
Improving the accuracy of Calling Line Identification (CLI) data

Statement on changes to our General Conditions (GCs) and supporting guidance on the provision of CLI facilities

[Improving the accuracy of Calling Line Identification \(CLI\) data](#) – Welsh overview

STATEMENT:

Publication Date: 15 November 2022

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1. Overview

Protecting consumers from harm is a priority for Ofcom and we are concerned about the growing problem of scams facilitated by calls and texts.¹ A common tactic used by scammers is to ‘spoof’ telephone numbers to make them appear to be from a trusted person or organisation, such as a bank. Where scam calls appear trustworthy, it means victims are more likely to share personal information or make a payment, which can lead to significant financial and emotional harm.

Our rules require telecoms providers (providers) to make information about the caller available to help the recipient of a call understand who is calling them and if they wish to answer the call. However, changes in technology have made it easier for scammers to manipulate this data to spoof numbers. This includes scammers who are based abroad using spoofed numbers to make it look like they are calling from the UK.

In February 2022, we consulted on proposals to strengthen our rules and guidance for providers to identify and block calls with ‘spoofed’ numbers. This should help to reduce the number of scam calls from reaching consumers and ultimately to reduce the risk of people being scammed. We also proposed measures that make it clearer to providers how we expect them to use data associated with calls.

¹ See Ofcom, March 2021. [Ofcom’s plan of work 2021/22](#), page 16.

What we have decided

The data that is attached to a call is called Calling Line Identification (CLI) data. It includes information that identifies the caller and a privacy marking, which indicates whether the number can be shared with the person receiving the call. Ensuring that the CLI data includes a valid, dialable number, and that the caller has authority to use the number, is important so that people have accurate information about who is making a call when they receive it. This can help them decide whether or not to answer the call.

We have decided to modify one of our rules (General Condition (GC) C6) to require providers, where technically feasible, to identify and block calls with CLI data that is invalid, does not uniquely identify the caller, or does not contain a number that is dialable.

We have decided to make a number of changes to our guidance for providers on what we expect them to do to comply with the rules in GC C6.2 This includes:

- clarifying that the format of a CLI should be a 10- or 11-digit number;
- making use of information that identifies numbers which should not be used as CLI, such as Ofcom's numbering allocation information and the Do Not Originate (DNO) list;³
- identifying calls originating abroad that do not have valid CLI and blocking them;
- identifying and blocking calls from abroad spoofing UK CLI; and
- prohibiting the use of 09 non-geographic numbers as CLI.

We have decided that both the changes to General Condition C6 and CLI guidance should come into force six months after the date of this statement's publication, on 15 May 2023. This is to allow providers sufficient time to make the necessary technical changes.

Next steps

Providers need to start work immediately to meet our implementation deadline. We will monitor progress towards implementation through existing industry forums in which we participate.

² [Annex 2: Guidance on the provision of Calling Line Identification facilities and other related services](#) ('the CLI guidance').

³ We compile a list of certain inbound-only UK telephone numbers and share it with telecoms providers, their intermediaries and interested parties like call blocking or filtering services, so that outgoing calls from those numbers can be blocked. We refer to this as the 'Do Not Originate' (DNO) list. Outbound calls from numbers on the DNO list will be blocked at the network level by providers (where technically feasible) and at the presentation level by call blocking and filtering services. Further detail on the DNO list is included on our website: ['Do Not Originate' \(DNO\) list](#).

2. Background and introduction

Background

Strengthening our rules and guidance on CLI data is part of Ofcom's work to tackle scam calls and texts

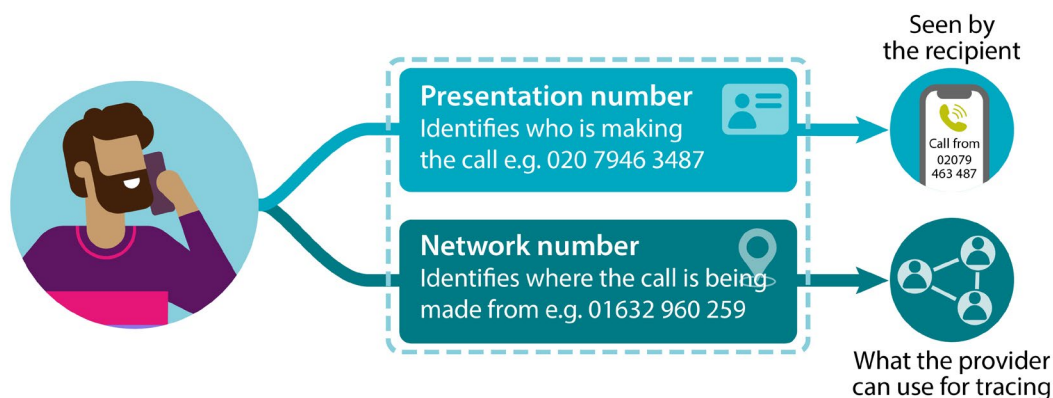
2.1 As we set out in our February 2022 policy positioning statement, we are committed to working with partners to reduce the harm from scam calls and texts. The key elements of our response are set out below.⁴

- We aim to **disrupt scams** by making it harder for scammers to use communications services to reach consumers. We are strengthening our rules and guidance, while at the same time supporting providers to develop their own technical solutions to detect and prevent scam traffic.
- Scams are increasingly complex, often involving different companies and sectors. So, a coordinated approach is vital to ensure more scam attempts are blocked or disrupted. We **collaborate and share information** widely, including with Government, regulators, law enforcement and consumer groups.
- Given the pace at which scammers change their tactics, we understand that it will not be possible to stop all scams reaching consumers. We are working to **help consumers avoid scams** by raising awareness so consumers can more easily spot and report them.

The importance of avoiding misuse of CLI data

2.2 CLI data includes information that identifies the caller and a privacy marking, which indicates whether the number can be shared with the recipient of the call. There are two numbers associated with CLI data - the Presentation Number and the Network Number. Call recipients see the Presentation Number when they answer a call. The Network Number is shared with providers to identify the origin of the call.

Figure 1: Presentation Number and Network Number



⁴ Ofcom, February 2022. [Tackling scam calls and texts: Ofcom's role and approach.](#)

- 2.3 CLI data can give the recipient of a call information about the identity of the party making the call, which can help them decide if they wish to answer or return it. Our 2022 consumer research found that 93% of mobile users who ever answer their calls said they at least sometimes look at the number displayed on their handset to decide whether to answer a call.⁵ Additionally, most landline users who have a caller display facility⁶ said they at least sometimes decide whether to answer a call by looking at the number on the handset (91%).⁷
- 2.4 CLI data can also be used for other purposes, such as call tracing to identify the source of unwanted calls, or as a reference to help identify the location of a caller in emergency situations. To be effective, CLI data must accurately identify the caller, meaning that the number is one which the caller has the authority to use, either because it is a number which they have been assigned or they have been given permission by a third party who has been assigned the number.
- 2.5 The introduction of VoIP (Voice over Internet Protocol) has made it cheaper to generate calls and has resulted in an increase in the volume of unsolicited calls. Using VoIP calling, providers (and some callers) can more easily manage and manipulate the CLI data provided with a call. This has created benefits, for example call centres that can make calls on behalf of a number of different businesses. However, it has also made it easier for other callers to misuse CLI for a variety of malicious reasons, most obviously by ‘spoofing’ the identity of a caller to mislead the recipient of a call.
- 2.6 Spoofing involves callers hiding their identity by causing a false or invalid phone number to be displayed when making calls. A spoofed number on a call display might be a random series of digits or can mimic the number of a real company or person who has nothing to do with the actual caller. Fraudsters based abroad often spoof UK CLIs to make scam calls to UK consumers, which might encourage the recipient to believe that a call is from a legitimate source and make them more likely to answer it. The use of spoofed numbers has also made it harder to detect and block such calls and to trace perpetrators.
- 2.7 The misuse of CLI data can lead to significant harm for consumers, for example where it helps scammers mislead the recipient of a call about their identity in order to encourage them to give away sensitive information or money. Our 2022 consumer research found the problem of scam calls (and texts) to be widespread, with attempted scams being experienced by over three quarters of phone users in the UK.⁸ Fraud now accounts for 41% of all reported crime incidents.⁹

⁵ [Ofcom CLI and Scams Consumer Research 2022, Data Tables](#), table 34

⁶ [Ofcom CLI and Scams Consumer Research 2022, Data Tables](#), table 10, 77% of landline users have caller display

⁷ [Ofcom CLI and Scams Consumer Research 2022, Data Tables](#), table 13

⁸ [Ofcom CLI and Scams Consumer Research 2022, Data Tables](#), table 111. In the three months prior to August 2022, over three quarters of those who use their landline and/or mobile phone to make/receive calls (78%) said they had received at least one suspicious call and/or text and/or app message on their landline and/or mobile phone.

⁹ Note that these are incidents reported as part of the Crime Survey for England and Wales, rather than police recorded crime. Also note, this statistic includes all types of fraud, not only scams relating to telecoms. See Office for National Statistics, July 2022. [Crime in England and Wales, Appendix tables - year ending March 2022](#); based on total crime incidents of 8.7 million and 3.6 million incidents of fraud.

- 2.8 The misuse or spoofing of CLI data can also have wider effects, such as reducing consumer trust in voice calls. Any loss of trust in communications services may mean that legitimate communications from businesses are ignored or not received. We discussed the harms that may be caused by call and text scams in Section 3 of our policy positioning statement.¹⁰
- 2.9 We set out the rules for the use of CLI data in phone calls through General Condition C6, supported by the CLI guidance, which sets out what we expect providers to do to comply with GC C6.¹¹
- 2.10 We have undertaken previous work to improve the accuracy of CLI data, and this is explained in more detail in Annex 3.

February 2022 Consultation

- 2.11 In February 2022, we published a consultation which sought to continue our work to improve the accuracy of CLI data. Our objectives are to:
- i) reduce the number of scam calls consumers receive and, as a result, to contribute to a reduction in the number of people being scammed; and
 - ii) improve confidence in CLI data and trust in telephone services.
- 2.12 We set out for consultation:
- a) Our proposal to modify GC C6.6 to require providers, where technically feasible, to identify and block calls with CLI data that is invalid or non-dialable, or which does not uniquely identify the caller.
 - b) Our proposal to make a number of changes to our CLI guidance:
 - i) Clarifying what we expect providers to do to identify and block calls that do not have valid, dialable CLI data which uniquely identifies the caller. This includes:
 - clarifying that the format of a CLI should be a 10- or 11-digit number;
 - making use of information that identifies numbers that should not be used as CLI, such as Ofcom's numbering allocation information and the DNO list;
 - identifying calls originating abroad that do not have valid CLI and blocking them; and
 - identifying and blocking calls from abroad spoofing UK Network Numbers.
 - ii) Other changes clarifying our expectation on the types of numbers that should be used as CLI in response to feedback from providers:
 - to specify that the Presentation Number must not be an 09 non-geographic number (but other revenue sharing numbers may be used);
 - to require that for calls from a fixed access ingress, the Network Number should be a geographic number; and

¹⁰ Ofcom, February 2022. [Tackling scam calls and texts: Ofcom's role and approach](#).

¹¹ For the avoidance of doubt, GC C6 and our CLI guidance do not apply to text messages and the data that accompanies them (e.g. Sender ID).

- to clarify that CLI data may include optional display name information but that this information should not be displayed to the call recipient unless the provider is confident it is accurate.
- c) We also sought stakeholders' views on whether we should prohibit the use of 084 and 087 numbers as Presentation Numbers.
- 2.13 Taken together, we explained that our proposed changes to GC C6.6 and the associated proposed changes to the guidance should help providers to identify and block calls that have inaccurate CLI data. We expected that blocking calls that do not comply with our rules for CLI data would mean that calls with the most obviously spoofed CLI data would not reach the intended recipient. This should help reduce the number of scam calls reaching customers and ultimately the number of people being scammed in this way.
- 2.14 By requiring providers to block calls with inaccurate CLI data, we expected that our proposed changes would also improve the accuracy of CLI data provided to call recipients, helping them decide which calls they wish to answer. It would make it easier to trace problematic calls that continue to be made, as these calls are more likely to be using a CLI that will uniquely identify the caller. We noted that improving the accuracy of CLI data would also improve confidence in CLI data and trust in telephone services. This would benefit consumers, legitimate businesses and other genuine users of telephone services, as their calls are more likely to be answered.

Responses to the February 2022 Consultation

- 2.15 We received responses from:
- 21 providers;
 - 3 industry groups;
 - 3 consumer groups;
 - 1 individual; and
 - 2 other organisations.
- 2.16 We have published all non-confidential responses on our website.¹²

This statement

- 2.17 This document contains our decisions on our proposals to improve the accuracy of CLI data by:
- a) amending General Condition C6 (see Section 3).
 - b) making changes to the CLI guidance (see Section 4).

¹² Ofcom, August 2022. [Consultation: Improving the accuracy of Calling Line Identification \(CLI\) data.](#)

Legal framework

2.18 When considering our decisions in this statement we have had regard to our duties under the Communications Act 2003 (the Act).

Our general duties

- 2.19 Section 3(1) of the Act states that it shall be our principal duty, in carrying out our functions:
- a) to further the interests of citizens in relation to communication matters; and
 - b) to further the interests of consumers in relevant markets, where appropriate by promoting competition.¹³
- 2.20 In performing our duties, we are required to have regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed, as well as any other principles appearing to us to represent best regulatory practice (section 3(3) of the Act).
- 2.21 Section 3(4) of the Act provides that we must have regard, in performing our duties, to a number of matters, as they appear to us to be relevant in the circumstances, including the desirability of ensuring the security and availability of public electronic communications networks and services; the needs of persons with disabilities, of the elderly and of those on low incomes; the desirability of preventing crime and disorder; the opinions of consumers in relevant markets and of members of the public generally; and the extent to which, in the circumstances of the case, the furthering or securing of the matters mentioned in section 3(1) is reasonably practicable.
- 2.22 In addition, section 3(5) of the Act requires that, when performing our duty to further the interests of consumers, we must have regard, in particular, to the interests of those consumers in respect of choice, price, quality of service and value for money.
- 2.23 As required by section 2B(2)(a) of the Act, we have also had regard to the UK Government's Statement of Strategic Priorities for telecommunications, management of radio spectrum and postal services (SSP).¹⁴ In particular, we have had regard to furthering the interests of telecoms consumers, which is a priority area covered by the SSP.

Powers and duties in relation to General Conditions

2.24 Section 45 of the Act says that we may set General Conditions (GCs) which contain provisions authorised or required by one or more of sections 51, 52, 57, 58 or 64. Under section 51(1)(a), we may set GCs making such provisions as we consider appropriate for

¹³ 'Consumer' is defined in section 405(5) of the Act and includes people acting in their personal capacity or for the purposes of, or in connection with, a business.

¹⁴ Department for Digital, Culture, Media and Sport (DCMS), October 2019. [Statement of Strategic Priorities](#).

the purpose of protecting the interests of end-users of public electronic communications services.

- 2.25 Section 51(2) sets out a non-exhaustive list of the specific types of GCs that we may set in pursuance of this purpose. This includes:
- a) section 51(2)(a), which gives Ofcom the power to set conditions relating to the supply, provision or making available of goods, services or facilities in association with the provision of public electronic communications services;
 - b) section 51(2)(b), which gives Ofcom the power to set conditions to provide protection for end-users that is the same as, or similar to, any protection that was required by Title III of Part III of the EEC immediately before the end of the transition period; and
 - c) section 51(2)(f), which gives Ofcom the power to set conditions to require a communications provider, in specified circumstances, to block access to telephone numbers or services in order to prevent fraud or misuse, and enable them to withhold fees payable to another communications provider in those circumstances.
- 2.26 Section 47(2) of the Act states that a condition can be set or modified where it is objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates; not such as to discriminate unduly against particular persons or against a particular description of persons; proportionate to what the condition or modification is intended to achieve; and transparent in relation to what it is intended to achieve.¹⁵
- 2.27 Section 4(2) of the Act requires Ofcom to act in accordance with six requirements when carrying out certain functions, including those in relation to setting or modifying GCs. These requirements include to promote the interests of all members of the public in the United Kingdom.

Impact assessment

- 2.28 The analysis in our February 2022 consultation constitutes an impact assessment in respect of the proposals that we are deciding on in this statement. We have considered the responses from stakeholders on the benefits and costs of the changes in this document.

Equality impact assessment

- 2.29 Section 149 of the Equality Act 2010 (the 2010 Act) imposes a duty on Ofcom, when carrying out its functions, to have due regard to the need to eliminate discrimination, harassment, victimisation and other prohibited conduct related to the following protected characteristics: age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion or belief; sex and sexual orientation. The 2010 Act also requires Ofcom to have due regard to the need to advance equality of opportunity

¹⁵ Section 47(3) states that the setting of a general condition is not subject to the test of being objectively justifiable, although we are likely to consider this in any event when assessing whether the condition is proportionate.

and foster good relations between persons who share specified protected characteristics and persons who do not.

- 2.30 Section 75 of the Northern Ireland Act 1998 (the 1998 Act) also imposes a duty on Ofcom, when carrying out its functions relating to Northern Ireland, to have due regard to the need to promote equality of opportunity and regard to the desirability of promoting good relations across a range of categories outlined in the 1998 Act. Ofcom's Revised Northern Ireland Equality Scheme explains how we comply with our statutory duties under the 1998 Act.¹⁶
- 2.31 To help us comply with our duties under the 2010 Act and the 1998 Act, we assess the impact of our proposals on persons sharing protected characteristics and in particular whether they may discriminate against such persons or impact on equality of opportunity or good relations.
- 2.32 We do not consider that our decisions have equality implications under the 2010 Act or the 1998 Act.

Structure of this statement

- 2.33 The rest of this statement is set out as follows:
- Section 3 sets out our decisions on the amendment to GC C6
 - Section 4 sets out our decisions on changes to the CLI guidance
- 2.34 The Annexes are set out as follows:
- A1: Notification of modification to the General Conditions (GCs) under section 48(1) of the Act
 - A2: The revised CLI guidance
 - A3: Ofcom's previous work to improve CLI data
 - A4: Glossary and abbreviations

¹⁶ Ofcom, January 2014 (updated December 2019). [Revised Northern Ireland Equality Scheme for Ofcom](#).

3. Amendment to General Condition C6

- 3.1 CLI facilities provide information to the called party about who is calling them and help them decide if they wish to answer a call. However, CLI data can be spoofed, to intentionally mislead the recipient about the identity of the caller.
- 3.2 In our February 2022 Consultation, we proposed an amendment to GC C6 to strengthen our existing requirements for providers to validate the telephone numbers of calls that originate on or enter their networks.
- 3.3 Our aim is to ensure that all providers involved in the transmission of a call play a part in identifying calls that do not have valid, dialable CLI data which uniquely identifies the caller, and in preventing these calls from being connected to the called party.

Requirements to identify calls with invalid or non-dialable CLI

- 3.4 The requirements for providers regarding CLI facilities are set out in GC C6.¹⁷ GC C6 applies to all providers of Number-based Interpersonal Communications Services and Public Electronic Communications Networks over which Number-based Interpersonal Communications Services are provided.¹⁸
- 3.5 GC C6 requires that, when providing CLI facilities, providers must ensure, so far as technically feasible, that any CLI data provided with and/or associated with a call includes a valid, dialable telephone number which uniquely identifies the caller. The requirement is set out in GC C6.4, which states:

When providing **Calling Line Identification Facilities, Regulated Providers** must:

- a) ensure, so far as technically feasible, that any **CLI Data** provided with and/or associated with a call includes a valid, dialable **Telephone Number** which uniquely identifies the caller; and
- b) respect the privacy choices of **End-Users**.

- 3.6 GC C6 also requires that, where technically feasible, providers must take all reasonable steps to identify calls in relation to which invalid or non-dialable CLI data is provided, and to prevent those calls from being connected to the called party. This requirement is set out in GC C6.6 which states:

¹⁷ See Ofcom's [General Conditions of Entitlement](#).

¹⁸ We explained in our statement on [Implementation of the new European Electronic Communications Code](#) our decision to replace the term 'Publicly Available Telephone Service' with the new term 'Number-Based Interpersonal Communications Service' in GC C6 (see Section 3 of the statement). The term captures, for example, fixed and mobile telephone services, as well as VoIP outbound call services.

Where technically feasible, **Regulated Providers** must:

- a) take all reasonable steps to identify calls, other than calls to **Emergency Organisations**, in relation to which invalid or non-dialable **CLI Data** is provided; and
- b) prevent those calls from being connected to the called party, where such calls are identified.

3.7 The meaning of ‘valid’, ‘dialable’ and ‘uniquely identifies’ is set out in the CLI guidance.

- A **valid number** is one which complies with the International public telecommunication numbering plan (Recommendation ITU-T E.164).¹⁹ Where a UK number is used, it must be a number that is designated as a ‘Telephone Number available for Allocation’ in the National Telephone Numbering Plan²⁰ and be shown as allocated in the National Numbering Scheme.²¹
- A **dialable number** must be one that is in service and can be used to make a return or subsequent call.
- A number **uniquely identifies the caller** (which can be an individual or an organisation) where it is one which the user has authority to use, either because it is a number which has been assigned²² to the user or because the user has been given permission (either directly or indirectly) to use the number by a third party who has been assigned that number.

3.8 We became concerned that calls with CLI data that appears valid and dialable, but which is spoofed, would not be caught by this drafting of GC C6.6 and may be connected to the called party. These calls could cause considerable harm to consumers, particularly where a scammer attempts to spoof the identity of a known organisation, such as a bank, using a number associated with that organisation.

Our February proposals

Proposal to require providers to identify and block calls with CLI which does not uniquely identify the caller

3.9 In our February 2022 Consultation, we therefore proposed to modify GC C6.6 to require providers, where technically feasible, to identify and block calls with CLI data which does not uniquely identify the caller. We explained that this would bring consistency between the obligations in GC C6.4 and GC C6.6. The proposed change is shown below:

¹⁹ International Telecommunications Union (ITU). [E.164: the international telecommunication numbering plan](#) (‘E.164’).

²⁰ Ofcom, March 2022. [National Telephone Numbering Plan](#).

²¹ The National Numbering Scheme is the day-to-day record of the telephone numbers allocated by Ofcom in accordance with the National Telephone Numbering Plan. It is [published on our website](#).

²² We have used the term ‘assigned’ in the revised CLI guidance where numbers are transferred to end users. We have used the term ‘allocate’ to refer to the allocation of numbers by Ofcom or sub-allocation of numbers by a provider to other providers or resellers.

Current GC C6.6	Proposed GC C6.6
<p>Where technically feasible, Regulated Providers must:</p> <ul style="list-style-type: none"> a) take all reasonable steps to identify calls, other than calls to Emergency Organisations, in relation to which invalid or non-dialable CLI Data is provided; and b) prevent those calls from being connected to the called party, where such calls are identified. 	<p>Where technically feasible, Regulated Providers must:</p> <ul style="list-style-type: none"> a) take all reasonable steps to identify calls, other than calls to Emergency Organisations, in relation to which the CLI Data provided is invalid, non-dialable or does not uniquely identify the caller; and b) prevent those calls from being connected to the called party, where such calls are identified.

- 3.10 We noted that spoofed numbers, even when they appear valid and dialable, will not uniquely identify the caller because the person spoofing the call does not have authority to use the number.
- 3.11 We further noted that it is not currently technically feasible to identify all spoofed numbers, particularly where the caller spoofs a valid number. However, we considered that technically feasible steps can reasonably be taken by providers to check whether the CLI associated with a call is being used by the individual or organisation that has the authority to use the number. Strengthening the existing requirements in this way should therefore increase the identification and blocking of calls with spoofed numbers.
- 3.12 We also proposed some changes to the CLI guidance, which sets out what is expected of providers to meet GC C6, to reflect this change, which we discuss in more detail in Section 4.

Proposed implementation date

- 3.13 In order that consumers have the additional protection afforded by the proposed modification to GC C6.6, we considered it to be important that it comes into force as soon as reasonably possible. Therefore, we proposed that the modification to GC C6.6, and the changes to the CLI guidance set out in Section 4, come into force six months after the publication of our statement.

Consultation responses

- 3.14 1Route, Colt, Communications Consumer Panel (CCP), Comms Council UK, Magrathea, National Telephone Assistance (NTA), Sky, Stop Scams UK, TalkTalk, Three, Transaction Network Services (TNS), trueCall, Virgin Media O2 (VMO2), Which?, [X], and one

individual agreed with the proposed change to GC C6.6.²³ TalkTalk welcomed this change to ensure all providers carry out such checks and noted that fraudsters will always try to find alternative routes to carry their calls.²⁴

- 3.15 UK Finance welcomed the changes to the granularity of the GCs, noting how this was critical to preserving trust in telephone numbers and without which consumers will remain at heightened risk of harm associated with fraud and scams.²⁵ It provided analysis of Authorised Push Payment (APP) scams showing that impersonation scams are heavily enabled by an initial phone call. It added that the financial sector would not be aware of the initial approach to the consumer via a call. It provided research suggesting that in 2021 more than £214.8m was lost to impersonation scams. UK Finance said over-the-top services should have equivalent obligations to other providers to avoid criminal misuse.²⁶ It thought we need to close all gaps, as criminals will exploit these aggressively.

Scope of the requirements

- 3.16 Telecom2 agreed with the proposal, provided it makes clear that it is only required where technically and economically feasible.²⁷ Vodafone also welcomed the inclusion of technical feasibility, as it would not be proportionate to modify platforms that are due to be removed from its network within months.²⁸ Colt requested further clarity about the role of transit and terminating providers, particularly for operators like themselves who have a global network architecture.²⁹ It said our recommendations must take account of global best practice as well as specific initiatives in individual countries. VMO2 noted that transit and terminating providers are not currently able to validate whether the CLI uniquely identifies the caller.³⁰ It said it would require significant technical development and a national database of active numbers across each network to do so. [3] noted that it has not identified any gaps that require significant technical changes.
- 3.17 Aloha Telecoms and BT supported the intention of our proposal but asked for some clarifications.³¹ Aloha Telecoms requested further guidance on the expectations of the originating, transit and terminating providers.³² BT noted that in practice, only the originating provider can know if the caller has the authority to use the number.³³ In addition, it explained it is not feasible to develop a network solution to identify whether a number is dialable, as a number being in an allocated range does not necessarily mean that

²³ [1Route](#), [Colt](#), [Communications Consumer Panel](#), [Comms Council UK](#), [Magrathea](#), [National Telephone Assistance](#), [Sky](#), [Stop Scams UK](#), [TalkTalk](#), [Three](#), [Transaction Network Services \(TNS\)](#), [trueCall](#), [VMO2](#), [Which?](#), Responses to February 2022 Consultation.

²⁴ [TalkTalk](#), Response to February 2022 Consultation, page 1.

²⁵ [UK Finance](#), Response to February 2022 Consultation, page 1.

²⁶ [UK Finance](#), Response to February 2022 Consultation, page 3.

²⁷ [Telecom2](#), Response to February 2022 Consultation, page 1.

²⁸ [Vodafone](#), Response to February 2022 Consultation, page 3.

²⁹ [Colt](#), Response to February 2022 Consultation, page 1.

³⁰ [VMO2](#), Response to February 2022 Consultation, page 4.

³¹ [Aloha Telecoms](#) and [BT](#), Responses to February 2022 Consultation.

³² [Aloha Telecoms](#), Response to February 2022 Consultation, pages 1-2.

³³ [BT](#), Response to February 2022 Consultation, page 3.

it is in service. It said it would be difficult for downstream providers to confirm if a displayed CLI is dialable or similarly check calls that enter the UK from abroad.

- 3.18 AB Handshake and Aloha Telecoms noted that only the originator of a call can correctly implement the rules.³⁴ They said transit and terminating providers do not have a way to verify if that a number identifies the caller.
- 3.19 [S&K] also noted that currently it is only technically possible to fully comply with the proposed modification for calls that originate on its own network. For calls received from an interconnected party it is only technically feasible to verify that the CLI data is correctly formatted. In order to verify UK CLI data, it suggested that an authoritative, cross industry database would be required to check the CLI data for a call is dialable (i.e. not unassigned) and uniquely identifies the caller. It noted a similar challenge for Type 4 presentation, where a provider receives a call diverted from a Private Branch Exchange (PBX).³⁵

Suggested modifications to GC C6.6

- 3.20 Vodafone³⁶ agreed with the intent of the changes but said there may be unintended consequences. It noted that the revised GC would require providers to block any calls that contain CLI data which is not dialable. However, it noted that businesses commonly have a dialable Presentation Number but use a non-dialable number as a Network Number as it is not presented to the recipient. It suggested that the proposed change would require an unspecified number of enterprise customers to change the Network Number they use for calls.
- 3.21 Vodafone did not recommend using the CLI guidance to address this issue as the GC takes precedence over any associated guidance.³⁷ It suggested reversing the wording of the revisions to say, *“the Regulated Provider must take all reasonable steps to identify calls where the CLI Data is invalid, or does not contain a number that uniquely identifies the caller, or does not contain a number which is dialable, and prevent those calls from being connected to the called party”*.³⁸ It thought that this would then clarify that the Presentation Number and Network Number do not both need to be valid. Additionally, there would be a data element in the CLI data that uniquely identifies the caller and a data element that is dialable for a return call.
- 3.22 BT submitted that a dialable number is, by definition, one that uniquely identifies the caller, but that the proposed drafting of GC C6.6 appears to indicate that a number could be dialable but not uniquely identify the caller.³⁹ It suggested that the wording be amended.

³⁴ [AB Handshake](#) and [Aloha Telecoms](#), Responses to February 2022 Consultation.

³⁵ Private Branch Exchanges are the telephone switches, most commonly used within a business, to connect calls within the business or as a gateway to the public network. They can also be used by IP Voice platforms to connect calls between the IP network and the public network.

³⁶ [Vodafone](#), Response to February 2022 Consultation, page 2.

³⁷ [Vodafone](#), Response to February 2022 Consultation, page 2.

³⁸ [Vodafone](#), Response to February 2022 Consultation, pages 2-3.

³⁹ [BT](#), Response to February 2022 Consultation, page 3.

Enforcement of current requirements

- 3.23 trueCall thought the current requirements were not being complied with and the changes did not go far enough.⁴⁰ It noted that some of its customers do not have CLI facilities enabled on their phone line and therefore faced difficulties in activating its service, which requires CLI information to work. It provided examples of where its customers have not been able to have CLI facilities enabled on their phonenumber, because the subscriber has insufficient capacity to request this, the customer has inappropriately been asked to renew their contract or the provider will only accept a request from the bill payer. It suggested that CLI facilities should be provided by default by all providers. Telecom2 noted that it continues regularly to receive calls from some of the larger providers that contain invalid CLI and there are reciprocal charges for such calls.⁴¹
- 3.24 Comms Council UK and Simwood noted that Ofcom had not enforced against the existing rules.⁴² Simwood said this was at odds with public perception of the problem and gave rise to serious questions about whether there is an issue that requires addressing.⁴³ Comms Council UK indicated support for stronger enforcement action against malicious actors.⁴⁴

Further amendments to the GC

- 3.25 trueCall suggested that we incorporate the requirements of paragraph A1.24 of Ofcom's Persistent Misuse Statement⁴⁵ into GC C6.6.⁴⁶ This says that where a person calls the CLI provided and is connected to an agent or an automated message, we may consider it misuse if:
- no information is provided about the organisation which called, or the organisation on whose behalf the call was made;
 - an opportunity is not provided for the person called to opt out of future unsolicited marketing calls or messages; or
 - the call is used as an opportunity to market to that person without their consent.
- 3.26 TNS suggested that the proposals required further modification with regard to numbers that do not uniquely identify the caller, determination of which would benefit from call analytics in providers' networks and deployment of call authentication, similar to the STIR/SHAKEN⁴⁷ framework.⁴⁸ It noted that blocking calls alone has limited effect because scam callers can easily shift their tactics to other methods to complete their calls. TNS

⁴⁰ [trueCall](#), Response to February 2022 Consultation, page 1.

⁴¹ [Telecom2](#), Response to February 2022 Consultation, page 1.

⁴² [Comms Council UK](#) and [Simwood](#) Responses to February 2022 Consultation.

⁴³ [Simwood](#), Response to February 2022 Consultation, page 7.

⁴⁴ [Comms Council UK](#), Response to February 2022 Consultation page 1.

⁴⁵ Ofcom, December 2016. [Persistent Misuse: a statement of Ofcom's general policy on the exercise of its enforcement powers.](#)

⁴⁶ [trueCall](#), Response to February 2022 Consultation, page 1.

⁴⁷ STIR/SHAKEN is the set of standards which is being used for CLI authentication in the US. See FCC, [Combating Spoofed Robocalls with Caller ID Authentication.](#)

⁴⁸ [TNS](#), Response to February 2022 Consultation, pages 1-2.

suggested that call analytics are necessary to have a meaningful impact on the volume of illegal calls.⁴⁹

- 3.27 1Route noted that calls to Emergency Organisations should also be validated but invalid numbers should not be blocked.⁵⁰ Instead, it suggested that such numbers should be put on a watch list for further investigation.

Impact of the proposals

- 3.28 Simwood considered Ofcom to have failed in its statutory duties by not attempting to quantify the benefits of the proposed changes.⁵¹
- 3.29 KCOM said that Ofcom did not seek to quantify the benefits of the proposed changes and had assumed that there would be no costs.⁵² It thought it likely that a number of legitimate calls whose CLIs do not conform to GC C6.4 would be blocked as a result of the proposals. It estimated that an additional 2.7% of calls could be blocked because the CLIs were of an incorrect length. Given these call volumes, KCOM thought it highly likely that some genuine calls would be blocked (although it didn't know exact proportions), and said we need to consider further.⁵³
- 3.30 [S&K] noted that the number of complaints its contact centre has received about scam calls has fallen from 1,000 calls a week in December 2019 to fewer than 20 calls a week. It attributed this to the impact of call blocking on its network.

Proposed implementation date

- 3.31 A number of stakeholders agreed with our proposed implementation timescale.⁵⁴ NTA⁵⁵ said it expected a six-month implementation period to be achievable, although it may need up to 12 months. TalkTalk, UK Finance, and Which? said quick implementation is important to ensure consumers are protected from scams.⁵⁶ UK Finance said delays to implementation would result in numerous additional people being targeted by scams.⁵⁷ It estimated that the number of impersonation scams during a six month implementation period would be 37,900. One individual called for shorter implementation timescales, given the ongoing consumer harm from scams, particularly to vulnerable customers. They said Ofcom should give three to four months for implementation after a Spring/Summer 2022 statement.

⁴⁹ [TNS](#), Response to February 2022 Consultation, page 2.

⁵⁰ [1Route](#), Response to February 2022 Consultation, page 1.

⁵¹ [Simwood](#), Response to February 2022 Consultation, page 7.

⁵² [KCOM](#), Response to February 2022 Consultation, page 1.

⁵³ [KCOM](#), Response to February 2022 Consultation, page 2.

⁵⁴ [1Route](#), [BT](#), [Sky](#), [TalkTalk](#), [trueCall](#), [UK Finance](#), [Vodafone](#), [Which?](#), Responses to February 2022 Consultation.

⁵⁵ [National Telephone Assistance](#), Response to February 2022 Consultation, page 1.

⁵⁶ [TalkTalk](#), [UK Finance](#) and [Which?](#), Responses to February 2022 Consultation.

⁵⁷ [UK Finance](#), Response to February 2022 Consultation, page 3.

- 3.32 Telecom2 said providers would need technical and financial assistance to meet a six-month deadline, given the need to purchase and install new equipment, particularly for IP migration.⁵⁸
- 3.33 Several providers asked for 12 months for implementation:
- Colt said this was because of its business structure and the global nature of its network architecture.⁵⁹
 - Aloha Telecoms said it would need time for changes across the whole call journey.⁶⁰ However, it expected to be able to implement our GC proposals, if it is the originating provider’s responsibility to implement the requirements around uniquely identifying the caller.
 - [3] said small and mid-sized operators would need time to validate the CLI on every UK originating call.
- 3.34 [3] estimated it would need until Q1 2024 to make necessary changes to its call routing engine. It said this takes into account 10-13 months for development and testing to ensure that transit and terminating calls comply with the UK dial plan. It said timings also need to fit with its planning cycle and resources are already fully committed to the end of Q1 2023.
- 3.35 Magrathea asked for an extended implementation window, and for a proportionate approach to monitoring and enforcement, given resource needed for other regulatory interventions and IP migration.⁶¹
- 3.36 BT said a deadline will only be meaningful if Ofcom takes effective enforcement against originating, transit and terminating providers who do not comply.⁶²
- 3.37 Three commented specifically on implementation of the CLI guidance and said it is not possible to fully implement the guidance on legacy technologies, which it is in the progress of updating.⁶³ It therefore asked Ofcom to acknowledge these limitations or extend the deadline to allow time for technology migrations (e.g. upgrading to Session Initiation Protocol (SIP)).
- 3.38 Vodafone expected that it would not be able to block calls from abroad that present with a UK CLI, as proposed in the CLI guidance, until Spring 2023.⁶⁴ However, it said it could bring the date forward if Ofcom is able to align the implementation dates of the major international gateway providers.

Our decision

- 3.39 Having considered responses to our consultation, we have decided to modify GC C6.6 to require providers, where technically feasible, to identify and block calls with CLI data which

⁵⁸ [Telecom2](#), Response to February 2022 Consultation, pages 1-2.

⁵⁹ [Colt](#), Response to February 2022 Consultation, page 1.

⁶⁰ [Aloha Telecoms](#), Response to February 2022 Consultation, page 2.

⁶¹ [Magrathea](#), Response to February 2022 Consultation, page 1.

⁶² [BT](#), Response to February 2022 Consultation, page 3.

⁶³ [Three](#), Response to February 2022 Consultation, page 2.

⁶⁴ [Vodafone](#), Response to February 2022 Consultation, page 5.

does not uniquely identify the caller. We have also clarified that providers must take all reasonable steps to identify and block calls in relation to which the CLI data provided does not contain a Telephone Number that is dialable, so that calls with a dialable Presentation Number and a non-dialable Network Number will not be blocked.

3.40 GC C6.6 will therefore provide as follows:

Current GC C6.6	Modified GC C6.6
<p>Where technically feasible, Regulated Providers must:</p> <ul style="list-style-type: none"> a) take all reasonable steps to identify calls, other than calls to Emergency Organisations, in relation to which invalid or non-dialable CLI Data is provided; and b) prevent those calls from being connected to the called party, where such calls are identified. 	<p>Where technically feasible, Regulated Providers must:</p> <ul style="list-style-type: none"> a) take all reasonable steps to identify calls, other than calls to Emergency Organisations, in relation to which the CLI Data provided is invalid, does not uniquely identify the caller, or does not contain a Telephone Number that is dialable; and b) prevent those calls from being connected to the called party, where such calls are identified.

3.41 This modification will come into force on 15 May 2023 (six months after the publication of this statement).

3.42 We have decided that changes to the CLI guidance (discussed in Section 4) will come into force at the same time as our modification to GC C6.6.

3.43 Our assessment and reasoning for our decision is set out below.

Ofcom assessment

Scope of the requirements

3.44 We note the comments on the ability of a transit or terminating provider (which does not have a direct relationship with the originating caller) to check whether the CLI data provided with a call uniquely identifies the caller. We acknowledge that transit and terminating providers are not currently able to validate whether the CLI uniquely identifies the caller or to develop a network solution to test if a number is dialable. However, GC C6.6 sets out what providers must do where technically feasible, and we consider that there are technically feasible steps that can be taken by transit and terminating providers to check whether a number should be used for outbound calls, for example using the DNO list, and whether a number is likely to be dialable as it is a number that has been allocated

for use. There are also certain checks that can be carried out by providers receiving a call from a network outside of our requirements. These steps are set out in the CLI guidance.⁶⁵

Suggested modification to GC C6.6

- 3.45 We acknowledge Vodafone's point that, provided the Presentation Number is dialable, the Network Number does not need to be a dialable number.⁶⁶ We define CLI data as the content of all signalling messages used between providers and/or between providers and end-users, and it therefore includes both Network Numbers and Presentation Numbers.
- 3.46 We have amended the wording of the modification to reflect Vodafone's comment, although our wording slightly differs from Vodafone's suggestion. We agree that, provided the Presentation Number is a dialable number, the Network Number does not need to be dialable. However, both the Network Number and the Presentation Number should be numbers that uniquely identify the caller, in that they should be numbers the caller has permission to use at the time of the call. For example, where the Network Number and Presentation Number are the same, the number must be a valid number, which uniquely identifies the caller, and a dialable number. However, where the Network Number and the Presentation Number are different, then both numbers must be valid and uniquely identify the caller, however only the Presentation Number needs to be dialable.
- 3.47 We have not incorporated the changes suggested by BT.⁶⁷ A number may be dialable but the caller may not have authority to use it – for example, if it is spoofed. GC C6.6 therefore correctly indicates that a number could be dialable but not uniquely identify the caller. As noted above, both the Network Number and Presentation Number should be numbers that uniquely identify the caller.

Enforcement of current requirements

- 3.48 We note trueCall's concerns regarding compliance with GC C6.⁶⁸ In 2020, we conducted a compliance audit, which included requesting information from the nine largest consumer-facing providers to assess compliance with GC C6. The audit did not raise significant concerns about compliance with GC C6 and we did not take enforcement action as a result. We also note Telecom2's concern that it regularly receives calls from some of the larger providers that contain invalid CLI and there are reciprocal charges for such calls.⁶⁹ As we explained in the statement on our Wholesale Voice Markets Review 2021 (WVMR 2021), allowing pricing freedom on the termination rates for calls with invalid CLI incentivises originating providers to provide accurate CLI, however we expect UK providers to take reasonable steps to identify the correct CLI, so as to apply the correct termination rate to charge.⁷⁰

⁶⁵ [Annex 2: Guidance on the provision of Calling Line Identification facilities and other related services](#) ('the CLI guidance').

⁶⁶ [Vodafone](#), Response to February 2022 Consultation, pages 2-3.

⁶⁷ [BT](#), Response to February 2022 Consultation, page 3.

⁶⁸ [trueCall](#), Response to February 2022 Consultation, page 1.

⁶⁹ [Telecom2](#), Response to February 2022 Consultation, page 1.

⁷⁰ Ofcom, March 2021. [WVMR 2021](#), paragraph 6.145.

3.49 GC C6.2 requires all providers to provide CLI facilities, and enable them by default, unless they can demonstrate it is not technically feasible or economically viable to do so. We are aware some networks do not have the technical feasibility to enable CLI by default for all customers. Should trueCall and Telecom2 become aware of non-compliance, we would encourage them to report their concerns to us. Where we have evidence of a potential breach of our GCs, we will conduct an assessment in line with our enforcement guidelines.⁷¹

Further amendments to the GC

3.50 Regarding trueCall's suggestion to incorporate paragraph A1.24 of the Persistent Misuse Statement into the GCs, we have powers to take enforcement action against those who persistently misuse electronic communications networks and services under sections 128-130 of the Act and do not think it is appropriate to incorporate this paragraph into the GCs.⁷² However, we have published a good practice guide setting out the steps we expect providers to take help prevent valid numbers being misused, providing further clarity for providers on how we expect them to meet their existing obligations under GC B1.⁷³ In our investigation of cases involving misuse of numbers, we would take the guide into account in considering whether enforcement action is appropriate.

3.51 We note TNS's suggestion and recognise that any implementation of CLI authentication⁷⁴ would sit alongside call analytics and call blocking, with each playing a role in reduction of scam calls.⁷⁵ In this context, we note that CLI authentication would provide data on the attestation status of calls, which could be a useful signal and help to improve call analytics. We are currently exploring the implementation of further technical measures to verify the authenticity of CLI data. Technical measures such as a direct exchange of information between the originator and terminator of a call will be considered within this work.

3.52 There is already an exception in GC C6.6 to ensure that calls to Emergency Organisations are not blocked, even where invalid CLI is provided with the call. Absent, corrupted or invalid CLI information associated with an emergency call is recorded by the emergency call handling agent as it is this information that is used to derive caller location information. Incorrect location information impairs the ability of emergency services to quickly dispatch assistance to the correct location, so when this occurs the emergency call handling agent records the relevant information to follow up accordingly. Additionally, we continue to review the information recorded by the call handling agent.⁷⁶

⁷¹ [Ofcom's Enforcement guidelines](#).

⁷² [trueCall](#), Response to February 2022 Consultation, page 1.

⁷³ Ofcom, November 2022. [Good practice guide to help prevent misuse of sub-allocated and assigned numbers](#).

⁷⁴ The implementation of standards that make it possible for the network originating a call to confirm the caller's authenticity before passing it to the network of the person receiving the call.

⁷⁵ [TNS](#), Response to February 2022 Consultation, pages 1-2.

⁷⁶ When we closed our own-initiative enforcement programme into emergency caller location in 2019, we stated: "We will monitor compliance and maintain an oversight of the number of caller location information discrepancies by continuing to request information from the emergency services' call handling agent." Ofcom, 8 March 2019. [Update: Enforcement programme into compliance with obligations relating to emergency call access and resilience](#).

Impact of the proposals

- 3.53 In our February 2022 Consultation, we explained that the proposed modification to GC C6.6 and the related changes to the CLI guidance would strengthen our existing requirements for providers to identify and block calls with CLI data which does not uniquely identify the caller. We expected this to make it more difficult for scammers to successfully spoof CLI data to intentionally mislead the recipient about the identity of the caller. As such, we considered that the proposals should contribute to our first policy objective of reducing the harm from scam calls.
- 3.54 As we explained in our consultation, these are a part of a wider package of measures – by Ofcom, other regulators, government and industry – designed to disrupt scams in general and reduce harm, and no single measure alone is likely to stop scams. However, our assessment remains that the modification to GC C6.6 and related changes to the CLI guidance (discussed further in Section 4) are likely to deliver material benefits in the form of a reduction in scam calls. In reaching this view we have taken into consideration stakeholder responses as to the likely benefits and implementation costs associated with the measures.
- 3.55 While it is difficult to estimate how many scam calls we expect to be blocked as a result of the measures, we expect that blocking the most obviously spoofed numbers will make it harder for scammers to use voice calls to scam people, and that reducing the number of scam calls consumers receive should lead to fewer people being scammed in this way. Scams result in significant financial harm for victims. In its consultation response, UK Finance estimated that impersonation fraud (which can be facilitated over the phone) resulted in £214.8 million in losses to victims in 2021.⁷⁷ In our consultation, we also noted other (non-financial) types of harms caused by scam calls, such as the anxiety and emotional distress that victims are also likely to experience. We continue to think that any reduction in the volume of scam calls would also reduce harm to those who receive these calls but are not ultimately scammed, as unwanted calls can be annoying, disruptive and waste people’s time.
- 3.56 In line with our prior view, our assessment is that the measures should also contribute to our second policy objective of improving confidence in CLI data and trust in telephone services. We noted that improving the accuracy of CLI data provided on calls which connect to consumers would help consumers decide which calls they wish to answer, and also make it easier to trace problematic calls that continue to be made, as these calls are more likely to be using a CLI that will uniquely identify the caller. The impact on consumers and the wider economy of scam calls, and a loss of trust and confidence in telephone services as a result of scams, were discussed in more detail in Section 3 of our scams policy positioning statement.⁷⁸

⁷⁷ [UK Finance](#), Response to February 2022 Consultation, page 2.

⁷⁸ Ofcom, February 2022. [Tackling scam calls and texts: Ofcom's role and approach](#).

- 3.57 We discuss the specific comments about the changes to the CLI guidance setting out what is expected of providers to meet the requirements of GC C6 in the next section, including comments on the impact of the changes. In our February 2022 Consultation, we noted that providers have already implemented some of these proposed changes on a voluntary basis (or are in the process of doing so). However, for those providers that have not, we considered that they would incur some additional costs to implement them.
- 3.58 In most cases, in line with our view as set out in our February 2022 Consultation, we do not believe that the incremental costs caused by the measures are significant. This is because the existing regulatory requirements mean that many of the affected providers should already be undertaking related activities and so should have much of the technical capability in place already. Where this is the case, we continue to expect that the new requirements could be met with relatively modest changes. We also think that there may be benefits to some providers from the measures: providers who deal directly with end consumers may find that a reduction in the number of scam calls leads to fewer calls from end customers to their customer service teams.
- 3.59 As regards any unintended consequences of the measures in terms of over-blocking of legitimate calls, we think that the risk should be very low provided providers identify and block calls in accordance with the CLI guidance, having regard to the relevant exceptions which are in line with industry recommendations. We discuss further the changes to the guidance in Section 4. These changes should minimise the potential risk of over-blocking of legitimate calls.
- We note that for calls that originate on UK networks, they should comply with GC C6.4, which requires that CLI data includes a valid, dialable number that uniquely identifies the caller. Therefore, calls from the UK that comply with GC C6.4 should not be blocked. CLIs that do not conform to the format set out in the CLI guidance are not valid and the call should be blocked. We discuss the use of shorter numbers as CLI in paragraphs 4.40-4.41.
 - For calls from outside the UK, we discuss in paragraphs 4.94 - 4.97 our decision to modify the proposed guidance on blocking calls with invalid CLI that originate abroad, so that in some cases a call without a valid Network Number can be connected, where the provider has a good reason to consider it to be a legitimate call.
 - We explain in paragraphs 4.139 - 4.140 that providers receiving calls from international networks should be able to identify calls which can legitimately use UK CLI, and that BT has said it has received very few complaints of calls from abroad with UK CLI that have been blocked in error, and TalkTalk that there have been limited instances of over-blocking and these can be rectified.⁷⁹
- 3.60 Overall, we continue to consider that the change to GC C6, and the associated changes to the CLI guidance, are likely to deliver material benefits. The changes should bring about a

⁷⁹ BT and TalkTalk responses to Ofcom's request for information under s135 of the Act dated 12 October 2022.

reduction in scam calls, improved confidence in CLIs and trust in telephone services in general, and we consider that the measures are proportionate.

- 3.61 We note UK Finance’s comment about the potential risk of scams from over-the-top services.⁸⁰ We currently have powers to set General Conditions to protect the interests of end-users of public electronic communications services, and therefore our powers do not extend to over-the-top services. We are also considering some elements of online fraud that may be captured through new powers under the proposed Online Safety Bill.

Proposed implementation date

- 3.62 A number of stakeholders either agreed with or did not raise any concerns about our proposed implementation date for the changes to GC C6 and the CLI guidance. We acknowledge that some providers have asked for extra time for implementation, particularly to make necessary technical changes. However, we consider that implementation should be as swift as possible to mitigate the significant harm caused by scam calls. Where there are specific technical challenges, we will work with providers to understand these as part of our monitoring.
- 3.63 We acknowledge that Vodafone expects to need until Spring 2023 to block calls from abroad that present with a UK CLI.⁸¹ We consider the deadline of 15 May 2023 is consistent with this timeframe.

Legal tests

- 3.64 We consider that the modification we are making to GC C6.6 meets the test for setting or modifying conditions set out in section 47(2) of the Act. For the reasons set out in this document, we consider that it is:
- a) **objectively justifiable**, in that it will ensure, so far as possible, that CLI data is accurate, and calls with inaccurate CLI data are identified and blocked. This will bring direct benefits to consumers, in particular helping to tackle scam and nuisance calls, and improving people’s trust in CLI data and UK telephone services;
 - b) **not unduly discriminatory**, because it will apply to all providers who provide networks or voice call services and will benefit all consumers equally;
 - c) **proportionate**, in that it goes no further than is necessary to achieve Ofcom’s objectives of reducing the harm to consumers from scam calls and improving trust in CLI and the UK telephone system. While there are likely to be costs to providers of implementing these changes, we do not consider these likely to be disproportionate relative to the gains to end consumers and legitimate businesses; and
 - d) **transparent**, as the reasons for and effect of the change that we are proposing to make are explained in this document.

⁸⁰ [UK Finance](#), Response to February 2022 Consultation, page 3.

⁸¹ [Vodafone](#), Response to February 2022 Consultation, page 5.

4. Changes to the CLI guidance

- 4.1 The CLI guidance sets out what is expected of providers in order for them to meet the requirements in GC C6 and provides guidance for all providers that participate in the origination, transmission and termination of a call in the UK. In our February 2022 Consultation, we proposed to make some changes to the CLI guidance in light of the proposed modification of GC C6.6. We also proposed to make a number of other changes to the guidance clarifying our expectation on the types of numbers that should be used as CLI in response to feedback from providers.
- 4.2 This section first responds to general comments about changes to the CLI guidance. It then sets out our decisions on each of the specific changes proposed.

Consultation Responses

- 4.3 1Route, Sky, Stop Scams UK, TalkTalk, Three, VMO2, Which?, and one individual broadly agreed with our proposed changes to the CLI guidance.⁸² 1Route added that involving transit and wholesale providers would be crucial in the long run with international calls.⁸³ Which? thought there are some challenges and limitations to our proposals, discussed further below.⁸⁴ Aloha Telecoms agreed with the proposals except the proposal that only geographic numbers should be used as Network Numbers.⁸⁵

The relationship between GC C6 and the CLI guidance

- 4.4 Comms Council UK, Simwood and trueCall suggested that we incorporate the guidance into GC C6.6.⁸⁶ Simwood added that side-stepping the proportionality test required for a change to the GCs carries with it the uncertainty of potential challenge.⁸⁷ It also said our proposal to change GC C6.6 is evidence that industry guidance alone is not sufficient (as, if guidance were effective, we would not need to make the change).
- 4.5 Vodafone said we should re-title the guidance, to clarify that it sets out what providers must do to comply with GC C6.6.⁸⁸ It suggested “Requirements for the provision of Calling Line Identification facilities...” or “CLI Compliance Manual”.

Requests for clarification of the CLI guidance

- 4.6 Aloha Telecoms asked us to clarify what we mean by “technically feasible steps” for providers to check whether a call’s CLI is being used by an individual or organisation with the authority to use that number.⁸⁹ It also asked whether “technically feasible steps”

⁸² [1Route, Sky, Stop Scams UK, TalkTalk, Three, VMO2, Which?](#), Responses to February 2022 Consultation.

⁸³ [1Route](#), Response to February 2022 Consultation, page 2.

⁸⁴ [Which?](#), Response to February 2022 Consultation, page 1.

⁸⁵ [Aloha Telecoms](#), Response to February 2022 Consultation, page 2.

⁸⁶ [Comms Council UK, Simwood](#) and [trueCall](#), Responses to February 2022 Consultation.

⁸⁷ [Simwood](#), Response to February 2022 Consultation, page 4.

⁸⁸ [Vodafone](#), Response to February 2022 Consultation, page 3.

⁸⁹ [Aloha Telecoms](#), Response to February 2022 Consultation, page 2.

related to the “administrative feasible steps” referred to on pages 17 and 18 of the proposed guidance. If so, Aloha Telecoms⁹⁰ thought these steps would only apply to the originating provider.

- 4.7 Which? said there is limited detail on the “technically feasible steps” for identifying whether a caller has the authority to use a number.⁹¹ However, it agreed that providers should take steps to verify authority to use phone numbers. If providers do not think these steps are feasible, Which? said they should give clear evidence as to why, and work collaboratively with Ofcom on alternative solutions.⁹² Which? also acknowledged the risk that some legitimate calls could be blocked due to the proposed measures.⁹³ However, it agreed the measures will offer benefits and protection for consumers. Which? encouraged Ofcom to monitor the extent of legitimate traffic blocking once the measures are implemented.⁹⁴
- 4.8 Three explained that it was not possible to fully implement the CLI guidance on legacy network technology, but SIP technology and products provide more flexibility for implementing the measures.⁹⁵ It asked Ofcom to acknowledge that legacy technology/product limitations could affect providers’ ability to fully comply with the requirements.
- 4.9 BT suggested some drafting changes in the guidance, for example referring to ‘Network Providers’ as ‘CPs’ and changing references to ‘SIP’ to ‘IP.’⁹⁶ It suggested alternative wording to clarify what is expected of the Network Number and the Presentation Number.
- 4.10 [X] noted that it was confusing to refer to ‘CLI Data’ as a number when, for calls in the UK, there are two pieces of CLI data alongside two privacy statuses. It added that the guidance does not clearly and unambiguously define the permitted CLI data. It requested that the guidance should more fully define the permitted CLI data for an originating provider, a transit provider and a terminating operator. It also noted that we referenced NICC documents but did not state the requisite document version number.

Monitoring compliance and ensuring interoperability

- 4.11 Magrathea noted that, with the increasing migration to IP services, some networks are swapping the Network Number and Presentation Number.⁹⁷ It said it is dealing with this on a case-by-case basis, but it is a lengthy process that may involve multiple carriers in the call path. Magrathea encouraged Ofcom to monitor compliance with the CLI guidance,

⁹⁰ [Aloha Telecoms](#), Response to February 2022 Consultation, page 2.

⁹¹ [Which?](#), Response to February 2022 Consultation, page 2.

⁹² [Which?](#), Response to February 2022 Consultation, page 2.

⁹³ [Which?](#), Response to February 2022 Consultation, pages 2-3.

⁹⁴ [Which?](#), Response to February 2022 Consultation, page 3.

⁹⁵ [Three](#), Response to February 2022 Consultation, page 2.

⁹⁶ [BT](#), Response to February 2022 Consultation, [spreadsheet annex](#).

⁹⁷ [Magrathea](#), Response to February 2022 Consultation, page 2.

particularly among the major carriers, or to provide a mediation method to aid interoperability issues.⁹⁸

Impact of the measures

- 4.12 Telecom2 said it understood the reason for the proposals but was unsure if many providers would have the resource and ability to verify and block calls.⁹⁹ It also noted that nearly all the spoofed calls using its numbers would be classified as valid and are working numbers in use by clients.¹⁰⁰
- 4.13 Magrathea noted that, as a result of decisions made in the WVMR 2021 on calls originating abroad, a large surcharge is applied by some networks to calls with apparently invalid or missing CLI.¹⁰¹ It was keen to understand how the WVMR 2021 had affected complaints about scam calls and CLI spoofing. It suggested that this may have resulted in improved use of CLI, and fewer problematic calls, and therefore questioned the proportionality of our proposals.
- 4.14 [S&K] supported our commitment to improve the quality of CLI data. It is able to run certain checks, however, these only apply to the Network Number. It was concerned that callers spoofing numbers will soon discover that Presentation Numbers are not screened and will modify the way they spoof CLIs to accommodate this. It did not think the right approach was to implement simple, straightforward rules for blocking traffic and instead to use a variety of methods to detect and act upon suspected instances of misuse, including working with interconnect partners to address suspected illegitimate traffic originating on other networks.

Ofcom response

- 4.15 We note that there was general support for the proposed changes to the CLI guidance, although there were also comments about potential implementation challenges. The CLI guidance sets out what is expected of providers in order for them to meet the requirements of GC C6. GC C6.6 sets out what providers must do, where technically feasible. We acknowledge that what is technically feasible for different providers may vary, depending on the technology they use for voice calls and the networks that they connect with.

The relationship between GC C6 and the CLI guidance

- 4.16 We note the comments about the relationship between GC C6 and the CLI guidance. GC C6 imposes mandatory requirements on providers. The CLI guidance sets out what is expected of providers to meet those requirements, including the checks we consider technically feasible for providers at each stage of the routing of a call. The guidance is not legally

⁹⁸ [Magrathea](#), Response to February 2022 Consultation, page 2.

⁹⁹ [Telecom2](#), Response to February 2022 Consultation, page 2.

¹⁰⁰ [Telecom2](#), Response to February 2022 Consultation, page 2.

¹⁰¹ [Magrathea](#), Response to February 2022 Consultation, page 3.

binding, and we recognise there may be different ways for providers to achieve compliance with GC C6. However, we may take the guidance into account in enforcement action against requirements such as GC C6. We therefore do not think it is necessary or appropriate to incorporate the CLI guidance into GC C6 or to change the title of the guidance.

Requests for clarification of the CLI guidance

The responsibility of providers in different parts of the call and “technical feasibility”

- 4.17 In relation to transit and terminating providers checking whether the CLI associated with a call is a number which the caller has the authority to use, the steps we expect of providers are set out in paragraphs 4.20 - 4.23 of the CLI guidance. These are not the same as the steps referenced in paragraphs 5.9 – 5.14 in relation to types of Presentation Number. As noted in our consultation, we would expect the originating provider to know if the CLI used is from a number that has been allocated to that network or to seek assurance from their customer that they are using a CLI that they have permission to use. Transit and terminating providers would not have access to all the information about the caller to determine whether the caller has authority to use the CLI that is being provided with the call, however the CLI guidance sets out the steps that we expect the provider to take to take to identify calls that do not have valid, dialable CLI data that uniquely identifies the caller.
- 4.18 We acknowledge that the checks that can be carried out are limited, and some providers face technical limitations on legacy technology platforms. In the long run, the introduction of CLI authentication could provide the additional data required for transit and terminating providers to verify the authenticity of a CLI, but this is not yet in place for UK networks.

Definition of CLI data

- 4.19 We note the request to clarify the definition of CLI data. CLI data means the contents of all signalling messages which can be used between providers and/or between providers and end-users to signal the origin of the call and/or the identity of the calling party, including any associated privacy markings. Therefore, it encompasses both the Network Number, Presentation Number and associated privacy indicators. In paragraphs 4.12-4.23 of the CLI guidance we set out the expectations of different providers within the call path, therefore we do not consider it necessary to further define the permitted CLI data at each stage of the call.

Monitoring compliance and ensuring interoperability

- 4.20 We note Magrathea’s comment that some networks are swapping the Network Number and Presentation Number.¹⁰² CLI data is exchanged between providers during the set-up of the call and therefore interoperability of CLI data is critical. As set out in the CLI guidance, there needs to be a consistent approach to the handling of CLI data from call origination to

¹⁰² [Magrathea](#), Response to February 2022 Consultation, page 2.

call termination between different providers, and in how information about Presentation Numbers and Network Numbers is provided. In addition to the CLI guidance, UK providers should also be mindful of the guidance developed by NICC¹⁰³ for CLI, in particular:

- ND1016 – Requirements on providers in relation to CLI display services and other related services¹⁰⁴
- ND1439 – Guidance for implementing ND1016 in SIP Networks¹⁰⁵
- ND1447 – Guidance on blocking of inbound international calls with UK Network Numbers as CLI¹⁰⁶

4.21 We expect providers to take all reasonable steps to resolve interoperability issues between themselves. We will not typically mediate such issues. In certain circumstances, we have the power to resolve regulatory disputes between parties. However, we expect parties to a dispute to take reasonable endeavours to enter into good faith negotiations in order to resolve their differences themselves, before referring a dispute to Ofcom. In any event, we require evidence from the parties that they are in dispute. We will then decide on the basis of the information available to us whether in our view the dispute referral fulfils any of the statutory grounds for a dispute referral.¹⁰⁷

4.22 We intend to continue to monitor different sources of data to understand the trends in scam and nuisance calls, and to understand if new forms of vulnerability emerge. As noted in paragraph 2.8 of our policy positioning statement, we have established a Strategic Working Group with the major providers operating in the UK.¹⁰⁸ We have collected data relating to the nuisance calls these providers receive on a particular day each month. We have recently updated our data request to collect information from the providers about the calls that are blocked. This, along with information from our consumer complaints, will enable us to monitor changes in the impact of potential scam calls and the number of attempted calls that are being blocked for each of the providers involved. Where appropriate, we will also carry out follow-up research into the incidence of call and text scams to help us monitor the impact of the work that we and others are doing, and to help us decide where to focus our efforts as scammers evolve their tactics.

Impact of these measures

4.23 We note the comment from Telecom2 that there are spoofed calls that use numbers that are classified as valid and may be working numbers. It is not currently possible to identify

¹⁰³ The NICC is the UK telecommunications network and service interoperability standards body.

¹⁰⁴ NICC, June 2021. [ND1016, version 4.3.1 - Requirements on Communications Providers in relation to Customer Line Identification display services and other related services](#) ('ND1016'). Note where we have provided links to industry guidance, these are correct at the time of publication of this statement. Industry may publish new versions of guidance in the future.

¹⁰⁵ NICC, November 2021. [ND1439, version 4.2.1 – Guidance for Implementing ND 1016 in SIP networks](#) ('ND 1439') ND1439 specifies that in the UK for calls using SIP, the Network Number is carried in the P-Asserted-Id header field and the Presentation Number is carried in the From header field.

¹⁰⁶ NICC, April 2021. [ND1447, version 1.1.1. – Guidance on blocking of inbound international calls with UK Network Number as CLI](#) ('ND1447')

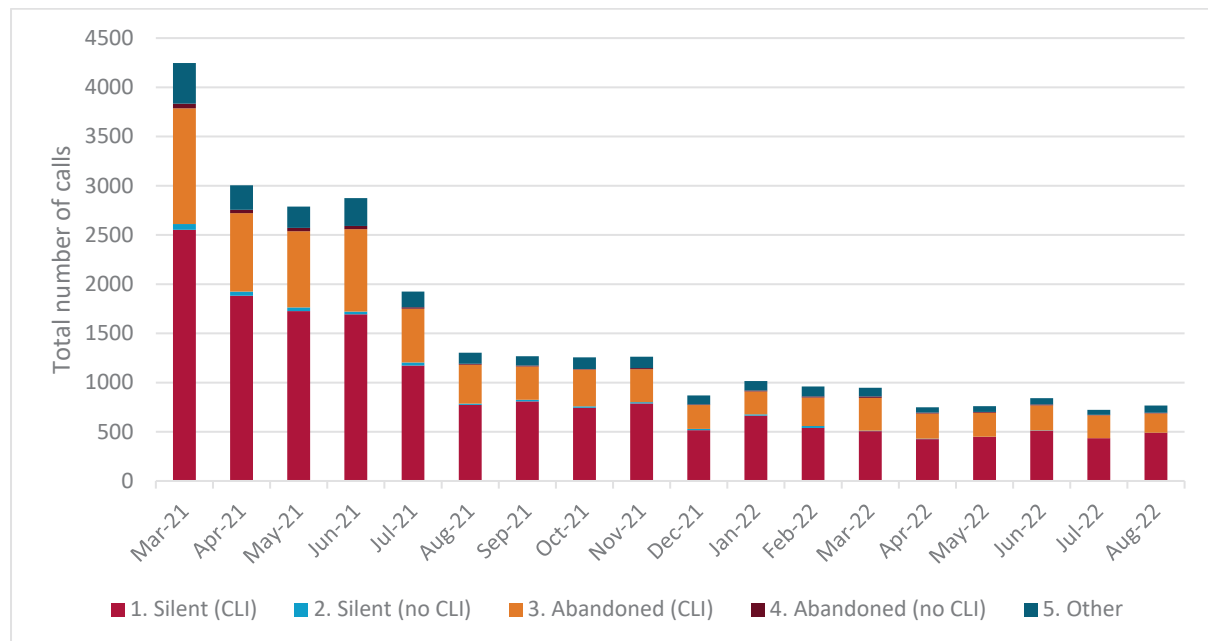
¹⁰⁷ Ofcom, June 2011. [Dispute Resolution Guidelines](#)

¹⁰⁸ Ofcom, February 2022. [Tackling scam calls and texts: Ofcom's role and approach](#), paragraph 2.8.

all spoofed numbers on UK networks.¹⁰⁹ The CLI guidance sets out steps we think it is currently technically feasible for a transit or terminating provider to take, in order to verify the CLI data associated with calls. We are exploring the implementation of further technical measures to verify the authenticity of CLI data.

4.24 In relation to Magrathea’s comment about the impact of the changes introduced by the WVMR 2021,¹¹⁰ we did see a decline in consumer complaints to Ofcom about silent and abandoned calls from July 2021, primarily driven by a reduction in the number of complaints about silent and abandoned calls with CLI data.¹¹¹ However, the reduction in complaints cannot only be attributed to changes arising from the WVMR 2021, as there are numerous factors that may affect the number of consumer complaints to Ofcom about silent and abandoned calls, for example improvements in providers’ ability to identify and block likely spam calls and the likelihood that a consumer would complain to Ofcom about these calls.

Figure 2: Consumer complaints to Ofcom about silent and abandoned calls, March 2021 to August 2022



Source: Ofcom consumer complaints data

4.25 Reviewing the monthly nuisance calls data that we collect from the largest fixed and mobile providers between April 2021 and November 2021, we saw a decline in reported calls with malformed CLIs¹¹² or with no CLIs, but these have not stopped completely. There was also a reduction in the number of CLIs that had generated short calls between one to

¹⁰⁹ [Telecom2](#), Response to February 2022 Consultation, page 2.

¹¹⁰ In the [WVMR 2021](#) we decided that, for calls to UK geographic numbers originating outside the UK, the termination rate must be no more than the reciprocal geographic termination rate charged by the relevant international telecoms provider for a call originating from the UK provider, or the UK domestic rate, whichever is higher. Where the originating country cannot be identified (because CLI data is invalid or missing), the termination rate can be higher.

¹¹¹ [Magrathea](#), Response to February 2022 Consultation, page 3.

¹¹² Malformed CLIs are a subset of invalid numbers, as they are numbers that do not have the correct number of digits.

three seconds long, but the CLIs that generated the largest volume of calls on the reporting days had the correct number of digits for a UK CLI. There was no significant change in the other metrics that are reported by providers, such as the number of very short calls less than one second in duration and the number of calls recorded by the top 20 CLIs in that network on the measurement day. The number of unanswered calls has almost doubled within the same period. Therefore, the data collected from providers indicates that there remains a need to take further action to reduce the number of problematic calls.

Identifying and blocking calls which do not have valid, dialable CLI data which uniquely identifies the caller

- 4.26 In our February 2022 Consultation, we proposed a number of changes to the CLI guidance clarifying what we expect providers to do to identify and block calls that do not have valid, dialable CLI data which uniquely identifies the caller. In summary, this included:
- clarifying that the format of a CLI should be a 10- or 11-digit number;
 - making use of information that identifies numbers which should not be used as CLI, such as Ofcom’s numbering allocation information and the DNO list;
 - identifying calls originating abroad that do not have valid CLI and blocking them;
 - and
 - identifying and blocking calls from abroad spoofing UK CLI.
- 4.27 Our aim when proposing these changes was to reduce the number of scam calls which reach end consumers. This should have a number of benefits: it should reduce the harms to call recipients from scam calls and also help improve confidence in UK CLIs and the telephone system. Below we set out responses to our consultation and our decisions on each of these proposals.

Format of the CLI should include a 10- or 11-digit number

- 4.28 Ofcom manages the allocation of telephone numbers in the UK. The vast majority of telephone numbers that we issue are 10- or 11-digit numbers, although we do sometimes issue shorter telephone numbers for the purpose of access to certain types of services. This includes, for example, three-digit numbers such as 999 for access to the emergency services, or some three- and six-digit non-geographic numbers which provide access to services of social value. However, these shorter numbers are not used for outbound calls by the party who has been assigned the numbers.

Our February proposals

- 4.29 In our February 2022 Consultation, we proposed to add to the CLI guidance that, for calls that originate on a UK network, the number used as a CLI should be a 10- or 11-digit number. This would mean that calls with a UK CLI which do not have 10- or 11-digits should be blocked. We expected that this clarification should not have an impact on genuine calls that originate in the UK because, as explained above, shorter numbers are not used as CLI

for call origination. However, it would block calls that spoof the shorter non-geographic numbers.

Consultation responses

- 4.30 Stop Scams UK and VMO2 supported this change.¹¹³ BT agreed with this proposal in principle, noting that it already blocks numbers which are not 10- or 11-digits on its Call Protect service.¹¹⁴ However, it gave the example of a particular use case for calls to Emergency Authorities where the CLIs are longer than 11 digits and where the calls must not be blocked. BT also noted that, as set out in GC A3, calls to the emergency services must display a CLI and therefore calls to emergency services are exempt from call screening.¹¹⁵ It also suggested that the guidance should include that Stage 2 Public Safety Answering Point (PSAP) calls are exempt from screening as they are emergency calls.¹¹⁶
- 4.31 Vodafone gave Childline (0800 1111), and some residual traffic to the Welsh NHS services (on 0845 4647) that have not yet migrated to 111, as examples of shorter digit numbers in use and questioned whether these were used as CLI data.¹¹⁷ As these numbers were allocated in the National Numbering Scheme, Ofcom should either not make this change or the CLI guidance should specify which short-digit numbers are permitted as CLI. Comms Council UK suggested that Ofcom should contact all users of shorter digit numbers and confirm if they are used for outbound calls.¹¹⁸
- 4.32 [S&K] noted that although the consultation stated that three- and six-digit numbers are not used for outbound calls, it should state that such numbers should not be used as the Presentation Number.
- 4.33 UKCTA asked for clarification on the length of the CLI when the country code is included, as these numbers are valid, dialable and will uniquely identify the caller.¹¹⁹ [S&K] noted that paragraph 4.13 of the CLI guidance as written was ambiguous as it specifies a number length that is incorrect when considering the UK National Numbering Scheme in the context of the International ITU-T E.164 format widely used across SIP networks. The specified number length should include the country code and the national significant number.¹²⁰ BT also commented that Recommendation ITU-T E.164 does not specify the minimum number length and asked that the appropriate ITU specification should be referenced instead.¹²¹
- 4.34 [S&K] noted satellite calls can be used for critical communications between Air Traffic Service and aircraft. Federal regulations require that the caller ID use identifiers which

¹¹³ [Stop Scams UK](#) and [VMO2](#), Responses to February 2022 Consultation.

¹¹⁴ [BT](#), Response to February 2022 Consultation, page 4.

¹¹⁵ [BT](#), Response to February 2022 Consultation, page 4.

¹¹⁶ [BT](#), Response to February 2022 Consultation, page 4.

¹¹⁷ [Vodafone](#), Response to February 2022 Consultation, page 4.

¹¹⁸ [Comms Council UK](#), Response to February 2022 Consultation, page 2.

¹¹⁹ [UKCTA](#), Response to February 2022 Consultation, page 3.

¹²⁰ The national significant number is the national destination code (e.g. the area code for geographic numbers) and the subscriber number.

¹²¹ [BT](#), Response to February 2022 Consultation, [spreadsheet annex](#).

include the unique identifier for an aircraft, specified by the International Civil Aviation Organization (ICAO). Therefore, calls that utilise ICAO CLI could be inappropriately blocked, resulting in an impact on airline safety.

Impact of these measures

- 4.35 1Route agreed that screening calls for the correct number of digits would be a quick check and can be implemented at zero or minimum cost, adding that the speed at which a decision is made is imperative.¹²² TNS noted that the proposal to block calls that do not have 10- or 11-digits is not likely to have a significant impact on call volumes as scam calls will shift to new tactics.¹²³

Our decision

- 4.36 Having considered responses to our consultation, we have decided to add to the CLI guidance that, for calls that originate on a UK network, the number used as a CLI should be a 10- or 11-digit number for the reasons set out below. We note that in the ITU-T Recommendation E.164 format, including international dialling code, the number length is one digit longer, and that there may be some satellite calls from aircraft to an air traffic service unit that have a shorter CLI.¹²⁴ We have included this clarification as a footnote in the CLI guidance.

Ofcom assessment

- 4.37 Providers largely agreed with this clarification that the number used as a CLI should be a 10- or 11-digit number, although there were a number of requests for us to confirm whether shorter numbers are used as CLI and a number of examples of where longer CLI may be used. As set out in the CLI guidance, this clarification specifically relates to Presentation Numbers.
- 4.38 The vast majority of numbers in the UK are 10- or 11-digits in length. This refers to the number of dialled digits in the national dial format, e.g. the leading '0', the Geographic Area Code and the subscriber number. The National Numbering Scheme sets out the digit length for allocated numbers. However, it does not include the leading '0', so will list the numbers as having 9 or 10 digits.
- 4.39 We note that in the ITU-T Recommendation E.164 format,¹²⁵ a UK CLI should be 11 or 12 digits, as the numbers begin with the UK Country Code 44 and do not include the leading '00' for international dialling or '0' for national dialling. We have added this clarification to the CLI guidance. We have also clarified the maximum length of a telephone number with

¹²² [1Route](#), Response to February 2022 Consultation, page 2.

¹²³ [TNS](#), Response to February 2022 Consultation, page 2.

¹²⁴ The format of the CLIs used for these satellite calls is set out in Section 2.6 of the ICAO's [Satellite Voice Guidance Material](#).

¹²⁵ The [ITU-T Recommendation E.164](#) number structure for geographic areas includes the Country Code, National Destination Code and the Subscriber Number. In terms of the UK National Numbering Scheme, this means two digits for the UK Country Code 44, plus nine or ten digits.

reference to ITU-T Recommendation E.164 and have included a link to optional information about the format of CLI as defined by each country.

Shorter numbers

- 4.40 There are some numbers of a shorter digit format in use, including the historical allocations of 0800 1111 for Childline and 0845 4647 for NHS services, which is still used for some NHS services in Wales. The shorter digit length is shown in the National Numbering Scheme. We have confirmed that these numbers are not used to make outgoing calls or as Presentation Numbers. We have also confirmed that the three- and six-digit numbers used for certain services of social value are not used to make outgoing calls or as Presentation Numbers. Therefore, our change to the CLI guidance will not result in the blocking of outgoing calls from the relevant service providers as standard digit length numbers are used to make calls.
- 4.41 We note that there may be some satellite calls from aircraft to an air traffic service unit that have CLI with fewer than 10 digits, which could be routed via the public network. The format of the CLIs used for these calls is specified by the ICAO.¹²⁶ We have added this clarification to the CLI guidance.

Calls with CLI longer than 11 digits

- 4.42 We note BT's comment that calls Stage 2 PSAP calls may appear to have a longer CLI.¹²⁷ However, we do not think that the CLI guidance needs to be amended to ensure that Stage 2 PSAP calls are exempt from screening. There is already an exemption for calls to emergency organisations in GC C6.6, meaning that even where an invalid CLI is provided, these calls should not be blocked. All emergency calls should have the necessary indicators to identify them as such (for example, through the use of the Resource-Priority header field as described in Annex A of ND1035) and providers receiving these calls into their networks can identify them and ensure that they are not blocked.¹²⁸ We note that GC A3 does not require the display of CLI for emergency calls, but that providers should, to the extent technically feasible, make accurate and reliable Caller Location Information available for all calls to the emergency call numbers "112" and "999". However, we recognise that CLI data may be used to derive information about the location of the caller.

Impact of these measures

- 4.43 In our consultation, we did not consider that this proposed change would impose any significant costs on providers. This is because providers are already required to block invalid CLIs where technically feasible, meaning they should already have the technical capability to block calls using a block list. Any one-off costs associated with the change should be small. We have not received any comments suggesting it would be difficult to implement. We acknowledge that the change may not have a significant impact on call

¹²⁶ ICAO, 2012 [Satellite Voice Guidance Material](#), Section 2.6.

¹²⁷ BT, Response to February 2022 Consultation, page 4.

¹²⁸ NICC, February 2016. [ND1035, version 2.1.1 - SIP Network to Network Interface Signalling](#).

volumes. However, it will help to clarify the format of numbers which should not be used as CLI and ensure calls with such CLI are identified and blocked.

Providers should identify and block CLIs which should not be used for outbound calls (such as by use of the DNO list)

- 4.44 All providers are already required to check that the CLI data provided with a call contains valid and dialable CLI and should continue to use numbering allocation information to ensure that only valid number ranges are used. As mentioned in Section 3, Ofcom publishes the National Numbering Scheme, which provides a record of number ranges that have been allocated to providers. We also publish a list of long-term protected number ranges which are not available for allocation, adoption or use.¹²⁹ These lists provide a reference point to help determine valid UK numbers and all providers should use this information to determine whether the CLI provided with a call is from a valid number range.
- 4.45 However, valid numbers can be spoofed. There are some valid numbers which are only used for inbound calls and will never be used as a CLI for an outbound call. These may be customer contact numbers for large businesses or government bodies, whose numbers may be widely available. For a number of years, we have compiled a 'Do Not Originate' (DNO) list, comprised of such numbers, where we have been informed they are not used for outbound calls.¹³⁰ If numbers from the DNO list are used as CLIs, the number will have been spoofed and the CLI will not uniquely identify the caller.

Our February proposals

- 4.46 In our February 2022 Consultation, we proposed to add to the CLI guidance the expectation that transit and terminating providers should use the DNO list to identify and block such calls. We noted that the DNO list is already used by the largest fixed and mobile providers in the UK, but some other providers would need to implement this type of blocking into their network. We did not expect that the change would impose significant additional costs on providers. We explained that providers can request access to this list by email to DNO@ofcom.org.uk.
- 4.47 We noted that providers may also have other sources of information relating to spoofing, such as customer complaints and information from other parties who may have identified spoofed numbers which are in use. We expected providers to use any additional information to which they have access to identify and block calls that have spoofed CLI data.

¹²⁹ This list is available under the 'Check telephone number availability' heading on our [telecoms numbering page](#).

¹³⁰ Further detail on the DNO list is included on our website: ['Do Not Originate' \(DNO\) list](#).

Consultation responses

- 4.48 Stakeholders generally agreed with this proposal but asked Ofcom to ensure that the process for sharing the relevant information is simple and remains in an agreed format.

Do Not Originate list

- 4.49 1Route, BT, Neustar, and Stop Scams UK supported the proposal to expand the adoption of the DNO list.¹³¹ XConnect agreed that all providers involved in the call path should be required to validate the CLI.¹³²
- 4.50 Magrathea requested that the DNO list be shared in a simple and efficient way, so that the data will remain in a consistent and standard format.¹³³ XConnect also asked about the frequency of updates, how providers can expect to be informed of updates and the volume of numbers that will be held in the list.¹³⁴ It requested that the list is not just shared with originating providers but with all entities associated with call origination, transit or termination.
- 4.51 XConnect asked whether more information would be added to the DNO list.¹³⁵ It noted that, given experiences from around the world, the list should not be limited. It also asked whether other categories of numbers would be included beyond those of financial institutions, such as government departments, old banking numbers, providers' unallocated numbers and numbers allocated for internal use. XConnect added that other numbers could also be considered for inclusion in the DNO list and CLI validation, including MSRNs and Global Titles, which are valid numbers but are not considered valid as UK CLIs.¹³⁶ UK Finance also recommended that the DNO list is proactively expanded to law enforcement, regulators, councils and courts, to protect consumers from scams spoofing such organisations.¹³⁷
- 4.52 XConnect also asked whether Ofcom is intending to include a non-disclosure agreement in its process for the distribution of the DNO list, to help ensure that the list is not provided to third parties who have not been approved by Ofcom.¹³⁸
- 4.53 Comms Council UK, Simwood and XConnect suggested that Ofcom had underestimated the demand it would receive for access to the DNO list.¹³⁹ Simwood noted that, although there were around 450 entities with number allocations who may need access, the vast majority of calls transit via a smaller number of large carrier networks and therefore, if the DNO list were to be limited to the large wholesalers, it should still have significant effect.¹⁴⁰ It acknowledged that there are issues around the security of the DNO list and therefore

¹³¹ [1Route](#), [BT](#), [Neustar](#), and [Stop Scams UK](#), Responses to February 2022 Consultation.

¹³² [XConnect](#), Response to February 2022 Consultation, page 2.

¹³³ [Magrathea](#), Response to February 2022 Consultation, page 2.

¹³⁴ [XConnect](#), Response to February 2022 Consultation, pages 2-3.

¹³⁵ [XConnect](#), Response to February 2022 Consultation, page 3.

¹³⁶ [XConnect](#), Response to February 2022 Consultation, page 2.

¹³⁷ [UK Finance](#), Response to February 2022 Consultation, page 4.

¹³⁸ [XConnect](#), Response to February 2022 Consultation, page 2.

¹³⁹ [Comms Council UK](#), [Simwood](#) and [XConnect](#), Responses to February 2022 Consultation.

¹⁴⁰ [Simwood](#), Response to February 2022 Consultation, page 11.

Ofcom had not acted inappropriately with regard to the process to gain access to the list. XConnect suggested that Ofcom may wish to explore a more open platform as the number of participants increases and, for future learning, consider scalability at an early stage of design.¹⁴¹

Other sources of information

- 4.54 BT was concerned that there are numbers in use that are not shown as allocated in the National Numbering Scheme, meaning that if it is used as a reference for valid calls, those missing but with legitimate CLIs would be blocked.¹⁴² BT investigated this and found that in a spot check in February it saw [X] calls from a number range that was marked as quarantined in the National Numbering Scheme and [X] calls from a range that was marked as “free”.¹⁴³ [X] also noted its concerns about the accuracy of the National Numbering Scheme as there are calls from other providers that originate from non-allocated numbers. It asked that the National Numbering Scheme is kept in a set format and fully accurate at all times, and for Ofcom to clarify how it intends to do this.
- 4.55 [X] noted that providers will not be able to verify that the Network Number identifies the source of a call when the number is a ported-out number. It asked if losing providers would be expected to block calls that do not meet the proposals in the CLI guidance when they are a transit provider in the call flow.
- 4.56 Sky referred to the NICC response to the 2018 consultation on changes to the CLI guidance¹⁴⁴ where it noted that it is not technically feasible to undertake a real time call back to test an inbound number to verify if it is a dialable number.¹⁴⁵ It noted that this remains the case and wants Ofcom to understand that it is not possible for a transit or terminating provider to identify and block calls that have non-dialable numbers.
- 4.57 XConnect provided information relating to how the Federal Communications Commission (FCC) has implemented a DNO process with a focus on robocalls.¹⁴⁶

Other approaches

- 4.58 TNS noted that the proposal to use the DNO list is not likely to have a significant impact on call volumes as scam callers will change their approach.¹⁴⁷ It added that use of other sources of information to identify and block spoofed calls is only possible with the use of call analytics. It suggested that Ofcom should promote policies that encourage the use of call analytics to improve the ability of providers to identify spoofed numbers. TNS¹⁴⁸ noted that in the United States, the regulator adopted a “safe harbour” from liability for providers that use reasonable call analytics to identify and block unwanted calls.

¹⁴¹ [XConnect](#), Response to February 2022 Consultation, page 2.

¹⁴² [BT](#), Response to February 2022 Consultation, page 4.

¹⁴³ [BT](#), Response to February 2022 Consultation, page 4.

¹⁴⁴ Ofcom, September 2017. [Consultation on Guidelines for Caller Line Identification Facilities](#).

¹⁴⁵ [Sky](#), Response to February 2022 Consultation, page 3.

¹⁴⁶ [XConnect](#), Response to February 2022 Consultation, pages 3-4. Robocalls are calls generated by an autodialler or that contain a pre-recorded message or artificial voice.

¹⁴⁷ [TNS](#), Response to February 2022 Consultation, page 4.

¹⁴⁸ [TNS](#), Response to February 2022 Consultation, page 4.

CLI authentication

- 4.59 A number of stakeholders also commented on our work in relation to CLI authentication. Which? welcomed Ofcom exploring the role of call authentication to detect spoof calls and encouraged Ofcom and industry to continue the early work to identify the preparations required for implementation ahead of the call for inputs.¹⁴⁹
- 4.60 AB Handshake commented that the requirement for all providers to identify and block calls with CLI that does not uniquely identify the caller in GC C6.6 was best achieved if there was a direct connection between the originator and the terminator of the call for real time CLI verification.¹⁵⁰
- 4.61 Simwood noted its disappointment at the deferring of a Call for Inputs on CLI authentication until Q4 2022, given the significance of unwanted and fraudulent calls.¹⁵¹

Impact of these measures

- 4.62 Neustar noted that the implementation of a DNO list is growing best practice throughout the industry and a proven tool for protecting consumers from fraudulent calls.¹⁵² BT commented that larger providers already used the DNO list and asked for more details on how this would be enforced with other providers.¹⁵³ Comms Council UK also noted that most providers have CLI level blocking available from their suite of fraud controls, so integration costs are modest.¹⁵⁴
- 4.63 Stop Scams UK noted that spoofing of numbers primarily used for inbound calls by its members continues to be an aspect of impersonation fraud, leading to significant harm.¹⁵⁵ UK Finance suggested that failure to use the DNO list should be reported to Ofcom and the affected business should also be alerted.¹⁵⁶
- 4.64 Which? noted that it was vital that all providers identify and block scam calls consistently to ensure all consumers have the same protections.¹⁵⁷ It asked for clarification on what Ofcom would do to ensure all providers are using the DNO list and how it will monitor the success of the proposed measures. Which? also asked Ofcom to ensure that all providers can manage the full list to ensure that consumers have the same protections regardless of the network the call is coming through.¹⁵⁸ It supported the additional information Ofcom is providing on its website about how to add numbers to the list.

¹⁴⁹ [Which?](#), Response to February 2022 Consultation, page 2.

¹⁵⁰ [AB Handshake](#), Response to February 2022 Consultation, page 2.

¹⁵¹ [Simwood](#), Response to February 2022 Consultation, page 3.

¹⁵² [Neustar](#), Response to February 2022 Consultation, page 2.

¹⁵³ [BT](#), Response to February 2022 Consultation, page 2.

¹⁵⁴ [Comms Council UK](#), Response to February 2022 Consultation, page 2.

¹⁵⁵ [Stop Scams UK](#), Response to February 2022 Consultation, page 2.

¹⁵⁶ [UK Finance](#), Response to February 2022 Consultation, page 3.

¹⁵⁷ [Which?](#), Response to February 2022 Consultation, page 1.

¹⁵⁸ [Which?](#), Response to February 2022 Consultation, page 2.

Our decision

4.65 Having considered responses, we have decided to add to the CLI guidance the expectation that transit and terminating providers should use the DNO list, and any additional information to which they have access, to identify and block calls that have spoofed CLI data. We set out below our reasoning and provide further information on the distribution of the DNO list and the accuracy of the information published in the National Numbering Scheme.

Ofcom assessment

Do Not Originate list

- 4.66 Providers were supportive of the use of the DNO list. We note the feedback that the DNO list is a growing best practice around the world and a proven tool to protect consumers from fraudulent calls.
- 4.67 In response to comments about which providers should use the DNO list, as set out in paragraph 4.21 of the CLI guidance, transit and terminating providers should use it to identify calls with CLIs that do not uniquely identify the caller.¹⁵⁹ We acknowledge the comments about the scalability of the list, as more stakeholders provide numbers for and make use of the list. At present, our processes are in line with demand, but we will monitor this. As we develop the capability of the list, we will also consider how to incorporate other high risk numbers.
- 4.68 In response to Magrathea and XConnect's comments about the distribution of the list, the DNO list is updated and shared monthly via email.¹⁶⁰ We endeavour to circulate urgent updates to providers within one working day of receipt from a submitter. These may include additions or removal of numbers from the list. Requests for access to the DNO list are screened so that the list is only shared with providers who need access to it. The list is shared with providers as confidential data and they are expected to treat it as such.
- 4.69 XConnect asked whether other numbers should be added to the DNO list.¹⁶¹ To avoid blocking of genuine calls, numbers are only added to the DNO list where the request is made by the party who is currently allocated use of the number. We are unable to accept submissions for old (i.e. previously used) numbers, as these numbers may have been reassigned to another user. Also, some older numbers may be in number ranges which are returned to Ofcom. These are usually quarantined for some time before they are reallocated for use. For information about unallocated and protected numbers, and other types of numbers that should not be used, providers should refer to other information

¹⁵⁹ Paragraphs 4.12 - 4.14 of the CLI Guidance sets out the responsibility of the originating provider to ensure that the correct CLI data is generated at call origination. The Network Number must be one that has been allocated to the originating provider or a number that has been ported into their network. The originating provider is also responsible for ensuring that the Presentation Number is a number which uniquely identifies the caller. The number must be either a CLI from a number range that has been allocated to the originating provider or the originating provider should seek assurance from the customer that they are using a CLI that they have permission to use.

¹⁶⁰ [Magrathea](#) and [XConnect](#) Responses to February 2022 Consultation.

¹⁶¹ [XConnect](#), Response to February 2022 Consultation, page 2.

such as Ofcom's National Numbering Scheme and the list of long-term protected number ranges.

Other sources of information

- 4.70 We received some comments about the accuracy of the National Numbering Scheme. We update the National Numbering Scheme regularly on our website (usually each Wednesday). On rare occasions errors can occur, as with any update to large quantities of data. These are rectified as soon as possible, and any error observed can be notified to Ofcom's Numbering Team at numbering@ofcom.org.uk.
- 4.71 The most common cause of differences between the status of number ranges in the National Numbering Scheme and actual use of numbers is providers failing to take appropriate steps when their allocated numbers have either been returned to Ofcom, the number range has been transferred to another provider, or the provider holding the allocation has gone out of business and another provider continues to host the numbers on their network. It is the duty of providers to notify Ofcom and industry of changes to their number allocations so that routing plans and the National Numbering Scheme remain in alignment.¹⁶² Failure to take these steps can result in call traffic continuing to be routed to numbers that we have withdrawn (for example, when routing and contractual arrangements are with a hosting provider rather than the provider that held the allocation before the withdrawal). Continuing to use numbers that are no longer allocated can lead to potential breaches of GC C6 (as the numbers are no longer valid if they have been withdrawn by Ofcom and are not shown as allocated in the National Numbering Scheme) and GC B1.2 and B1.3 (as providers may only adopt and use allocated numbers).
- 4.72 All providers should refer to the weekly updates of the National Numbering Scheme to ensure they are aware of changes in number range status (e.g. number ranges withdrawn by Ofcom which are then changed from allocated to protected status for a quarantine period). They should also refer to Ofcom's periodic list of proposed number withdrawals from providers that are no longer trading,¹⁶³ and inform us of any information on numbers that remain in use so that we can consider measures to ensure continuity of service.
- 4.73 As we explained in paragraph 4.13 of the consultation, providers would be expected to use the information available to them to determine if a number should be used as a CLI. Where a provider has ported a number out, as with any other call, the originating provider should ensure that the caller is using a number that has been imported into their network. Other providers involved in the transit and termination of the call will not need to validate the ported number with the originating network but should ensure that the number is one which should be used in a call, for example because the number is allocated in the National

¹⁶² Providers should notify us of changes to their status as a provider or to their number allocations through our online portal - [the Number Management System \(NMS\)](#). Providers can also notify each other of number allocations and withdrawals using the Google Groups 'Number Activation' group. For any further information, providers can email Ofcom's Numbering Team at numbering@ofcom.org.uk.

¹⁶³ See [Companies with allocated number ranges that are no longer trading](#).

Numbering Scheme and that the number is not one which should not be used for outbound calls.

Other approaches

- 4.74 We encourage providers to explore other technical options to identify calls and sources of calls which are likely to be spoofed calls, including call analytics.
- 4.75 We acknowledge Sky's comment that it is not technically feasible for a transit or terminating provider to call a CLI in real time to test whether an inbound number is a dialable number.¹⁶⁴ As we set out in the CLI guidance, a transit or terminating provider should use all the information that is available to it to check the number, for example by checking that it is from a range that has been allocated in the National Numbering Scheme.

CLI authentication

- 4.76 We are also undertaking longer-term work on CLI authentication. To inform our work, we have been engaging with relevant industry bodies, as well as overseas regulators with experience of STIR.

Impact of the measures

- 4.77 We note the comments that most providers already have the technical capability for CLI level blocking and therefore use of other sources of information, such as the DNO list, to identify calls with spoofed CLI data and block them should not be particularly onerous. As we explained in the consultation, the DNO list is already in use by the largest providers, and those providers who are using the whole DNO list and who are engaged fully in accessing sources of information about spoofed calls will be compliant with this change and are unlikely to face any extra costs. For those providers that do not currently use the DNO list, we noted that they are already required to check the CLI data provided with a call contains a valid and dialable CLI, and so should have the capability to assess CLI data of calls that enter their network and update their lists. We thought that they may incur a small cost to modify their system to also check for numbers on the DNO list and have the ability to update the numbers on this list.
- 4.78 We agree with Which? that all providers should be able to block scam calls consistently, and we are continuously working with industry to help ensure this.¹⁶⁵ We are working with some providers who have not yet implemented the DNO list to help us understand any challenges that they face. This may be due to the limitations of their networks. As providers continue to upgrade their networks, we are encouraging them to develop the capability to implement the list and to use information from different sources to identify spoofed numbers and ensure they are blocked.
- 4.79 In regard to monitoring the impact of the measures, we work with the financial sector, government bodies and other organisations to identify any issues arising from spoofing and receive intelligence about the effectiveness of the DNO list. We will continue to

¹⁶⁴ Sky, Response to February 2022 Consultation, page 3.

¹⁶⁵ Which?, Response to February 2022 Consultation, page 1.

monitor these sources of information. As explained in our policy positioning statement impersonation fraud can lead to significant harm; this measure can play a role in identifying and blocking these types of calls and reducing the harm to consumers.¹⁶⁶

- 4.80 Having considered responses to the consultation, we continue to be of the view that there is a benefit to adding this expectation to the CLI guidance. It will provide further clarity on steps transit and terminating providers should take to identify and block CLIs which should not be used for outbound calls. We do not think it is onerous for providers to monitor and use different sources of information to identify calls with spoofed numbers and block them. We will continue to work with providers to ensure that information about numbers which should not be used as CLI, such as the DNO list, is shared in a way that can be easily used by them.

Blocking calls with invalid CLI that originate abroad

- 4.81 For calls that originate on a network outside the UK where the GCs do not apply, there is an option in the CLI guidance for the provider who receives the call into the UK public network to replace a CLI that they do not trust with a number from a range that has been allocated to them for this purpose.¹⁶⁷ This opens up a potential vulnerability whereby scam calls from abroad with invalid CLIs have their CLIs replaced with the special number by the ingress provider. Furthermore, as the UK CLI that is inserted is marked as withheld, the recipient of the call will not have any information provided with the call to help them determine if they wish to answer it.

Our February proposals

- 4.82 In our consultation, we proposed that when calls originate on a network outside the UK and the provider at the point of ingress to the UK network considers the number to be an invalid CLI, such calls should be blocked. We considered it important that recipients of calls have accurate information about the calling party to decide if they wish to answer a call.

Consultation responses

- 4.83 NTA, Stop Scams UK, VMO2 and Vodafone agreed that calls that do not have valid CLI should be blocked.¹⁶⁸ 1Route agreed, adding that international validation is currently possible and can be done through basic analytics.¹⁶⁹
- 4.84 Sky asked Ofcom to confirm, through an amendment to paragraph 4.17 of the CLI guidance, that this requirement should only apply to the provider at the point of ingress, and not to transit and terminating providers.¹⁷⁰

¹⁶⁶ Ofcom, February 2022. [Tackling scam calls and texts: Ofcom's role and approach](#), paragraphs 3.1-3.7.

¹⁶⁷ See 4.15 of the current CLI guidance. This was introduced so that calls that were generated on a network outside the scope of our guidance could be connected to the recipient of the call even where the CLI data was deemed to be unreliable.

¹⁶⁸ [NTA](#), [Stop Scams UK](#), [VMO2](#) and [Vodafone](#), Responses to February 2022 Consultation.

¹⁶⁹ [1Route](#), Response to February 2022 Consultation, page 3.

¹⁷⁰ [Sky](#), Response to February 2022 Consultation, page 2.

Identifying invalid CLI from abroad

- 4.85 [3<] suggested that Ofcom should mandate the use of information about number allocation in different countries. It noted that there are numerous low-cost number information providers of global number plans and number prefix data. It added that, were CLI authentication implemented, any validation should be expanded to include validation of internationally originated numbers against the global numbering plan.
- 4.86 AB Handshake noted that transit or terminating providers are unable to attest the true origin of a call coming from abroad.¹⁷¹ Although it agreed with the proposal to block calls with invalid CLI, it noted that this would only cover a fraction of the harmful calls that are targeting consumers. It noted that fraudsters tended to use dialable but unallocated number ranges, or the numbering range of a local or international provider, and the only way to detect fraudulent traffic is to have visibility of whether the call was verified by the originating provider. AB Handshake also thought that, due to the complexity of the voice interconnect environment, it would take significant time and effort to work with upstream providers to ensure that CLI data is provided with a call, and it would not be possible in real time.¹⁷² It suggested that the confirmation of the identity of the caller should be via a direct communication between the originating provider and terminating provider via an encrypted out-of-band channel.
- 4.87 TNS noted the role of call analytics to enable providers to block calls with invalid CLI that originate abroad and suggested that Ofcom considers acknowledging this in the CLI guidance.¹⁷³
- 4.88 [3<] noted that an authoritative source of numbering allocation data will be required for transit and terminating providers to check if the Presentation Number is dialable. In addition, it noted that we proposed to modify paragraph 4.28 of the CLI guidance to remove the definition of 'unavailable', although this remains within NICC ND1016 v.4.3.1.¹⁷⁴

Blocking calls with no CLI

- 4.89 Vodafone asked that the guidance is updated to state explicitly that calls with no CLI should be blocked.¹⁷⁵
- 4.90 BT was concerned that the proposals could result in the blocking of legitimate calls from abroad that have withheld their CLI.¹⁷⁶ These calls would be blocked where the international provider sending the call into the UK is unable to send the CLI with a restriction marker. It was unclear how the guidance on working with international partners would be a sufficiently effective mitigation to stop this from happening, particularly as a

¹⁷¹ [AB Handshake](#), Response to February 2022 Consultation, page 2.

¹⁷² [AB Handshake](#), Response to February 2022 Consultation, page 3.

¹⁷³ [TNS](#), Response to February 2022 Consultation, page 2.

¹⁷⁴ NICC, June 2021. [ND1016, version 4.3.1 - Requirements on Communications Providers in relation to Customer Line Identification display services and other related services](#) ('ND1016').

¹⁷⁵ [Vodafone](#), Response to February 2022 Consultation, page 4.

¹⁷⁶ [BT](#), Response to February 2022 Consultation, page 4.

number of smaller providers will not have relationships with overseas providers. It noted that ND1016¹⁷⁷ was issued prior to the current CLI guidance and states that the only case of a received Network Number that can be over-written is where a fault exists, and the Network Number provided is used on a temporary basis. As the Network Number is only injected where one was not received and the Presentation Number is valid, the injected Network Number would not be displayed to the recipient of the call.

- 4.91 [S<] noted that the industry guidance set out in ND1016 v4.3.1¹⁷⁸ only discusses the replacement of the Network Number and therefore the number that is inserted should never be displayed to the called party.

Future use of 08979

- 4.92 BT and Vodafone asked Ofcom to clarify whether 08979 would continue to be used and if calls with this number as CLI should be blocked.¹⁷⁹ If the use of this number is withdrawn, Vodafone asked Ofcom to consult on revoking the allocations to this number range.¹⁸⁰

Impact of these measures

- 4.93 [S<] explained that it already identifies and blocks calls with non-UK CLI that do not conform to the ITU-T Recommendation E.164 format.¹⁸¹

Our decision

- 4.94 Following our consideration of responses, we have decided to amend the CLI guidance to provide that, when calls originate on a network outside the UK and the provider at the point of ingress considers the number to be an invalid CLI, such calls should be blocked.

- 4.95 However, we have made one modification to our proposal in response to stakeholder comments. In the scenario where the Network Number and Presentation Number are both missing, we have included the option for the call to be connected where the provider receiving the call is aware of a known technical issue with the provision of CLI data for calls on that route into their network, in line with the industry recommendations in ND1016.¹⁸²

- 4.96 We have clarified in paragraphs 4.17-4.18 of the CLI guidance that:

- Where the provider at the point of ingress considers the Presentation Number to be an invalid or a non-dialable number (for example, because it does not comply with the format specified in ITU-T Recommendation E.164) the call should be blocked.

¹⁷⁷ NICC, June 2021. [ND1016, version 4.3.1 - Requirements on Communications Providers in relation to Customer Line Identification display services and other related services](#) ('ND1016').

¹⁷⁸ NICC, June 2021. [ND1016, version 4.3.1 - Requirements on Communications Providers in relation to Customer Line Identification display services and other related services](#) ('ND1016').

¹⁷⁹ BT and Vodafone, Responses to February 2022 Consultation.

¹⁸⁰ Vodafone, Response to February 2022 Consultation, page 4.

¹⁸¹ ITU. [E.164](#)

¹⁸² NICC, June 2021. [ND1016, version 4.3.1 - Requirements on Communications Providers in relation to Customer Line Identification display services and other related services](#) ('ND1016').

- The call should also be blocked where there is no Presentation Number and the Network Number is also missing or invalid, unless the provider knows that the missing CLI information is due to a known technical issue, for example the call has originated in a country where CLI data is removed for calls where the caller has restricted the display of their CLI information.
- If the call has a valid Presentation Number, but the Network Number is not available, and the provider has good reason to consider this to be a legitimate call, then the call can be connected.
- Where the call has a valid Presentation Number, but the Network Number is considered to be an invalid number because it does not comply with ITU-T Recommendation E.164, the call should be blocked unless the provider is investigating the cause of the invalid CLI data.
- Where the call is being connected despite there being an invalid or missing Network Number, the provider should insert a CLI from a range that has been allocated to it for this purpose as a Network Number and mark it as ‘unavailable’ so that it is not displayed to the call recipient.

4.97 Providers should use their own intelligence, such as previous information about calls on the route and the country of origin for the call, to determine whether the absence of a Network Number is likely to be due to a known technical issue for the source of the call.¹⁸³

Future use of 08979

4.98 Where the provider decides that the absence of a Network Number is due to a known technical issue and connects the call, they should insert a number from the 08979 range that has been allocated for this purpose. Given that there is still a need for the 08979 range in these circumstances, the text associated with the use of the inserted numbers will remain in the CLI guidance, including the ‘Unavailable’ classification set out in paragraph 4.30 of the CLI guidance.

Ofcom assessment

Identifying invalid CLI from abroad

4.99 Stakeholders generally agreed with this proposal, but there were some queries relating to how invalid numbers from outside the UK will be identified and if calls with no CLI will also be blocked.

4.100 As we explained in the consultation, we expect providers to use information to which they have access to determine if the CLI provided with a call is a valid and dialable number. As a minimum, we expected providers to check that the CLI complies with the format set out in ITU-T Recommendation E.164.¹⁸⁴ We are not planning to mandate the use of numbering allocation information for different countries, as it may be a complex task to maintain the accuracy of such information. However, we encourage providers who have access to this

¹⁸³ For example, there are some countries which require the removal of a withheld CLI before egress from that country’s network so that the telephone number would not be displayed by accident to the recipient of the call.

¹⁸⁴ ITU. [E.164](#).

information, or other information about the accuracy of international CLI data, to consider using it to improve the CLI accuracy of calls they connect.

- 4.101 We acknowledge that, as suggested by AB Handshake, this approach may mean that some calls which spoof international numbers may still be connected.¹⁸⁵ However, we consider it strikes a reasonable balance - identifying and blocking the most obviously invalid numbers, while not requiring providers to maintain up to date lists of numbering information from other countries. There is a lower risk of harm to consumers if they receive calls presenting international CLI, as they are less likely to identify these as from UK organisations. Our research indicates that of the consumers that claim they always, usually or sometimes decide whether to answer a call after looking at the CLI information provided with a call, 61% are very unlikely to answer a call with an international number they do not recognise compared to 25% being very unlikely to answer a UK landline or mobile number they do not recognise.¹⁸⁶
- 4.102 We agree with Sky that these checks should be carried out by the provider at the point of ingress.¹⁸⁷ This is set out in paragraph 4.17 of the CLI guidance, under the section for providers receiving a call from a network outside the requirements of GC C6.¹⁸⁸
- 4.103 The use of out of band signalling between originating and terminating networks could help improve the levels of trust associated with incoming calls. Such an approach would need to be standardised across industry in terms of the protocols used and the information conveyed, so we would look to standards bodies for approaches that may help in this respect. For example, methods to attest the provenance of calls through the use of encryption/signatures have been standardised (such as 'STIR') and we will examine such approaches in our work on CLI authentication.
- 4.104 We acknowledge that call analytics could help providers identify some calls that have invalid CLI. We would encourage providers to consider what more they can implement within their network to identify such calls. However, at this stage we do not consider it appropriate to include guidance on a common approach to call analytics in the CLI guidance. Further work would be needed to understand the call analytics that is carried out by providers and whether there is a need to develop a common approach.

Blocking calls with no CLI

- 4.105 As we noted in the consultation, there may be some legitimate calls that enter the UK with no CLI as the number has been withheld by the caller and the originating network has removed the CLI as they were not confident that the privacy flag would be respected. In our consultation we said that that it was difficult to assess the extent of this issue in advance or quantify the potential harm to consumers, though we have no reason to expect it to be large. We acknowledge BT's comment that it may be difficult, particularly for

¹⁸⁵ [AB Handshake](#), Response to February 2022 Consultation.

¹⁸⁶ [Ofcom CLI and Scams Consumer Research 2022, Data Tables](#), table 49.

¹⁸⁷ [Sky](#), Response to February 2022 Consultation, page 2.

¹⁸⁸ [Annex 2: Guidance on the provision of Calling Line Identification facilities and other related services](#) ('the CLI guidance').

smaller providers, to establish a relationship with international partners to encourage them to retain the CLI data for such calls.¹⁸⁹

- 4.106 We also note BT's comment that, under the NICC's recommendations ND1016, only the Network Number is inserted, and this number is not displayed to the recipient of the call.¹⁹⁰ Under ND1016,¹⁹¹ calls without a valid Presentation Number should be blocked. Calls that have a valid Presentation Number but do not have a Network Number can be connected, but the network receiving the call into the UK network is expected to insert a number from the 08979 range as the Network Number. For calls that have a valid Presentation Number, but where the Network Number is invalid, under ND1016 the network receiving the call into the UK network is expected to block the call, although they have the option of connecting these calls temporarily while they investigate the CLI issue.
- 4.107 In light of these comments, we have modified the CLI guidance in paragraphs 4.17 and 4.18 to reflect in the recommendations in Section 6.5 of ND1016.

Impact of these measures

- 4.108 In our consultation, we explained that we did not think that this proposed change to the guidance would impose any significant costs on providers because providers should already be able to identify calls from international networks that have problematic CLIs, as they are already required to identify and label such calls. We did not receive any comments suggesting that this would cause difficulties for any provider who has an international gateway for calls entering the UK public network and it remains our view. We have modified the guidance to allow for calls with no CLI, in line with current industry guidance. We expect that many providers are already following the industry guidance and therefore will not incur additional costs. The risk of over-blocking legitimate calls should also be reduced.

Calls originating abroad that use a UK Network Number

- 4.109 There are two numbers associated with CLI data, the Presentation Number¹⁹² and the Network Number. The Network Number identifies the fixed ingress into the public network or a subscriber that has non-fixed access to the public network.

Our February proposals

- 4.110 In our February 2022 Consultation, we set out our proposal that providers should identify and block calls from abroad that use UK CLI as a Network Number, except in a limited

¹⁸⁹ [BT](#), Response to February 2022 Consultation, pages 4-5.

¹⁹⁰ [BT](#), Response to February 2022 Consultation, page 5.

¹⁹¹ NICC, June 2021. [ND1016, version 4.3.1 - Requirements on Communications Providers in relation to Customer Line Identification display services and other related services](#) ('ND1016').

¹⁹² The Presentation Number is a number nominated or provided by the caller that can identify the caller or be used to make a return or subsequent call.

number of legitimate use cases which were set out in the proposed guidance.¹⁹³ These were:

- UK mobile users roaming overseas making calls back to UK numbers;
- calls to a mobile user who is roaming in the UK;
- where the traffic has originated on a UK network; or
- where the traffic has originated from UK customers that are hosted on overseas nodes or cloud services.

4.111 We explained that providers have developed guidance on blocking inbound international calls with UK CLI as a Network Number via NICC, the industry standards body, in ND1447.¹⁹⁴

Consultation responses

4.112 Stop Scams UK, UKCTA and VMO2 supported this change.¹⁹⁵ BT explained that it could not identify a legitimate use case for non-UK originators to use a UK CLI, as networks that use a UK CLI as a Network Number are deemed to be a UK provider.¹⁹⁶ Vodafone supported the proposal but noted that the level of effort required to implement the change is significant, as it requires hundreds of thousands of lines of configuration on its international gateways to ensure calls from UK mobile users roaming abroad do not fail.¹⁹⁷ Although UKCTA supported the proposal, it noted that the exceptions add significant complexity and costs to building a blocking system and questioned the proportionality of the change.¹⁹⁸ It suggested that focusing on the DNO and protected number lists would be easier to implement and more productive.

4.113 1Route agreed with the proposal and suggested that it would encourage all providers to implement blocking mechanisms.¹⁹⁹ It asked Ofcom to consider calls originating in Jersey, as these would use CLIs that are similar to UK numbers and end users may not understand that the CLI is being used outside the UK.

4.114 Guernsey Competition and Regulatory Authority was concerned about the risk of calls from Guernsey number ranges being blocked because they do not fall into one of the legitimate use exceptions.²⁰⁰ Although calls from Guernsey number ranges will generally enter the UK network via national interconnects, it provided examples of calls which may enter via an international interconnect, such as where there is a fault with the national interconnect and the calls are temporarily routed over an international interconnect, calls originating in

¹⁹³ Ofcom, February 2022. [Draft guidance on the provision of Calling Line Identification facilities and other related services](#).

¹⁹⁴ NICC, April 2021. [ND1447, version 1.1.1. – Guidance on blocking of inbound international calls with UK Network Number as CLI](#) ('ND1447')

¹⁹⁵ [Stop Scams UK](#), [UKCTA](#) and [VMO2](#), Responses to February 2022 Consultation.

¹⁹⁶ [BT](#), Response to February 2022 Consultation, page 5.

¹⁹⁷ [Vodafone](#), Response to February 2022 Consultation, page 5.

¹⁹⁸ [UKCTA](#), Response to February 2022 Consultation, page 3.

¹⁹⁹ [1Route](#), Response to February 2022 Consultation, page 3.

²⁰⁰ Although not part of the UK and subject to their own regulation, there is an arrangement for the Crown Dependencies of Jersey, Guernsey and the Isle of Man to use numbers from the UK's +44 UK Country Code. Ofcom allocates numbers directly to providers that operate in the Channel Islands and Isle of Man.

Guernsey that are made to overseas numbers but which may transit via a UK international interconnect, and calls from mobile roaming subscribers.

- 4.115 [8<] noted that it is currently unable to distinguish between calls with UK CLI that have originated in the UK from those that originated outside the UK, as they could have identical signalling. Only the originating provider would have full certainty about the origin of the call. It added that traditional telecoms tools are typically designed to help providers screen their own CLIs and not CLIs from trusted partners.

Definition of a UK provider and who can use UK CLI

- 4.116 Comms Council UK said that there need to be more robust definitions of what constitutes a UK provider and a non-UK provider before this guidance can be applied.²⁰¹ It noted that a provider based in the UK may use equipment in off-shore locations and providers based off-shore may provide services to UK customers. Comms Council UK noted that ND1447 just creates a suggestion for providers at international gateways to have trusted and untrusted routes.²⁰²
- 4.117 Twilio noted that Ofcom permits providers to use geographic numbers out of the specified area, including outside of the UK.²⁰³ Therefore, the definition of a 'UK customer' who is hosted on an overseas node or cloud service should mean any customer who is legitimately allocated a UK number.

Calls with UK CLI as a Network Number that may be routed into the UK via an international gateway: proposed legitimate use cases

- 4.118 Magrathea suggested that it was unclear if it was mandatory to use the MSRN list²⁰⁴ to ensure that calls from UK mobile users roaming abroad are not blocked.²⁰⁵ It noted that the use and maintenance of such a list would be a significant overhead and sought assurance that the data is collected in a standard, simple way.
- 4.119 Which? asked Ofcom and industry to be transparent about how they intend to mitigate the challenge of blocking calls from roaming mobile users and UK call centres.²⁰⁶ It suggested that there could be an opportunity to establish a process for UK businesses with overseas call centres to register their numbers. This would allow providers to know that a particular foreign CLI and UK Presentation Number can be expected to appear alongside each other. Which? asked that businesses should be responsible for ensuring their calls can get through rather than having loopholes to manage this challenge, which could be abused by scammers.²⁰⁷

²⁰¹ [Comms Council UK](#), Response to February 2022 Consultation, page 2.

²⁰² [Comms Council UK](#), Response to February 2022 Consultation, page 3.

²⁰³ [Twilio](#), Response to February 2022 Consultation, page 2. Referring to Ofcom, April 2019. [Future of Telephone Numbers: First Consultation](#), paragraph 3.8.

²⁰⁴ The MSRN list is a list of numbers used by CPs to allocate to callers roaming in the UK. This is used to ensure that calls from UK numbers to those roaming in the UK are not blocked. See paragraph 4.143 for further information about the list.

²⁰⁵ [Magrathea](#), Response to February 2022 Consultation, page 2.

²⁰⁶ [Which?](#), Response to February 2022 Consultation, page 1.

²⁰⁷ [Which?](#), Response to February 2022 Consultation, page 1.

- 4.120 Simwood considered that it was impossible for any terminating provider to ascertain whether the calls they receive from abroad using UK CLI are legitimate or illegitimate.²⁰⁸ They noted however, that some providers have taken a blanket approach to blocking calls with UK numbers at international gateways, arguing that this has an effect on reducing the scale of the UK transit market to just UK operators and could potentially increase wholesale rates. They also noted a potential impact on competition, as major operators have already been found to have a monopoly in termination rates, referring to Ofcom's recent market review for wholesale call termination.

Calls with UK CLI as a Network Number that may be routed into the UK via an international gateway: other examples

- 4.121 Twilio agreed with the proposed exceptions.²⁰⁹ It asked for more clarity on how the exception for cloud services would work in practice. In particular it asked how an operator would be able to distinguish between a UK CLI as a Network Number that is legitimately used on a cloud service, and one that is not in use legitimately.
- 4.122 BT noted that, although it would be possible to use pre-agreed interconnects for the calls from abroad that use UK CLI, calls originating in the UK and routed outside the UK before being diverted back (in a practice called 'tromboning') would be at risk of being blocked.²¹⁰ This was because it was unlikely that providers would be able to use pre-agreed routes for all of these scenarios. [X], Comms Council UK and Simwood also raised concerns about the impact of this proposal on calls that originate in the UK and are diverted abroad before returning to the UK.²¹¹ Simwood explained that the 'tromboning' of traffic represents a competitive market and is a legitimate call scenario.²¹² [X] noted that tromboning is used in the corporate market for calls which are routed between customer contact centres located in different countries.
- 4.123 Comms Council UK and Simwood noted that a network may also operate in a failure state from outside the UK, when there is a fault within the UK network and the call is routed to a backup outside the UK.²¹³ This may result in calls being connected to a hosted PBX abroad, which then generates calls with UK CLI. Simwood added that, given these calls are made by a UK customer using their UK handset, they would consider it to be a lawful use of UK numbers.²¹⁴
- 4.124 Comms Council UK also noted a further use case, where a UK caller calls a number abroad and the call is forwarded to a UK number.²¹⁵ It noted that the guidance is unclear whether such a call has originated at the forwarding equipment and should have an international network number or should have the CLI data of the original caller.

²⁰⁸ [Simwood](#), Response to February 2022 Consultation, page 12.

²⁰⁹ [Twilio](#), Response to February 2022 Consultation, page 1.

²¹⁰ [BT](#), Response to February 2022 Consultation.

²¹¹ [X], [Comms Council UK](#) and [Simwood](#), Responses to February 2022 Consultation.

²¹² [Simwood](#), Response to February 2022 Consultation, page 12.

²¹³ [Comms Council UK](#) and [Simwood](#) Responses to February 2022 Consultation.

²¹⁴ [Simwood](#), Response to February 2022 Consultation, page 12.

²¹⁵ [Comms Council UK](#), Response to February 2022 Consultation, page 3.

- 4.125 1Route highlighted that calls originating outside the UK using UK CLI could be blocked through use of basic analytics.²¹⁶

Dispute resolution for over-blocking

- 4.126 Simwood also suggested changes to the dispute resolution process noted in Annex 2 of the CLI guidance.²¹⁷ It said any allegation of erroneous blocking of calls from abroad with UK CLI should be treated by the terminating or transit provider as if it were a priority 1 service affecting fault under its standard service level agreement with its own customers. It added that the guidance should ensure that if there is any doubt as to the legitimacy of the non-UK originated call, it should be connected. It said this would ensure that harm from erroneous blocking is mitigated by ensuring only those calls which a provider has investigated and determined to be illegitimate are blocked. It would also provide for a rapid restoration of service where erroneous blocking is causing harm.
- 4.127 Magrathea noted that the guidance states that dispute resolution should be managed in a timely fashion but that this can be open to interpretation.²¹⁸ It was concerned that there is the potential to cause serious harm if blocks are applied incorrectly and this is not resolved quickly. It requested tighter guidance in this area. Twilio also asked Ofcom to adopt a more robust and detailed dispute resolution process, referring to the approach taken in Australia.²¹⁹

Reliance on upstream providers

- 4.128 Vodafone noted that it is dependent on its upstream providers to correctly identify calls that originated in the UK.²²⁰ It said there would inevitably be cases both of legitimate calls being inadvertently blocked and some traffic that should be blocked leaking through.

Industry co-ordination

- 4.129 Vodafone suggested it was important that the major international gateway providers implement this change on an aligned timescale.²²¹ It said this would avoid upstream providers reacting to gateway providers' requests for changes at different times. It warned that meeting this requirement cannot be allowed to become an activity that distorts competition in the carriage of inbound international traffic.

Additional amendments

- 4.130 TalkTalk suggested that the requirement should be further extended to prevent spoofing of the Presentation Number by a caller from abroad.²²² It was concerned that the proposed drafting opened up a potential loophole for callers to use an international number as the Network Number alongside a UK CLI as the Presentation Number. It suggested that the exception for calls from UK customers hosted onto an overseas node should be limited to

²¹⁶ [1Route](#), Response to February 2022 Consultation, page 3.

²¹⁷ [Simwood](#), Response to February 2022 Consultation, page 12.

²¹⁸ [Magrathea](#), Response to February 2022 Consultation, page 2.

²¹⁹ [Twilio](#), Response to February 2022 Consultation, page 2.

²²⁰ [Vodafone](#), Response to February 2022 Consultation, page 5.

²²¹ [Vodafone](#), Response to February 2022 Consultation, page 5.

²²² [TalkTalk](#), Response to February 2022 Consultation, page 2.

call centres abroad who use CLI assigned to them by their chosen provider and for such calls to be directly routed to that UK provider. TalkTalk noted that, for resilience of the service, the call centre could still use an alternative provider, but then they should only be allowed to use telephone numbers allocated by that provider as CLI data.²²³ Without this, it thought that the changes proposed are unlikely to deliver on all the material benefits in the form of a reduction in scam calls or improved confidence in CLI.

Impact of this measure

- 4.131 BT doubted the implementation of this measure would reduce the number of harmful calls, as scammers can simply switch to spoofing non-UK CLIs or UK mobile numbers as Network Numbers, and continue to use UK Presentation Numbers.²²⁴ It also asked Ofcom to confirm that ND1447 blocking must be applied by all international gateway providers to all international calls where the destination is a UK number hosted on any provider network. [S] noted that the Network Number should never be presented, therefore consideration of a UK CLI as a Network Number is irrelevant in the decision process about the legitimacy of the call.
- 4.132 Comms Council UK said spam calls mainly originate abroad, but any action must be targeted, examined and subject to a test of proportionality that considers downsides.²²⁵ It explained that the decision to block international calls with UK CLI requires making a decision between preventing unwanted calls by raising barriers at international gateways, reducing the scale of the transit market, and blocking legitimate calls. It noted that, if Ofcom were proposing changes to the regulations, the issues would be subject to the more rigorous tests at section 47 of the Act.
- 4.133 [S] asked that the guidance be more specific about the number ranges that can be used as Network CLI in each of the permitted call cases. It also asked whether this rule was proportionate as the exceptions add complexity and cost to the development of a call routing engine and blocking functionality.
- 4.134 [S] confirmed that it has implemented ND1447 and is an active participant in the relevant NICC working groups.

Our decision

- 4.135 Having considered responses, we have decided to include in the CLI guidance that providers should identify and block calls from abroad with UK CLI as a Network Number, except in the legitimate use cases specified in the guidance. In response to stakeholder comments, we are clarifying that the exception for calls from UK mobile users roaming overseas means that calls with a CLI from the +447 range should not be blocked, in line with the industry recommendations in ND1447. The legitimate use case exceptions set out in paragraph 4.19 of the CLI guidance are:

²²³ [TalkTalk](#), Response to February 2022 Consultation, page 2.

²²⁴ [BT](#), Response to February 2022 Consultation, page 5.

²²⁵ [Comms Council UK](#), Response to February 2022 Consultation, page 3.

- UK mobile users roaming overseas making calls back to UK numbers, i.e. calls with a CLI from the +447 range;
- calls to a mobile user who is roaming in the UK;
- where the traffic has originated on a UK network; or
- where the traffic has originated from UK customers that are hosted on overseas nodes or cloud services.

4.136 We set out our reasoning below. We note that at least three providers have already implemented Network Number blocking, with at least one provider choosing also to block calls from abroad with UK CLI as a Presentation Number. We will monitor the impact of this blocking and start work on how to proactively address the risk of scammers modifying their tactics in future, with a view to consulting on blocking calls from abroad using UK CLI as a Presentation Number if appropriate. We are supportive of providers who choose also to block calls from abroad with UK CLI as a Presentation Number where they have evidence of misuse.

Ofcom assessment

4.137 We acknowledge UKCTA's suggestion that we should focus on the DNO list and protected number list rather than this type of blocking.²²⁶ However, we do not think use of these lists alone is sufficient to identify the calls with the most obviously spoofed numbers. The Network Number is meant to identify the fixed access ingress of a call or the subscriber or terminal that has non-fixed access. Therefore, calls that enter the UK from abroad with a UK CLI as a Network Number are likely to be spoofed where the call does not fall into one of the legitimate use case exceptions. Identifying and blocking these calls will help protect consumers from calls that seek to mislead the recipient about the source of the call.²²⁷

4.138 We note the concerns raised by stakeholders about identifying calls that can legitimately use UK CLI as a Network Number and ensuring these calls are not blocked. The specific use cases are discussed below. Calls that are being connected via UK national interconnects are not caught in scope of this amendment. We note that calls that originate in the UK and those that originate outside the UK may have identical signalling. However, we consider that providers who operate international gateways should be able to identify the routes that are connecting calls entering the UK from abroad.

Definition of UK provider and who can use UK CLI

4.139 We would expect the UK network that first receives calls from an international network to understand the types of calls that are connecting into their network, so that calls from organisations that can legitimately use a UK CLI as a Network Number are separated into a route that is not blocked and calls where the source of the call is unclear are separated into another route. The industry's guidance ND1447 sets out the expectation that providers receiving calls from international networks should be able to identify the calls which can

²²⁶ UKCTA, Response to February 2022 Consultation, page 3.

²²⁷ In Annex 3 we set out examples of similar measures adopted by other countries.

legitimately use UK CLI. As highlighted by Twilio, we have previously clarified that out of area use of geographic numbers is permitted.²²⁸

- 4.140 We acknowledge Comms Council UK's comment that providers will be required to define trusted and untrusted routes.²²⁹ We expect providers to be able to identify these routes based on the profile of calls they receive from the routes and their own analysis of sources of unwanted and scam calls. We are satisfied that there are processes that can be put in place for providers to identify calls within the legitimate use cases. Since implementing the blocking, BT said it has received very few complaints of calls from abroad with UK CLI that have been blocked in error, and TalkTalk said there have been limited instances of over-blocking and these can be rectified.²³⁰

Calls with UK CLI as a Network Number that may be routed into the UK via an international gateway: legitimate use cases

- 4.141 In our consultation, we proposed a number of exceptions to ensure that legitimate calls from abroad would not be blocked. We set out an exception for calls from UK customers hosted onto an overseas node, where this traffic should be routed over a pre-agreed interconnect.²³¹ We explained that callers from abroad could also continue to use a UK CLI as a Presentation Number provided that the Network Number identifies the source of the call, for example by using a number from the country where the call has originated.
- 4.142 We do not currently think it is necessary to manage a list of numbers that are used by UK businesses with overseas call centres, as there are other ways to ensure these calls are not blocked, such as connecting the calls directly into the UK public network. Neither do we think it is necessary to provide guidance on the number ranges that can be used in the permitted call cases as set out in paragraph 4.135. As noted in paragraph 4.139, the provider receiving these calls into the UK network should have an understanding of the types of calls that the international network is connecting. Alternatively, those who are making IP-based calls from abroad using a UK CLI as a Network Number can connect directly to a UK network so that these calls are not blocked at the international gateway.
- 4.143 Providers should use the MSRN list to ensure that calls to users roaming in the UK are not blocked. We have collected information on the number ranges that are used as MSRN numbers and do not expect this to change very often.²³²
- 4.144 We disagree with Simwood's view that the introduction of this type of blocking could reduce the scale of the UK transit market and have a potential impact on the competitiveness of the wholesale market.²³³ International networks can still connect their calls into the UK via an international gateway, however the changes in the CLI guidance

²²⁸ [Twilio](#), Response to February 2022 Consultation, page 2. Ofcom, March 2022. [Future of Telephone Numbers, Statement on geographic numbering](#), Section 3.

²²⁹ [Comms Council UK](#), Response to February 2022 Consultation, page 3.

²³⁰ BT and TalkTalk responses to Ofcom's request for information under s135 of the Act dated 12 October 2022.

²³¹ [Annex 2: Guidance on the provision of Calling Line Identification facilities and other related services](#).

²³² Providers can request access to the MSRN list by emailing siwg@ofcom.org.uk. Providers who have such numbers can also submit their number ranges for inclusion using the same email address.

²³³ [Simwood](#), Response to February 2022 Consultation, page 12.

require the provider bringing these calls into the UK network to identify the traffic that has originated on a UK network or has originated from UK customers and to ensure these calls are not blocked. Providers can still choose to use different transit providers so long as these transit providers are able to identify UK and non-UK originated calls.

Calls with UK CLI as a Network Number that may be routed into the UK via an international gateway: other examples

- 4.145 We note the comments about the impact on calls from cloud voice services which first connect to the public network in another country; the use of ‘tromboning’ to route calls from the UK back into the UK for more favourable rates; and where the backup node for a UK VoIP service may be located outside the UK. We consider that these calls fall within the legitimate use cases we proposed.
- 4.146 The proposed guidance included exceptions for traffic that originates on a UK network and traffic from UK customers that are hosted on an overseas node, as these are legitimate use cases that should not be blocked. Calls from cloud voice services which may first connect to the public network in another country, the ‘tromboning’ of calls out of the UK and back in via an international gateway and the use of a backup node for UK VoIP services are all examples of calls that have originated on a UK network or from an UK customer. As discussed above, the industry recommendation ND1447 notes that the receiving provider should segment traffic into UK originated and non-UK originated traffic to ensure that calls from UK users are not blocked. This may mean that the provider receiving the calls into the UK network needs to have a better understanding of the types of calls that enter its network via different routes. At the same time, it also requires providers who route UK originated calls out of the UK and back in again to work with their downstream partners to ensure that their calls are not blocked.
- 4.147 Most calls from the Crown Dependencies of Jersey, Guernsey and the Isle of Man using +44 numbers from the UK’s National Numbering Scheme will not be affected, as we understand that these calls enter the UK network via a national interconnect. There may be occasions when they enter via an international interconnect, for example where the call falls over to an international interconnect because of a fault with the national interconnect or an international call in transit to another destination. We would expect providers to also identify legitimate calls from Crown Dependency number ranges and ensure that these are not blocked. We note that our proposed exception for UK mobile users roaming overseas did not include calls from mobile users using Crown Dependency number ranges, who also use numbers from the +447 range. To ensure that calls from these users are not blocked, we have added a clarification to paragraph 4.19 of the CLI guidance that calls with a CLI from the +447 range should not be blocked, in line with the industry recommendations in ND1447.
- 4.148 We contacted a number of providers that offer cloud voice services or IP voice services. Some of these providers already route their calls that have UK CLI as a Network Number directly to a UK network, and therefore these calls would not be affected by this change. The providers that routed some calls with UK CLI as a Network Number via an international gateway already routed a significant proportion of their calls directly to a UK network, so

they had the technical capability to ensure that calls can be routed in such a way that they are not blocked at the international gateway.

- 4.149 In the scenario where a call from the UK to a number abroad is forwarded back into the UK, the signalling should identify the call as a forwarded call and therefore it should not be blocked.

Dispute resolution for over-blocking

- 4.150 There were a number of requests for further guidance on dispute resolution, if calls may have been blocked in error. We do not think that is necessary at this stage. However, we acknowledge the harm that can be caused if legitimate calls are blocked, and providers should work quickly to resolve any dispute. We remind providers that, as set out in paragraph A2.6 of the CLI guidance, they should publish a dispute resolution process on their website in a way that it is discoverable by other providers. As we noted above in paragraph 4.140, since implementing the blocking, BT said it has received very few complaints of calls from abroad with UK CLI that have been blocked in error, and TalkTalk said there have been limited instances of over-blocking and these can be rectified.²³⁴

Reliance on upstream providers and industry co-ordination

- 4.151 The UK network that first receives calls from an international network will be responsible for carrying out these checks. Once a call has entered the UK, other providers may not be aware that the call has entered a UK network from abroad. Therefore, we agree with Vodafone's comment that this process is dependent on upstream providers being able to identify calls that have originated in the UK.²³⁵
- 4.152 We also agree that this measure should be introduced at the same time by all relevant providers, so that calls that spoof UK CLI as a Network Number cannot find an alternative route into UK networks. Therefore, providers should introduce the measure by the date on which the changes to the CLI guidance have effect.

Impact of our proposal

- 4.153 We note responses from stakeholders on the effort required to implement this change and the potential impact of it. Providers may need to liaise with their international interconnecting partners to ensure that calls that have a legitimate reason to use a UK CLI as a Network Number can be routed through a recognised route and these calls are not blocked. In our consultation, we considered that these incremental costs are likely to be administrative and technical in nature and may involve both one off and ongoing costs. We note the responses from UKCTA, Vodafone, and [redacted] that this would require a significant change to build in the exceptions for blocking. However, given the potential harm caused by calls spoofing UK CLI from abroad, we think this change is still necessary to protect consumers from scam calls.²³⁶

²³⁴ BT and TalkTalk responses to Ofcom's request for information under s135 of the Act dated 12 October 2022.

²³⁵ [Vodafone](#), Response to February 2022 Consultation, page 5.

²³⁶ [UKCTA](#), [Vodafone](#), and [redacted], Responses to February 2022 Consultation.

- 4.154 Other than the exceptions for numbers that start with 07 and calls to numbers in the MSRN ranges, we are unable to provide further information about the number ranges that can be used as Network Numbers in the permitted exceptions as we do not hold this information.
- 4.155 As we set out in our consultation, we recognise that this measure will not completely stop scam and unwanted calls coming in from abroad, and scammers may move to spoofing other numbers such as UK mobile numbers. However, people are likely to expect established larger businesses and organisations such as banks and public bodies to call them from a geographic or non-geographic, fixed number rather than a mobile number and are less likely to trust calls from mobile numbers. Therefore, we believe that blocking calls that spoof a UK CLI as a Network Number should make it harder for those scammers to execute fraud involving the misrepresentation of a business.
- 4.156 Our consultation brought to light concerns that the measure could be circumvented by spoofing a different number as a Network Number and using UK CLI as a Presentation Number. Based on information provided by BT, we understand that nearly all calls with UK CLI entering BT's international gateways have the same CLI as Network Number and Presentation Number.²³⁷ Therefore, we have reason to believe that blocking calls with UK CLI as a Network Number will lead to fewer scam calls being connected and so reduce consumer harm in the immediate term. We agree with respondents that the circumvention identified is possible, and could potentially be implemented quickly, but we do not think that the risk of these measures becoming less effective over time is a reason to not introduce them in the first place, as each change incrementally disrupts scammers' ability to operate in the UK.
- 4.157 We are now considering how to proactively address the risk of scammers modifying their tactics in the future, with a view to consulting on blocking calls from abroad using UK CLI as a Presentation Number if appropriate. We will also monitor the impact of the blocking of calls from abroad with UK CLI that has already been implemented by some providers.
- 4.158 We note that at least three providers have already implemented Network Number blocking, with at least one provider choosing also to block calls from abroad with UK CLI as a Presentation Numbers. We are supportive of providers who choose also to block calls from abroad with UK CLI as a Presentation Number where they have evidence of misuse.

Other changes to the CLI guidance based on feedback from providers

- 4.159 We made several proposals following requests for clarification of other elements of the CLI guidance.

²³⁷ BT response to Ofcom's request for information under s135 of the Act dated 12 October 2022.

CLIs that generate an excessive or unexpected call charge

- 4.160 The CLI guidance currently states that the Presentation Number, i.e. the CLI which is displayed to the recipient of the call, “must not be a number that connects to a Premium Rate Service (e.g. prefixed 09), or a revenue sharing number that generates an excessive or unexpected call charge”. The intention of this requirement is that consumers should not incur unexpected call charges if they place a return or subsequent call to a number that has called them. We have received enquiries from providers as to what we mean by “an excessive” call charge.

Prohibition on the use of 09 non-geographic numbers

Our February proposals

- 4.161 In our February 2022 Consultation, we proposed to specify in our guidance that the prohibition applies to 09 non-geographic numbers only, i.e. numbers starting 090, 091 and 098. We noted that this is where there is the greatest scope for consumer harm from unexpected call charges, as the applicable Service Charge is currently set in the National Telephone Numbering Plan at a maximum of 300 pence per minute, where the Service Charge comprises or includes a pence per minute rate, or 500 pence per call where the Service Charge is set at a pence per call rate. We explained that this is significantly higher than the Service Charge set for 084 and 087 non-geographic numbers.²³⁸
- 4.162 We considered that the specification should help meet our objective of providing greater clarity to providers as to how to manage CLIs. It should therefore be beneficial to industry stakeholders. We noted that there would be no change for consumers as they should already not receive calls with 09 CLIs.
- 4.163 We expected that this clarification should not require any direct changes (technically or administratively) for providers and so did not expect it to result in any costs. We noted that the current CLI guidance already states that a Presentation Number must not be a number that connects to a Premium Rate Service (e.g. prefixed 09). We therefore expected that premium rate numbers starting 090, 091 and 098 should already not be used as Presentation Numbers.

Consultation responses

- 4.164 Stakeholders²³⁹ (1Route, Comms Council UK, Vodafone, VMO2) agreed with the proposal to clarify that numbers from the 09 range should not be used as Presentation Numbers, replacing the previous guidance on numbers that generate excessive call charges.

Ofcom assessment and decision

- 4.165 We did not receive any objections to this proposal and we will make this change to the CLI guidance for the reasons set out in the February 2022 Consultation.

²³⁸ Ofcom, [National Telephone Numbering Plan](#)

²³⁹ [1Route](#), [Comms Council UK](#), [Vodafone](#), and [VMO2](#), Responses to February 2022 Consultation.

Use of 084 and 087 non-geographic numbers as Presentation Numbers

- 4.166 Our February 2022 Consultation noted that, as part of our Future of Telephone Numbers Review, we are seeking further evidence to understand how 084 and 087 numbers are being used and their value to consumers.²⁴⁰ We explained that to inform the review and this consultation on the CLI guidance, we would like to explore the use of 084 and 087 numbers as Presentation Numbers, as well as the impact of potentially prohibiting that use.
- 4.167 We therefore invited stakeholders' views on the use of 084 and 087 numbers as Presentation Numbers, and any potential impact of prohibiting their use that may be proposed as part of any future consultation on updating the CLI guidance. However, we set out that, at this stage, 10- and 11-digit numbers, other than 09 non-geographic numbers, can continue to be used as Presentation Numbers.

Consultation responses

- 4.168 Magrathea, NTA, Telecom2, VMO2, and Vodafone said we should continue to allow use of 084 and 087 numbers as Presentation Numbers.²⁴¹ Telecom2 said the potential for consumer harm is overall very low.²⁴² VMO2 said there are legitimate benefits to 084 and 087 numbers.²⁴³ It said the numbers allow access to services that can afford to operate on a revenue-share basis. Comms Council UK noted there remains healthy demand for these numbers in the business market.²⁴⁴ Vodafone noted that businesses can use 03 numbers as an alternative to 084 and 087.²⁴⁵
- 4.169 Aloha Telecoms, one individual, Sky, TalkTalk, Three, and UKCTA said we should not allow the ongoing use of 084 and 087 numbers as Presentation Numbers.²⁴⁶ Aloha Telecoms said there are few 'bona fide' uses of 084 and 087 numbers.²⁴⁷ The individual respondent, Sky and TalkTalk said we should prohibit 084 and 087 numbers as they can incur high charges and not everyone is aware of this (risking customer 'bill shock').²⁴⁸ Three said that it does not use these numbers.²⁴⁹
- 4.170 TalkTalk said that all non-geographic numbers which attract an Access Charge (i.e. 084, 087, 09, 118) should be prohibited in a similar way to 09 numbers in terms of the rules on Presentation Numbers.²⁵⁰ Comms Council UK submitted that 'bill shock' is associated with the Access Charge associated with some non-geographic numbers, not the Service

²⁴⁰ Ofcom, April 2019. [Future of Telephone Numbers: First Consultation](#) and Ofcom, April 2021. [Future of Telephone Numbers: Second Consultation](#).

²⁴¹ [Magrathea](#), [NTA](#), [Telecom2](#), [VMO2](#) and [Vodafone](#), Responses to February 2022 Consultation.

²⁴² [Telecom2](#), Response to February 2022 Consultation, page 2.

²⁴³ [VMO2](#), Response to February 2022 Consultation, page 5.

²⁴⁴ [Comms Council UK](#), Response to February 2022 Consultation, page 4.

²⁴⁵ [Vodafone](#), Response to February 2022 Consultation, page 7.

²⁴⁶ [Aloha Telecoms](#), [Sky](#), [TalkTalk](#), [Three](#), and [UKCTA](#), Responses to February 2022 Consultation.

²⁴⁷ [Aloha Telecoms](#), Response to February 2022 Consultation, page 6.

²⁴⁸ [Sky](#) and [TalkTalk](#), Responses to February 2022 Consultation.

²⁴⁹ [Three](#), Response to February 2022 Consultation, page 2.

²⁵⁰ [TalkTalk](#), Response to February 2022 Consultation, page 3.

Charge.²⁵¹ It asked Ofcom to consider consulting on varying the rule on Presentation Numbers to all non-geographic numbers that incur an Access Charge, potentially in our Future of Telephone Numbers Review.

- 4.171 Colt said a table setting out which numbers can be used as Presentation Numbers would be helpful.²⁵²
- 4.172 TNS did not give a view but noted that in the US spoofing of non-geographic numbers is a problem, particularly toll-free numbers.²⁵³
- 4.173 Sky called on Ofcom to ban the use of premium rate numbers for Information, Connection and Signposting Services (ICSS)²⁵⁴ noting that consumers continue to be directly harmed by these services.²⁵⁵ It referred to UKCTA's response to Ofcom's consultation on the Phone-paid Services Authority (PSA)'s 15th Code of Practice, which stated that the only way to effectively protect consumers is to prohibit the use of premium rate numbers for ICSS.²⁵⁶

Ofcom response

- 4.174 We welcome the views provided on the use of 084 and 087 numbers as Presentation Numbers and will take these into account in our ongoing consideration of the future role of 084 and 087 numbers as part of the Future of Telephone Numbers Review. To confirm, 084 and 087 numbers may continue to be used as Presentation Numbers and any changes proposed would be subject to consultation.
- 4.175 We note Sky's comments on ICSS.²⁵⁷ The use of non-geographic numbers for these services has also been raised as a concern by some respondents to the Future of Telephone Numbers First Consultation and is being considered as part of our ongoing review.²⁵⁸

Use of non-geographic numbers as Network Numbers

Our February proposals

- 4.176 In 2019 we consulted on whether non-geographic numbers could be used as Network Numbers, following a request for clarification from a provider.²⁵⁹ At the time, we identified that some providers already use non-geographic numbers as Network Numbers and therefore published a clarification that the CLI guidance did not expressly preclude the use of non-geographic numbers as Network Numbers.²⁶⁰

²⁵¹ [Comms Council UK](#), Response to February 2022 Consultation, page 3.

²⁵² [Colt](#), Response to February 2022 Consultation, page 2.

²⁵³ [TNS](#), Response to February 2022 Consultation, page 4.

²⁵⁴ ICSS are services that provide advice or information about how to access or use public or commercial services; and/or connect or direct consumers to specific contact numbers or helplines that they are seeking, usually at a higher charge than calling direct. Ofcom, December 2018. [Review of the Premium Rate Services Condition](#).

²⁵⁵ [Sky](#), Response to February 2022 Consultation, page 3.

²⁵⁶ UKCTA, July 2021. [Response to the PSA's consultation on a new PSA Code of Practice \(Code 15\)](#).

²⁵⁷ [Sky](#), Response to February 2022 Consultation, page 3.

²⁵⁸ Ofcom, 2021. [Future of Telephone Numbers: Second Consultation](#), paragraph A3.7.

²⁵⁹ Ofcom 2019. [Consultation on the Calling Line Identification guidelines: a consultation on the types of numbers that can be used as Network Numbers](#).

²⁶⁰ Ofcom, April 2020. [Deferred final statement: consultation on the Calling Line Identification guidelines](#).

4.177 In our February 2022 Consultation, we proposed to add to the CLI guidance that, for calls that enter the network from a fixed access ingress, the Network Number should not be a non-geographic number, as this would not be associated with a particular fixed ingress. This would require providers to update CLI data for customers that are currently using a non-geographic number as a Network Number for such calls.

Consultation responses

4.178 There were differing views among stakeholders on this proposal. Sky, VMO2 and Vodafone agreed with this proposal and [X] noted that it does not allocate any non-geographic numbers to its customers.²⁶¹ Some stakeholders, including BT, UKCTA and Vodafone, agreed with the approach but queried whether some other number ranges, such as 03 or 05 numbers, could be used as Network Numbers.²⁶² Vodafone suggested that the guidance should be explicit about which number ranges should not be used as Network Numbers and also commented that, in cases of fixed-mobile convergence, it may be more appropriate to use an 07 number as a Network Number from a fixed line.²⁶³

4.179 A number of stakeholders disagreed with this proposal. Comms Council UK noted that, with the move towards IP networks, telephone numbers are losing their geographic significance.²⁶⁴ It also noted that many providers do not translate non-geographic numbers into a geographic number. Aloha Telecoms noted it has seen a greater use of non-geographic numbers as Network Numbers.²⁶⁵ It said that in some cases it may be more suitable to use a non-geographic number, for example on next generation voice services on IP that may not be made from a fixed location. It added that businesses may only want to use non-geographic numbers to provide greater flexibility. It also thought that in some cases the use of a non-geographic number as Network Number would act as a safety net to prompt for location information in emergency call scenarios. [X] noted a key new and growing use case, where a call originates on an application running on a laptop or similar device. It explained that these are considered as nomadic devices but not a mobile terminal or a fixed terminal. It considers use of a non-geographic number as a Network Number to be a legitimate use case.

Ofcom assessment and decision

4.180 We note stakeholder responses on the use of non-geographic numbers as Network Numbers, particularly on IP networks, and the requests for clarification of the number ranges which could be used under our proposal. It appears that there may be cases where a non-geographic number may be more suitable as a Network Number, for example calls

²⁶¹ [Sky](#), [VMO2](#) and [Vodafone](#), Responses to February 2022 Consultation.

²⁶² [BT](#), [UKCTA](#) and [Vodafone](#), Responses to February 2022 Consultation.

²⁶³ [Vodafone](#), Response to February 2022 Consultation, page 5.

²⁶⁴ [Comms Council UK](#), Response to February 2022 Consultation, page 4.

²⁶⁵ [Aloha Telecoms](#), Response to February 2022 Consultation, page 3.

that originate on an IP network. So that providers can continue to use non-geographic numbers for such calls, we will not take forward this proposal at this time.

Display name information

Our February proposals

- 4.181 In our February 2022 Consultation, we noted that in addition to the telephone number of the caller, some calling technologies, such as SIP, also permit the inclusion of an optional display name field. CLI data is defined in the GCs as *“the contents of all signalling messages which can be used between Communications Providers and/or between Communications Providers and End-Users to signal the origin of the call and/or the identity of the calling party, including any associated privacy markings.”* Hence, CLIs may include the display name information. We proposed to clarify in the CLI guidance that CLI data may also include an optional display name field.
- 4.182 We said that it was important that CLI data accurately identifies the caller. Therefore, we also proposed to state in the CLI guidance that display name information should not be displayed to the call recipient unless the provider is confident that it is accurate. As there is currently no set standard for the provision of display name information, we considered it unlikely that a provider would be confident of this information unless they are also the originating provider of the call, or they have a way to verify the information with the originating provider.

Consultation responses

- 4.183 Vodafone and [X] welcomed the clarification on display name information.²⁶⁶ BT suggested that the guidance should state that CLI data may also be present in a display name field.²⁶⁷ NTA noted that the inclusion of an optional name field may cause issues for networks, for example where the caller ID is provided in a different language.²⁶⁸
- 4.184 Neustar proposed technical solutions to aid the management of display names.²⁶⁹ It proposed that a federated database could be used for providers to validate display names. An alternative approach would be to leverage STIR with Rich Call Data, which cryptographically signs the CLI and the caller name. 1Route noted that the design of the system for sharing Caller ID should consider the use of UDP or TCP.²⁷⁰ As display names get longer, the data packets sharing this information will be fragmented and disrupt the call process if UDP is utilised. This may require changes to how this information is shared and potentially result in slower call set up and potential costs.

²⁶⁶ [Vodafone](#), Response to February 2022 Consultation, page 6.

²⁶⁷ BT, Response to February 2022 Consultation, [spreadsheet annex](#).

²⁶⁸ [National Telephone Assistance](#), Response to February 2022 Consultation, page 1.

²⁶⁹ [Neustar](#), Response to February 2022 Consultation, page 2.

²⁷⁰ [1Route](#), Response to February 2022 Consultation, page 3. TCP and UDP are protocols use for the transmission of data packets. TCP has error checking built into the protocol whereas UDP is designed to be faster but does not have error checking.

Ofcom assessment and decision

- 4.185 Having considered responses, we have decided to clarify in the CLI guidance that CLI data may also include an optional display name field. However, display name information should not be displayed to the call recipient unless the provider is confident that it is accurate. This clarification is intended to help providers understand what information can be displayed, and that display name information should not be displayed unless the provider is confident that it contains accurate information. For example, this could mean that display name information could be displayed in calls which are routed completely within a provider's own network, where it trusts the caller who has provided this information.
- 4.186 Display name information is not commonly used for calls in the UK and there is no requirement for the provision of this information with a call. We do not currently expect it to be used between networks and we consider there is a low risk of it causing an issue for networks. Therefore, we do not currently intend to set out technical requirements for the format, sharing or verification of display name information. However, if there is a desire to use display name information between networks, we would encourage industry to work together through a suitable forum, such as the NICC, to ensure that it is exchanged accurately and its format does not create issues for UK networks. We note that there is ongoing discussion in the IETF²⁷¹ to extend the PASSporT token,²⁷² which can convey cryptographically signed call information, to include additional information about the caller.²⁷³
- 4.187 We disagree with BT's suggestion that the CLI guidance should state that CLI data may be present in a display name field.²⁷⁴ CLI data is defined as the contents of all signalling messages used between providers and/or between providers and end-users to signal the origin of the call and/or the identity of the calling party. Therefore, display name information is a subset of the information that can be provided about a caller. However, GC C6 only requires that CLI data provided with a call includes a valid, dialable Telephone Number which uniquely identifies the caller.

Other stakeholder comments

- 4.188 A number of stakeholders made additional comments that did not relate directly to our February 2022 proposals.

²⁷¹ The Internet Engineering Task Force.

²⁷² PASSporT is a Personal Assertion Token, as defined in [IETF RFC 8225](#).

²⁷³ Internet Engineering Task Force (IETF), October 2022. [Draft recommendation PASSporT Extension for Rich Call Data](#). ATIS, the standards body for providers in the US have also developed a specification for the authentication of calling name data, based on the IETF recommendations. [Signature-based Handling of Asserted information using toKENS \(SHAKEN\): Calling Name and Rich Call Data Handling Procedures](#).

²⁷⁴ BT, Response to February 2022 Consultation, [spreadsheet annex](#).

Consultation responses

- 4.189 BT proposed alternative drafting for paragraph 5.6 of the CLI guidance to specify that for a Presentation Number to be dialable, it must be from a valid range, uniquely identify the caller and not be an 09 number.²⁷⁵
- 4.190 [3<] noted that Connected Line Identity (COL) is a service that related to legacy IDSN based networks, adding that, although NICC ND1016 v4.3.1 details COL, NICC ND1439 v4.2.1 (the guidance for SIP networks) has COL out of scope. It asked if COL should be removed from the guidance.
- 4.191 Aloha Telecoms noted that, given the use cases are changing, it may be worthwhile to review the different types of Presentation Number set out in the CLI guidance to confirm whether they are still appropriate.²⁷⁶ Vodafone also suggested that Ofcom should review the Presentation Number types.²⁷⁷ It noted that, with the introduction of SIP signalling, there is no distinction between the different types but just technical differences between whether each type is screened. It thought that the existing definitions can lead to confusion when communicating with customers and that there may be merit in replacing these definitions with a decision tree that specifies the contractual clauses that a customer must sign up to and the contractual information that must be provided.
- 4.192 Simwood was concerned that, although the evidence in the policy positioning statement also related to scam text messages, none of the proposed interventions addresses the harm caused by malicious actors spoofing SMS Sender ID.²⁷⁸

Ofcom response

- 4.193 We disagree with BT's suggested redrafting of the requirements for a Presentation Number.²⁷⁹ Each of the requirements in paragraph 5.6 of the CLI guidance is distinct and so the current drafting is appropriate.²⁸⁰
- 4.194 [3<] and Aloha Telecoms identified further areas of the CLI guidance that may need revising due to technical developments.²⁸¹ We will consider these points and may consult on further proposed changes to the CLI guidance in the future.
- 4.195 Regarding Simwood's comments on the need to protect SMS Sender ID, we note the existing 'SMS Phishguard' initiative launched in 2018 by mobile providers through Mobile UK and the Mobile Ecosystem Forum (MEF),²⁸² and supported by Ofcom. We discuss the initiative further in our policy positioning statement and welcome reports that it has

²⁷⁵ BT, Response to February 2022 Consultation, [spreadsheet annex](#).

²⁷⁶ [Aloha Telecoms](#), Response to February 2022 Consultation, page 2.

²⁷⁷ [Vodafone](#), Response to February 2022 Consultation, page 6.

²⁷⁸ [Simwood](#), Response to February 2022 Consultation, page 10.

²⁷⁹ BT, Response to February 2022 Consultation, [spreadsheet annex](#).

²⁸⁰ [Annex 2: Guidance on the provision of Calling Line Identification facilities and other related services](#) ('the CLI guidance').

²⁸¹ [3<] and [Aloha Telecoms](#), Responses to February 2022 Consultation.

²⁸² Mobile UK is the trade association for the UK's mobile network operators: EE, O2, Three and Vodafone. The Mobile Ecosystem Forum (MEF) is a global trade body that addresses issues affecting the broader mobile ecosystem.

resulted in a significant number of header variants being blocked.²⁸³ We welcome industry's other initiatives to tackle scam texts such as implementing SMS filters, responding to reports to the number '7726', volume controls on the number of texts that can be sent in a specified time period and limiting the number of SIM cards that can be sold per transaction via online retailers.²⁸⁴ We recognise that risks of consumer harm remain from scam texts, and that scammers will continue to adapt their techniques. We will therefore closely monitor the nature of the problem and the effectiveness of industry's initiatives.

Proposed implementation date

- 4.196 We set out our proposal, consultation responses and our decision on the implementation date for changes to the CLI guidance in Section 3.

²⁸³ MEF reported in 2021 that there were more than 70 bank and government brands being protected by the registry, with over 1,500 unauthorised variants being blocked, including 300 sender IDs relating to the Government's Covid-19 campaign. See Mobile Ecosystem Forum, 2021. [Reduce the impact of Smishing & Spoofing by SMS through industry collaboration](#)

²⁸⁴ Ofcom, February 2022. [Tackling scam calls and texts: Ofcom's role and approach.](#)

A1. Notification modifying General Condition C6

Notification of Ofcom’s decision to modify General Condition C6 under section 48(1) of the Communications Act 2003 (“the Act”)

Background

- A1.1 On 23 February 2022, Ofcom published a notification pursuant to sections 48(1) and 48A(3) of the Act, proposing to modify General Condition C6.
- A1.2 Ofcom proposed that the modification would enter into force on the date specified in the final notification relating to the proposal.
- A1.3 Ofcom’s reasons for making the proposal and the effect of the proposal were set out in the accompanying consultation document.²⁸⁵
- A1.4 Ofcom invited representations about the proposal by 20 April 2022.
- A1.5 A copy of the notification was sent to the Secretary of State in accordance with section 48C(1) of the Act.
- A1.6 By virtue of section 48A(6) and (7) of the Act, Ofcom may give effect to the proposal, with or without modification, only if –
- a) they have considered every representation about the proposal made to them within the period specified in the notification; and
 - b) they have had regard to every international obligation of the United Kingdom (if any) which has been notified to them for this purpose by the Secretary of State.
- A1.7 Ofcom received responses to the notification and has considered every such representation made to them in respect of the proposal set out in the notification (and the accompanying consultation document).
- A1.8 The Secretary of State did not notify Ofcom of any international obligation of the United Kingdom for the purpose of section 48A(6) of the Act.

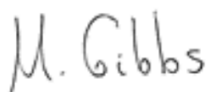
Decision

- A1.9 In accordance with sections 45 and 48(1) of the Act, Ofcom have decided to modify General Condition C6. The modification is set out in a Schedule to this notification.
- A1.10 The modified General Condition C6 shall enter into force on 15 May 2023.
- A1.11 Ofcom’s reasons for reaching this decision, and the effect of the decision, are set out in the explanatory statement accompanying this notification.

²⁸⁵ Ofcom, February 2022. [Consultation: Improving the accuracy of Calling Line Identification \(CLI\) data](#).

- A1.12 Ofcom consider that they have complied with the requirements of sections 45 to 49C of the Act, insofar as they are applicable.
- A1.13 Ofcom have considered and acted in accordance with their general duties under section 3 of the Act and the six requirements set out in section 4 of the Act. Ofcom have also had regard to the Statement of Strategic Priorities in making the decision referred to in this notification.
- A1.14 A copy of this notification and the accompanying explanatory statement have been sent to the Secretary of State in accordance with section 48C(1) of the Act.
- A1.15 In this Notification:
- a) 'the Act' means the Communications Act 2003;
 - b) 'General Conditions of Entitlement' or 'General Conditions' means the general conditions set by Ofcom under section 45 of the Act on 19 September 2017, as amended or replaced from time to time;
 - c) 'Ofcom' means the Office of Communications;
 - d) 'Statement of Strategic Priorities' means the Statement of Strategic Priorities for telecommunications, the management of radio spectrum, and postal services designated by the Secretary of State for Digital, Culture, Media and Sport for the purposes of section 2A of the Communications Act 2003 on 29 October 2019.
- A1.16 Words or expressions shall have the meaning assigned to them in this notification, and otherwise any word or expression shall have the same meaning as it has in the Act.
- A1.17 For the purposes of interpreting this notification: (i) headings and titles shall be disregarded; and (ii) the Interpretation Act 1978 shall apply as if this notification were an Act of Parliament.
- A1.18 The Schedule to this notification shall form part of this notification.

Signed by



Marina Gibbs

Director, Policy, Networks & Communications Group

A person authorised by Ofcom under paragraph 18 of the Schedule to the Office of Communications Act 2002

15 November 2022

Schedule: Modification to the General Conditions of Entitlement C6

The modification that Ofcom has decided to make to General Condition C6 is shown below.

Current GC C6.6	Modified GC C6.6
<p>Where technically feasible, Regulated Providers must:</p> <ul style="list-style-type: none">a) take all reasonable steps to identify calls, other than calls to Emergency Organisations, in relation to which invalid or non-dialable CLI Data is provided; andb) prevent those calls from being connected to the called party, where such calls are identified.	<p>Where technically feasible, Regulated Providers must:</p> <ul style="list-style-type: none">a) take all reasonable steps to identify calls, other than calls to Emergency Organisations, in relation to which the CLI Data provided is invalid, does not uniquely identify the caller, or does not contain a Telephone Number that is dialable; andb) prevent those calls from being connected to the called party, where such calls are identified.

A2. The revised CLI guidance

- A2.1 The revised CLI guidance can be found here: [Annex 2: Guidance on the provision of Calling Line Identification facilities and other related services](#)

A3. Further background on improving CLI data and blocking scam calls from abroad

Ofcom's previous work to improve CLI data

Introduction of GC C6 and consultation on CLI guidance

- A3.1 As part of our 2017 review of the GCs, we introduced GC C6. This included requirements for providers to:
- a) provide CLI facilities by default;
 - b) ensure that any CLI data provided with, or associated with a call, includes a valid, dialable telephone number which uniquely identifies the caller; and
 - c) take all reasonable steps to identify and block calls in relation to which invalid or non-dialable CLI data is provided.²⁸⁶
- A3.2 At the same time, we consulted on revised guidance for the provision of CLI data.²⁸⁷ We subsequently published guidance ('CLI guidance') for providers on our GC C6 requirements, clarifying the meaning of valid and dialable CLI for originating, transit and terminating providers in terms of the technical capabilities then available, and setting out that:²⁸⁸
- d) Originating providers are responsible for ensuring that accurate CLI data is provided with a call. Transit and terminating providers are expected to check that the number provided with a call is from a valid number range.
 - e) For calls that originate on a network outside the scope of our requirements (e.g. calls to or from providers not in the UK, or calls that may use the public network in transit), the provider at the first point of ingress is responsible for ensuring that the call is populated with valid CLI data, replacing the information with a number that has been allocated to them for this purpose where the original number is not valid or is missing.
- A3.3 The revised guidance clarified the options available to providers to prevent calls with invalid or non-dialable CLI from being connected to the end user. To support the guidance, we made numbers in the 08979 range available for providers to use as inserted Network Numbers for CLI purposes, where no number was present or they suspected that the incoming CLI was not reliable.²⁸⁹

²⁸⁶ Ofcom, September 2017. [Review of the General Conditions of Entitlement: Statement and Consultation](#), paragraphs 13.90-13.91.

²⁸⁷ Ofcom, September 2017. [Guidelines for CLI Facilities: a consultation on revising the guidance for the provision of Calling Line Identification information](#).

²⁸⁸ Ofcom, April 2018. [A statement on revising the guidance on the provision of Calling Line Identification facilities](#).

²⁸⁹ By inserting an 11-digit 08979 Network Number in place of an absent or unreliable Network Number, the provider made clear to other providers that the Network Number has been inserted. The UK provider that inserted the Network Number can be identified by the two digits that follow 08979. Initial call tracing enquiries can then be directed to that provider, thus accelerating the call tracing process.

Amendments to ensure that emergency calls are not blocked

A3.4 In 2018, we made an amendment to GC C6 in order to ensure that calls to the emergency services are never blocked, regardless of the validity of the CLI data provided with the call. We made some amendments to the CLI guidance to reflect the change.²⁹⁰

Further consultation on CLI guidance

A3.5 In November 2019, we consulted on adding a new paragraph to the CLI guidance on GC C6 to clarify that any type of Public Communications Network Number may be used as the Network Number provided that:

- a) the use of that number is not in breach of any restriction or requirement set out in the National Telephone Numbering Plan;
- b) it is not a number that connects to a premium rate service (e.g. prefixed 09) or to a revenue sharing number that generates an excessive or unexpected call charge; and
- c) the relevant provider complies with its obligations under GC A3 in relation to the provision of accurate caller location information to the emergency services for calls to “112” and “999.”²⁹¹

A3.6 In response, stakeholders raised a number of additional queries which required further consideration. At the time, we deferred the final statement on the changes until we could appropriately consider and consult on the issues that were raised. Those issues were included in the February 2022 Consultation.

Other countries’ steps to disrupt scams calls from abroad

A3.7 A number of other countries’ governments, regulators and industry bodies have recently implemented changes aimed at identifying and blocking calls from abroad with a domestic CLI.

A3.8 The French government has introduced requirements for providers to block calls with a French CLI from abroad (with some legitimate use exceptions for international roaming, certain toll-free numbers, or where providers can guarantee the caller had been assigned the number).²⁹² Australian industry guidance advises providers to block international calls with Australian numbers, unless exceptions apply, or no CLI.²⁹³ In 2022, the Finnish regulator announced new obligations on its providers to block calls from abroad spoofing Finnish telephone numbers, with a requirement to block international calls with a Finnish fixed number as CLI from 1 July 2022. From October 2023 providers must block calls

²⁹⁰ Ofcom, July 2018. [Statement on changes to the General Conditions on Entitlement: Changes to General Condition C6, other minor drafting changes and changes to the guidance on the Calling Line Identification facilities.](#)

²⁹¹ Ofcom, November 2019. [Consultation on the Calling Line Identification guidelines: A consultation on the types of numbers that can be used as Network numbers.](#)

²⁹² Légifrance, 17 November 2021. Article L44 V: [Code des postes et des communications électronique.](#)

²⁹³ Communications Alliance, July 2022. [Industry Code: C661:2022: Reducing Scam Calls and Scam SMS](#)

arriving at an international gateway with a Finnish mobile number as CLI if that customer is not roaming.²⁹⁴

- A3.9 In 2021, the German regulator announced rules for providers to identify calls from abroad that use German CLIs, and to stop such numbers from being displayed (with exceptions for mobile numbers).²⁹⁵

²⁹⁴ Traficom, June 2022. '[Traficom and Finnish telecommunications operators join forces to help customers by stopping caller ID spoofing](#)'.

²⁹⁵ Bundesnetzagentur, 2021. '[Manipulation of phone numbers](#)'.

A4. Glossary and abbreviations

Allocate (in relation to phone numbers): in this statement and the CLI guidance, 'allocate' means allocation of numbers by Ofcom or sub-allocation of numbers by a provider to other providers or resellers.

Assigned (in relation to phone numbers): where numbers are transferred to end users, i.e. individuals and businesses.

Calling Line Identification (CLI): means data that enables identification of the number from which a call could be made or to which a return call could be made.

CLI authentication: implementation of standards that make it possible for the network originating a call to confirm the caller's authenticity before passing it to the network of the person receiving the call.

CLI data: means the contents of all signalling messages which can be used between communication providers and/or between communications providers and End-Users to signal the origin of the call and/or the identity of the calling party, including any associated privacy markings.

Do not originate (DNO) list: a list, set up by Ofcom and UK Finance, of certain telephone numbers used only for inbound calls that would not be used to call consumers.

End user: is defined in the General Conditions and means in relation to a Public Electronic Communications Service or Bundle: (a) a person who, otherwise than as a Communications Provider, is a Customer of the provider of that service or Bundle; (b) a person who makes use of the service or Bundle otherwise than as a Communications Provider; or (c) a person who may be authorised, by a person falling within paragraph (a), so to make use of the service or Bundle.

General Conditions (GCs): conditions set by Ofcom under section 45 of the Communications Act 2003.

Geographic number: a telephone number that is identified with a particular geographic area.

Impersonation scams: where scammers claim to be from legitimate organisations to try to trick people into giving away personal details or making a payment.

Network number: a telephone number that unambiguously identifies the line identity of the fixed access ingress to or egress from a Public Electronic Communications Network or a subscriber or terminal/telephone that has non-fixed access to a Public Electronic Communications Network.

Non-geographic number: any telephone number other than a geographic number

Presentation number: a number nominated or provided by the caller that can identify that caller or be used to make a return or subsequent call. It may not necessarily identify the line identity of the geographic source of the call.

Provider: communications provider, defined in section 405(1) of the Communications Act 2003 as meaning a person who (within the meaning of section 32(4)) provides an electronic communications network or an electronic communications service. See Section 3 on the scope of GC C6.

Scam calls and texts: calls and texts primarily aimed at defrauding consumers, either by tricking them into revealing personal details or into making a payment.

Spoofing: where callers hide their identity by causing a false or invalid phone number to be displayed when making calls. Those making such calls will create a phone number that appears like a phone number or may even mimic the number of a real company or person who has nothing to do with the actual caller.

Unwanted calls: calls that consumers do not want to receive. These can range from nuisance calls, through to scams.