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## Reference RTS/TSGC-0124555vh10 Keywords 5G

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In the present document, modal verbs have the following meanings:

shall indicates a mandatory requirement to do somethingshall not indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

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**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

may indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can indicates that something is possiblecannot indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will indicates that something is certain or expected to happen as a result of action taken by an agency

the behaviour of which is outside the scope of the present document

will not indicates that something is certain or expected not to happen as a result of action taken by an

agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the

behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency

the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

## 1 Scope

The present document defines User Equipment (UE) policies that are used to configure the UE for Proximity-based Services (ProSe) in 5G System (5GS) based on the architectural requirements defined in 3GPP TS 23.304 [2].

The protocol aspects for 5G ProSe are described in 3GPP TS 24.554 [3].

#### 2 References

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- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
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- 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] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications". 3GPP TS 23.304: "Proximity based Services (ProSe) in the 5G System (5GS); Stage 2". [2] [3] 3GPP TS 24.554: "Proximity-services (ProSe) in 5G System (5GS) protocol aspects; Stage 3". 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3". [4] [5] ITU-T Recommendation E.212: "The international identification plan for public networks and subscriptions", 2016-09-23. [6] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)". [7] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification". 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 [8] Standalone". [9] 3GPP TS 38.101-2: "NR; User Equipment (UE) radio transmission and reception; Part 2: Range 2 Standalone". [10] 3GPP TS 23.003: "Numbering, addressing and identification". [11] 3GPP TS 24.526: "User Equipment (UE) policies for 5G System (5GS); Stage 3". IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace". [12] [13] 3GPP TS 33.503: "Security Aspects of Proximity based Services (ProSe) in the 5G System (5GS)". [14] 3GPP TS 32.277: "Proximity-based Services (ProSe) charging".

## 3 Definitions of terms, symbols and abbreviations

#### 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

#### 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5G ProSe
5G ProSe
5G ProSe Key Management Function
DUCK
DUCK
DUIK
DUSK
DUSK
DUSK
DUSK
DUSK
DUSK
DESCRIPTION OF THE PROPERTY OF

ProSeP 5G ProSe Policy

## 4 Descriptions of UE policies for 5G ProSe

#### 4.1 Overview

The ProSe policy in 5GS includes:

- a) UE policies for 5G ProSe direct discovery (see clause 4.2);
- b) UE policies for 5G ProSe direct communications (see clause 4.3);
- c) UE policies for 5G ProSe UE-to-network relay (see clause 4.4); and
- d) UE policies for 5G ProSe usage information reporting (see clause 4.5).

The ProSe policy can be delivered from the PCF to the UE. The UE policy delivery procedure is specified in 3GPP TS 24.501 [4].

## 4.2 UE policies for 5G ProSe direct discovery

The UE policies for 5G ProSe direct discovery are defined in clause 5.2.3 of 3GPP TS 24.554 [3]. The generic description of the UE policies for 5G ProSe direct discovery is specified in 3GPP TS 23.304 [2].

## 4.3 UE policies for 5G ProSe direct communications

The UE policies for 5G ProSe direct communications are defined in clause 5.2.4 of 3GPP TS 24.554 [3]. The generic description of the UE policies for 5G ProSe direct communications is specified in 3GPP TS 23.304 [2].

## 4.4 UE policies for 5G ProSe UE-to-network relay

The UE policies for 5G ProSe UE-to-network relay UE are defined in clause 5.2.5 of 3GPP TS 24.554 [3]. The generic description of the UE policies for 5G ProSe UE-to-network relay is specified in 3GPP TS 23.304 [2].

The UE policies for 5G ProSe remote UE are defined in clause 5.2.5 of 3GPP TS 24.554 [3]. The generic description of the UE policies for 5G ProSe remote UE is specified in 3GPP TS 23.304 [2].

## 4.5 UE policies for 5G ProSe usage information reporting

The UE policies for 5G ProSe usage information reporting are defined in clause 5.2.6 of 3GPP TS 24.554 [3]. The generic description of the UE policies for 5G ProSe usage information reporting is specified in 3GPP TS 32.277 [14].

## 5 Encoding of UE policies for 5G ProSe

#### 5.1 Overview

The UE policies for 5G ProSe are provided to the UE in a 5G ProSe policy (ProSeP) UE policy part using the UE policy delivery service as specified in 3GPP TS 24.501 [4] annex D.

### 5.2 Encoding of 5G ProSe policy UE policy part

The purpose of the ProSeP is to indicate UE policies for 5G ProSe direct discovery, 5G ProSe direct communications, 5G ProSe UE-to-network relay UE, 5G ProSe remote UE and UE policies for 5G ProSe usage information reporting.

The ProSeP is encoded as shown in figures 5.2.1 to 5.2.3 and table 5.2.1 according to the UE policy part top level format (see annex D of 3GPP TS 24.501 [4]).

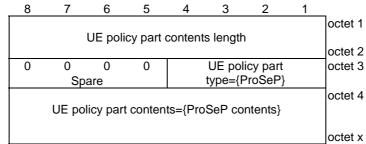


Figure 5.2.1: UE policy part when UE policy part type = {ProSeP}

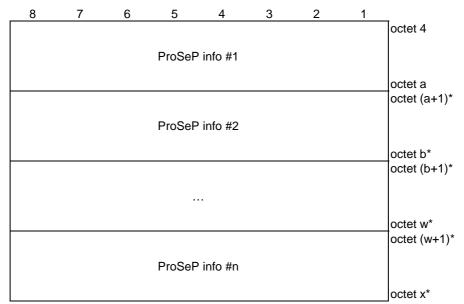


Figure 5.2.2: ProSeP contents

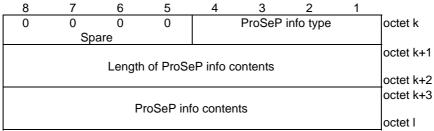


Figure 5.2.3: ProSeP info

#### Table 5.2.1: ProSeP information format

UE policy part type field is set to '0100' (=ProSeP) as specified in 3GPP TS 24.501 [4] annex D.

UE policy part contents length field indicate the length of the ProSeP contents in octets.

ProSeP contents (octets 4 to x)

ProSeP contents consist of 1 or more ProSeP info(s) (see figure 5.2.2).

ProSeP info type (bit 1 to 4 of octet k) shall be set according to the following: Bits

4 3 2

0 0 0 1 UE policies for 5G ProSe direct discovery

0 0 1 0 UE policies for 5G ProSe direct communications

0 0 1 1 UE policies for 5G ProSe UE-to-network relay UE

0 1 0 0 UE policies for 5G ProSe remote UE

0 1 0 1 UE policies for 5G ProSe usage information reporting

All other values are reserved.

Bits 8 to 5 of octet k are spare and shall be encoded as zero.

Length of ProSeP info contents (octets k+1 to k+2) indicates the length of the ProSeP info contents field.

ProSeP info contents (octets k+3 to I) can be UE policies for 5G ProSe direct discovery (see clause 5.3), UE policies for 5G ProSe direct communications (see clause 5.4), UE policies for 5G ProSe UE-to-network relay UE (see clause 5.5), UE policies for 5G ProSe remote UE (clause 5.6) or UE policies for 5G ProSe usage information reporting (clause 5.7).

## 5.3 Encoding of UE policies for 5G ProSe direct discovery

#### 5.3.1 General

The UE policies for 5G ProSe direct discovery are coded as shown in figures 5.3.1.1 and table 5.3.1.1.

## 5.3.2 Information elements coding

8		7	6	5	4	3	2	1				
0		0	0	0			e = {UE po		octet k			
	Spare for 5G ProSe direct discovery}											
	octet k+1											
	Length of ProSeP info contents											
									octet k+2 octet k+3			
	Validity timer											
	Validity timer											
									octet k+7 octet k+8			
			ç	Served by	NG-RAN	J			OCICI KTO			
				, o. v o a b j		•			octet o1			
	octet o1+1											
			No	t served l	by NG-RA	AΝ						
									octet o2			
									octet o2+1			
			ProSe	e direct di	scovery l	JE ID						
									octet o2+3			
		,	Croup mo	mbor dia	001/05/ 00	romoto			octet o2+4			
		,	Group me	ilibei uis	covery pa	arameter	5		octet o3			
									octet o3+1			
				ProSe id	lentifiers				00101 001 1			
	1 1000 Identifiers											
									octet o4+1			
Pro	oSe ide	entifie	r to defau	lt destina	tion layer	-2 ID for	initial disc	overy				
					apping ru		FC Drac		octet I			

Figure 5.3.2.1: ProSeP Info = {UE policies for 5G ProSe direct discovery}

#### Table 5.3.2.1: ProSeP Info = {UE policies for 5G ProSe direct discovery}

ProSeP info type (bit 1 to 4 of octet k) shall be set to "0001" (UE policies for 5G ProSe direct discovery)

Length of ProSeP info contents (octets k+1 to k+2) indicates the length of ProSeP info contents.

Validity timer (octet k+3 to k+7):

The validity timer field provides the expiration time of validity of the UE policies for 5G ProSe direct discovery. The validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).

Served by NG-RAN (octet k+8 to o1):

The served by NG-RAN field is coded according to figure 5.3.2.2 and table 5.3.2.2, and contains configuration parameters for 5G ProSe direct discovery when the UE is served by NG-RAN.

Not served by NG-RAN (octet o1+1 to o2):

The not served by NG-RAN field is coded according to figure 5.3.2.6 and table 5.3.2.6, and contains configuration parameters for 5G ProSe direct discovery when the UE is not served by NG-RAN.

ProSe Direct Discovery UE ID (octet o2+1 to o2+3):

The ProSe Direct Discovery UE ID is a 24-bit long bit string.

Group member discovery parameters (octet o2+4 to o3):

The group member discovery parameters field is coded according to figure 5.3.2.12 and table 5.3.2.12 and contains group member discovery parameters.

ProSe identifiers (octet o3+1 to o4):

The ProSe identifiers field is coded according to figure 5.3.2.14 and table 5.3.2.14 and contains ProSe identifiers.

ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules (octet o4+1 to o5):

The ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules field is coded according to figure 5.3.2.15 and table 5.3.2.15 and contains ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules.

If the length of ProSeP info contents field is bigger than indicated in figure 5.3.2.1, receiving entity shall ignore any superfluous octets located at the end of the ProSeP info contents.

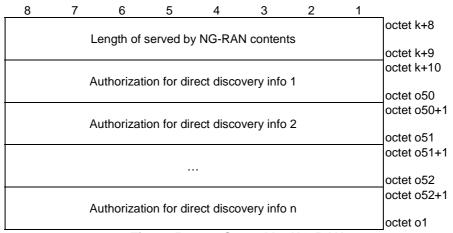


Figure 5.3.2.2: Served by NG-RAN

#### Table 5.3.2.2: Served by NG-RAN

Authorization for direct discovery info: The authorization for direct discovery info field is coded according to figure 5.3.2.3 and table 5.3.2.3.

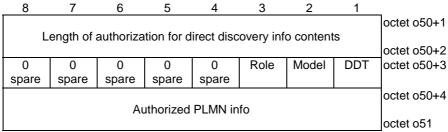


Figure 5.3.2.3: Authorization for direct discovery info

#### Table 5.3.2.3: Authorization for direct discovery info

```
Direct discovery type (DDT) (octet o50+3 bit 1):
0
   Open
   Restricted
Model (octet o50+3 bit 2):
Bit
2
0
   Α
   В
If Model bit is set to "A",
Role (octet o50+3 bit 3):
Bit
3
0
   Announcing
   Monitoring
If Model bit is set to "B",
Role (octet o50+3 bit 3):
Bit
3
0
   Discoverer
   Discoveree
Authorized PLMN info (octet o50+4 to o51):
The authorized PLMN info field is coded according to figure 5.3.2.4 and table 5.3.2.4.
If the length of authorization for direct discovery info field is bigger than indicated in
figure 5.3.2.3, receiving entity shall ignore any superfluous octets located at the end of
the authorization for direct discovery info.
```

8	7	6	5	4	3	2	1						
		.1. 6						octet o50+4					
	Length of authorized PLMN info contents												
								octet o50+5					
								octet (o50+6)*					
	Authorized PLMN 1												
								octet (o50+8)*					
								octet (o50+9)*					
		Α	uthorize	d PLMN	2			, ,					
								octet (o50+11)*					
								octet (o50+12)*					
								,					
								octet o150*					
								octet (o150+1)*					
		Δ	uthorize	d PLMN	n			, , , ,					
		•						octet o51*					

Figure 5.3.2.4: Authorized PLMN info

Table 5.3.2.4: Authorized PLMN

Authorized PLMN:
The authorized PLMN field is coded according to figure 5.3.2.5 and table 5.3.2.5.

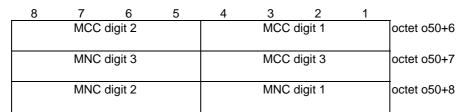


Figure 5.3.2.5: PLMN ID

**Table 5.3.2.5: PLMN ID** 

Mobile country code (MCC) (octet o50+5, octet o50+6 bit 1 to 4): The MCC field is coded as in ITU-T Recommendation E.212 [5], annex A.

Mobile network code (MNC) (octet o50+6 bit 5 to 8, octet o50+7):

The coding of MNC field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, MNC digit 3 shall be coded as "1111".

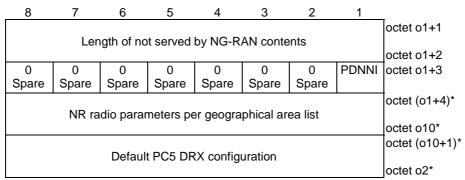


Figure 5.3.2.6: Not served by NG-RAN

#### Table 5.3.2.6: Not served by NG-RAN

5G ProSe direct discovery when not served by NG-RAN indicator (PDNNI) (octet o1+3 bit 1):

The PDNNI bit indicates whether the UE is authorized to perform 5G ProSe direct discovery when not served by NG-RAN.

Bit

1

0 Not authorized

Authorized

NR radio parameters per geographical area list (octet o1+4 to o2):

If PNNI bit is set to "Authorized", the NR radio parameters per geographical area list field is present otherwise the NR radio parameters per geographical area list field is absent. It is coded according to figure 5.3.2.7 and table 5.3.2.7.

Default PC5 DRX configuration (octet o10+1 to o2):

If PDNNI bit is set to "Authorized", the default PC5 DRX configuration is present otherwise the default PC5 DRX configuration is absent. It is coded according to figure 5.3.2.11a and table 5.3.2.11a.

If the length of not served by NG-RAN contents field is bigger than indicated in figure 5.3.2.6, receiving entity shall ignore any superfluous octets located at the end of the not served by NG-RAN contents.

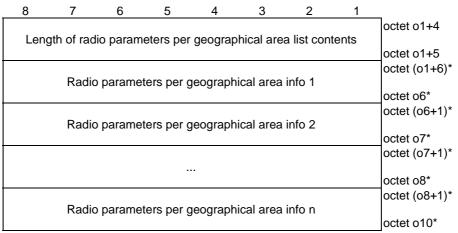


Figure 5.3.2.7: Radio parameters per geographical area list

Table 5.3.2.7: Radio parameters per geographical area list

Radio parameters per geographical area info:

The radio parameters per geographical area info field is coded according to figure 5.3.2.8 and table 5.3.2.8.

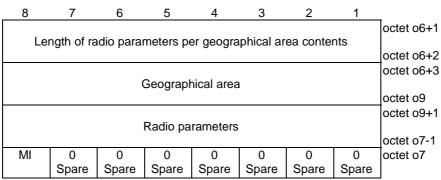


Figure 5.3.2.8: Radio parameters per geographical area info

#### Table 5.3.2.8: Radio parameters per geographical area info

Geographical area (octet o6+3 to o9):

The geographical area field is coded according to figure 5.3.2.9 and table 5.3.2.9.

Radio parameters (octet o9 to o7-1):

The radio parameters field is coded according to figure 5.3.2.11 and table 5.3.2.11, applicable in the geographical area indicated by the geographical area field when not served by NG-RAN.

Managed indicator (MI) (octet o7 bit 8):

The managed indicator indicates how the radio parameters indicated in the radio parameters field in the geographical area indicated by the geographical area field are managed.

Bit

8

- 0 Non-operator managed
- Operator managed

If the length of radio parameters per geographical area contents field is bigger than indicated in figure 5.3.2.8, receiving entity shall ignore any superfluous octets located at the end of the radio parameters per geographical area contents.

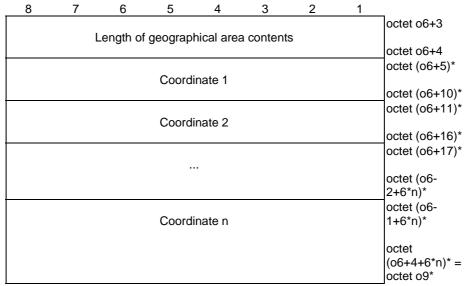


Figure 5.3.2.9: Geographical area

#### Table 5.3.2.9: Geographical area

Coordinate:											
The coordinate field is coded according to figure 5.3.2.10 and table 5.3.2.10.											
0 7 6 5 4 6											
8 7 6 5 4 3											
	octet o6+11										
Latitude											
	octet o6+13										
	octet o6+14										
Longitudo	00101 001 14										
Longitude											
	octet o6+17										

Figure 5.3.2.10: Coordinate area

#### Table 5.3.2.10: Coordinate area

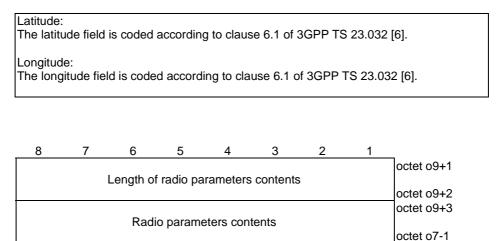


Figure 5.3.2.11: Radio parameters

#### Table 5.3.2.11: Radio parameters

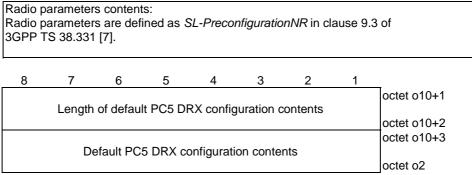


Figure 5.3.2.11a: Default PC5 DRX configuration

Table 5.3.2.11a: Default PC5 DRX configuration

Default PC5 DRX configuration contents:
The default PC5 DRX configuration field is coded as *sl-DefaultDRX-GC-BC-r17* in clause 6.3.5 of 3GPP TS 38.331 [7].

8	7	6	5	4	3	2	1					
		.1. 6						octet o2+4				
	Length of groupcast parameters contents											
								octet o2+5 octet (o2+6)*				
	Application layer group info 1											
		Applic	Jalion lay	er group	IIIO I			0.0101 0.E.1*				
								octet o51*				
		A == = 1:			info 0			octet (o51+1)*				
		Applic	cation lay	er group	inio 2			actat aF2*				
								octet o52*				
								octet (o52+1)*				
								0.0101 0.F.2*				
								octet o53*				
								octet (o53+1)*				
		Applic	cation lay	er group	into n							
								octet o3*				

Figure 5.3.2.12: Groupcast parameters

Table 5.3.2.12: Groupcast parameters

Application layer group info:
The application layer group info field is coded according to figure 5.3.2.13 and table 5.3.2.13.

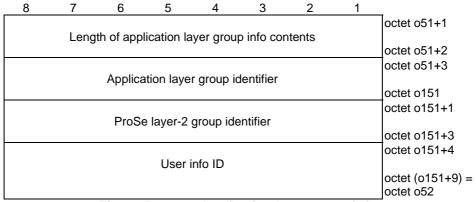


Figure 5.3.2.13: Application layer group info

#### Table 5.3.2.13: Application layer group info

Application layer group identifier (octet o51+3 to o151):

The first octet of application layer group identifier field is the length of application group identifier. The value of application group identifier field is a bit string. The format of application group identifier parameter is out of scope of this specification.

ProSe layer-2 group identifier (octet o151+1 to o151+3)

The ProSe layer-2 group identifier field is a binary coded layer-2 identifier.

User info ID (octet o151+4 to o52)

The value of the User info ID parameter is a 48-bit long bit string. The format of the User info ID parameter is out of scope of this specification.

If the length of application layer group info contents field is bigger than indicated in figure 5.3.2.13, receiving entity shall ignore any superfluous octets located at the end of the application layer group info contents.

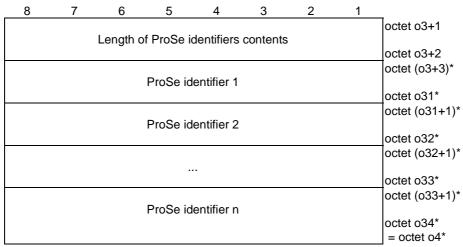


Figure 5.3.2.14: ProSe identifiers

Table 5.3.2.14: ProSe identifiers

octet OS a	entifier: e identifier field contains a sequence of a sixteen octet OS Id field, a one App Id length field, and an OS App Id field. The OS Id field shall be ed first. The OS Id field contains a Universally Unique IDentifier (UUID) as in IETF RFC 4122 [12].
NOTE:	Further definition of the format of OS App ID is beyond the scope of this specification.

8	7	6	5	4	3	2	1					
Lengt	Length of ProSe identifier to default destination layer-2 ID for initial											
	discovery signalling mapping rules contents											
ProSe	dentifier					initial dis	covery					
		sigr	nalling ma	apping ru	ıle 1			octet o54*				
								octet (o54+1)*				
ProSe	identifier			•		initial dis	covery					
		sigr	nalling ma	apping ru	ıle 2			octet o55*				
								octet (o55+1)*				
								octet o56*				
								octet (o56+1)*				
ProSe	dentifier			•		initial dis	covery					
		sigr	nalling ma	apping ru	ıle n			octet I*				

Figure 5.3.2.15: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules

## Table 5.3.2.15: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules

ProSe identifier to destination layer-2 ID for broadcast mapping rule:
The ProSe identifier to destination layer-2 ID for broadcast mapping rule field is coded according to figure 5.3.2.16 and table 5.3.2.16.

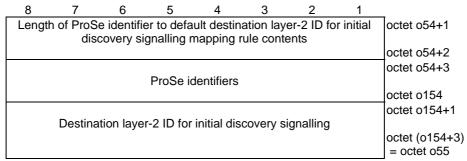


Figure 5.3.2.16: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule

## Table 5.3.2.16: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule

ProSe identifiers (octet o54+3 to o154):

The ProSe identifiers field is coded according to figure 5.3.2.14 and table 5.3.2.14.

Destination layer-2 ID for initial discovery signalling (octet o154+1 to o55): The destination layer-2 ID for initial discovery signalling field is a binary coded layer-2 identifier.

If the length of ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule contents field is bigger than indicated in figure 5.3.2.16, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule contents.

## 5.4 Encoding of UE policies for 5G ProSe direct communications

#### 5.4.1 General

The UE policies for 5G ProSe direct communication are coded as shown in figures 5.4.1.1 and table 5.4.1.1.

## 5.4.2 Information elements coding

8	7	6	5	4	3	2	1					
0	0 Sp	0 are	0		or 5G Pro	e = {UE pose direction}		octet k				
	Length of ProSeP info contents											
	•											
	Validity timer											
								octet k+7				
								octet k+8				
		S	Served by	/ NG-RAI	V			octet o1				
	, and the second											
								octet o1+1				
		No	t served	by NG-R	AN			_				
								octet o2				
			ъ.					octet o2+1				
			Privacy	/ config								
								octet o4				
	50	D 0 11		. ,.		005		octet o4+1				
	5G	ProSe dir	ect comr	nunicatio	n in NK-I	PC5						
								octet o5				
	D O		. 4 41-					octet o5+1				
	ProSe application to path preference mapping rules											
-												
D	Ca idamii	iono to NIC	) Tu =====	:			1	octet o10+1				
Pro	Se identif	iers to NF			badcast a	na group	cast	ootot I				
			mappir	ng rules				octet I				

Figure 5.4.2.1: ProSeP Info = {UE policies for 5G ProSe direct communication}

#### Table 5.4.2.1: ProSeP Info = {UE policies for 5G ProSe direct communication}

ProSeP info type (bit 1 to 4 of octet k) shall be set to "0010" (UE policies for 5G ProSe direct communication)

Length of ProSeP info contents (octets k+1 to k+2) indicates the length of ProSeP info contents.

Validity timer (octet k+3 to k+7):

The validity timer field provides the expiration time of validity of the UE policies for 5G ProSe direct communication. The validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).

Served by NG-RAN (octet k+8 to o1):

The served by NG-RAN field is coded according to figure 5.4.2.2 and table 5.4.2.2, and contains configuration parameters for 5G ProSe direct communication when the UE is served by NG-RAN.

Not served by NG-RAN (octet o1+1 to o2):

The not served by NG-RAN field is coded according to figure 5.4.2.5 and table 5.4.2.5, and contains configuration parameters for 5G ProSe direct communication when the UE is not served by NG-RAN.

Privacy config (octet o2+1 to o4):

The privacy config field is coded according to figure 5.4.2.11 and table 5.4.2.11, and contains configuration parameters for privacy configuration.

5G ProSe direct communication in NR-PC5 (octet o4+1 to o5):

The 5G ProSe direct communication in NR-PC5 field is coded according to figure 5.4.2.16 and table 5.4.2.16, and contains configuration parameters for 5G ProSe direct communication in NR-PC5.

ProSe application to path preference mapping rules (octet o5+1 to o10):

The ProSe application to path preference mapping rules field is coded according to figure 5.4.2.38 and table 5.4.2.38, and contains configuration parameters for ProSe application to path preference mapping rules.

ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rules (octet o10+1 to I):

The ProSe identifiers to NR Tx profiles for broadcast and groupcast mapping rules field is coded according to figure 5.4.2.41 and table 5.4.2.41, and contains configuration parameters for ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rules.

If the length of ProSeP info contents field is bigger than indicated in figure 5.4.2.1, receiving entity shall ignore any superfluous octets located at the end of the ProSeP info contents.

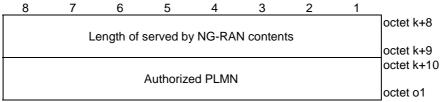


Figure 5.4.2.2: Served by NG-RAN

#### Table 5.4.2.2: Served by NG-RAN

Authorized PLMN (octet k+10 to o1):

The authorized PLMN field is coded according to figure 5.4.2.3 and table 5.4.2.3.

If the length of served by NG-RAN contents field is bigger than indicated in figure 5.4.2.2, receiving entity shall ignore any superfluous octets located at the end of the served by NG-RAN contents.

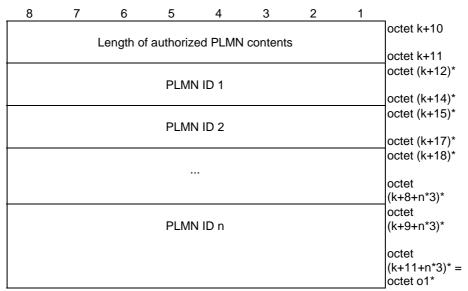


Figure 5.4.2.3: Authorized PLMN

Table 5.4.2.3: Authorized PLMN

PLMN ID:

The PLMN ID field is coded according to figure 5.4.2.4 and table 5.4.2.4.

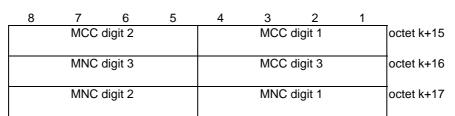


Figure 5.4.2.4: PLMN ID

**Table 5.4.2.4: PLMN ID** 

Mobile country code (MCC) (octet k+15, octet k+16 bit 1 to 4):

The MCC field is coded as in ITU-T Recommendation E.212 [5], annex A.

Mobile network code (MNC) (octet k+16 bit 5 to 8, octet k+17):

The coding of MNC field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, MNC digit 3 shall be coded as "1111".

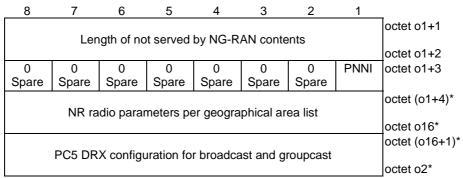


Figure 5.4.2.5: Not served by NG-RAN

#### Table 5.4.2.5: Not served by NG-RAN

5G ProSe direct communication when not served by NG-RAN indicator (PNNI) (octet o1+3 bit 1):

The PNNI bit indicates whether the UE is authorized to use 5G ProSe direct communication when not served by NG-RAN.
Bit

1

- 0 Not authorized
- 1 Authorized

NR radio parameters per geographical area list (octet o1+4 to o16): If PNNI bit is set to "Authorized", the NR radio parameters per geographical area list field is present otherwise the NR radio parameters per geographical area list field is absent. It is coded according to figure 5.4.2.6 and table 5.4.2.6.

PC5 DRX configuration for broadcast and groupcast (octet o16+1 to o2): If PNNI bit is set to "Authorized", the PC5 DRX configuration for broadcast and groupcast field is present otherwise the PC5 DRX configuration for broadcast and groupcast field is absent. It is coded according to figure 5.4.2.10a and table 5.4.2.10a.

If the length of not served by NG-RAN contents field is bigger than indicated in figure 5.4.2.5, receiving entity shall ignore any superfluous octets located at the end of the not served by NG-RAN contents.

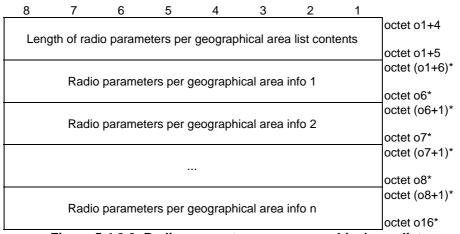


Figure 5.4.2.6: Radio parameters per geographical area list

#### Table 5.4.2.6: Radio parameters per geographical area list

Radio parameters per geographical area info:

The radio parameters per geographical area info field is coded according to figure 5.4.2.7 and table 5.4.2.7.

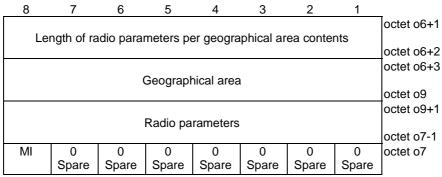


Figure 5.4.2.7: Radio parameters per geographical area info

Table 5.4.2.7: Radio parameters per geographical area info

Geographical area (octet o6+3 to o9):

The geographical area field is coded according to figure 5.4.2.8 and table 5.4.2.8.

Radio parameters (octet o9 to o7-1):

The radio parameters field is coded according to figure 5.4.2.10 and table 5.4.2.10, applicable in the geographical area indicated by the geographical area field when not served by NG-RAN.

Managed indicator (MI) (octet o7 bit 8):

The managed indicator indicates how the radio parameters indicated in the radio parameters field in the geographical area indicated by the geographical area field are managed.

Bit

8

- 0 Non-operator managed
- Operator managed

If the length of radio parameters per geographical area contents field is bigger than indicated in figure 5.4.2.7, receiving entity shall ignore any superfluous octets located at the end of the radio parameters per geographical area contents.

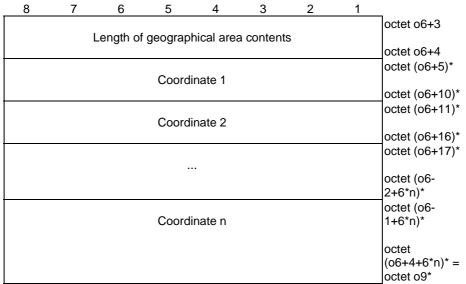


Figure 5.4.2.8: Geographical area

Table 5.4.2.8: Geographical area

Coordinate:											
The coordinate field is coded according to figure 5.4.2.9 and table 5.4.2.9.											
8	7	6	5	4	3	2	1				
- 0		U	<u> </u>	4	3		- 1	7			
								octet o6+11			
			Lati	tude							
								octet o6+13			
			Long	itude							
	3										
		-	iaure 5	429.0	`oordin:	ate area		_octet o6+17			
			iguie J	. <del>.</del>		ate area					

Table 5.4.2.9: Coordinate area

Latitude: The latitude field is coded according to clause 6.1 of 3GPP TS 23.032 [6].										
Longitude: The longitude field is coded according to clause 6.1 of 3GPP TS 23.032 [6].										
8 7 6 5 4 3 2 1										
Length of radio parameters contents octet of										
Radio parameters contents  Cotet of octet oct										

Figure 5.4.2.10: Radio parameters

#### Table 5.4.2.10: Radio parameters

Radio parameters contents:
Radio parameters are defined as *SL-PreconfigurationNR* in clause 9.3 of 3GPP TS 38.331 [7].

	8	7	6	5	4	3	2	1				
Ī									octet o16+1			
	Leng											
		octet o16+2										
Ī		octet o16+3										
									octet o17			
Ī		octet o17+1										
	Default PC5 DRX configuration											

Figure 5.4.2.10a: PC5 DRX configuration for broadcast and groupcast

#### Table 5.4.2.10a: PC5 DRX configuration for broadcast and groupcast

PC5 QoS profile to PC5 DRX cycle mapping rules:

The PC5 QoS profile to PC5 DRX cycle mapping rules field is coded according to figure 5.4.2.10b and table 5.4.2.10b.

Default PC5 DRX configuration:

The default PC5 DRX configuration field is coded accoding to figure 5.3.2.11a and table 5.3.2.11a.

If the length of PC5 DRX configuration for broadcast and groupcast contents field indicates a length bigger than indicated in figure 5.4.2.5, receiving entity shall ignore any superfluous octets located at the end of the PC5 DRX configuration for broadcast and groupcast contents.

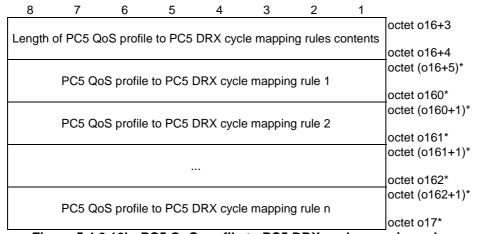


Figure 5.4.2.10b: PC5 QoS profile to PC5 DRX cycle mapping rules

Table 5.4.2.10b: PC5 QoS profile to PC5 DRX cycle mapping rules

PC5 QoS profile to PC5 DRX cycle mapping rule:

The PC5 QoS profile to PC5 DRX cycle mapping rule field is coded according to figure 5.4.2.10c and table 5.4.2.10c.

8	7	6	5	4	3	2	1						
Length	of PC5 C	os profi	le to PC5	DRX cv	cle mappi	na rule c	ontents	octet o160+1					
Longar	octet o160+2												
	DOS Oos profile												
	PC5 QoS profile												
			PC5 DF	RX cycle				octet o1600+1=o161					

Figure 5.4.2.10c: PC5 QoS profile to PC5 DRX cycle mapping rule

#### Table 5.4.2.10c: PC5 QoS profile to PC5 DRX cycle mapping rule

PC5 QoS profile:

The PC5 QoS profile field is coded according to figure 5.4.2.33 and table 5.4.2.33.

PC5 DRX cycle:

The PC5 DRX cycle field is coded as *sl-DRX-GC-BC-Cycle-r17* in clause 6.3.5 of 3GPP TS 38.331 [7].

If the length of PC5 QoS profile to PC5 DRX cycle mapping rule contents field indicates a length bigger than indicated in figure 5.4.2.10b, receiving entity shall ignore any superfluous octets located at the end of the PC5 QoS profile to PC5 DRX cycle mapping rule contents.

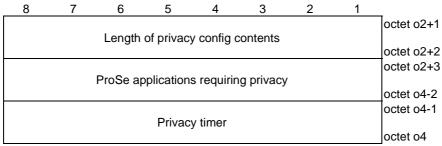


Figure 5.4.2.11: Privacy config

#### Table 5.4.2.11: Privacy config

ProSe applications requiring privacy (octet o2+3 to o4-2):

The ProSe applications requiring privacy field is coded according to figure 5.4.2.12 and table 5.4.2.12.

Privacy timer (octet o4-1, octet o4):

The privacy timer field contains binary encoded duration, in units of seconds, after which the UE shall change the source layer-2 ID self-assigned by the UE while performing transmission of 5G ProSe direct communication when privacy is required.

If the length of privacy config contents field is bigger than indicated in figure 5.4.2.11, receiving entity shall ignore any superfluous octets located at the end of the privacy config contents.

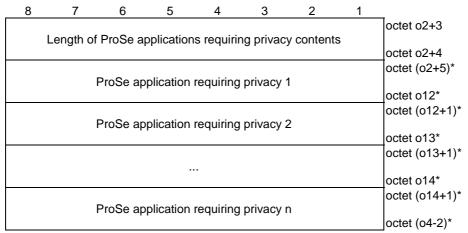


Figure 5.4.2.12: ProSe applications requiring privacy

Table 5.4.2.12: ProSe applications requiring privacy

ProSe application requiring privacy: The ProSe application requiring privacy field is coded according to figure 5.4.2.13 and table 5.4.2.13.

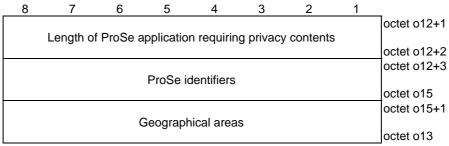


Figure 5.4.2.13: ProSe application requiring privacy

#### Table 5.4.2.13: ProSe application requiring privacy

ProSe identifiers (octet o12+3 to o15):

The ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

Geographical areas (octet o15+1 to o13):

The geographical areas field is coded according to figure 5.4.2.15 and table 5.4.2.15.

If the length of ProSe applications requiring privacy contents field is bigger than indicated in figure 5.4.2.13, receiving entity shall ignore any superfluous octets located at the end of the ProSe applications requiring privacy contents.

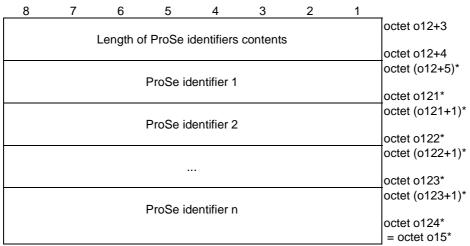


Figure 5.4.2.14: ProSe identifiers

Table 5.4.2.14: ProSe identifiers

# ProSe identifier: The ProSe identifier field contains a sequence of a sixteen octet OS Id field, a one octet OS App Id length field, and an OS App Id field. The OS Id field shall be transmitted first. The OS Id field contains a Universally Unique IDentifier (UUID) as specified in IETF RFC 4122 [12]. NOTE: Further definition of the format of OS App ID is beyond the scope of this specification.

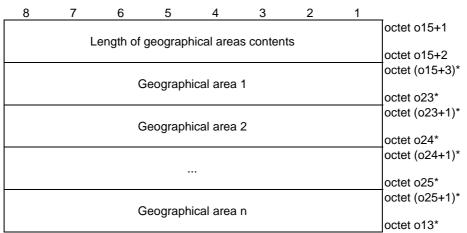


Figure 5.4.2.15: Geographical areas

Table 5.4.2.15: Geographical areas

#### Geographical area:

The geographical area field is coded according to figure 5.4.2.8 and table 5.4.2.8.

8	7	6	5	4	3	2	1				
	octet o4+1										
Len	Length of 5G ProSe direct communication in NR-PC5 contents										
0	0 PINFM 0 0 0 0 0 0										
Spare	RI	Spare	Spare	Spare	Spare	Spare	Spare				
	ProSe identifier to ProSe NR frequency mapping rules										
								octet o45*			
ProSe i	dentifier t	to destina	ition lave	r-2 ID for	broadca	st mappii	na rules	(see NOTE)			
	doriumor i	io docume	illorr layo	. 2 . 2 . 0.	Dioddod	ot mappi	ig raice	(66611612)			
								octet o46			
		_						octet o46+1			
		Gr	oupcast	paramete	ers			octet o47			
								octet 047			
ProSe	identifier	to destin	ation lay	er-2 ID fo	r unicast	initial sig	nalling	00101 0 17 1 1			
	ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rules										
_								octet o48+1			
	ProSe ide	entifier to	PC5 QoS	s parame	ters map	ping rule:	S	octet o49			
								octet 049			
			AS confi	iguration				00101 0 10 1 1			
				0				octet o50			
								octet (o50+1) =			
		NR-PC	5 unicast	security	policies			octet o93			
								octet o84			
ProSe	octet (o84+1)										
	octet o85 =										
	octet I										

Figure 5.4.2.16: 5G ProSe direct communication over PC5 in NR-PC5

#### Table 5.4.2.16: 5G ProSe direct communication over PC5 in NR-PC5

ProSe identifier to ProSe NR frequency mapping rules indicator (PINFMRI) (octet o4+3 bit 7):

The PINFMRI bit indicates presence of the ProSe identifier to ProSe NR frequency mapping rules field.

Bit

7

- 0 ProSe identifier to ProSe NR frequency mapping rules field is absent
- 1 ProSe identifier to ProSe NR frequency mapping rules field is present

ProSe identifier to ProSe NR frequency mapping rules (octet o4+4 to o45): The ProSe identifier to ProSe NR frequency mapping rules field is coded according to figure 5.4.2.17 and table 5.4.2.17.

ProSe identifier to destination layer-2 ID for broadcast mapping rules (octet o108 to o46):

The ProSe identifier to destination layer-2 ID for broadcast mapping rules field is coded according to figure 5.4.2.22 and table 5.4.2.22.

Groupcast parameters (octet o46+1 to o47):

The groupcast parameters field is coded according to figure 5.4.2.24 and table 5.4.2.24.

ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rules (octet o47+1 to o48):

The ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rules field is coded according to figure 5.4.2.26 and table 5.4.2.26.

ProSe identifier to PC5 QoS parameters mapping rules (octet o48+1 to o49): The ProSe identifier to PC5 QoS parameters mapping rules field is coded according to figure 5.4.2.28 and table 5.4.2.28.

AS configuration (octet o49+1 to o50):

The AS configuration field is coded according to figure 5.4.2.30 and table 5.4.2.30.

NR-PC5 unicast security policies (octet o93 to o84):

The NR-PC5 unicast security policies field is coded according to figure 5.4.2.34 and table 5.4.2.34.

ProSe identifier to default mode of communication mapping rules (o84+1 to I): The ProSe identifier to default mode of communication mapping rules is coded according to figure 5.4.2.37 and table 5.4.2.37.

If the length of 5G ProSe direct communication over PC5 in NR-PC5 contents field is bigger than indicated in figure 5.4.2.16, receiving entity shall ignore any superfluous octets located at the end of the 5G ProSe direct communication over PC5 in NR-PC5 contents.

8	7	6	5	4	3	2	1	
			_					octet o4+4
Le	ength of Pro	Se identif		Se NR fr tents	equency	mapping	rules	octet o4+5
			COIT	lenis				octet (04+6)*
	ProSe id	entifier to	ProSe N	R freque	ncy mapp	ing rule	1	
								octet o51*
	DroCo id	antifiar ta	DroCo M	D from to		ina mula	2	octet (o51+1)*
	P105e 10	entifier to	Piose N	Rifeque	псу тарр	ing rule	_	octet o52*
								octet (o52+1)*
								_octet o53*
	ProSe id	entifier to	ProSe N	R freque	ncv mann	ina rule	n	octet (o53+1)*
		J	00014	oquo	no, mapp	g raio		octet o45*

Figure 5.4.2.17: ProSe identifier to ProSe NR frequency mapping rules

#### Table 5.4.2.17: ProSe identifier to ProSe NR frequency mapping rules

ProSe identifier to ProSe NR frequency mapping rule:
The ProSe identifier to ProSe NR frequency mapping rule is coded according to figure 5.4.2.18 and table 5.4.2.18.

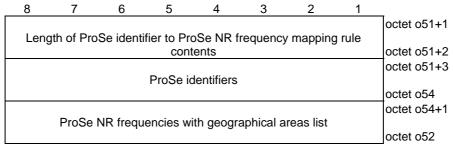


Figure 5.4.2.18: ProSe identifier to ProSe NR frequency mapping rule

#### Table 5.4.2.18: ProSe identifier to ProSe NR frequency mapping rule

ProSe identifiers (octet o51+3 to o54):

The ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

ProSe NR frequencies with geographical areas list (octet o54+1 to o52): The ProSe NR frequencies with geographical areas list field is coded according to figure 5.4.2.19 and table 5.4.2.19.

If the length of ProSe identifier to ProSe NR frequency mapping rule contents field is bigger than indicated in figure 5.4.2.18, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to ProSe NR frequency mapping rule contents.

8	7	6	5	4	3	2	1	
								octet o54+1
Length	of ProSe	NR frequ	iencies w	ith geog	raphical ai	eas list	contents	octet o54+2
								octet (o54+3)*
	ProSe N	R freque	ncies with	n geogra	phical area	as info 1		==+
								octet o55*
	ProSe N	R freaue	ncies with	n aeoara	phical area	as info 2	2	octet (o55+1)*
								octet o56*
								octet (o56+1)*
				•				octet o57*
								octet (o57+1)*
	ProSe N	R freque	ncies with	n geogra	phical area	as info n	1	
								octet o52*

Figure 5.4.2.19: ProSe NR frequencies with geographical areas list

#### Table 5.4.2.19: ProSe NR frequencies with geographical areas list

ProSe NR frequencies with geographical areas info: The ProSe NR frequencies with geographical areas info field is coded according to figure 5.4.2.20 and table 5.4.2.20.

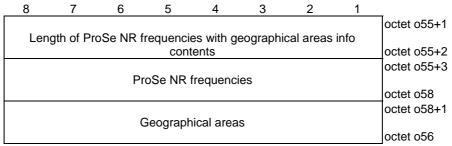


Figure 5.4.2.20: ProSe NR frequencies with geographical areas info

#### Table 5.4.2.20: ProSe NR frequencies with geographical areas info

ProSe NR frequencies (octet o55+3 to o58):

The ProSe NR frequencies field is coded according to figure 5.4.2.21 and table 5.4.2.21.

Geographical areas (octet o58+1 to o56):

The geographical areas field is coded according to figure 5.4.2.15 and table 5.4.2.15.

If the length of ProSe NR frequencies with geographical areas info contents field is bigger than indicated in figure 5.4.2.20, receiving entity shall ignore any superfluous octets located at the end of the ProSe NR frequencies with geographical areas info contents.

8	7	6	5	4	3	2	1				
				_	_			octet o55+3			
	Length of ProSe NR frequencies contents										
								octet o55+4			
		D	oeo ND	fraguana	v. 1			octet (o55+5)*			
		FI	oSe NR	rrequeric	уі			octet (o55+7)*			
								octet (055+8)*			
		Pı	oSe NR	freauenc	v 2			00101 (00010)			
					,			octet (o55+10)*			
								octet (o55+11)*			
								octet (o55+4+(n-			
								1)*3)*			
								octet (o55+5+(n-			
		Pı	oSe NR	frequenc	y n			1)*3)*			
								octet			
								(o55+4+n*3)* =			
								octet o58*			

Figure 5.4.2.21: ProSe NR frequencies

Table 5.4.2.21: ProSe NR frequencies

ProSe NR frequency:
ProSe NR frequency is coded according to the NR-ARFCN value defined in
3GPP TS 38.101-1 [8] and 3GPP TS 38.101-2 [9].

8	7	6	5	4	3	2	1	
							_	octet o108
Leng	octet o108+1							
		1116	ipping ru	les conte	IIS			octet (0108+2)*
ProSe id	dentifier t	o destina	tion laye	r-2 ID for	broadca	st mappir	ng rule 1	
								octet o59*
ProSe id	dentifier t	o destina	tion lave	r-2 ID for	broadca	st mappir	na rule 2	octet (o59+1)*
						ота <b>р</b> р	.9	octet o60*
								octet (o60+1)*
								octet o61*
								octet (o61+1)*
ProSe id	dentifier t	o destina	tion laye	r-2 ID for	broadca	st mappir	ng rule n	
								octet o46*

Figure 5.4.2.22: ProSe identifier to destination layer-2 ID for broadcast mapping rules

#### Table 5.4.2.22: ProSe identifier to destination layer-2 ID for broadcast mapping rules

ProSe identifier to destination layer-2 ID for broadcast mapping rule: The ProSe identifier to destination layer-2 ID for broadcast mapping rule field is coded according to figure 5.4.2.23 and table 5.4.2.23.

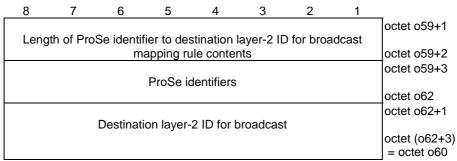


Figure 5.4.2.23: ProSe identifier to destination layer-2 ID for broadcast mapping rule

#### Table 5.4.2.23: ProSe identifier to destination layer-2 ID for broadcast mapping rule

ProSe identifiers (octet o59+3 to o62):

The ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

Destination laver-2 ID for broadcast (octet o62+1 to o60):

The destination layer-2 ID for broadcast field is a binary coded layer-2 identifier.

If the length of ProSe identifier to destination layer-2 ID for broadcast mapping rule contents field is bigger than indicated in figure 5.4.2.23, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to destination layer-2 ID for broadcast mapping rule contents.

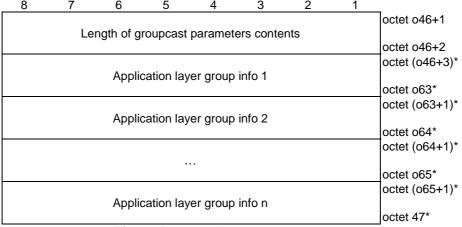


Figure 5.4.2.24: Groupcast parameters

Table 5.4.2.24: Groupcast parameters

Application layer group info:

The application layer group info field is coded according to figure 5.4.2.25 and table 5.4.2.25.

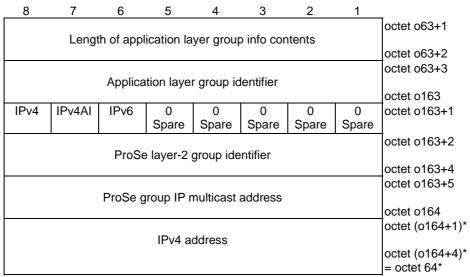


Figure 5.4.2.25: Application layer group info

#### Table 5.4.2.25: Application layer group info

```
Application layer group identifier (octet o63+3 to o163):
The first octet of application layer group identifier field is the length of application group
identifier. The value of application group identifier field is a bit string. The format of
application group identifier parameter is out of scope of this specification.
IPv4 (octet o163+1 bit 8):
Bit
8
0 IPv4 is not authorized
  IPv4 is authorized
IPv4 address indicator (IPv4AI) (octet o163+1 bit 7):
Bit
   IPv4 address is absent
   IPv4 address is present
IPv6 (octet o163+1 bit 6):
Bit
6
   IPv6 is not authorized
0
   IPv6 is authorized
ProSe layer-2 group identifier (octet o163+2 to o163+4):
The ProSe layer-2 group identifier field is a binary coded layer-2 identifier.
ProSe group IP multicast address (octet o163+5 to o164):
The ProSe group IP multicast address field contains the IP multicast address for the
group. If IPv4 field is set to "IPv4 is authorized" and IPv6 field is set to "IPv6 is not
authorized", the ProSe group IP multicast address contains an IPv4 address. If IPv6
field is set to "IPv6 is authorized" and IPv4 field is set to "IPv4 is not authorized", the
ProSe group IP multicast address contains an IPv6 address. If IPv4 field is set to "IPv4
is authorized" and IPv6 field is set to "IPv6 is authorized", the ProSe group IP multicast
address contains an IPv4 address followed by an IPv6 address
IPv4 address (octet o164+1 to o164+4):
The IPv4 address field contains an IPv4 address as the source address for a specific
group configured to operate using IPv4.
```

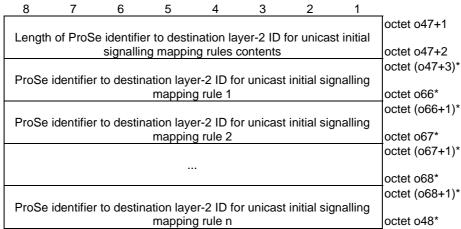


Figure 5.4.2.26: ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rules

#### Table 5.4.2.26: ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rules

ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rule: The ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rule field is coded according to figure 5.4.2.27 and table 5.4.2.27.

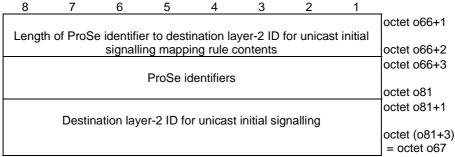


Figure 5.4.2.27: ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rule

#### Table 5.4.2.27: ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rule

ProSe identifiers (octet o66+3 to o81):

The ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

Destination layer-2 ID for unicast initial signalling (octet o81+1 to o67):

The destination layer-2 ID for unicast initial signalling field is a binary coded layer-2 identifier.

If the length of ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rule contents field is bigger than indicated in figure 5.4.2.27, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to destination layer-2 ID for unicast initial signalling mapping rule contents.

8	7	6	5	4	3	2	1	
								octet o48+1
Lengt	h of Pros	Se identifie		-	rameters	mapping	g rules	t - t - 10 · 0
			cont	ents				_octet o48+2 octet (o48+3)*
	roSe ide	ntifier to F	PC5 QoS	S parame	ters mapp	ina rule	1	00000 (040+3)
	1000 100		00 000	paramo	toro mapp	ing raio	•	octet o70*
								octet (o70+1)*
F	ProSe ide	ntifier to F	PC5 QoS	parame	ters mapp	ing rule	2	
								octet o71*
								octet (o71+1)*
								octet o72*
								octet (o72+1)*
F	roSe ide	ntifier to F	PC5 QoS	s parame	ters mapp	ing rule	n	
				-				octet o49*

Figure 5.4.2.28: ProSe identifier to PC5 QoS parameters mapping rules

Table 5.4.2.28: ProSe identifier to PC5 QoS parameters mapping rules

ProSe identifier to PC5 QoS parameters mapping rule: The ProSe identifier to PC5 QoS parameters mapping rule field is coded according to figure 5.4.2.29 and table 5.4.2.29.

8	7	6	5	4	3	2	1					
	Long the of Don Co. identificants DOF Co. c											
Leng	Length of ProSe identifier to PC5 QoS parameters mapping rule contents											
			0011	101110				octet o70+2 octet o70+3				
	ProSe identifiers											
OFDDI	OFFICIAL PLANTS BY A STATE OF THE STATE OF T											
GFBRI	MFBRI	PLAMB RI	RI	0 Spare	0 Spare	0 Spare	0 Spare	octet o74+1				
	PQI											
		0		l <b>4</b> 1 l- !4 .				octet (o74+3)*				
		Gua	iranteed	I flow bit r	ate			octet (o74+5)*				
								octet o94* (see				
		Ma	ximum	flow bit ra	ite			NOTE)				
								octet (o94+2)*				
								octet o95* (see				
	F	Per-link a	ggregate	e maximu	m bit rate	)		NOTE)				
	Range											
								octet (o96+1)* =				
								octet o71*				

NOTE: The field is placed immediately after the last present preceding field.

Figure 5.4.2.29: ProSe identifier to PC5 QoS parameters mapping rule

Table 5.4.2.29: ProSe identifier to PC5 QoS parameters mapping rule

ProSe identifiers (octet o70+3 to o74):

The ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

Guaranteed flow bit rate indicator (GFBRI) (octet o74+1 bit 8):

The GFBRI bit indicates presence of guaranteed flow bit rate field.

Bit

8

- 0 Guaranteed flow bit rate field is absent
- 1 Guaranteed flow bit rate field is present

Maximum flow bit rate indicator (MFBRI) (octet o74+1 bit 7):

The MFBRI bit indicates presence of maximum flow bit rate field.

Bit

7

- 0 Maximum flow bit rate field is absent
- 1 Maximum flow bit rate field is present

Per-link aggregate maximum bit rate indicator (PLAMBRI) (octet o74+1 bit 6):

The PLAMBRI bit indicates presence of per-link aggregate maximum bit rate field. Bit

6

- Per-link aggregate maximum bit rate field is absent
- 1 Per-link aggregate maximum bit rate field is present

Range indicator (RI) (octet o74+1 bit 5):

The RI bit indicates presence of range field.

Bit

5

- 0 Range field is absent
- 1 Range field is present

```
PQI (octet o74+2):
Bits
87654321
00000000
            Reserved
00000001
  to Spare
00010100
00010101
            PQI 21
00010110
            PQI 22
00010111
            PQI 23
00011000
            PQI 24
00011001
            PQI 25
00011010
            PQI 26
00011011
  to Spare
00110110
00110111
            PQI 55
00111000
            PQI 56
00111001
            PQI 57
00111010
            PQI 58
00111011
            PQI 59
00111100
            PQI 60
00111101
            PQI 61
00111110
 to Spare
01011001
01011010
            PQI 90
01011011
            PQI 91
01011100
            PQI 92
01011101
            PQI 93
01011110
  to Spare
01111111
10000000
  to Operator-specific PQIs
11111110
11111111
            Reserved
```

If the UE receives a PQI value (excluding the reserved PQI values) that it does not understand, the UE shall choose a PQI value from the set of PQI values defined in this version of the protocol (see 3GPP TS 23.304 [2]) and associated with:

- GBR resource type, if the ProSe identifier to PC5 QoS parameters mapping rule includes the guaranteed flow bit rate field; and
- non-GBR resource type, if the ProSe identifier to PC5 QoS parameters mapping rule does not include the guaranteed flow bit rate field.

The UE shall use this chosen PQI value for internal operations only. The UE shall use the received PQI value in subsequent 5G ProSe direct communication over PC5 signalling procedures.

Guaranteed flow bit rate (octet o74+3 to o74+5):

The guaranteed flow bit rate field indicates guaranteed flow bit rate for both sending and receiving and contains one octet indicating the unit of the guaranteed flow bit rate followed by two octets containing the value of the guaranteed flow bit rate.

Unit of the guaranteed flow bit rate:

```
Bits
87654321
00000000
               value is not used
00000001
                value is incremented in multiples of 1 Kbps
00000010
                value is incremented in multiples of 4 Kbps
00000011
                value is incremented in multiples of 16 Kbps
00000100
                value is incremented in multiples of 64 Kbps
00000101
                value is incremented in multiples of 256 Kbps
                value is incremented in multiples of 1 Mbps
00000110
                value is incremented in multiples of 4 Mbps
00000111
00001000
                value is incremented in multiples of 16 Mbps
                value is incremented in multiples of 64 Mbps
00001001
                value is incremented in multiples of 256 Mbps
00001010
                value is incremented in multiples of 1 Gbps
00001011
00001100
                value is incremented in multiples of 4 Gbps
00001101
                value is incremented in multiples of 16 Gbps
00001110
                value is incremented in multiples of 64 Gbps
00001111
                value is incremented in multiples of 256 Gbps
00010000
                value is incremented in multiples of 1 Tbps
00010001
                value is incremented in multiples of 4 Tbps
00010010
                value is incremented in multiples of 16 Tbps
00010011
                value is incremented in multiples of 64 Tbps
00010100
                value is incremented in multiples of 256 Tbps
00010101
                value is incremented in multiples of 1 Pbps
00010110
                value is incremented in multiples of 4 Pbps
00010111
                value is incremented in multiples of 16 Pbps
00011000
                value is incremented in multiples of 64 Pbps
                value is incremented in multiples of 256 Pbps
00011001
Other values shall be interpreted as multiples of 256 Pbps in this version of the
protocol.
```

Value of the guaranteed flow bit rate is binary coded value of the guaranteed flow bit rate in units defined by the unit of the guaranteed flow bit rate.

Maximum flow bit rate (octet o94 to o94+2):

The maximum flow bit rate field indicates maximum flow bit rate for both sending and receiving and contains one octet indicating the unit of the maximum flow bit rate followed by two octets containing the value of the maximum flow bit rate.

Unit of the maximum flow bit rate:

```
Bits
87654321
00000000
               value is not used
00000001
                value is incremented in multiples of 1 Kbps
00000010
                value is incremented in multiples of 4 Kbps
00000011
                value is incremented in multiples of 16 Kbps
00000100
                value is incremented in multiples of 64 Kbps
00000101
                value is incremented in multiples of 256 Kbps
                value is incremented in multiples of 1 Mbps
00000110
                value is incremented in multiples of 4 Mbps
00000111
00001000
                value is incremented in multiples of 16 Mbps
                value is incremented in multiples of 64 Mbps
00001001
                value is incremented in multiples of 256 Mbps
00001010
                value is incremented in multiples of 1 Gbps
00001011
00001100
                value is incremented in multiples of 4 Gbps
00001101
                value is incremented in multiples of 16 Gbps
00001110
                value is incremented in multiples of 64 Gbps
00001111
                value is incremented in multiples of 256 Gbps
00010000
                value is incremented in multiples of 1 Tbps
00010001
                value is incremented in multiples of 4 Tbps
00010010
                value is incremented in multiples of 16 Tbps
00010011
                value is incremented in multiples of 64 Tbps
00010100
                value is incremented in multiples of 256 Tbps
00010101
                value is incremented in multiples of 1 Pbps
00010110
                value is incremented in multiples of 4 Pbps
00010111
                value is incremented in multiples of 16 Pbps
00011000
                value is incremented in multiples of 64 Pbps
                value is incremented in multiples of 256 Pbps
00011001
Other values shall be interpreted as multiples of 256 Pbps in this version of the
protocol.
```

Value of the maximum flow bit rate is binary coded value of the maximum flow bit rate in units defined by the unit of the maximum flow bit rate.

Per-link aggregate maximum bit rate (octet o95 to o95+2):

The per-link aggregate maximum bit rate field indicates per-link aggregate maximum bit rate for both sending and receiving and contains one octet indicating the unit of the per-link aggregate maximum bit rate followed by two octets containing the value of the per-link aggregate maximum bit rate.

Unit of the per-link aggregate maximum bit rate:

```
87654321
00000000
               value is not used
00000001
                value is incremented in multiples of 1 Kbps
00000010
               value is incremented in multiples of 4 Kbps
00000011
               value is incremented in multiples of 16 Kbps
00000100
                value is incremented in multiples of 64 Kbps
                value is incremented in multiples of 256 Kbps
00000101
                value is incremented in multiples of 1 Mbps
00000110
00000111
                value is incremented in multiples of 4 Mbps
00001000
                value is incremented in multiples of 16 Mbps
                value is incremented in multiples of 64 Mbps
00001001
                value is incremented in multiples of 256 Mbps
00001010
00001011
                value is incremented in multiples of 1 Gbps
               value is incremented in multiples of 4 Gbps
00001100
00001101
                value is incremented in multiples of 16 Gbps
00001110
                value is incremented in multiples of 64 Gbps
00001111
                value is incremented in multiples of 256 Gbps
00010000
               value is incremented in multiples of 1 Tbps
00010001
                value is incremented in multiples of 4 Tbps
00010010
                value is incremented in multiples of 16 Tbps
00010011
                value is incremented in multiples of 64 Tbps
00010100
                value is incremented in multiples of 256 Tbps
00010101
                value is incremented in multiples of 1 Pbps
00010110
               value is incremented in multiples of 4 Pbps
00010111
                value is incremented in multiples of 16 Pbps
                value is incremented in multiples of 64 Pbps
```

Other values shall be interpreted as multiples of 256 Pbps in this version of the protocol.

value is incremented in multiples of 256 Pbps

Value of the per-link aggregate maximum bit rate is binary coded value of the per-link aggregate maximum bit rate in units defined by the unit of the per-link aggregate maximum bit rate.

Range (octet o96 to o71):

00011000

The range field indicates a binary encoded value of the range in meters.

If the length of ProSe identifier to PC5 QoS parameters mapping rule contents field is bigger than indicated in figure 5.4.2.28, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to PC5 QoS parameters mapping rule contents.

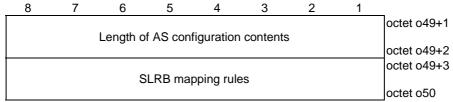


Figure 5.4.2.30: AS configuration

#### Table 5.4.2.30: AS configuration

SLRB mapping rules: The SLRB mapping rules field is coded according to figure 5.4.2.31 and table 5.4.2.31.

8	7	6	5	4	3	2	1				
								octet o49+3			
	Length of SLRB mapping rules contents										
								octet o49+4			
								octet (o49+5)*			
		S	LRB map	ping rule	e 1						
								octet o75*			
								octet (o75+1)*			
		S	LRB map	ping rule	2						
								octet o76*			
								octet (o76+1)*			
								octet o77*			
								octet (o77+1)*			
		S	LRB map	ping rule	n			, ,			
			- 1	. 5				octet o50*			

Figure 5.4.2.31: SLRB mapping rules

Table 5.4.2.31: SLRB mapping rules

SLRB mapping rule:
The SLRB mapping rule field is coded according to figure 5.4.2.32 and table 5.4.2.32.

8	7	6	5	4	3	2	1	
								octet o75+1
	L	ength of	SLRB ma	apping ru	ile conten	ts		
								octet o75+2
								octet o75+3
			PC5 Qo	S profile				
								octet o78
			Length	of SLRB				octet o78+1
								octet o78+2
								octet o78+3
			SL	.RB				
								octet o76

Figure 5.4.2.32: SLRB mapping rule

#### Table 5.4.2.32: SLRB mapping rule

PC5 QoS profile octet (o75+3 to o78):

The PC5 QoS profile field is coded according to figure 5.4.2.33 and table 5.4.2.33.

SLRB (078+3 to 076):

SLRB is defined as *SL-PreconfigurationNR* in clause 9.3 of 3GPP TS 38.331 [7].

If the length of SLRB mapping rule contents field is bigger than indicated in figure 5.4.2.32, receiving entity shall ignore any superfluous octets located at the end of the SLRB mapping rule contents.

8	7	6	5	4	3	2	1					
	Length of PC5 QoS profile contents											
	octet o75+4											
GFBRI												
	RI Spare											
	PQI											
	octet (o75+7)*											
	Guaranteed flow bit rate											
								octet (o75+9)* octet o97* (see				
	Maximum flow bit rate											
								octet (o97+2)*				
								octet o98* (see				
	I	Per-link a	ggregate	maximu	m bit rate	9		NOTE)				
								octet (o98+2)*				
								octet o99* (see				
			Rar	nge				NOTE)				
								octet (o99+1)*				
0	0	0	0	0	Р	riority lev	el	octet o100*				
Spare	Spare	Spare	Spare	Spare				(see NOTE) octet o101*				
	(see NOTE)											
	octet (o101+1)* octet o102*											
	(see NOTE)											
								octet (o102+1)*				
								= octet o78*				

NOTE: The field is placed immediately after the last present preceding field.

Figure 5.4.2.33:PC5 QoS profile

Table 5.4.2.33:PC5 QoS profile

Guaranteed flow bit rate indicator (GFBRI) (o75+5 bit 8): The GFBRI bit indicates presence of guaranteed flow bit rate field. Bit 8 Guaranteed flow bit rate field is absent Guaranteed flow bit rate field is present Maximum flow bit rate indicator (MFBRI) (o75+5 bit 7): The MFBRI bit indicates presence of maximum flow bit rate field. Bit 0 Maximum flow bit rate field is absent Maximum flow bit rate field is present Per-link aggregate maximum bit rate indicator (PLAMBRI) (o75+5 bit 6): The PLAMBRI bit indicates presence of per-link aggregate maximum bit rate field. Bit Per-link aggregate maximum bit rate field is absent 0 Per-link aggregate maximum bit rate field is present Range indicator (RI) (o75+5 bit 5): The RI bit indicates presence of range field. Bit 0 Range field is absent Range field is present Priority level octet indicator (OPLI) (o75+5 bit 4): The OPLI bit indicates presence of the octet of the priority level field. Bit O The octet of the priority level is absent The octet of the priority level is present Averaging window indicator (AWI) (o75+5 bit 3): The AWI bit indicates presence of averaging window field. Bit 0 Averaging window field is absent Averaging window field is present Maximum data burst volume indicator (MDBVI) (o75+5 bit 2): The MDBVI bit indicates presence of maximum data burst volume field. Bit 2 Maximum data burst volume field is absent

Maximum data burst volume field is present

```
PQI (o75+6):
Bits
87654321
0000000
            Reserved
00000001
  to
       Spare
00010100
00010101
            PQI 21
00010110
           PQI 22
00010111
           PQI 23
00011000
            PQI 24
00011001
            PQI 25
00011010
           PQI 26
00011011
 to
       Spare
00110110
00110111
            PQI 55
00111000
            PQI 56
00111001
            PQI 57
00111010
            PQI 58
00111011
            PQI 59
00111100
           PQI 60
00111101
            PQI 61
00111110
      Spare
 to
01011001
01011010
            PQI 90
01011011
            PQI 91
01011100
           PQI 92
01011101
            PQI 93
01011110
  to
       Spare
01111111
10000000
      Operator-specific PQIs
 to
1111110
11111111
            Reserved
```

If the UE receives a PQI value (excluding the reserved PQI values) that it does not understand, the UE shall choose a PQI value from the set of PQI values defined in this version of the protocol (see 3GPP TS 23.304 [2]) and associated with:

- GBR resource type, if the PC5 QoS profile includes the guaranteed flow bit rate field; and
- non-GBR resource type, if the PC5 QoS profile does not include the guaranteed flow bit rate field.

The UE shall use this chosen PQI value for internal operations only. The UE shall use the received PQI value in subsequent 5G ProSe direct communication over PC5 signalling procedures.

Guaranteed flow bit rate octet (o75+7 to o75+9):

The guaranteed flow bit rate field indicates guaranteed flow bit rate for both sending and receiving and contains one octet indicating the unit of the guaranteed flow bit rate followed by two octets containing the value of the guaranteed flow bit rate.

Unit of the guaranteed flow bit rate:

```
Bits
87654321
00000000
               value is not used
00000001
                value is incremented in multiples of 1 Kbps
00000010
                value is incremented in multiples of 4 Kbps
00000011
                value is incremented in multiples of 16 Kbps
00000100
                value is incremented in multiples of 64 Kbps
                value is incremented in multiples of 256 Kbps
00000101
                value is incremented in multiples of 1 Mbps
00000110
                value is incremented in multiples of 4 Mbps
00000111
00001000
                value is incremented in multiples of 16 Mbps
                value is incremented in multiples of 64 Mbps
00001001
                value is incremented in multiples of 256 Mbps
00001010
                value is incremented in multiples of 1 Gbps
00001011
00001100
                value is incremented in multiples of 4 Gbps
00001101
                value is incremented in multiples of 16 Gbps
00001110
                value is incremented in multiples of 64 Gbps
00001111
                value is incremented in multiples of 256 Gbps
00010000
                value is incremented in multiples of 1 Tbps
00010001
                value is incremented in multiples of 4 Tbps
00010010
                value is incremented in multiples of 16 Tbps
00010011
                value is incremented in multiples of 64 Tbps
00010100
                value is incremented in multiples of 256 Tbps
00010101
                value is incremented in multiples of 1 Pbps
00010110
                value is incremented in multiples of 4 Pbps
00010111
                value is incremented in multiples of 16 Pbps
00011000
                value is incremented in multiples of 64 Pbps
                value is incremented in multiples of 256 Pbps
00011001
Other values shall be interpreted as multiples of 256 Pbps in this version of the
protocol.
```

Value of the guaranteed flow bit rate is binary coded value of the guaranteed flow bit rate in units defined by the unit of the guaranteed flow bit rate.

Maximum flow bit rate (o97 to o97+2):

The maximum flow bit rate field indicates maximum flow bit rate for both sending and receiving and contains one octet indicating the unit of the maximum flow bit rate followed by two octets containing the value of the maximum flow bit rate.

Unit of the maximum flow bit rate:

```
Bits
87654321
00000000
               value is not used
00000001
                value is incremented in multiples of 1 Kbps
00000010
                value is incremented in multiples of 4 Kbps
00000011
                value is incremented in multiples of 16 Kbps
00000100
                value is incremented in multiples of 64 Kbps
00000101
                value is incremented in multiples of 256 Kbps
                value is incremented in multiples of 1 Mbps
00000110
                value is incremented in multiples of 4 Mbps
00000111
00001000
                value is incremented in multiples of 16 Mbps
                value is incremented in multiples of 64 Mbps
00001001
                value is incremented in multiples of 256 Mbps
00001010
00001011
                value is incremented in multiples of 1 Gbps
00001100
                value is incremented in multiples of 4 Gbps
                value is incremented in multiples of 16 Gbps
00001101
00001110
                value is incremented in multiples of 64 Gbps
00001111
                value is incremented in multiples of 256 Gbps
00010000
                value is incremented in multiples of 1 Tbps
00010001
                value is incremented in multiples of 4 Tbps
00010010
                value is incremented in multiples of 16 Tbps
00010011
                value is incremented in multiples of 64 Tbps
00010100
                value is incremented in multiples of 256 Tbps
00010101
                value is incremented in multiples of 1 Pbps
00010110
                value is incremented in multiples of 4 Pbps
00010111
                value is incremented in multiples of 16 Pbps
00011000
                value is incremented in multiples of 64 Pbps
                value is incremented in multiples of 256 Pbps
00011001
Other values shall be interpreted as multiples of 256 Pbps in this version of the
protocol.
```

Value of the maximum flow bit rate is binary coded value of the maximum flow bit rate in units defined by the unit of the maximum flow bit rate.

Per-link aggregate maximum bit rate (o98 to o98+2):

The per-link aggregate maximum bit rate field indicates per-link aggregate maximum bit rate for both sending and receiving and contains one octet indicating the unit of the per-link aggregate maximum bit rate followed by two octets containing the value of the per-link aggregate maximum bit rate.

Unit of the per-link aggregate maximum bit rate:

```
87654321
```

```
00000000
               value is not used
00000001
                value is incremented in multiples of 1 Kbps
               value is incremented in multiples of 4 Kbps
00000010
               value is incremented in multiples of 16 Kbps
00000011
                value is incremented in multiples of 64 Kbps
00000100
                value is incremented in multiples of 256 Kbps
00000101
                value is incremented in multiples of 1 Mbps
00000110
00000111
                value is incremented in multiples of 4 Mbps
00001000
                value is incremented in multiples of 16 Mbps
                value is incremented in multiples of 64 Mbps
00001001
               value is incremented in multiples of 256 Mbps
00001010
00001011
                value is incremented in multiples of 1 Gbps
00001100
               value is incremented in multiples of 4 Gbps
00001101
               value is incremented in multiples of 16 Gbps
00001110
                value is incremented in multiples of 64 Gbps
00001111
               value is incremented in multiples of 256 Gbps
00010000
               value is incremented in multiples of 1 Tbps
00010001
                value is incremented in multiples of 4 Tbps
00010010
               value is incremented in multiples of 16 Tbps
00010011
                value is incremented in multiples of 64 Tbps
00010100
                value is incremented in multiples of 256 Tbps
00010101
                value is incremented in multiples of 1 Pbps
00010110
               value is incremented in multiples of 4 Pbps
               value is incremented in multiples of 16 Pbps
00010111
```

Other values shall be interpreted as multiples of 256 Pbps in this version of the protocol.

value is incremented in multiples of 64 Pbps value is incremented in multiples of 256 Pbps

Value of the per-link aggregate maximum bit rate is binary coded value of the per-link aggregate maximum bit rate in units defined by the unit of the per-link aggregate maximum bit rate.

Range (o99 to o99+1):

00011000

00011001

The range field indicates a binary encoded value of the range in meters.

Priority level (octet o100 bit 1 to 3):

The priority level field contains a ProSe per-packet priority value.

## Bits

3 2 1

0 0 0 PPPP value 1

0 0 1 PPPP value 2

0 1 0 PPPP value 3 0 1 1 PPPP value 4

100 PPPP value 5

1 0 0 PPPP value 5 1 0 1 PPPP value 6

110 PPPP value 7

111 PPPP value 8

Averaging window (o101 to o101+1):

The averaging window field indicates a binary representation of the averaging window for both sending and receiving in milliseconds.

Maximum data burst volume (o102 to o78):

The maximum data burst volume field indicates a binary representation of the maximum data burst volume for both sending and receiving in octets.

If the length of PC5 QoS profile contents field is bigger than indicated in figure 5.4.2.33, receiving entity shall ignore any superfluous octets located at the end of the PC5 QoS profile contents.

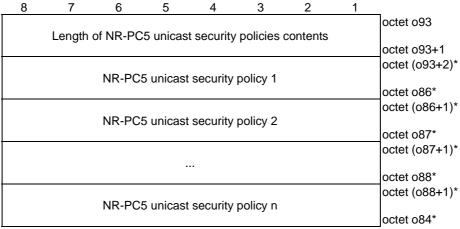


Figure 5.4.2.34: NR-PC5 unicast security policies

Table 5.4.2.34: NR-PC5 unicast security policies

NR-PC5 unicast security policy: The NR-PC5 unicast security policy field is coded according to figure 5.4.2.35 and table 5.4.2.35.

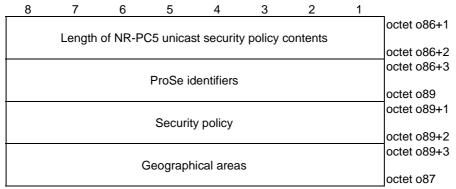


Figure 5.4.2.35: NR-PC5 unicast security policy

#### Table 5.4.2.35: NR-PC5 unicast security policy

ProSe identifiers (o86+3 to o89):

The ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

Security policy (o89+1 to o89+2):

The security policy field is coded according to figure 5.4.2.36 and table 5.4.2.36.

Geographical areas (089+3 to 087):

The geographical areas field is coded according to figure 5.4.2.15 and table 5.4.2.15.

If the length of NR-PC5 unicast security policy contents field is bigger than indicated in figure 5.4.2.35, the receiving entity shall ignore any superfluous octets located at the end of the NR-PC5 unicast security policy contents.

8	7	6	5	4	3	2	1	
0	Signallin	g cipherir	ng policy	0	Sign	alling inte	grity	octet o89+1
spare				spare	prof	tection po	licy	
0	User p	olane ciph	nering	0	User	plane inte	grity	octet o89+2
spare		policy		spare	prof	tection po	licy	

Figure 5.4.2.36: Security policy

# Table 5.4.2.36: Security policy

```
Signalling integrity protection policy (octet o89+1 bit 1 to 3):
Bits
3 2
0 0
      0
              Signalling integrity protection not needed
0 0 1
              Signalling integrity protection preferred
              Signalling integrity protection required
0
   1
       0
0
   1
      1
   to Spare
1
   1
       0
   1
       1
              Reserved
If the UE receives a signalling integrity protection policy value that the UE does not
understand, the UE shall interpret the value as 010 "Signalling integrity protection
required".
```

Signalling ciphering policy (octet o89+1 bit 5 to 7):

```
Bits
7 6
0 0
     0
             Signalling ciphering not needed
0 0 1
             Signalling ciphering preferred
  1 0
             Signalling ciphering required
0
0
   1
   to Spare
1
      0
   1
```

Reserved

If the UE receives a signalling ciphering policy value that the UE does not understand, the UE shall interpret the value as 010 "Signalling ciphering required".

Bit 4 and 8 of octet o89+1 are spare and shall be coded as zero.

User plane integrity protection policy (octet o89+2 bit 1 to 3):

```
Bits
3 2
0
   0
      0
             User plane integrity protection not needed
             User plane integrity protection preferred
0
   0 1
      0
             User plane integrity protection required
0
   1
0
   1
      1
   to Spare
1
   1 0
             Reserved
```

1 1

1

If the UE receives a user plane integrity protection policy value that the UE does not understand, the UE shall interpret the value as 010 "User plane integrity protection required".

User plane ciphering policy (octet o89+2 bit 5 to 7):

```
Bits
7 6
0 0
     0
            User plane ciphering not needed
0
  0
            User plane ciphering preferred
     1
0
  1
      0
            User plane ciphering required
0
  1
      1
  to Spare
   1
      0
            Reserved
  1
```

If the UE receives a user plane ciphering policy value that the UE does not understand, the UE shall interpret the value as 010 "User plane ciphering required".

Bit 4 and 8 of octet o89+2 are spare and shall be coded as zero.

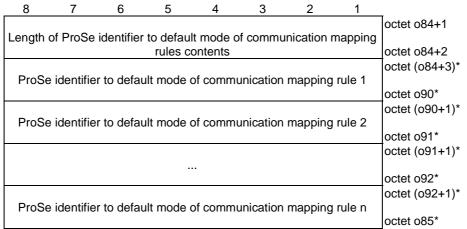


Figure 5.4.2.37: ProSe identifier to default mode of communication mapping rules

#### Table 5.4.2.37: ProSe identifier to default mode of communication mapping rules

ProSe identifier to default mode of communication mapping rule:
The ProSe identifier to default mode of communication mapping rule field is coded according to figure 5.4.2.38 and table 5.4.2.38.

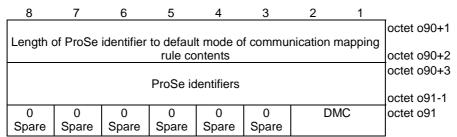


Figure 5.4.2.38: ProSe identifier to default mode of communication mapping rule

#### Table 5.4.2.38: ProSe identifier to default mode of communication mapping rule

ProSe identifiers (o90+3 to o91-1):

The ProSe application identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

Default mode of communication (DMC) (octet o91 bit 1 to 2):

The DMC field indicates the default mode of communication.

Bits

2 1

0 0 unicast

0 1 groupcast

1 0 broadcast

11 spare

If the DMC field is set to a spare value, the receiving entity shall ignore the ProSe application identifier to default mode of communication mapping rule.

If the length of ProSe identifier to default mode of communication mapping rule contents field is bigger than indicated in figure 5.4.2.37, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to default mode of communication mapping rule contents.

8	7	6	5	4	3	2	1	
								octet o5+1
Leng	th of Pro	Se appli			ference r	napping	rules	ootot oF L2
			COIT	enis				octet o5+2 octet (o5+3)*
	ProSe a	pplication	to path	preferenc	ce mappi	ng rule 1		00101 (0010)
		•	•	•				octet o150*
	Б. О			,				octet (o150+1)*
	ProSe a	pplication	to path	preteren	ce mappi	ng rule 2		octet o151*
								octet (o151+1)*
								octet o152*
	D== C====		. 441-		:			octet (o152+1)*
	Piose a	ppiicatior	i to path	preieren	зе таррі	ng rule n		octet I*
	Leng	Length of Pro ProSe a	Length of ProSe appli ProSe application ProSe application	Length of ProSe application to cont  ProSe application to path  ProSe application to path	Length of ProSe application to path precontents  ProSe application to path preference  ProSe application to path preference	Length of ProSe application to path preference recontents  ProSe application to path preference mapping ProSe application to path preference mapping	Length of ProSe application to path preference mapping contents  ProSe application to path preference mapping rule 1  ProSe application to path preference mapping rule 2	Length of ProSe application to path preference mapping rules contents  ProSe application to path preference mapping rule 1  ProSe application to path preference mapping rule 2

Figure 5.4.2.39: ProSe application to path preference mapping rules

#### Table 5.4.2.39: ProSe application to path preference mapping rules

ProSe application to path preference mapping rule (NOTE):
The ProSe application to path preference mapping rule field is coded according to figure 5.4.2.40 and table 5.4.2.40.

NOTE: The ProSe application to path preference mapping rule field is prioritized in decreasing order according to the local configuration of the network. The ProSe application to path preference mapping rule field with the service indication field set to value 1 "For all ProSe services", if present, should be the last one of the ProSe application to path preference mapping rules.

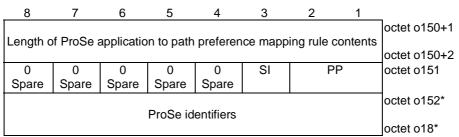


Figure 5.4.2.40: ProSe application to path preference mapping rule

#### Table 5.4.2.40: ProSe application to path preference mapping rule

ProSe identifiers (o152 to o18):

If the service indication field is set to value 1 "For all ProSe services", the ProSe identifiers field shall not be included in ProSe application to path preference mapping rule field.

If the service indication field is set to value 0 "Not for all ProSe services", the ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

Path preference (PP) (octet o151 bit 1 to 2):

The PP field indicates the path preference.

Bits

2 1

0 0 No preference

0 1 PC5 preferred

10 Uu preferred

11 spare

If the PP field is set to a spare value, the receiving entity shall interpret as "00".

Service indication (SI) (octet o151 bit 3):

The SI field indicates whether the path preference is for all ProSe services or not. Bits

3

- 1 For all ProSe services
- 0 Not for all ProSe services

If the length of ProSe application to path preference mapping rule contents field is bigger than indicated in figure 5.4.2.40, receiving entity shall ignore any superfluous octets located at the end of the ProSe application to path preference mapping rule contents.

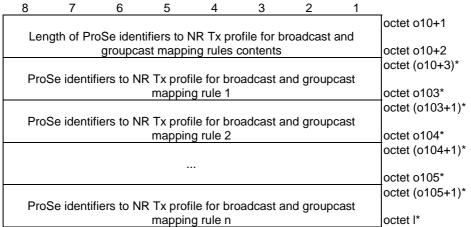


Figure 5.4.2.41: ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rules

#### Table 5.4.2.41: ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rules

ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rule: The ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rule field is coded according to figure 5.4.2.42 and table 5.4.2.42.

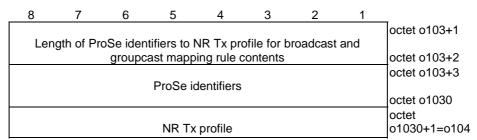


Figure 5.4.2.42: ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rule

#### Table 5.4.2.42: ProSe identifiers to NR Tx profile for broadcast and groupcast mapping rule

ProSe identifiers:
The ProSe identifiers field is coded according to figure 5.4.2.14 and table 5.4.2.14.

NR Tx profile:
The NR Tx profile field is coded as *SL-TxProfile-r17* in clause 9.3 of 3GPP TS 38.331 [7].

# 5.5 Encoding of UE policies for 5G ProSe UE-to-network relay UE

#### 5.5.1 General

The UE policies for 5G ProSe UE-to-network relay UE are coded as shown in figures 5.5.2.1 and table 5.5.2.1.

# 5.5.2 Information elements coding

8	7	6	5	4	3	2	1					
0	0 Spa	0 are	PAI		P info type ProSe UE- UE		octet k					
	Length of ProSeP info contents											
			\/_!:=!:4:4:					octet k+3				
			Validit	y timer				octet k+7				
								octet k+8				
		5	Served by	NG-RA	N							
								octet o1				
								octet o1+1				
		No	t served	by NG-R	RAN			0				
								octet o2 octet o2+1				
Default	destinatio	n laver-2	Ds for	sendina	the discov	erv signa	lling for	00161 02+1				
					on and for			octet o3				
		discove	ry signalli	ng for so	olicitation							
								octet o3+1				
		Use	er info ID	for disco	very			octet o3+6				
								octet o3+6				
			RSC i	nfo list				00161 00+1				
								octet o4				
								octet o4+1				
	5QI	to PC5 (	QoS para	meters r	mapping ru	ıles						
								octet o5				
ProSe	identifier	to ProSe	annlicat	ion serv	er address	manning	rules	octet o5+1				
1 1000	identifici	10 1 1000	σαρριίσαι	1011 301 4	or address	παρριπίζ	, raics	octet o6				
								octet (o6+1)*				
		5G PKN	/IF addres	ssing inf	ormation			,				
								octet I-2				
			Drivoo	v timor				octet I-1				
			Privac	y umer				octet I				

Figure 5.5.2.1: ProSeP Info = {UE policies for 5G ProSe UE-to-network relay UE}

Table 5.5.2.1: ProSeP Info = {UE policies for 5G ProSe UE-to-network relay UE}

ProSeP info type (bit 1 to 4 of octet k) shall be set to "0011" (UE policies for 5G ProSe UE-to-network relay UE)

PKMF address indication (PAI) (bit 5 of octet k)

The PAI indicates whether the 5G PKMF addressing information is included in the IE or not

Bit

5

0 5G PKMF addressing information is not included

1 5G PKMF addressing information is included

Length of ProSeP info contents (octets k+1 to k+2) indicates the length of ProSeP info contents.

Validity timer (octet k+3 to k+7):

The validity timer field provides the expiration time of validity of the UE policies for 5G ProSe UE-to-network relay UE. The validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).

Served by NG-RAN (octet k+8 to o1):

The served by NG-RAN field is coded according to figure 5.5.2.2 and table 5.5.2.2, and contains configuration parameters for 5G ProSe UE-to-network relay UE when the UE is served by NG-RAN.

Not served by NG-RAN (octet o1+1 to o2):

The not served by NG-RAN field is coded according to figure 5.5.2.5 and table 5.5.2.5, and contains configuration parameters for 5G ProSe UE-to-network relay discovery and communication when the UE is not served by NG-RAN.

Default destination layer-2 IDs for sending the discovery signalling for announcement and additional information and for receiving the discovery signalling for solicitation (octet o2+1 to o3):

The default destination layer-2 IDs for sending the discovery signalling for announcement and additional information and for receiving the discovery signalling for solicitation is coded according to figure 5.5.2.11a and table 5.5.2.11a and contains a list of the default destination layer-2 IDs for the initial UE-to-network relay discovery signalling.

User info ID for discovery (octet o3+1 to o3+6):

The value of the User info ID parameter is a 48-bit long bit string. The format of the User info ID parameter is out of scope of this specification.

RSC info list (octet o3+7 to o4):

The RSC info list field is coded according to figure 5.5.2.12 and table 5.5.2.12 and contains the RSCs related paramters.

5QI to PC5 QoS parameters mapping rules (octet o4+1 to o5):

The 5QI to PC5 QoS parameters mapping rules field is coded according to figure 5.5.2.17 and table 5.5.2.17 and contains the 5QI to PC5 QoS parameters mapping rules.

ProSe identifier to ProSe application server address mapping rules (octet o5+1 to o6): The ProSe identifier to ProSe application server address mapping rules field is coded according to figure 5.5.2.19 and table 5.5.2.19 and contains the ProSe identifier to ProSe application server address mapping rules.

Privacy timer (octet I-1 to I):

The privacy timer field contains binary encoded duration, in units of seconds, after which the UE shall change the source layer-2 ID self-assigned by the UE while performing transmission of 5G ProSe direct communication.

If the length of ProSeP info contents field is bigger than indicated in figure 5.5.2.1, receiving entity shall ignore any superfluous octets located at the end of the ProSeP info contents.

5G PKMF addressing information (octet o6+1 to I-2)
5G PKMF addressing information contains the IPv4 address(es), IPv6 address(es) and/or FQDN of the 5G PKMF and is coded according to figure 5.5.2.21, figure 5.5.2.23 and table 5.5.2.21. At least one of the addressing parameters (FQDN, IPv4 address list or IPv6 address list) shall be included.

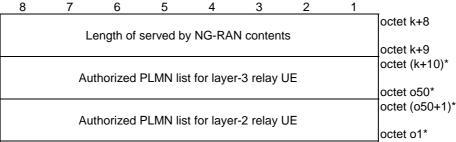


Figure 5.5.2.2: Served by NG-RAN

Table 5.5.2.2: Served by NG-RAN

Authorized PLMN list for layer-3 relay UE:
The authorized PLMN list for layer-3 relay UE field is coded according to figure 5.5.2.3 and table 5.5.2.3.

Authorized PLMN list for layer-2 relay UE:

The authorized PLMN list for layer-2 relay UE field is coded according to figure 5.5.2.3 and table 5.5.2.3.

Length of authorized PLMN list contents	octet k+10
20.19 0. 44024 . 2	octet k+11
	octet (k+12)*
Authorized PLMN 1	octet (k+14)*
	octet (k+15)*
Authorized PLMN 2	00.01 (11.10)
	octet (k+17)*
	octet (k+18)*
	octet (o50-3)*
	octet (050-2)*
Authorized PLMN n	
	octet o50*

Figure 5.5.2.3: Authorized PLMN list

Table 5.5.2.3: Authorized PLMN list

Authorized PLMN:

The authorized PLMN field is coded according to figure 5.5.2.4 and table 5.5.2.4.

8	3	7	6	5	4	3	2	1	
		MCC	digit 2			MCC (	digit 1		octet k+15
		MNC	digit 3			MCC (	digit 3		octet k+16
		MNC	digit 2			MNC	digit 1		octet k+17

Figure 5.5.2.4: PLMN ID

### **Table 5.5.2.4: PLMN ID**

Mobile country code (MCC) (octet k+15, octet k+16 bit 1 to 4): The MCC field is coded as in ITU-T Recommendation E.212 [5], annex A.

Mobile network code (MNC) (octet k+16 bit 5 to 8, octet k+17): The coding of MNC field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, MNC digit 3 shall be coded as "1111".

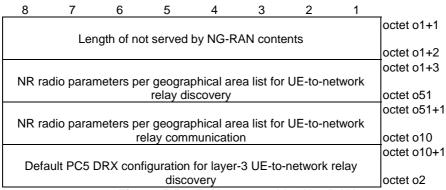


Figure 5.5.2.5: Not served by NG-RAN

#### Table 5.5.2.5: Not served by NG-RAN

NR radio parameters per geographical area list for UE-to-network relay discovery (octet o1+3 to o51):

The NR radio parameters per geographical area list for UE-to-network relay discovery field is coded according to figure 5.5.2.6 and table 5.5.2.6.

NR radio parameters per geographical area list for UE-to-network relay communication (octet o51+1 to o2):

The NR radio parameters per geographical area list for UE-to-network relay communication field is coded according to figure 5.5.2.7 and table 5.5.2.7.

Default PC5 DRX configuration for layer-3 UE-to-network relay discovery (octet o10+1 to o2):

The default PC5 DRX configuration for layer-3 UE-to-network relay discovery field is coded according to figure 5.5.2.11a and table 5.5.2.11a.

If the length of not served by NG-RAN contents field is bigger than indicated in figure 5.5.2.5, receiving entity shall ignore any superfluous octets located at the end of the not served by NG-RAN contents.

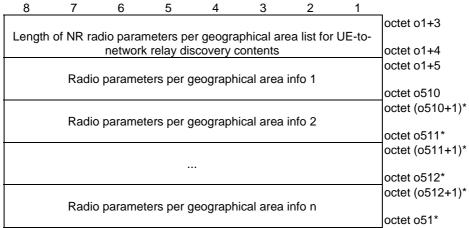


Figure 5.5.2.6: NR radio parameters per geographical area list for UE-to-network relay discovery

#### Table 5.5.2.6: NR radio parameters per geographical area list for UE-to-network relay discovery

Radio parameters per geographical area info:
The radio parameters per geographical area info field is coded according to figure 5.5.2.8 and table 5.5.2.8.

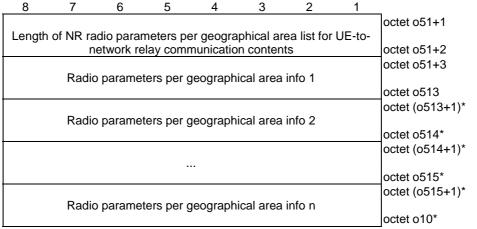


Figure 5.5.2.7: NR radio parameters per geographical area list for UE-to-network relay communication

#### Table 5.5.2.7: NR radio parameters per geographical area list for UE-to-network relay communication

Radio parameters per geographical area info: The radio parameters per geographical area info field is coded according to figure 5.5.2.8 and table 5.5.2.8.

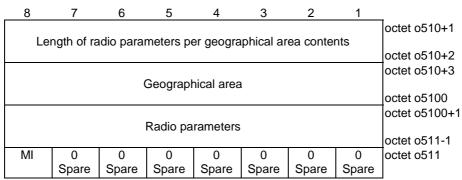


Figure 5.5.2.8: Radio parameters per geographical area info

#### Table 5.5.2.8: Radio parameters per geographical area info

Geographical area (octet o510+3 to o5100):

The geographical area field is coded according to figure 5.5.2.9 and table 5.5.2.9.

Radio parameters (octet o5100+1 to o511-1):

The radio parameters field is coded according to figure 5.3.2.11 and table 5.3.2.11, applicable in the geographical area indicated by the geographical area field when not served by NG-RAN.

Managed indicator (MI) (octet o511 bit 8):

The managed indicator indicates how the radio parameters indicated in the radio parameters field in the geographical area indicated by the geographical area field are managed.

Bit

8

- 0 Non-operator managed
- Operator managed

If the length of radio parameters per geographical area contents field is bigger than indicated in figure 5.5.2.8, receiving entity shall ignore any superfluous octets located at the end of the radio parameters per geographical area contents.

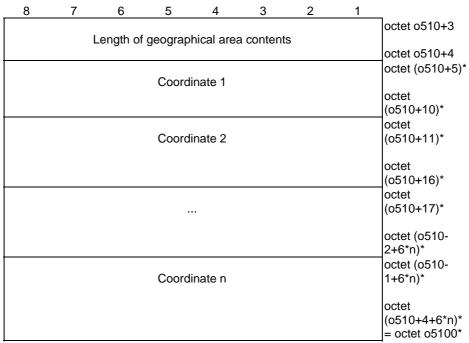


Figure 5.5.2.9: Geographical area

Table 5.5.2.9: Geographical area

(F											
Coordi	Coordinate:										
The co	The coordinate field is coded according to figure 5.5.2.10 and table 5.5.2.10.										
1110 00	oraniato n	014 10 000	104 40001	anig to n	9410 0.0.		10010 0	.0.2.10.			
8	7	6	5	4	3	2	1				
								octet o510+11			
			l ati	tude				00101 00 10 111			
			Lau	luuc				octet o510+13			
	octet o510+14										
	Longitude										
	octet o510+17										
•	Figure 5.5.2.10: Coordinate area										
	Figure 5.5.2.10: Coordinate area										

Table 5.5.2.10: Coordinate area

Latitude (octet o510+11 to o510+13): The latitude field is coded according to clause 6.1 of 3GPP TS 23.032 [6].	
Longitude (octet o510+14 to o510+17): The longitude field is coded according to clause 6.1 of 3GPP TS 23.032 [6].	

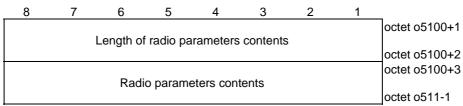


Figure 5.5.2.11: Radio parameters

Table 5.5.2.11: Radio parameters

	38.331	s are defi [7].	ned as S	L-Precor	inguratioi	nvr in Ci	ause 9.c	S OI
8	7	6	5	4	3	2	1	_
_ength	of defau	ılt PC5 D rela	RX config ay discov	•	•	3 UE-to-n	etwork	octet o10+1 octet o10+2 octet o10+3
Defa	ult PC5	DRX conf	figuration discovery	-		network	relay	octet o2

Figure 5.5.2.11a: Default PC5 DRX configuration for layer-3 UE-to-network relay discovery

Table 5.5.2.11a: Default PC5 DRX configuration for layer-3 UE-to-network relay discovery

Default PC5 DRX configuration contents for layer-3 UE-to-network relay discovery: Default PC5 DRX configuration for layer-3 UE-to-network relay discovery field is coded as *sl-DefaultDRX-GC-BC-r17* in clause 6.3.5 of 3GPP TS 38.331 [7].

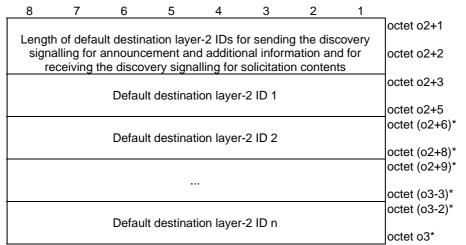


Figure 5.5.2.11a: Default destination layer-2 IDs for sending the discovery signalling for announcement and additional information and for receiving the discovery signalling for solicitation

# Table 5.5.2.11a: Default destination layer-2 IDs for sending the discovery signalling for announcement and additional information and for receiving the discovery signalling for solicitation

Default destination layer-2 ID (octet o2+3 to o2+5):
The default destination layer-2 ID is a 24-bit long bit string.

8	7	6	5	4	3	2	1			
								octet o3+7		
	Length of RSC info list contents									
								octet o3+8		
								octet o3+9		
			RSC	info 1						
								octet o52		
								octet (o52+1)*		
			RSC	info 2						
								octet (o53)*		
								octet (o53+1)*		
								octet (o54)*		
								octet (o54+1)*		
			RSC	info n						
								octet o4*		

Figure 5.5.2.12: RSC info list

Table 5.5.2.12: RSC info list

RSC info:
The RSC info field is coded according to figure 5.5.2.13 and table 5.5.2.13.

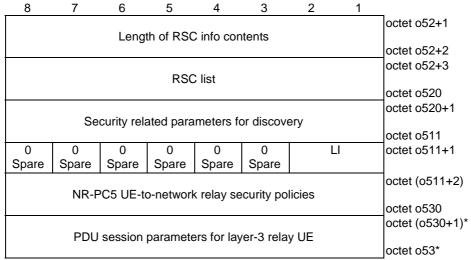


Figure 5.5.2.13: RSC info

#### Table 5.5.2.13: RSC info

RSC list (octet o52+3 to o520):

The RSC list field is coded according to figure 5.5.2.14 and table 5.5.2.14.

Security related parameters for discovery (octet o520+1 to o511):

The security related parameters for discovery field is coded according to figure 5.5.2.15 and table 5.5.2.15.

Layer indication (LI) (octet o511+1):

Bits

2 1

0 1 Layer 3

10 Layer 2

The other values are reserved.

If LI is set to "Layer 3", the PDU session parameters for layer-3 relay UE is included in the RSC info, otherwise the PDU session parameters for layer-3 relay UE is not included.

NR-PC5 UE-to-network relay security policies (octet o511+2 to o530):

The NR-PC5 UE-to-network relay security policies is coded as the NR-PC5 unicast security policies defined in figure 5.4.2.34 and table 5.4.2.34.

PDU session parameters for layer-3 relay UE (octet o530+1 to octet o53) The PDU session parameters for layer-3 relay UE field is coded according to figure 5.5.2.16 and table 5.5.2.16.

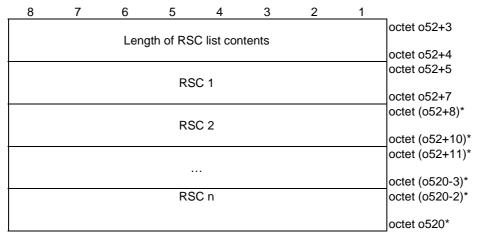


Figure 5.5.2.14: RSC list

#### Table 5.5.2.14: RSC list

RSC (octet o52+5 to o52+7):

The RSC identifies a connectivity service the UE-to-Network relay provides. The value of the RSC is a 24-bit long bit string. The values of the RSC from "000001" to "00000F" in hexadecimal representation are spare and shall not be used in this release of specification. The UE shall ignore the spare value of the RSC in this release of specification. For all other values, the format of the RSC is out of scope of this specification.

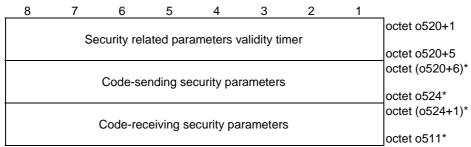


Figure 5.5.2.15: Security related parameters for discovery

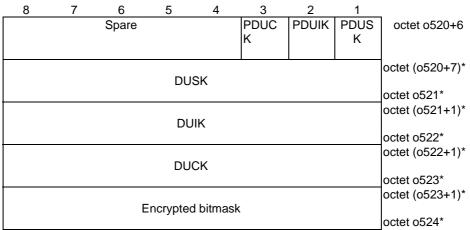


Figure 5.5.2.15a: Code-sending security parameters

8	7	6	5	4	3	2	1		
		Spare			PDUC	PDUIK	PDUS	octet o524+1	
					K		K		
								octet (o524+2)*	
	DUSK								
	octet (o525+1)*								
								octet o526*	
DUCK								octet (o526+1)*	
	507*								
-								octet o527*	
	octet (o527+1)*								
	octot oF11*								
								octet o511*	

Figure 5.5.2.15b: Code-receiving security parameters

#### Table 5.5.2.15: Security related parameters for discovery

#### Security related parameters validity timer:

The security related parameters validity timer field provides the expiration time of validity of the security related parameters for discovery. The security related parameters validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).

#### Code-sending security parameters:

The code-sending security parameters field contains the security parameters needed by a sending UE to protect a 5G ProSe direct discovery message over PC5 interface as specified in 3GPP TS 33.503 [13].

#### Code-receiving security parameters

The code-receiving security parameters field contains the security parameters needed by a receiving UE to process a 5G ProSe direct discovery message over PC5 interface as specified in 3GPP TS 33.503 [13].

#### Presence of DUSK (PDUSK):

PDUSK indicates whether the DUSK field is present or not.

#### Bit

1

DUSK field is not included

1 DUSK field is included

#### Presence of DUIK (PDUIK):

PDUIK indicates whether the DUIK field is present or not.

#### Bit

2

0 DUIK field is not included

1 DUIK field is included

#### Presence of DUCK (PDUCK):

PDUCK indicates whether the DUCK field and the encrypted bitmask field are present or not.

#### Bot

3

- 0 DUCK and encrypted bitmask fields are not included
- 1 DUCK and encrypted bitmask fields are included

#### **DUSK**

The DUSK field contains the value of the DUSK. The use of the DUSK is defined in 3GPP TS 33.503 [13].

#### DUIK

The DUIK field contains the value of the DUIK. The use of the DUIK is defined in 3GPP TS 33.503 [13].

#### DUCK:

The DUCK field contains the value of the DUCK. The use of the DUCK is defined in 3GPP TS 33.503 [13].

#### Encrypted bitmask:

The encrypted bitmask field contains the value of the encrypted bitmask, which is a 184-bit bitmask which uses bit "1" to mark the positions of the bits for which the DUCK encryption is applied.

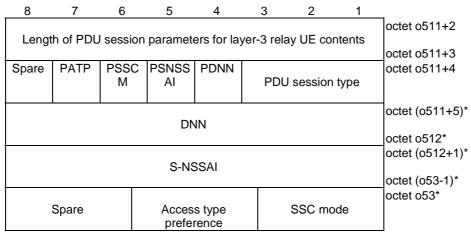


Figure 5.5.2.16: PDU session parameters for layer-3 relay UE

#### Table 5.5.2.16: PDU session parameters for layer-3 relay UE

PDU session type (bits 3 to 1 of octet o511+4):

The PDU session type field shall be encoded as the PDU session type value part of the PDU session type information element defined in clause 9.11.4.11 of 3GPP TS 24.501 [4].

Presence of DNN (PDNN) (bit 4 of octet o511+4)

PDNN indicates whether the DNN field is present or not.

Bit

4

0 DNN field is not included

1 DNN field is included

Presence of S-NSSAI (PSNSSAI) (bit 5 of octet o511+4)

PSNSSAI indicates whether the S-NSSAI field is present or not.

Bit

5

0 S-NSSAI field is not included

1 S-NSSAI field is included

Presence of SSC mode (PSSCM) (bit 6 of octet o511+4)

PSSCM indicates whether the SSC mode field is present or not.

Bit

6

0 SSC mode field is not included (NOTE)

1 SSC mode field is included

Presence of access type preference (PATP) (bit 7 of octet o511+4)

PATP indicates whether the access type preference mode field is present or not. Bit

7

0 Access type preference field is not included (NOTE)

1 Access type preference field is included

DNN (octet o511+5 to o512):

The DNN field shall be encoded as a sequence of a one octet DNN length field and a DNN value field of a variable size. The DNN value contains an APN as defined in 3GPP TS 23.003 [10].

S-NSSAI (octet o512+1 to o53-1):

The S-NSSAI field shall be encoded as a sequence of a one octet S-NSSAI length field and an S-NSSAI value field of a variable size. The S-NSSAI value shall be encoded as the value part of the S-NSSAI information element defined in clause 9.11.2.8 of 3GPP TS 24.501 [4].

SSC mode (bits 3 to 1 of octet o53):

The SSC mode field shall be encoded as the value part of the SSC mode information element defined in clause 9.11.4.16 of 3GPP TS 24.501 [4].

Access type preference (bits 5 to 4 of octet o53):

The access type preference field shall be encoded as the value part of the access type information element defined in clause 9.11.2.1A of 3GPP TS 24.501 [4].

NOTE: Since SSC mode field and access type preference field are coded in the same octet, this octet is not included only when both PSSCM and PATP are set to 0.

8	7	6	5	4	3	2	1	
								octet o4+1
Ler	gth of 5Q	I to PC5	QoS para	ameters r	mapping r	ules cor	itents	octet o4+2
								octet o4+3
	5QI	to PC5 C	QoS para	meters m	napping ru	ıle 1		
								_octet o55 octet (o55+1)*
	5QI	to PC5 C	QoS para	meters m	napping ru	ıle 2		ociei (055+1)
			•					octet o56*
								octet (o56+1)*
				••				octet o57*
								octet (o57+1)*
	5QI	to PC5 C	QoS para	meters m	napping ru	ıle n		t-t *
								octet o5*

Figure 5.5.2.17: 5QI to PC5 QoS parameters mapping rules

Table 5.5.2.17: 5QI to PC5 QoS parameters mapping rules

5QI to PC5 QoS parameters mapping rule: The 5QI to PC5 QoS parameters mapping rule field is coded according to figure 5.5.2.18 and table 5.5.2.18 and contains the 5QI to PC5 QoS parameters mapping rule.

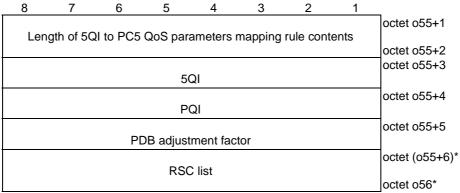


Figure 5.5.2.18: 5QI to PC5 QoS parameters mapping rule

Table 5.5.2.18: 5QI to PC5 QoS parameters mapping rule

```
5QI (octet o55+3):
Bits
87654321
00000000
            Reserved
00000001
            5QI 1
00000010
            5QI 2
00000011
            5QI 3
00000100
            5QI 4
00000101
            5QI 5
00000110
           5QI 6
00000111
            5QI 7
00001000
            5QI 8
00001001
           5QI 9
00001010
           5QI 10
00001011
 to Spare
01000000
01000001
            5QI 65
01000010
            5QI 66
01000011
            5QI 67
01000100
            Spare
01000101
            5QI 69
01000110
           5QI 70
01000111
            5QI 71
01001000
            5QI 72
01001001
            5QI 73
01001010
           5QI 74
01001011
            5QI 75
01001100
           5QI 76
01001101
 to Spare
01001110
01001111
            5QI 79
01010000
            5QI 80
01010001
            Spare
01010010
            5QI 82
01010011
            5QI 83
01010100
            5QI 84
01010101
            5QI 85
01010110
           5QI 86
01010111
 to Spare
01111111
10000000
  to Operator-specific 5Qls
11111110
11111111
            Reserved
```

```
PQI (octet o55+4):
Bits
87654321
00000000
             Reserved
00000001
  to Spare
00010100
00010101
              PQI 21
00010110
             PQI 22
00010111
             PQI 23
00011000
             PQI 24
00011001
              PQI 25
00011010
             PQI 26
00011011
  to Spare
00110110
00110111
              PQI 55
00111000
             PQI 56
00111001
             PQI 57
00111010
             PQI 58
00111011
              PQI 59
00111100
             PQI 60
00111101
             PQI 61
00111110
  to Spare
01011001
01011010
             PQI 90
01011011
              PQI 91
01011100
             PQI 92
01011101
              PQI 93
01011110
  to Spare
01111111
10000000
  to Operator-specific PQIs
11111110
11111111
              Reserved
PDB adjustment factor (octet o55+5):
The PDB adjustment factor field is a binary coded representation of a percentage of the
standardized PDB identified by the PQI.
RSC list (octet o55+6 to o56):
The RSC list field is coded according to figure 5.5.2.14 and table 5.5.2.14.
```

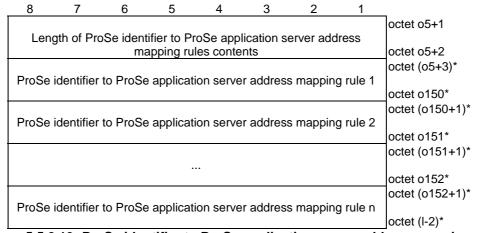


Figure 5.5.2.19: ProSe identifier to ProSe application server address mapping rules

#### Table 5.5.2.19: ProSe identifier to ProSe application server address mapping rules

ProSe identifier to ProSe application server address mapping rule: The ProSe identifier to ProSe application server address mapping rule field is coded according to figure 5.5.2.20 and table 5.5.2.20.

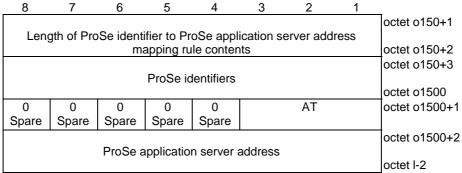


Figure 5.5.2.20: ProSe identifier to ProSe application server address mapping rule

#### Table 5.5.2.20: ProSe identifier to ProSe application server address mapping rule

ProSe identifiers (o150+3 to o1500):

The ProSe identifiers field is coded according to figure 5.3.2.14 and table 5.3.2.14.

Address type (AT) (octet o1500+1 bit 1 to 3):

The AT field indicates the ProSe application server address type.

Bits

3 2 1

001 IPv4

010 IPv6

011 FQDN

The other values are reserved.

If the AT indicates IPv4, then the ProSe application server address field contains an IPv4 address in 4 octets.

If the AT indicates IPv6, then the ProSe application server address field contains an IPv6 address in 16 octets.

If the AT indicates FQDN, then the ProSe application server address field contains a sequence of one octet FQDN length field and a FQDN value of variable size. The FQDN value field shall be encoded as defined in clause 28.3.2.1 in 3GPP TS 23.003 [10].

If the length of ProSe identifier to ProSe application server address mapping rule contents field is bigger than indicated in figure 5.5.2.19, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to ProSe application server address mapping rule contents.

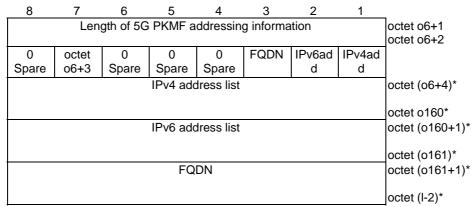


Figure 5.5.2.21: 5G PKMF addressing information

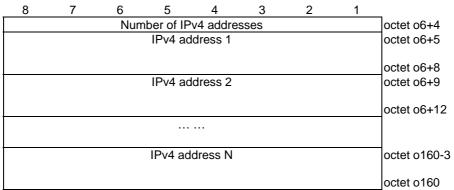


Figure 5.5.2.22: IPv4 address list

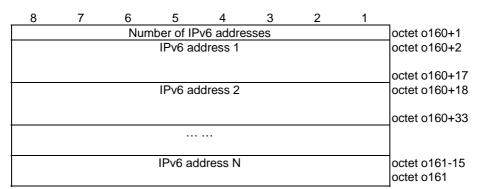


Figure 5.5.2.23: IPv6 address list

#### Table 5.5.2.21: 5G PKMF addressing information

```
IPv4 addresses (IPv4add) (o6+2 bit 1): (NOTE 1)
Bit
0 IPv4 address list is not present
1 IPv4 address list is present
IPv6 addresses (IPv6add) (octet o6+2 bit 2): (NOTE 1)
0 IPv6 address list is not present
  IPv6 address list is present
FQDN (octet o6+3 bit 3): (NOTE 2)
Bit
   FQDN is not present
   FQDN is present
IPv4 address list (octet o6+4 to octet o160)
IPv4 address list contains the IPv4 address(es) of the 5G PKMF and shall be encoded
as defined in figure 5.5.2.20.
IPv6 address list (octet o160+1 to octet o161)
IPv6 address list contains the IPv6 address(es) of the 5G PKMF and shall be encoded
as defined in figure 5.5.2.20.
FQDN (octet o161+1 to I)
FQDN field contains a sequence of one octet FQDN length field and a FQDN value of
variable size. The FQDN value field shall be encoded as defined in clause 28.3.2.1 in
3GPP TS 23.003 [10].
NOTE 1: If multiple IPv4 addresses and/or IPv6 addresses are included, which one of
          these addresses is selected is implementation dependent.
          If the 5G PKMF supports the 5G PKMF Services with "https" URI scheme
          (i.e. use of TLS is mandatory), then the FQDN shall be used to construct the
          target URI.
```

### 5.6 Encoding of UE policies for 5G ProSe remote UE

#### 5.6.1 General

The UE policies for 5G ProSe remote UE are coded as shown in figures 5.6.2.1 and table 5.6.2.1.

## 5.6.2 Information elements coding

8	7	6	5	4	3	2	1	
0	0 Spa	0 are	PAI			e = {UE per remote		octet k
	-			•				octet k+1
		Length	of ProSe	eP info co	ontents			octet k+2
								octet k+3
			Validity	y timer				Ootot KTO
								octet k+7
		,						octet k+8
		,	Served by	'NG-RAI	V			octet o1
								octet o1+1
		No	t served l	by NG-R	AN			
								octet o2
								octet o2+1
			2 IDs for s					octet o3
			receiving ent and a				·I	ociei os
	u.i.	104110011	ioni ana c	.aannona	miorina			octet o3+1
		Use	er info ID	for disco	very			
								octet o3+6
			RSC ir	ofo liet				octet o3+7
			K3C II	110 1151				octet I
								octet I+1
N3I	WF selec	tion info	mation fo	r 5G Pro	Se layer	-3 remote	: UE	
								octet m
			D.:					octet m+1
			Privac	y timer				octet m+2
								octet m+3
		5G PKN	/IF addres	ssing info	rmation			
								octet p

Figure 5.6.2.1: ProSeP Info = {UE policies for 5G ProSe remote UE}

Editor's note: How to define the security parameters used for UE-to-network relay depends on SA3 final requirements.

Table 5.6.2.1: ProSeP Info = {UE policies for 5G ProSe remote UE}

ProSeP info type (bit 1 to 4 of octet k) shall be set to "0100" (UE policies for 5G ProSe remote UE)

PKMF address indication (PAI) (bit 5 of octet k)

The PAI indicates whether the 5G PKMF addressing information is included in the IE or not

Bit

5

- 0 5G PKMF addressing information is not included
- 1 5G PKMF addressing information is included

Length of ProSeP info contents (octets k+1 to k+2) indicates the length of ProSeP info contents.

Validity timer (octet k+3 to k+7):

The validity timer field provides the expiration time of validity of the UE policies for 5G ProSe remote UE. The validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).

Served by NG-RAN (octet k+8 to o1):

The served by NG-RAN field is coded according to figure 5.6.2.2 and table 5.6.2.2, and contains configuration parameters for 5G ProSe remote UE when the UE is served by NG-RAN.

Not served by NG-RAN (octet o1+1 to o2):

The not served by NG-RAN field is coded according to figure 5.6.2.5 and table 5.6.2.5, and contains configuration parameters for 5G ProSe UE-to-network relay discovery and communication when the UE is not served by NG-RAN.

Default destination layer-2 IDs for sending the discovery signalling for solicitation and for receiving the discovery signalling for announcement and additional information (octet o2+1 to o3):

The default destination layer-2 IDs for sending the discovery signalling for solicitation and for receiving the discovery signalling for announcement and additional information is coded according to figure 5.6.2.11a and table 5.6.2.11a and contains a list of the default destination layer-2 IDs for the initial UE-to-network relay discovery signalling.

User info ID for discovery (octet o3+1 to o3+6):

The value of the User info ID parameter is a 48-bit long bit string. The format of the User info ID parameter is out of scope of this specification.

RSC info list (octet o3+7 to I):

The RSC info list field is coded according to figure 5.6.2.12 and table 5.6.2.12 and contains the RSCs related paramters.

N3IWF selection information for 5G ProSe layer-3 remote UE (octet I+1 to m): The N3IWF selection information for 5G ProSe layer-3 remote UE field is coded according to figure 5.6.2.17 and table 5.6.2.17, and contains two parts: 1) N3IWF identifier configuration (either FQDN or IP address) for 5G ProSe layer-3 remote UE; 2) 5G ProSe layer-3 UE-to-network relay access node selection information.

Privacy timer (octet m+1 to m+2):

The privacy timer field contains binary encoded duration, in units of seconds, after which the UE shall change the source layer-2 ID self-assigned by the UE while performing transmission of 5G ProSe direct communication.

If the length of ProSeP info contents field is bigger than indicated in figure 5.6.2.1, receiving entity shall ignore any superfluous octets located at the end of the ProSeP info contents.

5G PKMF addressing information (octet m+3 to p)

5G PKMF addressing information contains the IPv4 address(es), IPv6 address(es) and/or FQDN of the 5G PKMF and is coded according to figure 5.5.2.21, figure 5.5.2.23 and table 5.5.2.21. At least one of the addressing parameters (FQDN, IPv4 address list or IPv6 address list) shall be included.

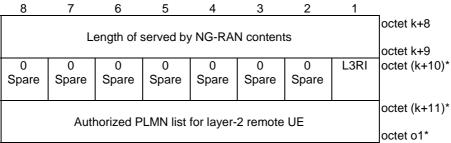


Figure 5.6.2.2: Served by NG-RAN

#### Table 5.6.2.2: Served by NG-RAN

Layer-3 remote UE authorization indication (L3RI) (octet k+10, bit 1):
The layer-3 remote UE authorization indication field indicates whether the UE is authorized to act as a layer-3 remote UE.
Bits

1

0 Not authorized to act as a layer-3 remote UE

1 Authorized to act as a layer-3 remote UE

Authorized PLMN list for layer-2 remote UE (octet k+11 to o1):
The authorized PLMN list for layer-2 remote UE field is coded according to figure 5.6.2.3 and table 5.6.2.3.

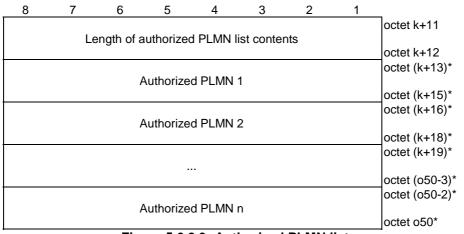


Figure 5.6.2.3: Authorized PLMN list

Table 5.6.2.3: Authorized PLMN list

Authorized PLMN:

The authorized PLMN field is coded according to figure 5.6.2.4 and table 5.6.2.4.

8	7	6	5	4	3	2	1	
	MCC	digit 2			MCC	digit 1		octet k+16
	MNC	digit 3			MCC	digit 3		octet k+17
	MNC	digit 2			MNC	digit 1		octet k+18

Figure 5.6.2.4: PLMN ID

#### **Table 5.6.2.4: PLMN ID**

Mobile country code (MCC) (octet k+16, octet k+17 bit 1 to 4): The MCC field is coded as in ITU-T Recommendation E.212 [5], annex A.

Mobile network code (MNC) (octet k+17 bit 5 to 8, octet k+18): The coding of MNC field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, MNC digit 3 shall be coded as "1111".

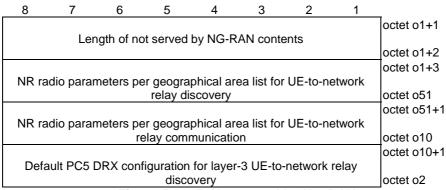


Figure 5.6.2.5: Not served by NG-RAN

#### Table 5.6.2.5: Not served by NG-RAN

NR radio parameters per geographical area list for UE-to-network relay discovery (octet o1+3 to o51):

The NR radio parameters per geographical area list for UE-to-network relay discovery field is coded according to figure 5.6.2.6 and table 5.6.2.6.

NR radio parameters per geographical area list for UE-to-network relay communication (octet o51+1 to o2):

The NR radio parameters per geographical area list for UE-to-network relay communication field is coded according to figure 5.6.2.7 and table 5.6.2.7.

Default PC5 DRX configuration for layer-3 UE-to-network relay discovery (octet o10+1 to o2):

The default PC5 DRX configuration for layer-3 UE-to-network relay discovery field is coded according to figure 5.6.2.11a and table 5.6.2.11a.

If the length of not served by NG-RAN contents field is bigger than indicated in figure 5.6.2.5, receiving entity shall ignore any superfluous octets located at the end of the not served by NG-RAN contents.

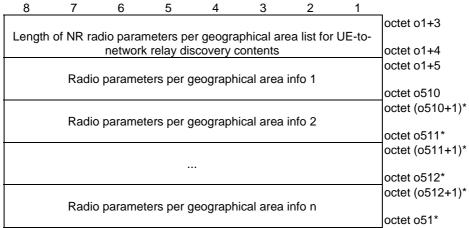


Figure 5.6.2.6: NR radio parameters per geographical area list for UE-to-network relay discovery

#### Table 5.6.2.6: NR radio parameters per geographical area list for UE-to-network relay discovery

Radio parameters per geographical area info:
The radio parameters per geographical area info field is coded according to figure 5.6.2.8 and table 5.6.2.8.

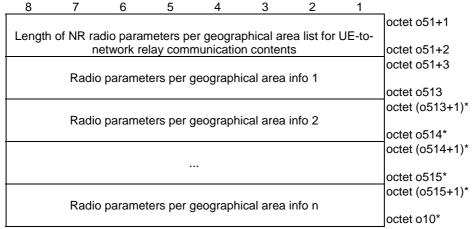


Figure 5.6.2.7: NR radio parameters per geographical area list for UE-to-network relay communication

#### Table 5.6.2.7: NR radio parameters per geographical area list for UE-to-network relay communication

Radio parameters per geographical area info:
The radio parameters per geographical area info field is coded according to figure 5.6.2.8 and table 5.6.2.8.

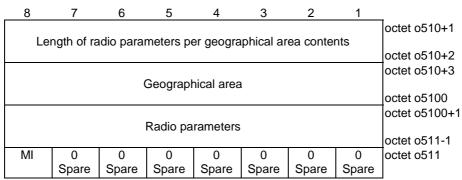


Figure 5.6.2.8: Radio parameters per geographical area info

#### Table 5.6.2.8: Radio parameters per geographical area info

Geographical area (octet o510+3 to o5100):

The geographical area field is coded according to figure 5.6.2.9 and table 5.6.2.9.

Radio parameters (octet o5100+1 to o511-1):

The radio parameters field is coded according to figure 5.3.2.11 and table 5.3.2.11, applicable in the geographical area indicated by the geographical area field when not served by NG-RAN.

Managed indicator (MI) (octet o511 bit 8):

The managed indicator indicates how the radio parameters indicated in the radio parameters field in the geographical area indicated by the geographical area field are managed.

Bit

8

- 0 Non-operator managed
- Operator managed

If the length of radio parameters per geographical area contents field is bigger than indicated in figure 5.6.2.8, receiving entity shall ignore any superfluous octets located at the end of the radio parameters per geographical area contents.

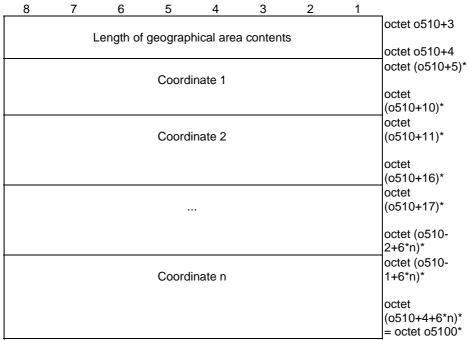
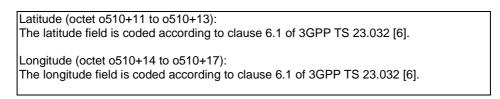


Figure 5.6.2.9: Geographical area

Table 5.6.2.9: Geographical area

Coordina	Coordinate:								
The coor	The coordinate field is coded according to figure 5.6.2.10 and table 5.6.2.10.								
1110 0001	aniate in	CIG 13 000	ca accor	aning to in	guic o.o	z. To ana	table o	.0.2.10.	
8	7	6	5	4	3	2	1		
								octet o510+11	
			Lati	tude				00101 00 10 111	
			Latii	luue				= 40 40	
								octet o510+13	
Longitude									
	octet o510+17								
	Figure 5.6.2.10: Coordinate area								

Table 5.6.2.10: Coordinate area



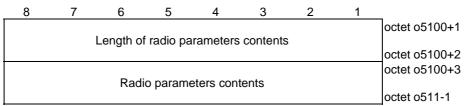


Figure 5.6.2.11: Radio parameters

Table 5.6.2.11: Radio parameters

Radio parameters contents (octet o5100+3 to o511-1):
Radio parameters are defined as *SL-PreconfigurationNR* in clause 9.3 of 3GPP TS 38.331 [7].

_	8	7	6	5	4	3	2	1	_
Ī									octet o10+1
	Length of default PC5 DRX configuration for layer-3 UE-to-network								
		octet o10+2							
Ī			octet o10+3						
	Default PC5 DRX configuration for layer-3 UE-to-network relay								
			C	discovery	contents /	;		-	octet o2

Figure 5.6.2.11a: Default PC5 DRX configuration for layer-3 UE-to-network relay discovery

#### Table 5.6.2.11a: Default PC5 DRX configuration for layer-3 UE-to-network relay discovery

Default PC5 DRX configuration contents for layer-3 UE-to-network relay discovery: Default PC5 DRX configuration for layer-3 UE-to-network relay discovery field is coded as *sl-DefaultDRX-GC-BC-r17* in clause 6.3.5 of 3GPP TS 38.331 [7].

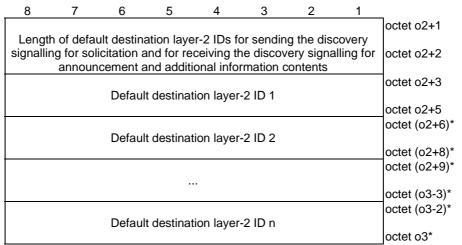


Figure 5.6.2.11a: Default destination layer-2 IDs for sending the discovery signalling for solicitation and for receiving the discovery signalling for announcement and additional information

Table 5.6.2.11a: Default destination layer-2 IDs for sending the discovery signalling for solicitation and for receiving the discovery signalling for announcement and additional information

Default destination layer-2 ID (octet o2+3 to o2+5):
The default destination layer-2 ID is a 24-bit long bit string.

8	7	6	5	4	3	2	1			
								octet o3+7		
	Length of RSC info list contents									
								octet o3+9		
			RSC	info 1						
								octet o52		
								octet (o52+1)*		
			RSC	info 2						
								octet o53*		
								octet (o53+1)*		
								octet o54*		
	•						•	octet (o54+1)*		
			RSC	info n						
								octet o4*		

Figure 5.6.2.12: RSC info list

Table 5.6.2.12: RSC info list

RSC info: The RSC info field is coded according to figure 5.6.2.13 and table 5.6.2.13.

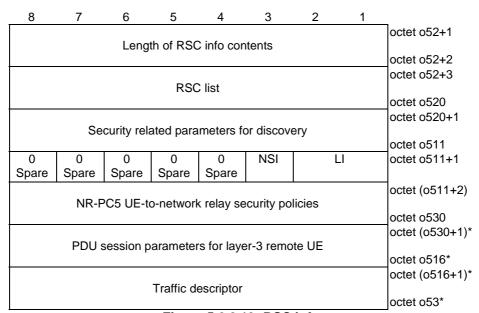


Figure 5.6.2.13: RSC info

#### Table 5.6.2.13: RSC info

RSC list (octet o52+3 to o520):

The RSC list field is coded according to figure 5.6.2.14 and table 5.6.2.14.

Security related parameters for discovery (octet o520+1 to o511):

The security related parameters for discovery field is coded according to figure 5.6.2.15 and table 5.6.2.15.

Layer indication (LI) (octet o511+1 bit 1 to 2):

Bits

2 1

0 1 Layer 3

10 Layer 2

The other values are reserved.

If LI is set to "Layer 3", the PDU session parameters for layer-3 remote UE is included in the RSC info, otherwise the PDU session parameters for layer-3 remote UE is not included.

N3IWF support indication (NSI) (octet o511+1 bit 3):

Bit

- Using N3IWF access for the relayed traffic is not supported
- Using N3IWF access for the relayed traffic is supported

The NSI is set to "Using N3IWF access for the relayed traffic is supported" only when the LI is set to "Layer 3".

NR-PC5 UE-to-network relay security policies (octet o511+2 to o530):

The NR-PC5 UE-to-network relay security policies is coded as the NR-PC5 unicast security policies defined in figure 5.4.2.34 and table 5.4.2.34.

PDU session parameters for layer-3 remote UE (octet o530+1 to o516):

The PDU session parameters for layer-3 remote UE field is coded according to figure 5.6.2.16 and table 5.6.2.16.

Traffic descriptor (octet o516+1 to o53):

The traffic descriptor field is coded according to figure 5.6.2.16a and table 5.6.2.16a.

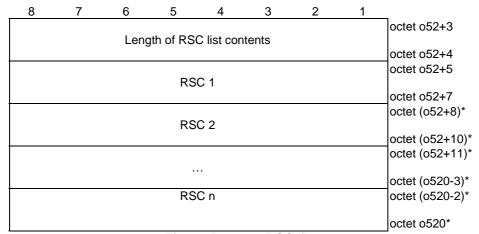


Figure 5.6.2.14: RSC list

#### Table 5.6.2.14: RSC list

RSC (octet o52+5 to o52+7):

The RSC identifies a connectivity service that the remote UE wants. The value of the RSC is a 24-bit long bit string. The values of the RSC from "000001" to "00000F" in hexadecimal representation are spare and shall not be used in this release of the specification. The UE shall ignore the spare value of the RSC in this release of specification. For all other values, the format of the RSC is out of scope of this specification.

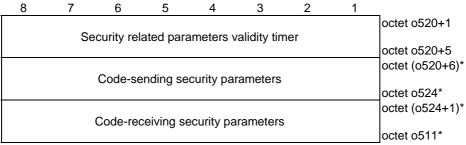


Figure 5.6.2.15: Security related parameters for discovery

8	7	6	5	4	3	2	1			
		Spare			PDUC	PDUIK	PDUSK	octet o520+6		
					K					
	DUSK									
-								octet o521*		
			וח	IIK				octet (o521+1)*		
	DUIK									
								octet o522* octet (o522+1)*		
			DU	ICK				,		
								octet o523*		
		_						octet (o523+1)*		
Encrypted bitmask										
								octet o524*		

Figure 5.6.2.15a: Code-sending security parameters

8 7	7	6	5	4	3	2	1		
		Spare			PDUC	PDUIK	<b>PDUSK</b>	octet o524+1	
					K				
								octet (o524+2)*	
	DUSK								
	octet o525*								
								octet (o525+1)*	
			DU	IK				octet o526*	
			5.1.	014				octet (o526+1)*	
			DU	CK				t-t - <b>-</b>	
								octet o527*	
		En	oruntos	l hitmaal	,			octet (o527+1)*	
			iciyptec	l bitmask	`			octet o511*	

Figure 5.6.2.15b: Code-receiving security parameters

#### Table 5.6.2.15: Security related parameters for discovery

#### Security related parameters validity timer:

The security related parameters validity timer field provides the expiration time of validity of the security related parameters for discovery. The security related parameters validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).

#### Code-sending security parameters:

The code-sending security parameters field contains the security parameters needed by a sending UE to protect a 5G ProSe direct discovery message over PC5 interface as specified in 3GPP TS 33.503 [13].

#### Code-receiving security parameters

The code-receiving security parameters field contains the security parameters needed by a receiving UE to process a 5G ProSe direct discovery message over PC5 interface as specified in 3GPP TS 33.503 [13].

#### Presence of DUSK (PDUSK):

PDUSK indicates whether the DUSK field is present or not.

Bit

1

0 DUSK field is not included

1 DUSK field is included

#### Presence of DUIK (PDUIK):

PDUIK indicates whether the DUIK field is present or not.

Bit

2

0 DUIK field is not included

1 DUIK field is included

#### Presence of DUCK (PDUCK):

PDUCK indicates whether the DUCK field and the encrypted bitmask field are present or not.

Bit

3

0 DUCK and encrypted bitmask fields are not included

1 DUCK and encrypted bitmask fields are included

#### DUSK

The DUSK field contains the value of the DUSK. The use of the DUSK is defined in 3GPP TS 33.503 [13].

#### DUIK

The DUIK field contains the value of the DUIK. The use of the DUIK is defined in 3GPP TS 33.503 [13].

#### **DUCK**

The DUCK field contains the value of the DUCK. The use of the DUCK is defined in 3GPP TS 33.503 [13].

#### Encrypted bitmask:

The encrypted bitmask field contains the value of the encrypted bitmask, which is a 184-bit bitmask which uses bit "1" to mark the positions of the bits for which the DUCK encryption is applied.

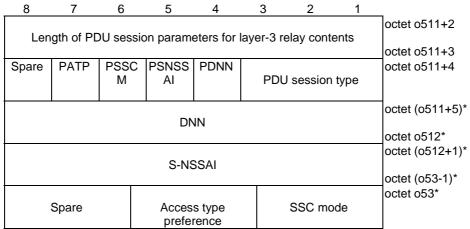


Figure 5.6.2.16: PDU session parameters for layer-3 relay

#### Table 5.6.2.16: PDU session parameters for layer-3 relay

PDU session type (bits 3 to 1 of octet o511+4):

The PDU session type field shall be encoded as the PDU session type value part of the PDU session type information element defined in clause 9.11.4.11 of 3GPP TS 24.501 [4].

Presence of DNN (PDNN) (bit 4 of octet o511+4)

PDNN indicates whether the DNN field is present or not.

Bit

4

0 DNN field is not included

1 DNN field is included

Presence of S-NSSAI (PSNSSAI) (bit 5 of octet o511+4)

PSNSSAI indicates whether the S-NSSAI field is present or not.

Bit

5

0 S-NSSAI field is not included

1 S-NSSAI field is included

Presence of SSC mode (PSSCM) (bit 6 of octet o511+4)

PSSCM indicates whether the SSC mode field is present or not.

Bit

6

0 SSC mode field is not included (NOTE)

1 SSC mode field is included

Presence of access type preference (PATP) (bit 7 of octet o511+4)

PATP indicates whether the access type preference mode field is present or not. Bit

7

0 Access type preference field is not included (NOTE)

1 Access type preference field is included

DNN (octet o511+5 to o512):

The DNN field shall be encoded as a sequence of a one octet DNN length field and a DNN value field of a variable size. The DNN value contains an APN as defined in 3GPP TS 23.003 [10].

S-NSSAI (octet o512+1 to o53-1):

The S-NSSAI field shall be encoded as a sequence of a one octet S-NSSAI length field and an S-NSSAI value field of a variable size. The S-NSSAI value shall be encoded as the value part of the S-NSSAI information element defined in clause 9.11.2.8 of 3GPP TS 24.501 [4].

SSC mode (bits 3 to 1 of octet o53):

The SSC mode field shall be encoded as the value part of the SSC mode information element defined in clause 9.11.4.16 of 3GPP TS 24.501 [4].

Access type preference (bits 5 to 4 of octet o53):

The access type preference field shall be encoded as the value part of the access type information element defined in clause 9.11.2.1A of 3GPP TS 24.501 [4].

NOTE: Since SSC mode field and access type preference field are coded in the same octet, this octet is not included only when both PSSCM and PATP are set to 0.

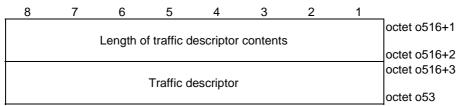


Figure 5.6.2.16a: Traffic descriptor

Table 5.6.2.16a: Traffic descriptor

Traffic descriptor (octet o516+3 to o53):
The traffic descriptor field is coded according to figure 5.2.2 and table 5.2.1 in clause 5.2 of 3GPP TS 24.526 [11].

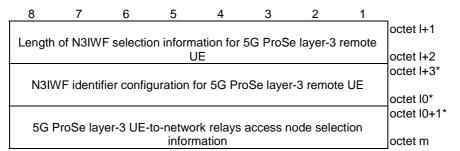


Figure 5.6.2.17: N3IWF selection information for 5G ProSe layer-3 remote UE

#### Table 5.6.2.17: N3IWF selection information for 5G ProSe layer-3 remote UE

N3IWF identifier configuration for 5G ProSe layer-3 remote UE (octet I+3\* to I0\*): The N3IWF identifier configuration for 5G ProSe layer-3 remote UE contains a list of home N3IWF identifier entries and is coded according to figure 5.6.2.18 and table 5.6.2.18.

5G ProSe layer-3 UE-to-network relays access node selection information (octet I0+1\* to m):

The 5G ProSe layer-3 UE-to-network relays access node selection information contains a sequence of the N3AN node selection information entries and is coded according to figure 5.6.2.19 and table 5.6.2.19.

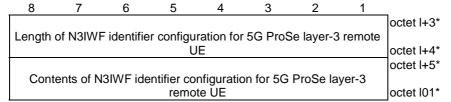


Figure 5.6.2.18: N3IWF identifier configuration for 5G ProSe layer-3 remote UE

#### Table 5.6.2.18: N3IWF identifier configuration for 5G ProSe layer-3 remote UE

Contents of N3IWF identifier configuration for 5G ProSe layer-3 remote UE (octet I+5\* to I01\*):

The contents of N3IWF identifier configuration for 5G ProSe layer-3 remote UE shall be encoded as the encoding of home N3IWF identifier configuration defined in clause 5.3.3.3 of 3GPP TS 24.526 [11].

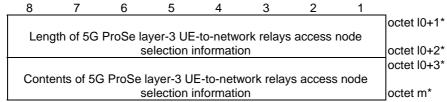


Figure 5.6.2.19: 5G ProSe layer-3 UE-to-network relays access node selection information

#### Table 5.6.2.19: 5G ProSe layer-3 UE-to-network relays access node selection information

Contents of 5G ProSe layer-3 UE-to-network relays access node selection information (octet I0+3\* to m\*):

The contents of 5G ProSe layer-3 UE-to-network relays access node selection information shall be encoded as the encoding of N3AN node selection information defined in clause 5.3.3.2 of 3GPP TS 24.526 [11].

NOTE: In this release of specification, the "preference" bit (as shown in figure 5.3.3.2.2 of 3GPP TS 24.526 [11]) is always set to "0".

## 5.7 Encoding of UE policies for 5G ProSe usage information reporting

#### 5.7.1 General

The UE policies for 5G ProSe usage information reporting are coded as shown in figure 5.7.2.1 and table 5.7.2.1.

## 5.7.2 Information elements coding

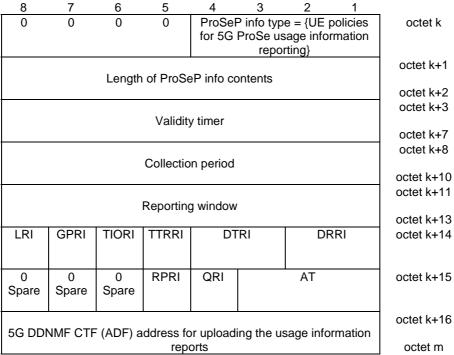


Figure 5.7.2.1: ProSeP Info = {UE policies for 5G ProSe usage information reporting }

ProSeP info type (bit 1 to 4 of octet k) shall be set to "0101" (UE policies for 5G ProSe usage information reporting)

Length of ProSeP info contents (octets k+1 to k+2) indicates the length of ProSeP info contents.

Validity timer (octet k+3 to k+7):

The validity timer field provides the expiration time of validity of the UE policies for 5G ProSe usage information reporting. The validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).

Collection period (octet k+8 to octet k+10):

The collection period field indicates the time interval, in unit of minutes, at which the UE shall generate the usage information reports. Setting the value of collection period to 0 disables generation of usage information reports at the UE.

Reporting window (octet k+11 to k+13):

The reporting window field indicates the time window, in units of minutes, during which the UE shall upload the usage information report. Setting the value of reporting window to 0 disables upload of the usage information reports by the UE.

UE locations reporting indicator (LRI) (octet k+14 bit 8):

The UE locations reporting indicator field indicates whether or not the UE shall report the list of locations of the UE when in NG-RAN coverage during the reporting period in the usage information.

Bit

8

0 Not to report

1 Report

Group parameters reporting indicator (GPRI) (octet k+14 bit 7):

The Group parameters reporting indicator field indicates whether or not the UE shall report the group parameters in the usage information report, in the case of groupcast mode 5G ProSe direct communication.

Bit

7

0 Not to report

Report

Time stamps in and out of NG-RAN coverage reporting indicator (TIORI) (octet k+14 bit 6):

The time stamps in and out of NG-RAN coverage reporting indicator field indicates whether or not the UE shall report the time stamps when it went in and out of NG-RAN coverage during the collection period in the usage information.

Bit

6

0 Not to report

1 Report

Time stamps of the first transmission/reception reporting indicator (TTRRI) (octet k+14 bit 5):

The time stamps of the first transmission/reception reporting indicator field indicates whether or not the UE shall report the time stamps of the first transmission/reception during the collection period in the usage information.

Bit

5

0 Not to report

1 Report

Data transmitted reporting indicator (DTRI) (octet k+14 bits 4 to 3):

The data transmitted reporting indicator field indicates whether or not the UE shall report the amount of data transmitted during the collection period in the usage information report, and whether with location information.

Bits

4 3

0 0 Not to report

- 0 1 Report with location information
- 1 0 Report without location information
- 1 1 reserved

Data received reporting indicator (DRRI) (octet k+14 bits 2 to 1):

The data received reporting indicator field indicates whether or not the UE shall report the amount of data received during the collection period in the usage information report, and whether with location information.

Bits

2 1

0 0 Not to report

- 0 1 Report with location information
- 1 0 Report without location information
- 1 1 reserved

Bits 8 to 6 of octet k+15 are spare and shall be encoded as zero.

Radio parameters reporting indicator (RPRI) (octet k+15 bit 5):

The radio parameters reporting indicator field indicates whether or not the UE shall report the radio parameters used for ProSe direct communication during the reporting period in the usage information.

Bit

5

0 Not to report

1 Report

QoS flow reporting indicator (QRI) (octet k+15 bit 4):

The QoS flow reporting indicator field indicates whether or not the UE shall report the QoS flow information during the reporting period in the usage information.

Bit

4

0 Not to report

1 Report

Address type (AT) (octet k+15 bits 3 to 1):

The AT field indicates the type of the 5G DDNMF CTF (ADF) address for uploading the usage information reports.

Bits

3 2 1

0 0 1 IPv4

010 IPv6

011 FQDN

The other values are reserved.

If the AT indicates IPv4, then the 5G DDNMF CTF (ADF) address for uploading the usage information reports field contains an IPv4 address in 4 octets.

If the AT indicates IPv6, then the 5G DDNMF CTF (ADF) address for uploading the usage information reports field contains an IPv6 address in 16 octets.

If the AT indicates FQDN, then the 5G DDNMF CTF (ADF) address for uploading the usage information reports field contains a sequence of one octet FQDN length field and a FQDN value of variable size. The FQDN value field shall be encoded as defined in clause 28.3.2.1 in 3GPP TS 23.003 [10].

5G DDNMF CTF (ADF) address for uploading the usage information reports (octet k+16 to octet m):

The 5G DDNMF CTF (ADF) address for uploading the usage information reports field indicates the address to which the UE shall upload the usage information reports.

If the length of ProSeP info contents field is bigger than indicated in figure 5.7.2.1, receiving entity shall ignore any superfluous octets located at the end of the ProSeP info contents.

# Annex A (informative): Change history

Change history									
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version		
2021-2	CT1#128 e	C1-211187	-	-	-	Draft skeleton provided by the rapporteur.	0.0.0		
2021-2	CT1#128 e	C1-210884	-	-	1	Implementing the following p-CR agreed by CT1: C1-210884 Editorial change from the rapporteur. Specification number added.	0.1.0		
2021-4	CT1#129 e	-	-	-	ı	Implementing the following p-CR agreed by CT1: C1-212386, C1-212396, C1-212530 Editorial change by the rapporteur.			
2021-5	CT1#130 e	-	-	-	-	mplementing the following p-CR agreed by CT1: C1-213021, C1-213574, C1-213746 Editorial change by the rapporteur.			
2021-8	CT1#131 e	-	-	-	-	Implementing the following p-CR agreed by CT1: C1-214796, C1-214797 Editorial change by the rapporteur.	0.4.0		
2021-10	CT1#132 e	-	-	-	ı	Implementing the following p-CR agreed by CT1: C1-215653, C1-216108 Editorial change by the rapporteur.	0.5.0		
2021-12	CT#94-e	-	-	-	=	Implementing the following p-CR agreed by CT1: C1-217146, C1-217147 Editorial change by the rapporteur.			
2022-01	CT1#133 bis-e	-	-	-	-	Implementing the following p-CR agreed by CT1: C1-220067, C1-220068, C1-220743 Correction by rapporteur. Editorial change by the rapporteur.	1.1.0		
2022-02	CT1#134 e	-	-	-	-	Implementing the following p-CR agreed by CT1: C1-221160, C1-221161, C1-221315, C1-221497, C1-221498, C1-221825, C1-221874 Correction by rapporteur. Editorial change by the rapporteur.	1.2.0		
2022-03	CT#95e	-	-	-	-	TS 25.555 v2.0.0 presented to TCT#95e for approval	2.0.0		
2022-03	CT#95e	-	-	-	-	TS 25.555 v17.0.0 created by MCC after CT#95e	17.0.0		
2022-06	CT#96	CP-221209	0001	3	F	ProSeP update	17.1.0		
2022-06	CT#96	CP-221242	0002	1	F	Clarification on coding of path preference mapping rule	17.1.0		
2022-06	CT#96	CP-221242	0003	1	F	Encoding of 5G PKMF addressing information	17.1.0		
2022-06	CT#96	CP-221242	0004	1	F	Corrections for PC5 security policies and PDU session parameters for layer-3 relay UE in the ProSe policies	17.1.0		
2022-06	CT#96	CP-221242	0005	1	F	Defining the ProSe group IP multicast address field	17.1.0		
2022-06	CT#96	CP-221209	0009	-	F	Remove range in direct discovery configuration	17.1.0		
2022-06	CT#96	CP-221210	0010	1	В	Resolving the EN related to security parameters used for the UE-to- network relay discovery over PC5 interface	17.1.0		
2022-06	CT#96	CP-221210	0011	1	F	Remove coding for default destination layer-2 ID in direct communication when provisioning	17.1.0		
2022-06	CT#96	CP-221210	0012	1	F	Corrections for the Authorized PLMN lists	17.1.0		
2022-06	CT#96	CP-221076	8000	2	В	Encoding of UE policies for 5G ProSe usage reporting	17.1.0		

## History

	Document history							
V17.0.0	May 2022	Publication						
V17.1.0	July 2022	Publication						