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ITU-T

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SERIES E: OVERALL NETWORK OPERATION,
TELEPHONE SERVICE, SERVICE OPERATION AND
HUMAN FACTORS

Operation, numbering, routing and mobile services –
International operation – General provisions concerning
Administrations

International telecommunication charge card service

ITU-T Recommendation E.116

ITU-T E-SERIES RECOMMENDATIONS

OVERALL NETWORK OPERATION, TELEPHONE SERVICE, SERVICE OPERATION AND HUMAN FACTORS

ITU-T RECOMMENDATION E.116

INTERNATIONAL TELECOMMUNICATION CHARGE CARD SERVICE

Summary

The international telecommunication charge card service, and particularly its automated use throughout the world, will provide benefits to both users and Recognized Operating Agencies (ROAs). This is based on a recognition of:

1) the ROAs' need for security against fraudulent use, simplified billing procedures and a reduction in the requirement for operator assistance when telephone calls are made other than on a direct payment basis;

2) the current and anticipated charge card technology which could provide increased security and enhanced service to users;

3) the growing requirement for charge cards to pay for a variety of telecommunications services.

As a result, ROAs (with appropriate authorization and coordination of their Administrations) are encouraged to prepare for, and introduce, the international telecommunication charge card service using the guidance of this Recommendation.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommuni-cations. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the 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.

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

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The 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, the ITU had/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.

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INTERNATIONAL TELECOMMUNICATION CHARGE CARD SERVICE

(revised 1997)

1   Preamble

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1)   the ROAs' need for security against fraudulent use, simplified billing procedures and a reduction in the requirement for operator assistance when telephone calls are made other than on a direct payment basis;

2)   the current and anticipated charge card technology which could provide increased security and enhanced service to users;

3)   the growing requirement for charge cards to pay for a variety of telecommunications services.

As a result, ROAs (with appropriate authorization and coordination of their Administrations) are encouraged to prepare for, and introduce, the international telecommunication charge card service using the guidance of this Recommendation.

1.1   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; 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.118 (1996), *The international telecommunication charge card*.

[2]   ITU-T Recommendation E.113 (1997), *Validation procedures for the international telecommunications charge card service*.

[3]   ISO/IEC 7813:1995, *Identification cards – Financial transaction cards*.

2   Service definition and general description

2.1   Service definition

The **international telecommunication charge card** service allows a holder of a telecommunication charge card[1] to make use of a variety of telecommunication services provided by the card acceptor and have charges billed to the customer's account by the Card Issuer.

2.2   General description

a)   The scope of services[2] for which the card applies will be subject to agreements between the Card Issuer and Card Acceptor.

b)   The service may use either full or limited validation of the card.

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[1]   This Recommendation specifically entails the use of a telecommunication charge card (89 cards) issued by an ROA in compliance with Recommendation E.118 [1]. The acceptance of cards issued by banks or other companies is a national matter and not included in this Recommendation, although it is recognized that these cards could be accepted in a similar manner.

[2]   It is not the intention of this Recommendation to limit the charge card service to the telephone service.

c) Subject to agreement between Card Acceptor and Card Issuer, the service may enable the card holder (user) to communicate:

  – back to the country of the Card Issuer;

  – within the country of the Card Acceptor;

  – between the country of the Card Acceptor and a third country.

  Use of the card within the country of issue is a national matter.

d) International telecommunication charge cards will conform to the relevant ITU-T (formerly CCITT) Recommendations.

e) The use of pre-paid or debit cards is not covered by this Recommendation.

3 Definitions

This Recommendation defines the following terms.

3.1 **card issuer**: The ROA that issues the card. The Card Issuer is responsible for the collection of charges from the card holder and for making the appropriate payments for the service concerned to the Card Acceptor.

3.2 **card acceptor**: The ROA that accepts the use of the card as payment for the provision of certain telecommunication services.

3.3 **full validation**: A procedure by which the card information is checked in a comprehensive way either against a complete database containing all valid cards for a particular Card Issuer or using the processing capability available on some types of cards in their dialogue with the system or in the system itself.

3.4 **limited validation**: One or more procedures to gain some assurance of the validity of the card. These procedures may include, but are not limited to, checks against a list of unacceptable cards and use of additional checking procedures which are based on the card number.

3.5 **unbillable calls**: Calls for which insufficient or incorrect billing information is conveyed to the Card Issuer such that the billing information cannot be associated with any particular customer account.

3.6 **uncollectable calls**: Calls for which billing is made to a particular customer account, but, for any of a variety of potential reasons, collection of the charge was not possible.

4 Service agreements between the Card Acceptor and Card Issuer

The international telecommunication charge card service depends on agreements between Card Acceptors and Card Issuers. Major items to be covered may include:

a) basis for settlement of service charges and surcharges;

b) exchange of billing and other information;

c) responsibility for fraudulent use of cards, and for uncollectable and unbillable calls;

d) validation procedures and any potential associated costs;

e) types of services for which cards may be used;

f) use of information contained in the discretionary data field, and default values used in the absence of specifically coded information on track 2;

g) use of data on tracks 1 and 3.

5 Types of cards which may be used

The types of cards which may be used are: the Integrated Circuit (IC) card (a card containing a microprocessor and memory in an IC chip), cards using the magnetic stripe technology and printed cards. (The cards are described/defined in Recommendation E.118 [1].)

6 Operational procedures for the use of cards

To derive the maximum benefit from the charge card, the card holder should not be required to show the card and should be able to invoke the service by simply providing the card information to the operator or associate system. The number on the card along with any additional validation checks should provide sufficient guarantee of the card's validity.

6.1 Customer access procedures for use of the card

The following subclauses describe the basic customer access procedures involved in using the charge card service. In addition, optional functions that may be invoked by the user are defined. Flow diagrams are provided in Annex B. These are guidelines and do not attempt to define the details required for service implementation.

6.1.1 Service invocation

The customer will invoke the service by first lifting the handset (or taking an action equivalent to going off hook). The following sequence of information is then provided by the customer. The manner of entry may be by key-pad, voice, card reader or a combination of these methods:

- service access number;

- destination number (a);

- Primary Account Number (PAN);

- PIN;

- destination number (b).

NOTE 1 – If the service access number is dedicated to a specific Card Issuer, then the destination number may be placed by the customer in either location (a) or (b) in the sequence.

NOTE 2 – If the service access number is shared by multiple Card Issuers, then the destination number may only be entered in position (b) and the first information entered by the customer after the service access number is the PAN.

NOTE 3 – Prompts will be provided by the service as required; however, they may be optionally overridden (by keying ahead) by the customer.

6.1.2 Presentation of the card or the card information

One or more possibilities are envisaged concerning the relevant information to the service provider, depending on the type of terminal available to the customer. These include but are not limited to:

– automatically, via a card reader;

– manually, via a key-pad;

– orally, through an operator or a voice recognition system.

Customers may be prompted, depending on the capabilities of the service provider (terminal or network), for information visually and orally.

6.1.3 Request for service

The customer enters the desired destination number and/or other information to enable the system to provide the desired service.

6.1.4 Optional functions available to the customer, depending on the capabilities of the service provider or as defined by the service agreement between the Card Issuer and service provider

a) Operator fallback – The customer should be able to obtain operator assistance either by specific request or by timeout during an expected input action. Operator fallback may also be possible in the case of a customer making an input error.

b) In-language instructions – The customer should be able to request that instructions and prompts be given in a specified language. To be useful, the selection of language should be made available as early in the process as possible (e.g. after lifting the handset); actual placement may depend on the capabilities of the terminal used.

c) Help instructions – The customer should be able to request additional information to augment the instruction or prompt being given, most likely in the specific language requested.

d) Termination of input string – The customer should be able to press a key (or sequence of keys) to identify the end of an input string.

e) Error correction – The customer should be able to press a key (or sequence of keys) to restart an input sequence when an error is self-detected by the customer during the input process.

f) Customer service request – The customer should, when encountering trouble in using the card service, be able to contact, through the local operator of the Card Acceptor:

– the customer service organization of the Card Acceptor to obtain, for example, help with local dialling instructions or directory assistance;

– the customer service organization of the Card Issuer to obtain, for example, help for problems with lost/stolen cards, restricted usage, credit limits, or where the card is not honoured.

The customer may also be able to directly contact the customer service organization of the Card Issuer by dialling a customer service number (normally without charge to the customer) that has been provided to the customer by the Card Issuer.

g) Follow-on call – The customer should be able to press a key (or sequence of keys) to enable a subsequent call to be made using the same charge card information.

h) Acceptance of other information – The system should be able to accept other discretionary information supplied by the user or contained on the card including, for example, other service or personal identification information.

6.2 System functions

The system providing the international telecommunication charge card service may be composed of several elements, including telecommunication terminals (e.g. card reading pay phones), operator systems, databases, signalling facilities, etc. However, configured to provide the necessary service functions to the customer, the following major systems functions should be enabled:

6.2.1 Card acceptance and reading

Depending on the type of terminal available to the customer, the system may be able to accept, read, and if required, write information on one or more types of cards (magnetic stripe, IC, etc.) intended for use with the service. For systems to interface with magnetic stripe cards, they may be able to read and process any information encoded on track 2 of the magnetic stripe as defined by ISO/IEC 7813 [3]. Recommendation E.118 [1] contains further clarification on how this information should be interpreted for telecommunication charge cards.

6.2.2 Card validation

The system should be able to determine whether a card or billing number is valid. Validation should take place for each call (or follow-on call, if provided) being attempted. These procedures should comply with Recommendation E.113 [2].

6.2.3 Information transfer

The system should be able to accept user information for immediate use or later transfer to other system components.

6.2.4 Call records

The system should be able to record accurate and complete call data (including validation indication) required for billing, accounting and administrative purposes.

6.2.5 User feedback

The system should be able to provide guidance and error feedback to the user to make the system easy and convenient to use.

6.2.6 Information security

The operation of the system should ensure that all reasonable precautions are taken to protect user information from disclosure to unauthorized parties.

7 Operational procedures for charging, accounting and billing

7.1 Charging and accounting

Charging and accounting principles are contained in the appropriate D-Series Recommendations.

7.2 Assessment of charges

The assessment of charges will be that applicable to the telecommunication service being used together with any service charges and/or surcharges that might be applicable to the international telecommunication charge card service.

7.3 Billing information

Billing information will provide sufficient data to identify the customer (i.e. the primary account number[3]) and charges to be levied. In the case of telephone service it may include the following:

a)   chargeable duration, chargeable number of units and/or charges as appropriate;

b)   calling and called number, including country codes where appropriate;

c)   time of day (hour and minutes) and date (day, month, year); and

d)   other information as agreed between the ROAs concerned.

Billing information required for other services is a matter for further study.

Annex A

Alphabetical list of abbreviations used
in this Recommendation

IC   Integrated Circuit

PAN   Primary Account Number

PIN   Personal Identification Number

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[3]   The Personal Identification Number (PIN) (or secret code) should not be provided to, nor should it appear in, the billing information.

Annex B

Procedure flow diagrams
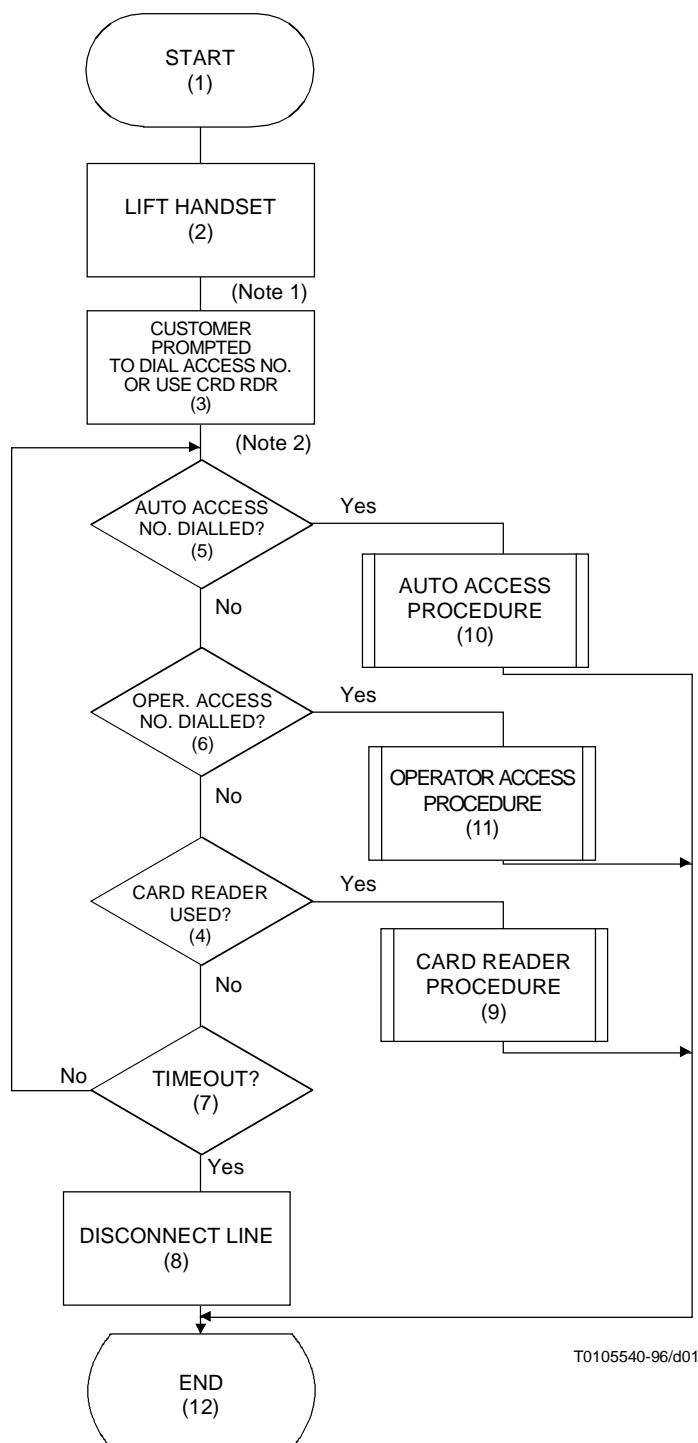
NOTE 1 – This is equivalent of going offhook.
NOTE 2 – Prompt may include dial tone or visual/oral message.

Figure B.1/E.116 – Customer access procedures

START (9)

READ MAG STRIPE (13)

IS CARD 89? (13.5) — No — NON 89 CARD PROCEDURE (3) — (Note 3) — C

Yes — A

CARD DATA DEPEN-DENT ON ROA'S IMPLEMENTATION (14)

PROMPT FOR PIN (15) (Note 4)

INPUT PIN (16) (Note 1)

SUBSEQ. IDENT. ATTEMPT? (17) — No — CALLED NUMBER PROCEDURE (18) (Note 6)

VALIDATION PROCEDURE Rec. E.113 (19) (Note 5)

IS CARD VALID? (20) — Yes — MAKE CALL PROCEDURE (21)

No

IDENT. ATTEMPTS EXCEEDED? (25) — Yes — B

No

INCREMENT IDENTIFICATION ATTEMPTS COUNTER (26)

PROMPT TO RE-ENTER CARD NUMBER (27) — A

FOLLOW ON CALLS ALLOWED? (22) — No — C

Yes

FOLLOW ON CALLS REQUESTED? (22.1) — No — C

Yes

B — OPERATOR FALLBACK AVAIL? (28) — Yes — MESSAGE (29) — OPERATOR ACCESS PROCEDURE (11)

No (Note 2)

C — MESSAGE: e.g. Thank you for using.. please replace handset (23) — DISCONNECT (24) — END (31)

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NOTE 1 – Indication of PIN entry should be shown (e.g. as *** for each digit keyed), but does not display actual PIN number.

NOTE 2 – Message given to user may depend on type of error (e.g. if card is invalid "Please contact your charge card issuer").

NOTE 3 – Use of non 89 cards is outside the scope of this Recommendation. It is envisaged that the procedure for such cards would be similar to those of 89 cards.

NOTE 4 – Card reader procedure may prompt for retries.

NOTE 5 – Number of PIN retries procedure will be dependent on the individual ROA's implementation.

NOTE 6 – The manner of implementation will indicate the sequence of "validation" and "called number" procedures.
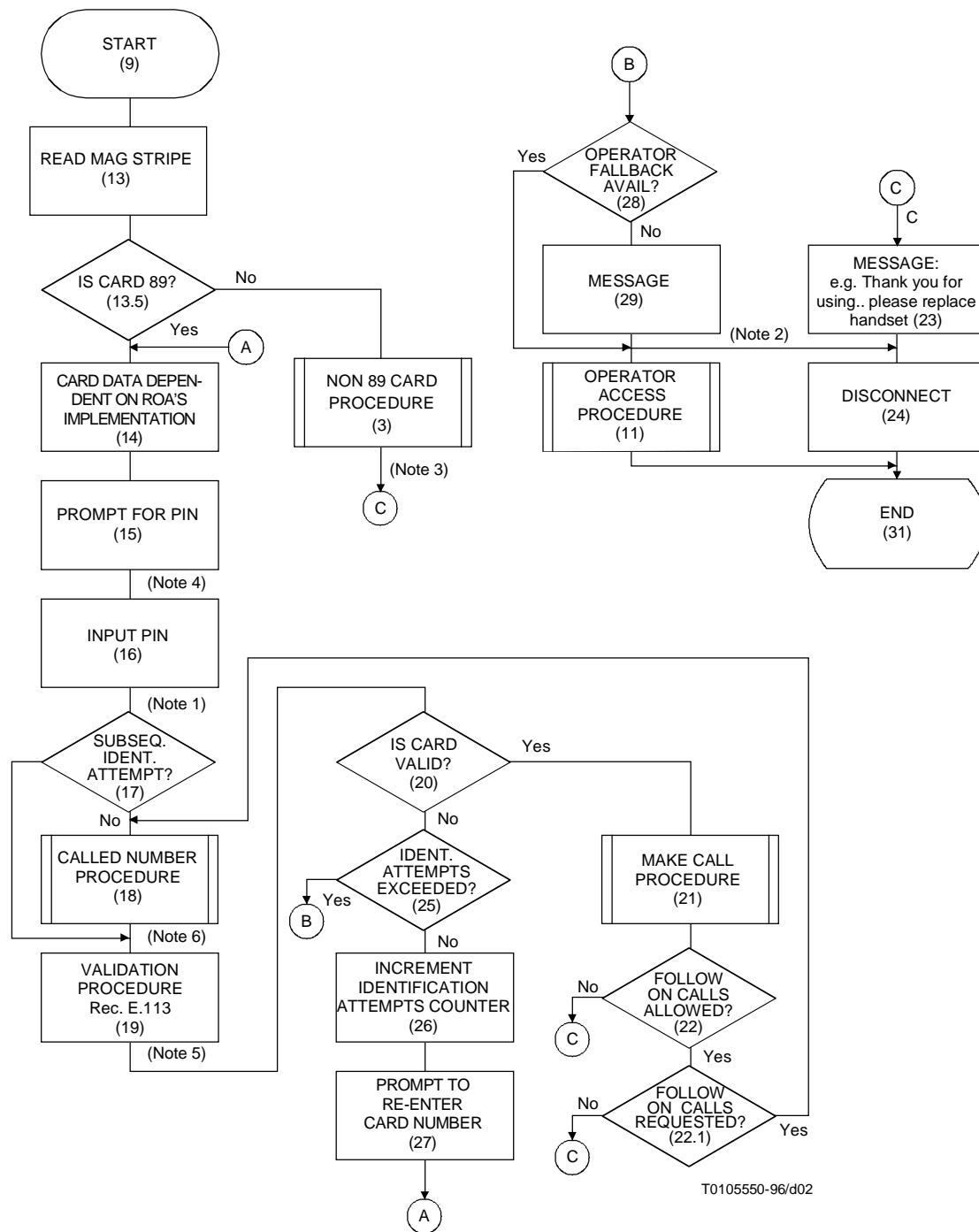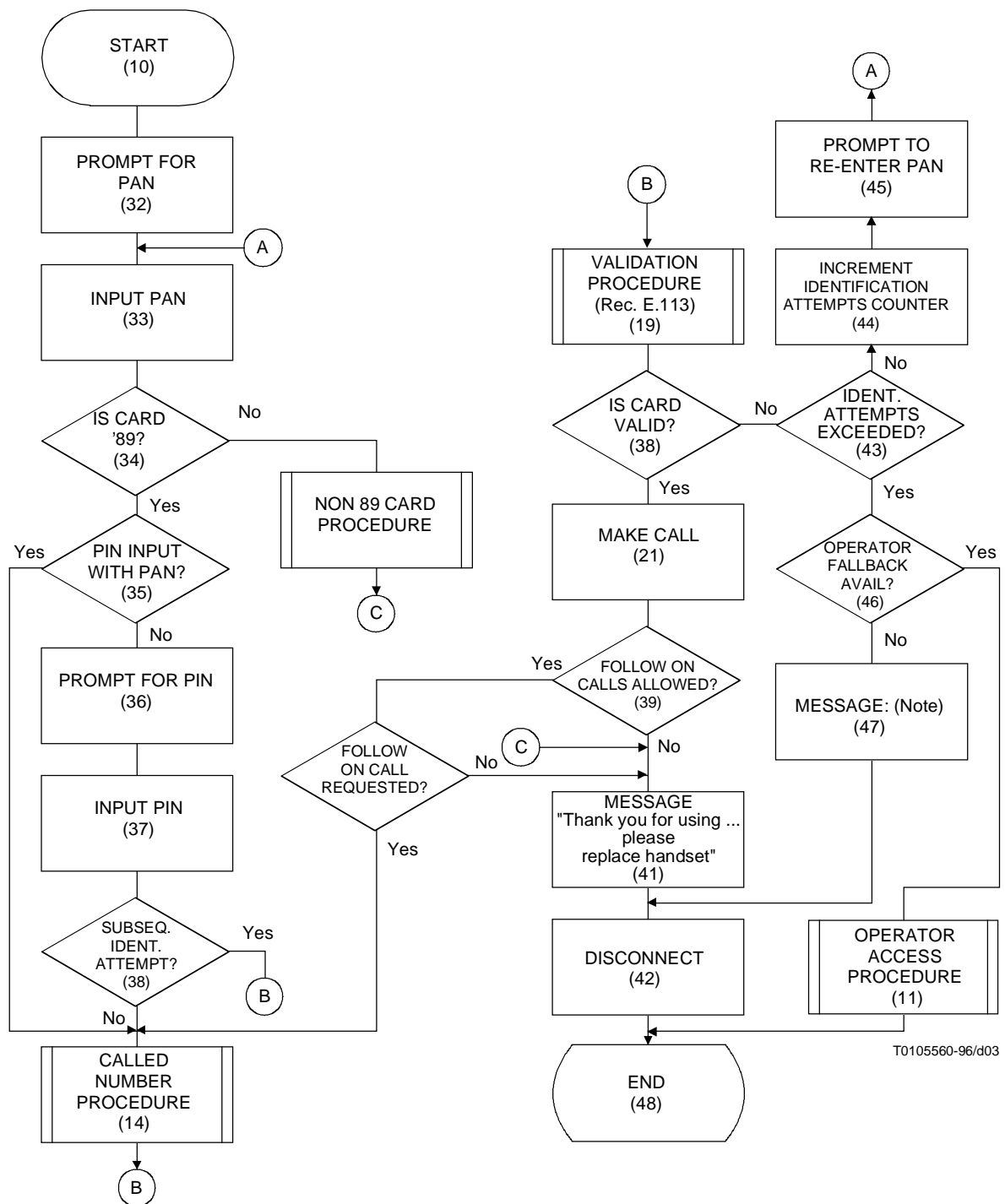
Figure B.2/E.116 – Card reader procedure (9)

NOTE – Message given to user may depend on type of error (e.g. if card is invalid "Please contact your charge card issuer").

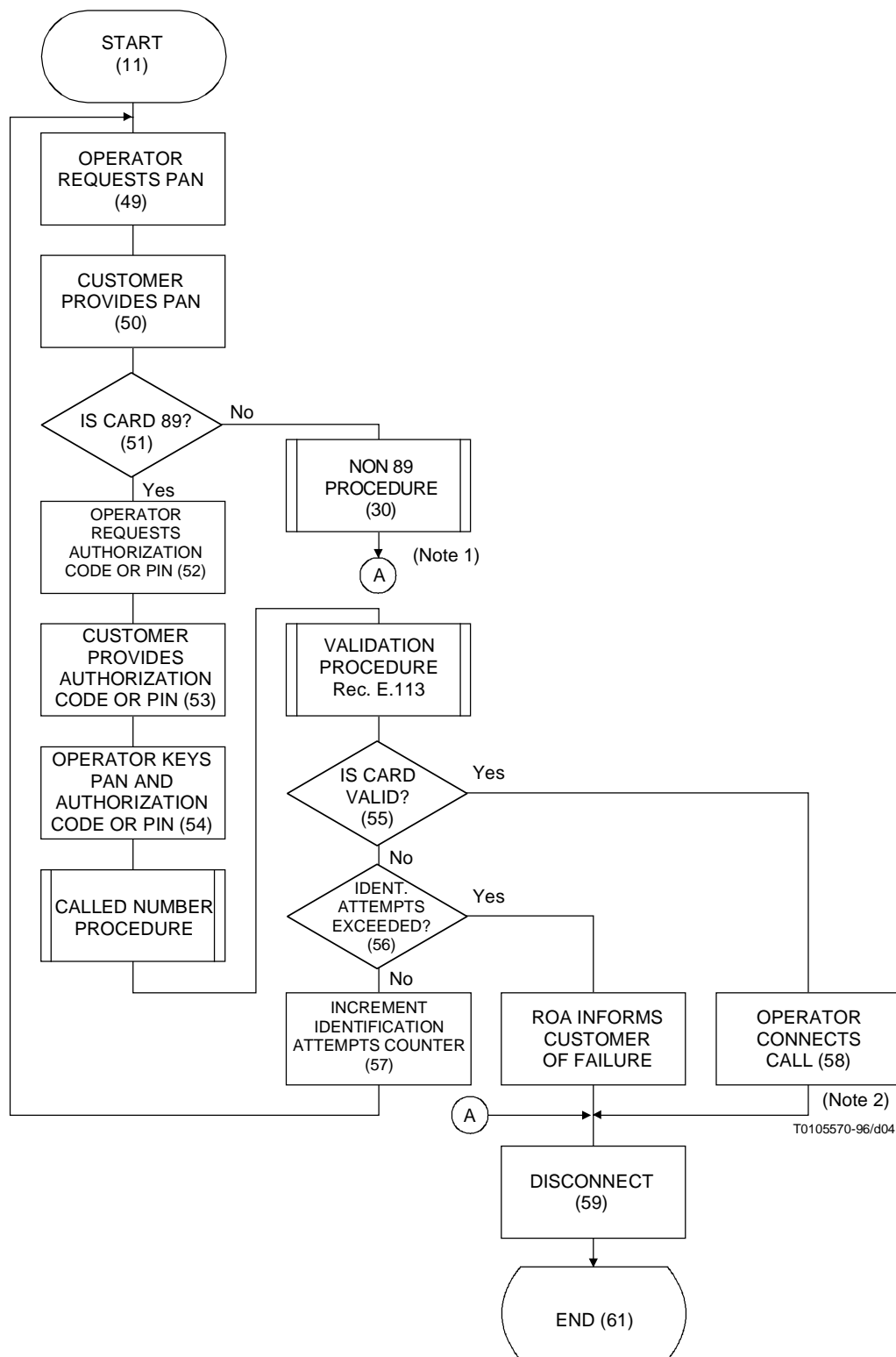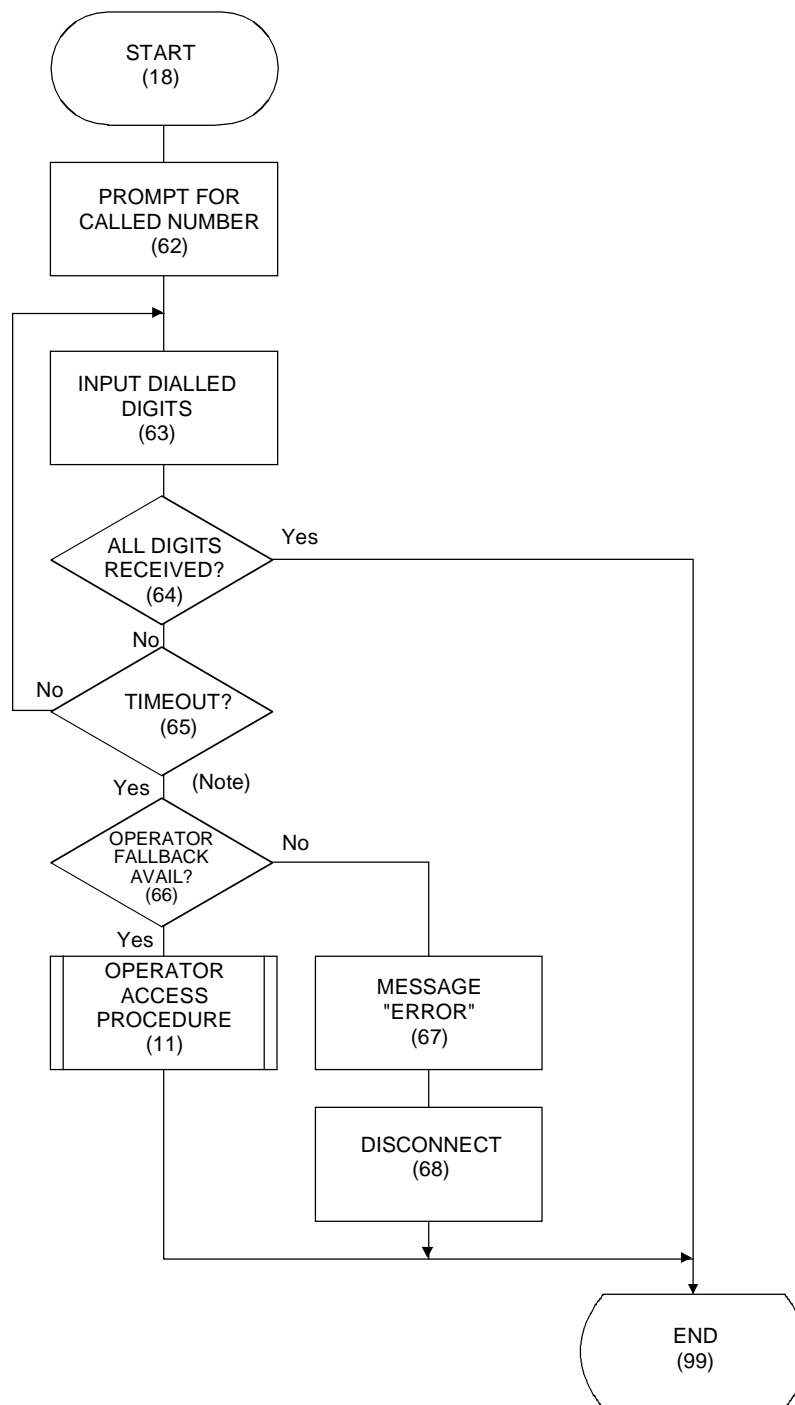**Figure B.3/E.116 – Auto access procedure (10)**

START
(11)

OPERATOR
REQUESTS PAN
(49)

CUSTOMER
PROVIDES PAN
(50)

IS CARD 89?
(51)

No

NON 89
PROCEDURE
(30)

(Note 1)

A

Yes

OPERATOR
REQUESTS
AUTHORIZATION
CODE OR PIN (52)

CUSTOMER
PROVIDES
AUTHORIZATION
CODE OR PIN (53)

VALIDATION
PROCEDURE
Rec. E.113

OPERATOR KEYS
PAN AND
AUTHORIZATION
CODE OR PIN (54)

IS CARD
VALID?
(55)

Yes

No

CALLED NUMBER
PROCEDURE

IDENT.
ATTEMPTS
EXCEEDED?
(56)

Yes

No

INCREMENT
IDENTIFICATION
ATTEMPTS COUNTER
(57)

ROA INFORMS
CUSTOMER
OF FAILURE

OPERATOR
CONNECTS
CALL (58)

(Note 2)

A

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DISCONNECT
(59)

END (61)

NOTE 1 – Use of non 89 cards is outside the scope of this Recommendation. It is envisaged that the procedure for such cards would be similar to those of 89 cards.

NOTE 2 – Detailed processes need to be agreed between the relevant ROAs.

Figure B.4/E.116 – Operator access procedure (11)

9

NOTE – Retry possibilities may be allowed.

Figure B.5/E.116 – Called number procedure (18)

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