Source: **SA5 (Telecom Management)**

Title: **3 Rel-99/4/5 CR 32.015/215 (Charging data description for the Packet Switched (PS) domain) : Correction of "Data Record Format Version"**

Document for: **Decision**

Agenda Item: **7.5.3**

Doc-1st-Level	Spec	CR	Ph	Subject	Cat	Ver-Cur	Doc-2nd-Level	WI
SP-030618	32.015	039	R99	Correction of "Data Record Format Version"	F	3.b.0	S5-034710	CH
SP-030618	32.215	028	Rel-4	Correction of "Data Record Format Version"	A	4.5.0	S5-034711	CH
SP-030618	32.215	029	Rel-5	Correction of "Data Record Format Version"	A	5.4.0	S5-034712	CH

3GPP TSG-SA5 (Telecom Management) **S5-034710**
Meeting #36, Shanghai, CHINA, 17 - 21 Nov 2003

CR-Form-v7

CHANGE REQUEST

⌘ **32.015** **CR** **039** ⌘ **rev** **-** ⌘ Current version: **3.b.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:	⌘	Correction of "Data Record Format Version"
Source:	⌘	SA5 (karl-heinz.nenner@t-mobile.de)
Work item code:	⌘	CH
Date:	⌘	21/11/2003
Category:	⌘	**F**
Release:	⌘	R99

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:

2	*(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)*

Reason for change:	⌘	There is no definition of the GTP' "Version Indicator" value in 32.015-versions higher than 3.7.0. Additionally, there is a need to modify the rules for deriving the GTP' "Version Indicator" value every time a new revision of the TS is created, thus creating overhead and high probability of error or omission (which is also the reason for the above situation).
Summary of change:	⌘	Clear rules are specified to calculate the "Version Indicator" values from the TS version number. For consistency reasons, a similar change is also made to the "Release Indicator". Furthermore, information concerning other (previous or subsequent) releases is removed.
Consequences if not approved:	⌘	No "Version Indicator" values are assigned, thus interoperability of systems from different vendors is not given. Additionally, every change to the TS would necessitate updates to the above rules, resulting in error prone change procedures.

Clauses affected:	⌘	7.5			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
		X		O&M Specifications	Rel-4/5 32.215
Other comments:	⌘	Rel-4 / Rel-5 mirrors in S5-034711 and S5-034712, respectively.			

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.

KEEP the History box of the TS to be changed (see end of the present document)

Change in Clause 7.5

7.5 Data Record Format Version for CDRs

The CDR release and versions numbers are defined by the '*Data Record Format Version'*, in octet 6 and 7 of the *Data Record Packet* IE, shown in Figure 13. The format of this field is depicted in Figure 23.

The first octet (#6 in *Data Record Packet* IE) is divided into two fields each with 4 bits. The first field (octet 6, bits 8-5 in Fig 23) identifies the application. The second field (bits 4-1 of octet 6) identifies the release. For charging purposes, the Application Identifier has a value of '1' (decimal). Other possible applications of GTP' may use different numbers. The Release Identifier indicates the TS release used to encode the CDR, i.e. its value corresponds to the first digit of the version number of the present document, as shown on the cover sheet.~~ The following values are used to identify the CDR release:~~

~~'2' (decimal) for R98, and~~

~~'3' (decimal) for R99.~~

~~The second octet (#7) identifies the version of the TS used to encode the CDR. For R98, the version number is 1. For R99 the decimal value of the Version identifies is provided in Table 18. Note that the value must be '1' or larger.~~

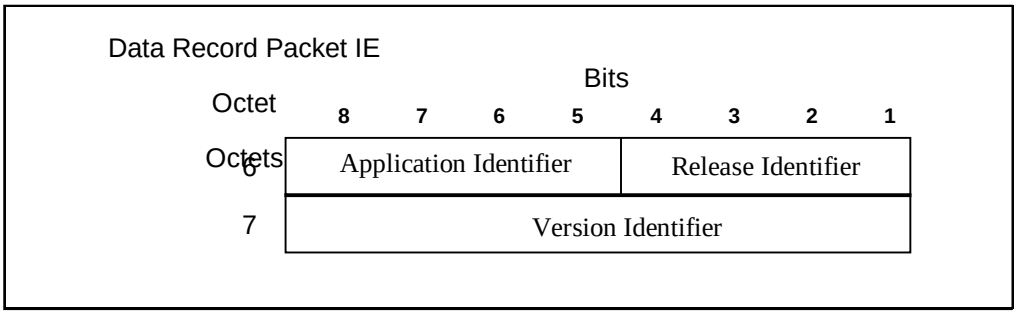


Figure 23: The Format of the *Data Record Format Version* Field

The second octet (#7) identifies the version of the TS used to encode the CDR. For versions up to, and including, "3.1.1", the decimal value of the Version Identifier is provided in Table 18. For versions higher than "3.1.1", the decimal value of theVersion Identifier corresponds to the second digit of the version number of the present document (as shown on the cover sheet) plus '2'. E.g. for version 3.4.0, the value would be "6". In circumstances where the second digit is an alphabetical character, (e.g. 3.b.0), the corresponding ASCII value shall be taken, e.g. the Version Indicator for TS 32.015 v3.b.0 would be "66" (ASCII(b)).

Table 18: The decimal value of the Version Identifier used in R99 CDRs

Value	R99
1	TS 32.015 v3.0.0
2	TS 32.015 v3.1.0
3	TS 32.015 v3.1.1
~~4~~	~~TS 32.015 v3.2.0~~
~~5~~	~~TS 32.015 v3.3.0~~
~~6~~	~~TS 32.015 v3.4.0~~
~~7~~	~~TS 32.015 v3.5.0~~
~~8~~	~~TS 32.015 v3.6.0~~
~~9~~	~~TS 32.015 v3.7.0~~

End of Change

End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 1999	S_06	SP-99577	-	--	Transferred from GSM 12.15 v7.4.0	-	3.0.0
Mar 2000	S_07	SP-000017	001	--	IP v6 support to GTP'	3.0.0	3.1.0
Mar 2000	S_07	SP-000017	002	--	GTP' header length fix	3.0.0	3.1.0
Mar 2000	S_07	SP-000017	003	--	Charging Characteristics to CDRs	3.0.0	3.1.0
Mar 2000	S_07	SP-000017	004	--	include MSISDN in S,G,M-CDR	3.0.0	3.1.0
Mar 2000				--	Cosmetic	3.1.0	3.1.1
Jun 2000	S_08	SP-000236	005	--	Correction of ASN.1 for QoS 'Delay Class'	3.1.1	3.2.0
Jun 2000	S_08	SP-000237	006	--	Draft update of document for 3G Publication	3.1.1	3.2.0
Jun 2000	S_08	SP-000238	007	--	Principles for accurate volume counting	3.1.1	3.2.0
Jun 2000	S_08	SP-000239	008	--	Packet domain charging enhancements on CAMEL phase 3	3.1.1	3.2.0
Jun 2000	S_08	SP-000246	009	--	GPRS charging enhancement, Addition of charging characteristics per PDP context	3.1.1	3.2.0
Sep 2000	S_09	SP-000433	010	--	Clarifications to chapter 7	3.2.0	3.3.0
Sep 2000	S_09	SP-000433	011	--	Clarifications and corrections	3.2.0	3.3.0
Sep 2000	S_09	SP-000433	012	--	Clarification for QoS parameter	3.2.0	3.3.0
Oct 2000				--	Title Changed: "GSM call … into "3G call …	3.2.0	3.3.0
Dec 2000	S_10	SP-000516	013	--	Alignment of Triggers for S-CDR closure	3.3.0	3.4.0
Dec 2000	S_10	SP-000516	014	--	Ambiguities in Packet Transfer Command IE & Data Record Packet IE	3.3.0	3.4.0
Dec 2000	S_10	SP-000516	015	--	Inconsistency of Charging Characteristic size	3.3.0	3.4.0
Dec 2000	S_10	SP-000516	016	--	Alignment of ASN.1 for QoS attributes	3.3.0	3.4.0
Dec 2000	S_10	SP-000516	017	--	Correction of parameter CallEventRecord	3.3.0	3.4.0
Dec 2000	S_10	SP-000516	018	--	Correction of parameter Location Area and Cell	3.3.0	3.4.0
Dec 2000	S_10	SP-000516	019	--	Correction of ASN.1 errors	3.3.0	3.4.0
Mar 2001	S_11	SP-010024	020	--	Correct ASN.1 errors	3.4.0	3.5.0
Mar 2001	S_11	SP-010024	021	--	Correction of Requests Responded IE Type Value	3.4.0	3.5.0
Mar 2001	S_11	SP-010024	022	--	Correction/completion of ASN.1 module	3.4.0	3.5.0
Mar 2001	S_11	SP-010024	023	--	Correct ASN.1 errors	3.4.0	3.5.0
Mar 2001	S_11	SP-010024	024	--	Trigger for RNC volume report	3.4.0	3.5.0
Mar 2001	S_11	SP-010024	025	--	Correction of parameter 'Served PDP Address'	3.4.0	3.5.0
Jun 2001	S_12	SP-010235	026	--	Correct the Node Address IE	3.5.0	3.6.0
Jun 2001	S_12	SP-010235	027	--	Correct GGSN address in G-CDR and S-CDR	3.5.0	3.6.0
Sep 2001	S_13	SP-010463	028	--	Decoupling of Tariff time switches on GSN- and CAMEL-level from a CDR's perspective	3.6.0	3.7.0
Sep 2001	S_13	SP-010463	029	--	Data type definition for MSNetworkCapability corrected and aligned with TS 24.008	3.6.0	3.7.0
Sep 2001	S_13	SP-010463	030	--	Modification of "System Type"	3.6.0	3.7.0
Sep 2001	S_13	SP-010463	031	--	Correction of G-CDR trigger conditions	3.6.0	3.7.0
Dec 2001	S_14	SP-010633	032	--	Specification of the "Data Record Format" and "Data Record Format Version"	3.7.0	3.8.0
Dec 2001	S_14	SP-010632	033	--	Precision of encoding rule for CDR item "Access Point Name"	3.7.0	3.8.0
Dec 2001	S_14	SP-010633	034	--	Correction of ASN.1 data items QoSMeanThroughtput/QosInformation	3.7.0	3.8.0
Mar 2002	S_15	SP-020022	035	--	Addition of CAMEL phase 3 extensions in SMS-MO CDR	3.8.0	3.9.0
Mar 2002	S_15	SP-020024	036	--	Addition of "QoSRequested" parameter into "traffic volume containers"	3.8.0	3.9.0
Dec 2002	S_18	SP-020733	037	--	Addition of SGSN's Mobile Country Code (MCC) and Mobile Network Code (MNC) on G-CDR	3.9.0	3.10.0
Mar 2003	S_19	SP-030053	038	--	Correction of M-CDR usage - alignment with SA2's 23.060	3.10.0	3.11.0

3GPP TSG-SA5 (Telecom Management) **S5-034711**
Meeting #36, Shanghai, CHINA, 17 - 21 Nov 2003

CR-Form-v7

CHANGE REQUEST

⌘ **32.215** **CR** **028** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*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:	⌘	Correction of "Data Record Format Version"
Source:	⌘	SA5 (karl-heinz.nenner@t-mobile.de)
Work item code:	⌘	OAM-CH
Date:	⌘	21/11/2003
Category:	⌘	**A**
Release:	⌘	Rel-4

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:

2	*(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)*

Reason for change:	⌘	There is no definition of the GTP' "Version Indicator" value in 32.215-versions higher than 4.1.0. Additionally, there is a need to modify the rules for deriving the GTP' "Version Indicator" value every time the TS is modified, thus creating overhead and high probability of error or omission (which is also the reason for the above situation).
Summary of change:	⌘	Clear rules are specified to calculate the "Version Indicator" values from the TS version number. For consistency reasons, a similar change is also made to the "Release Indicator". Furthermore, information concerning other (previous or subsequent) releases is removed.
Consequences if not approved:	⌘	No "Version Indicator" values are assigned, thus interoperability of systems from different vendors is not given. Additionally, every change to the TS would necessitate updates to the above rules, resulting in error prone change procedures.

Clauses affected:	⌘	7.5			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
		X		O&M Specifications	Rel-5 CR 32.215
Other comments:	⌘	R99 base CR in S5-034710, Rel-5 mirror in S5-034712			

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.

Change in clause 7.5

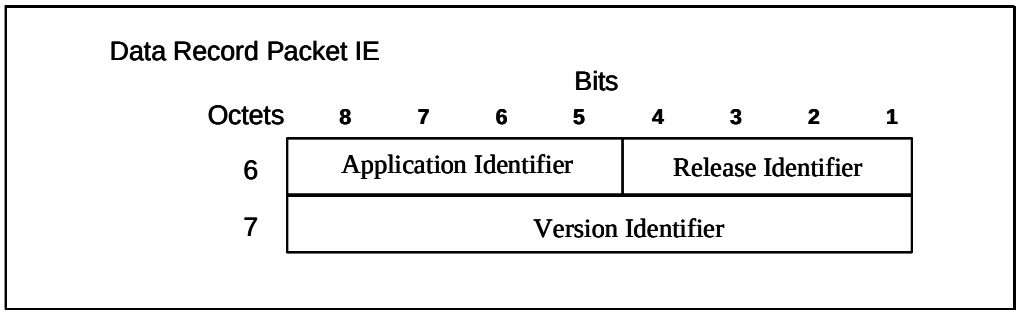
7.5 Data Record Format Version for CDRs

The CDR release and versions numbers are defined by the '*Data Record Format Version*', in octet 6 and 7 of the *Data Record Packet* IE, shown in Figure 13. The format of this field is depicted in Figure 20.

The first octet (#6 in *Data Record Packet* IE) is divided into two fields each with 4 bits. The first field (octet 6, bits 8-5 in Fig 20) identifies the application. The second field (bits 4-1 of octet 6) identifies the release. For charging purposes, the Application Identifier has a value of '1' (decimal). Other possible applications of GTP' may use different numbers. The Release Identifier indicates the TS release used to encode the CDR~~. The following values are used to identify the CDR release:~~, i.e. its value corresponds to the first digit of the version number of the present document, as shown on the cover sheet.

~~- '2' (decimal) for R98,~~
~~- '3' (decimal) for R99, and~~
~~- '4' (decimal) for R4.~~

The second octet (#7) identifies the version of the TS used to encode the CDR, i.e. its value corresponds to the second digit of the version number of the present document (as shown on the cover sheet) plus '1'. E.g. for version 4.4.0, the value would be "5". In circumstances where the second digit is an alphabetical character, (e.g. 3.b.0), the corresponding ASCII value shall be taken, e.g. the Version Indicator for TS 32.015 v3.b.0 ~~shall~~would be "66" (ASCII(b)). ~~For R98, the version number is 1 for all versions. For R99 and R4 the decimal values of the Version identifiers is are listed in~~



~~Table 14a. Note that the value must be '1' or larger.~~

Figure 20: The Format of the *Data Record Format Version* Field

~~Table 14a: The decimal value of the Version Identifier used in R99 and R4 CDRs~~

~~Value~~	~~R99~~	~~R4~~
~~1~~	~~TS 32.015 v3.0.0~~	~~TS 32.215 v4.0.0~~
~~2~~	~~TS 32.015 v3.1.0~~	~~TS 32.215 v4.1.0~~
~~3~~	~~TS 32.015 v3.1.1~~	
~~4~~	~~TS 32.015 v3.2.0~~	
~~5~~	~~TS 32.015 v3.3.0~~	
~~6~~	~~TS 32.015 v3.4.0~~	
~~7~~	~~TS 32.015 v3.5.0~~	
~~8~~	~~TS 32.015 v3.6.0~~	
~~9~~	~~TS 32.015 v3.7.0~~	

End of Change

End of document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
May 2001	--	--	--	--	Transferred from 3GPP 32.015 v3.5.0.	--	1.0.0
Jun 2001	S_12	SP-010236	--	--	Submitted to TSG SA #12 for Information	1.0.0	1.0.1
Sep 2001	S_13	SP-010464	--	--	Submitted to TSG SA #13 for Approval	2.0.0	4.0.0
Dec 2001	S_14	SP-010633	001	--	Specification of the "Data Record Format" and "Data Record Format Version"	4.0.0	4.1.0
Dec 2001	S_14	SP-010633	002	--	Correction of ASN.1 data item QosInformation	4.0.0	4.1.0
Dec 2001	S_14	SP-010634	003	--	Correction of ASN.1 statements for backwards compatibility reason	4.0.0	4.1.0
Mar 2002	S_15	SP-020022	004	--	Addition of CAMEL phase 3 extensions in SMS-MO CDR	4.1.0	4.2.0
Mar 2002	S_15	SP-020024	005	--	Addition of "QoSRequested" parameter into "traffic volume containers"	4.1.0	4.2.0
Mar 2002	--	--	--	--	Cosmetics (styles, formatting, etc.)	4.2.0	4.2.1
Jun 2002	S_16	SP-020286	009	--	Correction of S-CDR triggers	4.2.1	4.3.0
Jun 2002	S_16	SP-020288	013	--	Correcting definition of traffic data volume CDR field & Specify usage of the LRSN to avoid loss of billing data	4.2.1	4.3.0
Jun 2002	S_16	SP-020285	015	--	Alignment with 23.271 (LCS stage 2) of CDR definition for LCS in PS domain	4.2.1	4.3.0
Dec 2002	S_18	SP-020734	017	--	Corrections on parameter Destination Number	4.3.0	4.4.0
Dec 2002	S_18	SP-020735	019	--	Addition of SGSN's Mobile Country Code (MCC) and Mobile Network Code (MNC) on G-CDR (Alignment with SA2/CN4/GSMA BARG)	4.3.0	4.4.0
Dec 2002	S_18	SP-020736	020	--	Corrections on LCS error cause definitions	4.3.0	4.4.0
Sep 2003	S_21	SP-030407	027	--	Corrections of ASN.1 syntax	4.4.0	4.5.0

3GPP TSG-SA5 (Telecom Management) **S5-034712**
Meeting #36, Shanghai, CHINA, 17 - 21 Nov 2003

CR-Form-v7

CHANGE REQUEST

⌘ **32.215** **CR** **029** ⌘ **rev** **-** ⌘ Current version: **5.4.0** ⌘

*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:	⌘	Correction of "Data Record Format Version"
Source:	⌘	SA5 (karl-heinz.nenner@t-mobile.de)
Work item code:	⌘	OAM-CH
Date:	⌘	21/11/2003
Category:	⌘	**A**
Release:	⌘	Rel-5

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:

2	*(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)*

Reason for change:	⌘	There is no definition of the GTP' "Version Indicator" value in Rel-5 TS 32.215. Additionally, there is a need to modify the rules for deriving the GTP' "Version Indicator" value every time the TS is modified, thus creating overhead and high probability of error or omission (which is also the reason for the above situation).
Summary of change:	⌘	Clear rules are specified to calculate the "Version Indicator" values from the TS version number. For consistency reasons, a similar change is also made to the "Release Indicator". Furthermore, information concerning other (previous or subsequent) releases is removed.
Consequences if not approved:	⌘	No "Version Indicator" values are assigned, thus interoperability of systems from different vendors is not given. Additionally, every change to the TS would necessitate updates to the above rules, resulting in error prone change procedures.

Clauses affected:	⌘	7.5

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

⌘

Other comments:	⌘	Rel-99 / Rel-4 CRs in S5-034710 and S5-034711, respectively.

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.

Change in clause 7.5

7.5 Data Record Format Version for CDRs

The CDR release and versions numbers are defined by the '*Data Record Format Version*', in octet 6 and 7 of the *Data Record Packet* IE, shown in Figure 13. The format of this field is depicted in Figure 20.

The first octet (#6 in *Data Record Packet* IE) is divided into two fields each with 4 bits. The first field (octet 6, bits 8-5 in Fig 20) identifies the application. The second field (bits 4-1 of octet 6) identifies the release. For charging purposes, the Application Identifier has a value of '1' (decimal). Other possible applications of GTP' may use different numbers. The Release Identifier indicates the TS release used to encode the CDR~~. The following values are used to identify the CDR release:~~, i.e. its value corresponds to the first digit of the version number of the present document, as shown on the cover sheet.

~~- '2' (decimal) for R98,~~
~~- '3' (decimal) for R99, and~~
~~- '4' (decimal) for R4.~~

The second octet (#7) identifies the version of the TS used to encode the CDR, i.e. its value corresponds to the second digit of the version number of the present document (as shown on the cover sheet) plus '1'. E.g. for version 5.4.0, the value would be "5. In circumstances where the second digit is an alphabetical character, (e.g. 3.b.0), the corresponding ASCII value shall be taken, e.g. the Version Indicator for TS 32.015 v3.b.0 ~~shall~~would be "66" (ASCII(b)). ~~For R98, the version number is 1 for all versions. For R99 and R4 the decimal values of the Version identifiers is listed in Table 15. Note that the value must be '1' or larger.~~

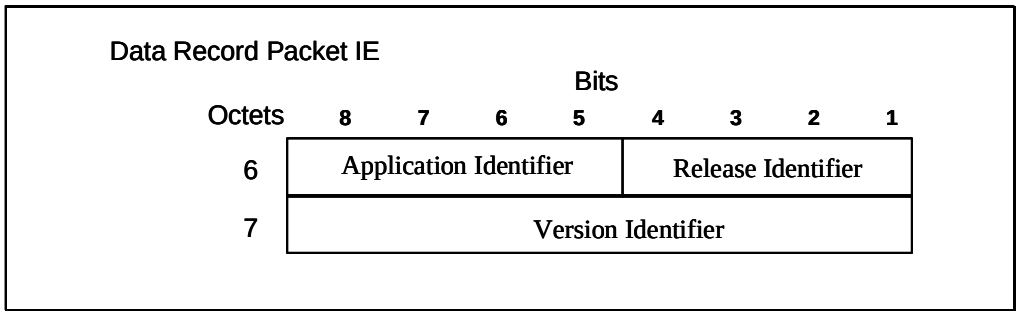


Figure 20: The Format of the *Data Record Format Version* Field

~~**Table 15: The decimal value of the Version Identifier used in R99 and R4 CDRs**~~

~~Value~~	~~R99~~	~~R4~~
~~1~~	~~TS 32.015 v3.0.0~~	~~TS 32.215 v4.0.0~~
~~2~~	~~TS 32.015 v3.1.0~~	~~TS 32.215 v4.1.0~~
~~3~~	~~TS 32.015 v3.1.1~~	
~~4~~	~~TS 32.015 v3.2.0~~	
~~5~~	~~TS 32.015 v3.3.0~~	
~~6~~	~~TS 32.015 v3.4.0~~	
~~7~~	~~TS 32.015 v3.5.0~~	
~~8~~	~~TS 32.015 v3.6.0~~	
~~9~~	~~TS 32.015 v3.7.0~~	

End of Change

End of document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
May 2001	--	--	--	--	Transferred from 3GPP 32.015 v3.5.0.	--	1.0.0
Jun 2001	S_12	SP-010236	--	--	Submitted to TSG SA #12 for Information	1.0.0	1.0.1
Sep 2001	S_13	SP-010464	--	--	Submitted to TSG SA #13 for Approval	2.0.0	4.0.0
Dec 2001	S_14	SP-010633	001	--	Specification of the "Data Record Format" and "Data Record Format Version"	4.0.0	4.1.0
Dec 2001	S_14	SP-010633	002	--	Correction of ASN.1 data item QosInformation	4.0.0	4.1.0
Dec 2001	S_14	SP-010634	003	--	Correction of ASN.1 statements for backwards compatibility reason	4.0.0	4.1.0
Mar 2002	S_15	SP-020022	004	--	Addition of CAMEL phase 3 extensions in SMS-MO CDR	4.1.0	4.2.0
Mar 2002	S_15	SP-020024	005	--	Addition of "QoSRequested" parameter into "traffic volume containers"	4.1.0	4.2.0
Mar 2002	S_15	SP-020025	006	--	Addition of CAMEL phase 4 extensions in SMS-MT CDRs	4.2.0	5.0.0
Jun 2002	S_16	SP-020289	007	--	Addition of real-time delivery of Charging Data Records (CDRs) to the Billing System	5.0.0	5.1.0
Jun 2002	S_16	SP-020289	008	--	Alignment of CDRs' IPv4 versus IPv6 address usage with architectural principles	5.0.0	5.1.0
Jun 2002	S_16	SP-020286	010	--	Correction of S-CDR triggers	5.0.0	5.1.0
Jun 2002	S_16	SP-020289	011	--	Addition of external charging identifier into G-CDR	5.0.0	5.1.0
Jun 2002	S_16	SP-020289	012	--	Addition of an "IMS signalling PDP context" flag into G-CDR	5.0.0	5.1.0
Jun 2002	S_16	SP-020288	014	--	Correcting definition of traffic data volume CDR field & Specify usage of the LRSN to avoid loss of billing data	5.0.0	5.1.0
Jun 2002	S_16	SP-020285	016	--	Alignment with 23.271 (LCS stage 2) of CDR definition for LCS in PS domain	5.0.0	5.1.0
Dec 2002	S_18	SP-020734	018	--	Corrections on parameter Destination Number	5.1.0	5.2.0
Dec 2002	S_18	SP-020736	021	--	Corrections on LCS error cause definitions	5.1.0	5.2.0
Dec 2002	S_18	SP-020738	022	--	IPv4-IPv6 co-existence in PS charging	5.1.0	5.2.0
Dec 2002	S_18	SP-020738	023	--	Correction of the list of parameters of the QoS profile (requested and negotiated)	5.1.0	5.2.0
Dec 2002	S_18	SP-020738	024	--	Extension of CDR encoding	5.1.0	5.2.0
Mar 2003	S_19	SP-030055	025	--	Addition of SGSN's Mobile Country Code (MCC) and Mobile Network Code (MNC) on G-CDR - alignment with CN4's 29.060	5.2.0	5.3.0
Jun 2003	S_20	SP-030270	026		Correction of “Cause Code”	5.3.0	5.4.0