

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 #21.

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
S2-032688	Support the maximum bit rate for HSDPA	23.107	139r1	F	5.9.0	5	HSDPA	S2-33
S2-032690	Correction to RAB service attributes table	23.107	141r1	F	5.9.0	5	E2EQoS	S2-33
S2-032750	Priority of signaling PDP	23.107	142r2	F	5.9.0	5	TEI5	S2-33

CR-Form-v7

CHANGE REQUEST

⌘ **23.107 CR 139** ⌘ rev **1** ⌘ Current version: **5.9.0** ⌘

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:	⌘ Support the maximum bit rate for HSDPA		
Source:	⌘ NEC corporation		
Work item code:	⌘ HSDPA	Date:	⌘ 09/07/2003
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ According to the LS (S2-032334/R3-030912) from RAN-WG3, it was identified that the maximum bitrate in current Rel5 23.107 can not support the maximum bitrate of HSDPA, which is approximately 14.4 Mbps. SA-WG2 is asked to update the maximum bitrate to 16Mbps in their specifications from Rel5 onwards in particular, for all traffic classes for UMTS Bearer Service Attributes and Radio Access Bearer Service Attributes in TS 23.107 in order to align the maximum bitrate of HSDPA. This alignment issue for HSDPA was recognized at TSG-SA#20 and described in TSG-SA#20 draft report as follows: <i>Slide 15: HSDPA. It was noted that although this is complete, it may need to be checked for alignment with CN WG1 and SA WG2 (are changes needed for the QoS IE as HSPDA can theoretically operate at speeds higher than the Highest specified QoS Class?). This was considered true for a number of completed items and WGs were allowed to question such things on completed items.</i>
Summary of change:	⌘ The maximum bitrate and Guaranteed bit rate are modified to 16000kbps to support the maximum bitrate of HSDPA,
Consequences if not approved:	⌘ The maximum bitrate in current Rel5 23.107 can not support the maximum bitrate of HSDPA, which is approximately 14.4 Mbps.

Clauses affected:	⌘ subclause 6.5								
Other specs affected:	<table border="1"> <tr> <td>Y</td> <td>N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X	Other core specifications	⌘ 24.008, 25.424, 25.426, 25.434
Y	N								
X									
	X								
		Test specifications							

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.
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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 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 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)	$\leq 16\,000$ (1) (2)	$\leq 16\,000$ (1) (2)	$\leq 16\,000$ - overhead (2) (3)	$\leq 16\,000$ - overhead (2) (3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size (octets)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ 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	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (7)	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (7)
SDU error ratio	10^{-2} , $7 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5}	10^{-1} , 10^{-2} , $7 \cdot 10^{-3}$, 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)	$\leq 16\,000$ (1) (2)	$\leq 16\,000$ (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		
Signalling Indication			Yes/No	

- 1) ~~Void. Bitrate of 2-048 kbps requires that RAN 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 RAN 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 for UTRAN

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

Table 5: Value ranges for Radio Access Bearer Service Attributes for UTRAN

Traffic class	Conversational class	Streaming class	Interactive class	Background class
Maximum bitrate (kbps)	$\leq 16\,000$ (2)	$\leq 16\,000$ (2)	$\leq 16\,000$ - overhead (2) (3)	$\leq 16\,000$ - overhead (2) (3)
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size (octets)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/-	Yes/No/-	Yes/No/-	Yes/No/-
Residual BER	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (6)	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (6)
SDU error ratio	10^{-2} , $7 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5}	10^{-1} , 10^{-2} , $7 \cdot 10^{-3}$, 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)	$\leq 16\,000$ (2)	$\leq 16\,000$ (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		
Signalling Indication			Yes/No	

- 1) ~~Void. 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.

3GPP TSG-SA2 Meeting #33
Sophia Antipolis, France, 07-11 July 2003

Tdoc S2-032690

CR-Form-v7
<h2 style="margin: 0;">CHANGE REQUEST</h2>
⌘ 23.107 CR 141 ⌘ rev 1 ⌘ Current version: 5.9.0 ⌘

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 to RAB service attributes table
Source:	⌘	Nokia
Work item code:	⌘	E2EQoS
	Date:	⌘ 07/07/2003
Category:	⌘	F
		<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </div> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> </div> </div>

Reason for change:	⌘	TS 23.107 has been generalized to cover both GERAN and UTRAN radio access. The table specifying the RAB service attributes indicates to contain values for UTRAN only. However, this table describes the values for both GERAN and UTRAN.
Summary of change:	⌘	It is now clarified that the table refers to both UTRAN and GERAN. Additionally, a note has been added to indicate the GERAN specific highest bitrate value.
Consequences if not approved:	⌘	The RAB service QoS parameter values for GERAN would remain unclear.

Clauses affected:	⌘	6.1.3, 6.5.2				
Other specs affected:	⌘	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">Y</td> <td style="padding: 2px 5px;">N</td> </tr> <tr> <td style="padding: 2px 5px;"><input type="checkbox"/></td> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N					
<input type="checkbox"/>	<input checked="" type="checkbox"/>					
		<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/></td> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/></td> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
		<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/></td> <td style="padding: 2px 5px;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Other comments:	⌘					

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***** First change *****

6.1.3 The Radio Bearer Service and the RAN Access Bearer Service

The Radio Access Bearer Service is realised by a Radio Bearer Service and an RAN Access -Bearer Service.

The Radio Bearer Service covers all the aspects of the radio interface transport. This bearer service is provided by the UTRAN FDD/TDD or the GERAN, which are not elaborated further in the present document.

To support unequal error protection, RAN and MT shall have the ability to segment/reassemble the user flows into the different subflows requested by the Radio Access Bearer Service. The segmentation/ reassemble is given by the SDU payload format signalled at Radio Access Bearer establishment. The Radio Bearer service handles the part of the user flow belonging to one subflow, according to the reliability requirements for that subflow.

The RAN Access Bearer Service together with the Physical Bearer Service provides the transport between RAN and CN. RAN Access bearer services for packet traffic shall provide different bearer services for variety of QoS. The RAN Access Bearer Service is provided by the Iu or the ~~A~~Gb Bearer Service.

***** Next change *****

6.5.2 Ranges of Radio Access Bearer Service Attributes for UTRAN and for GERAN

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

Table 5: Value ranges for Radio Access Bearer Service Attributes for UTRAN and for GERAN

Traffic class	Conversational class	Streaming class	Interactive class	Background class
Maximum bitrate (kbps)	$\leq 2\,048$ (1) (2) <u>(7)</u>	$\leq 2\,048$ (1) (2) <u>(7)</u>	$\leq 2\,048$ - overhead (2) (3) <u>(7)</u>	$\leq 2\,048$ - overhead (2) (3) <u>(7)</u>
Delivery order	Yes/No	Yes/No	Yes/No	Yes/No
Maximum SDU size (octets)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)
SDU format information	(5)	(5)		
Delivery of erroneous SDUs	Yes/No/-	Yes/No/-	Yes/No/-	Yes/No/-
Residual BER	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (6)	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (6)
SDU error ratio	10^{-2} , $7 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5}	10^{-1} , 10^{-2} , $7 \cdot 10^{-3}$, 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) <u>(7)</u>	$\leq 2\,048$ (1) (2) <u>(7)</u>		
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		
Signalling Indication			Yes/No	

- 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.
- 7) [In case of GERAN the highest bitrate value is 473.6 kbps.](#)

***** End of all changes *****

CHANGE REQUEST

⌘ **23.107 CR 142** ⌘ rev **2** ⌘ Current version: **5.9.0** ⌘

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:	⌘ Priority of signaling PDP context		
Source:	⌘ Siemens AG		
Work item code:	⌘ TEI5 Date: ⌘ 21/07/2003		
Category:	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> ⌘ F Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. </td> <td style="width: 50%; vertical-align: top;"> Release: ⌘ Rel-5 Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6) </td> </tr> </table>	⌘ F Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Release: ⌘ Rel-5 Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)
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Reason for change: ⌘ Currently, a concrete traffic handling priority for a PDP context with signalling indication set to 'Yes' is not defined. Therefore, the UE could either use priority 1, 2 or 3. However, in case the signalling indication is not understood or lost during the negotiation, the lower priority levels could lead to a strong decrease of the perceived QoS or even to an deactivation of the PDP context in case of handover.

We therefore propose corrections which improve the backwards compatibility and the handover to GPRS Release 97/98 networks.

Summary of change: ⌘ To improve the backwards compatibility it is specified that in case the signalling indication is set to 'Yes', the traffic handling priority should be set to '1'. This statement is added for the UMTS bearer service to the description of the attributes as well as to the table specifying the value ranges.

The usage of the highest priority would also improve the steadiness during a handover to GPRS Release 97/98 networks. The signalling PDP context should be the one with the highest QoS ranking and therefore, the one which is not deactivated during handover (the UE has to ensure only that the signalling PDP context is the one with the highest maximum bitrate among all interactive PDP contexts with priority 1). Consequently, the signalling traffic (e.g. of an IMS session) can still be transferred and thus the IMS session modified or terminated correctly.

Consequences if not approved: ⌘ Without these changes a strong decrease of the perceived QoS for a signalling PDP context or even a deactivation in case of handover is likely.

Clauses affected: ⌘ 6.4.3.1, 6.5.1

Other specs affected:	<table border="1" style="border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px; text-align: center;">X</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px; text-align: center;">X</td> </tr> </table>	Y	N		X		X	⌘ Other core specifications ⌘ ⌘ Test specifications ⌘
Y	N							
	X							
	X							

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 1st modified section

6.4.3.1 List of attributes

Traffic class ('conversational', 'streaming', 'interactive', 'background')

Definition: type of application for which the UMTS bearer service is optimised

[Purpose: By including the traffic class itself as an attribute, UMTS can make assumptions about the traffic source and optimise the transport for that traffic type.]

< skipped text >

Signalling Indication (Yes/No)

Definition: Indicates the signalling nature of the submitted SDUs. This attribute is additional to the other QoS attributes and does not over-ride them. [This attribute is only defined for the interactive traffic class. If signalling indication is set to 'Yes', the UE should set the traffic handling priority to '1'.](#)

[Purpose: Signalling traffic can have different characteristics to other interactive traffic, eg higher priority, lower delay and increased peakiness. This attribute permits enhancing the RAN operation accordingly. An example use of the Signalling Indication is for IMS signalling traffic.]

Note: this indication is sent by the UE in the QoS IE.

End of 1st modified section

Start of 2nd modified section

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)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ or $1\,502$ (4)	$\leq 1\,500$ 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	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$5 \cdot 10^{-2}$, 10^{-2} , $5 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (7)	$4 \cdot 10^{-3}$, 10^{-5} , $6 \cdot 10^{-8}$ (7)
SDU error ratio	10^{-2} , $7 \cdot 10^{-3}$, 10^{-3} , 10^{-4} , 10^{-5}	10^{-1} , 10^{-2} , $7 \cdot 10^{-3}$, 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 (9)	
Allocation/Retention priority	1,2,3	1,2,3	1,2,3	1,2,3
Source statistic descriptor	Speech/unknown	Speech/unknown		
Signalling Indication			Yes/No (9)	

- 1) Bitrate of 2 048 kbps requires that RAN 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 RAN 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.
- 9) If signalling indication is set to 'Yes', the UE should set the traffic handling priority to '1'.

End of 2nd modified section