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## Surveillance Status and Fault Reporting for TS 33.108

Spec: 3GPP TS 33.108v5.0.0

Release: Rel-5

Source: Telcordia Technologies and Federal Bureau of  
Investigation

Document for: Discussion & Action.

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### Summary

The current version of TS 33.108 defines the architecture and functional requirements for an interception system within a Third Generation Mobile Communication System (3GPP MS).

This contribution identifies requirements to meet the needs of the LEAs in areas related with management interface notifications and fault reporting.

The lawful authorization status and fault reporting capabilities provide information related to the status of a lawfully authorized electronic surveillance (e.g., activated, deactivated, modified), as well as fault and alarm information on lawful authorization delivery interface resources. Currently this capability is not described in TS 33.108, but it is described in ES 201 671.

This contribution proposes changes to TS 33.108, version 5.0.0, to address Surveillance Status and Fault Reporting by the intercepting network toward the LEMF. These capabilities are provided in ES 201 671, but not yet in the 3GPP series of specifications for LI. Companion contributions propose compatible changes to TS 33.106 and TS 33.107.

## CHANGE REQUEST

# 33.108 CR CRNum # rev - # Current version: 5.0.0 #

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	#	Changes to TS 33.108 to support lawful interception management notification capabilities.
<b>Source:</b>	#	Telcordia Technologies and Federal Bureau of Investigation
<b>Work item code:</b>	#	Security
		<b>Date:</b> # 24/09/2002
<b>Category:</b>	#	<b>F</b>
		Use <u>one</u> of the following categories:
		<b>F</b> (correction)
		<b>A</b> (corresponds to a correction in an earlier release)
		<b>B</b> (addition of feature),
		<b>C</b> (functional modification of feature)
		<b>D</b> (editorial modification)
		Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .
		<b>Release:</b> # Rel-5
		Use <u>one</u> of the following releases:
		2 (GSM Phase 2)
		R96 (Release 1996)
		R97 (Release 1997)
		R98 (Release 1998)
		R99 (Release 1999)
		Rel-4 (Release 4)
		Rel-5 (Release 5)
		Rel-6 (Release 6)

<b>Reason for change:</b>	#	Text is being added to the specification to address the need to support lawful interception management notifications towards the LEA for the following cases: 1)After the activation of lawful interception. 2)After the deactivation of lawful interception. 3)After modification of an active lawful interception. 4)Fault reporting.  This capability will bring the 3GPP Suite of LI specifications in alignment with ES 201 671: "Handover Interface for the lawful interception of telecommunications traffic" is updated to a later revision.
<b>Summary of change:</b>	#	Text is being added to the specification to address the need to support lawful interception management notifications towards the LEA which will bring the 3GPP Suite of LI specifications in alignment with ES 201 671.
<b>Consequences if not approved:</b>	#	Misalignment with ES 201 671.

<b>Clauses affected:</b>	#	4.4, 4.5, Annex B, B.3								
<b>Other specs affected:</b>	#	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table> Other core specifications    # TS 33.106 and TS 33.107 Test specifications O&M Specifications	Y	N	X					
Y	N									
X										

**Other comments:** ☹

**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ☹ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 4.4 Overview of handover interface

The generic handover interface adopts a three port structure such that administrative information (HI1), intercept related information (HI2), and the content of communication (HI3) are logically separated.

Figure 4.1 shows a block diagram with the relevant entities for Lawful Interception.

The outer circle represents the NWO/AP/SvP's domain with respect to lawful interception. It contains the network internal functions, the internal network interface (INI), the administration function and the mediation functions for IRI and CC. The inner circle contains the internal functions of the network (e.g. switching, routing, handling of the communication process). Within the network internal function the results of interception (i.e., IRI and CC) are generated in the Internal Interception Function (IIF).

The IIF provides the Content of Communication (CC) and the Intercept Related Information (IRI), respectively, at the Internal Network Interface (INI). For both kinds of information, mediation functions may be used, which provide the final representation of the standardized handover interfaces at the NWO/AP/SvP's domain boundary.

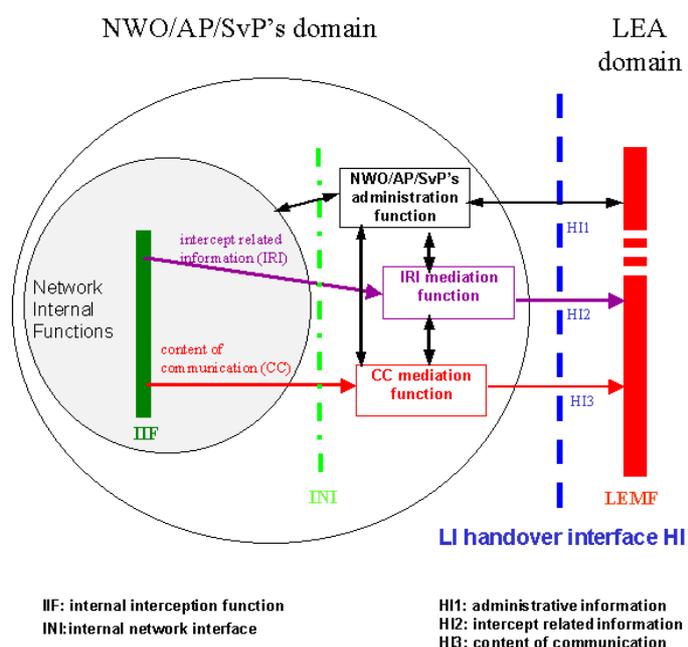


Figure 4.1: Functional block diagram showing handover interface HI

NOTE 1: Figure 4.1 shows only a reference configuration, with a logical representation of the entities involved in lawful interception and does not mandate separate physical entities.

NOTE 2: The mediation functions may be transparent.

### 4.4.1 Handover interface port 1 (HI1)

The handover interface port 1 shall transport various kinds of administrative information from/to the LEA and the organization at the NWO/AP/SvP, which is responsible for LI matters. This interface may be manual or electronic.

1  
2 The HI1 interface may be crossing borders between countries. This possibility is subject to corresponding international  
3 laws or agreements.

4  
5 A complete separation is required between the administrative part (HI1) and the technical part (INI) of the interface. No  
6 direct access to the switching function shall be given to the LEMF. Activation, deactivation or modification of an  
7 interception in the switching function shall only be possible by the NWO/AP/SvP.

8  
9 As an option, in the direction to the LEA, some HI1 related information (e.g. fault reporting) may be delivered directly  
10 using the HI2 mechanism. As an additional option, in the direction to the LEA, some HI1 related information may be  
11 delivered directly, for example, as part of a lawful authorization procedure.

12  
13 Further description of HI1 is given in clause 4.5.

#### 14 **4.4.14.4.2 Handover interface port 2 (HI2)**

15 The handover interface port 2 shall transport the IRI from the NWO/AP/SvP's IIF to the LEMF.

16 The delivery shall be performed via data communication methods which are suitable for the network infrastructure and  
17 for the kind and volume of data to be transmitted.

18 The delivery can in principle be made via different types of lower communication layers, which should be standard or  
19 widely used data communication protocols.

20 The individual IRI parameters shall be coded using ASN.1 and the basic encoding rules (BER). The format of the  
21 parameter's information content shall be based on existing telecommunication standards, where possible.

22 The individual IRI parameters have to be sent to the LEMF at least once (if available).

23 The IRI records shall contain information available from normal network or service operating procedures. In addition  
24 the IRI records shall include information for identification and control purposes as specifically required by the HI2 port.

25 The IIF is not required to make any attempt to request explicitly extra information which has not already been supplied  
26 by a signalling system.

#### 27 **4.4.24.4.3 Handover interface port 3 (HI3)**

28 The port HI3 shall transport the content of the communication (CC) of the intercepted telecommunication service to the  
29 LEMF. The content of communication shall be presented as a transparent en-clair copy of the information flow during  
30 an established, frequently bi-directional, communication of the interception subject.

31 As the appropriate form of HI3 depends upon the service being intercepted, HI3 is described in relevant annexes.

32 The HI2 and HI3 are logically different interfaces, even though in some installations the HI2 and HI3 packet streams  
33 might also be delivered via a common transmission path from a MF to a LEMF. It is possible to correlate HI2 and HI3  
34 packet streams by having common (referencing) data fields embedded in the IRI and the CC packet streams.

35

36 

*** SECOND CHANGE ***
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### 37 **4.5 HI1: Interface port for administrative information**

38 The interface HI1 is typically bi-directional. It is used by the NWO/AP/SvP to send notifications corresponding to  
39 activation, deactivation and modification of interception, and send other information to the LEA.

40  
41 There shall be no direct control over the NWO/AP/SvP's equipment by the LEA/LEMF.  
42

## 4.5.1 LI surveillance status notifications towards the LEMF

The LIACTIVATED, LIMODIFIED, and LIDEACTIVATED records are used to report surveillance status notifications to the LEMF.

For event-driven reporting, the LIACTIVATED, LIMODIFIED, and LIDEACTIVATED records, respectively, shall be triggered:

- After the activation of lawful interception. When a lawful authorization has been initiated and the constituent ICEs and INEs are operationally expected to begin performing interception.
- After the deactivation of lawful interception. When the performance of a lawful authorization is expected to cease.
- After modification of an active lawful interception. When the operational status of an ongoing lawful authorization changes. Possible operational statuses are inactive, active, or degraded.

For periodic reporting, the LIMODIFIED record shall be triggered when the interval for the period of reporting has ended.

**Table 4.1: LIACTIVATED Record**

<u>Parameter</u>	<u>MOC</u>	<u>Description/Conditions</u>
<u>event type</u>	<u>M</u>	<u>Provide Surveillance Status event type (i.e. activated).</u>
<u>event date</u>	<u>M</u>	<u>Provide the date and time the event is detected.</u>
<u>event time</u>		
<u>network identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>lawful intercept identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>Lawful interception status</u>	<u>M</u>	<u>Shall be provided.</u>

**Table 4.2: LIDEACTIVATED Record**

<u>Parameter</u>	<u>MOC</u>	<u>Description/Conditions</u>
<u>event type</u>	<u>M</u>	<u>Provide Surveillance Status event type (i.e. deactivated).</u>
<u>event date</u>	<u>M</u>	<u>Provide the date and time the event is detected.</u>
<u>event time</u>		
<u>network identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>lawful intercept identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>Lawful interception status</u>	<u>M</u>	<u>Shall be provided.</u>

**Table 4.3: LIMODIFIED Record**

<u>Parameter</u>	<u>MOC</u>	<u>Description/Conditions</u>
<u>event type</u>	<u>M</u>	<u>Provide Surveillance Status event type (i.e. modified).</u>
<u>event date</u>	<u>M</u>	<u>Provide the date and time the event is detected.</u>
<u>event time</u>		
<u>network identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>lawful intercept identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>Lawful interception status</u>	<u>M</u>	<u>Shall be provided.</u>

## 4.5.2 LI fault notifications towards the LEMF

The ALARMS-INDICATOR record is used to report fault and alarm notifications to the LEMF.

The ALARMS-INDICATOR shall be triggered when:

- CC link set up failure within the network;
- CC link failed due to a lack of system resources;
- General CC link set up failure;

- LEA is busy;
- No answer from LEMF;
- CC link establishment failures due to failure to authenticate [e.g., COLP or CUG errors]);
- A delivery resource is taken out of service;
- The system is unable to restore a delivery resource connection to its in-service state;
- Interception of communications (IRI or CC) at an ICE or INE is interrupted;
- The lawful interception service is disrupted or interrupted (e.g., due to equipment failure) during a lawful interception of a subject's communication, but the interception subject's communications are not disrupted.

**Table 6.6: ALARMS-INDICATOR Record**

<b>Parameter</b>	<b>MOC</b>	<b>Description/Conditions</b>
<u>event type</u>	<u>M</u>	<u>Provide Surveillance Status event type (e.g., deactivated).</u>
<u>event date</u>	<u>M</u>	<u>Provide the date and time the event is detected.</u>
<u>event time</u>		
<u>network identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>lawful intercept identifier</u>	<u>M</u>	<u>Shall be provided.</u>
<u>Lawful interception status</u>	<u>M</u>	<u>Shall be provided.</u>
<u>Fault-indication</u>	<u>M</u>	<u>Shall be provided to indicate the type of fault/alarm encountered</u>
<u>Alarm-indication</u>	<u>M</u>	<u>Shall be provided to provide additional information about the fault/alarm (free format).</u>

For the definition of the information content of these LI management notifications, see clause B.3.

## **4.5.4.6 HI2: Interface port for intercept related information**

The HI2 interface port shall be used to transport all intercept-related information (IRI), i.e. the information or data associated with the communication services of the target identity apparent to the network. It includes signalling information used to establish the telecommunication service and to control its progress, time stamps, and, if available, further information such as location information. Only information which is part of standard network signalling procedures shall be used within communication related IRI.

Sending of the intercept-related information (IRI) to the LEMF shall in general take place as soon as possible, after the relevant information is available.

In exceptional cases (e.g. data link failure), the intercept related information may be buffered for later transmission for a specified period of time.

Within this section only definitions are made which apply in general for all network technologies. Additional technology specific HI2 definitions are specified in related Annexes.

### **4.5.14.6.1 Data transmission protocols**

The protocol used by the "LI application" for the encoding and the sending of data between the MF and the LEMF is based on already standardized data transmission protocols like ROSE or FTP.

The specified data communication methods provide a general means of data communication between the LEA and the NWO/AP/SvP's mediation function. They are used for the delivery of:

- HI2 type of information (IRI records);
- Certain types of content of communication (e.g., SMS).

The present document specifies the use of the two possible methods for delivery: ROSE or FTP on the application layer and the BER on the presentation layer. The lower layers for data communication may be chosen in agreement with the NWO/AP/SvP and the LEA.

The delivery to the LEMF should use the internet protocol stack.

## 1 **4.5.24.6.2** Application for IRI (HI2 information)

2 The handover interface port 2 shall transport the intercept related information (IRI) from the NWO/AP/SvP's MF to the  
3 LEMF.

4 The individual IRI parameters shall be coded using ASN.1 and the basic encoding rules (BER). Where possible, the  
5 format of the information content shall be taken over from existing telecommunication standards, which are used for  
6 these parameters with the network already (e.g., IP). Within the ASN.1 coding for IRI, such standard parameters are  
7 typically defined as octet strings.

## 8 **4.5.34.6.3** Types of IRI records

9 Intercept related information shall be conveyed to the LEMF in messages, or IRI data records, respectively. Four types  
10 of IRI records are defined:

- |    |                        |   |
|----|------------------------|---|
| 11 | 1) IRI-BEGIN record    | at the first event of a communication attempt,        |
| 12 |                        | opening the IRI transaction.                          |
| 13 | 2) IRI-END record      | at the end of a communication attempt,                |
| 14 |                        | closing the IRI transaction.                          |
| 15 | 3) IRI-CONTINUE record | at any time during a communication attempt            |
| 16 |                        | within the IRI transaction.                           |
| 17 | 4) IRI-REPORT record   | used in general for non-communication related events. |

18 For information related to an existing communication case, the record types 1 to 3 shall be used. They form an IRI  
19 transaction for each communication case or communication attempt, which corresponds directly to the communication  
20 phase (set-up, active or release).

21 For packet oriented data services, the first event of a communication attempt shall be the PDP context activation or a  
22 similar event and an IRI-BEGIN record shall be issued. The end of the communication attempt shall be the PDP context  
23 deactivation or a similar event and an IRI-END record shall be issued. While a PDP context is active, IRI-CONTINUE  
24 records shall be used for CC relevant IRI data records, IRI-REPORT records otherwise.

25 Record type 4 is used for non-communication related subscriber action, like subscriber controlled input (SCI) for  
26 service activation. For simple cases, it can also be applicable for reporting unsuccessful communication attempts.

27 The record type is an explicit part of the record. The 4 record types are defined independently of target communication  
28 events. The actual indication of one or several communication events, which caused the generation of an IRI record, is  
29 part of further parameters within the record's, information content. Consequently, the record types of the IRI  
30 transactions are not related to specific messages of the signaling protocols of a communication case, and are therefore  
31 independent of future enhancements of the intercepted services, of network specific features, etc. Any transport level  
32 information (i.e. higher-level services) on the target communication-state or other target communication related  
33 information is contained within the information content of the IRI records.

34 For packet oriented data services, if LI is being activated during an already established PDP context or similar, an IRI-  
35 BEGIN record will mark the start of the interception. If LI is being deactivated during an established PDP context or  
36 similar, no IRI-END record will be transmitted. The end of interception can be communicated to the LEA by other  
37 means (e.g. HI1).

38 **\*\*\* THIRD CHANGE \*\*\***

39

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## 40 **Annex B (normative):** 41 **Structure of data at the handover interface**

42 This annex specifies the coding details at the handover interface HI for all data, which may be sent from the  
43 NWO/AP/SvP's equipment to the LEMF, across HI.

1 At the HI2 and HI3 handover interface ports, the following data may be present:

- 2 - interface port HI1: Interception administrative information;
- 3 - interface port HI2: Intercept related information (IRI);
- 4 - interface port HI3: records containing content of communication (CC).

5 The detailed coding specification for these types of information is contained in this annex, including sufficient details  
6 for a consistent implementation in the NWO/AP/SvP's equipment and the LEMF.

7 It must be noticed some data are ROSE specific and have no meaning when FTP is used. Those specificities are  
8 described at the beginning of each sub-annex.

9

10 **\*\*\* FOURTH CHANGE \*\*\***

## 11 B.3 Management Operation & Notification

### 12 B.3.1 LI Management Notification

13 This data description applies only for ROSE delivery mechanism.

14

15 Declaration of ROSE operation sending-of-HI1-Notification is ROSE delivery mechanism specific. When using FTP  
16 delivery mechanism, data HI1-Operation must be considered.

17

18 NOTE: This annex does not describe an electronic handover interface, but HI1 information, using HI2  
19 mechanism.

20

#### 21 ASN.1 description of LI management notification operation (HI1 Interface)

22

23 UmtsLINotificationOperations {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2)  
24 threeGPP(4) hi(3) notificationOperations(2) version-1(1)}

25

26 DEFINITIONS IMPLICIT TAGS ::=

27

28 BEGIN

29

30

31 IMPORTS

32

33 OPERATION,

34 ERROR

35 FROM Remote-Operations-Information-Objects

36 {joint-iso-itu-t(2) remote-operations(4) informationObjects(5) version1(0)}

37

38 LawfulInterceptionIdentifier,

39 TimeStamp,

40 Network-Identifier,

41

42 FROM HI2Operations

43 {itu-t(0) identified-organization(4) etsi(0) securityDomain(2)

44 lawfulIntercept(2) hi2(1) version3(3)}; -- TS 101 671 Edition 3

45

46

47 -- Object Identifier Definitions

48

49 -- Security DomainId

50 lawfulInterceptDomainId OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)

51 securityDomain(2) lawfulIntercept(2)}

52

53 -- Security Subdomains

54 threeGPPSubDomainId OBJECT IDENTIFIER ::= {lawfulInterceptDomainId threeGPP(4)}

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```
3gpphimDomainId OBJECT IDENTIFIER ::= {threeGPPSUBDomainId hil(3) version-1(1)}
```

```
3gpp-Sending-Of-Hil-Notification OPERATION ::=
{
  ARGUMENT      3gpp-Hil-Operation
  ERRORS        { Errors-3gpp-HilNotifications }
  CODE          global:{threeGPPSUBDomainId hil(3) opcode(1) version1 (1)}
}
-- Class 2 operation . The timer shall be set to a value between 3 s and 240 s.
-- The timer.default value is 60s.
-- NOTE: The value for this timer is to be set on the equipment waiting for the returned message;
-- its value shall be agreed between the NWO/AP/SvP and the LEA, depending on their equipment
-- properties.
```

```
3gpp-other-failure-causes      ERROR ::= { CODE local:0}
3gpp-missing-parameter         ERROR ::= { CODE local:1}
3gpp-unknown-parameter-value   ERROR ::= { CODE local:2}
3gpp-unknown-parameter        ERROR ::= { CODE local:3}

Errors-3gpp-Hil-Notifications ERROR ::=
{
  3gpp-other-failure-causes |
  3gpp-missing-parameter |
  3gpp-unknown-parameter-value |
  3gpp-unknown-parameter
}
```

```
3gpp-Hil-Operation ::= CHOICE
{
  liActivated          [1] Notification,
  liDeactivated        [2] Notification,
  liModified           [3] Notification,
  alarms-indicator    [4] Alarm-Indicator
}
```

```
Notification ::= SEQUENCE
{
  lawfulInterceptionIdentifier [1] LawfulInterceptionIdentifier,
  -- This identifier is associated to the target.
  networkIdentifier           [2] NetworkIdentifier,
  timeStamp                   [3] TimeStamp,
  liStatus                    [4] LiStatus,
  ...}
}
```

```
LiStatus ::= ENUMERATED
{
  inactive(1),
  fullyactive(2),
  degraded(3)
}
```

```
Alarms-Indicator ::= SEQUENCE
{
  networkIdentifier           [1] NetworkIdentifier,
  timeStamp                   [2] TimeStamp,
  alarm-information           [3] Octet String Size(1..25),
  -- Provides information about alarms (free format).
  lawfulInterceptionIdentifier [4] LawfulInterceptionIdentifier,
  -- This identifier is associated to the target.
  liStatus                    [5] LiStatus,
  fault-indication            [6] Fault-Indication,
  ...}
}
```

```
Fault-Indication ::= ENUMERATED
{
```

```

1  cCLinkSetupFailureWithinNetwork (1),
2  cCLinkFailedDueToLackOfSystemResources (2),
3  generalCCLinkSetupFailure (3),
4  leaBusy (4),
5  noAnswerFromLEMF (5),
6  cCLinkSetupFailureAuthentication (6),
7  deliveryResourceTakenOutOfService (7),
8  unableToRestoreDeliveryResourceConnection (8),
9  interceptionAtICE_INE_Interrupted (9),
10 lawfulInterceptionDisrupted (10),
11 ...}

```

15 --Parameters

16 END – UMTS HI1 Notifications

## 19 B.34 Intercept related information (HI2)

20 Declaration of ROSE operation umts-sending-of-IRI is ROSE delivery mechanism specific. When using FTP delivery  
21 mechanism, data umtsIRIContent must be considered.

### 22 ASN1 description of IRI (HI2 interface)

23 UmtsHI2Operations {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2)  
24 threeGPP(4) hi2(1) version-1(1)}

25 DEFINITIONS IMPLICIT TAGS ::=

27 BEGIN

30 IMPORTS

```

31 OPERATION,
32 ERROR
33 FROM Remote-Operations-Information-Objects
34 {joint-iso-itu-t(2) remote-operations(4) informationObjects(5) version1(0)}
35
36 LawfulInterceptionIdentifier,
37 TimeStamp,
38 Network-Identifier,
39 National-Parameters,
40 DataNodeAddress,
41 IPAddress,
42 IP-value,
43 X25Address
44
45 FROM HI2Operations
46 {itu-t(0) identified-organization(4) etsi(0) securityDomain(2)
47 lawfulIntercept(2) hi2(1) version3(3)}; -- TS 101 671 Edition 3
48
49

```

51 -- Object Identifier Definitions

```

52 -- Security DomainId
53 lawfulInterceptDomainId OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)
54 securityDomain(2) lawfulIntercept(2)}
55
56

```

```

57 -- Security Subdomains
58 threeGPPSUBDomainId OBJECT IDENTIFIER ::= {lawfulInterceptDomainId threeGPP(4)}
59 hi2DomainId OBJECT IDENTIFIER ::= {threeGPPSUBDomainId hi2(1) version-1(1)}
60

```

```

61 umts-sending-of-IRI OPERATION ::=
62 {
63 ARGUMENT UmtsIRIContent
64 ERRORS { OperationErrors }
65 CODE global:{threeGPPSUBDomainId hi2(1) opcode(1)}

```

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```
}  
-- Class 2 operation . The timer shall be set to a value between 3 s and 240 s.  
-- The timer.default value is 60s.  
-- NOTE: The same note as for HI management operation applies.
```

```
UmtsIRIContent ::= CHOICE  
{  
  iRI-Begin-record [1] IRI-Parameters, -- include at least one optional parameter  
  iRI-End-record [2] IRI-Parameters,  
  iRI-Continue-record [3] IRI-Parameters, -- include at least one optional parameter  
  iRI-Report-record [4] IRI-Parameters -- include at least one optional parameter  
}
```

```
unknown-version ERROR ::= { CODE local:0}  
missing-parameter ERROR ::= { CODE local:1}  
unknown-parameter-value ERROR ::= { CODE local:2}  
unknown-parameter ERROR ::= { CODE local:3}  
  
OperationErrors ERROR ::=  
{  
  unknown-version |  
  missing-parameter |  
  unknown-parameter-value |  
  unknown-parameter  
}  
-- This values may be sent by the LEMF, when an operation or a parameter is misunderstood.
```

```
IRI-Parameters ::= SEQUENCE  
{  
  hi2DomainId [0] OBJECT IDENTIFIER, -- 3GPP HI2 domain  
  iRIversion [23] ENUMERATED  
  {  
    version2(2),  
    ...  
  } OPTIONAL,  
  -- if not present, it means version 1 is handled  
  lawfulInterceptionIdentifier [1] LawfulInterceptionIdentifier,  
  -- This identifier is associated to the target.  
  timeStamp [3] TimeStamp,  
  -- date and time of the event triggering the report.)  
  initiator [4] ENUMERATED  
  {  
    not-Available (0),  
    originating-Target (1),  
    -- in case of GPRS, this indicates that the PDP context activation  
    -- or deactivation is MS requested  
    terminating-Target (2),  
    -- in case of GPRS, this indicates that the PDP context activation or  
    -- deactivation is network initiated  
    ...  
  } OPTIONAL,  
  
  locationOfTheTarget [8] Location OPTIONAL,  
  -- location of the target subscriber  
  partyInformation [9] SET SIZE (1..10) OF PartyInformation OPTIONAL,  
  -- This parameter provides the concerned party, the identiy(ies) of the party  
  --)and all the information provided by the party.  
  
  serviceCenterAddress [13] PartyInformation OPTIONAL,  
  -- e.g. in case of SMS message this parameter provides the address of the relevant  
  -- server within the calling (if server is originating) or called (if server is  
  -- terminating) party address parameters  
  sms [14] SMS-report OPTIONAL,  
  -- this parameter provides the SMS content and associated information  
  
  national-Parameters [16] National-Parameters OPTIONAL,  
  gPRSCorrelationNumber [18] GPRSCorrelationNumber OPTIONAL,  
  gPRSevent [20] GPRSEvent OPTIONAL,  
  -- This information is used to provide particular action of the target  
  -- such as attach/detach  
  sgsnAddress [21] DataNodeAddress OPTIONAL,  
  gPRSOperationErrorCode [22] GPRSOperationErrorCode OPTIONAL,  
  ggsnAddress [24] DataNodeAddress OPTIONAL,  
  qos [25] UmtsQos OPTIONAL,  
  networkIdentifier [26] Network-Identifier OPTIONAL,  
  smsOriginatingAddress [27] DataNodeAddress OPTIONAL,  
  smsTerminatingAddress [28] DataNodeAddress OPTIONAL,
```

```

imSevent [29] IMSEvent OPTIONAL,
sIPMessage [30] OCTET STRING OPTIONAL,
servingSGSN-number [31] OCTET STRING (SIZE (1..20)) OPTIONAL,
servingSGSN-address [32] OCTET STRING (SIZE (5..17)) OPTIONAL,
...
}

```

-- PARAMETERS FORMATS

```

PartyInformation ::= SEQUENCE
{
  party-Qualifier [0] ENUMERATED
  {
    gPRS-Target(3),
    ...
  },
  partyIdentity [1] SEQUENCE
  {
    imei [1] OCTET STRING (SIZE (8)) OPTIONAL,
    -- See MAP format [4]

    imsi [3] OCTET STRING (SIZE (3..8)) OPTIONAL,
    -- See MAP format [4] International Mobile
    -- Station Identity E.212 number beginning with Mobile Country Code

    msISDN [6] OCTET STRING (SIZE (1..9)) OPTIONAL,
    -- MSISDN of the target, encoded in the same format as the AddressString
    -- parameters defined in MAP format document ref [4], § 14.7.8

    e164-Format [7] OCTET STRING (SIZE (1 .. 25)) OPTIONAL,
    -- E164 address of the node in international format. Coded in the same format as
    -- the calling party number parameter of the ISUP (parameter part:[5])

    sip-url [8] OCTET STRING OPTIONAL, -- See RFC 2543

    ...
  },
  services-Data-Information [4] Services-Data-Information OPTIONAL,
  -- This parameter is used to transmit all the information concerning the
  -- complementary information associated to the basic data call
  ...
}

```

```

Location ::= SEQUENCE
{
  globalCellID [2] GlobalCellID OPTIONAL,
  --see MAP format (see [4])

  rAI [4] Rai OPTIONAL,
  -- the Routing Area Identifier is coded in accordance with the § 10.5.5.15 of
  -- document ref [9] without the Routing Area Identification IEI (only the
  -- last 6 octets are used)

  gsmLocation [5] GSMLocation OPTIONAL,
  umtsLocation [6] UMTSLocation OPTIONAL,
  sAI [7] Sai OPTIONAL,
  -- format: PLMN-ID 3 octets (no. 1 - 3)
  -- LAC 2 octets (no. 4 - 5)
  -- SAC 2 octets (no. 6 - 7)
  -- (according to 3GPP TS 25.413)
  ...
}

```

```

GlobalCellID ::= OCTET STRING (SIZE (5..7))
Rai ::= OCTET STRING (SIZE (6))
Sai ::= OCTET STRING (SIZE (7))

```

```

GSMLocation ::= CHOICE
{
  geoCoordinates [1] SEQUENCE
  {
    latitude [1] PrintableString (SIZE(7..10)),
    -- format : XDDMMSS.SS

    longitude [2] PrintableString (SIZE(8..11)),
    -- format : XDDMMSS.SS

    mapDatum [3] MapDatum DEFAULT WGS84,
    ...
  },

```

```

1  -- format : XDDMMSS.SS
2  X : N(orth), S(outh), E(ast), W(est)
3  -- DD or DDD : degrees (numeric characters)
4  -- MM : minutes (numeric characters)
5  -- SS.SS : seconds, the second part (.SS) is optional
6  -- Example :
7  -- latitude short form N502312
8  -- longitude long form E1122312.18
9
10 utmCoordinates [2] SEQUENCE
11 {
12     utm-East [1] PrintableString (SIZE(10)),
13     utm-North [2] PrintableString (SIZE(7)),
14     -- example utm-East 32U0439955
15     -- utm-North 5540736
16     mapDatum [3] MapDatum DEFAULT wGS84,
17     ...
18 },
19
20 utmRefCoordinates [3] SEQUENCE
21 {
22     utmref-string PrintableString (SIZE(13)),
23     mapDatum MapDatum DEFAULT wGS84,
24     ...
25 },
26 -- example 32UPU91294045
27
28 wGS84Coordinates [4] OCTET STRING (SIZE(7..10))
29 -- format is as defined in GSM 03.32; polygon type of shape is not allowed.
30 }
31
32 MapDatum ::= ENUMERATED
33 {
34     wGS84,
35     wGS72,
36     eD50, -- European Datum 50
37     ...
38 }
39

```

```

40 UMTSLocation ::= CHOICE {
41     point [1] GA-Point,
42     pointWithUnCertainty [2] GA-PointWithUnCertainty,
43     polygon [3] GA-Polygon
44 }
45

```

```

46 GeographicalCoordinates ::= SEQUENCE {
47     latitudeSign ENUMERATED { north, south },
48     latitude INTEGER (0..8388607),
49     longitude INTEGER (-8388608..8388607),
50     ...
51 }
52

```

```

53 GA-Point ::= SEQUENCE {
54     geographicalCoordinates GeographicalCoordinates,
55     ...
56 }
57

```

```

58 GA-PointWithUnCertainty ::= SEQUENCE {
59     geographicalCoordinates GeographicalCoordinates,
60     uncertaintyCode INTEGER (0..127)
61 }
62

```

```

63 maxNrOfPoints INTEGER ::= 15
64

```

```

65 GA-Polygon ::= SEQUENCE (SIZE (1..maxNrOfPoints)) OF
66 SEQUENCE {
67     geographicalCoordinates GeographicalCoordinates,
68     ...
69 }
70

```

```

71 SMS-report ::= SEQUENCE
72 {
73     sms-Contents [3] SEQUENCE
74     {
75         sms-initiator [1] ENUMERATED -- party which sent the SMS
76         {

```

```

1      target          (0),
2      server          (1),
3      undefined-party (2),
4      ...
5    },
6    transfer-status  [2] ENUMERATED
7    {
8      succeed-transfer (0),          -- the transfer of the SMS message succeeds
9      not-succeed-transfer (1),
10     undefined        (2),
11     ...
12   } OPTIONAL,
13   other-message     [3] ENUMERATED -- in case of terminating call, indicates if
14                                     -- the server will send other SMS
15   {
16     yes              (0),
17     no                (1),
18     undefined        (2),
19     ...
20   } OPTIONAL,
21   content            [4] OCTET STRING (SIZE (1 .. 270)) OPTIONAL,
22                                     -- Encoded in the format defined for the SMS mobile
23   ...
24 }
25 }

```

```

27 GPRSCorrelationNumber ::= OCTET STRING (SIZE(8..20))

```

```

29 GPRSEvent ::= ENUMERATED
30 {
31   pDPContextActivation (1),
32   startOfInterceptionWithPDPContextActive (2),
33   pDPContextDeactivation (4),
34   gPRSAttach (5),
35   gPRSDetach (6),
36   locationInfoUpdate (10),
37   SMS (11),
38   pDPContextModification (13),
39   servingSystem (14),
40   ...
41 }
42 -- see ref [10]

```

```

44 IMSevent ::= ENUMERATED
45 {
46   sIPmessage (1),
47   ...
48 }

```

```

50 Services-Data-Information ::= SEQUENCE
51 {
52   gPRS-parameters [1] GPRS-parameters OPTIONAL,
53   ...
54 }

```

```

56 GPRS-parameters ::= SEQUENCE
57 {
58   pDP-address-allocated-to-the-target [1] DataNodeAddress OPTIONAL,
59   aPN [2] OCTET STRING (SIZE(1..100)) OPTIONAL,
60   pDP-type [3] OCTET STRING (SIZE(2)) OPTIONAL,
61   ...
62 }

```

```

64 GPRSOperationErrorCode ::= OCTET STRING (SIZE(2))
65 -- refer to standard [9] for values(GMM cause or SM cause parameter).

```

```

67 UmtsQos ::= CHOICE
68 {
69   qosIu [1] OCTET STRING (SIZE(3..11)),
70   -- The qosIu parameter shall be coded in accordance with the § 10.5.6.5 of
71   -- document ref [9] or ref [21] without the Quality of service IEI and Length of
72   -- quality of service IE (only the last 3, or 11 octets are used. That is, first
73   -- two octets carrying 'Quality of service IEI' and 'Length of quality of service
74   -- IE' shall be excluded).
75   qosGn [2] OCTET STRING (SIZE(3..254))
76   -- qosGn parameter shall be coded in accordance with § 7.7.34 of document ref [17]

```

```
1 }  
2  
3 END -- OF UmtsHI2Operations  
4
```

## 1 B.4 HI3 CC definition

```
2 Umts-HI3-PS {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulintercept(2)
3 threeGPP(4) hi3(2) version-1(1)}
```

```
4
5 DEFINITIONS IMPLICIT TAGS ::=
```

```
6
7 BEGIN
```

```
8
9 IMPORTS
```

```
10
11 GPRSCorrelationNumber
```

```
12 FROM UmtsHI2Operations
```

```
13 {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulintercept(2) threeGPP(4)
14 hi2(1) version-1(1)} -- from 3GPP UmtsHI2Operations
```

```
15
16 LawfulInterceptionIdentifier,
```

```
17
18 TimeStamp
```

```
19 FROM HI2Operations
```

```
20 {itu-t(0) identified-organization(4) etsi(0) securityDomain(2) lawfulIntercept(2) hi2(1)
21 version3(3)}; -- from ETSI HI2Operations TS 101 671 Edition 3
```

```
22
23 -- Object Identifier Definitions
```

```
24
25 -- Security DomainId
```

```
26 lawfulInterceptDomainId OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)
27 securityDomain(2) lawfulIntercept(2)}
```

```
28
29 -- Security Subdomains
```

```
30 threeGPPSUBDomainId OBJECT IDENTIFIER ::= {lawfulInterceptDomainId threeGPP(4)
31 hi3DomainId OBJECT IDENTIFIER ::= {threeGPPSUBDomainId hi3 (2) version-1(1)}
```

```
32
33 CC-PDU ::= SEQUENCE
```

```
34 {
35   uLIC-header      [1] ULIC-header,
36   payload         [2] OCTET STRING
37 }
```

```
38
39 ULIC-header ::= SEQUENCE
```

```
40 {
41   hi3DomainId      [0] OBJECT IDENTIFIER, -- 3GPP HI3 Domain
42   version          [1] Version,
43   lIID             [2] LawfulInterceptionIdentifier OPTIONAL,
44   correlation-Number [3] GPRSCorrelationNumber,
45   timestamp       [4] TimeStamp OPTIONAL,
46   sequence-number [5] INTEGER (0..65535),
47   t-PDU-direction [6] TPDU-direction,
48   ...}
49
```

```
50 Version ::= ENUMERATED
```

```
51 {
52   version1(1),
53   ...
54 }
```

```
55
56 TPDU-direction ::= ENUMERATED
```

```
57 {
58   from-target      (1),
59   to-target        (2),
60   unknown          (3)
61 }
```

```
62 END-- OF Umts-HI3-PS
```

Page: 2

[H1] [Document numbers](#) are allocated by the Working Group Secretary.

Page: 2

[H2] Enter the specification number in this box. For example, 04.08 or 31.102. Do not prefix the number with anything . i.e. do not use "TS", "GSM" or "3GPP" etc.

Page: 2

[H3] Enter the CR number here. This number is allocated by the 3GPP support team. It consists of at least three digits, padded with leading zeros if necessary.

Page: 2

[H4] Enter the revision number of the CR here. If it is the first version, use a "-".

Page: 2

[H5] Enter the version of the specification here. This number is the version of the specification to which the CR will be applied if it is approved. Make sure that the latest version of the specification (of the relevant release) is used when creating the CR. If unsure what the latest version is, go to <http://www.3gpp.org/specs/specs.htm>.

Page: 2

[H6] For help on how to fill out a field, place the mouse pointer over the special symbol closest to the field in question.

Page: 2

[H7] Mark one or more of the boxes with an X.

Page: 2

[H8] SIM / USIM / ISIM applications.

Page: 2

[H9] Enter a concise description of the subject matter of the CR. It should be no longer than one line. Do not use redundant information such as "Change Request number xxx to 3GPP TS xx.xxx".

Page: 2

[H10] Enter the source of the CR. This is either (a) one or several companies or, (b) if a (sub)working group has already reviewed and agreed the CR, then list the group as the source.

Page: 2

[H11] Enter the acronym for the work item which is applicable to the change. This field is mandatory for category F, B & C CRs for release 4 and later. A list of work item acronyms can be found in the 3GPP work plan. See [http://www.3gpp.org/ftp/information/work\\_plan/](http://www.3gpp.org/ftp/information/work_plan/) . The list is also included in a MS Excel file included in the zip file containing the CR cover sheet template.

Page: 2

[H12] Enter the date on which the CR was last revised. Format to be interpretable by English version of MS Windows ® applications, e.g. 19/02/2002.

Page: 2

[H13] Enter a single letter corresponding to the most appropriate category listed below. For more detailed help on interpreting these categories, see the Technical Report [21.900](#) "TSG working methods".

Page: 2

[H14] Enter a single release code from the list below.

Page: 2

[H15] Enter text which explains why the change is necessary.

Page: 2

[H16] Enter text which describes the most important components of the change. i.e. How the change is made.

Page: 2

[H17] Enter here the consequences if this CR was to be rejected. It is necessary to complete this section only if the CR is of category "F" (i.e. correction).

Page: 2

[H18] Enter the number of each clause which contains changes.

Page: 2

[H19] Tick "yes" box if any other specifications are affected by this change. Else tick "no". You MUST fill in one or the other.

Page: 2

[H20] List here the specifications which are affected or the CRs which are linked.

Page: 3

[H21] Enter any other information which may be needed by the group being requested to approve the CR. This could include special conditions for it's approval which are not listed anywhere else above.

Page: 3

[H22] This is an example of pop-up text.