

**TSG-RAN Meeting #11
Palm Springs, CA, U.S.A., 13-16 March 2001**

RP-010189

Title: Agreed CRs to WI "TEI"

Source: TSG-RAN WG3

Agenda item: 5.3.3

Tdoc_Num	Specification	CR_Num	Revision_Num	CR_Subject	CR_Category	WG_Status	Cur_Ver_Num	New_Ver_Num	Workitem
R3-010840	25.413	265		Alignment of Geographic Shape Descriptions between 25.413 and 23.032	B	agreed	3.4.0	4.0.0	TEI

CHANGE REQUEST

⌘ **25.413 CR 265** ⌘ rev **-** ⌘ Current version: **3.4.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title: ⌘ Alignment of Geographic Shape Descriptions between 25.413 (RANAP specification) and 23.032 (GAD specification).

Source: ⌘ R-WG3

Work item code: ⌘ TEI **Date:** ⌘ 2001-02-22

Category: ⌘ **F** **Release:** ⌘ Rel4

<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>	<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>
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Reason for change: ⌘ The current Geographical Area IE and tabular format was introduced by a contribution (R9-99i64) in December 1999. The reference used for the shapes in that CR was GSM TS 03.32 but there is now a 3GPP document (23.032) that defines GAD (Geographical Area Description) shapes. The Geographical Area IE defined in 25.413 (RANAP) is not aligned with 23.032, the GAD specification. The current RANAP specification restricts the available range of GAD shapes defined within 3GPP (23.032).

Summary of change: ⌘ Add the missing shapes according to 3G TS 23.032 to the RANAP "Geographical Area" Information Element.

Consequences if not approved: ⌘ 25.413 will not support the geographical shapes defined in 23.032 and 08.08 except (Point, Point with uncertainty Polygon). Non of the currently supported shapes can report height.

Additional information:
The proposed change is backwards compatible.

Clauses affected: ⌘ 8.20.2, 9.2.3.11, 9.3.4

Other specs affected: ⌘ Other core specifications ⌘ Test specifications
 O&M Specifications

Other comments: ⌘

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.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://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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

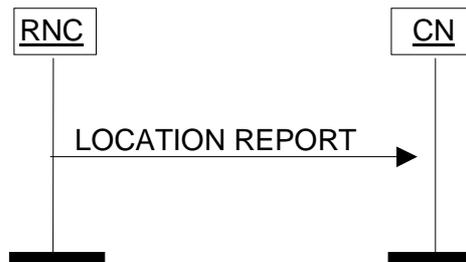


Figure 1: Location Report procedure. Successful operation.

The serving RNC shall initiate the procedure by generating a LOCATION REPORT message. The LOCATION REPORT message may be used as a response for the LOCATION REPORTING CONTROL message. Also, when a user enters or leaves a classified zone set by O&M, e.g. zone where a disaster occurred, a LOCATION REPORT message shall be sent to the CN including the Service Area of the UE in the *Area Identity* IE. The *Cause* IE shall indicate the appropriate cause value to 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 performed relocation, with *Request Type* IE set to "Change of Service Area", as soon as SAI becomes available in the new SRNC.

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

If the RNC can not deliver the location information as requested by the CN, 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 Report Type not supported". In case the "Requested Report Type not supported" cause value is used, then also the *Request Type* IE shall be included as a reference of what report type is not supported.

If the Location Report procedure was triggered by a LOCATION REPORTING CONTROL message, which included a request for a geographical area with a specific accuracy, the LOCATION REPORT message shall include either a point with indicated uncertainty or a polygon or an other type, which ~~both shall~~ fulfil~~s~~ the requested accuracy as accurately as possible. If, on the other hand, no specific accuracy level was requested in the LOCATION REPORTING CONTROL message, it is up to UTRAN to decide with which accuracy to report.

8.20.3 Abnormal Conditions

Not applicable.

9.2.3.10 Area Identity

This information element is used for indicating the location of a UE and is either a Service Area or Geographical Area.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Area Identity				
>SAI			9.2.3.9	
>Geographical Area			9.2.3.11	

9.2.3.11 Geographical Area

Geographical Area IE is used to identify an area, as seen from the CN, using geographical coordinates. The reference system is the same as the one used in [20].

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice Geographical Area				
>Point			See below	Ellipsoid point
>Point With Uncertainty			See below	Ellipsoid point with uncertainty circle
>Polygon			See below	List of Ellipsoid points
>Ellipsoid point with uncertainty Ellipse			See below	Ellipsoid point with uncertainty Ellipse
>Ellipsoid point with altitude			See below	Ellipsoid point with altitude
>Ellipsoid point with altitude and uncertainty Ellipsoid			See below	Ellipsoid point with altitude and uncertainty Ellipsoid
>Ellipsoid Arc			See below	Ellipsoid Arc

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Point				
>Geographical Coordinates	M		See below	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Point With Uncertainty				
>Geographical Coordinates	M		See below	
>Uncertainty Code	M		INTEGER(0...127)	The uncertainty "r" is derived from the "uncertainty code" k by $r = 10 \times (1.1^k - 1)$

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Polygon				
>Geographical Coordinates	M	1 to <maxnoofPoints>	See below	

Range bound	Explanation
maxnoofPoints	Maximum no. of points in polygon. Value is 15.

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Ellipsoid point with uncertainty Ellipse</u>				
>Geographical Coordinates	M		See below	
>Uncertainty Ellipse	M		See below	
>Confidence	M		INTEGER(0...127)	

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Ellipsoid point with altitude</u>				
>Geographical Coordinates	M		See below	
>Altitude and direction	M		See below	

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Ellipsoid point with altitude and uncertainty Ellipsoid</u>				
>Geographical Coordinates	M		See below	
>Altitude and direction	M		See below	
>Uncertainty Ellipse	M		See below	
>Uncertainty Altitude	M		INTEGER(0...127)	
>Confidence	M		INTEGER(0...127)	

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Ellipsoid Arc</u>				
>Geographical Coordinates	M		See below	
>Inner radius	M		INTEGER (0...2 ¹⁶ -1)	The relation between the value (N) and the radius (r) in meters it describes is $5N \leq r < 5(N+1)$, except for $N=2^{16}-1$ for which the range is extended to include all greater values of (r).
>Uncertainty radius	M		INTEGER(0...127)	The uncertainty "r" is derived from the "uncertainty code" k by $r = 10x(1.1^k-1)$
>Offset angle	M		INTEGER(0...179)	The relation between the value (N) and the angle (a) in degrees it describes is $2N \leq a < 2(N+1)$
>Included angle	M		INTEGER(0...179)	The relation between the value (N) and the angle (a) in degrees it describes is $2N \leq a < 2(N+1)$
>Confidence	M		INTEGER(0...127)	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Geographical Coordinates				
>Latitude Sign	M		ENUMERATED (North, South)	
>Degrees Of Latitude	M		INTEGER (0...2 ²³ -1)	The IE value (N) is derived by this formula: $N \leq 2^{23} \times X / 90 < N+1$ X being the latitude in degree (0°.. 90°)
>Degrees Of Longitude	M		INTEGER (-2 ²³ ...2 ²³ -1)	The IE value (N) is derived by this formula: $N \leq 2^{24} \times X / 360 < N+1$ X being the longitude in degree (-180°..+180°)

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Uncertainty Ellipse</u>				
<u>>Uncertainty semi-major</u>	<u>M</u>		<u>INTEGER(0...127)</u>	<u>The uncertainty "r" is derived from the "uncertainty code" k by $r = 10x(1.1^k-1)$</u>
<u>>Uncertainty semi-minor</u>	<u>M</u>		<u>INTEGER(0...127)</u>	<u>The uncertainty "r" is derived from the "uncertainty code" k by $r = 10x(1.1^k-1)$</u>
<u>>Orientation of major axis</u>	<u>M</u>		<u>INTEGER(0...179)</u>	<u>The relation between the value (N) and the angle (a) in degrees it describes is $2N \leq a < 2(N+1)$</u>

<u>IE/Group Name</u>	<u>Presence</u>	<u>Range</u>	<u>IE type and reference</u>	<u>Semantics description</u>
<u>Altitude and direction</u>				
<u>>Direction of Altitude</u>	<u>M</u>		<u>ENUMERATED (Height, Depth)</u>	
<u>>Altitude</u>	<u>M</u>		<u>INTEGER (0...2¹⁵-1)</u>	<u>The relation between the value (N) and the altitude (a) in meters it describes is $N \leq a < N+1$, except for $N=2^{15}-1$ for which the range is extended to include all grater values of (a).</u>

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,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination

FROM RANAP-Constants
```

Lots of unaffected ASN1 not shown

```
Event ::= ENUMERATED {
    stop,
    direct,
    change-of-servicearea,
    ...
}

-- F
-- G

GeographicalArea ::= CHOICE {
    point                GA-Point,
    pointWithUncertainty GA-PointWithUncertainty,
    polygon              GA-Polygon,
    .../
pointWithUncertaintyEllipse    GA-PointWithUncertaintyEllipse,
pointWithAltitude              GA-PointWithAltitude,
pointWithAltitudeAndUncertaintyEllipsoid    GA-PointWithAltitudeAndUncertaintyEllipsoid
ellipsoidArc                    GA-EllipsoidArc
}
```

```

GeographicalCoordinates ::= SEQUENCE {
    latitudeSign      ENUMERATED { north, south },
    latitude          INTEGER (0..8388607),
    longitude         INTEGER (-8388608..8388607),
    iE-Extensions    ProtocolExtensionContainer { {GeographicalCoordinates-ExtIEs} } OPTIONAL,
    ...
}

```

```

GeographicalCoordinates-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

GA-AltitudeAndDirection ::= SEQUENCE {
    directionOfAltitude    ENUMERATED {height, depth},
    altitude                INTEGER (0..32767),
    ...
}

```

```

GA-EllipsoidArc ::= SEQUENCE {
    geographicalCoordinates    GeographicalCoordinates,
    innerRadius                INTEGER (0..65535),
    uncertaintyRadius          INTEGER (0..127),
    offsetAngle                INTEGER (0..179),
    includedAngle              INTEGER (0..179),
    confidence                  INTEGER (0..127),
    iE-Extensions              ProtocolExtensionContainer { { GA-EllipsoidArc-ExtIEs} } OPTIONAL,
    ...
}

```

```

GA-EllipsoidArc-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

GA-Point ::= SEQUENCE {
    geographicalCoordinates    GeographicalCoordinates,
    iE-Extensions              ProtocolExtensionContainer { {GA-Point-ExtIEs} } OPTIONAL,
    ...
}

```

```

GA-Point-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```

GA-PointWithAltitude ::= SEQUENCE {
    geographicalCoordinates    GeographicalCoordinates,
    altitudeAndDirection      GA-AltitudeAndDirection,
    iE-Extensions              ProtocolExtensionContainer { { GA-PointWithAltitude-ExtIEs} } OPTIONAL,
    ...
}

```

```

GA-PointWithAltitude-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithAltitudeAndUncertaintyEllipsoid ::= SEQUENCE {
    geographicalCoordinates    GeographicalCoordinates,
    altitudeAndDirection      GA-AltitudeAndDirection,
    uncertaintyEllipse         GA-UncertaintyEllipse,
    uncertaintyAltitude        INTEGER (0..127),
    confidence                  INTEGER (0..127),
    iE-Extensions              ProtocolExtensionContainer { { GA-PointWithAltitudeAndUncertaintyEllipsoid-ExtIEs } } OPTIONAL,
    ...
}

GA-PointWithAltitudeAndUncertaintyEllipsoid-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithUnCertainty ::= SEQUENCE {
    geographicalCoordinates    GeographicalCoordinates,
    iE-Extensions              ProtocolExtensionContainer { {GA-PointWithUnCertainty-ExtIEs} } OPTIONAL,
    uncertaintyCode            INTEGER (0..127)
}

GA-PointWithUnCertainty-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-PointWithUnCertaintyEllipse ::= SEQUENCE {
    geographicalCoordinates    GeographicalCoordinates,
    uncertaintyEllipse         GA-UncertaintyEllipse,
    confidence                  INTEGER (0..127),
    iE-Extensions              ProtocolExtensionContainer { { GA-PointWithUnCertaintyEllipse-ExtIEs } } OPTIONAL,
    ...
}

GA-PointWithUnCertaintyEllipse-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

GA-Polygon ::= SEQUENCE (SIZE (1..maxNrOfPoints)) OF
    SEQUENCE {
        geographicalCoordinates    GeographicalCoordinates,
        iE-Extensions              ProtocolExtensionContainer { {GA-Polygon-ExtIEs} } OPTIONAL,
        ...
    }

GA-Polygon-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

```

```
GA-UncertaintyEllipse ::= SEQUENCE {  
    uncertaintySemi-major    INTEGER (0..127),  
    uncertaintySemi-minor    INTEGER (0..127),  
    orientationOfMajorAxis    INTEGER (0..179),  
    ...  
}
```

```
GlobalRNC-ID ::= SEQUENCE {  
    pLMN-ID        PLMN-ID,  
    rNC-ID         RNC-ID  
}
```

Lots of unaffected ASN1 not shown

END