TSGS#28(05)0270

Source: **SA5 (Telecom Management)**

Title: **CR 32215 PS domain charging**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-Level	Spec__#_	CR__#	R	Phase	Subject	Cat	Ver-Cur	Doc-2nd-Level	Workitem
SP-050270	32.215	0038	-	Rel-4	Correction to legal values of the Charging Characteristics IE	F	4.8.0	S5-054463	OAM-CH
SP-050270	32.215	0039	-	Rel-5	Correction to legal values of the Charging Characteristics IE	A	5.8.0	S5-054464	OAM-CH

Tdoc ⌘S5-054463

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.215** **CR** **0038** ⌘ **rev** **-** ⌘ Current version: **4.8.0** ⌘

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

Title:	⌘	Correction to legal values of the Charging Characteristics IE
Source:	⌘	SA5 (adrian.neal@vodafone.com)
Work item code:	⌘	OAM-CH
Date:	⌘	12/05/2005
Category:	⌘	**F**
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:
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:	⌘	GSMA IREG PACKET has recently discovered that when a Rel-4 and onwards GTP compliant SGSN sends the Charging Characteristics IE with all bits set to zero to a R99 GTP compliant GGSN, the PDP Context activation fails indefinitely. This is a frequent and serious misoperation, which engenders customer dissatisfaction and entails a loss of revenue to operators. The incoming LS from GSMA in S5-054318 (IREG Doc 48_077) refers.
Summary of change:	⌘	The requirement that at least one of the bits P0-P3 shall be set, precluding the case where all four bits are set to zero, is added to clause 5.6 of the specification.
Consequences if not approved:	⌘	PDP Context establishment fails.

Clauses affected:	⌘	5.6

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

Other comments:	⌘	Rel-5 Mirror CR is in S5-054464.

Change in Clause 5.6

5.6 Charging Characteristics

The Charging Characteristics field allows the operator to apply different kind of charging methods in the CDRs. A subscriber may have Charging Characteristics assigned to his subscription. These characteristics can be supplied by the HLR to the SGSN as part of the subscription information, and, upon activation of a PDP context, the SGSN forwards the charging characteristics to the GGSN according to the rules specified in Annex A. This information can be used by the GSNs to activate CDR generation and control the closure of the CDR or the traffic volume containers (see clause 5.15). It can also be used in nodes handling the CDRs (e.g., the CGF or the billing system) to influence the CDR processing priority and routing. These functions are accomplished by specifying the charging characteristics as sets of charging profiles and the expected behaviour associated with each profile. The interpretations of the profiles and their associated behaviours can be different for each PLMN operator and are not subject to standardisation. In the present document only the charging characteristic formats and selection modes are specified.

The functional requirements for the Charging Characteristics as well as the profile and behaviour bits are further defined in normative Annex A, including the definitions of the trigger profiles associated with each CDR type.

The format of charging characteristics field is depicted in figure 4. Px (x =0..3) refers to the Charging Characteristics Profile index. Bits classified with a "B" may be used by the operator for non-standardised behaviour (see annex A).

It is possible to ascribe the same semantic meanings to bits P0 through P3 as exists in release 99 technical specification 3GPP TS 32.015 [12]. That is, the P3 (N) flag in the Charging Characteristics indicates normal charging, the P2 (P) flag indicates prepaid charging, the P1 (F) flag indicates flat rate charging and the P0 (H) flag indicates charging by hot billing. For example, the case where the P0 bit is turned on would correspond to the behaviour associated with the operator's own definition of Hot Billing, such as short time and volume limits for CDR closure as well as priority processing by CDR handling nodes (e.g., CGF and billing system). It is the responsibility of the PLMN operator to exactly define the meaning of the profile bits, P0 to P3, and make them compatible with the R99 flags if so required. This implies that one or more of the bits shall be set according to the charging characteristics received from the HLR and transmitted by the CDR generating node over the Ga interface.

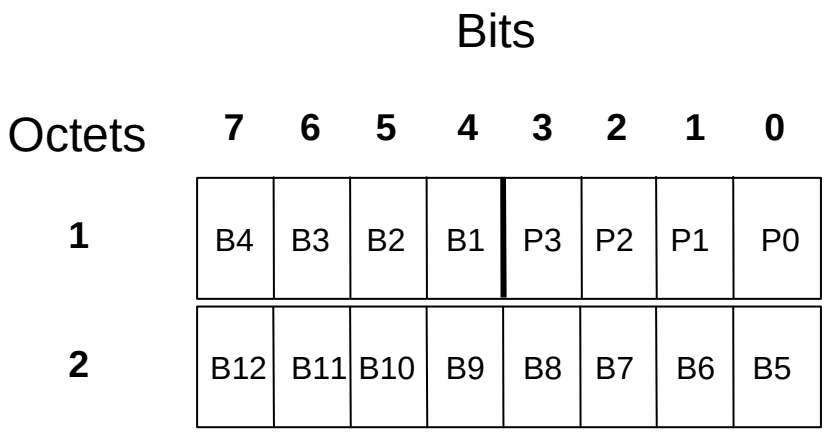

Figure 4: Charging Characteristics flags

End of Change in Clause 5.6
End of document

Annex B (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Jun 2004	S_24	SP-040277	034	--	Correction to the selection and use of charging characteristics and profiles	4.7.0	4.8.0

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.215** **CR** **0039** ⌘**rev** **-** ⌘ Current version: **5.8.0** ⌘

*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 **X**

Title:	⌘	Correction to legal values of the Charging Characteristics IE
Source:	⌘	SA5 (adrian.neal@vodafone.com)
Work item code:	⌘	OAM-CH
Date:	⌘	12/05/2005
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
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R99 *(Release 1999)*
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Rel-6 *(Release 6)*
Rel-7 *(Release 7)*

Reason for change:	⌘	GSMA IREG PACKET has recently discovered that when a Rel-4 and onwards GTP compliant SGSN sends the Charging Characteristics IE with all bits set to zero to a R99 GTP compliant GGSN, the PDP Context activation fails indefinitely. This is a frequent and serious misoperation, which engenders customer dissatisfaction and entails a loss of revenue to operators. The incoming LS from GSMA in S5-054318 (IREG Doc 48_077) refers.
Summary of change:	⌘	The requirement that at least one of the bits P0-P3 shall be set, precluding the case where all four bits are set to zero, is added to clause 5.6 of the specification.
Consequences if not approved:	⌘	PDP Context establishment fails.

Clauses affected:	⌘	5.6

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

Other comments:	⌘	Mirror of Rel-4 CR in S5-054463.

Change in Clause 5.6

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The Charging Characteristics field allows the operator to apply different kind of charging methods in the CDRs. A subscriber may have Charging Characteristics assigned to his subscription. These characteristics can be supplied by the HLR to the SGSN as part of the subscription information, and, upon activation of a PDP context, the SGSN forwards the charging characteristics to the GGSN according to the rules specified in Annex A. This information can be used by the GSNs to activate CDR generation and control the closure of the CDR or the traffic volume containers (see clause 5.15). It can also be used in nodes handling the CDRs (e.g., the CGF or the billing system) to influence the CDR processing priority and routing. These functions are accomplished by specifying the charging characteristics as sets of charging profiles and the expected behaviour associated with each profile. The interpretations of the profiles and their associated behaviours can be different for each PLMN operator and are not subject to standardisation. In the present document only the charging characteristic formats and selection modes are specified.

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The format of charging characteristics field is depicted in figure 4. Px (x =0..3) refers to the Charging Characteristics Profile index. Bits classified with a "B" may be used by the operator for non-standardised behaviour (see annex A).

It is possible to ascribe the same semantic meanings to bits P0 through P3 as exists in release 99 technical specification 3GPP TS 32.015 [12]. That is, the P3 (N) flag in the Charging Characteristics indicates normal charging, the P2 (P) flag indicates prepaid charging, the P1 (F) flag indicates flat rate charging and the P0 (H) flag indicates charging by hot billing. For example, the case where the P0 bit is turned on would correspond to the behaviour associated with the operator's own definition of Hot Billing, such as short time and volume limits for CDR closure as well as priority processing by CDR handling nodes (e.g., CGF and billing system). It is the responsibility of the PLMN operator to exactly define the meaning of the profile bits, P0 to P3, and make them compatible with the R99 flags if so required. This implies that one or more of the bits shall be set according to the charging characteristics received from the HLR and transmitted by the CDR generating node over the Ga interface.

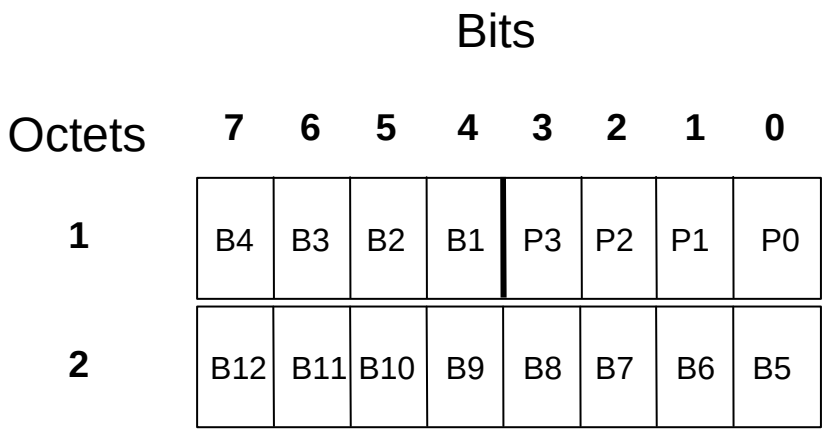

Figure 4: Charging Characteristics flags

End of Change in Clause 5.6
End of document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2005	S_27	SP-050027	037	--	Conditional criteria for the presence of the External Charging ID in the G-CDR – Align with SA2's TS 23.228	5.7.0	5.8.0