

Technical Specification Group Radio Access Network
Marco Island, USA 4 - 7 June 2002

RP#16(02) 0403

TSG_Doc_Num	Specification	CR_Num	Revision_Num	3G_Release	CR_Subject	CR_Category	Cur_Ver_Num	New_Ver_Num	Tdoc_Num	WorkItem
RP-020403	25.415	109	2	R99	Correction of first rates to be used	F	3.10.0	3.11.0	R3-021551	TEI
RP-020403	25.415	110	2	Rel-4	Correction of first rates to be used	A	4.4.0	4.5.0	R3-021617	TEI
RP-020403	25.415	111	2	Rel-5	Correction of first rates to be used	A	5.0.0	5.1.0	R3-021618	TEI

3GPP TSG-RAN WG3 Meeting #29
 Gyeongju, Korea, 13th – May17th, 2002

R3-021551

CR-Form-v3

CHANGE REQUEST

⌘ **25.415** **CR 109** ⌘ rev **2** ⌘ Current version: **3.10.0** ⌘

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

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

Title:	⌘ Correction on the first rate to use after initialisation		
Source:	⌘ R-WG3		
Work item code:	⌘ TEI	Date:	⌘ May 2002
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories: F (essential 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:	⌘ Any permitted rate is possible to be used for the first frames after the initialisation. A past CR intending to prevent the use of SID and NoData had uncsciously banned the use of non-rate controllable rates for the first frame due to the misinterpretation of guaranteed bit rate which is an error and was not the intention of the initial CR. The correct understanding and behaviour is here restored.
Summary of change:	⌘ Any permitted rate different than SID and No_data is allowed as first frame. <u>Impact assessment towards the previous version of the specification (same release):</u> This CR has isolated impact with the previous version of the specification (same release) since with this correction any permitted non-rate controllable rate can be used after the initialisation. This CR has an impact under functional point of view for implementations not behaving like indicated in the CR The impact can be considered isolated because the change affects only the system function initialisation.
Consequences if not approved:	⌘ It will not be possible to use any permitted rate after the intialisation of the lu UP.

Clauses affected:	⌘ 6.5.2.1		
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications	⌘ TS25.415 CR110 REL-4 TS25.415 CR111 REL-5	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		

Other comments: ☞

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

6.5.2 Initialisation procedure

6.5.2.1 Successful operation

This procedure is mandatory for RABs using the support mode for predefined SDU size. The purpose of the Initialisation procedure is to configure both termination points of the Iu UP with RAB Subflow Combinations, RFCIs, and associated RAB Sub Flows SDU sizes necessary to be supported during the transfer of user data phase.

Additional parameters may also be passed, such as the Inter PDU Timing Interval (IPTI) information.

The Initialisation procedure is always controlled by the entity in charge of establishing the Radio Network Layer User Plane i.e. SRNC.

The Initialisation procedure is invoked whenever indicated by the Iu UP Procedure Control function e.g. as a result of a relocation of SRNS or at RAB establishment over Iu. The Initialisation procedure shall not be re-invoked for the RAB without a RAB modification requested via RANAP [3].

When this procedure is invoked all other Iu UP procedures are suspended until termination of the Initialisation procedure.

The RNC indicates the Iu UP Mode version it uses for the initialisation as well as the Iu UP Mode versions it supports for the related RAB. The sender should use the lowest version for the initialisation that has enough information to initialise the highest proposed protocol version.

The SRNC allocates a RAB sub-Flow Combination indicator (RFCI) to each RAB sub-Flow Combination it initialises. The association of indicators to RAB Flow Combinations is valid in the Iu UP until a new Initialisation procedure is performed or the connection is terminated.

The Procedure Control function may also generate additional Iu UP protocol parameters necessary for the RAB service to operate properly over Iu.

To each RAB sub-Flow combination indicator is associated the size of each RAB sub-Flow SDU of that combination. The list of RAB sub-Flow Combination Indicators and their respective SDU sizes constitutes the RAB sub-Flow Combination set passed over the Iu UP in the INITIALISATION control frame i.e. into an appropriate Iu UP PDU Type.

~~The first RAB sub-Flow Combination proposed in the list of RAB sub-Flow Combination indicates the initial RAB sub-Flow Combination i.e. the first RAB sub-Flow Combination to be used when starting the communication phase i.e. the Transfer of User Data procedure. The RAB sub-Flow Combinations for rates below the guaranteed bit rate, e.g. SID or "NO_DATA" (defined by the length of all subflows set to "0") shall not be used as the first RFC in the proposed list of RAB sub-Flow Combinations.~~

The first RAB Sub-flow Combination proposed in the list of RAB Sub-Flow Combinations corresponds to the maximum bit rate allowed to be used for the first frame sent by the Transfer of User Data procedure. The RAB Sub-flow Combinations for rates below the guaranteed bit rate as specified in the RAB parameters (indicated to the Iu-UP at the RNC RNL-SAP) shall not be used as the first RAB Sub-flow Combination in the proposed list of RAB Sub-Flow Combinations.

Any RAB Sub-Flow Combination of the set that is initialised shall be supported by the two Iu UP termination points and may optionally be used by the sender (except for the first in the list that shall be used when starting). In particular, the use by the sender of the RFC "NO_DATA" is optional even when it is included in the Initialisation procedure.

Conversely, any RAB Sub-Flow Combination that is not part of the initialised set shall not be used even if supported. In particular, the two Iu UP termination points shall be capable of operating without the use of the RFC "NO_DATA".

The complete set of information is framed by the Iu UP Frame Handler function and transferred in an Iu UP INITIALISATION control frame. If needed, the INITIALISATION control frame CRC is calculated and set accordingly in the respective frame field.

A supervision timer T_{INT} is started after sending the Iu UP INITIALISATION control frame. This timer supervises the reception of the initialisation acknowledgement frame.

Upon reception of a frame indicating that an Initialisation procedure is active in the peer Iu UP entity, the Iu UP protocol layer forwards to the upper layers the RAB sub-Flow Combination set to be used by the Procedure Control function. It also stores the RAB sub-Flow Combination set in order to control during the transfer of user data, that the Iu UP payload is correctly formatted (e.g. RFCI matches the expected Iu UP frame payload total length). The CN entity receiving the INITIALISATION control frame shall choose a version that it supports and for which it has enough initialisation information.

If the INITIALISATION control frame is correctly formatted and treated by the receiving Iu UP protocol layer, this latter sends an initialisation acknowledgement frame using the version of the Iu UP Mode that is chosen.

Upon reception of an initialisation acknowledgement frame, the Iu UP protocol layer in the SRNC stops the supervision timer T_{INIT} .

If the Initialisation procedure requires that several frames are to be sent, each frame shall be acknowledged individually (i.e. any frame to be sent shall wait for the acknowledgement of the previous sent frame to be received before being sent). The supervision timer shall be used individually for each frame being sent.

The successful operation of the Initialisation procedure may require that one or several chained frames are positively acknowledged. The number of INITIALISATION control frames in such a chain shall not exceed 4. Each chained frame shall be positively acknowledged before the one with the next frame number can be sent.

The *Frame Number* IE of an INITIALISATION control frame shall always be set to "0" when the chain has only one frame. When several INITIALISATION control frames are used in a chain the *Frame Number* IE shall be set to "0" for the first one and incremented by one in the sending direction for each new frame in the chain. The positive acknowledgement or negative acknowledgement shall carry the frame number of the frame being acknowledged.

Upon reception of an INITIALISATION NEGATIVE ACKNOWLEDGEMENT control frame, an erroneous acknowledgement or at timer T_{INIT} expiry, the Iu UP protocol layer in the SRNC shall reset and restart the T_{INIT} supervision timer and repeat one INITIALISATION control frame with the same frame number. The repetition shall be performed up to N_{INIT} times, N_{INIT} being chosen by the operator (default $N_{INIT} = 3$). The N_{INIT} (maximum number of allowed repetitions) is the aggregate count for each frame in the chain and is restart each time a frame is positively acknowledged.

Consequently, when in the communication phase (as indicated by internal functions in the Radio Network layer), the frame transmission starts in downlink in the initial RFCI.

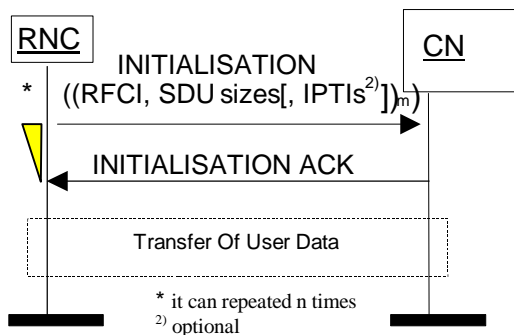


Figure 9: Successful Initialisation of Iu UP for m RFCIs

3GPP TSG-RAN WG3 Meeting #29
 Gyeongju, Korea, 13th – May17th, 2002

R3-021617

CR-Form-v3

CHANGE REQUEST

⌘ **25.415** **CR 110** ⌘ rev **2** ⌘ Current version: **4.4.0** ⌘

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

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

Title:	⌘ Correction on the first rates to use after initialisation		
Source:	⌘ R-WG3		
Work item code:	⌘ TEI	Date:	⌘ May 2002
Category:	⌘ A	Release:	⌘ REL-4
Use <u>one</u> of the following categories: F (essential 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: ⌘ Any permitted rate is possible to be used for the first frames after the initialisation until any rate control occurs. A past CR intending to prevent the use of SID and NoData at the very beginning had uncsciously banned the use of non-rate controllable rates due to the misinterpretation of guaranteed bit rate which is an error and was not the intention of the initial CR. The correct understanding and behaviour is here restored.

Summary of change: ⌘ Any permitted rate different than SID and NoData is allowed for the first frames after the init.

Impact assessment towards the previous version of the specification (same release):
 This CR has isolated impact with the previous version of the specification (same release) since with this correction any permitted non-rate controllabe rate can be used after the initialisation.

This CR has an impact under functional point of view for implementations not behaving like indicated in the CR
 The impact can be considered isolated because the change affects only the system function initialisation.

Consequences if not approved: ⌘ It will not be possible to use a non rate controllable rate after the intialisation of the lu UP.

Clauses affected: ⌘ 6.5.2.1

Other specs affected: ⌘ Other core specifications ⌘ TS25.415 CR109 R99 TS25.415 CR111 REL-5
 Test specifications

O&M Specifications**Other comments:** ☞**How to create CRs using this form:**

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6.5.2.1 Successful operation

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Additional parameters may also be passed, such as the Inter PDU Timing Interval (IPTI) information.

The Initialisation procedure may be controlled at both end of the Iu access point, i.e. the CN and UTRAN.

The Initialisation procedure is invoked whenever indicated by the Iu UP Procedure Control function e.g. as a result of a relocation of SRNS or at RAB establishment over Iu or if the CN decides to resolve RFCI mismatch in case of TrFO (see [13]). The Initialisation procedure shall not be re-invoked by the SRNC for the RAB without a RAB modification requested via RANAP [3].

When this procedure is invoked all other Iu UP procedures are suspended until termination of the Initialisation procedure.

The Iu UP protocol entity invoking this procedure shall indicate the Iu UP Mode version it uses for the initialisation as well as the Iu UP Mode versions it supports for the related RAB among the versions the CN requested for the related RAB. The sender should use the lowest version for the initialisation that has enough information to initialise the highest proposed protocol version.

The invoking entity allocates a RAB sub-Flow Combination indicator (RFCI) to each RAB sub-Flow Combination it initialises. One requirement on which RAB sub-Flow Combinations to initialise, is that all requested compound RAB sub-Flow Combination SDU sizes shall be configured, except in the case when also version 1 of the user plane mode was included as an alternative in the request over RANAP. In that case, it is allowed to initialise just a subset of the requested RAB sub-Flow Combinations. The association of indicators to RAB Flow Combinations is valid for both the uplink and downlink direction in the Iu UP until a new Initialisation procedure is performed or the connection is terminated.

The Procedure Control function may also generate additional Iu UP protocol parameters necessary for the RAB service to operate properly over Iu.

To each RAB sub-Flow combination indicator is associated the size of each RAB sub-Flow SDU of that combination. The list of RAB sub-Flow Combination Indicators and their respective SDU sizes constitutes the RAB sub-Flow Combination set passed over the Iu UP in the INITIALISATION control frame i.e. into an appropriate Iu UP PDU Type.

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The first RAB Sub-flow Combination proposed in the list of RAB Sub-Flow Combinations corresponds to the maximum bit rate allowed to be used when starting the communication phase i.e. until the first RATE CONTROL control frame occurs. The RAB Sub-flow Combinations for rates strictly below the guaranteed bit rate as specified in the RAB parameters (indicated to the Iu-UP at the RNC RNL-SAP) shall not be used as the first RAB Sub-flow Combination in the proposed list of RAB Sub-Flow Combinations.

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If the INITIALISATION control frame is correctly formatted and treated by the receiving Iu UP protocol layer, this latter sends an initialisation acknowledgement frame using the version of the Iu UP Mode that is chosen.

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Upon reception of an INITIALISATION NEGATIVE ACKNOWLEDGEMENT control frame, an erroneous acknowledgement or at timer T_{INIT} expiry, the Iu UP protocol entity controlling the Initialisation procedure shall reset and restart the T_{INIT} supervision timer and repeat one INITIALISATION control frame with the same frame number. The repetition shall be performed up to N_{INIT} times, N_{INIT} being chosen by the operator (default $N_{INIT} = 3$). The N_{INIT} (maximum number of allowed repetition) is the aggregate count for each frame in the chain and is restart each time a frame is positively acknowledged.

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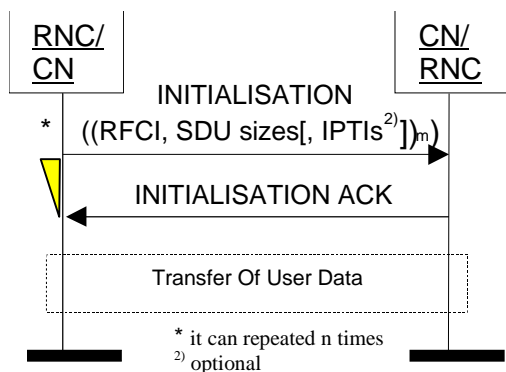


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3GPP TSG-RAN WG3 Meeting #29
 Gyeongju, Korea, 13th – May17th, 2002

R3-021618

CR-Form-v3

CHANGE REQUEST

⌘ **25.415** **CR 111** ⌘ rev **2** ⌘ Current version: **5.0.0** ⌘

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Source:	⌘ R-WG3		
Work item code:	⌘ TEI	Date:	⌘ May 2002
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Other comments:	⌘	

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The successful operation of the Initialisation procedure may require that one or several chained frames are positively acknowledged. The number of INITIALISATION control frames in such a chain shall not exceed 4. Each chained frame shall be positively acknowledged before the one with the next frame number can be sent.

The *Frame Number* IE of an INITIALISATION control frame shall always be set to "0" when the chain has only one frame. When several INITIALISATION control frames are used in a chain the *Frame Number* IE shall be set to "0" for the first one and incremented by one in the sending direction for each new frame in the chain. The positive acknowledgement or negative acknowledgement shall carry the frame number of the frame being acknowledged.

Upon reception of an INITIALISATION NEGATIVE ACKNOWLEDGEMENT control frame, an erroneous acknowledgement or at timer T_{INIT} expiry, the Iu UP protocol entity controlling the Initialisation procedure shall reset and restart the T_{INIT} supervision timer and repeat one INITIALISATION control frame with the same frame number. The repetition shall be performed up to N_{INIT} times, N_{INIT} being chosen by the operator (default $N_{INIT} = 3$). The N_{INIT} (maximum number of allowed repetition) is the aggregate count for each frame in the chain and is restart each time a frame is positively acknowledged.

Consequently, when in the communication phase (as indicated by internal functions in the Radio Network layer), the frame transmission starts in downlink in the initial RFCI.

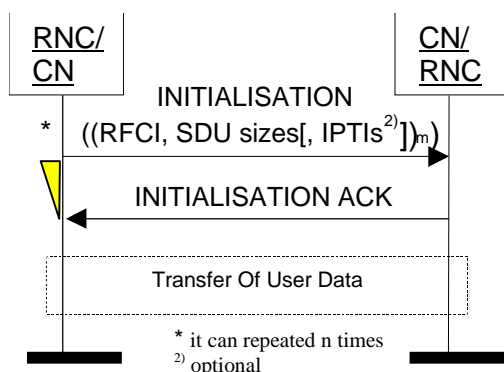


Figure 9: Successful Initialisation of Iu UP for m RFCIs