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# ETSI TS 101 671 V1.1.1 (2001-07)

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*Technical Specification*

**Telecommunications security;  
Lawful Interception (LI);  
Handover interface for the lawful interception  
of telecommunications traffic**

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## Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Security (SEC).

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# 1 Scope

The present document is step 3 of a three step approach to describe a generic handover interface for the provision of lawful interception from a Network Operator, an Access Provider or a Service Provider (NWO/AP/SvP) to the Law Enforcement Agencies (LEAs). The provision of lawful interception is a requirement of national law, which is usually mandatory for the operation of any telecommunication service.

Step 1 contains the requirements for lawful interception from a users (LEAs) point of view and is published (see [1]).

Step 2 describes the derived network functions and the general architecture (or functional model) and is published in ES 201 158 [2].

The present document specifies:

- the *generic flow of information* as well as the procedures and information elements, which are applicable to any future telecommunication network or service;
- the network/service specific protocols relating to the provision of lawful interception at the handover interface, for the following networks/services:
  - switched circuit; and
  - packet data.

The technologies covered in the present document are: GSM, TETRA, GPRS, ISDN and PSTN.

NOTE 1: Handover for TETRA is not fully developed.

NOTE 2: As new networks and/or services are developed, the present document will be expanded as the relevant standards become available.

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# 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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ETSI ETR 331: "Security Techniques Advisory Group (STAG); Definition of user requirements for lawful interception of telecommunications; Requirements of the law enforcement agencies".
- [2] ETSI ES 201 158: "Telecommunications security; Lawful Interception (LI); Requirements for network functions".
- [3] ETSI ETR 330: "Security Techniques Advisory Group (STAG); A guide to legislative and regulatory environment".
- [4] Void.
- [5] ETSI EN 300 356 (all parts): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface".
- [6] ETSI EN 300 403-1 (V1.2.2): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".
- [7] Void.

- [8] Void.
- [9] Void.
- [10] ETSI EN 300 061-1: "Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [11] Void.
- [12] Void.
- [13] Void.
- [14] ETSI EN 300 097-1: "Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [15] Void.
- [16] Void.
- [17] ETSI EN 300 138-1: "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [18] Void.
- [19] ETSI EN 300 185-1: "Integrated Services Digital Network (ISDN); Conference call, add-on (CONF) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [20] ETSI EN 300 188-1: "Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [21] Void.
- [22] Void.
- [23] ETSI EN 300 286-1: "Integrated Services Digital Network (ISDN); User-to-User Signalling (UUS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [24] Void.
- [25] ETSI EN 300 369-1 (V1.2.4): "Integrated Services Digital Network (ISDN); Explicit Call Transfer (ECT) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [26] Void.
- [27] Void.
- [28] Void.
- [29] ETSI EN 300 196-1 (V1.2.2): "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [30] Void.
- [31] Void.
- [32] ETSI ETS 300 974: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile Application Part (MAP) specification(GSM 09.02)".

- [33] ITU-T Recommendation X.680: "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [34] ITU-T Recommendation X.690: "Information technology - ASN.1 encoding rules - Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".
- [35] ITU-T Recommendation X.880: "Information technology - Remote Operations: Concepts, model and notation".
- [36] ITU-T Recommendation X.881: "Information technology - Remote Operations: OSI realizations - Remote Operations Service Element (ROSE) service definition".
- [37] ITU-T Recommendation X.882: "Information technology - Remote Operations: OSI realizations - Remote Operations Service Element (ROSE) protocol specification".
- [38] Void.
- [39] ETSI EN 300 122-1: "Integrated Services Digital Network (ISDN); Generic keypad protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [40] Void.
- [41] ETSI EN 300 940: "Digital cellular communications system (Phase 2+) (GSM); Mobile radio interface layer 3 specification".
- [42] ETSI TS 101 509: "Digital cellular telecommunications system (Phase 2+) (GSM); Lawful interception; Stage 2 (GSM 03.33)".
- [43] ETSI TS 100 927: "Digital cellular telecommunications system (Phase 2+) (GSM); Numbering, addressing and identification (GSM 03.03)".
- [44] ETSI EN 301 344: "Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); Service description; Stage 2 (GSM 03.60)".
- [45] ETSI TS 101 347: "Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across Gn and Gp Interface (GSM 09.60)".
- [46] RFC 959: "File Transfer Protocol (FTP)".
- [47] RFC 2228: "FTP Security Extensions".
- [48] ITU-T recommendation Q.763: "Signalling System No.7 - ISDN User Part formats and codes".
- [49] ETSI TS 101 393: "Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); GPRS Charging (GSM 12.15)".
- [50] Void.
- [51] RFC 791: "Internet Protocol".
- [52] RFC 793: "Transmission Control Protocol".
- [53] ETSI TR 101 876: "Telecommunications security; Lawful Interception (LI); Description of GPRS HI3".
- [54] ETSI ETS 300 089: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".
- [55] ETSI TS 101 940: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile radio interface layer 3 specification (GSM 04.08)".
- [56] ITU-T Recommendation Q.931: "ISDN user-network interface layer 3 specification for basic call control".

## 3 Definitions and abbreviations

### 3.1 Definitions

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

**access provider:** provides a user of some network with access from the user's terminal to that network

NOTE 1: This definition applies specifically for the present document. In a particular case, the access provider and network operator may be a common commercial entity.

**activation/deactivation of supplementary services:** procedures for activation, which is the operation of bringing the service into the "ready for invocation" state, and deactivation, which is the complementary action

**(to) buffer:** temporary storing of information in case the necessary telecommunication connection to transport information to the LEMF is temporarily unavailable

**call:** any temporarily switched connection capable of transferring information between two or more users of a telecommunications system

NOTE 2: In this context a user may be a person or a machine.

**communication identifier:** See definition in clause 6.

**CC link:** consists of one or more 64 kbit/s channels, established simultaneously, between a mediation function and a LEMF

NOTE 3: It is used for transmission of the content of communication. This term refers to circuit switched only.

**CC link identifier:** See definition in clause A.1.

**communication:** information transfer according to agreed conventions

**communication identity number:** See definition in clause 6.

**content of communication:** information exchanged between two or more users of a telecommunications service, excluding intercept related information

NOTE 4: This includes information which may, as part of some telecommunications service, be stored by one user for subsequent retrieval by another.

**handover interface:** physical and logical interface across which the interception measures are requested from network operator/access provider/service provider, and the results of interception are delivered from a network operator/access provider/service provider to a law enforcement monitoring facility

**identity:** technical label which may represent the origin or destination of any telecommunications traffic, as a rule clearly identified by a physical telecommunications identity number (such as a telephone number) or the logical or virtual telecommunications identity number (such as a personal number) which the subscriber can assign to a physical access on a case-by-case basis

**information:** intelligence or knowledge capable of being represented in forms suitable for communication, storage or processing

NOTE 5: Information may be represented for example by signs, symbols, pictures or sounds.

**interception:** action (based on the law), performed by an network operator/access provider/service provider, of making available certain information and providing that information to a law enforcement monitoring facility

NOTE 6: In the present document the term interception is not used to describe the action of observing communications by a law enforcement agency.

**interception configuration information:** information related to the configuration of interception

**Interception interface:** physical and logical locations within the network operator's/access provider's/service provider's telecommunications facilities where access to the content of communication and intercept related information is provided

NOTE 7: The interception interface is not necessarily a single, fixed point.

**interception measure:** technical measure which facilitates the interception of telecommunications traffic pursuant to the relevant national laws and regulations

**intercept related information:** collection of information or data associated with telecommunication services involving the target identity, specifically call associated information or data (e.g. unsuccessful call attempts), service associated information or data (e.g. service profile management by subscriber) and location information

**interception subject:** person or persons, specified in a lawful authorization, whose telecommunications are to be intercepted

**internal intercepting function:** point within a network or network element at which the content of communication and the intercept related information are made available

**internal network interface:** network's internal interface between the Internal Intercepting Function and a mediation device

**invocation and operation:** describes the action and conditions under which the service is brought into operation

NOTE 8: In the case of a lawful interception this may only be on a particular call. It should be noted that when lawful interception is activated, it shall be invoked on all calls (invocation takes place either subsequent to or simultaneously with activation). Operation is the procedure which occurs once a service has been invoked.

NOTE 9: The definition is based on [37], but has been adapted for the special application of lawful interception, instead of supplementary services.

**law enforcement agency:** organization authorized by a lawful authorization based on a national law to request interception measures and to receive the results of telecommunications interceptions

**law enforcement monitoring facility:** designated as the transmission destination for the results of interception relating to a particular interception subject

**lawful authorization:** permission granted to a LEA under certain conditions to intercept specified telecommunications and requiring co-operation from a network operator/access provider/service provider

NOTE 10: Typically this refers to a warrant or order issued by a lawfully authorized body.

**lawful interception:** See interception.

**lawful interception identifier:** See definition in clause 6.

**location information:** information relating to the geographic, physical or logical location of an identity relating to an interception subject

**mediation device:** equipment, which realizes the mediation function

**mediation function:** mechanism which passes information between a network operator, an access provider or service provider and a handover interface, and information between the internal network interface and the handover interface

**network element:** component of the network structure, such as a local exchange, higher order switch or service control processor

**network element identifier:** See definition in clause 6.

**network identifier:** See definition in clause 6.

**network operator:** operator of a public telecommunications infrastructure which permits the conveyance of signals between defined network termination points by wire, by microwave, by optical means or by other electromagnetic means