**3GPP TSG-RAN WG3 Meeting #110-e *R3-207104***

**E-meeting, 2 – 12 Nov 2020**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.413** | **CR** | **1796** | **rev** | **1** | **Current version:** | 16.3.0 |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Introducing UE radio capability ID in Connection Establishment Indication | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, CATT, Samsung, Nokia, Nokia Shanghai Bell, Qualcomm | | | | | | | | | |
| ***Source to TSG:*** | RAN3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | RACS-RAN | | | | |  | ***Date:*** | | | 2020-10-22 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In Rel-16, the Connection Establishment Indication message is used for CP CIoT 5GS optimimizaiton to establish the UE-associated logical NG-connection, or to trigger to obtain UE radio capability. This message can be used not limited to NB-IoT UEs.  And the UE radio capability ID is signalled to the NG-RAN avoiding to include the full set of UE capability over related interfaces, in the RACS Rel-16 topic.  Hence there is a need to include the UE radio capability ID in Connection Establishment Indication message, except to NB-IoT UEs. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce the UE radio capability ID in Connection Establishment Indication message, except for NB-IoT UEs.    Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has isolated impact with the previous version of the specification (same release) because it only impacts on the Connection Establishment Indication procedure.  The impact can be considered isolated. | | | | | | | | |
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| ***Consequences if not approved:*** | | The RACS feature is not supported for some UEs using Connection Establishment Indication procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.3.9, 9.1.4.20, 9.3.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS38.413 CR0512 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | V0: R3-206470 | | | | | | | | |

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| **Change begins** |

### 8.3.9 Connection Establishment Indication

#### 8.3.9.1 General

The purpose of the Connection Establishment Indication procedure is to enable the MME to complete the establishment of the UE-associated logical S1-connection, and/or trigger the eNB to obtain and report UE Radio Capability. The procedure uses UE-associated signalling.

#### 8.3.9.2 Successful Operation



Figure 8.3.9.2-1: Connection Establishment Indication procedure. Successful operation.

The MME initiates the procedure by sending a CONNECTION ESTABLISHMENT INDICATION message to the eNB.

If the UE-associated logical S1-connection is not established, the MME shall allocate a unique MME UE S1AP ID to be used for the UE and include that in the CONNECTION ESTABLISHMENT INDICATION message.

If the *UE Radio Capability* IE is included in the CONNECTION ESTABLISHMENT INDICATION message, the eNB shall store this information in the UE context, use it as defined in TS 36.300 [14].

If the *Enhanced Coverage Restricted* IE is included in the CONNECTION ESTABLISHMENT INDICATION message, the eNB shall store this information in the UE context and use it as defined in TS 23.401 [11].

If the *DL CP Security Information* IE is included in the CONNECTION ESTABLISHMENT INDICATION message, the eNB shall forward this information to the UE as described in TS 36.300 [14].

If the *CE-Mode-B Restricted* IE is included in the CONNECTION ESTABLISHMENT INDICATION message and the *Enhanced Coverage Restricted* IE is not set to *restricted* and the Enhanced Coverage Restricted information stored in the UE context is not set to *restricted*, the eNB shall store this information in the UE context and use it as defined in TS 23.401 [11].

If the *End Indication* IE is included in the CONNECTION ESTABLISHMENT INDICATION message and set to "no further data", the eNB shall consider that there are no further NAS PDUs to be transmitted for this UE.

If the *Subscription Based UE Differentiation Information* IE is included in the CONNECTION ESTABLISHMENT INDICATION message, the eNB shall, if supported, store this information in the UE context for further use according to TS 23.401 [11].

If the UE Level QoS ParametersIE is contained in the CONNECTION ESTABLISHMENT INDICATION message, the eNB shall, if supported, store this information in the UE context, and use it as specified in TS 23.401 [11].

If the *UE Radio Capability ID* IE is contained in the CONNECTION ESTABLISHMENT INDICATION message, the eNB shall, if supported, use it as defined in TS 23.401 [11].

<Unchanged Text Omitted>

#### 9.1.4.20 CONNECTION ESTABLISHMENT INDICATION

This message is sent by the MME to complete the establishment of the UE-associated logical S1-connection.

Direction: MME → eNB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | ignore |
| eNB UE S1AP ID | M |  | 9.2.3.4 |  | YES | ignore |
| UE Radio Capability | O |  | 9.2.1.27 |  | YES | ignore |
| Enhanced Coverage Restricted | O |  | 9.2.1.123 |  | YES | ignore |
| DL CP Security Information | O |  | 9.2.3.49 |  | YES | ignore |
| CE-Mode-B Restricted | O |  | 9.2.1.129 |  | YES | ignore |
| End Indication | O |  | 9.2.3.54 |  | YES | ignore |
| Subscription Based UE Differentiation Information | O |  | 9.2.1.140 |  | YES | ignore |
| UE Level QoS Parameters | O |  | E-RAB Level QoS Parameters 9.2.1.15 | Includes QoS parameters. | YES | Ignore |
| UE Radio Capability ID | O |  | 9.2.1.153 |  | YES | reject |

### 9.3.3 PDU Definitions

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-- PDU definitions for S1AP.

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<Unchanged Text Omitted>

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-- Connection Establishment Indication

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

ConnectionEstablishmentIndication::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ConnectionEstablishmentIndicationIEs} },

...

}

ConnectionEstablishmentIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-UERadioCapability CRITICALITY ignore TYPE UERadioCapability PRESENCE optional }|

{ ID id-EnhancedCoverageRestricted CRITICALITY ignore TYPE EnhancedCoverageRestricted PRESENCE optional }|

{ ID id-DL-CP-SecurityInformation CRITICALITY ignore TYPE DL-CP-SecurityInformation PRESENCE optional }|

{ ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

{ ID id-EndIndication CRITICALITY ignore TYPE EndIndication PRESENCE optional}|

{ ID id-Subscription-Based-UE-DifferentiationInfo CRITICALITY ignore TYPE Subscription-Based-UE-DifferentiationInfo PRESENCE optional}|

{ ID id-UE-Level-QoS-Parameters CRITICALITY ignore TYPE E-RABLevelQoSParameters PRESENCE optional}|

{ ID id-UERadioCapabilityID CRITICALITY reject TYPE UERadioCapabilityID PRESENCE optional}

,

...

}

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| **Change ends** |