**3GPP T****SG-RAN WG3 Meeting #121 R3-234703**

**Toulouse, France, 21st – 25th August 2023**

**Agenda Item: 15.3**

**Source: Ericsson, Huawei**

**Title: (TP for BLCR for 38.473) Update of MBS RRC\_INACTIVE repception**

**Document for: Discussions & Approval**

# 1 Introduction

This TP follows discussions at RAN3#121, captured in the chair’s minutes as follows. Agreements with impact to F1AP are highlighted in yellow:

**Introduce Multicast CU to DU RRC Information IE in F1AP Multicast Context Setup/Modification Request message.**

**Include PDCP configuration and (multicast specific) mtch-neighbourCell in Multicast CU to DU RRC Information IE.**

**gNB-CU indicates Multicast session status (active, deactivated) to gNB-DU via F1AP Multicast Context Setup/Modification Request messages.**

**Enable providing the (multicast specific) MBS Neighbour cell list in F1AP to the DU.**

**CU/CU-CP makes the final decision on whether to enable/disable “Inactive reception” mode for specific multicast session.**

**FFS on the aspects of this decision (e.g. per cell, per DU, per session, per UE, etc.)**

E///: What’s the meaning of “enable”? There is no explicit signaling necessary.

SS: Remove p5

ZTE: Different issue to be solved in R18, for simplicity, let CU make the decision. The FFS part is important, how CU can make the decision

**Q1: Which option should be adopted to provide the PTM configuration from the gNB-DU to enable UEs being configured with the PTM configuration before moving the UE to RRC\_INACTIVE?**

**Option 1: CU retrieves the PTM configuration from DU via CU initiated Multicast context modification procedure.**

**Option 2: During active MBS multicast sessions, the DU always ensures that the CU is provided with the latest PTM configuration via a new DU initiated Multicast context modification procedure.**

**Option 3: CU retrieves the PTM configuration from DU via CU initiated UE context modification procedure.**

**To be continued...**

E///: The common part of those 3 options is the PTM configuration provided from DU to CU.

The lower layer PTM configuration is provided from DU to CU.

Google: Different UE will have different configuration? Nok: No.

Lenovo: PTM configuration may be different with MCCH

QC: There has different configuration between Redcap and non-Redcap

**FFS whether additional assistance information is needed from DU to CU to make decision on activation of “Inactive reception” for specific multicast session.**

HW: Do not see the need

ZTE: Whether cells in the CU will be enabled to broadcast the services to UEs in RRC\_INACTIVE? The congestion level can only be aware by DU, which can help CU make the decision on which UEs and which cells to be activated.

Q3: Whether gNB could deactivate/re-activate “Inactive reception” mode for an ongoing multicast service. And if allowed, how to support in CU-DU split gNB arch?

**Whether and how to support “temporary no data” and “DL data arrival” from CU-UP to CU-CP for multicast session? FFS on whether to introduce a new procedure.**

**Discuss the issue in TEI17 first, then check whether the issue and solution in TEI17 apply in R18.**

Nok, E///: This is the issue detected in R17.

HW: Only focus on R18 solution.

Lenovo: The solution in R17 can be reused for R18.

**An indication should be introduced in F1AP Group Paging message to inform DU that inactive reception is allowed for this MBS session and thereby DU could notify UE via Uu Group Paging message.**

**Whether an indication should be introduced in NGAP Group Paging message to enable gNB to be aware of the cause of group paging?**

ZTE: Group paging over F1 or RAN paging

Nok: Fine with F1AP proposal but not NGAP

QC: Fine with Q5a, Q5b needs more discussion

E///: Check the agreements in RAN2, in R17, group paging is not used for MBS release

**Whether an indication should be introduced in XnAP Group Paging message to indicate whether “inactive reception” mode is expected in the last serving node.**

# 2 Text Proposal

<<<<<<<<<<<<<<<<<<<< First Change >>>>>>>>>>>>>>>>>>>>

# 2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.470: "NG-RAN; F1 general aspects and principles".

[3] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[4] 3GPP TS 38.401: "NG-RAN; Architecture Description".

[5] ITU-T Recommendation X.691 (2002-07): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".

[6] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[7] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

[8] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

[9] 3GPP TS 36.423: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 Application Protocol (X2AP)".

[10] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[11] 3GPP TS 23.203: "Policy and charging control architecture".

[12] ITU-T Recommendation X.680 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[13] ITU-T Recommendation X.681 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".

[14] 3GPP TR 25.921: (version.7.0.0): "Guidelines and principles for protocol description and error".

[15] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[16] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[17] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[18] 3GPP TS 29.281: "General Packet Radio System (GPRS); Tunnelling Protocol User Plane (GTPv1-U) ".

[19] 3GPP TS 38.414: "NG-RAN; NG data transport".

[20] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[21] 3GPP TS 23.501: "System Architecture for the 5G System".

[22] 3GPP TS 38.472: "NG-RAN; F1 signalling transport".

[23] 3GPP TS 23.003: "Numbering, addressing and identification".

[24] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state ".

[25] 3GPP TS 36.104: "Base Station (BS) radio transmission and reception".

[26] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".

[27] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation".

[28] 3GPP TS 38.423: "NG-RAN; Xn application protocol (XnAP)".

[29] 3GPP TS 32.422: "Trace control and configuration management".

[30] 3GPP TS 38.340: "NR; Backhaul Adaptation Protocol (BAP) specification".

[31] 3GPP TS 38.213: "NR; Physical layer procedures for control".

[32] 3GPP TS 38.314: " NR; Layer 2 measurements".

[33] 3GPP TS 38.211: "NR; Physical channels and modulation".

[34] 3GPP TS 38.214: "NR; Physical layer procedures for data".

[35] 3GPP TS 37.320: "Radio measurement collection for Minimization of Drive Tests (MDT)".

[36] 3GPP TS 23.032:"Technical Specification Group Services and System Aspects; Universal Geographical Area Description (GAD)".

[37] 3GPP TS 38.455: "NG-RAN; NR Positioning protocol A (NRPPa)".

[38] 3GPP TS 38.133: "NR; Requirements for support of radio resource management".

[39] 3GPP TS 37.355: "LTE Positioning Protocol (LPP)".

[40] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[41] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

[42] 3GPP TS 38.305: "NG Radio Access Network (NG-RAN); Stage 2 functional specification of User Equipment (UE) positioning in NG-RAN".

[43] 3GPP TS 38.215: "NR; Physical layer (PHY); Measurements".

[44] 3GPP TS 23.304: "Proximity based Services (ProSe) in the 5G System (5GS)".

[45] Void

[46] 3GPP TS 37.213: "NR; Physical layer procedures for shared spectrum channel access".

[47] 3GPP TS 37.483: "E1 Application Protocol (E1AP)".

[x] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2"

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.2.14.1 MULTICAST GROUP PAGING

This message is sent by the gNB-CU and is used to request the gNB-DU to multicast group page UEs.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| MBS Session ID | M |  | 9.3.1.218 |  | YES | reject |
| **UE Identity List for Paging** |  | *0..1* |  |  | YES | ignore |
| **>UE Identity for Paging Item** |  | *1..<maxnoofUEIDforPaging>* |  |  | - |  |
| >>UE Identity Index value | M |  | 9.3.1.39 |  | - |  |
| >>Paging DRX | O |  | 9.3.1.40 |  | - |  |
| **MC Paging Cell List** |  | *0..1* |  |  | YES | ignore |
| **>MC Paging Cell Item IEs** |  | *1 .. <maxnoofPagingCells>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| Indication for multicast RRC\_INACTIVE reception |  |  | ENUMERATED (true, ...) | Editor’s Note: This IE follows the RAN2 decision to *Introduce a new indication per tmgi in the group paging which informs Rel-18 UEs having a valid PTM configuration to receive the multicast in RRC\_INACTIVE.*  IE name, codepoint name, and semantics are FFS. | YES | ignore |

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| --- | --- |
| Range bound | Explanation |
| maxnoofUEIDforPaging | Maximum no. of UE ID for multicast group paging. Value is 4096. |
| maxnoofPagingCells | Maximum no. of paging cells, the maximum value is 512. |

#### 9.2.14.2 MULTICAST CONTEXT SETUP REQUEST

This message is sent by the gNB-CU to request the setup of an MBS session context for a multicast session, and establish an MBS-associated logical F1-connection.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU MBS F1AP ID | M |  | 9.3.1.219 |  | YES | reject |
| MBS Session ID | M |  | 9.3.1.218 |  | YES | reject |
| MBS Service Area | O |  | 9.3.1.222 |  | YES | reject |
| S-NSSAI | M |  | 9.3.1.38 |  | YES | reject |
| **Multicast MRBs To Be Setup List** |  | *1* |  |  | YES | reject |
| **>Multicast MRBs to Be Setup Item IEs** |  | *1 .. <maxnoofMRBs>* |  |  | EACH | reject |
| >>MRB ID | M |  | MRB ID  9.3.1.224 |  | - |  |
| >>MRB QoS Information | M |  | QoS Flow Level QoS Parameters  9.3.1.45 |  | - |  |
| **>>MBS QoS Flows Mapped to MRB Item** |  | *1 .. <maxnoofMBSQoSFlows>* |  |  | - |  |
| >>>MBS QoS Flow Identifier | M |  | QoS Flow Identifier 9.3.1.63 |  | - |  |
| >>>MBS QoS Flow Level QoS Parameters | M |  | QoS Flow Level QoS Parameters  9.3.1.45 |  | - |  |
| >>DL PDCP SN Length | M |  | ENUMERATED (12bits, 18bits, ...) |  | - |  |
| Multicast CU to DU RRC Information | O |  | 9.3.1.x1 |  | YES | reject |
| MBS Multicast Session State | O |  | 9.3.1.x2 |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofMRBs* | Maximum no. of MRB allowed to be setup for one MBS Session, the maximum value is 32. |
| *maxnoofMBSQoSFlows* | Maximum no. of flows allowed to be mapped to one MRB, the maximum value is 64. |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.2.14.7 MULTICAST CONTEXT MODIFICATION REQUEST

This message is sent by the gNB-CU to request the gNB-DU to modify multicast context information.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU MBS F1AP ID | M |  | 9.3.1.219 |  | YES | reject |
| gNB-DU MBS F1AP ID | M |  | 9.3.1.220 |  | YES | reject |
| MBS Service Area | O |  | 9.3.1.222 |  | YES | reject |
| **Multicast MRB To Be Setup List** |  | *0..1* |  |  | YES | reject |
| **>Multicast MRB to Be Setup Item IEs** |  | *1 .. <maxnoofMRBs>* |  |  | EACH | reject |
| >>MRB ID | M |  | 9.3.1.224 |  | - |  |
| >>MRB QoS Information | M |  | QoS Flow Level QoS Parameters  9.3.1.45 |  | - |  |
| **>>MBS QoS Flows Mapped to MRB Item** |  | *1 .. <maxnoofMBSQoSFlows>* |  |  | - |  |
| >>>MBS QoS Flow Identifier | M |  | QoS Flow Identifier 9.3.1.63 |  | - |  |
| >>>MBS QoS Flow Level QoS Parameters | M |  | QoS Flow Level QoS Parameters  9.3.1.45 |  | - |  |
| >>DL PDCP SN Length | M |  | ENUMERATED (12bits, 18bits, ...) |  | - |  |
| **Multicast MRB To Be Modified List** |  | *0..1* |  |  | YES | reject |
| **>Multicast MRB to Be Modified Item IEs** |  | *1 .. <maxnoofMRBs>* |  |  | EACH | reject |
| >>MRB ID | M |  | 9.3.1.224 |  | - |  |
| >>MRB QoS Information | O |  | QoS Flow Level QoS Parameters  9.3.1.45 |  | - |  |
| **>>MBS QoS Flows Mapped to MRB Item** |  | *0 .. <maxnoofMBSQoSFlows>* |  |  | - |  |
| >>>MBS QoS Flow Identifier | M |  | QoS Flow Identifier 9.3.1.63 |  | - |  |
| >>>MBS QoS Flow Level QoS Parameters | M |  | QoS Flow Level QoS Parameters  9.3.1.45 |  | - |  |
| >>DL PDCP SN Length | O |  | ENUMERATED (12bits, 18bits, ...) |  | - |  |
| **Multicast MRB To Be Released List** |  | *0..1* |  |  | YES | reject |
| **>Multicast MRB to Be Released Item IEs** |  | *1 .. <maxnoofMRBs>* |  |  | YES | reject |
| >>MRB ID | M |  | 9.3.1.224 |  | - |  |
| Multicast CU to DU RRC Information | O |  | 9.3.1.x1 |  | YES | reject |
| MBS Multicast Session State | O |  | 9.3.1.x2 |  | YES | reject |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.3.1.x1 Multicast CU to DU RRC Information

This IE indicates the multicast specific CU to DU RRC Information.

Editor’s Note: IE names, their presence, ranges, semantics and references to field/IE/messages names in TS 38.331 are FFS.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| --- | --- | --- | --- | --- |
| **MBS Multicast Cell List** |  | *0..1* |  |  |
| **>MBS Multicast Cell Item** |  | *1 .. <maxCellingNBDU>* |  |  |
| >>NR CGI | M |  | NR CGI 9.3.1.12 |  |
|  |  |  |  |  |
| >>RRC Multicast MTCH Neighbour Cell Information | O |  | OCTET STRING | Editor’s Note: reference to TS 38.331 [8] to be included. |
| **MBS Multicast MRB List** |  | *0..1* |  |  |
| **>MBS Multicast MRB Item** |  | *1 .. <maxnoofMRBs>* |  |  |
| >>MRB ID | M |  | 9.3.1.224 |  |
| >>MRB PDCP Config Broadcast | M |  | OCTET STRING | Includes the *MRB-PDCP-ConfigBroadcast* IE, as defined in TS 38.331[8]. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofMRBs | Maximum no. MRBs allowed to be setup for one MBS session, the maximum value is 32. |

#### 9.3.1.x2 MBS Multicast Session State

This IE indicates the state MBS Multicast Session. The MBS Multicast Session state is defined in TS 23.247 [x].

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| --- | --- | --- | --- | --- |
| MBS Multicast Session State | M |  | ENUMERATED (activated, deactivated, …) |  |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.4.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- PDU definitions for F1AP.

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

BroadcastMRBs-FailedToBeModified-Item,

BroadcastMRBs-FailedToBeSetup-Item,

BroadcastMRBs-FailedToBeSetupMod-Item,

BroadcastMRBs-Modified-Item,

BroadcastMRBs-Setup-Item,

BroadcastMRBs-SetupMod-Item,

BroadcastMRBs-ToBeModified-Item,

BroadcastMRBs-ToBeReleased-Item,

BroadcastMRBs-ToBeSetup-Item,

BroadcastMRBs-ToBeSetupMod-Item,

Candidate-SpCell-Item,

Cause,

Cells-Failed-to-be-Activated-List-Item,

Cells-Status-Item,

Cells-to-be-Activated-List-Item,

Cells-to-be-Deactivated-List-Item,

CellULConfigured,

CriticalityDiagnostics,

C-RNTI,

CUtoDURRCInformation,

DRB-Activity-Item,

DRBID,

DRBs-FailedToBeModified-Item,

DRBs-FailedToBeSetup-Item,

DRBs-FailedToBeSetupMod-Item,

DRB-Notify-Item,

DRBs-ModifiedConf-Item,

DRBs-Modified-Item,

DRBs-Required-ToBeModified-Item,

DRBs-Required-ToBeReleased-Item,

DRBs-Setup-Item,

DRBs-SetupMod-Item,

DRBs-ToBeModified-Item,

DRBs-ToBeReleased-Item,

DRBs-ToBeSetup-Item,

DRBs-ToBeSetupMod-Item,

DRXCycle,

DRXConfigurationIndicator,

DUtoCURRCInformation,

EUTRANQoS,

ExecuteDuplication,

FullConfiguration,

GNB-CU-MBS-F1AP-ID,

GNB-CU-UE-F1AP-ID,

GNB-DU-MBS-F1AP-ID,

GNB-DU-UE-F1AP-ID,

GNB-DU-ID,

GNB-DU-Served-Cells-Item,

GNB-DU-System-Information,

GNB-CU-Name,

GNB-DU-Name,

InactivityMonitoringRequest,

InactivityMonitoringResponse,

LowerLayerPresenceStatusChange,

MBS-Area-Session-ID,

MBS-CUtoDURRCInformation,

MBSMulticastF1UContextDescriptor,

MBS-Session-ID,

MBS-ServiceArea,

MulticastF1UContextReferenceCU,

MulticastF1UContext-ToBeSetup-Item,

MulticastF1UContext-Setup-Item,

MulticastF1UContext-FailedToBeSetup-Item,

MulticastMBSSessionList,

MulticastMRBs-ToBeSetup-Item,

MulticastMRBs-Setup-Item,

MulticastMRBs-FailedToBeSetup-Item,

MulticastMRBs-ToBeSetupMod-Item,

MulticastMRBs-ToBeModified-Item,

MulticastMRBs-ToBeReleased-Item,

MulticastMRBs-SetupMod-Item,

MulticastMRBs-FailedToBeSetupMod-Item,

MulticastMRBs-Modified-Item,

MulticastMRBs-FailedToBeModified-Item,

BroadcastAreaScope,

NotificationControl,

NRCGI,

NRPCI,

UEContextNotRetrievable,

Potential-SpCell-Item,

RAT-FrequencyPriorityInformation,

RequestedSRSTransmissionCharacteristics,

ResourceCoordinationTransferContainer,

RRCContainer,

RRCContainer-RRCSetupComplete,

RRCReconfigurationCompleteIndicator,

SCellIndex,

SCell-ToBeRemoved-Item,

SCell-ToBeSetup-Item,

SCell-ToBeSetupMod-Item,

SCell-FailedtoSetup-Item,

SCell-FailedtoSetupMod-Item,

ServCellIndex,

Served-Cell-Information,

Served-Cells-To-Add-Item,

Served-Cells-To-Delete-Item,

Served-Cells-To-Modify-Item,

ServingCellMO,

SNSSAI,

SRBID,

SRBs-FailedToBeSetup-Item,

SRBs-FailedToBeSetupMod-Item,

SRBs-Required-ToBeReleased-Item,

SRBs-ToBeReleased-Item,

SRBs-ToBeSetup-Item,

SRBs-ToBeSetupMod-Item,

SRBs-Modified-Item,

SRBs-Setup-Item,

SRBs-SetupMod-Item,

TimeToWait,

TransactionID,

TransmissionActionIndicator,

UE-associatedLogicalF1-ConnectionItem,

UEIdentity-List-For-Paging-Item,

DUtoCURRCContainer,

PagingCell-Item,

SItype-List,

UEIdentityIndexValue,

GNB-CU-TNL-Association-Setup-Item,

GNB-CU-TNL-Association-Failed-To-Setup-Item,

GNB-CU-TNL-Association-To-Add-Item,

GNB-CU-TNL-Association-To-Remove-Item,

GNB-CU-TNL-Association-To-Update-Item,

MaskedIMEISV,

PagingDRX,

PagingPriority,

PagingIdentity,

Cells-to-be-Barred-Item,

PWSSystemInformation,

Broadcast-To-Be-Cancelled-Item,

Cells-Broadcast-Cancelled-Item,

NR-CGI-List-For-Restart-Item,

PWS-Failed-NR-CGI-Item,

RepetitionPeriod,

NumberofBroadcastRequest,

Cells-To-Be-Broadcast-Item,

Cells-Broadcast-Completed-Item,

Cancel-all-Warning-Messages-Indicator,

EUTRA-NR-CellResourceCoordinationReq-Container,

EUTRA-NR-CellResourceCoordinationReqAck-Container,

RequestType,

PLMN-Identity,

RLCFailureIndication,

UplinkTxDirectCurrentListInformation,

SULAccessIndication,

Protected-EUTRA-Resources-Item,

GNB-DUConfigurationQuery,

BitRate,

RRC-Version,

GNBDUOverloadInformation,

RRCDeliveryStatusRequest,

NeedforGap,

RRCDeliveryStatus,

ResourceCoordinationTransferInformation,

Dedicated-SIDelivery-NeededUE-Item,

Associated-SCell-Item,

IgnoreResourceCoordinationContainer,

PagingOrigin,

UAC-Assistance-Info,

RANUEID,

GNB-DU-TNL-Association-To-Remove-Item,

NotificationInformation,

TraceActivation,

TraceID,

Neighbour-Cell-Information-Item,

SymbolAllocInSlot,

NumDLULSymbols,

AdditionalRRMPriorityIndex,

DUCURadioInformationType,

CUDURadioInformationType,

Transport-Layer-Address-Info,

BHChannels-ToBeSetup-Item,

BHChannels-Setup-Item,

BHChannels-FailedToBeSetup-Item,

BHChannels-ToBeModified-Item,

BHChannels-ToBeReleased-Item,

BHChannels-ToBeSetupMod-Item,

BHChannels-FailedToBeModified-Item,

BHChannels-FailedToBeSetupMod-Item,

BHChannels-Modified-Item,

BHChannels-SetupMod-Item,

BHChannels-Required-ToBeReleased-Item,

BAPAddress,

BAPPathID,

BAPRoutingID,

BH-Routing-Information-Added-List-Item,

BH-Routing-Information-Removed-List-Item,

Child-Nodes-List,

Child-Nodes-List-Item,

Child-Node-Cells-List,

Child-Node-Cells-List-Item,

Activated-Cells-to-be-Updated-List,

Activated-Cells-to-be-Updated-List-Item,

UL-BH-Non-UP-Traffic-Mapping,

IABTNLAddressesRequested,

IABIPv6RequestType,

IAB-TNL-Addresses-To-Remove-Item,

IABTNLAddress,

IAB-Allocated-TNL-Address-Item,

IABv4AddressesRequested,

TrafficMappingInfo,

UL-UP-TNL-Information-to-Update-List-Item,

UL-UP-TNL-Address-to-Update-List-Item,

DL-UP-TNL-Address-to-Update-List-Item,

NRV2XServicesAuthorized,

LTEV2XServicesAuthorized,

NRUESidelinkAggregateMaximumBitrate,

LTEUESidelinkAggregateMaximumBitrate,

SLDRBs-SetupMod-Item,

SLDRBs-ModifiedConf-Item,

SLDRBID,

SLDRBs-FailedToBeModified-Item,

SLDRBs-FailedToBeSetup-Item,

SLDRBs-FailedToBeSetupMod-Item,

SLDRBs-Modified-Item,

SLDRBs-Required-ToBeModified-Item,

SLDRBs-Required-ToBeReleased-Item,

SLDRBs-Setup-Item,

SLDRBs-ToBeModified-Item,

SLDRBs-ToBeReleased-Item,

SLDRBs-ToBeSetup-Item,

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TargetCellList,

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NID,

PosAssistance-Information,

PosBroadcast,

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UE-MulticastMRBs-ToBeSetup-Item,

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SLDRXCycleList,

MDTPLMNModificationList,

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PosMeasGapPreConfigList,

PosMeasurementPeriodicityNR-AoA,

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SRSPosRRCInactiveQueryIndication,

MC-PagingCell-Item,

UlTxDirectCurrentMoreCarrierInformation,

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id-Cause,

id-Cancel-all-Warning-Messages-Indicator,

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id-Cells-Status-Item,

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id-C-RNTI,

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id-DRB-Activity-Item,

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id-DRXCycle,

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id-ExecuteDuplication,

id-FullConfiguration,

id-gNB-CU-MBS-F1AP-ID,

id-gNB-CU-UE-F1AP-ID,

id-gNB-DU-MBS-F1AP-ID,

id-gNB-DU-UE-F1AP-ID,

id-gNB-DU-ID,

id-GNB-DU-Served-Cells-Item,

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id-gNB-CU-Name,

id-gNB-DU-Name,

id-Extended-GNB-CU-Name,

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id-InactivityMonitoringRequest,

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id-MBS-Session-ID,

id-MBS-ServiceArea,

id-MBSMulticastF1UContextDescriptor,

id-MC-PagingCell-Item,

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id-MulticastF1UContextReferenceCU,

id-MulticastMBSSessionSetupList,

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id-MulticastMRBs-FailedToBeModified-List,

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id-MulticastMRBs-FailedToBeSetup-Item,

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id-MulticastMRBs-FailedToBeSetupMod-Item,

id-MulticastMRBs-Modified-List,

id-MulticastMRBs-Modified-Item,

id-MulticastMRBs-Setup-List,

id-MulticastMRBs-Setup-Item,

id-MulticastMRBs-SetupMod-List,

id-MulticastMRBs-SetupMod-Item,

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id-MulticastMRBs-ToBeModified-Item,

id-MulticastMRBs-ToBeReleased-List,

id-MulticastMRBs-ToBeReleased-Item,

id-MulticastMRBs-ToBeSetup-List,

id-MulticastMRBs-ToBeSetup-Item,

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id-MulticastMRBs-ToBeSetupMod-Item,

id-MulticastF1UContext-ToBeSetup-List,

id-MulticastF1UContext-ToBeSetup-Item,

id-MulticastF1UContext-Setup-List,

id-MulticastF1UContext-Setup-Item,

id-MulticastF1UContext-FailedToBeSetup-List,

id-MulticastF1UContext-FailedToBeSetup-Item,

id-BroadcastAreaScope,

id-new-gNB-CU-UE-F1AP-ID,

id-new-gNB-DU-UE-F1AP-ID,

id-oldgNB-DU-UE-F1AP-ID,

id-PLMNAssistanceInfoForNetShar,

id-Potential-SpCell-Item,

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id-RAT-FrequencyPriorityInformation,

id-RedirectedRRCmessage,

id-ResetType,

id-RequestedSRSTransmissionCharacteristics,

id-ResourceCoordinationTransferContainer,

id-RRCContainer,

id-RRCContainer-RRCSetupComplete,

id-RRCReconfigurationCompleteIndicator,

id-SCell-FailedtoSetup-List,

id-SCell-FailedtoSetup-Item,

id-SCell-FailedtoSetupMod-List,

id-SCell-FailedtoSetupMod-Item,

id-SCell-ToBeRemoved-Item,

id-SCell-ToBeRemoved-List,

id-SCell-ToBeSetup-Item,

id-SCell-ToBeSetup-List,

id-SCell-ToBeSetupMod-Item,

id-SCell-ToBeSetupMod-List,

id-SDT-Termination-Request,

id-SelectedPLMNID,

id-Served-Cells-To-Add-Item,

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id-Served-Cells-To-Modify-Item,

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id-ServCellIndex,

id-ServingCellMO,

id-SNSSAI,

id-SpCell-ID,

id-SpCellULConfigured,

id-SRBID,

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id-TransactionID,

id-TransmissionActionIndicator,

id-UEContextNotRetrievable,

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id-UEIdentity-List-For-Paging-List,

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id-UE-MulticastMRBs-ConfirmedToBeModified-List,

id-UE-MulticastMRBs-ConfirmedToBeModified-Item,

id-UE-MulticastMRBs-RequiredToBeModified-List,

id-UE-MulticastMRBs-RequiredToBeModified-Item,

id-UE-MulticastMRBs-RequiredToBeReleased-List,

id-UE-MulticastMRBs-RequiredToBeReleased-Item,

id-UE-MulticastMRBs-Setup-List,

id-UE-MulticastMRBs-Setup-Item,

id-UE-MulticastMRBs-Setupnew-List,

id-UE-MulticastMRBs-Setupnew-Item,

id-UE-MulticastMRBs-ToBeReleased-List,

id-UE-MulticastMRBs-ToBeReleased-Item,

id-UE-MulticastMRBs-ToBeSetup-atModify-List,

id-UE-MulticastMRBs-ToBeSetup-atModify-Item,

id-UE-MulticastMRBs-ToBeSetup-List,

id-UE-MulticastMRBs-ToBeSetup-Item,

id-DUtoCURRCContainer,

id-NRCGI,

id-PagingCell-Item,

id-PagingCell-List,

id-PagingDRX,

id-PagingPriority,

id-SItype-List,

id-UEIdentityIndexValue,

id-GNB-CU-TNL-Association-Setup-List,

id-GNB-CU-TNL-Association-Setup-Item,

id-GNB-CU-TNL-Association-Failed-To-Setup-List,

id-GNB-CU-TNL-Association-Failed-To-Setup-Item,

id-GNB-CU-TNL-Association-To-Add-Item,

id-GNB-CU-TNL-Association-To-Add-List,

id-GNB-CU-TNL-Association-To-Remove-Item,

id-GNB-CU-TNL-Association-To-Remove-List,

id-GNB-CU-TNL-Association-To-Update-Item,

id-GNB-CU-TNL-Association-To-Update-List,

id-MaskedIMEISV,

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id-PWSSystemInformation,

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id-NumberofBroadcastRequest,

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id-Cells-Broadcast-Completed-List,

id-Cells-Broadcast-Completed-Item,

id-Broadcast-To-Be-Cancelled-List,

id-Broadcast-To-Be-Cancelled-Item,

id-Cells-Broadcast-Cancelled-List,

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id-NR-CGI-List-For-Restart-List,

id-NR-CGI-List-For-Restart-Item,

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id-EUTRA-NR-CellResourceCoordinationReq-Container,

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id-Protected-EUTRA-Resources-List,

id-RequestType,

id-ServingPLMN,

id-DRXConfigurationIndicator,

id-RLCFailureIndication,

id-UplinkTxDirectCurrentListInformation,

id-SULAccessIndication,

id-Protected-EUTRA-Resources-Item,

id-GNB-DUConfigurationQuery,

id-GNB-DU-UE-AMBR-UL,

id-GNB-CU-RRC-Version,

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id-GNBDUOverloadInformation,

id-NeedforGap,

id-RRCDeliveryStatusRequest,

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id-Dedicated-SIDelivery-NeededUE-List,

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id-ResourceCoordinationTransferInformation,

id-Associated-SCell-List,

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id-IgnoreResourceCoordinationContainer,

id-UAC-Assistance-Info,

id-RANUEID,

id-PagingOrigin,

id-GNB-DU-TNL-Association-To-Remove-Item,

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id-NotificationInformation,

id-TraceActivation,

id-TraceID,

id-Neighbour-Cell-Information-List,

id-Neighbour-Cell-Information-Item,

id-SymbolAllocInSlot,

id-NumDLULSymbols,

id-AdditionalRRMPriorityIndex,

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id-ConfiguredBAPAddress,

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id-BH-Routing-Information-Removed-List-Item,

id-UL-BH-Non-UP-Traffic-Mapping,

id-Child-Nodes-List,

id-Activated-Cells-to-be-Updated-List,

id-IABIPv6RequestType,

id-IAB-TNL-Addresses-To-Remove-List,

id-IAB-TNL-Addresses-To-Remove-Item,

id-IAB-Allocated-TNL-Address-List,

id-IAB-Allocated-TNL-Address-Item,

id-IABv4AddressesRequested,

id-TrafficMappingInformation,

id-UL-UP-TNL-Information-to-Update-List,

id-UL-UP-TNL-Information-to-Update-List-Item,

id-UL-UP-TNL-Address-to-Update-List,

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id-LTEV2XServicesAuthorized,

id-NRUESidelinkAggregateMaximumBitrate,

id-LTEUESidelinkAggregateMaximumBitrate,

id-PC5LinkAMBR,

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id-SLDRBs-FailedToBeSetupMod-List,

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id-TNLCapacityIndicator,

id-RACHReportInformationList,

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id-targetCellsToCancel,

id-requestedTargetCellGlobalID,

id-TraceCollectionEntityIPAddress,

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id-TraceCollectionEntityURI,

id-ServingNID,

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id-TRPInformationListTRPResp,

id-TRPInformationItem,

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id-AbortTransmission,

id-SRSConfiguration,

id-TRPList,

id-E-CID-MeasurementQuantities,

id-E-CID-MeasurementPeriodicity,

id-E-CID-MeasurementResult,

id-Cell-Portion-ID,

id-LMF-UE-MeasurementID,

id-RAN-UE-MeasurementID,

id-SFNInitialisationTime,

id-SystemFrameNumber,

id-SlotNumber,

id-TRP-MeasurementRequestList,

id-MeasurementBeamInfoRequest,

id-E-CID-ReportCharacteristics,

id-F1CTransferPath,

id-SCGIndicator,

id-SRSSpatialRelationPerSRSResource,

id-PosMeasurementPeriodicityExtended,

id-SuccessfulHOReportInformationList,

id-Coverage-Modification-Notification,

id-CCO-Assistance-Information,

id-CellsForSON-List,

id-IABCongestionIndication,

id-IABConditionalRRCMessageDeliveryIndication,

id-F1CTransferPathNRDC,

id-BufferSizeThresh,

id-IAB-TNL-Addresses-Exception,

id-BAP-Header-Rewriting-Added-List,

id-BAP-Header-Rewriting-Added-List-Item,

id-Re-routingEnableIndicator,

id-NonF1terminatingTopologyIndicator,

id-EgressNonF1terminatingTopologyIndicator,

id-IngressNonF1terminatingTopologyIndicator,

id-Neighbour-Node-Cells-List,

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id-MDTPollutedMeasurementIndicator,

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id-ResponseTime,

id-TRP-PRS-Info-List,

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id-PRSConfigRequestType,

id-MeasurementCharacteristicsRequestIndicator,

id-MeasurementTimeOccasion,

id-UEReportingInformation,

id-PosConextRevIndication,

id-NRRedCapUEIndication,

id-RANUEPagingDRX,

id-CNUEPagingDRX,

id-NRPagingeDRXInformation,

id-NRPagingeDRXInformationforRRCINACTIVE,

id-QoEInformation,

id-CG-SDTQueryIndication,

id-CG-SDTKeptIndicator,

id-CG-SDTSessionInfoOld,

id-SDTInformation,

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id-FiveG-ProSePC5LinkAMBR,

id-FiveG-ProSeUEPC5AggregateMaximumBitrate,

id-UuRLCChannelToBeSetupList,

id-UuRLCChannelToBeModifiedList,

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id-UuRLCChannelSetupList,

id-UuRLCChannelFailedToBeSetupList,

id-UuRLCChannelModifiedList,

id-UuRLCChannelFailedToBeModifiedList,

id-UuRLCChannelRequiredToBeModifiedList,

id-UuRLCChannelRequiredToBeReleasedList,

id-PC5RLCChannelToBeSetupList,

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id-PC5RLCChannelRequiredToBeModifiedList,

id-PC5RLCChannelRequiredToBeReleasedList,

id-SidelinkRelayConfiguration,

id-UpdatedRemoteUELocalID,

id-PathSwitchConfiguration,

id-PagingCause,

id-PEIPSAssistanceInfo,

id-UEPagingCapability,

id-GNBDUUESliceMaximumBitRateList,

id-PosMeasurementAmount,

id-BAP-Header-Rewriting-Removed-List,

id-BAP-Header-Rewriting-Removed-List-Item,

id-SLDRXCycleList,

id-ManagementBasedMDTPLMNModificationList,

id-ActivationRequestType,

id-PosMeasGapPreConfigList,

id-PosMeasurementPeriodicityNR-AoA,

id-SRSPosRRCInactiveConfig,

id-SDTBearerConfigurationQueryIndication,

id-SDTBearerConfigurationInfo,

id-ServingCellMO-List,

id-ServingCellMO-List-Item,

id-ServingCellMO-encoded-in-CGC-List,

id-PosSItypeList,

id-DAPS-HO-Status,

id-SRBMappingInfo,

id-UplinkTxDirectCurrentTwoCarrierListInfo,

id-SRSPosRRCInactiveQueryIndication,

id-UlTxDirectCurrentMoreCarrierInformation,

id-CPACMCGInformation,

id-ExtendedUEIdentityIndexValue,

id-HashedUEIdentityIndexValue,

id-IndicationMCInactiveReception,

id-MulticastCU2DURRCInfo,

id-MBSMulticastSessionState,

maxCellingNBDU,

maxnoofCandidateSpCells,

maxnoofDRBs,

maxnoofErrors,

maxnoofIndividualF1ConnectionsToReset,

maxnoofPotentialSpCells,

maxnoofSCells,

maxnoofSRBs,

maxnoofPagingCells,

maxnoofTNLAssociations,

maxCellineNB,

maxnoofUEIDs,

maxnoofBHRLCChannels,

maxnoofRoutingEntries,

maxnoofChildIABNodes,

maxnoofServedCellsIAB,

maxnoofTLAsIAB,

maxnoofULUPTNLInformationforIAB,

maxnoofUPTNLAddresses,

maxnoofSLDRBs,

maxnoofTRPInfoTypes,

maxnoofTRPs,

maxnoofMRBs,

maxnoofUEIDforPaging,

maxnoofNeighbourNodeCellsIAB,

maxnoofMRBsforUE,

maxnoofServingCellMOs

FROM F1AP-Constants;

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Multicast Group Paging PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Multicast Group Paging

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

MulticastGroupPaging ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ MulticastGroupPagingIEs}},

...

}

MulticastGroupPagingIEs F1AP-PROTOCOL-IES ::= {

{ ID id-MBS-Session-ID CRITICALITY reject TYPE MBS-Session-ID PRESENCE mandatory }|

{ ID id-UEIdentity-List-For-Paging-List CRITICALITY ignore TYPE UEIdentity-List-For-Paging-List PRESENCE optional }|

{ ID id-MC-PagingCell-List CRITICALITY ignore TYPE MC-PagingCell-list PRESENCE optional }|

{ ID id-IndicationMCInactiveReception CRITICALITY ignore TYPE IndicationMCInactiveReception PRESENCE optional },

...

}

UEIdentity-List-For-Paging-List ::= SEQUENCE (SIZE(1.. maxnoofUEIDforPaging)) OF ProtocolIE-SingleContainer { { UEIdentity-List-For-Paging-ItemIEs } }

UEIdentity-List-For-Paging-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-UEIdentity-List-For-Paging-Item CRITICALITY ignore TYPE UEIdentity-List-For-Paging-Item PRESENCE optional } ,

...

}

MC-PagingCell-list::= SEQUENCE (SIZE(1.. maxnoofPagingCells)) OF ProtocolIE-SingleContainer { { MC-PagingCell-ItemIEs } }

MC-PagingCell-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-MC-PagingCell-Item CRITICALITY ignore TYPE MC-PagingCell-Item PRESENCE mandatory} ,

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- MULTICAST CONTEXT SETUP ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- MULTICAST CONTEXT SETUP REQUEST

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

MulticastContextSetupRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ MulticastContextSetupRequestIEs}},

...

}

MulticastContextSetupRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-MBS-F1AP-ID CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID PRESENCE mandatory }|

{ ID id-MBS-Session-ID CRITICALITY reject TYPE MBS-Session-ID PRESENCE mandatory }|

{ ID id-MBS-ServiceArea CRITICALITY reject TYPE MBS-ServiceArea PRESENCE optional }|

{ ID id-SNSSAI CRITICALITY reject TYPE SNSSAI PRESENCE mandatory }|

{ ID id-MulticastMRBs-ToBeSetup-List CRITICALITY reject TYPE MulticastMRBs-ToBeSetup-List PRESENCE mandatory }|

{ ID id-MulticastCU2DURRCInfo CRITICALITY reject TYPE MulticastCU2DURRCInfo PRESENCE optional }|

{ ID id-MBSMulticastSessionState CRITICALITY reject TYPE MBSMulticastSessionState PRESENCE optional },

...

}

MulticastMRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeSetup-ItemIEs} }

MulticastMRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-MulticastMRBs-ToBeSetup-Item CRITICALITY reject TYPE MulticastMRBs-ToBeSetup-Item PRESENCE mandatory },

...

}

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- MULTICAST CONTEXT MODIFICATION ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- MULTICAST CONTEXT MODIFICATION REQUEST

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

MulticastContextModificationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ MulticastContextModificationRequestIEs}},

...

}

MulticastContextModificationRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-MBS-F1AP-ID CRITICALITY reject TYPE GNB-CU-MBS-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-MBS-F1AP-ID CRITICALITY reject TYPE GNB-DU-MBS-F1AP-ID PRESENCE mandatory }|

{ ID id-MBS-ServiceArea CRITICALITY reject TYPE MBS-ServiceArea PRESENCE optional }|

{ ID id-MulticastMRBs-ToBeSetupMod-List CRITICALITY reject TYPE MulticastMRBs-ToBeSetupMod-List PRESENCE optional }|

{ ID id-MulticastMRBs-ToBeModified-List CRITICALITY reject TYPE MulticastMRBs-ToBeModified-List PRESENCE optional }|

{ ID id-MulticastMRBs-ToBeReleased-List CRITICALITY reject TYPE MulticastMRBs-ToBeReleased-List PRESENCE optional }|

{ ID id-MulticastCU2DURRCInfo CRITICALITY reject TYPE MulticastCU2DURRCInfo PRESENCE optional }|

{ ID id-MBSMulticastSessionState CRITICALITY reject TYPE MBSMulticastSessionState PRESENCE optional },

...

}

MulticastMRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeSetupMod-ItemIEs} }

MulticastMRBs-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-MulticastMRBs-ToBeSetupMod-Item CRITICALITY reject TYPE MulticastMRBs-ToBeSetupMod-Item PRESENCE mandatory},

...

}

MulticastMRBs-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeModified-ItemIEs} }

MulticastMRBs-ToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-MulticastMRBs-ToBeModified-Item CRITICALITY reject TYPE MulticastMRBs-ToBeModified-Item PRESENCE mandatory},

...

}

MulticastMRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofMRBs)) OF ProtocolIE-SingleContainer { { MulticastMRBs-ToBeReleased-ItemIEs} }

MulticastMRBs-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-MulticastMRBs-ToBeReleased-Item CRITICALITY reject TYPE MulticastMRBs-ToBeReleased-Item PRESENCE mandatory},

...

}

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.4.5 Information Element Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

id-gNB-CUSystemInformation,

id-HandoverPreparationInformation,

id-TAISliceSupportList,

id-RANAC,

id-BearerTypeChange,

id-Cell-Direction,

id-Cell-Type,

id-CellGroupConfig,

id-AvailablePLMNList,

id-PDUSessionID,

id-ULPDUSessionAggregateMaximumBitRate,

id-DC-Based-Duplication-Configured,

id-DC-Based-Duplication-Activation,

id-Duplication-Activation,

id-DLPDCPSNLength,

id-ULPDCPSNLength,

id-RLC-Status,

id-MeasurementTimingConfiguration,

id-DRB-Information,

id-QoSFlowMappingIndication,

id-ServingCellMO,

id-RLCMode,

id-ExtendedServedPLMNs-List,

id-ExtendedAvailablePLMN-List,

id-DRX-LongCycleStartOffset,

id-SelectedBandCombinationIndex,

id-SelectedFeatureSetEntryIndex,

id-Ph-InfoSCG,

id-latest-RRC-Version-Enhanced,

id-RequestedBandCombinationIndex,

id-RequestedFeatureSetEntryIndex,

id-DRX-Config,

id-UEAssistanceInformation,

id-PDCCH-BlindDetectionSCG,

id-Requested-PDCCH-BlindDetectionSCG,

id-BPLMN-ID-Info-List,

id-NotificationInformation,

id-TNLAssociationTransportLayerAddressgNBDU,

id-portNumber,

id-AdditionalSIBMessageList,

id-IgnorePRACHConfiguration,

id-CG-Config,

id-Ph-InfoMCG,

id-AggressorgNBSetID,

id-VictimgNBSetID,

id-MeasGapSharingConfig,

id-systemInformationAreaID,

id-areaScope,

id-IntendedTDD-DL-ULConfig,

id-QosMonitoringRequest,

id-BHInfo,

id-IAB-Info-IAB-DU,

id-IAB-Info-IAB-donor-CU,

id-IAB-Barred,

id-SIB12-message,

id-SIB13-message,

id-SIB14-message,

id-UEAssistanceInformationEUTRA,

id-SL-PHY-MAC-RLC-Config,

id-SL-ConfigDedicatedEUTRA-Info,

id-AlternativeQoSParaSetList,

id-CurrentQoSParaSetIndex,

id-CarrierList,

id-ULCarrierList,

id-FrequencyShift7p5khz,

id-SSB-PositionsInBurst,

id-NRPRACHConfig,

id-TDD-UL-DLConfigCommonNR,

id-CNPacketDelayBudgetDownlink,

id-CNPacketDelayBudgetUplink,

id-ExtendedPacketDelayBudget,

id-TSCTrafficCharacteristics,

id-AdditionalPDCPDuplicationTNL-List,

id-RLCDuplicationInformation,

id-AdditionalDuplicationIndication,

id-mdtConfiguration,

id-TraceCollectionEntityURI,

id-NID,

id-NPNSupportInfo,

id-NPNBroadcastInformation,

id-AvailableSNPN-ID-List,

id-SIB10-message,

id-RequestedP-MaxFR2,

id-DLCarrierList,

id-ExtendedTAISliceSupportList,

id-E-CID-MeasurementQuantities-Item,

id-ConfiguredTACIndication,

id-NRCGI,

id-SFN-Offset,

id-TransmissionStopIndicator,

id-SrsFrequency,

id-EstimatedArrivalProbability,

id-Supported-MBS-FSA-ID-List,

id-TRPType,

id-SRSSpatialRelationPerSRSResource,

id-MBS-Broadcast-NeighbourCellList,

id-PDCPTerminatingNodeDLTNLAddrInfo,

id-ENBDLTNLAddress,

id-PRS-Resource-ID,

id-LocationMeasurementInformation,

id-SliceRadioResourceStatus,

id-CompositeAvailableCapacity-SUL,

id-NR-U,

id-NR-U-Channel-List,

id-MIMOPRBusageInformation,

id-IngressNonF1terminatingTopologyIndicator,

id-NonF1terminatingTopologyIndicator,

id-EgressNonF1terminatingTopologyIndicator,

id-rBSetConfiguration,

id-frequency-Domain-HSNA-Configuration-List,

id-child-IAB-Nodes-NA-Resource-List,

id-Parent-IAB-Nodes-NA-Resource-Configuration-List,

id-uL-FreqInfo,

id-uL-Transmission-Bandwidth,

id-dL-FreqInfo,

id-dL-Transmission-Bandwidth,

id-uL-NR-Carrier-List,

id-dL-NR-Carrier-List,

id-nRFreqInfo,

id-transmission-Bandwidth,

id-nR-Carrier-List,

id-permutation,

id-M5ReportAmount,

id-M6ReportAmount,

id-M7ReportAmount,

id-SurvivalTime,

id-PDCMeasurementQuantities-Item,

id-OnDemandPRS,

id-AoA-SearchWindow,

id-ZoAInformation,

id-ARPLocationInfo,

id-ARP-ID,

id-MultipleULAoA,

id-UL-SRS-RSRPP,

id-SRSResourcetype,

id-ExtendedAdditionalPathList,

id-LoS-NLoSInformation,

id-NumberOfTRPRxTEG,

id-NumberOfTRPRxTxTEG,

id-TRPTxTEGAssociation,

id-TRPTEGInformation,

id-TRPRx-TEGInformation,

id-TRPBeamAntennaInformation,

id-Redcap-Bcast-Information,

id-NR-TADV,

id-SDT-MAC-PHY-CG-Config,

id-CG-SDTindicatorSetup,

id-CG-SDTindicatorMod,

id-SDTRLCBearerConfiguration,

id-SRBMappingInfo,

id-DRBMappingInfo,

id-LastUsedCellIndication,

id-SIB17-message,

id-MUSIM-GapConfig,

id-SIB20-message,

id-pathPower,

id-DU-RX-MT-RX-Extend,

id-DU-TX-MT-TX-Extend,

id-DU-RX-MT-TX-Extend,

id-DU-TX-MT-RX-Extend,

id-TAINSAGSupportList,

id-SL-RLC-ChannelToAddModList,

id-SIB15-message,

id-InterFrequencyConfig-NoGap,

id-MBSInterestIndication,

id-L571Info,

id-L1151Info,

id-SCS-480,

id-SCS-960,

id-SRSPortIndex,

id-PEISubgroupingSupportIndication,

id-NeedForGapsInfoNR,

id-NeedForGapNCSGInfoNR,

id-NeedForGapNCSGInfoEUTRA,

id-Source-MRB-ID,

id-RedCapIndication,

id-UL-GapFR2-Config,

id-ConfigRestrictInfoDAPS,

id-MulticastF1UContextReferenceCU,

id-TwoPHRModeMCG,

id-TwoPHRModeSCG,

id-ncd-SSB-RedCapInitialBWP-SDT,

id-nrofSymbolsExtended,

id-repetitionFactorExtended,

id-startRBHopping,

id-startRBIndex,

id-transmissionCombn8,

maxNRARFCN,

maxnoofErrors,

maxnoofBPLMNs,

maxnoofBPLMNsNR,

maxnoofDLUPTNLInformation,

maxnoofNrCellBands,

maxnoofULUPTNLInformation,

maxnoofQoSFlows,

maxnoofSliceItems,

maxnoofSIBTypes,

maxnoofSITypes,

maxCellineNB,

maxnoofExtendedBPLMNs,

maxnoofAdditionalSIBs,

maxnoofUACPLMNs,

maxnoofUACperPLMN,

maxCellingNBDU,

maxnoofTLAs,

maxnoofGTPTLAs,

maxnoofslots,

maxnoofNonUPTrafficMappings,

maxnoofServingCells,

maxnoofServedCellsIAB,

maxnoofChildIABNodes,

maxnoofIABSTCInfo,

maxnoofSymbols,

maxnoofDUFSlots,

maxnoofHSNASlots,

maxnoofEgressLinks,

maxnoofMappingEntries,

maxnoofDSInfo,

maxnoofQoSParaSets,

maxnoofPC5QoSFlows,

maxnoofSSBAreas,

maxnoofNRSCSs,

maxnoofPhysicalResourceBlocks,

maxnoofPhysicalResourceBlocks-1,

maxnoofPRACHconfigs,

maxnoofRACHReports,

maxnoofRLFReports,

maxnoofAdditionalPDCPDuplicationTNL,

maxnoofRLCDuplicationState,

maxnoofCHOcells,

maxnoofMDTPLMNs,

maxnoofCAGsupported,

maxnoofNIDsupported,

maxnoofExtSliceItems,

maxnoofPosMeas,

maxnoofTRPInfoTypes,

maxnoofSRSTriggerStates,

maxnoofSpatialRelations,

maxnoBcastCell,

maxnoofTRPs,

maxnoofAngleInfo,

maxnooflcs-gcs-translation,

maxnoofPath,

maxnoofMeasE-CID,

maxnoofSSBs,

maxnoSRS-ResourceSets,

maxnoSRS-ResourcePerSet,

maxnoSRS-Carriers,

maxnoSCSs,

maxnoSRS-Resources,

maxnoSRS-PosResources,

maxnoSRS-PosResourceSets,

maxnoSRS-PosResourcePerSet,

maxnoofPRS-ResourceSets,

maxnoofPRS-ResourcesPerSet,

maxNoOfMeasTRPs,

maxnoofPRSresourceSets,

maxnoofPRSresources,

maxnoofSuccessfulHOReports,

maxnoofNR-UChannelIDs,

maxServedCellforSON,

maxNeighbourCellforSON,

maxAffectedCells,

maxnoofMBSQoSFlows,

maxnoofMBSFSAs,

maxnoofMBSAreaSessionIDs,

maxnoofMBSServiceAreaInformation,

maxnoofTAIforMBS,

maxnoofCellsforMBS,

maxnoofIABCongInd,

maxnoofBHRLCChannels,

maxnoofTLAsIAB,

maxnoofRBsetsPerCell,

maxnoofRBsetsPerCell-1,

maxnoofNeighbourNodeCellsIAB,

maxnoofMeasPDC,

maxnoARPs,

maxnoofULAoAs,

maxNoPathExtended,

maxnoTRPTEGs,

maxFreqLayers,

maxNumResourcesPerAngle,

maxnoAzimuthAngles,

maxnoElevationAngles,

maxnoofPRSTRPs,

maxnoofQoEInformation,

maxnoofUuRLCChannels,

maxnoofPC5RLCChannels,

maxnoofSMBRValues,

maxnoofMBSSessionsofUE,

maxnoofSLdestinations,

maxnoofNSAGs,

maxnoofSDTBearers,

maxnoofPosSITypes,

maxnoofMRBs,

maxNrofBWPs

FROM F1AP-Constants

Criticality,

ProcedureCode,

ProtocolIE-ID,

TriggeringMessage

FROM F1AP-CommonDataTypes

ProtocolExtensionContainer{},

F1AP-PROTOCOL-EXTENSION,

ProtocolIE-SingleContainer{},

F1AP-PROTOCOL-IES

FROM F1AP-Containers;

-- A

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

IndicationMCInactiveReception ::= ENUMERATED {true, ...}

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

MBSMulticastSessionState ::= ENUMERATED {activated, deactivated, ...}

MulticastCU2DURRCInfo ::= SEQUENCE {

mBS-Multicast-Cell-List MBS-Multicast-Cell-List,

mBS-Multicast-MRB-List MBS-Multicast-MRB-List,

iE-Extensions ProtocolExtensionContainer { { MulticastCU2DURRCInfo-ExtIEs } } OPTIONAL,

...

}

MulticastCU2DURRCInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

MBS-Multicast-Cell-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF MBS-Multicast-Cell-Item

MBS-Multicast-Cell-Item ::= SEQUENCE {

nRCGI NRCGI,

multicast-mtch-neighbourCell OCTET STRING OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { MBS-Multicast-Cell-Item-ExtIEs} } OPTIONAL,

...

}

MBS-Multicast-Cell-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

MBS-Multicast-MRB-List ::= SEQUENCE (SIZE(1.. maxnoofMRBs)) OF MBS-Multicast-MRB-Item

MBS-Multicast-MRB-Item ::= SEQUENCE {

mRB-ID MRB-ID,

mRB-PDCP-Config-Broadcast OCTET STRING,

iE-Extensions ProtocolExtensionContainer { { MBS-Multicast-MRB-Item-ExtIEs} } OPTIONAL,

...

}

MBS-Multicast-MRB-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

id-nrofSymbolsExtended ProtocolIE-ID ::= 702

id-repetitionFactorExtended ProtocolIE-ID ::= 703

id-startRBHopping ProtocolIE-ID ::= 704

id-startRBIndex ProtocolIE-ID ::= 705

id-transmissionCombn8 ProtocolIE-ID ::= 706

id-IndicationMCInactiveReception ProtocolIE-ID ::= 999 -- to be allocated

id-MulticastCU2DURRCInfo ProtocolIE-ID ::= 998 -- to be allocated

id-MBSMulticastSessionState ProtocolIE-ID ::= 997 -- to be allocated

END

-- ASN1STOP

<<<<<<<<<<<<<<<<<<<< End of Changes >>>>>>>>>>>>>>>>>>>>