

**3GPP TSG CN Plenary Meeting #12
Stockholm, Sweden, 13th - 15th June 2001**

Tdoc NP-010290

Source: TSG CN WG4
Title: CRs on R98 Work Item LCS
Agenda item: 7.16
Document for: APPROVAL

Introduction:

This document contains 3 CRs on R98 Work Item "LCS", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #12 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
09.02	A319		N4-010549	R98	Add support in MAP for Ellipsoid Point	F	7.8.0
29.002	265		N4-010550	R99	Add support in MAP for Ellipsoid Point	A	3.8.0
29.002	266		N4-010551	Rel-4	Add support in MAP for Ellipsoid Point	A	4.3.0

Rio Grande, Puerto Rico, 14-18 May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **09.02 CR A319** ⌘ rev **-** ⌘ Current version: **7.8.0** ⌘

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:	⌘ Add support in MAP for Ellipsoid Point		
Source:	⌘ CN4		
Work item code:	⌘ LCS	Date:	⌘ 2 May 2001
Category:	⌘ F (by consensus)	Release:	⌘ R98
	Use <u>one</u> 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)		Use <u>one</u> 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)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		

Reason for change: ⌘ As response to a positioning request, the RNC or the SMLC (depending on the access type) provide a location estimate coded via a "shape". The possible shapes are defined in the TS 03.32. MAP 09.02 supports only a subset of the shapes defined in 03.32.

For US E911 phase 2 feature, the GAD 03.32 shapes "Ellipsoid point" and "Ellipsoid point with uncertainty circle" may be the only two shapes that can be sent to a PSAP by a GMLC, but the "ellipsoid point" is not included in MAP 09.02. This restricts an SMLC to use only the "ellipsoid point with uncertainty circle" shape, which may be not appropriate for some position methods or preferred necessarily by an operator, because accuracy information has to be included

SA2 has issued the liaison statement S2-010812 towards CN4 to ask for support of Ellipsoid Point in 09.02

Summary of change: ⌘ Modification of parameter Ext-GeographicalInformation

Consequences if not approved: ⌘ Unnecessary restrictions are imposed on the SMLC concerning the shapes to be used for positioning in case of US E911 calls.

Clauses affected: ⌘ 17.7.13

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

Other comments: ⌘ The input LS from SA2 is the CN4 N4-010512 T-doc

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.

1

2

**** FIRST MODIFIED SECTION ****

17.7.13 Location service data types

```
1 MAP-LCS-DataTypes {
2     ccitt identified-organization (4) etsi (0) mobileDomain (0)
3     gsm-Network (1) modules (3) map-LCS-DataTypes (25) version5 (5)}
4
5 DEFINITIONS
6 IMPLICIT TAGS
7 ::=
8 BEGIN
9
10 EXPORTS
11     RoutingInfoForLCS-Arg,
12     RoutingInfoForLCS-Res,
13     ProvideSubscriberLocation-Arg,
14     ProvideSubscriberLocation-Res,
15     SubscriberLocationReport-Arg,
16     SubscriberLocationReport-Res,
17     LocationType,
18     LCSClientName,
19     LCS-QoS,
20     Horizontal-Accuracy,
21     ResponseTime,
22     Ext-GeographicalInformation
23 ;
24
25 IMPORTS
26     AddressString,
27     ISDN-AddressString,
28     IMEI,
29     IMSI,
30     LMSI,
31     SubscriberIdentity,
32     AgeOfLocationInformation,
33     LCSClientExternalID,
34     LCSClientInternalID
35 FROM MAP-CommonDataTypes {
36     ccitt identified-organization (4) etsi (0) mobileDomain (0)
37     gsm-Network (1) modules (3) map-CommonDataTypes (18) version5 (5)}
38
39     ExtensionContainer
40 FROM MAP-ExtensionDataTypes {
41     ccitt identified-organization (4) etsi (0) mobileDomain (0)
42     gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version5 (5)}
43
44     USSD-DataCodingScheme,
45     USSD-String
46 FROM MAP-SS-DataTypes {
47     ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
48     map-SS-DataTypes (14) version5 (5)}
49 ;
50
51
```

```

52 RoutingInfoForLCS-Arg ::= SEQUENCE {
53     mlcNumber                [0] ISDN-AddressString,
54     targetMS                 [1] SubscriberIdentity,
55     extensionContainer       [2] ExtensionContainer          OPTIONAL,
56     ...}
57
58 RoutingInfoForLCS-Res ::= SEQUENCE {
59     targetMS                 [0] SubscriberIdentity,
60     lcsLocationInfo         [1] LCSLocationInfo,
61     extensionContainer       [2] ExtensionContainer          OPTIONAL,
62     ...}
63
64 LCSLocationInfo ::= SEQUENCE {
65     msc-Number              ISDN-AddressString,
66     lmsi                    [0] LMSI                      OPTIONAL,
67     extensionContainer       [1] ExtensionContainer          OPTIONAL,
68     ...}
69
70 ProvideSubscriberLocation-Arg ::= SEQUENCE {
71     locationType             LocationType,
72     mlc-Number              ISDN-AddressString,
73     lcs-ClientID            [0] LCS-ClientID                OPTIONAL,
74     privacyOverride         [1] NULL                      OPTIONAL,
75     imsi                    [2] IMSI                      OPTIONAL,
76     msisdn                  [3] ISDN-AddressString          OPTIONAL,
77     lmsi                    [4] LMSI                      OPTIONAL,
78     imei                    [5] IMEI                      OPTIONAL,
79     lcs-Priority            [6] LCS-Priority                OPTIONAL,
80     lcs-QoS                 [7] LCS-QoS                    OPTIONAL,
81     extensionContainer       [8] ExtensionContainer          OPTIONAL,
82     ...}
83
84 -- one of imsi or msisdn is mandatory
85
86 LocationType ::= SEQUENCE {
87     locationEstimateType     [0] LocationEstimateType,
88     ...}
89
90 LocationEstimateType ::= ENUMERATED {
91     currentLocation          (0),
92     currentOrLastKnownLocation (1),
93     initialLocation          (2),
94     ...}
95 -- exception handling:
96 -- a ProvideSubscriberLocation-Arg containing an unrecognized LocationEstimateType
97 -- shall be rejected by the receiver with a return error cause of unexpected data value
98
99 LCS-ClientID ::= SEQUENCE {
100     lcsClientType           [0] LCSClientType,
101     lcsClientExternalID     [1] LCSClientExternalID        OPTIONAL,
102     lcsClientDialedByMS     [2] AddressString              OPTIONAL,
103     lcsClientInternalID     [3] LCSClientInternalID        OPTIONAL,
104     lcsClientName           [4] LCSClientName              OPTIONAL,
105     ...}
106
107 LCSClientType ::= ENUMERATED {
108     emergencyServices        (0),
109     valueAddedServices       (1),
110     plmnOperatorServices     (2),
111     lawfulInterceptServices (3),
112     ...}
113 -- exception handling:
114 -- unrecognized values may be ignored if the LCS client uses the privacy override
115 -- otherwise, an unrecognized value shall be treated as unexpected data by a receiver
116 -- a return error shall then be returned if received in a MAP invoke
117
118 LCSClientName ::= SEQUENCE {
119     dataCodingScheme         [0] USSD-DataCodingScheme,
120     nameString               [2] NameString,
121     ...}
122
123 -- The USSD-DataCodingScheme shall indicate use of the default alphabet through the
124 -- following encoding
125 -- bit 7 6 5 4 3 2 1 0
126 --      0 0 0 0 1 1 1 1
127
128 NameString ::= USSD-String (SIZE (1..maxNameStringLength))

```

```
129
130 maxNameStringLength INTEGER ::= 63
131
132 LCS-Priority ::= OCTET STRING (SIZE (1))
133 -- 0 = highest priority
134 -- 1 = normal priority
135 -- all other values treated as 1
136
137 LCS-Qos ::= SEQUENCE {
138     horizontal-accuracy          [0] Horizontal-Accuracy          OPTIONAL,
139     verticalCoordinateRequest    [1] NULL                        OPTIONAL,
140     vertical-accuracy            [2] Vertical-Accuracy            OPTIONAL,
141     responseTime                 [3] ResponseTime                OPTIONAL,
142     extensionContainer           [4] ExtensionContainer           OPTIONAL,
143     ...}
144
145 Horizontal-Accuracy ::= OCTET STRING (SIZE (1))
146 -- bit 8 = 0
147 -- bits 7-1 = 7 bit Uncertainty Code defined in GSM 03.32. The horizontal location
148 -- error should be less than the error indicated by the uncertainty code with 67%
149 -- confidence.
150
151 Vertical-Accuracy ::= OCTET STRING (SIZE (1))
152 -- bit 8 = 0
153 -- bits 7-1 = 7 bit Vertical Uncertainty Code defined in GSM 03.32. The vertical location
154 -- error should be less than the error indicated by the uncertainty code with 67 %
155 -- confidence.
156
157 ResponseTime ::= SEQUENCE {
158     responseTimeCategory          ResponseTimeCategory,
159     ...}
160 -- note: an expandable SEQUENCE simplifies later addition of a numeric response time.
161
162 ResponseTimeCategory ::= ENUMERATED {
163     lowdelay (0),
164     delaytolerant (1),
165     ... }
166 -- exception handling:
167 -- an unrecognized value shall be treated the same as value 1 (delaytolerant)
168
169 ProvideSubscriberLocation-Res ::= SEQUENCE {
170     locationEstimate              Ext-GeographicalInformation,
171     ageOfLocationEstimate         [0] AgeOfLocationInformation    OPTIONAL,
172     extensionContainer            [1] ExtensionContainer           OPTIONAL,
173     ...}
174
```

```

175 Ext-GeographicalInformation ::= OCTET STRING (SIZE (1..maxExt-GeographicalInformation))
176 -- Refers to geographical Information defined in GSM 03.32.
177 -- This is composed of 1 or more octets with an internal structure according to GSM 03.32
178 -- Octet 1: Type of shape, only the following shapes in GSM 03.32 are allowed:
179 -- (a) Ellipsoid point with uncertainty circle
180 -- (b) Ellipsoid point with uncertainty ellipse
181 -- (c) Ellipsoid point with altitude and uncertainty ellipsoid
182 -- (d) Ellipsoid Arc
183 -- (e) Ellipsoid Point
184 -- Any other value in octet 1 shall be treated as invalid
185 -- Octets 2 to 8 for case (a) - Ellipsoid point with uncertainty circle
186 -- Degrees of Latitude 3 octets
187 -- Degrees of Longitude 3 octets
188 -- Uncertainty code 1 octet
189 -- Octets 2 to 11 for case (b) - Ellipsoid point with uncertainty ellipse:
190 -- Degrees of Latitude 3 octets
191 -- Degrees of Longitude 3 octets
192 -- Uncertainty semi-major axis 1 octet
193 -- Uncertainty semi-minor axis 1 octet
194 -- Angle of major axis 1 octet
195 -- Confidence 1 octet
196 -- Octets 2 to 14 for case (c) - Ellipsoid point with altitude and uncertainty ellipsoid
197 -- Degrees of Latitude 3 octets
198 -- Degrees of Longitude 3 octets
199 -- Altitude 2 octets
200 -- Uncertainty semi-major axis 1 octet
201 -- Uncertainty semi-minor axis 1 octet
202 -- Angle of major axis 1 octet
203 -- Uncertainty altitude 1 octet
204 -- Confidence 1 octet
205 -- Octets 2 to 13 for case (d) - Ellipsoid Arc
206 -- Degrees of Latitude 3 octets
207 -- Degrees of Longitude 3 octets
208 -- Inner radius 2 octets
209 -- Uncertainty radius 1 octet
210 -- Offset angle 1 octet
211 -- Included angle 1 octet
212 -- Confidence 1 octet
213 -- Octets 2 to 7 for case (e) - Ellipsoid Point
214 -- Degrees of Latitude 3 octets
215 -- Degrees of Longitude 3 octets
216 --
217 -- An Ext-GeogrphicalInformation parameter containing any other shape or an incorrect number
218 -- of octets or coding according to GSM 03.32 shall be treated as invalid data by a receiver
219

```

```

220 maxExt-GeographicalInformation INTEGER ::= 20
221 -- the maximum length allows for further shapes in GSM 03.32 to be included in later versions
222 -- of GSM 09.02
223

```

```

224 SubscriberLocationReport-Arg ::= SEQUENCE {
225     lcs-Event          LCS-Event,
226     lcs-ClientID      LCS-ClientID,
227     lcsLocationInfo   LCSLocationInfo,
228     msisdn             [0] ISDN-AddressString OPTIONAL,
229     imsi              [1] IMSI OPTIONAL,
230     imei              [2] IMEI OPTIONAL,
231     na-ESRD          [3] ISDN-AddressString OPTIONAL,
232     na-ESRK          [4] ISDN-AddressString OPTIONAL,
233     locationEstimate [5] Ext-GeographicalInformation OPTIONAL,
234     ageOfLocationEstimate [6] AgeOfLocationInformation OPTIONAL,
235     extensionContainer [7] ExtensionContainer OPTIONAL,
236     ...}
237
238 -- one of msisdn or, imsi is mandatory
239

```

```

240 LCS-Event ::= ENUMERATED {
241     emergencyCallOrigination (0),
242     emergencyCallRelease (1),
243     mo-lr (2),
244     ... }
245 -- exception handling:
246 -- a SubscriberLocationReport-Arg containing an unrecognized LCS-Event
247 -- shall be rejected by a receiver with a return error cause of unexpected data value
248

```

```

249 SubscriberLocationReport-Res ::= SEQUENCE {
250     extensionContainer ExtensionContainer OPTIONAL,
251     ...}
252

```

253
254
255 END
256
257

258

****** END OF MODIFICATIONS ******

259

Rio Grande, Puerto Rico, 14-18 May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **29.002 CR 265** ⌘ rev **-** ⌘ Current version: **3.8.0** ⌘

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:	⌘	Add support in MAP for Ellipsoid Point	
Source:	⌘	CN4	
Work item code:	⌘	LCS	Date: ⌘ 2 May 2001
Category:	⌘	A	Release: ⌘ R99
		<p><i>Use <u>one</u> of the following categories:</i></p> <p>F (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><i>Use <u>one</u> of the following releases:</i></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>

Reason for change: ⌘ As response to a positioning request, the RNC or the SMLC (depending on the access type) provide a location estimate coded via a "shape". The possible shapes are defined in the TS 23.032. MAP 29.002 supports only a subset of the shapes defined in 23.032.

For US E911 phase 2 feature, the GAD 03.32 shapes "Ellipsoid point" and "Ellipsoid point with uncertainty circle" may be the only two shapes that can be sent to a PSAP by a GMLC, but the "ellipsoid point" is not included in MAP 29.002. This restricts an SMLC to use only the "ellipsoid point with uncertainty circle" shape, which may be not appropriate for some position methods or preferred necessarily by an operator, because accuracy information has to be included

SA2 has issued the liasion statement S2-010812 towards CN4 to ask for support of Ellipsoid Point in 29.002

Summary of change: ⌘ Modification of parameter Ext-GeographicalInformation

Consequences if not approved: ⌘ Unnecessary restrictions are imposed on the SMLC concerning the shapes to be used for positioning in case of US E911 calls.

Clauses affected: ⌘ 17.7.13

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

Other comments: ⌘ The input LS from SA2 is the CN4 N4-010512 T-doc

How to create CRs using this form:

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- 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.

**** FIRST MODIFIED SECTION ****

17.7.13 Location service data types

```
1 MAP-LCS-DataTypes {
2   ccitt identified-organization (4) etsi (0) mobileDomain (0)
3   gsm-Network (1) modules (3) map-LCS-DataTypes (25) version6 (6)}
4
5 DEFINITIONS
6 IMPLICIT TAGS
7 ::=
8 BEGIN
9
10 EXPORTS
11   RoutingInfoForLCS-Arg,
12   RoutingInfoForLCS-Res,
13   ProvideSubscriberLocation-Arg,
14   ProvideSubscriberLocation-Res,
15   SubscriberLocationReport-Arg,
16   SubscriberLocationReport-Res,
17   LocationType,
18   LCSClientName,
19   LCS-QoS,
20   Horizontal-Accuracy,
21   ResponseTime,
22   Ext-GeographicalInformation
23 ;
24
25 IMPORTS
26   AddressString,
27   ISDN-AddressString,
28   IMEI,
29   IMSI,
30   LMSI,
31   SubscriberIdentity,
32   AgeOfLocationInformation,
33   LCSClientExternalID,
34   LCSClientInternalID
35 FROM MAP-CommonDataTypes {
36   ccitt identified-organization (4) etsi (0) mobileDomain (0)
37   gsm-Network (1) modules (3) map-CommonDataTypes (18) version6 (6)}
38
39   ExtensionContainer
40 FROM MAP-ExtensionDataTypes {
41   ccitt identified-organization (4) etsi (0) mobileDomain (0)
42   gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version6 (6)}
43
44   USSD-DataCodingScheme,
45   USSD-String
46 FROM MAP-SS-DataTypes {
47   ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
```

```

48   map-SS-DataTypes (14) version6 (6)}
49 ;
50
51
52 RoutingInfoForLCS-Arg ::= SEQUENCE {
53     mlcNumber                [0] ISDN-AddressString,
54     targetMS                 [1] SubscriberIdentity,
55     extensionContainer       [2] ExtensionContainer          OPTIONAL,
56     ... }
57
58 RoutingInfoForLCS-Res ::= SEQUENCE {
59     targetMS                 [0] SubscriberIdentity,
60     lcsLocationInfo         [1] LCSLocationInfo,
61     extensionContainer       [2] ExtensionContainer          OPTIONAL,
62     ... }
63
64 LCSLocationInfo ::= SEQUENCE {
65     msc-Number              ISDN-AddressString,
66     lmsi                   [0] LMSI                        OPTIONAL,
67     extensionContainer       [1] ExtensionContainer          OPTIONAL,
68     ... }
69
70 ProvideSubscriberLocation-Arg ::= SEQUENCE {
71     locationType            LocationType,
72     mlc-Number              ISDN-AddressString,
73     lcs-ClientID           [0] LCS-ClientID                OPTIONAL,
74     privacyOverride        [1] NULL                       OPTIONAL,
75     imsi                   [2] IMSI                        OPTIONAL,
76     msisdn                 [3] ISDN-AddressString          OPTIONAL,
77     lmsi                   [4] LMSI                        OPTIONAL,
78     imei                   [5] IMEI                        OPTIONAL,
79     lcs-Priority           [6] LCS-Priority                OPTIONAL,
80     lcs-QoS                 [7] LCS-QoS                    OPTIONAL,
81     extensionContainer     [8] ExtensionContainer          OPTIONAL,
82     ... }
83
84     -- one of imsi or msisdn is mandatory
85
86 LocationType ::= SEQUENCE {
87     locationEstimateType    [0] LocationEstimateType,
88     ... }
89
90 LocationEstimateType ::= ENUMERATED {
91     currentLocation         (0),
92     currentOrLastKnownLocation (1),
93     initialLocation         (2),
94     ... }
95 -- exception handling:
96 -- a ProvideSubscriberLocation-Arg containing an unrecognized LocationEstimateType
97 -- shall be rejected by the receiver with a return error cause of unexpected data value
98
99 LCS-ClientID ::= SEQUENCE {
100     lcsClientType           [0] LCSClientType,
101     lcsClientExternalID     [1] LCSClientExternalID        OPTIONAL,
102     lcsClientDialedByMS     [2] AddressString              OPTIONAL,
103     lcsClientInternalID     [3] LCSClientInternalID        OPTIONAL,
104     lcsClientName           [4] LCSClientName              OPTIONAL,
105     ... }
106
107 LCSClientType ::= ENUMERATED {
108     emergencyServices        (0),
109     valueAddedServices       (1),
110     plmnOperatorServices     (2),
111     lawfulInterceptServices  (3),
112     ... }
113 -- exception handling:
114 -- unrecognized values may be ignored if the LCS client uses the privacy override
115 -- otherwise, an unrecognized value shall be treated as unexpected data by a receiver
116 -- a return error shall then be returned if received in a MAP invoke
117

```

```
118 LCSClientName ::= SEQUENCE {
119     dataCodingScheme          [0] USSD-DataCodingScheme,
120     nameString                [2] NameString,
121     ...}
122
123 -- The USSD-DataCodingScheme shall indicate use of the default alphabet through the
124 -- following encoding
125 -- bit 7 6 5 4 3 2 1 0
126 --      0 0 0 0 1 1 1 1
127
128 NameString ::= USSD-String (SIZE (1..maxNameStringLength))
129
130 maxNameStringLength INTEGER ::= 63
131
132 LCS-Priority ::= OCTET STRING (SIZE (1))
133 -- 0 = highest priority
134 -- 1 = normal priority
135 -- all other values treated as 1
136
137 LCS-QoS ::= SEQUENCE {
138     horizontal-accuracy          [0] Horizontal-Accuracy          OPTIONAL,
139     verticalCoordinateRequest    [1] NULL                        OPTIONAL,
140     vertical-accuracy           [2] Vertical-Accuracy           OPTIONAL,
141     responseTime                [3] ResponseTime               OPTIONAL,
142     extensionContainer           [4] ExtensionContainer          OPTIONAL,
143     ...}
144
145 Horizontal-Accuracy ::= OCTET STRING (SIZE (1))
146 -- bit 8 = 0
147 -- bits 7-1 = 7 bit Uncertainty Code defined in GSM 03.32. The horizontal location
148 -- error should be less than the error indicated by the uncertainty code with 67 %
149 -- confidence.
150
151
152 Vertical-Accuracy ::= OCTET STRING (SIZE (1))
153 -- bit 8 = 0
154 -- bits 7-1 = 7 bit Vertical Uncertainty Code defined in GSM 03.32. The vertical location
155 -- error should be less than the error indicated by the uncertainty code with 67 %
156 -- confidence.
157
158
159 ResponseTime ::= SEQUENCE {
160     responseTimeCategory        ResponseTimeCategory,
161     ...}
162 -- note: an expandable SEQUENCE simplifies later addition of a numeric response time.
163
164 ResponseTimeCategory ::= ENUMERATED {
165     lowdelay (0),
166     delaytolerant (1),
167     ... }
168 -- exception handling:
169 -- an unrecognized value shall be treated the same as value 1 (delaytolerant)
170
171 ProvideSubscriberLocation-Res ::= SEQUENCE {
172     locationEstimate            Ext-GeographicalInformation,
173     ageOfLocationEstimate      [0] AgeOfLocationInformation      OPTIONAL,
174     extensionContainer         [1] ExtensionContainer            OPTIONAL,
175     ...}
176
```

```

177 Ext-GeographicalInformation ::= OCTET STRING (SIZE (1..maxExt-GeographicalInformation))
178 -- Refers to geographical Information defined in GSM 03.32.
179 -- This is composed of 1 or more octets with an internal structure according to GSM 03.32
180 -- Octet 1: Type of shape, only the following shapes in GSM 03.32 are allowed:
181 -- (a) Ellipsoid point with uncertainty circle
182 -- (b) Ellipsoid point with uncertainty ellipse
183 -- (c) Ellipsoid point with altitude and uncertainty ellipsoid
184 -- (d) Ellipsoid Arc
185 -- (e) Ellipsoid Point
186 -- Any other value in octet 1 shall be treated as invalid
187 -- Octets 2 to 8 for case (a) - Ellipsoid point with uncertainty circle
188 -- Degrees of Latitude 3 octets
189 -- Degrees of Longitude 3 octets
190 -- Uncertainty code 1 octet
191 -- Octets 2 to 11 for case (b) - Ellipsoid point with uncertainty ellipse:
192 -- Degrees of Latitude 3 octets
193 -- Degrees of Longitude 3 octets
194 -- Uncertainty semi-major axis 1 octet
195 -- Uncertainty semi-minor axis 1 octet
196 -- Angle of major axis 1 octet
197 -- Confidence 1 octet
198 -- Octets 2 to 14 for case (c) - Ellipsoid point with altitude and uncertainty ellipsoid
199 -- Degrees of Latitude 3 octets
200 -- Degrees of Longitude 3 octets
201 -- Altitude 2 octets
202 -- Uncertainty semi-major axis 1 octet
203 -- Uncertainty semi-minor axis 1 octet
204 -- Angle of major axis 1 octet
205 -- Uncertainty altitude 1 octet
206 -- Confidence 1 octet
207 -- Octets 2 to 13 for case (d) - Ellipsoid Arc
208 -- Degrees of Latitude 3 octets
209 -- Degrees of Longitude 3 octets
210 -- Inner radius 2 octets
211 -- Uncertainty radius 1 octet
212 -- Offset angle 1 octet
213 -- Included angle 1 octet
214 -- Confidence 1 octet
215 -- Octets 2 to 7 for case (e) - Ellipsoid Point
216 -- Degrees of Latitude 3 octets
217 -- Degrees of Longitude 3 octets
218
219 -- -- An Ext-GeographicalInformation parameter containing any other shape or an
220 -- incorrect number of octets or coding according to GSM 03.32 shall be
221 -- treated as invalid data by a receiver

```

```

223 maxExt-GeographicalInformation INTEGER ::= 20
224 -- the maximum length allows for further shapes in GSM 03.32 to be included in later
225 -- versions of GSM 09.02

```

```

227 SubscriberLocationReport-Arg ::= SEQUENCE {
228     lcs-Event LCS-Event,
229     lcs-ClientID LCS-ClientID,
230     lcsLocationInfo LCSLocationInfo,
231     msisdn [0] ISDN-AddressString OPTIONAL,
232     imsi [1] IMSI OPTIONAL,
233     imei [2] IMEI OPTIONAL,
234     na-ESRD [3] ISDN-AddressString OPTIONAL,
235     na-ESRK [4] ISDN-AddressString OPTIONAL,
236     locationEstimate [5] Ext-GeographicalInformation OPTIONAL,
237     ageOfLocationEstimate [6] AgeOfLocationInformation OPTIONAL,
238     extensionContainer [7] ExtensionContainer OPTIONAL,
239     ...}
240
241 -- one of msisdn or imsi is mandatory

```

```

243 LCS-Event ::= ENUMERATED {
244     emergencyCallOrigination (0),
245     emergencyCallRelease (1),
246     mo-lr (2),
247     ... }
248 -- exception handling:
249 -- a SubscriberLocationReport-Arg containing an unrecognized LCS-Event
250 -- shall be rejected by a receiver with a return error cause of unexpected data value

```

251

```
252 SubscriberLocationReport-Res ::= SEQUENCE {  
253     extensionContainer          ExtensionContainer          OPTIONAL,  
254     ...}  
255  
256 END  
257
```

258

259 ****** END OF MODIFICATIONS ******

260

Rio Grande, Puerto Rico, 14-18 May 2001

CR-Form-v3
CHANGE REQUEST
⌘ 29.002 CR 266 ⌘ rev - ⌘ Current version: 4.3.0 ⌘

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:	⌘	Add support in MAP for Ellipsoid Point	
Source:	⌘	CN4	
Work item code:	⌘	LCS	Date: ⌘ 2 May 2001
Category:	⌘	A	Release: ⌘ REL-4
		Use <u>one</u> 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)	Use <u>one</u> 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)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.			

Reason for change: ⌘ As response to a positioning request, the RNC or the SMLC (depending on the access type) provide a location estimate coded via a "shape". The possible shapes are defined in the TS 23.032. MAP 29.002 supports only a subset of the shapes defined in 23.032.

For US E911 phase 2 feature, the GAD 03.32 shapes "Ellipsoid point" and "Ellipsoid point with uncertainty circle" may be the only two shapes that can be sent to a PSAP by a GMLC, but the "ellipsoid point" is not included in MAP 29.002. This restricts an SMLC to use only the "ellipsoid point with uncertainty circle" shape, which may be not appropriate for some position methods or preferred necessarily by an operator, because accuracy information has to be included

SA2 has issued the liaison statement S2-010812 towards CN4 to ask for support of Ellipsoid Point in 29.002

Summary of change: ⌘ Modification of parameter Ext-GeographicalInformation

Consequences if not approved: ⌘ Unnecessary restrictions are imposed on the SMLC concerning the shapes to be used for positioning in case of US E911 calls.

Clauses affected: ⌘ 17.7.13

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

Other comments: ⌘ The input LS from SA2 is the CN4 N4-010512 T-doc

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.

****** FIRST MODIFIED SECTION ******

17.7.13 Location service data types

```
1  MAP-LCS-DataTypes {
2      ccitt identified-organization (4) etsi (0) mobileDomain (0)
3      gsm-Network (1) modules (3) map-LCS-DataTypes (25) version7 (7)}
4
5  DEFINITIONS
6  IMPLICIT TAGS
7  ::=
8  BEGIN
9
10 EXPORTS
11     RoutingInfoForLCS-Arg,
12     RoutingInfoForLCS-Res,
13     ProvideSubscriberLocation-Arg,
14     ProvideSubscriberLocation-Res,
15     SubscriberLocationReport-Arg,
16     SubscriberLocationReport-Res,
17     LocationType,
18     LCSClientName,
19     LCS-QoS,
20     Horizontal-Accuracy,
21     ResponseTime,
22     Ext-GeographicalInformation
23 ;
24
25 IMPORTS
26     AddressString,
27     ISDN-AddressString,
28     IMEI,
29     IMSI,
30     LMSI,
31     SubscriberIdentity,
32     AgeOfLocationInformation,
33     LCSClientExternalID,
34     LCSClientInternalID
35 FROM MAP-CommonDataTypes {
36     ccitt identified-organization (4) etsi (0) mobileDomain (0)
37     gsm-Network (1) modules (3) map-CommonDataTypes (18) version7 (7)}
38
39     ExtensionContainer
40 FROM MAP-ExtensionDataTypes {
41     ccitt identified-organization (4) etsi (0) mobileDomain (0)
42     gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version7 (7)}
43
44     USSD-DataCodingScheme,
45     USSD-String
46 FROM MAP-SS-DataTypes {
47     ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
48     map-SS-DataTypes (14) version7 (7)}
49
50     APN
```

```

51 FROM MAP-MS-DataTypes {
52   ccitt identified-organization (4) etsi (0) mobileDomain (0)
53   gsm-Network (1) modules (3) map-MS-DataTypes (11) version7 (7)}
54
55   Additional-Number
56 FROM MAP-SM-DataTypes {
57   ccitt identified-organization (4) etsi (0) mobileDomain (0)
58   gsm-Network (1) modules (3) map-SM-DataTypes (16) version7 (7)}
59 ;
60
61
62 RoutingInfoForLCS-Arg ::= SEQUENCE {
63   mlcNumber                [0] ISDN-AddressString,
64   targetMS                 [1] SubscriberIdentity,
65   extensionContainer       [2] ExtensionContainer           OPTIONAL,
66   ... }
67
68 RoutingInfoForLCS-Res ::= SEQUENCE {
69   targetMS                 [0] SubscriberIdentity,
70   lcsLocationInfo         [1] LCSLocationInfo,
71   extensionContainer       [2] ExtensionContainer           OPTIONAL,
72   ... }
73
74 LCSLocationInfo ::= SEQUENCE {
75   networkNode-Number      ISDN-AddressString,
76   -- NetworkNode-number can be either msc-number or sgsn-number
77   lmsi                    [0] LMSI                       OPTIONAL,
78   extensionContainer       [1] ExtensionContainer           OPTIONAL,
79   ... ,
80   gprsNodeIndicator       [2] NULL                       OPTIONAL,
81   -- gprsNodeIndicator is set only if the SGSN number is sent as the Network Node Number
82   additional-Number       [3] Additional-Number           OPTIONAL
83 }
84
85 ProvideSubscriberLocation-Arg ::= SEQUENCE {
86   locationType            LocationType,
87   mlc-Number              ISDN-AddressString,
88   lcs-ClientID            [0] LCS-ClientID                 OPTIONAL,
89   privacyOverride         [1] NULL                       OPTIONAL,
90   imsi                   [2] IMSI                       OPTIONAL,
91   msisdn                  [3] ISDN-AddressString           OPTIONAL,
92   lmsi                    [4] LMSI                       OPTIONAL,
93   imei                    [5] IMEI                       OPTIONAL,
94   lcs-Priority            [6] LCS-Priority                OPTIONAL,
95   lcs-QoS                 [7] LCS-QoS                    OPTIONAL,
96   extensionContainer       [8] ExtensionContainer           OPTIONAL,
97   ... }
98
99   -- one of imsi or msisdn is mandatory
100
101 LocationType ::= SEQUENCE {
102   locationEstimateType    [0] LocationEstimateType,
103   ... }
104
105 LocationEstimateType ::= ENUMERATED {
106   currentLocation         (0),
107   currentOrLastKnownLocation (1),
108   initialLocation         (2),
109   ... }
110 -- exception handling:
111 -- a ProvideSubscriberLocation-Arg containing an unrecognized LocationEstimateType
112 -- shall be rejected by the receiver with a return error cause of unexpected data value
113
114 LCS-ClientID ::= SEQUENCE {
115   lcsClientType           [0] LCSClientType,
116   lcsClientExternalID     [1] LCSClientExternalID         OPTIONAL,
117   lcsClientDialedByMS     [2] AddressString               OPTIONAL,
118   lcsClientInternalID     [3] LCSClientInternalID         OPTIONAL,
119   lcsClientName           [4] LCSClientName               OPTIONAL,
120   ...,
121   lcsAPN                 [5] APN                         OPTIONAL }
122

```



```

123 LCSClientType ::= ENUMERATED {
124     emergencyServices           (0),
125     valueAddedServices         (1),
126     plmnOperatorServices       (2),
127     lawfulInterceptServices    (3),
128     ... }
129 -- exception handling:
130 -- unrecognized values may be ignored if the LCS client uses the privacy override
131 -- otherwise, an unrecognized value shall be treated as unexpected data by a receiver
132 -- a return error shall then be returned if received in a MAP invoke
133
134 LCSClientName ::= SEQUENCE {
135     dataCodingScheme           [0] USSD-DataCodingScheme,
136     nameString                 [2] NameString,
137     ... }
138
139 -- The USSD-DataCodingScheme shall indicate use of the default alphabet through the
140 -- following encoding
141 -- bit 7 6 5 4 3 2 1 0
142 --      0 0 0 0 1 1 1 1
143
144 NameString ::= USSD-String (SIZE (1..maxNameStringLength))
145
146 maxNameStringLength INTEGER ::= 63
147
148 LCS-Priority ::= OCTET STRING (SIZE (1))
149 -- 0 = highest priority
150 -- 1 = normal priority
151 -- all other values treated as 1
152
153 LCS-Qos ::= SEQUENCE {
154     horizontal-accuracy        [0] Horizontal-Accuracy           OPTIONAL,
155     verticalCoordinateRequest  [1] NULL                        OPTIONAL,
156     vertical-accuracy          [2] Vertical-Accuracy            OPTIONAL,
157     responseTime               [3] ResponseTime                OPTIONAL,
158     extensionContainer         [4] ExtensionContainer           OPTIONAL,
159     ... }
160
161 Horizontal-Accuracy ::= OCTET STRING (SIZE (1))
162 -- bit 8 = 0
163 -- bits 7-1 = 7 bit Uncertainty Code defined in GSM 03.32. The horizontal location
164 -- error should be less than the error indicated by the uncertainty code with 67%
165 -- confidence.
166
167 Vertical-Accuracy ::= OCTET STRING (SIZE (1))
168 -- bit 8 = 0
169 -- bits 7-1 = 7 bit Vertical Uncertainty Code defined in GSM 03.32. The vertical location
170 -- error should be less than the error indicated by the uncertainty code with 67%
171 -- confidence.
172
173 ResponseTime ::= SEQUENCE {
174     responseTimeCategory      ResponseTimeCategory,
175     ... }
176 -- note: an expandable SEQUENCE simplifies later addition of a numeric response time.
177
178 ResponseTimeCategory ::= ENUMERATED {
179     lowdelay (0),
180     delaytolerant (1),
181     ... }
182 -- exception handling:
183 -- an unrecognized value shall be treated the same as value 1 (delaytolerant)
184
185 ProvideSubscriberLocation-Res ::= SEQUENCE {
186     locationEstimate          Ext-GeographicalInformation,
187     ageOfLocationEstimate    [0] AgeOfLocationInformation      OPTIONAL,
188     extensionContainer       [1] ExtensionContainer            OPTIONAL,
189     ... }
190

```

```

191 Ext-GeographicalInformation ::= OCTET STRING (SIZE (1..maxExt-GeographicalInformation))
192 -- Refers to geographical Information defined in GSM 03.32.
193 -- This is composed of 1 or more octets with an internal structure according to GSM 03.32
194 -- Octet 1: Type of shape, only the following shapes in GSM 03.32 are allowed:
195 -- (a) Ellipsoid point with uncertainty circle
196 -- (b) Ellipsoid point with uncertainty ellipse
197 -- (c) Ellipsoid point with altitude and uncertainty ellipsoid
198 -- (d) Ellipsoid Arc
199 -- (e) Ellipsoid Point
200 -- Any other value in octet 1 shall be treated as invalid
201 -- Octets 2 to 8 for case (a) - Ellipsoid point with uncertainty circle
202 -- Degrees of Latitude 3 octets
203 -- Degrees of Longitude 3 octets
204 -- Uncertainty code 1 octet
205 -- Octets 2 to 11 for case (b) - Ellipsoid point with uncertainty ellipse:
206 -- Degrees of Latitude 3 octets
207 -- Degrees of Longitude 3 octets
208 -- Uncertainty semi-major axis 1 octet
209 -- Uncertainty semi-minor axis 1 octet
210 -- Angle of major axis 1 octet
211 -- Confidence 1 octet
212 -- Octets 2 to 14 for case (c) - Ellipsoid point with altitude and uncertainty ellipsoid
213 -- Degrees of Latitude 3 octets
214 -- Degrees of Longitude 3 octets
215 -- Altitude 2 octets
216 -- Uncertainty semi-major axis 1 octet
217 -- Uncertainty semi-minor axis 1 octet
218 -- Angle of major axis 1 octet
219 -- Uncertainty altitude 1 octet
220 -- Confidence 1 octet
221 -- Octets 2 to 13 for case (d) - Ellipsoid Arc
222 -- Degrees of Latitude 3 octets
223 -- Degrees of Longitude 3 octets
224 -- Inner radius 2 octets
225 -- Uncertainty radius 1 octet
226 -- Offset angle 1 octet
227 -- Included angle 1 octet
228 -- Confidence 1 octet
229 -- Octets 2 to 7 for case (e) - Ellipsoid Point
230 -- Degrees of Latitude 3 octets
231 -- Degrees of Longitude 3 octets
232
233 --
234 -- An Ext-GeographicalInformation parameter containing any other shape or an
235 -- incorrect number of octets or coding according to GSM 03.32 shall be
236 -- treated as invalid data by a receiver

```

```

237
238 maxExt-GeographicalInformation INTEGER ::= 20
239 -- the maximum length allows for further shapes in GSM 03.32 to be included in later
240 -- versions of GSM 09.02

```

```

241
242 SubscriberLocationReport-Arg ::= SEQUENCE {
243     lcs-Event LCS-Event,
244     lcs-ClientID LCS-ClientID,
245     lcsLocationInfo LCSLocationInfo,
246     msisdn [0] ISDN-AddressString OPTIONAL,
247     imsi [1] IMSI OPTIONAL,
248     imei [2] IMEI OPTIONAL,
249     na-ESRD [3] ISDN-AddressString OPTIONAL,
250     na-ESRK [4] ISDN-AddressString OPTIONAL,
251     locationEstimate [5] Ext-GeographicalInformation OPTIONAL,
252     ageOfLocationEstimate [6] AgeOfLocationInformation OPTIONAL,
253     extensionContainer [7] ExtensionContainer OPTIONAL,
254     ...}
255
256 -- one of msisdn or imsi is mandatory

```

```

257
258 LCS-Event ::= ENUMERATED {
259     emergencyCallOrigination (0),
260     emergencyCallRelease (1),
261     mo-lr (2),
262     ... }
263 -- exception handling:
264 -- a SubscriberLocationReport-Arg containing an unrecognized LCS-Event
265 -- shall be rejected by a receiver with a return error cause of unexpected data value
266

```

```
267 SubscriberLocationReport-Res ::= SEQUENCE {  
268     extensionContainer  
269     ...}  
270  
271  
272  
273 END  
274
```

275

276 ****** END OF MODIFICATIONS ******

277