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| Fond-Rec_e | | **International Telecommunication Union** | | |
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| **ITU-T** | **Q.850** | |
| TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU | | (10/2018) |
|  | SERIES Q: SWITCHING AND SIGNALLING, AND ASSOCIATED MEASUREMENTS AND TESTS  Digital subscriber Signalling System No. 1 – General | | | |
|  | **Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN user part** | | | |
|  | Recommendation ITU‑T Q.850 | | | |



ITU-T Q-SERIES RECOMMENDATIONS

**SWITCHING AND SIGNALLING, AND ASSOCIATED MEASUREMENTS AND TESTS**

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|  |  |

*For further details, please refer to the list of ITU-T Recommendations.*

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| Recommendation ITU-T Q.850  Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN user part |

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| Summary  Recommendation ITU-T Q.850 defines the format, encoding and semantics of cause in­formation elements/parameters and the usage of the location field, in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part. Many cause values are applicable to both DSS 1 and SS No. 7 ISUP and this Recommendation specifies the use of each cause value in other Recommendations. |

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| History   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Edition | Recommendation | Approval | Study Group | Unique ID[[1]](#footnote-1)\* | | 1.0 | ITU-T Q.850 | 1993-03-12 | XI | [11.1002/1000/2305](http://handle.itu.int/11.1002/1000/2305) | | 2.0 | ITU-T Q.850 | 1998-05-15 | 11 | [11.1002/1000/4376](http://handle.itu.int/11.1002/1000/4376) | | 2.1 | ITU-T Q.850 (1998) Add. 1 | 2000-06-15 | 11 | [11.1002/1000/5114](http://handle.itu.int/11.1002/1000/5114) | | 2.2 | ITU-T Q.850 (1998) Amd. 1 | 2001-07-13 | 11 | [11.1002/1000/5493](http://handle.itu.int/11.1002/1000/5493) | | 3.0 | ITU-T Q.850 | 2018-10-14 | 11 | [11.1002/1000/13695](http://handle.itu.int/11.1002/1000/13695) | |

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| Keywords  Cause value, DSS1, ISUP, SIP-I. |

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU‑T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Recommendation ITU-T Q.850

Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN user part

# 1 Scope

This Recommendation defines the format, encoding and semantics of cause information elements/parameters and the usage of the location field, in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part. Many cause values are applicable to both DSS 1 and SS No. 7 ISUP and this Recommendation specifies the use of each cause value in other Recommendations.

# 2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T E.180] Recommendation ITU-T E.180/Q.35 (1998), *Technical characteristics of tones for the telephone service*.

[ITU-T Q.730] Recommendation ITU-T Q.730 (1999), *ISDN User Part supplementary services.*

[ITU T Q.732.x] Recommendations ITU-T Q.732.2-5 (1999), *Stage 3 description for call offering supplementary services using Signalling System No. 7: Call diversion services: Call forwarding busy, Call forwarding no reply, Call forwarding unconditional, Call deflection*.

[ITU-T Q.733.3] Recommendation ITU-T Q.733.3 (1997), *Stage 3 description for call completion supplementary services using Signalling System No. 7: Completion of calls to busy subscriber (CCBS).*

[ITU-T Q.733.4] Recommendation ITU-T Q.733.4 (1993), *Stage 3 description for call completion supplementary services using Signalling System No. 7: Terminal portability (TP).*

[ITU-T Q.735.1] Recommendation ITU-T Q.735.1 (1993), *Stage 3 description for community of interest supplementary services using Signalling System No. 7: Closed user group (CUG).*

[ITU-T Q.735.3] Recommendation ITU-T Q.735.3 (1993), *Stage 3 description for community of interest supplementary services using Signalling System No. 7: Multi-level precedence and pre-emption.*

[ITU-T Q.737.1] Recommendation ITU-T Q.737.1 (1997), *Stage 3 description for additional information transfer supplementary services using Signalling System No. 7: User-to-user signalling (UUS).*

[ITU-T Q.763] Recommendation ITU-T Q.763 (1999), *Signalling System No. 7 – ISDN User Part formats and codes.*

[ITU-T Q.764] Recommendation ITU-T Q.764 (1999), *Signalling System No. 7 – ISDN User Part signalling procedures.*

[ITU-T Q.931] Recommendation ITU-T Q.931 (1998), *ISDN user-network interface layer 3 specification for basic call control.*

[ITU-T Q.933] Recommendation ITU-T Q.933 (2003), *ISDN Digital Subscriber Signalling System No. 1 (DSS1) – Signalling specifications for frame mode switched and permanent virtual connection control and status monitoring.*

[ITU-T Q.955.3] Recommendation ITU-T Q.955.3 (1993), *Stage 3 description for community of interest supplementary services using DSS 1: Multi-level precedence and preemption (MLPP).*

[ITU-T X.21] Recommendation ITU-T X.21 (1992), *Interface between Data Terminal Equipment and Data Circuit-terminating Equipment for synchronous operation on public data networks.*

[ITU-T X.25] Recommendation ITU-T X.25 (1996), *Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit.*

[ITU-T X.213] Recommendation ITU-T X.213 (2001), *Information technology – Open Systems Interconnection – Network service definition.*

[ETSI TS 124 229] [ETSI TS 124 229 V14.8.0 (2018-06)](http://www.etsi.org/deliver/etsi_ts/124200_124299/124229/11.24.00_60/ts_124229v112400p.pdf), *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 version 14.8.0 Release 14)*.

[RFC 3326] IETF RFC 3326 (2002), *The Reason Header Field for the Session Initiation Protocol (SIP)*.

# 3 Definitions

None.

# 4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ANM Answer Message

BI Beyond Interworking point

CCBSindicator Completion of Calls to Busy Subscriber

CGC Circuit-Group-Congestion signal

CUG Closed User Group

DSS 1 Digital Subscriber Signalling System No. 1 (DSS 1)

INTL International Network

ISDN Integrated Services Digital Network

ISUP ISDN User Part

LN Public Network serving the Local user

LPN Private Network serving the Local user

MLPP Multilevel Precedence and Pre-emption

NNC National-Network-Congestion signal

NU National Use

RLN Public Network serving the Remote user

RPN Private Network serving the Remote user

S-CSCF Serving-Call Session Control Function

SIP Session Initiation Protocol

SS No. 7 Signalling System No. 7

TMR Transmission Medium Requirement

TN Transit Network

U User

UUS User-to-User Signalling

# 5 Conventions

None.

# 6 Cause

## 6.1 Format

The format of the ITU-T Q.931 Cause information element or ITU-T Q.763/Q.730 Cause indicators parameters' content is shown in Figure 1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  | Octet |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | (Note 3) Q.931 Q.763 |
| ext. 0/1 | Coding standard | | Spare 0 | Location | | | | 3 1 |
| ext. 1 | Recommendation (Notes 1 and 2) | | | | | | | 3a\* |
| ext. 1 | Cause value | | | | | | | 4 2 |
| Diagnostic(s) (if any) | | | | | | | | 5\* 3\* |
| NOTE 1 – If the default applies for the Recommendation field, octets including this field shall be omitted.  NOTE 2 – The Recommendation field is not supported by the ISUP. The default interpre­tation for ISUP is [ITU‑T Q.763].  NOTE 3 – Optional octets are marked with asterisks (\*). | | | | | | | | |

Figure 1 – Format of "Cause"

## 6.2 Codes used in the subfield of the "Cause"

### 6.2.1 Extension indicator (ext.)

Bit

8

0 octet continues through to the next octet (e.g., octet 1 to 1a)

1 last octet

### 6.2.2 Coding standard

Bits

7 6

0 0 ITU-T standardized coding, as described below

0 1 ISO/IEC standard (See note.)

1 0 national standard (See note.)

1 1 standard specific to identified location (See note.)

NOTE – These other coding standards should be used only when the desired cause value cannot be represented with the ITU-T-standardized coding.

### 6.2.3 Location

Bits

4 3 2 1

0 0 0 0 user (U)

0 0 0 1 private network serving the local user (LPN)

0 0 1 0 public network serving the local user (LN)

0 0 1 1 transit network (TN)

0 1 0 0 public network serving the remote user (RLN)

0 1 0 1 private network serving the remote user (RPN)

0 1 1 1 international network (INTL)

1 0 1 0 network beyond interworking point (BI)

1 1 0 0 reserved for national use

1 1 0 1 reserved for national use

1 1 1 0 reserved for national use

1 1 1 1 reserved for national use

All other values are spare.

### 6.2.4 Recommendation

Bits

7 6 5 4 3 2 1

0 0 0 0 0 0 0 ITU-T Q.931

0 0 0 0 0 1 1 ITU-T X.21

0 0 0 0 1 0 0 ITU-T X.25

0 0 0 0 1 0 1 public land mobile networks, [b-ITU-T Q.1031]/[b-ITU-T Q.1051]  
(obsolete)

All other values are reserved.

NOTE – If AN octet including this field is omitted, [ITU-T Q.931] is assumed.

### 6.2.5 Cause value (only applicable in the context of [ITU-T Q.763], [ITU-T Q.931] and [ETSI TS 124 229])

The cause value is divided into two fields, a class (bits 5 to 7) and a value within the class (bits 1 to 4).

1) The class indicates the general nature of the event.

Class (000): normal event

Class (001): normal event

Class (010): resource unavailable

Class (011): service or option not available

Class (100): service or option not implemented

Class (101): invalid message (e.g., parameter out of range)

Class (110): protocol error (e.g., unknown message)

Class (111): interworking

2) The cause values are listed in Table 1.

| Table 1 – Cause information element/parameter | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cause | | | | | | Definition | | Diagnostics | | Application | | Reference | | Location | | Remarks | | |
| Class | | Value | | No. | |  | |  | | (Note 1) | | (Note 2) | | (Note 3) | |  | | |
| 000 | | 0001 | | 1 | | Unallocated (unassigned) number | | Condition | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN, LN | |  | | |
|  | |  | |  | |  | |  | |  | |  | | RLN, TN, INTL | | No route by digit analysis | | |
| 000 | | 0010 | | 2 | | No route to specified transit network | | Transit network identify | | DSS 1, ISUP(NU) | | [ITU-T Q.931] | | LN, TN | |  | | |
| 000 | | 0011 | | 3 | | No route to destination | | Condition | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN, LN | |  | | |
| 000 | | 0100 | | 4 | | Send special information tone | |  | | ISUP | |  | |  | | Clause 7 of [ITU‑T E.180] | | |
| 000 | | 0101 | | 5 | | Misdialled trunk prefix | |  | | ISUP(NU) | |  | |  | |  | | |
| 000 | | 0110 | | 6 | | Channel unacceptable | |  | | DSS 1 | | [ITU-T Q.931] | | LN | |  | | |
| 000 | | 0111 | | 7 | | Call awarded and being delivered in an established channel | |  | | DSS 1 | | [ITU-T Q.931] | | LN | |  | | |
| 000 | | 1000 | | 8 | | Pre-emption | |  | | DSS 1, ISUP | | [ITU-T Q.735.3]  [ITU-T Q.955.3] | |  | | MLPP | | |
| 000 | | 1001 | | 9 | | Pre-emption – circuit reserved for reuse | |  | | ISUP | | [ITU-T Q.735.3] | |  | | MLPP | | |
| 000 | | 1101 | | 13 | | Call completed elsewhere | |  | | SIP | | [ETSI TS 124 229] | |  | |  | | |
| 001 | | 0000 | | 16 | | Normal call clearing | | Condition | | DSS 1, ISUP | | [ITU-T Q.931], 2.3 of [ITU-T Q.764] | | U, RPN | |  | | |
| 001 | | 0001 | | 17 | | User busy | | CCBS indicator | | DSS 1, ISUP | | [ITU-T Q.931], [ITU‑T Q.732.x]  [ITU-T Q.733.3] | | U, RPN, RLN | | Basic call and call diversion services | | |
| 001 | | 0010 | | 18 | | No user responding | |  | | DSS 1, ISUP | | [ITU-T Q.931], [ITU‑T Q.732.x] | | RLN | | Call diversion services | |
| 001 | | 0011 | | 19 | | No answer from user (user alerted) | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | RLN | |  | |
|  | |  | |  | |  | |  | |  | | 2.1.4 of [ITU-T Q.764]  2.9.8.3 of [ITU-T Q.764] | | RLN, TN, INTL | | Expiry of waiting ANM timer (T9) | |
|  | |  | |  | |  | |  | |  | | [ITU-T Q.732.x] | | RLN | | Call diversion services | |
| 001 | | 0100 | | 20 | | Subscriber absent | |  | | DSS 1, ISUP | |  | |  | | Mobile application | |
| 001 | | 0101 | | 21 | | Call rejected | | Call rejected condition | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN | |  | |
|  | |  | |  | |  | |  | |  | | [ITU-T Q.732.x] | | RLN | | Call diversion services | |
| 001 | | 0110 | | 22 | | Number changed | | New destination (DSS 1)/ Called party number (ISUP) | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN, LN | |  | |
| 001 | | 0111 | | 23 | | Redirection to new destination | |  | | ISUP | |  | |  | |  | |
| 001 | | 1001 | | 25 | | Exchange routing error | |  | | ISUP | |  | | LN, TN, RLN, ITNL | |  | |
| 001 | | 1010 | | 26 | | Non-selected user clearing | |  | | DSS 1 | | [ITU-T Q.931] | | LN | |  | |
| 001 | | 1011 | | 27 | | Destination out of order | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | RLN | |  | |
| 001 | | 1100 | | 28 | | Invalid number format (address incomplete) | |  | |  | | [ITU-T Q.931] | | U, RPN, RLN, LN | |  | |
|  | |  | |  | |  | |  | | DSS 1, ISUP | | 2.1.1 of [ITU-T Q.764] 2.1.2 of [ITU-T Q.764] 2.9.8.3 of [ITU-T Q.764] 2.2.5 of [ITU-T Q.764] | | TN, INTL | | The called party number is not in a valid format or is not complete | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | | TN, INTL, RLN, RPN | |  | |
| 001 | | 1101 | | 29 | | Facility rejected | | Facility identification (DSS 1)/ Parameter name (ISUP) | |  | | [ITU-T Q.931] | | RLN, U, RPN, LN | |  | |
|  | |  | |  | |  | |  | | DSS 1, ISUP | |  | | TN, INTL | | Inability to provide a request signalling capability | |
|  | |  | |  | |  | |  | |  | | [ITU-T Q.735.1] | | INTL, RLN | | CUG | |
|  | |  | |  | |  | |  | |  | | [ITU-T Q.737.1] | | INTL, TN, RLN | | UUS | |
| 001 | | 1110 | | 30 | | Response to STATUS ENQUIRY | |  | | DSS 1 | | [ITU-T Q.931] | | U, LN | |  | |
| 001 | | 1111 | | 31 | | Normal, unspecified | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | RLN | |  | |
|  | |  | |  | |  | |  | |  | | 2.1.1 of [ITU-T Q.764] 2.1.2 of [ITU-T Q.764] 2.8.1 of [ITU-T Q.764] 2.8.2 of [ITU-T Q.764] 2.9.3 of [ITU-T Q.764] 2.9.6 of [ITU-T Q.764] 2.9.8.2 of [ITU-T Q.764] 2.9.8.3 of [ITU-T Q.764] 2.1.8 of [ITU-T Q.764] 2.2.4 of [ITU-T Q.764] | | TN, INTL, RLN | | Call failure information indicating the failure of a call due to the lapse of a timeout or a fault not covered by specific causes (examples: expiry of timers ITU-T Q.764 not covered by specific causes, release of interconnected circuit, etc.) | |
|  | |  | |  | |  | |  | |  | | 2.1.6 of [ITU-T Q.764] 2.9.7 of [ITU-T Q.764] | | RLN, TN | | Expiry of waiting INF timer (T33) | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | |  | |  | |
| 010 | | 0010 | | 34 | | No circuit/channel available | | CCBS indicator | | DSS 1, ISUP | | [ITU-T Q.931], [ITU-T Q.733.3] | | U, RPN, RLN, LN, TN | |  | |
|  | |  | |  | |  | |  | |  | |  | | TN, INTL | | Circuit congestion encountered in an exchange | |
| 010 | | 0110 | | 38 | | Network out of order | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN | |  | |
| 010 | | 0111 | | 39 | | Permanent frame mode connection out of service | |  | | DSS 1 | | [ITU-T Q.933] | |  | |  | |
| 010 | | 1000 | | 40 | | Permanent frame mode connection operational | |  | | DSS 1 | | [ITU-T Q.933] | |  | |  | |
| 010 | | 1001 | | 41 | | Temporary failure | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN, RLN, LN | |  | |
| 010 | | 1010 | | 42 | | Switching equipment congestion | |  | | DSS 1, ISUP | |  | | TN, RLN, INTL | |  | |
|  | |  | |  | |  | |  | |  | | 2.9.9.1 of [ITU-T Q.764] | | TN, RLN | | Temporary trunk block (national use) | |
| 010 | | 1011 | | 43 | | Access information discarded | | Discarded information element identifier(s)  (Note 4) | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN, LN | |  | |
| 010 | | 1100 | | 44 | | Requested circuit/channel not available | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN, LN | |  | |
| 010 | | 1110 | | 46 | | Precedence call blocked | |  | | DSS 1, ISUP | | [ITU-T Q.735.3]  [ITU-T Q.955.3] | |  | | MLPP | |
| 010 | | 1111 | | 47 | | Resource unavailable, unspecified | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN | |  | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | |  | |  | |
| 011 | | 0001 | | 49 | | Quality of service not available | | Condition | | DSS 1 | | [ITU-T Q.931] | |  | |  | |
| 011 | | 0010 | | 50 | | Requested facility not subscribed | | Facility identification (DSS 1)/  Parameter name (ISUP) | | DSS 1, ISUP | | [ITU-T Q.931], [ITU‑T Q.735.1] | | U, LN, RLN | |  | |
| 011 | | 0101 | | 53 | | Outgoing calls barred within CUG | |  | | ISUP | | [ITU-T Q.735.1] | |  | | CUG | |
| 011 | | 0111 | | 55 | | Incoming calls barred within CUG | |  | | ISUP | | [ITU-T Q.735.1] | | RLN | | CUG | |
| 011 | | 1001 | | 57 | | Bearer capability not authorized | | Attribute identity | | DSS 1, ISUP | | [ITU-T Q.931] | | LN | |  | |
| 011 | | 1010 | | 58 | | Bearer capability not presently available | | Attribute identity | | DSS 1, ISUP | | [ITU-T Q.931] | | LN | |  | |
| 011 | | 1110 | | 62 | | Inconsistency in designated outgoing access information and subscriber class | |  | | DSS 1, ISUP | | [ITU-T Q.735.1] | |  | |  | |
| 011 | | 1111 | | 63 | | Service or option not available, unspecified | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | LN | |  | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | |  | |  | |
| 100 | | 0001 | | 65 | | Bearer capability not implemented | | Attribute identity | | DSS 1, ISUP | | [ITU-T Q.931] | | LN | |  | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | | TN, INTL | | Inability to provide a requested TMR | |
| 100 | | 0010 | | 66 | | Channel type not implemented | | Channel type | | DSS 1 | | [ITU-T Q.931] | |  | |  | |
| 100 | | 0101 | | 69 | | Requested facility not implemented | | Facility identification (DSS 1)/Parameter name (ISUP) | | DSS 1, ISUP | | [ITU-T Q.931], [ITU-T Q.737.1] | | U, RPN, LN, RLN | | UUS | |
| 100 | | 0110 | | 70 | | Only restricted digital information bearer capability is available | |  | | DSS 1, ISUP (NU) | | [ITU-T Q.931] | |  | |  | |
| 100 | | 1111 | | 79 | | Service or option not implemented, unspecified | |  | | DSS 1, ISUP | | [ITU-T Q.931] | |  | |  | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | |  | |  | |
| 101 | | 0001 | | 81 | | Invalid call reference value | |  | | DSS 1 | | [ITU-T Q.931] | | U, LN | |  | |
| 101 | | 0010 | | 82 | | Identified channel does not exist | | Channel identity | | DSS 1 | | [ITU-T Q.931] | |  | |  | |
| 101 | | 0011 | | 83 | | A suspended call exists, but this call identity does not | |  | | DSS 1 | | [ITU-T Q.931] | | LN | |  | |
| 101 | | 0100 | | 84 | | Call identity in use | |  | | DSS 1 | | [ITU-T Q.931] | | LN | |  | |
| 101 | | 0101 | | 85 | | No call suspended | |  | | DSS 1 | | [ITU-T Q.931] | | LN | |  | |
| 101 | | 0110 | | 86 | | Call with the requested call identity has been cleared | | Clearing cause | | DSS 1 | | [ITU-T Q.931] | | LN | |  | |
| 101 | | 0111 | | 87 | | User not member of CUG | |  | | ISUP, DSS 1 | | [ITU-T Q.735.1] | | RLN | | CUG | |
| 101 | | 1000 | | 88 | | Incompatible destination | | Incompatible parameter (DSS 1) | | DSS 1, ISUP | | [ITU-T Q.931] | | U, RPN | |  | |
|  | |  | |  | |  | | User-to-user indicators parameter name | | ISUP | | [ITU-T Q.737.1] | | RLN | | UUS 2 | |
| 101 | | 1010 | | 90 | | Non-existent CUG | |  | | ISUP | | [ITU-T Q.735.1] | |  | | CUG | |
| 101 | | 1011 | | 91 | | Invalid transit network selection | |  | | DSS 1, ISUP(NU) | | [ITU-T Q.931] | | LN, TN | |  | |
| 101 | | 1111 | | 95 | | Invalid message, unspecified | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | LN | |  | |
|  | |  | |  | |  | |  | |  | | Annex A of ITU-T Q.763 | |  | |  | |
| 110 | | 0000 | | 96 | | Mandatory information element is missing | | Information element identifier (Note 4) | | DSS 1, | | [ITU-T Q.931] | | U, LN | |  | |
| 110 | | 0001 | | 97 | | Message type non-existent or not implemented | | Message type | | DSS 1, ISUP | | [ITU-T Q.931] | | U, LN | |  | |
|  | |  | |  | |  | |  | |  | | 2.9.5.2 of [ITU-T Q.764] 2.9.5.3 of [ITU-T Q.764] | | TN, INTL, RLN | |  | |
| 110 | | 0010 | | 98 | | Message not compatible with call state or message type non-existent or not implemented | | Message type | | DSS 1 | | [ITU-T Q.931] | | U, LN | |  | |
| 110 | | 0011 | | 99 | | Information element /parameter non-existent or not implemented | | Information element identifier(s) (DSS 1) (Note 4 and Note 5)/  Parameter names | | DSS 1, ISUP | | [ITU-T Q.931] | | U, LN | |  | |
|  | |  | |  | |  | |  | |  | | 2.9.5.2 of [ITU-T Q.764] 2.9.5.3 of [ITU-T Q.764]  Annex A of [ITU-T Q.763] | | TN, INTL, RLN | |  | |
| 110 | | 0100 | | 100 | | Invalid information element contents | | Information element identifier(s) (Note 4) | | DSS 1 | | [ITU-T Q.931] | | U, LN | |  | |
| 110 | | 0101 | | 101 | | Message not compatible with call state | | Message type | | DSS 1 | | [ITU-T Q.931] | | U, LN | |  | |
| 110 | | 0110 | | 102 | | Recovery on timer expiry | | Timer number | | DSS 1, ISUP | | [ITU-T Q.931] | |  | |  | |
|  | |  | |  | |  | |  | |  | | [ITU-T Q.733.4] | | RLN | | Terminal portability: expiry of waiting RES (user) timer | |
|  | |  | |  | |  | |  | |  | | 2.4.3 of [ITU-T Q.764] | | INTL | | Expiry of waiting RES (network) timer (incoming international exchange) | |
| 110 | | 0111 | | 103 | | Parameter non-existent or not implemented, passed on | | Parameter name(s) | | ISUP(NU) | |  | |  | |  | |
| 110 | | 1110 | | 110 | | Message with unrecognized parameter, discarded | | Parameter name(s), message name | | ISUP | | 2.9.5.2 of [ITU-T Q.764]  2.9.5.3 of [ITU-T Q.764] | |  | |  | |
| 110 | | 1111 | | 111 | | Protocol error, unspecified | |  | | DSS 1, ISUP | | [ITU-T Q.931] | | RLN | |  | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | | RLN, TN, INTL | |  | |
|  | |  | |  | |  | |  | |  | | [ITU-T Q.735.1] | | RLN | | CUG | |
| 111 | | 1111 | | 127 | | Interworking, unspecified | |  | | DSS 1, ISUP | | [ITU-T Q.931] | |  | |  | |
|  | |  | |  | |  | |  | |  | | Annex A of [ITU-T Q.763] | |  | |  | |
| NOTE 1 – The application indicates that the cause value may be carried in DSS 1 and/or ISUP. Causes carried in ISUP which are not marked for national use (NU) are the minimum set of cause values that shall be supported over the international interface.  NOTE 2 – The references included are not exhaustive.  NOTE 3 – These are typical locations generated within the scope of the associated Recommendations. Other locations may be used depending upon network configuration. | | | | | | | | | | | | | | | | | |
| NOTE 4 – Locking and non-locking shift procedures described in clause 4.5 of [ITU-T Q.931] are applied. In principle information element identifiers are ordered in the same order as the information element in the received message.  NOTE 5 – When only the locking shift information element is included and no variable length information element identifier follows, it means that the codeset in the locking shift itself is not implemented. | | | | | | | | | | | | | | | | | |

### 6.2.6 Diagnostics (only applicable in the context of [ITU-T Q.763] and [ITU-T Q.931]).

The diagnostics applicable to each cause value are given in Table 1. Diagnostic information is not available for every cause. In those cases in which the diagnostic is an ITU-T Q.931 information element, the coding of the diagnostic is the same as for the corresponding information element in clause 4 of [ITU‑T Q.931].

#### 6.2.6.1 Coding of condition

The condition diagnostic is coded as follows:

Bit 8: 1

Bits 7-5: 000

Bit 4: Condition as follows:

0 – Network service – Provider

1 – Network service – User

Bit 3: Condition as follows:

0 – Normal

1 – Abnormal

Bits 2-1: Condition as follows:

00 – Unknown

01 – Permanent

10 – Transient

#### 6.2.6.2 Coding of Transit network identity

The diagnostic field contains the entire transit network selection or network-specific facilities information element as applicable, including parameter name/information element identifier and length octet.

#### 6.2.6.3 Coding of CCBS indicator

The CCBS indicator is coded as follows:

Bits 8-1: 00000000 – Spare

00000001 – CCBS possible

00000010 – CCBS not possible

00000011

to – Spare

01111111

10000000

to – Spare for national use

11111110

11111111 – Reserved for extension

NOTE – Not used in [ITU-TQ.931].

#### 6.2.6.4 Coding of Call rejected diagnostic

The format of the diagnostic field for cause No. 21 is as shown in Figure 2 and Table 2.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| ext. 1 | Rejection reason | | | | | Condition | | Octet x\* |
| User-specific diagnostic | | | | | | | | x + 1\*etc. (Note 1) |
| IE type | Information element identifier | | | | | | | x + 2\*etc. (Note 2) |
| NOTE 1 – This octet may be present only if octet x indicates user specific diagnostic.  NOTE 2 – This octet may be present only if octet x indicates information element missing or information element contents are not sufficient. | | | | | | | | |

Figure 2 – Coding of diagnostic field for cause No. 21

Table 2 – Coding of diagnostic field for cause No. 21

|  |
| --- |
| *Rejection reason (octet x)*  Bits  7 6 5 4 3  0 0 0 0 0 user specific  0 0 0 0 1 information element missing  0 0 0 1 0 information element contents are not sufficient  All other values are reserved  *Condition (octet x)*  Bits  2 1  0 0 unknown  0 1 permanent  1 0 transient   1 1 spare*User specific diagnostic (octet x 1)*  Coded according to the user specification, subject to the maximum length of the Cause information element.  *Information element type (octet x  2)*  Bit  8  0 variable length information element  1 fixed length information element  *Information element identifier (octet x 2)*  Bits 7-1 encoded with the information element identifier of the missing or insufficient information element. |

#### 6.2.6.5 Coding of New destination/Called party number (new)

New destination is formatted as the called party number information element, including the information element identifier. Transit network selection may also be included.

#### 6.2.6.6 Coding of Facility identification/Rejected parameter

The coding of the facility identification is network dependent.

#### 6.2.6.7 Coding of Attribute identity

The coding of the attribute identity diagnostic is shown in Figure 3, Table 3a and Table 3b.

NOTE – Not generated by ISUP.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| ext. 0/1 | Attribute number | | | | | | | Octet x |
| ext. 0/1 | Rejected attribute | | | | | | | x + 1 |
| ext. 1 | Available attribute | | | | | | | x + 2 |
| NOTE 1 – When diagnostics information is provided, octet x and x + 1 shall be present. Octet x + 2 is optional.  NOTE 2– Octets x-x + 2 may be repeated to report multiple rejected attributes.  NOTE 3 – The extension bit (ext.) when coded 0, indicates that this diagnostic continues to the next octet. | | | | | | | | |

Figure 3 – Coding of the diagnostic field for cause Nos. 57, 58 and 65  
(Attribute identity)

Table 3a – Coding of attribute number field for cause Nos. 57, 58 and 65

|  |
| --- |
| *Attribute number (octet x)*  Bits  7 6 5 4 3 2 1 No.  0 1 1 0 0 0 1 1 Information transfer capability  0 1 1 0 0 1 0 2 Information transfer mode  0 1 1 0 0 1 1 3 Information transfer rate  0 1 1 0 1 0 0 4 Structure  0 1 1 0 1 0 1 5 Configuration  0 1 1 0 1 1 0 6 Establishment  0 1 1 0 1 1 1 7 Symmetry  0 1 1 1 0 0 0 8 Information transfer rate (dest.  orig.)  0 1 1 1 0 0 1 9 Layer identification |

Table 3b – Coding of the rejected attribute field for cause Nos. 57, 58 and 65

|  |
| --- |
| *Rejected attribute (octet x 1)*  Attribute No.  1. Information transfer capability: Bits 7-6: 00 Bits 5-1: according to Table 4-6 of [ITU-T Q.931], octet 3  2. Information transfer mode Bits 7-6: according to Table 4-6 of [ITU-T Q.931], octet 4 Bits 5-1: 00000  3. Information transfer rate Bits 7-6: 00 Bits 5-1 according to Table 4-6 of [ITU-T Q.931], octet 4  4. Structure (Note 1) Bits 7-5: according to Table 4-6 of [ITU-T Q.931], octet 4a Bits 4-1: 0000  5. Configuration (Note 1) Bits 7-4: 000 Bits 4-3: according to Table 4-6 of [ITU-T Q.931], octet 4a Bits 2-1: 00  6. Establishment (Note 1) Bits 7-3: 00000 Bits 2-1: according to Table 4-6 of [ITU-T Q.931], octet 4a  7. Symmetry (Note 1) Bits 7-6: according to Table 4-6 of [ITU-T Q.931], octet 4b Bits 5-1: 00000  8. Information transfer rate (dest.  orig.): (Note 1) Bits 7-6: 00 Bits 5-1: according to Table 4-6 of [ITU-T Q.931], octet 4b  9. Layer identification:  Bits  7 6  0 1 (layer 1) Bits 5-1 according to Table 4-6 of [ITU-T Q.931], octet 5  1 0 (layer 2) Bits 5-1 according to Table 4-6 of [ITU-T Q.931], octet 6  1 1 (layer 3) Bits 5-1 according to Table 4-6 of [ITU-T Q.931], octet 7  10. Rate multiplier:  Bit 8: 1  Bits 7-1 according to Table 4-6 of [ITU-T Q.931], octet 4.1  *Available attributes (octet x  2)*  The same coding as octet x + 1 |
| NOTE 1 – These values were defined in [ITU-T Q.931] (1988).  NOTE 2 – A description of Table 4-6 of [ITU-T Q.931] is found in 3.57 of [ITU-T Q.763]. |

#### 6.2.6.8 Coding of Channel type

The channel type is coded as follows:

Bit 8: Extension bit

Bits 7-5: spare

Bits 4-1: according to the Table 4-15 of [ITU-T Q.931] octet 3.2, channel type.

NOTE – Not generated by ISUP.

#### 6.2.6.9 Coding of Incompatible parameter

Incompatible parameter is composed of the incompatible information element identifier.

#### 6.2.6.10 Coding of Timer number

NOTE – Not generated by ISUP.

The timer number is coded in IA5 characters, e.g., T308 is coded as "3" "0" "8". The following coding is used in each octet:

Bit 8: Spare "0"

Bits 7-1: IA5 character.

#### 6.2.6.11 Coding of Message type

Message type is coded as specified in Table 4 of [ITU-T Q.763] and Table 4-2 of [ITU-T Q.931], respectively.

#### 6.2.6.12 Coding of Parameter name

Parameter name is coded as specified in Table 5 of [ITU-T Q.763].

### 6.2.7 Cause definitions

#### 6.2.7.1 Normal class

##### 6.2.7.1.1 Cause No. 1 – Unallocated (unassigned) number

This cause indicates that the called party cannot be reached because, although the called party number is in a valid format, it is not currently allocated (assigned).

##### 6.2.7.1.2 Cause No. 2 – No route to specified transit network (national use)

This cause indicates that the equipment sending this cause has received a request to route the call through a particular transit network which it does not recognize. The equipment sending this cause does not recognize the transit network either because the transit network does not exist or because that particular transit network, while it does exist, does not serve the equipment which is sending this cause.

This cause is supported on a network-dependent basis.

##### 6.2.7.1.3 Cause No. 3 – No route to destination

This cause indicates that the called party cannot be reached because the network through which the call has been routed does not serve the destination desired.

This cause is supported on a network-dependent basis.

##### 6.2.7.1.4 Cause No. 4 – Send special information tone

This cause indicates that the called party cannot be reached for reasons that are of a long-term nature and that the special information tone should be returned to the calling party.

##### 6.2.7.1.5 Cause No. 5 – Misdialled trunk prefix (national use)

This cause indicates the erroneous inclusion of a trunk prefix in the called party number.

##### 6.2.7.1.6 Cause No. 6 – Channel unacceptable

This cause indicates that the channel most recently identified is not acceptable to the sending entity for use in this call.

##### 6.2.7.1.7 Cause No. 7 – Call awarded and being delivered in an established channel

This cause indicates that the user has been awarded the incoming call, and that the incoming call is being connected to a channel already established to that user for similar calls (e.g., packet-mode ITU‑T X.25 virtual calls).

##### 6.2.7.1.8 Cause No. 8 – Pre-emption

This cause indicates that the call is being pre-empted.

##### 6.2.7.1.9 Cause No. 9 – Pre-emption – circuit reserved for reuse

This cause indicates that the call is being pre-empted and the circuit is reserved for reuse by the pre‑empting exchange.

##### 6.2.7.1.10 Cause No. 13 – Call completed elsewhere

When the S-CSCF has forked an initial INVITE request, and it has received a 2xx response associated with one of the early dialogues, the S-CSCF shall in each CANCEL request it generates insert a Reason header field with a "SIP" protocol header field parameter value, a "200" cause header field parameter value, and a "Call completed elsewhere" text header field parameter value, as specified in [RFC 3326].

##### 6.2.7.1.11 Cause No. 16 – Normal call clearing

This cause indicates that the call is being cleared because one of the users involved in the call has requested that the call be cleared.

Under normal situations, the source of this cause is not the network.

##### 6.2.7.1.12 Cause No. 17 – User busy

This cause is used to indicate that the called party is unable to accept another call because the user busy condition has been encountered. This cause value may be generated by the called user or by the network. In the case of user determine user busy, it is noted that the user equipment is compatible with the call.

##### 6.2.7.1.13 Cause No. 18 – No user responding

This cause is used when a called party does not respond to a call establishment message with either an alerting or connect indication within the prescribed period of time allocated.

##### 6.2.7.1.14 Cause No. 19 – No answer from user (user alerted)

This cause is used when the called party has been alerted but does not respond with a connect indication within a prescribed period of time.

NOTE – This cause is not necessarily generated by ITU-T Q.931 procedures but may be generated by internal network timers.

##### 6.2.7.1.15 Cause No. 20 – Subscriber absent

This cause value is used when a mobile station has logged off, radio contact is not obtained with a mobile station or if a personal telecommunication user is temporarily not addressable at any user‑network interface.

##### 6.2.7.1.16 Cause No. 21 – Call rejected

This cause indicates that the equipment sending this cause does not wish to accept this call, although it could have accepted the call because the equipment sending this cause is neither busy nor incompatible.

This cause may also be generated by the network, indicating that the call was cleared due to a supplementary service constraint. The diagnostic field may contain additional information about the supplementary service and reason for rejection.

##### 6.2.7.1.17 Cause No. 22 – Number changed

This cause is returned to a calling party when the called party number indicated by the calling party is no longer assigned. The new called party number may optionally be included in the diagnostic field. If a network does not support this cause value, cause No. 1, Unallocated (unassigned) number, shall be used.

##### 6.2.7.1.18 Cause No. 23 – Redirection to new destination

This cause is used by a general ISUP protocol mechanism that can be invoked by an exchange that decides that the call should be set up to a different called number. Such an exchange can invoke a redirection mechanism, by use of this cause value, to request a preceding exchange involved in the call to route the call to the new number.

##### 6.2.7.1.19 Cause No. 25 – Exchange – routing error

This cause indicates that the destination indicated by the user cannot be reached, because an intermediate exchange has released the call due to reaching a limit in executing the hop counter procedure.

This cause is generated by an intermediate node, which when decrementing the hop counter value, gives the result 0.

##### 6.2.7.1.20 Cause No. 26 – Non-selected user clearing

This cause indicates that the user has not been awarded the incoming call.

##### 6.2.7.1.21 Cause No. 27 – Destination out of order

This cause indicates that the destination indicated by the user cannot be reached because the interface to the destination is not functioning correctly. The term "not functioning correctly" indicates that a signalling message was unable to be delivered to the remote party; e.g., a physical layer or data link layer failure at the remote party, or user equipment offline.

##### 6.2.7.1.22 Cause No. 28 – Invalid number format (address incomplete)

This cause indicates that the called party cannot be reached because the called party number is not in a valid format or is not complete.

NOTE – This condition may be determined:

– immediately after reception of an end of pulsing (ST) signal; or

– on time-out after the last received digit.

##### 6.2.7.1.23 Cause No. 29 – Facility rejected

This cause is returned when a supplementary service requested by the user cannot be provided by the network.

##### 6.2.7.1.24 Cause No. 30 – Response to STATUS ENQUIRY

This cause is included in the STATUS message when the reason for generating the STATUS message was the prior receipt of a STATUS ENQUIRY message.

##### 6.2.7.1.25 Cause No. 31 – Normal, unspecified

This cause is used to report a normal event only when no other cause in the normal class applies.

#### 6.2.7.2 Resource unavailable class

##### 6.2.7.2.1 Cause No. 34 – No circuit/channel available

This cause indicates that there is no appropriate circuit/channel presently available to handle the call.

##### 6.2.7.2.2 Cause No. 38 – Network out of order

This cause indicates that the network is not functioning correctly and that the condition is likely to last a relatively long period of time; e.g., immediately re-attempting the call is not likely to be successful.

##### 6.2.7.2.3 Cause No. 39 – Permanent frame mode connection out of service

This cause is included in a STATUS message to indicate that a permanently established frame mode connection is out of service (e.g., due to equipment or section failure) (see Annex A of [ITU‑T Q.933]).

##### 6.2.7.2.4 Cause No. 40 – Permanent frame mode connection operational

This cause is included in a STATUS message to indicate that a permanently established frame mode connection is operational and capable of carrying user information (see Annex A of [ITU‑T Q.933]).

##### 6.2.7.2.5 Cause No. 41 – Temporary failure

This cause indicates that the network is not functioning correctly and that the condition is not likely to last a long period of time; e.g., the user may wish to try another call attempt almost immediately.

##### 6.2.7.2.6 Cause No. 42 – Switching equipment congestion

This cause indicates that the switching equipment generating this cause is experiencing a period of high traffic.

##### 6.2.7.2.7 Cause No. 43 – Access information discarded

This cause indicates that the network could not deliver access information to the remote user as requested, i.e., user-to-user information, low layer compati­bility, high layer compatibility, or sub‑address, as indicated in the diagnostic.

It is noted that the particular type of access information discarded is optionally included in the diagnostic.

##### 6.2.7.2.8 Cause No. 44 – Requested circuit/channel not available

This cause is returned when the circuit or channel indicated by the requesting entity cannot be provided by the other side of the interface.

##### 6.2.7.2.9 Cause No. 46 – Precedence call blocked

This cause indicates that there are no pre-emptable circuits or that the called user is busy with a call of equal or higher pre-emptable level.

##### 6.2.7.2.10 Cause No. 47 – Resource unavailable, unspecified

This cause is used to report a resource unavailable event only when no other cause in the resource unavailable class applies.

#### 6.2.7.3 Service or option unavailable class

##### 6.2.7.3.1 Cause No. 49 – Quality of service not available

This cause is used to report that the requested Quality of service, as defined in [ITU-T X.213], cannot be provided (e.g., throughput or transit delay cannot be supported).

##### 6.2.7.3.2 Cause No. 50 – Requested facility not subscribed

This cause indicates that the user has requested a supplementary service which is implemented by the equipment which generated this cause, but which the user is not authorized to use.

##### 6.2.7.3.3 Cause No. 53 – Outgoing calls barred within CUG

This cause indicates that although the calling party is a member of the CUG for the outgoing CUG call, outgoing calls are not allowed for this member of the CUG.

##### 6.2.7.3.4 Cause No. 55 – Incoming calls barred within CUG

This cause indicates that although the called party is a member of the CUG for the incoming CUG call, incoming calls are not allowed to this member of the CUG.

##### 6.2.7.3.5 Cause No. 57 – Bearer capability not authorized

This cause indicates that the user has requested a bearer capability which is implemented by the equipment which generated this cause but the user is not authorized to use.

##### 6.2.7.3.6 Cause No. 58 – Bearer capability not presently available

This cause indicates that the user has requested a bearer capability which is implemented by the equipment which generated this cause but which is not available at this time.

##### 6.2.7.3.7 Cause No. 62 – Inconsistency in designated outgoing access information and subscriber class

This cause indicates that there is an inconsistency in the designated outgoing access information and subscriber class.

##### 6.2.7.3.8 Cause No. 63 – Service or option not available, unspecified

This cause is used to report a service or option not available event only when no other cause in the service or option not available class applies.

#### 6.2.7.4 Service or option not implemented class

##### 6.2.7.4.1 Cause No. 65 – Bearer capability not implemented

This cause indicates that the equipment sending this cause does not support the bearer capability requested.

##### 6.2.7.4.2 Cause No. 66 – Channel type not implemented

This cause indicates that the equipment sending this cause does not support the channel type requested.

##### 6.2.7.4.3 Cause No. 69 – Requested facility not implemented

This cause indicates that the equipment sending this cause does not support the requested supplementary service.

##### 6.2.7.4.4 Cause No. 70 – Only restricted digital information bearer capability is available (national use)

This cause indicates that the calling party has requested an unrestricted bearer service but that the equipment sending this cause only supports the restricted version of the requested bearer capability.

##### 6.2.7.4.5 Cause No. 79 – Service or option not implemented, unspecified

This cause is used to report a service or option not implemented event only when no other cause in the service or option not implemented class applies.

#### 6.2.7.5 Invalid message (e.g., parameter out of range) class

##### 6.2.7.5.1 Cause No. 81 – Invalid call reference value

This cause indicates that the equipment sending this cause has received a message with a call reference which is not currently in use on the user-network interface.

##### 6.2.7.5.2 Cause No. 82 – Identified channel does not exist

This cause indicates that the equipment sending this cause has received a request to use a channel not activated on the interface for a call. For example, if a user has subscribed to those channels on a primary rate interface numbered from 1 to 12 and the user equipment or the network attempts to use channels 13 to 23, this cause is generated.

##### 6.2.7.5.3 Cause No. 83 – A suspended call exists, but this call identity does not

This cause indicates that a call resume has been attempted with a call identity which differs from that in use for any presently suspended call(s).

##### 6.2.7.5.4 Cause No. 84 – Call identity in use

This cause indicates that the network has received a call suspended request containing a call identity (including the null call identity) which is already in use for a suspended call within the domain of interfaces over which the call might be resumed.

##### 6.2.7.5.5 Cause No. 85 – No call suspended

This cause indicates that the network has received a call resume request containing a call identity information element which presently does not indicate any suspended call within the domain of interfaces over which calls may be resumed.

##### 6.2.7.5.6 Cause No. 86 – Call with the requested call identity has been cleared

This cause indicates that the network has received a call resume request containing a call identity information element indicating a suspended call that has in the meantime been cleared while suspended (either by network timeout or by the remote user).

##### 6.2.7.5.7 Cause No. 87 – User not member of CUG

This cause indicates that the called user for the incoming CUG call is not a member of the specified CUG or that the calling user is an ordinary subscriber calling a CUG subscriber.

##### 6.2.7.5.8 Cause No. 88 – Incompatible destination

This cause indicates that the equipment sending this cause has received a request to establish a call which has low layer compatibility, high layer compatibility, or other compatibility attributes (e.g., data rate) which cannot be accommodated.

##### 6.2.7.5.9 Cause No. 90 – Non-existent CUG

This cause indicates that the specified CUG does not exist.

##### 6.2.7.5.10 Cause No. 91 – Invalid transit network selection (national use)

This cause indicates that a transit network identification was received which is of an incorrect format as defined in Annex C of [ITU‑T Q.931].

##### 6.2.7.5.11 Cause No. 95 – Invalid message, unspecified

This cause is used to report an invalid message event only when no other cause in the invalid message class applies.

#### 6.2.7.6 Protocol error (e.g., unknown message) class

##### 6.2.7.6.1 Cause No. 96 – Mandatory information element is missing

This cause indicates that the equipment sending this cause has received a message which is missing an information element which must be present in the message before that message can be processed.

##### 6.2.7.6.2 Cause No. 97 – Message type non-existent or not implemented

This cause indicates that the equipment sending this cause has received a message with a message type it does not recognize either because this is a message not defined or defined but not imple­mented by the equipment sending this cause.

##### 6.2.7.6.3 Cause No. 98 – Message not compatible with call state or message type non-existent or not implemented

This cause indicates that the equipment sending this cause has received a message so that the procedures do not indicate that this is a permissible message to receive while in the call state, or a STATUS message was received indicating an incompatible call state.

##### 6.2.7.6.4 Cause No. 99 – Information element/parameter non-existent or not implemented

This cause indicates that the equipment sending this cause has received a message which includes information element(s)/parameter(s) not recognized because the information element identifier(s)/parameter name(s) is not defined or defined but not implemented by the equipment sending the cause. This cause indicates that the information element(s)/parameter(s) has been discarded. However, the information element is not required to be present in the message in order for the equipment sending the cause to process the message.

##### 6.2.7.6.5 Cause No. 100 – Invalid information element contents

This cause indicates that the equipment sending this cause has received an information element which it has implemented; however, one or more fields in the information element are coded in such a way which has not been implemented by the equipment sending this cause.

##### 6.2.7.6.6 Cause No. 101 – Message not compatible with call state

This cause indicates that a message has been received which is incompatible with the call state.

##### 6.2.7.6.7 Cause No. 102 – Recovery on timer expiry

This cause indicates that a procedure has been initiated by the expiry of a timer in association with error handling procedures.

##### 6.2.7.6.8 Cause No. 103 – Parameter non-existent or not implemented – passed on (national use)

This cause indicates that the equipment sending this cause has received a message which includes parameters not recognized because the parameters are not defined or are defined but not implemented by the equipment sending the cause. The cause indicates that the parameter(s) was ignored. In addition, if the equipment sending this cause is an intermediate point, then this cause indicates that the parameter(s) was passed on unchanged.

##### 6.2.7.6.9 Cause No. 110 – Message with unrecognized parameter discarded

This cause indicates that the equipment sending this cause has discarded a received message which includes a parameter that is not recognized.

##### 6.2.7.6.10 Cause No. 111 – Protocol error, unspecified

This cause is used to report a protocol error event only when no other cause in the protocol error class applies.

#### 6.2.7.7 Interworking class

##### 6.2.7.7.1 Cause No. 127 – Interworking, unspecified

This cause indicates that there has been interworking with a network which does not provide causes for actions it takes. Thus, the precise cause for a message which is being sent cannot be ascertained.

# 7 General rules for the handling of the location field

This clause specifies the rules for the handling of the location field in the Cause and the Progress indicator information elements/parameters.

Figure 4 shows the reference configuration which is used to identify various nodes where the location field may be generated.

Table 4 shows the setting of the location field to be generated by a node in the reference configuration and the location field information expected by user A in each case.

The handling of the location field shall be according to the following rules:

i) If the event causing the generation of the location field takes place in an international exchange (i.e., incoming or outgoing or international transit exchange), the location shall be set to *International network*.

ii) If the event causing the generation of the location field takes place in a national transit network, the location shall be set to *Transit network*.

iii) If the event causing the generation of the location field takes place in the public network serving the user, the location shall be set to *Public network serving the local user* or *Public network serving the remote user* on the basis of network configuration.

NOTE – Locations *User* and *Private network serving the local user* shall not begenerated in public networks.

iv) If the event causing the generation of the location field takes place in the private network, the location shall be set to *Private network serving the local user* or *Private network serving the remote user* on the basis of network configuration.

v) If interworking with a signalling system which cannot convey location informa­tion is encountered, and if a message containing a location field is sent because of the receipt of information from such a signalling system, the location shall be set to *Network beyond interworking point*.

As a consequence of these rules:

– The location Public network serving the local user can be sent over a transit network or can be converted to Public network serving the remote user according to the structure of the national network and/or agreements between the network operators involved in the call. In any case the location Public network serving the local user shall not be sent over the international network.

– The location Private network serving the local user shall not be sent over the public network. The conversion from Private network serving the local user to Private network serving the remote user, if required, shall take place in the private network initially generating the location information.

In addition, the network may optionally check and, if necessary, change the location when it crosses a network boundary. The definition of the boundaries between transit networks and public networks serving the local/remote users is dependent on network structure and is subject to agreement between network operators or to national regulations.

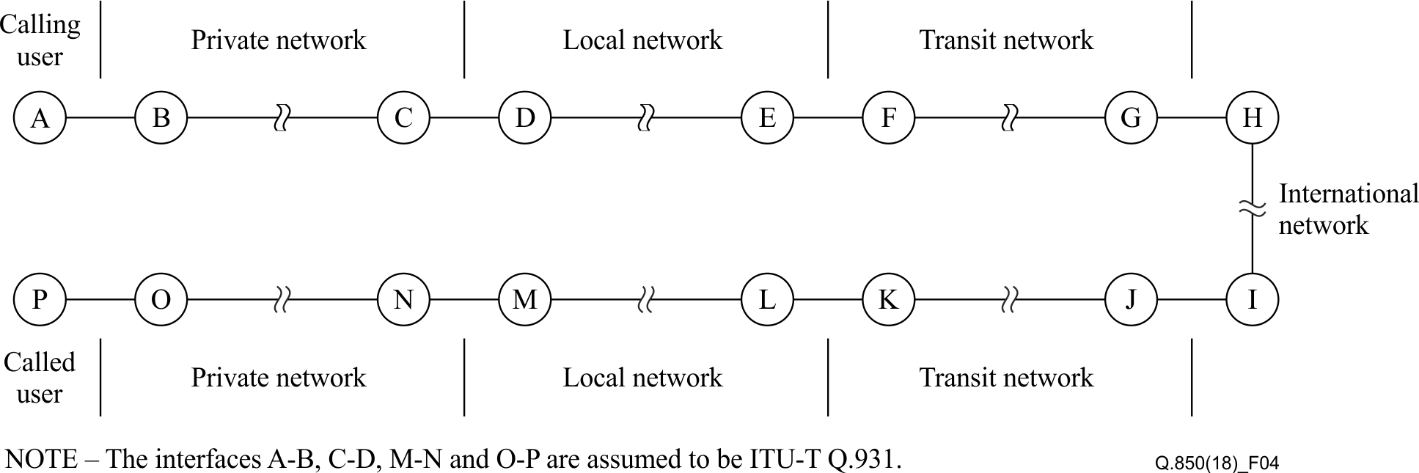


Figure 4 – Reference configuration for location field generation

Table 4 – The setting of location fields by events at nodes of the reference  
configuration and values expected to be received by user A

|  |  |  |
| --- | --- | --- |
| Node generating location field | Location field setting, in the direction towards user A | Location setting expected by user A |
| B | LPN | LPN |
| C | LPN | LPN |
| D | LN | LN |
| E | LN | LN |
| F | TN | TN |
| G | TN | TN |
| H | INTL | INTL |
| I | INTL | INTL |
| J | TN | TN |
| K | TN | TN |
| L | LN or RLN | RLN |
| M | LN or RLN | RLN |
| N | RPN | RPN |
| O | LPN or RPN | RPN |
| P | U | U |
| LPN Private network serving the local user LN Public network serving the local user TN Transit network INTL International network RLN Public network serving the remote user RPN Private network serving the remote user U User | | |

# 8 Handling of cause and location at the international interface

This clause contains clarification of the usage of cause values and the handling of location indicators on the international interface.

a) *Usage of causes*

Setting Cause values Nos. 18 and 19, and using location "public or private network serving the remote user" or any other cause with location "user or private network serving the remote user" should imply that the call has reached the called party, i.e., end-to-end fields have been transmitted.

National networks should make sure, to avoid public network misuse, that the following locations are not generated on the access:

– Public;

– International;

– Transit network;

– Beyond an interworking point.

The cause value sent is the one of the latest occurred event (e.g., retransmitting of the release message).

b) *Handling of location indicators*

If the event causing the sending of the cause indicators parameter takes place in the international exchange (i.e., incoming, outgoing or intermediate international exchange), the location will be set to "0111 International network".

If interworking is encountered in the international exchange and if a message containing the cause indicators parameter is sent because of the receipt of a message of the other signalling system, the location will be set to "1010 Beyond an interworking point" (BI).

The location "public network serving the local user" or "private network serving the local user" should not be sent on the international section. The conversion from "public network serving the local user" to "public network serving the remote user" or "private network serving the local user" to "private network serving the remote user" shall take place in the national network generating the cause.

For the handling of locations reserved for national use, see clause 9.

In all other cases the international exchange will pass on the received location.

By using this solution, it is impossible to distinguish a national location "transit network" from a location "transit network beyond the international boundary".

The real location where the event was generated is lost when interworking: for example, CGC and NNC in Telephone User Part are coded "34,BI". In spite of that, the limitations of this solution are accepted because they are considered as acceptable for this ISDN User Part version.

# 9 Procedures for the handling of location values reserved for national use (national option)

The values 1100, 1101, 1110 and 1111 of the location field are reserved for national use and can be sent over a national network.

If a network generates one of these values:

– If the call is an international call, before sending the value of the location over the international network, the national network shall convert this value to *Public network serving the remote user* or *Transit network* or *Network beyond interworking point* according to the structure of the national network and/or agreements between the network operators involved in the call. In any case, a value of the location reserved for national use shall not be sent over the international network.

– Before sending a value of the location reserved for national use to an ISDN user, the national network shall convert this value to *Public network serving the remote user* or *Transit network* or *Public network serving the local user* or *Network beyond interworking point* according to the structure of the national network and/or agreements between the network operators involved in the call. In any case, a value of the location reserved for national use shall not be sent to an ISDN user.

An ISDN user shall not generate a location value reserved for national use.

Bibliography

[b-ITU-T Q.1031] Recommendation ITU-T Q.1031 (1988), *General signalling requirements on interworking between the ISDN or PSTN and the PLMN.*  
<<http://handle.itu.int/11.1002/1000/1786>>

[b-ITU-T Q.1051] Recommendation ITU-T Q.1051 (1988), *Mobile application Part.*  
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1. \* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>. [↑](#footnote-ref-1)