TSG-RAN Meeting #14 ***RP-010889***
Kyoto, Japan, 11 - 15 December 2001

(T1-010552, copy TSG-RAN) LS on Advice on proposed RABs (PS Domain) to be included in Rel-5 of TS 34.108 to support conversational class traffic

Title:	**LS to seek advice on proposed RABs (PS Domain) to be included in Rel 5 of TS 34.108 to support conversational class traffic.**
Source:	**T1**
To:	**RAN1**
	RAN2
Cc:	**RAN**
Response to:	**T1 Sig SWG**

Contact Person:
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Tel. Number:
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Attachments: **T1S-010372r2**

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1. Overall Description:

At T1 #13, it was proposed that new example radio access bearers (Packet Switch Domain) be included in Rel 5 of TS 34.108.

These RABs were presented at the T1 Sig SWG #20 and it was agreed that prior to starting the approval process within T1 Sig, they are forwarded to RAN 1 & RAN 2 for assistance.

2. Actions:

To RAN1 & RAN2 group.

ACTION:

TSG T1 requests that RAN 1 & RAN 2 now check the technical parameters at the L1 and L2 layers of these example RABs found in the attached CR (T1S-010372r2) and provide a response to T1 by the 11th February 2002.

3. Date of Next T1 Meetings:

T1#14	18th – 22th February 2002	Sophia Antipolis, France
T1#15	20th – 24th May 2002	Location TBD

3GPP TSG-T1 Sig Meeting #20 ***T1S-010372r2***
Cancun Mexico 26 – 27 November 2001

Source: **Hutchison 3G (UK)**

Title: **To introduce RABs (PS Domain) into Rel 5 of TS 34.108 to support conversational class traffic.**

Document for: **Approval**

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1. The purpose of this document is to define new RAB's to support IMS voice calls in the same way as the reference RAB's are defined in the TS 34.108.

2. Since the exact functioning of PDCP header compression for IMS voice calls is yet to be defined by the relevant 3GPP TSG groups, some assumptions have been made here.
The PDCP layer will have a solution to refresh the full RTP/UDP/IP header when needed within the radio bearer proposed here.

3. The PDCP layer always adds an 8 bits header to the compressed RTP/UDP/IP header. Each radio bearer has three transport formats: one for the voice packet, one for the comfort noise and one without payload. The bit rate of the radio bearer depends on the level of header compression. The following three cases have been studied here:

Compressed header size	**Radio bearer bit rate**	**Section**
0 bytes	12.6 kbps	0
2 bytes	13.4 kbps	0
4 bytes	14.2 kbps	0

4. The definition of the IMS voice calls bearers with 0 bytes header compression will be found in a forthcoming Tdoc RAN 2 to be issued entitled "PDCP - Header Compression for IMS Voice Calls". Only this bearer is discussed here, although other IMS bearers could be defined if required.

CR-Form-v3

CHANGE REQUEST

⌘ **TS 34.108** **CR** **NYK** ⌘ rev ⌘ Current version: **1.0.0** ⌘

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

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

Title:	⌘	To introduce RABs (PS Domain) into Rel 5 of TS 34.108 to support conversational class traffic.
Source:	⌘	Hutchison 3G
Work item code:	⌘	TBC
Date:	⌘	28 November 2001
Category:	⌘	**B**
Release:	⌘	REL-5

Use one of the following categories:
- ***F*** *(essential correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(Addition of feature),*
- ***C*** *(Functional modification of feature)*
- ***D*** *(Editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Currently 34.108 has no examples of RABs (PS Domain) that will support conversational class traffic. This will be necessary to support IMS functionality, which will be implemented in Release 5.
Summary of change:	⌘	To include new examples of radio access bearers (Packet Switch Domain) (see below) including the main parameters.
Consequences if not approved:	⌘	There will be no examples of RABs (PS Domain) that will support conversational class traffic. Aspects of IMS will not be able to be implemented in the PS domain.

Clauses affected:	⌘	(To be advised) Exact numbering scheme of the RABs within Rel 5 of 34.108 is to be confirmed later.
Other specs Affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	It will necessitate action by RAN 1and RAN 2 to verify the parameters of the example RABs proposed and also to provide a method on how to implement the RABs in practice for the zero byte header compression case.

RAB parameters in TS 34.108 format

Conversational / speech / UL:12.6 DL:12.6 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

Uplink

Transport channel parameters

Transport channel parameters for Conversational / speech / UL:12.6 kbps / PS RAB

Higher layer	RAB/Signalling RB		**RAB**
RLC	Logical channel type		DTCH
	RLC mode		UM
	Payload sizes, bit		252, 47
	Max data rate, bps		12600
	UMD PDU header, bit		8
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		260, 55
	TFS	TF0, bits	0x260
		TF1, bits	1x55
		TF1, bits	1x260
	TTI, ms		20
	Coding type		CC-1/3
	CRC, bit		12
	Max number of bits/TTI after channel coding		840
	Uplink: Max number of bits/radio frame before rate matching		420
	RM attribute		TBD

Transport channel parameters for UL:3.4 kbps SRBs for DCCH

Higher layer	RAB/signalling RB		**SRB#1**	**SRB#2**	**SRB#3**	**SRB#4**
	User of Radio Bearer		RRC	RRC	NAS_DT High prio	NAS_DT Low prio
RLC	Logical channel type		DCCH	DCCH	DCCH	DCCH
	RLC mode		UM	AM	AM	AM
	Payload sizes, bit		136	128	128	128
	Max data rate, bps		3400	3200	3200	3200
	AMD/UMD PDU header, bit		8	16	16	16
MAC	MAC header, bit		4	4	4	4
	MAC multiplexing		4 logical channel multiplexing			
Layer 1	TrCH type		DCH			
	TB sizes, bit		148			
	TFS	TF0, bits	0x148			
		TF1, bits	1x148			
	TTI, ms		40			
	Coding type		CC 1/3			
	CRC, bit		16			
	Max number of bits/TTI before rate matching		516			
	Uplink: Max number of bits/radio frame before rate matching		129			
	RM attribute		155-185			

Note: this RAB is similar to the one already in TS 34.108.

TFCS

TFCS size	6
TFCS	(12.6 kbps Conversational RAB, DCCH)= (TF0, TF0), (TF0, TF1), (TF1, TF0), (TF1, TF1), (TF2, TF0), (TF2, TF1)

Physical channel parameters

DPCH Uplink	Min spreading factor	64
	Max number of DPDCH data bits/radio frame	600
	Puncturing Limit	TBD

Downlink

Transport channel parameters

Transport channel parameters for Conversational / speech / DL:12.6 kbps / PS RAB

Higher layer	RAB/Signalling RB		RAB
RLC	Logical channel type		DTCH
	RLC mode		UM
	Payload sizes, bit		252, 47
	Max data rate, bps		12600
	UMD PDU header, bit		8
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		260, 55
	TFS	TF0, bits	0x260
		TF1, bits	1x55
		TF2, bits	1x260
	TTI, ms		20
	Coding type		CC-1/3
	CRC, bit		12
	Max number of bits/TTI after channel coding		840
	RM attribute		TBD

Transport channel parameters for DL:3.4 kbps SRBs for DCCH

Higher layer	RAB/signalling RB		**SRB#1**	**SRB#2**	**SRB#3**	**SRB#4**
	User of Radio Bearer		RRC	RRC	NAS_DT High prio	NAS_DT Low prio
RLC	Logical channel type		DCCH	DCCH	DCCH	DCCH
	RLC mode		UM	AM	AM	AM
	Payload sizes, bit		136	128	128	128
	Max data rate, bps		3400	3200	3200	3200
	AMD/UMD PDU header, bit		8	16	16	16
MAC	MAC header, bit		4	4	4	4
	MAC multiplexing		4 logical channel multiplexing			
Layer 1	TrCH type		DCH			
	TB sizes, bit		148			
	TFS	TF0, bits	0x148			

	TF1, bits	1x148
	TTI, ms	40
	Coding type	CC 1/3
	CRC, bit	16
	Max number of bits/TTI before rate matching	516
	RM attribute	155-185

Note: this RAB is similar to the one already in TS 34.108.

TFCS

TFCS size	6
TFCS	(12.6 kbps Conversational RAB, DCCH)= (TF0, TF0), (TF0, TF1), (TF1, TF0), (TF1, TF1), (TF2, TF0), (TF2, TF1)

Physical channel parameters

DPCH Downlink	DTX position		Fixed
	Spreading factor		128
	DPCCH	Number of TFCI bits/slot	0
		Number of TPC bits/slot	2
		Number of Pilot bits/slot	4
	DPDCH	Number of data bits/slot	34
		Number of data bits/frame	510

Conversational / speech / UL:13.4 DL:13.4 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

Uplink

Transport channel parameters

Transport channel parameters for Conversational / speech / UL:13.4 kbps / PS RAB

Higher layer	RAB/Signalling RB		**RAB**
RLC	Logical channel type		DTCH
	RLC mode		UM
	Payload sizes, bit		268, 63
	Max data rate, bps		13400
	UMD PDU header, bit		8
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		276, 71
	TFS	TF0, bits	0x276
		TF1, bits	1x71
		TF1, bits	1x276
	TTI, ms		20
	Coding type		CC-1/3
	CRC, bit		12
	Max number of bits/TTI after channel coding		888
	Uplink: Max number of bits/radio frame before rate matching		444
	RM attribute		TBD

Transport channel parameters for UL:3.4 kbps SRBs for DCCH

See section 0.

Note: this RAB is similar to the one already in TS 34.108.

TFCS

TFCS size	6
TFCS	(13.4 kbps Conversational RAB, DCCH)= (TF0, TF0), (TF0, TF1), (TF1, TF0), (TF1, TF1), (TF2, TF0), (TF2, TF1)

Physical channel parameters

DPCH Uplink	Min spreading factor	64
	Max number of DPDCH data bits/radio frame	600
	Puncturing Limit	TBD

Downlink

Transport channel parameters

Transport channel parameters for Conversational / speech / DL:13.4 kbps / PS RAB

Higher layer	RAB/Signalling RB		RAB
RLC	Logical channel type		DTCH
	RLC mode		UM
	Payload sizes, bit		268, 63
	Max data rate, bps		13400
	UMD PDU header, bit		8
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		276, 71
	TFS	TF0, bits	0x276
		TF1, bits	1x71
		TF2, bits	1x276
	TTI, ms		20
	Coding type		CC-1/3
	CRC, bit		12
	Max number of bits/TTI after channel coding		888
	RM attribute		TBD

Transport channel parameters for DL:3.4 kbps SRBs for DCCH

See section 0.

Note: this RAB is similar to the one already in TS 34.108.

TFCS

TFCS size	6
TFCS	(13.4 kbps Conversational RAB, DCCH)= (TF0, TF0), (TF0, TF1), (TF1, TF0), (TF1, TF1), (TF2, TF0), (TF2, TF1)

Physical channel parameters

DPCH Downlink	DTX position		Fixed
	Spreading factor		128
	DPCCH	Number of TFCI bits/slot	0
		Number of TPC bits/slot	2
		Number of Pilot bits/slot	4
	DPDCH	Number of data bits/slot	34
		Number of data bits/frame	510

Conversational / speech / UL:14.2 DL:14.2 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

Uplink

Transport channel parameters

Transport channel parameters for Conversational / speech / UL:14.2 kbps / PS RAB

Higher layer	RAB/Signalling RB		**RAB**
RLC	Logical channel type		DTCH
	RLC mode		UM
	Payload sizes, bit		284, 79
	Max data rate, bps		14200
	UMD PDU header, bit		8
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		292, 87
	TFS	TF0, bits	0x292
		TF1, bits	1x87
		TF1, bits	1x292
	TTI, ms		20
	Coding type		CC-1/3
	CRC, bit		12
	Max number of bits/TTI after channel coding		936
	Uplink: Max number of bits/radio frame before rate matching		468
	RM attribute		TBD

Transport channel parameters for UL:3.4 kbps SRBs for DCCH

See section 0.

Note: this RAB is similar to the one already in TS 34.108.

TFCS

TFCS size	6
TFCS	(14.2 kbps Conversational RAB, DCCH)= (TF0, TF0), (TF0, TF1), (TF1, TF0), (TF1, TF1), (TF2, TF0), (TF2, TF1)

Physical channel parameters

DPCH Uplink	Min spreading factor	64
	Max number of DPDCH data bits/radio frame	600
	Puncturing Limit	TBD

Downlink

Transport channel parameters

Transport channel parameters for Conversational / speech / DL:14.2 kbps / PS RAB

Higher layer	RAB/Signalling RB		RAB
RLC	Logical channel type		DTCH
	RLC mode		UM
	Payload sizes, bit		284, 79
	Max data rate, bps		14200
	UMD PDU header, bit		8
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		292, 87
	TFS	TF0, bits	0x292
		TF1, bits	1x87
		TF2, bits	1x292
	TTI, ms		20
	Coding type		CC-1/3
	CRC, bit		12
	Max number of bits/TTI after channel coding		468
	RM attribute		TBD

Transport channel parameters for DL:3.4 kbps SRBs for DCCH

See section 0.

Note: this RAB is similar to the one already in TS 34.108.

TFCS

TFCS size	6
TFCS	(14.2 kbps Conversational RAB, DCCH)= (TF0, TF0), (TF0, TF1), (TF1, TF0), (TF1, TF1), (TF2, TF0), (TF2, TF1)

Physical channel parameters

DPCH Downlink	DTX position		Fixed
	Spreading factor		128
	DPCCH	Number of TFCI bits/slot	0
		Number of TPC bits/slot	2
		Number of Pilot bits/slot	4
	DPDCH	Number of data bits/slot	34
		Number of data bits/frame	510