3GPP TSG CN Plenary Meeting #25 **NP-040392**
8th – 10th August 2004 Palm Springs, US.

Source: TSG CN WG4

Title: Corrections on TEI4 Mc-interface

Agenda item: 7.11

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level N4-04	Phase	Subject	Cat	Ver_C
29.232	062	1	1157	Rel-4	Correction of Procedure “Activate Voice Processing Function”	F	4.8.0
29.232	063		0949	Rel-5	Correction of Procedure “Activate Voice Processing Function”	A	5.8.0
29.232	076	1	1219	Rel-4	3GUP package corrections	F	4.8.0
29.232	075	2	1218	Rel-5	3GUP package corrections	A	5.8.0

3GPP TSG-CN WG4 Meeting #24 ***N4-040949***

Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.232** **CR** **063** ⌘ **rev** **-** ⌘ Current version: **5.7.0** ⌘

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

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

Title:	⌘	Correction of Procedure "Activate Voice Processing Function"
Source:	⌘	CN4
Work item code:	⌘	TEI4
Date:	⌘	15/07/2004
Category:	⌘	**A**
Release:	⌘	Rel-5

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

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	**Essential correction.** With the "Activate Voice Processing Function" procedure defined in subclause 14.2.17 of TS 29.232 it shall be possible to activate or deactivate "echo canceller" and adapt the level of the signal with "gain". In section 10 this is tried to be covered the echo cancelatation aspect by adding off and value but the definition of the types are missing. Therefor the definition of VPF Type is added in the formats and codecs section.
Summary of change:	⌘	Off and value is replaced by VPF type.
Consequences if not approved:	⌘	An undefined value assignment remains in the specification. Different implementation on echo cancelation might occur.

Clauses affected:	⌘	10, 14.2.17

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

Other comments:	⌘	

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

First Modified Section

10 Formats and codes

Table 1 shows the parameters which are required, in addition to those defined in the subclause "Formats and Codes" of ITU-T Recommendation Q.1950 [23] (see 3GPP TS 29.205 [7]).

The coding rules applied in ITU-T Recommendation H.248.1 [10] for the applicable coding technique shall be followed for the UMTS capability set.

Table 1: Additional parameters required

actprot	Signal descriptor	As for the signal "Activate protocol" in subclause 15.1.2.3
Mode	Local control	As for the property "UP mode of operation" in subclause 15.1.1.1
Version	Local control	As for the property "Upversion" in subclause 15.1.1.1
Value	Local control	As for the property " Delivery of erroneous SDUs" in subclause 15.1.1.1
Interface	Local control	As for the property " Interface" in subclause 15.1.1.1
Initdirection	Local control	As for the property " Initialization Direction" in subclause 15.1.1.1
PLMN bearer capability	Local control	As for the property "PLMN BC" in subclause 15.1.2.1
Coding	Local control	As for the property " GSM channel coding" in subclause 15.1.2.1
Tfoenable	Local control	As for the property " TFO activity control" in subclause 15.1.3.1
Codeclist	Local control	As for the property" TFO Codec List" in subclause 15.1.3.1
Result	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Protocol Negotiation Result" in subclause 15.1.2.2
Cause	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Protocol Negotiation Result" in subclause 15.1.2.2
Rate	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Rate Change" in subclause 15.1.2.2
Optimalcodec	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Optimal Codec Type" in subclause 15.1.3.2
Distlist	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Distant TFO List" in subclause 15.1.3.2
On/Off ~~/ value~~	Local control	As for the property "Echo cancelling" in subclause E.13.1 in ITU-T Recommendation H.248.1 [10]
Error	Error descriptor	As defined in the subclause "Command error code" in ITU-T Recommendation H.248.1 [10]
Reduction	ObservedEvent descriptor	As for the ObserverdEventDescriptor in "MGW Resource Congestion Handling– Indication" in subclause 14.1.15.
Bearer Modification Support	EventDescriptor	As for the EventsDescriptor in "Bearer Modification Support" in subclause 15.1.4.2.
Bearer modification possible	ObservedEvent descriptor	As for the ObserverdEventDescriptor in "Bearer Modification Support" in subclause 15.1.4.2.
Ctmstate	TerminationState	As for the TerminationState "Text termination connection state" in subclause 15.1.6.1.
Ctmtransport	Local control	As for the property "Text Transport" in subclause 15.1.6.1.
Ctmtext version	Local control	As for the property " Text Protocol Version" in subclause 15.1.6.1.
Connchng	ObservedEventDescriptor	As for the ObservedEventDescriptor " Connection State Change in subclause 15.1.6.2
Ctmbits	Statistics descriptor	As for the Statistics descriptor "Characters Transferred" in subclause 15.1.6.4
Bitrate	Local control	As for the property" Bitrate" in subclause 15.1.7.1
Ipaddress	Local control	As for the property" IP transport address" in subclause 15.1.8.1
UDPport	Local control	As for the property" UDP port " in subclause 15.1.8.1
Flextone	Local control	As for the signal "Flexible Tone " in subclause 15.1. 9.1

Next modified Section

14.2.17 Activate Voice Processing Function

When the procedure "Activate Voice Processing Function" (VPF) is required the following procedure is initiated:

The MGC sends an ADD.req, MOD.req or MOV.req command with the following information.

1 ADD.req/MOD.req/MOV.req (..., Activate Voice Processing Function) MGC to MGW

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = c1 Termination ID = bearer1 VPF Type ActivateVPF "ec" = on/off ~~/ value~~	

3GPP TSG-CN WG4 Meeting #24 ***N4-041157***

Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.232** **CR** **062** ⌘ **rev** **1** ⌘ Current version: **4.8.0** ⌘

*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 ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction of Procedure "Activate Voice Processing Function"
Source:	⌘	CN4
Work item code:	⌘	TEI4
Date:	⌘	15/07/2004
Category:	⌘	**F**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	**Essential correction.** With the "Activate Voice Processing Function" procedure defined in subclause 14.2.17 of TS 29.232 it shall be possible to activate or deactivate "echo canceller" and adapt the level of the signal with "gain". In section 10 this is tried to be covered the echo cancelatation aspect by adding off and value but the definition of the types are missing. Therefor the definition of VPF Type is added in the formats and codecs section.
Summary of change:	⌘	Off and value is replaced by VPF type.
Consequences if not approved:	⌘	An undefined value assignment remains in the specification. Different implementation on echo cancelation might occur.

Clauses affected:	⌘	10, 14.2.17			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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First Modified Section

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The coding rules applied in ITU-T Recommendation H.248.1 [10] for the applicable coding technique shall be followed for the UMTS capability set.

Table 1 shows the parameters which are required, in addition to those defined in the subclause "Formats and Codes" of ITU—T Recommendation Q.1950 (see 3GPP TS 29.205 [7]).

The coding rules applied in ITU-T Recommendation H.248 [10] for the applicable coding technique shall be followed for the UMTS capability set.

Table 1: Additional parameters required

actprot	Signal descriptor	As for the signal "Activate protocol" in subclause 15.1.2.3
Mode	Local control	As for the property "UP mode of operation" in subclause 15.1.1.1
Version	Local control	As for the property "Upversion" in subclause 15.1.1.1
Value	Local control	As for the property " Delivery of errounous SDUs" in subclause 15.1.1.1
Interface	Local control	As for the property " Interface" in subclause 15.1.1.1
Initdirection	Local control	As for the property " Initialisation Direction" in subclause 15.1.1.1
PLMN bearer capability	Local control	As for the property "PLMN BC" in subclause 15.1.2.1
Coding	Local control	As for the property " GSM channel coding" in subclause 15.1.2.1
Tfoenable	Local control	As for the property " TFO activity control" in subclause 15.1.3.1
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Optimalcodec	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Optimal Codec Type" in subclause 15.1.3.2
Distlist	ObservedEvent descriptor	As for the ObservedEventDescriptor parameter "Distant TFO List" in subclause 15.1.3.2
On/Off ~~/ value~~	Local control	As for the property "Echo cancelling" in subclause E.13.1 in ITU-T Recommendation H.248 [10]
Error	Error descriptor	As defined in the subclause "Command error code" in ITU-T Recommendation H.248 [10]
Bearer Modification Support	EventDescriptor	As for the EventsDescriptor in "Bearer Modification Support" in subclause 15.1.4.2.
Bearer modification possible	ObservedEvent descriptor	As for the ObserverdEventDescriptor in “Bearer Modification Support” in subclause 15.1.4.2.
Bitrate	Local control	As for the property" Bitrate" in subclause 15.1.7.1

Table 1: Additional parameters required

Next modified Section

14.2.17 Activate Voice Processing Function

When the procedure "Activate Voice Processing Function" (VPF) is required the following procedure is initiated:

The MGC sends an ADD.req, MOD.req or MOV.req command with the following information.

1 ADD.req/MOD.req/MOV.req (..., Activate Voice Processing Function) MGC to MGW

Address Information	Control information	Bearer information
	Transaction ID = z Context ID = c1 Termination ID = bearer1 VPF Type ActivateVPF "ec" = on/off ~~/ value~~	

3GPP TSG CN WG4 Meeting #24 **N4-041218**
Sophia-Antipolis, FRANCE, 16th – 20th AUGUST 2004

CR-Form-v7

CHANGE REQUEST

⌘ **29.232** **CR** **075** ⌘ **rev** **2** ⌘ Current version: **5.7.0** ⌘

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

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

Title:	⌘	3GUP package corrections		
Source:	⌘	CN4		
Work item code:	⌘	OoBTC	***Date:*** ⌘	16/08/2004
Category:	⌘	**A**	***Release:*** ⌘	Rel-5

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R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The 3GUP package does not clearly specify the MG behaviour with regard to the following points : - topology descriptor (one-way, both-way) impacts on UP control procedures - codec configuration impacts on UP control procedures - UP control procedures when adding a termination in a context in which it already exists another termination having completed its UP initialisation - Missing statements related to RFCI value correction - UP initialisation information remain unchanged when the termination is moved to another context - The initialisation direction of a termination may change in time - ESSENTIAL CORRECTION
Summary of change:	⌘	- A note is added with regards to Topolgy as a conclusion couldnot be made as to how this shall affect the UP control procedures, i.e shall they be independent of topology as for stream mode ? - The init direction OUT is clarified to mean that the MGW shall initiate an Init Frame without waiting for an external trigger or waiting to receive an Init on that termination. It does not preclude the re-use of RFCI values already used in that Context if the codec configuration is the same. - RFCI value correction shall not be triggered for a RAN outgoing termination whose UP initialisation negotiates the version 1 of UP support mode - RFCI value correction may be repeated in time when the RAN outgoing termination is through-connected to another incoming termination. - No RFCI value correction shall be made for a data call
Consequences if not approved:	⌘	- Unpredictable MGW behaviour with regard to UP control procedures - possible inter-working failures between Server and MGW of different vendors

Clauses affected:	⌘	15.1.1			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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15.1.1 3GUP package.

PackageID: threegup (0x002f)

Version: 1

Extends: None

This package identifies that the User Plane package is used for the termination. It also contains some parameters for the User Plane functions in the MGW.

The UP Protocol operates independently of the stream mode property~~,~~ i.e. type 14 UP PDUs (which are used for inband UP signalling) can be transported between UP peers, irrespective of the stream mode direction. However, other types of UP PDUs shall be handled according to the stream mode property.

15.1.1.1 Properties

UP Mode of operation:

PropertyID: mode (0x0001).

Description: Defines the mode of operation of the User Plane functions , for further definitions see 3GPP TS 25.415 [4] and 29.415 [8].

Type: Enumeration.

Possible Values:

- "Trans" (0x0001) Transparent mode.
- "Supp" (0x0002) Support mode for predefined SDU sizes.

Default: "Trans" (0x0001) Transparent mode.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

UP versions:

PropertyID: upversions (0x0002).

Description: Defines the required versions of the UP mode of operation.

Type: Sub-list of enumeration.

Possible Values:

- "1" (0x01) Version 1.
- "2" (0x02) Version 2.
- "3" (0x03) Version 3.
- "4" (0x04) Version 4.
- "5" (0x05) Version 5.
- "6" (0x06) Version 6.
- "7" (0x07) Version 7.
- "8" (0x08) Version 8.
- "9" (0x09) Version 9.
- "10" (0x0A) Version 10.

- "11" (0x0B) Version 11.
- "12" (0x0C) Version 12.
- "13" (0x0D) Version 13.
- "14" (0x0E) Version 14.
- "15" (0x0F) Version 15.
- "16" (0x10) Version 16.
- Default: "1" (0x01) Version 1.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

Delivery of erroneous SDUs:

PropertyID: delerrsdu (0x0003).

Description: Indicates how erroneous SDUs should be handled. If it is set to YES then the UP entity implements error checking and sets Frame Quality Classification (FQC) bits accordingly; bad frames are delivered to the UP layer. If it is set to NO then the UP entity performs error checking and if a bad frame is detected then it is discarded. These settings are required only when the payload is to be examined by upper layer services; an MGW may ignore the settings of this parameter if it passes frames transparently through the UP entities. If it is set to NA then no checking is performed.

Type: Enumeration.

Possible Values:

- "Yes" (0x0001) Yes.
- "No" (0x0002) No.
- "NA" (0x0003) Not Applicable.

Default: "NA" (0x0003) Not Applicable.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

Interface:

PropertyID: interface (0x0004).

Description: Indicates the type of interface on which the termination is used.

Type: Enumeration.

Possible Values:

- "RAN" (0x0001) Iu interface.
- "CN" (0x0002) Nb interface.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

Initialisation Direction:

PropertyID: initdir (0x0005).

Description: Indicates whether or not the termination in the MGW should expect initialisation information, or initiate UP initialisation itself.

For a termination with property "interface = CN":

- If Initialisation Direction is set to Incoming then the MGW shall expect to receive an initialisation either at this termination or from an other Nb or Iu termination in the same context.
- If Initialisation Direction is set to outgoing, then the MGW shall ~~generate~~send out ~~-~~an initialisation procedure ~~at~~from ~~-~~this termination. If ~~independently of the~~ another termination in the same context is initialised with the same codec type and configuration the MGW should re-use the RFCI values for its Initialisation PDU, otherwise it must assign its own values.

For a termination with property "interface = ~~Iu~~RAN":

- If Initialisation Direction is set to "incoming", then the initialisation received at this termination is from the originating RAN and can be forwarded internally to other terminations for subsequent UP initialisations.
- If Initialisation Direction is set to "outgoing", then initialisations received are from the terminating RAN and cannot be forwarded internally. RFCI value correction can be performed at this termination, and initialisations can be sent out to the RAN.

Examples for the usage of this property are given in annex B.

Type: Enumeration.

Possible Values:

- "In" (0x0001) Incoming.
- "Out" (0x0002) Outgoing.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

15.1.1.2 Events

None.

15.1.1.3 Signals

None.

15.1.1.4 Statistics

None.

15.1.1.5 Procedures

The MGC uses this package to indicate to the MGW that the Iu (or Nb) User Plane is used between the RNC (or distant MGW) and the MGW. The package is sent in the Establish bearer, Modify Bearer Characteristics and Prepare bearer procedures. For more information on the User Plane and for a description of ' UP mode of operation', 'UP versions' and 'Delivery of erroneous SDUs' see 3GPP TS 25.415 [4].

The following procedures are valid for UP in Support Mode:

- The MGW shall be able to initiate and respond to the UP control procedures (PDU type 14 frames) independently of the Stream Mode during the call establishment phase, i.e. when not in TrFO.

- Otherwise, during TrFO the MGW shall be able to forward UP control procedures (PDU type 14 frames) received at one termination to the other termination.

- The UP Initialisation procedure is always acknowledged between MGW peers. If an MGW receives a request for a notification for the bearer establishment then the MGW shall not send the notification until after it has either sent or received the acknowledgement for the UP initialisation.

- The MGW shall always store RFCI parameters against the MGW termination that received or that sent the UP initialisation.

- If an MGW has the UP termination property Initialisation Direction = Incoming then it expects to either receive an Initialisation (externally) or after receiving initialisation information internally send an initialisation (externally), based on what occurs first.

- If an MGW has UP termination property Initialisation Direction = Outgoing and interface CN, then it generates a network originated Initialisation PDU. If another termination in the same context is initialised with the same codec type and configuration the MGW should re-use the RFCI values for its Initialisation PDU, otherwise it must assign its own values. The initialisation information sent by the MGW depends on the service that the bearer supports. For CSD service see 3GPP TS 29.007 [6] chapter 11.5. For speech service see 3GPP TS 26.102 [26] chapter 8.

- If an MGW has UP termination property Initialisation Direction = Outgoing and interface RAN, then it expects to receive an Initialisation externally. It shall not pass the initialisation parameters internally. It may initiate RFCI Value Correction out from this termination.

- A CN incoming or outgoing termination having already completed its UP initialisation towards a peer MGW shall not send externally any new UP initialisation except if a reserve / modify characteristic procedure occured on that termination since the last initialisation.

- RAN Outgoing termination may perform, during its lifetime, subsequent RFCI Value corrections, e.g. due to changes of RFCIs on other terminations.

- If an MGW has two terminations in the same context defined as supporting the UP package and with Initialisation Direction incoming, then when it receives an Initialisation procedure from one side (provided the bearer connection from the other termination to its peer MGW is established) it shall start the UP initialisation procedure towards the peer MGW. The MGW shall perform this procedure independently of the through-connection of the terminations in the context. The MGW shall relay control information from the first initialisation to the UP peer for use at the subsequent initialisation. Also, subsequent control procedures received on one UP shall be relayed to the other UP entity when the two UP entities are connected within the MGW. This behaviour is described in more detail in Annex A.

- When adding a new CN incoming termination to a context that has already a RAN or CN incoming termination, if the existing termination has already completed its UP initialisation, the MGW shall not start an initialisation procedure on the new termination based on the control information already stored at the initialised incoming termination in the context.

-

- If an MGW has one termination with properties "interface = ~~Iu~~RAN" and "initialisation direction = outgoing" and another termination with property "initialisation direction = Incoming" in the same context, then the MGW shall not forward the UP initialisation from the Incoming termination until it has received a UP initialisation at the "~~Iu~~RAN"/"outgoing" side. If the codec type and codec modes configured on both terminations are identical, and if the RFCI values stored at the "incoming" termination do not match the RFCI values stored at the "outgoing" ~~Iu~~RAN side then "RFCI Value Correction" may be performed to the "outgoing" ~~Iu~~RAN side: The MGW starts UP initialisation with the RFCI values 'relayed' from the "Incoming" side. No "RFCI Value Correction" is permitted at an outgoing RAN termination whose Iu initialisation negotiates the version 1 of the support mode, at an "incoming" Iu termination or at any Nb termination.

- If a new RAN outgoing termination is added to a context that has already a RAN incoming or CN incoming termination, and if the existing termination has already completed its UP initialisation, the MGW may carry out a RFCI value correction on the new RAN outgoing termination., The control information to be used for the RFCI value correction shall be relayed from the initialised incoming termination in the context. ~~. The sending internally of initialisation information shall be made each time there is added a new outgoing termination with properties "interface=Iu" and "initialisation direction=outgoing" (in order to support SRNS relocation)~~.

- No RFCI value correction shall be triggered for data call.

- As an implementation option, "RFCI Value Correction" may be delayed if terminations are not through-connected; it will be triggered by connection modification. Otherwise it shall be performed immediately

- If "RFCI Value Correction" is not performed the MGW shall map the indexes for frames from one side to the RFCI indexes for frames from the other side. This behaviour is described in more detail in Annex A.

- If an MGW has two ~~Iu~~RAN terminations connected to the same context then the "RFCI Value Correction" is performed by the Outgoing termination.

- If an MGW has two terminations which support the UP package connected to the same context and both RFCI sets match then the MGW may pass frames transparently through the UP entities; no monitoring of the frames is performed, provided that the terminations are through-connected. This behaviour is described further in Annex A.

- If the MGW is passing frames transparently, no UP monitoring is performed. When the MGW receives an H.248 procedure request which requires interpretation or interaction with the UP, then it shall resume its UP protocol responsibilities, i.e. perform monitoring or termination of the UP protocol.

- If an MGW sends an FP UP initialization message from a termination, the MGW shall only offer versions of the FP UP, which are given in the property "UP versions" of this termination and which are supported by the MGW for this termination.

- If an MGW receives an FP UP initialization message at a termination, the MGW shall only positively acknowledge this initialization message, if versions of the FP UP are offered, which are given in the property "UP versions" and which are supported at the MGW for this termination. In the positive FP UP initialization acknowledge message, the MGW shall select one of these versions. If none of these versions are offered in the FP UP initialization message, the MGW shall send a negative FP UP acknowledge message and it shall not forward the initialization to a possible second FP UP termination in the same context.

- If PCM is used on the Nb then FP UP initialization shall be performed by the termination with property "Outgoing". If the termination property is "Incoming" then it shall receive the RFCI's from its IuFP peer (or from internal MGW termination with IuFP and same codec). If IuFP is defined on another termination in the MGW but the codec is different, i.e. not TrFO then the relaying of RFCI's shall not be performed. These IuFP peer connection shall be seen as completely separate.

- the UP initialisation information attached to a termination (RFCI values, codec type and mode(s), UP initialisation completed or not) are kept unchanged when the termination is moved to a new context.

- the initialisation direction may be changed during the lifetime of a termination ; upon such a change, the MGW shall apply the behaviour attached to the new initialisation direction.

The procedures for a termination configured in UP Transparent Mode are those described in 3GPP TS 25.415 [4].

3GPP TSG CN WG4 Meeting #24 **N4-041219**
Sophia-Antipolis, FRANCE, 16th – 20th AUGUST 2004

CR-Form-v7

CHANGE REQUEST

⌘ **29.232** **CR** **076** ⌘ **rev** **1** ⌘ Current version: **4.8.0** ⌘

*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 ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	3GUP package corrections
Source:	⌘	CN4
Work item code:	⌘	OoBTC
Date:	⌘	16/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-4

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

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

Reason for change: ⌘ The 3GUP package does not clearly specify the MG behaviour with regard to the following points :
- topology descriptor (one-way, both-way) impacts on UP control procedures
- codec configuration impacts on UP control procedures
- UP control procedures when adding a termination in a context in which it already exists another termination having completed its UP initialisation
- Missing statements related to RFCI value correction
- UP initialisation information remain unchanged when the termination is moved to another context
- The initialisation direction of a termination may change in time
- ESSENTIAL CORRECTION

Summary of change: ⌘
- A note is added with regards to Topolgy as a conclusion couldnot be made as to how this shall affect the UP control procedures, i.e shall they be independent of topology as for stream mode ?
- The init direction OUT is clarified to mean that the MGW shall initiate an Init Frame without waiting for an external trigger or waiting to receive an Init on that termination. It does not preclude the re-use of RFCI values already used in that Context if the codec configuration is the same.
- RFCI value correction shall not be triggered for a RAN outgoing termination whose UP initialisation negotiates the version 1 of UP support mode
- RFCI value correction may be repeated in time when the RAN outgoing termination is through-connected to another incoming termination.
- No RFCI value correction shall be made for a data call

Consequences if not approved: ⌘
- Unpredictable MGW behaviour with regard to UP control procedures
- possible inter-working failures between Server and MGW of different vendors

Clauses affected:	⌘	15.1.1			
		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.

15.1.1 3GUP package.

PackageID: threegup (0x002f)

Version: 1

Extends: None

This package identifies that the User Plane package is used for the termination. It also contains some parameters for the User Plane functions in the MGW.

The UP Protocol operates independently of the stream mode property~~,~~ i.e. type 14 UP PDUs (which are used for inband UP signalling) can be transported between UP peers, irrespective of the stream mode direction. However, other types of UP PDUs shall be handled according to the stream mode property.

15.1.1.1 Properties

UP Mode of operation:

PropertyID: mode (0x0001).

Description: Defines the mode of operation of the User Plane functions , for further definitions see 3GPP TS 25.415 [4] and 29.415 [8].

Type: Enumeration.

Possible Values:

- "Trans" (0x0001) Transparent mode.
- "Supp" (0x0002) Support mode for predefined SDU sizes.

Default: "Trans" (0x0001) Transparent mode.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

UP versions:

PropertyID: upversions (0x0002).

Description: Defines the required versions of the UP mode of operation.

Type: Sub-list of enumeration.

Possible Values:

- "1" (0x01) Version 1.
- "2" (0x02) Version 2.
- "3" (0x03) Version 3.
- "4" (0x04) Version 4.
- "5" (0x05) Version 5.
- "6" (0x06) Version 6.
- "7" (0x07) Version 7.
- "8" (0x08) Version 8.
- "9" (0x09) Version 9.
- "10" (0x0A) Version 10.

- "11" (0x0B) Version 11.
- "12" (0x0C) Version 12.
- "13" (0x0D) Version 13.
- "14" (0x0E) Version 14.
- "15" (0x0F) Version 15.
- "16" (0x10) Version 16.
- Default: "1" (0x01) Version 1.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

Delivery of erroneous SDUs:

PropertyID: delerrsdu (0x0003).

Description: Indicates how erroneous SDUs should be handled. If it is set to YES then the UP entity implements error checking and sets Frame Quality Classification (FQC) bits accordingly; bad frames are delivered to the UP layer. If it is set to NO then the UP entity performs error checking and if a bad frame is detected then it is discarded. These settings are required only when the payload is to be examined by upper layer services; an MGW may ignore the settings of this parameter if it passes frames transparently through the UP entities. If it is set to NA then no checking is performed.

Type: Enumeration.

Possible Values:

- "Yes" (0x0001) Yes.
- "No" (0x0002) No.
- "NA" (0x0003) Not Applicable.

Default: "NA" (0x0003) Not Applicable.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

Interface:

PropertyID: interface (0x0004).

Description: Indicates the type of interface on which the termination is used.

Type: Enumeration.

Possible Values:

- "RAN" (0x0001) Iu interface.
- "CN" (0x0002) Nb interface.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

Initialisation Direction:

PropertyID: initdir (0x0005).

Description: Indicates whether or not the termination in the MGW should expect initialisation information, or initiate UP initialisation itself.

For a termination with property "interface = CN":

- If Initialisation Direction is set to Incoming then the MGW shall expect to receive an initialisation either at this termination or from an other Nb or Iu termination in the same context.
- If Initialisation Direction is set to outgoing, then the MGW shall ~~generate~~send out ~~-~~an initialisation procedure ~~at~~from ~~-~~this termination. If ~~independently of the~~ another termination in the same context is initialised with the same codec type and configuration the MGW should re-use the RFCI values for its Initialisation PDU, otherwise it must assign its own values.

For a termination with property "interface = ~~Iu~~RAN":

- If Initialisation Direction is set to "incoming", then the initialisation received at this termination is from the originating RAN and can be forwarded internally to other terminations for subsequent UP initialisations.
- If Initialisation Direction is set to "outgoing", then initialisations received are from the terminating RAN and cannot be forwarded internally. RFCI value correction can be performed at this termination, and initialisations can be sent out to the RAN.

Examples for the usage of this property are given in annex B.

Type: Enumeration.

Possible Values:

- "In" (0x0001) Incoming.
- "Out" (0x0002) Outgoing.

Defined in: Local Control descriptor.

Characteristics: Read/Write.

15.1.1.2 Events

None.

15.1.1.3 Signals

None.

15.1.1.4 Statistics

None.

15.1.1.5 Procedures

The MGC uses this package to indicate to the MGW that the Iu (or Nb) User Plane is used between the RNC (or distant MGW) and the MGW. The package is sent in the Establish bearer, Modify Bearer Characteristics and Prepare bearer procedures. For more information on the User Plane and for a description of ' UP mode of operation', 'UP versions' and 'Delivery of erroneous SDUs' see 3GPP TS 25.415 [4].

The following procedures are valid for UP in Support Mode:

- The MGW shall be able to initiate and respond to the UP control procedures (PDU type 14 frames) independently of the Stream Mode during the call establishment phase, i.e. when not in TrFO.

- Otherwise, during TrFO the MGW shall be able to forward UP control procedures (PDU type 14 frames) received at one termination to the other termination.

- The UP Initialisation procedure is always acknowledged between MGW peers. If an MGW receives a request for a notification for the bearer establishment then the MGW shall not send the notification until after it has either sent or received the acknowledgement for the UP initialisation.

- The MGW shall always store RFCI parameters against the MGW termination that received or that sent the UP initialisation.

- If an MGW has the UP termination property Initialisation Direction = Incoming then it expects to either receive an Initialisation (externally) or after receiving initialisation information internally send an initialisation (externally), based on what occurs first.

- If an MGW has UP termination property Initialisation Direction = Outgoing and interface CN, then it generates a network originated Initialisation PDU. If another termination in the same context is initialised with the same codec type and configuration the MGW should re-use the RFCI values for its Initialisation PDU, otherwise it must assign its own values. The initialisation information sent by the MGW depends on the service that the bearer supports. For CSD service see 3GPP TS 29.007 [6] chapter 11.5. For speech service see 3GPP TS 26.102 [26] chapter 8.

- If an MGW has UP termination property Initialisation Direction = Outgoing and interface RAN, then it expects to receive an Initialisation externally. It shall not pass the initialisation parameters internally. It may initiate RFCI Value Correction out from this termination.

- A CN incoming or outgoing termination having already completed its UP initialisation towards a peer MGW shall not send externally any new UP initialisation except if a reserve / modify characteristic procedure occured on that termination since the last initialisation.

- RAN Outgoing termination may perform, during its lifetime, subsequent RFCI Value corrections, e.g. due to changes of RFCIs on other terminations.

- If an MGW has two terminations in the same context defined as supporting the UP package and with Initialisation Direction incoming, then when it receives an Initialisation procedure from one side (provided the bearer connection from the other termination to its peer MGW is established) it shall start the UP initialisation procedure towards the peer MGW. The MGW shall perform this procedure independently of the through-connection of the terminations in the context. The MGW shall relay control information from the first initialisation to the UP peer for use at the subsequent initialisation. Also, subsequent control procedures received on one UP shall be relayed to the other UP entity when the two UP entities are connected within the MGW. This behaviour is described in more detail in Annex A.

- When adding a new CN incoming termination to a context that has already a RAN or CN incoming termination, if the existing termination has already completed its UP initialisation, the MGW shall not start an initialisation procedure on the new termination based on the control information already stored at the initialised incoming termination in the context.

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- If an MGW has one termination with properties "interface = ~~Iu~~RAN" and "initialisation direction = outgoing" and another termination with property "initialisation direction = Incoming" in the same context, then the MGW shall not forward the UP initialisation from the Incoming termination until it has received a UP initialisation at the "~~Iu~~RAN"/"outgoing" side. If the codec type and codec modes configured on both terminations are identical, and if the RFCI values stored at the "incoming" termination do not match the RFCI values stored at the "outgoing" ~~Iu~~RAN side then "RFCI Value Correction" may be performed to the "outgoing" ~~Iu~~RAN side: The MGW starts UP initialisation with the RFCI values 'relayed' from the "Incoming" side. No "RFCI Value Correction" is permitted at an outgoing RAN termination whose Iu initialisation negotiates the version 1 of the support mode, at an "incoming" Iu termination or at any Nb termination.

- If a new RAN outgoing termination is added to a context that has already a RAN incoming or CN incoming termination, and if the existing termination has already completed its UP initialisation, the MGW may carry out a RFCI value correction on the new RAN outgoing termination., The control information to be used for the RFCI value correction shall be relayed from the initialised incoming termination in the context. ~~. The sending internally of initialisation information shall be made each time there is added a new outgoing termination with properties "interface=Iu" and "initialisation direction=outgoing" (in order to support SRNS relocation)~~.

- No RFCI value correction shall be triggered for data call.

- As an implementation option, "RFCI Value Correction" may be delayed if terminations are not through-connected; it will be triggered by connection modification. Otherwise it shall be performed immediately

- If "RFCI Value Correction" is not performed the MGW shall map the indexes for frames from one side to the RFCI indexes for frames from the other side. This behaviour is described in more detail in Annex A.

- If an MGW has two ~~Iu~~RAN terminations connected to the same context then the "RFCI Value Correction" is performed by the Outgoing termination.

- If an MGW has two terminations which support the UP package connected to the same context and both RFCI sets match then the MGW may pass frames transparently through the UP entities; no monitoring of the frames is performed, provided that the terminations are through-connected. This behaviour is described further in Annex A.

- If the MGW is passing frames transparently, no UP monitoring is performed. When the MGW receives an H.248 procedure request which requires interpretation or interaction with the UP, then it shall resume its UP protocol responsibilities, i.e. perform monitoring or termination of the UP protocol.

- If an MGW sends an FP UP initialization message from a termination, the MGW shall only offer versions of the FP UP, which are given in the property "UP versions" of this termination and which are supported by the MGW for this termination.

- If an MGW receives an FP UP initialization message at a termination, the MGW shall only positively acknowledge this initialization message, if versions of the FP UP are offered, which are given in the property "UP versions" and which are supported at the MGW for this termination. In the positive FP UP initialization acknowledge message, the MGW shall select one of these versions. If none of these versions are offered in the FP UP initialization message, the MGW shall send a negative FP UP acknowledge message and it shall not forward the initialization to a possible second FP UP termination in the same context.

- If PCM is used on the Nb then FP UP initialization shall be performed by the termination with property "Outgoing". If the termination property is "Incoming" then it shall receive the RFCI's from its IuFP peer (or from internal MGW termination with IuFP and same codec). If IuFP is defined on another termination in the MGW but the codec is different, i.e. not TrFO then the relaying of RFCI's shall not be performed. These IuFP peer connection shall be seen as completely separate.

- the UP initialisation information attached to a termination (RFCI values, codec type and mode(s), UP initialisation completed or not) are kept unchanged when the termination is moved to a new context.

- the initialisation direction may be changed during the lifetime of a termination ; upon such a change, the MGW shall apply the behaviour attached to the new initialisation direction.

The procedures for a termination configured in UP Transparent Mode are those described in 3GPP TS 25.415 [4].