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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document had been submitted to the One-step Approval Procedure with the version number 2.0.0. For consistency reasons the version number is modified and the present document being published with the version number 1.1.1.

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1 Scope

The present document provides the definition, administrative aspects and operation for the Anonymous Call Rejection Supplementary service. Whilst the service description is generic there may be stage 2 and 3 requirements or other requirements for specific networks. Where there are identified issues for specific networks these will be indicated either in the relevant place in the text or in an annex.

The present document specifies a service as instructed by article 8, clause 3 of the EC Telecomms Data Protection Directive (97/66/EC [1]) - see annex E for the relevant extract from this directive.

The ACR supplementary service applies to Public Telecommunication Networks e.g. PSTN and ISDN.

The purpose of a generic service description is to enable future implementation to work in a similar manner for the view of the user.

At which point in the network the actual rejection of incoming call will take place is subject to national regulations and network considerations. The ACR supplementary service could be realized in two ways, either as a network based solution (of which the activation, deactivation and interrogation procedures are described in the present document) or as a user based solution using the basic call procedure which implementation is left to user's equipment manufacturer.

- 1) Network based solution: a service offered as part of a function within the public network for all incoming calls for which the calling line identification is not available because of restriction according to the CLIR supplementary service [3] and [5].
- 2) User based solution: a service offered as part of a function within the end-user equipment for all incoming calls or to be decided by the end-user per incoming call for which the calling line identification is not available because of restriction according to the CLIR supplementary service [3] and [5].

NOTE: If the presentation of the calling party number is restricted by network reasons the ACR supplementary service shall not apply.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] Directive 97/66/EC of the European Parliament and of the Council of 15 December 1997 concerning the processing of personal data and the protection of privacy in the telecommunications sector.
- [2] ETSI EN 300 089: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service Description".
- [3] ETSI EN 300 090: "Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service; Service description".
- [4] ETSI ETS 300 648: "Public Switched Telephone Network (PSTN); Calling Line Identification Presentation (CLIP) supplementary service; Service Description".
- [5] ETSI ETS 300 649: "Public Switched Telephone Network (PSTN); Calling Line Identification Restriction (CLIR) supplementary service; Service Description".

- [6] ETSI EN 300 356-1: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1997), modified]".
- [7] ETSI EN 300 356-3: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 4 for the international interface; Part 3: Calling Line Identification Presentation (CLIP) supplementary service [ITU-T Recommendation Q.731, clause 3 (1993), modified]".
- [8] ETSI EN 300 356-4: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 4 for the international interface; Part 4: Calling Line Identification Restriction (CLIR) supplementary service [ITU-T Recommendation Q.731, clause 4 (1993), modified]".
- [9] ETSI EN 300 356-21: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 4 for the international interface; Part 21: Anonymous Call rejection (ACR) supplementary service [ITU-T Recommendation Q.731 clause 4 (1993)]".
- [10] ETSI EN 300 485: "Integrated Services Digital Network (ISDN); Definition and usage of cause and location in Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 ISDN User Part (ISUP) [ITU-T Recommendation Q.850 (1998), modified]".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

Served user: user to whom the ACR supplementary service is provided.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACR	Anonymous Call Rejection
APRI	Address Presentation Restriction Indicator
CLI	Calling Line Identification
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
ISDN	Integrated Services Digital Network
PSTN	Public Switched Telephone Network

4 User Requirements

The served user shall have the ability to reject calls based on the indication that the calling line identity is not presented because of restriction according to the CLIR supplementary service [3] and [5].

The called party's equipment shall not be alerted.

Depending on the solution how the ACR supplementary service is implemented, the following user requirements apply:

- 1) network based solution: the ability to activate, deactivate and interrogate the supplementary service;
- 2) user based solution: the ability to activate, deactivate and interrogate the supplementary service to reject all incoming calls are implementation dependent and left to user's equipment manufacturer.

With the network based solution there shall be no need to use special terminal equipment, whereas the user based solution there is.

5 Service Definition

The Anonymous Call Rejection (ACR) supplementary service allows the served user to reject incoming calls from users or subscribers who have restricted the presentation of their calling line identity according to the CLIR supplementary service [3] and [5].

ACR will reject all calls with CLI marked "presentation restricted" according to CLIR. The calls are rejected regardless of the current state (e.g. free or busy) of the served user's access. The ACR supplementary service shall not reject calls with a CLI marked "presentation restricted by network". The served user's ability to originate calls is unaffected by the ACR supplementary service.

The calling user shall be given an appropriate indication that the call has been rejected due to the application of the ACR supplementary service.

NOTE: The method of rejection of anonymous calls is a service provider option, and may include the functionality where all anonymous calls are forwarded to e.g. a voice mail service.

6 Procedures

6.1 Provision/Withdrawal

When implemented as a network based solution:

1. The ACR supplementary service shall be provided after prior arrangement with the service provider.
2. The ACR supplementary service shall be withdrawn at the served user's request or for administrative reasons.

6.2 Normal Procedures

6.2.1 Registration and erasure

Not applicable.

6.2.2 Activation and deactivation

The customer shall have the ability to turn the ACR supplementary service on (activate) and off (deactivate).

When implemented as a network based solution to activate or deactivate the ACR supplementary service the user shall send appropriate information to the network.

6.2.3 Invocation and operation

When the ACR supplementary service has been activated, then the ACR supplementary service shall automatically be invoked for all incoming calls where the calling line identity is marked as "presentation restricted" according to the CLIR supplementary service [3] and [5].

ACR shall not be invoked for incoming calls that have their CLI marked: "not available", "presentation allowed" or "presentation restricted by network".

NOTE: These cases include for example incoming calls from subscribers and network initiated calls.

6.2.4 Interrogation

When implemented as a network based solution the served user can interrogate the network in order to determine the status of the ACR supplementary service.

6.3 Exceptional Procedures

If the user attempts to activate, deactivate or interrogate the ACR supplementary service and the service provider cannot comply to the request, the service provider shall reject the request.

Possible reasons for rejection are:

- the ACR supplementary service is not subscribed to.

7 Intercommunication Considerations

NOTE 1: Due to limitations of non-ISDN networks calls may be subject to unintended rejections where any information identifying the calling party is signalled inside the network as "presentation restricted" although the calling user is willing to identify him/herself. The risk of these unintended rejections can be avoided by updating the network to support end-to-end a distinction between "presentation allowed" and "presentation restricted".

NOTE 2: The risk of unintended rejections also applies to existing situations where a network enters a default number not presentable to the called user and signalled inside the network as "presentation restricted". The risk of these unintended rejections can be avoided when these numbers are handled inside the network as "presentation restricted by network" end-to-end and/or by use of the extended screening option as part of the CLIP supplementary service [2] and [4].

NOTE 3: When interworking with existing implementations the explicit information that the call was rejected due to the ACR supplementary service may be lost.

7.1 Interworking with Private Networks

When the calling user belongs to a private network an appropriate indication that the call was rejected due to the ACR supplementary service shall be sent to the private network to which the calling user is attached for forwarding to the calling user.

When a private network returns an appropriate indication that the call was rejected due to the ACR supplementary service this shall be handled by the public network as described in clause 5.

NOTE: When interworking with existing implementations the explicit information that the call was rejected due to the ACR supplementary service may be lost.

Annex A (normative): ISDN Interactions

This annex applies only to the network based solution. Interactions with any supplementary services not listed below can be found in the standards containing the service descriptions for those supplementary services.

A.1 Advice of charge services

A.1.1 Charging information at call set-up time

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.1.2 Charging information during the call

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.1.3 Charging information at the end of the call

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.2 Call Waiting

If the called user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call Waiting supplementary service. The ACR supplementary service can be activated while a call is waiting without changing the state of the waiting call.

A.3 Call Hold

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.4 Call Transfer

A.4.1 Explicit call transfer

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.5 Number Identification Services

A.5.1 Calling line identification presentation

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

If the called user has subscribed to the override category according to the CLIP supplementary service [4], then the ACR supplementary service shall not apply.

A.5.2 Calling line identification restriction

If the called user has activated the ACR supplementary service, then the CLIR supplementary service [3] causes the execution of the ACR supplementary service in accordance with the procedures in subclause 6.2.3.

A.5.3 Connected line identification presentation

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.5.4 Connected line identification restriction

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.6 Closed user group

If the called user has activated the ACR supplementary service, then if a closed user group call is offered to the called user, the closed user group supplementary service shall take precedence over the ACR supplementary service. If the called user also has the incoming access capability within the closed user group supplementary service, and if the offered call to the called user is a non-closed user group call, the ACR supplementary service shall take precedence over the closed user group supplementary service.

A.7 Completion of calls

A.7.1 Completion of calls to busy subscriber

NOTE 1: A CCBS recall (from the network to the calling user) resulting from the completion of calls to busy subscribers shall not be rejected due to the application of the ACR supplementary service.

Assume the calling user calls the called user and the called user activates the ACR supplementary service (or has activated the ACR supplementary service):

The ACR supplementary service was activated by the called user before the calling user originates a call:

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

NOTE 2: If the calling subscriber has restricted its CLI due to the CLIR supplementary service [3] and if the called user is busy, the calling user will receive no busy indication, and the completion of calls to busy subscriber supplementary service will not apply. Instead the call attempt shall be rejected according to the normal procedures of the ACR supplementary service.

The ACR supplementary service is activated by the called user after the calling user has activated the completion of calls to busy subscriber supplementary service on the called user:

If the called user activates the ACR supplementary service after the calling user has activated the completion of calls to busy subscriber supplementary service on the called user, then the call resulting from the completion of calls to busy subscriber supplementary service shall be rejected if the calling subscriber has restricted its CLI due to the CLIR supplementary service [3].

A.7.2 Completion of calls on no reply

NOTE: A CCNR recall (from the network to the calling user) resulting from the completion of calls on no reply shall not be rejected due to the application of the ACR supplementary service.

The ACR supplementary service was activated by the called user before the calling user originates a call:

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

The ACR supplementary service is activated by the called user after the calling user has activated the completion of calls on no reply supplementary service on the called user:

If the called user activates the ACR supplementary service after the calling user has activated the completion of calls on no reply supplementary service on the called user, then the call resulting from the completion of calls on no reply supplementary service shall be rejected if the calling subscriber has restricted its CLI due to the CLIR supplementary service [3].

A.8 Conference services

A.8.1 Conference call, add-on

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.8.2 Meet-me conference

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.9 Direct dialling in

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.10 Call Diversion services

NOTE: The precedence that ACR takes over the call diversion services does not exclude the usage of forwarding functionality in the ACR functionality itself. As an example: forwarding of anonymous calls (e.g. to a voice mailbox), as part of the ACR functionality is possible.

If the diverted-to user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call diversion supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

A.10.1 Call forwarding unconditional

If the served (forwarding) user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call forwarding unconditional supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

A.10.2 Call forwarding busy

If the served (forwarding) user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call forwarding busy supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

NOTE: In the case of user determined busy, if the calling subscriber has restricted its CLI due to the CLIR supplementary service [3] the call will not be presented.

A.10.3 Call forwarding no reply

If the served (forwarding) user has activated the ACR supplementary service:

- no impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

NOTE: If the calling subscriber has restricted its CLI due to the CLIR supplementary service [3] the call will not be presented.

A.10.4 Call deflection

If the served (deflecting) user has activated the ACR supplementary service:

- no impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

NOTE: If the calling subscriber has restricted its CLI due to the CLIR supplementary service [3] the call will not be presented.

A.10.5 Selective call forwarding

If the served (forwarding) user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Selective Call forwarding supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

A.11 Freephone

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.12 Malicious call identification

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.13 Multiple subscriber number

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.14 Subaddressing

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.15 Terminal portability

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.16 Three party

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.17 User-user signalling

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.18 Outgoing call barring

A.18.1 Outgoing call barring: fixed

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.18.2 Outgoing call barring: user controlled

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

A.19 Message waiting indication

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

Annex B (normative): PSTN Interactions

This annex applies only to the network based solution. Interactions with any supplementary services not listed below can be found in the standards containing the service descriptions for those supplementary services.

B.1 Number Identification Services

B.1.1 Calling line identification presentation

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

If the called user has subscribed to the override category according to the CLIP supplementary service [4], then the ACR supplementary service shall not apply.

B.1.2 Calling line identification restriction

If the called user has activated the ACR supplementary service, then the CLIR supplementary service [3] and [5] causes the invocation of the ACR supplementary service in accordance with the procedures in subclause 6.2.3.

Annex C (informative): ISDN Interactions

The supplementary services in this section are considered important interactions with ACR but are not standardized ETSI services so cannot be included in the main text. They are therefore included in this informative annex.

C.1 Incoming Call Barring

The ICB takes precedence over ACR. ICB shall operate normally on calls with active ACR. In particular, ICB shall continue to bar calls irrespective of CLI status.

Annex D (informative): PSTN Interactions

The supplementary services in this section are considered important interactions with ACR but are not standardized ETSI services so they cannot be included in the main text. They are therefore included in this informative annex.

D.1 Incoming Call Barring

The ICB takes precedence over ACR. ICB shall operate normally on calls with active ACR. In particular, ICB shall continue to bar calls irrespective of CLI status.

D.2 Advice of charge services

D.2.1 Charging information at call set-up time

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.2.2 Charging information during the call

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.2.3 Charging information at the end of the call

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.3 Call Waiting (CW)

If the called user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call Waiting supplementary service. Rejected calls shall not cause Call Waiting indication.

D.4 Call Hold

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.5 Call Transfer

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.6 Completion of calls

D.6.1 Completion of calls to busy subscriber

NOTE 1: A CCBS recall (from the network to the calling user) resulting from the completion of calls to busy subscribers shall not be rejected due to the application of the ACR supplementary service.

Assume the calling user calls the called user and the called user activates the ACR supplementary service (or has activated the ACR supplementary service):

The ACR supplementary service was activated by the called user before the calling user originates a call:

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

NOTE 2: If the calling subscriber has restricted its CLI due to the CLIR supplementary service [3] and [5] and if the called user is busy, the calling user will receive no busy indication, and the completion of calls to busy subscriber supplementary service will not apply. Instead the call attempt shall be rejected according to the normal procedures of the ACR supplementary service.

The ACR supplementary service is activated by the called user after the calling user has activated the completion of calls to busy subscriber supplementary service on the called user:

If the called user activates the ACR supplementary service after the calling user has activated the completion of calls to busy subscriber supplementary service on the called user, then the call resulting from the completion of calls to busy subscriber supplementary service shall be rejected if the calling subscriber has restricted its CLI due to the CLIR supplementary service [5].

D.6.2 Completion of calls on no reply

NOTE: A CCNR recall (from the network to the calling user) resulting from the completion of calls on no reply shall not be rejected due to the application of the ACR supplementary service.

The ACR supplementary service was activated by the called user before the calling user originates a call:

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

The ACR supplementary service is activated by the called user after the calling user has activated the completion of calls on no reply supplementary service on the called user:

If the called user activates the ACR supplementary service after the calling user has activated the completion of calls on no reply supplementary service on the called user, then the call resulting from the completion of calls on no reply supplementary service shall be rejected if the calling subscriber has restricted its CLI due to the CLIR supplementary service [5].

D.7 Conference services

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.8 Direct dialling in

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.9 Call Forwarding services

NOTE: The precedence ACR takes over the call forwarding services does not exclude the usage of forwarding functionality in the ACR functionality itself. As an example: forwarding of anonymous calls (e.g. to a voice mailbox) as part of the ACR functionality is possible.

If the forwarded-to user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call Forwarding supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

D.9.1 Call forwarding unconditional

If the served (forwarding) user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call forwarding unconditional supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

D.9.2 Call forwarding busy

If the served (forwarding) user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Call forwarding busy supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

D.9.3 Call forwarding no reply

If the served (forwarding) user has activated the ACR supplementary service:

- no impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.9.4 Selective call forwarding

If the served (forwarding) user has activated the ACR supplementary service, then the ACR supplementary service shall take precedence over the Selective Call forwarding supplementary service i.e. the call shall be rejected according to the ACR supplementary service.

D.10 Freephone

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.11 Malicious call identification

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.12 Multiple subscriber number

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.13 Three party

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.14 Outgoing call barring

D.14.1 Outgoing call barring: fixed

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.14.2 Outgoing call barring: user controlled

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

D.15 Message waiting indication

No impact, i.e. neither supplementary service shall affect the operation of the other supplementary service.

Annex E (informative): Guidelines

Rationale for the standard:

Extract from Article 8, Clause 3 Telecomms Data Protection Directive (97/66/EC [1])

"Where presentation of calling line identification is offered and where the calling line identification is presented prior to the call being established, the called subscriber must have the possibility via a simple means to reject incoming calls where the presentation of the calling line identification has been eliminated by the calling user or subscriber".

The following guidelines from ECTRA were taken into consideration for the present document:

Information coming from network to called party	result of triggering of ACR service	result at called party terminal
No CgPN	ACR not invoked	call delivered, no Calling Identity displayed
CgPN " address not available "	ACR not invoked	call delivered, no Calling Identity displayed
CgPN " presentation allowed "	ACR not invoked	call delivered, Calling Identity displayed
CgPN " presentation restricted "	ACR invoked	no call delivered, no Calling Identity displayed

First requirement

The conditions under which the operator may use the value 2 "address not available" in place of the value 1 "presentation restricted" shall be submitted for approval in each country to the competent national authorities.

In other cases, network(s) shall not replace the value 1 "presentation restricted" by the value 2 "address not available" or vice versa.

Second requirement

A network, which has not the capacity to offer the CLIR supplementary service [3] and [5] to the users, i.e. the CLI blocking, should use the value 2 "address not available".

Third requirement

If the use of the value 2 "address not available" is expanded, the operators shall ensure that a national previous use of this indicator will not conflict with the new definition.

Fourth requirement

The new use of the value 2 "address not available" shall be implemented in a way to ensure that as many digits of the calling party number parameter in the SS7 ISUP Signalling [6] as possible are present. Therefore the "note" to this parameter which stipulates there is no digits transmitted in case of the value 2 "address not available" has to be reviewed.

Fifth requirement

The new use of the value 2 "address not available" shall be implemented in a way to ensure that the MCID can be invoked for such a call.

Sixth requirement

The right to override the value 1 "presentation restricted" for emergency calls to the organizations as identified by article 9 of Directive 97/66/EC [1] shall be expanded to override the value 2 "address not available" for the presentation of the number to the called party.

Seventh requirement

Backward compatibility with the existing services shall be ensured. The introduction of new identities or new services based on CLI shall take into account all these requirements. The interaction of services shall be studied in order to ensure backward compatibility and to preserve the privacy and the data protection rights of the users as provided for by Directive 97/66/EC [1].

Please note that the above considerations have resulted in the specification of the new CLI APRI value "presentation restricted by network" in the calling party number parameter supported with SS7 ISUPv4 signalling [6], [7], [8] and [9] and in the specification of the new cause value #24 [9] and [10].

All the requirements made by CEPT ECTRA TRIS about the existing CLI APRI value "address not available" are still valid and furthermore refer to the new CLI APRI value "presentation restricted by network".

Annex F (informative): Additional Guidelines

F.1 Observations on user based vs network based solutions

F.1.1 User-based solution of ACR

In this case the user has either to buy new equipment (analogue subscribers) or if possible to update its existing equipment in order to cover ACR if the current equipment that the user possesses is not able to handle existing capabilities.

Advantages:

- more or less convenient application of ACR;
- the user equipment could also cover other features like black and/or white lists, selective call rejections applications;
- no requirements to the public network operator due to the fact that only basic call applies.

Disadvantages:

- the user equipment is becoming more complex and therefore more expensive;
- different applications of ACR depending on different user equipment implementations. Therefore there is no guarantee that in case of voice basic call a correct announcement is given to the calling user indicating that the call has been rejected due to ACR. In this particular case the call attempt will remain unsuccessful i.e. lost of revenue for the public network operator;
- in case of analogue subscriber a user-based application is only possible if the Calling Line Identity (CLI) is delivered by the public network to the user. In many European countries public operators do not deliver the CLI to the called user; special equipment is needed on the user and on the network side (local exchange) to transmit display information to the called user. This is the main disadvantage of a user based solution.

F.1.2 Network-based solution

Advantages:

- a simple and common application of the ACR which is available for both, analogue and ISDN subscribers;
- in case of analogue subscribers no delivery of CLI is needed i.e. no cost will result in providing the CLI to the called user by the public network operator;
- no change in the user equipment provided the keypad protocol is used in case of ISDN;
- there is a guarantee that in case of voice basic call a correct announcement is given to the calling user indicating that the call has been rejected due to ACR. This calling user will then have the opportunity to change the presentation of its calling line identity from 'restricted' to 'allowed' and so permit a successful call attempt i.e. an increase of revenue for the public network operator;
- many new public network operators are present in different countries. They want to provide the same service to their customer independent of the country.

Disadvantages:

- in order to provide a clear ACR implementation on the public network side, a proper service description is needed for both analogue and ISDN subscribers considering all the possible interactions with other existing supplementary services.

F.1.3 Conclusions

- The choice between a user based or a network based solution for ACR should be left to the different public network operators or national regulations.
- In case of a user based solution for ACR no specific requirements to the public network exist i.e. the basic call procedure will apply.

F.2 Functional differences of the network and user based solution

To explain the differences between network base and user based ACR the following functional decomposition in 3 items can be helpful:

1. the point of rejection, the functionality that does not allow the call to reach the called party;
2. the functionality that generates an "appropriate indication" to inform the calling party about the rejection;
3. the functionality that conveys this "appropriate indication" to the calling party.

With both the network and user based solution item 3 is a network responsibility.

In case of a network based solution item 1 and 2 are the responsibility of the network. In case of a user-based solution, item 1 and 2 are the responsibility of the user equipment.

With the user-based solution the generation of the "appropriate indication" is the responsibility of the user (equipment) but the network still has to support the conveying of this indication from the user equipment to the network.

F.3 Selective Anonymous Call Rejection

As a service provider option, the service may have some variants, e.g. additional screening function allowing a selective calls rejection of the calls with CLI marked "presentation restricted" according to the CLIR supplementary service [3] and [5] (some defined calls may override the ACR supplementary service).

F.4 Avoiding rejection of calls

F.4.1 Network initiated calls

For network initiated calls (e.g. wake-up service) and for calls from special resources (e.g. emergency services, public phone booth and operator assisted calls) to not be rejected by ACR the CLI should not be marked "presentation restricted" according the CLIR supplementary service [3] and [5] but with "presentation restricted by network".

F.4.2 User initiated calls

The calling party can have (i.e. if provided with CLIR temporary mode) the opportunity to change the presentation of the Calling Line Identity of the call from "presentation restricted" to "presentation allowed" permitting a successful call attempt.

F.5 Informing the calling party

The generated "appropriate indication" can be (not exhaustive):

- a cause value (a specific cause value for ACR rejection is reserved);
- an in-band announcement;
- a special announcement via a voicemail box.

History

Document history		
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V1.1.1	October 2000	Publication