TSG-RAN Meeting #6
Nice, France, 13 – 15 December 1999

TSGRP#6(99)758

Title: **Agreed CRs of category "D" (Editorial) to TS 25.427**

Source: **TSG-RAN WG3**

Agenda item: **5.4.3**

Doc #	Status-	Spec	CR	Rev	Subject	Cat	Versio	Versio
R3-99h89	agreed	25.427	004		Editorial Changes to 25.427	D	3.0.0	3.1.0
R3-99j10	agreed	25.427	007		Order of coordinated DCH in the	D	3.0.0	3.1.0

3GPP TSG-RAN Meeting #6 *Document* ***R3-99H89***

Nice, France, 13-15 December 1999

3G CHANGE REQUEST

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25.427 **CR** **004** Current Version: 3.0.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG-RAN#6 *list TSG meeting no. here ↑* for approval [X] for information [ ] *(only one box should be marked with an X)*

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [ ] UTRAN [X] Core Network [ ]

Source: TSG-RAN WG3 **Date:** 6-10 DEC 1999

Subject: Editorial changes to 25.427

3G Work item:

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

F	Correction	
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	X

Reason for change:

Editorial changes to 25.427:

1. Unclearity on “Uu” synchronisation
2. Further alignment of TFI handling description in DCH and CCH
3. Clarification on CRCI handling
4. Figure consistency uplink and downlink data frames
5. Range granularity of TOA in line with 25.402

CR is equivalent to R3#8(99)E07 (with remarks) and R3#(99)F99, accepted during SWG in R3#8.

Clauses affected: Sections 5.1.1.;5.1.2.; figure 12 in 6.2.3; 6.2.4.7; 6.3.3.1.3.

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G 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

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

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 on the Uu, UL data frames are not sent to the SRNC.

5.1.2 Downlink

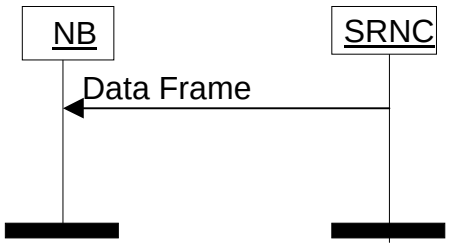


Figure 2: Downlink data transfer

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.

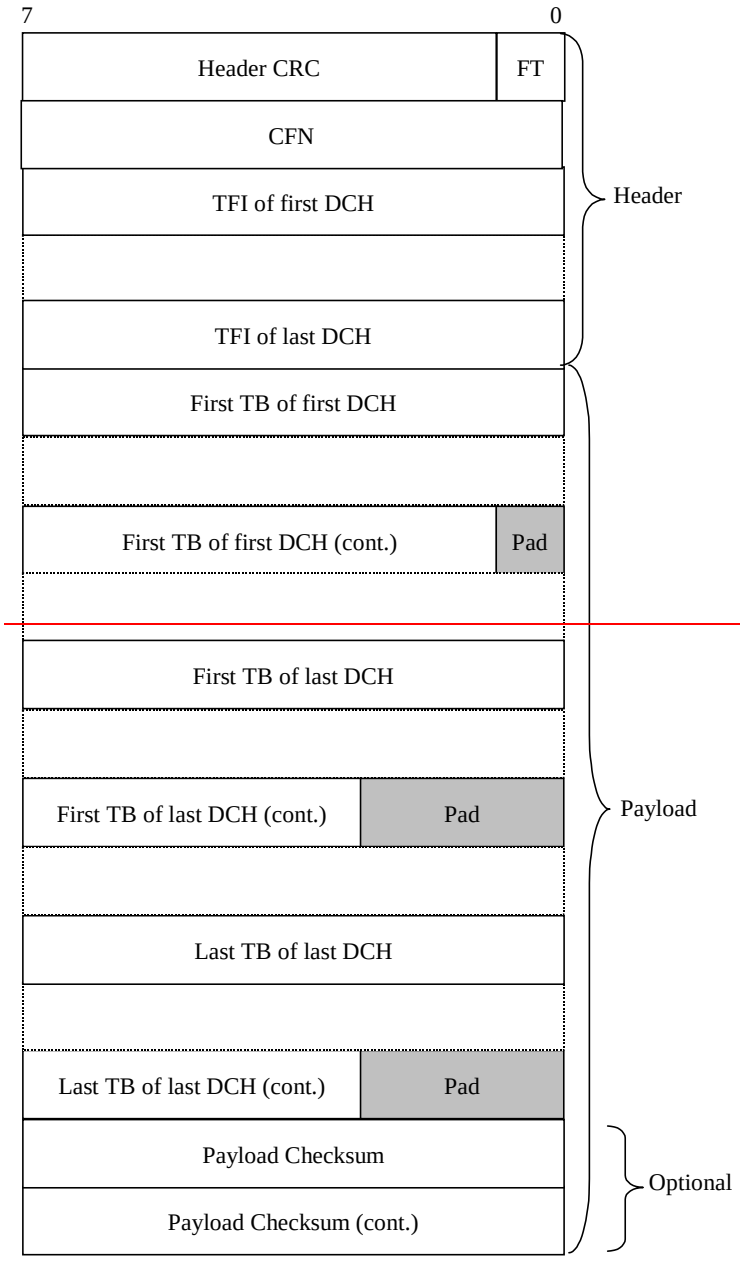
At each frame, the Node B shall build the TFCI value of each CCTrCH, according to the TFI of the DCH data frames multiplexed on this CCTrCH and scheduled for that frame. In case the Node receives an unknown combination of DCH data frames, it shall transmit only the DPCCH without TFCI bits.

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).

6.2.3 Downlink data frame

The structure of the ~~UL~~ DL data frame is shown below.



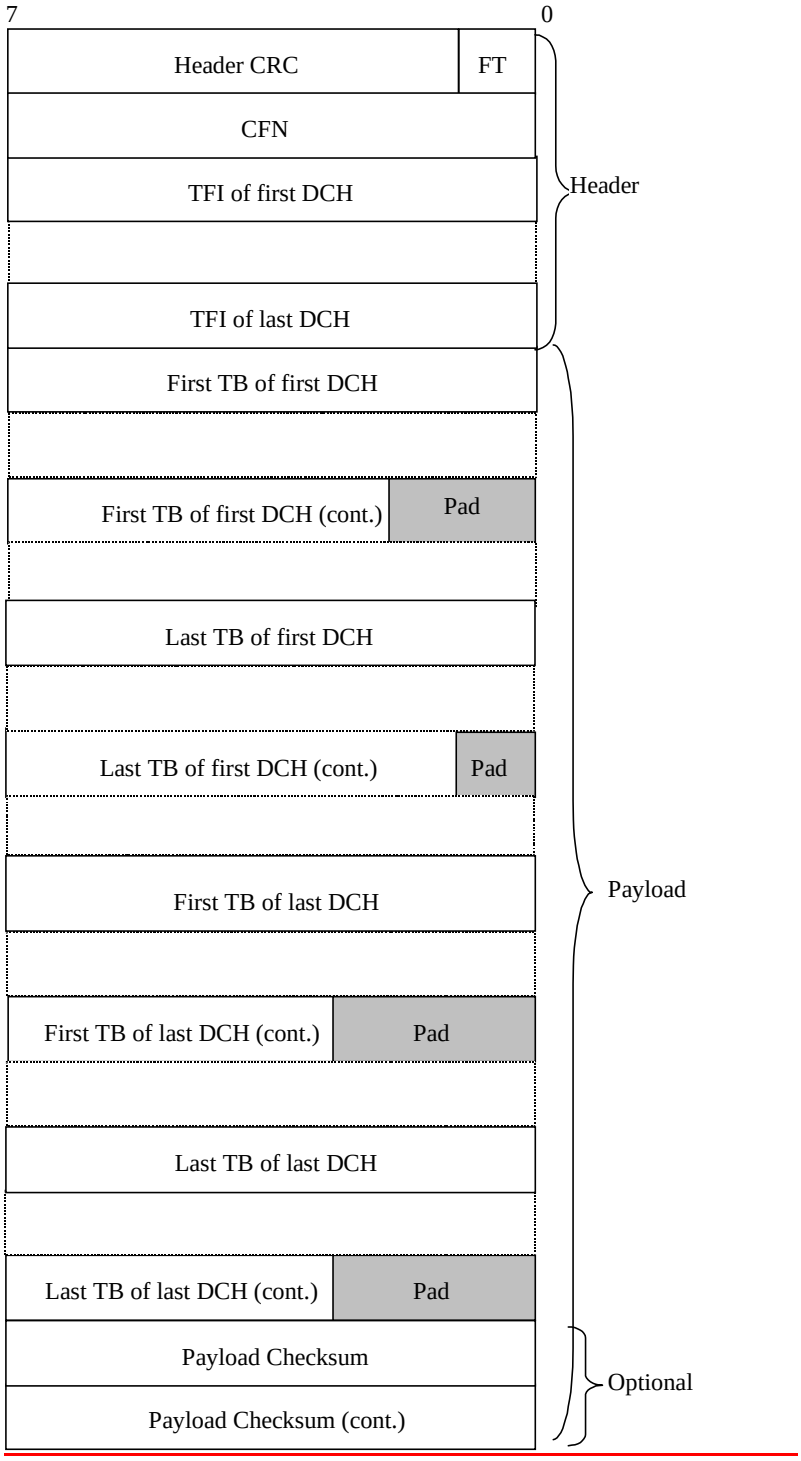


Figure 12: Downlink data frame structure

Field length: the length of the TB is specified by the TFI.

6.2.4.7 CRC indicator (CRCI)

Description: Indicates the correctness/incorrectness of the ~~t is the result of the air interface~~ TB CRC ~~checksum~~ received on the Uu interface.~~on the TB. Shows if the transport block has a correct CRC.~~ For every transport block included in the data frame a CRCI bit will be present, irrespective of the presence of a TB CRC on the Uu interface. If no CRC was present on the Uu for a certain TB, the corresponding CRCI bit shall be set to "0".

Value range: {0=Correct, 1=Not Correct}

Field length: 1 bit

6.2.4.8 Payload Cyclic Redundancy Checksum

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:
$G(D) = D^{16}+D^{15}+D^{2}+1$.

Field length: 16 bits

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:

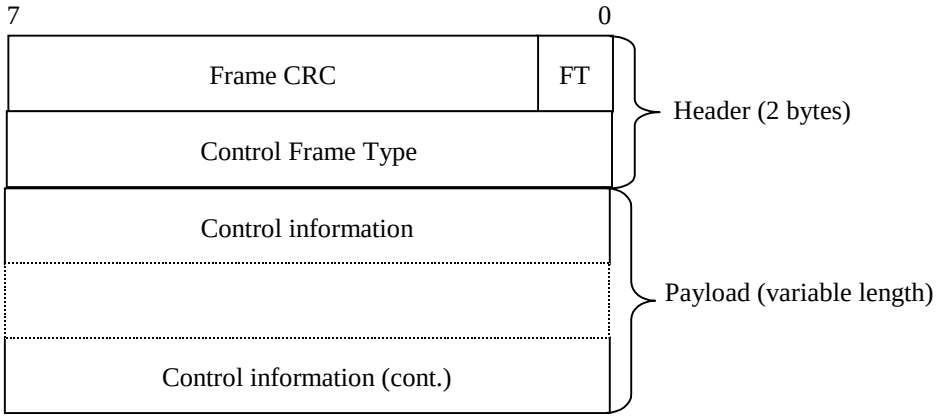


Figure 13: General structure of the control frames

Control Frame Type defines the type of the control frame.

The structure of the header and the payload of the control frames is defined in the following sections.

6.3.2 Header structure of the control frames

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:
$G(D) = D^7+D^6+D^2+1$.

Field Length: 7 bits

6.3.2.2 Frame Type (FT)

Description: describes if it is a control frame or a data frame.

Value range: {0=data, 1=control}.

Field Length: 1 bit

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

Field length: 8 bits

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.

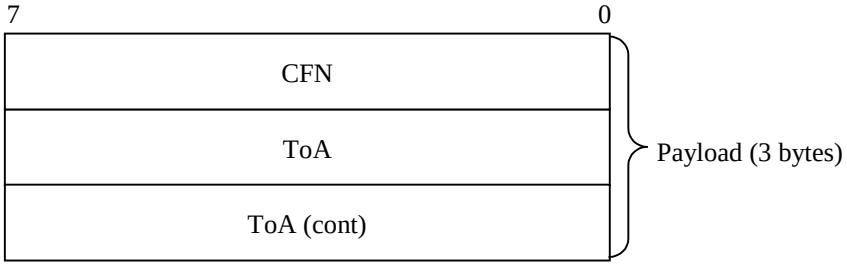


Figure 14: Structure of the payload for the Timing Adjustment control frame

6.3.3.1.2 CFN

The CFN value in the control frame is coded as in section 6.2.4.3.

6.3.3.1.3 Time of arrival (ToA)

Description: time difference between the arrival of the DL frame with respect to TOAWE (based on the CFN value in the frame)

Value range: {-1280, +127~~90~~.875 msec ~~, step 1 msec~~}

Granularity: 125 µs

~~.~~**Field length**: 16 bits

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.

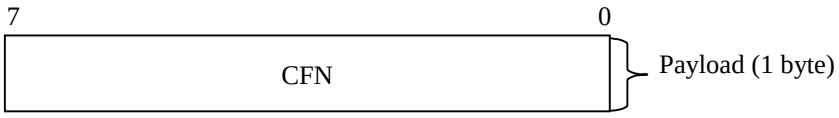


Figure 15: Structure of the payload for the DL synchronisation control frame

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Document R3-99J10
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	007	Current Version:	3.0.0

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

For submission to:	TSG-RAN#6	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: TSG-RAN WG3 **Date:** 30th Nov 1999

Subject: Order of coordinated DCH in the Frame Protocol frame structure in 25.427

Work item:

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

F	Correction		**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	X		Release 99	X
				Release 00	

Reason for change: Currently 25.427 does not define in which order the TBS of the coordinated DCHs are inserted in the Frame Protocol frame structure.

Clauses affected: 8.2.2 and 8.2.3

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.

6.1.1 Uplink data frame

The structure of the UL data frame is shown below.

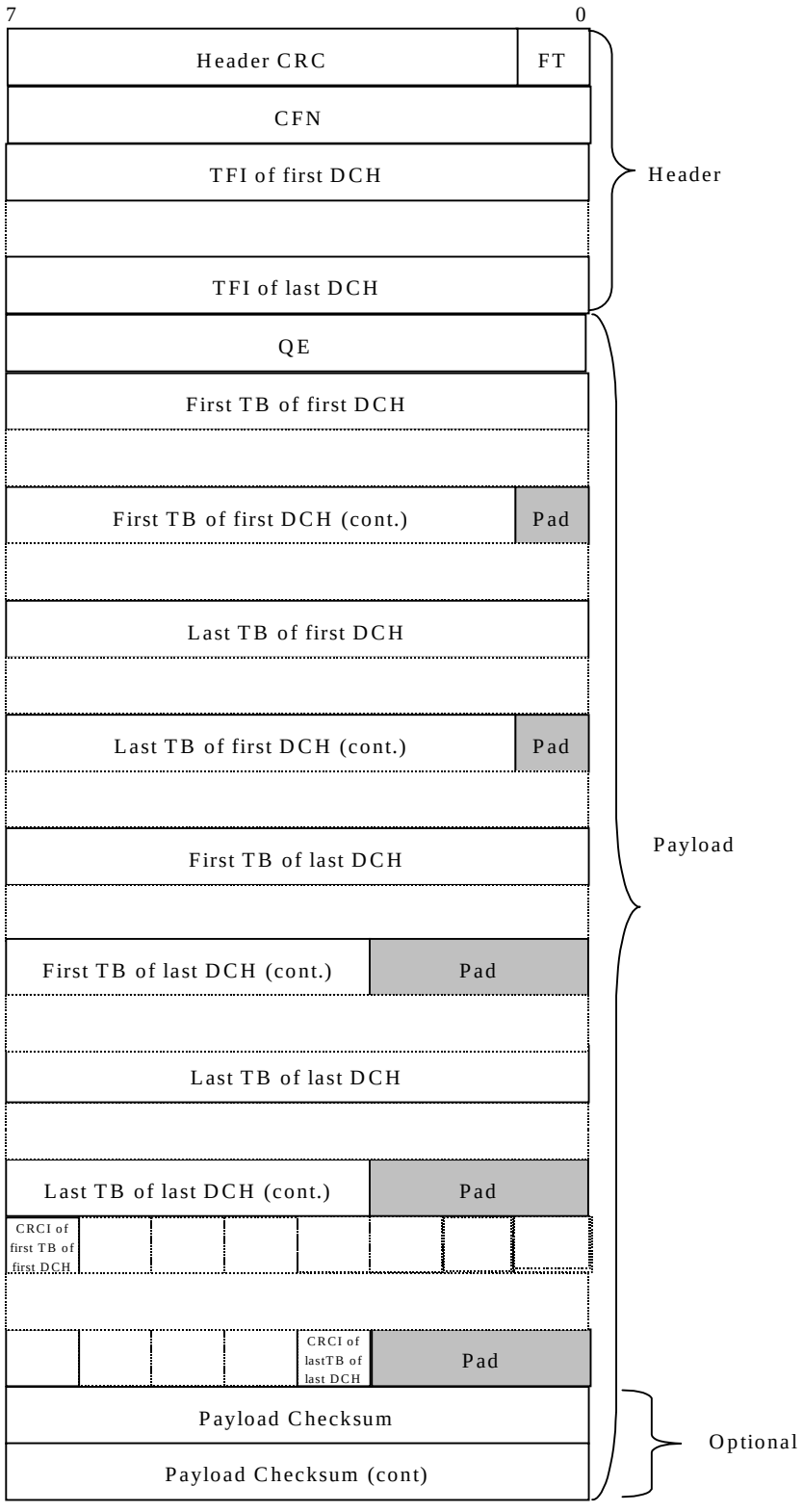

Figure 1: Uplink data frame structure

For the description of the fields see chapter **Error! Reference source not found.**.

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).

6.1.2 Downlink data frame

The structure of the UL data frame is shown below.

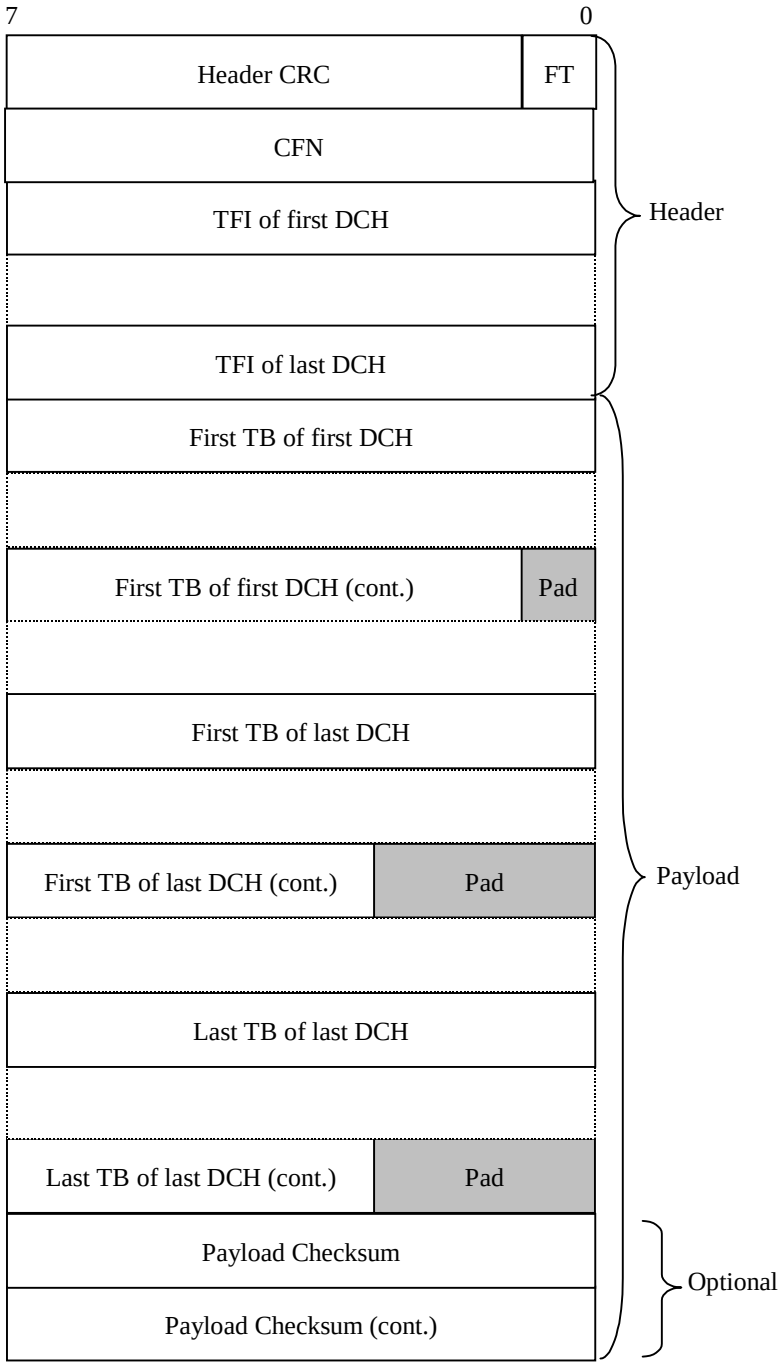

Figure 2: Downlink data frame structure

For the description of the fields see chapter **Error! Reference source not found.**.

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.

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