TSG-RAN Working Group 3
Meeting #6
Sophia-Antipolis, France 23 - 27 August 1999

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Agenda Item: 14.1, 14.2
Source: NTT DoCoMo
Title: Separation of Header and Payload Checksum in Iub/Iur DCH Frame Protocol format and in Iub CTCH Frame Protocol Format
Document for: Decision

1.Introduction

In [1] and [2], Iub/Iur DCH Frame Protocol frame structure and coding is defined. Iur/Iub UP data frame consists of header, payload, and tail. The tail contains a checksum of the header and the payload. But when checksum NG is found, frames have to be discarded. .

This document proposes the separation of the checksums for the header and the payload like Iu protocol Frame structure defined in TS25.415 [3].

2.Discussion

In the current baseline document [1] and [2], UP Frame Protocols seem to have only one checksum. If it is correct, it is impossible to figure out what part of the frame contains an error in checksum NG case. The entire frame has to be discarded.

However, some services such as speech and UDI prefer to make use of the frame even if payload contains some bit errors. To support such requirement, there should be a mechanism to distinguish in which part (header or payload) the error is occurred.

2.1 UL

Table2-1 shows an example rule whether the SRNC should discard the frames or not in checksum NG cases in UL.

a) Header NG
The frame having an error in the header should be discarded regardless of the kind of service because it may have an error in the CFN field which is necessary for checking synchronisation and selective combination in SRNC etc.

b) Payload NG (Header OK)
This case depends on the kind of service.

For example, for packet, DTCH or DCCH, in which a retransmission protocol is supported in the upper layer but no bit error detection is supported in the upper layer, the frames should be discarded.

But for speech or UDI, in which no retransmission protocol supported but certain bit errors are allowed, frames should be utilised to avoid the loss of the whole data in the TBs.

Table 2-1 Example whether frames should be sent or not when checksum NG is found

NG part of the frame A kind of service	Header	Payload
Bit error is not allowed (e.g. Packet)	Discard	Discard
Bit error is allowed (e.g. Speech, N-ISDN)	Discard	Send

2.2 DL in NodeB

Same as UL.

3.Proposal

It is proposed to make the following modification in [1] and [2]

[25.427]

7.1 Data frame structure

Table 1 and Table 2

	Information element	Descriptions	Present on	
			UL	DL
:	:	:	:	:
Tail	Header checksum	Checksum of the header	X	X
	Payload checksum	Checksum of the payload	X	X

[25.435]

5.1.1 RACH channels

	Information element	Descriptions	Present on	
			UL	DL
:	:	:	:	:
Tail	Header checksum	Checksum of the header	X	X
	Payload checksum	Checksum of the payload	X	X

5.1.2 FACH/PCH channels

	Information element	Descriptions	Present on	
			UL	DL
:	:	:	:	:
Tail	Header checksum	Checksum of the header	X	X
	Payload checksum	Checksum of the payload	X	X

4.References

[1]UMTS 25.427, Ver.0.2.1
[2]UMTS 25.435, Ver 0.3.1
[3]UMTS 25.415, Ver.0.2.1