TSG-RAN Meeting #24
Seoul, Korea, 02-04 June 2004

RP-040211

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

Source: TSG-RAN WG2

Agenda item: 7.3.5

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Workitem	Doc-2nd-Level
25.331	2293	1	Rel-5	Missing "v3g0" extension in the UE CAPABILITY INFORMATION	F	5.8.0	5.9.0	TEI5	R2-041183
25.331	2294	1	Rel-6	Missing "v3g0" extension in the UE CAPABILITY INFORMATION	A	6.1.0	6.2.0	TEI5	R2-041184
25.331	2319	1	Rel-5	UE capability enquiry for GERAN Iu mode	F	5.8.0	5.9.0	TEI5	R2-041227
25.331	2320	1	Rel-6	UE capability enquiry for GERAN Iu mode	A	6.1.0	6.2.0	TEI5	R2-041228
25.331	2339	-	Rel-5	Correction to Information Elements for UE Rx-Tx time difference	F	5.8.0	5.9.0	TEI5	R2-041170
25.331	2340	-	Rel-6	Correction to Information Elements for UE Rx-Tx time difference	A	6.1.0	6.2.0	TEI5	R2-041171
25.331	2349	-	Rel-5	Correction to timing-maintained hard handover regarding the UL transmission timing	F	5.8.0	5.9.0	TEI5	R2-041196
25.331	2350	-	Rel-6	Correction to timing-maintained hard handover regarding the UL transmission timing	A	6.1.0	6.2.0	TEI5	R2-041197
25.331	2357	-	Rel-5	Compressed INTER RAT HANDOVER INFO message modifications/corrections	F	5.8.0	5.9.0	TEI5	R2-041237
25.331	2358	-	Rel-6	Compressed INTER RAT HANDOVER INFO message modifications/corrections	A	6.1.0	6.2.0	TEI5	R2-041238

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CHANGE REQUEST

⌘ **25.331** CR **2293** ⌘ **rev 1** ⌘ Current version: **5.8.0** ⌘

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

Title: ⌘	Missing "v3g0" extension in the UE CAPABILITY INFORMATION	
Source: ⌘	RAN WG2	
Work item code: ⌘	TEI5	***Date:*** ⌘ 13/05/2004

Category: ⌘ **F**   ***Release:*** ⌘ Rel-5

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

Reason for change: ⌘	An extension container with the IE "`UE-RadioAccessCapability-v3g0ext`" is missing in the ASN.1 representation of the UE Capability Information message. It is optionally present in both the RRC Connection Setup Complete and the Inter RAT Handover Info messages, but it is not available in the UE Capability Information message, as it should have been.
	This problem is not seen as critical for R99 and REL-4. There are cases where the UE might be unable to signal its UE positioning capability "Support for SFN-SFN observed time difference type 2 measurement" to the UTRAN based on the R99 and REL-4 versions of the protocol, but those are rare and not particularly significant. Except for those rare cases and except for this specific UE positioning capability, the system should be able to operate as normal. A solution for REL-5 onward is considered as sufficient.
Summary of change: ⌘	The IE "`UE-RadioAccessCapability-v3g0ext`" is introduced in the UE Capability Information within the existing (v5xy) non-critical extension container.
Consequences if not approved: ⌘	The UE is unable to signal its UE positioning capability "Support for SFN-SFN observed time difference type 2 measurement" to the UTRAN when the UE Capability Information message is used.
	Isolated impact analysis:
	The correction needs to be implemented by both the UE and the UTRAN in order not to cause interoperability problems between REL-5 compatible entities.

Clauses affected: ⌘	11.2

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

11.2 PDU definitions

```
    :
-- **************************************************
--
-- UE CAPABILITY INFORMATION
--
-- **************************************************

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier        RRC-TransactionIdentifier           OPTIONAL,
        ue-RadioAccessCapability        UE-RadioAccessCapability            OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
        v370NonCriticalExtensions           SEQUENCE {
            ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
            v380NonCriticalExtensions           SEQUENCE {
                ueCapabilityInformation-v380ext    UECapabilityInformation-v380ext-IEs,
                v3a0NonCriticalExtensions           SEQUENCE {
                    ueCapabilityInformation-v3a0ext    UECapabilityInformation-v3a0ext-IEs,
                    laterNonCriticalExtensions          SEQUENCE {
                        -- Container for additional R99 extensions
                        ueCapabilityInformation-r3-add-ext      BIT STRING      OPTIONAL,
                        -- Reserved for future non critical extension
                        v4b0NonCriticalExtensions           SEQUENCE {
                            ueCapabilityInformation-v4b0ext    UECapabilityInformation-v4b0ext,
                            v5xyNonCriticalExtensions           SEQUENCE {
                                ueCapabilityInformation-v5xyext    UECapabilityInformation-v5xyext,
                                nonCriticalExtensions               SEQUENCE {}    OPTIONAL
                            }       OPTIONAL
                        }       OPTIONAL
                    }       OPTIONAL
                }       OPTIONAL
            }       OPTIONAL
        }       OPTIONAL
}

UECapabilityInformation-v370ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v370ext        UE-RadioAccessCapability-v370ext        OPTIONAL
}

UECapabilityInformation-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext        UE-RadioAccessCapability-v380ext
    OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext          DL-PhysChCapabilityFDD-v380ext
}

UECapabilityInformation-v3a0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext        UE-RadioAccessCapability-v3a0ext        OPTIONAL
}

UECapabilityInformation-v4b0ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v4b0ext    UE-RadioAccessCapability-v4b0ext
}

UECapabilityInformation-v5xyext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3g0ext        UE-RadioAccessCapability-v3g0ext        OPTIONAL,
        ue-RadioAccessCapability-v5xyext        UE-RadioAccessCapability-v5xyext        OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability-v5xyext    InterRAT-UE-RadioAccessCapability-v5xyext    OPTIONAL
}
}
```

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CHANGE REQUEST

⌘   **25.331** CR **2294**   ⌘**rev** **1** ⌘   Current version: **6.1.0** ⌘

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

Title: ⌘	Missing "v3g0" extension in the UE CAPABILITY INFORMATION
Source: ⌘	RAN WG2

Work item code:⌘	TEI5	***Date:*** ⌘	13/05/2004

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

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

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

Reason for change: ⌘	An extension container with the IE "`UE-RadioAccessCapability-v3g0ext`" is missing in the ASN.1 representation of the UE Capability Information message. It is optionally present in both the RRC Connection Setup Complete and the Inter RAT Handover Info messages, but it is not available in the UE Capability Information message, as it should have been. This problem is not seen as critical for R99 and REL-4. There are cases where the UE might be unable to signal its UE positioning capability "Support for SFN-SFN observed time difference type 2 measurement" to the UTRAN, but those are rare and not particularly significant. Except for those rare cases and except for this specific UE positioning capability, the system should be able to operate as normal. A solution for REL-5 onward is considered as sufficient.
Summary of change:⌘	The IE "`UE-RadioAccessCapability-v3g0ext`" is introduced in the UE Capability Information within the existing (v5xy) non-critical extension container.
Consequences if ***not approved:*** ⌘	The UE is unable to signal its UE positioning capability "Support for SFN-SFN observed time difference type 2 measurement" to the UTRAN when the UE Capability Information message is used. **Isolated impact analysis:** The correction needs to be implemented by both the UE and the UTRAN in order not to cause interoperability problems between REL-5 compatible entities.

Clauses affected: ⌘	11.2

Y	N

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

11.2 PDU definitions

```
     :
-- **************************************************
--
-- UE CAPABILITY INFORMATION
--
-- **************************************************

UECapabilityInformation ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier       OPTIONAL,
        ue-RadioAccessCapability        UE-RadioAccessCapability        OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability        InterRAT-UE-RadioAccessCapabilityList
    OPTIONAL,
        v370NonCriticalExtensions           SEQUENCE {
            ueCapabilityInformation-v370ext UECapabilityInformation-v370ext,
            v380NonCriticalExtensions           SEQUENCE {
                ueCapabilityInformation-v380ext     UECapabilityInformation-v380ext-IEs,
                v3a0NonCriticalExtensions           SEQUENCE {
                    ueCapabilityInformation-v3a0ext     UECapabilityInformation-v3a0ext-IEs,
                    laterNonCriticalExtensions          SEQUENCE {
                        -- Container for additional R99 extensions
                        ueCapabilityInformation-r3-add-ext      BIT STRING      OPTIONAL,
                        -- Reserved for future non critical extension
                        v4b0NonCriticalExtensions           SEQUENCE {
                            ueCapabilityInformation-v4b0ext     UECapabilityInformation-v4b0ext,
                            v5xyNonCriticalExtensions           SEQUENCE {
                                ueCapabilityInformation-v5xyext     UECapabilityInformation-v5xyext,
                                nonCriticalExtensions               SEQUENCE {}     OPTIONAL
                            } OPTIONAL
                        } OPTIONAL
                    } OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
}

UECapabilityInformation-v370ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v370ext        UE-RadioAccessCapability-v370ext        OPTIONAL
}

UECapabilityInformation-v380ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v380ext        UE-RadioAccessCapability-v380ext
    OPTIONAL,
        dl-PhysChCapabilityFDD-v380ext          DL-PhysChCapabilityFDD-v380ext
}

UECapabilityInformation-v3a0ext-IEs ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3a0ext        UE-RadioAccessCapability-v3a0ext        OPTIONAL
}

UECapabilityInformation-v4b0ext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v4b0ext    UE-RadioAccessCapability-v4b0ext
}

UECapabilityInformation-v5xyext ::= SEQUENCE {
    -- User equipment IEs
        ue-RadioAccessCapability-v3g0ext        UE-RadioAccessCapability-v3g0ext        OPTIONAL,
        ue-RadioAccessCapability-v5xyext        UE-RadioAccessCapability-v5xyext        OPTIONAL,
    -- Other IEs
        ue-RATSpecificCapability-v5xyext    InterRAT-UE-RadioAccessCapability-v5xyext   OPTIONAL
}
}
```

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CHANGE REQUEST

| ⌘ | **25.331** CR **2319** | ⌘**rev** | **1** | ⌘ | Current version: | **5.8.0** | ⌘ |

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:** | ⌘ | UE capability enquiry for GERAN Iu mode |

| **Source:** | ⌘ | RAN WG2 |

| **Work item code:** | ⌘ | TEI5 | | **Date:** | ⌘ | 04/05/2004 |

| **Category:** | ⌘ | **F** | | **Release:** | ⌘ | Rel-5 |

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

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

| **Reason for change:** | ⌘ | There is no code point for GERAN Iu mode in the IE "capability update requirement". |

| **Summary of change:** | ⌘ | Code point has been added.

Isolated impact analysis:

This change impacts the UE capability enquiry procedure for UEs that support GERAN Iu mode. |

| **Consequences if not approved:** | ⌘ | UTRAN can not enquire GERAN Iu mode capabilities from the UE. |

| **Clauses affected:** | ⌘ | 10.3.3.2, 11.2, 11.3 |

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

| **Other comments:** | ⌘ | |

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

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

10.3.3.2 Capability Update Requirement

This IE indicates to the UE which specific capabilities to transfer to the network.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
UE radio access FDD capability update requirement	MP		Boolean	TRUE indicates update required	
UE radio access 3.84 Mcps TDD capability update requirement	MP		Boolean	TRUE indicates update required	Name changed in REL-4
UE radio access 1.28 Mcps TDD capability update requirement	MP		Boolean	TRUE indicates update required	REL-4
System specific capability update requirement list	OP	1 to <maxSystemCapability>		In this version, a maximum size of 4 of the list shall be applied and any items after the 4th item in the list shall be ignored.	
>System specific capability update requirement	MP		Enumerated (GSM) , GERAN Iu)		REL-5

Default value is:

"UE radio capability FDD update requirement" = false

"UE radio capability 3.84 Mcps TDD update requirement" = false

"UE radio capability 1.28 Mcps TDD update requirement" = false

"System specific capability update requirement" not present.

11.2 PDU definitions

```
--~************************************************************
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--~************************************************************

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--~************************************************************
--
-- IE parameter types from other modules
--
--~************************************************************

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
    CN-InformationInfo,
    CN-InformationInfoFull,
    NAS-Message,
    PagingRecordTypeID,
-- UTRAN Mobility IEs :
    CellIdentity,
    CellIdentity-PerRL-List,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
```

```
        ActivationTime,
        C-RNTI,
        CapabilityUpdateRequirement,
        CapabilityUpdateRequirement-r4,
        CapabilityUpdateRequirement-r4-ext,
        CapabilityUpdateRequirement-r5,
        CellUpdateCause,
        CipheringAlgorithm,
        CipheringModeInfo,
        DSCH-RNTI,
        EstablishmentCause,
        FailureCauseWithProtErr,
        FailureCauseWithProtErrTrId,
        GroupReleaseInformation,
        H-RNTI,
        UESpecificBehaviourInformation1idle,
        UESpecificBehaviourInformation1interRAT,
        InitialUE-Identity,
        IntegrityProtActivationInfo,
        IntegrityProtectionModeInfo,
        N-308,
        PagingCause,
        PagingRecordList,
        PagingRecord2List-r5,
        ProtocolErrorIndicator,
        ProtocolErrorIndicatorWithMoreInfo,
        RadioFrequencyBandTDDList,
        Rb-timer-indicator,
        RedirectionInfo,
        RejectionCause,
        ReleaseCause,
        RF-CapabilityComp,
        RRC-StateIndicator,
        RRC-TransactionIdentifier,
        SecurityCapability,
        START-Value,
        STARTList,
        SystemSpecificCapUpdateReq-v590ext,
        U-RNTI,
        U-RNTI-Short,
        UE-RadioAccessCapability,
        UE-RadioAccessCapability-v370ext,
        UE-RadioAccessCapability-v380ext,
        UE-RadioAccessCapability-v3a0ext,
        UE-RadioAccessCapability-v3g0ext,
        UE-RadioAccessCapability-v4b0ext,
        UE-RadioAccessCapability-v5xyext,
        UE-RadioAccessCapabilityComp,
        DL-PhysChCapabilityFDD-v380ext,
        UE-ConnTimersAndConstants,
        UE-ConnTimersAndConstants-v3a0ext,
        UE-ConnTimersAndConstants-r5,
        UE-SecurityInformation,
        URA-UpdateCause,
        UTRAN-DRX-CycleLengthCoefficient,
        WaitTime,
-- Radio Bearer IEs :
        DefaultConfigIdentity,
        DefaultConfigIdentity-r4,
        DefaultConfigIdentity-r5,
        DefaultConfigMode,
        DL-CounterSynchronisationInfo,
        DL-CounterSynchronisationInfo-r5,
        PredefinedConfigIdentity,
        PredefinedConfigStatusList,
        PredefinedConfigStatusListComp,
        PredefinedConfigSetWithDifferentValueTag,
        RAB-Info,
        RAB-Info-Post,
        RAB-InformationList,
        RAB-InformationReconfigList,
        RAB-InformationSetupList,
        RAB-InformationSetupList-r4,
        RAB-InformationSetupList-r5,
        RB-ActivationTimeInfoList,
        RB-COUNT-C-InformationList,
        RB-COUNT-C-MSB-InformationList,
        RB-IdentityList,
```

```
    RB-InformationAffectedList,
    RB-InformationAffectedList-r5,
    RB-InformationReconfigList,
    RB-InformationReconfigList-r4,
    RB-InformationReconfigList-r5,
    RB-InformationReleaseList,
    RB-PDCPContextRelocationList,
    SRB-InformationSetupList,
    SRB-InformationSetupList-r5,
    SRB-InformationSetupList2,
    UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
    CPCH-SetID,
    DL-AddReconfTransChInfo2List,
    DL-AddReconfTransChInfoList,
    DL-AddReconfTransChInfoList-r4,
    DL-AddReconfTransChInfoList-r5,
    DL-CommonTransChInfo,
    DL-CommonTransChInfo-r4,
    DL-DeletedTransChInfoList,
    DL-DeletedTransChInfoList-r5,
    DRAC-StaticInformationList,
    TFC-Subset,
    TFCS-Identity,
    UL-AddReconfTransChInfoList,
    UL-CommonTransChInfo,
    UL-CommonTransChInfo-r4,
    UL-DeletedTransChInfoList,
-- Physical Channel IEs :
    Alpha,
    CCTrCH-PowerControlInfo,
    CCTrCH-PowerControlInfo-r4,
    CCTrCH-PowerControlInfo-r5,
    ConstantValue,
    ConstantValueTdd,
    CPCH-SetInfo,
    DL-CommonInformation,
    DL-CommonInformation-r4,
    DL-CommonInformation-r5,
    DL-CommonInformationPost,
    DL-HSPDSCH-Information,
    DL-InformationPerRL-List,
    DL-InformationPerRL-List-r4,
    DL-InformationPerRL-List-r5,
    DL-InformationPerRL-List-r5bis,
    DL-InformationPerRL-ListPostFDD,
    DL-InformationPerRL-PostTDD,
    DL-InformationPerRL-PostTDD-LCR-r4,
    DL-PDSCH-Information,
    DL-TPC-PowerOffsetPerRL-List,
    DPC-Mode,
    DPCH-CompressedModeStatusInfo,
    FrequencyInfo,
    FrequencyInfoFDD,
    FrequencyInfoTDD,
    HS-SICH-Power-Control-Info-TDD384,
    MaxAllowedUL-TX-Power,
    OpenLoopPowerControl-IPDL-TDD-r4,
    PDSCH-CapacityAllocationInfo,
    PDSCH-CapacityAllocationInfo-r4,
    PDSCH-Identity,
    PrimaryCPICH-Info,
    PrimaryCCPCH-TX-Power,
    PUSCH-CapacityAllocationInfo,
    PUSCH-CapacityAllocationInfo-r4,
    PUSCH-Identity,
    PUSCH-SysInfoList-HCR-r5,
    PDSCH-SysInfoList-HCR-r5,
    RL-AdditionInformationList,
    RL-RemovalInformationList,
    SpecialBurstScheduling,
    SSDT-Information,
    TFC-ControlDuration,
    SSDT-UL,
    TimeslotList,
    TimeslotList-r4,
    TX-DiversityMode,
    UL-ChannelRequirement,
```

```
        UL-ChannelRequirement-r4,
        UL-ChannelRequirement-r5,
        UL-ChannelRequirementWithCPCH-SetID,
        UL-ChannelRequirementWithCPCH-SetID-r4,
        UL-ChannelRequirementWithCPCH-SetID-r5,
        UL-DPCH-Info,
        UL-DPCH-Info-r4,
        UL-DPCH-Info-r5,
        UL-DPCH-InfoPostFDD,
        UL-DPCH-InfoPostTDD,
        UL-DPCH-InfoPostTDD-LCR-r4,
        UL-SynchronisationParameters-r4,
        UL-TimingAdvance,
        UL-TimingAdvanceControl,
        UL-TimingAdvanceControl-r4,
-- Measurement IEs :
        AdditionalMeasurementID-List,
        DeltaRSCP,
        Frequency-Band,
        EventResults,
        Inter-FreqEventCriteriaList-v5xyext,
        Intra-FreqEventCriteriaList-v5xyext,
        IntraFreqReportingCriteria-1b-r5,
        IntraFreqEvent-1d-r5,
        InterFreqEventResults-LCR-r4-ext,
        InterRAT-TargetCellDescription,
        MeasuredResults,
        MeasuredResults-v390ext,
        MeasuredResults-v5xyext,
        MeasuredResultsList,
        MeasuredResultsList-LCR-r4-ext,
        MeasuredResultsOnRACH,
        MeasurementCommand,
        MeasurementCommand-r4,
        MeasurementIdentity,
        MeasurementReportingMode,
        PrimaryCCPCH-RSCP,
        SFN-Offset-Validity,
        TimeslotListWithISCP,
        TrafficVolumeMeasuredResultsList,
        UE-Positioning-GPS-AssistanceData,
        UE-Positioning-Measurement-v390ext,
        UE-Positioning-OTDOA-AssistanceData,
        UE-Positioning-OTDOA-AssistanceData-r4ext,
        UE-Positioning-OTDOA-AssistanceData-UEB,
-- Other IEs :
        BCCH-ModificationInfo,
        CDMA2000-MessageList,
        GERANIu-MessageList,
        GERAN-SystemInformation,
        GSM-MessageList,
        InterRAT-ChangeFailureCause,
        InterRAT-HO-FailureCause,
        InterRAT-UE-RadioAccessCapabilityList,
        InterRAT-UE-RadioAccessCapability-v5xyext,
        InterRAT-UE-SecurityCapList,
        IntraDomainNasNodeSelector,
        ProtocolErrorMoreInformation,
        Rplmn-Information,
        Rplmn-Information-r4,
        SegCount,
        SegmentIndex,
        SFN-Prime,
        SIB-Data-fixed,
        SIB-Data-variable,
        SIB-Type
FROM InformationElements

        maxSIBperMsg,
        maxURNTI-Group
FROM Constant-definitions;


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

```
RRCConnectionSetup ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionSetup-r3           RRCConnectionSetup-r3-IEs,
        laterNonCriticalExtensions      SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionSetup-r3-add-ext       BIT STRING      OPTIONAL,
            v4b0NonCriticalExtensions       SEQUENCE {
                rrcConnectionSetup-v4b0ext      RRCConnectionSetup-v4b0ext-IEs,
                v5xyNonCriticalExtensions       SEQUENCE {
                    rrcConnectionSetup-v5xyext      RRCConnectionSetup-v5xyext-IEs,
                    nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                } OPTIONAL
            } OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        initialUE-Identity              InitialUE-Identity,
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              CHOICE {
            r4                              SEQUENCE {
                rrcConnectionSetup-r4           RRCConnectionSetup-r4-IEs,
                v4d0NonCriticalExtensions       SEQUENCE {
                    -- Container for adding non critical extensions after freezing REL-5
                    rrcConnectionSetup-r4-add-ext       BIT STRING      OPTIONAL,
                    v5xyNonCriticalExtensions       SEQUENCE {
                        rrcConnectionSetup-v5xyext      RRCConnectionSetup-v5xyext-IEs,
                        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                    } OPTIONAL
                } OPTIONAL
            },
            criticalExtensions              CHOICE {
                r5                              SEQUENCE {
                    rrcConnectionSetup-r5           RRCConnectionSetup-r5-IEs,
                    -- Container for adding non critical extensions after freezing REL-6
                    rrcConnectionSetup-r5-add-ext       BIT STRING      OPTIONAL,
                    nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                },
                criticalExtensions              SEQUENCE {}
            }
        }
    }
}

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

RRCConnectionSetup-v4b0ext-IEs ::= SEQUENCE {
        capabilityUpdateRequirement-r4-ext  CapabilityUpdateRequirement-r4-ext  OPTIONAL,
    -- Physical channel IEs
```

```
            -- ssdt-UL extends SSDT-Information, which is included in
            -- DL-CommonInformation. FDD only.
            ssdt-UL-r4                          SSDT-UL                             OPTIONAL,
            -- The order of the RLs in IE cell-id-PerRL-List is the same as
            -- in IE DL-InformationPerRL-List included in this message
            cell-id-PerRL-List                  CellIdentity-PerRL-List            OPTIONAL
    }

    RRCConnectionSetup-v5xyext-IEs ::= SEQUENCE {
        -- User equipment IEs
            systemSpecificCapUpdateReq      SystemSpecificCapUpdateReq-v590ext      OPTIONAL,
        -- Physical channel IEs
            dl-TPC-PowerOffsetPerRL-List    DL-TPC-PowerOffsetPerRL-List            OPTIONAL
    }

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

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

```
                dl-CommonInformation            DL-CommonInformation-r4             OPTIONAL,
                dl-InformationPerRL-List        DL-InformationPerRL-List-r5bis      OPTIONAL
        }

-- **************************************************
--
-- UE CAPABILITY ENQUIRY
--
-- **************************************************

UECapabilityEnquiry ::= CHOICE {
    r3                                  SEQUENCE {
        ueCapabilityEnquiry-r3          UECapabilityEnquiry-r3-IEs,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            ueCapabilityEnquiry-r3-add-ext      BIT STRING      OPTIONAL,
            v4b0NonCriticalExtensions       SEQUENCE {
                ueCapabilityEnquiry-v4b0ext     UECapabilityEnquiry-v4b0ext-IEs,
                v590NonCriticalExtensions           SEQUENCE {
                    ueCapabilityEnquiry-v590ext     UECapabilityEnquiry-v590ext-IEs,
                    nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                }                               OPTIONAL
            }       OPTIONAL
        } OPTIONAL
    },
    later-than-r3                       SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

UECapabilityEnquiry-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        capabilityUpdateRequirement     CapabilityUpdateRequirement
}

UECapabilityEnquiry-v4b0ext-IEs ::= SEQUENCE {
        capabilityUpdateRequirement-r4-ext  CapabilityUpdateRequirement-r4-ext
}

UECapabilityEnquiry-v590ext-IEs ::= SEQUENCE {
        systemSpecificCapUpdateReq      SystemSpecificCapUpdateReq-v590ext
}
```

11.3   Information element definitions

```
-- **************************************************
--
--     USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- **************************************************

CapabilityUpdateRequirement ::=     SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement  BOOLEAN,
    -- ue-RadioCapabilityTDDUpdateRequirement is for 3.84Mcps TDD update requirement
    ue-RadioCapabilityTDDUpdateRequirement  BOOLEAN,
    systemSpecificCapUpdateReqList       SystemSpecificCapUpdateReqList     OPTIONAL
}

CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
    ue-RadioCapabilityUpdateRequirement-TDD128  BOOLEAN
}

CapabilityUpdateRequirement-r4 ::=  SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement-FDD  BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384    BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD128    BOOLEAN,
    systemSpecificCapUpdateReqList       SystemSpecificCapUpdateReqList     OPTIONAL
}


CapabilityUpdateRequirement-r5 ::=  SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement-FDD  BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384     BOOLEAN,
```

```
    ue-RadioCapabilityTDDUpdateRequirement-TDD128    BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList-r5      OPTIONAL
}

SystemSpecificCapUpdateReq ::=        ENUMERATED {
                                  gsm }

SystemSpecificCapUpdateReq-v590ext ::=      ENUMERATED {
                                        geranIu }


SystemSpecificCapUpdateReq-r5 ::=        ENUMERATED {
                                    gsm, geranIu }


SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                  SystemSpecificCapUpdateReq

SystemSpecificCapUpdateReqList-r5 ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                  SystemSpecificCapUpdateReq-r5
```

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.331** CR **2320** | ⌘ **rev** | **1** | ⌘ Current version: | **6.1.0** | ⌘ |

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:	⌘	UE capability enquiry for GERAN Iu mode
Source:	⌘	RAN WG2

Work item code: ⌘	TEI5		***Date:*** ⌘	04/05/2004

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

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

Use <u>one</u> 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 is no code point for GERAN Iu mode in the IE "capability update requirement".
Summary of change:	⌘	Code point has been added. **Isolated impact analysis:** This change impacts the UE capability enquiry procedure for UEs that support GERAN Iu mode.
Consequences if not approved:	⌘	UTRAN can not enquire GERAN Iu mode capabilities from the UE.

Clauses affected:	⌘	10.3.3.2, 11.2, 11.3

		Y	N		
Other specs	⌘		X	Other core specifications	⌘
affected:			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 <u>http://www.3gpp.org/specs/CR.htm</u>. Below is a brief summary:

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

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

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

10.3.3.2 Capability Update Requirement

This IE indicates to the UE which specific capabilities to transfer to the network.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
UE radio access FDD capability update requirement	MP		Boolean	TRUE indicates update required	
UE radio access 3.84 Mcps TDD capability update requirement	MP		Boolean	TRUE indicates update required	Name changed in REL-4
UE radio access 1.28 Mcps TDD capability update requirement	MP		Boolean	TRUE indicates update required	REL-4
System specific capability update requirement list	OP	1 to <maxSystemCapability>		In this version, a maximum size of 4 of the list shall be applied and any items after the 4th item in the list shall be ignored.	
>System specific capability update requirement	MP		Enumerated (GSM), GERAN Iu)		REL-5

Default value is:

"UE radio capability FDD update requirement" = false

"UE radio capability 3.84 Mcps TDD update requirement" = false

"UE radio capability 1.28 Mcps TDD update requirement" = false

"System specific capability update requirement" not present.

11.2 PDU definitions

```
--~************************************************************
--
-- TABULAR: The message type and integrity check info are not
-- visible in this module as they are defined in the class module.
-- Also, all FDD/TDD specific choices have the FDD option first
-- and TDD second, just for consistency.
--
--~************************************************************

PDU-definitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

--~************************************************************
--
-- IE parameter types from other modules
--
--~************************************************************

IMPORTS

-- Core Network IEs :
    CN-DomainIdentity,
    CN-InformationInfo,
    CN-InformationInfoFull,
    NAS-Message,
    PagingRecordTypeID,
-- UTRAN Mobility IEs :
    CellIdentity,
    CellIdentity-PerRL-List,
    URA-Identity,
-- User Equipment IEs :
    AccessStratumReleaseIndicator,
```

```
        ActivationTime,
        C-RNTI,
        CapabilityUpdateRequirement,
        CapabilityUpdateRequirement-r4,
        CapabilityUpdateRequirement-r4-ext,
        CapabilityUpdateRequirement-r5,
        CellUpdateCause,
        CipheringAlgorithm,
        CipheringModeInfo,
        DSCH-RNTI,
        EstablishmentCause,
        FailureCauseWithProtErr,
        FailureCauseWithProtErrTrId,
        GroupReleaseInformation,
        H-RNTI,
        UESpecificBehaviourInformation1idle,
        UESpecificBehaviourInformation1interRAT,
        InitialUE-Identity,
        IntegrityProtActivationInfo,
        IntegrityProtectionModeInfo,
        N-308,
        PagingCause,
        PagingRecordList,
        PagingRecord2List-r5,
        ProtocolErrorIndicator,
        ProtocolErrorIndicatorWithMoreInfo,
        RadioFrequencyBandTDDList,
        Rb-timer-indicator,
        RedirectionInfo,
        RedirectionInfo-r6,
        RejectionCause,
        ReleaseCause,
        RF-CapabilityComp,
        RRC-StateIndicator,
        RRC-TransactionIdentifier,
        SecurityCapability,
        START-Value,
        STARTList,
        SystemSpecificCapUpdateReq-v590ext,
        U-RNTI,
        U-RNTI-Short,
        UE-RadioAccessCapability,
        UE-RadioAccessCapability-v370ext,
        UE-RadioAccessCapability-v380ext,
        UE-RadioAccessCapability-v3a0ext,
        UE-RadioAccessCapability-v3g0ext,
        UE-RadioAccessCapability-v4b0ext,
        UE-RadioAccessCapability-v5xyext,
        UE-RadioAccessCapabilityComp,
        DL-PhysChCapabilityFDD-v380ext,
        UE-ConnTimersAndConstants,
        UE-ConnTimersAndConstants-v3a0ext,
        UE-ConnTimersAndConstants-r5,
        UE-SecurityInformation,
        URA-UpdateCause,
        UTRAN-DRX-CycleLengthCoefficient,
        WaitTime,
-- Radio Bearer IEs :
        DefaultConfigIdentity,
        DefaultConfigIdentity-r4,
        DefaultConfigIdentity-r5,
        DefaultConfigMode,
        DL-CounterSynchronisationInfo,
        DL-CounterSynchronisationInfo-r5,
        PredefinedConfigIdentity,
        PredefinedConfigStatusList,
        PredefinedConfigStatusListComp,
        PredefinedConfigSetWithDifferentValueTag,
        RAB-Info,
        RAB-Info-Post,
        RAB-InformationList,
        RAB-InformationReconfigList,
        RAB-InformationSetupList,
        RAB-InformationSetupList-r4,
        RAB-InformationSetupList-r5,
        RB-ActivationTimeInfoList,
        RB-COUNT-C-InformationList,
        RB-COUNT-C-MSB-InformationList,
```

```
        RB-IdentityList,
        RB-InformationAffectedList,
        RB-InformationAffectedList-r5,
        RB-InformationReconfigList,
        RB-InformationReconfigList-r4,
        RB-InformationReconfigList-r5,
        RB-InformationReleaseList,
        RB-PDCPContextRelocationList,
        SRB-InformationSetupList,
        SRB-InformationSetupList-r5,
        SRB-InformationSetupList2,
        UL-CounterSynchronisationInfo,
-- Transport Channel IEs:
        CPCH-SetID,
        DL-AddReconfTransChInfo2List,
        DL-AddReconfTransChInfoList,
        DL-AddReconfTransChInfoList-r4,
        DL-AddReconfTransChInfoList-r5,
        DL-CommonTransChInfo,
        DL-CommonTransChInfo-r4,
        DL-DeletedTransChInfoList,
        DL-DeletedTransChInfoList-r5,
        DRAC-StaticInformationList,
        TFC-Subset,
        TFCS-Identity,
        UL-AddReconfTransChInfoList,
        UL-CommonTransChInfo,
        UL-CommonTransChInfo-r4,
        UL-DeletedTransChInfoList,
-- Physical Channel IEs :
        Alpha,
        CCTrCH-PowerControlInfo,
        CCTrCH-PowerControlInfo-r4,
        CCTrCH-PowerControlInfo-r5,
        ConstantValue,
        ConstantValueTdd,
        CPCH-SetInfo,
        DL-CommonInformation,
        DL-CommonInformation-r4,
        DL-CommonInformation-r5,
        DL-CommonInformationPost,
        DL-HSPDSCH-Information,
        DL-InformationPerRL-List,
        DL-InformationPerRL-List-r4,
        DL-InformationPerRL-List-r5,
        DL-InformationPerRL-List-r5bis,
        DL-InformationPerRL-ListPostFDD,
        DL-InformationPerRL-PostTDD,
        DL-InformationPerRL-PostTDD-LCR-r4,
        DL-PDSCH-Information,
        DL-TPC-PowerOffsetPerRL-List,
        DPC-Mode,
        DPCH-CompressedModeStatusInfo,
        FrequencyInfo,
        FrequencyInfoFDD,
        FrequencyInfoTDD,
        HS-SICH-Power-Control-Info-TDD384,
        MaxAllowedUL-TX-Power,
        OpenLoopPowerControl-IPDL-TDD-r4,
        PDSCH-CapacityAllocationInfo,
        PDSCH-CapacityAllocationInfo-r4,
        PDSCH-Identity,
        PrimaryCPICH-Info,
        PrimaryCCPCH-TX-Power,
        PUSCH-CapacityAllocationInfo,
        PUSCH-CapacityAllocationInfo-r4,
        PUSCH-Identity,
        PUSCH-SysInfoList-HCR-r5,
        PDSCH-SysInfoList-HCR-r5,
        RL-AdditionInformationList,
        RL-RemovalInformationList,
        SpecialBurstScheduling,
        SSDT-Information,
        TFC-ControlDuration,
        SSDT-UL,
        TimeslotList,
        TimeslotList-r4,
        TX-DiversityMode,
```

```
    UL-ChannelRequirement,
    UL-ChannelRequirement-r4,
    UL-ChannelRequirement-r5,
    UL-ChannelRequirementWithCPCH-SetID,
    UL-ChannelRequirementWithCPCH-SetID-r4,
    UL-ChannelRequirementWithCPCH-SetID-r5,
    UL-DPCH-Info,
    UL-DPCH-Info-r4,
    UL-DPCH-Info-r5,
    UL-DPCH-InfoPostFDD,
    UL-DPCH-InfoPostTDD,
    UL-DPCH-InfoPostTDD-LCR-r4,
    UL-SynchronisationParameters-r4,
    UL-TimingAdvance,
    UL-TimingAdvanceControl,
    UL-TimingAdvanceControl-r4,
-- Measurement IEs :
    AdditionalMeasurementID-List,
    DeltaRSCP,
    Frequency-Band,
    EventResults,
    Inter-FreqEventCriteriaList-v5xyext,
    Intra-FreqEventCriteriaList-v5xyext,
    IntraFreqReportingCriteria-1b-r5,
    IntraFreqEvent-1d-r5,
    InterFreqEventResults-LCR-r4-ext,
    InterRAT-TargetCellDescription,
    MeasuredResults,
    MeasuredResults-v390ext,
    MeasuredResults-v5xyext,
    MeasuredResultsList,
    MeasuredResultsList-LCR-r4-ext,
    MeasuredResultsOnRACH,
    MeasurementCommand,
    MeasurementCommand-r4,
    MeasurementIdentity,
    MeasurementReportingMode,
    PrimaryCCPCH-RSCP,
    SFN-Offset-Validity,
    TimeslotListWithISCP,
    TrafficVolumeMeasuredResultsList,
    UE-Positioning-GPS-AssistanceData,
    UE-Positioning-Measurement-v390ext,
    UE-Positioning-OTDOA-AssistanceData,
    UE-Positioning-OTDOA-AssistanceData-r4ext,
    UE-Positioning-OTDOA-AssistanceData-UEB,
-- Other IEs :
    BCCH-ModificationInfo,
    CDMA2000-MessageList,
    GSM-TargetCellInfoList,
    GERANIu-MessageList,
    GERAN-SystemInformation,
    GSM-MessageList,
    InterRAT-ChangeFailureCause,
    InterRAT-HO-FailureCause,
    InterRAT-UE-RadioAccessCapabilityList,
    InterRAT-UE-RadioAccessCapability-v5xyext,
    InterRAT-UE-SecurityCapList,
    IntraDomainNasNodeSelector,
    ProtocolErrorMoreInformation,
    Rplmn-Information,
    Rplmn-Information-r4,
    SegCount,
    SegmentIndex,
    SFN-Prime,
    SIB-Data-fixed,
    SIB-Data-variable,
    SIB-Type
FROM InformationElements

    maxSIBperMsg,
    maxURNTI-Group
FROM Constant-definitions;


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

```
-- ****************************************************

RRCConnectionSetup ::= CHOICE {
    r3                              SEQUENCE {
        rrcConnectionSetup-r3          RRCConnectionSetup-r3-IEs,
        laterNonCriticalExtensions     SEQUENCE {
            -- Container for additional R99 extensions
            rrcConnectionSetup-r3-add-ext     BIT STRING     OPTIONAL,
            v4b0NonCriticalExtensions         SEQUENCE {
                rrcConnectionSetup-v4b0ext        RRCConnectionSetup-v4b0ext-IEs,
                v5xyNonCriticalExtensions         SEQUENCE {
                    rrcConnectionSetup-v5xyext        RRCConnectionSetup-v5xyext-IEs,
                    nonCriticalExtensions             SEQUENCE {}     OPTIONAL
                }     OPTIONAL
            }     OPTIONAL
        }     OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        initialUE-Identity             InitialUE-Identity,
        rrc-TransactionIdentifier      RRC-TransactionIdentifier,
        criticalExtensions             CHOICE {
            r4                             SEQUENCE {
                rrcConnectionSetup-r4             RRCConnectionSetup-r4-IEs,
                v4d0NonCriticalExtensions        SEQUENCE {
                    -- Container for adding non critical extensions after freezing REL-5
                    rrcConnectionSetup-r4-add-ext     BIT STRING     OPTIONAL,
                    v5xyNonCriticalExtensions         SEQUENCE {
                        rrcConnectionSetup-v5xyext        RRCConnectionSetup-v5xyext-IEs,
                        nonCriticalExtensions             SEQUENCE {}     OPTIONAL
                    }     OPTIONAL
                }     OPTIONAL
            },
            criticalExtensions             CHOICE {
                r5                             SEQUENCE {
                    rrcConnectionSetup-r5             RRCConnectionSetup-r5-IEs,
                    -- Container for adding non critical extensions after freezing REL-6
                    rrcConnectionSetup-r5-add-ext     BIT STRING     OPTIONAL,
                    nonCriticalExtensions             SEQUENCE {}     OPTIONAL
                },
                criticalExtensions             SEQUENCE {}
            }
        }
    }
}

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

RRCConnectionSetup-v4b0ext-IEs ::= SEQUENCE {
```

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

    RRCConnectionSetup-v5xyext-IEs ::= SEQUENCE {
        -- User equipment IEs
            systemSpecificCapUpdateReq       SystemSpecificCapUpdateReq-v590ext       OPTIONAL,
        -- Physical channel IEs
            dl-TPC-PowerOffsetPerRL-List     DL-TPC-PowerOffsetPerRL-List          OPTIONAL
    }

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

    RRCConnectionSetup-r5-IEs ::= SEQUENCE {
        -- TABULAR: Integrity protection shall not be performed on this message.
            activationTime                   ActivationTime                        OPTIONAL,
            new-U-RNTI                       U-RNTI,
            new-c-RNTI                       C-RNTI                                OPTIONAL,
            rrc-StateIndicator               RRC-StateIndicator,
            utran-DRX-CycleLengthCoeff       UTRAN-DRX-CycleLengthCoefficient,
            -- TABULAR: If capabilityUpdateRequirement is not present, the default value
            -- defined in 10.3.3.2 shall be used.
            capabilityUpdateRequirement      CapabilityUpdateRequirement-r54       OPTIONAL,
        -- Specification mode information
            specificationMode                CHOICE {
                complete                        SEQUENCE {
                    -- Radio bearer IEs
                    srb-InformationSetupList        SRB-InformationSetupList2,
                    -- Transport channel IEs
                    ul-CommonTransChInfo            UL-CommonTransChInfo-r4              OPTIONAL,
                    ul-AddReconfTransChInfoList     UL-AddReconfTransChInfoList          OPTIONAL,
                    dl-CommonTransChInfo            DL-CommonTransChInfo-r4              OPTIONAL,
                    dl-AddReconfTransChInfoList     DL-AddReconfTransChInfoList-r4       OPTIONAL
                },
                preconfiguration                SEQUENCE {
                    -- All IEs that include an FDD/TDD choice are split in two IEs for this message,
                    -- one for the FDD only elements and one for the TDD only elements, so that one
                    -- FDD/TDD choice in this level is sufficient.
                    preConfigMode                   CHOICE {
                        predefinedConfigIdentity        PredefinedConfigIdentity,
                        defaultConfig                   SEQUENCE {
                            defaultConfigMode               DefaultConfigMode,
                            defaultConfigIdentity           DefaultConfigIdentity-r5
                        }
                    }
                }
            },
        -- Physical channel IEs
            frequencyInfo                    FrequencyInfo                         OPTIONAL,
```

```
            maxAllowedUL-TX-Power            MaxAllowedUL-TX-Power              OPTIONAL,
            ul-ChannelRequirement            UL-ChannelRequirement-r4          OPTIONAL,
            dl-CommonInformation             DL-CommonInformation-r4           OPTIONAL,
            dl-InformationPerRL-List         DL-InformationPerRL-List-r5bis    OPTIONAL
        }

-- **************************************************
--
-- UE CAPABILITY ENQUIRY
--
-- **************************************************

UECapabilityEnquiry ::= CHOICE {
    r3                              SEQUENCE {
        ueCapabilityEnquiry-r3          UECapabilityEnquiry-r3-IEs,
        laterNonCriticalExtensions          SEQUENCE {
            -- Container for additional R99 extensions
            ueCapabilityEnquiry-r3-add-ext      BIT STRING      OPTIONAL,
            v4b0NonCriticalExtensions         SEQUENCE {
                ueCapabilityEnquiry-v4b0ext     UECapabilityEnquiry-v4b0ext-IEs,
                v590NonCriticalExtensions             SEQUENCE {
                    ueCapabilityEnquiry-v590ext     UECapabilityEnquiry-v590ext-IEs,
                    nonCriticalExtensions           SEQUENCE {}     OPTIONAL
                }                         OPTIONAL
            }         OPTIONAL
        } OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

UECapabilityEnquiry-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        capabilityUpdateRequirement     CapabilityUpdateRequirement
}

UECapabilityEnquiry-v4b0ext-IEs ::= SEQUENCE {
        capabilityUpdateRequirement-r4-ext  CapabilityUpdateRequirement-r4-ext
}

UECapabilityEnquiry-v590ext-IEs ::= SEQUENCE {
        systemSpecificCapUpdateReq      SystemSpecificCapUpdateReq-v590ext
}
```

11.3   Information element definitions

```
-- **************************************************
--
--     USER EQUIPMENT INFORMATION ELEMENTS (10.3.3)
--
-- **************************************************

CapabilityUpdateRequirement ::=     SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement  BOOLEAN,
    -- ue-RadioCapabilityTDDUpdateRequirement is for 3.84Mcps TDD update requirement
    ue-RadioCapabilityTDDUpdateRequirement  BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList      OPTIONAL
}

CapabilityUpdateRequirement-r4-ext ::= SEQUENCE {
    ue-RadioCapabilityUpdateRequirement-TDD128  BOOLEAN
}

CapabilityUpdateRequirement-r4 ::=  SEQUENCE {
    ue-RadioCapabilityFDDUpdateRequirement-FDD  BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384   BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD128   BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList      OPTIONAL
}

CapabilityUpdateRequirement-r5 ::=  SEQUENCE {
```

```
    ue-RadioCapabilityFDDUpdateRequirement-FDD   BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD384    BOOLEAN,
    ue-RadioCapabilityTDDUpdateRequirement-TDD128    BOOLEAN,
    systemSpecificCapUpdateReqList      SystemSpecificCapUpdateReqList-r5        OPTIONAL
}

SystemSpecificCapUpdateReq ::=        ENUMERATED {
                                      gsm }

SystemSpecificCapUpdateReq-v590ext ::=        ENUMERATED {
                                              geranIu }


SystemSpecificCapUpdateReq-r5 ::=        ENUMERATED {
                                         gsm, geranIu }


SystemSpecificCapUpdateReqList ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                   SystemSpecificCapUpdateReq

SystemSpecificCapUpdateReqList-r5 ::= SEQUENCE (SIZE (1..maxSystemCapability)) OF
                                      SystemSpecificCapUpdateReq-r5
```

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.331** CR **2339** | ⌘**rev** | **-** | ⌘ | Current version: | **5.8.0** | ⌘ |

*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 ☐ Core Network ☐

Title: ⌘	Correction to Information Elements for UE Rx-Tx time difference	
Source: ⌘	RAN WG2	
Work item code:⌘	TEI5	***Date:*** ⌘ 10/05/2004
Category: ⌘	**F**	***Release:*** ⌘ Rel-5

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

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

Reason for change: ⌘	From the specification for UE Rx-Tx time difference type 1 in clause 10.3.7.83 and UE Rx-Tx time difference type 2 in clause 10.3.7.84 it could be erroneously concluded, that these two measurements are in principle the same measurement, only with different ranges and resolutions. This is not in line with the specification in TS 25.215.
Summary of change:⌘	Clause 10.3.7.83 It is clarified that UE Rx-Tx time difference type 1 is the difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link **amongst the paths used in the demodulation process**. Clause 10.3.7.84 It is clarified that UE Rx-Tx time difference type 2 is the difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link **amongst all paths detected by the UE**.
Consequences if not approved: ⌘	TS 25.331 is not in line with TS 25.215

Clauses affected: ⌘	10.3.7.83, 10.3.7.84

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

Other comments: ⌘

How to create CRs using this form:

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

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

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

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

10.3.7.83   UE Rx-Tx time difference type 1

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link, as defined in [7]. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 1	MP		Integer(768.. 1280)	In chips. 511 spare values are needed.

10.3.7.84   UE Rx-Tx time difference type 2

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link, as defined in [7].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 2	MP		Integer (0..8191)	According to [19].

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.331** CR **2340** | ⌘**rev** | **-** | ⌘ | Current version: | **6.1.0** | ⌘ |

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 ☐ Core Network ☐

Title: ⌘	Correction to Information Elements for UE Rx-Tx time difference	
Source: ⌘	RAN WG2	
Work item code:⌘	TEI5	*Date:* ⌘ 10/05/2004
Category: ⌘ **A**		*Release:* ⌘ Rel-6

Use <u>one</u> of the following categories: *F* (correction) *A* (corresponds to a correction in an earlier release) *B* (addition of feature), *C* (functional modification of feature) *D* (editorial modification) Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>.	Use <u>one</u> 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: ⌘	From the specification for UE Rx-Tx time difference type 1 in clause 10.3.7.83 and UE Rx-Tx time difference type 2 in clause 10.3.7.84 it could be erroneously concluded, that these two measurements are in principle the same measurement, only with different ranges and resolutions. This is not in line with the specification in TS 25.215.
Summary of change:⌘	Clause 10.3.7.83 It is clarified that UE Rx-Tx time difference type 1 is the difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link **amongst the paths used in the demodulation process**. Clause 10.3.7.84 It is clarified that UE Rx-Tx time difference type 2 is the difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link **amongst all paths detected by the UE**.
Consequences if ⌘ *not approved:*	TS 25.331 is not in line with TS 25.215

Clauses affected: ⌘	10.3.7.83, 10.3.7.84

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

| *Other comments:* | ⌘ | |

How to create CRs using this form:

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

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

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

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

10.3.7.83   UE Rx-Tx time difference type 1

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link, as defined in [7]. This measurement is for FDD only.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 1	MP		Integer(768..1280)	In chips. 511 spare values are needed.

10.3.7.84   UE Rx-Tx time difference type 2

The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link, as defined in [7].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
UE Rx-Tx time difference type 2	MP		Integer (0..8191)	According to [19].

CR-Form-v7

CHANGE REQUEST

⌘   **25.331** CR **2349**   ⌘**rev**   **-**   ⌘   Current version: **5.8.0**   ⌘

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

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

Title: ⌘	Correction to timing-maintained hard handover regarding the UL transmission timing	
Source: ⌘	RAN WG2	
Work item code:⌘	TEI5	***Date:*** ⌘ 10/04/2004
Category: ⌘ **F**	*Use <u>one</u> of the following categories:* **F** *(correction)* **A** *(corresponds to a correction in an earlier release)* **B** *(addition of feature),* **C** *(functional modification of feature)* **D** *(editorial modification)* Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>.	***Release:*** ⌘ Rel-5 *Use <u>one</u> of the following releases:* 2 *(GSM Phase 2)* R96 *(Release 1996)* R97 *(Release 1997)* R98 *(Release 1998)* R99 *(Release 1999)* Rel-4 *(Release 4)* Rel-5 *(Release 5)* Rel-6 *(Release 6)*

Reason for change: ⌘	In the case of timing-maintained hard handover, the section 8.3.5.2.1 suggests that UL transmission timing is maintained after the new RLs are established. *8.3.5.2 Timing-maintained hard handover* *8.3.5.2.1 General* *The purpose of the Timing-maintained hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) while maintaining the UL transmission timing and the CFN in the UE.* In case of HHO (with or without change of frequency) the UE will perform the L1 synchronization procedure A as described in 25.214 section 4.3.2.3. The UE will establish first DL DPCCH synchronization, UL transmission being stopped until the DL is synchronized. When the higher layers considered that DL synchronization is fulfilled, the UE will start the UL DPCCH transmission. The above described UE behaviour applies regardless of the type of HHO i.e. timing maintained or timing re-initialised. In case of UL initial transmission timing, the 25.133 section 7.1.2 sets the requirement of T0=1024 chips between the UL/DL frame timing. In 25.133 the case of timing-maintained HHO is not mentioned explicitly in this section. *7.1.2 Requirements* *The UE initial transmission timing error shall be less than or equal to ±1.5 Chip. The reference point for the UE initial transmit timing control requirement shall be the time when the first detected path (in time) of the corresponding downlink DPCCH/DPDCH frame is received from the reference cell plus T0 chips. T0 is defined in [2].* If the UE maintains the old UL transmission timing, this requirement will probably

| | not be fulfilled compared to the new DL transmission timing. This is due to the rounding to the closest 256 chip boundary done in Node B of the DL DPCH transmission timing (as specified in 25.402 sections 8 and 9). Indeed, the UE measures the Timing difference between its DPCH and SFN in the target cell when doing handover and reports it to SRNC. SRNC sends this Time difference value in two parameters Frame Offset and Chip Offset over Iub to Node B. Node B rounds this value to the closest 256 chip boundary in order to get DL orthogonality (regardless of used spreading factor). The rounded value is used in Node B for the DL DPCH.

Therefore two UE behaviours may happen:

A.   the UE keeps the UL transmission timing as suggested in 25.331 and the UL Tx timing requirement in 25.133 is not fulfilled, or

B.   the UE during the synchronization procedure A re-aligns the UL timing to the new DL timing according to the 25.133 and the UE does not comply with the RRC. |
| *Summary of change:* ⌘ | It is proposed to align the RRC with requirements on 25.214 and 25.133 specifications regarding the UL transmission timing compared to the DL transmission timing after the Hard handover. The UL transmission timing mention is removed from section 8.3.5.2.1 and added a note with a reference to 25.211.

For consistency, the UL transmission timing mention is removed also from section 8.3.5.1.1 and added a note with a reference to 25.211.

Implementation of this CR by a R99/Rel-4 UE will not cause compatibility issues. |
| *Consequences if not approved:* ⌘ | If the CR is not agreed the UE behaviour is not well specified leading to two UE behaviours depending on which specification was considered as correct. The impact is then on the NodeB which will not position correctly its UL reception window after the hard handover leading to HHO failure. |

Clauses affected:	⌘	8.3.5.1.1, 8.3.5.2.1		

		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:

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.

8.3.5.1   Timing re-initialised hard handover

8.3.5.1.1   General

The purpose of the timing re-initialised hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) along with a change in ~~the UL transmission timing and~~ the CFN in the UE according to the SFN of the target cell.(see subclause 8.5.15).

> NOTE: During the hard-handover procedure, the UE will align the timing of the uplink transmission as specified in [26].

This procedure is initiated when UTRAN does not know the target SFN timing before hard handover.

8.3.5.2 Timing-maintained hard handover

8.3.5.2.1 General

The purpose of the Timing-maintained hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) while maintaining ~~the UL transmission timing and~~ the CFN in the UE.

NOTE: During the hard-handover procedure, the UE will align the timing of the uplink transmission as specified in [26].

This procedure can be initiated only if UTRAN knows the target SFN timing before hard handover. The target SFN timing can be known by UTRAN in the following 2 cases:

-   UE reads SFN when measuring "Cell synchronisation information" and sends it to the UTRAN in MEASUREMENT REPORT message.

-   UTRAN internally knows the time difference between the cells.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.331** CR **2350** | ⌘**rev** | **-** | ⌘ | Current version: | **6.1.0** | ⌘ |

*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:	⌘	Correction to timing-maintained hard handover regarding the UL transmission timing
Source:	⌘	RAN WG2

Work item code:⌘	TEI5		***Date:*** ⌘	10/04/2004

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

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

Reason for change:	⌘	In the case of timing-maintained hard handover, the section 8.3.5.2.1 suggests that UL transmission timing is maintained after the new RLs are established.

> *8.3.5.2 Timing-maintained hard handover*
> *8.3.5.2.1   General*
> *The purpose of the Timing-maintained hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) while maintaining the UL transmission timing and the CFN in the UE.*

In case of HHO (with or without change of frequency) the UE will perform the L1 synchronization procedure A as described in 25.214 section 4.3.2.3. The UE will establish first DL DPCCH synchronization, UL transmission being stopped until the DL is synchronized. When the higher layers considered that DL synchronization is fulfilled, the UE will start the UL DPCCH transmission. The above described UE behaviour applies regardless of the type of HHO i.e. timing maintained or timing re-initialised.

In case of UL initial transmission timing, the 25.133 section 7.1.2 sets the requirement of T0=1024 chips between the UL/DL frame timing. In 25.133 the case of timing-maintained HHO is not mentioned explicitly in this section.

> *7.1.2   Requirements*
> *The UE initial transmission timing error shall be less than or equal to ∓1.5 Chip. The reference point for the UE initial transmit timing control requirement shall be the time when the first detected path (in time) of the corresponding downlink DPCCH/DPDCH frame is received from the reference cell plus T0 chips. T0 is defined in [2].*

If the UE maintains the old UL transmission timing, this requirement will probably

| | | not be fulfilled compared to the new DL transmission timing. This is due to the rounding to the closest 256 chip boundary done in Node B of the DL DPCH transmission timing (as specified in 25.402 sections 8 and 9). Indeed, the UE measures the Timing difference between its DPCH and SFN in the target cell when doing handover and reports it to SRNC. SRNC sends this Time difference value in two parameters Frame Offset and Chip Offset over Iub to Node B. Node B rounds this value to the closest 256 chip boundary in order to get DL orthogonality (regardless of used spreading factor). The rounded value is used in Node B for the DL DPCH.

Therefore two UE behaviours may happen:

A. the UE keeps the UL transmission timing as suggested in 25.331 and the UL Tx timing requirement in 25.133 is not fulfilled, or

B. the UE during the synchronization procedure A re-aligns the UL timing to the new DL timing according to the 25.133 and the UE does not comply with the RRC. |
| *Summary of change:* ⌘ | It is proposed to align the RRC with requirements on 25.214 and 25.133 specifications regarding the UL transmission timing compared to the DL transmission timing after the Hard handover. The UL transmission timing mention is removed from section 8.3.5.2.1 and added a note with a reference to 25.211.

For consistency, the UL transmission timing mention is removed also from section 8.3.5.1.1 and added a note with a reference to 25.211.

Implementation of this CR by a R99/Rel-4/Rel-5 UE will not cause compatibility issues. |
| *Consequences if not approved:* ⌘ | If the CR is not agreed the UE behaviour is not well specified leading to two UE behaviours depending on which specification was considered as correct. The impact is then on the NodeB which will not position correctly its UL reception window after the hard handover leading to HHO failure. |

Clauses affected:	⌘	8.3.5.1.1, 8.3.5.2.1

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

Other comments:	⌘	

8.3.5.1   Timing re-initialised hard handover

8.3.5.1.1   General

The purpose of the timing re-initialised hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) along with a change in ~~the UL transmission timing and~~ the CFN in the UE according to the SFN of the target cell.(see subclause 8.5.15).

> NOTE: During the hard-handover procedure, the UE will align the timing of the uplink transmission as specified in [26].

This procedure is initiated when UTRAN does not know the target SFN timing before hard handover.

8.3.5.2   Timing-maintained hard handover

8.3.5.2.1   General

The purpose of the Timing-maintained hard handover procedure is to remove all the RL(s) in the active set and establish new RL(s) while maintaining ~~the UL transmission timing and~~ the CFN in the UE.

NOTE: During the hard-handover procedure, the UE will align the timing of the uplink transmission as specified in [26].

This procedure can be initiated only if UTRAN knows the target SFN timing before hard handover. The target SFN timing can be known by UTRAN in the following 2 cases:

- UE reads SFN when measuring "Cell synchronisation information" and sends it to the UTRAN in MEASUREMENT REPORT message.

- UTRAN internally knows the time difference between the cells.

3GPP TSG-RAN-WG2 Meeting #42
Montreal, Canada, 10ᵗʰ- 14ᵗʰ May 2004

Tdoc ⌘*R2-041237*

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.331** | CR | **2357** | ⌘**rev** | **-** | ⌘ | Current version: | **5.8.0** | ⌘ |

*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:	⌘	Compressed INTER RAT HANDOVER INFO message modifications/corrections
Source:	⌘	RAN WG2

Work item code:⌘	TEI5		***Date:*** ⌘	May 2004

Category:	⌘	**F**		***Release:*** ⌘	Rel-5

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

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

Reason for change: ⌘

1) Currently there is ambiguous and double specified UE behaviour on receiving SIB16, in the case that the UE receives a pre-defined configuration with a different value tag to the value tag currently stored.

2) In RRC it is specified behaviour that the UE should act on information received from the other access technology informing it of the number of pre-defined configurations to report. However GERAN2/CN1 have clarified that they will not provide such information to the UE in Release 5. Therefore, it should not be required for the UE to expect to receive this information.

3) The specification of the configuration of the INTER-RAT HANDOVER INFO WITH INTER RAT CAPABILITIES (RRC) container by the other RAT is currently incorrect, and does not include the "pre-defined configuration status information compressed" that was added in Release 5.

4) The UE behaviour with regards to how to indicate non-stored pre-defined configurations within the compressed "predefined configuration status information compressed" IE is currently not clear.

5) The tabular of the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES does not currently include the "compressed" IEs that were added in Release 5. This is incorrect.

Summary of change: ⌘	1) In section 8.1.1.6.16, the behaviour of the UE on receiving SIB16 is clarified to allow only a single behaviour.
	2) In section 8.1.16, the specification that the UE should act on "number of reported PDC indications" is removed.
	3) In section 8.1.16, the inclusion of the "pre-defined configuration status information compressed" is described in the "Inter RAT Handover Info" procedure text, with regards to the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES container configuration.
	4) In section 10.3.4.5b, the tabular is aligned to allow for the fact that non-stored pre-defined configurations are absent, and the semantics description is updated to clarify the UE behaviour.
	5) In section 14.12.4.1, the tabular description of the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES is updated to include the missing "compressed" IEs.

Consequences if not approved: ⌘	If the changes in points 1and 4 are not approved, then could cause misunderstanding of the pre-defined configuration value tags between UTRAN and UE. Hence the feature would not work properly.
	If the change in point 2 is not agreed, then it would not be clear what the UE is required to implement in Release 5.
	If the changes in point 3 and 5 are not approved, then this could cause the other RAT to send incomplete information to the UTRAN. Hence the UTRAN could not use the feature.
	Isolated Impact analysis: The changes 1 and 4 impact the UE and UTRAN. They would not affect UE/UTRAN implementations that have implemented as indicated in the CR. They would affect implementations supporting the corrected functionality otherwise.
	Changes 3 and 5 impacts the non-UTRAN node and the UTRAN. It would not affect UTRAN and non-UTRAN network nodes that have implemented as indicated in the CR.
	Change 2 has only impact on the UE implementation.
	Impact on the test specifications There is no test defined in 34.123 which covers these changes.

Clauses affected: ⌘	8.1.1.6.16, 8.1.16, 10.3.4.5b, 14.12.4.1

		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:

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

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

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

8.1.1.6.16 System Information Block type 16

For System Information Block type 16 multiple occurrences may be used; one occurrence for each predefined configuration. To identify the different predefined configurations, the scheduling information for System Information Block type 16 includes IE "Predefined configuration identity and value tag".

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

1> compare for each predefined configuration the value tag of the stored predefined configuration with the preconfiguration value tag included in the IE "Predefined configuration identity and value tag" for the occurrence of the System Information Block with the same predefined configuration identity;

1> in case the UE has no predefined configuration stored with the same identity ~~or in case the predefined configuration value tag is different~~:

2> store the predefined configuration information together with its identity and value tag for later use e.g. during handover to UTRAN.

1> in case a predefined configuration with the same identity but different value tag was stored:

2> overwrite this one with the new configuration read via system information for later use e.g. during handover to UTRAN.

The above handling applies regardless of whether the previously stored predefined configuration information has been obtained via UTRA or via another RAT.

The UE is not required to complete reading of all occurrences of System Information Block type 16 before initiating RRC connection establishment.

The UE is not required to store more than maxPredefConfig preconfigurations even in the case of multiple equivalent PLMNs.

8.1.16 Inter RAT handover information transfer

Figure 8.1.16-1: Inter RAT handover information transfer, normal flow

8.1.16.1 General

The inter RAT handover information transfer procedure is used by the UE to convey RRC information needed for inter RAT handover to UTRAN.

8.1.16.2 Initiation

If:

- a radio access technology other than UTRA, e.g. GSM, using radio access technology-specific procedures, orders the UE to provide the INTER RAT HANDOVER INFO message; or

- a radio access technology other than UTRA, e.g. GSM, using radio access technology-specific procedures, configures the UE to send the INTER RAT HANDOVER INFO message upon system specific conditions not involving an explicit order e.g. early classmark sending upon entering connected mode; or

- while in connected mode using another radio access technology, the inter RAT handover info changes compared to what has previously been sent via the other radio access technology:

the UE shall:

    1> initiate the inter RAT handover information transfer procedure.

To determine if the inter RAT handover info has changed compared to what has previously been sent, the UE shall:

    1> store the information last sent in the variable INTER_RAT_HANDOVER_INFO_TRANSFERRED;

    1> if this variable has not yet been set:

        2> not initiate the inter RAT handover information transfer procedure due to change of inter RAT handover info.

    NOTE: Currently neither the UE security information nor the predefined configuration status information change while in connected mode using GSM radio access technology.

8.1.16.3 INTER RAT HANDOVER INFO message contents to set

The UE shall:

    1> include the IE "UE security information"; and

    1> not include the IE "UE Specific Behaviour Information 1 interRAT".

    1> in case support for the compressed version of the inter RAT handover info is indicated via the other radio access technology:

        ~~2> in case the other radio access technology indicates the number of pre-defined configurations mandatory to report:~~

            ~~3> omit reporting (some) of the pre-defined configurations beyond the number indicated by the other radio access technology if this makes the INTER RAT HANDOVER INFO message size optimised for the other radio access technology.~~

    ~~NOTE: In case of GSM, the omission of pre-defined configurations applies in case it makes the message fit within one LapDm segment on the radio interface.~~

        2> include of the following IEs the IE that after encoding has the smallest size: IE "Predefined configuration status information compressed" or the IE "Predefined configuration status information";

        2> include the IE "UE radio access capability compressed".

    1> else:

        2> include the IE "Predefined configuration status information";

        2> include the IE "UE capability container", containing the IE "UE radio access capability" and the IE "UE radio access capability extension", in accordance with the following:

            3> if the UE supports multiple UTRA FDD Frequency Bands; or

            3> if the UE supports a single UTRA FDD Frequency Band different from Band I [21]:

                4> include the IE "UE radio access capability", excluding IEs "RF capability FDD" and "Measurement capability";

4> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

3> else:

4> include the IE "UE radio access capability", including the IEs "RF capability FDD" and "Measurement capability" associated with the Band I [21];

4> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

1> initiate the transfer of the INTER RAT HANDOVER INFO message via the other radio access technology, using radio access technology-specific procedures;

1> store the following in the variable INTER_RAT_HANDOVER_INFO_TRANSFERRED if they were included in the INTER RAT HANDOVER INFO message:

2> the IE "Predefined configuration status information";

2> the IE "Predefined configuration status information compressed";

2> the IE "UE security information";

2> the IE "UE radio access capability";

2> the IE "UE radio access capability extension"; and

2> the IE "UE radio access capability compressed".

1> and the procedure ends.

10.3.4.5b   Predefined configuration status information compressed

Another system may provide the UE with one or more predefined UTRAN configurations, comprising of radio bearer, transport channel and physical channel parameters. If requested, the UE shall indicate the configurations it has stored. The compressed predefined configuration status information should include the following RRC information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Sets with different value tags	MP				REL-5
>Pre-defined configuration set with different value tags	MP	1..2			REL-5
>>Start position	MD	INTEGER (0..10)		Default value is 0, corresponding with the first pre-defined configuration. The pre-defined configuration where the consecutive sequence of pre-defined configurations begins.	REL-5
>>Pre-defined configuration value tag list	MP	6..<max predefconfig>	Pre-defined configuration value tag 10.3.4.6	Value Tags for each pre-defined configuration starting from the lowest.	REL-5
Other Entries	OP				REL-5
>Pre-defined configuration list with variable size	MP	1..<max predefconfig>	~~Predefined Configuration Status Information 10.3.4.5a~~	List of other pre-defined configurations not included within the Sets with different value tags, in consecutive order starting with the lowest. If there are stored pre-defined configurations positioned after a pre-defined configuration that is not stored, the UE shall indicate the not-stored pre-defined configuration by explicitly indicating it to be absent. If there are no stored pre-defined configurations positioned after a pre-defined configuration that is not stored, then the UE may totally omit these pre-defined configurations from the IE, i.e. reduce the size of the list to correspond to the last position that contained a stored pre-defined configuration.~~Not stored pre-defined configurations appearing at the end of the list need not be included.~~	REL-5
>>Predefined configuration value tag	OP		Predefined configuration value tag 10.3.4.6	The UE shall include the value tag if it has stored the concerned configuration	REL-5

14.12.4.1   INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES

This RRC message is sent between network nodes when preparing for an inter RAT handover to UTRAN.

Direction: source RAT→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
UE Information elements				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
Predefined configuration status information compressed	OP		Predefined configuration status information compressed 10.3.4.5b	REL-5
UE security information	OP		UE security information 10.3.3.42b	
UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access capability extension 10.3.3.42a	Although this IE is not always required, the need has been set to MP to align with the ASN.1

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
UE radio access capability compressed	OP		UE radio access capability compressed 10.3.3.42o	REL-5
Non RRC IEs				
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
Other Information elements				
UE system specific capability	OP	1 to \<maxSystemCapability>		
>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier handover to UTRAN request
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

Condition	Explanation
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.

NOTE 1: To facilitate that network nodes can transparently forward the RRC information received, the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES should include the entire INTER RAT HANDOVER INFO message. The network node, which may not be able to decode the information received, may only append some information to what was received.

NOTE 2: The above table does not need to reflect the order of the information elements in the actual encoded message. The order, that is reflected in the ASN.1, should be chosen in a manner that avoids that network nodes need to perform reordering of information elements.

3GPP TSG-RAN-WG2 Meeting #42
Montreal, Canada, 10th- 14th May 2004

Tdoc ⌘*R2-041238*

CR-Form-v7

CHANGE REQUEST

⌘   **25.331**   CR **2358**   ⌘**rev**   **-**   ⌘   Current version: **6.1.0**   ⌘

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: ⌘	Compressed INTER RAT HANDOVER INFO message modifications/corrections
Source: ⌘	RAN WG2
Work item code: ⌘	TEI5 ***Date:*** ⌘ May 2004

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

Use one of the following categories:
    F *(correction)*
    A *(corresponds to a correction in an earlier release)*
    B *(addition of feature),*
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be found in 3GPP TR 21.900.

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

Reason for change: ⌘	1) Currently there is ambiguous and double specified UE behaviour on receiving SIB16, in the case that the UE receives a pre-defined configuration with a different value tag to the value tag currently stored.
	2) In RRC it is specified behaviour that the UE should act on information received from the other access technology informing it of the number of pre-defined configurations to report. However GERAN2/CN1 have clarified that they will not provide such information to the UE in Release 5. Therefore, it should not be required for the UE to expect to receive this information.
	3) The specification of the configuration of the INTER-RAT HANDOVER INFO WITH INTER RAT CAPABILITIES (RRC) container by the other RAT is currently incorrect, and does not include the "pre-defined configuration status information compressed" that was added in Release 5.
	4) The UE behaviour with regards to how to indicate non-stored pre-defined configurations within the compressed "predefined configuration status information compressed" IE is currently not clear.
	5) The tabular of the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES does not currently include the "compressed" IEs that were added in Release 5. This is incorrect.

Summary of change: ⌘	1) In section 8.1.1.6.16, the behaviour of the UE on receiving SIB16 is clarified to allow only a single behaviour. 2) In section 8.1.16, the specification that the UE should act on "number of reported PDC indications" is removed. 3) In section 8.1.16, the inclusion of the "pre-defined configuration status information compressed" is described in the "Inter RAT Handover Info" procedure text, with regards to the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES container configuration. 4) In section 10.3.4.5b, the tabular is aligned to allow for the fact that non-stored pre-defined configurations are absent, and the semantics description is updated to clarify the UE behaviour. 5) In section 14.12.4.1, the tabular description of the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES is updated to include the missing "compressed" IEs.
Consequences if not approved: ⌘	If the changes in points 1and 4 are not approved, then could cause misunderstanding of the pre-defined configuration value tags between UTRAN and UE. Hence the feature would not work properly. If the change in point 2 is not agreed, then it would not be clear what the UE is required to implement in Release 5. If the changes in point 3 and 5 are not approved, then this could cause the other RAT to send incomplete information to the UTRAN. Hence the UTRAN could not use the feature. **Isolated Impact analysis**: The changes 1 and 4 impact the UE and UTRAN. They would not affect UE/UTRAN implementations that have implemented as indicated in the CR. They would affect implementations supporting the corrected functionality otherwise. Changes 3 and 5 impacts the non-UTRAN node and the UTRAN. It would not affect UTRAN and non-UTRAN network nodes that have implemented as indicated in the CR. Change 2 has only impact on the UE implementation. **Impact on the test specifications** There is no test defined in 34.123 which covers these changes.

Clauses affected: ⌘	8.1.1.6.16, 8.1.16, 10.3.4.5b, 14.12.4.1		

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

Other comments: ⌘	

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8.1.1.6.16 System Information Block type 16

For System Information Block type 16 multiple occurrences may be used; one occurrence for each predefined configuration. To identify the different predefined configurations, the scheduling information for System Information Block type 16 includes IE "Predefined configuration identity and value tag".

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

1> compare for each predefined configuration the value tag of the stored predefined configuration with the preconfiguration value tag included in the IE "Predefined configuration identity and value tag" for the occurrence of the System Information Block with the same predefined configuration identity;

1> in case the UE has no predefined configuration stored with the same identity ~~or in case the predefined configuration value tag is different~~:

2> store the predefined configuration information together with its identity and value tag for later use e.g. during handover to UTRAN.

1> in case a predefined configuration with the same identity but different value tag was stored:

2> overwrite this one with the new configuration read via system information for later use e.g. during handover to UTRAN.

The above handling applies regardless of whether the previously stored predefined configuration information has been obtained via UTRA or via another RAT.

The UE is not required to complete reading of all occurrences of System Information Block type 16 before initiating RRC connection establishment.

The UE is not required to store more than maxPredefConfig preconfigurations even in the case of multiple equivalent PLMNs.

8.1.16 Inter RAT handover information transfer

Figure 8.1.16-1: Inter RAT handover information transfer, normal flow

8.1.16.1 General

The inter RAT handover information transfer procedure is used by the UE to convey RRC information needed for inter RAT handover to UTRAN.

8.1.16.2 Initiation

If:

- a radio access technology other than UTRA, e.g. GSM, using radio access technology-specific procedures, orders the UE to provide the INTER RAT HANDOVER INFO message; or

- a radio access technology other than UTRA, e.g. GSM, using radio access technology-specific procedures, configures the UE to send the INTER RAT HANDOVER INFO message upon system specific conditions not involving an explicit order e.g. early classmark sending upon entering connected mode; or

- while in connected mode using another radio access technology, the inter RAT handover info changes compared to what has previously been sent via the other radio access technology:

the UE shall:

1> initiate the inter RAT handover information transfer procedure.

To determine if the inter RAT handover info has changed compared to what has previously been sent, the UE shall:

1> store the information last sent in the variable INTER_RAT_HANDOVER_INFO_TRANSFERRED;

1> if this variable has not yet been set:

2> not initiate the inter RAT handover information transfer procedure due to change of inter RAT handover info.

NOTE: Currently neither the UE security information nor the predefined configuration status information change while in connected mode using GSM radio access technology.

8.1.16.3 INTER RAT HANDOVER INFO message contents to set

The UE shall:

1> include the IE "UE security information"; and

1> not include the IE "UE Specific Behaviour Information 1 interRAT".

1> in case support for the compressed version of the inter RAT handover info is indicated via the other radio access technology:

~~2> in case the other radio access technology indicates the number of pre-defined configurations mandatory to report:~~

~~3> omit reporting (some) of the pre-defined configurations beyond the number indicated by the other radio access technology if this makes the INTER RAT HANDOVER INFO message size optimised for the other radio access technology.~~

~~NOTE: In case of GSM, the omission of pre-defined configurations applies in case it makes the message fit within one LapDm segment on the radio interface.~~

2> include of the following IEs the IE that after encoding has the smallest size: IE "Predefined configuration status information compressed" or the IE "Predefined configuration status information";

2> include the IE "UE radio access capability compressed".

1> else:

2> include the IE "Predefined configuration status information";

2> include the IE "UE capability container", containing the IE "UE radio access capability" and the IE "UE radio access capability extension", in accordance with the following:

3> if the UE supports multiple UTRA FDD Frequency Bands; or

3> if the UE supports a single UTRA FDD Frequency Band different from Band I [21]:

4> include the IE "UE radio access capability", excluding IEs "RF capability FDD" and "Measurement capability";

4> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

　　3> else:

4> include the IE "UE radio access capability", including the IEs "RF capability FDD" and "Measurement capability" associated with the Band I [21];

4> include the IE "UE radio access capability extension", including the IEs "RF capability FDD extension" and the "Measurement capability extension" associated with each supported UTRA FDD frequency band indicated in the IE "Frequency band".

1> initiate the transfer of the INTER RAT HANDOVER INFO message via the other radio access technology, using radio access technology-specific procedures;

1> store the following in the variable INTER_RAT_HANDOVER_INFO_TRANSFERRED if they were included in the INTER RAT HANDOVER INFO message:

2> the IE "Predefined configuration status information";

2> the IE "Predefined configuration status information compressed";

2> the IE "UE security information";

2> the IE "UE radio access capability";

2> the IE "UE radio access capability extension"; and

2> the IE "UE radio access capability compressed".

1> and the procedure ends.

10.3.4.5b　　Predefined configuration status information compressed

Another system may provide the UE with one or more predefined UTRAN configurations, comprising of radio bearer, transport channel and physical channel parameters. If requested, the UE shall indicate the configurations it has stored. The compressed predefined configuration status information should include the following RRC information.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Sets with different value tags	MP				REL-5
>Pre-defined configuration set with different value tags	MP	1..2			REL-5
>>Start position	MD	INTEGER (0..10)		Default value is 0, corresponding with the first pre-defined configuration. The pre-defined configuration where the consecutive sequence of pre-defined configurations begins.	REL-5
>>Pre-defined configuration value tag list	MP	6..<max predefconfig>	Pre-defined configuration value tag 10.3.4.6	Value Tags for each pre-defined configuration starting from the lowest.	REL-5
Other Entries	OP				REL-5
>Pre-defined configuration list with variable size	MP	1..<max predefconfig>	~~Predefined Configuration Status Information 10.3.4.5a~~	List of other pre-defined configurations not included within the Sets with different value tags, in consecutive order starting with the lowest. _If there are stored pre-defined configurations positioned after a pre-defined configuration that is not stored, the UE shall indicate the not-stored pre-defined configuration by explicitly indicating it to be absent. If there are no stored pre-defined configurations positioned after a pre-defined configuration that is not stored, then the UE may totally omit these pre-defined configurations from the IE, i.e. reduce the size of the list to correspond to the last position that contained a stored pre-defined configuration._~~Not stored pre- defined configurations appearing at the end of the list need not be included.~~	REL-5
>>Predefined configuration value tag	_OP_		_Predefined configuration value tag 10.3.4.6_	_The UE shall include the value tag if it has stored the concerned configuration_	_REL-5_

14.12.4.1 INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES

This RRC message is sent between network nodes when preparing for an inter RAT handover to UTRAN.

Direction: source RAT→target RNC

Information Element/Group Name	Need	Multi	Type and reference	Semantics description

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
UE Information elements				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
Predefined configuration status information compressed	OP		Predefined configuration status information compressed 10.3.4.5b	REL-5
UE security information	OP		UE security information 10.3.3.42b	
UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
UE capability container	OP			
>UE radio access capability	MP		UE radio access capability 10.3.3.42	
>UE radio access capability extension	MP		UE radio access capability extension 10.3.3.42a	Although this IE is not always required, the need has been set to MP to align with the ASN.1

Information Element/Group Name	Need	Multi	Type and reference	Semantics description
>UE Specific Behaviour Information 1 interRAT	OP		UE Specific Behaviour Information 1 interRAT 10.3.3.52	This IE shall not be included in this version of the protocol
UE radio access capability compressed	OP		UE radio access capability compressed 10.3.3.42o	REL-5
Non RRC IEs				
Radio Bearer IEs				
Predefined configuration status information	OP		Predefined configuration status information 10.3.4.5a	
Other Information elements				
UE system specific capability	OP	1 to <maxSystemCapability>		
>Inter-RAT UE radio access capability	MP		Inter-RAT UE radio access capability 10.3.8.7	
Failure cause	OP		Failure cause 10.3.3.13	Diagnostics information related to an earlier handover to UTRAN request
Protocol error information	CV-*ProtErr*		Protocol error information 10.3.8.12	

Condition	Explanation
ProtErr	This IE is mandatory present if the IE "Protocol error indicator" is included and has the value "TRUE". Otherwise it is not needed.

NOTE 1: To facilitate that network nodes can transparently forward the RRC information received, the INTER RAT HANDOVER INFO WITH INTER RAT CAPABILITIES should include the entire INTER RAT HANDOVER INFO message. The network node, which may not be able to decode the information received, may only append some information to what was received.

NOTE 2: The above table does not need to reflect the order of the information elements in the actual encoded message. The order, that is reflected in the ASN.1, should be chosen in a manner that avoids that network nodes need to perform reordering of information elements.