**3GPP TSG-RAN WG2 Meeting #111 Electronic *R2-2008051***

**Elbonia, 17 – 28 August 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | 36.305 | **CR** | 0091 | **rev** | **-** | **Current version:** | 15.5.0 |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | UE E-CID measurement reporting | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LCS\_LTE | | | | |  | ***Date:*** | | | 2020-08-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | There are some discrepancies in the description of E-CID positioning method that needs correction.  Section 4.3.3 states “*Although E-CID positioning may utilise some of the same measurements as the measurement control system in the RRC protocol, the UE generally is not expected to make additional measurements for the sole purpose of positioning; i.e., the positioning procedures do not supply a measurement configuration or measurement control message, and the UE reports the measurements that it has available rather than being required to take additional measurement actions*”.  This seem to imply a UE behavior, that is same for both downlink E-CID and uplink E-CID, where the UE reports the measurements it has available rather than being required to perform new measurement. However, in Section 8.3.4.3.1 it states “*the eNB may configure the UE to report the measurement information requested (by the E-SMLC)*”. So, at least in the uplink E-CID positioning the UE may be required to take additional measurement actions like performing the configured measurement before reporting it.  The downlink E-CID in Section 8.3.3.3.1 also says “*the UE performs the requested measurement*” as opposed to reporting the available measurement. UE performing measurement is an additional measurement action. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. It is our understanding that the text in Section 4.3.3 about reporting the available measurement applies only to downlink E-CID positioning since this involves LPP signalling where the eNB is not involved in any RRC measurement configuration as part of the positioning procedure. Section 4.3.3 is corrected to reflect this. A brief mention of downlink and uplink E-CID is also included in 4.3.3 to provide context for the corrected paragraph. 2. In Section 8.3.3.3.1, step 2 for downlink E-CID is corrected to say the UE reports the measurement if available and not perform the requested measurement.   **Impact analysis**  Impacted functionality: UE E-CID measurement reporting.  Inter-operability:  There are no inter-operability issues since the correction impacts only the UE. Whether the UE performs new measurements or uses already available measurements only the UE will still be reporting measurements back to E-SMLC. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Contradicting UE behavior regarding E-CID measurement reporting in different parts of the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.3.3, 8.3.3.3.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | To be discussed: The earliest LTE release to introduce this correction and corrections for NR TS 38.305 for Rel-15 and Rel-16. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*First Modified Subclause*

### 4.3.3 Enhanced Cell ID Methods

In the Cell ID (CID) positioning method, the position of an UE is estimated with the knowledge of its serving eNode B and cell. The information about the serving eNode B and cell may be obtained by paging, tracking area update, or other methods. Enhanced Cell ID (E‑CID) positioning refers to techniques which use additional UE and/or E‑UTRAN radio resource measurements and other measurements to improve the UE location estimate. Depending on how measurements are obtained and provided to the E-SMLC, the E-CID positioning can be viewed as either downlink E-CID positioning or uplink E-CID positioning.

Although downlink E-CID positioning may utilise some of the same UE measurements as the measurement control system in the RRC protocol, the UE generally is not expected to make additional measurements for the sole purpose of positioning; i.e., the positioning procedures do not supply a measurement configuration or measurement control message, and the UE reports the measurements that it has available rather than being required to take additional measurement actions. However, in uplink E-CID positioning the eNode B may optionally configure the UE to report UE measurements. For NB-IoT, when the UE goes to Idle state to perform positioning measurements, the UE may be required to take additional measurement actions, as specified in clause 7.1.3.

In cases with a requirement for close time coupling between UE and eNode B measurements (e.g., TADV type 1 and UE Tx-Rx time difference), the eNode B configures the appropriate RRC measurements and is responsible for maintaining the required coupling between the measurements. The operation of the Enhanced Cell ID method is described in clause 8.3.

*Next Modified Subclause*

## 8.3 Enhanced cell ID positioning methods

### 8.3.3 Downlink E-CID Positioning Procedures

##### 8.3.3.3.1 E-SMLC-initiated Location Information Transfer

Figure 8.3.3.3-1 shows the Location Information Transfer operations for the E-CID method when the procedure is initiated by the E-SMLC.



Figure 8.3.3.3-1: E-SMLC-initiated Location Information Transfer Procedure.

(1) The E-SMLC sends a LPP Request Location Information message to the UE for invocation of E-CID positioning. This request includes the E-CID measurements requested by the E-SMLC and supported by the UE as listed in Table 8.3.2.2-1 together with a required response time.

(2) The UE sends an LPP Provide Location Information message to the E-SMLC and reports the requested measurements that are available in the UE before the Response Time provided in step (1) elapsed. If the requested measurements are not available, or if the Response Time provided in step 1 elapsed before any of the requested measurements have been obtained, the UE returns any information that can be provided in an LPP message of type Provide Location Information which includes a cause indication for the not provided location information.

*For Information Only*

##### 8.3.3.3.2 UE-initiated Location Information Delivery procedure

Figure 8.3.3.3.2-1 shows the Location Information Delivery procedure operations for the E-CID method when the procedure is initiated by the UE.



Figure 8.3.3.3.2-1: UE-initiated Location Information Delivery Procedure.

1. The UE sends an LPP Provide Location Information message to the E-SMLC. The Provide Location Information message may include any UE measurements already available at the UE.

*For Information Only*

### 8.3.4 Uplink E-CID Positioning Procedures

#### 8.3.4.3 Position Measurement Procedure

The purpose of this procedure is to enable the E-SMLC to request position measurements from the eNodeB.

##### 8.3.4.3.1 E-SMLC-initiated Position Measurement

Figure 8.3.4.3.1-1 shows the Position Measurement operations for the uplink E-CID method when the procedure is initiated by the E-SMLC.



Figure 8.3.4.3.1-1: E-SMLC-initiated Position Measurement Procedure

(1) The E-SMLC sends an LPPa E-CID MEASUREMENT INITIATION REQUEST message to the eNodeB. This request includes indication of E-CID measurements requested and whether the result is expected only once or periodically.

(2) If the E-SMLC in step (1) requested UE measurements (i.e., RSRP, RSRQ measurements), or if the eNodeB requires UE measurements associated with the measurements requested by the E-SMLC (e.g., TADV type 1, which requires a UE Tx-Rx time difference measurement to be delivered from the UE to the eNodeB), the eNodeB may configure the UE to report the measurement information requested as specified in TS 36.331 [14].

(3) If the result is expected only once and the eNodeB initiates at least one of the E-CID measurements as requested, the eNodeB sends an LPPa E-CID MEASUREMENT INITIATION RESPONSE to the E-SMLC, which includes the obtained E-CID measurements. If the result is expected periodically and the eNodeB is able to initiate at least one of the E-CID measurements as requested, the eNodeB sends an LPPa E-CID MEASUREMENT INITIATION RESPONSE to the E-SMLC, which does not include any result. The eNodeB reports then the obtained measurements by initiating the E-CID Measurement Report procedure, with the requested periodicity. If the eNodeB is unable to initiate any of the requested measurements as requested from the E-SMLC, or is unable to instigate any of the required RRC procedures to obtain the requested measurements from the UE, the eNodeB sends an LPPa E-CID MEASUREMENT INITIATION FAILURE message providing the error reason. If the failure occurs during a periodic reporting, the eNodeB sends an LPPa E-CID MEASUREMENT FAILURE INDICATION message.