**3GPP TSG- Meeting #-bis-e R3-23xxxx**

**Online – – April 26th**

Agenda Item: 10.2.5

Source: Ericsson, Nokia, Nokia Shanghai Bell, Qualcomm Incorporated, Samsung

Title: (TP for SON BL CR for TS 38.473) NR-U metrics

Document for: Discussion, Approval

# Introduction

This paper contains a TP for SON BL CR for F1AP in relation to NR-U metrics.

One note:

The presence of the Rel-18 *Channel Occupancy Time Percentage UL* IE is currently FFS. The presence of this IE should be Option. The reason is that the new metric is included in an existing Rel-17 protocol structure, and extension in future releases are always realized by introducing optional IEs on top.

# TP for TS 38.473

#### 9.2.1.23 RESOURCE STATUS UPDATE

This message is sent by gNB-DU to gNB-CU to report the results of the requested measurements.

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 |
| gNB-CU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU | YES | reject |
| gNB-DU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-DU | YES | ignore |
| Hardware Load Indicator | O |  | 9.3.1.136 |  | YES | ignore |
| TNL Capacity Indicator | O |  | 9.3.1.128 |  | YES | ignore |
| **Cell Measurement Result** |  | *0..1* |  |  | YES | ignore |
| **>Cell Measurement Result Item** |  | *1 .. <maxCellingNBDU >* |  |  | - |  |
| >>Cell ID | M |  | NR CGI  9.3.1.12 |  | - |  |
| >>Radio Resource Status | O |  | 9.3.1.129 |  | - |  |
| >>Composite Available Capacity Group | O |  | 9.3.1.130 |  | - |  |
| >>Slice Available Capacity | O |  | 9.3.1.134 |  | - |  |
| >>Number of Active UEs | O |  | 9.3.1.135 |  | - |  |
| >>NR-U Channel List |  | *0..1* |  |  | YES | ignore |
| >>>NR-U Channel Item |  | *1..<maxnoofNR-UChannelIDs>* |  |  | - |  |
| >>>>NR-U Channel ID | M |  | INTEGER (1.. *maxnoofNR-UChannelIDs*, …) | Identifies a portion of the NR-U Channel Bandwidth on which channel access procedure in shared spectrum has been performed in the last reporting period. | - |  |
| >>>>Channel occupancy time percentage DL | M |  | INTEGER (0..100) | The percentage of time for which the channel resources have been utilised for DL traffic served by the corresponding NR-U Channel of the serving cell. Value 100 corresponds to the duration between consecutive reporting. | - |  |
| >>>>Energy Detection Threshold DL | M |  | INTEGER (-100..-50,…) | Average ED Threshold used for DL channel sensing at the gNB. Value is in dBm. | - |  |
| >>>>Channel Occupancy Time Percentage UL | O |  | INTEGER (0..100) | The percentage of time for which the channel resources have been utilised for UL traffic served by the corresponding NR-U Channel of the serving cell for UEs that transmit to the serving cell. Value 100 indicates that the channel resources have been utilized for UL traffic served by the corresponding NR-U Channel of the serving cell for the whole duration between consecutive reporting. | YES | ignore |

----------------------------------------------- Next Change -------------------------------------------------------

### 9.4.5 Information Element Definitions

-- ASN1START

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

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-- Information Element Definitions

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

[snip]

id-RedCapIndication,

id-UL-GapFR2-Config,

id-ConfigRestrictInfoDAPS,

id-MulticastF1UContextReferenceCU,

id-ChannelOccupancyTimePercentageUL,

maxNRARFCN,

maxnoofErrors,

maxnoofBPLMNs,

[snip]

NR-U-Channel-List ::= SEQUENCE (SIZE (1..maxnoofNR-UChannelIDs)) OF NR-U-Channel-Item

NR-U-Channel-Item ::= SEQUENCE {

nR-U-ChannelID INTEGER(1..maxnoofNR-UChannelIDs),

channelOccupancyTimePercentageDL ChannelOccupancyTimePercentage,

energyDetectionThreshold EnergyDetectionThreshold,

iE-Extensions ProtocolExtensionContainer { { NR-U-Channel-Item-ExtIEs} } OPTIONAL,

...

}

NR-U-Channel-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ChannelOccupancyTimePercentageUL CRITICALITY ignore EXTENSION ChannelOccupancyTimePercentage PRESENCE optional},

...

}

[snip]

|  |
| --- |
| **Change Ends** |