3GPP TSG-RAN WG3 Meeting #129 R3-25xxxx

**Bangaluru, India, 25 – 29 August 2025**

Agenda Item: 10.2

Source: Ericsson, Huawei, Jio Platforms

Title: (TP for BL CR to 38.473 for SON) Signaling of MRO for LTM between target DU and source DU

Document for: Agreement

# TP for SON BL CR for TS 38.473

<<<<<<<<<<<<<<<<<<<< 1st Change >>>>>>>>>>>>>>>>>>>>

### 8.11.1 Access and Mobility Indication

#### 8.11.1.1 General

This procedure is initiated by gNB-CU to send the Access and Mobility related Information to gNB-DU.

The procedure uses non-UE-associated signalling.

#### 8.11.1.2 Successful Operation



Figure 8.11.1.2-1: Access and Mobility Indication procedure. Successful operation

The Access and Mobility Indication procedure is initiated by ACCESS AND MOBILITY INDICATION message sent from gNB-CU to gNB-DU.

If the ACCESS AND MOBILITY INDICATION message contains the *RA Report List* IE the gNB-DU shall take it into account for optimisation of RACH access procedures.

If the ACCESS AND MOBILITY INDICATION message contains the *RLF Report Information List* IE the gNB-DU shall take it into account for optimisation of mobility parameters.

If the ACCESS AND MOBILITY INDICATION message contains the *Successful HO Report Information List* IE the gNB-DU may take it into account for optimisation of mobility parameters.

If the ACCESS AND MOBILITY INDICATION message contains the *Successful PSCell Change Report Information List* IE, the gNB-DU may take it into account for optimisation of PSCell change/addition related parameters.

If the ACCESS AND MOBILITY INDICATION message contains the *BFR SSB Index* IE within the *MRO for LTM Information* IE, the gNB-DU shall, if supported, consider that a Beam Failure Recovery after successful LTM Cell Switch has occurred in the target DU for the UE identified by the *gNB-DU UE F1AP ID* IE, and may take it into account for optimisation of target beam selection.

If the ACCESS AND MOBILITY INDICATION message contains the *Target SSB Index after Cell Switch Failure* IE within the *MRO for LTM Information* IE, the gNB-DU shall, if supported, consider that an LTM Cell Switch Failure due to Wrong Beam has occurred in the target DU for the UE identified by the *gNB-DU UE F1AP ID* IE, and may take it into account for optimisation of target beam selection.

If the ACCESS AND MOBILITY INDICATION message contains the *TA Information IE* within the *MRO for LTM Information* IE, the gNB-DU may take it into account for optimisation of Timing Advance related parameters for the UE identified by the *gNB-DU UE F1AP ID* IE.

If the ACCESS AND MOBILITY INDICATION message contains the *Near Failure TA difference IE* within the *MRO for LTM Information* IE, the gNB-DU may take it into account for optimisation of Timing Advance related parameters for the UE identified by the *gNB-DU UE F1AP ID* IE.

#### 8.11.1.3 Abnormal Conditions

Not applicable.

[snip]

### 8.11.2 DU-CU Access and Mobility Indication

#### 8.11.2.1 General

This procedure is initiated by the gNB-DU to send the Access and Mobility related Information to the gNB-CU.

The procedure uses non-UE-associated signalling.

#### 8.11.2.2 Successful Operation



Figure 8.11.2.2-1: DU-CU Access and Mobility Indication procedure. Successful operation

The DU-CU Access and Mobility Indication procedure is initiated by DU-CU ACCESS AND MOBILITY INDICATION message sent from the gNB-DU to the gNB-CU.

If the DU-CU ACCESS AND MOBILITY INDICATION message contains the *DL LBT Failure Information List* IE, the gNB-CU shall take it into account for optimisation of mobility parameters.

#### 8.11.2.3 Abnormal Conditions

Not applicable.

[snip]

# 9 Elements for F1AP Communication

[snip]

## 9.2 Message Functional Definition and Content

[snip]

### 9.2.10 Self Optimisation Support Messages

#### 9.2.10.1 ACCESS AND MOBILITY INDICATION

This message is sent by gNB-CU to gNB-DU to provide access and mobility information to the gNB-DU.

Direction: gNB-CU → gNB-DU.

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **RA Report List** |  | *0..1* |  |  | YES | ignore |
| **>RA Report Item** |  | *1 .. <maxnoofRAReports>* |  |  | - |  |
| >>RA Report Container | M |  | OCTET STRING | Includes the *RA-ReportList-r16* IE as defined in subclause 6.2.2 in TS 38.331 [8]. | - |  |
| >>UE Assistant Identifier  | O |  | gNB-DU UE F1AP ID9.3.1.5 |  | - |  |
| **RLF Report Information List** |  | *0..1* |  |  | YES | ignore |
| **>RLF Report Information Item** |  | *1 .. <**maxnoofRLFReports>* |  |  | - |  |
| >>NR UE RLF Report Container | M |  | OCTET STRING | Includes the *nr-RLF-Report-r16* IE contained in the *UEInformationResponse* message defined in TS 38.331 [8]. | - |  |
| >>UE Assistant Identifier | O |  | gNB-DU UE F1AP ID9.3.1.5 |  | - |  |
| >>C-RNTI | O |  | 9.3.1.32 | C-RNTI allocated at the source gNB-DU. This IE is included in case the gNB-DU responsible for the LTM failure is not the gNB-DU serving the UE at the time of LTM failure. | YES | ignore |
| >>RLF Report Failure Type | O |  | ENUMERATED (too late LTM, too early LTM, LTM to wrong cell,...) |  | YES | ignore |
| **Successful HO Report Information List** |  | *0..1* |  |  | YES | ignore |
| **>Successful HO Report Information Item** |  | *1 .. <maxnoofSuccessfulHOReports>* |  |  | - |  |
| >>Successful HO Report Container | M |  | OCTET STRING | Includes the *SuccessHO-Report* IE as defined in subclause 6.2.2 in TS 38.331 [8]. | - |  |
| **Successful PSCell Change Report Information List** |  | *0..1* |  |  | YES | ignore |
| **>Successful PSCell Change Report information Item** |  | *1..<maxnoofSuccessfulPSCellChangeReports>* |  |  | - |  |
| >>Successful PSCell Change Report Container | M |  | OCTET STRING | Includes the *SuccessPSCell-Report* IE as defined in TS 38.331 [8]. | - |  |
| **MRO for LTM Information** | O |  |  |  | YES | ignore |
| >gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | - |  |
| >BFR SSB Index | O |  | INTEGER (0..63) | SSB Index of the recovery beam used at successful Beam Failure Recovery. | - |  |
| >Target SSB Index after Cell Switch Failure | O |  | INTEGER (0..63) | SSB Index of the re-established or recovery beam after LTM Cell Switch Failure due to Wrong Beam. | - |  |
| >TA Information | O |  | INTEGER (0..4095) | Indicates the TA value, as defined in TS 38.213 [31], used at successful Random Access during LTM recovery or re-establishment after a Cell Switch failure in same beam. | - |  |
| >Near Failure TA difference | O |  | INTEGER (-4095..4095) | Indicates the delta of the TA value detected from the initial successful transmission from the UE. | - |  |
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| **Range bound** | **Explanation** |
| --- | --- |
| maxnoofRAReports | Maximum no. of RA Reports, the maximum value is 64. |
| maxnoofRLFReports | Maximum no. of RLF Reports, the maximum value is 64. |
| maxnoofSuccessfulHOReports | Maximum no. of Successful HO Reports, the maximum value is 64. |
| maxnoofSuccessfulPSCellChangeReports | Maximum no. of Successful PSCell Change Reports. Value is 64. |

#### 9.2.10.2 DU-CU ACCESS AND MOBILITY INDICATION

This message is sent by the gNB-DU to provide access and mobility information to the gNB-CU.

Direction: gNB-DU → gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **DL LBT Failure Information List** |  | *0..1* |  |  | YES | ignore |
| **> DL LBT Failure Information Item** |  | *1 .. <maxnoofLBTFailureInformation>* |  |  | - |  |
| >>DL LBT Failure Information | M |  | 9.3.1.327 |  | - |  |
| **MRO for LTM Information** | O |  |  |  | YES | ignore |
| >gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | - |  |
| >BFR SSB Index | O |  | INTEGER (0..63) | SSB Index of the recovery beam used at successful Beam Failure Recovery. | - |  |
| >Target SSB Index after Cell Switch Failure | O |  | INTEGER (0..63) | SSB Index of the re-established or recovery beam after LTM Cell Switch Failure due to Wrong Beam. | - |  |
| >TA Information | O |  | INTEGER (0..4095) | Indicates the TA value, as defined in TS 38.213 [31], used at successful Random Access during LTM recovery or re-establishment after a Cell Switch failure in same beam. | - |  |
| >Near Failure TA difference | O |  | INTEGER (-4095..4095) | Indicates the delta of the TA value detected from the initial successful transmission from the UE. | - |  |
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| --- | --- |
| Range bound | Explanation |
| maxnoofLBTFailureInformation | Maximum no. of UEs for which LBT Failure Information is provided, the maximum value is 64. |

<<<<<<<<<<<<<<<<<<<< End of 1st Change >>>>>>>>>>>>>>>>>>>>

**-- TEXT OMITTED –**

<<<<<<<<<<<<<<<<<<<< 2nd Change >>>>>>>>>>>>>>>>>>>>

### 9.4.4 PDU Definitions

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-- PDU definitions for F1AP.

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**-- TEXT OMITTED –**

 PLMNIndexNR,

 MROForLTM-Information

FROM F1AP-IEs

**-- TEXT OMITTED –**

 id-PLMNIndexNRAssistanceInfoForNetShar,

 id-MROForLTM-Information,

 maxCellingNBDU,

**-- TEXT OMITTED –**

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-- Access And Mobility Indication ELEMENTARY PROCEDURE

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

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-- Access And Mobility Indication

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

AccessAndMobilityIndication ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { AccessAndMobilityIndicationIEs} },

 ...

}

AccessAndMobilityIndicationIEs F1AP-PROTOCOL-IES ::= {

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

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

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

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

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

 { ID id-MROForLTM-Information CRITICALITY ignore TYPE MROForLTM-Information PRESENCE optional },

 ...

}

**-- TEXT OMITTED –**

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-- DU-CU Access And Mobility Indication ELEMENTARY PROCEDURE

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

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-- DU-CU Access And Mobility Indication

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

DUCUAccessAndMobilityIndication ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { DUCUAccessAndMobilityIndicationIEs} },

 ...

}

DUCUAccessAndMobilityIndicationIEs F1AP-PROTOCOL-IES ::= {

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

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

 { ID id-MROForLTM-Information CRITICALITY ignore TYPE MROForLTM-Information PRESENCE optional },

 ...

}

**-- TEXT OMITTED –**

### 9.4.5 Information Element Definitions

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-- Information Element Definitions

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

**-- TEXT OMITTED –**

CSIResourceConfiguration ::= SEQUENCE {

 cSIResourceConfigToAddModList OCTET STRING OPTIONAL,

 cSIResourceConfigToReleaseList OCTET STRING OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { CSIResourceConfiguration-ExtIEs} } OPTIONAL

}

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

 ...

}

-- D

**-- TEXT OMITTED –**

DLLBTFailureInformationRequest ::= ENUMERATED {inquiry, ...}

DLLBTFailureInformationList ::= SEQUENCE (SIZE(1.. maxnoofLBTFailureInformation)) OF DLLBTFailureInformationList-Item

DLLBTFailureInformationList-Item::= SEQUENCE {

 uEAssistantIdentifier GNB-CU-UE-F1AP-ID,

 numberOfDLLBTFailures INTEGER (1..1000,...) OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { DLLBTFailureInformationList-Item-ExtIEs} } OPTIONAL,

 ...

}

DLLBTFailureInformationList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 ...

}

-- E

**-- TEXT OMITTED –**

GNB-DU-UE-F1AP-ID ::= INTEGER (0..4294967295)

GNB-CUorDU-UE-F1AP-ID ::= INTEGER (0..4294967295)

GNB-DU-ID ::= INTEGER (0..68719476735)

**-- TEXT OMITTED –**

MobilityInitiation-AssistanceInfo ::= SEQUENCE {

 servingCellMeasurements ServingCellMeasurements,

 candidateCellwithMeasurementsList CandidateCellwithMeasurementsList,

 iE-Extensions ProtocolExtensionContainer { { MobilityInitiation-AssistanceInfo-ExtIEs } } OPTIONAL,

 ...

}

MobilityInitiation-AssistanceInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 ...

}

MROForLTM-Information ::= SEQUENCE {

 gNB-CUorDU-UE-F1AP-ID GNB-CUorDU-UE-F1AP-ID,

 bFR-SSB-Index SSB-Index OPTIONAL,

 target-SSB-Index-Failure SSB-Index OPTIONAL,

 tA-Value TAValue OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { MROForLTM-Information-ExtIEs } } OPTIONAL,

 ...

}

MROForLTM-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 ...

}

-- N

**-- TEXT OMITTED –**

id-PLMNIndexNRAssistanceInfoForNetShar ProtocolIE-ID ::= 861

id-rLFReportFailureType ProtocolIE-ID ::= 999 --to be assigned by MCC

id-MROForLTM-Information ProtocolIE-ID ::= 998 --to be assigned by MCC

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