TSG-RAN Meeting #7 ***TSGRP#7(00)0104***
Madrid, Spain, 13 - 15 March 2000

Title: **Agreed CRs to TS 25.427**

Source: **TSG-RAN WG3**

Agenda item: **6.4.3**

Tdoc_Num	Specification	CR_Num	Revision_Num	CR_Subject	CR_Category	WG_Status	Cur_Ver_Num	New_Ver_Num
R3-000010	25.427	002		Changing Eb/N0 to SIR.	F	agreed	3.1.0	3.2.0
R3-000020	25.427	003		Modification of Uplink Data Transfer procedure.	B	agreed	3.1.0	3.2.0
R3-000360	25.427	004		Modification to DCH control frame protocol passing TFI signalling for DSCH	C	agreed	3.1.0	3.2.0
R3-000476	25.427	005		Change of definition of QE	F	agreed	3.1.0	3.2.0
R3-000555	25.427	009		Editorial changes to 25.427	D	agreed	3.1.0	3.2.0
R3-000557	25.427	010		Aligned definition of Rx Timing Deviation	F	agreed	3.1.0	3.2.0
R3-000558	25.427	008		Corrections to 25.427 on DTX	F	agreed	3.1.0	3.2.0
R3-000469	25.427	012		Removal of open issues chapter	D	agreed	3.1.0	3.2.0
R3-000513	25.427	001	1	Modification of the CRC description	D	agreed	3.1.0	3.2.0
R3-000878	25.427	006	1	Radio Interface Parameter Updates	F	agreed	3.1.0	3.2.0
R3-000905	25.427	013	1	DL user plane synchronisation	F	agreed	3.1.0	3.2.0

R3-000762	25.427	011	1	DCH Frame Protocol Error Handling Clarification	F	agreed	3.1.0	3.2.0
R3-000828	25.427	007	1	Addition of Spare Extension.	B	agreed	3.1.0	3.2.0

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Document R3-000010

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25.427 CR 002 Current Version: 3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

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Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: TSG-RAN WG3 **Date:** 00.01.24

Subject: Changing Eb/N0 to SIR.

Work item:

Category:				**Release:**	
	F	Correction	X	Phase 2	
	A	Corresponds to a correction in an earlier release		Release 96	
(only one category	B	Addition of feature		Release 97	
shall be marked	C	Functional modification of feature		Release 98	
with an X)	D	Editorial modification		Release 99	X
				Release 00	

Reason for change: To align with the TSG RAN WG1 specifications. See also R3-000009.

Clauses affected: 5.4, 6.3.3.4.1

Other specs affected:			
	Other 3G core specifications		→ List of CRs:
	Other GSM core specifications		→ List of CRs:
	MS test specifications		→ List of CRs:
	BSS test specifications		→ List of CRs:
	O&M specifications		→ List of CRs:

Other comments:

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5.4 Outer loop PC information transfer

Based, for example, on the CRCI values and on the quality estimate in the UL frames, SRNC modifies the ~~Eb/No setpoint~~ SIR target used by the ~~Node B~~ UL Inner Loop Power Control by including the absolute value of the new ~~Eb/No setpoint~~ SIR target in one control frame sent to the Node B's. This control frame can be sent via any of the transport connections dedicated to one UE.

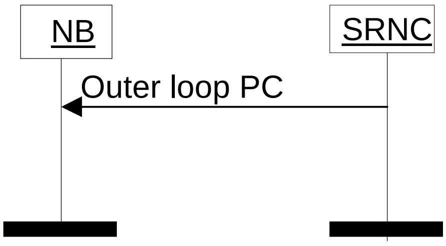

Figure 5: Outer loop power control information transfer

6.3.3.4.1 Payload structure

Figure below shows the structure of the payload when control frame is used for the UL outer loop power control.

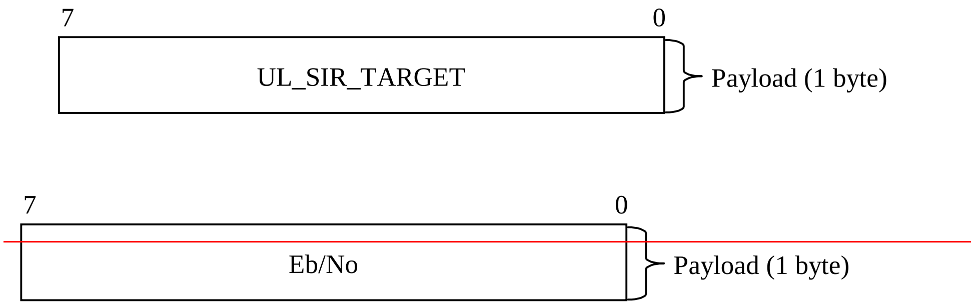

Figure 17: Structure of the payload for outer loop PC control frame

6.3.3.4.2 ~~Eb/No setpoint~~SIR Target

Description: Value (in dB) of the ~~reference Eb/No~~ SIR target to be used ~~for~~ by the UL inner loop power control.

SIR Target is given in the unit UL_SIR_TARGET where:

UL_SIR_TARGET = 000 SIR Target = -8.2 dB
UL_SIR_TARGET = 001 SIR Target = -8.1 dB
UL_SIR_TARGET = 002 SIR Target = -8.0 dB
...
UL_SIR_TARGET = 254 SIR Target = 17.2 dB
UL_SIR_TARGET = 255 SIR Target = 17.3 dB

Value range: {~~0~~-8.2…~~25.5~~17.3 dB}, step 0.1 dB

Field length: 8 bits

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***Document* R3-000020**
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25.427 CR 003 Current Version: 3.1.0

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Strategic: — non-strategic: *(for SMG use only)*

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Proposed change affects: (U)SIM: — ME: — UTRAN / Radio: X — Core Network:
(at least one should be marked with an X)

Source:	TSG-RAN WG3
Date:	Jan, 2000
Subject:	Modification of Uplink Data Transfer procedure.
Work item:	

Category: *(only one category shall be marked with an X)*

F	Correction	
A	Corresponds to a correction in an earlier release	
B	Addition of feature	X
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change:
Clarification of the chapter 5.1.1 Uplink.
In case Node B receives an invalid TFCI the UL data frames shall be handled in the same way as when the synchronisation is lost, data frames shall not be sent to the SRNC.

Clauses affected: 5.1.1.

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

5.1.1 Uplink

Figure 1: Uplink data transfer

Two modes can be used for the UL transmission: *normal mode* and *silent mode*. The mode is selected by the SRNC when the transport connection is setup and signaled to the Node B with the relevant control plane procedure.

- In normal mode, NodeB shall always send an UL data frame to the RNC for all the DCHs in a set of coordinated DCHs regardless of length of Transport Block of DCHs, i.e. also when it has received zero bits for a transport channel during a certain TTI.
- In silent mode and in case only one transport channel is transported on a transport bearer, the node-B shall not send an UL data frame to the RNC when it has received zero bits for a transport channel during a certain TTI.

In silent mode and in case of coordinated DCHs, when Node B receives zero bits for all the DCHs in a set of coordinated DCHs, node B shall not send an UL data frame to the RNC for this set of coordinated DCHs.

When UL synchronisation is lost or not yet achieved, UL data frames are not sent to the SRNC.

When Node B receives an invalid TFCI no data frame shall be sent to the SRNC.

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Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio	X	Core Network

Source: TSG-RAN WG3 **Date:** 24 Jan 2000

Subject: Modification to DCH control frame protocol passing TFI signalling for DSCH

Work item:

Category:	F	Correction		**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature	X		Release 98	
with an X)	D	Editorial modification			Release 99	X
					Release 00	

Reason for change:

- The current specification is inconsistent in describing how multiple DSCH can be supported to the same user. In addition the mechanism by which the TFCI is built in the node B is not described.

Clauses affected:

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
			→ List of CRs:	
	O&M specifications		→ List of CRs:	

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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.

[1] TS UMTS 25.301, Radio Interface Protocol Architecture.

[2] TS 25.401 UTRAN architecture description.

[3] TS 25.302 Services provided by the Physical Layer, Source WG2.

[4] TS 25.433 UTRAN Iub interface NBAP signalling

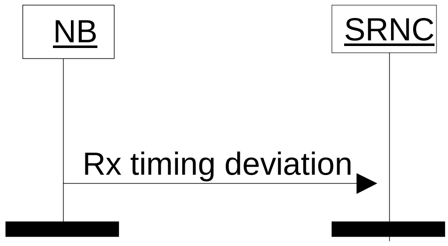
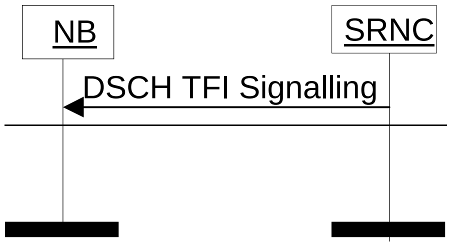


Figure 7: Rx timing deviation

5.7 DSCH TFCI Signalling [FDD]

This procedure is used in order to signal to the node B the TFCI (field 2) ~~of the DSCH TBS to the Node B~~. This allows the node B to build the TFCI word(s) which have to be transmitted on the DPCCH.~~to use the combined TFCI codeword for the signalling of the DCHs and DSCH TFIs in the radio frame.~~

The procedure consists in sending the DSCH TFCI signalling control frame from ~~sent by~~ the SRNC to the n~~N~~ode B. The frame contains the ~~DSCH~~ TFCI(field 2) and the correspondent CFN. The DSCH TFCI signalling frame is sent once every Uu frame interval (10 ms) for as long as there is DSCH data for that UE to be transmitted in the associated PDSCH Uu frame. In the event that the node B does not receive a DSCH TFCI signalling control frame then the node B shall infer that no DSCH data is to be transmitted to the UE on the associated PDSCH Uu frame and will build the TFCI word(s) accordingly.



~~**Figure 8: DSCH TFI Signalling**~~

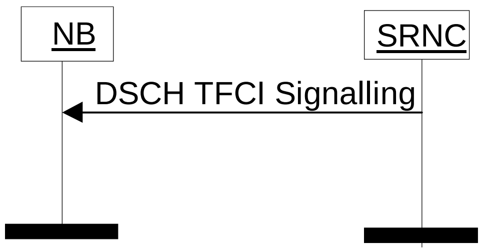


Figure 8: DSCH TFCI Signalling

6 Frame structure and coding

6.1 General

The general structure of a DCH FP frame consists of a header anda payload. The structure is depicted in figure below

Figure 9: General structure of a frame protocol PDU

The header contains a CRC checksum, the frame type field and information related to the frame type.

There are two types of DCH FP frames (indicated by the Frame type field).

- DCH data frame
- DCH control frame

The payload of the data frames contains radio interface user data, quality information for the transport blocks and for the radio interface physical channel during the transmission time interval (for UL only), and an optional CRC field

The payload of the control frames contains commands and measurement reports related to transport bearer and the radio interface physical channel but not directly related to specific radio interface user data.

6.3.3.7.2 Rx Timing Deviation

Description: Measured Rx Timing deviation.

Value range: {-512, +508 chips, step 4 chips}. **Field length**: 8 bits

6.3.3.8 [FDD - DSCH TFCI signalling]

6.3.3.8.1 Payload structure

The f~~F~~igure below shows the structure of the payload when the control frame is used for signalling TFCI (field 2) bits. The TFCI (field 2) bits are used by the node B to create the TFCI word(s) for transmission on the DPCCH. ~~used on the DSCH(s)~~ ~~of a user~~ . A transport bearer of any DCH directed to this same user may be employed for transport over the Iub / Iur.

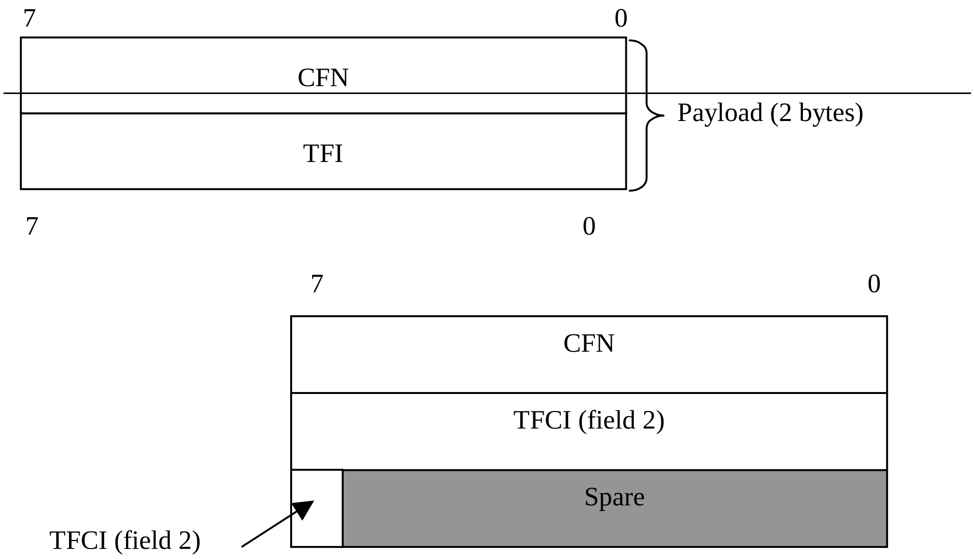


Figure 21: [FDD - Structure of the payload for the DSCH DL signaling control frame]

~~6.3.3.8.2 DSCH TFI~~

~~**Description:** TFI of the associated DSCH TBS.~~

~~The DSCH TFI in the control frame is coded as in section 6.2.4.4.~~

6.3.3.8.2 TFCI (field 2)

Description: TFCI (field 2) is as described in [4], it takes the same values as the TFCI(field 2) which is transmitted over the Uu interface.

Value range: {0 - 511}

Field length: 9 bits

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25.427 CR 005 Current Version: 3.1.0

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Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: RAN-WG3 **Date:** 2000-02-15

Subject: Change of definition of the quality estimate (QE)

Work item:

Category:
(only one category shall be marked with an X)

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: In WG1 the definition of Physical channel BER type 1 is proposed to be changed to Transport channel BER. Therefore the definition of the QE has to be updated.

Clauses affected: 6.2.4.5

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	CR 25.215-XXX, CR 25.423-018, CR 25.433-031
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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6.2.4.5 Quality Estimate (QE)

Description: The quality estimate is derived from the [FDD - ~~DPDCH~~ Transport channel BER or ~~DPCCH~~Physcial channel BER][TDD - DPCH~~]~~ Physical Channel BER].

~~[FDD - In case there is user data to be included in the DCH FP frame the QE shall be derived from the DPDCH Physical Channel BER.]~~

~~[FDD - When there is no user data to be included in the DCH FP frame the QE shall be derived from the DPCCH Physical Channel BER.]~~

[FDD – If the DCH FP frame includes TB's for the DCH which was indicated as "selected DCH" with the QE-selector IE in the control plane [25.433][25.423], then the QE is the Transport channel BER for the selected DCH. If no Transport channel BER is available the QE is the Physical channel BER.]

[FDD – If the IE QE-Selector equals “non-selected DCH” for all DCHs in the DCH FP frame the is the Physical channel BER.]

[TDD – The QE shall be derived from the DPCH Physical Channel BER.]

The quality estimate shall be set to the Transport channel BER or Physical channel BER and be measured in the unit BER_LOG~~dB~~ (see Ref 25.215). The quality estimate is needed in order to select a transport block when all CRC indications are showing bad (or good) frame. The UL Outer Loop Power Control may also use the quality estimate.

Value range: {0-63}, granularity 1

Field length: 6 bits

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Sophia Antipolis, France, 28 February – 3 March, 2000

Document* *R3-000555
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25.427 CR 009 Current Version: 3.0.0

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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: RAN-WG3 **Date:** Feb 22, 2000

Subject: Editorial changes to 25.427

Work item:

Category:				**Release:**		
	F	Correction			Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature			Release 98	
with an X)	D	Editorial modification	X		Release 99	X
					Release 00	

Reason for change: Editorial comments on 25.427
In the UL data frame the number of bits for the QE is corrected.

Clauses affected: 5.4, 6.2.2, 6.2.4.5, 6.3.3.4, 6.3.3.5, 6.3.3.6, 6.3.3.8.1,

Other specs affected:			
	Other 3G core specifications		→ List of CRs:
	Other GSM core specifications		→ List of CRs:
	MS test specifications		→ List of CRs:
	BSS test specifications		→ List of CRs:
	O&M specifications		→ List of CRs:

Other comments:

5.4 Outer loop PC information transfer [FDD]

Based, for example, on the CRCI values and on the quality estimate in the UL frames, SRNC modifies the Eb/No setpoint used by the Node B by including the absolute value of the new Eb/No setpoint in one control frame sent to the Node B's. This control frame can be sent via any of the transport connections dedicated to one UE.

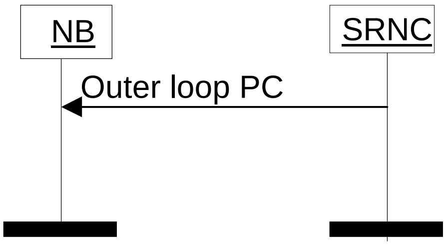

Figure 5: Outer loop power control information transfer

6.2.2 Uplink data frame

The structure of the UL data frame is shown below.

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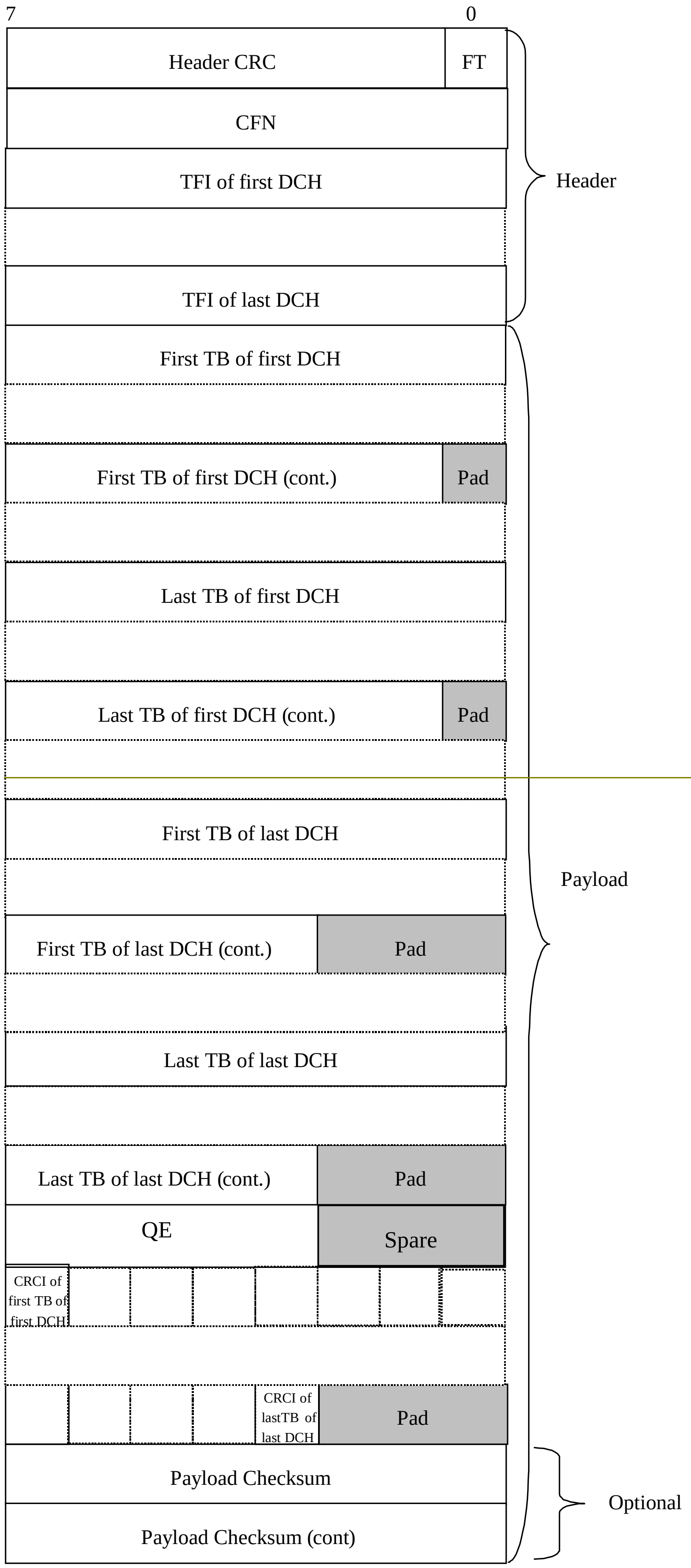

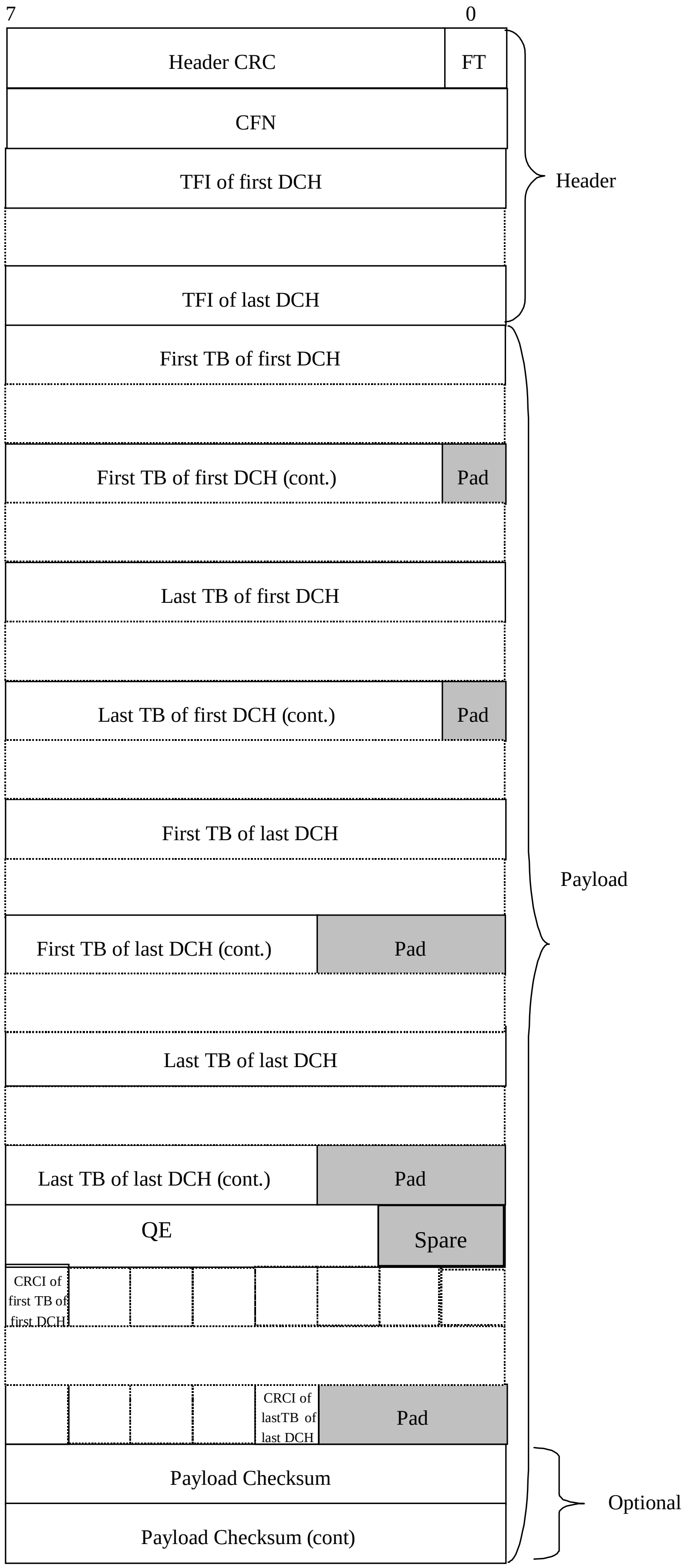

Figure 11: Uplink data frame structure

For the description of the fields see section 6.2.4.

There are as many TFI fields as number of DCH multiplexed in the same transport connection.

The DCHs in the frame structure are ordered from the lower DCH id ('first DCH') to the higher DCH id ('last DCH')

The size and the number of TBs for each DCH is defined by the correspondent TFI.

If the TB does not fill an integer number of bytes, then bit padding is used as shown in the figure in order to have the octet aligned structure (ex: a TB of 21 bits requires 3 bits of padding).

There is a CRCI for each TB included in the frame. If the CRC indicators of one data frame do not fill an integer number of bytes, then bit padding is used as shown in the figure in order to have the octet aligned structure.

The payload CRC is optional, i.e. the whole 2 bytes field may or may not be present in the frame structure (this is defined at the setup of the transport connection).

6.2.4.5 Quality Estimate (QE)

Description: The quality estimate is derived from the [FDD - DPDCH or DPCCH][TDD - DPCH] Physical Channel BER.

[FDD - In case there is user data to be included in the DCH FP frame the QE shall be derived from the DPDCH Physical Channel BER.]

[FDD - When there is no user data to be included in the DCH FP frame the QE shall be derived from the DPCCH Physical Channel BER.]

~~[TDD – The QE shall be derived from the DPCH Physical Channel BER.]~~

The quality estimate shall be set to the Physical channel BER and be measured in the unit BER_dB (see Ref 25.215 and 25.225). The quality estimate is needed in order to select a transport block when all CRC indications are showing bad (or good) frame. The UL Outer Loop Power Control may also use the quality estimate.

Value range: {0-63}, granularity 1

Field length: 6 bits

6.3.3.4 UL Outer loop power control [FDD]

6.3.3.4.1 Payload structure

Figure below shows the structure of the payload when control frame is used for the UL outer loop power control.

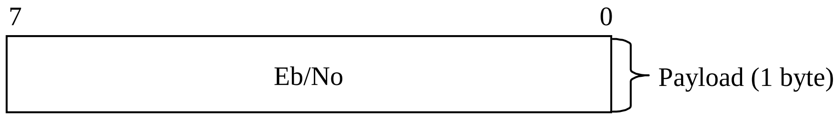

Figure 17: Structure of the payload for outer loop PC control frame

6.3.3.4.2 Eb/No setpoint

Description: Value (in dB) of the reference Eb/No to be used for the UL inner loop power control.

Value range: {0…25.5 dB}, step 0.1 dB

Field length: 8 bits

6.3.3.5 DL Node ~~Synchronization~~Synchronisation

6.3.3.5.1 Payload structure

Figure below shows the structure of the payload for the DL Node Synchronisation control frame.

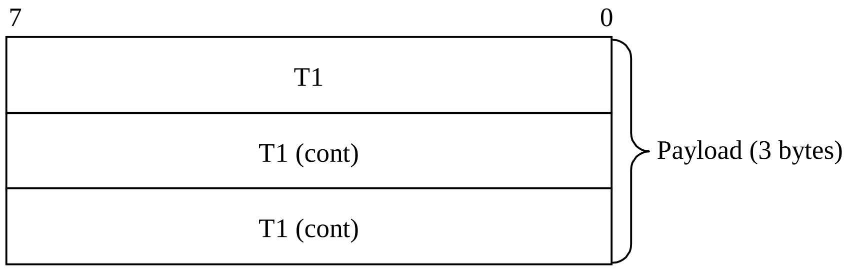

Figure 18: Structure of the payload for the DL Node Synchronisation control frame

6.3.3.5.2 T1

Description: RNC specific frame number (RFN) that indicates the time when RNC sends the frame through the SAP to the transport layer.

Value range: as defined in section 6.3.3.6.2.

Field length: 24 bits

6.3.3.6 UL Node ~~Synchronization~~Synchronisation

6.3.3.6.1 Payload structure

The payload of the UL Node synch control frames is shown in the figure below.

7 0	
T1	Payload (12 bytes)
T1 (cont)	
T1 (cont)	
T2	
T2 (cont)	
T2 (cont)	
T3	
T3 (cont)	
T3 (cont)	

Figure 19: Structure of the payload for UL Node Synchronisation control frame

6.3.3.8 DSCH TFI signalling

6.3.3.8.1 Payload structure

Figure below shows the structure of the payload when the control frame is used for signalling TFI bits used on the DSCH.

7 0	
CFN	Payload (2 bytes)
TFI	

Figure 21: Structure of the payload for the DSCH DL ~~signaling~~signalling control frame

6.3.3.8.2 DSCH TFI

Description: TFI of the associated DSCH TBS.

The DSCH TFI in the control frame is coded as in section 6.2.4.4.

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Sophia Antipolis, France, 28 February-3 March 2000

Document R3-000557
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25.427 CR 010 — Current Version: 3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ — *↑ CR number as allocated by MCC support team*

For submission to: RAN #7
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for approval	X	strategic		(for SMG use only)
for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: RAN-WG3 **Date:** Feb 22, 2000

Subject: Aligned definition of Rx Timing Deviation

Work item:

Category:
(only one category shall be marked with an X)

F	Correction	X	
A	Corresponds to a correction in an earlier release		
B	Addition of feature		
C	Functional modification of feature		
D	Editorial modification		

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: Alignment Rx Timing Deviation with 25.225 in terms of range and granularity.

Clauses affected: 5.6, 6.3.3.7.1, 6.3.3.7.2

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

help.doc

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5.6 Rx timing deviation measurement [TDD]

This procedure is applicable in TDD mode only.

The Node B shall, for all UEs using DCHs, monitor the receive timing of the uplink DPCH bursts arriving over the radio interface, and shall calculate the Rx Timing Deviation. If the calculated value, after rounding, is not zero, it shall be reported to the SRNC in a DCH Control Frame belonging to that UE. For limitation of the frequency of this reporting, the Node B shall not send more than one Rx Timing Deviation value per UE in a DCH Control Frame within one radio frame~~the Rx Timing Deviation measurement reporting period~~.

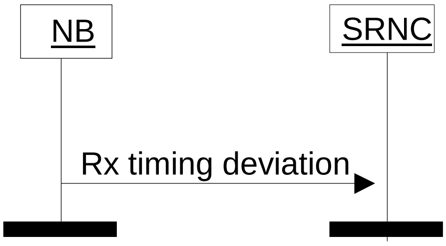

Figure 7: Rx timing deviation

6.3.3.7 Rx Timing Deviation

6.3.3.7.1 Payload structure

Figure below shows the structure of the payload when the control frame is used for the Rx timing deviation.

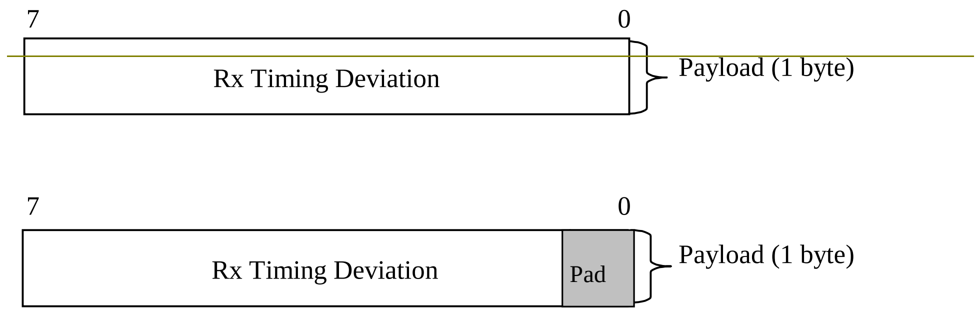

Figure 20: Structure of the payload for Rx timing deviation control frame

6.3.3.7.2 Rx Timing Deviation

Description: Measured Rx Timing deviation as a basis for timing advance.

Value range: {-~~512~~256, ...,+~~508~~ 256 }chips~~, step 4 chips}.~~

{N*4 –256}chips ≤ RxTiming Deviation < {(N+1)*4 –256} chips

With N = 0,1, .. , 127

Granularity: 4 chips

Field length: ~~8~~ 7 bits

3GPP TSG-RAN Working Group 3, Meeting #11
Sophia Antipolis, France, 28 February – 3 March, 2000

***Document* R3-000558**

e.g. for 3GPP use the format TP-99xxx
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25.427	**CR**	**008**	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN #7	for approval	X	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio	X	Core Network	

Source:	RAN-WG3	**Date:**	Feb 24, 2000
Subject:	Corrections to 25.427 on DTX		
Work item:			

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature			Release 98	
with an X)	D	Editorial modification			Release 99	X
					Release 00	

Reason for change:	The behaviour of the Node B in case of invalid downlink DCH frames arriving from the RNC is defined for the TDD mode. The Node B shall in this case apply DTX.
Clauses affected:	5.1.2

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

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<--------- double-click here for help and instructions on how to create a CR.

5.1.2 Downlink

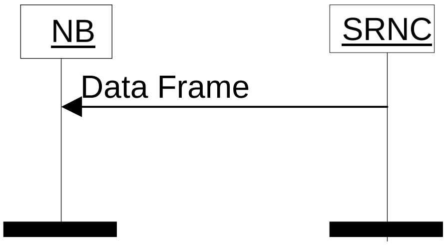

Figure 2: Downlink data transfer

If the Node B does not receive a valid FP frame in a TTI, it assumes that there is no data to be transmitted in that TTI for this transport channel.

If the node B is aware of a TFI value corresponding to zero bits for this transport channel, this TFI is assumed. When combining the TFI's of the different transport channels, a valid TFCI might result and in this case data shall be transmitted on Uu.

If the node B is not aware of a TFI value corresponding to zero bits for this transport channel or if combining the TFI corresponding to zero bits with other TFI's, results in an unknown TFI combination, the handling as described in the following paragraph shall be applied.

At each frame, the Node B shall build the TFCI value of each CCTrCH, according to the TFI of the DCH data frames multiplexed on this CCTrCH and scheduled for that frame. [FDD - In case the Node receives an unknown combination of DCH data frames, it shall transmit only the DPCCH without TFCI bits.] [TDD - In case the Node receives an unknown combination of DCH data frames, it shall apply DTX, i.e. suspend transmission on the corresponding DPCHs.]

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25.427	**CR**	**012**	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio	X	Core Network	

Source:	Nokia	**Date:**	
Subject:	Removal of the open issues chapter		
Work item:			

Category:	F	Correction		**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature			Release 98	
with an X)	D	Editorial modification	X		Release 99	X
					Release 00	

Reason for change:	Open issues of technical specification are listed in the WG3 report. Furthermore some of the listed open issue has been already solved. The CR removes the open issue chapter.
Clauses affected:	8

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

~~8 List of open issues~~

~~The open issues that may have impact on the FP specification are the following:~~

- ~~Version handling and backward compatibility.~~
- ~~Decoding of the UL TFCI and need of the UL normal mode.~~

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25.427	**CR**	**1 R1**	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG RAN #7	For approval	X	Strategic	*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic	*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio	X	Core Network	

Source: RAN-WG3 **Date:** Feb ,2000

Subject: Modification of the CRC description.

Work item:

Category:				**Release:**		
	F	Correction			Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature			Release 98	
with an X)	D	Editorial modification	X		Release 99	X
					Release 00	

Reason for change: The current CRC description is ambiguous. The proposed description is aligned with the description of the radio frame CRC in the 25.212.

Clauses affected: 6.2.4.1., 6.2.4.8., 6.3.2.1, 7.2.

Other specs affected:			
	Other 3G core specifications		→ List of CRs:
	Other GSM core specifications		→ List of CRs:
	MS test specifications		→ List of CRs:
	BSS test specifications		→ List of CRs:
	O&M specifications		→ List of CRs:

Other comments:

6.2.4.1 Header CRC

Description: Result of the CRC applied to the remaining part of the header, i.e. from bit 0 of the first byte, (the FT field) to the bit 0 (included) of the last byte of the header) with the corresponding generator polynomial:
$G(D) = D^7+D^6+D^2+1$. See chapter 7.2.

Field Length: 7 bits

6.2.4.8 Payload ~~Cyclic Redundancy Checksum~~ CRC

Description: CRC for the payload. This field is optional. It is the result of the CRC applied to the remaining part of the payload, i.e. from the bit 7 of the first byte of the payload to the bit 0 of the byte of the payload before the CRC field, with the corresponding generator polynomial:
$G(D) = D^{16}+D^{15}+D^{2}+1$. See chapter 7.2.

Field length: 16 bits

6.3.2.1 Frame CRC

Description: It is the result of the CRC applied to the remaining part of the frame, i.e. from bit 0 of the first byte of the header (the FT field) to bit 0 of the last byte of the payload, with the corresponding generator polynomial: $G(D) = D^7+D^6+D^2+1$. See chapter 7.2.

Field Length: 7 bits

7.2 Error detection

Error detection is provided on frames through a Cyclic Redundancy Check. The length of the CRC for the payload is 16 bits and for the frame header and control frames it is 7 bits.

7.2.1 CRC Calculation

The parity bits are generated by one of the following cyclic generator polynomials:

$g_{CRC16}(D) = D^{16} + D^{15} + D^{2} + 1$

$g_{CRC7}(D) = D^{7} + D^{6} + D^{2} + 1$

Denote the bits in a frame by $a_1, a_2, a_3, \ldots, a_{A_i}$, and the parity bits by $p_1, p_2, p_3, \ldots, p_{L_i}$. A_i is the length of a protected data and L_i is 16 or 7 depending on the CRC length.

The encoding is performed in a systematic form, which means that in GF(2), the polynomial for the payload

$$a_1 D^{A_i+15} + a_2 D^{A_i+14} + \ldots + a_{A_i} D^{16} + p_1 D^{15} + p_2 D^{14} + \ldots + p_{15} D^{1} + p_{16}$$

yields a remainder equal to 0 when divided by $g_{CRC16}(D)$ and the polynomial for the header and control frame

$$a_1 D^{A_i+6} + a_2 D^{A_i+5} + \ldots + a_{A_i} D^{7} + p_1 D^{6} + p_2 D^{5} + \ldots + p_6 D^{1} + p_7$$

yields a remainder equal to 0 when divided by $g_{CRC7}(D)$.

7.2.1.1 Relation between input and output of the Cyclic Redundancy Check

The bits after CRC attachment are denoted by $b_1, b_2, b_3, \ldots, b_{B_i}$, where $B_i = A_i + L_i$.

The parity bits for the payload are attached at the end of the frame:

$b_k = a_k$ $\quad k = 1, 2, 3, \ldots, A_i$

$b_k = p_{(k-A_i)}$ $\quad k = A_i + 1, A_i + 2, A_i + 3, \ldots, A_i + L_I$

The parity bits for the frame header and the control frames are attached at the beginning of the frame:

$b_k = p_k$ $\quad k = 1, 2, 3, \ldots, L_i$

$b_k = a_{(k-Li)}$ $\quad k = L_i + 1, L_i + 2, L_i + 3, \ldots, L_I + A_i$

TSG-RAN Working Group 3 Meeting #11 ***TSGR3#11(00)0878***

Nice, France, 28th February – 3rd March 2000

Agenda Item: **17.5**
Source: **RAN-WG3**
Title: **Radio Interface Parameter Updates**
Document for: **Decision**

---

1. Introduction

In recent WG3 meetings several issues have been discussed which would require a quite frequent update of certain radio interface related parameters while the UE has dedicated RL’s. This CR proposes a solution on how to signal these updates to the node-B.

2. Rationale

In the last meetings, it has been discussed how to signal updates of e.g. DPCCH related Power Offsets or DPC mode changes to the Node-B. No conclusion has been reached during these discussions.

The signalling related to changing these parameters has several common characteristics:

- They all concern dedicated RL’s;
- The signalling could occure relatively frequent;
- The radio interface parameter changes should be applied to all RL’s of the radio connection;
- No large problems should occur if a node-B fails to apply the new parameters once in a while;
- In addition, they all might benefit from a synchronised activation between UE and UTRAN.

This CR proposes a new DL user-plane control frame which can be used to change radio interface related parameters for dedicated RL’s.

We think that the only real candidate parameter for R99 which has been identified so far is the TPC PO, which could have to be updated quite frequently, e.g. at each SOHO.

The procedure is specified in such a way that further extensions can be made to the procedure while ensuring backward compatibility.

3. Proposal

The resulting proposal is included in the attached CR to [1].

4. References

[1] 25.427 v3.1.0

3GPP TSG RAN WG3 Meeting #10
Nice, France, 28th Jan-3rd Mar 2000

Document R3-000878
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.427 CR 6R1 Current Version: 3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG RAN #7
list expected approval meeting # here ↑

for approval	X	strategic		*(for SMG Use only)*
for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: RAN-WG3 **Date:** Feb 2000

Subject: Radio Interface Parameter Updates

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Currently the TPC PO can only be signalled at RL_SETUP. This is considered too restrictive since during the life-time of the RL, the radio interface situation will change (e.g. SOHO) which might require an update of the TPC PO.

This CR adds the possibility to update the TPC PO setting during the life-time of an RL.

Clauses affected:

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

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5.7 DSCH TFI Signalling [FDD]

This procedure is used in order to signal the TFI of the DSCH TBS to the Node B. This allows to use the combined TFCI codeword for the signalling of the DCHs and DSCH TFIs in the radio frame.
The procedure consists in the DSCH TFI control frame sent by the SRNC to the Node B. The frame contains the DSCH TFI and the correspondent CFN.

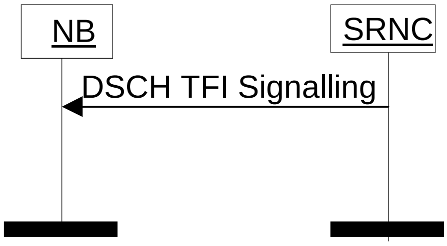

Figure 8: DSCH TFI Signalling

5.8. Radio Interface Parameter Update [FDD]

This procedure is used to update radio interface parameters which are applicable to all RL's for the concerning UE. Both synchronised and unsynchronised parameter updates are supported.

The procedure consists of a Radio Interface Parameter Update control frame sent by the SRNC to the Node B.

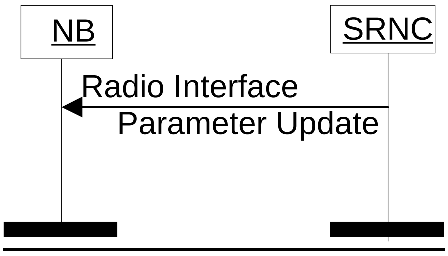

Figure 9: Radio Interface Parameter Update

If the Radio Interface Parameter Update control frame contains a TPC Power Offset value, the Node B shall apply the newly provided TPC PO as soon as possible in case no CFN is included or from the indicated CFN.

6.3.2.3 Control Frame Type

Description: Indicates the type of the control information (information elements and length) contained in the payload.

Value The values are defined in the following table:

Control frame type	Coding
Outer loop power control	0000 0001
Timing adjustment	0000 0010
DL synchronisation	0000 0011
UL synchronisation	0000 0100
DL signalling for DSCH	0000 0101
DL Node synchronisation	0000 0110
UL Node synchronisation	0000 0111
Rx Timing Deviation	0000 1000
Radio Interface Parameter Update	0000 1001

Field length: 8 bits

6.3.3.8 DSCH TFI signalling

6.3.3.8.1 Payload structure

Figure below shows the structure of the payload when the control frame is used for signalling TFI bits used on the DSCH.

7	0	
CFN		Payload (2 bytes)
TFI		

Figure 21: Structure of the payload for the DSCH DL signaling control frame

6.3.3.8.2 DSCH TFI

Description: TFI of the associated DSCH TBS.
The DSCH TFI in the control frame is coded as in section 6.2.4.4.

6.3.3.9. Radio Interface Parameter Update

6.3.3.9.1. Payload structure

The figure below shows the structure of the payload when the control frame is used for signalling radio interface parameter updates.

7							0	
Radio Interface Parameter Update flags								Payload (>=4 bytes)
15	14	13	12	11	10	9	8	
Radio Interface Parameter Update flags								
7	6	5	4	3	2	1	0	
CFN								
7 6 5 spare			TPC PO					
Spare Extension								

Figure 22: Structure of the payload for the Radio Interface Parameter Update control frame

6.3.3.9.2. Radio Interface Parameter Update flags

Description: Contains flags indicating which information is present in this control frame.
Value range:
Bit 0: Indicates if the 3rd byte of the control frame payload contains a CFN (1) or not (0);
Bit 1: Indicates if the 4th byte (bits 0-4) of the control frame payload contains a TPC PO (1) or not (0);
Bit 2-15: Set to (0): reserved in this user plane revision. Any indicated flags shall be ignored by the receiver.**Field length:** 16 bits

6.3.3.9.3. TPC power offset

Description: Power offset to be applied in the DL between the DPDCH information and the TPC bits on the DPCCH.
Value range: 0-7.75, resolution in 0.25 dB
Field length: 5 bits

6.3.3.9.4. Spare Extension

Description: The spare Extension IE indicates the location where, in a backward compatible way, new IE's can be added in the future.
Field length: 0 – m (m is integer)

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***Document* R3-000905**
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25.427	**CR**	**013 R1**	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG RAN #7	for approval	X	strategic		*(for SMG use only)*
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: RAN-WG3 **Date:** 2000-02-29

Subject: DL user plane synchronisation

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change:

Currently, 25.433 includes statements like "The node-B shall start transmission on the new RL after synchronisation is achieved in the Iub user plane as specified in 25.427." (section 8.3.1.2). However in 25.427, it is not indicated when a user plane may be considered synchronised.

This CR attempts to solve this situation.

Clauses affected: 6.2.4.5

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	CR 25.433-807
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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1 Scope

This document shall provide a description of the UTRAN Iur and Iub interfaces user plane protocols for Dedicated Transport Channel data streams as agreed within the TSG-RAN working group 3.

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.

[1] TS UMTS 25.301, Radio Interface Protocol Architecture.

[2] TS 25.401 UTRAN architecture description.

[3] TS 25.302 Services provided by the Physical Layer, Source WG2.

[4] TS 25.402 Synchronisation in UTRAN, Stage 2

5.1.2 Downlink

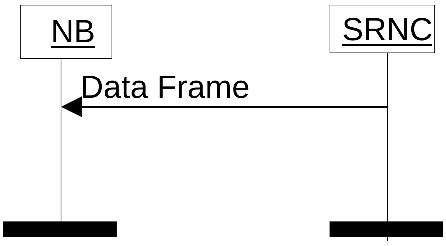

Figure 2: Downlink data transfer

The Node B shall only consider a transport connection synchronised after it has received at least one data frame on this transport connection with a positive TOA [4].

The Node B shall consider the DL user plane for a certain RL synchronised if all transport connections established for carrying DL data frames for this RL can be considered synchronised.

Only when the DL user plane is considered synchronised, the Node B shall transmit on the [FDD - DL DPDCH][TDD – DPCH].

When the DL user plane is considered synchronised and ~~If~~ the Node B does not receive a valid FP frame in a TTI, it assumes that there is no data to be transmitted in that TTI for this transport channel. If the node B is aware of a TFI value corresponding to zero bits for this transport channel, this TFI is assumed. When combining the TFI's of the different transport channels, a valid TFCI might result and in this case data shall be transmitted on Uu.

If the node B is not aware of a TFI value corresponding to zero bits for this transport channel or if combining the TFI corresponding to zero bits with other TFI's, results in an unknown TFI combination, the handling as described in the following paragraph shall be applied.

At each frame, the Node B shall build the TFCI value of each CCTrCH, according to the TFI of the DCH data frames multiplexed on this CCTrCH and scheduled for that frame. In case the Node receives an unknown combination of DCH data frames, it shall transmit only the DPCCH without TFCI bits.

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Sofia Antipolis, France, 28 Feb - 3 Mar 2000

Document R3-000762
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25.427	**CR**	**011r1**	Current Version: 3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG RAN #7	for approval	X	strategic		*(for SMG use only)*
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio	X	Core Network	

Source: R-WG3 **Date:** February 2000

Subject: DCH Frame Protocol Error Handling Clarification

Work item:

Category:	F	Correction	X	**Release:** Phase 2	
	A	Corresponds to a correction in an earlier release		Release 96	
(only one category	B	Addition of feature		Release 97	
shall be marked	C	Functional modification of feature		Release 98	
with an X)	D	Editorial modification		Release 99	X
				Release 00	

Reason for change: Clarification of Error Handling

Clauses affected: 7.1

Other specs affected:	Other 3G core specifications		→ List of CRs:
	Other GSM core specifications		→ List of CRs:
	MS test specifications		→ List of CRs:
	BSS test specifications		→ List of CRs:
	O&M specifications		→ List of CRs:

Other comments:

7 Handling of Unknown, Unforeseen and Erroneous Protocol Data

7.1 General

A Frame Protocol frame with illegal or not comprehended parameter value shall be ignored~~.~~ Frame protocol frames sent with a CFN in which the radio resources assigned to the associated Iub data port are not available, shall be ignored.

8 List of open issues

The open issues that may have impact on the FP specification are the following:

- Version handling and backward compatibility.
- Decoding of the UL TFCI and need of the UL normal mode.

3GPP TSG-RAN WG3 Meeting #11
Sophia Antipolis, France, 28 Feb – 3 March 2000

Document R3-000828

e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.427 CR 007r1 Current Version: 3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN#7
list expected approval meeting # here ↑

for approval	X	strategic		*(for SMG use only)*
for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]
(at least one should be marked with an X)

Source: RAN-WG3 **Date:** 28 Feb 2000

Subject: Addition of Spare Extension.

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction		
A	Corresponds to a correction in an earlier release		
B	Addition of feature	X	
C	Functional modification of feature		
D	Editorial modification		

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: To enable backward compatible additions and changes this CR proposes to include a Spare Extension into Data and Control frames of Iub/Iur User Plane DCH Protocol.

If such changes are needed in the future, the Spare Extension indicates the position for them.

Clauses affected: 6.1.1., 6.2.2, 6.2.3., 6.2.4, 6.3.1., 6.3.3.1., 6.3.3.2., 6.3.3.3., 6.3.3.4., 6.3.3.5., 6.3.3.6., 6.3.3.7., 6.3.3.8.

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	R3-000498 (TS 25.425) R3-000499 (TS 25.435)
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

6.1.1 General principles for the coding

In this specification the structure of frames will be specified by using pictures similar to figure 10.

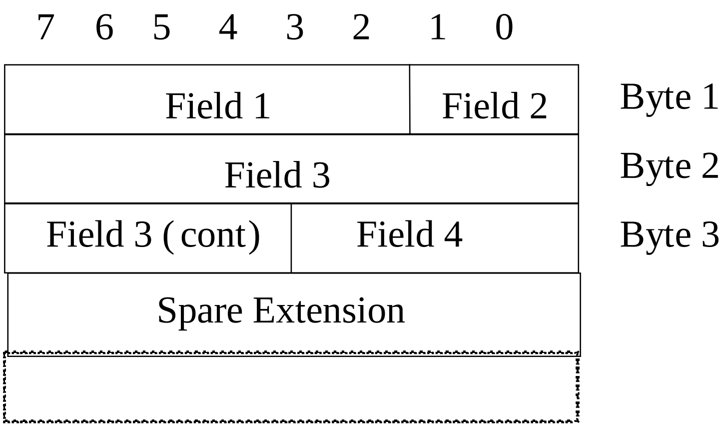
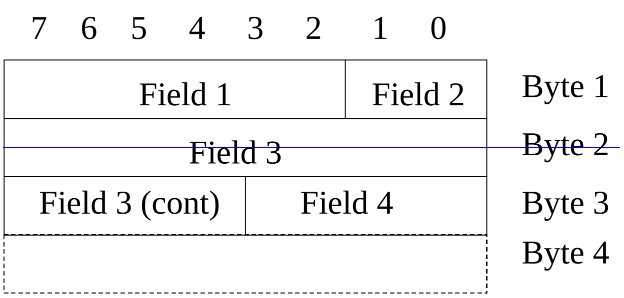


Figure 10: Example of notation used for the definition of the frame structure.



~~**Figure 10: Example of notation used for the definition of the frame structure.**~~

Unless otherwise indicated, fields which consist of multiple bits within a byte will have the more significant bit located at the higher bit position (indicated above frame in figure 10). In addition, if a field spans several bytes, more significant bits will be located in lower numbered bytes (right of frame in figure 10).

On the Iub/Iur interface, the frame will be transmitted starting from the lowest numbered byte. Within each byte, the bits are sent according decreasing bit position (bit position 7 first).

The parameters are specified giving the value range and the step (if not 1). The coding is done as follows (unless otherwise specified):

- Unsigned values are binary coded
- Signed values are coded with the 2's complement notation

Bits labelled "Spare" shall be set to zero by the transmitter and shall be ignored by the receiver. The Spare Extension indicates the location where new IEs can in the future be added in a backward compatible way. The Spare Extension shall not be used by the transmitter and shall be ignored by the receiver.

6.2.2 Uplink data frame

The structure of the UL data frame is shown below.

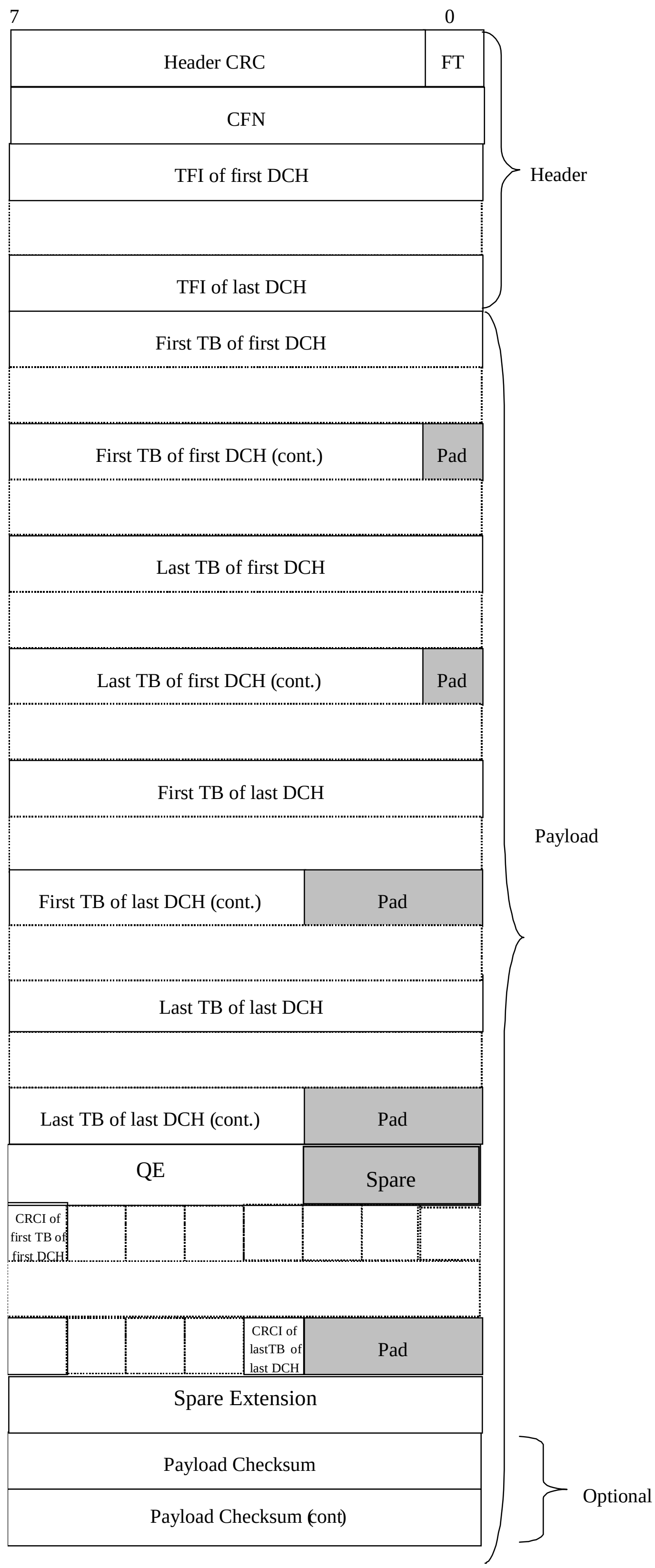
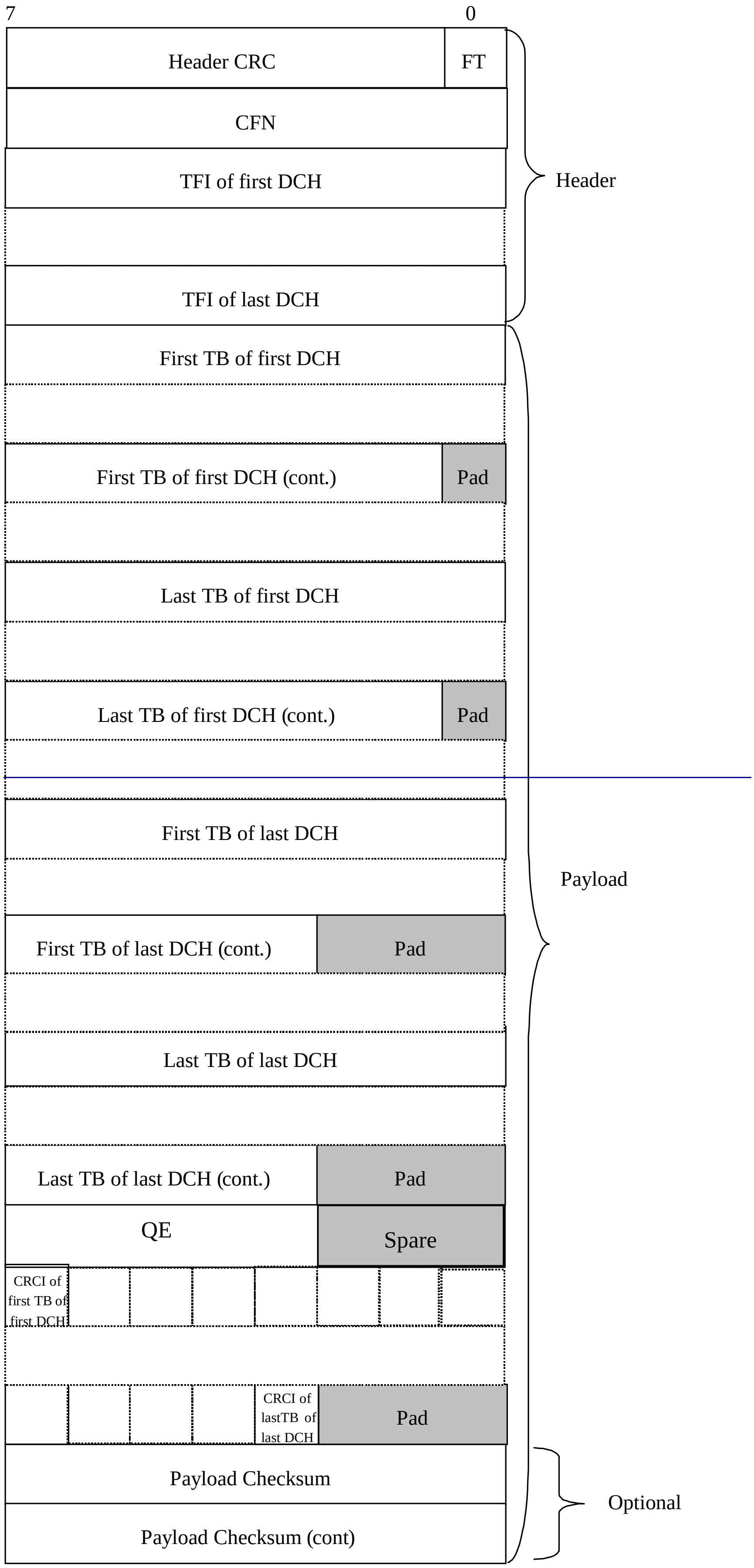


Figure 11: Uplink data frame structure



~~Figure 11: Uplink data frame structure~~

6.2.3 Downlink data frame

The structure of the DL data frame is shown below.

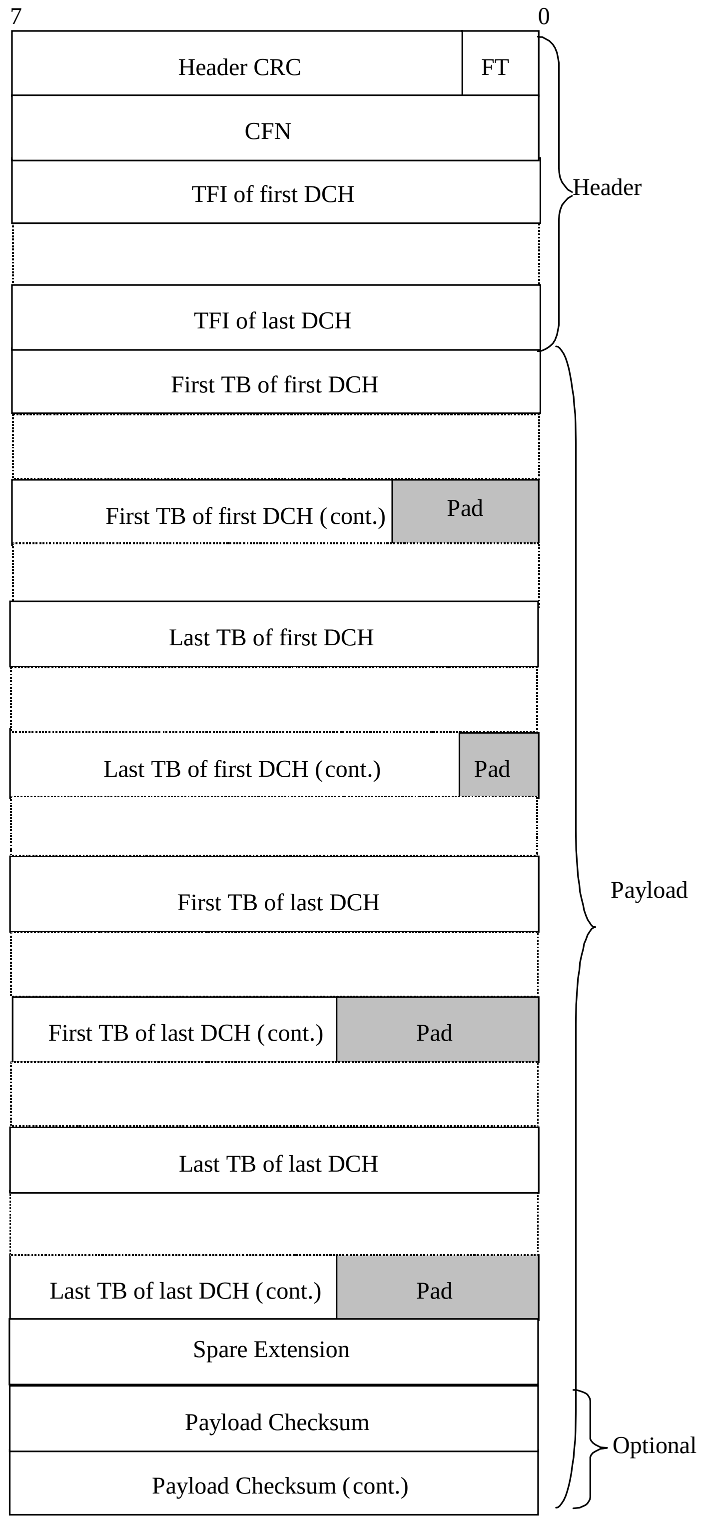
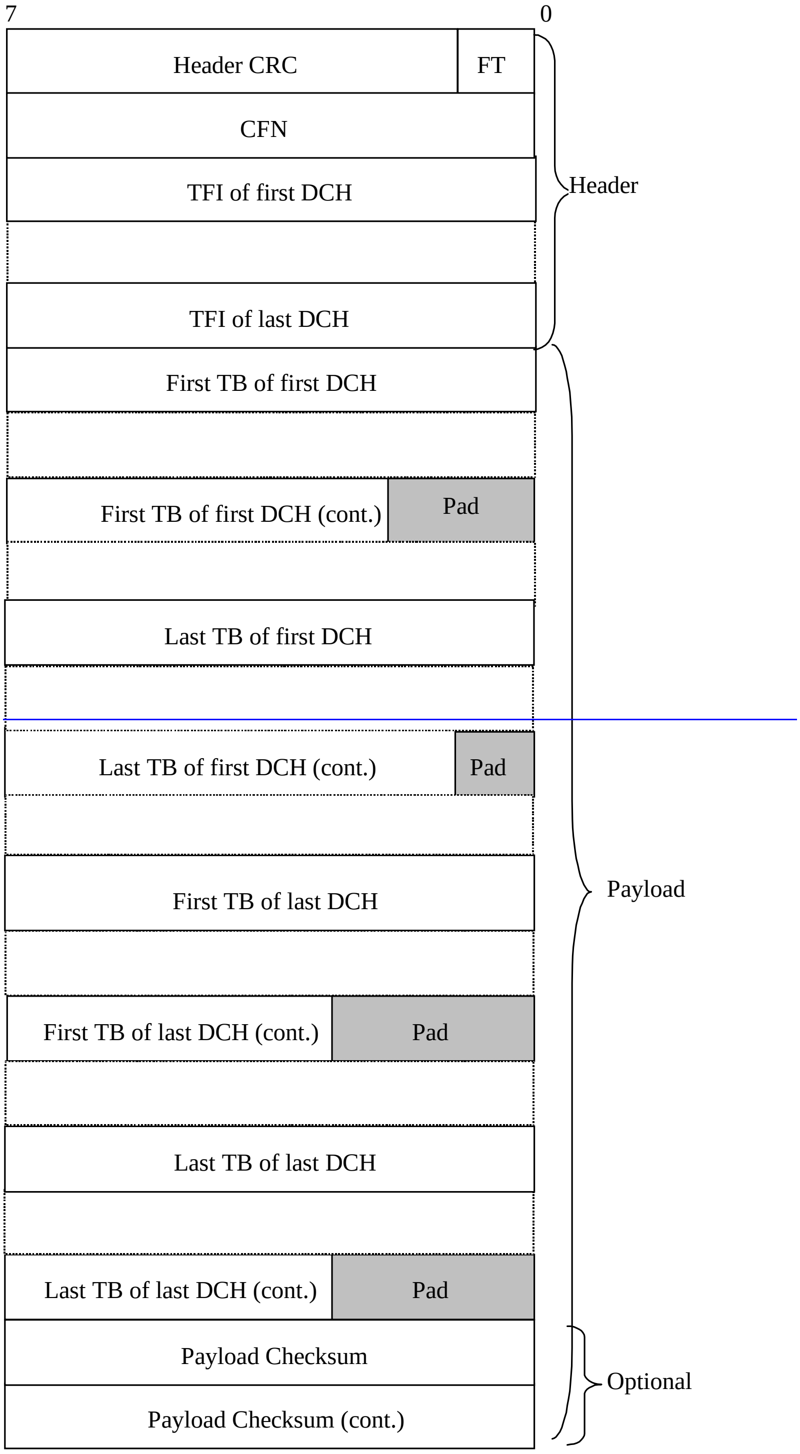


Figure 12: Downlink data frame structure



~~**Figure 12: Downlink data frame structure**~~

6.2.4 Coding of information elements in data frames

6.2.4.9 Spare Extension

Description: Indicates the location where new IEs can in the future be added in a backward compatible way.

Field length: 0-2 octets

6.3 Control frames

6.3.1 Introduction

Control Frames are used to transport control information between SRNC and Node B.

On the uplink, these frames are not combined – all frames are passed transparently from Node B to SRNC. On the downlink, the same control frame is copied and sent transparently to all the Node Bs from the SRNC.

The structure of the control frames is shown in the figure below:

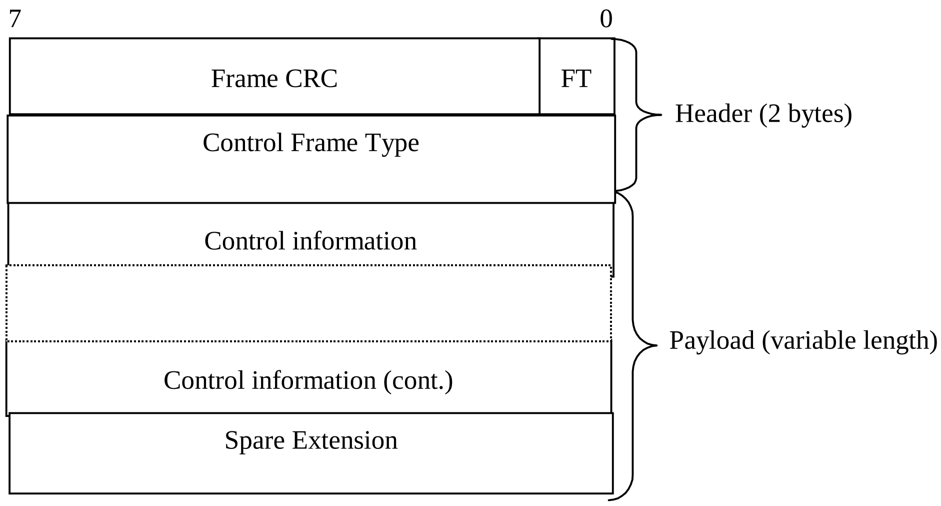
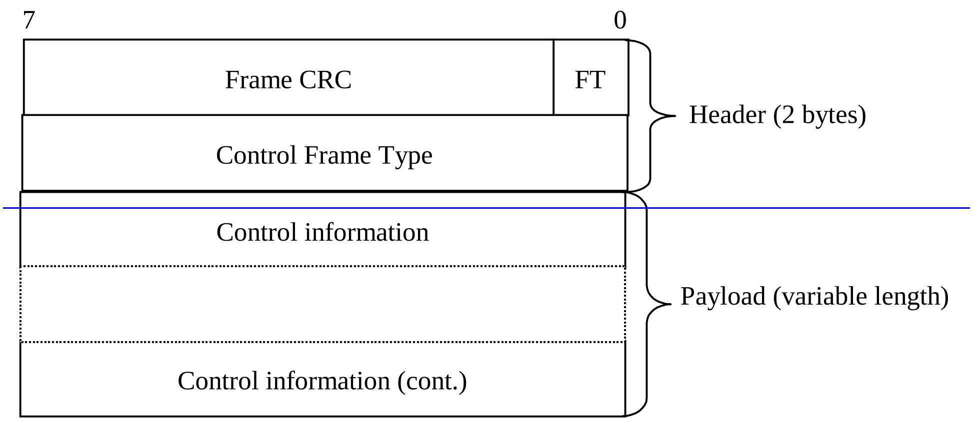


Figure 13: General structure of the control frames



~~**Figure 13: General structure of the control frames**~~

6.3.3 Payload structure and information elements

6.3.3.1 Timing Adjustment

6.3.3.1.1 Payload structure

Figure below shows the structure of the payload when control frame is used for the timing adjustment.

7 0	Number of Octets	
CFN	1	Payload
ToA	1	
ToA (cont)	1	
Spare Extension	0-32	

Figure 14: Structure of the payload for the Timing Adjustment control frame

7 0	
CFN	Payload (3 bytes)
ToA	
ToA (cont)	

~~**Figure 14: Structure of the payload for the Timing Adjustment control frame**~~

6.3.3.1.4 Spare Extension

Description: Indicates the location where new IEs can in the future be added in a backward compatible way.

Field length: 0-32 octets.

6.3.3.2 DL synchronisation

6.3.3.2.1 Payload structure

Figure below shows the structure of the payload when control frame is used for the user plane synchronisation.

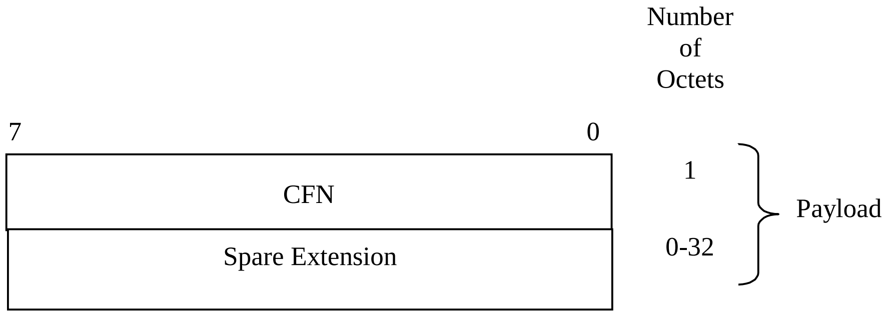
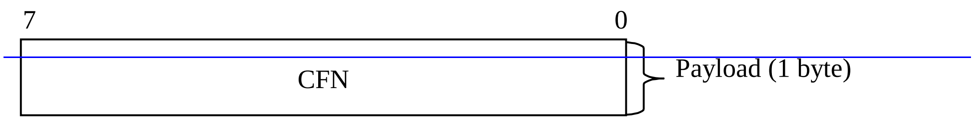


Figure 15: Structure of the payload for the DL synchronisation control frame



~~**Figure 15: Structure of the payload for the DL synchronisation control frame**~~

6.3.3.2.3 Spare Extension

The Spare Extension is described in section 6.3.3.1.4.

6.3.3.3 UL synchronisation

6.3.3.3.1 Payload structure

Figure below shows the structure of the payload when the control frame is used for the user plane synchronisation (UL).

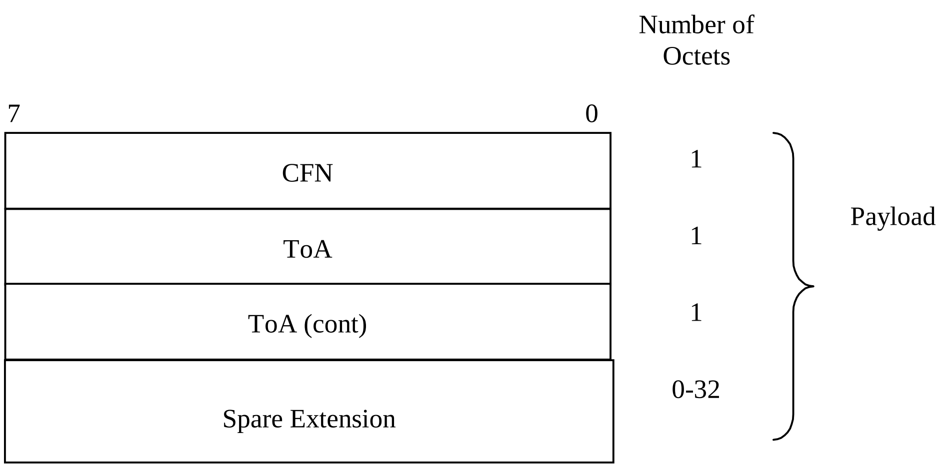
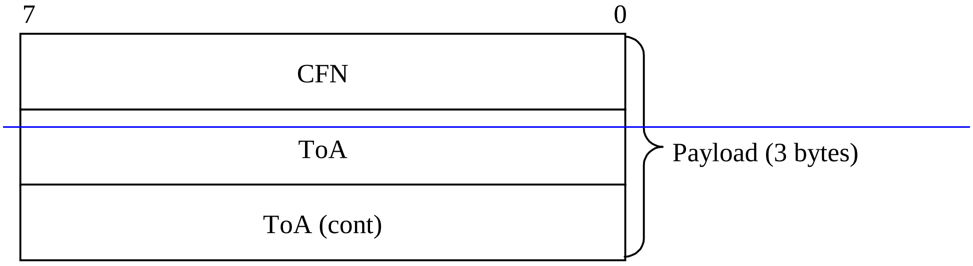


Figure 16: Structure of the UL Synchronisation control frame



~~**Figure 16: Structure of the UL Synchronisation control frame**~~

6.3.3.3.4 Spare Extension

The Spare Extension is described in section 6.3.3.1.4.

6.3.3.4 UL Outer loop power control

6.3.3.4.1 Payload structure

Figure below shows the structure of the payload when control frame is used for the UL outer loop power control.

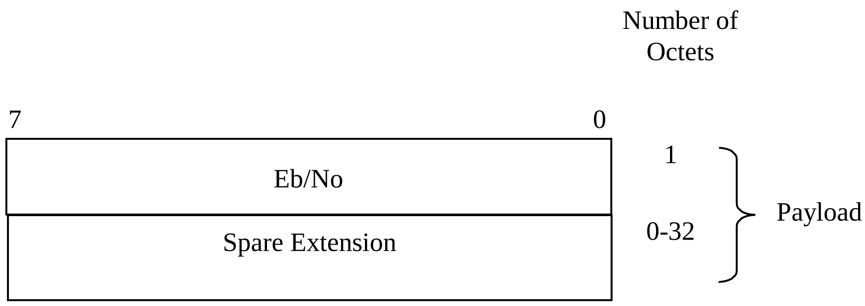
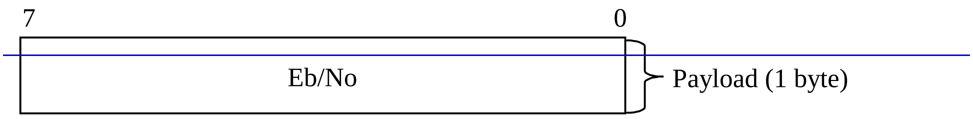


Figure 17: Structure of the payload for outer loop PC control frame



~~**Figure 17: Structure of the payload for outer loop PC control frame**~~

6.3.3.4.3 Spare Extension

The Spare Extension is described in section 6.3.3.1.4.

6.3.3.5 DL Node Synchronization

6.3.3.5.1 Payload structure

Figure below shows the structure of the payload for the DL Node Synchronisation control frame.

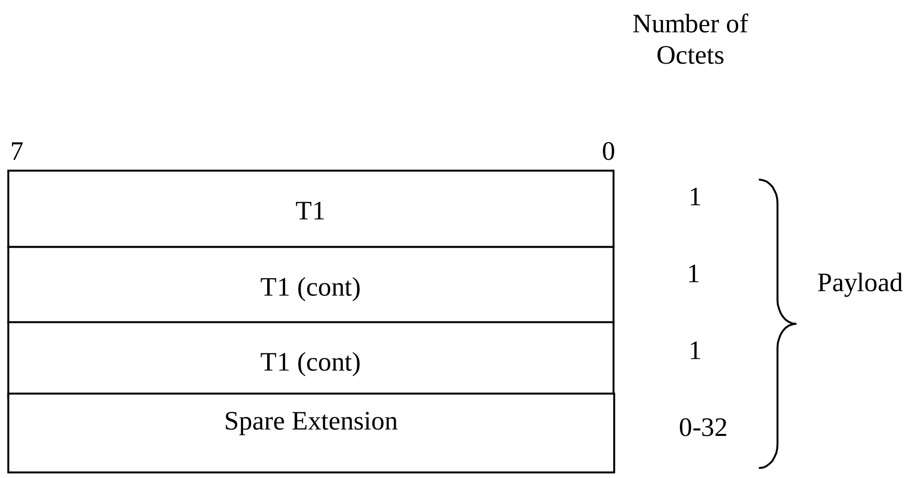
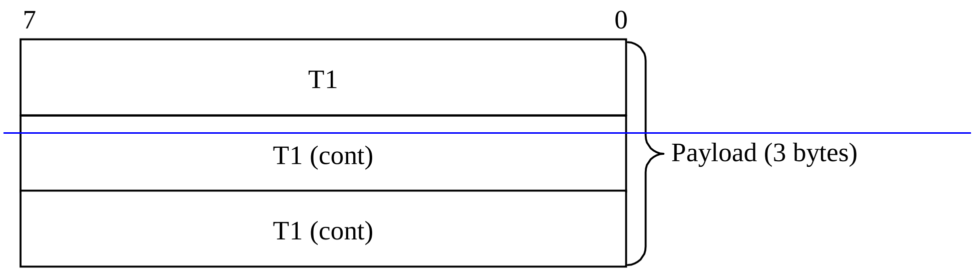


Figure 18: Structure of the payload for the DL Node Synchronisation control frame



~~**Figure 18: Structure of the payload for the DL Node Synchronisation control frame**~~

6.3.3.5.3 Spare Extension

The Spare Extension is described in section 6.3.3.1.4.

6.3.3.6 UL Node Synchronization

6.3.3.6.1 Payload structure

The payload of the UL Node synch control frames is shown in the figure below.

7 … 0	Number of Octets	
T1	1	Payload
T1 (cont)	1	
T1 (cont)	1	
T2	1	
T2 (cont)	1	
T2 (cont)	1	
T3	1	
T3 (cont)	1	
T3 (cont)	1	
Spare Extension	0-32	

Figure 19: Structure of the payload for UL Node Synchronisation control frame

7	0	
T1		Payload (12 bytes)
T1 (cont)		
T1 (cont)		
T2		
T2 (cont)		
T2 (cont)		
T3		
T3 (cont)		
T3 (cont)		

~~Figure 19: Structure of the payload for UL Node Synchronisation control frame~~

6.3.3.6.5 Spare Extension

The Spare Extension is described in section 6.3.3.1.4.

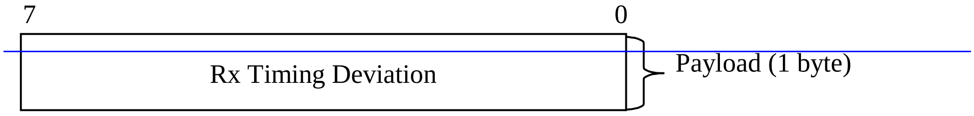
6.3.3.7 Rx Timing Deviation

6.3.3.7.1 Payload structure

Figure below shows the structure of the payload when the control frame is used for the Rx timing deviation.

7 0	Number of Octets	
Rx Timing Deviation	1	Payload
Spare Extension	0-32	

Figure 20: Structure of the payload for Rx timing deviation control frame



~~Figure 20: Structure of the payload for Rx timing deviation control frame~~

6.3.3.7.3 Spare Extension

The Spare Extension is described in section 6.3.3.1.4.

6.3.3.8 DSCH TFI signalling

6.3.3.8.1 Payload structure

Figure below shows the structure of the payload when the control frame is used for signalling TFI bits used on the DSCH.

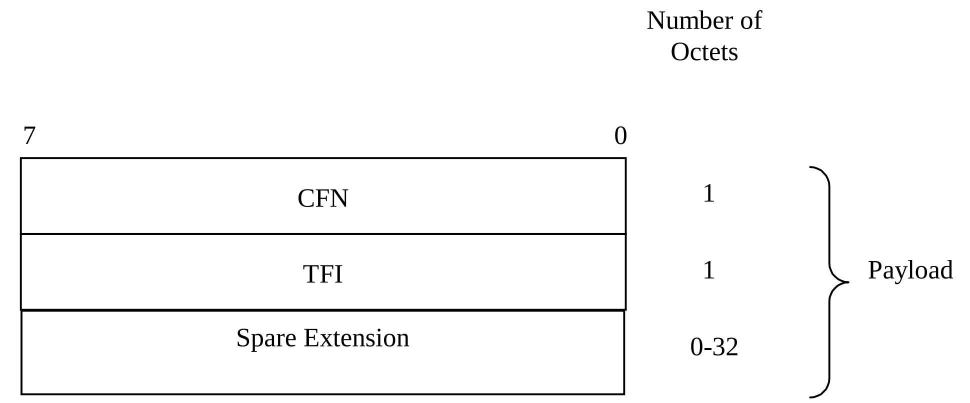
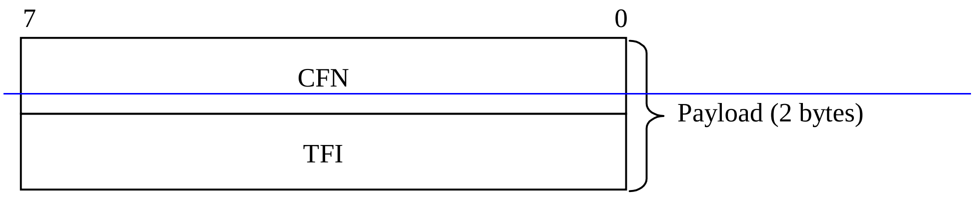


Figure 21: Structure of the payload for the DSCH DL signaling control frame



~~Figure 21: Structure of the payload for the DSCH DL signaling control frame~~

6.3.3.8.3 Spare Extension

The Spare Extension is described in section 6.3.3.1.4.