

## **O-RAN Working Group 3 Near-Real-time RAN Intelligent Controller E2 Service Model (E2SM), RAN Control**

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## **O-RAN Working Group 3 Near-Real-time RAN Intelligent Controller E2 Service Model (E2SM), RAN Control**

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1

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# Contents

1			
2	Revision History .....		2
3	1 Scope .....		8
4	2 References .....		9
5	3 Definitions and Abbreviations .....		10
6	3.1 Definitions .....		10
7	3.2 Abbreviations .....		10
8	4 General .....		11
9	4.1 Procedure Specification Principles .....		11
10	4.2 Forwards and Backwards Compatibility .....		11
11	4.3 Specification Notations .....		11
12	4.4 Identifiers .....		12
13	5 E2SM Services .....		13
14	6 RAN Function Service Model Description .....		14
15	6.1 RAN Function Overview .....		14
16	6.2 RAN Function exposure services .....		14
17	6.2.1 REPORT service .....		14
18	6.2.2 INSERT service .....		14
19	6.2.3 CONTROL service .....		15
20	6.2.4 POLICY service .....		15
21	6.3 REPORT service description .....		16
22	6.4 INSERT service description .....		16
23	6.5 CONTROL service description .....		17
24	6.6 POLICY service description .....		17
25	6.6.1 Overview .....		17
26	6.6.2 Policy approach "Control" .....		17
27	6.6.3 Policy Approach "Offset" .....		18
28	7 RAN Function Description .....		18
29	7.1 Description .....		18
30	7.2 RAN Function name .....		19
31	7.3 Event trigger definition styles .....		19
32	7.3.1 RIC Event trigger definition IE style list .....		19
33	7.3.2 RIC Event trigger definition IE style 1: Message Event .....		19
34	7.3.3 RIC Event trigger definition IE style 2: Call Process Breakpoint .....		19
35	7.3.4 RIC Event trigger definition IE style 3: E2 Node Information Change .....		21
36	7.3.5 RIC Event trigger definition IE style 4: UE Information Change .....		21
37	7.3.6 RIC Event trigger definition IE style 5: On Demand .....		22
38	7.4 Supported RIC REPORT Services .....		22
39	7.4.1 REPORT Service style list .....		22
40	7.4.2 REPORT Service Style 1: Message Copy .....		22
41	7.4.3 REPORT Service Style 2: Call Process Outcome .....		23
42	7.4.4 REPORT Service Style 3: E2 Node Information .....		24
43	7.4.5 REPORT Service Style 4: UE Information .....		24
44	7.4.6 REPORT Service Style 5: On Demand Report .....		25
45	7.5 Supported RIC INSERT Services .....		26
46	7.5.1 INSERT Service style list .....		26
47	7.5.2 INSERT Service Style 1: Radio Bearer Control Request .....		26
48	7.5.3 INSERT Service Style 2: Radio Resource Allocation Control Request .....		28
49	7.5.4 INSERT Service Style 3: Connected Mode Mobility Request .....		29
50	7.5.5 INSERT Service Style 4: Radio Access Control Request .....		30
51	7.5.6 INSERT Service Style 5: Dual Connectivity Control Request .....		31
52	7.5.7 INSERT Service Style 6: Carrier Aggregation Control Request .....		32
53	7.5.8 INSERT Service Style 7: Idle Mode Mobility Control Request .....		33
54	7.5.9 INSERT Service Style 255: Multiple Actions Control Request .....		34

1	7.6	Supported RIC CONTROL Services .....	35
2	7.6.1	CONTROL Service Style Types .....	35
3	7.6.2	CONTROL Service Style 1: Radio Bearer Control.....	35
4	7.6.3	CONTROL Service Style 2: Radio Resource Allocation Control.....	37
5	7.6.4	CONTROL Service Style 3: Connected Mode Mobility.....	39
6	7.6.5	CONTROL Service Style 4: Radio Access Control.....	40
7	7.6.6	CONTROL Service Style 5: Dual Connectivity Control .....	42
8	7.6.7	CONTROL Service Style 6: Carrier Aggregation Control.....	43
9	7.6.8	CONTROL Service Style 7: Idle Mode Mobility Control .....	45
10	7.6.9	CONTROL Service Style 8: UE information and assignment .....	46
11	7.6.10	CONTROL Service Style 255: Multiple Actions Control .....	47
12	7.6.11	CONTROL Service Style 9: Measurement Reporting Configuration Control .....	48
13	7.7	Supported RIC POLICY Services .....	49
14	7.7.1	POLICY Service style list .....	49
15	7.7.2	POLICY Service Style 1: Radio Bearer Control.....	50
16	7.7.3	POLICY Service Style 2: Radio Resource Allocation Control .....	51
17	7.7.4	POLICY Service Style 3: Connected Mode Mobility Control.....	51
18	7.7.5	POLICY Service Style 4: Radio Access Control .....	52
19	7.7.6	POLICY Service Style 5: Dual Connectivity (DC) Control.....	53
20	7.7.7	POLICY Service Style 6: Carrier Aggregation (CA) Control.....	54
21	7.7.8	POLICY Service Style 7: Idle Mode Mobility Control.....	55
22	7.7.9	POLICY Service Style 8: Measurement Reporting Configuration Control .....	55
23	7.8	Supported RIC Service Styles and E2SM IE Formats .....	56
24	8	RAN Parameter assignments.....	58
25	8.0	Approach .....	58
26	8.1	RAN parameters for Event Trigger.....	58
27	8.1.1	Common RAN Parameters .....	58
28	8.1.2	RAN Parameters for Call Process Breakpoint.....	108
29	8.1.3	RAN Parameters for UE Identification .....	163
30	8.1.4	RAN Parameters for Cell Identification.....	165
31	8.1.5	UE Events .....	165
32	8.2	RAN parameters for REPORT services.....	165
33	8.2.1	RAN Parameters for Report Service Style 1 .....	165
34	8.2.2	RAN Parameters for Report Service Style 2 .....	167
35	8.2.3	RAN Parameters for Report Service Style 3 .....	167
36	8.2.4	RAN Parameters for Report Service Style 4.....	169
37	8.2.5	RAN Parameters for Report Service Style 5 .....	170
38	8.3	RAN parameters for INSERT services.....	170
39	8.3.1	Approach.....	170
40	8.3.2	Radio Bearer Control request.....	170
41	8.3.3	Radio Resource Allocation request.....	171
42	8.3.4	Connected Mode Mobility Control Request.....	171
43	8.3.5	Radio Access Control request .....	171
44	8.3.6	Dual Connectivity Control request.....	172
45	8.3.7	Carrier Aggregation Control request.....	172
46	8.3.8	Idle Mode Mobility Control request.....	172
47	8.3.9	Common RAN Parameters for INSERT Service styles .....	172
48	8.3.10	Indication Semantics Description for interpretation by the RIC .....	173
49	8.4	RAN Parameters for Control Actions .....	173
50	8.4.1	Approach.....	173
51	8.4.2	Radio Bearer Control .....	173
52	8.4.3	Radio Resource Allocation Control .....	183
53	8.4.4	Connected Mode Mobility Control .....	187
54	8.4.5	Radio Access Control.....	194
55	8.4.6	Dual Connectivity Control .....	202
56	8.4.7	Carrier Aggregation Control .....	213
57	8.4.8	Idle Mode Mobility Control .....	215
58	8.4.9	UE identification and assignment.....	216
59	8.4.10	Measurement Reporting Configuration Control.....	217
60	8.5	RAN parameters for POLICY services.....	259

1	8.5.1	Approach.....	259
2	8.5.1A	Common RAN Parameters for POLICY services .....	259
3	8.5.2	Radio Bearer Control .....	260
4	8.5.3	Radio Resource Allocation Control .....	262
5	8.5.4	Connected Mode Mobility Control .....	264
6	8.5.5	Radio Access Control.....	269
7	8.5.6	Dual Connectivity Control .....	271
8	8.5.7	Carrier Aggregation Control .....	274
9	8.5.8	Idle Mode Mobility Control .....	276
10	8.5.9	Measurement Reporting Configuration Control.....	277
11	9	Elements for E2SM Service Model.....	278
12	9.1	General.....	278
13	9.2	Message Functional Definition and Content.....	278
14	9.2.1	Messages for RIC Functional procedures.....	278
15	9.2.2	Messages for RIC Global Procedures .....	292
16	9.3	Information Element definitions .....	302
17	9.3.1	General.....	302
18	9.3.2	RAN Function Name.....	302
19	9.3.3	RIC Style Type.....	302
20	9.3.4	RIC Style Name .....	302
21	9.3.5	RIC Format Type .....	302
22	9.3.6	Control Action ID .....	302
23	9.3.7	Control Action Name .....	302
24	9.3.8	RAN Parameter ID .....	303
25	9.3.9	RAN Parameter Name.....	303
26	9.3.10	UE ID.....	303
27	9.3.11	RAN Parameter Value Type.....	304
28	9.3.12	RAN Parameter Structure.....	304
29	9.3.13	RAN Parameter List .....	305
30	9.3.14	RAN Parameter Value.....	305
31	9.3.15	Call Process Type ID.....	305
32	9.3.16	Insert Indication ID .....	305
33	9.3.17	Insert Indication Name.....	305
34	9.3.18	RAN Call Process ID .....	306
35	9.3.19	Call Process Type Name .....	306
36	9.3.20	Policy Action.....	306
37	9.3.21	Event Trigger Condition ID .....	306
38	9.3.22	Event Trigger ID for UE .....	306
39	9.3.23	Event Trigger ID for UE Event .....	307
40	9.3.24	Event Trigger ID for Cell .....	307
41	9.3.25	Logical OR.....	307
42	9.3.26	Event Trigger UE Information .....	307
43	9.3.27	Event Trigger Cell Information.....	308
44	9.3.28	Event Trigger UE Event Information .....	308
45	9.3.29	RAN Parameter Conditional Criteria Definition .....	309
46	9.3.30	RAN Parameter Test .....	309
47	9.3.31	RAN Parameter Test Condition .....	309
48	9.3.32	Network Interface Type .....	310
49	9.3.33	Network Interface Identifier.....	310
50	9.3.34	Network Interface Message ID.....	310
51	9.3.35	RRC Message ID.....	310
52	9.3.36	Cell Global ID .....	310
53	9.3.37	RRC State.....	311
54	9.3.38	Neighbour Relation Information .....	312
55	9.3.39	Serving Cell PCI .....	313
56	9.3.40	Serving Cell ARFCN .....	313
57	9.3.41	NR CGI .....	313
58	9.3.42	NR PCI.....	313
59	9.3.43	NR TAC .....	313
60	9.3.44	NR Frequency Info.....	313

1	9.3.45	E-UTRA CGI .....	313
2	9.3.46	E-UTRA PCI .....	313
3	9.3.47	E-UTRA TAC .....	313
4	9.3.48	E-UTRA ARFCN .....	313
5	9.3.49	Call Process Breakpoint ID .....	313
6	9.3.50	Call Process Breakpoint Name .....	314
7	9.3.51	RAN Parameter Definition .....	314
8	9.4	Information Element Abstract Syntax (with ASN.1) .....	315
9	9.4.1	General .....	315
10	9.4.2	Information Element Definitions .....	315
11	9.5	Message transfer syntax .....	331
12	10	Handling of Unknown, Unforeseen and Erroneous Protocol Data .....	331
13	Annex A:	Examples on IE Contents .....	332
14	A.1	Introduction .....	332
15	A.2	Connected mode mobility based on UE measurement report .....	332
16	A.2.1	Assumptions .....	332
17	A.2.2	Solution using RIC Services Insert and Control .....	332
18	A.2.3	Solution using RIC Service Policy ("Offset" based approach) .....	332
19	Annex ZZZ :	O-RAN Adopter License Agreement .....	335
20	Section 1:	DEFINITIONS .....	335
21	Section 2:	COPYRIGHT LICENSE .....	335
22	Section 3:	FRAND LICENSE .....	336
23	Section 4:	TERM AND TERMINATION .....	336
24	Section 5:	CONFIDENTIALITY .....	336
25	Section 6:	INDEMNIFICATION .....	337
26	Section 7:	LIMITATIONS ON LIABILITY; NO WARRANTY .....	337
27	Section 8:	ASSIGNMENT .....	337
28	Section 9:	THIRD-PARTY BENEFICIARY RIGHTS .....	337
29	Section 10:	BINDING ON AFFILIATES .....	337
30	Section 11:	GENERAL .....	337
31			
32			
33			



# 1 Scope

This Technical Specification has been produced by 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 release date and an increase in version number as follows:

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x the first digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc. (the initial approved document will have x=01).

y the second digit is incremented when editorial only changes have been incorporated in the document.

z the third digit included only in working versions of the document indicating incremental changes during the editing process.

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

## 2 References

- [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 38.463: "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".

## 3 Definitions and Abbreviations

### 3.1 Definitions

**E2 Node:** as defined in E2GAP [2].

**RAN Function:** as defined in E2GAP [2]

**E2 Service Model:** The description of the Services exposed by a specific RAN function within an E2 node over the E2 interface towards the Near-RT RIC.

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

### 3.2 Abbreviations

For the purposes of the present document, 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 behaviour of the terminating node exactly and completely. Any rule that specifies the behaviour 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 MESSAGE NAME is written with all letters in upper case characters followed by the word "message", e.g. HANDOVER 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 Identifiers

For the purposes of the present document, the following identifiers are defined:

Style Type	The identifier used to nominate a specific approach or Style used to exposing a given RIC Service (REPORT, INSERT, CONTROL and POLICY). The same E2SM may support more than one Style for each RIC Service.
Format Type	The identifier used to nominate a specific formatting approach used to encode one of the E2AP IEs defined in this E2SM. The same E2SM may support more than one encoding Formats for each E2AP IE and each E2AP IE message encoding Format may be used by one or more RIC Service Styles.

## 5 E2SM Services

As defined in E2 General Aspects and Principles [1], a given RAN Function offers a set of services to be exposed over the E2 (**REPORT**, **INSERT**, **CONTROL** and/or **POLICY**) using 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>	E2AP [3] Section 9.2.9	RIC Subscription
<i>RIC Action Definition IE</i>	E2AP [3] Section 9.2.12	RIC Subscription
<i>RIC Indication Header IE</i>	E2AP [3] Section 9.2.17	RIC Indication
<i>RIC Indication Message IE</i>	E2AP [3] Section 9.2.16	RIC Indication
<i>RIC Call Process ID IE</i>	E2AP [3] Section 9.2.18	RIC Indication RIC Control
<i>RIC Control Header IE</i>	E2AP [3] Section 9.2.20	RIC Control
<i>RIC Control Message IE</i>	E2AP [3] Section 9.2.19	RIC Control
<i>RIC Control Outcome IE</i>	E2AP [3] Section 9.2.25	RIC Control
<i>RAN Function Definition IE</i>	E2AP [3] Section 9.2.23	E2 Setup RIC Service Update

All of these RAN Function specific E2AP IEs are defined in 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

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.
- On Demand Report, used for reporting Cell related, E2 Node related and UE related information to Near-RT RIC when requested by Near-RT RIC.

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 to RAN UE group assignment, used to support POLICY services.
- Measurement Report (MR) Configuration Control, used to control configuration of RRC measurement objects, reporting objects, etc.

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.

## 6.3 REPORT service description

The E2SM-RC REPORT service requirements defined in Section 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.
- On demand report: This REPORT style is initiated by “On Demand” Event Trigger and is used to report cell-related and UE-related information on an adhoc basis upon request from Near-RT RIC.

## 6.4 INSERT service description

The E2SM-RC INSERT service requirements defined in Section 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” 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 RIC. 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 Section 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. 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 Section 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 Section 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  $RSRP > 'x' \text{ db} + \text{Target Node Load} < 'x' \text{ value} + \text{Number of successful HO to target Node} > 'x' \text{ value}$ . When these Policy conditions are satisfied, then perform Policy Action - “Execute HO” defined in the CONTROL service in Section 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 QoS 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.

## 7 RAN Function Description

### 7.1 Description

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

For the specific RAN Function, the *RAN Function Description* IE 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.

## 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 Event trigger definition 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	-	-	Triggering conditions are based on change of UE Information.
5	On Demand	5	-	-	Event is immediately triggered when RIC subscription with this event trigger is accepted.

### 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 decision 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 Section 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 Breakpoint 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 Modification	8.1.2.2.2				
		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 <i>UE Context Management</i> 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
		2	RRC Cell Group Config Transfer	8.1.2.5.2				
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: Event Trigger Definition 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 *RIC Event Trigger Definition* IE Format 2 (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 Neighbor Relation Change	Triggered when any serving cell's neighbor relation information defined by Section 9.3.38 has changed.
3	Slice Configuration Change	Triggered when slice configuration in any serving cell has changed.

**Table 7.3.4-1: Event Trigger Definition 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 *RIC Event Trigger Definition* IE Format 3 (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 Section 9.3.10)
- RLC/PDCP state variable or MAC state variable change (based on RAN Parameters defined in Sections 8.1.1.4 and 8.1.1.8)

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 Section 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: Event Trigger Definition Style 4 – Supported UE Identifier 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 *RIC Event Trigger Definition* IE Format 4 (9.2.1.1.4).

### 7.3.6 RIC Event trigger definition IE style 5: On Demand

This *RIC Event Trigger Definition* IE style is used to be immediately triggered by E2 Node when a RIC subscription having this event trigger is accepted. Once accepted, the E2 Node shall consider that this RIC subscription shall expire automatically once all the requested actions for this RIC subscription are performed by the E2 Node.

The event 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 for a specific cell or group of cells as indicated by the *Associated Cell Info* IE if included. In this case, Near-RT RIC shall ensure that additional conditions imposed by the *Associated UE Info* IE or *Associated Cell Info* IE does not prevent event triggering as soon as the RIC subscription is accepted by the E2 Node.

This *RIC Event Trigger Definition* IE style uses the *RIC Event Trigger Definition* IE Format 5 (9.2.1.1.5).

## 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.
5	On Demand Report	This style is used to report snapshot of UE related information and Cell related information upon request from Near-RT RIC.

### 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 specific information associated with the Network Interface/RRC messages as provided in Section 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 Section 8.1.5 for the list of UE events).

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

## 2 7.4.2.2 REPORT Service *RIC Action Definition* IE contents

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

6 This **REPORT** Service style uses the *RIC Action Definition* IE Format 1 (9.2.1.2.1). The supported Parameters for this  
7 format are provided in Section 8.2.1.

## 8 7.4.2.3 REPORT Service *RIC Indication Header* IE contents

9 This **REPORT** Service style uses the *RIC Indication Header* IE Format 1 (9.2.1.3.1)

## 10 7.4.2.4 REPORT Service *RIC Indication Message* IE contents

11 The **REPORT** Service *RIC Indication Message* IE carries the complete Network Interface or RRC message as  
12 transparent containers. The *RIC Indication Message* IE may also carry UE specific information related to the Network  
13 Interface or RRC message as provided in Section 8.2.1.

14 This **REPORT** Service style uses the *RIC Indication Message* IE Format 1 (9.2.1.4.1). The supported Parameters for  
15 this message format are provided in Section 8.2.1.

## 16 7.4.3 REPORT Service Style 2: Call Process Outcome

### 17 7.4.3.1 REPORT Service Style description

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

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

### 22 7.4.3.2 REPORT Service *RIC Action Definition* IE contents

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

26 This **REPORT** Service style uses the *RIC Action Definition* IE Format 1 (9.2.1.2.1). The supported Parameters for this  
27 message format are provided in Section 8.2.2.

### 28 7.4.3.3 REPORT Service *RIC Indication Header* IE contents

29 This **REPORT** Service style uses the *RIC Indication Header* IE Format 1 (9.2.1.3.1).

### 30 7.4.3.4 REPORT Service *RIC Indication Message* IE contents

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

33 This **REPORT** Service style uses the *RIC Indication Message* IE Format 2 (9.2.1.4.2). The supported Parameters for  
34 this message format are provided in Section 8.2.2.



## 1 7.4.4 REPORT Service Style 3: E2 Node Information.

### 2 7.4.4.1 REPORT Service Style description

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

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

- 8 - Serving Cell configuration
- 9 - Neighbour Relation Information

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

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

### 14 7.4.4.2 REPORT Service *RIC Action Definition* IE contents

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

16 The **REPORT** Service style uses the *RIC Action Definition* IE Format 1 (9.2.1.2.1). The supported Parameters for this  
17 format are provided in Section 8.2.3.

### 18 7.4.4.3 REPORT Service *RIC Indication Header* IE contents

19 This **REPORT** Service style uses the *RIC Indication Header* IE Format 1 (9.2.1.3.1).

### 20 7.4.4.4 REPORT Service *RIC Indication Message* IE contents

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

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

## 26 7.4.5 REPORT Service Style 4: UE Information

### 27 7.4.5.1 REPORT Service Style description

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

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

- 32 - L2 UE State variable values including
- 33 - PDCP UE State variables
- 34 - RLC UE State variables
- 35 - MAC UE variables.
- 36 - L3 UE State variable values including
- 37 - 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

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 *RIC Action Definition* IE Format 1 (9.2.1.2.1). The supported Parameters for this message format are provided in Section 8.2.4.

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

This **REPORT** Service style uses the *RIC Indication Header* IE Format 1 (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 *RIC Indication Message* IE Format 2 (9.2.1.4.2). The supported Parameters for this message format are provided in Section 8.2.4.

### 7.4.6 REPORT Service Style 5: On Demand Report

#### 7.4.6.1 REPORT Service Style description

This **REPORT** Service style provides the snapshot of the following information at the time of subscription request received from Near-RT RIC:

- Cell Configuration related information
- Neighbour Relation related information
- UE Context related information

The subscription for this **REPORT** Service style expires once the RIC Indication message is sent with the requested information. The E2AP RIC Subscription Delete procedure or RIC Subscription Delete Required procedure [3] is not required to delete this subscription. The reporting shall be per UE based or per cell based depending on the information requested to be reported.

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

The Action Definition for this service style indicates the information type (e.g. UE Context information) requested by Near-RT RIC.

The **REPORT** Service style uses the *RIC Action Definition* IE Format 1 (9.2.1.2.1). The supported Parameters for this format are provided in Section 8.2.5.

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

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

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

This **REPORT** Service style uses the *RIC Indication Message* IE Format 4 (9.2.1.4.4). The mapping of RAN parameters configured in the *RIC Action Definition* IE to the reported IEs in the *RIC Indication Message* IE Format 4 is provided in the semantics description of the IEs.

## 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	Mutiple 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 Sections 7.5.2 to 7.5.8, there is also a common set of RAN parameters for all INSERT service styles as elucidated in Section 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 *RIC Action Definition* IE Format 3 (9.2.1.2.3). This Insert style deals with the supported *Indication* services, each service with a corresponding *Indication* ID listed in Section 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 *RIC Indication header* IE Format 2 (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 *RIC Indication Message* IE Format 5 (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 *RIC Call Process ID* IE Format 1 (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 *RIC Action Definition* IE Format 3 (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication* ID listed in Section 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 *RIC Indication Header* IE Format 2 (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 *RIC Indication Message* IE Format 5 (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 *RIC Call Process ID* IE Format 1 (9.2.1.5.1).

## 7.5.4 INSERT Service Style 3: Connected Mode Mobility 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

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

This **INSERT** Service style uses the *RIC Action Definition* IE Format 3 (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication* ID listed in Section 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 *RIC Indication Header* IE Format 2 (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 *RIC Indication Message* IE Format 5 (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 *RIC Call Process ID* IE Format 1 (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 releaseRequest 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 *RIC Action Definition* IE Format 3 (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication* ID listed in Section 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 *RIC Indication Header* IE Format 2 (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 *RIC Indication Message* IE Format 5 (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 *RIC Call Process ID* IE Format 1 (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 *RIC Action Definition* IE Format 3 (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication* ID listed in Section 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 *RIC Indication Header* IE Format 2 (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 *RIC Indication Message* IE Format 5 (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 *RIC Call Process ID* IE Format 1 (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 *RIC Action Definition* IE Format 3 (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication* ID listed in Section 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 *RIC Indication Header* IE Format 2 (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 *RIC Indication Message* IE Format 5 (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 *RIC Call Process ID* IE Format 1 (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 *RIC Action Definition* IE Format 3 (9.2.1.2.3). The Insert style deals with the supported *Indication* services, each service with a corresponding *Indication* ID listed in Section 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.

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

This **INSERT** Service style uses *RIC Indication Header* IE Format 2 (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 *RIC Indication Message* IE Format 5 (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 *RIC Call Process ID* IE Format 1 (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 *RIC Action Definition* IE Format 4 (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 *RIC Indication Header* IE Format 3 (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 *RIC Indication Message* IE Format 6 (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 *RIC Call Process ID* IE Format 1 (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 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 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
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 1-9 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.

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.

### 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 Section 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	Associated RAN Parameters
1	DRB QoS Configuration	To control the configuration of DRB QoS profile	8.4.2.1
2	QoS flow mapping configuration	To control the multiplexing of QoS flows to a DRB (addition, modification, deletion)	8.4.2.2
3	Logical channel configuration	To control the LCID configuration of a DRB	8.4.2.3
4	Radio admission control	To control radio admission of a UE	8.4.2.4
5	DRB termination control	To control the change in bearer termination point	8.4.2.5
6	DRB split ratio control	To control the split ratio of a DRB across its RLC entities	8.4.2.6
7	PDCP Duplication control	To control activation or de-activation of PDCP duplication for a DRB and control/configure the number of legs or RLC entities for the DRB	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 *RIC Control Header* IE Format 1 (9.2.1.6.1).

### 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 *RIC Control Message* IE Format 1 (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 Section 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.

## 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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 1 (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

## 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 Section 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 Quality Indicator (CQI) table
- Slice level PRB quota

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	CQI table configuration	To control the configuration of CQI table.	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

### 7.6.3.2 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 *RIC Control Header* IE Format 1 (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 *RIC Control Message* IE Format 1 (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 Section 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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 1 (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

## 7.6.4 CONTROL Service Style 3: Connected Mode Mobility

### 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 Section 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 *RIC Control Header* IE Format 1 (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 *RIC Control Message* IE Format 1 (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 Section 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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 1 (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

### 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 Section 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

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### 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 *RIC Control Header* IE Format 1 (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 *RIC Control Message* IE Format 1 (9.2.1.7.1).

12

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 Section 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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 1 (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

## 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 Section 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 *RIC Control Header* IE Format 1 (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 *RIC Control Message* IE Format 1 (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 Section 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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 1 (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

## 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 Section 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 *RIC Control Header* IE Format 1 (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 *RIC Control Message* IE Format 1 (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 Section 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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 1 (9.2.1.8.1).

RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

## 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 Section 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 *RIC Control Header* IE Format 1 (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 *RIC Control Message* IE Format 1 (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 Section 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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 1 (9.2.1.8.1).



RAN Parameter ID	RAN Parameter Name	RAN Parameter Type	Parameter Description
1	ReceivedTimestamp	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.

## 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

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

Control Action ID	Control Action Name	Required information	RAN Parameter assignment
1	UE to Explicit UE list assignment command	- Explicit UE list identifier - Assignment Command (add UE, remove UE, send list of supported <i>Explicit UE list</i> )	8.4.9.1

### 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 =3 "UE identification request", the *UE ID* IE in the *RIC Control Header* IE shall contain information elements set to zero (for INTEGER values), all bits = 0 (for OCTET STRING) or NULL (for PRINTABLE STRING values) if information is not known.

This **CONTROL** style uses *RIC Control Header* IE Format 1 (9.2.1.6.1).

### 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 Section 7.6.9.1.

This **CONTROL** style uses *RIC Control Message* IE Format 1 (9.2.1.7.1).

### 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 commands) - list of supported Explicit UE list (for assignment command =3)  Failure case: - Failure Cause	8.4.9.1

This **CONTROL** style uses *RIC Control Outcome* IE Format 1 (9.2.1.8.1).

## 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 *RIC Control Header* IE Format 2 (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 *RIC Control Message* IE Format 2 (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 *RIC Call Process ID* IE Format 1 (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 *RIC Control Outcome* IE Format 2 (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))	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 section Section 6 of IETF RFC 5905 [30] containing both seconds and fraction parts.
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
- Modify configuration of measurement objects, reporting objects, measurement gaps, etc. for UE reporting
- Delete configuration of measurement objects, reporting objects, measurement gaps, etc. for UE reporting

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	Add MR Configuration	To add configuration of measurement objects, reporting objects, measurement gaps	8.4.10.1
2	Modify MR Configuration	To modify configuration of measurement objects, reporting objects, measurement gaps	8.4.10.2
3	Delete MR Configuration	To delete configuration of measurement objects, reporting objects, measurement gaps	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 *RIC Control Header* IE Format 1 (9.2.1.6.1).

### 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 *RIC Control Message* IE Format 1 (9.2.1.7.1).

### 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 Section 8.4.10.4.

This **CONTROL** style uses *RIC Control Outcome* IE Format 3 (9.2.1.8.3).

## 7.7 Supported RIC POLICY Services

### 7.7.1 POLICY Service style list

RIC Style Type	Style Name	Style Description
1	Policy for Radio Bearer control	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	Policy for Radio resource allocation control	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	Policy for Connected mode mobility control	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	Policy for Radio access control	Used to define a policy for modifying the behaviour of radio access control processes
5	Policy for Dual connectivity (DC) control	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	Policy for Carrier Aggregation (CA) control	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	Policy for Idle mode mobility control	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	Policy for Measurement Reporting Configuration Control	Used to define a policy for configuration of measurement objects and reporting objects

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 *RIC Action Definition* IE Format 2 (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 behaviour 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.

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 Control

### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 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 Control

### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 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 Control

### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 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 Control

##### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 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) Control

### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 7.7.1.

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



Control Action ID	Control Action Name	Control 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) Control

### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 7.7.1.

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

Policy Action ID	Policy Action Name	Control 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 Control

### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 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 Control

### 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 *RIC Action Definition* IE Format 2 (9.2.1.2.2) using the approach described in Section 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

## 7.8 Supported RIC Service Styles and E2SM IE Formats

Table 7.8-1 and Table 7.8-2 provide a summary of the E2SM IE Formats defined to support this E2SM specification.

**Table 7.8-1: Summary of the E2SM IE Formats defined to support RIC Event Trigger Styles**

RIC Event Trigger Style	Event Trigger Definition Format
Style 1	1
Style 2	2
Style 3	3
Style 4	4
Style 5	5

**Table 7.8-2: Summary of the E2SM IE Formats defined to support RIC Service Styles**

<b>RIC Service Style</b>	<b>Action Definition Format</b>	<b>Indication Header Format</b>	<b>Indication Message Format</b>	<b>Call Process ID Format</b>	<b>Control Header Format</b>	<b>Control Message Format</b>	<b>Control Outcome Format</b>
<b>REPORT</b>							
Style 1	1	1	1				
Style 2	1	1	2				
Style 3	1	1	3				
Style 4	1	1	2				
Style 5	1	1	4				
<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	1	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	1	1
Style 9					1	1	3
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						

## 8 RAN Parameter assignments

### 8.0 Approach

The RAN parameters associated with each RIC service described in Section 7 are listed here in Section 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, 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, 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 event trigger definition, 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 section 8.1 may also be used to define Policy Condition, see also section 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] Section 9.2.2.7	
10002	NR PCI	ELEMENT	FALSE	NR PCI IE in TS 38.473 [19] Section 9.3.1.10	
10003	5GS TAC	ELEMENT	FALSE	5GS TAC IE in TS 38.473 [19] Section 9.3.1.29	
10004	CHOICE NR-Mode-Info	STRUCTURE			NR-Mode-Info IE in TS 38.473 [19] Section 9.3.1.10
10005	>FDD	STRUCTURE			FDD IE in TS 38.473 [19] Section 9.3.1.10
10006	>>FDD Info	STRUCTURE			FDD Info IE in TS 38.473 [19] Section 9.3.1.10
10007	>>>UL FreqInfo	STRUCTURE			UL FreqInfo IE in TS 38.473 [19] Section 9.3.1.10
10008	>>>>NR ARFCN	ELEMENT	FALSE	NR ARFCN IE in TS 38.473 [19] Section 9.3.1.17	
10009	>>>>Frequency Band List	LIST			Frequency Band List IE in TS 38.473 [19] Section 9.3.1.17
10010	>>>>>Frequency Band item	STRUCTURE			Frequency Band Item IE in TS 38.473 [19] Section 9.3.1.17
10011	>>>>>>NR Frequency band	ELEMENT	FALSE	NR Frequency Band IE in TS 38.473 [19] Section 9.3.1.17	
10012	>>>DL FreqInfo	STRUCTURE			DL FreqInfo IE in TS 38.473 [19] Section 9.3.1.10
10013	>>>>NR ARFCN	ELEMENT	FALSE	NR ARFCN IE in TS 38.473 [19] Section 9.3.1.17	
10014	>>>>Frequency Band List	LIST			Frequency Band List IE in TS 38.473 [19] Section 9.3.1.17

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



10030	>>>>>NR SCS	ELEMENT	FALSE	NR SCS IE in TS 38.473 [19] Section 9.3.1.15	
10031	>>>>>Offset to Carrier	ELEMENT	FALSE	Offset to Carrier IE in TS 38.473 [19] Section 9.3.1.137	
10032	>>>>>Carrier Bandwidth	ELEMENT	FALSE	Carrier Bandwidth IE in TS 38.473 [19] Section 9.3.1.137	
10033	>TDD	STRUCTURE			TDD IE in TS 38.473 [19] Section 9.3.1.10
10034	>>TDD Info	STRUCTURE			TDD Info IE in TS 38.473 [19] Section 9.3.1.10
10035	>>>NR FreqInfo	STRUCTURE			
10036	>>>>NR ARFCN	ELEMENT	FALSE	NR ARFCN IE in TS 38.473 [19] Section 9.3.1.17	
10037	>>>>Frequency Band List	LIST			Frequency Band List IE in TS 38.473 [19] Section 9.3.1.17
10038	>>>>>Frequency Band item	STRUCTURE			Frequency Band Item IE in TS 38.473 [19] Section 9.3.1.17
10039	>>>>>>NR Frequency band	ELEMENT	FALSE	NR Frequency Band IE in TS 38.473 [19] Section 9.3.1.17	
10040	>>>Transmission Bandwidth	STRUCTURE			Transmission Bandwidth IE in TS 38.473 [19] Section 9.3.1.15
10041	>>>>NR SCS	ELEMENT	FALSE	NR SCS IE in TS 38.473 [19] Section 9.3.1.15	
10042	>>>>NRB	ELEMENT	FALSE	NRB IE in TS 38.473 [19] Section 9.3.1.15	
10043	>>>Carrier List	LIST			Transmission Bandwidth IE in TS 38.473 [19] Section 9.3.1.15
10044	>>>>NR Carrier Item	STRUCTURE		NR SCS IE in TS 38.473 [19] Section 9.3.1.15	

10045	>>>>>NR SCS	ELEMENT	FALSE	NR SCS IE in TS 38.473 [19] Section 9.3.1.15	
10046	>>>>>Offset to Carrier	ELEMENT	FALSE	Offset to Carrier IE in TS 38.473 [19] Section 9.3.1.137	
10047	>>>>>Carrier Bandwidth	ELEMENT	FALSE	Carrier Bandwidth IE in TS 38.473 [19] Section 9.3.1.137	
10048	>>>Intended TDD DL-UL Configuration	STRUCTURE			Intended TDD DL-UL Configuration IE in TS 38.473 [19] Section 9.3.1.89
10049	>>>>NR SCS	ELEMENT	FALSE	NR SCS IE in TS 38.473 [19] Section 9.3.1.89	
10050	>>>>NR Cyclic Prefix	ELEMENT	FALSE	NR Cyclic Prefix IE in TS 38.473 [19] Section 9.3.1.89	
10051	>>>>NR DL-UL Transmission Periodicity	ELEMENT	FALSE	NR DL-UL Transmission Periodicity IE in TS 38.473 [19] Section 9.3.1.89	
10052	>>>>Slot Configuration List	LIST			Slot Configuration List IE in TS 38.473 [19] Section 9.3.1.89
10053	>>>>>Slot Configuration Item	STRUCTURE			Slot Configuration Item IE in TS 38.473 [19] Section 9.3.1.89
10054	>>>>>>Slot Index	ELEMENT	TRUE	Slot Index IE in TS 38.473 [19] Section 9.3.1.89	
10055	>>>>>>CHOICE Symbol Allocation in Slot	STRUCTURE		Symbol Allocation in Slot IE in TS 38.473 [19] Section 9.3.1.89	
10056	>>>>>>>All DL	ELEMENT	FALSE	All DL IE in TS 38.473 [19] Section 9.3.1.89	
10057	>>>>>>>All UL	ELEMENT	FALSE	All UL IE in TS 38.473 [19] Section 9.3.1.89	

10058	>>>>>>>Both DL and UL	STRUCTURE			<i>Both DL and UL IE in TS 38.473 [19] Section 9.3.1.89</i>
10059	>>>>>>>Number of DL symbols	ELEMENT	FALSE	<i>Number of DL symbols IE in TS 38.473 [19] Section 9.3.1.89</i>	
10060	>>>>>>>Number of UL symbols	ELEMENT	FALSE	<i>Number of UL symbols IE in TS 38.473 [19] Section 9.3.1.89</i>	
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 IE in TS 38.331 [22]</i>
10102	>Cell Results	STRUCTURE			<i>cellResults IE in TS 38.331 [22]</i>
10103	>>SSB Results	STRUCTURE		8.1.1.3	<i>resultsSSB-Cell IE in TS 38.331 [22]</i>
10106	>>CSI-RS Results	STRUCTURE		8.1.1.3	<i>resultsCSI-RS-Cell IE in TS 38.331 [22]</i>
10110	PM Measurements	STRUCTURE			<i>Cell Measurement Result IE in TS 38.423 [15] Section 9.1.3.21</i>
10111	>Radio Resource Status	STRUCTURE			<i>Radio Resource Status IE in TS 38.473 [19]</i>
10112	>>SSB Area Radio Resource Status List	LIST			<i>SSB Area Radio Resource Status List IE in TS 38.473 [19] Section 9.3.1.129</i>
10113	>>>SSB Area Radio Resource Status Item	STRUCTURE			<i>SSB Area Radio Resource Status Item IE in TS 38.473 [19] Section 9.3.1.129</i>

10114	>>>>SSB Index	ELEMENT	TRUE	SSB Index IE in TS 38.473 [19] Section 9.3.1.129	
10115	>>>>SSB Area DL GBR PRB Usage	ELEMENT	FALSE	SSB Area DL GBR PRB Usage IE in TS 38.473 [19] Section 9.3.1.129	
10116	>>>>SSB Area UL GBR PRB Usage	ELEMENT	FALSE	SSB Area UL GBR PRB Usage IE in TS 38.473 [19] Section 9.3.1.129	
10117	>>>>SSB Area DL non-GBR PRB Usage	ELEMENT	FALSE	SSB Area DL non-GBR PRB Usage IE in TS 38.473 [19] Section 9.3.1.129	
10118	>>>>SSB Area UL non-GBR PRB Usage	ELEMENT	FALSE	SSB Area UL non-GBR PRB Usage IE in TS 38.473 [19] Section 9.3.1.129	
10119	>>>>SSB Area DL Total PRB Usage	ELEMENT	FALSE	SSB Area DL Total PRB Usage IE in TS 38.473 [19] Section 9.3.1.129	
10120	>>>>SSB Area UL Total PRB Usage	ELEMENT	FALSE	SSB Area UL Total PRB Usage IE in TS 38.473 [19] Section 9.3.1.129	
10121	>>>>DL scheduling PDCCH CCE Usage	ELEMENT	FALSE	DL Scheduling PDCCH CCE IE in TS 38.473 [19] Section 9.3.1.129	
10122	>>>>UL scheduling PDCCH CCE Usage	ELEMENT	FALSE	UL Scheduling PDCCH CCE IE in TS 38.473 [19] Section 9.3.1.129	
10123	>Available DL PRBs in the cell	ELEMENT	FALSE	INTEGER	DL Total available PRB IE in TS 28.552 [28] Sec 5.1.1.2.6
10124	>Available UL PRBs in the cell	ELEMENT	FALSE	INTEGER	UL Total available PRB IE in TS 28.552 [28] Sec 5.1.1.2.8

10125	>Number of active DL UEs in the cell	ELEMENT	FALSE	<i>Number of Active UEs IE</i> in TS 38.473 [19] Section 9.3.1.135	
10126	>Number of active UL UEs in the cell	ELEMENT	FALSE	<i>Number of Active UEs IE</i> in TS 38.473 [19] Section 9.3.1.135	
10127	>Composite Available Capacity Group	STRUCTURE			<i>Composite Available Capacity Group IE</i> in TS 38.473 [19] Section 9.3.1.130
10128	>>Composite Available Capacity Downlink	STRUCTURE			<i>Composite Available Capacity IE</i> in TS 38.473 [19] Section 9.3.1.131
10129	>>>Cell Capacity Class Value	ELEMENT	FALSE	<i>Cell Capacity Class Value IE</i> in TS 38.473 [19] Section 9.3.1.132	
10130	>>>Capacity Value	ELEMENT	FALSE	<i>Capacity Value IE</i> in TS 38.473 [19] Section 9.3.1.133	
10131	>>>SSB Area Capacity Value List	LIST			<i>SSB Area Capacity Value List IE</i> in TS 38.473 [19] Section 9.3.1.133
10132	>>>>SSB Area Capacity Value Item	STRUCTURE			<i>SSB Area Capacity Value Item IE</i> in TS 38.473 [19] Sec 9.3.1.133
10133	>>>>>SSB Index	ELEMENT	TRUE	<i>SSB Index IE</i> in TS 38.473 [19] Section 9.3.1.133	
10134	>>>>>SSB Area Capacity Value	ELEMENT	FALSE	<i>SSB Area Capacity Value IE</i> in TS 38.473 [19] Sec 9.3.1.133	
10141	>>Composite Available Capacity Uplink	STRUCTURE			<i>Composite Available Capacity IE</i> in TS 38.473 [19] Section 9.3.1.131
10142	>>>Cell Capacity Class Value	ELEMENT	FALSE	<i>Cell Capacity Class Value IE</i> in TS 38.473 [19] Section 9.3.1.132	

10143	>>>Capacity Value	ELEMENT	FALSE	Capacity Value IE in TS 38.473 [19] Section 9.3.1.133	
10144	>>>SSB Area Capacity Value List	LIST			SSB Area Capacity Value List IE in TS 38.473 [19] Section 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] Section 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] Section 9.3.1.134
10152	>>Slice Available Capacity Item	STRUCTURE			Slice Available Capacity Item IE in TS 38.473 [19] Section 9.3.1.134
10153	>>>PLMN Identity	ELEMENT	FALSE	PLMN Identity IE in TS 38.473 [19] Section 9.3.1.14	
10154	>>>S-NSSAI Available Capacity List	LIST			S-NSSAI Available Capacity List IE in TS 38.473 [19] Section 9.3.1.134
10155	>>>>S-NSSAI Available Capacity Item	STRUCTURE			S-NSSAI Available Capacity Item IE in TS 38.473 [19] Section 9.3.1.134
10156	>>>>>S-NSSAI	ELEMENT	FALSE		S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
10160	>>>>>>SST	ELEMENT	FALSE	SST IE in TS 38.473 [19] Section 9.3.1.38	
10161	>>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 9.3.1.38	

10157	>>>>>Slice Available Capacity Value Downlink	ELEMENT	FALSE	<i>Slice Available Capacity Value Downlink</i> IE in TS 38.473 [19] Section 9.3.1.134	
10158	>>>>>Slice Available Capacity Value Uplink	ELEMENT	FALSE	<i>Slice Available Capacity Value Uplink</i> IE in TS 38.473 [19] Section 9.3.1.134	
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	

1

## 2 8.1.1.2 E-UTRA Cell

3 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] Section 9.2.2.8	
12002	PCI	ELEMENT	FALSE	<i>PCI</i> IE in TS 36.423 [15] within Section 9.2.8, INTEGER(0..503,...)	
12003	TAC	ELEMENT	FALSE	<i>TAC</i> IE in TS 36.423 [15] within Section 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] Section 9.2.8
12005	>FDD	STRUCTURE			<i>FDD</i> IE in TS 36.423 [17] Section 9.2.8
12006	>>FDD Info	STRUCTURE			<i>FDD Info</i> IE in TS 36.423 [17] Section 9.2.8
12007	>>>UL EARFCN	STRUCTURE			<i>UL EARFCN</i> IE in TS 36.423 [17] Section 9.2.8
12008	>>>>EARFCN	ELEMENT	FALSE	<i>EARFCN</i> IE in TS 36.423 [17] Section 9.2.26	
12009	>>>DL EARFCN	ELEMENT	FALSE		<i>DL EARFCN</i> IE in TS 36.423 [17] Section 9.2.8
12010	>>>>EARFCN	STRUCTURE		<i>EARFCN</i> IE in TS 36.423 [17] Section 9.2.26	
12011	>>>UL Transmission Bandwidth	STRUCTURE			<i>UL Transmission Bandwidth</i> IE in TS 36.423 [17] Section 9.2.8
12012	>>>>Transmission Bandwidth	ELEMENT	FALSE	<i>Transmission Bandwidth</i> IE in TS 36.423 [17] Section 9.2.27	

12013	>>>DL Transmission Bandwidth	STRUCTURE			<i>DL Transmission Bandwidth</i> IE in TS 36.423 [17] Section 9.2.8
12014	>>>>Transmission Bandwidth	ELEMENT	FALSE	<i>Transmission Bandwidth</i> IE in TS 36.423 [17] Section 9.2.27	
12015	>TDD	STRUCTURE			<i>TDD</i> IE in TS 36.423 [17] Section 9.2.8
12016	>>TDD Info	STRUCTURE			<i>TDD Info</i> IE in TS 36.423 [17] Section 9.2.8
12017	>>>EARFCN	ELEMENT	FALSE	<i>EARFCN</i> IE in TS 36.423 [17] Section 9.2.26	
12018	>>>>Transmission Bandwidth	ELEMENT	FALSE	<i>Transmission Bandwidth</i> IE in TS 36.423 [17] Section 9.2.27	
12019	>>>>Subframe assignment	ELEMENT	FALSE	<i>Subframe Assignment</i> IE in TS 36.423 [17] Section 9.2.8	
12020	>>>>Special Subframe Info	ELEMENT	FALSE	<i>Special Subframe Info</i> IE in TS 36.423 [17] Section 9.2.8	
12021	>>>>>Special Subframe Patterns	ELEMENT	FALSE	<i>Special Subframe Patterns</i> IE in TS 36.423 [17] Section 9.2.8	
12022	>>>>>Cyclic Prefix DL	ELEMENT	FALSE	<i>Cyclic Prefix DL</i> IE in TS 36.423 [17] Section 9.2.8	
12023	>>>>>Cyclic Prefix UL	ELEMENT	FALSE	<i>Cyclic Prefix UL</i> IE in TS 36.423 [17] Section 9.2.8	
12024	Reported LTE RRC Measurements	STRUCTURE		8.1.1.3	<i>MeasResults</i> IE in TS 36.331 [23]
12025	PM Measurements	STRUCTURE			<i>CellMeasurementResultItem</i> IE in TS 36.423 [17] Section 9.1.2.14

12026	>Radio Resource Status	STRUCTURE			<i>Radio Resource Status</i> IE in TS 36.423 [17] Section 9.2.37
12027	>>DL GBR PRB Usage	ELEMENT	FALSE	<i>DL GBR PRB Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12028	>>UL GBR PRB Usage	ELEMENT	FALSE	<i>UL GBR PRB Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12029	>>DL non-GBR PRB Usage	ELEMENT	FALSE	<i>DL non-GBR PRB Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12030	>>UL non-GBR PRB usage	ELEMENT	FALSE	<i>UL non-GBR PRB Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12031	>>DL Total PRB Usage	ELEMENT	FALSE	<i>DL Total PRB Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12032	>>UL Total PRB Usage	ELEMENT	FALSE	<i>UL Total PRB Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12033	>>DL scheduling PDCCH CCE Usage	ELEMENT	FALSE	<i>DL scheduling PDCCH CCE Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12034	>>UL scheduling PDCCH CCE Usage	ELEMENT	FALSE	<i>UL scheduling PDCCH CCE Usage</i> IE in TS 36.423 [17] Section 9.2.37	
12051	>Composite Available Capacity Group	STRUCTURE			<i>Composite Available Capacity Group</i> IE in TS 36.423 [17] Section 9.2.44
12052	>>Composite Available Capacity Downlink	STRUCTURE			<i>Composite Available Capacity Downlink</i> IE in TS 36.423 [17] Section 9.2.45

12053	>>>Cell capacity Class Value	ELEMENT	FALSE	<i>Cell Capacity Class Value</i> IE in TS 36.423 [17] Section 9.2.46	
12054	>>>Capacity Value	ELEMENT	FALSE	<i>Capacity Value</i> IE in TS 36.423 [17] Section 9.2.47	
12055	>>Composite Available Capacity Uplink	STRUCTURE			<i>Composite Available Capacity Uplink</i> IE in TS 36.423 [17] Section 9.2.45
12056	>>>Cell capacity Class Value	ELEMENT	FALSE	<i>Cell Capacity Class Value</i> IE in TS 36.423 [17] Section 9.2.46	
12057	>>>Capacity Value	ELEMENT	FALSE	<i>Capacity Value</i> IE in TS 36.423 [17] Section 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			<i>ABS Status</i> IE in TS 36.423 [17] Section 9.2.58
12063	>>DL ABS Status	ELEMENT	FALSE	<i>DL ABS status</i> IE in TS 36.423 [17] Section 9.2.58	
12064	>>CHOICE <i>Usable ABS Information</i>	STRUCTURE			<i>Usable ABS Information</i> IE in TS 36.423 [17] Section 9.2.58
12065	>>>FDD	STRUCTURE			<i>FDD</i> IE in TS 36.423 [17] Section 9.2.58
12066	>>>>Usable ABS Pattern Info	ELEMENT	FALSE	<i>Usable ABS Pattern Info</i> IE in TS 36.423 [17] Section 9.2.58	
12067	>>>TDD	STRUCTURE			<i>TDD</i> IE in TS 36.423 [17] Section 9.2.58

12068	>>>>Usable ABS Pattern Info	ELEMENT	FALSE	<i>Usable ABS Pattern Info</i> IE in TS 36.423 [17] Section 9.2.58	
12075	>CSI Report per CSI Process List	LIST			<i>CSI Report per CSI Process</i> IE in TS 36.423 [17] Section 9.2.79
12076	>>CSI Process per CSI Item	STRUCTURE			<i>CSI Report per CSI Process Item</i> IE in TS 36.423 [17] Section 9.2.79
12077	>>>CSI Process Configuration Index	ELEMENT	FALSE	<i>CSI Process Configuration Index</i> IE in TS 36.423 [17] Section 9.2.79	
12078	>>>RI	ELEMENT	FALSE	<i>RI</i> IE in TS 36.423 [17] Section 9.2.79	
12079	>>>Wideband CQI	STRUCTURE			<i>Wideband CQI</i> IE in TS 36.423 [17] Section 9.2.80
12101	>>>>Wideband CQI Codeword 0	ELEMENT	FALSE	<i>Wideband CQI Codeword 0</i> IE in TS 36.423 [17] Section 9.2.80	
12102	>>>>CHOICE <i>Wideband CQI Codeword 1</i>	STRUCTURE			<i>Wideband CQI Codeword 1</i> IE in TS 36.423 [17] Section 9.2.80
12103	>>>>>4-bit CQI	ELEMENT	FALSE	<i>4-bit CQI</i> IE in TS 36.423 [17] Section 9.2.80	
12104	>>>>>3-bit spatial differential CQI	ELEMENT	FALSE	<i>3-bit spatial differential CQI</i> IE in TS 36.423 [17] Section 9.2.80	
12080	>>>Subband Size	ELEMENT	FALSE	<i>Subband Size</i> IE in TS 36.423 [17] Section 9.2.79	

12081	>>>Subband CQI List	LIST			<i>Subband CQI List</i> IE in TS 36.423 [17] Section 9.2.79
12082	>>>>Subband CQI Item	STRUCTURE			<i>Subband CQI Item</i> IE in TS 36.423 [17] Section 9.2.79
12083	>>>>>Subband CQI Index	ELEMENT	FALSE	<i>Subband Index</i> IE in TS 36.423 [17] Section 9.2.79	
12084	>>>>>Subband CQI	STRUCTURE			<i>Subband CQI</i> IE in TS 36.423 [17] Section 9.2.81
12085	>>>>>>CHOICE Subband CQI Codeword 0	STRUCTURE			<i>Subband CQI Codeword 0</i> IE in TS 36.423 [17] Section 9.2.81
12086	>>>>>>>4-bit CQI	ELEMENT	FALSE	<i>4-bit CQI</i> IE in TS 36.423 [17] Section 9.2.81	
12087	>>>>>>>2-bit subband differential CQI	ELEMENT	FALSE	<i>2-bit Subband differential CQI</i> IE in TS 36.423 [17] Section 9.2.81	
12088	>>>>>>>2-bit differential CQI	ELEMENT	FALSE	<i>2-bit differential CQI</i> IE in TS 36.423 [17] Section 9.2.81	
12089	>>>>>>>CHOICE Subband CQI Codeword 1	STRUCTURE			<i>Subband CQI Codeword 1</i> IE in TS 36.423 [17] Section 9.2.81
12090	>>>>>>>>4-bit CQI	ELEMENT	FALSE	<i>4-bit CQI</i> IE in TS 36.423 [17] Section 9.2.81	
12091	>>>>>>>>3-bit spatial differential CQI	ELEMENT	FALSE	<i>3-bit spatial differential CQI</i> IE in TS 36.423 [17] Section 9.2.81	

12092	>>>>>>2-bit subband differential CQI	ELEMENT	FALSE	2-bit Subband differential CQI IE in 36.423 Section 9.2.81	
12093	>>>>>>2-bit differential CQI	ELEMENT	FALSE	2-bit differential CQI IE in 36.423 Section 9.2.81	

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### 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	<i>RSRP-Range</i> IE in TS 38.331 [22]	
12502	RSRQ	ELEMENT	FALSE	<i>RSRQ-Range</i> IE in TS 38.331 [22]	
12503	SINR	ELEMENT	FALSE	<i>SINR-Range</i> IE in TS 38.331 [22]	

4

### 8.1.1.4 L2 MAC State Variables

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

6



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			MCE Control Elements as defined in TS 38.321 [26] clause 6.1.3.
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))	

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## 8.1.1.5 NG-RAN Data Radio Bearer

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

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RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
14001	5QI	ELEMENT	FALSE	5QI IE in TS 38.463 [21] Section 9.3.1.27 or TS 38.463 [21] Section 9.3.1.28	
14002	Packet Delay Budget	ELEMENT	FALSE	Packet Delay Budget IE in TS 38.463 [21] Section 9.3.1.47	
14003	Packet Error Rate	ELEMENT	FALSE	Packet Error Rate IE in TS 38.463 [21] Section 9.3.1.48	
14004	NG-RAN DRB Allocation and Retention Priority	STRUCTURE			NG-RAN Allocation and Retention Priority IE in TS 38.463 [21] Section 9.3.1.29
14005	>Priority Level	ELEMENT	FALSE	Priority Level IE in TS 38.463 [21] Section 9.3.1.29	
14006	>Pre-emption Capability	ELEMENT	FALSE	Pre-emption Capability IE in TS 38.463 [21] Section 9.3.1.29	
14007	>Pre-emption Vulnerability	ELEMENT	FALSE	Pre-emption Vulnerability IE in TS 38.463 [21] Section 9.3.1.29	
14008	Priority Level of the mapped QoS flows	ELEMENT	FALSE	Priority Level IE in TS 38.463 [21] Section 9.3.1.51	
14009	QoS parameters for GBR flows in NG-RAN Bearer	STRUCTURE			GBR QoS Flow Information IE in TS 38.463 [21] Section 9.3.1.30
14010	>Maximum Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
14011	>Guaranteed Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
14012	>Maximum Packet Loss Rate Downlink	ELEMENT	FALSE	Packet Loss Rate IE in TS 38.463 [21] Section 9.3.1.30	
14013	>Maximum Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
14014	>Guaranteed Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
14015	>Maximum Packet Loss Rate Uplink	ELEMENT	FALSE	Packet Loss Rate IE in TS 38.463 [21] Section 9.3.1.30	
14016	QoS Monitoring Enable Request	ELEMENT	FALSE	QoS Monitoring Request IE in TS 38.463 [21] Section 9.3.1.26	
14017	QoS Monitoring Reporting Frequency	ELEMENT	FALSE	QoS Monitoring Reporting Frequency IE in TS 38.463 [21] Section 9.3.1.26	
14018	QoS Monitoring Disabled	ELEMENT	FALSE	QoS Monitoring Disabled IE in TS 38.463 [21] Section 9.3.1.26	
14019	Reflective QoS Mapping	ELEMENT	FALSE	RDI IE in TS 38.463 [21] Section 9.3.1.26	
14101	List of cell groups to be added	LIST			Cell Group To Add IE in TS 38.463 [21] Section 9.3.3.11
14102	>Cell group item	STRUCTURE			Cell Group Item IE in TS 38.463 [21] Section 9.3.1.11

14103	>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID</i> IE in TS 38.463 [21] Section 9.3.1.11	
14104	>>Cell Group	STRUCTURE		8.1.1.7	
14201	SDAP Configuration	STRUCTURE			<i>SDAP Configuration</i> IE in TS 38.463 [21] Section 9.3.1.39
14202	>PDU Session ID	ELEMENT	TRUE	<i>PDU-SessionID</i> IE in TS 38.331 [22] Sec 6	
14203	>Default DRB	ELEMENT	FALSE	<i>Default DRB</i> IE in TS 38.463 [21] Section 9.3.1.39	
14210	>PDU Session	STRUCTURE		8.1.1.16	
14301	PDCCP Configuration	STRUCTURE			<i>PDCCP Configuration</i> IE in TS 38.463 [21] Section 9.3.1.38
14302	>RLC mode	ELEMENT	FALSE	<i>RLC mode</i> IE in TS 38.463 [21] Section 9.3.1.38	
14303	>PDCCP Duplication	ELEMENT	FALSE	<i>PDCCP Duplication</i> IE in TS 38.463 [21] Section 9.3.1.38	
14304	>UL Data Split Threshold	ELEMENT	FALSE	<i>UL Data Split Threshold</i> IE in TS 38.463 [21] Section 9.3.1.43	
14305	>PDCCP Re-establishment	ELEMENT	FALSE	<i>PDCCP Re-establishment</i> IE in TS 38.463 [21] Section 9.3.1.38	
14306	>PDCCP Data Recovery	ELEMENT	FALSE	<i>PDCCP Data Recovery</i> IE in TS 38.463 [21] Section 9.3.1.38	
14307	>Out-of-Order Delivery	ELEMENT	FALSE	<i>Out of Order Delivery</i> IE in TS 38.463 [21] Section 9.3.1.38	
14308	>PDCCP Status Report Indication	ELEMENT	FALSE	<i>PDCCP Status Report Indication</i> IE in TS 38.463 [21] Section 9.3.1.38	
14309	>Number of PDCCP duplication	ELEMENT	FALSE	<i>Additional PDCCP duplication Information</i> IE in TS 38.463 [21] Section 9.3.1.38	
14310	>UL More than one RLC	STRUCTURE			<i>moreThanOneRLC</i> IE in TS 38.331 [22] Section 6
14311	>>Primary Path	STRUCTURE			<i>primaryPath</i> IE in TS 38.331 [22] Section 6
14312	>>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
14313	>>>Logical Channel ID	ELEMENT	FALSE	<i>logicalChannelIdentity</i> IE in TS 38.331 [22] Sec 6	
14314	>UL More than two RLC	STRUCTURE			<i>moreThanTwoRLC-DRB-r16</i> IE in TS 38.331 [22] Section 6
14315	>>Split Secondary Path	ELEMENT	FALSE	<i>splitSecondaryPath</i> IE in TS 38.331 [22] Sec 6	
14316	>>Duplication State	ELEMENT	FALSE	<i>duplicationState</i> IE in TS 38.331 [22] Sec 6	

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## 8.1.1.6 QoS flow

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

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RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
15001	5QI	ELEMENT	FALSE	5QI IE in TS 38.463 [21] Section 9.3.1.27 or TS 38.463 [21] Section 9.3.1.28	
15002	Packet Delay Budget	ELEMENT	FALSE	Packet Delay Budget IE in TS 38.463 [21] Section 9.3.1.47	
15003	Packet Error Rate	ELEMENT	FALSE	Packet Error Rate IE in TS 38.463 [21] Section 9.3.1.48	
15004	NG-RAN DRB Allocation and Retention Priority	STRUCTURE			NG-RAN Allocation and Retention Priority IE in TS 38.463 [21] Section 9.3.1.29
15005	>Priority Level	ELEMENT	FALSE	Priority Level IE in TS 38.463 [21] Section 9.3.1.29	
15006	>Pre-emption Capability	ELEMENT	FALSE	Pre-emption Capability IE in TS 38.463 [21] Section 9.3.1.29	
15007	>Pre-emption Vulnerability	ELEMENT	FALSE	Pre-emption Vulnerability IE in TS 38.463 [21] Section 9.3.1.29	
15008	Priority Level of the mapped QoS flows	ELEMENT	FALSE	Priority Level IE in TS 38.463 [21] Section 9.3.1.51	
15009	QoS parameters for GBR flows in NG-RAN Bearer	STRUCTURE			GBR QoS Flow Information IE in TS 38.463 [21] Section 9.3.1.30
15010	>Maximum Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
15011	>Guaranteed Flow Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
15012	>Maximum Packet Loss Rate Downlink	ELEMENT	FALSE	Packet Loss Rate IE in TS 38.463 [21] Section 9.3.1.30	
15013	Maximum Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
15014	>Guaranteed Flow Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 38.463 [21] Section 9.3.1.30	
15015	>Maximum Packet Loss Rate Uplink	ELEMENT	FALSE	Packet Loss Rate IE in TS 38.463 [21] Section 9.3.1.30	
15016	QoS Monitoring Enable Request	ELEMENT	FALSE	QoS Monitoring Request IE in TS 38.463 [21] Section 9.3.1.26	
15017	QoS Monitoring Reporting Frequency	ELEMENT	FALSE	QoS Monitoring Reporting Frequency IE in TS 38.463 [21] Section 9.3.1.26	
15018	QoS Monitoring Disabled	ELEMENT	FALSE	QoS Monitoring Disabled IE in TS 38.463 [21] Section 9.3.1.26	
15019	Reflective QoS Mapping	ELEMENT	FALSE	RDI IE in TS 38.463 [21] Section 9.3.1.26	
15020	Redundant QoS Flow Indicator	ELEMENT	FALSE	Redundant QoS Flow Indicator IE in TS 38.463 [21] Section 9.3.1.74	

### 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</i> IE in TS 38.463 [21] Section 9.3.1.11	
15503	RAT Type	ELEMENT	FALSE	<i>RAT Type</i> IE in TS 38.463 [21] Section 9.3.1.11	
15504	Number of Tunnels	ELEMENT	FALSE	<i>Number of Tunnels</i> IE in TS 38.463 [21] Section 9.3.1.11	

### 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.. $2^{32}-1$ )	
16004	>RX_Next	ELEMENT	FALSE	INTEGER (0.. $2^{32}-1$ )	
16005	>RX_Deliv	ELEMENT	FALSE	INTEGER (0.. $2^{32}-1$ )	
16006	>RX_Reord	ELEMENT	FALSE	INTEGER (0.. $2^{32}-1$ )	
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)	

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### 8.1.1.9 E-RAB QoS Parameters

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

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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] Section 9.2.9	
16202	Allocation and Retention Priority	STRUCTURE			Allocation and Retention Priority IE in TS 36.423 [17] Section 9.2.31
16203	>Priority Level	ELEMENT	FALSE	Priority Level IE in TS 36.423 [17] Section 9.2.31	
16204	>Pre-emption Capability	ELEMENT	FALSE	Pre-emption Capability IE in TS 36.423 [17] Section 9.2.31	
16205	>Pre-emption Vulnerability	ELEMENT	FALSE	Pre-emption Vulnerability IE in TS 36.423 [17] Section 9.2.31	
16206	GBR QoS Information	STRUCTURE			GBR QoS Information IE in TS 36.423 [17] Section 9.2.9
16207	>E-RAB Maximum Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 36.423 [17] Section 9.2.11	E-RAB Maximum Bit Rate Downlink IE in TS 36.423 [17] Section 9.2.10
16208	>E-RAB Maximum Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 36.423 [17] Section 9.2.11	E-RAB Maximum Bit Rate Uplink IE in TS 36.423 [17] Section 9.2.10
16209	>E-RAB Guaranteed Bit Rate Downlink	ELEMENT	FALSE	Bit Rate IE in TS 36.423 [17] Section 9.2.11	E-RAB Guaranteed Bit Rate Downlink IE in TS 36.423 [17] Section 9.2.10
16210	>E-RAB Guaranteed Bit Rate Uplink	ELEMENT	FALSE	Bit Rate IE in TS 36.423 [17] Section 9.2.11	E-RAB Guaranteed Bit Rate Uplink IE in TS 36.423 [17] Section 9.2.10
16211	Downlink Maximum Packet Loss Rate	ELEMENT	FALSE	Packet Loss Rate IE in TS 36.423 [17] Section 9.2.124	Downlink Maximum Packet Loss Rate IE in TS 36.423 [17] Section 9.2.10
16212	Uplink Maximum Packet Loss Rate	ELEMENT	FALSE	Packet Loss Rate IE in TS 36.423 [17] Section 9.2.124	Uplink Maximum Packet Loss Rate IE in TS 36.423 [17] Section 9.2.10

### 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</i> IE in TS 38.331 [22]
16501	>CHOICE AN Event	STRUCTURE			<i>eventId</i> IE in TS 38.331 [22]
16502	>>A1 Event	STRUCTURE			<i>EventA1</i> IE in TS 38.331 [22]
16503	>>>A1-Threshold	STRUCTURE		8.1.1.3	
16504	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	
16505	>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	
16506	>>A2 Event	STRUCTURE			<i>EventA2</i> IE in TS 38.331 [22]
16507	>>>A2-Threshold	STRUCTURE		8.1.1.3	
16508	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	
16509	>>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	
16510	>>A3 Event	STRUCTURE			<i>EventA3</i> IE in TS 38.331 [22]
16511	>>>A3-Offset	STRUCTURE		8.1.1.3	
16512	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	
16513	>>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	
16514	>>A4 Event	STRUCTURE			<i>EventA4</i> IE in TS 38.331 [22]
16515	>>>A4-Threshold	STRUCTURE		8.1.1.3	
16516	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	
16517	>>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	
16518	>>A5 Event	STRUCTURE			<i>EventA5</i> IE in TS 38.331 [22]
16519	>>>A5-Threshold1	STRUCTURE		8.1.1.3	
16520	>>>A5-Threshold2	STRUCTURE		8.1.1.3	
16521	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	
16522	>>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	
16523	>>A6 Event	STRUCTURE			<i>EventA6</i> IE in TS 38.331 [22]
16524	>>>A6-Offset	STRUCTURE		8.1.1.3	
16525	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	
16526	>>>RS-Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 [22]	
16550	Event Trigger Config Inter RAT	STRUCTURE			<i>EventTriggerConfigInterRAT</i> IE in TS 38.331 [22]
16551	>CHOICE Inter-RAT Event	STRUCTURE			<i>eventId</i> IE in TS 38.331 [22]
16552	>>B1 Event	STRUCTURE			<i>eventB1</i> IE in TS 38.331 [22]
16553	>>>B1-Threshold	STRUCTURE		8.1.1.3	
16554	>>>Hysteresis	ELEMENT	FALSE	<i>Hysteresis</i> IE in TS 38.331 [22]	

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]	

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### 8.1.1.11 E2 Node

The following RAN Parameters are associated with the E2 node.

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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 Section 9.2.26
17010	>NG-RAN gNB	STRUCTURE			O-RAN WG3 E2AP Section 9.2.27
17011	>>Global gNB ID	STRUCTURE			TS 38.413 [11] Section 9.3.1.6
17012	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.3.5	
17013	>>>CHOICE <i>gNB ID</i>	STRUCTURE			<i>gNB ID</i> IE in TS 38.413 [11] Section 9.3.1.6
17014	>>>> <i>gNB ID</i>	STRUCTURE			<i>gNB ID</i> IE in TS 38.413 [11] Section 9.3.1.6
17015	>>>>>gNB ID	ELEMENT	FALSE	<i>gNB ID</i> IE in TS 38.413 [11] Section 9.3.1.6	
17016	>>List of NR served cells	LIST			<i>List of Served Cells NR</i> IE in TS 38.423 [15] Section 9.1.3.1
17017	>>>Served NR cell item	STRUCTURE			Individual cell item in the <i>List of Served Cells NR</i>
17028	>>>>Served NR cell	STRUCTURE		<i>NR Cell</i> IE in 8.1.1.1	
17018	>>Count of list of NR served cells	ELEMENT	FALSE	INTEGER (1..16384)	
17019	>>List of NR neighbor cells	LIST			<i>Neighbor Information</i> IE in TS 38.423 [15] Section 9.2.2.13
17020	>>>NR neighbor cell item	STRUCTURE			Individual cell item in the <i>Neighbor Information</i> IE NR
17031	>>>>Neighbor NR cell	STRUCTURE		<i>NR Cell</i> IE in 8.1.1.1	
17021	>>Number of RRC connections	ELEMENT	FALSE	<i>Number of RRC connections</i> IE in TS 38.423 [15] Section 9.2.2.57	
17022	>>gNB Performance Measurements	STRUCTURE		8.1.1.15	
17050	>en-gNB	STRUCTURE			O-RAN WG3 E2AP Section 9.2.27
17051	>>Global en-gNB ID	STRUCTURE			TS 36.423 [17] Section 9.2.112

17052	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 36.423 [17] Section 9.2.4	
17053	>>>CHOICE <i>en-gNB ID</i>	STRUCTURE		<i>en-gNB ID</i> IE in TS 36.423 [17] Section 9.2.112	
17054	>>>> <i>en-gNB ID</i>	STRUCTURE		<i>en-gNB ID</i> IE in TS 36.423 [17] Section 9.2.112	
17055	>>>>> <i>en-gNB ID</i>	ELEMENT	FALSE	<i>en-gNB ID</i> IE in TS 36.423 [17] Section 9.2.112	
17056	>>List of served NR cells	LIST			<i>List of Served Cells NR</i> IE in TS 38.423 [15] Section 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>Neighbor Information</i> IE in TS 38.423 [15] Section 9.2.2.13
17060	>>>>NR neighbor cell item	STRUCTURE			Individual cell item in <i>Neighbor Information</i> IE
17065	>>>>NR neighbor 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 Section 9.2.27
17071	>>ng-eNB ID	STRUCTURE			<i>ng-eNB ID</i> IE TS 38.413 [11] Section 9.2.2.2
17072	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.1.6	
17073	>>>CHOICE <i>ng-eNB ID</i>	STRUCTURE			<i>Ng-eNB ID</i> IE in TS 38.413 [11] Section 9.2.2.2
17074	>>>>Macro <i>ng-eNB ID</i>	STRUCTURE			<i>Macro ng-eNB ID</i> IE in TS 38.413 [11] Section 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] Section 9.2.2.2	

17076	>>>>Short Macro <i>ng-eNB ID</i>	STRUCTURE			<i>Short Macro ng-eNB ID IE</i> in TS 38.413 [11] Section 9.2.2.2
17077	>>>>>Short Macro <i>ng-eNB ID</i>	ELEMENT	FALSE	<i>Short Macro ng-eNB ID IE</i> in TS 38.413 [11] Section 9.2.2.2	
17078	>>>>Long Macro <i>ng-eNB ID</i>	STRUCTURE			<i>Long Macro ng-eNB ID IE</i> in TS 38.413 [11] Section 9.2.2.2
17079	>>>>>Long Macro <i>ng-eNB ID</i>	ELEMENT	FALSE	<i>Long Macro ng-eNB ID IE</i> in TS 38.413 [11] Section 9.2.2.2	
17080	>>List of E-UTRA served cells	LIST			<i>List of Served Cells E-UTRA IE</i> in TS 38.423 [15] Section 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 neighbor cells	LIST			<i>Neighbor Information E-UTRA IE</i> in TS 38.423 [15] Section 9.2.2.14
17084	>>>E-UTRA neighbor cell item	STRUCTURE			Individual cell item in <i>Neighbor Information E-UTRA IE</i>
17095	>>>>E-UTRA neighbor cell	STRUCTURE		8.1.1.2	
17085	>>Number of RRC connections	ELEMENT	FALSE	<i>Number of RRC connections IE</i> in TS 38.423 [15] Section 9.2.2.57	
17086	>>eNB Performance Measurements	STRUCTURE		8.1.1.18	
17100	>NG-RAN gNB CU-CP	STRUCTURE			O-RAN WG3 E2AP Section 9.2.27
17101	>>Global gNB CU-CP ID	STRUCTURE			TS 38.413 [11] Section 9.3.1.6
17102	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE</i> in TS 38.413 [11] Section 9.3.3.5	
17103	>>>CHOICE <i>gNB ID</i>	STRUCTURE			<i>gNB ID IE</i> in TS 38.413 [11] Section 9.3.1.6
17104	>>>> <i>gNB ID</i>	STRUCTURE			<i>gNB ID IE</i> in TS 38.413 [11] Section 9.3.1.6

17105	>>>>>gNB ID	ELEMENT	FALSE	<i>gNB ID IE in TS 38.413 [11] Section 9.3.1.6</i>	
17107	>>List of activated NR cells	LIST			<i>Cells to be Activated List IE in TS 38.473 [19] Section 9.2.1.10</i>
17108	>>>NR cell item	STRUCTURE			<i>Cells to be Activated Item IE in TS 38.473 [19] Section 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] Section 9.2.1.10</i>
17111	>>>>>PLMN Item	STRUCTURE			<i>Available PLMN Item IEs IE in TS 38.473 [19] Section 9.3.1.65</i>
17112	>>>>>>PLMN ID	ELEMENT	FALSE	<i>PLMN Identity IE in TS 38.413 [11] Section 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] Section 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] Section 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 neighbor cells	LIST			<i>Neighbour Cell Information List IE in TS 38.473 [19] Section 9.2.1.10</i>

17119	>>>NR neighbor cell item	STRUCTURE			Individual Cell Item in <i>Neighbour Cell Information List</i> IE
17520	>>>>NR neighbor cell	STRUCTURE		NR Cell IE in 8.1.1.1	
17120	>>Number of RRC connected UEs	ELEMENT	FALSE	Number of RRC connections IE in TS 38.423 [15] Section 9.2.2.57	
17121	>>gNB CU-CP Performance Measurements	STRUCTURE		8.1.1.12	
17130	>NG-RAN gNB DU	STRUCTURE			O-RAN WG3 E2AP Section 9.2.27
17132	>>gNB-DU ID	ELEMENT	FALSE	gNB-DU ID IE in TS 38.473 [19] Section 9.3.1.9	
17133	>>List of NR served cells	LIST			List of Served Cells NR IE in TS 38.423 [15] Section 9.1.3.1
17134	>>>Served NR cell item	STRUCTURE			Individual cell item in List of Served Cells NR IE
17535	>>>>Served NR cell	STRUCTURE		NR Cell IE in 8.1.1.1	
17135	>>gNB DU Measurements	STRUCTURE		8.1.1.14	
17140	>NG-RAN gNB CU-UP	STRUCTURE			O-RAN WG3 E2AP Section 9.2.27
17141	>>gNB CU-UP ID	ELEMENT	TRUE	gNB-CU-UP ID IE in TS 38.463 [21] Section 9.3.1.15	
17142	>>gNB CU-UP Capacity	ELEMENT	FALSE	gNB-CU-UP Capacity IE in TS 38.463 [21] Section 9.3.1.56	
17143	>>gNB CU-UP Performance Measurements	STRUCTURE		8.1.1.13	
17150	>eNB	STRUCTURE			O-RAN WG3 E2AP Section 9.2.27
17151	>>eNB ID	STRUCTURE			eNB ID IE TS 36.423 [17] Section 9.2.2.2
17152	>>>PLMN Identity	ELEMENT	FALSE	PLMN Identity IE in TS 36.423 [17] Section 9.2.4	
17153	>>>>CHOICE eNB ID	STRUCTURE			Global eNB ID IE in TS 36.423 [17] Section 9.2.22
17154	>>>>Macro eNB ID	STRUCTURE			Macro eNB ID IE in TS 36.423 [17] Section 9.2.22
17155	>>>>>Macro eNB ID	ELEMENT	FALSE	Macro eNB ID IE in TS 36.423 [17] Section 9.2.22	



17156	>>>>Home eNB ID	STRUCTURE			<i>Home eNB ID</i> IE in TS 36.423 [17] Section 9.2.22
17157	>>>>>Home eNB ID	ELEMENT	FALSE	<i>Home eNB ID</i> IE in TS 36.423 [17] Section 9.2.22	
17158	>>>>Short Macro eNB ID	STRUCTURE			<i>Short Macro eNB ID</i> IE in TS 36.423 [17] Section 9.2.22
17159	>>>>>Short Macro eNB ID	ELEMENT	FALSE	<i>Short Macro eNB ID</i> IE in TS 36.423 [17] Section 9.2.22	
17160	>>>>Long Macro eNB ID	STRUCTURE			<i>Long Macro eNB ID</i> IE in TS 36.423 [17] Section 9.2.22
17161	>>>>>Long Macro eNB ID	ELEMENT	FALSE	<i>Long Macro eNB ID</i> IE in TS 36.423 [17] Section 9.2.22	
17162	>>List of E-UTRA served cells	LIST			<i>List of Served Cells E-UTRA</i> IE in TS 38.423 [15] Section 9.1.3.1
17163	>>>Served E-UTRA cell item	STRUCTURE			Individual cell item in <i>List of Served Cells E-UTRA</i> IE
17564	>>>>>Served E-UTRA cell	STRUCTURE		8.1.1.2	
17164	>>Count of list of E-UTRA served cells	ELEMENT	FALSE	<u>INTEGER</u> (0..16384)	
17165	>>List of E-UTRA neighbor cells	LIST			<i>Neighbor Information E-UTRA</i> IE in TS 38.423 [15] Section 9.2.2.14
17166	>>>E-UTRA neighbor cell item	STRUCTURE			Individual cell item in <i>Neighbor Information E-UTRA</i> IE
17567	>>>>>E-UTRA neighbor cell	STRUCTURE		8.1.1.2	
17167	>>Number of RRC connected UEs	ELEMENT	FALSE	<i>Number of RRC connections</i> IE in TS 38.423 [15] Section 9.2.2.57	
17168	>>List of NR neighbor cells	LIST			<i>Neighbor Information</i> IE in TS 38.423 [15] Section 9.2.2.13
17169	>>>NR neighbor cell item	STRUCTURE			Individual cell item in <i>Neighbor Information</i> IE
17570	>>>>>NR neighbor cell	STRUCTURE		8.1.1.1	
17170	>>eNB Performance Measurements	STRUCTURE		8.1.1.18	

17200	TAI Support List	LIST			<i>TAI Support List</i> IE in TS 38.423 [15] Section 9.2.3.20
17201	>TAI Support Item	STRUCTURE			<i>TAI Support Item</i> IE in TS 38.423 [15] Section 9.2.3.20
17202	>>TAC	ELEMENT	FALSE	TAC IE in TS 38.423 [15] Section 9.2.2.5	
17203	>>List of Broadcast PLMNs	LIST			<i>Broadcast PLMNs</i> IE in TS 38.423 [15] Section 9.2.3.20
17204	>>>Broadcast PLMN Item	STRUCTURE			<i>Broadcast PLMNs</i> IE in TS 38.423 [15] Section 9.2.3.20
17205	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.3.5	
17206	>>>TAI Slice Support List	LIST			<i>TAI Slice Support List</i> IE in TS 38.423 [15] Section 9.2.3.20
17207	>>>>Slice Support Item	STRUCTURE			<i>Slice Support Item</i> IE in TS 38.423 [15] Section 9.2.3.20
17208	>>>>>S-NSSAI	STRUCTURE			<i>S-NSSAI</i> IE in TS 38.473 [19] Section 9.3.1.38
17209	>>>>>>SST	ELEMENT	TRUE	<i>SST</i> IE in TS 38.473 [19] Section 9.3.1.38	
17210	>>>>>>SD	ELEMENT	FALSE	<i>SD</i> IE in TS 38.473 [19] Section 9.3.1.38	
17211	>>>Count of TAI Slice Support List	ELEMENT	FALSE	INTEGER (0..1024)	
17212	>>>NR CGI Support List	LIST			<i>List of Served Cells NR</i> IE in TS 38.423 [15] Section 9.1.3.1
17213	>>>>NR CGI Cell Support Item	STRUCTURE			Individual cell item in <i>List of Served Cells NR</i> IE
17614	>>>>>NR CGI Cell	STRUCTURE		<i>NR Cell</i> IE in 8.1.1.1	
17214	>>>E-UTRA CGI Support List	LIST			<i>List of Served Cells E-UTRA</i> IE in TS 38.423 [15] Section 9.1.3.1

17215	>>>>E-UTRA CGI Cell Support Item	STRUCTURE			Individual cell item in <i>List of Served Cells</i> 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 38.463 [21] Section 9.3.1.12
17217	>>>>QoS Parameters Support Item	STRUCTURE			QoS Flow Item IE in TS 38.463 [21] Section 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)	

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## 2 8.1.1.12 gNB CU-CP Measurements

3 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] Section 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] Section 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] Section 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] Section 9.3.1.38
18023	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
18024	>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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] Section 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] Section 9.3.1.28	
18205	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
18206	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
18207	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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		<i>0..&lt;maxnoofflows&gt;</i>	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] Section 9.3.1.28	
18255	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
18256	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
18257	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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		<i>0..&lt;maxnoofslices&gt;</i>	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] Section 9.3.1.38
18274	>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
18275	>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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 between 5GS and EPS	STRUCTURE			TS 28.552 [28] 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

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## 8.1.1.13 gNB CU-UP Measurements

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

3

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	5QI IE in TS 38.413 [11] Section 9.3.1.28	
19006	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
19007	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
19008	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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	5QI IE in TS 38.413 [11] Section 9.3.1.28	
19076	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
19077	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
19078	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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

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#### 8.1.1.14 gNB DU Measurements

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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	5QI IE in TS 38.413 [11] Section 9.3.1.28	
20006	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
20007	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
20008	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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 CGI IE in TS 38.423 [15] Section 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	5QI IE in TS 38.413 [11] Section 9.3.1.28	
20036	>>>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
20037	>>>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
20038	>>>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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	5QI IE in TS 38.413 [11] Section 9.3.1.28	
20056	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
20057	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
20058	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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 Sec 5.1.1.3.3
20061	>>Percentage of unrestricted DL UE throughput	ELEMENT	FALSE	INTEGER	TS 28.552 [28] Sec 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] Section 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	5QI IE in TS 38.413 [11] Section 9.3.1.28	
20256	>>>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
20257	>>>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
20258	>>>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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	5QI IE in TS 38.413 [11] Section 9.3.1.28	
20276	>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
20277	>>>>>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
20278	>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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

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## 2 8.1.1.15 gNB Measurements

3 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

4

## 5 8.1.1.16 PDU Session

6 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] Section 9.3.1.38
21002	>SST	ELEMENT	TRUE	SST IE in TS 38.473 [19] Section 9.3.1.38	
21003	>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 9.3.1.38	
21004	PDU Session Aggregate Maximum Bit Rate	STRUCTURE			PDU Session Aggregate Maximum Bit Rate IE in TS 38.413 [11] Section 9.3.1.102
21005	>PDU Session Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	PDU Session Aggregate Maximum Bit Rate Downlink IE in TS 38.413 [11] Section 9.3.1.102	
21006	>PDU Session Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	PDU Session Aggregate Maximum Bit Rate Uplink IE in TS 38.413 [11] Section 9.3.1.102	
21008	>Data Forwarding Not Possible	ELEMENT	FALSE	Data Forwarding Not Possible IE in TS 38.413 [11] Section 9.3.1.63	
21009	>PDU Session Type	ELEMENT	FALSE	PDU Session Type IE in TS 38.413 [11] Section 9.3.1.52	
21010	>Network Instance	ELEMENT	FALSE	Network Instance IE in TS 38.413 [11] Section 9.3.1.113	
21011	>Direct Forwarding Path Availability	ELEMENT	FALSE	Direct Forwarding Path Availability IE in TS 38.413 [11] Section 9.3.1.120	

21012	>Redundant Common Network Instance	ELEMENT	FALSE	<i>Redundant Common Network Instance</i> IE in TS 38.413 [11] Section 9.3.1.120	
21013	>Redundant PDU Session Information	ELEMENT	FALSE	<i>Redundant PDU Session Information</i> IE in TS 38.413 [11] Section 9.3.1.136	

# 1 8.1.1.17 UE Context Information

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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</i> IE in TS 38.473 [19] clause 9.2.2.1
21507	>SCell Item	STRUCTURE			<i>Scell To Be Setup Item</i> IEs IE in TS 38.473 [19] clause 9.2.2.1
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</i> IE as defined in TS 38.331 [22] or the structure defined in TS 38.473 [19] clause 9.2.2.1
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</i> IE in TS 38.473 [19] clause 9.2.2.1
21517	>SCell Item	STRUCTURE			<i>Scell To Be Setup Item</i> IEs IE in TS 38.473 [19] clause 9.2.2.1
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</i> IE in TS 38.423 [15] Section 9.2.1.1
21522	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
21543	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.413 [11] Section 9.3.1.50	
21523	>>PDU Session	STRUCTURE		8.1.1.16	
21524	>>List of DRBs	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
21525	>>>DRB Item	STRUCTURE			

21546	>>>>DRB ID	ELEMENT	TRUE	DRB ID IE in TS 38.463 [21] clause 9.3.1.16	
21547	>>>>DRB	STRUCTURE		8.1.1.5	
21526	>>>>List of QoS flows mapped to DRB	LIST			QoS Flows Information To Be Setup IE in TS 38.463 [21] Section 9.3.3.2
21527	>>>>>QoS Flow Item	STRUCTURE			
21548	>>>>>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.413 [11] Section 9.3.1.51	
21549	>>>>>>QoS Flow	STRUCTURE		8.1.1.6	
21528	List of Neighbor cells	LIST			measResultNeighCells IE in TS 38.331 [22]
21529	>Neighbor Cell Item	STRUCTURE			
21530	>>CHOICE Neighbor Cell	STRUCTURE			
21531	>>>NR Cell	STRUCTURE		8.1.1.1	MeasResultNR IE in TS 38.331 [22]
21532	>>>>E-UTRA Cell	STRUCTURE		8.1.1.2	MeasResultEUTRA IE 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 Section 8.1.2.1
2	Bearer Context Management	Defined in Section 8.1.2.2
3	Mobility Management	Defined in Section 8.1.2.3
4	Multi-RAT Dual Connectivity Management	Defined in Section 8.1.2.4
5	Radio Resource Control Management	Defined in Section 8.1.2.5
6	PDU Session Management	Defined in Section 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.

# 1 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 <i>Primary Cell</i>	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 38.463 [21] clause 9.3.1.16	
25034	>>CHOICE <i>DRB Type</i>	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 38.463 [21] Section 9.3.1.12
25014	>>QoS flow Item	STRUCTURE			<i>QoS Flow Item IE</i> in TS 38.463 [21] Section 9.3.1.12
25045	>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE</i> in TS 38.463 [21] Section 9.3.1.12	
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</i></b> in TS 38.413 Section 9.2.1.1
25016	>PDU Session Item	STRUCTURE			<i>PDU Session Resource Setup Item IE</i> in TS 38.413 Section 9.2.1.1
25057	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE</i> in TS 38.413 [11] Section 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 Section 9.3.4.1
25018	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Setup Request Item IE</i> in TS 38.413 Section 9.3.4.1
25019	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier IE</i> in TS 38.413 [11] Section 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] Section 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</i> IE 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</i> IE in TS 38.423 [15] clause 9.2.3.25
25102	>CHOICE <i>Primary Cell</i>	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
25103	>>NR SpCell	STRUCTURE		8.1.1.1	NR 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
25104	>>E-UTRA PCell	STRUCTURE		8.1.1.2	E-UTRA IE 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</i> IE in TS 38.473 [19] clause 9.2.2.1
25106	>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
25107	>>CHOICE Secondary cell	STRUCTURE			<i>Scell To Be Setup Item</i> IEs IE 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</i> IE 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</i> IE in TS 38.473 [19] clause 9.2.2.7
25113	>Scell to be removed Item	STRUCTURE			<i>SCell To Be Removed Item</i> IEs IE 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</i> IE in TS 38.473 [19] [Q] clause 9.3.1.33	
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</i> IE in TS 38.463 [21] clause 9.3.1.16	
25162	>>CHOICE <i>DRB Type</i>	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</i> IE in TS 38.463 [21] Section 9.3.1.12
25122	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.12
25166	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.12	
25167	>>>>QoS flow	STRUCTURE		8.1.1.6	
25123	List of PDU sessions for setup	LIST			<i>PDU Session Resource Setup Request List</i> IE in TS 38.413 Section 9.2.1.1
25124	>PDU Session Item	STRUCTURE			<i>PDU Session Resource Setup Item</i> IE in TS 38.413 Section 9.2.1.1
25175	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.413 [11] Section 9.3.1.50	
25176	>>PDU Session	STRUCTURE		8.1.1.16	
25125	>>List of QoS flows for setup	LIST			<i>QoS Flow Setup Request Item</i> IE in TS 38.413 Section 9.3.4.1

25126	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Setup Request Item</i> IE in TS 38.413 Section 9.3.4.1
25177	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.413 [11] Section 9.3.1.51	
25178	>>>>QoS flow	STRUCTURE		8.1.1.6	
25127	List of DRBs to be modified	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] clause 9.2.2.1
25128	>DRB item for modification	STRUCTURE		8.1.1.5	<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] clause 9.2.2.1
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</i> IE in TS 38.463 [21] Section 9.3.1.12
25130	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.12
25181	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [12] Section 9.3.1.12	
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</i> IE in TS 38.413 Section 9.2.1.5
25132	>PDU Session Item	STRUCTURE			<i>PDU Session Resource Modify Request Item</i> IE in TS 38.413 Section 9.2.1.5
25183	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.413 [11] Section 9.3.1.50	
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</i> IE in TS 38.413 Section 9.3.4.3
25134	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Add or Modify Request Item</i> IE in TS 38.413 Section 9.3.4.3

25185	>>>>QoS flow identifier	ELEMENT	TRUE	QoS <i>Flow Identifier</i> IE in TS 38.413 [11] Section 9.3.1.51	
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</i> IE in TS 38.473 [19] Section 9.2.2.7
25137	>DRB item for release	STRUCTURE			<i>DRB To Be Released Item</i> IE in TS 38.473 [19] Section 9.2.2.7
25188	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.463 [21] clause 9.3.1.16	
25189	>>CHOICE <i>DRB Type</i>	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</i> IE in TS 36.423 [17] Section 9.2.12
25140	>UE Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Downlink</i> IE in TS 36.423 [17] clause 9.2.12	
25141	>UE Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Uplink</i> IE in TS 36.423 [17] clause 9.2.12	
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</i> IE in TS 38.423 [15] clause 9.2.3.25
25152	>CHOICE <i>Target Cell</i>	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</i> IE in TS 38.423 [15] clause 9.2.3.25
25153	>>Target NR SpCell	STRUCTURE		8.1.1.1	<i>NR</i> IE in TS 38.423 [15] clause 9.2.3.25
25154	>>Target E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA</i> IE in TS 38.423 [15] clause 9.2.3.25

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### 8.1.2.1.3 UE Context Release

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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</i> IE in TS 38.473 [19] Section 9.2.2.4
25202	>Candidate cell to be cancelled Item	STRUCTURE			<i>Candidate Cell to be Cancelled Item</i> IE in TS 38.473 [19] Section 9.2.2.4
25203	>>CHOICE Candidate cell	STRUCTURE			<i>Candidate Cell to be Cancelled Item</i> IE in TS 38.473 [19] Section 9.2.2.4
25204	>>>NR SCell	STRUCTURE		8.1.1.1	
25205	>>>E-UTRA SCell	STRUCTURE		8.1.1.2	

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### 8.1.2.2 Bearer Context Management

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

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### 1 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</i> IE in TS 38.463 [21] clause 9.3.1.16	
26102	CHOICE <i>DRB Type</i>	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</i> IE in TS 38.463 [21] Section 9.3.1.12
26106	>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] clause 9.3.1.12
26107	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [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</i> IE in TS 38.463 [21] Section 9.3.1.11
26111	>Cell Group Item	STRUCTURE			
26122	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
26123	>>Cell Group	STRUCTURE		8.1.1.7	
26112	Logical Channel ID	ELEMENT	FALSE	<i>LogicalChannelIdentity</i> IE in TS 38.331 [22] clause 6	
26113	Channel Access Priority	ELEMENT	FALSE	<i>channelAccessPriority</i> IE 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)	

### 2 8.1.2.2.2 Bearer Context Modification

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RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
26201	DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.463 [21] clause 9.3.1.16	
26202	CHOICE <i>DRB Type</i>	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	<i>LogicalChannelIdentity</i> IE in TS 38.331 [22] clause 6	
26206	CHOICE RLC-Config	STRUCTURE			<i>RLC-Config</i> IE in TS 38.331 [22]
26207	>AM	STRUCTURE			<i>am</i> IE in TS 38.331 [22]
26208	>>UL AM RLC	STRUCTURE			<i>ul-AM-RLC</i> IE in TS 38.331 [22]
26209	>>>Poll Retransmit	ELEMENT	FALSE	<i>t-PollRetransmit</i> IE in TS 38.331 [22]	
26210	>>>Max Retransmission Threshold	ELEMENT	FALSE	<i>maxRetxThreshold</i> IE in TS 38.331 [22]	
26211	>>>Poll PDU	ELEMENT	FALSE	<i>pollPDU</i> IE in TS 38.331 [22]	
26212	>>>Poll Byte	ELEMENT	FALSE	<i>pollByte</i> IE in TS 38.331 [22]	
26213	>>DL AM RLC	STRUCTURE			<i>dl-AM-RLC</i> IE in TS 38.331 [22]
26214	>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly</i> IE in TS 38.331 [22]	
26215	>>>Status Prohibit	ELEMENT	FALSE	<i>t-StatusProhibit</i> IE in TS 38.331 [22]	
26216	>UM Bi-directional	STRUCTURE			<i>um-Bi-Directional</i> IE in TS 38.331 [22]
26217	>>UL UM RLC	ELEMENT	FALSE		<i>UL-UM-RLC</i> IE in TS 38.331 [22]
26218	>>DL UM RLC	STRUCTURE			<i>DL-UM-RLC</i> IE in TS 38.331 [22]
26219	>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly</i> IE in TS 38.331 [22]	
26220	>UM Uni-directional UL	STRUCTURE			<i>um-Uni-Directional-UL</i> IE in TS 38.331 [22]
26221	>>UL UM RLC	ELEMENT	FALSE	<i>ul-UM-RLC</i> IE in TS 38.331 [22]	
26222	>UM Uni-directional DL	ELEMENT	FALSE		<i>um-Uni-Directional-DL</i> IE in TS 38.331 [22]
26223	>DL UM RLC	STRUCTURE			<i>dl-UM-RLC</i> IE in TS 38.331 [22]
26224	>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly</i> IE in TS 38.331 [22]	
26225	List of QoS Flows to be setup in DRB	LIST			<i>Flow Mapping Information</i> IE in TS 38.463 [21] clause 9.3.1.26
26226	>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] clause 9.3.1.12
26227	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [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			<i>Flow Mapping Information</i> IE in TS 38.463 [21] clause 9.3.1.26
26230	>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] clause 9.3.1.12
26231	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] clause 9.3.1.24	
26232	>>QoS Flow	STRUCTURE		8.1.1.6	
26233	List of Cell Groups to Add	LIST			<i>Cell Group List</i> IE in TS 38.463 [21] Section 9.3.1.11
26234	>Cell Group Item	STRUCTURE			
26255	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
26256	>>Cell Group	STRUCTURE		8.1.1.7	
26235	List of Cell Groups To Modify/Update	LIST			<i>Cell Group List</i> IE in TS 38.463 [21] Section 9.3.1.11
26236	>Cell Group Item	STRUCTURE			
26257	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
26258	>>Cell Group	STRUCTURE		8.1.1.7	
26237	List of Cell Groups To Delete	LIST			<i>Cell Group List</i> IE in TS 38.463 [21] Section 9.3.1.11
26238	>Cell Group Item	STRUCTURE			
26259	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
26260	>>Cell Group	STRUCTURE		8.1.1.7	
26239	Logical Channel ID	ELEMENT	FALSE	<i>LogicalChannelIdentity</i> IE in TS 38.331 [22] clause 6	
26240	Channel Access Priority	ELEMENT	FALSE	<i>channelAccessPriority</i> IE in TS 38.331 [22]	
26241	L2 State Information	STRUCTURE		8.1.1.8	
26242	Data Report Usage List	LIST			<i>Data Usage Report List</i> IE in TS 38.463 [21] Section 9.3.1.44
26243	>Data Report Usage Item	STRUCTURE			<i>Data Report Usage Item</i> IE in TS 38.463 [21] Section 9.3.1.44
26244	>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp</i> IE in TS 38.463 [21] Section 9.3.1.44	
26245	>>End Timestamp	ELEMENT	FALSE	<i>End timestamp</i> IE in TS 38.463 [21] Section 9.3.1.44	
26246	>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.44	
26247	>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.44	

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### 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</i> IE in TS 38.463 [21] clause 9.3.1.16	
26302	PDCP DL Count	ELEMENT	FALSE	<i>PDCP DL Count</i> IE in TS 38.463 [21] Section 9.2.2.11	
26303	PDCP UL Count	ELEMENT	FALSE	<i>PDCP UL Count</i> IE in TS 38.463 [21] Section 9.2.2.11	
26304	Release Cause	STRUCTURE			<i>Cause</i> IE in TS 38.463 [21] Section 9.3.1.2
26305	>CHOICE Cause Group	STRUCTURE			<i>Cause Group</i> IE in TS 38.463 [21] Section 9.3.1.2
26306	>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer</i> IE in TS 38.463 [21] Section 9.3.1.2
26307	>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	
26308	>>Transport Layer	STRUCTURE			<i>Transport Layer</i> IE in TS 38.463 [21] Section 9.3.1.2
26309	>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	
26310	>>Protocol	STRUCTURE			<i>Protocol</i> IE in TS 38.463 [21] Section 9.3.1.2
26311	>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	
26312	>>Miscellaneous	STRUCTURE			<i>Misc</i> IE in TS 38.463 [21] Section 9.3.1.2
26313	>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	

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### 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

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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</i> IE in clause 8.1.1.10	
27102	List of Serving cells	LIST			<i>MeasResultServMOList</i> IE in TS 38.331 [22]
27103	>Serving Cell Item	STRUCTURE			<i>MeasResultServMO</i> IE in TS 38.331 [22]
27104	>>Serving Cell Index	ELEMENT	TRUE	<i>servCellID</i> IE in TS 38.331 [22]	
27105	>>CHOICE Serving Cell	STRUCTURE			<i>MeasResultServMO</i> IE in TS 38.331 [22]
27106	>>>NR Cell	STRUCTURE		8.1.1.1	
27107	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	
27108	>>CHOICE Best Neighboring Cell	STRUCTURE			<i>measResultBestNeighCell</i> IE in TS 38.331 [22]
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</i> IE 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</i> IE in TS 38.423 [15] clause 9.2.3.25
27115	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR</i> IE in TS 38.423 [15] clause 9.2.3.25 or <i>SpCellID</i> IE in TS 38.473 [19] clause 9.2.2.1
27116	>>LTE E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA</i> IE in TS 38.423 [15] clause 9.2.3.25
27117	List of Secondary cells	LIST			<i>SCell To Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
27118	>Secondary Cell Item	STRUCTURE			<i>SCell To Be Setup Item IEs</i> IE in TS 38.473 [19] Section 9.2.2.1
27119	>>Secondary Cell Index	ELEMENT	FALSE		<i>SCellIndex</i> IE in TS 38.473 [19] Section 9.2.2.1
27120	>>CHOICE Secondary Cell	STRUCTURE			<i>SCell To Be Setup Item IEs</i> IE in TS 38.473 [19] Section 9.2.2.1

27121	>>>NR Cell	STRUCTURE		8.1.1.1	
27122	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	
27123	List of Neighbor cells	LIST			<i>measResultNeigh Cells</i> IE in TS 38.331 [22]
27124	>Neighbor Cell Item	STRUCTURE			<i>measResultNeigh Cells</i> IE in TS 38.331 [22]
27125	>>CHOICE Neighbor Cell	STRUCTURE			<i>measResultNeigh Cells</i> IE in TS 38.331 [22]
27126	>>>NR Cell	STRUCTURE		8.1.1.1	<i>MeasResultNR</i> IE in TS 38.331 [22]
27127	>>>E-UTRA Cell	STRUCTURE		8.1.1.2	<i>MeasResultEUTRA</i> IE in TS 38.331 [22]
27128	Target Primary Cell ID	STRUCTURE			<i>Target Cell Global ID</i> IE in TS 38.423 [15] Section 9.2.3.25
27129	>CHOICE Target Cell	STRUCTURE			<i>Target Cell</i> IE in TS 38.423 [15] Section 9.2.3.25
27130	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR</i> IE in TS 38.423 [15] Section 9.2.3.25 or <i>SpCell ID</i> IE in TS 38.473 [19] clause 9.2.2.1
27131	>>LTE E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA</i> IE in TS 38.423 [15] Section 9.2.3.25
27132	List of Candidate Target cells for conditional HO	LIST			<i>Candidate SpCell List</i> IE in TS 38.473 [19] Section 9.2.2.1
27133	>Candidate Target cell Item	STRUCTURE			<i>Candidate SpCell Item IEs</i> IE in TS 38.473 [19] Section 9.2.2.1
27134	>>CHOICE Candidate Target Cell	STRUCTURE			<i>Target Cell</i> IE in TS 38.423 [15] Section 9.2.3.25
27135	>>>NR SpCell candidate	STRUCTURE		8.1.1.1	<i>NR</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
27136	>>>LTE E-UTRA PCell candidate	STRUCTURE		8.1.1.2	<i>E-UTRA</i> IE in TS 38.423 [15] clause 9.2.3.25
27137	>>Estimated Arrival Probability	ELEMENT	FALSE		<i>Estimated Arrival Probability</i> IE in TS 38.423 [15] Section 9.1.1.1
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 <i>PDU Session Resources To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1

27139	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
27140	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	
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</i> IE in TS 38.423 [15] Section 9.2.1.1
27143	>>>QoS Flow Item	LIST			<i>QoS Flow To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
27144	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
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</i> IE in TS 38.473 [19] Section 9.2.2.7
27147	>>>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.7
27148	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
27149	>>>>CHOICE <i>DRB Type</i>	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</i> IE in TS 38.463 [21] Section 9.3.3.2
27153	>>>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
27154	>>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	
27155	>>>>>>QoS Flow	STRUCTURE		8.1.1.6	
27175	List of DRBs for Handover	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1

27176	>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
27177	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
27178	>>CHOICE <i>DRB Type</i>	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</i> IE in TS 38.463 [21] Section 9.3.3.2
27182	>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
27183	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	
27184	>>>>QoS Flow	STRUCTURE		8.1.1.6	

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3 8.1.2.3.2 Handover Cancel

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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</i> IE in clause 8.1.1.10	
27209	List of candidate cells to be cancelled list	LIST			<i>Candidate Cells To Be Cancelled List</i> IE in TS 38.473 [19] Section 9.2.2.4
27210	>Candidate cell to be cancelled item	STRUCTURE			<i>Candidate Cells To Be Cancelled List</i> IE in TS 38.473 [19] Section 9.2.2.4
27211	>>Target cell ID	STRUCTURE			<i>Target Cell ID</i> IE in TS 38.473 [19] Section 9.2.2.4
27212	>>>CHOICE Target cell ID	STRUCTURE			<i>Target Cell ID</i> IE in TS 38.473 [19] Section 9.2.2.4
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</i> IE in TS 38.423 [15] Section 9.1.1.6
27216	>CHOICE Cause Group	STRUCTURE			<i>Cause Group</i> IE in TS 38.423 [15] Section 9.2.3.2
27217	>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer</i> IE in TS 38.423 [15] Section 9.2.3.2
27218	>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause</i> IE in TS 38.423 [15] Section 9.2.3.2	
27219	>>Transport Layer	STRUCTURE			<i>Transport Layer</i> IE in TS 38.423 [15] Section 9.2.3.2
27220	>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause</i> IE in TS 38.423 [15] Section 9.2.3.2	
27221	>>Protocol	STRUCTURE			<i>Protocol</i> IE in TS 38.423 [15] Section 9.2.3.2
27222	>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause</i> IE in TS 38.423 [15] Section 9.2.3.2	
27223	>>Misc	STRUCTURE			<i>Misc</i> IE in TS 38.423 [15] Section 9.2.3.2
27224	>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause</i> IE in TS 38.423 [15] Section 9.2.3.2	

### 1 8.1.2.3.3 Handover Resource Allocation

2

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</i> IE in clause 8.1.1.10	
27302	Handover Type	ELEMENT	FALSE	<i>Handover Type</i> IE in TS 38.413 [11] Section 9.3.1.22	
27303	List of PDU Sessions for Handover	LIST			<i>PDU Session Resources To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
27304	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
27305	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	
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</i> IE in TS 38.423 [15] Section 9.2.1.1
27308	>>>QoS Flow Item	LIST			<i>QoS Flow To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
27309	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
27310	>>>>QoS Flow	STRUCTURE		8.1.1.6	
27311	>>List of DRBs for Handover	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
27312	>>>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
27313	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
27314	>>>>CHOICE <i>DRB Type</i>	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
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</i> IE in TS 38.463 [21] Section 9.3.3.2
27318	>>>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
27319	>>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	



27320	>>>>>QoS Flow	STRUCTURE		8.1.1.6	
27321	List of DRBs for Handover	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
27322	>DRB Item for Handover	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
27323	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
27324	>>CHOICE <i>DRB Type</i>	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
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</i> IE in TS 38.463 [21] Section 9.3.3.2
27328	>>>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
27329	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	
27330	>>>>QoS Flow	STRUCTURE		8.1.1.6	
27331	Allowed S-NSSAI	LIST			<i>Allowed S-NSSAI</i> IE in TS 38.413 [11] Section 9.3.1.31
27332	>Allowed S-NSSAI Item	STRUCTURE			<i>Allowed S-NSSAI Item</i> IE in TS 38.413 [11] Section 9.3.1.31
27333	>>S-NSSAI	STRUCTURE			<i>S-NSSAI</i> IE in TS 38.413 [11] Section 9.3.1.24
27334	>>>SST	ELEMENT	TRUE	<i>SST</i> IE in TS 38.413 [11] Section 9.3.1.24	
27335	>>>SD	ELEMENT	FALSE	<i>SD</i> IE in TS 38.413 [11] Section 9.3.1.24	
27336	Mobility Restriction List	STRUCTURE			<i>Mobility Restriction List</i> IE in TS 38.413 [11] Section 9.3.1.85
27337	>Serving PLMN	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.3.5	
27338	>List of Equivalent PLMNs	LIST			<i>Equivalent PLMNs</i> IE in TS 38.413 [11] Section 9.3.1.85
27339	>>Equivalent PLMN Item	STRUCTURE			
27340	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.3.5	
27341	>RAT Restrictions	LIST			<i>RAT Restrictions</i> IE in TS 38.413 [11] Section 9.3.1.85
27342	>>RAT Restriction Item	STRUCTURE			

27343	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.3.5	
27344	>>>RAT Restriction Information	ELEMENT	FALSE	<i>RAT Restriction Information</i> IE in TS 38.413 [11] Section 9.3.1.85	
27345	>Forbidden Area Information	LIST			<i>Forbidden Area Information</i> IE in TS 38.413 [11] Section 9.3.1.85
27346	>>Forbidden Area	STRUCTURE			<i>Forbidden Area Information</i> IE in TS 38.413 [11] Section 9.3.1.85
27347	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.3.5	
27348	>>>List of Forbidden TACs	LIST			<i>Forbidden TACs</i> IE in TS 38.413 [11] Section 9.3.1.85
27349	>>>>Forbidden TAC Item	STRUCTURE			<i>Forbidden TACs</i> IE in TS 38.413 [11] Section 9.3.1.85
27350	>>>>>TAC	ELEMENT	FALSE	<i>TAC</i> IE in TS 38.413 [11] Section 9.3.3.10	
27351	>Service Area Information	LIST			<i>Service Area Information</i> IE in TS 38.413 [11] Section 9.3.1.85
27352	>>Service Area	STRUCTURE			<i>Service Area Information</i> IE in TS 38.413 [11] Section 9.3.1.85
27353	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.413 [11] Section 9.3.3.5	
27364	>>>List of allowed TACs	LIST			<i>Allowed TACs</i> IE in TS 38.413 [11] Section 9.3.1.85
27365	>>>>Allowed TAC Item	STRUCTURE			<i>Allowed TACs</i> IE in TS 38.413 [11] Section 9.3.1.85
27366	>>>>>TAC	ELEMENT	FALSE	<i>TAC</i> IE in TS 38.413 [11] Section 9.3.3.10	
27367	>>>List of Not allowed TACs	LIST			<i>Not Allowed TACs</i> IE in TS 38.413 [11] Section 9.3.1.85
27368	>>>>Not Allowed TAC Item	STRUCTURE			<i>Not Allowed TACs</i> IE in TS 38.413 [11] Section 9.3.1.85
27369	>>>>>TAC	ELEMENT	FALSE	<i>TAC</i> IE in TS 38.413 [11] Section 9.3.3.10	

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## 2 8.1.2.4 Multi-RAT Dual Connectivity Management

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

1 8.1.2.4.1 SN Addition

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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</i> IE in clause 8.1.1.10	
28102	Secondary Node	STRUCTURE		8.1.1.11	
28103	CHOICE <i>PDCP Change Indication</i>	STRUCTURE			<i>PDCP Change Indication</i> IE in TS 38.423 [15] Section 9.2.3.74
28104	>From S-NG-RAN Node	STRUCTURE			<i>From S-NG-RAN Node</i> IE in TS 38.423 [15] Section 9.2.3.74
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</i> IE in TS 38.423 [15] Section 9.2.3.74	
28106	>From M-NG-RAN Node	STRUCTURE			<i>From M-NG-RAN Node</i> IE in TS 38.423 [15] Section 9.2.3.74
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</i> IE in TS 38.423 [15] Section 9.2.3.74	
28108	Secondary Node UE Aggregate Maximum Bit Rate	STRUCTURE			<i>UE Aggregate Maximum Bit Rate</i> IE in TS 36.423 [17] Section 9.2.12
28109	>UE Aggregate Maximum Bit Rate Downlink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Downlink</i> IE in TS 36.423 [17] clause 9.2.12	
28110	>UE Aggregate Maximum Bit Rate Uplink	ELEMENT	FALSE	<i>UE Aggregate Maximum Bit Rate Uplink</i> IE in TS 36.423 [17] clause 9.2.12	
28111	List of PDU sessions to be added	LIST			<i>PDU Session Resources To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
28112	>PDU Session Item	STRUCTURE			<i>PDU Session Resources To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
28113	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	
28114	>>PDU Session	STRUCTURE		8.1.1.16	

28115	>>CHOICE <i>PDU Session Setup Info</i>	STRUCTURE			<i>PDU Session Resource Setup Info – SN terminated</i> IE in TS 38.423 [15] Section 9.1.2.5
28116	>>>SN terminated PDU session	STRUCTURE			<i>PDU Session Resource Setup Info – SN terminated</i> IE in TS 38.423 [15] Section 9.1.2.5
28118	>>>>List of QoS flows to be setup	LIST			<i>QoS Flows To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
28119	>>>>>QoS flow Item to be setup	STRUCTURE			<i>QoS Flow To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
28120	>>>>>>QoS Flow Indicator	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 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			<i>PDU Session Resource Setup Info – MN terminated</i> IE in TS 38.423 [15] Section 9.1.2.5
28125	>>>>List of DRBs to be setup	LIST			<i>DRB to QoS Flow Mapping List</i> IE in TS 38.423 [15] Section 9.2.1.15
28126	>>>>>DRB Item to be setup	STRUCTURE			<i>DRB to QoS Flow Mapping Item</i> IE in TS 38.423 [15] Section 9.2.1.15
28127	>>>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.423 [15] Section 9.2.3.33	
28128	>>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28129	>>>>>>List of QoS flows to be setup	LIST			<i>QoS Flows List</i> IE in TS 38.423 [15] Section 9.2.1.15
28130	>>>>>>>QoS flow Item to be setup	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.423 [15] Section 9.2.1.15

28131	>>>>>>>QoS Flow Indicator	ELEMENT	TRUE	QoS Flow Indicator IE in TS 38.423 [15] Section 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			E-RABs To Be Added List IE in TS 36.423 [17] Section 9.1.4.1
28137	>E-RAB Item	STRUCTURE			E-RABs To Be Added Item IE in TS 36.423 [17] Section 9.1.4.1
28138	>>E-RAB ID	ELEMENT	TRUE	E-RAB ID IE in TS 36.423 [17] Section 9.2.23	
28139	>>E-RAB	STRUCTURE		8.1.1.9	
28140	>>EN-DC Resource Configuration	STRUCTURE			EN-DC Resource Configuration IE in TS 36.423 [17] Section 9.2.108
28141	>>>PDCP at SgNB	ELEMENT	FALSE	PDCP at SgNB IE in TS 36.423 [17] Section 9.2.108	
28142	>>>MCG resources	ELEMENT	FALSE	MCG resources IE in TS 36.423 [17] Section 9.2.108	
28143	>>>SCG resources	ELEMENT	FALSE	SCG resources IE in TS 36.423 [17] Section 9.2.108	
28144	>>CHOICE Resource Configuration	STRUCTURE			Resource Configuration IE in TS 36.423 [17] Section 9.1.4.1
28145	>>>PDCP present in SN	STRUCTURE			PDCP Present in SN IE in TS 36.423 [17] Section 9.1.4.1
28146	>>>>Maximum MCG admissible E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28147	>>>>RLC Mode	ELEMENT	FALSE	RLC Mode IE in TS 36.423 [17] Section 9.1.4.1	
28148	>>>>UL Configuration	ELEMENT	FALSE	UL Configuration IE in TS 36.423 [17] Section 9.1.4.1	

28149	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN</i> IE in TS 36.423 [17] Section 9.1.4.1
28150	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	
28151	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode</i> IE in TS 36.423 [17] Section 9.1.4.1	
28152	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 36.423 [17] Section 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</i> IE in TS 38.423 [15] Section 9.1.2.1
28155	>SN-terminated DRB item	STRUCTURE			
28156	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.423 [15] Section 9.2.3.33	
28157	>>CHOICE <i>DRB Type</i>	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</i> IE 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</i> IE in TS 38.423 [15] clause 9.2.3.25
28163	>>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
28164	>>LTE PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell</i> IE in TS 38.423 [15] clause 9.2.3.25

1 8.1.2.4.2 SN Modification and deletion

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

28217	>>CHOICE <i>PDU Session Setup Info</i>	STRUCTURE			<i>PDU Session Resource Setup Info – SN terminated</i> IE in TS 38.423 [15] Section 9.1.2.5
28218	>>>SN terminated PDU session	STRUCTURE			<i>PDU Session Resource Setup Info – SN terminated</i> IE in TS 38.423 [15] Section 9.1.2.5
28219	>>>>List of QoS flows to be setup	LIST			<i>QoS Flows To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
28220	>>>>>QoS flow Item to be setup	STRUCTURE			<i>QoS Flow To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
28221	>>>>>>QoS Flow Indicator	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 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			<i>PDU Session Resource Setup Info – MN terminated</i> IE in TS 38.423 [15] Section 9.1.2.5
28225	>>>>List of DRBs to be setup	LIST			<i>DRB to QoS Flow Mapping List</i> IE in TS 38.423 [15] Section 9.2.1.15
28226	>>>>>DRB Item to be setup	STRUCTURE			<i>DRB to QoS Flow Mapping Item</i> IE in TS 38.423 [15] Section 9.2.1.15
28227	>>>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.423 [15] Section 9.2.3.33	
28228	>>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28229	>>>>>>List of QoS flows to be setup	LIST			<i>QoS Flows List</i> IE in TS 38.423 [15] Section 9.2.1.15
28230	>>>>>>>QoS flow Item to be setup	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.423 [15] Section 9.2.1.15

28231	>>>>>>>QoS Flow Indicator	ELEMENT	TRUE	QoS Flow Indicator IE in TS 38.423 [15] Section 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] Section 9.2.1.1
28237	>PDU Session Item	STRUCTURE			PDU Session Resources To Be Setup Item IE in TS 38.423 [15] Section 9.2.1.1
28238	>>PDU Session ID	ELEMENT	TRUE	PDU Session ID IE in TS 38.423 [15] Section 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] Section 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] Section 9.2.1.1
28243	>>>>>QoS flow Item to be modified	STRUCTURE			QoS Flow To Be Setup Item IE in TS 38.423 [15] Section 9.2.1.1
28244	>>>>>>QoS Flow Indicator	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.423 [15] Section 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] Section 9.1.2.5

28248	>>>>List of DRBs to be modified	LIST			<i>DRB to QoS Flow Mapping List</i> IE in TS 38.423 [15] Section 9.2.1.15
28249	>>>>>DRB Item to be modified	STRUCTURE			<i>DRB to QoS Flow Mapping Item</i> IE in TS 38.423 [15] Section 9.2.1.15
28250	>>>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.423 [15] Section 9.2.3.33	
28251	>>>>>>NG-RAN DRB	STRUCTURE		8.1.1.5	
28252	>>>>>>List of QoS flows to be modified	LIST			<i>QoS Flows List</i> IE in TS 38.423 [15] Section 9.2.1.15
28253	>>>>>>>QoS flow Item to be setup	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.423 [15] Section 9.2.1.15
28254	>>>>>>>>QoS Flow Indicator	ELEMENT	TRUE	<i>QoS Flow Indicator</i> IE in TS 38.423 [15] Section 9.2.3.10	
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</i> IE in TS 38.463 [21] Section 9.3.1.63
28259	>>>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type</i> IE in TS 38.463 [21] Section 9.3.1.63	
28260	>>>PDU Session Timed Report List	LIST			<i>Data Usage Report List</i> IE in TS 38.463 [21] Section 9.3.1.64
28261	>>>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item</i> IE in TS 38.463 [21] Section 9.3.1.64
28262	>>>>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
28263	>>>>>>End Timestamp	ELEMENT	FALSE	<i>End timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
28264	>>>>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	

28265	>>>>>Usage Count DL	ELEMENT	FALSE	Usage count DL IE in TS 38.463 [21] Section 9.3.1.64	
28266	>>MR-DC Usage for QoS flows	LIST			Data Usage Per QoS Flow List IE in TS 38.463 [21] Section 9.3.1.63
28267	>>>QoS Flow Item	STRUCTURE			Data Usage Per QoS Flow Item IE in TS 38.463 [21] Section 9.3.1.63
28268	>>>>QoS flow Indicator	ELEMENT	TRUE	QoS Flow Indicator IE in TS 38.463 [21] Section 9.3.1.24	
28269	>>>>Secondary RAT Type	ELEMENT	FALSE	Secondary RAT Type IE in TS 38.463 [21] Section 9.3.1.63	
28270	>>>>QoS Flow Timed Report List	LIST			Data Usage Report List IE in TS 38.463 [21] Section 9.3.1.64
28271	>>>>>MR-DC Data Usage Report Item	STRUCTURE			Data Report Usage Item IE in TS 38.463 [21] Section 9.3.1.64
28272	>>>>>>Start Timestamp	ELEMENT	FALSE	Start timestamp IE in TS 38.463 [21] Section 9.3.1.64	
28273	>>>>>>End timestamp	ELEMENT	FALSE	End timestamp IE in TS 38.463 [21] Section 9.3.1.64	
28274	>>>>>>Usage Count UL	ELEMENT	FALSE	Usage count DL IE in TS 38.463 [21] Section 9.3.1.64	
28275	>>>>>>Usage Count DL	ELEMENT	FALSE	Usage count DL IE in TS 38.463 [21] Section 9.3.1.64	
28276	Count of list of PDU sessions to be modified	ELEMENT	FALSE	INTEGER (0..256)	
28277	List of PDU sessions to be released	LIST			PDU Session Resources To Be Released List IE in TS 38.423 [15] Section 9.1.2.14
28278	>PDU Session Item	STRUCTURE			PDU Session List With Cause IE in TS 38.423 [15] Section 9.2.1.26

28279	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	
28280	>>PDU Session	STRUCTURE		8.1.1.16	
26281	>>Release Cause	STRUCTURE			<i>Cause</i> IE in TS 38.463 [21] Section 9.3.1.2
26282	>>>CHOICE Cause Group	STRUCTURE			<i>Cause Group</i> IE in TS 38.463 [21] Section 9.3.1.2
26283	>>>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer</i> IE in TS 38.463 [21] Section 9.3.1.2
26284	>>>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	
26285	>>>>Transport Layer	STRUCTURE			<i>Transport Layer</i> IE in TS 38.463 [21] Section 9.3.1.2
26286	>>>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	
26287	>>>>Protocol	STRUCTURE			<i>Protocol</i> IE in TS 38.463 [21] Section 9.3.1.2
26288	>>>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	
26289	>>>>Miscellaneous	STRUCTURE			<i>Misc</i> IE in TS 38.463 [21] Section 9.3.1.2
26290	>>>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause</i> IE in TS 38.463 [21] Section 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			<i>E-RABs To Be Added List</i> IE in TS 36.423 [17] Section 9.1.4.1
28293	>E-RAB Item	STRUCTURE			<i>E-RABs To Be Added Item</i> IE in TS 36.423 [17] Section 9.1.4.1
28294	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID</i> IE in TS 36.423 [17] Section 9.2.23	
28295	>>E-RAB	STRUCTURE		8.1.1.9	
28296	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration</i> IE in TS 36.423 [17] Section 9.2.108

28297	>>>PDCP at SgNB	STRUCTURE		<i>PDCP at SgNB</i> IE in TS 36.423 [17] Section 9.2.108	
28298	>>>MCG resources	STRUCTURE		<i>MCG resources</i> IE in TS 36.423 [17] Section 9.2.108	
28299	>>>SCG resources	STRUCTURE		<i>SCG resources</i> IE in TS 36.423 [17] Section 9.2.108	
28300	>>CHOICE Resource Configuration	STRUCTURE			<i>Resource Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1
28301	>>>PDCP present in SN	STRUCTURE			<i>PDCP Present in SN</i> IE in TS 36.423 [17] Section 9.1.4.1
28302	>>>>Maximum MCG admissible E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28303	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode</i> IE in TS 36.423 [17] Section 9.1.4.1	
28304	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1	
28305	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN</i> IE in TS 36.423 [17] Section 9.1.4.1
28306	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	
28307	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode</i> IE in TS 36.423 [17] Section 9.1.4.1	
28308	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1	
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</i> IE in TS 36.423 [17] Section 9.1.4.5
28311	>E-RAB Item	STRUCTURE			<i>E-RABs To Be Modified Item</i> IE in TS 36.423 [17] Section 9.1.4.5
28312	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID</i> IE in TS 36.423 [17] Section 9.2.23	
28313	>>E-RAB	STRUCTURE		8.1.1.9	

28314	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration</i> IE in TS 36.423 [17] Section 9.2.108
28315	>>>PDCP at SgNB	STRUCTURE		<i>PDCP at SgNB</i> IE in TS 36.423 [17] Section 9.2.108	
28316	>>>MCG resources	STRUCTURE		<i>MCG resources</i> IE in TS 36.423 [17] Section 9.2.108	
28317	>>>SCG resources	STRUCTURE		<i>SCG resources</i> IE in TS 36.423 [17] Section 9.2.108	
28318	>>CHOICE Resource Configuration	STRUCTURE			<i>Resource Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1
28319	>>>PDCP present in SN	STRUCTURE			<i>PDCP Present in SN</i> IE in TS 36.423 [17] Section 9.1.4.1
28320	>>>>Maximum MCG admissible E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28321	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode</i> IE in TS 36.423 [17] Section 9.1.4.1	
28322	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1	
28323	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN</i> IE in TS 36.423 [17] Section 9.1.4.1
28324	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	
28325	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode</i> IE in TS 36.423 [17] Section 9.1.4.1	
28326	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1	
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</i> IE in TS 36.423 [17] Section 9.1.4.5
28329	>E-RAB Item	STRUCTURE			<i>E-RABs To Be Released Item</i> IE in TS 36.423 [17] Section 9.1.4.5
28330	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID</i> IE in TS 36.423 [17] Section 9.2.23	



28331	>>E-RAB	STRUCTURE		8.1.1.9	
28332	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration</i> IE in TS 36.423 [17] Section 9.2.108
28333	>>>PDCP at SgNB	ELEMENT	FALSE	<i>PDCP at SgNB</i> IE in TS 36.423 [17] Section 9.2.108	
28334	>>>MCG resources	ELEMENT	FALSE	<i>MCG resources</i> IE in TS 36.423 [17] Section 9.2.108	
28335	>>>SCG resources	ELEMENT	FALSE	<i>SCG resources</i> IE in TS 36.423 [17] Section 9.2.108	
28336	>>CHOICE Resource Configuration	STRUCTURE			<i>Resource Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1
28337	>>>PDCP present in SN	STRUCTURE			<i>PDCP Present in SN</i> IE in TS 36.423 [17] Section 9.1.4.1
28338	>>>>Maximum MCG admissible E-RAB Level QoS parameters	STRUCTURE		8.1.1.9	
28339	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode</i> IE in TS 36.423 [17] Section 9.1.4.1	
28340	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1	
28341	>>>PDCP not present in SN	STRUCTURE			<i>PDCP Not Present in SN</i> IE in TS 36.423 [17] Section 9.1.4.1
28342	>>>>Requested SCG E-RAB Level QoS Parameters	STRUCTURE		8.1.1.9	
28343	>>>>RLC Mode	ELEMENT	FALSE	<i>RLC Mode</i> IE in TS 36.423 [17] Section 9.1.4.1	
28344	>>>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 36.423 [17] Section 9.1.4.1	
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</i> IE in TS 38.423 [15] Section 9.1.2.5
28347	>SN-terminated DRB item	STRUCTURE			<i>Additional DRB IDs</i> IE in TS 38.423 [15] Section 9.1.2.5
28358	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.423 [15] Section 9.2.3.33	

28348	>>CHOICE <i>DRB Type</i>	STRUCTURE			<i>Additional DRB IDs IE in TS 38.423 [15] Section 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	

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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

6

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>candidateCellInfoListMN</i> IE 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>ssbFrequency</i> IE in TS 38.331 [22]	
29015	>>>>CSI-RS Reference Frequency	ELEMENT	FALSE	<i>refFreqCSI-RS</i> IE in TS 38.331 [22]	
29016	>>>>NR Serving Cell	STRUCTURE			<i>measResultServingCell</i> IE in TS 38.331 [22]
29017	>>>>NR Neighbor Cell Measurement List	LIST			<i>measResultNeighborCellListNR</i> IE in TS 38.331 [22]
29018	>>>>>NR Neighbor Cell Measurement Item	STRUCTURE			<i>measResultNRItem</i> IE in TS 38.331 [22]
29019	>>>>>>NR Neighbor Cell	STRUCTURE		<i>NR Cell</i> in 8.1.1.1	
29021	>SN Candidate Cell List Info	STRUCTURE			<i>candidateCellInfoListMN</i> IE 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>MeasResult2NRItem</i> IE in TS 38.331 [22]
29024	>>>>SSB Frequency	ELEMENT	FALSE	<i>ssbFrequency</i> IE in TS 38.331 [22]	
29025	>>>>CSI-RS Reference Frequency	ELEMENT	FALSE	<i>refFreqCSI-RS</i> IE in TS 38.331 [22]	
29026	>>>>NR Serving Cell	STRUCTURE			<i>measResultServingCell</i> IE in TS 38.331 [22]
29027	>>>>NR Neighbor Cell Measurement List	LIST			<i>measResultNeighborCellListNR</i> IE in TS 38.331 [22]
29028	>>>>>NR Neighbor Cell Measurement Item	STRUCTURE			<i>measResultNRItem</i> IE in TS 38.331 [22]
29029	>>>>>>NR Neighbor Cell	STRUCTURE		<i>NR Cell</i> in 8.1.1.1	
29031	>SCG Failure Info	STRUCTURE			<i>FailureReportSCG</i> IE in TS 38.331 [22]
29032	>>Failure Type	ELEMENT	FALSE	<i>failureType</i> IE in TS 38.331 [22]	

29033	>>Meas Result SCG Failure	STRUC TURE			<i>measResultSCG-Failure</i> IE in TS 38.331 [22]
29034	>>>Measurement Result List Per Measurement Object	STRUC TURE			<i>measResultPerMOList</i> IE in TS 38.331 [22]
29035	>>>>List of NR Cell Measurements	LIST			<i>MeasResultList2NR</i> IE in TS 38.331 [22]
29036	>>>>>NR Cell Measurement Item	STRUC TURE			<i>MeasResult2NRItem</i> IE in TS 38.331 [22]
29037	>>>>>>SSB Frequency	ELEME NT	FALSE	<i>ssbFrequency</i> IE in TS 38.331 [22]	
29038	>>>>>>CSI-RS Reference Frequency	ELEME NT	FALSE	<i>refFreqCSI-RS</i> IE in TS 38.331 [22]	
29039	>>>>>>NR Serving Cell	STRUC TURE			<i>measResultServingCell</i> IE in TS 38.331 [22]
29040	>>>>>>>NR Neighbor Cell Measurement List	LIST			<i>measResultNeighborCellListNR</i> IE in TS 38.331 [22]
29041	>>>>>>>>NR Neighbor Cell Measurement Item	STRUC TURE			<i>measResultNRItem</i> IE in TS 38.331 [22]
29042	>>>>>>>>NR Neighbor Cell	STRUC TURE		<i>NR Cell</i> in 8.1.1.1	
29051	>DRX Info MCG	STRUC TURE			<i>drx-InfoMCG</i> IE in TS 38.331 [22]
29052	>>DRX Long Cycle Start Offset	ELEME NT	FALSE	<i>drx-LongCycleStartOffset</i> IE in TS 38.331 [22]	
29053	>>Short DRX	STRUC TURE			<i>shortDRX</i> IE in TS 38.331 [22]
29054	>>>DRX Short Cycle	ELEME NT	FALSE	<i>drx-ShortCycle</i> IE in TS 38.331 [22]	
29055	>>>DRX Short Cycle Timer	ELEME NT	FALSE	<i>drx-ShortCycleTimer</i> IE in TS 38.331 [22]	
29061	>Measurement Configuration MN	STRUC TURE			<i>MeasConfigMN</i> IE in TS 38.331 [22]
29062	>>MN Measured Frequencies	LIST			<i>measuredFrequenciesMN</i> IE in TS 38.331 [22]
29063	>>>NR Frequency Info Item	STRUC TURE		<i>NR-FreqInfo</i> IE in TS 38.331 [22]	
29064	>>>>NR ARFCN	ELEME NT	FALSE	<i>ARFCN-ValueNR</i> IE in TS 38.331 [22]	
29065	>Secondary Cell Group RB Config	STRUC TURE			<i>scg-RB-Config</i> IE in TS 38.331 [22]
29066	>>Radio Bearer Config	STRUC TURE			<i>RadioBearerConfig</i> IE in TS 38.331 [22]

29067	>>>DRB To Add Modify List	LIST			<i>Drb-ToAddModList</i> IE in TS 38.331 [22]
29068	>>>>DRB To Add Modify Item	STRUCTURE			<i>DRB-ToAddMod</i> IE in TS 38.331 [22]
29069	>>>>>CHOICE <i>CN Association</i>	STRUCTURE			<i>cnAssociation</i> IE in TS 38.331 [22]
29070	>>>>>>EPS Bearer Identity	ELEMENT	FALSE	<i>eps-BearerIdentity</i> IE in TS 38.331 [22]	
29071	>>>>>>SDAP Config	STRUCTURE			<i>SDAP-Config</i> IE in TS 38.331 [22]
29072	>>>>>>>PDU Session ID	ELEMENT	TRUE	<i>PDU-SessionID</i> IE in TS 38.331 [22]	
29073	>>>>>>>PDU Session	STRUCTURE		<i>PDU Session</i> in TS 38.331 [22]	
29074	>>>>>>>Default DRB	ELEMENT	FALSE	<i>defaultDRB</i> IE in TS 38.331 [22]	
29075	>>>>>>DRB ID	ELEMENT	TRUE	<i>DRB-Identity</i> IE in TS 38.331 [22]	
29076	>>>>>CHOICE <i>DRB Type</i>	STRUCTURE			<i>DRB-ToAddMod</i> IE in TS 38.331 [22]
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>reestablish PDCP</i> IE in TS 38.331 [22]	
29080	>>>>>Recover PDCP	ELEMENT	FALSE	<i>recoverPDCP</i> IE in TS 38.331 [22]	
29081	>>>>>PDCP Config	STRUCTURE		<i>PDCP Configuration</i> IE in 8.1.2.2.4	
29091	>Master Cell Group RB Config	STRUCTURE			<i>scg-RB-Config</i> IE in TS 38.331 [22]
29092	>>Radio Bearer Config	STRUCTURE			<i>RadioBearerConfig</i> IE in TS 38.331 [22]
29093	>>>DRB To Add Modify List	LIST			<i>Drb-ToAddModList</i> IE in TS 38.331 [22]
29094	>>>>DRB To Add Modify Item	STRUCTURE			<i>DRB-ToAddMod</i> IE in TS 38.331 [22]
29095	>>>>>CHOICE <i>CN Association</i>	STRUCTURE			<i>cnAssociation</i> IE in TS 38.331 [22]
29096	>>>>>>EPS Bearer Identity	ELEMENT	FALSE	<i>eps-BearerIdentity</i> IE in TS 38.331 [22]	
29097	>>>>>>SDAP Config	STRUCTURE			<i>SDAP-Config</i> IE in TS 38.331 [22]

29098	>>>>>>PDU Session ID	ELEMENT	FALSE	<i>PDU-SessionID</i> IE in TS 38.331 [22]	
29099	>>>>>>PDU Session	STRUCTURE		<i>PDU Session</i> in TS 38.331 [22]	
29100	>>>>>>Default DRB	ELEMENT	FALSE	<i>defaultDRB</i> IE in TS 38.331 [22]	
29101	>>>>>>Reflective QoS	ELEMENT	FALSE	<i>as-reflectiveQoS</i> IE in TS 38.331 [22]	
29102	>>>>>DRB ID	ELEMENT	TRUE	<i>DRB-Identity</i> IE in TS 38.331 [22]	
29103	>>>>>CHOICE <i>DRB Type</i>	STRUCTURE			<i>DRB-ToAddMod</i> IE in TS 38.331 [22]
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>reestablish PDCP</i> IE in TS 38.331 [22]	
29107	>>>>>Recover PDCP	ELEMENT	FALSE	<i>recoverPDCP</i> IE in TS 38.331 [22]	
29108	>>>>>PDCP Config	STRUCTURE		<i>PDCP Configuration</i> IE in 8.1.2.2.4	
29111	>List of UE Capability RAT Containers	LIST			<i>UE-CapabilityRAT-ContainerList</i> IE in TS 38.331 [22]
29112	>>UE Capability RAT Container Item	STRUCTURE			<i>UE-CapabilityRAT-Container</i> IE in TS 38.331 [22]
29113	>>>RAT Type	ELEMENT	FALSE	<i>RAT-Type</i> IE in TS 38.331 [22]	

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## 8.1.2.5.2 RRC Cell Group Config Transfer

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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</i> IE in TS 38.331 [22]
29504	>>RLC Bearer to Add or Modify Item	STRUCTURE			<i>rlc-BearerToAddModList</i> IE in TS 38.331 [22]
29505	>>>Served RLC Radio Bearer	STRUCTURE		8.1.1.5	
29506	>>>RLC Bearer Config	STRUCTURE			<i>RLC-BearerConfig</i> IE in TS 38.331 [22]
29507	>>>>Logical Channel Identity	ELEMENT	TRUE	<i>logicalChannelIdentity</i> IE in TS 38.331 [22]	
29508	>>>>Reestablish RLC	ELEMENT	FALSE	<i>reestablishRLC</i> IE in TS 38.331 [22]	
29509	>>>>CHOICE <i>RLC Config</i>	STRUCTURE			<i>RLC-Config</i> IE in TS 38.331 [22]
29510	>>>>>AM	STRUCTURE			<i>am</i> IE in TS 38.331 [22]
29511	>>>>>>UL AM RLC	STRUCTURE			<i>ul-AM-RLC</i> IE in TS 38.331 [22]
29512	>>>>>>>Poll Retransmit	ELEMENT	FALSE	<i>t-PollRetransmit</i> IE in TS 38.331 [22]	
29513	>>>>>>>Max Retransmission Threshold	ELEMENT	FALSE	<i>maxRetxThreshold</i> IE in TS 38.331 [22]	
29514	>>>>>>>Poll PDU	ELEMENT	FALSE	<i>pollPDU</i> IE in TS 38.331 [22]	
29515	>>>>>>>Poll Byte	ELEMENT	FALSE	<i>pollByte</i> IE in TS 38.331 [22]	
29516	>>>>>>>DL AM RLC	STRUCTURE			<i>dl-AM-RLC</i> IE in TS 38.331 [22]
29517	>>>>>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly</i> IE in TS 38.331 [22]	
29518	>>>>>>>Status Prohibit	ELEMENT	FALSE	<i>t-StatusProhibit</i> IE in TS 38.331 [22]	
29519	>>>>>UM Bi-directional	STRUCTURE			<i>um-Bi-Directional</i> IE in TS 38.331 [22]
29521	>>>>>>UL UM RLC	ELEMENT	FALSE		<i>UL-UM-RLC</i> IE in TS 38.331 [22]

29522	>>>>>>DL UM RLC	STRUCTURE			<i>DL-UM-RLC</i> IE in TS 38.331 [22]
29523	>>>>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly</i> IE in TS 38.331 [22]	
29530	>>>>>UM Uni-directional UL	STRUCTURE			<i>um-Uni-Directional-UL</i> IE in TS 38.331 [22]
29531	>>>>>>UL UM RLC	ELEMENT	FALSE	<i>ul-UM-RLC</i> IE in TS 38.331 [22]	
29540	>>>>>UM Uni-directional DL	STRUCTURE			<i>um-Uni-Directional-DL</i> IE in TS 38.331 [22]
29541	>>>>>>DL UM RLC	STRUCTURE			<i>dl-UM-RLC</i> IE in TS 38.331 [22]
29542	>>>>>>Reassembly	ELEMENT	FALSE	<i>t-Reassembly</i> IE in TS 38.331 [22]	
29551	>>>>MAC Logical Channel Config	STRUCTURE			
29552	>>>>>Priority	ELEMENT	FALSE	<i>priority</i> IE in TS 38.331 [22] Section 6	
29553	>>>>>Prioritized Bit Rate	ELEMENT	FALSE	<i>prioritisedBitRate</i> IE in TS 38.331 [22] Section 6	
29554	>>>>>Bucket Size Duration	ELEMENT	FALSE	<i>bucketSizeDuration</i> IE in TS 38.331 [22] Section 6	
29555	>>>>>List of allowed sub-carrier spacing	LIST			<i>allowedSCS-List</i> IE in TS 38.331 [22] Section 6
29556	>>>>>>Allowed sub-carrier spacing item	STRUCTURE			
29557	>>>>>>>Sub Carrier Spacing	ELEMENT	FALSE	<i>SubCarrierSpacing</i> IE in TS 38.331 [22] Section 6	
29558	>>>>>Max PUSCH Duration	ELEMENT	FALSE	<i>maxPUSCH-Duration</i> IE in TS 38.331 [22] Sec 6	
29559	>>>>>Configured Grant Type1 Allowed	STRUCTURE			<i>configuredGrantTypeAllowed</i> IE in TS 38.331 [22] Section 6
29560	>>>>>Logical Channel Group	ELEMENT	FALSE	<i>logicalChannelGroup</i> IE in TS 38.331 [22]	



29561	>>>>>Logical Channel SR – Mask	ELEMENT	FALSE	<i>logicalChannelSR-Mask</i> IE in TS 38.331 [22] Section 6	
29562	>>>>>Logical Channel SR – Delay Timer Applied	ELEMENT	FALSE	<i>logicalChannelSR-DelayTimerApplied</i> IE in TS 38.331 [22] Sec 6	
29563	>>>>>Bit Rate Query Prohibit Timer	ELEMENT	FALSE	<i>bitRateQueryProhibitTimer</i> IE in TS 38.331 [22] Section 6	
29564	>>>>>Channel Access Priority	ELEMENT	FALSE	<i>reestablishRLC</i> IE in TS 38.331 [22]	
29565	>>>>>Bit Rate Multiplier	ELEMENT	FALSE	<i>logicalChannelGroup</i> IE in TS 38.331 [22]	
29601	>List of RLC Bearers to Release	LIST			<i>rlc-BearerToReleaseList</i> IE in TS 38.331 [22]
29602	>>RLC Bearer to Release Item	STRUCTURE			<i>rlc-BearerToReleaseList</i> IE in TS 38.331 [22]
29603	>>>Served RLC Radio Bearer	STRUCTURE		8.1.1.5	
29604	>>>Logical Channel Identity	ELEMENT	TRUE	<i>logicalChannelIdentity</i> IE in TS 38.331 [22]	
29651	>MAC Cell Group Config	STRUCTURE			<i>mac-CellGroupConfig</i> IE in TS 38.331 [22]
29652	>>Scheduling Request Config	STRUCTURE			<i>schedulingRequestConfig</i> IE in TS 38.331 [22]
29654	>>>List of Scheduling Requests to Add or Modify	LIST			<i>schedulingRequestToAddModList</i> IE in TS 38.331 [22]
29655	>>>>Scheduling Request Item	STRUCTURE			<i>SchedulingRequestToAddMod</i> IE in TS 38.331 [22]
29656	>>>>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingRequestID</i> IE in TS 38.331 [22]	
29657	>>>>>SR Prohibit Timer	ELEMENT	FALSE	<i>sr-ProhibitTimer</i> IE in TS 38.331 [22]	
29658	>>>>>SR Transmission Max	ELEMENT	FALSE	<i>sr-TransMax</i> IE in TS 38.331 [22]	
29659	>>>List of Scheduling Requests for release	LIST			<i>schedulingRequestToReleaseList</i> IE in TS 38.331 [22]

29660	>>>>Scheduling Request Item	STRUCTURE			
29661	>>>>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingRequestId</i> IE in TS 38.331 [22]	
29662	>>>>>SR Prohibit Timer	ELEMENT	FALSE	<i>sr-ProhibitTimer</i> 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-Timer</i> IE in TS 38.331 [22]	
29677	>>>Retx BSR Timer	ELEMENT	FALSE	<i>retxBSR-Timer</i> IE in TS 38.331 [22]	
29578	>>>Logical Channel SR Delay Timer	ELEMENT	FALSE	<i>logicalChannelSR-DelayTimer</i> IE in TS 38.331 [22]	

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### 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	<i>PDU Session ID</i> IE in TS 38.413 [11] Section 9.3.1.50	
30002	PDU Session	STRUCTURE		8.1.1.16	
30003	List of QoS Flows to be setup	LIST			<i>QoS Flow Setup Request List</i> IE in TS 38.413 [11] Section 9.3.4.1
30004	>QoS flow setup request item	STRUCTURE			<i>QoS Flow Setup Request Item</i> IE in TS 38.413 [11] Section 9.3.4.1
30005	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.413 [11] Section 9.3.1.51	
30006	>>QoS flow	STRUCTURE		8.1.1.6	
30010	List of QoS Flows failed to be setup	LIST			<i>QoS Flow Failed To Setup List</i> IE in TS 38.413 [11] Section 9.3.4.2
30011	>QoS flow item failed for setup	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.413 [11] Section 9.3.1.13
30012	>>QoS Flow Indicator	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.413 [11] Section 9.3.1.51	
30013	>>QoS flow	STRUCTURE		8.1.1.6	
30014	>>Cause	STRUCTURE			<i>Cause</i> IE in TS 38.413 [11] Section 9.3.1.2
30015	>>>CHOICE <i>Cause group</i>	STRUCTURE			<i>Cause Group</i> IE in TS 38.413 [11] Section 9.3.1.2
30016	>>>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer</i> IE in TS 38.413 [11] Section 9.3.1.2
30017	>>>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	

30018	>>>>Transport Layer	STRUCTURE			<i>Transport Layer IE</i> in TS 38.413 [11] Section 9.3.1.2
30019	>>>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause IE</i> in TS 38.463 [21] Section 9.3.1.2	
30020	>>>>NAS	STRUCTURE			<i>NAS IE</i> in TS 38.413 [11] Section 9.3.1.2
30021	>>>>>NAS Cause	ELEMENT	FALSE	<i>NAS Cause IE</i> in TS 38.413 [11] Section 9.3.1.2	
30022	>>>>Protocol	STRUCTURE			<i>Protocol IE</i> in TS 38.413 [11] Section 9.3.1.2
30023	>>>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause IE</i> in TS 38.413 [11] Section 9.3.1.2	
30024	>>>>Miscellaneous	STRUCTURE			<i>Misc IE</i> in TS 38.413 [11] Section 9.3.1.2
30025	>>>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause IE</i> in TS 38.413 [11] Section 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 <i>Primary Cell</i>	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</i> IE 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</i> IE in TS 38.413 [11] Section 9.3.1.50	
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</i> in TS 38.413 [11] Section 9.3.4.3
31004	>QoS flow add or modify request item	STRUCTURE			<i>QoS Flow Add or Modify Request Item</i> IE in TS 38.413 [11] Section 9.3.4.3
31005	>QoS Flow Indicator	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.413 [11] Section 9.3.1.51	
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</i> IE in TS 38.413 [11] Section 9.3.4.2
31013	>QoS flow item failed to be added or modified	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.413 [11] Section 9.3.1.13
31014	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.413 [11] Section 9.3.1.51	
31015	>>QoS flow	STRUCTURE		8.1.1.6	
31016	>>Cause	STRUCTURE			<i>Cause</i> IE in TS 38.413 [11] Section 9.3.1.2
31017	>>>CHOICE <i>Cause group</i>	STRUCTURE			<i>Cause Group</i> IE in TS 38.413 [11] Section 9.3.1.2
31018	>>>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer</i> IE in TS 38.413 [11] Section 9.3.1.2
31019	>>>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	
31020	>>>>Transport Layer	STRUCTURE			<i>Transport Layer</i> IE in TS 38.413 [11] Section 9.3.1.2
31021	>>>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	

31022	>>>>NAS	STRUCTURE			NAS IE in TS 38.413 [11] Section 9.3.1.2
31023	>>>>>NAS Cause	ELEMENT	FALSE	NAS Cause IE in TS 38.413 [11] Section 9.3.1.2	
31024	>>>>Protocol	STRUCTURE			Protocol IE in TS 38.413 [11] Section 9.3.1.2
31025	>>>>>Protocol Cause	ELEMENT	FALSE	Protocol Cause IE in TS 38.413 [11] Section 9.3.1.2	
31026	>>>>Miscellaneous	STRUCTURE			Misc IE in TS 38.413 [11] Section 9.3.1.2
31027	>>>>>Miscellaneous Cause	ELEMENT	FALSE	Miscellaneous Cause IE in TS 38.413 [11] Section 9.3.1.2	
31031	List of QoS Flows to be released	LIST			QoS Flow To Release List IE in TS 38.413 [11] Section 9.3.4.2
31032	>QoS flow item to be released	STRUCTURE			QoS Flow Item IE in TS 38.413 [11] Section 9.3.1.13
31033	>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.413 [11] Section 9.3.1.51	
31034	>>QoS flow	STRUCTURE		8.1.1.6	
31035	>>Cause	STRUCTURE			Cause IE in TS 38.413 [11] Section 9.3.1.2
31036	>>>CHOICE Cause group	STRUCTURE			Cause Group IE in TS 38.413 [11] Section 9.3.1.2
31037	>>>>Radio Network Layer	STRUCTURE			Radio Network Layer IE in TS 38.413 [11] Section 9.3.1.2
31038	>>>>>Radio Network Layer Cause	ELEMENT		Radio Network Layer Cause IE in TS 38.413 [11] Section 9.3.1.2	
31039	>>>>Transport Layer	STRUCTURE			Transport Layer IE in TS 38.413 [11] Section 9.3.1.2
31040	>>>>>Transport Layer Cause	ELEMENT	FALSE	Transport Layer Cause IE in TS 38.463 [21] Section 9.3.1.2	
31041	>>>>NAS	STRUCTURE			NAS IE in TS 38.413 [11] Section 9.3.1.2
31042	>>>>>NAS Cause	ELEMENT	FALSE	NAS Cause IE in TS 38.413 [11] Section 9.3.1.2	
31043	>>>>Protocol	STRUCTURE			Protocol IE in TS 38.413 [11] Section 9.3.1.2

31044	>>>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	
31045	>>>>Miscellaneous	STRUCTURE			<i>Misc</i> IE in TS 38.413 [11] Section 9.3.1.2
31046	>>>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	
31051	MR-DC Usage Information	STRUCTURE			<i>MR-DC Usage Information</i> IE in TS 38.463 [21] Section 9.3.1.63
31052	>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type</i> IE in TS 38.463 [21] Section 9.3.1.63	
31053	>PDU Session Timed Report List	LIST			<i>Data Usage Report List</i> IE in TS 38.463 [21] Section 9.3.1.64
31054	>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item</i> IE in TS 38.463 [21] Section 9.3.1.64
31055	>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
31075	>>>End Timestamp	ELEMENT	FALSE	<i>End timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
31056	>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	
31057	>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	
31061	MR-DC Usage for QoS flows	LIST			<i>Data Usage Per QoS Flow List</i> IE in TS 38.463 [21] Section 9.3.1.63
31062	>QoS Flow Item	STRUCTURE			<i>Data Usage Per QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.63
31063	>>QoS flow Indicator	ELEMENT	TRUE	<i>QoS Flow Indicator</i> IE in TS 38.463 [21] Section 9.3.1.24	
31064	>>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type</i> IE in TS 38.463 [21] Sec 9.3.1.63	



31065	>>QoS Flow Timed Report List	LIST			<i>Data Usage Report List</i> IE in TS 38.463 [21] Section 9.3.1.64
31066	>>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item</i> IE in TS 38.463 [21] Section 9.3.1.64
31067	>>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
31068	>>>>End timestamp	ELEMENT	FALSE	<i>End timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
31069	>>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	
31070	>>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 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</i> IE 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</i> IE in TS 38.423 [15] clause 9.2.3.25
31083	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR Cell</i> IE in TS 38.423 [15] clause 9.2.3.25
31084	>>E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell</i> IE in TS 38.423 [15] clause 9.2.3.25

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### 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</i> IE in TS 38.413 [11] Section 9.3.1.50	
32002	PDU Session	STRUCTURE		8.1.1.16	
32011	Cause	STRUCTURE			<i>Cause</i> IE in TS 38.413 [11] Section 9.3.1.2
32012	>CHOICE <i>Cause group</i>	STRUCTURE			<i>Cause Group</i> IE in TS 38.413 [11] Section 9.3.1.2
32013	>>Radio Network Layer	STRUCTURE			<i>Radio Network Layer</i> IE in TS 38.413 [11] Section 9.3.1.2
32014	>>>Radio Network Layer Cause	ELEMENT	FALSE	<i>Radio Network Layer Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	
32015	>>Transport Layer	STRUCTURE			<i>Transport Layer</i> IE in TS 38.413 [11] Section 9.3.1.2
32016	>>>Transport Layer Cause	ELEMENT	FALSE	<i>Transport Layer Cause</i> IE in TS 38.463 [21] Section 9.3.1.2	
32017	>>NAS	STRUCTURE			<i>NAS</i> IE in TS 38.413 [11] Section 9.3.1.2
32018	>>>NAS Cause	ELEMENT	FALSE	<i>NAS Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	
32019	>>Protocol	STRUCTURE			<i>Protocol</i> IE in TS 38.413 [11] Section 9.3.1.2
32020	>>>Protocol Cause	ELEMENT	FALSE	<i>Protocol Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	
32021	>>Miscellaneous	STRUCTURE			<i>Misc</i> IE in TS 38.413 [11] Section 9.3.1.2
32022	>>>Miscellaneous Cause	ELEMENT	FALSE	<i>Miscellaneous Cause</i> IE in TS 38.413 [11] Section 9.3.1.2	
32031	MR-DC Usage Information	STRUCTURE			<i>MR-DC Usage Information</i> IE in TS 38.463 [21] Section 9.3.1.63

32032	>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type</i> IE in TS 38.463 [21] Section 9.3.1.63	
32033	>PDU Session Timed Report List	LIST			<i>Data Usage Report List</i> IE in TS 38.463 [21] Section 9.3.1.64
32034	>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item</i> IE in TS 38.463 [21] Section 9.3.1.64
32035	>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
32036	>>>End Timestamp	ELEMENT	FALSE	<i>End timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
32037	>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	
32038	>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	
32041	MR-DC Usage for QoS flows	LIST			<i>Data Usage Per QoS Flow List</i> IE in TS 38.463 [21] Section 9.3.1.63
32042	>QoS Flow Item	STRUCTURE			<i>Data Usage Per QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.63
32043	>>QoS flow Indicator	ELEMENT	TRUE	<i>QoS Flow Indicator</i> IE in TS 38.463 [21] Sec 9.3.1.24	
32054	>>QoS flow	STRUCTURE		8.1.1.6	
32044	>>Secondary RAT Type	ELEMENT	FALSE	<i>Secondary RAT Type</i> IE in TS 38.463 [21] Section 9.3.1.63	
32045	>>QoS Flow Timed Report List	LIST			<i>Data Usage Report List</i> IE in TS 38.463 [21] Section 9.3.1.64
32046	>>>MR-DC Data Usage Report Item	STRUCTURE			<i>Data Report Usage Item</i> IE in TS 38.463 [21] Section 9.3.1.64
32047	>>>>Start Timestamp	ELEMENT	FALSE	<i>Start timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	

32048	>>>>End timestamp	ELEMENT	FALSE	<i>End timestamp</i> IE in TS 38.463 [21] Section 9.3.1.64	
32049	>>>>Usage Count UL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	
32050	>>>>Usage Count DL	ELEMENT	FALSE	<i>Usage count DL</i> IE in TS 38.463 [21] Section 9.3.1.64	
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</i> <i>Global ID</i> IE 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</i> IE in TS 38.423 [15] clause 9.2.3.25
32063	>>NR SpCell	STRUCTURE		8.1.1.1	<i>NR Cell</i> IE in TS 38.423 [15] clause 9.2.3.25
32064	>>E-UTRA PCell	STRUCTURE		8.1.1.2	<i>E-UTRA Cell</i> IE in TS 38.423 [15] clause 9.2.3.25

1

## 8.1.3 RAN Parameters for UE Identification

The following RAN Parameters are defined for identification of UEs.

3

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 Section 8.4.9.1.	To identify UEs associated to a specific Explicit UE List ID defined in Section 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

## 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 Event Trigger Definition Format 1	If used in Event Trigger Definition Format 1	If used in Indication Message Format 1
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 Section 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 Section 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 Section 9.3.36 This shall be used to report the SpCell ID where the UE belongs to during reporting.

1

2

## 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 Section 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 Section 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 Section 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 Section 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 Section 9.3.36 This shall be used to report the SpCell ID where the UE belongs to during reporting.
7	UE Information	Defined in Section 8.1.1.17			

2

3

## 8.2.3 RAN Parameters for Report Service Style 3

RAN Parameter ID	RAN Parameter Name	Semantics Description
1	Cell Context Information	<i>Served Cell Information</i> 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.

4



3	Neighbour Relation Table	This shall be used to report neighbour relation information of the serving cells.
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1

## 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 Section 8.1.1.8 L2 Bearer State Variables for PDCP State Variables					
RLC UM UE Variables	Defined in Section 8.1.1.8 L2 Bearer State Variables for RLC UM State Variables					
RLC AM UE Variables	Defined in Section 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	
	102	DL Buffer Occupancy	ELEMENT	FALSE	INTEGER	DL Buffer Occupancy at RLC. Expressed as absolute values in terms of Number of Kilo Bytes (KB)
RRC State	201	Current RRC State	ELEMENT	FALSE	Defined in Section 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 Section 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 Section 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 Section 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 Section 9.3.36. This shall be used to report the SpCell ID where the UE belongs to during reporting.

2

## 8.2.5 RAN Parameters for Report Service Style 5

RAN Parameter ID	RAN Parameter Name	Semantics Description
1	UE Context Information	The RETRIEVE UE CONTEXT RESPONSE message content in TS 38.423 [15] clause 9.1.1.9. This shall be used to report UE Context information.
2	Cell Context Information	<i>Served Cell Information</i> IE in TS 38.473 [19] clause 9.3.1.10. This shall be used to report Cell Context information.
3	Neighbour Relation Table	This shall be used to report neighbour relation information of the serving cells.

## 8.3 RAN parameters for INSERT services

### 8.3.1 Approach

The approach for RAN parameters associated with Insert service is provided in Section 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 Section 8.4.2.1.

#### 8.3.2.2 QoS flow mapping configuration request

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

#### 8.3.2.3 Logical channel configuration request

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

#### 8.3.2.4 Radio Bearer Admission Control request

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

#### 8.3.2.5 DRB Termination Control request

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

#### 8.3.2.6 DRB Split Ratio Control request

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

### 8.3.2.7 PDCP Duplication Control request

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

## 8.3.3 Radio Resource Allocation request

### 8.3.3.1 DRX Parameter Configuration request

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

### 8.3.3.2 Scheduling Request Parameter Configuration request

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

### 8.3.3.4 Configured Grant Configuration request

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

### 8.3.3.5 CQI table configuration request

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

### 8.3.4.2 Conditional Handover Control request

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

### 8.3.4.3 DAPS Handover Control request

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

### 8.3.5.2 RACH backoff control request

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

### 8.3.5.3 Access barring control request

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

### 8.3.5.4 RRC Connection Release request

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

### 8.3.5.5 RRC Connection Reject request

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

### 8.3.7.2 Secondary cell Modification control request

The RAN parameters associated with this Insert Indication are listed in Section 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 Section 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 Section 8.1.1.17.

### 8.3.9.2 E2 Node Context Information

The associated RAN parameters are given in Section 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 Section 8.0.

### 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

1 the IEs corresponding to one or more of parameters described below in the related interface messages. If the *DRB ID* is  
2 missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

3

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.463 [21] Section 9.3.1.16	
2	5QI	ELEMENT	FALSE	<i>5QI</i> IE in TS 38.463 [21] Section 9.3.1.27 or TS 38.463 [21] Section 9.3.1.28	
3	Packet Delay Budget	ELEMENT	FALSE	<i>Packet Delay Budget</i> IE in TS 38.463 [21] Section 9.3.1.47	
4	Packet Error Rate	STRUCTURE			<i>Packet Error Rate</i> IE in TS 38.463 [21] Section 9.3.1.48
5	>Scalar factor	ELEMENT	FALSE	<i>Scalar</i> IE in TS 38.463 [21] Section 9.3.1.48	
6	>Exponent factor	ELEMENT	FALSE	<i>Exponent</i> IE in TS 38.463 [21] Section 9.3.1.48	
7	NG-RAN DRB Allocation and Retention Priority	STRUCTURE			<i>NG-RAN Allocation and Retention Priority</i> IE in TS 38.463 [21] Section 9.3.1.29
8	>Priority Level	ELEMENT	FALSE	<i>Priority Level</i> IE in TS 38.463 [21] Section 9.3.1.29	
9	>Pre-emption Capability	ELEMENT	FALSE	<i>Pre-emption Capability</i> IE in TS 38.463 [21] Section 9.3.1.29	
10	>Pre-emption Vulnerability	ELEMENT	FALSE	<i>Pre-emption Vulnerability</i> IE in TS 38.463 [21] Section 9.3.1.29	
11	Priority Level of the mapped QoS flows	ELEMENT	FALSE	<i>Priority Level</i> IE in TS 38.463 [21] Section 9.3.1.51	
12	QoS parameters for GBR flows in NG-RAN Bearer	STRUCTURE			<i>GBR QoS Flow Information</i> IE in TS 38.463 [21] Section 9.3.1.30
13	>Maximum Flow Bit Rate Downlink	ELEMENT	FALSE	<i>Bit Rate</i> IE in TS 38.463 [21] Section 9.3.1.30	
14	>Guaranteed Flow Bit Rate Downlink	ELEMENT	FALSE	<i>Bit Rate</i> IE in TS 38.463 [21] Section 9.3.1.30	
15	>Maximum Packet Loss Rate Downlink	ELEMENT	FALSE	<i>Packet Loss Rate</i> IE in TS 38.463 [21] Section 9.3.1.30	
16	>Maximum Flow Bit Rate Uplink	ELEMENT	FALSE	<i>Bit Rate</i> IE in TS 38.463 [21] Section 9.3.1.30	
17	>Guaranteed Flow Bit Rate Uplink	ELEMENT	FALSE	<i>Bit Rate</i> IE in TS 38.463 [21] Section 9.3.1.30	
18	>Maximum Packet Loss Rate Uplink	ELEMENT	FALSE	<i>Packet Loss Rate</i> IE in TS 38.463 [21] Section 9.3.1.30	
19	QoS Monitoring Enable Request	ELEMENT	FALSE	<i>QoS Monitoring Request</i> IE in TS 38.463 [21] Section 9.3.1.26	
20	QoS Monitoring Reporting Frequency	ELEMENT	FALSE	<i>QoS Monitoring Reporting Frequency</i> IE in TS 38.463 [21] Section 9.3.1.26	
21	QoS Monitoring Disabled	ELEMENT	FALSE	<i>QoS Monitoring Disabled</i> IE in TS 38.463 [21] Section 9.3.1.26	
22	Reflective QoS Mapping	ELEMENT	FALSE	<i>RDI</i> IE in TS 38.463 [21] Section 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</i> IE in TS 38.463 [21] Section 9.3.1.16	
2	List of QoS Flows to be modified in DRB	LIST			<i>Flow Mapping Information</i> IE in TS 38.463 [21] Section 9.3.1.26
3	>QoS Flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.12
4	>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.24	
5	>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication</i> IE in TS 38.463 [21] Section 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*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	<i>DRB-Identity</i> IE in TS 38.331 [22] Section 6	
2	Logical Channel ID	ELEMENT	FALSE	<i>LogicalChannelIdentity</i> IE in TS 38.331 [22] Section 6	
3	List of cell groups to be added	LIST			<i>Cell Group To Add</i> IE in TS 38.463 [21] Section 9.3.3.11
4	>Cell group item	STRUCTURE			<i>Cell Group Item</i> IE in TS 38.463 [21] Section 9.3.1.11
5	>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID</i> IE in TS 38.463 [21] Section 9.3.1.11	
6	>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 38.463 [21] Section 9.3.1.33	
7	List of cell groups to be modified	LIST			<i>Cell Group To Modify</i> IE in TS 38.463 [21] Section 9.3.1.11
8	>Cell group item	STRUCTURE			<i>Cell Group Item</i> IE in TS 38.463 [21] Section 9.3.1.11
9	>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID</i> IE in TS 38.463 [21] Section 9.3.1.11	
10	>>UL Configuration	ELEMENT	FALSE	<i>UL Configuration</i> IE in TS 38.463 [21] Section 9.3.1.11	
11	List of cell groups to be removed	LIST			<i>Cell Group To Remove</i> IE in TS 38.463 [21] Section 9.3.1.11
12	>Cell group item	STRUCTURE			<i>Cell Group Item</i> IE in TS 38.463 [21] Section 9.3.1.11
13	>>Cell Group ID	ELEMENT	FALSE	<i>Cell Group ID</i> IE in TS 38.463 [21] Section 9.3.1.11	
14	Uplink Specific Parameters	STRUCTURE			<i>ul-SpecificParameters</i> IE in TS 38.331 [22] Section 6
15	>Priority	ELEMENT	FALSE	<i>priority</i> IE in TS 38.331 [22] Section 6	
16	>Prioritized Bit rate	ELEMENT	FALSE	<i>prioritisedBitRate</i> IE in TS 38.331 [22] Section 6	
17	>Bucket Size Duration	ELEMENT	FALSE	<i>bucketSizeDuration</i> IE in TS 38.331 [22] Section 6	
18	>List of Allowed Serving Cells	LIST			<i>allowedServingCells</i> IE in TS 38.331 [22] Section 6
19	>>Allowed Serving Cell Item	STRUCTURE			
20	>>>Serving Cell Index	ELEMENT	FALSE	<i>ServCellIndex</i> IE in TS 38.331 [22] Section 6	
21	>List of Allowed SCS Configuration	LIST			<i>allowedSCS-List</i> IE in TS 38.331 [22] Section 6
22	>>Allowed SCS Configuration Item	STRUCTURE			

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

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#### 8.4.2.4 Radio Bearer Admission Control

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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	<i>DRB ID</i> IE in TS 38.463 [21] Section 9.3.1.16	
2	List of cell groups to be added	LIST			<i>Cell Group To Add</i> IE in TS 38.463 [21] Section 9.3.3.11
3	>Cell group item	STRUCTURE			<i>Cell Group Item</i> IE in TS 38.463 [21] Section 9.3.1.11
4	>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID</i> IE in TS 38.463 [21] Section 9.3.1.11	
5	SDAP Configuration	STRUCTURE			<i>SDAP Configuration</i> IE in TS 38.463 [21] Section 9.3.1.39
6	>PDU Session ID	ELEMENT	FALSE	<i>PDU-SessionID</i> IE in TS 38.331 [22] Sec 6	
7	>Default DRB	ELEMENT	FALSE	<i>Default DRB</i> IE in TS 38.463 [21] Section 9.3.1.39	
8	PDCP Configuration	STRUCTURE			<i>PDCP Configuration</i> IE in TS 38.463 [21] Section 9.3.1.38
9	>RLC mode	ELEMENT	FALSE	<i>RLC mode</i> IE in TS 38.463 [21] Section 9.3.1.38	
10	>PDCP Duplication	ELEMENT	FALSE	<i>PDCP Duplication</i> IE in TS 38.463 [21] Section 9.3.1.38	
11	>UL Data Split Threshold	ELEMENT	FALSE	<i>UL Data Split Threshold</i> IE in TS 38.463 [21] Section 9.3.1.43	
12	>PDCP Re-establishment	ELEMENT	FALSE	<i>PDCP Re-establishment</i> IE in TS 38.463 [21] Section 9.3.1.38	
13	>PDCP Data Recovery	ELEMENT	FALSE	<i>PDCP Data Recovery</i> IE in TS 38.463 [21] Section 9.3.1.38	
14	>Out-of-Order Delivery	ELEMENT	FALSE	<i>Out of Order Delivery</i> IE in TS 38.463 [21] Section 9.3.1.38	
15	>PDCP Status Report Indication	ELEMENT	FALSE	<i>PDCP Status Report Indication</i> IE in TS 38.463 [21] Section 9.3.1.38	
16	>Number of PDCP duplication	ELEMENT	FALSE	<i>Additional PDCP duplication Information</i> IE in TS 38.463 [21] Section 9.3.1.38	
17	>UL More than one RLC	STRUCTURE			<i>moreThanOneRLC</i> IE in TS 38.331 [22] Section 6
18	>>Primary Path	STRUCTURE			<i>primaryPath</i> IE in TS 38.331 [22] Section 6
19	>>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
20	>>>Logical Channel ID	ELEMENT	FALSE	<i>logicalChannel</i> IE in TS 38.331 [22] Sec 6	
21	>UL More than two RLC	STRUCTURE			<i>moreThanTwoRLC-DRB-r16</i> IE in TS 38.331 [22] Section 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	
17	>DL More than one RLC	STRUCTURE			<i>moreThanOneRLC</i> IE in TS 38.331 [22] Section 6
18	>>Primary Path	STRUCTURE			<i>primaryPath</i> IE in TS 38.331 [22] Section 6
19	>>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 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] Section 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	

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#### 2 8.4.2.5 DRB Termination Control

3 Upon receiving the *RIC Control Request* message, the E2 node shall invoke procedures related to DRB Termination  
4 change, such as *Dual Connectivity Secondary Node Modification (MN/SN initiated)*, *UE Context Management*, *RRC*  
5 *Message Transfer*, etc. and include the IEs corresponding to one or more of parameters described below in the related  
6 interface messages. If the *DRB ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control*  
7 *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</i> IE in TS 38.423 [15] Section 9.2.1.11
2	>DRB Item to be modified to SN-Termination	STRUCTURE			<i>DRBs To Be Modified Item</i> IE in TS 38.423 [15] Section 9.2.1.11
3	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.423 [15] Section 9.2.3.33	
4	>>Logical Channel ID	ELEMENT	FALSE	<i>LCID</i> IE in TS 38.423 [15] Section 9.2.3.70	
5	>>RLC Status	ELEMENT	FALSE	<i>RLC Status</i> IE in TS 38.423 [15] Section 9.2.3.80	
6	>>List of QoS flows to be modified to SN-Termination	LIST			<i>QoS Flows List</i> IE in TS 38.423 [15] Section 9.2.1.15
7	>>>QoS flow item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.423 [15] Section 9.2.1.15
8	>>>>QoS flow ID	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.1.15	
9	>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication</i> IE in TS 38.423 [15] Section 9.2.1.15	
10	List of DRBs to be modified to MN-Termination	LIST			<i>DRBs To Be Modified</i> IE in TS 38.423 [15] Section 9.2.1.9
11	>DRB Item to be modified to MN-Termination	STRUCTURE			<i>DRBs To Be Modified Item</i> IE in TS 38.423 [15] Section 9.2.1.9
12	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.423 [15] Section 9.2.3.33	
13	>>Logical Channel ID	ELEMENT	FALSE	<i>LCID</i> IE in TS 38.423 [15] Section 9.2.3.70	
14	>>RLC Status	ELEMENT	FALSE	<i>RLC Status</i> IE in TS 38.423 [15] Section 9.2.3.80	
15	>>List of QoS flows to be modified to SN-Termination	LIST			<i>QoS Flows List</i> IE in TS 38.423 [15] Section 9.2.1.15
16	>>>QoS flow item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.423 [15] Section 9.2.1.15
17	>>>>QoS flow ID	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.1.15	
18	>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication</i> IE in TS 38.423 [15] Section 9.2.1.15	

### 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</i> IE in TS 38.463 [21] Section 9.3.1.16	
2	Uplink PDCP Data Split Threshold	ELEMENT	FALSE	<i>UL Data Split Threshold</i> IE in TS 38.463 [21] Section 9.3.1.43	
3	Downlink PDCP Data Split	ELEMENT	FALSE	INTEGER (0..100) Defined in Section 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*.

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
1	DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.463 [21] Section 9.3.1.16	
2	PDCP Duplication	ELEMENT	FALSE	<i>PDCP Duplication</i> IE in TS 38.463 [21] Section 9.3.1.38	
3	UL More Than One RLC	STRUCTURE			<i>moreThanOneRLC</i> IE in TS 38.331 [22]
4	>Primary Path	STRUCTURE			<i>primaryPath</i> IE in TS 38.331 [22] Section 6
5	>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
6	>>>Logical Channel ID	ELEMENT	FALSE	<i>logicalChannel</i> IE in TS 38.331 [22] Sec 6	
7	UL More Than Two RLC	STRUCTURE			<i>moreThanTwoRLC-DRB-r16</i> IE in TS 38.331 [22] Section 6
8	>Split Secondary Path	ELEMENT	FALSE	<i>splitSecondaryPath</i> IE in TS 38.331 [22] Sec 6	
9	>Duplication State	ELEMENT	FALSE	<i>duplicationState</i> IE in TS 38.331 [22] Sec 6	
10	PDCP Duplication Activation	ELEMENT	FALSE	<i>Duplication Activation</i> IE in TS 38.463 [21] Section 9.3.1.38	
11	Number of PDCP duplication	ELEMENT	FALSE	<i>Additional PDCP duplication Information</i> IE in TS 38.463 [21] Section 9.3.1.38	

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## 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	<i>Long DRX Cycle Length</i> IE in TS 38.473 [19] Section 9.3.1.24	
2	Short DRX Cycle Length	ELEMENT	FALSE	<i>Short DRX Cycle Length</i> IE in TS 38.473 [19] Section 9.3.1.24	
3	Short DRX Cycle Timer	ELEMENT	FALSE	<i>Short DRX Cycle Timer</i> IE in TS 38.473 [19] Section 9.3.1.24	

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### 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

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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</i> IE in TS 38.331 [22]
2	>Scheduling Request Item	STRUCTURE			<i>SchedulingRequestToAddMod</i> IE in TS 38.331 [22]
3	>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingRequestId</i> IE in TS 38.331 [22]	
4	>>SR Prohibit Timer	ELEMENT	FALSE	<i>sr-ProhibitTimer</i> IE in TS 38.331 [22]	
5	>>SR Transmission Max	ELEMENT	FALSE	<i>sr-TransMax</i> IE in TS 38.331 [22]	
6	List of Scheduling Requests for release	LIST			<i>schedulingRequestToReleaseList</i> IE in TS 38.331 [22]
7	>Scheduling Request Item	STRUCTURE			
8	>>Scheduling Request ID	ELEMENT	TRUE	<i>SchedulingRequestId</i> IE in TS 38.331 [22]	

#### 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</i> IE in TS 38.331 [22] Section
2	>SPS Periodicity	ELEMENT	FALSE	<i>periodicity</i> IE in TS 38.331 [22] Section	
3	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-Processes</i> IE in TS 38.331 [22] Section	
4	>MCS Table	ELEMENT	FALSE	<i>mcs-Table</i> IE in TS 38.331 [22] Section	

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

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#### 8.4.3.5 CQI table 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. If the *CSI Report Config ID* is missing in the *RIC Control Request* message, the E2 node will send a *RIC Control Failure*.

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RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Param	RAN Parameter Definition	Semantics Description
1	List of CSI Report Configurations	LIST			<i>csi-ReportConfigToAddModList</i> IE in TS 38.331 [22] Section
2	>CSI Report Configuration Item	STRUCTURE			<i>CSI-ReportConfig</i> IE in TS 38.331 [22] Section
3	>>CSI Report Config ID	ELEMENT	TRUE	<i>CSI-ReportConfigID</i> IE in TS 38.331 [22] Section	
4	>>Carrier	ELEMENT	FALSE	<i>ServCellIndex</i> IE in TS 38.331 [22] Section	
5	>>CQI-FormatIndicator	ELEMENT	FALSE	<i>cqi-FormatIndicator</i> IE in TS 38.331 [22] Section	
6	>>PMI-FormatIndicator	ELEMENT	FALSE	<i>pmi-FormatIndicator</i> IE in TS 38.331 [22] Section	
7	>>CQI Table	ELEMENT	FALSE	<i>cqi-Table</i> IE in TS 38.331 [22] Section	
8	>>Sub-band size	ELEMENT	FALSE	<i>subbandSize</i> IE in TS 38.331 [22] Section	

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#### 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*.

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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.. <maxnoofRRMPolicyMembers>	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] Section 9.3.1.14	
8	>>>>>S-NSSAI	STRUCTURE			S-NSSAI IE in TS 38.473 [19] Section 9.3.1.38
9	>>>>>>SST	ELEMENT	FALSE	SST IE in TS 38.473 [19] Section 9.3.1.38	
10	>>>>>>SD	ELEMENT	FALSE	SD IE in TS 38.473 [19] Section 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>

## 8.4.4 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</i> IE in TS 38.423 [15] Section 9.2.3.25
2	>CHOICE Target Cell	STRUCTURE			<i>Target Cell</i> IE in TS 38.423 [15] Section 9.2.3.25
3	>>NR Cell	STRUCTURE			<i>NR</i> IE in TS 38.423 [15] Section 9.2.3.25
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI</i> IE in TS 38.423 [15] Section 9.2.2.7	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA</i> IE in TS 38.423 [15] Section 9.2.3.25
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI</i> IE in TS 38.423 [15] Section 9.2.2.8	
7	List of PDU sessions for handover	LIST			<i>PDU Session Resources To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
8	>PDU session Item for handover	STRUCTURE			<i>PDU Session Resources To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
9	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	
10	>>List of QoS flows in the PDU session	LIST			<i>QoS Flows To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
11	>>>QoS flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
12	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
13	List of DRBs for handover	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
14	>DRB item for handover	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
15	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
16	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup</i> IE in TS 38.463 [21] Section 9.3.3.2
17	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
18	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	
19	List of Secondary cells to be setup	LIST			<i>Scell To Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
20	>Secondary cell Item to be setup	STRUCTURE			<i>Scell To Be Setup Items</i> IE in TS 38.473 [19] Section 9.2.2.1

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

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

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

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

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

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## 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.

6

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</i> IE in TS 38.423 [15] clause 9.2.3.25
2	>CHOICE <i>Primary Cell</i>	STRUCTURE			<i>Target Cell</i> IE in TS 38.423 [15] clause 9.2.3.25
3	>>NR Cell	STRUCTURE			<i>NR</i> IE in TS 38.423 [15] Section 9.2.3.25
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI</i> IE in TS 38.423 [15] Section 9.2.2.7	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA</i> IE in TS 38.423 [15] Section 9.2.3.25
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI</i> IE in TS 38.423 [15] Section 9.2.2.8	
7	List of PDU sessions for admission	LIST			<i>PDU Session Resources To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
8	>PDU session Item for admission	STRUCTURE			<i>PDU Session Resources To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
9	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	
10	>>List of DRBs for admission	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
11	>>>DRB item for admission	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
12	>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
13	>>>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup</i> IE in TS 38.463 [21] Section 9.3.3.2
14	>>>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
15	>>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	
16	>>>>>QoS flow mapping indication	ELEMENT	TRUE	<i>QoS Flow Mapping Indication</i> IE in TS 38.463 [21] Section 9.3.1.60	
17	>>>List of cell groups to be added	LIST			<i>Cell Group To Add</i> IE in TS 38.463 [21] Section 9.3.3.11
18	>>>>Cell group item	STRUCTURE			<i>Cell Group Item</i> IE in TS 38.463 [21] Section 9.3.1.11
19	>>>>>Cell Group ID	ELEMENT	TRUE	<i>Cell Group ID</i> IE in TS 38.463 [21] Section 9.3.1.11	

20	>>>SDAP Configuration	STRUCTURE			<i>SDAP Configuration</i> IE in TS 38.463 [21] Section 9.3.1.39
21	>>>Default DRB	ELEMENT	FALSE	<i>Default DRB</i> IE in TS 38.463 [21] Section 9.3.1.39	
22	>>>PDCP Configuration	STRUCTURE			<i>PDCP Configuration</i> IE in TS 38.463 [21] Section 9.3.1.38
23	>>>RLC mode	ELEMENT	FALSE	<i>RLC mode</i> IE in TS 38.463 [21] Section 9.3.1.38	
24	>>>PDCP Duplication	ELEMENT	FALSE	<i>PDCP Duplication</i> IE in TS 38.463 [21] Section 9.3.1.38	
25	>>>UL Data Split Threshold	ELEMENT	FALSE	<i>UL Data Split Threshold</i> IE in TS 38.463 [21] Section 9.3.1.43	
26	>>>PDCP Re-establishment	ELEMENT	FALSE	<i>PDCP Re-establishment</i> IE in TS 38.463 [21] Section 9.3.1.38	
27	>>>PDCP Data Recovery	ELEMENT	FALSE	<i>PDCP Data Recovery</i> IE in TS 38.463 [21] Section 9.3.1.38	
28	>>>Out-of-Order Delivery	ELEMENT	FALSE	<i>Out of Order Delivery</i> IE in TS 38.463 [21] Section 9.3.1.38	
29	>>>PDCP Status Report Indication	ELEMENT	FALSE	<i>PDCP Status Report Indication</i> IE in TS 38.463 [21] Section 9.3.1.38	
30	>>>Number of PDCP duplication	ELEMENT	FALSE	<i>Additional PDCP duplication Information</i> IE in TS 38.463 [21] Section 9.3.1.38	
31	>>>UL More than one RLC	STRUCTURE			<i>moreThanOneRLC</i> IE in TS 38.331 [22] Section 6
32	>>>>Primary Path	STRUCTURE			<i>primaryPath</i> IE in TS 38.331 [22] Section 6
33	>>>>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
34	>>>>>Logical Channel ID	ELEMENT	FALSE	<i>logicalChannel</i> IE in TS 38.331 [22] Sec 6	
35	>>>UL More than two RLC	STRUCTURE			<i>moreThanTwoRLC-DRB-r16</i> IE in TS 38.331 [22] Section 6
36	>>>>Split Secondary Path	ELEMENT	FALSE	<i>splitSecondaryPath</i> IE in TS 38.331 [22] Sec 6	
37	>>>>Duplication State	ELEMENT	FALSE	<i>duplicationState</i> IE in TS 38.331 [22] Sec 6	
38	>>>DL More than one RLC	STRUCTURE			<i>moreThanOneRLC</i> IE in TS 38.331 [22] Section 6
39	>>>>Primary Path	STRUCTURE			<i>primaryPath</i> IE in TS 38.331 [22] Section 6

49	>>>>>Cell Group ID	ELEMENT	TRUE	<i>cellGroup</i> IE in TS 38.331 [22] Section 6	
50	>>>>>Logical Channel ID	ELEMENT	FALSE	<i>logicalChannel</i> IE in TS 38.331 [22] Sec 6	
51	>>>DL More than two RLC	STRUCTURE			<i>moreThanTwoRLC-DRB-r16</i> IE in TS 38.331 [22] Section 6
52	>>>>Split Secondary Path	ELEMENT	FALSE	<i>splitSecondaryPath</i> IE in TS 38.331 [22] Sec 6	
53	>>>>Duplication State	ELEMENT	FALSE	<i>duplicationState</i> IE in TS 38.331 [22] Sec 6	
54	List of Secondary cells to be setup	LIST			<i>Scell To Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
55	>Secondary cell Item to be setup	STRUCTURE			<i>Scell To Be Setup Items</i> IE in TS 38.473 [19] Section 9.2.2.1
56	>>Secondary cell ID	ELEMENT	FALSE	<i>Scell ID</i> IE in TS 38.473 [19] Section 9.2.2.1	

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#### 8.4.5.2 RACH backoff control

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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			<i>RACH-ConfigGeneric</i> IE in TS 38.331 [22] Section 6
2	>PRACH Configuration Index	ELEMENT	FALSE	<i>prach-ConfigurationIndex</i> IE in TS 38.331 [22] Sec 6	
3	>Zero correlation Zone Config	ELEMENT	FALSE	<i>zeroCorrelationZoneConfig</i> IE in TS 38.331 [22] Sec 6	
4	>Preamble Received Target Power	ELEMENT	FALSE	<i>preambleReceivedTargetPower</i> IE in TS 38.331 [22] Section 6	
5	>Preamble Transmission Max	ELEMENT	FALSE	<i>preambleTransMax</i> IE in TS 38.331 [22] Sec 6	
6	>Power Ramping Step High Priority	ELEMENT	FALSE	<i>powerRampingStep</i> IE in TS 38.331 [22] Sec 6	
7	>Random Access Response Window	ELEMENT	FALSE	<i>ra-ResponseWindow</i> IE in TS 38.331 [22] Sec 6	
8	Dedicated RACH Config Parameters	STRUCTURE			<i>RACH-ConfigDedicated</i> IE in TS 38.331 [22] Section 6
9	>Random Access Prioritization	STRUCTURE			<i>RA-Prioritization</i> IE in TS 38.331 [22] Sec 6
10	>>Scaling Factor for Backoff Indicator	ELEMENT	FALSE	<i>scalingFactorBI</i> IE in TS 38.331 [22] Sec 6	
11	>>Power Ramping Step High Priority	ELEMENT	FALSE	<i>powerRampingStepHighPriority</i> IE in TS 38.331 [22] Section 6	

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### 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.

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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] Section 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] Section 6	
6	>UAC Barring for PLMN List	LIST			<i>uac-BarringPerPLMN-List</i> IE in TS 38.331 [22] Section 6
7	>>UAC-BarringPerPLMN	STRUCTURE			<i>UAC-BarringPerPLMN</i> IE in TS 38.331 [22] Sec 6
8	>>>PLMN Identity Index	ELEMENT	TRUE	<i>plmn-IdentityIndex</i> IE in TS 38.331 [22] Sec 6	
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] Section 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] Section 6
14	>>>>>Barring Per Cat	STRUCTURE			<i>UAC-BarringPerCat</i> IE in TS 38.331 [22] Section 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] Section 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] Section 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] Section 6	
22	>CHOICE Access Category 1 – Selection Assistance Info	STRUCTURE			<i>uac-AccessCategory1-SelectionAssistanceInfo</i> IE in TS 38.331 [22] Sec 6
23	>>PLMN Common	ELEMENT	FALSE	<i>UAC-AccessCategory1-SelectAssistanceInfo</i> IE in TS 38.331 [22] Section 6	
24	>>Individual PLMN List	LIST			<i>individualPLMNList</i> IE in TS 38.331 [22] Section 6
25	>>>PLMN Item	STRUCTURE			
26	>>>>UAC Access Category 1 Selection Assistance Info	ELEMENT	FALSE	<i>UAC-AccessCategory1-SelectAssistanceInfo</i> IE in TS 38.331 [22] Section 6	

#### 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]	

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#### 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.

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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]	

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## 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*.

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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</i> in TS 38.423 [15] Section 9.2.2.3
2	>CHOICE Secondary Node Type	STRUCTURE			
3	>>Secondary Node gNB	STRUCTURE			<i>Global ng-eNB ID IE</i> in TS 38.423 [15] Section 9.2.2.1
4	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE</i> in TS 38.423 [15] Section 9.2.2.4	
5	>>>gNB ID	ELEMENT	FALSE	<i>gNB ID IE</i> in TS 38.423 [15] Section 9.2.2.1	
6	>>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID IE</i> in TS 38.423 [15] Section 9.2.2.2
7	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE</i> in TS 38.423 [15] Section 9.2.2.4	
8	>>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID IE</i> in TS 38.423 [15] Section 9.2.2.2	
9	>>Secondary Node en-gNB	STRUCTURE			<i>en-gNB IE</i> in TS 36.423 [17] Sec
10	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity IE</i> in TS 36.423 [17] Section 9.2.4	
11	>>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID IE</i> in TS 36.423 [17] Section 9.2.4	
12	List of PDU Sessions to be Added	LIST			<i>PDU Session Resources To Be Added List IE</i> in TS 38.423 [15] Section 9.1.2.1
13	>PDU Session to be Added Item	STRUCTURE			<i>PDU Session Resources To Be Added Item IE</i> in TS 38.423 [15] Section 9.1.2.1
14	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE</i> in TS 38.423 [15] Section 9.2.3.18	
15	>>PDU Session Resource Setup Info – SN-Terminated	STRUCTURE			<i>PDU Session Resource Setup Info – SN Terminated IE</i> in TS 38.423 [15] Section 9.2.1.5
16	>>>QoS Flow To Be Setup List	LIST			<i>QoS Flows To Be Setup List IE</i> in TS 38.423 [15] Section 9.2.1.5
17	>>>>QoS Flow Item	STRUCTURE			<i>QoS Flows To Be Setup Item IE</i> in TS 38.423 [15] Section 9.2.1.5

18	>>>>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.423 [15] Section 9.2.3.10	
19	>>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	QoS Flow Mapping Indication IE in TS 38.423 [15] Section 9.2.3.79	
20	>>>Default DRB allowed	ELEMENT	FALSE	Default DRB Allowed IE in TS 38.423 [15] Section 9.2.3.93	
21	>>PDU Session Resource Setup Info – MN-Terminated	STRUCTURE			PDU Session Resource Setup Info – SN Terminated IE in TS 38.423 [15] Section 9.2.1.7
22	>>>DRBs To Be Setup List	STRUCTURE			DRBs To Be Setup List IE in TS 38.423 [15] Section 9.2.1.7
23	>>>>DRB To Be Setup Item	STRUCTURE			DRBs To Be Setup Item IE in TS 38.423 [15] Section 9.2.1.7
24	>>>>>DRB ID	ELEMENT	TRUE	DRB ID IE in TS 38.463 [21] Section 9.3.1.16	
25	>>>>>QoS Flow To Be Setup List	LIST			QoS Flows To Be Setup List IE in TS 38.423 [15] Section 9.2.1.5
26	>>>>>>QoS Flow Item	STRUCTURE			QoS Flow Item IE in TS 38.423 [15] Section 9.2.3.10
27	>>>>>>QoS Flow Identifier	ELEMENT	TRUE	QoS Flow Identifier IE in TS 38.423 [15] Section 9.2.3.10	
28	>>>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	QoS Flow Mapping Indication IE in TS 38.423 [15] Section 9.2.3.79	
29	List of SN-terminated DRB IDs	LIST			Additional DRB IDs IE in TS 38.423 [15] Section 9.2.1.29
30	>SN-Terminated DRB Item	STRUCTURE			
31	>>DRB Identity	ELEMENT	TRUE	DRB ID IE in TS 38.473 [19] Section 9.3.1.8	
32	List of E-RABs to be Added	LIST			E-RABs To Be Added List IE in TS 36.423 [17] Section 9.1.4.1

33	>E-RAB to be Added Item	STRUCTURE			<i>E-RABs To Be Added Item</i> IE in TS 36.423 [17] Section 9.1.4.1
34	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID</i> IE in TS 36.423 [17] Section 9.2.23	
35	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration</i> IE in TS 36.423 [17] Section 9.2.108
36	>>>PDCP at SgNB	ELEMENT	FALSE	<i>PDCP at SgNB</i> IE in TS 36.423 [17] Section 9.2.108	
37	>>>MCG Resources	ELEMENT	FALSE	<i>MCG resources</i> IE in TS 36.423 [17] Section 9.2.108	
38	>>>SCG Resources	ELEMENT	FALSE	<i>SCG resources</i> IE in TS 36.423 [17] Section 9.2.108	

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#### 8.4.6.2 DC Secondary Node Modification Control

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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</i> IE in TS 38.423 [15] Section 9.2.2.3
2	CHOICE Secondary Node Type	STRUCTURE			
3	>Secondary Node gNB	STRUCTURE			<i>Global gNB ID</i> IE in TS 38.423 [15] Section 9.2.2.1
4	>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.423 [15] Section 9.2.2.4	
5	>>gNB ID	ELEMENT	FALSE	<i>gNB ID</i> IE in TS 38.423 [15] Section 9.2.2.1	
6	>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID</i> IE in TS 38.423 [15] Section 9.2.2.2
7	>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.423 [15] Section 9.2.2.4	
8	>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID</i> IE in TS 38.423 [15] Section 9.2.2.2	
9	>Secondary Node en-gNB	STRUCTURE			<i>en-gNB</i> IE in TS 36.423 [17] Sec
10	>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 36.423 [17] Section 9.2.4	
11	>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID</i> IE in TS 36.423 [17] Section 9.2.4	
12	List of PDU Session Resources to be modified	LIST			<i>PDU Session Resources To Be Modified List</i> IE in TS 38.423 [15] Section 9.1.2.5
13	>PDU Session Resource to be Modified Item	STRUCTURE			<i>PDU Session Resources To Be Modified Item</i> IE in TS 38.423 [15] Section 9.1.2.5
14	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	
15	>>PDU Session Resource Modification Info – SN-Terminated	STRUCTURE			<i>PDU Session Resource Modification Info – SN Terminated</i> IE in TS 38.423 [15] Section 9.2.1.9
16	>>>QoS Flows To Be Setup List	LIST			<i>QoS Flows To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.9
17	>>>>QoS Flow Item	STRUCTURE			<i>QoS Flows To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.9
18	>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	

19	>>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication</i> IE in TS 38.423 [15] Section 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</i> IE in TS 38.423 [15] Section 9.2.1.9
22	>>>>>QoS Flow Item	STRUCTURE			<i>QoS Flows To Be Modified Item</i> IE in TS 38.423 [15] Section 9.2.1.9
23	>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
24	>>>>>QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication</i> IE in TS 38.423 [15] Section 9.2.3.79	
25	>>>>>Redundant QoS Flow Indicator	ELEMENT	FALSE	<i>Redundant QoS Flow Indicator</i> IE in TS 38.423 [15] Section 9.2.3.118	
26	>>>>>QoS Flows To Be Released List	LIST			<i>QoS Flows To Be Released List</i> IE in TS 38.423 [15] Section 9.2.1.9
27	>>>>>QoS Flow Item	STRUCTURE			<i>QoS Flow With Cause Item</i> IE in TS 38.423 [15] Section 9.2.1.4
28	>>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
29	>>>>>Default DRB allowed	ELEMENT	FALSE	<i>Default DRB Allowed</i> IE in TS 38.423 [15] Section 9.2.3.93	
30	>>>>>PDU Session Resource Modification Info – MN-Terminated	STRUCTURE			<i>PDU Session Resource Modification Info – MN Terminated</i> IE in TS 38.423 [15] Section 9.2.1.11
31	>>>>>DRBs to be setup list	LIST			<i>DRBs To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.11
32	>>>>>DRBs to be setup item	STRUCTURE			<i>DRBs To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.11
33	>>>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.463 [21] Section 9.3.1.16	
34	>>>>>>DRB QoS	STRUCTURE			
35	>>>>>>PDCP Duplication Activation	ELEMENT	TRUE	<i>Duplication Activation</i> IE in TS 38.463 [21] Section 9.2.3.71	



36	>>>>>QoS Flows Mapped to DRB List	LIST			<i>QoS Flows Mapped to DRB List</i> IE in TS 38.463 [21] Section 9.2.1.11
37	>>>>>>QoS Flows Mapped to DRB Item	STRUCTURE			<i>QoS Flows Mapped To DRB Item</i> IE in TS 38.463 [21] Section 9.2.1.11
38	>>>>>>> QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
39	>>>>>>> QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication</i> IE in TS 38.423 [15] Section 9.2.3.79	
40	>>>>DRBs to be modified list	LIST			<i>DRBs To Be Modified List</i> IE in TS 38.463 [21] Section 9.2.1.11
41	>>>>>DRB to be modified item	STRUCTURE			<i>DRBs To Be Modified Item</i> IE in TS 38.463 [21] Section 9.2.1.11
42	>>>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.463 [21] Section 9.3.1.16	
43	>>>>>>DRB QoS	STRUCTURE			
44	>>>>>>PDCP Duplication Configuration	ELEMENT	FALSE	<i>PDCP Duplication Configuration</i> IE in TS 38.463 [21] Section 9.2.3.86	
45	>>>>>>PDCP Duplication Activation	ELEMENT	FALSE	<i>Duplication Activation</i> IE in TS 38.463 [21] Section 9.2.3.71	
46	>>>>>QoS Flows Mapped to DRB List	LIST			<i>Flow Mapping Information</i> IE in TS 38.463 [21] Section 9.3.1.26
47	>>>>>>>QoS Flows Mapped to DRB Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
48	>>>>>>> QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
49	>>>>>>> QoS Flow Mapping Indication	ELEMENT	FALSE	<i>QoS Flow Mapping Indication</i> IE in TS 38.423 [15] Section 9.2.3.79	
50	>>>>DRBs to be released list	LIST			<i>DRBs To Be Released List</i> IE in TS 38.423 [15] Section 9.2.1.28
51	>>>>>DRB to be released item	STRUCTURE			<i>DRBs To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.11

52	>>>>>DRB ID	ELEMENT	TRUE	<i>DRB ID IE</i> in TS 38.463 [21] Section 9.3.1.16	
53	List of PDU Session Resources to be deleted	LIST			<i>PDU Session Resources To Be Released List IE</i> in TS 38.423 [15] Section 9.1.2.5
54	>PDU Session Resource to be deleted Item	STRUCTURE			<i>PDU Session Resource To Be Released Item IE</i>
55	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID IE</i> in TS 38.423 [15] Section 9.2.3.18	
56	List of E-RABs to be Modified	LIST			<i>E-RABs To Be Modified List IE</i> in TS 36.423 [17] Section 9.1.4.5
57	>E-RAB to be Modified Item	STRUCTURE			<i>E-RAB To Be Modified Item IE</i> in TS 36.423 [17] Section 9.1.4.5
58	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID IE</i> in TS 36.423 [17] Section 9.2.23	
59	>>EN-DC Resource Configuration	STRUCTURE			<i>EN-DC Resource Configuration IE</i> in TS 36.423 [17] Section 9.2.108
60	>>>PDCP at SgNB	ELEMENT	FALSE	<i>PDCP at SgNB IE</i> in TS 36.423 [17] Section 9.2.108	
61	>>>MCG Resources	ELEMENT	FALSE	<i>MCG resources IE</i> in TS 36.423 [17] Section 9.2.108	
62	>>>SCG Resources	ELEMENT	FALSE	<i>SCG resources IE</i> in TS 36.423 [17] Section 9.2.108	
63	List of E-RABs to be Released	LIST			<i>E-RABs To Be Released List IE</i> in TS 36.423 [17] Section 9.1.4.5
64	>E-RAB to be Released Item	STRUCTURE			<i>E-RABs To Be Released Item IE</i> in TS 36.423 [17] Section 9.1.4.5
65	>>E-RAB ID	ELEMENT	TRUE	<i>E-RAB ID IE</i> in TS 36.423 [17] Section 9.2.23	

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### 2 8.4.6.3 PSCell Change control for Secondary Cell Group

3 Upon receiving the *RIC Control Request* message, in the case of intra-SN PSCell change, the E2 node shall invoke  
4 procedures related to PSCell Change Control, such as *Dual Connectivity Secondary Node Modification*, *UE Context*  
5 *Modification*, *RRC Message Transfer*, etc. In the case of inter-SN PSCell change, the E2 node shall invoke procedures  
6 such as *Dual Connectivity Secondary Node Release* (MN/SN-initiated) or *SN Change* (only SN-initiated), *Bearer*  
7 *Context Modification*, *UE Context Modification*, *RRC Message Transfer*, etc. The E2 node then includes the IEs  
8 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</i> IE in TS 38.423 [15] Section 9.2.3.25
2	>CHOICE Target Cell	STRUCTURE			<i>Target Cell</i> IE in TS 38.423 [15] Section 9.2.3.25
3	>>NR Cell	STRUCTURE			<i>NR</i> IE in TS 38.423 [15] Section 9.2.3.25
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI</i> IE in TS 38.423 [15] Section 9.2.2.7	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA</i> IE in TS 38.423 [15] Section 9.2.3.25
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI</i> IE in TS 38.423 [15] Section 9.2.2.8	
7	Secondary Node ID	STRUCTURE			<i>Global NG-RAN Node ID</i> IE in TS 38.423 [15] Section 9.2.2.3
8	>CHOICE Secondary Node Type	STRUCTURE			
9	>>Secondary Node gNB	STRUCTURE			<i>Global gNB ID</i> IE in TS 38.423 [15] Section 9.2.2.1
10	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.423 [15] Section 9.2.2.4	
11	>>>gNB ID	ELEMENT	FALSE	<i>gNB ID</i> IE in TS 38.423 [15] Section 9.2.2.1	
12	>>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID</i> IE in TS 38.423 [15] Section 9.2.2.2
13	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.423 [15] Section 9.2.2.4	
14	>>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID</i> IE in TS 38.423 [15] Section 9.2.2.2	
15	>>Secondary Node en-gNB	STRUCTURE			<i>en-gNB</i> IE in TS 36.423 [17] Sec
16	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 36.423 [17] Section 9.2.4	
17	>>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID</i> IE in TS 36.423 [17] Section 9.2.4	
18	PDU Session SN Change Required List	LIST			<i>PDU Session SN Change Required List</i> IE in TS 38.423 [15] Section 9.1.2.11
19	>PDU Session SN Change Required Item	STRUCTURE			<i>PDU Session SN Change Required Item</i> IE in TS 38.423 [15] Section 9.1.2.11
20	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	

21	>>List of QoS flows in the PDU session	LIST			<i>QoS Flows To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
22	>>>QoS flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
23	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
24	List of DRBs for PSCell handover	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
25	>DRB item for PSCell handover	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
26	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
27	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup</i> IE in TS 38.463 [21] Section 9.3.3.2
28	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
29	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	

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#### 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.

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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</i> IE in TS 38.423 [15] Section 9.2.3.25
2	>CHOICE Target Cell	STRUCTURE			<i>Target Cell</i> IE in TS 38.423 [15] Section 9.2.3.25
3	>>NR Cell	STRUCTURE			<i>NR</i> IE in TS 38.423 [15] Section 9.2.3.25
4	>>>NR CGI	ELEMENT	FALSE	<i>NR CGI</i> IE in TS 38.423 [15] Section 9.2.2.7	
5	>>E-UTRA Cell	STRUCTURE			<i>E-UTRA</i> IE in TS 38.423 [15] Section 9.2.3.25
6	>>>E-UTRA CGI	ELEMENT	FALSE	<i>E-UTRA CGI</i> IE in TS 38.423 [15] Section 9.2.2.8	
7	Target Secondary Node ID	STRUCTURE			<i>Target S-NG-RAN node ID</i> IE in TS 38.423 [15] Section 9.1.2.11
8	>CHOICE Target Secondary Node Type	STRUCTURE			
9	>>Secondary Node gNB	STRUCTURE			<i>Global gNB ID</i> IE in TS 38.423 [15] Section 9.2.2.1
10	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.423 [15] Section 9.2.2.4	
11	>>>gNB ID	ELEMENT	FALSE	<i>gNB ID</i> IE in TS 38.423 [15] Section 9.2.2.1	
12	>>Secondary Node ng-eNB	STRUCTURE			<i>Global ng-eNB ID</i> IE in TS 38.423 [15] Section 9.2.2.2
13	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 38.423 [15] Section 9.2.2.4	
14	>>>ng-eNB ID	ELEMENT	FALSE	<i>Long Macro ng-eNB ID</i> IE in TS 38.423 [15] Section 9.2.2.2	
15	>>Secondary Node en-gNB	STRUCTURE			<i>en-gNB</i> IE in TS 36.423 [17] Sec
16	>>>PLMN Identity	ELEMENT	FALSE	<i>PLMN Identity</i> IE in TS 36.423 [17] Section 9.2.4	
17	>>>en-gNB ID	ELEMENT	FALSE	<i>Global en-gNB ID</i> IE in TS 36.423 [17] Section 9.2.4	
18	PDU Session SN Change Required List	LIST			<i>PDU Session SN Change Required List</i> IE in TS 38.423 [15] Section 9.1.2.11
19	>PDU Session SN Change Required Item	STRUCTURE			<i>PDU Session SN Change Required Item</i> IE in TS 38.423 [15] Section 9.1.2.11
20	>>PDU Session ID	ELEMENT	TRUE	<i>PDU Session ID</i> IE in TS 38.423 [15] Section 9.2.3.18	

21	>>List of QoS flows in the PDU session	LIST			<i>QoS Flows To Be Setup List</i> IE in TS 38.423 [15] Section 9.2.1.1
22	>>>QoS flow Item	STRUCTURE			<i>QoS Flow To Be Setup Item</i> IE in TS 38.423 [15] Section 9.2.1.1
23	>>>>QoS Flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.423 [15] Section 9.2.3.10	
24	List of DRBs for PSCell handover	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
25	>DRB item for PSCell handover	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
26	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
27	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup</i> IE in TS 38.463 [21] Section 9.3.3.2
28	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
29	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	

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## 8.4.7 Carrier Aggregation Control

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### 8.4.7.1 Secondary cell Addition control

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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.

5

6

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</i> IE in TS 38.473 [19] Section 9.2.2.1
2	>Secondary cell to be setup Item	STRUCTURE			<i>Scell To Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
3	>>Scell Cell Global ID	ELEMENT	FALSE	<i>Scell ID</i> IE in TS 38.473 [19] Section 9.2.2.1	
4	>>Scell UL Configured	ELEMENT	FALSE	<i>Cell UL Configured</i> IE in TS 38.473 [19] Section 9.3.1.33	
5	List of DRBs to be served using SCells	LIST			<i>DRB to Be Setup List</i> IE in TS 38.473 [19] Section 9.2.2.1
6	>DRB item	STRUCTURE			<i>DRB to Be Setup Item</i> IE in TS 38.473 [19] Section 9.2.2.1
7	>>DRB ID	ELEMENT	TRUE	<i>DRB ID</i> IE in TS 38.473 [19] Section 9.3.1.8	
8	>>List of QoS flows in the DRB	LIST			<i>QoS Flows Information To Be Setup</i> IE in TS 38.463 [21] Section 9.3.3.2
9	>>>QoS flow Item	STRUCTURE			<i>QoS Flow Item</i> IE in TS 38.463 [21] Section 9.3.1.25
10	>>>>QoS flow Identifier	ELEMENT	TRUE	<i>QoS Flow Identifier</i> IE in TS 38.463 [21] Section 9.3.1.25	

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## 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.

5

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</i> IE in TS 38.473 [19] Section 9.2.2.1
2	>Secondary cell to be setup Item	STRUCTURE			<i>Scell To Be Setup Item les</i> IE in TS 38.473 [19] Section 9.2.2.1
3	>>Scell Global ID	ELEMENT	FALSE	<i>Scell ID</i> IE in TS 38.473 [19] Section 9.2.2.1	
4	>>Scell UL Configured	ELEMENT	FALSE	<i>Cell UL Configured</i> IE in TS 38.473 [19] Section 9.3.1.33	
5	List of Scells to be removed	LIST			<i>SCell To Be Removed List</i> IE in TS 38.473 [19] Section 9.2.2.7
6	>Scell to be removed Item	STRUCTURE			<i>SCell to Be Removed Item IEs</i> IE in TS 38.473 [19] Section 9.2.2.7
7	>>Scell Global ID	ELEMENT	FALSE	<i>Scell ID</i> IE in TS 38.473 [19] Section 9.2.2.1	

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## 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.

6



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]	

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## 8.4.9 UE identification and assignment

### 8.4.9.1 UE to Explicit UE list assignment command

This Control action uses 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	<i>Explicit UE list identifier</i>	ELEMENT	FALSE	INTEGER	Identifier previously announced by E2 Node Set to 0 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>

6

RIC Control Outcome IE contents (success case):

Only used for the special case of Assignment command = 3

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			
1002	> <i>Explicit UE list</i> information	STRUCTURE			
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

RIC Control Outcome IE contents (failure case):

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

## 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.

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</i> IE in TS 38.331 Sec 6
2	1>Measurement Object to Add Item	STRUCTURE			<i>MeasObjectToAddMod</i> IE in TS 38.331 Sec 6
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>measObjectNR</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>subcarrierSpacing</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</i> IE in TS 38.331 Sec 6
32	5>List of cells	LIST			<i>pci-List</i> IE in TS 38.331 Sec 6
33	6>Cell Item	STRUCTURE			<i>physCellID</i> IE in TS 38.331 Sec 6

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>refServingCellIndex</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</i> IE in TS 38.331 Sec 6
57	10>Number of PRBs	ELEMENT	FALSE	<i>nrofPRBs</i> IE in TS 38.331 Sec 6	
58	10>Start PRB	ELEMENT	FALSE	<i>startPRB</i> IE in TS 38.331 Sec 6	
59	9>Density	ELEMENT	FALSE	<i>density</i> IE in TS 38.331 Sec 6	
60	9>CSI RS Resource List Mobility	LIST			<i>csi-rs-ResourceList-Mobility</i> IE in TS 38.331 Sec 6
61	10>CSI RS Resource Item Mobility	STRUCTURE			<i>CSI-RS-Resource-Mobility</i> IE in TS 38.331 Sec 6
62	11>CSI RS Index	ELEMENT	TRUE	<i>csi-RS-Index</i> IE in TS 38.331 Sec 6	
63	11>CHOICE Slot Config	STRUCTURE			<i>slotConfig</i> IE in TS 38.331 Sec 6
64	12>ms4	ELEMENT	FALSE	<i>ms4</i> IE in TS 38.331 Sec 6	
65	12>ms5	ELEMENT	FALSE	<i>ms5</i> IE in TS 38.331 Sec 6	
66	12>ms10	ELEMENT	FALSE	<i>ms10</i> IE in TS 38.331 Sec 6	
67	12>ms20	ELEMENT	FALSE	<i>ms20</i> IE in TS 38.331 Sec 6	
68	12>ms40	ELEMENT	FALSE	<i>ms40</i> IE in TS 38.331 Sec 6	
69	11>Associated SSB	STRUCTURE			<i>associatedSSB</i> IE in TS 38.331 Sec 6
70	12>SSB Index	ELEMENT	TRUE	<i>ssb-Index</i> IE in TS 38.331 Sec 6	
71	12>Is Quasi colocated	ELEMENT	FALSE	<i>isQuasiColocated</i> IE in TS 38.331 Sec 6	
72	11>CHOICE Frequency Domain Allocation	STRUCTURE			<i>frequencyDomainAllocation</i> IE in TS 38.331 Sec 6

73		12> Frequency Domain Allocation Row 1	ELEMENT	FALSE	row1 IE in TS 38.331 Sec 6	
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	firstOFDMSymbolInTimeDomain 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			absThreshSSB-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 Consolidation 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	<i>nrofCSI-RS-ResourcesToAverage</i> 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>sinrOffsetSSB</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>sinrOffsetCSI-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>sinrOffsetSSB</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>sinrOffsetCSI-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</i> IE in TS 38.331 Sec 6	
128	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range</i> IE in TS 38.331 Sec 6
129	7>Physical Cell ID Start	ELEMENT	TRUE	<i>physCellId</i> IE in TS 38.331 Sec 6	
130	7>Physical Cell ID Range	ELEMENT	FALSE	<i>range</i> IE in TS 38.331 Sec 6	
135	4>White cells to Add List	LIST			<i>whiteCellsToAddModList</i> IE in TS 38.331 Sec 6
136	5>White cell to Add Item	STRUCTURE			<i>PCI-RangeElement</i> IE in TS 38.331 Sec 6
137	6>White cell to Add – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex</i> IE in TS 38.331 Sec 6	
138	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range</i> IE in TS 38.331 Sec 6
129	7>Physical Cell ID Start	ELEMENT	TRUE	<i>PhysCellId</i> IE in TS 38.331 Sec 6	
130	7>Physical Cell ID Range	ELEMENT	FALSE	<i>range</i> IE in TS 38.331 Sec 6	
141	4>Frequency Band Indicator NR	ELEMENT	TRUE	<i>freqBandIndicatorNR</i> IE in TS 38.331 Sec 6	
142	4>Measurement Cycle Secondary cell	ELEMENT	FALSE	<i>measCycleSCell</i> IE in TS 38.331 Sec 6	
151	3>E-UTRA MO	STRUCTURE			<i>MeasObjectEUTRA</i> IE in TS 38.331 Sec 6
152	4>E-UTRA Carrier Frequency	ELEMENT	TRUE	<i>carrierFreq</i> IE in TS 38.331 Sec 6	
153	4>E-UTRA Allowed Measurement Bandwidth	ELEMENT	FALSE	<i>allowedMeasBandwidth</i> IE in TS 38.331 Sec 6	
171	4>List of E-UTRA cells to add	LIST			<i>cellsToAddModListEUTRA</i> IE in TS 38.331 Sec 6
172	5>E-UTRA Cell to add Item	STRUCTURE			
173	6>E-UTRA Cell to add	STRUCTURE			<i>EUTRA-Cell</i> IE in TS 38.331 Sec 6



174	7>E-UTRA PCI to add	ELEMENT	TRUE	<i>EUTRA-PhysCellId</i> IE in TS 38.331 Sec 6	
175	7>E-UTRA Cell Individual Offset	ELEMENT	FALSE	<i>cellIndividualOffset</i> IE in TS 38.331 Sec 6	
191	4>List of E-UTRA black cells to add	LIST			<i>blackCellsToAddModList</i> IE in TS 38.331 Sec 6
192	5>E-UTRA black cell to add item	STRUCTURE			
193	6>E-UTRA black cell to add	STRUCTURE			<i>EUTRA-BlackCell</i> IE in TS 38.331 Sec 6
194	7>E-UTRA Physical Cell ID Range	STRUCTURE			<i>EUTRA-PhysCellIdRange</i> IE in TS 38.331 Sec 6
195	8>E-UTRA PCI Start	ELEMENT	TRUE	<i>EUTRA-PhysCellId</i> IE in TS 38.331 Sec 6	
196	8>E-UTRA PCI Range	ELEMENT	FALSE	<i>range</i> IE in TS 38.331 Sec 6	
201	4>E-UTRA Presence Antenna Port 1	ELEMENT	FALSE	<i>eutra-PresenceAntennaPort1</i> IE in TS 38.331 Sec 6	
205	4>E-UTRA Q Offset Range	ELEMENT	FALSE	<i>eutra-Q-OffsetRange</i> IE in TS 38.331 Sec 6	
210	4>Wideband RSRQ Measurement	ELEMENT	FALSE	<i>widebandRSRQ-Meas</i> IE in TS 38.331 Sec 6	
301	List of Report Config Objects to Add	LIST			<i>ReportConfigToAddModList</i> IE in TS 38.331 Sec 6
302	1>Report Config Object to Add Item	STRUCTURE			<i>ReportConfigToAddMod</i> IE in TS 38.331 Sec 6
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 <i>Report Config Type</i>	STRUCTURE			<i>reportConfig</i> IE in TS 38.331 Sec 6
311	3> <i>NR Report Config</i>	STRUCTURE			<i>ReportConfigNR</i> IE in TS 38.331 Sec 6

312	4>CHOICE <i>Report Type</i>	STRUCTURE			<i>reportType</i> IE in TS 38.331 Sec 6
313	5>Periodical Report Config	STRUCTURE			<i>PeriodicalReportConfig</i> IE in TS 38.331 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>sinr</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>reportQuantityRS-Indexes</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>sinr</i> IE in TS 38.331 Sec 6	
326	6>Maximum number of reference signals – Indexes to Report	ELEMENT	FALSE	<i>maxNrofRS-IndexesToReport</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 <i>Event ID</i>	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 <i>A1 Threshold Type</i>	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 RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	<i>RSRQ-Range</i> IE
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</i> <i>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</i> <i>QuantityOffset</i> <i>t</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			a5- Threshold2 IE in TS 38.331 Sec 6
382	10>A5 Threshold2 RSRP	ELEMENT	FALSE	MeasTrigger Quantity 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	reportOnLeav e 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	useWhiteCell List 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			MeasTrigger QuantityOffse t 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	reportOnLeav e IE in TS 38.331 Sec 6	
398	9>A6 Hysteresis	ELEMENT	FALSE	hysteresis IE in TS 38.331 Sec 6	
399	9>A6 Time to Trigger	ELEMENT	FALSE	timeToTrigger IE in TS 38.331 Sec 6	
400	9>Use White Cell List	ELEMENT	FALSE	useWhiteCell List IE in TS 38.331 Sec 6	
405	5>Report CGI	STRUCTURE			ReportCGI IE in TS 38.331 Sec 6
406	6>Cell to Report CGI	ELEMENT	TRUE	PhysCellId IE in TS 38.331 Sec 6	

411	5>Report SFTD – NR	STRUCTURE			<i>ReportSFTD-NR</i> IE in TS 38.331 Sec 6
412	6>Report SFTD – Measurement	ELEMENT	FALSE	<i>reportSFTD-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 <i>Report Type</i>	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>sinr</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 <i>Event ID</i>	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	<i>RSRQ-RangeEUTRA</i> IE in TS 38.331 Sec 6	
455	9>E-UTRA SINR	ELEMENT	FALSE	<i>SINR-RangeEUTRA</i> IE in TS 38.331 Sec 6	
456	8>Event B1 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	
457	8>E-UTRA Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
458	8>E-UTRA Time To Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
471	7>Event B2	STRUCTURE			<i>eventB2</i> IE in TS 38.331 Sec 6
472	8>B2 Threshold1 NR	STRUCTURE			<i>b2-Threshold1</i> IE in TS 38.331 Sec 6
475	9>B2 Threshold1 NR RSRP	ELEMENT	FALSE	<i>RSRP-Range</i> IE in TS 38.331 Sec 6	
476	9>B2 Threshold1 NR RSRQ	ELEMENT	FALSE	<i>RSRQ-Range</i> IE in TS 38.331 Sec 6	
477	9>B2 Threshold1 NR SINR	ELEMENT	FALSE	<i>SINR-Range</i> IE in TS 38.331 Sec 6	
481	8>B2 Threshold2 E-UTRA	STRUCTURE			<i>b2-Threshold2EUTRA</i> IE in TS 38.331 Sec 6
482	9>B2 Threshold2 E-UTRA RSRP	ELEMENT	FALSE	<i>RSRP-RangeEUTRA</i> IE in TS 38.331 Sec 6	
483	9>B2 Threshold2 E-UTRA RSRQ	ELEMENT	FALSE	<i>RSRQ-RangeEUTRA</i> IE in TS 38.331 Sec 6	
484	9>B2 Threshold2 E-UTRA SINR	ELEMENT	FALSE	<i>SINR-RangeEUTRA</i> IE in TS 38.331 Sec 6	
491	6>Inter-RAT Reference Signal Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 Sec 6	
492	6>Inter-RAT Report Interval	ELEMENT	FALSE	<i>reportInterval</i> IE in TS 38.331 Sec 6	
493	6>Inter-RAT Report Amount	ELEMENT	FALSE	<i>reportAmount</i> IE in TS 38.331 Sec 6	

501	6>Inter-RAT Report Quantity	STRUCTURE			<i>reportQuantity</i> IE in TS 38.331 Sec 6
502	7>Inter-RAT Report Quantity RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	
503	7>Inter-RAT Report Quantity RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	
504	7>Inter-RAT Report Quantity SINR	ELEMENT	FALSE	<i>sinr</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	<i>CHOICE</i> 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>filterCoefficientSINR</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>filterCoefficientSINR</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 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</i> IE in TS 38.331 Sec 6
552	1>Gap FR2 for setup	STRUCTURE			<i>gapFR2</i> IE in TS 38.331 Sec 6
553	2>FR2 Gap Offset	ELEMENT	FALSE	<i>gapOffset</i> IE in TS 38.331 Sec 6	
554	2>FR2 Measurement Gap Length	ELEMENT	FALSE	<i>mgl</i> IE in TS 38.331 Sec 6	
555	2>FR2 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgrp</i> IE in TS 38.331 Sec 6	
556	2>FR2 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta</i> IE in TS 38.331 Sec 6	
557	2>FR2 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIndicator</i> IE in TS 38.331 Sec 6	
560	1>Gap FR1 for setup	STRUCTURE			<i>gapFR1</i> IE in TS 38.331 Sec 6
561	2>FR1 Gap Offset	ELEMENT	FALSE	<i>gapOffset</i> IE in TS 38.331 Sec 6	
562	2>FR1 Measurement Gap Length	ELEMENT	FALSE	<i>mgl</i> IE in TS 38.331 Sec 6	
563	2>FR1 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgrp</i> IE in TS 38.331 Sec 6	
564	2>FR1 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta</i> IE in TS 38.331 Sec 6	
565	2>FR1 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIndicator</i> IE in TS 38.331 Sec 6	
570	1>Gap UE for setup	STRUCTURE			<i>gapUE</i> IE in TS 38.331 Sec 6
571	2>UE Gap Offset	ELEMENT	FALSE	<i>gapOffset</i> IE in TS 38.331 Sec 6	
572	2>UE Measurement Gap Length	ELEMENT	FALSE	<i>mgl</i> IE in TS 38.331 Sec 6	
573	2>UE Measurement Gap Reptition Period	ELEMENT	FALSE	<i>mgrp</i> IE in TS 38.331 Sec 6	
574	2>UE Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta</i> IE in TS 38.331 Sec 6	
575	2>UE Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIndicator</i> IE in TS 38.331 Sec 6	

581	Measurement Gap Sharing Config	STRUCTURE			<i>MeasGapSharingConfig</i> IE in TS 38.331 Sec 6
582	1>Gap Sharing FR2 for setup	ELEMENT	FALSE	<i>gapFR2</i> IE in TS 38.331 Sec 6	
583	1>Gap Sharing FR1 for setup	ELEMENT	FALSE	<i>gapFR1</i> IE in TS 38.331 Sec 6	
584	1>Gap Sharing UE for setup	ELEMENT	FALSE	<i>gapUE</i> 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.

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>measObjectT oAddModList</i> IE in TS 38.331 Sec 6
2	1>Measurement Object to modify or add for modification Item	STRUCTURE			<i>MeasObjectT oAddMod</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>RRCReconfiguration</i> message
4	2>CHOICE <i>MO Type</i>	STRUCTURE			<i>measObject</i> IE in TS 38.331 Sec 6
11	3> <i>NR MO</i>	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 <i>Periodicity and Offset</i>	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</i> IE in TS 38.331 Sec 6
32	5>List of cells	LIST			<i>pci-List</i> IE in TS 38.331 Sec 6
33	6>Cell Item	STRUCTURE			<i>PhysCellID</i> IE in TS 38.331 Sec 6
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
39	6>Setup or Release SSB to Measure	ELEMENT	FALSE	ENUMERATED (setup, release,...)	<i>SetupRelease</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	

49	6>Setup or Release CSI RS Resource Config Mobility	ELEMENT	FALSE	ENUMERATED (setup, release,...)	SetupRelease IE in TS 38.331 Sec 6
50	6>CSI RS Resource Config Mobility for Setup	STRUCTURE			csi-rs-ResourceConfigMobility IE in TS 38.331 Sec 6
51	7>Reference Serving cell Index	ELEMENT	TRUE	refServCellIndex IE in TS 38.331 Sec 6	
52	7>Sub carrier spacing	ELEMENT	FALSE	subcarrierSpacing IE in TS 38.331 Sec 6	
53	7>CSI RS Cell List Mobility	LIST			csi-RS-CellList-Mobility IE in TS 38.331 Sec 6
54	8>CSI RS Cell Mobility	STRUCTURE			CSI-RS-CellMobility IE in TS 38.331 Sec 6
55	9>Physical Cell ID	ELEMENT	TRUE	PhysCellID IE in TS 38.331 Sec 6	
56	9>CSI RS Measurement Bandwidth	STRUCTURE			csi-rs-MeasurementBW IE in TS 38.331 Sec 6
57	10>Number of PRBs	ELEMENT	FALSE	nrofPRBs IE in TS 38.331 Sec 6	
58	10>Start PRB	ELEMENT	FALSE	startPRB IE in TS 38.331 Sec 6	
59	9>Density	ELEMENT	FALSE	Density IE in TS 38.331 Sec 6	
60	9>CSI RS Resource List Mobility	LIST			csi-rs-ResourceList-Mobility IE in TS 38.331 Sec 6
61	10>CSI RS Resource Item Mobility	STRUCTURE			CSI-RS-Resource-Mobility IE in TS 38.331 Sec 6
62	11>CSI RS Index	ELEMENT	TRUE	csi-RS-Index IE in TS 38.331 Sec 6	
63	11>CHOICE Slot Config	STRUCTURE			slotConfig IE in TS 38.331 Sec 6
64	12>ms 4	ELEMENT	FALSE	ms4 IE in TS 38.331 Sec 6	

65		12>ms 5	ELEMENT	FALSE	ms5 IE in TS 38.331 Sec 6	
66		12>ms 10	ELEMENT	FALSE	ms10 IE in TS 38.331 Sec 6	
67		12>ms 20	ELEMENT	FALSE	ms20 IE in TS 38.331 Sec 6	
68		12>ms 40	ELEMENT	FALSE	ms40 IE in TS 38.331 Sec 6	
69		11>Associ ated SSB	STRUCTURE			assoiatedSS B IE in TS 38.331 Sec 6
70		12>SS B Index	ELEMENT	TRUE	ssb-Index IE in TS 38.331 Sec 6	
71		12>Is Quasi colocol o	ELEMENT	FALSE	isQuasiCol located IE in TS 38.331 Sec 6	
72		11>CHOI CE Frequenc y Domain Allocation	STRUCTURE			frequencyDo mainnAllocati on IE in TS 38.331 Sec 6
73		12>Fr equen cy Domai n Allocat ion Row 1	ELEMENT	FALSE	row1 IE in TS 38.331 Sec 6	
74		12>Fr equen cy Domai n Allocat ion Row 2	ELEMENT	FALSE	row2 IE in TS 38.331 Sec 6	
75		11>First OFDM Symbol in Time Domain	ELEMENT	FALSE	firstOFDM SymbolInTi meDomain IE in TS 38.331 Sec 6	
76		11>Seque nce Generatio n Config	ELEMENT	FALSE	sequenecG enerationC onfig IE in TS 38.331 Sec 6	
77		4>Absolute Threshold SSB – Block Consolidation	STRUCTURE			absThreshSS - BlocksConsol idation 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	<i>RSRQ-Range</i> IE in TS 38.331 Sec 6	
80	5>Block Consolidation Threshold SINR	ELEMENT	FALSE	<i>SINR-Range</i> IE in TS 38.331 Sec 6	
81	4>Absolute Threshold CSI RS Consolidation	STRUCTURE			<i>absThreshCSI-RS-Consolidation</i> IE in TS 38.331 Sec 6
82	5>RS Consolidation Threshold RSRP	ELEMENT	FALSE	<i>RSRP-Range</i> IE in TS 38.331 Sec 6	
83	5>RS Consolidation Threshold RSRQ	ELEMENT	FALSE	<i>RSRQ-Range</i> IE in TS 38.331 Sec 6	
84	5>RS Consolidated Threshold SINR	ELEMENT	FALSE	<i>SINR-Range</i> IE in TS 38.331 Sec 6	
91	4>Number of SS blocks to average	ELEMENT	FALSE	<i>nrofSS-BlocksToAverage</i> IE in TS 38.331 Sec 6	
92	4>Number of CSI RS Resources to average	ELEMENT	FALSE	<i>nrofCSI-RS-ResourcesToAverage</i> 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>sinrOffsetSSB</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>sinrOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
107	4>Cells to Remove List	LIST			<i>cellsToRemoveList</i> IE in TS 38.331 Sec 6
108	5>Cell to Remove Item	STRUCTURE			
109	6>Cell to Remove - Physical Cell ID	ELEMENT	TRUE	<i>PhysCellID</i> IE in TS 38.331 Sec 6	
110	4>Cells to modify or add for modification List	LIST			<i>CellsToAddModList</i> IE in TS 38.331 Sec 6
111	5>Cell to modify or add for modification Item	STRUCTURE			<i>CellsToAddModList</i> IE in TS 38.331 Sec 6
112	6>Cell to modify or add for modification - 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>sinrOffsetSSB</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>sinrOffsetCSI-RS</i> IE in TS 38.331 Sec 6	
121	4>Black cells to Remove List	LIST			<i>blackCellsToRemoveList</i> IE in TS 38.331 Sec 6
122	5>Black cell to Remove Item	STRUCTURE			



123	6>Black cell to Remove – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex</i> IE in TS 38.331 Sec 6	
125	4>Black cells to modify or add for modification List	LIST			<i>blackCellsToAddModList</i> IE in TS 38.331 Sec 6
126	5>Black cell to modify or add for modification Item	STRUCTURE			<i>PCI-RangeElement</i> IE in TS 38.331 Sec 6
127	6>Black cell to modify or add for modification – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex</i> IE in TS 38.331 Sec 6	
128	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range</i> IE in TS 38.331 Sec 6
129	7>PCI Range Start	ELEMENT	TRUE	<i>PhysCellId</i> IE in TS 38.331 Sec 6	
130	7>PCI Range	ELEMENT	FALSE	<i>range</i> IE in TS 38.331 Sec 6	
131	4>White cells to Remove List	LIST			<i>whiteCellsToRemoveList</i> IE in TS 38.331 Sec 6
132	5>White cell to Remove Item	STRUCTURE			<i>whiteCellsToRemoveList</i> IE in TS 38.331 Sec 6
133	6>White cell to Remove – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex</i> IE in TS 38.331 Sec 6	
135	4>White cells to modify or add for modification List	LIST			<i>whiteCellsToAddModList</i> IE in TS 38.331 Sec 6
136	5>White cell to modify or add for modification Item	STRUCTURE			<i>PCI-RangeElement</i> IE in TS 38.331 Sec 6
137	6>White cell to modify or add for modification – Physical Cell Range Index	ELEMENT	TRUE	<i>PCI-RangeIndex</i> IE in TS 38.331 Sec 6	
138	6>Physical Cell ID - Range	STRUCTURE			<i>PCI-Range</i> IE in TS 38.331 Sec 6
139	7>PCI Range Start	ELEMENT	TRUE	<i>physCellId</i> IE in TS 38.331 Sec 6	
140	7>PCI Range	ELEMENT	FALSE	<i>range</i> IE in TS 38.331 Sec 6	

141	4>Frequency Band Indicator NR	ELEMENT	TRUE	<i>freqBandIndicatorNR</i> IE in TS 38.331 Sec 6	
142	4>Measurement Cycle Secondary cell	ELEMENT	FALSE	<i>measCycleSCell</i> IE in TS 38.331 Sec 6	
151	3>E-UTRA MO	STRUCTURE			<i>MeasObjectEUTRA</i> IE in TS 38.331 Sec 6
152	4>E-UTRA Carrier Frequency	ELEMENT	TRUE	<i>carrierFreq</i> IE in TS 38.331 Sec 6	
153	4>E-UTRA Allowed Measurement Bandwidth	ELEMENT	FALSE	<i>allowedMeasurementBandwidth</i> IE in TS 38.331 Sec 6	
161	4>List of E-UTRA cells to remove	LIST			<i>cellsToRemoveListEUTRAN</i> IE in TS 38.331 Sec 6
162	5>E-UTRA Cell to remove Item	STRUCTURE			
164	6>E-UTRA PCI to remove	ELEMENT	TRUE	<i>EUTRA-PhysCellId</i> IE in TS 38.331 Sec 6	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>cellsToAddModListEUTRAN</i> IE in TS 38.331 Sec 6
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</i> IE in TS 38.331 Sec 6
174	7>E-UTRA PCI to modify or add for modification	ELEMENT	TRUE	<i>EUTRA-PhysCellId</i> IE in TS 38.331 Sec 6	
175	7>E-UTRA Cell Individual Offset	ELEMENT	FALSE	<i>cellIndividualOffset</i> IE in TS 38.331 Sec 6	
181	4>List of E-UTRA black cells to remove	LIST			<i>blackCellsToRemoveListEUTRAN</i> IE in TS 38.331 Sec 6
182	5>E-UTRA black cell to remove Item	STRUCTURE			
184	6>E-UTRA PCI to remove	ELEMENT	TRUE	<i>EUTRA-PhysCellId</i> IE in TS 38.331 Sec 6	

191	4>List of E-UTRA black cells to modify or add for modification	LIST			<i>blackCellsToAddModList</i> IE in TS 38.331 Sec 6
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			<i>EUTRA-BlackCell</i> IE in TS 38.331 Sec 6
194	7>E-UTRA Physical Cell ID Range	STRUCTURE			<i>EUTRA-PhysCellIdRange</i> IE in TS 38.331 Sec 6
195	8>E-UTRA PCI Start	ELEMENT	TRUE	<i>EUTRA-PhysCellId</i> IE in TS 38.331 Sec 6	
196	8>E-UTRA PCI Range	ELEMENT	FALSE	<i>range</i> IE in TS 38.331 Sec 6	
201	4>E-UTRA Presence Antenna Port 1	ELEMENT	FALSE	<i>eutra-PresenceAntennaPort1</i> IE in TS 38.331 Sec 6	
205	4>E-UTRA Q Offset Range	ELEMENT	FALSE	<i>eutra-Q-OffsetRange</i> IE in TS 38.331 Sec 6	
210	4>Wideband RSRQ Measurement	ELEMENT	FALSE	<i>widebandRSRQ-Meas</i> IE in TS 38.331 Sec 6	
301	List of Report Config Objects to modify or add for modification	LIST			<i>ReportConfigToAddModList</i> IE in TS 38.331 Sec 6
302	1>Report Config Object to modify or add for modification Item	STRUCTURE			<i>ReportConfigToAddMod</i> IE in TS 38.331 Sec 6
303	2>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
304	2>CHOICE <i>Report Config Type</i>	STRUCTURE			<i>reportConfig</i> IE in TS 38.331 Sec 6
311	3> <i>NR Report Config</i>	STRUCTURE			<i>ReportConfigNR</i> IE in TS 38.331 Sec 6
312	4>CHOICE <i>Report Type</i>	STRUCTURE			<i>reportType</i> IE in TS 38.331 Sec 6

313	5>Periodical Report Config	STRUCTURE			<i>PeriodicalReportConfig</i> IE in TS 38.331 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>sinr</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>reportQuantityRS-Indexes</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>sinr</i> IE in TS 38.331 Sec 6	
326	6>Maximum number of reference signals – Indexes to Report	ELEMENT	FALSE	<i>maxNrofRS-IndexesToReport</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>eventide</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 RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	<i>RSRQ-Range</i> IE
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>MeasTriggerQuantity</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 <i>Offset Type</i>	STRUCTURE			<i>MeasTriggerQuantityOffset</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 <i>Threshold Type</i>	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 1 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 Sec 6	
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>useWhiteCellList</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 Threshold Type	STRUCTURE			<i>MeasTriggerQuantityOffset</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>useWhiteCellList</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-NR</i> IE in TS 38.331 Sec 6
412	6>Report SFTD – Measurement	ELEMENT	FALSE	<i>reportSFTD-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>physCellId</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 <i>Report Type</i>	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>sinr</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 <i>Event ID</i>	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	<i>RSRQ-RangeEUTRA</i> IE in TS 38.331 Sec 6	
455	9>E-UTRA SINR	ELEMENT	FALSE	<i>SINR-RangeEUTRA</i> IE in TS 38.331 Sec 6	

456	8>Event B1 Report On Leave	ELEMENT	FALSE	<i>reportOnLeave</i> IE in TS 38.331 Sec 6	
457	8>E-UTRA Hysteresis	ELEMENT	FALSE	<i>hysteresis</i> IE in TS 38.331 Sec 6	
458	8>E-UTRA Time To Trigger	ELEMENT	FALSE	<i>timeToTrigger</i> IE in TS 38.331 Sec 6	
471	7>Event B2	STRUCTURE			<i>eventB2</i> IE in TS 38.331 Sec 6
472	8>B2 Threshold1 NR	STRUCTURE			<i>b2-Threshold1</i> IE in TS 38.331 Sec 6
475	9>B2 Threshold1 NR RSRP	ELEMENT	FALSE	<i>RSRP-Range</i> IE in TS 38.331 Sec 6	
476	9>B2 Threshold1 NR RSRQ	ELEMENT	FALSE	<i>RSRQ-Range</i> IE in TS 38.331 Sec 6	
477	9>B2 Threshold1 NR SINR	ELEMENT	FALSE	<i>SINR-Range</i> IE in TS 38.331 Sec 6	
481	8>B2 Threshold2 E-UTRA	STRUCTURE			<i>b2-Threshold2E-UTRA</i> IE in TS 38.331 Sec 6
482	9>B2 Threshold2 E-UTRA RSRP	ELEMENT	FALSE	<i>RSRP-RangeEUTRA</i> IE in TS 38.331 Sec 6	
483	9>B2 Threshold2 E-UTRA RSRQ	ELEMENT	FALSE	<i>RSRQ-RangeEUTRA</i> IE in TS 38.331 Sec 6	
484	9>B2 Threshold2 E-UTRA SINR	ELEMENT	FALSE	<i>SINR-RangeEUTRA</i> IE in TS 38.331 Sec 6	
491	6>Inter-RAT Reference Signal Type	ELEMENT	FALSE	<i>rsType</i> IE in TS 38.331 Sec 6	
492	6>Inter-RAT Report Interval	ELEMENT	FALSE	<i>reportInterval</i> IE in TS 38.331 Sec 6	
493	6>Inter-RAT Report Amount	ELEMENT	FALSE	<i>reportAmount</i> IE in TS 38.331 Sec 6	

501	6>Inter-RAT Report Quantity	STRUCTURE			<i>reportQuantity</i> IE in TS 38.331 Sec 6
502	7>Inter-RAT Report Quantity RSRP	ELEMENT	FALSE	<i>rsrp</i> IE in TS 38.331 Sec 6	
503	7>Inter-RAT Report Quantity RSRQ	ELEMENT	FALSE	<i>rsrq</i> IE in TS 38.331 Sec 6	
504	7>Inter-RAT Report Quantity SINR	ELEMENT	FALSE	<i>sinr</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	<i>CHOICE</i> 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>filterCoefficientSINR</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>filterCoefficientSINR</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 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</i> IE in TS 38.331 Sec 6
552	1>Setup or Release Gap FR2	ELEMENT	FALSE	ENUMERATED (setup, release,...)	<i>SetupRelease</i> IE in TS 38.331 Sec 6
553	1>Gap FR2 to Setup	STRUCTURE			<i>gapFR2</i> IE in TS 38.331 Sec 6
554	2>FR2 Gap Offset	ELEMENT	FALSE	<i>gapOffset</i> IE in TS 38.331 Sec 6	
555	2>FR2 Measurement Gap Length	ELEMENT	FALSE	<i>mgI</i> IE in TS 38.331 Sec 6	
556	2>FR2 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgrp</i> IE in TS 38.331 Sec 6	
557	2>FR2 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta</i> IE in TS 38.331 Sec 6	
558	2>FR2 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCellIndicator</i> IE in TS 38.331 Sec 6	
560	1>Setup or Release Gap FR1	ELEMENT	FALSE	ENUMERATED (setup, release,...)	<i>SetupRelease</i> IE in TS 38.331 Sec 6

561	1>Gap FR1 to Setup	STRUCTURE			<i>gapFR1 IE in TS 38.331 Sec 6</i>
562	2>FR1 Gap Offset	ELEMENT	FALSE	<i>gapOffset IE in TS 38.331 Sec 6</i>	
563	2>FR1 Measurement Gap Length	ELEMENT	FALSE	<i>mgl IE in TS 38.331 Sec 6</i>	
564	2>FR1 Measurement Gap Repetition Period	ELEMENT	FALSE	<i>mgrp IE in TS 38.331 Sec 6</i>	
565	2>FR1 Measurement Gap Timing Analysis	ELEMENT	FALSE	<i>mgta IE in TS 38.331 Sec 6</i>	
566	2>FR1 Reference Serving Cell Indicator	ELEMENT	TRUE	<i>refServCell Indicator IE 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>mgl 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>MeasGapSharingConfig 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, release,...)	<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, release,...)	SetupRelease IE in TS 38.331 Sec 6
587	1>Gap Sharing UE	ELEMENT	FALSE	gapUE IE in TS 38.331 Sec 6	

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### 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.

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</i> IE in TS 38.331 Sec 6
2	1>Measurement Object to Remove Item	STRUCTURE			<i>MeasObjectToRemove</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	
4	List of Report Config Objects to Remove	LIST			<i>ReportConfigToRemoveList</i> IE in TS 38.331 Sec 6
5	1>Report Config Object to Remove Item	STRUCTURE			<i>ReportConfigToRemove</i> IE in TS 38.331 Sec 6
6	2>Report Config Object ID	ELEMENT	TRUE	<i>ReportConfigID</i> IE in TS 38.331 Sec 6	
7	List of Measurement IDs to Remove	LIST			<i>measIdToRemoveList</i> IE in TS 38.331 Sec 6
8	1>Measurement ID Item to Remove	STRUCTURE			
9	2>Measurement ID	ELEMENT	TRUE	<i>MeasID</i> IE in TS 38.331 Sec 6	

7

### 8.4.10.4 Control Outcome parameters

Upon processing the *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</i> IE in TS 38.331 Sec 6

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2	>Measurement Object successfully added Item	STRUCTURE		1..<maxMeas Objects>	MeasObjectID IE in TS 38.331 Sec 6
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	MeasObjectID IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via RRCReconfiguration message
11	List of Measurement Objects failed to be added	LIST		0..1	MeasObjectTooAddModList IE in TS 38.331 Sec 6
12	>Measurement Object failed to be added Item	STRUCTURE		1..<maxMeas Objects>	MeasObjectID 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	MeasObjectTooAddModList IE in TS 38.331 Sec 6
22	>Measurement Object successfully modified Item	STRUCTURE		1..<maxMeas Objects>	MeasObjectID IE in TS 38.331 Sec 6
24	>>Measurement Object ID	ELEMENT	TRUE	MeasObjectID IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via RRCReconfiguration message
31	List of Measurement Objects failed to be modified	LIST		0..1	MeasObjectTooAddModList

					IE in TS 38.331 Sec 6
32	>Measurement Object failed to be modified Item	STRUCTURE		1..<maxMeasObjects>	MeasObjectId IE in TS 38.331 Sec 6
34	>>Measurement Object ID	ELEMENT	TRUE	MeasObjectID IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via RRCReconfiguration message
35	>>Modification Failure Cause	ELEMENT	FALSE	PrintableString(SIZE(1..150, ...))	Failure cause string
41	List of Measurement Objects successfully deleted	LIST		0..1	MeasObjectToRemoveList IE in TS 38.331 Sec 6
42	>Measurement Object successfully deleted Item	STRUCTURE		1..<maxMeasObjects>	MeasObjectId IE in TS 38.331 Sec 6
44	>>Measurement Object ID	ELEMENT	TRUE	MeasObjectID IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via RRCReconfiguration message
51	List of Measurement Objects failed to be deleted	LIST		0..1	MeasObjectToRemoveList IE in TS 38.331 Sec 6
52	>Measurement Object failed to be deleted Item	STRUCTURE		1..<maxMeasObjects>	MeasObjectId IE in TS 38.331 Sec 6
54	>>Measurement Object ID	ELEMENT	TRUE	MeasObjectID IE in TS 38.331 Sec 6	This is the ID used by the E2 node for the measurement object for the UE via RRCReconfiguration 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	ReportConfigToAddModList



					<i>t</i> IE in TS 38.331 Sec 6
62	>Report Config Object successfully added Item	STRUCTURE		<i>1..&lt;maxReportConfigObjects&gt;</i>	<i>maxReportConfigId</i> IE in TS 38.331 Sec 6
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		<i>0..1</i>	<i>ReportConfigToAddModList</i> IE in TS 38.331 Sec 6
72	>Report Config Object failed to be added Item	STRUCTURE		<i>1..&lt;maxReportConfigObjects&gt;</i>	<i>maxReportConfigId</i> IE in TS 38.331 Sec 6
74	>>Report Config Object sequence ID	ELEMENT	TRUE	INTEGER (1..maxReportConfigObjects,...)	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		<i>0..1</i>	<i>ReportConfigToAddModList</i> IE in TS 38.331 Sec 6
82	>Report Config Object successfully modified Item	STRUCTURE		<i>1..&lt;maxReportConfigObjects&gt;</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..<maxReportConfigObjects>	<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>RRCReconfiguration</i> 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>ReportConfigToRemoveList</i> IE in TS 38.331 Sec 6
102	>Report Config Object successfully deleted Item	STRUCTURE		1..<maxReportConfigObjects>	<i>maxReportConfigId</i> IE in TS 38.331 Sec 6
104	>>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
111	List of Report Config Objects failed to be deleted	LIST		0..1	<i>ReportConfigToRemoveList</i> IE in TS 38.331 Sec 6
112	>Report Config Object failed to be deleted Item	STRUCTURE		1..<maxReportConfigObjects>	<i>maxReportConfigId</i> IE in TS 38.331 Sec 6
114	>>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
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</i> IE in

					TS 38.331 Sec 6
117	>Measurement ID successfully added Item	STRUCTURE		1..<maxMeas Id>	maxNrofMeas Id IE in TS 38.331 Sec 6
118	>>Measurement ID	ELEMENT	TRUE	MeasId IE in TS 38.331 Sec 6	
119	>>Measurement Object ID	ELEMENT	TRUE	MeasObjectI D IE in TS 38.331 Sec 6	
120	>>Report Config Object ID	ELEMENT	TRUE	ReportConfigI D IE in TS 38.331 Sec 6	
125	List of Measurement IDs successfully removed	LIST		0..1	measIdToRe moveList IE in TS 38.331 Sec 6
126	>Measurement ID successfully removed Item	STRUCTURE		1..<maxMeas ID>	maxNrofMeas Id IE in TS 38.331 Sec 6
127	>>Measurement ID	ELEMENT	TRUE	MeasId IE in TS 38.331 Sec 6	
129	List of Measurement IDs failed to be removed	LIST		0..1	measIdToRe moveList IE in TS 38.331 Sec 6
130	>Measurement ID failed to be removed Item	STRUCTURE		1..<maxMeas ID>	maxNrofMeas Id IE in TS 38.331 Sec 6
131	>>Measurement ID	ELEMENT	TRUE	MeasId IE in TS 38.331 Sec 6	
132	>>Removal failure Cause	ELEMENT	FALSE	PrintableStrin g(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 section Section 6 of IETF RFC 5905 [30] containing

					both seconds and fraction parts.
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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>

## 8.5 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 Section 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 behaviour via the application of offset parameters provided in the POLICY Action IE. Different POLICY Action IEs are associated with different POLICY conditions described in terms of UE and E2 Node characteristics. As defined in section 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	<b>Refer to <i>gNB DU Measurements</i> structure in Section 8.1.1.14</b>			
5003	>UE Throughput Measurements				
5004	>Packet level measurements				
5005	>Packet delay measurements				
5011	gNB CU-UP Measurements	<b>Refer to <i>gNB CU-UP Measurements</i> structure in Section 8.1.1.13</b>			
5012	>PDCP data volume measurement				
5013	>Packet delay measurements				
5021	gNB CU-CP Measurements	<b>Refer to <i>gNB CU-CP Measurements</i> structure in Section 8.1.1.12</b>			
5022	>Inter-gNB handovers				
5023	>Intra-gNB handovers				
5024	>RRC connection related measurements				
5025	>QoS flow-related measurements				
5026	>DRB related measurements				
5027	>PDU Session Management				
5028	>Inter-system mobility measurements between 5GS and EPS				

1

2 In addition to using the above RAN Parameters, POLICY conditions may also use RAN parameters defined in Section  
3 8.1 for RIC *Event Trigger* definition.

## 4 8.5.2 Radio Bearer Control

### 5 8.5.2.0 Common RAN Parameters for Radio Bearer Control

6

7 The RAN Parameters pertaining to POLICY Conditions for the “Radio Bearer Control” policy service style used across  
8 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	<b>Refer to gNB CU-CP Measurements structure in Section 8.1.1.12 where these parameters are defined.</b>			
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] Section 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	<b>Refer to E2 Node structure in Section 8.1.1.11 where these parameters are defined</b>			

1

2 In addition to using the above RAN Parameters for POLICY conditions, this service style also uses RAN parameters  
3 defined in Section 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in  
4 Sections 8.1, 8.5.1 and those covered in the above table.

## 5 8.5.2.1 DRB QoS Configuration

### 6 8.5.2.1.1 Control action

7 The RAN parameters associated with this policy type are listed in Section 8.4.2.1 Table 1.

### 8 8.5.2.1.2 Offset

9 **Editor's Note: FFS**

## 10 8.5.2.2 QoS flow mapping configuration

### 11 8.5.2.2.1 Control action

12 The RAN parameters associated with this policy type are listed in Section 8.4.2.2 Table 1.

### 13 8.5.2.2.2 Offset

14 **Editor's Note: FFS**

## 15 8.5.2.3 Logical channel configuration

### 16 8.5.2.3.1 Control action

17 The RAN parameters associated with this policy type are listed in Section 8.4.2.3 Table 1.

### 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 Section 8.4.2.4 Table 1.

#### 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 Section 8.4.2.5 Table 1.

#### 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 Section 8.4.2.6 Table 1.

#### 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</i> IE in TS 38.463 [21] Section 9.3.1.43
102	Downlink PDCP Data Split	ELEMENT	FALSE	INTEGER	<i>Downlink PDCP Data Split</i> IE in 8.4.2.6

### 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 Section 8.4.2.7 Table 1.

#### 8.5.2.7.2 Offset

Editor's Note: FFS

## 8.5.3 Radio Resource Allocation Control

### 8.5.3.0 Common RAN Parameters for Radio Resource Allocation Control

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.

1

RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
501	SPS Config	STRUCTURE			<i>SPS-Config</i> IE in TS 38.331 [22]
502	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-Processes</i> IE in TS 38.331 [22]	
503	Grant Configuration	STRUCTURE			<i>ConfiguredGrantConfig</i> IE in TS 38.331 [22]
504	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-Processes</i> IE in TS 38.331 [22]	
505	PDSCH Serving Cell Config Setup	STRUCTURE			<i>PDSCH-ServingCellConfig</i> IE in TS 38.331 [22]
506	>Number of HARQ Processes	ELEMENT	FALSE	<i>nrofHARQ-ProcessesForPD SCH</i> IE in TS 38.331 [22]	

2 In addition to using the above RAN Parameters for POLICY conditions, this service style also uses RAN parameters  
3 defined in Section 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in  
4 Sections 8.1, 8.5.1 and those covered in the above table.

### 5 8.5.3.1 DRX Parameter Configuration

#### 6 8.5.3.1.1 Control action

7 The RAN parameters associated with this policy type are listed in Section 8.4.3.1 Table 1.

#### 8 8.5.3.1.2 Offset

9 **Editor's Note: FFS**

### 10 8.5.3.2 Scheduling Request Parameter Configuration

#### 11 8.5.3.2.1 Control action

12 The RAN parameters associated with this policy type are listed in Section 8.4.3.2 Table 1.

#### 13 8.5.3.2.2 Offset

14 **Editor's Note: FFS**

### 15 8.5.3.3 Semi-Persistent Scheduling Parameter Configuration

#### 16 8.5.3.3.1 Control action

17 The RAN parameters associated with this policy type are listed in Section 8.4.3.3 Table 1.

#### 18 8.5.3.3.2 Offset

19 **Editor's Note: FFS**



1     **8.5.3.4     Configured Grant Configuration**

2     **8.5.3.4.1   Control action**

3     The RAN parameters associated with this policy type are listed in Section 8.4.3.4 Table 1.

4     **8.5.3.4.2   Offset**

5     Editor's Note: FFS

6     **8.5.3.5     CQI table configuration**

7     **8.5.3.5.1   Control action**

8     The RAN parameters associated with this policy type are listed in Section 8.4.3.5 Table 1.

9     **8.5.3.5.2   Offset**

10    Editor's Note: FFS

11    **8.5.3.6     Slice-level PRB quota**

12    **8.5.3.6.1   Control action**

13    The RAN parameters associated with this policy type are listed in Section 8.4.3.6 Table 1.

14    **8.5.3.6.2   Offset**

15    Editor's Note: FFS

16    **8.5.4       Connected Mode Mobility Control**

17    **8.5.4.0     Common RAN Parameters for Connected Mode Mobility Control**

18    The RAN Parameters pertaining to POLICY Conditions for the “Connected Mode Mobility Control” policy service  
19    style used across all POLICY actions of the policy service style are listed in the below table.

20

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 <i>Cell Type</i>	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 Neighboring Cells	LIST		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
522	>Neighboring Cell Item	STRUCTURE		Refer to <i>Handover Preparation</i> structure in 8.1.2.3.1 where this parameter is defined.
523	>>CHOICE <i>Cell Type</i>	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

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In addition to using the above RAN Parameters for POLICY conditions and all RAN Parameters identified in 8.5.1, this service style also uses RAN parameters defined in Section 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Sections 8.1, 8.5.1 and those covered in the above table.

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#### 8.5.4.1 Handover Control

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##### 8.5.4.1.1 Control action

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The RAN parameters associated with this policy type are listed in Section 8.4.4.1 Table 1.

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##### 8.5.4.1.2 Offset

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RAN Parameter ID	RAN Parameter	RAN Parameter Value Type	Key Flag	RAN Parameter Definition	Semantics Description
101	A1 Event Threshold offset	STRUCTURE			<i>EventA1</i> IE in 8.1.1.10
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</i> IE in 8.1.1.10
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</i> IE in 8.1.1.10
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</i> IE in 8.1.1.10
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</i> IE in 8.1.1.10
141	>A5-Threshold1 offset	STRUCTURE			<i>EventA5</i> IE in 8.1.1.10
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</i> IE in 8.1.1.10
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</i> IE in 8.1.1.10
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</i> IE 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</i> IE in 8.1.1.10
171	>B2-Threshold-NR offset	STRUCTURE			<i>EventB2</i> IE 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</i> IE 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,

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## 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 Section 8.4.4.2 Table 1.

### 8.5.4.2.2 Offset

The RAN parameters associated with this policy type are listed in Section 8.5.4.1.2.

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1     **8.5.4.3     DAPS Handover Control**

2     **8.5.4.3.1   Control action**

3     The RAN parameters associated with this policy type are listed in Section 8.4.4.3 Table 1.

4     **8.5.4.3.2   Offset**

5     The RAN parameters associated with this policy type are listed in Section 8.5.4.1.2.

6     **8.5.5       Radio Access Control**

7     **8.5.5.0     Common RAN Parameters for Radio Access Control**

8     The RAN Parameters pertaining to POLICY Conditions for the “Radio Access Control” policy service style used across  
9     all POLICY actions of the policy service style are listed in the below table.

10

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

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In addition to using the above RAN Parameters for POLICY conditions, this service style also uses RAN parameters defined in Section 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Sections 8.1, 8.5.1 and those covered in the above table.

## 1 8.5.5.1 UE admission control request

### 2 8.5.5.1.1 Control action

3 The RAN parameters associated with this policy type are listed in Section 8.4.5.1 Table 1.

### 4 8.5.5.1.2 Offset

5 **Editor's Note: FFS**

## 6 8.5.5.2 RACH backoff control request

### 7 8.5.5.2.1 Control action

8 The RAN parameters associated with this policy type are listed in Section 8.4.5.2 Table 1.

### 9 8.5.5.2.2 Offset

10 **Editor's Note: FFS**

## 11 8.5.5.3 Access barring control request

### 12 8.5.5.3.1 Control action

13 The RAN parameters associated with this policy type are listed in Section 8.4.5.3 Table 1.

### 14 8.5.5.3.2 Offset

15 **Editor's Note: FFS**

## 16 8.5.5.4 RRC Connection Release request

### 17 8.5.5.4.1 Control action

18 The RAN parameters associated with this policy type are listed in Section 8.4.5.3 Table 1.

### 19 8.5.5.4.2 Offset

20 **Editor's Note: FFS**

## 21 8.5.5.5 RRC Connection Reject request

### 22 8.5.5.5.1 Control action

23 The RAN parameters associated with this policy type are listed in Section 8.4.5.3 Table 1.

### 24 8.5.5.5.2 Offset

25 **Editor's Note: FFS**

## 26 8.5.6 Dual Connectivity Control

### 27 8.5.6.0 Common RAN Parameters for Dual Connectivity Control

28 The RAN Parameters pertaining to POLICY Conditions for the “Dual Connectivity Control” policy service style used  
29 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

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2 In addition to using the above RAN Parameters for POLICY conditions, this service style also uses RAN parameters  
3 defined in Section 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in  
4 Sections 8.1, 8.5.1 and those covered in the above table.

## 5 8.5.6.1 DC Secondary Node Addition Control

### 6 8.5.6.1.1 Control action

7 The RAN parameters associated with this policy type are listed in Section 8.4.6.1 Table 1.

### 8 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</i> IE 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</i> IE in 8.1.1.10
171	>B2-Threshold-NR offset	STRUCTURE			<i>EventB2</i> IE 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</i> IE 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,

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## 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 Section 8.4.6.2 Table 1.

### 8.5.6.2.2 Offset

The RAN parameters associated with this policy type are listed in Section 8.5.4.1.2 Table 1.

## 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 Section 8.4.6.3 Table 1.

### 8.5.6.3.2 Offset

The RAN parameters associated with this policy type are listed in Section 8.5.4.1.2 Table 1.

## 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 Section 8.4.6.4 Table 1.

### 8.5.6.4.2 Offset

The RAN parameters associated with this policy type are listed in Section 8.5.4.1.2 Table 1.

## 8.5.7 Carrier Aggregation Control

### 8.5.7.0 Common RAN Parameters for Carrier Aggregation Control

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</i> IE in TS 38.473 [19] clause 9.2.2.1
502	>Secondary cell setup Item	STRUCTURE		<i>Scell To Be Setup Item</i> IEs IE 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</i> IE 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

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In addition to using the above RAN Parameters for POLICY conditions, this service style also uses RAN parameters defined in Section 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Sections 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 Section 8.4.7.1 Table 1.

### 8.5.7.1.2 Offset

The RAN parameters associated with this policy type are listed in Section 8.5.4.1.2 Table 1.

## 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 Section 8.4.7.2 Table 1.

### 8.5.7.2.2 Offset

The RAN parameters associated with this policy type are listed in Section 8.5.4.1.2 Table 1.

## 8.5.8 Idle Mode Mobility Control

### 8.5.8.0 Common RAN Parameters for Idle Mode Mobility Control

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 Section 8.1. Accordingly, this service style supports Policy Conditions using the RAN parameters defined in Sections 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 Section 8.4.8.1 Table 1.

#### 8.5.8.1.2 Offset

The RAN parameters associated with this policy type are listed in Section 8.4.5.4 Table 1. 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 Control

The RAN Parameters pertaining to POLICY Conditions for the “Measurement Report Configuration Control” policy service style are FFS.

In addition, this service style also uses RAN parameters defined in Section 8.1. Thus, this service style currently supports Policy Conditions using the RAN parameters defined in Sections 8.1 and 8.5.1.

### 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 Section 8.4.10.1 Table 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 Section 8.4.10.2 Table 1

### 8.5.9.2.2 Offset

Editor's Note: FFS

### 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 Section 8.4.10.3 Table 1

#### 8.5.9.3.2 Offset

Editor's Note: FFS

## 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</b> <i>Event Trigger Format</i>				
>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		9.2.1.1.5	Used for Event Trigger Style 5

### 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..<maxnoof Messages>		
>Event Trigger Condition ID	M		9.3.21	
> <b>CHOICE</b> Message Type	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 Section 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 Section 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..<maxnoof E2InfoChanges>		
>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..<maxnoof UEInfoChanges>		
>Event Trigger Condition ID	M		9.3.21	
> <b>CHOICE</b> Trigger Type	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 Sections 8.1.1.4 and 8.1.1.8 shall only be used.
>Associated UE Info	O		9.3.26	Indicates applicable UE(s) for event triggering ("Any" 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 E2SM-RC Event Trigger Definition Format 5: On Demand

IE/Group Name	Presence	Range	IE type and reference	Semantics description
On Demand	M		ENUMERATED (true, ...)	

Associated UE Info	O		9.3.26	Indicates applicable UE(s) for event triggering ("Any" UE if not included).
Associated Cell Info	O		9.3.27	"Any" cell if not included.

### 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</b> Action Definition Format				
>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

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Parameters to be Reported List		1.. <i>&lt;maxnoofParametersToReport&gt;</i>		
>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 Action Definition Format 1. The value is <65535>.

### 9.2.1.2.2 E2SM-RC Action Definition Format 2: Policy with Conditions

The *E2SM-RC Action Definition* IE Format 2 supports a POLICY services encoded as a list of Policy Conditions, each with a Policy Condition definition described using *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 Section 8.5.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Policy Conditions		1.. <i>&lt;maxnoofPolicyConditions&gt;</i>		
>Policy Action Definition	M		9.3.20	Defines policy to be applied for specific Policy Condition
>Policy Condition Definition	O		9.3.29	Defines conditional test.

Range bound	Explanation
maxnoofPolicyConditions	Maximum no. of Policy Condition in action definition 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 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 Section 8.3.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Insert Indication ID	M		9.3.16	Refer to Section 7.5
List of RAN parameters for Insert Indication	M	1.. <i>maxnoofAssociatedRANParameters</i>		Refer to Section 8.3
>RAN Parameter ID	M		9.3.8	Refer to Section 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 Action Definition Format 3 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 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 Section 8.3.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of Insert Styles for Multiple Actions		1..<maxnoofRIC Styles>		
>Requested Insert Style	M		9.3.3	
>Sequence of Insert Indication Action Definition		1..<maxnoofInsertIndicationActions>		
>>Insert Indication ID	M		9.3.16	Refer to Section 7.5
>>List of RAN parameters for Insert Indication		1..<maxnoofAssociatedRANParameters>		Refer to Section 8.3
>>>RAN Parameter ID	M		9.3.8	Refer to Section 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 Action Definition Format 4 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 Action Definition Format 4 for INSERT Indication. The value is <65535>.

1

2

### 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	

7

#### 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

#### 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 Section 7.5

11

#### 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	

13

### 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.

17

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> <i>Indication Message Format</i>	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			9.2.1.4.4	
>E2SM-RC Indication Message Format 5			9.2.1.4.5	
>E2SM-RC Indication Message Format 6			9.2.1.4.6	

1

#### 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.. <i>maxnoofAssociatedRANParameters</i>		
>RAN Parameter ID	M		9.3.8	
>RAN Parameter Value	M		9.3.11	

3

Range bound	Explanation
maxnoofAssociatedRANParameters	Maximum number of RAN Parameters supported by Indication Message Format 1. The value is <65535>.

4

#### 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.. <i>maxnoofUEID</i>		
>UE ID	M		9.3.10	
>Sequence of RAN Parameters		1.. <i>maxnoofAssociatedRANParameters</i>		
>>RAN Parameter ID	M		9.3.8	
>>RAN Parameter Value	M		9.3.11	

6

Range bound	Explanation
maxnoofUEID	Maximum number of UE Identifiers supported by Indication Message Format 2 to be reported. The value is <65535>.
maxnoofAssociatedRANParameters	Maximum number of RAN Parameters supported by Indication Message Format 2 to be reported. The value is <65535>.

7

### 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..<maxnoofCell ID>		
>Cell Global ID	M		9.3.36	
>Cell Context Information	O		OCTET STRING	<i>Served Cell Information</i> IE in TS 38.473 [19] clause 9.3.1.10. This IE shall be reported if RAN Parameter ID is set to "1" as described in Section 7.4.4.
>Cell Deleted	O		BOOLEAN	This IE shall be used to report deleted cells. The value shall be set to "True" for the deleted Cell Global ID. This IE shall be reported if RAN Parameter ID is set to "2" as described in Section 7.4.4.
>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 "3" as described in Section 7.4.4.

Range bound	Explanation
maxnoofCellID	Maximum number of Cell Identifiers supported by Indication Message Format 3 to be reported. The value is <65535>.



#### 9.2.1.4.4 E2SM-RC Indication Message Format 4

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Sequence of UE Information		<i>0..&lt;maxnoofUEID&gt;</i>		
>UE ID	M		9.3.10	
>UE Context Information	O		OCTET STRING	The RETRIEVE UE CONTEXT RESPONSE message content in TS 38.423 [15] clause 9.1.1.9. This IE shall be reported if RAN Parameter ID is set to "1" as described in Section 7.4.6.
>Cell Global ID	M		9.3.36	This IE indicates the SpCell ID where the UE belongs to.
Sequence of Cell Information		<i>0..&lt;maxnoofCellID&gt;</i>		
>Cell Global ID	M		9.3.36	
>Cell Context Information	O		OCTET STRING	<i>Served Cell Information</i> IE in TS 38.473 [19] clause 9.3.1.10. This IE shall be reported if RAN Parameter ID is set to "2" as described in Section 7.4.6.
>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 "3" as described in Section 7.4.6.

Range bound	Explanation
maxnoofUEID	Maximum number of UE Identifiers supported by Indication Message Format 4 to be reported. The value is <65535>.
maxnoofCellID	Maximum number of Cell Identifiers supported by Indication Message Format 4 to be reported. The value is <65535>.

#### 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		<i>0..&lt;maxnoofAssociatedRANParameters&gt;</i>		
>RAN Parameter ID	M		9.3.8	Refer to table in Section 8.3
>RAN Parameter Value Type	M		9.3.11	Refer to table in Section 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.. <i>&lt;maxnoofRIC Styles&gt;</i>		
>Indicated Insert Style	M		9.3.3	
>Sequence of Insert Indication Actions		1.. <i>&lt;maxnoofInsertIndicationActions&gt;</i>		
>>Insert Indication ID	M		9.3.16	Refer to Section 7.5
>>List of RAN parameters requested		0.. <i>&lt;maxnoofAssociatedRANParameters&gt;</i>		
>>>RAN Parameter ID	M		9.3.8	Refer to table in Section 8.3
>>>RAN Parameter Value Type	M		9.3.11	Refer to table in Section 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> <i>Control Header Format</i>	M			
>E2SM-RC Control Header Format 1			9.2.1.6.1	
>E2SM-RC Control Header Format 2			9.2.1.6.2	

### 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 Section 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.

## 9.2.1.7 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> <i>Control Message Format</i>	M			
>E2SM-RC Control Message Format 1			9.2.1.7.1	
>E2SM-RC Control Message Format 2			9.2.1.7.2	

### 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 Section 8.4
>RAN Parameter Value Type	M		9.3.11	Refer to table in Section 8.4

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

### 9.2.1.7.2 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..<maxnoofRICStyles>		
>Indicated Control Style	M		9.3.3	
>Sequence of Control Actions		1..<maxnoofMulCtrlActions>		
>>Control Action ID	M		9.3.6	Refer to Section 7.6
>>Control Action Parameters	O		9.2.1.7.1 E2SM-RC Control Message Format 1	

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>.

### 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 Section 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.. <i>&lt;maxnoofRICStyles&gt;</i>		
>Indicated Control Style	M		9.3.3	
>Sequence of Control Actions Outcome		1.. <i>&lt;maxnoofMulCtrlActions&gt;</i>		
>>Control Action ID	M		9.3.6	
>>Sequence of RAN Parameters		1.. <i>&lt;maxnoofRANOutcomeParameters&gt;</i>		
>>>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.. <i>&lt;maxnoofRANOutcomeParameters&gt;</i>		
>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>

## 9.2.2 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	

1

## 1 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.. <maxnoofRICStyles>		
>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.. <maxnoofAssociatedRANParameters>		RAN Parameters defined in Sections 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.. <maxnoofCallProcessTypes>		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.. <maxnoofCallProcessBreakpoints>		
>>Call Process Breakpoint ID	M		9.3.49	
>>Call Process Breakpoint Name	M		9.3.50	
>>Sequence of Associated RAN Parameters		0.. <maxnoofAssociatedRANParameters>		RAN Parameters defined in Section 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.. <maxnoofAssociatedRANParameters>		RAN Parameters defined in Section 8.1.3. 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.. <maxnoofAssociatedRANParameters>		RAN Parameters defined in Section 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.

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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>.

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### 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 dRANPara meters>		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 Section 7.4.
>>RAN Parameter Name	M		9.3.9	RAN Parameter Names for the corresponding Report Style defined in Section 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.. <maxnoofRICStyles>		
>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.. <maxnoofInsertIndication>		
>>Insert Indication ID	M		9.3.16	Refer to Section 7.5.
>>Insert Indication Name	M		9.3.17	Refer to Section 7.5.
>>Sequence of Associated RAN Parameters		0.. <maxnoofAssociatedRANParameters>		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>.

## 1 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.. <maxn ofRICStyle s>		
>RIC Control Style Type	M		9.3.3	
>RIC Control Style Name	M		9.3.4	
>Sequence of Control Actions		0.. <maxn ofControlA ction>		
>>Control Action ID	M		9.3.6	
>>Control Action Name	M		9.3.7	
>>Sequence of Associated RAN Parameters		0.. <maxn ofAssociat 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.
>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 ofRANO 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.

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>

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## 1 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.. <maxnrofRICStyles>		
>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.. <maxnrofPolicyActions>		
>>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.. <maxnrofAssociatedRANParameters>		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.. <maxnrofAssociatedRANParameters>		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>.

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## 9.3 Information Element definitions

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### 9.3.1 General

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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:

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- 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.

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### 9.3.2 RAN Function Name

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This IE is defined in [4] clause 6.2.2.1.

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### 9.3.3 RIC Style Type

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This IE is defined in [4] clause 6.2.2.2.

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### 9.3.4 RIC Style Name

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This IE is defined in [4] clause 6.2.2.3.

17

### 9.3.5 RIC Format Type

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This IE is defined in [4] clause 6.2.2.4.

19

### 9.3.6 Control Action ID

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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, ...)	

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### 9.3.7 Control Action Name

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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, ...))	

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### 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.. $2^{32}$ , ...)	

### 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 Section 8.4.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
<b>CHOICE</b> <i>RAN Parameter Value Type</i>	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 Section 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 Section 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		<i>0..&lt;maxno ofParametersinStructure&gt;</i>		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		$0..<max\ noofItemsinList>$		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</b> RAN Parameter Value	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..2 <sup>32</sup> , ...)	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 Section 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 Section 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.. <i>&lt;maxnoofCellInfo&gt;</i>		
>Event Trigger Cell ID	M		9.3.24	
> <b>CHOICE</b> Cell Type	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 Section 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.. <i>&lt;maxnoofUEEventInfo&gt;</i>		
>UE Event ID	M		9.3.23	UE Events defined in Section 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 Testings		1.. <i>&lt;maxnoofRANparameterTest&gt;</i>		
>RAN Parameter Testing	M		9.3.30	

Range bound	Explanation
maxnoofRANparameterTest	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</b> RAN Parameter Type	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.. <i>&lt;maxno ofItemsinList&gt;</i>		
>>>RAN Parameter Testing	M		9.3.30	
<b>&gt;STRUCTURE</b>				
>>Sequence of RAN Parameters		1.. <i>&lt;maxno ofParametersinStructure&gt;</i>		
>>>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</b> <i>RAN Parameter Test Condition</i>				
>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, ...)	Applies only when RAN Parameter Value is not present in 9.3.30.

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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 (RAN Parameter ID) = (RAN Parameter Value)
Difference	Value (RAN Parameter ID) <> (RAN Parameter Value)
Greaterthan	Value (RAN Parameter ID) => (RAN Parameter Value)
lessthan	Value (RAN Parameter ID) < (RAN Parameter Value)
contains	Value (RAN Parameter ID) contains (RAN Parameter Value)
Starts with	Value (RAN Parameter ID) has the same initial part as (RAN Parameter Value)

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For the choice type of “Presence”, the test condition is applied to Value (*RAN Parameter ID*)

RAN Parameter Test condition	Test condition
present	Value (RAN Parameter ID) is defined (i.e. memory allocated)
configured	Value (RAN Parameter ID) has been set (i.e. not NULL)
rollover	Value (RAN Parameter ID) was max defined value and now 0
non-zero	Value (RAN Parameter ID) <> 0
	Length (Value (RAN Parameter ID)) > 0

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## 9.3.32 Network Interface Type

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This IE is defined in [4] clause 6.2.2.10.

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## 9.3.33 Network Interface Identifier

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This IE is defined in [4] clause 6.2.2.11.

11

## 9.3.34 Network Interface Message ID

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This IE is defined in [4] clause 6.2.2.12.

13

## 9.3.35 RRC Message ID

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This IE is defined in [4] clause 6.2.2.13.

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## 9.3.36 Cell Global ID

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This IE is defined in [4] clause 6.2.2.5.

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### 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.

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## 1 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		$1..<maxnoofNeighbourCell>$		
> <b>CHOICE</b> RAN Type	M			
>> <b>NR</b>	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.
>> <b>E-UTRA</b>	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 Section 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 noofItemsinList>		
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	This IE shall be ignored when included in RIC SUBSCRIPTION REQUEST 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 noofParametersinStructure>		
>>>RAN Parameter ID	M		9.3.8	
>>>RAN Parameter Name	M		9.3.9	This IE shall be ignored when included in RIC SUBSCRIPTION REQUEST 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>.

## 9.4 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,
    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
maxnoofParametersToReport      INTEGER ::= 65535
maxnoofPolicyConditions        INTEGER ::= 65535
maxnoofAssociatedRANParameters INTEGER ::= 65535
```

```

1      maxnoofUEID                INTEGER ::= 65535
2      maxnoofCellID              INTEGER ::= 65535
3      maxnoofRANOutcomeParameters INTEGER ::= 255
4      maxnoofParametersinStructure INTEGER ::= 65535
5      maxnoofItemsinList         INTEGER ::= 65535
6      maxnoofUEInfo              INTEGER ::= 65535
7      maxnoofCellInfo            INTEGER ::= 65535
8      maxnoofUEEventInfo         INTEGER ::= 65535
9      maxnoofRANparamTest        INTEGER ::= 255
10     maxnoofNeighbourCell        INTEGER ::= 65535
11     maxnoofRICStyles            INTEGER ::= 63
12     maxnoofCallProcessTypes     INTEGER ::= 65535
13     maxnoofCallProcessBreakpoints INTEGER ::= 65535
14     maxnoofInsertIndication     INTEGER ::= 65535
15     maxnoofControlAction        INTEGER ::= 65535
16     maxnoofPolicyAction         INTEGER ::= 65535
17     maxnoofInsertIndicationActions INTEGER ::= 63
18     maxnoofMulCtrlActions       INTEGER ::= 63
19
20
21     -- *****
22     -- IEs
23     -- *****
24
25     LogicalOR ::= ENUMERATED {true, false, ...}
26
27     NeighborCell-List ::= SEQUENCE (SIZE(1..maxnoofNeighbourCell)) OF NeighborCell-Item
28
29     NeighborCell-Item ::= CHOICE {
30         ranType-Choice-NR                NeighborCell-Item-Choice-NR,
31         ranType-Choice-EUTRA            NeighborCell-Item-Choice-E-UTRA,
32         ...
33     }
34
35     NeighborCell-Item-Choice-NR ::= SEQUENCE {
36         nR-CGI                NR-CGI,
37         nR-PCI                NR-PCI,
38         fiveGS-TAC            FiveGS-TAC,
39         nR-mode-info          ENUMERATED {fdd, tdd, ...},
40         nR-FreqInfo           NRFrequencyInfo,
41         x2-Xn-established     ENUMERATED {true, false, ...},
42         hO-validated          ENUMERATED {true, false, ...},
43         version               INTEGER (1..65535, ...),
44         ...
45     }
46
47     NeighborCell-Item-Choice-E-UTRA ::= SEQUENCE {
48         eUTRA-CGI            EUTRA-CGI,
49         eUTRA-PCI            E-UTRA-PCI,
50         eUTRA-ARFCN          E-UTRA-ARFCN,
51         eUTRA-TAC            E-UTRA-TAC,
52         x2-Xn-established     ENUMERATED {true, false, ...},
53         hO-validated          ENUMERATED {true, false, ...},
54         version               INTEGER (1..65535, ...),
55         ...
56     }
57
58     NeighborRelation-Info ::= SEQUENCE {
59         servingCellPCI        ServingCell-PCI,
60         servingCellARFCN      ServingCell-ARFCN,
61         neighborCell-List     NeighborCell-List,
62         ...
63     }
64
65     RRC-State ::= ENUMERATED {rrc-connected, rrc-inactive, rrc-idle, any, ...}
66
67     -----
68     -- Event Trigger related IEs
69     -----
70
71     EventTrigger-Cell-Info ::= SEQUENCE {
72         cellInfo-List         SEQUENCE (SIZE(1..maxnoofCellInfo)) OF EventTrigger-Cell-Info-
73         Item,
74         ...
75     }
76

```

```

1
2 EventTrigger-Cell-Info-Item ::= SEQUENCE {
3     eventTriggerCellID          RIC-EventTrigger-Cell-ID,
4     cellType                    CHOICE {
5         cellType-Choice-Individual EventTrigger-Cell-Info-Item-Choice-Individual,
6         cellType-Choice-Group      EventTrigger-Cell-Info-Item-Choice-Group,
7         ...
8     },
9     logicalOR                    LogicalOR                                OPTIONAL,
10    ...
11 }
12
13 EventTrigger-Cell-Info-Item-Choice-Individual ::= SEQUENCE {
14     cellGlobalID                CGI,
15     ...
16 }
17
18 EventTrigger-Cell-Info-Item-Choice-Group ::= SEQUENCE {
19     ranParameterTesting          RANParameter-Testing,
20     ...
21 }
22
23
24
25 EventTrigger-UE-Info ::= SEQUENCE {
26     ueInfo-List                  SEQUENCE (SIZE(1..maxnoofUEInfo)) OF EventTrigger-UE-Info-Item,
27     ...
28 }
29
30 EventTrigger-UE-Info-Item ::= SEQUENCE {
31     eventTriggerUEID            RIC-EventTrigger-UE-ID,
32     ueType                      CHOICE {
33         ueType-Choice-Individual EventTrigger-UE-Info-Item-Choice-Individual,
34         ueType-Choice-Group      EventTrigger-UE-Info-Item-Choice-Group,
35         ...
36     },
37     logicalOR                    LogicalOR                                OPTIONAL,
38     ...
39 }
40
41 EventTrigger-UE-Info-Item-Choice-Individual ::= SEQUENCE {
42     ueID                        UEID,
43     ranParameterTesting          RANParameter-Testing                                OPTIONAL,
44     ...
45 }
46
47 EventTrigger-UE-Info-Item-Choice-Group ::= SEQUENCE {
48     ranParameterTesting          RANParameter-Testing,
49     ...
50 }
51
52
53
54 EventTrigger-UEevent-Info ::= SEQUENCE {
55     ueEvent-List                  SEQUENCE (SIZE(1..maxnoofUEeventInfo)) OF EventTrigger-UEevent-
56     Info-Item,
57     ...
58 }
59
60 EventTrigger-UEevent-Info-Item ::= SEQUENCE {
61     ueEventID                    RIC-EventTrigger-UEevent-ID,
62     logicalOR                    LogicalOR                                OPTIONAL,
63     ...
64 }
65
66
67 -----
68 -- RAN Parameter related IEs
69 -----
70
71 RANParameter-ID                ::= INTEGER (1..232, ...)
72
73 RANParameter-Name ::= PrintableString (SIZE(1..150, ...))
74
75 RANParameter-Definition ::= SEQUENCE {
76     ranParameter-Definition-Choice RANParameter-Definition-Choice,
77     ...

```

```

1  }
2
3  RANParameter-Definition-Choice ::= CHOICE {
4      choiceLIST          RANParameter-Definition-Choice-LIST,
5      choiceSTRUCTURE     RANParameter-Definition-Choice-STRUCTURE,
6      ...
7  }
8
9  RANParameter-Definition-Choice-LIST ::= SEQUENCE {
10     ranParameter-List    SEQUENCE (SIZE(1..maxnoofItemsinList)) OF RANParameter-
11     Definition-Choice-LIST-Item,
12     ...
13 }
14
15 RANParameter-Definition-Choice-LIST-Item ::= SEQUENCE {
16     ranParameter-ID      RANParameter-ID,
17     ranParameter-name     RANParameter-Name,
18     ranParameter-Definition RANParameter-Definition OPTIONAL,
19     ...
20 }
21
22 RANParameter-Definition-Choice-STRUCTURE ::= SEQUENCE {
23     ranParameter-STRUCTURE SEQUENCE (SIZE(1..maxnoofParametersinStructure)) OF
24     RANParameter-Definition-Choice-STRUCTURE-Item,
25     ...
26 }
27
28 RANParameter-Definition-Choice-STRUCTURE-Item ::= SEQUENCE {
29     ranParameter-ID      RANParameter-ID,
30     ranParameter-name     RANParameter-Name,
31     ranParameter-Definition RANParameter-Definition OPTIONAL,
32     ...
33 }
34
35 RANParameter-Value ::= CHOICE {
36     valueBoolean          BOOLEAN,
37     valueInt              INTEGER,
38     valueReal             REAL,
39     valueBits             BIT STRING,
40     valueOctS             OCTET STRING,
41     valuePrintableString  PrintableString,
42     ...
43 }
44
45 RANParameter-ValueType ::= CHOICE {
46     ranP-Choice-ElementTrue  RANParameter-ValueType-Choice-ElementTrue,
47     ranP-Choice-ElementFalse RANParameter-ValueType-Choice-ElementFalse,
48     ranP-Choice-Structure    RANParameter-ValueType-Choice-Structure,
49     ranP-Choice-List         RANParameter-ValueType-Choice-List,
50     ...
51 }
52
53
54
55 RANParameter-ValueType-Choice-ElementTrue ::= SEQUENCE {
56     ranParameter-value    RANParameter-Value,
57     ...
58 }
59
60 RANParameter-ValueType-Choice-ElementFalse ::= SEQUENCE {
61     ranParameter-value    RANParameter-Value OPTIONAL,
62     -- C-ifControl: This IE shall be present if it is part of a RIC Control Request message. Otherwise
63     it is optional.
64     ...
65 }
66
67 RANParameter-ValueType-Choice-Structure ::= SEQUENCE {
68     ranParameter-Structure RANParameter-STRUCTURE,
69     ...
70 }
71
72 RANParameter-ValueType-Choice-List ::= SEQUENCE {
73     ranParameter-List     RANParameter-LIST,
74     ...
75 }
76
77

```

```

1  RANParameter-STRUCTURE ::= SEQUENCE {
2      sequence-of-ranParameters      SEQUENCE (SIZE(1..maxnoofParametersinStructure)) OF
3  RANParameter-STRUCTURE-Item      OPTIONAL,
4      ...
5  }
6
7  RANParameter-STRUCTURE-Item ::= SEQUENCE {
8      ranParameter-ID                RANParameter-ID,
9      ranParameter-valueType          RANParameter-ValueType,
10     ...
11 }
12
13 RANParameter-LIST ::= SEQUENCE {
14     list-of-ranParameter            SEQUENCE (SIZE(1..maxnoofItemsinList)) OF RANParameter-
15 STRUCTURE,
16     ...
17 }
18
19
20 RANParameter-Testing ::= SEQUENCE (SIZE(1..maxnoofRANparamTest)) OF RANParameter-Testing-Item
21
22 RANParameter-TestingCondition ::= CHOICE {
23     ranP-Choice-comparison          ENUMERATED {equal, difference, greaterthan, lessthan,
24 contains, starts-with, ...},
25     ranP-Choice-presence            ENUMERATED {present, configured, rollover, non-zero, ...},
26     ...
27 }
28
29 RANParameter-Testing-Item ::= SEQUENCE {
30     ranParameter-ID                RANParameter-ID,
31     ranParameter-Type              CHOICE {
32         ranP-Choice-List            RANParameter-Testing-Item-Choice-List,
33         ranP-Choice-Structure        RANParameter-Testing-Item-Choice-Structure,
34         ranP-Choice-ElementTrue      RANParameter-Testing-Item-Choice-ElementTrue,
35         ranP-Choice-ElementFalse     RANParameter-Testing-Item-Choice-ElementFalse,
36         ...
37     },
38     ...
39 }
40
41 RANParameter-Testing-Item-Choice-List ::= SEQUENCE {
42     ranParameter-List              RANParameter-Testing-LIST,
43     ...
44 }
45
46 RANParameter-Testing-Item-Choice-Structure ::= SEQUENCE {
47     ranParameter-Structure          RANParameter-Testing-STRUCTURE,
48     ...
49 }
50
51 RANParameter-Testing-Item-Choice-ElementTrue ::= SEQUENCE {
52     ranParameter-value              RANParameter-Value,
53     ...
54 }
55
56 RANParameter-Testing-Item-Choice-ElementFalse ::= SEQUENCE {
57     ranParameter-TestCondition      RANParameter-TestingCondition,
58     ranParameter-Value              RANParameter-Value          OPTIONAL,
59     logicalOR                       LogicalOR                    OPTIONAL,
60     ...
61 }
62
63 RANParameter-Testing-LIST ::= SEQUENCE (SIZE(1..maxnoofItemsinList)) OF RANParameter-Testing-Item
64
65 RANParameter-Testing-STRUCTURE ::= SEQUENCE (SIZE(1..maxnoofParametersinStructure)) OF RANParameter-
66 Testing-Item
67
68
69 -----
70 -- RIC Service related IEs
71 -----
72
73 RAN-CallProcess-ID ::= INTEGER (1..232, ...)
74
75 RIC-CallProcessType-ID ::= INTEGER (1..65535, ...)
76
77

```



```

1 RIC-CallProcessType-Name ::= PrintableString (SIZE(1..150, ...))
2
3 RIC-CallProcessBreakpoint-ID ::= INTEGER (1..65535, ...)
4
5 RIC-CallProcessBreakpoint-Name ::= PrintableString (SIZE(1..150, ...))
6
7 RIC-ControlAction-ID ::= INTEGER (1..65535, ...)
8
9 RIC-ControlAction-Name ::= PrintableString (SIZE(1..150, ...))
10
11 RIC-EventTriggerCondition-ID ::= INTEGER (1..65535, ...)
12
13 RIC-EventTrigger-UE-ID ::= INTEGER (1..65535, ...)
14
15 RIC-EventTrigger-UEevent-ID ::= INTEGER (1..65535, ...)
16
17 RIC-EventTrigger-Cell-ID ::= INTEGER (1..65535, ...)
18
19
20 RIC-InsertIndication-ID ::= INTEGER (1..65535, ...)
21
22 RIC-InsertIndication-Name ::= PrintableString (SIZE(1..150, ...))
23
24 RIC-PolicyAction ::= SEQUENCE {
25     ric-PolicyAction-ID                RIC-ControlAction-ID,
26     ranParameters-List                SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF RIC-
27     PolicyAction-RANParameter-Item    OPTIONAL,
28     ...,
29     ric-PolicyDecision                ENUMERATED {accept, reject, ...}          OPTIONAL
30 }
31
32 RIC-PolicyAction-RANParameter-Item ::= SEQUENCE {
33     ranParameter-ID                RANParameter-ID,
34     ranParameter-valueType          RANParameter-ValueType,
35     ...
36 }
37
38
39 -- *****
40 -- E2SM-RC Service Model IEs
41 -- *****
42
43
44 -- *****
45 -- Event Trigger OCTET STRING contents
46 -- *****
47
48 E2SM-RC-EventTrigger ::= SEQUENCE {
49     ric-eventTrigger-formats          CHOICE {
50         eventTrigger-Format1          E2SM-RC-EventTrigger-Format1,
51         eventTrigger-Format2          E2SM-RC-EventTrigger-Format2,
52         eventTrigger-Format3          E2SM-RC-EventTrigger-Format3,
53         eventTrigger-Format4          E2SM-RC-EventTrigger-Format4,
54         eventTrigger-Format5          E2SM-RC-EventTrigger-Format5,
55         ...
56     },
57     ...
58 }
59
60 E2SM-RC-EventTrigger-Format1 ::= SEQUENCE {
61     message-List                    SEQUENCE (SIZE(1..maxnoofMessages)) OF E2SM-RC-
62     EventTrigger-Format1-Item,
63     globalAssociatedUEInfo          EventTrigger-UE-Info          OPTIONAL,
64     ...
65 }
66
67 E2SM-RC-EventTrigger-Format1-Item ::= SEQUENCE {
68     ric-eventTriggerCondition-ID      RIC-EventTriggerCondition-ID,
69     messageType                     MessageType-Choice,
70     messageDirection                 ENUMERATED {incoming, outgoing, ...}    OPTIONAL,
71     associatedUEInfo                 EventTrigger-UE-Info          OPTIONAL,
72     associatedUEEvent                 EventTrigger-UEevent-Info     OPTIONAL,
73     logicalOR                        LogicalOR                      OPTIONAL,
74     ...
75 }
76

```

```

1
2 MessageType-Choice ::= CHOICE {
3     messageType-Choice-NI             MessageType-Choice-NI,
4     messageType-Choice-RRC            MessageType-Choice-RRC,
5     ...
6 }
7
8
9 MessageType-Choice-NI ::= SEQUENCE {
10     nI-Type                InterfaceType,
11     nI-Identifier           InterfaceIdentifier OPTIONAL,
12     nI-Message             Interface-MessageID OPTIONAL,
13     ...
14 }
15
16 MessageType-Choice-RRC ::= SEQUENCE {
17     rRC-Message            RRC-MessageID,
18     ...
19 }
20
21
22 E2SM-RC-EventTrigger-Format2 ::= SEQUENCE {
23     ric-callProcessType-ID    RIC-CallProcessType-ID,
24     ric-callProcessBreakpoint-ID    RIC-CallProcessBreakpoint-ID,
25     associatedE2NodeInfo      RANParameter-Testing OPTIONAL,
26     associatedUEInfo          EventTrigger-UE-Info    OPTIONAL,
27     ...
28 }
29
30
31 E2SM-RC-EventTrigger-Format3 ::= SEQUENCE {
32     e2NodeInfoChange-List    SEQUENCE (SIZE(1..maxnoofE2InfoChanges)) OF E2SM-RC-
33     EventTrigger-Format3-Item,
34     ...
35 }
36
37 E2SM-RC-EventTrigger-Format3-Item ::= SEQUENCE {
38     ric-eventTriggerCondition-ID    RIC-EventTriggerCondition-ID,
39     e2NodeInfoChange-ID            INTEGER (1..512, ...),
40     associatedCellInfo             EventTrigger-Cell-Info    OPTIONAL,
41     logicalOR                     LogicalOR                  OPTIONAL,
42     ...
43 }
44
45
46 E2SM-RC-EventTrigger-Format4 ::= SEQUENCE {
47     uEInfoChange-List          SEQUENCE (SIZE(1..maxnoofUEInfoChanges)) OF E2SM-RC-
48     EventTrigger-Format4-Item,
49     ...
50 }
51
52 E2SM-RC-EventTrigger-Format4-Item ::= SEQUENCE {
53     ric-eventTriggerCondition-ID    RIC-EventTriggerCondition-ID,
54     triggerType                     TriggerType-Choice,
55     associatedUEInfo                EventTrigger-UE-Info    OPTIONAL,
56     logicalOR                      LogicalOR                  OPTIONAL,
57     ...
58 }
59
60
61 TriggerType-Choice ::= CHOICE {
62     triggerType-Choice-RRCstate    TriggerType-Choice-RRCstate,
63     triggerType-Choice-UEID        TriggerType-Choice-UEID,
64     triggerType-Choice-L2state     TriggerType-Choice-L2state,
65     ...
66 }
67
68 TriggerType-Choice-RRCstate ::= SEQUENCE {
69     rrcState-List                SEQUENCE (SIZE(1..maxnoofRRCstate)) OF TriggerType-
70     Choice-RRCstate-Item,
71     ...
72 }
73
74 TriggerType-Choice-RRCstate-Item ::= SEQUENCE {
75     stateChangedTo                RRC-State,

```

```

1      logicalOR                                LogicalOR                                OPTIONAL,
2      ...
3  }
4
5  TriggerType-Choice-UEID ::= SEQUENCE {
6      ueIDchange-ID                            INTEGER (1..512, ...),
7      ...
8  }
9
10
11  TriggerType-Choice-L2state ::= SEQUENCE {
12      associatedL2variables                    RANParameter-Testing,
13      ...
14  }
15
16  E2SM-RC-EventTrigger-Format5 ::= SEQUENCE {
17      onDemand                                ENUMERATED {true, ...},
18      associatedUEInfo                        EventTrigger-UE-Info                OPTIONAL,
19      associatedCellInfo                      EventTrigger-Cell-Info                OPTIONAL,
20      ...
21  }
22
23
24
25  -- *****
26  -- Action Definition OCTET STRING contents
27  -- *****
28
29  E2SM-RC-ActionDefinition ::= SEQUENCE {
30      ric-Style-Type                          RIC-Style-Type,
31      ric-actionDefinition-formats             CHOICE {
32          actionDefinition-Format1            E2SM-RC-ActionDefinition-Format1,
33          actionDefinition-Format2            E2SM-RC-ActionDefinition-Format2,
34          actionDefinition-Format3            E2SM-RC-ActionDefinition-Format3,
35          ...,
36          actionDefinition-Format4            E2SM-RC-ActionDefinition-Format4
37      },
38      ...
39  }
40
41
42  E2SM-RC-ActionDefinition-Format1 ::= SEQUENCE {
43      ranP-ToBeReported-List                  SEQUENCE (SIZE(1..maxnoofParametersToReport)) OF E2SM-
44  RC-ActionDefinition-Format1-Item,
45      ...
46  }
47
48
49  E2SM-RC-ActionDefinition-Format1-Item ::= SEQUENCE {
50      ranParameter-ID                          RANParameter-ID,
51      ...,
52      ranParameter-Definition                  RANParameter-Definition                OPTIONAL
53  }
54
55
56  E2SM-RC-ActionDefinition-Format2 ::= SEQUENCE {
57      ric-PolicyConditions-List                SEQUENCE (SIZE(1..maxnoofPolicyConditions)) OF E2SM-RC-
58  ActionDefinition-Format2-Item,
59      ...
60  }
61
62  E2SM-RC-ActionDefinition-Format2-Item ::= SEQUENCE {
63      ric-PolicyAction                        RIC-PolicyAction,
64      ric-PolicyConditionDefinition            RANParameter-Testing                OPTIONAL,
65      ...
66  }
67
68  E2SM-RC-ActionDefinition-Format3 ::= SEQUENCE {
69      ric-InsertIndication-ID                  RIC-InsertIndication-ID,
70      ranP-InsertIndication-List              SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
71  E2SM-RC-ActionDefinition-Format3-Item,
72      ueID                                    UEID                                OPTIONAL,
73      ...
74  }
75
76

```

```

1 E2SM-RC-ActionDefinition-Format3-Item ::= SEQUENCE {
2   ranParameter-ID                      RANParameter-ID,
3   ...,
4   ranParameter-Definition              RANParameter-Definition      OPTIONAL
5 }
6
7 E2SM-RC-ActionDefinition-Format4 ::= SEQUENCE {
8   ric-InsertStyle-List                  SEQUENCE (SIZE(1..maxnoofRICStyles)) OF E2SM-RC-
9   ActionDefinition-Format4-Style-Item,
10  ueID                                  UEID                          OPTIONAL,
11  ...
12 }
13
14 E2SM-RC-ActionDefinition-Format4-Style-Item ::= SEQUENCE {
15   requested-Insert-Style-Type           RIC-Style-Type,
16   ric-InsertIndication-List             SEQUENCE (SIZE(1..maxnoofInsertIndicationActions)) OF
17   E2SM-RC-ActionDefinition-Format4-Indication-Item,
18   ...
19 }
20
21 E2SM-RC-ActionDefinition-Format4-Indication-Item ::= SEQUENCE {
22   ric-InsertIndication-ID               RIC-InsertIndication-ID,
23   ranP-InsertIndication-List            SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
24   E2SM-RC-ActionDefinition-Format4-RANP-Item,
25   ...
26 }
27
28 E2SM-RC-ActionDefinition-Format4-RANP-Item ::= SEQUENCE {
29   ranParameter-ID                      RANParameter-ID,
30   ...,
31   ranParameter-Definition              RANParameter-Definition      OPTIONAL
32 }
33
34
35 -- *****
36 -- Indication Header OCTET STRING contents
37 -- *****
38
39 E2SM-RC-IndicationHeader ::= SEQUENCE {
40   ric-indicationHeader-formats          CHOICE {
41     indicationHeader-Format1            E2SM-RC-IndicationHeader-Format1,
42     indicationHeader-Format2            E2SM-RC-IndicationHeader-Format2,
43     ...,
44     indicationHeader-Format3            E2SM-RC-IndicationHeader-Format3
45   },
46   ...
47 }
48
49
50 E2SM-RC-IndicationHeader-Format1 ::= SEQUENCE {
51   ric-eventTriggerCondition-ID          RIC-EventTriggerCondition-ID      OPTIONAL,
52   ...
53 }
54
55 E2SM-RC-IndicationHeader-Format2 ::= SEQUENCE {
56   ueID                                  UEID,
57   ric-InsertStyle-Type                  RIC-Style-Type,
58   ric-InsertIndication-ID              RIC-InsertIndication-ID,
59   ...
60 }
61
62 E2SM-RC-IndicationHeader-Format3 ::= SEQUENCE {
63   ric-eventTriggerCondition-ID          RIC-EventTriggerCondition-ID      OPTIONAL,
64   ueID                                  UEID                          OPTIONAL,
65   ...
66 }
67
68
69 -- *****
70 -- Indication Message OCTET STRING contents
71 -- *****
72
73 E2SM-RC-IndicationMessage ::= SEQUENCE {
74   ric-indicationMessage-formats          CHOICE {
75     indicationMessage-Format1            E2SM-RC-IndicationMessage-Format1,
76     indicationMessage-Format2            E2SM-RC-IndicationMessage-Format2,
77     indicationMessage-Format3            E2SM-RC-IndicationMessage-Format3,

```

```

1      indicationMessage-Format4      E2SM-RC-IndicationMessage-Format4,
2      indicationMessage-Format5      E2SM-RC-IndicationMessage-Format5,
3      ...,
4      indicationMessage-Format6      E2SM-RC-IndicationMessage-Format6
5
6      },
7      ...
8  }
9
10 E2SM-RC-IndicationMessage-Format1 ::= SEQUENCE {
11     ranP-Reported-List      SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF E2SM-
12 RC-IndicationMessage-Format1-Item,
13     ...
14 }
15
16 E2SM-RC-IndicationMessage-Format1-Item ::= SEQUENCE {
17     ranParameter-ID      RANParameter-ID,
18     ranParameter-valueType      RANParameter-ValueType,
19     ...
20 }
21
22
23 E2SM-RC-IndicationMessage-Format2 ::= SEQUENCE {
24     ueParameter-List      SEQUENCE (SIZE(1..maxnoofUEID)) OF E2SM-RC-
25 IndicationMessage-Format2-Item,
26     ...
27 }
28
29 E2SM-RC-IndicationMessage-Format2-Item ::= SEQUENCE {
30     ueID      UEID,
31     ranP-List      SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF E2SM-
32 RC-IndicationMessage-Format2-RANParameter-Item,
33     ...
34 }
35
36
37 E2SM-RC-IndicationMessage-Format2-RANParameter-Item ::= SEQUENCE {
38     ranParameter-ID      RANParameter-ID,
39     ranParameter-valueType      RANParameter-ValueType,
40     ...
41 }
42
43
44 E2SM-RC-IndicationMessage-Format3 ::= SEQUENCE {
45     cellInfo-List      SEQUENCE (SIZE(1..maxnoofCellID)) OF E2SM-RC-
46 IndicationMessage-Format3-Item,
47     ...
48 }
49
50 E2SM-RC-IndicationMessage-Format3-Item ::= SEQUENCE {
51     cellGlobal-ID      CGI,
52     cellContextInfo      OCTET STRING      OPTIONAL,
53     cellDeleted      BOOLEAN      OPTIONAL,
54     neighborRelation-Table      NeighborRelation-Info      OPTIONAL,
55     ...
56 }
57
58 E2SM-RC-IndicationMessage-Format4 ::= SEQUENCE {
59     ueInfo-List      SEQUENCE (SIZE(0..maxnoofUEID)) OF E2SM-RC-
60 IndicationMessage-Format4-ItemUE,
61     cellInfo-List      SEQUENCE (SIZE(0..maxnoofCellID)) OF E2SM-RC-
62 IndicationMessage-Format4-ItemCell,
63     ...
64 }
65
66
67 E2SM-RC-IndicationMessage-Format4-ItemUE ::= SEQUENCE {
68     ueID      UEID,
69     ueContextInfo      OCTET STRING      OPTIONAL,
70     cellGlobal-ID      CGI,
71     ...
72 }
73
74
75 E2SM-RC-IndicationMessage-Format4-ItemCell ::= SEQUENCE {
76     cellGlobal-ID      CGI,
77     cellContextInfo      OCTET STRING      OPTIONAL,

```

```

1      neighborRelation-Table      NeighborRelation-Info      OPTIONAL,
2      ...
3  }
4
5  E2SM-RC-IndicationMessage-Format5 ::= SEQUENCE{
6      ranP-Requested-List          SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF E2SM-
7  RC-IndicationMessage-Format5-Item,
8      ...
9  }
10
11
12  E2SM-RC-IndicationMessage-Format5-Item ::= SEQUENCE {
13      ranParameter-ID              RANParameter-ID,
14      ranParameter-valueType       RANParameter-ValueType,
15      ...
16  }
17
18  E2SM-RC-IndicationMessage-Format6 ::= SEQUENCE {
19      ric-InsertStyle-List          SEQUENCE (SIZE(1..maxnoofRICStyles)) OF E2SM-RC-
20  IndicationMessage-Format6-Style-Item,
21      ...
22  }
23
24  E2SM-RC-IndicationMessage-Format6-Style-Item ::= SEQUENCE {
25      indicated-Insert-Style-Type   RIC-Style-Type,
26      ric-InsertIndication-List     SEQUENCE (SIZE(1..maxnoofInsertIndicationActions)) OF
27  E2SM-RC-IndicationMessage-Format6-Indication-Item,
28      ...
29  }
30
31  E2SM-RC-IndicationMessage-Format6-Indication-Item ::= SEQUENCE {
32      ric-InsertIndication-ID       RIC-InsertIndication-ID,
33      ranP-InsertIndication-List    SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF
34  E2SM-RC-IndicationMessage-Format6-RANP-Item ,
35      ...
36  }
37
38  E2SM-RC-IndicationMessage-Format6-RANP-Item ::= SEQUENCE {
39      ranParameter-ID              RANParameter-ID,
40      ranParameter-valueType       RANParameter-ValueType,
41      ...
42  }
43
44
45  -- *****
46  -- Call Process ID OCTET STRING contents
47  -- *****
48
49  E2SM-RC-CallProcessID ::= SEQUENCE {
50      ric-callProcessID-formats     CHOICE {
51          callProcessID-Format1     E2SM-RC-CallProcessID-Format1,
52          ...
53      },
54      ...
55  }
56
57  E2SM-RC-CallProcessID-Format1 ::= SEQUENCE {
58      ric-callProcess-ID           RAN-CallProcess-ID,
59      ...
60  }
61
62
63  -- *****
64  -- Control Header OCTET STRING contents
65  -- *****
66
67  E2SM-RC-ControlHeader ::= SEQUENCE {
68      ric-controlHeader-formats     CHOICE {
69          controlHeader-Format1     E2SM-RC-ControlHeader-Format1,
70          ...,
71          controlHeader-Format2     E2SM-RC-ControlHeader-Format2
72      },
73      ...
74  }
75
76  E2SM-RC-ControlHeader-Format1 ::= SEQUENCE {
77      ueID                         UEID,

```

```

1      ric-Style-Type                RIC-Style-Type,
2      ric-ControlAction-ID          RIC-ControlAction-ID,
3      ric-ControlDecision            ENUMERATED {accept, reject, ...}      OPTIONAL,
4      ...
5  }
6
7  E2SM-RC-ControlHeader-Format2 ::= SEQUENCE {
8      ueID                          UEID                                OPTIONAL,
9      ric-ControlDecision            ENUMERATED {accept, reject, ...}      OPTIONAL,
10     ...
11 }
12
13 -- *****
14 -- Control Message OCTET STRING contents
15 -- *****
16
17 E2SM-RC-ControlMessage ::= SEQUENCE {
18     ric-controlMessage-formats      CHOICE {
19         controlMessage-Format1      E2SM-RC-ControlMessage-Format1,
20         ...,
21         controlMessage-Format2      E2SM-RC-ControlMessage-Format2
22     },
23     ...
24 }
25
26
27 E2SM-RC-ControlMessage-Format1 ::= SEQUENCE {
28     ranP-List                      SEQUENCE (SIZE(0..maxnoofAssociatedRANParameters)) OF E2SM-
29     RC-ControlMessage-Format1-Item,
30     ...
31 }
32
33
34 E2SM-RC-ControlMessage-Format1-Item ::= SEQUENCE {
35     ranParameter-ID                RANParameter-ID,
36     ranParameter-valueType          RANParameter-ValueType,
37     ...
38 }
39
40 E2SM-RC-ControlMessage-Format2 ::= SEQUENCE {
41     ric-ControlStyle-List           SEQUENCE (SIZE(1..maxnoofRICStyles)) OF E2SM-RC-
42     ControlMessage-Format2-Style-Item,
43     ...
44 }
45
46 E2SM-RC-ControlMessage-Format2-Style-Item ::= SEQUENCE {
47     indicated-Control-Style-Type    RIC-Style-Type,
48     ric-ControlAction-List           SEQUENCE (SIZE(1..maxnoofMulCtrlActions)) OF E2SM-RC-
49     ControlMessage-Format2-ControlAction-Item,
50     ...
51 }
52
53 E2SM-RC-ControlMessage-Format2-ControlAction-Item ::= SEQUENCE {
54     ric-ControlAction-ID             RIC-ControlAction-ID,
55     ranP-List                       E2SM-RC-ControlMessage-Format1,
56     ...
57 }
58
59 -- *****
60 -- Control Outcome OCTET STRING contents
61 -- *****
62
63 E2SM-RC-ControlOutcome ::= SEQUENCE {
64     ric-controlOutcome-formats      CHOICE {
65         controlOutcome-Format1      E2SM-RC-ControlOutcome-Format1,
66         ...,
67         controlOutcome-Format2      E2SM-RC-ControlOutcome-Format2,
68         controlOutcome-Format3      E2SM-RC-ControlOutcome-Format3 },
69     ...
70 }
71
72 E2SM-RC-ControlOutcome-Format1 ::= SEQUENCE {
73     ranP-List                      SEQUENCE (SIZE(0..maxnoofRANOutcomeParameters)) OF E2SM-RC-
74     ControlOutcome-Format1-Item,
75     ...
76 }
77

```

```

1
2 E2SM-RC-ControlOutcome-Format1-Item ::= SEQUENCE {
3     ranParameter-ID          RANParameter-ID,
4     ranParameter-value       RANParameter-Value,
5     ...
6 }
7
8 E2SM-RC-ControlOutcome-Format2 ::= SEQUENCE {
9     ric-ControlStyle-List      SEQUENCE (SIZE(1..maxnoofRICStyles)) OF E2SM-RC-
10    ControlOutcome-Format2-Style-Item,
11     ...
12 }
13
14 E2SM-RC-ControlOutcome-Format2-Style-Item ::= SEQUENCE {
15     indicated-Control-Style-Type  RIC-Style-Type,
16     ric-ControlOutcome-List       SEQUENCE (SIZE(1..maxnoofMulCtrlActions)) OF E2SM-RC-
17    ControlOutcome-Format2-ControlOutcome-Item,
18     ...
19 }
20
21 E2SM-RC-ControlOutcome-Format2-ControlOutcome-Item ::= SEQUENCE {
22     ric-ControlAction-ID         RIC-ControlAction-ID,
23     ranP-List                   SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
24    E2SM-RC-ControlOutcome-Format2-RANP-Item,
25     ...
26 }
27
28 E2SM-RC-ControlOutcome-Format2-RANP-Item ::= SEQUENCE {
29     ranParameter-ID             RANParameter-ID,
30     ranParameter-value          RANParameter-Value,
31     ...
32 }
33
34 E2SM-RC-ControlOutcome-Format3 ::= SEQUENCE {
35     ranP-List                   SEQUENCE (SIZE(0..maxnoofRANOutcomeParameters)) OF E2SM-
36    RC-ControlOutcome-Format3-Item,
37     ...
38 }
39
40
41 E2SM-RC-ControlOutcome-Format3-Item ::= SEQUENCE {
42     ranParameter-ID             RANParameter-ID,
43     ranParameter-valueType      RANParameter-ValueType,
44     ...
45 }
46
47
48 -- *****
49 -- RAN Function Definition IEs
50 -- *****
51
52 E2SM-RC-RANFunctionDefinition ::= SEQUENCE{
53     ranFunction-Name            RANFunction-Name,
54     ranFunctionDefinition-EventTrigger  RANFunctionDefinition-EventTrigger      OPTIONAL,
55     ranFunctionDefinition-Report    RANFunctionDefinition-Report      OPTIONAL,
56     ranFunctionDefinition-Insert    RANFunctionDefinition-Insert      OPTIONAL,
57     ranFunctionDefinition-Control    RANFunctionDefinition-Control      OPTIONAL,
58     ranFunctionDefinition-Policy     RANFunctionDefinition-Policy      OPTIONAL,
59     ...
60 }
61
62 -----
63 -- Event Trigger
64 -----
65 RANFunctionDefinition-EventTrigger ::= SEQUENCE {
66     ric-EventTriggerStyle-List      SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
67    RANFunctionDefinition-EventTrigger-Style-Item,
68     ran-L2Parameters-List           SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
69    L2Parameters-RANParameter-Item      OPTIONAL,
70     ran-CallProcessTypes-List       SEQUENCE (SIZE(1..maxnoofCallProcessTypes)) OF
71    RANFunctionDefinition-EventTrigger-CallProcess-Item      OPTIONAL,
72     ran-UEIdentificationParameters-List  SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
73    UEIdentification-RANParameter-Item  OPTIONAL,
74     ran-CellIdentificationParameters-List SEQUENCE (SIZE(1..maxnoofAssociatedRANParameters)) OF
75    CellIdentification-RANParameter-Item OPTIONAL,
76     ...
77 }

```



```

1
2  RANFunctionDefinition-EventTrigger-Style-Item ::= SEQUENCE {
3      ric-EventTriggerStyle-Type          RIC-Style-Type,
4      ric-EventTriggerStyle-Name         RIC-Style-Name,
5      ric-EventTriggerFormat-Type        RIC-Format-Type,
6      ...
7  }
8
9
10 L2Parameters-RANParameter-Item ::= SEQUENCE {
11     ranParameter-ID                    RANParameter-ID,
12     ranParameter-name                  RANParameter-Name,
13     ...,
14     ranParameter-Definition            RANParameter-Definition    OPTIONAL
15 }
16
17
18 UEIdentification-RANParameter-Item ::= SEQUENCE {
19     ranParameter-ID                    RANParameter-ID,
20     ranParameter-name                  RANParameter-Name,
21     ...,
22     ranParameter-Definition            RANParameter-Definition    OPTIONAL
23 }
24
25
26 CellIdentification-RANParameter-Item ::= SEQUENCE {
27     ranParameter-ID                    RANParameter-ID,
28     ranParameter-name                  RANParameter-Name,
29     ...,
30     ranParameter-Definition            RANParameter-Definition    OPTIONAL
31 }
32
33
34 RANFunctionDefinition-EventTrigger-CallProcess-Item ::= SEQUENCE {
35     callProcessType-ID                 RIC-CallProcessType-ID,
36     callProcessType-Name                RIC-CallProcessType-Name,
37     callProcessBreakpoints-List         SEQUENCE (SIZE (1..maxnoofCallProcessBreakpoints)) OF
38     RANFunctionDefinition-EventTrigger-Breakpoint-Item,
39     ...
40 }
41
42
43 RANFunctionDefinition-EventTrigger-Breakpoint-Item ::= SEQUENCE {
44     callProcessBreakpoint-ID            RIC-CallProcessBreakpoint-ID,
45     callProcessBreakpoint-Name          RIC-CallProcessBreakpoint-Name,
46     ran-CallProcessBreakpointParameters-List SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
47     OF CallProcessBreakpoint-RANParameter-Item    OPTIONAL,
48     ...
49 }
50
51
52 CallProcessBreakpoint-RANParameter-Item ::= SEQUENCE {
53     ranParameter-ID                    RANParameter-ID,
54     ranParameter-name                  RANParameter-Name,
55     ...,
56     ranParameter-Definition            RANParameter-Definition    OPTIONAL
57 }
58
59 -----
60 -- Report
61 -----
62
63 RANFunctionDefinition-Report ::= SEQUENCE {
64     ric-ReportStyle-List                SEQUENCE (SIZE (1..maxnoofRICStyles)) OF
65     RANFunctionDefinition-Report-Item,
66     ...
67 }
68
69
70 RANFunctionDefinition-Report-Item ::= SEQUENCE {
71     ric-ReportStyle-Type                RIC-Style-Type,
72     ric-ReportStyle-Name                RIC-Style-Name,
73     ric-SupportedEventTriggerStyle-Type RIC-Style-Type,
74     ric-ReportActionFormat-Type         RIC-Format-Type,
75     ric-IndicationHeaderFormat-Type     RIC-Format-Type,

```

```

1      ric-IndicationMessageFormat-Type      RIC-Format-Type,
2      ran-ReportParameters-List             SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
3  Report-RANParameter-Item                 OPTIONAL,
4      ...
5  }
6
7
8  Report-RANParameter-Item ::= SEQUENCE {
9      ranParameter-ID                      RANParameter-ID,
10     ranParameter-name                    RANParameter-Name,
11     ...,
12     ranParameter-Definition              RANParameter-Definition    OPTIONAL
13 }
14
15 -----
16 -- Insert
17 -----
18
19 RANFunctionDefinition-Insert ::= SEQUENCE {
20     ric-InsertStyle-List                  SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
21     RANFunctionDefinition-Insert-Item,
22     ...
23 }
24
25 RANFunctionDefinition-Insert-Item ::= SEQUENCE {
26     ric-InsertStyle-Type                  RIC-Style-Type,
27     ric-InsertStyle-Name                  RIC-Style-Name,
28     ric-SupportedEventTriggerStyle-Type   RIC-Style-Type,
29     ric-ActionDefinitionFormat-Type        RIC-Format-Type,
30     ric-InsertIndication-List             SEQUENCE (SIZE(1..maxnoofInsertIndication)) OF
31     RANFunctionDefinition-Insert-Indication-Item    OPTIONAL,
32     ric-IndicationHeaderFormat-Type        RIC-Format-Type,
33     ric-IndicationMessageFormat-Type      RIC-Format-Type,
34     ric-CallProcessIDFormat-Type          RIC-Format-Type,
35     ...
36 }
37
38
39 RANFunctionDefinition-Insert-Indication-Item ::= SEQUENCE {
40     ric-InsertIndication-ID               RIC-InsertIndication-ID,
41     ric-InsertIndication-Name             RIC-InsertIndication-Name,
42     ran-InsertIndicationParameters-List   SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
43     InsertIndication-RANParameter-Item    OPTIONAL,
44     ...
45 }
46
47
48 InsertIndication-RANParameter-Item ::= SEQUENCE {
49     ranParameter-ID                      RANParameter-ID,
50     ranParameter-name                    RANParameter-Name,
51     ...,
52     ranParameter-Definition              RANParameter-Definition    OPTIONAL
53 }
54
55 -----
56 -- Control
57 -----
58
59 RANFunctionDefinition-Control ::= SEQUENCE {
60     ric-ControlStyle-List                  SEQUENCE (SIZE(1..maxnoofRICStyles)) OF
61     RANFunctionDefinition-Control-Item,
62     ...
63 }
64
65 RANFunctionDefinition-Control-Item ::= SEQUENCE {
66     ric-ControlStyle-Type                  RIC-Style-Type,
67     ric-ControlStyle-Name                  RIC-Style-Name,
68     ric-ControlAction-List                 SEQUENCE (SIZE(1..maxnoofControlAction)) OF
69     RANFunctionDefinition-Control-Action-Item    OPTIONAL,
70     ric-ControlHeaderFormat-Type            RIC-Format-Type,
71     ric-ControlMessageFormat-Type           RIC-Format-Type,
72     ric-CallProcessIDFormat-Type            RIC-Format-Type    OPTIONAL,
73     ric-ControlOutcomeFormat-Type           RIC-Format-Type,
74     ran-ControlOutcomeParameters-List       SEQUENCE (SIZE(1..maxnoofRANOutcomeParameters)) OF
75     ControlOutcome-RANParameter-Item    OPTIONAL,

```

```

1  ...
2  }
3
4  ControlOutcome-RANParameter-Item ::= SEQUENCE {
5      ranParameter-ID          RANParameter-ID,
6      ranParameter-name        RANParameter-Name,
7      ...,
8      ranParameter-Definition  RANParameter-Definition  OPTIONAL
9  }
10
11
12  RANFunctionDefinition-Control-Action-Item ::= SEQUENCE {
13      ric-ControlAction-ID      RIC-ControlAction-ID,
14      ric-ControlAction-Name    RIC-ControlAction-Name,
15      ran-ControlActionParameters-List  SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
16  ControlAction-RANParameter-Item  OPTIONAL,
17      ...
18  }
19
20  ControlAction-RANParameter-Item ::= SEQUENCE {
21      ranParameter-ID          RANParameter-ID,
22      ranParameter-name        RANParameter-Name,
23      ...,
24      ranParameter-Definition  RANParameter-Definition  OPTIONAL
25  }
26
27  -----
28  -- Policy
29  -----
30
31  RANFunctionDefinition-Policy ::= SEQUENCE {
32      ric-PolicyStyle-List      SEQUENCE (SIZE (1..maxnoofRICStyles)) OF
33  RANFunctionDefinition-Policy-Item,
34      ...
35  }
36
37  RANFunctionDefinition-Policy-Item ::= SEQUENCE {
38      ric-PolicyStyle-Type      RIC-Style-Type,
39      ric-PolicyStyle-Name      RIC-Style-Name,
40      ric-SupportedEventTriggerStyle-Type  RIC-Style-Type,
41      ric-PolicyAction-List     SEQUENCE (SIZE (1..maxnoofPolicyAction)) OF
42  RANFunctionDefinition-Policy-Action-Item  OPTIONAL,
43      ...
44  }
45
46
47  RANFunctionDefinition-Policy-Action-Item ::= SEQUENCE {
48      ric-PolicyAction-ID      RIC-ControlAction-ID,
49      ric-PolicyAction-Name    RIC-ControlAction-Name,
50      ric-ActionDefinitionFormat-Type  RIC-Format-Type,
51      ran-PolicyActionParameters-List  SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
52  PolicyAction-RANParameter-Item  OPTIONAL,
53      ran-PolicyConditionParameters-List  SEQUENCE (SIZE (1..maxnoofAssociatedRANParameters)) OF
54  PolicyCondition-RANParameter-Item  OPTIONAL,
55      ...
56  }
57
58
59  PolicyAction-RANParameter-Item ::= SEQUENCE {
60      ranParameter-ID          RANParameter-ID,
61      ranParameter-name        RANParameter-Name,
62      ...,
63      ranParameter-Definition  RANParameter-Definition  OPTIONAL
64  }
65
66
67  PolicyCondition-RANParameter-Item ::= SEQUENCE {
68      ranParameter-ID          RANParameter-ID,
69      ranParameter-name        RANParameter-Name,
70      ...,
71      ranParameter-Definition  RANParameter-Definition  OPTIONAL
72  }
73
74
75
76  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

Section 10 of TS 36.413 [13] is applicable for the purposes of the present document.

# Annex A: 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 O-CU-CP, 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 O-CU-CP, or gNB 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 section 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

**Editor's Note: FFS**

### A.2.3 Solution using RIC Service Policy ("Offset" based approach)

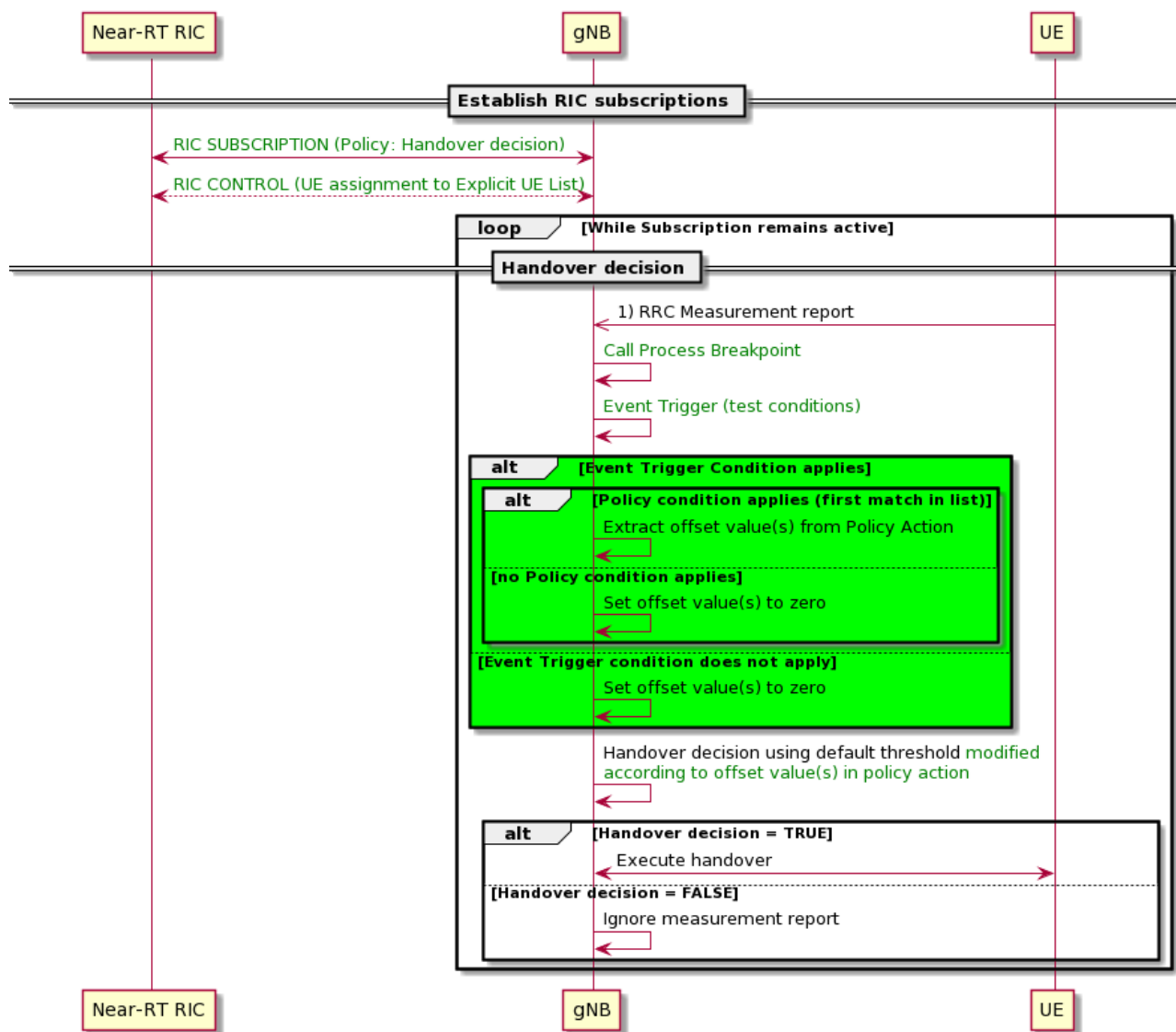
This section provides a solution for the Connected Mode Mobility event call flow using the RIC Service Policy using the "Offset" approach. Corresponding example message content are provided for the *RIC Event Trigger Definition IE* and *RIC Action Definition IE* contents for the Connected Mode Mobility 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.

#### A2.3.1 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 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* IE RAN parameters for *Associated E2 Node Info* IE are not used
  - b. *Event Trigger Definition* 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 Action ID 1 (Policy for Handover control)
- 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 Definition* 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



**Figure A4.1.2-1: 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 RAN Parameter lists for *Associated E2 Node Info* IE and *Associated UE info* IE. In this example, only the *Associated UE info* IE 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 *Associated E2 Node Info* IE using the optional "Logical OR" flag (see section 9.3.26).

The contents of the *RAN Parameter Testing for UE Group* IE (defined in 8.1.3) for the above scenario are as follows:

RAN Parameter ID	Value type	Key flag	Value	Test condition	Semantics Description
10	STRUCTURE				S-NSSAI
11	ELEMENT	FALSE	sst1	equal	>SST
12	ELEMENT	FALSE	sd1	equal	>SD
20	STRUCTURE				Group ID
21	ELEMENT	FALSE	irfsp1	equal	>IRFSP

### A.2.3.3 RIC Action Definition IE contents

*RIC Action Definition* IE contains RAN Parameter lists for *Policy Condition Definition* IE and *Policy Action Definition* 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 Definition* IE based on a given Serving Cell (nr-cgi1) and membership of a given Explicit UE List (HOList1). The corresponding *Policy Action Definition* 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 *Action Definition* IE, each with a corresponding different Policy Action definition.

The contents of the *Policy Condition Definition* IE (defined using RAN parameters in sections 8.5.4 and 8.1.3) for the above scenario 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
30	ELEMENT	FALSE	HOList1	Equal	Explicit UE List ID

#### Editor's Note:

Section 8.1, 8.5.4 and/or 8.5.1 to be modified to support Policy condition using RAN Parameters from 8.1.3

The contents of the *Policy Action Definition* IE (defined using RAN parameters in sections 8.5.4.1.2) for the above scenario 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)

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