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ITU-T

Annex A
Q.601-Q.695

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TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

INTERWORKING OF SIGNALLING SYSTEMS

INTERWORKING OF SIGNALLING SYSTEMS – LISTS AND MEANINGS OF FITEs, BITEs AND SPITEs – REPRESENTATION OF INFORMATION CONTENTS OF SIGNALS OF THE SIGNALLING SYSTEMS

Annex A to ITU-T Recommendations Q.601 to Q.695

(Previously "CCITT Recommendation")

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FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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

Annex A to ITU-T Recommendations Q.601-Q.695 was revised by the ITU-T Study Group XI (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

2 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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Annex A

Interworking of Signalling Systems – Lists and meanings of FITEs, BITEs and SPITEs – Representation of information contents of signals of the Signalling Systems

(Geneva, 1980; modified at Helsinki, 1993)

(This annex forms an integral part of Recommendations Q.601-Q.695)

TABLE A.1/Q.601-Q.695[1)]

List of Forward Interworking Telephone Events (FITEs)

No.	Forward interworking telephone events	Equivalent with signal of signalling system						
		No. 4	No. 5	No. 6	No. 7 (TUP)	R1	R2	No. 7 (ISUP)
1	Digit 1, 2, ... 9 or 0, code 11 or 12, end-of-pulsing (ST) signal	1	1	1	1	1	1	a)
2	Country-code indicator, country code not included	8	8	2	2		18	a)
3	Country-code indicator, country code included	9	9	3	3			a)
4	Echo-suppressor indicator, outgoing half-echo suppressor not included, incoming half-echo suppressor not required			6	6		19	a)
5	Echo-suppressor indicator, outgoing half-echo suppressor included, incoming half-echo suppressor required	10		7	7		11	a)
6	Country-code indicator, country code included; echo-suppressor indicator, outgoing half-echo suppressor not included, outgoing half-echo suppressor required						8	
7	Country-code indicator, country code included; echo-suppressor indicator, outgoing half-echo suppressor not included, no echo suppressor required						9	
8	Country-code indicator, country code included; echo-suppressor indicator, outgoing half-echo suppressor included, incoming half-echo suppressor required						10	
9	Calling-party's-category indicator, operator, language French	2	2	8	8		2	a)
10	Calling-party's-category indicator, operator, language English	3	3	9	9		3	a)

1) Explanatory notes to this table will be found in subclauses A.1 to A.1.12.

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TABLE A.1/Q.601-Q.695[1] *(continued)*

List of Forward Interworking Telephone Events (FITEs)

No.	Forward interworking telephone events	Equivalent with signal of signalling system						
		No. 4	No. 5	No. 6	No. 7 (TUP)	R1	R2	No. 7 (ISUP)
11	Calling-party's-category indicator, operator, language German	4	4	10	10		4	a)
12	Calling-party's-category indicator, operator, language Russian	5	5	11	11		5	a)
13	Calling-party's-category indicator, operator, language Spanish	6	6	12	12		6	a)
14	Calling-party's-category indicator, operator, with forward-transfer facility						15	
15	Calling-party's-category indicator, subscriber						7	
16	Calling-party's-category indicator, subscriber or operator without forward-transfer facility						12	
17	Calling-party's-category indicator, subscriber, ordinary call	7	7	13	13			a)
18	Calling-party's-category indicator, subscriber, call with priority			14	14		14	a)
19	Calling-party's-category indicator, data call			15	15		13	a)
20	Nature-of-circuit indicator, no satellite circuit in the connection			4	4			a)
21	Nature-of-circuit indicator, one satellite circuit in the connection			5	5			a)
22	Clear-forward	11	10	16	16	3	16	
23	Forward-transfer	12	11	17	17	2		a)
24	Continuity			18	18			a)
25	Continuity-check indicator, continuity check not required				21			a)
26	Continuity-check indicator, continuity check required on this circuit				20			a)
27	Continuity-check indicator, continuity check being done on previous circuit				22			a)
28								
29	Spare							
30	Service information				23			a)
31	General set-up message (GSM)				24			

[1] Explanatory notes to this table will be found in subclauses A.1 to A.1.12.

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TABLE A.1/Q.601-Q.695[1] *(end)*

List of Forward Interworking Telephone Events (FITEs)

No.	Forward interworking telephone events	Equivalent with signal of signalling system						
		No. 4	No. 5	No. 6	No. 7 (TUP)	R1	R2	No. 7 (ISUP)
32	Information message (INF)							
33	Delayed release (DRS)							
34	Suspend							a)
35	Resume							a)
36	Pass along message (PAM)							
37	Call modification request (CMR)							
38	Call modification completed (CMC)							
39	Call modification reject (CMRJ)							
A	Call set-up information (IAM)							a)
Z	Release							a)
a) Information exists.								

A.1 Explanatory notes on the meanings and uses of FITEs (see Table A.1)

These are Forward Interworking Telephone Events sent from an incoming procedure to an interworking procedure, or from an interworking procedure to an outgoing procedure.

A.1.1 FITE 1 means one of the digits 1-9, 0, code 11, code 12 and code 15 (ST), when used as an *address signal* (i.e. not including their use for other information, e.g. language digits). Each FITE 1 represents one digit only and that digits value is implicit in the signal.

A.1.2 FITEs 2, 3, 6, 7 and 8 are events representing *country code indicators*. These signals are not sent from the incoming procedure to the interworking procedure, since the country code indicator is a link dependent signal and is used by the incoming procedure as part of the input information to the digit analysis. These FITEs are generated in the interworking procedure by the use of SPITE 22 (see Table A.3).

A.1.3 FITEs 4-8 are events representing *echo-suppressor indicators*. These signals are not sent from the incoming procedure to the interworking procedure, since the echo-suppressor indicator is a link dependent signal and is used by the incoming procedure as part of the input information to the digit analysis. These FITEs are generated in the interworking procedure by the use of SPITE 21 (see Table A.3).

A.1.4 FITEs 9-19 are events representing *calling-party's category indicators* and include telephone events derived from language digits, discriminating digits and calling-party's-category signals.

1) Explanatory notes to this table will be found in subclauses A.1 to A.1.12.

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A.1.5 FITEs 20 and 21 are events representing *nature-of-circuit indicators*. These signals are not sent from the incoming procedure to the interworking procedure, but the nature-of-circuit indicator is used by the incoming procedure as part of the input information to the digit analysis. These FITEs are generated in the interworking procedure by the use of SPITE 20 (see Table A.3). These signals are not completely link dependent, since if the nature-of-circuit indicator on the incoming circuit implies one satellite in the connection, the same signal (FITE 21) will be sent to the outgoing procedure.

A.1.6 FITE 22 is an event representing the *clear-forward signal* and overrides all other procedures. It should therefore be shown as an input in all call states except idle, even though the waiting state might not appear to be capable of receiving FITE 22.

A.1.7 FITE 23 is an event representing the *forward-transfer signal* and is assumed to be capable of reception after the state *Address-complete* when the register function is deactivated and the speech condition is set up.

A.1.8 FITE 24 is an event representing the *continuity signal* in common channel signalling systems. When interworking from a channel associated signalling system to a common channel signalling system, FITE 24 must be generated by the interworking procedure.

A.1.9 FITEs 25, 26, 27 are events which define the continuity check requirements on outgoing circuits for common channel systems.

A.1.10 FITE 30 is an event which defines the Services which have been requested and can be provided e.g., Speech, Closed User Group, Digital Connectivity, etc.

A.1.11 FITE 31 is an event which defines the information to be carried by the General Set-up Message (GSM).

A.1.12 FITE A contains all the information elements which can be carried by the Initial Address Message (IAM) of Signalling System No. 7 ISUP.

TABLE A.2/Q.601-Q.695[2)]

List of Backward Interworking Telephone Events (BITEs)

No.	Backward interworking telephone events	Equivalent with signal of signalling system						
		No. 4	No. 5	No. 6	No. 7 (TUP)	R1	R2	No. 7 (ISUP)
1	Spare							
2	Address-complete, charge	1		1	1		2	a)
3	Address-complete, no charge			2	2			a)
4	Address-complete, coin box			3	3			a)
5	Address-complete, subscriber free, charge			4	4		8 & 13	a)
6	Address-complete, subscriber free, no charge			5	5		9	a)
7	Address-complete, subscriber free, coin box			6	6			a)
8	Call unsuccessful	2	1					
9	Call unsuccessful, switching-equipment congestion			7	7			a)

2) Explanatory notes to this table will be found in subclauses A.2 to A.2.16.

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TABLE A.2/Q.601-Q.695[2] *(continued)*

List of Backward Interworking Telephone Events (BITEs)

No.	Backward interworking telephone events	Equivalent with signal of signalling system						
		No. 4	No. 5	No. 6	No. 7 (TUP)	R1	R2	No. 7 (ISUP)
12	Call unsuccessful, national-network congestion			9	9		1	
13	Call unsuccessful, address-complete, national network congestion						6 & 15	
14	Call unsuccessful, address incomplete			10	10			a)
15	Call unsuccessful (address-complete), unallocated number			11	11		7 & 14	a)
16	Call unsuccessful, address-complete, subscriber busy (elec.)			12	12		5	a)
17	Call unsuccessful, address-complete, line out-of-service			13	13		10	a)
18	Spare							
19	Call unsuccessful, call-failure			15	15			a)
20	Call unsuccessful, send special information tone			14	14		4 & 14	a)
21	Answer, subscriber free						11	
22	Answer, subscriber free, charge	3	2	16	16	1		a)
23	Answer, subscriber free, no charge			17	17			a)
24	Answer, re-answer			18	18			
25	Clear-back	4	3	19	19	2	12	
26	Artificial address-complete may be sent (Note)		4			3		
27	Sending-finished; set up speech condition (Note)		5			4		
28	Deactivate register function (Note)							
29	Release incoming side (Note)							
30	Switchthrough may be completed (Note)							
31	General request message (GRQ)				20			
32	Information request message (INR)							a)
33	Release (normal call clearing)							a)

2) Explanatory notes to this table will be found in subclauses A.2 to A.2.16.

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TABLE A.2/Q.601-Q.695[2] *(end)*

List of Backward Interworking Telephone Events (BITEs)

No.	Backward interworking telephone events	Equivalent with signal of signalling system						
		No. 4	No. 5	No. 6	No. 7 (TUP)	R1	R2	No. 7 (ISUP)
36	Call unsuccessful, digital patch not provided				22			
37	Delayed release (DRS)							a)
38	Suspend (user)							a)
39	Resume (user)							a)
40	Pass along message (PAM)							
41	Call modification request (CMR)							
42	Call modification completed (CMC)							
43	Call modification reject (CMRJ)							
44	ACM call forwarded							
45	ACM call not forwarded							
46	ACM redirection prohibited							
47	Call progress message (CPG)							a)
48	Connect message (CON)							a)
49	Bearer capability not provided							
X	Address complete (ACM)							a)
Y	Answer (ANM)							a)
Z	Release message							a)

a) Information exists.

NOTE – These signals do not necessarily correspond to a backward but correspond to logic events.

A.2 Explanatory notes on the meanings and uses of BITEs (see Table A.2)

These are Backward Interworking Telephone Events sent from an outgoing procedure to an interworking procedure, or from an interworking procedure to an incoming procedure.

2) Explanatory notes to this table will be found in subclauses A.2 to A.2.16.

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A.2.1 BITE 2 is an *address-complete event* which may be originated either by the receipt of an address complete signal or by the simulation of the address complete condition from a signalling system not employing address complete signals. This latter event is designated BITE 26, when signalling from the outgoing procedure to the interworking procedure. Since in most cases the forward signalling continues beyond the time that the address-complete is simulated, BITE 2 does not cause register deactivation in the incoming logic in the way that BITEs 3-7 do. The incoming procedure must wait for the subsequent reception of BITE 27 or BITE 28 (see A.2.7 and A.2.8).

A.2.2 BITEs 3-7 are *address-complete events* which cause the speech condition to be set up and the register function to be deactivated.

A.2.3 BITEs 8-17, 19, 20 are *call unsuccessful events* which cause the return of a corresponding event to the incoming procedure where the register function will be deactivated. They are separated according to the reasons of an unsuccessful call.

A.2.4 BITEs 21-24 are *answer events*, differentiated where possible.

A.2.5 BITE 25 is the event representing the *clear-back signal.*

A.2.6 BITE 26 is an event signalling the *simulation of address-complete* condition by an outgoing signalling system which does not employ address-complete signals (e.g. No. 5 or R1). If the incoming signalling system uses address-complete signals, BITE 26 is translated to BITE 2 in the interworking procedures, in other cases it is discarded.

A.2.7 BITE 27 means that an outgoing signalling system which does not employ address-complete signals has *completed forward signalling* (e.g. ST has been sent) and the *speech condition should be set up*. When used, it will follow after BITE 26.

For incoming signalling systems employing address-complete signals, BITE 27 will always be expected after BITE 2. Therefore when both interworking systems employ address-complete signals, the interworking procedure must translate BITE 2 to BITE 2 + BITE 27.

A.2.8 BITE 28 is used only from an interworking procedure to an incoming procedure in the case where a BITE is received from the outgoing procedure which has no corresponding BITE in the incoming procedure. A tone will be returned by the use of SPITE 6 in the interworking procedure, and BITE 28 is used solely to deactivate the register function in the incoming procedure.

A.2.9 BITE 29 *release incoming side*, is used from an interworking procedure to an incoming procedure for incoming systems where release procedures may be initiated in the backward direction (e.g. the INMARSAT signalling system).

A.2.10 BITE 30 *switchthrough may be completed* is used to signal from an outgoing procedure to an incoming procedure via the relevant interworking, that the speech path may be connected through.

A.2.11 BITE 31 is an event which requests the information asked for by the General Request Message (GRQ).

A.2.12 BITE 35 is a call unsuccessful event corresponding to the receipt of the Access Barred Signal (ACB). This BITE is used e.g. in Closed User Group calls.

A.2.13 BITE 36 is a call unsuccessful event that occurs when a digital path cannot be provided.

NOTE – BITEs 35 and 36 are only used in No. 7 originated calls.

A.2.14 BITE X contains all the information elements which can be carried by the Address Complete Message (ACM) of Signalling System No. 7 ISUP.

A.2.15 BITE Y contains all the information elements which can be carried by the Answer Message (ANM) of Signalling System No. 7 ISUP.

A.2.16 BITE Z contains all the information elements which can be carried by the Backward Release Message (REL) of Signalling System No. 7 ISUP.

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TABLE A.3/Q.601-Q.695[3)]

List of Switching Processing Interface Telephone Events (SPITEs)

No.	Designation	Symbol
1	Activate register function (physical register or equivalent function)	Task
2	Register function activated	Internal input
3	Deactivate register function	Task
4	Set up speech condition	Task
4A	Speech path may be set up	Task
5	Release speech condition (of the speech part in the exchange)	Task
6	Return appropriate tone	Task
7	Disconnect tone	Task
8	Release all equipment (covers also disconnection of tones; exclusively used at the incoming procedures)	Task
9	Spare	
10	Spare	
11	Shall digit analysis be started?	Decision
12	Perform digit analysis	Task
13	Digit analysis cannot be completed (covers insufficient information, waiting for enough digits for routing, etc.)	Internal input
14	Routing information	Internal input
15	Unallocated number	Internal input
16	Unprovided routing (e.g. transit connection received at an exchange handling termination traffic only)	Internal input
17	Barred routing	Internal input
18	Switching equipment congestion	Internal input
19	Circuit group congestion	Internal input
20	Satellite link included?	Decision
21	Incoming half-echo suppressor to be included at distant end?	Decision
22	Transit connection following? (otherwise a terminal connection is following)	Decision
23	Has Z-digit been received?	Decision
24	Is this the Z-digit?	Decision
25 to 30	Spare	
31	Perform continuity check at the outgoing end (covers all necessary switching procedures: – connecting of the transceiver – disabling of echo suppressors – sending check tone – automatic re-attempts, where applicable)	Task
32	Insert check loop at the incoming end (including disabling of echo suppressors)	Task
33	Continuity check OK (covers also recieving of checktone and removal of the transceiver)	Internal input
34	Remove check loop at the incoming end (including enabling of echo suppressors)	Task
35	Ignore further register signals	Task
36	Is continuity check required on outgoing circuit?	Decision
37	Analyse and store service requests (applicable for GSM and INF)	Task
38	Access barred/call rejected	Internal input
39	64 kbit/s digital path not possible/available	Internal input
40	Store services provided	Task
41	Service information	Internal output
42	Additional information required	Internal input

3) Explanatory notes to this table will be found in subclauses A.3 to A.3.32.

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