3GPP TSG CN Plenary Meeting #15 **NP-020043**
6th – 8th March 2002. Jeju, Korea.

Source: **TSG CN WG 1**

Title: **CR to Rel-5 on Work Item IMS-CCR towards 24.008**

Agenda item: **9.14**

Document for: **APPROVAL**

Introduction:

This document contains **1** CR on **Rel-5 to** Work Item **" IMS-CCR"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #15 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level
24.008	556	3	Rel-5	Upgrading PCO for supporting IMS services	B	5.2.0	5.3.0	N1-020456

3GPP TSG CN WG1 Meeting #22 **Tdoc N1-020456**
Sophia Antipolis, France, 28 January - 1 February 2002

CR-Form-v3

CHANGE REQUEST

⌘ **24.008** **CR** **556** ⌘ rev **3** ⌘ Current version: **5.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network **X**

Title:	⌘	Upgrading PCO for supporting IMS services
Source:	⌘	Motorola
Work item code:	⌘	IMS-CCR
Date:	⌘	2002-01-31
Category:	⌘	**B**
Release:	⌘	Rel-5

Use one of the following categories:
F *(essential 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)*

Reason for change:	⌘	The Protocol Configuration Options IE needs to be enhanced supporting the P-CSCF discovery procedure (as specified in 3GPP TS 23.228) and for carrying the IMS Signalling flag, which indicates if a requested PDP Context is going to be used for IMS related signalling or not.
Summary of change:	⌘	1) The encoding of Protocol Configuration Options IE is enhanced for conveying (i) requests for P-CSCF address (from the UE to GGSN), (ii) one or more P-CSCF addresses (from the GGSN to the UE) and (iii) the IMS signalling flag (from the UE to GGSN). 2) Since there is a requirement to transfer IMS related signalling over secondary PDP contexts as well, the PCO IE is also added to the Activate Secondary PDP Context Request/Accept messages.
Consequences if not approved:	⌘	TS 24.008 will not provide enough stage-3 support for IMS.

Clauses affected:	⌘	2, 9.5.1, 9.5.2, 9.5.4, 9.5.5, 10.5.6.3
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	If the PDP context used to carry IMS related signalling is activated as a primary PDP context, then the SGSN need not be R5 (it could be R99 or R4). However, if the PDP context used to carry IMS related signalling is activated as a secondary PDP context, then the SGSN must be at least R5.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] Void.

[2] Void.

[2a] 3GPP TS 21.905 "3G Vocabulary for 3GPP Specifications"

[3] 3GPP TS 22.002: "Digital cellular telecommunications system (Phase 2+); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[4] 3GPP TS 22.003: "Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[5] 3GPP TS 42.009: "Digital cellular telecommunications system (Phase 2+); Security aspects".

[6] 3GPP TS 22.011: "Digital cellular telecommunications system (Phase 2+); Service accessibility".

[7] 3GPP TS 42.017: "Digital cellular telecommunications system (Phase 2+); Subscriber identity modules Functional characteristics".

[8] 3GPP TS 02.40: "Digital cellular telecommunications system (Phase 2+); Procedures for call progress indications".

[9] 3GPP TS 03.01: "Digital cellular telecommunications system (Phase 2+); Network functions".

[10] 3GPP TS 23.003: "Digital cellular telecommunications system (Phase 2+); Numbering, addressing and identification".

[11] 3GPP TS 43.013: "Digital cellular telecommunications system (Phase 2+); Discontinuous Reception (DRX) in the GSM system".

[12] 3GPP TS 23.014: "Digital cellular telecommunications system (Phase 2+); Support of Dual Tone Multi-Frequency signalling (DTMF) via the GSM system".

[12a] 3GPP TS 23.071: "Digital cellular telecommunications system (Phase 2+); Location Services; Functional description – Stage 2".

[13] 3GPP TS 43.020: "Digital cellular telecommunications system (Phase 2+); Security related network functions".

[14] 3GPP TS 23.122: "NAS Functions related to Mobile Station (MS) in idle mode".

[15] 3GPP TS 24.002: "GSM-UMTS Public Land Mobile Network (PLMN) access reference configuration".

[16] 3GPP TS 44.003: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface Channel structures and access capabilities".

[17] 3GPP TS 44.004: "Digital cellular telecommunications system (Phase 2+); layer 1 General requirements".

[18] 3GPP TS 44.005: "Digital cellular telecommunications system (Phase 2+); Data Link (DL) layer General aspects".

[19] 3GPP TS 44.006: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface Data Link (DL) layer specification".

[20] 3GPP TS 24.007: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface signalling layer 3 General aspects".

[21] 3GPP TS 24.010: "Digital cellular telecommunications system ; Mobile radio interface layer 3 Supplementary services specification General aspects".

[22] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[23] 3GPP TS 24.012: "Short Message Service Cell Broadcast (SMSCB) support on the mobile radio interface".

[23a] 3GPP TS 24.071: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 location services specification.

[23b] 3GPP TS 44.031 "Digital cellular telecommunication system (Phse 2+);Location Services;Mobile Station (MS) – Serving Mobile Location Centre (SMLC); Radio Resource LCS Protocol (RRLP)".

[23c] 3GPP TS 25.331 : "3rd Generation Partnership Project;Technical Specification Group Radio Access Network; RRC Protocol Specification"

[24] 3GPP TS 24.080: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 supplementary services specification Formats and coding".

[25] 3GPP TS 24.081: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services - Stage 3".

[26] 3GPP TS 24.082: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 3".

[27] 3GPP TS 24.083: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 3".

[28] 3GPP TS 24.084: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPTY) supplementary services - Stage 3".

[29] 3GPP TS 24.085: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services - Stage 3".

[30] 3GPP TS 24.086: "Digital cellular telecommunications system (Phase 2+); Advice of Charge (AoC) supplementary services - Stage 3".

[31] 3GPP TS 24.088: "Call Barring (CB) supplementary services - Stage 3".

[32] 3GPP TS 45.002: "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path".

[33] 3GPP TS 45.005: "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception".

[34] 3GPP TS 45.008: "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control".

[35] 3GPP TS 45.010: "Digital cellular telecommunications system (Phase 2+); Radio subsystem synchronization".

[36] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[37] 3GPP TS 29.002: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".

[38] 3GPP TS 29.007: "Digital cellular telecommunications system (Phase 2+); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

[39] 3GPP TS 51.010: "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformity specification".

[40] 3GPP TS 51.021: "Digital cellular telecommunications system (Phase 2); The GSM Base Station System (BSS) equipment specification".

[41] ISO/IEC 646 (1991): "Information technology - ISO 7-bit coded character set for information interchange".

[42] ISO/IEC 6429: "Information technology - Control functions for coded character sets".

[43] ISO 8348 (1987): "Information processing systems - Data communications - Network service definition".

[44] ITU-T Recommendation E.163: "Numbering plan for the international telephone service".

[45] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".

[46] ITU-T Recommendation E.212: "Identification plan for land mobile stations".

[47] ITU-T Recommendation F.69 (1993): "Plan for telex destination codes".

[48] ITU-T Recommendation I.330: "ISDN numbering and addressing principles".

[49] ITU-T Recommendation I.440 (1989): "ISDN user-network interface data link layer - General aspects".

[50] ITU-T Recommendation I.450 (1989): "ISDN user-network interface layer 3 General aspects".

[51] ITU-T Recommendation I.500 (1993): "General structure of the ISDN interworking recommendations".

[52] ITU-T Recommendation T.50: "International Alphabet No. 5".

[53] ITU Recommendation Q.931: ISDN user-network interface layer 3 specification for basic control".

[54] ITU-T Recommendation V.21: "300 bits per second duplex modem standardized for use in the general switched telephone network".

[55] ITU-T Recommendation V.22: "1200 bits per second duplex modem standardized for use in the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[56] ITU-T Recommendation V.22bis: "2400 bits per second duplex modem using the frequency division technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[57] Void.

[58] ITU-T Recommendation V.26ter: "2400 bits per second duplex modem using the echo cancellation technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".

[59] ITU-T Recommendation V.32: "A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits".

[60] ITU-T Recommendation V.110: "Support of data terminal equipments (DTEs) with V-Series interfaces by an integrated services digital network".

[61] ITU-T Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".

[62] ITU-T Recommendation X.21: "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks".

[63] Void.

[64] Void.

[65] ITU-T Recommendation X.30: "Support of X.21, X.21 bis and X.20 bis based data terminal equipments (DTEs) by an integrated services digital network (ISDN)".

[66] ITU-T Recommendation X.31: "Support of packet mode terminal equipment by an ISDN".

[67] Void.

[68] Void.

[69] ITU-T Recommendation X.121: "International numbering plan for public data networks".

[70] ETSI ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3 Specifications for basic call control".

[71] ETSI ETS 300 102-2: "Integrated Services Digital Network (ISDN); User-network interface layer 3 Specifications for basic call control".

[72] ISO/IEC10646: "Universal Multiple-Octet Coded Character Set (UCS)"; UCS2, 16 bit coding.

[73] 3GPP TS 22.060: "General Packet Radio Service (GPRS); Service Description; Stage 1".

[74] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service Description; Stage 2".

[75] 3GPP TS 43.064: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Overall description of the GPRS radio interface; Stage 2".

[76] 3GPP TS 44.060: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station - Base Station System (MS-BSS) interface; Radio Link Control and Medium Access Control (RLC/MAC) layer specification".

[77] IETF RFC 1034: "Domain names - Concepts and Facilities " (STD 7).

[78] 3GPP TS 44.065: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Subnetwork Dependent Convergence Protocol (SNDCP)".

[79] ITU Recommendation I.460: "Multiplexing, rate adaption and support of existing services".

[80] 3GPP TS 26.111: "Codec for Circuit Switched Multimedia Telephony Service; Modifications to H.324"

[81] 3GPP TS 23.107: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; QoS Concept and Architecture"

[82] 3GPP TS 43.022: " Digital cellular telecommunications system (Phase 2+); Functions related to Mobile Station (MS) in idle mode and group receive mode".

[83] 3GPP TS 26.103: "3rd Generation Partnership Project; TSG-SA Codec Working Group; Speech Codec List for GSM and UMTS"

[84] 3GPP TS 44.018: "3rd Generation Partnership Project; Technical Specification Group GSM EDGE Radio Access Network; Mobile radio interface layer 3 specification, Radio Resource Control Protocol (Release 4)"

[85] 3GPP TS 48.008: "3rd Generation Partnership Project; Technical Specification Group GSM EDGE Radio Access Network; Mobile-services Switching Centre – Base Station System (MSC – BSS) interface; layer 3 specification (Release 4)"

[86] 3GPP TS 48.018: "3rd Generation Partnership Project; Technical Specification Group GSM EDGE Radio Access Network; General Packet Radio Service (GPRS); Base Station System (BSS) – Serving GPRS Support Node (SGSN); BSS GPRS Protocol (BSSGP) (Release 4)".

[87] 3GPP TS 43.055: "Dual Transfer Mode; Stage 2".

[88] 3GPP TS 23.067: "enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 2"

[89] 3GPP TS 22.042: “Network Identity and Time Zone (NITZ), stage 1“

[90] 3GPP TS 23.040: “Technical realization of Short Message Service (SMS)“

[91] 3GPP TS 44.056: “GSM Cordless Telephony System (CTS), (Phase 1) CTS Radio Interface Layer 3 Specification“

[92] 3GPP TS 23.226: "Global Text Telephony; Stage 2 "

[93] 3GPP TS 26.226: "Cellular Text Telephone Modem (CTM), General Description "

[94] 3GPP TS 23.236: "Intra Domain Connection of RAN Nodes to Multiple CN Nodes"

[95] 3GPP TS 24.229: "3rd Generation Partnership Project; Technical Specification Group Core Network; IP Multimedia Call Control Protocol based on SIP and SDP"

NEXT MODIFICATION

9.5.1 Activate PDP context request

This message is sent by the MS to the network to request activation of a PDP context.
See table 9.5.1/3GPP TS 24.008.

Message type: ACTIVATE PDP CONTEXT REQUEST

Significance: global

Direction: MS to network

Table 9.5.1/3GPP TS 24.008: ACTIVATE PDP CONTEXT REQUEST message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2– 3/2
	Activate PDP context request message identity	Message type 10.4	M	V	1
	Requested NSAPI	Network service access point identifier 10.5.6.2	M	V	1
	Requested LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Requested QoS	Quality of service 10.5.6.5	M	LV	13
	Requested PDP address	Packet data protocol address 10.5.6.4	M	LV	3 - 19
28	Access point name	Access point name 10.5.6.1	O	TLV	3 - 102
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253

9.5.1.1 Access point name

This IE is included in the message when the MS selects a specific external network to be connected to.

9.5.1.2 Protocol configuration options

This IE is included in the message when the MS provides protocol configuration options or other configuration parameters and/or requests (such as P-CSCF Address Request; see 3GPP TS 24.229 [95]) for the external PDN.

9.5.2 Activate PDP context accept

This message is sent by the network to the MS to acknowledge activation of a PDP context.
See table 9.5.2/3GPP TS 24.008.

Message type: ACTIVATE PDP CONTEXT ACCEPT

Significance: global

Direction: network to MS

Table 9.5.2/3GPP TS 24.008: ACTIVATE PDP CONTEXT ACCEPT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2– 3/2
	Activate PDP context accept message identity	Message type 10.4	M	V	1
	Negotiated LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Negotiated QoS	Quality of service 10.5.6.5	M	LV	13
	Radio priority	Radio priority 10.5.7.2	M	V	1/2
	Spare half octet	Spare half octet 10.5.1.8	M	V	1/2
2B	PDP address	Packet data protocol address 10.5.6.4	O	TLV	4 - 20
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253
34	Packet Flow Identifier	Packet Flow Identifier 10.5.6.11	O	TLV	3

9.5.2.1 PDP address

This IE shall be included by the network if the MS has requested the activation of a PDP context with the PDP type IPv4 or IPv6 and dynamic addressing.

9.5.2.2 Protocol configuration options

This IE is included in the message when the network wishes to transmit protocol configuration options or other configuration parameters (such as P-CSCF Addresses; see 3GPP TS 24.229 [95]) for the external PDN.

9.5.2.3 Packet Flow Identifier

This IE may be included if the network wants to indicate the Packet Flow Identifier associated to the PDP context.

NEXT MODIFICATION

9.5.4 Activate Secondary PDP Context Request

This message is sent by the MS to the network to request activation of an additional PDP context associated with the same PDP address and APN as an already active PDP context. See Table 9.5.4/3GPP TS 24.008.

Message type: ACTIVATE SECONDARY PDP CONTEXT REQUEST

Significance: global

Direction: MS to network

Table 9.5.4/3GPP TS 24.008: Activate SECONDARY PDP context request message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	½
	Transaction identifier	Transaction identifier 10.3.2	M	V	½– 3/2
	Activate secondary PDP context request message identity	Message type 10.4	M	V	1
	Requested NSAPI	Network service access point identifier 10.5.6.2	M	V	1
	Requested LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Requested QoS	Quality of service 10.5.6.5	M	LV	13
	Linked TI	Linked TI 10.5.6.7	M	LV	2-3
36	TFT	Traffic Flow Template 10.5.6.12	O	TLV	3-257
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253

9.5.4.1 TFT

This IE shall be included if a linked PDP context without TFT has already been activated.

9.5.4.2 Protocol configuration options

This IE may be included in the message if the MS wishes to transmit configuration parameters and/or requests (such as P-CSCF Address Request; see 3GPP TS 24.229 [95]) to the network.

9.5.5 Activate Secondary PDP Context Accept

This message is sent by the network to the MS to acknowledge activation of an additional PDP context associated with the same PDP address and APN as an already active PDP context. See Table 9.5.5/3GPP TS 24.008.

Message type: ACTIVATE SECONDARY PDP CONTEXT ACCEPT

Significance: global

Direction: network to MS

Table 9.5.5/3GPP TS 24.008: ACTIVATE SECONDARY PDP CONTEXT ACCEPT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2– 3/2
	Activate secondary PDP context accept message identity	Message type 10.4	M	V	1
	Negotiated LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Negotiated QoS	Quality of service 10.5.6.5	M	LV	13
	Radio priority	Radio priority	M	V	1/2
	Spare half octet	Spare half octet 10.5.1.8	M	V	1/2
34	Packet Flow Identifier	Packet Flow Identifier 10.5.6.11	O	TLV	3
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253

9.5.5.1 Packet Flow Identifier

This IE may be included if the network wants to indicate the Packet Flow Identifier associated to the PDP context.

9.5.5.2 Protocol configuration options

This IE may be included if the network wants to transmit configuration parameters (such as P-CSCF Addresses; see 3GPP TS 24.229 [95]) to the MS.

NEXT MODIFICATION

10.5.6.3 Protocol configuration options

The purpose of the *protocol configuration options* information element is to:

- transfer external network protocol options associated with a PDP context activation, and

- transfer additional parameters and/or requests (such as, P-CSCF Address Request; 3GPP TS 24.229 [95]) that may serve any purpose other than defining network protocol options.

The *protocol configuration options* is a type 4 information element with a minimum length of 2 octets and a maximum length of 253 octets.

The *protocol configuration options* information element is coded as shown in figure 10.5.136/3GPP TS 24.008 and table 10.5.154/3GPP TS 24.008.

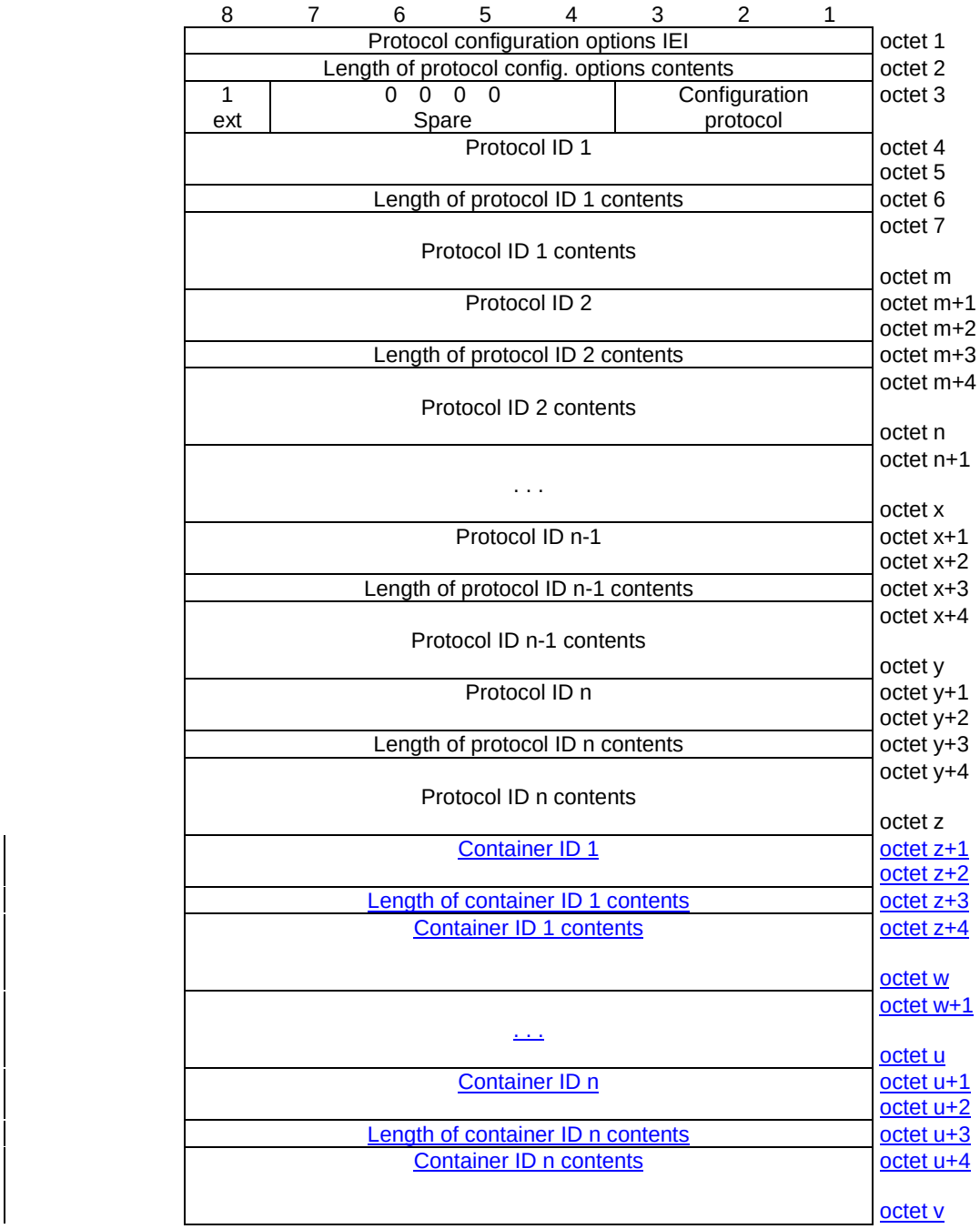

Figure 10.5.136/3GPP TS 24.008: *Protocol configuration options* information element

Table 10.5.154/3GPP TS 24.008: *Protocol configuration options* information element

Configuration protocol (octet 3)
Bits
3 2 1
0 0 0 PPP for use with IP PDP type

All other values are interpreted as PPP in this version of the protocol.

After octet 3, i.e. from octet 4 to octet v, two logical lists are defined:

- the Configuration protocol options list (octets 4 to z), and
- the Additional parameters list (octets z+1 to v).

Configuration protocol options list (octets 4 to z)

The *configuration protocol options list* contains a variable number of logical units, the may occur in an arbitrary order within the *configuration protocol options list*.

Each unit is of variable length and consists of a

- protocol identifier (2 octets);
- the length of the protocol identifier contents of the unit (1 octet); and
- the protocol identifier contents itself (n octets).

The *protocol identifier* field contains the hexadecimal coding of the configuration protocol identifier. Bit 8 of the first octet of the *protocol identifier* field contains the most significant bit and bit 1 of the second octet of the *protocol identifier* field contains the least significant bit.

If the *configuration protocol options list* contains a protocol identifier that is not supported by the receiving entity the corresponding unit shall be discarded.

The *length of the protocol identifier contents* field contains the binary coded representation of the length of the *protocol identifier contents* field of a unit. The first bit in transmission order is the most significant bit.

The *protocol identifier contents* field of each unit contains information specific to the configuration protocol specified by the *protocol identifier*.

PPP

At least the following protocol identifiers (as defined in RFC 1700) shall be supported in this version of the protocol:

- C021H (LCP);
- C023H (PAP);
- C223H (CHAP);and
- 8021H (IPCP).

The support of other protocol identifiers is implementation dependent and outside the scope of this specification.

The *protocol identifier contents* field of each unit corresponds to a 'Packet' as defined in RFC 1661 that is stripped off the 'Protocol' and the 'Padding' octets.

The detailed coding of the *protocol identifier contents* field is specified in the RFC that is associated with the protocol identifier of that unit.

Additional parameters list (octets z+1 to v)

The *additional parameters list* is included when special parameters and/or requests (associated with a PDP context) need to be transferred between the MS and the network. These parameters and/or requests are not related to a specific configuration protocol (e.g. PPP), and therefore are not encoded as the 'Packets' contained in the *configuration protocol options list*.

The *additional parameters list* contains a list of special parameters, each one in a separate container. The type of the parameter carried in a container is identified by a specific *container identifier*. In this version of the protocol, the following container identifiers are specified: