measurement system information" was set up or modified through a MEASUREMENT CONTROL message:

3> update the variable MEASUREMENT_IDENTITY with the measurement information received in that IE.

1> if in CELL_FACH state:

2> start or continue the traffic volume measurements stored in the variable MEASUREMENT_IDENTITY that are valid in CELL_FACH state.

1> if the IE "Cell selection and reselection info" is not included for a new neighbouring cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 12:

2> use the default values specified for the IE "Cell selection and reselection info" for that cell except for the IE "HCS neighbouring cell information".

1> if the IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:

2> if IE "HCS neighbouring cell information" is not included for the first new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 12:

3> use the default values specified for the IE "HCS neighbouring cell information" for that cell.

2> if IE "HCS neighbouring cell information" is not included for any other new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 12:

3> for that cell use the same parameter values as used for the preceding cell in the same cell info list in System Information Block type 12.

1> if the value of the IE "Cell selection and reselection quality measure" is different from the value of the IE "Cell selection and reselection quality measure" obtained from System Information Block type 3 or System Information Block type 4:

2> use the value of the IE from this System Information Block and ignore the value obtained from System Information Block type 3 or System Information Block type 4.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

3GPP TSG-RAN WG2 Meeting #45 ***Tdoc ⌘R2-042629***
Shin Yokohama, Japan, 15-19 November 2004

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **2465** ⌘ **rev** **-** ⌘ Current version: **6.3.0** ⌘

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

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

Title:	⌘	Correction to intra-frequency measurement handling in SIB11
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	15-11-2004
Category:	⌘	**A**
Release:	⌘	REL-6

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

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

In section 8.1.1.6.11 there are the following sentences describing the UE behavior at SIB11 reception:

1> if in connected mode and if System Information Block type 12 is not broadcast in the cell:

2> if no intra-frequency measurement was set up or modified through a MEASUREMENT CONTROL message:

3> if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered in the variable MEASUREMENT_IDENTITY. The IE "Cells for measurement" is absent for this measurement. The IE "Measurement Validity" is absent for this measurement after a state transition to CELL_DCH;

The bullet 2 above was introduced by the CR 1399 (Handling of variables CELL_INFO_LIST and MEASUREMENT_IDENTITY). The intention of this change was that if an intra-frequency measurement is configured via a Measurement Control message (i.e. setup or modified) then this configuration is not overwritten by the configuration in SIB11.

The scenario which is considered in this CR is when SIB12 is not broadcast and SIB11 includes the configuration of intra-frequency reporting at CELL_DCH transition. The UE is in CELL_DCH and intra-frequency measurements are modified with a Measurement Control. Then the UE moves to CELL_FACH and intra-frequency measurement configuration is deleted as per section 8.4.1.6.1. The intended UE behavior is that the UE will have to store the intra-frequency configuration included in SIB11 in order to resume reporting at transition to

	CELL_DCH. However the current text in the above bullet 2 is confusing since according to this sentence the UE may not store the intra-frequency configuration in SIB11 since an intra-frequency measurement was previously modified via a Measurement Control message although the configuration was deleted at CELL_FACH transition.
Summary of change: ⌘	To avoid the above confusion it is proposed to clarify the sentence as follows: "if no intra-frequency measurement stored in the variable MEASUREMENT_IDENTITY was set up or modified through a MEASUREMENT CONTROL message" **Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.**
Consequences if not approved: ⌘	In case when SIB12 is not broadcast and SIB11 includes intra-frequency measurement configuration, the UE may not store the intra-frequency measurement configuration at CELL_FACH to CELL_DCH transition and therefore the intra-frequency measurement reporting is misaligned between the UE and UTRAN.

Clauses affected:	⌘	8.1.1.6.11			
Other specs affected:	⌘	**Y**	**N**	Other core specifications	⌘
				Test specifications	
				O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.1.1.6.11 System Information Block type 11

The UE should store all relevant IEs included in this system information block. The UE shall:

1> if in idle mode:

2> clear the variable MEASUREMENT_IDENTITY.

1> if IE "FACH measurement occasion info" is included:

2> act as specified in subclause 8.6.7.

1> else:

2> may perform inter-frequency/inter-RAT measurements or inter-frequency/inter-RAT cell re-selection evaluation, if the UE capabilities permit such measurements while simultaneously receiving the S-CCPCH of the serving cell.

1> clear the variable CELL_INFO_LIST;

1> act upon the received IE "Intra-frequency cell info list"/"Inter-frequency cell info list"/"Inter-RAT cell info list" as described in subclause 8.6.7.3;

1> if in idle mode; or

1> if in connected mode and if System Information Block type 12 is not broadcast in the cell:

2> if no intra-frequency measurement stored in the variable MEASUREMENT_IDENTITY was set up or modified through a MEASUREMENT CONTROL message:

3> if included, store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered in the variable MEASUREMENT_IDENTITY. The IE "Cells for measurement" is absent for this measurement. The IE "Measurement Validity" is absent for this measurement after a state transition to CELL_DCH;

1> if in connected mode and if System Information Block type 12 is not broadcast in the cell:

2> read the IE "Traffic volume measurement information";

2> if no traffic volume measurement with the measurement identity indicated in the IE "Traffic volume measurement system information" was set up or modified through a MEASUREMENT CONTROL message:

3> update the variable MEASUREMENT_IDENTITY with the measurement information received in that IE.

1> if the IE "Cell selection and reselection info" is not included for a new neighbouring cell in the IE "intra-frequency cell info list", the IE "inter-frequency cell info list" or the IE "inter-RAT cell info list" in System Information Block type 11:

2> use the default values specified for the IE "Cell selection and reselection info" for that cell except for the IE "HCS neighbouring cell information".

1> if the IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:

2> if IE "HCS neighbouring cell information" is not included for the first new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 11:

3> use the default values specified for the IE "HCS neighbouring cell information" for that cell.

2> if IE "HCS neighbouring cell information" is not included for any other new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 11:

3> for that cell use the same parameter values as used for the preceding cell in the same cell info list in System Information Block type 11.

1> if the value of the IE "Cell selection and reselection quality measure" is different from the value of the IE "Cell selection and reselection quality measure" obtained from System Information Block type 3 or System Information Block type 4:

2> use the value of the IE from this System Information Block and ignore the value obtained from System Information Block type 3 or System Information Block type 4.

1> if in connected mode, and System Information Block type 12 is indicated as used in the cell:

2> read and act on information sent in System Information Block type 12 as indicated in subclause 8.1.1.6.12.

8.1.1.6.12 System Information Block type 12

If in connected mode, the UE should store all relevant IEs included in this system information block. The UE shall:

1> after reception of System Information Block type 11:

2> update the variable MEASUREMENT_IDENTITY with the measurement information in the received IEs unless specified otherwise.

1> if IE "FACH measurement occasion info" is included:

2> act as specified in subclause 8.6.7.

1> else:

2> may perform inter-frequency/inter-RAT measurements or inter-frequency/inter-RAT cell re-selection evaluation, if the UE capabilities permit such measurements while simultaneously receiving the S-CCPCH of the serving cell.

1> act upon the received IE "Intra-frequency cell info list"/"Inter-frequency cell info list"/"Inter-RAT cell info list" as described in subclause 8.6.7.3;

1> if any of the IEs "Intra-frequency measurement quantity", "Intra-frequency reporting quantity for RACH reporting", "Maximum number of reported cells on RACH" or "Reporting information for state CELL_DCH" are not included in the system information block:

2> read the corresponding IE(s) in system information block type 11 and use that information for the intra-frequency measurement.

1> if included in this system information block or in System Information Block type 11:

2> if no intra-frequency measurement in the variable MEASUREMENT_IDENTITY was set up or modified through a MEASUREMENT CONTROL message:

3> store the IE "Intra-frequency reporting quantity" and the IE "Intra-frequency measurement reporting criteria" or "Periodical reporting criteria" in order to activate reporting when state CELL_DCH is entered in the variable MEASUREMENT_IDENTITY. The IE "Cells for measurement" is absent for this measurement. The IE "Measurement Validity" is absent for this measurement after a state transition to CELL_DCH;

1> if the IE "Traffic volume measurement system information" is not included in this system information block:

2> read the corresponding IE in System Information Block type 11.

1> if the IE "Traffic volume measurement system information" was received either in this system information block or in System Information Block type 11:

2> if no traffic volume measurement with the measurement identity indicated in the IE "Traffic volume measurement system information" was set up or modified through a MEASUREMENT CONTROL message:

3> update the variable MEASUREMENT_IDENTITY with the measurement information received in that IE.

1> if in CELL_FACH state:

2> start or continue the traffic volume measurements stored in the variable MEASUREMENT_IDENTITY that are valid in CELL_FACH state.

1> if the IE "Cell selection and reselection info" is not included for a new neighbouring cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 12:

2> use the default values specified for the IE "Cell selection and reselection info" for that cell except for the IE "HCS neighbouring cell information".

1> if the IE "Use of HCS" is set to "used", indicating that HCS is used, do the following:

2> if IE "HCS neighbouring cell information" is not included for the first new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 12:

3> use the default values specified for the IE "HCS neighbouring cell information" for that cell.

2> if IE "HCS neighbouring cell information" is not included for any other new cell in the IE "Intra-frequency cell info list", the IE "Inter-frequency cell info list" or the IE "Inter-RAT cell info list" in System Information Block type 12:

3> for that cell use the same parameter values as used for the preceding cell in the same cell info list in System Information Block type 12.

1> if the value of the IE "Cell selection and reselection quality measure" is different from the value of the IE "Cell selection and reselection quality measure" obtained from System Information Block type 3 or System Information Block type 4:

2> use the value of the IE from this System Information Block and ignore the value obtained from System Information Block type 3 or System Information Block type 4.

If in idle mode, the UE shall not use the values of the IEs in this system information block.

3GPP TSG-RAN-WG2 Mee3GPP TSG-RAN-WG2 Meeting #45 ***Tdoc ⌘R2-042721***
Yokohama, Japan, 15-19 November 2004

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2469** ⌘**rev** **1** ⌘ Current version: **5.10.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Clarification of Radio Bearer Downlink Ciphering Activation Time Info
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	Nov 2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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

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

Reason for change: ⌘ For the case of the Security Mode Command message, 25.331 8.6.3.4 ensures that the IE "Radio Bearer Downlink Ciphering Activation Time Info" contains an entry for every UM and AM radio bearer in existence for the latest configured CN Domain. This is necessary as further clauses explain how to apply ciphering changes to these radio bearers and there is no clear action to take should a value for Downlink Ciphering Activation Time not be available.

However, there are other messages that can include the "Ciphering Mode Info" IE. These are the five reconfiguration messages described in 8.2.2, Cell/URA Update Confirm (8.3.1) and UTRAN Mobility Information (8.3.3). It is stated in 25.331 that for all these messages, the "Ciphering Mode Info" IE will only be included when SRNS relocation is taking place. Further, when SRNS relocation is taking place, it is stated that all RLC instances for UM and AM radio bearers are "stopped" at the commencement of the procedure that processes the message and "continued" when the response message sent to UTRAN has been acknowledged. Also at that time, the radio bearers will be reestablished and any new ciphering configuration will be applied immediately.

Since the RLC instances will be stopped there is no benefit to be gained from processing the "Radio Bearer Downlink Ciphering Activation Time Info" IE as per the clauses in 8.6.3.4 for these messages. Also, since there is no check to ensure that "Radio Bearer Downlink Ciphering Activation Time Info" contains an entry for every UM and AM radio bearer in existence for the case of these messages, it is not clear how to behave should all or part of the list be absent.

On reception of the IE “Ciphering Mode Info” within any reconfiguration, cell/ URA update confirm or UTRAN Mobility Information message, which causes an SRNS relocation with a change of ciphering, then the UE functionality is aligned with the

		Downlink behaviour in that the “Radio bearer uplink ciphering activation time info” may be omitted in the response message.
Summary of change:	⌘	Ciphering activation times for AM/UM RBs are irrelevant for the case of SRNS relocation. The IE "Ciphering Mode Info" is included in an RRC message performing SRNS relocation only to perform a change of ciphering algorithm (UEA0<->UEA1). The use of ciphering activation times in the downlink and uplink are identified as not being required in this case. **Isolated impact analysis:** This CR affects only UTRAN behaviour. This CR has isolated impact for the setting of RB downlink downlink ciphering activation times in messages other than SECURITY MODE CONTROL. **Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.** **Impact on test specifications:** No impact is foreseen.
Consequences if not approved:	⌘	Risk of desynchronization and failure of ciphering for some or all UM and AM radio bearers.

Clauses affected:	⌘	8.2.2.3, 8.3.1.6, 8.3.3.3, 8.6.3.4, 10.3.3.5			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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

8.2.2.3 Reception of RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE

The UE shall:

1> be able to receive any of the following messages:

2> RADIO BEARER SETUP message; or

2> RADIO BEARER RECONFIGURATION message; or

2> RADIO BEARER RELEASE message; or

2> TRANSPORT CHANNEL RECONFIGURATION message; or

2> PHYSICAL CHANNEL RECONFIGURATION message;

1> be able to perform a hard handover and apply physical layer synchronisation procedure A as specified in [29], even if no prior UE measurements have been performed on the target cell and/or frequency.

In case the reconfiguration procedure is used to remove all existing RL(s) in the active set while new RL(s) are established the UE shall:

1> if the UE has a pending "TGPS reconfiguration CFN" at the activation time received in the reconfiguration message and the reconfiguration requests a timing re-initialised hard handover (see subclause 8.3.5.1), the UE may:

2> abort the pending CM activation;

2> set the CM_PATTERN_ACTIVATION_ABORTED to TRUE.

1> otherwise:

2> set the CM_PATTERN_ACTIVATION_ABORTED to FALSE.

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or
- a TRANSPORT CHANNEL RECONFIGURATION message; or
- a PHYSICAL CHANNEL RECONFIGURATION message:

it shall:

1> set the variable ORDERED_RECONFIGURATION to TRUE;

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

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

1> act upon all received information elements as specified in subclause 8.6, unless specified in the following and perform the actions below.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

1> in FDD, if the IE "PDSCH code mapping" is included but the IE "PDSCH with SHO DCH Info" is not included and if the DCH has only one link in its active set:

2> act upon the IE "PDSCH code mapping" as specified in subclause 8.6; and

2> infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted.

1> enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

2> remove any C-RNTI from MAC;

2> clear the variable C_RNTI.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> clear any stored IE "Downlink HS-PDSCH information";

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

In FDD, if after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> remove any DSCH-RNTI from MAC;

1> clear the variable DSCH_RNTI.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> in TDD:

2> if "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

3> remove any C-RNTI from MAC;

3> clear the variable C_RNTI.

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4];

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select PRACH according to subclause 8.5.17;

1> select Secondary CCPCH according to subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

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

2> perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:

3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;

2> or:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

If after state transition the UE enters CELL_PCH or URA_PCH state, the UE shall:

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuation message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":

2> if the variable START_VALUE_TO_TRANSMIT is set:

3> include and set the IE "START" to the value of that variable.

2> if the variable START_VALUE_TO_TRANSMIT is not set and the IE "New U-RNTI" is included:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

2> if the received reconfiguration message caused a change in the RLC size for any RB using RLC-AM:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for the CN domain associated with the corresponding RB identity in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the received reconfiguration message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".

1> if the received reconfiguration message contained the IE "Ciphering mode info":

2> if the reconfiguration message is not used to perform SRNS relocation with change of ciphering algorithm:

3> the UE behaviour is not specified.

2> if the message is used to perform a timing re-initialised hard handover:

3> if IE "Ciphering activation time for DPCH" is included:

4> the UE behaviour is not specified.

2> else:

3> if the reconfiguration message is used to setup radio bearer(s) using RLC-TM; or

3> if radio bearer(s) using RLC-TM already exist:

4> if IE "Ciphering activation time for DPCH" is not included:

5> the UE behaviour is not specified.

2> the UE may include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

1> if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":

2> if prior to this procedure there exist no transparent mode RLC radio bearers:

3> if, at the conclusion of this procedure, the UE will be in CELL_DCH state; and

3> if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:

4> include the IE "COUNT-C activation time" and specify a CFN value for this IE that is a multiple of 8 frames (CFN mod 8 = 0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted.

NOTE: UTRAN should not include the IE "Ciphering mode info" in any reconfiguration message unless it is also used to perform an SRNS relocation with change of ciphering algorithm.

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4].

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> if the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 are fulfilled after cell selection:

2> initiate a URA update procedure according to subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4].

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_FACH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:

3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;

2> or:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> the procedure ends.

←----------NEXT SECTION----------→

8.3.1.6 Reception of the CELL UPDATE CONFIRM/URA UPDATE CONFIRM message by the UE

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

the UE shall:

1> stop timer T302;

1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

2> includes "RB information elements"; and/or

2> includes "Transport channel information elements"; and/or

2> includes "Physical channel information elements"; and

2> if the variable ORDERED_RECONFIGURATION is set to FALSE:

3> set the variable ORDERED_RECONFIGURATION to TRUE.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_FACH" or "CELL_PCH" or URA_PCH":

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

4> act as specified in subclause 8.3.1.12.

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1.

2> use the transport channel(s) applicable for the physical channel types that is used; and

2> if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):

3> use the TFS given in system information.

2> if none of the TFS stored is compatible with the physical channel:

3> delete the stored TFS;

3> use the TFS given in system information.

2> if the IE "RLC re-establish indicator (RB2, RB3 and RB4)" in the CELL UPDATE CONFIRM message is set to TRUE:

3> re-establish the RLC entities for signalling radio bearer RB2, signalling radio bearer RB3 and signalling radio bearer RB4 (if established);

3> if the value of the IE "Status" in the variable CIPHERING_STATUS of the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN is set to "Started":

4> set the HFN component of the respective COUNT-C values for AM RLC entities with RB identity 2,RB identity 3 and RB identity 4 (if established) equal to the START value included in the latest transmitted CELL UPDATE message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN.

2> if the IE "RLC re-establish indicator (RB5 and upwards)" in the CELL UPDATE CONFIRM message is set to TRUE:

3> for radio bearers with RB identity 5 and upwards:

4> re-establish the AM RLC entities;

4> if the value of the IE "Status" in the variable CIPHERING_STATUS of the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS is set to "Started":

5> set the HFN component of the respective COUNT-C values for AM RLC entities equal to the START value included in this CELL UPDATE message for the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS.

NOTE: UE actions, in case IE "Downlink counter synchronisation info" is included and either IE "RLC re-establish indicator (RB2, RB3 and RB4)" or IE "RLC re-establish indicator (RB5 and upwards)" are set to TRUE, are not defined.

1> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".

1> if the variable ESTABLISHMENT_CAUSE is set:

2> clear the variable ESTABLISHMENT_CAUSE.

1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

If the UE after state transition enters CELL_DCH state, it shall:

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

1> not prohibit periodical status transmission in RLC.

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to subclause 8.5.17;

1> select Secondary CCPCH according to subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

If the UE after state transition enters URA_PCH or CELL_PCH state, it shall:

1> prohibit periodical status transmission in RLC;

1> clear the variable C_RNTI;

1> stop using that C_RNTI just cleared from the variable C_RNTI in MAC;

1> start the timer T305 using its initial value if timer T305 is not running and periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging Occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

NOTE: The UTRAN should not change the currently used value of the IE "UTRAN DRX cycle length coefficient" within a short time of moving the UE into CELL_PCH/URA_PCH state, otherwise there is a risk of a DRX cycle mismatch between the UE and UTRAN. This time should be long enough for the UTRAN to have sufficient confidence that the ACK to the reconfiguration complete message has been received by the UE and therefore the procedure has completed within the UE.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

If the UE after the state transition remains in CELL_FACH state; and

1> the contents of the variable C_RNTI are empty:

it shall check the value of V302; and:

1> if V302 is equal to or smaller than N302:

2> if, caused by the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

3> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or

3> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:

4> abort the ongoing integrity and/or ciphering reconfiguration;

4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":

5> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

5> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":

5> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

5> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

2> in case of a URA update procedure:

3> stop the URA update procedure;

3> clear any entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> continue with a cell update procedure.

2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3, except for the IE "Cell update cause" which shall be set to "cell reselection";

2> submit the CELL UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> in case of a cell update procedure:

3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

2> in case of a URA update procedure:

3> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

2> release all its radio resources;

2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

2> clear the variable ESTABLISHED_RABS;

2> enter idle mode;

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

2> and the procedure ends.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

or

- the UE after the state transition moves to another state than the CELL_FACH state:

the UE shall:

1> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info":

2> the UE may include and set the IE "Radio bearer uplink ciphering activation time info" in any response message transmitted below to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

1> in case cell reselection interrupted an ongoing cell update procedure and a CELL UPDATE CONFIRM/URA UPDATE CONFIRM was received with the IE "Downlink counter synchronisation info" present and the response to which was not submitted to the lower layers due to the cell re-selection:

2> include the IE "START list" in the response message transmitted according to subclause 8.3.1.7;

2> if the CELL UPDATE CONFIRM/URA UPDATE CONFIRM, the response to which was not delivered to the lower layers, due to the cell re-selection, included the IE "RB with PDCP information list":

3> include the IE "RB with PDCP information list" in the response message transmitted according to subclause 8.3.1.7.

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

1> in case of a URA update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

1> if the variable PDCP_SN_INFO is non-empty:

2> include the IE "RB with PDCP information list" in any response message transmitted below and set it to the value of the variable PDCP_SN_INFO.

1> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message included the IE "Downlink counter synchronisation info":

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuation message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of the COUNT-C of RB2 to MAX(uplink HFN component of the COUNT-C of RB2, downlink HFN component of the COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of the COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in any response message transmitted below.

1> transmit a response message as specified in subclause 8.3.1.7;

1> if the IE "Integrity protection mode info" was present in the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> clear the variable PDCP_SN_INFO;

1> when the response message transmitted per subclause 8.3.1.7 to the UTRAN has been confirmed by RLC:

2> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info":

3> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;

3> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

3> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

2> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":

3> set "Uplink RRC Message sequence number" for signalling radio bearer RB0 in the variable INTEGRITY_PROTECTION_INFO to a value such that next RRC message to be sent on uplink RB0 will use the new integrity protection configuration;

3> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;

3> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE.

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

1> in case of a cell update procedure:

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> in case of a URA update procedure:

2> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> set the variable CELL_UPDATE_STARTED to FALSE;

1> clear the variable SECURITY_MODIFICATION.

1> stop timers T314 and/or T315 if they are running.

The procedure ends.

←----------NEXT SECTION----------→

8.3.3.3 Reception of UTRAN MOBILITY INFORMATION message by the UE

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

2> for each updated timer value:

3> start using the new value next time the timer is started;

NOTE: If a new value of timer T305 is included in the IE "UE Timers and constants in connected mode", and the old value of timer T305 is "infinity", the UE will not use the new value of the timer T305 until the next cell reselection.

2> for each updated constant value:

3> start using the new value directly;

1> if the IE "CN domain specific DRX cycle length coefficient" is present:

2> store the value of the IE "CN domain specific DRX cycle length coefficient" for that CN domain, replacing any previously stored value; and

2> use the value to determine the connected mode paging occasions according to [4].

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected";

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":

2> the UE may include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

1> if the variable PDCP_SN_INFO is non-empty:

2> include the IE "RB with PDCP information list" in the UTRAN MOBILITY INFORMATION CONFIRM message and set it to the value of the variable PDCP_SN_INFO.

1> if the received UTRAN MOBILITY INFORMATION message included the IE "Downlink counter synchronisation info":

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuation message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the UTRAN MOBILITY INFORMATION CONFIRM message.

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

1> if the IE "Integrity protection mode info" was present in the UTRAN MOBILITY INFORMATION message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted UTRAN MOBILITY INFORMATION CONFIRM message.

1> if the IE "Downlink counter synchronisation info" was included in the received UTRAN MOBILITY INFORMATION message:

2> when RLC has confirmed the successful transmission of the response message:

3> if the variable PDCP_SN_INFO is empty:

4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".

3> else:

4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";

4> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "continue".

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;

3> if the IE "PDCP context relocation info" is not present:

4> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

3> if the IE "PDCP context relocation info" is present:

4> perform the actions as specified in subclause 8.6.4.13.

1> if the variable PDCP_SN_INFO is empty; and

2> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":

3> when RLC has confirmed the successful transmission of the UTRAN MOBILITY INFORMATION CONFIRM message:

4> perform the actions below:

2> if the UTRAN MOBILITY INFORMATION message did not contain the IE "Ciphering mode info":

3> when RLC has been requested to transmit the UTRAN MOBILITY INFORMATION CONFIRM message:

4> perform the actions below.

1> if the variable PDCP_SN_INFO is non-empty:

2> when RLC has confirmed the successful transmission of the UTRAN MOBILITY INFORMATION CONFIRM message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> clear the variable PDCP_SN_INFO; and

3> perform the actions below.

The UE shall:

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":

2> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;

2> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Integrity protection mode info":

2> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;

2> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

1> clear the variable SECURITY_MODIFICATION.

The procedure ends.

←----------NEXT SECTION----------→

8.6.3.4 Ciphering mode info

The IE "Ciphering mode info" defines the new ciphering configuration. At any given time, the UE needs to store at most two different ciphering configurations (keyset and algorithm) per CN domain at any given time in total for all radio bearers and three configurations in total for all signalling radio bearers.

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE, the UE shall:

1> ignore this second attempt to change the ciphering configuration; and

1> set the variable INCOMPATIBLE_SECURITY_RECONFIGURATION to TRUE.

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

1> if none of the IE "Status" in the variable CIPHERING STATUS has the value "Started", and this IE "Ciphering mode info" was included in a message that is not the message SECURITY MODE COMMAND; or

1> if the IE "Ciphering Mode Info" was received in the message SECURITY MODE COMMAND and there does not exist exactly one ciphering activation time in the IE "Radio bearer downlink ciphering activation time info" for each established RLC-AM and RLC-UM radio bearers included in the IE "RB information" in the IE "ESTABLISHED_RABS" for the CN domain as indicated in the variable LATEST_CONFIGURED_CN_DOMAIN; or

1> if the IE "Ciphering Mode Info" was received in the message SECURITY MODE COMMAND and the IE "Ciphering activation time for DPCH" is not included in the message, and there exist radio bearers using RLC-TM according to the IE "RB information" in the IE "ESTABLISHED_RABS" for the CN domain as indicated in the variable LATEST_CONFIGURED_CN_DOMAIN; or

1> if the IE "Ciphering Mode Info" was received in the message SECURITY MODE COMMAND and there does not exist exactly one ciphering activation time in the IE "Radio bearer downlink ciphering activation time info" for each established signalling radio bearer included in the IE "Signalling radio bearer information" in the IE "ESTABLISHED_RABS":

2> ignore this attempt to change the ciphering configuration;

2> set the variable INVALID_CONFIGURATION to TRUE;

2> perform the actions as specified in subclause 8.1.12.4c.

1> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to TRUE;

1> set the IE "Status" in the variable CIPHERING_STATUS of the CN domains for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" to "Started";

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

2> using the ciphering algorithm (UEA [40]) indicated by the IE "Ciphering algorithm" as part of the new ciphering configuration;

2> for each radio bearer that belongs to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

3> using the value of the IE "RB identity" in the variable ESTABLISHED_RABS minus one as the value of BEARER [40] in the ciphering algorithm.

1> for the downlink and the uplink, apply the new ciphering configuration as follows:

2> if the ciphering configuration for a AM or UM radio bearer or signalling radio bearer from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the current received message includes the IE "DL Counter Synch Info" or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new ciphering configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN.

3> apply the new ciphering configuration in uplink and downlink immediately following RLC re-establishment

2> if the IE "Ciphering activation time for DPCH" is present in the IE "Ciphering mode info" and the UE was in CELL_DCH state prior to this procedure:

3> for radio bearers using RLC-TM:

4> apply the old ciphering configuration for CFN less than the number indicated in the IE "Ciphering activation time for DPCH";

4> apply the new ciphering configuration for CFN greater than or equal to the number indicated in IE "Ciphering activation time for DPCH".

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

4> suspend uplink transmission on the radio bearer or the signalling radio bearer (except for the SRB where the response message is transmitted) according to the following:

5> do not transmit RLC PDUs with sequence number greater than or equal to the uplink activation time, where the uplink activation time is selected according to the rules below.

4> select an "RLC sequence number" at which (activation) time the new ciphering configuration shall be applied in uplink for that radio bearer according to the following:

5> consider a ciphering activation time in uplink to be pending until the RLC sequence number of the next RLC PDU to be transmitted for the first time is equal to or larger than the selected activation time;

5> for each radio bearer and signalling radio bearer that has no pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

6> set a suitable value that would ensure a minimised delay in the change to the latest ciphering configuration.

5> for each radio bearer and signalling radio bearer that has a pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

6> for radio bearers and signalling radio bearers except SRB2:

7> set the same value as the pending ciphering activation time.

6> for signalling radio bearer SRB2:

7> set a suitable value that would ensure a minimised delay in the change to the latest ciphering configuration.

4> store the selected "RLC sequence number" for that radio bearer in the entry for the radio bearer in the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

4> switch to the new ciphering configuration according to the following:

5> use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers smaller than the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers greater than or equal to the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> for a radio bearer using RLC-AM, when the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info" falls below the RLC receiving window and the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" falls below the RLC transmission window, the UE may release the old ciphering configuration for that radio bearer;

5> if an RLC reset or re-establishment of the transmitting side of an RLC entity occurs before the activation time for the new ciphering configuration has been reached in uplink, ignore the activation time and apply the new ciphering configuration in uplink immediately after the RLC reset or RLC re-establishment;

5> if an RLC reset or re-establishment of the receiving side of an RLC entity occurs before the activation time for the new ciphering configuration has been reached in downlink, ignore the activation time and apply the new ciphering configuration in downlink immediately after the RLC reset or RLC re-establishment.

2> if the current received message includes the IE " Downlink counter synchronisation info " or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> apply the new ciphering configuration in uplink and downlink immediately following RLC re-establishment.

If the IE "Radio bearer downlink ciphering activation time info" was received in another message than SECURITY MODE COMMAND:

1> the UE behaviour is unspecified.

If the IE "Ciphering mode info" is not present, the UE shall:

1> for the downlink and the uplink, apply the ciphering configuration as follows:

2> if the ciphering configuration for a AM or UM radio bearer or signalling radio bearer from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the current received message includes the IE "Downlink counter synchronisation info ~~DL Counter Synch Info~~" or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the ciphering configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN.

3> apply the ciphering configuration in uplink and downlink immediately following RLC re-establishment.

2> else:

3> not change the ciphering configuration.

←----------NEXT SECTION----------→

10.3.3.5 Ciphering mode info

This information element contains the ciphering specific security mode control information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering mode command	MP		Enumerated (start/restart)	
Ciphering algorithm	MP		Ciphering algorithm 10.3.3.4	
Ciphering activation time for DPCH	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is already in CELL_DCH state
Radio bearer downlink ciphering activation time info	OP		RB activation time info, 10.3.4.13	Used for radio bearers mapped on RLC-AM or RLC-UM The UTRAN should not include this IE in a message other than a SECURITY MODE COMMAND

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CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2470** ⌘**rev** **2** ⌘ Current version: **6.3.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Clarification of Radio Bearer Downlink Ciphering Activation Time Info
Source:	⌘	RAN WG2
Work item code:	⌘	TEI6
Date:	⌘	Nov 2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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

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

Reason for change: ⌘ For the case of the Security Mode Command message, 25.331 8.6.3.4 ensures that the IE "Radio Bearer Downlink Ciphering Activation Time Info" contains an entry for every UM and AM radio bearer in existence for the latest configured CN Domain. This is necessary as further clauses explain how to apply ciphering changes to these radio bearers and there is no clear action to take should a value for Downlink Ciphering Activation Time not be available.

However, there are other messages that can include the "Ciphering Mode Info" IE. These are the five reconfiguration messages described in 8.2.2, Cell/URA Update Confirm (8.3.1) and UTRAN Mobility Information (8.3.3). It is stated in 25.331 that for all these messages, the "Ciphering Mode Info" IE will only be included when SRNS relocation is taking place. Further, when SRNS relocation is taking place, it is stated that all RLC instances for UM and AM radio bearers are "stopped" at the commencement of the procedure that processes the message and "continued" when the response message sent to UTRAN has been acknowledged. Also at that time, the radio bearers will be reestablished and any new ciphering configuration will be applied immediately.

Since the RLC instances will be stopped there is no benefit to be gained from processing the "Radio Bearer Downlink Ciphering Activation Time Info" IE as per the clauses in 8.6.3.4 for these messages. Also, since there is no check to ensure that "Radio Bearer Downlink Ciphering Activation Time Info" contains an entry for every UM and AM radio bearer in existence for the case of these messages, it is not clear how to behave should all or part of the list be absent.

On reception of the IE “Ciphering Mode Info” within any reconfiguration, cell/ URA update confirm or UTRAN Mobility Information message, which causes an SRNS relocation with a change of ciphering, then the UE functionality is aligned with the

	Downlink behaviour in that the “Radio bearer uplink ciphering activation time info” may be omitted in the response message. In the Rel-6 version of this CR, the possibility to include IE “Radio bearer uplink ciphering activation time info” is removed from the response messages.
Summary of change: ⌘	Ciphering activation times for AM/UM RBs are irrelevant for the case of SRNS relocation. The IE "Ciphering Mode Info" is included in an RRC message performing SRNS relocation only to perform a change of ciphering algorithm (UEA0<->UEA1). The use of ciphering activation times in the downlink and uplink are identified as not being required in this case. **Isolated impact analysis:** This CR affects only UTRAN behaviour. This CR has isolated impact for the setting of RB downlink downlink ciphering activation times in messages other than SECURITY MODE CONTROL. **Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.** **Impact on test specifications:** No impact is foreseen.
Consequences if not approved: ⌘	Risk of desynchronization and failure of ciphering for some or all UM and AM radio bearers.

Clauses affected: ⌘	8.2.2.3, 8.2.2.5, 8.3.1.6, 8.3.3.3, 8.6.3.4, 10.2.23, 10.2.28, 10.2.31, 10.2.34, 10.2.51, 10.2.63, 10.3.3.5, 11.2				
Other specs affected: ⌘	**Y**	**N**		⌘	
		X	Other core specifications		
		X	Test specifications		
		X	O&M Specifications		
Other comments: ⌘					

How to create CRs using this form:

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.2.3 Reception of RADIO BEARER SETUP or RADIO BEARER RECONFIGURATION or RADIO BEARER RELEASE or TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION message by the UE

The UE shall:

1> be able to receive any of the following messages:

2> RADIO BEARER SETUP message; or

2> RADIO BEARER RECONFIGURATION message; or

2> RADIO BEARER RELEASE message; or

2> TRANSPORT CHANNEL RECONFIGURATION message; or

2> PHYSICAL CHANNEL RECONFIGURATION message;

1> be able to perform a hard handover and apply physical layer synchronisation procedure A as specified in [29], even if no prior UE measurements have been performed on the target cell and/or frequency.

In case the reconfiguration procedure is used to remove all existing RL(s) in the active set while new RL(s) are established the UE shall:

1> if the UE has a pending "TGPS reconfiguration CFN" at the activation time received in the reconfiguration message and the reconfiguration requests a timing re-initialised hard handover (see subclause 8.3.5.1), the UE may:

2> abort the pending CM activation;

2> set the CM_PATTERN_ACTIVATION_ABORTED to TRUE.

1> otherwise:

2> set the CM_PATTERN_ACTIVATION_ABORTED to FALSE.

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or
- a TRANSPORT CHANNEL RECONFIGURATION message; or
- a PHYSICAL CHANNEL RECONFIGURATION message:

it shall:

1> set the variable ORDERED_RECONFIGURATION to TRUE;

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

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

1> act upon all received information elements as specified in subclause 8.6, unless specified in the following and perform the actions below.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

1> in FDD, if the IE "PDSCH code mapping" is included but the IE "PDSCH with SHO DCH Info" is not included and if the DCH has only one link in its active set:

2> act upon the IE "PDSCH code mapping" as specified in subclause 8.6; and

2> infer that the PDSCH will be transmitted from the cell from which the downlink DPCH is transmitted.

1> enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

2> remove any C-RNTI from MAC;

2> clear the variable C_RNTI.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> clear any stored IE "Downlink HS-PDSCH information";

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

In FDD, if after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> remove any DSCH-RNTI from MAC;

1> clear the variable DSCH_RNTI.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> in TDD:

2> if "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

3> remove any C-RNTI from MAC;

3> clear the variable C_RNTI.

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4];

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select PRACH according to subclause 8.5.17;

1> select Secondary CCPCH according to subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

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

2> perform a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:

3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;

2> or:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

If after state transition the UE enters CELL_PCH or URA_PCH state, the UE shall:

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuation message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":

2> if the variable START_VALUE_TO_TRANSMIT is set:

3> include and set the IE "START" to the value of that variable.

2> if the variable START_VALUE_TO_TRANSMIT is not set and the IE "New U-RNTI" is included:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

2> if the received reconfiguration message caused a change in the RLC size for any RB using RLC-AM:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for the CN domain associated with the corresponding RB identity in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the received reconfiguration message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".

1> if the received reconfiguration message contained the IE "Ciphering mode info":

2> if the reconfiguration message is not used to perform SRNS relocation with change of ciphering algorithm:

3> the UE behaviour is not specified.

2> if the message is used to perform a timing re-initialised hard handover:

3> if IE "Ciphering activation time for DPCH" is included:

4> the UE behaviour is not specified.

2> else:

3> if the reconfiguration message is used to setup radio bearer(s) using RLC-TM; or

3> if radio bearer(s) using RLC-TM already exist:

4> if IE "Ciphering activation time for DPCH" is not included:

5> the UE behaviour is not specified.

~~2> the UE may include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.~~

1> if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":

2> if prior to this procedure there exist no transparent mode RLC radio bearers:

3> if, at the conclusion of this procedure, the UE will be in CELL_DCH state; and

3> if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:

4> include the IE "COUNT-C activation time" and specify a CFN value for this IE that is a multiple of 8 frames (CFN mod 8 = 0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted.

NOTE: UTRAN should not include the IE "Ciphering mode info" in any reconfiguration message unless it is also used to perform an SRNS relocation with change of ciphering algorithm.

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4].

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> if the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 are fulfilled after cell selection:

2> initiate a URA update procedure according to subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4].

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> the procedure ends.

If after state transition the UE enters CELL_PCH state from CELL_FACH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

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

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:

3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;

2> or:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> the procedure ends.

←----------NEXT SECTION----------→

8.2.2.5 Reception of a response message by the UTRAN, normal case

When UTRAN has received

- the RADIO BEARER SETUP COMPLETE message; or
- the RADIO BEARER RECONFIGURATION COMPLETE message; or
- the RADIO BEARER RELEASE COMPLETE message; or
- the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message; or
- the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

UTRAN may:

1> delete the old configuration.

If the procedure caused the UE to leave the CELL_FACH state, UTRAN may:

1> delete the C-RNTI of the UE.

If the IE "UL Timing Advance" is included in TDD, UTRAN should:

1> evaluate the timing advance value that the UE has to use in the new cell after handover.

If the IE "START" or the IE "START list " is included, UTRAN should:

1> set the START value for each CN domain with the corresponding values as received in this response message;

1> consequently, then use the START values to initialise the hyper frame numbers, in the same way as specified for the UE in subclause 8.2.2.3, for any new radio bearers that are established.

If UTRAN has ordered a ciphering reconfiguration by including the IE "Ciphering mode info", UTRAN should:

1> for radio bearers using RLC-AM or RLC-UM:

~~2> use the old ciphering configuration for received RLC PDUs with RLC sequence number less than the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;~~

~~2> use the new ciphering configuration for received RLC PDUs with RLC sequence number greater than or equal to the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" sent by the UE;~~

2> ~~if an RLC reset or re-establishment of~~n the receiving side of an RLC entity ~~occurs after this response message has been received by UTRAN before the uplink activation time for the new ciphering configuration has been reached, ignore the activation time and~~ apply the new ciphering configuration in uplink immediately ~~after the RLC reset or RLC re-establishment~~;

2> ~~if an RLC reset or re-establishment of~~n the transmitting side of an RLC entity ~~occurs after this response message has been received by UTRAN before the downlink activation time for the new ciphering configuration has been reached, ignore the activation time and~~ apply the new ciphering configuration in downlink immediately ~~after the RLC reset or RLC re-establishment~~.

1> for radio bearers using RLC-TM:

2> begin incrementing the COUNT-C at the CFN only as indicated in:

3> the IE "Ciphering activation time for DPCH" in the IE "Ciphering mode info", if included in the message that triggered the radio bearer control procedure; or

3> the IE "COUNT-C activation time", if included in the response message for this procedure.

1> and the procedure ends on the UTRAN side.

←----------NEXT SECTION----------→

8.3.1.6 Reception of the CELL UPDATE CONFIRM/URA UPDATE CONFIRM message by the UE

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

the UE shall:

1> stop timer T302;

1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

2> includes "RB information elements"; and/or

2> includes "Transport channel information elements"; and/or

2> includes "Physical channel information elements"; and

2> if the variable ORDERED_RECONFIGURATION is set to FALSE:

3> set the variable ORDERED_RECONFIGURATION to TRUE.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_FACH" or "CELL_PCH" or URA_PCH":

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

4> act as specified in subclause 8.3.1.12.

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1.

2> use the transport channel(s) applicable for the physical channel types that is used; and

2> if the IE "TFS" is neither included nor previously stored in the UE for that transport channel(s):

3> use the TFS given in system information.

2> if none of the TFS stored is compatible with the physical channel:

3> delete the stored TFS;

3> use the TFS given in system information.

2> if the IE "RLC re-establish indicator (RB2, RB3 and RB4)" in the CELL UPDATE CONFIRM message is set to TRUE:

3> re-establish the RLC entities for signalling radio bearer RB2, signalling radio bearer RB3 and signalling radio bearer RB4 (if established);

3> if the value of the IE "Status" in the variable CIPHERING_STATUS of the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN is set to "Started":

4> set the HFN component of the respective COUNT-C values for AM RLC entities with RB identity 2,RB identity 3 and RB identity 4 (if established) equal to the START value included in the latest transmitted CELL UPDATE message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN.

2> if the IE "RLC re-establish indicator (RB5 and upwards)" in the CELL UPDATE CONFIRM message is set to TRUE:

3> for radio bearers with RB identity 5 and upwards:

4> re-establish the AM RLC entities;

4> if the value of the IE "Status" in the variable CIPHERING_STATUS of the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS is set to "Started":

5> set the HFN component of the respective COUNT-C values for AM RLC entities equal to the START value included in this CELL UPDATE message for the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS.

NOTE: UE actions, in case IE "Downlink counter synchronisation info" is included and either IE "RLC re-establish indicator (RB2, RB3 and RB4)" or IE "RLC re-establish indicator (RB5 and upwards)" are set to TRUE, are not defined.

1> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".

1> if the variable ESTABLISHMENT_CAUSE is set:

2> clear the variable ESTABLISHMENT_CAUSE.

1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

If the UE after state transition enters CELL_DCH state, it shall:

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

1> not prohibit periodical status transmission in RLC.

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to subclause 8.5.17;

1> select Secondary CCPCH according to subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

If the UE after state transition enters URA_PCH or CELL_PCH state, it shall:

1> prohibit periodical status transmission in RLC;

1> clear the variable C_RNTI;

1> stop using that C_RNTI just cleared from the variable C_RNTI in MAC;

1> start the timer T305 using its initial value if timer T305 is not running and periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging Occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

NOTE: The UTRAN should not change the currently used value of the IE "UTRAN DRX cycle length coefficient" within a short time of moving the UE into CELL_PCH/URA_PCH state, otherwise there is a risk of a DRX cycle mismatch between the UE and UTRAN. This time should be long enough for the UTRAN to have sufficient confidence that the ACK to the reconfiguration complete message has been received by the UE and therefore the procedure has completed within the UE.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

If the UE after the state transition remains in CELL_FACH state; and

1> the contents of the variable C_RNTI are empty:

it shall check the value of V302; and:

1> if V302 is equal to or smaller than N302:

2> if, caused by the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

3> the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE; and/or

3> the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:

4> abort the ongoing integrity and/or ciphering reconfiguration;

4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Ciphering mode info":

5> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

5> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

4> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":

5> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

5> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

2> in case of a URA update procedure:

3> stop the URA update procedure;

3> clear any entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> continue with a cell update procedure.

2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3, except for the IE "Cell update cause" which shall be set to "cell reselection";

2> submit the CELL UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> in case of a cell update procedure:

3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

2> in case of a URA update procedure:

3> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

2> release all its radio resources;

2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

2> clear the variable ESTABLISHED_RABS;

2> enter idle mode;

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

2> and the procedure ends.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

or

- the UE after the state transition moves to another state than the CELL_FACH state:

the UE shall:

~~1> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info":~~

~~2> the UE may include and set the IE "Radio bearer uplink ciphering activation time info" in any response message transmitted below to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.~~

1> in case cell reselection interrupted an ongoing cell update procedure and a CELL UPDATE CONFIRM/URA UPDATE CONFIRM was received with the IE "Downlink counter synchronisation info" present and the response to which was not submitted to the lower layers due to the cell re-selection:

2> include the IE "START list" in the response message transmitted according to subclause 8.3.1.7;

2> if the CELL UPDATE CONFIRM/URA UPDATE CONFIRM, the response to which was not delivered to the lower layers, due to the cell re-selection, included the IE "RB with PDCP information list":

3> include the IE "RB with PDCP information list" in the response message transmitted according to subclause 8.3.1.7.

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

1> in case of a URA update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

1> if the variable PDCP_SN_INFO is non-empty:

2> include the IE "RB with PDCP information list" in any response message transmitted below and set it to the value of the variable PDCP_SN_INFO.

1> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message included the IE "Downlink counter synchronisation info":

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuation message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of the COUNT-C of RB2 to MAX(uplink HFN component of the COUNT-C of RB2, downlink HFN component of the COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of the COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in any response message transmitted below.

1> transmit a response message as specified in subclause 8.3.1.7;

1> if the IE "Integrity protection mode info" was present in the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> clear the variable PDCP_SN_INFO;

1> when the response message transmitted per subclause 8.3.1.7 to the UTRAN has been confirmed by RLC:

2> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Ciphering mode info":

3> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;

3> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

3> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

2> if the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message contained the IE "Integrity protection mode info":

3> set "Uplink RRC Message sequence number" for signalling radio bearer RB0 in the variable INTEGRITY_PROTECTION_INFO to a value such that next RRC message to be sent on uplink RB0 will use the new integrity protection configuration;

3> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;

3> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE.

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

1> in case of a cell update procedure:

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> in case of a URA update procedure:

2> clear the entry for the URA UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> set the variable CELL_UPDATE_STARTED to FALSE;

1> clear the variable SECURITY_MODIFICATION.

1> stop timers T314 and/or T315 if they are running.

The procedure ends.

←----------NEXT SECTION----------→

8.3.3.3 Reception of UTRAN MOBILITY INFORMATION message by the UE

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

2> for each updated timer value:

3> start using the new value next time the timer is started;

NOTE: If a new value of timer T305 is included in the IE "UE Timers and constants in connected mode", and the old value of timer T305 is "infinity", the UE will not use the new value of the timer T305 until the next cell reselection.

2> for each updated constant value:

3> start using the new value directly;

1> if the IE "CN domain specific DRX cycle length coefficient" is present:

2> store the value of the IE "CN domain specific DRX cycle length coefficient" for that CN domain, replacing any previously stored value; and

2> use the value to determine the connected mode paging occasions according to [4].

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected";

~~1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":~~

~~2> the UE may include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.~~

1> if the variable PDCP_SN_INFO is non-empty:

2> include the IE "RB with PDCP information list" in the UTRAN MOBILITY INFORMATION CONFIRM message and set it to the value of the variable PDCP_SN_INFO.

1> if the received UTRAN MOBILITY INFORMATION message included the IE "Downlink counter synchronisation info":

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuation message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the UTRAN MOBILITY INFORMATION CONFIRM message.

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

1> if the IE "Integrity protection mode info" was present in the UTRAN MOBILITY INFORMATION message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted UTRAN MOBILITY INFORMATION CONFIRM message.

1> if the IE "Downlink counter synchronisation info" was included in the received UTRAN MOBILITY INFORMATION message:

2> when RLC has confirmed the successful transmission of the response message:

3> if the variable PDCP_SN_INFO is empty:

4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".

3> else:

4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";

4> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "continue".

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;

3> if the IE "PDCP context relocation info" is not present:

4> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

3> if the IE "PDCP context relocation info" is present:

4> perform the actions as specified in subclause 8.6.4.13.

1> if the variable PDCP_SN_INFO is empty; and

2> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":

3> when RLC has confirmed the successful transmission of the UTRAN MOBILITY INFORMATION CONFIRM message:

4> perform the actions below:

2> if the UTRAN MOBILITY INFORMATION message did not contain the IE "Ciphering mode info":

3> when RLC has been requested to transmit the UTRAN MOBILITY INFORMATION CONFIRM message:

4> perform the actions below.

1> if the variable PDCP_SN_INFO is non-empty:

2> when RLC has confirmed the successful transmission of the UTRAN MOBILITY INFORMATION CONFIRM message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> clear the variable PDCP_SN_INFO; and

3> perform the actions below.

The UE shall:

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":

2> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;

2> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Integrity protection mode info":

2> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;

2> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

1> clear the variable SECURITY_MODIFICATION.

The procedure ends.

←----------NEXT SECTION----------→

8.6.3.4 Ciphering mode info

The IE "Ciphering mode info" defines the new ciphering configuration. At any given time, the UE needs to store at most two different ciphering configurations (keyset and algorithm) per CN domain at any given time in total for all radio bearers and three configurations in total for all signalling radio bearers.

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE, the UE shall:

1> ignore this second attempt to change the ciphering configuration; and

1> set the variable INCOMPATIBLE_SECURITY_RECONFIGURATION to TRUE.

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

1> if none of the IE "Status" in the variable CIPHERING STATUS has the value "Started", and this IE "Ciphering mode info" was included in a message that is not the message SECURITY MODE COMMAND; or

1> if the IE "Ciphering Mode Info" was received in the message SECURITY MODE COMMAND and there does not exist exactly one ciphering activation time in the IE "Radio bearer downlink ciphering activation time info" for each established RLC-AM and RLC-UM radio bearers included in the IE "RB information" in the IE "ESTABLISHED_RABS" for the CN domain as indicated in the variable LATEST_CONFIGURED_CN_DOMAIN; or

1> if the IE "Ciphering Mode Info" was received in the message SECURITY MODE COMMAND and the IE "Ciphering activation time for DPCH" is not included in the message, and there exist radio bearers using RLC-TM according to the IE "RB information" in the IE "ESTABLISHED_RABS" for the CN domain as indicated in the variable LATEST_CONFIGURED_CN_DOMAIN; or

1> if the IE "Ciphering Mode Info" was received in the message SECURITY MODE COMMAND and there does not exist exactly one ciphering activation time in the IE "Radio bearer downlink ciphering activation time info" for each established signalling radio bearer included in the IE "Signalling radio bearer information" in the IE "ESTABLISHED_RABS":

2> ignore this attempt to change the ciphering configuration;

2> set the variable INVALID_CONFIGURATION to TRUE;

2> perform the actions as specified in subclause 8.1.12.4c.

1> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to TRUE;

1> set the IE "Status" in the variable CIPHERING_STATUS of the CN domains for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" to "Started";

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

2> using the ciphering algorithm (UEA [40]) indicated by the IE "Ciphering algorithm" as part of the new ciphering configuration;

2> for each radio bearer that belongs to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

3> using the value of the IE "RB identity" in the variable ESTABLISHED_RABS minus one as the value of BEARER [40] in the ciphering algorithm.

1> for the downlink and the uplink, apply the new ciphering configuration as follows:

2> if the ciphering configuration for a AM or UM radio bearer or signalling radio bearer from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the current received message includes the IE "DL Counter Synch Info" or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new ciphering configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN.

3> apply the new ciphering configuration in uplink and downlink immediately following RLC re-establishment.

2> if the IE "Ciphering activation time for DPCH" is present in the IE "Ciphering mode info" and the UE was in CELL_DCH state prior to this procedure:

3> for radio bearers using RLC-TM:

4> apply the old ciphering configuration for CFN less than the number indicated in the IE "Ciphering activation time for DPCH";

4> apply the new ciphering configuration for CFN greater than or equal to the number indicated in IE "Ciphering activation time for DPCH".

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

4> suspend uplink transmission on the radio bearer or the signalling radio bearer (except for the SRB where the response message is transmitted) according to the following:

5> do not transmit RLC PDUs with sequence number greater than or equal to the uplink activation time, where the uplink activation time is selected according to the rules below.

4> select an "RLC sequence number" at which (activation) time the new ciphering configuration shall be applied in uplink for that radio bearer according to the following:

5> consider a ciphering activation time in uplink to be pending until the RLC sequence number of the next RLC PDU to be transmitted for the first time is equal to or larger than the selected activation time;

5> for each radio bearer and signalling radio bearer that has no pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

6> set a suitable value that would ensure a minimised delay in the change to the latest ciphering configuration.

5> for each radio bearer and signalling radio bearer that has a pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

6> for radio bearers and signalling radio bearers except SRB2:

7> set the same value as the pending ciphering activation time.

6> for signalling radio bearer SRB2:

7> set a suitable value that would ensure a minimised delay in the change to the latest ciphering configuration.

4> store the selected "RLC sequence number" for that radio bearer in the entry for the radio bearer in the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

4> switch to the new ciphering configuration according to the following:

5> use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers smaller than the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers greater than or equal to the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> for a radio bearer using RLC-AM, when the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info" falls below the RLC receiving window and the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" falls below the RLC transmission window, the UE may release the old ciphering configuration for that radio bearer;

5> if an RLC reset or re-establishment of the transmitting side of an RLC entity occurs before the activation time for the new ciphering configuration has been reached in uplink, ignore the activation time and apply the new ciphering configuration in uplink immediately after the RLC reset or RLC re-establishment;

5> if an RLC reset or re-establishment of the receiving side of an RLC entity occurs before the activation time for the new ciphering configuration has been reached in downlink, ignore the activation time and apply the new ciphering configuration in downlink immediately after the RLC reset or RLC re-establishment.

2> if the current received message includes the IE " Downlink counter synchronisation info " or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> apply the new ciphering configuration in uplink and downlink immediately following RLC re-establishment.

If the IE "Radio bearer downlink ciphering activation time info" was received in another message than SECURITY MODE COMMAND:

1> the UE behaviour is unspecified.

If the IE "Ciphering mode info" is not present, the UE shall:

1> for the downlink and the uplink, apply the ciphering configuration as follows:

2> if the ciphering configuration for a AM or UM radio bearer or signalling radio bearer from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the current received message includes the IE "~~DL~~ Downlink ~~C~~counter ~~S~~synchronisation i~~I~~nfo" or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the ciphering configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN.

3> apply the ciphering configuration in uplink and downlink immediately following RLC re-establishment.

2> else:

3> not change the ciphering configuration.

←----------NEXT SECTION----------→

10.2.23 PHYSICAL CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a physical channel reconfiguration has been done.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	CH		Integrity check info 10.3.3.16		
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17		
CHOICE *mode*	MP				
>FDD				(no data)	
>TDD					
>>CHOICE *TDD option*	MP				REL-4
>>>3.84 Mcps TDD	MP				REL-4
>>>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95		
>>>1.28 Mcps TDD				(no data)	REL-4
RB Information elements					
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.	
~~Radio bearer uplink ciphering activation time info~~	~~OP~~		~~RB activation time info 10.3.4.13~~		
Uplink counter synchronisation info	OP				
>RB with PDCP information list	OP	1 to <maxRBallRABs>			
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22		
>START list	MP	1 to		START [40]	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
		<maxCNdomains>		values for all CN domains.	
>>CN domain identity	MP		CN domain identity 10.3.1.1		
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.	

←----------NEXT SECTION----------→

10.2.28 RADIO BEARER RECONFIGURATION COMPLETE

This message is sent from the UE when a RB and signalling link reconfiguration has been done.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	CH		Integrity check info 10.3.3.16		
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17		
CHOICE *mode*	MP				
>FDD				(no data)	
>TDD					
>>CHOICE *TDD option*	MP				REL-4
>>>3.84 Mcps TDD					REL-4
>>>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95		
>>>1.28 Mcps TDD				(no data)	REL-4
RB Information elements					
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.	
~~Radio bearer uplink ciphering activation time info~~	~~OP~~		~~RB activation time info 10.3.4.13~~		
Uplink counter synchronisation info	OP				
>RB with PDCP information list	OP	1 to <maxRBallRABs>			
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>START list	MP	1 to <maxCNdomains>		START [40] values for all CN domains.	
>>CN domain identity	MP		CN domain identity 10.3.1.1		
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.	

←----------NEXT SECTION----------→

10.2.31 RADIO BEARER RELEASE COMPLETE

This message is sent from the UE when radio bearer release has been completed.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	CH		Integrity check info 10.3.3.16	Integrity check info is included if integrity protection is applied	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17		
CHOICE *mode*	MP				
>FDD				(no data)	
>TDD					
>>CHOICE *TDD option*	MP				REL-4
>>>3.84 Mcps TDD					REL-4
>>>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95	This information element shall be present in case of handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network	
>>>1.28 Mcps TDD				(no data)	REL-4
RB Information elements					
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
~~Radio bearer uplink ciphering activation time info~~	~~OP~~		~~RB activation time info 10.3.4.13~~		
Uplink counter synchronisation info	OP				
>RB with PDCP information list	OP	1 to <maxRBallRABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation	
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22		
>START list	MP	1 to <maxCNdomains>		START [40] values for all CN domains.	
>>CN domain identity	MP		CN domain identity 10.3.1.1		
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.	

←----------NEXT SECTION----------→

10.2.34 RADIO BEARER SETUP COMPLETE

This message is sent by the UE to confirm the establishment of the radio bearer.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		
UE information elements					
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	CH		Integrity check info 10.3.3.16		
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17		
CHOICE *mode*	OP				
>FDD				(no data)	
>TDD					
>>CHOICE *TDD option*	MP				REL-4
>>>3.84 Mcps TDD					REL-4
>>>>Uplink Timing Advance	OP		Uplink Timing Advance	This information element shall be present in case of	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
			10.3.6.95	handover procedure if timing advance is enabled. Calculated timing advance value for the new cell after handover in a synchronous TDD network	
>>>1.28 Mcps TDD				(No data)	REL-4
START	OP		START 10.3.3.38	This information element is not needed for transparent mode RBs if prior to this procedure there exists one RB using RLC-TM.	
RB Information elements					
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM.	
~~Radio bearer uplink ciphering activation time info~~	~~OP~~		~~RB activation time info 10.3.4.13~~		
Uplink counter synchronisation info	OP				
>RB with PDCP information list	OP	1 to <maxRBallRABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation	
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22		
>START list	MP	1 to <maxCNdomains>		START [40] values for all CN domains.	
>>CN domain identity	MP		CN domain identity 10.3.1.1		
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.	

←----------NEXT SECTION----------→

10.2.51 TRANSPORT CHANNEL RECONFIGURATION COMPLETE

This message is sent from the UE when a transport channel reconfiguration has been done.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE → UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Message Type	MP		Message Type		

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
UE information elements					
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36		
Integrity check info	CH		Integrity check info 10.3.3.16		
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17		
CHOICE *mode*	OP				
>FDD				(no data)	
>TDD					
>>CHOICE *TDD option*	MP				REL-4
>>>3.84 Mcps TDD					REL-4
>>>>Uplink Timing Advance	OP		Uplink Timing Advance 10.3.6.95		
>>>1.28 Mcps TDD				(no data)	REL-4
RB Information elements					
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure	
~~Radio bearer uplink ciphering activation time info~~	~~OP~~		~~RB activation time info 10.3.4.13~~		
Uplink counter synchronisation info	OP				
>RB with PDCP information list	OP	1 to <maxRBallRABs>			
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22		
>START list	MP	1 to <maxCNdomains>		START [40] values for all CN domains.	
>>CN domain identity	MP		CN domain identity 10.3.1.1		
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.	

←----------NEXT SECTION----------→

10.2.63 UTRAN MOBILITY INFORMATION CONFIRM

This message is used to confirm the new UTRAN mobility information for the UE.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE→UTRAN

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Message Type	
UE information elements				
RRC transaction identifier	MP		RRC transaction identifier 10.3.3.36	
Integrity check info	CH		Integrity check info 10.3.3.16	
Uplink integrity protection activation info	OP		Integrity protection activation info 10.3.3.17	
RB Information elements				
COUNT-C activation time	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is moving to CELL_DCH state due to this procedure
~~Radio bearer uplink ciphering activation time info~~	~~OP~~		~~RB activation time info 10.3.4.13~~	
Uplink counter synchronisation info	OP			
>RB with PDCP information list	OP	1 to <maxRBallRABs>		This IE is needed for each RB having PDCP in the case of lossless SRNS relocation
>>RB with PDCP information	MP		RB with PDCP information 10.3.4.22	
>START list	MP	1 to <maxCNdomains>		START [40] values for all CN domains.
>>CN domain identity	MP		CN domain identity 10.3.1.1	
>>START	MP		START 10.3.3.38	START value to be used in this CN domain.

←----------NEXT SECTION----------→

10.3.3.5 Ciphering mode info

This information element contains the ciphering specific security mode control information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Ciphering mode command	MP		Enumerated (start/restart)	
Ciphering algorithm	MP		Ciphering algorithm 10.3.3.4	
Ciphering activation time for DPCH	OP		Activation time 10.3.3.1	Used for radio bearers mapped on RLC-TM. Only applicable if the UE is already in CELL_DCH state
Radio bearer downlink ciphering activation time info	OP		RB activation time info, 10.3.4.13	Used for radio bearers mapped on RLC-AM or RLC-UM The UTRAN should not include this IE in a message other than a SECURITY MODE COMMAND

←----------NEXT SECTION----------→

11.2 PDU definitions

```
--**************************************************************
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--**************************************************************
```

<snip>

```
-- ************************************************
--
-- PHYSICAL CHANNEL RECONFIGURATION COMPLETE
--
-- ************************************************

PhysicalChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
        rb-UL-CiphActivationTimeInfodummy   RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            physicalChannelReconfigurationComplete-r3-add-ext       BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}
```

<snip>

```
-- ************************************************
--
-- RADIO BEARER RECONFIGURATION COMPLETE
--
-- ************************************************

RadioBearerReconfigurationComplete ::= SEQUENCE {
```

```
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
        rb-UL-CiphActivationTimeInfodummy   RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReconfigurationComplete-r3-add-ext       BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {} OPTIONAL
        }   OPTIONAL
}
```

<snip>

```
-- **************************************************
--
-- RADIO BEARER RELEASE COMPLETE
--
-- **************************************************

RadioBearerReleaseComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
        rb-UL-CiphActivationTimeInfodummy   RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerReleaseComplete-r3-add-ext       BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}
```

<snip>

```
-- **************************************************
--
-- RADIO BEARER SETUP COMPLETE
--
-- **************************************************

RadioBearerSetupComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
        start-Value             START-Value                                 OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
        rb-UL-CiphActivationTimeInfodummy   RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            radioBearerSetupComplete-r3-add-ext     BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}
```

<snip>

```
-- **************************************************
--
-- TRANSPORT CHANNEL RECONFIGURATION COMPLETE
```

```
--
-- **************************************************

TransportChannelReconfigurationComplete ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
        -- TABULAR: UL-TimingAdvance is applicable for TDD mode only.
        ul-TimingAdvance                UL-TimingAdvance                    OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
        rb-UL-CiphActivationTimeInfodummy   RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            transportChannelReconfigurationComplete-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}
```

<snip>

```
-- **************************************************
--
-- UTRAN MOBILITY INFORMATION CONFIRM
--
-- **************************************************

UTRANMobilityInformationConfirm ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        ul-IntegProtActivationInfo      IntegrityProtActivationInfo         OPTIONAL,
    -- Radio bearer IEs
        count-C-ActivationTime          ActivationTime                      OPTIONAL,
        -- dummy is not used in this version of the specification and
        -- it should be ignored by the receiver.
        rb-UL-CiphActivationTimeInfodummy   RB-ActivationTimeInfoList           OPTIONAL,
        ul-CounterSynchronisationInfo   UL-CounterSynchronisationInfo       OPTIONAL,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            utranMobilityInformationConfirm-r3-add-ext      BIT STRING      OPTIONAL,
            nonCriticalExtensions           SEQUENCE {}     OPTIONAL
        }   OPTIONAL
}
```

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Tdoc ⌘R2-042696

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2471** ⌘**rev** **1** ⌘ Current version: **5.10.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	TFC Subset Variable Usage and Application of Transport Format Combination Subset
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	Nov 2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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

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

Reason for change: ⌘ The interaction between the TFC_SUBSET variable and the TFCS within reconfiguration messages is not clear.

In the current specification the usage of the variable TFC_SUBSET variable is defined in 8.2.5 in the context of the TRANSPORT FORMAT COMBINATION CONTROL message and procedure. But within section 8.6.5.9 and section 8.6.5.3 restrictions using the transport formation combination (sub)set are also defined when the IE “UL Transport channel information common for all transport channels” is included in a reconfiguration message.

It is not clear whether changes to the TFC Subset as described in sections 8.6.5.9 and 8.2.5.3 should be considered a change to the TFC_SUBSET variable as referenced in 8.2.5.

In addition it is not clear when changes to the fields “Current TFC Subset” and “Default TFC Subset” in the variable TFC_SUBSET should also be applied and whether these changes should be regaded as permanent or temporary restrictions. Also, the temporary application of TFCS restriction for a defined time specified by the IE “TFC Control Duration” is not consistently applied using the TFC_SUBSET variable IE “Duration”.

Summary of change:	⌘	Clarification on the usage of the TFC_SUBSET variable for the application of TFC Subset restrictions, is made consistently within sections 8.2.5, 8.6.5.3 and 8.6.5.9. It is also stated explicitly that a TFC subset restriction applied through means of a TRANSPORT FORMAT COMBINATION CONTROL message can be limited in time. This is applied temporarily for the time specified by the TFC_SUBSET variable IE "Duration". Any restriction in the TFCS by means of a reconfiguration procedure will be applied immediately and will remain effective until the TFCS is restricted by another message. **Isolated Impact Analysis:** This CR has isolated impact on the interaction of the TRANSPORT FORMAT COMBINATION CONTROL procedure and other TFC Subset restrictions. This is a correction to a function where specifications are erroneous. It would not affect implementations behaving as indicated in the CR, but would affect implementations supporting the corrected functionality otherwise. **Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues.** **Impact on test specifications:** No impact is foreseen.
Consequences if not approved:	⌘	UE may use an incorrect or not allowed TF and TFCS.

Clauses affected:	⌘	8.2.5.2, 8.2.5.3, 8.6.5.2, 8.6.5.3, 8.6.5.9			
Other specs Affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

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

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

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

8.2.5.2 Initiation

To initiate the transport format combination control procedure, the UTRAN transmits the TRANSPORT FORMAT COMBINATION CONTROL message on the downlink DCCH using AM, UM or TM RLC. When not stated otherwise elsewhere, the UTRAN may initiate the transport format combination control procedure also when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

To change the sub-set of allowed transport format combinations, the UTRAN should:

1> set the allowed TFCs in the IE " Transport Format Combination~~TFC~~ subset" ("TFC subset"). The UTRAN may specify the duration for which a new TFC sub-set applies by using the IE "TFC Control duration" and independently may specify the time at which a new TFC sub-set shall be applied using the IE "Activation Time".

To remove completely the previous restrictions of allowed transport format combinations, the UTRAN should:

1> set the IE "full transport format combination set" in the IE "TFC subset";~~.~~

2> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set".

8.2.5.3 Reception of a TRANSPORT FORMAT COMBINATION CONTROL message by the UE

If the TRANSPORT FORMAT COMBINATION CONTROL message was received on AM RLC or UM RLC, the UE shall:

1> act upon all received information elements as specified in 8.6, unless specified otherwise in the following;

1> perform the actions for the transport format combination subset specified in the IE "DPCH/PUSCH TFCS in uplink" according to subclause 8.6.5.3;

1> if the variable INVALID_CONFIGURATION is set to FALSE:

2> if the IE "TFC Control duration" is included in the message:

3> store the value of the IE "TFC Control duration" in the IE "Duration" in the variable TFC_SUBSET;

3> set the IE "Current TFC subset" (for the CCTrCH indicated by the IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET to the value of the IE "Transport format combination subset";

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET for the number of (10 ms) frames specified in the IE "~~TFC Control duration~~Duration";

3> at the end of the time period defined by the IE "~~TFC control duration~~Duration" in the variable TFC_SUBSET:

4> if the IE "Current TFC subset" (for the CCTrCH indicated by the IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET has not subsequently been changed by another message:

5> set the value of the IE "Current TFC subset" to the value of the IE "Default TFC subset" in the variable TFC_SUBSET;

5> clear the IE "Duration" in the variable TFC_SUBSET;

5> apply the transport format combination subset in the IE "Current TFC subset" stored ~~go back to any previous restriction of the transport format combination set defined by the content of the IE "Default TFC subset"~~ in the variable TFC_SUBSET;

~~5> set the value of the IE "Current TFC subset" in the variable TFC_SUBSET to the value of the IE "Default TFC subset" in the variable TFC_SUBSET;~~

~~5> clear the IE "Duration" in the variable TFC_SUBSET;.~~

2> if the IE "TFC Control duration" is not included in the message:

3> clear the value of the IE "Duration" in the variable TFC_SUBSET;

3> set both the IE "Current TFC subset" and the IE "Default TFC subset" (for the CCTrCH indicated by the IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET to the value of the IE "Transport format combination subset";

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET.

1> if the UE is unable to comply with the reconfiguration due to an invalid activation time:

2> set the variable INVALID_CONFIGURATION to TRUE.

If the TRANSPORT FORMAT COMBINATION CONTROL message was received on TM RLC, the UE shall:

1> consider the size of the transport block of the downlink transport channel where this message was received to select the format for the transparent format combination control mode as specified in subclause 12.4.1.1;

1> if the IE "TFC subset identity" identifies one of the TFC subsets stored in the IE "TFC subset list" in the variable TFC_SUBSET:

2> perform the actions as specified in subclause 8.6.5.3;

2> if the variable INVALID_CONFIGURATION is set to FALSE:

3> in the variable TFC_SUBSET, set the IE "Current TFC subset" and the IE “default TFC subset” to the value of the IE "TFC subset" in "TFC subset list" which is identified by the IE "TFC subset identity";

3> clear the IE "Duration" in the variable TFC_SUBSET;

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET.

1> if the IE "TFC subset identity" is greater than the maximum number of TFC subsets stored in the IE "TFC subset list" in the variable TFC_SUBSET:

2> set the variable INVALID_CONFIGURATION to TRUE.

The UE shall:

1> clear the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> and the procedure ends.

←---------- NEXT SECTION----------→

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included for the uplink, the UE shall for that direction:

1> store the new transport format combination set, or (if this exists) modify a previously stored transport format combination set according to IEs included in IE "Transport format combination set";

1> start to respect those transport format combinations;

1> if IE "Transport format combination subset" is received in this message:

2> perform the actions as specified in subclause 8.6.5.3.

1> if IE "Transport format combination subset" is not received in this message:

2> clear the IE "Duration" in the variable TFC_SUBSET;

2> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set".

If the IE "Transport format combination set" is included for the downlink, the UE shall for that direction:

1> store the new transport format combination set, or (if this exists) modify a previously stored transport format combination set according to IEs included in IE "Transport format combination set";

1> start to respect those transport format combinations;

~~1> if IE "Transport format combination subset" is received in this message:~~

~~2> perform the actions as specified in subclause 8.6.5.3~~

If the IE "Transport format combination set" is not included for the uplink and if there is no addition, removal or reconfiguration of transport channels, the UE shall for that direction:

1> use a previously stored transport format combination set if this exists.

If the IE "Transport format combination set" is not included for the downlink and if there is no addition, removal or reconfiguration of transport channels, the UE shall for that direction:

1> use a previously stored transport format combination set if this exists.

If the IE "Transport format combination set" is not included; and

1> if no transport format combination set is stored in the UE; or

1> if transport channels are added or removed in the message; or

1> if any transport channel is reconfigured in the message such that the size of the transport format set is changed:

the UE shall:

1> set the variable INVALID_CONFIGURATION to TRUE.

In the uplink TFCS the minimum set of TFCs is the set of TFCs that is needed for the TFC selection algorithm defined in [15] to give a predictable result. This set should always be included in the TFCS, and its use should never be restricted using the IE "TFC Subset". In the definition of the minimum set of TFCs below, only logical channels for which the TFCS or the TFC subset include at least one TFC with non-empty TF for the corresponding transport channel should be considered.

The minimum set of TFCs consists of the following:

1> for each UM logical channel:

2> a TFC with one transport block for this transport channel and empty TFs (see [34]) for all the others. If more than one TFC fulfils these criteria, only the TFC with the lowest number of bits should be included in the minimum set of TFCs.

1> for each AM logical channel:

2> a TFC with a non-empty TF for the corresponding transport channel and empty TFs for all other transport channels, where the non-empty TF includes one transport block with "Configured RLC Size" equal to the RLC PDU size.

1> for each set of "synchronous" TM logical channels (see the definition below) and for each set of SDU sizes associated with it:

2> a TFC with TFs corresponding to any combination of SDU sizes that can be received in a TTI from higher layers on the corresponding transport channels and empty TFs for all other transport channels.

1> for each TM logical channel that is not part of a set of "synchronous" TM logical channels (see the definition below):

2> a TFC with non-empty TFs for the corresponding transport channel, and empty TFs for all other transport channels, where

3> for non-segmented mode TM-RLC logical channels the non-empty TFs include, for the smallest SDU size that can be received in a single TTI from higher layer:

4> a TF with non-zero number of transport blocks with "Configured RLC Size" equal to the corresponding SDU size. If more than one TFC fulfils these criteria, only the TFC with the lowest number of bits in the TFC is included in the minimum set of TFCs.

3> for segmented mode TM-RLC, the non-empty TFs include any TF such that the number of transport blocks multiplied by the "Configured RLC Size" is equal to the smallest SDU size that can be received in a single TTI from higher layer.

1> an "empty" TFC (see [34]).

Furthermore, the UTRAN should ensure that the uplink TFCS and any configured TFC Subset satisfies the following rules:

1> for each TTI length with which at least one transport channel is configured:

2> for each combination of TFs for the transport channels configured with this TTI length included in the TFCS:

3> a TFC with these TFs for the transport channels configured with this TTI length and empty TFs on all transport channels configured with shorter TTI lengths is also included in the TFCS.

For TDD, the TFCS of a CCTrCH should include those of the above combinations, which include a TF with one transport block for a transport channel used in that CCTrCH, and the "empty" TFC should be included in the TFCS of every CCTrCH.

Synchronous TM logical channels are logical channels on which higher layer traffic is generated in a perfectly correlated fashion (e.g. AMR RAB).

NOTE: The "Configured RLC Size" is defined as the transport block size minus the MAC header size.

8.6.5.3 Transport format combination subset

When configuring a TFC Subset, the UTRAN should follow the guidelines defined in subclause 8.6.5.2.

If the IE "Transport format combination subset"("TFC subset") is included, the UE shall:

1> if the IE "Minimum allowed Transport format combination index" is included; and

2> if the value of the IE "Minimum allowed Transport format combination index" is greater than the highest TFCI value in the current transport format combination set:

3> consider the TFC subset to be incompatible with the current transport format combination set.

1> if the IE "Allowed transport format combination list" is included; and

2> if the value of any of the IEs "Allowed transport format combination" included in the IE "Allowed transport format combination list" does not match a TFCI value in the current transport format combination set:

3> consider the TFC subset to be incompatible with the current transport format combination set.

1> if the IE "Non-allowed transport format combination list" is included; and

2> if the value of any of the IEs "Non-allowed transport format combination" included in the IE "Non-allowed transport format combination list" does not match a TFCI value in the current transport format combination set:

3> consider the TFC subset to be incompatible with the current transport format combination set.

1> if the IE "Restricted TrCH information" is included:

2> if the value of any of the IEs "Uplink transport channel type" and "Restricted UL TrCH identity" included in the IE "Restricted TrCH information" do not correspond to any of the transport channels for which the current transport format combination set is valid:

3> consider the TFC subset to be incompatible with the current transport format combination set.

2> if the IE "Allowed TFIs" is included; and

3> if the value of each of the IEs "Allowed TFI" included in the IE "Allowed TFIs" corresponds to a transport format for that transport channel within the current transport format combination set:

4> allow all transport format combinations that include these transport formats for the transport channel;

4> restrict all other transport format combinations.

3> else:

4> consider the TFC subset to be incompatible with the current transport format combination set.

2> if the IE "Allowed TFIs" is not included:

3> restrict all transport format combinations where the transport channel has a transport format of non-zero rate.

1> if the UE considers the TFC subset to be incompatible with the current Transport format combination set according to the above:

2> keep any previous restriction of the transport format combination set;

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if the UE does not consider the TFC subset to be incompatible with the current Transport format combination set according to the above:

2> if the IE "Transport format combination subset"~~(TFC subset")~~ is received in a message other than a TRANSPORT FORMAT COMBINATION CONTROL message:

3> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the IE "Transport format combination subset" (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id");

3> clear the IE "Duration" in the variable TFC_SUBSET.

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET.

~~2> restrict the transport format combination set in the uplink to the value of the IE "Transport format combination subset" (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id");~~

~~if the IE "Transport format combination subset"("TFC subset") is received in another message than a TRANSPORT FORMAT COMBINATION CONTROL message:~~

~~3> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the IE "Transport format combination subset" (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id");~~

~~2> clear the IE "Duration" in the variable TFC_SUBSET.~~

1> if the IE "transport format combination subset" indicates the "full transport format combination set":

2> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set".

2> clear the IE "Duration" in the variable TFC_SUBSET.

2> any restriction on transport format combination set is released and the UE may use the full transport format combination set.

←---------- NEXT SECTION----------→

8.6.5.9 UL Transport channel information common for all transport channels

If the IE "UL Transport channel information common for all transport channels" is included the UE shall:

1> perform actions for the IE "TFC subset" as specified in subclause 8.6.5.3;

1> if the IE "PRACH TFCS" is included:

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if the IE has the choice "mode" set to FDD:

2> perform actions for the IE "UL DCH TFCS" as specified in subclause 8.6.5.2.

1> if the IE has the choice "mode" set to TDD:

2> if the IE "Individual UL CCTrCH information" is included:

3> for each TFCS identified by IE "UL TFCS id":

4> perform actions for the IE "UL TFCS" as specified in subclause 8.6.5.2.

1> if the IE "TFC subset list" is included:

2> remove a previously stored TFC subset list if this exists in the IE "TFC subset list" in the variable TFC_SUBSET;

2> store the IE "TFC subset list" in the IE "TFC subset list" in the variable TFC_SUBSET;

2> consider the first instance of the IE "TFC subset" in the IE "TFC subset list" as Transport Format Combination Subset 0 (TFC subset identity = 0), the second instance as Transport Format Combination Subset 1 (TFC subset identity = 1) and so on.

NOTE: The UTRAN should not modify the TFC subset list when a temporary restriction of the TFC ~~sub~~set ~~signalled in~~is being applied, due to the reception of the IE "TFC Control Duration" in a TRANSPORT FORMAT COMBINATION CONTROL message is still being applied.

←---------- NEXT SECTION----------→

13.4.24 TFC_SUBSET

This variable contains information about the TFC subset(s) applicable to the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE *mode*	MP				
>FDD					
>>Current TFC subset	MP		Transport Format Combination Subset 10.3.5.22	Set to "Full transport format set" when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>Duration	OP		TFC Control duration 10.3.6.80	Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	
>>Default TFC subset	OP		Transport Format Combination Subset 10.3.5.22	The TFC subset to go back to when any temporary limitation is released. Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>TFC subset list	MP	1 to <maxTFCsub>			REL-4
>>>TFC subset	MP		Transport Format Combination Subset 10.3.5.22		REL-4
>TDD					
>>TFCS list	MP	1 to < maxCCTrCH >		One TFCS is created when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>>TFCS identity	MP		Transport Format Combination Set Identity 10.3.5.21	"TFCS ID" is set to 1 when entering UTRA RRC connected mode when not stated otherwise in the procedure. "Shared channel indicator" is set to FALSE when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>>Current TFC subset	MP		Transport Format Combination Subset 10.3.5.22	Set to "Full transport format set" when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>>>Duration	OP		TFC Control duration 10.3.6.80	Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	
>>>>Default TFC subset	OP		Transport Format Combination Subset 10.3.5.22	The TFC subset to go back to when any temporary limitation is released. Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	
>>TFC subset list	MP	1 to <maxTFCsub>			REL-4
>>>TFCS identity	MP		Transport Format Combination Set Identity 10.3.5.21		REL-4
>>>TFC subset	MP		Transport Format Combination Subset 10.3.5.22		REL-4

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CR-Form-v7.1

CHANGE REQUEST

⌘ **25.331** **CR** **2472** ⌘**rev** **1** ⌘ Current version: **6.3.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	TFC Subset Variable Usage and Application of Transport Format Combination Subset
Source:	⌘	RAN WG2
Work item code:	⌘	TEI5
Date:	⌘	Nov 2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change: ⌘ The interaction between the TFC_SUBSET variable and the TFCS within reconfiguration messages is not clear.

In the current specification the usage of the variable TFC_SUBSET variable is defined in 8.2.5 in the context of the TRANSPORT FORMAT COMBINATION CONTROL message and procedure. But within section 8.6.5.9 and section 8.6.5.3 restrictions using the transport formation combination (sub)set are also defined when the IE “UL Transport channel information common for all transport channels” is included in a reconfiguration message.

It is not clear whether changes to the TFC Subset as described in sections 8.6.5.9 and 8.2.5.3 should be considered a change to the TFC_SUBSET variable as referenced in 8.2.5.

In addition it is not clear when changes to the fields “Current TFC Subset” and “Default TFC Subset” in the variable TFC_SUBSET should also be applied and whether these changes should be regaded as permanent or temporary restrictions. Also, the temporary application of TFCS restriction for a defined time specified by the IE “TFC Control Duration” is not consistently applied using the TFC_SUBSET variable IE “Duration”.

Summary of change:	⌘	Clarification on the usage of the TFC_SUBSET variable for the application of TFC Subset restrictions, is made consistently within sections 8.2.5, 8.6.5.3 and 8.6.5.9. It is also stated explicitly that a TFC subset restriction applied through means of a TRANSPORT FORMAT COMBINATION CONTROL message can be limited in time. This is applied temporarily for the time specified by the TFC_SUBSET variable IE "Duration". Any restriction in the TFCS by means of a reconfiguration procedure will be applied immediately and will remain effective until the TFCS is restricted by another message. **Isolated Impact Analysis:** This CR has isolated impact on the interaction of the TRANSPORT FORMAT COMBINATION CONTROL procedure and other TFC Subset restrictions. This is a correction to a function where specifications are erroneous. It would not affect implementations behaving as indicated in the CR, but would affect implementations supporting the corrected functionality otherwise. Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues. **Impact on test specifications:** No impact is foreseen.
Consequences if not approved:	⌘	UE may use an incorrect or not allowed TF and TFCS.

Clauses affected:	⌘	8.2.5.2, 8.2.5.3, 8.6.5.2, 8.6.5.3, 8.6.5.9			
		Y	**N**		
Other specs Affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

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

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

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

8.2.5.2 Initiation

To initiate the transport format combination control procedure, the UTRAN transmits the TRANSPORT FORMAT COMBINATION CONTROL message on the downlink DCCH using AM, UM or TM RLC. When not stated otherwise elsewhere, the UTRAN may initiate the transport format combination control procedure also when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

To change the sub-set of allowed transport format combinations, the UTRAN should:

1> set the allowed TFCs in the IE " Transport Format Combination~~TFC~~ subset" ("TFC subset"). The UTRAN may specify the duration for which a new TFC sub-set applies by using the IE "TFC Control duration" and independently may specify the time at which a new TFC sub-set shall be applied using the IE "Activation Time".

To remove completely the previous restrictions of allowed transport format combinations, the UTRAN should:

1> set the IE "full transport format combination set" in the IE "TFC subset";~~.~~

2> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set".

8.2.5.3 Reception of a TRANSPORT FORMAT COMBINATION CONTROL message by the UE

If the TRANSPORT FORMAT COMBINATION CONTROL message was received on AM RLC or UM RLC, the UE shall:

1> act upon all received information elements as specified in 8.6, unless specified otherwise in the following;

1> perform the actions for the transport format combination subset specified in the IE "DPCH/PUSCH TFCS in uplink" according to subclause 8.6.5.3;

1> if the variable INVALID_CONFIGURATION is set to FALSE:

2> if the IE "TFC Control duration" is included in the message:

3> store the value of the IE "TFC Control duration" in the IE "Duration" in the variable TFC_SUBSET;

3> set the IE "Current TFC subset" (for the CCTrCH indicated by the IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET to the value of the IE "Transport format combination subset";

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET for the number of (10 ms) frames specified in the IE "~~TFC Control duration~~Duration";

3> at the end of the time period defined by the IE "~~TFC control duration~~Duration" in the variable TFC_SUBSET:

4> if the IE "Current TFC subset" (for the CCTrCH indicated by the IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET has not subsequently been changed by another message:

5> set the value of the IE "Current TFC subset" to the value of the IE "Default TFC subset" in the variable TFC_SUBSET;

5> clear the IE "Duration" in the variable TFC_SUBSET;

5> apply the transport format combination subset in the IE "Current TFC subset" stored ~~go back to any previous restriction of the transport format combination set defined by the content of the IE "Default TFC subset"~~ in the variable TFC_SUBSET;

~~5> set the value of the IE "Current TFC subset" in the variable TFC_SUBSET to the value of the IE "Default TFC subset" in the variable TFC_SUBSET;~~

~~5> clear the IE "Duration" in the variable TFC_SUBSET;.~~

2> if the IE "TFC Control duration" is not included in the message:

3> clear the value of the IE "Duration" in the variable TFC_SUBSET;

3> set both the IE "Current TFC subset" and the IE "Default TFC subset" (for the CCTrCH indicated by the IE "TFCS Id" in case of TDD) in the variable TFC_SUBSET to the value of the IE "Transport format combination subset";~~.~~

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET.

~~1> if the UE is unable to comply with the reconfiguration due to an invalid activation time:~~

~~2> set the variable INVALID_CONFIGURATION to TRUE.~~

If the TRANSPORT FORMAT COMBINATION CONTROL message was received on TM RLC, the UE shall:

1> consider the size of the transport block of the downlink transport channel where this message was received to select the format for the transparent format combination control mode as specified in subclause 12.4.1.1;

1> if the IE "TFC subset identity" identifies one of the TFC subsets stored in the IE "TFC subset list" in the variable TFC_SUBSET:

2> perform the actions as specified in subclause 8.6.5.3;

2> if the variable INVALID_CONFIGURATION is set to FALSE:

3> in the variable TFC_SUBSET, set the IE "Current TFC subset" and the IE “default TFC subset” to the value of the IE "TFC subset" in "TFC subset list" which is identified by the IE "TFC subset identity";~~.~~

3> clear the IE "Duration" in the variable TFC_SUBSET;

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET.

1> if the IE "TFC subset identity" is greater than the maximum number of TFC subsets stored in the IE "TFC subset list" in the variable TFC_SUBSET:

2> set the variable INVALID_CONFIGURATION to TRUE.

The UE shall:

1> clear the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> and the procedure ends.

←---------- NEXT SECTION----------→

8.6.5.2 Transport format combination set

If the IE "Transport format combination set" is included for the uplink, the UE shall for that direction:

1> store the new transport format combination set, or (if this exists) modify a previously stored transport format combination set according to IEs included in IE "Transport format combination set";

1> start to respect those transport format combinations;

1> if IE "Transport format combination subset" is received in this message:

2> perform the actions as specified in subclause 8.6.5.3.

1> if IE "Transport format combination subset" is not received in this message:

2> clear the IE "Duration" in the variable TFC_SUBSET;

2> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set".

If the IE "Transport format combination set" is included for the downlink, the UE shall for that direction:

1> store the new transport format combination set, or (if this exists) modify a previously stored transport format combination set according to IEs included in IE "Transport format combination set";

1> start to respect those transport format combinations;

~~1> if IE "Transport format combination subset" is received in this message:~~

~~2> perform the actions as specified in subclause 8.6.5.3~~

If the IE "Transport format combination set" is not included for the uplink and if there is no addition, removal or reconfiguration of transport channels, the UE shall for that direction:

1> use a previously stored transport format combination set if this exists.

If the IE "Transport format combination set" is not included for the downlink and if there is no addition, removal or reconfiguration of transport channels, the UE shall for that direction:

1> use a previously stored transport format combination set if this exists.

If the IE "Transport format combination set" is not included; and

1> if no transport format combination set is stored in the UE; or

1> if transport channels are added or removed in the message; or

1> if any transport channel is reconfigured in the message such that the size of the transport format set is changed:

the UE shall:

1> set the variable INVALID_CONFIGURATION to TRUE.

In the uplink TFCS the minimum set of TFCs is the set of TFCs that is needed for the TFC selection algorithm defined in [15] to give a predictable result. This set should always be included in the TFCS, and its use should never be restricted using the IE "TFC Subset". In the definition of the minimum set of TFCs below, only logical channels for which the TFCS or the TFC subset include at least one TFC with non-empty TF for the corresponding transport channel should be considered.

The minimum set of TFCs consists of the following:

1> for each UM logical channel:

2> a TFC with one transport block for this transport channel and empty TFs (see [34]) for all the others. If more than one TFC fulfils these criteria, only the TFC with the lowest number of bits should be included in the minimum set of TFCs.

1> for each AM logical channel:

2> a TFC with a non-empty TF for the corresponding transport channel and empty TFs for all other transport channels, where the non-empty TF includes one transport block with "Configured RLC Size" equal to the RLC PDU size.

1> for each set of "synchronous" TM logical channels (see the definition below) and for each set of SDU sizes associated with it:

2> a TFC with TFs corresponding to any combination of SDU sizes that can be received in a TTI from higher layers on the corresponding transport channels and empty TFs for all other transport channels.

1> for each TM logical channel that is not part of a set of "synchronous" TM logical channels (see the definition below):

2> a TFC with non-empty TFs for the corresponding transport channel, and empty TFs for all other transport channels, where

3> for non-segmented mode TM-RLC logical channels the non-empty TFs include, for the smallest SDU size that can be received in a single TTI from higher layer:

4> a TF with non-zero number of transport blocks with "Configured RLC Size" equal to the corresponding SDU size. If more than one TFC fulfils these criteria, only the TFC with the lowest number of bits in the TFC is included in the minimum set of TFCs.

3> for segmented mode TM-RLC, the non-empty TFs include any TF such that the number of transport blocks multiplied by the "Configured RLC Size" is equal to the smallest SDU size that can be received in a single TTI from higher layer.

1> an "empty" TFC (see [34]).

Furthermore, the UTRAN should ensure that the uplink TFCS and any configured TFC Subset satisfies the following rules:

1> for each TTI length with which at least one transport channel is configured:

2> for each combination of TFs for the transport channels configured with this TTI length included in the TFCS:

3> a TFC with these TFs for the transport channels configured with this TTI length and empty TFs on all transport channels configured with shorter TTI lengths is also included in the TFCS.

For TDD, the TFCS of a CCTrCH should include those of the above combinations, which include a TF with one transport block for a transport channel used in that CCTrCH, and the "empty" TFC should be included in the TFCS of every CCTrCH.

Synchronous TM logical channels are logical channels on which higher layer traffic is generated in a perfectly correlated fashion (e.g. AMR RAB).

NOTE: The "Configured RLC Size" is defined as the transport block size minus the MAC header size.

8.6.5.3 Transport format combination subset

When configuring a TFC Subset, the UTRAN should follow the guidelines defined in subclause 8.6.5.2.

If the IE "Transport format combination subset"("TFC subset") is included, the UE shall:

1> if the IE "Minimum allowed Transport format combination index" is included; and

2> if the value of the IE "Minimum allowed Transport format combination index" is greater than the highest TFCI value in the current transport format combination set:

3> consider the TFC subset to be incompatible with the current transport format combination set.

1> if the IE "Allowed transport format combination list" is included; and

2> if the value of any of the IEs "Allowed transport format combination" included in the IE "Allowed transport format combination list" does not match a TFCI value in the current transport format combination set:

3> consider the TFC subset to be incompatible with the current transport format combination set.

1> if the IE "Non-allowed transport format combination list" is included; and

2> if the value of any of the IEs "Non-allowed transport format combination" included in the IE "Non-allowed transport format combination list" does not match a TFCI value in the current transport format combination set:

3> consider the TFC subset to be incompatible with the current transport format combination set.

1> if the IE "Restricted TrCH information" is included:

2> if the value of any of the IEs "Uplink transport channel type" and "Restricted UL TrCH identity" included in the IE "Restricted TrCH information" do not correspond to any of the transport channels for which the current transport format combination set is valid:

3> consider the TFC subset to be incompatible with the current transport format combination set.

2> if the IE "Allowed TFIs" is included; and

3> if the value of each of the IEs "Allowed TFI" included in the IE "Allowed TFIs" corresponds to a transport format for that transport channel within the current transport format combination set:

4> allow all transport format combinations that include these transport formats for the transport channel;

4> restrict all other transport format combinations.

3> else:

4> consider the TFC subset to be incompatible with the current transport format combination set.

2> if the IE "Allowed TFIs" is not included:

3> restrict all transport format combinations where the transport channel has a transport format of non-zero rate.

1> if the UE considers the TFC subset to be incompatible with the current Transport format combination set according to the above:

2> keep any previous restriction of the transport format combination set;

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if the UE does not consider the TFC subset to be incompatible with the current Transport format combination set according to the above:

2> if the IE "Transport format combination subset"~~(TFC subset")~~ is received in a message other than a TRANSPORT FORMAT COMBINATION CONTROL message:

3> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the IE "Transport format combination subset" (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id");

3> clear the IE "Duration" in the variable TFC_SUBSET.

3> apply the transport format combination subset in the IE "Current TFC subset" stored in the variable TFC_SUBSET.

~~2> restrict the transport format combination set in the uplink to the value of the IE "Transport format combination subset" (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id");~~

~~if the IE "Transport format combination subset"("TFC subset") is received in another message than a TRANSPORT FORMAT COMBINATION CONTROL message:~~

~~3> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the IE "Transport format combination subset" (in case of TDD for the uplink CCTrCH specified by the IE "TFCS Id");~~

~~2> clear the IE "Duration" in the variable TFC_SUBSET.~~

1> if the IE "transport format combination subset" indicates the "full transport format combination set":

2> set both the IE "Current TFC subset" and the IE "Default TFC subset" in the variable TFC_SUBSET to the value indicating "full transport format combination set".

2> clear the IE "Duration" in the variable TFC_SUBSET.

2> any restriction on transport format combination set is released and the UE may use the full transport format combination set.

←---------- NEXT SECTION----------→

8.6.5.9 UL Transport channel information common for all transport channels

If the IE "UL Transport channel information common for all transport channels" is included the UE shall:

1> perform actions for the IE "TFC subset" as specified in subclause 8.6.5.3;

1> if the IE "PRACH TFCS" is included:

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if the IE has the choice "mode" set to FDD:

2> perform actions for the IE "UL DCH TFCS" as specified in subclause 8.6.5.2.

1> if the IE has the choice "mode" set to TDD:

2> if the IE "Individual UL CCTrCH information" is included:

3> for each TFCS identified by IE "UL TFCS id":

4> perform actions for the IE "UL TFCS" as specified in subclause 8.6.5.2.

1> if the IE "TFC subset list" is included:

2> remove a previously stored TFC subset list if this exists in the IE "TFC subset list" in the variable TFC_SUBSET;

2> store the IE "TFC subset list" in the IE "TFC subset list" in the variable TFC_SUBSET;

2> consider the first instance of the IE "TFC subset" in the IE "TFC subset list" as Transport Format Combination Subset 0 (TFC subset identity = 0), the second instance as Transport Format Combination Subset 1 (TFC subset identity = 1) and so on.

NOTE: The UTRAN should not modify the TFC subset list when a temporary restriction of the TFC ~~sub~~set ~~signalled in~~is being applied, due to the reception of the IE "TFC Control Duration" in a TRANSPORT FORMAT COMBINATION CONTROL message is still being applied.

←---------- NEXT SECTION----------→

13.4.24 TFC_SUBSET

This variable contains information about the TFC subset(s) applicable to the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
CHOICE *mode*	MP				
>FDD					
>>Current TFC subset	MP		Transport Format Combination Subset 10.3.5.22	Set to "Full transport format set" when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>Duration	OP		TFC Control duration 10.3.6.80	Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	
>>Default TFC subset	OP		Transport Format Combination Subset 10.3.5.22	The TFC subset to go back to when any temporary limitation is released. Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
>>TFC subset list	MP	1 to <maxTFCsub>			REL-4
>>>TFC subset	MP		Transport Format Combination Subset 10.3.5.22		REL-4
>TDD					
>>TFCS list	MP	1 to < maxCCTrCH >		One TFCS is created when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>>TFCS identity	MP		Transport Format Combination Set Identity 10.3.5.21	"TFCS ID" is set to 1 when entering UTRA RRC connected mode when not stated otherwise in the procedure. "Shared channel indicator" is set to FALSE when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>>Current TFC subset	MP		Transport Format Combination Subset 10.3.5.22	Set to "Full transport format set" when entering UTRA RRC connected mode when not stated otherwise in the procedure.	
>>>>Duration	OP		TFC Control duration 10.3.6.80	Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	
>>>>Default TFC subset	OP		Transport Format Combination Subset 10.3.5.22	The TFC subset to go back to when any temporary limitation is released. Cleared when entering UTRA RRC connected mode. Cleared when leaving UTRA RRC connected mode.	
>>TFC subset list	MP	1 to <maxTFCsub>			REL-4
>>>TFCS identity	MP		Transport Format Combination Set Identity 10.3.5.21		REL-4
>>>TFC subset	MP		Transport Format Combination Subset 10.3.5.22		REL-4