INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.950
(06/2000)

SERIES Q: SWITCHING AND SIGNALLING

Digital subscriber Signalling System No. 1 – Stage 3
description for supplementary services using DSS1

Supplementary services protocols, structure and general principles

ITU-T Recommendation Q.950

ITU-T Q-SERIES RECOMMENDATIONS

SWITCHING AND SIGNALLING

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

ITU-T Recommendation Q.950

Supplementary services protocols, structure and general principles

Summary

This Recommendation provides an overview of the ITU-T Q.95x-series of Recommendations on the Stage 3 descriptions of ISDN Supplementary Services and the general principles on which these Stage 3 descriptions are based. The ITU-T Q.95x-series of Recommendations is structured and numbered in a similar manner to the ITU-T I.25x-series of Recommendations on Stage 1 ISDN supplementary services descriptions and the ITU-T Q.8x-series of Recommendations on Stage 2 descriptions.

The ITU-T Q.95x-series of Recommendations cover the protocol descriptions for DSS1. An overview of the SS No. 7 protocol descriptions is provided in ITU-T Q.730 [1].

The Stage 3 protocol descriptions in the ITU-T Q.95x-series using the Facility Information Element of the Functional Protocol are based on the generic procedures established in ITU-T Q.932 [5]. Any of the generic procedures in ITU-T Q.932 [5] (Keypad, Feature Key Management and Functional Protocols) can be used for the control of supplementary services. The detailed functional protocol procedures are provided in the ITU-T Q.95x-series Recommendations.

This Recommendation lists the allocated INTEGER values for operations and errors defined in ITU-T Q.932 [5] and for supplementary services defined within the ITU-T Q.95x-series Recommendations. The individual ERROR values are complemented by a brief definition of the error characteristics.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. 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, 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 WTSC 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.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

CONTENTS

ITU-T Recommendation Q.950

Supplementary services protocols, structure and general principles

1 Scope

This Recommendation provides an overview of the ITU-T Q.95x-series of Recommendations on the Stage 3 descriptions of ISDN Supplementary Services and the general principles on which these Stage 3 descriptions are based.

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 published regularly.

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

[2] ITU-T Q.775 (1997), *Guidelines for using transaction capabilities*.

[3] ITU-T Q.920 (1993), *ISDN user-network interface data link layer – General aspects*.

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

[5] ITU-T Q.932 (1998), *Digital Subscriber Signalling System No. 1. Generic procedures for the control of ISDN supplementary services*.

[6] ITU-T Q.951.1 (1992), *Stage 3 description for number identification supplementary services using DSS 1: Direct-dialling-in (DDI)*.

[7] ITU-T Q.951.2 (1992), *Stage 3 description for number identification supplementary services using DSS 1: Multiple subscriber number (MSN)*.

[8] ITU-T Q.951.3 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Calling line identification presentation*.

[9] ITU-T Q.951.4 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Calling line identification restriction*.

[10] ITU-T Q.951.5 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Connected line identification presentation*.

[11] ITU-T Q.951.6 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Connected line identification restriction*.

[12] ITU-T Q.951.7 (1997), *Stage 3 description for number identification supplementary services using DSS 1: Malicious call identification (MCID)*.

[13] ITU-T Q.951.8 (1992), *Stage 3 description for number identification supplementary services using DSS 1: Sub-addressing (SUB)*.

[14] ITU-T Q.952 (1993), *Stage 3 service description for call offering supplementary services using DSS 1 – Diversion supplementary services*.

[15] ITU-T Q.952.7 (1997), *Stage 3 description for call offering supplementary services using DSS 1: Explicit call transfer (ECT)*.

[16]   ITU-T Q.953, *Stage 3 description for call completion supplementary services using DSS 1.*

[17]   ITU-T Q.953.1 (1992), *Stage 3 description for call completion supplementary services using DSS 1: Call waiting.*

[18]   ITU-T Q.953.2 (1993), *Stage 3 description for call completion supplementary services using DSS 1: Call hold.*

[19]   ITU-T Q.953.3 (1997), *Stage 3 description for call completion supplementary services using DSS 1: Completion of calls to busy subscribers (CCBS).*

[20]   ITU-T Q.953.4 (1995), *Stage 3 description for call completion supplementary services using DSS 1: Terminal Portability (TP).*

[21]   ITU-T Q.953.5 (1999), *Stage 3 description for call completion supplementary services using DSS 1: Call Completion on No Reply (CCNR).*

[22]   ITU-T Q.954, *Stage 3 description for multiparty supplementary services using DSS 1.*

[23]   ITU-T Q.954.1 (1993), *Stage 3 description for multiparty supplementary services using DSS 1: Conference calling.*

[24]   ITU-T Q.954.2 (1995), *Stage 3 description for multiparty supplementary services using DSS 1: Three-party service (3PTY).*

[25]   ITU-T Q.955, *Stage 3 description for community of interest supplementary services using DSS 1.*

[26]   ITU-T Q.955.1 (1992), *Stage 3 description for community of interest supplementary services using DSS 1: Closed user group.*

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

[28]   ITU-T Q.956, *Stage 3 description for charging supplementary services using DSS 1.*

[29]   ITU-T Q.956.2 (1995), *Stage 3 description for charging supplementary services using DSS 1: Advice of charge.*

[30]   ITU-T Q.956.3 (1995), *Stage 3 description for charging supplementary services using DSS 1: Reverse charging.*

[31]   ITU-T Q.957, *Stage 3 description for additional information transfer supplementary services using DSS 1.*

[32]   ITU-T Q.957.1 (1996), *Stage 3 description for additional information transfer supplementary services using DSS 1: User-to-user signalling (UUS).*

[33]   CCITT X.208 (1988) | ISO/IEC 8824:1990, *Specification of Abstract Syntax Notation One (ASN.1).*

[34]   CCITT X.219 (1988) | ISO/IEC 9072-1:1989, *Remote Operations: Model, notation and service definition.*

[35]   CCITT X.229 (1988) | ISO/IEC 9072-2:1989, *Remote operations: Protocol specification.*

[36]   ITU-T X.680 (1997) | ISO/IEC 8824-1:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*

[37]   ITU-T X.880 (1994) | ISO/IEC 13712-1:1995, *Information technology – Remote Operations: Concepts, model and notation.*

3 Description

3.1 Structure of ITU-T Q.95x-series Recommendations

The Q.95x-series of Recommendations is structured and numbered in a similar manner to the ITU-T I.25x-series of Recommendations on Stage 1 ISDN supplementary services descriptions and the ITU-T Q.8x-series of Recommendations on Stage 2 descriptions.

The ITU-T Q.95x-series of Recommendations cover the protocol descriptions for DSS1. An overview of the SS No. 7 protocol descriptions is provided in ITU-T Q.730 [1].

The Stage 3 supplementary services definitions are structured as follows:

ITU-T Q.951	Number Identification supplementary services
Clause 1	Direct-Dialling-In (DDI) [6]
Clause 2	Multiple Subscriber Number (MSN) [7]
Clause 3	Calling Line Identification Presentation (CLIP) [8]
Clause 4	Calling Line Identification Restriction (CLIR) [9]
Clause 5	Connected Line Identification Presentation (COLP) [10]
Clause 6	Connected Line Identification Restriction (COLR) [11]
Clause 7	Malicious Call Identification (MCID) [12]
Clause 8	Sub-addressing (SUB) [13]
ITU-T Q.952	Call Offering supplementary services
Clause 2	Call Forwarding Busy (CFB) [14]
Clause 3	Call Forwarding No Reply (CFNR) [14]
Clause 4	Call Forwarding Unconditional (CFU) [14]
Clause 5	Call Deflection (CD) [14]
Clause 7	Explicit Call Transfer (ECT) [15]
ITU-T Q.953	Call Completion supplementary services
Clause 1	Call Waiting (CW) [17]
Clause 2	Call Hold (HOLD) [18]
Clause 3	Completion of Calls to Busy Subscriber (CCBS) [19]
Clause 4	Terminal Portability (TP) [20]
Clause 5	Completion of Calls on No Reply (CCNR) [21]
ITU-T Q.954	Multiparty supplementary services
Clause 1	Conference Calling (CONF) [23]
Clause 2	Three-Party (3PTY) [24]
ITU-T Q.955	Community of Interest supplementary services
Clause 1	Closed User Group (CUG) [26]
Clause 3	Multi-level Precedence and Preemption (MLPP) [27]
ITU-T Q.956	Charging supplementary services
Clause 2	Advice of Charge (AOC) [29]
Clause 3	Reverse Charging (REV) [30]
ITU-T Q.957	Additional Information Transfer supplementary services
Clause 1	User-to-User Signalling (UUS) [32]

4 General principles

4.1 Generic protocol procedures

The Stage 3 protocol descriptions in the ITU-T Q.95x-series using the Facility information element of the Functional protocol are based on the generic procedures established in ITU-T Q.932 [5]. Any of the generic procedures in ITU-T Q.932 [5] (Keypad, Feature Key, and functional protocols) can be used for the control of supplementary services. The detailed functional protocol procedures are provided in the ITU-T Q.95x-series Recommendations.

4.2 ASN.1 data type

The operation required by the ITU-T Q.95x supplementary services using the ITU-T Q.932 [5] Functional procedures are defined as ASN.1 data types in the ITU-T Q.95x-series of Recommendations. This Recommendation contains the definition of DSS1 operation values and errors as a Library of these values. These operation and error values can be imported and used as required by the individual supplementary services. Their associated detailed definitions of operations and errors using ASN.1 (Abstract Syntax Notation One) are provided in the ITU-T Q.95x-series of Recommendations for the individual services.

4.3 Generic syntax of operations

This clause provides the definition of data related functions associated with a particular service. The operation is derived from the remote operations concept defined in ITU-T X.219 [34] and ITU-T X.229 [35] and allows the data structures transmitted for a particular object to be defined in terms of an invoke, return result or a return error. The concrete syntax and thus the particular protocol to be implemented are provided in the definition of the protocol to be used and as defined in the individual Recommendations of the ITU-T Q.95x-series. These definitions may be provided in informal text or using the formal ASN.1 notation employing the OPERATION and ERROR macros defined in ITU-T X.219 [34].

4.3.1 Specification of operations

Module identifier

The module identifier is a unique identifier in order to identify ASN.1 modules.

The module identifier shall follow a uniform structure with the individual Recommendation clause number as value for the identification of the supplementary service concerned as given in the following example on Call Diversion:

{ccitt recommendation q 952 call-diversion (2) operations-and-errors (1)}

To specify an operation, the following must be defined:
–   the operation name;
–   the operation value;
–   the operation class;
–   the supporting parameters, if any;
–   the error codes and associated parameters, if any;
–   the required linked operations; if any.

Operation name

A unique name, in order to identify the operation from another operation within the same set of standards.

Operation value

A unique identifier to the Application Entity (AE) being defined. The identifier may be:

–   local, i.e. specific to the application context in which it is being used; or

–   global, i.e. specified using an object identifier and unique worldwide.

The choice of the above will be affected by whether the value is to be imported or exported to other Application Service Elements (ASEs).

NOTE 1 – The use of any library method for operations and data elements may also affect this choice.

Operation class

The definition of the operation must define the class of operation required, as specified in ITU-T X.219 [34] (or ITU-T Q.775 [2] with different class numbers) and identified below:

–   Operation class 1:

      Synchronous, reporting success or failure (result or error).

      NOTE 2 – This class is not used by TCAP, and may not be appropriate to DSS1.

–   Operation class 2 (TCAP class 1):

      Asynchronous, reporting success or failure (result or error).

–   Operation class 3 (TCAP class 2):

      Asynchronous, reporting failure (error) only, if any.

–   Operation class 4 (TCAP class 3):

      Asynchronous, reporting success (result) only.

–   Operation class 5 (TCAP class 4):

      Asynchronous, outcome not supported.

The most useful of these classes of operation will be operation classes 2 and 5.

NOTE 3 – Some protocols may not support all classes of operation. If there is not a common subset, then this could cause problems in the specification of those protocols where a class is not supported.

The supporting parameters

The operation class will define which components are required. The required components shall consist of an invoke component, and optionally a return result, or a return error component.

The invoke component may optionally (as specified by a particular operation) contain further essential information to supplement that provided by the instance of the operation, defined by the operation value. The allowed information shall be specified as the ARGUMENT.

The return result component may optionally (as specified by a particular operation) contain further essential information to supplement that provided by the instance of the result component in the operation. The allowed information shall be specified as the RESULT.

The return error component may optionally (as specified by a particular operation) contain parameter(s) indicating the reason for the failure response. The list of valid errors shall be specified as ERRORS.

Error codes and supporting parameters

Each specified error in the ERRORS, shall be specified using the following information:

–   the error name;

–   the error value;

–   the supporting parameters, if any.

The error name shall be a unique name, in order to identify the error from any other error within the same set of standards.

The error identifier shall be a unique identifier to the ASE being defined. The identifier may be:

– local, i.e. specific to the application context in which it is being used; or

– global, i.e. specified using an object identifier and unique worldwide.

The choice of the above will be affected by whether the value is to be imported or exported to other ASEs.

The error may optionally (as specified by a particular error) contain additional information. This shall be specified as PARAMETER.

Linked operations

In some instances it may be necessary to group operations into a set of linked operations, formed by one-parent operation and one or more child operations.

5 Library of operation values

5.1 Assignment of INTEGER values for operations and errors

This clause lists the allocated INTEGER values for operations and errors defined in ITU-T Q.932 [5] and for supplementary services defined within the ITU-T Q.95x-series of ITU-T Recommendations.

This assignment includes INTEGER values specified in ITU-T Recommendations that have been published previously, in addition to INTEGERs assigned to new supplementary services which at the moment may not be ready for approval. The individual ERROR values are complemented by a brief definition of the error characteristics.

As a general guideline for the specification work, all operations and errors should be defined and exported by type rather than value. This allows for the re-use of defined errors and operations in other contexts by allowing a different value assignment than what is documented in this Recommendation. The only execution to this rule should be the errors defined by value in the General Error List in 5.1.3. These errors can be imported by value and used by the relevant supplementary service modules, where required.

5.1.1 Operation value assignment

Table 1 shows the values assigned to the defined operations.

Table 1/Q.950 – Operations and their assigned values

Name	Value	Module of definition
userUserService	1	{ccitt recommendation q 957 user-to-user-signalling (1) operations-and-errors (1)}
cUGCallOperation	2	{ccitt recommendation q 955 cug (1)}
mcidRequest	3	{ccitt recommendation q 951 mcid (7) operations-and-errors (1)}
begin3PTY	4	{ccitt recommendation q 954 three-party (2) operations-and-errors (1)}
end3PTY	5	{ccitt recommendation q 954 three-party (2) operations-and-errors (1)}
eCTRequest	6	{ccitt recommendation q 952 explicit-call-transfer (7) operations-and-errors (1)}
activationDiversion	7	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
deactivationDiversion	8	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
activationStatusNotificationDiv	9	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
deactivationStatusNotificationDiv	10	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
interrogationDiversion	11	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
diversionInformation	12	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
callDeflection	13	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
callRerouting	14	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
divertingLegInformation2	15	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
invokeStatus	16	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
interrogationDiversion1	17	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
divertingLegInformation1	18	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
divertingLegInformation3	19	{ccitt recommendation q 952 diversion (2) operations-and-errors (1)}
explicitReservationCreationControl	20	{ccitt recommendation q 932 explicit-network-controlled-channel-reservation (4)}
explicitReservationManagement	21	{ccitt recommendation q 932 explicit-network-controlled-channel-reservation (4)}
explicitReservationCancel	22	{ccitt recommendation q 932 explicit-network-controlled-channel-reservation (4)}
mLPPLFBquery	24	{ccitt recommendation q 955 mlpp (3) operations-and-errors (1)}
mLPPCallrequest	25	{ccitt recommendation q 955 mlpp (3) operations-and-errors (1)}
mLPPCallpreemption	26	{ccitt recommendation q 955 mlpp (3) operations-and-errors (1)}

Table 1/Q.950 – Operations and their assigned values

Name	Value	Module of definition
chargingRequest	30	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
aOCSCurrency	31	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
aOCSSpecialArr	32	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
aOCDCurrency	33	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
aOCDChargingUnit	34	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
aOCECurrency	35	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
aOCEChargingUnit	36	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
identificationOfCharge	37	{ccitt recommendation q 956 advice-of-charge (2) operations-and-errors (1)}
beginCONF	40	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
addCONF	41	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
splitCONF	42	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
dropCONF	43	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
isolateCONF	44	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
reattachCONF	45	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
partyDISC	46	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
floatCONF	47	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
endCONF	48	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
identifyConferee	49	{ccitt recommendation q 954 conference-add-on-operations-and-errors (1)}
requestREV	60	{ccitt recommendation q 956 reverse-charging (3) operations-and-errors (1)}
rEVIndication	61	{ccitt recommendation q 956 reverse-charging (3) operations-and-errors (1)}
rEV-T-Status	62	{ccitt recommendation q 956 reverse-charging (3) private-networks-operation (2)}
uUSRequest	66	{ccitt recommendation q 957 user-to-user signalling (1) operations-and-errors (1)}
callInfoRetain	70	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSRequest	71	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}

Table 1/Q.950 – Operations and their assigned values

Name	Value	Module of definition
cCBSDeactivate	72	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSInterrogate	73	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSErase	74	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSRemoteUserFree	75	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSCall	76	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSStatusRequest	77	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSBFree	78	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
eraseCallLinkageID	79	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBSStopAlerting	80	{ccitt recommendation q 953 ccbs (3) operations-and-errors (1)}
cCBS-T-Request	83	{ccitt recommendation q 953 ccbs (3) private-networks-operations-and-errors (2)}
cCBS-T-Call	84	{ccitt recommendation q 953 ccbs (3) private-networks-operations-and-errors (2)}
cCBS-T-Suspend	85	{ccitt recommendation q 953 ccbs (3) private-networks-operations-and-errors (2)}
cCBS-T-Resume	86	{ccitt recommendation q 953 ccbs (3) private-networks-operations-and-errors (2)}
cCBS-T-RemoteUserFree	87	{ccitt recommendation q 953 ccbs (3) private-networks-operations-and-errors (2)}
cCBS-T-Available	88	{ccitt recommendation q 953 ccbs (3) private-networks-operations-and-errors (2)}
explicitEctExecute	90	{ccitt recommendation q 952 explicit-call-transfer (7) operations-and-errors (1)}
requestSubaddress	91	{ccitt recommendation q 952 explicit-call-transfer (7) operations-and-errors (1)}
subaddressTransfer	92	{ccitt recommendation q 952 explicit-call-transfer (7) operations-and-errors (1)}
ectLinkIdRequest	93	{ccitt recommendation q 952 explicit-call-transfer (7) operations-and-errors (1)}
ectInform	94	{ccitt recommendation q 952 explicit-call-transfer (7) operations-and-errors (1)}
ectLoopTest	95	{ccitt recommendation q 952 explicit-call-transfer (7) operations-and-errors (1)}
cCNRRequest	96	{ccitt recommendation q 953 ccnr (5) operations-and-errors (1)}
cCNRInterrogate	97	{ccitt recommendation q 953 ccnr (5) operations-and-errors (1)}
cCNR-T-Request	98	{ccitt recommendation q 953 ccnr (5) private-network-operations-and-errors (2)}

5.1.2 Error value assignment

Table 2 shows the values assigned to the defined errors.

Table 2/Q.950 – Errors and their assigned values

Errors	Value	Implemented in
userNotSubscribed	0	CD, CFU, CFB, CFNR, CUG, 3PTY, AOC, CONF, MCID, MLPP, Rec. Q.932, REV
rejectedByNetwork	1	UUS, MLPP, REV
rejectedByUser	2	UUS, REV
notAvailable	3	CD, CFU, CFB, CFNR, Rec. Q.932, 3PTY, AOC, CONF, MCID, REV
insufficientInformation	5	Used by some national implementations
invalidServedUserNr	6	CD, CFU, CFB, CFNR
invalidCallState	7	3PTY, AOC, CONF, MCID, REV
basicServiceNotProvided	8	CUG, CD, CFU, CFB, CFNR, CONF, REV
notIncomingCall	9	MCID
supplementaryServiceInteractionNotAllowed	10	3PTY, CONF, MCID, REV, AOC
resourceUnavailable	11	CD, CFU, CFB, CFNR, 3PTY, CONF, REV
invalidDivertedNr	12	CD, CFU, CFB, CFNR
operatorAccess	13	CD, CFU, CFB, CFNR
specialServiceNr	14	CD, CFU, CFB, CFNR
diversionToServedUserNr	15	CD, CFU, CFB, CFNR
invalidOrUnregisteredCUGIndex	16	CUG
requestedBasicServiceViolatesCUGConstraints	17	CUG
outgoingCallsBarredWithinCUG	18	CUG
incomingCallsBarredWithinCUG	19	CUG
userNotMemberOfCUG	20	CUG
inconsistencyInDesignatedFacilityAndSubscriberClass	21	CUG
incomingCallAcceptedByOtherTerminal	23	CD, CFU, CFB, CFNR
numberOfDiversionCounterExceeded	24	CD, CFU, CFB, CFNR
callFailure	25	CD, CFU, CFB, CFNR
noChargingInfoAvailable	26	AOC
illConferenceId	28	CONF
illPartyID	29	CONF
numberOfPartiesExceeded	30	CONF
notActive	31	CONF
notAllowed	32	CONF
maximumNumberOfReservationsReached	33	Rec. Q.932

Table 2/Q.950 – Errors and their assigned values

Errors	Value	Implemented in
noExplicitReservationExistsOrInvalidReservation Indicator	34	Rec. Q.932
unwantedReservationCreated	35	Rec. Q.932
implicitReservationUsed	36	Rec. Q.932
proceduralError	43	REV
unauthorizedPrecedenceLevel	44	MLPP
userIgnored	45	REV
notActivated	46	CD, CFU, CFB, CFNR
uusReqAsEssential	47	CD, CFU, CFB, CFNR
rEVIsAlreadyRunning	49	REV
invalidCallLinkageID	50	CCBS, CCNR
invalidCCBSReference	51	CCBS, CCNR
longTermDenial	52	CCBS, CCNR
shortTermDenial	53	CCBS, CCNR
cCBSIsAlreadyActivated	54	CCBS, CCNR
AlreadyAccepted	55	CCBS, CCNR
OutgoingCCBSQueueFull	56	CCBS, CCNR
CallFailureReasonNotBusy	57	CCBS
NotReadyForCall	58	CCBS, CCNR
ShortTermDenial (Note – For private ISDNs)	59	CCBS, CCNR
LongTermDenial (Note – For private ISDNs)	60	CCBS, CCNR
LinkIdNotAssignedByNetwork	61	ECT

5.1.3   Definition of the general error list

5.1.3.1   Definition according to the ASN.1 syntax specified in ITU-T X.208 [33]/ ITU-T X.219 [34]

General-Error-List {ccitt recommendation q 950 general-error-list (1)}

DEFINITIONS   ::=

BEGIN

EXPORTS   userNotSubscribed,
                              rejectedByNetwork,
                              rejectedByUser,
                              notAvailable,
                              insufficientInformation,
                              invalidServedUserNr,
                              invalidCallState,
                              basicServiceNotProvided,
                              notIncomingCall,
                              supplementaryServiceInteractionNotAllowed,
                              resourceUnavailable,
                              callFailure,
                              proceduralError;

userNotSubscribed   **ERROR ::=0**

--   *is an indication that the user has not subscribed to this service.*

rejectedByNetwork   **ERROR ::=1**

--   *is an indication that the requested service is rejected by the network.*

rejectedByUser   **ERROR ::=2**

--   *is an indication that the requested service is provided by the network but that the remote user has rejected this*
--   *service request.*

notAvailable   **ERROR ::=3**

--   *is an indication that the user has subscribed to this service but the requested service is not available combined*
--   *with the basic service or the other services (e.g. operation).*

insufficientInformation   **ERROR ::=5**

--   *is an indication that the content of operation argument is incomplete, or absent entirely.*

invalidServedUserNr   **ERROR ::=6**

--   *is an indication that the requested service cannot be performed because of the usage of an invalid served user*
--   *number.*

invalidCallState   **ERROR ::=7**

--   *is an indication that no match exists between the service request and the valid Basic, Call Control State; this*
--   *applies also to invalid auxiliary states or an invalid combination of Basic call states and auxiliary states.*

basicServiceNotProvided   **ERROR ::=8**

--   *is an indication that the service request is directed to a Basic Service which is not provided (e.g. this return*
--   *error value is used when a supplementary service is invoked with a SETUP message).*

notIncomingCall   **ERROR ::=9**

--   *is an indication that the service request has been invoked for an outgoing call, which is not permitted for that*
--   *service.*

supplementaryServiceInteractionNotAllowed
                                                        ERROR ::=10

--   *is an indication that the service request is not permitted in combination with either a further requested or active*
--   *supplementary service.*

resourceUnavailable   **ERROR ::=11**

--   *is an indication that the service provider has temporarily no resource available for the provision of the*
--   *requested service.*

callFailure   **ERROR ::=25**

--   *is an indication that the requested supplementary service was not executable by virtue of a Basic Call Failure.*

proceduralError   **ERROR ::=43**

--   *is an indication that a transport message (e.g. SETUP, REGISTER etc.) is received which has one or more*
--   *operation PDUs which have a valid content but which are not specified as valid information content of the*
--   *transport message used.*

END

--   *end of General ERROR List*

5.1.3.2 Definition according to the ASN.1 syntax specified in ITU-T X.680 [36]/ ITU-T X.880 [37]

General-Error-List {ccitt recommendation q 950 general-error-list(1)}
DEFINITIONS ::=

BEGIN

EXPORTS   userNotSubscribed,
                            rejectedByNetwork,
                            rejectedByUser,
                            notAvailable,
                            insufficientInformation,
                            invalidServedUserNr,
                            invalidCallState,
                            basicServiceNotProvided,
                            notIncomingCall,
                            supplementaryServiceInteractionNotAllowed,
                            resourceUnavailable,
                            callFailure,
                            proceduralError;

userNotSubscribed   ERROR ::= {CODE local:0}

--   is an indication that the user has not subscribed to this service.

rejectedByNetwork   ERROR ::= {CODE local:1}

--   is an indication that the requested service is rejected by the network.

rejectedByUser   ERROR ::= {CODE local:2}

--   is an indication that the requested service is provided by the network but that the remote user has
--   rejected this service request.

notAvailable   ERROR ::= {CODE local:3}

--   is an indication that the user has subscribed to this service but the requested service is not available
--   combined with the basic service or the other services (e.g. operation).

insufficientInformation   ERROR ::= {CODE local:5}

--   is an indication that the content of operation argument is incomplete, or absent entirely.

invalidServedUserNr   ERROR ::= {CODE local:6}

--   is an indication that the requested service cannot be performed because of the usage of an invalid
--   served user number.

invalidCallState   ERROR ::= {CODE local:7}

--   is an indication that no match exists between the service request and the valid Basic, Call Control State;
--   this applies also to invalid auxiliary states or an invalid combination of Basic call states and auxiliary
--   states.

basicServiceNotProvided   ERROR ::= {CODE local:8}

--   is an indication that the service request is directed to a Basic Service which is not provided (e.g. this
--   return error value is used when a supplementary service is invoked with a SETUP message).

notIncomingCall   ERROR ::= {CODE local:9}

--   is an indication that the service request has been invoked for an outgoing call, which is not permitted
--   for that service.

supplementaryServiceInteractionNotAllowed
                           ERROR ::= {CODE local:10}

--   is an indication that the service request is not permitted in combination with either a further requested
--   or active supplementary service.

resourceUnavailable   ERROR ::= {CODE local:11}

-- 		*is an indication that the service provider has temporarily no resource available for the provision of the*
-- 		*requested service.*

callFailure   ERROR ::= {CODE local:25}

-- 		*is an indication that the requested supplementary service was not executable by virtue of a Basic Call*
-- 		*Failure.*

proceduralError   ERROR ::= {CODE local:43}

-- 		*is an indication that a transport message (e.g. SETUP, REGISTER etc.) is received which has one or*
-- 		*more operation PDUs which have a valid content but which are not specified as valid information*
-- 		*content of the transport message used.*

END -- of General-Errors

5.1.4   List of service-specific Errors

5.1.4.1   Definition according to the ASN.1 syntax specified in ITU-T X.208 [33]/ITU-T X.219 [34]

invalidDivertedNr   ERROR ::=12

-- 		*is an indication that the diverted to number delivered with the service request has been determined to be*
-- 		*invalid.*

operatorAccess   ERROR ::=13

-- 		*is an indication that the diverted to number delivered with the service request is an operator assistance number*
-- 		*or one which includes an operator assistance number to which diversion is not allowed.*

SpecialServiceNr   ERROR ::=14

-- 		*is an indication that the diverted to number delivered with the service request belongs to a special service to*
-- 		*which diversion is not allowed.*

diversionToServedUserNr   ERROR ::=15

-- 		*is an indication that the diverted to number delivered with the service request is the served users own number.*
-- 		*Return to own number is not permitted.*

invalidOrUnregisteredCUGIndex   ERROR ::=16

-- 		*is an indication delivered with a rejected call request and indicating that the CUG index does not exist at the*
-- 		*service provider's database.*

RequestedBasicServiceViolatesCUGConstraints
                                    ERROR ::=17

-- 		*is an indication delivered with a rejected call request and indicating that the CUG index exists but is not*
-- 		*appropriate to the requested basic service.*

outgoingCallsBarredWithinCUG   ERROR ::=18

-- 		*is an indication delivered with a rejected call request and indicating that the CUG user is prohibited from*
-- 		*making calls to users subscribed to the same CUG.*

incomingCallsBarredWithinCUG   ERROR ::=19

-- 		*is an indication delivered with a rejected call request and indicating that the CUG user is prohibited from*
-- 		*receiving calls from users subscribed to the same CUG.*

userNotMemberOfCUG   ERROR ::=20

-- 		*is an indication that no match exists between the CUG interlock code and the CUG-index at the called user*
-- 		*side.*

inconsistencyInDesignatedFacilityAndSubscriberClass
                                                              ERROR ::=21

--   *is an indication delivered with a rejected call request and indicating that the attributes assigned to a CUG*
--   *user do not match with the CUG information received from the calling user.*

incomingCallAcceptedByOtherTerminals   **ERROR ::=23**

--   *is an indication, for example, to a CFB user that the incoming call has been accepted by another terminal at the*
--   *same access.*

numberOfDiversionCounterExceeded   **ERROR ::=24**

--   *is an indication from the service provider delivered with a service request rejection and indicating that the*
--   *allowed maximum number of diverted connections is exceeded.*

noChargingInfoAvailable   **ERROR ::=26**

--   *is an indication that the charging information cannot be sent to the served user due to a fault situation in*
--   *the network.*

illConferenceId   **ERROR ::=28**

--   *is an indication that the conference ID used by the served user is not associated with a conference.*

illPartyId   **ERROR ::=29**

--   *is an indication that the Party ID used by the served user is not associated with a conference party.*

numberOfPartiesExceeded   **ERROR ::=30**

--   *is an indication that the conference bridge cannot accept this additional party since the maximum number of*
--   *parties has already been reached.*

notActive   **ERROR ::=31**

--   *is an indication that the conference bridge cannot accept the service request because the conference has not*
--   *been successfully established.*

notAllowed   **ERROR ::=32**

--   *is an indication that the conference bridge cannot accept the service request because the call to be added has*
--   *not been routed via the conference bridge, or cannot be routed via the conference bridge.*

maximumNumberOfReservationsReached   **ERROR ::=33**

--   *is an indication that the network is unable to provide the requested reservation since the allowed maximum*
--   *number of reservations has already been reached for the Connection Endpoint Identifier (CEI).*

noExplicitReservationExistsOrInvalidReservationIndicator
                                                              ERROR ::=34

--   *is an indication that the network is unable to provide the requested reservation function (e.g. reservation*
--   *creation or cancellation of a reservation) since no explicit reservation is in use or the reservation indicator*
--   *used is not valid.*

unwantedReservationCreated   **ERROR ::=35**

--   *is an indication that the network has created a reservation either explicit or implicit in case that no explicit*
--   *reservation management request was included in a call control message.*

implicitReservationUsed   **ERROR ::=36**

--   *is an indication that the network uses an existing implicit reservation in case that no explicit reservation request*
--   *was included in a call control message.*

unauthorizedPrecedenceLevel   **ERROR ::=44**

--   *is an indication that the calling user has exceeded the authorized maximum precedence level.*

userIgnored   **ERROR ::=45**

--   *is an indication that the remote user has ignored the service request (neither explicit acceptance nor rejection*
--   *by the remote user).*

notActivated   **ERROR ::=46**

--   *is an indication of a call diversion failure due to the fact that the supplementary service has not been activated.*

uusReqAsEssential   **ERROR ::=47**

--   *is an indication of a call diversion failure due to the fact that the UUS supplementary service has been*
--   *requested as essential.*

rEVIsAlreadyRunning   **ERROR ::=49**

--   *is an indication that a request for the REV supplementary service is rejected by the network due to the fact that*
--   *it is already invoked.*

invalidCallLinkageID   **ERROR ::=50**

--   *is an indication that the CCBS request has failed because the network has received an invalid call linkage*
--   *value.*

invalidCCBSReference   **ERROR ::=51**

--   *is an indication that the network cannot perform the requested action because the received CCBS reference*
--   *value is invalid.*

longTermDenial   **ERROR ::=52**
--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the*
--   *CCBS supplementary service is not available to the destination network or user (used at the user A coincident S*
--   *and T reference point).*

shortTermDenial   **ERROR ::=53**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service due to a*
--   *temporary (fault) situation at the destination network or user (used at the user A coincident S and T reference*
--   *point).*

cCBSIsAlreadyActivated   **ERROR ::=54**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the*
--   *user has already activated the CCBS supplementary service for the call identified by the call linkage value.*

alreadyAccepted   **ERROR ::=55**

--   *is an indication that the network cannot accept the CCBS call because another user has already responded to*
--   *the CCBS recall indication.*

outgoingCCBSQueueFull   **ERROR ::=56**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because user*
--   *A's CCBS queue is full.*

callFailureReasonNotBusy   **ERROR ::=57**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the call*
--   *failure reason was not due to the destination user being "busy".*

notReadyForCall   **ERROR ::=58**

--   *is an indication that the network cannot accept the CCBS call as identified by the CCBS reference because the*
--   *network is still monitoring the destination user for becoming free.*

shortTermDenial   **ERROR ::=59**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service due to a*
--   *temporary (fault) situation at the destination network or user (used when user A is connected to a private ISDN).*

longTermDenial   ERROR ::=60

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the*
--   *CCBS supplementary service is not available to the destination network or user (used when user A is connected*
--   *to a private ISDN).*

linkIdNotAssignedByNetwork   ERROR ::=61

--   *is an indication that the network cannot accept the request to transfer a call because the received link*
--   *identification value has not been assigned by the network.*

5.1.4.2   Definition according to the ASN.1 syntax specified in ITU-T X.680 [36]/ ITU-T X.880 [37]

invalidDivertedNr   ERROR ::= {CODE local:12}

--   *is an indication that the diverted to number delivered with the service request has been determined to be*
--   *invalid.*

operatorAccess   ERROR ::= {CODE local:13}

--   *is an indication that the diverted to number delivered with the service request is an operator assistance number*
--   *or one which includes an operator assistance number to which diversion is not allowed.*

SpecialServiceNr   ERROR ::= {CODE local:14}

--   *is an indication that the diverted to number delivered with the service request belongs to a special service to*
--   *which diversion is not allowed.*

diversionToServedUserNr   ERROR ::= {CODE local:15}

--   *is an indication that the diverted to number delivered with the service request is the served users own number.*
--   *Return to own number is not permitted.*

invalidOrUnregisteredCUGIndex   ERROR ::= {CODE local:16}

--   *is an indication delivered with a rejected call request and indicating that the CUG index does not exist at the*
--   *service provider's database.*

RequestedBasicServiceViolatesCUGConstraints
                                     ERROR ::= {CODE local:17}

--   *is an indication delivered with a rejected call request and indicating that the CUG index exists but is not*
--   *appropriate to the requested basic service.*

outgoingCallsBarredWithinCUG   ERROR ::= {CODE local:18}

--   *is an indication delivered with a rejected call request and indicating that the CUG user is prohibited from*
--   *making calls to users subscribed to the same CUG.*

incomingCallsBarredWithinCUG   ERROR ::= {CODE local:19}

--   *is an indication delivered with a rejected call request and indicating that the CUG user is prohibited from*
--   *receiving calls from users subscribed to the same CUG.*

userNotMemberOfCUG   ERROR ::= {CODE local:20}

--   *is an indication that no match exists between the CUG interlock code and the CUG-index at the called user*
--   *side.*

inconsistencyInDesignatedFacilityAndSubscriberClass
                                       ERROR ::= {CODE local:21}

--   *is an indication delivered with a rejected call requested and indicating that the attributes assigned to a CUG*
--   *user do not match with the CUG information received from the calling user.*

incomingCallAcceptedByOtherTerminals   ERROR ::= {CODE local:23}

--   *is an indication, for example, to a CFB user that the incoming call has been accepted by another terminal at the*
--   *same access.*

numberOfDiversionCounterExceeded　　　　ERROR ::= {CODE local:24}

-- 　　　*is an indication from the service provider delivered with a service request rejection and indicating that the*
-- 　　　*allowed maximum number of diverted connections is exceeded.*

noChargingInfoAvailable　　　　ERROR ::= {CODE local:26}

-- 　　　*is an indication that the charging information cannot be sent to the served user due to a fault situation in*
-- 　　　*the network.*

illConferenceId　　　　ERROR ::= {CODE local:28}

-- 　　　*is an indication that the conference ID used by the served user is not associated with a conference.*

illPartyId　　　　ERROR ::= {CODE local:29}

-- 　　　*is an indication that the Party ID used by the served user is not associated with a conference party.*

numberOfPartiesExceeded　　　　ERROR ::= {CODE local:30}

-- 　　　*is an indication that the conference bridge cannot accept this additional party since the maximum number of*
-- 　　　*parties has already been reached.*

notActive　　　　ERROR ::= {CODE local:31}

-- 　　　*is an indication that the conference bridge cannot accept the service request because the conference has not*
-- 　　　*successfully been established.*

notAllowed　　　　ERROR ::= {CODE local:32}

-- 　　　*is an indication that the conference bridge cannot accept the service request because the call to be added has*
-- 　　　*not been routed via the conference bridge, or cannot be routed via the conference bridge.*

maximumNumberOfReservationsReached　　　　ERROR ::= {CODE local:33}

-- 　　　*is an indication that the network is unable to provide the requested reservation since the allowed maximum*
-- 　　　*number of reservations has already been reached for the Connection Endpoint Identifier (CEI).*

noExplicitReservationExistsOrInvalidReservationIndicator
　　　　　　　　　　　　　　　　　　　　ERROR ::= {CODE local:34}

-- 　　　*is an indication that the network is unable to provide the requested reservation function (e.g. reservation*
-- 　　　*creation or cancellation of a reservation) since no explicit reservation is in use or the reservation indicator*
-- 　　　*used is not valid.*

unwantedReservationCreated　　　　ERROR ::= {CODE local:35}

-- 　　　*is an indication that the network has created a reservation either explicit or implicit in case that no explicit*
-- 　　　*reservation management request was included in a call control message.*

implicitReservationUsed　　　　ERROR ::= {CODE local:36}

-- 　　　*is an indication that the network uses an existing implicit reservation in case that no explicit reservation request*
-- 　　　*was included in a call control message.*

unauthorizedPrecedenceLevel　　　　ERROR ::= {CODE local:44}

-- 　　　*is an indication that the calling user has exceeded the authorized maximum precedence level.*

userIgnored　　　　ERROR ::= {CODE local:45}

-- 　　　*is an indication that the remote user has ignored the service request (neither explicit acceptance nor rejection*
-- 　　　*by the remote user).*

notActivated　　　　ERROR ::= {CODE local:46}

-- 　　　*is an indication of a call diversion failure due to the fact that the supplementary service has not been activated.*

uusReqAsEssential　　　　ERROR ::= {CODE local:47}

-- 　　　*is an indication of a call diversion failure due to the fact that the UUS supplementary service has been*
-- 　　　*requested as essential.*

rEVIsAlreadyRunning   **ERROR ::= {CODE local:49}**

--   *is an indication that a request for the REV supplementary service is rejected by the network due to the fact that*
--   *it is already invoked.*

invalidCallLinkageID   **ERROR ::= {CODE local:50}**

--   *is an indication that the CCBS request has failed because the network has received an invalid call linkage*
--   *value.*

invalidCCBSReference   **ERROR ::= {CODE local:51}**

--   *is an indication that the network cannot perform the requested action because the received CCBS reference*
--   *value is invalid.*

longTermDenial   **ERROR ::= {CODE local:52}**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the*
--   *CCBS supplementary service is not available to the destination network or user (used at the user A coincident S*
--   *and T reference point).*

shortTermDenial   **ERROR ::= {CODE local:53}**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service due to a*
--   *temporary (fault) situation at the destination network or user (used at the user A coincident S and T reference*
--   *point).*

cCBSIsAlreadyActivated   **ERROR ::= {CODE local:54}**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the*
--   *user has already activated the CCBS supplementary service for the call identified by the call linkage value.*

alreadyAccepted   **ERROR ::= {CODE local:55}**

--   *is an indication that the network cannot accept the CCBS call because another user has already responded to*
--   *the CCBS recall indication.*

outgoingCCBSQueueFull   **ERROR ::= {CODE local:56}**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because user*
--   *A's CCBS queue is full.*

callFailureReasonNotBusy   **ERROR ::= {CODE local:57}**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the call*
--   *failure reason was not due to the destination user being "busy".*

notReadyForCall   **ERROR ::= {CODE local:58}**

--   *is an indication that the network cannot accept the CCBS call as identified by the CCBS reference because the*
--   *network is still monitoring the destination user for becoming free.*

shortTermDenial   **ERROR ::= {CODE local:59}**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service due to a*
--   *temporary (fault) situation at the destination network or user (used when user A is connected to a private ISDN).*

longTermDenial   **ERROR ::= {CODE local:60}**

--   *is an indication that the network cannot accept the request for the CCBS supplementary service because the*
--   *CCBS supplementary service is not available to the destination network or user (used when user A is connected*
--   *to a private ISDN).*

linkIdNotAssignedByNetwork   **ERROR ::= {CODE local:61}**

--   *is an indication that the network cannot accept the request to transfer a call because the received link*
--   *identification value has not been assigned by the network.*

APPENDIX I

Clause headings of each Recommendation

Each clause of each Recommendation of the ITU-T Q.95x-series is numbered similarly. The following format should be used. Headings which are not applicable (e.g. "Activation/deactivation/ registration"), should be entered to preserve the numbering sequence of the clauses. The text of each clause should read: "No signalling procedure is defined".

The clause on interaction with other supplementary services (clause 12) should only contain interactions among the services that are under consideration at present. Other future services should be marked "No applicable interaction at this time". It is intended that text specifying the possible interaction with other supplementary services should be documented only in one Recommendation, for any two supplementary services. As ITU-T Recommendations are issued at different times, it is advisable to consult the latest issued Recommendation for the most correct specification of possible supplementary service interactions.

The following definitions may be appropriate for the description of supplementary service interactions, to be used as appropriate:

Connection Endpoint Identifier (CEI): see 3.4.1/Q.920.

Local interaction for the access: the calls for which the local interaction exists are at the same access.

Local interaction for the call: the local interaction exists on a single call, i.e. both supplementary services are invoked for the same call.

Local interaction for the CEI: the calls for which the local interaction exists are at the same access, and are identified by the same CEI.

Local interaction: an interaction of the protocol for two or more supplementary services where the served user (of all supplementary services) is on the same access.

No impact: the interaction between the two identified supplementary services contains no requirements for the protocol over and above the requirements of the Recommendation for each individual supplementary service.

NOTE – Other aspects of interactions that do not affect the DSS1 protocol are covered in the service description for the relevant supplementary services.

Not applicable: the interaction between the two identified supplementary services is outside the scope of this Recommendation, e.g. the interaction is between the supplementary service and itself, and is therefore covered in the Recommendation for the individual supplementary service.

Remote interaction: an interaction of the protocol for two or more supplementary services where one user is the served user for one supplementary service and (for the same call) the remote user for another supplementary service. The interaction for the served user's supplementary service exists at the remote user.

Clause headings

1 Scope

2 References

3 Definition

4 Abbreviations

5 Description

6 Operational requirements

6.1 Provision/withdrawal

NOTE 4 – The layout may not be followed completely by all Recommendations of the ITU-T Q.95x-series.

SERIES OF ITU-T RECOMMENDATIONS

Series A   Organization of the work of ITU-T

Series B   Means of expression: definitions, symbols, classification

Series C   General telecommunication statistics

Series D   General tariff principles

Series E   Overall network operation, telephone service, service operation and human factors

Series F   Non-telephone telecommunication services

Series G   Transmission systems and media, digital systems and networks

Series H   Audiovisual and multimedia systems

Series I   Integrated services digital network

Series J   Transmission of television, sound programme and other multimedia signals

Series K   Protection against interference

Series L   Construction, installation and protection of cables and other elements of outside plant

Series M   TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits

Series N   Maintenance: international sound programme and television transmission circuits

Series O   Specifications of measuring equipment

Series P   Telephone transmission quality, telephone installations, local line networks

Series Q   Switching and signalling

Series R   Telegraph transmission

Series S   Telegraph services terminal equipment

Series T   Terminals for telematic services

Series U   Telegraph switching

Series V   Data communication over the telephone network

Series X   Data networks and open system communications

Series Y   Global information infrastructure and Internet protocol aspects

Series Z   Languages and general software aspects for telecommunication systems