TSG-RAN Meeting #7
Madrid, Spain, 13 - 15 March 2000

TSGRP#7(00)0102

Title: **Agreed CRs to TS 25.425**

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
R3-000270	25.425	002		Handling of unknown IE or illegal IE value	F	agreed	3.0.0	3.1.0
R3-000189	25.425	003		Modification to RACH/FACH FP structures	F	agreed	3.0.0	3.1.0
R3-000190	25.425	004		Renaming of MAC-c to MAC-c/sh	F	agreed	3.0.0	3.1.0
R3-000191	25.425	005		Coding of Common Transport Channel Priority Indicator IE	F	agreed	3.0.0	3.1.0
R3-000563	25.425	009		Aligned definition of Rx Timing Deviation	F	agreed	3.0.0	3.1.0
R3-000504	25.425	007		Addition of UE-ID Indicator IE in Iur FACH FP	F	agreed	3.0.0	3.1.0
R3-000984	25.425	001	4	Changes for CPCH	C	agreed	3.0.0	3.1.0
R3-000829	25.425	006	1	Addition of Spare Extension.	B	agreed	3.0.0	3.1.0
R3-000979	25.425	010	2	Inclusion of DSCH and [TDD USCH] FP procedures	B	agreed	3.0.0	3.1.0

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R3-000270
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.425	CR	002	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 #7 *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: TSG-RAN WG3 **Date:** 00.01.24

Subject: Handling of unknown IE or illegal IE value

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: Error handling for unknown IE or illegal IE value not yet specified.

Clauses affected: New chapter 7 ‘Handling of Unknown, Unforeseen and Erroneous Protocol Data’.

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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7 Handling of Unknown, Unforeseen and Erroneous Protocol Data

7.1 General

A Frame Protocol frame with an unknown IE or an illegal IE value shall be ignored.

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R3-000189
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.425	CR	003	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 #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:	TSG-RAN WG3	**Date:**	00.01.24

Subject: Modification to RACH/FACH FP structures

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:

Change position of spare bits in header to align with the DCH FP.

In the RACH FP header spare bits 7-5 in front of the *MAC-c SDU Length* IE should be moved to position 2-0 in the second byte of the IE.

In the FACH FP header spare bits 7-6 in front of the *S-CI* IE should be moved to position 1-0 in the second byte of the *MAC-c SDU Length* IE.

Clauses affected: 6.2.1, 6.2.2

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

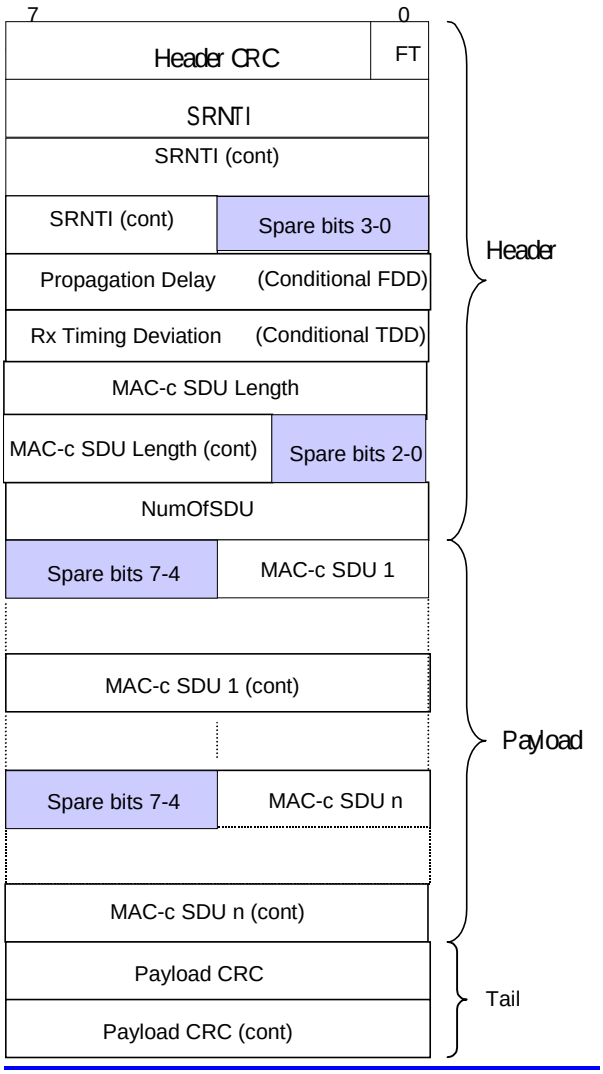
<--------- double-click here for help and instructions on how to create a CR.

6.2.1 RACH Channels

RACH Iur data stream corresponds to the data stream of one specific UE. The used transport bearer for the transport of FACH/RACH is bi-directional.

The RACH/FACH FP does not facilitate multiplexing of data streams from different UEs onto the same data frame, but does allow multiple UEs to share the same transport bearer.

The RACH Data frame structure is defined as common for FDD and TDD with conditional fields.


7
0
Header CRC
FT
SRNTI
SRNTI (cont)
SRNTI (cont)
Spare bits 3-0
Propagation Delay
(Conditional FDD)
Rx Timing Deviation
(Conditional TDD)
MAC-c SDU Length
MAC-c SDU Length (cont)
Spare bits 2-0
NumOfSDU
Spare bits 7-4
MAC-c SDU 1
MAC-c SDU 1 (cont)
Spare bits 7-4
MAC-c SDU n
MAC-c SDU n (cont)
Payload CRC
Payload CRC (cont)
Header
Payload
Tail

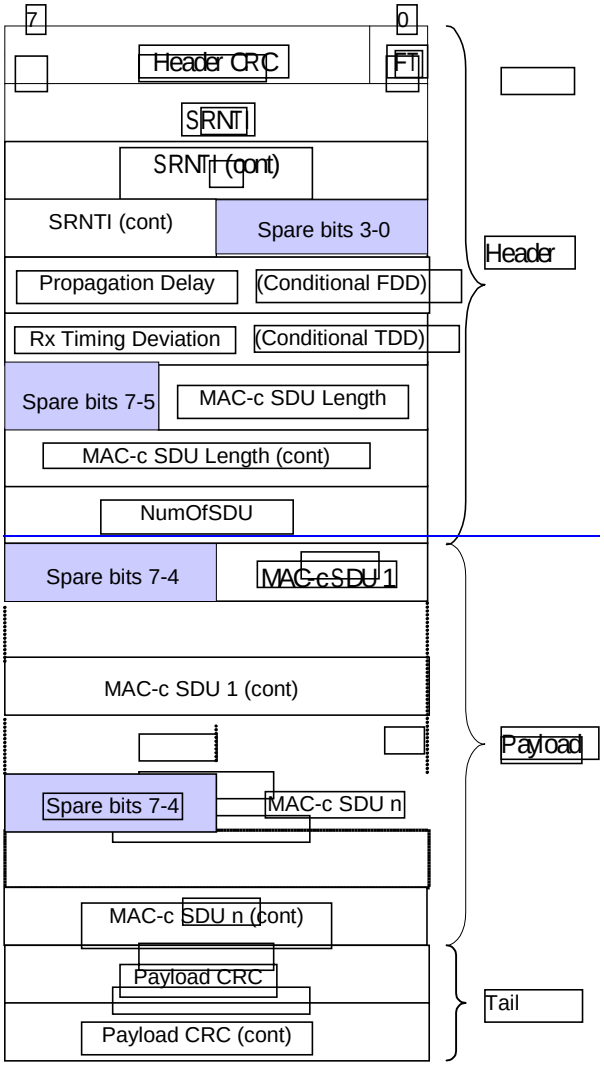


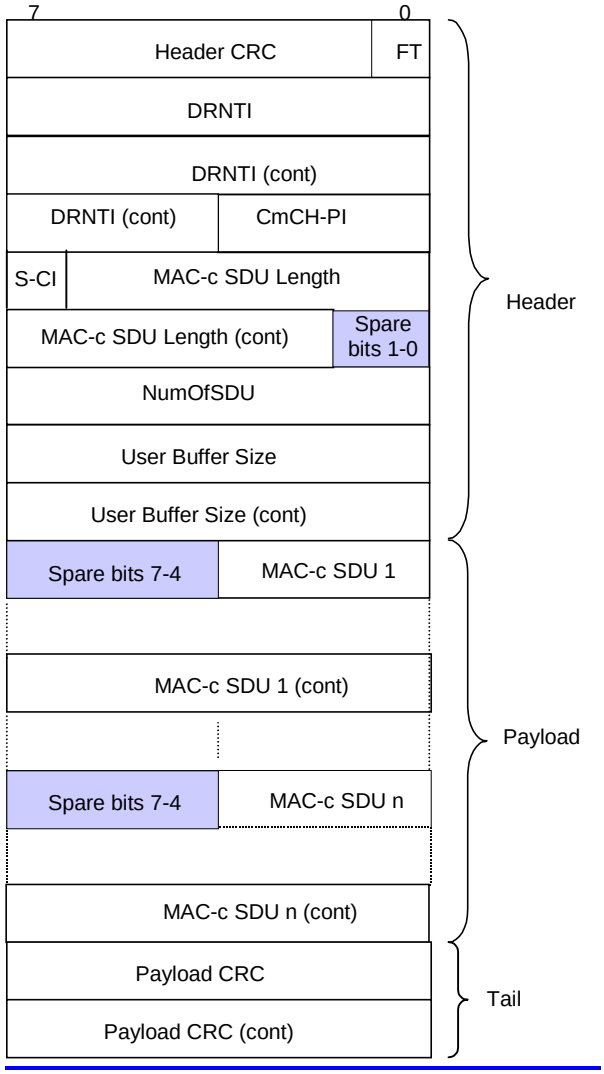
Figure 1: RACH Data Frame structure

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.

Spare bits shall be set to 0 and ignored by the receiver.

6.2.2 FACH Channels



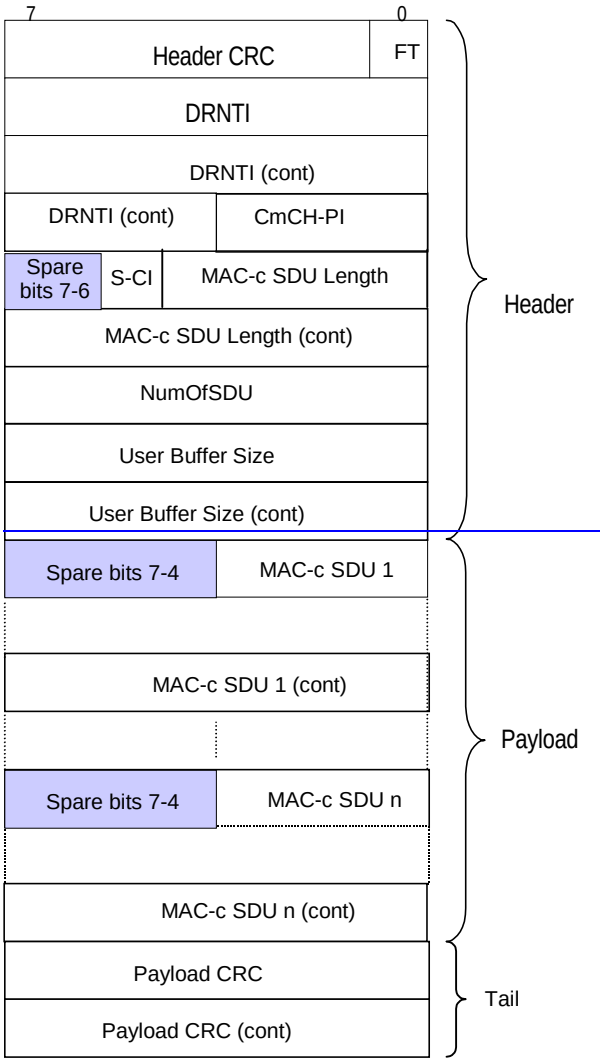


Figure 2: FACH Data Frame structure

Spare bits shall be set to 0 and ignored by the receiver.

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R3-000190
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.425	CR	004	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 #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: TSG-RAN WG3 **Date:** 00.01.24

Subject: Renaming of MAC-c to MAC-c/sh

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: Rename MAC-c to MAC-c/sh according to R2 terminology.

Clauses affected: 4.1.1, 5.1.1, 5.1.2, 5.2.1, 6.2.1 figure, 6.2.2 figure, 6.2.3.7, 6.2.3.12, 6.3.3.1.3

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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4.1.1 RACH/FACH Data Streams User Plane Protocol Services

RACH/FACH frame protocol provides the following services:

- Transport of ~~MAC c~~MAC-c/sh SDUs between the SRNC and the DRNC for RACH and FACH common transport channels.
- Flow Control between MAC-d and ~~MAC c~~MAC-c/sh.

5.1.1 RACH Data Transfer

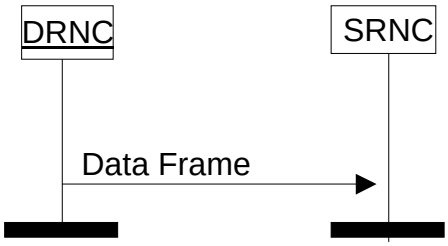


Figure 1: RACH data transfer

Data received on the RACH transport channel is transmitted from the DRNC to the SRNC using RACH data frames. The data is protected by a mandatory payload CRC. Multiple ~~MAC c~~MAC-c/sh SDUs of same length may be transmitted in the same RACH data frame.

5.1.2 FACH data transfer

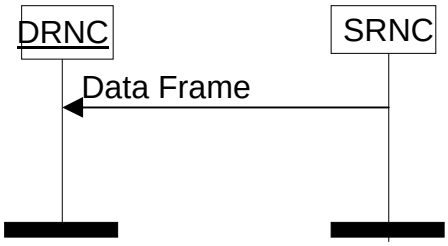


Figure 2: FACH data transfer

Data to be transmitted on the FACH transport channel is transmitted from the SRNC to the DRNC using FACH data frames. Multiple ~~MAC c~~MAC-c/sh SDUs of same length may be transmitted in the same FACH data frame.

The *S-CCPCH Indicator* IE indicates if the data in the payload shall be sent on the S-CCPCH coupled to the PRACH (i.e. the payload contains the Cell Update Confirm message), or if it shall be sent on the S-CCPCH selected by the DRNC for subsequent user data. The S-CCPCH selected for subsequent user data may be the S-CCPCH coupled to the PRACH or another S-CCPCH.

5.2.1 FACH Flow Control

The FACH flow control frame is used by the DRNC to control the user data flow. The *Credits* IE indicates the number of ~~MAC-e~~MAC-c/sh SDUs the SRNC is allowed to transmit for the UE identified by the *SRNTI* IE and the associated priority class indicated by the *Common Transport Channel Priority Indicator* IE.

The *Credits* IE indicates the total amount of credits granted. Any credits previously granted are withdrawn.

If *Credits* IE = 0 (e.g. due to congestion in the DRNC), the SRNC shall immediately stop transmission of ~~MAC-e~~MAC-c/sh SDUs.

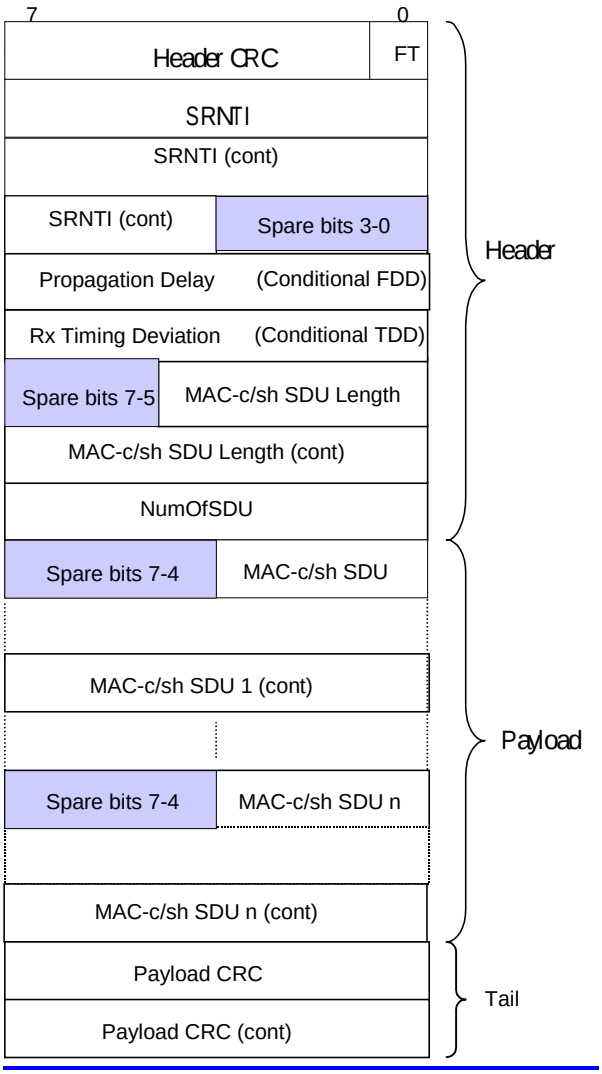
Credits IE = 'unlimited' indicates that the SRNC may transmit an unlimited number of ~~MAC-e~~MAC-c/sh SDUs.

6.2.1 RACH Channels

RACH Iur data stream corresponds to the data stream of one specific UE. The used transport bearer for the transport of FACH/RACH is bi-directional.

The RACH/FACH FP does not facilitate multiplexing of data streams from different UEs onto the same data frame, but does allow multiple UEs to share the same transport bearer.

The RACH Data frame structure is defined as common for FDD and TDD with conditional fields.


7
0
Header CRC
FT
SRNTI
SRNTI (cont)
SRNTI (cont)
Spare bits 3-0
Propagation Delay
(Conditional FDD)
Rx Timing Deviation
(Conditional TDD)
Spare bits 7-5
MAC-c/sh SDU Length
MAC-c/sh SDU Length (cont)
NumOfSDU
Spare bits 7-4
MAC-c/sh SDU
MAC-c/sh SDU 1 (cont)
Spare bits 7-4
MAC-c/sh SDU n
MAC-c/sh SDU n (cont)
Payload CRC
Payload CRC (cont)
Header
Payload
Tail

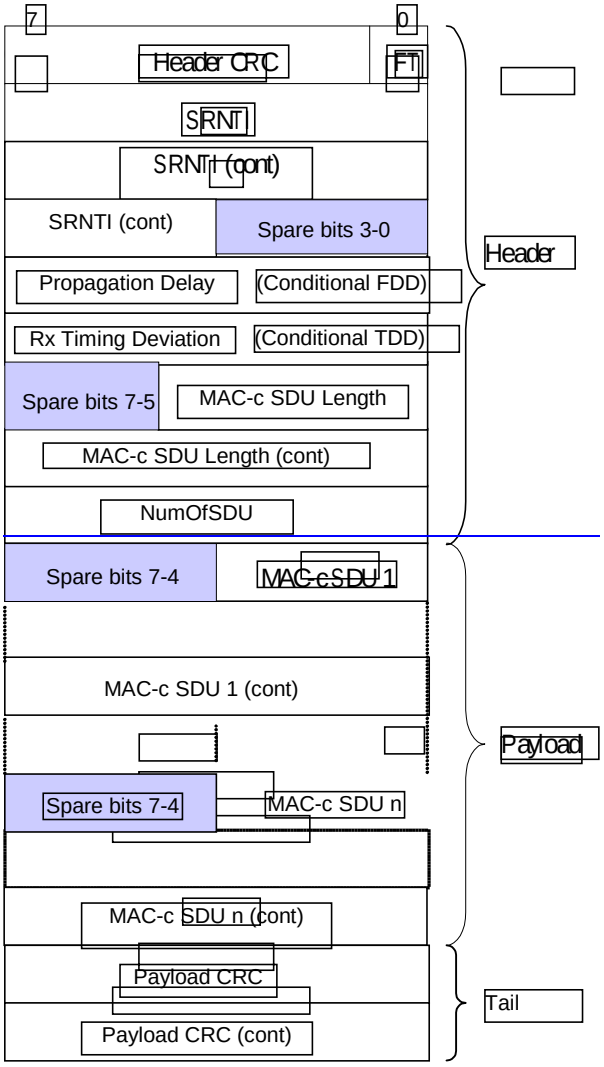


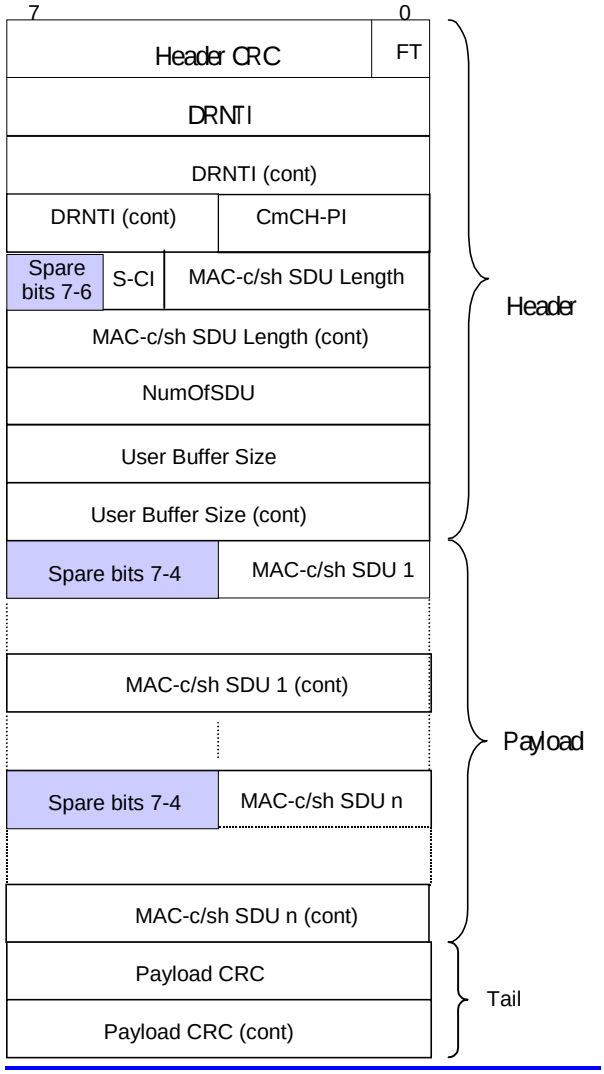
Figure 1: RACH Data Frame structure

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.

Spare bits shall be set to 0 and ignored by the receiver.

6.2.2 FACH Channels



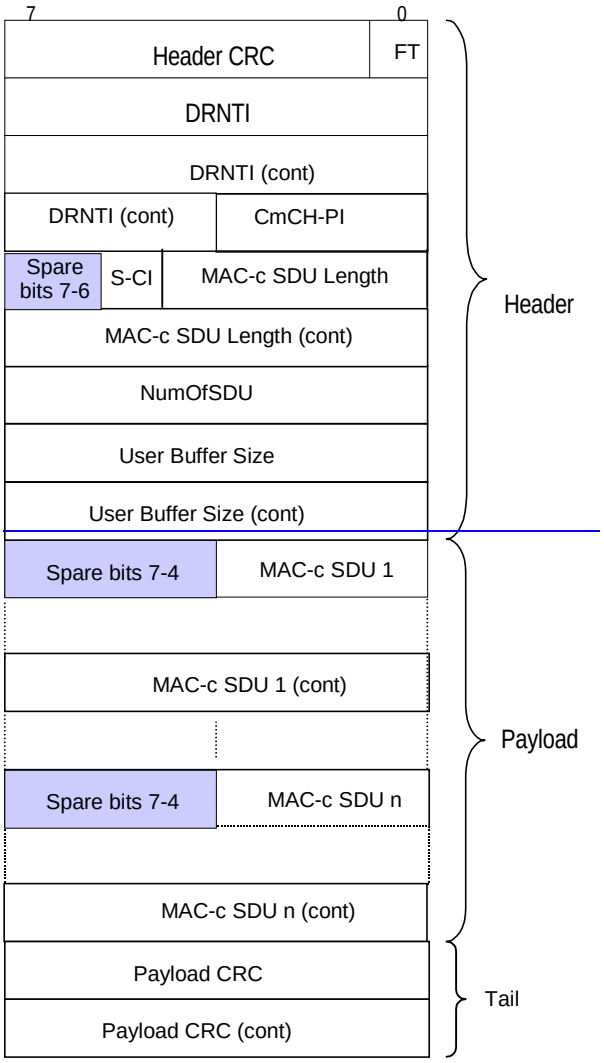


Figure 2: FACH Data Frame structure

Spare bits shall be set to 0 and ignored by the receiver.

6.2.3.7 ~~MAC-c~~MAC-c/sh SDU Length

Description: The value of that field indicates the length of every ~~MAC-c~~MAC-c/sh SDU in the payload of the FACH data frame in number of bits.

Value range: {0-5000}.

Field Length: 13 bits

6.2.3.12 ~~MAC-c~~MAC-c/sh SDU

Description: A ~~MAC-c~~MAC-c/sh SDU contains the C/T field of the MAC header followed by one RLC PDU.Field length : See the value of the ~~MAC-c~~MAC-c/sh SDU Length IE.

6.3.3.1.3 Credits

Description: The Credits IE indicates the number of ~~MAC e~~MAC-c/sh SDUs that a user may transmit.

Value range: {0-255, where 0=stop transmission, 255=unlimited}

Field length: 8 bits

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Madrid, Spain, 13 - 15 March 2000

R3-000191
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.425	CR	005	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 #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: TSG-RAN WG3 **Date:** 00.01.24

Subject: Coding of *Common Transport Channel Priority Indicator* IE

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: Unclear which IE value corresponds to highest priority.

Clauses affected: 6.2.3.6

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.

6.2.3.6 Common Transport Channel Priority Indicator (CmCH-PI)

Description: CmCH-PI is the relative priority of the data frame.

Value range: {0-15, where 0=lowest priority, 15=highest priority}.

Field length: 4 bits

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

***Document* R3-00563**
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.

25.425	CR	009	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: RAN #7 *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: Siemens **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 of Rx Timing Deviation with 25.225 in terms of range and granularity.

Clauses affected: 6.2.1, 6.2.3.10

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.

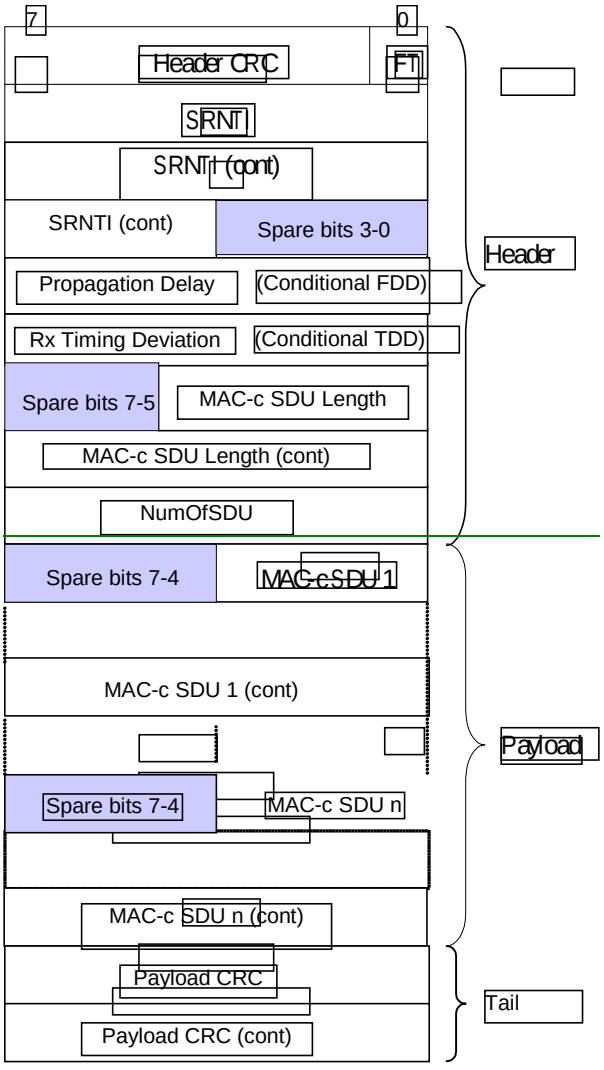
6.2 Data frame structure

6.2.1 RACH Channels

RACH Iur data stream corresponds to the data stream of one specific UE. The used transport bearer for the transport of FACH/RACH is bi-directional.

The RACH/FACH FP does not facilitate multiplexing of data streams from different UEs onto the same data frame, but does allow multiple UEs to share the same transport bearer.

The RACH Data frame structure is defined as common for FDD and TDD with conditional fields.



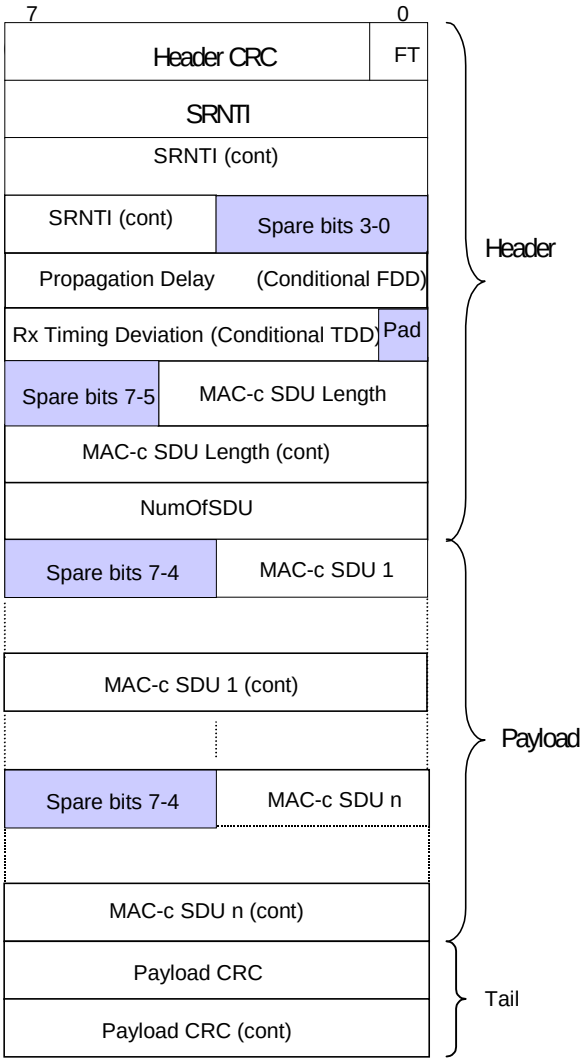


Figure 1: RACH Data Frame structure

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.

Spare bits shall be set to 0 and ignored by the receiver.

6.2.3.10 [TDD — Rx Timing Deviation]

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

Value range: {~~0 1020~~ 256, .. , +256} 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 Meeting #11
Nice, France, 28th Feb – 3rd March 2000

R3-000504
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.425	CR	7	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 #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: Ericsson **Date:** 00.02.28

Subject: Addition of *UE-ID Type Indicator* IE in Iur FACH FP.

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 MAC-c/sh entity shall include the UE identity (either U-RNTI or C-RNTI) together with a UE-ID type indicator into the MAC header for data sent on the FACH transport channel. Default UE-ID is the C-RNTI, but for some RRC messages (e.g. Cell Update Confirm and URA Update Confirm) MAC-c/sh shall include the U-RNTI. Which of the two identity types to use is decided by the SRNC. This CR proposes to include an indication of which of the two UE-ID types to use in the FACH data frame.

Clauses affected: 5.1.2, 6.2.2, 6.2.3

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:

help.doc

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

5.1.2 FACH data transfer

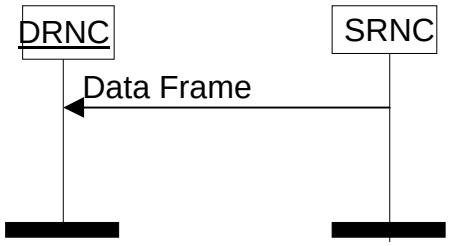


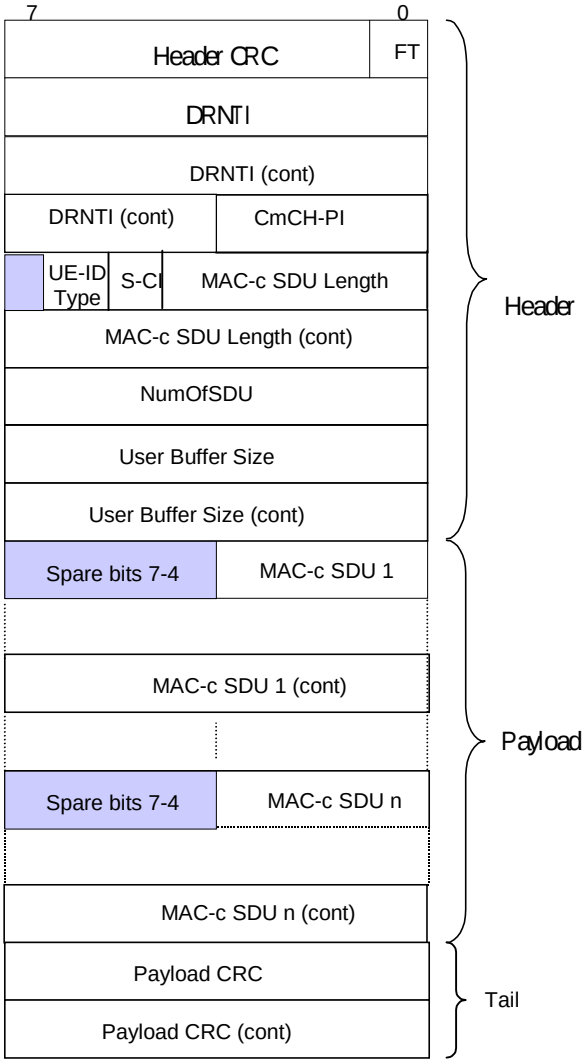
Figure 2: FACH data transfer

Data to be transmitted on the FACH transport channel is transmitted from the SRNC to the DRNC using FACH data frames. Multiple MAC-c SDUs of same length may be transmitted in the same FACH data frame.

The *UE-ID Type Indicator* IE indicates which UE-ID type MAC-c/sh shall include in the MAC header.

The *S-CCPCH Indicator* IE indicates if the data in the payload shall be sent on the S-CCPCH coupled to the PRACH ~~(i.e. the payload contains the Cell Update Confirm message)~~, or if it shall be sent on the S-CCPCH selected by the DRNC for subsequent user data. The S-CCPCH selected for subsequent user data may be the S-CCPCH coupled to the PRACH or another S-CCPCH.

6.2.2 FACH Channels



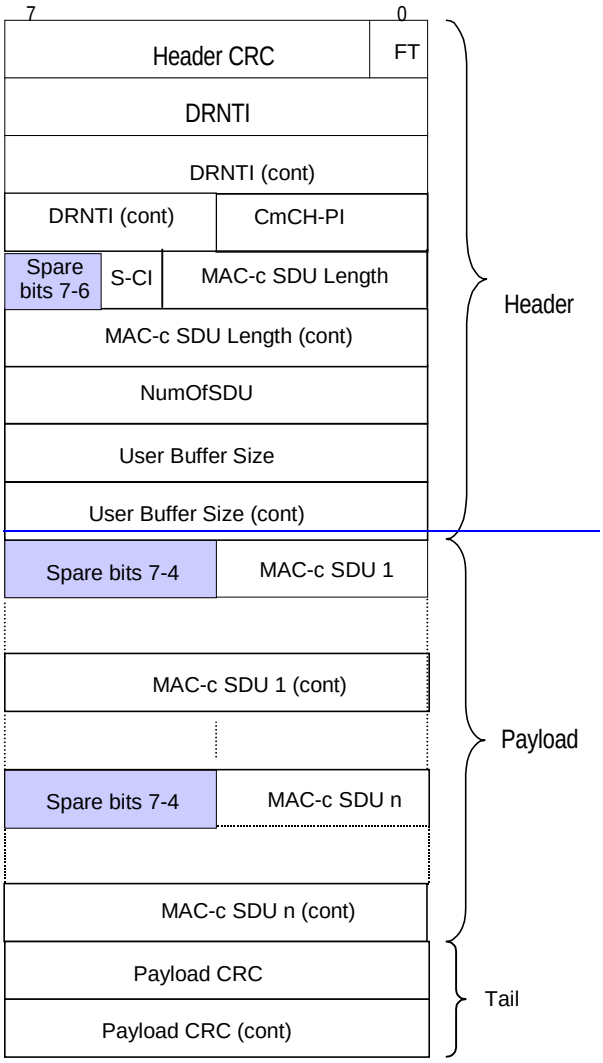


Figure 1: FACH Data Frame structure

Spare bits shall be set to 0 and ignored by the receiver.

6.2.3 Coding of information elements in data frames

6.2.3.1 Header CRC

Description: Cyclic Redundancy Polynomial calculated on the header of a data frame with polynomial X^7+X^6+X^2+1. The CRC calculation shall cover all bits in the header, starting from bit 0 in the first byte (FT field) up to the end of the header.

Value range: {0-127}.

Field length: 7 bits

6.2.3.2 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

6.2.3.3 DRNTI

Description: Identifies the UE in the DRNC.

Value range: {0-1048575}.

Field length: 20 bits

6.2.3.4 S-RNTI

Description: S-RNTI is defined in [5]. S-RNTI is used in UL control frames to identify the UE context in the SRNC.

Value range: {0-1048575}.

Field length: 20 bits

6.2.3.x UE-ID Type Indicator (UE-ID Type)

Description: Indicates the UE Identifier Type to be included by MAC-c/sh in the MAC header.

Value range: {0=U-RNTI, 1=C-RNTI}.

Field Length: 1 bit

6.2.3.5 S-CCPCH Indicator (S-CI)

Description: Indicates the S-CCPCH to be used for transmission of the user data.

Value range: {0=S-CCPCH coupled to PRACH, 1=S-CCPCH selected by DRNC}.

Field Length: 1 bit

6.2.3.6 Common Transport Channel Priority Indicator (CmCH-PI)

Description: CmCH-PI is the relative priority of the data frame.

Value range: {0-15}.

Field length: 4 bits

6.2.3.7 MAC-c SDU Length

Description: The value of that field indicates the length of every MAC-c SDU in the payload of the FACH data frame in number of bits.

Value range: {0-5000}.

Field Length: 13 bits

6.2.3.8 NumOfSDU

Description: Indicates the number of MAC-c SDUs in the payload.

Value range: {1-255}.

Field Length: 8 bits

6.2.3.9 [FDD — Propagation delay]

Description: One-way air interface delay as measured during RACH access.

Value range: {0 – 765 chips}.

Granularity: 3 chips

Field length: 8 bits

6.2.3.10 [TDD — Rx Timing Deviation]

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

Value range: {0-1020 chips}.

Granularity: 4 chips

Field length: 8 bits

6.2.3.11 User Buffer Size

Description: Indicates the users' buffer size (i.e. the amount of data in the buffer) in octets for a given Common Transport Channel Priority.

Value range: {0-65535}.

Field length: 16 bits

6.2.3.12 MAC-c SDU

Description: A MAC-c SDU contains the C/T field of the MAC header followed by one RLC PDU.Field length : See the value of the MAC-c SDU Length IE.

6.2.3.13 Payload CRC

Description: Cyclic Redundancy Polynomial calculated on the payload of a data frame with polynomial X^16+X^15+X^2+1. The CRC calculation shall cover all bits in the data frame payload, starting from bit 7 in the first byte up to bit 0 in the byte before the payload CRC.

Field length: 16 bits

TSG RAN WG 3#11 **TSGR3(00)0984**

Sophia Antipolis, FR

Feb 28 – Mar 3, 2000Agenda Item: 21.1

Source: **Golden Bridge Technology (GBT) and Samsung**

Title **CR25425-001r4: Changes for Common Packet Channel**

Document for **Discussion and Approval**

INTRODUCTION:

At the last two RAN meetings, several features were identified to be high priority items for Release 99 which were to be completed after RAN#6 and before RAN#7 meetings. CPCH is one of these features. This contribution provides changes for TS 25.425 v 3.0.0 to incorporate CPCH.

DISCUSSION:

Since CPCH is similar to RACH in providing a common UL transport channel, the approach used for specification modification is to locate and examine all RACH references. Where RACH references are found, similar references are provided for CPCH noting any CPCH differences.

In RAN3#10, R3-000333_CR25425-CR001r1 with changes for CPCH was presented and approved. At this RAN3#11 meeting, changes in other RAN3 specs required new changes to 25425. R3-000874_CR25425-001r2 was discussed at RAN3#11 and was in principle approved, however two editorial changes were proposed and the new Tdoc number, R3-000983, was issued to capture these two new editorial changes:

1. Changed color on "/" on the title of section 4.1.1 to reflect the proper way.

2.· Changed color "pink" and "blue" to reflect the proper version based on for the entire doc.

In the email review of R3-000983 the need for two additional editorial changes was noted:

3. In Section 4.1.1, the second bullet indicating *"flow control between MAC-d and MAC-c"* is deleted. This change was approved in R3-000874, but was inadvertently omitted from R3-000983.

4. In Section 5 (introduction) the following sentence *"1. Random Access Channel Frame Protocol (RACH FP)/Common Packet Channel Frame Protocol (CPCH FP) for transport of Iur data streams carried on RACH/CPCH[FDD] on the Uu-interface."* is clarified to read *"1. Random Access Channel/Common Packet Channel [FDD] Frame Protocol (RACH/CPCH[FDD] FP) for transport of Iur data streams carried on RACH/CPCH[FDD] on the Uu-interface."*

PROPOSAL:

The following changes should be approved and the text of the CR incorporated into the latest version of TS 25.425.

3GPP TSG-RAN WG3 Meeting #11
Sophia Antipolis, FR, Feb 28-Mar 3, 2000

Document R3-000984
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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25.425	CR	001r4	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#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 [X] UTRAN / Radio [X] Core Network [ ]

Source: Golden Bridge Technology & Samsung **Date:** 8 Mar 2000

Subject: Changes for CPCH

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: This CR adds changes to include transport of CPCH messages on the specified Iur interface.

Clauses affected: 3.3, 4.1, 5, 5.1.1, 6.2.1

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: This CR supersedes R3-000333_CR25425-CR001r1, R3-000874_CR25425-CR001r2 and R3-000983_CR25425-001r3.

help.doc

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

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAL2	ATM Adaptation Layer type 2
ATM	Asynchronous Transfer Mode
CFN	Connection Frame Number
CmCH	CoMmon transport Channel
CPCH	Common Packet Channel
CPS	Common Part Sublayer
C-RNC	Controlling Radio Network Controller
CRC	Cyclic Redundancy Checksum
DCH	Dedicated Transport Channel
DL	Downlink
D-RNTI	Drift RNTI
FACH	Forward Access CHannel
FP	Frame Protocol
FT	Frame Type
PC	Power Control
RACH	Random Access CHannel
RNC	Radio Network Controller
RNTI	Radio Network Temporary Identity
SRNC	Serving Radio Network Controller
S-RNTI	Serving RNTI
SSCS	Service Specific Convergence Sublayer
SSSAR	Service Specific Segmentation and Reassembly sublayer
TB	Transport Block
TBS	Transport Block Set
TFI	Transport Format Indicator
ToA	Time of arrival
TTI	Transmission Time Interval
UE	User Equipment
UL	Uplink

4 General Aspects

4.1 Common Transport Channel Data Streams User Plane Protocol Services

This chapter describes the services that the User Plane Protocols provide such as data transfer, flow control.

4.1.1 RACH/CPCH[FDD]/~~FACH~~ Data Streams User Plane Protocol Services

RACH/CPCH[FDD]/~~FACH~~ frame protocol provides the following services:

- Transport of MAC-c SDUs ~~between~~ from the ~~SRNC~~DRNC ~~and~~to the ~~DRNC~~SRNC for RACH/CPCH[FDD] ~~and FACH~~ common transport channels.

~~- Flow Control between MAC-d and MAC-c.~~

4.1.2 FACH Data Streams User Plane Protocol Services

FACH frame protocol provides the following services:

- Transport of MAC-c SDUs from the SRNC to the DRNC for FACH common transport channel.

- Flow Control between MAC-d and MAC-c.

4.2 Services expected from data transport

The following services are expected from the transport layer:

- In sequence delivery of Frame Protocol PDUs.

5 Common Transport Channel Data Streams User Plane Procedures

This chapter specifies the user plane procedures for Common Transport Channels data streams. Typical related scenarios at Iur interface should be described.

For the user plane of the radio network layer there are two Common Transport Channel frame handling protocols:

1. Random Access Channel ~~Frame Protocol (RACH FP)~~/Common Packet Channel [FDD] Frame Protocol (RACH/CPCH[FDD] FP) for transport of Iur data streams carried on RACH/CPCH[FDD] on the Uu-interface.
2. Forward Access Channel Frame Protocol (FACH FP) for transport of Iur data streams carried on FACH on the Uu-interface.

5.1 Data Transfer

5.1.1 RACH/CPCH[FDD] Data Transfer

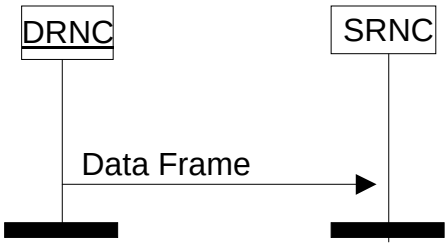

Figure 1: RACH/CPCH[FDD] data transfer

Data received on the RACH/CPCH[FDD] transport channel is transmitted from the DRNC to the SRNC using RACH/CPCH[FDD] data frames. The data is protected by a mandatory payload CRC. Multiple MAC-c SDUs of same length may be transmitted in the same RACH/CPCH[FDD] data frame.

5.1.2 FACH data transfer

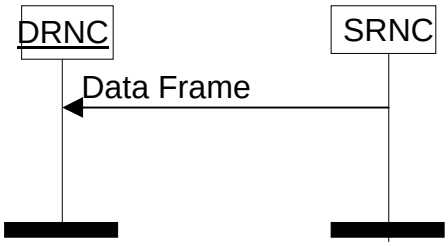

Figure 2: FACH data transfer

Data to be transmitted on the FACH transport channel is transmitted from the SRNC to the DRNC using FACH data frames. Multiple MAC-c SDUs of same length may be transmitted in the same FACH data frame.

The *S-CCPCH Indicator* IE indicates if the data in the payload shall be sent on the S-CCPCH coupled to the PRACH (i.e. the payload contains the Cell Update Confirm message), or if it shall be sent on the S-CCPCH selected by the DRNC for subsequent user data. The S-CCPCH selected for subsequent user data may be the S-CCPCH coupled to the PRACH or another S-CCPCH.

6.2 Data frame structure

6.2.1 RACH/CPCH[FDD] Channels

RACH/CPCH[FDD] Iur data stream corresponds to the data stream of one specific UE. The used transport bearer for the transport of FACH/RACH or FACH/CPCH[FDD] is bi-directional.

The RACH/CPCH[FDD]/FACH FP does not facilitate multiplexing of data streams from different UEs onto the same data frame, but does allow multiple UEs to share the same transport bearer.

The RACH Data frame structure is defined as common for FDD and TDD with conditional fields, and CPCH[FDD] Data frame structure is defined as common for FDD only.

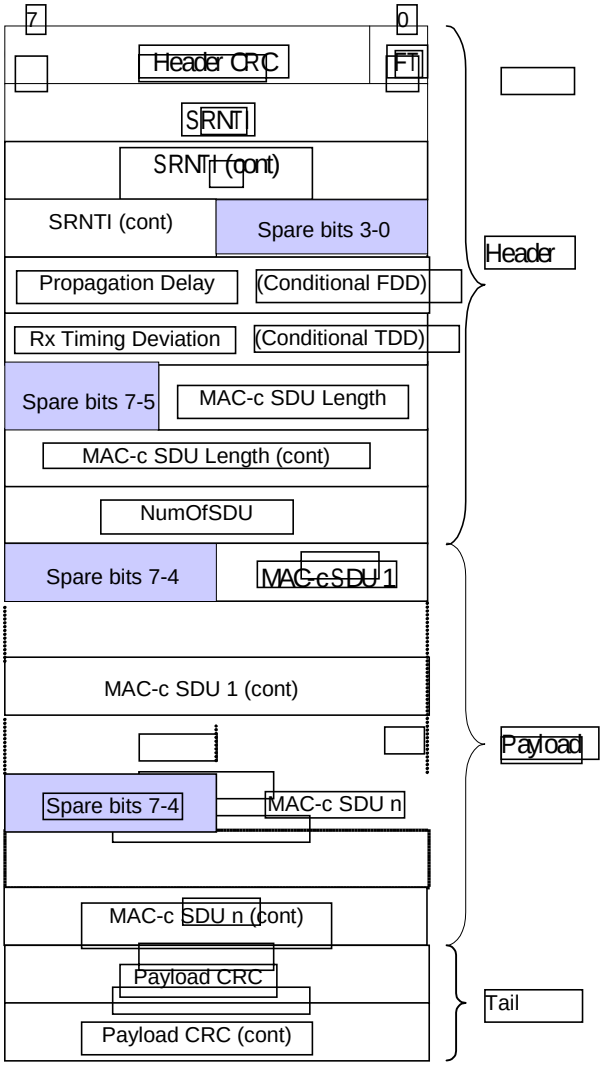

Figure 1: RACH/CPCH[FDD] Data Frame structure

Propagation delay is a conditional Information Element which is only present when the Cell supporting the RACH/CPCH[FDD] 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.

Spare bits shall be set to 0 and ignored by the receiver.

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Sophia Antipolis, France, 28 Feb – 3 March 2000

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

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25.425	CR	006r1	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#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: Ericsson **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 Iur User Plane Protocols for Common Transport Channel Data Streams.

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

Clauses affected: 6.1., 6.2.1, 6.2.2., 6.2.3, 6.3.1., 6.3.3.1.

Other specs affected:

Other 3G core specifications		→ List of CRs: R3-000497 (TS 25.427) 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 General

The general structure of a Common Transport Channel frame consists of a header and a payload. This structure is depicted in the figure 1:

Header	Payload: Data or Control Information

Figure 1: General Frame Structure

The header shall contain the frame type field and information related to the frame type.

There are two types of frames (indicated by the Frame Type field).

1. Data frame
2. Control frame

In this specification the structure of frames will be specified by using pictures similar to the following figure 2:

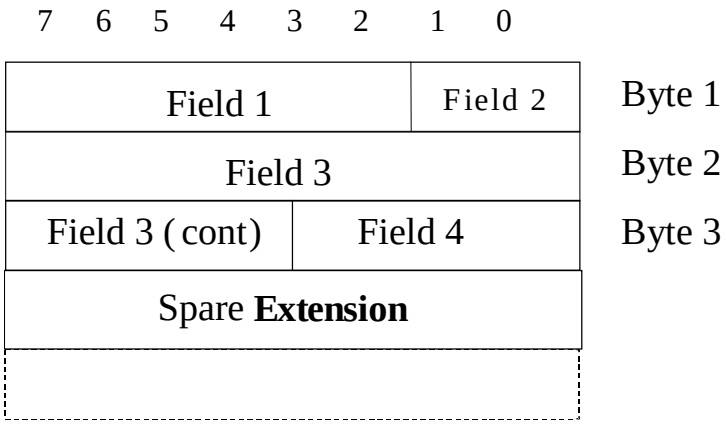
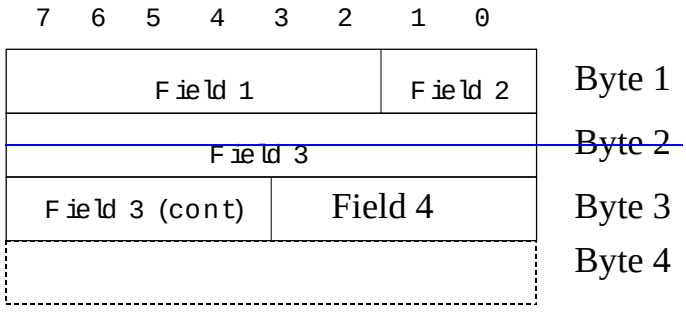


Figure 2: Example frame structure



~~**Figure 2: Example 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 picture 1). In addition, if a field spans several bytes, more significant bits will be located in lower numbered bytes (right of frame in picture 1).

On the 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 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.

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

- Lowest value (in the range) coded as a sequence of 0's;
- Highest value in the range coded as a sequence of 1's.

6.2 Data frame structure

6.2.1 RACH Channels

RACH Iur data stream corresponds to the data stream of one specific UE. The used transport bearer for the transport of FACH/RACH is bi-directional.

The RACH/FACH FP does not facilitate multiplexing of data streams from different UEs onto the same data frame, but does allow multiple UEs to share the same transport bearer.

The RACH Data frame structure is defined as common for FDD and TDD with conditional fields.

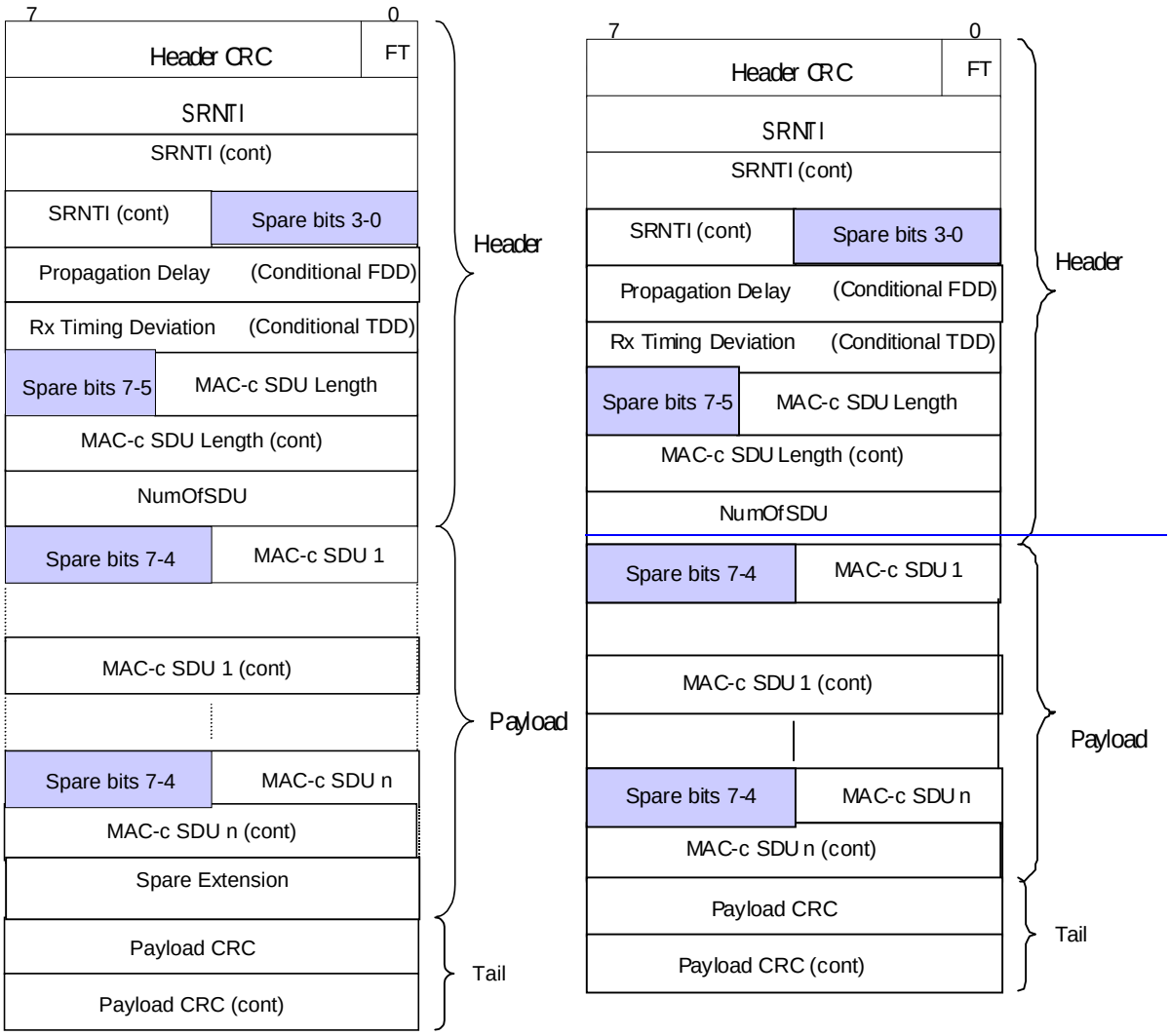


Figure 3: RACH Data Frame structure

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.

Spare bits shall be set to 0 and ignored by the receiver.

6.2.2 FACH Channels

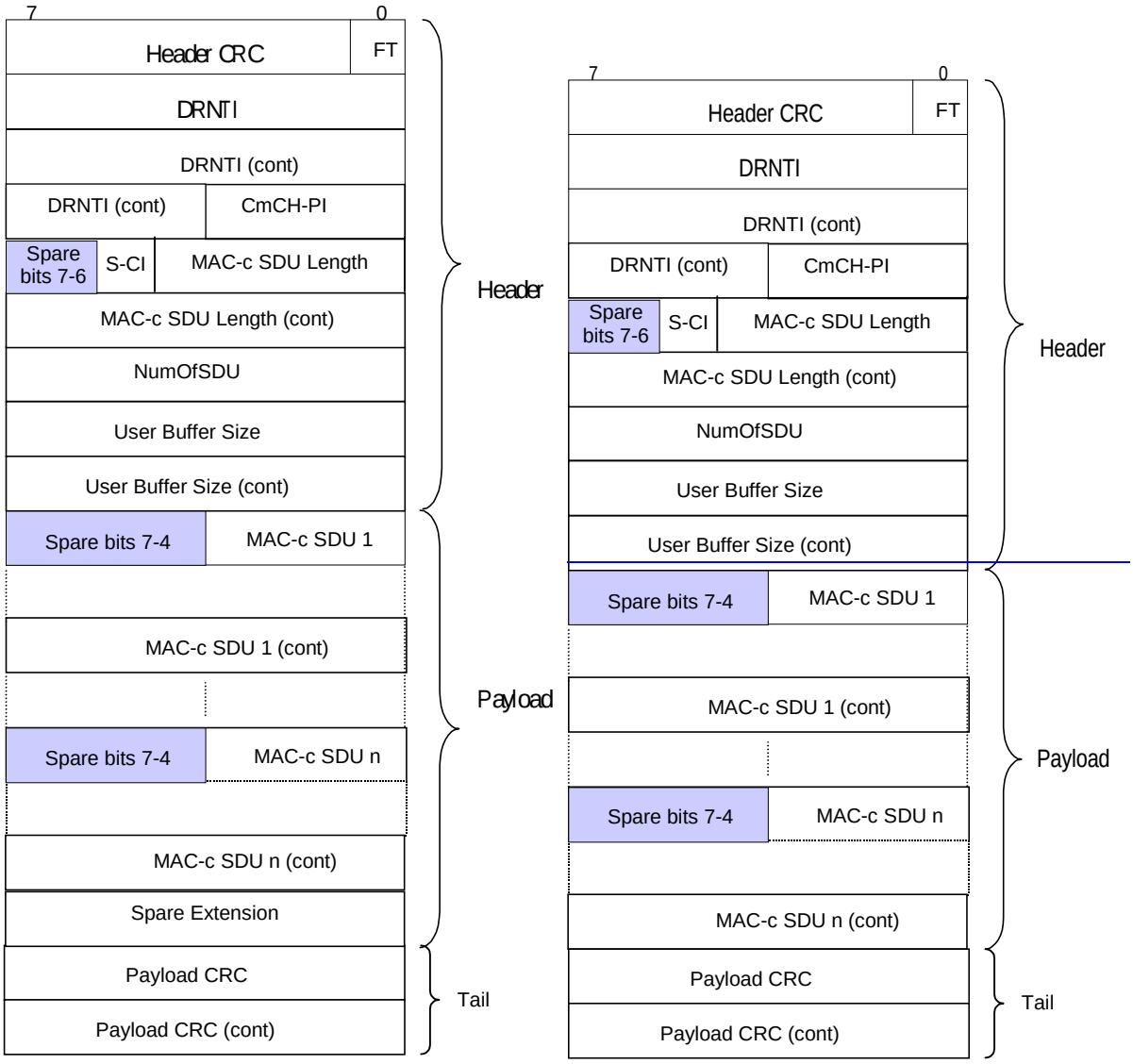


Figure 4: FACH Data Frame structure

Spare bits shall be set to 0 and ignored by the receiver.

6.2.3 Coding of information elements in data frames

6.2.3.14 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.

6.3.3 Payload structure and information elements

6.3.3.1 FACH Flow Control

The figure 6 shows the payload structure when the control frame is used for the above mentioned purpose. This control information is sent in the UL only.

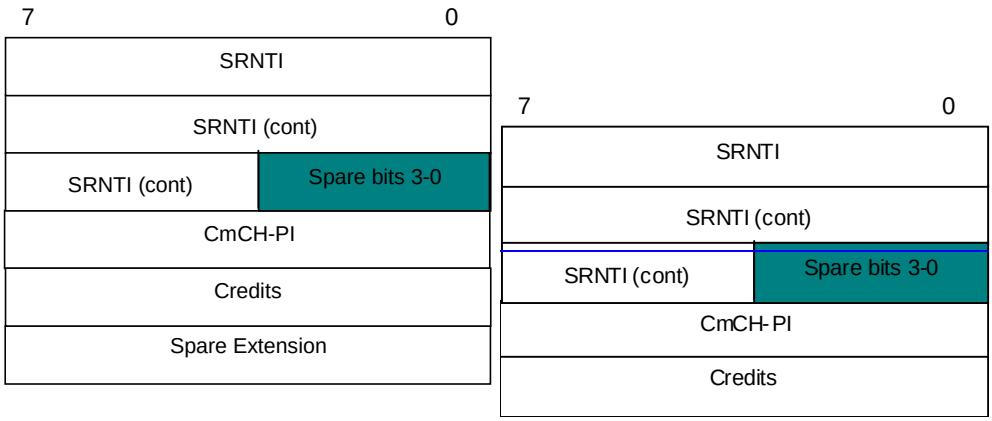


Figure 6: FACH Flow Control Payload structure

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.

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

Document R3-000979
e.g. for 3GPP use the format TP-99xxx
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25.425	CR	010r2	Current Version:	3.0.0

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	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: Siemens & Adhoc group **Date:** March 3, 2000

Subject: Inclusion of DSCH and [TDD USCH] FP procedures

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	X		Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Inclusion of the DSCH and [TDD USCH] into TS25.425.

Clauses affected: 4.1.2, 5, 5.1.3, 5.1.4, 5.2.2, 6.2.3, 6.2.4, 6.2.3.7, 6.2.3.8, 6.2.3.12, 6.2.3.14, 6.2.3.15, 6.3.2.3, 6.3.3.2, 6.3.3.2.1, 6.3.3.2.2, 6.3.3.2.3, 6.3.3.2.4, 6.3.3.2.5,

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: A note to the editors: In the figures in ch. 6.2.1 and 6.2.2 (RACH and FACH data frames), only one editorial change is requested in this CR (in contrast to what the revision marks seem to indicate): Change of “MAC-c” to “MAC-c/sh”. So this CR does not intend to contradict any other CRs affecting these data frame structures.

4 General Aspects

4.1 Common Transport Channel Data Streams User Plane Protocol Services

This chapter describes the services that the User Plane Protocols provide such as data transfer, flow control.

4.1.1 RACH/FACH Data Streams User Plane Protocol Services

RACH/FACH frame protocol provides the following services:

- Transport of MAC-c SDUs between the SRNC and the DRNC for RACH and FACH common transport channels.
- Flow Control between MAC-d and MAC-c/sh.

4.1.2 [TDD USCH]/DSCH Data Streams User Plane Protocol Services

[TDD USCH]/DSCH frame protocol provides the following services:

- Transport of MAC-c/sh SDUs between the SRNC and the DRNC for [TDD USCH] and DSCH common transport channels.
- Flow Control between MAC-d and MAC-c/sh.

5 Common Transport Channel Data Streams User Plane Procedures

This chapter specifies the user plane procedures for Common Transport Channels data streams. Typical related scenarios at Iur interface should be described.

For the user plane of the radio network layer there are four~~two~~ Common Transport Channel frame handling protocols:

1. Random Access Channel Frame Protocol (RACH FP) for transport of Iur data streams carried on RACH on the Uu-interface.
2. Forward Access Channel Frame Protocol (FACH FP) for transport of Iur data streams carried on FACH on the Uu-interface.
3. Downlink Shared Channel Frame Protocol (DSCH FP) for transport of Iur data streams carried on DSCH on the Uu-interface.
4. Uplink Shared Channel Frame Protocol ([TDD USCH] FP) for transport of Iur data streams carried on USCH on the Uu-interface.

5.1 Data Transfer

5.1.1 RACH Data Transfer

Figure 1: RACH data transfer

Data received on the RACH transport channel is transmitted from the DRNC to the SRNC using RACH data frames. The data is protected by a mandatory payload CRC. Multiple MAC-c/sh SDUs of same length may be transmitted in the same RACH data frame.

5.1.2 FACH data transfer

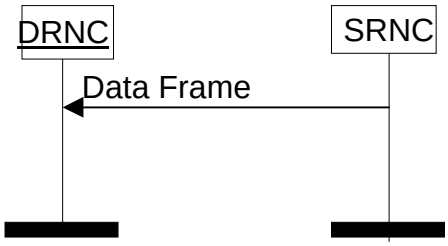


Figure 2: FACH data transfer

Data to be transmitted on the FACH transport channel is transmitted from the SRNC to the DRNC using FACH data frames. Multiple MAC-c/sh SDUs of same length and same priority (CmCH-PI)may be transmitted in the same FACH data frame.
The *S-CCPCH Indicator* IE indicates if the data in the payload shall be sent on the S-CCPCH coupled to the PRACH (i.e. the payload contains the Cell Update Confirm message), or if it shall be sent on the S-CCPCH selected by the DRNC for subsequent user data. The S-CCPCH selected for subsequent user data may be the S-CCPCH coupled to the PRACH or another S-CCPCH.

5.1.3 USCH Data Transfer [TDD]

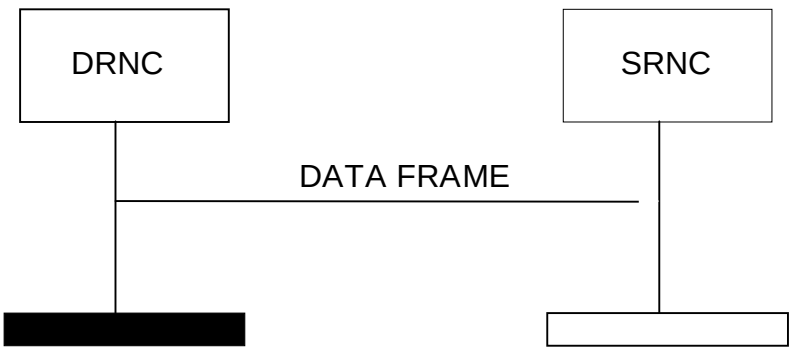


Figure 3: USCH Data transfer

Whenever there is USCH data in the DRNC, transfer is done immediately to the SRNC via the USCH Data Port using USCH Data Frames.

Data received on the USCH transport channel is transmitted from the DRNC to the SRNC using USCH data frames. The data is protected by a mandatory payload CRC. Multiple MAC-c/sh SDUs of same length may be transmitted in the same USCH data frame.

5.1.4 DSCH Data Transfer

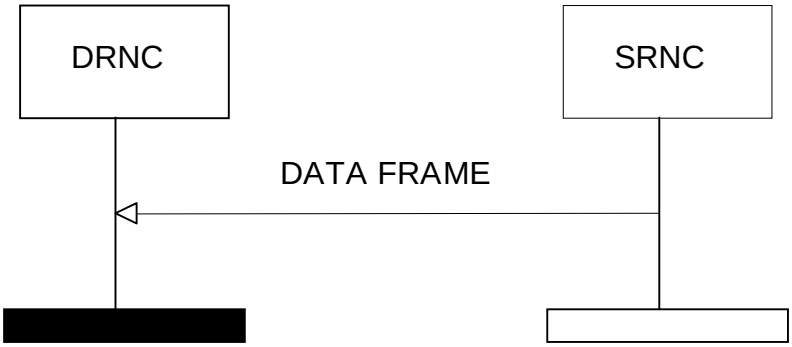


Figure 4 DSCH Data Transfer.

When the SRNC has been granted capacity by the DRNC and the SRNC has data waiting to be sent, then the DSCH data frame is used to transfer the data. When data is waiting to be transferred, and a capacity allocation is received, a data frame will be transmitted immediately according to allocation received.

Multiple MAC-c/sh SDUs of same length and same priority (CmCH-PI) may be transmitted in the same DSCH data frame.

The DSCH data frame includes a user buffer size indication to indicate the amount of data pending for the respective UE and for the indicated priority level.

5.2 Flow Control

5.2.1 FACH Flow Control

The FACH flow control frame is used by the DRNC to control the user data flow. The *Credits* IE indicates the number of MAC-c SDUs the SRNC is allowed to transmit for the UE identified by the *SRNTI* IE and the associated priority class indicated by the *Common Transport Channel Priority Indicator* IE.
The *Credits* IE indicates the total amount of credits granted. Any credits previously granted are withdrawn. If *Credits* IE = 0 (e.g. due to congestion in the DRNC), the SRNC shall immediately stop transmission of MAC-c SDUs.
Credits IE = 'unlimited' indicates that the SRNC may transmit an unlimited number of MAC-c SDUs.

5.2.2 DSCH Capacity Request

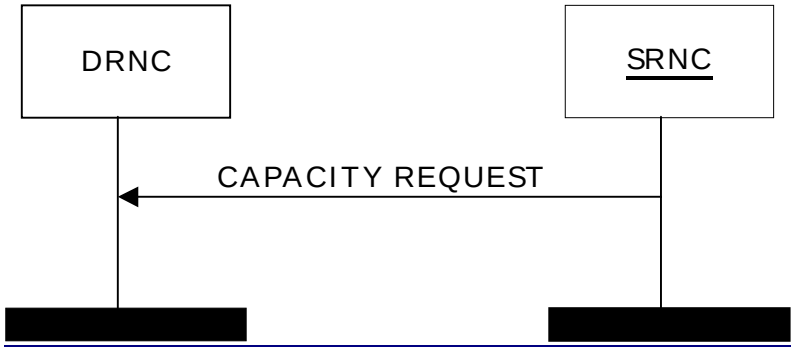


Figure 5: DSCH Capacity Request

The DSCH Capacity Request provides means for the SRNC to request DSCH capacity by indicating the user buffer size for a given priority level.

The SRNC is allowed to reissue the capacity request if no allocation has been received within an appropriate time threshold.

5.2.3 DSCH Capacity Allocation

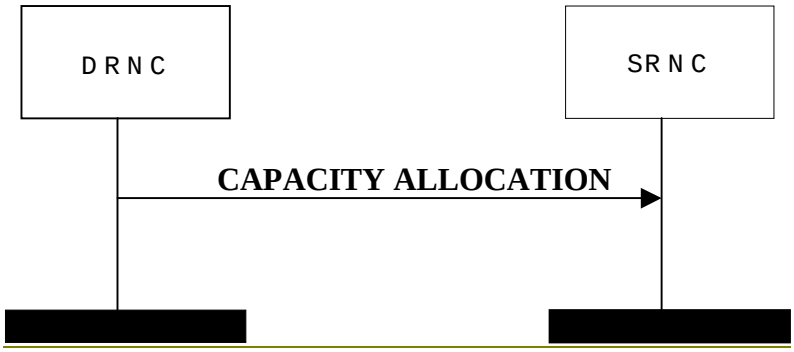


Figure 5: DSCH Capacity Allocation

DSCH Capacity Allocation is generated within the DRNC. It maybe generated either in response to a capacity request or at any other time.

The DRNC may use this message to modify the capacity at any time, irrespective of the reported user buffer status.

The DSCH flow control frame is used by the DRNC to control the user data flow. It indicates the number of MAC-c/sh SDUs the SRNC is allowed to transmit for the UE and the associated priority class indicated by the *Common Transport Channel Priority Indicator* IE.

The Max. *MAC c/sh SDU length*, *Credits*, *Interval* and *Repetition Period* IEs indicates the total amount of capacity granted. Any capacity previously granted is replaced.
If *credits* = 0 (e.g. due to congestion in the DRNC), the SRNC shall immediately stop transmission of MAC-c/sh SDUs. If *credits* = 255, the SRNC can transmit MAC-c/sh SDUs with unlimited capacity.

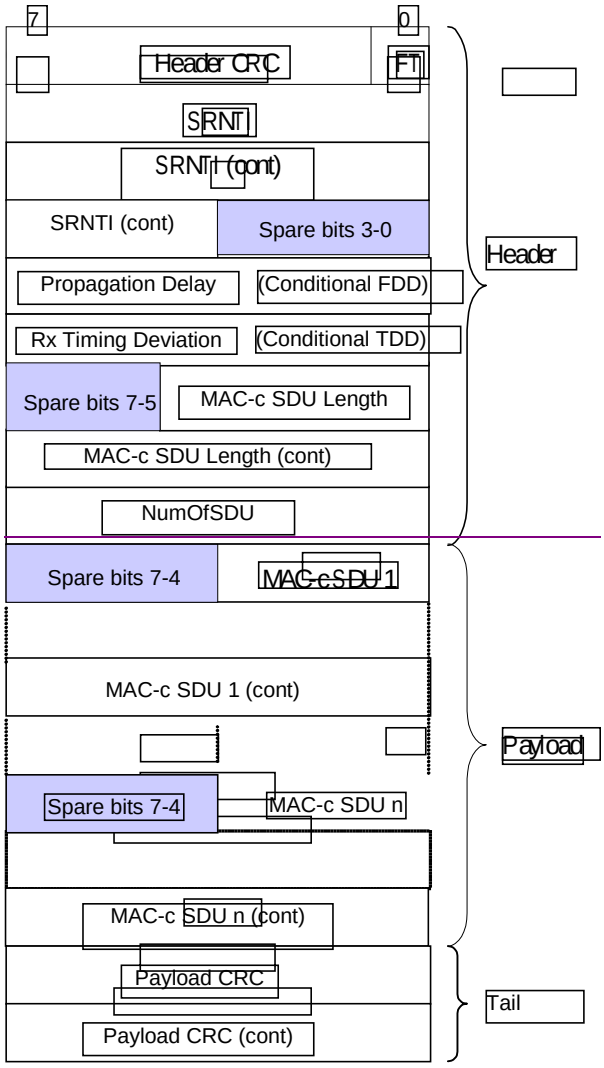
The IEs used are the *Common Channel Priority Indicator*, *Credits*, Max. *MAC c/sh SDU Length*, *Interval* and the *Repetition Count*.

If the 'Repetition Period' = 'unlimited' it indicates that the SRNC may transmit the specified number of MAC-c/sh SDUs for an unlimited period according to the bounds of *Maximum MAC-c/sh SDU length*, *Credits* and *Interval* IEs.

6.2 Data frame structure

6.2.1 RACH Channels

RACH Iur data stream corresponds to the data stream of one specific UE. The used transport bearer for the transport of FACH/RACH is bi-directional.
The RACH/FACH FP does not facilitate multiplexing of data streams from different UEs onto the same data frame, but does allow multiple UEs to share the same transport bearer.
The RACH Data frame structure is defined as common for FDD and TDD with conditional fields.


7
0
Header CRC
FT
SRNTI
SRNTI (cont)
SRNTI (cont)
Spare bits 3-0
Propagation Delay
(Conditional FDD)
Rx Timing Deviation
(Conditional TDD)
Spare bits 7-5
MAC-c SDU Length
MAC-c SDU Length (cont)
NumOfSDU
Spare bits 7-4
MAC-c SDU 1
MAC-c SDU 1 (cont)
Spare bits 7-4
MAC-c SDU n
MAC-c SDU n (cont)
Payload CRC
Payload CRC (cont)
Header
Payload
Tail

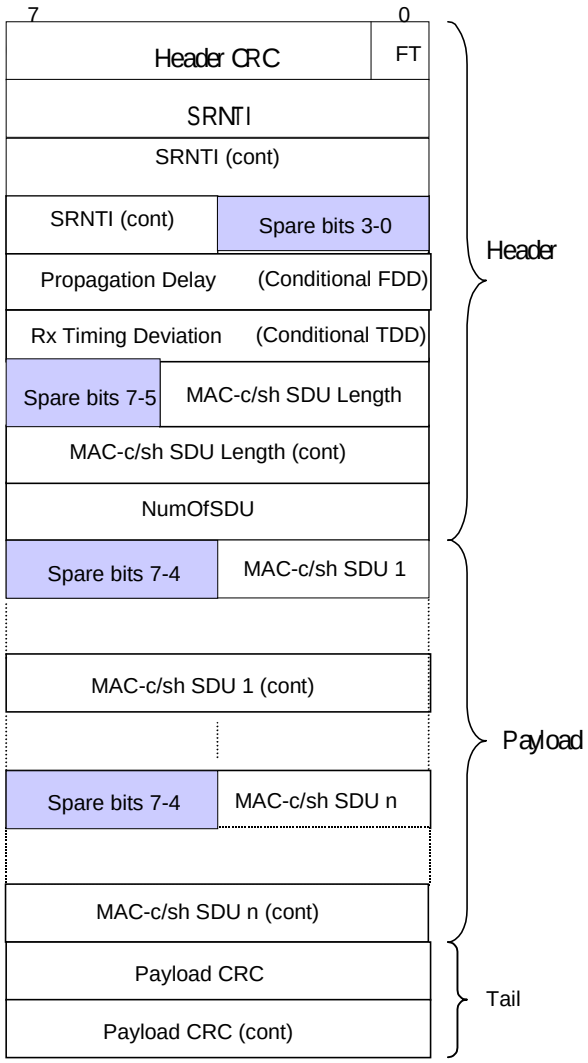
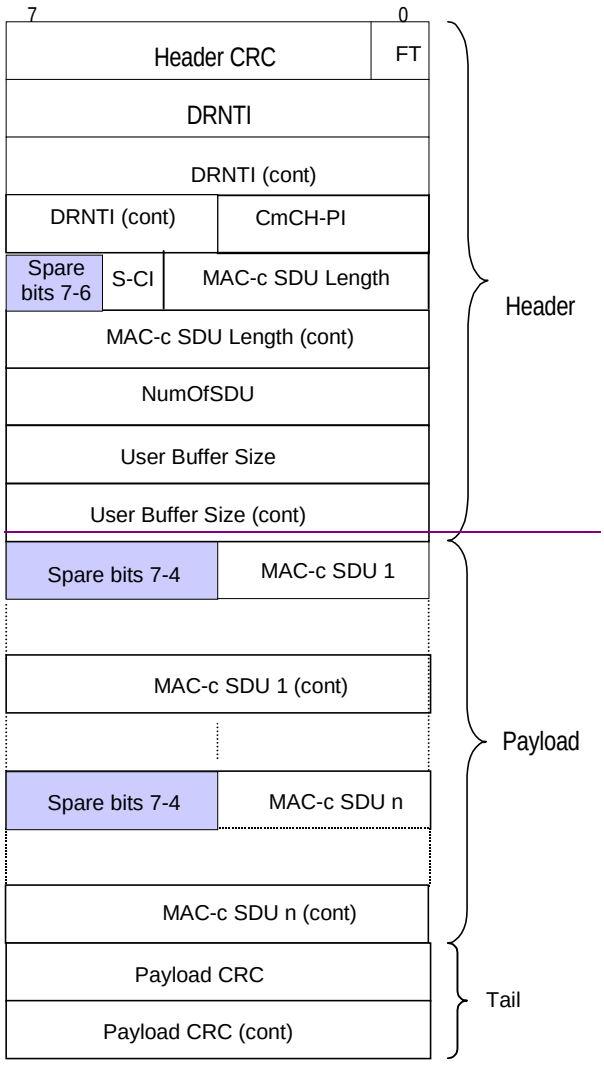


Figure 1: RACH Data Frame structure

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.
Spare bits shall be set to 0 and ignored by the receiver.

6.2.2 FACH Channels



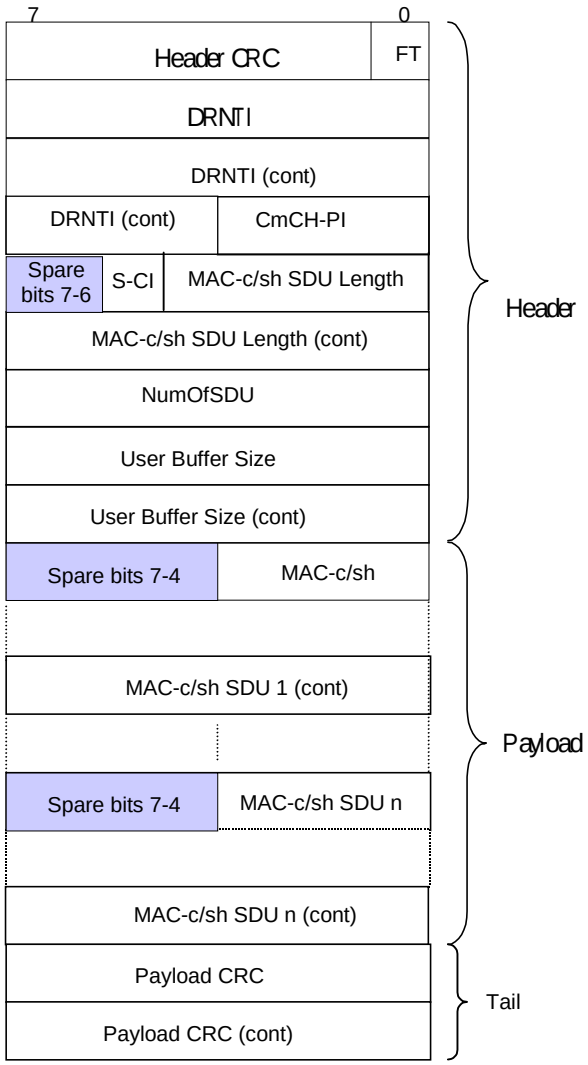


Figure 2: FACH Data Frame structure

Spare bits shall be set to 0 and ignored by the receiver.

6.2.3 USCH Data Frames [TDD]

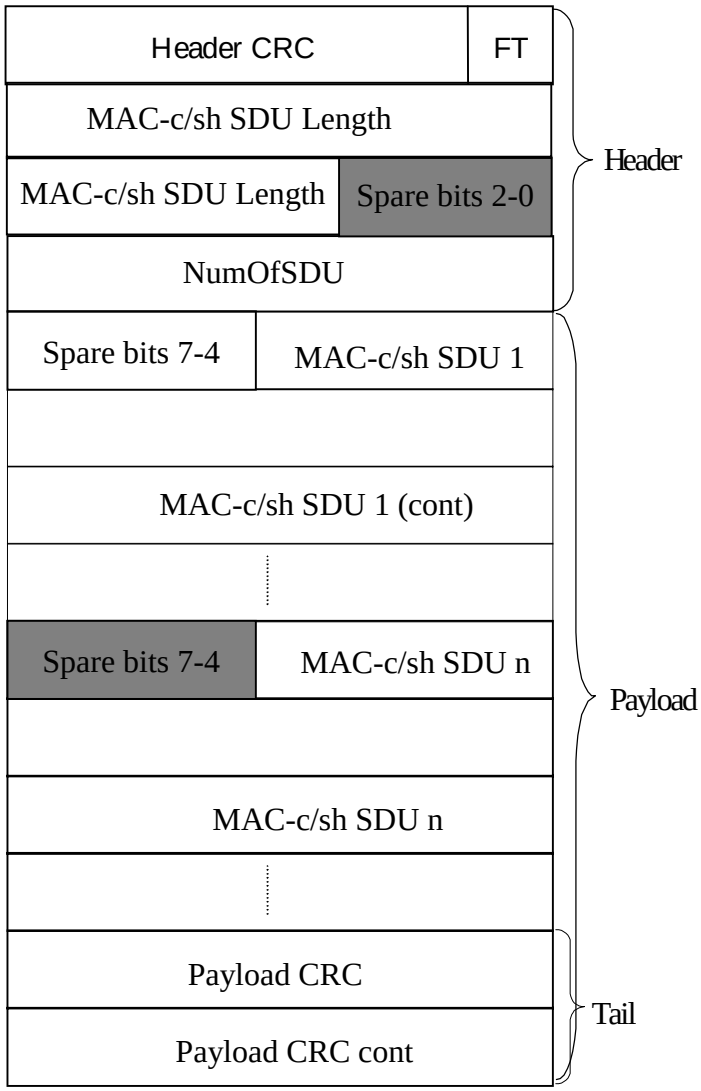


Figure 5: USCH Data Frame on the Iur

6.2.4 DSCH Data Frames

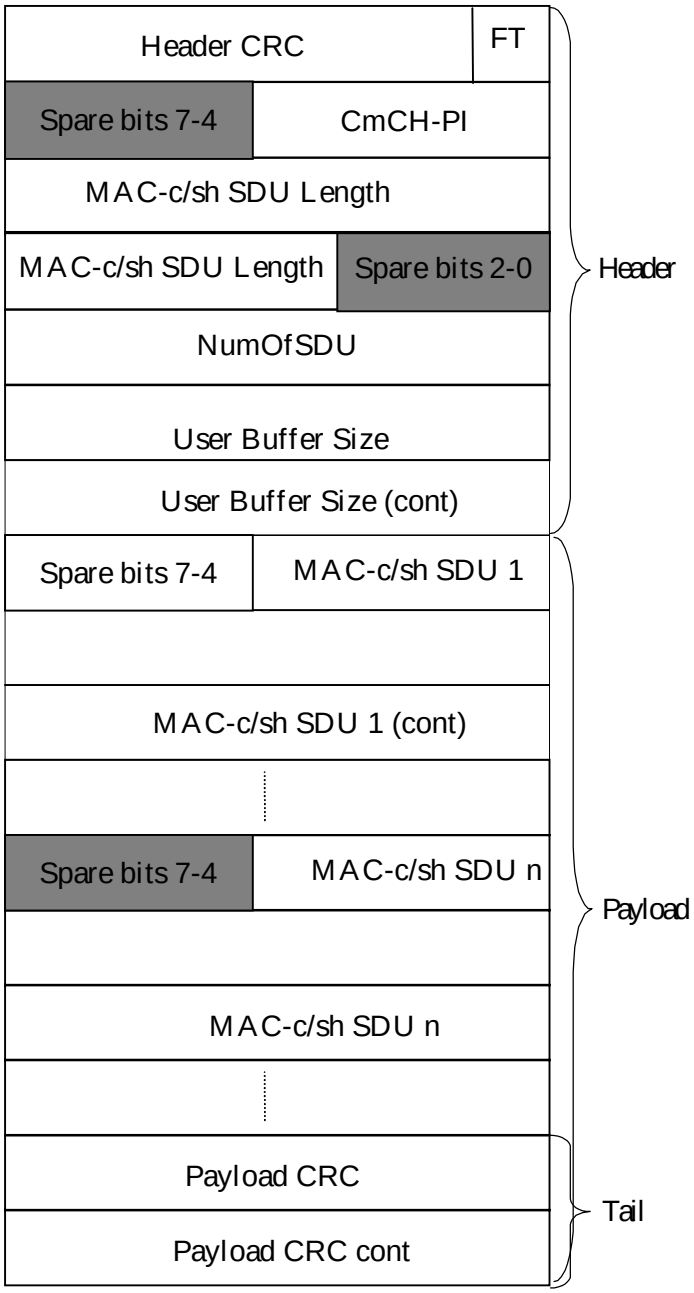


Figure 6: DSCH Iur Data Frame Structure

Spare bit shall be set to 0 and ignored by the receiver.

6.2.3 Coding of information elements in data frames

6.2.3.1 Header CRC

Description: Cyclic Redundancy Polynomial calculated on the header of a data frame with polynomial X^7+X^6+X^2+1. The CRC calculation shall cover all bits in the header, starting from bit 0 in the first byte (FT field) up to the end of the header.

Value range: {0-127}.
Field length: 7 bits

6.2.3.2 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

6.2.3.3 DRNTI

Description: Identifies the UE in the DRNC.
Value range: {0-1048575}.
Field length: 20 bits

6.2.3.4 S-RNTI

Description: S-RNTI is defined in [5]. S-RNTI is used in UL control frames to identify the UE context in the SRNC.
Value range: {0-1048575}.
Field length: 20 bits

6.2.3.5 S-CCPCH Indicator (S-CI)

Description: Indicates the S-CCPCH to be used for transmission of the user data.
Value range: {0=S-CCPCH coupled to PRACH, 1=S-CCPCH selected by DRNC}.
Field Length: 1 bit

6.2.3.6 Common Transport Channel Priority Indicator (CmCH-PI)

Description: CmCH-PI is the relative priority of the data frame and the SDUs included.
Value range: {0-15, where 0=lowest priority, 15=highest priority}.
Field length: 4 bits

6.2.3.7 MAC-c/sh SDU Length

Description: The value of that field indicates the length of every MAC-c/sh SDU in the payload of the FACH, DSCH and [TDD USCH] data frame in number of bits.
Value range: {0-5000}.
Field Length: 13 bits

6.2.3.8 NumOfSDU

Description: Indicates the number of MAC-c/sh SDUs in the payload.
Value range: {1-255}.
Field Length: 8 bits

6.2.3.9 [FDD — Propagation delay]

Description: One-way air interface delay as measured during RACH access.
Value range: {0 – 765 chips}.
Granularity: 3 chips
Field length: 8 bits

6.2.3.10 [TDD — Rx Timing Deviation]

Description: Measured Rx Timing Deviation as a basis for timing advance.
Value range: {0-1020 chips}.
Granularity: 4 chips
Field length: 8 bits

6.2.3.11 User Buffer Size

Description: Indicates the users' buffer size (i.e. the amount of data in the buffer) in octets for a given Common Transport Channel Priority.
Value range: {0-65535}.
Field length: 16 bits

6.2.3.12 MAC-c/sh SDU

Description: A MAC-c/sh SDU contains the C/T field of the MAC header followed by one RLC PDU.Field length : See the value of the MAC-c/sh SDU Length IE.

6.2.3.13 Payload CRC

Description: Cyclic Redundancy Polynomial calculated on the payload of a data frame with polynomial X^16+X^15+X^2+1. The CRC calculation shall cover all bits in the data frame payload, starting from bit 7 in the first byte up to bit 0 in the byte before the payload CRC.
Field length: 16 bits

6.3.2 Header structure of the control frames

6.3.2.1 Control frame CRC

Description: Cyclic Redundancy Polynomial calculated on a control frame with polynomial X^7+X^6+X^2+1. The CRC calculation shall cover all bits in the control frame, starting from bit 0 in the first byte (FT field) up to the end of the control frame.
Value range: {0-127}
Field length: 7 bits

6.3.2.2 Frame type (FT)

Refer to section 6.2.3.2.

6.3.2.3 Control Frame Type

Description: Indicates the type of the control information (information elements and length) contained in the payload (=type of control frame).
Value: values of the *Control Frame Type* IE parameter are defined in the following table 1:

Table 1: Control Frame Type

Type of control frame	Value
FACH Flow Control	0000 0010
DSCH Capacity Request	0000 0100
DSCH Capacity Allocation	0000 0101

6.3.3 Payload structure and information elements

6.3.3.1 FACH Flow Control

The figure 6 shows the payload structure when the control frame is used for the above mentioned purpose. This control information is sent in the UL only.

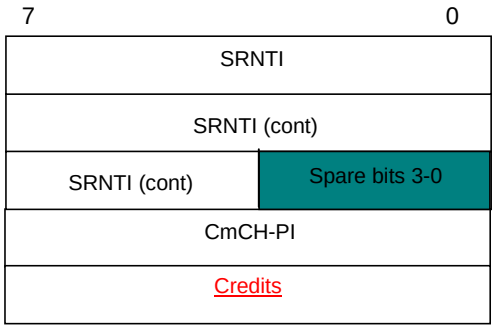


Figure 6: FACH Flow Control Payload structure

6.3.3.1.1 S-RNTI

Refer to section 6.2.3.4.

6.3.3.1.2 Common Transport Channel Priority Indicator (CmCH-PI)

Refer to section 6.2.3.6.

6.3.3.1.3 Credits

Description: The Credits IE indicates the- number of MAC-c SDUs that a user may transmit.
Value range: {0-255, where 0=stop transmission, 255=unlimited}
Field length: 8 bits

6.3.3.2 DSCH Capacity Request

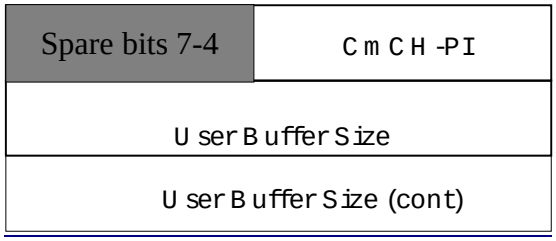


Figure8: Capacity Request Control Frame

DSCH Capacity Request is sent for each priority group to indicate the user buffer size. The control frame is sent by the SRNC when the SRNC considers the user buffer status needs an increased buffer reporting frequency. This may be sent to signal an event, such as, data arrival or user-buffer discard. This control frame is used to improve user-buffer reporting above the level produced by the user-buffer reporting associated with the DSCH data frames.

6.3.3.2.1 Common Transport Channel Priority Indicator (CmCH-PI)

Refer to section 6.2.3.6.

6.3.3.2.2 User Buffer Size

Refer to section 6.2.3.11.

6.3.3.3 DSCH Capacity Allocation

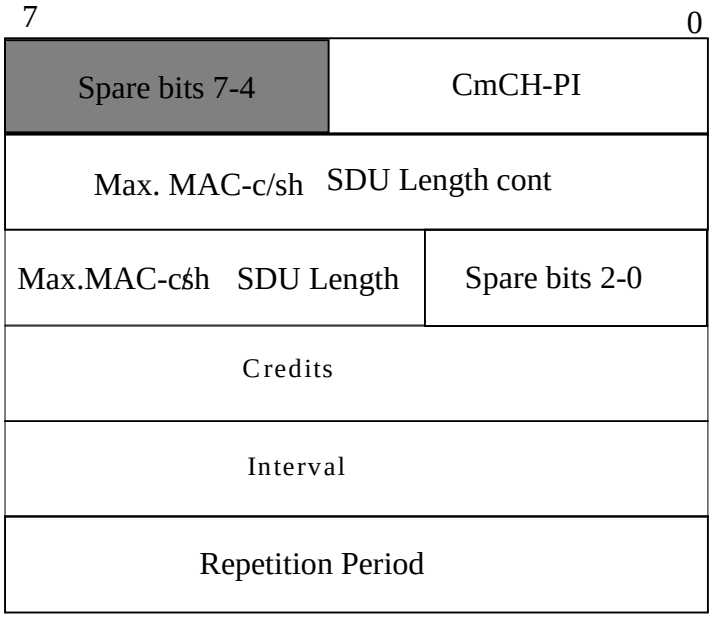


Figure9: Capacity Allocation Control Frame

This message describes an allocation that the SRNC may use. When the credits has a value of 0 it signifies that there is no resources allocated. When the credits has a value of 255, it signifies unlimited capacity. When the repetition period has a value of 0, it signifies that the allocation (Max. MAC-c/sh SDU Length, Credits and Interval) can be repeated without limit.

6.3.3.3.1 Common Transport Channel Priority Indicator (CmCH-PI)

Refer to section 6.2.3.6.

6.3.3.3.2 Maximum MAC-c/sh SDU Length

Description: The values indicated the maximum allowable SDU size. MAC-c/sh SDU contains the C/T field of the MAC header followed by one RLC PDU.Field length : See the value of the MAC-c/sh SDU Length IE.

6.3.3.3.3 Credits

Refer to section 6.3.3.1.3

6.3.3.3.4 Interval

Description: The value of this field indicates the time interval during which the (Credits) granted in the DSCH Capacity Allocation frame may be transmitted. This value is only applied to the DSCH channel.
Value range: {0-2550 ms}.
Granularity: 10ms
Field Length: 8 bits

6.3.3.3.5 Repetition Period

Description: The value of this field indicates the number of subsequent intervals that the (Credits) granted in the DSCH capacity allocation may be transmitted. These values represent an integer number of Intervals (see 6.3.3.3.4). This field is only applied to the DSCH channel.
Value range: {0-255, where 0= unlimited repetition period}.
Field Length: 8 bits