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**O-RAN Work Group 3 (WG-3)  
Near-Real-time RAN Intelligent Controller**

**E2 Service Model (E2SM), RAN Control**

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## Foreword

This Technical Specification (TS) has been produced by WG3 of the O-RAN Alliance.

The contents of the present document are subject to continuing work within O-RAN and may change following formal O-RAN approval. Should the O-RAN Alliance modify the contents of the present document, it will be re-released by O-RAN with an identifying change of version date and an increase in version number as follows:

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## Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the O-RAN Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in O-RAN deliverables except when used in direct citation.

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## 1 Scope

The present document specifies the E2 Service Model (E2SM) for the Near RT RIC RAN Control interaction.

## 2 References

### 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies. In the case of a reference to a 3GPP document, a non-specific reference implicitly refers to the latest version of that document in Release 18, or the latest 3GPP release prior to Release 18 that includes that document.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, O-RAN cannot guarantee their long-term validity.

The following referenced documents are necessary for the application of the present document.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] O-RAN Working Group 3, Near-Real-time RAN Intelligent Controller, Architecture & E2 General Aspects and Principles (E2GAP)
- [3] ORAN Working Group 3, Near-Real-time RAN Intelligent Controller, E2 Application Protocol (E2AP).
- [4] O-RAN Working Group 3, Near-Real-time RAN Intelligent Controller, E2 Service Model (E2SM)
- [5] 3GPP TR 25.921: "Guidelines and principles for protocol description and error handling".
- [6] ITU-T Recommendation X.680 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [7] ITU-T Recommendation X.681 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".
- [8] ITU-T Recommendation X.691 (2002-07): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)"
- [9] Reserved
- [10] TS 38.410: "NG-RAN; NG general aspects and principles".
- [11] TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".
- [12] Reserved
- [13] TS 36.413: "E-UTRAN; S1 Application Protocol (S1AP)".
- [14] TS 38.420: "NG-RAN; Xn general aspects and principles".
- [15] TS 38.423: "NG-RAN; Xn Application Protocol (XnAP)".
- [16] TS 36.420: "E-UTRAN; X2 general aspects and principles".
- [17] TS 36.423: "E-UTRAN; X2 Application Protocol (X2AP)".
- [18] TS 38.470: "NG-RAN; F1 general aspects and principles".
- [19] TS 38.473: "NG-RAN; F1 Application Protocol (F1AP)".
- [20] TS 38.460: "NG-RAN; E1 general aspects and principles".
- [21] TS 37.483: "NG-RAN; E1 Application Protocol (E1AP)".
- [22] TS 38.331: "NR; Radio Resource Control (RRC) Protocol Specification".
- [23] TS 36.331: "E-UTRA; Radio Resource Control (RRC) Protocol Specification".
- [24] TS 38.323: "NR; Packet Data Convergence Protocol (PDCP) specification".
- [25] TS 38.322: "NR; Radio Link Control (RLC) protocol specification".
- [26] TS 38.321: "NR; Medium Access Control (MAC) protocol specification".
- [27] TS 25.321: "Medium Access Control (MAC) protocol specification".

- [28] TS 28.552: "Management and orchestration 5G performance measurements".
- [29] Reserved
- [30] IETF RFC 5905 (2010-06): "Network Time Protocol Version 4: Protocol and Algorithms Specification"
- [31] TS 37.340: "E-UTRA and NR Multiconnectivity Stage 2".
- [32] O-RAN Working Group 3, Use Case Requirements (UCR)
- [33] O-RAN Working Group 1, Massive MIMO Use Cases Technical Report
- [34] O-RAN.WG4.CUS.0-R003-v13, "O-RAN Working Group 4, Control, User and Synchronization Plane Specification"
- [35] TS 28.541: "5G; Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".
- [36] TS 28.214: "NR; Physical layer procedures for data".
- [37] TS 38.912: "Study on New Radio (NR) access technology".

## 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies. In the case of a reference to a 3GPP document, a non-specific reference implicitly refers to the latest version of that document in Release 18, or the latest 3GPP release prior to Release 18 that includes that document.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, O-RAN cannot guarantee their long-term validity.

The following referenced documents are not necessary for the application of the present document, but they assist the user with regard to a particular subject area.

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

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## 3 Definition of terms, symbols and abbreviations

### 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 23.905 [1], O-RAN WG1.OAD [18], O-RAN WG3.E2GAP [2], O-RAN.WG3.E2SM [4] and the following apply:

**SpCell:** as defined in TS 37.340 [31].

### 3.2 Symbols

Void

### 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [i.1] and the following abbreviations apply.

O-CU	O-RAN Central Unit
O-CU-CP	O-RAN Central Unit – Control Plane
O-CU-UP	O-RAN Central Unit – User Plane
O-DU	O-RAN Distributed Unit
Near-RT RIC	Near-real-time RAN Intelligent Controller
RC	RAN Control

## 4 General

### 4.1 Procedure Specification Principles

The principle for specifying the procedure logic is to specify the functional behavior of the terminating node exactly and completely. Any rule that specifies the behavior of the originating node shall be possible to be verified with information that is visible within the system.

The following specification principles have been applied for the procedure text in clause 8:

- The procedure text discriminates between:
  - 1) Functionality which "shall" be executed.

The procedure text indicates that the receiving node "shall" perform a certain function Y under a certain condition. If the receiving node supports procedure X but cannot perform functionality Y requested in the REQUEST message of a Class 1 EP, the receiving node shall respond with the message used to report unsuccessful outcome for this procedure, containing an appropriate cause value.

- 2) Functionality which "shall, if supported" be executed.

The procedure text indicates that the receiving node "shall, if supported," perform a certain function Y under a certain condition. If the receiving node supports procedure X, but does not support functionality Y, the receiving node shall proceed with the execution of the EP, possibly informing the requesting node about the not supported functionality.

- Any required inclusion of an optional IE in a response message is explicitly indicated in the procedure text. If the procedure text does not explicitly indicate that an optional IE shall be included in a response message, the optional IE shall not be included. For requirements on including *Criticality Diagnostics* IE, see clause 10.

### 4.2 Forwards and Backwards Compatibility

The forwards and backwards compatibility of the protocol is assured by a mechanism where all current and future messages, and IEs or groups of related IEs, include ID and criticality fields that are coded in a standard format that will not be changed in the future. These parts can always be decoded regardless of the standard version.

### 4.3 Specification Notations

For the purposes of the present document, the following notations apply:

Service	when referring to a Service in the specification the <b>SERVICE NAME</b> is written with upper case characters and in bold followed by the word "service", e.g. <b>REPORT</b> service.
Procedure	When referring to an elementary procedure in the specification the Procedure Name is written with the first letters in each word in upper case characters followed by the word "procedure", e.g. Handover Preparation procedure.
Message	When referring to a message in the specification the <b>MESSAGE NAME</b> is written with all letters in upper case characters followed by the word "message", e.g. HANOVER REQUEST message.
IE	When referring to an information element (IE) in the specification the <i>Information Element Name</i> is written with the first letters in each word in upper case characters and all letters in Italic font followed by the abbreviation "IE", e.g. <i>E-RAB ID</i> IE.
Value of an IE	When referring to the value of an information element (IE) in the specification the "Value" is written as it is specified in the specification enclosed by quotation marks, e.g. "Value".

## 4.4 Void

## 5 E2SM Services

As defined in E2 General Aspects and Principles O-RAN WG3.E2GAP [1], a given RAN Function offers a set of services to be exposed over the E2 (**REPORT**, **INSERT**, **CONTROL** and/or **POLICY**) using O-RAN WG3.E2AP [3] defined procedures. Each of the E2AP Procedures listed in table 5-1 contains specific E2 Node RAN Function dependent Information Elements (IEs).

**Table 5-1: Relationship RAN Function specific E2AP Information elements and E2AP Procedures**

RAN Function specific E2AP Information Elements	E2AP Information Element reference	Related E2AP Procedures
<i>RIC Event Trigger Definition IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.9	RIC Subscription
<i>RIC Action Definition IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.12	RIC Subscription
<i>RIC Indication Header IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.17	RIC Indication
<i>RIC Indication Message IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.16	RIC Indication
<i>RIC Call Process ID IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.18	RIC Indication RIC Control
<i>RIC Control Header IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.20	RIC Control
<i>RIC Control Message IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.19	RIC Control
<i>RIC Control Outcome IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.25	RIC Control
<i>RAN Function Definition IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.23	E2 Setup RIC Service Update
<i>RIC Query Header IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.36	RIC Query
<i>RIC Query Definition IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.37	RIC Query
<i>RIC Query Outcome IE</i>	O-RAN WG3.E2AP [3] Clause 9.2.38	RIC Query
<i>Service Layer Cause IE</i>	O-RAN WG3.E2AP [3] clause 9.2.1	RIC Subscription RIC Subscription modification RIC Indication RIC Control RIC Query Error Indication E2 Setup RIC Service Update

All of these RAN Function specific E2AP IEs are defined in O-RAN WG3.E2AP [3] as “OCTET STRING”.

The purpose of this specification is to define the contents of these fields for the specific RAN function “RAN Control (RC)”.

## 6 RAN Function Service Model Description

### 6.1 RAN Function Overview

For the purposes of this E2 Service Model, E2SM-RC, the E2 Node terminating the E2 Interface is assumed to host one or more instances of the RAN Function “RAN Control” which performs the following functionalities:

- E2 REPORT services used to expose RAN control and UE context related information
- E2 INSERT services used to suspend RAN control related call processes
- E2 CONTROL services used to resume or initiate RAN control related call processes, modify RAN configuration and/or E2 service-related UE context information
- E2 POLICY services used to modify the behaviour of RAN control related processes
- E2 QUERY services used to request and retrieve RAN and/or UE related information
- Service layer error reporting

This E2SM specification provides a set of RAN Function exposure services described in clause 6.2 and has been prepared with the assumption that the same E2SM may be used to describe either a single RAN Function in the E2 Node handling all RAN control related call processes or more than one RAN Function in the E2 Node with each instance handling a subset of the RAN control related call processes on the E2 Node.

### 6.2 RAN Function exposure services

#### 6.2.1 REPORT service

The “RAN Control” RAN Function provides selective support of the following **REPORT** services:

- Copy of Complete message (from Network Interface or RRC), used for monitoring POLICY services, data gathering (to populate the Near-RT RIC UE-NIB and/or ML services data pipeline), etc.
- Call process outcome with associated information on UE context and/or RAN status information, used for monitoring [CONTROL and] POLICY services, data gathering (to populate the Near-RT RIC UE-NIB and/or ML services data pipeline), etc.
- E2 Node Information and Cell related Information, used for monitoring of E2 Node and Cell configuration changes, triggering POLICY deletion, changing notifications (to reset Near-RT RIC optimization services), etc..
- UE Information, used for monitoring of UE information changes, triggering E2 Control, location tracking, etc.

NOTE: Only the UE with user consent can be configured to report location information.

#### 6.2.2 INSERT service

The “RAN Control” RAN Function provides selective support of the following **INSERT** services:

Fundamental level:

- Radio Bearer Control request, used for requesting the RIC to control DRB QoS modification, QoS flow to DRB (re)mapping, Logical channel (re)configuration, Radio bearer admission control, Split bearer and PDCP duplication control, etc.
- Radio Resource Allocation Control request, used for requesting the RIC to control Discontinuous Reception (DRX), Scheduling request (SR), Semi-Persistent Scheduling (SPS), Configured Grant, Channel Quality Indicator (CQI) table, Slice level PRB quota, etc.
- Connected Mode Mobility Control request, used for requesting the RIC to control operations of Handover (HO), Conditional handover (CHO), Dual Active Protocol Stack (DAPS) HO, etc.
- Radio Access Control request, used for requesting the RIC to control parameters related to RACH back-off, RRC connection reject, RRC connection release, Access barring, UE admission, etc.

- Dual Connectivity (DC) Control request, used for requesting the RIC to control operations of Dual Connectivity (DC) including Change of bearer termination point (MN or SN) and/or bearer types, etc.
- Carrier Aggregation (CA) Control request, used for requesting the RIC to control operations of Carrier Aggregation (CA) involving secondary cell re-selection.
- Idle Mode Mobility Control request, used for requesting the RIC to control intra-frequency, inter-frequency, inter-RAT cell reselection priority, idle timers, etc.

Integrated level:

- Multiple Actions Control request, used for requesting the RIC to command multiple actions of the selected fundamental level INSERT services.

### 6.2.3 CONTROL service

The “RAN Control” RAN Function provides selective support of the following **CONTROL** services:

Fundamental level:

- Radio Bearer Control, used for DRB QoS modification, QoS flow to DRB (re)mapping, Logical channel (re)configuration, Radio bearer admission control, Split bearer and PDCP duplication control, etc.
- Radio Resource Allocation Control, used to control Discontinuous Reception (DRX), Scheduling request (SR), Semi-Persistent Scheduling (SPS), Configured Grant, Channel Quality Indicator (CQI) table, Slice level PRB quota, etc.
- Connected Mode Mobility Control, used to control operations of Handover (HO), Conditional handover (CHO), Dual Active Protocol Stack (DAPS) HO, etc.
- Radio Access Control, used for modification of RACH back-off, RRC connection reject, RRC connection release, Access barring, UE admission, etc.
- Dual Connectivity (DC) Control, used to control operations of Dual Connectivity (DC) including Change of bearer termination point (MN or SN) and/or bearer types, etc.
- Carrier Aggregation (CA) Control, used to control operations of Carrier Aggregation (CA).
- Idle Mode Mobility Control, used for modification of intra-frequency, inter-frequency, inter-RAT cell reselection priority, idle timers, etc.
- UE identification, information and assignment: used to assign UE to RAN UE group, to obtain information on UE, and to complete UE identification based on partial information.
- Measurement Report (MR) Configuration Control, used to control configuration of RRC measurement objects, reporting objects, etc.
- Beamforming Configuration Control, used to control configuration of Non-GoB Beamforming Mode.

Integrated level:

- Multiple Actions Control, used to command multiple actions of the selected fundamental level CONTROL services in one message.

### 6.2.4 POLICY service

The “RAN Control” RAN Function provides selective support of the following **POLICY** services:

- Radio Bearer Policy, used to modify the behaviour of call processes related to DRB QoS control, QoS flow to DRB mapping, Logical channel configuration, Radio bearer admission control, Split bearer and PDCP duplication control, etc.

- Radio Resource Allocation Policy, used to modify the behaviour of call processes related to DRX, SR, SPS, Configured Grant, CQI table, Slice level PRB quota, etc.
- Connected Mode Mobility Policy, used to modify the behaviour of call processes related to HO, CHO, DAPS HO, etc. for both serving and target RAN nodes.
- Radio Access Policy, used to modify the behaviour of call processes related to RACH back-off, RRC connection reject, RRC connection release, Access barring, UE admission, etc.
- Dual Connectivity (DC) Policy, used to modify the behaviour of call processes related to DC related operations for both master and secondary RAN nodes, Change of bearer termination point (MN or SN) and/or bearer types, etc.
- Carrier Aggregation (CA) Policy, used to modify the behaviour of call processes related to CA related operations for both primary and secondary cells.
- Idle Mode Mobility Policy, used to modify the behaviour of call processes related to intra-frequency, inter-frequency, inter-RAT cell reselection priority, inactivity timers, etc.
- Measurement Report (MR) Configuration Policy, used to configure policy for RRC measurement objects, reporting objects, etc.
- Beamforming Configuration Policy, used to configure policy for Non-GoB and GoB Beamforming Mode.

### 6.2.5 QUERY service

The “RAN Control” RAN Function provides support of the following **QUERY** services:

- E2 Node related Information retrieval between Near-RT RIC and E2 Node for any data required at Near-RT RIC
- UE related Information retrieval between Near-RT RIC and E2 Node for any data required at Near-RT RIC

## 6.3 REPORT service description

The E2SM-RC REPORT service requirements defined in Clause 6.2.1 are offered using a set of REPORT Styles. All REPORT styles are implemented using a set of IEs for Action Definition, RIC Indication Header and RIC Indication Message and have specific Event Trigger approach. For each Report style, a single RAN Parameter table is used to specify the required information to be reported.

The following REPORT styles are supported:

- Message copy: This REPORT style is initiated by “Message Event” Event Trigger and is used to report complete NI or RRC message along with UE associated information when the event trigger conditions are satisfied.
- Call Process Outcome: This REPORT style is initiated by the corresponding "Call Process Breakpoint" Event Trigger and is used to report on the outcome of a call process providing information on current, and in certain cases previous, UE or E2 Node information depending upon the nature of the target call process.
- E2 Node Information: This REPORT style is initiated by “E2 Node Information Change” Event Trigger and is used to report cell related and E2 Node related information upon event trigger conditions are satisfied.
- UE information: This REPORT style is initiated by “UE Information Change” Event Trigger and is used to report UE related information and UE state variables upon the event trigger conditions are satisfied.

## 6.4 INSERT service description

The E2SM-RC INSERT service requirements defined in Clause 6.2.2 are offered using a set of INSERT Styles. Each style corresponds to a set of “INSERT Indications”, where each “INSERT Indication” deals with a specific functionality and has a set of associated RAN parameters, provided in a mapping table. All INSERT Service styles are implemented using a set of IEs that constitute “Action Definition”, “RIC Indication Header” and “RIC Indication Message” to deliver RAN Control-related INSERT services. Each INSERT service style is associated with a specific “Event Trigger”

approach. An “INSERT Indication” is used to request the RIC to control a functionality associated with the respective INSERT service style, and to set or modify the values of one or more associated RAN parameters.

As an example, upon the arrival of an RRC Measurement Report in the E2 node due to the occurrence of an A3 event pertaining to a UE (which constitutes the event trigger), the E2 node can send a message to the RIC using the “Connected Mode Mobility Control Request” INSERT service style and the “Handover Control Request” INSERT Indication along with the “target cell ID” parameter. This RIC should then accept/deny the “Handover Control Request”, and if it accepts, it should set the value of the “target cell ID” parameter and send a CONTROL action back to the E2 Node. Up until then, the E2 node suspends the ongoing call processing for the UE.

## 6.5 CONTROL service description

The E2SM-RC CONTROL service requirements defined in Clause 6.2.3 are offered using a set of CONTROL Styles. Each style corresponds to a set of “CONTROL Action”, where each “CONTROL Action” deals with a specific functionality and has a set of associated RAN parameters, provided in a mapping table. All CONTROL Service styles are implemented using a set of IEs constituting a “RIC Control Request Header” and a “RIC Control Request Message” to deliver RAN Control-related CONTROL services and the optional “RIC Control Outcome” to carry control process outcome information from the E2 Node. A “CONTROL Action” containing one or more RAN parameters and their associated values can either be sent from the RIC, either asynchronously to the E2 node or as a response to a previous “INSERT Indication” from the E2 node.

Referring to the previous example in Clause 6.4, the RIC sends a “CONTROL action” that accepts/denies the incoming “INSERT Indication” requesting for “Handover Control”, along with the value of the “Target Primary Cell”. As another example, the RIC can also asynchronously send a “CONTROL action” asking the E2 node to configure the UE in Carrier Aggregation mode and setup one or more secondary cells to the UE, whose values are assigned by the RIC via the “CONTROL action”.

## 6.6 POLICY service description

### 6.6.1 Overview

The E2SM-RC POLICY service requirements defined in Clause 6.2.4 are offered using a set of POLICY Styles. Each style is implemented using multiple "Policy Approach" strategies, each with a specific methodology defined to use the E2AP IE "Action Definition" to deliver RAN Control related POLICY services.

The following Policy Approaches are defined:

- Control: POLICY for a given Style and Action ID is defined as a single case of a specific Policy condition with the corresponding Policy Action defined using the same data structure as CONTROL which would be used to replace default RAN behaviour.
- Offset: POLICY for a given Style and Action ID is defined as a set of different cases applicable for a range of different Policy conditions with the corresponding Policy Action defined using the dedicated data structure defined for POLICY which would be used to modify default RAN behaviour.

### 6.6.2 Policy approach "Control"

The “control” Policy Approach is similar to the CONTROL service, with static conditions and actions in the RIC Subscription used to select an appropriate CONTROL Action. When a set of Policy conditions are satisfied, then E2 Node is instructed to execute a Policy Action with a set of supplementary or default set of RAN parameters.

A single Policy Action shall be a result of execution of multiple policy conditions.

- Each Policy Condition is defined using a combination of RAN Parameters and conditional tests associated with UE and Call process related information.
- Each Policy Action is defined with a single Policy Action ID (command) which instructs E2 Node to perform a certain action when the conditions are satisfied. The Policy Action ID shall be supplemented with a set of RAN Parameters which may be used to provide information on default values to E2 Node. The Policy Decision indicates to the E2 Node, whether to accept or reject a RRM function, when the Policy conditions are met.

Examples include:

- Connected mode mobility policy, Handover Execution: Message Arrival breakpoint event trigger is defined to initiate the Policy service. On the arrival of A3 Measurement Report, the Policy service kicks in. Policy service installs a set of Policy Conditions like RSRP > ‘x’ dB + Target Node Load < ‘x’ value + Number of successful HO to target Node > ‘x’ value. When these Policy conditions are satisfied, then perform Policy Action - “Execute HO” defined in the CONTROL service in Clause 6.5. The Policy Action may be provided as a standalone Policy Action ID “Execute HO” without any RAN parameters. As an alternative, Policy Action “Execute HO” may be supplemented with default RAN parameters like Handover only QCI 5 and 9 bearers.
- Carrier Aggregation Policy, CA Release decision: A call process breakpoint event trigger is defined to initiate the POLICY service. The call process breakpoint shall define conditions for Buffer occupancy. A call process breakpoint event shall be triggered when the Buffer Occupancy (BO) < ‘x’ KB. In this scenario, the event trigger satisfies the Policy condition. Hence there is no need to define a Policy condition in the Policy service, When the BO < ‘x’ KB kicks in, then Policy Action shall instruct E2 Node to “Release Scell”.

### 6.6.3 Policy Approach "Offset"

The "offset" Policy Approach is based on the design assumption that the *Policy Action* IE is used to carry one or more RAN Parameters that are used to modify default E2 Node behaviour via the addition of an "offset" to be applied to given target threshold or other parameter used in the target call process.

The applicable Policy Action is dependent upon a set of Policy Conditions and a given POLICY service may support one or more Policy conditions and so provide a targeted Policy Action for a range of different specific cases, each defined using a unique Policy condition where:

- Each Policy Condition is defined using a combination of RAN Parameters and conditional tests associated with UE and Call process related information. The first positive match in a list of Policy conditions is used to select the corresponding Policy Action.
- Each Policy Action is defined using a list of RAN Parameters of data type INTEGER or REAL which may be used directly for default values of type INTEGER or REAL (i.e. Default+Offset) and indirectly to for default values of type ENUMERATED (i.e. select value in list that is Offset before or after default value).

Examples include:

- Connected mode mobility policy, Handover decision: A call process breakpoint event trigger is defined to initiate the POLICY service from within the call process handling UE measurement reports related to handover decisions for a specific target Slice and primary cell currently subject to Traffic Steering guidance. The Policy conditions list of RAN Parameters supports the definition of different A3 measurement threshold criteria offset values to be applied to UEs with a specific combination of slice ID, active QoS bearers, velocity and throughput and subject to overall E2 Node load and cell level load balancing requirements. Handover is accepted if the reported A3 measurement is greater than the default A3 measurement threshold+offset.
- Carrier Aggregation Policy, CA release decision: A call process breakpoint event trigger is defined to initiate the POLICY service from within the call process related to Carrier Aggregation (CA) release decisions for a specific target Slice currently subject to QoE guidance. The Policy conditions list of RAN Parameters supports the definition of different CA release threshold criteria offset values to be applied to UEs with a specific combination of slice ID, active QoS bearers, velocity and throughput and subject to overall E2 Node load and cell level load balancing requirements. CA release is initiated if the UE throughput is less than the default UE throughput threshold+offset.

## 6.7 QUERY service description

The E2SM-RC QUERY service requirements defined in Clause 6.2.5 are offered using a set of QUERY Styles. All QUERY styles are implemented using a set of IEs for RIC Query Header, RIC Query Definition and RIC Query Outcome. For each Query style, a single RAN Parameter table is used to specify the required information to be requested and responded.

## 7 RAN Function Description

### 7.1 RAN Function Definition

The E2AP [3] procedures E2 Setup and RIC Service Update are used to transport the *RAN Function Definition* IE.

For a specific RAN Function declared using E2SM-RC, the *RAN Function Definition* IE, defined in clause 9.2.2, shall report the following information:

- RAN Function name along with associated information on E2SM definition
- Event trigger styles list along with the corresponding encoding type for each associated E2AP IE.
- RIC **REPORT** Service styles list along with the corresponding encoding type for each associated E2AP IE.
- RIC **INSERT** Service styles list along with the corresponding encoding type for each associated E2AP IE.
- RIC **CONTROL** Service styles list along with the corresponding encoding type for each associated E2AP IE.
- RIC **POLICY** Service styles list along with the corresponding encoding type for each associated E2AP IE.
- RIC **QUERY** Service styles list along with the corresponding encoding type for each associated E2AP IE.

For the case where *RAN Function Definition* IE, defined in clause 9.2.2, is present in the E2 SETUP REQUEST message the IE shall provide a complete list of all Styles, Actions and associated Formats and RAN Parameter for all supported RIC services reflecting the current status of the RAN Function.

For the case where *RAN Function Definition* IE, defined in clause 9.2.2, is present in the RIC SERVICE UPDATE message within the E2AP *RAN Functions Added List* IE, the IE shall provide a complete list of all Styles, Actions and associated Formats and RAN Parameter for all supported RIC services for the newly added RAN Function with a new RAN Function ID.

For the case where *RAN Function Definition* IE, defined in clause 9.2.2, is present in the RIC SERVICE UPDATE message within the E2AP *RAN Functions Modified List* IE, the IE shall provide a complete list of all the Styles, Actions and associated Formats and RAN Parameter for all supported RIC services including both modified and unchanged information for an existing RAN Function.

### 7.2 RAN Function name

RAN Function Short Name “ORAN-E2SM-RC”

RAN Function name description “RAN Control”

RAN Function Instance, required when and if E2 Node exposes more than one instance of a RAN Function based on this E2SM.

## 7.3 RIC Event Trigger Definition IE styles

### 7.3.1 RIC Event Trigger Definition IE style list

RIC Style Type	Style Name	Supported RIC Service Style			Style Description
		Report	Insert	Policy	
1	Message Event	1	-	1-7	Triggering conditions are based on arrival or departure of network interface message or RRC message.
2	Call Process Breakpoint	2	1-7	1-8	Triggering conditions are based on call process breakpoint.
3	E2 Node Information Change	3	-	-	Triggering conditions are based on change of E2 Node or cell related configuration information.
4	UE Information Change	4	-	9	Triggering conditions are based on change of UE Information.

### 7.3.2 RIC Event Trigger Definition IE style 1: Message Event

This *RIC Event Trigger Definition IE* style is used to detect a specific Network Interface or RRC message event in E2 Node. The detection can be based on only for incoming or outgoing message. The E2 Node can also be configured to detect multiple messages simultaneously and to trigger only when all the configured message events happen or for any logical combination of message events.

Each message event configured can be further conditioned to be associated only for a certain UE or group of UEs as indicated by the *Associated UE Info* IE if included, or only for some specific UE events defined in Clause 8.1.5 as indicated by the *Associated UE Event* IE if included. In case that the *Global Associated UE Info* IE is included, the information is applied uniformly to all the message events configured and the IE shall override any *Associated UE Info* IE included for some message events.

For each message event configured, Event Trigger Condition ID is assigned so that E2 Node can reply to Near-RT RIC in the RIC INDICATION message to inform which event(s) are the cause for triggering.

This *RIC Event Trigger Definition IE* style uses *RIC Event Trigger Definition IE Format 1* (9.2.1.1.1).

### 7.3.3 RIC Event Trigger Definition IE style 2: Call Process Breakpoint

This *RIC Event Trigger Definition IE* style is used to detect a call process in E2 Node based on a specified call process identifier and breakpoint identifier. The call process and breakpoint configured for event triggering can also be conditioned to be associated with a certain E2 Node related information.

The following table specifies the supported call process types, call breakpoints, the associated RAN Parameters for possible E2 Node related conditioning for event triggering, as well as the supported INSERT or POLICY services.

Call Process Type ID	Call Process Type	Call Break-point ID	Call Breakpoint Name	Associated RAN Parameters	Supported INSERT Service Styles	Supported POLICY Service Styles	Supported REPORT Service Styles	Description
1	UE Context Management	1	UE Context Setup	8.1.2.1.1	1,2,3,4,6,7	1,2,3,4,6,7 ,8	2	TS 38.470 [18] clause 5.2.3 and TS 38.410 [10] clause 5.3.
		2	UE Context Modification	8.1.2.1.2				
		3	UE Context Release	8.1.2.1.3				
2	Bearer Context Management	1	Bearer Context Setup	8.1.2.2.1	1,4,5,6	1,4,5,6,8	2	TS 38.460 [20] clause 5.1.2
		2	Bearer Context	8.1.2.2.2				

			Modification					
		3	Bearer Context Release	8.1.2.2.3				
3	Mobility Management	1	Handover Preparation	8.1.2.3.1	3	3,8	2	TS 38.420 [14] clause 5.2.2 and TS 38.410 [10] clause 5.4. It also handles the F1AP: Mobility Management aspects of the UE Context Management procedure from TS 38.470 and TS 38.473
		2	Handover Cancel	8.1.2.3.2				
		3	Handover Resource Allocation	8.1.2.3.3				
4	Multi-RAT Dual Connectivity Management	1	SN Addition	8.1.2.4.1	5	5,8	2	TS 38.420 [14] clause 5.2.3 and TS 36.420 [16] clauses 5.2.1.5 and 5.2.1.6
		2	SN Modification and Release	8.1.2.4.2				
5	Radio Resource Control Management	1	RRC CG-Config Information Transfer	8.1.2.5.1	1-7	1-7	2	TS 38.470 [18] clause 5.2.4, TS 38.331 [22].
		2	RRC Cell Group Config Transfer	8.1.2.5.2				
		3	RRC Measurement Configuration	8.1.2.5.3		NA	8	2
6	PDU Session Management	1	PDU Session Resource Setup	8.1.2.6.1	1,3,4,5	1,3,4,5,8	2	TS 38.410 [10] clause 5.5
		2	PDU Session Resource Modification	8.1.2.6.2				
		3	PDU Session Resource Release	8.1.2.6.3				

**Table 7.3.3-1: RIC Event Trigger Definition IE style 2 – Supported Call Processes and associated RAN Parameters**

Each event configured can be further conditioned to be associated only for a certain UE or group of UEs as indicated by the *Associated UE Info* IE if included.

This *RIC Event Trigger Definition IE* style uses *E2SM-RC Event Trigger Definition Format 2 IE* (9.2.1.1.2).

### 7.3.4 RIC Event Trigger Definition IE style 3: E2 Node Information Change

This *RIC Event Trigger Definition IE* style is used to detect E2 Node related information change from the subscribed E2 Node. The E2 Node can also be configured to detect multiple changes simultaneously and to trigger only when all the configured changes happen or for any logical combination of the configured changes.

In this version of E2SM-RC specification, the following E2 Node related information changes are supported for event triggering.

E2 Node Information Change ID	E2 Node Information Change Type	Description
1	Cell Configuration Change	Triggered when any serving cell's context information defined by the <i>Served Cell Information</i> IE in TS 38.473 [19] clause 9.3.1.10 has changed.
2	Cell Neighbour Relation Change	Triggered when any serving cell's neighbour relation information defined by Clause 9.3.38 has changed.
3	Slice Configuration Change	Triggered when slice configuration in any serving cell has changed.
4	MIB Change	Triggered when the MIB in any serving cell has changed
5	Serving Cell Config Common Change	Triggered when any Serving Cell Config Common information defined by Section 8.2.3 in any serving cell has changed

**Table 7.3.4-1: RIC Event Trigger Definition IE style 3 – Supported E2 Node information changes**

Each E2 Node information change configured can also be conditioned to be associated with a specific cell or group of cells for event triggering, as indicated by the *Associated Cell Info* IE if included.

For each information change configured for event triggering, Event Trigger Condition ID is also assigned so that E2 Node can reply to Near-RT RIC in the RIC INDICATION message to inform which event(s) are the cause for triggering.

This *RIC Event Trigger Definition IE* style uses *E2SM-RC Event Trigger Definition Format 3* IE (9.2.1.1.3).

### 7.3.5 RIC Event Trigger Definition IE style 4: UE Information Change

This *RIC Event Trigger Definition IE* style is used to detect UE Context related information change from the subscribed E2 Node. The E2 Node can also be configured to detect multiple changes simultaneously and to trigger only when all the configured changes happen or for any logical combination of the configured changes.

In this version of E2SM-RC specification, the supported UE Context information changes for event triggering are

- RRC state change
- UE identifier change (based on UE ID defined in Clause 9.3.10)
- RLC/PDCP state variable or MAC state variable change (based on RAN Parameters defined in Clauses 8.1.1.4 and 8.1.1.8)
- L2 MAC scheduler-related changes (e.g. MIMO transmission mode state change for the UE, etc.)
- UE context info change

For UE identifier change, the following cases are supported for event triggering.

UE Identifier Change ID	UE Identifier Change Type	Description
1	New UE Connected	Triggered when new UE ID is assigned for a new UE connected.
2	UE Handed Over	Triggered when new UE ID is assigned due to HO from another node.
3	UE ID Changed	Triggered when any content of the assigned UE ID (based on the definition of UE ID in Clause 9.3.10) has changed.
4	UE ID Removed	Triggered when a UE is released, and its UE ID is removed.

**Table 7.3.5-1: RIC Event Trigger Definition IE style 4 – Supported UE Information changes**

The detection for each UE information change configured can be based on for any UEs, or only for a certain UE or group of UEs as indicated by the *Associated UE Info* IE if included.

For each information change configured, Event Trigger Condition ID is assigned so that E2 Node can reply to Near-RT RIC in the RIC INDICATION message to inform which event(s) are the cause for triggering.

This *RIC Event Trigger Definition IE* style uses *E2SM-RC Event Trigger Definition Format 4 IE* (9.2.1.1.4).

## 7.4 Supported RIC REPORT Services

### 7.4.1 REPORT Service style list

RIC Style Type	Style Name	Style Description
1	Message copy	This style is used to report a copy of complete Network Interface or RRC message.
2	Call Process Outcome	This style is used to report the outcome of an ongoing call process.
3	E2 Node Information	This style is used to report E2 Node information, Serving Cell Configuration and Neighbour Relation related information.
4	UE Information	This style is used to report the UE related information like PDCP, RLC, MAC UE state variables and RRC UE State.

### 7.4.2 REPORT Service Style 1: Message Copy

#### 7.4.2.1 REPORT Service Style description

This **REPORT** Service style provides the complete copy of a Network Interface or RRC message to be carried as a transparent container in the *RIC Indication Message* IE.

This **REPORT** service style may also be used to report UE and E2 Node specific information associated with the Network Interface/RRC messages as provided in Clause 8.2.1 RAN Parameters. Examples include reporting of UEID to Near-RT RIC when UE attaches to the E2 Node or when the UEID changes during Xn Handover, UE events like Secondary Cell addition, Arrival of A3 Measurement Report (see Clause 8.1.5 for the list of UE events).

This **REPORT** Service style is initiated by Event Trigger style 1: Message Event.

#### 7.4.2.2 REPORT Service RIC Action Definition IE contents

The Action Definition for this service style is used to request E2 Node to report a copy of NI and/or RRC message and may be used to report UE and E2 Node specific information. The action definition indicates which related UE and E2 Node information is to be reported along with the NI or RRC message that triggers this report service.

This **REPORT** Service style uses the *E2SM-RC Action Definition Format 1 IE* (9.2.1.2.1). The supported Parameters for this format are provided in Clause 8.2.1.

#### 7.4.2.3 REPORT Service RIC Indication Header IE contents

This **REPORT** Service style uses the *E2SM-RC Indication Header Format 1 IE* (9.2.1.3.1)

#### 7.4.2.4 REPORT Service *RIC Indication Message IE* contents

The **REPORT** Service *RIC Indication Message IE* carries the complete Network Interface or RRC message as transparent containers. The *RIC Indication Message IE* may also carry UE and E2 Node specific information related to the Network Interface or RRC message as provided in Clause 8.2.1.

This **REPORT** Service style uses the *E2SM-RC Indication Message Format 1 IE* (9.2.1.4.1). The supported Parameters for this message format are provided in Clause 8.2.1.

### 7.4.3 REPORT Service Style 2: Call Process Outcome

#### 7.4.3.1 REPORT Service Style description

This **REPORT** Service style provides the outcome of a target call process related mechanism to be carried in the *RIC Indication Message IE* along with an associated *RIC Indication Header IE* providing information related event trigger conditions.

This **REPORT** Service style is initiated by Event Trigger style 2: Call Process Breakpoint.

#### 7.4.3.2 REPORT Service *RIC Action Definition IE* contents

The Action Definition for this service style is used to request an E2 Node to report call process outcome information including UE specific information. The Action Definition indicates which related UE information is to be reported related to the outcome of the event that triggers this report service.

This **REPORT** Service style uses the *E2SM-RC Action Definition Format 1 IE* (9.2.1.2.1). The supported Parameters for this message format are provided in Clause 8.2.2.

#### 7.4.3.3 REPORT Service *RIC Indication Header IE* contents

This **REPORT** Service style uses the *E2SM-RC Indication Header Format 1 IE* (9.2.1.3.1).

#### 7.4.3.4 REPORT Service *RIC Indication Message IE* contents

The **REPORT** Service *RIC Indication Message IE* carries the UE specific information as a result of call process outcome. The Parameters supporting UE specific information is provided in Clause 8.2.2.

This **REPORT** Service style uses the *E2SM-RC Indication Message Format 2 IE* (9.2.1.4.2). The supported Parameters for this message format are provided in Clause 8.2.2.

### 7.4.4 REPORT Service Style 3: E2 Node Information.

#### 7.4.4.1 REPORT Service Style description

This **REPORT** Service style provides essential RAN control related E2 Node Configuration Information that is not provided by E2AP [3]. The information is carried in the *RIC Indication Message IE* along with an associated *RIC Indication Header IE* providing information related event trigger conditions. The required information to be provided is controlled using the associated *RIC Action Definition IE* parameters.

This **REPORT** Service style provides information related to:

- Serving Cell configuration
- Neighbour Relation Information

whenever the corresponding event trigger for change in information content is satisfied. With every change in the information content of the Neighbour Relation Information, complete list of Neighbour relation table of the affected serving cell is sent to Near-RT RIC with indication on the modified information.

This **REPORT** Service style is initiated by Event Trigger style 3: E2 Node Information Change.

#### 7.4.4.2 REPORT Service *RIC Action Definition* IE contents

The Action Definition for this service style indicates the E2 Node related information requested by Near-RT RIC.

The **REPORT** Service style uses the *E2SM-RC Action Definition Format 1* IE (9.2.1.2.1). The supported Parameters for this format are provided in Clause 8.2.3.

With every change in the information content of the Neighbour Relation Information pertaining to any cell in the E2 node (event trigger), the *RIC Action Definition* IE from the Near-RT RIC instructs the E2 node to send the complete list of Neighbour relation table for the impacted cell.

#### 7.4.4.3 REPORT Service *RIC Indication Header* IE contents

This **REPORT** Service style uses the *E2SM-RC Indication Header Format 1* IE (9.2.1.3.1).

#### 7.4.4.4 REPORT Service *RIC Indication Message* IE contents

The **REPORT** Service *RIC Indication Message* IE carries the E2 node related information as subscribed by the *RIC Action Definition* IE.

This **REPORT** Service style uses the *E2SM-RC Indication Message Format 3* IE (9.2.1.4.3). The mapping of RAN parameters configured in the *RIC Action Definition* IE to the reported IEs in the *RIC Indication Message* IE Format 3 is provided in the semantics description of the IEs.

### 7.4.5 REPORT Service Style 4: UE Information

#### 7.4.5.1 REPORT Service Style description

This **REPORT** Service style provides UE related Information. The information is carried in the *RIC Indication Message* IE along with an associated *RIC Indication Header* IE providing information related event trigger conditions. The required information to be provided is controlled using the associated *RIC Action Definition* IE parameters.

This **REPORT** Service style enables the E2 Node to report on a per UE basis:

- L2 UE State variable values including
  - PDCP UE State variables
  - RLC UE State variables
  - MAC UE variables.
- L3 UE State variable values including
  - RRC State
  - UE ID Information
- UE ID change information including
  - Current UE ID
  - Old UE ID
  - NI or RRC message which triggered the UE ID change
- UE context related information

This **REPORT** Service style is initiated by [Event Trigger style 4: UE Information Change](#).

### 7.4.5.2 REPORT Service RIC Action Definition IE contents

The Action Definition for this service style indicates the set of UE information parameters to be reported when event trigger to report is satisfied.

The **REPORT** Service style uses the *E2SM-RC Action Definition Format 1 IE* (9.2.1.2.1). The supported Parameters for this message format are provided in Clause 8.2.4.

### 7.4.5.3 REPORT Service RIC Indication Header IE contents

This **REPORT** Service style uses the *E2SM-RC Indication Header Format 1 IE* (9.2.1.3.1).

### 7.4.5.4 REPORT Service RIC Indication Message IE contents

The **REPORT** Service *RIC Indication Message IE* carries the requested UE related information.

This **REPORT** Service style uses the *E2SM-RC Indication Message Format 2 IE* (9.2.1.4.2). The supported Parameters for this message format are provided in Clause 8.2.4.

## 7.5 Supported RIC INSERT Services

### 7.5.1 INSERT Service style list

RIC Style Type	Style Name	Style Description
1	Radio Bearer Control Request	Used to request modification of the configuration of Radio Bearer Control (RBC) related parameters. Belongs to Fundamental level INSERT Services.
2	Radio Resource Allocation Control Request	Used to request modification of the configuration of Radio Resource Allocation control related parameters. Belongs to Fundamental level INSERT Services.
3	Connected Mode Mobility Control Request	Used to request initiation of a connected mode mobility procedure (Handover or Conditional Handover), optionally with Dual Active Protocol Stack (DAPS), for a specific UE towards either a target cell (for HO) or a list of candidate cells (for CHO). Belongs to Fundamental level INSERT Services.
4	Radio Access Control Request	Used to request modification of radio access related functions for controlling UE access to cells. Belongs to Fundamental level INSERT Services.
5	Dual Connectivity Control Request	Used to request initiation of dual connectivity (DC) mechanisms Belongs to Fundamental level INSERT Services.
6	Carrier Aggregation Control Request	Used to request initiation of carrier aggregation (CA) mechanisms Belongs to Fundamental level INSERT Services.
7	Idle Mode Mobility Control Request	Used to request modification of idle mode mobility related functions in order to control UE re-selection of cells Belongs to Fundamental level INSERT Services.
255	Multiple Actions Control Request	Used to request multiple parallel actions of the selected fundamental level INSERT Service style(s). Belongs to Integrated level INSERT Services.

Apart from the individual set of RAN parameters associated with each INSERT Service style and INSERT Indication name as described in Clauses 7.5.2 to 7.5.8, there is also a common set of RAN parameters for all INSERT service styles as elucidated in Clause 8.3.9.

### 7.5.2 INSERT Service Style 1: Radio Bearer Control Request

#### 7.5.2.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism to initiate request to the RIC for controlling the functionalities of a radio bearer related process pertaining to a UE using the *RIC Indication Message IE* and associated *RIC Indication*

**Header IE.** The E2 node sends a *RIC Indication* message to the near-RT RIC and the ongoing call process is suspended at the E2 node until the E2 node hears back from the RIC. The optional *RIC Call Process ID* IE is used by the E2 node to match a *RIC Control Request* message to a *RIC Indication* message, following which the E2 node can resume the suspended call processing for the UE.

Applications of this service include:

- Request for DRB QoS Modification, to tune DRB level QoS related parameters to meet the QoS optimization targets.
- Request for QoS Flow (re)mapping, to adjust the mapping relationship between QoS flows and DRBs.
- Request for Logical channel (re)configuration
- Request for Radio Bearer Admission Control, to configure DRB admission control such as reject or release may be applied.
- Request for Split bearer and PDCP duplication control

This Insert style supports the following *Indication* services, each service listed below with a corresponding *Indication ID*. The RAN parameters, associated with each Insert Indication service, are listed in the sections shown below.

Indication ID	Indication Name	Insert Indication description	Associated RAN Parameters
1	DRB QoS Configuration request	To request the configuration of DRB QoS profile	8.3.2.1
2	QoS flow mapping configuration request	To request the multiplexing of QoS flows to a DRB (addition, modification, deletion)	8.3.2.2
3	Logical channel configuration request	To request the LCID configuration of a DRB	8.3.2.3
4	Radio admission control request	To request radio admission control of a UE	8.3.2.4
5	DRB termination control request	To request a change in the bearer termination point	8.3.2.5
6	DRB split ratio control request	To request the split ratio of a DRB to be controlled across its RLC entities	8.3.2.6
7	PDCP Duplication control request	To request controlling the activation or de-activation of PDCP duplication for a DRB and control/configure the number of legs or RLC entities for the DRB	8.3.2.7

### 7.5.2.2 INSERT Service *RIC Action Definition* IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 3* IE (9.2.1.2.3). This Insert style deals with the supported *Indication* services, each service with a corresponding *Indication ID* listed in Clause 7.5.2.1. The RAN parameters, associated with each Insert *RIC Indication* service, are included by the E2 node in the *RIC Indication* message. Via the *RIC Indication* message, the E2 node seeks the near-RT RIC to accept or deny the request raised by the E2 node and to accordingly set the values for the associated RAN parameters by the RIC via the control action in the ensuing *RIC Control Request* message from the RIC.

### 7.5.2.3 INSERT Service *RIC Indication Header* IE contents

This **INSERT** Service style uses *E2SM-RC Indication header Format 2* IE (9.2.1.3.2). The *RIC Indication Header* IE has the UE ID, the *Insert Service Style ID* and the corresponding *Insert Indication ID*.

### 7.5.2.4 INSERT Service *RIC Indication Message IE* contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 5 IE* (9.2.1.4.5). The *RIC Indication Message IE* includes a sequence of associated RAN parameters for which the E2 node seeks the near-RT RIC to accept/deny the request raised by the E2 node and accordingly set the values for the associated RAN parameters, via the control action in the ensuing *RIC Control Request IE*.

### 7.5.2.5 INSERT Service *RIC Call Process ID IE* contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1 IE* (9.2.1.5.1).

## 7.5.3 INSERT Service Style 2: Radio Resource Allocation Control Request

### 7.5.3.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism to initiate request to the RIC for controlling the allocation of radio resources to the UE using the *RIC Indication Message IE* and associated *RIC Indication Header IE*. The E2 node sends a *RIC Indication* message to the near-RT RIC and the ongoing call process is suspended at the E2 node until the E2 node hears back from the RIC. The optional *RIC Call Process ID IE* is used by the E2 node to match a *RIC Control Request* message to a *RIC Indication* message, following which the E2 node can resume the suspended call processing for the UE.

Applications of this service include:

- Request for Discontinuous Reception (DRX) control
- Request for Scheduling request (SR) control
- Request for Semi-Persistent Scheduling (SPS) control
- Request for Configured Grant control
- Request for Channel Quality Indicator (CQI) table
- Request for Slice level PRB quota

This Insert style supports the following *Indication* services, each service listed below with a corresponding *Indication ID*. The RAN parameters, associated with each Insert Indication service, are listed in the sections shown below.

Indication ID	Indication Name	Insert Indication description	Associated RAN Parameters
1	DRX parameter configuration request	To request the configuration of DRX parameters	8.3.3.1
2	SR periodicity configuration request	To request the configuration of SR periodicity parameters	8.3.3.2
3	SPS parameters configuration request	To request the configuration of SPS parameters	8.3.3.3
4	Configured grant control request	To request the configuration of uplink grants to the UE	8.3.3.4
5	CQI table configuration request	To request the configuration of CQI table.	8.3.3.5
6	Slice-level PRB quota request	To request setting the slice-specific PRB quota	8.3.3.6

### 7.5.3.2 INSERT Service *RIC Action Definition* IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 3* IE (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication ID* listed in Clause 7.5.3.1. The RAN parameters, associated with each Insert *Indication* service, are included by the E2 node in the *RIC Indication* message. Via the *RIC Indication* message, the E2 node seeks the near-RT RIC to accept or deny the request raised by the E2 node and to accordingly set the values for the associated RAN parameters by the RIC via the control action in the ensuing *RIC Control Request* message from the RIC.

### 7.5.3.3 INSERT Service *RIC Indication Header* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Header Format 2* IE (9.2.1.3.2). The *RIC Indication Header* IE has the UE ID, the *Insert Service Style ID* and the corresponding *Insert Indication ID*.

### 7.5.3.4 INSERT Service *RIC Indication Message* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 5* IE (9.2.1.4.5). The *RIC Indication Message* IE includes a sequence of associated RAN parameters for which the E2 node seeks the near-RT RIC to accept/deny the request raised by the E2 node and accordingly set the values for the associated RAN parameters, via the control action in the ensuing *RIC Control Request* IE.

### 7.5.3.5 INSERT Service *RIC Call Process ID* IE contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

## 7.5.4 INSERT Service Style 3: Connected Mode Mobility Control Request

### 7.5.4.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism to initiate request for controlling the handover and mobility management of the UE using the *RIC Indication Message* IE and associated *RIC Indication Header* IE. The E2 node sends a *RIC Indication* message to the near-RT RIC and the ongoing call process is suspended at the E2 node until the E2 node hears back from the RIC. The optional *RIC Call Process ID* IE is used by the E2 node to match a *RIC Control Request* message to a *RIC Indication* message, following which the E2 node can resume the suspended call processing for the UE.

Applications of this service include:

- Request for Handover (HO) initiation for a selected UE towards a target cell
- Request for Conditional handover (CHO) initiation for a selected UE towards a list of candidate cell(s)
- Request for Handover (HO) initiation with Dual Active Protocol Stack (DAPS) for a selected UE towards a target cell

This Insert style supports the following *Indication* services, each service listed below with a corresponding *Indication ID*. The RAN parameters, associated with each Insert *Indication* service, are listed in the sections shown below.

Indication ID	Indication Name	Insert Indication description	Associated RAN parameters
1	Handover Control request	To request the handover of the primary cell and subsequent secondary cell reselection	8.3.4.1
2	Conditional Handover Control request	To request the conditional handover involving target primary cells	8.3.4.2

3	DAPS (Dual Active Protocol Stack) Handover Control request	To request the dual active protocol stack handover involving the target primary cell.	8.3.4.3
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#### 7.5.4.2 INSERT Service RIC Action Definition IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 3* IE (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication ID* listed in Clause 7.5.4.1. The RAN parameters, associated with each Insert *RIC Indication* service, are included by the E2 node in the *RIC Indication* message. Via the *RIC Indication* message, the E2 node seeks the near-RT RIC to accept or deny the request raised by the E2 node and to accordingly set the values for the associated RAN parameters by the RIC via the control action in the ensuing *RIC Control Request* message from the RIC.

#### 7.5.4.3 INSERT Service RIC Indication Header IE contents

This **INSERT** Service style uses *E2SM-RC Indication Header Format 2* IE (9.2.1.3.2). The *RIC Indication Header* IE has the UE ID, the *Insert* Service Style ID and the corresponding *Insert* Indication ID.

#### 7.5.4.4 INSERT Service RIC Indication Message IE contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 5* IE (9.2.1.4.5). The *RIC Indication Message* IE includes a sequence of associated RAN parameters for which the E2 node seeks the near-RT RIC to accept/deny the request raised by the E2 node and accordingly set the values for the associated RAN parameters, via the control action in the ensuing *RIC Control Request* IE.

#### 7.5.4.5 INSERT Service RIC Call Process ID IE contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

### 7.5.5 INSERT Service Style 4: Radio Access Control Request

#### 7.5.5.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism to initiate request for controlling the radio access of the UE using the *RIC Indication Message* IE and associated *RIC Indication Header* IE. The E2 node sends a *RIC Indication* message to the near-RT RIC and the ongoing call process is suspended at the E2 node until the E2 node hears back from the RIC. The optional *RIC Call Process ID* IE is used by the E2 node to match a *RIC Control Request* message to a *RIC Indication* message, following which the E2 node can resume the suspended call processing for the UE.

Applications of this service include:

- Request for configuring RACH back-off
- Request for UE admission
- Request for RRC connection reject
- Request for RRC connection release Request for Access barring

This Insert style supports the following *Indication* services, each service listed below with a corresponding *Indication ID*. The RAN parameters, associated with each Insert Indication service, are listed in the sections shown below.

Indication ID	Indication Name	Insert Indication Description	Associated RAN Parameters
1	UE Admission Control request	To request UE admission control.	8.3.5.1
2	RACH backoff control request	To request control of RACH backoff parameters	8.3.5.2

3	Access barring control request	To request access barring configuration parameters configuration	8.3.5.3
4	RRC connection release	To request release of an RRC connection for a UE	8.3.5.4
5	RRC connection reject	To request rejection of an RRC connection for a UE	8.3.5.5

### 7.5.5.2 INSERT Service *RIC Action Definition* IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 3* IE (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication ID* listed in Clause 7.5.5.1. The RAN parameters, associated with each Insert *Indication* service, are included by the E2 node in the *RIC Indication* message. Via the *RIC Indication* message, the E2 node seeks the near-RT RIC to accept or deny the request raised by the E2 node and to accordingly set the values for the associated RAN parameters by the RIC via the control action in the ensuing *RIC Control Request* message from the RIC.

### 7.5.5.3 INSERT Service *RIC Indication Header* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Header Format 2* IE (9.2.1.3.2). The *RIC Indication Header* IE has the UE ID, the *Insert Service Style ID* and the corresponding *Insert Indication ID*.

### 7.5.5.4 INSERT Service *RIC Indication Message* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 5* IE (9.2.1.4.5). The *RIC Indication Message* IE includes a sequence of associated RAN parameters for which the E2 node seeks the near-RT RIC to accept/deny the request raised by the E2 node and accordingly set the values for the associated RAN parameters, via the control action in the ensuing *RIC Control Request* IE.

### 7.5.5.5 INSERT Service *RIC Call Process ID* IE contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

## 7.5.6 INSERT Service Style 5: Dual Connectivity Control Request

### 7.5.6.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism to initiate request for controlling the dual connectivity of the UE using the *RIC Indication Message* IE and associated *RIC Indication Header* IE. The E2 node sends a *RIC Indication* message to the near-RT RIC and the ongoing call process is suspended at the E2 node until the E2 node hears back from the RIC. The optional *RIC Call Process ID* IE is used by the E2 node to match a *RIC Control Request* message to a *RIC Indication* message, following which the E2 node can resume the suspended call processing for the UE.

Applications of this service include:

- Request for Dual connectivity (EN-DC, MR-DC or NR-NR DC) initiation for a selected UE towards a target secondary cell (PScell)
- Request for Secondary cell change for a selected UE towards a target secondary cell (PScell)
- Request for Dual connectivity (EN-DC, MR-DC or NR-NR DC) modification for a selected UE
- Request for Dual connectivity (EN-DC, MR-DC or NR-NR DC) release initiation for a selected UE
- Request for Change of bearer termination point (MN or SN) and/or bearer types for a selected UE

This Insert style supports the following *Indication* services, each service listed below with a corresponding *Indication ID*. The RAN parameters, associated with each Insert *Indication* service, are listed in the sections shown below.

Indication ID	Indication Name	Insert Indication Description	Associated RAN parameters
1	DC Secondary Node Addition Control request	To request secondary node addition for dual connectivity	8.3.6.1
2	DC Secondary Node Modification and Release Control request	To request modification of secondary node for DC	8.3.6.2
3	DC PSCell Change control request	To request PSCell change of a UE within a secondary node or to another secondary node	8.3.6.3
4	DC Secondary Node Change Control request	To request changing the secondary node of a UE for DC	8.3.6.4
5	DC DRB termination control request	To request a change in the bearer termination point	8.3.2.5

### 7.5.6.2 INSERT Service *RIC Action Definition* IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 3* IE (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication ID* listed in Clause 7.5.6.1. The RAN parameters, associated with each Insert *Indication* service, are included by the E2 node in the *RIC Indication* message. Via the *RIC Indication* message, the E2 node seeks the near-RT RIC to accept or deny the request raised by the E2 node and to accordingly set the values for the associated RAN parameters by the RIC via the control action in the ensuing *RIC Control Request* message from the RIC.

### 7.5.6.3 INSERT Service *RIC Indication Header* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Header Format 2* IE (9.2.1.3.2). The *RIC Indication Header* IE has the UE ID, the *Insert Service Style ID* and the corresponding *Insert Indication ID*.

### 7.5.6.4 INSERT Service *RIC Indication Message* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 5* IE (9.2.1.4.5). The *RIC Indication Message* IE includes a sequence of associated RAN parameters for which the E2 node seeks the near-RT RIC to accept/deny the request raised by the E2 node and accordingly set the values for the associated RAN parameters, via the control action in the ensuing *RIC Control Request* IE.

### 7.5.6.5 INSERT Service *RIC Call Process ID* IE contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

## 7.5.7 INSERT Service Style 6: Carrier Aggregation Control Request

### 7.5.7.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism to initiate request for controlling the carrier aggregation of the UE using the *RIC Indication Message* IE and associated *RIC Indication Header* IE. The E2 node sends a *RIC Indication* message to the near-RT RIC and the ongoing call process is suspended at the E2 node until the E2 node hears back from the RIC. The optional *RIC Call Process ID* IE is used by the E2 node to match a *RIC Control Request* message to a *RIC Indication* message, following which the E2 node can resume the suspended call processing for the UE.

Applications of this service include:

- Request for Carrier Aggregation (CA) initiation for a selected UE towards a target secondary cell or cells
- Request for Carrier Aggregation (CA) modification for a selected UE, or Secondary cell change for a selected UE towards a target secondary cell or cells
- Request for Carrier Aggregation (CA) release initiation for a selected UE

This Insert style supports the following *Indication* services, each service listed below with a corresponding *Indication ID*. The RAN parameters, associated with each Insert Indication service, are listed in the sections shown below.

Indication ID	Indication Name	Insert Indication Description	Associated RAN parameters
1	CA Secondary Cell Addition Control request	To request control of the secondary cell addition for a UE	8.3.7.1
2	CA Secondary Cell Modification and Release Control request	To request control of the modification and release of secondary cells for a UE	8.3.7.2

### 7.5.7.2 INSERT Service *RIC Action Definition* IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 3* IE (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication ID* listed in Clause 7.5.7.1. The RAN parameters, associated with each Insert *Indication* service, are included by the E2 node in the *RIC Indication* message. Via the *RIC Indication* message, the E2 node seeks the near-RT RIC to accept or deny the request raised by the E2 node and to accordingly, set the values for the associated RAN parameters by the RIC via the control action in the ensuing *RIC Control Request* message from the RIC.

### 7.5.7.3 INSERT Service *RIC Indication Header* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Header Format 2* IE (9.2.1.3.2). The *RIC Indication Header* IE has the UE ID, the *Insert* Service Style ID and the corresponding *Insert* Indication ID.

### 7.5.7.4 INSERT Service *RIC Indication Message* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 5* IE (9.2.1.4.5). The *RIC Indication Message* IE includes a sequence of associated RAN parameters for which the E2 node seeks the near-RT RIC to accept/deny the request raised by the E2 node and accordingly set the values for the associated RAN parameters, via the control action in the ensuing *RIC Control Request* IE.

### 7.5.7.5 INSERT Service *RIC Call Process ID* IE contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

## 7.5.8 INSERT Service Style 7: Idle Mode Mobility Control Request

### 7.5.8.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism to initiate request for controlling the idle mode mobility of the UE using the *RIC Indication Message* IE and associated *RIC Indication Header* IE. The E2 node sends a *RIC Indication* message to the near-RT RIC and the ongoing call process is suspended at the E2 node until the E2 node hears back from the RIC. The optional *RIC Call Process ID* IE is used by the E2 node to match a *RIC Control Request* message to a *RIC Indication* message, following which the E2 node can resume the suspended call processing for the UE.

Applications of this service include:

- Intra-frequency, inter-frequency, inter-RAT cell reselection priority

- Idle timers

This Insert style supports the following *Indication* services, each service listed below with a corresponding *Indication ID*. The RAN parameters, associated with each Insert Indication service, are listed in the sections shown below.

Indication ID	Indication Name	Insert Indication Description	Associated RAN parameters
1	Cell re-selection priority request	To request assignment of cell re-selection priorities for a UE during idle mode (RRC_IDLE)	8.3.8.1

### 7.5.8.2 INSERT Service *RIC Action Definition* IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 3* IE (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication ID* listed in Clause 7.5.8.1. The RAN parameters, associated with each Insert *Indication* service, are included by the E2 node in the *RIC Indication* message. Via the *RIC Indication* message, the E2 node seeks the near-RT RIC to accept or deny the request raised by the E2 node and to accordingly, set the values for the associated RAN parameters by the RIC via the control action in the ensuing *RIC Control Request* message from the RIC.

### 7.5.8.3 INSERT Service *RIC Indication Header* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Header Format 2* IE (9.2.1.3.2). The *RIC Indication Header* IE has the UE ID, the *Insert Service Style ID* and the corresponding *Insert Indication ID*.

### 7.5.8.4 INSERT Service *RIC Indication Message* IE contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 5* IE (9.2.1.4.5). The *RIC Indication Message* IE includes a sequence of associated RAN parameters for which the E2 node seeks the near-RT RIC to accept/deny the request raised by the E2 node or accordingly set the values for the associated RAN parameters, via the control action in the ensuing *RIC Control Request* IE.

### 7.5.8.5 INSERT Service *RIC Call Process ID* IE contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

## 7.5.9 INSERT Service Style 255: Multiple Actions Control Request

### 7.5.9.1 INSERT Service Style description

This **INSERT** Service style provides a mechanism which contains multiple Insert Indication actions of the selected fundamental level **INSERT** Service style(s), in order to initiate request to the Near-RT RIC for controlling multiple actions of the supporting functionalities related to the corresponding fundamental level **CONTROL** Service style(s). If at least one of the embedded Insert Indications is not admitted by E2 node, then the E2 node shall declare the **INSERT** Action as failed.

### 7.5.9.2 INSERT Service *RIC Action Definition* IE contents

This **INSERT** Service style uses the *E2SM-RC Action Definition Format 4* IE (9.2.1.2.4).

For each Insert Indication action, the corresponding *Insert Indication ID* IE and the associated RAN parameters follow the definitions of the selected fundamental level **INSERT** Service style indicated by the *Requested Insert Style* IE.

### 7.5.9.3 INSERT Service RIC Indication Header IE contents

This **INSERT** Service style uses *E2SM-RC Indication Header Format 3 IE* (9.2.1.3.3).

The *RIC Indication Header IE* may contain the *UE ID IE*, to indicate to the Near-RT RIC that this **INSERT** indication is only for that specific UE.

### 7.5.9.4 INSERT Service RIC Indication Message IE contents

This **INSERT** Service style uses *E2SM-RC Indication Message Format 6 IE* (9.2.1.4.6).

For each Insert Indication action, the corresponding *Insert Indication ID IE* and the associated RAN parameters follow the definitions of the selected fundamental level **INSERT** Service style indicated by the *Indicated Insert Style IE*.

### 7.5.9.5 INSERT Service RIC Call Process ID IE contents

This **INSERT** Service style uses *E2SM-RC Call Process ID Format 1 IE* (9.2.1.5.1).

## 7.6 Supported RIC CONTROL Services

### 7.6.1 CONTROL Service Style Types

RIC Style Type	Style Name	Style Description
1	Radio Bearer control	Used to modify the configuration the Radio Bearer Control (RBC) related parameters and/or behaviours at the E2 Node for a specific UE or a UE group. Belongs to Fundamental level CONTROL Services.
2	Radio resource allocation control	Used to modify the configuration the Radio Resource Allocation control related parameters and/or behaviours at the E2 Node for a specific E2 Node, cell, slice, UE and/or QoS Belongs to Fundamental level CONTROL Services.
3	Connected mode mobility control	Used to initiate a connected mode mobility procedure (Handover or Conditional Handover), optionally with Dual Active Protocol Stack (DAPS), for a specific UE towards either a target cell (for HO) or a list of candidate cells (for CHO) Belongs to Fundamental level CONTROL Services.
4	Radio access control	Used to modify Radio access related functions used to control UE access to cells Belongs to Fundamental level CONTROL Services.
5	Dual connectivity (DC) control	Used to initiate Dual connectivity (DC) mechanisms Belongs to Fundamental level CONTROL Services.
6	Carrier Aggregation (CA) control	Used to initiate Carrier Aggregation (CA) mechanisms Belongs to Fundamental level CONTROL Services.
7	Idle mode mobility control	Used to modify Idle mode mobility related functions used to control UE reselection of cells Belongs to Fundamental level CONTROL Services.
8	UE identification, information and assignment	Used for <i>Explicit UE list</i> assignment, UE information report generation and to complete UE identification. These services are used to support other RIC services. Belongs to Fundamental level CONTROL Services.
9	Measurement Reporting Configuration control	Used to control the measurement report configuration for a given UE or a group of UEs.
10	Beamforming Configuration control	Used to control beamforming configuration for a specific UE.
255	Multiple Actions Control	Used for multiple actions of the selected fundamental level CONTROL Service style(s). Belongs to integrated level CONTROL Services.

Each of the Control Service styles 1-10 listed above points to adopt the following common features:

- Control Action ID: The index ID for the individual control action under a given Control Service style.
- Control Action Name: Indicates the functionality of the E2 node which is controlled by Near-RT RIC
- Control Action Description: Describes the control action and functionality of the receiving E2 Node.
- Associated RAN parameters: Identifies the RAN parameters to be controlled by Near-RT RIC pertaining to the given control action and used in the optional RIC Control Outcome to carry information.

The Control Service style 255 supports multiple parallel actions configured per *RIC Control Request* message by reusing the control actions and the associated RAN parameters defined in the selected fundamental level Control Service style(s).

The details of the individual Control Service styles are provided in subsequent sections.

The CONTROL Service supports UE-specific control actions and UE group-specific control actions. In the case of a UE group-based control action, the control action is defined for a group of UEs, and the individual entities of each UE (such as DRBs, QoS flows, etc.) in the group that match the entity filter condition, shall be subject to the control action.

## 7.6.2 CONTROL Service Style 1: Radio Bearer Control

### 7.6.2.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate or resume a radio bearer control related process using the *RIC Control Message* IE and associated *RIC Control Header* IE and the optional *RIC Call Process ID* IE used when resuming a call process following a previous INSERT service. The corresponding INSERT service is service style 1 covered in Clause 7.5.2.

Applications of this service include:

- DRB QoS Modification, to tune DRB level QoS related parameters to meet the QoS optimization targets.
- QoS Flow (re)mapping, to adjust the mapping relationship between QoS flows and DRBs.
- Logical channel (re)configuration
- Radio Bearer Admission Control, to configure DRB admission control such as reject or release may be applied
- Split bearer and PDCP duplication control

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action description	Is UE group-based control action allowed	Associated RAN Parameters
1	DRB QoS Configuration	To control the configuration of the QoS profile of a DRB or a set of DRBs	YES	8.4.2.1
2	QoS flow mapping configuration	To control the multiplexing of QoS flows to a DRB (addition, modification, deletion)	FFS	8.4.2.2
3	Logical channel configuration	To control the LCID configuration of a DRB or a set of DRBs	YES	8.4.2.3
4	Radio admission control	To control radio admission of a UE	FFS	8.4.2.4
5	DRB termination control	To control the change in bearer termination point	FFS	8.4.2.5
6	DRB split ratio control	To control the split ratio of a DRB across its RLC entities	FFS	8.4.2.6
7	PDCP Duplication control	To control activation or de-activation of PDCP duplication for a DRB or a set of DRBs, and control/configure the number of legs or RLC entities for the DRB(s)	YES	8.4.2.7

### 7.6.2.2 CONTROL Service RIC Control Header IE contents

This **CONTROL** Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID*, the *Control Action ID* IE and the *RIC Control Decision* IE that indicates whether the RIC accepts or rejects the INDICATION request from the previous incoming INSERT indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

For UE group-based CONTROL action, this CONTROL style uses the *E2SM-RC Control Header Format 3* IE (9.2.1.6.3), where the *RIC Control Header* IE has the *UE Group ID* IE for identifying the UE group, the *UE Group Definition* IE for defining the UE group, along with the *RIC Style Type* IE and the *Control Action ID* IE.

### 7.6.2.3 CONTROL Service RIC Control Message IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style, controlled by the near-RT RIC along with the values for these parameters, as set by the RIC.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

If there is a previous INSERT Indication Request to the RIC, then the corresponding Control Action ID used by the RIC for the ensuing CONTROL Request message is the one that matches the Insert Indication ID, among the ones provided in the table shown in Clause 7.6.2.1. It is to be noted that the control action “Radio admission control” (corresponding to control action ID 4) is used only as a response to an incoming INSERT indication with the corresponding service style and indication request ID and cannot be used asynchronously without a previous INSERT indication.

For UE group-based CONTROL action, this CONTROL style uses the *E2SM-RC Control Message Format 3* IE (9.2.1.7.3). The *RIC Control Message* IE includes the list of filter definitions for identifying the relevant RAN entities of the UE group, given by the *Entity Filter Definition* IE in the *List of entity filters* IE, along with the identifier of the entity filter given by the *Entity Filter ID* IE, for which the control action is applicable. The sequence of RAN parameters controlled by the Near-RT RIC for the entities of the UEs in the group, corresponding to each entity filter, is given by the *List of RAN control parameters for the matching entities* IE.

### 7.6.2.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service *RIC Call Process ID* IE contains identifier used by the Near-RT RIC to allow the RAN Function to match the outgoing **INSERT** Service message with a subsequent incoming **CONTROL** Service message.

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

### 7.6.2.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** Service *RIC Control Outcome* IE contains a transparent container that is used to carry the outcome of processing the incoming *RIC Control Request* message. However, this does not reflect the outcome of the call processing upon receiving the message.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 1* IE (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.3 CONTROL Service Style 2: Radio Resource Allocation Control

### 7.6.3.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate or resume a radio resource allocation control related process using the *RIC Control Message* IE and associated *RIC Control Header* IE and the optional *RIC Call Process ID* IE used when resuming a call process following a previous **INSERT** service. The corresponding **INSERT** service is service style 2 covered in Clause 7.5.3.

Applications of this service include:

- Discontinuous Reception (DRX) control
- Scheduling request (SR) control
- Semi-Persistent Scheduling (SPS) control
- Configured Grant control
- Channel State Information (CSI) report configuration control
- Slice level PRB quota
- Sounding Reference Signal (SRS) configuration control
- CSI resource configuration control
- DMRS-Downlink configuration control
- Uplink power control

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action description	Associated RAN Parameters
1	DRX parameter configuration	To control the configuration of DRX parameters	8.4.3.1
2	SR periodicity configuration	To control the configuration of SR periodicity parameters	8.4.3.2
3	SPS parameters configuration	To control the configuration of SPS parameters	8.4.3.3
4	Configured grant control	To control the configuration of uplink grants to the UE	8.4.3.4
5	CSI reports configuration	To control the configuration of CSI reports.	8.4.3.5
6	Slice-level PRB quota	To control the radio resource management policy for slice-specific PRB quota allocation	8.4.3.6
7	DMRS-Downlink configuration	To control the configuration of DMRS for PDSCH	8.4.3.7
8	SRS Configuration	To control the configuration of the SRS transmissions	8.4.3.8
9	CSI Resource Configuration	To control the configuration of the CSI resources	8.4.3.9
10	Uplink power control	To control the transmit power in uplink	8.4.3.10

### 7.6.3.2 CONTROL Service RIC Control Header IE contents

This **CONTROL** Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID*, the *Control Action ID* IE and the *RIC Control Decision* IE that indicates whether the RIC accepts or rejects the INDICATION request from the previous incoming INSERT indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

### 7.6.3.3 CONTROL Service RIC Control Message IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style, controlled by the near-RT RIC along with the values for these parameters, as set by the RIC.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

If there is a previous INSERT Indication Request to the RIC, then the corresponding Control Action ID used by the RIC for the ensuing CONTROL Request message is the one that matches the Insert Indication ID, among the ones provided in the table shown in Clause 7.6.3.1.

### 7.6.3.4 CONTROL Service RIC Call Process ID IE contents

This **CONTROL** Service *RIC Call Process ID* IE contains identifier used by the Near-RT RIC to allow the RAN Function to match the outgoing **INSERT** Service message with a subsequent incoming **CONTROL** Service message.

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

### 7.6.3.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** Service *RIC Control Outcome* IE contains a transparent container that is used to carry the outcome of processing the incoming *RIC Control Request* message. However, this does not reflect the outcome of the call processing upon receiving the message.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 1* IE (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.4 CONTROL Service Style 3: Connected Mode Mobility Control

### 7.6.4.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate or resume a connected mode mobility control related process using the *RIC Control Message* IE and associated *RIC Control Header* IE and the optional *RIC Call Process ID* IE used when resuming a call process following a previous INSERT service. The corresponding INSERT service is service style 3 covered in Clause 7.5.4.

Applications of this service include:

- Handover (HO) initiation for a selected UE towards a target cell
- Conditional handover (CHO) initiation for a selected UE towards a list of candidate cell(s)
- Handover (HO) initiation with Dual Active Protocol Stack (DAPS) for a selected UE towards a target cell

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action description	Associated RAN parameters
1	Handover Control	To control the handover of the primary cell and subsequent secondary cell reselection	8.4.4.1
2	Conditional Handover Control	To control the conditional handover involving target primary cells	8.4.4.2
3	DAPS (Dual Active Protocol Stack) Handover Control	To control the DAPS handover of the UE between source cell and target cell	8.4.4.3

### 7.6.4.2 CONTROL Service *RIC Control Header* IE contents

This **CONTROL** Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID*, the *Control Action ID* IE and the *RIC Control Decision* IE that indicates whether the RIC accepts or rejects the INDICATION request from the previous incoming INSERT indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

### 7.6.4.3 CONTROL Service *RIC Control Message* IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style, controlled by the near-RT RIC along with the values for these parameters, as set by the RIC.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

If there is a previous **INSERT** Indication Request to the RIC, then the corresponding Control Action ID used by the RIC for the ensuing **CONTROL** Request message is the one that matches the Insert Indication ID, among the ones provided in the table shown in Clause 7.6.4.1.

### 7.6.4.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service *RIC Call Process ID* IE contains identifier used by the Near-RT RIC to allow the RAN Function to match the outgoing **INSERT** Service message with a subsequent incoming **CONTROL** Service message.

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

### 7.6.4.5 CONTROL Service *RIC Control Outcome* IE content

This **CONTROL** Service *RIC Control Outcome* IE contains a transparent container that is used to carry the outcome of processing the incoming *RIC Control Request* message. However, this does not reflect the outcome of the call processing upon receiving the message.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 1* IE (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.5 CONTROL Service Style 4: Radio Access Control

### 7.6.5.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate or resume a radio access control related process using the *RIC Control Message* IE and associated *RIC Control Header* IE and the optional *RIC Call Process ID* IE used when resuming a call process following a previous **INSERT** service. The corresponding **INSERT** service is service style 4 covered in Clause 7.5.5.

Applications of this service include:

- RACH back-off
- RRC connection reject
- RRC connection release
- Access barring
- UE admission

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action Description	Associated RAN Parameters
1	UE Admission Control	To control UE admission.	8.4.5.1
2	RACH backoff control	To control RACH backoff parameters	8.4.5.2
3	Access barring control	To control access barring configuration parameters	8.4.5.3
4	RRC Connection Release control	To control release of RRC connection of the UE	8.4.5.4
5	RRC Connection Reject control	To reject RRC connection request of the UE	8.4.5.5

### 7.6.5.2 CONTROL Service *RIC Control Header* IE contents

This **CONTROL** Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID*, the *Control Action ID* IE and the *RIC Control Decision* IE that indicates whether the RIC accepts or rejects the INDICATION request from the previous incoming INSERT indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

### 7.6.5.3 CONTROL Service *RIC Control Message* IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style, controlled by the near-RT RIC along with the values for these parameters, as set by the RIC.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

If there is a previous INSERT Indication Request to the RIC, then the corresponding Control Action ID used by the RIC for the ensuing CONTROL Request message is the one that matches the Insert Indication ID, among the ones provided in the table shown in Clause 7.6.5.1. However, the control action “RRC Connection Reject control” (corresponding to control action ID 5) can also be used to handle an incoming INSERT Indication Request corresponding to service style 4 that uses Indication request ID 1 (that corresponds to UE Admission Control Request). It is also to be noted that the control action “UE admission control” (corresponding to control action ID 1) is used only as a response to an incoming INSERT indication with the corresponding service style and indication request ID and cannot be used asynchronously without a previous INSERT indication.

### 7.6.5.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service *RIC Call Process ID* IE contains identifier used by the Near-RT RIC to allow the RAN Function to match the outgoing **INSERT** Service message with a subsequent incoming **CONTROL** Service message.

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

### 7.6.5.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** Service *RIC Control Outcome* IE contains a transparent container that is used to carry the outcome of processing the incoming *RIC Control Request* message. However, this does not reflect the outcome of the call processing upon receiving the message.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 1* IE (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.6 CONTROL Service Style 5: Dual Connectivity Control

### 7.6.6.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate or resume a dual connectivity control related process using the *RIC Control Message* IE and associated *RIC Control Header* IE and the optional *RIC Call Process ID* IE used when resuming a call process following a previous INSERT service. The corresponding INSERT service is service style 5 covered in Clause 7.5.6.

Applications of this service include:

- Dual connectivity (EN-DC, MR-DC or NR-NR DC) initiation for a selected UE towards a target secondary cell (PScell)
- Secondary cell change for a selected UE towards a target secondary cell (PScell)
- Dual connectivity (EN-DC, MR-DC or NR-NR DC) modification for a selected UE
- Dual connectivity (EN-DC, MR-DC or NR-NR DC) release initiation for a selected UE
- Change of bearer termination point (MN or SN) and/or bearer types for a selected UE

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action Description	Associated RAN parameters
1	DC Secondary Node Addition Control	To control secondary node addition for dual connectivity	8.4.6.1
2	DC Secondary Node Modification and release Control	To control modification and release of secondary node for DC	8.4.6.2
3	DC PSCell Change control	To control PSCell change of a UE within a secondary node or to another secondary node	8.4.6.3
4	DC Secondary Node Change Control	To control changing the secondary node of a UE for DC	8.4.6.4

### 7.6.6.2 CONTROL Service *RIC Control Header* IE contents

This **CONTROL** Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID*, the *Control Action ID* IE and the *RIC Control Decision* IE that indicates whether the RIC accepts or rejects the INDICATION request from the previous incoming INSERT indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

### 7.6.6.3 CONTROL Service *RIC Control Message* IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style, controlled by the near-RT RIC along with the values for these parameters, as set by the RIC.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

If there is a previous **INSERT** Indication Request to the RIC, then the corresponding Control Action ID used by the RIC for the ensuing **CONTROL** Request message is the one that matches the Insert Indication ID, among the ones provided in the table shown in Clause 7.6.6.1.

### 7.6.6.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service *RIC Call Process ID* IE contains identifier used by the Near-RT RIC to allow the RAN Function to match the outgoing **INSERT** Service message with a subsequent incoming **CONTROL** Service message.

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

### 7.6.6.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** Service *RIC Control Outcome* IE contains a transparent container that is used to carry the outcome of processing the incoming *RIC Control Request* message. However, this does not reflect the outcome of the call processing upon receiving the message.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 1* IE (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.7 CONTROL Service Style 6: Carrier Aggregation Control

### 7.6.7.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate or resume a carrier aggregation control related process using the *RIC Control Message* IE and associated *RIC Control Header* IE and the optional *RIC Call Process ID* IE used when resuming a call process following a previous **INSERT** service. The corresponding **INSERT** service is service style 6 covered in Clause 7.5.7.

Applications of this service include:

- Carrier Aggregation (CA) initiation for a selected UE towards a target secondary cell or cells
- Secondary cell change for a selected UE towards a target secondary cell or cells
- Carrier Aggregation (CA) modification for a selected UE
- Carrier Aggregation (CA) release initiation for a selected UE

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action Description	Associated RAN parameters
1	CA Secondary Cell Addition Control	To control secondary cell addition for a UE	8.4.7.1
2	CA Secondary Cell Modification Control	To control modification and release of secondary cells for a UE	8.4.7.2

#### 7.6.7.2 CONTROL Service RIC Control Header IE contents

This **CONTROL** Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID*, the *Control Action ID* IE and the *RIC Control Decision* IE that indicates whether the RIC accepts or rejects the INDICATION request from the previous incoming INSERT indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

#### 7.6.7.3 CONTROL Service RIC Control Message IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style, controlled by the near-RT RIC along with the values for these parameters, as set by the RIC.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

If there is a previous INSERT Indication Request to the RIC, then the corresponding Control Action ID used by the RIC for the ensuing CONTROL Request message is the one that matches the Insert Indication ID, among the ones provided in the table shown in Clause 7.6.7.1.

#### 7.6.7.4 CONTROL Service RIC Call Process ID IE contents

This **CONTROL** Service *RIC Call Process ID* IE contains identifier used by the Near-RT RIC to allow the RAN Function to match the outgoing **INSERT** Service message with a subsequent incoming **CONTROL** Service message.

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

#### 7.6.7.5 CONTROL Service RIC Control Outcome IE contents

This **CONTROL** Service *RIC Control Outcome* IE contains a transparent container that is used to carry the outcome of processing the incoming *RIC Control Request* message. However, this does not reflect the outcome of the call processing upon receiving the message.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 1* IE (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.8 CONTROL Service Style 7: Idle Mode Mobility Control

### 7.6.8.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate or resume a idle mode mobility control related process using the *RIC Control Message* IE and associated *RIC Control Header* IE and the optional *RIC Call Process ID* IE used when resuming a call process following a previous **INSERT** service. The corresponding **INSERT** service is service style 6 covered in Clause 7.5.7.

Applications of this service include:

- Intra-frequency, inter-frequency, inter-RAT cell reselection priority
- Idle timers

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action Description	Associated RAN parameters
1	Cell re-selection priority control	To assign cell re-selection priorities for a UE during idle mode (RRC_IDLE)	8.4.8.1

### 7.6.8.2 CONTROL Service *RIC Control Header* IE contents

This **CONTROL** Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID*, the *Control Action ID* IE and the *RIC Control Decision* IE that indicates whether the RIC accepts or rejects the INDICATION request from the previous incoming **INSERT** indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

### 7.6.8.3 CONTROL Service *RIC Control Message* IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style, controlled by the near-RT RIC along with the values for these parameters, as set by the RIC.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1)

If there is a previous **INSERT** Indication Request to the RIC, then the corresponding Control Action ID used by the RIC for the ensuing **CONTROL** Request message is the one that matches the Insert Indication ID, among the ones provided in the table shown in Clause 7.6.8.1.

### 7.6.8.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service *RIC Call Process ID* IE contains identifier used by the Near-RT RIC to allow the RAN Function to match the outgoing **INSERT** Service message with a subsequent incoming **CONTROL** Service message.

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

### 7.6.8.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** Service *RIC Control Outcome* IE contains a transparent container that is used to carry the outcome of processing the incoming *RIC Control Request* message. However, this does not reflect the outcome of the call processing upon receiving the message.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 1* IE (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.9 CONTROL Service Style 8: UE information and assignment

### 7.6.9.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to both directly and indirectly monitor and control UE information and to add or remove explicit UE assignments to Explicit UE lists.

Applications of this service include:

- UE to Explicit UE list assignment command: Used to Add or Remove the nominated UE to the *Explicit UE list* name, also used to request list of supported *Explicit UE list*
- UE information request: Used to obtain UE information including list of *Explicit UE List* assignments
- UE identification request: Used to complete UE identification with *Partial UE ID* carried in *RIC Control Header IE*

The supported RAN control actions and the corresponding RAN parameters are as follows.

Control Action ID	Control Action Name	Control Action Description	RAN Parameter assignment
1	UE to Explicit UE list assignment command	- To modify (add, remove, change) the assignment of a target UE to an Explicit UE list and send list of supported <i>Explicit UE list</i>	8.4.9.1
2	UE information request	- To provide information on a UE (including list of assigned <i>Explicit UE List</i> )	8.4.9.2
3	UE identification request	- To complete UE identification about a target UE	8.4.9.3

### 7.6.9.2 CONTROL Service *RIC Control Header IE* contents

This **CONTROL** Service *RIC Control Header IE* contains the *UE ID IE*, *RIC Style Type IE* and *Control Action ID IE*. There is no previous INSERT Indication request from the E2 node for this service style.

Note that for RIC Action ID =1 "UE to Explicit UE list assignment command", the *UE ID IE* in the *RIC Control Header IE* shall be ignored when Assignment command=3 "Send list of supported Explicit UE list" (see clause 8.4.9.1).

This **CONTROL** style uses:

- For the case of Control Action ID =1 "UE to Explicit UE list assignment command" and Control Action ID =2 "UE information request", *E2SM-RC Control Header Format 1 IE* (9.2.1.6.1) to be used to identify a specific UE.
- For the case of Control Action 3 "UE identification request", *E2SM-RC Control Header Format 4 IE* (9.2.1.6.4) to be used to identify one or more UE matching a Partial UE ID.

### 7.6.9.3 CONTROL Service *RIC Control Message IE* contents

This **CONTROL** Service *RIC Control Message IE* contains a list of RAN Parameters used to support the information list of Control actions shown in Clause 7.6.9.1.

This **CONTROL** style uses:

- For the case of Control Action = 1 "UE to Explicit UE list assignment command", E2SM-RC Control Message Format 1 IE (9.2.1.7.1), to be used to carry a sequence of RAN Parameters with values.
- For the case of Control Action = 2 "UE information request", *E2SM-RC Control Message Format 4 IE* (9.2.1.7.4), to be used to carry of sequence of RAN Parameter Definitions.
- For the case of Control Action = 3 "UE identification request", *E2SM-RC Control Message Format 5 IE* (9.2.1.7.5) containing no information, to be used to satisfy E2AP requirements for a mandatory *RIC Control Message IE*.

### 7.6.9.4 CONTROL Service *RIC Call Process ID IE* contents

This **CONTROL** Service *RIC Call Process ID IE* is not supported for this **CONTROL** service style.

### 7.6.9.5 CONTROL Service *RIC Control Outcome IE* contents

This **CONTROL** Service *RIC Control Outcome IE* contains a list of RAN Parameters and is used to carry information concerning the outcome of executing the RIC Control Request.

Control Action ID	Control Action Name	Expected information	RAN Parameter assignment
1	UE to Explicit UE list assignment command	Success case: - not used (for add/remove/change assignment commands) - list of supported Explicit UE list (for assignment command =3)  Failure case: - Failure Cause	8.4.9.1
2	UE Information request	Success case: Requested UE information  Failure case: UE not known error	8.4.9.2
3	UE identification request	Success case: List of UE ID matching partial UE ID  Failure case: UE not known error	8.4.9.3

This **CONTROL** style uses *E2SM-RC Control Outcome Format 3 IE* (9.2.1.8.3).

## 7.6.10 CONTROL Service Style 255: Multiple Actions Control

### 7.6.10.1 CONTROL Service Style description

This **CONTROL** Service style provides a mechanism to initiate multiple control actions of the selected fundamental level **CONTROL** Service style(s) that should be processed in an integrated manner by the E2 Node, i.e. the RIC Control procedure is considered failed if at least one of the indicated control actions is unsuccessfully executed, and RIC CONTROL FAILURE message shall be sent containing the RIC Control Outcome for failed Control Action.

### 7.6.10.2 CONTROL Service *RIC Control Header IE* contents

This **CONTROL** style uses *E2SM-RC Control Header Format 2 IE* (9.2.1.6.2).

The *RIC Indication Header* IE may contain the *UE ID* IE to indicate to the E2 Node that this control request is only for that specific UE. The *RIC Control Decision* IE may also be included to indicate to the E2 Node whether the Near-RT RIC accepts or rejects the INDICATION request from the previous incoming INSERT indication, if any (with matching *RAN Call Process ID* IE), from the E2 node.

### 7.6.10.3 CONTROL Service *RIC Control Message* IE contents

This **CONTROL** style uses *E2SM-RC Control Message Format 2* IE (9.2.1.7.2).

The RAN control actions and the corresponding RAN parameters under a fundamental level Control Service style contained in the *RIC Control Message* IE follows the definitions of the indicated Control Service style.

If this control request is sent as a response to a previous INSERT indication from the E2 node, then the *Control Action ID* IE in the *RIC Control Message* IE is set in accordance with the triggered Insert Indication ID.

### 7.6.10.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service style uses *E2SM-RC Call Process ID Format 1* IE (9.2.1.5.1).

The optional *RIC Call Process ID* IE is used when resuming a call process following a previous INSERT indication from the E2 Node.

### 7.6.10.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** style uses *E2SM-RC Control Outcome Format 2* IE (9.2.1.8.2).

For each control action indicated by the *Control Action ID* IE, the associated RAN parameters are used to carry the corresponding processing outcome.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>
2	Cause	OCTET STRING	FFS

## 7.6.11 CONTROL Service Style 9: Measurement Reporting Configuration Control

### 7.6.11.1 CONTROL Service Style description

This CONTROL Service style provides a mechanism to add, modify or delete measurement report configuration for the UE to the network using the *RIC Control Message* IE and the *RIC Control Header* IE.

Applications of this service include:

- Add configuration of measurement objects, reporting objects, measurement gaps, etc. for UE reporting, pertaining to a given UE or a group of UEs
- Modify configuration of measurement objects, reporting objects, measurement gaps, etc. for UE reporting, pertaining to a given UE or a group of UEs
- Delete configuration of measurement objects, reporting objects, measurement gaps, etc. for UE reporting, pertaining to a given UE or a group of UEs

The supported RAN control actions and the corresponding RAN parameters are as follows:

Control Action ID	Control Action Name	Control Action description	Is UE group-based control action allowed	Associated RAN Parameters
1	Add MR Configuration	To add configuration of measurement objects, reporting objects, measurement gaps for a given UE or a group of UEs	YES	8.4.10.1
2	Modify MR Configuration	To modify configuration of measurement objects, reporting objects, measurement gaps for a given UE or a group of UEs	YES	8.4.10.2
3	Delete MR Configuration	To delete configuration of measurement objects, reporting objects, measurement gaps for a given UE or a group of UEs	YES	8.4.10.3

### 7.6.11.2 CONTROL Service *RIC Control Header* IE contents

The CONTROL Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID* IE, the *Control Action ID* IE. The *RIC Control Decision* IE for this service style is currently not supported for this control service style.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

For UE group-based CONTROL action, this CONTROL style uses the *E2SM-RC Control Header Format 3* IE (9.2.1.6.3), where the *RIC Control Header* IE has the *UE Group ID* IE for identifying the UE group, the *UE Group Definition* IE for defining the UE group in terms of one or more associated RAN parameters, along with the *RIC Style Type* IE and the *Control Action ID* IE.

### 7.6.11.3 CONTROL Service *RIC Control Message* IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

For UE group-based CONTROL action, this CONTROL style uses the *E2SM-RC Control Message Format 3* IE (9.2.1.7.3). The *RIC Control Message* IE may optionally include the list of filter definitions for identifying the relevant RAN entities of the UE group, given by the *Entity Filter Definition* IE in the *List of entity filters* IE, along with the identifier of the entity filter given by the *Entity Filter ID* IE, for which the control action is applicable. The sequence of RAN parameters controlled by the Near-RT RIC for the entities of the UEs in the group, corresponding to each entity filter, is given by the *List of RAN control parameters for the matching entities* IE.

If the *UE Group Definition* IE and the *List of entity filters* IE do not point to one or more cells, then the control action is applied to the relevant groups of UEs, as identified by the *UE Group Definition* IE, across all cells within the E2 node.

### 7.6.11.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service *RIC Call Process ID* IE is currently not supported for this CONTROL service style.

### 7.6.11.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** Service *RIC Control Outcome* IE is used to carry the outcome of processing the incoming *RIC Control Request* message. The corresponding RAN parameters supported for *RIC Control Outcome* IE are given in Clause 8.4.10.4.

This **CONTROL** style uses *E2SM-RC Control Outcome Format 3* IE (9.2.1.8.3).

If the control action is a UE group-based control action, then the CONTROL style uses the *E2SM-RC Control Outcome Format 1* IE and includes the RAN parameters shown in table 7.6.11.5-1 in the *RIC Control Outcome* IE.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	OCTET STRING (SIZE(8))	<p>Time RIC Control Request message received by RAN Function over E2 interface.</p> <p>Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.</p>

## 7.6.12 CONTROL Service Style 10: Beamforming Configuration Control

### 7.6.12.1 CONTROL Service Style description

This CONTROL Service style provides a mechanism to add, modify or delete beamforming configuration for a UE using the *RIC Control Message* IE and the *RIC Control Header* IE.

Applications of this service include:

- Configure, reconfigure, or release Non-GoB beamforming mode [32] for a UE
- Configure, reconfigure, or release GoB beamforming configurations (e.g., PMIs, P2-beam indexes etc.) [32] for a UE

The supported RAN control actions and the corresponding RAN parameters are as follows:

Control Action ID	Control Action Name	Control Action description	Associated RAN Parameters
1	Non-GoB BF Mode Configuration	To configure, reconfigure, or release Non-GoB beamforming mode [32] for a UE. The (re)configured Non-GoB BF mode index is the best inferred Non-GoB BF mode index by AI/ML to be used for the UE by the scheduler in E2 Node, for which could be configured separately for the case of Single User- and/or Multi-user MIMO [32].	8.4.11.1
2	GoB BF Configuration	To configure, reconfigure, or release GoB beamforming configuration (e.g., PMIs, P2-beam indexes etc.) for a UE [32]. The (re)configured GoB BF configuration is the best inferred GoB BF configuration by AI/ML to be used for the UE by the scheduler in E2 Node [32].	8.4.11.2

### 7.6.12.2 CONTROL Service *RIC Control Header* IE contents

The CONTROL Service *RIC Control Header* IE has the *UE ID* IE, the *Control Service Style ID* IE, the *Control Action ID* IE. The *RIC Control Decision* IE for this service style is currently not supported for this control service style.

This **CONTROL** style uses *E2SM-RC Control Header Format 1* IE (9.2.1.6.1).

### 7.6.12.3 CONTROL Service *RIC Control Message* IE contents

This **CONTROL** Service *RIC Control Message* IE contains the sequence of RAN parameters, associated with a given Control Action within this Control Service style.

The corresponding RAN parameters supported for *RIC Control Message* IE are given in Clause 8.4.11.

This **CONTROL** style uses *E2SM-RC Control Message Format 1* IE (9.2.1.7.1).

#### 7.6.12.4 CONTROL Service *RIC Call Process ID* IE contents

This **CONTROL** Service *RIC Call Process ID* IE is currently not supported for this CONTROL service style.

#### 7.6.12.5 CONTROL Service *RIC Control Outcome* IE contents

This **CONTROL** Service *RIC Control Outcome* IE is currently not supported for this CONTROL service style.

### 7.7 Supported RIC POLICY Services

#### 7.7.1 POLICY Service style list

<b>RIC Style Type</b>	<b>Style Name</b>	<b>Style Description</b>
1	Radio Bearer Policy	Used to define a policy for modifying the behaviour of Radio Bearer Control (RBC) of call processes for a specific RAN UE Group based on cell, slice, UE list and/or QoS
2	Radio resource allocation Policy	Used to define a policy for modifying the behaviour of Radio Resource Allocation control of call processes for a specific RAN UE Group based on cell, slice, UE list and/or QoS
3	Connected mode mobility Policy	Used to define a policy for modifying the behaviour of connected mode mobility procedure (Handover or Conditional Handover), optionally with Dual Active Protocol Stack (DAPS), call processes for a specific RAN UE Group based on cell, slice, UE list and/or QoS
4	Radio access Policy	Used to define a policy for modifying the behaviour of radio access control processes
5	Dual connectivity (DC) Policy	Used to define a policy for modifying the behaviour of dual connectivity (DC) call processes for a specific RAN UE Group based on cell, slice, UE list and/or QoS
6	Carrier Aggregation (CA) Policy	Used to define a policy for modifying the behaviour of carrier aggregation (CA) call processes for a specific RAN UE Group based on cell, slice, UE list and/or QoS
7	Idle mode mobility Policy	Used to define a policy for modifying the behaviour of idle mode configuration call processes for a specific RAN UE Group based on cell, slice and/or UE list.
8	Measurement Reporting Configuration Policy	Used to define a policy for configuration of measurement objects and reporting objects
9	Beamforming Configuration Policy	Used to define a policy for beamforming configuration for a specific UE

Each of the POLICY Service Styles 1-8 listed above are supported using the following common features:

- Event Trigger: POLICY service is initiated by either Event Trigger style 1: Message Event or Event Trigger style 2: Call process breakpoint.
- Action ID: The index ID for the individual action under a given POLICY Service style.
- Action Name: Indicates the functionality of the E2 node which is controlled by Near-RT RIC
- Action Description: Describes the action and functionality of the receiving E2 Node.
- Associated RAN parameters: Identifies the RAN parameters to be controlled by Near-RT RIC pertaining to the given Policy action, used to define Policy Condition and RAN Imperative Policy.

All **POLICY** Service styles use *E2SM-RC Action Definition Format 2* IE (9.2.1.2.2) which provides the policy conditions and corresponding Policy Action. All of these factors are defined as a sequence of RAN Parameters assigned according to a given Policy Style and Policy Action where:

- *Policy Action ID* is a Policy specific identifier of a specific Action for a specific Policy style.
- *Policy Condition* is a Policy specific condition to select a specific *Policy Action*. *Policy Condition* is described in terms of a list of test conditions concerning UE and E2 Node information selection criteria using RAN

Parameters defined with a *Conditional Criteria Definition*. Default RAN behavior is to be applied to any UE when none of the Policy conditions are met.

- *Policy Action* is encoded in terms of a list of specific RAN Parameters and shall be applied to any UE that meets a specific Policy Condition. Policy Action may contain optional Policy Decision to indicate acceptance or rejection of a RRM function when the Policy Conditions are met.
- *Policy Condition ID* is a *Policy Condition* specific identifier. May be used by E2 Node to identify specific *Policy Condition* item in the list of Policy Conditions defined in the *E2SM-RC Action Definition Format 2 IE*. When present, for the case of Offset based policy, the Policy conditions list in the *E2SM-RC Action Definition Format 2 IE* shall be assessed in order of the *Policy Condition ID IE*.

The details of the individual POLICY Service Styles and specific Policy Actions are provided in subsequent sections.

## 7.7.2 POLICY Service Style 1: Radio Bearer Policy

### 7.7.2.1 POLICY Service Style description

This **POLICY** Service style provides an Imperative Policy to control execution of a radio bearer control related process.

Applications of this service include:

- DRB QoS Modification, to tune DRB level QoS related parameters to meet the QoS optimization targets.
- QoS Flow mapping, to adjust the mapping relationship between QoS flows and DRBs.
- Logical channel configuration
- Radio Bearer Admission, to guide DRB admission control algorithms for admission and/or rejection of DRB requests
- DRB termination
- DRB Split bearer
- PDCP duplication control

### 7.7.2.2 POLICY Service *RIC Action Definition IE* contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action Description	Associated RAN Parameters
1	Policy for DRB QoS Configuration	To setup a policy for the configuration of DRB QoS profile	8.5.2.1
2	Policy for QoS flow mapping configuration	To setup a policy for the multiplexing of QoS flows to a DRB (addition, modification, deletion)	8.5.2.2
3	Policy for Logical channel (re-) configuration	To setup a policy for the LCID configuration of a DRB	8.5.2.3
4	Policy for Radio admission control	To setup a policy for radio admission control of a UE	8.5.2.4
5	Policy for DRB termination control	To setup a policy for change in the bearer termination point	8.5.2.5
6	Policy for DRB split ratio control	To setup a policy for controlling the split ratio of a DRB across its RLC entities	8.5.2.6
7	Policy for PDCP Duplication control	To setup a policy for controlling the activation or de-activation of PDCP duplication for a DRB and control/configure the number of legs or RLC entities for the DRB	8.5.2.7

## 7.7.3 POLICY Service Style 2: Radio Resource Allocation Policy

### 7.7.3.1 POLICY Service Style description

This **POLICY** Service style provides an Imperative Policy to control execution of a radio resource allocation control related process.

Applications of this service include:

- Discontinuous Reception (DRX) control
- Scheduling request (SR) control
- Semi-Persistent Scheduling (SPS) control
- Configured grant
- Channel Quality Indicator (CQI) table
- Slice level PRB quota

### 7.7.3.2 POLICY Service RIC Action Definition IE contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action description	Associated RAN Parameters
1	Policy for DRX parameter configuration	To setup a policy for the configuration of DRX parameters	8.5.3.1
2	Policy for SR periodicity configuration	To setup a policy for the configuration of SR periodicity parameters	8.5.3.2
3	Policy for SPS parameters configuration	To setup a policy for the configuration of SPS parameters	8.5.3.3
4	Policy for Configured grant control	To setup a policy for the configuration of uplink grants to the UE	8.5.3.4
5	Policy for CQI table configuration	To setup a policy for the configuration of CQI table.	8.5.3.5
6	Policy for Slice level PRB quota	To setup a policy for the configuration of slice-level PRB quota	8.5.3.6

## 7.7.4 POLICY Service Style 3: Connected Mode Mobility Policy

### 7.7.4.1 POLICY Service Style description

This **POLICY** Service style provides an Imperative Policy to control execution of a connected mode mobility control related process.

Applications of this service, for both serving and target RAN nodes, include:

- Handover (HO) or Conditional handover (CHO) mode selection
- Measurement configuration for handover candidate cell detection (intra-frequency, inter-frequency, inter-RAT)
- Handover decision and target cell selection
- Dual Active Protocol Stack (DAPS) usage

### 7.7.4.2 POLICY Service RIC Action Definition IE contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action description	Associated RAN parameters
1	Policy for Handover Control	To setup a policy for the handover of the primary cell and subsequent secondary cell reselection	8.5.4.1
2	Policy for Conditional Handover Control	To setup a policy for the conditional handover involving target primary cells	8.5.4.2
3	Policy for DAPS (Dual Active Protocol Stack) Handover Control	To setup a policy for the DAPS handover of a UE involving source and target cells.	8.5.4.3

## 7.7.5 POLICY Service Style 4: Radio Access Policy

### 7.7.5.1 POLICY Service Style description

This **POLICY** Service style provides an Imperative Policy to control execution of a radio access control related process.

Applications of this service include:

- RACH back-off
- RRC connection admission
- RRC connection release
- Access barring
- UE Admission

### 7.7.5.2 POLICY Service *RIC Action Definition* IE contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2* IE (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action Description	Associated RAN Parameters
1	Policy for UE Admission Control	To setup a policy for controlling UE admission.	8.5.5.1
2	Policy for RACH backoff control	To setup a policy for controlling RACH backoff parameters	8.5.5.2
3	Policy for Access barring control	To setup a policy for controlling access barring configuration parameters	8.5.5.3
4	Policy for RRC Connection Release control	To setup a policy for controlling the release of RRC connection of the UE	8.5.5.4
5	Policy for RRC Connection Reject control	To setup a policy for controlling the rejection of RRC connection request of the UE	8.5.5.5

## 7.7.6 POLICY Service Style 5: Dual Connectivity (DC) Policy

### 7.7.6.1 POLICY Service Style description

This **POLICY** Service style provides an Imperative Policy to control execution of a dual connectivity control related process.

Applications of this service, for both Master and Secondary nodes, include:

- DC (EN-DC, MR-DC or NR-NR DC) mode selection
- Measurement configuration for candidate secondary cell detection
- DC initiation decision (M-NG-RAN or MeNB role)
- DC change decision (M-NG-RAN or MeNB role)
- DC addition request acceptance (S-NG-RAN or SgNB role)
- Target secondary cell selection

- DC release decision
- Change of bearer termination point (MN or SN) and/or bearer types

### 7.7.6.2 POLICY Service RIC Action Definition IE contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action Description	Associated RAN parameters
1	Policy for DC Secondary Node Addition Control	To setup a policy for controlling secondary node addition for dual connectivity	8.5.6.1
2	Policy for DC Secondary Node Modification and release Control	To setup a policy for controlling modification and release of secondary node for DC	8.5.6.2
3	Policy for DC PSCell Change control	To setup a policy for controlling PSCell change of a UE within a secondary node or to another secondary node	8.5.6.3
4	Policy for DC Secondary Node Change Control	To setup a policy for controlling the change of the secondary node of a UE for DC	8.5.6.4

## 7.7.7 POLICY Service Style 6: Carrier Aggregation (CA) Policy

### 7.7.7.1 POLICY Service Style description

This **POLICY** Service style provides an Imperative Policy to control execution of a carrier aggregation control related process.

Applications of this service include:

- Measurement configuration for candidate secondary cell detection
- CA initiation decision
- Target secondary cell selection
- CA release decision

### 7.7.7.2 POLICY Service RIC Action Definition IE contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action Description	Associated RAN parameters
1	Policy for CA Secondary Cell Addition Control	To setup a policy for controlling secondary cell addition for a UE	8.5.7.1
2	Policy for CA Secondary Cell Modification and Release Control	To setup a policy for controlling the modification and release of secondary cells for a UE	8.5.7.2

## 7.7.8 POLICY Service Style 7: Idle Mode Mobility Policy

### 7.7.8.1 POLICY Service Style description

This **POLICY** Service style provides an Imperative Policy to control execution of a idle mode mobility control related process.

Applications of this service include:

- Cell re-selection criteria (intra-frequency, inter-frequency, inter-RAT)
- Inactivity timer

### 7.7.8.2 POLICY Service RIC Action Definition IE contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action Description	Associated RAN parameters
1	Policy for Cell re-selection priority control	To setup a policy for assigning cell re-selection priorities for a UE during idle mode (RRC_IDLE)	8.5.8.1

## 7.7.9 POLICY Service Style 8: Measurement Reporting Configuration Policy

### 7.7.9.1 POLICY Service Style description

This **POLICY** Service style provides an imperative policy to add, modify or delete measurement report configuration for the UE to the network.

Applications of this service include:

- Policy to add configuration of measurement objects, reporting objects, measurement gaps, etc.
- Policy to modify configuration of measurement objects, reporting objects, measurement gaps, etc.
- Policy to delete configuration of measurement objects, reporting objects, measurement gaps, etc.

### 7.7.9.2 POLICY Service RIC Action Definition IE contents

This POLICY Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action description	Associated RAN Parameters
1	Policy for MR Configuration addition	To setup a policy for adding configuration of measurement objects, reporting objects, measurement gaps	8.5.9.1
2	Policy for MR Configuration modification	To setup a policy for modifying configuration of measurement objects, reporting objects, measurement gaps	8.5.9.2
3	Delete MR Configuration	To setup a policy for deleting configuration of measurement objects, reporting objects, measurement gaps	8.5.9.3

## 7.7.10 POLICY Service Style 9: Beamforming Configuration Policy

### 7.7.10.1 POLICY Service Style description

This **POLICY** Service style provides an imperative policy to add, modify or delete beamforming configuration for a UE.

Applications of this service include:

- Policy to configure, reconfigure, or release Non-GoB beamforming mode [32] for a UE
- Policy to configure, reconfigure, or release GoB beamforming configuration [32] for a UE

### 7.7.10.2 POLICY Service RIC Action Definition IE contents

This **POLICY** Service style uses *E2SM-RC Action Definition Format 2 IE* (9.2.1.2.2) using the approach described in Clause 7.7.1.

The supported Policy Actions for this Policy style are as follows:

Policy Action ID	Policy Action Name	Policy Action Description	Associated RAN parameters
1	Policy for Non-GoB BF Mode Configuration	To setup a policy to configure, reconfigure, or release Non-GoB beamforming mode [32] for a UE. This policy action of (re)configuring or releasing Non-GoB BF mode index is applied only when the corresponding policy condition (if configured) is triggered. The (re)configured Non-GoB BF mode index is the best inferred Non-GoB BF mode index by AI/ML to be used for the UE by the scheduler in the E2 Node, for which could be configured separately for the case of Single User- and/or Multi-user MIMO [32].	8.5.10.1
2	Policy for GoB BF Configuration	To setup a policy to configure, reconfigure, or release GoB beamforming configuration (e.g., PMIs, P2-beam indexes etc.) for a UE [32]. This policy action of (re)configuring or releasing GoB BF configuration is applied only when the corresponding policy condition (if configured) is triggered. The (re)configured GoB BF configuration is the best inferred GoB BF configuration by AI/ML to be used for the UE by the scheduler in the E2 Node [32].	8.5.10.2

## 7.8 Supported RIC QUERY Services

### 7.8.1 QUERY Service style list

RIC Style Type	Style Name	Style Description
1	E2 Node Information Query	Used to request and respond on information related to E2 Node
2	UE Information Query	Used to request and respond on information related to UE

### 7.8.2 QUERY Service Style 1: E2 Node Information Query

#### 7.8.2.1 QUERY Service Style description

This **QUERY** Service style is used to request any data related to E2 Node by Near-RT RIC. E2 Node shall use this service style to respond to the requested information from Near-RT RIC. The data related to the following information, can be requested and responded using this service.

- Cell Configuration related information
- Neighbour Relation related information

#### 7.8.2.2 QUERY Service RIC Query Header IE contents

This **QUERY** Service style uses the *E2SM-RC Query Header Format 1* IE (9.2.1.9.1).

#### 7.8.2.3 QUERY Service RIC Query Definition IE contents

The RIC Query Definition for this service style indicates the information type requested by Near-RT RIC.

The **QUERY** Service style uses the *E2SM-RC Query Definition Format 1* IE (9.2.1.10.1). The supported Parameters for this format are provided in Clause 8.6.1.

#### 7.8.2.4 QUERY Service RIC Query Outcome IE contents

This **QUERY** Service style uses the *E2SM-RC Query Outcome Format 1* IE (9.2.1.11.1). The mapping of RAN parameters configured in the *RIC Query Definition* IE to the reported IEs in the *E2SM-RC Query Outcome Format 1* IE is provided in the semantics description of the IEs.

### 7.8.3 QUERY Service Style 2: UE Information Query

#### 7.8.3.1 QUERY Service Style description

This **QUERY** Service style is used to request any data related to UE Information by Near-RT RIC. E2 Node shall use this service style to respond to the requested information from Near-RT RIC. The data related to the following information, but not limited to, can be requested and responded using this service.

- UE Context related information

The reporting may be per UE based depending on the information requested.

#### 7.8.3.2 QUERY Service RIC Query Header IE contents

This **QUERY** Service style uses the *E2SM-RC Query Header Format 1* IE (9.2.1.9.1).

#### 7.8.3.3 QUERY Service RIC Query Definition IE contents

The RIC Query Definition for this service style indicates the information type requested by Near-RT RIC.

The **QUERY** Service style uses the *E2SM-RC Query Definition Format 1 IE* (9.2.1.10.1). The supported Parameters for this format are provided in Clause 8.6.2.

#### 7.8.3.4 QUERY Service *RIC Query Outcome IE* contents

This **QUERY** Service style uses the *E2SM-RC Query Outcome Format 2 IE* (9.2.1.11.2). The mapping of RAN parameters configured in the *RIC Query Definition IE* to the reported IEs in the *E2SM-RC Query Outcome Format 2 IE* is provided in the semantics description of the IEs.

## 7.9 Supported RIC Service Styles and E2SM IE Formats

Table 7.9-1, Table 7.9-2 and Table 7.9.3 provide a summary of the E2SM IE Formats defined to support this E2SM specification.

**Table 7.9-1: Summary of the E2SM IE Formats defined to support RIC Event Trigger Styles**

RIC Event Trigger Style	RIC Event Trigger Definition Format
Style 1	1
Style 2	2
Style 3	3
Style 4	4

**Table 7.9-2: Summary of the E2SM IE Formats defined to support RIC Service Styles**

RIC Service Style	Action Definition Format	Indication Header Format	Indication Message Format	Call Process ID Format	Control Header Format	Control Message Format	Control Outcome Format
<b>REPORT</b>							
Style 1	1	1	1				
Style 2	1	1	2				
Style 3	1	1	3				
Style 4	1	1	2				
<b>INSERT</b>							
Style 1	3	2	5	1			
Style 2	3	2	5	1			
Style 3	3	2	5	1			
Style 4	3	2	5	1			
Style 5	3	2	5	1			
Style 6	3	2	5	1			
Style 7	3	2	5	1			
Style 255	4	3	6	1			
<b>CONTROL</b>							
Style 1				1	1, 3	1, 3	1
Style 2				1	1	1	1
Style 3				1	1	1	1
Style 4				1	1	1	1
Style 5				1	1	1	1
Style 6				1	1	1	1
Style 7				1	1	1	1
Style 8					1, 4	1, 2, 3	3
Style 9					1	1	3
Style 10						1	1
Style 255				1	2	2	2
<b>POLICY</b>							
Style 1	2						
Style 2	2						
Style 3	2						
Style 4	2						
Style 5	2						
Style 6	2						
Style 7	2						
Style 8	2						
Style 9	2						

**Table 7.9-3: Summary of the E2SM IE Formats defined to support RIC Service Styles**

RIC Service Style	Query Header Format	Query Definition Format	Query Outcome Format
<b>QUERY</b>			
Style 1	1	1	1
Style 2	1	1	2

## 8 RAN Parameter assignments

### 8.0 Approach

The RAN parameters associated with each RIC service described in Clause 7 are listed here in Clause 8. Each RAN parameter belongs to one of the following value types:

- ELEMENT: a singleton variable, which does not have any other associated RAN parameters.
- STRUCTURE: a sequence of RAN parameters, each of which can be either an ELEMENT or a STRUCTURE or a LIST
- LIST: a list of STRUCTURES, where each STRUCTURE is as defined above. The sequence of RAN parameters is the same across all the STRUCTURES within the list.

The corresponding 3GPP standard definitions of these RAN parameters (if available) are referenced in the tables below under the “RAN Parameter Definition” column. These RAN parameters having 3GPP standard definitions are not freshly defined or redefined here.

Note that only those RAN parameters identified as ELEMENT are subject to test conditions by the RIC in the “Event Trigger Definition”.

Any RAN parameter within a STRUCTURE or LIST shall not be referenced individually. Hierarchy of a LIST or a STRUCTURE shall be traversed to access any RAN parameter within the LIST or STRUCTURE

Note that a RAN parameter may be associated with as a key where its corresponding *Key Flag* is set to “TRUE”. These RAN parameters serve as a reference to other RAN parameters within a structure that may be a part of LIST to enable the E2 Node interpret the scope of RAN parameters that are controlled by Near-RT RIC.

If the “key flag” is specified in the *RIC Event Trigger Definition IE*, then the RAN parameters corresponding to “that specific itemized structure” in the list indexed by the “key flag” are subject to test condition, but if the “key flag” is not mentioned in the *RIC Event Trigger Definition IE*, then the RAN parameters corresponding to “any itemized structure” within the list are subject to test condition.

For e.g., The ‘QFI’ can be considered a ‘key parameter’ to identify a QoS flow among the list of flows in a UE-specific PDU session. If the QFI parameter is NOT mentioned and the RIC subscribes to an event pertaining to 5QI 8, then “any QoS flow” in the list of flows of a PDU session for the UE that matches the condition of 5QI being equal to 8 would be covered by this event trigger definition. On the other hand, if the QFI parameter is mentioned in the *RIC Event Trigger Definition IE*, then only that specific QoS flow pertaining to the indicated QFI within the list is covered.

### 8.1 RAN parameters for Event Trigger

The RAN Parameters pertaining to “Event Trigger” that are used across multiple service styles are listed here. All RAN Parameters defined in clause 8.1 may also be used to define Policy Condition, see also clause 8.5.

#### 8.1.1 Common RAN Parameters

This section contains the common set of RAN parameters that can be accessed via RAN parameters defined in each service style across multiple services.

##### 8.1.1.1 NR Cell

The following RAN Parameters are associated with the NR cell.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
10001	NR CGI	ELEMENT	FALSE	NR CGI IE in TS 38.423 [15] Clause 9.2.2.7	
10002	NR PCI	ELEMENT	FALSE	NR PCI IE in TS 38.473 [19] Clause 9.3.1.10	
10003	5GS TAC	ELEMENT	FALSE	5GS TAC IE in TS 38.473 [19] Clause 9.3.1.29	
10004	CHOICE NR-Mode-Info	STRUCTURE			NR-Mode-Info IE in TS 38.473 [19] Clause 9.3.1.10
10005	>FDD	STRUCTURE			FDD IE in TS 38.473 [19] Clause 9.3.1.10
10006	>>FDD Info	STRUCTURE			FDD Info IE in TS 38.473 [19] Clause 9.3.1.10
10007	>>>UL FreqInfo	STRUCTURE			UL FreqInfo IE in TS 38.473 [19] Clause 9.3.1.10
10008	>>>>NR ARFCN	ELEMENT	FALSE	NR ARFCN IE in TS 38.473 [19] Clause 9.3.1.17	
10009	>>>>Frequency Band List	LIST			Frequency Band List IE in TS 38.473 [19] Clause 9.3.1.17
10010	>>>>>Frequency Band item	STRUCTURE			Frequency Band Item IE in TS 38.473 [19] Clause 9.3.1.17
10011	>>>>>NR Frequency band	ELEMENT	FALSE	NR Frequency Band IE in TS 38.473 [19] Clause 9.3.1.17	
10012	>>>DL FreqInfo	STRUCTURE			DL FreqInfo IE in TS 38.473 [19] Clause 9.3.1.10
10013	>>>>NR ARFCN	ELEMENT	FALSE	NR ARFCN IE in TS 38.473 [19] Clause 9.3.1.17	
10014	>>>>Frequency Band List	LIST			Frequency Band List IE in TS 38.473 [19] Clause 9.3.1.17

10015	>>>>Frequency Band item	STRUCTURE			<i>Frequency Band Item IE in TS 38.473 [19] Clause 9.3.1.17</i>
10016	>>>>NR Frequency band	ELEMENT	FALSE	<i>NR Frequency Band IE in TS 38.473 [19] Clause 9.3.1.17</i>	
10017	>>>UL Transmission Bandwidth	STRUCTURE			<i>Transmission Bandwidth IE in TS 38.473 [19] Clause 9.3.1.15</i>
10018	>>>NR SCS	ELEMENT	FALSE	<i>NR SCS IE in TS 38.473 [19] Clause 9.3.1.15</i>	
10019	>>>NRB	ELEMENT	FALSE	<i>NRB IE in TS 38.473 [19] Clause 9.3.1.15</i>	
10020	>>>DL Transmission Bandwidth	STRUCTURE			<i>Transmission Bandwidth IE in TS 38.473 [19] Clause 9.3.1.15</i>
10021	>>>NR SCS	ELEMENT	FALSE	<i>NR SCS IE in TS 38.473 [19] Clause 9.3.1.15</i>	
10022	>>>NRB	ELEMENT	FALSE	<i>NRB IE in TS 38.473 [19] Clause 9.3.1.15</i>	
10023	>>>UL Carrier List	LIST			<i>UL Carrier List IE in TS 38.473 [19] Clause 9.3.1.10</i>
10024	>>>NR Carrier Item	STRUCTURE		<i>NR Carrier Item IE in TS 38.473 [19] Clause 9.3.1.137</i>	
10025	>>>>NR SCS	ELEMENT	FALSE	<i>NR SCS IE in TS 38.473 [19] Clause 9.3.1.15</i>	
10026	>>>>Offset to Carrier	ELEMENT	FALSE	<i>Offset to Carrier IE in TS 38.473 [19] Sec 137</i>	
10027	>>>>Carrier Bandwidth	ELEMENT	FALSE	<i>Carrier Bandwidth IE</i>	
10028	>>>DL Carrier List	LIST			<i>DL Carrier List IE in TS 38.473 [19] Clause 9.3.1.10</i>
10029	>>>NR Carrier Item	STRUCTURE		<i>NR Carrier Item IE in TS 38.473 [19] Clause 9.3.1.137</i>	
10030	>>>>NR SCS	ELEMENT	FALSE	<i>NR SCS IE in TS 38.473</i>	

				[19] Clause 9.3.1.15	
10031	>>>>Offset to Carrier	ELEMENT	FALSE	Offset to Carrier IE in TS 38.473 [19] Clause 9.3.1.137	
10032	>>>>Carrier Bandwidth	ELEMENT	FALSE	Carrier Bandwidth IE in TS 38.473 [19] Clause 9.3.1.137	
10033	>TDD	STRUCTURE			TDD IE in TS 38.473 [19] Clause 9.3.1.10
10034	>>TDD Info	STRUCTURE			TDD Info IE in TS 38.473 [19] Clause 9.3.1.10
10035	>>>NR FreqInfo	STRUCTURE			
10036	>>>NR ARFCN	ELEMENT	FALSE	NR ARFCN IE in TS 38.473 [19] Clause 9.3.1.17	
10037	>>>Frequency Band List	LIST			Frequency Band List IE in TS 38.473 [19] Clause 9.3.1.17
10038	>>>>Frequency Band item	STRUCTURE			Frequency Band Item IE in TS 38.473 [19] Clause 9.3.1.17
10039	>>>>>NR Frequency band	ELEMENT	FALSE	NR Frequency Band IE in TS 38.473 [19] Clause 9.3.1.17	
10040	>>>Transmission Bandwidth	STRUCTURE			Transmission Bandwidth IE in TS 38.473 [19] Clause 9.3.1.15
10041	>>>NR SCS	ELEMENT	FALSE	NR SCS IE in TS 38.473 [19] Clause 9.3.1.15	
10042	>>>NRB	ELEMENT	FALSE	NRB IE in TS 38.473 [19] Clause 9.3.1.15	
10043	>>>Carrier List	LIST			Transmission Bandwidth IE in TS 38.473 [19] Clause 9.3.1.15
10044	>>>NR Carrier Item	STRUCTURE		NR SCS IE in TS 38.473 [19] Clause 9.3.1.15	
10045	>>>>NR SCS	ELEMENT	FALSE	NR SCS IE in TS 38.473	

				[19] Clause 9.3.1.15	
10046	>>>>Offset to Carrier	ELEMENT	FALSE	<i>Offset to Carrier IE in TS 38.473 [19] Clause 9.3.1.137</i>	
10047	>>>>Carrier Bandwidth	ELEMENT	FALSE	<i>Carrier Bandwidth IE in TS 38.473 [19] Clause 9.3.1.137</i>	
10048	>>>Intended TDD DL-UL Configuration	STRUCTURE			<i>Intended TDD DL-UL Configuration IE in TS 38.473 [19] Clause 9.3.1.89</i>
10049	>>>NR SCS	ELEMENT	FALSE	<i>NR SCS IE in TS 38.473 [19] Clause 9.3.1.89</i>	
10050	>>>NR Cyclic Prefix	ELEMENT	FALSE	<i>NR Cyclic Prefix IE in TS 38.473 [19] Clause 9.3.1.89</i>	
10051	>>>NR DL-UL Transmission Periodicity	ELEMENT	FALSE	<i>NR DL-UL Transmission Periodicity IE in TS 38.473 [19] Clause 9.3.1.89</i>	
10052	>>>Slot Configuration List	LIST			<i>Slot Configuration List IE in TS 38.473 [19] Clause 9.3.1.89</i>
10053	>>>>Slot Configuration Item	STRUCTURE			<i>Slot Configuration Item IE in TS 38.473 [19] Clause 9.3.1.89</i>
10054	>>>>>Slot Index	ELEMENT	TRUE	<i>Slot Index IE in TS 38.473 [19] Clause 9.3.1.89</i>	
10055	>>>>>CHOICE Symbol Allocation in Slot	STRUCTURE		<i>Symbol Allocation in Slot IE in TS 38.473 [19] Clause 9.3.1.89</i>	
10056	>>>>>All DL	ELEMENT	FALSE	<i>All DL IE in TS 38.473 [19] Clause 9.3.1.89</i>	
10057	>>>>>All UL	ELEMENT	FALSE	<i>All UL IE in TS 38.473 [19] Clause 9.3.1.89</i>	
10058	>>>>>Both DL and UL	STRUCTURE			<i>Both DL and UL IE in TS 38.473 [19] Clause</i>

					9.3.1.89
10059	>>>>>Number of DL symbols	ELEMENT	FALSE	Number of DL symbols IE in TS 38.473 [19] Clause 9.3.1.89	
10060	>>>>>Number of UL symbols	ELEMENT	FALSE	Number of UL symbols IE in TS 38.473 [19] Clause 9.3.1.89	
10061	Count of FDD UL Frequency band list	ELEMENT	FALSE	INTEGER (0..63)	
10062	Count of FDD DL Frequency band list	ELEMENT	FALSE	INTEGER (0..63)	
10063	Count of FDD UL Carrier list	ELEMENT	FALSE	INTEGER (0..63)	
10064	Count of FDD DL Carrier list	ELEMENT	FALSE	INTEGER (0..63)	
10065	Count of TDD Frequency band list	ELEMENT	FALSE	INTEGER (0..63)	
10066	Count of TDD Carrier list	ELEMENT	FALSE	INTEGER (0..63)	
10067	Count of TDD DL-UL Slot Configuration list	ELEMENT	FALSE	INTEGER (0..63)	
10101	Reported NR RRC Measurements	STRUCTURE			<i>measResult</i> IE in TS 38.331 [22]
10102	>Cell Results	STRUCTURE			<i>cellResults</i> IE in TS 38.331 [22]
10103	>>SSB Results	STRUCTURE		8.1.1.3	<i>resultsSSB-Cell</i> IE in TS 38.331 [22]
10106	>>CSI-RS Results	STRUCTURE		8.1.1.3	<i>resultsCSI-RS-Cell</i> IE in TS 38.331 [22]
10110	PM Measurements	STRUCTURE			<i>Cell Measurement Result</i> IE in TS 38.423 [15] Clause 9.1.3.21
10111	>Radio Resource Status	STRUCTURE			<i>Radio Resource Status</i> IE in TS 38.473 [19]
10112	>>SSB Area Radio Resource Status List	LIST			<i>SSB Area Radio Resource Status List</i> IE in TS 38.473 [19] Clause 9.3.1.129
10113	>>>SSB Area Radio Resource Status Item	STRUCTURE			<i>SSB Area Radio Resource Status Item</i> IE in TS 38.473 [19] Clause 9.3.1.129
10114	>>>>SSB Index	ELEMENT	TRUE	<i>SSB Index</i> IE in TS 38.473 [19] Clause 9.3.1.129	

10115	>>>SSB Area DL GBR PRB Usage	ELEMENT	FALSE	<i>SSB Area DL GBR PRB Usage IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10116	>>>SSB Area UL GBR PRB Usage	ELEMENT	FALSE	<i>SSB Area UL GBR PRB Usage IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10117	>>>SSB Area DL non-GBR PRB Usage	ELEMENT	FALSE	<i>SSB Area DL non-GBR PRB Usage IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10118	>>>SSB Area UL non-GBR PRB Usage	ELEMENT	FALSE	<i>SSB Area UL non-GBR PRB Usage IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10119	>>>SSB Area DL Total PRB Usage	ELEMENT	FALSE	<i>SSB Area DL Total PRB Usage IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10120	>>>SSB Area UL Total PRB Usage	ELEMENT	FALSE	<i>SSB Area UL Total PRB Usage IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10121	>>>DL scheduling PDCCH CCE Usage	ELEMENT	FALSE	<i>DL Scheduling PDCCH CCE IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10122	>>>UL scheduling PDCCH CCE Usage	ELEMENT	FALSE	<i>UL Scheduling PDCCH CCE IE in TS 38.473 [19] Clause 9.3.1.129</i>	
10123	>Available DL PRBs in the cell	ELEMENT	FALSE	INTEGER	<i>DL Total available PRB IE in TS 28.552 [28] Sec 5.1.1.2.6</i>
10124	>Available UL PRBs in the cell	ELEMENT	FALSE	INTEGER	<i>UL Total available PRB IE in TS 28.552 [28] Sec 5.1.1.2.8</i>
10125	>Number of active DL UEs in the cell	ELEMENT	FALSE	<i>Number of Active UEs IE in TS 38.473 [19] Clause 9.3.1.135</i>	

10126	>Number of active UL UEs in the cell	ELEMENT	FALSE	<i>Number of Active UEs IE in TS 38.473 [19] Clause 9.3.1.135</i>	
10127	>Composite Available Capacity Group	STRUCTURE		<i>Composite Available Capacity Group IE in TS 38.473 [19] Clause 9.3.1.130</i>	<i>Composite Available Capacity Group IE in TS 38.473 [19] Clause 9.3.1.130</i>
10128	>>Composite Available Capacity Downlink	STRUCTURE		<i>Composite Available Capacity IE in TS 38.473 [19] Clause 9.3.1.131</i>	<i>Composite Available Capacity IE in TS 38.473 [19] Clause 9.3.1.131</i>
10129	>>>Cell Capacity Class Value	ELEMENT	FALSE	<i>Cell Capacity Class Value IE in TS 38.473 [19] Clause 9.3.1.132</i>	
10130	>>>Capacity Value	ELEMENT	FALSE	<i>Capacity Value IE in TS 38.473 [19] Clause 9.3.1.133</i>	
10131	>>>SSB Area Capacity Value List	LIST			<i>SSB Area Capacity Value List IE in TS 38.473 [19] Clause 9.3.1.133</i>
10132	>>>>SSB Area Capacity Value Item	STRUCTURE			<i>SSB Area Capacity Value Item IE in TS 38.473 [19] Sec 9.3.1.133</i>
10133	>>>>>SSB Index	ELEMENT	TRUE	<i>SSB Index IE in TS 38.473 [19] Clause 9.3.1.133</i>	
10134	>>>>>SSB Area Capacity Value	ELEMENT	FALSE	<i>SSB Area Capacity Value IE in TS 38.473 [19] Sec 9.3.1.133</i>	
10141	>>Composite Available Capacity Uplink	STRUCTURE			<i>Composite Available Capacity IE in TS 38.473 [19] Clause 9.3.1.131</i>
10142	>>>Cell Capacity Class Value	ELEMENT	FALSE	<i>Cell Capacity Class Value IE in TS 38.473 [19] Clause 9.3.1.132</i>	
10143	>>>Capacity Value	ELEMENT	FALSE	<i>Capacity Value IE in TS 38.473 [19] Clause 9.3.1.133</i>	

10144	>>>SSB Area Capacity Value List	LIST			SSB Area Capacity Value List IE in TS 38.473 [19] Clause 9.3.1.133
10145	>>>SSB Area Capacity Value Item	STRUCTURE			SSB Area Capacity Value Item IE in TS 38.473 [19] Sec 9.3.1.133
10146	>>>>SSB Index	ELEMENT	TRUE	SSB Index IE in TS 38.473 [19] Clause 9.3.1.133	
10147	>>>>SSB Area Capacity Value	ELEMENT	FALSE	SSB Area Capacity Value IE in TS 38.473 [19] Sec 9.3.1.133	
10151	>Slice Available Capacity List	LIST			Slice Available Capacity List IE in TS 38.473 [19] Clause 9.3.1.134
10152	>>Slice Available Capacity Item	STRUCTURE			Slice Available Capacity Item IE in TS 38.473 [19] Clause 9.3.1.134
10153	>>>PLMN Identity	ELEMENT	FALSE	PLMN Identity IE in TS 38.473 [19] Clause 9.3.1.14	
10154	>>>S-NSSAI Available Capacity List	LIST			S-NSSAI Available Capacity List IE in TS 38.473 [19] Clause 9.3.1.134
10155	>>>S-NSSAI Available Capacity Item	STRUCTURE			S-NSSAI Available Capacity Item IE in TS 38.473 [19] Clause 9.3.1.134
10156	>>>>S-NSSAI	STRUCTURE	FALSE		S-NSSAI IE in TS 38.473 [19] Clause 9.3.1.38
10160	>>>>>SST	ELEMENT	FALSE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
10161	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
10157	>>>>Slice Available Capacity Value Downlink	ELEMENT	FALSE	Slice Available Capacity Value Downlink IE in TS 38.473 [19] Clause	

				9.3.1.134	
10158	>>>>Slice Available Capacity Value Uplink	ELEMENT	FALSE	<i>Slice Available Capacity Value Uplink IE in TS 38.473 [19] Clause 9.3.1.134</i>	
10201	Cell-specific offset	ELEMENT	FALSE	Ocp (or Ocn) IE as defined in TS 38.331 [22] INTEGER	
10202	Cell Measurement object specific offset	ELEMENT	FALSE	Ofp (or Ofn) IE as defined in TS 38.331 [22] INTEGER	

### 8.1.1.2 E-UTRA Cell

The following RAN Parameters are associated with the E-UTRA cell.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
12001	E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI</i> IE in TS 36.423 [15] Clause 9.2.2.8	
12002	PCI	ELEMENT	FALSE	<i>PCI</i> IE in TS 36.423 [15] within Clause 9.2.8, INTEGER(0..503,...)	
12003	TAC	ELEMENT	FALSE	<i>TAC</i> IE in TS 36.423 [15] within Clause 9.2.8, OCTET STRING(2)	
12004	CHOICE <i>EUTRA-Mode-Info</i>	STRUCTURE		<i>EUTRA-Mode-Info</i> IE in TS 36.423 [17] Clause 9.2.8	
12005	>FDD	STRUCTURE		<i>FDD</i> IE in TS 36.423 [17] Clause 9.2.8	
12006	>>FDD Info	STRUCTURE		<i>FDD Info</i> IE in TS 36.423 [17] Clause 9.2.8	
12007	>>>UL EARFCN	STRUCTURE		<i>UL EARFCN</i> IE in TS 36.423 [17] Clause 9.2.8	
12008	>>>>EARFCN	ELEMENT	FALSE	<i>EARFCN</i> IE in TS 36.423 [17] Clause 9.2.26	
12009	>>>DL EARFCN	ELEMENT	FALSE	<i>DL EARFCN</i> IE in TS 36.423 [17] Clause 9.2.8	
12010	>>>>EARFCN	STRUCTURE		<i>EARFCN</i> IE in TS 36.423 [17] Clause 9.2.26	
12011	>>>UL Transmission Bandwidth	STRUCTURE		<i>UL Transmission Bandwidth</i> IE in TS 36.423 [17] Clause 9.2.8	
12012	>>>>Transmission Bandwidth	ELEMENT	FALSE	<i>Transmission Bandwidth</i> IE in TS 36.423 [17] Clause 9.2.27	
12013	>>>DL Transmission Bandwidth	STRUCTURE		<i>DL Transmission Bandwidth</i> IE in TS 36.423 [17]	

					Clause 9.2.8
12014	>>>Transmission Bandwidth	ELEMENT	FALSE	<i>Transmission Bandwidth IE in TS 36.423 [17] Clause 9.2.27</i>	
12015	>TDD	STRUCTURE			<i>TDD IE in TS 36.423 [17] Clause 9.2.8</i>
12016	>>TDD Info	STRUCTURE			<i>TDD Info IE in TS 36.423 [17] Clause 9.2.8</i>
12017	>>>EARFCN	ELEMENT	FALSE	<i>EARFCN IE in TS 36.423 [17] Clause 9.2.26</i>	
12018	>>>Transmission Bandwidth	ELEMENT	FALSE	<i>Transmission Bandwidth IE in TS 36.423 [17] Clause 9.2.27</i>	
12019	>>>Subframe assignment	ELEMENT	FALSE	<i>Subframe Assignment IE in TS 36.423 [17] Clause 9.2.8</i>	
12020	>>>Special Subframe Info	ELEMENT	FALSE	<i>Special Subframe Info IE in TS 36.423 [17] Clause 9.2.8</i>	
12021	>>>Special Subframe Patterns	ELEMENT	FALSE	<i>Special Subframe Patterns IE in TS 36.423 [17] Clause 9.2.8</i>	
12022	>>>>Cyclic Prefix DL	ELEMENT	FALSE	<i>Cyclic Prefix DL IE in TS 36.423 [17] Clause 9.2.8</i>	
12023	>>>>Cyclic Prefix UL	ELEMENT	FALSE	<i>Cyclic Prefix UL IE in TS 36.423 [17] Clause 9.2.8</i>	
12024	Reported LTE RRC Measurements	STRUCTURE		8.1.1.3	<i>MeasResults IE in TS 36.331 [23]</i>
12025	PM Measurements	STRUCTURE			<i>CellMeasurementResults IE in TS 36.423 [17] Clause 9.1.2.14</i>
12026	>Radio Resource Status	STRUCTURE			<i>Radio Resource Status IE in TS 36.423 [17] Clause 9.2.37</i>
12027	>>DL GBR PRB Usage	ELEMENT	FALSE	<i>DL GBR PRB Usage IE in TS 36.423 [17] Clause</i>	

				9.2.37	
12028	>>UL GBR PRB Usage	ELEMENT	FALSE	<i>UL GBR PRB Usage IE in TS 36.423 [17] Clause 9.2.37</i>	
12029	>>DL non-GBR PRB Usage	ELEMENT	FALSE	<i>DL non-GBR PRB Usage IE in TS 36.423 [17] Clause 9.2.37</i>	
12030	>>UL non-GBR PRB usage	ELEMENT	FALSE	<i>UL non-GBR PRB Usage IE in TS 36.423 [17] Clause 9.2.37</i>	
12031	>>DL Total PRB Usage	ELEMENT	FALSE	<i>DL Total PRB Usage IE in TS 36.423 [17] Clause 9.2.37</i>	
12032	>>UL Total PRB Usage	ELEMENT	FALSE	<i>UL Total PRB Usage IE in TS 36.423 [17] Clause 9.2.37</i>	
12033	>>DL scheduling PDCCH CCE Usage	ELEMENT	FALSE	<i>DL scheduling PDCCH CCE Usage IE in TS 36.423 [17] Clause 9.2.37</i>	
12034	>>UL scheduling PDCCH CCE Usage	ELEMENT	FALSE	<i>UL scheduling PDCCH CCE Usage IE in TS 36.423 [17] Clause 9.2.37</i>	
12051	>Composite Available Capacity Group	STRUCTURE			<i>Composite Available Capacity Group IE in TS 36.423 [17] Clause 9.2.44</i>
12052	>>Composite Available Capacity Downlink	STRUCTURE			<i>Composite Available Capacity Downlink IE in TS 36.423 [17] Clause 9.2.45</i>
12053	>>>Cell capacity Class Value	ELEMENT	FALSE	<i>Cell Capacity Class Value IE in TS 36.423 [17] Clause 9.2.46</i>	
12054	>>>Capacity Value	ELEMENT	FALSE	<i>Capacity Value IE in TS 36.423</i>	

				[17] Clause 9.2.47	
12055	>>Composite Available Capacity Uplink	STRUCTURE			Composite Available Capacity Uplink IE in TS 36.423 [17] Clause 9.2.45
12056	>>>Cell capacity Class Value	ELEMENT	FALSE	Cell Capacity Class Value IE in TS 36.423 [17] Clause 9.2.46	
12057	>>>Capacity Value	ELEMENT	FALSE	Capacity Value IE in TS 36.423 [17] Clause 9.2.47	
12058	>Available DL PRBs in the cell	ELEMENT	FALSE	INTEGER	
12059	>Available UL PRBs in the cell	ELEMENT	FALSE	INTEGER	
12060	>Number of active DL UEs in the cell	ELEMENT	FALSE	INTEGER	
12061	>Number of active UL UEs in the cell	ELEMENT	FALSE	INTEGER	
12062	>ABS Status	STRUCTURE			ABS Status IE in TS 36.423 [17] Clause 9.2.58
12063	>>DL ABS Status	ELEMENT	FALSE	DL ABS status IE in TS 36.423 [17] Clause 9.2.58	
12064	>>CHOICE Usable ABS Information	STRUCTURE			Usable ABS Information IE in TS 36.423 [17] Clause 9.2.58
12065	>>>FDD	STRUCTURE			FDD IE in TS 36.423 [17] Clause 9.2.58
12066	>>>>Usable ABS Pattern Info	ELEMENT	FALSE	Usable ABS Pattern Info IE in TS 36.423 [17] Clause 9.2.58	
12067	>>>TDD	STRUCTURE			TDD IE in TS 36.423 [17] Clause 9.2.58
12068	>>>>Usable ABS Pattern Info	ELEMENT	FALSE	Usable ABS Pattern Info IE in TS 36.423 [17] Clause 9.2.58	
12075	>CSI Report per CSI Process List	LIST			CSI Report per CSI Process IE

					in TS 36.423 [17] Clause 9.2.79
12076	>>CSI Process per CSI Item	STRUCTURE			<i>CSI Report per CSI Process Item IE in TS 36.423 [17] Clause 9.2.79</i>
12077	>>>CSI Process Configuration Index	ELEMENT	FALSE	<i>CSI Process Configuration Index IE in TS 36.423 [17] Clause 9.2.79</i>	
12078	>>>RI	ELEMENT	FALSE	<i>R/I IE in TS 36.423 [17] Clause 9.2.79</i>	
12079	>>>Wideband CQI	STRUCTURE			<i>Wideband CQI IE in TS 36.423 [17] Clause 9.2.80</i>
12101	>>>>Wideband CQI Codeword 0	ELEMENT	FALSE	<i>Wideband CQI Codeword 0 IE in TS 36.423 [17] Clause 9.2.80</i>	
12102	>>>>CHOICE Wideband CQI Codeword 1	STRUCTURE			<i>Wideband CQI Codeword 1 IE in TS 36.423 [17] Clause 9.2.80</i>
12103	>>>>>4-bit CQI	ELEMENT	FALSE	<i>4-bit CQI IE in TS 36.423 [17] Clause 9.2.80</i>	
12104	>>>>>3-bit spatial differential CQI	ELEMENT	FALSE	<i>3-bit spatial differential CQI IE in TS 36.423 [17] Clause 9.2.80</i>	
12080	>>>Subband Size	ELEMENT	FALSE	<i>Subband Size IE in TS 36.423 [17] Clause 9.2.79</i>	
12081	>>>Subband CQI List	LIST			<i>Subband CQI List IE in TS 36.423 [17] Clause 9.2.79</i>
12082	>>>>Subband CQI Item	STRUCTURE			<i>Subband CQI Item IE in TS 36.423 [17] Clause 9.2.79</i>

12083	>>>>Subband CQI Index	ELEMENT	FALSE	<i>Subband Index IE in TS 36.423 [17] Clause 9.2.79</i>	
12084	>>>>Subband CQI	STRUCTURE		<i>Subband CQI IE in TS 36.423 [17] Clause 9.2.81</i>	
12085	>>>>>CHOICE Subband CQI Codeword 0	STRUCTURE		<i>Subband CQI Codeword 0 IE in TS 36.423 [17] Clause 9.2.81</i>	
12086	>>>>>4-bit CQI	ELEMENT	FALSE	<i>4-bit CQI IE in TS 36.423 [17] Clause 9.2.81</i>	
12087	>>>>>2-bit subband differential CQI	ELEMENT	FALSE	<i>2-bit Subband differential CQI IE in 36.423 Clause 9.2.81</i>	
12088	>>>>>2-bit differential CQI	ELEMENT	FALSE	<i>2-bit differential CQI IE in 36.423 Clause 9.2.81</i>	
12089	>>>>>CHOICE Subband CQI Codeword 1	STRUCTURE		<i>Subband CQI Codeword 1 IE in TS 36.423 [17] Clause 9.2.81</i>	
12090	>>>>>4-bit CQI	ELEMENT	FALSE	<i>4-bit CQI IE in TS 36.423 [17] Clause 9.2.81</i>	
12091	>>>>>3-bit spatial differential CQI	ELEMENT	FALSE	<i>3-bit spatial differential CQI IE in 36.423 Clause 9.2.81</i>	
12092	>>>>>2-bit subband differential CQI	ELEMENT	FALSE	<i>2-bit Subband differential CQI IE in 36.423 Clause 9.2.81</i>	
12093	>>>>>2-bit differential CQI	ELEMENT	FALSE	<i>2-bit differential CQI IE in 36.423 Clause 9.2.81</i>	

### 8.1.1.3 RRC Signal Measurements

The following RAN Parameters are associated with RRC measurements.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
12501	RSRP	ELEMENT	FALSE	RSRP-Range IE in TS 38.331 [22]	
12502	RSRQ	ELEMENT	FALSE	RSRQ-Range IE in TS 38.331 [22]	
12503	SINR	ELEMENT	FALSE	SINR-Range IE in TS 38.331 [22]	

### 8.1.1.4 L2 MAC State Variables

The following RAN Parameters are associated with UE-specific L2 MAC state variables.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
13001	Buffer Occupancy	STRUCTURE			Buffer Occupancy (BO) in number of bytes as defined in TS 25.321 [27] clause 8.2.2(c). LCID indicates logical channel ID.
13002	>LCID	ELEMENT	TRUE	INTEGER (0.. 63)	
13003	>BO in Bytes	ELEMENT	FALSE	INTEGER	
13004	Buffer Status Report	STRUCTURE			
13005	>Short BSR	ELEMENT	FALSE	OCTET STRING (SIZE(1))	
13006	>Long BSR	ELEMENT	FALSE	OCTET STRING	
13007	>Short Truncated BSR	ELEMENT	FALSE	OCTET STRING (SIZE(1))	
13008	>Long Truncated BSR	ELEMENT	FALSE	OCTET STRING	
13009	>Pre-emptive BSR	ELEMENT	FALSE	OCTET STRING	
13010	SCell Activation/Deactivation	STRUCTURE			
13011	>One Octet	ELEMENT	FALSE	OCTET STRING (SIZE(1))	
13012	>Four Octet	ELEMENT	FALSE	OCTET STRING (SIZE(4))	
13013	Duplication Activation/Deactivation	ELEMENT	FALSE	OCTET STRING (SIZE(1))	
13014	Duplication RLC Activation/Deactivation	ELEMENT	FALSE	OCTET STRING (SIZE(1))	

### 8.1.1.5 NG-RAN Data Radio Bearer

The following RAN Parameters are associated with the NG-RAN data radio bearer.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
14001	5QI	ELEMENT	FALSE	5QI IE in TS 37.483 [21] Clause 9.3.1.27 or TS 37.483 [21] Clause 9.3.1.28	
14002	Packet Delay Budget	ELEMENT	FALSE	Packet Delay Budget IE in TS 37.483 [21] Clause 9.3.1.47	
14003	Packet Error Rate	ELEMENT	FALSE	Packet Error Rate IE in TS 37.483 [21] Clause 9.3.1.48	
14004	NG-RAN DRB Allocation and Retention Priority	STRUCTURE			NG-RAN Allocation and Retention Priority IE in TS 37.483 [21] Clause 9.3.1.29
14005	>Priority Level	ELEMENT	FALSE	Priority Level IE in TS 37.483 [21] Clause 9.3.1.29	
14006	>Pre-emption Capability	ELEMENT	FALSE	Pre-emption Capability IE in TS 37.483 [21] Clause 9.3.1.29	
14007	>Pre-emption Vulnerability	ELEMENT	FALSE	Pre-emption Vulnerability IE in TS 37.483 [21] Clause 9.3.1.29	
14008	Priority Level of the mapped QoS flows	ELEMENT	FALSE	Priority Level IE in TS 37.483 [21] Clause 9.3.1.51	
14009	QoS parameters for GBR flows in NG-RAN Bearer	STRUCTURE			GBR QoS Flow Information IE in TS 37.483 [21] Clause 9.3.1.30
14010	>Maximum Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
14011	>Guaranteed Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
14012	>Maximum Packet Loss Rate Downlink	ELEMENT	FALSE	Packet Loss Rate IE in TS 37.483 [21] Clause 9.3.1.30	
14013	>Maximum Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
14014	>Guaranteed Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
14015	>Maximum Packet Loss Rate Uplink	ELEMENT	FALSE	Packet Loss Rate IE in TS 37.483 [21] Clause 9.3.1.30	
14016	QoS Monitoring Enable Request	ELEMENT	FALSE	QoS Monitoring Request IE in TS 37.483 [21] Clause 9.3.1.26	
14017	QoS Monitoring Reporting Frequency	ELEMENT	FALSE	QoS Monitoring Reporting Frequency IE in TS 37.483 [21] Clause 9.3.1.26	
14018	QoS Monitoring Disabled	ELEMENT	FALSE	QoS Monitoring Disabled IE in TS 37.483 [21] Clause 9.3.1.26	
14019	Reflective QoS Mapping	ELEMENT	FALSE	RD/ IE in TS 37.483 [21] Clause 9.3.1.26	
14101	List of cell groups to be added	LIST			Cell Group To Add IE in TS 37.483 [21] Clause 9.3.3.11
14102	>Cell group item	STRUCTURE			Cell Group Item IE in TS 37.483 [21] Clause 9.3.1.11
14103	>>Cell Group ID	ELEMENT	TRUE	Cell Group ID IE in TS 37.483 [21] Clause	

				9.3.1.11	
14104	>>Cell Group	STRUCTURE		8.1.1.7	
14201	SDAP Configuration	STRUCTURE			<i>SDAP Configuration IE in TS 37.483 [21] Clause 9.3.1.39</i>
14202	>PDU Session ID	ELEMENT	TRUE	<i>PDU-SessionID IE in TS 38.331 [22] Sec 6</i>	
14203	>Default DRB	ELEMENT	FALSE	<i>Default DRB IE in TS 37.483 [21] Clause 9.3.1.39</i>	
14210	>PDU Session	STRUCTURE		8.1.1.16	
14301	PDCP Configuration	STRUCTURE			<i>PDCP Configuration IE in TS 37.483 [21] Clause 9.3.1.38</i>
14302	>RLC mode	ELEMENT	FALSE	<i>RLC mode IE in TS 37.483 [21] Clause 9.3.1.38</i>	
14303	>PDCP Duplication	ELEMENT	FALSE	<i>PDCP Duplication IE in TS 37.483 [21] Clause 9.3.1.38</i>	
14304	>UL Data Split Threshold	ELEMENT	FALSE	<i>UL Data Split Threshold IE in TS 37.483 [21] Clause 9.3.1.43</i>	
14305	>PDCP Re-establishment	ELEMENT	FALSE	<i>PDCP Re-establishment IE in TS 37.483 [21] Clause 9.3.1.38</i>	
14306	>PDCP Data Recovery	ELEMENT	FALSE	<i>PDCP Data Recovery IE in TS 37.483 [21] Clause 9.3.1.38</i>	
14307	>Out-of-Order Delivery	ELEMENT	FALSE	<i>Out of Order Delivery IE in TS 37.483 [21] Clause 9.3.1.38</i>	
14308	>PDCP Status Report Indication	ELEMENT	FALSE	<i>PDCP Status Report Indication IE in TS 37.483 [21] Clause 9.3.1.38</i>	
14309	>Number of PDCP duplication	ELEMENT	FALSE	<i>Additional PDCP duplication Information IE in TS 37.483 [21] Clause 9.3.1.38</i>	
14310	>UL More than one RLC	STRUCTURE			<i>moreThanOneRLC IE in TS 38.331 [22] Clause 6</i>
14311	>>Primary Path	STRUCTURE			<i>primaryPath IE in TS 38.331 [22] Clause 6</i>
14312	>>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup IE in TS 38.331 [22] Clause 6</i>	
14313	>>>Logical Channel ID	ELEMENT	FALSE	<i>logicalChannelIdentity IE in TS 38.331 [22] Sec 6</i>	
14314	>UL More than two RLC	STRUCTURE			<i>moreThanTwoRLC-DRB-r16 IE in TS 38.331 [22] Clause 6</i>
14315	>>Split Secondary Path	ELEMENT	FALSE	<i>splitSecondaryPath IE in TS 38.331 [22] Sec 6</i>	
14316	>>Duplication State	ELEMENT	FALSE	<i>duplicationState IE in TS 38.331 [22] Sec 6</i>	
14317	Averaging Window	ELEMENT	FALSE	<i>Averaging Window IE in TS 37.483 [21] Clause 9.3.1.49</i>	
14318	Delay Critical	ELEMENT	FALSE	<i>Delay Critical IE in TS 37.483 [21] Clause 9.3.1.28</i>	
14319	Maximum Data Burst Volume	ELEMENT	FALSE	<i>Maximum Data Burst Volume IE in TS 37.483 [21] Clause 9.3.1.50</i>	

### 8.1.1.6 QoS flow

The following RAN Parameters are associated with the NG-RAN QoS flow.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
15001	5QI	ELEMENT	FALSE	5QI IE in TS 37.483 [21] Clause 9.3.1.27 or TS 37.483 [21] Clause 9.3.1.28	
15002	Packet Delay Budget	ELEMENT	FALSE	Packet Delay Budget IE in TS 37.483 [21] Clause 9.3.1.47	
15003	Packet Error Rate	ELEMENT	FALSE	Packet Error Rate IE in TS 37.483 [21] Clause 9.3.1.48	
15004	NG-RAN DRB Allocation and Retention Priority	STRUCTURE			NG-RAN Allocation and Retention Priority IE in TS 37.483 [21] Clause 9.3.1.29
15005	>Priority Level	ELEMENT	FALSE	Priority Level IE in TS 37.483 [21] Clause 9.3.1.29	
15006	>Pre-emption Capability	ELEMENT	FALSE	Pre-emption Capability IE in TS 37.483 [21] Clause 9.3.1.29	
15007	>Pre-emption Vulnerability	ELEMENT	FALSE	Pre-emption Vulnerability IE in TS 37.483 [21] Clause 9.3.1.29	
15008	Priority Level of the mapped QoS flows	ELEMENT	FALSE	Priority Level IE in TS 37.483 [21] Clause 9.3.1.51	
15009	QoS parameters for GBR flows in NG-RAN Bearer	STRUCTURE			GBR QoS Flow Information IE in TS 37.483 [21] Clause 9.3.1.30
15010	>Maximum Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
15011	>Guaranteed Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
15012	>Maximum Packet Loss Rate Downlink	ELEMENT	FALSE	Packet Loss Rate IE in TS 37.483 [21] Clause 9.3.1.30	
15013	Maximum Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
15014	>Guaranteed Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
15015	>Maximum Packet Loss Rate Uplink	ELEMENT	FALSE	Packet Loss Rate IE in TS 37.483 [21] Clause 9.3.1.30	
15016	QoS Monitoring Enable Request	ELEMENT	FALSE	QoS Monitoring Request IE in TS 37.483 [21] Clause 9.3.1.26	
15017	QoS Monitoring Reporting Frequency	ELEMENT	FALSE	QoS Monitoring Reporting Frequency IE in TS 37.483 [21] Clause 9.3.1.26	
15018	QoS Monitoring Disabled	ELEMENT	FALSE	QoS Monitoring Disabled IE in TS 37.483 [21] Clause 9.3.1.26	
15019	Reflective QoS Mapping	ELEMENT	FALSE	RD/IE in TS 37.483 [21] Clause 9.3.1.26	
15020	Redundant QoS Flow Indicator	ELEMENT	FALSE	Redundant QoS Flow Indicator IE in TS 37.483 [21] Clause 9.3.1.74	
15021	Averaging Window	ELEMENT	FALSE	Averaging Window IE in TS 37.483 [21] Clause 9.3.1.49	
15022	Delay Critical	ELEMENT	FALSE	Delay Critical IE in TS 37.483 [21] Clause	

				9.3.1.28	
15023	Maximum Data Burst Volume	ELEMENT	FALSE	<i>Maximum Data Burst Volume IE in TS 37.483 [21] Clause 9.3.1.50</i>	

### 8.1.1.7 Cell Group

The following RAN Parameters are associated with the NR cell group item.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
15502	UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 37.483 [21] Clause 9.3.1.11</i>	
15503	RAT Type	ELEMENT	FALSE	<i>RAT Type IE in TS 37.483 [21] Clause 9.3.1.11</i>	
15504	Number of Tunnels	ELEMENT	FALSE	<i>Number of Tunnels IE in TS 37.483 [21] Clause 9.3.1.11</i>	

### 8.1.1.8 L2 Bearer State Variables

The following RAN Parameters are associated with UE-specific L2 bearer state variables across PDCP, RLC layers.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
16001	PDCP State Variables	STRUCTURE			PDCP State Variables defined in TS 38.323 [24] clause 7.1. LCID indicates logical channel ID, to pinpoint which PDCP entity.
16002	>LCID	ELEMENT	TRUE	INTEGER (0.. 63)	
16003	>TX_Next	ELEMENT	FALSE	INTEGER (0.. 2 <sup>32</sup> -1)	
16004	>RX_Next	ELEMENT	FALSE	INTEGER (0.. 2 <sup>32</sup> -1)	
16005	>RX_Deliv	ELEMENT	FALSE	INTEGER (0.. 2 <sup>32</sup> -1)	
16006	>RX_Reord	ELEMENT	FALSE	INTEGER (0.. 2 <sup>32</sup> -1)	
16010	RLC UM State Variables	STRUCTURE			RLC UM State Variables defined in TS 38.322 [25] clause 7.1. LCID indicates logical channel ID, to pinpoint which RLC UM entity.
16011	>LCID	ELEMENT	TRUE	INTEGER (0.. 63)	
16012	>TX_Next	ELEMENT	FALSE	INTEGER (0.. 4095)	
16013	>RX_Next_Reassembly	ELEMENT	FALSE	INTEGER (0.. 4095)	
16014	>RX_Timer_Trigger	ELEMENT	FALSE	INTEGER (0.. 4095)	
16015	>RX_Next_Highest	ELEMENT	FALSE	INTEGER (0.. 4095)	
16020	RLC AM State Variables	STRUCTURE			RLC AM State Variables defined in TS 38.322 [25] clause 7.1. LCID indicates logical channel ID, to pinpoint which RLC AM entity.
16021	>LCID	ELEMENT	TRUE	INTEGER (0.. 63)	
16022	>TX_Next_Ack	ELEMENT	FALSE	INTEGER (0.. 262143)	
16023	>TX_Next	ELEMENT	FALSE	INTEGER (0.. 262143)	
16024	>POLL_SN	ELEMENT	FALSE	INTEGER (0.. 262143)	
16025	>RX_Next	ELEMENT	FALSE	INTEGER (0.. 262143)	
16026	>RX_Next_Status_Trigger	ELEMENT	FALSE	INTEGER (0.. 262143)	
16027	>RX_Highest_Status	ELEMENT	FALSE	INTEGER (0.. 262143)	
16028	>RX_Next_Highest	ELEMENT	FALSE	INTEGER (0.. 262143)	

### 8.1.1.9 E-RAB QoS Parameters

The following RAN Parameters are associated with E-RAB QoS.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
16201	QCI	ELEMENT	FALSE	QCI IE in TS 36.423 [17] Clause 9.2.9	
16202	Allocation and Retention Priority	STRUCTURE			<i>Allocation and Retention Priority IE in TS 36.423 [17] Clause 9.2.31</i>
16203	>Priority Level	ELEMENT	FALSE	<i>Priority Level IE in TS 36.423 [17] Clause 9.2.31</i>	
16204	>Pre-emption Capability	ELEMENT	FALSE	<i>Pre-emption Capability IE in TS 36.423 [17] Clause 9.2.31</i>	
16205	>Pre-emption Vulnerability	ELEMENT	FALSE	<i>Pre-emption Vulnerability IE in TS 36.423 [17] Clause 9.2.31</i>	
16206	GBR QoS Information	STRUCTURE			<i>GBR QoS Information IE in TS 36.423 [17] Clause 9.2.9</i>
16207	>E-RAB Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>Bit Rate IE in TS 36.423 [17] Clause 9.2.11</i>	<i>E-RAB Maximum Bit Rate Downlink IE in TS 36.423 [17] Clause 9.2.10</i>
16208	>E-RAB Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>Bit Rate IE in TS 36.423 [17] Clause 9.2.11</i>	<i>E-RAB Maximum Bit Rate Uplink IE in TS 36.423 [17] Clause 9.2.10</i>
16209	>E-RAB Guaranteed Bit Rate Downlink	ELEMENT	FALSE	<i>Bit Rate IE in TS 36.423 [17] Clause 9.2.11</i>	<i>E-RAB Guaranteed Bit Rate Downlink IE in TS 36.423 [17] Clause 9.2.10</i>
16210	>E-RAB Guaranteed Bit Rate Downlink	ELEMENT	FALSE	<i>Bit Rate IE in TS 36.423 [17] Clause 9.2.11</i>	<i>E-RAB Guaranteed Bit Rate Downlink IE in TS 36.423 [17] Clause 9.2.10</i>
16211	Downlink Maximum Packet Loss Rate	ELEMENT	FALSE	<i>Packet Loss Rate IE in TS 36.423 [17] Clause 9.2.124</i>	<i>Downlink Maximum Packet Loss Rate IE in TS 36.423 [17] Clause 9.2.10</i>
16212	Uplink Maximum Packet Loss Rate	ELEMENT	FALSE	<i>Packet Loss Rate IE in TS 36.423 [17] Clause 9.2.124</i>	<i>Uplink Maximum Packet Loss Rate IE in TS 36.423 [17] Clause 9.2.10</i>

### 8.1.1.10 Connectivity and Mobility Event thresholds

The following RAN Parameters are associated with connectivity and mobility event thresholds, mainly related to A1, A2, A3, A4, A5, A6 events and inter-RAT B1 and B2 events.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
16500	Event AN Trigger Config	STRUCTURE			<i>EventTriggerConfig IE in TS 38.331 [22]</i>
16501	<b>&gt;CHOICE AN Event</b>	STRUCTURE			<i>eventID IE in TS 38.331 [22]</i>
16502	>>A1 Event	STRUCTURE			<i>EventA1 IE in TS 38.331 [22]</i>
16503	>>>A1-Threshold	STRUCTURE		8.1.1.3	
16504	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis IE in TS 38.331 [22]</i>	
16505	>>>RS-Type	ELEMENT	FALSE	<i>rsType IE in TS 38.331 [22]</i>	
16506	>>A2 Event	STRUCTURE			<i>EventA2 IE in TS 38.331 [22]</i>
16507	>>>A2-Threshold	STRUCTURE		8.1.1.3	
16508	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis IE in TS 38.331 [22]</i>	
16509	>>>RS-Type	ELEMENT	FALSE	<i>rsType IE in TS 38.331 [22]</i>	
16510	>>A3 Event	STRUCTURE			<i>EventA3 IE in TS 38.331 [22]</i>
16511	>>>A3-Offset	STRUCTURE		8.1.1.3	
16512	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis IE in TS 38.331 [22]</i>	
16513	>>>RS-Type	ELEMENT	FALSE	<i>rsType IE in TS 38.331 [22]</i>	
16514	>>A4 Event	STRUCTURE			<i>EventA4 IE in TS 38.331 [22]</i>
16515	>>>A4-Threshold	STRUCTURE		8.1.1.3	
16516	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis IE in TS 38.331 [22]</i>	
16517	>>>RS-Type	ELEMENT	FALSE	<i>rsType IE in TS 38.331 [22]</i>	
16518	>>A5 Event	STRUCTURE			<i>EventA5 IE in TS 38.331 [22]</i>
16519	>>>A5-Threshold1	STRUCTURE		8.1.1.3	
16520	>>>A5-Threshold2	STRUCTURE		8.1.1.3	
16521	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis IE in TS 38.331 [22]</i>	
16522	>>>RS-Type	ELEMENT	FALSE	<i>rsType IE in TS 38.331 [22]</i>	
16523	>>A6 Event	STRUCTURE			<i>EventA6 IE in TS 38.331 [22]</i>
16524	>>>A6-Offset	STRUCTURE		8.1.1.3	
16525	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis IE in TS 38.331 [22]</i>	
16526	>>>RS-Type	ELEMENT	FALSE	<i>rsType IE in TS 38.331 [22]</i>	
16550	Event Trigger Config Inter RAT	STRUCTURE			<i>EventTriggerConfigInt erRAT IE in TS 38.331 [22]</i>
16551	<b>&gt;CHOICE Inter-RAT Event</b>	STRUCTURE			<i>eventId IE in TS 38.331 [22]</i>
16552	>>B1 Event	STRUCTURE			<i>eventB1 IE in TS 38.331 [22]</i>
16553	>>>B1-Threshold	STRUCTURE		8.1.1.3	
16554	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis IE in TS 38.331 [22]</i>	

16555	>>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	
16556	>>B2 Event	STRUCTURE			<i>eventB2</i> IE in TS 38.331 [22]
16557	>>>B2-Threshold-NR	STRUCTURE		8.1.1.3	
16558	>>>B2-Threshold-EUTRA	STRUCTURE		8.1.1.3	
16559	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	
16560	>>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	

### 8.1.1.11 E2 Node

The following RAN Parameters are associated with the E2 node.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
17001	CHOICE E2 Node Component Type	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.26
17010	>NG-RAN gNB	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.27
17011	>>Global gNB ID	STRUCTURE			TS 38.413 [11] Clause 9.3.1.6
17012	>>>PLMN Identity	ELEMENT	FALSE	PLMN Identity IE in TS 38.413 [11] Clause 9.3.3.5	
17013	>>>CHOICE gNB ID	STRUCTURE			gNB ID IE in TS 38.413 [11] Clause 9.3.1.6
17014	>>>>gNB ID	STRUCTURE			gNB ID IE in TS 38.413 [11] Clause 9.3.1.6
17015	>>>>gNB ID	ELEMENT	FALSE	gNB ID IE in TS 38.413 [11] Clause 9.3.1.6	
17016	>>List of NR served cells	LIST			List of Served Cells NR IE in TS 38.423 [15] Clause 9.1.3.1
17017	>>>Served NR cell item	STRUCTURE			Individual cell item in the List of Served Cells NR
17028	>>>>Served NR cell	STRUCTURE		NR Cell IE in 8.1.1.1	
17018	>>Count of list of NR served cells	ELEMENT	FALSE	INTEGER (1..16384)	
17019	>>List of NR neighbour cells	LIST			Neighbour Information IE in TS 38.423 [15] Clause 9.2.2.13
17020	>>>NR neighbour cell item	STRUCTURE			Individual cell item in the Neighor Information IE NR
17031	>>>>Neighbour NR cell	STRUCTURE		NR Cell IE in 8.1.1.1	
17021	>>Number of RRC connections	ELEMENT	FALSE	Number of RRC connections IE in TS 38.423 [15] Clause 9.2.2.57	
17022	>>gNB Performance Measurements	STRUCTURE		8.1.1.15	
17050	>en-gNB	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.27
17051	>>Global en-gNB ID	STRUCTURE			TS 36.423 [17] Clause 9.2.112
17052	>>>PLMN Identity	ELEMENT	FALSE	PLMN Identity IE in TS 36.423 [17]	

				Clause 9.2.4	
17053	>>>CHOICE <i>en-gNB ID</i>	STRUCTURE		<i>en-gNB ID</i> IE in TS 36.423 [17] Clause 9.2.112	
17054	>>>> <i>en-gNB ID</i>	STRUCTURE		<i>en-gNB ID</i> IE in TS 36.423 [17] Clause 9.2.112	
17055	>>>> <i>en-gNB ID</i>	ELEMENT	FALSE	<i>en-gNB ID</i> IE in TS 36.423 [17] Clause 9.2.112	
17056	>>List of served NR cells	LIST			<i>List of Served Cells NR</i> IE in TS 38.423 [15] Clause 9.1.3.1
17057	>>>Served NR cell item	STRUCTURE			Individual cell item in the <i>List of Served Cells NR</i> IE
17068	>>>>Served NR cell	STRUCTURE		<i>NR Cell</i> IE in 8.1.1.1	
17058	>>Count of list of NR served cells	ELEMENT	FALSE	INTEGER (1..16384)	
17059	>>List of NR neighbour cells	LIST			<i>Neighbour Information</i> IE in TS 38.423 [15] Clause 9.2.2.13
17060	>>>NR neighbour cell item	STRUCTURE			Individual cell item in <i>Neighbour Information</i> IE
17065	>>>>NR neighbour cell	STRUCTURE		<i>NR Cell</i> IE in 8.1.1.1	
17061	>>gNB Performance Measurements	STRUCTURE		8.1.1.15	<i>gNB Measurements</i> IE in Sec 8.1.1.15
17070	>ng-eNB	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.27
17071	>>ng-eNB ID	STRUCTURE			<i>ng-eNB ID</i> IE in TS 38.413 [11] Clause 9.2.2.2
17072	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Clause 9.3.1.6	
17073	>>>CHOICE <i>ng-eNB ID</i>	STRUCTURE			<i>Ng-eNB ID</i> IE in TS 38.413 [11] Clause 9.2.2.2
17074	>>>>Macro <i>ng-eNB ID</i>	STRUCTURE			<i>Macro ng-eNB ID</i> IE in TS 38.413 [11] Clause 9.2.2.2
17075	>>>>>Macro <i>ng-eNB ID</i>	ELEMENT	FALSE	<i>Macro ng-eNB ID</i> IE in TS 38.413 [11] Clause 9.2.2.2	
17076	>>>>Short Macro <i>ng-eNB ID</i>	STRUCTURE			<i>Short Macro ng-eNB ID</i> IE in TS 38.413

					[11] Clause 9.2.2.2
17077	>>>Short Macro <i>ng-eNB ID</i>	ELEMENT	FALSE	<i>Short Macro ng-eNB ID IE in TS 38.413 [11]</i> Clause 9.2.2.2	
17078	>>>Long Macro <i>ng-eNB ID</i>	STRUCTURE			<i>Long Macro ng-eNB ID IE in TS 38.413 [11]</i> [11] Clause 9.2.2.2
17079	>>>Long Macro <i>ng-eNB ID</i>	ELEMENT	FALSE	<i>Long Macro ng-eNB ID IE in TS 38.413 [11]</i> Clause 9.2.2.2	
17080	>>List of E-UTRA served cells	LIST			<i>List of Served Cells E-UTRA IE in TS 38.423 [15]</i> Clause 9.1.3.1
17081	>>>Served E-UTRA cell item	STRUCTURE			Individual cell item in <i>List of Served Cells E-UTRA IE</i>
17092	>>>Served E-UTRA cell	STRUCTURE		8.1.1.2	
17082	>>Count of list of E-UTRA served cells	ELEMENT	FALSE	INTEGER (0..16384)	
17083	>>List of E-UTRA neighbour cells	LIST			<i>Neighbour Information E-UTRA IE in TS 38.423 [15]</i> Clause 9.2.2.14
17084	>>>E-UTRA neighbour cell item	STRUCTURE			Individual cell item in <i>Neighbour Information E-UTRA IE</i>
17095	>>>E-UTRA neighbour cell	STRUCTURE		8.1.1.2	
17085	>>Number of RRC connections	ELEMENT	FALSE	<i>Number of RRC connections IE in TS 38.423 [15]</i> Clause 9.2.2.57	
17086	>>eNB Performance Measurements	STRUCTURE		8.1.1.18	
17100	>NG-RAN gNB CU-CP	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.27
17101	>>Global gNB CU-CP ID	STRUCTURE			TS 38.413 [11] Clause 9.3.1.6
17102	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11]</i> Clause 9.3.3.5	
17103	>>>CHOICE gNB ID	STRUCTURE			<i>gNB ID IE in TS 38.413 [11]</i> Clause 9.3.1.6
17104	>>>gNB ID	STRUCTURE			<i>gNB ID IE in TS 38.413 [11]</i> Clause 9.3.1.6
17105	>>>>gNB ID	ELEMENT	FALSE	<i>gNB ID IE in TS 38.413 [11]</i> Clause 9.3.1.6	
17107	>>List of activated NR cells	LIST			<i>Cells to be</i>

					<i>Activated List IE in TS 38.473 [19] Clause 9.2.1.10</i>
17108	>>>NR cell item	STRUCTURE			<i>Cells to be Activated Item IE in TS 38.473 [19] Clause 9.2.1.10</i>
17109	>>>>NR cell	STRUCTURE		<i>NR Cell IE in 8.1.1.1</i>	
17110	>>>>Available PLMN List	LIST			<i>Available PLMN List IE in TS 38.473 [19] Clause 9.2.1.10</i>
17111	>>>>PLMN Item	STRUCTURE			<i>Available PLMN Item IEs IE in TS 38.473 [19] Clause 9.3.1.65</i>
17112	>>>>>PLMN ID	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11] Clause 9.3.3.5</i>	
17113	>>List of de-activated NR cells	LIST			<i>Cells to be Deactivated List IE in TS 38.473 [19] Clause 9.2.1.10</i>
17114	>>>NR cell item	STRUCTURE			<i>Individual cell item in Cells to be Deactivated List IE</i>
17515	>>>>NR cell	STRUCTURE		<i>NR Cell IE in 8.1.1.1</i>	
17115	>>List of barred NR cells	LIST			<i>Cells to be barred List IE in TS 38.473 [19] Clause 9.2.1.10</i>
17116	>>>NR cell item	STRUCTURE			<i>Individual cell item in Cells to be barred List IE</i>
17517	>>>>NR cell	STRUCTURE		<i>NR Cell IE in 8.1.1.1</i>	
17117	>>Count of list of NR served cells	ELEMENT	FALSE	<i>INTEGER (0..16384)</i>	
17118	>>List of NR neighbour cells	LIST			<i>Neighbour Cell Information List IE in TS 38.473 [19] Clause 9.2.1.10</i>
17119	>>>NR neighbour cell item	STRUCTURE			<i>Individual Cell Item in Neighbour Cell Information List IE</i>
17520	>>>>NR neighbour cell	STRUCTURE		<i>NR Cell IE in</i>	

				8.1.1.1	
17120	>>Number of RRC connected UEs	ELEMENT	FALSE	<i>Number of RRC connections IE in TS 38.423 [15] Clause 9.2.2.57</i>	
17121	>>gNB CU-CP Performance Measurements	STRUCTURE		8.1.1.12	
17130	>NG-RAN gNB DU	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.27
17132	>>gNB-DU ID	ELEMENT	FALSE	<i>gNB-DU ID IE in TS 38.473 [19] Clause 9.3.1.9</i>	
17133	>>List of NR served cells	LIST			<i>List of Served Cells NR IE in TS 38.423 [15] Clause 9.1.3.1</i>
17134	>>>Served NR cell item	STRUCTURE			Individual cell item in <i>List of Served Cells NR IE</i>
17535	>>>>Served NR cell	STRUCTURE		<i>NR Cell IE in 8.1.1.1</i>	
17135	>>gNB DU Measurements	STRUCTURE		8.1.1.14	
17140	>NG-RAN gNB CU-UP	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.27
17141	>>gNB CU-UP ID	ELEMENT	TRUE	<i>gNB-CU-UP ID IE in TS 37.483 [21] Clause 9.3.1.15</i>	
17142	>>gNB CU-UP Capacity	ELEMENT	FALSE	<i>gNB-CU-UP Capacity IE in TS 37.483 [21] Clause 9.3.1.56</i>	
17143	>>gNB CU-UP Performance Measurements	STRUCTURE		8.1.1.13	
17150	>eNB	STRUCTURE			O-RAN WG3 E2AP Clause 9.2.27
17151	>>eNB ID	STRUCTURE			<i>eNB ID IE TS 36.423 [17] Clause 9.2.2.2</i>
17152	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 36.423 [17] Clause 9.2.4</i>	
17153	>>>CHOICE eNB ID	STRUCTURE			<i>Global eNB ID IE in TS 36.423 [17] Clause 9.2.22</i>
17154	>>>>Macro eNB ID	STRUCTURE			<i>Macro eNB ID IE in TS 36.423 [17] Clause 9.2.22</i>
17155	>>>>>Macro eNB ID	ELEMENT	FALSE	<i>Macro eNB ID IE in TS 36.423 [17] Clause 9.2.22</i>	
17156	>>>>Home eNB ID	STRUCTURE			<i>Home eNB ID IE in TS 36.423 [17] Clause 9.2.22</i>
17157	>>>>Home eNB ID	ELEMENT	FALSE	<i>Home eNB ID IE in TS 36.423 [17] Clause 9.2.22</i>	
17158	>>>>Short Macro eNB ID	STRUCTURE			<i>Short Macro</i>

					eNB ID IE in TS 36.423 [17] Clause 9.2.22
17159	>>>>Short Macro eNB ID	ELEMENT	FALSE	Short Macro eNB ID IE in TS 36.423 [17] Clause 9.2.22	
17160	>>>Long Macro eNB ID	STRUCTURE			Long Macro eNB ID IE in TS 36.423 [17] Clause 9.2.22
17161	>>>>Long Macro eNB ID	ELEMENT	FALSE	Long Macro eNB ID IE in TS 36.423 [17] Clause 9.2.22	
17162	>>List of E-UTRA served cells	LIST			List of Served Cells E-UTRA IE in TS 38.423 [15] Clause 9.1.3.1
17163	>>>Served E-UTRA cell item	STRUCTURE			Individual cell item in List of Served Cells E-UTRA IE
17564	>>>Served E-UTRA cell	STRUCTURE		8.1.1.2	
17164	>>Count of list of E-UTRA served cells	ELEMENT	FALSE	INTEGER (0..16384)	
17165	>>List of E-UTRA neighbour cells	LIST			Neighbour Information E-UTRA IE in TS 38.423 [15] Clause 9.2.2.14
17166	>>>E-UTRA neighbour cell item	STRUCTURE			Individual cell item in Neighbour Information E-UTRA IE
17567	>>>E-UTRA neighbour cell	STRUCTURE		8.1.1.2	
17167	>>Number of RRC connected UEs	ELEMENT	FALSE	Number of RRC connections IE in TS 38.423 [15] Clause 9.2.2.57	
17168	>>List of NR neighbour cells	LIST			Neighbour Information IE in TS 38.423 [15] Clause 9.2.2.13
17169	>>>NR neighbour cell item	STRUCTURE			Individual cell item in Neighbour Information IE
17570	>>>NR neighbour cell	STRUCTURE		8.1.1.1	
17170	>>eNB Performance Measurements	STRUCTURE		8.1.1.18	
17200	TAI Support List	LIST			TAI Support List IE in TS 38.423 [15] Clause 9.2.3.20
17201	>TAI Support Item	STRUCTURE			TAI Support Item IE in TS 38.423 [15] Clause

					9.2.3.20
17202	>>TAC	ELEMENT	FALSE	TAC IE in TS 38.423 [15] Clause 9.2.2.5	
17203	>>List of Broadcast PLMNs	LIST			Broadcast PLMNs IE in TS 38.423 [15] Clause 9.2.3.20
17204	>>>Broadcast PLMN Item	STRUCTURE			Broadcast PLMNs IE in TS 38.423 [15] Clause 9.2.3.20
17205	>>>PLMN Identity	ELEMENT	FALSE	PLMN Identity IE in TS 38.413 [11] Clause 9.3.3.5	
17206	>>>TAI Slice Support List	LIST			TAI Slice Support List IE in TS 38.423 [15] Clause 9.2.3.20
17207	>>>>Slice Support Item	STRUCTURE			Slice Support Item IE in TS 38.423 [15] Clause 9.2.3.20
17208	>>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Clause 9.3.1.38
17209	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
17210	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
17211	>>>Count of TAI Slice Support List	ELEMENT	FALSE	INTEGER (0..1024)	
17212	>>>NR CGI Support List	LIST			List of Served Cells NR IE in TS 38.423 [15] Clause 9.1.3.1
17213	>>>NR CGI Cell Support Item	STRUCTURE			Individual cell item in List of Served Cells NR IE
17614	>>>>NR CGI Cell	STRUCTURE		NR Cell IE in 8.1.1.1	
17214	>>>E-UTRA CGI Support List	LIST			List of Served Cells E-UTRA IE in TS 38.423 [15] Clause 9.1.3.1
17215	>>>E-UTRA CGI Cell Support Item	STRUCTURE			Individual cell item in List of Served Cells E-UTRA IE
17616	>>>>E-UTRA CGI	STRUCTURE		E-UTRA Cell IE in 8.1.1.2	
17216	>>>QoS Parameters Support List	LIST			QoS Flow List IE in TS 37.483 [21] Clause

					9.3.1.12
17217	>>>QoS Parameters Support Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21]</i> Clause 9.3.1.12
17218	>>>>CHOICE QoS Parameters Support Item	STRUCTURE			
17219	>>>>>NG-RAN QoS Support Item	STRUCTURE		8.1.1.6	
17221	>>>>>E-UTRA QoS Support Item	STRUCTURE		8.1.1.9	
17223	>>Count of list of broadcast PLMNs	ELEMENT	FALSE	INTEGER (0..12)	
17224	Count of TAI Support List	ELEMENT	FALSE	INTEGER (0..256)	

### 8.1.1.12 gNB CU-CP Measurements

The following RAN Parameters are associated with the gNB CU-CP measurements.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
18001	Inter-gNB Handovers	STRUCTURE			TS 28.552 [28] Sec 5.1.1.6.1
18002	>Number of requested handover operations	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.7.1.1
18003	>Number of successful handover preparations	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.7.1.2
18004	>List of failure causes in handover preparations	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.6.1.3
18005	>>Failure Cause Item	STRUCTURE			
18006	>>>Failure Cause	ELEMENT	TRUE	Cause IE in TS 38.423 [15] Clause 9.2.3.2	
18007	>>Number of failed handover preparations for the cause	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.3
18008	>Number of requested handover resource allocations	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.4
18009	>Number of successful handover resource allocations	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.5
18010	>List of failure causes	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.6.1.6
18011	>>Failure Cause Item	STRUCTURE			
18012	>>>Failure Cause	ELEMENT	TRUE	Cause IE in TS 38.413 [11] Clause 9.3.1.2	
18013	>>>Number of failed handover resource allocations for the cause	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.6
18014	>Number of requested handover executions	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.7
18015	>Number of successful handover executions	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.8
18016	>List of failure causes in handover execution	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.6.1.9
18017	>>Failure cause Item	STRUCTURE			
18018	>>>Failure Cause	ELEMENT	TRUE	Cause IE in TS 38.423 [15] Clause 9.2.3.2	
18019	>>>Number of failed handover executions for the cause	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.9
18020	>List of Slices	LIST		0..<maxnoofslices>	TS 28.552 [28] Sec 5.1.1.6.1.10
18021	>>Slice Item	STRUCTURE			
18022	>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Clause 9.3.1.38
18023	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
18024	>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
18025	>>>Mean Time of requested handover executions	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.10
18026	>>>Max Time of requested handover executions	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.1.11
18031	>MRO Measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.25
18032	>>Number of too-early handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.1
18033	>>Number of too-late handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28]

					Sec 5.1.1.25.1
18034	>>Number of wrong cell handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.1
18051	Intra-gNB Handovers	STRUCTURE			TS 28.552 [28] Sec 5.1.3.7.1
18052	>Number of requested handover executions	ELEMENT	FALSE		TS 28.552 [28] Sec 5.1.1.6.2.1
18053	>Number of successful handover executions	ELEMENT	FALSE		TS 28.552 [28] Sec 5.1.1.6.2.2
18054	List of UE Context release causes	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.3.5.2
18055	>Release Cause Item	STRUCTURE			
18056	>>Release Cause	ELEMENT	TRUE	Cause IE in TS 38.473 [19] Clause 9.3.1.2	
18057	>>Number of UE Context Release Requests	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.5.2
18061	>MRO Measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.25
18062	>>Number of too-early handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.1
18063	>>Number of too-late handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.1
18064	>>Number of wrong cell handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.1
18400	Average normally-released call duration for 5QI 1 QoS flow	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.24.1
18071	Distribution bins for normally-released call duration for 5QI 1 QoS flow	LIST		0..<maxnoofbins>	TS 28.552 [28] Sec 5.1.3.8
18072	>Distribution bin item	STRUCTURE			
18073	>>Call Duration Bin Value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.8
18074	>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.8
18450	Average abnormally-released call duration for 5QI 1 QoS flow	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.24.2
18075	Distribution bins for abnormally-released call duration for 5QI 1 QoS flow	LIST		0..<maxnoofbins>	TS 28.552 [28] Sec 5.1.3.9
18076	>Distribution bin item	STRUCTURE			
18077	>>Call Duration Bin Value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.9
18078	>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.9
18100	RRC connection related measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.15
18101	>List of attempted RRC connection establishment causes	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.15.1
18102	>>Attempted RRC connection establishment cause item	STRUCTURE			
18103	>>>Cause	ELEMENT	TRUE	Cause IE in TS 38.331 [22] Sec 6.2.2	
18104	>>>Number of attempted RRC connection establishments	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.15.1
18111	>List of successful RRC connection establishment causes	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.15.2
18112	>>Successful RRC connection establishment cause item	STRUCTURE			
18113	>>>Cause	ELEMENT	TRUE	Cause IE in TS 38.331 [22] Sec 6.2.2	
18114	>>>Number of successful RRC connection establishments	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.15.2
18121	>Number of RRC connection re-establishment attempts	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.17.1

18122	>Successful number of RRC connection re-establishment with UE context	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.17.2
18123	>Successful number of RRC connection re-establishment without UE context	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.17.3
18131	>List of RRC connection resuming attempt causes	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.18.1
18132	>>Cause item	STRUCTURE			
18133	>>>Cause	ELEMENT	TRUE	Cause IE in TS 38.331 [22] Sec 6.2.2	
18134	>>>Number of RRC connection resuming attempts	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.18.1
18141	>List of successful RRC connection resuming causes	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.18.2
18142	>>Cause item	STRUCTURE			
18143	>>>Cause	ELEMENT	TRUE	Cause IE in TS 38.331 [22] Sec 6.2.2	
18144	>>>Number of successful RRC connection resuming attempts	ELEMENT	FALSE		TS 28.552 [28] Sec 5.1.1.18.2
18151	>List of causes for successful RRC connection resuming with fallback	LIST		0..<maxnoofcauses>	TS 28.552 [28] Sec 5.1.1.18.3
18152	>>Cause item	STRUCTURE			
18153	>>>Cause	ELEMENT	TRUE	Cause IE in TS 38.331 [22] Sec 6.2.2	
18154	>>>Number of successful RRC connection resuming attempts with fallback	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.18.3
18161	>Number of RRC connection resuming processes followed by network release	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.18.4
18162	>Number of RRC connection resuming processes followed by network suspension	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.18.5
18163	>Mean number of RRC connections	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.4.1
18164	>Maximum number of RRC connections	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.4.2
18165	>Mean number of stored inactive RRC connections	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.4.3
18166	>Maximum number of stored inactive RRC connections	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.4.4
18200	QoS flow related measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.13
18201	>List of QoS levels	LIST		0..<maxnoofflows>	TS 28.552 [28] Sec 5.1.1.13
18202	>>QoS level item	STRUCTURE			
18203	>>>CHOICE QoS level	STRUCTURE			
18204	>>>>5QI	ELEMENT	TRUE	5QI IE in TS 38.413 [11] Clause 9.3.1.28	
18205	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Clause 9.3.1.38
18206	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
18207	>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
18210	>>>Number of QoS flows attempted to release	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.13.1.2
18211	>>>In-session activity time	ELEMENT	FALSE	INTEGER	TS 28.552 [28]

					Sec 5.1.1.13.2.1
18212	>>>Number of QoS flows attempted to setup	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.13.3.1
18213	>>>Number of QoS flows successfully established	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.13.2.1
18214	>>>Number of QoS flows attempted to modify	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.13.4.1
18215	>>>Number of QoS flows successfully modified	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.13.4.2
18216	>>>Number of QoS flows failed to modify	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.13.4.3
18250	DRB related measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.10
18251	>List of QoS levels	LIST		0..<maxnoofflow s>	TS 28.552 [28] Sec 5.1.1.10
18252	>>QoS level item	STRUCTURE			
18253	>>>CHOICE QoS level	STRUCTURE			
18254	>>>>5QI	ELEMENT	TRUE	5QI/ IE in TS 38.413 [11] Clause 9.3.1.28	
18255	>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
18256	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
18257	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
18258	>>>Number of DRBs attempted to setup	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.10.1
18259	>>>Number of DRBs successfully setup	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.10.2
18260	>>>Number of released active DRBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.10.3
18261	>>>In-session activity time for DRBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.10.4
18262	>Total number of DRBs successfully setup aggregated across QoS levels	ELEMENT	FALSE	INTEGER	
18270	PDU Session Management	STRUCTURE			TS 28.552 [28] Sec 5.1.1.5
18271	>List of slices	LIST		0..<maxnoofslice s>	TS 28.552 [28] Sec 5.1.1.18.5
18272	>>Slice Item	STRUCTURE			
18273	>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
18274	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
18275	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
18276	>>>Number of PDU sessions requested for setup	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.5.1
18277	>>>Number of PDU sessions successfully setup	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.5.2
18278	>>>Number of PDU sessions failed to setup	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.5.3
18301	Inter-system mobility measurements	STRUCTURE			TS 28.552 [28]

	between 5GS and EPS				Sec 5.1.1.6.3
18302	>Number of requested HO preparations	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.1
18303	>Number of successful HO preparations	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.2
18304	>Number of failed HO preparations	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.3
18305	>Number of requested resource allocations for HO	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.4
18306	>Number of successful resource allocations for HO	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.5
18307	>Number of failed resource allocations for HO	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.6
18308	>Number of requested HO executions	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.7
18309	>Number of successful HO executions	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.8
18310	>Number of failed HO executions	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.6.3.9
18321	>MRO measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.25
18322	>>Number of too early handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.2
18323	>>Number of too late handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.2
18324	>>Number of unnecessary handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.3
18325	>>Number of ping-pong handovers	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.25.4

### 8.1.1.13 gNB CU-UP Measurements

The following RAN Parameters are associated with gNB CU-UP measurements.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
19001	Packet delay measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
19002	>List of QoS levels	LIST			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
19003	>>QoS level item	STRUCTURE			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
19004	>>>CHOICE QoS level	STRUCTURE			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
19005	>>>>5QI	ELEMENT	TRUE	5Q/ IE in TS 38.413 [11] Clause 9.3.1.28	
19006	>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
19007	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
19008	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
19009	>>>PDCP re-ordering delay in the UL	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.1.5
19010	>>>Distribution bins for DL packet delay	LIST		0..<maxnoofbins>	TS 28.552 [28] Sec 5.1.1.1.6 and 5.1.3.3.4
19011	>>>>Distribution bin item	STRUCTURE			
19012	>>>>>DL packet delay bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.1.6 and 5.1.3.3.4
19013	>>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.1.6 and 5.1.3.3.4
19021	>>>Distribution bins for UL packet delay	LIST			TS 28.552 [28] Sec 5.1.1.1.7
19022	>>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.1.7
19023	>>>>>DL packet delay bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.1.7
19024	>>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.1.7
19051	>>>UL PDCP SDU Loss Rate	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.1.1
19052	>>>UL F1-U Packet Loss Rate	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.1.2
19053	>>>DL PDCP SDU Drop Rate	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.2.1
19054	>>>Average delay DL	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.3.3.1
19055	>>>Average delay DL on F1-U	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.3.3.2
19056	>>>Distribution bins for DL packet delay on F1-U	LIST			TS 28.552 [28] Sec 5.1.3.3.5
19057	>>>>Distribution bin item	STRUCTURE			
19058	>>>>>DL packet delay bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.3.5

19059	>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.3.5
19071	PDCP data volume Measurement	STRUCTURE			TS 28.552 [28] Sec 5.1.3.6
19072	>List of QoS levels	LIST			TS 28.552 [28] Sec 5.1.3.6
19073	>>QoS level item	STRUCTURE			TS 28.552 [28] Sec 5.1.3.6
19074	>>>CHOICE QoS level	STRUCTURE			TS 28.552 [28] Sec 5.1.3.6
19075	>>>>5QI	ELEMENT	TRUE	5Q/IE in TS 38.413 [11] Clause 9.3.1.28	
19076	>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
19077	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
19078	>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
19079	>>>DL PDCP PDU Data Volume	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.6.1
19080	>>>DL PDCP SDU Data Volume	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.6.2

#### 8.1.1.14 gNB DU Measurements

The following RAN Parameters are associated with gNB DU measurements.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
20001	Packet delay measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
20002	>List of QoS levels	LIST			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
20003	>>QoS level item	STRUCTURE			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
20004	>>>CHOICE QoS level	STRUCTURE			TS 28.552 [28] Sec 5.1.3.3 and 5.1.1.1
20005	>>>>5QI	ELEMENT	TRUE	5Q/ IE in TS 38.413 [11] Clause 9.3.1.28	
20006	>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
20007	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
20008	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
20009	>>>Average delay DL air-interface	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.1.1
20010	>>>Average delay UL on over-the-air interface	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.1.1
20011	>>>Average RLC packet delay in the UL	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.1.1.4
20012	>>>Distribution bins for DL air-interface delay	LIST			TS 28.552 [28] Sec 5.1.1.1.2
20013	>>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.1.2
20014	>>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.1.2
20015	>>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.1.2
20018	List of NR cells	LIST			Cell-specific measurements as in TS 28.552 [28] Sec 5.1.1.2
20019	>NR Cell Item	STRUCTURE		8.1.1.1	
20020	>>NR CGI	ELEMENT	TRUE	NR CG/ IE in TS 38.423 [15] Clause 9.2.2.7	
20021	>>Radio Resource Utilization	STRUCTURE			TS 28.552 [28] Sec 5.1.1.2
20022	>>>DL Total PRB Usage	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.1
20023	>>>UL Total PRB Usage	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.2
20024	>>>Distribution bins for DL Total PRB Usage	LIST			TS 28.552 [28] Sec 5.1.1.2.3
20025	>>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.2.3
20026	>>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.3
20027	>>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.3

20028	>>>Distribution bins for UL Total PRB Usage	LIST			TS 28.552 [28] Sec 5.1.1.2.4
20029	>>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.2.4
20030	>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.4
20031	>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.4
20032	>>>List of QoS levels	LIST			TS 28.552 [28] Sec 5.1.1.2.5
20033	>>>>QoS level item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.2.5
20034	>>>>CHOICE QoS level	STRUCTURE			TS 28.552 [28] Sec 5.1.1.2.5
20035	>>>>>5QI	ELEMENT	TRUE	5Q/IE in TS 38.413 [11] Clause 9.3.1.28	
20036	>>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
20037	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
20038	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
20039	>>>>DL PRB used for data traffic	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.5
20040	>>>>UL PRB used for data traffic	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.5
20041	>>DL total available PRB	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.6
20042	>>UL total available PRB	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.2.8
20051	UE Throughput Measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.3
20052	>List of QoS levels	LIST			TS 28.552 [28] Sec 5.1.1.3
20053	>>QoS level item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.3
20054	>>>CHOICE QoS level	STRUCTURE			TS 28.552 [28] Sec 5.1.1.3
20055	>>>>5QI	ELEMENT	TRUE	5Q/IE in TS 38.413 [11] Clause 9.3.1.28	
20056	>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
20057	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
20058	>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
20059	>>Average DL UE throughput	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.1.3.1
20060	>>Average UL UE throughput	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.1.3.3
20061	>>Percentage of unrestricted DL UE throughput	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.3.5
20062	>>Percentage of unrestricted UL UE throughput	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.3.6
20063	>>Distribution bins for DL UE throughput	LIST			TS 28.552 [28] Sec 5.1.1.3.2

20064	>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.3.2
20065	>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.3.2
20066	>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.3.2
20067	>>Distribution bins for UL UE throughput	LIST			TS 28.552 [28] Sec 5.1.1.3.4
20068	>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.3.4
20069	>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.3.4
20070	>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.3.4
20098	List of NR Cells	LIST			Cell-specific measurements as in TS 28.552 [28] Sec 5.1.1.7
20099	>NR Cell Item	STRUCTURE		8.1.1.1	
20100	>>NR CGI	ELEMENT	TRUE	NR CGI IE in TS 38.423 [15] Clause 9.2.2.7	
20101	>>TB-related Measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7
20102	>>>DL initial TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7
20103	>>>>Total number of DL initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.1
20104	>>>>Total number of DL QPSK initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.1
20105	>>>>Total number of DL 16QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.1
20106	>>>>Total number of DL 64QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.1
20107	>>>UL initial TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.6
20108	>>>>Total number of UL initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.6
20109	>>>>Total number of UL QPSK initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.6
20110	>>>>Total number of UL 16QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.6
20111	>>>>Total number of UL 64QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.6
20121	>>>Initial error number of DL TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.2
20122	>>>>Error number of DL initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.2
20123	>>>>Error number of DL QPSK initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.2
20124	>>>>Error number of DL 16QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.2
20125	>>>>Error number of DL 64QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.2
20126	>>>Initial error number of UL TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.7
20127	>>>>Error number of UL initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.7
20128	>>>>Error number of UL QPSK initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.7
20129	>>>>Error number of UL 16QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.7
20130	>>>>Error number of UL 64QAM initial TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.7

20131	>>>DL total TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.3
20132	>>>>Total number of DL TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20133	>>>>Total number of DL QPSK TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20134	>>>>Total number of DL 16QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20135	>>>>Total number of DL 64QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20136	>>>UL total TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.8
20137	>>>>Total number of UL TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.8
20138	>>>>Total number of UL QPSK TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.8
20139	>>>>Total number of UL 16QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.8
20140	>>>>Total number of UL 64QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.8
20141	>>>Total error number of DL TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.3
20142	>>>>Total error number of DL TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20143	>>>>Total error number of DL QPSK TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20144	>>>>Total error number of DL 16QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20145	>>>>Total error number of DL 64QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.3
20146	>>>Total error number of UL TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.9
20147	>>>>Total error number of UL TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.9
20148	>>>>Total error number of UL QPSK TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.9
20149	>>>>Total error number of UL 16QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.9
20150	>>>>Total error number of UL 64QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.9
20151	>>>Residual error number of DL TBs	STRUCTURE			TS 28.552 [28] Sec
20152	>>>>Residual error number of DL TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.5
20153	>>>>Residual error number of DL QPSK TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.5
20154	>>>>Residual error number of DL 16QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.5
20155	>>>>Residual error number of DL 64QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.5
20156	>>>Residual error number of UL TBs	STRUCTURE			TS 28.552 [28] Sec 5.1.1.7.10
20157	>>>>Residual error number of UL TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.10
20158	>>>>Residual error number of UL QPSK TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.10
20159	>>>>Total error number of UL 16QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.10
20160	>>>>Total error number of UL 64QAM TBs	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.7.10
20201	>>CQI-related measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.11
20202	>>>Distribution bins of CQI values	LIST			TS 28.552 [28] Sec 5.1.1.11
20203	>>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.11

20204	>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.11
20205	>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.11
20206	>>MCS-related measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.1.12
20207	>>>Distribution bins of PDSCH MCS values	LIST			TS 28.552 [28] Sec 5.1.1.12.1
20208	>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.12.1
20209	>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.12.1
20210	>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.12.1
20211	>>>Distribution bins of PUSCH MCS values	LIST			TS 28.552 [28] Sec 5.1.1.12.2
20212	>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.12.2
20213	>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.12.2
20214	>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.12.2
20251	>>Number of active UE measurements	STRUCTURE		INTEGER	TS 28.552 [28] Sec 5.1.1.23
20252	>>>List of QoS levels	LIST			TS 28.552 [28] Sec 5.1.1.23
20253	>>>QoS level item	STRUCTURE			TS 28.552 [28] Sec 5.1.1.23
20254	>>>>CHOICE QoS level	STRUCTURE			TS 28.552 [28] Sec 5.1.1.23
20255	>>>>>5QI	ELEMENT	TRUE	5Q/ IE in TS 38.413 [11] Clause 9.3.1.28	
20256	>>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38
20257	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
20258	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
20259	>>>>Number of active UEs in the DL	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.23.1
20260	>>>>Maximum number of active UEs in the DL	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.23.2
20261	>>>>Number of active UEs in the UL	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.23.3
20262	>>>>Maximum number of active UEs in the UL	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.23.4
20271	Packet level measurements	STRUCTURE			TS 28.552 [28] Sec 5.1.3
20272	>List of QoS levels	LIST			TS 28.552 [28] Sec 5.1.3
20273	>>QoS level item	STRUCTURE			TS 28.552 [28] Sec 5.1.3
20274	>>>CHOICE QoS level	STRUCTURE			TS 28.552 [28] Sec 5.1.3
20275	>>>>5QI	ELEMENT	TRUE	5Q/ IE in TS 38.413 [11] Clause 9.3.1.28	
20276	>>>>S-NSSAI	STRUCTURE			S-NSSAI/ IE in TS 38.473 [19] Clause 9.3.1.38

20277	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
20278	>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
20279	>>>DL F1-U Packet Loss Rate	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.1.3
20280	>>>DL RLC SDU Packet Drop Rate	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.2.2
20281	>>>Average delay DL in gNB-DU	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.3.3.3
20282	>>>Distribution bins of DL delay	LIST			TS 28.552 [28] Sec 5.1.3.3.6
20283	>>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.3.3.6
20284	>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.3.6
20285	>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.1.3.6
20286	>>>Average IP latency DL	ELEMENT	FALSE	REAL	TS 28.552 [28] Sec 5.1.3.4.2
20287	>>>Distribution bins of DL IP latency	LIST			TS 28.552 [28] Sec 5.1.3.4.3
20288	>>>>Distribution bin item	STRUCTURE			TS 28.552 [28] Sec 5.1.3.4.3
20289	>>>>Bin value	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.4.3
20290	>>>>Number of samples	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.4.3
20291	Number of UE Context release requested from gNB-DU	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 5.1.3.5.1

### 8.1.1.15 gNB Measurements

The following RAN Parameters are associated with the gNB measurements.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
20501	gNB CU-CP Measurements	STRUCTURE		8.1.1.12	For both UE- and E2 node level measurements
20502	gNB CU-UP Measurements	STRUCTURE		8.1.1.13	For both UE- and E2 node level measurements
20503	gNB DU Measurements	STRUCTURE		8.1.1.14	For both UE- and E2 node level measurements

### 8.1.1.16 PDU Session

The following RAN Parameters are associated with PDU session.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
21001	S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Clause 9.3.1.38
21002	>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
21003	>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
21004	PDU Session Aggregate Maximum Bit Rate	STRUCTURE			<i>PDU Session Aggregate Maximum Bit Rate IE in TS 38.413 [11] Clause 9.3.1.102</i>
21005	>PDU Session Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>PDU Session Aggregate Maximum Bit Rate Downlink IE in TS 38.413 [11] Clause 9.3.1.102</i>	
21006	>PDU Session Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>PDU Session Aggregate Maximum Bit Rate Uplink IE in TS 38.413 [11] Clause 9.3.1.102</i>	
21008	>Data Forwarding Not Possible	ELEMENT	FALSE	<i>Data Forwarding Not Possible IE in TS 38.413 [11] Clause 9.3.1.63</i>	
21009	>PDU Session Type	ELEMENT	FALSE	<i>PDU Session Type IE in TS 38.413 [11] Clause 9.3.1.52</i>	
21010	>Network Instance	ELEMENT	FALSE	<i>Network Instance IE in TS 38.413 [11] Clause 9.3.1.113</i>	
21011	>Direct Forwarding Path Availability	ELEMENT	FALSE	<i>Direct Forwarding Path Availability IE in TS 38.413 [11] Clause 9.3.1.120</i>	
21012	>Redundant Common Network Instance	ELEMENT	FALSE	<i>Redundant Common Network Instance IE in TS 38.413 [11] Clause</i>	

				9.3.1.120	
21013	>Redundant PDU Session Information	ELEMENT	FALSE	<i>Redundant PDU Session Information IE in TS 38.413 [11] Clause 9.3.1.136</i>	

### 8.1.1.17 UE Context Information

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
21501	Master Node	STRUCTURE		8.1.1.11	
21502	>gNB Measurements	STRUCTURE		8.1.1.15	
21503	CHOICE Primary Cell of MCG	STRUCTURE			
21504	>NR Cell	STRUCTURE		8.1.1.1	For NR SpCell
21505	>E-UTRA Cell	STRUCTURE		8.1.1.2	For E-UTRA PCell
21506	List of Secondary Cells of MCG	LIST			<i>Scell To Be Setup List IE in TS 38.473 [19] clause 9.2.2.1</i>
21507	>SCell Item	STRUCTURE			<i>Scell To Be Setup Item IEs IE in TS 38.473 [19] clause 9.2.2.1</i>
21508	>>CHOICE SCell	STRUCTURE			
21509	>>>NR Cell	STRUCTURE		8.1.1.1	For NR SCell
21510	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	For E-UTRA SCell
21511	Secondary Node	STRUCTURE		8.1.1.11	
21512	>gNB Measurements	STRUCTURE		8.1.1.15	
21513	CHOICE Primary Cell of SCG	STRUCTURE			<i>PSCell IE as defined in TS 38.331 [22] or the structure defined in TS 38.473 [19] clause 9.2.2.1</i>
21514	>NR Cell	STRUCTURE		8.1.1.1	
21515	>E-UTRA Cell	STRUCTURE		8.1.1.2	
21516	List of Secondary Cells of SCG	LIST			<i>Scell To Be Setup List IE in TS 38.473 [19] clause 9.2.2.1</i>
21517	>SCell Item	STRUCTURE			<i>Scell To Be Setup Item IEs IE in TS 38.473 [19] clause 9.2.2.1</i>
21518	>>CHOICE SCell	STRUCTURE			
21519	>>>NR Cell	STRUCTURE		8.1.1.1	
21520	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	
21521	List of PDU Sessions	LIST			<i>PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
21522	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
21543	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.413 [11] Clause 9.3.1.50</i>	
21523	>>PDU Session	STRUCTURE		8.1.1.16	
21524	>>List of DRBs	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
21525	>>>DRB Item	STRUCTURE			

21546	>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21] clause 9.3.1.16</i>	
21547	>>>DRB	STRUCTURE		8.1.1.5	
21526	>>>List of QoS flows mapped to DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
21527	>>>>QoS Flow Item	STRUCTURE			
21548	>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51</i>	
21549	>>>>>QoS Flow	STRUCTURE		8.1.1.6	
21528	List of Neighbour cells	LIST			<i>measResultNeighCells IE in TS 38.331 [22]</i>
21529	>Neighbour Cell Item	STRUCTURE			
21530	>>CHOICE Neighbour Cell	STRUCTURE			
21531	>>>NR Cell	STRUCTURE		8.1.1.1	<i>MeasResultNR IE in TS 38.331 [22]</i>
21532	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	<i>MeasResultEUTRA IE in TS 38.331 [22]</i>
21540	UE Context Container	ELEMENT	FALSE	OCTET STRING	<i>The RETRIEVE UE CONTEXT RESPONSE message content in TS 38.423 [15] clause 9.1.1.9.</i>
21541	SRS Configuration	ELEMENT	FALSE	OCTET STRING	<i>SRS-Config IE defined in TS 38.331 [22].</i>
21600	CSI Measurement Configuration	ELEMENT	FALSE	OCTET STRING	<i>CSI-MeasConfig IE defined in TS 38.331 [22]</i>
21601	Measurement Gap Configuration	ELEMENT	FALSE	OCTET STRING	<i>MeasGapConfig IE defined in TS 38.331 [22]</i>
21602	List of BWP Downlink	LIST			<i>The list of all DL BWPs assigned to a specific UE</i>
21603	>BWP Downlink Item	STRUCTURE			<i>BWP-Downlink IE in TS 38.331 [22]</i>
21604	>>BWP ID	ELEMENT	FALSE	<i>BWP-Id IE in TS 38.331 [22]</i>	<i>value of 0 represents the DL Initial BWP</i>
21605	>>BWP Downlink Common	ELEMENT	FALSE	OCTET STRING	<i>BWP-DownlinkCommon IE in TS 38.331 [22]</i>
21606	>>BWP Downlink Dedicated	ELEMENT	FALSE	OCTET STRING	<i>BWP-DownlinkDedicated IE in TS 38.331 [22]</i>
21607	List of active RLC Bearers	LIST			<i>The list of active RLC bearers of a specific UE</i>
21608	>RLC Bearer Item	STRUCTURE			
21609	>>Logical Channel ID	ELEMENT	FALSE	<i>LogicalChannelIdentity IE in TS 38.331 [22] clause 6</i>	
21610	>>CHOICE Served Radio Bearer				
21611	>>>SRB ID	ELEMENT	FALSE	<i>SRB-Identity IE</i>	

				in TS 38.331 [22] clause 6	
21612	>>>DRB ID	ELEMENT	FALSE	<i>DRB-Identity IE</i> in TS 38.331 [22] clause 6	
21613	PDSCH Serving Cell Configuration	ELEMENT	FALSE	OCTET STRING	<i>PDSCH-ServingCellConfig IE</i> in TS 38.331 [22]
21614	DRX Configuration	ELEMENT	FALSE	OCTET STRING	<i>DRX-Config IE</i> in TS 38.331 [22]
21615	UE Capabilities	ELEMENT	FALSE	OCTET STRING	<i>UE-CapabilityRAT-ContainerList IE</i> in TS 38.331 [22]

### 8.1.1.18 eNB Measurements

Editor's Note: FFS

## 8.1.2 RAN Parameters for Call Process Breakpoint

### 8.1.2.0 Call process type IDs

The RAN Parameters for the Event Trigger style 2 are defined based on the following call process type.

Call Process Type ID	Call Process Type	RAN Parameters
1	UE Context Management	Defined in Clause 8.1.2.1
2	Bearer Context Management	Defined in Clause 8.1.2.2
3	Mobility Management	Defined in Clause 8.1.2.3
4	Multi-RAT Dual Connectivity Management	Defined in Clause 8.1.2.4
5	Radio Resource Control Management	Defined in Clause 8.1.2.5
6	PDU Session Management	Defined in Clause 8.1.2.6

### 8.1.2.1 UE Context Management

The RAN Parameters for the call process type of “UE Context Management” are defined as follows.

### 8.1.2.1.1 UE Context Setup

RAN Parameter xID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
25001	Primary Cell ID	STRUCTURE			This is for the primary serving cell of the UE. The structuring of this parameter is based on <i>Target Cell Global ID</i> IE in TS 38.423 [15] clause 9.2.3.25
25002	>CHOICE Primary Cell	STRUCTURE			The primary cell could either be an NR primary cell or an LTE primary cell. The structuring is based on <i>Target Cell</i> IE in TS 38.423 [15] clause 9.2.3.25
25003	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR Cell</i> IE in TS 38.423 [15] clause 9.2.3.25 or <i>SpCell ID</i> IE in TS 38.473 [19] clause 9.2.2.1
25063	>>E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell</i> IE in TS 38.423 [15] clause 9.2.3.25
25004	List of secondary cells to be setup	LIST			<i>Scell To Be Setup List</i> IE in TS 38.473 [19] clause 9.2.2.1
25005	>Secondary cell to be setup Item	STRUCTURE			<i>Scell To Be Setup Item</i> IEs IE in TS 38.473 [19] clause 9.2.2.1
25006	>>CHOICE Secondary cell	STRUCTURE			<i>Scell To Be Setup Item</i> IEs IE in TS 38.473 [19] clause 9.2.2.1
25007	>>>NR SCell	STRUCTURE		8.1.1.1	
25008	>>>E-UTRA SCell	STRUCTURE		8.1.1.2	
25009	>>>Scell UL Configured	ELEMENT	FALSE	<i>Cell UL Configured</i> IE in TS 38.473 [19] clause 9.3.1.33	
25010	Number of secondary cells to be setup	ELEMENT	FALSE	INTEGER (1..32)	Count of list of secondary cells to be setup
25011	List of DRBs for setup	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] clause 9.2.2.1
25012	>DRB item for setup	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] clause 9.2.2.1
25033	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 37.483 [21] clause 9.3.1.16	
25034	>>CHOICE DRB Type	STRUCTURE			The individual DRB could either be an NG-RAN DRB or a E-UTRA DRB

25035	>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
25036	>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
25013	>List of QoS flows for setup	LIST			This is the list of QoS flows multiplexed to an NG-RAN DRB. The structuring is based on <i>QoS Flow List IE</i> in TS 37.483 [21] Clause 9.3.1.12
25014	>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE</i> in TS 37.483 [21] Clause 9.3.1.12
25045	>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE</i> in TS 37.483 [21] Clause 9.3.1.24	
25046	>>>QoS flow	STRUCTURE		8.1.1.6	
25015	List of PDU sessions for setup	LIST			<b><i>PDU Session Resource Setup Request List IE in TS 38.413 Clause 9.2.1.1</i></b>
25016	>PDU Session Item	STRUCTURE			<i>PDU Session Resource Setup Item IE</i> in TS 38.413 Clause 9.2.1.1
25057	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE</i> in TS 38.413 [11] Clause 9.3.1.50	
25058	>>PDU Session	STRUCTURE		8.1.1.16	
25017	>>List of QoS flows for setup	LIST			<i>QoS Flow Setup Request Item IE</i> in TS 38.413 Clause 9.3.4.1
25018	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Setup Request Item IE</i> in TS 38.413 Clause 9.3.4.1
25019	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE</i> in TS 38.413 [11] Clause 9.3.1.51	
25020	>>>>QoS flow	STRUCTURE		8.1.1.6	
25021	Number of DRBs for setup	ELEMENT	FALSE	INTEGER (0..64)	Count of list of DRBs for setup
25022	UE Aggregate Maximum Bit Rate	STRUCTURE			<i>UE Aggregate Maximum Bit Rate IE</i> in TS 36.423 [17] Clause 9.2.12
25023	>UE Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Downlink IE</i> in TS 36.423 [17] clause 9.2.12	

25024	>UE Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Uplink IE</i> in TS 36.423 [17] clause 9.2.12	
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#### 8.1.2.1.2 UE Context Modification

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
25101	Primary Cell ID	STRUCTURE			This is for the primary serving cell of the UE. The structuring of this parameter is based on <i>Target Cell Global ID IE</i> in TS 38.423 [15] clause 9.2.3.25
25102	>CHOICE Primary Cell	STRUCTURE			The primary cell could either be an NR primary cell or an LTE primary cell. The structuring is based on <i>Target Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
25103	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR IE</i> in TS 38.423 [15] clause 9.2.3.25 or <i>SpCell ID IE</i> in TS 38.473 [19] clause 9.2.2.1
25104	>>E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA IE</i> in TS 38.423 [15] clause 9.2.3.25
25105	List of secondary cells to be setup	LIST			<i>Scell To Be Setup List IE</i> in TS 38.473 [19] clause 9.2.2.1
25106	>Secondary cell to be setup Item	STRUCTURE			<i>Scell To Be Setup Item IEs IE</i> in TS 38.473 [19] clause 9.2.2.1
25107	>>CHOICE Secondary cell	STRUCTURE			<i>Scell To Be Setup Item IEs IE</i> in TS 38.473 [19] clause 9.2.2.1
25108	>>>NR SCell	STRUCTURE		8.1.1.1	
25109	>>>E-UTRA SCell	STRUCTURE		8.1.1.2	
25110	>>>Scell UL Configured	ELEMENT	FALSE	<i>Cell UL Configured IE</i> in TS 38.473 [19] [Q] clause 9.3.1.33	
25111	Number of secondary cells to be setup	ELEMENT	FALSE	INTEGER (1..32)	Count of list of secondary cells to be setup
25112	List of Scells to be removed	LIST			<i>SCell To Be Removed List IE</i> in TS 38.473 [19] clause 9.2.2.7
25113	>Scell to be removed Item	STRUCTURE			<i>SCell to Be Removed Item IEs IE</i> in TS 38.473 [19] clause 9.2.2.7
25114	>>CHOICE Secondary cell	STRUCTURE			A UE can have either NR Cells as secondary cells or E-UTRA cells as secondary cells.
25115	>>>NR SCell	STRUCTURE		8.1.1.1	

25116	>>>E-UTRA SCell	STRUCTURE		8.1.1.2	
25117	>>>Scell UL Configured	ELEMENT	FALSE	<i>Cell UL Configured IE in TS 38.473 [19] [Q] clause 9.3.1.33</i>	
25118	Number of secondary cells to be removed	ELEMENT	FALSE	INTEGER (1..32)	Count of list of secondary cells to be removed
25119	List of DRBs for setup	LIST			DRB to Be Setup List IE in TS 38.473 [19] clause 9.2.2.1
25120	>DRB item for setup	STRUCTURE			DRB to Be Setup Item IE in TS 38.473 [19] clause 9.2.2.1
25161	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21] clause 9.3.1.16</i>	
25162	>>CHOICE DRB Type	STRUCTURE			DRB could either be an NG-RAN DRB or a E-UTRA DRB
25163	>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
25164	>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
25121	>>List of QoS flows for setup	LIST			This is the list of QoS flows multiplexed to an NG-RAN DRB for setup. The structuring is based on <i>QoS Flow List IE</i> in TS 37.483 [21] Clause 9.3.1.12
25122	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE</i> in TS 37.483 [21] Clause 9.3.1.12
25166	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
25167	>>>>QoS flow	STRUCTURE		8.1.1.6	
25123	List of PDU sessions for setup	LIST			<i>PDU Session Resource Setup Request List IE</i> in TS 38.413 Clause 9.2.1.1
25124	>PDU Session Item	STRUCTURE			<i>PDU Session Resource Setup Item IE</i> in TS 38.413 Clause 9.2.1.1
25175	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.413 [11] Clause 9.3.1.50</i>	
25176	>>PDU Session	STRUCTURE		8.1.1.16	
25125	>>List of QoS flows for setup	LIST			<i>QoS Flow Setup Request Item IE</i> in TS 38.413 Clause 9.3.4.1

25126	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Setup Request Item IE in TS 38.413 Clause 9.3.4.1</i>
25177	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51</i>	
25178	>>>>QoS flow	STRUCTURE		8.1.1.6	
25127	List of DRBs to be modified	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] clause 9.2.2.1</i>
25128	>DRB item for modification	STRUCTURE		8.1.1.5	<i>DRB to Be Setup Item IE in TS 38.473 [19] clause 9.2.2.1</i>
25129	>>List of QoS flows remapped	LIST			This is the list of QoS flows remapped to an NG-RAN DRB. The structuring is based on <i>QoS Flow List IE in TS 37.483 [21]</i> Clause 9.3.1.12
25130	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.12</i>
25181	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [12] Clause 9.3.1.24</i>	
25182	>>>>QoS flow	STRUCTURE		8.1.1.6	
25131	List of PDU sessions for modification	LIST			For modification of PDU sessions. The structuring is based on <i>PDU Session Resource Modify Request List IE in TS 38.413 Clause 9.2.1.5</i>
25132	>PDU Session Item	STRUCTURE			<i>PDU Session Resource Modify Request Item IE in TS 38.413 Clause 9.2.1.5</i>
25183	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.413 [11] Clause 9.3.1.50</i>	
25184	>>PDU Session	STRUCTURE		8.1.1.16	
25133	>>List of QoS flows remapped	LIST			Modified list of QoS flows within the PDU Session. Structuring is based on <i>QoS Flow Add or Modify Request List IE in TS 38.413 Clause 9.3.4.3</i>
25134	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Add or Modify Request Item IE in TS 38.413 Clause 9.3.4.3</i>

25185	>>>QoS flow identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51</i>	
25186	>>>QoS flow	STRUCTURE		8.1.1.6	
25135	Number of DRBs to be modified	ELEMENT	FALSE		Count of list of DRBs to be modified
25136	List of DRBs to be released	LIST			<i>DRB To Be Released List IE in TS 38.473 [19] Clause 9.2.2.7</i>
25137	>DRB item for release	STRUCTURE			<i>DRB To Be Released Item IE in TS 38.473 [19] Clause 9.2.2.7</i>
25188	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21] clause 9.3.1.16</i>	
25189	>>CHOICE DRB Type	STRUCTURE			DRB could either be an NG-RAN DRB or a E-UTRA DRB
25190	>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
25191	>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
25138	Number of DRBs to be released	ELEMENT	FALSE		Count of list of DRBs to be released
25139	UE Aggregate Maximum Bit Rate	STRUCTURE			<i>UE Aggregate Maximum Bit Rate IE in TS 36.423 [17] Clause 9.2.12</i>
25140	>UE Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Downlink IE in TS 36.423 [17] clause 9.2.12</i>	
25141	>UE Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Uplink IE in TS 36.423 [17] clause 9.2.12</i>	
25151	Target Cell ID	STRUCTURE			This is for the target cell of the UE for HO. The structuring of this parameter is based on <i>Target Cell Global ID IE</i> in TS 38.423 [15] clause 9.2.3.25
25152	>CHOICE Target Cell	STRUCTURE			The target cell could either be a target NR primary cell or a target LTE primary cell. The structuring is based on <i>Target Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
25153	>>Target NR SpCell	STRUCTURE		8.1.1.1	<i>NR IE</i> in TS 38.423 [15] clause 9.2.3.25
25154	>>Target E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA IE</i> in TS 38.423 [15] clause 9.2.3.25

### 8.1.2.1.3 UE Context Release

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
25201	List of candidate cells to be cancelled	LIST			<i>Candidate Cells To Be Cancelled List IE in TS 38.473 [19] Clause 9.2.2.4</i>
25202	>Candidate cell to be cancelled Item	STRUCTURE			<i>Candidate Cell to be Cancelled Item IE in TS 38.473 [19] Clause 9.2.2.4</i>
25203	>>CHOICE Candidate cell	STRUCTURE			<i>Candidate Cell to be Cancelled Item IE in TS 38.473 [19] Clause 9.2.2.4</i>
25204	>>>NR SCell	STRUCTURE		8.1.1.1	
25205	>>>E-UTRA SCell	STRUCTURE		8.1.1.2	

### 8.1.2.2 Bearer Context Management

The RAN Parameters for the call process type of “Bearer Context Management” are defined as follows.

### 8.1.2.2.1 Bearer Context Setup

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
26101	DRB ID	ELEMENT	TRUE	<i>DRB ID IE</i> in TS 37.483 [21] clause 9.3.1.16	
26102	CHOICE DRB Type	STRUCTURE			DRB could either be an NG-RAN DRB or a E-UTRA DRB
26103	>NG-RAN DRB	STRUCTURE		8.1.1.5	
26104	>E-UTRA DRB	STRUCTURE		8.1.1.9	
26105	List of QoS Flows to be setup in DRB	LIST			This is the list of QoS flows multiplexed to an NG-RAN DRB for setup. The structuring is based on <i>QoS Flow List IE</i> in TS 37.483 [21] Clause 9.3.1.12
26106	>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE</i> in TS 37.483 [21] clause 9.3.1.12
26107	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE</i> in TS 37.483 [21] clause 9.3.1.24	
26108	>>QoS Flow	STRUCTURE		8.1.1.6	
26109	Count of list of QoS Flows to be setup in DRB	ELEMENT	FALSE	INTEGER (0..64)	
26110	Cell Group List to Add	STRUCTURE			<i>CellGroupList IE</i> in TS 37.483 [21] Clause 9.3.1.11
26111	>Cell Group Item	STRUCTURE			
26122	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup IE</i> in TS 38.331 [22] Clause 6	
26123	>>Cell Group	STRUCTURE		8.1.1.7	
26112	Logical Channel ID	ELEMENT	FALSE	<i>LogicalChannelIdentity IE</i> in TS 38.331 [22] clause 6	
26113	Channel Access Priority	ELEMENT	FALSE	<i>channelAccessPriority IE</i> in TS 38.331 [22]	
26114	L2 Bearer State Information	STRUCTURE		8.1.1.8	
26115	Count of cell group list to be added	ELEMENT	FALSE	INTEGER (0..4)	

### 8.1.2.2.2 Bearer Context Modification

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
26201	DRB ID	ELEMENT	TRUE	DRB ID IE in TS 37.483 [21] clause 9.3.1.16	
26202	CHOICE DRB Type	STRUCTURE			DRB could either be an NG-RAN DRB or a E-UTRA DRB
26203	>NG-RAN DRB	STRUCTURE		8.1.1.1	
26204	>E-UTRA DRB	STRUCTURE		8.1.1.2	
26205	Logical Channel ID	ELEMENT	TRUE	LogicalChannelIdentity IE in TS 38.331 [22] clause 6	
26206	CHOICE RLC-Config	STRUCTURE			RLC-Config IE in TS 38.331 [22]
26207	>AM	STRUCTURE			am IE in TS 38.331 [22]
26208	>>UL AM RLC	STRUCTURE			ul-AM-RLC IE in TS 38.331 [22]
26209	>>>Poll Retransmit	ELEMENT	FALSE	t-PollRetransmit IE in TS 38.331 [22]	
26210	>>>Max Retransmission Threshold	ELEMENT	FALSE	maxRetxThreshold IE in TS 38.331 [22]	
26211	>>>Poll PDU	ELEMENT	FALSE	pollPDU IE in TS 38.331 [22]	
26212	>>>Poll Byte	ELEMENT	FALSE	pollByte IE in TS 38.331 [22]	
26213	>>DL AM RLC	STRUCTURE			dl-AM-RLC IE in TS 38.331 [22]
26214	>>>Reassembly	ELEMENT	FALSE	t-Reassembly IE in TS 38.331 [22]	
26215	>>>Status Prohibit	ELEMENT	FALSE	t-StatusProhibit IE in TS 38.331 [22]	
26216	>UM Bi-directional	STRUCTURE			um-Bi-Directional IE in TS 38.331 [22]
26217	>>UL UM RLC	ELEMENT	FALSE		UL-UM-RLC IE in TS 38.331 [22]
26218	>>DL UM RLC	STRUCTURE			DL-UM-RLC IE in TS 38.331 [22]
26219	>>>Reassembly	ELEMENT	FALSE	t-Reassembly IE in TS 38.331 [22]	
26220	>UM Uni-directional UL	STRUCTURE			um-Uni-Directional-UL IE in TS 38.331 [22]
26221	>>UL UM RLC	ELEMENT	FALSE	ul-UM-RLC IE in TS 38.331 [22]	
26222	>UM Uni-directional DL	ELEMENT	FALSE		um-Uni-Directional-DL IE in TS 38.331 [22]
26223	>DL UM RLC	STRUCTURE			dl-UM-RLC IE in TS 38.331 [22]
26224	>>Reassembly	ELEMENT	FALSE	t-Reassembly IE in TS 38.331 [22]	
26225	List of QoS Flows to be setup in DRB	LIST			Flow Mapping Information IE in TS 37.483 [21] clause 9.3.1.26
26226	>QoS Flow Item	STRUCTURE			QoS Flow Item IE in TS 37.483 [21] clause 9.3.1.12
26227	>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 37.483 [21] clause 9.3.1.24	
26228	>>QoS Flow	STRUCTURE		8.1.1.6	
26229	List of QoS Flows to be modified in DRB	LIST			Flow Mapping Information IE in TS 37.483 [21] clause

					9.3.1.26
26230	>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] clause 9.3.1.12</i>
26231	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] clause 9.3.1.24</i>	
26232	>>QoS Flow	STRUCTURE		8.1.1.6	
26233	List of Cell Groups to Add	LIST			<i>Cell Group List IE in TS 37.483 [21] Clause 9.3.1.11</i>
26234	>Cell Group Item	STRUCTURE			
26255	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup IE in TS 38.331 [22] Clause 6</i>	
26256	>>Cell Group	STRUCTURE		8.1.1.7	
26235	List of Cell Groups To Modify/Update	LIST			<i>Cell Group List IE in TS 37.483 [21] Clause 9.3.1.11</i>
26236	>Cell Group Item	STRUCTURE			
26257	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup IE in TS 38.331 [22] Clause 6</i>	
26258	>>Cell Group	STRUCTURE		8.1.1.7	
26237	List of Cell Groups To Delete	LIST			<i>Cell Group List IE in TS 37.483 [21] Clause 9.3.1.11</i>
26238	>Cell Group Item	STRUCTURE			
26259	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup IE in TS 38.331 [22] Clause 6</i>	
26260	>>Cell Group	STRUCTURE		8.1.1.7	
26239	Logical Channel ID	ELEMENT	FALSE	<i>LogicalChannelIdentity IE in TS 38.331 [22] clause 6</i>	
26240	Channel Access Priority	ELEMENT	FALSE	<i>channelAccessPriority IE in TS 38.331 [22]</i>	
26241	L2 State Information	STRUCTURE		8.1.1.8	
26242	Data Report Usage List	LIST			<i>Data Usage Report List IE in TS 37.483 [21] Clause 9.3.1.44</i>
26243	>Data Report Usage Item	STRUCTURE			<i>Data Report Usage Item IE in TS 37.483 [21] Clause 9.3.1.44</i>
26244	>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp IE in TS 37.483 [21] Clause 9.3.1.44</i>	
26245	>>End Timestamp	ELEMENT	FALSE	<i>End timestamp IE in TS 37.483 [21] Clause 9.3.1.44</i>	
26246	>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.44</i>	
26247	>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.44</i>	

### 8.1.2.2.3 Bearer Context Release

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
26301	DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21] clause 9.3.1.16</i>	
26302	PDCP DL Count	ELEMENT	FALSE	<i>PDCP DL Count IE in TS 37.483 [21] Clause 9.2.2.11</i>	
26303	PDCP UL Count	ELEMENT	FALSE	<i>PDCP UL Count IE in TS 37.483 [21] Clause 9.2.2.11</i>	
26304	Release Cause	STRUCTURE			<i>Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>
26305	>CHOICE Cause Group	STRUCTURE			<i>Cause Group IE in TS 37.483 [21] Clause 9.3.1.2</i>
26306	>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer IE in TS 37.483 [21] Clause 9.3.1.2</i>
26307	>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>	
26308	>>Transport Layer	STRUCTURE			<i>Transport Layer IE in TS 37.483 [21] Clause 9.3.1.2</i>
26309	>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>	
26310	>>Protocol	STRUCTURE			<i>Protocol IE in TS 37.483 [21] Clause 9.3.1.2</i>
26311	>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>	
26312	>>Miscellaneous	STRUCTURE			<i>Misc IE in TS 37.483 [21] Clause 9.3.1.2</i>
26313	>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>	

### 8.1.2.3 Mobility Management

The RAN Parameters for the call process type of “Mobility Management” are defined as follows.

#### 8.1.2.3.1 Handover Preparation

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
27101	Event AN and inter-RAT B1 mobility thresholds	STRUCTURE		<i>Connectivity and Mobility Event Thresholds IE in clause 8.1.1.10</i>	
27102	List of Serving cells	LIST			<i>MeasResultServMOList IE in TS 38.331 [22]</i>
27103	>Serving Cell Item	STRUCTURE			<i>MeasResultServMO IE in TS 38.331 [22]</i>
27104	>>Serving Cell Index	ELEMENT	TRUE	<i>servCellID IE in TS 38.331 [22]</i>	
27105	>>CHOICE Serving Cell	STRUCTURE			<i>MeasResultServMO IE in TS 38.331 [22]</i>
27106	>>>NR Cell	STRUCTURE		8.1.1.1	
27107	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	
27108	>>CHOICE Best Neighbouring Cell	STRUCTURE			<i>measResultBestNeighCell IE in TS 38.331 [22]</i>
27109	>>>NR Cell	STRUCTURE		8.1.1.1	
27110	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	
27113	Primary Cell ID	STRUCTURE			This is for the primary serving cell of the UE. The structuring of this parameter is based on <i>Target Cell Global ID IE</i> in TS 38.423 [15] clause 9.2.3.25
27114	>CHOICE Primary Serving Cell	STRUCTURE			The primary cell could either be an NR primary cell or an LTE primary cell. The structuring is based on <i>Target Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
27115	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR IE</i> in TS 38.423 [15] clause 9.2.3.25 or <i>SpCell ID IE</i> in TS 38.473 [19] clause 9.2.2.1
27116	>>LTE E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA IE</i> in TS 38.423 [15] clause 9.2.3.25
27117	List of Secondary cells	LIST			<i>SCell To Be Setup List IE</i> in TS 38.473 [19] Clause 9.2.2.1
27118	>Secondary Cell Item	STRUCTURE			<i>SCell To Be Setup Item IEs IE</i> in TS 38.473 [19] Clause 9.2.2.1
27119	>>Secondary Cell Index	ELEMENT	FALSE		<i>SCellIndex IE</i> in TS 38.473 [19] Clause 9.2.2.1
27120	>>CHOICE Secondary Cell	STRUCTURE			<i>SCell To Be Setup Item IEs IE</i> in TS 38.473 [19] Clause 9.2.2.1

27121	>>>NR Cell	STRUCTURE		8.1.1.1	
27122	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	
27123	List of Neighbour cells	LIST			<i>measResultNeigh Cells IE in TS 38.331 [22]</i>
27124	>Neighbour Cell Item	STRUCTURE			<i>measResultNeigh Cells IE in TS 38.331 [22]</i>
27125	>>CHOICE Neighbour Cell	STRUCTURE			<i>measResultNeigh Cells IE in TS 38.331 [22]</i>
27126	>>>NR Cell	STRUCTURE		8.1.1.1	<i>MeasResultNR IE in TS 38.331 [22]</i>
27127	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	<i>MeasResultEUTRA IE in TS 38.331 [22]</i>
27128	Target Primary Cell ID	STRUCTURE			<i>Target Cell Global ID IE in TS 38.423 [15] Clause 9.2.3.25</i>
27129	>CHOICE Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
27130	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR IE in TS 38.423 [15] Clause 9.2.3.25 or SpCell ID IE in TS 38.473 [19] clause 9.2.2.1</i>
27131	>>LTE E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
27132	List of Candidate Target cells for conditional HO	LIST			<i>Candidate SpCell List IE in TS 38.473 [19] Clause 9.2.2.1</i>
27133	>Candidate Target cell Item	STRUCTURE			<i>Candidate SpCell Item IEs IE in TS 38.473 [19] Clause 9.2.2.1</i>
27134	>>CHOICE Candidate Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
27135	>>>NR SpCell candidate	STRUCTURE		8.1.1.1	<i>NR IE in TS 38.423 [15] clause 9.2.3.25 or SpCell ID IE in TS 38.473 [19] clause 9.2.2.1</i>
27136	>>>LTE E-UTRA PCell candidate	STRUCTURE		8.1.1.2	<i>E-UTRA IE in TS 38.423 [15] clause 9.2.3.25</i>
27137	>>Estimated Arrival Probability	ELEMENT	FALSE	<i>Estimated Arrival Probability IE in TS 38.423 [15] Clause 9.1.1.1</i>	
27138	List of PDU Sessions for Handover	LIST			This is the list of PDU sessions of the UE that are subject to handover. The structuring is based on PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1

27139	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
27140	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
27141	>>PDU Session	STRUCTURE		8.1.1.16	
27142	>>List of QoS flows in the PDU Session	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
27143	>>>QoS Flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
27144	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
27145	>>>>QoS Flow	STRUCTURE		8.1.1.6	
27146	>>List of DRBs for Handover	LIST			This is the list of DRBs corresponding to the PDU session to be handed over. The structuring is based on <i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.7</i>
27147	>>>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.7</i>
27148	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
27149	>>>>CHOICE DRB Type	STRUCTURE			
27150	>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
27151	>>>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
27152	>>>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
27153	>>>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
27154	>>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
27155	>>>>>>QoS Flow	STRUCTURE		8.1.1.6	
27175	List of DRBs for Handover	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
27176	>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item IE in TS</i>

					38.473 [19] Clause 9.2.2.1
27177	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
27178	>>CHOICE DRB Type	STRUCTURE			
27179	>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
27180	>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
27181	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
27182	>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
27183	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
27184	>>>>QoS Flow	STRUCTURE		8.1.1.6	

### 8.1.2.3.2 Handover Cancel

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
27201	Event AN and inter-RAT B1 mobility thresholds	STRUCTURE		<i>Connectivity and Mobility Event Thresholds IE in clause 8.1.1.10</i>	
27209	List of candidate cells to be cancelled list	LIST			<i>Candidate Cells To Be Cancelled List IE in TS 38.473 [19] Clause 9.2.2.4</i>
27210	>Candidate cell to be cancelled item	STRUCTURE			<i>Candidate Cells To Be Cancelled List IE in TS 38.473 [19] Clause 9.2.2.4</i>
27211	>>Target cell ID	STRUCTURE			<i>Target Cell ID IE in TS 38.473 [19] Clause 9.2.2.4</i>
27212	>>>CHOICE Target cell ID	STRUCTURE			<i>Target Cell ID IE in TS 38.473 [19] Clause 9.2.2.4</i>
27213	>>>>NR Cell	STRUCTURE		8.1.1.1	
27214	>>>>LTE E-UTRA Cell	STRUCTURE		8.1.1.2	
27215	Cause for canceling HO or CHO	STRUCTURE			<i>Cause IE in TS 38.423 [15] Clause 9.1.1.6</i>
27216	>CHOICE Cause Group	STRUCTURE			<i>Cause Group IE in TS 38.423 [15] Clause 9.2.3.2</i>
27217	>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer IE in TS 38.423 [15] Clause 9.2.3.2</i>
27218	>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause IE in TS 38.423 [15] Clause 9.2.3.2</i>	
27219	>>Transport Layer	STRUCTURE			<i>Transport Layer IE in TS 38.423 [15] Clause 9.2.3.2</i>
27220	>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause IE in TS 38.423 [15] Clause 9.2.3.2</i>	
27221	>>Protocol	STRUCTURE			<i>Protocol IE in TS 38.423 [15] Clause 9.2.3.2</i>
27222	>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause IE in TS 38.423 [15] Clause 9.2.3.2</i>	
27223	>>Misc	STRUCTURE			<i>Misc IE in TS 38.423 [15] Clause 9.2.3.2</i>
27224	>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause IE in TS 38.423 [15] Clause 9.2.3.2</i>	

### 8.1.2.3.3 Handover Resource Allocation

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
27301	Event AN and inter-RAT B1 mobility thresholds	STRUCTURE		<i>Connectivity and Mobility Event Thresholds IE in clause 8.1.1.10</i>	
27302	Handover Type	ELEMENT	FALSE	<i>Handover Type IE in TS 38.413 [11] Clause 9.3.1.22</i>	
27303	List of PDU Sessions for Handover	LIST			<i>PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
27304	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
27305	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
27306	>>PDU Session	STRUCTURE		8.1.1.16	
27307	>>List of QoS flows in the PDU Session	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
27308	>>>QoS Flow Item	LIST			<i>QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
27309	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
27310	>>>>QoS Flow	STRUCTURE		8.1.1.6	
27311	>>List of DRBs for Handover	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
27312	>>>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
27313	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
27314	>>>>CHOICE DRB Type	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
27315	>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
27316	>>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
27317	>>>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
27318	>>>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
27319	>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
27320	>>>>>QoS	STRUCTURE		8.1.1.6	

	Flow				
27321	List of DRBs for Handover	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
27322	>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
27323	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
27324	>>CHOICE DRB Type	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
27325	>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
27326	>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
27327	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
27328	>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
27329	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
27330	>>>>QoS Flow	STRUCTURE		8.1.1.6	
27331	Allowed S-NSSAI	LIST			<i>Allowed S-NSSAI IE in TS 38.413 [11] Clause 9.3.1.31</i>
27332	>Allowed S-NSSAI Item	STRUCTURE			<i>Allowed S-NSSAI Item IE in TS 38.413 [11] Clause 9.3.1.31</i>
27333	>>S-NSSAI	STRUCTURE			<i>S-NSSAI IE in TS 38.413 [11] Clause 9.3.1.24</i>
27334	>>>SST	ELEMENT	TRUE	<i>SST IE in TS 38.413 [11] Clause 9.3.1.24</i>	
27335	>>>SD	ELEMENT	FALSE	<i>SD IE in TS 38.413 [11] Clause 9.3.1.24</i>	
27336	Mobility Restriction List	STRUCTURE			<i>Mobility Restriction List IE in TS 38.413 [11] Clause 9.3.1.85</i>
27337	>Serving PLMN	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11] Clause 9.3.3.5</i>	
27338	>List of Equivalent PLMNs	LIST			<i>Equivalent PLMNs IE in TS 38.413 [11] Clause 9.3.1.85</i>
27339	>>Equivalent PLMN Item	STRUCTURE			
27340	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11] Clause 9.3.3.5</i>	
27341	>RAT Restrictions	LIST			<i>RAT Restrictions IE in TS 38.413 [11] Clause 9.3.1.85</i>
27342	>>RAT Restriction Item	STRUCTURE			
27343	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11]</i>	

				Clause 9.3.3.5	
27344	>>>RAT Restriction Information	ELEMENT	FALSE	<i>RAT Restriction Information IE in TS 38.413 [11] Clause 9.3.1.85</i>	
27345	>Forbidden Area Information	LIST			<i>Forbidden Area Information IE in TS 38.413 [11] Clause 9.3.1.85</i>
27346	>>Forbidden Area	STRUCTURE			<i>Forbidden Area Information IE in TS 38.413 [11] Clause 9.3.1.85</i>
27347	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11] Clause 9.3.3.5</i>	
27348	>>>List of Forbidden TACs	LIST			<i>Forbidden TACs IE in TS 38.413 [11] Clause 9.3.1.85</i>
27349	>>>>Forbidden TAC Item	STRUCTURE			<i>Forbidden TACs IE in TS 38.413 [11] Clause 9.3.1.85</i>
27350	>>>>>TAC	ELEMENT	FALSE	<i>TAC IE in TS 38.413 [11] Clause 9.3.3.10</i>	
27351	>Service Area Information	LIST			<i>Service Area Information IE in TS 38.413 [11] Clause 9.3.1.85</i>
27352	>>Service Area	STRUCTURE			<i>Service Area Information IE in TS 38.413 [11] Clause 9.3.1.85</i>
27353	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11] Clause 9.3.3.5</i>	
27364	>>>List of allowed TACs	LIST			<i>Allowed TACs IE in TS 38.413 [11] Clause 9.3.1.85</i>
27365	>>>>Allowed TAC Item	STRUCTURE			<i>Allowed TACs IE in TS 38.413 [11] Clause 9.3.1.85</i>
27366	>>>>>TAC	ELEMENT	FALSE	<i>TAC IE in TS 38.413 [11] Clause 9.3.3.10</i>	
27367	>>>List of Not allowed TACs	LIST			<i>Not Allowed TACs IE in TS 38.413 [11] Clause 9.3.1.85</i>
27368	>>>>Not Allowed TAC Item	STRUCTURE			<i>Not Allowed TACs IE in TS 38.413 [11] Clause 9.3.1.85</i>
27369	>>>>>TAC	ELEMENT	FALSE	<i>TAC IE in TS 38.413 [11] Clause 9.3.3.10</i>	

### 8.1.2.4 Multi-RAT Dual Connectivity Management

The RAN Parameters for the call process type of “Multi-RAT Dual Connectivity Management” are defined as follows.

#### 8.1.2.4.1 SN Addition

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
28101	Event AN and inter-RAT B1 mobility thresholds	STRUCTURE		<i>Connectivity and Mobility Event Thresholds IE in clause 8.1.1.10</i>	
28102	Secondary Node	STRUCTURE		8.1.1.11	
28103	CHOICE PDCP Change Indication	STRUCTURE			<i>PDCP Change Indication IE in TS 38.423 [15] Clause 9.2.3.74</i>
28104	>From S-NG-RAN Node	STRUCTURE			<i>From S-NG-RAN Node IE in TS 38.423 [15] Clause 9.2.3.74</i>
28105	>>Indication from S-NG-RAN node to M-NG-RAN node	ELEMENT	FALSE	<i>Indication from S-NG-RAN node to M-NG-RAN node IE in TS 38.423 [15] Clause 9.2.3.74</i>	
28106	>From M-NG-RAN Node	STRUCTURE			<i>From M-NG-RAN Node IE in TS 38.423 [15] Clause 9.2.3.74</i>
28107	>>Indication from M-NG-RAN node to S-NG-RAN node	ELEMENT	FALSE	<i>Indication from M-NG-RAN node to S-NG-RAN node IE in TS 38.423 [15] Clause 9.2.3.74</i>	
28108	Secondary Node UE Aggregate Maximum Bit Rate	STRUCTURE			<i>UE Aggregate Maximum Bit Rate IE in TS 36.423 [17] Clause 9.2.12</i>
28109	>UE Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Downlink IE in TS 36.423 [17] clause 9.2.12</i>	
28110	>UE Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Uplink IE in TS 36.423 [17] clause 9.2.12</i>	
28111	List of PDU sessions to be added	LIST			<i>PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
28112	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
28113	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
28114	>>PDU Session	STRUCTURE		8.1.1.16	

28115	>>CHOICE PDU Session Setup Info	STRUCTURE			PDU Session Resource Setup Info – SN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28116	>>>SN terminated PDU session	STRUCTURE			PDU Session Resource Setup Info – SN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28118	>>>>List of QoS flows to be setup	LIST			QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1
28119	>>>>>QoS flow Item to be setup	STRUCTURE			QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1
28120	>>>>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10	
28121	>>>>>QoS flow	STRUCTURE		8.1.1.6	
28122	>>>>Count of QoS flows to be setup	ELEMENT	FALSE	INTEGER (0..64)	
28123	>>>MN terminated PDU session	STRUCTURE			PDU Session Resource Setup Info – MN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28125	>>>>List of DRBs to be setup	LIST			DRB to QoS Flow Mapping List IE in TS 38.423 [15] Clause 9.2.1.15
28126	>>>>>DRB Item to be setup	STRUCTURE			DRB to QoS Flow Mapping Item IE in TS 38.423 [15] Clause 9.2.1.15
28127	>>>>>DRB ID	ELEMENT	TRUE	DRB ID IE in TS 38.423 [15] Clause 9.2.3.33	
28128	>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28129	>>>>>List of QoS flows to be setup	LIST			QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15
28130	>>>>>>QoS flow Item to be setup	STRUCTURE			QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15
28131	>>>>>>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.423 [15]	

				Clause 9.2.3.10	
28132	>>>>>QoS Flow	STRUCTURE		8.1.1.6	
28133	>>>>Count of list of QoS flows to be setup	ELEMENT	FALSE	INTEGER (0..64)	
28134	>>>Count of list of DRBs to be setup	ELEMENT	FALSE	INTEGER (0..64)	
28135	Count of list of PDU sessions to be added	ELEMENT	FALSE	INTEGER (0..256)	
28136	List of E-RABs to be added	LIST			<i>E-RABs To Be Added List IE in TS 36.423 [17] Clause 9.1.4.1</i>
28137	>E-RAB Item	STRUCTURE			<i>E-RABs To Be Added Item IE in TS 36.423 [17] Clause 9.1.4.1</i>
28138	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID IE in TS 36.423 [17] Clause 9.2.23</i>	
28139	>>E-RAB	STRUCTURE		8.1.1.9	
28140	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration IE in TS 36.423 [17] Clause 9.2.108</i>
28141	>>>PDCP at SgNB	ELEMENT	FALSE	<i>PDCP at SgNB IE in TS 36.423 [17] Clause 9.2.108</i>	
28142	>>>MCG resources	ELEMENT	FALSE	<i>MCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	
28143	>>>SCG resources	ELEMENT	FALSE	<i>SCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	
28144	>>CHOICE Resource Configuration	STRUCTURE			<i>Resource Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>
28145	>>>PDCP present in SN	STRUCTURE			<i>PDCP Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28146	>>>>Maximum MCG admittable E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28147	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28148	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28149	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28150	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	

28151	>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE</i> in TS 36.423 [17] Clause 9.1.4.1	
28152	>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE</i> in TS 36.423 [17] Clause 9.1.4.1	
28153	Count of list of E-RABs to be added	ELEMENT	FALSE	INTEGER (0..256)	
28154	List of SN-terminated DRBs	LIST			<i>Available DRB IDs IE</i> in TS 38.423 [15] Clause 9.1.2.1
28155	>SN-terminated DRB item	STRUCTURE			
28156	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE</i> in TS 38.423 [15] Clause 9.2.3.33	
28157	>>CHOICE DRB Type	STRUCTURE			
28158	>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28159	>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
28160	Count of list of SN-terminated DRBs	ELEMENT	FALSE	INTEGER (0..64)	
28161	Primary Cell ID	STRUCTURE			This is for the primary serving cell of the UE. The structuring of this parameter is based on <i>Target Cell Global ID IE</i> in TS 38.423 [15] clause 9.2.3.25
28162	>CHOICE Primary Cell	STRUCTURE			The primary cell could either be an NR primary cell or an LTE primary cell. The structuring is based on <i>Target Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
28163	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR Cell IE</i> in TS 38.423 [15] clause 9.2.3.25 or <i>SpCell ID IE</i> in TS 38.473 [19] clause 9.2.2.1
28164	>>LTE PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell IE</i> in TS 38.423 [15] clause 9.2.3.25

#### 8.1.2.4.2 SN Modification and deletion

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
28201	Event AN and inter-RAT B1 mobility thresholds	STRUCTURE		<i>Connectivity and Mobility Event Thresholds IE in clause 8.1.1.10</i>	Event AN and inter-RAT B1 mobility thresholds
28202	Secondary Node	STRUCTURE		8.1.1.11	
28205	CHOICE PDCP Change Indication	STRUCTURE			<i>PDCP Change Indication IE in TS 38.423 [15] Clause 9.2.3.74</i>
28206	>From S-NG-RAN Node	STRUCTURE			<i>From S-NG-RAN Node IE in TS 38.423 [15] Clause 9.2.3.74</i>
28207	>>Indication from S-NG-RAN node to M-NG-RAN node	ELEMENT		<i>Indication from S-NG-RAN node to M-NG-RAN node IE in TS 38.423 [15] Clause 9.2.3.74</i>	
28208	>From M-NG-RAN Node	STRUCTURE			<i>From M-NG-RAN Node IE in TS 38.423 [15] Clause 9.2.3.74</i>
28209	>>Indication from M-NG-RAN node to S-NG-RAN node	ELEMENT		<i>Indication from M-NG-RAN node to S-NG-RAN node IE in TS 38.423 [15] Clause 9.2.3.74</i>	
28210	Secondary Node UE Aggregate Maximum Bit Rate	STRUCTURE			<i>UE Aggregate Maximum Bit Rate IE in TS 36.423 [17] Clause 9.2.12</i>
28211	>UE Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Downlink IE in TS 36.423 [17] clause 9.2.12</i>	
28212	>UE Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Uplink IE in TS 36.423 [17] clause 9.2.12</i>	
28213	List of PDU sessions to be added	LIST			<i>PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
28214	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
28215	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
28216	>>PDU Session	STRUCTURE		8.1.1.16	

28217	>>CHOICE PDU Session Setup Info	STRUCTURE			PDU Session Resource Setup Info – SN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28218	>>>SN terminated PDU session	STRUCTURE			PDU Session Resource Setup Info – SN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28219	>>>>List of QoS flows to be setup	LIST			QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1
28220	>>>>>QoS flow Item to be setup	STRUCTURE			QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1
28221	>>>>>QoS Flow Indicator	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10	
28222	>>>>>QoS flow	STRUCTURE		8.1.1.6	
28223	>>>>Count of QoS flows to be setup	ELEMENT	FALSE	INTEGER (0..64)	
28224	>>>MN terminated PDU session	STRUCTURE			PDU Session Resource Setup Info – MN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28225	>>>>List of DRBs to be setup	LIST			DRB to QoS Flow Mapping List IE in TS 38.423 [15] Clause 9.2.1.15
28226	>>>>>DRB Item to be setup	STRUCTURE			DRB to QoS Flow Mapping Item IE in TS 38.423 [15] Clause 9.2.1.15
28227	>>>>>DRB ID	ELEMENT	TRUE	DRB ID IE in TS 38.423 [15] Clause 9.2.3.33	
28228	>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28229	>>>>>List of QoS flows to be setup	LIST			QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15
28230	>>>>>>QoS flow Item to be setup	STRUCTURE			QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15
28231	>>>>>>>QoS Flow Indicator	ELEMENT	TRUE	QoS Flow Indicator IE in TS 38.423 [15]	

				Clause 9.2.3.10	
28232	>>>>QoS Flow	STRUCTURE		8.1.1.6	
28233	>>>>Count of list of QoS flows to be setup	ELEMENT	FALSE	INTEGER (0..64)	
28234	>>>Count of list of DRBs to be setup	ELEMENT	FALSE	INTEGER (0..64)	
28235	Count of list of PDU sessions to be added	ELEMENT	FALSE	INTEGER (0..256)	
28236	List of PDU sessions to be modified	LIST			PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1
28237	>PDU Session Item	STRUCTURE			PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1
28238	>>PDU Session ID	ELEMENT	TRUE	PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18	
28239	>>PDU Session	STRUCTURE		8.1.1.16	
28240	>>CHOICE PDU Session Modification Info	STRUCTURE			
28241	>>>SN terminated PDU session	STRUCTURE			PDU Session Resource Setup Info – SN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28242	>>>List of QoS flows to be modified	LIST			QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1
28243	>>>>QoS flow Item to be modified	STRUCTURE			QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1
28244	>>>>QoS Flow Indicator	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10	
28245	>>>>QoS flow	STRUCTURE		8.1.1.6	
28246	>>>Count of QoS flows to be modified	ELEMENT	FALSE	INTEGER (0..64)	
28247	>>>MN terminated PDU session	STRUCTURE			PDU Session Resource Setup Info – MN terminated IE in TS 38.423 [15] Clause 9.1.2.5
28248	>>>>List of DRBs to be modified	LIST			DRB to QoS Flow Mapping List IE in TS 38.423 [15] Clause 9.2.1.15
28249	>>>>DRB Item to be modified	STRUCTURE			DRB to QoS Flow Mapping

					<i>Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
28250	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
28251	>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28252	>>>>List of QoS flows to be modified	LIST			<i>QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15</i>
28253	>>>>>QoS flow Item to be setup	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
28254	>>>>>>QoS Flow Indicator	ELEMENT	TRUE	<i>QoS Flow Indicator IE in TS 38.423 [15] Clause 9.2.3.10</i>	
28255	>>>>>>QoS Flow	STRUCTURE		8.1.1.6	
28256	>>>>>Count of list of QoS flows to be setup	ELEMENT	FALSE	INTEGER (0..64)	
28257	>>>Count of list of DRBs to be modified	ELEMENT	FALSE	INTEGER (0..64)	
28258	>>MR-DC Usage Information	STRUCTURE			<i>MR-DC Usage Information IE in TS 37.483 [21] Clause 9.3.1.63</i>
28259	>>>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type IE in TS 37.483 [21] Clause 9.3.1.63</i>	
28260	>>>PDU Session Timed Report List	LIST			<i>Data Usage Report List IE in TS 37.483 [21] Clause 9.3.1.64</i>
28261	>>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item IE in TS 37.483 [21] Clause 9.3.1.64</i>
28262	>>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28263	>>>>End Timestamp	ELEMENT	FALSE	<i>End timestamp IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28264	>>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28265	>>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28266	>>MR-DC Usage for QoS flows	LIST			<i>Data Usage Per QoS Flow List IE in TS 37.483 [21]</i>

					Clause 9.3.1.63
28267	>>>QoS Flow Item	STRUCTURE			<i>Data Usage Per QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.63</i>
28268	>>>>QoS flow Indicator	ELEMENT	TRUE	<i>QoS Flow Indicator IE in TS 37.483 [21] Clause 9.3.1.24</i>	
28269	>>>>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type IE in TS 37.483 [21] Clause 9.3.1.63</i>	
28270	>>>>QoS Flow Timed Report List	LIST			<i>Data Usage Report List IE in TS 37.483 [21] Clause 9.3.1.64</i>
28271	>>>>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item IE in TS 37.483 [21] Clause 9.3.1.64</i>
28272	>>>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28273	>>>>>End timestamp	ELEMENT	FALSE	<i>End timestamp IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28274	>>>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28275	>>>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
28276	Count of list of PDU sessions to be modified	ELEMENT	FALSE	INTEGER (0..256)	
28277	List of PDU sessions to be released	LIST			<i>PDU Session Resources To Be Released List IE in TS 38.423 [15] Clause 9.1.2.14</i>
28278	>PDU Session Item	STRUCTURE			<i>PDU Session List With Cause IE in TS 38.423 [15] Clause 9.2.1.26</i>
28279	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
28280	>>PDU Session	STRUCTURE		8.1.1.16	
26281	>>Release Cause	STRUCTURE			<i>Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>
26282	>>>CHOICE Cause Group	STRUCTURE			<i>Cause Group IE in TS</i>

					37.483 [21] Clause 9.3.1.2
26283	>>>Radio Network Layer	STRUCTURE			Radio Network Layer IE in TS 37.483 [21] Clause 9.3.1.2
26284	>>>>Radio Network Layer Cause	ELEMENT	FALSE	Radio Network Layer Cause IE in TS 37.483 [21] Clause 9.3.1.2	
26285	>>>Transport Layer	STRUCTURE			Transport Layer IE in TS 37.483 [21] Clause 9.3.1.2
26286	>>>>Transport Layer Cause	ELEMENT	FALSE	Transport Layer Cause IE in TS 37.483 [21] Clause 9.3.1.2	
26287	>>>Protocol	STRUCTURE			Protocol IE in TS 37.483 [21] Clause 9.3.1.2
26288	>>>>Protocol Cause	ELEMENT	FALSE	Protocol Cause IE in TS 37.483 [21] Clause 9.3.1.2	
26289	>>>Miscellaneous	STRUCTURE			Misc IE in TS 37.483 [21] Clause 9.3.1.2
26290	>>>>Miscellaneous Cause	ELEMENT	FALSE	Miscellaneous Cause IE in TS 37.483 [21] Clause 9.3.1.2	
28291	Count of list of PDU sessions to be released	ELEMENT	FALSE	INTEGER (0..256)	
28292	List of E-RABs to be added	LIST			E-RABs To Be Added List IE in TS 36.423 [17] Clause 9.1.4.1
28293	>E-RAB Item	STRUCTURE			E-RABs To Be Added Item IE in TS 36.423 [17] Clause 9.1.4.1
28294	>>E-RAB ID	ELEMENT	TRUE	E-RAB ID IE in TS 36.423 [17] Clause 9.2.23	
28295	>>E-RAB	STRUCTURE		8.1.1.9	
28296	>>EN-DC Resource Configuration	STRUCTURE			EN-DC Resource Configuration IE in TS 36.423 [17] Clause 9.2.108
28297	>>>PDCP at SgNB	ELEMENT		PDCP at SgNB IE in TS 36.423 [17] Clause 9.2.108	
28298	>>>MCG resources	ELEMENT		MCG resources IE in TS 36.423 [17] Clause 9.2.108	
28299	>>>SCG resources	ELEMENT		SCG resources IE in TS 36.423 [17] Clause 9.2.108	
28300	>>CHOICE Resource Configuration	STRUCTURE			Resource

					<i>Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>
28301	>>>PDCP present in SN	STRUCTURE			<i>PDCP Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28302	>>>>Maximum MCG admissible E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28303	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28304	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28305	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28306	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	
28307	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28308	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28309	Count of list of E-RABs to be added	ELEMENT	FALSE	INTEGER (0..256)	
28310	List of E-RABs to be modified	LIST			<i>E-RABs To Be Modified List IE in TS 36.423 [17] Clause 9.1.4.5</i>
28311	>E-RAB Item	STRUCTURE			<i>E-RABs To Be Modified Item IE in TS 36.423 [17] Clause 9.1.4.5</i>
28312	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID IE in TS 36.423 [17] Clause 9.2.23</i>	
28313	>>E-RAB	STRUCTURE		8.1.1.9	
28314	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration IE in TS 36.423 [17] Clause 9.2.108</i>
28315	>>>PDCP at SgNB	ELEMENT		<i>PDCP at SgNB IE in TS 36.423 [17] Clause 9.2.108</i>	
28316	>>>MCG resources	ELEMENT		<i>MCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	
28317	>>>SCG resources	ELEMENT		<i>SCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	
28318	>>CHOICE Resource Configuration	STRUCTURE			<i>Resource</i>

					<i>Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>
28319	>>>PDCP present in SN	STRUCTURE			<i>PDCP Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28320	>>>>Maximum MCG admissible E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28321	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28322	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28323	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28324	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	
28325	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28326	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28327	Count of list of E-RABs to be modified	ELEMENT	FALSE	INTEGER (0..256)	
28328	List of E-RABs to be released	LIST			<i>E-RABs To Be Released List IE in TS 36.423 [17] Clause 9.1.4.5</i>
28329	>E-RAB Item	STRUCTURE			<i>E-RABs To Be Released Item IE in TS 36.423 [17] Clause 9.1.4.5</i>
28330	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID IE in TS 36.423 [17] Clause 9.2.23</i>	
28331	>>E-RAB	STRUCTURE		8.1.1.9	
28332	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration IE in TS 36.423 [17] Clause 9.2.108</i>
28333	>>>PDCP at SgNB	ELEMENT	FALSE	<i>PDCP at SgNB IE in TS 36.423 [17] Clause 9.2.108</i>	
28334	>>>MCG resources	ELEMENT	FALSE	<i>MCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	
28335	>>>SCG resources	ELEMENT	FALSE	<i>SCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	
28336	>>CHOICE Resource Configuration	STRUCTURE			<i>Resource</i>

					<i>Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>
28337	>>>PDCP present in SN	STRUCTURE			<i>PDCP Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28338	>>>>Maximum MCG admissible E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28339	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28340	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28341	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN IE in TS 36.423 [17] Clause 9.1.4.1</i>
28342	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	
28343	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28344	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE in TS 36.423 [17] Clause 9.1.4.1</i>	
28345	Count of list of E-RABs to be released	ELEMENT	FALSE	INTEGER (0..256)	
28346	List of SN-terminated DRBs to be modified or released	LIST			<i>Additional DRB IDs IE in TS 38.423 [15] Clause 9.1.2.5</i>
28347	>SN-terminated DRB item	STRUCTURE			<i>Additional DRB IDs IE in TS 38.423 [15] Clause 9.1.2.5</i>
28358	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
28348	>>CHOICE DRB Type	STRUCTURE			<i>Additional DRB IDs IE in TS 38.423 [15] Clause 9.1.2.5</i>
28349	>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28350	>>>E-UTRA DRB	STRUCTURE		8.1.1.9	
28351	Count of list of SN-terminated DRBs	ELEMENT	FALSE	INTEGER (0..64)	
28352	Primary Cell ID	STRUCTURE			<i>SpCell ID IE in TS 38.473 [19] clause 9.2.2.1</i>
28353	>CHOICE Primary Cell	STRUCTURE			<i>SpCell ID IE in TS 38.473 [19] clause 9.2.2.1</i>
28354	>>NR SpCell	STRUCTURE		8.1.1.1	
28355	>>LTE PCell	STRUCTURE		8.1.1.2	

### 8.1.2.5 Radio Resource Control Management

The RAN Parameters for the call process type of “Radio Resource Control Management” are defined as follows.

#### 8.1.2.5.1 RRC CG-Config Information Transfer

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
29001	CG-ConfigInfo	STRUCTURE			TS 38.473 [19] clause 9.3.1.25
29011	>MN Candidate Cell List Info	STRUCTURE			<i>candidateCellInfoListMNE</i> in TS 38.331 [22]
29012	>>List of NR Cell Measurements	LIST			<i>MeasResultList2NR</i> IE in TS 38.331 [22]
29013	>>>NR Cell Measurement Item	STRUCTURE			<i>MeasResult2NRItem</i> IE in TS 38.331 [22]
29014	>>>>SSB Frequency	ELEMENT	FALSE	<i>ssbFrequencyIE</i> in TS 38.331 [22]	
29015	>>>>CSI-RS Reference Frequency	ELEMENT	FALSE	<i>refFreqCSI-RSIE</i> in TS 38.331 [22]	
29016	>>>>NR Serving Cell	STRUCTURE			<i>measResultServingCellIE</i> in TS 38.331 [22]
29017	>>>>NR Neighbour Cell Measurement List	LIST			<i>measResultNeighCellListNRIE</i> in TS 38.331 [22]
29018	>>>>>NR Neighbour Cell Measurement Item	STRUCTURE			<i>measResultNRItemIE</i> in TS 38.331 [22]
29019	>>>>>>NR Neighbour Cell	STRUCTURE		<i>NRCell</i> in 8.1.1.1	
29021	>SN Candidate Cell List Info	STRUCTURE			<i>candidateCellInfoListMNE</i> in TS 38.331 [22]
29022	>>List of NR Cell Measurements	LIST			<i>MeasResultList2NR</i> IE in TS 38.331 [22]
29023	>>>NR Cell Measurement Item	STRUCTURE			<i>MeasResult2NRItemIE</i> in TS 38.331 [22]
29024	>>>>SSB Frequency	ELEMENT	FALSE	<i>ssbFrequencyIE</i> in TS 38.331 [22]	
29025	>>>>CSI-RS Reference Frequency	ELEMENT	FALSE	<i>refFreqCSI-RSIE</i> in TS 38.331 [22]	
29026	>>>>NR Serving Cell	STRUCTURE			<i>measResultServingCellIE</i> in TS 38.331 [22]
29027	>>>>NR Neighbour Cell Measurement List	LIST			<i>measResultNeighCellListNRIE</i> in TS 38.331 [22]
29028	>>>>>NR Neighbour Cell Measurement Item	STRUCTURE			<i>measResultNRItemIE</i> in TS 38.331 [22]
29029	>>>>>>NR Neighbour Cell	STRUCTURE		<i>NRCell</i> in 8.1.1.1	
29031	>SCG Failure Info	STRUCTURE			<i>FailureReportSCGIE</i> in TS 38.331 [22]
29032	>>Failure Type	ELEMENT	FALSE	<i>failureTypeIE</i> in TS 38.331 [22]	
29033	>>Meas Result SCG Failure	STRUCTURE			<i>measResultSCGFailureIE</i> in TS

					38.331 [22]
29034	>>>Measurement Result List Per Measurement Object	STRUCTURE			measResultPerMOList IE in TS 38.331 [22]
29035	>>>>List of NR Cell Measurements	LIST			MeasResultList2NR IE in TS 38.331 [22]
29036	>>>>>NR Cell Measurement Item	STRUCTURE			MeasResult2NRItem IE in TS 38.331 [22]
29037	>>>>>SSB Frequency	ELEMENT	FALSE	ssbFrequency IE in TS 38.331 [22]	
29038	>>>>>CSI-RS Reference Frequency	ELEMENT	FALSE	refFreqCSI-RS IE in TS 38.331 [22]	
29039	>>>>>NR Serving Cell	STRUCTURE			measResultServingCell IE in TS 38.331 [22]
29040	>>>>>>NR Neighbour Cell Measurement List	LIST			measResultNeighCellListNR IE in TS 38.331 [22]
29041	>>>>>>NR Neighbour Cell Measurement Item	STRUCTURE			measResultNRItem IE in TS 38.331 [22]
29042	>>>>>>NR Neighbour Cell	STRUCTURE		NR Cell in 8.1.1.1	
29051	>DRX Info MCG	STRUCTURE			drx-InfoMCG IE in TS 38.331 [22]
29052	>>DRX Long Cycle Start Offset	ELEMENT	FALSE	drx-LongCycleStartOffset IE in TS 38.331 [22]	
29053	>>Short DRX	STRUCTURE			shortDRX IE in TS 38.331 [22]
29054	>>>DRX Short Cycle	ELEMENT	FALSE	drx-ShortCycle IE in TS 38.331 [22]	
29055	>>>DRX Short Cycle Timer	ELEMENT	FALSE	drx-ShortCycleTimer IE in TS 38.331 [22]	
29061	>Measurement Configuration MN	STRUCTURE			MeasConfigMN IE in TS 38.331 [22]
29062	>>MN Measured Frequencies	LIST			measuredFrequenciesMN IE in TS 38.331 [22]
29063	>>>NR Frequency Info Item	STRUCTURE		NR-FreqInfo IE in TS 38.331 [22]	
29064	>>>>NR ARFCN	ELEMENT	FALSE	ARFCN-ValueNR IE in TS 38.331 [22]	
29065	>Secondary Cell Group RB Config	STRUCTURE			scg-RB-Config IE in TS 38.331 [22]
29066	>>Radio Bearer Config	STRUCTURE			RadioBearerConfig IE in TS 38.331 [22]
29067	>>>DRB To Add Modify List	LIST			Drb-ToAddModList IE in TS 38.331 [22]

29068	>>>DRB To Add Modify Item	STRUCTURE			<i>DRB-ToAddMod IE in TS 38.331 [22]</i>
29069	>>>>CHOICE CN Association	STRUCTURE			<i>cnAssociation IE in TS 38.331 [22]</i>
29070	>>>>>EPS Bearer Identity	ELEMENT	FALSE	<i>eps-BearerIdentity IE in TS 38.331 [22]</i>	
29071	>>>>>SDAP Config	STRUCTURE			<i>SDAP-Config IE in TS 38.331 [22]</i>
29072	>>>>>>PDU Session ID	ELEMENT	TRUE	<i>PDU-SessionID IE in TS 38.331 [22]</i>	
29073	>>>>>>PDU Session	STRUCTURE		8.1.1.16	
29074	>>>>>>Default DRB	ELEMENT	FALSE	<i>defaultDRB IE in TS 38.331 [22]</i>	
29075	>>>>>DRB ID	ELEMENT	TRUE	<i>DRB-Identity IE in TS 38.331 [22]</i>	
29076	>>>>>CHOICE DRB Type	STRUCTURE			<i>DRB-ToAddMod IE in TS 38.331 [22]</i>
29077	>>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
29078	>>>>>>LTE E-UTRA DRB	STRUCTURE		8.1.1.9	
29079	>>>>Reestablish PDCP	ELEMENT	FALSE	<i>reestablishPDCP IE in TS 38.331 [22]</i>	
29080	>>>>Recover PDCP	ELEMENT	FALSE	<i>recoverPDCP IE in TS 38.331 [22]</i>	
29081	>>>>PDCP Config	STRUCTURE		<i>PDCP Configuration IE in 8.1.2.2.4</i>	
29091	>Master Cell Group RB Config	STRUCTURE			<i>scg-RB-Config IE in TS 38.331 [22]</i>
29092	>>Radio Bearer Config	STRUCTURE			<i>RadioBearerConfig IE in TS 38.331 [22]</i>
29093	>>>DRB To Add Modify List	LIST			<i>DRB-ToAddModList IE in TS 38.331 [22]</i>
29094	>>>DRB To Add Modify Item	STRUCTURE			<i>DRB-ToAddMod IE in TS 38.331 [22]</i>
29095	>>>>CHOICE CN Association	STRUCTURE			<i>cnAssociation IE in TS 38.331 [22]</i>
29096	>>>>>EPS Bearer Identity	ELEMENT	FALSE	<i>eps-BearerIdentity IE in TS 38.331 [22]</i>	
29097	>>>>>SDAP Config	STRUCTURE			<i>SDAP-Config IE in TS 38.331 [22]</i>
29098	>>>>>>PDU Session ID	ELEMENT	FALSE	<i>PDU-SessionID IE in TS 38.331 [22]</i>	
29099	>>>>>>PDU Session	STRUCTURE		8.1.1.16	

29100	>>>>>Default DRB	ELEMENT	FALSE	<i>defaultDRB IE in TS 38.331 [22]</i>	
29101	>>>>>Reflective QoS	ELEMENT	FALSE	<i>as-reflectiveQoS IE in TS 38.331 [22]</i>	
29102	>>>>DRB ID	ELEMENT	TRUE	<i>DRB-Identity IE in TS 38.331 [22]</i>	
29103	>>>>CHOICE DRB Type	STRUCTURE			<i>DRB-ToAddMod IE in TS 38.331 [22]</i>
29104	>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
29105	>>>>>LTE E-UTRA DRB	STRUCTURE		8.1.1.9	
29106	>>>>Reestablish PDCP	ELEMENT	FALSE	<i>reestablishPDCP IE in TS 38.331 [22]</i>	
29107	>>>>Recover PDCP	ELEMENT	FALSE	<i>recoverPDCP IE in TS 38.331 [22]</i>	
29108	>>>>PDCP Config	STRUCTURE		<i>PDCP Configuration IE in 8.1.2.2.4</i>	
29111	>List of UE Capability RAT Containers	LIST			<i>UE-CapabilityRAT-ContainerList IE in TS 38.331 [22]</i>
29112	>>UE Capability RAT Container Item	STRUCTURE			<i>UE-CapabilityRAT-Container IE in TS 38.331 [22]</i>
29113	>>>RAT Type	ELEMENT	FALSE	<i>RAT-Type IE in TS 38.331 [22]</i>	

#### 8.1.2.5.2 RRC Cell Group Config Transfer

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
29501	CellGroupConfig	STRUCTURE			TS 38.473 [19] clause 9.3.1.25
29502	>Cell Group ID	STRUCTURE		8.1.1.7	
29503	>List of RLC Bearers to Add or Modify	LIST			<i>rlc-BearerToAddModList IE in TS 38.331 [22]</i>
29504	>>RLC Bearer to Add or Modify Item	STRUCTURE			<i>rlc-BearerToAddModList IE in TS 38.331 [22]</i>
29505	>>>Served RLC Radio Bearer	STRUCTURE		8.1.1.5	
29506	>>>RLC Bearer Config	STRUCTURE			<i>RLC-BearerConfig IE in TS 38.331 [22]</i>
29507	>>>>Logical Channel Identity	ELEMENT	TRUE	<i>logicalChannelIdentity IE in TS 38.331 [22]</i>	
29508	>>>>Reestablish RLC	ELEMENT	FALSE	<i>reestablishRLC IE in TS 38.331 [22]</i>	
29509	>>>>CHOICE RLC Config	STRUCTURE			<i>RLC-Config IE in TS 38.331 [22]</i>
29510	>>>>>AM	STRUCTURE			<i>am IE in TS 38.331 [22]</i>
29511	>>>>>UL AM RLC	STRUCTURE			<i>ul-AM-RLC IE in TS 38.331 [22]</i>
29512	>>>>>>Poll Retransmit	ELEMENT	FALSE	<i>t-PollRetransmit IE in TS 38.331 [22]</i>	
29513	>>>>>>Max Retransmission Threshold	ELEMENT	FALSE	<i>maxRetxThreshold IE in TS 38.331 [22]</i>	
29514	>>>>>>Poll PDU	ELEMENT	FALSE	<i>pollPDU IE in TS 38.331 [22]</i>	
29515	>>>>>>Poll Byte	ELEMENT	FALSE	<i>pollByte IE in TS 38.331 [22]</i>	
29516	>>>>>>DL AM RLC	STRUCTURE			<i>dl-AM-RLC IE in TS 38.331 [22]</i>
29517	>>>>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly IE in TS 38.331 [22]</i>	
29518	>>>>>>Status Prohibit	ELEMENT	FALSE	<i>t-StatusProhibit IE in TS 38.331 [22]</i>	
29519	>>>>>UM Bi-directional	STRUCTURE			<i>um-Bi-Directional IE in TS 38.331 [22]</i>
29521	>>>>>UL UM RLC	ELEMENT	FALSE		<i>UL-UM-RLC IE in TS 38.331 [22]</i>
29522	>>>>>DL UM RLC	STRUCTURE			<i>DL-UM-RLC IE</i>

					in TS 38.331 [22]
29523	>>>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly IE in TS 38.331 [22]</i>	
29530	>>>>UM Uni-directional UL	STRUCTURE			<i>um-Uni-Directional-UL IE in TS 38.331 [22]</i>
29531	>>>>>UL UM RLC	ELEMENT	FALSE	<i>ul-UM-RLC IE in TS 38.331 [22]</i>	
29540	>>>>UM Uni-directional DL	STRUCTURE			<i>um-Uni-Directional-DL IE in TS 38.331 [22]</i>
29541	>>>>>DL UM RLC	STRUCTURE			<i>dl-UM-RLC IE in TS 38.331 [22]</i>
29542	>>>>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly IE in TS 38.331 [22]</i>	
29551	>>>>MAC Logical Channel Config	STRUCTURE			
29552	>>>>Priority	ELEMENT	FALSE	<i>priority IE in TS 38.331 [22] Clause 6</i>	
29553	>>>>Prioritized Bit Rate	ELEMENT	FALSE	<i>prioritisedBitRate IE in TS 38.331 [22] Clause 6</i>	
29554	>>>>Bucket Size Duration	ELEMENT	FALSE	<i>bucketSizeDuration IE in TS 38.331 [22] Clause 6</i>	
29555	>>>>List of allowed sub-carrier spacing	LIST			<i>allowedSCS-List IE in TS 38.331 [22] Clause 6</i>
29556	>>>>>Allowed sub-carrier spacing item	STRUCTURE			
29557	>>>>>>Sub Carrier Spacing	ELEMENT	FALSE	<i>SubCarrierSpacing IE in TS 38.331 [22] Clause 6</i>	
29558	>>>>Max PUSCH Duration	ELEMENT	FALSE	<i>maxPUSCH-Duration IE in TS 38.331 [22] Sec 6</i>	
29559	>>>>Configured Grant Type1 Allowed	ELEMENT		<i>configuredGrantType1Allowed IE in TS 38.331 [22] Clause 6</i>	
29560	>>>>Logical Channel Group	ELEMENT	FALSE	<i>logicalChannelGroup IE in TS 38.331 [22]</i>	
29561	>>>>Logical Channel SR – Mask	ELEMENT	FALSE	<i>logicalChannelSR-Mask IE in TS</i>	

				38.331 [22] Clause 6	
29562	>>>>Logical Channel SR – Delay Timer Applied	ELEMENT	FALSE	<i>logicalChann elSR-DelayTimerA pplied IE in TS 38.331 [22] Sec 6</i>	
29563	>>>>Bit Rate Query Prohibit Timer	ELEMENT	FALSE	<i>bitRateQuer yProhibitTim er IE in TS 38.331 [22] Clause 6</i>	
29564	>>>>Channel Access Priority	ELEMENT	FALSE	<i>reestablishR LC IE in TS 38.331 [22]</i>	
29565	>>>>Bit Rate Multiplier	ELEMENT	FALSE	<i>logicalChann elGroup IE in TS 38.331 [22]</i>	
29601	>List of RLC Bearers to Release	LIST			<i>rlc-BearerToRelea seList IE in TS 38.331 [22]</i>
29602	>>RLC Bearer to Release Item	STRUCTURE			<i>rlc-BearerToRelea seList IE in TS 38.331 [22]</i>
29603	>>>Served RLC Radio Bearer	STRUCTURE		8.1.1.5	
29604	>>>Logical Channel Identity	ELEMENT	TRUE	<i>logicalChann elIdentity IE in TS 38.331 [22]</i>	
29651	>MAC Cell Group Config	STRUCTURE			<i>mac-CellGroupConf ig IE in TS 38.331 [22]</i>
29652	>>Scheduling Request Config	STRUCTURE			<i>schedulingReq uestConfig IE in TS 38.331 [22]</i>
29654	>>>List of Scheduling Requests to Add or Modify	LIST			<i>schedulingReq uestToAddModList IE in TS 38.331 [22]</i>
29655	>>>>Scheduling Request Item	STRUCTURE			<i>SchedulingReq uestToAddMod IE in TS 38.331 [22]</i>
29656	>>>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingR equestId IE in TS 38.331 [22]</i>	
29657	>>>>SR Prohibit Timer	ELEMENT	FALSE	<i>sr-ProhibitTime r IE in TS 38.331 [22]</i>	
29658	>>>>SR Transmission Max	ELEMENT	FALSE	<i>sr-TransMax IE in TS 38.331 [22]</i>	
29659	>>>List of Scheduling Requests for release	LIST			<i>schedulingReq uestToRelease List IE in TS 38.331 [22]</i>
29660	>>>>Scheduling Request Item	STRUCTURE			
29661	>>>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingR equestId IE</i>	

				in TS 38.331 [22]	
29662	>>>>SR Prohibit Timer	ELEMENT	FALSE	<i>sr-ProhibitTime</i> r IE in TS 38.331 [22]	
29663	>>>>SR Transmission Max	ELEMENT	FALSE	<i>sr-TransMax</i> IE in TS 38.331 [22]	
29675	>>BSR Config	STRUCTURE			<i>bsr-Config</i> IE in TS 38.331 [22]
29676	>>>Periodic BSR Timer	ELEMENT	FALSE	<i>periodicBSR</i> -Timer IE in TS 38.331 [22]	
29677	>>>Retx BSR Timer	ELEMENT	FALSE	<i>retxBSR</i> - Timer IE in TS 38.331 [22]	
29578	>>>Logical Channel SR Delay Timer	ELEMENT	FALSE	<i>logicalChann</i> elSR- <i>DelayTimer</i> IE in TS 38.331 [22]	

### 8.1.2.5.3 RRC Measurement Configuration

This Call Process Breakpoint uses RRC related RAN parameters defined in clauses 8.1.1 and 8.4.10.

## 8.1.2.6 PDU Session Management

The RAN Parameters for the call process type of “PDU Session Management” are defined as follows.

### 8.1.2.6.1 PDU Session Resource Setup

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
30001	PDU Session ID	ELEMENT	TRUE	PDU Session ID IE in TS 38.413 [11] Clause 9.3.1.50	
30002	PDU Session	STRUCTURE		8.1.1.16	
30003	List of QoS Flows to be setup	LIST			QoS Flow Setup Request List IE in TS 38.413 [11] Clause 9.3.4.1
30004	>QoS flow setup request item	STRUCTURE			QoS Flow Setup Request Item IE in TS 38.413 [11] Clause 9.3.4.1
30005	>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51	
30006	>>QoS flow	STRUCTURE		8.1.1.6	
30010	List of QoS Flows failed to be setup	LIST			QoS Flow Failed To Setup List IE in TS 38.413 [11] Clause 9.3.4.2
30011	>QoS flow item failed for setup	STRUCTURE			QoS Flow Item IE in TS 38.413 [11] Clause 9.3.1.13
30012	>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51	
30013	>>QoS flow	STRUCTURE		8.1.1.6	
30014	>>Cause	STRUCTURE			Cause IE in TS 38.413 [11] Clause 9.3.1.2
30015	>>>CHOICE Cause group	STRUCTURE			Cause Group IE in TS 38.413 [11] Clause 9.3.1.2
30016	>>>>Radio Network Layer	STRUCTURE			Radio Network Layer IE in TS 38.413 [11] Clause 9.3.1.2
30017	>>>>Radio Network Layer Cause	ELEMENT	FALSE	Radio Network Layer Cause IE in TS 38.413 [11] Clause 9.3.1.2	
30018	>>>>Transport Layer	STRUCTURE			Transport

					Layer IE in TS 38.413 [11] Clause 9.3.1.2
30019	>>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause IE in TS 37.483 [21]</i> Clause 9.3.1.2	
30020	>>>NAS	STRUCTURE			NAS IE in TS 38.413 [11] Clause 9.3.1.2
30021	>>>>NAS Cause	ELEMENT	FALSE	<i>NAS Cause IE in TS 38.413 [11]</i> Clause 9.3.1.2	
30022	>>>Protocol	STRUCTURE			Protocol IE in TS 38.413 [11] Clause 9.3.1.2
30023	>>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause IE in TS 38.413 [11]</i> Clause 9.3.1.2	
30024	>>>Miscellaneous	STRUCTURE			Misc IE in TS 38.413 [11] Clause 9.3.1.2
30025	>>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause IE in TS 38.413 [11]</i> Clause 9.3.1.2	
30031	Primary Cell ID	STRUCTURE			This is for the primary serving cell of the UE. The structuring of this parameter is based on <i>Target Cell Global ID IE</i> in TS 38.423 [15] clause 9.2.3.25
30032	>CHOICE Primary Cell	STRUCTURE			The primary cell could either be an NR primary cell or an LTE primary cell. The structuring is based on <i>Target Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
30033	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
30034	>>E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell IE</i> in TS 38.423 [15]

				clause 9.2.3.25
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#### 8.1.2.6.2 PDU Session Resource Modification

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
31001	PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.413 [11] Clause 9.3.1.50</i>	
31002	PDU Session	STRUCTURE		8.1.1.16	
31003	List of QoS Flows to add or modify	LIST			<i>QoS Flow Add or Modify Request List IE in TS 38.413 [11] Clause 9.3.4.3</i>
31004	>QoS flow add or modify request item	STRUCTURE			<i>QoS Flow Add or Modify Request Item IE in TS 38.413 [11] Clause 9.3.4.3</i>
31005	>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51</i>	
31006	>>QoS flow	STRUCTURE		8.1.1.6	
31012	List of QoS Flows failed to be added or modified	LIST			<i>QoS Flow Failed To Add or Modify List IE in TS 38.413 [11] Clause 9.3.4.2</i>
31013	>QoS flow item failed to be added or modified	STRUCTURE			<i>QoS Flow Item IE in TS 38.413 [11] Clause 9.3.1.13</i>
31014	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51</i>	
31015	>>QoS flow	STRUCTURE		8.1.1.6	
31016	>>Cause	STRUCTURE			<i>Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>
31017	>>>CHOICE Cause group	STRUCTURE			<i>Cause Group IE in TS 38.413 [11] Clause 9.3.1.2</i>
31018	>>>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer IE in TS 38.413 [11] Clause 9.3.1.2</i>
31019	>>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>	
31020	>>>>Transport Layer	STRUCTURE			<i>Transport Layer IE in TS 38.413 [11] Clause 9.3.1.2</i>
31021	>>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>	
31022	>>>>NAS	STRUCTURE			<i>NAS IE in TS</i>

					38.413 [11] Clause 9.3.1.2
31023	>>>>NAS Cause	ELEMENT	FALSE	NAS Cause IE in TS 38.413 [11] Clause 9.3.1.2	
31024	>>>Protocol	STRUCTURE			Protocol IE in TS 38.413 [11] Clause 9.3.1.2
31025	>>>>Protocol Cause	ELEMENT	FALSE	Protocol Cause IE in TS 38.413 [11] Clause 9.3.1.2	
31026	>>>>Miscellaneous	STRUCTURE			Misc IE in TS 38.413 [11] Clause 9.3.1.2
31027	>>>>Miscellaneous Cause	ELEMENT	FALSE	Miscellaneous Cause IE in TS 38.413 [11] Clause 9.3.1.2	
31031	List of QoS Flows to be released	LIST			QoS Flow To Release List IE in TS 38.413 [11] Clause 9.3.4.2
31032	>QoS flow item to be released	STRUCTURE			QoS Flow Item IE in TS 38.413 [11] Clause 9.3.1.13
31033	>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.413 [11] Clause 9.3.1.51	
31034	>>QoS flow	STRUCTURE		8.1.1.6	
31035	>>Cause	STRUCTURE			Cause IE in TS 38.413 [11] Clause 9.3.1.2
31036	>>>CHOICE Cause group	STRUCTURE			Cause Group IE in TS 38.413 [11] Clause 9.3.1.2
31037	>>>>Radio Network Layer	STRUCTURE			Radio Network Layer IE in TS 38.413 [11] Clause 9.3.1.2
31038	>>>>Radio Network Layer Cause	ELEMENT		Radio Network Layer Cause IE in TS 38.413 [11] Clause 9.3.1.2	
31039	>>>>Transport Layer	STRUCTURE			Transport Layer IE in TS 38.413 [11] Clause 9.3.1.2
31040	>>>>Transport Layer Cause	ELEMENT	FALSE	Transport Layer Cause IE in TS 37.483 [21] Clause 9.3.1.2	
31041	>>>>NAS	STRUCTURE			NAS IE in TS 38.413 [11] Clause 9.3.1.2
31042	>>>>NAS Cause	ELEMENT	FALSE	NAS Cause IE in TS 38.413 [11] Clause 9.3.1.2	
31043	>>>>Protocol	STRUCTURE			Protocol IE in TS 38.413 [11] Clause 9.3.1.2
31044	>>>>Protocol Cause	ELEMENT	FALSE	Protocol Cause	

				IE in TS 38.413 [11] Clause 9.3.1.2	
31045	>>>Miscellaneous	STRUCTURE			<i>Misc IE in TS 38.413 [11] Clause 9.3.1.2</i>
31046	>>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>	
31051	MR-DC Usage Information	STRUCTURE			<i>MR-DC Usage Information IE in TS 37.483 [21] Clause 9.3.1.63</i>
31052	>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type IE in TS 37.483 [21] Clause 9.3.1.63</i>	
31053	>PDU Session Timed Report List	LIST			<i>Data Usage Report List IE in TS 37.483 [21] Clause 9.3.1.64</i>
31054	>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item IE in TS 37.483 [21] Clause 9.3.1.64</i>
31055	>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp IE in TS 37.483 [21] Clause 9.3.1.64</i>	
31075	>>>End Timestamp	ELEMENT	FALSE	<i>End timestamp IE in TS 37.483 [21] Clause 9.3.1.64</i>	
31056	>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
31057	>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
31061	MR-DC Usage for QoS flows	LIST			<i>Data Usage Per QoS Flow List IE in TS 37.483 [21] Clause 9.3.1.63</i>
31062	>QoS Flow Item	STRUCTURE			<i>Data Usage Per QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.63</i>
31063	>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
31064	>>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type IE in TS 37.483 [21] Sec 9.3.1.63</i>	
31065	>>QoS Flow Timed Report List	LIST			<i>Data Usage Report List IE in TS 37.483 [21] Clause</i>

					9.3.1.64
31066	>>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item IE</i> in TS 37.483 [21] Clause 9.3.1.64
31067	>>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp IE</i> in TS 37.483 [21] Clause 9.3.1.64	
31068	>>>>End timestamp	ELEMENT	FALSE	<i>End timestamp IE</i> in TS 37.483 [21] Clause 9.3.1.64	
31069	>>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL IE</i> in TS 37.483 [21] Clause 9.3.1.64	
31070	>>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL IE</i> in TS 37.483 [21] Clause 9.3.1.64	
31081	Primary Cell ID	STRUCTURE			This is for the primary serving cell of the UE. The structuring of this parameter is based on <i>Target Cell Global ID IE</i> in TS 38.423 [15] clause 9.2.3.25
31082	>CHOICE Primary Cell	STRUCTURE			The primary cell could either be an NR primary cell or an LTE primary cell. The structuring is based on <i>Target Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
31083	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
31084	>>E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell IE</i> in TS 38.423 [15] clause 9.2.3.25

### 8.1.2.6.3 PDU Session Resource Release

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
32001	PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.413 [11] Clause 9.3.1.50</i>	
32002	PDU Session	STRUCTURE		8.1.1.16	
32011	Cause	STRUCTURE			<i>Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>
32012	>CHOICE Cause group	STRUCTURE			<i>Cause Group IE in TS 38.413 [11] Clause 9.3.1.2</i>
32013	>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer IE in TS 38.413 [11] Clause 9.3.1.2</i>
32014	>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>	
32015	>>Transport Layer	STRUCTURE			<i>Transport Layer IE in TS 38.413 [11] Clause 9.3.1.2</i>
32016	>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause IE in TS 37.483 [21] Clause 9.3.1.2</i>	
32017	>>NAS	STRUCTURE			<i>NAS IE in TS 38.413 [11] Clause 9.3.1.2</i>
32018	>>>NAS Cause	ELEMENT	FALSE	<i>NAS Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>	
32019	>>Protocol	STRUCTURE			<i>Protocol IE in TS 38.413 [11] Clause 9.3.1.2</i>
32020	>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>	
32021	>>Miscellaneous	STRUCTURE			<i>Misc IE in TS 38.413 [11] Clause 9.3.1.2</i>
32022	>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause IE in TS 38.413 [11] Clause 9.3.1.2</i>	
32031	MR-DC Usage Information	STRUCTURE			<i>MR-DC Usage Information IE in TS 37.483 [21] Clause 9.3.1.63</i>
32032	>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type IE in TS</i>	

				37.483 [21] Clause 9.3.1.63	
32033	>PDU Session Timed Report List	LIST		<i>Data Usage Report List IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32034	>>MR-DC Data Usage Report Item	STRUCTURE		<i>Data Report Usage Item IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32035	>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32036	>>>End Timestamp	ELEMENT	FALSE	<i>End timestamp IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32037	>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32038	>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32041	MR-DC Usage for QoS flows	LIST		<i>Data Usage Per QoS Flow List IE</i> in TS 37.483 [21] Clause 9.3.1.63	
32042	>QoS Flow Item	STRUCTURE		<i>Data Usage Per QoS Flow Item IE</i> in TS 37.483 [21] Clause 9.3.1.63	
32043	>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE</i> in TS 37.483 [21] Sec 9.3.1.24	
32054	>>QoS flow	STRUCTURE		8.1.1.6	
32044	>>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type IE</i> in TS 37.483 [21] Clause 9.3.1.63	
32045	>>QoS Flow Timed Report List	LIST		<i>Data Usage Report List IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32046	>>>MR-DC Data Usage Report Item	STRUCTURE		<i>Data Report Usage Item IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32047	>>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp IE</i> in TS 37.483 [21] Clause 9.3.1.64	
32048	>>>>End timestamp	ELEMENT	FALSE	<i>End timestamp IE</i> in TS 37.483 [21] Clause 9.3.1.64	

32049	>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
32050	>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL IE in TS 37.483 [21] Clause 9.3.1.64</i>	
32061	Primary Cell ID	STRUCTURE			This is for the primary serving cell of the UE. The structuring of this parameter is based on <i>Target Cell Global ID IE</i> in TS 38.423 [15] clause 9.2.3.25
32062	>CHOICE Primary Cell	STRUCTURE			The primary cell could either be an NR primary cell or an LTE primary cell. The structuring is based on <i>Target Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
32063	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR Cell IE</i> in TS 38.423 [15] clause 9.2.3.25
32064	>>E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell IE</i> in TS 38.423 [15] clause 9.2.3.25

### 8.1.3 RAN Parameters for UE Identification

The following RAN Parameters are defined for identification of UEs.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
35001	Cell Global ID	STRUCTURE			To identify UEs associated to a specific cell
35002	>NR CGI	STRUCTURE			
35003	>>PLMN Identity	ELEMENT	FALSE	Defined in [4] clause 6.2.3.1.	
35004	>>NR Cell Identity	ELEMENT	FALSE	Defined in [4] clause 6.2.3.7.	
35005	>E-UTRA CGI	STRUCTURE			
35006	>>PLMN Identity	ELEMENT	FALSE	Defined in [4] clause 6.2.3.1.	
35007	>>E-UTRA Cell Identity	ELEMENT	FALSE	Defined in [4] clause 6.2.3.11.	
35010	S-NSSAI	STRUCTURE			To identify UEs associated to a specific S-NSSAI
35011	>SST	ELEMENT	FALSE	Defined in [4] clause 6.2.3.12.	
35012	>SD	ELEMENT	FALSE	Defined in [4] clause 6.2.3.12.	
35020	Group ID	STRUCTURE			To identify UEs associated to a specific Group ID defined in [4] clause 6.2.2.7.
35021	>IRFSP	ELEMENT	FALSE	Defined in [4] clause 6.2.3.27.	
35022	>SPID	ELEMENT	FALSE	Defined in [4] clause 6.2.3.28.	
35030	Explicit UE List ID	ELEMENT	FALSE	Defined in Clause 8.4.9.1.	To identify UEs associated to a specific Explicit UE List ID defined in Clause 8.4.9.1.
35040	Core Control Plane ID	STRUCTURE			To identify UEs associated to a specific Core Control Plane ID (GUAMI/GUMMEI) defined in [4] clause 6.2.2.8.
35041	>GUAMI	STRUCTURE			
35042	>>PLMN Identity	ELEMENT	FALSE	Defined in [4] clause 6.2.3.1.	
35043	>>AMF Region ID	ELEMENT	FALSE	Defined in [4] clause 6.2.3.17.	
35044	>>AMF Set ID	ELEMENT	FALSE	Defined in [4] clause 6.2.3.17.	
35045	>>AMF Pointer	ELEMENT	FALSE	Defined in [4] clause 6.2.3.17.	
35046	>GUMMEI	STRUCTURE			
35047	>>PLMN Identity	ELEMENT	FALSE	Defined in [4] clause 6.2.3.1.	
35048	>>MME Group ID	ELEMENT	FALSE	Defined in [4] clause 6.2.3.18.	
35049	>>MME Code	ELEMENT	FALSE	Defined in [4] clause 6.2.3.18.	
35050	QoS ID	STRUCTURE			To identify UEs associated to a specific QoS (QCI/5QI) defined in [4] clause 6.2.2.9. The criteria is for any EPS/PDU sessions assigned to a UE.
35051	>5QI	ELEMENT	FALSE	Defined in [4] clause 6.2.3.13.	
35052	>QCI	ELEMENT	FALSE	Defined in [4] clause 6.2.3.14.	

35061	UE Throughput (DL)	ELEMENT	FALSE	INTEGER	To identify UEs based on Average Total DL Thoughtput (kbit/s) as defined in TS 28.552 [28] clause 5.1.1.3.1
35062	UE Throughput (UL)	ELEMENT	FALSE	INTEGER	To identify UEs based on Average Total UL Thoughtput (kbit/s) as defined in TS 28.552 [28] clause 5.1.1.3.3
35070	Beam ID	ELEMENT	FALSE	Defined in [4] clause 6.2.2.16	The serving SSB "beam" of the UE
35080	Explicit UE List assignment list	LIST			To provide a list of Explicit UE List ID matching condition
35081	> Explicit UE list ID	ELEMENT	FALSE	Defined in clause 8.4.9.1.	
35090	UE ID list	LIST			To provide a list of UE matching condition
35091	> UE ID	ELEMENT	FALSE	OCTET STRING	Defined in clause 9.3.10

### 8.1.4 RAN Parameters for Cell Identification

The following RAN Parameters are defined for identification of Cells.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
36001	PLMN Identity	ELEMENT	FALSE	Defined in [4] clause 6.2.3.1.	To identify cells based on PLMN ID
36010	S-NSSAI	STRUCTURE			To identify cells based on supported S-NSSAI
36011	>SST	ELEMENT	FALSE	Defined in [4] clause 6.2.3.12.	
36012	>SD	ELEMENT	FALSE	Defined in [4] clause 6.2.3.12.	

### 8.1.5 UE Events

The following UE Event IDs are defined.

UE Event ID	UE Event Name	Message Event in <i>E2SM-RC Event Trigger Definition Format 1 IE</i>	If used in <i>E2SM-RC Event Trigger Definition Format 1 IE</i>	If used in <i>E2SM-RC Indication Message Format 1 IE</i>
1	Carrier Aggregation Initiated	"F1" Network Interface message of "UE Context Setup Request".	Event triggering is only when this message event is by initiating carrier aggregation.	Indicates that this message event happened due to carrier aggregation.
2	A3 Measurement Report Reception	"RRC" message of "Measurement Report".	Event triggering is only when this message event is by A3 event.	Indicates that this message event happened due to A3 event.

## 8.2 RAN parameters for REPORT services

### 8.2.1 RAN Parameters for Report Service Style 1

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	UE Event ID	ELEMENT	FALSE	INTEGER	This shall be used to report the related UE Event ID described in Clause 8.1.5.
2	NI Message	ELEMENT	FALSE	OCTET STRING	This shall be used to report Network Interface Message
3	RRC Message	ELEMENT	FALSE	OCTET STRING	This shall be used to report RRC Message
4	UE ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.10. This shall be used to report UE ID when the message event configured by the Event Trigger Style 1 is set to "RRC Setup Complete message" (UE attach), or "Xn/NG Handover Request" or "F1 UE Context Setup Request" (Intra gNB HandOver).
5	Old AMF UE NGAP ID	ELEMENT	FALSE	Defined in [4] clause 6.2.3.16.	This shall be used to report Old AMF UE NGAP ID when the message event configured by Event Trigger Style 1 is set to "Xn Handover Request" and AMF UE NGAP ID is changed during HO.
6	Cell Global ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.36 This shall be used to report the SpCell ID where the UE belongs to during reporting.
7	Beam ID	ELEMENT	FALSE	Defined in [4] clause 6.2.2.16	This shall be used to report source beam (last serving beam in the source cell) ID when the message configured by the Event Trigger Style 1 is set to "Xn/X2 Failure Indication" or "Xn/X2 Handover Report"
8	UE Mobility Failure Cause	ELEMENT	FALSE	ENUMERATED (HO too early, HO too late, HO wrong cell, HO ping-pong, ...)	This shall be used to report Mobility failure root cause when the message configured by the Event Trigger Style 1 is set to "Xn/X2 Failure Indication" or "Xn/X2 Handover Report".

In addition, this report style may use RAN parameters defined in Clause 8.1.1.

## 8.2.2 RAN Parameters for Report Service Style 2

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Current UE ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.10. This shall be used to report UE ID defined at the time of Call Process Outcome.
2	Old UE ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.10. This shall be used to report the previously assigned UE ID prior to the call process.
3	Current RRC State	ELEMENT	FALSE	Defined in Clause 9.3.37.	This shall be used to report the RRC state at the time of Call Process Outcome.
4	Old RRC State	ELEMENT	FALSE	Defined in Clause 9.3.37.	This shall be used to report the previous RRC state prior to the Call Process Outcome.
5	UE Context Information Container	ELEMENT	FALSE	OCTET STRING	The RETRIEVE UE CONTEXT RESPONSE message content in TS 38.423 [17] clause 9.1.1.9. This shall be used to report UE Context information.
6	Cell Global ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.36 This shall be used to report the SpCell ID where the UE belongs to during reporting.
7	UE Information	Defined in Clause 8.1.1.17			

## 8.2.3 RAN Parameters for Report Service Style 3

RAN Parameter ID	RAN Parameter Name	Semantics Description
1	Cell Context Information	Served Cell Information IE in TS 38.473 [19] clause 9.3.1.10. This shall be used to report Cell Context information.
2	Cell Deleted	This shall be used to report deleted cells. The value shall be set to "True"

		for the deleted Cell Global ID.
3	Neighbour Relation Table	This shall be used to report neighbour relation information of the serving cells.
4	MIB	<i>MIB</i> IE in TS 38.331 [22] Clause 6.2.2. This shall be used to report MIB of the serving cell
5	Serving Cell Config Common	This shall be used to report common parameters of the serving cell contained in <i>ServingCellConfigCommon</i> IE in TS 38.331 [22] Clause 6.3.2.

#### 8.2.4 RAN Parameters for Report Service Style 4

RAN Parameter Category	RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
PDCP UE Variables	Defined in Clause 8.1.1.8 L2 Bearer State Variables for PDCP State Variables					
RLC UM UE Variables	Defined in Clause 8.1.1.8 L2 Bearer State Variables for RLC UM State Variables					
RLC AM UE Variables	Defined in Clause 8.1.1.8 L2 Bearer State Variables for RLC AM State Variables					
MAC Variables	100	UL MAC CE	ELEMENT	FALSE	OCTET STRING	This shall be used to report MAC CE Structure as per TS 38.321 [26] clause 6.1.3
	101	DL MAC CE	ELEMENT	FALSE	OCTET STRING	DL Buffer Occupancy at RLC. Expressed as absolute values in terms of Number of Kilo Bytes (KB)
	102	DL Buffer Occupancy	ELEMENT	FALSE	INTEGER	
RRC State	201	Current RRC State	ELEMENT	FALSE	Defined in Clause 9.3.37.	This shall be used to report the RRC state before RRC state change.
	202	RRC State Changed To	ELEMENT	FALSE	Defined in Clause 9.3.37.	This shall be used to report new RRC state upon RRC stage change
	203	RRC Message	ELEMENT	FALSE	OCTET STRING	This shall be used to report the RRC message which triggered RRC state change
UE Identifier Change	300	Old UE ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.10. This shall be used to report the old UE ID upon UE ID change E2 Node shall report any available old NI or RRC interface UE identifier within the UEID structure.
	301	Current UE ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.10. This shall be used to report the UE ID available at the time of reporting.
	302	NI Message	ELEMENT	FALSE	OCTET STRING	This shall be used to report the Network Interface message which triggered the UE ID change .
Cell Global ID	400	Cell Global ID	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.36. This shall be used to report the SpCell ID where the UE belongs to during reporting.
UE Context Info Change	Defined in Clause 8.1.1.17 UE Context Information related RAN parameters					

## 8.3 RAN parameters for INSERT services

### 8.3.1 Approach

The approach for RAN parameters associated with Insert service is provided in Clause 8.0.

### 8.3.2 Radio Bearer Control request

#### 8.3.2.1 DRB QoS Configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.2.1.

#### 8.3.2.2 QoS flow mapping configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.2.2.

#### 8.3.2.3 Logical channel configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.2.3.

#### 8.3.2.4 Radio Bearer Admission Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.2.4.

#### 8.3.2.5 DRB Termination Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.2.5.

#### 8.3.2.6 DRB Split Ratio Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.2.6.

#### 8.3.2.7 PDCP Duplication Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.2.7.

### 8.3.3 Radio Resource Allocation Control request

#### 8.3.3.1 DRX Parameter Configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.3.1.

#### 8.3.3.2 Scheduling Request Parameter Configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.3.2.

#### 8.3.3.3 Semi-Persistent Scheduling Parameter Configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.3.3.

#### 8.3.3.4 Configured Grant Configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.3.4.

### 8.3.3.5 CQI table configuration request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.3.5.

### 8.3.3.6 Slice-level PRB quota allocation request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.3.6.

## 8.3.4 Connected Mode Mobility Control Request

### 8.3.4.1 Handover Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.4.1.

### 8.3.4.2 Conditional Handover Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.4.2.

### 8.3.4.3 DAPS Handover Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.4.3.

## 8.3.5 Radio Access Control request

### 8.3.5.1 UE admission control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.5.1.

### 8.3.5.2 RACH backoff control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.5.2.

### 8.3.5.3 Access barring control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.5.3.

### 8.3.5.4 RRC Connection Release request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.5.4.

### 8.3.5.5 RRC Connection Reject request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.5.5.

## 8.3.6 Dual Connectivity Control request

### 8.3.6.1 DC Secondary Node Addition Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.6.1.

### 8.3.6.2 DC Secondary Node Modification Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.6.2.

### 8.3.6.3 PSCell Change cell for Secondary Cell Group Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.6.3.

### 8.3.6.4 DC Secondary Node Change Control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.6.4.

## 8.3.7 Carrier Aggregation Control request

### 8.3.7.1 Secondary cell Addition control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.7.1.

### 8.3.7.2 Secondary cell Modification control request

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.7.2.

## 8.3.8 Idle Mode Mobility Control request

### 8.3.8.1 Cell reselection priority control

The RAN parameters associated with this Insert Indication are listed in Clause 8.4.8.1.

## 8.3.9 Common RAN Parameters for INSERT Service styles

The table below shows the set of RAN parameters that are common for all INSERT service styles.

### 8.3.9.1 UE Context Information

The associated RAN parameters are given in Clause 8.1.1.17.

### 8.3.9.2 E2 Node Context Information

The associated RAN parameters are given in Clause 8.1.1.11.

## 8.3.10 Indication Semantics Description for interpretation by the RIC

The E2 node requests the near-RT RIC for the following services as far as the radio bearer Control request is concerned.

- (a) In the *RIC Indication Header* IE, the E2 node indicates the *Insert Indication ID*, that is associated with the *Insert Service Style* ID for the radio bearer control request, along with the UE ID, so as to enable the RIC to interpret which Insert Indication service pertaining to which UE is being requested by the E2 node.
- (b) In the *RIC Indication Message* IE, the E2 node indicates the list of the RAN parameters in the Indication message that it wants to be controlled by the near-RT RIC. If the E2 node does not provide values for these parameters in the *RIC Indication message* IE, then the RIC would set the values for these parameters in the control action sent via the *RIC Control Request* message, along with its decision to accept/deny the request raised by the E2 node (indicated in the *RIC Indication Header* IE). If the RAN parameter indicated by the E2 node is an ELEMENT, the RIC would set the value for the parameter in its *RIC Control Request* message. If the indicated RAN parameter is a STRUCTURE but if the E2 node does not list any constituent RAN parameter of the STRUCTURE, then the RIC would set the values for all the constituent RAN parameters of the STRUCTURE. If the parameter is a LIST, then:
  - a. If the E2 node also indicates the *Key* RAN parameter pertaining to the itemized STRUCTURE in the LIST, then the RIC would set the values for all constituent RAN parameters within the structure, pointed by the key.

- b. If the E2 node does not indicate the *Key RAN* parameter pertaining to the itemized STRUCTURE in the LIST, then the RIC would set the values for all constituent RAN parameters within each itemized STRUCTURE, whose *key RAN* parameter is identified by the RIC.
- (c) If the E2 node provides values for these parameters in the *RIC Indication message* IE, then the RIC would set the values only for those indicated parameters for which it would choose to replace the values already set by the E2 node. It also communicates its decision to accept/deny the request raised by the E2 node for the DRB.
- (d) Any RAN parameter identified as a *key* shall always carry a value set by the E2 node, if the E2 node expects the RIC to control the parameters pertaining to the STRUCTURE pointed by the E2 node. The value of this *key RAN* parameter is an index that points to the entire STRUCTURE, and hence the value of the *key RAN* parameter cannot be modified by the near-RT RIC. Without indicating the value for the *key RAN* parameter, the RIC would not control the parameters associated with the structure indexed by the *key*.

Note that the RIC can only set the values for those RAN parameters identified as ELEMENT when they are indicated by the E2 node; however, these RAN parameters can be contained with a STRUCTURE or within an itemized STRUCTURE in a LIST. Also, if the *DRB ID* key parameter is not present for any DRB in the *RIC Indication Message* IE, then the RIC would discard the *RIC Indication* message. And the E2 node would have to set values based on its default radio resource management policies upon time out, and continue with the ongoing call processing. Hence, indicating the *DRB ID* IE for the DRB(s) is a pre-requisite for the RIC to act on the Insert indication via its *RIC Control Request* message.

## 8.4 RAN Parameters for Control Actions

### 8.4.1 Approach

The approach for RAN parameters associated with Control service is provided in Clause 8.0.

In the case of CONTROL action for UE group-based control (using E2SM-RC *Control Header Format 3* and E2SM-RC *Control Message Format 3*), since the control action can be applied as a whole on multiple UEs constituting the group, the RAN parameters, whose *key flag* value is set to “true”, shall not be used here, since they are only used for UE-specific entities. Instead, as provided in E2SM-RC *Control Message Format 3*, the *Entity Filter Definition* IE (from E2SM-RC *Control Message Format 3* in Clause 9.2.1.7.3) is used to define the entity filter and specify the corresponding set of filtering conditions towards determining the relevant entities (such as DRBs, QoS flows, etc.) pertaining to the UE group for which the control action is applicable. Each entity filter is identified by the *Entity Filter ID* IE. There may be more than one entity for the same UE group, whose associated RAN parameters can be controlled by the RIC using a single RIC CONTROL REQUEST message with the same *Control Action ID* IE. The control parameters, specific to a given set of entities, corresponding to the *Entity Filter ID* IE, are assigned values by the RIC. The list of all entity filters for the UE group are mentioned in *List of entity filters* IE. The control parameters are identified by the *List of RAN control Parameters for the matching entities* IE in E2SM-RC *Control Message Format 3* (in Clause 9.2.1.7.3) and correspond to each *Entity Filter ID* IE. The control action is then applied (based on the approach in Clause 8.0) individually on all the applicable entities (e.g., all the applicable DRBs) pertaining to the UE group, subject to the filtering criteria.

For e.g., if PDCP duplication needs to be activated on all DRBs corresponding to 5QI 82 for the URLLC slice (SST 2) and if the number of duplicate PDCP paths needs to be set to 3, then the *Entity Filter Definition* IE in E2SM-RC *Control Message Format 3* (Sec 9.2.1.7.3) can be used to specify conditions that can match all DRBs pertaining to the 5QI of 82, and the *List of RAN control parameters for the matching entities* IE can be used to indicate the PDCP duplication configuration parameters, which shall later be applied by the E2 node individually on all the applicable DRBs across the corresponding UEs of the URLLC slice that constitute the UE group.

The UE group control action may also be entity-agnostic. That is, the control action may not pertain to specific entities of the UEs, but may apply to the UEs as a whole. The *List of entity filters* IE is therefore optional.

As an example, if A3 offset needs to be set to 4 dB for all UEs with NR-CGI “xyz” as their primary SpCell, the control action in this case is entity-agnostic, as the control action shall be applied on all UEs with NR-CG “xyz” as their SpCell, irrespective of their entities.

Thus, if the control action is entity agnostic, then the *List of entity filters* IE is not present and the *List of RAN control parameters* IE is used to indicate the control parameters for the control action applied on the UE group.

In the *E2SM-RC Control Header Format 3* IE shown in Clause 9.2.1.6.3, the *UE Group ID* IE and the *UE Group Definition* IE are used to uniquely identify and define the logical grouping of the UEs based on the list of RAN parameters from Clause 8.1.3, respectively. The *RIC Style Type* IE is used to refer to the RIC Control Service Style type and the *Control Action ID* IE is used to refer to a given control action within the RIC Control Service Style type.

## 8.4.2 Radio Bearer Control

### 8.4.2.1 DRB QoS Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to DRB QoS Configuration, such as *Bearer Context Management*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

In the case of UE group-based control action, where the relevant entities include more than one DRB subject to QoS configuration, the above procedures are individually invoked for each applicable DRB pertaining to each individual UE of the group.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	DRB ID IE in TS 37.483 [21] Clause 9.3.1.16	
2	5QI	ELEMENT	FALSE	5QI IE in TS 37.483 [21] Clause 9.3.1.27 or TS 37.483 [21] Clause 9.3.1.28	
3	Packet Delay Budget	ELEMENT	FALSE	Packet Delay Budget IE in TS 37.483 [21] Clause 9.3.1.47	
4	Packet Error Rate	STRUCTURE			Packet Error Rate IE in TS 37.483 [21] Clause 9.3.1.48
5	>Scalar factor	ELEMENT	FALSE	Scalar IE in TS 37.483 [21] Clause 9.3.1.48	
6	>Exponent factor	ELEMENT	FALSE	Exponent IE in TS 37.483 [21] Clause 9.3.1.48	
7	NG-RAN DRB Allocation and Retention Priority	STRUCTURE			NG-RAN Allocation and Retention Priority IE in TS 37.483 [21] Clause 9.3.1.29
8	>Priority Level	ELEMENT	FALSE	Priority Level IE in TS 37.483 [21] Clause 9.3.1.29	
9	>Pre-emption Capability	ELEMENT	FALSE	Pre-emption Capability IE in TS 37.483 [21] Clause 9.3.1.29	
10	>Pre-emption Vulnerability	ELEMENT	FALSE	Pre-emption Vulnerability IE in TS 37.483 [21] Clause 9.3.1.29	
11	Priority Level of the mapped QoS flows	ELEMENT	FALSE	Priority Level IE in TS 37.483 [21] Clause 9.3.1.51	
12	QoS parameters for GBR flows in NG-RAN Bearer	STRUCTURE			GBR QoS Flow Information IE in TS 37.483 [21] Clause 9.3.1.30
13	>Maximum Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
14	>Guaranteed Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
15	>Maximum Packet Loss Rate Downlink	ELEMENT	FALSE	Packet Loss Rate IE in TS 37.483 [21] Clause 9.3.1.30	
16	>Maximum Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
17	>Guaranteed Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 37.483 [21] Clause 9.3.1.30	
18	>Maximum Packet Loss Rate Uplink	ELEMENT	FALSE	Packet Loss Rate IE in TS 37.483 [21] Clause 9.3.1.30	
19	QoS Monitoring Enable Request	ELEMENT	FALSE	QoS Monitoring Request IE in TS 37.483 [21] Clause 9.3.1.26	
20	QoS Monitoring Reporting Frequency	ELEMENT	FALSE	QoS Monitoring Reporting Frequency IE in TS 37.483 [21] Clause 9.3.1.26	
21	QoS Monitoring Disabled	ELEMENT	FALSE	QoS Monitoring Disabled IE in TS 37.483 [21] Clause 9.3.1.26	
22	Reflective QoS Mapping	ELEMENT	FALSE	RD/IE in TS 37.483 [21] Clause 9.3.1.26	

### 8.4.2.2 QoS flow mapping configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to QoS flow mapping Configuration, such as *Bearer Context Management*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	<i>DRB ID IE</i> in TS 37.483 [21] Clause 9.3.1.16	
2	List of QoS Flows to be modified in DRB	LIST			<i>Flow Mapping Information IE</i> in TS 37.483 [21] Clause 9.3.1.26
3	>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE</i> in TS 37.483 [21] Clause 9.3.1.12
4	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE</i> in TS 37.483 [21] Clause 9.3.1.24	
5	>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE</i> in TS 37.483 [21] Clause 9.3.1.60	

### 8.4.2.3 Logical channel configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Logical channel Configuration, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related RRC messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

In the case of UE group-based control action, where the relevant entities include more than one DRB subject to LCID configuration, the above procedures are individually invoked for each applicable DRB pertaining to each individual UE of the group.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	<i>DRB-Identity IE</i> in TS 38.331 [22] Clause 6	
2	Logical Channel ID	ELEMENT	FALSE	<i>LogicalChannelIdentity IE</i> in TS 38.331 [22] Clause 6	
3	List of cell groups to be added	LIST			<i>Cell Group To Add IE</i> in TS 37.483 [21] Clause 9.3.3.11
4	>Cell group item	STRUCTURE			<i>Cell Group Item IE</i> in TS 37.483 [21] Clause 9.3.1.11
5	>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID IE</i> in TS 37.483 [21] Clause 9.3.1.11	
6	>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE</i> in TS 37.483 [21] Clause 9.3.1.13	
7	List of cell groups to be modified	LIST			<i>Cell Group To Modify IE</i> in TS 37.483 [21] Clause 9.3.1.11
8	>Cell group item	STRUCTURE			<i>Cell Group Item IE</i> in TS 37.483 [21] Clause 9.3.1.11
9	>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID IE</i> in TS 37.483 [21] Clause 9.3.1.11	
10	>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration IE</i> in TS 37.483 [21] Clause 9.3.1.11	
11	List of cell groups to be removed	LIST			<i>Cell Group To Remove IE</i> in TS 37.483 [21] Clause 9.3.1.11
12	>Cell group item	STRUCTURE			<i>Cell Group Item IE</i> in TS 37.483 [21] Clause 9.3.1.11
13	>>Cell Group ID	ELEMENT	FALSE	<i>Cell Group ID IE</i> in TS 37.483 [21] Clause 9.3.1.11	
14	Uplink Specific Parameters	STRUCTURE			<i>ul-SpecificParameters IE</i> in TS 38.331 [22] Clause 6
15	>Priority	ELEMENT	FALSE	<i>priority IE</i> in TS 38.331 [22] Clause 6	
16	>Prioritized Bit rate	ELEMENT	FALSE	<i>prioritisedBitRate IE</i> in TS 38.331 [22] Clause 6	
17	>Bucket Size Duration	ELEMENT	FALSE	<i>bucketSizeDuration IE</i> in TS 38.331 [22] Clause 6	
18	>List of Allowed Serving Cells	LIST			<i>allowedServingCells IE</i> in TS 38.331 [22] Clause 6
19	>>Allowed Serving Cell Item	STRUCTURE			
20	>>>Serving Cell Index	ELEMENT	FALSE	<i>ServCellIndex IE</i> in TS 38.331 [22] Clause 6	
21	>List of Allowed SCS Configuration	LIST			<i>allowedSCS-List IE</i> in TS 38.331 [22] Clause 6
22	>>Allowed SCS Configuration Item	STRUCTURE			
23	>>Subcarrier Spacing	ELEMENT	FALSE	<i>SubCarrierSpacing IE</i> in TS 38.331 [22]	

	Configuration			Clause 6	
24	>Maximum PUSCH Duration	ELEMENT	FALSE	<i>maxPUSCH-Duration IE in TS 38.331 [22] Sec 6</i>	
25	>Configured Grant Type 1 Allowed	ELEMENT	FALSE	<i>configuredGrantType1Allowed IE in TS 38.331 [22] Clause 6</i>	
26	>Logical Channel SR – Mask	ELEMENT	FALSE	<i>logicalChannelSR-Mask IE in TS 38.331 [22] Clause 6</i>	
27	>Logical Channel SR – Delay Timer Applied	ELEMENT	FALSE	<i>logicalChannelSR-DelayTimerApplied IE in TS 38.331 [22] Sec 6</i>	
28	>Bit Rate Query Prohibit Timer	ELEMENT	FALSE	<i>bitRateQueryProhibitTimer IE in TS 38.331 [22] Clause 6</i>	
29	>RLC re-establishment	ELEMENT	FALSE	<i>reestablishRLC IE in TS 38.331 [22]</i>	
30	>Logical Channel Group	ELEMENT	FALSE	<i>logicalChannelGroup IE in TS 38.331 [22]</i>	

#### 8.4.2.4 Radio Bearer Admission Control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Radio Bearer Admission Control, such as *Bearer Context Management*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics description
1	DRB Identity	ELEMENT	TRUE	DRB ID IE in TS 37.483 [21] Clause 9.3.1.16	
2	List of cell groups to be added	LIST			Cell Group To Add IE in TS 37.483 [21] Clause 9.3.3.11
3	>Cell group item	STRUCTURE			Cell Group Item IE in TS 37.483 [21] Clause 9.3.1.11
4	>>Cell Group ID	ELEMENT	TRUE	Cell Group ID IE in TS 37.483 [21] Clause 9.3.1.11	
5	SDAP Configuration	STRUCTURE			SDAP Configuration IE in TS 37.483 [21] Clause 9.3.1.39
6	>PDU Session ID	ELEMENT	FALSE	PDU-SessionID IE in TS 38.331 [22] Sec 6	
7	>Default DRB	ELEMENT	FALSE	Default DRB IE in TS 37.483 [21] Clause 9.3.1.39	
8	PDCP Configuration	STRUCTURE			PDCP Configuration IE in TS 37.483 [21] Clause 9.3.1.38
9	>RLC mode	ELEMENT	FALSE	RLC mode IE in TS 37.483 [21] Clause 9.3.1.38	
10	>PDCP Duplication	ELEMENT	FALSE	PDCP Duplication IE in TS 37.483 [21] Clause 9.3.1.38	
11	>UL Data Split Threshold	ELEMENT	FALSE	UL Data Split Threshold IE in TS 37.483 [21] Clause 9.3.1.43	
12	>PDCP Re-establishment	ELEMENT	FALSE	PDCP Re-establishment IE in TS 37.483 [21] Clause 9.3.1.38	
13	>PDCP Data Recovery	ELEMENT	FALSE	PDCP Data Recovery IE in TS 37.483 [21] Clause 9.3.1.38	
14	>Out-of-Order Delivery	ELEMENT	FALSE	Out of Order Delivery IE in TS 37.483 [21] Clause 9.3.1.38	
15	>PDCP Status Report Indication	ELEMENT	FALSE	PDCP Status Report Indication IE in TS 37.483 [21] Clause 9.3.1.38	
16	>Number of PDCP duplication	ELEMENT	FALSE	Additional PDCP duplication Information IE in TS 37.483 [21] Clause 9.3.1.38	
17	>UL More than one RLC	STRUCTURE			moreThanOneRLC IE in TS 38.331 [22] Clause 6
18	>>Primary Path	STRUCTURE			primaryPath IE in TS 38.331 [22] Clause 6
19	>>>Cell Group ID	ELEMENT	TRUE	cellGroup IE in TS 38.331 [22] Clause 6	
20	>>>Logical Channel ID	ELEMENT	FALSE	logicalChannel IE in TS 38.331 [22] Sec 6	
21	>UL More than two RLC	STRUCTURE			moreThanTwoRLC-DRB-r16 IE in TS 38.331 [22] Clause 6
22	>>Split Secondary Path	ELEMENT	FALSE	splitSecondaryPath IE in TS 38.331 [22]	

				Sec 6	
23	>>Duplication State	ELEMENT	FALSE	<i>duplicationState</i> IE in TS 38.331 [22] Sec 6	
17	>DL More than one RLC	STRUCTURE			<i>moreThanOneRLC</i> IE in TS 38.331 [22] Clause 6
18	>>Primary Path	STRUCTURE			<i>primaryPath</i> IE in TS 38.331 [22] Clause 6
19	>>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Clause 6	
20	>>>Logical Channel ID	ELEMENT	FALSE	<i>logicalChannel</i> IE in TS 38.331 [22] Sec 6	
21	>DL More than two RLC	STRUCTURE			<i>moreThanTwoRLC-DRB-r16</i> IE in TS 38.331 [22] Clause 6
22	>>Split Secondary Path	ELEMENT	FALSE	<i>splitSecondaryPath</i> IE in TS 38.331 [22] Sec 6	
23	>>Duplication State	ELEMENT	FALSE	<i>duplicationState</i> IE in TS 38.331 [22] Sec 6	

#### 8.4.2.5 DRB Termination Control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to DRB Termination change, such as *Dual Connectivity Secondary Node Modification (MN/SN initiated)*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Param	RAN Parameter definition	Semantics Description
1	List of DRBs to be modified to SN-Termination	LIST			<i>DRBs To Be Modified IE in TS 38.423 [15] Clause 9.2.1.11</i>
2	>DRB Item to be modified to SN-Termination	STRUCTURE			<i>DRBs To Be Modified Item IE in TS 38.423 [15] Clause 9.2.1.11</i>
3	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
4	>>Logical Channel ID	ELEMENT	FALSE	<i>LCID IE in TS 38.423 [15] Clause 9.2.3.70</i>	
5	>>RLC Status	ELEMENT	FALSE	<i>RLC Status IE in TS 38.423 [15] Clause 9.2.3.80</i>	
6	>>List of QoS flows to be modified to SN-Termination	LIST			<i>QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15</i>
7	>>>QoS flow item	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
8	>>>>QoS flow ID	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.1.15</i>	
9	>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS 38.423 [15] Clause 9.2.1.15</i>	
10	List of DRBs to be modified to MN-Termination	LIST			<i>DRBs To Be Modified IE in TS 38.423 [15] Clause 9.2.1.9</i>
11	>DRB Item to be modified to MN-Termination	STRUCTURE			<i>DRBs To Be Modified Item IE in TS 38.423 [15] Clause 9.2.1.9</i>
12	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
13	>>Logical Channel ID	ELEMENT	FALSE	<i>LCID IE in TS 38.423 [15] Clause 9.2.3.70</i>	
14	>>RLC Status	ELEMENT	FALSE	<i>RLC Status IE in TS 38.423 [15] Clause 9.2.3.80</i>	
15	>>List of QoS flows to be modified to SN-Termination	LIST			<i>QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15</i>
16	>>>QoS flow item	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
17	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
18	>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS 38.423 [15] Clause 9.2.1.15</i>	

#### 8.4.2.6 DRB Split Ratio Control

Upon receiving the *RIC Control Request* message, in the presence of *Downlink PDCP Data Split IE*, the E2 node shall split the downlink PDCP traffic between the Master Node and Secondary Node over the X2/Xn interface based on the recommended ratio. In the presence of *Uplink PDCP Data Split Threshold IE*, the E2 node shall invoke procedures related to DRB Split Ratio Control, such as *Bearer Context Management*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	<i>DRB ID IE</i> in TS 37.483 [21] Clause 9.3.1.16	
2	Uplink PDCP Data Split Threshold	ELEMENT	FALSE	<i>UL Data Split Threshold IE</i> in TS 37.483 [21] Clause 9.3.1.43	
3	Downlink PDCP Data Split	ELEMENT	FALSE	INTEGER (0..100) Defined in Clause 9.4.2	Indicates the percentage of PDCP traffic that the MN has to split with the SN

#### 8.4.2.7 PDCP Duplication Control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to PDCP Duplication Control, such as *Bearer Context Management*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

In the case of UE group-based control action, where the relevant entities include more than one DRB subject to the PDCP duplication control action, the above procedures are individually invoked for each applicable DRB pertaining to each individual UE of the group.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	DRB ID IE in TS 37.483 [21] Clause 9.3.1.16	
2	PDCP Duplication	ELEMENT	FALSE	PDCP Duplication IE in TS 37.483 [21] Clause 9.3.1.38	
3	UL More Than One RLC	STRUCTURE			moreThanOneRLC IE in TS 38.331 [22]
4	>Primary Path	STRUCTURE			primaryPath IE in TS 38.331 [22] Clause 6
5	>>Cell Group ID	ELEMENT	TRUE	cellGroup IE in TS 38.331 [22] Clause 6	
6	>>Logical Channel ID	ELEMENT	FALSE	logicalChannel IE in TS 38.331 [22] Sec 6	
7	UL More Than Two RLC	STRUCTURE			moreThanTwoRLC-DRB-r16 IE in TS 38.331 [22] Clause 6
8	>Split Secondary Path	ELEMENT	FALSE	splitSecondaryPath IE in TS 38.331 [22] Sec 6	
9	>Duplication State	ELEMENT	FALSE	duplicationState IE in TS 38.331 [22] Sec 6	
10	PDCP Duplication Activation	ELEMENT	FALSE	Duplication Activation IE in TS 37.483 [21] Clause 9.3.1.38	
11	Number of PDCP duplication	ELEMENT	FALSE	Additional PDCP duplication Information IE in TS 37.483 [21] Clause 9.3.1.38	

## 8.4.3 Radio Resource Allocation Control

### 8.4.3.1 DRX Parameter Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to DRX Parameter Configuration, such as *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Long DRX Cycle Length	ELEMENT	FALSE	Long DRX Cycle Length IE in TS 38.473 [19] Clause 9.3.1.24	
2	Short DRX Cycle Length	ELEMENT	FALSE	Short DRX Cycle Length IE in TS 38.473 [19] Clause 9.3.1.24	
3	Short DRX Cycle Timer	ELEMENT	FALSE	Short DRX Cycle Timer IE in TS 38.473 [19] Clause 9.3.1.24	

### 8.4.3.2 Scheduling Request Parameter Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Scheduling Request Parameter Configuration, such as *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *Scheduling Request ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Param	RAN Parameter Definition	Semantics Description
1	List of Scheduling Requests for modification	LIST			<i>schedulingRequestToAddModList IE in TS 38.331 [22]</i>
2	>Scheduling Request Item	STRUCTURE			<i>SchedulingRequestToAddMod IE in TS 38.331 [22]</i>
3	>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingRequestId IE in TS 38.331 [22]</i>	
4	>>SR Prohibit Timer	ELEMENT	FALSE	<i>sr-ProhibitTimer IE in TS 38.331 [22]</i>	
5	>>SR Transmission Max	ELEMENT	FALSE	<i>sr-TransMax IE in TS 38.331 [22]</i>	
6	List of Scheduling Requests for release	LIST			<i>schedulingRequestToReleaseList IE in TS 38.331 [22]</i>
7	>Scheduling Request Item	STRUCTURE			
8	>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingRequestId IE in TS 38.331 [22]</i>	

#### 8.4.3.3 Semi-Persistent Scheduling Parameter Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Scheduling Request Parameter Configuration, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	SPS-Config	STRUCTURE			<i>SPS-Config IE in TS 38.331 [22] Clause</i>
2	>SPS Periodicity	ELEMENT	FALSE	<i>periodicity IE in TS 38.331 [22] Clause</i>	
3	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-Processes IE in TS 38.331 [22] Clause</i>	
4	>MCS Table	ELEMENT	FALSE	<i>mcs-Table IE in TS 38.331 [22] Clause</i>	

#### 8.4.3.4 Configured Grant Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Scheduling Request Parameter Configuration, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Grant Configuration	STRUCTURE			<i>ConfiguredGrantConfig</i> IE in 38.331 Clause
2	>MCS Table	ELEMENT	FALSE	<i>mcs-Table</i> IE in TS 38.331 [22] Clause	
3	>MCS Table Without Transform Precoder	ELEMENT	FALSE	<i>Mcs-TableTransformPrecoder</i> IE in TS 38.331 [22] Clause	
4	>Resource Allocation	ELEMENT	FALSE	<i>resourceAllocation</i> IE in TS 38.331 [22] Clause	
5	>Number of HARQ processes	ELEMENT	FALSE	<i>nrofHARQ-Proceses</i> IE in TS 38.331 [22] Clause	
6	>HARQ retransmissions	ELEMENT	FALSE	<i>nrofHARQ-Process</i> IE in TS 38.331 [22] Clause	
7	>Number of repetitions of HARQ PDU	ELEMENT	FALSE	<i>repK</i> IE in TS 38.331 [22] Clause	
8	>Redundancy Version Format	ELEMENT	FALSE	<i>repK-RV</i> IE in TS 38.331 [22] Clause	
9	>UL Transmission periodicity	ELEMENT	FALSE	<i>periodicity</i> IE in TS 38.331 [22] Clause	
10	>Configured grant timer	ELEMENT	FALSE	<i>configuredGrantTimer</i> IE in TS 38.331 [22] Clause	
11	>RRC Configured Uplink Grant	STRUCTURE			<i>rrc-ConfiguredUplinkGrant</i> IE in TS 38.331 [22] Clause
12	>>Time Domain Offset	ELEMENT	FALSE	<i>timeDomainOffset</i> IE in TS 38.331 [22] Clause	
13	>>Time Domain Allocation	ELEMENT	FALSE	<i>timeDomainAllocation</i> IE in TS 38.331 [22] Clause	
14	>>Frequency Domain Allocation	ELEMENT	FALSE	<i>frequencyDomainAllocation</i> IE in TS 38.331 [22] Clause	
15	>>Antenna Port	ELEMENT	FALSE	<i>antennaPort</i> IE in TS 38.331 [22] Clause	
16	>>Precoding and number of layers	ELEMENT	FALSE	<i>precodingAndNumberOfLayers</i> IE in TS 38.331 [22] Clause	
17	>>MCS and TBS	ELEMENT	FALSE	<i>mcsAndTBS</i> IE in TS 38.331 [22] Clause	
18	>>Path Loss Reference Index	ELEMENT	FALSE	<i>pathlossReferenceIndex</i> IE in TS 38.331 [22]	

#### 8.4.3.5 CSI Report Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to CSI Report Configuration, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *CSI Report Config ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Param	RAN Parameter Definition	Semantics Description
1	List of CSI Report Configurations to Add or Modify	LIST			<i>csi-ReportConfigToAddModList</i> IE in TS 38.331 [22] Clause 6
2	>CSI Report Configuration Item	STRUCTURE			<i>CSI-ReportConfig</i> IE in TS 38.331 [22] Clause 6
3	>>CSI Report Config ID	ELEMENT	TRUE	<i>CSI-ReportConfigID</i> IE in TS 38.331 [22] Clause	
4	>>Carrier	ELEMENT	FALSE	<i>ServCellIndex</i> IE in TS 38.331 [22] Clause	
5	>>CQI-FormatIndicator	ELEMENT	FALSE	<i>cqi-FormatIndicator</i> IE in TS 38.331 [22] Clause	
6	>>PMI-FormatIndicator	ELEMENT	FALSE	<i>pmi-FormatIndicator</i> IE in TS 38.331 [22] Clause	
7	>>CQI Table	ELEMENT	FALSE	<i>cqi-Table</i> IE in TS 38.331 [22] Clause	
8	>>Sub-band size	ELEMENT	FALSE	<i>subbandSize</i> IE in TS 38.331 [22] Clause	
9	>>Resources for Channel Measurement	ELEMENT	FALSE	<i>INTEGER</i>	resourcesForChannelMeasurement IE in TS 38.331 [22] Clause 6
10	>>CSI-IM Resources for Interference	ELEMENT	FALSE	<i>INTEGER</i>	<i>csi-IM-ResourcesForInterference</i> IE in TS 38.331 [22] Clause 6
11	>>NZP-CSI-RS Resources for Interference	ELEMENT	FALSE	<i>INTEGER</i>	<i>nzp-CSI-RS-ResourcesForInterference</i> IE in TS 38.331 [22] Clause 6
12	>>Report Config Type	ELEMENT	FALSE	<i>OCTET STRING</i>	<i>reportConfigType</i> IE in TS 38.331 [22] Clause 6
13	>>Report Quantity	ELEMENT	FALSE	<i>OCTET STRING</i>	<i>reportQuantity</i> IE in TS 38.331 [22] Clause 6
14	>>CSI Reporting Band	ELEMENT	FALSE	<i>OCTET STRING</i>	<i>csi-ReportingBand</i> IE in TS 38.331 [22] Clause 6
15	>>Time Restriction for Channel Measurements	ELEMENT	FALSE	<i>INTEGER</i>	<i>timeRestrictionForChannelMeasurements</i> IE in TS 38.331 [22] Clause 6
16	>>Time Restriction for Interference Measurements	ELEMENT	FALSE	<i>INTEGER</i>	<i>timeRestrictionForInterferenceMeasurements</i> IE in TS 38.331 [22] Clause 6
17	>>Codebook Configuration Item	ELEMENT	FALSE	<i>OCTET STRING</i>	<i>CodebookConfig</i> IE in TS 38.331 [22] Clause 6
18	>>Group Based Beam Reporting	ELEMENT	FALSE	<i>OCTET STRING</i>	<i>groupBasedBeamReporting</i> IE in TS 38.331 [22] Clause 6
19	List of CSI Report Configurations to Release	LIST			<i>csi-ReportConfigToReleaseList</i> IE in TS 38.331 [22] Clause 6
20	>CSI Report Configuration Item	STRUCTURE			
21	>>CSI Report Config ID	ELEMENT	TRUE	<i>INTEGER</i>	<i>CSI-ReportConfigId</i> IE in TS 38.331 [22] Clause 6

#### 8.4.3.6 Slice-level PRB quota

Upon receiving the *RIC Control Request* message, the E2 node allocates slice-specific PRB quota for the indicated S-NSSAI in terms of the maximum PRB allocation ratio, minimum PRB allocation ratio and dedicated PRB allocation ratio for the given slice among the available set of PRBs. If the S-NSSAI is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	RRM Policy Ratio List	LIST		0..<maxnoofRRMPolicyRatioGroups>	RRMPolicyRatioList in TS 28.541
2	>RRM Policy Ratio Group	STRUCTURE			RRMPolicyRatio in TS 28.541
3	>>RRM Policy	STRUCTURE			RRMPolicy in TS 28.541
5	>>RRM Policy Member List	LIST		0..<maxnoofRRM PolicyMembers>	RRMPolicyMemberList in TS 28.541
6	>>>RRM Policy Member	STRUCTURE			RRMPolicyMember in TS 28.541
7	>>>>PLMN Identity	ELEMENT	FALSE	PLMN Identity IE in TS 38.473 [19] Clause 9.3.1.14	
8	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Clause 9.3.1.38
9	>>>>>SST	ELEMENT	FALSE	SST IE in TS 38.473 [19] Clause 9.3.1.38	
10	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Clause 9.3.1.38	
11	>>Min PRB Policy Ratio	ELEMENT	FALSE	INTEGER (0..100)	rRMPolicyMinRatio IE in TS 28.541
12	>>Max PRB Policy Ratio	ELEMENT	FALSE	INTEGER (0..100)	rRMPolicyMaxRatio IE in TS 28.541
13	>>Dedicated PRB Policy Ratio	ELEMENT	FALSE	INTEGER (0..100)	rRMPolicyDedicatedRatio IE in TS 28.541

Range bound	Explanation
maxnoofRRMPolicyRatioGroups	Maximum no. of RAN parameters supported by RAN Function for a specific Control action. The value is <65535>.
maxnoofRRMPolicyMembers	Maximum no. of RAN parameters supported by RAN Function for a specific Control action. The value is <65535>

#### 8.4.3.7 DMRS Resource Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to DMRS Configuration, such as RRC Message Transfer, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the DMRS-DownlinkConfig is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DMRS-	ELEMENT	TRUE	OCTET STRING	DMRS-DownlinkConfig IE in

	DownlinkConfig				TS 38.331 [22] Clause 6
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#### 8.4.3.8 SRS Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to SRS Table Configuration, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *SRS Resource ID* or *SRS Resource Set ID* are missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of SRS Resources to Add or Modify	LIST			srs-ResourceToAddModList IE in TS 38.331 [22] Clause 6
2	>SRS Resource Item	STRUCTURE			
3	>>SRS Resource	ELEMENT	FALSE	OCTET STRING	SRS-Resource IE in TS 38.331 [22] Clause 6
4	List of SRS Resources to Release	LIST			srs-ResourceToReleaseList IE in TS 38.331 [22] Clause 6
5	>SRS Resource Item	STRUCTURE			
6	>>SRS Resource ID	ELEMENT	TRUE	INTEGER	SRS-ResourceId IE in TS 38.331 [22] Clause 6
7	List of SRS Resource Sets to Add or Modify	LIST			srs-ResourceSetToAddModList IE in TS 38.331 [22] Clause 6
8	>SRS Resource Set Item	STRUCTURE			
9	>>SRS Resource Set	ELEMENT	FALSE	OCTET STRING	SRS-ResourceSet IE in TS 38.331 [22] Clause 6
10	List of SRS Resource Sets to Release	LIST			srs-ResourceSetToReleaseList IE in TS 38.331 [22] Clause 6
11	>SRS Resource Set Item	STRUCTURE			
12	>>SRS Resource Set ID	ELEMENT	TRUE	INTEGER	SRS-ResourceSetId IE in TS 38.331 [22]

					Clause 6
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#### 8.4.3.9 CSI Resource Configuration

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to CSI Resource Table Configuration, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *CSI Resource Configuration ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of CSI Resource Configuration to Add or Modify	LIST			<i>csi-ResourceConfigToAddModList IE in TS 38.331 [22]</i> Clause 6
2	>CSI Resource Configuration Item	STRUCTURE			
3	>>CSI Resource Config	ELEMENT	FALSE	OCTET STRING	<i>CSI-ResourceConfig IE in TS 38.331 [22]</i> Clause 6
4	List of CSI Resource Configurations to Release	LIST			<i>csi-ResourceConfigToReleaseList IE in TS 38.331 [22]</i> Clause 6
5	>CSI Resource Configuration Item	STRUCTURE			
6	>>CSI Resource Configuration ID	ELEMENT	TRUE	INTEGER	<i>CSI-ResourceConfigId IE in TS 38.331 [22]</i> Clause 6
7	NZP CSI-RS Resource Set to Add or Modify	LIST			<i>nzp-CSI-RS-ResourceSetToAddModList IE in TS 38.331 [22]</i> Clause 6
8	>NZP CSI-RS Resource Set Item				
9	>>NZP CSI-RS Resource Set	ELEMENT	FALSE	OCTET STRING	<i>NZP-CSI-RS-ResourceSet IE in TS 38.331 [22]</i> Clause 6
10	NZP CSI-RS Resource Set to Release	LIST			<i>nzp-CSI-RS-ResourceSetToReleaseList IE in TS 38.331 [22]</i> Clause 6
11	>NZP CSI-RS Resource Set Item	STRUCTURE			
12	>>NZP CSI-RS Resource Set ID	ELEMENT		INTEGER	<i>nzp-CSI-RS-ResourceSetId IE</i>

					in TS 38.331 [22] Clause 6
13	NZP CSI-RS Resource to Add or Modify	LIST			<i>nzp-CSI-RS-ResourceToAddModList IE in TS 38.331 [22] Clause 6</i>
14	>NZP CSI-RS Resource Item	STRUCTURE			
15	>>NZP CSI-RS Resource	ELEMENT	FALSE	OCTET STRING	<i>NZP-CSI-RS-Resource IE in TS 38.331 [22] Clause 6</i>
16	TCI States to Add or Modify	LIST			<i>tci-StatesToAddModList IE in TS 38.331 [22] Clause 6</i>
17	>TCI State Item	STRUCTURE			
18	>>TCI State	ELEMENT	FALSE	OCTET STRING	<i>tci-State IE in TS 38.331 [22] Clause 6</i>
19	TCI States to Release	LIST			<i>tci-StatesToReleaseList IE in TS 38.331 [22] Clause 6</i>
20	>TCI State Item	STRUCTURE			
21	>>TCI State ID	ELEMENT	FALSE	INTEGER	<i>tci-StateId IE in TS 38.331 [22] Clause 6</i>
22	NZP CSI-RS Resource to Release	LIST			<i>nzp-CSI-RS-ResourceToReleaseList IE in TS 38.331 [22] Clause 6</i>
23	>NZP CSI-RS Resource Item	STRUCTURE			
24	>>NZP CSI-RS Resource ID	ELEMENT	TRUE	INTEGER	<i>nzp-CSI-RS-ResourceId IE in TS 38.331 [22] Clause 6</i>
25	CSI SSB Resource Set to Add or Modify	LIST			<i>csi-SSB-ResourceSetToAddModList IE in TS 38.331 [22] Clause 6</i>
26	>CSI SSB Resource Set Item	STRUCTURE			
27	>>CSI SSB Resource	ELEMENT	FALSE	OCTET STRING	<i>csi-SSB-ResourceSet IE in TS 38.331 [22] Clause 6</i>
28	CSI SSB Resource Set to Release	LIST			<i>csi-SSB-ResourceSetToR</i>

					<i>releaseList IE in TS 38.331 [22] Clause 6</i>
29	>CSI SSB Resource Set Item	STRUCTURE			
30	>>CSI SSB Resource Set ID	ELEMENT	FALSE	INTEGER	<i>csi-SSB-ResourceSetId IE in TS 38.331 [22] Clause 6</i>
31	CSI-IM Resource Set to Add or Modify	LIST			<i>csi-IM-ResourceSetToAddModList IE in TS 38.331 [22] Clause 6</i>
32	>CSI-IM Resource Set Item	STRUCTURE			
33	>>CSI-IM Resource Set	ELEMENT	FALSE	OCTET STRING	<i>csi-IM-ResourceSet IE in TS 38.331 [22] Clause 6</i>
34	CSI-IM Resource Set to Release	LIST			<i>csi-IM-ResourceSetToReleaseList IE in TS 38.331 [22] Clause 6</i>
35	>CSI-IM Resource Set Item	STRUCTURE			
36	>>CSI SSB Resource Set ID	ELEMENT	FALSE	INTEGER	<i>csi-IM-ResourceSetId IE in TS 38.331 [22] Clause 6</i>
37	CSI-IM Resource to Add or Modify	LIST			<i>csi-IM-ResourceToAddModList IE in TS 38.331 [22] Clause 6</i>
38	>CSI-IM Resource Item	STRUCTURE			
39	>>CSI-IM Resource	ELEMENT	FALSE	OCTET STRING	<i>CSI-IM-Resource IE in TS 38.331 [22] Clause 6</i>
40	CSI-IM Resource to Release	LIST			<i>csi-IM-ResourceToReleaseList IE in TS 38.331 [22] Clause 6</i>
41	>CSI-IM Resource Item	STRUCTURE			
42	>>CSI-IM Resource ID	ELEMENT	FALSE	INTEGER	<i>CSI-IM-ResourceId IE in TS 38.331 [22] Clause 6</i>

### 8.4.3.10 Uplink power control

Upon receiving the *RIC Control Request* message, the E2 node shall initiate open-loop or closed-loop power control, as implemented within the E2 Node. Uplink transmission power is controlled for the intended UE to achieve the indicated target uplink SINR or target received uplink power. The specific method used for uplink power control depends on implementations.

NOTE: Only one RAN parameter can be configured per each *RIC Control Request* message.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantic Description
1	Target uplink SINR	ELEMENT	FALSE	INTEGER(-10..40)	This indicates the target uplink SINR.
2	Target received uplink power	ELEMENT	FALSE	INTEGER(-202..24)	This indicates the target received uplink power.

## 8.4.4 Connected Mode Mobility Control

### 8.4.4.1 Handover Control

Upon receiving the *RIC Control Request* message, in the case of Xn/X2 or NG or inter-RAT handovers, the E2 node shall invoke procedures, such as *Handover Preparation* related to UE Mobility Management, *Bearer Context Modification*, *UE Context Modification*, *RRC Message Transfer*, etc. In the case of intra-gNB or F1 handover, the E2 node shall invoke procedures, such as *UE Context Modification*, *RRC Message Transfer*, etc. The E2 node includes the IEs corresponding to one or more of parameters described below in the related interface messages. If the *Target Primary Cell ID* IE is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure* message.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Target Primary Cell ID	STRUCTURE			<i>Target Cell Global ID IE in TS 38.423 [15] Clause 9.2.3.25</i>
2	>CHOICE Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
3	>>NR Cell	STRUCTURE			<i>NR IE in TS 38.423 [15] Clause 9.2.3.25</i>
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CG/ IE in TS 38.423 [15] Clause 9.2.2.7</i>	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CG/ IE in TS 38.423 [15] Clause 9.2.2.8</i>	
7	List of PDU sessions for handover	LIST			<i>PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
8	>PDU session Item for handover	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
9	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
10	>>List of QoS flows in the PDU session	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
11	>>>QoS flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
12	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
13	List of DRBs for handover	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
14	>DRB item for handover	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
15	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
16	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
17	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
18	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
19	List of Secondary cells to be setup	LIST			<i>Scell To Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
20	>Secondary cell Item to be setup	STRUCTURE			<i>Scell To Be Setup Item Ies IE in TS 38.473 [19] Clause 9.2.2.1</i>

21	>>Secondary cell ID	ELEMENT	FALSE	Scell ID IE in TS 38.473 [19] Clause 9.2.2.1	
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#### 8.4.4.2 Conditional Handover Control

Upon receiving the *RIC Control Request* message, in the case of Xn/X2 or NG or inter-RAT conditional handovers, the E2 node shall invoke procedures, such as *Handover Preparation* related to UE Mobility Management, *Bearer Context Modification*, *UE Context Modification*, *RRC Message Transfer*, etc. involving the candidate target cells (note that there is only one *Handover Preparation* in the case of NG or inter-RAT handovers). In the case of intra-gNB or F1 conditional handover, the E2 node shall invoke procedures, such as *UE Context Modification*, *RRC Message Transfer*, etc. The E2 node includes the IEs corresponding to one or more of parameters described below in the related interface messages. If the *Target Cell* IE is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure* message.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Param	RAN Parameter Definition	Semantics Description
1	List of Candidate target primary cells	LIST			<i>Candidate SpCell List IE in TS 38.473 [19] Clause 9.2.2.1</i>
2	>Candidate target primary cell item	STRUCTURE			<i>Candidate SpCell Item IEs IE in TS 38.473 [19] Clause 9.2.2.1</i>
3	>>CHOICE Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
4	>>>NR	STRUCTURE			<i>NR IE in TS 38.423 [15] Clause 9.2.3.25</i>
5	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI IE in TS 38.423 [15] Clause 9.2.2.7</i>	
6	>>>E-UTRA	STRUCTURE			<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
7	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI IE in TS 38.423 [15] Clause 9.2.2.8</i>	
8	>>Estimated Arrival Probability	ELEMENT	FALSE		
9	List of PDU sessions for handover	LIST			<i>PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
10	>PDU session Item for handover	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
11	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
12	>>List of QoS flows in the PDU session	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
13	>>>QoS flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
14	>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
15	Candidate target primary cell global ID for NG handover	STRUCTURE			<i>Target Cell ID IE in TS 38.413 [11] Clause 9.3.1.73</i>
16	>CHOICE Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
17	>>NR Cell	STRUCTURE			<i>NR IE in TS 38.423 [15] Clause 9.2.3.25</i>
18	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI IE in TS 38.423 [15] Clause 9.2.2.7</i>	

19	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
20	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI IE in TS 38.423 [15] Clause 9.2.2.8</i>	
21	List of DRBs for handover	LIST			<i>DRB To Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
22	>DRB item for handover	STRUCTURE			<i>DRB To Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
23	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
24	>>List of QoS flows in the DRB	LIST			<i>Flows Mapped To DRB Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
25	>>>QoS flow Item	STRUCTURE			
26	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.473 [19] Clause 9.3.1.63</i>	
27	List of Secondary cells to be setup	LIST			<i>SCell To Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
28	>Secondary cell Item to be setup	STRUCTURE			<i>SCell To Be Setup Item IEs IE in TS 38.473 [19] Clause 9.2.2.1</i>
29	>>Secondary cell ID	ELEMENT	FALSE	<i>SCell ID IE in TS 38.473 [19] Clause 9.2.2.1</i>	

#### 8.4.4.3 DAPS Handover Control

Upon receiving the *RIC Control Request* message, in the case of Xn/X2 DAPS handovers, the E2 node shall invoke procedures, such as *Handover Preparation* related to UE Mobility Management, *Bearer Context Modification*, *UE Context Modification*, *RRC Message Transfer*, etc. In the case of intra-gNB or F1 DAPS handover, the E2 node shall invoke procedures, such as *UE Context Modification*, *RRC Message Transfer*, etc. The E2 node includes the IEs corresponding to one or more of parameters described below in the related interface messages. If the *Target Primary Cell ID* IE is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure* message.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Param	RAN Parameter Definition	Semantics Description
1	Target Primary Cell ID	STRUCTURE			<i>Target Cell Global ID IE in TS 38.423 [15] Clause 9.2.3.25</i>
2	>CHOICE Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
3	>>NR Cell	STRUCTURE			<i>NR IE in TS 38.423 [15] Clause 9.2.3.25</i>
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI IE in TS 38.423 [15] Clause 9.2.2.7</i>	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI IE in TS 38.423 [15] Clause 9.2.2.8</i>	
7	List of DRBs subject to DAPS handover	LIST			<i>Source DRB to QoS Flow Mapping List IE in TS 38.423 [15] Clause 9.2.1.17</i>
8	>DRB item for handover	STRUCTURE			<i>DRB to QoS Flow Mapping Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
9	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
10	>>List of QoS flows in the DRB	LIST			<i>QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15</i>
11	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
12	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
13	>>>>QoS flow mapping indication	ELEMENT	FALSE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.79</i>	
14	List of DRBs subject to handover without DAPS	LIST			<i>Source DRB to QoS Flow Mapping List IE in TS 38.423 [15] Clause 9.2.1.17</i>
15	>DRB item for handover	STRUCTURE			<i>DRB to QoS Flow Mapping Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
16	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
17	>>List of QoS flows in the DRB	LIST			<i>QoS Flows List IE in TS 38.423 [15] Clause</i>

					9.2.1.15
18	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
19	>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
20	>>>QoS flow mapping indication	ELEMENT	FALSE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.79</i>	
21	List of PDU Sessions subject for handover	LIST			<i>PDU Session Resources To Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
22	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
23	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.1.1</i>	
24	>>List of DRBs subject to DAPS handover	LIST			<i>Source DRB to QoS Flow Mapping List IE in TS 38.423 [15] Clause 9.2.1.17</i>
25	>>>DRB item for handover	STRUCTURE			<i>DRB to QoS Flow Mapping Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
26	>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
27	>>>List of QoS flows in the DRB	LIST			<i>QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15</i>
28	>>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
29	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
30	>>>>QoS flow mapping indication	ELEMENT	FALSE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.79</i>	
31	>>List of DRBs subject to handover without DAPS	LIST			<i>Source DRB to QoS Flow Mapping List IE in TS 38.423 [15] Clause 9.2.1.17</i>
32	>>DRB item for handover	STRUCTURE			<i>DRB to QoS Flow Mapping Item IE in TS 38.423 [15] Clause 9.2.1.15</i>

33	>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.423 [15] Clause 9.2.3.33</i>	
34	>>>List of QoS flows in the DRB	LIST			<i>QoS Flows List IE in TS 38.423 [15] Clause 9.2.1.15</i>
35	>>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15] Clause 9.2.1.15</i>
36	>>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
37	>>>>>QoS flow mapping Indication	ELEMENT	FALSE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.79</i>	

## 8.4.5 Radio Access Control

### 8.4.5.1 UE admission control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to UE admission control, such as *PDU Session Management*, *Bearer Context Management*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Primary Cell ID	STRUCTURE			<i>Target Cell Global ID IE in TS 38.423 [15] clause 9.2.3.25</i>
2	>CHOICE Primary Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] clause 9.2.3.25</i>
3	>>NR Cell	STRUCTURE			<i>NR IE in TS 38.423 [15] Clause 9.2.3.25</i>
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI IE in TS 38.423 [15] Clause 9.2.2.7</i>	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI IE in TS 38.423 [15] Clause 9.2.2.8</i>	
7	List of PDU sessions for admission	LIST			<i>PDU Session Resources To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
8	>PDU session Item for admission	STRUCTURE			<i>PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
9	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
10	>>List of DRBs for admission	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
11	>>>DRB item for admission	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
12	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
13	>>>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
14	>>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
15	>>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	
16	>>>>>QoS flow mapping indication	ELEMENT	TRUE	<i>QoS Flow Mapping Indication IE in TS 37.483 [21] Clause 9.3.1.60</i>	
17	>>>List of cell groups to be added	LIST			<i>Cell Group To Add IE in TS 37.483 [21] Clause 9.3.3.11</i>
18	>>>Cell group item	STRUCTURE			<i>Cell Group Item IE in TS 37.483 [21] Clause 9.3.1.11</i>
19	>>>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID IE in TS 37.483 [21] Clause 9.3.1.11</i>	
20	>>>SDAP Configuration	STRUCTURE			<i>SDAP Configuration IE in TS 37.483 [21] Clause 9.3.1.39</i>
21	>>>Default DRB	ELEMENT	FALSE	<i>Default DRB IE in</i>	

				TS 37.483 [21] Clause 9.3.1.39	
22	>>>PDCP Configuration	STRUCTURE			PDCP Configuration IE in TS 37.483 [21] Clause 9.3.1.38
23	>>>RLC mode	ELEMENT	FALSE	RLC mode IE in TS 37.483 [21] Clause 9.3.1.38	
24	>>>PDCP Duplication	ELEMENT	FALSE	PDCP Duplication IE in TS 37.483 [21] Clause 9.3.1.38	
25	>>>UL Data Split Threshold	ELEMENT	FALSE	UL Data Split Threshold IE in TS 37.483 [21] Clause 9.3.1.43	
26	>>>PDCP Re-establishment	ELEMENT	FALSE	PDCP Re-establishment IE in TS 37.483 [21] Clause 9.3.1.38	
27	>>>PDCP Data Recovery	ELEMENT	FALSE	PDCP Data Recovery IE in TS 37.483 [21] Clause 9.3.1.38	
28	>>>Out-of-Order Delivery	ELEMENT	FALSE	Out of Order Delivery IE in TS 37.483 [21] Clause 9.3.1.38	
29	>>>PDCP Status Report Indication	ELEMENT	FALSE	PDCP Status Report Indication IE in TS 37.483 [21] Clause 9.3.1.38	
30	>>>Number of PDCP duplication	ELEMENT	FALSE	Additional PDCP duplication Information IE in TS 37.483 [21] Clause 9.3.1.38	
31	>>>UL More than one RLC	STRUCTURE			moreThanOneRLC IE in TS 38.331 [22] Clause 6
32	>>>>Primary Path	STRUCTURE			primaryPath IE in TS 38.331 [22] Clause 6
33	>>>>Cell Group ID	ELEMENT	TRUE	cellGroup IE in TS 38.331 [22] Clause 6	
34	>>>>Logical Channel ID	ELEMENT	FALSE	logicalChannel IE in TS 38.331 [22] Sec 6	
35	>>>UL More than two RLC	STRUCTURE			moreThanTwoRLC-DRB-r16 IE in TS 38.331 [22] Clause 6
36	>>>>Split Secondary Path	ELEMENT	FALSE	splitSecondaryPath IE in TS 38.331 [22] Sec 6	
37	>>>>Duplication State	ELEMENT	FALSE	duplicationState IE in TS 38.331 [22] Sec 6	
38	>>>DL More than one RLC	STRUCTURE			moreThanOneRLC IE in TS 38.331 [22] Clause 6
39	>>>>Primary Path	STRUCTURE			primaryPath IE in TS 38.331 [22] Clause 6
49	>>>>Cell Group ID	ELEMENT	TRUE	cellGroup IE in TS 38.331 [22] Clause 6	
50	>>>>Logical Channel ID	ELEMENT	FALSE	logicalChannel IE in TS 38.331 [22] Sec 6	

51	>>>DL More than two RLC	STRUCTURE			moreThanTwoRLC-DRB-r16 IE in TS 38.331 [22] Clause 6
52	>>>Split Secondary Path	ELEMENT	FALSE	splitSecondaryPath IE in TS 38.331 [22] Sec 6	
53	>>>Duplication State	ELEMENT	FALSE	duplicationState IE in TS 38.331 [22] Sec 6	
54	List of Secondary cells to be setup	LIST			Scell To Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1
55	>Secondary cell Item to be setup	STRUCTURE			Scell To Be Setup Item Ies IE in TS 38.473 [19] Clause 9.2.2.1
56	>>Secondary cell ID	ELEMENT	FALSE	Scell ID IE in TS 38.473 [19] Clause 9.2.2.1	

#### 8.4.5.2 RACH backoff control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to RACH backoff control, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Common RACH Config Parameters	STRUCTURE			RACH-ConfigGeneric IE in TS 38.331 [22] Clause 6
2	>PRACH Configuration Index	ELEMENT	FALSE	prach-ConfigurationIndex IE in TS 38.331 [22] Sec 6	
3	>Zero correlation Zone Config	ELEMENT	FALSE	zeroCorrelationZoneConfig IE in TS 38.331 [22] Sec 6	
4	>Preamble Received Target Power	ELEMENT	FALSE	preambleReceivedTargetPower IE in TS 38.331 [22] Clause 6	
5	>Preamble Transmission Max	ELEMENT	FALSE	preambleTransMax IE in TS 38.331 [22] Sec 6	
6	>Power Ramping Step High Priority	ELEMENT	FALSE	powerRampingStep IE in TS 38.331 [22] Sec 6	
7	>Random Access Response Window	ELEMENT	FALSE	ra-ResponseWindow IE in TS 38.331 [22] Sec 6	
8	Dedicated RACH Config Parameters	STRUCTURE			RACH-ConfigDedicated IE in TS 38.331 [22] Clause 6
9	>Random Access Prioritization	STRUCTURE			RA-Prioritization IE in TS 38.331 [22] Sec 6
10	>>Scaling Factor for Backoff Indicator	ELEMENT	FALSE	scalingFactorBI IE in TS 38.331 [22] Sec 6	
11	>>Power Ramping Step High Priority	ELEMENT	FALSE	powerRampingStepHighPriority IE in TS 38.331 [22] Clause 6	

### 8.4.5.3 Access barring control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Access barring control, such as *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Param	RAN Parameter Definition	Semantics Description
1	Unified Access Control Barring Info	STRUCTURE			<i>uac-BarringInfo</i> IE in TS 38.331 [22] Sec 6
2	>UAC Barring for Common List	LIST			<i>uac-BarringForCommon</i> IE in TS 38.331 [22] Sec 6
3	>>Barring Per Cat	STRUCTURE			<i>UAC-BarringPerCat</i> IE in TS 38.331 [22] Clause 6
4	>>>Access Category	ELEMENT	FALSE	<i>accessCategory</i> IE in TS 38.331 [22] Sec 6	
5	>>>Barring Info Set Index	ELEMENT	FALSE	<i>UAC-BarringInfoSetIndex</i> IE in TS 38.331 [22] Clause 6	
6	>UAC Barring for PLMN List	LIST			<i>uac-BarringPerPLMN-List</i> IE in TS 38.331 [22] Clause 6
7	>>UAC-BarringPerPLMN	STRUCTURE			<i>UAC-BarringPerPLMN</i> IE in TS 38.331 [22] Sec 6
8	>>>PLMN Identity	ELEMENT	TRUE	9.3.59	
9	>>>CHOICE UAC AC Barring List Type	STRUCTURE			<i>Uac-ACBarringListType</i> IE in TS 38.331 [22] Sec 6
10	>>>>UAC Implicit AC Barring List	LIST			<i>uac-ImplicitACBarringList</i> IE in TS 38.331 [22] Clause 6
11	>>>>UAC Implicit AC Barring Item	STRUCTURE			
12	>>>>> UAC Barring Info Set Index	ELEMENT	FALSE	<i>UAC-BarringInfoSetIndex</i> IE in TS 38.331 [22] Sec 6	
13	>>>>UAC Explicit AC Barring List	LIST			<i>uac-ExplicitACBarringList</i> IE in TS 38.331 [22] Clause 6
14	>>>>Barring Per Cat	STRUCTURE			<i>UAC-BarringPerCat</i> IE in TS 38.331 [22] Clause 6
15	>>>>> Access Category	ELEMENT	FALSE	<i>accessCategory</i> IE in TS 38.331 [22] Sec 6	
16	>>>>> Barring Info Set Index	ELEMENT	FALSE	<i>UAC-BarringInfoSetIndex</i> IE in TS 38.331 [22] Clause 6	
17	>UAC Barring Info Set List	LIST			<i>UAC-BarringInfoSetList</i> IE in TS 38.331 [22] Sec 6
18	>>UAC Barring Info Set Item	STRUCTURE			<i>UAC-BarringInfoSet</i> IE in TS 38.331 [22] Clause 6
19	>>>UAC Barring Factor	ELEMENT	FALSE	<i>uac-BarringFactor</i> IE in TS 38.331 [22] Sec 6	
20	>>>UAC Barring Time	ELEMENT	FALSE	<i>uac-BarringTime</i> IE in TS 38.331 [22] Sec 6	
21	>>>UAC Barring For Access Identity	ELEMENT	FALSE	<i>uac-BarringForAccessIdentity</i> in TS	

				38.331 [22] Clause 6	
22	>CHOICE Access Category 1 – Selection Assistance Info	STRUCTURE			<i>uac-AccessCategory1-SelectionAssistanceInfo IE in TS 38.331 [22] Sec 6</i>
23	>>PLMN Common	ELEMENT	FALSE	<i>UAC-AccessCategory1-SelectAssistanceInfo IE in TS 38.331 [22] Clause 6</i>	
24	>>Individual PLMN List	LIST			<i>individualPLMNList IE in TS 38.331 [22] Clause 6</i>
25	>>>PLMN Item	STRUCTURE			
26	>>>UAC Access Category 1 Selection Assistance Info	ELEMENT	FALSE	<i>UAC-AccessCategory1-SelectAssistanceInfo IE in TS 38.331 [22] Clause 6</i>	
27	Cell Access Control Barring Info	STRUCTURE			
28	> List of Control plmn-Identity	LIST			
29	>> plmn-Identity	ELEMENT		9.3.59	
30	>>List of Control cells	LIST			
31	>>>CHOICE Cell Type	STRUCTURE			
32	>>>>NR Cell	STRUCTURE		8.1.1.1	NR IE in TS 38.423 [15] Clause 9.2.3.25
33	>>>>NR CGI	ELEMENT		<i>NR CGI IE in TS 38.423 [15] Clause 9.2.2.7</i>	Cell Corresponding to same PLMN
34	>>>>E-UTRA Cell	STRUCTURE		8.1.1.2	E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25
35	>>>>EUTAN CGI	ELEMENT		<i>E-UTRA CGI IE in TS 38.423 [15] Clause 9.2.2.8</i>	
36	>>> cellBarred	ELEMENT			Indicated in the MIB message, applicable to all PLMNs when multiple PLMNs are in SIB1. When set to 'barred', the cell is barred for all UEs including emergency calls. Please refer to TS 38.331 [22].
37	>>> intraFreqReselection	ELEMENT			Indicated in MIB message. It controls cell selection/reselection to intra-frequency cells when the highest-ranked cell is barred or treated as barred by the UE. In the case of multiple PLMNs indicated in SIB1, this field is common for all PLMNs. Please refer to TS 38.331 [22].
38	>> cellReservedForOperatorUse	ELEMENT			Indicated in SIB1 message, per-PLMN configuration. When set to 'reserved', the cell is treated as a candidate by the UE with

					access identity (i.e.) 11 and 15 operating in their HPLMN/EHPLMN. UEs assigned to an Access Identity 0, 1, 2 and 12 to 14 shall behave as if the cell status is "barred" for the registered PLMN or the selected PLMN. Please refer to TS 38.331 [22].
39	>> cellReservedForOtherUse				Indicated in SIB1 message, applicable to all PLMNs indicated in SIB1. Please refer to TS 38.331 [22].

#### 8.4.5.4 RRC Connection Release Control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to RRC Connection Release control, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	CHOICE Redirected Carrier Info	STRUCTURE			<i>redirectedCarrierInfo</i> IE in TS 36.331 [23]
2	>E-UTRA	STRUCTURE		<i>eutra</i> IE in TS 36.331 [23]	
3	>>EARFCN	ELEMENT	FALSE	<i>ARFCN-ValueEUTRA</i> IE in TS 36.331 [23]	
4	>NR	STRUCTURE		<i>nr-r15</i> IE in TS 36.331 [23]	
5	>>Carrier Info NR	STRUCTURE			<i>CarrierInfoNR-r15</i> IE in TS 36.331 [23]
6	>>>Carrier Frequency	ELEMENT	FALSE	<i>ARFCN-ValueNR-r15</i> IE in TS 36.331 [23]	
7	>>>Subcarrier Spacing SSB	ELEMENT	FALSE	<i>subcarrierSpacingSSB-r15</i> IE in TS 36.331 [23]	
8	Idle Mode Mobility Control Info	STRUCTURE			<i>IdleModeMobilityControlInfo</i> IE in TS 36.331 [23]
9	>Frequency Priority List E-UTRA	LIST			<i>FreqPriorityListEUTRA</i> IE in TS 36.331 [23]
10	>>Frequency Priority Item E-UTRA	STRUCTURE			<i>FreqPriorityEUTRA</i> IE in TS 36.331 [23]
11	>>>Carrier Frequency	ELEMENT	FALSE	<i>carrierFreq</i> IE in TS 38.331 [22]	
12	>>>Cell Reselection Priority	ELEMENT	FALSE	<i>cellReselectionPriority</i> IE in TS 38.331 [22]	
13	>>>Cell Reselection Sub Priority	ELEMENT	FALSE	<i>cellReselectionSubPriority</i> IE in TS 38.331 [22]	
14	>Frequency Priority List NR	LIST			<i>FreqPriorityListNR</i> IE in TS 38.331 [22]
15	>>Frequency Priority Item NR	STRUCTURE			<i>FreqPriorityNR</i> IE in TS 38.331 [22]
16	>>>Carrier Frequency	ELEMENT	FALSE	<i>carrierFreq</i> IE in TS 38.331 [22]	
17	>>>Cell Reselection Priority	ELEMENT	FALSE	<i>cellReselectionPriority</i> IE in TS 38.331 [22]	
18	>>>Cell Reselection Sub Priority	ELEMENT	FALSE	<i>cellReselectionSubPriority</i> IE in TS 38.331 [22]	
19	>T-320 timer expiry	ELEMENT	FALSE	<i>t320</i> IE in TS 38.331 [22]	

#### 8.4.5.5 RRC Connection Reject Control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to RRC Connection Reject, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Wait Time	ELEMENT	FALSE	<i>waitTime</i> IE in TS 36.331 [23]	
2	Deprioritization Requirement	STRUCTURE			<i>deprioritisationReq-r11</i> IE in TS 36.331 [23]
3	>Deprioritization Type	ELEMENT	FALSE	<i>deprioritisationType-r11</i> IE in TS 36.331 [23]	
4	>Deprioritization Timer	ELEMENT	FALSE	<i>deprioritisationTimer-r11</i> IE in TS 36.331 [23]	
5	RRC Suspend Indication	ELEMENT	FALSE	<i>rrc-SuspendIndication-r13</i> IE in TS 36.331 [23]	

## 8.4.6 Dual Connectivity Control

### 8.4.6.1 DC Secondary Node Addition Control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to DC Secondary Node Addition Control, such as *Dual Connectivity Secondary Node Addition*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages. If the *Secondary Node ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Secondary Node ID	STRUCTURE			<i>Global NG-RAN Node ID IE in TS 38.423 [15] Clause 9.2.2.3</i>
2	>CHOICE Secondary Node Type	STRUCTURE			
3	>>Secondary Node gNB	STRUCTURE			<i>Global ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>
4	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
5	>>>gNB ID	ELEMENT	FALSE	<i>gNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>	
6	>>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>
7	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
8	>>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>	
9	>>Secondary Node en-gNB	STRUCTURE			<i>en-gNB IE in TS 36.423 [17] Sec</i>
10	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 36.423 [17] Clause 9.2.4</i>	
11	>>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID IE in TS 36.423 [17] Clause 9.2.4</i>	
12	List of PDU Sessions to be Added	LIST			<i>PDU Session Resources To Be Added List IE in TS 38.423 [15] Clause 9.1.2.1</i>
13	>PDU Session to be Added Item	STRUCTURE			<i>PDU Session Resources To Be Added Item IE in TS 38.423 [15] Clause 9.1.2.1</i>
14	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
15	>>PDU Session Resource Setup Info – SN-Terminated	STRUCTURE			<i>PDU Session Resource Setup Info – SN Terminated IE in TS 38.423 [15] Clause 9.2.1.5</i>
16	>>>QoS Flow To Be Setup List	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.5</i>
17	>>>>QoS Flow Item	STRUCTURE			<i>QoS Flows To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.5</i>
18	>>>>>QoS Flow	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS</i>	

	Identifier			38.423 [15] Clause 9.2.3.10	
19	>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS 38.423 [15]</i> Clause 9.2.3.79	
20	>>>Default DRB allowed	ELEMENT	FALSE	<i>Default DRB Allowed IE in TS 38.423 [15]</i> Clause 9.2.3.93	
21	>>PDU Session Resource Setup Info – MN-Terminated	STRUCTURE			<i>PDU Session Resource Setup Info – SN Terminated IE in TS 38.423 [15]</i> Clause 9.2.1.7
22	>>>DRBs To Be Setup List	STRUCTURE			<i>DRBs To Be Setup List IE in TS 38.423 [15]</i> Clause 9.2.1.7
23	>>>DRB To Be Setup Item	STRUCTURE			<i>DRBs To Be Setup Item IE in TS 38.423 [15]</i> Clause 9.2.1.7
24	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21]</i> Clause 9.3.1.16	
25	>>>>QoS Flow To Be Setup List	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15]</i> Clause 9.2.1.5
26	>>>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 38.423 [15]</i> Clause 9.2.3.10
27	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15]</i> Clause 9.2.3.10	
28	>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS 38.423 [15]</i> Clause 9.2.3.79	
29	List of SN-terminated DRB IDs	LIST			<i>Additional DRB IDs IE in TS 38.423 [15]</i> Clause 9.2.1.29
30	>SN-Terminated DRB Item	STRUCTURE			
31	>>DRB Identity	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19]</i> Clause 9.3.1.8	
32	List of E-RABs to be Added	LIST			<i>E-RABs To Be Added List IE in TS 36.423 [17]</i> Clause 9.1.4.1
33	>E-RAB to be Added Item	STRUCTURE			<i>E-RABs To Be Added Item IE in TS 36.423 [17]</i> Clause 9.1.4.1

34	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID IE in TS 36.423 [17] Clause 9.2.23</i>	
35	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration IE in TS 36.423 [17] Clause 9.2.108</i>
36	>>>PDCP at SgNB	ELEMENT	FALSE	<i>PDCP at SgNB IE in TS 36.423 [17] Clause 9.2.108</i>	
37	>>>MCG Resources	ELEMENT	FALSE	<i>MCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	
38	>>>SCG Resources	ELEMENT	FALSE	<i>SCG resources IE in TS 36.423 [17] Clause 9.2.108</i>	

#### 8.4.6.2 DC Secondary Node Modification Control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to DC Secondary Node Modification Control, such as *Dual Connectivity Secondary Node Modification*, *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Secondary Node	STRUCTURE			<i>Global NG-RAN Node ID IE in TS 38.423 [15] Clause 9.2.2.3</i>
2	CHOICE Secondary Node Type	STRUCTURE			
3	>Secondary Node gNB	STRUCTURE			<i>Global gNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>
4	>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
5	>>gNB ID	ELEMENT	FALSE	<i>gNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>	
6	>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>
7	>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
8	>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>	
9	>Secondary Node en-gNB	STRUCTURE			<i>en-gNB IE in TS 36.423 [17] Sec</i>
10	>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 36.423 [17] Clause 9.2.4</i>	
11	>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID IE in TS 36.423 [17] Clause 9.2.4</i>	
12	List of PDU Session Resources to be modified	LIST			PDU Session Resources To Be Modified List IE in TS 38.423 [15] Clause 9.1.2.5
13	>PDU Session Resource to be Modified Item	STRUCTURE			PDU Session Resources To Be Modified Item IE in TS 38.423 [15] Clause 9.1.2.5
14	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
15	>>PDU Session Resource Modification Info – SN-Terminated	STRUCTURE			PDU Session Resource Modification Info – SN Terminated IE in TS 38.423 [15] Clause 9.2.1.9
16	>>>QoS Flows To Be Setup List	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.9</i>
17	>>>QoS Flow Item	STRUCTURE			<i>QoS Flows To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.9</i>
18	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
19	>>>>QoS Flow Mapping	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS</i>	

	Indication			38.423 [15] Clause 9.2.3.79	
20	>>>Redundant QoS Flow Indicator	ELEMENT	FALSE		
21	>>>QoS Flows To Be Modified List	LIST			<i>QoS Flows To Be Modified List IE in TS 38.423 [15] Clause 9.2.1.9</i>
22	>>>QoS Flow Item	STRUCTURE			<i>QoS Flows To Be Modified Item IE in TS 38.423 [15] Clause 9.2.1.9</i>
23	>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
24	>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS 38.423 [15] Clause 9.2.3.79</i>	
25	>>>Redundant QoS Flow Indicator	ELEMENT	FALSE	<i>Redundant QoS Flow Indicator IE in TS 38.423 [15] Clause 9.2.3.118</i>	
26	>>>QoS Flows To Be Released List	LIST			<i>QoS Flows To Be Released List IE in TS 38.423 [15] Clause 9.2.1.9</i>
27	>>>QoS Flow Item	STRUCTURE			<i>QoS Flow With Cause Item IE in TS 38.423 [15] Clause 9.2.1.4</i>
28	>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
29	>>>Default DRB allowed	ELEMENT	FALSE	<i>Default DRB Allowed IE in TS 38.423 [15] Clause 9.2.3.93</i>	
30	>>PDU Session Resource Modification Info – MN-Terminated	STRUCTURE			<i>PDU Session Resource Modification Info – MN Terminated IE in TS 38.423 [15] Clause 9.2.1.11</i>
31	>>>DRBs to be setup list	LIST			<i>DRBs To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.11</i>
32	>>>DRBs to be setup item	STRUCTURE			<i>DRBs To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.11</i>
33	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21] Clause 9.3.1.16</i>	
34	>>>>DRB QoS	STRUCTURE			
35	>>>>PDCP Duplication Activation	ELEMENT	TRUE	<i>Duplication Activation IE in TS 37.483 [21] Clause 9.2.3.71</i>	
36	>>>>QoS Flows Mapped to DRB List	LIST			<i>QoS Flows Mapped to DRB List IE in TS 37.483 [21] Clause 9.2.1.11</i>

37	>>>>QoS Flows Mapped to DRB Item	STRUCTURE			<i>QoS Flows Mapped To DRB Item IE in TS 37.483 [21] Clause 9.2.1.11</i>
38	>>>> QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
39	>>>> QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS 38.423 [15] Clause 9.2.3.79</i>	
40	>>>DRBs to be modified list	LIST			<i>DRBs To Be Modified List IE in TS 37.483 [21] Clause 9.2.1.11</i>
41	>>>DRB to be modified item	STRUCTURE			<i>DRBs To Be Modified Item IE in TS 37.483 [21] Clause 9.2.1.11</i>
42	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21] Clause 9.3.1.16</i>	
43	>>>>DRB QoS	STRUCTURE			
44	>>>>PDCP Duplication Configuration	ELEMENT	FALSE	<i>PDCP Duplication Configuration IE in TS 37.483 [21] Clause 9.2.3.86</i>	
45	>>>>PDCP Duplication Activation	ELEMENT	FALSE	<i>Duplication Activation IE in TS 37.483 [21] Clause 9.2.3.71</i>	
46	>>>>QoS Flows Mapped to DRB List	LIST			<i>Flow Mapping Information IE in TS 37.483 [21] Clause 9.3.1.26</i>
47	>>>>QoS Flows Mapped to DRB Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
48	>>>> QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
49	>>>> QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication IE in TS 38.423 [15] Clause 9.2.3.79</i>	
50	>>>DRBs to be released list	LIST			<i>DRBs To Be Released List IE in TS 38.423 [15] Clause 9.2.1.28</i>
51	>>>DRB to be released item	STRUCTURE			<i>DRBs To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.11</i>
52	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 37.483 [21] Clause 9.3.1.16</i>	
53	List of PDU Session Resources to be deleted	LIST			<i>PDU Session Resources To Be Released List IE in TS 38.423 [15]</i>

					Clause 9.1.2.5
54	>PDU Session Resource to be deleted Item	STRUCTURE			PDU Session Resource To Be Released Item IE
55	>>PDU Session ID	ELEMENT	TRUE	PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18	
56	List of E-RABs to be Modified	LIST			E-RABs To Be Modified List IE in TS 36.423 [17] Clause 9.1.4.5
57	>E-RAB to be Modified Item	STRUCTURE			E-RAB To Be Modified Item IE in TS 36.423 [17] Clause 9.1.4.5
58	>>E-RAB ID	ELEMENT	TRUE	E-RAB ID IE in TS 36.423 [17] Clause 9.2.23	
59	>>EN-DC Resource Configuration	STRUCTURE			EN-DC Resource Configuration IE in TS 36.423 [17] Clause 9.2.108
60	>>>PDCP at SgNB	ELEMENT	FALSE	PDCP at SgNB IE in TS 36.423 [17] Clause 9.2.108	
61	>>>MCG Resources	ELEMENT	FALSE	MCG resources IE in TS 36.423 [17] Clause 9.2.108	
62	>>>SCG Resources	ELEMENT	FALSE	SCG resources IE in TS 36.423 [17] Clause 9.2.108	
63	List of E-RABs to be Released	LIST			E-RABs To Be Released List IE in TS 36.423 [17] Clause 9.1.4.5
64	>E-RAB to be Released Item	STRUCTURE			E-RABs To Be Released Item IE in TS 36.423 [17] Clause 9.1.4.5
65	>>E-RAB ID	ELEMENT	TRUE	E-RAB ID IE in TS 36.423 [17] Clause 9.2.23	

#### 8.4.6.3 PSCell Change control for Secondary Cell Group

Upon receiving the *RIC Control Request* message, in the case of intra-SN PSCell change, the E2 node shall invoke procedures related to PSCell Change Control, such as *Dual Connectivity Secondary Node Modification*, *UE Context Modification*, *RRC Message Transfer*, etc. In the case of inter-SN PSCell change, the E2 node shall invoke procedures such as *Dual Connectivity Secondary Node Release* (MN/SN-initiated) or *SN Change* (only SN-initiated), *Bearer Context Modification*, *UE Context Modification*, *RRC Message Transfer*, etc. The E2 node then includes the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Target PSCell ID	STRUCTURE			<i>Target Cell Global ID IE in TS 38.423 [15] Clause 9.2.3.25</i>
2	>CHOICE Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
3	>>NR Cell	STRUCTURE			<i>NR IE in TS 38.423 [15] Clause 9.2.3.25</i>
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI/IE in TS 38.423 [15] Clause 9.2.2.7</i>	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI/IE in TS 38.423 [15] Clause 9.2.2.8</i>	
7	Secondary Node ID	STRUCTURE			<i>Global NG-RAN Node ID IE in TS 38.423 [15] Clause 9.2.2.3</i>
8	>CHOICE Secondary Node Type	STRUCTURE			
9	>>Secondary Node gNB	STRUCTURE			<i>Global gNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>
10	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
11	>>>gNB ID	ELEMENT	FALSE	<i>gNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>	
12	>>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>
13	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
14	>>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>	
15	>>Secondary Node en-gNB	STRUCTURE			<i>en-gNB IE in TS 36.423 [17] Sec</i>
16	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 36.423 [17] Clause 9.2.4</i>	
17	>>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID IE in TS 36.423 [17] Clause 9.2.4</i>	
18	PDU Session SN Change Required List	LIST			<i>PDU Session SN Change Required List IE in TS 38.423 [15] Clause 9.1.2.11</i>
19	>PDU Session SN Change Required Item	STRUCTURE			<i>PDU Session SN Change Required Item IE in TS 38.423 [15] Clause 9.1.2.11</i>
20	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	
21	>>List of QoS flows in the PDU session	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause</i>

					9.2.1.1
22	>>>QoS flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
23	>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
24	List of DRBs for PSCell handover	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
25	>DRB item for PSCell handover	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
26	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
27	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
28	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
29	>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	

#### 8.4.6.4 DC Secondary Node Change Control

Upon receiving the RIC Control Request message, the E2 node shall invoke procedures such as Dual Connectivity Secondary Node Release (MN/SN-initiated) or SN Change (only SN-initiated), Bearer Context Modification, UE Context Modification, RRC Message Transfer, etc. and includes the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Target PSCell ID	STRUCTURE			<i>Target Cell Global ID IE in TS 38.423 [15] Clause 9.2.3.25</i>
2	>CHOICE Target Cell	STRUCTURE			<i>Target Cell IE in TS 38.423 [15] Clause 9.2.3.25</i>
3	>>NR Cell	STRUCTURE			<i>NR IE in TS 38.423 [15] Clause 9.2.3.25</i>
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI IE in TS 38.423 [15] Clause 9.2.2.7</i>	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA IE in TS 38.423 [15] Clause 9.2.3.25</i>
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI IE in TS 38.423 [15] Clause 9.2.2.8</i>	
7	Target Secondary Node ID	STRUCTURE			<i>Target S-NG-RAN node ID IE in TS 38.423 [15] Clause 9.1.2.11</i>
8	>CHOICE Target Secondary Node Type	STRUCTURE			
9	>>Secondary Node gNB	STRUCTURE			<i>Global gNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>
10	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
11	>>>gNB ID	ELEMENT	FALSE	<i>gNB ID IE in TS 38.423 [15] Clause 9.2.2.1</i>	
12	>>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>
13	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.423 [15] Clause 9.2.2.4</i>	
14	>>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID IE in TS 38.423 [15] Clause 9.2.2.2</i>	
15	>>Secondary Node en-gNB	STRUCTURE			<i>en-gNB IE in TS 36.423 [17] Sec</i>
16	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE in TS 36.423 [17] Clause 9.2.4</i>	
17	>>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID IE in TS 36.423 [17] Clause 9.2.4</i>	
18	PDU Session SN Change Required List	LIST			<i>PDU Session SN Change Required List IE in TS 38.423 [15] Clause 9.1.2.11</i>
19	>PDU Session SN Change Required Item	STRUCTURE			<i>PDU Session SN Change Required Item IE in TS 38.423 [15] Clause 9.1.2.11</i>
20	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE in TS 38.423 [15] Clause 9.2.3.18</i>	

21	>>List of QoS flows in the PDU session	LIST			<i>QoS Flows To Be Setup List IE in TS 38.423 [15] Clause 9.2.1.1</i>
22	>>>QoS flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item IE in TS 38.423 [15] Clause 9.2.1.1</i>
23	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 38.423 [15] Clause 9.2.3.10</i>	
24	List of DRBs for PSCell handover	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
25	>DRB item for PSCell handover	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
26	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
27	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
28	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
29	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	

## 8.4.7 Carrier Aggregation Control

### 8.4.7.1 Secondary cell Addition control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Secondary cell Addition Control, such as *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of secondary cells to be setup	LIST			<i>Scell To Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
2	>Secondary cell to be setup Item	STRUCTURE			<i>Scell To Be Setup Item Ies IE in TS 38.473 [19] Clause 9.2.2.1</i>
3	>>Scell Cell Global ID	ELEMENT	FALSE	<i>Scell ID IE in TS 38.473 [19] Clause 9.2.2.1</i>	
4	>>Scell UL Configured	ELEMENT	FALSE	<i>Cell UL Configured IE in TS 38.473 [19] Clause 9.3.1.33</i>	
5	List of DRBs to be served using SCells	LIST			<i>DRB to Be Setup List IE in TS 38.473 [19] Clause 9.2.2.1</i>
6	>DRB item	STRUCTURE			<i>DRB to Be Setup Item IE in TS 38.473 [19] Clause 9.2.2.1</i>
7	>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE in TS 38.473 [19] Clause 9.3.1.8</i>	
8	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup IE in TS 37.483 [21] Clause 9.3.3.2</i>
9	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE in TS 37.483 [21] Clause 9.3.1.25</i>
10	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE in TS 37.483 [21] Clause 9.3.1.24</i>	

#### 8.4.7.2 Secondary cell Modification control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to Secondary cell Modification Control, such as *UE Context Management*, *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of secondary cells to be setup	LIST			<i>Scell To Be Setup List IE</i> in TS 38.473 [19] Clause 9.2.2.1
2	>Secondary cell to be setup Item	STRUCTURE			<i>Scell To Be Setup Item IEs IE</i> in TS 38.473 [19] Clause 9.2.2.1
3	>>Scell Global ID	ELEMENT	FALSE	<i>Scell ID IE</i> in TS 38.473 [19] Clause 9.2.2.1	
4	>>Scell UL Configured	ELEMENT	FALSE	<i>Cell UL Configured IE</i> in TS 38.473 [19] Clause 9.3.1.33	
5	List of Scells to be removed	LIST			<i>SCell To Be Removed List IE</i> in TS 38.473 [19] Clause 9.2.2.7
6	>Scell to be removed Item	STRUCTURE			<i>SCell to Be Removed Item IEs IE</i> in TS 38.473 [19] Clause 9.2.2.7
7	>>Scell Global ID	ELEMENT	FALSE	<i>Scell ID IE</i> in TS 38.473 [19] Clause 9.2.2.1	

## 8.4.8 Idle Mode Mobility Control

### 8.4.8.1 Cell reselection priority control

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to cell reselection priority control, such as *RRC Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related interface messages.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Cell Reselection Priorities	STRUCTURE			<i>IdleModeMobilityControlInfo</i> IE in TS 36.331 [23]
2	>Frequency Priority List E-UTRA	LIST			<i>FreqPriorityListEUTRA</i> IE in TS 38.331 [22]
3	>>Frequency Priority Item E-UTRA	STRUCTURE			<i>FreqPriorityEUTRA</i> IE in TS 38.331 [22]
4	>>>Carrier Frequency	ELEMENT	FALSE	<i>carrierFreq</i> IE in TS 38.331 [22]	
5	>>>Cell Reselection Priority	ELEMENT	FALSE	<i>cellReselectionPriority</i> IE in TS 38.331 [22]	
6	>>>Cell Reselection Sub Priority	ELEMENT	FALSE	<i>cellReselectionSubPriority</i> IE in TS 38.331 [22]	
7	>Frequency Priority List NR	LIST			<i>FreqPriorityListNR</i> IE in TS 38.331 [22]
8	>>Frequency Priority Item NR	STRUCTURE			<i>FreqPriorityNR</i> IE in TS 38.331 [22]
9	>>>Carrier Frequency	ELEMENT	FALSE	<i>carrierFreq</i> IE in TS 38.331 [22]	
10	>>>Cell Reselection Priority	ELEMENT	FALSE	<i>cellReselectionPriority</i> IE in TS 38.331 [22]	
11	>>>Cell Reselection Sub Priority	ELEMENT	FALSE	<i>cellReselectionSubPriority</i> IE in TS 38.331 [22]	
12	>T-320 timer expiry	ELEMENT	FALSE	<i>t320</i> IE in TS 38.331 [22]	

## 8.4.9 UE identification, information and assignment

### 8.4.9.1 UE to Explicit UE list assignment command

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to the assignment of a target UE to an Explicit UE List and modify the corresponding Explicit UE List according to the contents of the RIC Control Message based on the following RAN Parameters.

*RIC Control Message* IE contents:

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Explicit UE list identifier	ELEMENT	FALSE	INTEGER	Identifier previously announced by E2 Node Set to 0 or not present when used with assignment command = 3
2	Assignment command	ELEMENT	FALSE	INTEGER	1= Add UE 2= Remove UE 3= Send list of supported <i>Explicit UE list</i> 4= Change UE assignment

Upon processing the procedures related to the assignment of a target UE to an Explicit UE List, the E2 Node shall use the optional *RIC Control Outcome* IE to report the call processing outcome to the Near-RT RIC as a response to the control action:

#### i) If the outcome is successful

For Assignment command = 1, 2 and 4. Not used

For Assignment command = 3, the following parameters are to be used:

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1001	List of supported <i>Explicit UE list</i>	LIST			To provide a list of Explicit UE List records
1002	> <i>Explicit UE list</i> information	STRUCTURE			To provide information on a specific Explicit UE List record
1003	>> <i>Explicit UE list</i> identifier	ELEMENT	TRUE	INTEGER	Identifier of Explicit UE List
1004	>> <i>Explicit UE list</i> name	ELEMENT	FALSE	PRINTABLE STRING	Name of Explicit UE List
1005	>> <i>Explicit UE list</i> description	ELEMENT	FALSE	PRINTABLE STRING	Text description of Explicit UE list

#### ii) If the outcome is not successful

The following RAN Parameters are to be used for all assignment commands:

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1010	Failure Cause	ELEMENT	FALSE	INTEGER	0= reserved 1= UE already assigned to Explicit UE list 2 = Explicit UE list not known 3= UEID not known 4 = Other 5 = Explicit UE List not supported

### 8.4.9.2 UE information request

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to UE information request according to the RAN Parameter IDs listed in the contents of the RIC Control Message E2SM-RC Control Message Format 4 optional *RAN Parameter Definition* IE based on RAN Parameters:

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
UE information	Defined in clause 8.1.3 RAN Parameters for UE information				

Upon processing the procedures related to handling of UE information request, the E2 Node shall use the optional *RIC Control Outcome* IE to report the call processing outcome to the Near-RT RIC as a response to the control action:

i) If the outcome is successful

RAN Parameter Category	RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
UE information	Defined in clause 8.1.3 RAN Parameters for UE information					

ii) If the outcome is not successful

RAN Parameter Category	RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
Failure cause	Defined in clause 8.4.9.1					

### 8.4.9.3 UE identification request

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to UE identification request according to the contents of the *RIC Control Header* IE.

Upon processing the procedures related to handling of UE Identification request, the E2 Node shall use the optional *RIC Control Outcome* IE to report the call processing outcome to the Near-RT RIC as a response to the control action:

i) If the outcome is successful

RAN Parameter Category	RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
UE ID list	Defined in clause 8.1.3 RAN Parameters for UE identification for UE ID List					

ii) If the outcome is not successful

RAN Parameter Category	RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
Failure cause	Defined in clause 8.4.9.1					

## 8.4.10 Measurement Reporting Configuration Control

### 8.4.10.1 Add MR Configuration

Upon receiving the *RIC Control Request* message with the *Measurement Report Configuration Control* Service Style and the *Add MR Configuration* control action, the E2 node shall invoke relevant RRC procedures to configure

Measurement Report to the UE. E2 Node shall include the IEs corresponding to one or more of RAN parameters described below in the related RRC or NI interface messages.

In the case of UE group-based control action, the above RRC procedure(s) is invoked individually for each individual UE within the group.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of Measurement Objects to Add	LIST			<i>measObjectToAddModList IE in TS 38.331 Sec 6</i>
2	1>Measurement Object to Add Item	STRUCTURE			<i>MeasObjectToAddMod IE in TS 38.331 Sec 6</i>
3	2>MO Sequence ID	ELEMENT	TRUE	INTEGER (1..64)	This is the unique ID used by the RIC for the measurement object it seeks to add via the control service style.
4	2>CHOICE MO Type	STRUCTURE			<i>measObject IE in TS 38.331 Sec 6</i>
11	3>NR MO	STRUCTURE			<i>MeasObjectNR IE in TS 38.331 Sec 6</i>
12	4>SSB Frequency	ELEMENT	TRUE	ARFCN-ValueNR IE in TS 38.331 Sec 6	
13	4>SSB Subcarrier spacing	ELEMENT	FALSE	<i>subcarrierSpacing IE in TS 38.331 Sec 6</i>	
14	4>SSB Primary MTC	STRUCTURE			<i>smtc1 IE in TS 38.331 Sec 6</i>
15	5>CHOICE Periodicity and Offset	STRUCTURE			<i>periodicityAndOffset IE in TS 38.331 Sec 6</i>
16	6>Sub-frame 5	ELEMENT	FALSE	<i>sf5 IE in TS 38.331 Sec 6</i>	
17	6>Sub-frame 10	ELEMENT	FALSE	<i>sf10 IE in TS 38.331 Sec 6</i>	
18	6>Sub-frame 20	ELEMENT	FALSE	<i>sf20 IE in TS 38.331 Sec 6</i>	
19	6>Sub-frame 40	ELEMENT	FALSE	<i>sf40 IE in TS 38.331 Sec 6</i>	
20	6>Sub-frame 80	ELEMENT	FALSE	<i>sf80 IE in TS 38.331 Sec 6</i>	
21	6>Sub-frame 160	ELEMENT	FALSE	<i>sf160 IE in TS 38.331 Sec 6</i>	
22	5>Duration	ELEMENT	FALSE	<i>duration IE in TS 38.331 Sec 6</i>	
31	4>SSB Secondary MTC	STRUCTURE			<i>smtc2 IE in TS 38.331 Sec 6</i>
32	5>List of cells	LIST			<i>pci-List IE in TS 38.331 Sec 6</i>
33	6>Cell Item	STRUCTURE			<i>physCellID IE in TS 38.331 Sec 6</i>

34	7>PCI	ELEMENT	TRUE	<i>physCellID</i> IE in TS 38.331 Sec 6	
35	5>Periodicity	ELEMENT	FALSE	<i>periodicity</i> IE in TS 38.331 Sec 6	
36	4>Reference Frequency CSI – RS	ELEMENT	TRUE	<i>refFreqCSI-RS</i> IE in TS 38.331 Sec 6	
37	4>Reference Signal Config	STRUCTURE			<i>referenceSignalConfig</i> IE in TS 38.331 Sec 6
38	5>SSB Configuration Mobility	STRUCTURE			<i>SSB-ConfigMobility</i> IE in TS 38.331 Sec 6
40	6>CHOICE SSB To Measure for setup	STRUCTURE			<i>SSB-ToMeasure</i> IE in TS 38.331 Sec 6
41	7>Short Bitmap	ELEMENT	FALSE	<i>shortBitmap</i> IE in TS 38.331 Sec 6	
42	7>Medium Bitmap	ELEMENT	FALSE	<i>mediumBitmap</i> IE in TS 38.331 Sec 6	
43	7>Long Bitmap	ELEMENT	FALSE	<i>longBitmap</i> IE in TS 38.331 Sec 6	
44	6>Derive SSB Index From Cell	ELEMENT	FALSE	<i>deriveSSB-IndexFromCell</i> IE in TS 38.331 Sec 6	
45	6>SS RSSI Measurement	STRUCTURE			<i>ss-RSSI-Measurement</i> IE in TS 38.331 Sec 6
46	7>Measurement Slots	ELEMENT	FALSE	<i>measurementSlots</i> IE in TS 38.331 Sec 6	
47	7>End Symbol	ELEMENT	FALSE	<i>endSymbol</i> IE in TS 38.331 Sec 6	
50	6>CSI RS Resource Config Mobility for setup	STRUCTURE			<i>csi-rs-ResourceConfigMobility</i> IE in TS 38.331 Sec 6
51	7>Reference Serving cell Index	ELEMENT	TRUE	<i>refServingIndex</i> IE in TS 38.331 Sec 6	
52	7>Sub carrier spacing	ELEMENT	FALSE	<i>subcarrierSpacing</i> IE in TS 38.331 Sec 6	
53	7>CSI RS Cell List Mobility	LIST			<i>csi-RS-CellList-Mobility</i> IE in TS 38.331 Sec 6
54	8>CSI RS Cell Mobility	STRUCTURE			<i>CSI-RS-CellMobility</i> IE in TS 38.331 Sec 6
55	9>Physical Cell ID	ELEMENT	TRUE	<i>PhysCellID</i> IE in TS 38.331 Sec 6	

56	9>CSI RS Measurement Bandwidth	STRUCTURE			<i>csi-rs-Measurement BW IE in TS 38.331 Sec 6</i>
57	10>Number of PRBs	ELEMENT	FALSE	<i>nrofPRBs IE in TS 38.331 Sec 6</i>	
58	10>Start PRB	ELEMENT	FALSE	<i>startPRB IE in TS 38.331 Sec 6</i>	
59	9>Density	ELEMENT	FALSE	<i>density IE in TS 38.331 Sec 6</i>	
60	9>CSI RS Resource List Mobility	LIST			<i>csi-rs-ResourceList-Mobility IE in TS 38.331 Sec 6</i>
61	10>CSI RS Resource Item Mobility	STRUCTURE			<i>CSI-RS-Resource-Mobility IE in TS 38.331 Sec 6</i>
62	11>CSI RS Index	ELEMENT	TRUE	<i>csi-RS-Index IE in TS 38.331 Sec 6</i>	
63	11>CH OICE Slot Config	STRUCTURE			<i>slotConfig IE in TS 38.331 Sec 6</i>
64	12>ms4	ELEMENT	FALSE	<i>ms4 IE in TS 38.331 Sec 6</i>	
65	12>ms5	ELEMENT	FALSE	<i>ms5 IE in TS 38.331 Sec 6</i>	
66	12>ms10	ELEMENT	FALSE	<i>ms10 IE in TS 38.331 Sec 6</i>	
67	12>ms20	ELEMENT	FALSE	<i>ms20 IE in TS 38.331 Sec 6</i>	
68	12>ms40	ELEMENT	FALSE	<i>ms40 IE in TS 38.331 Sec 6</i>	
69	11>Associated SSB	STRUCTURE			<i>associatedSS B IE in TS 38.331 Sec 6</i>
70	12>SS B Index	ELEMENT	TRUE	<i>ssb-Index IE in TS 38.331 Sec 6</i>	
71	12>Is Quasi coloc	ELEMENT	FALSE	<i>isQuasiColocated IE in TS 38.331 Sec 6</i>	
72	11>CH OICE Frequency Domain Allocation	STRUCTURE			<i>frequencyDomainAllocation IE in TS 38.331 Sec 6</i>
73	12>Frequency	ELEMENT	FALSE	<i>row1 IE in TS 38.331 Sec 6</i>	

		ncy Do mai n Allo cati on Ro w 1			
74		12>Frequency Domain Allocation Row 2	ELEMENT	FALSE	row2 IE in TS 38.331 Sec 6
75		11>First OFDM Symbol in Time Domain	ELEMENT	FALSE	firstOFDMSymbollnTimeDomain IE in TS 38.331 Sec 6
76		11>Sequence Generation Config	ELEMENT	FALSE	sequenceGenerationConfig IE in TS 38.331 Sec 6
77		4>Absolute Threshold SSB – Block Consolidation	STRUCTURE		absThreshSS - BlocksConsolidation IE in TS 38.331 Sec 6
78		5>Block Consolidation Threshold RSRP	ELEMENT	FALSE	RSRP-Range IE in TS 38.331 Sec 6
79		5>Block Consolidation Threshold RSRQ	ELEMENT	FALSE	RSRQ-Range IE in TS 38.331 Sec 6
80		5>Block Consolidation Threshold SINR	ELEMENT	FALSE	SINR-Range IE in TS 38.331 Sec 6
81		4>Absolute Threshold CSI RS Consolidation	STRUCTURE		absThreshCSI-RS-Consolidation IE in TS 38.331 Sec 6
82		5>RS Consolidation Threshold RSRP	ELEMENT	FALSE	RSRP-Range IE in TS 38.331 Sec 6
83		5>RS Consolidation Threshold RSRQ	ELEMENT	FALSE	RSRQ-Range IE in TS 38.331 Sec 6
84		5>RS Consolidated Threshold SINR	ELEMENT	FALSE	SINR-Range IE in TS 38.331 Sec 6
91		4>Number of SS blocks to average	ELEMENT	FALSE	nrofSS-BlocksToAverage IE in TS 38.331 Sec 6
92		4>Number of CSI RS Resources to average	ELEMENT	FALSE	nrofCSI-RS-ResourcesToAverage IE in

				TS 38.331 Sec 6	
93	4>Quantity Config Index	ELEMENT	TRUE	<i>quantityConfigIndex</i> IE in TS 38.331 Sec 6	
100	4>Q-Offset MO Range Sequence	STRUCTURE		<i>offsetMO</i> IE in TS 38.331 Sec 6	
101	5>RSRP Offset SSB	ELEMENT	FALSE	<i>rsrpOffsetSSB</i> IE in TS 38.331 Sec 6	
102	5>RSRQ Offset SSB	ELEMENT	FALSE	<i>rsrqOffsetSSB</i> IE in TS 38.331 Sec 6	
103	5>SINR Offset SSB	ELEMENT	FALSE	<i>sindrOffsetSSB</i> IE in TS 38.331 Sec 6	
104	5>RSRP Offset CSI RS	ELEMENT	FALSE	<i>rsrpOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
105	5>RSRQ Offset CSI RS	ELEMENT	FALSE	<i>rsrqOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
106	5>SINR Offset CSI RS	ELEMENT	FALSE	<i>sindrOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
110	4>Cells to Add List	LIST			<i>CellsToAddModList</i> IE in TS 38.331 Sec 6
111	5>Cell to Add Item	STRUCTURE			<i>CellsToAdd</i> IE in TS 38.331 Sec 6
112	6>Cell to Add - Physical Cell ID	ELEMENT	TRUE	<i>physCellID</i> IE in TS 38.331 Sec 6	
113	6>Cell Individual Offset	STRUCTURE			<i>cellIndividualOffset</i> IE in TS 38.331 Sec 6
115	7>RSRP Offset SSB	ELEMENT	FALSE	<i>rsrpOffsetSSB</i> IE in TS 38.331 Sec 6	
116	7>RSRQ Offset SSB	ELEMENT	FALSE	<i>rsrqOffsetSSB</i> IE in TS 38.331 Sec 6	
117	7>SINR Offset SSB	ELEMENT	FALSE	<i>sindrOffsetSSB</i> IE in TS 38.331 Sec 6	
118	7>RSRP Offset CSI RS	ELEMENT	FALSE	<i>rsrpOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
119	7>RSRQ Offset CSI RS	ELEMENT	FALSE	<i>rsrqOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
120	7>SINR Offset CSI RS	ELEMENT	FALSE	<i>sindrOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
125	4>Black cells to Add List	LIST			<i>blackCellsToAddModList</i> IE in TS 38.331 Sec 6
126	5>Black cell to Add Item	STRUCTURE			<i>PCI-RangeElement</i> IE in TS 38.331 Sec 6

127	6>Black cell to Add – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex IE in TS 38.331 Sec 6</i>	
128	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range IE in TS 38.331 Sec 6</i>
129	7>Physical Cell ID Start	ELEMENT	TRUE	<i>physCellId IE in TS 38.331 Sec 6</i>	
130	7>Physical Cell ID Range	ELEMENT	FALSE	<i>range IE in TS 38.331 Sec 6</i>	
135	4>White cells to Add List	LIST			<i>whiteCellsToAddModList IE in TS 38.331 Sec 6</i>
136	5>White cell to Add Item	STRUCTURE			<i>PCI-RangeElement IE in TS 38.331 Sec 6</i>
137	6>White cell to Add – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex IE in TS 38.331 Sec 6</i>	
138	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range IE in TS 38.331 Sec 6</i>
129	7>Physical Cell ID Start	ELEMENT	TRUE	<i>PhysCellId IE in TS 38.331 Sec 6</i>	
130	7>Physical Cell ID Range	ELEMENT	FALSE	<i>range IE in TS 38.331 Sec 6</i>	
141	4>Frequency Band Indicator NR	ELEMENT	TRUE	<i>freqBandIndicatorNR IE in TS 38.331 Sec 6</i>	
142	4>Measurement Cycle Secondary cell	ELEMENT	FALSE	<i>measCycleSecondaryCell IE in TS 38.331 Sec 6</i>	
151	3>E-UTRA MO	STRUCTURE			<i>MeasObjectEUTRA IE in TS 38.331 Sec 6</i>
152	4>E-UTRA Carrier Frequency	ELEMENT	TRUE	<i>carrierFreq IE in TS 38.331 Sec 6</i>	
153	4>E-UTRA Allowed Measurement Bandwidth	ELEMENT	FALSE	<i>allowedMeasBandwidth IE in TS 38.331 Sec 6</i>	
171	4>List of E-UTRA cells to add	LIST			<i>cellsToAddModListEUTRAN IE in TS 38.331 Sec 6</i>
172	5>E-UTRA Cell to add Item	STRUCTURE			
173	6>E-UTRA Cell to add	STRUCTURE			<i>EUTRA-Cell IE in TS 38.331 Sec 6</i>
174	7>E-UTRA PCI to add	ELEMENT	TRUE	<i>EUTRA-PhysCellId IE in TS 38.331 Sec 6</i>	
175	7>E-UTRA Cell Individual Offset	ELEMENT	FALSE	<i>cellIndividualOffset IE in</i>	

				TS 38.331 Sec 6	
191	4>List of E-UTRA black cells to add	LIST			<i>blackCellsToAddModList IE in TS 38.331 Sec 6</i>
192	5>E-UTRA black cell to add item	STRUCTURE			
193	6>E-UTRA black cell to add	STRUCTURE			<i>EUTRA-BlackCell IE in TS 38.331 Sec 6</i>
194	7>E-UTRA Physical Cell ID Range	STRUCTURE			<i>EUTRA-PhysCellIdRange IE in TS 38.331 Sec 6</i>
195	8>E-UTRA PCI Start	ELEMENT	TRUE	<i>EUTRA-PhysCellId IE in TS 38.331 Sec 6</i>	
196	8>E-UTRA PCI Range	ELEMENT	FALSE	<i>range IE in TS 38.331 Sec 6</i>	
201	4>E-UTRA Presence Antenna Port 1	ELEMENT	FALSE	<i>eutra-PresenceAntennaPort1 IE in TS 38.331 Sec 6</i>	
205	4>E-UTRA Q Offset Range	ELEMENT	FALSE	<i>eutra-Q-OffsetRange IE in TS 38.331 Sec 6</i>	
210	4>Wideband RSRQ Measurement	ELEMENT	FALSE	<i>widebandRSRQ-Meas IE in TS 38.331 Sec 6</i>	
301	List of Report Config Objects to Add	LIST			<i>ReportConfigToAddModList IE in TS 38.331 Sec 6</i>
302	1>Report Config Object to Add Item	STRUCTURE			<i>ReportConfigToAddMod IE in TS 38.331 Sec 6</i>
303	2>Report Config Sequence ID	ELEMENT	TRUE	INTEGER (1..64)	This is the unique ID used by the RIC for the measurement object it seeks to add via the control service style.
304	2>CHOICE Report Config Type	STRUCTURE			<i>reportConfig IE in TS 38.331 Sec 6</i>
311	3>NR Report Config	STRUCTURE			<i>ReportConfigNR IE in TS 38.331 Sec 6</i>
312	4>CHOICE Report Type	STRUCTURE			<i>reportType IE in TS 38.331 Sec 6</i>
313	5>Periodical Report Config	STRUCTURE			<i>PeriodicalReportConfig IE in TS 38.331</i>

					Sec 6
314	6>NR RS Type	ELEMENT	FALSE	<i>NR-RS-Type</i> IE in TS 38.331 Sec 6	
315	6>NR Report Interval	ELEMENT	FALSE	<i>ReportInterval</i> IE in TS 38.331 Sec 6	
316	6>NR Report Amount	ELEMENT	FALSE	<i>reportAmount</i> IE in TS 38.331 Sec 6	
317	6>Measurement Report Quantity	STRUCTURE			<i>MeasReportQuantity</i> IE in TS 38.331 Sec 6
318	7>MR RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	
319	7>MR RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	
320	7>MR SINR	ELEMENT	FALSE	<i>sirn</i> IE in TS 38.331 Sec 6	
321	6>Maximum number of Report cells	ELEMENT	FALSE	<i>maxReportCells</i> IE in TS 38.331 Sec 6	
322	6>Report Quantity Reference Signal – Indexes	STRUCTURE			<i>reportQuantityRSIndexes</i> IE in TS 38.331 Sec 6
323	7>Report Qty RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	
324	7>Report Qty RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	
325	7>Report Qty SINR	ELEMENT	FALSE	<i>sirn</i> IE in TS 38.331 Sec 6	
326	6>Maximum number of reference signals – Indexes to Report	ELEMENT	FALSE	<i>maxNrofRSIndexesToReport</i> IE in TS 38.331 Sec 6	
327	6>Include Beam Measurements	ELEMENT	FALSE	<i>includeBeamMeasurements</i> IE in TS 38.331 Sec 6	
328	6>Use WhiteCellList	ELEMENT	FALSE	<i>useWhiteCellList</i> IE in TS 38.331 Sec 6	
331	5>Event Trigger Config	STRUCTURE			<i>EventTriggerConfig</i> IE in TS 38.331 Sec 6
332	6>CHOICE Event ID	STRUCTURE			<i>eventid</i> IE in TS 38.331 Sec 6
333	7>Event A1	STRUCTURE			<i>eventA1</i> IE in TS 38.331 Sec 6
334	8>A1 Threshold	STRUCTURE			<i>a1-Threshold</i> IE in TS 38.331 Sec 6
335	9>CHOICE A1 Threshold Type	STRUCTURE			<i>MeasTriggerQuantity</i> IE in TS 38.331 Sec 6
336	10>A1 Threshold RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	<i>RSRP-Range</i> IE
337	10>A1 Threshold	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	<i>RSRQ-Range</i> IE

	RSRQ				
338	10>A1 Threshold SINR	ELEMENT	FALSE	<i>sinr</i> IE in TS 38.331 Sec 6	<i>SINR-Range</i> IE
339	9>A1 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	
340	9>A1 Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
341	9>A1 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
343	7>Event A2	STRUCTURE			<i>eventA2</i> IE in TS 38.331 Sec 6
344	8>A2 Threshold	STRUCTURE			<i>A2-Threshold</i> IE in TS 38.331 Sec 6
345	9>CHOICE A2 Threshold Type	STRUCTURE			<i>MeasTrigger Quantity</i> IE in TS 38.331 Sec 6
346	10>A2 Threshold RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	<i>RSRP-Range</i> IE
347	10>A2 Threshold RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	<i>RSRQ-Range</i> IE
348	10>A2 Threshold SINR	ELEMENT	FALSE	<i>sinr</i> IE in TS 38.331 Sec 6	<i>SINR-Range</i> IE
349	9>A2 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	
350	9>A2 Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
351	9>A2 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
353	7>Event A3	STRUCTURE			<i>eventA3</i> IE in TS 38.331 Sec 6
354	8>A3 Offset	STRUCTURE			<i>a3-Threshold</i> IE in TS 38.331 Sec 6
355	9>CHOICE A3 Offset Type	STRUCTURE			<i>MeasTrigger QuantityOffset</i> IE in TS 38.331 Sec 6
356	10>A3 Threshold RSRP Offset	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	
357	10>A3 Threshold RSRQ Offset	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	
358	10>A3 Threshold SINR Offset	ELEMENT	FALSE	<i>sinr</i> IE in TS 38.331 Sec 6	
359	9>A3 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	

360	9>A3 Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
361	9>A3 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
362	9>Use White Cell List	ELEMENT	FALSE	<i>useWhiteCellList</i> IE in TS 38.331 Sec 6	
363	7>Event A4	STRUCTURE			<i>eventA4</i> IE in TS 38.331 Sec 6
364	8>A4 Threshold	STRUCTURE			<i>A4-Threshold</i> IE in TS 38.331 Sec 6
365	9>CHOICE A4 Threshold Type	STRUCTURE			<i>MeasTriggerQuantity</i> IE in TS 38.331 Sec 6
366	10>A4 Threshold RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	<i>RSRP-Range</i> IE
367	10>A4 Threshold RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	<i>RSRQ-Range</i> IE
368	10>A4 Threshold SINR	ELEMENT	FALSE	<i>sinr</i> IE in TS 38.331 Sec 6	<i>SINR-Range</i> IE
369	9>A4 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	
370	9>A4 Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
371	9>A4 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
372	9>Use White Cell List	ELEMENT	FALSE	<i>useWhiteCellList</i> IE in TS 38.331 Sec 6	
375	7>Event A5	STRUCTURE			<i>eventA5</i> IE in TS 38.331 Sec 6
376	8>A5 Threshold 1	STRUCTURE			<i>a5-Threshold1</i> IE in TS 38.331 Sec 6
377	9>CHOICE A5 Threshold1 Type	STRUCTURE			<i>MeasTriggerQuantity</i> IE in TS 38.331 Sec 6
378	10>A5 Threshold1 RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	<i>RSRP-Range</i> IE
379	10>A5 Threshold1 RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	<i>RSRQ-Range</i> IE
380	10>A5 Threshold1 SINR	ELEMENT	FALSE	<i>sinr</i> IE in TS 38.331 Sec 6	<i>SINR-Range</i> IE
381	9>CHOICE A5 Threshold2 Type	STRUCTURE			<i>a5-Threshold2</i> IE in TS 38.331 Sec 6
382	10>A5 Threshold2 RSRP	ELEMENT	FALSE	<i>MeasTriggerQuantity</i> IE in TS 38.331	

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379	10>A5 Threshold2 RSRQ	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	<i>RSRP-Range</i> IE
380	10>A5 Threshold2 SINR	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	<i>RSRQ-Range</i> IE
381	9>A5 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	
382	9>A5 Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
383	9>A5 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
384	9>Use White Cell List	ELEMENT	FALSE	<i>useWhiteCell</i> <i>List</i> IE in TS 38.331 Sec 6	
391	7>Event A6	STRUCTURE			<i>eventA6</i> IE in TS 38.331 Sec 6
392	8>A6 Threshold	STRUCTURE			<i>A6-Threshold</i> IE in TS 38.331 Sec 6
393	9>CHOICE A6 <i>Threshold</i> <i>Type</i>	STRUCTURE			<i>MeasTrigger</i> <i>QuantityOffset</i> IE in TS 38.331 Sec 6
394	10>A6 Threshold RSRP Offset	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	
395	10>A6 Threshold RSRQ Offset	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	
396	10>A6 Threshold SINR Offset	ELEMENT	FALSE	<i>sinr</i> IE in TS 38.331 Sec 6	
397	9>A6 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	
398	9>A6 Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
399	9>A6 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
400	9>Use White Cell List	ELEMENT	FALSE	<i>useWhiteCell</i> <i>List</i> IE in TS 38.331 Sec 6	
405	5>Report CGI	STRUCTURE			<i>ReportCGI</i> IE in TS 38.331 Sec 6
406	6>Cell to Report CGI	ELEMENT	TRUE	<i>PhysCellId</i> IE in TS 38.331 Sec 6	
411	5>Report SFTD – NR	STRUCTURE			<i>ReportSFTD-</i> NR IE in TS 38.331 Sec 6
412	6>Report SFTD – Measurement	ELEMENT	FALSE	<i>reportSFTD-</i> <i>Meas</i> IE in TS 38.331 Sec 6	

413	6>Report RSRP	ELEMENT	FALSE	<i>reportRSRP</i> IE in TS 38.331 Sec 6	
414	6>Report SFTD Neigh Meas	ELEMENT	FALSE	<i>reportSFTD-NeighMeas</i> IE in TS 38.331 Sec 6	
415	6>DRX SFTD Neigh Meas	ELEMENT	FALSE	<i>drx-SFTD-NeighMeas</i> IE in TS 38.331 Sec 6	
416	6>List of cells for which to report SFTD	LIST			<i>cellsForWhichToReportSFTD</i> IE in TS 38.331 Sec 6
417	7>Cell Item for reporting SFTD	STRUCTURE			
418	8>Physical Cell Identity	ELEMENT	TRUE	<i>PhyCellId</i> IE in TS 38.331 Sec 6	
421	3>Report Config Inter RAT	STRUCTURE			<i>ReportConfigInterRAT</i> IE in TS 38.331 Sec 6
422	4>CHOICE Report Type	STRUCTURE			<i>reportType</i> IE in TS 38.331 Sec 6
423	5>Periodical Report Config Inter RAT	STRUCTURE			<i>PeriodicalReportConfigInterRAT</i> IE in TS 38.331 Sec 6
431	6>Periodical Inter-RAT Report Interval	ELEMENT	FALSE	<i>reportInterval</i> IE in TS 38.331 Sec 6	
432	6>Periodical Inter-RAT Report Amount	ELEMENT	FALSE	<i>reportAmount</i> IE in TS 38.331 Sec 6	
435	6>Periodical Inter-RAT Report Quantity	STRUCTURE			<i>reportQuantity</i> IE in TS 38.331 Sec 6
436	7>Inter-RAT RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	
437	7>Inter-RAT RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	
438	7>Inter-RAT SINR	ELEMENT	FALSE	<i>sirn</i> IE in TS 38.331 Sec 6	
439	6>Maximum number of cells for reporting	ELEMENT	FALSE	<i>maxReportCells</i> IE in TS 38.331 Sec 6	
441	5>Event Trigger Config Inter RAT	STRUCTURE			<i>EventTriggerConfigInterRAT</i> IE in TS 38.331 Sec 6
442	6>CHOICE Event ID	STRUCTURE			<i>eventId</i> IE in TS 38.331 Sec 6
451	7>Event B1	STRUCTURE			<i>eventB1</i> IE in TS 38.331 Sec 6
452	8>B1 Threshold EUTRA	STRUCTURE			<i>b1-ThresholdEUTRA</i> IE in TS 38.331 Sec 6
453	9>E-UTRA RSRP	ELEMENT	FALSE	<i>RSRP-RangeEUTRA</i> IE in TS 38.331 Sec 6	

454	9>E-UTRA RSRQ	ELEMENT	FALSE	RSRQ-RangeEUTR A IE in TS 38.331 Sec 6	
455	9>E-UTRA SINR	ELEMENT	FALSE	SINR-RangeEUTR A IE in TS 38.331 Sec 6	
456	8>Event B1 Report On Leave	ELEMENT	FALSE	reportOnLeave IE in TS 38.331 Sec 6	
457	8>E-UTRA Hysteresis	ELEMENT	FALSE	hysteresis IE in TS 38.331 Sec 6	
458	8>E-UTRA Time To Trigger	ELEMENT	FALSE	timeToTrigger IE in TS 38.331 Sec 6	
471	7>Event B2	STRUCTURE			eventB2 IE in TS 38.331 Sec 6
472	8>B2 Threshold1 NR	STRUCTURE			b2-Threshold1 IE in TS 38.331 Sec 6
475	9>B2 Threshold1 NR RSRP	ELEMENT	FALSE	RSRP-Range IE in TS 38.331 Sec 6	
476	9>B2 Threshold1 NR RSRQ	ELEMENT	FALSE	RSRQ-Range IE in TS 38.331 Sec 6	
477	9>B2 Threshold1 NR SINR	ELEMENT	FALSE	SINR-Range IE in TS 38.331 Sec 6	
481	8>B2 Threshold2 E-UTRA	STRUCTURE			b2-Threshold2E UTRA IE in TS 38.331 Sec 6
482	9>B2 Threshold2 E-UTRA RSRP	ELEMENT	FALSE	RSRP-RangeEUTR A IE in TS 38.331 Sec 6	
483	9>B2 Threshold2 E-UTRA RSRQ	ELEMENT	FALSE	RSRQ-RangeEUTR A IE in TS 38.331 Sec 6	
484	9>B2 Threshold2 E-UTRA SINR	ELEMENT	FALSE	SINR-RangeEUTR A IE in TS 38.331 Sec 6	
491	6>Inter-RAT Reference Signal Type	ELEMENT	FALSE	rsType IE in TS 38.331 Sec 6	
492	6>Inter-RAT Report Interval	ELEMENT	FALSE	reportInterval IE in TS 38.331 Sec 6	
493	6>Inter-RAT Report Amount	ELEMENT	FALSE	reportAmount IE in TS 38.331 Sec 6	
501	6>Inter-RAT Report Quantity	STRUCTURE			reportQuantity IE in TS 38.331 Sec 6
502	7>Inter-RAT Report Quantity RSRP	ELEMENT	FALSE	rsrp IE in TS 38.331 Sec 6	
503	7>Inter-RAT Report Quantity RSRQ	ELEMENT	FALSE	rsrq IE in TS 38.331 Sec 6	

504	7>Inter-RAT Report Quantity SINR	ELEMENT	FALSE	<i>sir</i> IE in TS 38.331 Sec 6	
510	6>Maximum number of cells to be reported	ELEMENT	FALSE	<i>maxReportCells</i> IE in TS 38.331 Sec 6	
519	CHOICE NR SpCell RSRP Measurement Controlling	STRUCTURE			<i>s-MeasureConfig</i> IE in TS 38.331 Sec 6
520	1>SSB RSRP	ELEMENT	FALSE	<i>ssb-RSRP</i> IE in TS 38.331 Sec 6	
521	1>CSI RSRP	ELEMENT	FALSE	<i>csi-RSRP</i> IE in TS 38.331 Sec 6	
525	Quantity Config	STRUCTURE			<i>QuantityConfig</i> IE in TS 38.331 Sec 6
526	1>Quantity Config NR List	LIST			<i>quantityConfigNR-List</i> IE in TS 38.331 Sec 6
527	2>Quantity Config NR	STRUCTURE			<i>quantityConfigNR</i> IE in TS 38.331 Sec 6
528	3>Quantity Config NR Cell	STRUCTURE			<i>quantityConfigCell</i> IE in TS 38.331 Sec 6
529	4>SSB Filter Config	STRUCTURE			<i>ssb-FilterConfig</i> IE in TS 38.331 Sec 6
530	5>SSB Filter Coefficient RSRP	ELEMENT	FALSE	<i>filterCoefficientRSRP</i> IE in TS 38.331 Sec 6	
531	5>SSB Filter Coefficient RSRQ	ELEMENT	FALSE	<i>filterCoefficientRSRQ</i> IE in TS 38.331 Sec 6	
532	5>SSB Filter Coefficient RS-SINR	ELEMENT	FALSE	<i>filterCoefficientRSINR</i> IE in TS 38.331 Sec 6	
533	4>CSI RS Filter Config	STRUCTURE			<i>csi-RS-FilterConfig</i> IE in TS 38.331 Sec 6
534	5>CSI RS Filter Coefficient RSRP	ELEMENT	FALSE	<i>filterCoefficientRSRP</i> IE in TS 38.331 Sec 6	
535	5>CSI RS Filter Coefficient RSRQ	ELEMENT	FALSE	<i>filterCoefficientRSRQ</i> IE in TS 38.331 Sec 6	
536	5>CSI RS Filter Coefficient RS-SINR	ELEMENT	FALSE	<i>filterCoefficientRSINR</i> IE in TS 38.331 Sec 6	
541	1>Quantity Config E-UTRA	STRUCTURE			<i>quantityConfigEUTRA</i> IE in TS 38.331 Sec 6
542	2>E-UTRA Filter Coefficient RSRP	ELEMENT	FALSE	<i>filterCoefficientRSRP</i> IE in TS 38.331	

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543	2>E-UTRA Filter Coefficient RSRQ	ELEMENT	FALSE	<i>filterCoefficie ntRSRQ IE in TS 38.331 Sec 6</i>	
544	2>E-UTRA Filter Coefficient RS-SINR	ELEMENT	FALSE	<i>filterCoefficie ntSINR IE in TS 38.331 Sec 6</i>	
551	Measurement Gap Config	STRUCTURE			<i>MeasGapCon fig IE in TS 38.331 Sec 6</i>
552	1>Gap FR2 for setup	STRUCTURE			<i>gapFR2 IE in TS 38.331 Sec 6</i>
553	2>FR2 Gap Offset	ELEMENT	FALSE	<i>gapOffset IE in TS 38.331 Sec 6</i>	
554	2>FR2 Measurement Gap Length	ELEMENT	FALSE	<i>mgl IE in TS 38.331 Sec 6</i>	
555	2>FR2 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgrp IE in TS 38.331 Sec 6</i>	
556	2>FR2 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta IE in TS 38.331 Sec 6</i>	
557	2>FR2 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIn dicator IE in TS 38.331 Sec 6</i>	
560	1>Gap FR1 for setup	STRUCTURE			<i>gapFR1 IE in TS 38.331 Sec 6</i>
561	2>FR1 Gap Offset	ELEMENT	FALSE	<i>gapOffset IE in TS 38.331 Sec 6</i>	
562	2>FR1 Measurement Gap Length	ELEMENT	FALSE	<i>mgl IE in TS 38.331 Sec 6</i>	
563	2>FR1 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgrp IE in TS 38.331 Sec 6</i>	
564	2>FR1 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta IE in TS 38.331 Sec 6</i>	
565	2>FR1 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIn dicator IE in TS 38.331 Sec 6</i>	
570	1>Gap UE for setup	STRUCTURE			<i>gapUE IE in TS 38.331 Sec 6</i>
571	2>UE Gap Offset	ELEMENT	FALSE	<i>gapOffset IE in TS 38.331 Sec 6</i>	
572	2>UE Measurement Gap Length	ELEMENT	FALSE	<i>mgl IE in TS 38.331 Sec 6</i>	
573	2>UE Measurement Gap Reptition Period	ELEMENT	FALSE	<i>mgrp IE in TS 38.331 Sec 6</i>	
574	2>UE Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta IE in TS 38.331 Sec 6</i>	
575	2>UE Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIn dicator IE in TS 38.331 Sec 6</i>	
581	Measurement Gap Sharing Config	STRUCTURE			<i>MeasGapSha ringConfig IE in TS 38.331 Sec 6</i>
582	1>Gap Sharing FR2 for setup	ELEMENT	FALSE	<i>gapFR2 IE in TS 38.331</i>	

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583	1>Gap Sharing FR1 for setup	ELEMENT	FALSE	gapFR1 IE in TS 38.331 Sec 6	
584	1>Gap Sharing UE for setup	ELEMENT	FALSE	gapUE IE in TS 38.331 Sec 6	

#### 8.4.10.2 Modify MR Configuration

Upon receiving the *RIC Control Request* message with the *Measurement Report Configuration Control* Service Style and the *Modify MR Configuration* control action, the E2 node shall invoke RRC procedures related to MR Configuration, include the IEs corresponding to one or more of parameters described below in the related NI interface messages or RRC message.

In the case of UE group-based control action, the above RRC procedure(s) is invoked individually for each individual UE within the group.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of Measurement Objects to modify or add for modification	LIST			<i>measObjectToAddModList</i> IE in TS 38.331 Sec 6
2	1>Measurement Object to modify or add for modification Item	STRUCTURE			<i>MeasObjectToAddMod</i> IE in TS 38.331 Sec 6
3	2>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID</i> IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via <i>RRConfiguration</i> message
4	2>CHOICE MO Type	STRUCTURE			<i>measObject</i> IE in TS 38.331 Sec 6
11	3>NR MO	STRUCTURE			<i>MeasObjectNR</i> IE in TS 38.331 Sec 6
12	4>SSB Frequency	ELEMENT	TRUE	<i>ARFCN-ValueNR</i> IE in TS 38.331 Sec 6	
13	4>SSB Subcarrier spacing	ELEMENT	FALSE	<i>Subcarrier Spacing</i> IE in TS 38.331 Sec 6	
14	4>SSB Primary MTC	STRUCTURE			<i>smtc1</i> IE in TS 38.331 Sec 6
15	5>CHOICE Periodicity and Offset	STRUCTURE			<i>periodicityAndOffset</i> IE in TS 38.331 Sec 6
16	6>Sub-frame 5	ELEMENT	FALSE	<i>sf5</i> IE in TS 38.331 Sec 6	
17	6>Sub-frame 10	ELEMENT	FALSE	<i>sf10</i> IE in TS 38.331 Sec 6	
18	6>Sub-frame 20	ELEMENT	FALSE	<i>sf20</i> IE in TS 38.331 Sec 6	
19	6>Sub-frame 40	ELEMENT	FALSE	<i>sf40</i> IE in TS 38.331 Sec 6	
20	6>Sub-frame 80	ELEMENT	FALSE	<i>sf80</i> IE in TS 38.331 Sec 6	
21	6>Sub-frame 160	ELEMENT	FALSE	<i>sf160</i> IE in TS 38.331 Sec 6	
22	5>Duration	ELEMENT	FALSE	<i>duration</i> IE in TS 38.331 Sec 6	

31	4>SSB Secondary MTC	STRUCTURE			<i>smtc2 IE in TS 38.331 Sec 6</i>
32	5>List of cells	LIST			<i>pci-List IE in TS 38.331 Sec 6</i>
33	6>Cell Item	STRUCTURE			<i>PhysCellID IE in TS 38.331 Sec 6</i>
34	7>PCI	ELEMENT	TRUE	<i>physCellID IE in TS 38.331 Sec 6</i>	
35	5>Periodicity	ELEMENT	FALSE	<i>periodicity IE in TS 38.331 Sec 6</i>	
36	4>Reference Frequency CSI – RS	ELEMENT	TRUE	<i>refFreqCSI -RS IE in TS 38.331 Sec 6</i>	
37	4>Reference Signal Config	STRUCTURE			<i>referenceSignalConfig IE in TS 38.331 Sec 6</i>
38	5>SSB Configuration Mobility	STRUCTURE			<i>SSB-ConfigMobility IE in TS 38.331 Sec 6</i>
39	6>Setup or Release SSB to Measure	ELEMENT	FALSE	<i>ENUMERATED (setup,release,...)</i>	<i>SetupRelease IE in TS 38.331 Sec 6</i>
40	6>CHOICE SSB To Measure for setup	STRUCTURE			<i>SSB-ToMeasure IE in TS 38.331 Sec 6</i>
41	7>Short Bitmap	ELEMENT	FALSE	<i>shortBitmap IE in TS 38.331 Sec 6</i>	
42	7>Medium Bitmap	ELEMENT	FALSE	<i>mediumBitmap IE in TS 38.331 Sec 6</i>	
43	7>Long Bitmap	ELEMENT	FALSE	<i>longBitmap IE in TS 38.331 Sec 6</i>	
44	6>Derive SSB Index From Cell	ELEMENT	FALSE	<i>deriveSSB-IndexFromCell IE in TS 38.331 Sec 6</i>	
45	6>SS RSSI Measurement	STRUCTURE			<i>ss-RSSI-Measurement IE in TS 38.331 Sec 6</i>
46	7>Measurement Slots	ELEMENT	FALSE	<i>measurementSlots IE in TS 38.331 Sec 6</i>	
47	7>End Symbol	ELEMENT	FALSE	<i>endSymbol IE in TS 38.331 Sec 6</i>	

49	6>Setup or Release CSI RS Resource Config Mobility	ELEMENT	FALSE	ENUMERATED (setup, release,...)	<i>SetupRelease IE in TS 38.331 Sec 6</i>
50	6>CSI RS Resource Config Mobility for Setup	STRUCTURE			<i>csi-rs-ResourceConfigMobility IE in TS 38.331 Sec 6</i>
51	7>Reference Serving cell Index	ELEMENT	TRUE	<i>refServCellIndex IE in TS 38.331 Sec 6</i>	
52	7>Sub carrier spacing	ELEMENT	FALSE	<i>subcarriersPacing IE in TS 38.331 Sec 6</i>	
53	7>CSI RS Cell List Mobility	LIST			<i>csi-RS-CellList-Mobility IE in TS 38.331 Sec 6</i>
54	8>CSI RS Cell Mobility	STRUCTURE			<i>CSI-RS-CellMobility IE in TS 38.331 Sec 6</i>
55	9>Physical Cell ID	ELEMENT	TRUE	<i>PhysCellID IE in TS 38.331 Sec 6</i>	
56	9>CSI RS Measurement Bandwidth	STRUCTURE			<i>csi-rs-MeasurementBW IE in TS 38.331 Sec 6</i>
57	10>Number of PRBs	ELEMENT	FALSE	<i>nrofPRBs IE in TS 38.331 Sec 6</i>	
58	10>Start PRB	ELEMENT	FALSE	<i>startPRB IE in TS 38.331 Sec 6</i>	
59	9>Density	ELEMENT	FALSE	<i>Density IE in TS 38.331 Sec 6</i>	
60	9>CSI RS Resource List Mobility	LIST			<i>csi-rs-ResourceList-Mobility IE in TS 38.331 Sec 6</i>
61	10>CSI RS Resource Item Mobility	STRUCTURE			<i>CSI-RS-Resource-Mobility IE in TS 38.331 Sec 6</i>
62	11>CSI RS Index	ELEMENT	TRUE	<i>csi-RS-Index IE in TS 38.331 Sec 6</i>	
63	11>CHOI CE Slot Config	STRUCTURE			<i>slotConfig IE in TS 38.331 Sec 6</i>
64	12>ms 4	ELEMENT	FALSE	<i>ms4 IE in TS 38.331 Sec 6</i>	

65	12>ms 5	ELEMENT	FALSE	<i>ms5 IE in TS 38.331 Sec 6</i>	
66	12>ms 10	ELEMENT	FALSE	<i>ms10 IE in TS 38.331 Sec 6</i>	
67	12>ms 20	ELEMENT	FALSE	<i>ms20 IE in TS 38.331 Sec 6</i>	
68	12>ms 40	ELEMENT	FALSE	<i>ms40 IE in TS 38.331 Sec 6</i>	
69	11>Associated SSB	STRUCTURE			<i>associatedSSB IE in TS 38.331 Sec 6</i>
70	12>SSB Index	ELEMENT	TRUE	<i>ssb-Index IE in TS 38.331 Sec 6</i>	
71	12>IsQuasiColocated	ELEMENT	FALSE	<i>isQuasiColocated IE in TS 38.331 Sec 6</i>	
72	11>CHOICE Frequency Domain Allocation	STRUCTURE			<i>frequencyDomainAllocation IE in TS 38.331 Sec 6</i>
73	12>Frequency Domain Allocation Row 1	ELEMENT	FALSE	<i>row1 IE in TS 38.331 Sec 6</i>	
74	12>Frequency Domain Allocation Row 2	ELEMENT	FALSE	<i>row2 IE in TS 38.331 Sec 6</i>	
75	11>FirstOFDM Symbol in Time Domain	ELEMENT	FALSE	<i>firstOFDMSymbolInTimeDomain IE in TS 38.331 Sec 6</i>	
76	11>Sequence Generation Config	ELEMENT	FALSE	<i>sequenceGenerationConfig IE in TS 38.331 Sec 6</i>	
77	4>Absolute Threshold SSB – Block Consolidation	STRUCTURE			<i>absThreshSS-BlocksConsolidation IE in TS 38.331 Sec 6</i>
78	5>Block Consolidation Threshold RSRP	ELEMENT	FALSE	<i>RSRP-Range IE in TS 38.331 Sec 6</i>	

79	5>Block Consolidation Threshold RSRQ	ELEMENT	FALSE	RSRQ-Range IE in TS 38.331 Sec 6	
80	5>Block Consolidation Threshold SINR	ELEMENT	FALSE	SINR-Range IE in TS 38.331 Sec 6	
81	4>Absolute Threshold CSI RS Consolidation	STRUCTURE			absThreshCSI-RS-Consolidation IE in TS 38.331 Sec 6
82	5>RS Consolidation Threshold RSRP	ELEMENT	FALSE	RSRP-Range IE in TS 38.331 Sec 6	
83	5>RS Consolidation Threshold RSRQ	ELEMENT	FALSE	RSRQ-Range IE in TS 38.331 Sec 6	
84	5>RS Consolidated Threshold SINR	ELEMENT	FALSE	SINR-Range IE in TS 38.331 Sec 6	
91	4>Number of SS blocks to average	ELEMENT	FALSE	nrofSS-BlocksToAverge IE in TS 38.331 Sec 6	
92	4>Number of CSI RS Resources to average	ELEMENT	FALSE	nrofCSI-RS-ResourcesToAverage IE in TS 38.331 Sec 6	
93	4>Quantity Config Index	ELEMENT	TRUE	quantityConfigIndex IE in TS 38.331 Sec 6	
100	4>Q-Offset MO Range Sequence	STRUCTURE			offsetMO IE in TS 38.331 Sec 6
101	5>RSRP Offset SSB	ELEMENT	FALSE	rsrpOffsetSSB IE in TS 38.331 Sec 6	
102	5>RSRQ Offset SSB	ELEMENT	FALSE	rsrqOffsetSSB IE in TS 38.331 Sec 6	
103	5>SINR Offset SSB	ELEMENT	FALSE	sirnOffsetSSB IE in TS 38.331 Sec 6	
104	5>RSRP Offset CSI RS	ELEMENT	FALSE	rsrpOffsetCSI-RS IE in TS 38.331 Sec 6	

105	5>RSRQ Offset CSI RS	ELEMENT	FALSE	<i>rsrqOffsetC SI-RS IE in TS 38.331 Sec 6</i>	
106	5>SINR Offset CSI RS	ELEMENT	FALSE	<i>sirnOffsetC SI-RS IE in TS 38.331 Sec 6</i>	
107	4>Cells to Remove List	LIST			<i>cellsToRemoveList IE in TS 38.331 Sec 6</i>
108	5>Cell to Remove Item	STRUCTURE			
109	6>Cell to Remove - Physical Cell ID	ELEMENT	TRUE	<i>PhysCellID IE in TS 38.331 Sec 6</i>	
110	4>Cells to modify or add for modification List	LIST			<i>CellsToAddModifyList IE in TS 38.331 Sec 6</i>
111	5>Cell to modify or add for modification Item	STRUCTURE			<i>CellsToAdd IE in TS 38.331 Sec 6</i>
112	6>Cell to modify or add for modification - Physical Cell ID	ELEMENT	TRUE	<i>PhysCellID IE in TS 38.331 Sec 6</i>	
113	6>Cell Individual Offset	STRUCTURE			<i>cellIndividualOffset IE in TS 38.331 Sec 6</i>
115	7>RSRP Offset SSB	ELEMENT	FALSE	<i>rsrpOffsetsSB IE in TS 38.331 Sec 6</i>	
116	7>RSRQ Offset SSB	ELEMENT	FALSE	<i>rsrqOffsetsSB IE in TS 38.331 Sec 6</i>	
117	7>SINR Offset SSB	ELEMENT	FALSE	<i>sirnOffsetsSB IE in TS 38.331 Sec 6</i>	
118	7>RSRP Offset CSI RS	ELEMENT	FALSE	<i>rsrpOffsetC SI-RS IE in TS 38.331 Sec 6</i>	
119	7>RSRQ Offset CSI RS	ELEMENT	FALSE	<i>rsrqOffsetC SI-RS IE in TS 38.331 Sec 6</i>	
120	7>SINR Offset CSI RS	ELEMENT	FALSE	<i>sirnOffsetC SI-RS IE in TS 38.331 Sec 6</i>	
121	4>Black cells to Remove List	LIST			<i>blackCellsToRemoveList IE in TS 38.331 Sec 6</i>
122	5>Black cell to Remove Item	STRUCTURE			
123	6>Black cell to Remove – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex IE in TS 38.331 Sec 6</i>	

				6	
125	4>Black cells to modify or add for modification List	LIST			<i>blackCellsToAddModList IE in TS 38.331 Sec 6</i>
126	5>Black cell to modify or add for modification Item	STRUCTURE			<i>PCI-RangeElement IE in TS 38.331 Sec 6</i>
127	6>Black cell to modify or add for modification – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex IE in TS 38.331 Sec 6</i>	
128	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range IE in TS 38.331 Sec 6</i>
129	7>PCI Range Start	ELEMENT	TRUE	<i>physCellId IE in TS 38.331 Sec 6</i>	
130	7>PCI Range	ELEMENT	FALSE	<i>range IE in TS 38.331 Sec 6</i>	
131	4>White cells to Remove List	LIST			<i>whiteCellsToRemoveList IE in TS 38.331 Sec 6</i>
132	5>White cell to Remove Item	STRUCTURE			<i>whiteCellsToRemoveList IE in TS 38.331 Sec 6</i>
133	6>White cell to Remove – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex IE in TS 38.331 Sec 6</i>	
135	4>White cells to modify or add for modification List	LIST			<i>whiteCellsToAddModList IE in TS 38.331 Sec 6</i>
136	5>White cell to modify or add for modification Item	STRUCTURE			<i>PCI-RangeElement IE in TS 38.331 Sec 6</i>
137	6>White cell to modify or add for modification – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex IE in TS 38.331 Sec 6</i>	
138	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range IE in TS 38.331 Sec 6</i>
139	7>PCI Range Start	ELEMENT	TRUE	<i>physCellId IE in TS 38.331 Sec 6</i>	
140	7>PCI Range	ELEMENT	FALSE	<i>range IE in TS 38.331 Sec 6</i>	
141	4>Frequency Band Indicator NR	ELEMENT	TRUE	<i>freqBandIndicatorNR IE in TS 38.331 Sec 6</i>	

142	4>Measurement Cycle Secondary cell	ELEMENT	FALSE	<i>measCycle SCell IE in TS 38.331 Sec 6</i>	
151	3> <i>E-UTRA MO</i>	STRUCTURE			<i>MeasObjectE UTRA IE in TS 38.331 Sec 6</i>
152	4>E-UTRA Carrier Frequency	ELEMENT	TRUE	<i>carrierFreq IE in TS 38.331 Sec 6</i>	
153	4>E-UTRA Allowed Measurement Bandwidth	ELEMENT	FALSE	<i>allowedMe asBandwid th IE in TS 38.331 Sec 6</i>	
161	4>List of E-UTRA cells to remove	LIST			<i>cellsToRemo veListEUTRA NIE in TS 38.331 Sec 6</i>
162	5>E-UTRA Cell to remove Item	STRUCTURE			
164	6>E-UTRA PCI to remove	ELEMENT	TRUE	<i>EUTRA-PhysCellID IE in TS 38.331 Sec 6</i>	Note that RIC cannot use the Cell Index unless informed by the E2 node, so PCI is used here.
171	4>List of E-UTRA cells to modify or add for modification	LIST			<i>cellsToAddModListEUTRA NIE in TS 38.331 Sec 6</i>
172	5>E-UTRA Cell to modify or add for modification Item	STRUCTURE			
173	6>E-UTRA Cell to modify or add for modification	STRUCTURE			<i>EUTRA-Cell IE in TS 38.331 Sec 6</i>
174	7>E-UTRA PCI to modify or add for modification	ELEMENT	TRUE	<i>EUTRA-PhysCellId IE in TS 38.331 Sec 6</i>	
175	7>E-UTRA Cell Individual Offset	ELEMENT	FALSE	<i>cellIndividualOffset IE in TS 38.331 Sec 6</i>	
181	4>List of E-UTRA black cells to remove	LIST			<i>blackCellsToRemoveListEUTRANIE in TS 38.331 Sec 6</i>
182	5>E-UTRA black cell to remove Item	STRUCTURE			
184	6>E-UTRA PCI to remove	ELEMENT	TRUE	<i>EUTRA-PhysCellId IE in TS 38.331 Sec 6</i>	
191	4>List of E-UTRA black cells to modify or add for modification	LIST			<i>blackCellsToAddModList IE in TS 38.331 Sec 6</i>

192	5>E-UTRA black cell to modify or add for modification item	STRUCTURE			
193	6>E-UTRA black cell to modify or add for modification	STRUCTURE			EUTRA-BlackCell IE in TS 38.331 Sec 6
194	7>E-UTRA Physical Cell ID Range	STRUCTURE			EUTRA-PhysCellIdRange IE in TS 38.331 Sec 6
195	8>E-UTRA PCI Start	ELEMENT	TRUE	EUTRA-PhysCellId IE in TS 38.331 Sec 6	
196	8>E-UTRA PCI Range	ELEMENT	FALSE	range IE in TS 38.331 Sec 6	
201	4>E-UTRA Presence Antenna Port 1	ELEMENT	FALSE	eutra-PresenceAntennaPort 1 IE in TS 38.331 Sec 6	
205	4>E-UTRA Q Offset Range	ELEMENT	FALSE	eutra-Q-OffsetRange IE in TS 38.331 Sec 6	
210	4>Wideband RSRQ Measurement	ELEMENT	FALSE	widebandRSRQ-Meas IE in TS 38.331 Sec 6	
301	List of Report Config Objects to modify or add for modification	LIST			ReportConfigToAddModList IE in TS 38.331 Sec 6
302	1>Report Config Object to modify or add for modification item	STRUCTURE			ReportConfigToAddMod IE in TS 38.331 Sec 6
303	2>Report Config Object ID	ELEMENT	TRUE	ReportConfigID IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the report config object for the UE via RRConfiguration message
304	2>CHOICE Report Config Type	STRUCTURE			reportConfig IE in TS 38.331 Sec 6
311	3>NR Report Config	STRUCTURE			ReportConfigNR IE in TS 38.331 Sec 6
312	4>CHOICE Report Type	STRUCTURE			reportType IE in TS 38.331 Sec 6
313	5>Periodical Report Config	STRUCTURE			PeriodicalReportConfig IE in TS 38.331 Sec 6

314	6>NR RS Type	ELEMENT	FALSE	<i>NR-RS-Type IE in TS 38.331 Sec 6</i>	
315	6>NR Report Interval	ELEMENT	FALSE	<i>ReportInterval IE in TS 38.331 Sec 6</i>	
316	6>NR Report Amount	ELEMENT	FALSE	<i>reportAmount IE in TS 38.331 Sec 6</i>	
317	6>Measurement Report Quantity	STRUCTURE			<i>MeasReportQuantity IE in TS 38.331 Sec 6</i>
318	7>MR RSRP	ELEMENT	FALSE	<i>rsrp IE in TS 38.331 Sec 6</i>	
319	7>MR RSRQ	ELEMENT	FALSE	<i>rsrq IE in TS 38.331 Sec 6</i>	
320	7>MR SINR	ELEMENT	FALSE	<i>sinr IE in TS 38.331 Sec 6</i>	
321	6>Maximum number of Report cells	ELEMENT	FALSE	<i>maxReportCells IE in TS 38.331 Sec 6</i>	
322	6>Report Quantity Reference Signal – Indexes	STRUCTURE			<i>reportQuantityRS-Indexes IE in TS 38.331 Sec 6</i>
323	7>Report Qty RSRP	ELEMENT	FALSE	<i>rsrp IE in TS 38.331 Sec 6</i>	
324	7>Report Qty RSRQ	ELEMENT	FALSE	<i>rsrq IE in TS 38.331 Sec 6</i>	
325	7>Report Qty SINR	ELEMENT	FALSE	<i>sinr IE in TS 38.331 Sec 6</i>	
326	6>Maximum number of reference signals – Indexes to Report	ELEMENT	FALSE	<i>maxNrofRS-IndexesToReport IE in TS 38.331 Sec 6</i>	
327	6>Include Beam Measurements	ELEMENT	FALSE	<i>includeBeamMeasurements IE in TS 38.331 Sec 6</i>	
328	6>Use WhiteCellList	ELEMENT	FALSE	<i>useWhiteCellList IE in TS 38.331 Sec 6</i>	
331	5>Event Trigger Config	STRUCTURE			<i>EventTriggerConfig IE in TS 38.331 Sec 6</i>
332	6>CHOICE Event ID	STRUCTURE			<i>eventid IE in TS 38.331 Sec 6</i>
333	7>Event A1	STRUCTURE			<i>eventA1 IE in TS 38.331</i>

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334	8>A1 Threshold	STRUCTURE			<i>a1-Threshold IE in TS 38.331 Sec 6</i>
335	9>CHOICE A1 Threshold Type	STRUCTURE			<i>MeasTrigger Quantity IE in TS 38.331 Sec 6</i>
336	10>A1 Threshold RSRP	ELEMENT	FALSE	<i>rsrp IE in TS 38.331 Sec 6</i>	<i>RSRP-Range IE</i>
337	10>A1 Threshold RSRQ	ELEMENT	FALSE	<i>rsrq IE in TS 38.331 Sec 6</i>	<i>RSRQ-Range IE</i>
338	10>A1 Threshold SINR	ELEMENT	FALSE	<i>sirn IE in TS 38.331 Sec 6</i>	<i>SINR-Range IE</i>
339	9>A1 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave IE in TS 38.331 Sec 6</i>	
340	9>A1 Hysteresis	ELEMENT	FALSE	<i>hysteresis IE in TS 38.331 Sec 6</i>	
341	9>A1 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger IE in TS 38.331 Sec 6</i>	
343	7>Event A2	STRUCTURE			<i>eventA2 IE in TS 38.331 Sec 6</i>
344	8>A2 Threshold	STRUCTURE			<i>A2-Threshold IE in TS 38.331 Sec 6</i>
345	9>CHOICE A2 Threshold Type	STRUCTURE			<i>MeasTrigger Quantity IE in TS 38.331 Sec 6</i>
346	10>A2 Threshold RSRP	ELEMENT	FALSE	<i>rsrp IE in TS 38.331 Sec 6</i>	<i>RSRP-Range IE</i>
347	10>A2 Threshold RSRQ	ELEMENT	FALSE	<i>rsrq IE in TS 38.331 Sec 6</i>	<i>RSRQ-Range IE</i>
348	10>A2 Threshold SINR	ELEMENT	FALSE	<i>sirn IE in TS 38.331 Sec 6</i>	<i>SINR-Range IE</i>
349	9>A2 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave IE in TS 38.331 Sec 6</i>	
350	9>A2 Hysteresis	ELEMENT	FALSE	<i>hysteresis IE in TS 38.331 Sec 6</i>	
351	9>A2 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger IE in TS 38.331 Sec 6</i>	
353	7>Event A3	STRUCTURE			<i>eventA3 IE in TS 38.331 Sec 6</i>
354	8>A3 Offset	STRUCTURE			<i>a3-Threshold IE in TS 38.331 Sec 6</i>

355	9>CHOICE A3 Offset Type	STRUCTURE			MeasTrigger QuantityOffse t IE in TS 38.331 Sec 6
356	10>A3 Threshold RSRP Offset	ELEMENT	FALSE	rsrp IE in TS 38.331 Sec 6	
357	10>A3 Threshold RSRQ Offset	ELEMENT	FALSE	rsrq IE in TS 38.331 Sec 6	
358	10>A3 Threshold SINR Offset	ELEMENT	FALSE	sinr IE in TS 38.331 Sec 6	
359	9>A3 Report On Leave	ELEMENT	FALSE	reportOnLe ave IE in TS 38.331 Sec 6	
360	9>A3 Hysteresis	ELEMENT	FALSE	hysteresis IE in TS 38.331 Sec 6	
361	9>A3 Time to Trigger	ELEMENT	FALSE	timeToTrig ger IE in TS 38.331 Sec 6	
362	9>Use White Cell List	ELEMENT	FALSE	useWhiteC ellList IE in TS 38.331 Sec 6	
363	7>Event A4	STRUCTURE			eventA4 IE in TS 38.331 Sec 6
364	8>A4 Threshold	STRUCTURE			A4-Threshold IE in TS 38.331 Sec 6
365	9>CHOICE A4 Threshold Type	STRUCTURE			MeasTrigger Quantity IE in TS 38.331 Sec 6
366	10>A4 Threshold RSRP	ELEMENT	FALSE	rsrp IE in TS 38.331 Sec 6	RSRP-Range IE
367	10>A4 Threshold RSRQ	ELEMENT	FALSE	rsrq IE in TS 38.331 Sec 6	RSRQ-Range IE
368	10>A4 Threshold SINR	ELEMENT	FALSE	sinr IE in TS 38.331 Sec 6	SINR-Range IE
369	9>A4 Report On Leave	ELEMENT	FALSE	reportOnLe ave IE in TS 38.331 Sec 6	
370	9>A4 Hysteresis	ELEMENT	FALSE	hysteresis IE in TS 38.331 Sec 6	
371	9>A4 Time to Trigger	ELEMENT	FALSE	timeToTrig ger IE in TS 38.331 Sec 6	
372	9>Use White Cell List	ELEMENT	FALSE	useWhiteC ellList IE in TS 38.331 Sec 6	
375	7>Event A5	STRUCTURE			eventA5 IE in TS 38.331 Sec 6

376	8>A5 Threshold 1	STRUCTURE			a5-Threshold1 IE in TS 38.331 Sec 6
377	9>CHOICE A5 Threshold1 Type	STRUCTURE			MeasTriggerQuantity IE in TS 38.331 Sec 6
378	10>A5 Threshold1 RSRP	ELEMENT	FALSE	rsrp IE in TS 38.331 Sec 6	RSRP-Range IE
379	10>A5 Threshold1 1 RSRQ	ELEMENT	FALSE	rsrq IE in TS 38.331 Sec 6	RSRQ-Range IE
380	10>A5 Threshold1 SINR	ELEMENT	FALSE	sinr IE in TS 38.331 Sec 6	SINR-Range IE
381	9>CHOICE A5 Threshold2 Type	STRUCTURE			a5-Threshold2 IE in TS 38.331 Sec 6
382	10>A5 Threshold2 RSRP	ELEMENT	FALSE	MeasTriggerQuantity IE in TS 38.331 Sec 6	
379	10>A5 Threshold2 RSRQ	ELEMENT	FALSE	rsrp IE in TS 38.331 Sec 6	RSRP-Range IE
380	10>A5 Threshold2 SINR	ELEMENT	FALSE	rsrq IE in TS 38.331 Sec 6	RSRQ-Range IE
381	9>A5 Report On Leave	ELEMENT	FALSE	reportOnLeave IE in TS 38.331 Sec 6	
382	9>A5 Hysteresis	ELEMENT	FALSE	hysteresis IE in TS 38.331 Sec 6	
383	9>A5 Time to Trigger	ELEMENT	FALSE	timeToTrigger IE in TS 38.331 Sec 6	
384	9>Use White Cell List	ELEMENT	FALSE	useWhiteCellList IE in TS 38.331 Sec 6	
391	7>Event A6	STRUCTURE			eventA6 IE in TS 38.331 Sec 6
392	8>A6 Threshold	STRUCTURE			A6-Threshold IE in TS 38.331 Sec 6
393	9>CHOICE A6 Threshold Type	STRUCTURE			MeasTriggerQuantityOffset IE in TS 38.331 Sec 6
394	10>A6 Threshold RSRP Offset	ELEMENT	FALSE	rsrp IE in TS 38.331 Sec 6	
395	10>A6 Threshold RSRQ Offset	ELEMENT	FALSE	rsrq IE in TS 38.331 Sec 6	
396	10>A6 Threshold SINR Offset	ELEMENT	FALSE	sinr IE in TS 38.331 Sec 6	

397	9>A6 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave IE in TS 38.331 Sec 6</i>	
398	9>A6 Hysteresis	ELEMENT	FALSE	<i>hysteresis IE in TS 38.331 Sec 6</i>	
399	9>A6 Time to Trigger	ELEMENT	FALSE	<i>timeToTrigger IE in TS 38.331 Sec 6</i>	
400	9>Use White Cell List	ELEMENT	FALSE	<i>useWhiteCellList IE in TS 38.331 Sec 6</i>	
405	5>Report CGI	STRUCTURE			<i>ReportCGI IE in TS 38.331 Sec 6</i>
406	6>Cell to Report CGI	ELEMENT	TRUE	<i>physCellId IE in TS 38.331 Sec 6</i>	
411	5>Report SFTD – NR	STRUCTURE			<i>ReportSFTD-NR IE in TS 38.331 Sec 6</i>
412	6>Report SFTD – Measurement	ELEMENT	FALSE	<i>reportSFTD-Meas IE in TS 38.331 Sec 6</i>	
413	6>Report RSRP	ELEMENT	FALSE	<i>reportRSRP IE in TS 38.331 Sec 6</i>	
414	6>Report SFTD Neigh Meas	ELEMENT	FALSE	<i>reportSFTD-D-NeighMeas IE in TS 38.331 Sec 6</i>	
415	6>DRX SFTD Neigh Meas	ELEMENT	FALSE	<i>drx-SFTD-NeighMeas IE in TS 38.331 Sec 6</i>	
416	6>List of cells for which to report SFTD	LIST			<i>cellsForWhichToReportSFTD IE in TS 38.331 Sec 6</i>
417	7>Cell Item for reporting SFTD	STRUCTURE			
418	8>Physical Cell Identity	ELEMENT	TRUE	<i>physCellId IE in TS 38.331 Sec 6</i>	
421	3>Report Config Inter RAT	STRUCTURE			<i>ReportConfigInterRAT IE in TS 38.331 Sec 6</i>
422	4>CHOICE Report Type	STRUCTURE			<i>reportType IE in TS 38.331 Sec 6</i>
423	5>Periodical Report Config Inter RAT	STRUCTURE			<i>PeriodicalReportConfigInterRAT IE in TS 38.331 Sec 6</i>

431	6>Periodical Inter-RAT Report Interval	ELEMENT	FALSE	<i>reportInterval IE in TS 38.331 Sec 6</i>	
432	6>Periodical Inter-RAT Report Amount	ELEMENT	FALSE	<i>reportAmount IE in TS 38.331 Sec 6</i>	
435	6>Periodical Inter-RAT Report Quantity	STRUCTURE			<i>reportQuantity IE in TS 38.331 Sec 6</i>
436	7>Inter-RAT RSRP	ELEMENT	FALSE	<i>rsrp IE in TS 38.331 Sec 6</i>	
437	7>Inter-RAT RSRQ	ELEMENT	FALSE	<i>rsrq IE in TS 38.331 Sec 6</i>	
438	7>Inter-RAT SINR	ELEMENT	FALSE	<i>sirn IE in TS 38.331 Sec 6</i>	
439	6>Maximum number of cells for reporting	ELEMENT	FALSE	<i>maxReportCells IE in TS 38.331 Sec 6</i>	
441	5>Event Trigger Config Inter RAT	STRUCTURE			<i>EventTriggerConfigInterRAT IE in TS 38.331 Sec 6</i>
442	6>CHOICE Event ID	STRUCTURE			<i>eventId IE in TS 38.331 Sec 6</i>
451	7>Event B1	STRUCTURE			<i>eventB1 IE in TS 38.331 Sec 6</i>
452	8>B1 Threshold EUTRA	STRUCTURE			<i>b1-ThresholdEUTRA IE in TS 38.331 Sec 6</i>
453	9>E-UTRA RSRP	ELEMENT	FALSE	<i>RSRP-RangeEUTRA IE in TS 38.331 Sec 6</i>	
454	9>E-UTRA RSRQ	ELEMENT	FALSE	<i>RSRQ-RangeEUTRA IE in TS 38.331 Sec 6</i>	
455	9>E-UTRA SINR	ELEMENT	FALSE	<i>SINR-RangeEUTRA IE in TS 38.331 Sec 6</i>	
456	8>Event B1 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave IE in TS 38.331 Sec 6</i>	
457	8>E-UTRA Hysteresis	ELEMENT	FALSE	<i>hysteresis IE in TS 38.331 Sec 6</i>	
458	8>E-UTRA Time To Trigger	ELEMENT	FALSE	<i>timeToTrigger IE in TS 38.331 Sec 6</i>	
471	7>Event B2	STRUCTURE			<i>eventB2 IE in TS 38.331</i>

					Sec 6
472	8>B2 Threshold1 NR	STRUCTURE			<i>b2-Threshold1 IE in TS 38.331 Sec 6</i>
475	9>B2 Threshold1 NR RSRP	ELEMENT	FALSE	RSRP-Range IE in TS 38.331 Sec 6	
476	9>B2 Threshold1 NR RSRQ	ELEMENT	FALSE	RSRQ-Range IE in TS 38.331 Sec 6	
477	9>B2 Threshold1 NR SINR	ELEMENT	FALSE	SINR-Range IE in TS 38.331 Sec 6	
481	8>B2 Threshold2 E-UTRA	STRUCTURE			<i>b2-Threshold2E UTRA IE in TS 38.331 Sec 6</i>
482	9>B2 Threshold2 E-UTRA RSRP	ELEMENT	FALSE	RSRP-RangeEUTRA IE in TS 38.331 Sec 6	
483	9>B2 Threshold2 E-UTRA RSRQ	ELEMENT	FALSE	RSRQ-RangeEUTRA IE in TS 38.331 Sec 6	
484	9>B2 Threshold2 E-UTRA SINR	ELEMENT	FALSE	SINR-RangeEUTRA IE in TS 38.331 Sec 6	
491	6>Inter-RAT Reference Signal Type	ELEMENT	FALSE	<i>rsType IE in TS 38.331 Sec 6</i>	
492	6>Inter-RAT Report Interval	ELEMENT	FALSE	<i>reportInterval IE in TS 38.331 Sec 6</i>	
493	6>Inter-RAT Report Amount	ELEMENT	FALSE	<i>reportAmount IE in TS 38.331 Sec 6</i>	
501	6>Inter-RAT Report Quantity	STRUCTURE			<i>reportQuantity IE in TS 38.331 Sec 6</i>
502	7>Inter-RAT Report Quantity RSRP	ELEMENT	FALSE	<i>rsrp IE in TS 38.331 Sec 6</i>	
503	7>Inter-RAT Report Quantity RSRQ	ELEMENT	FALSE	<i>rsrq IE in TS 38.331 Sec 6</i>	
504	7>Inter-RAT Report Quantity SINR	ELEMENT	FALSE	<i>sirn IE in TS 38.331 Sec 6</i>	
510	6>Maximum number of cells to be reported	ELEMENT	FALSE	<i>maxReportCells IE in</i>	

				TS 38.331 Sec 6	
519	CHOICE NR SpCell RSRP Measurement Controlling	STRUCTURE			s-MeasureConfig IE in TS 38.331 Sec 6
520	1>SSB RSRP	ELEMENT	FALSE	ssb-RSRP IE in TS 38.331 Sec 6	
521	1>CSI RSRP	ELEMENT	FALSE	csi-RSRP IE in TS 38.331 Sec 6	
525	Quantity Config	STRUCTURE			QuantityConfig IE in TS 38.331 Sec 6
526	1>Quantity Config NR List	LIST			quantityConfigNR-List IE in TS 38.331 Sec 6
527	2>Quantity Config NR	STRUCTURE			quantityConfigNR IE in TS 38.331 Sec 6
528	3>Quantity Config NR Cell	STRUCTURE			quantityConfigCell IE in TS 38.331 Sec 6
529	4>SSB Filter Config	STRUCTURE			ssb-FilterConfig IE in TS 38.331 Sec 6
530	5>SSB Filter Coefficient RSRP	ELEMENT	FALSE	filterCoefficientRSRP IE in TS 38.331 Sec 6	
531	5>SSB Filter Coefficient RSRQ	ELEMENT	FALSE	filterCoefficientRSRQ IE in TS 38.331 Sec 6	
532	5>SSB Filter Coefficient RS-SINR	ELEMENT	FALSE	filterCoefficientRSINR IE in TS 38.331 Sec 6	
533	4>CSI RS Filter Config	STRUCTURE			csi-RS-FilterConfig IE in TS 38.331 Sec 6
534	5>CSI RS Filter Coefficient RSRP	ELEMENT	FALSE	filterCoefficientRSRP IE in TS 38.331 Sec 6	
535	5>CSI RS Filter Coefficient RSRQ	ELEMENT	FALSE	filterCoefficientRSRQ IE in TS 38.331 Sec 6	
536	5>CSI RS Filter Coefficient RS-SINR	ELEMENT	FALSE	filterCoefficientRSINR IE in TS 38.331 Sec 6	
541	1>Quantity Config E-UTRA	STRUCTURE			quantityConfigEUTRA IE in

					TS 38.331 Sec 6
542	2>E-UTRA Filter Coefficient RSRP	ELEMENT	FALSE	<i>filterCoefficientRSRP</i> IE in TS 38.331 Sec 6	
543	2>E-UTRA Filter Coefficient RSRQ	ELEMENT	FALSE	<i>filterCoefficientRSRQ</i> IE in TS 38.331 Sec 6	
544	2>E-UTRA Filter Coefficient RS-SINR	ELEMENT	FALSE	<i>filterCoefficientSINR</i> IE in TS 38.331 Sec 6	
551	Measurement Gap Config	STRUCTURE			<i>MeasGapConfig IE in TS</i> 38.331 Sec 6
552	1>Setup or Release Gap FR2	ELEMENT	FALSE	ENUMERATED (setup, release,...)	<i>SetupRelease IE in TS</i> 38.331 Sec 6
553	1>Gap FR2 to Setup	STRUCTURE			<i>gapFR2 IE in TS</i> 38.331 Sec 6
554	2>FR2 Gap Offset	ELEMENT	FALSE	<i>gapOffset IE in TS</i> 38.331 Sec 6	
555	2>FR2 Measurement Gap Length	ELEMENT	FALSE	<i>mg/IE in TS</i> 38.331 Sec 6	
556	2>FR2 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgRp IE in TS</i> 38.331 Sec 6	
557	2>FR2 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta IE in TS</i> 38.331 Sec 6	
558	2>FR2 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIndicator IE in TS</i> 38.331 Sec 6	
560	1>Setup or Release Gap FR1	ELEMENT	FALSE	ENUMERATED (setup, release,...)	<i>SetupRelease IE in TS</i> 38.331 Sec 6
561	1>Gap FR1 to Setup	STRUCTURE			<i>gapFR1 IE in TS</i> 38.331 Sec 6
562	2>FR1 Gap Offset	ELEMENT	FALSE	<i>gapOffset IE in TS</i> 38.331 Sec 6	
563	2>FR1 Measurement Gap Length	ELEMENT	FALSE	<i>mg/IE in TS</i> 38.331 Sec 6	
564	2>FR1 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgRp IE in TS</i> 38.331 Sec 6	
565	2>FR1 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta IE in TS</i> 38.331 Sec 6	
566	2>FR1 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIndicator IE</i>	

				<i>in TS 38.331 Sec 6</i>	
570	1>Setup or Release Gap UE	ELEMENT	FALSE	ENUMERATED (setup, release,...)	<i>SetupRelease IE in TS 38.331 Sec 6</i>
571	1>Gap UE to Setup	STRUCTURE			<i>gapUE IE in TS 38.331 Sec 6</i>
572	2>UE Gap Offset	ELEMENT	FALSE	<i>gapOffset IE in TS 38.331 Sec 6</i>	
573	2>UE Measurement Gap Length	ELEMENT	FALSE	<i>mgI IE in TS 38.331 Sec 6</i>	
574	2>UE Measurement Gap Reptition Period	ELEMENT	FALSE	<i>mgRp IE in TS 38.331 Sec 6</i>	
575	2>UE Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta IE in TS 38.331 Sec 6</i>	
576	2>UE Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCell Indicator IE in TS 38.331 Sec 6</i>	
581	Measurement Gap Sharing Config	STRUCTURE			<i>MeasGapSha ringConfig IE in TS 38.331 Sec 6</i>
582	1>Setup or Release Gap Sharing FR2	ELEMENT	FALSE	ENUMERATED(setup, release,...)	<i>SetupRelease IE in TS 38.331 Sec 6</i>
583	1>Gap Sharing FR2 for setup	ELEMENT	FALSE	<i>gapFR2 IE in TS 38.331 Sec 6</i>	
584	1>Setup or Release Gap Sharing FR1	ELEMENT	FALSE	ENUMERATED (setup,rele ase,...)	<i>SetupRelease IE in TS 38.331 Sec 6</i>
585	1>Gap Sharing FR1 for setup	ELEMENT	FALSE	<i>gapFR1 IE in TS 38.331 Sec 6</i>	
586	1>Setup or Release Gap Sharing UE	ELEMENT	FALSE	ENUMERATED (setup,rele ase,...)	<i>SetupRelease IE in TS 38.331 Sec 6</i>
587	1>Gap Sharing UE	ELEMENT	FALSE	<i>gapUE IE in TS 38.331 Sec 6</i>	

#### 8.4.10.3 Delete MR Configuration

Upon receiving the *RIC Control Request* message with the *Measurement Report Configuration Control* Service Style and the *Modify MR Configuration* control action, the E2 node shall invoke RRC procedures related to deletion of MR Configuration and include the IEs corresponding to one or more of parameters described below in the related interface or RRC messages.

In the case of UE group-based control action, the above RRC procedure(s) is invoked individually for each individual UE within the group.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of Measurement Objects to Remove	LIST			<i>measObjectToRemoveList IE in TS 38.331 Sec 6</i>
2	1>Measurement Object to Remove Item	STRUCTURE			<i>MeasObjectToRemove IE in TS 38.331 Sec 6</i>
3	2>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID IE in TS 38.331 Sec 6</i>	
4	List of Report Config Objects to Remove	LIST			<i>ReportConfigToRemoveList IE in TS 38.331 Sec 6</i>
5	1>Report Config Object to Remove Item	STRUCTURE			<i>ReportConfigToRemove IE in TS 38.331 Sec 6</i>
6	2>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID IE in TS 38.331 Sec 6</i>	
7	List of Measurement IDs to Remove	LIST			<i>measIdToRemoveList IE in TS 38.331 Sec 6</i>
8	1>Measurement ID Item to Remove	STRUCTURE			
9	2>Measurement ID	ELEMENT	TRUE	<i>MeasID IE in TS 38.331 Sec 6</i>	

#### 8.4.10.4 Control Outcome parameters

In the case of a UE-specific control action, upon processing the above RRC procedure (*RRCReconfiguration* message) with the control action parameters sent by the RIC, the E2 node shall report the call processing outcome to the RIC as a response to the control action based on the following parameters.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	List of Measurement Objects successfully added	LIST		0..1	<i>MeasObjectToAddModList IE in TS 38.331 Sec 6</i>
2	>Measurement Object successfully added Item	STRUCTURE		1..<maxMeas Objects>	<i>MeasObjectId IE in TS 38.331 Sec 6</i>
3	>>Measurement Object sequence ID	ELEMENT	TRUE	INTEGER (1..maxMeas Object,...)	This is the ID used by the RIC for the measurement object it seeks to add via the control service style
4	>>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID IE in TS</i>	This is the ID used by the E2 node for

				38.331 Sec 6	the measurement object for the UE via <i>RRCReconfiguration</i> message
11	List of Measurement Objects failed to be added	LIST		0..1	<i>MeasObjectToAddModList</i> IE in TS 38.331 Sec 6
12	>Measurement Object failed to be added Item	STRUCTURE		1..<maxMeas Objects>	<i>MeasObjectId</i> IE in TS 38.331 Sec 6
14	>>Measurement Object sequence ID	ELEMENT	TRUE	INTEGER (1..maxMeas Object,...)	This is the ID used by the RIC for the measurement object it seeks to add via the control service style
15	>>Addition failure cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
21	List of Measurement Objects successfully modified	LIST		0..1	<i>MeasObjectToAddModList</i> IE in TS 38.331 Sec 6
22	>Measurement Object successfully modified Item	STRUCTURE		1..<maxMeas Objects>	<i>MeasObjectId</i> IE in TS 38.331 Sec 6
24	>>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID</i> IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via <i>RRCReconfiguration</i> message
31	List of Measurement Objects failed to be modified	LIST		0..1	<i>MeasObjectToAddModList</i> IE in TS 38.331 Sec 6
32	>Measurement Object failed to be modified Item	STRUCTURE		1..<maxMeas Objects>	<i>MeasObjectId</i> IE in TS 38.331 Sec 6
34	>>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID</i> IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via <i>RRCReconfiguration</i>

					message
35	>>Modification Failure Cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
41	List of Measurement Objects successfully deleted	LIST		0..1	<i>MeasObjectToDeleteList IE in TS 38.331 Sec 6</i>
42	>Measurement Object successfully deleted Item	STRUCTURE		1..<maxMeasObjects>	<i>MeasObjectId IE in TS 38.331 Sec 6</i>
44	>>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID IE in TS 38.331 Sec 6</i>	This is the ID used by the E2 node for the measurement object for the UE via <i>RRCReconfiguration</i> message
51	List of Measurement Objects failed to be deleted	LIST		0..1	<i>MeasObjectToDeleteList IE in TS 38.331 Sec 6</i>
52	>Measurement Object failed to be deleted Item	STRUCTURE		1..<maxMeasObjects>	<i>MeasObjectId IE in TS 38.331 Sec 6</i>
54	>>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID IE in TS 38.331 Sec 6</i>	This is the ID used by the E2 node for the measurement object for the UE via <i>RRCReconfiguration</i> message
55	>>Delete Failure Cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
61	List of Report Config Objects successfully added	LIST		0..1	<i>ReportConfigToAddModList IE in TS 38.331 Sec 6</i>
62	>Report Config Object successfully added Item	STRUCTURE		1..<maxReportConfigObjects>	<i>maxReportConfigId IE in TS 38.331 Sec 6</i>
63	>>Report Config Object sequence ID	ELEMENT	TRUE	INTEGER (1..maxReportConfigObjects,...)	This is the ID used by the RIC for the report config object it seeks to add via the control service style

64	>>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID</i> IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the report config object for the UE via <i>RRCReconfiguration</i> message
71	List of Report Config Objects failed to be added	LIST		0..1	<i>ReportConfigToAddModList</i> IE in TS 38.331 Sec 6
72	>Report Config Object failed to be added Item	STRUCTURE		1..< <i>maxReportConfigObject</i> >	<i>maxReportConfigId</i> IE in TS 38.331 Sec 6
74	>>Report Config Object sequence ID	ELEMENT	TRUE	INTEGER (1.. <i>maxReportConfigObject</i> ,...)	This is the ID used by the RIC for the report config object it attempts to add via the control service style
75	>>Addition failure cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
81	List of Report Config Objects successfully modified	LIST		0..1	<i>ReportConfigToAddModList</i> IE in TS 38.331 Sec 6
82	>Report Config Object successfully modified Item	STRUCTURE		1..< <i>maxReportConfigObject</i> >	<i>maxReportConfigId</i> IE in TS 38.331 Sec 6
84	>>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID</i> IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the report config object for the UE via <i>RRCReconfiguration</i> message
91	List of Report Config Objects failed to be modified	LIST		0..1	<i>ReportConfigToAddModList</i> IE in TS 38.331 Sec 6
92	>Report Config Object failed to be modified Item	STRUCTURE		1..< <i>maxReportConfigObject</i> >	<i>maxReportConfigId</i> IE in TS 38.331 Sec 6
94	>>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID</i> IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the report config object for the UE via <i>RRCReconfig</i>

					uration message
95	>>Modification Failure Cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
101	List of Report Config Objects successfully deleted	LIST		0..1	<i>ReportConfigToDeleteList IE in TS 38.331 Sec 6</i>
102	>Report Config Object successfully deleted Item	STRUCTURE		1..<maxReportConfigObject>	<i>maxReportConfigId IE in TS 38.331 Sec 6</i>
104	>>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID IE in TS 38.331 Sec 6</i>	This is the ID used by the E2 node for the report config object for the UE via <i>RRCReconfiguration</i> message
111	List of Report Config Objects failed to be deleted	LIST		0..1	<i>ReportConfigToDeleteList IE in TS 38.331 Sec 6</i>
112	>Report Config Object failed to be deleted Item	STRUCTURE		1..<maxReportConfigObject>	<i>maxReportConfigId IE in TS 38.331 Sec 6</i>
114	>>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID IE in TS 38.331 Sec 6</i>	This is the ID used by the E2 node for the report config object for the UE via <i>RRCReconfiguration</i> message
115	>>Delete Failure Cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
116	List of Measurement IDs successfully added	LIST		0..1	<i>MeasIdToAddModList IE in TS 38.331 Sec 6</i>
117	>Measurement ID successfully added Item	STRUCTURE		1..<maxMeasId>	<i>maxNrofMeasId IE in TS 38.331 Sec 6</i>
118	>>Measurement ID	ELEMENT	TRUE	<i>MeasId IE in TS 38.331 Sec 6</i>	
119	>>Measurement Object ID	ELEMENT	TRUE	<i>MeasObjectID IE in TS 38.331 Sec 6</i>	
120	>>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID IE in TS</i>	

				38.331 Sec 6	
125	List of Measurement IDs successfully removed	LIST		0..1	<i>measIdToRemoveList IE in TS 38.331 Sec 6</i>
126	>Measurement ID successfully removed Item	STRUCTURE		1..<maxMeasID>	<i>maxNrofMeasId IE in TS 38.331 Sec 6</i>
127	>>Measurement ID	ELEMENT	TRUE	<i>MeasId IE in TS 38.331 Sec 6</i>	
129	List of Measurement IDs failed to be removed	LIST		0..1	<i>measIdToRemoveList IE in TS 38.331 Sec 6</i>
130	>Measurement ID failed to be removed Item	STRUCTURE		1..<maxMeasID>	<i>maxNrofMeasId IE in TS 38.331 Sec 6</i>
131	>>Measurement ID	ELEMENT	TRUE	<i>MeasId IE in TS 38.331 Sec 6</i>	
132	>>Removal failure Cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
135	Received Timestamp	ELEMENT	FALSE	OCTET STRING (SIZE(8))	Time RIC Control Request message received by RAN Function over E2 interface.  Carries UTC time encoded as the 64-bit timestamp format as defined in Clause 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

Range bound	Explanation
maxMeasObjects	Maximum no. of measurement objects supported by the RAN function. The value is <64>.
maxReportConfigObjects	Maximum no. of report configuration objects supported by the RAN function. The value is <64>.
maxMeasID	Maximum no. of measurement IDs supported by the RAN function. The value is <64>

## 8.4.11 Beamforming Configuration Control

### 8.4.11.1 Non-GoB BF Mode Configuration

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	MIMO Mode Index	ELEMENT	TRUE	INTEGER (1..2, ...)	Value = 1 means the SU (single-user) MIMO mode. Value 2 means the MU (multi-user) MIMO mode.
2	Non-GoB Beamforming Mode Index	ELEMENT	FALSE	INTEGER (0.. 65535, ...)	The index is used for Non- Grid of Beams (Non-GoB) beamforming optimization for 5G mMIMO deployments [32]. Each BF mode implies a vendor-specific proprietary Non-GoB BF algorithm that are not standardized [33], for which each E2 Node, who supports the Non-GoB beamforming optimization feature, provides the number of different Non-GoB BF mode(s) supported by its scheduler indexed from 1 to n. The AI/ML model for Non-GoB beamforming optimization is trained by data and measurements related to each BF mode and/or MIMO mode, for which the trained AI/ML model, based on collected data, configures the E2 Node with the best inferred Non-GoB BF mode index to be used for each UE, where such configuration could be done separately for the case of Single User- and/or Multi-user MIMO [32]. The Value = 0 means release of Non-GoB BF mode for the UE of subject.

Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to configuring the Non-GoB MIMO beamforming mode index of the UE given by the value of the *Non-GoB Beamforming Mode Index* IE, possibly based on the MIMO mode chosen for the UE by the scheduler by the *MIMO Mode Index* IE. The recommended value of the Non-GoB beamforming mode index for the UE by the Near-RT RIC, along with the

corresponding MIMO mode index given by the *MIMO Mode Index* IE if configured, is saved by the E2 node. If and when the MAC scheduler configures the UE and in the MIMO mode indicated by the *MIMO Mode Index* IE if configured, then the scheduler shall use the *Non-GoB Beamforming Mode Index* IE recommended by the Near-RT RIC (that is saved in the E2 node).

### 8.4.11.2 GoB BF Configuration

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	RI-LI-PMI config	STRUCTURE	TRUE		Precoding Matrix Indicator (PMI), Rank Indicator (RI), Layer Indicator (LI) in TS 38.214 [36] Clause 5.2.2.2. The AI/ML model for CSI-RS and DMRS optimization infers the best PMI, RI, LI to be used for each UE [32].
2	> RI	ELEMENT	TRUE	INTEGER (0,...,8)	RI in TS 38.214 [36] Clause 5.2.2.2. The value=0 means RI-PMI reporting is not supported for the UE of interest.
3	> LI	ELEMENT	TRUE	INTEGER (0,...,8)	LI in TS 38.214 [36] Clause 5.2.2.2. The value=0 means LI-reporting is not supported for the UE of interest.
4	> i1	STRUCTURE	TRUE		PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
5	>> i11	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
6	>> i12	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
7	>> i13	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
8	>> i131	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
9	>> i132	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
10	>> i14	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
11	>> i141	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
12	>> i142	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
13	>> i143	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
14	>> i15	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
15	>> i161	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
16	>> i162	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.

17	>> i171	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
18	>> i172	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
19	>> i173	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
20	>> i174	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
21	>> i181	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
22	>> i182	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
23	>> i183	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
24	>> i184	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
25	> i2	STRUCTURE	TRUE		PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
26	>> i20	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
27	>> i21	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
28	>> i211	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
29	>> i212	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
30	>> i22	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
31	>> i221	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
32	>> i222	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
33	>> i231	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
34	>> i232	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
35	>> i233	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
36	>> i234	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
37	>> i241	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
38	>> i242	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
39	>> i243	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS

					38.214 [36] Clause 5.2.2.
40	>> i244	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.
41	>> i251	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.
42	>> i252	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.
43	>> i253	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.
44	>> i254	ELEMENT	TRUE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.
45	> Subband Index	ELEMENT	TRUE	INTEGER (0,...,19)	Subband index for PMI reporting in TS 38.214 [36] Clause 5.2.1.4. The value=0 means Subband PMI reporting is not supported for the UE of interest.
46	P-2 Beam Index	ELEMENT	TRUE	INTEGER (0,...,256)	P-2 beam index in TS 38.912 [37] Clause 8.2.1.6.1. The AI/ML model for CSI-RS and DMRS optimization infers the best P-2 beam index to be used for each UE [32]. The value=0 means P-2-beam management is not supported for the UE of interest.

Upon receiving the RIC Control Request message, the E2 node shall invoke procedures related to configuring the GoB MIMO beamforming configuration of the UE given by the value of the RI-LI-PMI config or the P-2 Beam Index IE. In order to generate the precoding matrix from the values in RI-LI-PMI config, the E2 node shall combine the values in RI, i1 and i2 with the Codebook configuration parameters (e.g., Type I, Type II etc.) as described in TS 38.214 [36] Clause 5.2.2.2. The recommended value of the GoB beamforming configuration for the UE by the Near-RT RIC is saved by the E2 node. When the MAC scheduler configures the UE, the scheduler shall use the RI-LI-PMI config or the P-2 Beam Index IE recommended by the Near-RT RIC (that is saved in the E2 node).

## 8.5 RAN parameters for POLICY services

### 8.5.1 Approach

The RAN parameters associated with each policy action being controlled by Near-RT RIC described in Clause 7.7 are listed.

There are two types of E2 policies:

- i) **Control action policy:** In this type, the Near-RT RIC tells the E2 node on the specific per-UE control action that needs to be performed, upon meeting a given policy condition for a given UE or a group of UEs, for a given cell and/or for a given E2 node. This policy type is descriptive in nature. The control action is defined with respect to individual UEs and UE-specific bearers, flows, PDU sessions, etc.
- ii) **Offset based policy:** In this type, the Near-RT RIC offers a generic prescriptive guidance to the E2 node on how it shall deviate from default behavior via the application of offset parameters provided in the *Policy Action* IE.

Different *Policy Action* IEs are associated with different *Policy Condition ID* IEs and *Policy Condition* IEs are described in terms of UE and E2 Node characteristics. As defined in Clause 6.6.3, offset parameters are to be applied to default parameters according to the following rules:

- INTEGER and REAL default parameters: Offset parameter have the same data type as default parameter and is added to default parameter with positive offset parameter values increasing default value and negative offset parameter values decreasing default value. That is, policy modifies the target call process such that:  
Value to be applied = (Default Parameter) + (Offset Parameter)
- ENUMERATED parameters: Offset parameter are of data type INTEGER and are used to select a different item in the ENUMERATED list, positive offset parameter values used to select items that are further on in the list, zero offset parameter values used to select the default value, negative offset parameter values used to select items that are earlier on in the list. When and if the offset parameter value results in the selection of an item in the ENUMERATED list that exceeds the ENUMERATED list length then the last item in the list is selected. When and if the offset parameter value results in the selection of an item in the ENUMERATED list that prior to the first item in the ENUMERATED list then the first item in the list is selected. That is, policy modifies the target call process such that:  
ENUMERATED List index = MIN [List length-1, MAX [0, (Default Parameter) + (Offset Parameter)] ]

### 8.5.1A Common RAN Parameters for POLICY services

The common set of RAN Parameters that can be used across all POLICY service styles is given in the table below.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
5001	Measurement Object	ELEMENT	FALSE	ENUMERATED (UE, E2 Node,...)	If the value is <i>UE</i> , then the rest of the ensuing parameters related to PMs have UE-specific values for the UE ID. Else if the value is E2 Node, then the rest of the parameters shall have node-specific measurements
5002	gNB DU Measurements	STRUCTURE			
	>UE Throughput Measurements			Refer to <b>gNB DU Measurements structure in Clause 8.1.1.14</b>	
	>Packet level measurements				
	>Packet delay measurements				
5011	gNB CU-UP Measurements	STRUCTURE			
	>PDCP data volume measurement			Refer to <b>gNB CU-UP Measurements structure in Clause 8.1.1.13</b>	
	>Packet delay measurements				
5021	gNB CU-CP Measurements	STRUCTURE			
	>Inter-gNB handovers			Refer to <b>gNB CU-CP Measurements structure in Clause 8.1.1.12</b>	
	>Intra-gNB handovers				
	>RRC connection related measurements				
	>QoS flow-related measurements				
	>DRB related measurements				
	>PDU Session Management				
	>Inter-system mobility measurements between 5GS and EPS				

In addition to using the above RAN Parameters, POLICY conditions may also use RAN parameters defined in Clause 8.1 for *RIC Event Trigger Definition IE*.

## 8.5.2 Radio Bearer Policy

### 8.5.2.0 Common RAN Parameters for Radio Bearer Policy

The RAN Parameters pertaining to POLICY Conditions for the “Radio Bearer Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
501	DRB related measurements	Refer to <i>gNB CU-CP Measurements structure in Clause 8.1.1.12 where these parameters are defined.</i>			
502	List of QoS levels				
503	>QoS level item				
504	>>CHOICE QoS level				
505	>>>5QI				
506	>>>S-NSSAI				
507	>>>>SST				
508	>>>>SD				
509	>>Number of DRBs successfully setup per QoS level				
510	Total number of DRBs successfully setup for UE	ELEMENT	FALSE	INTEGER (0..64)	Total number of DRBs across all QoS levels for a UE. Maximum 64 DRBs can be setup for a UE. Refer to TS 38.473 [19] Clause 9.2.2.1
511	UE DL Aggregate Maximum Bit Rate	ELEMENT	FALSE	UE Aggregate Maximum Bit Rate Downlink IE in TS 36.423 [17] clause 9.2.12	
512	gNB CU-UP capacity	Refer to <i>E2 Node structure in Clause 8.1.1.11 where these parameters are defined</i>			

In addition to using the above RAN Parameters for POLICY conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

### 8.5.2.1 DRB QoS Configuration

#### 8.5.2.1.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.2.1.

#### 8.5.2.1.2 Offset

Editor's Note: FFS

### 8.5.2.2 QoS flow mapping configuration

#### 8.5.2.2.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.2.2.

#### 8.5.2.2.2 Offset

Editor's Note: FFS

### 8.5.2.3 Logical channel configuration

#### 8.5.2.3.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.2.3.

### 8.5.2.3.2 Offset

**Editor's Note:** FFS

### 8.5.2.4 Radio Bearer Admission Control

#### 8.5.2.4.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.2.4.

#### 8.5.2.4.2 Offset

### 8.5.2.5 DRB Termination Control

#### 8.5.2.5.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.2.5.

#### 8.5.2.5.2 Offset

**Editor's Note:** FFS

### 8.5.2.6 DRB Split Ratio Control

#### 8.5.2.6.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.2.6.

#### 8.5.2.6.2 Offset

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
101	Uplink PDCP Data Split Threshold offset	ELEMENT	FALSE	INTEGER	<i>UL Data Split Threshold IE in TS 37.483 [21] Clause 9.3.1.43</i>
102	Downlink PDCP Data Split	ELEMENT	FALSE	INTEGER	<i>Downlink PDCP Data Split IE in 8.4.2.6</i>

### 8.5.2.7 PDCP Duplication Control

#### 8.5.2.7.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.2.7.

#### 8.5.2.7.2 Offset

**Editor's Note:** FFS

### 8.5.3 Radio Resource Allocation Policy

#### 8.5.3.0 Common RAN Parameters for Radio Resource Allocation Policy

The RAN Parameters pertaining to POLICY Conditions for the “Radio Resource Allocation Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
501	SPS Config	STRUCTURE			<i>SPS-Config IE in TS 38.331 [22]</i>
502	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-Processes IE in TS 38.331 [22]</i>	
503	Grant Configuration	STRUCTURE			<i>ConfiguredGrantConfig IE in TS 38.331 [22]</i>
504	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-Processes IE in TS 38.331 [22]</i>	
505	PDSCH Serving Cell Config Setup	STRUCTURE			<i>PDSCH-ServingCellConfig IE in TS 38.331 [22]</i>
506	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-ProcessesForPDSCH IE in TS 38.331 [22]</i>	

In addition to using the above RAN Parameters for Policy conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

### 8.5.3.1 DRX Parameter Configuration

#### 8.5.3.1.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.3.1.

#### 8.5.3.1.2 Offset

Editor's Note: FFS

### 8.5.3.2 Scheduling Request Parameter Configuration

#### 8.5.3.2.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.3.2.

#### 8.5.3.2.2 Offset

Editor's Note: FFS

### 8.5.3.3 Semi-Persistent Scheduling Parameter Configuration

#### 8.5.3.3.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.3.3.

#### 8.5.3.3.2 Offset

Editor's Note: FFS

### 8.5.3.4 Configured Grant Configuration

#### 8.5.3.4.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.3.4.

#### 8.5.3.4.2 Offset

Editor's Note: FFS

### 8.5.3.5 CQI table configuration

#### 8.5.3.5.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.3.5.

#### 8.5.3.5.2 Offset

Editor's Note: FFS

### 8.5.3.6 Slice-level PRB quota

#### 8.5.3.6.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.3.6.

#### 8.5.3.6.2 Offset

Editor's Note: FFS

### 8.5.4 Connected Mode Mobility Policy

#### 8.5.4.0 Common RAN Parameters for Connected Mode Mobility Policy

The RAN Parameters pertaining to POLICY Conditions for the “Connected Mode Mobility Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key flag	RAN Parameter Definition
501	List of Serving Cells	LIST		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
502	>Serving Cell Item	STRUCTURE		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
503	>>CHOICE Cell Type	STRUCTURE		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
504	>>>NR Cell	STRUCTURE		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined
505	>>>NR CGI	ELEMENT	TRUE	Refer to <i>NR Cell</i> structure in 8.1.1.1 where this parameter is defined
506	>>>NR PCI	ELEMENT	FALSE	Refer to <i>NR Cell</i> structure in 8.1.1.1 where this parameter is defined
507	>>>PLMN Identity	ELEMENT	FALSE	Refer to <i>NR Cell</i> structure in 8.1.1.1 where this parameter is defined
508	>>>Reported NR RRC Measurements	STRUCTURE		Refer to <i>Reported NR RRC Measurements</i> in 8.1.1.1 where this parameter is defined
509	>>>>Cell Results	STRUCTURE		Refer to <i>Cell Results</i> structure in 8.1.1.1 where this parameter is defined
510	>>>>>SSB Results	STRUCTURE		Refer to <i>SSB Results</i> structure in 8.1.1.1 where this parameter is defined
511	>>>>>CSI-RS Results	STRUCTURE		Refer to <i>CSI-RS Results</i> structure in 8.1.1.1 where this parameter is defined
512	>>>E-UTRA Cell	STRUCTURE		Refer to <i>E-UTRA Cell</i> structure in 8.1.1.2 where this parameter is defined
513	>>>ECGI	ELEMENT	TRUE	Refer to <i>E-UTRA Cell</i> structure in 8.1.1.2 where this parameter is defined
514	>>>PCI	ELEMENT	FALSE	Refer to <i>E-UTRA Cell</i> structure in 8.1.1.2 where this parameter is defined
515	>>>PLMN Identity	ELEMENT	FALSE	Refer to <i>E-UTRA Cell</i> structure in 8.1.1.2 where this parameter is defined
516	>>>Reported LTE RRC Measurements	STRUCTURE		Refer to <i>Reported LTE RRC Measurements</i> in 8.1.1.2 where this parameter is defined
521	List of Neighbouring Cells	LIST		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
522	>Neighbouring Cell Item	STRUCTURE		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
523	>>CHOICE Cell Type	STRUCTURE		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
524	>>>NR Cell	STRUCTURE		Refer to <i>NR Cell</i> structure in 8.1.1.12 where this parameter is defined
525	>>>NR CGI	ELEMENT	TRUE	Refer to <i>NR Cell</i> structure in 8.1.1.12 where this parameter is defined
526	>>>NR PCI	ELEMENT	FALSE	Refer to <i>NR Cell</i> structure in 8.1.1.12 where this parameter is defined
527	>>>PLMN Identity	ELEMENT	FALSE	Refer to <i>NR Cell</i> structure in 8.1.1.12 where this parameter is defined
528	>>>Reported NR RRC Measurements	STRUCTURE		Refer to <i>Reported NR RRC Measurements</i> in 8.1.1.1 where this parameter is defined
529	>>>>Cell Results	STRUCTURE		Refer to <i>Cell Results</i> structure in 8.1.1.1 where this parameter is defined
530	>>>>>SSB Results	STRUCTURE		Refer to <i>SSB Results</i> structure in 8.1.1.1 where this parameter is defined
531	>>>>>CSI-RS Results	STRUCTURE		Refer to <i>CSI-RS Results</i> structure in 8.1.1.1 where this parameter is defined
532	>>>E-UTRA Cell	STRUCTURE		Refer to <i>E-UTRA Cell</i> structure in 8.1.1.2 where this parameter is defined
533	>>>ECGI	STRUCTURE		Refer to <i>E-UTRA Cell</i> structure in 8.1.1.2 where this parameter is defined
534	>>>PCI	STRUCTURE		Refer to <i>E-UTRA Cell</i> structure in 8.1.1.2 where this parameter is defined

535	>>>PLMN Identity	ELEMENT	FALSE	Refer to <i>E-UTRA Cell</i> structure in 8.1.1.11 where this parameter is defined
536	>>>Reported LTE RRC Measurements	STRUCTURE		Refer to <i>Reported LTE RRC Measurements</i> in 8.1.1.2 where this parameter is defined
541	gNB Handover measurements	STRUCTURE		
542	>Inter-gNB handover measurements	STRUCTURE		Refer to <i>Inter-gNB Handovers</i> structure in 8.1.1.12 where this parameter is defined
543	>Intra-gNB handover measurements	STRUCTURE		Refer to <i>Intra-gNB Handovers</i> structure in 8.1.1.12 where this parameter is defined
544	>Inter-system mobility measurements	STRUCTURE		Refer to <i>Inter-system mobility measurements between 5GS and EPS</i> structure in 8.1.1.12 where this parameter is defined
545	NR Composite Available Capacity Group	STRUCTURE		Refer to <i>Composite Available Capacity Group</i> in 8.1.1.1 where this parameter is defined
546	E-UTRA Composite Available Capacity Group	STRUCTURE		Refer to <i>Composite Available Capacity Group</i> in 8.1.1.2 where this parameter is defined

In addition to using the above RAN Parameters for Policy conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

### 8.5.4.1 Handover Control

#### 8.5.4.1.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.4.1.

#### 8.5.4.1.2 Offset

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
101	A1 Event Threshold offset	STRUCTURE			<i>EventA1 IE in 8.1.1.10</i>
102	>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values, i.e. RSRP threshold to be used is default RSRP+RSRP Offset
103	>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values, i.e. RSRP threshold to be used is default RSRQ+RSRQ Offset
104	>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values, i.e. RSRP threshold to be used is default SINR+SINR Offset
105	>Hysteresis	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
111	A2 Event Threshold offset	STRUCTURE			<i>EventA2 IE in 8.1.1.10</i>
112	>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
113	>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
114	>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
115	>Hysteresis	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
121	A3 Event Threshold offset	STRUCTURE			<i>EventA3 IE in 8.1.1.10</i>
122	>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
123	>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
124	>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
125	>Hysteresis	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
131	A4 Event Threshold offset	STRUCTURE			<i>EventA4 IE in 8.1.1.10</i>
132	>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
133	>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
134	>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
135	>Hysteresis	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
140	A5 Event Threshold offset	STRUCTURE			<i>EventA5 IE in 8.1.1.10</i>
141	>A5-Threshold1 offset	STRUCTURE			<i>EventA5 IE in 8.1.1.10</i>
142	>>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
143	>>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
144	>>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
145	>>Hysteresis	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
146	>A5-Threshold2 offset	STRUCTURE			<i>EventA5 IE in 8.1.1.10</i>
147	>>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
148	>>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to

					default values,
149	>>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
150	>>Hysteresis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
151	A6 Event Threshold Offset	STRUCTURE			<i>EventA6 IE in 8.1.1.10</i>
152	>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
153	>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
154	>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
155	>Hysteresis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
161	B1 Event Threshold Offset	STRUCTURE			<i>EventB1 IE in 8.1.1.10</i>
162	>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
163	>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
164	>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
165	>Hysteresis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
170	B2 Event Threshold offset	STRUCTURE			<i>EventB2 IE in 8.1.1.10</i>
171	>B2-Threshold-NR offset	STRUCTURE			<i>EventB2 IE in 8.1.1.10</i>
172	>>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
173	>>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
174	>>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
175	>>Hystersis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
176	>B2-Threshold-EUTRA offset	STRUCTURE			<i>EventB2 IE in 8.1.1.10</i>
177	>>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
178	>>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
179	>>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
180	>>Hysteresis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,

### 8.5.4.2 Conditional Handover Control

#### 8.5.4.2.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.4.2.

#### 8.5.4.2.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.5.4.1.2.

### 8.5.4.3 DAPS Handover Control

#### 8.5.4.3.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.4.3.

#### 8.5.4.3.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.5.4.1.2.

## 8.5.5 Radio Access Policy

### 8.5.5.0 Common RAN Parameters for Radio Access Policy

The RAN Parameters pertaining to POLICY Conditions for the “Radio Access Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key flag	Parameter description
501	E2 Node	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11
502	>CHOICE E2 Node Component Type	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
503	>>NG-RAN gNB DU	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
504	>>>gNB DU Measurements	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
505	>>>List of NR cells	LIST		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
506	>>>>NR Cell Item	STRUCTURE		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
507	>>>>Radio Resource Utilization	STRUCTURE		Refer to <i>Radio Resource Utilization</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of PRB usage.
508	>>>>Number of active UE measurements	STRUCTURE		Refer to <i>Number of active UE measurements</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of number of active UEs.
509	>>>>Slice Available Capacity List	STRUCTURE		Refer to <i>Slice Available Capacity List</i> in 8.1.1.1
511	>>NG-RAN gNB CU-CP	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
512	>>>RRC connection related measurements	STRUCTURE		Refer to <i>gNB CU-CP Measurements</i> structure in 8.1.1.12 where this parameter is defined
521	>>NG-RAN gNB	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
522	>>>gNB DU Measurements	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
523	>>>List of NR cells	LIST		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
524	>>>>NR Cell Item	STRUCTURE		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
525	>>>>Radio Resource Utilization	STRUCTURE		Refer to <i>Radio Resource Utilization</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of PRB usage.
526	>>>>Number of active UE measurements	STRUCTURE		Refer to <i>Number of active UE measurements</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of number of active UEs.
527	>>>>Slice Available Capacity List	STRUCTURE		Refer to <i>Slice Available Capacity List</i> in 8.1.1.1
531	>>>gNB CU-CP Measurements	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
532	>>>>RRC connection related measurements	STRUCTURE		Refer to <i>gNB CU-CP Measurements</i> structure in 8.1.1.12 where this parameter is defined

In addition to using the above RAN Parameters for Policy conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

### 8.5.5.1 UE admission control request

#### 8.5.5.1.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.5.1.

#### 8.5.5.1.2 Offset

Editor's Note: FFS

### 8.5.5.2 RACH backoff control request

#### 8.5.5.2.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.5.2.

#### 8.5.5.2.2 Offset

Editor's Note: FFS

### 8.5.5.3 Access barring control request

#### 8.5.5.3.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.5.3.

#### 8.5.5.3.2 Offset

Editor's Note: FFS

### 8.5.5.4 RRC Connection Release request

#### 8.5.5.4.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.5.3.

#### 8.5.5.4.2 Offset

Editor's Note: FFS

### 8.5.5.5 RRC Connection Reject request

#### 8.5.5.5.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.5.3.

#### 8.5.5.5.2 Offset

Editor's Note: FFS

## 8.5.6 Dual Connectivity Policy

### 8.5.6.0 Common RAN Parameters for Dual Connectivity Policy

The RAN Parameters pertaining to POLICY Conditions for the “Dual Connectivity Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key flag	Parameter description
501	Target Secondary Node	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11
502	>CHOICE E2 Node Component Type	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
503	>>NG-RAN gNB DU	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
504	>>>gNB DU Measurements	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
505	>>>List of NR cells	LIST		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
506	>>>>NR Cell Item	STRUCTURE		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
507	>>>>Radio Resource Utilization	STRUCTURE		Refer to <i>Radio Resource Utilization</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of PRB usage.
508	>>>>Number of active UE measurements	STRUCTURE		Refer to <i>Number of active UE measurements</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of number of active UEs.
509	>>>>Slice Available Capacity List	STRUCTURE		Refer to <i>Slice Available Capacity List</i> in 8.1.1.1
510	>>>List of logical channels	LIST		
511	>>>>Logical Channel Item	STRUCTURE		
512	>>>>Buffer Occupancy	ELEMENT	FALSE	Refer to <i>L2 MAC State Variables</i> structure in 8.1.1.4 where this parameter is defined.
511	>>NG-RAN gNB CU-CP	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
512	>>RRC connection related measurements	STRUCTURE		Refer to <i>gNB CU-CP Measurements</i> structure in 8.1.1.12 where this parameter is defined
521	>>NG-RAN gNB	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
522	>>>gNB DU Measurements	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
523	>>>List of NR cells	LIST		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
524	>>>>NR Cell Item	STRUCTURE		Refer to <i>gNB DU Measurements</i> structure in 8.1.1.14 where this parameter is defined
525	>>>>Radio Resource Utilization	STRUCTURE		Refer to <i>Radio Resource Utilization</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of PRB usage.
526	>>>>Number of active UE measurements	STRUCTURE		Refer to <i>Number of active UE measurements</i> structure in 8.1.1.14 where this parameter is defined. This has load measurements in terms of number of active UEs.
527	>>>>Slice Available Capacity List	STRUCTURE		Refer to <i>Slice Available Capacity List</i> in 8.1.1.1
528	>>>List of logical channels	LIST		Buffer Occupancy (BO) in number of bytes as defined in TS 25.321 [27] clause 8.2.2(c).LCID indicates logical channel ID.

529	>>>Logical Channel Item	STRUCTURE		Buffer Occupancy (BO) in number of bytes as defined in TS 25.321 [27] clause 8.2.2(c).LCID indicates logical channel ID.
530	>>>>Buffer Occupancy	ELEMENT	FALSE	Refer to <i>L2 MAC State Variables</i> structure in 8.1.1.4 where this parameter is defined.
531	>>>gNB CU-CP Measurements	STRUCTURE		Refer to <i>E2 Node</i> structure in 8.1.1.11 where this parameter is defined
532	>>>RRC connection related measurements	STRUCTURE		Refer to <i>gNB CU-CP Measurements</i> structure in 8.1.1.12 where this parameter is defined

In addition to using the above RAN Parameters for Policy conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

### 8.5.6.1 DC Secondary Node Addition Control

#### 8.5.6.1.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.6.1.

#### 8.5.6.1.2 Offset

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
161	B1 Event Threshold Offset	STRUCTURE			<i>EventB1 IE</i> in 8.1.1.10
162	>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
163	>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
164	>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
165	>Hysteresis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
170	B2 Event Threshold offset	STRUCTURE			<i>EventB2 IE</i> in 8.1.1.10
171	>B2-Threshold-NR offset	STRUCTURE			<i>EventB2 IE</i> in 8.1.1.10
172	>>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
173	>>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
174	>>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
175	>>Hysteresis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
176	>B2-Threshold-EUTRA offset	STRUCTURE			<i>EventB2 IE</i> in 8.1.1.10
177	>>RSRP Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
178	>>RSRQ Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
179	>>SINR Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,
180	>>Hysteresis Offset	ELEMENT	FALSE	INTEGER	Offsets to be applied to default values,

## 8.5.6.2 DC Secondary Node Modification Control

### 8.5.6.2.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.6.2.

### 8.5.6.2.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.5.4.1.2.

## 8.5.6.3 PSCell Change cell for Secondary Cell Group

### 8.5.6.3.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.6.3.

### 8.5.6.3.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.5.4.1.2.

## 8.5.6.4 DC Secondary Node Change Control

### 8.5.6.4.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.6.4.

### 8.5.6.4.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.5.4.1.2.

## 8.5.7 Carrier Aggregation Policy

### 8.5.7.0 Common RAN Parameters for Carrier Aggregation Policy

The RAN Parameters pertaining to POLICY Conditions for the “Carrier Aggregation Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key flag	Parameter description
501	List of secondary cells setup	LIST		<i>Scell To Be Setup List IE</i> in TS 38.473 [19] clause 9.2.2.1
502	>Secondary cell setup Item	STRUCTURE		<i>Scell To Be Setup Item IEs IE</i> in TS 38.473 [19] clause 9.2.2.1
503	>>CHOICE Secondary cell	STRUCTURE		
504	>>>NR SCell	STRUCTURE		8.1.1.1
505	>>>>PM Measurements	STRUCTURE		Refer to <i>PM Measurements</i> structure in 8.1.1.1
506	>>>>Radio Resource Status	STRUCTURE		Refer to <i>Radio Resource Utilization</i> structure in 8.1.1.1 where this parameter is defined. This has load measurements in terms of PRB usage.
507	>>>>Number of active UEs in the cell	ELEMENT	FALSE	Refer to <i>Number of active UE measurements</i> structure in 8.1.1.1 where this parameter is defined. This has load measurements in terms of number of active UEs.
508	>>>>Composite available capacity group	STRUCTURE		Refer to <i>Composite Available Capacity Group</i> structure in 8.1.1.1
509	>>>>Slice available capacity list	STRUCTURE		Refer to <i>Slice Available Capacity List</i> in 8.1.1.1
511	>>>E-UTRA SCell	STRUCTURE		8.1.1.2
512	>>>>PM Measurements	STRUCTURE		Refer to <i>PM Measurements</i> structure in 8.1.1.2
513	>>>>Radio Resource Status	STRUCTURE		Refer to <i>Radio Resource Utilization</i> structure in 8.1.1.2 where this parameter is defined. This has load measurements in terms of PRB usage.
514	>>>>Composite Available capacity group	STRUCTURE		Refer to <i>Composite Available Capacity Group</i> structure in 8.1.1.2
515	>>>>Number of active UEs in the cell	ELEMENT	FALSE	Refer to <i>Number of active UE measurements</i> structure in 8.1.1.12 where this parameter is defined. This has load measurements in terms of number of active UEs.
516	List of logical channels	LIST		Buffer Occupancy (BO) in number of bytes as defined in TS 25.321 [27] clause 8.2.2(c).LCID indicates logical channel ID.
517	>Logical Channel Item	STRUCTURE		Buffer Occupancy (BO) in number of bytes as defined in TS 25.321 [27] clause 8.2.2(c).LCID indicates logical channel ID.
518	>>LCID	ELEMENT	TRUE	<i>logicalChannelIdentity IE</i> in TS 38.331 [22] Sec 6
519	>>Buffer Occupancy	ELEMENT	FALSE	Refer to <i>L2 MAC State Variables</i> structure where this parameter is defined

In addition to using the above RAN Parameters for Policy conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

### 8.5.7.1 Secondary cell Addition control

#### 8.5.7.1.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.7.1.

#### 8.5.7.1.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.5.4.1.2.

### 8.5.7.2 Secondary cell Modification control

#### 8.5.7.2.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.7.2.

#### 8.5.7.2.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.5.4.1.2.

## 8.5.8 Idle Mode Mobility Policy

### 8.5.8.0 Common RAN Parameters for Idle Mode Mobility Policy

The RAN Parameters pertaining to POLICY Conditions for the “Idle Mode Mobility Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key flag	Parameter description
501				

In addition to using the above RAN Parameters for POLICY conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

### 8.5.8.1 Cell reselection priority control

#### 8.5.8.1.1 Control action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.8.1.

#### 8.5.8.1.2 Offset

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.5.4. For the priority and sub priority parameters, values are used to set offsets with respect to the default behaviour, i.e., carrier frequency with fourth priority and an offset of +1 shall be considered as third priority

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Cell Reselection Priorities	STRUCTURE			<i>IdleModeMobilityControlInfo</i> IE in TS 36.331 [23]
2	>Frequency Priority List E-UTRA	LIST			<i>FreqPriorityListEUTRA</i> IE in TS 38.331 [22]
3	>>Frequency Priority Item E-UTRA	STRUCTURE			<i>FreqPriorityEUTRA</i> IE in TS 38.331 [22]
4	>>>Carrier Frequency	ELEMENT	FALSE	<i>carrierFreq</i> IE in TS 38.331 [22]	
5	>>>Cell Reselection Priority offset	ELEMENT	FALSE	INTEGER	<i>cellReselectionPriority</i> IE in TS 38.331 [22]
6	>>>Cell Reselection Sub Priority offset	ELEMENT	FALSE	INTEGER	<i>cellReselectionSubPriority</i> IE in TS 38.331 [22]
7	>Frequency Priority List NR	LIST			<i>FreqPriorityListNR</i> IE in TS 38.331 [22]
8	>>Frequency Priority Item NR	STRUCTURE			<i>FreqPriorityNR</i> IE in TS 38.331 [22]
9	>>>Carrier Frequency	ELEMENT	FALSE	<i>carrierFreq</i> IE in TS 38.331 [22]	
10	>>>Cell Reselection Priority offset	ELEMENT	FALSE	INTEGER	<i>cellReselectionPriority</i> IE in TS 38.331 [22]
11	>>>Cell Reselection Sub Priority offset	ELEMENT	FALSE	INTEGER	<i>cellReselectionSubPriority</i> IE in TS 38.331 [22]
12	>T-320 timer expiry offset	ELEMENT	FALSE	INTEGER	<i>t320</i> IE in TS 38.331 [22]

## 8.5.9 Measurement Reporting Configuration Policy

The RAN Parameters pertaining to Policy Conditions for the “Measurement Report Configuration Control” policy service style are given below.

In addition, this service style also uses RAN parameters defined in Clause 8.1. Thus, this service style currently supports Policy Conditions using the RAN parameters defined in Clauses 8.1 and 8.5.1 in addition to those defined below.

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key flag	RAN Parameter Definition	Semantics Description
300	List of Serving Beam Info	LIST			List of information about source beams belonging to the E2 Node.
301	>Serving Beam Info Item	STRUCTURE			
302	>>Beam ID	ELEMENT	FALSE	Defined in [4] clause 6.2.2.16	
303	>>Serving Cell CGI	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.36.
304	>>List of Neighbouring Cells	LIST			List of neighbouring cell IDs of this source beam belonging to the E2 Node.
305	>>>Neighbouring Cell CGI	ELEMENT	FALSE	OCTET STRING	Defined in Clause 9.3.36.

### 8.5.9.1 Add MR Configuration

#### 8.5.9.1.1 Control Action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.10.1.

#### 8.5.9.1.2 Offset

Editor's Note: FFS

### 8.5.9.2 Modify MR Configuration

#### 8.5.9.2.1 Control Action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.10.2.

#### 8.5.9.2.2 Offset

RAN parameters in clause 8.4.10.2, where appropriate, may be modified via “offsets”. The offsets are provided by Policy Actions. See clause 6.6.3 for the policy “offset” approach.

### 8.5.9.3 Delete MR Configuration

#### 8.5.9.3.1 Control Action

The RAN parameters associated with this policy type are listed in the table in Clause 8.4.10.3.

#### 8.5.9.3.2 Offset

Editor's Note: FFS

## 8.5.10 Beamforming Configuration Policy

### 8.5.10.0 Common RAN Parameters for Beamforming Configuration Policy

The RAN Parameters pertaining to POLICY Conditions for the “Beamforming Configuration Control” policy service style used across all POLICY actions of the policy service style are listed in the below table.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
501	MIMO Mode Index	ELEMENT	TRUE	INTEGER (1..2, ...)	Value = 1 means the SU (single-user) MIMO mode. Value 2 means the MU (multi-user) MIMO mode.

In addition to using the above RAN Parameters for Policy conditions, this service style also uses RAN parameters defined in Clause 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Clauses 8.1, 8.5.1 and those covered in the above table.

## 8.5.10.1 Non-GoB BF Mode Configuration

### 8.5.10.1.1 Control Action

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
502	Non-GoB Beamforming Mode Index	ELEMENT	FALSE	INTEGER (0.. 65535, ...)	The index is used for Non- Grid of Beams (Non-GoB) beamforming optimization for 5G mMIMO deployments [32]. Each BF mode implies a vendor-specific proprietary Non-GoB BF algorithm that are not standardized [33], for which each E2 Node, who supports the Non-GoB beamforming optimization feature, provides the number of different Non-GoB BF mode(s) supported by its scheduler indexed from 1 to n. The AI/ML model for Non-GoB beamforming optimization is trained by data and measurements related to each BF mode and/or MIMO mode, for which the trained AI/ML model, based on collected data, configures the E2 Node with the best inferred Non-GoB BF mode index to be used for each UE, where such configuration could be done separately for the case of Single User- and/or Multi-user MIMO [32]. The Value = 0 means release of Non-GoB BF mode for the UE of subject.

### 8.5.10.1.2 Offset

This policy type does not support the offset approach.

## 8.5.10.2 GoB BF Configuration

### 8.5.10.2.1 Control Action

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
503	RI-LI-PMI config	STRUCTURE	FALSE		Precoding Matrix Indicator (PMI), Rank Indicator (RI), Layer Indicator (LI) in TS 38.214 [36] Clause 5.2.2.2. The AI/ML model for CSI-RS and DMRS optimization infers the best PMI, RI, LI to be used for each UE [32].
504	> RI	ELEMENT	FALSE	INTEGER (0,...,8)	RI in TS 38.214 [36] Clause 5.2.2.2. The value=0 means RI-PMI reporting is not supported for the UE of interest.
505	> LI	ELEMENT	FALSE	INTEGER (0,...,8)	LI in TS 38.214 [36] Clause 5.2.2.2. The value=0 means LI-reporting is not supported for the UE of interest.
506	> i1	STRUCTURE	FALSE		PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
507	>> i11	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
508	>> i12	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
509	>> i13	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
510	>> i131	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
511	>> i132	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
512	>> i14	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
513	>> i141	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.

514	>> i142	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
515	>> i143	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
516	>> i15	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
517	>> i161	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
518	>> i162	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
519	>> i171	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
520	>> i172	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
521	>> i173	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
522	>> i174	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
523	>> i181	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
524	>> i182	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
525	>> i183	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
526	>> i184	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
527	> i2	STRUCTURE	FALSE		PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
528	>> i20	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
529	>> i21	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
530	>> i211	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.

531	>> i212	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
532	>> i22	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
533	>> i221	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
534	>> i222	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
535	>> i231	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
536	>> i232	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
537	>> i233	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
538	>> i234	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
539	>> i241	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
540	>> i242	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
541	>> i243	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
542	>> i244	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
543	>> i251	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
544	>> i252	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
545	>> i253	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
546	>> i254	ELEMENT	FALSE	INTEGER (0,...,256)	PMI coefficients in TS 38.214 [36] Clause 5.2.2.2.
547	> Subband Index	ELEMENT	FALSE	INTEGER (0,...,19)	Subband index for PMI reporting in TS 38.214 [36] Clause 5.2.1.4. The value=0 means Subband PMI

					reporting is not supported for the UE of interest.
548	P-2 Beam Index	ELEMENT	FALSE	INTEGER (0...256)	P-2 beam index in TS 38.912 [37] Clause 8.2.1.6.1. The AI/ML model for CSI-RS and DMRS optimization infers the best P-2 beam index to be used for each UE [32]. The value=0 means P-2-beam management is not supported for the UE of interest.

### 8.5.10.2.2 Offset

This policy type does not support the offset approach.

## 8.6 RAN parameters for QUERY services

### 8.6.1 RAN Parameters for Query Service Style 1

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Cell Context Information	ELEMENT	FALSE	OCTET STRING	<i>Served Cell Information IE</i> in TS 38.473 [19] clause 9.3.1.10. This shall be used to report Cell Context information.
2	Neighbour Relation Table	STRUCTURE	FALSE	9.3.38 <i>Neighbour Relation Information</i>	This shall be used to report neighbour relation information of the serving cells.
3	Number of supported Non-GoB beamforming modes	ELEMENT	FALSE	INTEGER (0..65535, ...)	This shall be used to report the number of Non- Grid of Beams (Non-GoB) beamforming modes supported by the E2 Node for mMIMO Non-GoB beamforming optimization for 5G mMIMO deployments [32]. Each BF mode implies a vendor-specific proprietary Non-GoB BF algorithm that are not standardized [33], for which each E2 Node, who supports the Non-GoB beamforming optimization feature, provides the number of different Non-GoB BF mode(s) supported by its scheduler indexed from 1 to n. The AI/ML model for Non-GoB beamforming optimization is trained by data and measurements related to each BF mode and/or MIMO mode, for which the trained AI/ML model, based on collected data, configures the E2 Node with the best inferred Non-GoB BF mode

					index to be used for each UE, where such configuration could be done separately for the case of Single User- and/or Multi-user MIMO [32]. If Non-GoB beamforming optimization is not supported by a cell of interest, then the value "0" shall be replied.
4	MIB	ELEMENT	FALSE	OCTET STRING	<i>MIB IE</i> in TS 38.331 [22] Clause 6.2.2. This shall be used to report MIB of the serving cell
5	Serving Cell Config Common	STRUCTURE	FALSE	9.3.60	This shall be used to report common parameters of the serving cell contained in <i>ServingCellConfigCommon IE</i> in TS 38.331 [22] Clause 6.3.2.
6	O-DU Compression Support	STRUCTURE			
7	>BFW Compression Support	STRUCTURE			Identifies the O-DU supported compression methods from the list defined in O-RAN-WG4.CUS [34] Clause 7.4.7.1.1
8	>>no compression	ELEMENT	FALSE	BOOLEAN	If this parameter is set to True, all other parameters shall either not be included or be set to False and shall be ignored by the receiving end.
9	>>block floating point (BFP)	ELEMENT	FALSE	BOOLEAN	
10	>>block scaling	ELEMENT	FALSE	BOOLEAN	
11	>>m-law	ELEMENT	FALSE	BOOLEAN	
12	>>beamspace compression Type I	ELEMENT	FALSE	BOOLEAN	
13	>>beamspace compression Type II	ELEMENT	FALSE	BOOLEAN	
14	CSI-ReportConfig	ELEMENT	FALSE	OCTET STRING	CSI-ReportConfig IE in TS 38.331 [22] Clause 6.3.1. This shall be used to report the CSI report configurations which includes Codebook Configurations (e.g., Type I, Type II etc.) supported by the E2 Node [32].
15	Supported GoB-beamforming configurations	STRUCTURE	FALSE		Beam <IOC> in TS 28.541 [35] Clause 4.3.40. This shall be used to report the set of GoB beamforming configurations (e.g., indexes, azimuth directions, elevation directions etc.) supported by the E2 Node [32].
16	> beamIndex	ELEMENT	FALSE	INTEGER (0...256)	Beam <IOC> Attribute Properties in TS 28.541 [35] Clause 4.4.1.
17	> beamType	ELEMENT	FALSE	ENUMERATED ('SSB-BEAM', 'CSI-BEAM')	As per Beam <IOC> Attribute Properties in TS 28.541 [35] Clause 4.4.1, allowed value for this field is 'SSB-BEAM'. The value 'CSI-BEAM' is Optional.
18	> beam-	ELEMENT	FALSE	INTEGER (-1800...1800)	Beam <IOC> Attribute Properties in TS 28.541 [35] Clause 4.4.1.

	Azimuth				
19	> beamTilt	ELEMENT	FALSE	INTEGER (-900...900)	Beam <IOC> Attribute Properties in TS 28.541 [35] Clause 4.4.1.
20	> beam-HorizWidth	ELEMENT	FALSE	INTEGER (0...3599)	Beam <IOC> Attribute Properties in TS 28.541 [35] Clause 4.4.1.
21	> beam-VertWidth	ELEMENT	FALSE	INTEGER (0...1800)	Beam <IOC> Attribute Properties in TS 28.541 [35] Clause 4.4.1.
22	Cell Uplink Transmit Power Configured	ELEMENT	FALSE	INTEGER (-202..24)	<i>P0-NominalWithGrant</i> IE in TS 38.331 [22] clause 6.3.2. This shall be used to report the initial uplink transmit power broadcasted for the UEs under the cell.

## 8.6.2 RAN Parameters for Query Service Style 2

RAN Parameter ID	RAN Parameter Name	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	Cell Global ID	ELEMENT	FALSE	9.3.36 <i>Cell Global ID</i>	Used to report the Serving Cell ID of the UE.
2	Alpha set Identifier	ELEMENT	FALSE	<i>P0-PUSCH-AlphaSetID</i> IE in TS 38.331 [22] clause 6.3.2.	This shall be used to report the index of a p0-PUSCH-Set
3	UE specific power	ELEMENT	FALSE	<i>p0</i> IE in TS 38.331 [22] clause 6.3.2.	This shall be used to report the UE specific configuration of transmit power
4	alpha	ELEMENT	FALSE	<i>alpha</i> IE in TS 38.331 [22] clause 6.3.2.	This shall be used to report alpha

In addition to using the above RAN Parameters, this service style also uses RAN parameters defined in Clause 8.1.1.

# 9 Elements for E2SM Service Model

## 9.1 General

## 9.2 Message Functional Definition and Content

### 9.2.1 Messages for RIC Functional procedures

#### 9.2.1.1 RIC Event Trigger Definition IE

This information element is part of the RIC SUBSCRIPTION REQUEST message sent by the Near-RT RIC to an E2 Node and is required for event triggers used to initiate REPORT, INSERT and POLICY actions.

Direction: NEAR-RT RIC → E2 Node.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE RIC Event Trigger Definition IE Format</b>				
>E2SM-RC Event Trigger Definition Format 1	M		9.2.1.1.1	Used for Event Trigger Style 1
>E2SM-RC Event Trigger Definition Format 2	M		9.2.1.1.2	Used for Event Trigger Style 2
>E2SM-RC Event Trigger Definition Format 3	M		9.2.1.1.3	Used for Event Trigger Style 3
>E2SM-RC Event Trigger Definition Format 4	M		9.2.1.1.4	Used for Event Trigger Style 4
>E2SM-RC Event Trigger Definition Format 5	M		VOID	Format 5 has been deprecated

### 9.2.1.1.1 E2SM-RC Event Trigger Definition Format 1: Message Event

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Messages for Event Trigger		1..<maxnoofMessages>		
>Event Trigger Condition ID	M		9.3.21	
> <b>CHOICE Message Type</b>	M			
>> <b>Network Interface</b>				
>>>NI Type	M		9.3.32	3GPP Network Interface Type
>>>NI Identifier	O		9.3.33	"Any" Network Interface instance to be used if absent.
>>>NI Message	O		9.3.34	Network Interface Message ID. This can indicate whether NUA (Non-UE Associated) or UA (UE-Associated).
>> <b>RRC</b>				
>>>RRC Message ID	M		9.3.35	RRC Message ID
>Message Direction	O		ENUMERATED (incoming, outgoing, ...)	Indicates message arrival or departure for event triggering ("Any" direction if not included).
>Associated UE Info	O		9.3.26	Indicates applicable UE(s) for event triggering associated to each message event ("Any" UE if not included). Shall not be included in case of NUA type NI message.
>Associated UE Event	O		9.3.28	Indicates specific UE event(s) defined in Clause 8.1.5 for event triggering associated to each message event.
>Logical OR	O		9.3.25	
Global Associated UE Info	O		9.3.26	Indicates applicable UE(s) for event triggering, applied to all the message events uniformly. This IE shall override any <i>Associated UE Info</i> IE included for some message events. Shall not be included in case a NUA type NI message event is configured.

Range bound	Explanation
maxnoofMessages	Maximum number of Messages in a given E2 node for which event trigger can be defined. The value is <65535>.

### 9.2.1.1.2 E2SM-RC Event Trigger Definition Format 2: Call Process Breakpoint

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Call Process Type ID	M		9.3.15	
Call Breakpoint ID	M		9.3.49	
Associated E2 Node Info	O		9.3.29	Used to set optional E2 Node related information for event triggering. RAN Parameters in Clause 8.1.2 shall only be used.
Associated UE Info	O		9.3.26	Indicates applicable UE(s) for event triggering ("Any" UE if not included).

### 9.2.1.1.3 E2SM-RC Event Trigger Definition Format 3: E2 Node Information Change

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of E2 Node Information Change		1..<maxnoofE2InfoChanges>		
>Event Trigger Condition ID	M		9.3.21	
>E2 Node Information Change ID	M		INTEGER (1..512, ...)	Defined in 7.3.4.
>Associated Cell Info	O		9.3.27	"Any" cell if not included.
>Logical OR	O		9.3.25	

Range bound	Explanation
maxnoofE2InfoChanges	Maximum number of E2 Node information changes for which event trigger can be defined. The value is <65535>.

#### 9.2.1.1.4 E2SM-RC Event Trigger Definition Format 4: UE Information Change

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of UE Information Change		1..<maxnoofUEInfoChang ges>		
>Event Trigger Condition ID	M		9.3.21	
> <b>CHOICE Trigger Type</b>	M			
>> <b>RRC State</b>				
>>>RRC State List		1..<maxnoof RRCstate>		
>>>State Changed To	M		9.3.37	
>>>Logical OR	O		9.3.25	
>> <b>UE Identifier</b>				
>>>UE Identifier Change ID	M		INTEGER (1..512, ...)	Defined in 7.3.5.
>> <b>L2 State</b>				Used to set conditions for PDCP, RLC and MAC state variable reporting
>>>Associated L2 Variables	M		9.3.29	RAN Parameters in Clauses 8.1.1.4 and 8.1.1.8 shall only be used.
>> <b>UE Context Info</b>				
>>>Associated UE Context Info Variables	M		9.3.29	RAN Parameters in Clause 8.1.1.17
>> <b>L2 MAC Scheduler related Change</b>				
>>>CHOICE L2 MAC Scheduler Change Type	M			
>>> <b>MIMO and Beamforming Configuration</b>				Used only for POLICY Service Style 9
>>>>MIMO Transmission Mode State	M		ENUMERATED (enabled, disabled, ...)	Used to set condition when the MAC scheduler enables or disables the MIMO transmission mode for the associated UE(s).
>Associated UE Info	O		9.3.26	Indicates applicable UE(s) for event triggerin" ("ny" UE if not included).
>Logical OR	O		9.3.25	

Range bound	Explanation
maxnoofUEInfoChanges	Maximum number of UE information changes for which event trigger can be defined. The value is <65535>.
maxnoofRRCstate	Maximum number of RRC states for which event trigger can be defined. The value is <8>.

#### 9.2.1.1.5 VOID

#### 9.2.1.2 RIC ACTION DEFINITION IE

This information element is part of the RIC SUBSCRIPTION REQUEST message sent by the Near-RT RIC to an E2 Node. In this service model, this information element provides additional information for the nominated RIC Action.

Direction: NEAR-RT RIC → E2 Node.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RIC Style Type	M		9.3.3	
<b>CHOICE RIC Action Definition IE Format</b>				
>E2SM-RC Action Definition Format 1	M		9.2.1.2.1	Used by REPORT service
>E2SM-RC Action Definition Format 2	M		9.2.1.2.2	Used by POLICY service when encoding a list of Policy Conditions
>E2SM-RC Action Definition Format 3	M		9.2.1.2.3	Used by INSERT service except style 255
>E2SM-RC Action Definition Format 4	M		9.2.1.2.4	Used only by INSERT service style 255

### 9.2.1.2.1 E2SM-RC Action Definition Format 1

The *E2SM-RC Action Definition Format 1* IE supports a REPORT service and is encoded as a list of RAN parameters to be reported, each with a RAN Parameter ID and RAN Parameter Definition. RAN parameters for REPORT service are defined in Clause 8.2.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Parameters to be Reported List		1..<maxnoofParametersToReport>		
>RAN Parameter ID	M		9.3.8	Only the RAN Parameter ID values declared in RAN Function Definition may be included.
>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported. Only the RAN Parameter ID values declared in RAN Function Definition may be included.

Range bound	Explanation
maxnoofParametersToReport	Maximum no. of RAN parameters supported by <i>E2SM-RC Action Definition Format 1</i> IE. The value is <65535>.

### 9.2.1.2.2 E2SM-RC Action Definition Format 2

The *E2SM-RC Action Definition Format 2* IE supports Policy services encoded as a list of Policy Conditions, each with a Policy Condition definition described using *RAN Parameter Conditional Criteria Definition* IE in terms of a list of RAN parameters with test conditions and a *Policy Action* IE command described in terms of a list of RAN parameters. The meaning of the RAN Parameter ID/Value pairs for each list is defined in Clause 8.5.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Policy Conditions		1..<maxnoofPolicyConditions>		
>Policy Action	M		9.3.20	Defines policy to be applied for specific Policy Condition
>Policy Condition Definition	O		9.3.29	Defines conditional test.
>Policy Condition ID	O		9.3.58	For the case of Offset based policy, this identifier is used to determine the order in which Policy conditions are tested while searching for the first positive match

Range bound	Explanation
maxnoofPolicyConditions	Maximum no. of Policy Condition in <i>E2SM-RC Action Definition Format 2</i> IE supported by RAN Function. Value is <65535>.

### 9.2.1.2.3 E2SM-RC Action Definition Format 3

The *E2SM-RC Action Definition Format 3* IE supports an INSERT service of the indicated *RIC Style Type* IE and is encoded by the Insert Indication ID and a list of RAN parameters. The meaning of the RAN Parameter ID(s) in the list is defined in Clause 8.3.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Insert Indication ID	M		9.3.16	Refer to Clause 7.5
List of RAN parameters for Insert Indication	M	1..<maxnoofAssociatedRANParameters>		Refer to Clause 8.3
>RAN Parameter ID	M		9.3.8	Refer to Clause 8.3 Only the RAN Parameter ID values declared in RAN Function Definition may be included.
>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported. Only the RAN Parameter ID values declared in RAN Function Definition may be included.
UE ID	O		9.3.10	If included, indicates that the subscribed INSERT service, upon the associated event trigger occurs, shall be executed for this UE only. In case of UE-related event triggers, the subscribed INSERT service shall not be executed unless the triggered event is related to this UE.

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by <i>E2SM-RC Action Definition Format 3</i> IE for INSERT Indication. The value is <65535>.

#### 9.2.1.2.4 E2SM-RC Action Definition Format 4

The *E2SM-RC Action Definition Format 4* IE supports multiple Insert Indication actions of one or more requested INSERT services, where each Insert Indication action is encoded by Insert Indication ID and a list of RAN parameters. The meaning of the RAN Parameter ID/Value pairs for each list is defined in Clause 8.3.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Insert Styles for Multiple Actions		1..<maxnoofRICStyles>		
>Requested Insert Style	M		9.3.3	
>Sequence of Insert Indication Action Definition		1..<maxnoofInsertIndicationActions>		
>>Insert Indication ID	M		9.3.16	Refer to Clause 7.5
>>List of RAN parameters for Insert Indication		1..<maxnoofAssociatedRANParameters>		Refer to Clause 8.3
>>>RAN Parameter ID	M		9.3.8	Refer to Clause 8.3 Only the RAN Parameter ID values declared in RAN Function Definition may be included.
>>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported. Only the RAN Parameter ID values declared in RAN Function Definition may be included.
UE ID	O		9.3.10	If included, indicates that the subscribed INSERT service, upon the associated event trigger occurs, shall be executed for this UE only. In case of UE-related event triggers, the subscribed INSERT service shall not be executed unless the triggered event is related to this UE.

Range bound	Explanation
maxnoofRICStyles	Maximum no. of Insert Styles supported by <i>E2SM-RC Action Definition Format 4</i> IE for INSERT Indication. The value is <63>.
maxnoofInsertIndicationActions	Maximum no. of Insert indication actions supported by RAN Function. The value is <63>.
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by <i>E2SM-RC Action Definition Format 4</i> IE for INSERT Indication. The value is <65535>.

### 9.2.1.3 RIC INDICATION HEADER IE

This information element is part of the RIC INDICATION message sent by the E2 Node to the Near-RT RIC and is required for REPORT action.

Direction: E2 Node → NEAR-RT RIC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
CHOICE <i>Indication Header Format</i>				
>E2SM-RC Indication Header Format 1	M		9.2.1.3.1	
>E2SM-RC Indication Header Format 2	M		9.2.1.3.2	
>E2SM-RC Indication Header Format 3	M		9.2.1.3.3	

#### 9.2.1.3.1 E2SM-RC Indication Header Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Event Trigger Condition ID	O		9.3.21	Event Trigger Condition ID

#### 9.2.1.3.2 E2SM-RC Indication Header Format 2

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UE ID	M		9.3.10	
RIC Insert Style Type	M		9.3.3	
Insert Indication ID	M		9.3.16	Refer to Clause 7.5

#### 9.2.1.3.3 E2SM-RC Indication Header Format 3

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Event Trigger Condition ID	O		9.3.21	
UE ID	O		9.3.10	

### 9.2.1.4 RIC INDICATION MESSAGE IE

This information element is part of the RIC INDICATION message sent by the E2 Node to the Near-RT RIC and is required for REPORT action.

Direction: E2 Node → NEAR-RT RIC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE Indication Message Format</b>	M			
>E2SM-RC Indication Message Format 1			9.2.1.4.1	
>E2SM-RC Indication Message Format 2			9.2.1.4.2	
>E2SM-RC Indication Message Format 3			9.2.1.4.3	
>E2SM-RC Indication Message Format 4			VOID	Format 4 has been deprecated
>E2SM-RC Indication Message Format 5			9.2.1.4.5	
>E2SM-RC Indication Message Format 6			9.2.1.4.6	

#### 9.2.1.4.1 E2SM-RC Indication Message Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of RAN Parameters		1..<maxnoofAssociatedRANParameters>		
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Value Type	M		9.3.11	

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum number of RAN Parameters supported by <i>E2SM-RC Indication Message Format 1</i> IE. The value is <65535>.

#### 9.2.1.4.2 E2SM-RC Indication Message Format 2

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of UE Identifiers		1..<maxnoofUEID>		
>UE ID	M		9.3.10	
>Sequence of RAN Parameters		1..<maxnoofAssociatedRANParameters>		
>>RAN Parameter ID	M		9.3.8	
>>RAN Parameter Value Type	M		9.3.11	

Range bound	Explanation
maxnoofUEID	Maximum number of UE Identifiers supported by <i>E2SM-RC Indication Message Format 2</i> IE to be reported. The value is <65535>.
maxnoofAssociatedRANParameters	Maximum number of RAN Parameters supported by <i>E2SM-RC Indication Message Format 2</i> IE to be reported. The value is <65535>.

### 9.2.1.4.3 E2SM-RC Indication Message Format 3

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Cell Information		1..<maxnoofCellID>		
>Cell Global ID	M		9.3.36	
>Cell Context Information	O		OCTET STRING	<p><i>Served Cell Information IE</i> in TS 38.473 [19] clause 9.3.1.10.</p> <p>This IE shall be reported if RAN Parameter ID is set to "1" as described in Clause 8.2.3.</p>
>Cell Deleted	O		BOOLEAN	<p>This IE shall be used to report deleted cells. The value shall be set to "True" for the deleted Cell Global ID.</p> <p>This IE shall be reported if RAN Parameter ID is set to "2" as described in Clause 8.2.3.</p>
>Neighbour Relation Table	O		9.3.38	<p>Provides information on neighbours of serving cell.</p> <p>This IE shall be reported if RAN Parameter ID is set to "3" as described in Clause 8.2.3.</p>
>MIB	O		OCTET STRING	<p><i>MIB IE</i> in TS 38.331.</p> <p>This IE shall be reported if RAN Parameter ID is set to "4" as described in Clause 8.2.3.</p>
> Serving Cell Config Common	O		9.3.60	<p>Provides information on common parameters of the serving cell.</p> <p>This IE shall be reported if RAN Parameter ID is set to "5" as described in Clause 8.2.3.</p>

Range bound	Explanation
maxnoofCellID	Maximum number of Cell Identifiers supported by <i>E2SM-RC Indication Message Format 3</i> IE to be reported. The value is <65535>.

#### 9.2.1.4.4 VOID

#### 9.2.1.4.5 E2SM-RC Indication Message Format 5

IE/Group Name	Presence	Range	IE type and reference	Semantics description
List of RAN parameters requested		0..<maxnoofAssociatedRANParameters>		
>RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.3
>RAN Parameter Value Type	M		9.3.11	Refer to table in Clause 8.3

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for a specific Control action. The value is <65535>.

#### 9.2.1.4.6 E2SM-RC Indication Message Format 6

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Insert Styles for Multiple Actions		1..<maxnoofRICStyles>		
>Indicated Insert Style	M		9.3.3	
>Sequence of Insert Indication Actions		1..<maxnoofInsertIndicationActions>		
>>Insert Indication ID	M		9.3.16	Refer to Clause 7.5
>>List of RAN parameters requested		0..<maxnoofAssociatedRANParameters>		
>>>RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.3
>>>RAN Parameter Value Type	M		9.3.11	Refer to table in Clause 8.3

Range bound	Explanation
maxnoofRICStyles	Maximum no. of Insert Styles supported for multiple actions. The value is <63>.
maxnoofInsertIndicationActions	Maximum no. of Insert indication actions supported by RAN Function. The value is <63>.
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for a specific Insert indication action. The value is <65535>.

#### 9.2.1.5 RIC CALL PROCESS ID IE

This information element is part of the RIC INDICATION message sent by the E2 Node to a Near-RT RIC node and is required for INSERT action. The same information element is used in RIC Control procedure

Direction: E2 Node → Near-RT RIC (when carried in RIC INDICATION) and Near-RT RIC → E2 Node (when carried in RIC CONTROL REQUEST).

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> Call Process ID Format				
>E2SM-RC Call Process ID Format 1	M		9.2.1.5.1	

### 9.2.1.5.1 E2SM-RC Call Process ID Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RIC Call Process ID	M		9.3.18	

### 9.2.1.6 RIC CONTROL HEADER IE

This information element is part of the RIC CONTROL message sent by the Near-RT RIC to an E2 Node and is required for RIC Control Procedure.

Direction: Near-RT RIC → E2 Node.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> Control Header Format	M			
>E2SM-RC Control Header Format 1			9.2.1.6.1	
>E2SM-RC Control Header Format 2			9.2.1.6.2	
>E2SM-RC Control Header Format 3			9.2.1.6.3	
>E2SM-RC Control Header Format 4			9.2.1.6.4	

#### 9.2.1.6.1 E2SM-RC Control Header Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UE ID	M		9.3.10	
RIC Style Type	M		9.3.3	
Control Action ID	M		9.3.6	Refer to Clause 7.6
RIC Control decision	O		ENUMERATED (accept, reject, ...)	Used only when a CONTROL action is sent as a response to an Insert Indication

#### 9.2.1.6.2 E2SM-RC Control Header Format 2

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UE ID	O		9.3.10	
RIC Control decision	O		ENUMERATED (accept, reject, ...)	Used only when RIC Control Request message is sent as a response to the INSERT indication message from E2 Node.

### 9.2.1.6.3 E2SM-RC Control Header Format 3

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UE Group ID	M		9.3.54	To uniquely identify a UE group
UE Group Definition	M		9.3.56	RAN parameters defined in Clause 8.1.3 shall be used to define the UE group.
RIC Style Type	M		9.3.3	Identifier of the RIC Control Service Style
Control Action ID	M		9.3.6	Identifier of the RIC Control Action

### 9.2.1.6.4 E2SM-RC Control Header Format 4

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Partial UE ID	M		9.3.57	
RIC Style Type	M		9.3.3	
Control Action ID	M		9.3.6	Refer to Clause 7.6
RIC Control decision	O		ENUMERATED (accept, reject, ...)	Used only when a CONTROL action is sent as a response to an Insert Indication

### 9.2.1.7 RIC CONTROL MESSAGE IE

This information element is part of the RIC CONTROL message sent by the Near-RT RIC to an E2 Node and is required for RIC Control Procedure.

Direction: Near-RT RIC → E2 Node.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> Control Message Format	M			
>E2SM-RC Control Message Format 1			9.2.1.7.1	
>E2SM-RC Control Message Format 2			9.2.1.7.2	
>E2SM-RC Control Message Format 3			9.2.1.7.3	
>E2SM-RC Control Message Format 4			9.2.1.7.4	
>E2SM-RC Control Message Format 5			9.2.1.7.5	

#### 9.2.1.7.1 E2SM-RC Control Message Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
List of RAN parameters		0..<maxnoofAssociate dRANParameters>		
>RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.4
>RAN Parameter Value Type	M		9.3.11	Refer to table in Clause 8.4

Range bound	Explanation
maxnofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for a specific Control action. The value is <65535>.

### 9.2.1.7.2 E2SM-RC Control Message Format 2

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Control Styles for Multiple Actions		1..<maxnofRICStyles>		
>Indicated Control Style	M		9.3.3	
>Sequence of Control Actions		1..<maxnofMulCtrlActions>		
>>Control Action ID	M		9.3.6	Refer to Clause 7.6
>>Control Action Parameters	O		9.2.1.7.1 E2SM-RC Control Message Format 1	

Range bound	Explanation
maxnofRICStyles	Maximum no. of Control Styles supported by RAN Function. The value is <63>.
maxnofMulCtrlActions	Maximum no. of Control actions supported by RAN Function. The value is <63>.

### 9.2.1.7.3 E2SM-RC Control Message Format 3

IE/Group Name	Presence	Range	IE type and reference	Semantics description
List of entity filters		0..<maxnofAssociatedEntityFilters>		List of entity filters for identifying entities for RAN entity-specific UE group control action
>Entity Filter ID	M		9.3.55	Used to uniquely identify an entity filter definition
>Entity Filter Definition	M		9.3.29	This IE is used to determine the entities of the UE group, based on the RAN parameters in Clause 8.4.2 and 8.1.
>List of RAN control parameters for the matching entities		1..<maxnofAssociatedRANParameters>		
>>RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.3. This shall not include <i>key flag</i> parameter whose value type is “ <b>ELEMENT with Key Flag TRUE</b> ”
>>RAN Parameter Value Type	M		9.3.11	Refer to table in Clause 8.3. The value type shall not be “ <b>ELEMENT with Key Flag TRUE</b> ”
List of RAN control parameters		0..<maxnofAssociatedRANParameters>		List of RAN Entity-agnostic RAN control parameters for control action on the group of UEs
>RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.3. This shall not include a <i>key flag</i> parameter, whose value type is “ <b>ELEMENT with Key Flag TRUE</b> ”
>RAN Parameter Value Type	M		9.3.11	Refer to table in Clause 8.3. The value type shall not be “ <b>ELEMENT with Key Flag TRUE</b> ”

Range bound	Explanation
maxnofAssociatedEntityFilters	Maximum no. of entity filter definitions for a UE group. The value is <255>.
maxnofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for a control action. The value is <65535>.

#### 9.2.1.7.4 E2SM-RC Control Message Format 4

IE/Group Name	Presence	Range	IE type and reference	Semantics description
List of RAN parameters		0..<maxnoofAssociate dRANParameters>		
>RAN Parameter ID	M		9.3.8	Refer to table in clause 8.4 for applicable RAN Parameters
>RAN Parameter Definition	O		9.3.51	Refer to clause 7.6.9 for usage of this IE.

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for a specific Control action. The value is <65535>.

#### 9.2.1.7.5 E2SM-RC Control Message Format 5

IE/Group Name	Presence	Range	IE type and reference	Semantics description
null	M		NULL	Contains no information

#### 9.2.1.8 RIC CONTROL OUTCOME IE

This information element is part of the RIC CONTROL ACKNOWLEDGEMENT and RIC CONTROL FAILURE messages and is sent by the E2 Node to the Near-RT RIC and is required for RIC Control Procedure.

Direction: E2 Node → Near-RT RIC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> Control Outcome Format	M			
>E2SM-RC Control Outcome Format 1			9.2.1.8.1	
>E2SM-RC Control Outcome Format 2			9.2.1.8.2	
>E2SM-RC Control Outcome Format 3			9.2.1.8.3	

##### 9.2.1.8.1 E2SM-RC Control Outcome Format 1

The *E2SM-RC Control Outcome* IE Format 1 supports a sequence of RAN Parameters sent as ID/Value pairs. The meaning of the ID/Value pairs is defined in Clause 7.6.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of RAN Parameters		0..<maxnoofRANOutcomeParameters>		
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Value	M		9.3.14	

Range bound	Explanation
maxnoofRANOutcomeParameters	Maximum no. of RAN Parameters. Value is <255>

### 9.2.1.8.2 E2SM-RC Control Outcome Format 2

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Control Styles for Multiple Outcomes		1..<maxnoofRICStyles>		
>Indicated Control Style	M		9.3.3	
>Sequence of Control Actions Outcome		1..<maxnoofMulCtrlActions>		
>>Control Action ID	M		9.3.6	
>>Sequence of RAN Parameters		1..<maxnoofRANOutcomeParameters>		
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Value	M		9.3.14	

Range bound	Explanation
maxnoofRICStyles	Maximum no. of Control Styles supported by RAN Function. The value is <63>.
maxnoofMulCtrlActions	Maximum no. of Control actions supported by RAN Function. The value is <63>.
maxnoofRANOutcomeParameters	Maximum no. of RAN Parameters. Value is <255>

### 9.2.1.8.3 E2SM-RC Control Outcome Format 3

The *E2SM-RC Control Outcome* IE Format 3 supports a sequence of RAN Parameters sent as ID and RAN parameter value types, where each RAN parameter value type is based on the categorization of the parameters into *ELEMENT* with Key Value *TRUE*, *ELEMENT* with Key Value *FALSE*, *STRUCTURE* and *LIST*.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of RAN Parameters		0..<maxnoofRANOutcomeParameters>		
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Value Type	M		9.3.11	

Range bound	Explanation
maxnoofRANOutcomeParameters	Maximum no. of RAN Parameters. Value is <255>

### 9.2.1.9 RIC QUERY HEADER IE

This information element is part of the RIC QUERY REQUEST message sent by the Near-RT RIC to an E2 Node and is required for RIC QUERY Procedure.

Direction: Near-RT RIC → E2 Node.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> Query Header Format	M			
>E2SM-RC Query Header Format 1			9.2.1.9.1	

### 9.2.1.9.1 E2SM-RC Query Header Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RIC Style Type	M		9.3.3	Indicates Style Types in Clause 7.8.1
Associated E2 Node Info	O		9.3.29	Used to set optional E2 Node related information. RAN Parameters in Clause 8.1.2 shall only be used.
Associated UE Info	O		9.3.52	Indicates applicable UE(s) ("Any" UE if not included).

### 9.2.1.10 RIC QUERY DEFINITION IE

This information element is part of the RIC QUERY REQUEST message sent by the Near-RT RIC to an E2 Node and is required for RIC Query Procedure.

Direction: Near-RT RIC → E2 Node.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> Query Definition Format	M			
>E2SM-RC Query Definition Format 1			9.2.1.10.1	

### 9.2.1.10.1 E2SM-RC Query Definition Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
List of RAN parameters		1..<maxnoofAssociate dRANParameters>		
>RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.6
>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported. Only the RAN Parameter ID values declared in RAN Function Definition may be included.

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for Query Definition. The value is <65535>.

### 9.2.1.11 RIC QUERY OUTCOME IE

This information element is part of the RIC QUERY RESPONSE message sent by the Near-RT RIC to an E2 Node and is required for RIC Query Procedure.

Direction: E2 Node → Near-RT RIC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> <i>Query Outcome Format</i>	M			
>E2SM-RC Query Outcome Format 1			9.2.1.11.1	
>E2SM-RC Query Outcome Format 2			9.2.1.11.2	

#### 9.2.1.11.1 E2SM-RC Query Outcome Format 1

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Cell Information		1..<maxnoofCellID>		
>Cell Global ID	M		9.3.36	
>List of RAN parameters		0..<maxnoofAssociatedRANParameters>		
>> RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.6.1
>> RAN Parameter Value Type	O		9.3.11	Refer to table in Clause 8.6.1
>Neighbour Relation Table	O		9.3.38	Provides information on neighbours of serving cell. This IE shall be reported if RAN Parameter ID is set to "2" as described in Clause 8.6.1.
> Serving Cell Config Common	O		9.3.60	Provides information on common parameters of the serving cell. This IE shall be reported if RAN Parameter ID is set to "5" as described in Clause 8.2.3.

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for Query Outcome. The value is <65535>.
maxnoofCellID	Maximum number of Cell Identifiers supported by Query Outcome Format 1 to be reported. The value is <65535>.

### 9.2.1.11.2 E2SM-RC Query Outcome Format 2

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of UE Information		1..<maxnoofUEID>		
>UE ID	M		9.3.10	
>List of RAN parameters		0..<maxnoofAssociate dRANParameters>		
>> RAN Parameter ID	M		9.3.8	Refer to table in Clause 8.6.2
>> RAN Parameter Value Type	O		9.3.11	Refer to table in Clause 8.6.2
>UE Filter ID	O		9.3.53	

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function for Query Outcome. The value is <65535>.
maxnoofUEID	Maximum number of UE Identifiers supported by Query Outcome Format 2 to be reported. The value is <65535>.

### 9.2.1.12 Service Layer Cause

#### 9.2.1.12.1 Service Layer Cause IE

The purpose of the *Service Layer Cause* IE is to indicate the reason for error handling for the RIC Functional procedures and selected global procedures (Error Indication, E2 Setup, RIC Service Update)

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description
Service Layer Cause Group	M			
>RIC services				
>>RIC Request	M		ENUMERATED (           RIC Event Trigger Style Type not supported,           RIC Event Trigger Format Type not supported,           RAN Parameter ID not supported,           Call Process Type ID not supported,           Call Process Breakpoint ID not supported,           RIC Report Style Type not supported,           Supported RIC Event Trigger Style Type no supported,           RIC Action Format Type not supported,           RIC Indication Header Format Type not supported,           RIC Indication Message Format Type not supported,           RIC Insert Style Type not supported,           Insert Indication ID not supported,           RIC Call Process ID Format Type not supported,           RIC Control Style Type not supported,           Control Action ID not supported,           RIC Control Header Format Type not supported,           RIC Control Message Format Type not supported,           RIC Control Outcome Format Type not supported,           RIC Policy Style Type not supported,           Policy Action ID not supported,           RIC Query Style Type not supported,           RIC Query Header Format Type not supported,           RIC Query Definition Format Type not supported,           RIC Query Outcome Format Type not supported,           ...         )	
>Protocol				
>>Protocol Cause	M		ENUMERATED           (Transfer Syntax Error,           Abstract Syntax Error (Reject),           Abstract Syntax Error (Ignore and Notify),           Message not Compatible with Receiver State,           Semantic Error,           Abstract Syntax Error (Falsely Constructed Message),           Unspecified, ...)	

The meaning of the different cause values is described in the following table. In general, "not supported" cause values indicate that the related capability is missing. On the other hand, "not available" cause values indicate that the related capability is present, but insufficient resources are available to perform the requested action.

RIC Request cause	Meaning
RIC Event Trigger Style Type not supported	Event Triggering style is not supported and was not declared in RAN Function Definition
RIC Event Trigger Format Type not supported	Event Format Type for requested style type is not supported and was not declared in RAN Function Definition
RAN Parameter ID not supported	RAN Parameter ID is not supported and was not declared in RAN Function Definition for use with the requested Event Trigger or RIC Service
Call Process Type ID not supported	Call Process Type ID is not supported and was not declared in RAN Function Definition
Call Process Breakpoint ID not supported	Call Process Breakpoint ID for requested Call Process Type is not supported and was not declared in RAN Function Definition
RIC Report Style Type not supported	RIC Report Style Type is not supported and was not declared in RAN Function Definition
Supported RIC Event Trigger Style Type not supported	Supported RIC Event Trigger Style Type for requested service and style type is not supported and was not declared in RAN Function Definition
RIC Action Format Type not supported	RIC Action Format Type for requested service and style type is not supported and was not declared in RAN Function Definition
RIC Indication Header Format Type not supported	RIC Indication Header type for requested service and style type is not supported and was not declared in RAN Function Definition
RIC Indication Message Format Type not supported	RIC Indication Message Format Type for requested service and style type is not supported and was not declared in RAN Function Definition
RIC Insert Style Type not supported	RIC Insert Style Type is not supported and was not declared in RAN Function Definition
Insert Indication ID not supported	Insert Indication ID for the requested style type is not supported and was not declared in RAN Function Definition
RIC Call Process ID Format Type not supported	RIC Call Process ID Format Type for requested style type is not supported and was not declared in RAN Function Definition
RIC Control Style Type not supported	RIC Control Style Type is not supported and was not declared in RAN Function Definition
Control Action ID not supported	Control Action ID for the requested style type is not supported and was not declared in RAN Function Definition
RIC Control Header Format Type not supported	RIC Control Header Format Type for requested style type is not supported and was not declared in RAN Function Definition
RIC Control Message Format Type not supported	RIC Control Message Format Type is not supported and was not declared in RAN Function Definition
RIC Control Outcome Format Type not supported	RIC Control Outcome Format Type for requested style type is not supported and was not declared in RAN Function Definition
RIC Policy Style Type not supported	RIC Policy Style Type is not supported and was not declared in RAN Function Definition
Policy Action ID not supported	Policy Action ID for requested style type is not supported and was not declared in RAN Function Definition
RIC Query Style Type not supported	RIC Query Style Type is not supported and was not declared in RAN Function Definition
RIC Query Header Format Type not supported	RIC Query Header type for requested style type is not supported and was not declared in RAN Function Definition
RIC Query Definition Format Type not supported	RIC Query Definition type for requested style type is not supported and was not declared in RAN Function Definition
RIC Query Outcome Format Type not supported	RIC Query Outcome type for requested style type is not supported and was not declared in RAN Function Definition

Protocol cause	Meaning
Transfer Syntax Error	The received message included a transfer syntax error.
Abstract Syntax Error (Reject)	The received message included an abstract syntax error and the concerning criticality indicated "reject".
Abstract Syntax Error (Ignore And Notify)	The received message included an abstract syntax error and the concerning criticality indicated "ignore and notify".
Message Not Compatible With Receiver State	The received message was not compatible with the receiver state.
Semantic Error	The received message included a semantic error.
Abstract Syntax Error (Falsey Constructed Message)	The received message contained IEs or IE groups in wrong order or with too many occurrences.
Unspecified	Sent when none of the above cause values applies but still the cause is Protocol related.

## 9.2.2 Messages for RIC Global Procedures

### 9.2.2.1 RAN Function Definition IE

This information element is part of the E2 SETUP REQUEST, and RIC SERVICE UPDATE message sent by the E2 Node to the Near-RT RIC and is used to provide all required information for the Near-RT RIC to determine how a given E2 Node has been configured to support a given RAN Function specific E2SM.

Direction: E2 Node → NEAR-RT RIC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAN Function Name	M		9.3.2	
RAN Function Definition for EVENT TRIGGER	O		9.2.2.2	
RAN Function Definition for REPORT	O		9.2.2.3	
RAN Function Definition for INSERT	O		9.2.2.4	
RAN Function Definition for CONTROL	O		9.2.2.5	
RAN Function Definition for POLICY	O		9.2.2.6	
RAN Function Definition for QUERY	O		9.2.2.7	

### 9.2.2.2 RAN Function Definition for EVENT TRIGGER

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of EVENT TRIGGER styles		1.. <maxnoo fRICStyle s>		
>RIC Event Trigger Style Type	M		9.3.3	
>RIC Event Trigger Style Name	M		9.3.4	
>RIC Event Trigger Format Type	M		9.3.5	
Sequence of RAN Parameters for L2 Variables		0.. <maxnoo fAssociat edRANP arameter s>		RAN Parameters defined in Clauses 8.1.1.4 and 8.1.1.8. Only included if L2 variables for Event Trigger Style 4 is supported.
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Name	M		9.3.9	
>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.
Sequence of Call Process Types		0.. <maxnoo fCallProc essTypes >		Only included if Event Trigger Style 2 is supported.
>Call Process Type ID	M		9.3.15	
>Call Process Type Name	M		9.3.19	
>Sequence of Call Process Breakpoints		1.. <maxnoo fCallProc essBreak points>		
>>Call Process Breakpoint ID	M		9.3.49	
>>Call Process Breakpoint Name	M		9.3.50	
>>Sequence of Associated RAN Parameters		0.. <maxnoo fAssociat edRANP arameter s>		RAN Parameters defined in Clause 8.1.2. Only included if Associated E2 Node Info for Event Trigger style 2 is supported
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	
>>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.
Sequence of RAN Parameters for Identifying UEs		0.. <maxnoo		RAN Parameters defined in Clause 8.1.3.

		<i>fAssociatedRANParameters</i>		Only included if Associated UE Info for any of Event Trigger Styles 1, 2, 4, 5 is supported.
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Name	M		9.3.9	
>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.
Sequence of RAN Parameters for Identifying Cells		0.. <maxnoo fAssociatedRANParameters		RAN Parameters defined in Clause 8.1.4. Only included if Associated Cell Info for any of Event Trigger Styles 3, 5 is supported.
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Name	M		9.3.9	
>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.

Range bound	Explanation
maxnoofRICStyles	Maximum no. of styles supported by RAN Function. The value is <63>.
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function. The value is <65535>.
maxnoofCallProcessTypes	Maximum no. of Call Process types supported by RAN Function. The value is <65535>.
maxnoofCallProcessBreakpoints	Maximum no. of Call Process breakpoints supported by RAN Function. The value is <65535>.

### 9.2.2.3 RAN Function Definition for REPORT

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of REPOT styles		1.. <maxnoof RICStyles >		
>RIC Report Style Type	M		9.3.3	
>RIC Report Style Name	M		9.3.4	
>Supported RIC Event Trigger Style Type	M		9.3.3	
>RIC Report Action Format Type	M		9.3.5	Action Definition type used by Report style
>RIC Indication Header Format Type	M		9.3.5	Indication Header type used by Report style
>RIC Indication Message Format Type	M		9.3.5	Indication Message type used by Report style
>Sequence of RAN Parameters Supported		0.. <maxnoof Associate dRANParameters>		Only included if RAN parameters for corresponding Report style are supported.
>>RAN Parameter ID	M		9.3.8	RAN Parameter IDs for the corresponding Report Style defined in Clause 7.4.
>>RAN Parameter Name	M		9.3.9	RAN Parameter Names for the corresponding Report Style defined in Clause 7.4.
>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.

Range bound	Explanation
maxnoofRICstyles	Maximum no. of styles supported by RAN Function. The value is <63>.
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function. The value is <65535>.

### 9.2.2.4 RAN Function Definition for INSERT

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of INSERT styles		1.. <maxnoo fRICStyle s>		
>RIC Insert Style Type	M		9.3.3	
>RIC Insert Style Name	M		9.3.4	
>Supported RIC Event Trigger Style Type	M		9.3.3	
>RIC Action Definition Format Type	M		9.3.5	
>Sequence of Insert Indications		0.. <maxnoo fInsertInd ication>		
>>Insert Indication ID	M		9.3.16	Refer to Clause 7.5.
>>Insert Indication Name	M		9.3.17	Refer to Clause 7.5.
>>Sequence of Associated RAN Parameters		0.. <maxnoo fAssociat edRANP arameter s>		Only included if RAN parameters for corresponding Insert style and Insert indication ID are supported
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	
>>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.
>RIC Indication Header Format Type	M		9.3.5	
>RIC Indication Message Format Type	M		9.3.5	
>RIC Call Process ID Format Type	M		9.3.5	

Range bound	Explanation
maxnoofRICstyles	Maximum no. of styles supported by RAN Function. The value is <63>.
maxnoofInsertIndication	Maximum no. of Insert indications supported by RAN Function. The value is <65535>
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function. The value is <65535>.

### 9.2.2.5 RAN Function Definition for CONTROL

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of CONTROL styles		1.. <maxnoo fRICStyle s>		
>RIC Control Style Type	M		9.3.3	
>RIC Control Style Name	M		9.3.4	
>Sequence of Control Actions		0.. <maxnoo fControlA ction>		
>>Control Action ID	M		9.3.6	
>>Control Action Name	M		9.3.7	
>>Sequence of Associated RAN Parameters		0.. <maxnoo fAssociat edRANP arameter s>		Only included if Control message RAN parameters for corresponding Control style and Control Action ID are supported
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	
>>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.
>>UE group-based Control action supported	O		ENUMERATED(true, false,...)	To indicate support of UE group-based control as defined in Clause 7.6. Default is FALSE.
>RIC Control Header Format Type	M		9.3.5	
>RIC Control Message Format Type	M		9.3.5	
>RIC Call Process ID Format Type	O			
>RIC Control Outcome Format Type	M		9.3.5	
>Sequence of Associated RAN Parameters for Control Outcome		0..<maxn oofRANO utcomeP arameter s>		Only included if Control Outcome RAN parameters for corresponding Control style are supported
>>RAN Parameter ID	M		9.3.8	
>>RAN Parameter Name	M		9.3.9	
>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.
>List of additional supported Format Types		0..<maxn oofForma tTypes>		This IE shall be included if the <i>UE group-based Control action supported</i> IE is set to

				“true” or Control Style uses action specific formats.
>>RIC Control Header Format Type	M		9.3.5	
>>RIC Control Message Format Type	M		9.3.5	
>>RIC Control Outcome Format Type	O		9.3.5	
>>Control Action ID	O		9.3.6	This IE shall be included if Control Style uses action specific formats

Range bound	Explanation
maxnoofRICstyles	Maximum no. of styles supported by RAN Function. The value is <63>.
maxnoofControlAction	Maximum no. of Control actions supported by RAN Function. The value is <65535>.
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function. The value is <65535>.
maxnoofRANOutcomeParameters	Maximum no. of parameters in RAN Control Outcome supported by RAN Function. The value is <255>
maxnoofFormatTypes	Maximum no. of formats supported by a CONTROL service style. The value is <63>

### 9.2.2.6 RAN Function Definition for POLICY

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of POLICY styles		1.. <maxnoo fRICStyle s>		
>RIC Policy Style Type	M		9.3.3	
>RIC Policy Style Name	M		9.3.4	
>Supported RIC Event Trigger Style Type	M		9.3.3	
>Sequence of Policy Actions		0.. <maxnoo fPolicyAc tion>		
>>Policy Action ID	M		9.3.6	
>>Policy Action Name	M		9.3.7	
>>RIC Action Definition Format Type	M		9.3.5	
>>Sequence of Associated RAN Parameters for Policy Action		0.. <maxnoo fAssociat edRANP arameter s>		Only included if RAN parameters for the Policy action of the corresponding Policy style and Policy Action ID are supported
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	
>>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.
>>Sequence of Associated RAN Parameters for Policy Condition		0.. <maxnoo fAssociat edRANP arameter s>		Only included if RAN parameters for the Policy condition of the corresponding Policy style and Policy Action ID are supported
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	
>>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.

Range bound	Explanation
maxnoofRICstyles	Maximum no. of styles supported by RAN Function. The value is <63>.
maxnoofPolicyAction	Maximum no. of Policy actions supported by RAN Function. The value is <65535>.
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function. The value is <65535>.

### 9.2.2.7 RAN Function Definition for QUERY

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of QUERY styles		1.. <maxnoof RICStyles >		
>RIC Query Style Type	M		9.3.3	
>RIC Query Style Name	M		9.3.4	
>RIC Query Header Format Type	M		9.3.5	Header type used by Query style
>RIC Query Definition Format Type	M		9.3.5	Query Definition format type used by Query style
>RIC Query Outcome Format Type	M		9.3.5	Query Outcome format type used by Query style
>Sequence of RAN Parameters Supported		0.. <maxnoof Associate dRANPara meters>		Only included if RAN parameters for corresponding Query style are supported.
>>RAN Parameter ID	M		9.3.8	RAN Parameter IDs for the corresponding Query Style defined in Clause 7.8.
>>RAN Parameter Name	M		9.3.9	RAN Parameter Names for the corresponding Query Style defined in Clause 7.8.
>>RAN Parameter Definition	O		9.3.51	To define the parameter along with its constituent parameters, if any (for a structure), and itemized members, if any (for a list). If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the constituent RAN parameters under this RAN Parameter ID are assumed to be supported.

Range bound	Explanation
maxnoofRICstyles	Maximum no. of styles supported by RAN Function. The value is <63>.
maxnoofAssociatedRANParameters	Maximum no. of RAN parameters supported by RAN Function. The value is <65535>.

## 9.3 Information Element definitions

### 9.3.1 General

When specifying information elements which are to be represented by bit strings, if not otherwise specifically stated in the semantics description of the concerned IE or elsewhere, the following principle applies with regards to the ordering of bits:

- The first bit (leftmost bit) contains the most significant bit (MSB);
- The last bit (rightmost bit) contains the least significant bit (LSB);
- When importing bit strings from other specifications, the first bit of the bit string contains the first bit of the concerned information.

### 9.3.2 RAN Function Name

This IE is defined in [4] clause 6.2.2.1.

### 9.3.3 RIC Style Type

This IE is defined in [4] clause 6.2.2.2.

### 9.3.4 RIC Style Name

This IE is defined in [4] clause 6.2.2.3.

### 9.3.5 RIC Format Type

This IE is defined in [4] clause 6.2.2.4.

### 9.3.6 Control Action ID

This IE uniquely identifies an action of a given RIC Control style.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Control Action ID	M		INTEGER (1.. 65535, ...)	

### 9.3.7 Control Action Name

This IE defines the name of a given control action.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Control Action Name	M		PrintableString(SIZE(1.. 150, ...))	

### 9.3.8 RAN Parameter ID

This IE uniquely identifies a specific RAN parameter of a given RIC Control style.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAN Parameter ID	M		INTEGER (1.. 4294967295, ...)	

### 9.3.9 RAN Parameter Name

This IE defines the name of a given RAN parameter.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAN Parameter Name	M		PrintableString(SIZE(1..150, ...))	

### 9.3.10 UE ID

This IE is defined in [4] clause 6.2.2.6.

### 9.3.11 RAN Parameter Value Type

This IE specifies the RAN parameters controlled by the RIC. The parameters can be individual elements, or structures containing constituent elements or a list of structures. The parameters and their types are given in Clause 8.4.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE RAN Parameter Value Type</b>	M			A RAN Parameter can either be an ELEMENT or a STRUCTURE or a LIST.
<b>&gt;ELEMENT with Key Flag TRUE</b>				If the RAN parameter is singular variable and if it is a key parameter with key flag set to TRUE as in Clause 8.
>>RAN Parameter Value	M		9.3.14	This IE must be filled for both INSERT and CONTROL if the key flag is TRUE so as to reference the proper structure within the list.
<b>&gt;ELEMENT with Key Flag FALSE</b>				If the RAN parameter is singular variable and if it is NOT a key parameter (key flag set to FALSE). as in Clause 8.
>>RAN Parameter Value	C-ifControl		9.3.14	This IE must be filled if this structure is part of a RIC Control Request message; else, if it is part of a RIC Indication message, this IE is optional.
<b>&gt;STRUCTURE</b>				If the RAN parameter is a structure, in turn containing a set of RAN parameters.
>>RAN Parameter Structure	M		9.3.12	
<b>&gt;LIST</b>				If the RAN parameter is a list containing individual items, each of which has an index.
>>RAN Parameter List	M		9.3.13	

Condition	Explanation
ifControl	This IE shall be present if it is part of a RIC Control Request message. Otherwise, it is optional.

### 9.3.12 RAN Parameter Structure

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of RAN Parameters		0..<maxno ofParametersinStructure>		The size must be at least 1 in the case of CONTROL.
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Value Type	M		9.3.11	Each parameter in the structure can in turn be an individual ELEMENT or another STRUCTURE or a LIST

Range bound	Explanation
maxnoofParametersinStructure	Maximum no. of RAN parameters supported in a structure. The value is <65535>.

### 9.3.13 RAN Parameter List

IE/Group Name	Presence	Range	IE type and reference	Semantics description
List of RAN Parameter Structures		0..<max nooflte msinList >		The size must be at least 1 in the case of CONTROL
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Structure	M		9.3.12	

Range bound	Explanation
maxnoofItemsinList	Maximum no. of RAN parameters supported in a structure. The value is <65535>.

### 9.3.14 RAN Parameter Value

This IE defines the target value type for a RAN parameter ELEMENT.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE RAN Parameter Value</b>	M			
>BOOLEAN			BOOLEAN	
>INTEGER			INTEGER	
>REAL			REAL	
>BIT STRING			BIT STRING	
>OCTET STRING			OCTET STRING	
>PrintableString			PrintableString	

### 9.3.15 Call Process Type ID

This IE uniquely identifies a call Process Type for a call process breakpoint event trigger.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Call Process Type ID	M		INTEGER (1.. 65535, ...)	

### 9.3.16 Insert Indication ID

This IE uniquely identifies an action of a given RIC Control style.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Insert Indication ID	M		INTEGER (1.. 65535, ...)	

### 9.3.17 Insert Indication Name

This IE defines the name of a given control action.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Insert Indication Name	M		PrintableString(SIZE(1.. 150, ...))	

### 9.3.18 RAN Call Process ID

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Call Process ID			INTEGER (1..4294967295, ...)	To be used to match an INSERT Indication request with a following CONTROL action

### 9.3.19 Call Process Type Name

This IE defines the name of a given call Process Type.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Call Process Type Name	M		PrintableString (SIZE(1..150, ...))	

### 9.3.20 Policy Action

This IE defines the *Policy Action* IE

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Policy Action ID	M		9.3.6	Combined with RIC Style to define Policy type
Sequence of RAN Parameters		0..<maxnoofAssociatedRANParameters>		
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Value Type	M		9.3.11	
RIC Policy decision	O		ENUMERATED (accept, reject, ...)	Used to indicate accept or reject a RRM function as Policy Action

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum no. of RAN Parameter types in action definition supported by RAN Function. Value is <65535>.

### 9.3.21 Event Trigger Condition ID

This IE defines an identifier for event trigger conditions configured for a specific Event Trigger style.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Event Trigger Condition ID	M		INTEGER (1..65535, ...)	

### 9.3.22 Event Trigger ID for UE

This IE defines an identifier for a specific UE related condition configured for event triggering.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Event Trigger ID for UE	M		INTEGER (1..65535, ...)	

### 9.3.23 Event Trigger ID for UE Event

This IE defines an identifier for a specific UE event configured for event triggering.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Event Trigger ID for UE Event	M		INTEGER (1..65535, ...)	

### 9.3.24 Event Trigger ID for Cell

This IE defines an identifier for a specific cell related condition configured for event triggering.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Event Trigger ID for Cell	M		INTEGER (1..65535, ...)	

### 9.3.25 Logical OR

This IE indicates a logical ("and" or "or") connection of the current condition to the next condition in a given sequence of conditions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Logical OR	M		ENUMERATED (true, false, ...)	If set to "true", logical connection to the next condition is "or". Otherwise, "and".

### 9.3.26 Event Trigger UE Information

This IE defines a set of applicable UEs for event triggering.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Associated UE Information		1..<maxnoofUEInfo>		
>Event Trigger UE ID	M		9.3.22	
> <b>CHOICE UE Type</b>				
>> <b>Individual UE</b>				
>>>UE ID	M		9.3.10	
>>>RAN Parameter Testing for Individual UE	O		9.3.29	To test a set of RAN Parameter conditions for a given UE. RAN Parameters defined in Clause 8.1.3 shall be used.
>> <b>UE Group</b>				
>>>RAN Parameter Testing for UE Group	M		9.3.29	To test a set of RAN Parameter conditions for defining a given UE group. RAN Parameters defined in Clause 8.1.3 shall be used.
>Logical OR	O		9.3.25	

Range bound	Explanation
maxnoofUEInfo	Maximum number of UE information in a given E2 node for which event trigger can be defined. The value is <65535>

### 9.3.27 Event Trigger Cell Information

This IE defines a set of applicable cells for event triggering.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Associated Cell Information		1..<maxnoofCellInfo>		
>Event Trigger Cell ID	M		9.3.24	
> <b>CHOICE Cell Type</b>	M			
>> <b>Individual Cell</b>				
>>>Cell Global ID	M		9.3.36	
>> <b>Cell Group</b>				
>>>RAN Parameter Testing for Cell Group	M		9.3.29	To test a set of RAN Parameter conditions for defining a given Cell group RAN Parameters defined in Clause 8.1.4 shall be used.
>Logical OR	O		9.3.25	

Range bound	Explanation
maxnoofCellInfo	Maximum number of cells in a given E2 node for which event trigger can be defined. The value is <65535>

### 9.3.28 Event Trigger UE Event Information

This IE defines a set of UE events for event triggering.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of UE Event for Event Triggering		1..<maxnoofUEEventInfo>		
>UE Event ID	M		9.3.23	UE Events defined in Clause 8.1.5 shall be used.
>Logical OR	O		9.3.25	

Range bound	Explanation
maxnoofUEEventInfo	Maximum number of UE Event information in a given E2 node for which event trigger can be defined. The value is <65535>

### 9.3.29 RAN Parameter Conditional Criteria Definition

This IE defines the generic test conditions based on RAN parameters.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of RAN Parameter Testing		1..<maxnoofRANparamTest>		
>RAN Parameter Testing	M		9.3.30	

Range bound	Explanation
maxnoofRANparamTest	Maximum no. of RAN Parameter Testing. Value is <255>

### 9.3.30 RAN Parameter Test

This IE defines a set of test conditions for RAN parameters nested under a given RAN parameter through recursions. Only “ELEMENT” type of RAN parameter with Key Flag set to “False” is tested.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAN Parameter ID	M		9.3.9	
<b>CHOICE RAN Parameter Type</b>	M			A RAN Parameter can either be an ELEMENT or a STRUCTURE or a LIST. An ELEMENT type RAN Parameter is with Key Flag set to either “True” or “False”.
<b>&gt;LIST</b>				
>>List of RAN Parameter Structures		1..<maxnoofItemsinList>		
>>>RAN Parameter Testing	M		9.3.30	
<b>&gt;STRUCTURE</b>				
>>Sequence of RAN Parameters		1..<maxnoofParametersinStructure>		
>>>RAN Parameter Testing	M		9.3.30	
<b>&gt;ELEMENT with Key Flag True</b>				
>>RAN Parameter Value	M		9.3.14	
<b>&gt;ELEMENT with Key Flag False</b>				
>>RAN Parameter Test Condition	M		9.3.31	
>>RAN Parameter Value	O		9.3.14	
>>Logical OR	O		9.3.25	

Range bound	Explanation
maxnoofItemsinList	Maximum no. of RAN parameters supported in a structure. The value is <65535>.
maxnoofParametersinStructure	Maximum no. of RAN parameters supported in a structure. The value is <65535>.

### 9.3.31 RAN Parameter Test Condition

This IE compares the particular value of a given RAN parameter with the target value.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE RAN Parameter Test Condition</b>				
>Comparison	M		ENUMERATED (equal, difference, greaterthan, lessthan, contains, starts with, ...)	Applies only when RAN Parameter Value is present in 9.3.30.
>Presence	M		ENUMERATED (present, configured, rollover, non-zero, ..., value-change)	Applies only when RAN Parameter Value is not present in 9.3.30.

For the choice type of “Comparison”, the test condition is Value (*RAN Parameter ID*) (*RAN Parameter Test Condition*) (*RAN Parameter Value*).

RAN Parameter Test condition	Test condition
Equal	Value ( <i>RAN Parameter ID</i> ) = ( <i>RAN Parameter Value</i> )
Difference	Value ( <i>RAN Parameter ID</i> ) <> ( <i>RAN Parameter Value</i> )
Greaterthan	Value ( <i>RAN Parameter ID</i> ) => ( <i>RAN Parameter Value</i> )
lessthan	Value ( <i>RAN Parameter ID</i> ) < ( <i>RAN Parameter Value</i> )
contains	Value ( <i>RAN Parameter ID</i> ) contains ( <i>RAN Parameter Value</i> )
Starts with	Value ( <i>RAN Parameter ID</i> ) has the same initial part as ( <i>RAN Parameter Value</i> )

For the choice type of “Presence”, the test condition is applied to Value (*RAN Parameter ID*)

RAN Parameter Test condition	Test condition
present	Value ( <i>RAN Parameter ID</i> ) is defined (i.e. memory allocated)
configured	Value ( <i>RAN Parameter ID</i> ) has been set (i.e. not NULL)
rollover	Value ( <i>RAN Parameter ID</i> ) was max defined value and now 0
non-zero	Value ( <i>RAN Parameter ID</i> ) <> 0
	Length (Value ( <i>RAN Parameter ID</i> )) > 0

### 9.3.32 Network Interface Type

This IE is defined in [4] clause 6.2.2.10.

### 9.3.33 Network Interface Identifier

This IE is defined in [4] clause 6.2.2.11.

### 9.3.34 Network Interface Message ID

This IE is defined in [4] clause 6.2.2.12.

### 9.3.35 RRC Message ID

This IE is defined in [4] clause 6.2.2.13.

### 9.3.36 Cell Global ID

This IE is defined in [4] clause 6.2.2.5.

### 9.3.37 RRC State

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RRC State	M		ENUMERATED (RRC_Connected, RRC_Inactive, RRC_Idle, Any, ...)	Value 'any' indicates RRC state shall be any of the values in the enumeration.

### 9.3.38 Neighbour Relation Information

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Serving Cell PCI	M		9.3.39	
Serving Cell ARFCN	M		9.3.40	DL Frequency Info for FDD Mode.
Neighbour Cell List		1..<maxnoofNeighbourCell>		
>CHOICE RAN Type	M			
>>NR	M			
>>>NR CGI	M		9.3.41	
>>>NR PCI	M		9.3.42	
>>>5GS TAC	M		9.3.43	
>>>NR Mode Info	M		ENUMERATED (fdd, tdd, ...)	
>>>NR Frequency Info	M		9.3.44	DL Frequency Info for FDD Mode. NR Frequency Info IE in TS 38.473 9.3.1.17
>>>Xn X2 Established	M		ENUMERATED (true, false, ...)	Value “true” shall indicate that Xn or X2 Interface Setup with the neighbour is successful.
>>>HO Validated	M		ENUMERATED (true, false, ...)	Value “true” if at least one successful HO is executed with the neighbour.
>>>Version	M		INTEGER (1..65535, ...)	For every neighbour information, the value is incremented by 1. When there is a change in the existing neighbour information, a new incremented version number is used. The deleted neighbours are not sent.
>>E-UTRA	M			
>>>E-UTRA CGI	M		9.3.45	
>>>E-UTRA PCI	M		9.3.46	
>>>E-UTRA ARFCN	M		9.3.47	
>>>E-UTRA TAC	M		9.3.48	
>>>Xn X2 Established	M		ENUMERATED (true, false, ...)	Value “true” shall indicate that Xn or X2 Interface Setup with the neighbour is successful.
>>>HO Validated	M		ENUMERATED (true, false, ...)	Value “true” if at least one successful HO is executed with this neighbour.
>>>Version	M		INTEGER (1..65535, ...)	For every neighbour information, the value is incremented by 1. When there is a change in the existing neighbour information, a new incremented version number is used. The deleted neighbours are not sent.

Range bound	Explanation
maxnoofNeighbourCell	Maximum no. of Neighbour Cell information per Serving cell. The value is <65535>.

### 9.3.39 Serving Cell PCI

This IE is defined in [4] clause 6.2.2.14.

### 9.3.40 Serving Cell ARFCN

This IE is defined in [4] clause 6.2.2.15.

### 9.3.41 NR CGI

This IE is defined in [4] clause 6.2.3.7.

### 9.3.42 NR PCI

This IE is defined in [4] clause 6.2.3.29.

### 9.3.43 NR TAC

This IE is defined in [4] clause 6.2.3.31.

### 9.3.44 NR Frequency Info

This IE is defined in [4] clause 6.2.3.36.

### 9.3.45 E-UTRA CGI

This IE is defined in [4] clause 6.2.3.11.

### 9.3.46 E-UTRA PCI

This IE is defined in [4] clause 6.2.3.32.

### 9.3.47 E-UTRA TAC

This IE is defined in [4] clause 6.2.3.34.

### 9.3.48 E-UTRA ARFCN

This IE is defined in [4] clause 6.2.3.33.

### 9.3.49 Call Process Breakpoint ID

This IE uniquely identifies a call Process breakpoint for a given call process type.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Call Process Breakpoint ID	M		INTEGER (1.. 65535, ...)	

### 9.3.50 Call Process Breakpoint Name

This IE defines the name of a given call Process breakpoint.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Call Process Breakpoint Name	M		PrintableString (SIZE(1..150, ...))	

### 9.3.51 RAN Parameter Definition

This IE specifies the definition of a RAN parameter that can be controlled by the RIC when the RAN parameter is of a STRUCTURE type or a LIST type. The parameters and their types are given in Clause 8.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE RAN Parameter Type</b>	M			A RAN Parameter can either be a LIST or a STRUCTURE.
<b>&gt;LIST</b>				
>>List of RAN Parameter		1..<max nooflte msinList >		
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	This IE shall be ignored when included in a RIC Functional Procedure message.
>>>RAN Parameter Definition	O		9.3.51	If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the itemized RAN parameters under this RAN Parameter ID are assumed to be supported.  Shall not be included If the RAN Parameter ID is of an ELEMENT type.
<b>&gt;STRUCTURE</b>				
>>Sequence of RAN Parameters		1..<max noofParameters inStructure>		
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	This IE shall be ignored when included in a RIC Functional Procedure message.
>>>RAN Parameter Definition	O		9.3.51	If not included for the RAN Parameter ID of a STRUCTURE type or a LIST type, then all the itemized RAN parameters under this RAN Parameter ID are assumed to be supported.  Shall not be included If the RAN Parameter ID is of an ELEMENT type.

Range bound	Explanation
maxnoofItemsinList	Maximum no. of RAN parameters supported in a list. The value is <65535>.
maxnoofParametersinStructure	Maximum no. of RAN parameters supported in a structure. The value is <65535>.

### 9.3.52 Associated UE Information

This IE defines a set of applicable UEs for Query Service.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Associated UE Information		1..<maxnoofUEInfo>		
>UE Filter ID	M		9.3.53	
> <b>CHOICE UE Type</b>				
>> <b>Individual UE</b>				
>>>UE ID	M		9.3.10	
>>>RAN Parameter Testing for Individual UE	O		9.3.29	To test a set of RAN Parameter conditions for a given UE. RAN Parameters defined in Clause 8.1.3 shall be used.
>> <b>UE Group</b>				
>>>RAN Parameter Testing for UE Group	M		9.3.29	To test a set of RAN Parameter conditions for defining a given UE group RAN Parameters defined in Clause 8.1.3 shall be used.
>> <b>UE Query</b>				
>>>Partial UE ID	M		9.3.57	
>>>RAN Parameter Testing	O		9.3.29	To test a set of RAN Parameter conditions for a UE. RAN Parameters defined in Clause 8.1.3 shall be used.
>Logical OR	O		9.3.25	

Range bound	Explanation
maxnoofUEInfo	Maximum number of UE information in a given E2 node for UE filter conditions. The value is <65535>

### 9.3.53 UE Filter ID

This IE defines an identifier for UE Filter Conditions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UE Filter ID	M		INTEGER (1..65535, ...)	

### 9.3.54 UE Group ID

This IE defines an identifier to uniquely identify a UE group.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UE group ID	M		INTEGER (1..65535, ...)	

### 9.3.55 Entity Filter ID

This IE defines an identifier to uniquely identify an entity filter that defines the set of entities across the UEs in a UE group.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Entity Filter ID	M		INTEGER (1..255, ...)	

### 9.3.56 UE Group Definition

IE/Group Name	Presence	Range	IE type and reference	Semantics description
List of identifiers to define the UE group		1		
>Identifier Item IEs		1..< <i>maxGroupDefinitionIdentifierParameters</i> >		
>>RAN Parameter ID	M		9.3.8	Only RAN Parameters from Clause 8.1.3 shall be used
>>RAN Parameter Value Type	M		9.3.11	
>>Logical OR	O		ENUMERATED (true, ...)	Default is FALSE

Range bound	Explanation
maxGroupDefinitionIdentifierParameters	Maximum no. of RAN parameters used to determine a logical grouping of UEs. The value is <255>.

### 9.3.57 Partial UE ID

This IE is defined in [4] clause 6.2.2.18.

### 9.3.58 Policy Condition ID

This IE defines an identifier for Policy Condition ID.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Policy Condition ID	M		INTEGER (0..65535)	

### 9.3.59 PLMN Identity

This IE is defined in [4] clause 6.2.3.1.

### 9.3.60 Serving Cell Configuration Common

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SSB Positions in Burst	M		OCTET STRING	ssb-PositionsInBurst IE in TS 38.331 [22] Clause 6.3.2
SSB Periodicity	M		ENUMERATED {ms5, ms10, ms20, ms40, ms80, ms160, ...}	ssb-periodicityServingCell IE in TS 38.331 [22] Clause 6.3.2

SSB Subcarrier Spacing	M		ENUMERATED {kHz15, kHz30, kHz60, kHz120, kHz240, kHz480- v1700, kHz960- v1700, ...}	ssbSubcarrierSpacing IE in TS 38.331 [22] Clause 6.3.2
------------------------	---	--	--	--

## 9.4 Information Element Abstract Syntax (with ASN.1)

### 9.4.1 General

E2SM-RC ASN.1 definition conforms to ITU-T Rec. X.680 [5] and ITU-T Rec. X.681 [6].

Sub clause 9.4.2 presents the Abstract Syntax of the E2SM information elements to be carried within the E2AP [3] protocol messages with ASN.1. In case there is contradiction between the ASN.1 definition in this sub clause and the tabular format in sub clause 9.2 and 9.3, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional elements, in which the tabular format shall take precedence.

If an E2SM information element carried as an OCTET STRING in an E2AP [3] message that is not constructed as defined above is received, this shall be considered as Abstract Syntax Error, and the message shall be handled as defined for Abstract Syntax Error in clause 9.

### 9.4.2 Information Element Definitions

```
-- ASN1START
-- ****
-- E2SM-RC Information Element Definitions
-- ****

E2SM-RC-IEs {
    iso(1) identified-organization(3) dod(6) internet(1) private(4) enterprise(1) oran(53148) e2(1)
    version1(1) e2sm(2) e2sm-RC-IEs (3) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- ****
-- E2SM Common IEs
-- ****

IMPORTS
    CGI,
    E-UTRA-ARFCN,
    EUTRA-CGI,
    E-UTRA-PCI,
    E-UTRA-TAC,
    FiveGS-TAC,
    InterfaceIdentifier,
    InterfaceType,
    Interface-MessageID,
    NRFrequencyInfo,
    NR-CGI,
    NR-PCI,
    PartialUEID,
    RANfunction-Name,
    RIC-Format-Type,
    RIC-Style-Name,
    RIC-Style-Type,
    RRC-MessageID,
    ServingCell-ARFCN,
    ServingCell-PCI,
    UEID
FROM E2SM-COMMON-IEs;
```

```

-- ****
-- CONSTANTS
-- ****

maxnoofMessages                                INTEGER ::= 65535
maxnoofE2InfoChanges                           INTEGER ::= 65535
maxnoofUEInfoChanges                           INTEGER ::= 65535
maxnoofRRCstate                                INTEGER ::= 8
maxnofParametersToReport                      INTEGER ::= 65535
maxnofPolicyConditions                        INTEGER ::= 65535
maxnofAssociatedRANParameters                 INTEGER ::= 65535
maxnofUEID                                     INTEGER ::= 65535
maxnofCellID                                    INTEGER ::= 65535
maxnofRANOutcomeParameters                   INTEGER ::= 255
maxnofParametersinStructure                  INTEGER ::= 65535
maxnofItemsinList                             INTEGER ::= 65535
maxnofUEInfo                                    INTEGER ::= 65535
maxnofCellInfo                                 INTEGER ::= 65535
maxnofUEeventInfo                            INTEGER ::= 65535
maxnofRANparamTest                           INTEGER ::= 255
maxnofNeighbourCell                           INTEGER ::= 65535
maxnofRICStyles                               INTEGER ::= 63
maxnofCallProcessTypes                        INTEGER ::= 65535
maxnofCallProcessBreakpoints                 INTEGER ::= 65535
maxnofInsertIndication                       INTEGER ::= 65535
maxnofControlAction                           INTEGER ::= 65535
maxnofPolicyAction                            INTEGER ::= 65535
maxnofInsertIndicationActions                INTEGER ::= 63
maxnofMulCtrlActions                          INTEGER ::= 63
maxGroupDefinitionIdentifierParameters   INTEGER ::= 255
maxnofAssociatedEntityFilters                INTEGER ::= 255
maxnofFormatTypes                            INTEGER ::= 63

-- ****
-- IEs
-- ****

LogicalOR ::= ENUMERATED {true, false, ...}

NeighbourCell-List ::= SEQUENCE (SIZE(1..maxnofNeighbourCell)) OF NeighbourCell-Item

NeighbourCell-Item ::= CHOICE {
    ranType-Choice-NR                         NeighbourCell-Item-Choice-NR,
    ranType-Choice-EUTRA                      NeighbourCell-Item-Choice-E-UTRA,
    ...
}

NeighbourCell-Item-Choice-NR ::= SEQUENCE {
    nR-CGI                                  NR-CGI,
    nR-PCI                                  NR-PCI,
    fiveGS-TAC                             FiveGS-TAC,
    nR-mode-info                           ENUMERATED {fdd, tdd, ...},
    nR-FreqInfo                            NRFrequencyInfo,
    x2-Xn-established                     ENUMERATED {true, false, ...},
    h0-validated                           ENUMERATED {true, false, ...},
    version                                 INTEGER (1..65535, ...),
    ...
}

NeighbourCell-Item-Choice-E-UTRA ::= SEQUENCE {
    eUTRA-CGI                             EUTRA-CGI,
    eUTRA-PCI                             E-UTRA-PCI,
    eUTRA-ARFCN                           E-UTRA-ARFCN,
    eUTRA-TAC                            E-UTRA-TAC,
    x2-Xn-established                     ENUMERATED {true, false, ...},
    h0-validated                           ENUMERATED {true, false, ...},
    version                                 INTEGER (1..65535, ...),
    ...
}

NeighbourRelation-Info ::= SEQUENCE {
    servingCellPCI                         ServingCell-PCI,
    servingCellARFCN                        ServingCell-ARFCN,
    neighbourCell-List                      NeighbourCell-List,
    ...
}

```

}

RRC-State ::= ENUMERATED {rrc-connected, rrc-inactive, rrc-idle, any, ...}

-----  
-- Event Trigger related IEs  
-----

EventTrigger-Cell-Info ::= SEQUENCE {
cellInfo-List
SEQUENCE (SIZE(1..maxnoofCellInfo)) OF EventTrigger-Cell-Info-Item,
...
}

EventTrigger-Cell-Info-Item ::= SEQUENCE {
eventTriggerCellID
RIC-EventTrigger-Cell-ID,
cellType
CHOICE {
cellType-Choice-Individual
EventTrigger-Cell-Info-Item-Choice-Individual,
cellType-Choice-Group
EventTrigger-Cell-Info-Item-Choice-Group,
...
},
logicalOR
LogicalOR
OPTIONAL,
...
}

EventTrigger-Cell-Info-Item-Choice-Individual ::= SEQUENCE {
cellGlobalID
CGI,
...
}

EventTrigger-Cell-Info-Item-Choice-Group ::= SEQUENCE {
ranParameterTesting
RANParameter-Testing,
...
}

EventTrigger-UE-Info ::= SEQUENCE {
ueInfo-List
SEQUENCE (SIZE(1..maxnoofUEInfo)) OF EventTrigger-UE-Info-Item,
...
}

EventTrigger-UE-Info-Item ::= SEQUENCE {
eventTriggerUEID
RIC-EventTrigger-UE-ID,
ueType
CHOICE {
ueType-Choice-Individual
EventTrigger-UE-Info-Item-Choice-Individual,
ueType-Choice-Group
EventTrigger-UE-Info-Item-Choice-Group,
...
},
logicalOR
LogicalOR
OPTIONAL,
...
}

EventTrigger-UE-Info-Item-Choice-Individual ::= SEQUENCE {
ueID
UEID,
ranParameterTesting
RANParameter-Testing
OPTIONAL,
...
}

EventTrigger-UE-Info-Item-Choice-Group ::= SEQUENCE {
ranParameterTesting
RANParameter-Testing,
...
}

EventTrigger-UEEvent-Info ::= SEQUENCE {
ueEvent-List
SEQUENCE (SIZE(1..maxnoofUEEventInfo)) OF EventTrigger-UEEvent-Info-Item,
...
}

EventTrigger-UEEvent-Info-Item ::= SEQUENCE {
ueEventID
RIC-EventTrigger-UEEvent-ID,
logicalOR
LogicalOR
OPTIONAL,
...
}

}

-----  
-- RAN Parameter related IEs  
-----

```
RANParameter-ID      ::= INTEGER (1..4294967295, ...)

RANParameter-Name ::= PrintableString (SIZE(1..150, ...))

RANParameter-Definition ::= SEQUENCE {
    ranParameter-Definition-Choice      RANParameter-Definition-Choice,
    ...
}

RANParameter-Definition-Choice ::= CHOICE {
    choiceLIST                      RANParameter-Definition-Choice-LIST,
    choiceSTRUCTURE                  RANParameter-Definition-Choice-STRUCTURE,
    ...
}

RANParameter-Definition-Choice-LIST ::= SEQUENCE {
    ranParameter-List                SEQUENCE (SIZE(1..maxnoofItemsinList)) OF RANParameter-
Definition-Choice-LIST-Item,
    ...
}

RANParameter-Definition-Choice-LIST-Item ::= SEQUENCE {
    ranParameter-ID                 RANParameter-ID,
    ranParameter-name               RANParameter-Name,
    ranParameter-Definition         RANParameter-Definition OPTIONAL,
    ...
}

RANParameter-Definition-Choice-STRUCTURE ::= SEQUENCE {
    ranParameter-STRUCTURE          SEQUENCE (SIZE(1..maxnoofParametersinStructure)) OF
RANParameter-Definition-Choice-STRUCTURE-Item,
    ...
}

RANParameter-Definition-Choice-STRUCTURE-Item ::= SEQUENCE {
    ranParameter-ID                 RANParameter-ID,
    ranParameter-name               RANParameter-Name,
    ranParameter-Definition         RANParameter-Definition OPTIONAL,
    ...
}

RANParameter-Value ::= CHOICE {
    valueBoolean                   BOOLEAN,
    valueInt                        INTEGER,
    valueReal                       REAL,
    valueBits                       BIT STRING,
    valueOctS                      OCTET STRING,
    valuePrintableString            PrintableString,
    ...
}

RANParameter-ValueType ::= CHOICE {
    ranP-Choice-ElementTrue        RANParameter-ValueType-Choice-ElementTrue,
    ranP-Choice-ElementFalse       RANParameter-ValueType-Choice-ElementFalse,
    ranP-Choice-Structure          RANParameter-ValueType-Choice-Structure,
    ranP-Choice-List               RANParameter-ValueType-Choice-List,
    ...
}

RANParameter-ValueType-Choice-ElementTrue ::= SEQUENCE {
    ranParameter-value             RANParameter-Value,
    ...
}

RANParameter-ValueType-Choice-ElementFalse ::= SEQUENCE {
    ranParameter-value             RANParameter-Value OPTIONAL,
-- C-ifControl: This IE shall be present if it is part of a RIC Control Request message. Otherwise
it is optional.
}
```

```

    ...
}

RANParameter-ValueType-Choice-Structure ::= SEQUENCE {
    ranParameter-Structure          RANParameter-STRUCTURE,
    ...
}

RANParameter-ValueType-Choice-List ::= SEQUENCE {
    ranParameter-List              RANParameter-LIST,
    ...
}

RANParameter-STRUCTURE ::= SEQUENCE {
    sequence-of-ranParameters      SEQUENCE (SIZE(1..maxnoofParametersinStructure)) OF
    RANParameter-STRUCTURE-Item    OPTIONAL,
    ...
}

RANParameter-STRUCTURE-Item ::= SEQUENCE {
    ranParameter-ID                RANParameter-ID,
    ranParameter-valueType         RANParameter-ValueType,
    ...
}

RANParameter-LIST ::= SEQUENCE {
    list-of-ranParameter          SEQUENCE (SIZE(1..maxnoofItemsinList)) OF RANParameter-
STRUCTURE,
    ...
}

RANParameter-Testing ::= SEQUENCE (SIZE(1..maxnoofRANparamTest)) OF RANParameter-Testing-Item

RANParameter-TestingCondition ::= CHOICE {
    ranP-Choice-comparison        ENUMERATED {equal, difference, greaterthan, lessthan,
contains, starts-with, ...},
    ranP-Choice-presence          ENUMERATED {present, configured, rollover, non-zero, ...,
value-change},
    ...
}

RANParameter-Testing-Item ::= SEQUENCE {
    ranParameter-ID                RANParameter-ID,
    ranParameter-Type              CHOICE {
        ranP-Choice-List            RANParameter-Testing-Item-Choice-List,
        ranP-Choice-Structure       RANParameter-Testing-Item-Choice-Structure,
        ranP-Choice-ElementTrue     RANParameter-Testing-Item-Choice-ElementTrue,
        ranP-Choice-ElementFalse    RANParameter-Testing-Item-Choice-ElementFalse,
        ...
    },
    ...
}

RANParameter-Testing-Item-Choice-List ::= SEQUENCE {
    ranParameter-List              RANParameter-Testing-LIST,
    ...
}

RANParameter-Testing-Item-Choice-Structure ::= SEQUENCE {
    ranParameter-Structure         RANParameter-Testing-STRUCTURE,
    ...
}

RANParameter-Testing-Item-Choice-ElementTrue ::= SEQUENCE {
    ranParameter-value              RANParameter-Value,
    ...
}

RANParameter-Testing-Item-Choice-ElementFalse ::= SEQUENCE {
    ranParameter-TestCondition     RANParameter-TestingCondition,
    ranParameter-Value              RANParameter-Value
    logicalOR                      OPTIONAL,
    ...
}

```

```

RANParameter-Testing-LIST ::= SEQUENCE (SIZE(1..maxnoofItemsinList)) OF RANParameter-Testing-Item
RANParameter-Testing-STRUCTURE ::= SEQUENCE (SIZE(1..maxnoofParametersinStructure)) OF RANParameter-
Testing-Item

UE-Group-Definition ::= SEQUENCE {
    ueGroupDefinitionIdentifier-LIST SEQUENCE (SIZE(1..maxGroupDefinitionIdentifierParameters)) OF
UEGroupDefinitionIdentifier-Item,
    ...
}

UEGroupDefinitionIdentifier-Item ::= SEQUENCE {
    ranParameter-ID                  RANParameter-ID,
    ranParameter-valueType          RANParameter-ValueType,
    logicalOR                      LogicalOR
    ...
}

-----  

-- RIC Service related IEs  

-----

RAN-CallProcess-ID ::= INTEGER (1..4294967295, ...)

RIC-CallProcessType-ID ::= INTEGER (1..65535, ...)

RIC-CallProcessType-Name ::= PrintableString (SIZE(1..150, ...))

RIC-CallProcessBreakpoint-ID ::= INTEGER (1..65535, ...)

RIC-CallProcessBreakpoint-Name ::= PrintableString (SIZE(1..150, ...))

RIC-ControlAction-ID ::= INTEGER (1..65535, ...)

RIC-ControlAction-Name ::= PrintableString (SIZE(1..150, ...))

RIC-EventTriggerCondition-ID ::= INTEGER (1..65535, ...)

RIC-EventTrigger-UE-ID ::= INTEGER (1..65535, ...)

RIC-EventTrigger-UEevent-ID ::= INTEGER (1..65535, ...)

RIC-EventTrigger-Cell-ID ::= INTEGER (1..65535, ...)

RIC-InsertIndication-ID ::= INTEGER (1..65535, ...)

RIC-InsertIndication-Name ::= PrintableString (SIZE(1..150, ...))

UE-Group-ID ::= INTEGER (1..65535, ...)

EntityFilter-ID ::= INTEGER (1..255, ...)

Ric-PolicyConditionID ::= INTEGER (0.. 65535)

RIC-PolicyAction ::= SEQUENCE {
    ric-PolicyAction-ID            RIC-ControlAction-ID,
    ranParameters-List           SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF RIC-
PolicyAction-RANParameter-Item
    ...
    ric-PolicyDecision           ENUMERATED {accept, reject, ...}                                OPTIONAL
}

RIC-PolicyAction-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                  RANParameter-ID,
    ranParameter-valueType          RANParameter-ValueType,
    ...
}

UE-Filter-ID ::= INTEGER (1..65535, ...)

Associated-UE-Info ::= SEQUENCE {
    associatedUEInfo-List          SEQUENCE (SIZE(1..maxnoofUEInfo)) OF Associated-UE-Info-
Item,
}

```

```

...
}

Associated-UE-Info-Item ::= SEQUENCE {
    ueFilterID                  UE-Filter-ID,
    ueType                      CHOICE {
        ueType-Choice-Individual   EventTrigger-UE-Info-Item-Choice-Individual,
        ueType-Choice-Group        EventTrigger-UE-Info-Item-Choice-Group,
        ...
        ueQuery                   UEQuery
    },
    logicalOR                   LogicalOR
                                OPTIONAL,
    ...
}

UEQuery ::= SEQUENCE {
    partialUEID                PartialUEID,
    ranParameterTesting         RANParameter-Testing
                                OPTIONAL,
    ...
}

-- *****
-- E2SM-RC Service Model IEs
-- *****

-- *****
-- Event Trigger OCTET STRING contents
-- *****

E2SM-RC-EventTrigger ::= SEQUENCE {
    ric-eventTrigger-formats      CHOICE {
        eventTrigger-Format1       E2SM-RC-EventTrigger-Format1,
        eventTrigger-Format2       E2SM-RC-EventTrigger-Format2,
        eventTrigger-Format3       E2SM-RC-EventTrigger-Format3,
        eventTrigger-Format4       E2SM-RC-EventTrigger-Format4,
        eventTrigger-Format5       NULL,
        ...
    },
    ...
}

E2SM-RC-EventTrigger-Format1 ::= SEQUENCE {
    message-List                 SEQUENCE (SIZE(1..maxnoofMessages)) OF E2SM-RC-
    EventTrigger-Format1-Item,
    globalAssociatedUEInfo       EventTrigger-UE-Info
                                OPTIONAL,
    ...
}

E2SM-RC-EventTrigger-Format1-Item ::= SEQUENCE {
    ric-eventTriggerCondition-ID RIC-EventTriggerCondition-ID,
    messageType                 MessageType-Choice,
    messageDirection            ENUMERATED {incoming, outgoing, ...} OPTIONAL,
    associatedUEInfo             EventTrigger-UE-Info
                                OPTIONAL,
    associatedUEEvent            EventTrigger-UEvent-Info
                                OPTIONAL,
    logicalOR                   LogicalOR
                                OPTIONAL,
    ...
}

MessageType-Choice ::= CHOICE {
    messageType-Choice-NI        MessageType-Choice-NI,
    messageType-Choice-RRC       MessageType-Choice-RRC,
    ...
}

MessageType-Choice-NI ::= SEQUENCE {
    nI-Type                     InterfaceType,
    nI-Identifier               InterfaceIdentifier
                                OPTIONAL,
    nI-Message                  Interface-MessageID
                                OPTIONAL,
    ...
}

MessageType-Choice-RRC ::= SEQUENCE {
    rRC-Message                 RRC-MessageID,
    ...
}

```

```

}

E2SM-RC-EventTrigger-Format2 ::= SEQUENCE {
    ric-callProcessType-ID          RIC-CallProcessType-ID,
    ric-callProcessBreakpoint-ID    RIC-CallProcessBreakpoint-ID,
    associatedE2NodeInfo           RANParameter-Testing
                                    OPTIONAL,
    associatedUEInfo               EventTrigger-UE-Info
                                    OPTIONAL,
    ...
}

E2SM-RC-EventTrigger-Format3 ::= SEQUENCE {
    e2NodeInfoChange-List          SEQUENCE (SIZE(1..maxnoofE2InfoChanges)) OF E2SM-RC-
EventTrigger-Format3-Item,
    ...
}

E2SM-RC-EventTrigger-Format3-Item ::= SEQUENCE {
    ric-eventTriggerCondition-ID   RIC-EventTriggerCondition-ID,
    e2NodeInfoChange-ID            INTEGER (1..512, ...),
    associatedCellInfo             EventTrigger-Cell-Info
                                    OPTIONAL,
    logicalOR                      LogicalOR
                                    OPTIONAL,
    ...
}

E2SM-RC-EventTrigger-Format4 ::= SEQUENCE {
    ueInfoChange-List              SEQUENCE (SIZE(1..maxnoofUEInfoChanges)) OF E2SM-RC-
EventTrigger-Format4-Item,
    ...
}

E2SM-RC-EventTrigger-Format4-Item ::= SEQUENCE {
    ric-eventTriggerCondition-ID   RIC-EventTriggerCondition-ID,
    triggerType                   TriggerType-Choice,
    associatedUEInfo              EventTrigger-UE-Info
                                    OPTIONAL,
    logicalOR                      LogicalOR
                                    OPTIONAL,
    ...
}

TriggerType-Choice ::= CHOICE {
    triggerType-Choice-RRCstate     TriggerType-Choice-RRCstate,
    triggerType-Choice-UEID         TriggerType-Choice-UEID,
    triggerType-Choice-L2state      TriggerType-Choice-L2state,
    ...
    triggerType-Choice-UEcontext    TriggerType-Choice-UEcontext,
    triggerType-Choice-L2MACschChg  TriggerType-Choice-L2MACschChg
}

TriggerType-Choice-RRCstate ::= SEQUENCE {
    rrcState-List                  SEQUENCE (SIZE(1..maxnoofRRCstate)) OF TriggerType-
Choice-RRCstate-Item,
    ...
}

TriggerType-Choice-RRCstate-Item ::= SEQUENCE {
    stateChangedTo                 RRC-State,
    logicalOR                      LogicalOR
                                    OPTIONAL,
    ...
}

TriggerType-Choice-UEID ::= SEQUENCE {
    ueIDchange-ID                  INTEGER (1..512, ...),
    ...
}

TriggerType-Choice-L2state ::= SEQUENCE {
    associatedL2variables          RANParameter-Testing,
    ...
}

TriggerType-Choice-UEcontext ::= SEQUENCE {
}

```

```

associatedUECtxtVariables           RANParameter-Testing,
...
}

TriggerType-Choice-L2MACschChg ::= SEQUENCE {
    L2MACschChgType           L2MACschChgType-Choice,
    ...
}

L2MACschChgType-Choice ::= CHOICE {
    triggerType-Choice-MIMOandBFconfig   TriggerType-Choice-MIMOandBFconfig,
    ...
}

TriggerType-Choice-MIMOandBFconfig ::= SEQUENCE {
    mIMOTransModeState      ENUMERATED {enabled, disabled, ...},
    ...
}

-- *****
-- Action Definition OCTET STRING contents
-- *****

E2SM-RC-ActionDefinition ::= SEQUENCE {
    ric-Style-Type          RIC-Style-Type,
    ric-actionDefinition-formats CHOICE {
        actionDefinition-Format1 E2SM-RC-ActionDefinition-Format1,
        actionDefinition-Format2 E2SM-RC-ActionDefinition-Format2,
        actionDefinition-Format3 E2SM-RC-ActionDefinition-Format3,
        ...
        actionDefinition-Format4 E2SM-RC-ActionDefinition-Format4
    },
    ...
}

E2SM-RC-ActionDefinition-Format1 ::= SEQUENCE {
    ranP-ToBeReported-List      SEQUENCE (SIZE(1..maxnoofParametersToReport)) OF E2SM-
    RC-ActionDefinition-Format1-Item,
    ...
}

E2SM-RC-ActionDefinition-Format1-Item ::= SEQUENCE {
    ranParameter-ID            RANParameter-ID,
    ...
    ranParameter-Definition    RANParameter-Definition           OPTIONAL
}

E2SM-RC-ActionDefinition-Format2 ::= SEQUENCE {
    ric-PolicyConditions-List SEQUENCE (SIZE(1..maxnoofPolicyConditions)) OF E2SM-RC-
    ActionDefinition-Format2-Item,
    ...
}

E2SM-RC-ActionDefinition-Format2-Item ::= SEQUENCE {
    ric-PolicyAction             RIC-PolicyAction,
    ric-PolicyConditionDefinition RANParameter-Testing           OPTIONAL,
    ...
    ric-PolicyConditionID       Ric-PolicyConditionID         OPTIONAL
}

E2SM-RC-ActionDefinition-Format3 ::= SEQUENCE {
    ric-InsertIndication-ID     RIC-InsertIndication-ID,
    ranP-InsertIndication-List  SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
    E2SM-RC-ActionDefinition-Format3-Item,
    ueID                         UEID                         OPTIONAL,
    ...
}

E2SM-RC-ActionDefinition-Format3-Item ::= SEQUENCE {
    ranParameter-ID            RANParameter-ID,
    ...
}

```

```

    ranParameter-Definition          RANParameter-Definition      OPTIONAL
}

E2SM-RC-ActionDefinition-Format4 ::= SEQUENCE {
    ric-InsertStyle-List           SEQUENCE (SIZE(1.. maxnoofRICStyles)) OF E2SM-RC-
ActionDefinition-Format4-Style-Item,
    ueID                           UEID                         OPTIONAL,
    ...
}

E2SM-RC-ActionDefinition-Format4-Style-Item ::= SEQUENCE {
    requested-Insert-Style-Type   RIC-Style-Type,
    ric-InsertIndication-List    SEQUENCE (SIZE(1..maxnoofInsertIndicationActions)) OF
E2SM-RC-ActionDefinition-Format4-Indication-Item,
    ...
}

E2SM-RC-ActionDefinition-Format4-Indication-Item ::= SEQUENCE {
    ric-InsertIndication-ID       RIC-InsertIndication-ID,
    ranP-InsertIndication-List   SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
E2SM-RC-ActionDefinition-Format4-RANP-Item,
    ...
}

E2SM-RC-ActionDefinition-Format4-RANP-Item ::= SEQUENCE {
    ranParameter-ID               RANParameter-ID,
    ...
    ranParameter-Definition      RANParameter-Definition      OPTIONAL
}

-- *****
-- Indication Header OCTET STRING contents
-- *****

E2SM-RC-IndicationHeader ::= SEQUENCE {
    ric-indicationHeader-formats CHOICE {
        indicationHeader-Format1   E2SM-RC-IndicationHeader-Format1,
        indicationHeader-Format2   E2SM-RC-IndicationHeader-Format2,
        ...
        indicationHeader-Format3   E2SM-RC-IndicationHeader-Format3
    },
    ...
}

E2SM-RC-IndicationHeader-Format1 ::= SEQUENCE {
    ric-eventTriggerCondition-ID RIC-EventTriggerCondition-ID      OPTIONAL,
    ...
}

E2SM-RC-IndicationHeader-Format2 ::= SEQUENCE {
    ueID                           UEID,
    ric-InsertStyle-Type          RIC-Style-Type,
    ric-InsertIndication-ID       RIC-InsertIndication-ID,
    ...
}

E2SM-RC-IndicationHeader-Format3 ::= SEQUENCE {
    ric-eventTriggerCondition-ID RIC-EventTriggerCondition-ID      OPTIONAL,
    ueID                           UEID                         OPTIONAL,
    ...
}

-- *****
-- Indication Message OCTET STRING contents
-- *****

E2SM-RC-IndicationMessage ::= SEQUENCE {
    ric-indicationMessage-formats CHOICE {
        indicationMessage-Format1   E2SM-RC-IndicationMessage-Format1,
        indicationMessage-Format2   E2SM-RC-IndicationMessage-Format2,
        indicationMessage-Format3   E2SM-RC-IndicationMessage-Format3,
        indicationMessage-Format4   NULL,
        indicationMessage-Format5   E2SM-RC-IndicationMessage-Format5,
        ...
    }
}

```

```

indicationMessage-Format6           E2SM-RC-IndicationMessage-Format6
},
...
}

E2SM-RC-IndicationMessage-Format1 ::= SEQUENCE {
    ranP-Reported-List          SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF E2SM-
RC-IndicationMessage-Format1-Item,
    ...
}

E2SM-RC-IndicationMessage-Format1-Item ::= SEQUENCE {
    ranParameter-ID             RANParameter-ID,
    ranParameter-valueType      RANParameter-ValueType,
    ...
}

E2SM-RC-IndicationMessage-Format2 ::= SEQUENCE {
    ueParameter-List            SEQUENCE (SIZE(1..maxnoofUEID)) OF E2SM-RC-
IndicationMessage-Format2-Item,
    ...
}

E2SM-RC-IndicationMessage-Format2-Item ::= SEQUENCE {
    ueID                         UEID,
    ranP-List                     SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF E2SM-
RC-IndicationMessage-Format2-RANParameter-Item,
    ...
}

E2SM-RC-IndicationMessage-Format2-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID             RANParameter-ID,
    ranParameter-valueType      RANParameter-ValueType,
    ...
}

E2SM-RC-IndicationMessage-Format3 ::= SEQUENCE {
    cellInfo-List                SEQUENCE (SIZE(1..maxnoofCellID)) OF E2SM-RC-
IndicationMessage-Format3-Item,
    ...
}

E2SM-RC-IndicationMessage-Format3-Item ::= SEQUENCE {
    cellGlobal-ID                CGI,
    cellContextInfo               OCTET STRING                  OPTIONAL,
    cellDeleted                   BOOLEAN                     OPTIONAL,
    neighbourRelation-Table     NeighbourRelation-Info   OPTIONAL,
    ...,
    mib                          OCTET STRING                  OPTIONAL,
    servingCellConfigCommon     ServingCellConfigCommon OPTIONAL
}

ServingCellConfigCommon ::= SEQUENCE {
    ssbPositionsInBurst          OCTET STRING,
    ssbPeriodicity                ENUMERATED {ms5, ms10, ms20, ms40, ms80, ms160, ...},
    ssbSubcarrierSpacing          ENUMERATED {kHz15, kHz30, kHz60, kHz120, kHz240, kHz480-
v1700, kHz960-v1700, ...},
    ...
}

E2SM-RC-IndicationMessage-Format5 ::= SEQUENCE{
    ranP-Requested-List          SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF E2SM-
RC-IndicationMessage-Format5-Item,
    ...
}

E2SM-RC-IndicationMessage-Format5-Item ::= SEQUENCE {
    ranParameter-ID             RANParameter-ID,
    ranParameter-valueType      RANParameter-ValueType,
    ...
}

```

```

}

E2SM-RC-IndicationMessage-Format6 ::= SEQUENCE {
    ric-InsertStyle-List
        SEQUENCE (SIZE(1.. maxnoofRICStyles)) OF E2SM-RC-
    IndicationMessage-Format6-Style-Item,
    ...
}

E2SM-RC-IndicationMessage-Format6-Style-Item ::= SEQUENCE {
    indicated-Insert-Style-Type          RIC-Style-Type,
    ric-InsertIndication-List          SEQUENCE (SIZE(1..maxnoofInsertIndicationActions)) OF
    E2SM-RC-IndicationMessage-Format6-Indication-Item,
    ...
}

E2SM-RC-IndicationMessage-Format6-Indication-Item ::= SEQUENCE {
    ric-InsertIndication-ID           RIC-InsertIndication-ID,
    ranP-InsertIndication-List       SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF
    E2SM-RC-IndicationMessage-Format6-RANP-Item ,
    ...
}

E2SM-RC-IndicationMessage-Format6-RANP-Item ::= SEQUENCE {
    ranParameter-ID                  RANParameter-ID,
    ranParameter-valueType          RANParameter-ValueType,
    ...
}

-- *****
-- Call Process ID OCTET STRING contents
-- *****

E2SM-RC-CallProcessID ::= SEQUENCE {
    ric-callProcessID-formats      CHOICE {
        callProcessID-Format1          E2SM-RC-CallProcessID-Format1,
        ...
    },
    ...
}

E2SM-RC-CallProcessID-Format1 ::= SEQUENCE {
    ric-callProcess-ID            RAN-CallProcess-ID,
    ...
}

-- *****
-- Control Header OCTET STRING contents
-- *****

E2SM-RC-ControlHeader ::= SEQUENCE {
    ric-controlHeader-formats     CHOICE {
        controlHeader-Format1          E2SM-RC-ControlHeader-Format1,
        ...,
        controlHeader-Format2          E2SM-RC-ControlHeader-Format2,
        controlHeader-Format3          E2SM-RC-ControlHeader-Format3,
        controlHeader-Format4          E2SM-RC-ControlHeader-Format4
    },
    ...
}

E2SM-RC-ControlHeader-Format1 ::= SEQUENCE {
    ueID                           UEID,
    ric-Style-Type                 RIC-Style-Type,
    ric-ControlAction-ID          RIC-ControlAction-ID,
    ric-ControlDecision            ENUMERATED {accept, reject, ...}           OPTIONAL,
    ...
}

E2SM-RC-ControlHeader-Format2 ::= SEQUENCE {
    ueID                           UEID,
    ric-ControlDecision            ENUMERATED {accept, reject, ...}           OPTIONAL,
    ...
}

E2SM-RC-ControlHeader-Format3 ::= SEQUENCE {

```

```

ue-Group-ID                               UE-Group-ID,
ue-Group-Definition                      UE-Group-Definition,
ric-Style-Type                           RIC-Style-Type,
ric-ControlAction-ID                     RIC-ControlAction-ID,
...
}

E2SM-RC-ControlHeader-Format4 ::= SEQUENCE {
    partial-ueID                         PartialUEID,
    ric-Style-Type                        RIC-Style-Type,
    ric-ControlAction-ID                 RIC-ControlAction-ID,
    ric-ControlDecision                  ENUMERATED {accept, reject, ...}           OPTIONAL,
...
}

-- ****
-- Control Message OCTET STRING contents
-- ****

E2SM-RC-ControlMessage ::= SEQUENCE {
    ric-controlMessage-formats          CHOICE {
        controlMessage-Format1          E2SM-RC-ControlMessage-Format1,
        ...
        controlMessage-Format2          E2SM-RC-ControlMessage-Format2,
        controlMessage-Format3          E2SM-RC-ControlMessage-Format3,
        controlMessage-Format4          E2SM-RC-ControlMessage-Format4,
        controlMessage-Format5          E2SM-RC-ControlMessage-Format5
    },
...
}

E2SM-RC-ControlMessage-Format1 ::= SEQUENCE {
    ranP-List                           SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF E2SM-
RC-ControlMessage-Format1-Item,
...
}

E2SM-RC-ControlMessage-Format1-Item ::= SEQUENCE {
    ranParameter-ID                     RANParameter-ID,
    ranParameter-valueType              RANParameter-ValueType,
...
}

E2SM-RC-ControlMessage-Format2 ::= SEQUENCE {
    ric-ControlStyle-List               SEQUENCE (SIZE(1.. maxnoofRICStyles)) OF E2SM-RC-
ControlMessage-Format2-Style-Item,
...
}

E2SM-RC-ControlMessage-Format2-Style-Item ::= SEQUENCE {
    indicated-Control-Style-Type       RIC-Style-Type,
    ric-ControlAction-List             SEQUENCE (SIZE(1..maxnoofMulCtrlActions)) OF E2SM-RC-
ControlMessage-Format2-ControlAction-Item,
...
}

E2SM-RC-ControlMessage-Format2-ControlAction-Item ::= SEQUENCE {
    ric-ControlAction-ID               RIC-ControlAction-ID,
    ranP-List                          E2SM-RC-ControlMessage-Format1,
...
}

E2SM-RC-ControlMessage-Format3 ::= SEQUENCE {
    listOfEntityFilters                SEQUENCE (SIZE(0..maxnoofAssociatedEntityFilters)) OF
E2SM-RC-EntityFilter                OPTIONAL,
    entityAgnosticControlRanP-List     SEQUENCE
(SIZE(0..maxnoofAssociatedRANParameters)) OF EntityAgnostic-ranP-ControlParameters      OPTIONAL,
...
}

E2SM-RC-EntityFilter ::= SEQUENCE {
    entityFilter-ID                   EntityFilter-ID,
    entityFilter-Definition           RANParameter-Testing,
    entitySpecificControlRanP-List    SEQUENCE
(SIZE(1..maxnoofAssociatedRANParameters)) OF EntitySpecific-ranP-ControlParameters,
}

```

```

...
}

EntityAgnostic-ranP-ControlParameters ::= SEQUENCE {
    ranParameter-ID                  RANParameter-ID,
    ranParameter-valueType          RANParameter-ValueType,
    ...
}

EntitySpecific-ranP-ControlParameters ::= SEQUENCE {
    ranParameter-ID                  RANParameter-ID,
    ranParameter-valueType          RANParameter-ValueType,
    ...
}

E2SM-RC-ControlMessage-Format4 ::= SEQUENCE {
    ranP-List                      SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF E2SM-
RC-ControlMessage-Format4-Item,
    ...
}

E2SM-RC-ControlMessage-Format4-Item ::= SEQUENCE {
    ranParameter-ID                  RANParameter-ID,
    ranParameter-Definition        RANParameter-Definition
                                OPTIONAL,
    ...
}

E2SM-RC-ControlMessage-Format5 ::= NULL

-- ****
-- Control Outcome OCTET STRING contents
-- ****

E2SM-RC-ControlOutcome ::= SEQUENCE {
    ric-controlOutcome-formats   CHOICE {
        controlOutcome-Format1      E2SM-RC-ControlOutcome-Format1,
        ...,
        controlOutcome-Format2      E2SM-RC-ControlOutcome-Format2,
        controlOutcome-Format3      E2SM-RC-ControlOutcome-Format3
    },
    ...
}

E2SM-RC-ControlOutcome-Format1 ::= SEQUENCE {
    ranP-List                      SEQUENCE (SIZE(0..maxnoofRANOutcomeParameters)) OF E2SM-RC-
ControlOutcome-Format1-Item,
    ...
}

E2SM-RC-ControlOutcome-Format1-Item ::= SEQUENCE {
    ranParameter-ID                  RANParameter-ID,
    ranParameter-value              RANParameter-Value,
    ...
}

E2SM-RC-ControlOutcome-Format2 ::= SEQUENCE {
    ric-ControlStyle-List           SEQUENCE (SIZE(1.. maxnoofRICStyles)) OF E2SM-RC-
ControlOutcome-Format2-Style-Item,
    ...
}

E2SM-RC-ControlOutcome-Format2-Style-Item ::= SEQUENCE {
    indicated-Control-Style-Type   RIC-Style-Type,
    ric-ControlOutcome-List         SEQUENCE (SIZE(1..maxnoofMulCtrlActions)) OF E2SM-RC-
ControlOutcome-Format2-ControlOutcome-Item,
    ...
}

E2SM-RC-ControlOutcome-Format2-ControlOutcome-Item ::= SEQUENCE {
    ric-ControlAction-ID            RIC-ControlAction-ID,
    ranP-List                      SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
E2SM-RC-ControlOutcome-Format2-RANP-Item,
    ...
}

```

```

E2SM-RC-ControlOutcome-Format2-RANP-Item ::= SEQUENCE {
    ranParameter-ID
    ranParameter-value
    ...
}

E2SM-RC-ControlOutcome-Format3 ::= SEQUENCE {
    ranP-List
    ...
} OF E2SM-RC-ControlOutcome-Format3-Item

E2SM-RC-ControlOutcome-Format3-Item ::= SEQUENCE {
    ranParameter-ID
    ranParameter-valueType
    ...
}

-- *****
-- Query Header OCTET STRING contents
-- *****

E2SM-RC-QueryHeader ::= SEQUENCE {
    ric-queryHeader-formats CHOICE {
        queryHeader-Format1
        ...
    },
    ...
}

E2SM-RC-QueryHeader-Format1 ::= SEQUENCE {
    ric-Style-Type
    associatedE2NodeInfo
    associatedUEInfo
    ...
}

-- *****
-- Query Definition OCTET STRING contents
-- *****

E2SM-RC-QueryDefinition ::= SEQUENCE {
    ric-queryDefinition-formats CHOICE {
        queryRequest-Format1
        ...
    },
    ...
}

E2SM-RC-QueryDefinition-Format1 ::= SEQUENCE {
    ranP-List
    ...
} OF E2SM-RC-QueryDefinition-Format1-Item

E2SM-RC-QueryDefinition-Format1-Item ::= SEQUENCE {
    ranParameter-ID
    ranParameter-Definition
    ...
}

-- *****
-- Query Outcome OCTET STRING contents
-- *****

E2SM-RC-QueryOutcome ::= SEQUENCE {
    ric-queryOutcome-formats CHOICE {
        queryOutcome-Format1
        queryOutcome-Format2
        ...
    },
    ...
}

E2SM-RC-QueryOutcome-Format1 ::= SEQUENCE {
}

```

```

cellInfo-List
QueryOutcome-Format1-ItemCell,
    ...
}

E2SM-RC-QueryOutcome-Format1-ItemCell ::= SEQUENCE {
    cellGlobal-ID                               CGI,
    ranP-List                                     SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF E2SM-
RC-QueryOutcome-Format1-ItemParameters,
        neighbourRelation-Table                 NeighbourRelation-Info      OPTIONAL,
        ...,
        servingCellConfigCommon                ServingCellConfigCommon    OPTIONAL
}

E2SM-RC-QueryOutcome-Format1-ItemParameters ::= SEQUENCE {
    ranParameter-ID                           RANParameter-ID,
    ranParameter-valueType                   RANParameter-Value-Type      OPTIONAL,
    ...
}

E2SM-RC-QueryOutcome-Format2 ::= SEQUENCE {
    ueInfo-List                                SEQUENCE (SIZE(0..maxnoofUEID)) OF E2SM-RC-QueryOutcome-
Format2-ItemUE,
    ...
}

E2SM-RC-QueryOutcome-Format2-ItemUE ::= SEQUENCE {
    ueID                                      UEID,
    ranP-List                                 SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF E2SM-
RC-QueryOutcome-Format2-ItemParameters,
        ueFilterID                            UE-Filter-ID      OPTIONAL, ...
}

E2SM-RC-QueryOutcome-Format2-ItemParameters ::= SEQUENCE {
    ranParameter-ID                           RANParameter-ID,
    ranParameter-valueType                   RANParameter-Value-Type      OPTIONAL,
    ...
}

-- *****
-- RAN Function Definition IEs
-- *****

E2SM-RC-RANFunctionDefinition ::= SEQUENCE{
    ranFunction-Name                         RANfunction-Name,
    ranFunctionDefinition-EventTrigger       RANFunctionDefinition-EventTrigger      OPTIONAL,
    ranFunctionDefinition-Report            RANFunctionDefinition-Report      OPTIONAL,
    ranFunctionDefinition-Insert           RANFunctionDefinition-Insert      OPTIONAL,
    ranFunctionDefinition-Control          RANFunctionDefinition-Control     OPTIONAL,
    ranFunctionDefinition-Policy           RANFunctionDefinition-Policy      OPTIONAL,
    ...,
    ranFunctionDefinition-Query           RANFunctionDefinition-Query      OPTIONAL
}

-----
-- Event Trigger
-----

RANFunctionDefinition-EventTrigger ::= SEQUENCE {
    ric-EventTriggerStyle-List             SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
RANFunctionDefinition-EventTrigger-Style-Item,
    ran-L2Parameters-List                SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
L2Parameters-RANParameter-Item         OPTIONAL,
    ran-CallProcessTypes-List            SEQUENCE (SIZE(1..maxnoofCallProcessTypes)) OF
RANFunctionDefinition-EventTrigger-CallProcess-Item   OPTIONAL,
    ran-UEIdentificationParameters-List SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
UEIdentification-RANParameter-Item    OPTIONAL,
    ran-CellIdentificationParameters-List SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
CellIdentification-RANParameter-Item  OPTIONAL,
    ...
}

RANFunctionDefinition-EventTrigger-Style-Item ::= SEQUENCE {
    ric-EventTriggerStyle-Type           RIC-Style-Type,
    ric-EventTriggerStyle-Name          RIC-Style-Name,
    ric-EventTriggerFormat-Type        RIC-Format-Type,
    ...
}

```

```

L2Parameters-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                               RANParameter-ID,
    ranParameter-name                            RANParameter-Name,
    ...,
    ranParameter-Definition          RANParameter-Definition      OPTIONAL
}

UEIdentification-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                               RANParameter-ID,
    ranParameter-name                            RANParameter-Name,
    ...,
    ranParameter-Definition          RANParameter-Definition      OPTIONAL
}

CellIdentification-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                               RANParameter-ID,
    ranParameter-name                            RANParameter-Name,
    ...,
    ranParameter-Definition          RANParameter-Definition      OPTIONAL
}

RANFunctionDefinition-EventTrigger-CallProcess-Item ::= SEQUENCE {
    callProcessType-ID                           RIC-CallProcessType-ID,
    callProcessType-Name                          RIC-CallProcessType-Name,
    callProcessBreakpoints-List                 SEQUENCE (SIZE (1..maxnoofCallProcessBreakpoints)) OF
RANFunctionDefinition-EventTrigger-Breakpoint-Item,
    ...
}

RANFunctionDefinition-EventTrigger-Breakpoint-Item ::= SEQUENCE {
    callProcessBreakpoint-ID                    RIC-CallProcessBreakpoint-ID,
    callProcessBreakpoint-Name                  RIC-CallProcessBreakpoint-Name,
    ran-CallProcessBreakpointParameters-List   SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters))
OF CallProcessBreakpoint-RANParameter-Item   OPTIONAL,
    ...
}

CallProcessBreakpoint-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                               RANParameter-ID,
    ranParameter-name                            RANParameter-Name,
    ...,
    ranParameter-Definition          RANParameter-Definition      OPTIONAL
}

-----
-- Report
-----

RANFunctionDefinition-Report ::= SEQUENCE {
    ric-ReportStyle-List                      SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
RANFunctionDefinition-Report-Item,
    ...
}

RANFunctionDefinition-Report-Item ::= SEQUENCE {
    ric-ReportStyle-Type                     RIC-Style-Type,
    ric-ReportStyle-Name                     RIC-Style-Name,
    ric-SupportedEventTriggerStyle-Type     RIC-Style-Type,
    ric-ReportActionFormat-Type             RIC-Format-Type,
    ric-IndicationHeaderFormat-Type        RIC-Format-Type,
    ric-IndicationMessageFormat-Type       RIC-Format-Type,
    ran-ReportParameters-List              SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
Report-RANParameter-Item                OPTIONAL,
    ...
}

Report-RANParameter-Item ::= SEQUENCE {

```

```

ranParameter-ID, RANParameter-ID,
ranParameter-name, RANParameter-Name,
...
ranParameter-Definition RANParameter-Definition OPTIONAL
}

-----
-- Insert
-----

RANFunctionDefinition-Insert ::= SEQUENCE {
    ric-InsertStyle-List           SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
    RANFunctionDefinition-Insert-Item,
    ...
}

RANFunctionDefinition-Insert-Item ::= SEQUENCE {
    ric-InsertStyle-Type          RIC-Style-Type,
    ric-InsertStyle-Name          RIC-Style-Name,
    ric-SupportedEventTriggerStyle-Type RIC-Style-Type,
    ric-ActionDefinitionFormat-Type RIC-Format-Type,
    ric-InsertIndication-List     SEQUENCE (SIZE(1..maxnoofInsertIndication)) OF
    RANFunctionDefinition-Insert-Indication-Item OPTIONAL,
    ric-IndicationHeaderFormat-Type RIC-Format-Type,
    ric-IndicationMessageFormat-Type RIC-Format-Type,
    ric-CallProcessIDFormat-Type   RIC-Format-Type,
    ...
}

RANFunctionDefinition-Insert-Indication-Item ::= SEQUENCE {
    ric-InsertIndication-ID        RIC-InsertIndication-ID,
    ric-InsertIndication-Name      RIC-InsertIndication-Name,
    ran-InsertIndicationParameters-List SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
    InsertIndication-RANParameter-Item OPTIONAL,
    ...
}

InsertIndication-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID, RANParameter-ID,
    ranParameter-name, RANParameter-Name,
    ...
    ranParameter-Definition RANParameter-Definition OPTIONAL
}

-----
-- Control
-----

RANFunctionDefinition-Control ::= SEQUENCE {
    ric-ControlStyle-List           SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
    RANFunctionDefinition-Control-Item,
    ...
}

RANFunctionDefinition-Control-Item ::= SEQUENCE {
    ric-ControlStyle-Type          RIC-Style-Type,
    ric-ControlStyle-Name          RIC-Style-Name,
    ric-ControlAction-List         SEQUENCE (SIZE(1..maxnoofControlAction)) OF
    RANFunctionDefinition-Control-Action-Item OPTIONAL,
    ric-ControlHeaderFormat-Type   RIC-Format-Type,
    ric-ControlMessageFormat-Type  RIC-Format-Type,
    ric-CallProcessIDFormat-Type   RIC-Format-Type OPTIONAL,
    ric-ControlOutcomeFormat-Type  RIC-Format-Type,
    ran-ControlOutcomeParameters-List SEQUENCE (SIZE(1..maxnoofRANOutcomeParameters)) OF
    ControlOutcome-RANParameter-Item OPTIONAL,
    ...
    listOfAdditionalSupportedFormats ListOfAdditionalSupportedFormats OPTIONAL}
}

ControlOutcome-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID, RANParameter-ID,
    ranParameter-name, RANParameter-Name,
    ...
    ranParameter-Definition RANParameter-Definition OPTIONAL
}

```

}

```

RANFunctionDefinition-Control-Action-Item ::= SEQUENCE {
    ric-ControlAction-ID                  RIC-ControlAction-ID,
    ric-ControlAction-Name                RIC-ControlAction-Name,
    ran-ControlActionParameters-List     SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
ControlAction-RANParameter-Item      OPTIONAL,
    ...
    ueGroup-ControlAction-Supported     ENUMERATED {true, false, ...}      OPTIONAL
}

ControlAction-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                     RANParameter-ID,
    ranParameter-name                   RANParameter-Name,
    ...
    ranParameter-Definition            RANParameter-Definition      OPTIONAL
}

ListOfAdditionalSupportedFormats ::= SEQUENCE (SIZE(0..maxnoofFormatTypes)) OF
AdditionalSupportedFormat

AdditionalSupportedFormat ::= SEQUENCE {
    ric-ControlHeaderFormat-Type       RIC-Format-Type,
    ric-ControlMessageFormat-Type     RIC-Format-Type,
    ...
    ric-ControlOutcomeFormat-Type     RIC-Format-Type      OPTIONAL,
    ric-ControlAction-ID              RIC-ControlAction-ID  OPTIONAL
}

-----
-- Policy
-----

RANFunctionDefinition-Policy ::= SEQUENCE {
    ric-PolicyStyle-List              SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
RANFunctionDefinition-Policy-Item,
    ...
}

RANFunctionDefinition-Policy-Item ::= SEQUENCE {
    ric-PolicyStyle-Type             RIC-Style-Type,
    ric-PolicyStyle-Name              RIC-Style-Name,
    ric-SupportedEventTriggerStyle-Type RIC-Style-Type,
    ric-PolicyAction-List            SEQUENCE (SIZE(1..maxnoofPolicyAction)) OF
RANFunctionDefinition-Policy-Action-Item  OPTIONAL,
    ...
}

RANFunctionDefinition-Policy-Action-Item ::= SEQUENCE {
    ric-PolicyAction-ID               RIC-ControlAction-ID,
    ric-PolicyAction-Name              RIC-ControlAction-Name,
    ric-ActionDefinitionFormat-Type   RIC-Format-Type,
    ran-PolicyActionParameters-List   SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
PolicyAction-RANParameter-Item      OPTIONAL,
    ran-PolicyConditionParameters-List SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
PolicyCondition-RANParameter-Item  OPTIONAL,
    ...
}

PolicyAction-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                 RANParameter-ID,
    ranParameter-name                RANParameter-Name,
    ...
    ranParameter-Definition          RANParameter-Definition      OPTIONAL
}

PolicyCondition-RANParameter-Item ::= SEQUENCE {
    ranParameter-ID                 RANParameter-ID,
    ranParameter-name                RANParameter-Name,
    ...
    ranParameter-Definition          RANParameter-Definition      OPTIONAL
}

```

```

-----  

-- Query  

-----  

RANFunctionDefinition-Query ::= SEQUENCE {  

    ric-QueryStyle-List           SEQUENCE (SIZE(1..maxnoofRICStyles)) OF  

    RANFunctionDefinition-Query-Item,  

    ...  

}  

RANFunctionDefinition-Query-Item ::= SEQUENCE {  

    ric-QueryStyle-Type          RIC-Style-Type,  

    ric-QueryStyle-Name          RIC-Style-Name,  

    ric-QueryHeaderFormat-Type   RIC-Format-Type,  

    ric-QueryDefinitionFormat-Type RIC-Format-Type,  

    ric-QueryOutcomeFormat-Type  RIC-Format-Type,  

    ran-QueryParameters-List     SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF  

    Query-RANParameter-Item      OPTIONAL,  

    ...  

}  

Query-RANParameter-Item ::= SEQUENCE {  

    ranParameter-ID              RANParameter-ID,  

    ranParameter-name             RANParameter-Name,  

    ranParameter-Definition       RANParameter-Definition OPTIONAL,  

    ...  

}  

E2SM-RC-ServiceLayerCause ::= CHOICE {  

    ricRequest                  CauseRICrequest,  

    ricService                   CauseRICservice,  

    protocol                     CauseProtocol,  

    ...  

}  

CauseRICservice ::= ENUMERATED{  

    RIC-Event-Trigger-Style-type-not-supported,  

    RIC-Event-Trigger-Format-type-not-supported,  

    RAN-Parameter-ID-not-supported,  

    Call-Process-Type-ID-not-supported,  

    Call-Process-Breakpoint-ID-not-supported,  

    RIC-Report-Style-Type-not-supported,  

    Supported-RIC-Event-Trigger-Style-type-not-supported,  

    RIC-Action-Format-Type-not-supported,  

    RIC-Indication-Header-Format-Type-not-supported,  

    RIC-Indication-Message-Format-Type-not-supported,  

    RIC-Insert-Style-Type-not-supported,  

    Insert-Indication-ID-not-supported,  

    RIC-Call-Process-ID-Format-Type-not-supported,  

    RIC-Control-Style-Type-not-supported,  

    Control-Action-ID-not-supported,  

    RIC-Control-Header-Format-Type-not-supported,  

    RIC-Control-Message-Format-Type-not-supported,  

    RIC-Control-Outcome-Format-Type-not-supported,  

    RIC-Policy-Style-Type-not-supported,  

    Policy-Action-ID-not-supported,  

    RIC-Query-Style-Type-not-supported,  

    RIC-Query-Header-Format-Type-not-supported,  

    RIC-Query-Definition-Format-Type-not-supported,  

    RIC-Query-Outcome-Format-Type-not-supported,  

    ...  

}  

CauseProtocol ::= ENUMERATED {  

    transfer-syntax-error,  

    abstract-syntax-error-reject,  

    abstract-syntax-error-ignore-and-notify,  

    message-not-compatible-with-receiver-state,  

    semantic-error,  

    abstract-syntax-error-falsely-constructed-message,  

    unspecified,  

    ...  

}

```

END

-- ASN1STOP

## 9.5 Message transfer syntax

E2SM-RC shall use the ASN.1 Basic Packed Encoding Rules (BASIC-PER) Aligned Variant as transfer syntax, as specified in ITU-T Rec. X.691 [9].

---

## 10 Handling of Unknown, Unforeseen and Erroneous Protocol Data

Clause 10 of TS 36.413 [13] is applicable for the purposes of the present document.

## Annex A (Informative):

# Examples on IE Contents

## A.1 Introduction

This annex presents example applications of selected use cases showing alternative solutions using different combinations of RIC Services Report, Insert, Control and/or Policy.

## A.2 Connected mode mobility based on UE measurement report

### A.2.1 Assumptions

This example is based on the following assumptions:

- 1 E2 Node, of type O-CU-CP, O-CU or gNB for aggregated deployments, has E2 interface to Near-RT RIC and supports one or more RIC services using E2SM-RC.
- 2 UE is in RRC CONNECTED state using NR access and has successfully attached to a 5G Core Network (5GC)
- 3 UE has been previously configured to send RRC Measurement Reports.
- 4 UE sends a RRC Measurement Report containing one or more neighbour cell measurements applicable for an inter-cell connected mode mobility event (i.e. a Handover)
- 5 E2 Node for aggregated deployments, uses one or more RIC Services to complete the handover decision and either execute handover (i.e. using procedure described in 3GPP 38.300 clause 9.2.3) or ignores measurement report.

Step 5 may be realized using one or more of the following solutions:

- i) According to a previously established RIC Subscription procedure, the arrival of the RRC Measurement Report triggers an Event Trigger which results in the E2 Node suspending the ongoing call process and sending a RIC Service INSERT message to the Near-RT RIC. The Near-RT RIC takes the Handover Decision and sends a RIC Service CONTROL message carrying the response which is used by the E2 node to resume the call process.
- ii) According to a previously established RIC Subscription procedure the arrival of the RRC Measurement Report triggers an Event Trigger which results in the E2 Node executing a RIC Service POLICY which is used to modify the default Handover Decision and so modifies the remaining steps in the ongoing call process.

### A.2.2 Solution using RIC Services Insert and Control

#### A.2.2.0 Introduction

This section provides a solution for the Connected Mode Mobility event call flow using the RIC Service Insert (Style 3) and Control (Style 3) required for the handling of incoming RRC Measurement reports from a UE connected to a 5GC network using Standalone (SA) access. Corresponding example message content are provided for the *RIC Event Trigger Definition IE* and *RIC Action Definition IE*, used to set up the RIC Subscription for the Insert service, the *RIC Indication Header IE* and *RIC Indication Message IE*, used to send the Insert message to the Near-RT RIC and finally the *RIC Control Header IE*, *RIC Control Message IE* and *RIC Control Outcome IE* contents, used by the resulting RIC Control procedure to respond to the Insert message.

#### A.2.2.1 Assumptions

This example is based on the following design assumptions:

- 1 Event trigger defined using Style 2 (Call Process Breakpoint), Type 3 (Mobility Management) and Call Breakpoint ID 1 (Handover Preparation) with the assumption that this breakpoint corresponds to the point of the UE call process code in a gNB where a handover decision is to be taken based on a received RRC Measurement report.
  - a. *Event Trigger Definition Format 2* IE RAN parameters for *Associated UE Info* IE are used to offer filtering of UE between UE subject to Insert service and UE to be handled using E2 Node internal mechanisms. In this example RAN parameters for discrimination based on Slice and Group (aka SPID) along with optional use of Explicit UE List membership are described (see A.2.2.2).
- 2 Insert service, defined according to Insert Style 3 (Connected Mobile Mobility Control Request), Indication ID 1 (Handover control request), is defined using *RIC Action Definition Format 3* IE. In this example a single target primary cell along with lists of PDU, DRB and secondary cells to be handed over are described (see A.2.2.3)
- 3 Insert message defined according to Insert Style 3 (Connected Mobile Mobility Control Request), Indication ID 1 (Handover control request) with *RIC Indication Header Format 2* IE, *RIC Indication Message Format 5* IE and *RIC Call Process ID Format 1* IE. In this example the insert message, used to carry preliminary handover decision made by E2 Node (target primary cell selected and proposed lists of retained DRBs and secondary cells), is described (see A.2.2.4)
- 4 Control message defined according to Control Style 3 (Connected Mobile Mobility Control), Control Action ID 1 (Handover control) with *RIC Control Header Format 1* IE, *RIC Control Message Format 1* IE, *RIC Call Process ID Format 1* IE and *RIC Control Outcome Format 1* IE, may be sent based on the outcome of the decision in the Near-RT RIC. Message is used to carry confirmed handover decision made by E2 Node (confirmed target primary cell and confirmed lists of retained DRBs and secondary cells).

The gNB may either:

- a. Use the *RIC Call Process ID* IE to identify the target UE and decide to accept the RIC Control request. The E2 Node may then proceed with handover execution using information obtained from the measurement report, stored UE context information and contents of the RIC Control Request message (*RIC Control Header* IE and *RIC Control Message* IE) result of subsequent network transactions
  - b. Wait for the Time To Wait timer to expire and continue with any other required call processing, ignoring the measurement report
- 5 *RIC Control Outcome* IE carried in RIC Control Acknowledge message, defined using Control Style 3 (Connected Mobile Mobility Control), Control Action ID 1 (Handover control), may be sent based on the outcome of the decision in the E2 Node

```

@startuml
Skin rose
skinparam ParticipantPadding 50
skinparam BoxPadding 10
skinparam lifelineStrategy solid

Participant "Near-RT RIC" as RIC
Participant "gNB" as gNB

Participant "UE" as UE

== Establish RIC subscriptions ==
RIC<->gNB: <color green>RIC SUBSCRIPTION (Insert: Handover measurement report)

RIC<->gNB: <color green>RIC CONTROL (UE assignment to Explicit UE List)

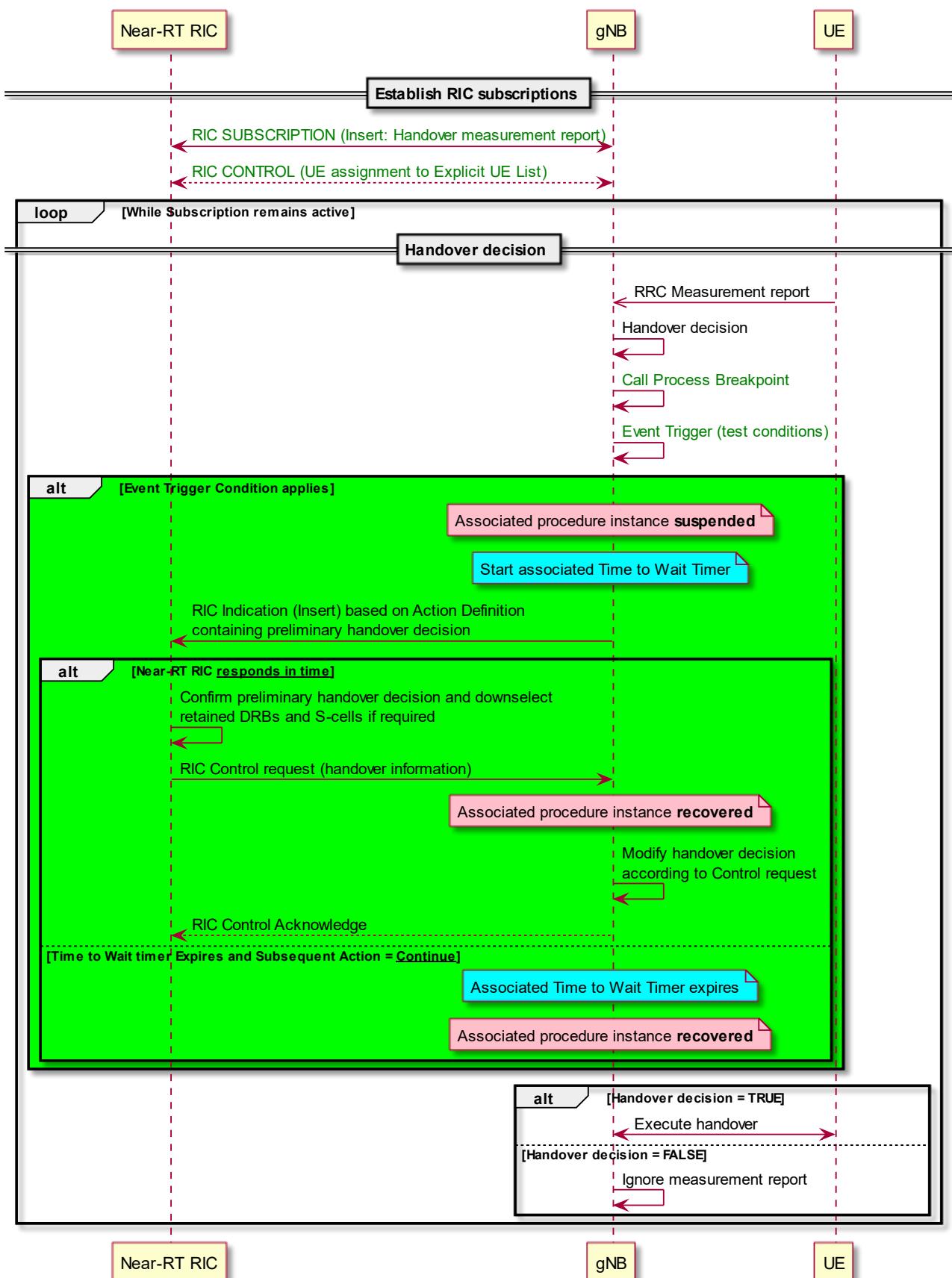
loop While Subscription remains active
  == Handover decision ==
  UE-->gNB: RRC Measurement report
  gNB-->gNB: Handover decision
  gNB-->gNB : <color green>Call Process Breakpoint
  gNB-->gNB: <color green>Event Trigger (test conditions)
  alt #lime Event Trigger Condition applies
    note over gNB #pink: Associated procedure instance **suspended**      note over gNB
  #aqua: Start associated Time to Wait Timer
    gNB-->RIC: RIC Indication (Insert) based on Action Definition \ncontaining preliminary
    handover decision

```

```

alt #lime Near-RT RIC __responds in time__
    RIC->RIC: Confirm preliminary handover decision and downselect \nretained DRBs and
S-cells if required
        RIC->gNB: RIC Control request (handover information)
        note over gNB #pink: Associated procedure instance **recovered**
        gNB->gNB: Modify handover decision \naccording to Control request
        gNB-->RIC: RIC Control Acknowledge
    else Time to Wait timer Expires and Subsequent Action = __Continue__
        note over gNB #aqua: Associated Time to Wait Timer expires
        note over gNB #pink: Associated procedure instance **recovered**
    end
end
alt Handover decision = TRUE
    gNB<->UE: Execute handover
else Handover decision = FALSE
    gNB->gNB: Ignore measurement report
end
end
@enduml

```



**Figure A.2.2.1-1: Example call flow for Handover preparation and execution with extensions added to implement RIC Insert and RIC Control service in GREEN**

### A.2.2.2 RIC Event Trigger Definition IE contents

*RIC Event Trigger Definition Format 2 IE* contains RAN Parameter lists for *Associated E2 Node Info IE* and *Associated UE info IE*.

In this example:

- 1) *Associated E2 Node Info IE*, using RAN Parameters from clause 8.1.2.3.1, is not used.
- 2) *Associated UE Info IE*, using RAN Parameters from clause 8.1.3, is used where the set of target UEs for the event is defined by a given slice (SST=sst1, SD=sd1) and group (IRFSP=irfsp1) along with membership to an optional Explicit UE list. Additional sets of target UEs may be supported using the same RAN Parameter list with different target values for SST, SD and IRFSP and optionally Explicit UE List. In addition, individual target UE may be identified. These selection criteria would be combined within the *Event Trigger UE Information IE* using the optional "Logical OR" flag (see clause 9.3.26).

RAN Parameter Testing for Call Process Breakpoint (defined in 8.1.2.3.1), used to populate the *Associated E2 Node Info IE*, are as follows:

RAN Parameter ID	Value type	Key flag	Value	Test condition	Semantics Description
(N/A)					

RAN Parameter Testing for UE Group (defined in 8.1.3), used to populate the *Associated UE Info IE*, are as follows:

RAN Parameter ID	Value type	Key flag	Value	Test condition	Semantics Description
35010	STRUCTURE				S-NSSAI
35011	ELEMENT	FALSE	sst1	equal	>SST
35012	ELEMENT	FALSE	sd1	equal	>SD
35020	STRUCTURE				Group ID
35021	ELEMENT	FALSE	Irfsp1	equal	>IRFSP
35030	ELEMENT	FALSE	HOList1	Equal	Explicit UE List ID

### A.2.2.3 RIC Action Definition IE contents

*RIC Action Definition Format 3 IE* used to define Insert service contains a single RAN Parameter list for the selection of information such as Target Primary Cell, List of PDU sessions to be handed over and List of DRBs to be handed over. This information is to be reported to Near-RT RIC within the INSERT message.

RAN parameters for Insert service (according to clause 8.3.4.1, these are defined in clause 8.4.4.1), used to populate the *List of RAN parameters for Insert Indication IE*, are as follows:

RAN Parameter ID	Value type	Key flag	Value	Test condition	Semantics Description
1	STRUCTURE				Target Primary Cell ID
2	STRUCTURE				>CHOICE Target Cell
3	STRUCTURE				>>NR Cell
4	ELEMENT	FALSE	Nr-cgi1		>>>NR CGI
7	STRUCTURE				List of PDU sessions for handover
8	STRUCTURE				>>PDU session Item for handover
9	ELEMENT	TRUE	Pdu#M		>>PDU Session ID
10	STRUCTURE				>>List of QoS flows in the PDU session
11	STRUCTURE				>>>QoS flow Item
12	ELEMENT	TRUE	Qfi#N		>>>>QoS Flow Identifier
13	STRUCTURE				List of DRBs for handover
14	STRUCTURE				>DRB item for handover
15	ELEMENT	TRUE	Drb#P		> DRB ID
16	LIST				>>List of QoS flows in the DRB
17	STRUCTURE				>>>QoS flow item
18	ELEMENT	TRUE	Qfi#Q		>>>>QoS flow Identifier
19	LIST				List of Secondary cells to be setup
20	STRUCTURE				> Secondary cell item to be setup
21	ELEMENT		Scell#S		>>Secondary cell ID

#### A.2.2.4 RIC Indication Message

RAN Parameters for Connected Mode Mobility Control (according to clause 8.3.4.1 these are defined in clause 8.4.4.1), used to populate the *RIC Indication Message Format 5 IE*, are the same as those defined in A.2.2.3 above.

NOTE: Only one target primary cell is supported in the current version of this specification.

#### A.2.2.5 RIC Control Message

RAN Parameters for Connected Mode Mobility Control (according to clause 8.3.4.1 these are defined in 8.4.4.1), used to populate the *RIC Control Message Format 1 IE*, are the same as those defined in A.2.2.3 above.

### A.2.3 Solution using RIC Service Policy ("Offset" based approach)

#### A.2.3.0 Introduction

This section provides a solution for the Connected Mode Mobility event call flow using the RIC Service Policy using the "Offset" approach. Corresponding example message content are provided for the *RIC Event Trigger Definition IE*

and *RIC Action Definition* IE contents for the Connected Mode Mobility service (Policy Style 3) sent from the RIC to the E2 node to establish a policy used to provide guidance for the handling of incoming RRC Measurement reports from a UE connected to a 5GC network using Standalone (SA) access.

### A.2.3.1 Assumptions

This example is based on the following design assumptions:

- 1 Event trigger defined using Style 2 (Call Process Breakpoint), Type 3 (Mobility Management) and Call Breakpoint ID 1 (handover Preparation) with the assumption that this breakpoint corresponds to the point of the UE call process code in a gNB where a handover decision is to be taken based on a received RRC Measurement report.
  - a. *E2SM-RC Event Trigger Definition Format 2* IE RAN parameters for *Associated E2 Node Info* IE are not used
  - b. *E2SM-RC Event Trigger Definition Format 2* IE RAN parameters for *Associated UE Info* IE are used to offer filtering of UE between those subject to Policy handling and those to be handled using default parameters. In this example RAN parameters for discrimination based on Slice and Group (aka SPID) are described.
- 2 Policy defined using Style 3 (Connected Mobile Mobility Policy), Policy Action ID 1 (Policy for Handover control) and installed using RIC Subscription procedure containing *E2SM-RC Action Definition Format 2* IE:
  - a. *Policy Condition Definition* IE RAN parameters used to map UE to an appropriate Policy Action. In this example RAN parameters based on Serving Cell and Explicit UE List membership are described.
  - b. *Policy Action* IE parameters used to define a set of offsets (+positive, zero or -negative values) to be applied to default measurement thresholds to calculate policy modified threshold used during Handover decision prior to Handover execution.
- 3 Depending upon the outcome of the decision the gNB either:
  - a. Proceeds with handover execution using information obtained from the measurement report, stored UE context information and result of subsequent network transactions
  - b. Ignores measurement report and continues any other required call processing

```

@startuml
Skin rose

skinparam ParticipantPadding 50
skinparam BoxPadding 10
skinparam lifelineStrategy solid

Participant "Near-RT RIC" as RIC
Participant "gNB" as gNB

Participant "UE" as UE

== Establish RIC subscriptions ==
RIC<->gNB: <color green>RIC SUBSCRIPTION (Policy: Handover decision)

RIC<->gNB: <color green>RIC CONTROL (UE assignment to Explicit UE List)

loop While Subscription remains active
  == Handover decision ==
  UE->>gNB: 1) RRC Measurement report

  gNB->gNB : <color green>Call Process Breakpoint
  gNB->gNB: <color green>Event Trigger (test conditions)
  alt #lime Event Trigger Condition applies
    alt #lime Policy condition applies (first match in list)
      gNB->gNB: Extract offset value(s) from Policy Action
    else no Policy condition applies
      gNB->gNB: Set offset value(s) to zero
    end
  else Event Trigger condition does not apply
end

```

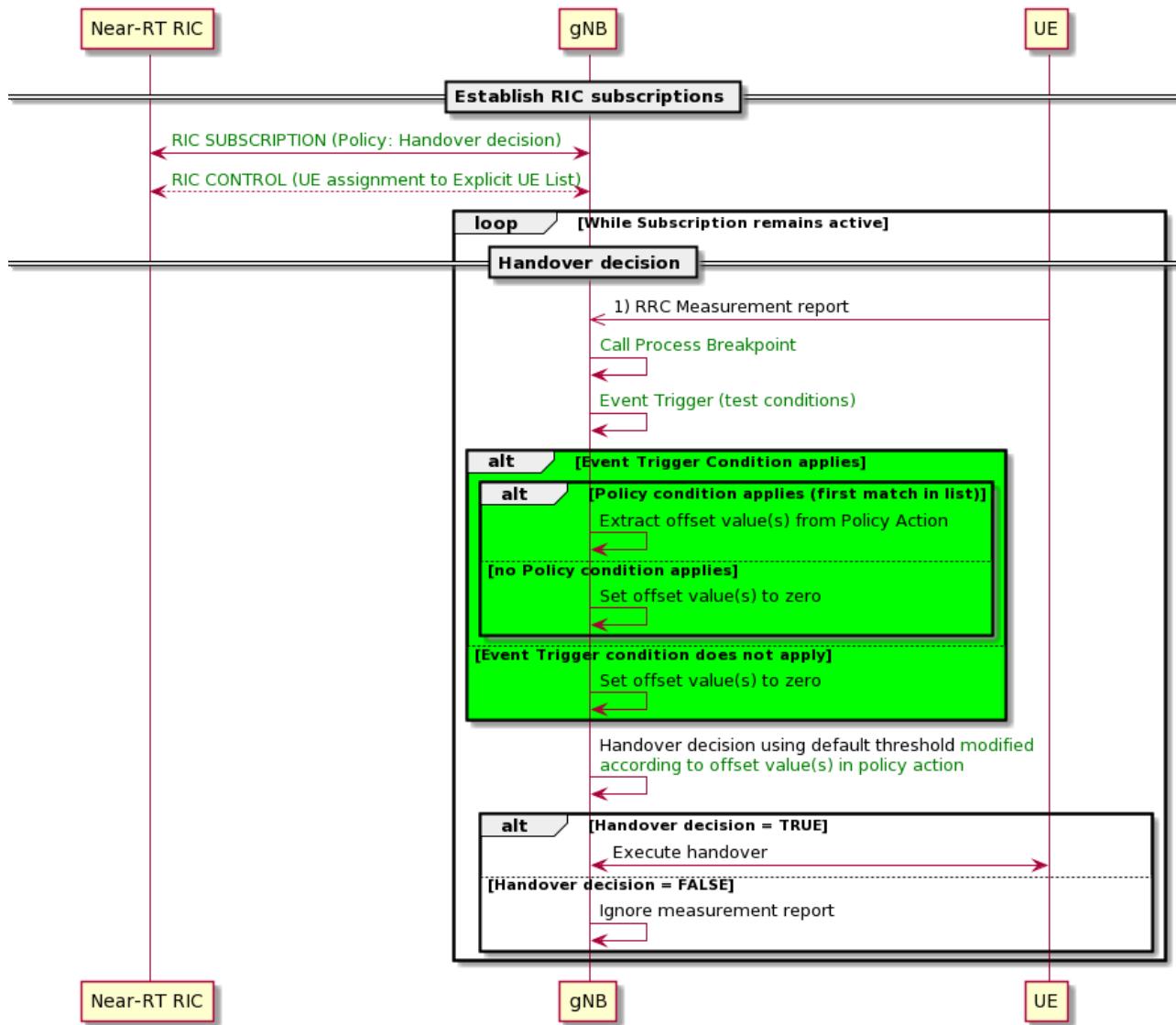
```

gNB->gNB : Set offset value(s) to zero
end

gNB->gNB: Handover decision using default threshold <color green>modified \n<color
green>according to offset value(s) in policy action </color>

alt Handover decision = TRUE
  gNB<->UE: Execute handover
else Handover decision = FALSE
  gNB->gNB: Ignore measurement report
end
end
@enduml

```



**Figure A.2.3.1-1: Example call flow for Handover preparation with extensions added to implement E2 Policy service in GREEN**

### A.2.3.2 RIC Event Trigger Definition IE contents

*RIC Event Trigger Definition IE* contains *E2SM-RC Event Trigger Definition Format 2 IE*, which, in turn, contains RAN Parameter lists for *Associated E2 Node Info IE* and *Associated UE info IE*.

In this example:

1) Associated E2 Node Info IE is not used

2) Associated UE Info IE, using RAN Parameters from clause 8.1.3, is used where the set of target UEs for the event is defined by a given slice (SST=sst1, SD=sd1) and group (IRFSP=irfsp1)

Additional sets of target UEs may be supported using the same RAN Parameter list with different target values for SST, SD and IRFSP. These would be combined within the *Event Trigger UE Information* IE using the optional "Logical OR" flag (see clause 9.3.26).

*RAN Parameter Testing for UE Group* (defined in 8.1.3), used to populate the *Associated UE Info* IE, are as follows:

RAN Parameter ID	Value type	Key flag	Value	Test condition	Semantics Description
35010	STRUCTURE				S-NSSAI
35011	ELEMENT	FALSE	sst1	equal	>SST
35012	ELEMENT	FALSE	sd1	equal	>SD
35020	STRUCTURE				Group ID
35021	ELEMENT	FALSE	irfsp1	equal	>IRFSP

### A.2.3.3 RIC Action Definition IE contents

*E2SM-RC Action Definition Format 2* IE contains RAN Parameter lists for *Policy Condition Definition* IE and *Policy Action* IE.

In this example the *Policy Condition Definition* IE is used to define the set of target UEs that are to be assigned a given *Policy Action* IE based on a given Serving Cell (nr-cgi1) and membership of a given Explicit UE List (HOList1). The corresponding *Policy Action* IE is used to set the measurement threshold offset for A3 RSRP measurement threshold (A3-rsrp-off1)

Different values of NR-CGI and/or Explicit UE List ID may be used in each Policy condition in the *Policy Action* IE, each with a corresponding different Policy Action definition.

RAN Parameters for Connected Mode Mobility Control (defined in clauses 8.5.4 and 8.1.3), used to populate the *Policy Condition Definition* IE, are as follows:

RAN Parameter ID	Value type	Key flag	Value	Test condition	Semantics Description
501	LIST				List of Serving cells
502	STRUCTURE				>Serving cell item
503	STRUCTURE				>>CHOICE Serving Cell Type
504	STRUCTURE				>>>Serving NR Cell
505	ELEMENT	FALSE	nr-cgi1	equal	>>>Serving NR CGI
35030	ELEMENT	FALSE	HOList1	Equal	Explicit UE List ID

RAN Parameters for Handover Control (defined in clause 8.5.4.1), used to populate the *Policy Action* IE, are as follows:

RAN Parameter ID	Value type	Key flag	Value	Semantics Description
121	STRUCTURE			A3 Event Threshold offset
122	ELEMENT	FALSE	A3-rsrp-off1	>A3 RSRP offset (+/- x dB)

---

## Annex (informative): Change history/Change request (history)

Date	Revision	Description
2020.09.25	00.00.01	Initial instantiation of E2SM-UE
2020.10.30	00.00.01	Change of title to E2SM-RC
2020.11.04	00.00.00	Agreed baseline skeleton document with title E2SM-RC (RAN Control)
2021.01.20	01.00.01	Running version created with inclusion of approved sections 1-5
2021.04.28	01.00.02	Addition of: <NOK-2021.03.25-WG3-CR-0003-Section6.1-v04> agreed WG3#92 <NOK-2021.03.25-WG3-CR-0004-E2SM-RC-Section6.2-v04> agreed WG3#96 <NOK-2021.04.06-WG3-CR-0005-Section7-v04> agreed WG3#95
2021.05.06	01.00.03	Addition of: <RSYS-2021.04.13-WG3-D-E2SM-RC-REPORT-UEState_CR_v0.6> agreed WG3#96
2021.06.10	01.00.04	Addition of: <MAV.AO-2021-05-19-WG3-CR-0001-E2SM-RC+Control+Services_v18> agreed at WG3#98 < NOK-2021.06.04-WG3-CR-0008-E2SM-RC rearrangement-v01> agreed at WG3#102 Also general editorial clean-up removing BOLD in headings, renumbering former section 8 references, adding editorial notes.
2021.07.12	01.00.05	Integration of Consensus CRs from Drafting Team  WG3-2021.07.09-WG3-E2SM-RC-EventTrigger-v14.docx WG3-2021.06.17-WG3- E2SM-RC-REPORTService-v07.docx WG3-2021.07.04.WG3-CR.E2SM-RC-Insert Control Policy Services-v17.docx
2021.07.14	01.00.06	Inclusion of ASN.1 and clean up
2021.08.10	01.00	TSC Approved
2021.08.18	01.01.00	V01.01 baseline including editorial corrections
2021.10.13	01.01.01	Incorporated WG3 Agreed CRs – <ul style="list-style-type: none"> <li>• RSYS.AO-2021.07.26-WG3-CR-0006-E2SM-RC-REPORT-CellIDInfo_v0.6.docx – Agreed in WG3#111</li> <li>• NOK.AO-2021.09.20-WG3-CR-0013-E2SM-RC-ASN1cleaning-v02.docx – Agreed in WG3#114</li> <li>• CICT-2021.09.28-WG3-CR-0006-E2SM-RC-Editorial modification-v1.docx – Agreed in WG3#116</li> <li>• NOK-2021.07.31-WG3-CR-0010-E2SM-RC-AnnexA-policy-v04.docx – Agreed in WG3#116</li> </ul>
2021.11.09	01.01.02	Incorporated WG3 Agreed CRs –

		<ul style="list-style-type: none"> <li>• MAV.AO.2021-10-19.O-RAN.WG3.E2SM-RC-v01.01.01-CR-0002 on Supported Service Style and RAN Parameter Corrections-v01.docx - Agreed in WG3#118</li> <li>• RSYS.AO-2021.10.18-WG3-CR-0008-E2SM-RC-Corrections-II_v4.docx - Agreed in WG3#119</li> <li>• NOK-2021.07.31-WG3-CR-0012-E2SM-RC-Section8.5reference8.1-v04.docx - Agreed in WG3#120</li> </ul>
2021.11.16	01.01.03	<p>Incorporated WG3 Agreed CRs –</p> <ul style="list-style-type: none"> <li>• MAV.AO-2021.11.04.WG3-CR-0005.E2SM-RC v01.01 CR on RAN Function Definition-v06.docx</li> </ul>
2021.11.17	01.01.04	<p>Incorporated WG3 Agreed CRs –</p> <ul style="list-style-type: none"> <li>• RSYS-2021.10.05-WG3-CR-0007-E2SM-RC-Corrections-I_v0.2.docx - Agreed in WG3#117</li> <li>• Editorial Cleanup</li> </ul>
2021.11.22	01.01.05	Copyright year modified based on WG3 voting review
2022.01.19	01.01.06	Fixed Footer on Cover Sheet
2022.02.07	01.01	Final version for November 2021 publication
2022.03.11	01.02.01	<p>Incorporated WG3 Agreed CRs –</p> <ul style="list-style-type: none"> <li>• CICT.AO-2021.10.29-WG3-CR-0008-E2SM-RC-Multiple-Actions-v05.docx – Agreed in WG3#128</li> <li>• RSYS.AO-2022.02.06-WG3-CR-0009-E2SM-RC-Minor Fixes_v2.docx – Agreed in WG3#131</li> </ul>
2022.03.24	01.02.02	<p>Incorporated WG3 Agreed CRs –</p> <ul style="list-style-type: none"> <li>• NEC-2022.03.08-WG3-CR-0003-E2SM-RC- Wrong parameters and reference in DRB QoS Configuration -v02.docx– Agreed in WG3#136</li> <li>• NOK.AO-2022.02.21-WG3-CR-0015-E2SM-RC-RAN function Definition correction-v04.docx – Agreed in WG3#136</li> <li>• NOK-2022.03.14-WG3-CR-0016-E2SM-RC-RAN Parameter table corrections-v03.docx – Agreed in WG3#136</li> <li>• MAV.RSYS-2022.03.09-WG3-CR-0002-E2SM-RC-Rapporteur Correction-I-v03.docx – Agreed in WG3#137</li> <li>• RSYS.AO-2022.03.09-WG3-CR-0011-E2SM-RC-PolicyDecisionNewIE-v01.docx – Agreed in WG3#137</li> <li>• MAV.AO-2022.03.15-WG3-CR-0009-E2SM-RC-Measurement Report Configuration-v09.docx – Agreed in WG3#137</li> </ul>
2022.04.01	01.02.03	<p>Editorial corrections based on the comments during voting.</p> <ul style="list-style-type: none"> <li>• Modified upper case to lower case of “Name” in ranParameter-Name in ASN.1 in L2Parameters-RANParameter-Item</li> <li>• Typo of Table name in 7.8 corrected</li> <li>• Cross Reference provided for Table names in 7.8</li> </ul>
2022.06.29	01.02	Final version for March 2022 Publication
2022.07.20	01.02.04	<p>Incorporated WG3 Agreed CRs –</p> <ul style="list-style-type: none"> <li>• NOK-2022.06.08-WG3-CR-0017-E2SM-RC-RAN Parameter ID correction-v03.docx– Agreed in WG3#154</li> </ul>
2022.07.20	01.02.05	Aligned to new Template
2022.07.20	01.03	Final version for July22 publication
2022.11.12	01.03.01	<p>Incorporated WG3 Agreed CRs –</p> <ul style="list-style-type: none"> <li>• NOK-2022.08.23-WG3-CR-0019-E2SM-RC-Policy service enhancements-v01 – Agreed in WG3#157</li> <li>• INT-2022.10.28-WG3-CR-0023-E2SM-RC-enh_mMIMO_non-</li> </ul>

		<ul style="list-style-type: none"> <li>GoB_retrieval_rev4.docx – Agreed in WG3#164</li> <li>INT.AO-2022.10.28-WG3-CR-0025-E2SM-RC-enh_mMIMO_non-GoB_control_policy_rev3_ver3(control+genericPolicy+eventTriggerPolicy).docx – Agreed in WG3#165</li> <li>QCM-2022.09.08-WG3-CR-0001-E2SM-RC-E1AP reference correction-v02.docx – Agreed in WG3#161</li> <li>NEC-2022.10.05-WG3-CR-0007-E2SM-RC Neighbor Table Clarification v4.docx – Agreed in WG3#162</li> <li>AKA-2022.10.03-WG3-CR-0002-E2SM-RC-Neighbor Relation Information table-v02.docx – Agreed in WG3#F2F</li> <li>QCM.AO-2022.10.22-WG3-CR-0004-E2SM-RC-OnDemand Deprecate-v02.docx – Agreed in WG3#165</li> <li>QCM.AO-2022.09.08-WG3-CR-0003-E2SM-RC-RIC Query Procedure-v09.docx – Agreed in WG3#165</li> <li>MAV.AO-2022.10.05-WG3-CR-0010-E2SM-RC-UE group-based control action -v14.docx – Agreed in WG3#165</li> </ul>
2022.11.12	01.03.02	<p>Incorporated WG3 Agreed CRs –</p> <ul style="list-style-type: none"> <li>• MAV.AO-2022.10.05-WG3-CR-0010-E2SM-RC-UE group-based control action -v16.docx – Agreed in WG3#165</li> </ul>
2022.11.20	01.03.03	Updated with Review comments during voting period
2022.11.21	02.00	November 2022 Publication Withdrawn
2023.01.18	02.00	<p>Incorporated WG3 agreed Minor CR –</p> <ul style="list-style-type: none"> <li>• NOK.AO-2023.01.11-WG3-CR-0022-E2SM-RC-ASN1-correction-v03.docx</li> </ul>
2023.01.18	02.00	<p>Incorporated WG3 agreed Minor CR –</p> <p>NOK.AO-2023.01.11-WG3-CR-0022-E2SM-RC-ASN1-correction-v03.docx</p>
2023.02.08	03.00	Final version for November 2022 Publication
2023.06.12	03.00.01	<p>Incorporated WG3 agreed CR in F2F Feb2023 Prague –</p> <p>NOK-2022.08.12-WG3-CR-0020-E2SM-RC-Annex A.2 Insert-Control-v05.docx</p>
2023.07.03	03.00.02	<p>Incorporated WG3 agreed CRs –</p> <ul style="list-style-type: none"> <li>• MAV-2023-04-24-WG3-CR-0011-E2SMRC v03.00 ASN1 fix for list of supported control format types-v01.docx</li> <li>• MAV-2023-04-24-WG3-CR-0012-E2SMRC v03.00 UE group-based MR configuration-v02.docx</li> <li>• NOK.AO-2023.02.15-WG3-CR-0023-E2SM-RC-correcting control style 8-v03.docx</li> <li>• NOK-2023.03.01-WG3-CR-0024-E2SM-RC-bMRO-v04.docx</li> <li>• QCM.AO-2023.06.16-WG3-CR-0005-E2SM-RC-Rapporteur Corrections-v02.docx</li> </ul>
2023.07.17	03.00.03	<p>Incorporated WG3 agreed CRs –</p> <ul style="list-style-type: none"> <li>• NOV-2023.06.10-WG3-CR-0025-E2SM-RC-text-IE-name-alignment#1-v3.0.docx</li> <li>• NOV-2023.06.10-WG3-CR-0026-E2SM-RC-text-IE-name-alignment#2-v2.0.docx</li> <li>• NOV-2023.06.10-WG3-CR-0027-E2SM-RC-text-IE-name-alignment#3-v3.0.docx</li> </ul>
2023.07.27	03.00.04	Incorporated review comments during voting period
2023.07.31	04.00	Final version for July 2023 Publication
2023.11.09	04.00.01	<p>Incorporated WG3 agreed CRs –</p> <ul style="list-style-type: none"> <li>• NOK.AO-2023.08.01-WG3-CR-0028-E2SM-RC-RAN Function definition stage 2-v06.docx</li> <li>• QCM-2023.10.19-WG3-CR-0007-E2SM-RC-UE Identifier for RIC</li> </ul>

		Query_v02.docx <ul style="list-style-type: none"> <li>• NOK-2022.01.05-WG3-CR-0014-E2SM-RC-completing control style 8-v20.docx</li> <li>• NOK-202311.06-WG3-CR-0029-E2SM-RC-RDF extension for control-Approach 1 NBC-v1.docx</li> <li>• NEC-2023.10.10-WG3-CR-0023-E2SM-RC-QoSIdentifier_IEReference_Correction-v01.docx</li> </ul>
2023.11.16	04.00.02	Editorial corrections implementing WG3 voting period feedback
2023.11.21	04.00.03	Incorporated WG3 voting period feedback
2023.11.21	05.00	Final version for Nov 2023 Publication
2024.03.25	05.00.01	Incorporated WG3 agreed CRs – <ul style="list-style-type: none"> <li>• NOK-2023.11.27-WG3-CR-0031-E2SM-RC-PolicyConditionID-v02.docx</li> <li>• COT-2024.01.29-WG3-CR-0002-E2SM-RC-MU-MIMO-Optimization-E2-Node-Config-v04.docx</li> <li>• COT-2024.02.13-WG3-CR-0003-E2SM-RC-MU-MIMO-Optimization-UE-Context-Reporting-v02.docx</li> <li>• RSYS-2024.02.16-WG3-CR-0001-E2SM-RC CellAccessBarring Parameter addition-v06.docx</li> <li>• RSYS-2024.02.20-WG3-CR-0002-E2SM-RC UAC Barring for PLMN correction-v04.docx</li> <li>• NOK.AO-2024.03.13-WG3-CR-0032-E2SM-RC clause 3.1 and 4.3-v02.docx</li> <li>• NEC-2023.11.07-WG3-CR-0026-E2SM-RC-Neighbor_to_Neighbour_Editorial_Correction_v01.docx</li> </ul>
2024.03.27	05.00.02	Editorial corrections during WG3 voting period
2024.04.01	06.00	Final version for March 2024 Publication
2024.11.27	06.00.01	Incorporated WG3 agreed CRs – <ul style="list-style-type: none"> <li>• CUC-2024.9.20-WG3-CR-0004-E2SM-RC-add descriptions of BF control and BF policy_v01.docx</li> <li>• MAV.AO-2024.10.21.WG3-CR-0013.E2SM-RC CR on CSI-RS DMRS Opt-v08.docx</li> <li>• NOK-2024.11.12-E2SM-RC-CR-0034-ErrorHandling-v02.docx</li> <li>• CUC-2024.8.19-WG3-CR-0003-E2SM-RC-Correct connected mode mobility control_v03.docx</li> <li>• COT-2024.05.24-WG3-CR-0006-E2SM-RC-MU-MIMO-Optimization-QoS-Parameters-Reporting-v02.docx</li> <li>• COT-2024.02.13-WG3-CR-0004-E2SM-RC-MU-MIMO-Optimization-Controlling-Configurations-v05.docx</li> </ul>
2024.12.06	06.00.02	Editorial corrections during WG3 voting period
2024.12.09	07.00	Final version for November 2024 Publication
2025.03.20	07.00.01	Incorporated WG3 agreed CRs – <ul style="list-style-type: none"> <li>• DCM-2025.02.10-WG3-CR-0004-E2SM-RC-Addition of parameter for UL power control in CONTROL-v03</li> <li>• DCM-2025.02.10-WG3-CR-0005-E2SM-RC-Addition of parameter regarding UL power in QUERY-v03</li> </ul>
2025.03.28	07.00.02	Editorial corrections during WG3 voting period
2025.03.31	08.00	Final version for March 2025 Publication