3GPP TSG-RAN Meeting #15   *Tdoc RP-020219*

Jeju, South Korea, 5ᵗʰ – 8ⁿᵈ March 2002

<div style="border:1px solid">

CR-Form-v5

CHANGE REQUEST

| ⌘ | **25.331** CR **1330** | ⌘**rev** **2** | ⌘ Current version: | **3.9.0** | ⌘ |

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

</div>

Proposed change affects: ⌘   (U)SIM ☐   ME/UE **X**   Radio Access Network **X**   Core Network ☐

Title:	⌘	Clarification to physical channel establishment criteria
Source:	⌘	Nokia
Work item code:	⌘	
Date:	⌘	18ᵗʰ Feb. 2002
Category:	⌘	**F**
Release:	⌘	R99

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

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

Reason for change: ⌘	The current description of the physical channel establishment criteria defines that the UE shall wait for N312 successive in-sync indications from layer 1 before a physical channel is considered to be established. The term "successive" is ambiguous in this context. According to 25.214, layer 1 will send either an in-sync indication or no message for each frame during the physical channel establishment. Out-of-sync indications are not sent. This definition allows two different interpretations: 1. RRC needs to receive N312 in-sync indications during N312 consecutive frames, each frame where no in-sync indication is received resets the counter 2. RRC needs to receive N312 in-sync indications. Frames without any indication from layer 1 do not reset the counter. To avoid potential ambiguities it is proposed to remove the word "successive" from the description of N312. A similar clarification is needed for the radio link failure criteria. It seemed that the values 1, 50, ... 1000 for N312 and N315 had been introduced erroneously into ASN.1 by the very first CR on ASN.1. These values don't seem to be suitable and it is proposed that the value range is alligned with N313 (which is 1, 2, 4, 10, 20, 50, 100, 200).

Summary of change: ⌘	During physical layer establishment, the UE shall wait for layer 1 to indicate N312 "in sync" indications. The word "successive" is removed from the definition of the physical channel establishment criteria. A similar clarification is added to the Radio link failure criteria in section 8.5.6	
	The values for N312 and N315 are aligned with N315 to support also values between 1 and 50.	
	Isolated Impact Analysis:	
	Corrected functionality is the physical channel establishment and radio link failure criteria.	
	If the network implements the change but the UE does not (or the other way around) then the UE will the default values for N312 and N315.	
	To minimise backward compatibility problems, the new ranges for N312 and N315 are implemented in a non-critical extension and the old IEs should no longer be sent. This means that in the case that either the UE or NW has not implemented this change the UE will use the default value of 1. Although the network will be unaware of this the only possible side effect is that the UE would consider the channel established earlier than expected and begin transmitting, but this is not considered to be a problem.	
Consequences if not approved: ⌘	The PDCH establishment criteria remains erroneous. This makes it in practice impossible for the network to configure any other value than 1, which is not seen as suitable for all cases.	

Clauses affected: ⌘	8.5.4, 8.5.6, 10.3.3.43, 10.3.3.44, 11.3, 13.1, 13.3			
Other specs affected: ⌘		Other core specifications	⌘	
		Test specifications		
		O&M Specifications		
Other comments: ⌘				

8.5.4　Physical channel establishment criteria

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 ~~successive~~ "in sync" indications. On receiving N312 ~~successive~~ "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

8.5.6　Radio link failure criteria and actions upon radio link failure

In CELL_DCH State, after receiving N313 consecutive "out of sync" indications from layer 1 for the established DPCCH physical channel in FDD, and the DPCH associated with mapped DCCHs in TDD, the UE shall:

-　start timer T313;

-　upon receiving N315 successive "in sync" indications from layer 1 and upon change of UE state:

    -　stop and reset timer T313.

-　if T313 expires:

    -　consider it as a "Radio link failure".

Periods in time where neither "in sync" nor "out of sync" is reported by layer 1 do not affect the evaluation of the number of consecutive (resp. successive) "in sync" or "out of sync" indications.

When a radio link failure occurs, the UE shall:

-　clear the dedicated physical channel configuration;

-　perform actions as specified for the ongoing procedure;

-　if no procedure is ongoing or no actions are specified for the ongoing procedure:

    -　perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

10.3.3.43　UE Timers and Constants in connected mode

This information element specifies timer- and constants values used by the UE in connected mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T301	MD		Integer(100, 200 .. 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds. Default value is 2000. This IE should not be used by the UE in this release of the protocol.
N301	MD		Integer(0..7)	Default value is 2. This IE should not be used by the UE in this release of the protocol.
T302	MD		Integer(100, 200... 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds. Default value is 4000.
N302	MD		Integer(0..7)	Default value is 3.
T304	MD		Integer(100,	Value in milliseconds. Default

Information Element/Group name	Need	Multi	Type and reference	Semantics description
			200, 400, 1000, 2000)	value is 2000. At least one spare value is needed. Note 1.
N304	MD		Integer(0..7)	Default value is 2. Note 1.
T305	MD		Integer(5, 10, 30, 60, 120, 360, 720, infinity)	Value in minutes. Default value is 30. Infinity means no update
T307	MD		Integer(5, 10, 15, 20, 30, 40, 50)	Value in seconds. Default value is 30.
T308	MD		Integer(40, 80, 160, 320)	Value in milliseconds. Default value is 160. Note 1.
T309	MD		Integer(1…8)	Value in seconds. Default value is 5. Note 1.
T310	MD		Integer(40 .. 320 by step of 40)	Value in milliseconds. Default value is 160. Note 1.
N310	MD		Integer(0 .. 7)	Default value is 4. Note 1.
T311	MD		Integer(250 .. 2000 by step of 250)	Value in milliseconds. Default value is 2000. Note 1.
T312	MD		Integer (0..15)	Value in seconds. Default value is 1. The value 0 is not used in this version of the specification.
N312	MD		Integer (1, 2, 4, 10, 20, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1.
T313	MD		Integer (0..15)	Value in seconds. Default value is 3. Note 1.
N313	MD		Integer (1, 2, 4, 10, 20, 50, 100, 200)	Default value is 20. Note 1.
T314	MD		Integer(0, 2, 4, 6, 8, 12, 16, 20)	Value in seconds. Default value is 12. Note 1.
T315	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds. Default value is 180. Note 1.
N315	MD		Integer (1, 2, 4, 10, 20, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1. Note 1.
T316	MD		Integer(0, 10, 20, 30, 40, 50, infinity)	Value in seconds. Default value is 30.
T317	MD		Integer (0,10, 30, 60, 180, 600, 1200, 1800)	Value in seconds Default value is 180.

NOTE 1: If the value of SIB1 changes, the UE shall re-read SIB1 and use the new value of the parameter, if modified.

10.3.3.44 UE Timers and Constants in idle mode

This information element specifies timer- and constant values used by the UE in idle mode.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
T300	MP		Integer(100, 200... 2000 by step of 200, 3000, 4000, 6000, 8000)	Value in milliseconds. Default value is 1000. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16.
N300	MP		Integer(0..7)	Default value is 3. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16.
T312	MP		Integer(0 .. 15)	Value in seconds. Default value is 1. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16. The value 0 is not used in this version of the specification.
N312	MP		Integer (1, 2, 4, 10, 20, 50, 100, 200, 400, 600, 800, 1000)	Default value is 1. Use of Default is described in 10.2.48.8.4 and in 10.2.48.8.16.

11.2　PDU definitions

```
-- **************************************************
--
-- UTRAN MOBILITY INFORMATION
--
-- **************************************************

UTRANMobilityInformation ::= CHOICE {
    r3                              SEQUENCE {
        utranMobilityInformation-r3     UTRANMobilityInformation-r3-IEs,
        v3a0nonCriticalExtensions       SEQUENCE {
            utranMobilityInformation-v3a0ext    UTRANMobilityInformation-v3a0ext-IEs,
            nonCriticalExtensions               SEQUENCE {} OPTIONAL
        }           OPTIONAL
    },
    later-than-r3                   SEQUENCE {
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        criticalExtensions              SEQUENCE {}
    }
}

UTRANMobilityInformation-r3-IEs ::= SEQUENCE {
    -- User equipment IEs
        rrc-TransactionIdentifier       RRC-TransactionIdentifier,
        integrityProtectionModeInfo     IntegrityProtectionModeInfo         OPTIONAL,
        cipheringModeInfo               CipheringModeInfo                   OPTIONAL,
        new-U-RNTI                      U-RNTI                              OPTIONAL,
        new-C-RNTI                      C-RNTI                              OPTIONAL,
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants           OPTIONAL,
    -- CN information elements
        cn-InformationInfo              CN-InformationInfoFull              OPTIONAL,
    -- UTRAN mobility IEs
        ura-Identity                    URA-Identity                        OPTIONAL,
    -- Radio bearer IEs
        dl-CounterSynchronisationInfo   DL-CounterSynchronisationInfo       OPTIONAL,
    -- Extension mechanism for non- release99 information
        nonCriticalExtensions           SEQUENCE {}     OPTIONAL
}

UTRANMobilityInformation-v3a0ext-IEs ::= SEQUENCE {
    ue-ConnTimersAndConstants-v3a0ext       UE-ConnTimersAndConstants-v3a0ext
}
```

11.3 Information element definitions

```
N-312-Dummy ::=                        ENUMERATED {
                                       s1, s50, s100, s200, s400,
                                       s600, s800, s1000 }

N-312 ::=                              ENUMERATED {
                                       s1, s2, s4, s10, s20,
                                       s50, s100, s200}

N-313 ::=                              ENUMERATED {
                                       s1, s2, s4, s10, s20,
                                       s50, s100, s200 }

N-315-Dummy ::=                        ENUMERATED {
                                       s1, s50, s100, s200, s400,
                                       s600, s800, s1000 }

N-315 ::=                              ENUMERATED {
                                       s1, s2. s4, s10, s20,
                                       s50, s100, s200}


UE-ConnTimersAndConstants ::=      SEQUENCE {
-- Optional is used also for parameters for which the default value is the last one read in SIB1
-- t-301 and n-301 should not be used by the UE in this release of the protocol
    t-301                          T-301                              DEFAULT ms2000,
    n-301                          N-301                              DEFAULT 2,
    t-302                          T-302                              DEFAULT ms4000,
    n-302                          N-302                              DEFAULT 3,
    t-304                          T-304                              DEFAULT ms2000,
    n-304                          N-304                              DEFAULT 2,
    t-305                          T-305                              DEFAULT m30,
    t-307                          T-307                              DEFAULT s30,
    t-308                          T-308                              DEFAULT ms160,
    t-309                          T-309                              DEFAULT 5,
    t-310                          T-310                              DEFAULT ms160,
    n-310                          N-310                              DEFAULT 4,
    t-311                          T-311                              DEFAULT ms2000,
    t-312                          T-312                              DEFAULT 1,
    -- dummy is not used in this version of specification, it should
    -- not be sent and if received it should be ignored.  Instead the
    -- IE in UE-ConnTimersAndConstants-v3a0ext should be used for N312.
    n-312dummmy                    N-312-Dummy                        DEFAULT s1,
    t-313                          T-313                              DEFAULT 3,
    n-313                          N-313                              DEFAULT s20,
    t-314                          T-314                              DEFAULT s12,
    t-315                          T-315                              DEFAULT s180,
    -- dummy is not used in this version of specification, it should
    -- not be sent and if received it should be ignored.  Instead the
    -- IE in UE-ConnTimersAndConstants-v3a0ext should be used for N315.
    n-315dummy                     N-315-Dummy                        DEFAULT s1,
    t-316                          T-316                              DEFAULT s30,
    t-317                          T-317                              DEFAULT s180
}

UE-ConnTimersAndConstants-v3a0ext ::=      SEQUENCE {
    n-312                          N-312                              DEFAULT s1,
    n-315                          N-315                              DEFAULT s1
}

UE-IdleTimersAndConstants ::=      SEQUENCE {
    t-300                          T-300,
    n-300                          N-300,
    t-312                          T-312,
    -- dummy is not used in this version of specification and it should
    -- be ignored.  Instead the IE in UE-ConnTimersAndConstants-v3a0ext
    -- should be used for N312.
    n-312dummy                     N-312-Dummy
}
```

```
UE-IdleTimersAndConstants-v3a0ext ::=        SEQUENCE {
    n-312                                    N-312
}


SysInfoType1 ::=                    SEQUENCE {
    -- Core network IEs
        cn-CommonGSM-MAP-NAS-SysInfo    NAS-SystemInformationGSM-MAP,
        cn-DomainSysInfoList            CN-DomainSysInfoList,
    -- User equipment IEs
        ue-ConnTimersAndConstants       UE-ConnTimersAndConstants           OPTIONAL,
        ue-IdleTimersAndConstants       UE-IdleTimersAndConstants           OPTIONAL,
    -- Extension mechanism for non- release99 information
        v3a0nonCriticalExtensions       ——SEQUENCE {
            sysInfoType1-v3a0ext        SysInfoType1-v3a0ext-IEs,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        }                               OPTIONAL
}

SysInfoType1-v3a0ext-IEs ::= SEQUENCE {
    ue-ConnTimersAndConstants-v3a0ext       UE-ConnTimersAndConstants-v3a0ext   OPTIONAL,
    ue-IdleTimersAndConstants-v3a0ext       UE-IdleTimersAndConstants-v3a0ext   OPTIONAL
}


SysInfoType13 ::=                   SEQUENCE {
    -- Core network IEs
        cn-DomainSysInfoList            CN-DomainSysInfoList,
    -- User equipment IEs
        ue-IdleTimersAndConstants       UE-IdleTimersAndConstants           OPTIONAL,
        capabilityUpdateRequirement     CapabilityUpdateRequirement         OPTIONAL,
    -- Extension mechanism for non- release99 information
        v3a0nonCriticalExtensions       ——SEQUENCE {
            sysInfoType13-v3a0ext       SysInfoType13-v3a0ext-IEs,
            nonCriticalExtensions       SEQUENCE {} OPTIONAL
        }                               OPTIONAL
}

SysInfoType13-v3a0ext-IEs ::= SEQUENCE {
    ue-IdleTimersAndConstants-v3a0ext       UE-IdleTimersAndConstants-v3a0ext   OPTIONAL,
}
```

13.1 Timers for UE

Timer	Start	Stop	At expiry
T300	Transmission of RRC CONNECTION REQUEST	Reception of RRC CONNECTION SETUP	Retransmit RRC CONNECTION REQUEST if V300 =< N300, else go to Idle mode
T302	Transmission of CELL UPDATE/URA UPDATE	Reception of CELL UPDATE CONFIRM/URA UPDATE CONFIRM	Retransmit CELL UPDATE/URA UPDATE if V302 =< N302, else, go to Idle mode
T304	Transmission of UE CAPABILITY INFORMATION	Reception of UE CAPABILITY INFORMATION CONFIRM	Retransmit UE CAPABILITY INFORMATION if V304 =< N304, else initiate a cell update procedure
T305	Entering CELL_FACH or URA_PCH or CELL_PCH state. Reception of CELL UDPATE CONFIRM/URA UPDATE CONFIRM.	Entering another state.	Transmit CELL UPDATE if T307 is not activated and the UE detects "in service area". Otherwise, if T307 is not active, start T307.
T307	When the timer T305 has expired and the UE detects "out of service area".	When the UE detects "in service area".	Transit to idle mode
T308	Transmission of RRC CONNECTION RELEASE COMPLETE	Not stopped	Transmit RRC CONNECTION RELEASE COMPLETE if V308 <=N308, else go to idle mode.
T309	Upon reselection of a cell belonging to another radio access system from connected mode, or reception of CELL CHANGE ORDER FROM UTRAN message	Successful establishment of a connection in the new cell	Resume the connection to UTRAN
T310	Transmission of PUSCH CAPACITY REQUEST	Reception of PHYSICAL SHARED CHANNEL ALLOCATION	Transmit PUSCH CAPACITY REQUEST if V310 =< N310, else procedure stops.
T311	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with the CHOICE "*PUSCH allocation*" set to "PUSCH allocation pending".	Reception of PHYSICAL SHARED CHANNEL ALLOCATION message with CHOICE "*PUSCH allocation*" set to "PUSCH allocation assignment".	UE may initiate a PUSCH capacity request procedure.
T312	When the UE starts to establish dedicated CH	When the UE detects ~~consecutive~~ N312 "in sync" indication from L1.	The criteria for physical channel establishment failure is fulfilled
T313	When the UE detects consecutive N313 "out of sync" indication from L1.	When the UE detects consecutive N315 "in sync" indication from L1.	The criteria for Radio Link failure is fulfilled
T314	When the criteria for radio link failure are fulfilled. The timer is started only if radio bearer(s) that are associated with T314 exist.	When the Cell Update procedure has been completed.	See subclause 8.3.1.13
T315	When the criteria for radio link failure are fulfilled. The timer is started only if radio bearer(s) that are associated with T315 exist.	When the Cell Update procedure has been completed.	See subclause 8.3.1.14

Timer	Start	Stop	At expiry
T316	When the UE detects "out of service area" in URA_PCH or CELL_PCH state	When the UE detects "in service area".	Initiate cell update procedure if in service area is detected. Otherwise start timer T317, transit to CELL_FACH state and initiate cell update procedure when the UE detects "in service area".
T317	When the T316 expires or when in CELL_FACH state, the UE detects "out of service area".	When the UE detects "in service area".	Transit to idle mode

13.3 UE constants and parameters

Constant	Usage
N300	Maximum number of retransmissions of the RRC CONNECTION REQUEST message
N302	Maximum number of retransmissions of the CELL UPDATE / URA UPDATE message
N304	Maximum number of retransmissions of the UE CAPABILITY INFORMATION message
N308	Maximum number of retransmissions of the RRC CONNECTION RELEASE COMPLETE message
N310	Maximum number of retransmission of the PUSCH CAPACITY REQUEST message
N312	Maximum number of ~~successive~~ "in sync" received from L1.
N313	Maximum number of successive "out of sync" received from L1.
N315	Maximum number of successive "in sync" received from L1 during T313 is activated.