TSG-RAN Meeting #24 **RP-040216**
Seoul, Korea, 02-04 June 2004

Title: **Linked Rel-6 CRs to 25.305 (WG2) and 25.413 (WG3) on Indication of achieved accuracy in position estimate**

Source: **TSG-RAN WG2**

Agenda item: **8.4.1**

WG	Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Workitem	Doc-2nd-Level
RAN2	25.305	104	-	Rel-6	Indication of achieved accuracy in position estimate	B	6.0.0	6.1.0	LCS2-UEpos-enh	R2-041209
RAN3	25.413	658	-	Rel-6	Introduction of an indication of achieved accuracy in Location Report procedure over Iu interface	B	6.1.0	6.2.0	LCS2-UEpos-enh	R3-040679

3GPP TSG-RAN WG2 Meeting #42
Montreal, Canada, 10-14 May 2004

Tdoc ⌘R2-041209

CR-Form-v7

CHANGE REQUEST

⌘ **25.305** **CR** **104** ⌘ **rev** ⌘ Current version: **6.0.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐

Title:	⌘	Indication of achieved accuracy in position estimate
Source:	⌘	RAN WG2
Work item code:	⌘	LCS2-UEpos-enh
Date:	⌘	06/05/04
Category:	⌘	**B**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction 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.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	- Alignment with 23.271 (Rel-6): the indication of achieved accuracy in position estimate was agreed in CR186r7 to 23.271 (SP-040207 at SA#23).
Summary of change:	⌘	- If the CN has requested an accuracy for the position estimate, the Location response shall include an indication whether the position estimate satisfies the requested accuracy or not.
Consequences if not approved:	⌘	- GMLC can not know if the requested accuracy was achieved.

Clauses affected:	⌘	5.2.1.1, 7.3.1, 9.6, 10.6			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	25.413 CR658
		X /	Other core specifications		
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘				

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to

5.2 Functional Description of UTRAN UE Positioning related elements

5.2.1 Radio Network Controller (RNC)

5.2.1.1 Serving RNC

The SRNC is a network element of UTRAN and contains functionality required to support LCS in one PLMN.

The SRNC provides the following functionality:

- request of information from other RNC:
  The SRNC may request information regarding UE Positioning from other RNCs;

- flow control of positioning requests:
  If several simultaneous positioning requests are present within one SRNC, the SRNC co-ordinates the positioning requests taking into account priority of the requests (e.g. for Emergency Clients);

- positioning method selection:
  The positioning method selection is based on the location request, QoS, capabilities of UE Positioning elements and UE positioning capabilities;

- position calculation:
  The SRNC may calculate the position of a UE and may also support conversion of the position estimate between different geographic reference systems. In case RNC estimates the UE position, it is also responsible to estimate the accuracy of the position estimate. This accuracy estimate should include, for example, the effect of geometric dilution of precision (GDOP), the capabilities of the signal measuring hardware, the effects of multipath propagation and the effects of timing and synchronisation unknowns. The accuracy should be returned as a measure of distance in the same units as the position estimate. The accuracy zone may be reported as the axis and orientation of an ellipse surrounding the position estimate. If available, the positioning method (or the list of the methods) used to obtain the position estimate may also be returned to the CN with the position information. If the CN has requested an accuracy for the position estimate, the Location response shall include an indication whether the position estimate satisfies the requested accuracy or not.

- provide UE Positioning assistance data:
  The SRNC may provide assistance data in the support of the various positioning methods;

- Overall UE Positioning coordination and control:
  If both an SAS and an SRNC with SMLC internal functionality are available, the SRNC is responsible for the overall coordination and control of UE Positioning. For example, although the SAS has a position calculation function, the SRNC may also have a position calculation function. The SRNC is responsible for managing the co-ordination and control of these multiple resources.

The SRNC, of course, also provides CRNC functionality regarding UE Positioning for its associated Node Bs and LMUs.

5.2.1.2 Other RNC

5.2.1.2.1 Controlling RNC

The CRNC provides the following functionality:

- resources management:
  When allocating resources the CRNC determines which UTRAN elements are involved and what to measure. The RNC is also responsible for managing the effect of UE Positioning operations on the overall performance of the radio network by:

  - controlling the variation of the UL and DL signal power level due to UE Positioning;

  - calculating the DL and UL power/interference due to UE Positioning;

- to admit/reject the new positioning requests;
- co-operating with Admission Control, and entities of the RRM (such as power control) to provide the system stability in terms of radio resources;
- controlling the IPDL mechanism for OTDOA measurements. This may include the overall control of the periodical measurement fulfilment. Co-ordination among RNCs (e.g. to assure non-overlapping idle periods) will be communicated through the Iur interface.

- broadcast of system information:
  The CRNC broadcasts information in support of the selected positioning method. This broadcast information may be specially coded (i.e. encrypted) to ensure its availability only to subscribers of the service. For the case where there exists an SAS, the broadcast data is generated within the CRNC and/or, depending on the positioning method, may also be generated in the SAS which then forwards it to the CRNC over the Iupc interface for eventual broadcast over the Uu interface.

  The information to be broadcast could include, for example:
  - identification and spreading codes of the neighbouring cells (the channels that are used for measurements);
  - Relative Time Difference (RTD), i.e. the timing offsets, asynchronicity between base stations, could be based on measurement results obtained by LMUs;
  - roundtrip delay estimates in connected mode;
  - the geographic position co-ordinates of the neighbouring Node B;
  - the idle period places within the frame structure for multiple cells;
  - the local time-of-day;
  - reference time, reference position, DGPS corrections, ephemeris and clock data, and almanac data.
- request UE Positioning related measurements from its associated Node Bs and LMUs:
  The measurements requested by CRNC from its associated Node Bs and LMUs is dependant on the positioning method used. The following measurement returned by a LMU to a CRNC has a general status and may be used for more than one positioning method:
  - radio interface timing information.

Signalling between Node B or LMU and CRNC is transferred using Iub signalling.

5.2.1.2.2 Drift RNC

The DRNC is a UTRAN element that has an active link to the UE that shall be located. The DRNC, of course, also provides CRNC functionality regarding UE Positioning for its associated Node Bs and LMUs.

5.2.2 Node B

Node B is a network element of UTRAN that may provide measurement results for position estimation and makes measurements of radio signals and communicates these measurements to the CRNC.

The Node B may make its measurements in response to requests (e.g. from the CRNC), or it may autonomously measure and report regularly or when there are significant changes in radio conditions (e.g. changes in the UTRAN GPS timing of cell frames or SFN-SFN Observed Time Difference).

5.2.3 Location measurement unit (LMU)

The Location Measurement Unit (LMU) entity makes measurements (e.g. of radio signals) and communicates these measurements to a RNC. The LMU may also perform calculations associated with the measurements.

All positioning and assistance measurements obtained by an LMU are supplied to a particular CRNC associated with the LMU. Instructions concerning the timing, the nature and any periodicity of these measurements are either provided by the CRNC or are pre-administered in the CRNC (e.g. using O&M).

The LMU may make its measurements in response to requests (e.g. from the CRNC), or it may autonomously measure and report regularly (e.g. timing of Node B transmissions) or when there are significant changes in radio conditions (e.g. changes in the UTRAN GPS timing of cell frames or SFN-SFN Observed Time Difference).

There may be one or more LMU associated with the UTRAN and an UE Positioning request may involve measurements by one or more LMU. The LMU may be of several types and the CRNCs will select the appropriate LMUs depending on the UE Positioning method being used.

The LMU may be used, for example, to measure UTRAN transmissions either UL or DL. These measurements may be made either, for example, to locate the UE or to measure a system parameter needed by the UE Positioning such as the timing offset (UTRAN GPS timing of cell frames or SFN-SFN Observed Time Difference) of transmissions Node Bs. The LMU may also measure other transmissions, such as those of satellite navigation systems (i.e. GPS) and either report the measurements for use by the CRNC, or report the positioning results as determined by internal calculations of the LMU. The details of the measurements to be made by the LMU will be defined by the chosen UE Positioning method.

An LMU makes radio measurements to support one or more positioning methods. These measurements fall into one of two categories:

(a) positioning measurements specific to one UE and used to compute its position;

(b) assistance measurements applicable to all UEs in a certain geographic area.

There are two classes of LMU:

- **Stand-Alone LMU:** communicates with RNCs via the Uu interface;
- **Associated LMU:** communicates with RNCs via the Iub interface.

The associated LMU signalling protocol is the NBAP. The protocol for stand-alone LMU UTRAN signalling will be the RRC protocol.

Stand-Alone LMU

A stand-alone LMU is accessed exclusively over the UTRAN air interface (Uu interface). There is no other connection from the stand-alone LMU to any other UTRAN network element.

NOTE 1: This does not preclude a stand-alone LMU from also communicating with other access networks (e.g. GSM) through interfaces that are not part of the present document.

A stand-alone LMU has a serving Node B that provides signalling access to its CRNC. A stand-alone LMU also has a serving 3G-MSC, VLR and a subscription profile in an HLR. A stand-alone LMU always has a unique IMSI and supports all radio resource and mobility management functions of the UTRAN radio interface that are necessary to support signalling. A stand-alone LMU shall support those connection management functions necessary to support UE Positioning signalling transactions with the CRNC and may support certain call control functions of to support signalling to an CRNC using a circuit switched data connection.

NOTE 2: A network operator may assign specific ranges of IMSI for its LMUs and may assign certain digits within the IMSI to indicate the associated CRNC. Certain digits in the IMSI may also be used as a local identifier for an LMU within an CRNC.

To ensure that a Stand-alone LMU and its associated CRNC can always access one another, an LMU may be homed (camped) on a particular cell site or group of cell sites belonging to one 3G-MSC. For any Stand-alone LMU with a subscription profile in an HLR, a special profile may be used to indicate the assigned supplementary services (e.g. the SMS-PP MT for data download via the SIM application toolkit, and barring of all incoming and possibly outgoing calls). An identifier in the HLR profile also distinguishes an LMU from a normal UE. All other data specific to an LMU is administered in the LMU and in its associated CRNC.

Associated LMU

An associated LMU is accessed over the Iub interface from an RNC. An associated LMU may make use of the radio apparatus and antennas of its associated Node B. The LMU may be either a logically separate network element addressed using some pseudo-cell ID, or connected to or integrated in a Node B. Signalling to an associated LMU is by means of messages routed through the controlling Node B.

An associated LMU may be separated from the Node B, but still communicate with the CRNC via the Node B Iub interface. The interface between the associated LMU and its Node B is not part of the present document.

NOTE 3: An associated LMU is not precluded from also communicating with other access networks (e.g. GSM) through interfaces that are not part of the present document.

Measurements

The assistance measurements obtained by an LMU are generic and are usable by more than one positioning method. These include:

- **Radio Interface Timing measurements:** include UTRAN GPS timing of cell frames or SFN-SFN Observed Time Difference of the signals transmitted by Node B, where timing differences are measured relative to either some common reference clock (UTRAN GPS timing of cell frames) or the signals of another Node B (SFN-SFN Observed Time Difference);

- **Inter-System Timing measurements:** include timing measurements between the UTRAN radio signals transmitted by a Node B and an external system such as the GPS or GSM.

5.2.4 User Equipment (UE)

The UE may transmit the needed signals for uplink based UE Positioning measurements and to make measurements of downlink signals. The measurements to be made will be determined by the chosen positioning method.

The UE may also contain LCS applications, or access an LCS application through communication with a network accessed by the UE or an application residing in the UE. This application may include the needed measurement and calculation functions to determine the UE's position with or without assistance of the UTRAN UE Positioning entities. This is outside of the scope of this specification.

The UE may also, for example, contain an independent positioning function (e.g., GPS) and thus be able to report its position, independent of the UTRAN transmissions. The UE with an independent positioning function may also make use of information broadcast by the UTRAN that assists the function.

5.2.5 Stand-alone SMLC

An SAS performs the following procedures:

- Provide GPS assistance data to the RNC, for both UE-assisted and UE-based method types, to be delivered through point-to-point or broadcast channels to UE;

- Act as a location calculation server if the location estimates are not to be calculated in the RNC.

The SAS communicates with the RNC over the Iupc interface enabling it to forward UE Positioning assistance data to UEs and to receive UE Positioning measurement data from the RNC.

When timing assistance is needed, the SAS relies on the RNC (and on the possibility to have GPS receivers co-located with the RNC, the Node Bs and/or present in the UEs) to obtain that.

7 General UTRAN UE Positioning procedures

7.1 General procedures in UTRAN for UE Positioning

The General UE positioning procedure in UTRAN starts with a request over Iu from the CN. UTRAN then determines the UE position by selecting a suitable positioning method. UTRAN then responds to the request with the estimated position, possible an associated accuracy and if available, the positioning method (or the list of the methods) used to obtain the position estimate.

7.2 Common procedures supporting UE Positioning interaction between RNCs

In the case that the positioning information is needed from an associated LMU in a Node B that is not controlled by the SRNC then the transfer of this information needs to be supported on the Iur interface. This information is the same information that is signalled between an associated LMU and the corresponding CRNC in the case when Iur support is not needed.

The SRNC requests the information it requires (e.g. GPS timing of cell measurements) from the CRNC of the Node B, which has the associated LMU. The CRNC in turn requests the information from the Node B and upon success returns the results to the SRNC.

Similarly when the SRNC needs a Node B measurement on a UE when that Node B is not controlled by that SRNC there needs to be support on the Iur. One example is the RTT measurement.

Other information that may need to be signalled over the Iur includes LMU parameters (geographical position, covered cells etc.).

NOTE: Confirmation or FS is needed by R3 experts.

7.2.1 Signalling in case of SRNS relocation

In case of SRNC relocation UE Positioning functionalities may be transferred in order for DRNC to be able to handle the responsibility of SRNC in LCS process. Therefore the Source RNC may transfer the following information to the Target RNC:

- last known position, time stamp and accuracy of the position calculation;
- LCS capabilities of the UE.

If there is a positioning procedure going on in order to estimate the position of the UE and a SRNS relocation occurs, the positioning procedure shall be stopped in the old SRNC. After SRNS relocation, the new SRNC then decides if a new positioning procedure should be started. In the UE, the positioning procedure is going on and positioning information (e.g. measurement results) may be sent back to UTRAN if the UE was requested to do so. The new SRNC then decides whether it wants to use these information or discard them. If an SAS is used, the SRNC shall send an Abort message to the SAS over the Iupc interface.

7.3 Exception procedures

7.3.1 Procedures in the SRNC

When a positioning attempt fails due to failure of a position method itself (e.g. due to inaccurate or insufficient position measurements and related data) and the SRNC is unable to instigate another positioning attempt (e.g. due to a requirement on response time), the SRNC shall return a Location response over the Iu interface containing a less accurate position estimate if available, even if this position estimate is not within the accuracy requested from the CN. In this case, the Location response shall indicate that the position estimate does not satisfy the requested accuracy. If a less accurate estimate is not available, the SRNC shall return a Location response message containing no position estimate and indicating the cause of failure.

When a positioning attempt is interrupted by some other unrecoverable error event inside the SRNC, the SRNC shall immediately terminate the positioning attempt and return a Location Response message containing the reason for the positioning attempt cancellation. In that case, SRNC may also abort any dialogue previously opened with an LMU for the purpose of instigating position measurements for the UE being located.

In networks that include an SAS, the SRNC will receive a PCAP Position Calculation Response message on the Iupc interface and then return a Location response over the Iu interface containing the results that were provided over the Iupc interface (a less accurate position estimate, cause of failure indication, etc). This is described in Subclause 7.3.4.

7.3.2 Procedures in a LMU

An LMU shall return an error indication to its CRNC when positioning measurements previously ordered by the RNC cannot be provided due to any error condition.

7.3.3 Procedures in the target UE

A target UE shall terminate any positioning procedure or the transfer of RRC positioning assistance data without sending any response to the SRNC if any UE Positioning RRC message is received from the SRNC that starts some other RRC management procedure. The new RRC procedure shall then be executed by the UE.

7.3.4 Procedures in the SAS

When a UE positioning attempt fails (e.g. due to inaccurate or insufficient position measurements and related data), the SAS may return a PCAP Position Calculation Response message over the Iupc interface containing a less accurate position estimate. If a less accurate estimate is not available or will not meet the accuracy requirement, the SAS may instead return a PCAP Position Calculation Failure message containing no position estimate and indicating the cause of failure.

When a positioning attempt is interrupted by some other unrecoverable error event inside the SAS, the SAS shall immediately terminate the positioning attempt and return a PCAP Position Calculation Failure message containing the reason for the positioning attempt cancellation.

9.6 OTDOA network positioning procedures

The following diagram illustrates the operations for the OTDOA method for UE Positioning when the request for positioning information is initiated by an LCS application from the CN.

This illustration only includes the information flow related to UE Positioning operations and does not indicate other operations that may be required, for example, to establish a signalling connection between the UE and the SRNC. Also not illustrated is the signalling used to initiate the location service request from the CN or a UE-based application.

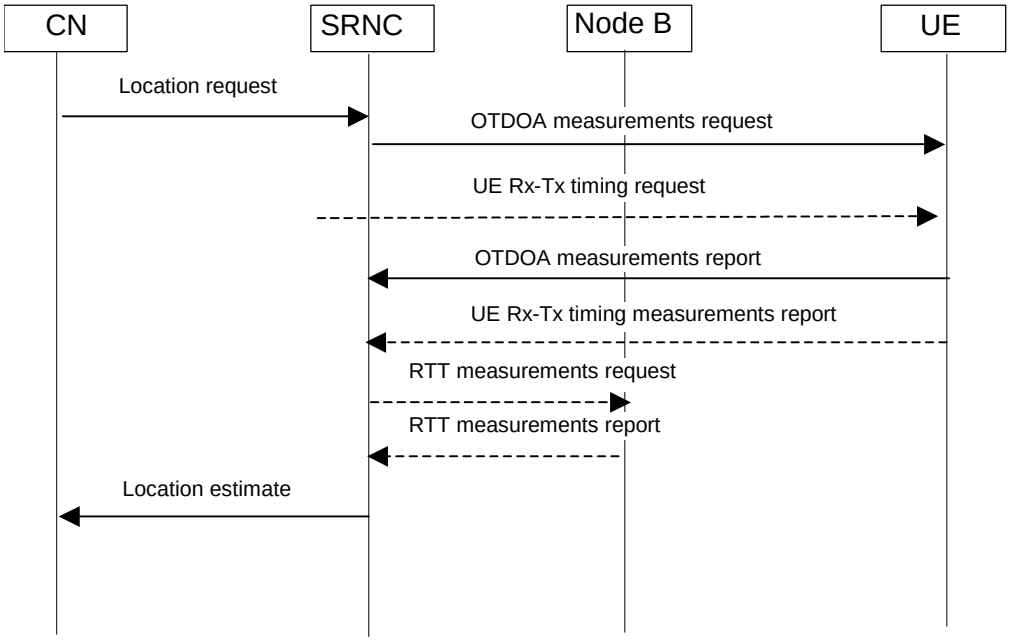

Figure 9.2: OTDOA Signalling Operations

1. The operation begins with an authenticated request for positioning information about a UE from an application in the CN being received at the SRNC. The SRNC considers the request and the UTRAN and UE capabilities.

2. The SRNC requests from the UE the measurement of the OTDOA for the signals in the active and neighbourhood sets. These measurements are made while the UE is in connected mode CELL_DCH state.

3. If it is considered advantageous to do so, the SRNC requests the UE Rx-Tx timing difference (FDD only) or UE timing advance, $T_{ADV,}$ (1.28 Mcps TDD) information from the UE.

4. The UE returns the OTDOA measures to the SRNC. The SRNC receives the OTDOA information and co-ordinates obtaining other information to support the calculation request.

5. The UE returns the UE Rx-Tx timing difference (FDD only) or UE timing advance, $T_{ADV,}$ (1.28 Mcps TDD) information to the SRNC, together with a time stamp of when the value was obtained.

6. If there are insufficient OTDOA measures, or it is otherwise considered advantageous to do so, the SRNC requests the RTT (in FDD) or Rx timing deviation (in TDD) and/or angle of arrival (in 1.28 Mcps TDD) measure for the UE from the serving Node B.

7. In FDD, the SRNC requests the RTD values for the associated transmitters from the associated database. These may be stored locally if they are constant over time, otherwise they must be updated to represent the RTD timing at the time-of-day the OTDOA measurements were made.

8. The Node B returns the RTT (in FDD) or Rx Timing Deviation (in TDD) and/or angle of arrival (in 1.28 Mcps TDD) measures to the SRNC if they were requested.

9. The SRNC performs a position calculation using the OTDOA, RTD and, if necessary, RTT (in FDD) or Rx timing deviation and UE timing advance (in TDD) information and angle of arrival information (1.28 Mcps TDD). The calculation may include a co-ordinate transformation to the geographic system requested by the application. The position estimate includes the position, the estimated accuracy of the results and the time of day of the estimate. In

networks that include the SAS, the SAS may perform the position calculation and then pass the position estimate to the SRNC.

10. The SRNC passes the position estimate to the CN including, if available, the positioning method (or the list of the methods) used to obtain the position estimate. If the CN has requested an accuracy for the position estimate, the Location response shall include an indication whether the position estimate satisfies the requested accuracy or not.

10.6 Network Assisted GPS positioning Procedure

The diagram in Figure 10.3 and Figure 10.2 illustrate the operations for the network assisted GPS when the request for position information is initiated by a LCS application signalled from the Core Network. A detailed description of the positioning procedure is given as follows. Note that the procedure is for illustration purpose and actual implementations may vary.

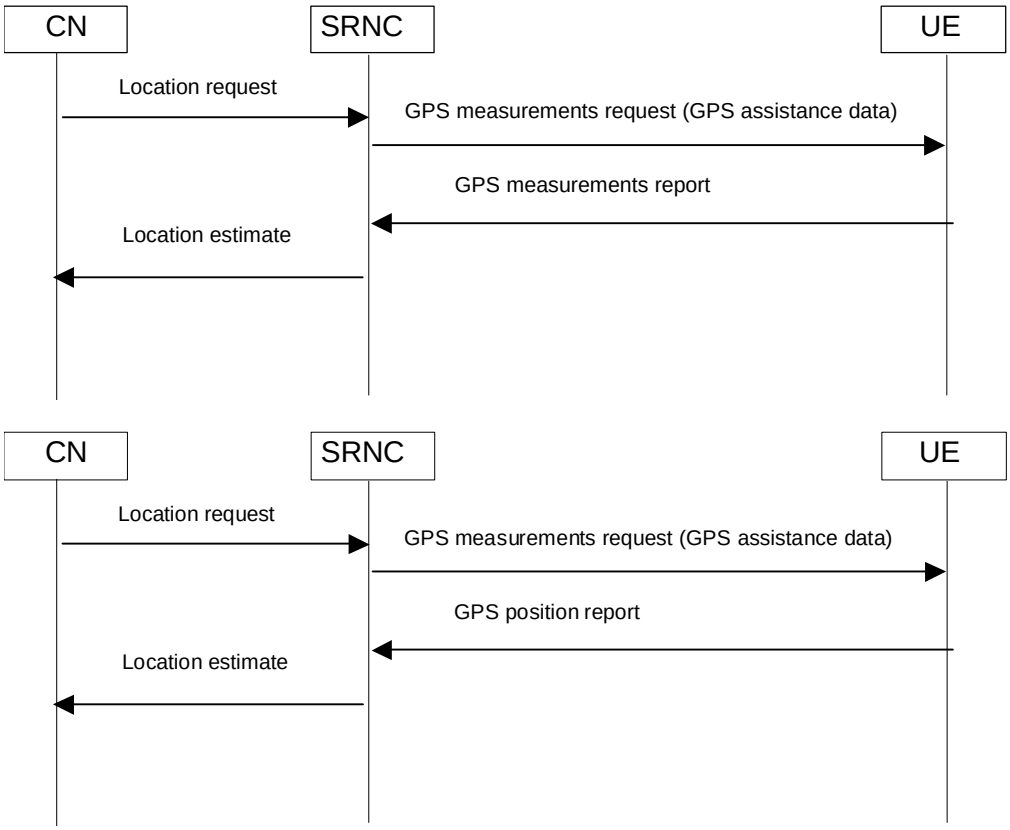

Figure 10.3: Network-assisted GPS methods

1. The operation begins with an authenticated request for positioning information about a UE from an application in the core network being received at the SRNC. The SRNC acts as interface between the Core Network and the UE Positioning entities in the UTRAN. The SRNC considers the request and the capabilities of the UE and the UTRAN. In networks that include the SAS, the SRNC may invoke the SAS via the Iupc interface.

2. Depending on the UE capabilities, the network sends to the UE certain GPS assistance information. This information may include: the reference time for GPS, the satellite IDs, the Doppler frequency, the search window and its centre, the ephemeris and clock corrections, the almanac, and other information specified in 10.5.1. If the UE has not enough assistance data to perform the measurements, the UE should indicate it to the SRNC and additionally request for assistance data.

   For UE-based method, jump to step 8.

   For UE-assisted method, the SRNC may optionally request the following information before the assistance message(s) is (are) sent to the UE: the LMU update (see NOTE), the RTT measurements (from the Node Bs in the active set) to compensate for the one-way propagation delays. The LMU (associated or stand-alone) returns the information containing the time difference between the Node B and the GPS (e.g. UTRAN GPS timing of cell frames or SFN-SFN Observed Time Difference) to the CRNC. The Node B returns its RTT measurement to the CRNC. If the CRNC is not the SRNC, the CRNC forwards these information to SRNC.

4. The network requests from the UE the measurement of GPS satellite pseudoranges and other information specified in 10.5.1. These measurements may be made while the UE is in RRC connected mode CELL_DCH state. The SRNC may request SFN-SFN Observed Time Difference measurements and Rx-Tx timing difference information from the UE to support the processing related to the RTT measurements.

5. The UE returns to the network the measurement of GPS satellite pseudoranges and other information specified in 10.5.1. If requested, the UE returns to the SRNC SFN-SFN measurements and the Rx-Tx time difference information, together with a time stamp of when these values were obtained.

6 The UE position is calculated in the network.

7. If there is insufficient information to yield a UE positioning estimate, the SRNC may start a new process from step 3.

8. In case of UE based method, UE returns the position estimate to the SRNC. This estimate includes the position, the estimated accuracy of the results and the time of the estimate.

9. In networks that include the SAS, the SAS passes the position estimate to the SRNC.

10. The SRNC passes the position estimate to the CN including, if available, the positioning method (or the list of the methods) used to obtain the position estimate. If the CN has requested an accuracy for the position estimate, the Location response shall include an indication whether the position estimate satisfies the requested accuracy or not.

NOTE: The LMU update (of the time difference between the GPS and the Node B) may be performed on a per-request basis (with respect to each UE Positioning request) or be performed timely that is independent of individual UE Positioning request. The latter is preferable when there is a large volume of UE Positioning requests.

3GPP TSG-RAN3 Meeting #42
Montreal, Canada, 10th – 14th May 2004

Tdoc ⌘R3-040679

CR-Form-v7

CHANGE REQUEST

⌘ **25.413** **CR** **658** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☒

Title:	⌘	Introduction of an indication of achieved accuracy in Location Report procedure over Iu interface.
Source:	⌘	RAN3
Work item code:	⌘	LCS2-UEpos-enh
Date:	⌘	29/04/2004
Category:	⌘	**B**
Release:	⌘	REL-6

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R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘ As confirmed by SA2 LS (R3-040638/S2-040907) and the approval of CR186rev7 at SA#23 (SP-040207) against TS 23.271 v6.6.0, GMLC may not be able to evaluate what is the exact accuracy (i.e. in meters) from the returned shape, uncertainty and potential confidence of the position estimate returned by RAN. This is because the GMLC is unaware of the radio access technology that was used to position the UE and also of the manufacturer of the RAN entities in use. The differences may lead to differences in the algorithms used to calculate the uncertainty and confidence and therefore if the decision is left to the GMLC, the decision may not be a true reflection of the situation.
Thus, as the RAN always try to return a best-effort position estimate, if the requested accuracy by the CN cannot be fulfilled, the GMLC may not able to know whether the returned position estimare fulfils or not the requested accuracy.

Summary of change: ⌘ If the CN has requested an accuracy for the position estimate, the LOCATION REPORT message shall include an indication whether the returned position estimate satisfies the requested accuracy or not.

Impact assessment towards the previous version of the specification (previous release):

This CR has isolated impact towards the previous version of the specification (previous release).

This CR has an impact under functional and protocol point of view.

The impact can be considered isolated because it only affects the Location Report procedure and furthermore because this optimisation is made using ASN.1 extension mechanisms.

Consequences if not approved:	⌘	Misalignment between RANAP and TS 23.271. GMLC cannot know if the returned position estimate fulfills or not the accuracy the GMLC asked for in the location request.

Clauses affected:	⌘	8.20.2, 9.1.30, 9.2.3.29(new), 9.3.3, 9.3.4 and 9.3.6			
Other specs affected:	⌘	**Y** / **N** **X** / ☐	Other core specifications	⌘	TS 25.305 CR 104
		☐ / **X**	Test specifications		
		☐ / **X**	O&M Specifications		
Other comments:	⌘				

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Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.20 Location Report

8.20.1 General

The purpose of the Location Report procedure is to provide the UE's location information to the CN. The procedure uses connection oriented signalling.

8.20.2 Successful Operation

Figure 22: Location Report procedure. Successful operation.

The serving RNC initiates the procedure by generating a LOCATION REPORT message. The LOCATION REPORT message may be used as a response to a LOCATION REPORTING CONTROL message. Also, when a user enters or leaves a classified zone set by O&M, e.g. a zone where a disaster has occurred, a LOCATION REPORT message including the Service Area of the UE in the *Area Identity* IE shall be sent to the CN. The *Cause* IE shall indicate the appropriate cause value to the CN, e.g. "User Restriction Start Indication" and "User Restriction End Indication". The CN shall react to the LOCATION REPORT message with CN vendor specific actions.

For this procedure, only Service Areas that are defined for the PS and CS domains shall be considered.

In case reporting at change of Service Area is requested by the CN, then the RNC shall issue a LOCATION REPORT message:

- whenever the information given in the previous LOCATION REPORT message or INITIAL UE MESSAGE message is not anymore valid.
- upon receipt of the first LOCATION REPORTING CONTROL message following a Relocation Resource Allocation procedure, with the *Event* IE included in the *Request Type* IE set to "Change of Service Area", as soon as SAI becomes available in the new SRNC and the relocation procedure has been successfully completed.

In case a Service Area is reported, the RNC shall include in the *Area Identity* IE of the LOCATION REPORT message a Service Area that includes at least one of the cells from which the UE is consuming radio resources.

In case the LOCATION REPORT message is sent as an answer to a request for a direct report or reports at a change of Service Area, the *Request Type* IE from the LOCATION REPORTING CONTROL message shall be included.

If the LOCATION REPORT message is sent as an answer to a request for a direct report of Service Area and the current Service Area can not be determined by the RNC, then the *Area Identity* IE shall be omitted and a cause value shall be included to indicate that the request could not be fulfilled, e.g. "Requested Information Not Available" or "Location Reporting Congestion". The RNC may also include the *Last Known Service Area* IE.

If the RNC can not deliver the location information as requested by the CN, due to either the non-support of the requested event or the non-support of the requested report area, or if the RNC is currently not able to reach the UE, the RNC shall indicate the UE location to be "Undetermined" by omitting the *Area Identity* IE. A cause value shall instead be added to indicate the reason for the undetermined location, e.g. "Requested Request Type not supported", "Location Reporting Congestion" or "No Resource Available".

If the Location Report procedure was triggered by a LOCATION REPORTING CONTROL message, which included a request to report a geographical area with a specific accuracy, the LOCATION REPORT message shall include:

- the *Geographical Area* IE within the *Area Identity* IE containing either a point with indicated uncertainty or a polygon or an other type, which fulfils the requested accuracy, and

- the *Accuracy Fulfilment Indicator* IE with the value "requested accuracy fulfilled".

If the requested accuracy cannot be fulfilled, the LOCATION REPORT message shall include:

- the *Geographical Area* IE within the *Area Identity* IE containing either a point with indicated uncertainty or a polygon or an other type, with the best possible accuracy, and

- the *Accuracy Fulfilment Indicator* IE with the value "requested accuracy not fulfilled".

If, on the other hand, no specific accuracy level was requested in the LOCATION REPORTING CONTROL message, the LOCATION REPORT message shall include the *Geographical Area* IE within the *Area Identity* IE, the reported *Geographical Area* IE may include an accuracy.

The LOCATION REPORT message shall also include, if available, the *Position Data* IE containing the positioning method (or list of positioning methods) used successfully to obtain the location estimate, together with the usage information.

If the Location Report procedure was triggered by a LOCATION REPORTING CONTROL message, which included a request to report with a geographical area and in which the *Client Type* IE was not included, the RNC shall answer with the *Point* IE, or the *Point With Uncertainty* IE or the *Polygon* IE within the *Geographical Area* IE of the LOCATION REPORT message.

8.20.3 Abnormal Conditions

Not applicable.

9.1.30 LOCATION REPORT

This message is sent by the RNC to the CN with information about the UE location.

Direction: RNC → CN.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Area Identity	O		9.2.3.10		YES	ignore
Cause	O		9.2.1.4		YES	ignore
Request Type	O		9.2.1.16		YES	ignore
Last Known Service Area	O		9.2.3.22		YES	ignore
Position Data	O		9.2.3.27	Optional for UTRAN only.	YES	ignore
Position Data Specific To GERAN Iu Mode	O		9.2.3.28	Coded as the value part of the *Positioning Data* IE defined in [34]. Optional for GERAN Iu mode only. Not applicable for UTRAN.	YES	ignore
Accuracy Fulfilment Indicator	O		9.2.3.29		YES	ignore

9.2.3 NAS Related IEs

```
Lots of unaffected parts in 9.2.3 not shown
```

9.2.3.28 Position Data Specific To GERAN Iu Mode

This IE provides data related to the positioning methods which are supported only within GERAN Iu mode in relation with the Location Report procedure. The coding of this element is described in [34].

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Position Data Specific To GERAN Iu Mode	M		OCTET STRING	Coded as the value part of the *Positioning Data* IE defined in [34].

9.2.3.29 Accuracy Fulfilment Indicator

This IE indicates whether the returned position estimate satisfies the requested accuracy or not.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Accuracy Fulfilment Indicator	M		ENUMERATED (requested accuracy fulfilled, requested accuracy not fulfilled, ...)	

9.3.3 PDU Definitions

```
-- **************************************************************
--
-- PDU definitions for RANAP.
--
-- **************************************************************

RANAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- **************************************************************
--
-- IE parameter types from other modules.
--
-- **************************************************************

IMPORTS
    BroadcastAssistanceDataDecipheringKeys,
    LocationRelatedDataRequestType,
    LocationRelatedDataRequestTypeSpecificToGERANIuMode,
    DataVolumeReference,
    CellLoadInformation,
    AreaIdentity,
    CN-DomainIndicator,
    Cause,
    ClientType,
    CriticalityDiagnostics,
    ChosenEncryptionAlgorithm,
    ChosenIntegrityProtectionAlgorithm,
    ClassmarkInformation2,
    ClassmarkInformation3,
    DL-GTP-PDU-SequenceNumber,
    DL-N-PDU-SequenceNumber,
    DataVolumeReportingIndication,
    DRX-CycleLengthCoefficient,
    EncryptionInformation,
    GERAN-BSC-Container,
    GERAN-Classmark,
    GlobalCN-ID,
    GlobalRNC-ID,
    InformationTransferID,
    IntegrityProtectionInformation,
    InterSystemInformation-TransparentContainer,
    IuSignallingConnectionIdentifier,
    IuTransportAssociation,
    KeyStatus,
    L3-Information,
    LAI,
    LastKnownServiceArea,
    NAS-PDU,
    NAS-SynchronisationIndicator,
    NewBSS-To-OldBSS-Information,
    NonSearchingIndication,
    NumberOfSteps,
    OMC-ID,
    OldBSS-ToNewBSS-Information,
    PagingAreaID,
    PagingCause,
    PDP-TypeInformation,
    PermanentNAS-UE-ID,
    PositionData,
    PositionDataSpecificToGERANIuMode,
    PositioningPriority,
    ProvidedData,
    RAB-ID,
    RAB-Parameters,
    RAC,
    RelocationType,
    RequestType,
    Requested-RAB-Parameter-Values,
    ResponseTime,
    RRC-Container,
    SAI,
    SAPI,
    Service-Handover,
    SNA-Access-Information,
```

```
    SourceID,
    SourceRNC-ToTargetRNC-TransparentContainer,
    TargetID,
    TargetRNC-ToSourceRNC-TransparentContainer,
    TemporaryUE-ID,
    TraceReference,
    TraceType,
    UnsuccessfullyTransmittedDataVolume,
    TransportLayerAddress,
    TriggerID,
    UE-ID,
    UESBI-Iu,
    UL-GTP-PDU-SequenceNumber,
    UL-N-PDU-SequenceNumber,
    UP-ModeVersions,
    UserPlaneMode,
    VerticalAccuracyCode,
    Alt-RAB-Parameters,
    Ass-RAB-Parameters,
    AccuracyFulfilmentIndicator
FROM RANAP-IEs


    PrivateIE-Container{},
    ProtocolExtensionContainer{},
    ProtocolIE-ContainerList{},
    ProtocolIE-ContainerPair{},
    ProtocolIE-ContainerPairList{},
    ProtocolIE-Container{},
    RANAP-PRIVATE-IES,
    RANAP-PROTOCOL-EXTENSION,
    RANAP-PROTOCOL-IES,
    RANAP-PROTOCOL-IES-PAIR
FROM RANAP-Containers

    maxNrOfDTs,
    maxNrOfErrors,
    maxNrOfIuSigConIds,
    maxNrOfRABs,
    maxNrOfVol,

    id-AreaIdentity,
    id-Alt-RAB-Parameters,
    id-Ass-RAB-Parameters,
    id-BroadcastAssistanceDataDecipheringKeys,
    id-LocationRelatedDataRequestType,
    id-CN-DomainIndicator,
    id-Cause,
    id-ChosenEncryptionAlgorithm,
    id-ChosenIntegrityProtectionAlgorithm,
    id-ClassmarkInformation2,
    id-ClassmarkInformation3,
    id-ClientType,
    id-CriticalityDiagnostics,
    id-DRX-CycleLengthCoefficient,
    id-DirectTransferInformationItem-RANAP-RelocInf,
    id-DirectTransferInformationList-RANAP-RelocInf,
    id-DL-GTP-PDU-SequenceNumber,
    id-EncryptionInformation,
    id-GERAN-BSC-Container,
    id-GERAN-Classmark,
    id-GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item,
    id-GERAN-Iumode-RAB-FailedList-RABAssgntResponse,
    id-GlobalCN-ID,
    id-GlobalRNC-ID,
    id-InformationTransferID,
    id-IntegrityProtectionInformation,
    id-InterSystemInformation-TransparentContainer,
    id-IuSigConId,
    id-IuSigConIdItem,
    id-IuSigConIdList,
    id-IuTransportAssociation,
    id-KeyStatus,
    id-L3-Information,
    id-LAI,
    id-LastKnownServiceArea,
    id-LocationRelatedDataRequestTypeSpecificToGERANIuMode,
    id-NAS-PDU,
    id-NewBSS-To-OldBSS-Information,
    id-NonSearchingIndication,
    id-NumberOfSteps,
    id-OMC-ID,
    id-OldBSS-ToNewBSS-Information,
```

```
    id-PagingAreaID,
    id-PagingCause,
    id-PermanentNAS-UE-ID,
    id-PositionData,
    id-PositionDataSpecificToGERANIuMode,
    id-PositioningPriority,
    id-ProvidedData,
    id-RAB-ContextItem,
    id-RAB-ContextList,
    id-RAB-ContextFailedtoTransferItem,
    id-RAB-ContextFailedtoTransferList,
    id-RAB-ContextItem-RANAP-RelocInf,
    id-RAB-ContextList-RANAP-RelocInf,
    id-RAB-DataForwardingItem,
    id-RAB-DataForwardingItem-SRNS-CtxReq,
    id-RAB-DataForwardingList,
    id-RAB-DataForwardingList-SRNS-CtxReq,
    id-RAB-DataVolumeReportItem,
    id-RAB-DataVolumeReportList,
    id-RAB-DataVolumeReportRequestItem,
    id-RAB-DataVolumeReportRequestList,
    id-RAB-FailedItem,
    id-RAB-FailedList,
    id-RAB-FailedtoReportItem,
    id-RAB-FailedtoReportList,
    id-RAB-ID,
    id-RAB-ModifyList,
    id-RAB-ModifyItem,
    id-RAB-QueuedItem,
    id-RAB-QueuedList,
    id-RAB-ReleaseFailedList,
    id-RAB-ReleaseItem,
    id-RAB-ReleasedItem-IuRelComp,
    id-RAB-ReleaseList,
    id-RAB-ReleasedItem,
    id-RAB-ReleasedList,
    id-RAB-ReleasedList-IuRelComp,
    id-RAB-RelocationReleaseItem,
    id-RAB-RelocationReleaseList,
    id-RAB-SetupItem-RelocReq,
    id-RAB-SetupItem-RelocReqAck,
    id-RAB-SetupList-RelocReq,
    id-RAB-SetupList-RelocReqAck,
    id-RAB-SetupOrModifiedItem,
    id-RAB-SetupOrModifiedList,
    id-RAB-SetupOrModifyItem,
    id-RAB-SetupOrModifyList,
    id-RAC,
    id-RelocationType,
    id-RequestType,
    id-ResponseTime,
    id-SAI,
    id-SAPI,
    id-SNA-Access-Information,
    id-SourceID,
    id-SourceRNC-ToTargetRNC-TransparentContainer,
    id-SourceRNC-PDCP-context-info,
    id-TargetID,
    id-TargetRNC-ToSourceRNC-TransparentContainer,
    id-TemporaryUE-ID,
    id-TraceReference,
    id-TraceType,
    id-TransportLayerAddress,
    id-TriggerID,
    id-UE-ID,
    id-UESBI-Iu,
    id-UL-GTP-PDU-SequenceNumber,
    id-VerticalAccuracyCode,
    id-AccuracyFulfilmentIndicator
FROM RANAP-Constants;

                    Lots of unaffected ASN.1 in 9.3.3 not shown

-- **************************************************************
--
-- LOCATION REPORT ELEMENTARY PROCEDURE
--
-- **************************************************************

-- **************************************************************
--
-- Location Report
--
```

```
-- **************************************************************

LocationReport ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {LocationReportIEs} },
    protocolExtensions      ProtocolExtensionContainer { {LocationReportExtensions} }
    OPTIONAL,
    ...
}

LocationReportIEs RANAP-PROTOCOL-IES ::= {
    { ID id-AreaIdentity               CRITICALITY ignore  TYPE AreaIdentity              PRESENCE
optional    } |
    { ID id-Cause                   CRITICALITY ignore  TYPE Cause                  PRESENCE
optional    } |
    { ID id-RequestType                CRITICALITY ignore  TYPE RequestType               PRESENCE
optional    }   ,
    ...
}

LocationReportExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 4 to enable report of Last Known Service Area with its Age over Iu --
    { ID id-LastKnownServiceArea    CRITICALITY ignore  EXTENSION LastKnownServiceArea  PRESENCE
optional} |
-- Extension for Release 5 to pass the positioning methods that have been used --
    { ID id-PositionData    CRITICALITY ignore      EXTENSION PositionData  PRESENCE optional}|
-- Extension for Release 5 to pass the positioning methods that have been used for GERAN Iu mode --
    { ID id-PositionDataSpecificToGERANIuMode       CRITICALITY ignore  EXTENSION
PositionDataSpecificToGERANIuMode       PRESENCE optional   }|
    -- This extension is optional for GERAN Iu mode only, not applicable for UTRAN --
-- Extension for Release 6 to indicate whether the returned position estimate satisfies the
requested accuracy or not --
    { ID id-AccuracyFulfilmentIndicator CRITICALITY ignore  EXTENSION AccuracyFulfilmentIndicator
    PRESENCE optional},
    ...
}
```

Lots of unaffected ASN.1 in 9.3.3 not shown

9.3.4 Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSRBs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination,
    maxNrOfLevels,
    maxNrOfAltValues,
    maxNrOfSNAs,
    maxNrOfLAs,
    maxNrOfPLMNsSN,
    maxSet,

    id-CN-DomainIndicator,
    id-MessageStructure,
    id-SRB-TrCH-Mapping,
    id-TypeOfError,

    id-hS-DSCH-MAC-d-Flow-ID,
    id-SignallingIndication,
    id-CellLoadInformationGroup
FROM RANAP-Constants

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage
FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer{},
    RANAP-PROTOCOL-EXTENSION
FROM RANAP-Containers;

-- A

AccuracyFulfilmentIndicator ::= ENUMERATED{
    requested-Accuracy-Fulfilled,
    requested-Accuracy-Not-Fulfilled,
    ...
}

AllocationOrRetentionPriority ::= SEQUENCE {
    priorityLevel           PriorityLevel,
    pre-emptionCapability       Pre-emptionCapability,
    pre-emptionVulnerability    Pre-emptionVulnerability,
    queuingAllowed          QueuingAllowed,
    iE-Extensions           ProtocolExtensionContainer { {AllocationOrRetentionPriority-ExtIEs} }
OPTIONAL,
    ...
}
```

Lots of unaffected ASN.1 in 9.3.4 not shown

9.3.6 Constant Definitions

```
-- **************************************************************
--
-- Constant definitions
--
-- **************************************************************

RANAP-Constants {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- **************************************************************
--
-- Elementary Procedures
--
-- **************************************************************

id-RAB-Assignment                   INTEGER ::= 0
id-Iu-Release                       INTEGER ::= 1
id-RelocationPreparation            INTEGER ::= 2
id-RelocationResourceAllocation     INTEGER ::= 3
id-RelocationCancel                 INTEGER ::= 4
id-SRNS-ContextTransfer             INTEGER ::= 5
id-SecurityModeControl              INTEGER ::= 6
id-DataVolumeReport                 INTEGER ::= 7
id-Reset                            INTEGER ::= 9
id-RAB-ReleaseRequest               INTEGER ::= 10
id-Iu-ReleaseRequest                INTEGER ::= 11
id-RelocationDetect                 INTEGER ::= 12
id-RelocationComplete               INTEGER ::= 13
id-Paging                           INTEGER ::= 14
id-CommonID                         INTEGER ::= 15
id-CN-InvokeTrace                   INTEGER ::= 16
id-LocationReportingControl         INTEGER ::= 17
id-LocationReport                   INTEGER ::= 18
id-InitialUE-Message                INTEGER ::= 19
id-DirectTransfer                   INTEGER ::= 20
id-OverloadControl                  INTEGER ::= 21
id-ErrorIndication                  INTEGER ::= 22
id-SRNS-DataForward                 INTEGER ::= 23
id-ForwardSRNS-Context              INTEGER ::= 24
id-privateMessage                   INTEGER ::= 25
id-CN-DeactivateTrace               INTEGER ::= 26
id-ResetResource                    INTEGER ::= 27
id-RANAP-Relocation                 INTEGER ::= 28
id-RAB-ModifyRequest                INTEGER ::= 29
id-LocationRelatedData              INTEGER ::= 30
id-InformationTransfer              INTEGER ::= 31
id-UESpecificInformation            INTEGER ::= 32

-- **************************************************************
--
-- Extension constants
--
-- **************************************************************

maxPrivateIEs                       INTEGER ::= 65535
maxProtocolExtensions               INTEGER ::= 65535
maxProtocolIEs                      INTEGER ::= 65535

-- **************************************************************
--
-- Lists
--
-- **************************************************************

maxNrOfDTs                          INTEGER ::= 15
maxNrOfErrors                       INTEGER ::= 256
maxNrOfIuSigConIds                  INTEGER ::= 250
maxNrOfPDPDirections                INTEGER ::= 2
maxNrOfPoints                       INTEGER ::= 15
maxNrOfRABs                         INTEGER ::= 256
maxNrOfSeparateTrafficDirections    INTEGER ::= 2
maxNrOfSRBs                         INTEGER ::= 8
maxNrOfVol                          INTEGER ::= 2
maxNrOfLevels                       INTEGER ::= 256
maxNrOfAltValues                    INTEGER ::= 16
```

```
maxNrOfPLMNsSN                      INTEGER ::= 32
maxNrOfLAs                          INTEGER ::= 65536
maxNrOfSNAs                         INTEGER ::= 65536


maxRAB-Subflows                     INTEGER ::= 7
maxRAB-SubflowCombination           INTEGER ::= 64
maxSet                              INTEGER ::= 9

-- **************************************************************
--
-- IEs
--
-- **************************************************************

id-AreaIdentity                                 INTEGER ::= 0
id-CN-DomainIndicator                           INTEGER ::= 3
id-Cause                                        INTEGER ::= 4
id-ChosenEncryptionAlgorithm                    INTEGER ::= 5
id-ChosenIntegrityProtectionAlgorithm           INTEGER ::= 6
id-ClassmarkInformation2                        INTEGER ::= 7
id-ClassmarkInformation3                        INTEGER ::= 8
id-CriticalityDiagnostics                       INTEGER ::= 9
id-DL-GTP-PDU-SequenceNumber                    INTEGER ::= 10
id-EncryptionInformation                        INTEGER ::= 11
id-IntegrityProtectionInformation               INTEGER ::= 12
id-IuTransportAssociation                       INTEGER ::= 13
id-L3-Information                               INTEGER ::= 14
id-LAI                                          INTEGER ::= 15
id-NAS-PDU                                      INTEGER ::= 16
id-NonSearchingIndication                       INTEGER ::= 17
id-NumberOfSteps                                INTEGER ::= 18
id-OMC-ID                                       INTEGER ::= 19
id-OldBSS-ToNewBSS-Information                  INTEGER ::= 20
id-PagingAreaID                                 INTEGER ::= 21
id-PagingCause                                  INTEGER ::= 22
id-PermanentNAS-UE-ID                           INTEGER ::= 23
id-RAB-ContextItem                              INTEGER ::= 24
id-RAB-ContextList                              INTEGER ::= 25
id-RAB-DataForwardingItem                       INTEGER ::= 26
id-RAB-DataForwardingItem-SRNS-CtxReq           INTEGER ::= 27
id-RAB-DataForwardingList                       INTEGER ::= 28
id-RAB-DataForwardingList-SRNS-CtxReq           INTEGER ::= 29
id-RAB-DataVolumeReportItem                     INTEGER ::= 30
id-RAB-DataVolumeReportList                     INTEGER ::= 31
id-RAB-DataVolumeReportRequestItem              INTEGER ::= 32
id-RAB-DataVolumeReportRequestList              INTEGER ::= 33
id-RAB-FailedItem                               INTEGER ::= 34
id-RAB-FailedList                               INTEGER ::= 35
id-RAB-ID                                       INTEGER ::= 36
id-RAB-QueuedItem                               INTEGER ::= 37
id-RAB-QueuedList                               INTEGER ::= 38
id-RAB-ReleaseFailedList                        INTEGER ::= 39
id-RAB-ReleaseItem                              INTEGER ::= 40
id-RAB-ReleaseList                              INTEGER ::= 41
id-RAB-ReleasedItem                             INTEGER ::= 42
id-RAB-ReleasedList                             INTEGER ::= 43
id-RAB-ReleasedList-IuRelComp                   INTEGER ::= 44
id-RAB-RelocationReleaseItem                    INTEGER ::= 45
id-RAB-RelocationReleaseList                    INTEGER ::= 46
id-RAB-SetupItem-RelocReq                       INTEGER ::= 47
id-RAB-SetupItem-RelocReqAck                    INTEGER ::= 48
id-RAB-SetupList-RelocReq                       INTEGER ::= 49
id-RAB-SetupList-RelocReqAck                    INTEGER ::= 50
id-RAB-SetupOrModifiedItem                      INTEGER ::= 51
id-RAB-SetupOrModifiedList                      INTEGER ::= 52
id-RAB-SetupOrModifyItem                        INTEGER ::= 53
id-RAB-SetupOrModifyList                        INTEGER ::= 54
id-RAC                                          INTEGER ::= 55
id-RelocationType                               INTEGER ::= 56
id-RequestType                                  INTEGER ::= 57
id-SAI                                          INTEGER ::= 58
id-SAPI                                         INTEGER ::= 59
id-SourceID                                     INTEGER ::= 60
id-SourceRNC-ToTargetRNC-TransparentContainer   INTEGER ::= 61
id-TargetID                                     INTEGER ::= 62
id-TargetRNC-ToSourceRNC-TransparentContainer   INTEGER ::= 63
id-TemporaryUE-ID                               INTEGER ::= 64
id-TraceReference                               INTEGER ::= 65
id-TraceType                                    INTEGER ::= 66
id-TransportLayerAddress                        INTEGER ::= 67
id-TriggerID                                    INTEGER ::= 68
id-UE-ID                                        INTEGER ::= 69
```

```
id-UL-GTP-PDU-SequenceNumber                    INTEGER ::= 70
id-RAB-FailedtoReportItem                       INTEGER ::= 71
id-RAB-FailedtoReportList                       INTEGER ::= 72
id-KeyStatus                                    INTEGER ::= 75
id-DRX-CycleLengthCoefficient                   INTEGER ::= 76
id-IuSigConIdList                               INTEGER ::= 77
id-IuSigConIdItem                               INTEGER ::= 78
id-IuSigConId                                   INTEGER ::= 79
id-DirectTransferInformationItem-RANAP-RelocInf INTEGER ::= 80
id-DirectTransferInformationList-RANAP-RelocInf INTEGER ::= 81
id-RAB-ContextItem-RANAP-RelocInf               INTEGER ::= 82
id-RAB-ContextList-RANAP-RelocInf               INTEGER ::= 83
id-RAB-ContextFailedtoTransferItem              INTEGER ::= 84
id-RAB-ContextFailedtoTransferList              INTEGER ::= 85
id-GlobalRNC-ID                                 INTEGER ::= 86
id-RAB-ReleasedItem-IuRelComp                   INTEGER ::= 87
id-MessageStructure                             INTEGER ::= 88
id-Alt-RAB-Parameters                           INTEGER ::= 89
id-Ass-RAB-Parameters                           INTEGER ::= 90
id-RAB-ModifyList                               INTEGER ::= 91
id-RAB-ModifyItem                               INTEGER ::= 92
id-TypeOfError                                  INTEGER ::= 93
id-BroadcastAssistanceDataDecipheringKeys       INTEGER ::= 94
id-LocationRelatedDataRequestType               INTEGER ::= 95
id-GlobalCN-ID                                  INTEGER ::= 96
id-LastKnownServiceArea                         INTEGER ::= 97
id-SRB-TrCH-Mapping                             INTEGER ::= 98
id-InterSystemInformation-TransparentContainer  INTEGER ::= 99
id-NewBSS-To-OldBSS-Information                 INTEGER ::= 100
id-SourceRNC-PDCP-context-info                  INTEGER ::= 103
id-InformationTransferID                        INTEGER ::= 104
id-SNA-Access-Information                       INTEGER ::= 105
id-ProvidedData                                 INTEGER ::= 106
id-GERAN-BSC-Container                          INTEGER ::= 107
id-GERAN-Classmark                              INTEGER ::= 108
id-GERAN-Iumode-RAB-Failed-RABAssgntResponse-Item INTEGER ::= 109
id-GERAN-Iumode-RAB-FailedList-RABAssgntResponse INTEGER ::= 110
id-VerticalAccuracyCode                         INTEGER ::= 111
id-ResponseTime                                 INTEGER ::= 112
id-PositioningPriority                          INTEGER ::= 113
id-ClientType                                   INTEGER ::= 114
id-LocationRelatedDataRequestTypeSpecificToGERANIuMode INTEGER ::= 115
id-SignallingIndication                         INTEGER ::= 116
id-hS-DSCH-MAC-d-Flow-ID                        INTEGER ::= 117
id-UESBI-Iu                                     INTEGER ::= 118
id-PositionData                                 INTEGER ::= 119
id-PositionDataSpecificToGERANIuMode            INTEGER ::= 120
id-CellLoadInformationGroup                     INTEGER ::= 121
id-AccuracyFulfilmentIndicator                  INTEGER ::= 122


END
```