TSG-RAN Meeting #9
Hawaii, US, 20 - 22 September 2000

TSGRP#9(00)0391

Title: **Agreed CRs to TS 25.435**

Source: **TSG-RAN WG3**

Agenda item: **5.3.3**

Tdoc_Num	Specification	CR_Num	Revision_Num	CR_Subject	CR_Category	WG_Status	Cur_Ver_Num	New_Ver_Num
R3-002249	25.435	022	3	Changes to 25.435 required to support the signaling of the 'DSCH DL signaling frame' from the CRNC to the Node B	F	agreed	3.3.0	3.4.0
R3-001942	25.435	026	1	Reserved TFI bits	F	agreed	3.3.0	3.4.0
R3-002036	25.435	027		DSCH Corrections	F	agreed	3.3.0	3.4.0
R3-002228	25.435	028	2	BER at Uplink DTX for TDD	F	agreed	3.3.0	3.4.0
R3-002288	25.435	029	3	Node B knowledge of timing advance	F	agreed	3.3.0	3.4.0
R3-002345	25.435	030	2	Pilot bit sending when unknown TFCI	F	agreed	3.3.0	3.4.0

3GPP TSG-RAN Meeting #9 **Document R3-002249**

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

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25.435	CR	022r3	Current Version:	3.3.0

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

For submission to: TSG-RAN#9 *list expected approval meeting # here ↑* | for approval X | for information | strategic | non-strategic | *(for SMG 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: R-WG3 **Date:** August 2000

Subject: Enhancement to 25.435 to support FDD mode DSCH scheduling from the DRNC

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: The CR provides the changes necessary to support the scheduling of the DSCH at the DRNC. A description of the DSCH DL signalling control procedure and frame format is included

Clauses affected: 5, 5.4, 6.3.3

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	25.433 CR165
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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Figure 9: FACH, PCH ~~and~~ DSCH and [FDD – DSCH TFCI signalling] Timing Adjustment procedure

5.5 [TDD – Dynamic PUSCH assignment]

Procedure for dynamic allocation of physical resources to uplink shared channels (USCH) in the NodeB. The control frame includes a parameter "PUSCH Set Id" which is a pointer to a preconfigured table of PUSCH Sets in the NodeB.

When this control frame is sent via a certain Iub USCH data port, then it applies to that USCH and in addition to any other USCH channel which is multiplexed into the same CCTrCH in the NodeB.

The time limitation of the PUSCH allocation is expressed with the parameters "Activation CFN" and "Duration".

NodeB behaviour: When the NodeB receives the control frame "Dynamic PUSCH assignment" from the CRNC in the USCH frame protocol over an Iub USCH data port within a Traffic Termination Point, it shall behave as follows:

1) The NodeB shall extract the PUSCH Set Id.
2) It shall extract the parameters "Activation CFN" and "Duration" which identify the allocation period of that physical channel.
3) It shall retrieve the PUSCH Set which is referred to by the PUSCH Set Id.
4) It shall identify the CCTrCH to which the USCH is multiplexed, and hence the TFCS which is applicable for the USCH.
5) Within the time interval indicated by Activation CFN and Duration, the NodeB shall make the specified PUSCH Set available to the CCTrCH.

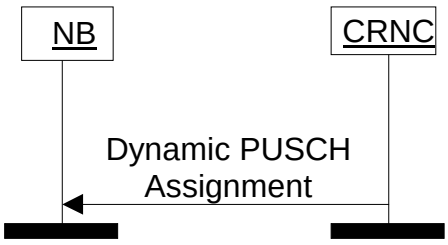


Figure 10: Dynamic PUSCH assignment procedure

5.6 DSCH TFCI Signalling [FDD]

This procedure is used in order to signal to the node B the TFCI (field 2). This allows the node B to build the TFCI word(s) which have to be transmitted on the DPCCH.

The procedure consists in sending the DSCH TFCI signalling control frame from the CRNC to the node B. The frame contains the TFCI (field 2) and the correspondent Connection Frame Number. 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.

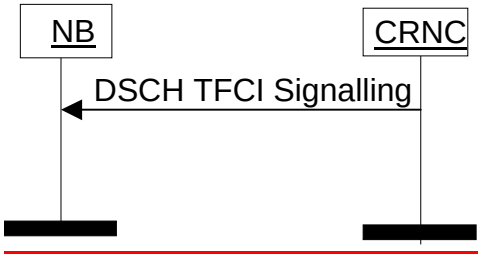
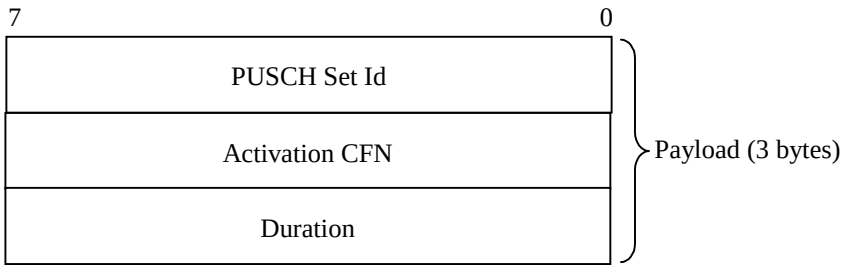


Figure 11: DSCH TFCI Signalling

6.3.3.6 [TDD – Dynamic PUSCH assignment]

6.3.3.6.1 Payload structure

The payload of the Dynamic PUSCH Assignment control frames is shown in the figure below:



6.3.3.6.2 PUSCH Set Id

Description: Identifies a PUSCH Set from the collection of PUSCH Sets which have been preconfigured in the NodeB, for the respective cell in which the USCH exists. The PUSCH Set Id is unique within a cell.

Value range: 0...255.

Field length: 8 bits.

6.3.3.6.3 Activation CFN

Description: Activation CFN, specifies the Connection Frame Number where the allocation period of that PUSCH Set starts.

Value range: Integer (0...255).

Field length: 8 bits.

6.3.3.6.4 Duration

Description: Indicates the duration of the activation period of the PUSCH Set, in radio frames.

Value range: 0 ... 255 means: 0 to 255 radio frames, i.e. 0 to 2550 msec.

Field length: 8 bits.

6.3.3.7 [FDD - DSCH TFCI signalling]

6.3.3.7.1 Payload structure

The figure 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.

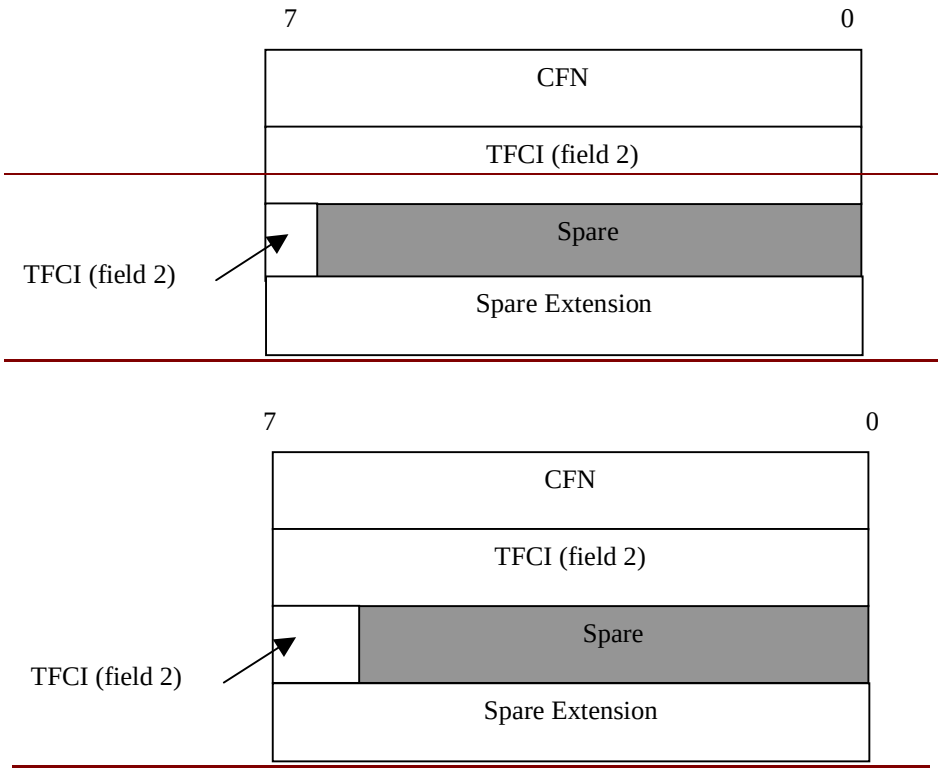


Figure 11: [FDD - Structure of the payload for the DSCH TFCI signalling control frame]

6.3.3.7.2 TFCI (field 2)

Description: TFCI (field 2) is as described in [6], it takes the same values as the TFCI (field 2) which is transmitted over the Uu interface.

Value range: {0 - 1023}

Field length: 10 bits

6.3.3.7.3 Spare Extension

The Spare Extension is described in subclause 6.2.7.19

TSG-RAN Working Group 3 Meeting #14
Helsinki, Finland, 3rd – 7th July 2000

Document ***R3-001942***
e.g. for 3GPP use the format TP-99xxx
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25.435	**CR**	**026 R1**	Current Version:	3.3.0.

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

For submission to:	TSG RAN #9	for approval	X	strategic		(for SMG use only)
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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: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio	X	Core Network	

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

Subject: Reserved TFI bits.

Work item:

Category: *(only one category shall be marked with an X)*				**Release:**	
	F	Correction	X	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: The maximum number of TFIs has been restricted to 32. TFI IE occupies one octet, although TFI could be identified with 5 bits or in many cases with less than 5 bits. This CR proposes that the three most significant bits are set to spare.

Clauses affected: 6.2.1., 6.2.2., 6.2.3, 6.2.4., 6.2.5., 6.2.6., 6.2.7.4.

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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6.2 Data frame structure

6.2.1 RACH Channels

The RACH Data Frame includes the CFN corresponding to the SFN of the frame in which the payload was received. If the payload was received in several frames, the CFN corresponding to the first Uu frame in which the information was received shall be indicated.

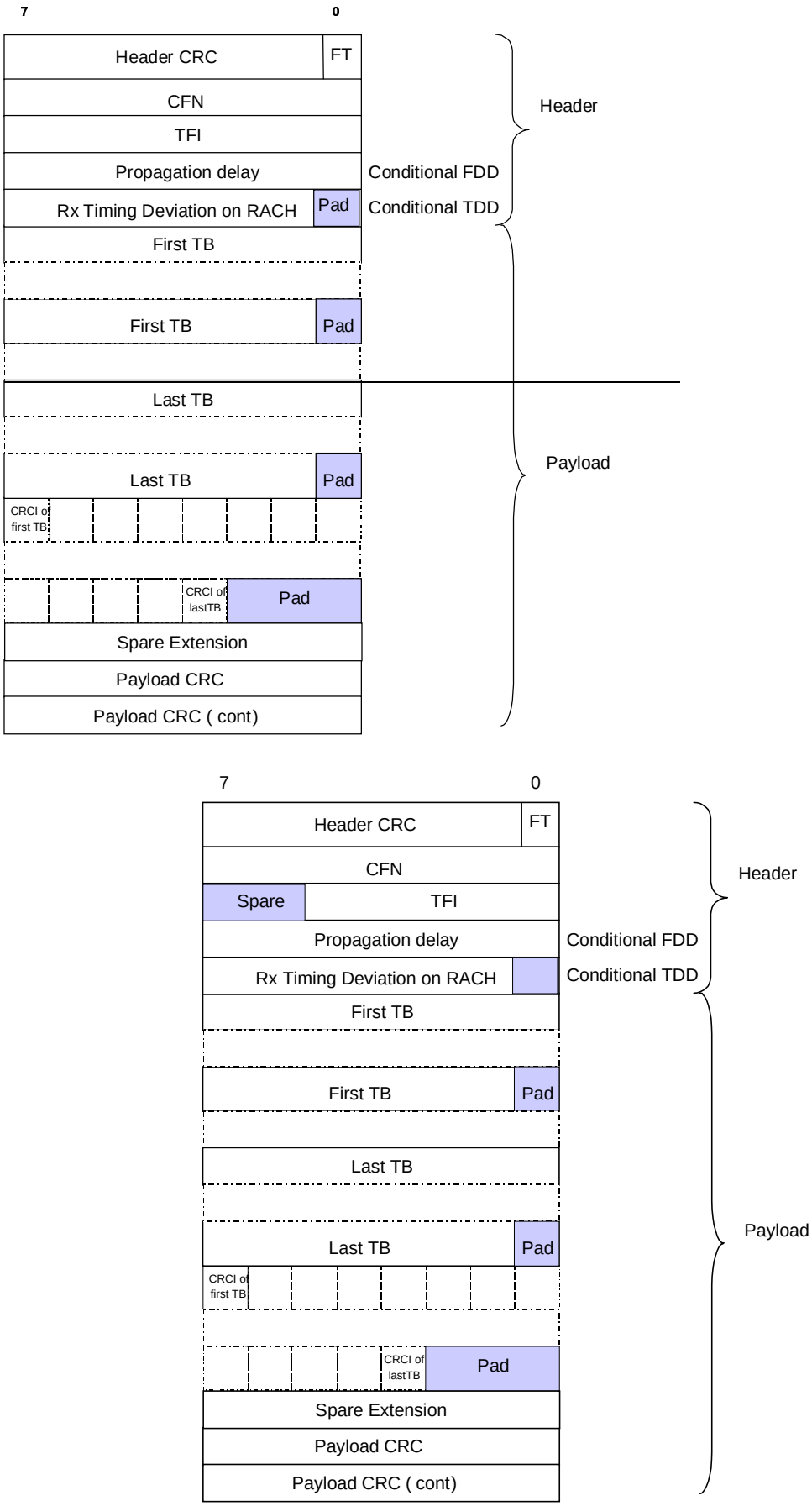

Figure 13: RACH Data Frame structure

Propagation delay is a conditional Information Element which is only present when the Cell supporting the RACH Transport Channel is a FDD Cell.

Rx Timing Deviation is a conditional Information Element which is only present when the Cell supporting the RACH Transport Channel is a TDD Cell.

6.2.2 CPCH [FDD] Channels

The CPCH [FDD] Data Frame includes the CFN corresponding to the 8 least significant bits of the SFN of the frame in which the payload was received. If the payload was received in several frames, the CFN corresponding to the first Uu frame in which the information was received shall be indicated.

Data frame structure is only applicable to FDD.

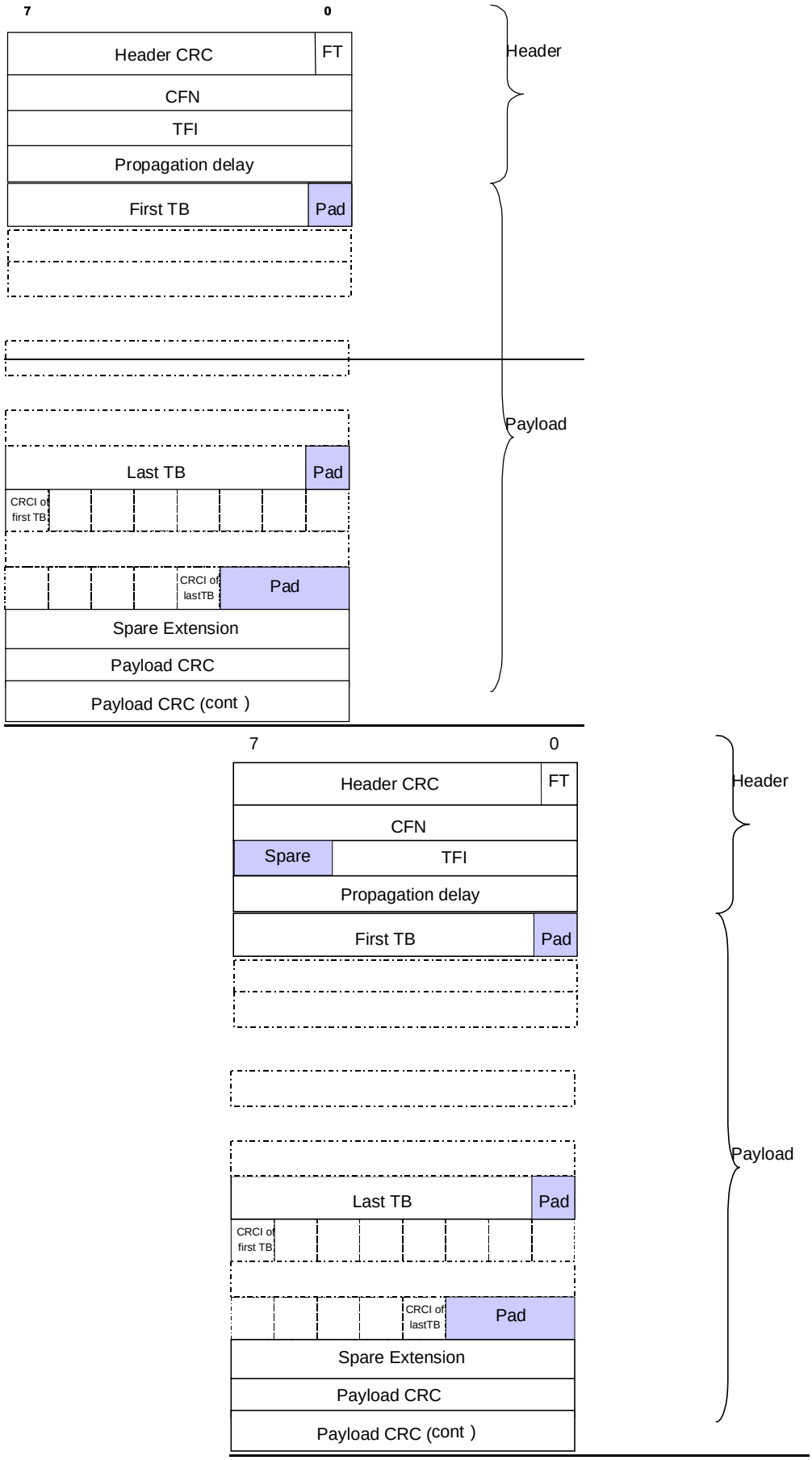

Figure 14: FDD CPCH Data Frame structure

6.2.3 FACH Channels

FACH Data Frame includes the CFN corresponding to the Uu frame at which this data in which the payload (FACH TBS) has to be transmitted. If the payload is to be sent in several frames, the CFN corresponding to the first frame shall be indicated.

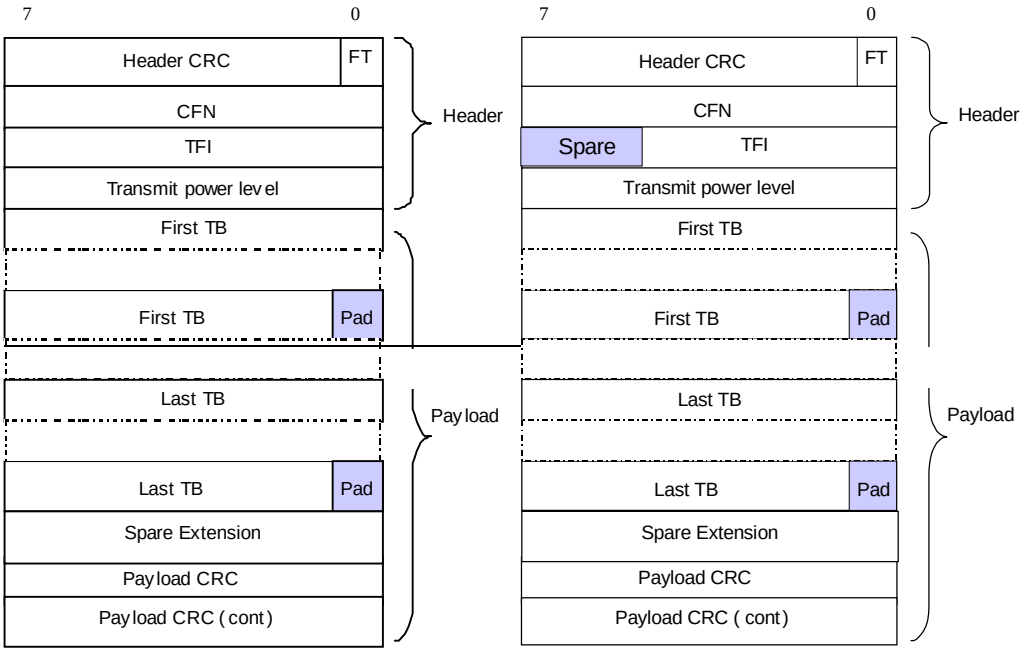

Figure 15: FACH Data Frame structure

6.2.4 PCH Channels

The PCH Data Frame includes the paging indication information and paging messages. To page one User Equipment, two consecutive PCH Data Frames with consecutive CFN numbers are transmitted, the first frame contains the Paging Indication Information and the second contains the Paging Message.

[TDD- If PI-bitmap and PCH TBS are transmitted within the PCH data frame, the CFN is related to the PCH TBS only. The PI bitmap is mapped to the PICH frames, transmitted at the beginning of the paging block.]

The paging messages are transmitted in S-CCPCH frames. The CFN in the PCH Data Frame header corresponds to the Cell SFN of the frame in which the start of the S-CCPCH frame is located. If the paging messages are to be sent in several frames, the CFN corresponding to the first frame shall be indicated.

[FDD - The timing of the PICH frame (containing the paging indication information) is τ_{PICH} prior to the S-CCPCH frame timing [5]].

In contrast to all other Common Transport Channel data frames, which use a CFN of length 8, the PCH Data Frame includes a CFN of length 12.

The node-B has no responsibility to ensure the consistency between the paging indication information and the corresponding paging messages. E.g. if the paging indication information is lost over the Iub, the paging messages might be sent over the Uu while no UE is actually listening.

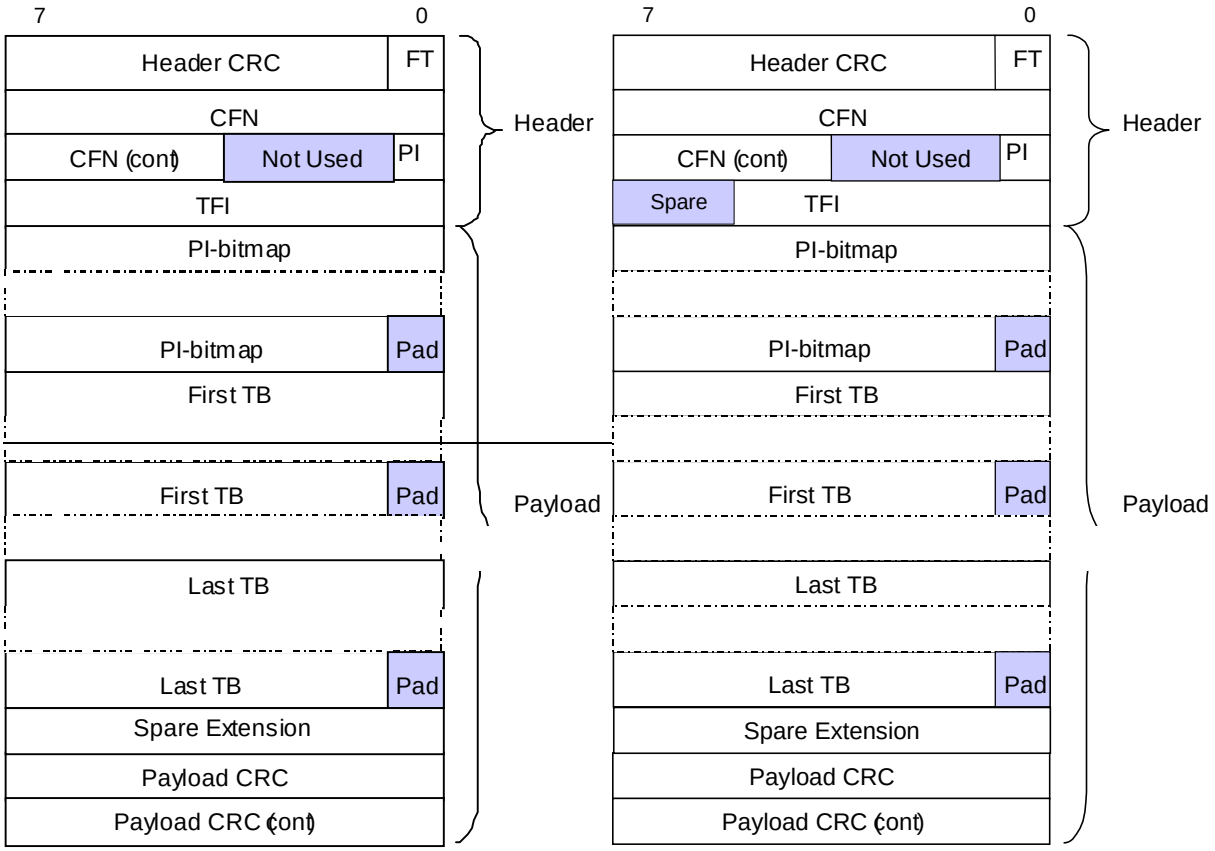

Figure 16: PCH Data Frame structure

"Not Used" bits shall be set to 0 by the RNC and ignored by the Node B.

6.2.5 Downlink Shared Channels

DSCH Data Frame includes a CFN indicating the frame in which the payload shall be sent. If the payload is to be sent over several frames, the CFN corresponding to the first frame shall be indicated.

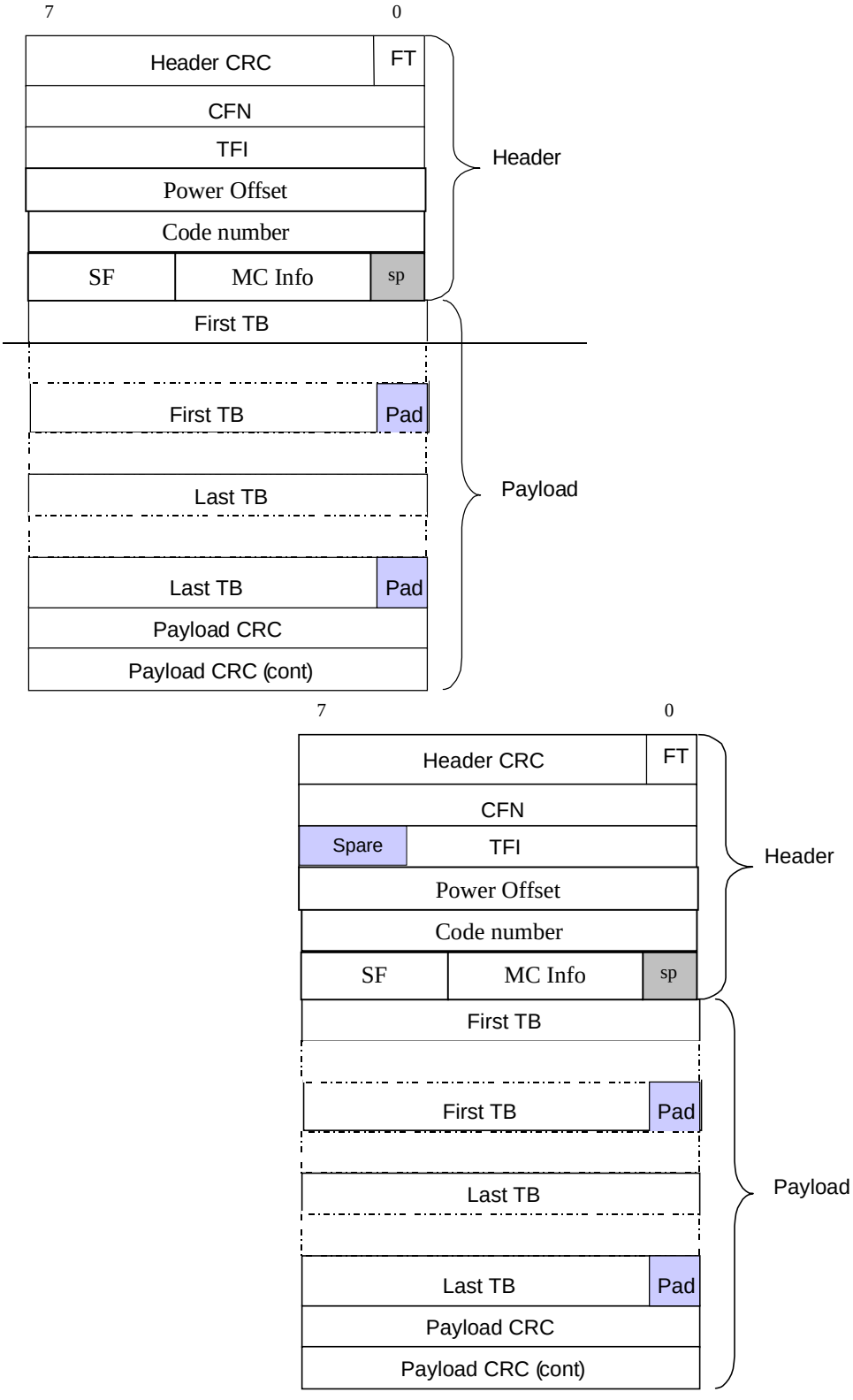

Figure 17: FDD DSCH Data Frame structure

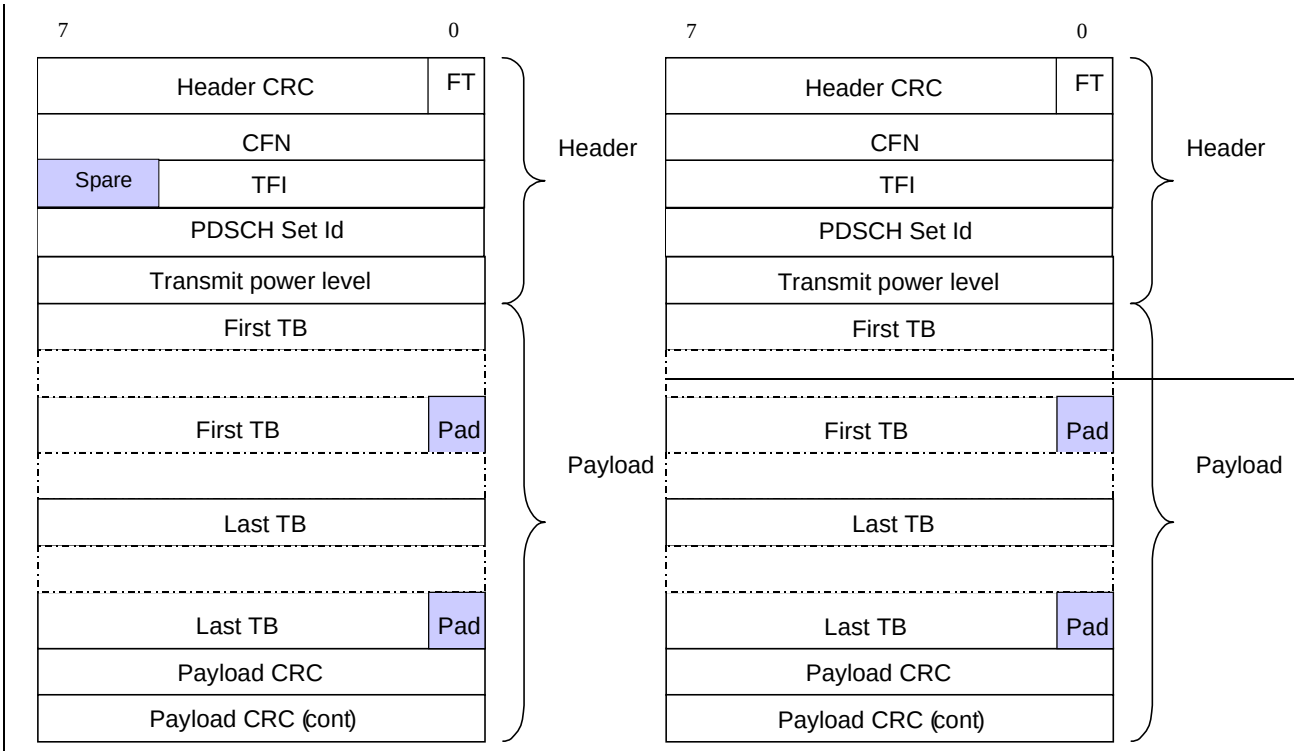

Figure 18: TDD DSCH Data Frame structure

Transmit power level is a conditional Information Element which is only present when the Cell supporting the DSCH Transport Channel is a TDD Cell.

6.2.6 Uplink Shared Channels [TDD]

USCH Data Frame includes the CFN in which the payload was received. If the payload was received in several frames, the CFN corresponding to the first frame will be indicated.

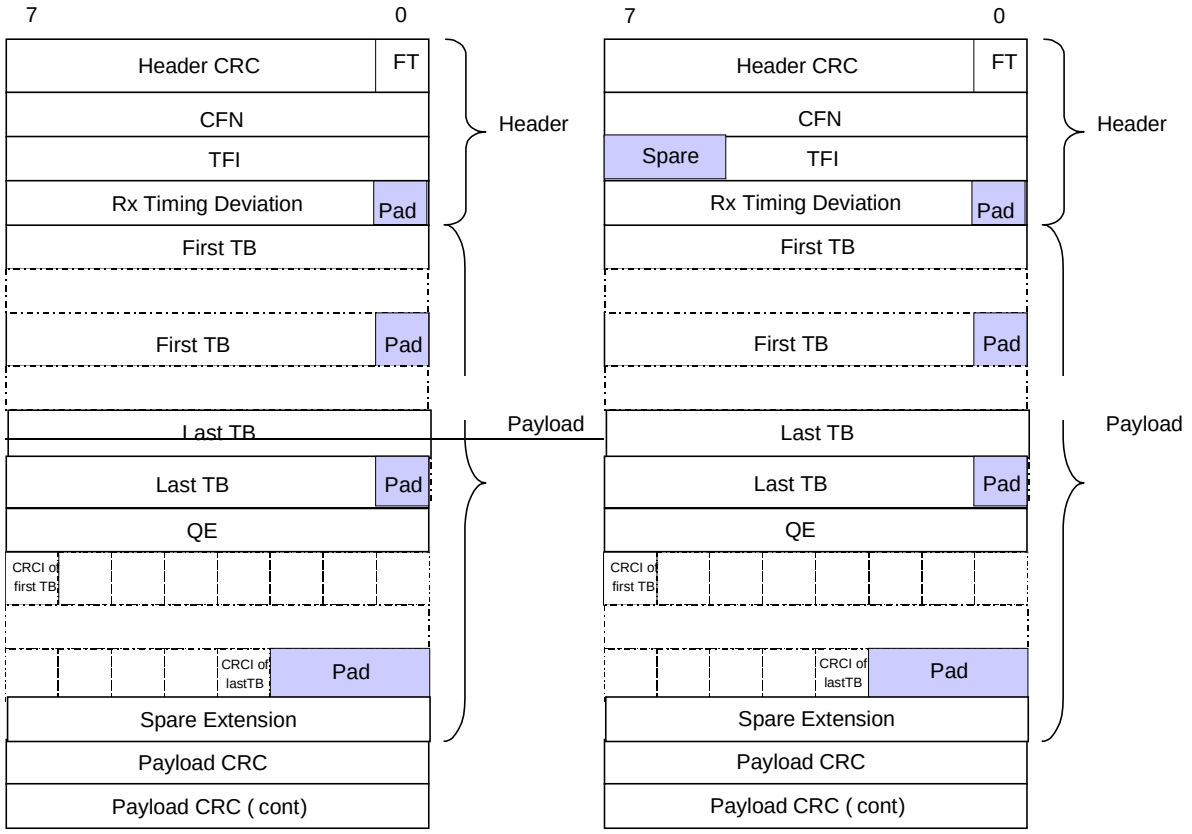

Figure 19: USCH Data Frame structure

6.2.7.4 Transport Format Indicator

Description: TFI is the local number of the transport format used for the transmission time interval. For information about what the transport format includes see reference [3].

Value range: {0 ~~255~~31}.

Field length: ~~8~~ 5 bits.

3GPP/SMG Meeting #15
Berlin, Germany, 21-25 August 2000

***Document* R3-002036**
e.g. for 3GPP use the format TP-99xxx
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25.435	CR	27r0	Current Version:	3.3.0

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

For submission to:	TSG RAN #9	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:** 2000-08-08

Title DSCH corrections

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: Added spare extension octets to DSCH Data Frames.

Clauses affected: 6.2.5 (figures 17 and 18)

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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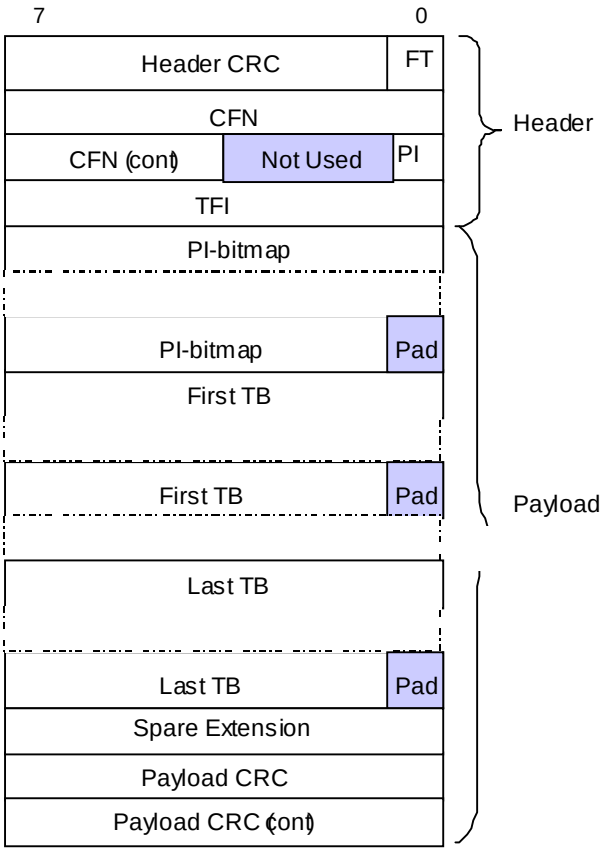

Figure 16: PCH Data Frame structure

"Not Used" bits shall be set to 0 by the RNC and ignored by the Node B.

6.2.5 Downlink Shared Channels

DSCH Data Frame includes a CFN indicating the frame in which the payload shall be sent. If the payload is to be sent over several frames, the CFN corresponding to the first frame shall be indicated.

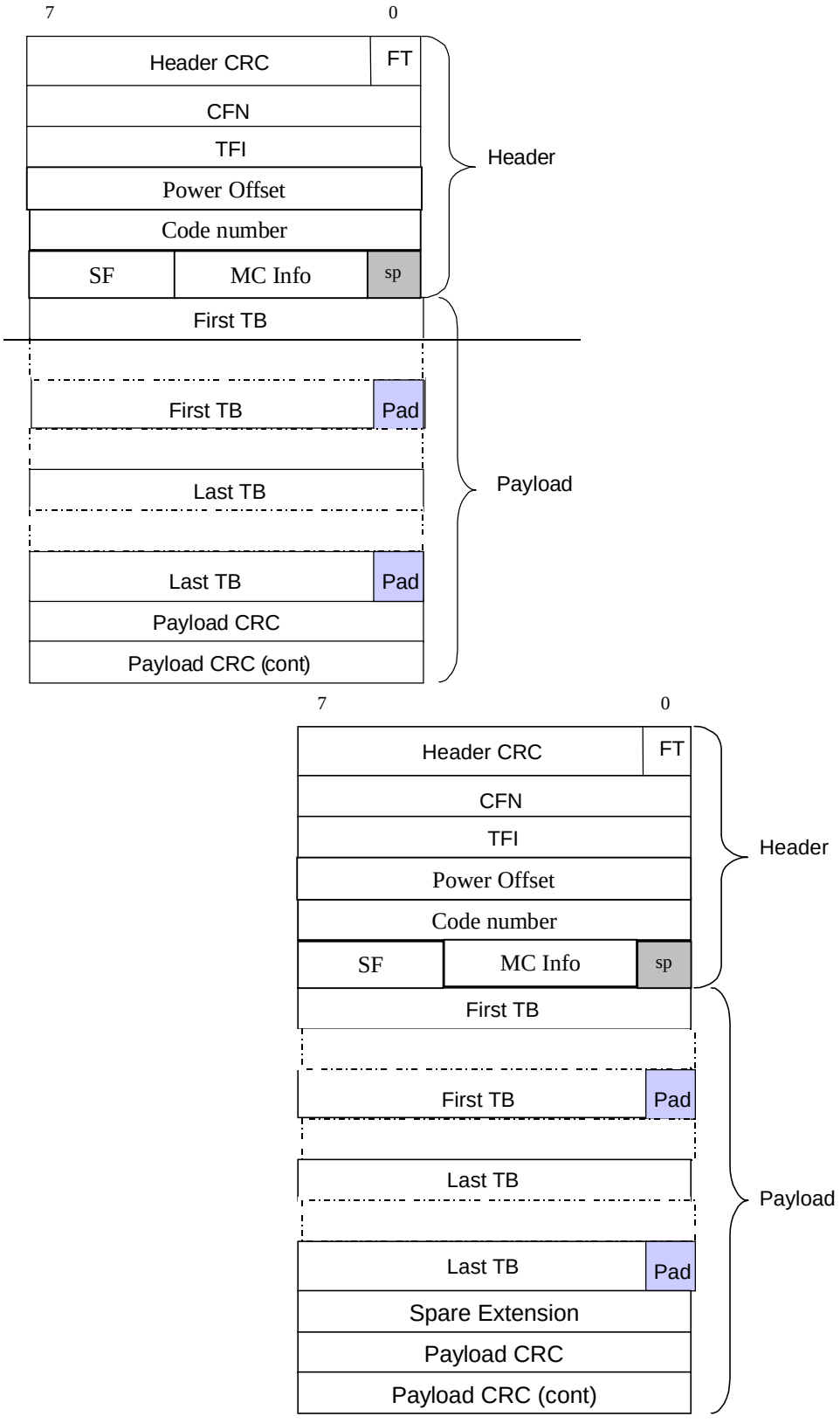

Figure 17: FDD DSCH Data Frame structure

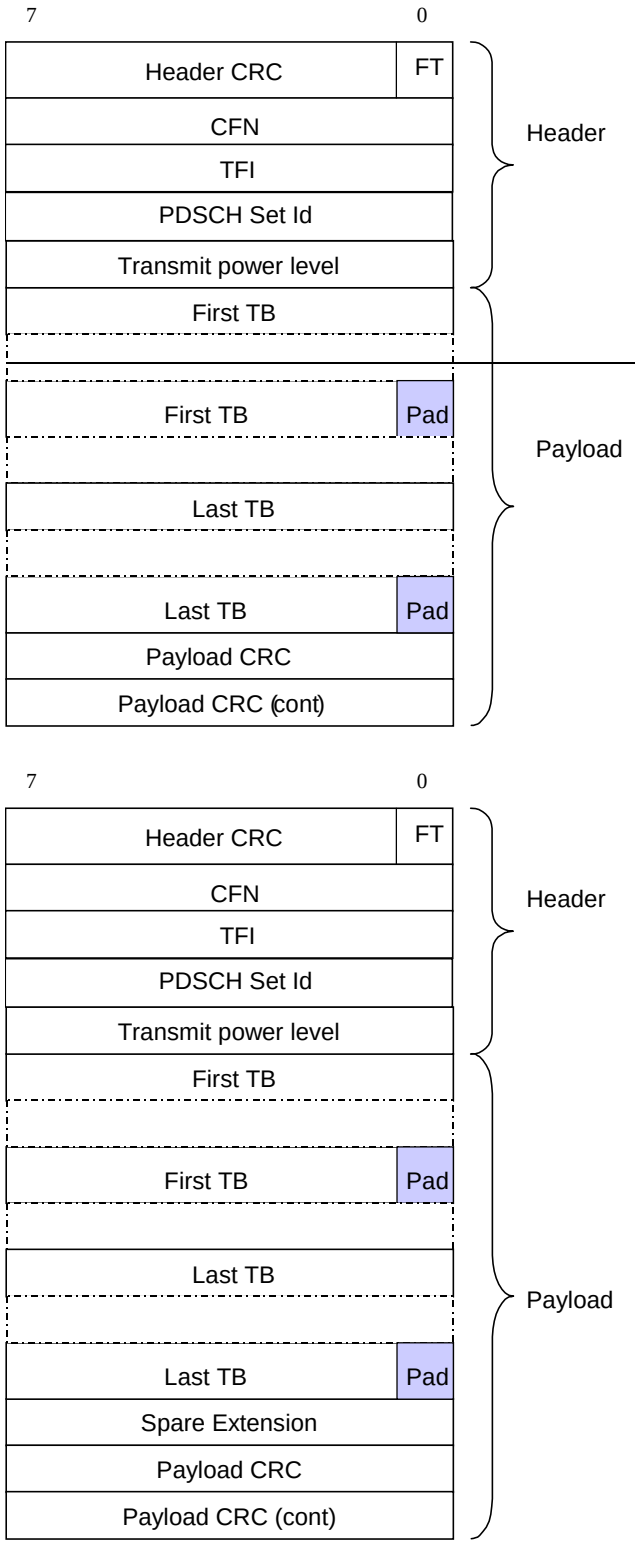

Figure 18: TDD DSCH Data Frame structure

Transmit power level is a conditional Information Element which is only present when the Cell supporting the DSCH Transport Channel is a TDD Cell.

3GPP TSG-RAN Working Group 3 Meeting #15
Berlin, Germany, 21 - 25 August 2000

***Document* R3-002228**
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25.435	CR	28r2	Current Version:	3.3.0

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: R-WG3 **Date:** August 2000

Subject: BER at UL DTX for TDD

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: BER at uplink DTX for TDD had been an open issue. This CR solves this for the USCH, including the decision by WG1 to eliminate Physical channel BER..

Clauses affected: 6.2.7.20

Other specs	Other 3G core specifications	X	→ List of CRs:	25.225CR16 25.427CR32, 25.423CR171, 25.433CR203
affected:	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:

6.2.7.20 [TDD - Quality Estimate (QE)]

Description: The quality estimate is derived from the Transport channel BER ~~or Physical channel BER~~.

If the USCH FP frame includes TB's for the USCH ~~which was indicated as "selected" with the QE-selector IE in the control plane [6],~~ then the QE is the Transport channel BER for the selected USCH. If no Transport channel BER is available the QE ~~is the Physical channel BER.~~shall be set to 0.

~~If the IE QE-Selector equals "non-selected" for all USCHs in the USCH FP frame then the QE is the Physical channel BER.~~

The quality estimate shall be set to the Transport channel BER ~~or Physical channel BER~~ and be measured in the units TrCH_BER_LOG ~~and PhCH_BER_LOG~~ respectively (see Ref [6]). The UL Outer Loop Power Control may use the quality estimate.

Value range: {0-255}, granularity 1.

Field length: 8 bits.

3GPP TSG RAN WG3 Meeting #15
Berlin, Germany, 21st – 25th August 2000

Document R3-002288
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TS 25.435	CR	29r3	Current Version:	3.3.0

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

For submission to:	RAN#9	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:** 8/2000

Subject: Node B knowledge of timing advance

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: A requirement added in WG1 requires that the node B must be made aware of an timing adjustment to allow layer 1 to adapt correctly to the change.

Clauses affected: 5.x, 6.3.2.3, 6.3.3.x

Other specs Affected:

Other 3G core specifications	X	→ List of CRs:	25.224 CR 26
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.x Timing Advance [TDD]

This procedure is used in order to signal to the node B the adjustment to be performed by the UE in the uplink timing.

The Node B shall use the CFN and timing adjustment values to adjust its layer 1 to allow for accurate impulse averaging.

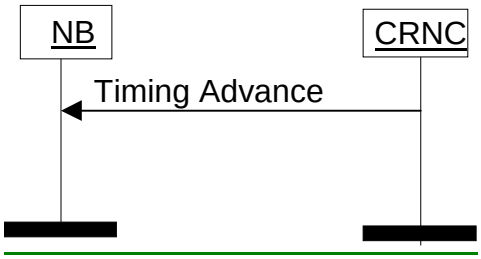

Figure x: Timing Advance Signalling

6.3.2.3 Control Frame Type

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

Value: values of the Control Frame Type parameter are defined in the following table:

Type of control frame	Value
Timing adjustment	0000 0010
DL synchronisation	0000 0011
UL synchronisation	0000 0100
DL Node synchronisation	0000 0110
UL Node synchronisation	0000 0111
Dynamic PUSCH assignment	0000 1000
Timing Advance	0000 1001

Field Length: 8 bits.

6.3.3.x [TDD - Timing Advance]

6.3.3.x.1 Payload structure

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

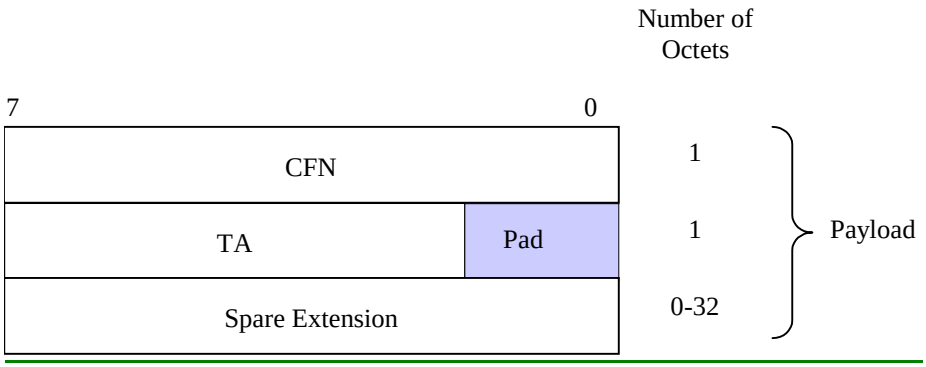

Figure x: Structure of the Timing Advance control frame

6.3.3.x.2 CFN

The CFN value in the control frame is the frame that the timing advance will occur and is coded as in subclause 6.2.6.3.

6.3.3.x.3 TA

Description: UE applied UL timing advance adjustment.

Value range: : 0-252 chips, and the resolution is 4 chips.

Field length: 6 bits.

6.3.3.x.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.

TSG-RAN Working Group 3 Meeting #15
Berlin, Germany, 21st – 25th August 2000

Document ***R3-002345***
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.

25.435	CR	30r2	Current Version:	3.3.0

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

For submission to:	TSG RAN #9	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:** August 2000

Subject: Sending of pilot bits on S-CCPCH when no data transmitted.

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:

This CR clarifies the Node B behaviour in case it receives a frame with invalid TFCI combination and in case it receives a valid TFCI indicating that there is no data to be sent.

In the first case (unknown TFCI) according to the current specification pilot bits shall be sent. But this is not possible because the power offset to be used for pilot is not known.

The second case (no data to be sent) is currently not clearly specified. Also in this case the pilot bits cannot be sent because the power can not be determined.

Clauses affected: 5.1.3, 5.1.4

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

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

5.1.3 Secondary-CCPCH related transport Channels

For the FACH transport channel, a Data Transfer procedure is used to transfer data from CRNC to node B. Data Transfer Procedure Consists of a transmission of Data Frame from CRNC to node B.

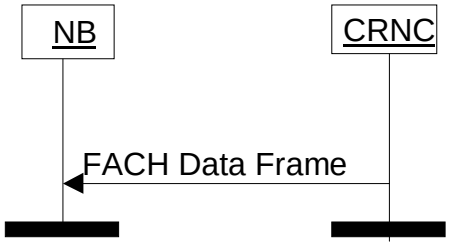

Figure 3: FACH Data Transfer Procedure

For the PCH transport channel, a Data Transfer procedure is used to transfer data from CRNC to node B. Data Transfer Procedure Consists of a transmission of Data Frame from CRNC to node B.

Figure 4: PCH Data Transfer Procedure

In this case the PCH Data Frame may also transport information related to the PICH channel.

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. For the FACH and PCH transport channels, the TFS shall never define a Transport Block Size of zero bits.

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 the 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 secondary-CCPCH according to the TFIs of the transport channels multiplexed on this secondary-CCPCH and scheduled for that frame. [FDD — In case the Node B receives an unknown TFI combination, ~~it shall only transmit the~~no pilot bits, ~~of the secondary CCPCH (if configured) without~~ TFCI bits or Data bits shall be transmitted.] [TDD — In case the Node B receives an unknown TFI combination, it shall apply DTX, i.e. suspend transmission on the corresponding S-CCPCH – except if this S-CCPCH provides the "beacon function", in which case the Node B shall maintain the physical layer transmission as specified in TS 25.221].

If the Node B does not receive a valid FP frame in a TTI or a frame without paging indication information, it assumes that no UE's have to be paged on the Uu in this TTI. In this case the default PICH bit pattern of all zeros shall be transmitted.

Data Frames sent on Iub for different transport channels multiplexed on one secondary-CCPCH might indicate different transmission power levels to be used in a certain Uu frame. Node-B shall determine the highest DL power level required for any of the transport channels multiplexed in a certain Uu frame and use this power level as the desired output level.

5.1.4 Downlink Shared Channels

The Data Transfer procedure is used to transfer a DSCH data frame from the CRNC to a Node B.

If the Node B does not receive a valid DSCH data frame for transmission in a given TTI, it assumes that there is no data to be transmitted in that TTI for this transport channel. For the DSCH transport channel, the TFS shall never define a Transport Block Size of zero bits.

[FDD - The Node B shall use the header information in the DSCH data frame to determine which channelisation code(s) and power offset should be used in the PDSCH Uu frame associated to the specified CFN. The specified channelisation code(s) and power offset shall then be used for PDSCH transmission for as long as there is data to transmit or until a new DSCH data frame arrives that specifies that a different PDSCH channelisation code(s) and/or power offset should be used. This feature enables multiple DSCH's with different TTI to be supported].

[FDD - In the event that the DSCH FP header indicates that a multi-code PDSCH transmission is to be applied ('MC Info' value > 1) then the 'power offset' field indicates the power offset at which each individual code should be transmitted relative to the power of the TFCI bits of the downlink DPCCH directed to the same UE as the DSCH].

[FDD - The Node B may receive a DSCH data frame which contains a TFI value corresponding to there being no data to transmit, such a DSCH data frame will have no transport blocks. On receiving such a data frame the Node B shall apply the specified channelisation code(s) and power offset as described above starting in the PDSCH Uu frame associated to the specified CFN. This feature enables multiple DSCH's with different TTI to be supported, the use of such a zero payload DSCH data frame solves the problem of how the Node B should determine what channelisation code(s) and power offset should be used in the event that transmission of a transport block set being transmitted with a short TTI comes to an end, whilst the transmission of a TBS with a long TTI continues].

[TDD - The Node B shall use the header information in the DSCH data frame to determine which PDSCH Set and power offset should be used in the PDSCH Uu frames associated to the specified CFN. The specified PDSCH Set and power offset shall then be used for DSCH transmission for as long as there is data to transmit or until a new DSCH data frame arrives that specifies that a different PDSCH Set and/or power offset should be used. This feature enables multiple DSCH's with different TTI to be supported].

[TDD - The Node B may receive a DSCH data frame which contains a TFI value corresponding to there being no data to transmit, such a DSCH data frame will have no transport blocks. On receiving such a data frame the Node B shall apply the specified PDSCH Set and power offset as described above starting in the PDSCH Uu frame associated to the specified CFN. This feature enables multiple DSCH's with different TTI to be supported, the use of such a zero payload DSCH data frame solves the problem of how the Node B should determine what PDSCH Set and power offset should be used in the event that transmission of a transport block set being transmitted with a short TTI comes to an end, whilst the transmission of a TBS with a long TTI continues].

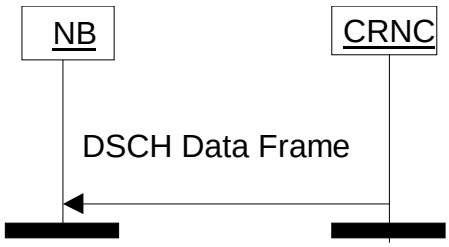

Figure 5: DSCH Data Transfer Procedure