

# ETSI TS 103 462 V1.2.1 (2019-12)



## Lawful Interception (LI); Inter LEMF Handover Interface

**STANDARDS PREVIEW**  
(standards.iteh.ai)  
Full standard:  
<https://standards.iteh.ai/catalog/standards/sis/5b94d56/etsi-ts-103-462-v1.2.1-2019-12>



---

**Reference**

RTS/LI-00171

---

**Keywords**

handover, IP, lawful disclosure, lawful interception, retained data, security

**ETSI**

---

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at [www.etsi.org/deliver](http://www.etsi.org/deliver).

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2019.

All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

**3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

**GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

# Contents

Intellectual Property Rights .....	4
Foreword.....	4
Modal verbs terminology.....	4
Introduction .....	4
1 Scope .....	5
2 References .....	5
2.1 Normative references .....	5
2.2 Informative references.....	6
3 Definition of terms, symbols and abbreviations.....	6
3.1 Terms.....	6
3.2 Symbols.....	7
3.3 Abbreviations .....	7
4 General aspects.....	8
5 Architecture overview and functional description .....	8
6 Delivery Handling .....	9
6.1 General .....	9
6.2 Description and purpose of the header fields .....	9
6.2.1 Inter LEMF LIID .....	9
6.2.2 Communication Identifier .....	10
6.2.3 Sequence Number .....	10
6.2.4 Timestamp .....	10
6.3 Integrity .....	10
6.4 Payload encryption .....	10
6.5 Reliability .....	10
6.6 Error Handling.....	11
6.7 Keep alive.....	11
7 Responding Interworking Function (resIWF) .....	11
7.1 General .....	11
7.2 Encapsulation function .....	11
7.3 Mapping function .....	11
7.3.1 General.....	11
7.3.2 Timestamp .....	12
7.3.3 Location information .....	12
7.4 Interoperability function.....	12
8 Encapsulation Handling .....	12
8.1 General .....	12
9 Transport layer .....	13
<b>Annex A (informative): Operational roles.....</b>	<b>14</b>
A.1 Introduction .....	14
A.2 Requesting party (reqLEA/reqAA) .....	15
A.3 Responding party (resLEA/resAA) .....	15
A.4 Executing Communication Service Provider .....	15
<b>Annex B (normative): Inter LEMF Handover (ILHI) ASN.1.....</b>	<b>16</b>
<b>Annex C (informative): Change History .....</b>	<b>18</b>
History .....	19

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

---

# Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Lawful Interception (LI).

---

# Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

---

# Introduction

The objective of the present document is to form the basis for a standardized handover interface, that will deliver the LI and/or RD information via IP-based networks between Law Enforcement Authorities under various European treaties and local regulations in case of:

- legal assistance;
- legal assistance regarding the European Investigation Order in criminal matters [i.1];
- (bilateral) administrative assistance.

The present document is intended to cover the following:

- transmission of intercepted Content of Communication (CC) and Intercept Related Information (IRI);

NOTE: This includes data that is already processed or stored on the LI system.

- transmission of traffic and location data (RD), administrative data according to ETSI TS 102 657 [3] and error codes according to ETSI TS 102 232-1 [6] are for further study.

Besides the EIO Directive, there is also a need in some countries to exchange stored or LI data in real time between different LEMFs or between a primary LEMF and a secondary analysis framework (this forms another use case for the interface).

---

# 1 Scope

The present document specifies the LEMF to LEMF interface to support (as a minimum) European Investigation Orders (EIOs) related to LI and/or RD. The present document aims to be capable of securely handling real-time and stored data transfer between LEMFs in accordance with ETSI TS 102 232 parts 1 [6] to 7 [12] and the related ETSI TS 133 108 [5] for LI.

In the present document RD is for further study.

Local LI handover interfaces frequently use dedicated networks for delivery with local specific security features. With the EIO Directive in place, there is a need to have a common Handover Interface to allow real-time exchange between LEMFs that can be located in different countries, under different jurisdictions.

---

## 2 References

### 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference/>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

- [1] ETSI TS 101 671: "Lawful Interception (LI); Handover interface for the lawful interception of telecommunications traffic".

NOTE: ETSI TS 101 671 is in status "historical" and is not maintained.

- [2] ETSI TS 103 280: "Lawful Interception (LI); Dictionary for common parameters".
- [3] ETSI TS 102 657: "Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data".
- [4] ETSI TS 103 307: "CYBER; Security aspects for LI and RD Interfaces".
- [5] ETSI TS 133 108: "Universal Mobile Telecommunications System (UMTS); LTE; Digital cellular telecommunications system (Phase 2+) (GSM); 3G security; Handover interface for Lawful Interception (LI) (3GPP TS 33.108)".
- [6] ETSI TS 102 232-1: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1: Handover specification for IP delivery".
- [7] ETSI TS 102 232-2: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 2: Service-specific details for messaging services".
- [8] ETSI TS 102 232-3: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 3: Service-specific details for internet access services".
- [9] ETSI TS 102 232-4: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 4: Service-specific details for Layer 2 services".
- [10] ETSI TS 102 232-5: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 5: Service-specific details for IP Multimedia Services".

- [11] ETSI TS 102 232-6: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 6: Service-specific details for PSTN/ISDN services".
- [12] ETSI TS 102 232-7: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 7: Service-specific details for Mobile Services".
- [13] ISO 3166-1: "Codes for the representation of names of countries and their subdivisions; Part 1: Country codes".
- [14] Recommendation ITU-T X.680: "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".

## 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] Directive 2014/41/EU of the European Parliament and of the Council of 3 April 2014 regarding the European Investigation Order in criminal matters.
- [i.2] ETSI TR 102 503: "Lawful Interception (LI); ASN.1 Object Identifiers in Lawful Interception and Retained data handling Specifications".

---

## 3 Definition of terms, symbols and abbreviations

### 3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 101 671 [1], ETSI TS 102 232-1 [6] and the following apply:

NOTE: This may contain additional information.

**mapping:** function that maps every element of a given set to a distinct element of another set

**mappingInfo:** output of the mapping function

**originalPayload:** optional output part of the interoperability function containing the unmodified received data

**real time:** information and communication technologies that are able to generate and deliver information in a time-frame similar to the real-life process that it is assisting

**requesting AA (reqAA):** Authorized Authority from the country that takes the initiative for the LI request

**requesting IWF (reqIWF):** function to format data from ILHI format into local format

**requesting LEA (reqLEA):** Law Enforcement Agency from the country that takes the initiative for the LI request

**requesting LEMF (reqLEMF):** Law Enforcement Monitoring Facility from the country that takes the initiative for the LI request

**resPayload:** mandatory output part of the interoperability function

**responding AA (resAA):** Authorized Authority from the country that verifies the requesting party and translates the received warrant into a national warrant

**responding IWF (resIWF):** function to format data into ILHI format

**responding LEA (resLEA):** Law Enforcement Agency from the country that verifies the requesting party and translates the received warrant into a national warrant

**responding LEMF (resLEMF):** Law Enforcement Monitoring Facility from the country that verifies the requesting party and translates the received warrant into a national warrant

## 3.2 Symbols

Void.

## 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

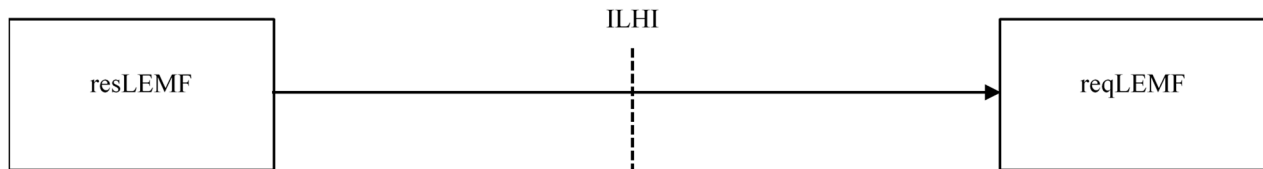
3GPP	Third Generation Partnership Project
AA	Authorized Authority
ADMF	ADMInistration Function (at CSP)
ASCII	American Standard Code for Information Interchange
ASN.1	Abstract Syntax Notation One
CC IW	Content of Communication InterWorking
CC	Content of Communication
CIN	Communications Identity Number
CS	Circuit Switched
CSP	Communications Service Provider
EcsF	Encapsulation Function
EIO	European Investigation Order
ID	IDentifier
ILHI	Inter LEMF Handover Interface
IMS	IM Subsystem
IopF	Interoperability Function
IP	Internet Protocol
IRI IW	Intercept Related Information Interworking
IRI	Intercept Related Information
LEA	Law Enforcement Agency
LEMF	Law Enforcement Monitoring Facility
LI	Lawful Interception
LIID	Lawful Interception IDentifier
MapF	Mapping Function
MF	Mediation Function (at CSP)
NID	Network IDentifier
OID	Object IDentifier
PDU	Protocol Data Unit
PS-PDU	Packet Switched - Protocol Data Unit
RD IW	Retained Data InterWorking
RD	Retained Data
reqAA	requesting Authorized Authority
reqIWF	requesting InterWorking Function
reqLEMF	requesting LEMF
resAA	responding Authorized Authority
resIWF	responding InterWorking Function
resLEMF	responding LEMF
TCP	Transmission Control Protocol
TLS	Transport Layer Security
VPN	Virtual Private Network
WGS84	World Geodetic System 1984



## 4 General aspects

The Inter LEMF Handover Interface (ILHI) for LI is based on the ETSI TS 102 232 parts 1 [6] to 7 [12] for requesting data from the responding LEMF. ETSI TS 133 108 [5] data is provided by using mechanism defined by ETSI TS 102 232-1 [6] and ETSI TS 102 232-7 [12].

Figure 4.1 illustrates the ILHI in principle; a description of the legal assistance can be found in annex A.



**Figure 4.1: Functional block diagram showing Inter LEMF Handover Interface**

NOTE 1: Handover interfaces between CSP and resLEMF are out of scope of the present document.

The resLEMF sends the data via ILHI to the reqLEMF ensuring interoperability.

The reqLEMF receives the data transmitted by the resLEMF via the ILHI and processes the data into local format if necessary.

NOTE 2: If reqLEMF and resLEMF are in the same countries the term "national" equals the term "local".

Delivery of data shall be done without undue delay assuming that there is sufficient bandwidth available.

## 5 Architecture overview and functional description

Figure 5.1 shows the architecture overview of the ILHI.



**Figure 5.1: Architecture overview of Inter LEMF Handover Interface (ILHI)**

The resLEMF sends the data in ILHI format to the reqLEMF. In addition, control messages (e.g. error codes, keep alive messages) can be sent between resLEMF and reqLEMF via ILHI.

For data processing an interworking function is defined for the resLEMF and for the reqLEMF.

The responding interworking function (resIWF) shall process the data to provide interoperability. For further details see clause 7.

NOTE 1: The resIWF could need to transcode data for interoperability reasons. The transcoding is out of the scope of the present document. Transcoding could apply e.g. for voice codecs.

The requesting interworking function (reqIWF) processes the data received over ILHI into local format as needed.

NOTE 2: The transcoding of the reqIWF is out of scope of the present document.

The ILHI format is defined as data in ETSI TS 102 232 family format with additional information. This additional information shall consist of a ILHIPayload comprising resPayload, optional mappingInfo and/or originalPayload where required (see figure 5.2). It is up to bilateral agreement which options are used.



The PS-PDU that contains the ILHIPayload has the LIID in the header used between the resLEMF and the reqLEMF. The format of this Inter LEMF LIID is described in clause 6.2.1. The resPayload and originalPayload contain an octet string.

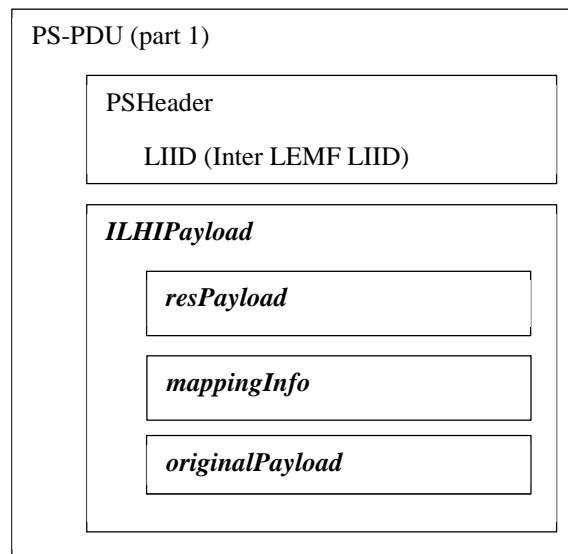


Figure 5.2: PDU structure for ILHI

## 6 Delivery Handling

### 6.1 General

In ILHI the role of the CSP is replaced by the resLEMF.

All information delivered by the CSP shall be forwarded by the resLEMF. The appropriate parameters from ETSI TS 102 232-1 [6] shall be used.

Payload aggregation may be used if agreed by the LEMFs. If payload aggregation is used, it shall be used as described in ETSI TS 102 232-1 [6], clause 6.2.3.

Nesting an ILHI PDU in an ILHI PDU shall not be used.

If for any reason an ILHI PDU needs to be forwarded, a new ILHI PDU shall be created that contains the payload of the original ILHI PDU and the header of the original ILHI PDU updated with a new timestamp and a new Inter LEMF LIID.

The following clauses provide additional clarification where needed.

### 6.2 Description and purpose of the header fields

#### 6.2.1 Inter LEMF LIID

The globally unique Inter LEMF LIID is the LIID from ETSI TS 102 232-1 [6], defined by ETSI TS 103 280 [2], clause 6, that uses a restricted set of ASCII characters. It is used to identify the communication between the resLEMF and the reqLEMF and is part of the header of the PS-PDU for ILHI.

The globally unique Inter LEMF LIID has a length of 25 octets and can be defined within the warrant and shall be provided by the reqLEMF. The Inter LEMF LIID shall be structured according to the following patterns:

- Octets 1 and 2 shall contain the country code of reqLEMF.