INTERNATIONAL TELECOMMUNICATION UNION

ITU-T Q.736

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

(10/95)

SPECIFICATIONS OF SIGNALLING SYSTEM No. 7

STAGE 3 DESCRIPTION FOR CHARGING SUPPLEMENTARY SERVICES USING SIGNALLING SYSTEM No. 7

Clause 1 – International Telecommunication Charge Card (ITCC)

ITU-T Recommendation Q.736

(Previously "CCITT Recommendation")

FOREWORD

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

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

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

ITU-T Recommendation Q.736, clause 1 was prepared by ITU-T Study Group 11 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 17th of October 1995.

NOTE

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

CONTENTS

SUMMARY

This Recommendation defines the essential functions, procedures and messages required for the validation of the International Telecommunication Charge Cards. The signalling provides for the validation and call completion information between a service control point and a service data point during a charge card call.

Recommendation Q.736

STAGE 3 DESCRIPTION FOR CHARGING SUPPLEMENTARY SERVICES USING SIGNALLING SYSTEM No. 7

(Geneva, 1995)

1 International Telecommunication Charge Card (ITCC)

1.1 Introduction

1.1.1 Scope

The International Telecommunication Charge Card (ITCC) Service allows the holders of a telecommunication charge card to make use of a variety of telecommunications services provided by the card acceptor and have the charges billed to the customers account by the card issuer.

1.1.2 References

The following 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: all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

[1] ITU-T Recommendation E.113 (1993), *Validation procedures for the international telecommunications charge card service.*

[2] CCITT Recommendation E.116 (1992), *International telecommunication charge card service*.

[3] CCITT Recommendation E.118 (1992), *The International telecommunication charge card*.

[4] ITU-T Recommendation clause 7/Q.86 (1995), *Stage 2 description for charging suplementary services – International Telecommunication Charge Card (ITCC)*.

[5] ITU-T Recommendation Q.711 (1993), *Signalling System No. 7 – Functional description of the signalling connection control part*.

[6] ITU-T Recommendation Q.712 (1993), *Signalling System No. 7 – Definition and function of SCCP messages*.

[7] ITU-T Recommendation Q.713 (1993), *Signalling System No. 7 – SCCP formats and codes*.

[8] ITU-T Recommendation Q.714 (1993), *Signalling System No. 7 – Signalling Connection Control Part procedures*.

[9] ITU-T Recommendation Q.763 (1993), *Formats and codes of the ISDN user part of Signalling System No. 7*.

[10] ITU-T Recommendation Q.771 (1993), *Signalling System No. 7 – Functional description of transaction capabilities*.

[11] ITU-T Recommendation Q.772 (1993), *Signalling System No. 7 – Transaction capabilities information element definitions*.

[12] ITU-T Recommendation Q.773 (1993), *Signalling System No. 7 – SCCP formats and codes*.

[13] ITU-T Recommendation Q.774 (1993), *Signalling System No. 7 – Transaction capabilities procedures*.

[14] ITU-T Recommendation Q.775 (1993), *Signalling System No. 7 – Guidelines for using Transaction Capabilities*.

[15] CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1)*.

[16] ITU-T Recommendation X.680 (1994)/Amendment 1 (1995), *Information technology – Abstract Syntax Notation One (ASN.1) – Specification of basic notation – Amendment 1: Rules of extensibility*.

1.1.3 Definition of terms

For the purposes of this Recommendation, the following definitions apply.

1.1.3.1 card issuer: The network operator that issues the charge card. The card issuer is responsible for the collection charges from the card holder and for making the appropriate payments for the service concerned to the card acceptor.

1.1.3.2 card acceptor: The network operator that accepts the use of the charge card as payment for the provision of certain telecommunication services.

1.1.3.3 primary account number: The Primary Account Number is the number assigned to a charge card. Its numbering system is specified in Recommendation E.118. It is obtained from the card or the user when the user attempts to make a charge card call. The issuer identification number, which is a subpart of the Primary account number, can be used by the card acceptor to identify the card issuer.

1.1.3.4 personal identification number: The Personal Identification Number is used by the card issuer to validate a charge card user. It is obtained from the charge card or the user when the user attempts to make a charge card call.

1.1.3.5 called party number: The full international called party number should be included in the request for the charge card validation. This information is necessary for some network operators to manage the restricted use of some cards as well as for card issuers to ensure that proper agreements exist to bill, collect and settle the call. It is also used in the detection of the fraud.

1.1.3.6 calling party number: The full international calling party number, where available, should be included in the request for the charge card validation. As an alternative, the ITU country code may be provided where the calling party number is not available. The use of this information is subject to agreements between network operators. This information may be used by some network operators to manage the restricted use of some cards as well as for card issuers to ensure that proper agreements exist to bill, collect and settle the call. It is also used in the detection of fraud.

1.1.3.7 card acceptor identifier: The Card Acceptor Identifier is used by the card issuer to identify the network operator accepting the telecommunication charge card. It contains the issuer identification number of the card acceptor network operator.

1.1.3.8 response code: The Response Code shows a positive result of a charge card validation.

1.1.3.9 service denied: The Service Denied shows a negative result of a charge card validation. This is returned when the result denies the requested call connection for service specific errors.

1.1.3.10 input error: Input Error shows a negative result of a charge card validation. This is returned when any format error in a validation request is found at the card issuer.

1.1.3.11 service denied cause: The Service Denied Cause shows detailed information of a service specific error.

1.1.3.12 input error cause: The Input Error Cause shows detailed information of message format error found in a charge validation request.

1.1.3.13 call disposition code: The call disposition code should be included in the call disposition to indicate whether and how the call was completed or uncompleted. The code shall be chosen to indicate one of the following:

- automated call to the Card issuer network operator;
- operator station call to the Card issuer network operator;
- operator person call to the Card issuer network operator;
- automated call to a third country;
- operator station call to a third country;
- operator person call to a third country;
- automated call within the Card Acceptor's country;
- operator station call within the Card Acceptor's country;
- operator person call within the Card Acceptor's country;
- unrateable;
- unsuccessful;
- free call;
- fixed charges, e.g. inquiry charges;
- ad hoc (routed through facilities other than via Card Issuer).

1.1.3.14 call start time: This is a component of a call disposition and shows the date and time at which the charge card call started. Where the call disposition code indicates the call failed, this shows the date and time of the failure. This should contain the month, day, hour and minute in Coordinated Universal Time (UTC).

1.1.3.15 call duration: This is a component of a call disposition and shows the duration of the charge card call in minutes.

1.1.3.16 estimated call charge: This is a component of a call disposition and shows the estimated call charge calculated in Special Drawing Rights (SDRs).

1.1.4 Glossary of abbreviations

For the purposes of this Recommendation, the following abbreviations are used:

ACM	Address Complete Message
AOC	Advice Of Charge
ASE	Application Service Element
BCD	Binary Coded Decimal
CCBS	Completion of Calls to Busy Subscriber
CD	Call Deflection
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
CONF	Conference Calling
CUG	Closed User Group
CW	Call Waiting
DDI	Direct-Dialling-In
GT	Global Title

HOLD	Call Hold
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITCC	International Telecommunication Charge Card
LH	Line Hunting
MCID	Malicious Call Identification
MLPP	Multi-Level Precedence and Preemption
MSB	Most Significant Bit
MSN	Multiple Subscriber Number
PAN	Primary Account Number
PIN	Personal Identification Number
PNP	Private Numbering Plan
PSTN	Public Switched Telephone Network
REV	Reverse Charging
SCCP	Signalling Connection Control Part
SDL	Specification and Description Language
SDR	Special Drawing Right
SSN	Subsystem Number
SUB	Sub-addressing
TC	Transaction Capability
TP	Terminal Portability
UTC	Coordinated Universal Time
UUS	User-to-User Signalling
UUS1	User-to-User Signalling, service 1
UUS2	User-to-User Signalling, service 2
UUS3	User-to-User Signalling, service 3
3PTY	Three-Party Service

1.2 Description

1.2.1 General description

The Stage 1 description of ITCC is given in Recommendations E.113, E.116 and E.118.

The Stage 2 description of ITCC can be found in clause 7/Q.86.

The Stage 3 description of ITCC may premise the use of the Signalling Connection Control Part (SCCP) as defined in Recommendations Q.711-Q.714 and the Transaction Capabilities (TC) as defined in Recommendations Q.771-Q.775 to support validation of a charge card across international boundary.

NOTE – Although the use of *Blue Book* TC will satisfy the needs of the ITCC supplementary service, TC 1992 version may also be applied. The only modification needed is a change of the corresponding IMPORT statement in the ASN.1 module for the ITCC supplementary service.

This Recommendation provides a Stage 3 description for the validation of an international telecommunication charge card and provision of call information at the end of the call. Handling of the charge card call beyond these two activities such as basic call control or collection of digits is beyond the scope of this Recommendation.

Full validation method, which requires checking the charge card number against the card issuer database, making use of real-time communication between the card acceptor and the card issuer, is defined by this Stage 3 description.

To validate a charge card, the card acceptor initiates a transaction to the card issuer to invoke "ValidateCard" operation. The originator of the validation transaction may be the exchange or the charge card system at the card acceptor. Destination of the transaction may be the service data point at the card issuer. The service data point at the card issuer terminates that transaction by a positive, or negative response (with a cause as to why the validation should not be granted).

The card acceptor could initiate another transaction to supply the card issuer with information to allow a more complete estimate of call activity. This is done in a timely manner after completion of a call or a call attempt, and the message to be sent to supply this information is denoted as call disposition. The use of call disposition is subject to agreements between card acceptor network operators and card issuer network operators.

1.2.2 Qualification on the applicability to telecommunication services

See Recommendation E.116.

1.2.3 State definitions

The basic call control states of ISUP apply to ITCC. Charge card call set-up before the validation is not subject of this Recommendation.

1.3 Operational requirements

1.3.1 Provisional/withdrawal

The ITCC service may be provided for a charge card holder based on agreement between the card acceptor and the card issuer.

Withdrawal shall be at a card holders request, or for the card issuer and/or acceptor reasons.

1.3.2 Requirements on the originating network side

No specific requirements are identified. The basic call control procedures of ISUP apply to ITCC. Charge card call set-up before the validation is not subject of this Recommendation.

1.3.3 Requirements in the network

No specific requirements are identified. In the card acceptor network or card issuer network, TC resources are needed. Charge card call set-up before the validation is not subject of this Recommendation.

1.3.4 Requirements on the terminating network side

No specific requirements are identified. Charge card call set-up before the validation is not subject of this Recommendation.

NOTE – This Recommendation premises that the call originating network and the card acceptor network are the same. There might be, however, a scenario where they could be separate. When this "separate" scenario was taken, a way to maintain ITCC service integrity and to obtain the information from the calling user or the call originating network in order to send validation query, would be outside the scope of this Recommendation.

1.4 Coding requirements

1.4.1 Subsystem number

The Subsystem Number (SSN) value, as defined in Annex B/Q.713, shall be applied when an SCCP message in relation to the charge card validation for ITCC is routed across the international interface.

1.4.2 Description of ASE

1.4.2.1 Operations

1.4.2.1.1 "ValidateCard" operation

This operation is a class 1 operation and used for the card acceptor to remotely invoke the charge card validation process at the card issuer.

1.4.2.1.2 "ProvideCallDisposition" operation

This operation is a class 1 operation and used for the card acceptor to provide the call disposition with the card issuer.

1.4.2.2 Definition of operations

```
ITCCOperations { itu-t recommendation q 736 itcc(1) modules(2) operations-and-errors(1) version1(1) }

DEFINITIONS EXPLICIT TAGS ::=

BEGIN

IMPORTS

OPERATION, ERROR
        FROM TCAPMessages { ccitt recommendation q 773 moduleA(0) };

-- Operations types

ValidateCard ::= OPERATION

    PARAMETER  SEQUENCE {
               primaryAccountNumber          PrimaryAccountNumber,
               personalIdentificationNumber  PersonalIdentificationNumber,
               cardAcceptorIdentifier        CardAcceptorIdentifier,
               calledPartyNumber             CalledPartyNumber,
               callingPartyNumber            [1]IMPLICIT  CallingPartyNumber OPTIONAL,
               ... }

    RESULT     SEQUENCE {
               responseCode                  ResponseCode,
               ... }

    ERRORS     {
               serviceDenied,
               inputError }

ProvideCallDisposition ::= OPERATION

    PARAMETER  SEQUENCE {
               primaryAccountNumber          PrimaryAccountNumber,
               cardAcceptorIdentifier        CardAcceptorIdentifier,
               callDispositionCode           CallDispositionCode,
               callStartTime                 DateAndTime,
               callDuration                  [1]IMPLICIT   CallDuration OPTIONAL,
               estimatedCallCharge           [2]IMPLICIT   EstimatedCallCharge OPTIONAL,
               ... }

    RESULT     SEQUENCE {
               updateResult                  UpdateResult,
               ... }

    ERRORS     {
               serviceDenied,
               inputError }

-- Invocation timer value is recommended to be 5 seconds

-- Object identifier path
```

```
itccOID          OBJECT IDENTIFIER ::= { itu-t recommendation q 736 1 }

-- Operations values notation

validateCard                ValidateCard      ::= global value: { itccOID operations-and-errors(1) validateCard(1) }

provideCallDisposition      ProvideCallDisposition
                                              ::= global value: { itccOID operations-and-errors(1)
                                                  provideCallDisposition(2) }

-- Contents and data type definitions

PrimaryAccountNumber        ::=   OCTET STRING (SIZE(2..11))
-- Formats as indicated in 1.4.2.3.1

PersonalIdentificationNumber ::=  OCTET STRING (SIZE(2..4))
-- Formats as indicated in 1.4.2.3.2

CalledPartyNumber           ::=   OCTET STRING (SIZE(2..9))
-- Formats as for Q.763 Called party number

CallingPartyNumber          ::=   OCTET STRING (SIZE(2..9))
-- Formats as for Q.763 Calling party number

CardAcceptorIdentifier      ::=   OCTET STRING (SIZE(2..5))
-- Formats as indicated in 1.4.2.3.3

ResponseCode                ::=   ENUMERATED { serviceApproved(1) }

CallDispositionCode         ::=   ENUMERATED {
                                  automatedCallToCardIssuer(1),
                                  operatorStationCallToCardIssuer(2),
                                  operatorPersonCallToCardIssuer(3),
                                  automatedCallToThirdCountry(4),
                                  operatorStationCallToThirdCountry(5),
                                  operatorPersonCallToThirdCountry(6),
                                  automatedCallWithinCardAcceptor'sCountry(7),
                                  operatorStationCallWithinCardAcceptor'sCountry(8),
                                  operatorPersonCallWithinCardAcceptor'sCountry(9),
                                  unrateable(10),
                                  unsuccessful(11),
                                  freeCall(12),
                                  fixedCharges(13),
                                  adhoc(14) }

DateAndTime                 ::=   OCTET STRING (SIZE(6))
-- Coded as Y1Y2M1M2D1D2H1H2M1M2S1S2, with each digit coded BCD. The first octet
-- contains 2 digits representing the year (Y1Y2) and the remaining items are sequenced
-- following. Digit of more significant (e.g. Y1) in each item is put in the BCD field of less
-- significant in the corresponding octet.

CallDuration                ::=   OCTET STRING (SIZE(3))
-- Coded as HHMMSS with each digit coded BCD. The first octet contains
-- HH and the remaining items are sequenced following. Digit of more significant in
-- each item is put in the BCD field of less significant in the corresponding octet.

EstimatedCallCharge         ::=   OCTET STRING (SIZE(3..5))
-- Formats as indicated in 1.4.2.3.4.

UpdateResult                ::=   ENUMERATED { updateComplete(1) }

-- Errors type notation

ServiceDenied       ::=   ERROR
    PARAMETER       serviceDeniedCause      ServiceDeniedCause

InputError          ::=   ERROR
    PARAMETER       inputErrorCause         InputErrorCause
```

```
ServiceDeniedCause      ::=     ENUMERATED {
                                creditThresholdExceeded(1),
                                dueToNonPayment(2),
                                invalidCardNumber(3),
                                invalidCardNumber/PINCombination(4),
                                incorrectPIN(5),
                                allowablePINTriesExceeded(6),
                                expiredCard(7),
                                restrictedCardNumber(8),
                                callNotPermittedFromStation(9),
                                validationDatabaseUnavailable(10),
                                validationOnWrongCardIssuer/MisroutedQuery(11),
                                volumeThresholdExceeded(12),
                                fraudRestriction(13) }

InputErrorCause         ::=     ENUMERATED {
                                errorInMessageFormat(1),
                                unexpectedInputData(2),
                                missingParameter(3),
                                unexpectedParameter(4) }

-- Errors values

serviceDenied       ServiceDenied       ::= global Value:  { itccOID operations-and-errors(1) serviceDenied(3) }

inputError          InputError          ::= global value:  { itccOID operations-and-errors(1) inputError(4) }

END
```

1.4.2.3 Parameter coding

1.4.2.3.1 PrimaryAccountNumber

PrimaryAccountNumber		Code = 10000001
Contents		Meaning
O/E ind.		Each digit of Primary Account Number (Dn) is encoded in Binary Coded Decimal (BCD). The maximum number of digits is nineteen. O/E ind. shows whether the number of digits is odd or even. When the number of digits is odd the Most Significant Bit (MSB) of O/E ind. is coded as 1, when even it is coded 0, and the remaining seven bits are spare and coded as 0. Filler digit is 0 in BCD.
D2	D1	
D4	D3	
- - - -	- - - -	
0 or Dn	Dn – 1	

1.4.2.3.2 PersonalIdentificationNumber

PersonalIdentificationNumber		Code = 10000010
Contents		Meaning
O/E ind.		Each digit of Personal Identification Number (Dn) is encoded in Binary Coded Decimal (BCD). The maximum number of digits is six. O/E ind. shows whether the number of digits is odd or even. When the number of digits is odd the Most Significant Bit (MSB) of O/E ind. is coded as 1, when even it is coded 0, and the remaining seven bits are spare and coded as 0.
(D2)	D1	
(D4)	(D3)	
(D6)	(D5)	

1.4.2.3.3 CardAcceptorIdentifier

<table>
<tr><td colspan="2">CardAcceptorIdentifier</td><td>Code = 10000101</td></tr>
<tr><td colspan="2">Contents</td><td>Meaning</td></tr>
<tr><td colspan="2"><table><tr><td colspan="2">O/E ind.</td></tr><tr><td>D2</td><td>D1</td></tr><tr><td>D4</td><td>D3</td></tr><tr><td>- - - -</td><td>- - - -</td></tr><tr><td>0 or Dn</td><td>Dn – 1</td></tr></table></td><td>Each digit of Card Acceptor Identifier (Dn) is encoded in Binary Coded Decimal (BCD). The maximum number of digits is seven.

O/E ind. shows whether the number of digits is odd or even. When the number of digits is odd the Most Significant Bit (MSB) of O/E ind. is coded as 1, when even it is coded 0, and the remaining seven bits are spare and coded as 0.

Filler digit is 0 in BCD.</td></tr>
</table>

1.4.2.3.4 EstimatedCallCharge

<table>
<tr><td colspan="2">CardAcceptorIdentifier</td><td>Code = 10010001</td></tr>
<tr><td colspan="2">Contents</td><td>Meaning</td></tr>
<tr><td colspan="2"><table><tr><td colspan="2">O/E ind.</td></tr><tr><td>D2</td><td>D1</td></tr><tr><td>D4</td><td>D3</td></tr><tr><td>- - - -</td><td>- - - -</td></tr><tr><td>0 or Dn</td><td>Dn – 1</td></tr></table></td><td>Each value of Estimated Call Charge is encoded in Binary Coded Decimal (BCD).

O/E ind. shows whether the number of digits is odd or even. When the number of digits is odd the Most Significant Bit (MSB) of O/E ind. is coded as 1, when even it is coded 0, and the remaining seven bits are spare and coded as 0.

This is a variable length field, maximum of four octets plus one octet for O/E ind.

Filler digit is 0 in BCD.</td></tr>
</table>

The maximum number of digits shall be 5 significant and 2 insignificant. In other words, possible value ranges from 0.00 to 99999.99 in Special Drawing Right (SDR). The most significant digit is put in D_1. The insignificant digits are always shown. Even if the insignificant SDRs = 0 or n0 (where n = 1 to 9), they are coded "00" or "n0" in BCD and contained as full two digits.

1.5 Signalling requirements

1.5.1 Activation/deactivation/registration

Not applicable.

1.5.2 Invocation and operation

1.5.2.1 Actions at the card acceptor

1.5.2.1.1 Normal operation

1.5.2.1.1.1 Validation request to the card issuer

The originating network which identifies a call as a charge card call, it collects more detail information from the user which are Primary Account Number (PAN), Personal Identification Number (PIN), Called Party Number and, if available, Calling Party Number.

Service control of ITCC may be performed by the originating exchange itself or the (gateway) transit exchange or the dedicated charge card system at the card acceptor. It is subject to network operators decision how the service control function is distributed over the physical node(s). The transfer (if applicable) of PAN, PIN, Called Party Number and, if available, Calling Party Number from the local/transit exchange to the charge card service control point is beyond the scope of this Recommendation.

The service control point which is provided with the users detail information distinguishes whether users card is a local card or a foreign network operators card based on the country code and issuer identification number which can be both extracted from the PAN.

When the card acceptor cannot fully validate the card alone, it requests the validation by sending TC Begin message, which contains the invocation of the "ValidateCard" operation, to the card issuer. Prior to requesting validation, the card acceptor may perform preparatory validation, e.g. testing the number of digits of PAN and PIN.

During ITCC call set-up, interruption of call handling may occur while charge card validation is being performed. Therefore, an appropriate preventive step may be needed against expiry of protocol timer, e.g. ACM timer due to that interruption. What the step should be, however, is outside the scope of this Recommendation.

1.5.2.1.1.2 Validation response from the card issuer

a) *Service approved*

If the response to the validation request indicates that the charge card call service for the calling users card has been approved, the call is progressed to the forward exchange.

b) *Service denied*

If the response to the validation request indicates that the charge card call service for the calling users card has been denied, the specific service denial code is used by the service logic to determine subsequent call procedure.

For example, the reason why the service is denied may be included in the response to the user.

c) *Missing response*

In case no response is received at the card acceptor due to, for example, failures in the validation request or the response transport, an invocation timer at the originating TC which supervises the reception of the response, namely Return Result (Last) or Return Error component, expires (see 1.9). TC user knows this expiry by an indication coming up from TC and then takes appropriate actions to release resources related to the validation request.

Whether the service request can be further accepted or not depends on the bilateral agreement between the card acceptor and the card issuer. Where not accepted, appropriate message to advise the unavailability of the service shall be sent to the user.

1.5.2.1.1.3 Call disposition sending to the card issuer

At the end of the call and/or the call attempt, the card acceptor provides the card issuer with a call disposition in a timely manner by sending TC Begin message which contains the invocation of the "ProvideCallDisposition" operation.

In call disposition, the call duration is carried only in case of successful call, while the estimated call charge is carried only in case the corresponding call is successful and the charge is calculable at the card acceptor.

1.5.2.1.1.4 Call disposition update response from the card issuer

a) *Update complete*

This response indicates that the call disposition update associated with the charge card in question has been successfully completed.

b) *Service denied*

If the response to the call disposition indicates that failure on update has occurred, the specific update error code is used by a service logic to determine subsequent action.

For example, call disposition may be retransmitted in predetermined number of times.

c) *Missing response*

In case no response is received at the card acceptor due to, for example, failures in the call disposition or the response transport, an invocation timer at the originating TC which supervises the reception of the response, namely Return Result (Last) or Return Error component, expires (see 1.9). TC user knows this expiry by an indication coming up from TC and then takes appropriate actions to release resources related to the call disposition sending.

A service logic will determine subsequent action. For example, call disposition may be retransmitted in predetermined number of times.

1.5.2.1.2 Exceptional procedures

No exceptional procedures are identified.

1.5.2.2 Actions at the card issuer

1.5.2.2.1 Normal operation

When validation request is received, the validity of a charge card or a charge card call is tested at the service data and a result of the test is returned as a response to the card acceptor.

When call disposition is received, response indicating the update result is returned to the card acceptor. The call disposition may provide valuable statistics for the charge card usage and may help credit threshold management, fraud control and so forth. How to make use of the call disposition is a local matter.

Possible responses include the following:

- Service approved: Primary Account Number (PAN) and Personal Identification Number (PIN) entered have been validated successfully;
- Credit threshold exceeded: Credit limit of the charge card has been exceeded;
- Due to non-payment: Bill has not been paid;
- Invalid card number: Database does not hold a record for the PAN entered;
- Invalid card number/PIN combination: The PIN is not identical with one recorded in Database for the PAN entered;
- Incorrect PIN: The PIN is not valid against the PAN entered;
- Allowable PIN tries exceeded: On previous attempts the PIN was incorrectly entered a certain number of times, depending upon each card issuer;
- Expired card: The end date of the charge card has passed;
- Restricted card number: Call not permitted due to charge card specific restriction;
- Call not permitted from station: No agreement between the charge card issuer and the card acceptor network operator;
- Validation database unavailable: Database required for validating is not available for service;
- Validation on wrong card issuer/Misrouted query: The PAN entered is not in the range that the database expects to receive;
- Volume threshold exceeded: The number of calls has exceeded the limit within the specified period;
- Fraud restriction: The charge card or the charge card call is restricted by the card issuer or card holder to prevent fraudulent use;
- Error in message format: This is a general message for errors in parameters in the validation request other than specified in the following three responses;
- Unexpected input data value: One of the parameters in the validation request contained a value outside the expected range, e.g. BCD character having a value larger than nine or the expiration month being longer than twelve;

– Missing parameter: The validation request did not contain a mandatory parameter;

– Unexpected parameter: The validation request contained a parameter code that is not defined as mandatory or optional for the specified operation.

1.5.2.2.2 Exceptional procedures

No exceptional procedures are identified.

1.5.2.3 Actions at the transit exchange

1.5.2.3.1 Normal operation

The transit exchange at the card acceptor may perform the service control of ITCC, i.e. it may be the originator of the validation request transaction and may perform the call set-up depending on the response from the card issuer (see 1.5.2.1.1.1).

No particular action is necessary at other transit exchanges.

1.5.2.3.2 Exceptional procedures

No exceptional procedures are identified.

1.5.2.4 Actions at the destination exchange

1.5.2.4.1 Normal operation

No particular action is necessary at the destination exchange.

1.5.2.4.2 Exceptional procedures

No exceptional procedures are identified.

1.5.2.5 Routing in the SCCP network

The SCCP message routing across the international interface shall be based on Global Title (GT) translation (see Annex B/Q.713).

1.6 Interaction with other Supplementary Services

1.6.1 Call Waiting (CW)

No impact on ASE operation.

1.6.2 Call Transfer services

1.6.2.1 Explicit Call Transfer

No impact on ASE operation.

1.6.3 Connected Line Identification Presentation (COLP)

No impact on ASE operation.

1.6.4 Connected Line Identification Restriction (COLR)

No impact on ASE operation.

1.6.5 Calling Line Identification Presentation (CLIP)

No impact on ASE operation.

1.6.6 Calling Line Identification Restriction (CLIR)

No impact on ASE operation.

1.6.7 Closed User Group (CUG)

No impact on ASE operation.

1.6.8 Conference Calling (CONF)

No impact on ASE operation.

1.6.9 Direct-Dialling-In (DDI)

No impact on ASE operation.

1.6.10 Call Diversion Services

1.6.10.1 Call Forwarding Busy (CFB)

No impact on ASE operation.

1.6.10.2 Call Forwarding No Reply (CFNR)

No impact on ASE operation.

1.6.10.3 Call Forwarding Unconditional (CFU)

No impact on ASE operation.

1.6.10.4 Call Deflection (CD)

No impact on ASE operation.

1.6.11 Line Hunting (LH)

No impact on ASE operation.

1.6.12 Three-Party Service (3PTY)

No impact on ASE operation.

1.6.13 User-to-User Signalling (UUS)

1.6.13.1 User-to-User Signalling, service 1 (UUS1)

No impact on ASE operation.

1.6.13.2 User-to-User Signalling, service 2 (UUS2)

No impact on ASE operation.

1.6.13.3 User-to-User Signalling, service 3 (UUS3)

No impact on ASE operation.

1.6.14 Multiple Subscriber Number (MSN)

No impact on ASE operation.

1.6.15 Call Hold (HOLD)

No impact on ASE operation.

1.6.16 Advice Of Charge (AOC)

No impact on ASE operation.

1.6.17 Sub-addressing (SUB)

No impact on ASE operation.

1.6.18 Terminal Portability (TP)

No impact on ASE operation.

1.6.19 Completion of Calls to Busy Subscriber (CCBS)

No impact on ASE operation.

1.6.20 Malicious Call Identification (MCID)

No impact on ASE operation.

1.6.21 Reverse charging (REV)

No impact on ASE operation.

1.6.22 Multi-Level Precedence and Preemption (MLPP)

No impact on ASE operation.

1.6.23 Private Numbering Plan (PNP)

No impact on ASE operation.

1.6.24 International Telecommunication Charge Card (ITCC)

Not applicable.

1.7 Interaction with other networks

1.7.1 Interaction between ISDNs and PSTNs

No additional requirements are necessary for basic calls.

1.7.2 Interaction with private networks

No specific requirements are necessary for basic calls. Charge card call set-up before the validation is not subject of this Recommendation.

1.8 Signalling flows

Generic information flow for charge card validation and provision of call disposition between a card acceptor and a card issuer is shown in Figure-1.

The example signalling flows for ITCC call are shown in Figure 1-2.

Interaction between a user and an originating network to collect information required for the validation of a charge card is outside the scope of this Recommendation.

ISDN and non-ISDN calls shall be available via ITCC.

1.9 Parameter values (Timers)

Supervisory timer for the reception of a response to a validation request and a call disposition becomes available by utilizing an invocation timer provided by TC at the Card Acceptor. This timer is stopped on the reception of a response, and denoted as T_{ITCC}. T_{ITCC} is recommended to be 5 seconds to prevent lengthy occupation of resource in case of failure.

1.10 Dynamic description (SDLs)

The basic call control SDLs of ISUP apply to ITCC. Charge card call set-up before the validation is not subject of this Recommendation.

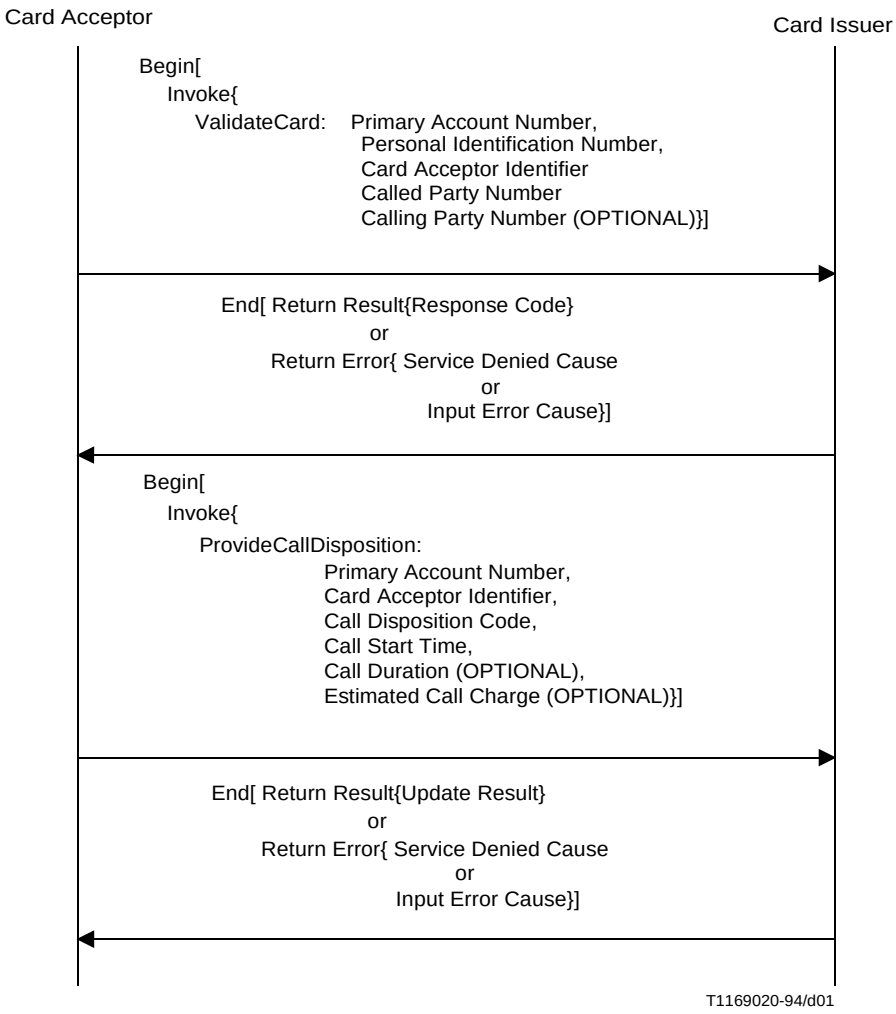
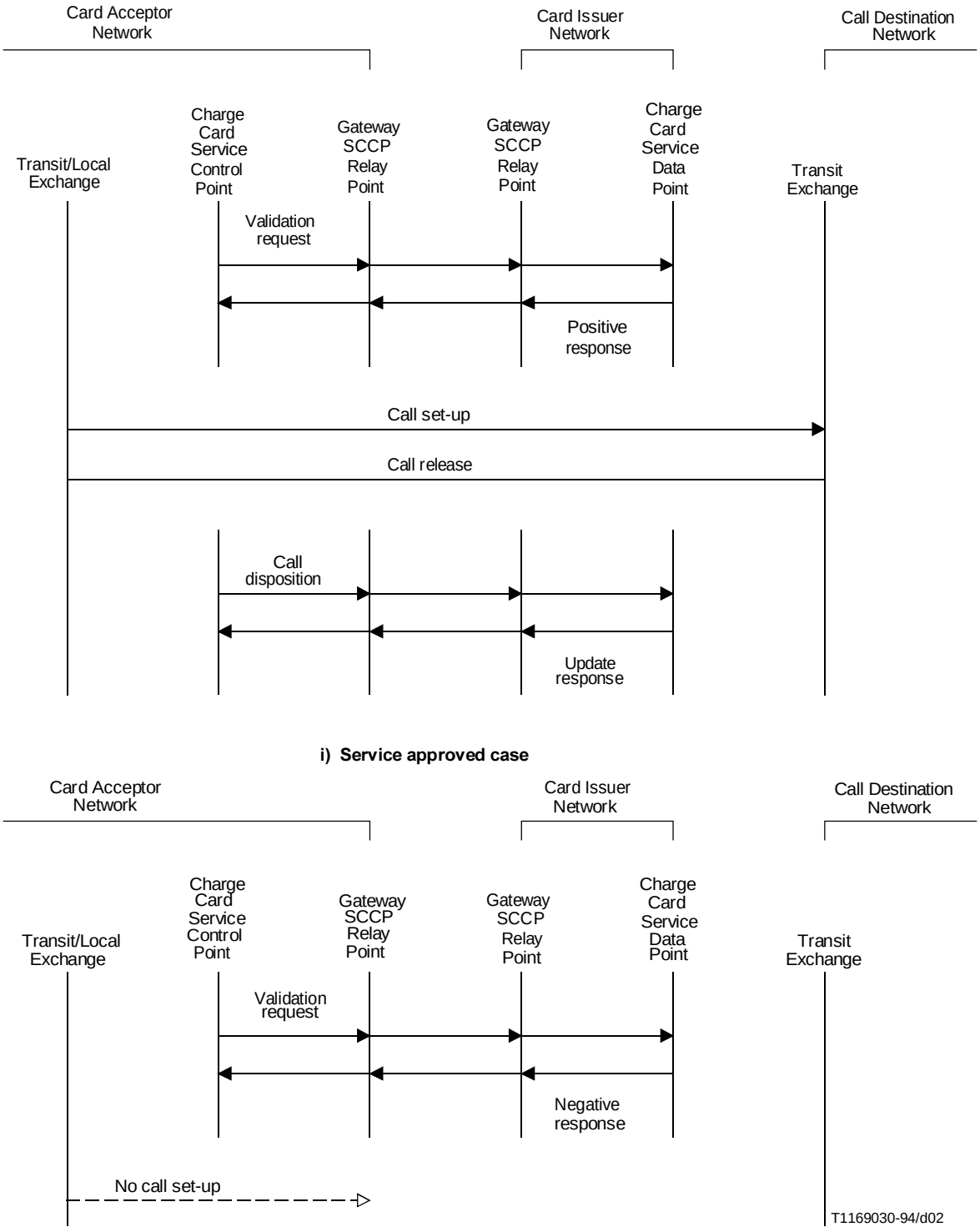


FIGURE 1-1/Q.736

Generic information flow for charge card validation and provision of call dispositon



NOTES

1 Interaction between a use an originating network to collect information required for the validation of a charge card is a local matter and outside the scope of this Recommendation.

2 ISDN and non-ISDN calls shall be available via ITCC.

3 Originator of the validation request and the call disposition may vary on different card acceptors.

FIGURE 1-2/Q.736

Signalling flows for ITCC