Publicly Available Specification

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Contents

Foreword

This document is the Publicly Available Specification (PAS) of the TETRAPOL land mobile radio system, which shall provide digital narrow band voice, messaging, and data services. Its main objective is to provide specifications dedicated to the more demanding PMR segment: the public safety. These specifications are also applicable to most PMR networks.

This PAS is a multipart document which consists of:

Part 1	General Network Design
Part 2	Radio Air interface
Part 3	**Air Interface Protocol**
Part 4	Gateway to X.400 MTA
Part 5	Dispatch Centre interface
Part 6	Line Connected Terminal interface
Part 7	Codec
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Part 10	Inter System Interface
Part 11	Gateway to PABX, ISDN, PDN
Part 12	Network Management Centre interface
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Part 18	Base station to Radioswitch interface
Part 19	Stand Alone Dispatch Position interface

1. Scope

This document is the subpart 3-2 of the TETRAPOL Air Interface protocol from the TETRAPOL Publicly Available Specification. It deals with the "Air Interface application messages".
This subpart 3-2 defines the format and contents of the TETRAPOL Air Interface Transport Service Data Units between the Radio Terminal and the Base Station at the R3 reference point as shown
in PAS 0001-1 [1]. The TETRAPOL Air Interface Protocol is described in PAS 0001-3-1 [2].

2. Normative references

This PAS incorporates by dated and undated reference, provisions from other applications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revision of any of these publications apply to this PAS only when incorporated in it by amendment or revision. For undated references the latest edition of publication referred to apply.

[1] PAS 0001-1: "TETRAPOL Specifications; General Network Design".

[2] PAS 0001-3-1: "TETRAPOL Specifications; Air Interface Protocol; Air Interface Application Protocol".

[3] PAS 0001-3-3: "TETRAPOL Specifications; Air Interface Protocol; Air Interface Transport Protocol".

[4] PAS 0001-4: "TETRAPOL Specifications; Data Gateway to X.400".

[5] PAS 0001-16: "TETRAPOL Specifications; Security; Security Mechanisms and Key Management".

[6] PAS 0001-13-2: "TETRAPOL Specifications; UDT and ST interface; Submit / Delivery Protocol". With complementary “Data formatting for IP transmission” (MC9/SYS/DD/0193).

[7] PAS 0001-13-3: "TETRAPOL Specifications; UDT and ST Interface; STUTEL Profile for the UDT".

[8] PAS 0001-3-4: “TETRAPOL Specifications: circuit mode AI protocol".

3. Definitions and abbreviations

3.1 Definitions

For the purposes of this PAS, the following definitions apply:
logical channel: Predefined subset of superframe blocks. Endpoint SwMI or RT applications use logical channels for exchanging TSDUs (defined in this document). If the exchange is bidirectional, both blocks subsets are identified by the same name in the superframe sent by the SwMI and the superframe received by the SwMI respectively.
Base Network (BN): Autonomous equipment assembly (RSW), digital links, radio cells, line connection interface units ...) used throughout a given geographic area providing RT with system services.
RT address: Logical identifier (RFSI) which unambiguously identifies an RT within the system. The RT address is a string of numeric characters, the first characters identify the regional network to which the RT belongs.

coverage: Predefined set of radio cells and line connection terminal units.
group (of users) / Operational Group (OG): Group of RT sharing the same service at a given time.
group number / alias **"OG number":** Logical number which identifies an operational user group.

3.2 Abbreviations

For the purposes of this PAS, the following abbreviations apply:

A/I	Air Interface
ADCH	Allocated Data CHannel
BCH	Broadcast CHannel
BN	Base Network
BS	Base Station
CC	Connection Confirm
CCH	Control CHannel
CGI	Collective Group Identifier
CR	Connection Request
CRP	Connection Reference Point
CTCH	Collective Traffic CHannel
CUG	Closed User Group
DACH	Dynamic Access CHannel
DDCH	Dedicated Data CHannel
DB	DataBase
DC	Disconnection Confirm
DCN	Delivery Confirmation Notification
DCS	Dispatch Centre Server
DFN	Delivery Failure Notification
DM	Direct Mode
DM/NM	Direct Mode / Network Monitoring
DP	Dispatch Position
DR	Disconnection Request
DT	Data Transfer
DU	Data Unit
ECCH	Extended Control CHannel
EDT	External Data Terminal
FBM	FallBack Mode
FDR	Fast Disconnection Request
HMSW	Home Main SWitch
HRSW	Home RadioSWitch
ISI	Inter System Interface
KMC	Key Management Centre
LABS	Line Access Base Station
LCT	Line Connected Terminal
LLC	Logical Link Control
MAC	Medium Access Control
MM	Mobility Management
MOCH	Multisite Open CHannel
MS	Mobile Station
MSG APPLI	Messaging APPLIcation
NMC	Network Management Centre
OC	Object Call
OG	Operational Group
OMC	Operation and Maintenance Centre
PABX	Private Automatic Branch eXchange
PAS	Publicly Available Specification
PCH	Paging CHannel
(P)DN	(Public) Data Network
PDU	Protocol Data Unit
PMR	Private Mobile Radiocommunications
PSTN	Public Switched Telecommunications Network

PTCH	Private Traffic CHannel
PTT	Push-To-Talk
RACH	Random Access CHannel
RCH	Random access answer CHannel
Ri	Reference point index i
RNK	Base Network Key
RP	RePeater
RSW	RadioSWitch
RT	Radio Terminal
RTI	Random Terminal Identity
SADP	Stand Alone Dispatch Position
SCH	Stealing CHannel
SCH_TI	Stealing CHannel for Transmitter Interruption
SDCH	Signalling and Data CHannel
SDL	Specification and Description Language
SDP	Submit Delivery Protocol
SFN	Submit Failure Notification
SIM	Subscriber Identity Module
ST	System Terminal
SwMI	Switching and Management Infrastructure
TCH	Traffic CHannel
TCP/IP	Transmission Control Protocol/Internet Protocol
TDX	Telephone and Data eXchange
TKK	Terminal Key of Key
TLR	Time Local Radio
TMSG-Id	Temporary MeSsaGe Identifier
TP	TransPort layer
TPDU	Transport service Protocol Data Unit
TSAP	Transport Service Access Point
TSAP-Id	Transport Service Access Point Identifier
TSDU	Transport Service Data Unit
TTI	Temporary Terminal Identity
UA	User Agent
UDT	User Data Terminal
VCH	Voice Channel
VPW	Vehicular rePeater GateWay
VRSW	Visited RadioSWitch
X.400 MTA	X.400 Message Transfer Agent

4. Exchanged TSDU

This clause describes the TSDUs exchanged by all applications on the BS-RT interface.

4.1 Generic TSDU format

The "useful part" shall convey one or several "Information elements" including the first K octets in the TSDU, where K is the rank of the last used octet (even partially used). K shall be known to the TRANSPORT layer.
It shall contain 2 sub-parts: the fixed part and the variable part.
The fixed part shall include the first X octets (X is an integer number) which shall convey the mandatory information elements and empty fields, that is to say (referring to figure 1):

① Application references (application connection identifiers) (see PAS 0001-3-1 [2]);
② Application connection priority (see PAS 0001-3-1 [2]);
③ A TSDU identifier for the Code of Operation (CODOP);
④ Other mandatory information elements (IE) in V or LV format;
⑤ Empty fields (shown as "blanks").

NOTE: The numbers above refer to the illustration on the bottom.

The variable part shall convey optional or conditional information elements, including the K-X remaining octets, which shall convey:

④ Other conditional information elements (IE) in V or LV format, or optional elements in T, TV or TLV format;
⑤ Empty field (shown as "blanks").

The "stuffing part", including the last consecutive octets in the TSDU which do not contain any useful information.

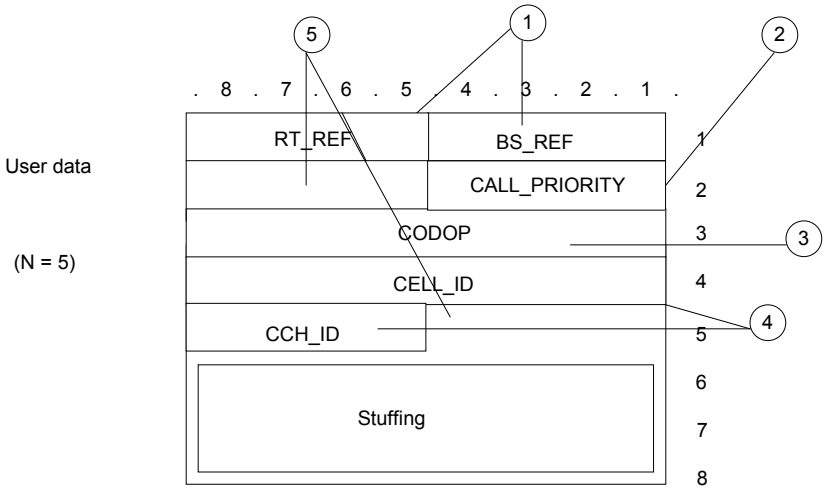


Figure 1: Generic TSDU format

4.2 Information elements (IE)

4.2.1 Presence of information elements

The presence of an information element in a message shall be mandatory, conditional or optional.

4.2.1.1 Mandatory information elements

The IE shall be supplied by the TSDU sender.
These mandatory IE shall be encoded in V or LV format (see below).
The list of mandatory fields forms the fixed TSDU part.
Example of mandatory IE: Most of the IE described in this document are mandatory.
The receiver shall consider the absence of a mandatory IE as a fatal error and shall not process the TSDU.
These IE shall be comprehensively identified from this protocol version onwards, therefore, the IE created in the next versions of the TETRAPOL A/I shall be "OPTIONAL".

4.2.1.2 Conditional information elements

The presence of a conditional IE in a TSDU shall depend on the presence or value of another IE in the TSDU.
If its presence is required, it must always be supplied by the TSDU sender.
Example of conditional IE: Encryption key in a multi-BN call.

4.2.1.3 Optional information elements

The TSDU sender may supply an optional IE. The receiver shall not interpret its absence as a fatal error.
Optional IE shall be encoded in TV or TLV format (see below).
Example of optional IE: Any IE added to an existing TSDU when the protocol version changes.

4.2.2 Information element format

There shall be 3 encoding types and 2 formats per type according to the kind of IE considered (optional, conditional or mandatory).

Table 1: Information element formats

IE format	Mandatory / Conditional	Optional
Type 1	V IE size and position defined by the TSDU description. 1 bit ≤ Size ≤ 8 bits	TV . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . Type Value Size ≤ 8 bits
Type 2	V IE size and position defined by the TSDU description. Size > 8 bits	TV . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . Type Value ..... Value Size > 8 bits
Type 3	LV . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . Length Value ..... Value	TLV . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . Type Length Value ..... Value

IE Identifier (IEI)								Type	Number of IEI	comment
b8	b7	b6	b5	b4	b3	b2	b1			
1	XXXXXXX							Type 1	128 possible IEI	
0	XXXXXXX							Type 2 or 3	128 possible IEI	

This encoding scheme defines the behaviour on an endpoint when an unknown IE is detected in a known message: its purpose is to permit the endpoint to ignore the IE without discarding the message processing.

- bit 8 = 1 ↔ the IE shall use one octet;
- bit 8 = 0 ↔ the IE shall be encoded in TLV format, the next octet shall therefore include the IE length.

4.3 Conventions

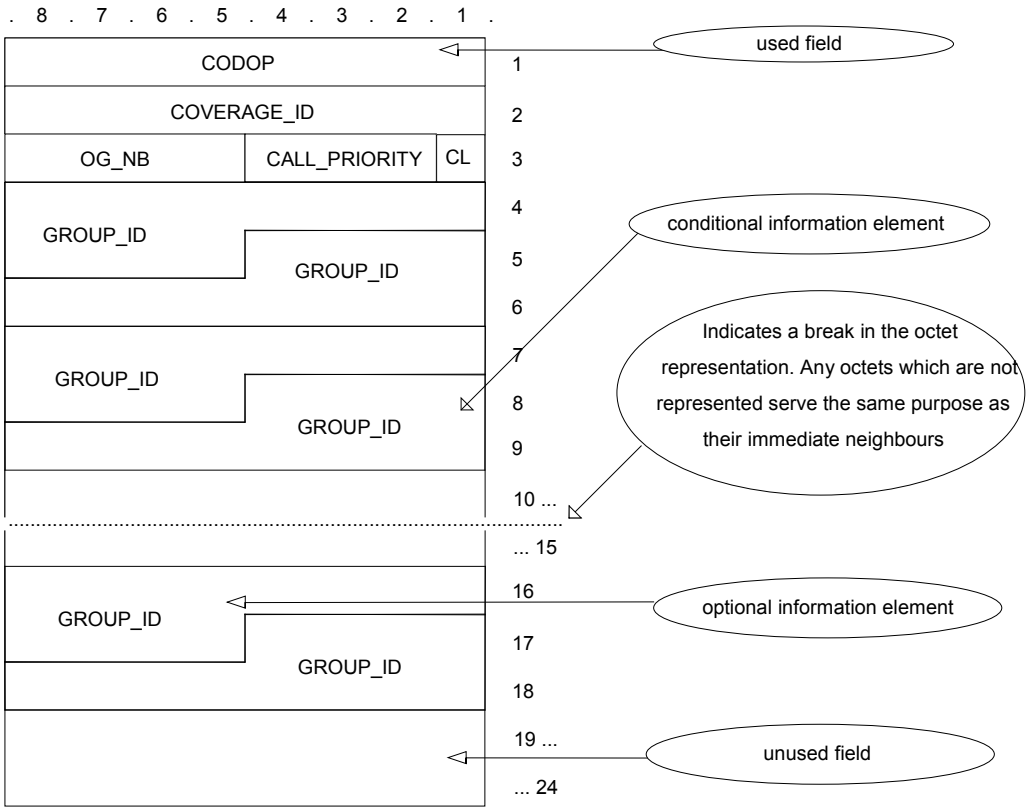


Figure 2: Convention for TSDU representation

Table 2: Convention for Information elements list

IE (note 1)	K (note 2)	Condition (note 3)	F (note 4)	L (note 5)
CODOP	M		V	1 octet
COVERAGE_ID	M	Not significant	V	1 octet
OG_NB	M		V	4 bits
CALL_PRIORITY	M		V	3 bits
CL	M		V	1 bits
GROUP_ID	M		V	12 bits
GROUP_ID	C	If CL = PARTITIONED	TV	variable
GROUP_ID	O		TLV	20 bits

NOTE 1: Information Element identifier.
NOTE 2: Kind of IE: Mandatory (M), Conditional (C) or Optional (O).
NOTE 3: Condition or special comments.
NOTE 4: Representation format V, TV, LV, TLV.
NOTE 5: IE length.

4.4 TSDU description

4.4.1 D_ABILITY_MNGT

Direction: SwMI ⇨ RT
Short description: This TSDU shall be used by the SwMI ST_MANAGEMENT application to deliver any instructions that modify the system terminal ability.
Conveyed in TPDU: CR.

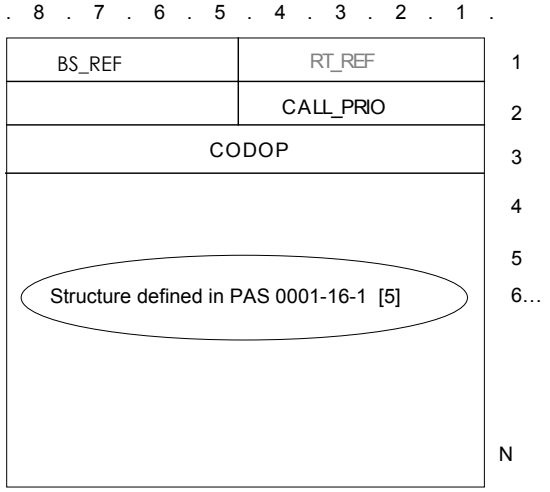


Figure 3: D_ABILITY_MNGT TSDU format

Table 3: D_ABILITY_MNGT information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M	not significant	V	4 bits
CALL_PRIO	M	not significant	V	4 bits
CODOP	M		V	1 byte

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048.

4.4.2 D_ACCESS_DISABLED

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to inform the RT that its access is permanently barred.
Conveyed in TPDU: CR.

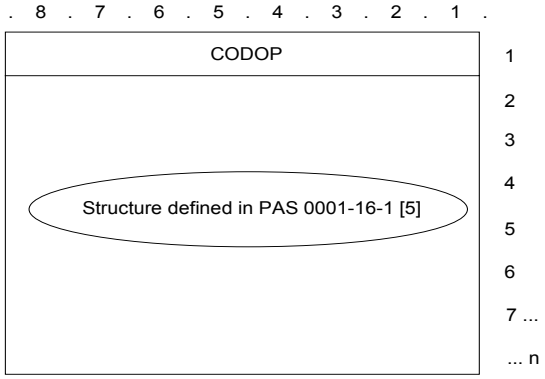


Figure 4: D_ACCESS_DISABLED TSDU format

Table 4: D_ACCESS_DISABLED information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048.

4.4.3 D_ACK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application as an immediate acknowledgement confirming the transaction opening request submitted by the RT.
Conveyed in TPDU: CC.

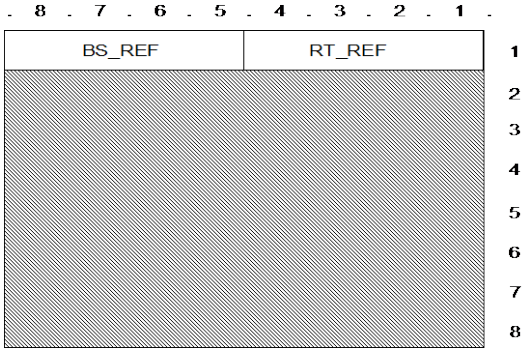


Figure 5: D_ACK TSDU format

Table 5: D_ACK information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M		V	4 bits

4.4.4 D_ADDITIONAL_PARTICIPANTS

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI to broadcast a list of user (identified by their address) authorized to participate to an established open channel.
Conveyed in TPDU: DU.

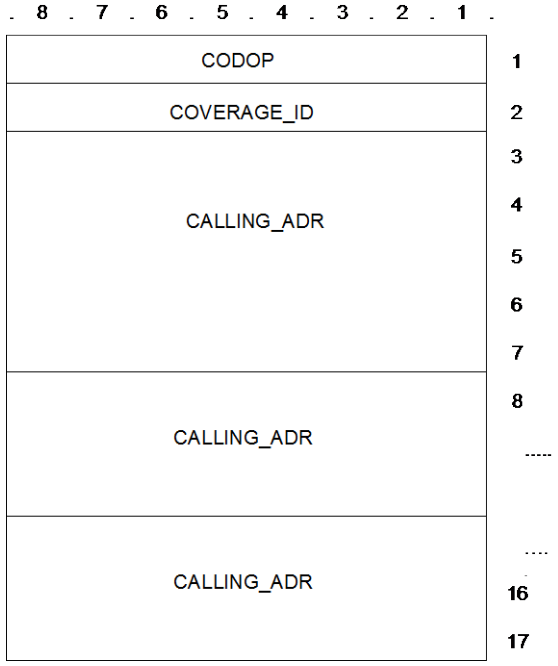


Figure 6: D_ADDITIONAL PARTICIPANTS TSDU format

Table 6: D_ ADDITIONAL PARTICIPANTS information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
COVERAGE_ID	M		V	1 octet
CALLING_ADR	M	The list contains 3 addresses maximum.The first address is mandatory	V	5 octets
CALLING_ADR	C	The list contains 3 addresses maximum.The other are conditional	V	5 octets

4.4.5 D_AUTHENTICATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI when it requests the RT to authenticate itself before executing the command.
Conveyed in TPDU: DT.

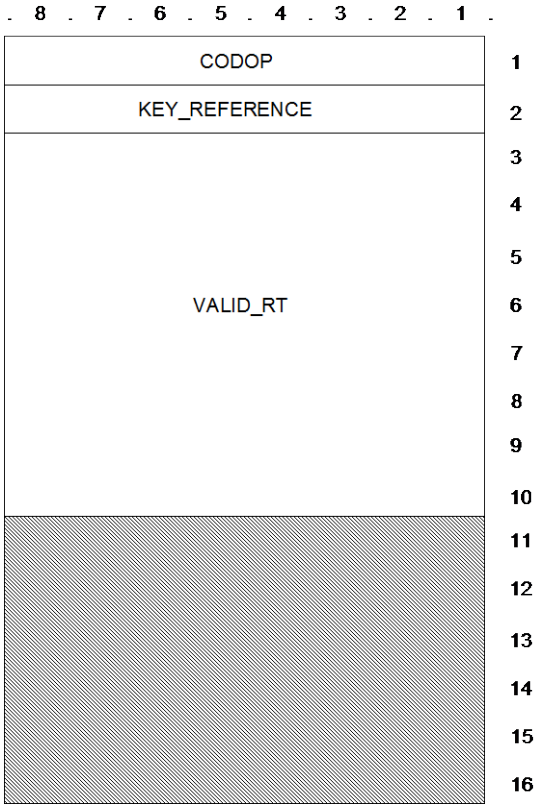


Figure 7: D_AUTHENTICATION TSDU format

Table 7: D_AUTHENTICATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
KEY_REFERENCE	M		V	1 octet
VALID_RT	M		V	8 octets

4.4.6 D_AUTHORISATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used as an indication that the application transaction has ended successfully after authentication.
Conveyed in TPDU: DT, DR or FDR.

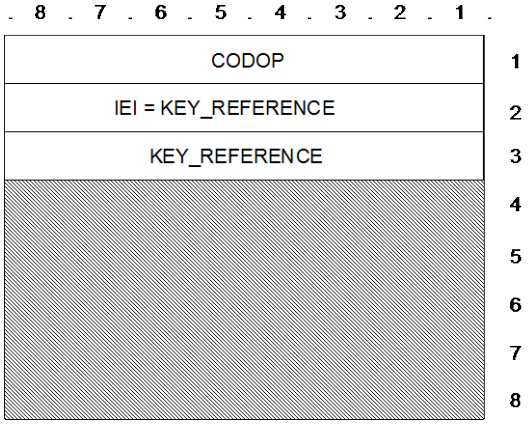


Figure 8: D_AUTHORISATION TSDU format

Table 8: D_AUTHORISATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
KEY_REFERENCE	O		TV	2 octets

4.4.7 D_BACK_CCH

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent as a request for a RT present on TCH to switch back to CCH.
This TSDU is specially used to address RT on TCH of umbrella cells.
Conveyed in TPDU: DU.

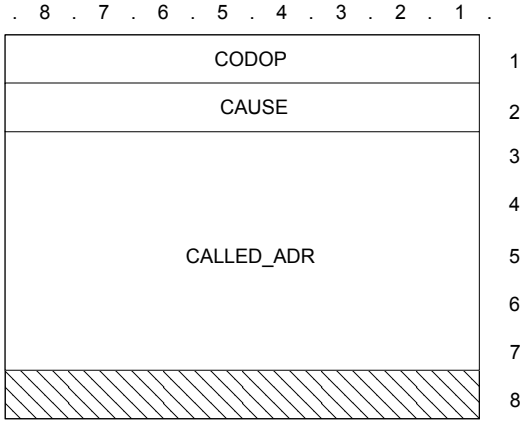


Figure 9: D_BACK_CCH TSDU format

Table 9: D_BACK_CCH information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet
CALLED_ADR	M		V	5 octets

4.4.8 D_BROADCAST

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI to broadcast user data message in "broadcast service transmission mode without notification".
Conveyed in TPDU: DU.

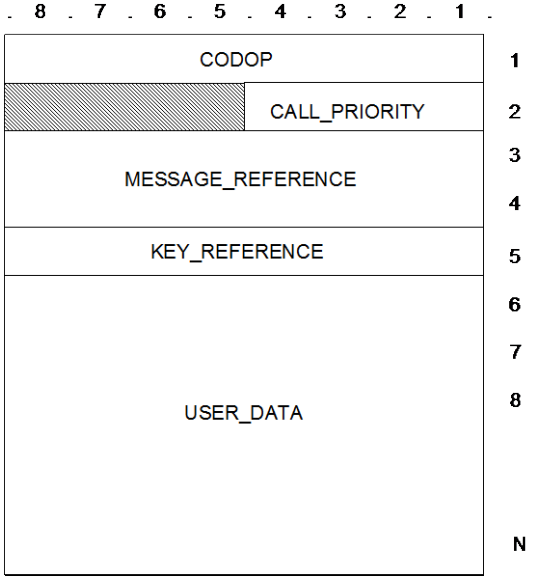


Figure 10: D_BROADCAST TSDU format

Table 10: D_BROADCAST information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALL_PRIORITY	M		V	4 bits
MESSAGE_REFERENCE	M		V	2 octets
KEY_REFERENCE	M		V	1 octet
USER_DATA	M	Information field	V	N-5 octets

If N is greater than N450, the TSDU shall be segmented into TPDU DU .
N shall be less than N452*N450.

4.4.9 D_BROADCAST_NOTIFICATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to announce a broadcast call for one or several groups of RT in the cell.
Conveyed in TPDU: DU.

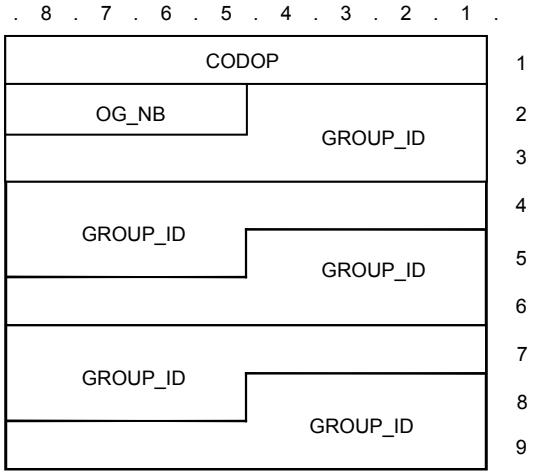


Figure 11: D_BROADCAST_NOTIFICATION TSDU format

Table 11: D_BROADCAST_NOTIFICATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
OG_NB	M		V	4 bits
GROUP_ID	C	If OG_NB ≠ 0	V	12 bits

4.4.10 D_BROADCAST_WAITING

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI to inform each RT at an implicit address that a broadcast message is pending.
Conveyed in TPDU: DU.

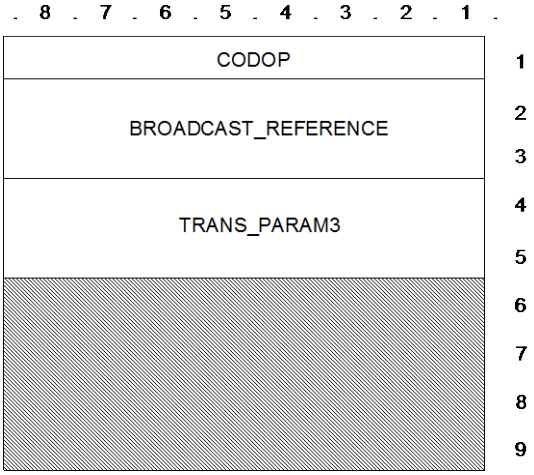


Figure 12: D_ BROADCAST_WAITING TSDU format

Table 12: D_ BROADCAST_WAITING information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
BROADCAST_REFERENCE	M		V	2 octets
TRANS_PARAM3	M		V	2 octets

4.4.11 D_CALL_ALERT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to inform the calling user that the called user is being rung.
Conveyed in TPDU: DT.

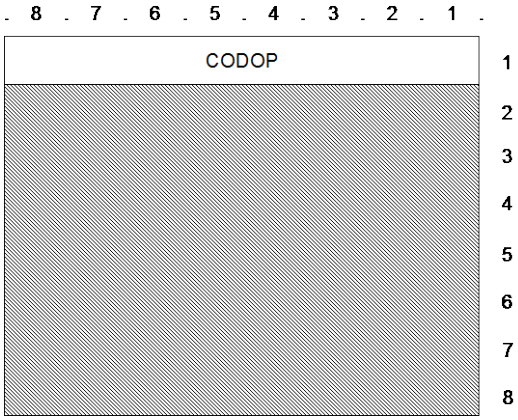


Figure 13: D_CALL_ALERT information elements list

Table 13: D_CALL_ALERT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.12 D_CALL_CONNECT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI PRIVATE CALL application as a request to get ready to go to a TCH.
Conveyed in TPDU: DT.

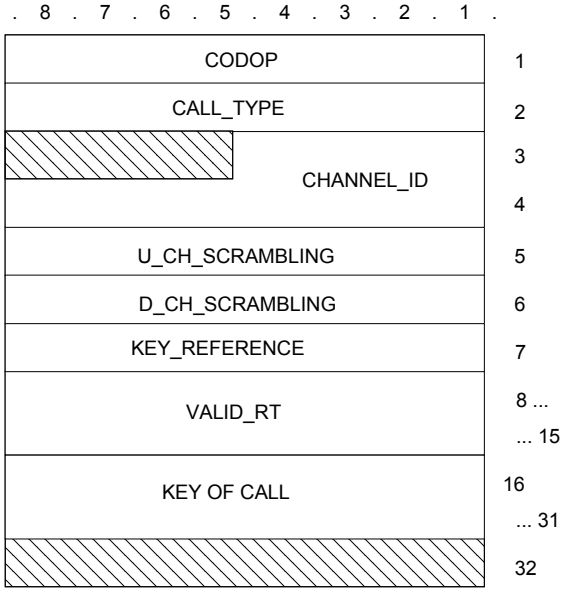


Figure 14: D_CALL_CONNECT TSDU format

Table 14: D_CALL_CONNECT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALL_TYPE	M		V	1 octet
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet
KEY_REFERENCE	M		V	1 octet
VALID_RT	M		V	8 octets
KEY_OF_CALL	C	If KEY_REFERENCE = Key supplied	V	16 octets

4.4.13 D_CALL_SETUP

Direction: SwMI ⇨ RT.
Short description: This TSDU shall notify the RT of an incoming private call.
Conveyed in TPDU: CR.

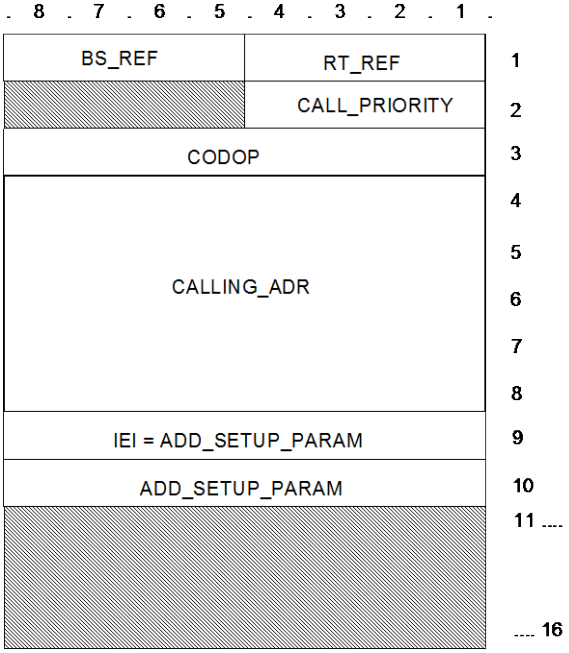


Figure 15: D_CALL_SETUP TSDU format

Table 15: D_CALL_SETUP information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M	not significant	V	4 bits
CALL_PRIORITY	M	not significant	V	4 bits
CODOP	M		V	1 octet
CALLING_ADR	M	see note	V	5 to 14 octets
ADD_SETUP_PARAM	O	Set to precise RT behaviour	TV	1 + 1 octet
The CALLING_ADR information element may designate: - An RFSI address for a private RT - RT call (5 octets); - An empty address for a call from a TDX; - A sub-address followed by the calling RFSI address for a call to a TDX.				

4.4.14 D_CALL_START

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to request the RT to go to a specific traffic channel identified in a previous TSDU.
Conveyed in TPDU: FDR.

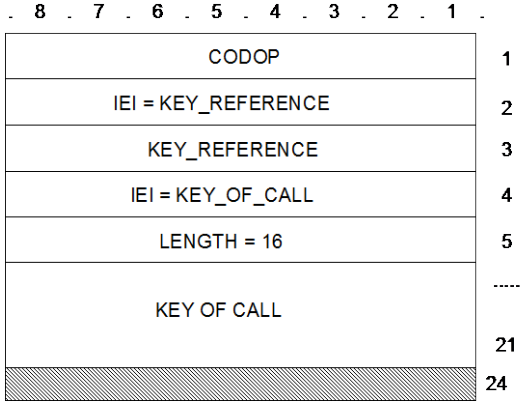


Figure 16: D_CALL_START TSDU format

Table 16: D_CALL_START information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
KEY_REFERENCE	O		TV	1+1 octets
KEY_OF_CALL	O	If KEY_REFERENCE = Key supplied	TLV	16 octets

4.4.15 D_CALL_SWITCH

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI as a request to the RT to suspend the current application and to prepare to go to TCH for a higher priority private call.
Conveyed in TPDU: CR.

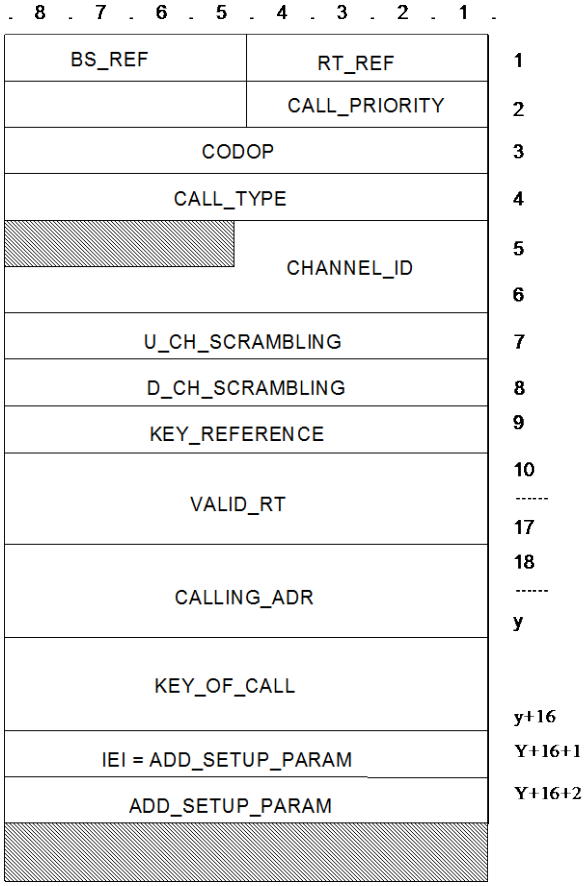


Figure 17: D_CALL_SWITCH TSDU format

Table 17: D_CALL_SWITCH information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
CALL_TYPE	M		V	1 octet
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet
KEY_REFERENCE	M		V	1 octet
VALID_RT	M		V	8 octets
CALLING_ADR	M	see note.	V	Y : length variable
KEY_OF_CALL	C	If KEY_REFERENCE = Key supplied	V	16 octets
ADD_SETUP_PARAM	O	Set to precise RT behaviour	TV	1 + 1 octet
NOTE: The CALLING_ADR information element shall designate one of the following addresses: - An RFSI address for a private RT-RT call; - An empty address for a call from a PABX interface.				

4.4.16 D_CALL_WAITING

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI to inform each RT at an implicit address that a call to that address is waiting to be set-up.
Conveyed in TPDU: DU.

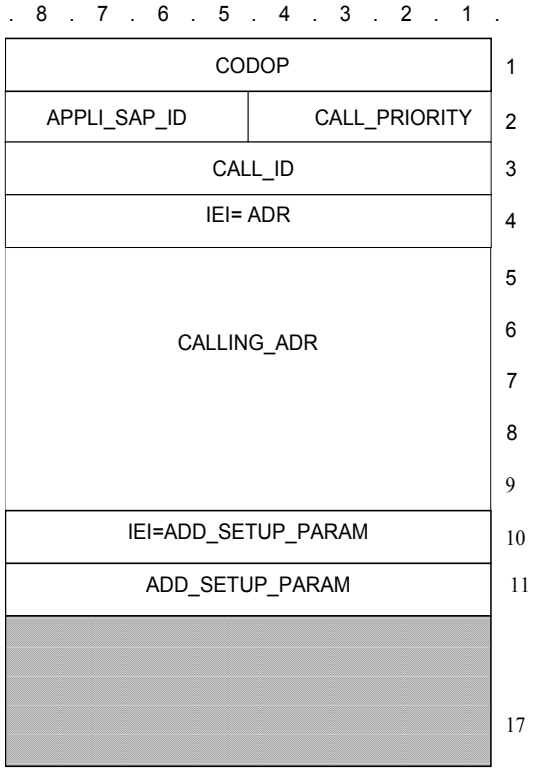


Figure 18: D_CALL_WAITING TSDU format

Table 18: D_CALL_WAITING information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALL_PRIORITY	M	outgoing call priority	V	4 bits
APPLI_SAP_ID	M	type of outgoing call (voice or data)	V	4 bits
CALL_ID	M		V	1 octet
CALLING_ADR	O		TV	5+1 octet
ADD_SETUP_PARAM	O		TV	1+1 octet

4.4.17 D_CCH_OPEN

Direction: SwMI ⇨ RT
Short description: This TSDU shall be used by the SwMI application to open the data transmission on CCH.
Conveyed in TPDU: CR.

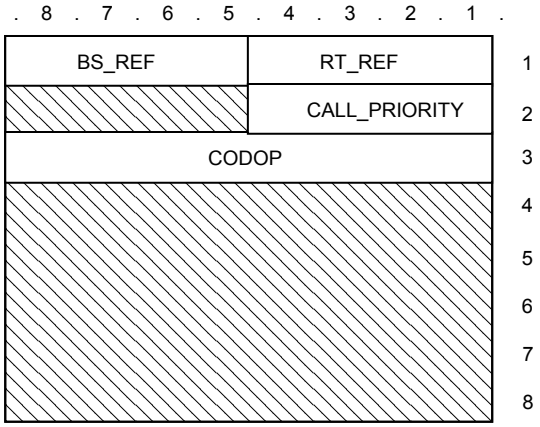


Figure 19: D_CCH_OPEN TSDU format

Table 19: D_CCH_OPEN information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M	not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet

4.4.18 D_CHANNEL_INIT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used as an initialization to the RT of a channel identification on which it is dedicated. This TSDU is only used on recorder LABS.
Conveyed in TPDU: DU.

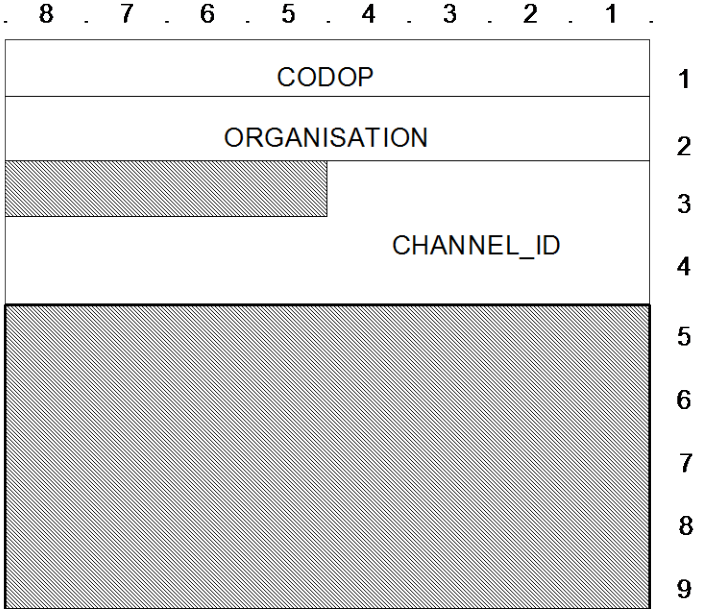


Figure 20: D_CHANNEL_INIT TSDU format

Table 20: D_CHANNEL_INIT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ORGANISATION	M		V	1 octet
CHANNEL_ID	M		V	12 bits

4.4.19 D_CONNECT_CCH

Direction: SwMI ⇨ RT
Short description: This TSDU shall be used by the SwMI DATA application as a request to assign the CCH for data transmission.
Conveyed in TPDU: FDR.

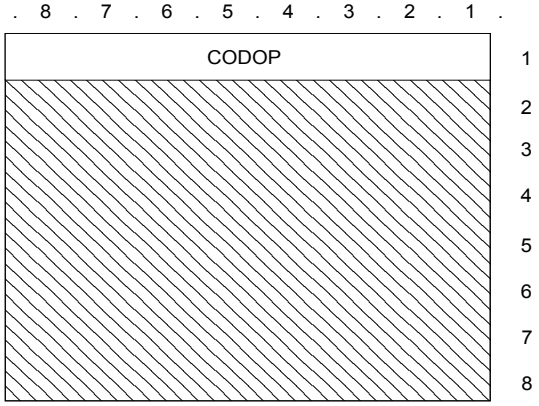


Figure 21: D_CONNECT_CCH format

Table 21: D_CONNECT_CCH Information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.20 D_CONNECT_DCH

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI DATA application as a request to get ready to go to a data channel (DCH).
Conveyed in TPDU: FDR.

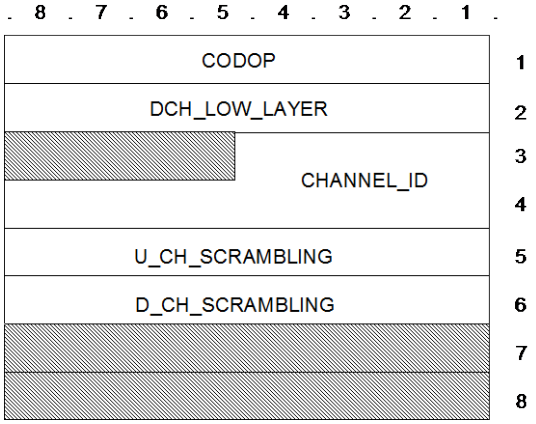


Figure 22: D_CONNECT_DCH format

Table 22: D_CONNECT_DCH Information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
DCH_LOW_LAYER	M		V	1 octet
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet

4.4.21 D_CRISIS_NOTIFICATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to announce a crisis open channel setup for one or several groups of RT in the cell.
Conveyed in TPDU: DU.

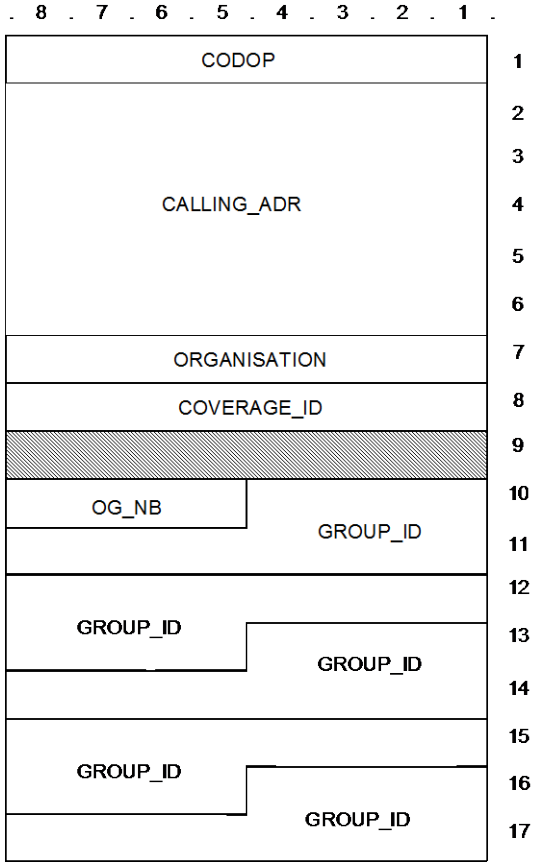


Figure 23: D_CRISIS_NOTIFICATION TSDU format

Table 23: D_CRISIS_NOTIFICATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALLING_ADR	M		V	5 octet
ORGANISATION	M		V	1 octet
COVERAGE_ID	M		V	1 octet
OG_NB	M		V	4 bits
GROUP_ID	C	If OG_NB ≠ 0	V	12 bits

4.4.22 D_DATA_AUTHENTICATION

Direction: SwMI ⇨ RT
Short description: This TSDU shall be sent by the SwMI when it requests the RT to authenticate itself before executing the command.
Conveyed in TPDU: DT.

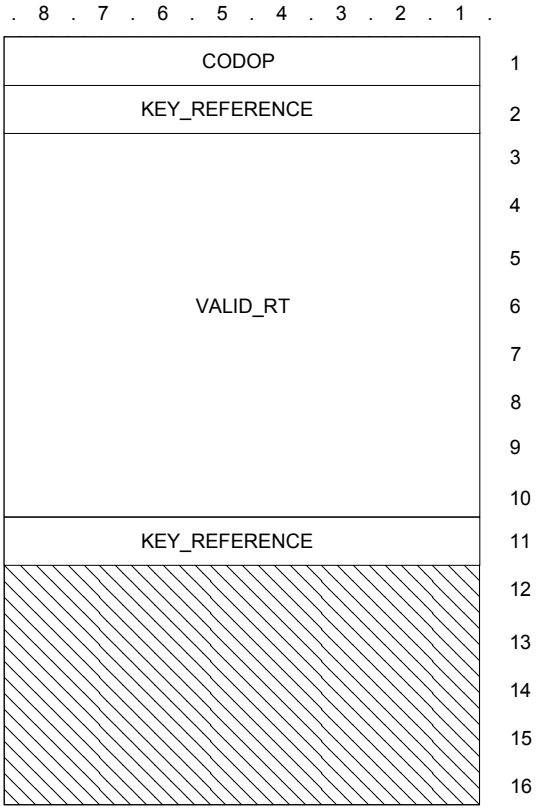


Figure 24: D_DATA_AUTHENTICATION TSDU format

Table 24: D_DATA_AUTHENTICATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
KEY_REFERENCE	M	authentication key reference	V	1 octet
VALID_RT	M		V	8 octets
KEY_REFERENCE	M	Ciphering key reference	V	1 octet

4.4.23 D_DATA_DOWN_STATUS

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI to the same application of the destination RT as the application of the originator RT.
Conveyed in TPDU: DU.

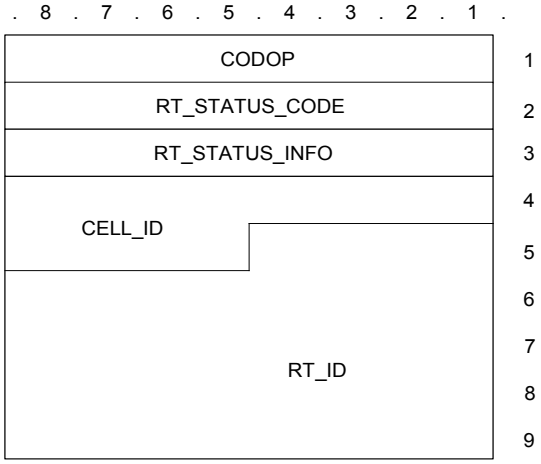


Figure 25: D_DATA_DOWN_STATUS TSDU format

Table 25: D_DATA_DOWN_STATUS information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
RT_STATUS_CODE	M	Type of information sent	V	1 octet
RT_STATUS_INFO	M	Additional information	V	1 octet
CELL_ID	M	Sender's location, added by SwMI during routing.	V	12 bits
RT_ID	M	RFSI address of sender's RT	V	9 quartets

4.4.24 D_DATA_END

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT or SwMI application to inform the SwMI or RT of the end of a data transaction.
Conveyed in TPDU: FDR

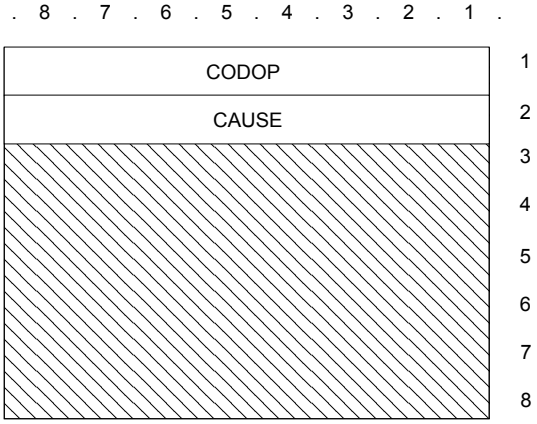


Figure 26: D_DATA_END TSDU format

Table 26: D_DATA_END information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.25 D_DATA_MSG_DOWN

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used for a message transfer to the RT.
Conveyed in TPDU: DT.

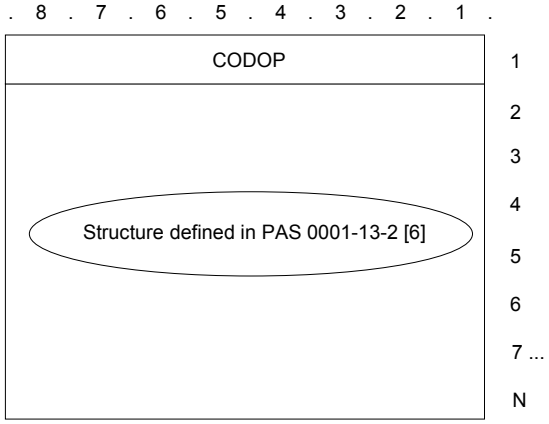


Figure 27: D_DATA_MSG_DOWN TSDU format

Table 27: D_DATA_MSG_DOWN information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented several TPDU DT.
N shall be less than 2 048.

4.4.26 D_DATA_REQUEST

Direction: SwMI ⇨ RT
Short description: This TSDU shall be used by the SwMI application as a request for a downlink data transmission
Conveyed in TPDU: CR.

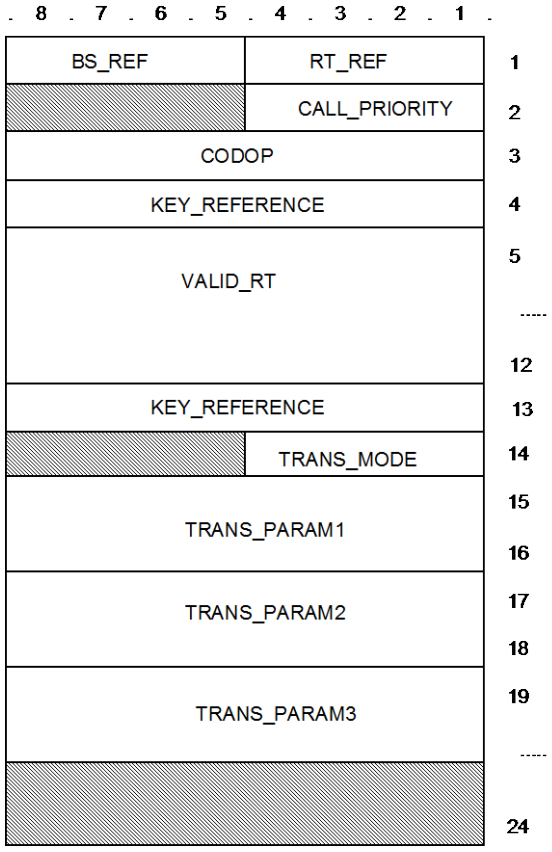


Figure 28: D_DATA_REQUEST TSDU format

Table 28: D_DATA_REQUEST information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M	not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
KEY_REFERENCE	M	authentication key reference	V	1 octet
VALID_RT	M		V	8 octets
KEY_REFERENCE	M	Ciphering key reference	V	1 octet
TRANS_MODE	M	Mode de transmission	V	4 bits
TRANS_PARAM1	M	First parameter depending on the TRANS_MODE value	V	2 octets
TRANS_PARAM2	M	Second parameter depending on the TRANS_MODE value	V	2 octets
TRANS_PARAM3	C	If TRANS_MODE = UDP message mode	V	2 octets

4.4.27 D_DATAGRAM

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI to broadcast user data message in "broadcast service transmission mode with notification" on CCH.
Conveyed in TPDU: DU.

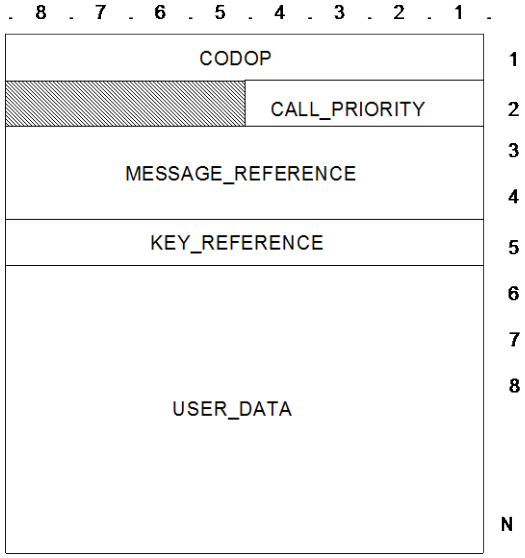


Figure 29: D_DATAGRAM TSDU format

Table 29: D_DATAGRAM information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALL_PRIORITY	M		V	4 bits
MESSAGE_REFERENCE	M		V	2 octets
KEY_REFERENCE	M		V	1 octet
USER_DATA	M	Information field	V	N-5 octets

If N is greater than N450, the TSDU shall be segmented into several TPDU DT.
N shall be less than 2 048.

4.4.28 D_DATAGRAM_NOTIFY

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI to announce the broadcast of a message in "broadcast service transmission mode with notification".
Conveyed in TPDU: DU.

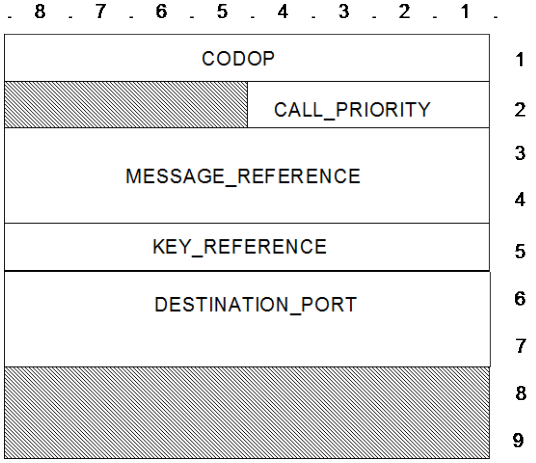


Figure 30: D_DATAGRAM_NOTIFY TSDU format

Table 30: D_DATAGRAM_NOTIFY information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALL_PRIORITY	M		V	4 bits
MESSAGE_REFERENCE	M		V	2 octets
KEY_REFERENCE	M		V	1 octet
DESTINATION_PORT	C	Optional parameter depending on the TRANS_MODE value	V	2 octets

4.4.29 D_DCH_OPEN

Direction: SwMI ⇨ RT
Short description: This TSDU shall be used by the SwMI application to open the data transmission on DCH.
Conveyed in TPDU: CR.

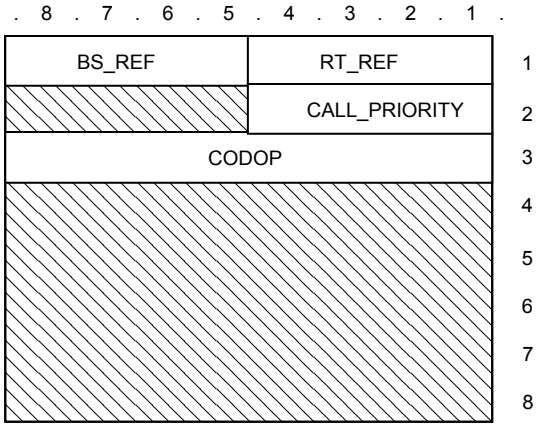


Figure 31: D_DCH_OPEN TSDU format

Table 31: D_DCH_OPEN information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M	not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet

4.4.30 D_DDCH_DESCRIPTION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI BROADCAST application to broadcast the characteristics of the cell's DDCH. This TSDU is only used on radio cell.
Conveyed in TPDU: DU.

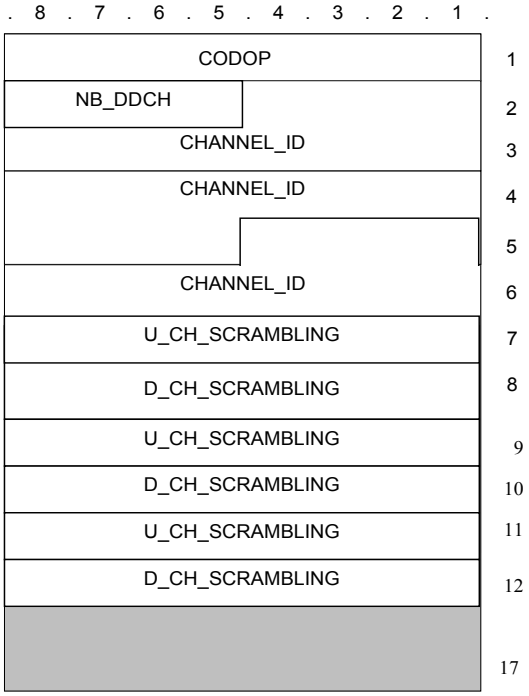


Figure 32: D_DDCH_DESCRIPTION TSDU format

Table 32: D_DDCH_DESCRIPTION information elements list

IE	K	Comments	F	Length
CODOP	M		V	1 byte
NB_DDCH	M		V	4 bits
CHANNEL_ID	C	In according of nb_ddch	V	12 bits
U_CH_SCRAMBLING	C	In according of nb_ddch	V	1 byte
D_CH_SCRAMBLING	C	In according of nb_ddch	V	1 byte

4.4.31 D_DEVIATION_ON

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to inform the RT that all the calls sent to its are now directed towards the forwarded-to address provided in the TSDU.
Conveyed in TPDU: DR.

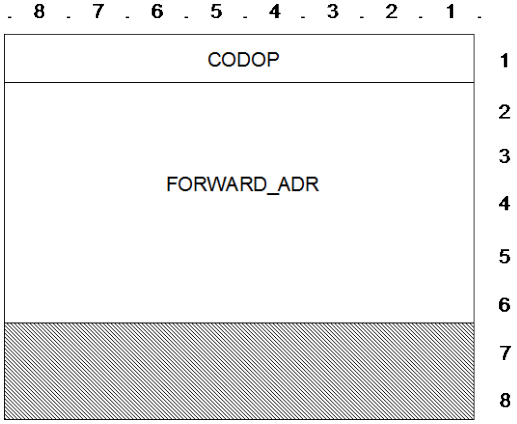


Figure 33: D_DEVIATION_ON TSDU format

Table 33: D_DEVIATION_ON information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
FORWARD_ADR	M		V	5 octets

4.4.32 D_ECCH_DESCRIPTION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI BROADCAST application to broadcast the characteristics of the cell's ECCH. This TSDU is only used on radio cell.
Conveyed in TPDU: DU.

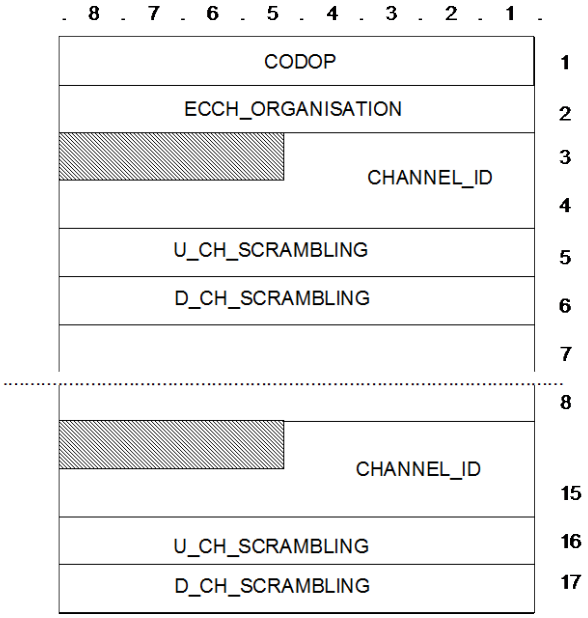


Figure 34: D_ECCH_DESCRIPTION TSDU format

Table 34: D_ECCH_DESCRIPTION information elements list

IE	K	Comments	F	Length
CODOP	M		V	1 octet
ECCH_ORGANISATION	M		V	1 octet
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet

4.4.33 D_ECH_ACTIVATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used when the SwMI emergency application informs the RT that an emergency open channel is active.
Conveyed in TPDU: DU.

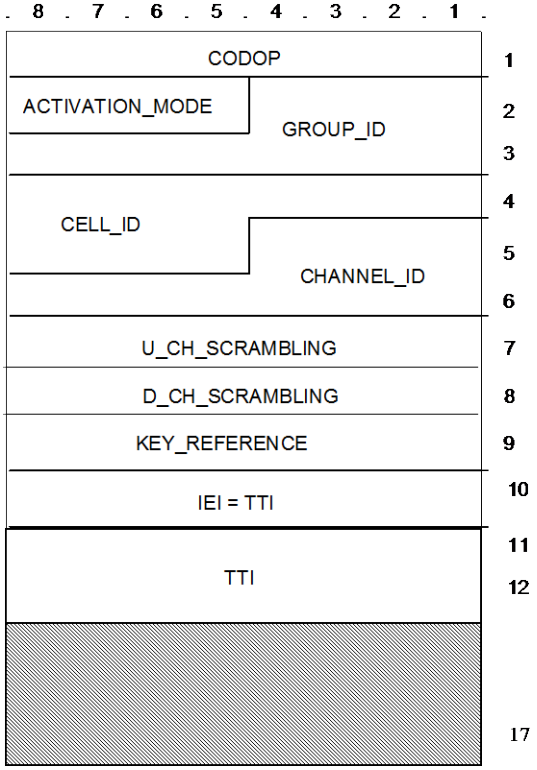


Figure 35: D_ECH_ACTIVATION TSDU format

Table 35: D_ECH_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	1 octet
CELL_ID	M		V	12 bits
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet
KEY_REFERENCE	M	= UNENCRYPTED_CALL	V	1 octet
TTI	O	This information element shall be present only in the first message.	TV	2+1 octets

4.4.34 D_ECH_OVERLOAD_ID

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by SwMI, to indicate that an emergency communication activation is put in a waiting queue.
Conveyed in TPDU: DU.

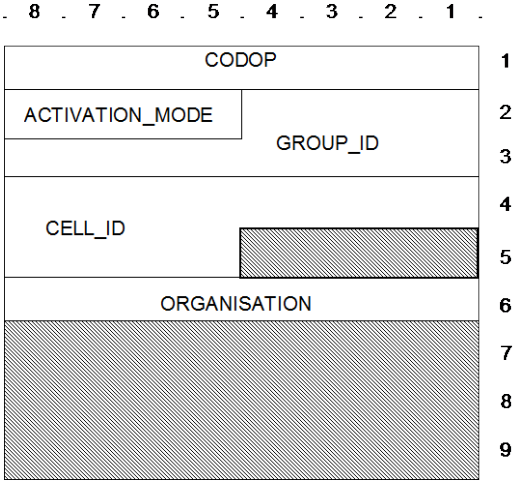


Figure 36: D_ECH_OVERLOAD_ID TSDU format

Table 36: D_ECH_OVERLOAD_ID information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
CELL_ID	M		V	12 bits
ORGANISATION	M		V	1 octet

4.4.35 D_ECH_REJECT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used when the SwMI emergency application rejects an activation request from the RT.
Conveyed in TPDU: DU.

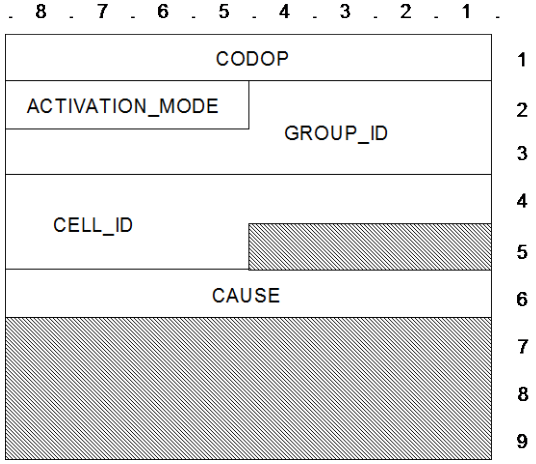


Figure 37: D_ECH_REJECT TSDU format

Table 37: D_ECH_REJECT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
CELL_ID	M		V	12 bits
CAUSE	M		V	1 octet
CELL_ID	M		V	12 bits

4.4.36 D_EMERGENCY_ACK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI (EMERGENCY application) to inform the RT of the positive end of the emergency transaction: an emergency communication will be setup.
Conveyed in TPDU: DR.

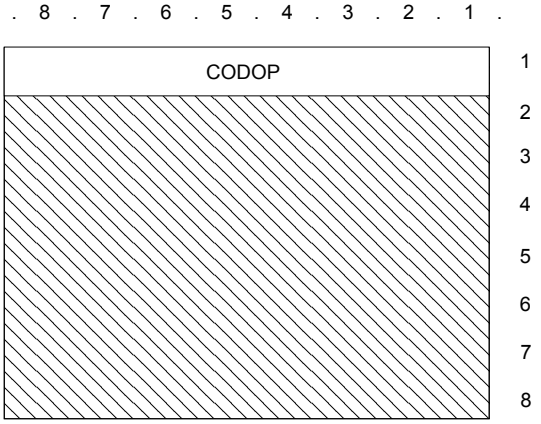


Figure 38: D_EMERGENCY_ACK TSDU format

Table 38: D_EMERGENCY_ACK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.37 D_EMERGENCY_NAK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI (EMERGENCY application) to inform the RT of the negative end of the emergency transaction: no emergency communication will be setup.
Conveyed in TPDU: DR.

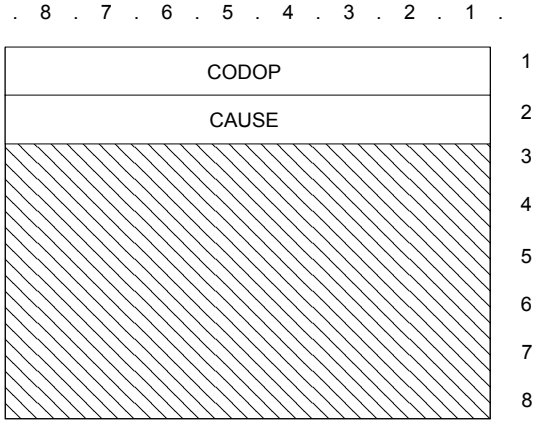


Figure 39: D_EMERGENCY_ACK TSDU format

Table 39: D_EMERGENCY_ACK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.38 D_EMERGENCY_NOTIFICATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to broadcast an emergency notification to all RT in the cell.
Conveyed in TPDU: DU.

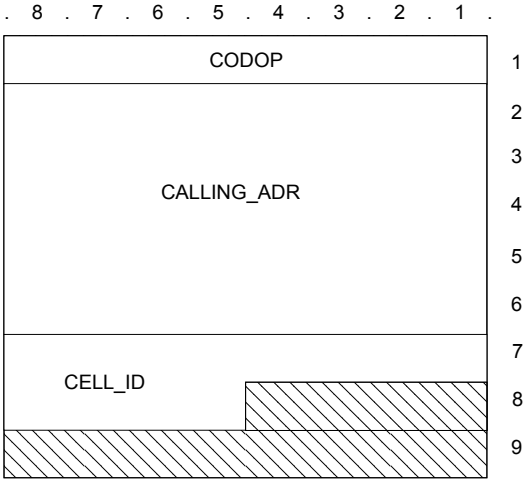


Figure 40: D_EMERGENCY_NOTIFICATION TSDU format

Table 40: D_EMERGENCY_NOTIFICATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALLING_ADR	M		V	5 octets
CELL_ID	M		V	12 bits

4.4.39 D_END/U_END

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT or SwMI application to inform the SwMI or RT of the end of a transaction.
Conveyed in TPDU: DR.

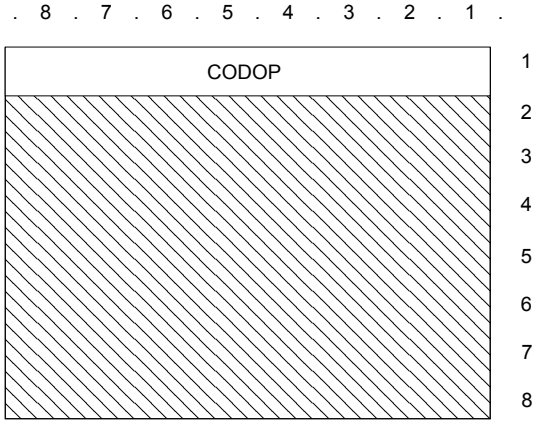


Figure 41: D_END or U_END TSDU format

Table 41: D_END or U_END information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.40 D_EXPLICIT_SHORT_DATA

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent on SDCH by the SwMI application to deliver a short information message to one or more RTs.
Conveyed in TPDU: DU.

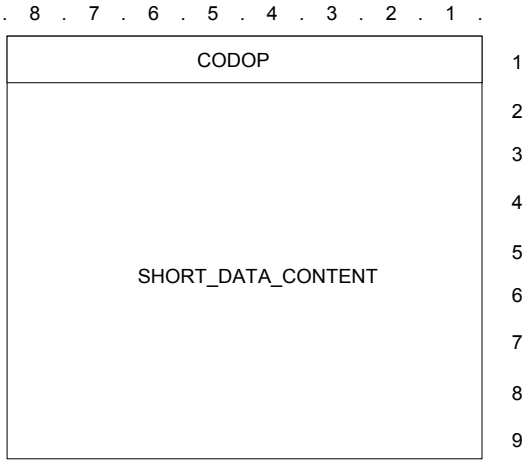


Figure 42: D_EXPLICIT_SHORT_DATA TSDU format

Table 42: D_EXPLICIT_SHORT_DATA information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
SHORT_DATA_CONTENT	M		V	8 octets

4.4.41 D_EXTENDED_STATUS

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be constructed by SwMI and transmitted by DATA application in order to inform one or several DP that a called for DPs has failded. This TSDU is only used on LABS.
Conveyed in TPDU: DU.

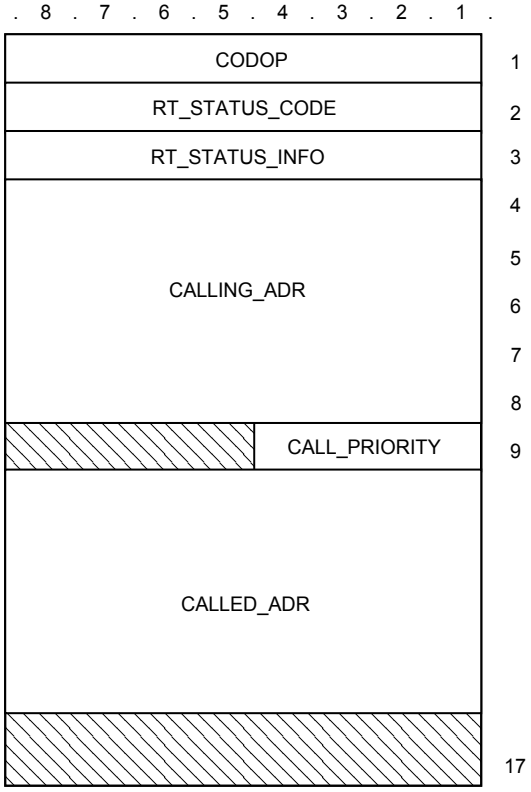


Figure 43: D_EXTENDED_STATUS TSDU format

Table 43: D_EXTENDED_STATUS information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
RT_STATUS_CODE	M	Type of information sent	V	1 octet
RT_STATUS_INFO	M	Additional information	V	1 octet
CALLING_ADR	M	Calling RT Address	V	5 octets
CALL PRIORITY	M		V	4 bits
CALLED_ADR	M	Dialed address, may be an : • explicit address • implicit address • PBX sub address	V	 5 octets 5 octets 8 octets max

4.4.42 D_FORCED_REGISTRATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used to broadcast a request for a specific RT to re-examine its rights to register not withstanding the "registration class" parameter.
Conveyed in TPDU: DU.

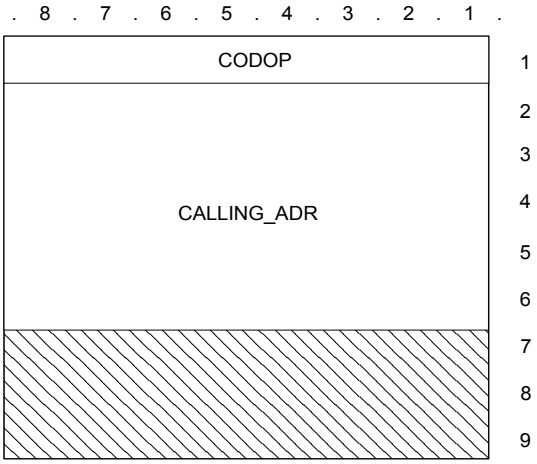


Figure 44: D_FORCED_REGISTRATION TSDU format

Table 44: D_FORCED_REGISTRATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CALLING_ADR	M		V	5 octets

4.4.43 D_FUNCTIONAL_SHORT_DATA

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent on SDCH by the SwMI application to deliver a short information message to one or more RTs.
Conveyed in TPDU: DU.

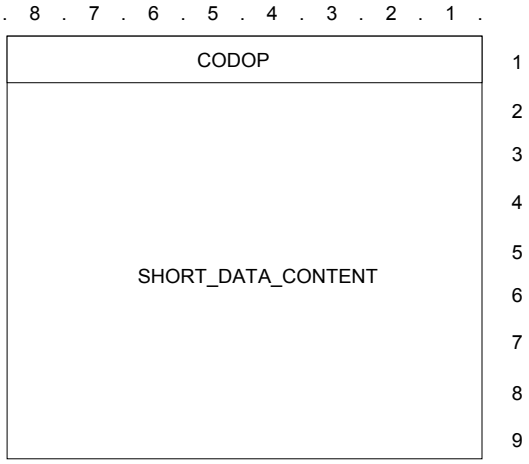


Figure 45: D_FUNCTIONAL_SHORT_DATA TSDU format

Table 45: D_FUNCTIONAL_SHORT_DATA information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
SHORT_DATA_CONTENT	M		V	8 octets

4.4.44 D_GROUP_ACTIVATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used as an indication to the RT that a group communication is active.
Conveyed in TPDU: DU.

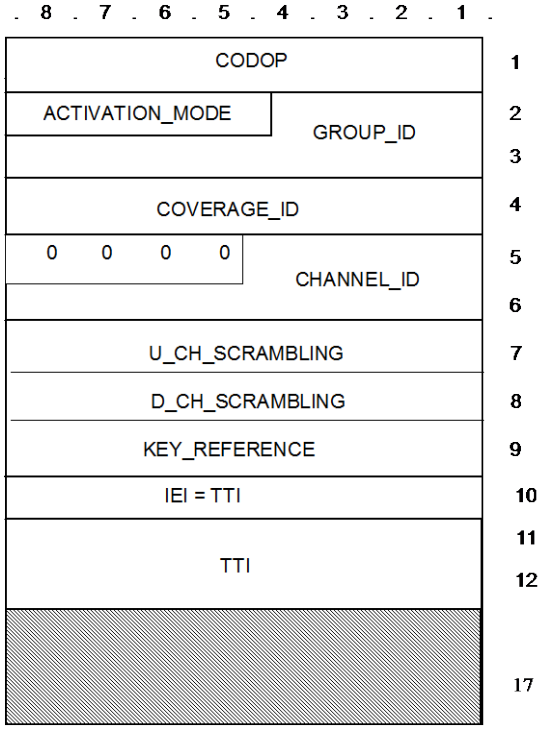


Figure 46: D_GROUP_ACTIVATION TSDU format

Table 46: D_GROUP_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
COVERAGE_ID	M		V	1 octet
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet
KEY_REFERENCE	M		V	1 octet
TTI	O	This information element shall be present only in the first message.	TV	2+1 octets

4.4.45 D_GROUP_COMPOSITION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to broadcast the list of OG participants to each OG member.
Conveyed in TPDU: DU.

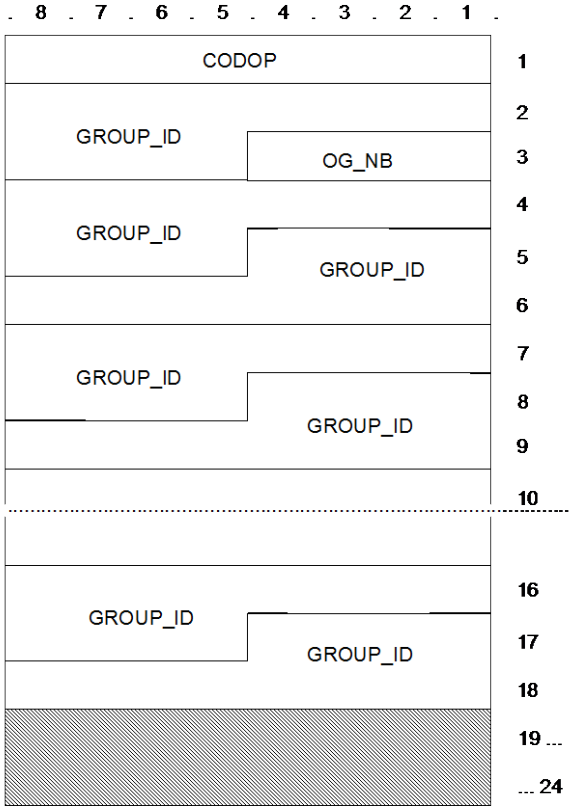


Figure 47: D_GROUP_COMPOSITION TSDU format

Table 47: D_GROUP_COMPOSITION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
GROUP_ID	M		V	12 bits
OG_NB	M		V	4 bits
GROUP_ID	C	If OG_NB ≠ 0	V	12 bits

4.4.46 D_GROUP_END

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI to all RT listening to the CTCH as an indication that the application has ended (valid for group communication or emergency open channel) and prompts them to leave the TCH (see [8]).
Conveyed in TPDU: DU.

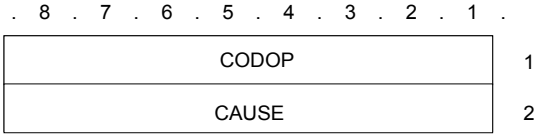


Figure 48: D_GROUP_END TSDU format

Table 48: D_GROUP_END information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.47 D_GROUP_IDLE

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI to inform all the RT present on a group communication or emergency open channel TCH that no voice activity has been detected for a certain times and prompts them to return to CCH, until the next activation occurs (see [8]).
Conveyed in TPDU: DU.

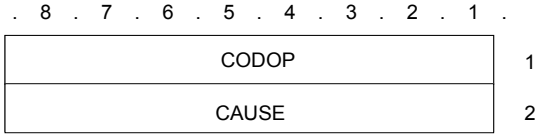


Figure 49: D_GROUP_IDLE TSDU format

Table 49: D_GROUP_IDLE information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.48 D_GROUP_LIST

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI BROADCAST application to broadcast the list of group communications (group communication or emergency open channels) in the cell.
Conveyed in TPDU: DU.

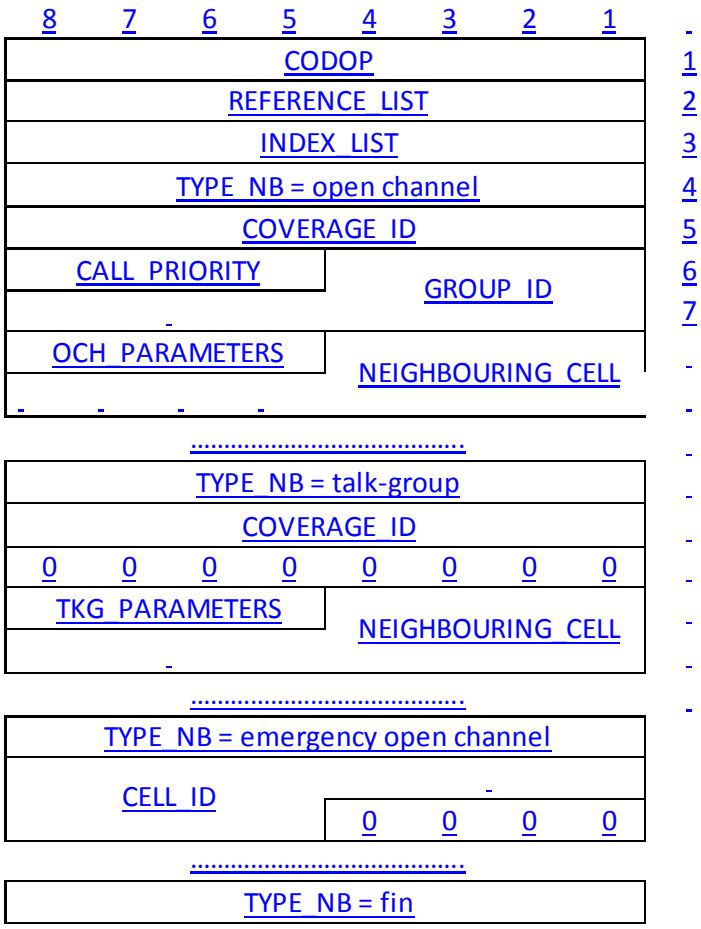


Figure 50: D_GROUP_LIST TSDU format

Table 50: D_GROUP_LIST information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
REFERENCE_LIST	M		V	1 octet
INDEX_LIST	C	If field REVISION in REFERENCE_LIST≠ 0	V	1 octet
TYPE_NB	C	If field REVISION in REFERENCE_LIST≠ 0	V	1 octet
COVERAGE_ID	C	According to TYPE_NB value	V	1 octet
GROUP_ID	C	According to TYPE_NB value	V	12 bits
CALL_PRIORITY	C	According to TYPE_NB value	V	4 bits
CELL_ID	C	According to TYPE_NB value	V	12 bits
NEIGHBOURING_CELL	C	According to TYPE_NB value	V	12 bits
OCH_PARAMETERS	C	According to TYPE_NB value	V	4 bits
TKG_PARAMETERS	C	According to TYPE_NB value	V	4 bits

4.4.49 D_GROUP_MASTER

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI BROADCAST application to broadcast the PTT master BN of each group communication in the cell.
Conveyed in TPDU: DU.

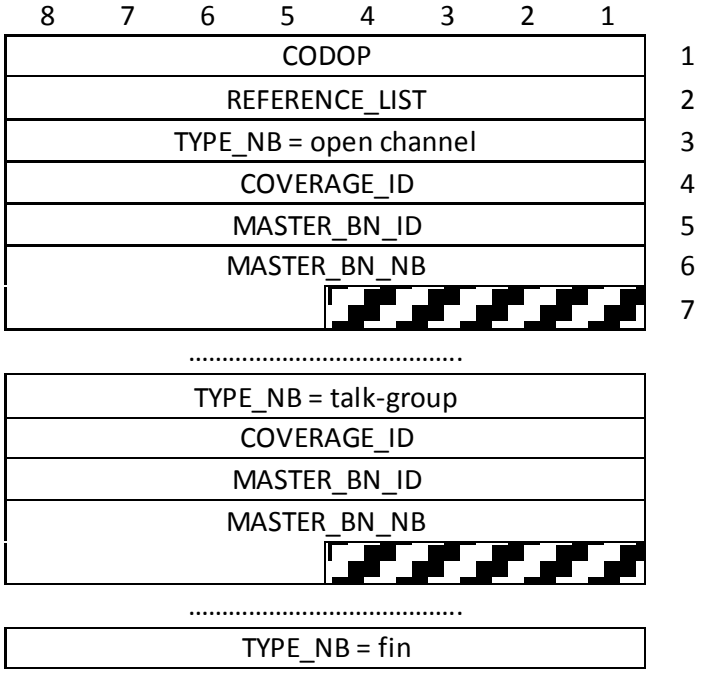


Figure 51: D_GROUP_MASTER TSDU format

Table 51: D_GROUP_MASTER information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
REFERENCE_LIST	M		V	1 octet
TYPE_NB	C	If field REVISION in REFERENCE_LIST□ 0	V	1 octet
COVERAGE_ID	C	According to TYPE_NB value	V	1 octet
MASTER_BN_ID	C	According to TYPE_NB value	V	1 octet
MASTER_BN_NB	C	According to TYPE_NB value	V	12 bits

4.4.50 D_GROUP_OVERLOAD_ID

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by SwMI, to indicate that the group activation is put in a waiting queue. Conveyed in TPDU: DU.

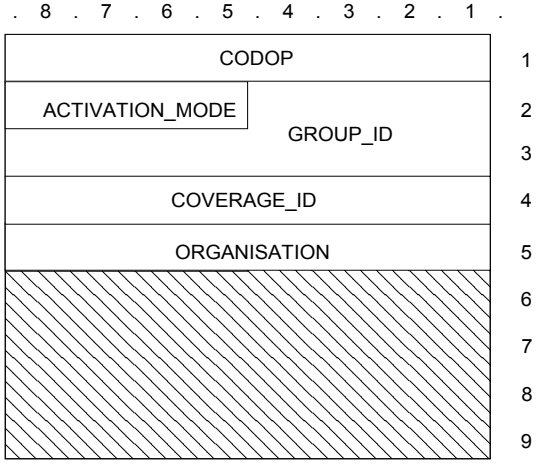


Figure 52: D_GROUP_OVERLOAD_ID TSDU format

Table 52: D_GROUP_OVERLOAD_ID information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
COVERAGE_ID	M		V	1 octet
ORGANISATION	M		V	1 octet

4.4.51 D_GROUP_PAGING

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by SwMI, to request the members of a group to confirm their presence in the cell. This TSDU is only used on radio cell.

Conveyed in TPDU: DU.

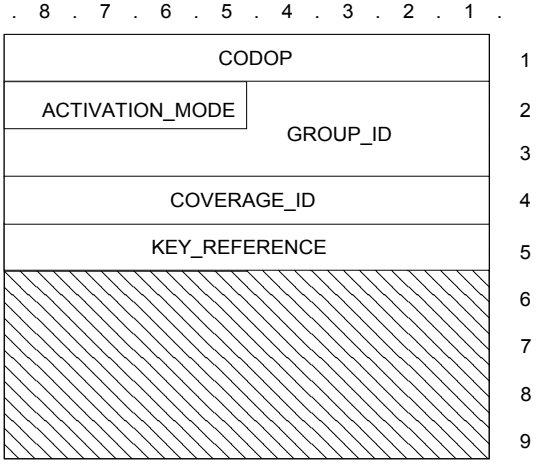


Figure 53: D_GROUP_PAGING TSDU format

Table 53: D_GROUP_PAGING information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
COVERAGE_ID	M		V	1 octet
KEY_REFERENCE	M		V	1 octet

4.4.52 D_GROUP_REJECT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used to reject a group communication activation request.
Conveyed in TPDU: DU.

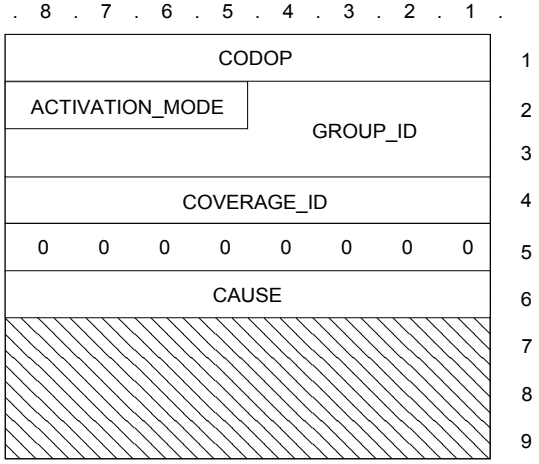


Figure 54: D_GROUP_REJECT TSDU format

Table 54: D_GROUP_REJECT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
COVERAGE_ID	M		V	1 octet
CAUSE	M		V	1 octet

4.4.53 D_HOOK_ON_INVITATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by a SwMI application X to prompt the RT user to withdraw from an application Y in progress on TCH and to return to CCH so that an application transaction Xi can be executed.
Conveyed in TPDU: DU.

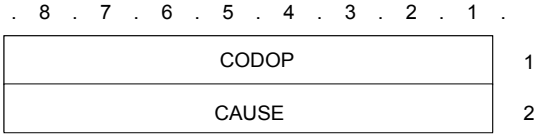


Figure 55: D_HOOK_ON_INVITATION TSDU format

Table 55: D_HOOK_ON_INVITATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.54 D_INFORMATION_DELIVERY

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to distribute some information to the RT (Information includes local and/or network OG).
Conveyed in TPDU: CR.

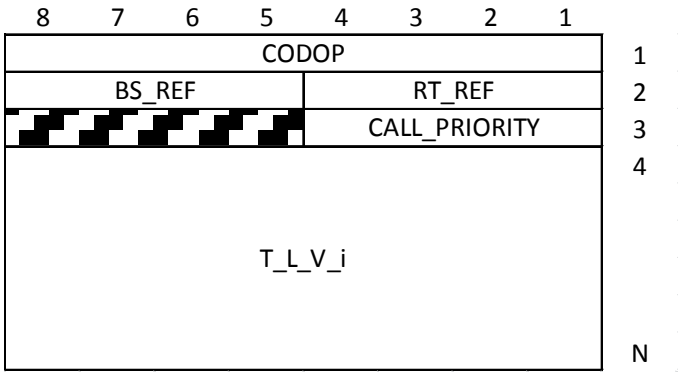


Figure 56: D_INFORMATION_DELIVERY TSDU format

Table 56: D_INFORMATION_DELIVERY information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
BS_REF	M		V	4 bits
RT_REF	M	not significant	V	4 bits
CALL_PRIORITY	M	variable	V	4 bits
T_L_V_i	M		V	N-3 octets

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048.

4.4.55 D_KEY_DELIVERY

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to deliver the KEY to the RT without authentication.
Conveyed in TPDU: CR.

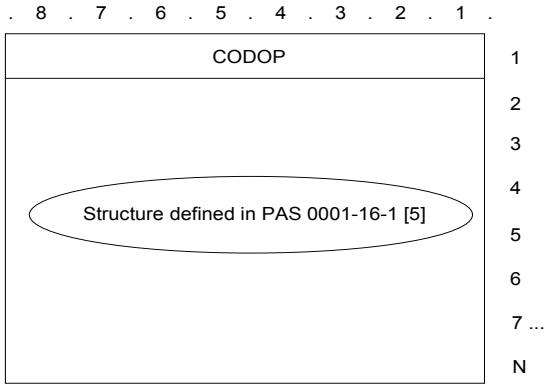


Figure 57: D_KEY_DELIVERY TSDU format

Table 57: D_KEY_DELIVERY information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048.

4.4.56 D_KEY_END_DELIVERY

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to deliver some more KEY information to the RT with authentication.
Conveyed in TPDU: DT.

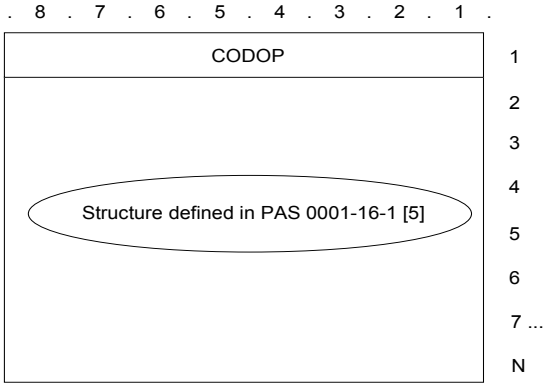


Figure 58: D_KEY_END_DELIVERY TSDU format

Table 58: D_KEY_END_DELIVERY information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU DT.
N shall be less than 2 048.

4.4.57 D_KEY_START

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to deliver one or several KEYs to the RT with authentication.
Conveyed in TPDU: CR.

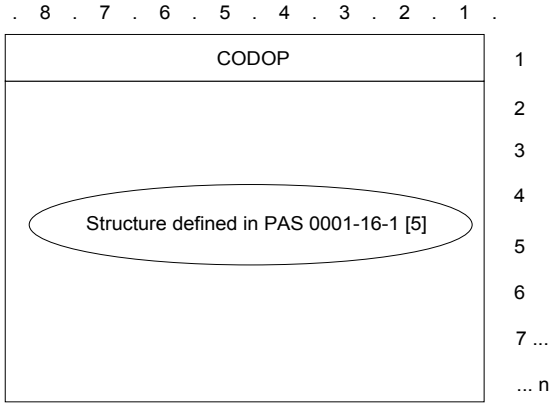


Figure 59: D_KEY_START TSDU format

Table 59: D_KEY_START information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.58 D_LOCATION_ACTIVITY_ACK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to close the successful transaction. The TTI is still assigned to the RT.
Conveyed in TPDU: DR.

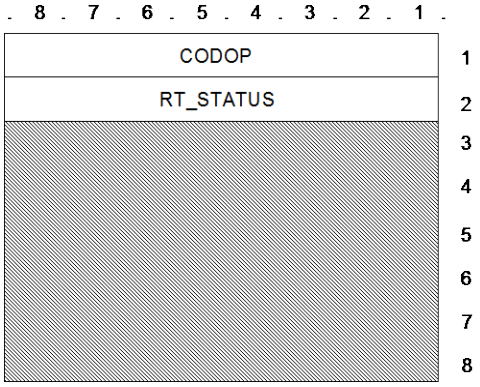


Figure 60: D_LOCATION_ACTIVITY_ACK TSDU format

Table 60: D_LOCATION_ACTIVITY_ACK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
RT_STATUS	M		V	1 octet

4.4.59 D_NEIGHBOURING_CELL

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI BROADCAST application to broadcast the adjacent cell radio parameters. This TSDU is only used on radio cell.
Conveyed in TPDU: DU.

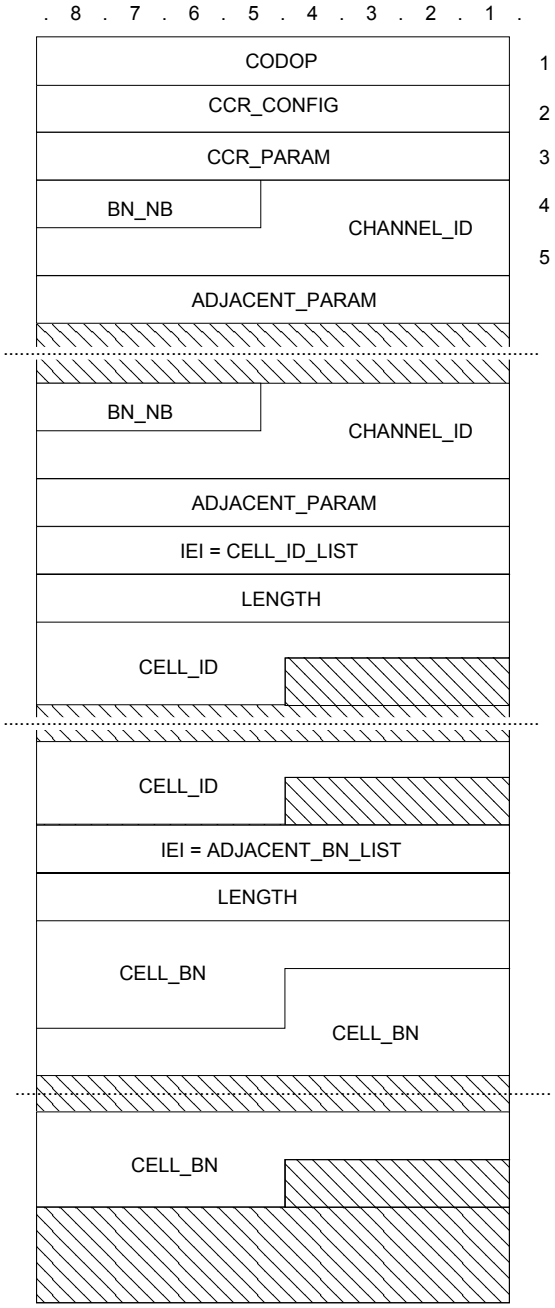


Figure 61: D_NEIGHBOURING_CELL TSDU format

Table 61: D_NEIGHBOURING_CELL information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CCR_CONFIG	M		V	1 octet
CCR_PARAM	C	According to CCR_CONFIG (if field NUMBER <> 0)	V	1 octet
BN_NB	C	According to CCR_CONFIG (if field NUMBER <> 0)	V	4 bits
CHANNEL_ID	C	According to CCR_CONFIG (if field NUMBER <> 0)	V	12 bits
ADJACENT_PARAM	C	According to CCR_CONFIG (if field NUMBER <> 0)	V	1 octet
CELL_ID	O		TLV	12 bits
CELL_BN	O		TLV	12 bits

4.4.60 D_OC_ACTIVATION

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used as an indication to the RT that an object call is active.
Conveyed in TPDU: DU.

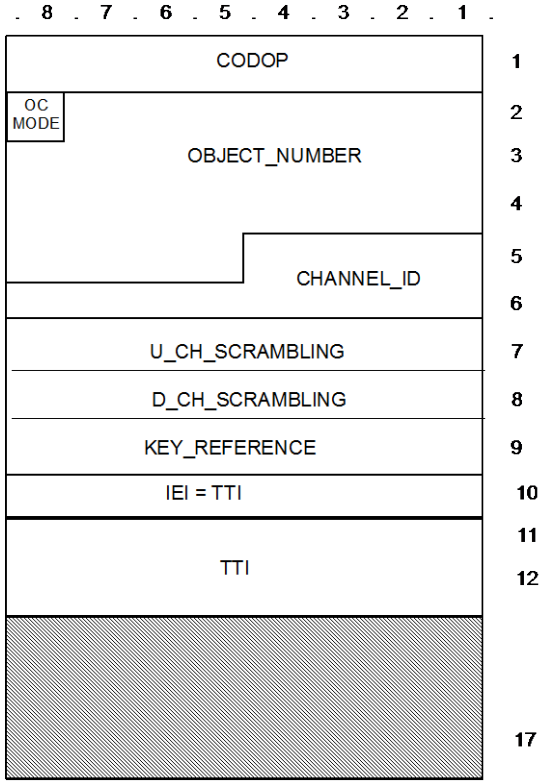


Figure 62: D_OC_ACTIVATION TSDU format

Table 62: D_OC_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
OC_MODE	M		V	1 bit
OBJECT_NUMBER	M		V	27 bits
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet
KEY_REFERENCE	M		V	1 octet
TTI	O	This information element shall be present only in the first message.	TV	2+1 octets

4.4.61 D_OC_PAGING

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by SwMI, to request the members of an object call to confirm their presence in the cell. This TSDU is only used on radio cell.
Conveyed in TPDU: DU.

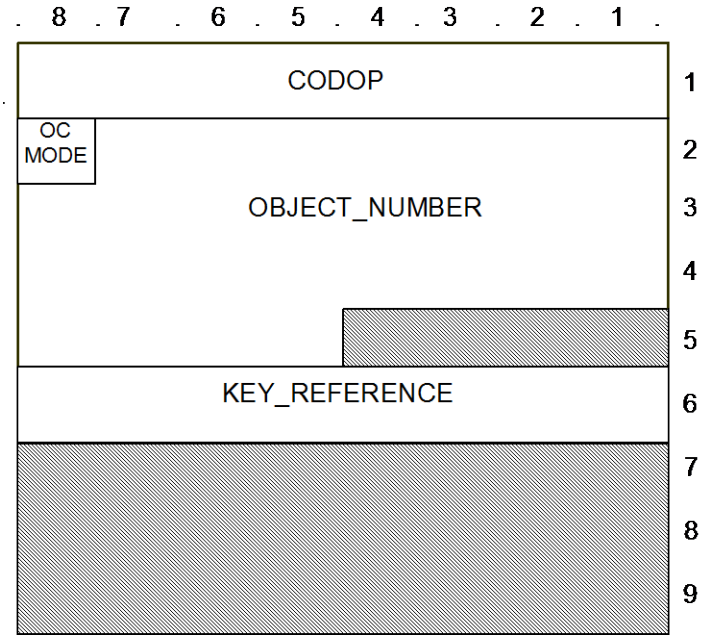


Figure 63: D_OC_PAGING TSDU format

Table 63: D_OC_PAGING information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
OC_MODE	M	Not used	V	1 bit
OBJECT_NUMBER	M		V	27 bits
KEY_REFERENCE	M		V	1 octet

4.4.62 D_OC_REJECT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used to reject an object call activation request.
Conveyed in TPDU: DU.

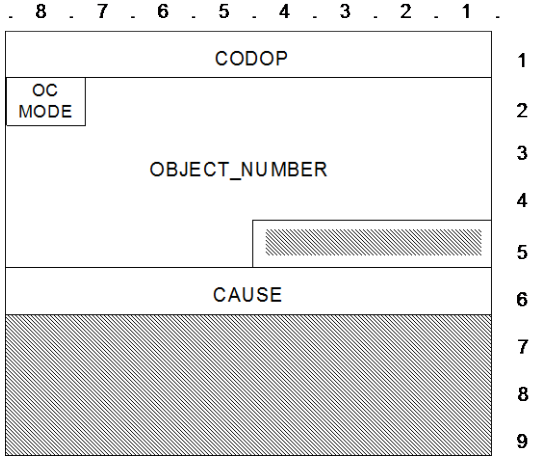


Figure 64: D_OC_REJECT TSDU format

Table 64: D_OC_REJECT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
OC_MODE	M		V	1 bit
OBJECT_NUMBER	M		V	27 bits
CAUSE	M		V	1 octet

4.4.63 D_PCH

Direction: SwMI ⇨ RT.
Short description: The Activation bitmap part of the TSDU shall be used to transmit information concerning activity of all the group communications in open channel mode, established in the cell and all the priority talk-group communication.
Conveyed in TPDU: PCH.

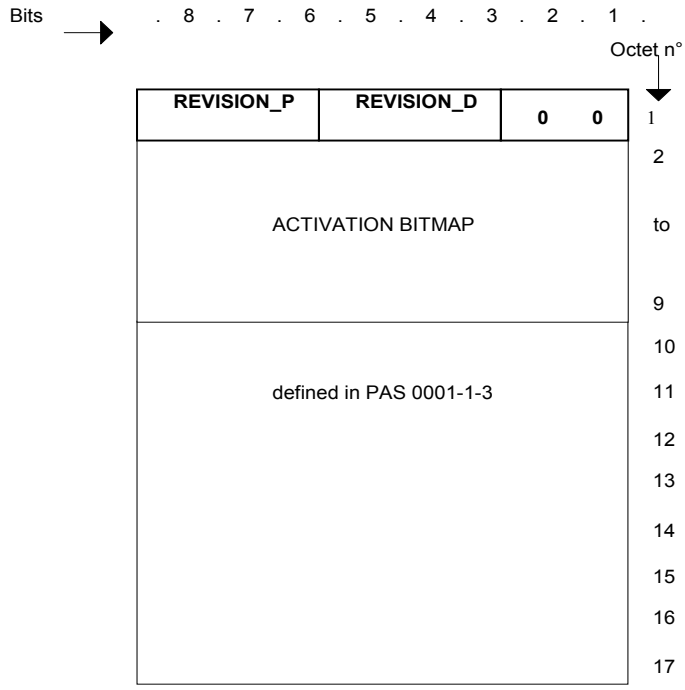


Figure 65: D_PCH TSDU format

Table 65: D_PCH information elements list

IE	T	Condition	F	Length
REVISION_P	M		V	3 bits
REVISION_D	M		V	3 bits
ACTIVATION BITMAP	M		V	56 bits

4.4.64 D_PERIODIC_ACCESS_SUBSCRIPTION_ACK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the Swi application to indicate a subscription answer to a periodic access service. This TSDU is only used on radio cell.
Conveyed in TPDU: DR.

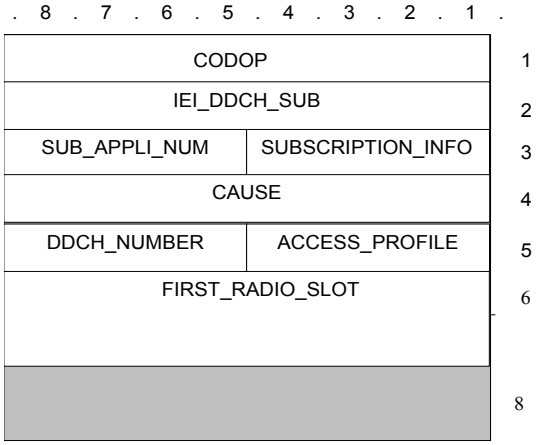


Figure 66: D_PERIODIC_ACCESS_SUBSCRIPTION_ACK TSDU format

Table 66: D_ PERIODIC_ACCESS _SUBSCRIPTION_ACK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
SUB_APPLI_NUM	M		V	4 bits
SUBSCRIPTION_INFO	M		V	4 bit
CAUSE	M	normal lack of resource if CAUSE is different than 00 the fields DDCH_NUMBER=0xF, FIRST_RADIO_SLOT= 0xFFFF	V	1 octet
DDCH_NUMBER	M		V	4 bits
ACCESS_PROFILE	M		V	4 bits
FIRST_RADIO_SLOT	M		V	2 octets

4.4.65 D_PERIODIC_ACCESS_SUBSCRIPTION_NAK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI to indicate the failure for a subscription to a periodic access service. This TSDU is only used on radio cell.

Conveyed in TPDU: DR.

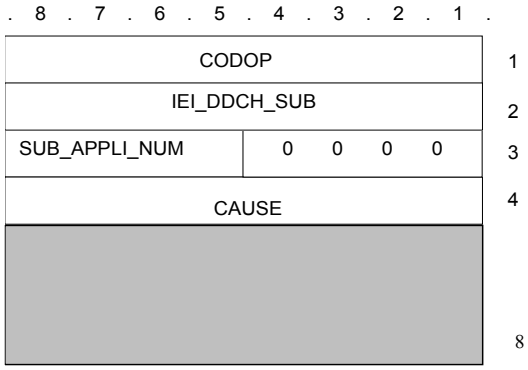


Figure 67: D_PERIODIC_ACCESS_NAK TSDU format

Table 67: D_PERIODIC_ACCESS_NAK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
SUB_APPLI_NUM	M		V	4 bits
CAUSE	M	software fault lack of resource	V	1 octet

4.4.66 D_PRIORITY_GRP_ACTIVATION

Direction SwMI ⇨ RT.
Short description: This TSDU shall be used as an indication to the RT that a tower communication is active.
Conveyed in TPDU: DU.

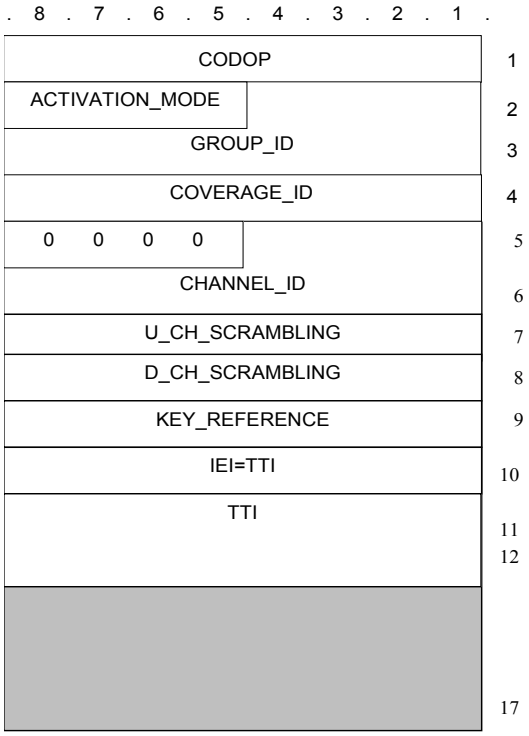


Figure 68: D_PRIORITY_GRP_ACTIVATION TSDU format

Table 68: D_PRIORITY_GRP_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
CHANNEL_ID	M		V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
D_CH_SCRAMBLING	M		V	1 octet
KEY_REFERENCE	M	= UNENCRYPTED_CALL	V	1 octet
TTI	O	This information element shall be present only in the first message.	TV	2+1 octets

Note 1: the message shall be sent on CCH but also on TCH / DCH (whose communications have a strictly lower priority) every 2s during the whole activation of the tower communication
Note 2: this message shall be ignored by the not concerned RT

4.4.67 D_PRIORITY_GRP_WAITING

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used to send a speech request acknowledgement in nominal mode and in 3.1 fallback mode.
Conveyed in TPDU: DU.

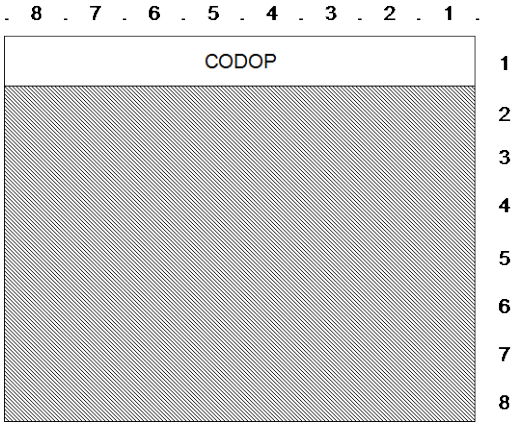


Figure 69: D_PRIORITY_GRP_WAITING information elements list

Table 69: D_PRIORITY_GRP_WAITING information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

Note 1: the message shall be sent by the network to all terminals (TTI all terminals).
Note 2: the message shall be sent only on CCH
Note 3: this message shall be ignored by the not concerned RT
Note 4: This message is only used by the radio or Line Connected AG of the tower dispatch interface, irrespective of the network operating mode.

4.4.68 D_REFUSAL

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application when it does not accept a request submitted by RT for a cause f the RT is responsible for, and terminates the transaction.
Conveyed in TPDU: DR.

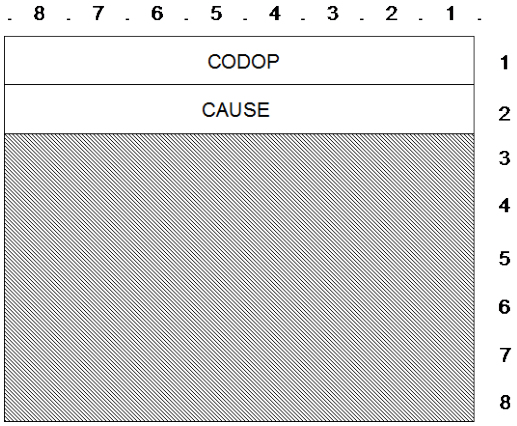


Figure 70: D_REFUSAL TSDU format

Table 70: D_REFUSAL information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.69 D_REGISTRATION_ACK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI REGISTRATION application to close the successful registration transaction. A TTI is assigned to the RT.
Conveyed in TPDU: DR.

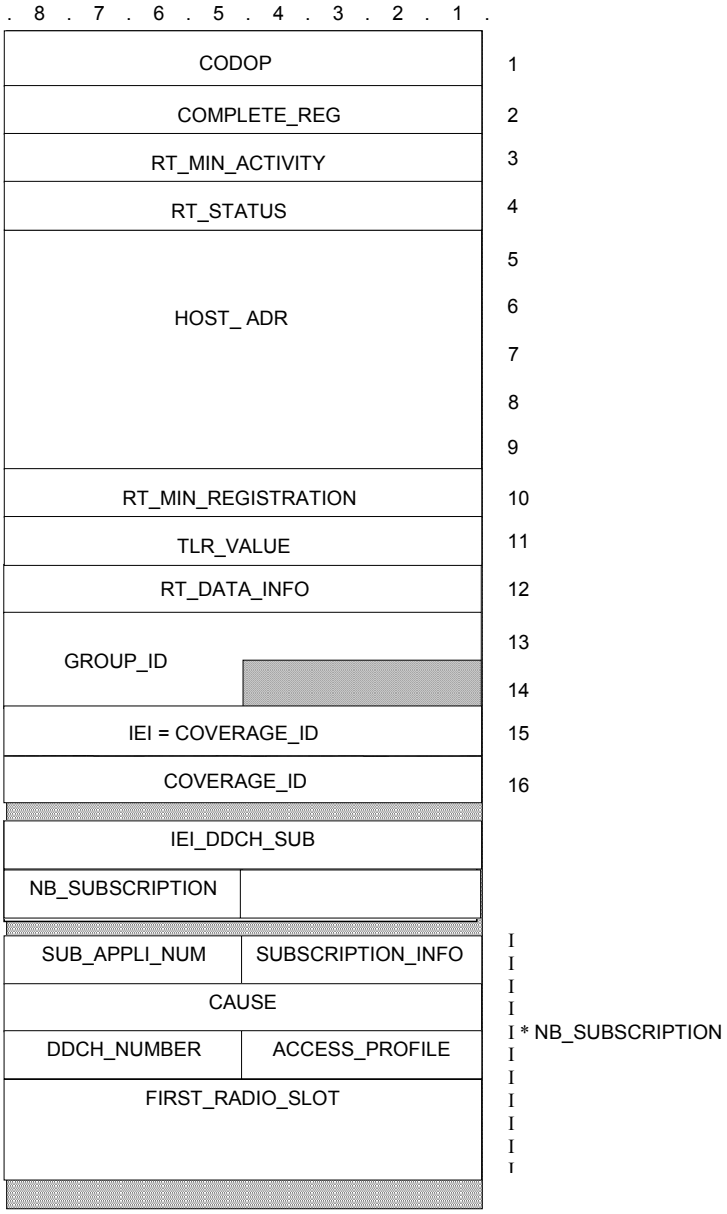


Figure 71: D_REGISTRATION_ACK TSDU format

Table 71: D_REGISTRATION_ACK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
COMPLETE_REG	M		V	1 octet
RT_MIN_ACTIVITY	M		V	1 octet
RT_STATUS	M		V	1 octet
HOST_ADR	M		V	5 octets
RT_MIN_REGISTRATION	M		V	1 octet
TLR_VALUE	M		V	1 octet
RT_DATA_INFO	M	This IE is present or not depending on SwMI and/or RT version	V	1 octet
GROUP_ID	M	This IE is present or not depending on SwMI and/or RT version	V	12 bits
COVERAGE_ID	O	Open channel id. Present if RT is a subscriber of this open channel.	V	1 + 1 octet
NB_SUBSCRIPTION	O	Number of subscription requests (max =3)	V	4 bits
SUB_APPLI_NUM	O		V	4 bits
SUBSCRIPTION_INFO	O		V	4 bits
CAUSE	O	normal lack of resource if CAUSE is different than 00 the fields DDCH_NUMBER=0xFF, FIRST_RADIO_SLOT= 0xFFFF	V	1 octet
DDCH_NUMBER	O		V	4 bits
ACCESS_PROFILE	O		V	4 bits
FIRST_RADIO_SLOT	O		V	2 octets

The block of the SUB_APPLI_NUM, SUBSCRIPTION_INFO, CAUSE, DDCH_NUMBER, ACCESS_PROFILE, FIRST_RADIO_SLOT fields is repeated as many times as there are subscriptions (NB_SUBSCRIPTION)

4.4.70 D_REGISTRATION_NAK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI REGISTRATION application to terminate the registration transaction with an error indication. The TTI used for the transaction is not assigned to the RT.
Conveyed in TPDU: DR.

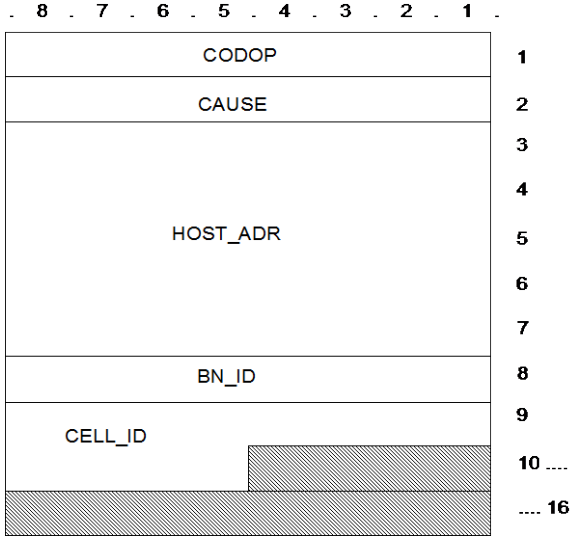


Figure 72: D_REGISTRATION_NAK TSDU format

Table 72: D_REGISTRATION_NAK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet
HOST_ADR	M		V	5 octets
BN_ID	M	see note.	V	1 octet
CELL_ID	M	see note.	V	12 bits
NOTE: Significant only if CAUSE = "RT assigned to home cell". The field shall contain that cell identity in this case.				

4.4.71 D_REJECT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by The SwMI application to reject request submitted by the RT for a reason the SwMI side is responsible for, and terminates the application transaction.
Conveyed in TPDU: DR.

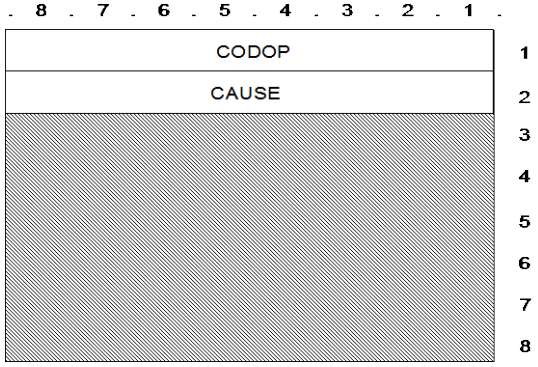


Figure 73: D_REJECT TSDU format

Table 73: D_REJECT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.72 D_RELEASE

Direction: SwMI ⇨ RT.
Short description: The TSDU shall be sent by the SwMI application to prompt the RT to withdraw from a call for a reason indicated in the CAUSE indication.
Conveyed in TPDU: CR.

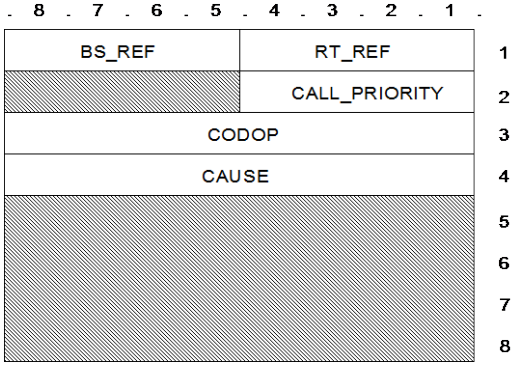


Figure 74: D_RELEASE TSDU format

Table 74: D_RELEASE information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M		V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.73 D_RETURN

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent as a request for a RT present on TCH to switch back to CCH or ECCH.
Conveyed in TPDU: DU.

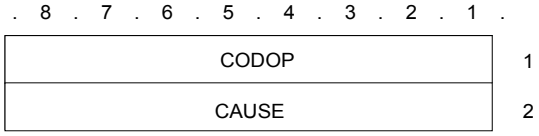


Figure 75: D_RETURN TSDU format

Table 75: D_RETURN information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.74 D_RNK_DELIVERY

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to deliver RNK keys to the RT.
Conveyed in TPDU: CR.

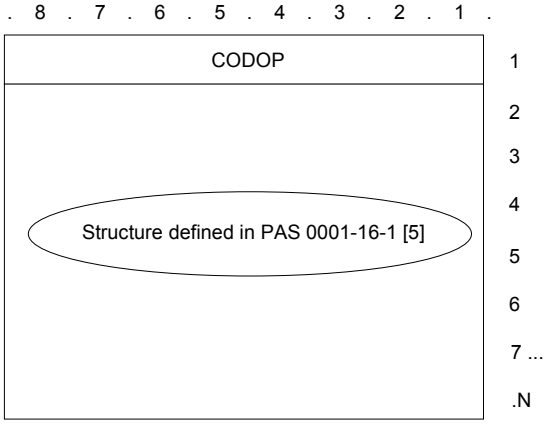


Figure 76: D_RNK_DELIVERY TSDU format

Table 76: D_RNK_DELIVERY information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

The TSDU length may be variable, it shall depend on the number of keys and the size of each key.
If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048.

4.4.75 D_SERVICE_DISABLED

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to inform the RT that its service access is disabled.
Conveyed in TPDU: CR.

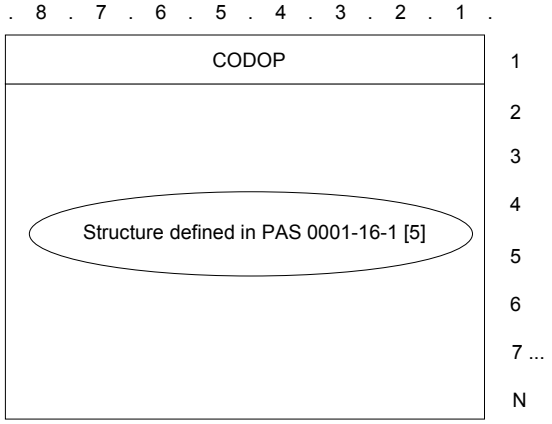


Figure 77: D_SERVICE_DISABLED TSDU format

Table 77: D_SERVICE_DISABLED information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048

4.4.76 D_SYSTEM_INFO

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI BROADCAST application to broadcast information over the cell and system.
Conveyed in TPDU: DU.

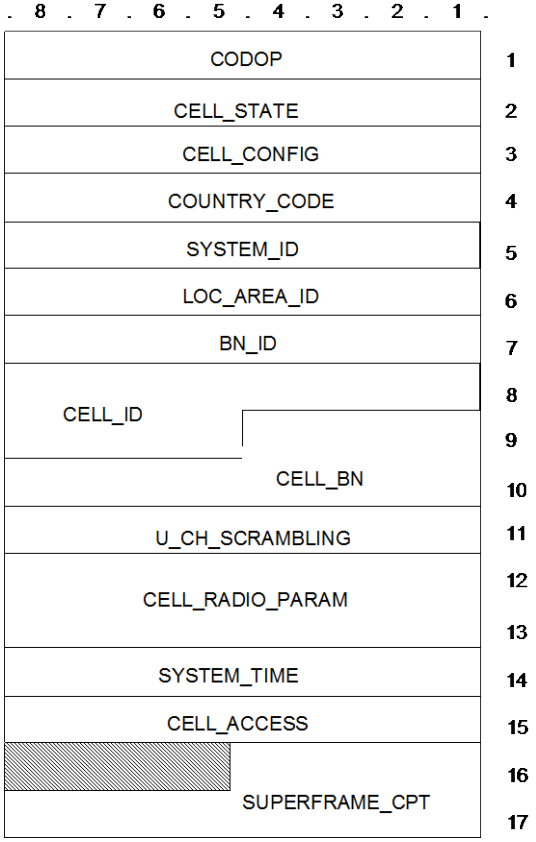


Figure 78: D_SYSTEM_INFO TSDU format

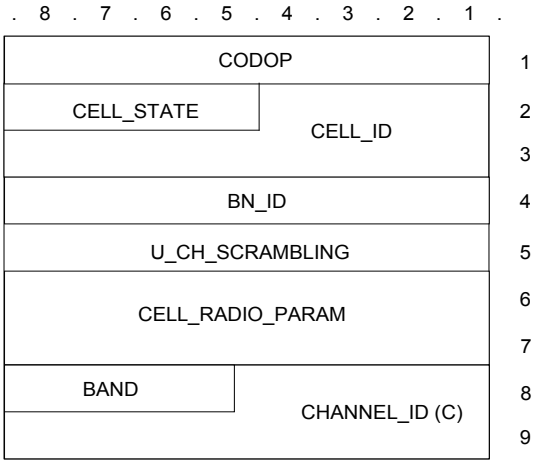


Figure 79: D_SYSTEM_INFO TSDU format in BSC-disconnected mode

Table 78: D_SYSTEM_INFO information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CELL_STATE	M		V	1 octet
CELL_CONFIG	C	see note 1	V	1 octet
COUNTRY_CODE	C	see note 1	V	1 octet
SYSTEM_ID	C	see note 1	V	1 octet
LOC_AREA_ID	C	see note 1	V	1 octet
BN_ID	M		V	1 octet
CELL_ID	M		V	12 bits
CELL_BN	C	see note 1	V	12 bits
U_CH_SCRAMBLING	M		V	1 octet
CELL_RADIO_PARAM	M		V	2 octets
SYSTEM_TIME	C	see note 1	V	1 octet
CELL_ACCESS	C	see note 1	V	1 octet
SUPERFRAME_CPT	C	see note 1	V	12 bits
CHANNEL_ID	C	see note 2	V	12 bits
NOTE 1: Absent if CELL_STATE indicates "CELL in BSC-DISCONNECTED MODE" NOTE 2: Present If CELL_STATE indicates "CELL in BSC-DISCONNECTED MODE"				

4.4.77 D_ TKG_PRIO_LIST

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI BROADCAST application to broadcast the list of priority talk-group in the cell.
Conveyed in TPDU: DU.

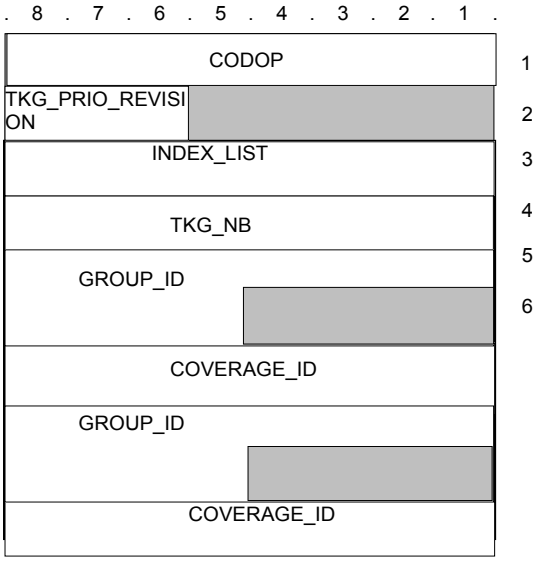


Figure 80: D_TKG_PRIO_LIST TSDU format

Table 79: D_TKG_PRIO_LIST information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
TKG_PRIO_REVISION	M		V	3 bits
INDEX_LIST	C	If field TKG_PRIO_REVISION≠ 0	V	1 octet
TKG_NB	C	If field TKG_PRIO_REVISION≠ 0	V	1 octet
COVERAGE_ID	C		V	1 octet
GROUP_ID	C		V	12 bits

4.4.78 D_TKK_DELIVERY

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to deliver the TKK to the RT.
Conveyed in TPDU: CR.

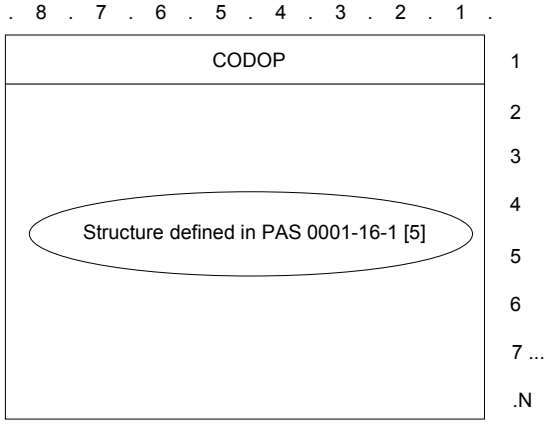


Figure 81: D_TKK_DELIVERY TSDU format

Table 80: D_TKK_DELIVERY information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048

4.4.79 D_TKK_MORE_DELIVERY

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be used by the SwMI application to deliver some more TKK information to the RT.
Conveyed in TPDU: DT.

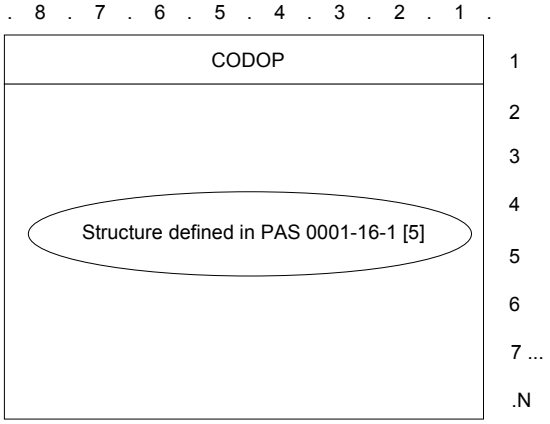


Figure 82: D_TKK_MORE_DELIVERY TSDU format

Table 81: D_TKK_MORE_DELIVERY information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU DT.
N shall be less than 2 048

4.4.80 D_TRAFFIC_DISABLED

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to inform the RT that its traffic is temporarily disabled.
Conveyed in TPDU: CR.

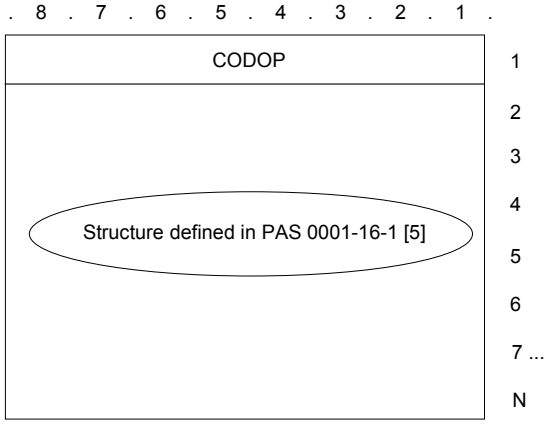


Figure 83: D_TRAFFIC_DISABLED TSDU format

Table 82: D_TRAFFIC_DISABLED information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048

4.4.81 D_TRAFFIC_ENABLED

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to inform the RT that the temporary traffic disabling is now ended.
Conveyed in TPDU: CR.

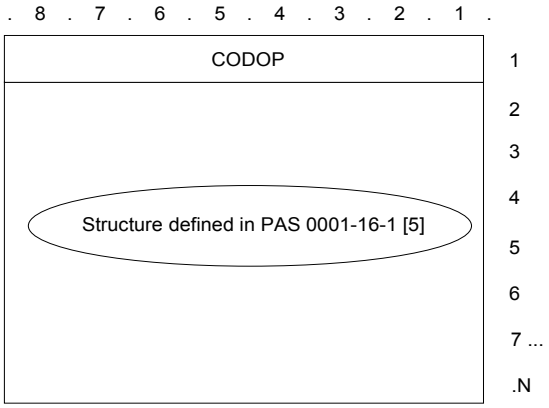


Figure 84: D_TRAFFIC_ENABLED TSDU format

Table 83: D_TRAFFIC_ENABLED information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

If N is greater than N401, the TSDU shall be segmented into TPDU CR plus one or several TPDU DT.
N shall be less than 2 048

4.4.82 D_TRANSFER_NAK

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI application to reject the transfer supplementary service requested by the RT.
Conveyed in TPDU: DR.

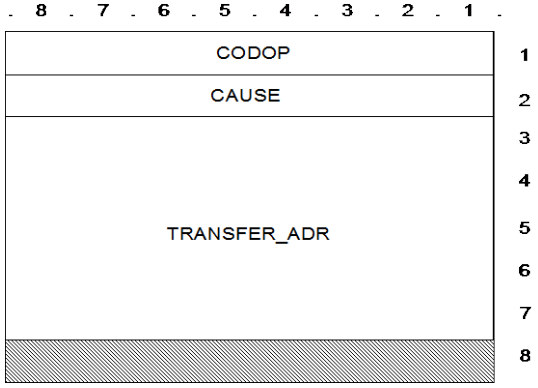


Figure 85: D_TRANSFER_NAK TSDU format

Table 84: D_TRANSFER_NAK information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet
TRANSFER_ADR	C	If cause = "wrong address"	V	5 octets

4.4.83 D_TTI_ASSIGNMENT

Direction: SwMI ⇨ RT.
Short description: This TSDU shall be sent by the SwMI as a reply to the TTI request submitted by RT on behalf of the REGISTRATION application.
Conveyed in TPDU: DU.

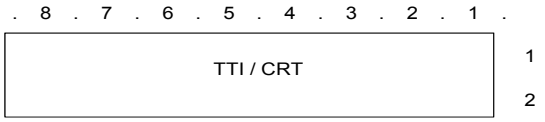


Figure 86: D_TTI_ASSIGNMENT TSDU format

Table 85: D_TTI_ASSIGNMENT information elements list

IE	K	Condition	F	Length
TTI/CRT	M		V	2 octets

4.4.84 U_ABORT

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to inform the SwMI that it does not wish to continue the current transaction.
Conveyed in TPDU: DR.

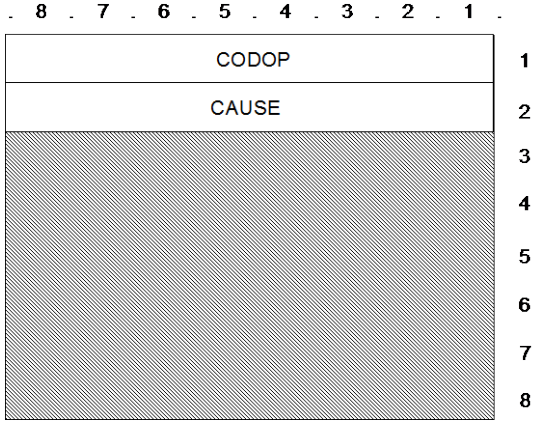


Figure 87: U_ABORT TSDU format

Table 86: U_ABORT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.85 U_ACK

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be used as an immediate acknowledgement from the RT application confirming the transaction opening request submitted by the SwMI.
Conveyed in TPDU: CC.

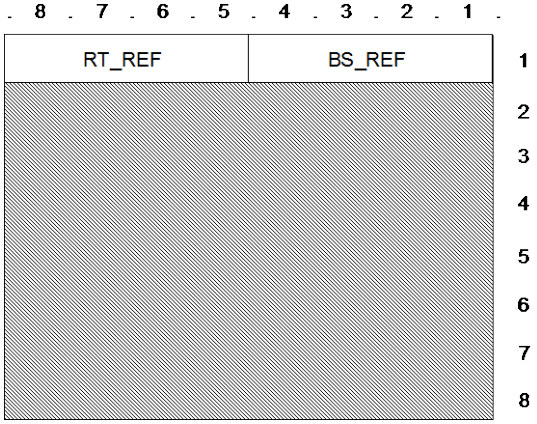


Figure 88: U_ACK TSDU format

Table 87: U_ACK information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M		V	4 bits

4.4.86 U_ANSWER_TO_PAGING

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT as an information to the SwMI stating it has received its paging request on the PCH.
Conveyed in TPDU: DT_SHORT

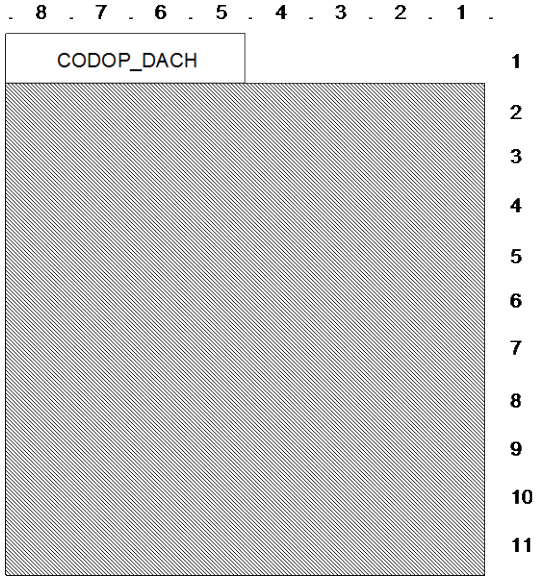


Figure 89: U_ANSWER_TO_PAGING TSDU format

Table 88: U_ANSWER_TO_PAGING information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits

4.4.87 U_ATTACH

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent to inform the SwMI when the RT is powered ON or when the user has selected another group communication.
Conveyed in TPDU: DT_SHORT.

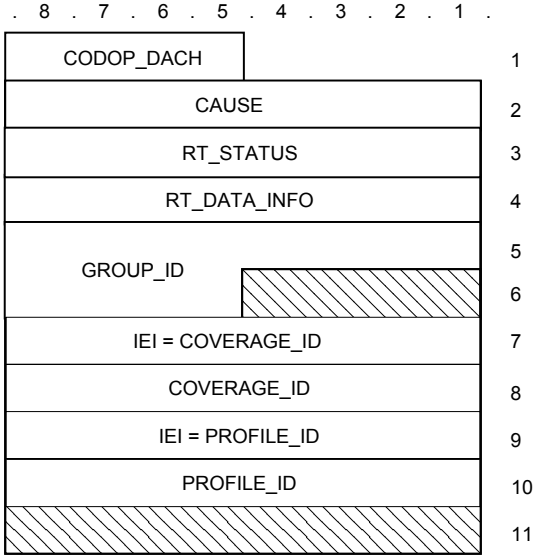


Figure 90: U_ATTACH TSDU format

Table 89: U_ATTACH information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CAUSE	M		V	1 octet
RT_STATUS	M		V	1 octet
RT_DATA_INFO	M		V	1 octet
GROUP_ID	M		V	12 bits
COVERAGE_ID	O	Open channel id. Present when RT indicates a change in open channel subscription.	TV	1 + 1 octet
PROFILE_ID	O	Profile id. Present when the network uses the default TR profile which is not the right profile.	TV	1 + 1 octet

4.4.88 U_AUTHENTICATION

Direction: RT ⇨ SwMI.
Short description: This TSDU shall be sent by the RT as an authentication answer.
Conveyed in TPDU: DT.

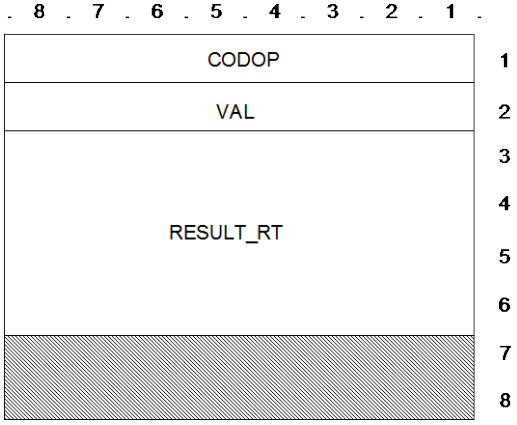


Figure 91: U_AUTHENTICATION TSDU format

Table 90: U_AUTHENTICATION information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
VAL	M	see note	V	1 octet
RESULT_RT	M		V	4 octets
NOTE: VAL shall equal 0, if RT knows KEY_REFERENCE, otherwise its value shall be set to 255.				

4.4.89 U_BROADCAST_ACCEPTED

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a reply to the D_BROADCAST_WAITING TSDU when the RT informs the SwMI that it has accepted an incoming broadcast message to an implicit address.
Conveyed in TPDU: DT_SHORT.

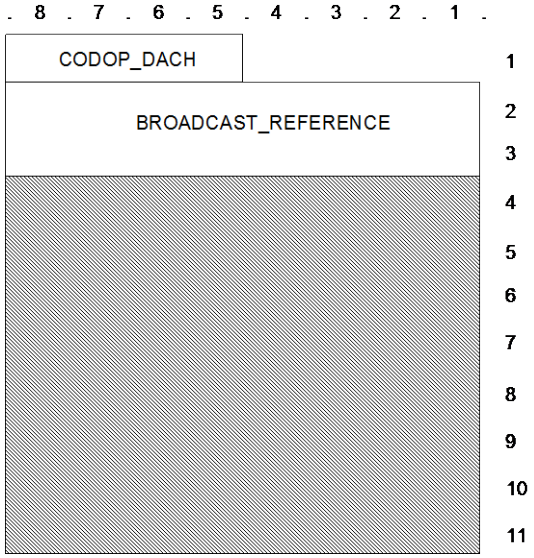


Figure 92: U_ BROADCAST_ACCEPTED TSDU format

Table 91: U_ BROADCAST_ACCEPTED information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
BROADCAST_REFERENCE	M		M	2 octets

4.4.90 U_CALL_ACCEPTED

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a reply to the D_CALL_WAITING TSDU when the RT informs the SwMI that it has accepted an incoming call to an implicit address.
Conveyed in TPDU: DT_SHORT.

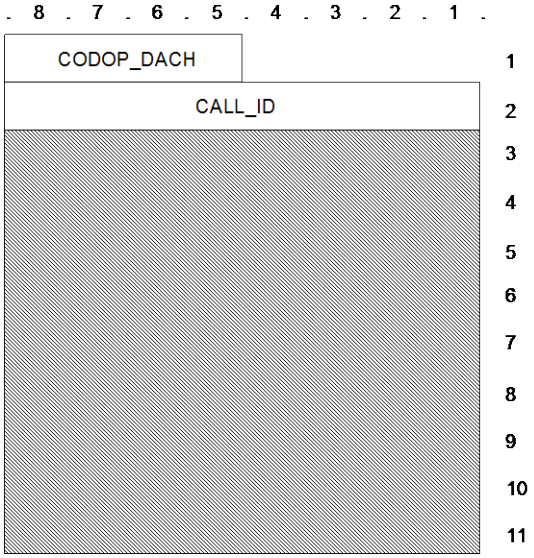


Figure 93: U_CALL_ACCEPTED TSDU format

Table 92: U_CALL_ACCEPTED information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CALL_ID	M		V	1 octet

4.4.91 U_CALL_ANSWER

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to inform the SwMI that its user accepts the previous request submitted by the SwMI.
Conveyed in TPDU: DT.

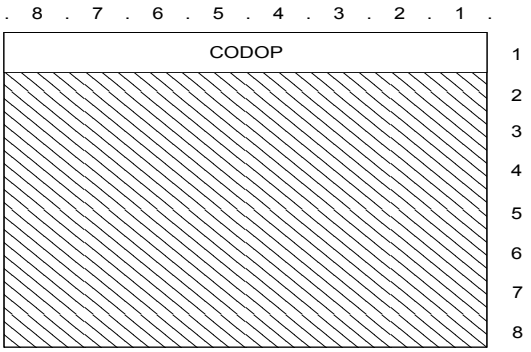


Figure 94: U_CALL_ANSWER TSDU format

Table 93: U_CALL_ANSWER information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.92 U_CALL_CONNECT

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to acknowledge the D_CALL_CONNECT request submitted by the SwMI.
Conveyed in TPDU: DT.

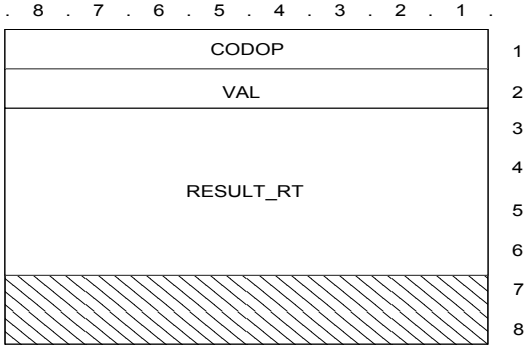


Figure 95: U_CALL_CONNECT TSDU format

Table 94: U_CALL_CONNECT information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet
VAL	M	see note	V	1 octet
RESULT_RT	M		V	4 octets
NOTE: VAL shall equal 0 if RT knows KEY_REFERENCE, otherwise, VAL shall equal 255.				

4.4.93 U_CALL_INTRUSION_ECH

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to request its participation as third party in an emergency open channel. The RT identifies the voice call by providing the identifier of the base station handling the emergency open channel.
Conveyed in TPDU: CR.

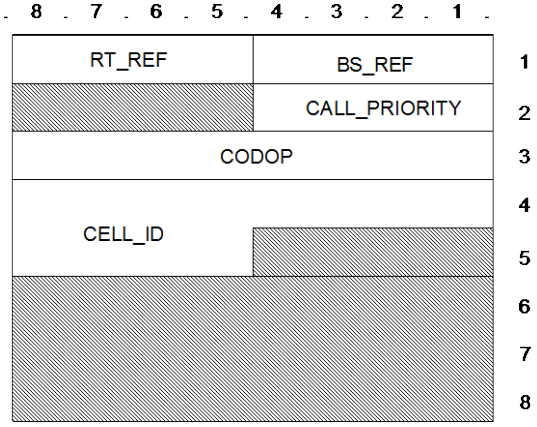


Figure 96: U_CALL_INTRUSION_ECH TSDU format

Table 95: U_CALL_INTRUSION_ECH information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	= ROUTINE	V	4 bits
CODOP	M		V	1 octet
CELL_ID	M		V	12 bits

4.4.94 U_CALL_INTRUSION_OCH

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to request to participate as a third-party in an open channel. The RT identifies the voice call by the open channel number.
Conveyed in TPDU: CR.

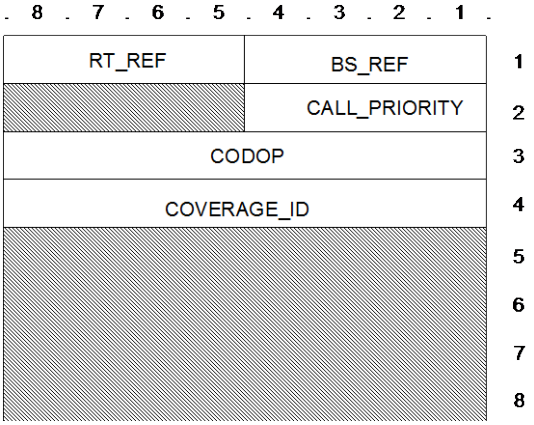


Figure 97: U_CALL_INTRUSION_OCH TSDU format

Table 96: U_CALL_INTRUSION_OCH information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	= ROUTINE	V	4 bits
CODOP	M		V	1 octet
COVERAGE_ID	M		V	1 octet

4.4.95 U_CALL_INTRUSION_PC

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to request its participation as third party in a private individual or multi-party call. The RT identifies the voice call by providing the calling party address set-up.
Conveyed in TPDU: CR.

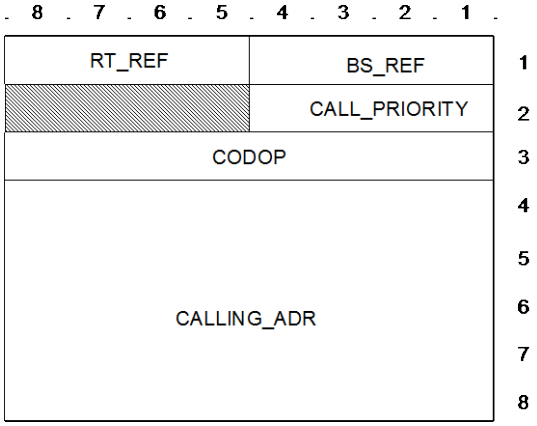


Figure 98: U_CALL_INTRUSION_PC TSDU format

Table 97: U_CALL_INTRUSION_PC information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
CALLING_ADR	M		V	5 octets

4.4.96 U_CALL_REJECTED

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT to inform the SwMI that it rejects an incoming call to an implicit address.
Conveyed in TPDU: DT_SHORT.

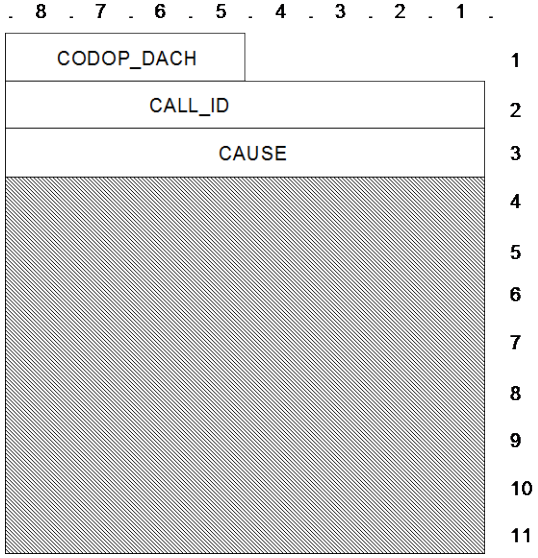


Figure 99: U_CALL_REJECTED TSDU format

Table 98: U_CALL_REJECTED information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CALL_ID	M		V	1 octet
CAUSE	M		V	1 octet

4.4.97 U_CALL_RELEASE

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to open a transaction to ask for a private voice call release RT shall identify the voice call by providing the calling party address. Conveyed in TPDU: CR.

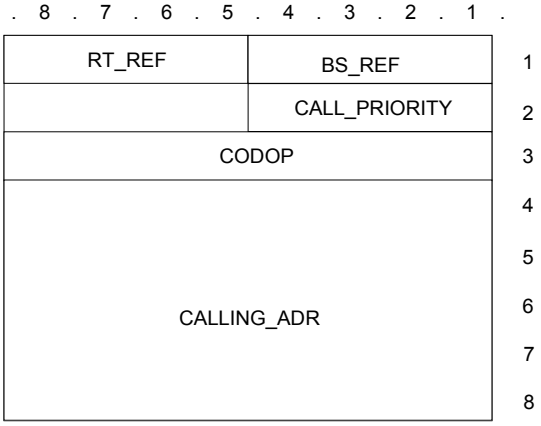


Figure 100: U_CALL_RELEASE TSDU format

Table 99: U_CALL_RELEASE information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	= ROUTINE	V	4 bits
CODOP	M		V	1 octet
CALLING_ADR	M		V	5 octets

4.4.98 U_CALL_SETUP

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to request a private voice call set-up with some called addresses.
Conveyed in TPDU: CR.

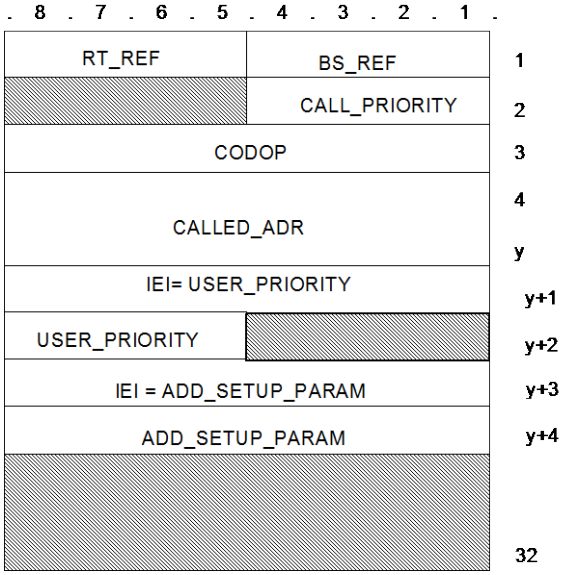


Figure 101: U_CALL_SETUP TSDU format

Table 100: U_CALL_SETUP information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
CALLED_ADR	M	see note.	V	y-3 octets
USER_PRIORITY	O		TV	2 octets
ADD_SETUP_PARAM	O	Set to precise RT behaviour	V	1 + 1 octet
NOTE: The CALLED_ADR information element may designate: - An address (RFSI) for a private RT-RT call or a call **from** a TDX interface; - A functional address; - A functional address followed by a sub-address; - An address (RFSI) + a PABX sub-address for a call **to** a TDX interface; - Up to 4 addresses (RFSI) for a multi-party call.				

The length of the TSDU shall depend on the number of called parties and the size of the CALLED_ADR IE. It is determined by n where:
n = smallest positive integer so that 8 x n ≥ y

4.4.99 U_CALL_SWITCH

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to acknowledge the D_CALL_SWITCH request submitted by the SwMI.
Conveyed in TPDU: CC.

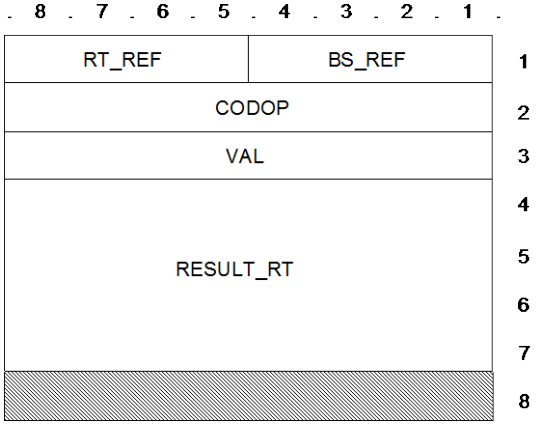


Figure 102: U_CALL_SWITCH TSDU format

Table 101: U_CALL_SWITCH information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CODOP	M		V	1 octet
VAL	M	= 0 if RT knows the KEY or the call is unencrypted, = else 255	V	1 octet
RESULT_RT	M		V	4 octets

4.4.100 U_CHANNEL_INIT_ACK

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent to acknowledge the D_CHANNEL_INIT message. This TSDU is only used on recorded LABS.
Conveyed in TPDU: DT_SHORT .

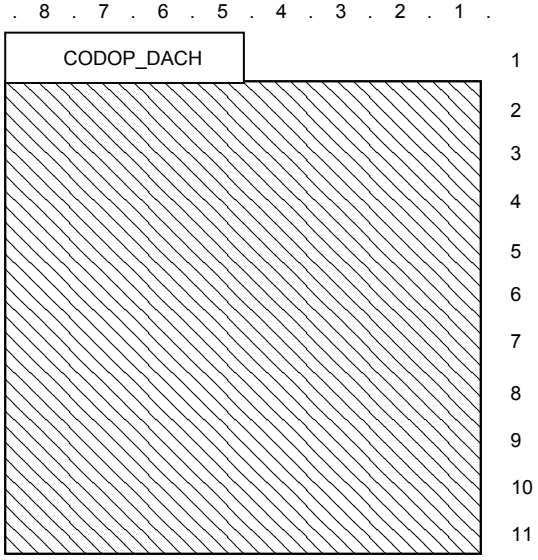


Figure 103: U_CHANNEL_INIT_ACK TSDU format

Table 102: U_CHANNEL_INIT_ACK information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits

4.4.101 U_DATA_DOWN_ACCEPT

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be used when the RT application accepts the downlink data transfer requested by the SwMI.
Conveyed in TPDU: CC.

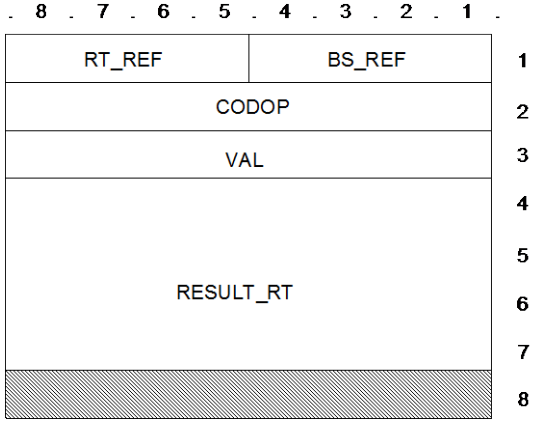


Figure 104: U_DATA_DOWN_ACCEPT TSDU format

Table 103: U_DATA_DOWN_ACCEPT information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M		V	4 bits
CODOP	M		V	1 octet
VAL	M	= 0 if RT knows the KEY or if clear speech call, = else 255	V	1 octet
RESULT_RT	M		V	4 octets

4.4.102 U_DATA_MSG_UP

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be used for transferring a data message to the SwMI.
Conveyed in TPDU: DT.

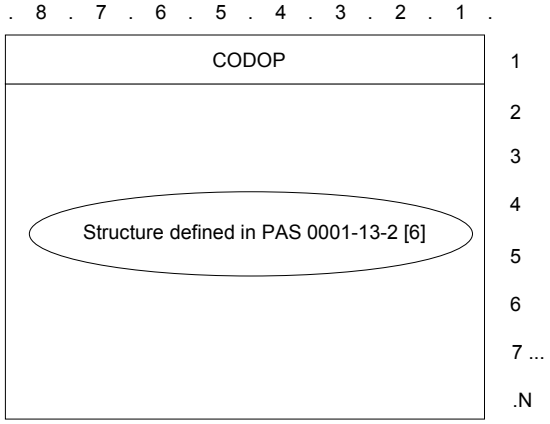


Figure 105: U_DATA_MSG_UP TSDU format

If N is greater than N400, the TSDU shall be segmented several TPDU DT.
N shall be less than 2 048Table 104: U_DATA_MSG_UP information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.103 U_DATA_REQUEST

Direction: SwMI ⇦ RT
Short description: This TSDU shall be sent to execute an initial uplink data transmission.
Conveyed in TPDU: CR.

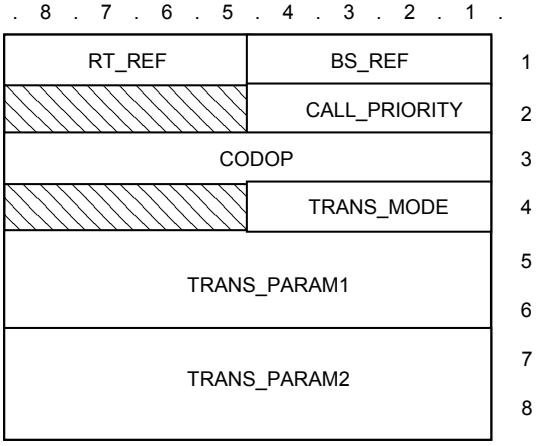


Figure 106: U_DATA_REQUEST TSDU format

Table 105: U_DATA_REQUEST information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
TRANS_MODE	M	Data transmission mode	V	4 bits
TRANS_PARAM1	M	First parameter depending on the TRANS_MODE value	V	2 octets
TRANS_PARAM2	M	Second parameter depending on the TRANS_MODE value	V	2 octets

4.4.104 U_DETACH

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent to inform the SwMI when the RT is powered OFF.
Conveyed in in TPDU: DT_SHORT.

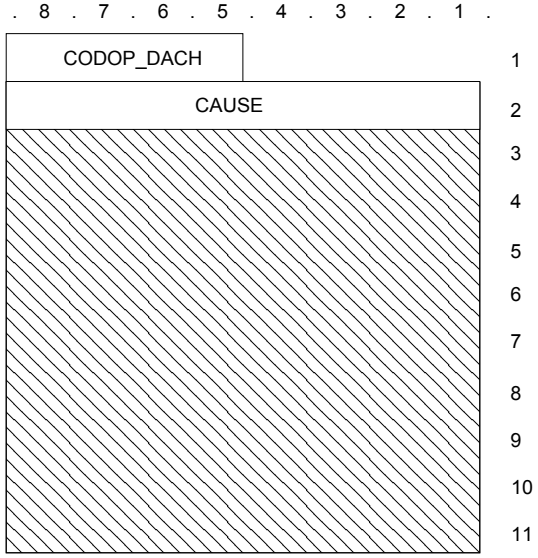


Figure 107: U_CALL_ACCEPTED TSDU format

Table 106: U_CALL_ACCEPTED information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CAUSE	M		V	1 octet

4.4.105 U_DEVIATION_CLEAR

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be used when the RT application opens a transaction to request the SwMI to stop rerouting to an host address the calls addressed to RT.
Conveyed in TPDU: CR.

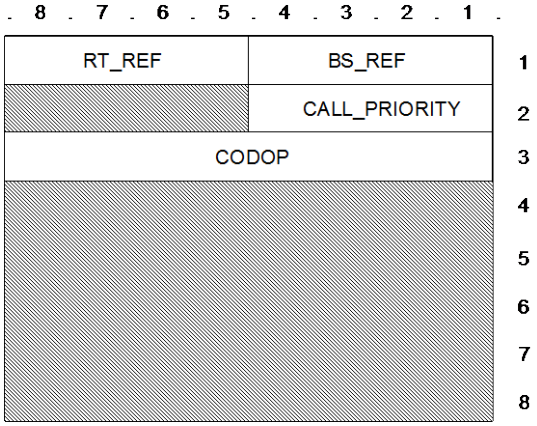


Figure 108: U_DEVIATION_CLEAR TSDU format

Table 107: U_DEVIATION_CLEAR information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	Not significant	V	4 bits
CODOP	M		V	1 octet

4.4.106 U_DEVIATION_SET

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be used by the RT application to open a transaction to request all calls sent to an RT to be rerouted to a forwarded-to address provided in the TSDU.
Conveyed in TPDU: CR.

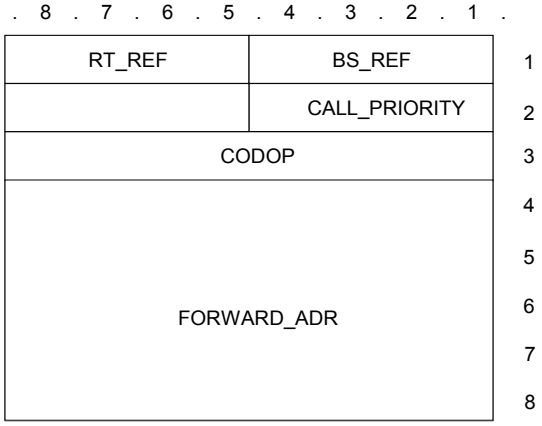


Figure 109: U_DEVIATION_SET TSDU format

Table 108: U_DEVIATION_SET information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	Not significant	V	4 bits
CODOP	M		V	1 octet
FORWARD_ADR	M		V	5 octets

4.4.107 U_ECH_ACTIVATION

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a request to activate an emergency open channel. This message is sent on the dynamic access channel.
Conveyed in TPDU: DT_SHORT.

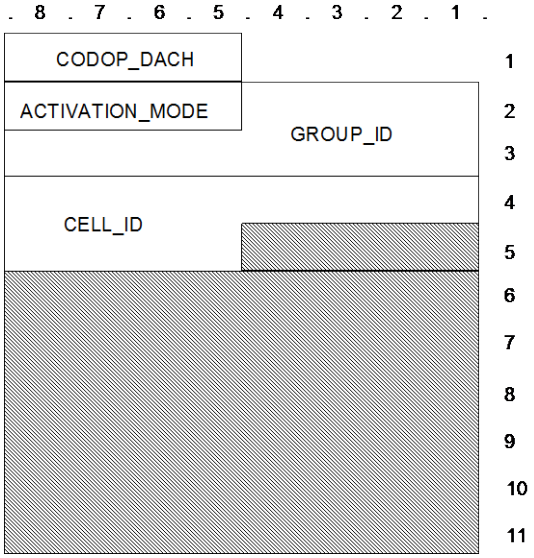


Figure 110: U_ECH_ACTIVATION TSDU format

Table 109: U_ECH_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
CELL_ID	M		V	12 bits

4.4.108 U_ECH_CLOSE

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be used when the RT application requests the SwMI to close the emergency open channel.
Conveyed in TPDU: CR.

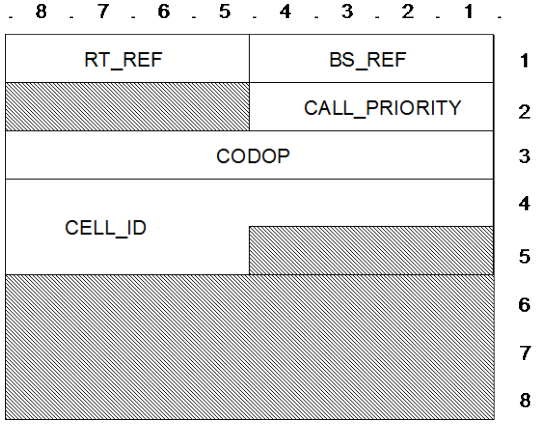


Figure 111: U_ECH_CLOSE TSDU format

Table 110: U_ECH_CLOSE information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M		V	4 bits
CALL_PRIORITY	M	= EMERGENCY	V	4 bits
CODOP	M		V	1 octet
CELL_ID	M		V	12 bits

4.4.109 U_ECH_SETUP

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application as a request for an emergency open channel set-up. The address of the initiating RT is provided.
Conveyed in TPDU: CR.

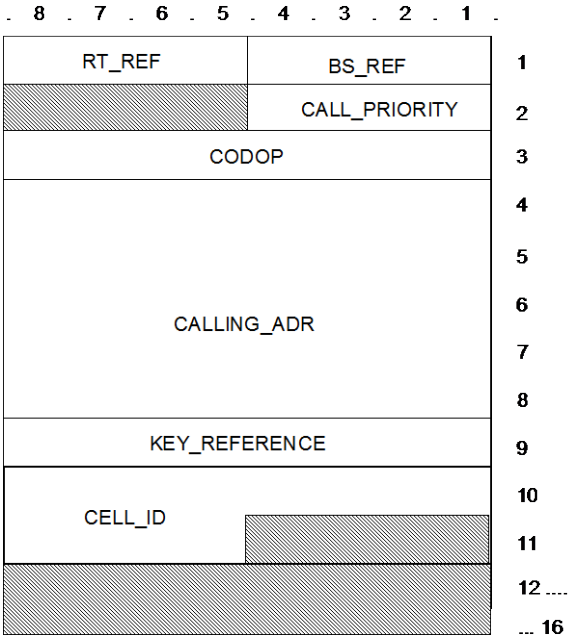


Figure 112: U_ECH_SETUP TSDU format

Table 111: U_ECH_SETUP information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	= EMERGENCY	V	4 bits
CODOP	M		V	1 octet
CALLING_ADR	M	Open channel calling RT, i.e. RT needing help	V	5 octets
KEY_REFERENCE	M	= SwMI has to be chosen by SwMI.	V	1 octet
CELL_ID	M	Cell of calling RT	V	12 bits

4.4.110 U_EMERGENCY_ACK

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a reply to an emergency situation indication, the RT (DP) informs the SwMI that it has accepted he emergency request from the initiating RT
Conveyed in TPDU: DT_SHORT.

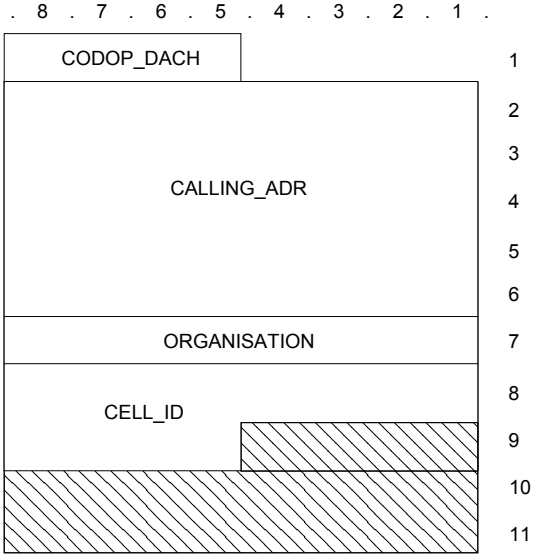


Figure 113: U_EMERGENCY_ACK TSDU format

Table 112: U_EMERGENCY_ACK information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CALLING_ADR	M		V	5 octets
ORGANISATION	M		V	1 octet
CELL_ID	M		V	12 bits

4.4.111 U_EMERGENCY_NAK

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a reply to an emergency situation indication, the RT (DP) informs the SwMI that it has refused he emergency request from the initiating RT
Conveyed in TPDU: DT_SHORT.

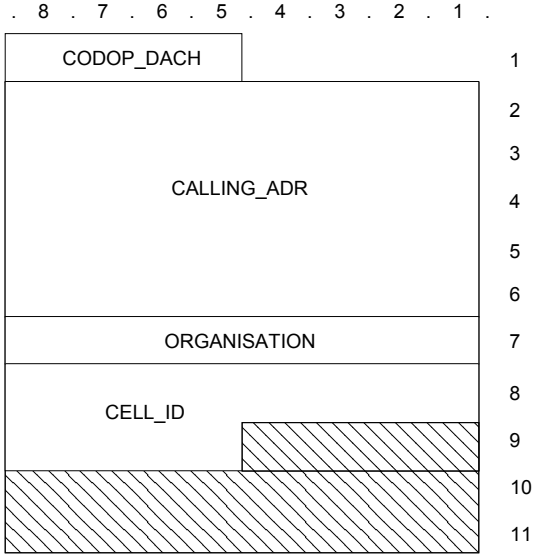


Figure 114: U_EMERGENCY_NAK TSDU format

Table 113: U_EMERGENCY_NAK information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CALLING_ADR	M		V	5 octets
ORGANISATION	M		V	1 octet
CELL_ID	M		V	12 bits

4.4.112 U_EMERGENCY_REQ

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT emergency application to indicate an emergency situation. The address of the initiating RT is provided.
Conveyed in TPDU: CR.

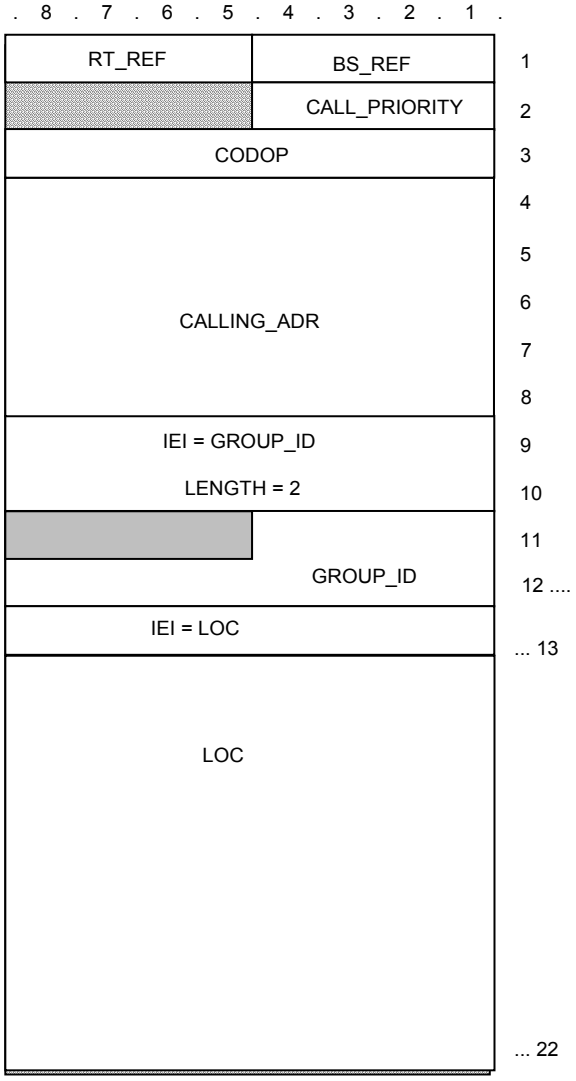


Figure 115: U_EMERGENCY_REQUEST TSDU format

Table 114: U_EMERGENCY_REQUEST information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	= EMERGENCY	V	4 bits
CODOP	M		V	1 octet
CALLING_ADR	M	Open channel calling RT, i.e. RT needing help	V	5 octets
GROUP_ID	O	Current group id selected by user	TV	1 + 1 + 2 octets
LOC	O	localisation	TV	1 + 9 octets

4.4.113 U_ERROR_REPORT

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by The RT application to report an error event to the SwMI.
Conveyed in TPDU: CR.

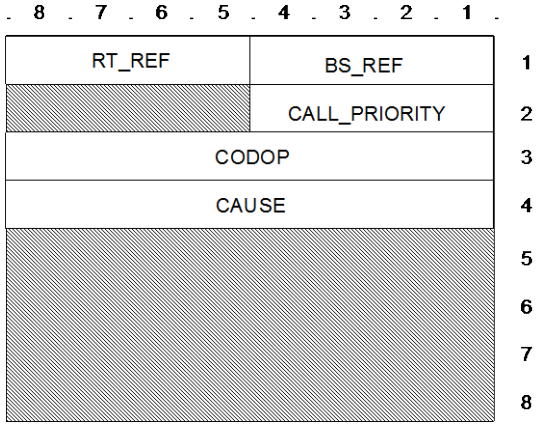


Figure 116: U_ERROR_REPORT TSDU format

Table 115: U_ERROR_REPORT information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	Not significant	V	4 bits
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.114 U_EVENT_REPORT

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to synchronise with the SwMI.
Conveyed in TPDU: CR.

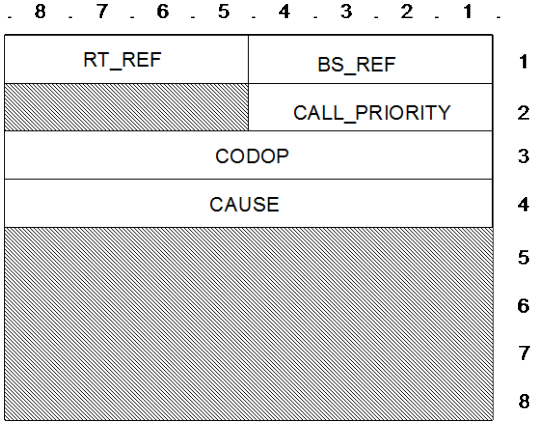


Figure 117: U_EVENT_REPORT TSDU format

Table 116: U_EVENT_REPORT information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	Not significant	V	4 bits
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.115 U_FAST_EMERGENCY

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT emergency application as an emergency indication when BSC is in " radio switch disconnected mode ".
Conveyed in in TPDU: DT_SHORT.

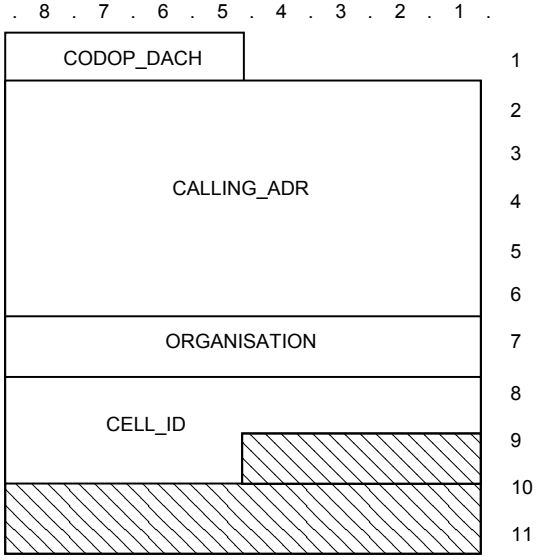


Figure 118: U_FAST_EMERGENCY TSDU format

Table 117: U_FAST_EMERGENCY information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CALLING_ADR	M	Open channel calling RT, i.e. RT needing help	V	5 octets
CELL_ID	M	Cell of calling RT	V	12 bits

4.4.116 U_FBM31_EXPLICIT_SHORT_DATA

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent only for tower communication:

- Either on the dynamic access channel by the RT application to a SwMI application as a short information message in FBM3.1 mode

Conveyed in TPDU: DT_SHORT.

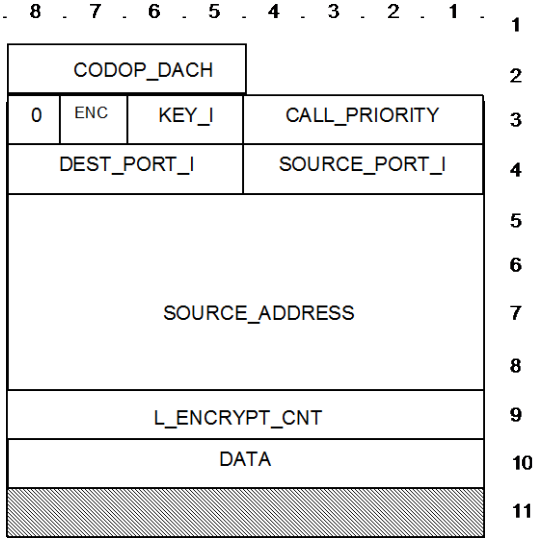


Figure 119: U_FBM31_EXPLICIT_SHORT_DATA format

Table 118: U_FBM31_EXPLICIT_SHORT_DATA information elements list

IE	K	Condition	F	Length
ENC	M		V	1 bit
KEY_I	M	KEY_I = 00 (no encryption)	V	2 bits
CALL_PRIORITY	M		V	4 bits
DEST_PORT_I	M		V	4 bits
SOURCE_PORT_I	M		V	4 bits
SOURCE_ADDRESS	M	is the sender RFSI address coded in the « binary formatting »	V	4 bytes
L_ENCRYPT_CNT	M		V	1 byte
DATA	M	1110 0011 b corresponds to the highest priority group (fire department) 0110 0011 b corresponds to the lowest priority group	V	1 byte

4.4.117 U_GROUP_ACTIVATION

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a request to activate one group communication. This message is sent on the dynamic access channel.
Conveyed in TPDU: DT_SHORT.

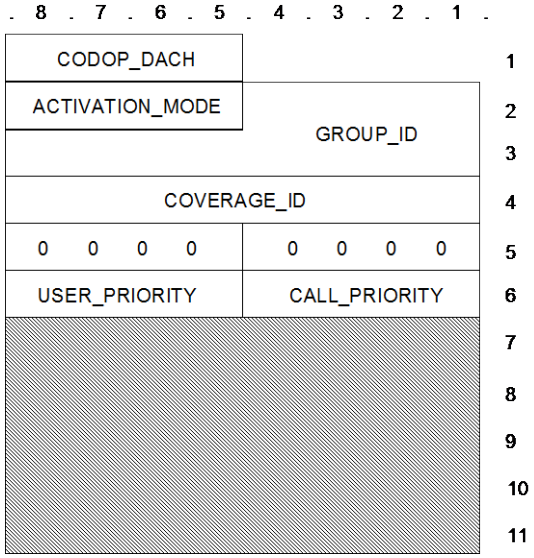


Figure 120: U_GROUP_ACTIVATION TSDU format

Table 119: U_GROUP_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
COVERAGE_ID	M	group communication reference.	V	1 octet
USER_PRIORITY	M		V	4 bits
CALL_PRIORITY	M		V	4 bits

4.4.118 U_KEY_ANSWER

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to provide a KEY delivery response to the SwMI.
Conveyed in TPDU: DT.

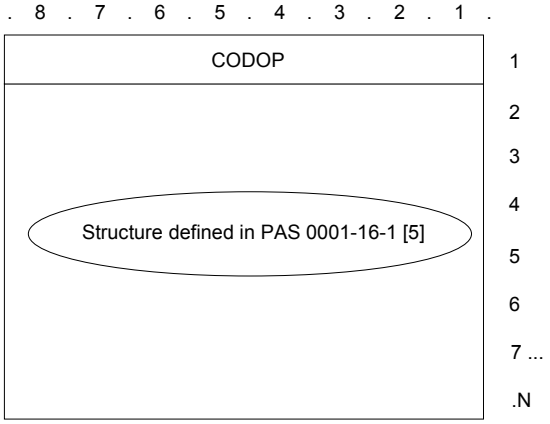


Figure 121: U_KEY_ANSWER TSDU format

If N is greater than N400, the TSDU shall be segmented several TPDU DT.
N shall be less than 2 048

Table 120: U_KEY_ANSWER information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.119 U_LOCATION_ACTIVITY

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent when the RT application informs the SwMI that the RT is present in a radio cell.
Conveyed in TPDU: CR.

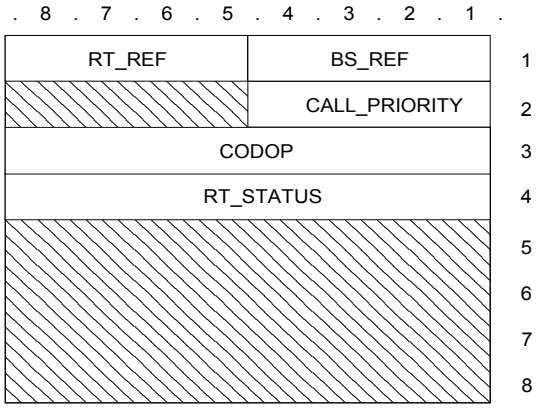


Figure 122: U_LOCATION_ACTIVITY TSDU format

Table 121: U_LOCATION_ACTIVITY information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	Not significant	V	4 bits
CODOP	M		V	1 octet
RT_STATUS	M		V	1 octet

4.4.120 U_OC_ACTIVATION

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a request to activate one object call. This message is sent on the dynamic access channel.
Conveyed in TPDU: DT_SHORT.

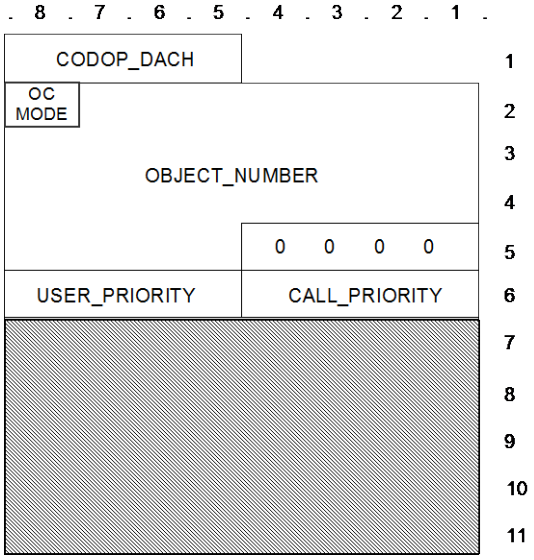


Figure 123: U_OC_ACTIVATION TSDU format

Table 122: U_OC_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
OC_MODE	M		V	1 bit
OBJECT_NUMBER	M		V	27 bits
USER_PRIORITY	M		V	4 bits
CALL_PRIORITY	M		V	4 bits

4.4.121 U_OCH_RELEASE

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be used as a request to close the open channel.
Conveyed in TPDU: CR.

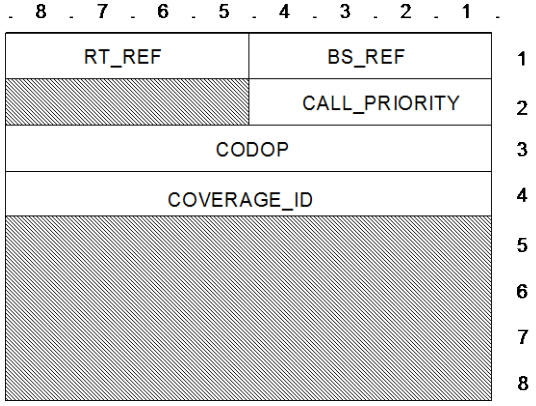


Figure 124: U_OCH_RELEASE TSDU format

Table 123: U_OCH_RELEASE information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M		V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
COVERAGE_ID	M	Open channel identification	V	1 octet

4.4.122 U_OCH_SETUP

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a request to establish an open channel. It provides the open channel number.
Conveyed in TPDU: CR.

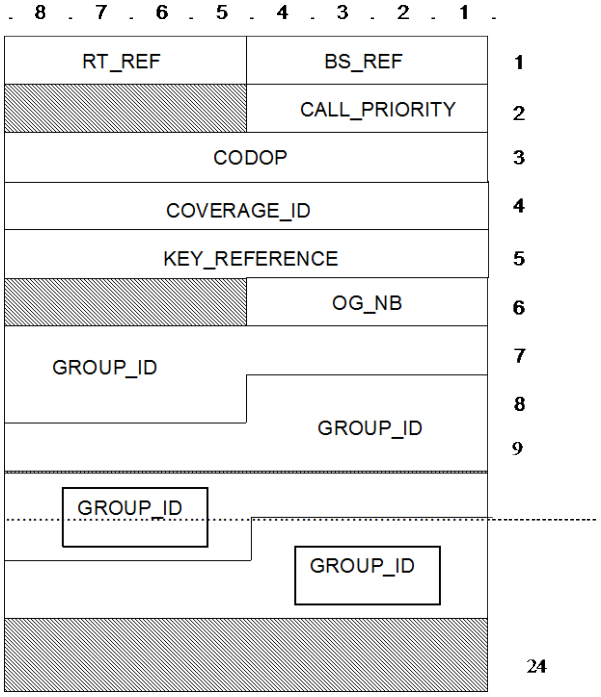


Figure 125: U_OCH_SETUP TSDU format

Table 124: U_OCH_SETUP information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
COVERAGE_ID	M	Open channel identification	V	1 octet
KEY_REFERENCE	M		V	1 octet
OG_NB	M		V	4 bits
GROUP_ID	C	If OG_NB ≠ 0	V	12 bits

4.4.123 U_PERIODIC_ACCESS_SUBSCRIPTION_RQ

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to request a subscription to the DDCH service. This TSDU is only used on radio cell.
Conveyed in TPDU: CR.

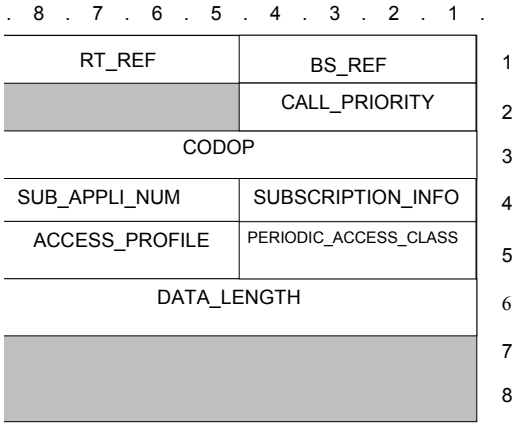


Figure 126: U_PERIODIC_ACCESS_SUBSCRIPTION_RQ TSDU format

Table 125: U_PERIODIC_ACCESS_SUBSCRIPTION_RQ information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	= ROUTINE	V	4 bits
CODOP	M		V	1 octet
SUB_APPLI_NUM	M		V	4 bits
SUBSCRIPTION_INFO	M	The field TYP_ENC is not used=0	V	4 bits
ACCESS_PROFILE	M		V	4 bits
PERIODIC_ACCESS_CLASS	M		V	4 bits
DATA_LENGTH	M		V	1 octet

4.4.124 U_REGISTRATION_REQ

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT REGISTRATION applications to open a registration transaction with the SwMI.
Conveyed in TPDU: CR.
The TSDU shall be segmented into 2 TPDUs containing 9 and 8 octets respectively.

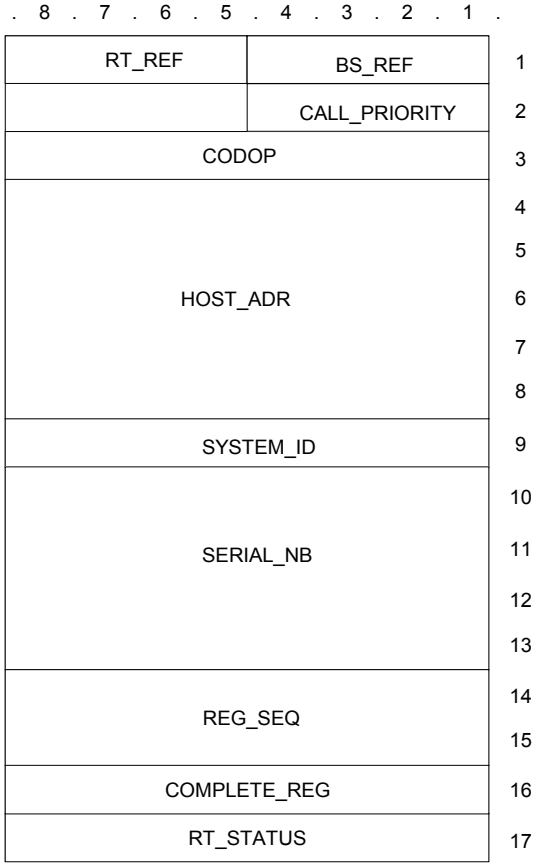


Figure 127: U_REGISTRATION_REQ TSDU format

Table 126: U_REGISTRATION_REQ information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M	Not significant	V	4 bits
CALL_PRIORITY	M	Not significant	V	4 bits
CODOP	M		V	1 octet
HOST_ADR	M		V	5 octets
SYSTEM_ID	M		V	1 octet
SERIAL_NB	M		V	4 octets
REG_SEQ	M		V	2 octets
COMPLETE_REG	M		V	1 octet
RT_STATUS	M		V	1 octet

4.4.125 U_PRIORITY_GRP_WAITING

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a speech request acknowledgement in nominal mode and in 3.1 fallback mode. This TSDU is only used on LABS.
Conveyed in TPDU: DT_SHORT.

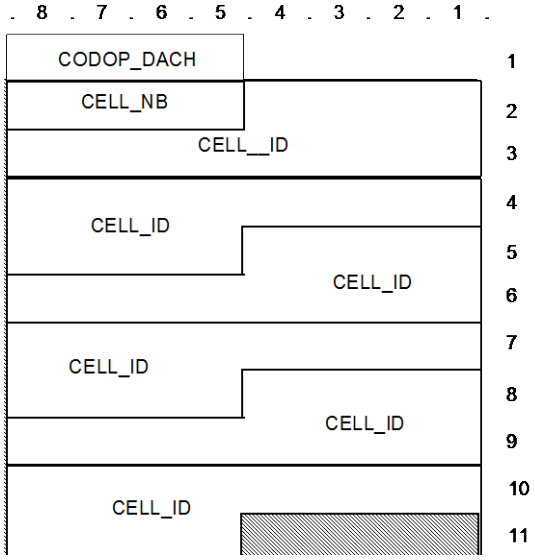


Figure 128: U_PRIORITY_GRP_WAITING TSDU format

Table 127: U_PRIORITY_GRP_WAITING information elements list

IE	K	Condition	F	Length
CODOP_DACH	M		V	4 bits
CELL_NB	M	Number of cell <=6	V	4 bits
CELL_ID	C	IF CELL_NB<> 0 Format 0 is used	V	12 bits

Comments:
This message is only used by the radio or Line Connected AG of the tower dispatch interface, irrespective of the network operating mode.

4.4.126 U_PRIORITY_GRP_ACTIVATION

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent as a request to activate one tower communication. This message is sent on the dynamic access channel.
Conveyed in TPDU: DT_SHORT.

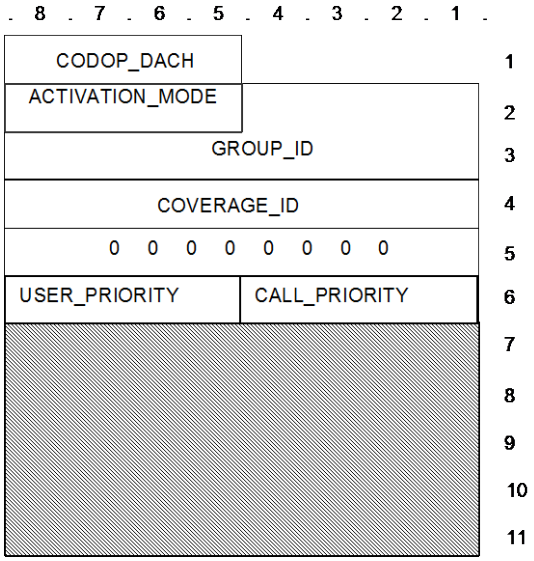


Figure 129: U_OC_ACTIVATION TSDU format

Table 128: U_OC_ACTIVATION information elements list

IE	K	Condition	F	Length
CODOP_DACH	M	Activation mode = 00	V	4 bits
ACTIVATION_MODE	M		V	4 bits
GROUP_ID	M		V	12 bits
COVERAGE_ID	M	group communication reference.	V	1 octet
USER_PRIORITY	M		V	4 bits
CALL_PRIORITY	M		V	4 bits

The values of the other fields are the same than the one used for the MOCH.
Comment: this message is only used by the radio or Line Connected AG of the tower dispatch interface.

4.4.127 U_SHORT_DATA

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent:

- Either on the dynamic access channel by the RT application to a SwMI application as a short information message; or,

- on SDCH, when an uplink message to be transmitted by the "Polling service transmission" is pending, to respond to SwMI invitation and by the way to transmit the message itself.

- On ADCH, when an uplink message to be transmitted by the periodic emission is pending.

Conveyed in TPDU: DT_SHORT.

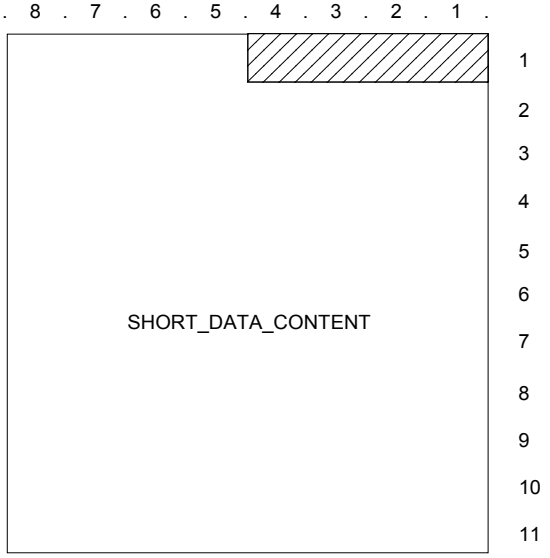


Figure 130: U_SHORT_DATA TSDU format

Table 129: U_SHORT_DATA information elements list

IE	K	Condition	F	Length
SHORT_DATA_CONTENT	M		V	21 quartets

4.4.128 U_TERMINATE

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by The RT application to report an withdrawn from current application.
Conveyed in TPDU: CR.

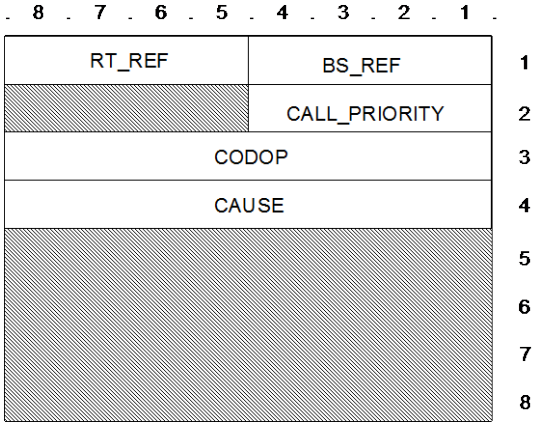


Figure 131: U_TERMINATE TSDU format

Table 130: U_TERMINATE information elements list

IE	K	Condition	F	Length
RT_REF	M		V	4 bits
BS_REF	M		V	4 bits
CALL_PRIORITY	M		V	4 bits
CODOP	M		V	1 octet
CAUSE	M		V	1 octet

4.4.129 U_TKK_ANSWER

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT application to provide a TKK key delivery response to the SwMI.
Conveyed in TPDU: DT.

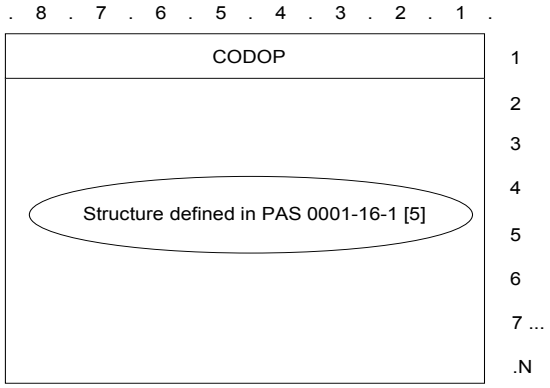


Figure 132: U_TKK_ANSWER TSDU format

If N is greater than N400, the TSDU shall be segmented several TPDU DT.
N shall be less than 2 048

Table 131: U_TKK_ANSWER information elements list

IE	K	Condition	F	Length
CODOP	M		V	1 octet

4.4.130 U_TRANSFER_REQ

Direction: SwMI ⇦ RT.
Short description: This TSDU shall be sent by the RT users to request a call transfer supplementary service to be activated for the incoming call.
Conveyed in TPDU: CR.

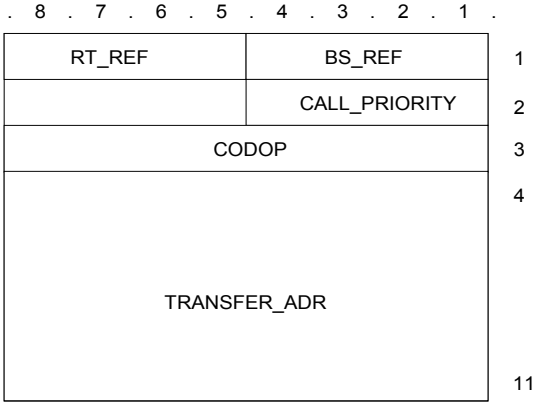


Figure 133: U_TRANSFER_REQ TSDU format

Table 132: U_TRANSFER_REQ information elements list

IE	K	Condition	F	Length
BS_REF	M		V	4 bits
RT_REF	M		V	4 bits
CALL_PRIORITY	M	see note	V	4 bits
CODOP	M		V	1 octet
TRANSFER_ADR	M	see note	V	Max 8 bytes

NOTE: CALL_PRIORITY shall be the value of the ongoing voice call, at the time of the transfer request
TRANSFER_ADR : may be
- An RFSI Address
- An address (RFSI) + a PABX sub-address for a call **to** a TDX interface;

4.4.131 X_EMPTY

Direction: SwMI ⇔ RT.
Short description: This TSDU shall be conveyed by a TPDU DC in the case when one end has to acknowledge an information carrying TPDU DR, it is sent by the other end. (the TSDU contains 0 octets).
Conveyed in TPDU: DC / DR.

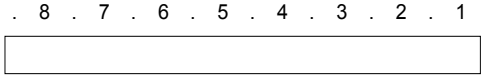


Figure 134: X_EMPTY TSDU format

5. Message coding

This Clause defines:
- the code of operation of the TSDU from the A/I application protocol;
- the cause indications;
- the information elements from all TSDUs with their values and short descriptions.

Any currently unused bit in a field shall be reserved and its value shall be set to 0.

5.1 List of messages code of operation

CODOP_DACH	TRANSPORT PROTOCOL MANAGEMENT	
	U_CALL_ACCEPTED	= 0 1 0 0
	U_CALL_REJECTED	= 0 1 0 1
	U_BROADCAST_ACCEPTED	= 1 1 1 0
	U_CHANNEL_INIT_ACK	= 0 1 1 1
	U_ANSWER_TO_PAGING	= 0 1 1 0 [1]
	U_ATTACH	= 1 1 0 0
	U_DETACH	= 1 1 0 1
	GROUP COMMUNICATION and EMERGENCY OPEN CHANNEL	
	U_GROUP_ACTIVATION	= 1 0 0 0
	U_ECH_ACTIVATION	= 1 0 0 1
	U_EMERGENCY_ACK	= 1 0 1 0
	U_EMERGENCY_NAK	= 1 0 1 1
	U_FAST_EMERGENCY	= 0 0 0 1
	U_PRIORITY_GRP_WAITING	= 0 0 1 0
	U_PRIORITY_GRP_ACTIVATION	= 0 0 1 1
	U_OC_ACTIVATION	= 0 1 1 0
	DATA	
	U_FBM31_EXPLICIT_SHORT_DATA	= 1 1 1 1

CODOP	Common and transport protocol management	
	D_REJECT	= 0 0 0 0 1 0 0 0
	D_REFUSAL	= 0 0 0 0 1 0 0 1
	D_END	= 0 0 0 0 1 0 1 0
	U_END	= 0 0 0 0 1 0 1 0
	D_BACK_CCH	= 0 0 0 0 1 0 1 1
	D_RELEASE	= 0 0 0 0 1 1 0 0
	U_ABORT	= 0 0 0 0 1 1 0 1
	U_TERMINATE	= 0 0 0 0 1 1 1 0
	D_HOOK_ON_INVITATION	= 0 0 0 0 1 1 1 1
	D_RETURN	= 0 0 0 1 0 0 0 0
	U_EVENT_REPORT	= 0 0 0 1 0 0 0 1
	D_CALL_WAITING	= 0 0 0 1 0 0 1 0
	D_AUTHENTICATION	= 0 0 0 1 0 0 1 1
	U_AUTHENTICATION	= 0 0 0 1 0 1 0 0
	D_AUTHORISATION	= 0 0 0 1 0 1 1 0
	U_ERROR_REPORT	= 0 0 0 1 0 1 1 1
	D_CHANNEL_INIT	= 0 0 0 1 1 0 0 0
	REGISTRATION	
	U_REGISTRATION_REQ	= 0 0 1 0 0 0 0 0
	D_REGISTRATION_NAK	= 0 0 1 0 0 0 0 1
	D_REGISTRATION_ACK	= 0 0 1 0 0 0 1 0
	D_FORCED_REGISTRATION	= 0 0 1 0 0 0 1 1
	U_LOCATION_ACTIVITY	= 0 0 1 0 0 1 0 0
	D_LOCATION_ACTIVITY_ACK	= 0 0 1 0 0 1 0 1
	U_PERIODIC_ACCESS_SUBSCRIPTION _RQ	= 0 0 1 0 0 1 1 1

[1] Unused

D_PERIODIC_ACCESS_SUBSCRIPTION_ACK	=	0 0 1 0 1 0 0 0
D_PERIODIC_ACCESS_SUBSCRIPTION_NACK	=	0 0 1 0 1 0 0 1
PRIVATE VOICE CALL		
U_CALL_SETUP	=	0 0 1 1 0 0 0 0
D_CALL_ALERT	=	0 0 1 1 0 0 0 1
D_CALL_SETUP	=	0 0 1 1 0 0 1 0
U_CALL_ANSWER	=	0 0 1 1 0 0 1 1
D_CALL_CONNECT	=	0 0 1 1 0 1 0 0
D_CALL_SWITCH	=	0 0 1 1 0 1 0 1
U_CALL_INTRUSION_PC	=	0 0 1 1 0 1 1 0
U_CALL_INTRUSION_OCH	=	0 0 1 1 0 1 1 1
D_TRANSFER_NAK	=	0 0 1 1 1 0 0 1
U_TRANSFER_REQ	=	0 0 1 1 1 0 1 0
U_CALL_INTRUSION_ECH	=	0 0 1 1 1 0 1 1
U_CALL_RELEASE	=	0 0 1 1 1 1 0 0
U_CALL_CONNECT	=	0 0 1 1 1 1 0 1
U_CALL_SWITCH	=	0 0 1 1 1 1 0 1
D_CALL_START	=	0 0 1 1 1 1 1 0
D_CALL_ACTIVATION	=	1 1 1 0 0 0 0 0
D_CALL_COMPOSITION	=	1 1 1 0 0 0 0 1
D_CALL_END	=	1 1 1 0 0 0 1 0
D_CALL_OVERLOAD_ID	=	1 1 1 0 0 0 1 1
reserved	=	1 1 1 0 0 1 0 0
reserved	=	1 1 1 0 0 1 0 1
reserved	=	1 1 1 0 0 1 1 0
DATA		
reserved	=	0 1 0 0 0 0 0 0
reserved	=	0 1 0 0 0 0 0 1
D_FUNCTIONAL_SHORT_DATA	=	0 1 0 0 0 0 1 0
U_DATA_DOWN_ACCEPT	=	0 1 0 0 0 0 1 1
U_DATA_MSG_UP	=	0 1 0 0 0 1 0 0
D_DATA_MSG_DOWN	=	0 1 0 0 0 1 0 1
D_EXPLICIT_SHORT_DATA	=	0 1 0 0 0 1 1 0
D_DATA_END	=	0 1 0 0 1 0 0 0
D_DATAGRAM_NOTIFY	=	0 1 0 0 1 0 0 1
D_DATAGRAM	=	0 1 0 0 1 0 1 0
D_BROADCAST	=	0 1 0 0 1 0 1 1
D_DATA_SERV	=	0 1 0 0 1 1 0 0
reserved	=	0 1 0 0 1 1 0 1
D_DATA_DOWN_STATUS	=	0 1 0 0 1 1 1 0
D_CONNECT_DCH	=	0 1 1 0 0 0 0 0
reserved	=	0 1 1 0 0 0 0 1
D_CONNECT_CCH	=	0 1 1 0 0 0 1 0
D_DATA_AUTHENTICATION	=	0 1 1 0 0 0 1 1
D_DATA_REQUEST	=	0 1 1 0 0 1 0 0
D_DCH_OPEN	=	0 1 1 0 0 1 0 1
U_DATA_REQUEST	=	0 1 1 0 0 1 1 0
D_EXTENDED_STATUS	=	0 1 1 0 0 1 1 1
D_CCH_OPEN	=	0 1 1 0 1 0 0 0
D_BROADCAST_WAITING	=	0 1 1 0 1 0 0 1

GROUP COMMUNICATION and EMERGENCY OPEN CHANNEL	
U_OCH_RELEASE	= 0 1 0 1 0 0 0 0
U_OCH_SETUP	= 0 1 0 1 0 0 0 1
U_ECH_CLOSE	= 0 1 0 1 0 0 1 0
D_EMERGENCY_NOTIFICATION	= 0 1 0 1 0 0 1 1
U_ECH_SETUP	= 0 1 0 1 0 1 0 0
D_GROUP_ACTIVATION	= 0 1 0 1 0 1 0 1
D_ECH_ACTIVATION	= 0 1 0 1 0 1 1 0
D_GROUP_END	= 0 1 0 1 0 1 1 1
D_GROUP_IDLE	= 0 1 0 1 1 0 0 0
D_GROUP_REJECT	= 0 1 0 1 1 0 0 1
D_ECH_REJECT	= 0 1 0 1 1 0 1 0
D_GROUP_PAGING	= 0 1 0 1 1 0 1 1
D_BROADCAST_NOTIFICATION	= 0 1 0 1 1 1 0 0
D_CRISIS_NOTIFICATION	= 0 1 0 1 1 1 0 1
Reserved	= 0 1 0 1 1 1 1 0
D_EMERGENCY_ACK	= 0 1 0 1 1 1 1 1
D_EMERGENCY_NAK	= 1 0 0 0 0 0 0 0
U_EMERGENCY_REQ	= 1 0 0 0 0 0 0 1
D_GROUP_OVERLOAD_ID	= 1 0 0 0 0 0 1 0
D_ECH_OVERLOAD_ID	= 1 0 0 0 0 0 1 1
D_PRIORITY_GRP_WAITING	= 1 0 0 0 0 1 0 0
D_PRIORITY_GRP_ACTIVATION	= 1 0 0 0 0 1 0 1
D_OC_ACTIVATION	= 1 0 0 0 0 1 1 0
D_OC_REJECT	= 1 0 0 0 0 1 1 1
D_OC_PAGING	= 1 0 0 0 1 0 0 0
reserved	= 1 0 0 0 1 0 0 0
reserved	= 1 0 0 0 1 0 0 1
reserved	= 1 0 0 0 1 0 1 0
STATUS MANAGEMENT	
D_ACCESS_DISABLED	= 0 1 1 1 0 0 0 0
D_TRAFFIC_ENABLED	= 0 1 1 1 0 0 0 1
D_TRAFFIC_DISABLED	= 0 1 1 1 0 0 1 0
U_DEVIATION_CLEAR	= 0 1 1 1 0 0 1 1
U_DEVIATION_SET	= 0 1 1 1 0 1 0 0
D_DEVIATION_ON	= 0 1 1 1 0 1 1 0
D_SERVICE_DISABLED	= 0 1 1 1 1 0 0 0
D_ABILITY_MNGT	= 0 1 1 1 0 1 1 1
BROADCAST	
D_SYSTEM_INFO	= 1 0 0 1 0 0 0 0
D_GROUP_LIST	= 1 0 0 1 0 0 1 0
D_GROUP_MASTER	= 1 0 0 1 1 0 0 1
D_GROUP_COMPOSITION	= 1 0 0 1 0 0 1 1
D_NEIGHBOURING_CELL	= 1 0 0 1 0 1 0 0
D_ECCH_DESCRIPTION	= 1 0 0 1 0 1 0 1
D_ADDITIONAL_PARTICIPANTS	= 1 0 0 1 0 1 1 0
D_DDCH_DESCRIPTION	= 1 0 0 1 0 1 1 1
D_TKG_PRIO_LIST	= 1 0 0 1 1 0 0 0
INFORMATION DELIVERY	
D_INFORMATION_DELIVERY	= 1 1 0 0 0 1 0 1
Other values reserved	= 1 1 0 0 – – – –

5.2 Cause indications

Values shall be coded in hexadecimal. This indication explains the TSDU end sender's decision.

COMMON CAUSES	- 00 -	normal
	- 01 -	abnormal release
	- 02 -	terminal pre-emption
	- 03 -	resource pre-emption
	- 04 -	insufficient TCH quality
	- 05 -	cleared by user
	- 06 -	power supply failure
	- 07 -	application event
	- 08 -	identification error
	- 09 -	unknown calling party
	- 0A -	service barred calling party
	- 0B -	service barred called party
	- 0C -	software fault
	- 0D -	service not implemented
	- 0E -	lack of resources
	- 0F -	operator decision
	- 10 -	protected call
	- 11 -	end of ringing
	- 12 -	voice inactivity
	- 13 -	host address not valid
	- 14 -	Already forwarded
	- 15 -	inconsistent address
	- 16 -	network event
	- 17 -	key error
	- 18 -	intrusion
	- 19 -	encryption error
	- 1A -	terminal not configured
	- 1B -	remote RT synchronisation
	- 1C -	coverage fault
	- 1D -	unreachable master switch
	- 1E -	non authorised MOCH
	- 20 -	unknown TSDU
	- 21 -	missing mandatory IE
	- 22 -	missing conditional IE
	- 23 -	user erasure indication

PRIVATE CALL	- 40 -	no reply from called party
	- 41 -	called party absent
	- 42 -	called party busy
	- 43 -	unreachable remote terminal
	- 44 -	unknown called user
	- 45 -	double forwarding
	- 46 -	all called parties rejected
	- 47 -	transfer failure
	- 48 -	user refusal
	- 49 -	called terminal not configured
	- 4A -	address cannot be parsed
	- 4B -	unknown sub-address field
	- 4C -	PABX subscriber busy
	- 4D -	Internal TDX link fault
	- 4E -	external TDX link fault
	- 4F -	internal TDX link re-establishment
	- 50 -	external TDX link re-establishment
	- 51 -	transfer
	- 52 -	silent call
	- 53 -	called Party warned
	- 54 -	end of ringing of VPW in gateway mode
	- 55 -	no reply from called party (VPW in gateway mode)

DATA	- 60 -	buffer not empty
	- 61 -	UDT not connected
	- 62 -	downlink transfer
	- 63 -	message size does not match expected length
	- 64 -	application type error
	- 65 -	message length error
	- 66 -	encryption field error
	- 67 -	priority error
	- 68 -	uplink data channel congestion
	- 69 -	delivery time expired
	- 6A -	uplink transfer priority
	- 6B -	incorrect transmission parameters
	- 6C -	incorrect low layer option
	- 6D -	transmission inactivity
	- 6E -	SDP applications not supported or not opened
	- 6F -	key renewal

GROUP COMMUNICATION	- 80 -	open channel not created
	- 81 -	open channel already set-up
	- 82 -	unknown open channel
	- 83 -	open channel cannot be set-up
	- 84 -	coverage not guaranteed
	- 85 -	open channel number not valid
	- 86 -	cell out of coverage
	- 87 -	maximum open channel duration reached
	- 88 -	maximum activation time reached
	- 89 -	communication change
	- 8A -	group already activated
	- 8B -	maximum OG exceeded

EMERGENCY OPEN CHANNEL	- AO -	emergency open channel call

KEY	- BO -	authentication error
	- B1 -	home switch access fault

REGISTRATION	- E0 -	RT not valid
	- E1 -	inconsistent RT
	- E2 -	unreachable HRSW
	- E3 -	non-explicit address
	- E4 -	RT registration disabled
	- E5 -	SwMI database updating
	- E6 -	RT assigned to an attachment cell
	- E7 -	RT cannot be authenticated
	- E8 -	congestion
	- E9 -	RSW saturation
	- EA -	MRSW saturation
	- EB -	HRSW saturation
	- EC -	out of window
	- ED -	RT registration filtered

5.3 Information elements

Information elements identifiers (IEI)	
TYPE 2 and 3 IEI	
Reserved	= 0 0 0 0 0 0 0 0
GROUP_ID	= 0 0 0 0 0 0 0 1
CELL_ID_LIST	= 0 0 0 0 0 0 1 0
KEY_OF_CALL	= 0 0 0 0 0 0 1 1
ADJACENT_BN_LIST	= 0 0 0 0 0 1 0 0
TTI	= 0 0 0 0 0 1 0 1
ADR	= 0 0 0 0 0 1 1 0
DDCH_SUB	= 0 0 0 0 1 0 0 0
LOC	= 0 0 0 0 1 0 0 1
TYPE 1 IEI	
Reserved	= 1 0 0 0 0 0 0 0
USER_PRIORITY	= 1 0 0 0 0 0 0 1
COVERAGE_ID	= 1 0 0 0 0 0 1 0
KEY_REFERENCE	= 1 0 0 0 0 0 1 1
ADD_SETUP_PARAM	= 1 0 0 0 0 1 0 0
PROFILE_ID	= 1 0 0 0 0 1 0 1

5.3.1 ACCESS_PROFILE

ACCESS_PROFILE	Period Index of the message emission Field of 4 bits 0xF = not significant

5.3.2 ACTIVATION_BITMAP

ACTIVATION_BITMAP	Specify the active open channels or priority talk-groups Field of 56 bits splitted in two parts delineated by INDEX rank (see chapter 5.3.38) For rank *i* from 1 to INDEX b*i* = 0 ⇔ MOCH with index *i* in D_GROUP_LIST message is inactive in the district cell. b*i* = 1 ⇔ MOCH with index *i* in D_GROUP_LIST message is active in the district cell. For rank *i* from INDEX+1 to 56 b*i* = 0 ⇔ MOCH with index *(i – INDEX)* in D_GROUP_LIST message is inactive in the umbrella cell. b*i* = 1 ⇔ MOCH with index *(i – INDEX)* in D_GROUP_LIST message is active in the umbrella cell. or when D_TKG_PRIO_LIST message is broadcasted b*i* = 0 ⇔ TKG with index *(i – INDEX)* in D_TKG_PRIO_LIST message is inactive in the district cell. b*i* = 1 ⇔ TKG with index *(i – INDEX)* in D_TKG_PRIO_LIST message is active in the district cell.

5.3.3 ACTIVATION_MODE

ACTIVATION_MODE	Shall define the call activation mode Field of one quartet. . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 HOOK | TYPE TYPE Field of 2 bits Shall specify the type of group communication. 00 ..... Open channel call 01 .....Internal group call 10 ..... Broadcast call 11 .....External group call HOOK Field of 2 bits Shall specify the way the RT hooks off. 00 ..... Automatic without tone notification 01 ..... Automatic with tone notification 10 ..... Ring 11 ..... Reserved

5.3.4 ADD_SETUP_PARAM

ADD_SETUP_PARAM

Field of one octet.

. 8	. 7	. 6	. 5	. 4	. 3	. 2	. 1
SIL	MOD	ID	0	0	ORIGIN		

SIL — Field of 1 bit

Shall specify the way the RT tone.

0 Normal (ring)

1 silence

MOD — Field of 1 bit

Shall specify the way the RT hook methode.

0 Manual

1 Automatic

ID — Field of 1 bit

Shall specify if the RT is allowed to display the calling party identity.

0 Yes

1 No

ORIGIN — Calling party Terminal type

Shall specify the way the RT hooks off.

See CALL_TYPE information element

NOTE: This indication shall be set by SwMI during a call setup procedure and furnished to the called party

The calling RT shall set this field to 000.

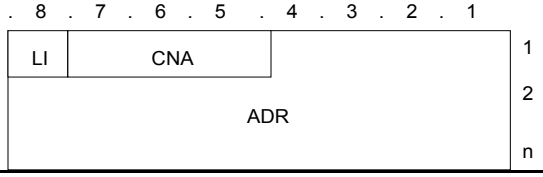
When ADD_SETUP_PARAM field is set to default value (00000000), the information element is not present in the TSDU.

5.3.5 ADDRESS

FORWARD_ADR
CALLING_ADR
CALLED_ADR
HOST_ADR
TRANSFER_ADR

⇨ shall identify the potentially forwarded-to RT
⇨ shall identify the calling RT
⇨ shall identify the called RT
⇨ shall identify the RT registration originator
⇨ shall identify the transferred-to RT

This information element shall designate one or more addresses and shall be in the following format:



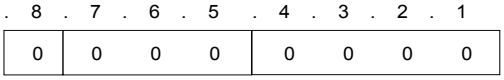
where LI	list bit
0 =	if last element in address list
1 =	else

where the ADR field contains an odd number of quartets the structure of which depends on the value of CNA

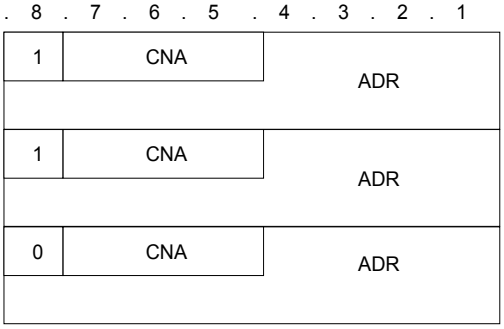
ADDRESS

where CNA	Coded Nature of Address
0 =	not significant type
1 =	RFSI type
2 =	variable length X400 type
3 =	PABX sub-address type
4 =	functional address type
5 =	long address type (for ISI)
6 =	binary
7 =	escape code

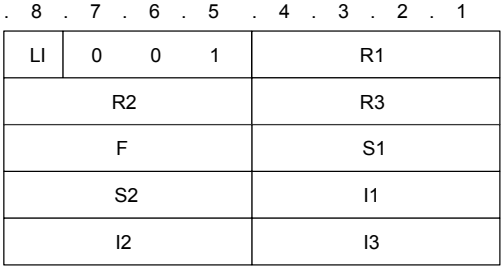
Example: for a list of 0 address, LI and CNA equal 0, ADR is not significant.



Example: for a list of 3 addresses



Example: **TETRAPOL type address** (RFSI address coded with 9 digits referred to as R1 R2 R3 F G1 G2 I1 I2 I3)



Example: **X.400 type address**

. 8	. 7	. 6	. 5	. 4	. 3	. 2	. 1
LI	0	1	0	0	0	0	0
Length of X.400 name							

Example: **PABX sub-address**, the length is measured in quartets, the sub-address shall contain n decimal digits, with maximum value of n = 15.

Example n=4 sub-address = sa1 sa2 sa3 sa4

. 8	. 7	. 6	. 5	. 4	. 3	. 2	. 1
LI	0	1	1	length = 4			
sa1				sa2			
sa3				sa4			

Example: **universal address** containing a numbering plan identifier, (address length is deduced from NPI value).

. 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1

LI	1 1 1	NPI
Universal address		

where NPI **Numbering Plan Identifier**
0 Unknown
1 IP-V4 Address
2 (reserved for IP-V6 Address)
3 functionnal address
4 RFSI sub-address for VGW V1
5 to 7 Free

Example: **functional address** containing a prefix which specifies the type of functionnal address and two digits the length is measured in quartets

. 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1

LI	1 1 1	0 0 1 1
prefix		Length =2
A01		A02
organisation		

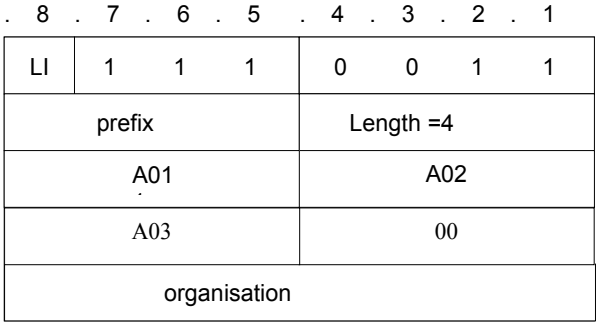
where prefix field of 4 bits : 000 OP
3 bits not used
bit pres_org :

OP	Field of 1 bit
Shows whether this field organisation is present or not. 0 the field organisation is not present 1 the field organisation is added	

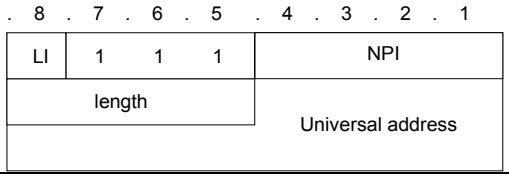
where length = 2 : length of funcionnal address
where organization field of 8 bits from 0 to 255 binary coding, for functional address dedicated to DP

zation field of 8 bits
from 0 to 255 binary coding, for functional address dedicated to DP
255 for functionnal address dedicated from ST

ex with a functionnal address using 3 quartets



Example: **universal address** containing a numbering plan identifier, with the address length in octets.



where NPI	**Numbering Plan Identifier**
8	Reserved for ISI-SIC
9 to 10	Reserved for ISI-Ciphering/PABX-X.400
11 to 13	Reserved for ISI-ISDN/TETRA/APCO
14	Free
15	Reserved for future extended numbering plans

5.3.6 ADJACENT_PARAM

ADJACENT_PARAM	Adjacent cell parameters Field of 1 octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . BN | LOC | 0 | EXP | RXLEV_ACCESS RXLEV_ACCESSField of 4 bits Defined in CELL_RADIO_PARAM. BN Field of 1 bit Shows whether this cell belongs to the same base network as the current cell. 1 ..... same base network 0 ..... different base network LOC Field of 1 bit Shows whether this cell belongs to the same location area as the current cell. 1 ..... same location area 0 ..... different location area EXP Field of 1 bit Indication Showing whether this cell is experimental or operational 1 ..... experimental cell 0 ..... normal cell

5.3.7 APPLI_SAP_ID

TSAP_ID APPLI_SAP_ID	TSAP identifier Field of one quartet. 00 BROADCAST 01 TRANSPORT PROTOCOL MANAGEMENT 02 REGISTRATION 03 RESERVED 04 PRIVATE CALL 05 GROUP COMMUNICATIONS 06 EMERGENCY OPEN CHANNEL 07 DATA MESSAGE 08 RT MANAGEMENT 09 RESERVED 10 KEY DELIVERY 11 DATA FLOW 12 INFO_DELIVERY other values reserved

5.3.8 BAND

BAND	shall identify the radio band Field of one quartet 16 possible values. This parameter shall define the relationship between the physical characteristics of a radio channel and the CHANNEL_ID parameter 0001 ..... Band 1 other values ..... reserved Not significant in case of a line connected interface

5.3.9 BN_ID

BN_ID	Identity of base network in a system. Field of 1 octet The base network identifier shall be a number from 1 to 255. Value 0xFF is not significant.

5.3.10 BN_NB

BN_NB	Index in the adjacent BN list. Field of 4 Bits BN_NB = 0 ⇔ The belonging of the corresponding neighbouring cell to BN of the current cell depends on the ADJACENT_PARAM parameter. BN_NB = i (>0) ⇔ The corresponding neighbouring cell belongs to the BN number i in the adjacent BN list.

5.3.11 BROADCAST_REFERENCE

BROADCAST_REFERENCE	Identify the broadcast message pending Field of 2 octets. . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0

5.3.12 BS_REF

RT_REF BS_REF	References exchanged by endpoints ..... Field of 4 bits 0 0 0 0 ..... not significant Other combinations allowed

5.3.13 CALL_ID

CALL_ID	Identity of a call instance ..... Field of 1 octet All values are significant.

5.3.14 CALL_PRIORITY

CALL_PRIORITY	RT priority of transaction between SwMI and RT Field of 4 bits 0 0 0 0 .....not significant 0 0 1 0 .....routine 0 1 0 0 ..... urgent 0 1 1 0 ..... flash 1 0 0 0 ..... broadcast 1 0 1 0 ..... crisis 1 1 0 0 ..... emergency 1 1 0 1 ..... tower communication

5.3.15 CALL_TYPE

CALL_TYPE	Private call type.....Field of 1 octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . 0 | TRSF | DESTINATION | ORIGIN TRSF Call re-establishment after transfer (see note) b7 ..... sub-field of 1 bit 0 ..... Normal call 1 ..... Call re-routed after transfer NOTE: This indication is set by SwMI after a transfer procedure for initial calling RT only. ORIGIN Calling party Terminal type b3 b2 b1 ..... Sub-field of 3 bits (b1 to b3) 0 0 0..... TETRAPOL 0 0 1.....PABX 0 1 0.....Dispatch centre DESTINATION Called party terminal type b6 b5 b4..... Sub-field of 3 bits (b4 to b6) 0 0 0 ..... TETRAPOL 0 0 1.....PABX 0 1 0.....Dispatch Centre 1 1 1.....Multiple

5.3.16 CCR_CONFIG

CCR_CONFIG	Shall describe the adjacent cell configurations. Field of 1 octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 0 0 0 0 | NUMBER NUMBER .....Field of 4 bits Number of adjacent cells in the list Between 0 and 12 inclusive Bits 5 to 8 reserved for future use.

5.3.17 CCR_PARAM

CCR_PARAM	Shall be used to modify the parameters for CCH reselection. Field of 1 octet (reserved for future use). . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 0 0 0 0 0 0 0 0

5.3.18 CELL_ACCESS

CELL_ACCESS	Parameter used to limit RT registration and access to certain services in a cell. Field of 1 octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 MIN_REG_CLASS | MIN_SERVICE_CLASS MIN_REG_CLASS ..... Field of 4 bits Shall define the minimum RT registration class allowed to register in a cell. Possible values from 0 to 15, value set to 0 shall mean "all RT can register" any RT may register. MIN_SERVICE_CLASS ..... Field of 4 bits The default value of this parameter shall be 0

5.3.19 CELL_BN

CELL_BN	Base network field of home located terminals in a cell Field of 3 quartets (see ADDRESS information element). . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . | | R1 R2 | R3 . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . R1 | R2 R3 |

5.3.20 CELL_CONFIG

CELL_CONFIG

Configuration of current cell Field of 8 bits

. 8 .	. 7 .	. 6 .	. 5 .	. 4 .	. 3 .	. 2 .	. 1 .
ECCH	ATTA	DDCH	MUX_TYPE			SIM	DC

ECCH ..... Field of 1bit

shall indicate if at least one ECCH is in service in the cell

0 ..... No ECCH in service
1 ..... At least one ECCH in service

DDCH ..... Field of 1bit

shall indicate if at least one DDCH is in service in the cell

0 No DDCH configured in the cell

1 cell is configured with at least one DDCH

ATTA ..... Field of 1bit

shall indicate if Attach/detach function is supported in the cell

0 .....Attach/detach function not supported
1..... Attach/detach function supported

MUX_TYPE ..... Field of 3 bits

Shall indicate the type of multiplexing used on logical channels. Refer to PAS 0001-3-3 [3].
0 ..... TETRAPOL default type
1 ..... type 2
Other values ..... reserved

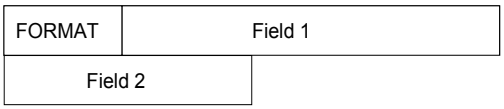
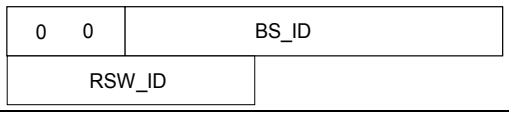
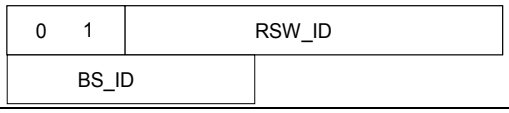
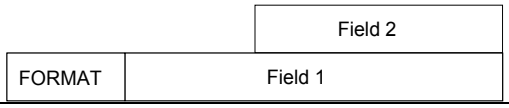
SIM ..... Field of 1 bit

Shall indicate whether the current cell contains a single base station or several synchronised base stations "simulcast"
0 ..... Single base station cell
1 ..... Simulcast cell

DC..... Field of 1 bit

Shall indicate whether the current cell is single or double coverage cell (low cell covered by umbrella cell).
0 ..... Single cell
1 ..... Double coverage cell

5.3.21 CELL_ID

CELL_ID	Cell identifier in the BN..... Field of 12 bits . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1  FORMAT ..... Field of 2 bits Defines RSW_ID and BS_ID field formats to allow for different configurations. FORMAT = 00 ..... Format 16 RSW / 64 BS .....RSW_ID = Field 2 and BS_ID = Field 1 . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1  FORMAT = 01 ..... Format 16 BS / 64 RSW .....RSW_ID = Field 1 and BS_ID = Field 2 . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1  RSW_ID ..... Field of 4 bits Number identifying the RSW in the base network: (values from 0 to 15, value 0 is reserved for MSW), bit 8 = msb. BS_ID ..... Field of 6 bits Number of cell anchored to RSW: (values from 0 to 63), bit 6 = msb. In SYSTEM_INFO TSDU (in BSC-disconnected mode) . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 

5.3.22 CELL_RADIO_PARAM

CELL_RADIO_PARAM

Radio cell parameters ..... Field of 2 octets

. 8 .	7 .	6 .	5 .	4 .	3 .	2 .	1 .
TX_MAX			RADIO_LINK_TIMEOUT				
PWR_TX_ADJUST				RXLEV_ACCESS			

TX_MAX .....Field of 3 bits

shall define the maximum RT transmission level for the cell.
0 0 0 ..... no limitation
other values ..... reserved

RADIO_LINK_TIMEOUT.....Field of 5 bits

shall define several radio link loss detection criteria
0 0 0 0 0 ..... internal RT criteria
other values ..... reserved

PWR_TX_ADJUST.....Field of 4 bits

Terminal power setting parameter
RT power (dbm) = PWR_TX_ADJUST (dBm) - Received power (dBm), where:

PWR_TX_ADJUST	Constant
0000	-76 dBm
0001	-72 dBm
0010	-68 dBm
0011	-64 dBm
0100	-60 dBm
0101	-56 dBm
0110	-52 dBm
0111	-48 dBm
1000	-44 dBm
1001	-40 dBm
1010	-36 dBm
1011	-32 dBm
1100	-28 dBm
1101	-24 dBm
1110	-20 dBm
1111	-16 dBm

Example: Received power (measured by RT) = -80 dBm and PWR_TX_ADJUST = 0110

RT power = -52 - (-80) = +28 dBm

RXLEV_ACCESS .....Field of 4 bits

shall be used by RT to estimate radio conditions for one cell:

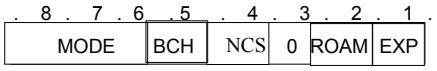
0000 .....-92dBm
0001 .....-88 dBm
0010 .....-84 dBm
0011 .....-80 dBm
0100 .....-76 dBm
0101 .....-72 dBm
0110 .....-68 dBm
0111 .....-64 dBm
1000 .....-60 dBm
1001 .....-56 dBm
1010 .....-52 dBm
1011 .....-48 dBm
1100 .....-44 dBm
1101 .....-40 dBm
1110 .....-36 dBm
1111 .....-32 dBm

5.3.23 CELL_STATE

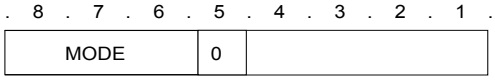
CELL_STATE

cell status vector

In the modes other than BSC-disconnected mode:



in BSC-disconnected mode:



MODE	system operating mode
0 0 0	normal
0 0 1	inter BN disconnected mode
0 1 0	main switch disconnected mode
0 1 1	radioswitch disconnected mode
1 0 0	BSC-disconnected mode

other values reserved.

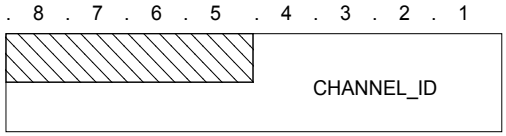
BCH	number of BCH block in superframe
0	first BCH block superframe
1	other block

NCS	Network ciphering state (only significant only for ciphering network)
0	if network ciphers (state ok)
1	if network doesn't cipher (state ko)

ROAM	Roaming Allowed
0	ll RT accepted
1	Home RT only

EXP	Cell category
1	experimental cell
0	normal cell

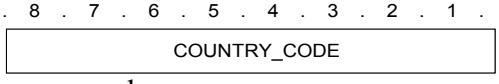
5.3.24 CHANNEL_ID

CHANNEL_ID	Number allocated to a channel (CCH, VCH, DCH) that shall identify a channel within the system Field of 12 bits.  Value between 0 and 4 095 inclusive, b4 shall be the most significant bit, b1 shall be the least significant bit. For a line connected cell, CHANNEL_ID value id between 0 and 255 and the 255 value identifies the CCH. -For a cell, it shall represent a pair of transmit/receive frequencies (Fb, Fh).

5.3.25 COMPLETE_REG

COMPLETE_REG	Number of complete RT registrations Field of 1 octet All possible values may be used. In RT ⇨ SwMI direction: - The RT shall initialise this field with the value (always different from zero) provided by the SwMI at the previous registration. It shall be a normal registration (all the information supplied to RT at registration time shall be significant). - Otherwise, the RT shall initialise the field with zero to inform the SwMI of the complete registration. In SwMI ⇨ RT direction: - It shall indicate the total number of complete registrations executed by RT. When the counter loops, the SwMI shall reset it to zero

5.3.26 COUNTRY_CODE

COUNTRY_CODE	Country code of the network. Field of one octet  All values reserved.

5.3.27 COVERAGE_ID

COVERAGE_ID	Coverage identifier or Open channel identifier Field of 1 binary coded octet Value 1 is reserved. Value 0 means "not applicable"

5.3.28 DATA_LENGTH

DATA_LENGTH	Define the length of the periodic message (10 bytes max) Field of 1 byte Reserved for future use

5.3.29 DCH_LOW_LAYER

DCH_LOW_LAYER	Shall define the DCH low layer. Field of one octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 0 0 0 0 0 LAYER_ONE LAYER_ONE Field of 3 bits Shall specify the layer one profile on DCH. 0 .....Profile 0 (reliable radio channel coding) 1..... Profile 1 (high throughput radio channel coding)

5.3.30 DCCH_NUMBER

DDCH_NUMBER	Shall define DDCH logical number Field of 4 BITS

5.3.31 DESTINATION_PORT

DESTINATION_PORT	Shall identify destination application in notification datagram preceding a message broadcast with notification ...2 octets . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . b15 b14 b13 b12 b11 b10 b9 b8 1 b7 b6 b5 b4 b3 b2 b1 b0 2 b0 is the less significant bit. b15 is the most significant bit. Destination port is present if TRANS_MODE value is "1 0 0 0 UDP message mode".

5.3.32 DEST_PORT_I

DEST_PORT_I	Shall identify destination application in datagram used for tower communication service . 4 . 3 . 2 . 1 . b3 b2 b1 b0 1 b0 is the less significant bit. B4 is the most significant bit.

5.3.33 ECCH_ORGANISATION

ECCH_ORGANISATION	Describes the cell configuration with regard to ECCH. Field of 1 octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . 0 0 MOD MCCH NB_ECCH MOD Field of 1 bit Specifies whether the ECCH may be used as a "extended SDCH" or as "extended CCH (multi CCH)". = 1 ⇔ ECCH is used as an extended CCH (multi CCH) = 0 ⇔ ECCH is used as an extended SDCH MCCH Field of 1 bit Specifies whether the MCCH may be used as a dialogue channel (in the same way as ECCH) or not. = 1 ⇔ : RT shall not use MCCH for SwMI-RT dialogue = 0 ⇔ : RT is allowed to use MCCH for SwMI-RT dialogue NB_ECCH Field of 4 bits Number of ECCH enabled in the cell (= 0 to 15 maximum)

5.3.34 ENC

ENC	This field shall define if the network ciphered Field of 1 bit 0 if network doesn't cipher 1 if network ciphers

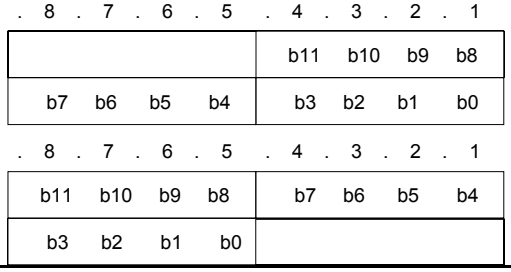
5.3.35 EMERGENCY_TYPE

EMERGENCY_TYPE	Type of emergency (mode ans submode) Field of 1 octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . EMERGENCY_TYPE b4 b3 b2 b1 ..... 0 0 0 0 .....Local Emergency open channel 0 0 0 1 .....Remote Emergency open channel 0 0 1 0 ..... Automatic crisis open channel 0 0 1 1 ..... Dispatch Acknowledged crisis open channel 0 1 0 0.....Dispacth emergency private call other values .....reserved

5.3.36 FIRST_RADIO_SLOT

FIRST_RADIO_SLOT	First DDCH slot in DDCH multiframe Field of 2 bytes FIRST_RADIO_SLOT= 0xFFFF if there is not significant value

5.3.37 GROUP_ID

GROUP_ID	Operational group identifier (OG) (Field of 12 bits (binary coding) - from 0 to 3499 shall designate a simple OG. - from 3500 to 3 755 shall designate a multi OG. - The value 4 095 (FFF in Hexa) shall designate all groups. - Other values shall be reserved. 

5.3.38 INDEX_LIST

INDEX_LIST	Shall define the relationship between the wake-up bitmap and the list of open channels or priority TKG. Shall be used to partition the wake-up bitmap between the district cell open channels and the umbrella cell open channels or priority TKG. Field of 1 octet. . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 MODE | INDEX
	MODE ..... Field of 2 bits Shall specify the way the SwMI shall wake-up the RT whenever a group communication is activated. 00 ..... not significant 01 ..... PCH (CGI) only 10 ..... activation bitmap only 11 ..... PCH + Activation bitmap For the priority TKG, the value is always 10.
	INDEX (if mode equals 10 or 11) Field of 6 bits Value 0 means that the wake-up bitmap shall use an implicit dialling mode. A value between 1 and 56 inclusive shall mean that the wake-up bitmap shall use an explicit dialling mode. In this mode, INDEX refers to the rank of the bit in the wake-up bitmap of: - the first open channel in the group list for the district cell, - the first open channel in the group list for the umbrella cell, - the first priority talk-group in the priority TKG list. The rank of the bit in the wake-up bitmap shall be calculated with the open or emergency open channel number. Open channels in the district cell shall have the lower ranks in the wake-up bitmap.
	INDEX (if mode equals 01) ..... Field of 6 bits

5.3.39 KEY_I

KEY_I	Shall define the index of key used in short datagram. Field of 4 bits. Key_I=00 if there is no encryption

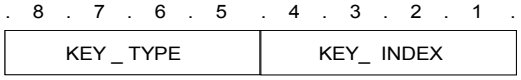
5.3.40 KEY_OF_CALL

KEY_OF_CALL	16 octets Field used in individual voice, inter-BN voice calls and key delivery. The field is always significant.

5.3.41 KEY_REFERENCE

KEY_REFERENCE

Type and index of key used for call.
Field of 2 quartets.
Bits 5 to 8: shall identify the key type used for the call.
Bits 1 to 4: shall identify the key index associated with the key type.



KEY_TYPE		KEY INDEX 0	KEY INDEX 1 to 15
0	RNK	Clear call	Index of the key
1	RNK+	**reserved**	
2	ORNK		
3	NNK		
4	ONNK		
5	OAK	default OAK	
6 to 14	**reserved**		
15	ESC	See note 1	

NOTE 1: When KEY_TYPE is set to ESC value key_index takes the following values.

KEY_INDEX	Downlink TSDU	uplink TSDU
0	Clear call	
1 to 13	**reserved**	
14	TKK identifier	
15	Ciphering Key is provided in the present TSDU	Ciphering mode shall be chosen by SwMI

5.3.42 LOC

LOC — Localisation parameters — Field of 9 bytes

. 8 .	7 .	6 .	5 .	4 .	3 .	2 .	1 .	
0	0	0	0	0	MSG_TYPE			1
St8	**St7**	**St6**	**St5**	**St4**	**St3**	**St2**	**St1**	2
lat	N/S	loc	loc	loc	0	0l	0	3
lat	lat	lat	lat	lat	lat	lat	lat	4
lat	lat	lat	lat	lat	lat	lat	lat	5
long	W/E	lat	lat	lat	lat	lat	lat	6
long	long	long	long	long	long	long	long	7
long	long	long	long	long	long	long	long	8
0	long	long	long	long	long	long	0	9

MSG_TYPE — Field of 3 bits

lat — Field of 23bits
absolute LATITUDE in `degrees`

long — Field of 23 bits
absolute LONGITUDE in `degrees`

W/E — Field of 1 bit
West = 0 or east = 1 indication

St — Field of 8 bits
Status code from 0 to 99

5.3.43 LOC_AREA_ID

LOC_AREA_ID	Shall define a location area identifier. Field of 1 octet. . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 MODE | LOC_ID MODE ..... Field of 2 bits Shall define the Location Area Identifier (LAI): 0 0 ..... LAI = RSW_ID + BS_ID 0 1 ..... LAI = BS_ID 1 0 ..... LAI = LOC_ID 1 1 ..... reserved for future use LOC_ID..... Field of 6 bits For some MODE values, this field may be not significant, in this case, it shall be reserved for a future use. If the field is significant (MODE indicates LOC_ID) and the field shall code LAI in binary format (minimum 0, maximum 63).

5.3.44 MASTER_BN_ID

MASTER_BN_ID	System identity of PTT master base network of the group communication. Field of 1 octet. The base network identifier shall be a number from 1 to 255. Value 0xFF is not significant.

5.3.45 MASTER_BN_NB

MASTER_BN_NB	PTT master base network number of the group communication. Field of 3 quartets (see ADDRESS information element). . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . R1 | R2 R3 | Value 0xFFF is not significant.

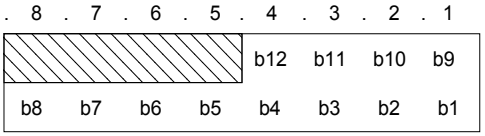
5.3.46 MESSAGE_REFERENCE

MESSAGE_REFERENCE	Shall identify a downlink message broadcast with or without notification. Field of 2 octets. . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . b7 b6 b5 b4 b3 b2 b1 b0 — 1 b15 b14 b13 b12 b11 b10 b9 b8 — 2 b0 is the less significant bit. b15 is the most significant bit.

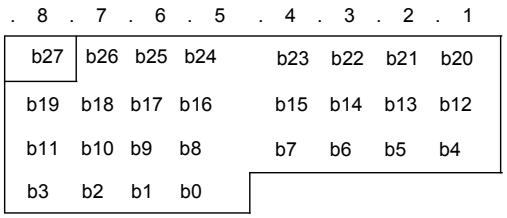
5.3.47 NB_DDCH

NB_DDCH	NB_DDCH Field of 4 bits Number of DDCH enabled in the cell

5.3.48 NEIGHBOURING_CELL

NEIGHBOURING_CELL	Shall identify the adjacent cells which are under the coverage of the group communication. 12 bits field.  bi = 0 ⇔ The adjacent cell number i does not belong to the coverage of the group communication. bi = 1 ⇔ The adjacent cell number i belongs to the coverage of the group communication. "i" refers to the cell number in the NEIGHBOURING_CELL TSDU.

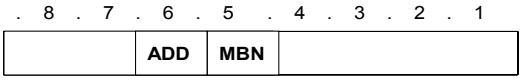
5.3.49 OBJECT_NUMBER

OBJECT_NUMBER	Field of 27 bits (b0 to b26) (binary coding).  - Maximum value : 99 999 999 in decimal

5.3.50 OC_MODE

OC_MODE	Field of 1 bit : b27 of OBJECT_NUMBER field An Object Call could be internal or external : 0 : internal OC (Terminal which activates the OC, has the rights to be called by this Object Number) 1 : external OC (Terminal has not the rights to be called by this Object Number)

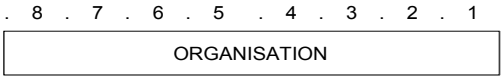
5.3.51 OCH_PARAMETERS

OCH_PARAMETERS	Shall define the parameters associated to the OCH. Field of one quartet  **OCH_PARAMETERS** **Field of 4 bits** **MBN subfield : Multi BN Open channel** bit 5 = 0 ..... " classic " open channel bit 5 = 1 ..... Multi BN Open channel **ADD subfield : Additional participants** bit 6 = 1..... Additional participants allowed bit 6 = 0..... No additional participants allowed bits 7 to 8 ..... Reserved

5.3.52 OG_NB

OG_NB	Number of OGs contained in the message Field of 4 bits (values from 0 to 10)

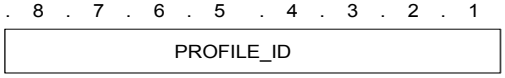
5.3.53 ORGANISATION

ORGANISATION	Identity of the organisation. Field of 1 octet  FF..... not significant FE ..... reserved FD ..... reserved FC ..... reserved FB ..... reserved

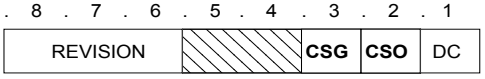
5.3.54 PERIODIC_ACCESS_CLASS

PERIODIC_ACCESS_CLASS	Define the class service used to manage the access right on periodic emission Field of 4 bits CLASS0=0 : desubcription class CLASS1=1, CLASS2=2, CLASS3=3

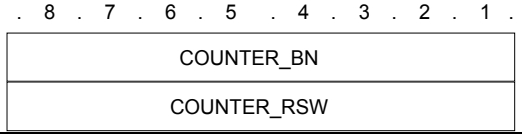
5.3.55 PROFILE_ID

PROFILE_ID	Identity of the terminal profile Field of 1 octet  FF.....not significant 0.....default terminal profile

5.3.56 REFERENCE_LIST

REFERENCE_LIST	Shall identify the message containing the list of group communications or emergency open channels. Field of 1 octet.  REVISION.....Field of 3 bits Counter [modulo 8] for revising the list of accessible open channels in the cell. All values shall be significant. Whenever the list of accessible group communications in the cells changes, the SwMI shall set up the field value. This field shall be also copied into the wake-up bitmap. DC..... Field of 1 bit Specifies whether the list in question shall pertain to the covered or umbrella cell. 0 .....Covered cell 1 .....Umbrella cell CSO ..... Field of 1 bit Specifies whether the RT shall advise the SwMI when the user selects another Open channel. **CSO is forced to 1** 0:.....Selected open channel shall not be transmitted 1:.....Selected open channel shall be transmitted CSG ..... Field of 1 bit Specifies whether the RT shall advise the SwMI when the user selects another group. **CSG is forced to 1** 0:.....Selected group shall not be transmitted 1:.....Selected group shall be transmitted

5.3.57 REG_SEQ

REG_SEQ	RT registration sequence Field of 2 octets Shall be provided by the RT at each registration. This information shall not be significant in case of a complete registration. All possible values may be used. 
	COUNTER_BN Field of one octet Shall be incremented by RT in steps of 1 whenever it registers with a new RSW in a new base network (the RSW counter shall be set to 1 at the same time). When the BN counter loops, the RT shall set it to 1
	COUNTER_RSW Field of one octet Shall be incremented by the RT in steps of 1 whenever it registers with a new switch in the same base network. When the switch counter loops, the RT shall set it to 1.

5.3.58 RESULT_RT

RESULT_RT	Control information calculated by RT from the VALID_RT supplied by SwMI Field of 4 octets, all significant

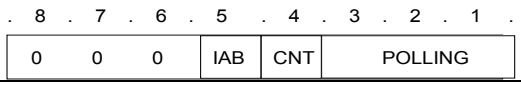
5.3.59 REVISION_D

REVISION_D	Revision Indice of the activation bitmap for the MOCH included in D_GROUP_LIST message in the district cell. Field of 3 bits

5.3.60 REVISION_P

REVISION_P	Revision indice of the activation bitmap for the MOCH included in D_GROUP_LIST message in the umbrella cell or for the priority TKG included in D_TKG_PRIO_LIST message. Field of 3 bits

5.3.61 RT_DATA_INFO

RT_DATA_INFO	RT status vs DATA Field of 1 octet  POLLING.....Field of 3 bits This field shall define the type of polling requested by the RT 000.....No polling 001.....Profile 1 010.....Profile 2 011.....Profile 3 Other values reserved CNT.....Field of 1 bit This field shall define if the connected messaging is barred or not for this RT 0.....Connected messaging is avalaible 1.....Connected messaging is barred IAB.....Field of 1 bit This field shall define if the RT is candidate to reception of broadcast messages addressed to implicit address. 0TR does not accept to receive broadcast message to AI 1.....TR accept to receive broadcast message to AI

5.3.62 RT_ID

RT_ID	RFSI address of an RT Field of 9 quartets coding: see ADDRESS sub-field in ADR

5.3.63 RT_MIN_ACTIVITY

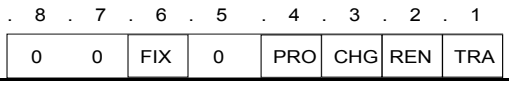
RT_MIN_ACTIVITY	T730 minimum RT activity time out in SwMI dialogue Field of 1 octet Value set as a number of TLR units

5.3.64 RT_MIN_REGISTRATION

RT_MIN_REGISTRATION	T731 time-out: SwMI time out for the validity of the allocated TTI. Field of 1 octet Value expressed as a number of TLR units

5.3.65 RT_STATUS

RT_STATUS	RT status vector — Field of 1 octet



bit 1 ..... (=1 if ADR traffic disabled)
bit 2 ..... (=1 if ADR forwarded)
bit 3 .....(=1 if RT is changing BN)
bit 4 ..... (=1 if default profile used)
bit 5 .....reserved
bit 6 .....= 1 if RT fix = 0 if RT mobile
bit 7 .....reserved
bit 8 .....reserved

5.3.66 RT_STATUS_CODE

5.3.67 RT_STATUS_INFO

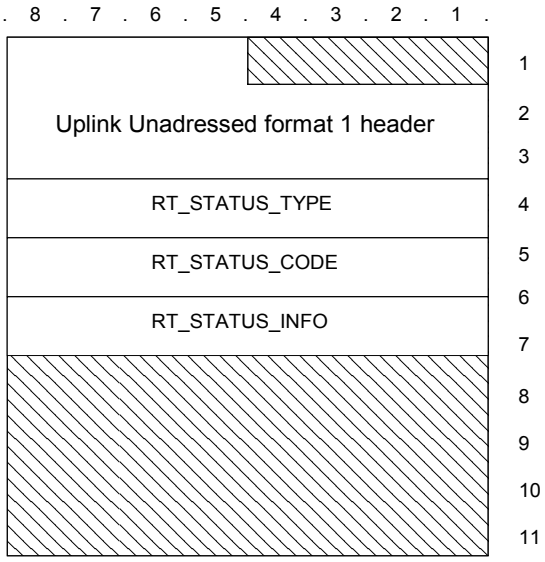
RT_STATUS_CODE (Field of one octet)		RT_STATUS_INFO
0 0 0 0 0 0 0 0 to 1 0 1 1 1 1 1 1	Free User information field.	Free user information
1 1 0 0 0 0 0 0	Emergency open channel	
1 1 0 0 0 0 0 1	Reserved (compatibility)	
1 1 0 0 0 0 1 0	Reserved (compatibility)	
1 1 0 1 0 0 0 0	Reserved (compatibility)	
1 1 0 1 0 0 0 1	Reserved (compatibility)	
1 1 0 1 0 0 1 0	Reserved (compatibility)	
1 1 0 1 0 0 1 1	Reserved (compatibility)	
1 1 0 1 0 1 0 0	Emergency open channel request	RT_ORGANISATION
1 1 0 1 0 1 0 1	Emergency open channel indication	RT_ORGANISATION
1 1 0 1 0 1 1 0	Crisis open channel request	RT_ORGANISATION
1 1 0 1 0 1 1 1	Crisis open channel indication	RT_ORGANISATION
1 1 0 1 1 0 0 0	Eergency private call request	RT_ORGANISATION
1 1 0 1 1 0 0 1	Unsuccessfull call indication	RT_ORGANISATION
1 1 0 1 1 0 1 0	Call me back request[2]	RT_ORGANISATION

5.3.68 SERIAL_NB / ST_SERIAL_NUMBER

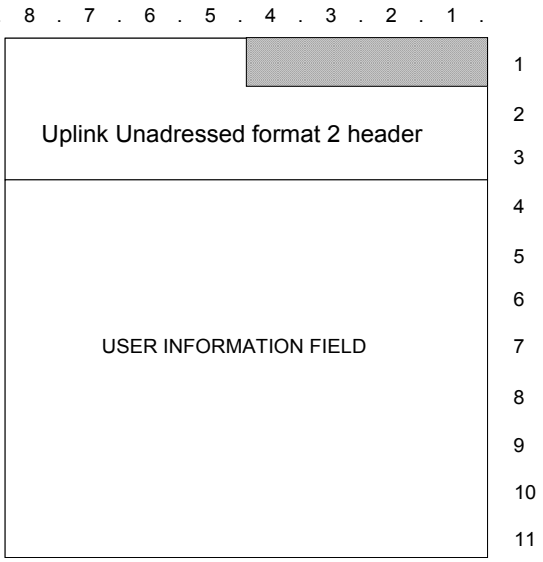
[2] Unused

SERIAL_NB	RT serial number .....Field of 4 octets 8 digit number (each SNi digit of the serial number is decimal coded in one quartet), SN8 is the unit digit . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . SN1 | SN2 SN3 | SN4 SN5 | SN6 SN7 | SN8

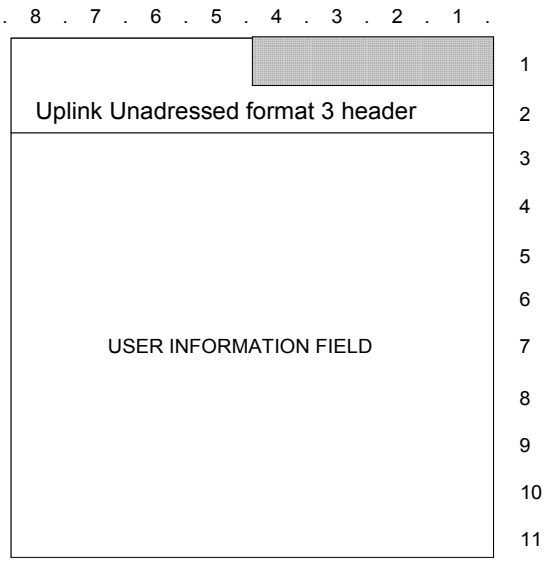
5.3.69 SHORT DATA CONTENT



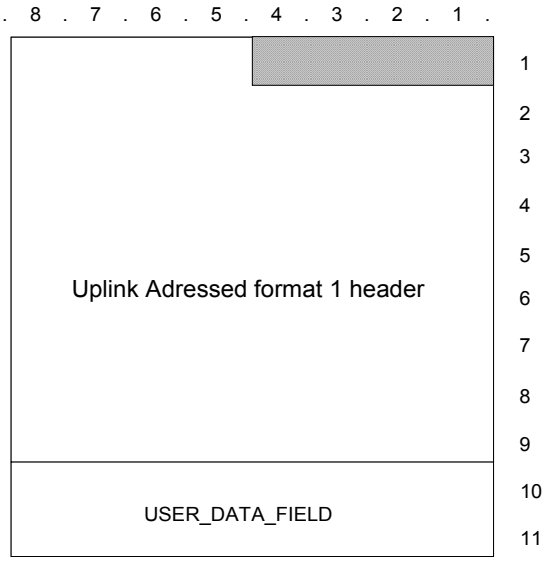
Uplink Unaddressed format 1



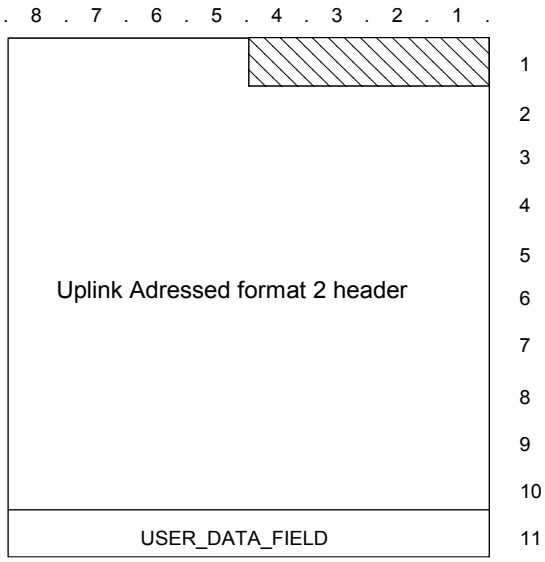
Uplink Unaddressed format 2



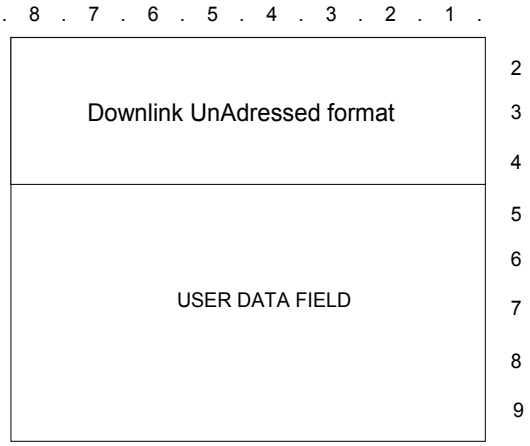
Uplink Unaddressed format 3



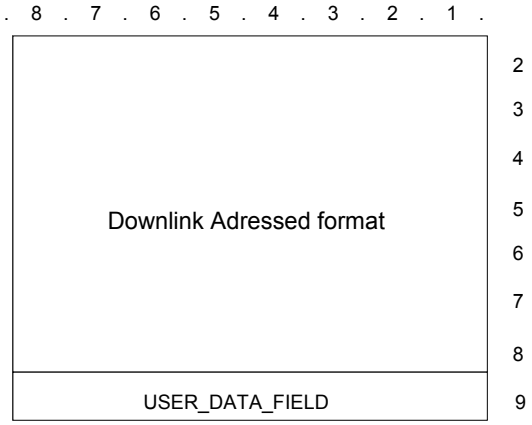
Uplink Addressed format 1



Uplink Addressed format 2



Downlink Unaddressed format



Downlink Addressed format

5.3.70 SM_ID

SM_ID	Service message identifier. Most significant quartet

5.3.71 SOURCE_ADDRESS

SOURCE_ADDRESS	is the sender RFSI address coded in the ”binary formatting Field of 4 bytes

5.3.72 SOURCE_PORT_I

SOURCE _PORT_I	Shall identify source application in datagram used for tower communication service . 4 . 3 . 2 . 1 . b3 b2 b1 b0 1 b0 is the less significant bit. B4 is the most significant bit.

5.3.73 SUB_APPLI_NUM

SUB_APPLI_NUM	Reference of the application that subscribed to the service of periodic emission Field of 4 bits 0 if it is not significant

5.3.74 SUBSCRIPTION_INFO

SUBSCRIPTION_INFO	Field of 4 bits . 4 . 3 . 2 . 1 0 TYP_ENC SUBSCRIPION_TYPE SUBSCRIPTION_TYPE ..... Field of 2 bits This field shall define the type of bearer service used to send periodic message 00..... DDCH subscription If the field TYP_ENC is not used=0 TYP_ENC .....Field of 1 bit This field shall define if the network ciphered the periodic messages 0..... Periodic messages are not ciphered by network 1..... Periodic messages are ciphered by network

5.3.75 SUPERFRAME_CPT

SUPERFRAME_CPT	counter of 4s superframe Field of 12 bits (value 0 to 2699). Maximum value is 10800 seconds.

5.3.76 SYSTEM_ID

SYSTEM_ID	shall identify the system and the product version in the country. Field of one octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . NETWORK | VERSION VERSION.....Field of 4 bits Bits 1 to 4 ..... shall identify the product level and version NETWORK.....Field of 4 bits Bits 5 to 8 ..... shall identify the network in the country Its values shall be allocated per country.

5.3.77 SYSTEM_TIME

SYSTEM_TIME	Local cell time .....Field of 1 octet counter incremented by one each TLR unit time

5.3.78 TKG_NB

TKG_NB	Number of priority TKG Field of 8 BITS

5.3.79 TKG_PRIO_REVISION

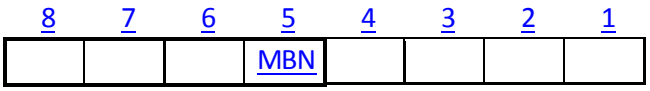
TKG_PRIO_REVISION ..... Field of 3 bits

Counter [modulo 8] revising the list of accessible priority TKG in the cell. All values shall be significant.

Whatever the list of priority TKG in the cell changes, the SwMI shall set up the field value.

This field shall be also copied into the wake-up bitmap.

5.3.80 TKG_PARAMETERS

TKG_PARAMETERS	Shall define the parameters associated to the TKG. Field of one quartet  **TKG_PARAMETERS Field of 4 bits** **MBN subfield : Multi BN Talk-group** bit 5 = 0 ..... Mono BN Talk-group bit 5 = 1 ..... Multi BN Talk-group bits 6 to 8 ..... Reserved

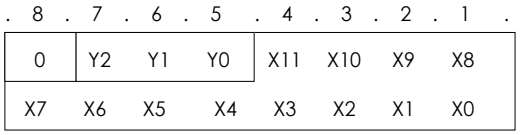
5.3.81 T_L_V_i

T_L_V_i	shall contain T_i, L_i and V_i fields T_i Type of information (Coded in one octet) "not significant" = 0 "network OG" = 1 "local OG" = 2 "network talk-group" = 3 "local talk-group" = 4 L_i Length of information (Coded in one octet) (expressed as number of V_i field octets) V_i Value of information (Field of n octets) n may equal 0 See Annex A: Examples of T_L_V_i coding

5.3.82 TLR_VALUE

TLR_VALUE	TLR unit value in minutes, may not exceed 4 hours Field of 1 octet

5.3.83 TTI

TTI	Temporary terminal identifier Field of 2 octets 

5.3.84 TTI/CRT

TTI/CRT	Temporary terminal identifier according to Z value Field of 2 octets . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . Z | Y2 Y1 Y0 | X11 X10 X9 X8 X7 X6 X5 X4 X3 X2 X1 X0 If Z = 0 , TTI request accepted and bits Y2, Y1, Y0, X11, X10, ..., X1, X0 shall be initialised with significant TTI values. If Z = 1 , "nack": TTI request refused If Y2, Y1, Y0 =0, 0, 1: "switch saturated" 0, 1, 0: "cell saturated" 0, 1, 1: "lack of resources" -bits Xi shall be initialised with non significant TTI values.

5.3.85 TRANS_MODE

TRANS_MODE	Data Transmission Mode.....Field of 4 bits 0 0 0 0 .....reserved 0 0 0 1 PDR message mode (HMSW messaging application) 0 0 1 0 PDR message mode (VMSW messaging application) 0 0 1 1 to 0 1 1 1 .....reserved 1 0 0 0 ..... UDP message mode 1 0 0 1 ..... UDP or TCP application mode 1 0 1 0 to 1 1 1 1 .....reserved

5.3.86 TRANS_PARAM1

TRANS_PARAM1	First parameter of a data transmission request .....2 octets . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . b15 b14 b13 b12 b11 b10 b9 b8 1 b7 b6 b5 b4 b3 b2 b1 b0 2 b0 is the less significant bit. b15 is the most significant bit. Depending on the TRANS_MODE value, TRANS_PARAM1 has a different meaning: For TRANS_MODE = 0 0 0 1 PDR message mode (HMSW messaging application) 0 0 1 0 PDR message mode (VMSW messaging application) 1 0 0 0 UDP message mode , TRANS_PARAM1 contains the message length. For TRANS_MODE = 1 0 0 1 UDP or TCP application mode, TRANS_PARAM1 contains the UDP/TCP destination port.

5.3.87 TRANS_PARAM2

TRANS_PARAM2	Second parameter of a data transmission request.....2 octets . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . b15 b14 b13 b12 b11 b10 b9 b8 1 b7 b6 b5 b4 b3 b2 b1 b0 2 b0 is the less significant bit. b15 is the most significant bit. Depending on the TRANS_MODE value, TRANS_PARAM2 has a different meaning: For TRANS_MODE = 0 0 0 1 PDR message mode (HMSW messaging application) 0 0 1 0 PDR message mode (VMSW messaging application) TRANS_PARAM2 contains the encryption property: 0x0000 facutative encryption 0x0001 mandatory encryption For TRANS_MODE = 1 0 0 0 UDP message mode, 1 0 0 1 UDP or TCP application mode , TRANS_PARAM2 contains the UDP/TCP source port.

5.3.88 TRANS_PARAM3

TRANS_PARAM3	Third parameter of a data transmission request.....2 octets . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 . b15 b14 b13 b12 b11 b10 b9 b8 1 b7 b6 b5 b4 b3 b2 b1 b0 2 b0 is the less significant bit. b15 is the most significant bit. TRANS_PARAM3 contains the UDP destination port.

5.3.89 TYPE_NB

TYPE_NB	Type and number of group communications in TSDU Field of 1 octet . 8 . 7 . 6 . 5 . 4 . 3 . 2 . 1 TYPE | NUMBER TYPE .....Field of 2 bits Type of group communications 1 1 ..... Open channel 1 0 ..... Emergency open channel 0 1 .....Talk-group 0 0 .....End of list marker NUMBER .....Field of 6 bits Number of group communications of one type in the list Value between 0 and 63 inclusive

5.3.90 USER_PRIORITY

USER_PRIORITY	User priority .....Field of 4 bits 0 0 0 0 ..... (default value).level 0 0 0 0 1 ..... level 1 0 0 1 0 ..... level 2

5.3.91 VAL

VAL	Valid RNK indicator in RT..... ..... Field of 1 octet RT recognises key .....0 RT does not recognise key 255

5.3.92 VALID_RT

VALID_RT	Parameter given to RT by SwMI for authentication purposes in each transaction. Field of 8 octets, all significants

5.3.93 XXXX_CH_SCRAMBLING

D_CH_SCRAMBLING U_CH_SCRAMBLING XXXX_CH_SCRAMBLING	Downlink radio channel scrambling parameter. Uplink radio channel scrambling parameter. Uplink and downlink radio channel scrambling parameter. shall be coded with bits 1 to 7 (bit 8 shall always be 0) **0xFF Not significant**

6. Endpoint configurations

The present Clause defines for both the RT and the SwMI:
- the value of the parameters defined in the Transport protocol description;
- the definition and value of the parameters identified in the Application protocol.

Conventions:
Protocol parameters are described.
- in the following syntax:

XIJK (yz-abcd);
- with the following semantics:

X (mandatory);
= T for timer;
= D for time delay or duration;
= K for reiterations;
= N for number.
IJK (mandatory)
= digits are sub-divided as below:
70i for REGISTRATION;
71i for VOICE CALL;
72i for BCH MANAGEMENT;
73i for SIGNALLING;
74i for DELIVERY;
75i for EMERGENCY OPEN CHANNEL;
77i for GROUP COMMUNICATION;
78i for DATA;
79i for RT MANAGEMENT.

yz (optional: designates the endpoint parameter user)
= SwMI for Switching Management Infrastructure
= RT for radio terminal
abcd (optional: designates the application parameter user)
= letters

6.1 Application protocol parameters

TLR unit =	3	hours
T500 (RT) =	6	seconds Maximum RT time-out pending receipt of a TSDU after request to select the control channel sent on PCH.
T501 (RT) =	6	seconds Maximum RT time-out pending receipt of a TSDU after request to select the control channel sent on SCH.
D502 (RT) =	3	seconds Protocol time delay of the application traffic channel entry mechanism (Time during which no frame may be sent other than a level 2 acknowledgement after the channel entry confirmation is received).
D503 (RT) =	200	milliseconds Protocol time delay of the application traffic channel entry mechanism. It is used to ensure that the level 2 acknowledgement has been successfully sent.
T504 (RT) =	17	seconds Protocol protection time-out (pending an empty DR to close the application transaction).
T506 (SwMI) =	12	seconds Time-out pending receipt of the paging acknowledgement after RT paging on PCH in "acknowledged contact" mode.
T507 (RT) =	6	seconds RT time-out pending effective standby, at the end of an application transaction on CCH or ECCH.
D550 (SwMI) =	80	milliseconds Time delay between transmission on TCH and sending the first frame on SDCH
N550 (SwMI) =	2	Maximum number of CP-CR sequence repetitions to connect a terminal initially standing by on CCH (total number of sequence retransmission is 3).

D551 (SwMI) =	120	milliseconds Time delay between transmission on SCH and sending the first frame on SDCH or between the transmission on message(PCH) and the first TSDU on the SDCH
N551 (SwMI) =	2	Maximum number of SCH/TI - SCH - CR sequence retransmission to connect a Terminal initially standing by on TCH (total number of sequence retransmission is 3).
D552 (SwMI) =	20	milliseconds Delay between the RT acknowledgement reception on CCH and effective transmission on SDCH or DCH
D553 (SwMI) =	3	seconds Delay between the last transport connection release request on DCH and the order of return to CCH for the given RT.
N554 (SwMI) =	3	Total number of transmission of the TSDU which orders the RT of switching from DCH to CCH.
D554 (SwMI) =	200	milliseconds Delay between two consecutives transmissions of the TSDU which orders the RT of switching from DCH to CCH..
N560 (SwMI) =	1	Number of requests to quit TCH sent to the RT user.
T561 (SwMI) =		Time-out pending RT acceptance or refusal of call waiting presentation. Value is depending on the number (N) of RT to be polled at the begining of the presentation sequence
	6	seconds if 9 > N > 0
	3	seconds if 17 > N > 8
	2	seconds If N > 16
T562 =	24	seconds Maximum SwMI time-out pending begining to end of call presentation
D563 =	80	milliseconds Time delay between the last "D_DATAGRAM_NOTIFY" transmission and the first TPDU of : "D_DATAGRAM".
T564 =	6	seconds Maximum time-out between the "D_DATAGRAM_NOTIFY" reception and the first TPDU of : "D_DATAGRAM" TSDU

N565 =	1	Number of successive SHORT DATAGRAM messages sent by the SwMI.
D565 =	0	seconds Time delay between two successive SHORT DATAGRAM messages sent by the SwMI.
N566 =	3	Total number of times the D_FORCED_REGISTRATION TSDU is sent.
D566 =	2	seconds Time delay between sending two successive D_FORCED_REGISTRATION TSDUs.
N567 =	8	Number of RT to be paged at the same time for one incoming call, in the case of implicit addressing.
N568 =	N567	Number of RT to be paged at the same time for one incoming broadcast message, in the case of implicit addressing.
T568 (SwMI) =	6 T561	Seconds for the last RT of the list For all RT except the last one Time-out pending RT acceptance of broadcast message waiting presentation.
T571 =	3	second Maximum time-out between the "D_CHANNEL_INIT" reception and the U_CHANNEL_INIT_ACK
N571 =	3	Number of D_CHANNEL_INIT repetition by the SwMI.

6.1.1 Registration Parameters

D700 (SwMI-REGISTER) =	160	milliseconds Time delay between sending two successive TTI allocated to an RT identified by an RTI.
N700 (SwMI-REGISTER) =	3	Number of times the TTI allocated to an RT, identified by an RTI, is sent.
D701 (SwMI-REGISTER) =	60	milliseconds Time delay between sending the TTI allocated to the RT identified by RTI, and the first attempt to open a level 2 connection with the RT now identified by its TTI.
T702 (RT-REGISTER) =	30	seconds Maximum time-out pending the SwMI decision to accept the RT registration in a cell.
T703 (RT-REGISTER) =	10	seconds Maximum time-out pending the SwMI decision to accept the RT subscription on periodic message emission.

6.1.2 Voice Calls Parameters

T710 (RT-CALL) =	33	seconds Terminal ringing time on called CCH.
T710 '(RT-CALL) =	5	seconds VPW Terminal in gateway mode ringing time on called CCH.
T711 (RT-CALL) =	10	seconds Maximum time delay between called user off-hook signal and the order to go to TCH.
T712 (RT-CALL) =	180	seconds Maximum time delay between call acceptance and TCH selection.
T713 (SwMI-CALL) =	31	seconds Maximum time delay pending the user's reply to the RT ringing notification.
T714 (RT-CALL) =	90	seconds Maximum time-out pending confirmation to the intrusion request and the authentication request.

T715 (SwMI-CALL) =	10	seconds Maximum SwMI time-out pending the RT acknowledgement of call TRANSFER transaction RM.
D716 (SwMI-CALL) =	2	seconds Time delay determined by the SwMI before switching back the RT to TCH after an unsuccessful TRANSFER request.
T717 (RT-CALL) =	10	seconds RT protection time-out pending the authentication request from the SwMI in a call release transaction.
T718 (RT-CALL) =	10	seconds Time-out pending confirmation from the SwMI after the RT sends a call release request.
T719 (SwMI-CALL) =	10	seconds SwMi protection time-out for the RT authentication to when a call is released.
T71A (RT-CALL) =	6	seconds Time during which the user may accept or reject a call presentation.
D71B (RT-CALL) =	1	second Time during which the RT may ignore a call indication to which it has already replied.
T71C (RT-CALL) =	10	seconds Time-out pending confirmation from SwMI to an RT intrusion request.
T71D (SwMI-CALL) =	10	seconds SwMi protection time-out to authenticate the RT in an intrusion request.

6.1.3 BCH Management Parameters

D720 (SwMI-BCH) =	6	seconds Time delay between sending two messages indicating the list of group communications set-up in a cell.
D721 (SwMI-BCH) =	6	seconds Time delay between sending two messages listing the single OG participants of a composite OG.

D722 (SwMI-BCH) =	15	seconds Duration while the control channel transmissions are suspended when the operating mode in a cell changes (the selected value must be set to trigger the RT changeover to control channel selection)
D723 (SwMI-BCH) =	6	seconds Time delay between sending two messages listing the adjacent cells.
D724 (SwMI-BCH) =	6	seconds Time delay between sending two messages supplying ECCH capabilities.
D725 (SwMI-BCH) =	6	seconds Time delay between two D_ADDITIONAL_PARTICIPANTS TSDUs on CCH.
D726 (SwMI-BCH) =	6	seconds Time delay between two D_DDCH_DESCRIPTION TSDUs on CCH.
D727 (SwMI-BCH) =	6	seconds Time delay between sending two D_TKG_PRIO_LIST TSDUs on CCH.
D800 (SwMI-BCH) =	60	seconds Time delay between sending two messages indicating the PTT master BN of group communication set-up in a cell.

6.1.4 Signalling Parameters

T730 (RT-ACTI) =	2	(expressed in TLR units) Maximum duration for RT between two successful RT-SwMI application exchanges.
T731 (RT-ACTI) =	4	(expressed in TLR units) Maximum duration during which the SwMI keeps the allocated TTI.

6.1.5 Delivery Parameters

T740 (SwMI-DIS) =		Time delay before the SwMI re-attempts to distribute RNK keys to the RT.
	10	minutes for the first attempt
	20	minutes for the second attempt
	30	minutes for the third attempt
	60	minutes for the next attempts
N741 (SwMI-DIS) =	7	Total maximum attempts to distribute RNK keys to the RT.
T741 (SwMI-DIS) =	20	seconds SwMI protection time-out pending RT response to an authentication request during a TKK or KEY delivery.
T742 (SwMI-DIS) =	20	seconds SwMI protection time-out pending the end of the TKK or KEY delivery transaction, indicating that the RT has received its new key.
T743 (RT-DIS) =	20	seconds RT protection time-out pending SwMI response to the RT authentication at TKK or KEY delivery time.
T744 (SwMI-DIS) =	870	seconds Time delay before the SwMI re-attempts to distribute the TKK or KEY to the RT.
N740 (SwMI-DIS) =	230	Number of TKK or KEY delivery attempts before the application priority increases.
T745 (SwMI-DIS) =		Time delay before the SwMI re-attempts to distribute information to the RT.
	10	minutes for the first attempt
	20	minutes for the second attempt
	30	minutes for the third attempt
	60	minutes for the next attempts

N745 (SwMI-DIS) =	7	Total maximum attempts to distribute information to the RT.
T746 (RT-DIS) =	90	seconds RT protection time-out during information delivery information.
T747 (RT-DIS) =	90	seconds RT protection time-out during key delivery information.

6.1.6 Emergency Open Channel Parameters

T750 (RT-ECH) =	5	seconds Maximum time delay pending response to the RT request to open an emergency open channel.
N750 (SwMI-ECH) =	1	if an emergency open channel is already open in the initiating the RT's cell of the RT
	4	otherwise Number of times SwMI sends the D_EMERGENCY_NOTIFICATION TSDU.
D750 (SwMI-ECH) =	5	seconds Time delay between two SwMI retransmission of the D_EMERGENCY_NOTIFICATION TSDU.
T751 (SwMI-ECH) =	10	seconds SwMI protection time-out for RT authentication at emergency open channel closing time.
T752 (RT-ECH) =	10	seconds Delay before RT alerts the user that an emergency open channel is open in its cell.
T753 (RT-ECH) =	10	seconds RT protection time-out pending SwMI permission in reply to an emergency open channel closing request.
T754 (RT-ECH) =	10	seconds RT protection time-out pending confirmation from the SwMI in reply to an emergency open channel closing request.
T755 (SwMI-ECH) =	10	seconds SwMI protection time-out for validating the RT when an emergency open channel is opened.
D756 (SwMI-ECH) =	D774	Time delay between sending two messages indicating that an emergency open channel is active.
T757 (RT-ECH) =	15	seconds (optional) Time-out pending transmission of an emergency STATUS message and the D_GROUP_LIST message on BCH indicating that an emergency open channel is set-up.
T758 (RT-ECH) =	T773	Time-out pending emergency open channel activation or tower communication.

T759 (RT-ECH) =	10	seconds (optional) Time-out pending the end of an emergency open channel opening transaction and receipt of the D_EMERGENCY_NOTIFICATION TSDU containing the address of the initiating RT.
T75A (RT-ECH) =	15	seconds Maximum time delay pending response to the RT request to emergency situation signalling
T75B (SwMI-ECH) =	10	seconds SwMI protection time-out for validating the RT in an emergency situation signalling transaction.
T75C (RT-ECH) =	10	seconds Time-out pending between the end of the emergency situation signalling transaction and the indication of the begining of the emergency communication.
T75D (RT-ECH) =	10	seconds Time-out pending between reception of emergency notification and the D_GROUP_LIST message on BCH indicating that an emergency communication is set-up.

6.1.7 Group communication Parameters

T770 (RT-OCH) =	90	seconds RT protection time-out for opening an open channel. Its value must increase the time-out waiting for physical resources to become available to establish open channel coverage.
T771 (SwMI-OCH) =	10	seconds SwMI protection time-out for RT authentication at open channel opening time.
T772 (RT-OCH) =	10	seconds RT protection time-out pending SwMI permission in replay to an open channel opening request.
T773 (RT-OCH) =	10	seconds Time-out pending "active group communication" indication in reply to the activation acknowledgement.
D774 (SwMI-OCH) =	4	seconds Time delay between sending two message indicating that an group communication is active.

T775 (RT-OCH) =	10	seconds RT protection time-out pending SwMI permission in reply to an open channel closing request.
T776 (SwMI-OCH) =	10	seconds SwMI protection time-out for RT authentication at open channel closing time.
T777 (RT-OCH) =	10	seconds RT protection time-out pending SwMI permission in reply to an open channel closing request.
N778 (SwMI-OCH) =	1	Number of times SwMI sends the D_EMERGENCY_NOTIFICATION TSDU. if an the crisis open channel is already open
	4	otherwise
D778 (SwMI-OCH) =	5	seconds Time delay between two SwMI retransmission of the D_CRISIS_NOTIFICATION TSDU.
N778 (SwMI-OCH) =	1	Number of times SwMI sends the D_CRISIS_NOTIFICATION TSDU if the same crisis open channel is already setup
	4	Number of times SwMI sends the D_CRISIS_NOTIFICATION TSDU if the same crisis open channel is not already setup
D778 (SwMI-OCH) =	5	seconds Time delay between two SwMI retransmissions of 2 successives D_CRISIS_NOTIFICATION TSDUs.
T779 (RT-OCH) =	10	seconds Delay during which RT alerts the user that a crisis open channel is setup in its cell.
N77A (SwMI-OCH) =	4	Number of times SwMI sends the D_BROADCAST_NOTIFICATION TSDU when a broadcast open channel is setup
D77A (SwMI-OCH) =	5	seconds Time delay between two SwMI retransmissions of 2 successives D_BROADCAST_NOTIFICATION TSDUs.
D77B (RT-OCH) =	10	seconds Delay during which RT shall suspend its participation to group communication after D_BROADCAST_NOTIFICATION TSDU reception

D77C (SwMI-OCH) =	200	milliseconds Minimum time delay between two SwMI retransmissions of 2 successives D_GROUP_IDLE TSDUs.
D77D (SwMI-OCH) =	4	seconds Time delay between two SwMI retransmissions of 2 successives D_GROUP_PAGING TSDU or D_OC_PAGING.
N77D (SwMI-OCH) =	4	Number of group communication but object call using simultaneously late entry mechanism for channel saving on a cell
N77E (SwMI-OCH) =	12	Number of object call using simultaneously late entry mechanism for channel saving on a cell minus the potential number of the other group communication using this mechanism

6.1.8 Data Parameters

T780 (RT-DATA) =	20	seconds RT protection time-out to negotiate an uplink data transfer.
T781 (SwMI-DATA) =	[0, 30]	seconds SwMI time-out to keep the data transmission alive on SDCH or DCH. The value is a parameter of the data application

T783 (SwMI-DATA) =	10	seconds SwMI protection time-out for RT authentication in an uplink data transfer.
T784 (RT-DATA) =	90	seconds RT protection time-out for an active data transmission on SDCH or DCH.
D786 (SwMI-DATA) =	50	seconds if SDP message priority is FLASH
	60	seconds otherwise Time delay between downlink data transfer request retransmission by the SwMi in a cell.
N786 (SwMI-DATA) =	4 3	If SDP message priority is FLASH, Otherwise, number of times the downlink data transfer request is sent.
T788 (RT-DATA) =	10	seconds RT protection time-out pending the opening of the transmission connexion on SDCH or DCH.
D78A (RT_DATA)	D71B	Time delay during which RT ignores a call presentation indication to which it has already replied.

6.1.9 RT Management Parameters

D790 (RT_RTM) =	5	seconds Time delay for SwMI acknowledgement of an access barred order.
T790 (SwMI-RTM) =	60	seconds Time delay before a new attempt is made to inform the RT of access barring.
T791 (SwMI-RTM) =	600	seconds Time delay before a new attempt is made to inform the RT of traffic disabling.
T792 (SwMI-RTM) =	600	seconds Time delay before a new attempt is made to inform the RT of traffic enabling.
T793 (SwMI-RTM) =	60	seconds Time delay before a new attempt is made to inform the RT of service barring (out of service).

7. Annex A (informative): Examples of T_L_V_i coding

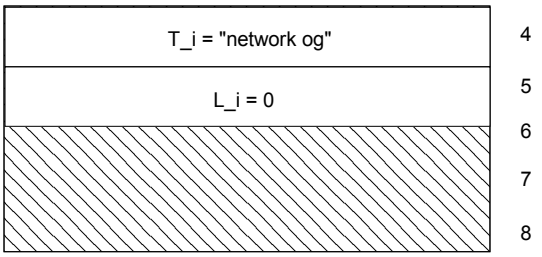


Figure A.1: Delivery of 0 network OG

NOTE: T_i field = "not significant" marks the end of the useful part of the message.

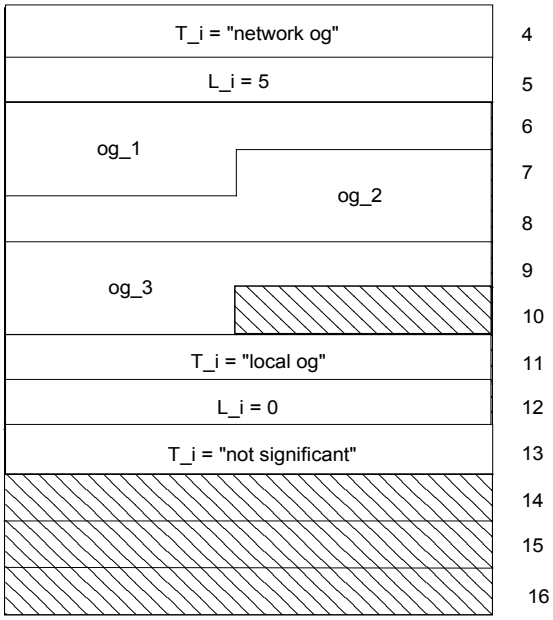


Figure A.2: Delivery of 3 network OGs and 0 local OG

NOTE: T_i field = "not significant" marks the end of the useful part of the message.

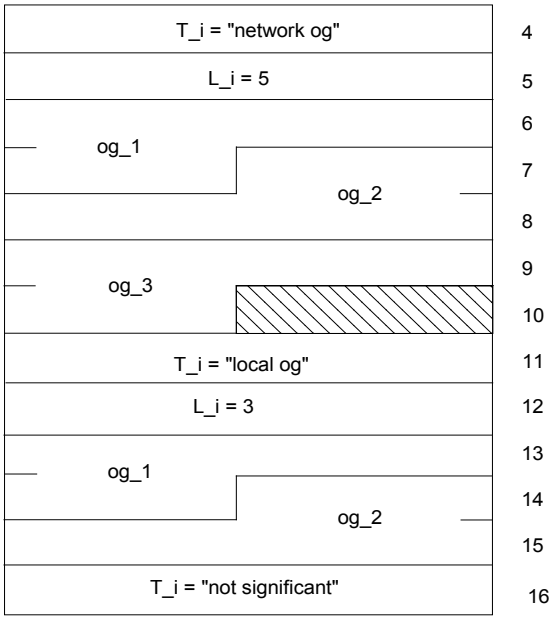


Figure A.3: Delivery of 3 network OGs and 2 local OGs

NOTE: T_i field = "not significant" marks the end of the useful part of the message.

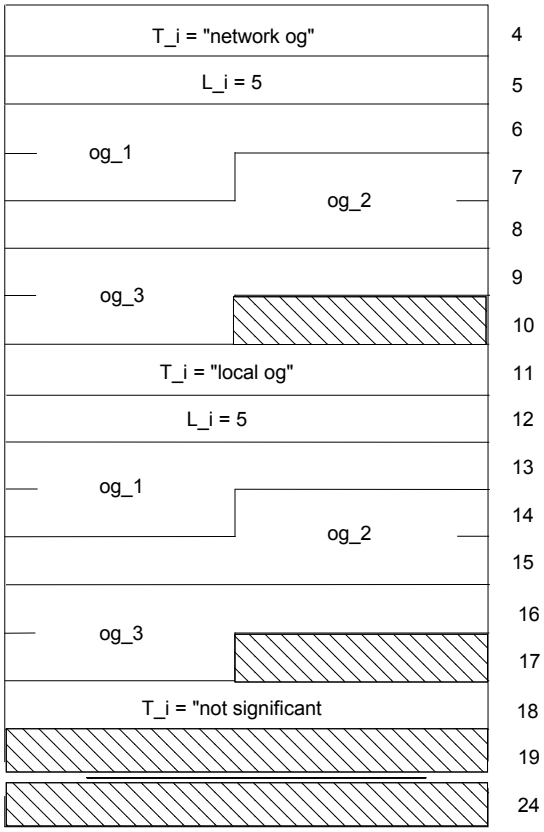


Figure A.4: Delivery of network OGs and 3 local OGs

NOTE: T_i field = "not significant" marks the end of the useful part of the message.

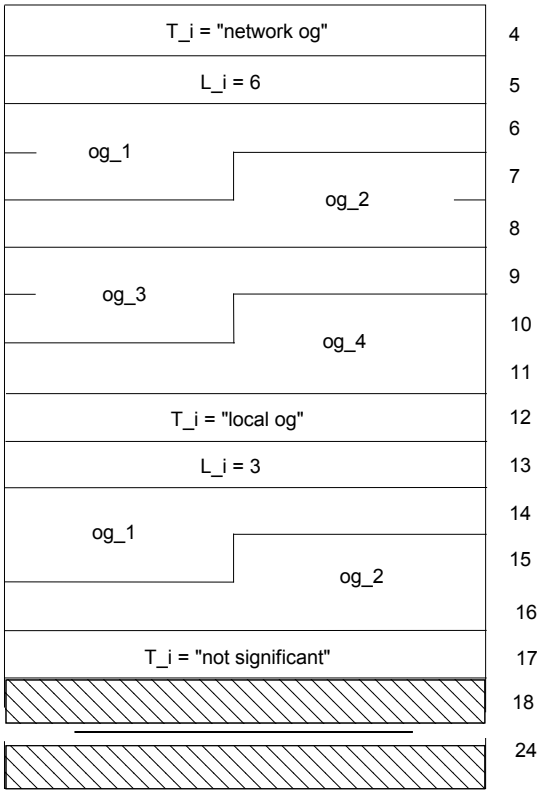


Figure A.5: Delivery of 4 network OGs and 2 local OGs

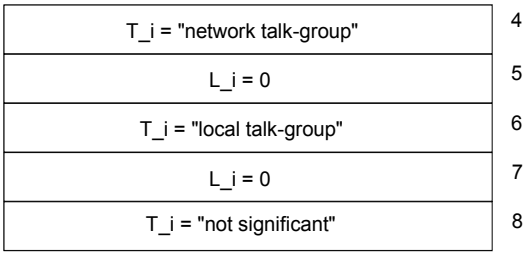


Figure A.6: Delivery of 0 network TKG and 0 local TKG

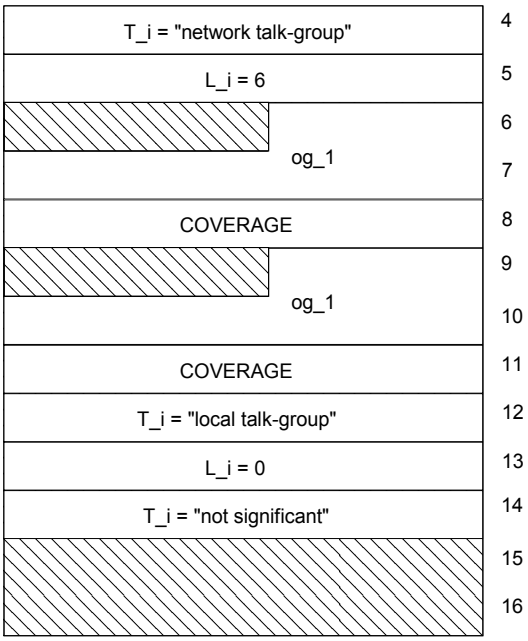


Figure A.7: Delivery of 2 network TKG and 0 local TKG

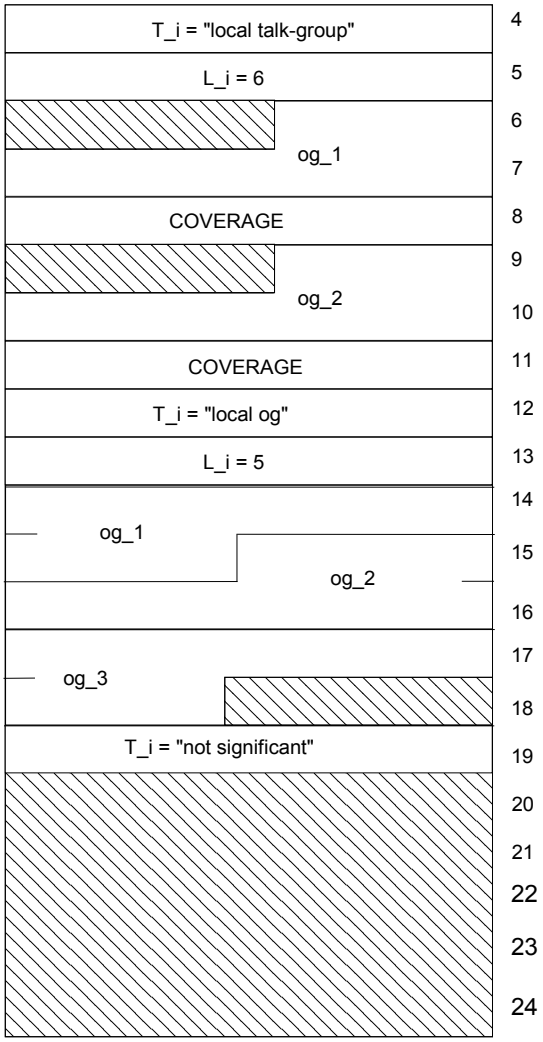


Figure A.8: Delivery of 2 local TKGs and 2 local OGs

8. History

Date	Status	Comment
3 November 1995	Draft version	Version 0.0.1
11 December 1995	Add Clause 1,2,3	Version 0.0.2
2 February 1996	Formatting	Version 0.0.3
15 March 1996	Formatting	Version 0.0.4
11 April 1996	Review	Version 0.1.0
16 April 1996	Tetrapol Forum approval	Version 1.0.0
30 April 1996	Formatting	Version 1.0.1
20 June 1996	Reference to Part 16 added	Version 1.0.2
31 July 1996	Renumbering	Version 1.0.3
15 November 1996	Update	Version 1.0.4
16 December 1996	Update following review	Version 1.1.0
24 March 1997	Update: data polling mode, group communication paging, channel saving, multi-BN keys, call of an RT in umbrella MOCH, removal of Partition information element and of functional coverage, broadcast of neighbouring cells information, dialogue initiation …	Version 1.1.1
15 April 1997	Update after review: data polling mode, group communication paging, dialogue initiation ...	Version 1.2.0
25 June 1997	Tetrapol Forum approval	Version 2.0.0
2 December 1997	Update : Broadcast open channel, crisis open channel, silent call, ...	Version 2.1.0
16 December 1997	Correction	Version 2.1.1
30 January 1998	Editorial correction	Version 2.1.2
15 February 1998	Correction	Version 2.2.0
28 July 1998	Clarifications related to tests	Version 2.2.1
01 December 1998	Update: initialization of a dedicated channel, group activation wait indication	Version 2.2.2
15 January 1999	Update after internal review	Version 2.3.0
03 November 1999	Update, data message broadcast presentation to implicit address	Version 2.3.1
18 December 2001	Update, object call messages.	Version 2.3.2
20 November 2002	Update, object call	Version 2.3.3

Date	Status	Comment
20 November 2003	Update, object call channel saving, periodic message emission	Version 2.3.4
20 January 2006	Update, emergency call	Version 2.3.5
02 August 2006	Minor correction	Version 2.3.6
15 August 2010	Update for minor correction and priority TKG	Version 2.3.7
15 October 2020	Update with new D_GROUP_MASTER message broadcast	Version 2.3.8
07 September 2021	Update for approval	Version 2.3.9