ANNEXE:

National Specifications for Luxembourg

Version 2021-01

Table of contents

Introduction

This document consists of Part A and Part B:

PART A: Specification for passive interception
This part describes the technical implementation of lawful interception of telecommunications. Implementation is carried out on the basis of the relevant ETSI and 3GPP specifications (refer to A.1), and this part describes the options and amendments that have been defined for Luxembourg.

PART B: Specification for active interception
This part describes the support that shall be supplied by the NWO/AP/SvP (Network Operator / Access Provider / Service Provider) in case of operations which require active interception.

Scope

This document is written in English and will be provided to the NWO/AP/SvP upon request. It applies to any NWO/AP/SvP in the Grand Duchy of Luxembourg that is obligated to comply in lawful interception.

Terminology of modal verbs

In the present document, modal verbs are used as follows:

SHALL:	Used to express mandatory requirements (provisions that have to be followed)
SHALL NOT:	Negative form of SHALL
SHOULD:	Used to express recommendations (provisions that an implementation is expected to follow unless there is a strong reason for not doing so)
SHOULD NOT:	Negative form of SHOULD
MAY:	MAY is used to express permissions (provisions that an implementation is allowed to follow or not follow)
NEED NOT:	Negative form of MAY

Part A: Specification for passive interception

A.1 Basis of this specification

This Part A includes the ETSI and 3GPP documents listed below, which are applicable in the version noted as follows or in later versions, and are to be observed.

[1]	ETSI TS 101 671 *(- H I S T O R I C A L -)*	V3.15.1	(2018-06):	Lawful Interception (LI); Handover Interface for the lawful interception of telecommunications traffic
[2]	ETSI TS 103 280	V2.5.1	(2021-03):	Lawful Interception (LI); Dictionary for common parameters
[3]	3GPP TS 33.108	V16.3.0	(2021-03):	3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G security; Handover interface for Lawful Interception (LI) (Release 16)
[4]	3GPP TS 33.128	V17.0.0	(2021-03):	3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Security; Protocol and procedures for Lawful Interception (LI); Stage 3 (Release 17)
[5]	ETSI TS 102 232-1	V3.23.1	(2021-03):	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1: Handover specification for IP delivery
[6]	ETSI TS 102 232-2	V3.12.1	(2020-08):	Part 2: Service-specific details for messaging services
[7]	ETSI TS 102 232-3	V3.9.1	(2020-11):	Part 3: Service-specific details for internet access services
[8]	ETSI TS 102 232-4	V3.4.1	(2017-08):	Part 4: Service-specific details for Layer 2 services
[9]	ETSI TS 102 232-5	V3.14.1	(2021-04):	Part 5: Service-specific details for IP Multimedia services
[10]	ETSI TS 102 232-6	V3.3.1	(2014-03):	Part 6: Service-specific details for PSTN/ISDN services
[11]	ETSI TS 102 232-7	V3.8.1	(2020-08):	Part 7: Service-specific details for Mobile Services
[12]	ETSI TS 103 707	V1.2.1	(2021-03):	Lawful Interception (LI); Handover for messaging services over HTTP/XML

The chosen options and national amendments to these ETSI and 3GPP documents are listed in the following chapters of Part A. If no options or amendments are defined in Part A, the corresponding ETSI or 3GPP document will be applicable without change in the version specified above or in a later version.

A.2 List of abbreviations

Abbreviation	Description
3GPP	3rd Generation Partnership Project
AP	Access Provider
ASN.1	Abstract Syntax Notation One
CC	Content of Communication
CCLID	CC Link IDentifier
CS	Circuit Switched
CSP	Communication Service Provider
DSL	Digital Subscriber Line
EOL	End of Life
EPS	Evolved Packet System
ETSI	European Telecommunications Standards Institute
FTP	File Transfer Protocol
GGSN	Gateway GPRS Support Node
GLIC	GPRS LI Correlation
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
HI1	Handover Interface 1
HI2	Handover Interface 2
HI3	Handover Interface 3
HI4	Handover Interface 4
ID	Identifier
IPSec	Internet Protocol Security
IRI	Intercept Related Information
ISDN	Integrated Services Digital Network
LALS	Lawful Access Location Services
LEA	Law Enforcement Agency
LEMF	Law Enforcement Monitoring Facility
LI	Lawful Interception
LI HIQR	Lawful Interception Handover Interface Query Response
LIID	Lawful Interception Identifier
NEID	Network Element Identifier
NID	Network Identifier
NWO	Network Operator
PD	Packet Data
POI	Point of Interception
PS	Packet Switched
RFC	Request for Comment
ROSE	Remote Operation Service Element
RTP	Real-Time Transport Protocol
SA	Stand Alone
SGSN	Serving GPRS Support Node
SIP	Session Initiation Protocol
SMS	Short Message Service
SSD	Service-Specific Details
SvP	Service Provider
TCP	Transmission Control Protocol
TDM	Time Division Multiplexing
TS	Technical Specification

UDP	User Datagram Protocol
UE	User Equipment
ULIC	UMTS LI Correlation
UMTS	Universal Mobile Telecommunication System
UPS	Uninterruptible power supply
UUS	User to User Signalling

A.3 Chosen options and amendments

A.3.1 Re ETSI TS 101 671 [1] – *H I S T O R I C A L -*

NOTE:
This part is marked as historical and shall not be used for new implementations! New telecommunication networks and services are IP based Packet Switched networks and Packet Switched services. Some legacy networks and services are still Circuit Switched networks and/or services even if the transport might be IP based. New LI implementations shall use the specifications mentioned in A.3.2 ff. of this document.
For CS HI3 (ISDN based) delivery, please refer also to the description of the implemented SIP gateway described in chapter A.4.1.

Options that can be chosen in each country and amendments to ETSI TS 102 671 [1] are listed in this chapter.

A.3.1.1   Re ETSI TS 101 671 [1], General section

Re Section	Reference / Description	National provision / extension
5.1	**Handover Interface port 1 (HI1)** Design, electronic or manual	The HI1 interface will remain manual. If a legal basis is created for electronic implementation of the HI1 interface, this will be introduced at a later stage. Exception: LI management notifications (liActivated, liDeactivated, liModified, alarms-indicator) shall be sent via the electronic HI2 interface (refer to ETSI TS 101 671 [1], D.4).
5.2	**Handover Interface port 2 (HI2)**	The IRI records shall be transmitted individually.
6.1	**Lawful Interception Identifier (LIID)**	The LIID shall be defined by the LEA.
6.2.1	**Network Identifier (NID)**	The NID consists of the Operator ID and Network Element Identifier (NEID). The Operator ID consists of up to 5 characters; the nomenclature is defined and updated by the LEA. The NEID is 1-2048 characters long and shall be set by the NWO/AP/SvP.
7.2	**LI notifications towards the LEMF**	LI management notifications (liActivated, liDeactivated, liModified, alarms-indicator) shall be sent via the electronic HI2 interface (refer to ETSI TS 101 671 [1], D.4).
8.1	**Data transmission protocols (HI2)**	Only FTP shall be used, ROSE shall not be used.
9	**HI3: Interface port for Content of Communication**	The Content of Communication (CC) shall be presented as a transparent, unencrypted copy, if the encryption is managed by the network. Encryption not managed by the network, e.g. user provided end-to-end encryption, need not to be removed by the network.
10.1	**Timing**	If IRI cannot be transmitted, they shall be buffered by the NWO/AP/SvP. Minimum buffer time: 3 days.

Re Section	Reference / Description	National provision / extension
11	**Security aspects**	ISDN transmission: For CS HI3 delivery, refer to the implementation specified in chapter A.4.1 of this document. IP-based transmission: For IP based delivery, refer to the implementation specified in chapter A.4.2 of this document.
12	**Quantitative aspects**	The following figures can be used as a basis for dimensioning the technical equipment installed at the NWO/AP/SvP: • 50 targets for the first 10000 subscribers • an additional 20 targets for each further 10000 subscribers started (e.g.: NWO with 76000 subscribers shall be able to set up at least 50+7*20= 190 targets)

A.3.1.2 Re ETSI TS 101 671 [1], Annex A circuit-switched network handover

Re Section	Reference / Description	National provision / Extension
A.1.3	**Use of identifiers**	As option A (A.5.4.1) has been specified in A.5.4 in ETSI TS 101 671 [1], the rules according to table A.1.1, left side, apply.
A.3.2	**Structure of IRI records**	Only IRI conforming to ASN.1-description are permissible.
A.3.2.1	**Control information for HI2, item 5**	Date and time shall be transmitted as local time. Remark: It is planned to switch to UTC time format in the future, these changes will be applied in a future version of this specification.
A.4	**HI3: Interface port for Content of Communication**	The Content of Communication (CC) shall be presented as a transparent, unencrypted copy, if the encryption is managed by the network. Encryption not managed by the network, e.g. user provided end-to-end encryption, need not be removed by the network.
A.4.1	**Delivery of Content of Communication (CC)**	Use of UUS1 has been specified. In order to enable sub-addressing as fall-back, the LIID for circuit-switched intercepts shall solely be implemented by number (LIID is set by the LEA).
A.4.2	**Delivery of packetized Content of Communication (CC)**	Text messages (SMS) and UUS shall be transmitted via the HI2 interface.
A.4.4.1	**Failure of CC links**	The NWO/AP/SvP shall make 3 attempts at an interval of 5 seconds.
A.4.4.2	**Fault reporting**	Error messages shall be transmitted over HI2 in accordance with ETSI TS 101 671 [1], Annex D.4, if the system used by the NWO/AP/SvP supports this functionality.

Re Section	Reference / Description	National provision / Extension
A.4.5	**Security requirements at the HI3 interface port**	Refer to ETSI TS 101 671 [1], 5.1.1, re 11. Security Aspects
A.5.4	**Multi party calls - general principles, options A, B**	Option A shall be used.
A.6.4.1	**Explicit call transfer, CC link**	Option 2 has been specified.
A.6.22	**User-to-User signalling (UUS)**	Transmission via HI2 shall be used, also refer to ETSI TS 101 671 [1], A.4.2.
A.8.3	**HI3 (delivery of CC)**	Correlation information is transmitted in conformance with ETSI TS 101 671 [1], A.4.1.
A.8.4	**HI2 (delivery of IRI)**	Redundant information shall be sent for each further event.

A.3.1.3   Re ETSI TS 101 671 [1], Annex C HI2 delivery mechanisms and procedures

Re Section	Reference / Description	National provision / Extension
C.0	**ROSE or FTP**	Only FTP shall be used, ROSE shall not be used.
C.2.2	**Use of FTP**	Method B shall be used.

A.3.1.4   Re ETSI TS 101 671 [1], Annex E Use of subaddress and calling party number...

Re Section	Reference / Description	National provision / Extension
E.2	**Subaddress options**	According to Table E.2.1 in ETSI TS 101 671 [1], the default value for type of subaddress is "user specified".
E.3.2	**Field order and layout**	To distinguish between "old" transmission and transmission in accordance with this specification, the octets 16-23 are allocated as follows: If 'old' transmission: no entry If transmitting according to this specification: "Xa.bb.cc" X: E for ETSI a: main version TS 101 671 bb: technical version cc: editorial version (Example: E3.14.01 for TS 101 671 V3.14.1)

A.3.1.5   Re ETSI TS 101 671 [1], Annex F GPRS HI3 interface

Re Section	Reference / Description	National provision / extension
F.1	**Functional architecture**	GGSN and SGSN interception shall be set as standard in order to obtain a maximum of information. If for technical reasons only one kind of interception is possible, then SGSN interception shall be set up.
F.3	**HI3 Delivery of Content of Communication (CC)**	Transmission by GLIC/TCP or FTP/TCP shall be used, GLIC/UDP shall not be used.
F.3.2.2	**Use of FTP**	Method B shall be used.
F.3.2.2	**Use of FTP**	The following triggers have been specified: send timeout = 10s volume trigger = 10 MByte

A.3.1.6   Re ETSI TS 101 671 [1], Annex D.5 ASN.1 - description of IRI (HI2)

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1-Reference	Reference / Description	National provision / Extension
04022.1[1]	**Location**	In case of a mobile connection, the following parameters shall be set: - GlobalCellID - GSMLocation or UMTSLocation
04022.1	**Location/GSMLocation/ GeoCoordinates**	The AZIMUTH value shall be set except in the case of an omni-directional antenna (360° antenna).
04022.1	**Location/GSMLocation/ GeoCoordinates**	The MapDatum shall be wGS84.
04022.1	**partyinformation**	An individual partyinformation shall be sent for EACH party involved in a communication.
04022.1	**partyinformation/partyidentity**	All existing parameters shall be defined, depending on the means of communication used.

---

[1] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) hi2(1) version18(18)}

A.3.2 Re 3GPP TS 33.108 [3]

Clarifications:

Location Information:
NWO/AP/SvP's current or future networks shall ensure that any UE location information available anywhere in the network is reported to the LEA via the LI POIs, even if international technical standardization has not taken into account to transport these data to the LI POI's.

Home Routing Scenarios:
NWO/AP/SvP shall take care, in case traffic of foreign roamers is tunnelled to foreign networks, any encryption introduced in these tunnels is removed before delivery of the Interception Product to the LEA. If no technical standardization is available to comply with this requirement, Home Routing tunnels to foreign networks shall not be encrypted.

The options that can be chosen in each country and amendments to [3] are listed in this chapter.

A.3.2.1 Re 3GPP TS 33.108 [3], General section

Re Section	Reference / Description	National provision / Extension
4.4.1	**Handover Interface port 2 (HI2)**	The IRI records shall be transmitted individually.
4.5	**HI2: Interface port for intercept related information**	If it is not possible to transmit the IRI, they shall be buffered by the NWO/AP/SvP. Minimum buffer time: 3 days.
4.5.1	**Data transmission protocols (HI2)**	FTP is the default method. On request and only after LEA's approval, delivery according to ETSI TS 102 232-1 [5] and ETSI TS 102 232-7 [11] (as defined in 3GPP TS 33.108 [3], A.3) can be activated.
5.1.2.1 6.1.2 7.1.2 8.1.3 9.1.3 10.1.2 11.1.3 13.1.1.3 14.2.2.3 17.1.2	**Network Identifier (NID)**	The NID consists of the Operator ID and Network Element Identifier (NEID). The Operator ID consists of up to 5 characters; the nomenclature is defined and updated by the LEA. The NEID is 1-2048 characters long and shall be set by the NWO/AP/SvP.
5.1.5	**Use of identifiers**	As option A (5.4.4.1) has been specified in in 3GPP TS 33.108 [3], 5.4.4, the rules according to table 5.1, left side, apply.
5.2.2.1	**Control information for HI2, item 5**	Date and time shall be transmitted as Local Time. Remark: It is planned to switch to UTC time format in the future, these changes will be applied in a future version of this specification.
5.2.3	**HI2 (delivery of IRI)**	Redundant information shall be sent for each further event.
5.3.1	**CS-based Delivery of Content of Communication (CC)**	Use of UUS1 has been specified. In order to enable sub-addressing as fall-back, the LIID for circuit-switched intercepts shall solely be implemented by number (LIID is set by the LEA).
5.3.3	**Security requirements at the interface port of HI3**	For HI3 delivery, refer to the implementation specified in chapter A.4.1 of this document.
5.4.4.0	**Multi party calls - general principles, options A, B**	Option A shall be used.
5.5.4.1	**Explicit call transfer, CC link**	Option 2 has been specified.
5.5.15	**User-to-User signalling (UUS)**	Transmission via HI2 has been specified.
6.2.1 7.2.1 8.2.1 9.2.1 10.2.1 11.2.1 12.2 13.1.2.1 14.2.3.1	**Timing**	If IRI cannot be transmitted, they shall be buffered by the NWO/AP/SvP. Minimum buffer time: 3 days.

Re Section	Reference / Description	National provision / Extension
6.2.1 7.2.1 10.2.1	**Precision of timestamps**	The timestamps shall have a precision of at least 1 millisecond.
6.3 7.3 8.3 9.3 10.3 11.3 12.3 13.1.3 14.2.4.1	**Security aspects**	IP-based transmission: For IP based delivery, refer to the implementation specified in chapter A.4.2 of this document.
6.4 7.4 8.4 9.4 10.4 11.4 12.4 13.1.4 14.2.5.1	**Quantitative aspects**	The following figures can be used as a basis for dimensioning the technical equipment installed at the NWO/AP/SvP: • 50 targets for the first 10000 subscribers • an additional 20 targets for each further 10000 subscribers started (e.g.: NWO with 76000 subscribers shall be able to set up at least 50+7*20= 190 targets)
6.5.0	**UMTS data events**	The event "start of interception with mobile station attached" mentioned in TS 33.108 [3], Table 6.1 shall generate a Report IRI.
6.5.1.1	**REPORT record information**	All events marked as national option or as dependent on national regulations shall generate a Report IRI.
6.6	**IRI reporting for packet domain at GGSN**	This option does not need to be implemented in Luxembourg.
6.7	**Content of Communication interception for packet domain at GGSN**	The option has been chosen. All target traffic available at the interception node shall be routed to the LEA.
7.5.0	**IRI for IMS: Location Information**	Location information shall be provided except it is explicitly prohibited by the warrant.
12.5	**IRI for IMS-based VoIP**	The national option has been chosen, LEMF shall be informed about the unavailability of CC.

A.3.2.2 Re 3GPP TS 33.108 [3], Annex A HI2 delivery mechanisms and procedures

Re Section	Reference / Description	National provision / Extension
A.0	**HI2 delivery mechanisms and procedures**	FTP (defined in 3GPP TS 33.108 [3], A.2) is the default method. On request and only after LEA's approval, delivery according to ETSI TS 102 232-1 [5] and ETSI TS 102 232-7 [11] (as defined in 3GPP TS 33.108 [3], A.3) can be activated.
A.2.2	**Use of FTP**	Method B shall be used.
A.2.2	**Use of FTP**	The following triggers have been specified: send timeout = 10s volume trigger = 10MByte

A.3.2.3 Re 3GPP TS 33.108 [3], Annex C UMTS and EPS HI3 interface

Re Section	Reference / Description	National provision / Extension
C.0	**UMTS and EPS HI3 interfaces; methods of transmission**	Only ULICv1 via TCP stream shall be used.
C.2.2	**Use of FTP**	Method B shall be used.

A.3.2.4 Re 3GPP TS 33.108 [3], Annex J Use of subaddress and calling party number…

Re Section	Reference / Description	National provision / Extension
J.2.3.2	**Field order and layout**	To distinguish between "old" transmission and transmission in accordance with this specification, the octets 16-23 are allocated as follows: If 'old' transmission: no entry If transmitting according to this specification: "Xa.bb.cc" X: E for ETSI a: main version TS 101 671 bb: technical version cc: editorial version (Example: E3.14.01 for TS 101 671 V3.14.1)

A.3.2.5 Re 3GPP TS 33.108 [3], Annex O LALS Reporting

Re Section	Reference / Description	National provision / Extension
O	**LALS Reporting**	The NWO/AP/SvP shall inform LEA if LALS is supported in NWO/AP/SvP's network. In this case, LALS shall be activated for specific targets upon LEA's request. The required parameters will be defined by the LEA.

A.3.2.6 Re [3], Annex B Structure of data at the handover interface

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1 - Reference	Reference / Description	National provision / Extension
04022.49[2]	**Eps-HI3-PS**	To avoid any doubt: The timestamp parameter in the ULIC header shall be provided.

---

[2] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulintercept(2) threeGPP(4) hi3eps(9) r12(12) version-0(0)} or later

A.3.3 Re 3GPP TS 33.128 [4]

Until detailed supplements will be defined in later versions of this specification, interceptions based on 3GPP TS 33.128 [4] shall be established in close coordination and mutually agreed with the LEA. The general definitions for the IP based delivery described in chapter A.4.2 of this document apply also for this kind of delivery.

Clarifications:

> Location Information:
> NWO/AP/SvP's current or future networks shall ensure that any UE location information available anywhere in the network is reported to the LEA via the LI POIs, even if international technical standardization has not taken into account to transport these data to the LI POI's.

> Home Routing Scenarios:
> NWO/AP/SvP shall take care, in case traffic of foreign roamers is tunnelled to foreign networks, any encryption introduced in these tunnels is removed before delivery of the Interception Product to the LEA. If no technical standardization is available to comply with this requirement, Home Routing tunnels to foreign networks shall not be encrypted.

> Pseudonymized IDs:
> To increase privacy, in 5G and subsequent network generations, IDs should be routed through the network using pseudonyms that do not allow any conclusions to be drawn about the participants of the communication. The LI implementations shall ensure that these pseudonymized IDs, at the LI-related Handover Interfaces, can be assigned to a specific user again. This basic requirement also applies to roaming scenarios.

A.3.3.1   Re 3GPP TS 33.128 [4], 4.3 Basic principles for external handover interfaces

The HI4 interface described in 3GPP TS 33.128 [4] shall be implemented by the NWO/AP/SvP.

A.3.3.2   Re 3GPP TS 33.128 [4], 5.7 Protocols for LI_HIQR

NWO/AP/SvP with domestic 5G SA (Stand Alone) implementations shall support the interface described in 3GPP TS 33.128 [4], 5.7 Protocols for LI_HIQR.

The implementation of the interface including the connection to the LEA shall be established in close coordination and mutually agreed with the LEA.

A.3.4 Re ETSI TS 102 232-1 [5]

The options that can be chosen in each country and amendments to ETSI TS 102 232-1 [5] are listed in this chapter.

A.3.4.1   Re ETSI TS 102 232-1 [5], General section

Re Section	Reference / Description	National provision / Extension
5.2.3	**Authorization country code**	Specified as "LU".
5.2.4	**Communication identifier**	The Operator ID consists of up to 5 characters; the nomenclature is defined and updated by the LEA.
5.2.6	**Payload timestamp**	Re Note 2: The ASN.1 MicroSecondTimeStamp should be used. Re Note 3: The timeStampQualifier shall be set.
6.2.3	**Aggregation of payloads**	Combined transmission of IP packets is authorised, but shall not delay transmission for more than 2 seconds.
6.2.4	**Sending a large block of application-level data**	Segmentation is not used.
6.2.5	**Padding data**	Padding is not used.
6.2.6	**Payload Encryption**	Payload encryption is not used.
6.3.1	**General**	TCP/IP socket connections are used.
6.3.2	**Opening and closing connections**	The NWO/AP/SvP shall make 3 connection attempts at an interval of 10 seconds. The socket connection shall be closed by the NWO/AP/SvP after 2 minutes of inactivity.
6.3.4	**Keep-alives**	Using Keep-alives may be used if desired, but use shall be agreed between NWO/AP/SvP and LEA. The preferred method is to close the connection after 2 minutes of inactivity according to ETSI TS 102 232-1 [5], 6.3.2. If the LEA requests Keep-alives, the function shall be implemented.
6.3.5	**Option negotiation**	Option negotiation is currently not used, but may be implemented on LEAs request at a later stage.
6.4.2	**TCP Settings**	The port numbers to be used will be specified by the LEA.
6.4.3	**Acknowledging data**	Option 1 is chosen.
7.2	**Security requirements**	IP-based transmission: For IP based delivery, refer to the implementation specified in chapter A.4.2 of this document.
7.2.3	**Integrity**	The NWO/AP/SvP shall inform LEA if periodic integrity checks are supported in NWO/AP/SvP's network. In this case, this shall be activated upon LEA's request. The required parameters will be defined by the LEA.

A.3.4.2 Re ETSI TS 102 232-1 [5], Annex D IRI by post and pre-processing HI3 information

Re Section	Reference / Description	National provision / Extension
D.4	**IRI by post and pre-processing HI3 information**	Pre-processing at LEMF to generate IRI is not considered, the IRI shall be generated by post-processing at CSP's domain.

A.3.4.3 Re ETSI TS 102 232-1 [5], Annex F Traffic management of the handover interface

Re Section	Reference / Description	National provision / Extension
F.4	**National considerations**	Filtering at the mediation function should be implemented upon request by the LEA.
F.5.2	**Maximum buffering time**	To protect against loss of data due to equipment or network problems, the buffering time shall be 5 minutes taking into account the maximum bandwidth at the network interface of the delivery function.

A.3.4.4 Supplements to ETSI TS 102 232-1 [5], Annex A ASN.1 syntax trees

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1-Reference	Reference / Description	National Provision / Extension
04022.51[3]	**General**	The provisions in ETSI TS 102 232-1 [5] remain unchanged.

---

[3] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) li-ps(5) genHeader(1) version31(31)} or later

A.3.5 Re ETSI TS 102 232-2 [6]

A.3.5.1 Re ETSI TS 102 232-2 [6], General Section

Re Section	Reference / Description	National provision / Extension
4.2	**Unified messaging**	Handover of intercepted e-mail shall be according to EmailCC and EmailIRI structures.
7	**E-mail attributes**	All attributes mentioned in ETSI TS 102 232-2 [6], 7.1 to 7.10 shall be set.

A.3.5.2 Supplements to ETSI TS 102 232-2 [6], Annex D Messaging ASN.1

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1-Reference	Reference / Description	National Provision / Extension
04022.52[4]	**General**	The provisions in ETSI TS 102 232-2 [6] remain unchanged.

---

[4] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) li-ps(5) email(2) version17(17)} or later

A.3.6 Re ETSI TS 102 232-3 [7]

A.3.6.1   Re ETSI TS 102 232-3 [7], General Section

Re Section	Reference / Description	National provision / Extension
6.2.2	**Use of location field**	The location parameter shall be set.

A.3.6.2   Supplements to ETSI TS 102 232-3 [7], 8 ASN.1 for IRI and CC

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1-Reference	Reference / Description	National Provision / Extension
04022.53[5]	**General**	The provisions in ETSI TS 102 232-3 [7] remain unchanged.

---

[5] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) li-ps(5) iPAccess(3) version14(14)} or later

A.3.7 Re ETSI TS 102 232-4 [8]

A.3.7.1   Re ETSI TS 102 232-4 [8], General Section

The provisions in the specified documents remain unchanged.

A.3.7.2   Supplements to ETSI TS 102 232-4 [8], 8 ASN.1 for IRI and CC

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1-Reference	Reference / Description	National Provision / Extension
04022.54[6]	**General**	The provisions in ETSI TS 102 232-4 [8] remain unchanged.

---

[6] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) li-ps(5) l2Access(4) version7(7)} or later

A.3.8 Re ETSI TS 102 232-5 [9]

A.3.8.1   Re ETSI TS 102 232-5 [9], General Section

Re Section	Reference / Description	National provision / Extension
5.2.3	**Location information**	The location information shall be reported.
5.6	**Direction for IMS IRI for Signalling Messages**	The payloadDirection parameter shall be used.
5.7.1	**Direction for SIP sessions**	The sessionDirection parameter shall be used.

A.3.8.2   Supplements to ETSI TS 102 232-5 [9], 7 ASN.1 specification for IRI and CC

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1-Reference	Reference / Description	National Provision / Extension
04022.55[7]	**General**	The provisions in ETSI TS 102 232-5 [9] remain unchanged.

---

[7] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) li-ps(5) iPMultimedia(5) version13(13)} or later

A.3.9 Re ETSI TS 102 232-6 [10]

A.3.9.1 Re ETSI TS 102 232-6 [10], General Section

REMARK: If the NWO/AP/SvP's equipment provides delivery of CC via dedicated ISDN channels as described and defined in ETSI TS 101 671 [1], please refer to the implementation specified in chapter A.4.1 of this document.

For RTP based delivery according to ETSI TS 102 232-6 [10], CC shall be coded in G.711.

Re Section	Reference / Description	National provision / Extension
6.3.2	**Supplementary information**	All fields mentioned in the table shall be set.

A.3.9.2 Supplements to ETSI TS 102 232-6 [10], Annex A ASN.1 for IRI and CC

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

ASN.1-Reference	Reference / Description	National Provision / Extension
04022.56[8]	**General**	The provisions in ETSI TS 102 232-6 [10] remain unchanged.
04022.56	**FrameType**	The FrameType artificialRtpFrame shall not be used.

---

[8] {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) li-ps(5) pstnIsdn(6) version5(5)} or later

A.3.10 Re ETSI TS 102 232-7 [11]

A.3.10.1   Re ETSI TS 102 232-7 [11]; General Section

The provisions in the specified documents remain unchanged.

A.3.10.2   Supplements to ETSI TS 102 232-7 [11]; Annex A ASN.1 for IRI and CC

Clarification: Any parameter described in the ASN.1 notation, even if marked as OPTIONAL in the ETSI TS, SHALL be transmitted, insofar it exists with regard to the respective message.

A.3.11 Re ETSI TS 103 707 [12]

Until detailed supplements will be defined in later versions of this specification, interceptions based on ETSI TS 103 707 [12] shall be established in close coordination and mutually agreed with the LEA. The general definitions for the IP based delivery described in chapter A.4.2 of this document apply also for this kind of delivery.

A.3.11.1 Supplements to ETSI TS 103 707 [12], Annex C

Both models A and B described in ETSI TS 103 707 [12], Annex C.2 and Annex C.3 are allowed, the usage shall be mutually agreed with the LEA.

A.4 Technical Provisions

A.4.1 ISDN-based transmission

The classical HI3 delivery via ISDN CS lines towards the LEMF is not supported anymore, as ISDN based subscriber lines are EOL. To support legacy LI implementations that still use HI3 delivery via CS, the LEA implemented an CS/SIP-Gateway in one of the NWOs.
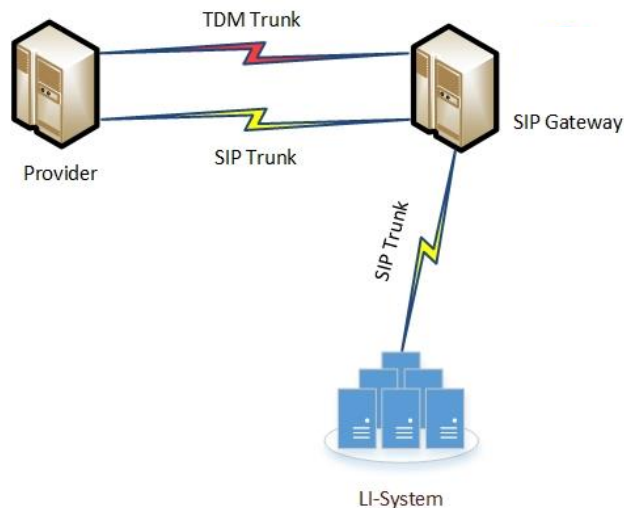
The delivery towards the CS/SIP-Gateway can be realized in two ways:

> Option A: CS-Delivery (TDM) towards the CS/SIP-Gateway (Default):
> The NWO/AP/SvP will use the telephone number of the CS/SIP-Gateway as termination address of the CS-delivery. The conversion of Called Party Subaddress and Calling Party Subaddress to SIP will be done automatically in the CS/SIP-Gateway using RFC 3966.

> Option B: SIP-Delivery towards the CS/SIP-Gateway (On request and only after LEA's approval):
> NWO/AP/SvP that don't support standard LI PD delivery or that don't support the delivery via the handover Gateways defined in chapter A.4.2 of this document, may use the CS/SIP-Gateway to deliver SIP traffic to the LEMF.
> In this case, the NWO/AP/SvP delivering towards the CS/SIP-Gateway is responsible to do the conversion of Called Party Subaddress and Calling Party Subaddress to SIP using RFC 3966.

A.4.2 IP-based transmission
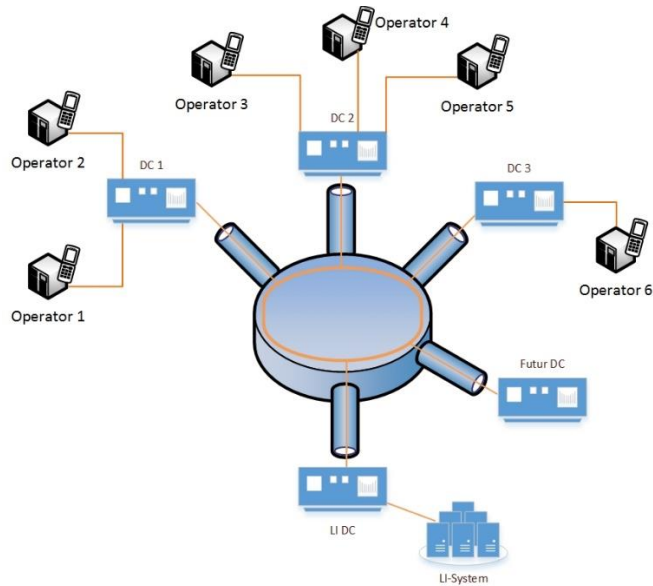
The delivery of IP-based content can be realized in two ways:

For NWO/AP/SvP, that have or use network equipment on Luxemburgish territory or that provide identifiers attributable to the State of Luxembourg (for example but not limited to: Telephone numbers starting with +352 according to E.164 numbering plan, domain names ending with top level domain *.lu):

In order to comply with national security requirements, the LEA established handover gateways in several domestic data centres. NWO/AP/SvP that have or use network equipment in Luxembourg shall use one of the data centres as transfer point.

The technical details of the handover as well as the most updated list of available data centres will be provided by the LEA.

Security from handover gateway to the LEMF is in the responsibility of the LEA, security from NWO/AP/SvP's network towards the handover gateway is in the responsibility of the NWO/AP/SvP.

For all network connections under its responsibility, the NWO/AP/SvP shall use state of the art methods and technology to comply with the general requirements about authenticity, confidentiality and integrity according to relevant ETSI and 3GPP standards referenced in A.1 of this document.

NWO/AP/SvP shall cover all expenses for the network connection towards the handover gateway, including the connection to the handover point inside the data centre premises.

For all other NWO/AP/SvP:

The delivery between NWO/AP/SvP and LEA will be mutually agreed between NWO/AP/SvP and LEA. Both parties will assure that security requirements according to the relevant ETSI and 3GPP standards referenced in A.1 of this document are met using state of the art methods and technology.

NWO/AP/SvP shall cover all expenses for equipment on its side towards the handover connection (e.g. if data will be transmitted via public Internet, all equipment and functionalities required between its network and the Internet connection shall be covered by the NWO/AP/SvP).

Part B: Specification for active interception

B.1 General Requirements

In accordance with the relevant domestic laws, a NWO/AP/SvP shall support the integration of active interception equipment into its network upon request by the LEA.

The active interception equipment will be provided and operated by the LEA responsible.

Depending on the case and the nature of the active interception, the point and type of integration into the NWO/AP/SvP's network and the level of required support may vary.

Prior to the integration, the LEA responsible will communicate the detailed requirements to the NWO/AP/SvP.

B.2 Technical Provisions

The required technical provisions will be announced by the LEA on a case-by-case basis. The general infrastructural requirements will be the same as described in chapter A.4.2 of this document.