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Technical Specification

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Line identification Supplementary Services; Stage 1 (Release 16)



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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

- 1 presented to TSG for information;
- 2 presented to TSG for approval;
- 3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

0 Scope

The present document describes the Supplementary Services belonging to the group Line Identification Supplementary Services.

The general aspects, including definitions and recommended provision, of the description of the Supplementary Services are given in 3GPP TS 22.004.

The group of Line Identification Supplementary Services is divided into the following four Supplementary Services:

- CLIP** - Calling line identification presentation (clause 1);
- CLIR** - Calling line identification restriction (clause 2);
- COLP** - Connected line identification presentation (clause 3);
- COLR** - Connected line identification restriction (clause 4).

Definition of line identity: The line identity is made up of a number of information units:

- the subscriber's national ISDN/MSISDN number (MSISDN number is the number stored in the VLR);
- the country code;
- optionally, subaddress information. The PLMN cannot be responsible for the content of this subaddress. (For definition of the subaddress see ITU-T Recommendation E.164 [3] subclause 11.2).

In a full ISDN environment, the line identity shall include all the address information necessary to unambiguously identify a subscriber.

The calling line identity is the line identity of the calling party.

The connected line identity is the line identity of the connected party.

If for the line identity of the calling party or the connected party additional line identification is received (additional calling party/connected party number) in a PLMN this additional line identification shall be used for the presentation purpose of the line identification presentation services.

Definition of Presentation and Screening Indicators: In addition to or instead of the line identity, the network may give a Presentation Indicator (PI) and/or a Screening Indicator (SI) to the served subscriber. The following information may be given:

- Presentation Indicator showing:
 - a) presentation allowed, or
 - b) presentation restricted, or
 - c) number not available due to interworking;

If Presentation Indicator is set to "Presentation Restricted", then the MS can get additional information on the Cause of no CLI, if provided by the network.

The Cause of no CLI value may be one of the following :

- Unavailable
- reject by user
- interaction with other services
- coin line / pay phone
- Screening Indicator showing:
 - a) user provided, verified and passed, or

- b) user provided, not screened, or
- c) network provided.

If the line identity is that of a PLMN subscriber, then:

- the national number and the country code shall always be provided by the network;
- the subaddress shall only be included if it is provided by the user (or user equipment);
- the screening indicator shall indicate "network provided".

0.1 References

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

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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: " Vocabulary for 3GPP Specifications ".
- [2] 3GPP TS 22.004: General on Supplementary Services".
- [3] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".
- [4] 3GPP TS 22.088: "Call Barring (CB) supplementary services – Stage 1".

0.2 Abbreviations

Abbreviations used in the present document are listed in 3GPP TR 21.905 [1].

1 Calling Line Identification Presentation (CLIP)

1.1 Definition

The CLIP Supplementary Service provides the called party with the possibility to receive the line identity of the calling party.

1.2 Description

1.2.1 Description

This Supplementary Service provides for the ability to indicate the line identity of the calling party to the called party.

The network shall deliver the calling line identity to the called party at call set-up time, regardless of the terminal capability to handle the information.

1.2.2 Applicability to telecommunication services

The applicability of this Supplementary Service is defined in 3GPP TS 22.004 [2].

1.3 Normal procedures with successful outcome

1.3.1 Provision

This Supplementary Service is provisioned for all Basic Services subscribed to and to which it is applicable, i.e. not provisioned for any subset of these Basic Services.

Override category within a PLMN

Override category within an ISDN/PLMN. Depending on national regulations, some networks may define categories of subscribers that have the ability to override the presentation restriction (CLIR, clause 2) and have the calling line identity presented (e.g., the police). The ability to have such override category is a national option.

Override category between a PLMN and a network providing calling line identification restriction

Override category between ISDN/PLMNs. When a call originates in one ISDN/PLMN and terminates in another ISDN/PLMN and the CLIR Supplementary Service is applied, the rules and regulations of the destination network shall apply. For example, the override category may not be applicable in the originating network but may be applicable in the destination network. In this situation, a call with the CLIR Supplementary Service applied can still be overridden in the destination network.

The override category is only applicable within the HPLMN country.

1.3.2 Withdrawal

The CLIP Supplementary Service shall be withdrawn at the customer's request or for administrative reasons.

1.3.5 Activation

The CLIP Supplementary Service is activated as a result of provision.

1.3.6 Deactivation

The CLIP Supplementary Service is deactivated as a result of withdrawal.

1.3.7 Invocation

The network shall automatically invoke the CLIP Supplementary Service in the call set-up phase.

1.3.8 Normal operation with successful outcome

A user who has subscribed to the CLIP Supplementary Service and receives a call shall also receive the line identity of the calling party.

Note: The decision of whether the user-defined name stored in the handset should take precedence over the line identity of the calling party is a handset implementation issue. However for user experience it may be preferable to display the user-defined name available. In case there are several names associated with the number it is up to the handset implementation to choose which name to display.

In addition to or instead of the calling line identity, the subscriber may be given a Presentation Indicator and/or a Screening Indicator with the relevant information. If provided by the network, the subscriber may also be given some additional information on the Cause of no CLI in case of a presentation restricted.

1.3.11 Interrogation

Status check

The mobile subscriber can request the status of the Supplementary Service and be informed if the service is provided to her.

1.4 Exceptional procedures or unsuccessful outcome

If the CLIR Supplementary Service is applicable to the call, then the called PLMN user shall receive an indication that the calling line identity is not available because of restriction.

NOTE: See also subclause 1.3.1 (override category).

In some interworking situations in which the connection is not completely supported by the sufficient signalling capability, then the called PLMN user shall receive an indication that the calling line identity is not available.

For an international call in which the originating network does not provide the calling line identity, then the called PLMN user shall receive an indication that the calling line identity is not available.

1.5 Alternate procedures

None identified.

1.6 Interactions with other Supplementary Services

1.6.81.2 Calling line identification restriction

The CLIR Supplementary Service shall take precedence over the CLIP Supplementary Service.

The CLIP Supplementary Service can take precedence over the CLIR Supplementary Service when the called user has an override category. The availability of the override category as well as the handling of calling line identity parameters for the override category is a national matter.

1.6.82.1 Call forwarding unconditional

When a call has been forwarded and the forwarded-to user has been provided with the CLIP Supplementary Service, the forwarded-to user shall receive the number of the original calling user, if this calling user has not subscribed to or invoked the CLIR Supplementary Service.

1.6.82.2 Call forwarding on mobile subscriber busy

Same as the interaction with call forwarding unconditional.

1.6.82.3 Call forwarding on no reply

Same as the interaction with call forwarding unconditional.

1.6.82.4 Call forwarding on mobile subscriber not reachable

Same as the interaction with call forwarding unconditional.

1.6.83.1 Call Waiting

If the served mobile subscriber is provisioned with the CLIP service, the notification of an incoming (waiting) call offered to that subscriber shall include the calling line identity, as for a normal call.

1.6.88.8 Anonymous Call Rejection

See 3GPP TS 22.088 [4].

1.7 Interworking considerations

According to national network specific rules, the CLIP Supplementary Services need not be applicable, if at least one of the two parties is not an ISDN or PLMN subscriber.

2 Calling Line Identification Restriction (CLIR)

2.1 Definition

The CLIR Supplementary Service enables the calling party to prevent presentation of its line identity to the called party.

2.2 Description

2.2.1 Description

The CLIR Supplementary Service is a Supplementary Service offered to the calling party to prevent presentation of the calling party's line identity, to the called party. In the case where the called party has an override category, see subclause 2.4.

2.2.2 Applicability to telecommunications services

The applicability of this Supplementary Service is defined in 3GPP TS 22.004.

2.3 Normal procedures with successful outcome

2.3.1 Provision

This Supplementary Service is provisioned for all Basic Services subscribed to and to which it is applicable, i.e. not provisioned for any subset of these Basic Services.

As a service provider option, the CLIR Supplementary Service can be offered with one subscription option permanent (invoked for all relevant calls) or temporary (suppressed by the user on a per call basis).

In temporary mode, the subscriber may subscribe to the default values:

- presentation restricted: or,
- presentation not restricted.

The option applies to all BS which are provisioned for this SS.

2.3.2 Withdrawal

This Supplementary Service will be withdrawn at the subscriber's request or for administrative reasons.

2.3.5 Activation

The CLIR Supplementary Service shall be activated on provision.

2.3.6 Deactivation

The CLIR Supplementary Service shall be deactivated on withdrawal.

2.3.7 Invocation

If subscribed to in the permanent mode, then the network shall automatically invoke the CLIR Supplementary Service for each outgoing call.

If subscribed-to in the temporary mode with the default value "presentation restricted", then the network shall automatically invoke the CLIR Supplementary Service for each outgoing call unless CLIR is suppressed by subscriber request at the time of call request.

If subscribed-to in the temporary mode with the default value "presentation not restricted", then the network shall only invoke the CLIR Supplementary Service if requested by subscriber at the time of call request.

2.3.8 Normal operation with successful outcome

When the CLIR Supplementary Service is invoked, the originating network shall provide the destination network with a notification that the line identity of the calling party is not allowed to be presented to the called party. The originating network may also provide information on the cause of no CLI.

If the called party subscribes to the CLIP Supplementary Service and the CLIR Supplementary Service has been invoked, then the called party shall receive an indication that the calling line identity is not available due to restriction.

2.3.11 Interrogation

Data request

The mobile subscriber can request the data of the Supplementary Service.

In response the following information shall be given:

- whether the service is provided or not;
- if provided which mode is subscribed;
- if subscribed-to the temporary mode, which default value.

2.4 Exceptional procedures or unsuccessful outcome

If the subscriber has subscribed to the permanent mode and she tries to suppress the invocation of the CLIR Supplementary Service per MMI command during call set-up (i.e. requests that the CLI is displayed), she shall be notified that the suppression has not been performed and the call set-up shall continue. If the user has not subscribed to CLIR Supplementary Service and she tries to invoke it during call set-up per MMI command (i.e. requests that the CLI is not displayed), the call set-up attempt shall be rejected.

If the called party has a relevant override category (see subclause 1.3.1), the restriction service will be overridden and the calling line identity will be presented to the called party.

2.5 Alternate Procedures

A VPLMN which supports the CLIR service shall ensure that the line identity of a subscriber whose HPLMN does not support the CLIR service shall not be displayed to the called party unless the subscriber wishes so or the called party has CLIR override capability.

2.6 Interactions with other Supplementary Services

2.6.81.1 Calling line identification presentation

See subclause 1.6.81.2.

2.6.82.1 Call forwarding unconditional

No interaction, i.e. when the CLIR Supplementary Service is applicable and invoked for the original calling subscriber, her line identity shall not be presented to the forwarded-to user unless the forwarded-to user has an override category.

2.6.82.2 Call forwarding on mobile subscriber busy

Same as the interaction with call forwarding unconditional.

2.6.82.3 Call forwarding on no reply

Same as the interaction with call forwarding unconditional.

2.6.82.4 Call forwarding on mobile subscriber not reachable

Same as the interaction with call forwarding unconditional.

2.7 Interworking considerations

On calls to or via non-ISDNs, it cannot be assured that a calling line identification restriction indication can be carried to the destination network. As a national option the originating network can restrict any information identifying the calling party from being forwarded to the destination network when the CLIR Supplementary Service is applicable. If a destination network receives a calling line identity without any indication of presentation allowed or restricted, the destination network shall act according to its rules and regulations.

For inter-network calls, when the CLIR Supplementary Service is invoked, the originating network shall provide the destination network with a notification that the line identity of the calling party is not allowed to be presented to the called party. The originating network may also provide information on the cause of no CLI.

NOTE: When the Supplementary Service CLIR is invoked, some network providers may not send the identity of the calling subscriber to other network.

3 Connected Line Identification Presentation (COLP)

3.1 Definition

The Connected Line Identification Presentation (COLP) Supplementary Service provides the calling party with the possibility to receive the line identity of the connected party.

3.2 Description

3.2.1 Description

This Supplementary Service is not a dialling check but an indication to the calling subscriber of the connected line identity in a full ISDN/PLMN environment, the connected line identity shall include all the information necessary to unambiguously identify the connected party.

The network shall deliver the connected line identity to the calling party regardless of the terminal capability to handle the information.

3.2.2 Applicability to telecommunication services

The applicability of this Supplementary Service is defined in 3GPP TS 22.004.

3.3 Normal procedure with successful outcome

3.3.1 Provision

This Supplementary Service is provisioned for all Basic Services subscribed to and to which it is applicable, i.e. not provisioned for any subset of these Basic Services.

Override category within a PLMN

Override category within an ISDN/PLMN. Depending on national regulations, some networks may define categories of subscribers that have the ability to override the presentation restriction (COLR, clause4) and have the connected line identity presented (e.g., the police). The ability to have such an override category is a national option.

Override category between a PLMN and a network providing connected line identification restriction.

Override category between ISDNs/PLMNs. When a call originates in one ISDN/PLMN and terminates in another ISDN/PLMN and the COLR Supplementary Service is applied, the rules and regulations of the originating network shall apply.

The override category is only applicable within the HPLMN country.

3.3.2 Withdrawal

The COLP Supplementary Service shall be withdrawn at the customer's request or for administrative reasons.

3.3.5 Activation

The COLP Supplementary Service is activated as a result of provision.

3.3.6 Deactivation

The COLP Supplementary Service is deactivated as a result of withdrawal.

3.3.7 Invocation

The network shall automatically invoke the COLP Supplementary Service on each outgoing call made by the served user.

3.3.8 Normal operation with successful outcome

The calling subscriber shall at the end of the call set-up phase receive the connected line identity.

In addition to or instead of the connected line identity the subscriber may be given a Presentation Indicator and/or a Screening Indicator with the relevant information.

3.3.11 Interrogation

Status check

The mobile subscriber can request the status of the Supplementary Service and be informed if the service is provided to her.

3.4 Exceptional procedures or unsuccessful outcome

If the COLR Supplementary Service is applicable to the call, the served user shall receive an indication that the connected line identity is not available due to restriction.

NOTE: See also subclause 3.3.1 (override category).

In some interworking situations in which the connection is not completely supported by sufficient signalling capability, the served user shall receive an indication that the connected line identity is not available.

For an international call in which the destination network does not provide the connected line identity, then the served user shall receive an indication that the connected line identity is not available.

3.5 Alternate procedures

None identified.

3.6 Interactions with other Supplementary Services

3.6.81.4 Connected line identification restriction

The COLR Supplementary Service shall take precedence over the COLP Supplementary Service. The COLP Supplementary Service can take precedence over the COLR Supplementary Service when the served user has an override category. The availability of the override category as well as the handling of connected line identity parameters for the override category is a national option.

3.6.82.1 Call forwarding unconditional

If the served (forwarding) user selects the option that the calling user is not notified of call forwarding, then the calling user shall receive no forwarding notification, and the calling user shall not receive the connected line identity when the call is answered, unless the calling user has override capability. Otherwise, no interaction.

3.6.82.2 Call forwarding on mobile subscriber busy

Same as the interaction with call forwarding unconditional.

3.6.82.3 Call forwarding on no reply

Same as the interaction with call forwarding unconditional.

3.6.82.4 Call forwarding on mobile subscriber not reachable

Same as the interaction with call forwarding unconditional.

3.6.84.1 Multiparty

Multiparty controller: no impact, i.e. neither Supplementary Service shall affect the operation or the other Supplementary Service.

Remote parties: they shall not receive the COLP Supplementary Service information of parties being added to the conference.

3.7 Interworking considerations

According to national network specific rules the COLP Supplementary Service need not be applicable, if at least one of the two parties is not an ISDN or PLMN subscriber.

4 Connected Line Identification Restriction (COLR)

4.1 Definition

The COLR Supplementary Service enables the connected party to prevent presentation of its line identity to the calling party.

4.2 Description

4.2.1 Description

The COLR Supplementary Service is a Supplementary Service offered to the connected party to prevent presentation of the connected line identity, to the calling party. In the case where the calling party has an override category, see subclause 4.4.

4.2.2 Applicability to telecommunications services

The applicability of this Supplementary Service is defined in 3GPP TS 22.004.

4.3 Normal procedures with successful outcome

4.3.1 Provision

This Supplementary Service is provisioned for all Basic Services subscribed to and to which it is applicable, i.e. not provisioned for any subset of these Basic Services.

4.3.2 Withdrawal

This Supplementary Service will be withdrawn at the subscriber's request or for administrative reasons.

4.3.5 Activation

The COLR Supplementary Service shall be activated on provision.

4.3.6 Deactivation

The COLR Supplementary Service shall be deactivated on withdrawal.

4.3.7 Invocation

The network shall automatically invoke the COLR Supplementary Service for each incoming call at call set-up phase.

4.3.8 Normal operation with successful outcome

If the calling party subscribes to the COLP Supplementary Service and the COLR Supplementary Service has been invoked, then the calling party shall receive an indication that the connected line identity is not available due to restriction.

When the COLR Supplementary Service is invoked, the destination network shall provide the originating network with a notification that the line identity of the connected party is not allowed to be presented to the calling party.

4.3.11 Interrogation

Status check

The mobile subscriber can request the status of the Supplementary Service and be informed if the service is provided to her.

4.4 Exceptional procedures or unsuccessful outcome

If the calling party has a relevant override category (see subclause 3.3.1) the restriction service will be overridden and the connected line identity will be presented to the calling party.

4.5 Alternate procedures

A VPLMN which supports the COLR service shall ensure that the line identity of a subscriber whose HPLMN does not support the COLR service shall not be displayed to the calling party unless the calling party has COLR override capability.

4.6 Interactions with other Supplementary Services

4.6.81.3 Connected line identification presentation

See subclause 3.6.81.4.

4.6.82.1 Call forwarding unconditional

If a forwarded-to user subscribes to the COLR Supplementary Service, then the forwarded-to user's line identity shall not be provided with the notification that the call has been forwarded.

A calling user that subscribes to the COLP Supplementary Service and who has override capability shall not be able to receive the forwarded-to user's line identity as part of the diverting notification information, but can invoke the COLP Supplementary Service with override in order to receive the connected line identity when the call is answered.

4.6.82.2 Call forwarding on mobile subscriber busy

Same as the interaction with call forwarding unconditional.

4.6.82.3 Call forwarding on no reply

Same as the interaction with call forwarding unconditional.

4.6.82.4 Call forwarding on mobile subscriber not reachable

Same as the interaction with call forwarding unconditional.

4.7 Interworking consideration

On calls from or via non-ISDNs, it cannot be assured that a connected line restriction indication can be carried to the originating network. As a national option, the destination network can restrict any information identifying the connected party from being returned to the originating network when the COLR Supplementary Service is applicable. If an originating network receives a connected line identity without any indication of presentation allowed or restricted, the originating network shall act according to its rules and regulations.

For inter-network calls, when the COLR Supplementary Service is invoked, the destination network shall provide the originating network with a notification that the line identity of the connected party is not allowed to be presented to the calling party.

NOTE: When the COLR Supplementary Service is invoked, some network providers may not send the identity of the connected customer to other network providers.

Annex A (informative): Change history

Change history											
TSG SA#	SA Doc.	SA1 Doc	Spec	CR	R ev	Rel	Cat	Subject/Comment	Old	New	WI
Jun 1999			GSM 02.81					Transferred to 3GPP SA1	7.0.0		
SA#04			22.081			R99		Transferred to 3GPP SA1		3.0.0	
SP-05	SP-99479	S1-99628	22.081	001		R99	D	Editorial changes for alignment	3.0.0	3.0.1	Editorial changes
SP-06	SP-99519	S1-99908	22.081	002		R99	D	Editorial update to TS 22.081 in order to include 3G systems	3.0.1	3.1.0	
SP-08	SP-000199	S1-000443	22.081	003		R99	B	Access dependent services (on Cause for no CLI)	3.1.0	3.2.0	
SP-11	SP-010065	S1-010258	22.081			Rel-4		Transferred to 3GPP Release 4	3.2.0	4.0.0	
SP-15	SP-020045	S1-020457	22.081	004	-	Rel-4	F	Editorial CR to correct terms and references	4.0.0	4.1.0	CORRECT
SP-16	SP-020267	S1-021043	22.081			Rel-5		Updated from Rel-4 to Rel5	4.1.0	5.0.0	
SP-26	SP-040744	S1-040997	22.081			Rel-6		Updated from Rel-5 to Rel-6	5.0.0	6.0.0	
SP-36			22.081			Rel-7		Updated from Rel-6 to Rel-7	6.0.0	7.0.0	
SP-42	-	-				Rel-8		Updated from Rel-7 to Rel-8	7.0.0	8.0.0	
SP-46	-	-	-	-	-	-	-	Updated to Rel-9 by MCC	8.0.0	9.0.0	
SP-51	SP-110172	S1-110405	22.081	0005	1	Rel-11	D	Display of duplicated numbers in the phone book	9.0.0	11.0.0	TEI11
SP-52	SP-110376	S1-111433	22.081	0007	1	Rel-11	B	Addition of Anonymous Call Rejection as a SS	11.0.0	11.1.0	ACR_CS
2014-10	-	-	-	-	-	-	-	Update to Rel-12 version (MCC)	11.1.0	12.0.0	
2015-12	-	-	-	-	-	-	-	Updated to Rel-13 by MCC	12.0.0	13.0.0	
2017-03	-	-	-	-	-	-	-	Updated to Rel-14 by MCC	13.0.0	14.0.0	
2018-06	-	-	-	-	-	-	-	Updated to Rel-15 by MCC	14.0.0	15.0.0	
SA#88e	-	-	-	-	-	-	-	Updated to Rel-16 by MCC	15.0.0	16.0.0	