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SERIES Q: SWITCHING AND SIGNALLING

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

ITU-T Recommendation Q.850

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION Q.850

USAGE OF CAUSE AND LOCATION IN THE DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 1 AND THE SIGNALLING SYSTEM No. 7 ISDN USER PART

Summary

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.

Source

ITU-T Recommendation Q.850 was revised by ITU-T Study Group 11 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 15th of May 1998.

FOREWORD

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The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 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 Q.850

USAGE OF CAUSE AND LOCATION IN THE DIGITAL SUBSCRIBER
SIGNALLING SYSTEM No. 1 AND THE SIGNALLING
SYSTEM No. 7 ISDN USER PART

(revised in 1998)

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 Cause

2.1 Format

Format of Q.931 Cause information element or Q.763/Q.730 Cause indicators parameters contents is shown in Figure 1.

								Octet (Note 3)					
8	7	6	5	4	3	2	1	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, octet including this field shall be omitted.
NOTE 2 – The Recommendation field is not supported by the ISUP. The default interpretation for ISUP is Q.763.
NOTE 3 – Optional octets are marked with asterisks (*).

Figure 1/Q.850 – Format of "Cause"

2.2 Codes used in the sub-field of the "Cause"

2.2.1 Extension indicator (ext.)

Bit
8
0 octet continues through the next octet (e.g. octet 1 to 1a)
1 last octet

2.2.2 Coding standard

Bits	
<u>7 6</u>	
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.

2.2.3 Location

Bits	
<u>4 3 2 1</u>	
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.

2.2.4 Recommendation

Bits	
<u>7 6 5 4 3 2 1</u>	
0 0 0 0 0 0 0	Q.931
0 0 0 0 0 1 1	X.21
0 0 0 0 1 0 0	X.25
0 0 0 0 1 0 1	public land mobile networks, Q.1031/Q.1051

All other values are reserved.

NOTE – If octet including this field is omitted, Recommendation Q.931 is assumed.

2.2.5 Cause value (only applicable in the context of Recommendations Q.763 and Q.931)

The cause value is divided into two fields, a class (bits 5 through 7) and a value within the class (bits 1 through 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/Q.850 – Cause information element/parameter

Cause			Definition	Diagnostics	Application (Note 1)	Reference (Note 2)	Location (Note 3)	Remarks
Class	Value	No.						
000	0001	1	Unallocated (unassigned) number	Condition	DSS 1, ISUP	Q.931	U, RPN, LN	No route by digit analysis
000	0010	2	No route to specified transit network	Transit network identify	DSS 1, ISUP(NU)	Q.931	LN, TN	
000	0011	3	No route to destination	Condition	DSS 1, ISUP	Q.931	U, RPN, LN	
000	0100	4	Send special information tone		ISUP			Clause 7/Q.35
000	0101	5	Misdialled trunk prefix		ISUP(NU)			
000	0110	6	Channel unacceptable		DSS 1	Q.931	LN	
000	0111	7	Call awarded and being delivered in an established channel		DSS 1	Q.931	LN	
000	1000	8	Preemption		DSS 1, ISUP	Q.735.3 Q.955.3		MLPP
000	1001	9	Preemption – circuit reserved for reuse		ISUP	Q.735.3		MLPP
001	0000	16	Normal call clearing	Condition	DSS 1, ISUP	Q.931, 2.3/Q.764	U, RPN	
001	0001	17	User busy	CCBS indicator	DSS 1, ISUP	Q.931, Q.732 Q.733.3	U, RPN, RLN	Basic call and call diversion services
001	0010	18	No user responding		DSS 1, ISUP	Q.931, Q.732	RLN	Call diversion services
001	0011	19	No answer from user (user alerted)		DSS 1, ISUP	Q.931 2.1.4/Q.764 2.9.8.3/Q.764	RLN RLN, TN, INTL	Expiry of waiting ANM timer (T9)
001	0100	20	Subscriber absent		DSS 1, ISUP	Q.732	RLN	Call diversion services Mobile application

Table 1/Q.850 – Cause information element/parameter (continued)

Cause			Definition	Diagnostics	Application (Note 1)	Reference (Note 2)	Location (Note 3)	Remarks
Class	Value	No.						
001	0101	21	Call rejected	Call rejected condition	DSS 1, ISUP	Q.931 Q.732	U, RPN RLN	Call diversion services
001	0110	22	Number changed	New destination (DSS 1)/ Called party number (ISUP)	DSS 1, ISUP	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	Q.931	LN	
001	1011	27	Destination out of order		DSS 1, ISUP	Q.931	RLN	
001	1100	28	Invalid number format (address incomplete)		DSS 1, ISUP	Q.931 2.1.1/Q.764 2.1.2/Q.764 2.9.8.3/Q.764 2.2.5/Q.764 Annex A/Q.763	U, RPN, RLN, LN TN, INTL TN, INTL, RLN, RPN	The called party number is not in a valid format or is not complete
001	1101	29	Facility rejected	Facility identification (DSS 1)/ Parameter name (ISUP)	DSS 1, ISUP	Q.931	RLN, U, RPN, LN TN, INTL	Inability to provide a request signalling capability
001	1110	30	Response to STATUS ENQUIRY		DSS 1	Q.735.1 Q.737.1 Q.931	INTL, RLN INTL, TN, RLN U, LN	CUG UUS