3GPP TSG_CN **Tdoc NP-000493**
Plenary Meeting #9, Oahu, Hawaii
20th – 22nd September 2000.

Source: **TSG_N WG 4**

Title: **CRs to R00 Work Item Location Services (LCS)**

Agenda item:

Document for: **APPROVAL**

Introduction:

This document contains 2 CRs on R00 Work Item Location Services, that have been agreed by TSG_N WG4, and is forwarded to TSG_N Plenary meeting #9 for approval.

SM	TDoc	SPEC	CR	REV	PHAS	VERS	SUBJECT	CAT
CN9	N4-000788	29.002	176	1	R00	4.0.1	Correction to QoS indication	A
CN9	N4-000772	29.002	184		R00	4.0.1	LCS Support for CAMEL Phase 3	A

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3GPP TSG CN WG4
28 August - 1 September 2000
Seattle (WA), USA

Document N4-000788
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

29.002	CR	176r1	Current Version:	4.0.1

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#09 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic	X	

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio		Core Network	X

Source: N4 **Date:** 16 Aug 2000

Subject: Correction to QoS indication

Work item: LCS

Category: *(only one category shall be marked with an X)*

		Release:	
Correction		Phase 2	
Corresponds to a correction in an earlier release	X	Release 96	
Addition of feature		Release 97	
Functional modification of feature		Release 98	
Editorial modification		Release 99	
		Release 00	X

Reason for change: Currently the QoS indication defines the required horizontal and vertical accuracies using a 7 bit uncertainty code in GSM 03.32 which expresses distance. However, the definition of the related confidence is missing. Thus a clarification, that the confidence related to the distance is 67 %, is added.

Clauses affected: 17.7.13

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

2

3

17.7.13 Location service data types

```
MAP-LCS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-LCS-DataTypes (25) version6 (6)}

****     NEXT MODIFIED SECTION     ****

Horizontal-Accuracy ::= OCTET STRING (SIZE (1))
     -- bit 8 = 0
     -- bits 7-1 = 7 bit Uncertainty Code defined in GSM 03.32. The horizontal location
     -- error should be less than the error indicated by the uncertainty code with 67%
     -- confidence.

Vertical-Accuracy ::= OCTET STRING (SIZE (1))
     -- bit 8 = 0
     -- bits 7-1 = 7 bit Vertical Uncertainty Code defined in GSM 03.32. The vertical location
     -- error should be less than the error indicated by the uncertainty code with 67%
     -- confidence.
```

3GPP TSG CN WG4
Seattle, USA, 28 Aug – 1 Sep, 2000

Document N4-000772
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or for SMG, use the format P-99-xxx

CHANGE REQUEST

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29.002	CR	184	Current Version:	4.0.1

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	CN#09	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic	X	

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: N4 **Date:** 31 Aug 2000

Subject: LCS Support for CAMEL Phase 3

Work item: LCS

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	
Release 00	X

Reason for change: Identify an LCS client subtype for CAMEL phase 3 – to enable an SMLC to correctly restrict the geographic shape description

Clauses affected: 17.7.8

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

17.7.8 Common data types

```
MAP-CommonDataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-CommonDataTypes (18) version7 (7)}

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

EXPORTS

   -- general data types and values
   AddressString,
   ISDN-AddressString,
   maxISDN-AddressLength,
   FTN-AddressString,
   ISDN-SubaddressString,
   ExternalSignalInfo,
   Ext-ExternalSignalInfo,
   AccessNetworkSignalInfo,
   SignalInfo,
   maxSignalInfoLength,
   AlertingPattern,

   -- data types for numbering and identification
   IMSI,
   TMSI,
   Identity,
   SubscriberId,
   IMEI,
   HLR-List,
   LMSI,
   GlobalCellId,
   NetworkResource,
   NAEA-PreferredCI,
   NAEA-CIC,
   ASCI-CallReference,
   SubscriberIdentity,
   PLMN-Id,

   -- data types for CAMEL
   CellGlobalIdOrServiceAreaIdOrLAI,

   -- data types for subscriber management
   BasicServiceCode,
   Ext-BasicServiceCode,
   EMLPP-Info,
   EMLPP-Priority,
   MC-SS-Info,
   MaxMC-Bearers,
   MC-Bearers,
   Ext-SS-Status,

   -- data types for geographic location
   AgeOfLocationInformation,
   LCSClientExternalID,
   LCSClientInternalID
;

IMPORTS
   TeleserviceCode,
   Ext-TeleserviceCode
FROM MAP-TS-Code {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-TS-Code (19) version7 (7)}

   BearerServiceCode,
   Ext-BearerServiceCode
FROM MAP-BS-Code {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-BS-Code (20) version7 (7)}

```

```
   SS-Code
FROM MAP-SS-Code {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-SS-Code (15) version7 (7)}

   ExtensionContainer
FROM MAP-ExtensionDataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version7 (7)}
;


-- general data types

TBCD-STRING ::= OCTET STRING
     -- This type (Telephony Binary Coded Decimal String) is used to
     -- represent several digits from 0 through 9, *, #, a, b, c, two
     -- digits per octet, each digit encoded 0000 to 1001 (0 to 9),
     -- 1010 (*), 1011 (#), 1100 (a), 1101 (b) or 1110 (c); 1111 used
     -- as filler when there is an odd number of digits.

     -- bits 8765 of octet n encoding digit 2n
     -- bits 4321 of octet n encoding digit 2(n-1) +1

AddressString ::= OCTET STRING (SIZE (1..maxAddressLength))
     -- This type is used to represent a number for addressing
     -- purposes. It is composed of
     --   a)   one octet for nature of address, and numbering plan
     --        indicator.
     --   b)   digits of an address encoded as TBCD-String.

     -- a)     The first octet includes a one bit extension indicator, a
     --        3 bits nature of address indicator and a 4 bits numbering
     --        plan indicator, encoded as follows:

     -- bit 8: 1  (no extension)

     -- bits 765: nature of address indicator
     --   000  unknown
     --   001  international number
     --   010  national significant number
     --   011  network specific number
     --   100  subscriber number
     --   101  reserved
     --   110  abbreviated number
     --   111  reserved for extension

     -- bits 4321: numbering plan indicator
     --   0000  unknown
     --   0001  ISDN/Telephony Numbering Plan (Rec CCITT E.164)
     --   0010  spare
     --   0011  data numbering plan (CCITT Rec X.121)
     --   0100  telex numbering plan (CCITT Rec F.69)
     --   0101  spare
     --   0110  land mobile numbering plan (CCITT Rec E.212)
     --   0111  spare
     --   1000  national numbering plan
     --   1001  private numbering plan
     --   1111  reserved for extension

     --   all other values are reserved.

     -- b)     The following octets representing digits of an address
     --        encoded as a TBCD-STRING.

maxAddressLength  INTEGER ::= 20

ISDN-AddressString ::=
              AddressString (SIZE (1..maxISDN-AddressLength))
     -- This type is used to represent ISDN numbers.

maxISDN-AddressLength  INTEGER ::= 9

FTN-AddressString ::=
              AddressString (SIZE (1..maxFTN-AddressLength))
     -- This type is used to represent forwarded-to numbers.

maxFTN-AddressLength  INTEGER ::= 15
```

```
ISDN-SubaddressString ::=
              OCTET STRING (SIZE (1..maxISDN-SubaddressLength))
     -- This type is used to represent ISDN subaddresses.
     -- It is composed of
     --   a)   one octet for type of subaddress and odd/even indicator.
     --   b)   20 octets for subaddress information.

     --   a)   The first octet includes a one bit extension indicator, a
     --        3 bits type of subaddress and a one bit odd/even indicator,
     --        encoded as follows:

     --   bit 8: 1  (no extension)

     --   bits 765: type of subaddress
     --        000  NSAP (X.213/ISO 8348 AD2)
     --        010  User Specified
     --        All other values are reserved

     --   bit 4: odd/even indicator
     --        0  even number of address signals
     --        1  odd number of address signals
     --        The odd/even indicator is used when the type of subaddress
     --        is "user specified" and the coding is BCD.

     --   bits 321: 000 (unused)

     --   b) Subaddress information.
     --   The NSAP X.213/ISO8348AD2 address shall be formatted as specified
     --   by octet 4 which contains the Authority and Format Identifier
     --   (AFI). The encoding is made according to the "preferred binary
     --   encoding" as defined in X.213/ISO834AD2. For the definition
     --   of this type of subaddress, see CCITT Rec I.334.

     --   For User-specific subaddress, this field is encoded according
     --   to the user specification, subject to a maximum length of 20
     --   octets. When interworking with X.25 networks BCD coding should
     --   be applied.

maxISDN-SubaddressLength  INTEGER ::= 21

ExternalSignalInfo ::= SEQUENCE {
     protocolId                          ProtocolId,
     signalInfo                          SignalInfo,
     -- Information about the internal structure is given in
     -- subclause 7.6.9.
     extensionContainer                  ExtensionContainer                OPTIONAL,
     -- extensionContainer must not be used in version 2
     ...}

SignalInfo ::= OCTET STRING (SIZE (1..maxSignalInfoLength))

maxSignalInfoLength  INTEGER ::= 200
     -- This NamedValue represents the theoretical maximum number of
     -- octets which are available to carry a single data type,
     -- without requiring segmentation to cope with the network layer
     -- service. However, the actual maximum size available for a data
     -- type may be lower, especially when other information elements
     -- have to be included in the same component.

ProtocolId ::= ENUMERATED {
     gsm-0408  (1),
     gsm-0806  (2),
     gsm-BSSMAP  (3),
     -- Value 3 is reserved and must not be used
     ets-300102-1  (4)}

Ext-ExternalSignalInfo ::= SEQUENCE {
     ext-ProtocolId                      Ext-ProtocolId,
     signalInfo                          SignalInfo,
     -- Information about the internal structure is given in
     -- subclause 7.6.9.10
     extensionContainer                  ExtensionContainer                OPTIONAL,
     ...}
```

```
Ext-ProtocolId ::= ENUMERATED {
     ets-300356  (1),
     ...
      }
-- exception handling:
-- For Ext-ExternalSignalInfo sequences containing this parameter with any
-- other value than the ones listed the receiver shall ignore the whole
-- Ext-ExternalSignalInfo sequence.
```

```
AccessNetworkSignalInfo ::= SEQUENCE {
     accessNetworkProtocolId             AccessNetworkProtocolId,
     signalInfo                          SignalInfo,
     -- Information about the internal structure is given in
     -- subclause 7.6.9.4
     extensionContainer                  ExtensionContainer                OPTIONAL,
     ...}
```

```
AccessNetworkProtocolId ::= ENUMERATED {
     gsm-0806   (1),
     ts3G-25413 (2),
     ...}
     -- exception handling:
     -- For AccessNetworkSignalInfo sequences containing this parameter with any
     -- other value than the ones listed the receiver shall ignore the whole
     -- AccessNetworkSignalInfo sequence.
```

```
AlertingPattern ::= OCTET STRING (SIZE (1) )
     -- This type is used to represent Alerting Pattern

     --   bits 8765 : 0000 (unused)

     --   bits 43 : type of Pattern
     --        00 level
     --        01 category
     --        10 category
     --        all other values are reserved.

     --   bits 21 : type of alerting

alertingLevel-0   AlertingPattern ::= '00000000'B
alertingLevel-1   AlertingPattern ::= '00000001'B
alertingLevel-2   AlertingPattern ::= '00000010'B
     -- all other values of Alerting level are reserved
     -- Alerting Levels are defined in GSM 02.07

alertingCategory-1   AlertingPattern ::= '00000100'B
alertingCategory-2   AlertingPattern ::= '00000101'B
alertingCategory-3   AlertingPattern ::= '00000110'B
alertingCategory-4   AlertingPattern ::= '00000111'B
alertingCategory-5   AlertingPattern ::= '00001000'B
     -- all other values of Alerting Category are reserved
     -- Alerting categories are defined in GSM 02.07
```

```
-- data types for numbering and identification
```

```
IMSI ::= TBCD-STRING (SIZE (3..8))
     -- digits of MCC, MNC, MSIN are concatenated in this order.
```

```
Identity ::= CHOICE {
     imsi                                IMSI,
     imsi-WithLMSI                       IMSI-WithLMSI}
```

```
IMSI-WithLMSI ::= SEQUENCE {
     imsi                                IMSI,
     lmsi                                LMSI,
     -- a special value 00000000 indicates that the LMSI is not in use
     ...}
```

```
ASCI-CallReference ::= TBCD-STRING (SIZE (1..8))
     -- digits of VGCS/VBC-area,Group-ID are concatenated in this order.
```

```
TMSI ::= OCTET STRING (SIZE (1..4))
```

```
SubscriberId ::= CHOICE {
     imsi                                [0] IMSI,
     tmsi                                [1] TMSI}

IMEI ::= TBCD-STRING (SIZE (8))
     --   Refers to International Mobile Station Equipment Identity
     --   and Software Version Number (SVN) defined in TS GSM 03.03.
     --   If the SVN is not present the last octet shall contain the
     --   digit 0 and a filler.
     --   If present the SVN shall be included in the last octet.

HLR-Id ::= IMSI
     -- leading digits of IMSI, i.e. (MCC, MNC, leading digits of
     -- MSIN) forming HLR Id defined in TS GSM 03.03.

HLR-List ::= SEQUENCE SIZE (1..maxNumOfHLR-Id) OF
                                         HLR-Id

maxNumOfHLR-Id  INTEGER ::= 50

LMSI ::= OCTET STRING (SIZE (4))

GlobalCellId ::= OCTET STRING (SIZE (5..7))
     -- Refers to Cell Global Identification defined in TS GSM 03.03.
     -- The internal structure is defined as follows:
     -- octet 1 bits 4321                Mobile Country Code 1st digit
     --         bits 8765                Mobile Country Code 2nd digit
     -- octet 2 bits 4321                Mobile Country Code 3rd digit
     --         bits 8765                Mobile Network Code 3rd digit
     --                                  or filler (1111) for 2 digit MNCs
     -- octet 3 bits 4321                Mobile Network Code 1st digit
     --         bits 8765                Mobile Network Code 2nd digit
     -- octets 4 and 5                   Location Area Code according to TS GSM 04.08
     -- octets 6 and 7                   Cell Identity (CI) according to TS GSM 04.08

NetworkResource ::= ENUMERATED {
     plmn  (0),
     hlr  (1),
     vlr  (2),
     pvlr  (3),
     controllingMSC  (4),
     vmsc  (5),
     eir  (6),
     rss  (7)}

NAEA-PreferredCI ::= SEQUENCE {
     naea-PreferredCIC                   [0] NAEA-CIC,
     extensionContainer                  [1] ExtensionContainer          OPTIONAL,
     ...}

NAEA-CIC ::= OCTET STRING (SIZE (3))
     -- The internal structure is defined by the Carrier Identification
     -- parameter in ANSI T1.113.3. Carrier codes between “000” and “999” may
     -- be encoded as 3 digits using “000” to “999” or as 4 digits using
     -- “0000” to “0999”. Carrier codes between “1000” and “9999” are encoded
     -- using 4 digits.

SubscriberIdentity ::= CHOICE {
     imsi                                [0] IMSI,
     msisdn                              [1] ISDN-AddressString
     }

LCSClientExternalID ::= SEQUENCE {
     externalAddress                     [0] AddressString               OPTIONAL,
     extensionContainer                  [1] ExtensionContainer          OPTIONAL,
     ... }

LCSClientInternalID ::= ENUMERATED {
     broadcastService                    (0),
     o-andM-HPLMN                        (1),
     o-andM-VPLMN                        (2),
     anonymousLocation                   (3),
     targetMSsubscribedService           (4),
     ... }
-- for a CAMEL phase 3 PLMN operator client, the value targetMSsubscribedService shall be used
```

```
PLMN-Id ::= TBCD-STRING (SIZE (3))
     -- digits of MCC, MNC, are concatenated in this order.

-- data types for CAMEL

CellGlobalIdOrServiceAreaIdOrLAI ::= CHOICE {
     cellGlobalIdOrServiceAreaIdFixedLength   [0] CellGlobalIdOrServiceAreaIdFixedLength,
     laiFixedLength                           [1] LAIFixedLength}

CellGlobalIdOrServiceAreaIdFixedLength ::= OCTET STRING (SIZE (7))
     -- Refers to Cell Global Identification or Service Are Identification
     -- defined in 3G TS 23.003.
     -- The internal structure is defined as follows:
     -- octet 1 bits 4321                Mobile Country Code 1st digit
     --         bits 8765                Mobile Country Code 2nd digit
     -- octet 2 bits 4321                Mobile Country Code 3rd digit
     --         bits 8765                Mobile Network Code 3rd digit
     --                                  or filler (1111) for 2 digit MNCs
     -- octet 3 bits 4321                Mobile Network Code 1st digit
     --         bits 8765                Mobile Network Code 2nd digit
     -- octets 4 and 5                   Location Area Code according to 3G TS 24.008
     -- octets 6 and 7                   Cell Identity (CI) value or
     --                                  Service Area Code (SAC) value
     --                                  according to 3G TS 23.003

LAIFixedLength ::= OCTET STRING (SIZE (5))
     -- Refers to Location Area Identification defined in TS GSM 03.03.
     -- The internal structure is defined as follows:
     -- octet 1 bits 4321                Mobile Country Code 1st digit
     --         bits 8765                Mobile Country Code 2nd digit
     -- octet 2 bits 4321                Mobile Country Code 3rd digit
     --         bits 8765                Mobile Network Code 3rd digit
     --                                  or filler (1111) for 2 digit MNCs
     -- octet 3 bits 4321                Mobile Network Code 1st digit
     --         bits 8765                Mobile Network Code 2nd digit
     -- octets 4 and 5                   Location Area Code according to TS GSM 04.08


-- data types for subscriber management

BasicServiceCode ::= CHOICE {
     bearerService                    [2] BearerServiceCode,
     teleservice                      [3] TeleserviceCode}

Ext-BasicServiceCode ::= CHOICE {
     ext-BearerService                [2] Ext-BearerServiceCode,
     ext-Teleservice                  [3] Ext-TeleserviceCode}

EMLPP-Info ::= SEQUENCE {
     maximumentitledPriority          EMLPP-Priority,
     defaultPriority                  EMLPP-Priority,
     extensionContainer               ExtensionContainer              OPTIONAL,
     ...}

EMLPP-Priority ::= INTEGER (0..15)
     -- The mapping from the values A,B,0,1,2,3,4 to the integer-value is
     -- specified as follows where A is the highest and 4 is the lowest
     -- priority level
     -- the integer values 7-15 are spare and shall be mapped to value 4

priorityLevelA                        EMLPP-Priority ::= 6
priorityLevelB                        EMLPP-Priority ::= 5
priorityLevel0                        EMLPP-Priority ::= 0
priorityLevel1                        EMLPP-Priority ::= 1
priorityLevel2                        EMLPP-Priority ::= 2
priorityLevel3                        EMLPP-Priority ::= 3
priorityLevel4                        EMLPP-Priority ::= 4


MC-SS-Info ::= SEQUENCE {
     ss-Code                          [0] SS-Code,
     ss-Status                        [1] Ext-SS-Status,
     nbrSB                            [2] MaxMC-Bearers,
     nbrUser                          [3] MC-Bearers,
     extensionContainer               [4] ExtensionContainer          OPTIONAL,
     ...}
```

```
MaxMC-Bearers ::= INTEGER (2..maxNumOfMC-Bearers)

MC-Bearers ::= INTEGER (1..maxNumOfMC-Bearers)

maxNumOfMC-Bearers  INTEGER ::= 7


Ext-SS-Status ::= OCTET STRING (SIZE (1..5))

    -- OCTET 1:
    --
    -- bits 8765: 0000 (unused)
    -- bits 4321: Used to convey the "P bit","R bit","A bit" and "Q bit",
    --            representing supplementary service state information
    --            as defined in TS GSM 03.11

    -- bit 4: "Q bit"

    -- bit 3: "P bit"

    -- bit 2: "R bit"

    -- bit 1: "A bit"

    -- OCTETS 2-5: reserved for future use. They shall be discarded if
    -- received and not understood.


   -- data types for geographic location

AgeOfLocationInformation ::= INTEGER (0..32767)
-- the value represents the elapsed time in minutes since the last
-- network contact of the mobile station (i.e. the actuality of the
-- location information).
-- value “0” indicates that the MS is currently in contact with the
--           network
-- value “32767” indicates that the location information is at least
--               32767 minutes old

END
```