Code of Practice
in relation to Calling Line Identification and Other Calling Line Identification Related Services

Foreword

This code of practice ("the Code") is issued by the Communications Authority ("CA") under Special Condition ("SC") 1.2(d) of Unified Carrier Licence ("UCL") and SC 8 of Services-based Operator ("SBO") Licence for the purpose of providing practical guidance in respect of calling line identification ("CLI") and other CLI related services.

2. The Code shall be observed by fixed network operators ("FNOs"), mobile network operators ("MNOs"), SBOs and other telecommunications operators using numbers and codes allocated by the CA in accordance with the "Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan" (hereafter referred to as "Operators"[1]), including service providers using short access codes or numbers for the provision of External Telecommunications Services ("ETS") (hereafter referred to as "Providers"), in relation to the transfer and management of CLI information and provision of Calling Number Display ("CND"), Calling Name Display ("CNAMD") and other related services. The Code applies to all calls with origination from and/or termination at networks of the Operators and Providers. In case there are technical or operational difficulties in providing CLI to another network, the Operator or the Provider concerned has to justify its case to the satisfaction of the CA.

3. The CA may amend this Code as and when necessary and consult the Operators/Providers and other relevant parties before effecting the amendments.

4. Nothing in the Code absolves an Operator or a Provider from operating according to the terms of its licence and/or any legislation in force in Hong Kong. In case of a conflict between the Code and a licence condition, the latter should take precedence.

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[1] For avoidance of doubt, "Operators" referred to in the Code shall include, but not limited to licensees of UCL and SBO Licence for the provision of Class 1, Class 2 or Class 3 (mobile virtual network operator) services.

Interpretation

5.   In the Code –

"available" means that CLI is for transmission to the NTP of the terminating network;

"Calling Number Display" ("CND") means the delivery of caller's calling data to the recipient of the call at his NTP that allows him to gain access to the calling party's CLI.   This could be in the form of data that is displayed, recorded, interpreted by a database or provided by means of an audio message, or by other means;

"Calling Name Display" ("CNAMD") means the delivery of caller's name data to the recipient of the call at his NTP that allows him to identify the calling party.   This could be in the form of data that is displayed, recorded, interpreted by a database or provided by means of an audio message, or by other means.   CNAMD service may only be provided together with the CND service and will not be made available as a standalone service;

"NTP" (network termination point) means a distribution point ("DP") for connection between a network and a block wiring system of a building, or a telephone socket for connection between a network and customer equipment, or an air interface linking mobile customer equipment to a mobile network, or a logical point that can be identified by means of a specific network address which is linked to a number or code assigned to an end customer;

"out of area" ("O") means that CLI is not for transmission to the NTP of the terminating network in circumstances other than when the CLI data is classified as "private".   Nevertheless, CLI, if available, will be sent between networks ubiquitously with the appropriate class type;

"originating network" means the network of an Operator which assigns the number or code to the calling party or which provides the calling party with a service in association with the number or code directly assigned or allocated by the CA;

"private" ("P") means CLI, if it is available, is not for transmission to the NTP of the terminating network because the calling party has taken specific action to indicate to the originating network that the CLI of the call(s) he/she makes on that particular telephone line should not be available at the NTP of the terminating network;

"receiving network" means the network of an Operator in receipt of a call across any interconnection. It can be a transit network or a terminating network;

"terminating network" means the network of an Operator which assigns the number or code to the called party or which provides the called party with a service in association with the number or code directly assigned or allocated by the CA; and

"transit network" means the network of an Operator involved in the conveyance of a call which is neither an originating network nor a terminating network.

Applications of CLI

6.   A wide variety of applications, including the following ones can be supported through the use of the CLI information available within a network and between networks –

- billing purpose;
- call processing;
- call screening/call blocking from particular lines;
- tracing of nuisance calls/malicious calls;
- enhanced customer handling service (e.g. operator assistance service);
- emergency calls (e.g. police/ambulance control centre); and
- provision of CLI information to end users (e.g. CND).

The above list only illustrates some possible applications of CLI information and is not meant to be exhaustive. Operators and Providers are not restricted from introducing new innovative services as long as this Code is not violated.

Privacy Safeguards

7.   In handling CLI information including uses, storage and disclosure of CLI information or information derived from it, Operators and Providers shall comply with –

a) the laws, rules and regulations of Hong Kong, and in particular those related to the Personal Data (Privacy) Ordinance (Cap. 486); and

b) their licence conditions regarding confidentiality of customer information.

In addition, the Operators and the Providers shall take note of the following in handling the CLI information –

- The Operators and the Providers shall not use CLI information provided by the data subject or obtained in the course of the provision of service to their customers, other than for and in relation to the provision of the service;

- The Operators and the Providers shall not disclose the CLI information of a data subject, except with the consent, implied or express, of the data subject;

- The Operators and the Providers shall take all practical steps to ensure that callers' CLI information is correctly transmitted through their networks; and

- The Operators and the Providers shall take all practical steps to ensure that their employees or agents will not reuse the CLI information provided to them by their customers.

Blocking Transmission or Delivery of Calls Bearing Suspicious or Spoofed CLI to Prevent Fraudulent Calls

8. To tackle fraudulent calls, Operators/Providers of an originating network, receiving network, terminating network, transit network or first landing network shall, to the extent technically feasible and practicable, take all reasonable and necessary steps to identify and block transmission or delivery of calls bearing suspicious or spoofed CLI and ensure that only calls with valid CLI shall be transmitted across networks and delivered to the end users. A list of potential scenarios of calls involving suspicious/spoofed CLI which shall be blocked for transmission or delivery is at **Annex A**. Operators/Providers shall collaborate with one another where necessary and practicable in order to implement effective blocking of calls bearing suspicious or spoofed CLI and enable transmission or delivery of calls with valid CLI to the end users.

9. For the purpose of ensuring effectiveness of implementation of the blocking measures as elaborated in paragraph 8, Operators and Providers shall keep records of the total number of calls falling within the description in **Annex A** which have been blocked in the last 12 months. Upon request, Operators and Providers shall furnish the relevant information to OFCA.

Requirement of CLI

10.   In the case of a call from an originating network, CLI means the signalling information which enables the calling party's number to be identified and which is transmitted through one or more networks. It should be the actual number of the calling party from which the call is being made ("calling party number"), and any name or information to supplement this number should only appear in addition to the number and not as its substitute. In general, when a call is made from an originating network to a terminating network, the CLI information is a network-to-network data and will be routed from the originating switch of the originating network to the terminating switch of the terminating network. In some exceptional cases, the calling party number cannot be readily identified by or available to the receiving network. To facilitate call tracing for emergency purposes and other call management purposes, the CLI information, which can help identify the calling party, should be set as follows for the respective type of calls made from –

□   a private automatic branch exchange ("PABX")

- the originating network to which the PABX is connected shall set a CLI equivalent to one of the numbers within the numbering range assigned to the PABX and, where applicable, a name or other supplementary information as determined by the operator of the PABX for returning calls to the extensions of the PABX; and

- the calls shall be set as "O" (signifying "out of area") by the originating network and the calling party number or the calling party name shall not be displayed in the terminating customer equipment if the PABX cannot provide correct CLI information at its interface with the public network; or

- the calls shall be set as "available" by the originating network and the calling party number or the calling party name shall be displayed in the terminating customer equipment provided that returning calls can be answered by the operator of the PABX;

□   an outgoing call only line

- the originating network shall set a CLI equivalent to the directory number of the outgoing call only line; and

- the calls shall be set as "O" by the originating network and the calling party number shall not be displayed in the terminating customer equipment;

☐ a payphone

  - the originating network shall set a CLI equivalent to the directory number of the payphone line; and

  - the calls shall be set as "O" by the originating network and the calling party number shall not be displayed in the terminating customer equipment;

☐ a mobile network in-bound roamer

  - the originating network of the mobile network in-bound roamer shall set a CLI with a format in accordance with HKCA 3101 "Regulatory Guide for Calling Line Identification (CLI) Format"; and

  - the calls shall be set as "available" by the originating network and the calling party number or the calling party name shall be displayed in the terminating customer equipment provided that returning calls can be made to the mobile network in-bound roamer. Otherwise, the calls shall be set as "O" by the originating network and the calling party number shall not be displayed in the terminating customer equipment;

☐ a call centre from which a call is originated through a platform located in Hong Kong using voice over Internet Protocol or similar service

  - the originating network to which the platform is connected shall set a CLI equivalent to one of the numbers within the numbering range assigned to the call centre; and

☐ a mobile network out-bound roamer from which a call is made to a local number in Hong Kong using home network routing

  - the home mobile network shall set a CLI equivalent to his/her mobile number subscribing to the roaming service with Hong Kong area code and the nature of address indicator shall be set to "00000100" (international number).

11.   In the case of an incoming external call, the CLI is the information that identifies the first landing network or service provider to facilitate call

tracing and billing purposes. In general, the calls should be classified as "O" and the calling party number should not be displayed in the terminating customer equipment. The format of the CLI associated with an incoming external call is set out in HKCA 3101.

12. Details of the CLI setting for both incoming external calls routed from a Provider and outgoing external calls originated from an Operator to a Provider are at **Annex B**.

Provision of International CLI for calls originated from Hong Kong

13. Operators and Providers shall endeavour to ensure that international CLI information is provided taking into account the relevant ITU-T Recommendations.

Responsibilities of the originating network

User-to-Network Layer

14. The originating network of an Operator shall set a correct CLI in the calls generated from the customer equipment that cannot provide the CLI information. For customer equipment which allows the customer to insert the CLI information at its interface with the public network, the originating network shall validate and ensure the inserted CLI information is within the numbering range assigned to the customer equipment. The originating network shall set the CLI in the calls generated from those special calling parties in accordance with the requirements specified in paragraph 10. In addition, the originating network shall ensure that a call presented for connection to another network is correctly classified at the network boundary and made known to the receiving network. To be consistent with the CA's technical specification, the following classifications apply –

- All calls originating on any network, or any part of any network, that does not provide a CND/CNAMD blocking option for the calling party are classified as "O";

- All calls originating on parts of the networks where the calling party has not been informed that the CND/CNAMD will be available to the called party unless the calling party exercises a blocking option are classified as "O" or, where a blocking option has been activated by the calling party, as "P" (signifying "private");

- All calls originating on parts of the networks where an option for blocking CND/CNAMD is available and the calling party has been so informed shall be classified as –

  ✧ "P" if blocking has been activated by the calling party; or

  ✧ "available" if blocking has not been activated by the calling party, signifying that the CLI will be transmitted without restriction;

  ✧ All calls originating on any network, or any part of any network, where CLI is not available for the calling party are classified as "O".

15.   With regard to the choice of blocking CND/CNAMD to be exercised by the calling party, originating network operators should offer the following options –

Per line blocking

- Operator shall classify all calls originating from a specific NTP as "P" as soon as practicable after being instructed to do so by its customer connected to that NTP.

Per call blocking

- For Operators not using the GSM standard - all calls prefixed "133" shall be classified as "P" while all calls prefixed "#31#" shall results in a number unobtainable tone or a message (uncharged) informing the calling party that the code "#31#" is not available, or that the prefix "133" should be used to inhibit CND/CNAMD to the called party. This classification takes effect only for that one single call made immediately after dialling the prefix;

- For Operators using the GSM standard - all calls prefixed either "133" or "#31#" shall be classified as "P".   This classification takes effect only for that one single call made immediately after dialling the prefix;

- For those networks or parts of the networks which do not provide a CND/CNAMD blocking option for the calling party, a call prefixed by "133" or "#31#" will still be classified as "O", and will result in a message (uncharged) informing the calling party that the network is unable to support CND/CNAMD blocking.

16.   With regard to the choice of unblocking CND/CNAMD to be exercised by the calling party, originating network operators should offer the following options –

Per line unblocking

*   An Operator shall reclassify all calls originating from a specific NTP from "P" to "available" as soon as practicable after being instructed by its customer connected to that NTP.

Per call unblocking

*   For Operators not using the GSM standard - all calls prefixed "1357" shall be classified with "available" while calls prefixed "*31#" results in a number unobtainable tone or a message (uncharged) informing the calling party that the code "*31#" is not available, or that the prefix "1357" should be used to resume CND/CNAMD to the called party.   The "available" classification is valid only for that one single call made immediately after dialling the prefix;

*   For Operators using the GSM standard - all calls prefixed "1357" or "*31#" shall be classified as "available".   This classification is valid only for that one single call made immediately after dialling the prefix;

*   For those networks or parts of the networks which do not provide a CND/CNAMD unblocking option for the calling party, a call prefixed by "1357" or "*31#" will still be classified as "O", and will result in a message (uncharged) informing the calling party that the network is unable to support CND/CNAMD unblocking.

17.   With regard to the blocking and unblocking options stated in paragraphs 15 and 16, "per line blocking" should be provided with "per call unblocking", while "per line unblocking" should be provided with "per call blocking".

18.   "CND/CNAMD Blocking Service (per line or per call)", if activated, will block both the number and, where applicable, the CNAMD data of the calling party.   For "CND/CNAMD Unblocking Service (per line or per call)", if activated, will unblock both the number and, where applicable, the CNAMD data of the calling party.

19.   All of the above blocking or unblocking options should be operational and accessible to all customers no later than the provision of CND/CNAMD

and related services to them. The calling party should not be required to pay for exercising any of the blocking options.

20.   If a customer wishes to have his/her CNAMD data displayed to the called party when making a call from his/her subscribed telephone line, he/she will have to make prior registration with his/her Operator.

21.   Only the registered name of the telephone line from which the call is made shall be displayed. If an Operator receives a request to display a name that is different from the registered name, the Operator shall require the production of the written authorisation from the registered customer and also the written consent from the party whose name is to be displayed.

Network-to Network Layer

22.   In the case that CND blocking is activated by the calling party, CLI information is still required to be transferred from the originating network to the terminating network but an indicator has to be set for not displaying the CND information to the called party.

23.   If the sending of CNAMD information has been blocked by the calling party, the originating network should send the CNAMD information to the terminating network but an indicator has to be set for not displaying the CNAMD information to the called party.

24.   Unless otherwise agreed by the terminating network and/or transit network(s), the originating network should not send the CNAMD information to the terminating network that does not provide the CNAMD service.

Responsibilities of the terminating network

User-to-Network Layer

25.   The Operator of a terminating network offering CND/CNAMD or related services shall ensure that the classification of calls obtained at its network boundary is maintained in the delivery of that call to the called party. The data to be delivered shall be as follows –

Classification at interconnection point	Data to be delivered to NTP	Indication at the customer equipment
"P"	P (CND data and, where applicable, CNAMD data shall be removed)	"withheld" indicator or indicator to the same effect
"O"	O (CND data and, where applicable, CNAMD data shall be removed)	"unavailable" indicator or indicator to the same effect
"available"	CND data and, where applicable, CNAMD data	CND data and, where applicable, CNAMD data

26.   Most importantly, the Operator of the terminating network should ensure that CND data and, where applicable, CNAMD data shall be available at the NTP for display purposes, only for those calls classified as "available". For the calls classified as "P" or "O", the Operator of the terminating network shall remove the CLI information when these calls are delivered to the end users.   Any other service that allows the called party to call back or gain access to the CND data and, where applicable, CNAMD data shall similarly be available only in relation to those calls with "available" classification.

27.   Notwithstanding the above, all blocking options for calls to the emergency line 999 (or 112 for calls originating from mobile networks) shall be overridden in the terminating network, and that the classification of "P" or "O" for such calls shall be ignored and taken as "available", and whatever CND data and CNAMD data that is available shall be passed across the NTP.

28.   Where the Operator of a terminating network offers an anonymous call rejection service to its customers, this service shall not operate in such a way as to have anti-competitive effects (e.g. by rejecting all calls classified as "O" without offering the customers the choice otherwise).   This does not preclude the offering of anonymous call rejection services based on the customer's choice.

29.   Where a terminating network is not offering CND/CNAMD or related services, no action is required on the basis of the call classification.

Network-to-Network Layer

30.   If the called party activates the call-forwarding/follow-me type of function, the original terminating network will take the role as a transit network.

Responsibilities of the transit network

Network-to-Network Layer for transit routing case

31.   The Operator of a transit network shall ensure that the caller's CLI data, CNAMD data and the call classification do not alter from the point of entry into its network to the point of exit from its network.   In exceptional circumstances where the transit network is not capable of maintaining the integrity of the CLI data and/or classification, the exit classification of a call should be "P" if the "P" indicator can be maintained, and "O" if otherwise. In circumstances where the transit network –

   a) is not able to maintain the integrity of the CNAMD data but is nevertheless capable of maintaining the integrity of the CLI data and the call classification, or

   b) has reached agreement with the originating network and/or terminating network to suppress the CNAMD data,

the CLI data and the call classification should remain unaltered but the CNAMD data should be suppressed.

Network-to-Network Layer for call-forwarding case

32.   The CLI of the original caller should be maintained as the CLI information throughout the subsequent routes from the transit network (original terminating network) to the terminating network.

33.   Unless otherwise agreed by the terminating network, the transit network (original terminating network) should not send the CNAMD information to the terminating network that does not provide the CNAMD service.

Responsibilities of the receiving network

34.   The responsibility of maintaining the integrity of CND data, CNAMD data, and the relevant classification lies primarily with the Operator from which the data or classification is received.   However, in the event that the network from which the call is received cannot support CLI classification (e.g. it is an analogue network), the Operator of the receiving network shall classify the call as "O" at the point of exit.

Consumer education and publicity requirement

35.   Operators providing CND, CNAMD and related services are required to carry out user education and publicity programme to inform their customers of the privacy implications of these services and all the blocking options available to them well before the formal launching of any of these services.   Customers should specifically be informed that CND data and, where applicable, CNAMD data will be forwarded unless the blocking has been activated.   The publicity programme should include the circulation of information leaflets to customers and publicity to the satisfaction of the CA.   Enquiry hotlines should also be made available.   Operators are expected to cooperate with each other to ensure that the messages customers receive are not confusing.

Technical standard

36.   Operators and Providers shall ensure that the principles and objectives as stipulated in this Code will not be compromised, irrespective of the technologies deployed.   Operators and Providers shall observe the Standardisation Guide HKCA 3202 issued by the CA in respect of implementation of the network connection standards.

(a) User-to-Network Layer

A common technical standard is to be adopted by the industry so that the customer's equipment used for CND and CNAMD does not have to be network specific.   The specifications currently in force are HKCA 2012, 2014, 2015, 2018, 2022, 2026 and 2027, copies of which may be retrieved from the website https://www.ofca.gov.hk.

(b) Network-to-Network Layer

For technical details on the sending of CLI information across networks, Operators and Providers should refer to HKCA 2202 and HKCA 2203 and any revision published by the CA, copies of which may be retrieved from the website https://www.ofca.gov.hk.

Communications Authority
July 2024

**Potential Call Scenarios Involving Suspicious/Spoofed
Calling Line Identification (CLI)**

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CLI Setting for External Calls routed via ETS Providers

1. **CLI Setting for Incoming External Calls originated from ETS Providers**

1.1 When ETS providers use the network-to-network standard specified in paragraph 36(b) for connection to the directly connected FNOs, ETS providers shall insert the correct CLI information into the calls at the outgoing routes of the ETS platforms in accordance with HKCA 3101. In general, the calls shall be set as "O" by ETS providers.   The directly connected FNOs shall verify the correctness of the CLI information and classification inserted by the ETS providers.

1.2 When ETS providers use the equipment which can support insertion of CLI but is not based on the standard specified in paragraph 36(b), they may insert the correct CLI information into the calls at the outgoing routes of the ETS platforms or provide the correct CLI information to the directly connected FNOs for the CLI insertion in accordance with HKCA 3101.   In general, the calls shall be set as "O" by the directly connected FNOs.   The directly connected FNOs shall verify the correctness of the CLI information if the CLI is inserted by ETS providers.   The decision on whether the ETS provider or the directly connected FNO is to insert the CLI should be subject to the mutual agreement between the two parties.

1.3 The directly connected FNOs have to insert the CLI information for those ETS providers who use the equipment that cannot support the insertion of the CLI information.   ETS providers have to provide the correct CLI information to the directly connected FNOs for the CLI insertion in accordance with HKCA 3101.   The calls shall be set as "O" by the directly connected fixed Operators.

2. CLI Setting for Outgoing External Calls originated from Operators

2.1 When ETS providers use the network-to-network standard specified in paragraph 36(b) for connection to the directly connected FNOs, the directly connected FNOs shall pass the CLI at the incoming routes of the ETS platforms to the ETS providers.

2.2 For ETS providers using standards other than that specified in paragraph 36(b) for connection to the directly connected FNOs, the directly connected FNOs may pass the CLI to the ETS providers at their own discretion.

2.3 In case the call is classified as "P" or "O", the CLI received by the ETS providers shall not be disclosed to any other third party.

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