Technical Specification Group Services and System Aspects *TSGS#18(02)0772*

Meeting #18, New Orleans, U.S.A., 9-12 December 2002

Source: **TSG SA WG2**
Title: **CRs on 23.107**
Agenda Item: **7.2.3**

The following Change Requests (CRs) have been approved by TSG SA WG2 and are requested to be approved by TSG SA plenary #18.
Note: the source of all these CRs is now S2, even if the name of the originating company(ies) is still reflected on the cover page of all the attached CRs.

Tdoc #	Title	Spec	CR #	cat	Version in	REL	WI	S2 meeting
S2-023653	Highest Value for Bitrates	23.107	130rev1	F	4.5.0	4	TEI4	S2-28
S2-023447	Highest Value for Bitrates	23.107	131	A	5.6.0	5	TEI5	S2-28
S2-023386	Removal of unclear statements in 23.107 about the way to handle end-user Differentiated or Integrated services	23.107	127	F	5.6.0	5	TEI5	S2-28

CR-Form-v7

CHANGE REQUEST

| ⌘ | **23.107** CR | **127** | ⌘ rev | **-** | ⌘ | Current version: | **5.6.0** | ⌘ |

*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: ⌘	Removal of unclear statements in 23.107 about the way to handle end-user Differentiated or Integrated services	
Source: ⌘	Alcatel	
Work item code: ⌘	TEI5	**Date:** ⌘ 06/11/2002
Category: ⌘ **F**		**Release:** ⌘ Rel-5

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)
Rel-6 (Release 6)

Reason for change: ⌘	Current wording of section 9.4 tries to deal with mapping between applicative QoS (QoS as seen by the application on the UE) onto UMTS QoS. It corresponds to the early days of R99 when 23.207 did not exist. Some sentences in this section are misleading and should be replaced by a reference to 23.207. Such sentences "RSVP support would require flow establishment, and possibly aggregation of flows, within the UMTS packet core network. Differentiated services would require that there is either one QoS profile for each traffic type or alternatively the priority and traffic type information is included in the data packets." may make the reader think that an indication of UMTS traffic class (+ traffic handling priority) is appended to each packet sent on UMTS/GPRS bearer.
Summary of change: ⌘	Remove unclear statements and replace them by a reference to 23.207
Consequences if not approved: ⌘	People may understand that an UMTS traffic type is included within each packet handled by the UMTS-GPRS bearer.

Clauses affected: ⌘	9.4

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

Other comments: ⌘	Theoritically equivalent Cat A CR should have been written onto previous versions, but as this modification is editorial this has not been done.

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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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

For a specific reference, subsequent revisions do not apply.

For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TS 23.110: "UMTS Access Stratum - Services and Functions".

[2]   3GPP TS 22.100: " UMTS Phase 1".

[3]   3GPP TS 23.121: " Architectural Requirements for Release 1999".

[4]   (Void)

[5]   3GPP TS 22.105: "Services & Service capabilities".

[6]   3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core Network Protocols – Stage 3"

[7]   3GPP TS 23.207: "End-to-end QoS concept and architecture"

9.4 UMTS-Internet

In the case of Internet applications, the selection of the class and appropriate traffic attribute values is made according to the Internet QoS attributes. Internet applications do not directly use the services of UMTS but they use Internet QoS definitions and attributes, which are mapped to UMTS QoS attributes at API. Currently there are two main Internet QoS concepts, namely Integrated Services and Differentiated Services. The mapping between Internet QoS and UMTS QoS is presented in following clauses.

IP based QoS models shall be supported for PDP contexts, meaning both Integrated Services (IntServ) signalled by RSVP [RFC2205] and Differentiated Services (6-bit QoS attribute on each IP packet, DiffServ). Both mechanisms are controlled by applications residing in the TE, allowing different application specific QoS levels for the same PDP context. The way application level QoS and UMTS level QoS interact is detailed in 23.207 [7]. Application level IP based QoS shall be mapped to UMTS packet core QoS by a network element at the border of the network, such as the 3G gateway node. RSVP support would require flow establishment, and possibly aggregation of flows, within the UMTS packet core network. Differentiated services would require that there is either one QoS profile for each traffic type or alternatively the priority and traffic type information is included in the data packets.

NOTE: The details are to be solved by CN WG3.

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CHANGE REQUEST

| ⌘ | **23.107** CR | **130** | ⌘ **rev** | **1** | ⌘ | Current version: | **4.5.0** | ⌘ |

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

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

Title:	⌘	Highest Value for Bitrates

Source:	⌘	Siemens AG

Work item code:	⌘	TEI4		*Date:* ⌘	06/11/2002

Category:	⌘	**F**		*Release:* ⌘	Rel-4

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)*
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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)*
   Rel-6 *(Release 6)*

Reason for change: ⌘	The tables of the UMTS BS and Radio Access Bearer Service specify the value range of the Maximum and Guaranteed bitrate as lower than 2.048 kbit/s. The SGSN performs a check of the requested QoS against the values defined by these tables. Consequently, a value of 2.048 kbit/s which is seen as possible bitrate at the moment would not be allowed by the SGSN.
	Furthermore, also the mapping rules from R97/98 to R99 attributes explicitly specifies the mapping of peak throughput class 9 to a Maximum bitrate of 2.048 kbit/s.
	Within TS 24.008 the encoding for the value of 2.048 kbit/s is specified, too.
	Therefore, we think the tables have to be corrected.

Summary of change: ⌘	The tables describing the value ranges for the UMTS BS and Radio Access Bearer Service attributes are updated to allow 2.048 kbit/s as highest possible value for the Maximum and the Guaranteed Bitrate.

Consequences if not approved:	⌘	A value of 2.048 kbit/s for the Maximum or the Guaranteed bitrate would not be possible. Furthermore, the mapping rules from R97/98 to R99 attributes would result in an invalid value for the peak throughput class 9.

Clauses affected:	⌘	6.5

		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.

Start of modified section

6.5 Attribute Value Ranges

For UMTS Bearer service and Radio Access Bearer services a list of finite attribute values or the allowed value range is defined for each attribute. The value list/value range define the values that are possible to be used for an attribute considering every possible service condition for release 1999. When a service is defined as a combination of attributes, further limitations may apply; for example the shortest possible delay may not be possible to use together with the lowest possible SDU error ratio. Service requirements, i.e. required QoS and performance for a given UMTS service is defined in the service requirement specifications (22.1xx). The aspect of future proof coding (beyond release 1999) of attributes in protocol specifications is not considered in the defined value list/value range tables.

6.5.1 Ranges of UMTS Bearer Service Attributes

The following table lists the value ranges of the UMTS bearer service attributes. The value ranges reflect the capability of UMTS network.

Table 4: Value ranges for UMTS Bearer Service Attributes

Traffic class	Conversational class	Streaming class	Interactive class	Background class
Maximum bitrate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 - overhead (2) (3)	$\leq$ 2 048 - overhead (2) (3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size (octets)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/- (6)	Yes/No/- (6)	Yes/No/- (6)	Yes/No/- (6)
Residual BER	$5*10^{-2}$, 10^{-2}, $5*10^{-3}$, 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6}	$5*10^{-2}$, 10^{-2}, $5*10^{-3}$, 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6}	$4*10^{-3}$, 10^{-5}, $6*10^{-8}$ (7)	$4*10^{-3}$, 10^{-5}, $6*10^{-8}$ (7)
SDU error ratio	10^{-2}, $7*10^{-3}$, 10^{-3}, 10^{-4}, 10^{-5}	10^{-1}, 10^{-2}, $7*10^{-3}$, 10^{-3}, 10^{-4}, 10^{-5}	10^{-3}, 10^{-4}, 10^{-6}	10^{-3}, 10^{-4}, 10^{-6}
Transfer delay (ms)	100 – maximum value	280 (8) – maximum value		
Guaranteed bit rate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)		
Traffic handling priority			1,2,3	
Allocation/Retention priority	1,2,3	1,2,3	1,2,3	1,2,3

1) Bitrate of 2 048 kbps requires that UTRAN operates in transparent RLC protocol mode, in this case the overhead from layer 2 protocols is negligible.

2) The granularity of the bit rate attributes shall be studied. Although the UMTS network has capability to support a large number of different bitrate values, the number of possible values shall be limited not to unnecessarily increase the complexity of for example terminals, charging and interworking functions. Exact list of supported values shall be defined together with S1, N1, N3 and R2.

3) Impact from layer 2 protocols on maximum bitrate in non-transparent RLC protocol mode shall be estimated.

4) In case of PDP type = PPP, maximum SDU size is 1502 octets. In other cases, maximum SDU size is 1 500 octets.

5) Definition of possible values of exact SDU sizes for which UTRAN can support transparent RLC protocol mode, is the task of RAN WG3.

6) If *Delivery of erroneous SDUs* is set to 'Yes' error indications can only be provided on the MT/TE side of the UMTS bearer. On the CN Gateway side error indications can not be signalled outside of UMTS network in release 1999.

7) Values are derived from CRC lengths of 8, 16 and 24 bits on layer 1.

8) If the UE requests a transfer delay value lower than the minimum value, this shall not cause the network (SGSN and GGSN) to reject the request from the UE. The network may negotiate the value for the transfer delay.

6.5.2   Ranges of Radio Access Bearer Service Attributes

The following table lists the value ranges of the radio access bearer service attributes. The value ranges reflect the capability of UTRAN.

Table 5: Value ranges for Radio Access Bearer Service Attributes

Traffic class	Conversational class	Streaming class	Interactive class	Background class
Maximum bitrate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 - overhead (2) (3)	$\leq$ 2 048 - overhead (2) (3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size (octets)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/-	Yes/No/-	Yes/No/-	Yes/No/-
Residual BER	$5*10^{-2}, 10^{-2}, 5*10^{-3}, 10^{-3}, 10^{-4}, 10^{-6}$	$5*10^{-2}, 10^{-2}, 5*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6}$	$4*10^{-3}, 10^{-5}, 6*10^{-8}$ (6)	$4*10^{-3}, 10^{-5}, 6*10^{-8}$ (6)
SDU error ratio	$10^{-2}, 7*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}$	$10^{-1}, 10^{-2}, 7*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}$	$10^{-3}, 10^{-4}, 10^{-6}$	$10^{-3}, 10^{-4}, 10^{-6}$
Transfer delay (ms)	80 – maximum value	250 – maximum value		
Guaranteed bit rate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)		
Traffic handling priority			1,2,3	
Allocation/Retention priority	1,2,3	1,2,3	1,2,3	1,2,3
Source statistic descriptor	Speech/unknown	Speech/unknown		

1) Bitrate of 2 048 kbps requires that UTRAN operates in transparent RLC protocol mode, in this case the overhead from layer 2 protocols is negligible.

2) The granularity of the bit rate attributes shall be studied. Although the UMTS network has capability to support a large number of different bitrate values, the number of possible values shall be limited not to unnecessarily increase the complexity of for example terminals, charging and interworking functions. Exact list of supported values shall be defined together with S1, N1, N3 and R2.

3) Impact from layer 2 protocols on maximum bitrate in non-transparent RLC protocol mode shall be estimated.

4) In case of PDP type = PPP, maximum SDU size is 1502 octets. In other cases, maximum SDU size is 1 500 octets.

5) Definition of possible values of exact SDU sizes for which UTRAN can support transparent RLC protocol mode, is the task of RAN WG3.

6)   Values are derived from CRC lengths of 8, 16 and 24 bits on layer 1.

End of modified section

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CHANGE REQUEST

⌘	**23.107** CR	**131**	⌘ rev	**-**	⌘	Current version:	**5.6.0**	⌘

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 **X**

Title: ⌘	Highest Value for Bitrates	
Source: ⌘	Siemens AG	
Work item code: ⌘	TEI5	**Date:** ⌘ 06/11/2002

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

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Reason for change: ⌘	The tables of the UMTS BS and Radio Access Bearer Service specify the value range of the Maximum and Guaranteed bitrate as lower than 2.048 kbit/s. The SGSN performs a check of the requested QoS against the values defined by these tables. Consequently, a value of 2.048 kbit/s which is seen as possible bitrate at the moment would not be allowed by the SGSN.
	Furthermore, also the mapping rules from R97/98 to R99 attributes explicitly specifies the mapping of peak throughput class 9 to a Maximum bitrate of 2.048 kbit/s.
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Consequences if not approved: ⌘	A value of 2.048 kbit/s for the Maximum or the Guaranteed bitrate would not be possible. Furthermore, the mapping rules from R97/98 to R99 attributes would result in an invalid value for the peak throughput class 9.

Clauses affected: ⌘	6.5

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

Other comments: ⌘	

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For UMTS Bearer service and Radio Access Bearer services a list of finite attribute values or the allowed value range is defined for each attribute. The value list/value range defines the values that are possible to be used for an attribute considering every possible service condition for release 1999. When a service is defined as a combination of attributes, further limitations may apply; for example the shortest possible delay may not be possible to use together with the lowest possible SDU error ratio. Service requirements, i.e. required QoS and performance for a given UMTS service is defined in the service requirement specifications 3GPP TS 22.105[5]. The aspect of future proof coding (beyond release 1999) of attributes in protocol specifications is not considered in the defined value list/value range tables.

6.5.1 Ranges of UMTS Bearer Service Attributes

The following table lists the value ranges of the UMTS bearer service attributes. The value ranges reflect the capability of UMTS network.

Table 4: Value ranges for UMTS Bearer Service Attributes

Traffic class	Conversational class	Streaming class	Interactive class	Background class
Maximum bitrate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 - overhead (2) (3)	$\leq$ 2 048 - overhead (2) (3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size (octets)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/- (6)	Yes/No/- (6)	Yes/No/- (6)	Yes/No/- (6)
Residual BER	$5*10^{-2}, 10^{-2}, 5*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6}$	$5*10^{-2}, 10^{-2}, 5*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6}$	$4*10^{-3}, 10^{-5}, 6*10^{-8}$ (7)	$4*10^{-3}, 10^{-5}, 6*10^{-8}$ (7)
SDU error ratio	$10^{-2}, 7*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}$	$10^{-1}, 10^{-2}, 7*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}$	$10^{-3}, 10^{-4}, 10^{-6}$	$10^{-3}, 10^{-4}, 10^{-6}$
Transfer delay (ms)	100 – maximum value	280 (8) – maximum value		
Guaranteed bit rate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)		
Traffic handling priority			1,2,3	
Allocation/Retention priority	1,2,3	1,2,3	1,2,3	1,2,3
Source statistic descriptor	Speech/unknown	Speech/unknown		

1) Bitrate of 2 048 kbps requires that UTRAN operates in transparent RLC protocol mode, in this case the overhead from layer 2 protocols is negligible.

2) The granularity of the bit rate attributes shall be studied. Although the UMTS network has capability to support a large number of different bitrate values, the number of possible values shall be limited not to unnecessarily increase the complexity of for example terminals, charging and interworking functions. Exact list of supported values shall be defined together with S1, N1, N3 and R2.

3) Impact from layer 2 protocols on maximum bitrate in non-transparent RLC protocol mode shall be estimated.

4) In case of PDP type = PPP, maximum SDU size is 1502 octets. In other cases, maximum SDU size is 1 500 octets.

5) Definition of possible values of exact SDU sizes for which UTRAN can support transparent RLC protocol mode, is the task of RAN WG3.

6) If *Delivery of erroneous SDUs* is set to 'Yes' error indications can only be provided on the MT/TE side of the UMTS bearer. On the CN Gateway side error indications can not be signalled outside of UMTS network in release 1999.

7) Values are derived from CRC lengths of 8, 16 and 24 bits on layer 1.

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6.5.2   Ranges of Radio Access Bearer Service Attributes

The following table lists the value ranges of the radio access bearer service attributes. The value ranges reflect the capability of UTRAN.

Table 5: Value ranges for Radio Access Bearer Service Attributes

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Maximum bitrate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 - overhead (2) (3)	$\leq$ 2 048 - overhead (2) (3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size (octets)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)	<=1 500 or 1 502 (4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/-	Yes/No/-	Yes/No/-	Yes/No/-
Residual BER	$5*10^{-2}, 10^{-2}, 5*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6}$	$5*10^{-2}, 10^{-2}, 5*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6}$	$4*10^{-3}, 10^{-5}, 6*10^{-8}$ (6)	$4*10^{-3}, 10^{-5}, 6*10^{-8}$ (6)
SDU error ratio	$10^{-2}, 7*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}$	$10^{-1}, 10^{-2}, 7*10^{-3}, 10^{-3}, 10^{-4}, 10^{-5}$	$10^{-3}, 10^{-4}, 10^{-6}$	$10^{-3}, 10^{-4}, 10^{-6}$
Transfer delay (ms)	80 – maximum value	250 – maximum value		
Guaranteed bit rate (kbps)	$\leq$ 2 048 (1) (2)	$\leq$ 2 048 (1) (2)		
Traffic handling priority			1,2,3	
Allocation/Retention priority	1,2,3	1,2,3	1,2,3	1,2,3
Source statistic descriptor	Speech/unknown	Speech/unknown		

1) Bitrate of 2 048 kbps requires that UTRAN operates in transparent RLC protocol mode, in this case the overhead from layer 2 protocols is negligible.

2) The granularity of the bit rate attributes shall be studied. Although the UMTS network has capability to support a large number of different bitrate values, the number of possible values shall be limited not to unnecessarily increase the complexity of for example terminals, charging and interworking functions. Exact list of supported values shall be defined together with S1, N1, N3 and R2.

3) Impact from layer 2 protocols on maximum bitrate in non-transparent RLC protocol mode shall be estimated.

4) In case of PDP type = PPP, maximum SDU size is 1502 octets. In other cases, maximum SDU size is 1 500 octets.

5) Definition of possible values of exact SDU sizes for which UTRAN can support transparent RLC protocol mode, is the task of RAN WG3.

6) Values are derived from CRC lengths of 8, 16 and 24 bits on layer 1.

End of modified section