TSG-RAN Meeting #17 ***RP-020544***
Biarritz, France, 3 - 6 September 2002

Title: **Agreed CRs (Release '99 and Rel-4/Rel-5 category A) to TS 25.331**

Source: **TSG-RAN WG2**

Agenda item: **7.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Versio	Versio
R2-022244	agreed	25.331	1564		R99	Clarifications to Reporting Cell Status	F	3.11.0	3.12.0
R2-022245	agreed	25.331	1565		Rel-4	Clarifications to Reporting Cell Status	A	4.5.0	4.6.0
R2-022246	agreed	25.331	1566		Rel-5	Clarifications to Reporting Cell Status	A	5.1.0	5.2.0
R2-022247	agreed	25.331	1567		R99	Clarification to minimum SF	F	3.11.0	3.12.0
R2-022248	agreed	25.331	1568		Rel-4	Clarification to minimum SF	A	4.5.0	4.6.0
R2-022249	agreed	25.331	1569		Rel-5	Clarification to minimum SF	A	5.1.0	5.2.0
R2-022250	agreed	25.331	1570		R99	Clarifications to inter-frequency measurements	F	3.11.0	3.12.0
R2-022251	agreed	25.331	1571		Rel-4	Clarifications to inter-frequency measurements	A	4.5.0	4.6.0
R2-022252	agreed	25.331	1572		Rel-5	Clarifications to inter-frequency measurements	A	5.1.0	5.2.0
R2-022447	agreed	25.331	1576	2	R99	Ciphering when HO to UMTS of signalling only	F	3.11.0	3.12.0
R2-022448	agreed	25.331	1577	2	Rel-4	Ciphering when HO to UMTS of signalling only	A	4.5.0	4.6.0
R2-022449	agreed	25.331	1578	2	Rel-5	Ciphering when HO to UMTS of signalling only	A	5.1.0	5.2.0
R2-022265	agreed	25.331	1579		R99	Inter RAT handover from UTRAN	F	3.11.0	3.12.0
R2-022266	agreed	25.331	1580		Rel-4	Inter RAT handover from UTRAN	A	4.5.0	4.6.0
R2-022267	agreed	25.331	1581		Rel-5	Inter RAT handover from UTRAN	A	5.1.0	5.2.0
R2-022259	agreed	25.331	1582		R99	Correction to Cell Update procedure with cause	F	3.11.0	3.12.0
R2-022260	agreed	25.331	1583		Rel-4	Correction to Cell Update procedure with cause	A	4.5.0	4.6.0
R2-022261	agreed	25.331	1584		Rel-5	Correction to Cell Update procedure with cause	A	5.1.0	5.2.0

3GPP TSG-RAN WG2 Meeting #31
Stockholm, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022244

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1564** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

*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:	⌘	Clarifications to Reporting Cell Status
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**F**
Release:	⌘	R99

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: ⌘

1. Periodic, intra-frequency measurements specified in SIB11/12 have no IE "Reporting cell status".
2. Section 10.3.7.61 only partially specifies the valid choices for "reported cell" within Reporting cell status.
3. There is no definition of what the monitored set on the non-used frequency is.

Summary of change: ⌘

1. Indicate that the UE should behave as if "Reporting cell status" were included in ASN.1 and always set to "within active set" to report up to 6 cells.
2. The choice for "reported cell" is clarified by indicating that choices including "active set" are also not valid for inter-frequency measurements.
3. The monitored set on the non-used frequency is defined to be cells in "cells for measurement" on that frequency not in the virtual active set.

Updates are highlighted in yellow.

Impact Analysis:
Impact is isolated to "Reporting cell status":

- Correction to a function where the specification was
  - Unclear

Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘

1. Periodic, intra-frequency measurements as specified in SIB11/12 cannot be used as different UE implementations will make different assumptions.
2. Unclear that choices for "reported cell" including the active set are only valid for intra-frequency measurements.

	3. Different possible assumptions for the monitored set on the non-used frequency.

Clauses affected:	⌘	8.6.7.9, 10.7.3.61, 14.2.1			
		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:

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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.

8.6.7.9 Reporting Cell Status

If the IE "Reporting Cell Status" is received, the UE shall set the IE "Measured Results" in MEASUREMENT REPORT as follows. The UE shall:

1> for intra-frequency measurement and inter-frequency measurement:

2> include the IE "Cell Measured Results" for cells (excluding cells of another RAT) that satisfy the condition (such as "Report cells within active set") specified in the IE "Reporting Cell Status", in descending order by the measurement quantity.

2> the maximum number of the IE "Cell Measured Results" to be included in the IE "Measured Results" is the number specified in the IE "Reporting Cell Status".

1> for inter-RAT measurement:

2> include the measurement results for cells of other RAT (e.g., GSM) that satisfy the condition specified in the IE "Reporting Cell Status", in descending order by the measurement quantity.

2> the maximum number of the IE "Measured GSM Cells" to be included in the IE "Measured Results" is the number specified in the IE "Reporting Cell Status".

If the IE "Reporting Cell Status" is not received for intra-frequency, inter-frequency measurement, or inter-RAT measurement, the UE shall:

1> for intra-frequency measurement and inter-frequency measurement:

2> exclude the IE "Cell Measured Results" for any cell in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" within "Event Criteria List" defines whether "Cell Measured Results" is present for event-based reporting.

1> for inter-RAT measurement:

2> exclude the IE "Measured GSM Cells" for any cell in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" is not included in SIB 11/12 for periodic intra-frequency measurements. In this case the UE shall assume the default values "Report cells within active set and/or monitored set on used frequency" and "e6".

10.3.7.61 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells and/or virtual active set cells and/or monitored set cells on and/or detected set cells used frequency and/or monitored set cells on non used frequency should/should not be included in the IE "Measured results".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *reported cell*	MP			
>Report cells within active set				This choice is not valid for inter-RAT or periodic inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set cells on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within active set and/or monitored set cells on				This choice is not valid for inter-RAT or inter-frequency

Information Element/Group name	Need	Multi	Type and reference	Semantics description
used frequency				measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report all active set cells + cells within monitored set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells within virtual active set				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored and/or virtual active set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report all virtual active set cells + cells within monitored set				This choice is not valid for intra-frequency or inter-RAT

Information Element/Group name	Need	Multi	Type and reference	Semantics description
on non-used frequency				measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells within active set or within virtual active set or of the other RAT				If this choice is selected for inter-RAT measurements, the UE shall report only cells of the other RAT. If this choice is selected for intra-frequency ~~or inter-frequency~~ measurements, the UE shall report cells within the active set. If this choice is selected for inter-frequency measurements, the UE shall report cells ~~or~~ within the virtual active set.
>>Maximum number of reported cells	MP		Integer (1..12)	
>Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..12)	

14.2.1 Inter-frequency reporting events

Within the measurement reporting criteria field in the MEASUREMENT CONTROL message UTRAN notifies the UE which events should trigger the UE to send a MEASUREMENT REPORT message. The listed events are the toolbox from which the UTRAN can choose the reporting events that are needed for the implemented handover evaluation function, or other radio network functions.

All events are evaluated with respect to one of the measurement quantities given in subclause 14.2.0a. The measurement quantities are measured on the monitored primary common pilot channels (CPICH) in FDD mode and the monitored primary common control channels (PCCPCH) in TDD mode of the cell defined in the measurement object. A "non-used frequency" is a frequency that the UE has been ordered to measure upon but is not used for the connection. A "used frequency" is a frequency that the UE has been ordered to measure upon and is also currently used for the connection.

The "monitored set on non-used frequency" consists of cells in "cells for measurement" (or all cells in CELL_INFO_LIST if "cells for measurement" is not present) that are not part of the virtual active set on that non-used frequency.

3GPP TSG-RAN WG2 Meeting #31
Stockholm, Sweden, 19th – 23rd August 2002

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CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1565** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

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

Title: ⌘	Clarifications to Reporting Cell Status	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 22/08/2002
Category: ⌘	**A**	***Release:*** ⌘ Rel-4

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

Reason for change: ⌘

1. Periodic, intra-frequency measurements specified in SIB11/12 have no IE "Reporting cell status".
2. Section 10.3.7.61 only partially specifies the valid choices for "reported cell" within Reporting cell status.
3. There is no definition of what the monitored set on the non-used frequency is.

Summary of change: ⌘

1. Indicate that the UE should behave as if "Reporting cell status" were included in ASN.1 and always set to "within active set" to report up to 6 cells.
2. The choice for "reported cell" is clarified by indicating that choices including "active set" are also not valid for inter-frequency measurements.
3. The monitored set on the non-used frequency is defined to be cells in "cells for measurement" on that frequency not in the virtual active set.

Updates are highlighted in yellow.

Impact Analysis:
Impact is isolated to "Reporting cell status":

- Correction to a function where the specification was
  - Unclear

Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘

1. Periodic, intra-frequency measurements as specified in SIB11/12 cannot be used as different UE implementations will make different assumptions.
2. Unclear that choices for "reported cell" including the active set are only valid for intra-frequency measurements.

	3. Different possible assumptions for the monitored set on the non-used frequency.

Clauses affected:	⌘	8.6.7.9, 10.7.3.61, 14.2.1			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	1. Unclear how the UE should behave regarding Reporting cell status for periodic intra-frequency measurement specified in SIB11/12.			

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8.6.7.9 Reporting Cell Status

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2> the maximum number of the IE "Cell Measured Results" to be included in the IE "Measured Results" is the number specified in the IE "Reporting Cell Status".

1> for inter-RAT measurement:

2> include the measurement results for cells of other RAT (e.g., GSM) that satisfy the condition specified in the IE "Reporting Cell Status", in descending order by the measurement quantity.

2> the maximum number of the IE "Measured GSM Cells" to be included in the IE "Measured Results" is the number specified in the IE "Reporting Cell Status".

If the IE "Reporting Cell Status" is not received for intra-frequency, inter-frequency measurement, or inter-RAT measurement, the UE shall:

1> for intra-frequency measurement and inter-frequency measurement:

2> exclude the IE "Cell Measured Results" for any cell in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" within "Event Criteria List" defines whether "Cell Measured Results" is present for event-based reporting.

1> for inter-RAT measurement:

2> exclude the IE "Measured GSM Cells" for any cell in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" is not included in SIB 11/12 for periodic intra-frequency measurements. In this case the UE shall assume the default values "Report cells within active set and/or monitored set on used frequency " and "e6".

10.3.7.61 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells and/or virtual active set cells and/or monitored set cells on and/or detected set cells used frequency and/or monitored set cells on non used frequency should/should not be included in the IE "Measured results".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *reported cell*	MP			
>Report cells within active set				This choice is not valid for inter-RAT or periodic inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set cells on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within active set				This choice is not valid for

Information Element/Group name	Need	Multi	Type and reference	Semantics description
and/or monitored set cells on used frequency				inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report all active set cells + cells within monitored set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells within virtual active set				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored and/or virtual active set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>Report all virtual active set cells + cells within monitored set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells within active set or within virtual active set or of the other RAT				If this choice is selected for inter-RAT measurements, the UE shall report only cells of the other RAT. If this choice is selected for intra-frequency ~~or inter-frequency~~ measurements, the UE shall report cells within active set. If this choice is selected for inter-frequency measurements, the UE shall report cells ~~or~~ within the virtual active set.
>>Maximum number of reported cells	MP		Integer (1..12)	
>Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..12)	

14.2.1 Inter-frequency reporting events

Within the measurement reporting criteria field in the MEASUREMENT CONTROL message UTRAN notifies the UE which events should trigger the UE to send a MEASUREMENT REPORT message. The listed events are the toolbox from which the UTRAN can choose the reporting events that are needed for the implemented handover evaluation function, or other radio network functions.

All events are evaluated with respect to one of the measurement quantities given in subclause 14.2.0a. The measurement quantities are measured on the monitored primary common pilot channels (CPICH) in FDD mode and the monitored primary common control channels (PCCPCH) in TDD mode of the cell defined in the measurement object. A "non-used frequency" is a frequency that the UE has been ordered to measure upon but is not used for the connection. A "used frequency" is a frequency that the UE has been ordered to measure upon and is also currently used for the connection.

~~NOTE:~~ The "monitored set on non-used frequency" consists of cells in "cells for measurement" (or all cells in CELL_INFO_LIST if "cells for measurement" is not present) that are not part of the virtual active set on that non-used frequency.

3GPP TSG-RAN WG2 Meeting #31
Stockholm, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022246

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1566** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

*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: ⌘	Clarifications to Reporting Cell Status	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 22/08/2002
Category: ⌘	**A**	***Release:*** ⌘ Rel-5

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Use one of the following releases:

2	*(GSM Phase 2)*
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Reason for change: ⌘

1. Periodic, intra-frequency measurements specified in SIB11/12 have no IE "Reporting cell status".
2. Section 10.3.7.61 only partially specifies the valid choices for "reported cell" within Reporting cell status.
3. There is no definition of what the monitored set on the non-used frequency is.

Summary of change: ⌘

1. Indicate that the UE should behave as if "Reporting cell status" were included in ASN.1 and always set to "within active set" to report up to 6 cells.
2. The choice for "reported cell" is clarified by indicating that choices including "active set" are also not valid for inter-frequency measurements.
3. The monitored set on the non-used frequency is defined to be cells in "cells for measurement" on that frequency not in the virtual active set.

Updates are highlighted in yellow.

Impact Analysis:
Impact is isolated to "Reporting cell status":

- Correction to a function where the specification was
  - Unclear

Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘

1. Periodic, intra-frequency measurements as specified in SIB11/12 cannot be used as different UE implementations will make different assumptions.
2. Unclear that choices for "reported cell" including the active set are only valid for intra-frequency measurements.

	3. Different possible assumptions for the monitored set on the non-used frequency.

Clauses affected:	⌘	8.6.7.9, 10.7.3.61, 14.2.1			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	1. Unclear how the UE should behave regarding Reporting cell status for periodic intra-frequency measurement specified in SIB11/12.			

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If the IE "Reporting Cell Status" is not received for intra-frequency, inter-frequency measurement, or inter-RAT measurement, the UE shall:

1> for intra-frequency measurement and inter-frequency measurement:

2> exclude the IE "Cell Measured Results" for any cell in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" within "Event Criteria List" defines whether "Cell Measured Results" is present for event-based reporting.

1> for inter-RAT measurement:

2> exclude the IE "Measured GSM Cells" for any cell in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" is not included in SIB 11/12 for periodic intra-frequency measurements. In this case the UE shall assume the default values " Report cells within active set and/or monitored set on used frequency " and "e6".

10.3.7.61 Reporting Cell Status

Indicates maximum allowed number of cells to report and whether active set cells and/or virtual active set cells and/or monitored set cells on and/or detected set cells used frequency and/or monitored set cells on non used frequency should/should not be included in the IE "Measured results".

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *reported cell*	MP			
>Report cells within active set				This choice is not valid for inter-RAT or periodic inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set cells on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within active set and/or monitored set cells on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Integer(1..6)	
>Report all active set cells + cells within monitored set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report all active set cells + cells within monitored set and/or detected set on used frequency				This choice is not valid for inter-RAT or inter-frequency measurements
>>Maximum number of reported cells	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells within virtual active set				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report cells within monitored and/or virtual active set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements
>>Maximum number of reported cells per reported non-used frequency	MP		Integer(1..6)	
>Report all virtual active set cells + cells within monitored set on non-used frequency				This choice is not valid for intra-frequency or inter-RAT measurements

Information Element/Group name	Need	Multi	Type and reference	Semantics description
>>Maximum number of reported cells per reported non-used frequency	MP		Enumerated (virtual/active set cells+1, virtual/active set cells+2, …., virtual/active set cells+6)	
>Report cells within active set or within virtual active set or of the other RAT				If this choice is selected for inter-RAT measurements, the UE shall report only cells of the other RAT. If this choice is selected for intra-frequency ~~or inter-frequency~~ measurements, the UE shall report cells within active set. If this choice is selected for inter-frequency measurements, the UE shall report cells ~~or~~ within the virtual active set.
>>Maximum number of reported cells	MP		Integer (1..12)	
>Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency				This choice is not valid for inter-RAT measurements
>>Maximum number of reported cells	MP		Integer(1..12)	

14.2.1 Inter-frequency reporting events

Within the measurement reporting criteria field in the MEASUREMENT CONTROL message UTRAN notifies the UE which events should trigger the UE to send a MEASUREMENT REPORT message. The listed events are the toolbox from which the UTRAN can choose the reporting events that are needed for the implemented handover evaluation function, or other radio network functions.

All events are evaluated with respect to one of the measurement quantities given in subclause 14.2.0a. The measurement quantities are measured on the monitored primary common pilot channels (CPICH) in FDD mode and the monitored primary common control channels (PCCPCH) in TDD mode of the cell defined in the measurement object. A "non-used frequency" is a frequency that the UE has been ordered to measure upon but is not used for the connection. A "used frequency" is a frequency that the UE has been ordered to measure upon and is also currently used for the connection.

~~NOTE:~~ The "monitored set on non-used frequency" consists of cells in "cells for measurement" (or all cells in CELL_INFO_LIST if "cells for measurement" is not present) that are not part of the virtual active set on that non-used frequency.

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Stockholm, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022247

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1567** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

*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:	⌘	Clarification to minimum SF
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**F**
Release:	⌘	R99

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:	⌘	It is not currently clear whether the minimum spreading factor indicated by UTRAN (minSF) is also enforced during compressed frames by SF reduction. In discussion document R2-012575, the assumption is that this minimum SF for compressed frames by SF reduction is actually minSF/2
Summary of change:	⌘	In the procedural description of DPCH info, a fuller description of the IE "spreading factor" is included. Text is added to indicate that this is the minimum spreading factor for compressed frames by SF reduction is the value indicated by this IE divided by 2. **Impact Analysis:** Impact is isolated only to the minimum spreading factor allowed to be used at the UE during compressed frames: • Correction to a function where the specification was o Unclear Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Unclear that the minimum spreading factor during compressed frames is lower than during normal frames.

Clauses affected:	⌘	8.6.6.6			
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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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.

8.6.6.6 Uplink DPCH info

If the IE "Uplink DPCH info" is included, the UE shall:

1> release any active uplink physical channels and activate the given physical channels;

1> if the IE "Number of FBI bits" is not included:

2> use 0 FBI bits in the Uplink DPCH.

1> use a SF equal to or greater than the minimum SF indicated in the IE "Spreading Factor" during uncompressed frames or compressed frames by HL scheduling

1> use a SF equal to or greater than the minimum SF divided by 2 during compressed frames by SF reduction

10.3.6.88 Uplink DPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info 10.3.6.91	
CHOICE *mode*	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number	MP		Integer(0..16 777215)	
>>Number of DPDCH	MD		Integer(1..maxDPDCH)	Default value is 1. Number of DPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	Minimum allowed SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>Number of FBI bits	OP		Integer (1, 2)	In bits.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>Uplink Timing Advance Control	OP		Uplink Timing Advance Control 10.3.6.96	
>>UL CCTrCH List	OP	1 to <maxCCTrCH>		UL physical channels to establish or reconfigure list.
>>>TFCS ID	MD		Integer(1..8)	Default value is 1.
>>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>>Time info	MP		Time info 10.3.6.83	
>>>Common timeslot info	MD		Common timeslot info 10.3.6.10	Default is the current Common timeslot info
>>>Uplink DPCH timeslots and codes	MD		Uplink Timeslots and Codes 10.3.6.94	Default is to use the old timeslots and codes.
>>UL CCTrCH List to Remove	OP	1..<maxCCTrCH>		UL physical channels to remove list
>>>TFCS ID	MP		Integer(1..8)	

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CHANGE REQUEST

⌘ **25.331** **CR** **1568** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Clarification to minimum SF
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
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:	⌘	It is not currently clear whether the minimum spreading factor indicated by UTRAN (minSF) is also enforced during compressed frames by SF reduction. In discussion document R2-012575, the assumption is that this minimum SF for compressed frames by SF reduction is actually minSF/2
Summary of change:	⌘	In the procedural description of DPCH info, a fuller description of the IE "spreading factor" is included. Text is added to indicate that this is the minimum spreading factor for compressed frames by SF reduction is the value indicated by this IE divided by 2. **Impact Analysis:** Impact is isolated only to the minimum spreading factor allowed to be used at the UE during compressed frames: • Correction to a function where the specification was o Unclear Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Unclear that the minimum spreading factor during compressed frames is lower than during normal frames.

Clauses affected:	⌘	8.6.6.6

		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.

8.6.6.6 Uplink DPCH info

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1> release any active uplink physical channels and activate the given physical channels;

1> if the IE "Number of FBI bits" is not included:

2> use 0 FBI bits in the Uplink DPCH.

1> use a SF equal to or greater than the minimum SF indicated in the IE "Spreading Factor" during uncompressed frames or compressed frames by HL scheduling

1> use a SF equal to or greater than the minimum SF divided by 2 during compressed frames by SF reduction

10.3.6.88 Uplink DPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info 10.3.6.91	
CHOICE *mode*	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number	MP		Integer(0..16 777215)	
>>Number of DPDCH	MD		Integer(1..maxDPDCH)	Default value is 1. Number of DPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	Minimum allowed SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>Number of FBI bits	OP		Integer (1, 2)	In bits.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>Uplink Timing Advance Control	OP		Uplink Timing Advance Control 10.3.6.96	
>>UL CCTrCH List	OP	1 to <maxCCTrCH>		UL physical channels to establish or reconfigure list.
>>>TFCS ID	MD		Integer(1..8)	Default value is 1.
>>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>>Time info	MP		Time info 10.3.6.83	
>>>Common timeslot info	MD		Common timeslot info 10.3.6.10	Default is the current Common timeslot info
>>>Uplink DPCH timeslots and codes	MD		Uplink Timeslots and Codes 10.3.6.94	Default is to use the old timeslots and codes.
>>UL CCTrCH List to Remove	OP	1..<maxCCTrCH>		UL physical channels to remove list
>>>TFCS ID	MP		Integer(1..8)	

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Tdoc ⌘R2-022249

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CHANGE REQUEST

⌘ **25.331** **CR** **1569** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

*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:	⌘	Clarification to minimum SF
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**A**
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:	⌘	It is not currently clear whether the minimum spreading factor indicated by UTRAN (minSF) is also enforced during compressed frames by SF reduction. In discussion document R2-012575, the assumption is that this minimum SF for compressed frames by SF reduction is actually minSF/2
Summary of change:	⌘	In the procedural description of DPCH info, a fuller description of the IE "spreading factor" is included. Text is added to indicate that this is the minimum spreading factor for compressed frames by SF reduction is the value indicated by this IE divided by 2. **Impact Analysis:** Impact is isolated only to the minimum spreading factor allowed to be used at the UE during compressed frames: • Correction to a function where the specification was o Unclear Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Unclear that the minimum spreading factor during compressed frames is lower than during normal frames.

Clauses affected:	⌘	8.6.6.6			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	

	X	O&M Specifications

Other comments: ⌘

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8.6.6.6 Uplink DPCH info

If the IE "Uplink DPCH info" is included, the UE shall:

1> release any active uplink physical channels and activate the given physical channels;

1> if the IE "Number of FBI bits" is not included:

2> use 0 FBI bits in the Uplink DPCH.

1> use a SF equal to or greater than the minimum SF indicated in the IE "Spreading Factor" during uncompressed frames or compressed frames by HL scheduling

1> use a SF equal to or greater than the minimum SF divided by 2 during compressed frames by SF reduction

10.3.6.88 Uplink DPCH info

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Uplink DPCH power control info	OP		Uplink DPCH power control info 10.3.6.91	
CHOICE *mode*	MP			
>FDD				
>>Scrambling code type	MP		Enumerated(short, long)	
>>Scrambling code number	MP		Integer(0..16 777215)	
>>Number of DPDCH	MD		Integer(1..maxDPDCH)	Default value is 1. Number of DPDCH is 1 in HANDOVER TO UTRAN COMMAND
>>Spreading factor	MP		Integer(4, 8, 16, 32, 64, 128, 256)	Minimum allowed SF of the channelisation code for data part
>>TFCI existence	MD		Boolean	TRUE means existence. Default value is "TRUE"
>>Number of FBI bits	OP		Integer (1, 2)	In bits.
>>Puncturing Limit	MP		Real(0.40 ..1 by step of 0.04)	
>TDD				
>>Uplink Timing Advance Control	OP		Uplink Timing Advance Control 10.3.6.96	
>>UL CCTrCH List	OP	1 to <maxCCTrCH>		UL physical channels to establish or reconfigure list.
>>>TFCS ID	MD		Integer(1..8)	Default value is 1.
>>>UL target SIR	MP		Real (-11 .. 20 by step of 0.5dB)	In dB
>>>Time info	MP		Time info 10.3.6.83	
>>>Common timeslot info	MD		Common timeslot info 10.3.6.10	Default is the current Common timeslot info
>>>Uplink DPCH timeslots and codes	MD		Uplink Timeslots and Codes 10.3.6.94	Default is to use the old timeslots and codes.
>>UL CCTrCH List to Remove	OP	1..<maxCCTrCH>		UL physical channels to remove list
>>>TFCS ID	MP		Integer(1..8)	

3GPP TSG-RAN WG2 Meeting #31
Stockholm, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022250

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CHANGE REQUEST

⌘ **25.331** **CR** **1570** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

*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:	⌘	Clarifications to inter-frequency measurements
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**F**
Release:	⌘	R99

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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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: ⌘

1. In 8.4.1.3 there seems to be an additional statement included erroneously
2. During hard handover, it seems that intra and inter frequency measurements are only stopped, not deleted. A single measurement control message cannot reset both measurements, so at least one measurement type will be incorrect.
3. The link between event reporting criteria and measurement quantity is not clear
4. It is not clear ~~that~~ whether UTRA carrier RSSI is ~~only applicable to measurements on a different frequency from the used frequency~~used in intra-frequency measurement quantity
5. It is not stated whether additional measurements should be included during autonomous virtual active set update
6. ~~Section 14.11.2 is not consistent with 14.1.2.x in terms of which cells (active set / virtual active set vs. monitored set / non-active cells)~~
7. Currently 14.11.2 is also not consistent with 14.1.2.3 for event 1c, as 1c includes multiple cells, but virtual active set update appears only to update one cell.
8. The way to use "Reporting deactivation threshold" in section 14.11.2 is not consistent with the way it is used in section 14.1.2.1.
9. Some references in 14.11.2 are incorrect (see also R2-021999)

Summary of change: ⌘

1. Additional statement is removed in 8.4.1.3
2. Intra- and inter-frequency measurements are stopped, and wait for the next measurement control with the same measurement identity before restarting the measurement for this identity.
3. The link between event reporting criteria and measurement quantity is indicated by indicating UE behaviour is unspecified when these IEs are not

aligned.

4. ~~It is clarified that~~ UTRA carrier RSSI is ~~only applicable to inter-frequency measurements in~~ removed from the tabular and made dummy in ASN.1.
5. During autonomous update of the virtual active set additional measurements are not included.
6. ~~If a measurement (1a, 1b, 1c) is applicable only to either active or monitored set cells, the virtual active set update event only considers the cells (virtual active set or non-active cells)~~
7. Virtual active set update is allowed to update >1 cell in the virtual active set.
8. If the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold", the UE needs to update the virtual active set and send the triggered event 1a report to UTRAN.
9. References in 14.11.2 are corrected

Updates are highlighted in yellow.

Impact Analysis:
Impact is isolated to inter-frequency measurements:

- Correction to a function where the specification was
  - Unclear

Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘

1. Confusing additional statement still in procedural text.
2. Potential restarting of stale intra or inter-frequency measurements on reception of MEASUREMENT CONTROL following hard handover
3. Possible misconfiguration of the UE if reporting criteria and measurement quantity are not consistent leading to unspecified behaviour
4. Unclear where UTRA carrier RSSI measurements are used
5. Possible inclusion of additional measurements during virtual active set update
6. ~~Unclear whether both virtual active and non-active set cells should be considered during virtual active set update~~
7. Virtual active set update assumes only 1 cell in virtual active set could ever be worse than one cell in non-active set.
8. Inconsistencies within the specification.

Clauses affected: ⌘ 8.4.1.3, 8.3.5, 8.6.7.14, 10.3.7.38, 11.3, 14.11.1, 14.11.2

Other specs affected: ⌘

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

Other comments: ⌘

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8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

3> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or

~~3> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or~~

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

2> for measurement type "UE positioning measurement":

3> if the UE is in CELL_FACH state:

4> if IE "Positioning Method" is set to "OTDOA":

5> if IE "Method Type" is set to "UE assisted":

6> if IE "UE positioning OTDOA assistance data for UE assisted" is not included:

7> if System Information Block type 15.4 is broadcast:

8> read System Information Block type 15.4.

7> act as specified in subclause 8.6.7.19.2.

5> if IE "Method Type" is set to "UE based":

6> if IE "UE positioning OTDOA assistance data for UE based" is not included:

7> if System Information Block type 15.5 is broadcast:

8> read System Information Block type 15.5.

7> act as specified in subclause 8.6.7.19.2a.

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> for measurement types "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency, or that require measurements on another RAT:

5> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; and

~~5> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or~~

5> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

6> replace the corresponding information stored in variable MEASUREMENT_IDENTITY associated with the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

6> resume the measurements according to the new stored measurement control information.

4> for any other measurement type:

5> replace the corresponding information stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> resume the measurements according to the new stored measurement control information.

3> otherwise:

4> set the variable CONFIGURATION_INCOMPLETE to TRUE.

2> for all optional IEs that are not present in the MEASUREMENT CONTROL message:

3> leave the currently stored information elements unchanged in the variable MEASUREMENT_IDENTITY if not stated otherwise for that IE.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

1> if the IE "DPCH Compressed Mode Status Info" is present:

2> if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IE 'TGMP' in variable TGPS_IDENTITY):

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

2> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag") in the variable TGPS_IDENTITY):

3> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

4> deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message;

4> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive".

3> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

4> deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message.

NOTE: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

2> after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:

3> activate the pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in this message is set to "activate" at the time indicated by IE "TGCFN"; and

3> set the corresponding "Current TGPS status flag" for this pattern sequence in the variable TGPS_IDENTITY to "active"; and

3> begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

3> if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:

4> start the concerned pattern sequence immediately at that CFN.

2> not alter pattern sequences stored in variable TGPS_IDENTITY, if the pattern sequence is not identitifed in IE "TGPSI" in the received message.

1> if the UE in CELL_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT_IDENTITY:

2> update the stored information with the traffic volume measurement control information in variable MEASUREMENT_IDENTITY; and

2> refrain from updating the traffic volume measurement control information associated with this measurement identity in the variable MEASUREMENT_IDENTITY with the information received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.

1> if the IE "Read SFN indicator" included in the IE "Cell info" of an inter-frequency cell is set to TRUE and the variable UE_CAPABILITY_TRANSFERRED has the DL "Measurement capability" for "FDD measurements" set to TRUE (the UE requires DL compressed mode in order to perform measurements on FDD):

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE "Additional Measurement List" is present:

2> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement identities in the "Additional Measurement List" do not all have the same validity:

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

The UE may:

1> if the IE "Measurement command" has the value "setup":

2> for measurement type "UE positioning measurement":

3> if the UE is CELL_FACH state:

4> if IE "Positioning Method" is set to "GPS":

5> if IE "UE positioning GPS assistance data" is not included and variable UE_POSITIONING_GPS_DATA is empty:

6> if System Information Block types 15, 15.1, 15.2 and 15.3 are broadcast:

7> read System Information Block types 15, 15.1, 15.2 and 15.3.

6> act as specified in subclause 8.6.7.19.3.

1> and the procedure ends.

8.3.5 Hard handover

When performing hard handover with change of frequency, the UE shall:

1> stop all intra-frequency and inter-frequency measurements on the cells listed in the variable CELL_INFO_LIST. Each stopped measurement is restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity. ~~until a MEASUREMENT CONTROL message is received from UTRAN.~~

8.6.7.14 Inter-frequency measurement

If the Inter-frequency cell info list, included in the variable CELL_INFO_LIST, includes a number (M) of frequencies that is larger than the number (N) considered in a UE performance requirement defined in [19] and [20]:

1> the UE shall:

2> meet this performance requirement on the first relevant (N) frequencies, according to the order defined by the position of the frequencies in the Inter-frequency cell info list, included in the variable CELL_INFO_LIST.

1> the UE may:

2> ignore the remaining (M-N) frequencies.

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Inter-frequency measurement quantity", IE "Inter-frequency reporting quantity" or "CHOICE Report criteria" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE;

~~1> i~~In the case of an inter-frequency measurement for FDD:

~~2~~1> if IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", if an inter-frequency event is configured that is different from event 2d or 2f, and if the IE "Inter-frequency SET UPDATE" is not received in that same message:

~~3~~2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

~~2~~1> if the IE "Inter-frequency SET UPDATE" is received:

~~3~~2> if the value of the IE "UE autonomous update mode" set to "Off" or "On":

43> if more than one frequency is included in the list of cells pointed at in the IE "cells for measurement" if also included in the same IE "Inter-frequency measurement", or otherwise included in the "Inter-frequency cell info" part of the variable CELL_INFO_LIST:

54> set the variable INVALID_CONFIGURATION to TRUE.

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, and

1> if "CHOICE Report criteria" is set to "inter-frequency reporting criteria" and "inter-frequency measurement quantity" is not set to "inter-frequency reporting criteria", or

1> if "CHOICE Report criteria"is set to "intra-frequency reporting criteria" and "inter-frequency measurement quantity"is not set to "intra-frequency reporting criteria"

2> the UE behaviour is not specified

If the variable CONFIGURATION_INCOMPLETE is set to TRUE, the UE shall:

1> act as described in subclause 8.4.1.4a.

10.3.7.38 Intra-frequency measurement quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE *mode*	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(CPICH Ec/N0, CPICH RSCP, Pathloss~~,~~ ~~UTRA Carrier RSSI~~)	
>TDD				
>>Measurement quantity list	MP	1 to 4		
>>>Measurement quantity	MP		Enumerated(Primary CCPCH RSCP, Pathloss, Timeslot ISCP~~, UTRA Carrier RSSI~~)	

11.3 Information element definitions

```
IntraFreqMeasQuantity ::=           SEQUENCE {
```

```
    filterCoefficient                   FilterCoefficient                   DEFAULT fc0,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                             SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}

-- If IntraFreqMeasQuantity-FDD is used in InterRATMeasQuantity, then only
-- cpich-Ec-N0 and cpich-RSCP are allowed.
-- If IntraFreqMeasQuantity-FDD is used in InterFreqMeasQuantity, then
-- utra-CarrierRSSI is not allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-FDD ::=       ENUMERATED {
                                        cpich-Ec-N0,
                                        cpich-RSCP,
                                        pathloss,
                                        utra-CarrierRSSIdummy }

-- If IntraFreqMeasQuantity-TDD is used in InterFreqMeasQuantity, then
-- utra-CarrierRSSI is not allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-CarrierRSSIdummy }

IntraFreqMeasQuantity-TDDList ::=   SEQUENCE (SIZE (1..4)) OF
                                        IntraFreqMeasQuantity-TDD
```

14.11 UE autonomous update of virtual active set on non-used frequency (FDD only)

In the text that follows:

- a "non-used frequency" is a frequency that the UE has been ordered to measure upon but is not used for the connection. A "used frequency" is a frequency that the UE has been ordered to measure upon and is also currently used for the connection;

- a "non-used frequency (resp. cell) considered in an inter-frequency measurement" shall be understood as a non-used frequency (resp. cell) included in the list of cells pointed at in the IE "cells for measurement" if it was received for that measurement, or otherwise as a non-used frequency (resp. cell) included in the "Inter-frequency cell info" part of the variable CELL_INFO_LIST.

For event-triggered inter frequency measurements it is possible to specify intra-frequency measurements reporting events for support of maintenance of an active set associated with a non-used frequency considered in that measurement, a "virtual active set" and used in the evaluation of the frequency quality estimates. The "initial virtual active set" for a frequency is the virtual active set that is associated to that frequency just after a message was received that sets up or modifies the inter-frequency measurement.

The way the virtual active sets are initiated and updated for the non-used frequencies considered in an inter-frequency measurement is described in the two subclauses below, and depends on whether the IE "intra-frequency reporting criteria" is stored for the inter-frequency measurement or not. In case that IE is not stored, the IE "intra-frequency measurement" stored in other measurements of type intra-frequency shall be used.

14.11.1 Initial virtual active set

The way the UE shall act when a MEASUREMENT CONTROL message is received that sets up or modifies an inter-frequency measurement, and that includes the IE "Inter-frequency set update" and/or the IE "Intra-Frequency reporting quantity" is described below. The UE shall:

1> if the IE "Intra-Frequency measurement reporting criteria" is included in the MEASUREMENT CONTROL message, or if it was previously stored and if the IE "Inter-frequency set update" was included in the MEASUREMENT CONTROL message:

2> if the IE "UE autonomous update mode" received or previously stored is set to "on" or "on with no reporting":

3> for each non-used frequency F_i considered in the measurement:

4> include in the initial virtual active set the N_i cells that have either the greatest downlink E_c/N_0, the greatest downlink RSCP after despreading, or the lowest pathloss (depending on what is indicated in the IE "inter-frequency measurement quantity"), among the cells on frequency F_i considered in that inter-frequency measurement, where:

5> if event 1a is configured in the "Intra-Frequency measurement reporting criteria":

$$N_i = \min(N_{1a} \ , \ N_{Cells\ Fi}) \text{ if } N_{1a} \neq 0 \text{ and } N_i = N_{Cells\ Fi} \text{ otherwise.}$$

where:

N_{1a} is the "Reporting deactivation threshold" included in the "Intra-Frequency measurement" IE received for that inter-frequency measurement for event 1a.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else, if event 1c is configured in the "Intra-Frequency measurement reporting criteria":

$$N_i = \min(N_{1c} \ , \ N_{Cells\ Fi}) \text{ if } N_{1c} \neq 0 \text{ and } N_i = N_{Cells\ Fi} \text{ otherwise.}$$

where:

N_{1c} is the "Replacement activation threshold" included in the "Intra-Frequency measurement" IE received for that inter-frequency measurement for event 1c.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else:

$$N_i = N_{Cells\ Fi}$$

where:

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

2> if the IE "UE autonomous update mode" received or previously stored is set to "on":

3> if event 1a is configured in the "Intra-Frequency measurement reporting criteria":

4> send a MEASUREMENT REPORT with IEs set as follows:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of all the cells included in a virtual active set of the non-used frequency considered in the inter-frequency measurement;

5> do not include the IEs "measured results" or "additional measured results".

3> else, if event 1c is configured in the "Intra-Frequency measurement reporting criteria":

4> send a measurement report with IEs set as follows:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" the CPICH info of all the cells included in the virtual active set of the frequency considered in the inter-frequency measurement;

5> do not include the IEs "measured results" or "additional measured results".

2> if the IE "Inter-frequency set update" is included in the message and if the IE "UE autonomous update mode" is set to "Off":

3> if the IE "Measurement command" is set to "Modify", if the value previously stored for the IE "UE autonomous update mode" was also "Off" and if the IE "Intra-frequency measurement reporting criteria" was not included in the message:

4> apply the modifications indicated in the "Inter-frequency set update" to the virtual active set that was valid before the message was received for the non-used frequency considered in that inter-frequency measurement.

3> otherwise:

4> remove the possibly existing virtual active set of the non-used frequency considered in that measurement; and

4> set the initial virtual active set for it according to the "Inter-frequency set update" included in the message.

2> if the IE "Inter-frequency set update" is not included in the message and if the IE "UE autonomous update mode" stored for the inter-frequency measurement is set to "Off":

3> remove the possibly existing virtual active set of the non-used frequency considered in that measurement; and

3> consider the virtual active set for it as empty.

1> if the IE "Intra-Frequency measurement reporting criteria" was not included in the MEASUREMENT CONTROL message:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

3> for each non-used frequency F_i considered in the measurement:

4> include in the initial virtual active set the N_i cells that have either the greatest downlink E_c/N_0 or the greatest downlink RSCP after despreading or the lowest pathloss (depending on what is indicated in the IE "inter-frequency measurement quantity"), among the cells on frequency F_i considered in that inter-frequency measurement, where:

5> if event 1a is configured for the used frequency in an intra-frequency measurement; and

5> if the "Reporting deactivation threshold" is included:

$$N_i = \min(N_{1a} \ , \ N_{Cells\,Fi}) \text{ if } N_{1a} \neq 0 \text{ and } N_i = N_{Cells\,Fi} \text{ otherwise.}$$

where:

N_{1a} is the "Reporting deactivation threshold" included in the intra-frequency measurement for the first event 1a defined in the intra-frequency measurement with the lowest identity.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else, if event 1c is configured for the used frequency in an intra-frequency measurement:

$N_i = \min(N_{1c}\ ,\ N_{Cells\ Fi})$ if $N_{1c} \neq 0$ and $N_i = N_{Cells\ Fi}$ otherwise.

where:

N_{1c} is the "Replacement activation threshold" included in the "Intra-Frequency measurement" for the first event 1c defined in the intra-frequency measurement with the lowest identity.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else:

$$N_i = N_{Cells\ Fi}$$

where:

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

3> if the IE "UE autonomous update mode" is set to "on":

4> if event 1a is configured for the used frequency in an intra-frequency measurement:

5> send a measurement report with IEs set as follows:

6> set the Measurement identity to the identity of the inter-frequency measurement;

6> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of all the cells included in the initial virtual active set of the non-used frequency considered in that measurement;

6> do not include the IEs "measured results" or "additional measured results".

4> else, if event 1c is configured for the used frequency in an intra-frequency measurement:

5> send a measurement report with IEs set as follows:

6> set the Measurement identity to the identity of the inter-frequency measurement;

6> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" the CPICH info of all the cells included in the initial virtual active set of the non-used frequency considered in that measurement;

6> do not include the IEs "measured results" or "additional measured results".

2> if the IE "UE autonomous update mode" is set to "off":

3> set the initial virtual active set of the non-used frequency considered in that inter-frequency measurement according to what is included in the IE "Inter-frequency set update" included in the message; and

3> if the IE "Inter-frequency set update" was not received:

4> set the initial virtual active set for the frequencies considered in that measurement to be empty.

14.11.2 Virtual active set update during an inter-frequency measurement

If the IE "Intra-frequency measurement reporting criteria" is stored for an inter-frequency measurement, the UE shall:

1> if Event 1a is configured in that IE, when this event is triggered (according to the criteria described in subclause 14.2.1.1) by a cell allowed to affect the reporting range (i.e. not included in the IE "Cells forbidden to affect reporting range" if that IE is included) for a non-used frequency considered in that measurement:

2> if the "Reporting deactivation threshold" is equal to 0, or if the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> add the primary CPICH that enters the reporting range to the "virtual active set".

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

5> do not include the IEs "measured results" or "additional measured results".

1> if Event 1b was configured, when this event is triggered (according to the criteria described in subclause 14.2.1.2) by a cell allowed to affect the reporting range (i.e. not included in the IE "Cells forbidden to affect reporting range" if that IE is included) for a non-used frequency considered in that measurement:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting" and if the number of cells included in the virtual active set is greater than 1:

3> remove the primary CPICH that leaves the reporting range from the "virtual active set".

2> if the IE "UE autonomous update mode" is set to "on" or "off":

3> send a measurement report with IEs set as below:

4> set the Measurement identity to the identity of the inter-frequency measurement;

4> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1b, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

4> do not include the IEs "measured results" or "additional measured results".

1> if Event 1c was configured, when this event is triggered by a cell for a frequency considered in that measurement (according to the criteria described in subclause 14.1.2.~~1.~~3):

2> if the "Reporting activation threshold" is equal to 0, or if the "Reporting activation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is greater than or equal to the "Reporting activation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> rank all active and non-active primary CPICHs and take the *n* best cells to create a new "virtual active set", where *n* is the number of active primary CPICHs in the "virtual active set".~~replace an active primary CPICH in the "virtual active set" with a non-active primary CPICH that has become better than the active primary CPICH.~~

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" the ~~first entry as~~include the CPICH info of all the cells that ~~triggered~~ satisfy the event, and the rest of the entries as the cells that were in the virtual active set before the event occurred and that are worse than the best cell that triggered the event, in the order of their measured value (best one first);

5> do not include the IEs "measured results" or "additional measured results".

If the IE "Intra-frequency measurement reporting criteria" is not stored for that inter-frequency measurement, the UE shall:

1> apply the events of type 1a, 1b and 1c that were defined for the used frequency in other stored measurements of type "intra-frequency" at the time the inter-frequency measurement was set up; and

1> update the virtual active set for the non-used frequencies considered in that measurement according to the following rules:

2> if several events of type 1a (resp. 1b,1c) were defined for the used frequency when the inter-frequency measurement was set up, only the first 1a event (resp 1b, 1c) that was defined in the measurement with the lowest measurement identity shall apply to the non-used frequencies;

2> all the cells considered in the inter-frequency measurements shall be able to affect the reporting range for event 1a and 1b. (i.e. the IE "Cells forbidden to affect reporting range" possibly stored for the intra-frequency measurements on the used frequency does not apply to the non-used frequencies considered in the inter-frequency measurement);

2> the IEs "amount of reporting" and "reporting interval" that were stored for the intra-frequency measurements on the used frequency shall not be considered if reports of the virtual active set updates are needed.

1> if event 1a is applicable to the non-used frequencies considered in the inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1.~~1) by a cell for a non-used frequency considered in that measurement:

2> if the "Reporting deactivation threshold" is equal to 0, or if the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> add the primary CPICH that enters the reporting range to the "virtual active set".

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

5> do not include the IEs "measured results" or "additional measured results".

1> if event 1b is applicable for the non-used frequencies considered in that inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1.~~2) by a cell for a non-used frequency considered in that measurement:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting" and if the number of cells included in the virtual active set is greater than 1:

3> remove the primary CPICH that leaves the reporting range from the "virtual active set".

2> if the IE "UE autonomous update mode" is set to "on" or "off", send a measurement report with IEs set as below:

3> set the Measurement identity to the identity of the inter-frequency measurement;

3> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1b, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

3> do not include the IEs "measured results" or "additional measured results".

1> if event 1c is applicable for the non-used frequencies considered in that inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1.~~3) by a cell for a non-used frequency considered in that measurement:

2> if the "Reporting activation threshold" is equal to 0, or if the "Reporting activation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is greater than or equal to the "Reporting activation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> rank all active and non-active primary CPICHs and take the *n* best cells to create a new "virtual active set", where *n* is the number of active primary CPICHs in the "virtual active set".~~replace an active primary CPICH in the "virtual active set" with a non-active primary CPICH that has become better than the active primary CPICH.~~

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement.

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" ~~the first entry as~~ include the CPICH info of all the non-active cells which satisfy ~~that triggered~~ the event, and the rest of the entries as the cells that were in the virtual active set before the event occurred and that are worse than the best cell that triggered the event, in the order of their measured value (best one first);

5> do not include the IEs "measured results" or "additional measured results".

3GPP TSG-RAN WG2 Meeting #31
Stockholm, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022251

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1571** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Clarifications to inter-frequency measurements
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	22/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

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: ⌘

1. In 8.4.1.3 there seems to be an additional statement included erroneously
2. During hard handover, it seems that intra and inter frequency measurements are only stopped, not deleted. A single measurement control message cannot reset both measurements, so at least one measurement type will be incorrect.
3. The link between event reporting criteria and measurement quantity is not clear
4. It is not clear ~~that~~ whether UTRA carrier RSSI is ~~only applicable to measurements on a different frequency from the used frequency~~ used in intra-frequency measurement quantity
5. It is not stated whether additional measurements should be included during autonomous virtual active set update
6. ~~Section 14.11.2 is not consistent with 14.1.2.x in terms of which cells (active set / virtual active set vs. monitored set / non-active cells)~~
7. Currently 14.11.2 is also not consistent with 14.1.2.3 for event 1c, as 1c includes multiple cells, but virtual active set update appears only to update one cell.
8. The way to use "Reporting deactivation threshold" in section 14.11.2 is not consistent with the way it is used in section 14.1.2.1.
9. Some references in 14.11.2 are incorrect (see also R2-021999)

Summary of change: ⌘

1. Additional statement is removed in 8.4.1.3
2. Intra- and inter-frequency measurements are deleted rather than just stopped.
3. The link between event reporting criteria and measurement quantity is checked at the UE.
4. ~~It is clarified that~~ UTRA carrier RSSI is ~~only applicable to inter-frequency~~

~~measurements in~~removed from the tabular and made dummy in ASN.1.

5. During autonomous update of the virtual active set additional measurements are not included.
6. ~~If a measurement (1a, 1b, 1c) is applicable only to either active or monitored set cells, the virtual active set update event only considers the cells (virtual active set or non-active cells)~~
7. Virtual active set update is allowed to update >1 cell in the virtual active set.
8. If the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold", the UE needs to update the virtual active set and send the triggered event 1a report to UTRAN.
9. References in 14.11.2 are corrected

Updates are highlighted in yellow.

Impact Analysis:
Impact is isolated to inter-frequency measurements:

- Correction to a function where the specification was
  - Unclear

Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘

1. Confusing additional statement still in procedural text.
2. Potential restarting of stale intra or inter-frequency measurements on reception of MEASUREMENT CONTROL following hard handover
3. Possible misconfiguration of the UE if reporting criteria and measurement quantity are not consistent leading to unspecified behaviour
4. Unclear where UTRA carrier RSSI measurements are used
5. Possible inclusion of additional measurements during virtual active set update
6. ~~Unclear whether both virtual active and non-active set cells should be considered during virtual active set update~~
7. Virtual active set update assumes only 1 cell in virtual active set could ever be worse than one cell in non-active set.
8. Inconsistencies within the specification.

Clauses affected: ⌘ 8.4.1.3, 8.3.5, 8.6.7.14, 10.3.7.38, 11.3, 14.11.1, 14.11.2

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.

8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

3> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or

~~3> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or~~

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

2> for measurement type "UE positioning measurement":

3> if the UE is in CELL_FACH state:

4> if IE "Positioning Method" is set to "OTDOA":

5> if IE "Method Type" is set to "UE assisted":

6> if IE "UE positioning OTDOA assistance data for UE assisted" is not included:

7> if System Information Block type 15.4 is broadcast:

8> read System Information Block type 15.4.

7> act as specified in subclause 8.6.7.19.2.

5> if IE "Method Type" is set to "UE based":

6> if IE "UE positioning OTDOA assistance data for UE based" is not included:

7> if System Information Block type 15.5 is broadcast:

8> read System Information Block type 15.5.

7> act as specified in subclause 8.6.7.19.2a.

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> for measurement types "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency, or that require measurements on another RAT:

5> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; and

~~5> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or~~

5> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

6> replace the corresponding information stored in variable MEASUREMENT_IDENTITY associated with the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

6> resume the measurements according to the new stored measurement control information.

4> for any other measurement type:

5> replace the corresponding information stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> resume the measurements according to the new stored measurement control information.

3> otherwise:

4> set the variable CONFIGURATION_INCOMPLETE to TRUE.

2> for all optional IEs that are not present in the MEASUREMENT CONTROL message:

3> leave the currently stored information elements unchanged in the variable MEASUREMENT_IDENTITY if not stated otherwise for that IE.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

1> if the IE "DPCH Compressed Mode Status Info" is present:

2> if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IE 'TGMP' in variable TGPS_IDENTITY):

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

2> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag") in the variable TGPS_IDENTITY):

3> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

4> deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message;

4> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive".

3> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

4> deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message.

NOTE: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

2> after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:

3> activate the pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in this message is set to "activate" at the time indicated by IE "TGCFN"; and

3> set the corresponding "Current TGPS status flag" for this pattern sequence in the variable TGPS_IDENTITY to "active"; and

3> begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

3> if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:

4> start the concerned pattern sequence immediately at that CFN.

2> not alter pattern sequences stored in variable TGPS_IDENTITY, if the pattern sequence is not identitifed in IE "TGPSI" in the received message.

1> if the UE in CELL_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT_IDENTITY:

2> update the stored information with the traffic volume measurement control information in variable MEASUREMENT_IDENTITY; and

2> refrain from updating the traffic volume measurement control information associated with this measurement identity in the variable MEASUREMENT_IDENTITY with the information received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.

1> if the IE "Read SFN indicator" included in the IE "Cell info" of an inter-frequency cell is set to TRUE and the variable UE_CAPABILITY_TRANSFERRED has the DL "Measurement capability" for "FDD measurements" set to TRUE (the UE requires DL compressed mode in order to perform measurements on FDD):

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE "Additional Measurement List" is present:

2> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement identities in the "Additional Measurement List" do not all have the same validity:

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

The UE may:

1> if the IE "Measurement command" has the value "setup":

2> for measurement type "UE positioning measurement":

3> if the UE is CELL_FACH state:

4> if IE "Positioning Method" is set to "GPS":

5> if IE "UE positioning GPS assistance data" is not included and variable UE_POSITIONING_GPS_DATA is empty:

6> if System Information Block types 15, 15.1, 15.2 and 15.3 are broadcast:

7> read System Information Block types 15, 15.1, 15.2 and 15.3.

6> act as specified in subclause 8.6.7.19.3.

1> and the procedure ends.

8.3.5 Hard handover

When performing hard handover with change of frequency, the UE shall:

1> stop all intra-frequency and inter-frequency measurements on the cells listed in the variable CELL_INFO_LIST. Each stopped measurement is restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity. ~~until a MEASUREMENT CONTROL message is received from UTRAN.~~

8.6.7.14 Inter-frequency measurement

If the Inter-frequency cell info list, included in the variable CELL_INFO_LIST, includes a number (M) of frequencies that is larger than the number (N) considered in a UE performance requirement defined in [19] and [20]:

1> the UE shall:

2> meet this performance requirement on the first relevant (N) frequencies, according to the order defined by the position of the frequencies in the Inter-frequency cell info list, included in the variable CELL_INFO_LIST.

1> the UE may:

2> ignore the remaining (M-N) frequencies.

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Inter-frequency measurement quantity", IE "Inter-frequency reporting quantity" or "CHOICE Report criteria" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE;

~~1>~~ in the case of an inter-frequency measurement for FDD:

~~2~~1> if IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", if an inter-frequency event is configured that is different from event 2d or 2f, and if the IE "Inter-frequency SET UPDATE" is not received in that same message:

~~3~~2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

~~2~~1> if the IE "Inter-frequency SET UPDATE" is received:

~~3~~2> if the value of the IE "UE autonomous update mode" set to "Off" or "On":

~~4~~3> if more than one frequency is included in the list of cells pointed at in the IE "cells for measurement" if also included in the same IE "Inter-frequency measurement", or otherwise included in the "Inter-frequency cell info" part of the variable CELL_INFO_LIST:

~~5~~4> set the variable INVALID_CONFIGURATION to TRUE.

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, and

1> if "CHOICE Report criteria" is set to "inter-frequency reporting criteria" and "inter-frequency measurement quantity" is not set to "inter-frequency reporting criteria", or

1> if "CHOICE Report criteria"is set to "intra-frequency reporting criteria" and "inter-frequency measurement quantity"is not set to "intra-frequency reporting criteria"

2> the UE behaviour is not specified

If the variable CONFIGURATION_INCOMPLETE is set to TRUE, the UE shall:

1> act as described in subclause 8.4.1.4a.

10.3.7.38 Intra-frequency measurement quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE *mode*	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(CPICH Ec/N0, CPICH RSCP, Pathloss~~,~~ ~~UTRA Carrier RSSI~~)	
>TDD				
>>Measurement quantity list	MP	1 to 4		
>>>Measurement quantity	MP		Enumerated(Primary CCPCH RSCP, Pathloss, Timeslot ISCP~~, UTRA Carrier RSSI~~)	

11.3 Information element definitions

```
IntraFreqMeasQuantity ::=           SEQUENCE {
    filterCoefficient                   FilterCoefficient                   DEFAULT fc0,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                             SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
```

```
        }
    }
}

-- If IntraFreqMeasQuantity-FDD is used in InterRATMeasQuantity, then only
-- cpich-Ec-N0 and cpich-RSCP are allowed.
-- If IntraFreqMeasQuantity-FDD is used in InterFreqMeasQuantity, then
-- utra-CarrierRSSI is not allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-FDD ::=       ENUMERATED {
                                        cpich-Ec-N0,
                                        cpich-RSCP,
                                        pathloss,
                                        utra-CarrierRSSI dummy }

-- If IntraFreqMeasQuantity-TDD is used in InterFreqMeasQuantity, then
-- utra-CarrierRSSI is not allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-CarrierRSSI dummy }

IntraFreqMeasQuantity-TDDList ::=   SEQUENCE (SIZE (1..4)) OF
                                        IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellMeasuredResults
```

14.11 UE autonomous update of virtual active set on non-used frequency (FDD only)

In the text that follows:

- a "non-used frequency" is a frequency that the UE has been ordered to measure upon but is not used for the connection. A "used frequency" is a frequency that the UE has been ordered to measure upon and is also currently used for the connection;
- a "non-used frequency (resp. cell) considered in an inter-frequency measurement" shall be understood as a non-used frequency (resp. cell) included in the list of cells pointed at in the IE "cells for measurement" if it was received for that measurement, or otherwise as a non-used frequency (resp. cell) included in the "Inter-frequency cell info" part of the variable CELL_INFO_LIST.

For event-triggered inter frequency measurements it is possible to specify intra-frequency measurements reporting events for support of maintenance of an active set associated with a non-used frequency considered in that measurement, a "virtual active set" and used in the evaluation of the frequency quality estimates. The "initial virtual active set" for a frequency is the virtual active set that is associated to that frequency just after a message was received that sets up or modifies the inter-frequency measurement.

The way the virtual active sets are initiated and updated for the non-used frequencies considered in an inter-frequency measurement is described in the two subclauses below, and depends on whether the IE "intra-frequency reporting criteria" is stored for the inter-frequency measurement or not. In case that IE is not stored, the IE "intra-frequency measurement" stored in other measurements of type intra-frequency shall be used.

14.11.1 Initial virtual active set

The way the UE shall act when a MEASUREMENT CONTROL message is received that sets up or modifies an inter-frequency measurement, and that includes the IE "Inter-frequency set update" and/or the IE "Intra-Frequency reporting quantity" is described below. The UE shall:

1> if the IE "Intra-Frequency measurement reporting criteria" is included in the MEASUREMENT CONTROL message, or if it was previously stored and if the IE "Inter-frequency set update" was included in the MEASUREMENT CONTROL message:

2> if the IE "UE autonomous update mode" received or previously stored is set to "on" or "on with no reporting":

3> for each non-used frequency F_i considered in the measurement:

4> include in the initial virtual active set the N_i cells that have either the greatest downlink E_c/N_0, the greatest downlink RSCP after despreading, or the lowest pathloss (depending on what is indicated in the IE "inter-frequency measurement quantity"), among the cells on frequency F_i considered in that inter-frequency measurement, where:

5> if event 1a is configured in the "Intra-Frequency measurement reporting criteria":

$$N_i = \min(N_{1a} \ , \ N_{Cells\ Fi}) \text{ if } N_{1a} \neq 0 \text{ and } N_i = N_{Cells\ Fi} \text{ otherwise.}$$

where:

N_{1a} is the "Reporting deactivation threshold" included in the "Intra-Frequency measurement" IE received for that inter-frequency measurement for event 1a.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else, if event 1c is configured in the "Intra-Frequency measurement reporting criteria":

$$N_i = \min(N_{1c} \ , \ N_{Cells\ Fi}) \text{ if } N_{1c} \neq 0 \text{ and } N_i = N_{Cells\ Fi} \text{ otherwise.}$$

where:

N_{1c} is the "Replacement activation threshold" included in the "Intra-Frequency measurement" IE received for that inter-frequency measurement for event 1c.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else:

$$N_i = N_{Cells\ Fi}$$

where:

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

2> if the IE "UE autonomous update mode" received or previously stored is set to "on":

3> if event 1a is configured in the "Intra-Frequency measurement reporting criteria":

4> send a MEASUREMENT REPORT with IEs set as follows:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of all the cells included in a virtual active set of the non-used frequency considered in the inter-frequency measurement;

5> do not include the IEs "measured results" or "additional measured results".

3> else, if event 1c is configured in the "Intra-Frequency measurement reporting criteria":

4> send a measurement report with IEs set as follows:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" the CPICH info of all the cells included in the virtual active set of the frequency considered in the inter-frequency measurement;

5> do not include the IE "measured results".

2> if the IE "Inter-frequency set update" is included in the message and if the IE "UE autonomous update mode" is set to "Off":

3> if the IE "Measurement command" is set to "Modify", if the value previously stored for the IE "UE autonomous update mode" was also "Off" and if the IE "Intra-frequency measurement reporting criteria" was not included in the message:

4> apply the modifications indicated in the "Inter-frequency set update" to the virtual active set that was valid before the message was received for the non-used frequency considered in that inter-frequency measurement.

3> otherwise:

4> remove the possibly existing virtual active set of the non-used frequency considered in that measurement; and

4> set the initial virtual active set for it according to the "Inter-frequency set update" included in the message.

2> if the IE "Inter-frequency set update" is not included in the message and if the IE "UE autonomous update mode" stored for the inter-frequency measurement is set to "Off":

3> remove the possibly existing virtual active set of the non-used frequency considered in that measurement; and

3> consider the virtual active set for it as empty.

1> if the IE "Intra-Frequency measurement reporting criteria" was not included in the MEASUREMENT CONTROL message:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

3> for each non-used frequency F_i considered in the measurement:

4> include in the initial virtual active set the N_i cells that have either the greatest downlink E_c/N_0 or the greatest downlink RSCP after despreading or the lowest pathloss (depending on what is indicated in the IE "inter-frequency measurement quantity"), among the cells on frequency F_i considered in that inter-frequency measurement, where:

5> if event 1a is configured for the used frequency in an intra-frequency measurement; and

5> if the "Reporting deactivation threshold" is included:

$$N_i = \min(N_{1a} \ , \ N_{Cells\,Fi}) \text{ if } N_{1a} \neq 0 \text{ and } N_i = N_{Cells\,Fi} \text{ otherwise.}$$

where:

N_{1a} is the "Reporting deactivation threshold" included in the intra-frequency measurement for the first event 1a defined in the intra-frequency measurement with the lowest identity.

$N_{Cells\,Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else, if event 1c is configured for the used frequency in an intra-frequency measurement:

$$N_i = \min(N_{1c} \ , \ N_{Cells\,Fi}) \text{ if } N_{1c} \neq 0 \text{ and } N_i = N_{Cells\,Fi} \text{ otherwise.}$$

where:

N_{1c} is the "Replacement activation threshold" included in the "Intra-Frequency measurement" for the first event 1c defined in the intra-frequency measurement with the lowest identity.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else:

$$N_i = N_{Cells\ Fi}$$

where:

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

3> if the IE "UE autonomous update mode" is set to "on":

4> if event 1a is configured for the used frequency in an intra-frequency measurement:

5> send a measurement report with IEs set as follows:

6> set the Measurement identity to the identity of the inter-frequency measurement;

6> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of all the cells included in the initial virtual active set of the non-used frequency considered in that measurement;

6> do not include the IEs "measured results" or "additional measured results".

4> else, if event 1c is configured for the used frequency in an intra-frequency measurement:

5> send a measurement report with IEs set as follows:

6> set the Measurement identity to the identity of the inter-frequency measurement;

6> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" the CPICH info of all the cells included in the initial virtual active set of the non-used frequency considered in that measurement;

6> do not include the IEs "measured results" or "additional measured results".

2> if the IE "UE autonomous update mode" is set to "off":

3> set the initial virtual active set of the non-used frequency considered in that inter-frequency measurement according to what is included in the IE "Inter-frequency set update" included in the message; and

3> if the IE "Inter-frequency set update" was not received:

4> set the initial virtual active set for the frequencies considered in that measurement to be empty.

14.11.2 Virtual active set update during an inter-frequency measurement

If the IE "Intra-frequency measurement reporting criteria" is stored for an inter-frequency measurement, the UE shall:

1> if Event 1a is configured in that IE, when this event is triggered (according to the criteria described in subclause 14.2.1.1) by a cell allowed to affect the reporting range (i.e. not included in the IE "Cells forbidden to affect reporting range" if that IE is included) for a non-used frequency considered in that measurement:

2> if the "Reporting deactivation threshold" is equal to 0, or if the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> add the primary CPICH that enters the reporting range to the "virtual active set".

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

5> do not include the IEs "measured results" or "additional measured results".

1> if Event 1b was configured, when this event is triggered (according to the criteria described in subclause 14.2.1.2) by a cell allowed to affect the reporting range (i.e. not included in the IE "Cells forbidden to affect reporting range" if that IE is included) for a non-used frequency considered in that measurement:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting" and if the number of cells included in the virtual active set is greater than 1:

3> remove the primary CPICH that leaves the reporting range from the "virtual active set".

2> if the IE "UE autonomous update mode" is set to "on" or "off":

3> send a measurement report with IEs set as below:

4> set the Measurement identity to the identity of the inter-frequency measurement;

4> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1b, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

4> do not include the IEs "measured results" or "additional measured results".

1> if Event 1c was configured, when this event is triggered by a cell not in the virtual active set for a frequency considered in that measurement (according to the criteria described in subclause 14.1.2.~~1.~~3):

2> if the "Reporting activation threshold" is equal to 0, or if the "Reporting activation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is greater than or equal to the "Reporting activation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> rank all active and non-active primary CPICHs and take the *n* best cells to create a new "virtual active set", where *n* is the number of active primary CPICHs in the "virtual active set".~~replace an active primary CPICH in the "virtual active set" with a non-active primary CPICH that has become better than the active primary CPICH.~~

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" ~~the first entry as~~include the CPICH info of all the non-active cells which satisfy~~that triggered~~ the event, and the rest of the entries as the cells that were in the virtual active set before the event occurred and that are worse than the best cell that triggered the event, in the order of their measured value (best one first);

5> do not include the IEs "measured results" or "additional measured results".

If the IE "Intra-frequency measurement reporting criteria" is not stored for that inter-frequency measurement, the UE shall:

1> apply the events of type 1a, 1b and 1c that were defined for the used frequency in other stored measurements of type "intra-frequency" at the time the inter-frequency measurement was set up; and

1> update the virtual active set for the non-used frequencies considered in that measurement according to the following rules:

2> if several events of type 1a (resp. 1b,1c) were defined for the used frequency when the inter-frequency measurement was set up, only the first 1a event (resp 1b, 1c) that was defined in the measurement with the lowest measurement identity shall apply to the non-used frequencies;

2> all the cells considered in the inter-frequency measurements shall be able to affect the reporting range for event 1a and 1b. (i.e. the IE "Cells forbidden to affect reporting range" possibly stored for the intra-frequency measurements on the used frequency does not apply to the non-used frequencies considered in the inter-frequency measurement);

2> the IEs "amount of reporting" and "reporting interval" that were stored for the intra-frequency measurements on the used frequency shall not be considered if reports of the virtual active set updates are needed.

1> if event 1a is applicable to the non-used frequencies considered in the inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.1.~~1~~) by a cell for a non-used frequency considered in that measurement:

2> if the "Reporting deactivation threshold" is equal to 0, or if the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> add the primary CPICH that enters the reporting range to the "virtual active set".

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

5> do not include the IEs "measured results" or "additional measured results"..

1> if event 1b is applicable for the non-used frequencies considered in that inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1~~.2) by a cell for a non-used frequency considered in that measurement:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting" and if the number of cells included in the virtual active set is greater than 1:

3> remove the primary CPICH that leaves the reporting range from the "virtual active set".

2> if the IE "UE autonomous update mode" is set to "on" or "off", send a measurement report with IEs set as below:

3> set the Measurement identity to the identity of the inter-frequency measurement;

3> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1b, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

3> do not include the IEs "measured results" or "additional measured results"..

1> if event 1c is applicable for the non-used frequencies considered in that inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1~~.3) by a cell for a non-used frequency considered in that measurement:

2> if the "Reporting activation threshold" is equal to 0, or if the "Reporting activation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is greater than or equal to the "Reporting activation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> rank all active and non-active primary CPICHs and take the *n* best cells to create a new "virtual active set", where *n* is the number of active primary CPICHs in the "virtual active set".~~replace an active primary CPICH in the "virtual active set" with a non-active primary CPICH that has become better than the active primary CPICH.~~

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement.

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" ~~the first entry as~~include the CPICH info of all the non-active cells that ~~triggered~~ satisfy the event, and the rest of the entries as the cells that were in the virtual active set before the event occurred and that are worse than the best cell that triggered the event, in the order of their measured value (best one first);

5> do not include the IEs "measured results" or "additional measured results".

3GPP TSG-RAN WG2 Meeting #31
Stockholm, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022252

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1572** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

*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:	⌘	Clarifications to inter-frequency measurements
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	22/08/2002
Category:	⌘	**A**
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: ⌘

1. In 8.4.1.3 there seems to be an additional statement included erroneously
2. During hard handover, it seems that intra and inter frequency measurements are only stopped, not deleted. A single measurement control message cannot reset both measurements, so at least one measurement type will be incorrect.
3. The link between event reporting criteria and measurement quantity is not clear
4. It is not clear that whether UTRA carrier RSSI is ~~only applicable to measurements on a different frequency from the used frequency~~used in intra-frequency measurement quantity
5. It is not stated whether additional measurements should be included during autonomous virtual active set update
6. ~~Section 14.11.2 is not consistent with 14.1.2.x in terms of which cells (active set / virtual active set vs. monitored set / non-active cells)~~
7. Currently 14.11.2 is also not consistent with 14.1.2.3 for event 1c, as 1c includes multiple cells, but virtual active set update appears only to update one cell.
8. The way to use "Reporting deactivation threshold" in section 14.11.2 is not consistent with the way it is used in section 14.1.2.1.
9. Some references in 14.11.2 are incorrect (see also R2-021999)

Summary of change: ⌘

1. Additional statement is removed in 8.4.1.3
2. Intra- and inter-frequency measurements are deleted rather than just stopped.
3. The link between event reporting criteria and measurement quantity is checked at the UE.
4. ~~It is clarified that~~ UTRA carrier RSSI is ~~only applicable to inter-frequency~~

~~measurements in~~ removed from the tabular and made dummy in ASN.1.

5. During autonomous update of the virtual active set additional measurements are not included.
6. ~~If a measurement (1a, 1b, 1c) is applicable only to either active or monitored set cells, the virtual active set update event only considers the cells (virtual active set or non-active cells)~~
7. Virtual active set update is allowed to update >1 cell in the virtual active set.
8. If the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold", the UE needs to update the virtual active set and send the triggered event 1a report to UTRAN.
9. References in 14.11.2 are corrected

Updates are highlighted in yellow.

Impact Analysis:
Impact is isolated to inter-frequency measurements:

- Correction to a function where the specification was
  - Unclear

Would not affect implementations behaving as indicated in the CR, may affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘

1. Confusing additional statement still in procedural text.
2. Potential restarting of stale intra or inter-frequency measurements on reception of MEASUREMENT CONTROL following hard handover
3. Possible misconfiguration of the UE if reporting criteria and measurement quantity are not consistent leading to unspecified behaviour
4. Unclear where UTRA carrier RSSI measurements are used
5. Possible inclusion of additional measurements during virtual active set update
6. ~~Unclear whether both virtual active and non-active set cells should be considered during virtual active set update~~
7. Virtual active set update assumes only 1 cell in virtual active set could ever be worse than one cell in non-active set.
8. Inconsistencies within the specification.

Clauses affected: ⌘ 8.4.1.3, 8.3.5, 8.6.7.14, 10.3.7.38, 11.3, 14.11.1, 14.11.2

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.

8.4.1.3 Reception of MEASUREMENT CONTROL by the UE

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

3> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or

~~3> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or~~

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

2> for measurement type "UE positioning measurement":

3> if the UE is in CELL_FACH state:

4> if IE "Positioning Method" is set to "OTDOA":

5> if IE "Method Type" is set to "UE assisted":

6> if IE "UE positioning OTDOA assistance data for UE assisted" is not included:

7> if System Information Block type 15.4 is broadcast:

8> read System Information Block type 15.4.

7> act as specified in subclause 8.6.7.19.2.

5> if IE "Method Type" is set to "UE based":

6> if IE "UE positioning OTDOA assistance data for UE based" is not included:

7> if System Information Block type 15.5 is broadcast:

8> read System Information Block type 15.5.

7> act as specified in subclause 8.6.7.19.2a.

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> for measurement types "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency, or that require measurements on another RAT:

5> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; and

~~5> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or~~

5> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

6> replace the corresponding information stored in variable MEASUREMENT_IDENTITY associated with the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

6> resume the measurements according to the new stored measurement control information.

4> for any other measurement type:

5> replace the corresponding information stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> resume the measurements according to the new stored measurement control information.

3> otherwise:

4> set the variable CONFIGURATION_INCOMPLETE to TRUE.

2> for all optional IEs that are not present in the MEASUREMENT CONTROL message:

3> leave the currently stored information elements unchanged in the variable MEASUREMENT_IDENTITY if not stated otherwise for that IE.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

1> if the IE "DPCH Compressed Mode Status Info" is present:

2> if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IE 'TGMP' in variable TGPS_IDENTITY):

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

2> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag") in the variable TGPS_IDENTITY):

3> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

4> deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message;

4> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive".

3> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

4> deactivate this pattern sequence at the beginning of the frame indicated by IE "TGPS reconfiguration CFN" received in the message.

NOTE: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

2> after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:

3> activate the pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in this message is set to "activate" at the time indicated by IE "TGCFN"; and

3> set the corresponding "Current TGPS status flag" for this pattern sequence in the variable TGPS_IDENTITY to "active"; and

3> begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

3> if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:

4> start the concerned pattern sequence immediately at that CFN.

2> not alter pattern sequences stored in variable TGPS_IDENTITY, if the pattern sequence is not identitifed in IE "TGPSI" in the received message.

1> if the UE in CELL_FACH state receives a MEASUREMENT CONTROL message, which indicates the same measurement identity as that stored in the variable MEASUREMENT_IDENTITY:

2> update the stored information with the traffic volume measurement control information in variable MEASUREMENT_IDENTITY; and

2> refrain from updating the traffic volume measurement control information associated with this measurement identity in the variable MEASUREMENT_IDENTITY with the information received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) until this measurement is explicitly released with another MEASUREMENT CONTROL message.

1> if the IE "Read SFN indicator" included in the IE "Cell info" of an inter-frequency cell is set to TRUE and the variable UE_CAPABILITY_TRANSFERRED has the DL "Measurement capability" for "FDD measurements" set to TRUE (the UE requires DL compressed mode in order to perform measurements on FDD):

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE "Additional Measurement List" is present:

2> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement identities in the "Additional Measurement List" do not all have the same validity:

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

The UE may:

1> if the IE "Measurement command" has the value "setup":

2> for measurement type "UE positioning measurement":

3> if the UE is CELL_FACH state:

4> if IE "Positioning Method" is set to "GPS":

5> if IE "UE positioning GPS assistance data" is not included and variable UE_POSITIONING_GPS_DATA is empty:

6> if System Information Block types 15, 15.1, 15.2 and 15.3 are broadcast:

7> read System Information Block types 15, 15.1, 15.2 and 15.3.

6> act as specified in subclause 8.6.7.19.3.

1> and the procedure ends.

8.3.5 Hard handover

When performing hard handover with change of frequency, the UE shall:

1> stop all intra-frequency and inter-frequency measurements on the cells listed in the variable CELL_INFO_LIST. Each stopped measurement is restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity. ~~until a MEASUREMENT CONTROL message is received from UTRAN.~~

8.6.7.14 Inter-frequency measurement

If the Inter-frequency cell info list, included in the variable CELL_INFO_LIST, includes a number (M) of frequencies that is larger than the number (N) considered in a UE performance requirement defined in [19] and [20]:

1> the UE shall:

2> meet this performance requirement on the first relevant (N) frequencies, according to the order defined by the position of the frequencies in the Inter-frequency cell info list, included in the variable CELL_INFO_LIST.

1> the UE may:

2> ignore the remaining (M-N) frequencies.

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Inter-frequency measurement quantity", IE "Inter-frequency reporting quantity" or "CHOICE Report criteria" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE;

~~1>~~ in the case of an inter-frequency measurement for FDD:

~~2~~1> if IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", if an inter-frequency event is configured that is different from event 2d or 2f, and if the IE "Inter-frequency SET UPDATE" is not received in that same message:

~~3~~2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

~~2~~1> if the IE "Inter-frequency SET UPDATE" is received:

~~3~~2> if the value of the IE "UE autonomous update mode" set to "Off" or "On":

~~4~~3> if more than one frequency is included in the list of cells pointed at in the IE "cells for measurement" if also included in the same IE "Inter-frequency measurement", or otherwise included in the "Inter-frequency cell info" part of the variable CELL_INFO_LIST:

~~5~~4> set the variable INVALID_CONFIGURATION to TRUE.

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, and

1> if "CHOICE Report criteria" is set to "inter-frequency reporting criteria" and "inter-frequency measurement quantity" is not set to "inter-frequency reporting criteria", or

1> if "CHOICE Report criteria"is set to "intra-frequency reporting criteria" and "inter-frequency measurement quantity"is not set to "intra-frequency reporting criteria"

2> the UE behaviour is not specified

If the variable CONFIGURATION_INCOMPLETE is set to TRUE, the UE shall:

1> act as described in subclause 8.4.1.4a.

10.3.7.38 Intra-frequency measurement quantity

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

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Filter coefficient	MP		Filter coefficient 10.3.7.9	
CHOICE *mode*	MP			
>FDD				
>>Measurement quantity	MP		Enumerated(CPICH Ec/N0, CPICH RSCP, Pathloss~~,~~ ~~UTRA Carrier RSSI~~)	
>TDD				
>>Measurement quantity list	MP	1 to 4		
>>>Measurement quantity	MP		Enumerated(Primary CCPCH RSCP, Pathloss, Timeslot ISCP~~, UTRA Carrier RSSI~~)	

11.3 Information element definitions

```
IntraFreqMeasQuantity ::=           SEQUENCE {
    filterCoefficient                   FilterCoefficient                   DEFAULT fc0,
    modeSpecificInfo                    CHOICE {
        fdd                             SEQUENCE {
            intraFreqMeasQuantity-FDD       IntraFreqMeasQuantity-FDD
        },
        tdd                             SEQUENCE {
            intraFreqMeasQuantity-TDDList   IntraFreqMeasQuantity-TDDList
        }
    }
}

-- If IntraFreqMeasQuantity-FDD is used in InterRATMeasQuantity, then only
-- cpich-Ec-N0 and cpich-RSCP are allowed.
-- If IntraFreqMeasQuantity-FDD is used in InterFreqMeasQuantity, then
-- utra-CarrierRSSI is not allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-FDD ::=       ENUMERATED {
                                        cpich-Ec-N0,
                                        cpich-RSCP,
                                        pathloss,
                                        utra-CarrierRSSI dummy }

-- If IntraFreqMeasQuantity-TDD is used in InterFreqMeasQuantity, then
-- utra-CarrierRSSI is not allowed.
-- dummy is not used in this version of the specification, it should
-- not be sent and if received it should be ignored.
IntraFreqMeasQuantity-TDD ::=       ENUMERATED {
                                        primaryCCPCH-RSCP,
                                        pathloss,
                                        timeslotISCP,
                                        utra-CarrierRSSIdummy }

IntraFreqMeasQuantity-TDDList ::=   SEQUENCE (SIZE (1..4)) OF
                                        IntraFreqMeasQuantity-TDD

IntraFreqMeasuredResultsList ::=    SEQUENCE (SIZE (1..maxCellMeas)) OF
                                        CellMeasuredResults
```

14.11 UE autonomous update of virtual active set on non-used frequency (FDD only)

In the text that follows:

- a "non-used frequency" is a frequency that the UE has been ordered to measure upon but is not used for the connection. A "used frequency" is a frequency that the UE has been ordered to measure upon and is also currently used for the connection;

- a "non-used frequency (resp. cell) considered in an inter-frequency measurement" shall be understood as a non-used frequency (resp. cell) included in the list of cells pointed at in the IE "cells for measurement" if it was received for that measurement, or otherwise as a non-used frequency (resp. cell) included in the "Inter-frequency cell info" part of the variable CELL_INFO_LIST.

For event-triggered inter frequency measurements it is possible to specify intra-frequency measurements reporting events for support of maintenance of an active set associated with a non-used frequency considered in that measurement, a "virtual active set" and used in the evaluation of the frequency quality estimates. The "initial virtual active set" for a frequency is the virtual active set that is associated to that frequency just after a message was received that sets up or modifies the inter-frequency measurement.

The way the virtual active sets are initiated and updated for the non-used frequencies considered in an inter-frequency measurement is described in the two subclauses below, and depends on whether the IE "intra-frequency reporting criteria" is stored for the inter-frequency measurement or not. In case that IE is not stored, the IE "intra-frequency measurement" stored in other measurements of type intra-frequency shall be used.

14.11.1 Initial virtual active set

The way the UE shall act when a MEASUREMENT CONTROL message is received that sets up or modifies an inter-frequency measurement, and that includes the IE "Inter-frequency set update" and/or the IE "Intra-Frequency reporting quantity" is described below. The UE shall:

1> if the IE "Intra-Frequency measurement reporting criteria" is included in the MEASUREMENT CONTROL message, or if it was previously stored and if the IE "Inter-frequency set update" was included in the MEASUREMENT CONTROL message:

2> if the IE "UE autonomous update mode" received or previously stored is set to "on" or "on with no reporting":

3> for each non-used frequency F_i considered in the measurement:

4> include in the initial virtual active set the N_i cells that have either the greatest downlink E_c/N_0, the greatest downlink RSCP after despreading, or the lowest pathloss (depending on what is indicated in the IE "inter-frequency measurement quantity"), among the cells on frequency F_i considered in that inter-frequency measurement, where:

5> if event 1a is configured in the "Intra-Frequency measurement reporting criteria":

$$N_i = \min(N_{1a} \ , \ N_{Cells\ Fi}) \text{ if } N_{1a} \neq 0 \text{ and } N_i = N_{Cells\ Fi} \text{ otherwise.}$$

where:

N_{1a} is the "Reporting deactivation threshold" included in the "Intra-Frequency measurement" IE received for that inter-frequency measurement for event 1a.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else, if event 1c is configured in the "Intra-Frequency measurement reporting criteria":

$$N_i = \min(N_{1c} \ , \ N_{Cells\ Fi}) \text{ if } N_{1c} \neq 0 \text{ and } N_i = N_{Cells\ Fi} \text{ otherwise.}$$

where:

N_{1c} is the "Replacement activation threshold" included in the "Intra-Frequency measurement" IE received for that inter-frequency measurement for event 1c.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else:

$$N_i = N_{Cells\ Fi}$$

where:

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

2> if the IE "UE autonomous update mode" received or previously stored is set to "on":

3> if event 1a is configured in the "Intra-Frequency measurement reporting criteria":

4> send a MEASUREMENT REPORT with IEs set as follows:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of all the cells included in a virtual active set of the non-used frequency considered in the inter-frequency measurement;

5> do not include the IEs "measured results" or "additional measured results".

3> else, if event 1c is configured in the "Intra-Frequency measurement reporting criteria":

4> send a measurement report with IEs set as follows:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" the CPICH info of all the cells included in the virtual active set of the frequency considered in the inter-frequency measurement;

5> do not include the IEs "measured results" or "additional measured results".

2> if the IE "Inter-frequency set update" is included in the message and if the IE "UE autonomous update mode" is set to "Off":

3> if the IE "Measurement command" is set to "Modify", if the value previously stored for the IE "UE autonomous update mode" was also "Off" and if the IE "Intra-frequency measurement reporting criteria" was not included in the message:

4> apply the modifications indicated in the "Inter-frequency set update" to the virtual active set that was valid before the message was received for the non-used frequency considered in that inter-frequency measurement.

3> otherwise:

4> remove the possibly existing virtual active set of the non-used frequency considered in that measurement; and

4> set the initial virtual active set for it according to the "Inter-frequency set update" included in the message.

2> if the IE "Inter-frequency set update" is not included in the message and if the IE "UE autonomous update mode" stored for the inter-frequency measurement is set to "Off":

3> remove the possibly existing virtual active set of the non-used frequency considered in that measurement; and

3> consider the virtual active set for it as empty.

1> if the IE "Intra-Frequency measurement reporting criteria" was not included in the MEASUREMENT CONTROL message:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

3> for each non-used frequency F_i considered in the measurement:

4> include in the initial virtual active set the N_i cells that have either the greatest downlink E_c/N_0 or the greatest downlink RSCP after despreading or the lowest pathloss (depending on what is indicated in the IE "inter-frequency measurement quantity"), among the cells on frequency F_i considered in that inter-frequency measurement, where:

5> if event 1a is configured for the used frequency in an intra-frequency measurement; and

5> if the "Reporting deactivation threshold" is included:

$$N_i = \min(N_{1a} \ , \ N_{Cells\,Fi}) \text{ if } N_{1a} \neq 0 \text{ and } N_i = N_{Cells\,Fi} \text{ otherwise.}$$

where:

N_{1a} is the "Reporting deactivation threshold" included in the intra-frequency measurement for the first event 1a defined in the intra-frequency measurement with the lowest identity.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else, if event 1c is configured for the used frequency in an intra-frequency measurement:

$N_i = \min(N_{1c}\ ,\ N_{Cells\ Fi})$ if $N_{1c} \neq 0$ and $N_i = N_{Cells\ Fi}$ otherwise.

where:

N_{1c} is the "Replacement activation threshold" included in the "Intra-Frequency measurement" for the first event 1c defined in the intra-frequency measurement with the lowest identity.

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

5> else:

$$N_i = N_{Cells\ Fi}$$

where:

$N_{Cells\ Fi}$ is the number of cells on frequency F_i considered in that inter-frequency measurement.

3> if the IE "UE autonomous update mode" is set to "on":

4> if event 1a is configured for the used frequency in an intra-frequency measurement:

5> send a measurement report with IEs set as follows:

6> set the Measurement identity to the identity of the inter-frequency measurement;

6> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of all the cells included in the initial virtual active set of the non-used frequency considered in that measurement;

6> do not include the IEs "measured results" or "additional measured results".

4> else, if event 1c is configured for the used frequency in an intra-frequency measurement:

5> send a measurement report with IEs set as follows:

6> set the Measurement identity to the identity of the inter-frequency measurement;

6> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" the CPICH info of all the cells included in the initial virtual active set of the non-used frequency considered in that measurement;

6> do not include the IEs "measured results" or "additional measured results".

2> if the IE "UE autonomous update mode" is set to "off":

3> set the initial virtual active set of the non-used frequency considered in that inter-frequency measurement according to what is included in the IE "Inter-frequency set update" included in the message; and

3> if the IE "Inter-frequency set update" was not received:

4> set the initial virtual active set for the frequencies considered in that measurement to be empty.

14.11.2 Virtual active set update during an inter-frequency measurement

If the IE "Intra-frequency measurement reporting criteria" is stored for an inter-frequency measurement, the UE shall:

1> if Event 1a is configured in that IE, when this event is triggered (according to the criteria described in subclause 14.2.1.1) by a cell allowed to affect the reporting range (i.e. not included in the IE "Cells forbidden to affect reporting range" if that IE is included) for a non-used frequency considered in that measurement:

2> if the "Reporting deactivation threshold" is equal to 0, or if the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> add the primary CPICH that enters the reporting range to the "virtual active set".

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

5> do not include the IEs "measured results" or "additional measured results".

1> if Event 1b was configured, when this event is triggered (according to the criteria described in subclause 14.2.1.2) by a cell allowed to affect the reporting range (i.e. not included in the IE "Cells forbidden to affect reporting range" if that IE is included) for a non-used frequency considered in that measurement:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting" and if the number of cells included in the virtual active set is greater than 1:

3> remove the primary CPICH that leaves the reporting range from the "virtual active set".

2> if the IE "UE autonomous update mode" is set to "on" or "off":

3> send a measurement report with IEs set as below:

4> set the Measurement identity to the identity of the inter-frequency measurement;

4> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1b, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

4> do not include the IEs "measured results" or "additional measured results".

1> if Event 1c was configured, when this event is triggered by a cell not in the virtual active set for a frequency considered in that measurement (according to the criteria described in subclause 14..1.2.~~1.~~3):

2> if the "Reporting activation threshold" is equal to 0, or if the "Reporting activation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is greater than or equal to the "Reporting activation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> rank all active and non-active primary CPICHs and take the *n* best cells to create a new "virtual active set", where *n* is the number of active primary CPICHs in the "virtual active set".~~replace an active primary CPICH in the "virtual active set" with a non-active primary CPICH that has become better than the active primary CPICH.~~

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" ~~the first entry as~~include the CPICH info of all the cells which satisfy ~~that triggered~~ the event, and the rest of the entries as the cells that were in the virtual active set before the event occurred and that are worse than the best cell that triggered the event, in the order of their measured value (best one first);

5> do not include the IEs "measured results" or "additional measured results".

If the IE "Intra-frequency measurement reporting criteria" is not stored for that inter-frequency measurement, the UE shall:

1> apply the events of type 1a, 1b and 1c that were defined for the used frequency in other stored measurements of type "intra-frequency" at the time the inter-frequency measurement was set up; and

1> update the virtual active set for the non-used frequencies considered in that measurement according to the following rules:

2> if several events of type 1a (resp. 1b,1c) were defined for the used frequency when the inter-frequency measurement was set up, only the first 1a event (resp 1b, 1c) that was defined in the measurement with the lowest measurement identity shall apply to the non-used frequencies;

2> all the cells considered in the inter-frequency measurements shall be able to affect the reporting range for event 1a and 1b. (i.e. the IE "Cells forbidden to affect reporting range" possibly stored for the intra-frequency measurements on the used frequency does not apply to the non-used frequencies considered in the inter-frequency measurement);

2> the IEs "amount of reporting" and "reporting interval" that were stored for the intra-frequency measurements on the used frequency shall not be considered if reports of the virtual active set updates are needed.

1> if event 1a is applicable to the non-used frequencies considered in the inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1.~~1) by a cell for a non-used frequency considered in that measurement:

2> if the "Reporting deactivation threshold" is equal to 0, or if the "Reporting deactivation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is less than or equal to the "Reporting deactivation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> add the primary CPICH that enters the reporting range to the "virtual active set".

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement;

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1a, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

5> do not include the IEs "measured results" or "additional measured results".

1> if event 1b is applicable for the non-used frequencies considered in that inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1.~~2) by a cell for a non-used frequency considered in that measurement:

2> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting" and if the number of cells included in the virtual active set is greater than 1:

3> remove the primary CPICH that leaves the reporting range from the "virtual active set".

2> if the IE "UE autonomous update mode" is set to "on" or "off", send a measurement report with IEs set as below:

3> set the Measurement identity to the identity of the inter-frequency measurement;

3> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1b, and in "Cell measurement event results" the CPICH info of the cell that triggered the event;

3> do not include the IEs "measured results" or "additional measured results".

1> if event 1c is applicable for the non-used frequencies considered in that inter-frequency measurement, when this event is triggered (according to the criteria described in subclause 14.1.2.~~1.~~3) by a cell for a non-used frequency considered in that measurement:

2> if the "Reporting activation threshold" is equal to 0, or if the "Reporting activation threshold" is different from 0 and the number of cells included in the virtual active set for that frequency is greater than or equal to the "Reporting activation threshold":

3> if the IE "UE autonomous update mode" is set to "on" or "on with no reporting":

4> rank all active and non-active primary CPICHs and take the *n* best cells to create a new "virtual active set", where *n* is the number of active primary CPICHs in the "virtual active set".~~replace an active primary CPICH in the "virtual active set" with a non-active primary CPICH that has become better than the active primary CPICH.~~

3> if the IE "UE autonomous update mode" is set to "on" or "off":

4> send a measurement report with IEs set as below:

5> set the Measurement identity to the identity of the inter-frequency measurement.

5> set the CHOICE event result in the IE Event results to Intra-frequency measurement event results, Intra-frequency event identity to 1c, and in "Cell measurement event results" ~~the first entry as~~include the CPICH info of all the non-active cells that ~~triggered~~ satisfy the event, and the rest of the entries as the cells that were in the virtual active set before the event occurred and that are worse than the best cell that triggered the event, in the order of their measured value (best one first);

5> do not include the IEs "measured results" or "additional measured results"..

3GPP TSG-RAN WG2 #31
Arlanda, Sweden, 19-23 August 2002

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CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1576** ⌘ **rev** **2** ⌘ Current version: **3.11.0** ⌘

*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:	⌘	Ciphering when HO to UMTS of signalling only connection
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	19/08/2002
Category:	⌘	**F**
Release:	⌘	R99

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: ⌘ There exists incorrect specification of HO to UMTS for ciphering in the case where a signalling only CS connection exists. Specifically, in section 8.3.6.3 of 25.331 we have the following:

> 2> for the CN domain as in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup":
>
> 3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER_RAT_HANDOVER_INFO_TRANSFERRED";
>
> 3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;

If the UE has a signalling only connection when the HO to UTRAN is performed, the IE RAB Info to Setup will not be included in the HO to UTRAN Command (an optional IE, included for RABs established). Thus, the IE RAB Info will not be included either and thus neither will CN Domain identity above. Therefore, the subsequent procedure text following the initial condition cannot be executed. This is a problem since this behaviour of the SRBs is dependent on this initial condition. A signalling only CS connection should be able to be handed over from GSM to UMTS and maintain the ciphering, i.e., there should be no dependence on the RAB IEs for signalling.

~~To correct this, we may it is identified that simply delete this initial bullet w/ the condition above; the "START" value included in the IE "UE security information" is the START CS and that the currently indicated "CN domain identity" affected shwould also always be the CS domian.~~

Summary of change:	⌘	Subsection 8.3.6.3: - ~~deletion of an erroneous condition for the case of only SRBs are setup~~clarification that the CS domain START value is the only value used for ~~INTER-RAT HO~~the HANDOVER TO UTRAN COMMAND when only a SRB exists in the source RAT. - **Impact Analysis** Impacted feature: ciphering in the case of handover to UTRAN This correction is for where the feature was ambiguous, particularly in the case where the "RAB Information for setup" IE was not included in the HANDOVER TO UTRAN COMMAND, so the START value to be used was uncertain. If CR is not implemented in the UE the wrong START value may be applied to the COUNT-C when handover to UTRAN is performed, particularly when only a signalling radio bearer exists on handover. There is no current identified impact on the test specifications.
Consequences if not approved:	⌘	Incorrect specificaiton of HO to UMTS for signalling only connection, will not be able to initialise HFNs properly;

Clauses affected:	⌘	8.3.6.3			
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.

8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall be able to receive a HANDOVER TO UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

The UE shall act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following. The UE shall:

1> store a U-RNTI value (32 bits), which is derived by the IEs "SRNC identity" (12 bits) and "S-RNTI 2" (10 bits) included in IE "U-RNTI-short". In order to produce a full size U-RNTI value, a full size "S-RNTI" (20 bits) shall be derived by padding the IE "S-RNTI 2" with 10 zero bits in the most significant positions; and

1> initialise the variable ESTABLISHED_SIGNALLING_CONNECTIONS with the signalling connections that remains after the handover according to the specifications of the source RAT;

1> initialise the variable UE_CAPABILITIES_TRANSFERRED with the UE capabilities that have been transferred to the network up to the point prior to the handover, if any;

1> initialise the variable TIMERS_AND_CONSTANTS to the default values and start to use those timer and constants values;

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

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

2> initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;

2> store information about the established radio access bearers and radio bearers according to the IE "Predefined configuration identity"; and

2> set the IE "RAB Info Post" in the variable ESTABLISHED_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED_RABS to "useT314".

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

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

2> initiate the physical channels in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity" and the received physical channel information elements;

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

2> set the IE "RAB Info Post" in the variable ESTABLISHED_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED_RABS to "useT314".

1> if IE "Specification mode" is set to "Preconfiguration":

2> use the following values for parameters that are neither signalled within the HANDOVER TO UTRAN COMMAND message nor included within pre-defined or default configuration:

3> 0 dB for the power offset $P_{Pilot\text{-}DPDCH}$ bearer in FDD;

3> calculate the Default DPCH Offset Value using the following formula:

3> in FDD:

Default DPCH Offset Value = (SRNTI 2 mod 600) * 512

3> in TDD:

Default DPCH Offset Value = (SRNTI 2 mod 7)

3> handle the above Default DPCH Offset Value as if an IE with that value was included in the message, as specified in subclause 8.6.6.21.

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

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

1> perform an open loop estimation to determine the UL transmission power according to subclause 8.5.3;

1> set the IE "START" for each CN domain, in the IE "START list" in the HANDOVER TO UTRAN COMPLETE message equal to the START value for each CN domain stored in the USIM if the USIM is present, or as stored in the UE for each CN domain if the SIM is present;

1> if ciphering has been activated and ongoing in the radio access technology from which inter- RAT handover is performed:

2> for the CN domain ~~as~~ included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:

3> set the variable LATEST_CONFIGURED_CN_DOMAIN to the value indicated in the IE "CN dom~~i~~ain identity", or to the CS domain when th~~ese~~is IE ~~s are~~is not present;

3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER_RAT_HANDOVER_INFO_TRANSFERRED";

3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;

3> not increment the HFN component of COUNT-C for radio bearers using RLC-TM, i.e. keep the HFN value fixed without incrementing every CFN cycle;

3> set the CFN component of the COUNT-C variable to the value of the CFN as calculated in subclause 8.5.15;

3> set the IE "Status" in the variable CIPHERING_STATUS to "Started";

3> apply the algorithm according to IE "Ciphering Algorithm" and apply ciphering immediately upon reception of the HANDOVER TO UTRAN COMMAND.

1> if ciphering has not been activated and ongoing in the radio access technology from which inter-RAT handover is performed:

2> for the CN domain ~~as~~ included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:

3> set the IE "Status" in the variable CIPHERING_STATUS to "Not Started".

If the UE succeeds in establishing the connection to UTRAN, it shall:

1> if the IE "Status" in the variable CIPHERING_STATUS of a CN domain is set to "Started" and transparent mode radio bearers have been established by this procedure for that CN domain:

2> include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now" for this IE;

2> at the CFN value as indicated in the response message in the IE "COUNT-C activation time" for radio bearers using RLC-TM:

3> set the 20 MSB of the HFN component of the COUNT-C variable to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and

3> set the remaining LSBs of the HFN component of COUNT-C to zero;

3> increment the HFN component of the COUNT-C variable by one;

3> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;

3> step the COUNT-C variable, as normal, at each CFN value. The HFN component is no longer fixed in value but incremented at each CFN cycle.

1> transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH, using, if ciphering has been started, the new ciphering configuration;

1> when the HANDOVER TO UTRAN COMPLETE message has been submitted to lower layers for transmission:

2> enter UTRA RRC connected mode in state CELL_DCH;

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

2> for all radio bearers using RLC-AM or RLC-UM:

3> set the 20 MSB of the HFN component of the uplink and downlink COUNT-C variable to the START value indicated in the IE "START list" of the response message for the relevant CN domain; and

3> set the remaining LSBs of the HFN component of COUNT-C to zero;

3> increment the HFN component of the COUNT-C variable by one;

3> start incrementing the COUNT-C values.

1> and the procedure ends.

3GPP TSG-RAN WG2 #31
Arlanda, Sweden, 19-23 August 2002

Tdoc ⌘R2-022448

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1577** ⌘ **rev** **2** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Ciphering when HO to UMTS of signalling only connection
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	19/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

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: ⌘ There exists incorrect specification of HO to UMTS for ciphering in the case where a signalling only CS connection exists. Specifically, in section 8.3.6.3 of 25.331 we have the following:

> 2> for the CN domain as in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup":
>
> 3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER_RAT_HANDOVER_INFO_TRANSFERRED";
>
> 3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;

If the UE has a signalling only connection when the HO to UTRAN is performed, the IE RAB Info to Setup will not be included in the HO to UTRAN Command (an optional IE, included for RABs established). Thus, the IE RAB Info will not be included either and thus neither will CN Domain identity above. Therefore, the subsequent procedure text following the initial condition cannot be executed. This is a problem since this behaviour of the SRBs is dependent on this initial condition. A signalling only CS connection should be able to be handed over from GSM to UMTS and maintain the ciphering, i.e., there should be no dependence on the RAB IEs for signalling.

Summary of change:	⌘	Subsection 8.3.6.3: - clarification that the CS domain START value is the only value used for the HANDOVER TO UTRAN COMMAND when only a SRB exists in the source RAT.
Consequences if not approved:	⌘	Incorrect specificaiton of HO to UMTS for signalling only connection, will not be able to initialise HFNs properly;

Clauses affected:	⌘	8.3.6.3				
		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.

8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall be able to receive a HANDOVER TO UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

The UE shall act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

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> store a U-RNTI value (32 bits), which is derived by the IEs "SRNC identity" (12 bits) and "S-RNTI 2" (10 bits) included in IE "U-RNTI-short". In order to produce a full size U-RNTI value, a full size "S-RNTI" (20 bits) shall be derived by padding the IE "S-RNTI 2" with 10 zero bits in the most significant positions; and

1> initialise the variable ESTABLISHED_SIGNALLING_CONNECTIONS with the signalling connections that remains after the handover according to the specifications of the source RAT;

1> initialise the variable UE_CAPABILITIES_TRANSFERRED with the UE capabilities that have been transferred to the network up to the point prior to the handover, if any;

1> initialise the variable TIMERS_AND_CONSTANTS to the default values and start to use those timer and constants values;

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

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

2> initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;

2> store information about the established radio access bearers and radio bearers according to the IE "Predefined configuration identity"; and

2> set the IE "RAB Info Post" in the variable ESTABLISHED_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED_RABS to "useT314".

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

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

2> initiate the physical channels in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity" and the received physical channel information elements;

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

2> set the IE "RAB Info Post" in the variable ESTABLISHED_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED_RABS to "useT314".

1> if IE "Specification mode" is set to "Preconfiguration":

2> use the following values for parameters that are neither signalled within the HANDOVER TO UTRAN COMMAND message nor included within pre-defined or default configuration:

3> 0 dB for the power offset $P_{Pilot\text{-}DPDCH}$ bearer in FDD;

3> calculate the Default DPCH Offset Value using the following formula:

3> in FDD:

Default DPCH Offset Value = (SRNTI 2 mod 600) * 512

3> in TDD:

Default DPCH Offset Value = (SRNTI 2 mod 7)

3> handle the above Default DPCH Offset Value as if an IE with that value was included in the message, as specified in subclause 8.6.6.21.

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

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

1> perform an open loop estimation to determine the UL transmission power according to subclause 8.5.3;

1> set the IE "START" for each CN domain, in the IE "START list" in the HANDOVER TO UTRAN COMPLETE message equal to the START value for each CN domain stored in the USIM if the USIM is present, or as stored in the UE for each CN domain if the SIM is present;

1> if ciphering has been activated and ongoing in the radio access technology from which inter- RAT handover is performed:

2> for the CN domain ~~as~~ included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:

3> set the variable LATEST_CONFIGURED_CN_DOMAIN to the value indicated in the IE "CN domain identity", or to the CS domain when this IE is not present;

3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER_RAT_HANDOVER_INFO_TRANSFERRED";

3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;

3> not increment the HFN component of COUNT-C for radio bearers using RLC-TM, i.e. keep the HFN value fixed without incrementing every CFN cycle;

3> set the CFN component of the COUNT-C variable to the value of the CFN as calculated in subclause 8.5.15;

3> set the IE "Status" in the variable CIPHERING_STATUS to "Started";

3> apply the algorithm according to IE "Ciphering Algorithm" and apply ciphering immediately upon reception of the HANDOVER TO UTRAN COMMAND.

1> if ciphering has not been activated and ongoing in the radio access technology from which inter-RAT handover is performed:

2> for the CN domain ~~as~~ included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:

3> set the IE "Status" in the variable CIPHERING_STATUS to "Not Started".

If the UE succeeds in establishing the connection to UTRAN, it shall:

1> if the IE "Status" in the variable CIPHERING_STATUS of a CN domain is set to "Started" and transparent mode radio bearers have been established by this procedure for that CN domain:

2> include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now" for this IE;

2> at the CFN value as indicated in the response message in the IE "COUNT-C activation time" for radio bearers using RLC-TM:

3> set the 20 MSB of the HFN component of the COUNT-C variable to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and

3> set the remaining LSBs of the HFN component of COUNT-C to zero;

3> increment the HFN component of the COUNT-C variable by one;

3> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;

3> step the COUNT-C variable, as normal, at each CFN value. The HFN component is no longer fixed in value but incremented at each CFN cycle.

1> transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH, using, if ciphering has been started, the new ciphering configuration;

1> when the HANDOVER TO UTRAN COMPLETE message has been submitted to lower layers for transmission:

2> enter UTRA RRC connected mode in state CELL_DCH;

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

2> for all radio bearers using RLC-AM or RLC-UM:

3> set the 20 MSB of the HFN component of the uplink and downlink COUNT-C variable to the START value indicated in the IE "START list" of the response message for the relevant CN domain; and

3> set the remaining LSBs of the HFN component of COUNT-C to zero;

3> increment the HFN component of the COUNT-C variable by one;

3> start incrementing the COUNT-C values.

1> and the procedure ends.

3GPP TSG-RAN WG2 #31
Arlanda, Sweden, 19-23 August 2002

Tdoc ⌘R2-022449

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1578** ⌘ **rev** **2** ⌘ Current version: **5.1.0** ⌘

*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:	⌘	Ciphering when HO to UMTS of signalling only connection
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	19/08/2002
Category:	⌘	**A**
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: ⌘ There exists incorrect specification of HO to UMTS for ciphering in the case where a signalling only CS connection exists. Specifically, in section 8.3.6.3 of 25.331 we have the following:

> 2> for the CN domain as in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup":
>
> 3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER_RAT_HANDOVER_INFO_TRANSFERRED";
>
> 3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;

If the UE has a signalling only connection when the HO to UTRAN is performed, the IE RAB Info to Setup will not be included in the HO to UTRAN Command (an optional IE, included for RABs established). Thus, the IE RAB Info will not be included either and thus neither will CN Domain identity above. Therefore, the subsequent procedure text following the initial condition cannot be executed. This is a problem since this behaviour of the SRBs is dependent on this initial condition. A signalling only CS connection should be able to be handed over from GSM to UMTS and maintain the ciphering, i.e., there should be no dependence on the RAB IEs for signalling.

Summary of change:	⌘	Subsection 8.3.6.3: - clarification that the CS domain START value is the only value used for the HANDOVER TO UTRAN COMMAND when only a SRB exists in the source RAT.
Consequences if not approved:	⌘	Incorrect specificaiton of HO to UMTS for signalling only connection, will not be able to initialise HFNs properly;

Clauses affected:	⌘	8.3.6.3				
		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.

8.3.6.3 Reception of HANDOVER TO UTRAN COMMAND message by the UE

The UE shall be able to receive a HANDOVER TO UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target UTRAN cell and/or frequency.

The UE shall act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

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> store a U-RNTI value (32 bits), which is derived by the IEs "SRNC identity" (12 bits) and "S-RNTI 2" (10 bits) included in IE "U-RNTI-short". In order to produce a full size U-RNTI value, a full size "S-RNTI" (20 bits) shall be derived by padding the IE "S-RNTI 2" with 10 zero bits in the most significant positions; and

1> initialise the variable ESTABLISHED_SIGNALLING_CONNECTIONS with the signalling connections that remains after the handover according to the specifications of the source RAT;

1> initialise the variable UE_CAPABILITIES_TRANSFERRED with the UE capabilities that have been transferred to the network up to the point prior to the handover, if any;

1> initialise the variable TIMERS_AND_CONSTANTS to the default values and start to use those timer and constants values;

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

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

2> initiate the physical channels in accordance with the predefined parameters identified by the IE "Predefined radio configuration identity" and the received physical channel information elements;

2> store information about the established radio access bearers and radio bearers according to the IE "Predefined configuration identity"; and

2> set the IE "RAB Info Post" in the variable ESTABLISHED_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED_RABS to "useT314".

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

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

2> initiate the physical channels in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity" and the received physical channel information elements;

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

2> set the IE "RAB Info Post" in the variable ESTABLISHED_RABS and the IE "Re-establishment timer" in the IE "RAB Info" in the variable ESTABLISHED_RABS to "useT314".

1> if IE "Specification mode" is set to "Preconfiguration":

2> use the following values for parameters that are neither signalled within the HANDOVER TO UTRAN COMMAND message nor included within pre-defined or default configuration:

3> 0 dB for the power offset $P_{Pilot\text{-}DPDCH}$ bearer in FDD;

3> calculate the Default DPCH Offset Value using the following formula:

3> in FDD:

Default DPCH Offset Value = (SRNTI 2 mod 600) * 512

3> in TDD:

Default DPCH Offset Value = (SRNTI 2 mod 7)

3> handle the above Default DPCH Offset Value as if an IE with that value was included in the message, as specified in subclause 8.6.6.21.

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

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

1> perform an open loop estimation to determine the UL transmission power according to subclause 8.5.3;

1> set the IE "START" for each CN domain, in the IE "START list" in the HANDOVER TO UTRAN COMPLETE message equal to the START value for each CN domain stored in the USIM if the USIM is present, or as stored in the UE for each CN domain if the SIM is present;

1> if ciphering has been activated and ongoing in the radio access technology from which inter- RAT handover is performed:

2> for the CN domain ~~as~~ included in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:

3> set the variable LATEST_CONFIGURED_CN_DOMAIN to the value indicated in the IE "CN domain identity", or to the CS domain when this IE is not present;

3> set the 20 MSB of the HFN component of the COUNT-C variable for all radio bearers using RLC-TM and all signalling radio bearers to the "START" value included in the IE "UE security information" in the variable "INTER_RAT_HANDOVER_INFO_TRANSFERRED";

3> set the remaining LSBs of the HFN component of COUNT-C for all radio bearers using RLC-TM and all signalling radio bearers to zero;

3> not increment the HFN component of COUNT-C for radio bearers using RLC-TM, i.e. keep the HFN value fixed without incrementing every CFN cycle;

3> set the CFN component of the COUNT-C variable to the value of the CFN as calculated in subclause 8.5.15;

3> set the IE "Status" in the variable CIPHERING_STATUS to "Started";

3> apply the algorithm according to IE "Ciphering Algorithm" and apply ciphering immediately upon reception of the HANDOVER TO UTRAN COMMAND.

1> if ciphering has not been activated and ongoing in the radio access technology from which inter-RAT handover is performed:

2> for the CN domain included ~~as~~ in the IE "CN domain identity" which is included in the IE "RAB info" of the IE "RAB information to setup", or the CS domain when these IEs are not present:

3> set the IE "Status" in the variable CIPHERING_STATUS to "Not Started".

If the UE succeeds in establishing the connection to UTRAN, it shall:

1> if the IE "Status" in the variable CIPHERING_STATUS of a CN domain is set to "Started" and transparent mode radio bearers have been established by this procedure for that CN domain:

2> include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now" for this IE;

2> at the CFN value as indicated in the response message in the IE "COUNT-C activation time" for radio bearers using RLC-TM:

3> set the 20 MSB of the HFN component of the COUNT-C variable to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and

3> set the remaining LSBs of the HFN component of COUNT-C to zero;

3> increment the HFN component of the COUNT-C variable by one;

3> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;

3> step the COUNT-C variable, as normal, at each CFN value. The HFN component is no longer fixed in value but incremented at each CFN cycle.

1> transmit a HANDOVER TO UTRAN COMPLETE message on the uplink DCCH, using, if ciphering has been started, the new ciphering configuration;

1> when the HANDOVER TO UTRAN COMPLETE message has been submitted to lower layers for transmission:

2> enter UTRA RRC connected mode in state CELL_DCH;

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

2> for all radio bearers using RLC-AM or RLC-UM:

3> set the 20 MSB of the HFN component of the uplink and downlink COUNT-C variable to the START value indicated in the IE "START list" of the response message for the relevant CN domain; and

3> set the remaining LSBs of the HFN component of COUNT-C to zero;

3> increment the HFN component of the COUNT-C variable by one;

3> start incrementing the COUNT-C values.

1> and the procedure ends.

3GPP TSG-RAN WG2 Meeting #31
Arlanda, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022265

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1579** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

*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:	⌘	Inter RAT handover from UTRAN
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	09/08/2002
Category:	⌘	**F**
Release:	⌘	R99

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: ⌘

This CR includes the following changes:

8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message
The text currently states that the UE shall include the inter RAT message in case the *target RAT* provides further details about the error. Target RAT is meant to refer to the part of the mobile handling the other RAT. However, this is quite ambigous. Therefore, the proposal is to change it to “upper layers”, since details a the error in the inter RAT message reach RRC via “upper layers”.

10.2.16 HANDOVER FROM UTRAN FAILURE
A previous CR mistakenly set the need for IE CHOICE *System type* to MP. This is an obvious error; it should be optional to include an inter RAT message. The option was introduced to facilitate the UE to return a RAT specific error notification e.g. in GSM certain error cases would result in an RR STATUS message. Finally it should be noted that the signalling between network nodes does not support forwarding of the error notification to the target node that compiled the handover command message.
The IE is optional in the ASN.1 and hence the proposed change aligns the tabular with the ASN.1

11.2 HandoverFromUTRANCommand-GSM, non critical extensions
When defining the single-GSM-message option the intention was that the GSM message would be appended after the PER encoded RRC message. However, the current transfer syntax allow the use of non critical extensions which would appear after the GSM message – which would than reside in the middle of an RRC message even though there is no ASN.1 length determinant. The proposal is to remove this option because:
- it was not intended

- it severly complicates UE implementation
- when non critical extensions need to be used (currently none are defined), the GSM message list option can be used. This option has some drawbacks (max. size of 512 bits, some more signalling overhead), but these are not considered to be very severe

11.2 HandoverFromUTRANCommand-GSM-r3-IEs, encoding for single message
The advantage of keeping the final padding bits resulting from PER encoding prior to appending the GSM message is that the receiver experiences a valid transfer syntax to which additional information has been appended, which can only be the GSM message. Furthermore, this would imply that the GSM message always starts at an octet boundary.
However, the intention of the current text was clearly that the final padding is removed and then re- inserted after the GSM message (which comprises a full number of octets). For backwards compatibility reasons the text is clarified in accordance with the intention of the current text.

Impact analysis:

Impacted functionality: Handover from UTRAN. From an impact analysis point of view the main change concerns the clarification concerning the padding & length for the single GSM message case

Correction type: Clarification of a function where the specification is partly incorrect (it does not specify the intended behaviour) and partly ambigous. Does not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise

Interoperability:

- Isolated impact: the impact is isolated; only the corrected functionality is affected
- CR implemented only by UTRAN: Handover from UTRAN does not work if the UE had misinterpret the current specification concerning the padding & length for the single GSM message case
- CR implemented only by the UE: Handover from UTRAN does not work if the UE had misinterpret the current specification concerning the padding & length for the single GSM message case

Summary of change: ⌘ This CR includes the following changes:

8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message
The sentence “in case the target RAT provides further details about the inter RAT protocol error” is changed into “in accordance with the specifications applicable for the other RAT”

10.2.16 HANDOVER FROM UTRAN FAILURE
The need for IE CHOICE *System type* has been changed from MP to OP

11.2 HandoverFromUTRANCommand-GSM
Clarification is added that non critical extensions shall not be used when applying the single-GSM-message option

11.2 HandoverFromUTRANCommand-GSM-r3-IEs, encoding for single message
The comment concerning how the PER encoded result is combined with the GSM message is clarified. The clarification highlights that the final padding bits are removed prior to appending the GSM message and then re- inserted at the end. Furthermore, the comment that no information about the length of the GSM message is contained in the RRC message part is clarified

Consequences if not approved:	⌘	The specification remains partly incorrect and partly ambigous

Clauses affected:	⌘	8.3.7.6, 10.2.16, 11.2			
		Y	**N**		
Other specs affected:	⌘			Other core specifications	⌘
		X		Test specifications	TS 34.123-1 clause 8.3.7.5.4, 8.3.7.6.4, 8.3.7.7.4, 8.3.7.8.4, 8.3.7.9.4, 8.3.7.10.4, 8.3.7.12.4
				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.

8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message

If the IE "Inter-RAT message" received within the HANDOVER FROM UTRAN COMMAND message does not include a valid inter RAT handover message in accordance with the protocol specifications for the target RAT, the UE shall perform procedure specific error handling as follows. The UE shall:

1> set the IE "failure cause" to the cause value "Inter-RAT protocol error";

1> include the IE "Inter-RAT message" in accordance with the specifications applicable for the other RAT ~~in case the target RAT provides further details about the inter RAT protocol error~~;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the transmission of the HANDOVER FROM UTRAN FAILURE message has been confirmed by RLC:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

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

1> set the IE "RRC transaction identifier" in the HANDOVER FROM UTRAN FAILURE message to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

10.2.16 HANDOVER FROM UTRAN FAILURE

This message is sent on the RRC connection used before the Inter-RAT Handover was executed. The message indicates that the UE has failed to seize the new channel in the other system.

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	
Other information elements				
Inter-RAT handover failure	OP		Inter-RAT handover failure 10.3.8.6	
CHOICE *System type*	OP~~MP~~			This IE indicates which specification to apply to decode the transported messages
>GSM				
>GSM message List	MP	1.to.<maxInterSysMessages>	Bit string (1..512)	Formatted and coded according to GSM specifications. The first bit of the bit string contains the first bit of the GSM message.
>cdma2000				
>>cdma2000MessageList	MP	1.to.<maxInterSysMessages>		
>>>MSG_TYPE(s)	MP		Bit string (8)	Formatted and coded according to cdma2000 specifications. The MSG_TYPE bits are numbered b0 to b7, where b0 is the least significant bit.
>>>cdma2000Messagepayload(s)	MP		Bit string (1..512)	Formatted and coded according to cdma2000 specifications. The first bit of the bit string contains the first bit of the cdma2000 message.

11.2 PDU definitions

```
<Cut until the next modified section>

-- **************************************************
--
-- HANDOVER FROM UTRAN COMMAND
--
-- **************************************************

HandoverFromUTRANCommand-GSM ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-GSM-r3
                                        HandoverFromUTRANCommand-GSM-r3-IEs,
        -- UTRAN should not include the IE nonCriticalExtensions when it sets
        -- the IE gsm-message included in handoverFromUTRANCommand-GSM-r3 to single-GSM-Message
        -- The UE behaviour upon receiving a message including this combination of IE values is
        -- not specified
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        toHandoverRAB-Info              RAB-Info                            OPTIONAL,
    -- Measurement IEs
        frequency-band                  Frequency-Band,
    -- Other IEs
        gsm-message         CHOICE {
            -- In the single-GSM-Message case the following rules apply:
            -- 1> the GSM message directly follows the basic production; the final padding that
            --    results when PER encoding the abstract syntax value is removed prior to appending
            --    the GSM message.
            -- 2> the RRC message excluding the GSM part, does not contain a length determinant;
            --    there is no explicit parameter indicating the size of the included GSM message.
            -- 3> depending on need, final padding (all “0”s) is added to ensure the final result
            --    comprises a full number of octets
            -- In the single-GSM-Message case, what follows the basic production is a variable
            -- length bit string with no length field, containing the GSM message including GSM
            -- padding up to end of container, to be analysed according to GSM specifications
            single-GSM-Message              SEQUENCE {},
            gsm-MessageList                 SEQUENCE {
                gsm-Messages                    GSM-MessageList
            }
        }
}

HandoverFromUTRANCommand-CDMA2000 ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
                                        HandoverFromUTRANCommand-CDMA2000-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-CDMA2000-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        toHandoverRAB-Info              RAB-Info                            OPTIONAL,
    -- Other IEs
        cdma2000-MessageList            CDMA2000-MessageList
}
```

```
<The following section does not include changes>
< It has been included for reference, to clarify the tabular is aligned with ASN.1>

-- ************************************************
--
-- HANDOVER FROM UTRAN FAILURE
--
-- ************************************************

HandoverFromUTRANFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Other IEs
        interRAT-HO-FailureCause        InterRAT-HO-FailureCause            OPTIONAL,
        interRATMessage                 CHOICE {
            gsm                             SEQUENCE {
                gsm-MessageList                     GSM-MessageList
            },
            cdma2000                            SEQUENCE {
                cdma2000-MessageList                CDMA2000-MessageList
            }
        }               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}
```

3GPP TSG-RAN WG2 Meeting #31
Arlanda, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022266

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1580** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Inter RAT handover from UTRAN
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	09/08/2002
Category:	⌘	**A**
Release:	⌘	REL-4

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: ⌘

This CR includes the following changes:

8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message
The text currently states that the UE shall include the inter RAT message in case the *target RAT* provides further details about the error. Target RAT is meant to refer to the part of the mobile handling the other RAT. However, this is quite ambigous. Therefore, the proposal is to change it to “upper layers”, since details a the error in the inter RAT message reach RRC via “upper layers”.

10.2.16 HANDOVER FROM UTRAN FAILURE
A previous CR mistakenly set the need for IE CHOICE *System type* to MP. This is an obvious error; it should be optional to include an inter RAT message. The option was introduced to facilitate the UE to return a RAT specific error notification e.g. in GSM certain error cases would result in an RR STATUS message. Finally it should be noted that the signalling between network nodes does not support forwarding of the error notification to the target node that compiled the handover command message.
The IE is optional in the ASN.1 and hence the proposed change aligns the tabular with the ASN.1

11.2 HandoverFromUTRANCommand-GSM, non critical extensions
When defining the single-GSM-message option the intention was that the GSM message would be appended after the PER encoded RRC message. However, the current transfer syntax allow the use of non critical extensions which would appear after the GSM message – which would than reside in the middle of an RRC message even though there is no ASN.1 length determinant. The proposal is to remove this option because:
- it was not intended

	- it severly complicates UE implementation - when non critical extensions need to be used (currently none are defined), the GSM message list option can be used. This option has some drawbacks (max. size of 512 bits, some more signalling overhead), but these are not considered to be very severe 11.2 HandoverFromUTRANCommand-GSM-r3-IEs, encoding for single message The advantage of keeping the final padding bits resulting from PER encoding prior to appending the GSM message is that the receiver experiences a valid transfer syntax to which additional information has been appended, which can only be the GSM message. Furthermore, this would imply that the GSM message always starts at an octet boundary. However, the intention of the current text was clearly that the final padding is removed and then re- inserted after the GSM message (which comprises a full number of octets). For backwards compatibility reasons the text is clarified in accordance with the intention of the current text.
Summary of change: ⌘	This CR includes the following changes: 8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message The sentence “in case the target RAT provides further details about the inter RAT protocol error” is changed into “in accordance with the specifications applicable for the other RAT” 10.2.16 HANDOVER FROM UTRAN FAILURE The need for IE CHOICE *System type* has been changed from MP to OP 11.2 HandoverFromUTRANCommand-GSM Clarification is added that non critical extensions shall not be used when applying the single-GSM-message option 11.2 HandoverFromUTRANCommand-GSM-r3-IEs, encoding for single message The comment concerning how the PER encoded result is combined with the GSM message is clarified. The clarification highlights that the final padding bits are removed prior to appending the GSM message and then re- inserted at the end. Furthermore, the comment that no information about the length of the GSM message is contained in the RRC message part is clarified
Consequences if not approved: ⌘	The specification remains partly incorrect and partly ambigous

Clauses affected:	⌘	8.3.7.6, 10.2.16, 11.2			
		Y	**N**		
Other specs affected:	⌘			Other core specifications	⌘
		X		Test specifications	TS 34.123-1 clause 8.3.7.5.4, 8.3.7.6.4, 8.3.7.7.4, 8.3.7.8.4, 8.3.7.9.4, 8.3.7.10.4, 8.3.7.12.4
				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.

8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message

If the IE "Inter-RAT message" received within the HANDOVER FROM UTRAN COMMAND message does not include a valid inter RAT handover message in accordance with the protocol specifications for the target RAT, the UE shall perform procedure specific error handling as follows. The UE shall:

1> set the IE "failure cause" to the cause value "Inter-RAT protocol error";

1> include the IE "Inter-RAT message" in accordance with the specifications applicable for the other RAT~~in case the target RAT provides further details about the inter RAT protocol error~~;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the transmission of the HANDOVER FROM UTRAN FAILURE message has been confirmed by RLC:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

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

1> set the IE "RRC transaction identifier" in the HANDOVER FROM UTRAN FAILURE message to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

10.2.16 HANDOVER FROM UTRAN FAILURE

This message is sent on the RRC connection used before the Inter-RAT Handover was executed. The message indicates that the UE has failed to seize the new channel in the other system.

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	
Other information elements				
Inter-RAT handover failure	OP		Inter-RAT handover failure 10.3.8.6	
CHOICE *System type*	OP~~MP~~			This IE indicates which specification to apply to decode the transported messages
>GSM				
>GSM message List	MP	1.to.<maxInterSysMessages>	Bit string (1..512)	Formatted and coded according to GSM specifications. The first bit of the bit string contains the first bit of the GSM message.
>cdma2000				
>>cdma2000MessageList	MP	1.to.<maxInterSysMessages>		
>>>MSG_TYPE(s)	MP		Bit string (8)	Formatted and coded according to cdma2000 specifications. The MSG_TYPE bits are numbered b0 to b7, where b0 is the least significant bit.
>>>cdma2000Messagepayload(s)	MP		Bit string (1..512)	Formatted and coded according to cdma2000 specifications. The first bit of the bit string contains the first bit of the cdma2000 message.

11.2 PDU definitions

```
<Cut until the next modified section>

-- **************************************************
--
-- HANDOVER FROM UTRAN COMMAND
--
-- **************************************************

HandoverFromUTRANCommand-GSM ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-GSM-r3
                                        HandoverFromUTRANCommand-GSM-r3-IEs,
        -- UTRAN should not include the IE nonCriticalExtensions when it sets
        -- the IE gsm-message included in handoverFromUTRANCommand-GSM-r3 to single-GSM-Message
        -- The UE behaviour upon receiving a message including this combination of IE values is
        -- not specified
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        toHandover-Info                 RAB-Info                            OPTIONAL,
    -- Measurement IEs
        frequency-band                  Frequency-Band,
    -- Other IEs
        gsm-message                     CHOICE {
            -- In the single-GSM-Message case the following rules apply:
            -- 1> the GSM message directly follows the basic production; the final padding that
            --    results when PER encoding the abstract syntax value is removed prior to appending
            --    the GSM message.
            -- 2> the RRC message excluding the GSM part, does not contain a length determinant;
            --    there is no explicit parameter indicating the size of the included GSM message.
            -- 3> depending on need, final padding (all “0”s) is added to ensure the final result
            --    comprises a full number of octets
            -- In the single-GSM-Message case, what follows the basic production is a variable
            -- length bit string with no length field, containing the GSM message including GSM
            -- padding up to end of container, to be analysed according to GSM specifications
            single-GSM-Message              SEQUENCE {},
            gsm-MessageList                 SEQUENCE {
                gsm-Messages                    GSM-MessageList
            }
        }
}

HandoverFromUTRANCommand-CDMA2000 ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
                                        HandoverFromUTRANCommand-CDMA2000-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-CDMA2000-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        toHandover-Info                 RAB-Info                            OPTIONAL,
    -- Other IEs
        cdma2000-MessageList            CDMA2000-MessageList
}
```

```
-- ************************************************
--
-- HANDOVER FROM UTRAN FAILURE
--
-- ************************************************

HandoverFromUTRANFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Other IEs
        interRAT-HO-FailureCause        InterRAT-HO-FailureCause            OPTIONAL,
        interRATMessage                 CHOICE {
            gsm                             SEQUENCE {
                gsm-MessageList                     GSM-MessageList
            },
            cdma2000                            SEQUENCE {
                cdma2000-MessageList                CDMA2000-MessageList
            }
        }               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}
```

3GPP TSG-RAN WG2 Meeting #31
Arlanda, Sweden, 19th – 23rd August 2002

Tdoc ⌘R2-022267

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1581** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

*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:	⌘	Inter RAT handover from UTRAN
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	09/08/2002
Category:	⌘	**A**
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: ⌘ This CR includes the following changes:

8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message
The text currently states that the UE shall include the inter RAT message in case the *target RAT* provides further details about the error. Target RAT is meant to refer to the part of the mobile handling the other RAT. However, this is quite ambigous. Therefore, the proposal is to change it to “upper layers”, since details a the error in the inter RAT message reach RRC via “upper layers”.

10.2.16 HANDOVER FROM UTRAN FAILURE
A previous CR mistakenly set the need for IE CHOICE *System type* to MP. This is an obvious error; it should be optional to include an inter RAT message. The option was introduced to facilitate the UE to return a RAT specific error notification e.g. in GSM certain error cases would result in an RR STATUS message. Finally it should be noted that the signalling between network nodes does not support forwarding of the error notification to the target node that compiled the handover command message.
The IE is optional in the ASN.1 and hence the proposed change aligns the tabular with the ASN.1

11.2 HandoverFromUTRANCommand-GSM, non critical extensions
When defining the single-GSM-message option the intention was that the GSM message would be appended after the PER encoded RRC message. However, the current transfer syntax allow the use of non critical extensions which would appear after the GSM message – which would than reside in the middle of an RRC message even though there is no ASN.1 length determinant. The proposal is to remove this option because:
- it was not intended

	- it severly complicates UE implementation - when non critical extensions need to be used (currently none are defined), the GSM message list option can be used. This option has some drawbacks (max. size of 512 bits, some more signalling overhead), but these are not considered to be very severe 11.2 HandoverFromUTRANCommand-GSM-r3-IEs, encoding for single message The advantage of keeping the final padding bits resulting from PER encoding prior to appending the GSM message is that the receiver experiences a valid transfer syntax to which additional information has been appended, which can only be the GSM message. Furthermore, this would imply that the GSM message always starts at an octet boundary. However, the intention of the current text was clearly that the final padding is removed and then re- inserted after the GSM message (which comprises a full number of octets). For backwards compatibility reasons the text is clarified in accordance with the intention of the current text.
Summary of change: ⌘	This CR includes the following changes: 8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message The sentence “in case the target RAT provides further details about the inter RAT protocol error” is changed into “in accordance with the specifications applicable for the other RAT” 10.2.16 HANDOVER FROM UTRAN FAILURE The need for IE CHOICE *System type* has been changed from MP to OP 11.2 HandoverFromUTRANCommand-GSM Clarification is added that non critical extensions shall not be used when applying the single-GSM-message option 11.2 HandoverFromUTRANCommand-GSM-r3-IEs, encoding for single message The comment concerning how the PER encoded result is combined with the GSM message is clarified. The clarification highlights that the final padding bits are removed prior to appending the GSM message and then re- inserted at the end. Furthermore, the comment that no information about the length of the GSM message is contained in the RRC message part is clarified
Consequences if not approved: ⌘	The specification remains partly incorrect and partly ambigous

Clauses affected:	⌘	8.3.7.6, 10.2.16, 11.2			
		Y	**N**		
Other specs affected:	⌘			Other core specifications	⌘
		X		Test specifications	TS 34.123-1 clause 8.3.7.5.4, 8.3.7.6.4, 8.3.7.7.4, 8.3.7.8.4, 8.3.7.9.4, 8.3.7.10.4, 8.3.7.12.4
				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.

8.3.7.6 Invalid HANDOVER FROM UTRAN COMMAND message

If the IE "Inter-RAT message" received within the HANDOVER FROM UTRAN COMMAND message does not include a valid inter RAT handover message in accordance with the protocol specifications for the target RAT, the UE shall perform procedure specific error handling as follows. The UE shall:

1> set the IE "failure cause" to the cause value "Inter-RAT protocol error";

1> include the IE "Inter-RAT message" in accordance with the specifications applicable for the other RAT~~in case the target RAT provides further details about the inter RAT protocol error~~;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the transmission of the HANDOVER FROM UTRAN FAILURE message has been confirmed by RLC:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

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

1> set the IE "RRC transaction identifier" in the HANDOVER FROM UTRAN FAILURE message to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

10.2.16 HANDOVER FROM UTRAN FAILURE

This message is sent on the RRC connection used before the Inter-RAT Handover was executed. The message indicates that the UE has failed to seize the new channel in the other system.

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	
Other information elements				
Inter-RAT handover failure	OP		Inter-RAT handover failure 10.3.8.6	
CHOICE *System type*	OP~~MP~~			This IE indicates which specification to apply to decode the transported messages
>GSM				
>GSM message List	MP	1.to.<maxInterSysMessages>	Bit string (1..512)	Formatted and coded according to GSM specifications. The first bit of the bit string contains the first bit of the GSM message.
>cdma2000				
>>cdma2000MessageList	MP	1.to.<maxInterSysMessages>		
>>>MSG_TYPE(s)	MP		Bit string (8)	Formatted and coded according to cdma2000 specifications. The MSG_TYPE bits are numbered b0 to b7, where b0 is the least significant bit.
>>>cdma2000Messagepayload(s)	MP		Bit string (1..512)	Formatted and coded according to cdma2000 specifications. The first bit of the bit string contains the first bit of the cdma2000 message.

11.2 PDU definitions

```
<Cut until the next modified section>

-- **************************************************
--
-- HANDOVER FROM UTRAN COMMAND
--
-- **************************************************

HandoverFromUTRANCommand-GSM ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-GSM-r3
                                        HandoverFromUTRANCommand-GSM-r3-IEs,
        -- UTRAN should not include the IE nonCriticalExtensions when it sets
        -- the IE gsm-message included in handoverFromUTRANCommand-GSM-r3 to single-GSM-Message
        -- The UE behaviour upon receiving a message including this combination of IE values is
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-GSM-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        toHandover-Info                 RAB-Info                            OPTIONAL,
    -- Measurement IEs
        frequency-band                  Frequency-Band,
    -- Other IEs
        gsm-message                     CHOICE {
            -- In the single-GSM-Message case the following rules apply:
            -- 1> the GSM message directly follows the basic production; the final padding that
            --    results when PER encoding the abstract syntax value is removed prior to appending
            --    the GSM message.
            -- 2> the RRC message excluding the GSM part, does not contain a length determinant;
            --    there is no explicit parameter indicating the size of the included GSM message.
            -- 3> depending on need, final padding (all “0”s) is added to ensure the final result
            --    comprises a full number of octets
            -- In the single-GSM-Message case, what follows the basic production is a variable
            -- length bit string with no length field, containing the GSM message including GSM
            -- padding up to end of container, to be analysed according to GSM specifications
            single-GSM-Message              SEQUENCE {},
            gsm-MessageList                 SEQUENCE {
                gsm-Messages                    GSM-MessageList
            }
        }
}

HandoverFromUTRANCommand-CDMA2000 ::= CHOICE {
    r3                              SEQUENCE {
        handoverFromUTRANCommand-CDMA2000-r3
                                        HandoverFromUTRANCommand-CDMA2000-r3-IEs,
        nonCriticalExtensions           SEQUENCE {} OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

HandoverFromUTRANCommand-CDMA2000-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        activationTime                  ActivationTime                      OPTIONAL,
    -- Radio bearer IEs
        toHandover-Info                 RAB-Info                            OPTIONAL,
    -- Other IEs
        cdma2000-MessageList            CDMA2000-MessageList
}

-- **************************************************
```

```
--
-- HANDOVER FROM UTRAN FAILURE
--
-- ************************************************

HandoverFromUTRANFailure ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
    -- Other IEs
        interRAT-HO-FailureCause        InterRAT-HO-FailureCause            OPTIONAL,
        interRATMessage                 CHOICE {
            gsm                             SEQUENCE {
                gsm-MessageList                     GSM-MessageList
            },
            cdma2000                            SEQUENCE {
                cdma2000-MessageList                CDMA2000-MessageList
            }
        }               OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}
```

3GPP TSG-RAN WG2 meeting #31 *R2-022259*
Stockholm, Sweden, 19th - 23th August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1582** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

*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 Cell Update procedure with cause “Radio link failure”
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**F**
Release:	⌘	R99

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: ⌘

1. It is specified in subclause 8.1.6.6 that the UE shall initiate the Cell update procedure as specified in subclause 8.3.1, using the cause "Radio link failure" when the transmission of the UE CAPABILITY INFORMATION message fails.

   But subclause 8.3.1 only specifies the action for “Radio link failure” as defined in subclause 8.5.6 for UE in CELL_DCH state. The action for the previous case is missing.

Summary of change: ⌘

1. Add the transmission failure of the UE CAPABILITY INFORMATION message as one purpose of the cell update procedure in subclause 8.3.1.1.
2. Add the transmission failure of the UE CAPABILITY INFORMATION message as one case to initiate the cell update procedure in subclause 8.3.1.2.

Isolated Impact Change Analysis.

Impacted functionality: Cell update procedure.

Correction to a function where specification was not sufficient. The change has isolated impact to the UE.

It would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘ The Cell update procedure may not be initiated when the transmission of the UE CAPABILITY INFORMATION message fails.

Clauses affected: ⌘ 8.3.1.1, 8.3.1.2

☒ 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.

8.3.1 Cell and URA update procedures

…

8.3.1.1 General

The URA update and cell update procedures serve several main purposes:

- to notify UTRAN after re-entering service area in the URA_PCH or CELL_PCH state;
- to notify UTRAN of an RLC unrecoverable error [16] on an AM RLC entity;
- to be used as a supervision mechanism in the CELL_FACH, CELL_PCH, or URA_PCH state by means of periodical update.

In addition, the URA update procedure also serves the following purpose:

- to retrieve a new URA identity after cell re-selection to a cell not belonging to the current URA assigned to the UE in URA_PCH state.

In addition, the cell update procedure also serves the following purposes:

- to update UTRAN with the current cell the UE is camping on after cell reselection;
- to act on a radio link failure in the CELL_DCH state;
- to act on the transmission failure of the UE CAPABILITY INFORMATION message;
- when triggered in the URA_PCH or CELL_PCH state, to notify UTRAN of a transition to the CELL_FACH state due to the reception of UTRAN originated paging or due to a request to transmit uplink data.

The URA update and cell update procedures may:

1> include an update of mobility related information in the UE;

1> cause a state transition from the CELL_FACH state to the CELL_DCH, CELL_PCH or URA_PCH states or idle mode.

The cell update procedure may also include:

- a re-establish of AM RLC entities;
- a radio bearer release, radio bearer reconfiguration, transport channel reconfiguration or physical channel reconfiguration.

8.3.1.2 Initiation

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

1> Paging response:

2> if the criteria for performing cell update with the cause specified above in the current subclause is not met; and

2> if the UE in URA_PCH or CELL_PCH state, receives a PAGING TYPE 1 message fulfilling the conditions for initiating a cell update procedure specified in subclause 8.1.2.3:

3> perform cell update using the cause "paging response".

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

~~2~~3> if the UE is in CELL_DCH state~~;~~ and the criteria for radio link failure is met as specified in subclause 8.5.6; or

~~2~~3> if ~~the criteria for radio link failure is met as specified in subclause 8.5.6~~ the transmission of the UE CAPABILITY INFORMATION message fails as specified in subclause 8.1.6.6:

~~3~~4> perform cell update using the cause "radio link failure".

1> Re-entering service area:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the UE has been out of service area and re-enters service area before T307 or T317 expires:

3> perform cell update using the cause "re-entering service area".

1> RLC unrecoverable error:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE detects RLC unrecoverable error [16] in an AM RLC entity:

3> perform cell update using the cause "RLC unrecoverable error".

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or

2> if the list of URA identities in system information block type 2 is empty; or

2> if the system information block type 2 can not be found:

3> perform URA update using the cause "change of URA".

1> Periodic URA update:

2> if the criteria for performing URA update with the causes as specified above in the current subclause are not met; and

2> if the timer T305 expires while the UE is in the service area; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform URA update using the cause "periodic URA update".

When initiating the URA update or cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

3> release all its radio resources;

3> 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;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> enter idle mode;

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

3> and the procedure ends.

2> if the stored value of the timer T314 is equal to zero:

3> release all radio bearers, associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";

3> in the variable RB_TIMER_INDICATOR set the IE "T314 expired" to TRUE.

2> if the stored value of the timer T315 is equal to zero:

3> release all radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";

3> in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE.

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

4> start timer T315.

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

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

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> set the variable CELL_UPDATE_STARTED to TRUE;

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to subclause 8.5.17;

2> select Secondary CCPCH according to subclause 8.5.19;

2> use the transport format set given in system information as specified in subclause 8.6.5.1.

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

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

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3;

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

1> in case of a URA update procedure:

2> set the contents of the URA UPDATE message according to subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

3GPP TSG-RAN WG2 meeting #31 *R2-022260*
Stockholm, Sweden, 19th - 23th August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1583** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Correction to Cell Update procedure with cause “Radio link failure”
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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: ⌘

1. It is specified in subclause 8.1.6.6 that the UE shall initiate the Cell update procedure as specified in subclause 8.3.1, using the cause "Radio link failure" when the transmission of the UE CAPABILITY INFORMATION message fails.

   But subclause 8.3.1 only specifies the action for “Radio link failure” as defined in subclause 8.5.6 for UE in CELL_DCH state. The action for the previous case is missing.

Summary of change: ⌘

1. Add the transmission failure of the UE CAPABILITY INFORMATION message as one purpose of the cell update procedure in subclause 8.3.1.1.
2. Add the transmission failure of the UE CAPABILITY INFORMATION message as one case to initiate the cell update procedure in subclause 8.3.1.2.

Isolated Impact Change Analysis.

Impacted functionality: Cell update procedure.

Correction to a function where specification was not sufficient. The change has isolated impact to the UE.

It would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘ The Cell update procedure may not be initiated when the transmission of the UE CAPABILITY INFORMATION message fails.

Clauses affected: ⌘ 8.3.1.1, 8.3.1.2

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.

8.3.1 Cell and URA update procedures

…

8.3.1.1 General

The URA update and cell update procedures serve several main purposes:

- to notify UTRAN after re-entering service area in the URA_PCH or CELL_PCH state;
- to notify UTRAN of an RLC unrecoverable error [16] on an AM RLC entity;
- to be used as a supervision mechanism in the CELL_FACH, CELL_PCH, or URA_PCH state by means of periodical update.

In addition, the URA update procedure also serves the following purpose:

- to retrieve a new URA identity after cell re-selection to a cell not belonging to the current URA assigned to the UE in URA_PCH state.

In addition, the cell update procedure also serves the following purposes:

- to update UTRAN with the current cell the UE is camping on after cell reselection;
- to act on a radio link failure in the CELL_DCH state;
- to act on the transmission failure of the UE CAPABILITY INFORMATION message;
- when triggered in the URA_PCH or CELL_PCH state, to notify UTRAN of a transition to the CELL_FACH state due to the reception of UTRAN originated paging or due to a request to transmit uplink data.

The URA update and cell update procedures may:

1> include an update of mobility related information in the UE;

1> cause a state transition from the CELL_FACH state to the CELL_DCH, CELL_PCH or URA_PCH states or idle mode.

The cell update procedure may also include:

- a re-establish of AM RLC entities;
- a radio bearer release, radio bearer reconfiguration, transport channel reconfiguration or physical channel reconfiguration.

8.3.1.2 Initiation

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

1> Paging response:

2> if the criteria for performing cell update with the cause specified above in the current subclause is not met; and

2> if the UE in URA_PCH or CELL_PCH state, receives a PAGING TYPE 1 message fulfilling the conditions for initiating a cell update procedure specified in subclause 8.1.2.3:

3> perform cell update using the cause "paging response".

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

~~2~~3> if the UE is in CELL_DCH state; and the criteria for radio link failure is met as specified in subclause 8.5.6; or

~~2~~3> if ~~the criteria for radio link failure is met as specified in subclause 8.5.6~~ the transmission of the UE CAPABILITY INFORMATION message fails as specified in subclause 8.1.6.6:

~~3~~4> perform cell update using the cause "radio link failure".

1> Re-entering service area:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the UE has been out of service area and re-enters service area before T307 or T317 expires:

3> perform cell update using the cause "re-entering service area".

1> RLC unrecoverable error:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE detects RLC unrecoverable error [16] in an AM RLC entity:

3> perform cell update using the cause "RLC unrecoverable error".

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or

2> if the list of URA identities in system information block type 2 is empty; or

2> if the system information block type 2 can not be found:

3> perform URA update using the cause "change of URA".

1> Periodic URA update:

2> if the criteria for performing URA update with the causes as specified above in the current subclause are not met; and

2> if the timer T305 expires while the UE is in the service area; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform URA update using the cause "periodic URA update".

When initiating the URA update or cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

3> release all its radio resources;

3> 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;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> enter idle mode;

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

3> and the procedure ends.

2> if the stored value of the timer T314 is equal to zero:

3> release all radio bearers, associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";

3> in the variable RB_TIMER_INDICATOR set the IE "T314 expired" to TRUE.

2> if the stored value of the timer T315 is equal to zero:

3> release all radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";

3> in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE.

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

4> start timer T315.

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

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

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> set the variable CELL_UPDATE_STARTED to TRUE;

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to subclause 8.5.17;

2> select Secondary CCPCH according to subclause 8.5.19;

2> use the transport format set given in system information as specified in subclause 8.6.5.1.

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

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

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3;

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

1> in case of a URA update procedure:

2> set the contents of the URA UPDATE message according to subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

3GPP TSG-RAN WG2 meeting #31 *R2-022261*
Stockholm, Sweden, 19th - 23th August 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.331** **CR** **1584** ⌘ **rev** **-** ⌘ Current version: **5.1.0** ⌘

*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 Cell Update procedure with cause “Radio link failure”
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	TEI
Date:	⌘	20/08/2002
Category:	⌘	**A**
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: ⌘

1. It is specified in subclause 8.1.6.6 that the UE shall initiate the Cell update procedure as specified in subclause 8.3.1, using the cause "Radio link failure" when the transmission of the UE CAPABILITY INFORMATION message fails.

   But subclause 8.3.1 only specifies the action for “Radio link failure” as defined in subclause 8.5.6 for UE in CELL_DCH state. The action for the previous case is missing.

Summary of change: ⌘

1. Add the transmission failure of the UE CAPABILITY INFORMATION message as one purpose of the cell update procedure in subclause 8.3.1.1.
2. Add the transmission failure of the UE CAPABILITY INFORMATION message as one case to initiate the cell update procedure in subclause 8.3.1.2.

Isolated Impact Change Analysis.

Impacted functionality: Cell update procedure.

Correction to a function where specification was not sufficient. The change has isolated impact to the UE.

It would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘ The Cell update procedure may not be initiated when the transmission of the UE CAPABILITY INFORMATION message fails.

Clauses affected: ⌘ 8.3.1.1, 8.3.1.2

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.

8.3.1 Cell and URA update procedures

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8.3.1.1 General

The URA update and cell update procedures serve several main purposes:

- to notify UTRAN after re-entering service area in the URA_PCH or CELL_PCH state;
- to notify UTRAN of an RLC unrecoverable error [16] on an AM RLC entity;
- to be used as a supervision mechanism in the CELL_FACH, CELL_PCH, or URA_PCH state by means of periodical update.

In addition, the URA update procedure also serves the following purpose:

- to retrieve a new URA identity after cell re-selection to a cell not belonging to the current URA assigned to the UE in URA_PCH state.

In addition, the cell update procedure also serves the following purposes:

- to update UTRAN with the current cell the UE is camping on after cell reselection;
- to act on a radio link failure in the CELL_DCH state;
- to act on the transmission failure of the UE CAPABILITY INFORMATION message;
- when triggered in the URA_PCH or CELL_PCH state, to notify UTRAN of a transition to the CELL_FACH state due to the reception of UTRAN originated paging or due to a request to transmit uplink data.

The URA update and cell update procedures may:

1> include an update of mobility related information in the UE;

1> cause a state transition from the CELL_FACH state to the CELL_DCH, CELL_PCH or URA_PCH states or idle mode.

The cell update procedure may also include:

- a re-establish of AM RLC entities;
- a radio bearer release, radio bearer reconfiguration, transport channel reconfiguration or physical channel reconfiguration.

8.3.1.2 Initiation

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

1> Paging response:

2> if the criteria for performing cell update with the cause specified above in the current subclause is not met; and

2> if the UE in URA_PCH or CELL_PCH state, receives a PAGING TYPE 1 message fulfilling the conditions for initiating a cell update procedure specified in subclause 8.1.2.3:

3> perform cell update using the cause "paging response".

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

~~2~~3> if the UE is in CELL_DCH state; and the criteria for radio link failure is met as specified in subclause 8.5.6; or

~~2~~3> if ~~the criteria for radio link failure is met as specified in subclause 8.5.6~~the transmission of the UE CAPABILITY INFORMATION message fails as specified in subclause 8.1.6.6:

~~3~~4> perform cell update using the cause "radio link failure".

1> Re-entering service area:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the UE has been out of service area and re-enters service area before T307 or T317 expires:

3> perform cell update using the cause "re-entering service area".

1> RLC unrecoverable error:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE detects RLC unrecoverable error [16] in an AM RLC entity:

3> perform cell update using the cause "RLC unrecoverable error".

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or

2> if the list of URA identities in system information block type 2 is empty; or

2> if the system information block type 2 can not be found:

3> perform URA update using the cause "change of URA".

1> Periodic URA update:

2> if the criteria for performing URA update with the causes as specified above in the current subclause are not met; and

2> if the timer T305 expires while the UE is in the service area; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform URA update using the cause "periodic URA update".

When initiating the URA update or cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

3> release all its radio resources;

3> 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;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> enter idle mode;

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

3> and the procedure ends.

2> if the stored value of the timer T314 is equal to zero:

3> release all radio bearers, associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";

3> in the variable RB_TIMER_INDICATOR set the IE "T314 expired" to TRUE.

2> if the stored value of the timer T315 is equal to zero:

3> release all radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";

3> in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE.

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

4> start timer T315.

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

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

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> set the variable CELL_UPDATE_STARTED to TRUE;

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to subclause 8.5.17;

2> select Secondary CCPCH according to subclause 8.5.19;

2> use the transport format set given in system information as specified in subclause 8.6.5.1.

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

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

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to subclause 8.3.1.3;

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

1> in case of a URA update procedure:

2> set the contents of the URA UPDATE message according to subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.