

Source: TSG CN WG 3
Title: CRs to R99 (with mirror CRs) Work Item CS Data Bearers
Agenda item: 7.12
Document for: APPROVAL

Introduction:

This document contains **9 CRs on R99 (including mirror CRs) Work Item "CS Data Bearers"**, that have been agreed by **TSG CN WG3**, and are forwarded to TSG CN Plenary meeting #17 for approval.

Doc-2nd-	Spec	CR	Rev	Subject	Cat	Phase	Version-	Workitem
N3-020548	23.910	033	-	Handling of M2 Bit for Handover	F	R99	3.5.0	CS Data
N3-020549	23.910	034	-	Handling of M2 Bit for Handover	A	Rel-4	4.4.0	CS Data
N3-020550	23.910	035	-	Handling of M2 Bit for Handover	A	Rel-5	5.0.0	CS Data
N3-020600	23.910	036	-	Removal of SDU error ratio for NT services	F	R99	3.5.0	CS Data
N3-020601	23.910	037	-	Removal of SDU error ratio for NT services	A	Rel-4	4.4.0	CS Data
N3-020602	23.910	038	-	Removal of SDU error ratio for NT services	A	Rel-5	5.0.0	CS Data
N3-020597	27.001	078	-	Removal of SDU error ratio for NT services	F	R99	3.10.0	CS Data
N3-020598	27.001	079	-	Removal of SDU error ratio for NT services	A	Rel-4	4.7.0	CS Data
N3-020599	27.001	080	-	Removal of SDU error ratio for NT services	A	Rel-5	5.2.0	CS Data

CHANGE REQUEST

23.910 CR 033 # rev - # Current version: 3.5.0

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 Radio Access Network Core Network

Title:	# Handling of M2 Bit for Handover		
Source:	# TSG_CN WG3		
Work item code:	# TEI [CS Data]	Date:	# 05/07/02
Category:	# F	Release:	# R99
	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:	# Erroneous implemented CR 23.910-007 (R99)		
Summary of change:	# See attached pages		
Consequences if not approved:	#		

Clauses affected:	# 2 and 10.2.2.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	#
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
		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.
- 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.

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 03.10: "GSM Public Land Mobile Network (PLMN) connection types".
- [2] 3GPP TR 21.905: "3G Vocabulary".
- [3] 3GPP TS 22.100: "UMTS Phase 1".
- [4] 3GPP TS 22.002: "Bearer Services Supported by a GSM PLMN".
- [5] 3GPP TS 22.101: "Service Principles".
- [6] 3GPP TS 22.105: "Services and Service Capabilities".
- [7] 3GPP TS 23.002: "Network Architecture".
- [8] 3GPP TS 23.034: "High Speed Circuit Switched Data (HSCSD) -Stage 2".
- [9] 3GPP TS 23.101: "General UMTS Architecture".
- [10] 3GPP TS 23.107: "Quality of Service, Concept and Architecture".
- [11] 3GPP TS 24.022: "Radio Link Protocol (RLP) for ~~circuit switched bearer and teleservices Data and Telematic Services on the Mobile Station - Base Station System (MS - BSS) Interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) Interface~~".
- [12] 3GPP TS 25.322: "Radio Link Control (RLC) Protocol Specification".
- [13] 3GPP TS 25.415: "UTRAN Iu Interface user plane protocols".
- [14] 3GPP TS 27.001: "General on Terminal Adaption Functions (TAF) for Mobile Station (MS)".
- [15] 3GPP TS 29.007: "General Requirements on Interworking between the PLMN and the ISDN or PSTN".
- [16] ITU-T Recommendation V.90: "A digital modem and analogue modem pair for use on the Public Switched Telephone Network (PSTN) at data signalling rates of up to 56 000 bit/s downstream and up to 33 600 bit/s upstream".
- [17] VOID.
- [18] 3GPP TS 04.21: "Digital cellular telecommunications system (Phase 2+); Rate adaption on the Mobile Station - Base Station System (MS - BSS) interface".
- [19] 3GPP TS 08.20: "Digital cellular telecommunication system (Phase 2+); Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".
- [20] ITU-T Recommendation I.366.1: "Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2".
- [21] ITU-T Recommendation Q.2630.1: "AAL Type 2 Signalling Protocol (Capability Set 1)".

Next section modified

10 Handover Issues

10.1 Signalling issues

10.1.1 Loss of BC Information during Handover from GSM to UMTS

In the case of inter-MSC handover from GSM to UMTS, the serving GSM MSC/VLR sends a MAP message Prepare Handover carrying the BSSMAP message Handover Request. This message includes the parameter Channel Type, indicating whether radio resources are to be allocated for speech or data (parameter ‘Speech or data indicator’) and, among other data, the type of data service (transparent/non transparent) and the user rates (both included in the parameter ‘Channel rate and type’).

As no other bearer capability related parameters are received, it is not possible to distinguish between any other services than ‘speech’, ‘data transparent’ and ‘data non-transparent’.

The mapping into QoS radio access parameters would be done as described in Section 5.2, limited to the services ‘speech’, ‘data, non-transparent’ and ‘data, transparent’.

10.1.2 Handover from UMTS to GSM

In case a UMTS call is set up in the CN, the BC IE parameters are mapped into QoS RAB parameters at call setup.

If the CN has to perform a handover towards GSM, the non-anchor MSC needs to perform an assignment based on GSM traffic channel parameters.

In case of handover from UMTS to GSM, the anchor MSC maps the BC IE parameters into GSM traffic channel parameters. This requires that the BC IE is coded according to GSM protocol requirements, i.e. all those parameters ignored in UMTS should nevertheless be correctly specified by the UE in order to perform a handover to GSM.

10.2 User Plane

10.2.1 Handover from UMTS to GSM

After a handover from UMTS to GSM the user plane between the anchor MSC and the visited MSC shall comply to the standard GSM A-interface protocols, i.e.:

- A-TRAU or modified V.110 frames as defined in 3GPP TS 04.21 [18] and 3GPP TS 08.20 [19].
- up to four 16kbit/s substreams are multiplexed in one 64kbit/s channel (Split/Combine function and Multiplexing function as defined in 3GPP TS 04.21 [18] and 3GPP TS 08.20 [19]).

10.2.2 Handover from GSM to UMTS

After a handover from GSM to UMTS the user plane between the anchor MSC and the visited MSC shall comply to the A-TRAU’ protocol except for FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For both exceptions a plain 64 kbit/s channel is used between the MSCs.

The A-TRAU’ protocol is defined as follows:

- A-TRAU’ frames are transmitted in regular intervals of 10 ms;
- an A-TRAU’ frame consists of two consecutive A-TRAU frames (as defined in 3GPP TS 08.20 [19]) each with a length of 320 bit;
- the A-TRAU’ protocol is used on a plain 64 kbit/s channel without substreams;
- the same A-TRAU’ format is used for the transparent and non-transparent transmission mode;

- in transparent mode the number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits (see below);
- in non-transparent mode A-TRAU' frames contain always complete RLP frames, rate adaptation is performed by means of the M2 bit;
- the M1-bit is used to identify 1st and 2nd frame in both transmission modes.

10.2.2.1 Frame layout for the different transparent user rates

The number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits in an A-TRAU' frame.

Date Rate	Number of data bits per A-TRAU' frame
33,6 kbit/s	336
28,8 kbit/s	288

The data bits are inserted in the A-TRAU' frame starting with D1 of Data field 1 of the first A-TRAU frame. The unused bits are filled with binary '1'.

10.2.2.2 A-TRAU' frame format

One A-TRAU' frame consists of two consecutive A-TRAU frames. The following figure shows the format of one A-TRAU frame.

Octet number	bit number								
	0	1	2	3	4	5	6	7	
0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	
2	1	C1	C2	C3	C4	C5	M1	M2	
3	Z1	D1	D2	D3	D4	D5	D6	D7	36 bit data field 1
4	D8	D9	D10	D11	D12	D13	D14	D15	
5	D16	D17	D18	D19	D20	D21	D22	D23	
6	D24	D25	D26	D27	D28	D29	D30	D31	
7	D32	D33	D34	D35	D36	Z2	D1	D2	36 bit data field 2
8	D3	D4	D5	D6	D7	D8	D9	D10	
9	D11	D12	D13	D14	D15	D16	D17	D18	
10	D19	D20	D21	D22	D23	D24	D25	D26	
11	D27	D28	D29	D30	D31	D32	D33	D34	36 bit data field 3
12	D35	D36	Z3	D1	D2	D3	D4	D5	
13	D6	D7	D8	D9	D10	D11	D12	D13	
14	D14	D15	D16	D17	D18	D19	D20	D21	
15	D22	D23	D24	D25	D26	D27	D28	D29	36 bit data field 4
16	D30	D31	D32	D33	D34	D35	D36	Z4	
17	D1	D2	D3	D4	D5	D6	D7	D8	
18	D9	D10	D11	D12	D13	D14	D15	D16	
19	D17	D18	D19	D20	D21	D22	D23	D24	36 bit data field 5
20	D25	D26	D27	D28	D29	D30	D31	D32	
21	D33	D34	D35	D36	Z5	D1	D2	D3	
22	D4	D5	D6	D7	D8	D9	D10	D11	
23	D12	D13	D14	D15	D16	D17	D18	D19	36 bit data field 6
24	D20	D21	D22	D23	D24	D25	D26	D27	
25	D28	D29	D30	D31	D32	D33	D34	D35	
26	D36	Z6	D1	D2	D3	D4	D5	D6	
27	D7	D8	D9	D10	D11	D12	D13	D14	36 bit data field 7
28	D15	D16	D17	D18	D19	D20	D21	D22	
29	D23	D24	D25	D26	D27	D28	D29	D30	
30	D31	D32	D33	D34	D35	D36	Z7	D1	
31	D2	D3	D4	D5	D6	D7	D8	D9	36 bit data field 8
32	D10	D11	D12	D13	D14	D15	D16	D17	
33	D18	D19	D20	D21	D22	D23	D24	D25	
34	D26	D27	D28	D29	D30	D31	D32	D33	
35	D34	D35	D36	Z8	D1	D2	D3	D4	36 bit data field 8
36	D5	D6	D7	D8	D9	D10	D11	D12	
37	D13	D14	D15	D16	D17	D18	D19	D20	
38	D21	D22	D23	D24	D25	D26	D27	D28	
39	D29	D30	D31	D32	D33	D34	D35	D36	

Figure 5: A-TRAU 320 bit frame

Data Bits (Dxx):

The 288 data bits of an A-TRAU frame are divided in eight fields of 36 bits.

Control bits (C Bits):

C1 to C4:

The Control bits C1 to C4 define the used data rate. C1 to C4 in the first A-TRAU frame indicate the data rate in send direction.

C1 to C4 in the second A-TRAU frame indicate the used data rate in backward direction. This is required for Rate Control that is required in uplink direction. For details on rate control see 3GPP TS 25.415 [13].

C1	C2	C3	C4	Radio Interface User Rate
1	0	1	1	57,6 kbit/s
1	0	1	0	33,6 kbit/s
1	0	0	0	28,8 kbit/s
0	1	1	1	14,4 kbit/s

C5:

C5 is not used, it is set to binary '1'.

Bit M1:

An A-TRAU' frame is made of two consecutive A-TRAU which build the transport container for 576 data bits. Bit M1 is used to determine the order of the A-TRAU frames within an A-TRAU' frame.

The two M1 bits are referred to as the Frame Start Identifier. The FSI value is 01. These values are assigned to the M1 bit as shown below:

	M1 bit
First A-TRAU frame	0
Second A-TRAU frame	1

Bit M2:

The M2 bit is used to indicate 'valid' A-TRAU' frames. The M2 bit in both of the two consecutive A-TRAU frames relating to an A-TRAU' frame shall have the same value.

Transparent mode:

In transparent mode M2 is clamped to binary '0'.

~~The 3G-MSC (uplink direction) sets M2 to binary '1' until it receives valid SDUs. When receiving valid SDUs M2 is set to binary '0'.~~

Non-transparent mode:

In non-transparent mode M2 is used for DTX. If DTX is applied, M2 is set to binary '1'. If DTX is not to be applied, M2 bit is set to binary '0'. The DTX handling is used in both directions for rate adaptation purpose. This means that the sending entity will insert 'fill RLP-frames' with DTX set to binary '1' in case no RLP-frame is available.

Fill frames are also sent in order to adapt the RLP transmission frequency to the AIUR. The ratio between RLP frames and 'fill' RLP frames is defined in the following table:

AIUR	Ratio between RLP and 'fill' RLP frames
57.6 kbit/s	Only valid frames
28.8 kbit/s	1 valid frame followed by 1 'fill' frame
14.4 kbit/s	1 valid frame followed by 3 'fill' frames

Z bits:

The bits Zi are used for Framing Pattern Substitution mechanism. This mechanism is defined in 3GPP TS 08.20 [19].

Mapping of A-TRAU' frames to PCM time slots:

A-TRAU' frames shall be mapped octet aligned to PCM time slots. I.e. bit number 0 to 7 of each octet of an A-TRAU' frame shall be mapped to bit number 0 to 7 of the PCM time slot.

CHANGE REQUEST

23.910 CR 034 # rev - # Current version: 4.4.0

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Handling of M2 Bit for Handover		
Source:	# TSG_CN WG3		
Work item code:	# TEI [CS Data]	Date:	# 05/07/02
Category:	# A	Release:	# Rel-4
	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:	# Erroneous implemented CR 23.910-007 (R99)		
Summary of change:	# See attached pages		
Consequences if not approved:	#		

Clauses affected:	# 2 and 10.2.2.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	#
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
		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.
- 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.

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 43.010: "GSM Public Land Mobile Network (PLMN) connection types".
- [2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [3] 3GPP TS 22.100: "UMTS Phase 1".
- [4] 3GPP TS 22.002: "Bearer Services Supported by a GSM PLMN".
- [5] 3GPP TS 22.101: "Service Principles".
- [6] 3GPP TS 22.105: "Services and Service Capabilities".
- [7] 3GPP TS 23.002: "Network Architecture".
- [8] 3GPP TS 23.034: "High Speed Circuit Switched Data (HSCSD) -Stage 2".
- [9] 3GPP TS 23.101: "General UMTS Architecture".
- [10] 3GPP TS 23.107: "Quality of Service, Concept and Architecture".
- [11] 3GPP TS 24.022: "Radio Link Protocol (RLP) for ~~circuit switched bearer and teleservices Data and Telematic Services on the Mobile Station - Base Station System (MS - BSS) Interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) Interface~~".
- [12] 3GPP TS 25.322: "Radio Link Control (RLC) Protocol Specification".
- [13] 3GPP TS 25.415: "UTRAN Iu Interface user plane protocols".
- [14] 3GPP TS 27.001: "General on Terminal Adaption Functions (TAF) for Mobile Station (MS)".
- [15] 3GPP TS 29.007: "General Requirements on Interworking between PLMN and ISDN or PSTN".
- [16] ITU-T Recommendation V.90: "A digital modem and analogue modem pair for use on the Public Switched Telephone Network (PSTN) at data signalling rates of up to 56 000 bit/s downstream and up to 33 600 bit/s upstream".
- [17] ITU-T Recommendation T.30 "Procedures for document facsimile transmission in the general switched telephone network".
- [18] 3GPP TS 44.021: "Rate adaption on the Mobile Station - Base Station System (MS - BSS) interface".
- [19] 3GPP TS 48.020: "Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".
- [20] ITU-T Recommendation I.366.1: "Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2".
- [21] ITU-T Recommendation Q.2630.1: "AAL Type 2 Signalling Protocol (Capability Set 1)".

Next section modified

10 Handover Issues

10.1 Signalling issues

10.1.1 Loss of BC Information during Handover from GSM to UMTS

In the case of inter-MS-C handover from GSM to UMTS, the serving GSM MSC/VLR sends a MAP message Prepare Handover carrying the BSSMAP message Handover Request. This message includes the parameter Channel Type, indicating whether radio resources are to be allocated for speech or data (parameter 'Speech or data indicator') and, among other data, the type of data service (transparent/non transparent) and the user rates (both included in the parameter 'Channel rate and type').

As no other bearer capability related parameters are received, it is not possible to distinguish between any other services than 'speech', 'data transparent' and 'data non-transparent'.

The mapping into QoS radio access parameters would be done as described in Section 5.2, limited to the services 'speech', 'data, non-transparent' and 'data, transparent'.

10.1.2 Handover from UMTS to GSM

In case a UMTS call is set up in the CN, the BC IE parameters are mapped into QoS RAB parameters at call setup.

If the CN has to perform a handover towards GSM, the non-anchor MSC needs to perform an assignment based on GSM traffic channel parameters.

In case of handover from UMTS to GSM, the anchor MSC maps the BC IE parameters into GSM traffic channel parameters. This requires that the BC IE is coded according to GSM protocol requirements, i.e. all those parameters ignored in UMTS should nevertheless be correctly specified by the UE in order to perform a handover to GSM.

10.2 User Plane

10.2.1 Handover from UMTS to GSM

After a handover from UMTS to GSM the user plane between the anchor MSC and the visited MSC shall comply to the standard GSM A-interface protocols, i.e.:

- A-TRAU or modified V.110 frames as defined in 3GPP TS 44.021 [18] and 3GPP TS 48.020 [19].
- up to four 16kbit/s substreams are multiplexed in one 64kbit/s channel (Split/Combine function and Multiplexing function as defined in 3GPP TS 44.021 [18] and 3GPP TS 48.020 [19]).

10.2.2 Handover from GSM to UMTS

After a handover from GSM to UMTS the user plane between the anchor MSC and the visited MSC shall comply to the A-TRAU' protocol except for FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For both exceptions a plain 64 kbit/s channel is used between the MSCs.

The A-TRAU' protocol is defined as follows:

- A-TRAU' frames are transmitted in regular intervals of 10 ms;
- an A-TRAU' frame consists of two consecutive A-TRAU frames (as defined in 3GPP TS 48.020 [19]) each with a length of 320 bit;
- the A-TRAU' protocol is used on a plain 64 kbit/s channel without substreams;
- the same A-TRAU' format is used for the transparent and non-transparent transmission mode;
- in transparent mode the number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits (see below);

- in non-transparent mode A-TRAU' frames contain always complete RLP frames, rate adaptation is performed by means of the M2 bit;
- the M1-bit is used to identify 1st and 2nd frame in both transmission modes.

10.2.2.1 Frame layout for the different transparent user rates

The number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits in an A-TRAU' frame.

Date Rate	Number of data bits per A-TRAU' frame
33,6 kbit/s	336
28,8 kbit/s	288

The data bits are inserted in the A-TRAU' frame starting with D1 of Data field 1 of the first A-TRAU frame. The unused bits are filled with binary '1'.

10.2.2.2 A-TRAU' frame format

One A-TRAU' frame consists of two consecutive A-TRAU frames. The following figure shows the format of one A-TRAU frame.

Octet number	bit number								
	0	1	2	3	4	5	6	7	
0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	
2	1	C1	C2	C3	C4	C5	M1	M2	
3	Z1	D1	D2	D3	D4	D5	D6	D7	36 bit data field 1
4	D8	D9	D10	D11	D12	D13	D14	D15	
5	D16	D17	D18	D19	D20	D21	D22	D23	
6	D24	D25	D26	D27	D28	D29	D30	D31	
7	D32	D33	D34	D35	D36	Z2	D1	D2	36 bit data field 2
8	D3	D4	D5	D6	D7	D8	D9	D10	
9	D11	D12	D13	D14	D15	D16	D17	D18	
10	D19	D20	D21	D22	D23	D24	D25	D26	
11	D27	D28	D29	D30	D31	D32	D33	D34	36 bit data field 3
12	D35	D36	Z3	D1	D2	D3	D4	D5	
13	D6	D7	D8	D9	D10	D11	D12	D13	
14	D14	D15	D16	D17	D18	D19	D20	D21	
15	D22	D23	D24	D25	D26	D27	D28	D29	36 bit data field 4
16	D30	D31	D32	D33	D34	D35	D36	Z4	
17	D1	D2	D3	D4	D5	D6	D7	D8	
18	D9	D10	D11	D12	D13	D14	D15	D16	
19	D17	D18	D19	D20	D21	D22	D23	D24	36 bit data field 5
20	D25	D26	D27	D28	D29	D30	D31	D32	
21	D33	D34	D35	D36	Z5	D1	D2	D3	
22	D4	D5	D6	D7	D8	D9	D10	D11	
23	D12	D13	D14	D15	D16	D17	D18	D19	36 bit data field 6
24	D20	D21	D22	D23	D24	D25	D26	D27	
25	D28	D29	D30	D31	D32	D33	D34	D35	
26	D36	Z6	D1	D2	D3	D4	D5	D6	
27	D7	D8	D9	D10	D11	D12	D13	D14	36 bit data field 7
28	D15	D16	D17	D18	D19	D20	D21	D22	
29	D23	D24	D25	D26	D27	D28	D29	D30	
30	D31	D32	D33	D34	D35	D36	Z7	D1	
31	D2	D3	D4	D5	D6	D7	D8	D9	36 bit data field 8
32	D10	D11	D12	D13	D14	D15	D16	D17	
33	D18	D19	D20	D21	D22	D23	D24	D25	
34	D26	D27	D28	D29	D30	D31	D32	D33	
35	D34	D35	D36	Z8	D1	D2	D3	D4	36 bit data field 8
36	D5	D6	D7	D8	D9	D10	D11	D12	
37	D13	D14	D15	D16	D17	D18	D19	D20	
38	D21	D22	D23	D24	D25	D26	D27	D28	
39	D29	D30	D31	D32	D33	D34	D35	D36	

Figure 5: A-TRAU 320 bit frame

Data Bits (Dxx):

The 288 data bits of an A-TRAU frame are divided in eight fields of 36 bits.

Control bits (C Bits):**C1 to C4:**

The Control bits C1 to C4 define the used data rate. C1 to C4 in the first A-TRAU frame indicate the data rate in send direction.

C1 to C4 in the second A-TRAU frame indicate the used data rate in backward direction. This is required for Rate Control that is required in uplink direction. For details on rate control see 3GPP TS 25.415 [13].

C1	C2	C3	C4	Radio Interface User Rate
1	0	1	1	57,6 kbit/s
1	0	1	0	33,6 kbit/s
1	0	0	0	28,8 kbit/s
0	1	1	1	14,4 kbit/s

C5:

C5 is not used, it is set to binary '1'.

Bit M1:

An A-TRAU' frame is made of two consecutive A-TRAU which build the transport container for 576 data bits. Bit M1 is used to determine the order of the A-TRAU frames within an A-TRAU' frame.

The two M1 bits are referred to as the Frame Start Identifier. The FSI value is 01. These values are assigned to the M1 bit as shown below:

	M1 bit
First A-TRAU frame	0
Second A-TRAU frame	1

Bit M2:

The M2 bit is used to indicate 'valid' A-TRAU' frames. The M2 bit in both of the two consecutive A-TRAU frames relating to an A-TRAU' frame shall have the same value.

Transparent mode:

In transparent mode M2 is clamped to binary '0'.

~~The 3G-MSC (uplink direction) sets M2 to binary '1' until it receives valid SDUs. When receiving valid SDUs M2 is set to binary '0'.~~

Non-transparent mode:

In non-transparent mode M2 is used for DTX. If DTX is applied, M2 is set to binary '1'. If DTX is not to be applied, M2 bit is set to binary '0'. The DTX handling is used in both directions for rate adaptation purpose. This means that the sending entity will insert 'fill RLP-frames' with DTX set to binary '1' in case no RLP-frame is available.

Fill frames are also sent in order to adapt the RLP transmission frequency to the AIUR. The ratio between RLP frames and 'fill' RLP frames is defined in the following table:

AIUR	Ratio between RLP and 'fill' RLP frames
57.6 kbit/s	Only valid frames
28.8 kbit/s	1 valid frame followed by 1 'fill' frame
14.4 kbit/s	1 valid frame followed by 3 'fill' frames

Z bits:

The bits Zi are used for Framing Pattern Substitution mechanism. This mechanism is defined in 3GPP TS 48.020 [19].

Mapping of A-TRAU' frames to PCM time slots:

A-TRAU' frames shall be mapped octet aligned to PCM time slots. I.e. bit number 0 to 7 of each octet of an A-TRAU' frame shall be mapped to bit number 0 to 7 of the PCM time slot.

CHANGE REQUEST

23.910 CR 035 # rev **-** # Current version: **5.0.0**

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:	# Handling of M2 Bit for Handover		
Source:	# TSG_CN WG3		
Work item code:	# TEI [CS Data]	Date:	# 05/07/02
Category:	# A	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:	# Erroneous implemented CR 23.910-007 (R99)
Summary of change:	# See attached pages
Consequences if not approved:	#

Clauses affected:	# 10.2.2.2				
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><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;"> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications #	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
<input type="checkbox"/>	<input checked="" type="checkbox"/>				
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications #	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
<input type="checkbox"/>	<input checked="" type="checkbox"/>				
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.

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 43.010: "GSM Public Land Mobile Network (PLMN) connection types".
- [2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [3] 3GPP TS 22.100: "UMTS Phase 1".
- [4] 3GPP TS 22.002: "Bearer Services Supported by a GSM PLMN".
- [5] 3GPP TS 22.101: "Service Principles".
- [6] 3GPP TS 22.105: "Services and Service Capabilities".
- [7] 3GPP TS 23.002: "Network Architecture".
- [8] 3GPP TS 23.034: "High Speed Circuit Switched Data (HSCSD) -Stage 2".
- [9] 3GPP TS 23.101: "General UMTS Architecture".
- [10] 3GPP TS 23.107: "Quality of Service, Concept and Architecture".
- [11] 3GPP TS 24.022: "Radio Link Protocol (RLP) for ~~circuit switched bearer and teleservices Data and Telematic Services on the Mobile Station - Base Station System (MS - BSS) Interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) Interface~~".
- [12] 3GPP TS 25.322: "Radio Link Control (RLC) Protocol Specification".
- [13] 3GPP TS 25.415: "UTRAN Iu Interface user plane protocols".
- [14] 3GPP TS 27.001: "General on Terminal Adaption Functions (TAF) for Mobile Station (MS)".
- [15] 3GPP TS 29.007: "General Requirements on Interworking between PLMN and ISDN or PSTN".
- [16] ITU-T Recommendation V.90: "A digital modem and analogue modem pair for use on the Public Switched Telephone Network (PSTN) at data signalling rates of up to 56 000 bit/s downstream and up to 33 600 bit/s upstream".
- [17] ITU-T Recommendation T.30 "Procedures for document facsimile transmission in the general switched telephone network".
- [18] 3GPP TS 44.021: " Rate adaption on the Mobile Station - Base Station System (MS - BSS) interface".
- [19] 3GPP TS 48.020: " Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".
- [20] ITU-T Recommendation I.366.1: "Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2".
- [21] ITU-T Recommendation Q.2630.1: "AAL Type 2 Signalling Protocol (Capability Set 1)".

Next section modified

10 Handover Issues

10.1 Signalling issues

10.1.1 Loss of BC Information during Handover from A/Gb mode to UTRAN Iu mode

In the case of inter-MSC handover from A/Gb mode to UTRAN Iu mode, the serving A/Gb mode MSC/VLR sends a MAP message Prepare Handover carrying the BSSMAP message Handover Request. This message includes the parameter Channel Type, indicating whether radio resources are to be allocated for speech or data (parameter 'Speech or data indicator') and, among other data, the type of data service (transparent/non transparent) and the user rates (both included in the parameter 'Channel rate and type').

As no other bearer capability related parameters are received, it is not possible to distinguish between any other services than 'speech', 'data transparent' and 'data non-transparent'.

The mapping into QoS radio access parameters would be done as described in Section 5.2, limited to the services 'speech', 'data, non-transparent' and 'data, transparent'.

10.1.2 Handover from UTRAN Iu mode to A/Gb mode

In case a UTRAN Iu mode call is set up in the CN, the BC IE parameters are mapped into QoS RAB parameters at call setup.

If the CN has to perform a handover towards A/Gb mode, the non-anchor MSC needs to perform an assignment based on GSM traffic channel parameters.

In case of handover from UTRAN Iu mode to A/Gb mode, the anchor MSC maps the BC IE parameters into A/Gb mode traffic channel parameters. This requires that the BC IE is coded according to A/Gb mode protocol requirements, i.e. all those parameters ignored in UTRAN Iu mode should nevertheless be correctly specified by the UE in order to perform a handover to A/Gb mode.

10.2 User Plane

10.2.1 Handover from UTRAN Iu mode to A/Gb mode

After a handover from UTRAN Iu mode to A/Gb mode the user plane between the anchor MSC and the visited MSC shall comply to the standard A/Gb mode A-interface protocols, i.e:

- A-TRAU or modified V.110 frames as defined in 3GPP TS 44.021 [18] and 3GPP TS 48.020 [19].
- up to four 16kbit/s substreams are multiplexed in one 64kbit/s channel (Split/Combine function and Multiplexing function as defined in 3GPP TS 44.021 [18] and 3GPP TS 48.020 [19]).

10.2.2 Handover from A/Gb mode to UTRAN Iu mode

After a handover from A/Gb mode to UTRAN Iu mode the user plane between the anchor MSC and the visited MSC shall comply to the A-TRAU' protocol except for FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For both exceptions a plain 64 kbit/s channel is used between the MSCs.

The A-TRAU' protocol is defined as follows:

- A-TRAU' frames are transmitted in regular intervals of 10 ms;
- an A-TRAU' frame consists of two consecutive A-TRAU frames (as defined in 3GPP TS 48.020 [19]) each with a length of 320 bit;
- the A-TRAU' protocol is used on a plain 64 kbit/s channel without substreams;

- the same A-TRAU' format is used for the transparent and non-transparent transmission mode;
- in transparent mode the number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits (see below);
- in non-transparent mode A-TRAU' frames contain always complete RLP frames, rate adaptation is performed by means of the M2 bit;
- the M1-bit is used to identify 1st and 2nd frame in both transmission modes.

10.2.2.1 Frame layout for the different transparent user rates

The number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits in an A-TRAU' frame.

Date Rate	Number of data bits per A-TRAU' frame
33,6 kbit/s	336
28,8 kbit/s	288

The data bits are inserted in the A-TRAU' frame starting with D1 of Data field 1 of the first A-TRAU frame. The unused bits are filled with binary '1'.

10.2.2.2 A-TRAU' frame format

One A-TRAU' frame consists of two consecutive A-TRAU frames. The following figure shows the format of one A-TRAU frame.

Octet number	bit number								
	0	1	2	3	4	5	6	7	
0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	
2	1	C1	C2	C3	C4	C5	M1	M2	
3	Z1	D1	D2	D3	D4	D5	D6	D7	36 bit data field 1
4	D8	D9	D10	D11	D12	D13	D14	D15	
5	D16	D17	D18	D19	D20	D21	D22	D23	
6	D24	D25	D26	D27	D28	D29	D30	D31	
7	D32	D33	D34	D35	D36	Z2	D1	D2	36 bit data field 2
8	D3	D4	D5	D6	D7	D8	D9	D10	
9	D11	D12	D13	D14	D15	D16	D17	D18	
10	D19	D20	D21	D22	D23	D24	D25	D26	
11	D27	D28	D29	D30	D31	D32	D33	D34	36 bit data field 3
12	D35	D36	Z3	D1	D2	D3	D4	D5	
13	D6	D7	D8	D9	D10	D11	D12	D13	
14	D14	D15	D16	D17	D18	D19	D20	D21	
15	D22	D23	D24	D25	D26	D27	D28	D29	36 bit data field 4
16	D30	D31	D32	D33	D34	D35	D36	Z4	
17	D1	D2	D3	D4	D5	D6	D7	D8	
18	D9	D10	D11	D12	D13	D14	D15	D16	
19	D17	D18	D19	D20	D21	D22	D23	D24	36 bit data field 5
20	D25	D26	D27	D28	D29	D30	D31	D32	
21	D33	D34	D35	D36	Z5	D1	D2	D3	
22	D4	D5	D6	D7	D8	D9	D10	D11	
23	D12	D13	D14	D15	D16	D17	D18	D19	36 bit data field 6
24	D20	D21	D22	D23	D24	D25	D26	D27	
25	D28	D29	D30	D31	D32	D33	D34	D35	
26	D36	Z6	D1	D2	D3	D4	D5	D6	
27	D7	D8	D9	D10	D11	D12	D13	D14	36 bit data field 7
28	D15	D16	D17	D18	D19	D20	D21	D22	
29	D23	D24	D25	D26	D27	D28	D29	D30	
30	D31	D32	D33	D34	D35	D36	Z7	D1	
31	D2	D3	D4	D5	D6	D7	D8	D9	36 bit data field 8
32	D10	D11	D12	D13	D14	D15	D16	D17	
33	D18	D19	D20	D21	D22	D23	D24	D25	
34	D26	D27	D28	D29	D30	D31	D32	D33	
35	D34	D35	D36	Z8	D1	D2	D3	D4	36 bit data field 8
36	D5	D6	D7	D8	D9	D10	D11	D12	
37	D13	D14	D15	D16	D17	D18	D19	D20	
38	D21	D22	D23	D24	D25	D26	D27	D28	
39	D29	D30	D31	D32	D33	D34	D35	D36	

Figure 5: A-TRAU 320 bit frame

Data Bits (Dxx):

The 288 data bits of an A-TRAU frame are divided in eight fields of 36 bits.

Control bits (C Bits):

C1 to C4:

The Control bits C1 to C4 define the used data rate. C1 to C4 in the first A-TRAU frame indicate the data rate in send direction.

C1 to C4 in the second A-TRAU frame indicate the used data rate in backward direction. This is required for Rate Control that is required in uplink direction. For details on rate control see 3GPP TS 25.415 [13].

C1	C2	C3	C4	Radio Interface User Rate
1	0	1	1	57,6 kbit/s
1	0	1	0	33,6 kbit/s
1	0	0	0	28,8 kbit/s
0	1	1	1	14,4 kbit/s

C5:

C5 is not used, it is set to binary '1'.

Bit M1:

An A-TRAU' frame is made of two consecutive A-TRAU which build the transport container for 576 data bits. Bit M1 is used to determine the order of the A-TRAU frames within an A-TRAU' frame.

The two M1 bits are referred to as the Frame Start Identifier. The FSI value is 01. These values are assigned to the M1 bit as shown below:

	M1 bit
First A-TRAU frame	0
Second A-TRAU frame	1

Bit M2:

The M2 bit is used to indicate 'valid' A-TRAU' frames. The M2 bit in both of the two consecutive A-TRAU frames relating to an A-TRAU' frame shall have the same value.

Transparent mode:

In transparent mode M2 is clamped to binary '0'.

~~The 3G-MSC (uplink direction) sets M2 to binary '1' until it receives valid SDUs. When receiving valid SDUs M2 is set to binary '0'.~~

Non-transparent mode:

In non-transparent mode M2 is used for DTX. If DTX is applied, M2 is set to binary '1'. If DTX is not to be applied, M2 bit is set to binary '0'. The DTX handling is used in both directions for rate adaptation purpose. This means that the sending entity will insert 'fill RLP-frames' with DTX set to binary '1' in case no RLP-frame is available.

Fill frames are also sent in order to adapt the RLP transmission frequency to the AIUR. The ratio between RLP frames and 'fill' RLP frames is defined in the following table:

AIUR	Ratio between RLP and 'fill' RLP frames
57.6 kbit/s	Only valid frames
28.8 kbit/s	1 valid frame followed by 1 'fill' frame
14.4 kbit/s	1 valid frame followed by 3 'fill' frames

Z bits:

The bits Zi are used for Framing Pattern Substitution mechanism. This mechanism is defined in 3GPP TS 48.020 [19].

Mapping of A-TRAU' frames to PCM time slots:

A-TRAU' frames shall be mapped octet aligned to PCM time slots. I.e. bit number 0 to 7 of each octet of an A-TRAU' frame shall be mapped to bit number 0 to 7 of the PCM time slot.

CR-Form-v7

CHANGE REQUEST

27.001 CR 078 # rev - # Current version: 3.10.0

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Removal of SDU error ratio for NT services		
Source:	# TSG CN WG3		
Work item code:	# T.E.I [CS Data]	Date:	# 19/07/2002
Category:	# F	Release:	# R99
	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 TS 25.413 the presence of the conditional parameter 'SDU error ratio' is required when 'Delivery of erroneous SDUs' is set either to 'yes' or to 'no'. In TS 27.001, for non-transparent services, 'Delivery of erroneous SDUs' is set to 'no error detection consideration' and 'SDU error ratio' to value 10%. To be consistent with TS 25.413 'SDU error ratio' has to be removed from RAB parameters of non-transparent services.
Summary of change:	# Removal of SDU error ratio from RAB parameters for non-transparent services.
Consequences if not approved:	# Interworking issues with UTRAN. The RAB assignment request is rejected if the 'SDU error ratio' parameter is present when the 'Delivery of erroneous SDUs' parameter is set to 'no error detection consideration'

Clauses affected:	# Annex B.1.13.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# TR 23.910
Y	N										
X											
	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.

- 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.

B.1.13.2 Non-transparent services

Depending on the WAIUR signalled by the MS, the network is allowed to assign any radio resources with a radio access bearer parameter indicating a Quality of Service specifying

QoS Parameter	Value	Comments
Traffic Class	Streaming	Subject to operator tuning
RAB Asymmetry Indicator	Symmetric	
Maximum bit rate	14.4, 28.8, 57.6 kbit/s	Maximum bit rate is set to the highest value \leq WAIUR (Note 1)
Guaranteed bit rate	14.4, 28.8, 57.6 kbit/s	Operator may choose any of the possible values less or equal to WAIUR. (Note 1).
Delivery Order	Yes	
Maximum SDU size	576 bits	
Transfer Delay	250 ms	Subject to operator tuning
Traffic Handling Priority	-	Not applicable to the streaming traffic class
Source statistics descriptor	Unknown	
SDU Parameters		
SDU error ratio	10 ⁻³	Subject to operator tuning
Residual bit error ratio	10 ⁻³	Subject to operator tuning.
Delivery of erroneous SDUs	No error detection consideration	
SDU format information		
RAB Subflow Combination bit rate	57.6 kbit/s	(Note 2)
RAB Subflow Combination bit rate	28.8 kbit/s	(Note 2)
RAB Subflow Combination bit rate	14.4 kbit/s	
RAB Subflow Combination bit rate	0 kbit/s	indicates DTX, RFCI is not assigned
NOTE 1: If WAIUR is less or equal to 14.4 kbit/s then GBR and MBR shall be set to 14.4 kbit/s.		
NOTE 2: Only RAB subflow combination bit rates \leq maximum bit rate shall be specified.		

The final decision about the radio interface configuration is taken by the RNC during the Assignment procedure.

CR-Form-v7

CHANGE REQUEST

27.001 CR 079 # rev - # Current version: 4.7.0

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:	# Removal of SDU error ratio for NT services		
Source:	# TSG CN WG3		
Work item code:	# T.E.I 4 [CS Data]	Date:	# 19/07/2002
Category:	# F	Release:	# Rel-4
	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 TS 25.413 the presence of the conditional parameter 'SDU error ratio' is required when 'Delivery of erroneous SDUs' is set either to 'yes' or to 'no'. In TS 27.001, for non-transparent services, 'Delivery of erroneous SDUs' is set to 'no error detection consideration' and 'SDU error ratio' to value 10%. To be consistent with TS 25.413 'SDU error ratio' has to be removed from RAB parameters of non-transparent services.
Summary of change:	# Removal of SDU error ratio from RAB parameters for non-transparent services.
Consequences if not approved:	# Interworking issues with UTRAN. The RAB assignment request is rejected if the 'SDU error ratio' parameter is present when the 'Delivery of erroneous SDUs' parameter is set to 'no error detection consideration'.

Clauses affected:	# Annex B.1.13.2										
Other specs Affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# TR 23.910
Y	N										
X											
	X										
	X										
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.

B.1.13.2 Non-transparent services

Depending on the WAIUR signalled by the MS, the network is allowed to assign any radio resources with a radio access bearer parameter indicating a Quality of Service specifying

QoS Parameter	Value	Comments
Traffic Class	Streaming	Subject to operator tuning
RAB Asymmetry Indicator	Symmetric	
Maximum bit rate	14.4, 28.8, 57.6 kbit/s	Maximum bit rate is set to the highest value \leq WAIUR (Note 1)
Guaranteed bit rate	14.4, 28.8, 57.6 kbit/s	Operator may choose any of the possible values less or equal to WAIUR. (Note 1).
Delivery Order	Yes	
Maximum SDU size	576 bits	
Transfer Delay	250 ms	Subject to operator tuning
Traffic Handling Priority	-	Not applicable to the streaming traffic class
Source statistics descriptor	Unknown	
SDU Parameters		
	SDU error ratio	40%
	Residual bit error ratio	Subject to operator tuning
	Delivery of erroneous SDUs	No error detection consideration
SDU format information		
	RAB Subflow Combination bit rate	57.6 kbit/s (Note 2)
	RAB Subflow Combination bit rate	28.8 kbit/s (Note 2)
	RAB Subflow Combination bit rate	14.4 kbit/s
	RAB Subflow Combination bit rate	0 kbit/s indicates DTX, RFCI is not assigned
NOTE 1: If WAIUR is less or equal to 14.4 kbit/s then GBR and MBR shall be set to 14.4 kbit/s.		
NOTE 2: Only RAB subflow combination bit rates \leq maximum bit rate shall be specified.		

The final decision about the radio interface configuration is taken by the RNC during the Assignment procedure.

CHANGE REQUEST

27.001 CR 080 # rev - # Current version: 5.2.0

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:	# Removal of SDU error ratio for NT services		
Source:	# TSG CN WG3		
Work item code:	# T.E.I [CS Data]	Date:	# 19/07/2002
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 TS 25.413 the presence of the conditional parameter 'SDU error ratio' is required when 'Delivery of erroneous SDUs' is set either to 'yes' or to 'no'. In TS 27.001, for non-transparent services, 'Delivery of erroneous SDUs' is set to 'no error detection consideration' and 'SDU error ratio' to value 10%. To be consistent with TS 25.413 'SDU error ratio' has to be removed from RAB parameters of non-transparent services.
Summary of change:	# Removal of SDU error ratio from RAB parameters for non-transparent services.
Consequences if not approved:	# Interworking issues with UTRAN. The RAB assignment request is rejected if the 'SDU error ratio' parameter is present when the 'Delivery of erroneous SDUs' parameter is set to 'no error detection consideration'.

Clauses affected:	# Annex B.1.13.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# TR 23.910
Y	N										
X											
	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.

- 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.

B.1.13.2 Non-transparent services

Depending on the WAIUR signalled by the MS, the network is allowed to assign any radio resources with a radio access bearer parameter indicating a Quality of Service specifying

QoS Parameter	Value	Comments
Traffic Class	Streaming	Subject to operator tuning
RAB Asymmetry Indicator	Symmetric	
Maximum bit rate	14.4, 28.8, 57.6 kbit/s	Maximum bit rate is set to the highest value \leq WAIUR (Note 1)
Guaranteed bit rate	14.4, 28.8, 57.6 kbit/s	Operator may choose any of the possible values less or equal to WAIUR. (Note 1).
Delivery Order	Yes	
Maximum SDU size	576 bits	
Transfer Delay	250 ms	Subject to operator tuning
Traffic Handling Priority	-	Not applicable to the streaming traffic class
Source statistics descriptor	Unknown	
SDU Parameters		
	SDU error ratio	10%
	Residual bit error ratio	10^{-3}
	Delivery of erroneous SDUs	No error detection consideration
	SDU format information	
	RAB Subflow Combination bit rate	57.6 kbit/s (Note 2)
	RAB Subflow Combination bit rate	28.8 kbit/s (Note 2)
	RAB Subflow Combination bit rate	14.4 kbit/s
	RAB Subflow Combination bit rate	0 kbit/s indicates DTX, RFCI is not assigned
NOTE 1: If WAIUR is less or equal to 14.4 kbit/s then GBR and MBR shall be set to 14.4 kbit/s.		
NOTE 2: Only RAB subflow combination bit rates \leq maximum bit rate shall be specified.		

The final decision about the radio interface configuration is taken by the RNC during the Assignment procedure.

CR-Form-v7

CHANGE REQUEST

23.910 CR 036 # rev **-** # Current version: **3.5.0**

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 Radio Access Network Core Network

Title:	# Removal of SDU error ratio for NT services		
Source:	# TSG CN WG3		
Work item code:	# T.E.I [CS Data]	Date:	# 19/07/2002
Category:	# F	Release:	# R99
	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 TS 25.413 the presence of the conditional parameter 'SDU error ratio' is required when 'Delivery of erroneous SDUs' is set either to 'yes' or to 'no'. In TR 23.910, for non-transparent services, 'Delivery of erroneous SDUs' is set to 'no error detection consideration' and 'SDU error ratio' to value 10%. To be consistent with TS 25.413 'SDU error ratio' has to be removed from RAB parameters of non-transparent services.
Summary of change:	# Removal of SDU error ratio from RAB parameters for non-transparent services.
Consequences if not approved:	# Interworking issues with UTRAN. The RAB assignment request is rejected if the 'SDU error ratio' parameter is present when the 'Delivery of erroneous SDUs' parameter is set to 'no error detection consideration'.

Clauses affected:	# Section 5.2.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# TS 27.001
Y	N										
X											
	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.

- 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.

5.2.1 Non-transparent services

Service identified by the BC IE	Non-transparent data	Comments
Traffic Class	Streaming	Subject to operator tuning
RAB Asymmetry Indicator	Symmetric	
Maximum bit rate (1)	14,4 kbit/s, 28,8 kbit/s, 57.6 kbit/s	Maximum bit rate is set to the highest value ≤ WAIUR (Note 1)
Guaranteed bit rate	14,4 kbit/s, 28,8 kbit/s, 57.6 kbit/s	Operator may choose any of the possible values less or equal to WAIUR. (Note 1)
Delivery Order	Yes	
Maximum SDU size	576 bits	
Transfer Delay	250 ms	Subject to operator tuning
Traffic Handling Priority	-	Not applicable to the streaming traffic class
Source statistics descriptor	Unknown	
SDU Parameters		
SDU error ratio	10 %	Subject to operator tuning
Residual bit error ratio	10 ⁻³	Subject to operator tuning.
Delivery of erroneous SDUs	No error detection consideration	
SDU format information		
RAB Subflow Combination bit rate	57,6 kbit/s	(Note 2)
RAB Subflow Combination bit rate	28,8 kbit/s	(Note 2)
RAB Subflow Combination bit rate	14,4 kbit/s	
RAB Subflow Combination bit rate	0 kbit/s	indicates DTX, RFCI is not assigned
NOTE 1: If WAIUR is less or equal to 14.4 kbit/s then GBR and MBR shall be set to 14.4 kbit/s.		
NOTE 2: Only RAB subflow combination bit rates ≤ maximum bit rate shall be specified.		

CR-Form-v7

CHANGE REQUEST

23.910 CR 037 # rev **-** # Current version: **4.4.0**

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Removal of SDU error ratio for NT services		
Source:	# TSG CN WG3		
Work item code:	# T.E.I [CS Data]	Date:	# 19/07/2002
Category:	# A	Release:	# Rel-4
	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 TS 25.413 the presence of the conditional parameter 'SDU error ratio' is required when 'Delivery of erroneous SDUs' is set either to 'yes' or to 'no'. In TR 23.910, for non-transparent services, 'Delivery of erroneous SDUs' is set to 'no error detection consideration' and 'SDU error ratio' to value 10%. To be consistent with TS 25.413 'SDU error ratio' has to be removed from RAB parameters of non-transparent services.
Summary of change:	# Removal of SDU error ratio from RAB parameters for non-transparent services.
Consequences if not approved:	# Interworking issues with UTRAN. The RAB assignment request is rejected if the 'SDU error ratio' parameter is present when the 'Delivery of erroneous SDUs' parameter is set to 'no error detection consideration'.

Clauses affected:	# Section 5.2.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# TS 27.001
Y	N										
X											
	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.

- 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.

5.2.1 Non-transparent services, including Fax

Service identified by the BC IE	Non-transparent data	Comments
Traffic Class	Streaming	Subject to operator tuning
RAB Asymmetry Indicator	Symmetric	
Maximum bit rate (1)	14,4 kbit/s, 28,8 kbit/s, 57.6 kbit/s	Maximum bit rate is set to the highest value \leq WAIUR (Note 1)
Guaranteed bit rate	14,4 kbit/s, 28,8 kbit/s, 57.6 kbit/s	Operator may choose any of the possible values less or equal to WAIUR. (Note 1)
Delivery Order	Yes	
Maximum SDU size	576 bits	
Transfer Delay	250 ms	Subject to operator tuning
Traffic Handling Priority	-	Not applicable to the streaming traffic class
Source statistics descriptor	Unknown	
SDU Parameters		
SDU error ratio	10 %	Subject to operator tuning
Residual bit error ratio	10^{-3}	Subject to operator tuning.
Delivery of erroneous SDUs	No error detection consideration	
SDU format information		
RAB Subflow Combination bit rate	57,6 kbit/s	(Note 2)
RAB Subflow Combination bit rate	28,8 kbit/s	(Note 2)
RAB Subflow Combination bit rate	14,4 kbit/s	
RAB Subflow Combination bit rate	0 kbit/s	indicates DTX, RFCI is not assigned
NOTE 1: If WAIUR is less or equal to 14.4 kbit/s then GBR and MBR shall be set to 14.4 kbit/s.		
NOTE 2: Only RAB subflow combination bit rates \leq maximum bit rate shall be specified.		

CR-Form-v7

CHANGE REQUEST

23.910 CR 038 # rev **-** # Current version: **5.0.0**

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:	# Removal of SDU error ratio for NT services		
Source:	# TSG CN WG3		
Work item code:	# T.E.I [CS Data]	Date:	# 19/07/2002
Category:	# A	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 TS 25.413 the presence of the conditional parameter 'SDU error ratio' is required when 'Delivery of erroneous SDUs' is set either to 'yes' or to 'no'. In TR 23.910, for non-transparent services, 'Delivery of erroneous SDUs' is set to 'no error detection consideration' and 'SDU error ratio' to value 10%. To be consistent with TS 25.413 'SDU error ratio' has to be removed from RAB parameters of non-transparent services.
Summary of change:	# Removal of SDU error ratio from RAB parameters for non-transparent services.
Consequences if not approved:	# Interworking issues with UTRAN. The RAB assignment request is rejected if the 'SDU error ratio' parameter is present when the 'Delivery of erroneous SDUs' parameter is set to 'no error detection consideration'.

Clauses affected:	# Section 5.2.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	# TS 27.001
Y	N										
X											
	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.

- 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.

5.2.1 Non-transparent services, including Fax

Service identified by the BC IE	Non-transparent data	Comments
Traffic Class	Streaming	Subject to operator tuning
RAB Asymmetry Indicator	Symmetric	
Maximum bit rate (1)	14,4 kbit/s, 28,8 kbit/s, 57.6 kbit/s	Maximum bit rate is set to the highest value \leq WAIUR (Note 1)
Guaranteed bit rate	14,4 kbit/s, 28,8 kbit/s, 57.6 kbit/s	Operator may choose any of the possible values less or equal to WAIUR. (Note 1)
Delivery Order	Yes	
Maximum SDU size	576 bits	
Transfer Delay	250 ms	Subject to operator tuning
Traffic Handling Priority	-	Not applicable to the streaming traffic class
Source statistics descriptor	Unknown	
SDU Parameters		
SDU error ratio	10 %	Subject to operator tuning
Residual bit error ratio	10^{-3}	Subject to operator tuning.
Delivery of erroneous SDUs	No error detection consideration	
SDU format information		
RAB Subflow Combination bit rate	57,6 kbit/s	(Note 2)
RAB Subflow Combination bit rate	28,8 kbit/s	(Note 2)
RAB Subflow Combination bit rate	14,4 kbit/s	
RAB Subflow Combination bit rate	0 kbit/s	indicates DTX, RFCI is not assigned
NOTE 1: If WAIUR is less or equal to 14.4 kbit/s then GBR and MBR shall be set to 14.4 kbit/s.		
NOTE 2: Only RAB subflow combination bit rates \leq maximum bit rate shall be specified.		