



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.2762

(12/1999)

SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for the
network signalling

**General functions of messages and signals of
the B-ISDN user part (B-ISUP) of Signalling
System No. 7**

ITU-T Recommendation Q.2762

(Formerly CCITT Recommendation)

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ITU-T RECOMMENDATION Q.2762

GENERAL FUNCTIONS OF MESSAGES AND SIGNALS OF THE B-ISDN USER PART (B-ISUP) OF SIGNALLING SYSTEM No. 7

Summary

This Recommendation is one of a set of Recommendations that describe the Broadband ISDN User Part. It describes the elements of signalling information and their function used by the B-ISDN User Part protocol to support basic bearer services and supplementary services for Capability Set 1 B-ISDN applications.

Source

ITU-T Recommendation Q.2762 was revised by ITU-T Study Group 11 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on 3 December 1999.

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Recommendation Q.2762

GENERAL FUNCTIONS OF MESSAGES AND SIGNALS OF THE B-ISDN USER PART (B-ISUP) OF SIGNALLING SYSTEM No. 7

1 Scope

This Recommendation describes the elements of signalling information and their function used by the B-ISDN User Part protocol to support basic bearer services and supplementary services.

The B-ISDN User Part is applicable to international B-ISDN networks. At transit nodes the B-ISDN User Part supports the N-ISUP services depicted in ISUP 1997 Recommendations.

Furthermore, the B-ISDN User Part is suitable for national applications. Most signalling procedures, information elements and message types specified for international use are also required in typical national applications. Moreover, coding space has been reserved in order to allow national Administrations and recognized operating agencies to introduce network specific signalling messages and elements of information within the internationally standardized protocol structure.

2 References

See ITU-T Recommendation Q.2761.

3 Relationships to other Recommendations

See ITU-T Recommendation Q.2761.

4 Abbreviations

This Recommendation uses the following abbreviations:

AAL	ATM Adaptation Layer
ABR	Available Bit Rate
ABT-DT	ATM block Transfer with delayed transmission
ABT-IT	ATM block Transfer with immediate transmission
AESA	ATM End System Address
APM	Application Transport Mechanism
APP	Application Transport Parameter
ATC	ATM Transfer Capability
ATM	Asynchronous Transfer Mode
BCD	Binary Coded Decimal
BCOB-A	Broadband Connection Oriented Bearer – Sub-category A
BCOB-C	Broadband Connection Oriented Bearer – Sub-category C
BCOB-X	Broadband Connection Oriented Bearer – Sub-category X
B-ISDN	Broadband Integrated Services Digital Network
B-ISUP	Broadband Integrated Services Digital Network User Part
CCBS	Completion of Calls to Busy Subscriber
CCSS	Call Completion Service Setup

CLP	Cell Loss Priority
DBR	Deterministic Bit Rate
DSS2	Digital Subscriber Signalling System No. 2
ECT	Explicit Call Transfer
GVNS	Global Virtual Network Service
GVS	Global Virtual Service
ID	Identifier
IE	Information Element
IN	Intelligent Network
ISC	International Switching Centre
ISDN	Integrated Services Digital Network
ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
LFB	Look-ahead for Busy
MBS	Maximum Burst Size
MCID	Malicious Call Identification
MCR	Minimum Cell Rate
MLPP	Multi-Level Precedence and Pre-emption
MTP	Message Transfer Part
NCCI	Network Call Correlation Identifier
N-ISDN	Narrow-band ISDN
OAM	Operations and Maintenance
OSID	Origination Signalling Identifier
PCR	Peak Cell Rate
PDU	Protocol Data Unit
PVC	Permanent Virtual Connection
PVPC	Permanent Virtual Path Connection
QOS	Quality of Service
RM	Resource Management
ROER	Remote Operations Error
ROIV	Remote Operations Invoke
RORJ	Remote Operations Reject
RORS	Remote Operations Result
SACF	Single Association Control Function
SBR	Statistical Bit Rate
SBR 2	SBR configuration 2 ATM transfer capability
SBR 3	SBR configuration 3 ATM transfer capability
SCCP	Signalling Connection Control Protocol
SCF	Service Control Function
SCR	Sustainable Cell Rate
SLR	Segmentation Local Reference
UID	User Interactive Dialogue

UNI	User-Network Interface
VC	Virtual Channel
VCC	Virtual Channel Connection
VCI	Virtual Channel Identifier
VPC	Virtual Path Connection
VPCI	Virtual Path Connection Identifier

5 Signalling messages

Table 1 is a list of the B-ISDN User Part message acronyms.

Table 1/Q.2762 – B-ISDN User Part message acronym list

Acronym	Message
ACM	Address Complete
ANM	Answer
APM	Application Transport
BLA	Blocking Acknowledgement
BLO	Blocking
CCE	Consistency Check End
CCEA	Consistency Check End Acknowledge
COA	Connection Available
CSR	Consistency Check Request
CSRA	Consistency Check Request Acknowledge
CFN	Confusion
CTM	Call Transfer
FAC	Facility
CPG	Call Progress
FOT	Forward Transfer
IAA	IAM Acknowledge
IAM	Initial Address
IAR	IAM Reject
IDR	Identification Request
IRS	Identification Response
LOP	Loop Prevention
MOA	Modify Acknowledge
MOD	Modify Request
MOR	Modify Reject
NRM	Network Resource Management
RAM	Reset Acknowledgement
REL	Release
RES	Resume
RLC	Release Complete

Table 1/Q.2762 – B-ISDN User Part message acronym list (concluded)

Acronym	Message
RSM	Reset
SAM	Subsequent Address
SGM	Segmentation
SUS	Suspend
UBA	Unblocking Acknowledgement
UBL	Unblocking
UPA	User Part Available
UPT	User Part Test
USR	User-to-User Information

5.1 Address Complete Message (ACM)

A message sent in the backward direction indicating that all the address signals required for routing the call to the called party have been received.

5.2 Answer Message (ANM)

A message sent in the backward direction indicating that all the address signals required for routing the call to the called party have been received and the call has been answered. In semi-automatic working this message has a supervisory function. In automatic working this message is used in conjunction with charging information in order to:

- start metering the charge to the calling subscriber (see Recommendation Q.28); and
- start measurement of call duration for international accounting purposes (see Recommendation E.260).

5.3 Application Transport Message (APM)

A message sent in either direction to convey application information using the Application Transport mechanism.

5.4 Blocking message (BLO)

A message sent only for maintenance purposes to the exchange at the other end of a virtual path connection, to cause an engaged condition of that resource for subsequent calls outgoing from that exchange. An exchange receiving the blocking message must be capable of accepting incoming calls on the concerned resource unless it has also sent a blocking message for that resource.

5.5 Blocking Acknowledgement message (BLA)

A message sent in response to a blocking message indicating that the resource has been blocked.

5.6 Call Progress message (CPG)

A message, sent in either direction during the setup or active phase of the call indicating that an event, which is of significance to the originating or terminating access, has occurred.

5.7 Call Transfer Message (CTM)

A message sent in either direction to convey numbering and status information for the Explicit Call Transfer (ECT) supplementary service.

5.8 Confusion message (CFN)

A message sent in response to any message (other than a confusion message) if the exchange does not recognize the message or detects a part of the message as being unrecognized and the instruction indicator requested notification.

5.9 Connection Available message (COA)

A message sent in the forward direction to indicate that the procedure is completed (e.g. connection setup or modify procedure).

NOTE – The former name of the message was Modify Confirm. Existing procedures are not influenced by this editorial change. However, this message may be used in additional procedures.

5.10 Consistency Check End message (CCE)

A message sent to the exchange at the other end of a virtual path connection indicating the end of the consistency check sequence and to deactivate the consistency check ATM cell monitoring devices.

5.11 Consistency Check End Acknowledge message (CCEA)

A message sent in response to a continuity check end message indicating the result of the consistency check and that the consistency check monitoring device has been activated.

5.12 Consistency Check Request message (CSR)

A message sent for maintenance purposes to the exchange at the other end of a virtual path connection to verify the consistent and correct allocation of a virtual path connection identifier to a virtual path. The test will cause the remote (receiving) exchange to activate an ATM cell monitoring device for the indicated resource.

5.13 Consistency Check Request Acknowledge message (CSRA)

A message sent in response to a consistency check request message indicating that the ATM cell monitoring device has been activated for the indicated resource.

5.14 Facility message (FAC)

A message sent in either direction at any phase of the call to request an action at another exchange. The message is also used to carry the results, error or rejection of a previously requested action.

5.15 Forward Transfer message (FOT)

A message sent in the forward direction on semi-automatic calls when the outgoing international exchange operator wants the help of an operator at the incoming international exchange. The message will normally serve to bring an assistance operator (see Recommendation Q.101) into the circuit if the call is automatically set up at the exchange. When the call is completed via an operator (incoming or delay operator) at the incoming international exchange, the message should preferably cause this operator to be recalled.

5.16 Identification Request message (IDR)

A message sent in the backward direction to request action regarding the malicious call identification supplementary service.

5.17 Identification Response message (IRS)

A message sent in response to the identification request message.

5.18 Initial Address Message (IAM)

A message sent in the forward direction to initiate seizure of an outgoing virtual channel and to transmit number and other information relating to the routing and handling of a call.

5.19 IAM Acknowledgement message (IAA)

A message sent in the backward direction in response to an IAM message. The IAA indicates that the IAM has been accepted and the requested bandwidth on the incoming leg (both directions) is available.

5.20 IAM Reject message (IAR)

A message sent in the backward direction in response to an IAM message indicating call refusal due to resource unavailability.

5.21 Loop Prevention message (LOP)

A message sent to convey information required by the ECT supplementary service.

5.22 Modify Acknowledge message (MOA)

A message sent in the backward direction to indicate that the modify request has been accepted.

5.23 Modify Reject message (MOR)

A message sent in the backward direction to indicate that the modify request has been rejected.

5.24 Modify Request message (MOD)

A message sent in the forward direction to modify the connection characteristics associated with a call.

5.25 Network Resource Management message (NRM)

A message sent in order to modify network resources associated with a certain call. The message is sent along an established path in any direction in any phase of the call.

5.26 Pre-release Information message (PRI)

A message to be used with the Release message for the transport of information where sending of that information in the Release message itself would cause compatibility problems with ISUP'92 and subsequent versions of the ISUP protocol.

5.27 Release message (REL)

A message sent in either direction to indicate that the call/connection is being released due to the reason (cause) supplied and that the resources are ready to be made available for new traffic on receipt of the release complete message.

5.28 Release Complete message (RLC)

A message sent in either direction in response to the receipt of a released message, when the resources of the call/connection concerned have been made available for new traffic.

5.29 Reset Message (RSM)

A message sent to release a resource (e.g. a virtual connection or a signalling identifier) when, due to memory mutilation or other causes it is unknown whether for example, a release or a release complete message is appropriate.

5.30 Reset Acknowledgement Message (RAM)

A message sent in response to a reset message indicating that the resources have been released.

5.31 Resume message (RES)

A message sent in either direction indicating that the calling or called party, after having been suspended, is reconnected.

5.32 Segmentation Message (SGM) (national use)

Message sent in either direction to convey an additional segment of an overlength message.

5.33 Subsequent Address Message (SAM)

A message that may be sent in the forward direction following an initial address message, to convey additional called party number information.

5.34 Suspend message (SUS)

A message sent in either direction indicating that the calling or called party has been temporarily disconnected.

5.35 Unblocking message (UBL)

A message sent to the exchange at the other end of a virtual path connection to cancel, in that exchange, the engaged condition of the resource caused by a previously sent blocking message.

5.36 Unblocking Acknowledgement message (UBA)

A message sent in response to an unblocking message indicating that the resource has been unblocked.

5.37 User Part Available message (UPA)

A message sent in either direction as a response to a user part test message, to indicate that the user part is available.

5.38 User Part Test message (UPT)

A message sent in either direction to test the status of a user part marked as unavailable for a signalling point.

5.39 User-to-User information message (USR)

A message to be used for the transport of user-to-user signalling independent of call control messages.

6 Signalling information

6.1 Parameters

6.1.1 AAL parameters

Information sent in the forward or backward direction to indicate the requested/proposed ATM adaptation layer attribute values (end-to-end significance) for the ATM adaptation layer elements of procedures to be used for the call. The information is of significance to both users and local exchanges. It is transferred transparently between local exchanges.

6.1.2 AAL Prime parameters

Information sent in the forward direction to indicate the order of priority and the second or additional instances of AAL type parameters when two or more AAL type parameters are received in the SETUP message from the access side.

6.1.3 Access delivery information

Information sent in the backward direction indicating that a setup indication was generated at the destination access.

6.1.4 Additional calling party number

Information sent in the forward direction in the form of an address pertaining to a supplementary service where an additional user provided identification of the calling party is necessary.

6.1.5 Additional ATM cell rate

Information sent in the forward and backward direction to support the use of additional traffic parameters to the application process procedures.

6.1.6 Additional connected number

Information sent in the backward direction in the form of an address pertaining to a supplementary service where an additional user provided identification of the connected party is necessary.

6.1.7 AESA for additional calling party

Information sent in the forward direction to transport an AESA calling party number provided by the calling user with a special arrangement.

6.1.8 AESA for additional connected party

Information sent in the backward direction to transport an AESA connected party number provided by the connected user with a special arrangement.

6.1.9 AESA for called party

Information sent in the forward direction to identify the origin of the call when the calling line identity is an AESA. This number may be provided by the network or by the calling user and verified by the network.

6.1.10 AESA for calling party

Information sent in the forward direction to carry the AESA received in the UNI Calling party number IE across public network(s).

6.1.11 AESA for connected party

Information sent in the backward direction to transport the identity of the connected user when the connected line identity is an AESA. This number may be provided by the network or by the connected user and verified by the network.

6.1.12 Alternative ATM cell rate

Information sent in the forward direction to indicate an alternative set of ATM traffic descriptors for the negotiation of traffic parameters during call/connections setup and modification.

6.1.13 Application generated identifier

The application generated identifier parameter carries one or more instances of the DSS2 generic identifier transport information element.

6.1.14 Application transport Parameter (APP)

Information sent in either direction to allow the peer to peer communication of Application Transport mechanism user applications.

6.1.15 ATC setup parameters

Information sent in either direction to specify the additional set of traffic parameters during call/connection establishment.

NOTE – The former name of the parameter was Available Bit Rate (ABR) setup parameters. Existing procedures are not influenced by this editorial change. However, this parameter may be used in additional procedure(s).

6.1.16 ATM cell rate

Information classified by the cell rate identifier indicating the number of cells per second that are required for the call. The cell rate value is unchanged as it traverses the B-ISDN network.

6.1.17 Automatic congestion level

Information sent to the exchange at the other end of a virtual path connection to indicate that a particular level of congestion exists at the sending exchange.

6.1.18 Automatic re-routing

Information sent in the forward and backward direction to support the Automatic Re-Routing (Crankback) according to E.170.

6.1.19 Backward GVNS

Information sent in the backward direction used for a GVNS call to convey GVNS related information.

6.1.20 Backward narrow-band interworking indicator

Information sent in the backward direction describing the signalling capabilities within the network connection when interworking with the N-ISDN is encountered.

6.1.21 Broadband bearer capability

Information sent in the forward direction to indicate a requested broadband connection oriented bearer service (Recommendation F.811) to be provided by the network.

6.1.22 Broadband high layer information

Information sent in the forward direction which should be used by the remote user for compatibility checking.

6.1.23 Broadband low layer information

Information sent in the forward or backward direction to provide a means which should be used for compatibility checking by an addressed entity (e.g. a remote user or an interworking unit or a high layer function network node addressed by the calling user).

6.1.24 Call diversion information

Information sent in the backward direction indicating the redirecting reason and the notification subscription option of the redirecting user.

6.1.25 Call diversion may occur

Information sent in the backward direction indicating that call diversion may occur, depending on the response received (or lack thereof) from the called party.

6.1.26 Call diversion treatment indicators

Information sent in the forward direction concerning treatment of call diversion.

6.1.27 Call history information

Information sent in backward direction to indicate the accumulated propagation delay of a connection.

6.1.28 Call offering treatment indicators

Information sent in the forward direction concerning treatment of call offering.

6.1.29 Call transfer number

Information sent in the forward and backward directions to identify each of the users involved in a call transfer.

6.1.30 Call transfer reference

Information used to convey a reference number associated with the ECT supplementary service.

6.1.31 Called IN number

Information indicating the number which was received in the SSP as called party number in IAM and SAM messages.

6.1.32 Called party number

Information to identify the called party.

6.1.33 Called party sub-address

Information provided by the calling user to identify the sub-address (see Recommendation I.330) of the called party of a call. It is transferred transparently between local exchanges.

6.1.34 Called party's indicators

Information sent in the backward direction consisting of the called party's status indicator and the called party's category indicator.

6.1.35 Calling party number

Information sent in the forward direction to identify the calling party.

6.1.36 Calling party sub-address

Information provided by the calling user to identify a sub-address (see Recommendation I.330) associated with the origin of a call. It is transferred transparently between originating and terminating local exchanges.

6.1.37 Calling party's category

Information sent in the forward direction indicating the category of the calling party and, in the case of semi-automatic calls, the service language to be spoken by the incoming, delay and assistance operators.

6.1.38 Cause indicator

Information sent in either direction indicating where and why the call failed or was cleared.

6.1.39 CCSS

Information sent in an initial address message indicating that a call is a CCBS call as defined in the CCBS supplementary service.

6.1.40 Cell delay variation tolerance (CDVT)

Information sent in the forward and backward direction to determine the upper bound of the tolerance admitted for the time interval between cells pertaining to a given cell flow. The backward CDVT values included in the IAM and MOD shall be interpreted as maximum acceptable values for the cell flow in the backward direction.

6.1.41 Charge indicator

Information sent in the backward direction indicating whether or not the call is chargeable.

6.1.42 Charged party identification

Information identifying the charged party, e.g. the account number.

6.1.43 Closed user group information

Information sent in the forward direction indicating that the call is to be treated as a closed user group call with or without outgoing access and giving the closed user group interlock code to be used.

6.1.44 Collect call request

Information sent in the forward direction indicating whether or not a call is a collect call.

6.1.45 Conference treatment indicators

Information sent in both directions concerning treatment of a multi-party call.

6.1.46 Connected line identity request

Information sent in the forward direction indicating a request for the connected party number to be returned.

6.1.47 Connected number

Information sent in the backward direction to identify the connected party.

6.1.48 Connected sub-address

Information sent in the backward direction to identify the sub-address (see Recommendation I.330) of one connected party of a call. The connected sub-address may be different from the called party sub-address because of changes (e.g. redirection, transfer) during the lifetime of a call. This information is transferred transparently between terminating and originating local exchanges.

6.1.49 Connection element identifier

Information sent to identify the ATM virtual connection. It includes the virtual path connection identifier and the virtual channel identifier.

6.1.50 Connection identifier

Information identifying a specific connection within a call on an end-to-end basis.

6.1.51 Consistency check result information

Information sent indicating the result of the consistency check.

6.1.52 Correlation ID

Information used by the SCF for correlation with a previous connection (see Recommendation Q.1218 – Definition of common data types).

6.1.53 Destination connection link identifier

Information sent in either direction to identify an established connection link object instance.

6.1.54 Destination signalling identifier

The destination signalling identifier identifies the call control or maintenance association at the receiving end. The first origination signalling identifier value received is reflected as the destination signalling identifier value.

6.1.55 Display information

Information sent in either direction indicating a text string to be sent to the user.

6.1.56 Echo control information

Information sent in the backward and forward direction indicating whether a half echo control device is requested for the connection or whether or not a half echo control device is included in the connection.

6.1.57 End-to-end transit delay network generated indicator

Information sent in the forward direction to indicate the origin of the generator of the Propagation Delay Counter and the Maximum End-to-end Transit Delay.

6.1.58 Extended quality of service

Information sent in either direction to indicate the individual QoS parameter values acceptable on a per call basis and the cumulative QoS parameter values.

6.1.59 Exclusive connection element identifier

Information sent from the non-assigning exchange to request the use of an exclusive VPCI value. It includes the virtual path connection identifier.

6.1.60 Forward GVNS

Information sent in the forward direction used for a GVNS call to convey GVNS related information.

6.1.61 Forward narrow-band interworking indicator

Information sent in the forward direction describing the signalling capabilities within the network connection when interworking with N-ISDN has occurred.

6.1.62 Hop counter

Information sent in the forward direction to minimize the impact of looping. The initial count determines the maximum number of contiguous B-ISUP inter-exchange circuits that are allowed to complete the call, assuming all subsequent intermediate exchanges decrement the hop counter.

6.1.63 In-band information indicator

Information sent in the backward direction indicating that in-band information or an appropriate pattern is now available.

6.1.64 Leaf party type

Information sent in the forward direction to distinguish the first party of a point-to-multipoint call from subsequent parties of a point-to-multipoint call.

6.1.65 Link layer core parameters

Information sent in either direction to indicate requested core service quality parameter values to be used for the frame relay call. The link layer core parameters is transferred transparently through the B-ISDN.

6.1.66 Link layer protocol parameters

Information sent in either direction to indicate requested layer 2 parameter values to be used for the link layer elements of procedures to be used for the call. The link layer protocol parameters is transferred transparently through the B-ISDN.

6.1.67 Location number

Information sent to indicate the location of a user in the term of an E.164 number.

6.1.68 Loop prevention indicators

Information sent in association with a request (or response to a request) when the loop prevention procedure is performed in the ECT supplementary service.

6.1.69 MCID request indicator

Information sent in the backward direction to request the identity of the calling party for the purpose of malicious call identification.

6.1.70 MCID response indicator

Information sent in the forward direction to respond to a MCID request and indicating whether or not the MCID information is available.

6.1.71 Minimum ATM cell rate

Information sent in the forward direction to indicate the minimum traffic parameter values required to support the call. It allows for the negotiation of traffic parameters such as the ABR minimum cell rate, MBS, PCR, RM PCR, and SCR.

6.1.72 Maximum end-to-end transit delay

Information sent in the forward direction indicating the maximum delay requested (explicitly or implicitly via QoS class) by the calling user for the requested virtual path connection. If the request is implicit, this information might be generated by an intervening network.

6.1.73 MLPP Precedence

Information sent in the forward direction in association with the invocation of the Multi-level Precedence and Pre-emption (MLPP) supplementary service.

6.1.74 MLPP user information

Information sent in the backward direction to indicate that the called user is an MLPP user.

6.1.75 Narrow-band bearer capability

Information sent in the forward or backward direction to indicate the requested/proposed narrow-band ISDN bearer capability (see Recommendation I.231). In case the calling user asks for a certain service but allows fallback to another service, this parameter field contains the fallback service.

6.1.76 Narrow-band high layer compatibility

Information sent in the forward or backward direction to provide a means which could be used by the remote user for compatibility checking. In case the calling user asks for a certain service but allows fallback to another service, this parameter field contains the fallback service.

6.1.77 Narrow-band low layer compatibility

Information sent in the forward or backward direction to provide a means which could be used for compatibility checking by an addressed entity (e.g. a remote user, an interworking unit or a high layer function network node addressed by the user).

6.1.78 National/international call indicator

Information sent in the forward direction indicating in the destination national network whether the call has to be treated as an international call or as a national call.

6.1.79 Network call correlation identifier

Circuit independent information identifying a particular call for the purpose of correlating call related information at different exchanges.

6.1.80 Network look-ahead indicators

Information sent in the forward direction to indicate that the network Look-Ahead without call state change was invoked (successfully or unsuccessfully).

6.1.81 Network management controls

Information sent in the forward direction concerning network management related action for a call.

6.1.82 Notification

Information sent in either direction intended to provide supplementary service (e.g. diversion services) notification to the user.

6.1.83 OAM traffic descriptor

Information classified by the cell rate identifier indicating the number of cells per second required for OAM traffic on the virtual connection.

6.1.84 Original called number

Information sent in the forward direction when a call is redirected and identifies the original called party.

6.1.85 Origination Connection Link Identifier

Information sent in the forward direction to identify a new outgoing connection link object instance.

6.1.86 Origination ISC point code

Information sent in the initial address message of an international call, indicating the point code of the originating ISC.

6.1.87 Origination signalling identifier

The Origination Signalling Identifier (OSID) is assigned by a node sending a call control or maintenance message, and is used to identify the signalling association at that end.

6.1.88 Quality of service

Information sent in the forward direction to indicate the Quality of Service (QOS) class requested by the user for a connection. QOS classes are defined to allow a network to optimize resources in supporting various service classes.

6.1.89 Priority

Information sent in the forward direction to indicate the level of preferential treatment to be applied to the call during network congestion.

6.1.90 Progress indicator

Information sent in either direction to describe an event which has occurred during the lifetime of the call.

6.1.91 Propagation delay counter

Information sent in forward direction to indicate the propagation delay of a connection. This information is accumulated whilst the parameter is transferred through the network. The propagation delay information is represented by a counter counting in integer multiples of 1 ms.

6.1.92 Redirecting number

Information sent in the forward direction when a call is diverted, indicating the number from which the call was diverted.

6.1.93 Redirection information

Information sent in either direction giving information about call redirection or call re-routing.

6.1.94 Redirection number

Information sent in the backward direction indicating the number towards which the call must be re-routed or has been forwarded.

6.1.95 Redirection number restriction

Information sent in the backward direction indicating whether the diverted-to user allows the presentation of his number.

6.1.96 Remote operations

The Remote Operations parameter is used to indicate the invocation of a supplementary service identified by an operation value and also carry the result or error indications depending on the outcome of the operation.

6.1.97 Report type

The Report type parameter carries various information of significance to the connection either within addressed ATM end systems, or within interworking units between the ATM network and another network infrastructure. It is carried transparently by intervening network entities without modification or semantic inspection.

It may either be used for a single indication of information from one connection signalling entity to another, or by the use of two related values it may form the basis of a confirmed indication and response from one connection to another.

6.1.98 Report type prime

Information sent in either direction to transfer the second or additional instances of the UNI broadband report Type IE.

6.1.99 Resource identifier

Information sent identifying the resources to be reset or (un)blocked.

6.1.100 SCF ID

Information indicating the SCF identifier (see Recommendation Q.1218 – Definition of common data types).

6.1.101 Service activation

Information sent in either direction to indicate the invocation, acceptance or rejection of supplementary services, when no service associated parameter is to be sent.

6.1.102 Segmentation indicator (national use)

Information sent in the forward and backward direction to indicate that the current message is/is not segmented, and that the segmented information (if any) will follow.

6.1.103 Soft PVC called endpoint

Information sent in either direction to indicate the VPCI or VPCI/VCI values to be used (or used) for the PVC segment by the called endpoint exchange.

6.1.104 Soft PVC calling endpoint

Information sent in the forward direction to indicate the VPCI or VPCI/VCI values used for the PVC segment by the calling endpoint exchange.

6.1.105 Subsequent number

Information sent in the forward direction in case of call setup with overlap address signalling, conveying one or more address signals of the called party number.

6.1.106 Suspend/Resume indicators

Information sent in the suspend and resume messages to indicate whether suspend/resume was initiated by an ISDN subscriber or by the network.

6.1.107 Transit network selection (national use)

Information sent in the initial address message indicating the transit network(s) requested to be used in the call.

6.1.108 UID action indicators

Information UID action sent in the backward direction to instruct preceding exchanges to enable a user interactive dialogue to occur.

6.1.109 UID capability indicators

Information sent in the forward direction to inform succeeding exchanges that on request a user interactive dialogue is possible.

6.1.110 User-to-user indicators

Information sent in association with a request (or response to a request) for user-to-user signalling supplementary service(s).

6.1.111 User-to-user information

Information generated by a user and transferred transparently through the inter-exchange network between the originating and terminating local exchanges.

6.2 Parameter information

6.2.1 Access delivery indicator

An indicator sent in the backward direction indicating that a setup indication was generated at the destination access.

6.2.2 Address presentation restricted indicator

Information sent in either direction to indicate that the address information is not to be presented to a public network user, but can be passed to another public network. It may also be used to indicate that the address cannot be ascertained.

6.2.3 Address signal

An element of information in a network number. The address signal may indicate digit values 0 to 9, code 11 or code 12. One address signal value (ST) is reserved to indicate the end of the called party number.

6.2.4 APM segmentation indicator

Information sent in either direction to indicate the number of remaining segments carrying information using the APM mechanism that will be forwarded.

6.2.5 Application context identifier

Information sent in the forward direction to indicate the alternative requested connection characteristics to support the call.

6.2.6 Application transport instruction indicators (ATII)

Information sent in either direction indicating how an exchange should react in case the indicated application using the application transport mechanism is not supported.

6.2.7 Binary code

A code allocated to a closed user group administered by a particular ISDN or data network.

6.2.8 Broadband/Narrow-band interworking indicator

Information indicating reaction to be taken if unrecognized information is received at a broadband/narrow-band interworking point.

6.2.9 Call diversion may occur indicator

Information sent in the backward direction indicating that call diversion may occur.

6.2.10 Call identifier

A bit string representing the identification allocated to the call.

6.2.11 Call to be diverted indicator

Information sent in the forward direction indicating whether diverting of the call shall be accepted.

6.2.12 Call to be offered indicator

Information sent in the forward direction indicating whether the call shall be offered if the access is marked with call offering restrictions.

6.2.13 Called party's category indicator

Information sent in the backward direction indicating the category of the called party, e.g. ordinary subscriber or payphone.

6.2.14 Called party's status indicator

Information sent in the backward direction indicating the status of the called party, e.g. subscriber free.

6.2.15 Calling party address request indicator

Information sent in the backward direction indicating a request for the calling party address to be returned.

6.2.16 Calling party number incomplete (national use)

Information sent in the forward direction indicating that the complete calling party number is not included.

6.2.17 Cause value

Information sent identifying the specific reason why the call failed or was cleared. Cause values are defined in Recommendations Q.850 and Q.2610.

6.2.18 CCSS call indicator

Information sent in the forward direction, used in a CCBS call setup, to distinguish this call from an ordinary call, at the destination local exchange.

6.2.19 Charge indicator

Information sent in the backward direction indicating whether or not the call is chargeable.

6.2.20 Cell rate identifier

Information sent to identify the applicability of the traffic parameter value. The use of the various traffic parameter values in traffic control is specified in Recommendation I.371 and described in the cell rate related parameters (e.g. ATM cell rate, Additional ATM cell rate).

The following fields are used in the cell rate related parameters:

- Forward peak cell rate for cell loss priority = 0
- Backward peak cell rate for cell loss priority = 0
- Forward peak cell rate for cell loss priority = 0 + 1
- Backward peak cell rate for cell loss priority = 0 + 1
- Forward sustainable cell rate for cell loss priority = 0
- Backward sustainable cell rate for cell loss priority = 0
- Forward sustainable cell rate for cell loss priority = 0 + 1
- Backward sustainable cell rate for cell loss priority = 0 + 1
- Forward maximum burst size for cell loss priority = 0
- Backward maximum burst size for cell loss priority = 0
- Forward maximum burst size for cell loss priority = 0 + 1
- Backward maximum burst size for cell loss priority = 0 + 1
- Forward ABR minimum cell rate for cell loss priority = 0 + 1
- Backward ABR minimum cell rate for cell loss priority = 0 + 1
- Forward resource management peak cell rate
- Backward resource management peak cell rate

6.2.21 Closed user group call indicator

Information sent as part of the closed user group information indicating whether or not outgoing access from that closed user group (e.g. to users without closed user group) is allowed for that call.

6.2.22 Coding standard

Information sent in association with a parameter (e.g. cause indicators) identifying the standard in which the parameter format is described.

6.2.23 Component ID tag

Information identifying the type of component ID used in remote operations.

6.2.24 Component type

There are four types of components that may be present in the Remote Operations parameter. The four Protocol Data Units (PDU) defined in Recommendation X.229 are used, viz.:

Component	X.229 PDU
Invoke	ROIV
Return Result	RORS
Return Error	ROER
Reject	RORJ

These component types are defined as follows:

a) *Invoke*

The Invoke component requests that an operation be performed. It may be linked to another operation invocation previously sent by the other end. In this case it is known as a "Linked Invoke".

b) *Return Result*

The Return Result component reports successful completion of an operation.

c) *Return Error*

The Return Error component reports that an operation has not been successfully completed.

d) *Reject*

The Reject component reports the receipt and rejection of an incorrect component other than a Reject component. The possible causes for rejecting a component are defined by the Problem Code element.

6.2.25 Component type tag

Information identifying the type of component used in remote operations.

6.2.26 Conference acceptance indicator

Information sent in either direction indicating whether a request for a multi-party call, i.e. conference or three-party call, shall be accepted.

6.2.27 Connection identifier

A bit string representing the identification allocated to a connection within a call.

6.2.28 Control ID

Information sent in the forward and backward direction expressing in pure binary representation the identification number allocated to the signalling association or the connection link association.

6.2.29 Diagnostic

Information sent in association with a cause and which provides supplementary information about the reason for sending the message. Diagnostic values are defined in Recommendations Q.850 and Q.2610.

6.2.30 Discard message indicator

Information sent to inform another node to discard the related message, due to compatibility reasons.

6.2.31 Discard parameter indicator

Information sent to inform another node to discard the related parameter, due to compatibility reasons.

6.2.32 Encapsulated application information

Application information required to be transported by the application transport mechanism.

6.2.33 Extension indicator

Information sent in every octet in a multi-octet parameter field with variable length, indicating whether the octet is the last one or is followed by another one.

6.2.34 Feature code

Information sent in either direction to invoke, accept, or reject a specific action for a supplementary service.

6.2.35 Filler

A number of bits used to complete a partially used octet to full octet length. Mainly the filler is used in number parameters that are carrying odd number of digits, where remaining four bits in the last octet have no digit information.

6.2.36 GVNS user group identification

Information sent in the forward direction that uniquely identifies the GVNS customer.

6.2.37 Hold provided indicator

Information sent in the forward direction indicating that the connection will be held after the calling or called party has attempted to release.

6.2.38 Holding indicator

Information sent in the backward direction indicating that holding of the connection is requested.

6.2.39 Incoming echo control device request indicator

Information sent to request the activation or deactivation of an incoming echo control device.

6.2.40 Incoming echo control device indicator

Information sent to inform whether an incoming echo control device has been included or not.

6.2.41 Instruction indicator

Information indicating the reactions to be taken if an unrecognized message, unrecognized parameter or unrecognized parameter value is received.

6.2.42 Internal network number indicator

Information sent to the destination exchange for specific numbers, e.g. roaming numbers, indicating whether or not the number contained in the parameter is generated by the network.

6.2.43 Interworking indicator

Information sent in either direction indicating whether or not Signalling System No. 7 is used in all parts of the narrow-band network connection.

6.2.44 ISDN access indicator

Information sent in either direction indicating whether or not the narrow-band access signalling protocol is ISDN.

6.2.45 ISDN User Part indicator

Information sent in either direction to indicate that the ISDN User Part is used in all parts of the narrow-band network connection. When sent in the backward direction, the preceding parts are those towards the called party.

6.2.46 ISDN User Part preference indicator

Information sent in the forward direction indicating whether or not ISDN User Part is required for all parts of the narrow-band network connection.

6.2.47 Location

Information sent in either direction indicating where an event (e.g. release) was generated.

6.2.48 Look-ahead for busy indicator

Information sent in the forward direction indicating whether the LFB option is allowed or if the path for the call is reserved.

6.2.49 MLPP service domain

Information sent in the forward direction identifying the specific MLPP service domain subscribed to by the calling user.

6.2.50 MLPP user indicator

Information sent in the backward direction to indicate that the called user is an MLPP user.

6.2.51 More data indicator

Information provided by the user and sent as part of a user-to-user information parameter indicating to the destination user(s) that another user-to-user information parameter containing information belonging to the same block (protocol data unit) will follow.

6.2.52 Nature of address indicator

Information sent in association with an address indicating the nature of that address, e.g. ISDN international number, ISDN national significant number, or ISDN subscriber number.

6.2.53 Network discard indicator

This indicator indicates that user-to-user information included in the call control message has been discarded by the network.

6.2.54 Network identification (national use)

Information sent to identify a network.

6.2.55 Network identification plan (national use)

Information sent to indicate the identification plan for identifying the network, e.g. Recommendation X.121 or E.212.

6.2.56 Network identity

Information sent to identify the network that administers the supplementary service or has allocated the identifier.

6.2.57 Notification indicator

Information sent in either direction intended to provide supplementary service notification to a user.

6.2.58 Notification subscription option

Information sent in the backward direction indicating that the diversion with or without redirection number can be presented to the calling user.

6.2.59 Numbering plan indicator

Information sent in association with a number indicating the numbering plan used for that number (e.g. ISDN number, Telex number).

6.2.60 Odd/even indicator

Information sent in association with an address, indicating whether the number of address signals contained in the address is even or odd.

6.2.61 Originating participating service provider identification

Information sent in the forward direction that uniquely identifies the participating service provider that provides customer access to GVNS to the calling user/interface.

6.2.62 Original redirection reason

Information sent in either direction indicating the reason why the call was originally redirected.

6.2.63 Outgoing echo control device request indicator

Information sent to request the activation or deactivation of an outgoing echo control device.

6.2.64 Outgoing echo control device indicator

Information sent to inform whether an outgoing echo control device has been included or not.

6.2.65 Party type indicator

Information sent in the forward direction indication, it represents the leaf party type of a point-to-multipoint connection.

6.2.66 Pass on not possible indicator

Information sent to inform another node on what action to take if "pass on" was requested due to compatibility reason but "pass on" was not possible due to interworking with pre-ISUP 1992 signalling.

6.2.67 Point code

Point code of the exchange generating the information.

6.2.68 Precedence level

Information sent in the forward direction indicating the priority of the call.

6.2.69 Priority

Information sent in either direction, indicating whether or not the repeated information elements are in ascending, descending or no prioritized order.

6.2.70 Priority level

Information sent in the forward direction to indicate the priority of the call.

6.2.71 Protocol profile

Information sent in either direction to indicate the protocol used in the Remote Operations parameter.

6.2.72 QoS Class

See I.356.

6.2.73 Redirecting indicator

Information sent in either direction indicating whether the call has been diverted or re-routed and whether or not presentation of redirection information to the calling party is restricted.

6.2.74 Redirecting reason

Information sent in either direction indicating, in the case of calls undergoing multiple redirections, the reason why the call has been redirected.

6.2.75 Redirection counter

Information sent in either direction indicating the number of redirections which have occurred on a call.

6.2.76 Redirection reason

Information sent in the call diversion information parameter and the redirection information parameter to indicate the reason for the redirection.

6.2.77 Release call indicator

Information sent to inform another node to release the call or not, by compatibility reasons, if the related message or parameter is unrecognized.

6.2.78 Repeat indicator

Information sent in the forward and backward direction, indicating whether or not the information element is repeated. It is mapped from the DSS2 Repeat indicator IE.

6.2.79 Re-routing counter

A counter sent in the forward and backward direction indicating the number of automatic re-routing attempts performed on that call/connection.

6.2.80 Re-routing indicator

Information sent in the backward direction to indicate that the call cannot be routed further and can either be re-routed or not from a preceding exchange.

6.2.81 Resource indicator

Information sent as part of the Resource identifier parameter identifying the type of resource to be reset or (un)blocked.

6.2.82 Resource value

Information sent as part of the Resource identifier parameter identifying a particular resource.

6.2.83 Routing label

Information provided to the message transfer part for the purpose of message routing (see 2.2/Q.704).

6.2.84 Screening indicator

Information sent in either direction to indicate whether the address was provided by the user or network.

6.2.85 Send notification indicator

Information sent to inform another node to send notification, due to compatibility reasons, if the related message or parameter is unrecognized.

6.2.86 Segmentation local reference (SLR)

A unique value to a call used to associate segments in an APM segmentation procedure.

6.2.87 Sequence indicator

Used to indicate the beginning (first segment) of an APM segmentation procedure sequence.

6.2.88 Simple segmentation indicator

Information sent in either direction to indicate that additional information will be forwarded in a segmentation message (unsolicited).

6.2.89 T9 timer indicator

Information sent in the forward direction to inform succeeding exchanges that on request stopping of the timer T9 is possible.

6.2.90 T9 timer instruction indicator

Information sent in the backward direction to instruct preceding exchanges to stop or not to start, respectively, the timer T9.

6.2.91 Temporary alternative routing indicator

Information sent in the forward direction indicating that a call is a temporary alternative routing controlled call.

6.2.92 Terminating access indicator

Information sent in the backward direction that identifies the type of terminating access from a GVNS terminating participating service provider actually used to complete the call.

6.2.93 Terminating network routing number

A number sent in the forward direction which a terminating functional entity may use to complete a GVNS call to on-net locations.

6.2.94 Through-connection indicator

Information sent in the forward direction to inform succeeding exchanges that on request through-connection of the transmission path in both directions is possible.

6.2.95 Through-connection instruction indicator

Information sent in the backward direction to instruct preceding exchanges to through-connect the transmission path in both directions.

6.2.96 Transit at intermediate exchange indicator

Information sent to inform a transit node (type B), whether it shall react on the rest of the instruction indicators or not, if the related message or parameter is unrecognized.

6.2.97 Type

Information sent in either direction to indicate whether the message is a request or a response.

6.2.98 Type of network identification (national use)

Information sent to inform whether the identification of a network is by ITU-T standardization identification or by national network identification.

6.2.99 Virtual channel identifier

Information sent in either direction identifying the virtual channel (multiplexed on a virtual path).

6.2.100 Virtual path connection identifier

Information sent in either direction identifying the virtual path connection.

6.2.101 VPCI check result indicator

Information sent in the backward direction indicating the success/failure of the consistency check.

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