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**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
LTE;
Functional stage 2 description of Location Services (LCS)
(3GPP TS 23.271 version 15.2.0 Release 15)**



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1 Scope

The present document specifies the stage 2 of the LoCation Services (LCS) feature in UMTS, GSM and EPS (for E-UTRAN), which provides the mechanisms to support mobile location services for operators, subscribers and third party service providers.

Location Services in 5GC are restricted to regulatory services and are specified in TS 23.501 [54] and TS 23.502 [55] in this release of the specification. The architecture and signalling procedures in NG-RAN are defined in TS 38.305 [56].

The present document replaces the specifications TS 23.171 (Release 1999) and the system and core network parts of GSM 03.71 (Release 1999). TS 43.059 [16] replaces the radio access network parts of GSM 03.71 (Release 1999).

Location Services may be considered as a network provided enabling technology consisting of standardised service capabilities, which enable the provision of location applications. The application(s) may be service provider specific. The description of the numerous and varied possible location applications which are enabled by this technology are outside the scope of the present document. However, clarifying examples of how the functionality being described may be used to provide specific location services may be included.

This stage 2 service description covers the LCS system functional model for the whole system, the LCS system architecture, state descriptions, message flows, etc.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
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- [1] 3GPP TS 25.305: "Stage 2 functional specification of UE positioning in UTRAN".
- [2] (void).
- [3] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [4] 3GPP TS 22.071: "Technical Specification Group Systems Aspects; Location Services (LCS); Stage 1".
- [5] (void).
- [6] (void).
- [7] (void).
- [8] 3GPP TS 22.101: "Service principles".
- [9] (void).
- [10] (void).
- [11] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".
- [12] (void).
- [13] (void).
- [14] 3GPP TS 25.413: "UTRAN Iu Interface RANAP signalling".

- [15] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
- [16] 3GPP TS 43.059: "Functional Stage 2 description of Location Services in GERAN".
- [17] 3GPP TS 23.003: "Numbering, addressing and identification".
- [18] 3GPP TS 29.002: "Mobile Application Part (MAP) Specification".
- [19] (void).
- [20] 3GPP TS 23.002: "Network architecture".
- [21] 3GPP TS 23.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL) - stage 2".
- [22] 3GPP TS 23.011: "Technical realization of Supplementary Services".
- [23] 3GPP TS 23.007: "Restoration procedures".
- [24] 3GPP TS 24.008: "Mobile Radio Interface - Layer 3 MM/CC Specification".
- [25] 3GPP TS 25.331: "RRC protocol specification".
- [26] 3GPP TS 23.127: "Virtual Home Environment/Open Service Access".
- [27] 3GPP TS 29.198-1: "Open Service Access (OSA); Application Programming Interface (API); Part 1; Overview".
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- [30] 3GPP TS 29.198-6: "Open Service Access (OSA); Application Programming Interface (API); Part 6: Mobility".
- [31] OMA MLP TS: "Mobile Location Protocol", [<http://www.openmobilealliance.org>].
- [32] ANSI J-STD-036B: "Enhanced Wireless 9-1-1 Phase 2".
- [33] RFC 2396: "Uniform Resource Identifiers".
- [34] RFC 3261: "SIP: Session Initiation Protocol".
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3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

CAMEL: CAMEL is a network functionality, which provides the mechanisms of Intelligent Network to a mobile user.

Call Related: any LCS related operation which is associated with an established call in CS domain and a session via an active PDP context in PS domain.

Codeword: access code, which is used by a Requestor or LCS Client in order to gain acceptance of a location request for a Target UE. The codeword is part of the privacy information that may be registered by a Target UE user.

Current Location: after a location attempt has successfully delivered a location estimate and its associated time stamp, the location estimate and time stamp is referred to as the "current location" at that point in time.

Deferred location request: location request where the location response (responses) is (are) required after a specific event has occurred. The event may or may not occur immediately.

Global Navigation Satellite System: Global Navigation Satellite System (GNSS) consists of three functional elements: Space Segment (satellites), User Segment (receivers), and Control Segment (maintenance etc.). The GNSS receiver calculates its own position based on the received time differences for several satellites. GNSS include Global Positioning System (GPS) and GALILEO.