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Tdoc ⌘RP-050121

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.427** **CR** **102** ⌘**rev** ⌘ Current version: **6.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	E-DCH Frame format update
Source:	⌘	Nokia
Work item code:	⌘	EDCH-IurIub
Date:	⌘	09/03/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Update of the E-DCH Frame format in the Iub/Iur User Plane Protocol
Summary of change:	⌘	The "padding" field (2 bits) located at the of MAC-es PDUs in the frame payload is changed to "spare" bits as the length of the field is always 2 bits and as it is always included. - The position of spare bits is changed to the beginning of the MAC-es PDU in the frame payload. --- Update of the E-DCH Frame format
Consequences if not approved:	⌘	The frame payload is not optimal from the processing point of view

Clauses affected:	⌘	5.11, 6.2.2.2, 6.2.4.1, 6.2.4.10, 6.2.4.xx (new), 6.2.4.yy (new), 6.2.4.zz (new)

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This CR is a further revision of the RAN3 agreed CR099 Revision 2.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First affected/new clauses:

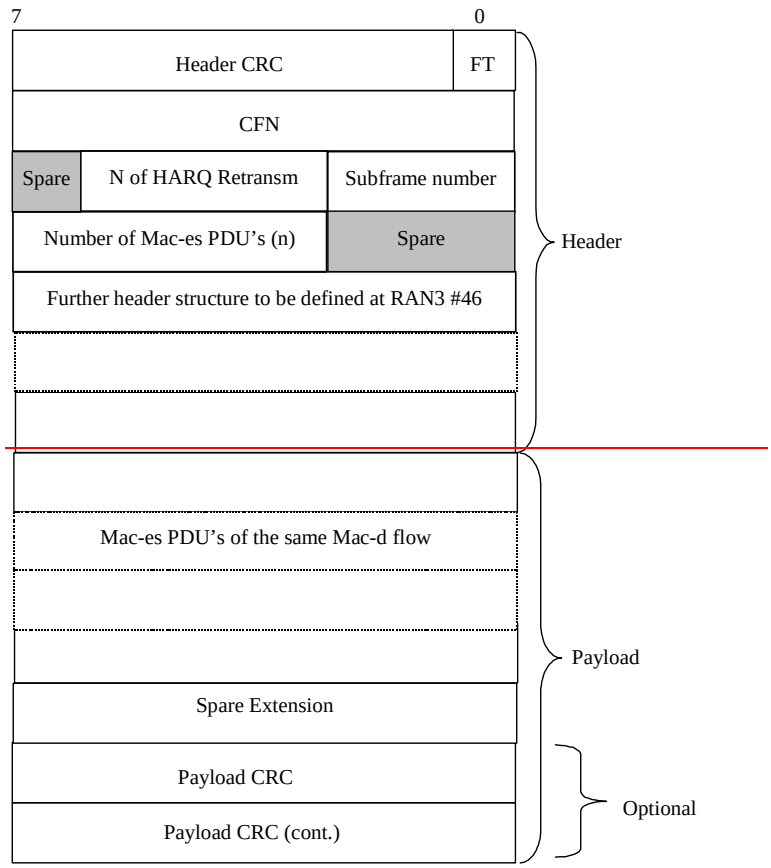
5.11 Generation of subframe number [FDD]

The *CFN* and *Subframe Number* IE's values in the E-DCH Data Frame shall reflect the CFN and subframe number when the payload in the E-DCH Data Frame was correctly received on the Uu. The subframe number is for 2 ms TTI set to values {0-4} and for 10 ms TTI set to {0}.

Next affected clause:

6.2.2.2 UL DATA FRAME FOR E-DCH [FDD]

The structure of the E-DCH UL DATA FRAME is shown in Figure 11a.


7
0
Header CRC
FT
CFN
Spare
N of HARQ Retransm
Subframe number
Number of Mac-es PDU's (n)
Spare
Header
Further header structure to be defined at RAN3 #46
Mac-es PDU's of the same Mac-d flow
Payload
Spare Extension
Payload CRC
Payload CRC (cont.)
Optional

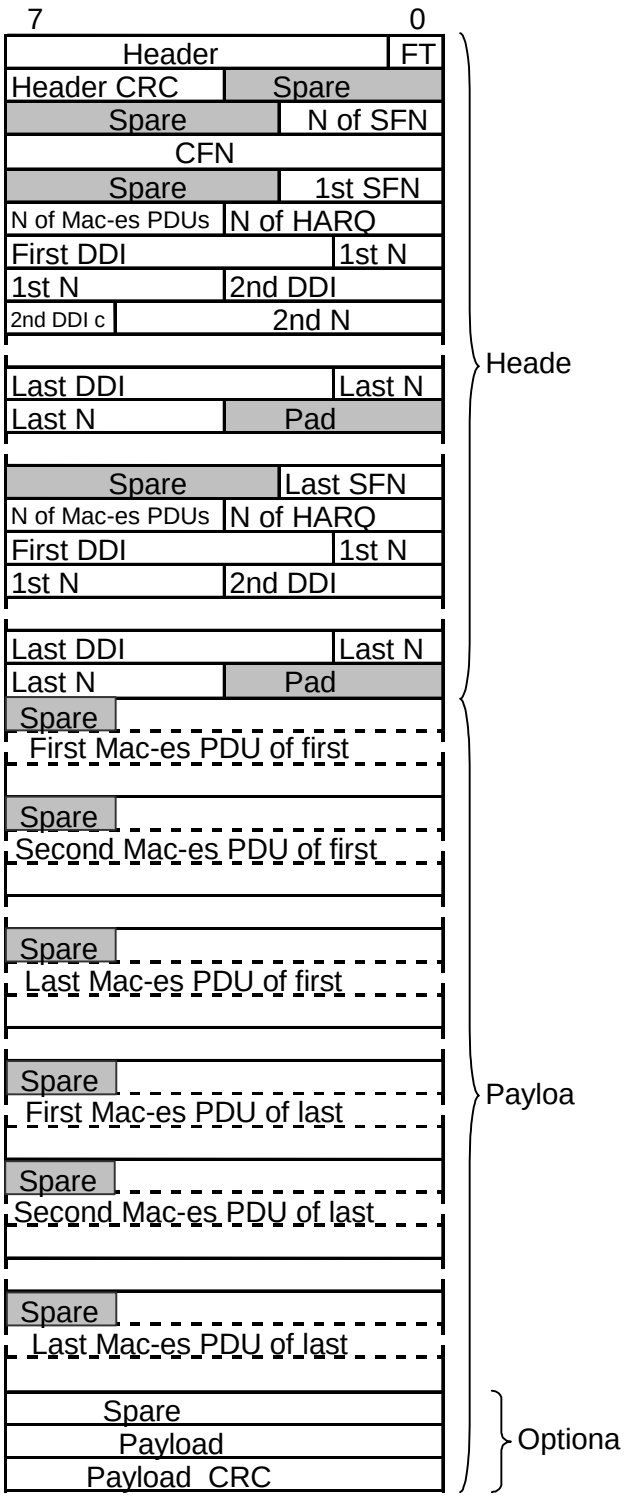


Figure 11a: E-DCH UL DATA FRAME structure

For the description of the fields see subclause 6.2.4.

When there is an odd number of DDI + N field pairs for a subframe, then 4 bits padding is used as shown in the figure in order to have the octet aligned structure.

If a Mac-es PDU does not fill an integer number of octets, then bit padding is used as shown in the figure in order to have the octet aligned structure.

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

Next affected clause:

6.2.4 Coding of information elements in data frames

6.2.4.1 Header CRC

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

Field Length: 7 bits. [FDD – 11 bits for UL Data Frame for E-DCH.]

6.2.4.2 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.

6.2.4.3 Connection Frame Number (CFN)

Description: Indicator as to which radio frame the first data was received on uplink or shall be transmitted on downlink. See [2].

Value range: {0-255}.

Field length: 8 bits.

6.2.4.4 Transport Format Indicator (TFI)

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 [3].

Value range: {0-31}.

Field length: 5 bits.

6.2.4.5 Quality Estimate (QE)

Description: The quality estimate is derived from the transport channel BER [FDD - or physical channel BER.]

[FDD - If the DCH FP frame includes TB's for the DCH which was indicated as "selected" with the *QE-selector* IE in the control plane [4] [6], then the QE is the transport channel BER for the selected DCH. If no transport channel BER is available the QE is the physical channel BER.]

[FDD - If the value of the *QE-Selector* IE equals "non-selected" for all DCHs in the DCH FP frame, then the QE is the physical channel BER.]

[TDD - If no transport channel BER is available, then the QE shall be set to 0. This is in particular the case when no transport blocks have been received. The value of QE will be ignored by the RNC in this case.]

The quality estimate shall be set to the transport channel BER [FDD - or physical channel BER] and be measured in the units TrCh_BER_LOG [FDD - and PhCh_BER_LOG respectively] (see [7] and [8]). The quality estimate is needed in order to select a transport block when all CRC indications are showing bad (or good) frame. The UL outer loop power control may also use the quality estimate.

Value range: {0-255}.

Granularity: 1.

Field length: 8 bits.

6.2.4.6 Transport Block (TB)

Description: A block of data to be transmitted or received over the air interface. The transport format indicated by the TFI describes the transport block length and transport block set size. See [3].

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

6.2.4.7 CRC indicator (CRCI)

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

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

Field length: 1 bit.

6.2.4.8 Payload CRC

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

Field length: 16 bits.

6.2.4.9 Spare Extension

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

Field length: 0-32 octets.

6.2.4.10 Subframe Number, SFN [FDD]

Description: Indicates the subframe number in which the payload was received.

Value range: {0-4}

Field length: 3 bits.

6.2.4.11 Number of HARQ Retransmissions, NHR [FDD]

Description: Indicates the number of HARQ retransmissions used for successful decoding of the payload.

Field length: 4 bits.

6.2.4.xy Number of Subframe Numbers, N of SFN [FDD]

Description: The *Number of Subframe Numbers* field indicates how many subframes that follows in the frame.

Note: A subframe has both a header portion and a payload portion in the frame.

Field length: 3 bits.

6.2.4.yy Number of Mac-es PDUs [FDD]

Description: Indicates the number of Mac-es PDUs in the user data frame in the payload part for the corresponding subframe number.

Field length: 4 bits.

6.2.4.yz Data Description Indicator, DDI [FDD]

Description: The *Data Description Indicator* is mapped directly from the DDI field received over the Uu.

Field length: 6 bits.

6.2.4.zz Number of Mac-d PDUs, N [FDD]

Description: The *Number of Mac-d PDUs* is mapped directly from the N field received over the Uu.

Field length: 6 bits.

End of changes