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I.256.3

THE INTERNATIONAL
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INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

GENERAL STRUCTURE AND SERVICE CAPABILITIES

REVERSE CHARGING

Recommendation I.256.3

Geneva, 1992

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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Recommendation I.256.3 was prepared by Study Group I and was approved under the Resolution No. 2 procedure on the 4th of August 1992.

CCITT NOTE

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

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Recommendation I.256.3

REVERSE CHARGING

(1992)

1 Definition

Reverse Charging (REV) is a supplementary service allowing the served (called) user to be charged for the entire call or part of the call. Only usage-based charges can be charged to the called user.

There are four cases of reverse charging:

a) reverse charging requested by the calling user at call set-up time;

b) reverse charging for the rest of the call, requested by the calling user or the called user during the active phase of the call;

c) reverse charging for the entire call requested by the called user during the active phase of the call;

d) reverse charging unconditional.

Note – The calling user should not be provided with a bearer capability until the options of charging, either normal or reversed have been resolved.

2 Description

2.1 *General description*

2.1.1 *Case A*

This supplementary service allows a calling user, on a per-call basis, to request reverse charging at call set-up time and the called user to accept or reject the charges.

When a calling user does not explicitly request reverse charging, the calling user is charged as normal.

In order to use this service, the originating terminal needs to have the capability for requesting reverse charging.

2.1.2 *Case B*

Request by the calling user: This supplementary service allows a calling user, during the active phase of the call, to request reverse charging for the rest of the call. The called user can accept or reject this request.

In order to use this service, the originating terminal needs to have the capability for requesting reverse charging.

Request by the called user: This supplementary service allows a called user, during the active phase of the call, to request reverse charging for the rest of the call.

2.1.3 *Case C*

This supplementary service allows a called user, before disconnection of the call, to request reverse charging for the entire call.

When a called user does not explicitly request reverse charging, the calling user is charged as normal.

With this service the usage-based charges for the entire call are charged to the called user.

2.1.4 *Case D*

This supplementary service allows the called user to be charged for all incoming calls, or all incoming calls for a predefined set of basic services. No user request is required.

2.2 *Specific terminology*

None.

2.3 *Qualifications on the applicability to telecommunications services*

This service is applicable to all telecommunication services.

3 Procedures

3.1 *Provision/withdrawal*

The provision of one or more of the cases A-D is a network option.

Since this service is made available to the called user, the calling user does not need to subscribe to this service.

This service provides the following subscription options:

i) called user's subscription;

ii) no subscription. This means that reverse charging constitutes a fundamental ISDN service.

Call-by-call reverse charging and unconditional reverse charging are performed under the following conditions:

a) call-by-call reverse charging (cases A-C). Selection of option i) or ii) is a network matter;

b) unconditional reverse charging. Only option i) should be provided because the called user cannot reject reverse charging in this case.

In the case of reverse charging unconditional, as a subscription option this supplementary service can be provided for all basic services, or for a set of basic services.

At the discretion of network providers, this service may be offered on an ISDN number basis.

3.2 *Normal procedures*

3.2.1 *Activation/deactivation/registration*

The REV supplementary service shall be activated on provision and deactivated on withdrawal by the service provider.

3.2.2 *Invocation and operation*

3.2.2.1 *Case A*

A calling user sends the reverse charging request information with the call request to the network. The network subsequently sends this information to the called user. The called user then decides whether to accept or reject reverse charging.

Note – The called user may use other supplementary services [e.g. Called Line Identification Presentation (CLIP), User-to-User Signalling (UUS)] to decide whether to accept or reject reverse charging.

3.2.2.1.1 *Acceptance of reverse charging*

The called user responds with acceptance and the network starts charging the called user. The network also notifies the calling user of acceptance of reverse charging and proceeds with the call.

If the call reaches reverse charging case D, a case A request shall not affect the operation of case D. In this case the calling user shall be notified that reverse charging is taking place.

3.2.2.1.2 *Rejection of reverse charging*

If the called user responds with rejection, the network notifies the calling user and disconnects the call.

3.2.2.1.3 *Ignoring the request*

If the called user ignores the request for reverse charging, but attempts to accept the incoming call, it is assumed that he also rejects the request for reverse charging and the call is cleared.

3.2.2.2 *Case B – Request by the calling user*

A calling user sends the reverse charging request information to the network during an existing call. The network subsequently sends this information to the called user. The called user then decides to accept or reject reverse charging.

3.2.2.2.1 *Acceptance of reverse charging*

The called user responds with acceptance and the network starts charging the called user from that very moment on. The network also notifies the calling user of acceptance, stops charging the calling user and proceeds with the call.

3.2.2.2.2 *Rejection of reverse charging*

If the called user responds with rejection, the network notifies the calling user. The existing call remains unaffected and the calling user is charged continuously.

3.2.2.2.3 *Ignoring the request*

If the called user ignores the request for reverse charging, upon expiry of the ignore timer the network notifies the calling user. The existing call remains unaffected and the calling user is charged continuously. (The guideline of the ignore timer is 15 seconds.)

3.2.2.3 *Case B – Request by the called user*

A called user sends the reverse charging request to the network during an existing call. The network starts charging the called user from that very moment on. The network also stops charging the calling user, notifies the calling user and confirms to the called user.

3.2.2.4 *Case C*

A called user sends the reverse charging request before termination of the call. The network subsequently charges all usage-based charges for the entire call to the called user, notifies the calling user and confirms to the called user.

3.2.2.5 *Case D*

When a call is received by a user who has subscribed to this service, the network sends a set-up message including the reverse charging information to notify the called user. When the called user accepts the call, the network connects the call and starts charging the called user. The network also notifies the calling user.

3.3 *Exceptional procedures*

3.3.1 *Activation/deactivation/registration*

Not applicable.

3.3.2 *Invocation and operation*

In a given connection this supplementary service can be invoked only once. Further requests will be rejected by the network.

If the called user has not subscribed to this service, the user who has requested reverse charging may be notified. The network shall act according to the rejection cases of § 3.2.2.

3.4 *Alternative procedures*

None identified.

4 Network capabilities for charging

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

5 Interworking requirements

This service should be supported across the internetwork interface between ISDNs. Where either the calling user, or the called user are not within an ISDN, then an interworking situation is said to exist.

If the calling user is not within an ISDN, then the procedures within the calling user's network shall apply for request of case A (reverse charging on the request of the calling user).

It is possible that the public switched telephone network (PSTN) may not support services similar to cases B or C. If the calling user is not within an ISDN, reverse charging, case D, shall take place only if reverse charging can be supported by the calling user's network.

If the called user is not within an ISDN, then only case A requires consideration. In case A, the calling user will be informed of the interworking situation. It may be possible for the call to use the procedures in the other network to initiate a reverse charged call and in this case, the call may proceed. If no such arrangement is possible, then the procedures for rejection of the request will apply (see § 3.2.2).

It is possible that the PSTN may not support services similar to cases B, C or D.

6 Interaction with other supplementary services

6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.2 *Call Transfer*

Before transfer request

Both the initial call and the second call have no interaction with all REV modes, with one exception: in single-step Call Transfer, REV cases B and C, are not applicable to the second call.

After transfer

Any case B request made by the calling user should be rejected by the network. If charging is done on a per leg basis, case B or C may be requested by either user, if that user is a called user, for their leg of the call.

6.3 *Connected Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.5 *Calling Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.8 *Conference Calling*

No impact. (REV applies independently to each call.)

Note – Charges for the use of the conference calling supplementary service will not be subjected to reverse charging.

6.9 *Direct-Dialling-In*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.10 *Call diversion services*

If parties A, B and C are all in different countries, reverse charging for all charges to C should not be permitted.

Where charging on diverted calls occurs on a per leg basis, reverse charging should occur only on the leg on which it is requested.

A request for REV, case B, made by the calling user should always be rejected on calls which have been diverted.

REV, case B, requested by the called user and REV, case C, can only be requested on a final leg.

With respect to REV, cases A and D, the following restrictions apply:

a) on leg A-B_1, REV will come into operation only if user B_1 subscribes to REV, case D. User A may or may not have requested REV, case A, in addition;

b) on leg B_m-B_{m+1}, REV will come into operation only if user B_{m+1} subscribes to REV, case D. User B_m may or may not have requested REV, case A, together with a deflection request;

Note – In other cases of diversion, user B_m cannot make a request for REV on the outgoing leg.

c) on leg B_n-C, the following applies:

– if user C subscribes to REV, case D, REV will always come into operation. User B_n may or may not have requested REV, case A, together with a deflection request;

Note – In other cases of diversion, user B_n cannot make a request for REV on the outgoing leg.

– if user C does not subscribe to REV, case D, then REV will come into operation only if user B_n has requested REV, case A, together with a deflection request and user C accepts the REV request when connecting the call.

6.10.1 *Call Forwarding Busy*

See § 6.10.

6.10.2 *Call Forwarding No Reply*

See § 6.10.

6.10.3 *Call Forwarding Unconditional*

See § 6.10.

6.10.4 *Call Deflection*

See § 6.10.

6.11 *Line Hunting*

If reverse charging is subscribed to on the line hunting number, reverse charging applies to calls to this number.

6.12 *Three-Party Service*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service. (REV applies independently to each call.)

Note – Charges for the use of the Three-Party supplementary service will not be subjected to reverse charging.

6.13 *User-to-User Signalling*

REV, case A: User-to-user information (UUI) is charged to the called user if reverse charging is accepted. If the request for reverse charging is rejected, charging should be according to the UUS supplementary service.

REV, case B: Before the reverse charging acceptance, UUI is charged based on normal charging principle. After the acceptance, UUI is charged to the called user.

REV, case C: UUI is charged to the called user.

REV, case D: UUI is charged to the called user.

6.14 *Multiple Subscriber Number*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.16 *Advice of Charge*

6.16.1 *Advice of Charge, charging information at call set-up time*

Reverse charging, cases A and D: If reverse charging is accepted by the called user at call set-up time, advice of charge (AOC) may be given to the called user for this call. The calling user should be given a “free of charge” indication.

Reverse charging, cases B and C: If reverse charging is accepted by the called user during the active phase of the call, then a change in charging rate may be given to the called user after acceptance of reverse charging. The calling user should be given a “free of charge” indication at the time the called user accepts the reverse charging.

Note 1 – For reverse charging, case C, the called user will not be informed of the charging rate applied for the call before the acceptance of reverse charging.

Note 2 – Advice of charge information can only be provided to a called user when this user has the value for the activation subscription option set to "for all calls automatically".

6.16.2 *Advice of Charge, charging information during the call*

Reverse charging, cases A and D: When reverse charging has been accepted by the called user advice of charge may be given to the called user for this call. The calling user should be given a "free of charge" indication.

Reverse charging, case B: When reverse charging has been accepted by the called user, advice of charge may be given to the called user for the rest of the call.

Reverse charging, case C: If the charges incurred before the acceptance of reverse charging by the called user cannot be included in the charging information given to this user, then an indication that the AOC-D supplementary service is not available shall be given to the called user at the time the reverse charging is accepted.

Note – Advice of charge information can only be provided to a called user when this user has the value for the activation subscription option set to "for all calls automatically".

6.16.3 *Advice of Charge, charging information at the end of the call*

Reverse charging, cases A, C and D: The called user may receive advice of charge information with the billing identification set to "reverse charging". The calling user should be given a "free of charge" indication.

Reverse charging, case B: Each user should be given advice of charge for the part of the call they are charged for. The called user should also receive the billing identification "reverse charging".

Note – Advice of charge information can only be provided to a called user when this user has the value for the activation subscription option set to "for all calls automatically".

6.17 *Multi-level Precedence and Preemption*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.18 *Priority*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.19 *Malicious Call Identification*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.20 *Outgoing Call Barring*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

6.21 *Reverse charging*

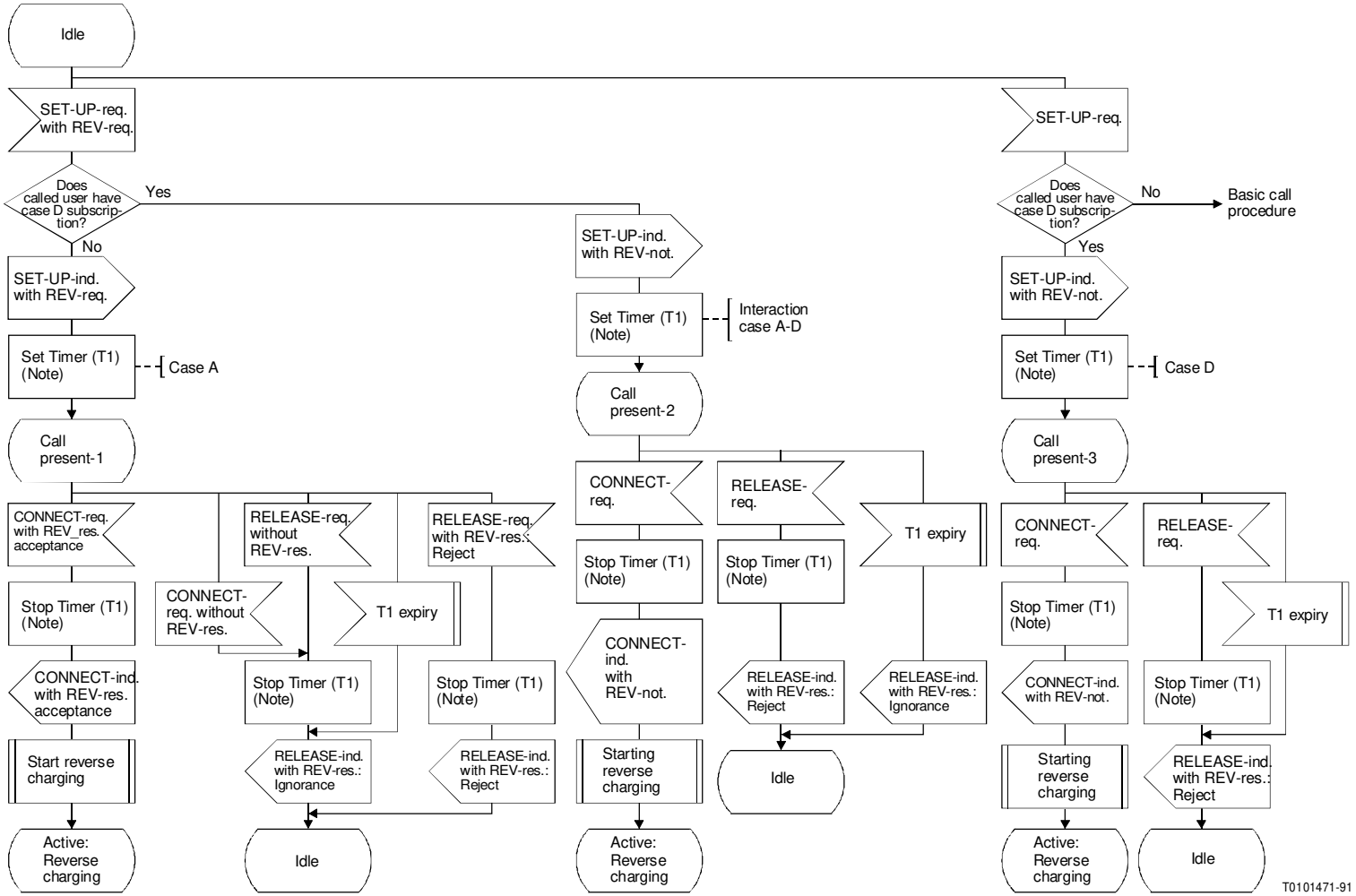
During one connection the use of this supplementary service is allowed only once, that is, when one mode of reverse charging is active, another mode of reverse charging request is rejected by the network. If the first reverse charging request is not accepted, either of the users may request the same or a different mode of reverse charging.

6.22 *Sub-addressing*

No impact, i.e. neither supplementary service affects the operation of the other supplementary services.

7 Dynamic description

See Figure 1/I.256.3.

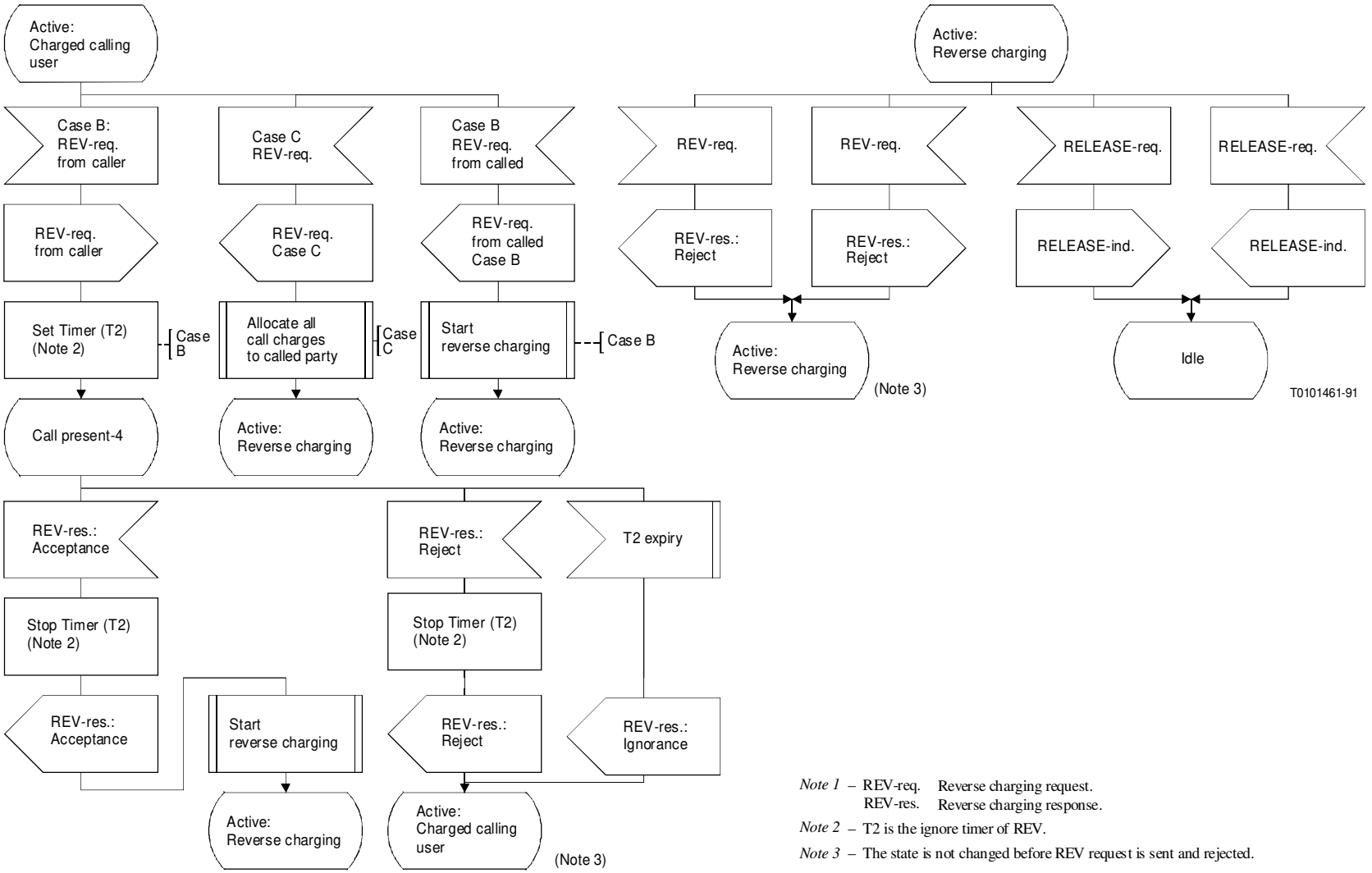


REV-req. Reverse charging request
REV-not. Reverse charging notification
REV-res. Reverse charging response

Note – T1 is the same as that of basic call procedure.

FIGURE 1/I.256.3 (sheet 1 of 2)

Overall SDL diagram of Reverse Charging



Note 1 – REV-req. Reverse charging request.
REV-res. Reverse charging response.

Note 2 – T2 is the ignore timer of REV.

Note 3 – The state is not changed before REV request is sent and rejected.

FIGURE 1/I.256.3 (sheet 2 of 2)

Overall SDL diagram of Reverse Charging